16 July 2021

State of Louisiana
Coastal Protection and Restoration Authority
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Ladies and Gentlemen:

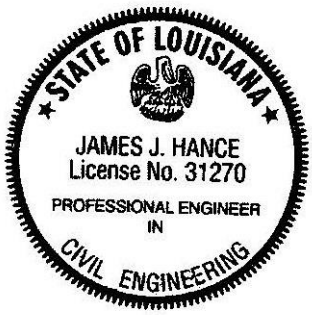
Geotechnical Engineering Report
State of Louisiana
Coastal Protection and Restoration Authority (CPRA)
Grande Bayou Ridge and Marsh Restoration
Plaquemines Parish, Louisiana
CPRA Contract No. 4400015385
CPRA Project No. BA-0217, Task No. 3
Eustis Engineering Project No. 24365

Transmitted is an electronic copy of our engineering report covering a geotechnical exploration for the subject project. Hard copies are available upon request.

Thank you for asking us to perform these services.

Yours very truly,

EUSTIS ENGINEERING L.L.C.



JAMES J. HANCE, P.E.

H.C. Worley:cjc/lal

GEOTECHNICAL ENGINEERING REPORT

STATE OF LOUISIANA

COASTAL PROTECTION AND RESTORATION AUTHORITY

GRAND BAYOU RIDGE AND MARSH RESTORATION

PLAQUEMINES PARISH, LOUISIANA

CPRA CONTRACT NO. 4400015385

CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING PROJECT NO. 24365

FOR
STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
BATON ROUGE, LOUISIANA

By
Eustis Engineering L.L.C.
Metairie, Louisiana

16 JULY 2021

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STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
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INTRODUCTION

1. This geotechnical engineering report contains the results of geotechnical analyses performed for the proposed Grand Bayou Ridge and Marsh Restoration (BA-0217) project in Plaquemines Parish, Louisiana. The project is located west of the Mississippi River near West Pointe à la Hache. Our geotechnical services for the project were performed in accordance with our revised proposal, dated 20 April 2020, and under the State of Louisiana, Coastal Protection and Restoration Authority (CPRA) Contract No. 4400015385, Task No. 3 entitled "Geotechnical Services for Coastal Restoration Projects". Authorization to proceed was provided via a notice to proceed letter dated 20 April 2020. CPRA is the owner and design engineer for the project.

2. This geotechnical engineering report (GER) is based on data presented in two geotechnical data reports (GDR). The GDR for the Mississippi River borrow material was presented in our report entitled, "Geotechnical Data Report, State of Louisiana, Coastal Protection and Restoration Authority, Grande Cheniere Ridge Marsh Creation Project,

Mississippi River Miles 45 through 48 and 49 through 52, Plaquemines Parish, Louisiana, CPRA Contract No. 4400015385, Eustis Engineering Project No. 24272," dated 14 May 2021. The GDR for the marsh creation area was presented in our report entitled, "Geotechnical Data Report, State of Louisiana, Coastal Protection and Restoration Authority, Grand Bayou Ridge and Marsh Restoration, Plaquemines Parish, Louisiana, CPRA Project No. BA-0217, CPRA Contract No. 4400015385, Task No. 3, Eustis Engineering Project No. 24365," dated 14 June 2021.

PURPOSE

3. The purpose of the project is to create 425 acres of marsh by hydraulically dredging material from a Mississippi River borrow source. In addition, 10,675 linear feet of coastal habitat will be restored by hydraulically dredging material from a Mississippi River borrow source and/or by using in situ borrow material or by a mixture of both. Significant marsh loss has occurred in this area with the construction of numerous oil and gas canals, subsidence, and sediment deprivation. The marsh creation areas (MCA) will be formed by constructing earthen containment dikes around the boundaries of each proposed area using material excavated from adjacent borrow canals. Refer to Figure 1 for the various project features.

PREVIOUS GEOTECHNICAL EXPLORATIONS

4. Eustis Engineering L.L.C. (Eustis Engineering) completed three geotechnical explorations in the area. These include:

- "Geotechnical Investigation, State of Louisiana, Lake Hermitage Marsh Creation Project (BA-42), Plaquemines Parish, Louisiana, Contract No. 2503-05-46, Eustis Engineering Project No. 19666", dated 1 October 2007;

- "Final Geotechnical Design Report, State of Louisiana, Coastal Protection and Restoration Authority, Bayou Grande Cheniere Marsh Creation and Ridge Restoration Project (BA-173), Plaquemines Parish, Louisiana, Eustis Engineering Project No. 22641", dated 21 December 2015; and

- "State of Louisiana, Coastal Protection and Restoration Authority (CPRA), Grande Cheniere Ridge Marsh Creation Area, Plaquemines Parish, Louisiana, CPRA Contract No. 4400015385, CPRA Project No. BA-0240, Task No. 2, Purchase Order No. 2000490538, Eustis Engineering Project No. 24364", dated 21 May 2021.

SCOPE

5. Our engineering scope includes evaluation of the marsh creation fill areas, earthen containment dikes design recommendations, and ridge design recommendations. Our design recommendations are based on engineering analyses of settlement and slope stability for the various proposed features. Our scope also included an evaluation of earthen terraces; however, this was eliminated from the scope at the direction of CPRA. Engineering analyses were performed using soil boring and laboratory test data from the current exploration. We also provide recommendations regarding site preparation and general construction recommendations relevant to our geotechnical design.

6. CPRA Comments. CPRA provided comments on our draft report in a spreadsheet dated 16 July 2021. These comments have been addressed in this report. CPRA's comments are provided with other furnished information in Appendix I.

7. Marsh Creation Fill Area Design. Our engineering analyses of the marsh creation fill area included settlement estimates and settlement curves for furnished marsh fill elevations which project settlement over the 20-year project life. We considered the combined effects of settlement of the subsurface (foundation) soils, self-weight consolidation of the dredged fill material, and subsidence.

8. Earthen Containment Dikes Design. Our scope for the earthen containment dikes included slope stability analyses with and without marsh fill to evaluate the geometry required for stable dike configuration (construction elevation, acceptable side slopes, and acceptable crown width) and geotextile requirements (if any); estimates of dike fill consolidation during construction; construction sequencing recommendations; and bearing capacity assessment.

9. Ridge Design. Our scope for the earthen ridge included slope stability analyses with and without marsh fill to evaluate the furnished geometry (construction elevation, side slopes, and crown width) and geotextile requirements (if any); estimates of ridge fill consolidation during construction; development of settlement estimates; construction sequencing recommendations; and bearing capacity assessment.

GEOTECHNICAL DATA REPORTS

10. Please refer to our GDRs dated 14 May 2021 and 14 June 2021 for discussion pertaining to our field exploration, soil boring logs, cone penetration test (CPT) logs, and detailed

laboratory test data results. Also included in these reports were the magnetometer survey data; description of site conditions, which included geology, stratigraphy, and water levels; subsurface profiles; and preliminary soil design parameters.

SOIL DESIGN PARAMETERS

11. The soil design parameters developed for Cell 1, which includes MCA-1 and the associated earthen containment dike area, Cell 2, which includes MCA-2 and the associated earthen containment dike area, and the ridge, are shown graphically in Figures 2, 3, and 4, respectively. The undrained shear strengths, total unit weights, natural moisture contents, and generalized soil strata descriptions are plotted on Sheet 1 for each figure. Compression Ratios (CR), Overconsolidation Ratios (OCR), total unit weights, natural moisture contents, and generalized soil strata descriptions are plotted on Sheet 2 for each figure.

12. CR values for soils with a moisture content below 100% were determined using a correlation between moisture content and CR from consolidation tests for BA-173, BA-217, and BA-240. This correlation is plotted on Figure 5. Recompression ratios (RR) were assumed as 15% of CR values.

13. Coefficient of Vertical Consolidation (Cv). As described in the Coastal Protection and Restoration Authority's Marsh Creation Design Guidelines (MCDG.V1), dated 15 November 2017, we originally used the Naval Facilities Engineering Command Design Manual 7.01 Figure B-4 to estimate the Cv value based on the soil's liquid limit for the marsh foundation. However, we found these values to be too low as approximately only 50% of settlement had occurred at the end of the 20-year design life. Therefore, for clay and silty clay, we used a Cv value of 110 ft^2/yr., which we consider to be more reasonable

for soils in southern Louisiana. For silts, we used a Cv value of 1,000 ft^2/yr. The Cv value for the upper layer of peat and organic clays assumed the settlement in that layer will occur almost instantaneously similar to a mudwave. Using these Cv values, approximately 80% of settlement occurs during the 20-year design life, which we believe is more reasonable based on our experience and past discussions with CPRA.

GEOTECHNICAL DESIGN CRITERIA

14. The project design criteria used in the geotechnical analyses are described in MCDG.V1. The design guideline requirements for factors of safety with regards to dike stability are summarized in Table 1. In accordance with the design guidelines, the use of the optimization routine and tension cracks in Spencer's Method are required. Mudlines analyzed were furnished by CPRA.

TABLE 1: GEOTECHNICAL DESIGN CRITERIA FOR EARTHEN CONTAINMENT DIKE USING SPENCER'S METHOD WITH OPTIMIZATION ROUTINE

DIRECTION OF ANALYSES	WATER LEVEL		MINIMUM REQUIRED FACTOR OF SAFETY	CONDITIONS
	OPEN WATER SIDE	MARSH CREATION SIDE		
Toward Marsh Creation Side	MHW	MLW	1.20	During ECD Borrow Excavation (Global Stability Check)
Toward Marsh Creation Side	MLW	MLW	1.20	During ECD Borrow Excavation with Distributed Load from Excavation Equipment (Local Stability Check)
Toward Open Water Side	MLW	MLW	1.20	After Placement of Dredged Material (Global Stability Check)

FURNISHED INFORMATION

15. CPRA provided the following parameters for the project: containment dike geometry and mudlines for each cell; ridge geometry and mudlines; marsh creation cell fill heights and mudlines; and the 20% (el 0.71 NAVD 88) and 80% (el 1.56) inundation levels at the end of the 20-year design life of the project and a subsidence rate of 6.4 mm/yr (0.25 in/yr). The goal for the marsh creation areas is that the top of fill elevation should remain between the 80% and 20% inundation water elevations for a substantial portion of the 20-year project life. The furnished information is presented in Appendix I. Cells 2 and 3 included in the furnished information have been combined to form one cell, Cell 2.

16. Approximate cell sizes of 135 acres for Cell 1 and 290 acres for Cell 2 were estimated from a furnished kmz file by CPRA entitled, “BA-0217 Preferred Alternative”.

FOUNDATION ANALYSES

17. Our recommendations for the proposed project features are based on our findings from the GDRs and the soil design parameters we developed, furnished information from CPRA, and our conversations with CPRA.

General Methodology and Assumptions

18. We provide a summary of general assumptions and methodologies consistent across project features herein. Project feature specific assumptions, analyses, geometric considerations, and results are provided in the subsequent sections.

19. A portion of the settlement of the proposed features for this project will occur due to consolidation of the foundation soils. These features include the earthen containment dikes, ridge segments, and the marsh creation areas. The near surface soils at the site are predominantly organic clays/peat/hummus underlain primarily by soft and fine-grained clays. Therefore, we expect significant initial consolidation of the foundation soils. Continuing settlement will occur over long periods of time at a diminishing rate.

20. Settlement Analyses Methodology. We performed settlement analyses of the foundation soils assuming stress distribution in accordance with Westergaard's theory and the rates and magnitudes of consolidation settlement according to Terzaghi's theory of one-dimensional vertical consolidation. The settlements described in this report are based on the assumption that the fill material is loaded instantaneously and without specific mention of construction means and methods. Additional consolidation settlement due to variation in subsoil materials and thicknesses, fluctuation in water levels, and construction means and methods should be anticipated.

21. Stability Analyses - Design Methodology. Stability analyses were performed using the GEO-SLOPE International, Ltd.'s SLOPE/W, Version 10.2.2, slope stability program and Spencer's Method of Analysis. The analyses followed the design criteria provided in the MCDG.V1 summarized in Table 1. We utilized a minimum required factor of safety of 1.20 in accordance with the design criteria for the earthen containment dikes and ridges.

Earthen Containment Dikes

22. Design Parameters of Fill Material. For the dike fill material, we assumed a unit weight of 75 pcf and a cohesion (i.e., undrained shear strength) of 70 psf. These parameters consider dike fill obtained from an adjacent borrow channel and placed by uncompacted

methods as discussed in the "Construction Recommendations" section of this report. We also considered a unit weight of 115 pcf and a friction angle of 28 degrees for the sand marsh fill material.

23. Water Levels. The stability analyses we presented are based on MHW and MLW levels furnished by CPRA. Fluctuating water levels that fall below the MLW can result in localized sloughing or failure of the recommended section if these occur over a long period of time. Long-term maintenance should consider this potential.

24. Geometric Design and Assumptions. Containment dike and borrow canal geometries were modeled using furnished information provided by CPRA and consider internal and external borrow sources. The proximity of the earthen containment dike toe to the edge of the borrow channel was modeled to be a minimum of 30 feet. This includes a 10-ft offset from the edge of the borrow channel and a 5-ft offset from the toe of the containment dike for the marsh buggy excavator. The marsh buggy excavator was modeled as 15 feet wide with 5-ft pontoons and a uniform bearing pressure of 260 psf. This bearing pressure is consistent with the MCDGV1.0. Side slopes of 3 horizontal to 1 vertical (3H:1V) were modeled for the borrow channel that extends to el -10.

25. Our minimum bench width estimate of 30 feet is based solely on the geotechnical characteristics of the soils (i.e., slope stability) and does not account for wave action or erosion/disturbance potential. The ground surface geometry between the dike and borrow channel may become lower and irregular due to construction activities. This may result in a higher risk of instability of the dike into the excavated borrow channel. A wider bench may offer more practicality for the contractor's operations.

26. Results of Stability Analyses. Our stability analyses were completed using a deformed cross-section and the methodology and assumptions presented previously. Note, the deformed section will vary with construction conditions. The results of our stability analyses for Cell 1 and Cell 2 are summarized in Figures 6 and 7, respectively. For containment dikes constructed to el 4 or lower with a constructed marsh fill elevation (CMFE) at el 3 or lower, we recommend a side slope of 4H:1V for all cells. Slope stability output files are presented in Appendix II.

27. Estimated Settlement of Containment Dikes. For the earthen containment dike fill materials, we assumed an average unit weight of 75 pcf as described previously. Due to the weak foundation soils, staged construction of the containment dikes will be required involving multiple lifts to achieve the dike crown at el 4. With the placement of each lift, the foundation soils will experience localized bearing capacity failures and lateral plastic deformation during dike construction. We estimate settlement magnitudes during construction that will be between approximately 75% and 100% of the overall dike thickness. For example, if a dike is constructed to el 4 and existing grades are at approximately el -2, then we estimate between approximately 4 and 6 feet of settlement will occur during construction of that dike. This is illustrated on Figures 6 and 7 with the dike fill settling into the foundation soils by the time a final dike cross-section with a crown at el 4 is achieved. Because the ECDs serve as a temporary construction feature to allow the MCAs to be constructed, we do not present any estimates of settlement of the ECDs after construction. Detailed recommendations regarding dike construction are given subsequently in this report.

28. Shrinkage of Earthen Containment Dikes. Settlement or “shrinkage” of the uncompacted fill will occur. Desiccation of soft clays proceeds from the exposed surface inward and leads to the formation of a crust that becomes thicker with age. The amount of time for

shrinkage to occur will depend on the amount of organic matter present and variations in the moisture content of the fill. Moisture content is dependent on weather conditions, tidal fluctuations, and ground water levels. We anticipate shrinkage will occur relatively rapidly due to seasonal variations in the first year after fill placement. Due to variations in the organic clays and peat present, shrinkage will generally result in differential settlement along the ECD alignment.

29. Because the performance of the dikes is most important in the initial year to contain the marsh creation fill and long-term performance is not as important, the phenomenon of shrinkage is not a design concern for this project. This is because, following completion of marsh creation filling, portions of the ECD alignment may need to be degraded to match the CMFE of the marsh creation areas.

30. ECD Soil Bearing Values – After Construction. Eustis Engineering evaluated a general shear failure of the mass of soil beneath the proposed containment dikes termed "base failure" or a global bearing capacity failure.

31. We have evaluated the ultimate soil bearing capacity of the earthen containment dikes considering furnished geometries from CPRA. The resulting factor of safety against a global bearing capacity failure is above 3.88 for all reaches. Soil bearing calculations are presented in Appendix III. Please note that this "base failure" calculation is theoretical and is based on the constructed ECD geometry being "wished into place". The ECD will experience bearing capacity failures during construction as described in the following paragraph.

32. ECD Soil Bearing Values – During Construction. We evaluated the ultimate soil bearing capacity of the earthen containment dikes considering an average marsh elevation of -2.

The near-surface material encountered at the site had laboratory tested undrained shear strengths that are very weak and compressible. To achieve a bearing capacity factor of safety of 1 for the proposed containment dikes, an undrained shear strength of between approximately 125 and 150 psf would be necessary. For the existing foundation shear strengths, we estimate the fill height would be limited to between 3 and 4 feet at incipient failure (factor of safety ≈ 1.0). We anticipate these bearing capacity failures will propagate until sufficient material has been displaced beneath the proposed ECD by competent fill materials to achieve a stable foundation for additional fill. The volume of material lost to such failures will vary along the alignment based on subsoil conditions, quality of fill material placed, and the exact means and methods of the contractor (e.g., drop height of excavated soils from the side cast, rate of placement of the excavated soils). Figures 6 and 7 are illustrations of our slope stability analyses of the ECDs, yet they also show the bearing capacity failures that occur during construction as evidenced by the deformed shape of the mudline under the footprint of the ECDs.

33. Gap Closure Alternatives. Completed ECD analyses considering existing mudlines are not applicable to areas where the mudline is significantly lower than el -4.0. If areas with deep mudlines exist as evidenced by bathymetric data, a gap closure may be required. Gap closure alternatives may consist of a sheet pile wall gap closure or a ECD gap closure. Further engineering analyses would be required for both alternatives.

Marsh Creation Areas

34. General. We conducted our settlement analyses considering existing mudline elevations and fill heights furnished by CPRA.

35. Marsh Fill Material. Self-weight consolidation testing was not performed on the Mississippi River borrow material because the borrow source will be sand and self-weight consolidation will be minimal. Settlement characteristics of the sand borrow source were based on tests performed on samples for the Lake Hermitage Marsh Creation (BA-42) project borrow source and the boring data from the anticipated borrow source in the Mississippi River that is provided in our GDR dated 14 May 2021 (Eustis Project No. 24272). Referring to this GDR, we consider the sand source to be a poorly graded sand (SP) having a fines content of less than 10% with most sieve analyses revealing less than 5% fines. These conditions are similar to those observed in the BA-42 project borrow source. A unit weight of 115 pcf for the sand fill was assumed based on laboratory tests (i.e., soil classification, moisture content, gradation) of the borrow borings for the current project.

36. Estimated Settlement of Marsh Creation Areas. Our settlement analyses for the MCAs were performed for the CMFEs of 2.0, 2.5, 3.0, and 3.5. Table 2 summarizes the cell conditions. Time-rate of settlement curves are presented on Figures 8 through 13. A furnished subsidence rate of 6.4 mm/yr. (approximately 0.25 in./yr.) is included in the settlement curves. Settlement calculations are presented in Appendix IV.

37. Due to fill material consisting of predominantly coarse-grained materials, the amount of settlement due to a desiccated crust to be negligible.

38. Conclusions. We present our CMFE recommendations in Table 2 to meet the project goal which is to maximize the duration that the marsh creation cells will be in the intertidal zone in the 20-year design life. Also included in Table 2, is the estimated time after construction that the marsh creation area is projected to fall below the 20% inundation level.

TABLE 2: SUMMARY OF RECOMMENDED MARSH FILL ELEVATIONS

PROJECT FEATURE DESIGNATION	FURNISHED MUDLINE ELEVATION FOR SETTLEMENT ANALYSES (NAVD 88)	RECOMMENDED CONSTRUCTED MARSH FILL ELEVATION (NAVD88)	APPROXIMATE TIME TO FALL BELOW 20% INUNDATION LEVEL (YEARS)	APPROXIMATE DURATION IN INTERTIDAL ZONE (YEARS)	FIGURE NO.
MCA-1	-2.0	2.5	3.0	14½	8
MCA-1	-2.5	3.0	6.0	14	9
MCA-1	-3.0	3.0	5.0	14	10
MCA-2	-2.0	2.5	5.0	15	11
MCA-2	-2.5	2.5	4.0	15	12
MCA-2	-3.0	2.5	3.0	14 ½	13

Ridge

39. General. We have evaluated the ridge design following the parameters provided by CPRA and discussions with CPRA. To achieve the desired ridge elevation at el 4, 30 to 60 days after construction, we determined that the ridge should be constructed to el 4.5. Ridge stability analyses were performed with a constructed ridge to el 4.5 and el 5.0 to allow for a 0.5-ft. overbuild tolerance. Four ridge conditions were modeled: 1) ridge constructed with pumped-in, river sand; 2) ridge constructed with clay fill obtained from an adjacent borrow canal; and 3) ridge constructed with clay fill obtained from an adjacent borrow canal and capped with one foot of river sand. The fourth condition is with a ridge constructed to el 4.0 (with clay fill obtained from an adjacent borrow canal), followed by the marsh fill being placed to el 3.0. Once the marsh fill is placed, the ridge and marsh fill will be straddled with river sand borrow material to el 5.0. The ridge conditions are summarized in Table 3. For in situ borrow material we assumed an average unit weight of 110 pcf and a cohesion of 115 psf. For river sand borrow material we

assumed an average unit weight of 115 pcf and a friction angle of 28 degrees with zero cohesion.

TABLE 3: SUMMARY OF RIDGE CONDITIONS FOR STABILITY ANALYSES

RIDGE CONSTRUCTION CONDITION	FURNISHED FINISHED RIDGE ELEVATION FOR STABILITY ANALYSES (NAVD 88)	FIGURE NO.
CONSTRUCTED WITH ADJACENT, CLAY FILL BORROW MATERIAL	4.5	14, SHEET 1
	5.0	14, SHEET 2
CONSTRUCTED WITH ADJACENT, CLAY FILL BORROW MATERIAL WITH 1-FT. RIVER SAND CAP	5.0	15
CONSTRUCTED WITH ADJACENT, CLAY FILL BORROW MATERIAL WITH 1-FT. RIVER SAND STRADDLE AFTER MARSH FILL PLACEMENT	5.0	16
CONSTRUCTED WITH PUMPED, RIVER SAND FILL BORROW MATERIAL	4.5	17, SHEET 1
	5.0	17, SHEET 2

40. Geometric Design and Assumptions. Ridge and borrow canal geometries were modeled using furnished information provided by CPRA. In the ridge configurations using in situ borrow material, the distance between the toe of the ridge to the edge of the borrow channel (i.e., top of excavated slope) was modeled to be a minimum of 25 feet. This includes a 5-ft offset from the edge of the borrow channel and a 5-ft offset from the toe of the containment dike for the marsh buggy excavator. The marsh buggy excavator was modeled as 15 feet wide with 5-ft wide pontoons and a uniform bearing pressure of 260 psf. This bearing pressure is consistent with the MCDGV1.0. Side slopes of 3H:1V were modeled for the borrow channel that extends to el -10.

41. Our minimum bench width estimate of 25 feet is based solely on the geotechnical characteristics of the soils (i.e., slope stability) and does not account for wave action or erosion/disturbance potential. The ground surface geometry between the ridge and

borrow channel may become lower and irregular due to construction activities. This may result in a higher risk of instability of the dike into the excavated borrow channel. A wider bench may offer more practicality for the contractor's operations.

42. Results of Stability Analyses. Our stability analyses were completed using a deformed cross section and the methodology and assumptions presented previously. Note, the deformed cross section will vary with construction conditions. The results of our stability analyses for the ridge are summarized in Figures 14 through 17. Slope stability output files are presented in Appendix V.

43. Estimated Settlement of Ridge. For the proposed ridge restoration, we assumed an average unit weight of 115 pcf. Assuming instantaneous loading, we present time-rate of settlement curves for mudlines at el 0 and el -2 in Figures 18 and 19, respectively. Our single instantaneous placement of material provides a conservative estimate of long-term settlement of the ridge after construction. Similar to the containment dikes, we anticipate localized bearing capacity failures and lateral spread to occur during the initial placement of materials resulting in initial material loss. The extent of lateral spread will be variable; however, it could be substantial should the alignment use areas beyond the extent of the previously existing ridge. The extent of lateral spread will require a staged construction effort to ensure post construction grades remain near the target elevation. Settlement calculations are provided in Appendix VI.

44. Shrinkage of Ridge. Similar to the earthen containment dikes, settlement or “shrinkage” of the uncompacted fill in the configuration using all in situ borrow material will occur. Desiccation of soft clays proceeds from the exposed surface inward and leads to the formation of a crust that becomes thicker with age. We estimate volume loss, due to shrinkage of uncompacted fill, will be approximately 15% of the surficial crust formed by

drying out of the soils. Assuming a crust between approximately 1 and 2 feet thick at the containment dike, we estimate an additional 1 to 3 inches of settlement will occur. The amount of time for shrinkage to occur will depend on the amount of organic matter present and variations in the moisture content of the fill. Moisture content is dependent on weather conditions, tidal fluctuations, and ground water levels. We anticipate shrinkage will occur relatively rapidly due to seasonal variations in the first year after fill placement. Due to variations in the organic clays and peat present, shrinkage will generally result in differential settlement along the ridge alignment.

45. Ridge Soil Bearing Values – After Construction. Eustis Engineering evaluated a general shear failure of the mass of soil beneath the proposed ridge termed "base failure" or a global bearing capacity failure.

46. We have evaluated the ultimate soil bearing capacity of the ridge considering furnished geometries from CPRA. The resulting factor of safety against a global bearing capacity failure is 3.28. Soil bearing calculations are presented in Appendix VII. Please note that this "base failure" calculation is theoretical and is based on the constructed ridge geometry being "wished into place". Due to the weak soils in the upper 1 to 3 feet, the ridge will experience bearing capacity failures during construction as described in the following paragraph.

47. Ridge Soil Bearing Values – During Construction. We evaluated the ultimate soil bearing capacity of the ridge considering an average marsh elevation of 0. The near-surface material encountered at the site had laboratory-tested undrained shear strengths that are very weak and compressible. To achieve a bearing capacity factor of safety of 1 for the proposed ridge, an undrained shear strength of approximately 150 to 175 psf would be necessary. For the existing foundation shear strengths, we estimate the fill height

would be limited to between 3 and 4 feet at incipient failure (factor of safety ≈ 1.0). We anticipate these bearing capacity failures will propagate until sufficient material has been displaced beneath the proposed ridge by competent fill materials to achieve a stable foundation for additional fill. The volume of material lost to such failures will vary along the alignment based on subsoil conditions, quality of fill material placed, and the exact means and methods of the contractor (e.g., drop height of excavated soils from the side cast, rate of placement of the excavated soils). Figures 14 through 17 are illustrations of our slope stability analyses of the ridge, yet they also show the bearing capacity failures that occur during construction as evidenced by the deformed shape of the mudline under the footprint of the ridge.

Construction Recommendations

48. Constructability. The organic and soft clay materials encountered near the proposed marsh creation surface will be partially displaced during fill placement and dredging operations. Construction techniques will be critical to the constructability and ultimate stability of the dike and ridge sections. Our analyses assume the dike and ridge fills are placed as recommended and outlined subsequently in this report. We estimated the amount of displacement which may occur during construction to assist in determining the anticipated fill quantities and cost estimates. The stability of the earthen containment dike and ridge constructed of in situ materials will depend on the borrow materials used and the rate at which the dredged fill is placed.

49. Water Levels. Water levels along the project are subject to seasonal and tidal fluctuations. Site conditions should be evaluated immediately prior to initiating construction.

50. Containment Dikes/Ridge. The marsh containment dikes will be constructed of in situ materials from an adjacent borrow canal. The ridge will be constructed in one of the following ways: entirely hydraulically dredged river sand; entirely in situ borrow materials from an adjacent canal; or in situ materials topped with hydraulically dredged river sand.

51. Placement of Uncompacted Fill. The borrow material will be placed by uncompacted methods for construction of the containment dikes and ridge. Our stability analyses assume the in situ materials will be excavated and placed by a marsh buggy excavator. Uncompacted dike and ridge fill should be placed in lifts of no more than 3 feet. Depending on the depth of standing water and moisture content of the borrow materials, consideration should be given to placing an initial fill lift for the entire alignment (or at least a substantial portion) before proceeding to the next lift to mitigate the potential for mud waves. This method will initiate consolidation of foundation soils as well as provide a means for the uncompacted fill to provide a sufficient bearing surface. This will decrease the potential for lateral spreading and slope failure within the fill as the containment dikes and ridge are constructed.

52. Consideration of Mud Waves - Containment Dikes and Ridge. The contractor should expect the creation of a “mud wave” during construction due to the low shear strength and unit weights of the surficial material. After the final design is completed, plans and specifications should alert the contractor to anticipate this phenomenon. Generally, the uncompacted fill should be placed from the centerline of the design section, outward to the toes, and parallel to the centerline to “push” the mud wave toward the outside of the dike/ridge section. Mud waves forming forward of the fill and in the dike/ridge section should be periodically degraded and removed to prevent encapsulations on the weaker mud wave material in the dike/ridge section. Control and removal of mud waves is a

means and methods issue that is the responsibility of the construction contractor. The contractor may identify additional options that are viable.

53. Staged Containment Dike and Ridge Construction. We recommend construction of the dike/ridge be performed in stages with at least 10 days between stages with the final stage being no more than between 1 and 1½ feet. Staged construction will allow consolidation of the subsoils to begin early and cause a gain-in-strength in the rapidly consolidating swamp/marsh deposits. This will minimize the potential for lateral deformation of these soils. Staged construction will also minimize localized failures within the uncompacted fill, particularly when these materials remain saturated during initial lift placement.

54. Containment Dike/Ridge Maintenance. Long-term maintenance will be required to accommodate the estimated ongoing settlements or other impacts over the project life. We have not evaluated erosion potential under wave action.

55. Hydraulically Placed Fill (Marsh Fill). The borrow material for the marsh creation sites will be hydraulically dredged and transported using pipelines. The placement limits of the hydraulic fill should be based on stability considerations as previously presented, as well as construction constraints and environmental factors. For decanting considerations, pumped sand fill should be placed no higher than ½ foot below the crown of the earthen containment dikes. Compaction of fill is not considered necessary within the marsh creation area. Shaping may be required to facilitate ongoing placement operations.

56. Consideration of Mud Waves - Marsh Creation Site. Mud waves will form at the leading edge where the pumped marsh fill is being placed. The earthwork contractor should consider placement techniques to control the size of this mud wave. Consideration of

mud waves is a means and methods issue that is the responsibility of the construction contractor.

57. Drainage Controls. During the placement of the hydraulic fill, the contractor should provide drainage control measures to facilitate construction operations. Drainage control measures could include hay bales, weirs, pipes, and drop inlets. The number, size, and location of these drainage control measures should be considered during the design of the borrow area (for the dike construction) and for the permit application. Some important factors include the position of the dredge and borrow canal, natural slope of the land formations, and the type and size of the dredging equipment.

58. Decanting. Consolidation of the marsh creation fill will create the ponding of water at the surface as the settlement occurs over time. Some of this water may be removed by evaporation, but decanting of free surficial water by weirs should be considered.

59. Geotechnical Instrumentation Monitoring. Consideration should be given to the use of an instrumentation program (i.e., settlement plates, vibrating wire piezometers, and pressure cells) that can evaluate the rate of consolidation, settlement, stress distribution, and pore pressure dissipation under fill loads. Settlement analyses can be performed by Eustis Engineering based on the data collected during construction to field calibrate the settlement and stability analyses presented in this report. Natural variations in the materials placed, as well as the desiccation and biodegradation of these deposits, may affect the actual settlements that could occur. In addition, construction of the containment areas may affect water levels due to tidal fluctuations in other areas of the project. If long term performance of the fill placement is to be evaluated, the monitoring should be performed at regular intervals to provide sufficient data.

LIMITATIONS

60. This geotechnical engineering report has been prepared in accordance with generally accepted geotechnical engineering practice for the exclusive use of CPRA for specific application to the subject site. In the event of any changes in the nature or design requirements, or location of the proposed project features, the information contained in this report shall not be considered valid unless the changes are reviewed, and this report is modified and verified in writing. Should these data be used by anyone other than CPRA, the user should contact Eustis Engineering for interpretation of data and to secure any other information pertinent to this project.

61. Our findings and recommendations contained in this report are based on selected points of field exploration, laboratory testing, and our understanding of the proposed project. Furthermore, our findings and recommendations are based on the assumption that soil conditions do not vary significantly from those found at specific exploratory locations. Variations in soil or ground water conditions could exist between and beyond the exploration points. The nature and extent of these variations may not become evident until construction. Variations in soil or ground water may require additional studies, consultation, and possible revisions to our recommendations.

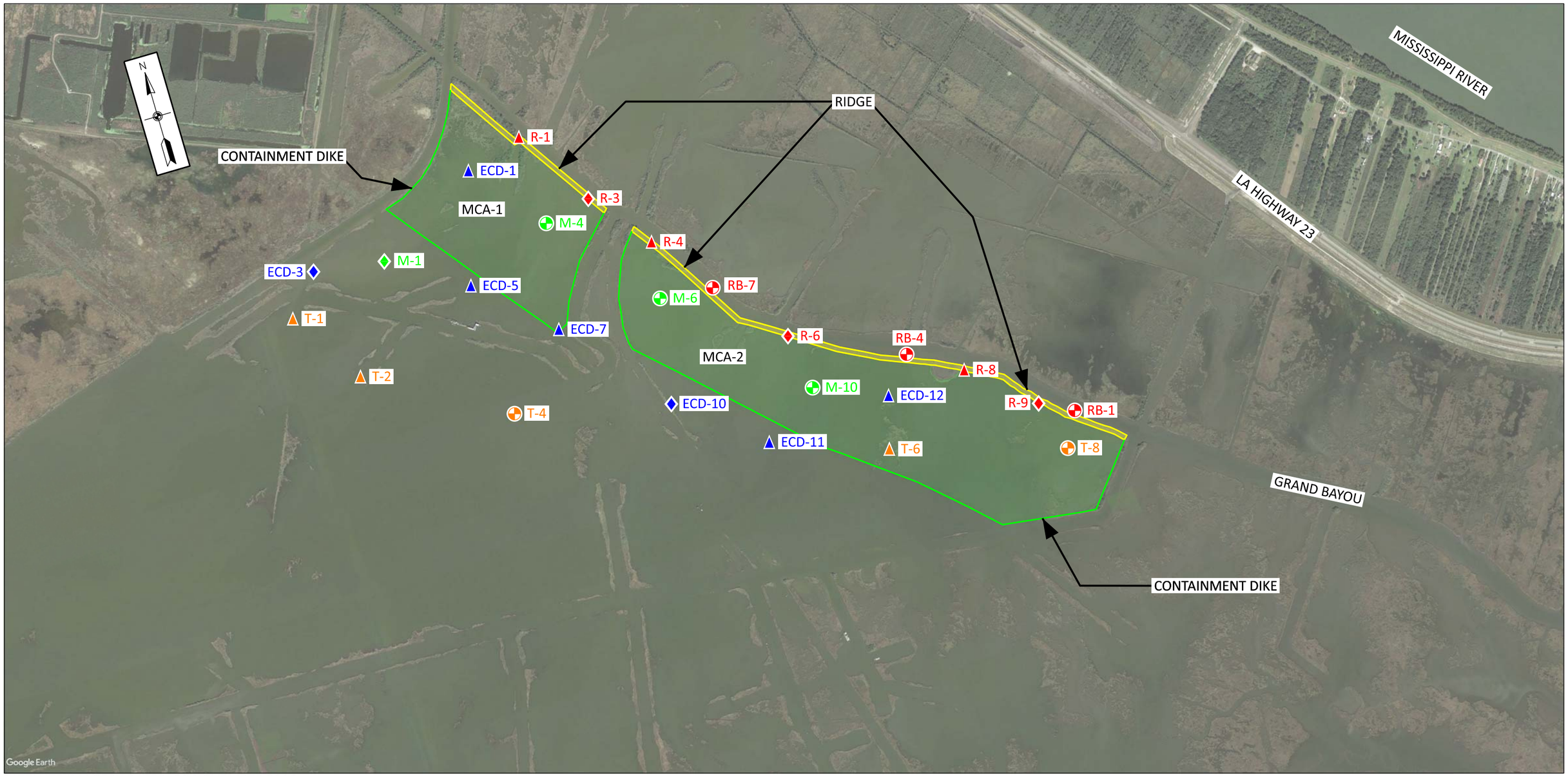
62. Recommendations and conclusions contained in this report are to some degree subjective and should be used only for design purposes. This report should not be included in the contract plans and specifications. However, the results of the CPTs, soil borings, and laboratory tests contained in the two GDRs may be included in the plans and specifications.

63. This report is issued with the understanding that the owner or the owner's representative has the responsibility to bring the information and recommendations contained herein to the attention of the scientists and engineers for the project so that they are incorporated into the plans and specifications for the project. The owner or the owner's representative also has the responsibility to take the necessary steps to see that the general contractor and all subcontractors follow such recommendations. It is further understood that the owner or the owner's representative is responsible for submittal of this report to the appropriate governing agencies.

64. Although available through Eustis Engineering, the current scope of our service does not include an environmental assessment or an investigation for the presence or absence of wetlands; hazardous or toxic materials in the soil; surface water; ground water; or air on, below, or adjacent to the subject property. Furthermore, the scope does not include the investigation or detection of biological pollutants at the site. The term "biological pollutants" includes but is not limited to molds, fungi, spores, bacteria, viruses, and the byproducts of any such biological organisms.

65. As the geotechnical engineer of record for this project, Eustis Engineering has striven to provide our services in accordance with generally accepted geotechnical engineering practices in this locality at this time. No warranty or guarantee is expressed or implied.

66. Eustis Engineering should be provided the opportunity for a general review of the final design plans and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications. If Eustis Engineering is not accorded the privilege of making this recommended review, we can assume no responsibility for misinterpretation of our recommendations.



SATELLITE IMAGERY DATED: 20 NOVEMBER 2016

NOT TO SCALE

◕ DENOTES LOCATIONS OF UNDISTURBED SOIL BORINGS PERFORMED BETWEEN 21 AND 29 MAY 2020

▲ DENOTES LOCATIONS OF CONE PENETRATION TESTS PERFORMED BETWEEN 4 AND 12 JUNE 2020

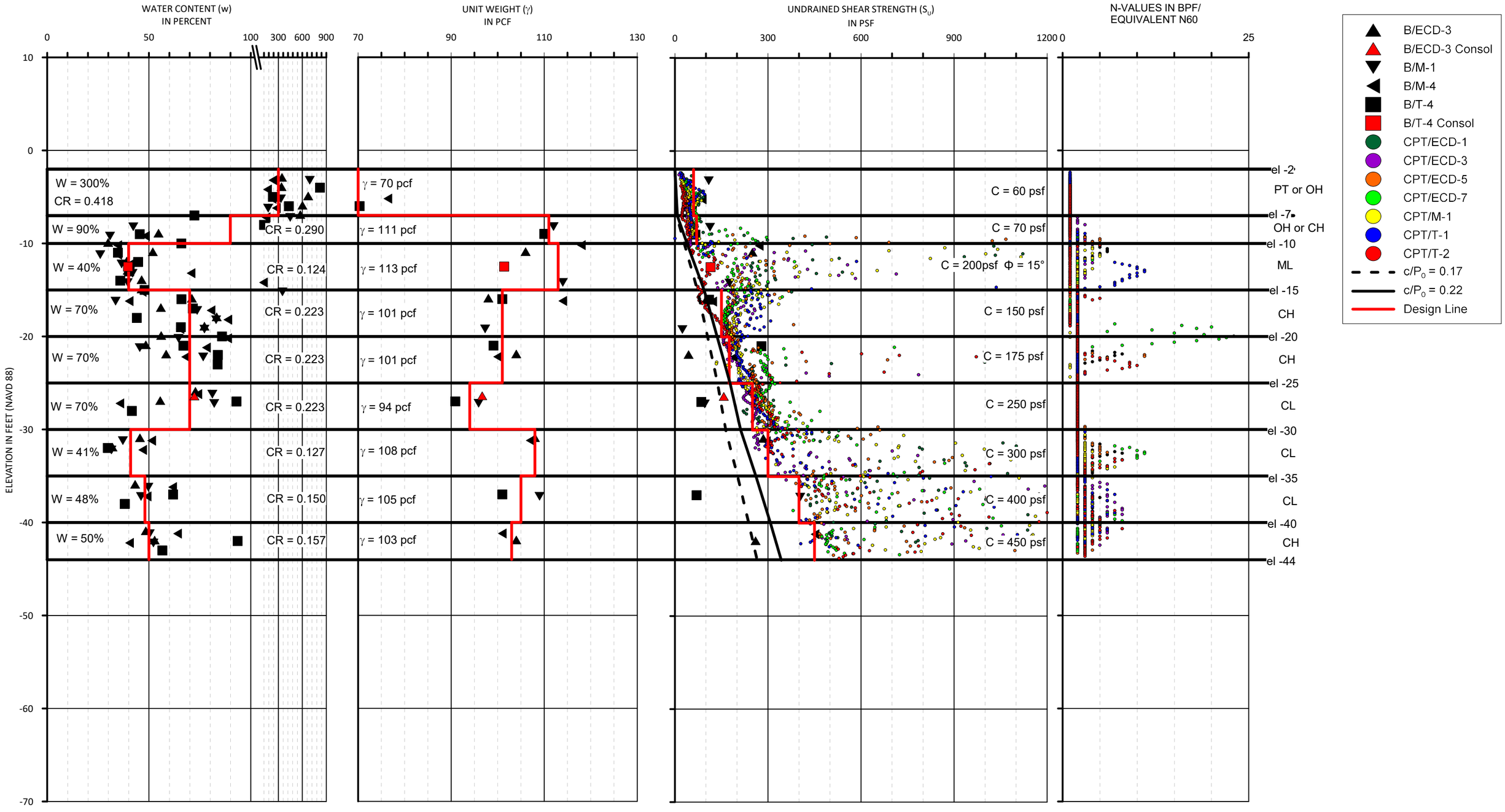
♦ DENOTES LOCATIONS OF UNDISTURBED SOIL BORINGS IN CONJUNCTION WITH CONE PENETRATION TESTS PERFORMED BETWEEN 20 MAY AND JUNE 12 2020

EXPLORATION LOCATIONS AND PROJECT FEATURES MAP

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: S.T.S.	JOB NO.: 24365
CHECKED BY: H.C.W.	DATE: 8 JUNE 2021
CADD FILE: LOCATION.DGN	FIGURE 1



NOTES:

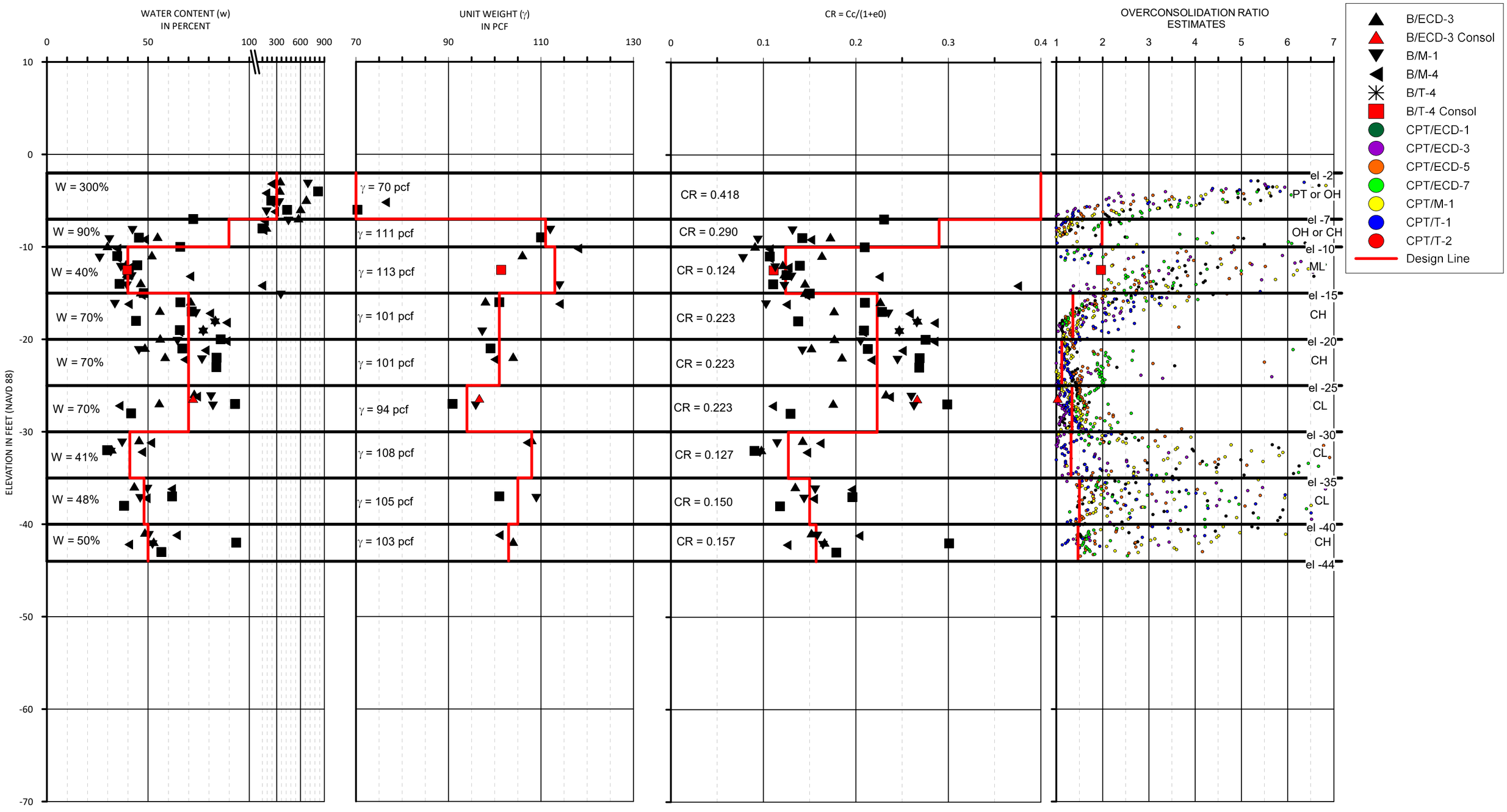
1. LOGS OF BORINGS AND CPTS WERE PRESENTED IN OUR DATA REPORT.
2. UNIT WEIGHTS SHOWN ARE TOTAL UNIT WEIGHTS AND SHOULD BE APPROPRIATELY REDUCED TO ESTIMATE EFFECTIVE STRESS STATES.
3. DESIGN PROFILES SHOWN CANNOT FULLY ANTICIPATE ALL PARAMETERS WHICH MAY INFLUENCE SELECTION OF DESIGN VALUES FOR A SPECIFIC ANALYSIS. FOR THIS REASON, THE USER SHOULD CONTACT EUSTIS ENGINEERING, L.L.C. PRIOR TO USE OF DESIGN PROFILES IN ANY ANALYSES.
4. STRENGTH DATA PLOTTED BELOW c/P_0 =0.17 WERE NOT CONSIDERED IN DESIGN PARAMETER SELECTION DUE TO SAMPLE DISTURBANCE.
5. UNDRAINED SHEAR STRENGTHS SHOWN IN RED WERE BACK-CALCULATED USING THE SHANSEP EQUATION AND PAST MAXIMUM PRESSURES OBTAINED FROM THE CONSOLIDATION TESTS AND ASSUMING THE c/P_0 RATIO FOR NORMALLY CONSOLIDATED SOIL AT THIS SITE IS 0.22.
6. S_u for CPTS IS BASED ON ON q_c AND A CORRESPONDING CONE FACTOR OF N_c = 20.

SOIL DESIGN PARAMETERS - **CELL 1**

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO, BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 20 APRIL 2021
FILE NAME: 24365 DESIGN PARAMETERS.GRF	FIGURE 2 (Sheet 1 OF 2)



NOTES:

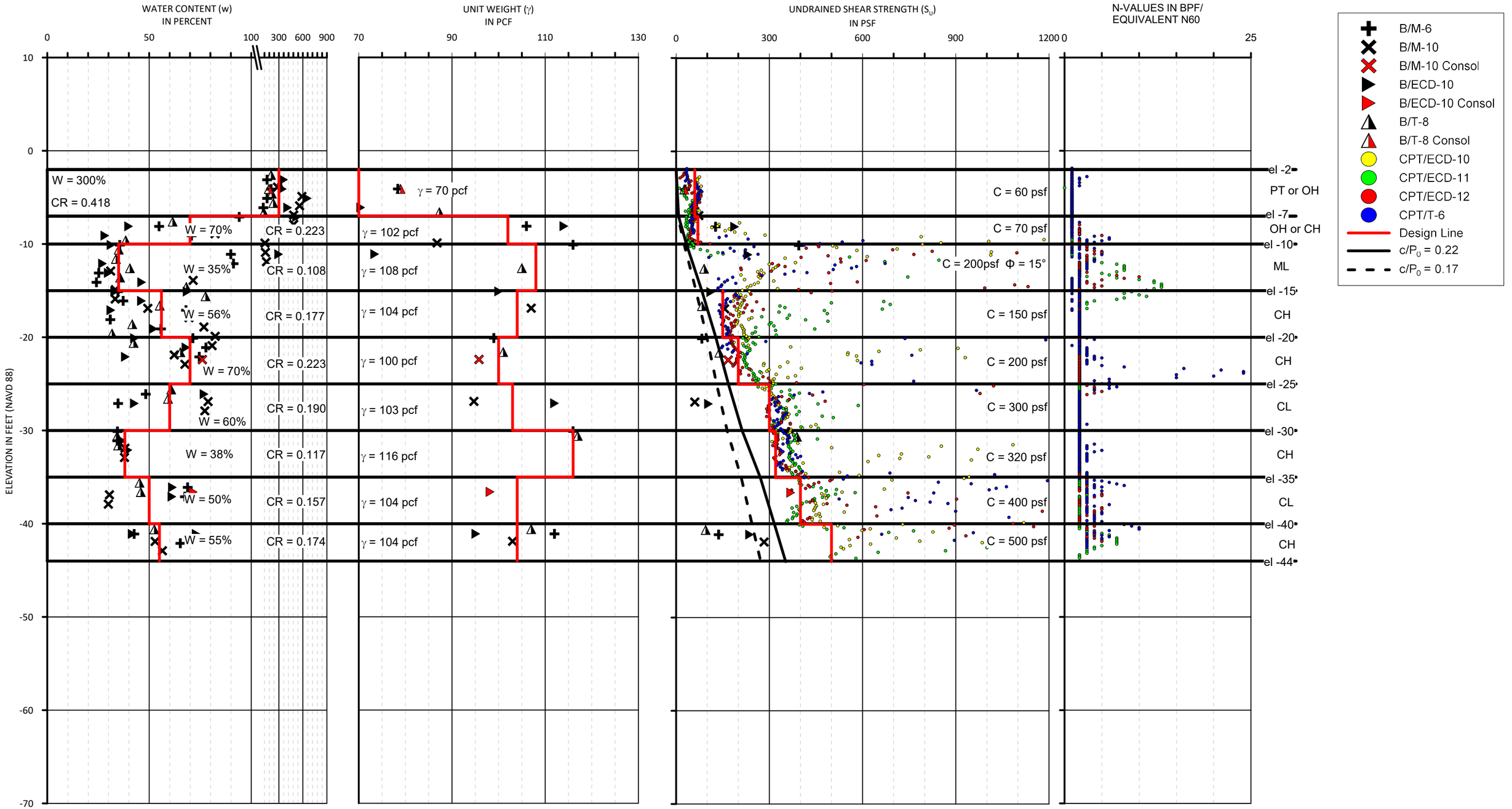
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4. CR VALUES WERE CALCULATED USING THE MOISTURE CONTENT CORRELATION FOR SOILS WITH A MOISTURE CONTENT BELOW 100% PRESENTED IN FIGURE 5.
5. INTERPRETATIONS OF CPT OCR ARE BASED ON OCR(1) AND ASSUME A SOIL UNIT WEIGHT OF 100 PCF.

SOIL DESIGN PARAMETERS - **CELL 1**

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO, BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 2 JULY 2021
FILE NAME: 24365 DESIGN PARAMETERS.GRF	FIGURE 2 (Sheet 2 of 2)



NOTES:

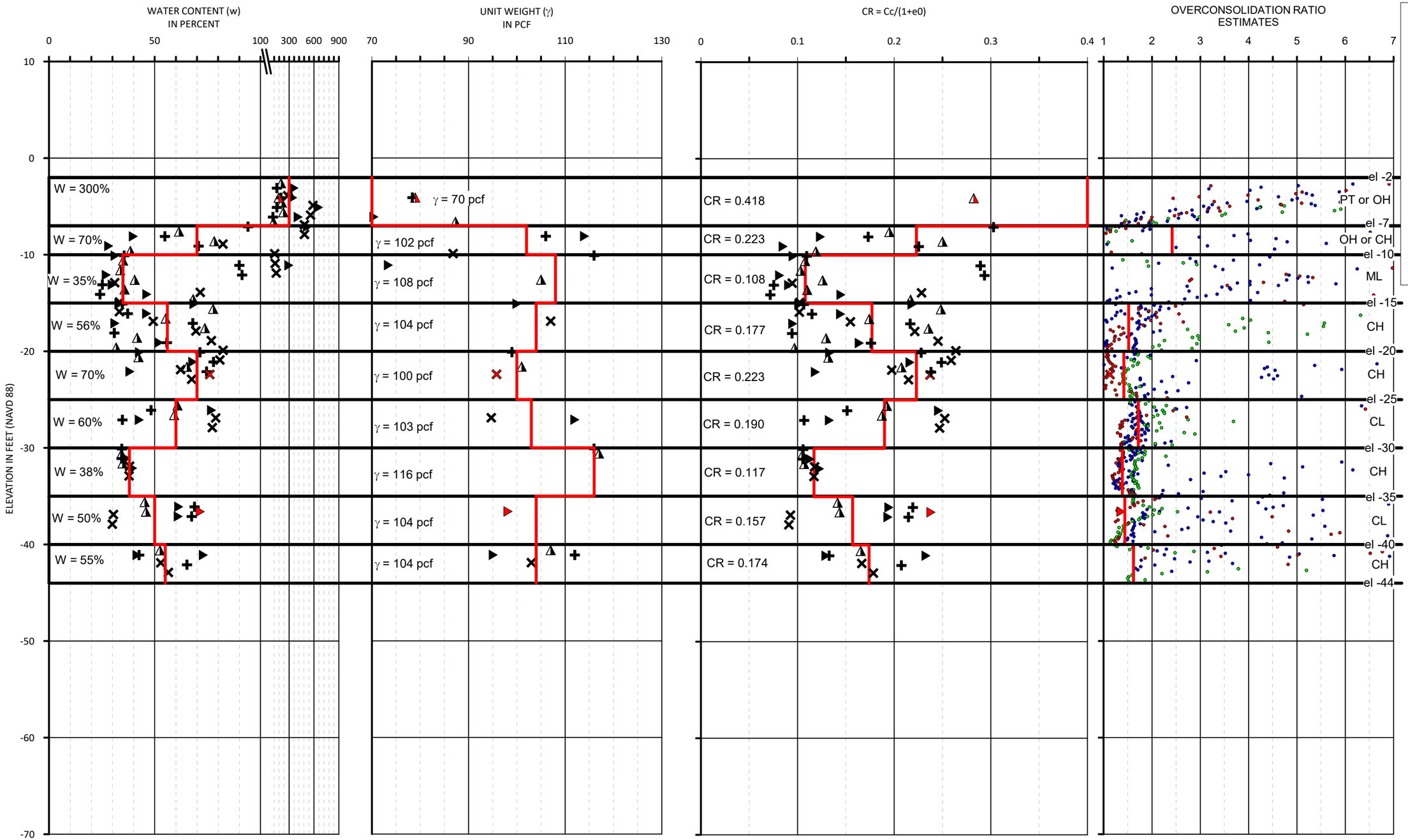
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6. S_u for CPTS IS BASED ON ON q_c AND A CORRESPONDING CONE FACTOR OF N_c = 20.

SOIL DESIGN PARAMETERS - **CELL 2**

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO, BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 20 APRIL 2021
FILE NAME: 24365 DESIGN PARAMETERS.GRF	FIGURE 3 (Sheet 1 of 2)



NOTES:

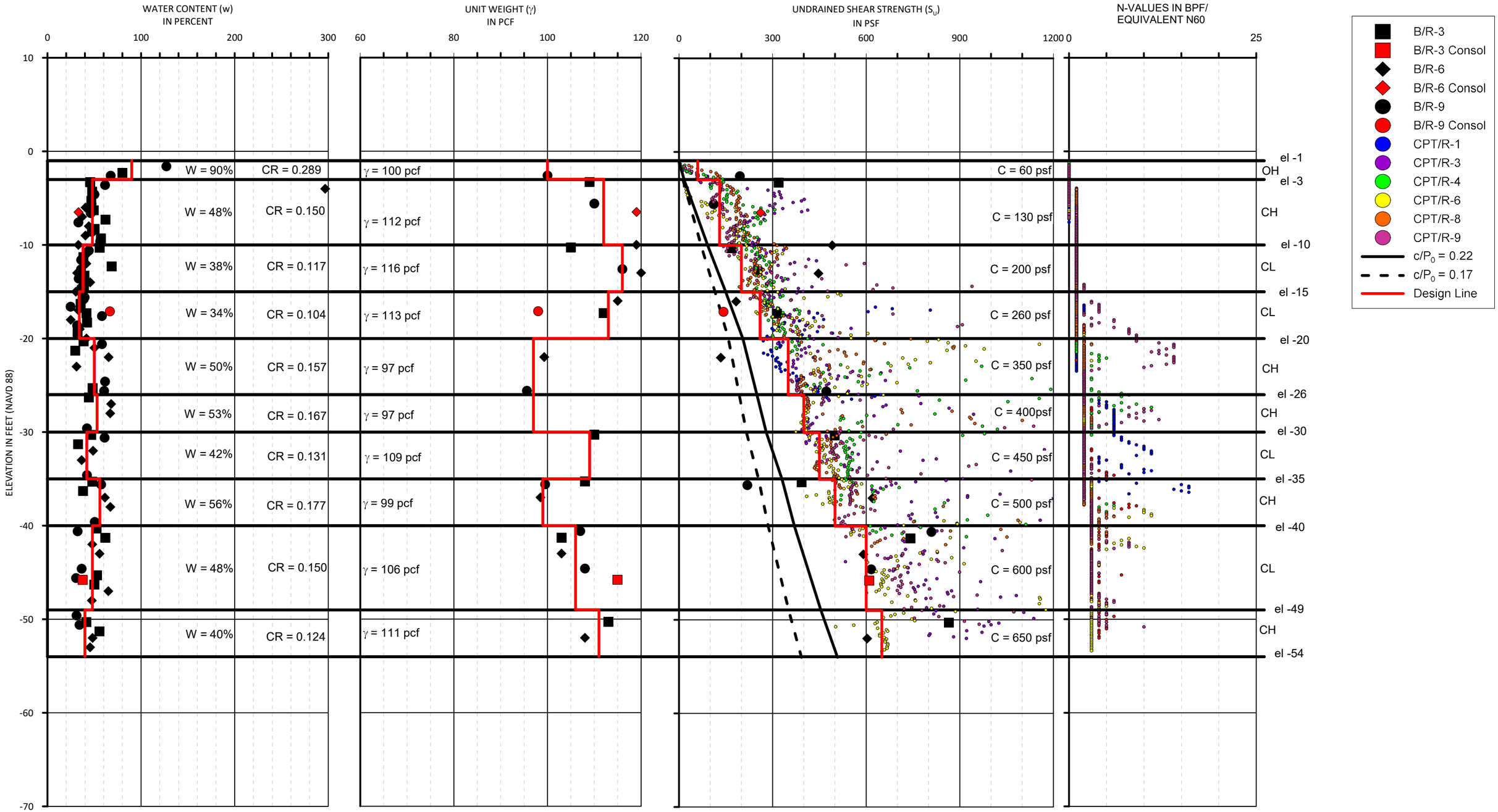
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SOIL DESIGN PARAMETERS - **CELL 2**

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO, BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 1 JULY 2021
FILE NAME: 24365 DESIGN PARAMETERS.GRF	FIGURE 3 (Sheet 2 of 2)



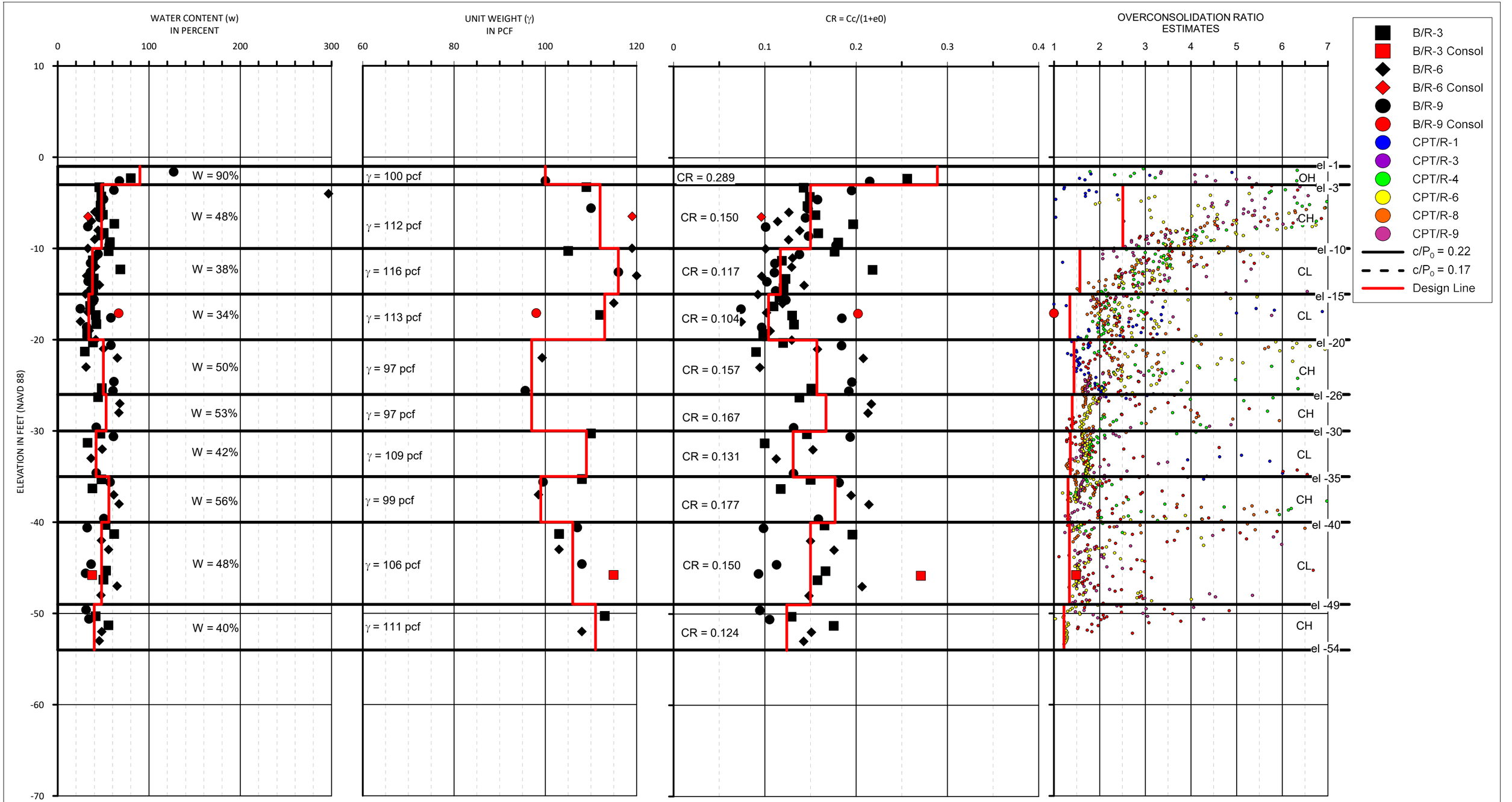
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6. S_u for CPTS IS BASED ON ON q_c AND A CORRESPONDING CONE FACTOR OF N_c = 20.

SOIL DESIGN PARAMETERS - **RIDGE**
STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO, BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 1 JULY 2021
FILE NAME: 24365 DESIGN PARAMETERS RIDGE.GRF	FIGURE 4 (Sheet 1 of 2)



NOTES:

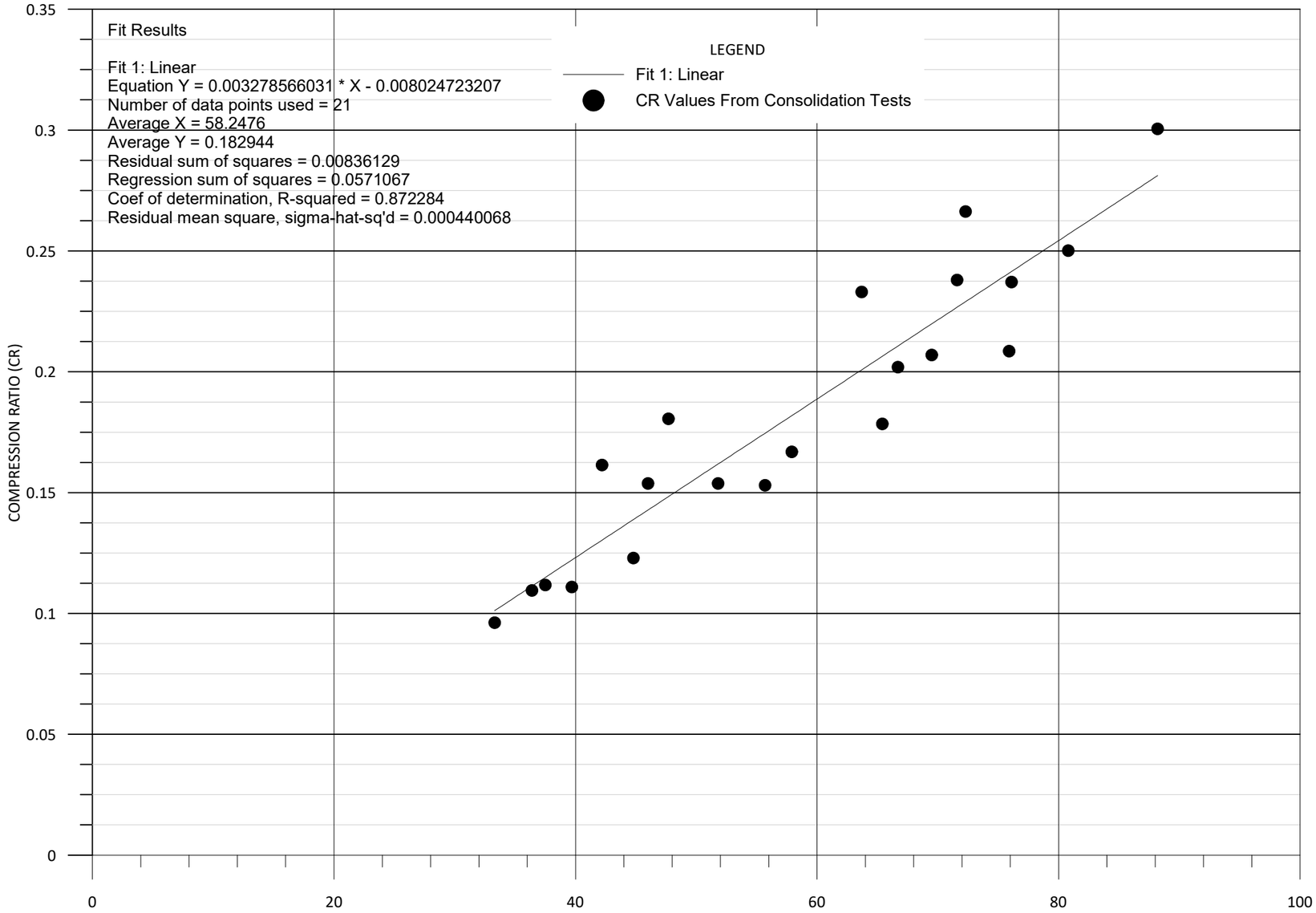
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4. CR VALUES WERE CALCULATED USING THE MOISTURE CONTENT CORRELATION FOR SOILS WITH A MOISTURE CONTENT BELOW 100% PRESENTED IN FIGURE 5.
5. INTERPRETATIONS OF CPT OCR ARE BASED ON OCR(1) AND ASSUME A SOIL UNIT WEIGHT OF 100 PCF.

SOIL DESIGN PARAMETERS - **RIDGE**

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO, BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 6 JULY 2021
FILE NAME: 24365 DESIGN PARAMETERS RIDGE.GRF	FIGURE 4 (Sheet 2 of 2)



NOTES:

(1) CORRELATION WAS DETERMINED FROM CONSOLIDATION TEST DATA FROM BA-0173, BA-0217, AND BA-0240.

(2) CORRELATION APPLIES TO SOILS WITH A MOISTURE CONTENT UP TO 100%.

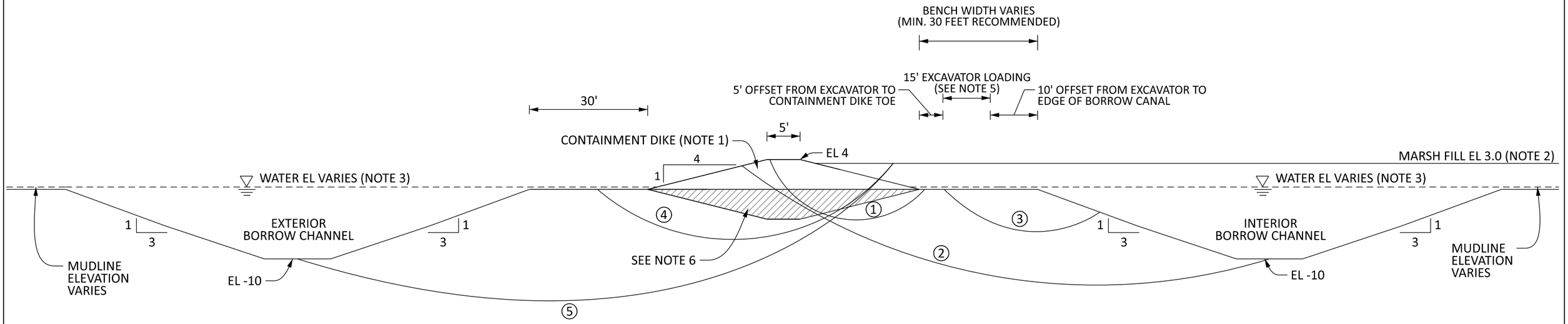
MOISTURE CONTENT AND COMPRESSION RATIO CORRELATION

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 6 JULY 2021
FILE NAME: Correlation.GRF	FIGURE 5

NOT TO SCALE



LOCAL STABILITY OF EARTHEN CONTAINMENT DIKE - MINIMUM REQUIRED FOS=1.2			
CONTAINMENT DIKE		STABILITY OF CONTAINMENT DIKE AFTER PLACEMENT (CASE ①)	STABILITY OF CONTAINMENT DIKE WITH FILLED CELL (CASE ④)
MUDLINE (NAVD88, FT)	SIDE SLOPE (H:V)		
-2.0	4:1	1.21	1.21
-3.0	4:1	1.26	1.26

STABILITY OF BORROW CHANNEL - MINIMUM REQUIRED FOS=1.2					
CONTAINMENT DIKE		MINIMUM BENCH WIDTH, FT	STABILITY OF CONTAINMENT DIKE WITH RESPECT TO BORROW CANAL (CASE ②)	STABILITY OF BORROW CANAL W/ EXCAVATOR LOAD (CASE ③)	STABILITY OF CONTAINMENT DIKE WITH FILLED CELL WITH RESPECT TO EXTERIOR BARROW CANAL (CASE ⑤)
MUDLINE (NAVD88, FT)	SIDE SLOPE (H:V)				
-2.0	4:1	30	2.99	1.29	2.42
-3.0	4:1	30	3.32	1.23	2.35

CASES 1 AND 2 ANALYZED WITH WATER LEVEL AT MLW ON BORROW SIDE AND MHW OPPOSITE OF BORROW.
CASES 3, 4 , AND 5 ANALYZED WITH WATER LEVEL AT MLW.

NOTES:

1. ASSUMED CONTAINMENT DIKE FILL SHEAR STRENGTH OF 70 PSF AND UNIT WEIGHT OF 75 PCF.
2. MARSH FILL ASSUMED AS SAND WITH 115 PCF DENSITY.
3. MLW AT EL 0.27 AND MHW AT EL 1.06.
4. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED FURTHER IN OUR REPORT.
5. ASSUMED EXCAVATOR LOADING IS FOR AN EXCAVATOR 15 FEET WIDE WITH 5 FT WIDE PONTOONS WITH A BEARING PRESSURE OF APPROXIMATELY 260 PSF. THE EXCAVATOR MUST BE A MINIMUM OF 10 FEET FROM THE BORROW CHANNEL EDGE AND 5 FT FROM THE CONTAINMENT DIKE. NO EXCAVATOR LOADING FOR LOAD CASE 1, 2, 4, AND 5.
6. DEFORMED SHAPE OF DIKE DUE TO LATERAL PLASTIC DEFORMATION THAT WILL OCCUR DURING CONSTRUCTION. THE DEFORMED SHAPE WILL VARY WITH CONSTRUCTION CONDITIONS.
7. STAGED CONSTRUCTION USING MULTIPLE LIFTS WILL BE REQUIRED TO BUILD DIKES.
8. FACTOR OF SAFETY FOR CASES 1 THROUGH 4 WILL BE IDENTICAL FOR AN EXTERIOR BORROW CANAL AND INTERIOR BORROW CANAL.

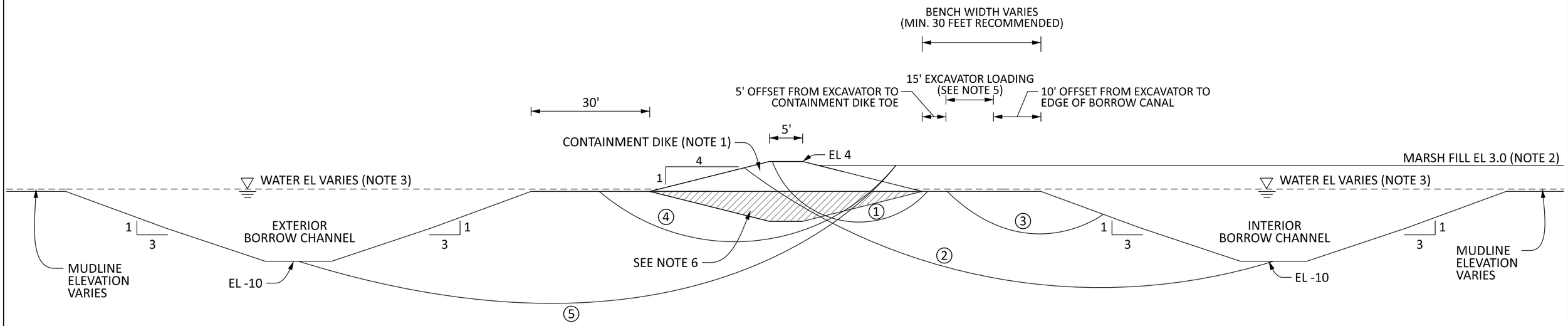
EARTHEN CONTAINMENT DIKE STABILITY SUMMARY
CELL 1

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: S.T.S.	JOB NO.: 24365
CHECKED BY: H.C.W.	DATE: 6 JULY 2021
CADD FILE: CELL 1.DGN	FIGURE 6

NOT TO SCALE



LOCAL STABILITY OF EARTHEN CONTAINMENT DIKE - MINIMUM REQUIRED FOS=1.2

CONTAINMENT DIKE		STABILITY OF CONTAINMENT DIKE AFTER PLACEMENT (CASE ①)	STABILITY OF CONTAINMENT DIKE WITH FILLED CELL (CASE ④)
MUDLINE (NAVD88, FT)	SIDE SLOPE (H:V)		
-2.0	4:1	1.22	1.21
-4.0	4:1	1.28	1.27

STABILITY OF BORROW CHANNEL - MINIMUM REQUIRED FOS=1.2

CONTAINMENT DIKE		MINIMUM BENCH WIDTH, FT	STABILITY OF CONTAINMENT DIKE WITH RESPECT TO BORROW CANAL (CASE ②)	STABILITY OF BORROW CANAL W/ EXCAVATOR LOAD (CASE ③)	STABILITY OF CONTAINMENT DIKE WITH FILLED CELL WITH RESPECT TO EXTERIOR BARROW CANAL (CASE ⑤)
MUDLINE (NAVD88, FT)	SIDE SLOPE (H:V)				
-2.0	4:1	25	3.32	1.31	2.62
-4.0	4:1	25	3.68	1.30	2.47

CASES 1 AND 2 ANALYZED WITH WATER LEVEL AT MLW ON BORROW SIDE AND MHW OPPOSITE OF BORROW.
CASES 3, 4, AND 5 ANALYZED WITH WATER LEVEL AT MLW.

NOTES:

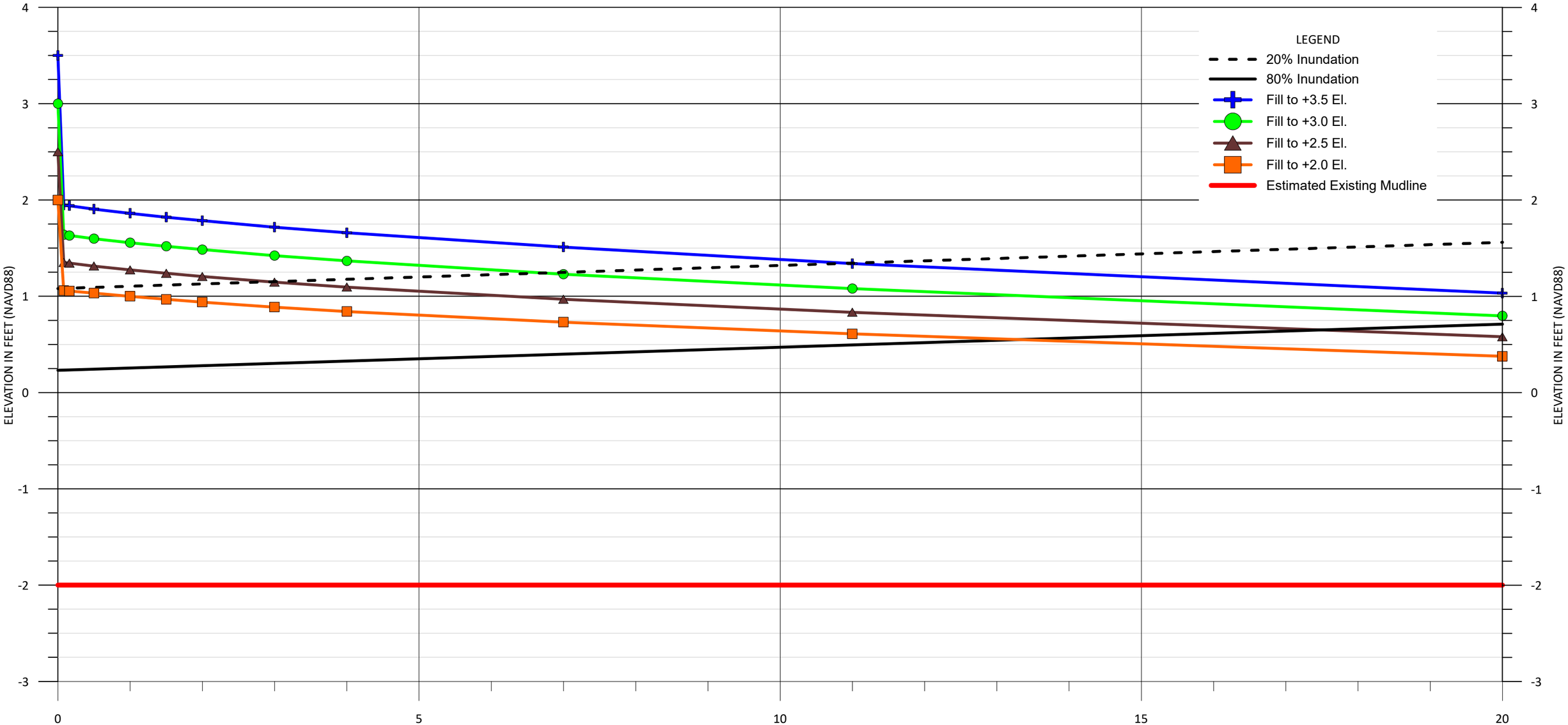
1. ASSUMED CONTAINMENT DIKE FILL SHEAR STRENGTH OF 70 PSF AND UNIT WEIGHT OF 75 PCF.
2. MARSH FILL ASSUMED AS SAND WITH 115 PCF DENSITY.
3. MLW AT EL 0.27 AND MHW AT EL 1.06.
4. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED FURTHER IN OUR REPORT.
5. ASSUMED EXCAVATOR LOADING IS FOR AN EXCAVATOR 15 FEET WIDE WITH 5 FT WIDE PONTOONS WITH A BEARING PRESSURE OF APPROXIMATELY 260 PSF. THE EXCAVATOR MUST BE A MINIMUM OF 10 FEET FROM THE BORROW CHANNEL EDGE AND 5 FT FROM THE CONTAINMENT DIKE. NO EXCAVATOR LOADING FOR LOAD CASE 1, 2, 4, AND 5.
6. DEFORMED SHAPE OF DIKE DUE TO LATERAL PLASTIC DEFORMATION THAT WILL OCCUR DURING CONSTRUCTION. THE DEFORMED SHAPE WILL VARY WITH CONSTRUCTION CONDITIONS.
7. STAGED CONSTRUCTION USING MULTIPLE LIFTS WILL BE REQUIRED TO BUILD DIKES.
8. FACTOR OF SAFETY FOR CASES 1 THROUGH 4 WILL BE IDENTICAL FOR AN EXTERNAL BORROW CANAL AND AN INTERIOR BARROW CANAL.

EARTHEN CONTAINMENT DIKE STABILITY SUMMARY
CELL 2

STATE OF LOUISIANA
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CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: S.T.S.	JOB NO.: 24365
CHECKED BY: H.C.W.	DATE: 2 JULY 2021
CADD FILE: CELL 2.DGN	FIGURE 7



NOTES:

(1) A MUDLINE ELEVATION OF -2.0 WAS FURNISHED BY CPRA

(2) THE PEAT/ORGANIC CLAY THICKNESS ENCOUNTERED AT THIS SITE RANGES FROM APPROXIMATELY 1 TO 7 FEET. VARIATION IN SOIL OR WATER LEVEL CONDITIONS EXIST BETWEEN AND BEYOND THE EXPLORATION POINTS.

(3) SUBSIDENCE RATE OF 0.252 IN/YR ACCOUNTED FOR IN SETTLEMENT CURVES.

(4) EUSTIS ENGINEERING SHOULD BE CONTACTED TO REVISIT GEOTECHNICAL ANALYSES IF ANY ASSUMPTIONS ARE INCORRECT OR INVALID.

(5) MARSH FILL ASSUMED AS SAND WITH 115 PCF DENSITY.

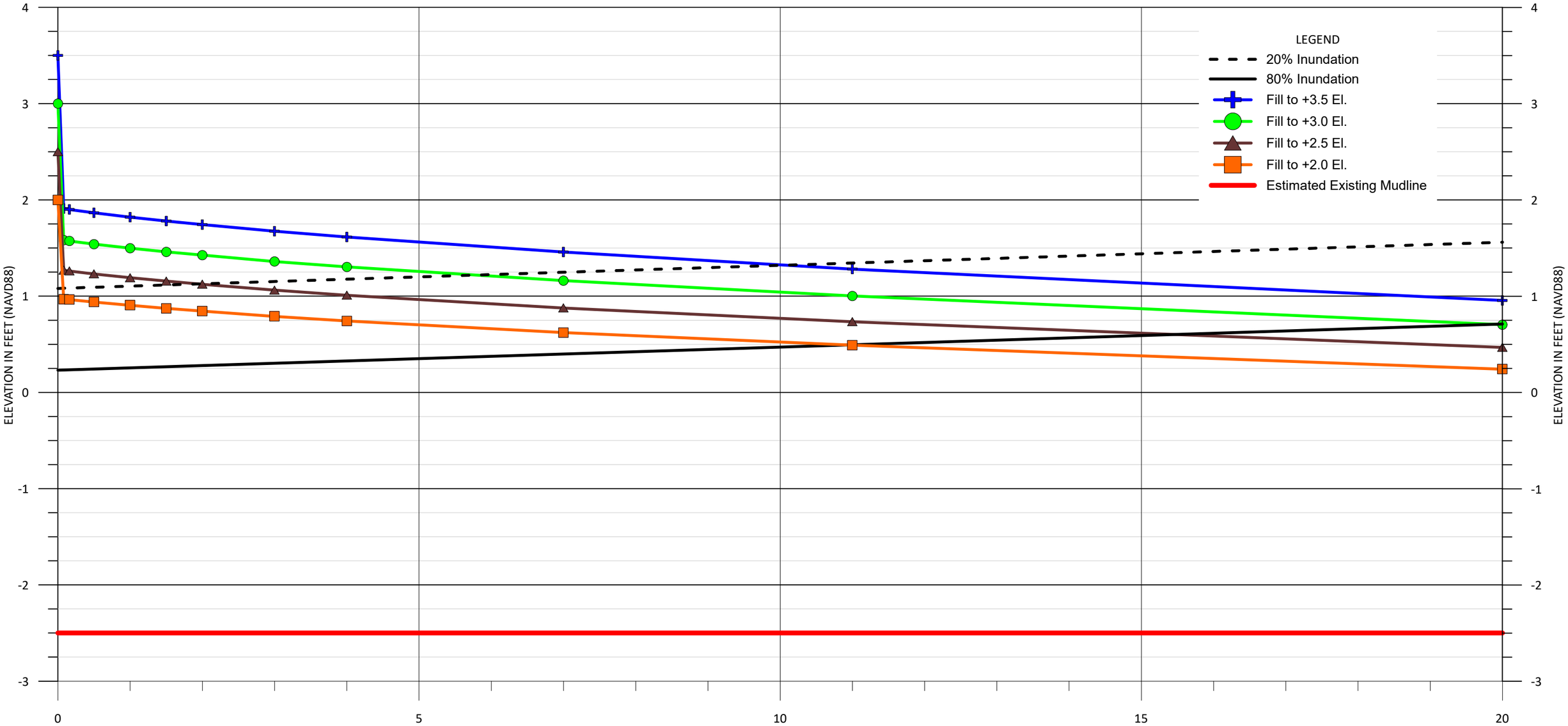
ESTIMATED FINISHED ELEVATION OF THE MARSH FILL DUE TO CONSOLIDATION SETTLEMENT OF SUBSOILS AND MARSH FILL CONSOLIDATION MCA-1 EXISTING MUDLINE EL -2.0

ESTIMATED FINISHED ELEVATION
OF **MARSH FILL**
MCA-1

STATE OF LOUISIANA
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CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 2 JULY 2021
FILE NAME: Settlement Curves.GRF	FIGURE 8



TIME IN YEARS

NOTES:

(1) A MUDLINE ELEVATION OF -2.5 WAS FURNISHED BY CPRA

(2) THE PEAT/ORGANIC CLAY THICKNESS ENCOUNTERED AT THIS SITE RANGES FROM APPROXIMATELY 1 TO 7 FEET. VARIATION IN SOIL OR WATER LEVEL CONDITIONS EXIST BETWEEN AND BEYOND THE EXPLORATION POINTS.

(3) SUBSIDENCE RATE OF 0.252 IN/YR ACCOUNTED FOR IN SETTLEMENT CURVES.

(4) EUSTIS ENGINEERING SHOULD BE CONTACTED TO REVISIT GEOTECHNICAL ANALYSES IF ANY ASSUMPTIONS ARE INCORRECT OR INVALID.

(5) MARSH FILL ASSUMED AS SAND WITH 115 PCF DENSITY.

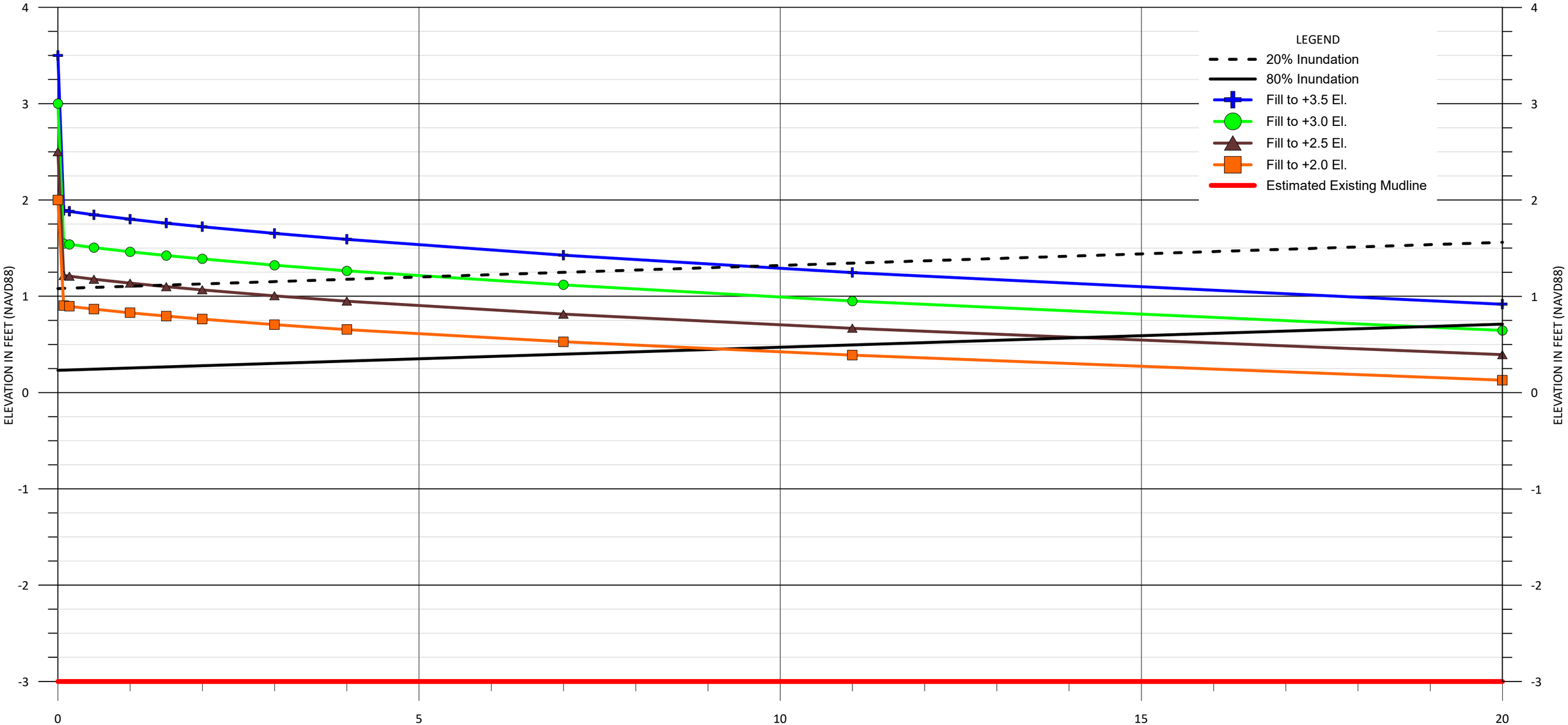
ESTIMATED FINISHED ELEVATION OF THE MARSH FILL DUE TO CONSOLIDATION SETTLEMENT OF SUBSOILS AND MARSH FILL CONSOLIDATION MCA-1 EXISTING MUDLINE EL -2.5

ESTIMATED FINISHED ELEVATION
OF **MARSH FILL**
MCA-1

STATE OF LOUISIANA
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CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 2 JULY 2021
FILE NAME: Settlement Curves.GRF	FIGURE 9



TIME IN YEARS

NOTES:

(1) A MUDLINE ELEVATION OF -3.0 WAS FURNISHED BY CPRA

(2) THE PEAT/ORGANIC CLAY THICKNESS ENCOUNTERED AT THIS SITE RANGES FROM APPROXIMATELY 1 TO 7 FEET. VARIATION IN SOIL OR WATER LEVEL CONDITIONS EXIST BETWEEN AND BEYOND THE EXPLORATION POINTS.

(3) SUBSIDENCE RATE OF 0.252 IN/YR ACCOUNTED FOR IN SETTLEMENT CURVES.

(4) EUSTIS ENGINEERING SHOULD BE CONTACTED TO REVISIT GEOTECHNICAL ANALYSES IF ANY ASSUMPTIONS ARE INCORRECT OR INVALID.

(5) MARSH FILL ASSUMED AS SAND WITH 115 PCF DENSITY.

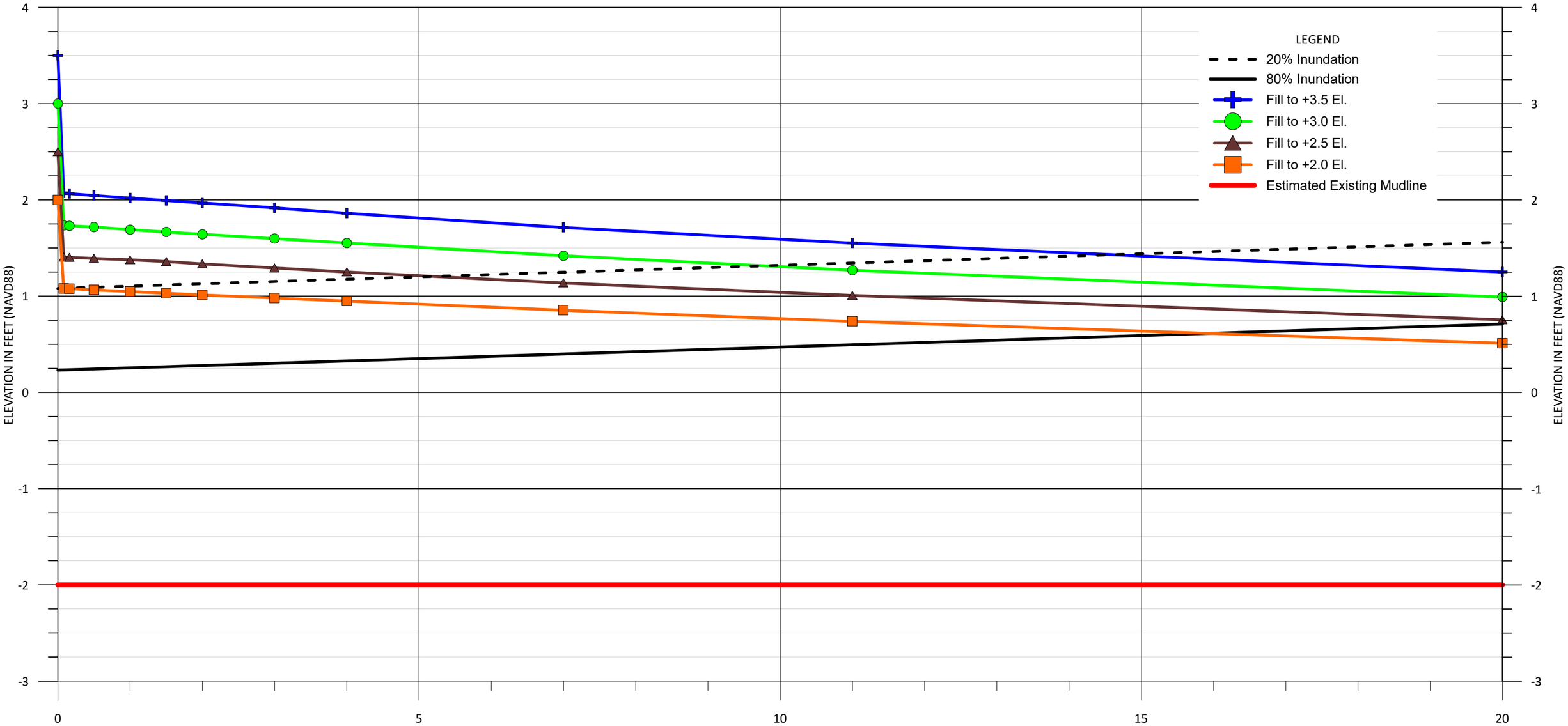
ESTIMATED FINISHED ELEVATION OF THE MARSH FILL DUE TO CONSOLIDATION SETTLEMENT OF SUBSOILS AND MARSH FILL CONSOLIDATION MCA-1 EXISTING MUDLINE EL -3.0

ESTIMATED FINISHED ELEVATION
OF **MARSH FILL**
MCA-1

STATE OF LOUISIANA
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CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 6 JULY 2021
FILE NAME: Settlement Curves.GRF	FIGURE 10



TIME IN YEARS

NOTES:

(1) A MUDLINE ELEVATION OF -2.0 WAS FURNISHED BY CPRA

(2) THE PEAT/ORGANIC CLAY THICKNESS ENCOUNTERED AT THIS SITE RANGES FROM APPROXIMATELY 1 TO 7 FEET. VARIATION IN SOIL OR WATER LEVEL CONDITIONS EXIST BETWEEN AND BEYOND THE EXPLORATION POINTS.

(3) SUBSIDENCE RATE OF 0.252 IN/YR ACCOUNTED FOR IN SETTLEMENT CURVES.

(4) EUSTIS ENGINEERING SHOULD BE CONTACTED TO REVISIT GEOTECHNICAL ANALYSES IF ANY ASSUMPTIONS ARE INCORRECT OR INVALID.

(5) MARSH FILL ASSUMED AS SAND WITH 115 PCF DENSITY.

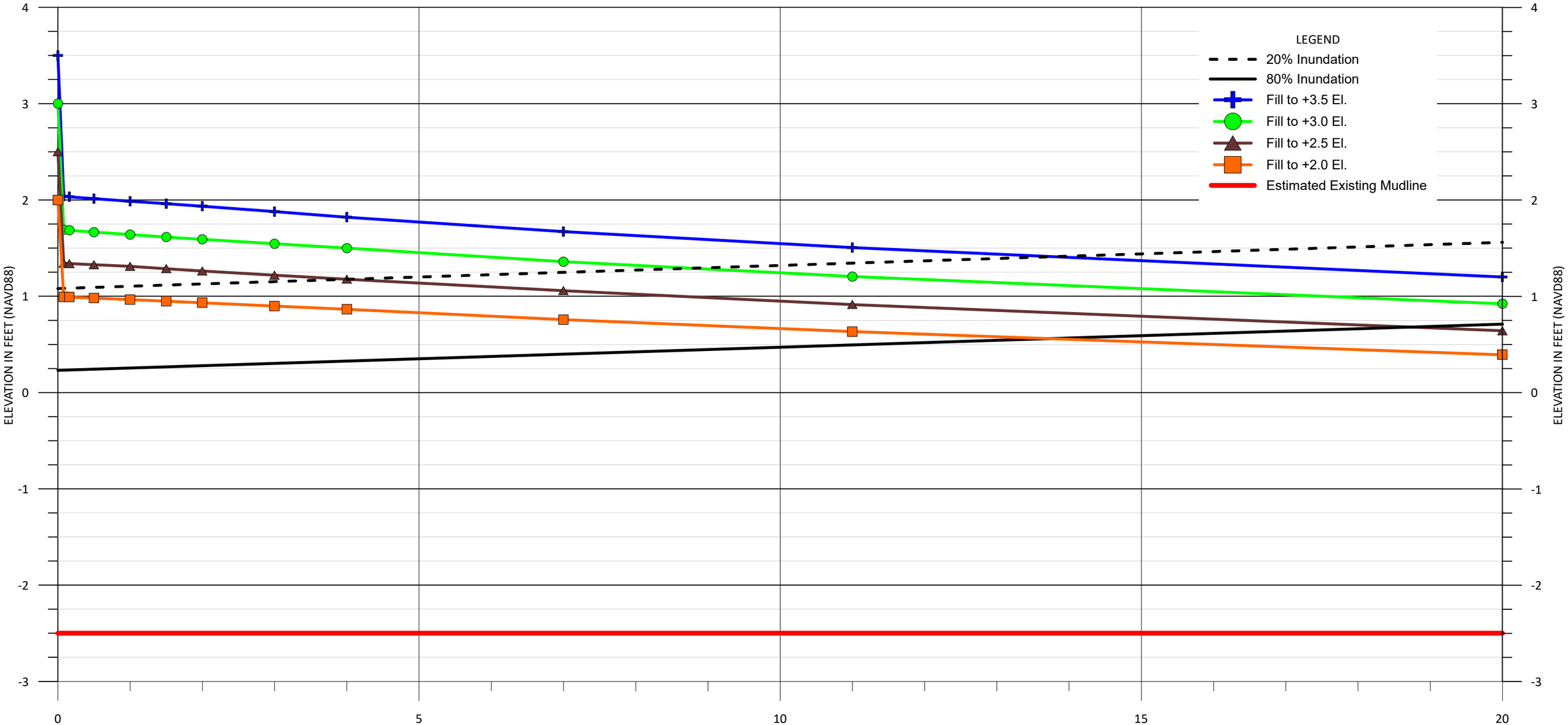
ESTIMATED FINISHED ELEVATION OF THE MARSH FILL DUE TO CONSOLIDATION SETTLEMENT OF SUBSOILS AND MARSH FILL CONSOLIDATION MCA-2 EXISTING MUDLINE EL -2.0

ESTIMATED FINISHED ELEVATION
OF **MARSH FILL**
MCA-2

STATE OF LOUISIANA
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GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
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CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 6 JULY 2021
FILE NAME: Settlement Curves.GRF	FIGURE 11



NOTES:

(1) A MUDLINE ELEVATION OF -2.5 WAS FURNISHED BY CPRA

(2) THE PEAT/ORGANIC CLAY THICKNESS ENCOUNTERED AT THIS SITE RANGES FROM APPROXIMATELY 1 TO 7 FEET. VARIATION IN SOIL OR WATER LEVEL CONDITIONS EXIST BETWEEN AND BEYOND THE EXPLORATION POINTS.

(3) SUBSIDENCE RATE OF 0.252 IN/YR ACCOUNTED FOR IN SETTLEMENT CURVES.

(4) EUSTIS ENGINEERING SHOULD BE CONTACTED TO REVISIT GEOTECHNICAL ANALYSES IF ANY ASSUMPTIONS ARE INCORRECT OR INVALID.

(5) MARSH FILL ASSUMED AS SAND WITH 115 PCF DENSITY.

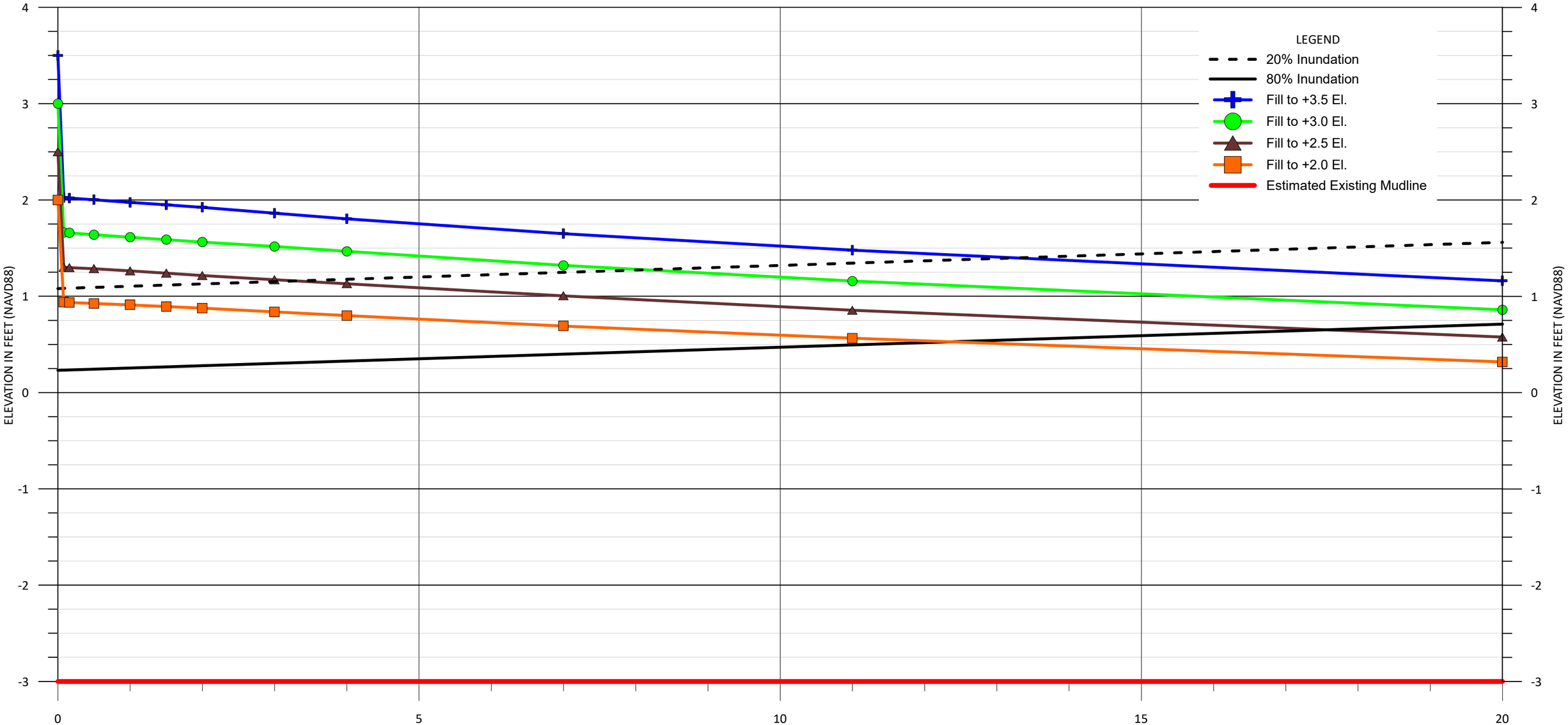
ESTIMATED FINISHED ELEVATION OF THE MARSH FILL DUE TO CONSOLIDATION SETTLEMENT OF SUBSOILS AND MARSH FILL CONSOLIDATION MCA-2 EXISTING MUDLINE EL -2.5

ESTIMATED FINISHED ELEVATION
OF **MARSH FILL**
MCA-2

STATE OF LOUISIANA
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CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 6 JULY 2021
FILE NAME: Settlement Curves.GRF	FIGURE 12



NOTES:

(1) A MUDLINE ELEVATION OF -3.0 WAS FURNISHED BY CPRA

(2) THE PEAT/ORGANIC CLAY THICKNESS ENCOUNTERED AT THIS SITE RANGES FROM APPROXIMATELY 1 TO 7 FEET. VARIATION IN SOIL OR WATER LEVEL CONDITIONS EXIST BETWEEN AND BEYOND THE EXPLORATION POINTS.

(3) SUBSIDENCE RATE OF 0.252 IN/YR ACCOUNTED FOR IN SETTLEMENT CURVES.

(4) EUSTIS ENGINEERING SHOULD BE CONTACTED TO REVISIT GEOTECHNICAL ANALYSES IF ANY ASSUMPTIONS ARE INCORRECT OR INVALID.

(5) MARSH FILL ASSUMED AS SAND WITH 115 PCF DENSITY.

ESTIMATED FINISHED ELEVATION OF THE MARSH FILL DUE TO CONSOLIDATION SETTLEMENT OF SUBSOILS AND MARSH FILL CONSOLIDATION MCA-2 EXISTING MUDLINE EL -3.0

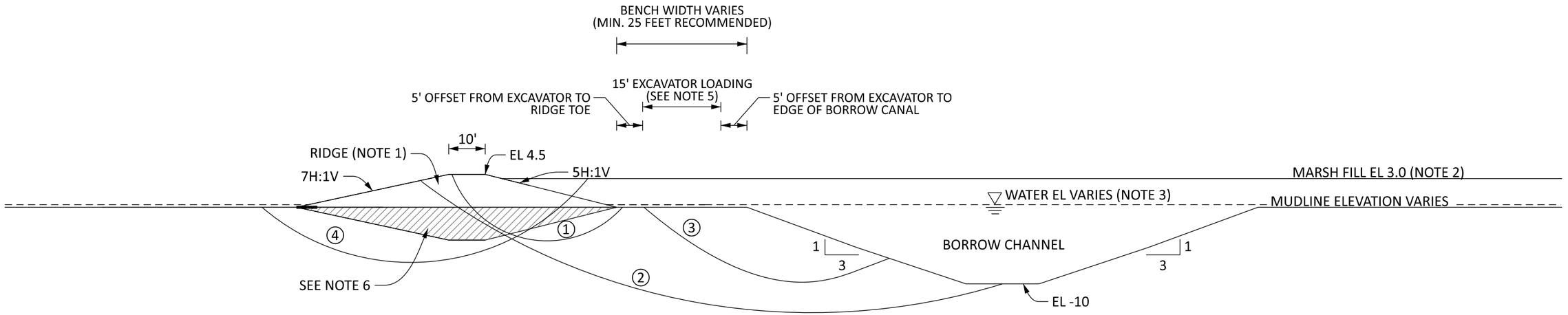
ESTIMATED FINISHED ELEVATION
OF **MARSH FILL**
MCA-2

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 6 JULY 2021
FILE NAME: Settlement Curves.GRF	FIGURE 13

NOT TO SCALE



LOCAL STABILITY OF EARTHEN RIDGE - MINIMUM REQUIRED FOS=1.2		
RIDGE MUDLINE (NAVD88, FT)	STABILITY OF RIDGE AFTER PLACEMENT (CASE ①)	STABILITY OF RIDGE WITH FILLED CELL (CASE ④)
0.0	1.33	1.67
-1.0	1.38	1.56
-2.0	1.37	1.57

STABILITY OF BORROW CHANNEL - MINIMUM REQUIRED FOS=1.2			
RIDGE MUDLINE (NAVD88, FT)	MINIMUM BENCH WIDTH, FT	STABILITY OF RIDGE WITH RESPECT TO BORROW CANAL (CASE ②)	STABILITY OF BORROW CANAL W/ EXCAVATOR LOAD (CASE ③)
0.0	25	1.93	1.75
-1.0	25	1.95	1.75
-2.0	25	1.99	1.88

CASES 1 AND 2 ANALYZED WITH WATER LEVEL AT MLW ON BORROW SIDE AND MHW OPPOSITE BORROW.
CASES 3 AND 4 ANALYZED WITH WATER LEVEL AT MLW.

NOTES:

1. ASSUMED RIDGE FILL WITH IN-SITU MATERIAL WITH SHEAR STRENGTH OF 115 PSF AND UNIT WEIGHT OF 110 PCF.
2. MARSH FILL ASSUMED AS SAND WITH 115 PCF DENSITY.
3. MLW AT EL 0.27 AND MHW AT EL 1.06.
4. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED FURTHER IN OUR REPORT.
5. ASSUMED EXCAVATOR LOADING IS FOR AN EXCAVATOR 15 FEET WIDE WITH 5 FT WIDE PONTOONS WITH A BEARING PRESSURE OF APPROXIMATELY 260 PSF. THE EXCAVATOR MUST BE A MINIMUM OF 5 FEET FROM THE BORROW CHANNEL EDGE AND 5 FT FROM THE RIDGE. NO EXCAVATOR LOADING FOR LOAD CASE 1, 2, AND 4.
6. DEFORMED SHAPE OF RIDGE DUE TO LATERAL PLASTIC DEFORMATION THAT WILL OCCUR DURING CONSTRUCTION. THE DEFORMED SHAPE WILL VARY WITH CONSTRUCTION CONDITIONS.
7. STAGED CONSTRUCTION USING MULTIPLE LIFTS WILL BE REQUIRED TO BUILD RIDGES.

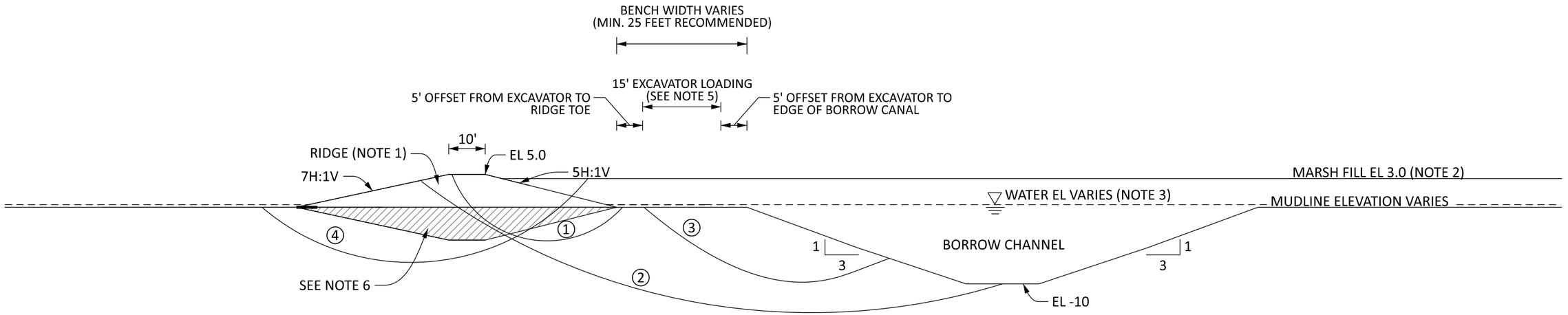
EARTHEN RIDGE STABILITY SUMMARY
RIDGE CONSTRUCTED WITH IN-SITU MATERIAL

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: S.T.S.	JOB NO.: 24365
CHECKED BY: H.C.W.	DATE: 20 APRIL 2021
CADD FILE: RIDGE IN-SITU.DGN	FIGURE 14 (SHEET 1 OF 2)

NOT TO SCALE



LOCAL STABILITY OF EARTHEN RIDGE - MINIMUM REQUIRED FOS=1.2		
RIDGE MUDLINE (NAVD88, FT)	STABILITY OF RIDGE AFTER PLACEMENT (CASE ①)	STABILITY OF RIDGE WITH FILLED CELL (CASE ④)
0.0	1.31	1.55
-1.0	1.28	1.45
-2.0	1.27	1.47

STABILITY OF BORROW CHANNEL - MINIMUM REQUIRED FOS=1.2			
RIDGE MUDLINE (NAVD88, FT)	MINIMUM BENCH WIDTH, FT	STABILITY OF RIDGE WITH RESPECT TO BORROW CANAL (CASE ②)	STABILITY OF BORROW CANAL W/ EXCAVATOR LOAD (CASE ③)
0.0	25	1.83	1.69
-1.0	25	1.72	1.75
-2.0	25	1.88	1.83

CASES 1 AND 2 ANALYZED WITH WATER LEVEL AT MLW ON BORROW SIDE AND MHW OPPOSITE BORROW.
CASES 3 AND 4 ANALYZED WITH WATER LEVEL AT MLW.

NOTES:

1. ASSUMED RIDGE FILL WITH IN-SITU MATERIAL WITH SHEAR STRENGTH OF 115 PSF AND UNIT WEIGHT OF 110 PCF.
2. MARSH FILL ASSUMED AS SAND WITH 115 PCF DENSITY.
3. MLW AT EL 0.27 AND MHW AT EL 1.06.
4. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED FURTHER IN OUR REPORT.
5. ASSUMED EXCAVATOR LOADING IS FOR AN EXCAVATOR 15 FEET WIDE WITH 5 FT WIDE PONTOONS WITH A BEARING PRESSURE OF APPROXIMATELY 260 PSF. THE EXCAVATOR MUST BE A MINIMUM OF 5 FEET FROM THE BORROW CHANNEL EDGE AND 5 FT FROM THE RIDGE. NO EXCAVATOR LOADING FOR LOAD CASE 1, 2, AND 4.
6. DEFORMED SHAPE OF RIDGE DUE TO LATERAL PLASTIC DEFORMATION THAT WILL OCCUR DURING CONSTRUCTION. THE DEFORMED SHAPE WILL VARY WITH CONSTRUCTION CONDITIONS.
7. STAGED CONSTRUCTION USING MULTIPLE LIFTS WILL BE REQUIRED TO BUILD RIDGES.

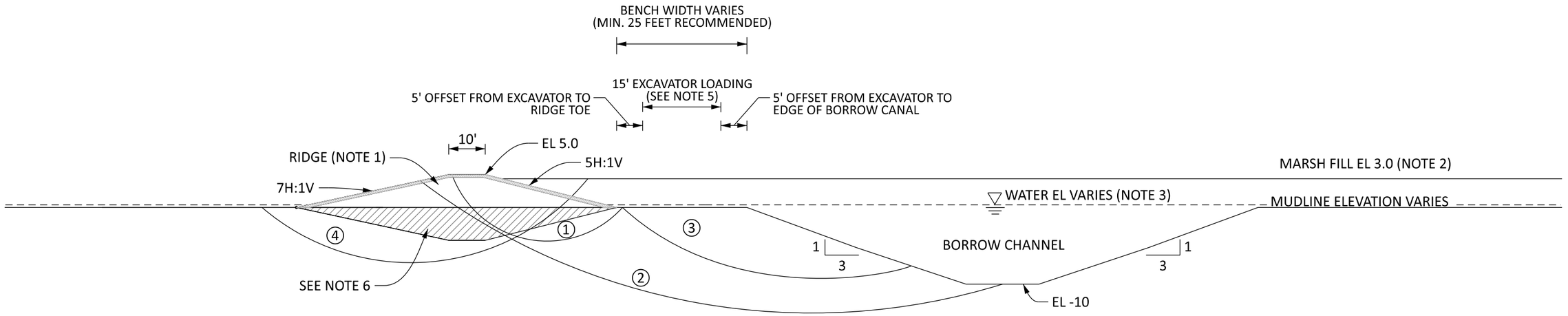
EARTHEN RIDGE STABILITY SUMMARY
RIDGE CONSTRUCTED WITH IN-SITU MATERIAL

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: S.T.S.	JOB NO.: 24365
CHECKED BY: H.C.W.	DATE: 20 APRIL 2021
CADD FILE: RIDGE IN-SITU.DGN	FIGURE 14 (SHEET 2 OF 2)

NOT TO SCALE



LOCAL STABILITY OF EARTHEN RIDGE - MINIMUM REQUIRED FOS=1.2		
RIDGE MUDLINE (NAVD88, FT)	STABILITY OF RIDGE AFTER PLACEMENT (CASE ①)	STABILITY OF RIDGE WITH FILLED CELL (CASE ④)
0.0	1.30	1.45
-1.0	1.28	1.45
-2.0	1.27	1.48

STABILITY OF BORROW CHANNEL - MINIMUM REQUIRED FOS=1.2			
RIDGE MUDLINE (NAVD88, FT)	MINIMUM BENCH WIDTH, FT	STABILITY OF RIDGE WITH RESPECT TO BORROW CANAL (CASE ②)	STABILITY OF BORROW CANAL W/ EXCAVATOR LOAD (CASE ③)
0.0	25	1.81	1.73
-1.0	25	1.70	1.75
-2.0	25	1.86	1.83

CASES 1 AND 2 ANALYZED WITH WATER LEVEL AT MLW ON BORROW SIDE AND MHW OPPOSITE BORROW.
CASES 3 AND 4 ANALYZED WITH WATER LEVEL AT MLW.

NOTES:

1. ASSUMED RIDGE FILL WITH IN-SITU MATERIAL WITH SHEAR STRENGTH OF 115 PSF AND UNIT WEIGHT OF 110 PCF TO EL 4.0 TOPPED WITH RIVER SAND WITH A FRICTION ANGLE OF 28 AND UNIT WEIGHT OF 115 PCT TO EL 5.0.
2. MARSH FILL ASSUMED AS SAND WITH 115 PCF DENSITY.
3. MLW AT EL 0.27 AND MHW AT EL 1.06.
4. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED FURTHER IN OUR REPORT.
5. ASSUMED EXCAVATOR LOADING IS FOR AN EXCAVATOR 15 FEET WIDE WITH 5 FT WIDE PONTOONS WITH A BEARING PRESSURE OF APPROXIMATELY 260 PSF. THE EXCAVATOR MUST BE A MINIMUM OF 5 FEET FROM THE BORROW CHANNEL EDGE AND 5 FT FROM THE RIDGE. NO EXCAVATOR LOADING FOR LOAD CASE 1, 2, AND 4.
6. DEFORMED SHAPE OF RIDGE DUE TO LATERAL PLASTIC DEFORMATION THAT WILL OCCUR DURING CONSTRUCTION. THE DEFORMED SHAPE WILL VARY WITH CONSTRUCTION CONDITIONS.
7. STAGED CONSTRUCTION USING MULTIPLE LIFTS WILL BE REQUIRED TO BUILD RIDGES.

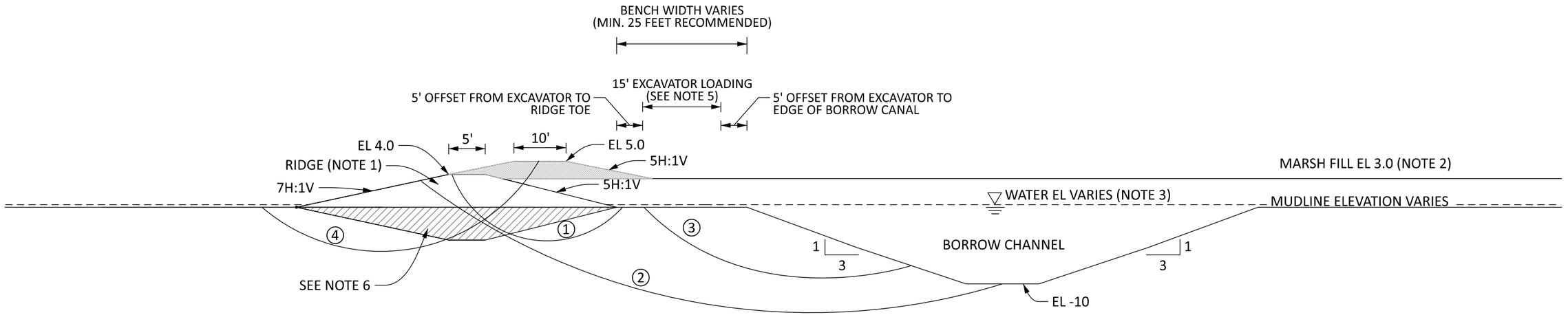
EARTHEN RIDGE STABILITY SUMMARY
RIDGE CONSTRUCTED WITH IN-SITU MATERIAL AND
1-FT RIVER SAND CAP

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: S.T.S.	JOB NO.: 24365
CHECKED BY: H.C.W.	DATE: 2 JULY 2021
CADD FILE: 1-FT RIVER.DGN	FIGURE 15

NOT TO SCALE



LOCAL STABILITY OF EARTHEN RIDGE - MINIMUM REQUIRED FOS=1.2		
RIDGE MUDLINE (NAVD88, FT)	STABILITY OF RIDGE AFTER PLACEMENT (CASE ①)	STABILITY OF RIDGE WITH FILLED CELL (CASE ④)
0.0	1.32	1.32
-1.0	1.50	1.33
-2.0	1.47	1.38

STABILITY OF BORROW CHANNEL - MINIMUM REQUIRED FOS=1.2			
RIDGE MUDLINE (NAVD88, FT)	MINIMUM BENCH WIDTH, FT	STABILITY OF RIDGE WITH RESPECT TO BORROW CANAL (CASE ②)	STABILITY OF BORROW CANAL W/ EXCAVATOR LOAD (CASE ③)
0.0	25	2.10	1.71
-1.0	25	2.12	1.79
-2.0	25	2.15	1.87

CASES 1 AND 2 ANALYZED WITH WATER LEVEL AT MLW ON BORROW SIDE AND MHW OPPOSITE BORROW.
CASES 3 AND 4 ANALYZED WITH WATER LEVEL AT MLW.

NOTES:

1. ASSUMED RIDGE FILL WITH IN-SITU MATERIAL WITH SHEAR STRENGTH OF 115 PSF AND UNIT WEIGHT OF 110 PCF TO EL 4.0 WILL BE PLACED, FOLLOWED BY SAND MARSH FILL TO EL 3.0. AFTER THE MARSH FILL IS PLACED, THE RIDGE WILL BE STRADDLED WITH SAND FILL TO EL 5.0.
2. MARSH FILL ASSUMED AS SAND WITH 115 PCF DENSITY.
3. MLW AT EL 0.27 AND MHW AT EL 1.06.
4. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED FURTHER IN OUR REPORT.
5. ASSUMED EXCAVATOR LOADING IS FOR AN EXCAVATOR 15 FEET WIDE WITH 5 FT WIDE PONTOONS WITH A BEARING PRESSURE OF APPROXIMATELY 260 PSF. THE EXCAVATOR MUST BE A MINIMUM OF 5 FEET FROM THE BORROW CHANNEL EDGE AND 5 FT FROM THE RIDGE. NO EXCAVATOR LOADING FOR LOAD CASE 1, 2, AND 4.
6. DEFORMED SHAPE OF RIDGE DUE TO LATERAL PLASTIC DEFORMATION THAT WILL OCCUR DURING CONSTRUCTION. THE DEFORMED SHAPE WILL VARY WITH CONSTRUCTION CONDITIONS.
7. STAGED CONSTRUCTION USING MULTIPLE LIFTS WILL BE REQUIRED TO BUILD RIDGES.

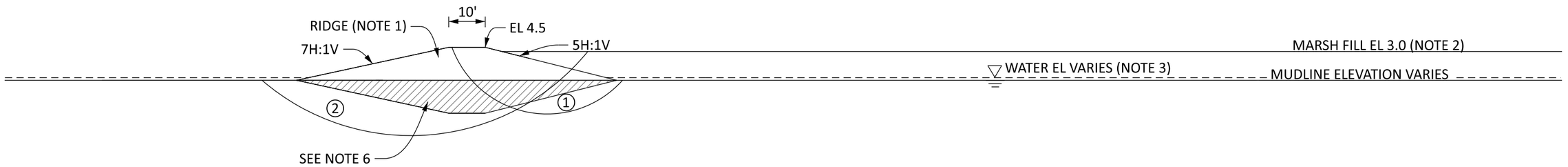
EARTHEN RIDGE STABILITY SUMMARY
RIDGE CONSTRUCTED WITH IN-SITU MATERIAL AND
STRADDLED WITH 1-FT RIVER SAND CAP

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: S.T.S.	JOB NO.: 24365
CHECKED BY: H.C.W.	DATE: 2 JULY 2021
CADD FILE: 1-FT RIVER- F17.DGN	FIGURE 16

NOT TO SCALE



LOCAL STABILITY OF EARTHEN RIDGE - MINIMUM REQUIRED FOS=1.2		
RIDGE MUDLINE (NAVD88, FT)	STABILITY OF RIDGE AFTER PLACEMENT (CASE ①)	STABILITY OF RIDGE WITH FILLED CELL (CASE ②)
0.0	1.42	1.58
-1.0	1.39	1.59
-2.0	1.38	1.61

CASE 1 ANALYZED WITH WATER LEVEL AT MLW ON BORROW SIDE AND MHW OPPOSITE BORROW.
CASE 2 ANALYZED WITH WATER LEVEL AT MLW.

NOTES:

1. ASSUMED RIDGE FILL WITH RIVER SAND WITH A FRICTION ANGLE OF 28° AND UNIT WEIGHT OF 115 PCF.
2. MARSH FILL ASSUMED AS SAND WITH 115 PCF DENSITY.
3. MLW AT EL 0.27 AND MHW AT EL 1.06.
4. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED FURTHER IN OUR REPORT.
5. DEFORMED SHAPE OF RIDGE DUE TO LATERAL PLASTIC DEFORMATION THAT WILL OCCUR DURING CONSTRUCTION. THE DEFORMED SHAPE WILL VARY WITH CONSTRUCTION CONDITIONS.
6. STAGED CONSTRUCTION USING MULTIPLE LIFTS WILL BE REQUIRED TO BUILD RIDGES.

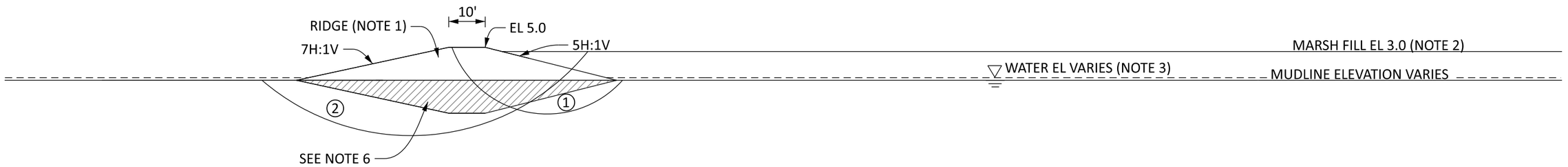
EARTHEN RIDGE STABILITY SUMMARY
RIDGE CONSTRUCTED WITH RIVER SAND

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: S.T.S.	JOB NO.: 24365
CHECKED BY: H.C.W.	DATE: 20 APRIL 2021
CADD FILE: RIVER SAND.DGN	FIGURE 17 (SHEET 1 OF 2)

NOT TO SCALE



LOCAL STABILITY OF EARTHEN RIDGE - MINIMUM REQUIRED FOS=1.2		
RIDGE MUDLINE (NAVD88, FT)	STABILITY OF RIDGE AFTER PLACEMENT (CASE ①)	STABILITY OF RIDGE WITH FILLED CELL (CASE ②)
0.0	1.33	1.50
-1.0	1.31	1.50
-2.0	1.31	1.52

CASE 1 ANALYZED WITH WATER LEVEL AT MLW ON BORROW SIDE AND MHW OPPOSITE BORROW.
CASE 2 ANALYZED WITH WATER LEVEL AT MLW.

NOTES:

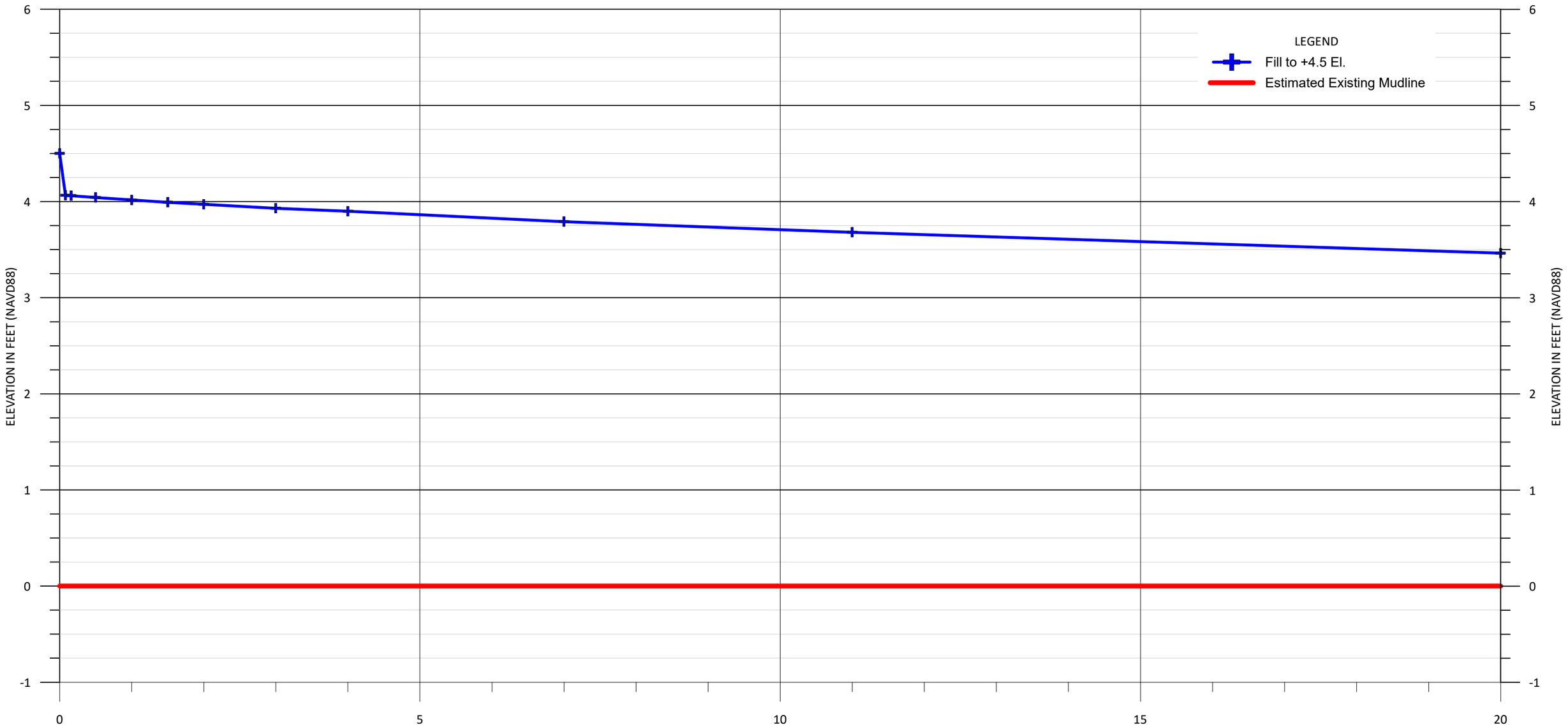
1. ASSUMED RIDGE FILL WITH RIVER SAND WITH A FRICTION ANGLE OF 28° AND UNIT WEIGHT OF 115 PCF.
2. MARSH FILL ASSUMED AS SAND WITH 115 PCF DENSITY.
3. MLW AT EL 0.27 AND MHW AT EL 1.06.
4. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED FURTHER IN OUR REPORT.
5. DEFORMED SHAPE OF RIDGE DUE TO LATERAL PLASTIC DEFORMATION THAT WILL OCCUR DURING CONSTRUCTION. THE DEFORMED SHAPE WILL VARY WITH CONSTRUCTION CONDITIONS.
6. STAGED CONSTRUCTION USING MULTIPLE LIFTS WILL BE REQUIRED TO BUILD RIDGES.

EARTHEN RIDGE STABILITY SUMMARY
RIDGE CONSTRUCTED WITH RIVER SAND

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: S.T.S.	JOB NO.: 24365
CHECKED BY: H.C.W.	DATE: 20 APRIL 2021
CADD FILE: RIVER SAND.DGN	FIGURE 17 (SHEET 2 OF 2)



TIME IN YEARS

NOTES:

(1) A MUDLINE ELEVATION OF 0.0 WAS FURNISHED BY CPRA

(2) THE PEAT/ORGANIC CLAY THICKNESS ENCOUNTERED AT THIS SITE RANGES FROM APPROXIMATELY 1 TO 3 FEET. VARIATION IN SOIL OR WATER LEVEL CONDITIONS EXIST BETWEEN AND BEYOND THE EXPLORATION POINTS.

(3) SUBSIDENCE RATE OF 0.252 IN/YR ACCOUNTED FOR IN SETTLEMENT CURVES.

(4) EUSTIS ENGINEERING SHOULD BE CONTACTED TO REVISIT GEOTECHNICAL ANALYSES IF ANY ASSUMPTIONS ARE INCORRECT OR INVALID.

(5) RIDGE MATERIAL ASSUMED WITH AN AVERAGE DENSITY OF 115 PCF.

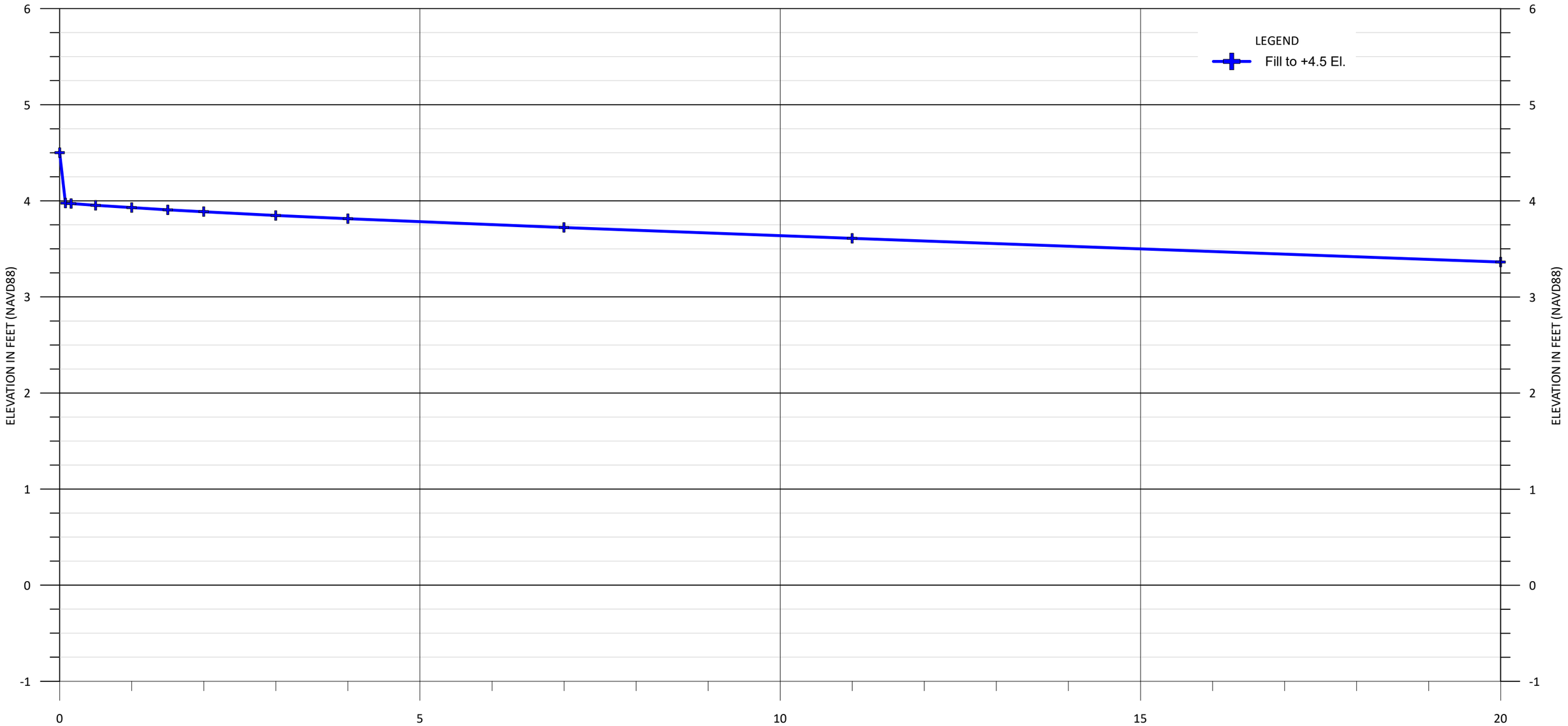
ESTIMATED FINISHED ELEVATION OF THE
RIDGE
DUE TO CONSOLIDATION SETTLEMENT OF SUBSOILS
EXISTING MUDLINE EL 0.0

ESTIMATED FINISHED ELEVATION
RIDGE

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 2 JULY 2021
FILE NAME: Settlement Curves.GRF	FIGURE 18



NOTES:

(1) A MUDLINE ELEVATION OF -2.0 WAS FURNISHED BY CPRA

(2) THE PEAT/ORGANIC CLAY THICKNESS ENCOUNTERED AT THIS SITE RANGES FROM APPROXIMATELY 1 TO 3 FEET. VARIATION IN SOIL OR WATER LEVEL CONDITIONS EXIST BETWEEN AND BEYOND THE EXPLORATION POINTS.

(3) SUBSIDENCE RATE OF 0.252 IN/YR ACCOUNTED FOR IN SETTLEMENT CURVES.

(4) EUSTIS ENGINEERING SHOULD BE CONTACTED TO REVISIT GEOTECHNICAL ANALYSES IF ANY ASSUMPTIONS ARE INCORRECT OR INVALID.

(5) RIDGE MATERIAL ASSUMED WITH AN AVERAGE DENSITY OF 115 PCF.

ESTIMATED FINISHED ELEVATION OF THE
RIDGE
DUE TO CONSOLIDATION SETTLEMENT OF SUBSOILS
EXISTING MUDLINE EL -2.0

ESTIMATED FINISHED ELEVATION
RIDGE

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY
GRAND BAYOU RIDGE AND MARSH RESTORATION
PLAQUEMINES PARISH, LOUISIANA
CPRA CONTRACT NO. 4400015385
CPRA PROJECT NO. BA-0217, TASK NO. 3

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: H.C.W.	JOB NO.: 24365
CHECKED BY: J.J.H.	DATE: 2 JULY 2021
FILE NAME: Settlement Curves.GRF	FIGURE 19

APPENDIX I

Project: BA-0217 Grand Bayou Ridge Marsh Creation Project
Dated 7/16/2021
Task: Draft Geotechncial Engineering Report Submittal
Reviewer: Adam Linson, Matt Melton

State of Louisiana

CPRA
Coastal Protection and Restoration Authority of Louisiana

Comment No.	Document	Section	Electronic File Page Number	Reference	Comment Date	Comment	Comment Type	Commentator	Evaluator	Evaluation	Comment Date	Comment	CPRA Action	Comment Date	Further Response
1	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Geotechnical Data Reports	9 of 792	Data Reports	4/28/2021	Have the data reports been finalized?	For Information Only	AL				We will have the final data report to you next week.	Close with comment	6/16/2021	
2	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	10. Soil Design Parameters	9 of 792	Consolidation Parameters	4//28/2021	Was a site specific correlation between MC and CR developed? Or were the consolidation test results used to confirm/select and existing correlation? A plot showing the correlation and consolidation results would be beneficial in understanding how CR was determined.	Critical	MM				CR ratios were determined using correlation between moisture content and CR value form the consolidation tests for BA-0217, BA-0240, and BA-0173. We will include correlation plot in final report.	Close without comment	6/16/2021	
3	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	10. Soil Design Parameters	9 of 792	Consolidation Parameters	4//28/2021	How were the design cv values determined? the report does not mention specify. Were the based on correlations similar to CR? Plots of cv, P'c, OCR, etc. with depth would be beneficial in understanding how the design consolidation parameters were developed.	Critical	MM				As decribed in CPRA's Geotechnical Standards Cv vaules from consolidation tests in coastal Louisiana are not accurate as they are too low. Therefore, as described in the Geotechnical Standards, Cv values were determined using NAVFAC manual 7.01 for LL and CV correlation. We still found these to be too low as approximatlet 50% of settlement had occures at the end of the 20 year design life. For clay/silty clay, we used a Cv value of 110 sft/yr, which is an estimate Eustis has generally used. For silts, we used a CV value of 1,000 sft/yr, as it will act somewhat like a drainage layer. THe Cv value for the upper layer of pt/oh was determined by the assumption that the settlement in that layer will occuur almost instantaneously similar to a mudwave. Using these Cv values, appoximately 75-80% of settlement occurs during the 20-year design life, which we believe is more accurate. We will include	Further response required	6/16/2021	CPRA will further evaluate this comment reponse at a later time. Likely between our 30% and 95% designs (between now and August).
4	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	32. Marsh Fill Material	16 of 792	References	4/28/2021	Was BA-0240 data also used here?	For Information Only	AL				Need clarification.	Close with comment	6/16/2021	
5	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	39. Results of Stability Analyses	18 of 792	Deformed Shape	4/27/2021	Is a deformed cross section for the ridge on the portions of the existing ridge above the waterline accurate?	For Information Only	AL				The soils encountered to el -3 n the borings and cpts consist of extremely soft soils with a cohesion of 60 pcf and a high moisture content, we believe these soils will be displaced if they are present no matter if the ridge is above the water level or not. If you notice in the stability analyses for the ridge the deformed section is much smaller (to el -3) than that of the containment dikes. This is due to the more competent soil below el -3. If these more competent soils are present above el -3 there will be less deformed shape, however stability should not be an issue due to the soils being stronger..	Close without comment	6/16/2021	
6	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	45. Ridge Soil Bearing Values - During Construction	20 of 729	Ridge Bearing Capacity	4/28/2021	Section states that Su needs to be 150-175 psf to reach a FOS of 1.0 for bearing capacity. Does it need to be this high to achieve FS=1.0? Using the 518 psf and Nc of 5.14 that were used in the bearing calculations at the end of the report indicates that about 100 psf is required for FS=1.0. I assume the 150-175 range is based on reducing Su by 2/3 for local bearing capacity failure.	General	MM				While this is technically correct, the paragraph is meant to illustrate the localized bearing capacity failures that will occur in the weaker soils at el -3 and above during construction.	Close without comment	6/16/2021	
7	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	50 . Stafed Containment Dike and Ridge Construction	22 of 729	Lift schedule	4/28/2021	The 1-1.5 ft final stage thickness and 3.0 max lift thickness in Seciton 48 will require more than two lifts depending on the mudline. CPRA would prefer to keep the number of lifts to a maximum of 2. Was a scenario where the entire dike was constructed to just above the mean high water intiall in the first stage and then constructed to the full height in the second lift considered?	General	MM				We believe this construction schedule is the most conducive due to the reasons outlined in the report.	Close without comment	6/16/2021	
8	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Soil Parameter Plots	28 of 782	Consolidation Parameters	4/28/2021	Plots show CR but cv and stress history parameters used for the analysis are not stated in the report. Plots of cv and P'c and/or OCR should be included.	Critical	MM				Will include in final report	Comment will be closed upon verification	6/16/2021	
9	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Soil Parameter Plots	28 of 782	Su from CPT	4/28/2021	The GDR says that Nkt=15 and Nc=20 were used to evaluate Su from the CPT data. Is the Su data here based on qc or qt?	General	MM				It is based on qc	Close with comment	6/16/2021	Please state on plots that Su is based on qc and the corresponding Nc value.
10	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Soil Parameter Plots	28 of 782	Peat layer MC	4/28/2021	For the Peat layer at the surface of MCAs 1 and 2 how was the design MC of 300% determined? The plot does not show any values in this range. Most moisture contents are in the 180 to 220 range. Are there additional values that were not included on the plot?	General	MM				Yes. For the final report, we will put a break in the plot to show the full range of MC.	Comment will be closed upon verification	6/16/2021	
11	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Soil Design Parameters	28-30 of 792	UU Results	4/27/2021	There are a lot of samples that fall below the C/P lines. Was there a lot of sample disturbance or are there other reasons for such low test results?	General	AL				This is mainly due to sample disturbance.	Close without comment	6/16/2021	
12	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	ECD Dike Stabiility Summary	31 of 782	FOS for Case 4	4/28/2021	Case 4 is the only case that fails to meet the FOS for an ECD with 4:1 side slopes. Was the inclusion of strength gain in the foundaiton soils considered to increase the FOS? The ECD will be constructed in advance of fill placement which will allow for consoildaiton and strength gain to take place prior to the loading conditions in Case 4. Accounting for some strength gain may allow for a 4:1 ECD.	Critical	MM				Strength gain was modeled in the form of the deformed shape. With the CMFE to +3.0 instead of +3.5 as oulined in the comment below, preliminary analyses shows a 4H:1V ECD will be constructable	Close without comment	6/16/2021	
13	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	ECD Stability Summary	31-32 of 792	Freeboard	4/27/2021	After discussion with the project team, 1 foot of freeboard is preferred across all projects. We are also looking at a maximum fill elevation of +3.0' for the marsh fill. Approximately how much would the FS decrease if the CMFE was assumed to be at +3.0' with an ECD constructed to +4.0' with 4H:1V side slopes?	Critical	AL				Preliminary analyses show that the FOS will increase and an ECD with 4H:1V side slope will be constructable.	Close without comment	6/16/2021	
14	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Earthen Ridge Stability Summary	39 of 792	Potential Geotextile?	4/27/2021	Is that geotextile being shown on the outside toe of the ECD in this figure?	General	AL				Geotextiles were not used in any of the analyses.	Close without comment	6/16/2021	
15	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Earthen Ridge Stability Summary	40-41 of 792	Ridge Template with Sand Cap	5/7/2021	Can the ridge be evaluated for stability with an offset sandcap? In other words, build the ECD template with 7H:1V side slopes on the Grand Bayou side and 5:1V slopes on the marsh side with a 5-ft crown using in-situ material. Then, after pumping, the template would be completed by pushing a sand cap onto the "ECD" with matching side slopes and a 10-ft crown..	Critical	AL				Yes	Further response required	6/16/2021	Please evaluate a stability case for failure of the ridge after second lift construction with placement of the marsh fill.
16	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Earthen Ridge Settlement	43 of 792	Worst Case Scenario	4/230	Can Eustis evaluate the settlement at a mudline of -2.0 ft, the worst case scenario?	General	AL				Yes	Comment will be closed upon verification in the next design package	6/16/2021	
17	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Appendix II	50 of 792	Order of Sheets	4/27/2021	Can the output files be placed at the end of the appendix, with the drawings in successive pages?	General	AL				Yes	Comment will be closed upon verification in the next design package	6/16/2021	

Project: BA-0217 Grand Bayou Ridge Marsh Creation Project
Dated 7/16/2021
Task: Draft Geotechncial Engineering Report Submittal
Reviewer: Adam Linson, Matt Melton

State of Louisiana

CPRA
Coastal Protection and Restoration Authority of Louisiana

Comment No.	Document	Section	Electronic File Page Number	Reference	Comment Date	Comment	Comment Type	Commentator	Evaluator	Evaluation	Comment Date	Comment	CPRA Action	Comment Date	Further Response
18	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Appendix II	50-343 of 792	Exit Pit on Cases A-2	4/27/2021	Please double check the exit pits for the A-2 cases.	General	AL				These exit points were chosen because anything higher on the slope is not a realistic slope stability failure surface, it is more of a beaing capacity issue. With that in mind, is a marsh buggy load of 260 psf realistic? That seems high, especialilly given that they can essentially float. We can discuss more in depth in our meeting.	Further response required	6/16/2021	A buggy load of 260 is the standard provided in CPRA's Marsh Creation Design Guidelines.
19	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Appendix II	215-343 of 792	Materials Table Cut Off	4/28/2021	The materials table on the specified pages are cut off.	General	AL				Will correct for final report	Comment will be closed upon verification in the next design package	6/16/2021	
20	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Appendix IV	376 of 792	Marsh Fill Consolidation Values	4/28/2021	The initial values for the consolidation settlement of the marsh fill (self weight) are incorrect at time t = 0.08 days. This does not appear to affect the remaining calculations.	For Information Only	AL				That is due to the significant figures feature being set to a diffferent setting in those cells in excel, the actual numbers computed are correct. Will modify in final report.	Comment will be closed upon verification in the next design package	6/16/2021	
21	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Appendix V	508-729 of 792	Earthen Ridge Deformed Shape	4/29/2021	Please provide some clarity on the deformed shape near the toes for the in-situ/sand cap scenarios. Near the toes of the ridge with in-situ/sand cap, in-situ material is shown in the deformed shape. Shouldn't this portion of the deformed shape be sand?	Critical	AL				The thought is that the sand will be placed on top of an in-situ template, thereore the the material in the deformed shape would be primarily the in-situ material. It's not a perfect model, but we believe it is the model that most accurately depicts what will happen.	Close without comment	6/16/2021	
22	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Appendix VI	786 of 792	MCA Settlement Calculations	4/28/2021	The sample calculations in Appendix VI are only for the ridge. Please provide calculaitons for the MCAs.	Critical	MM				Calculations for the MCAs are provided in Appendix IV.	Close without comment	6/16/2021	
23	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Appendix VI	786 of 792	cv	4/28/2021	In the sample calculaitons cv is the same for all soil layers at 110 ft2/yr. A quick review of consolidation test results show values lower than 110 ft2/yr. Also it seems unlikely that all soil layers would have the same cv.	Critical	MM				See response to comment 3	Further response required	6/16/2021	See comment 3.
24	24365 - CPRA - Grand Bayou Ridge and Marsh Restoration - Draft Report	Appendix VI	790 of 792	Settlement of the Ridge	4/30/2021	Sand consolidation was estiamted in marsh fill but not for the ridge? This analysis is for sand only case. What about in-situ sand mix? or in-situ only and accounting for shrinkage? Is sand the worst case scenario? The mudline should probably be -2.0' to show the most conservative case.	Critical	AL				We wil include sand consolidation in the final report, however will not have a significant impact. We modeled sand as it will be the worst case scenario due to the higher unit weight. Mudline at el 0 was used as an average of the two average mudlines (0.29 and -0.68) in the furnished Geotechnical Parameters. We can analyze alternate scenarios if needed.	Further response required	6/16/2021	Refer to comment 16. Please evaluate at a mudline of -2.0 feet.

BA-0217 Grand Bayou Ridge Marsh Creation Project

Geotechnical Parameters for Engineering Services

Overview

After discussions with the project team, some modifications to the project features are being considered. The Phase 0 features provided to Eustis included two marsh creation areas, two terrace fields, and a ridge feature. After further discussions of the project layout based on survey data and existing oil and gas infrastructure, the project team would like to make following changes to the project alignments:

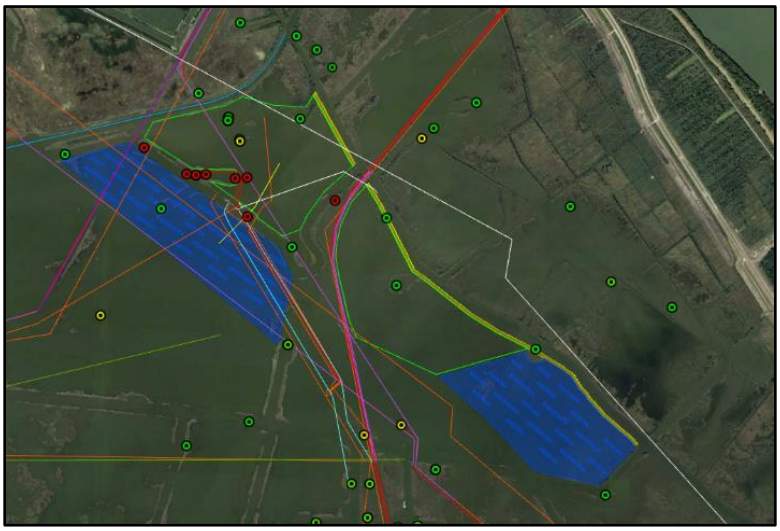


Figure 1: Phase 0 Alignment

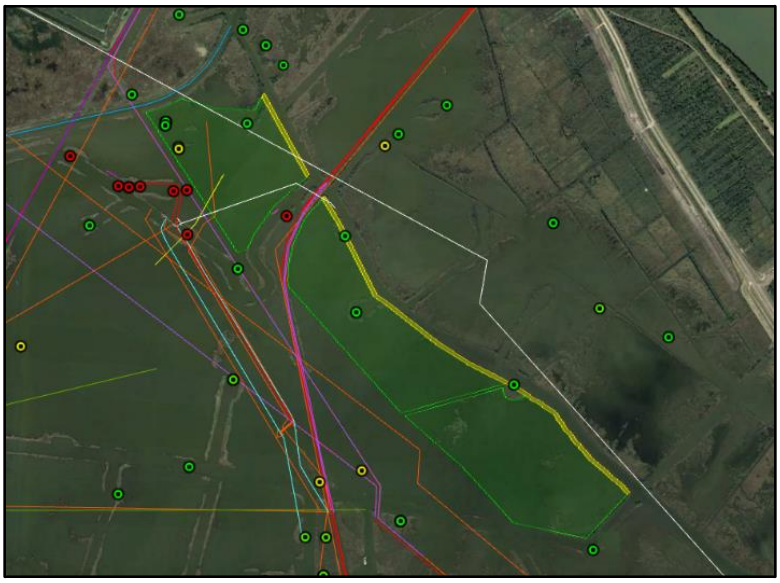


Figure 2: Modified Project Features

- Reduce the size of MCA-1 in order to avoid existing oil and gas infrastructure (see Figure 2). Pipeline crossings, such as hay bales, may be necessary to safety construct ECDs.
- Remove the western terrace field from the scope. The project team would still like for Eustis to evaluate a western terrace field, as initially proposed.
- Replace the eastern terrace field with a marsh creation area. Evaluation of terraces in this area should still be performed. Therefore, marsh and terraces should both be evaluated in this area.
- Slight reduction of the size of MCA-2 (brining the southern alignment up slightly). Evaluation of containment should cover the mudlines of both alignments, as provided herein.

Marsh Fill Settlement

Target Elevation at Year 20. CRPA would like the elevation at TY20 to fall within a prescribed inundation range. The elevation range is based on existing average marsh elevations as well as an optimal inundation range that pertains to the productivity of the marsh based on salinity and vertical position of the marsh in relation to water levels and the effect on emergent marsh vegetation.

Table 1: Tidal Datum and Inundation Levels over the 20 Year Project Life Accounting for ESLR

Year		Tidal Datum		Inundation	
TY	Construction Year	MHW + ESLR (ft)	MLW + ESLR (ft)	20% + ESLR (ft)	80% + ESLR (ft)
0	2022	1.06	0.27	1.08	0.23
1	2023	1.08	0.29	1.10	0.25
2	2024	1.10	0.31	1.12	0.27
3	2025	1.12	0.33	1.14	0.29
4	2026	1.14	0.35	1.16	0.31
5	2027	1.16	0.37	1.18	0.33
6	2028	1.18	0.39	1.21	0.36
7	2029	1.21	0.41	1.23	0.38
8	2030	1.23	0.43	1.25	0.40
9	2031	1.25	0.46	1.27	0.42
10	2032	1.28	0.48	1.30	0.45
11	2033	1.30	0.51	1.32	0.47
12	2034	1.32	0.53	1.35	0.50
13	2035	1.35	0.55	1.37	0.52
14	2036	1.38	0.58	1.40	0.55
15	2037	1.40	0.61	1.42	0.57
16	2038	1.43	0.63	1.45	0.60
17	2039	1.45	0.66	1.48	0.63
18	2040	1.48	0.69	1.50	0.65
19	2041	1.51	0.72	1.53	0.68
20	2042	1.54	0.74	1.56	0.71

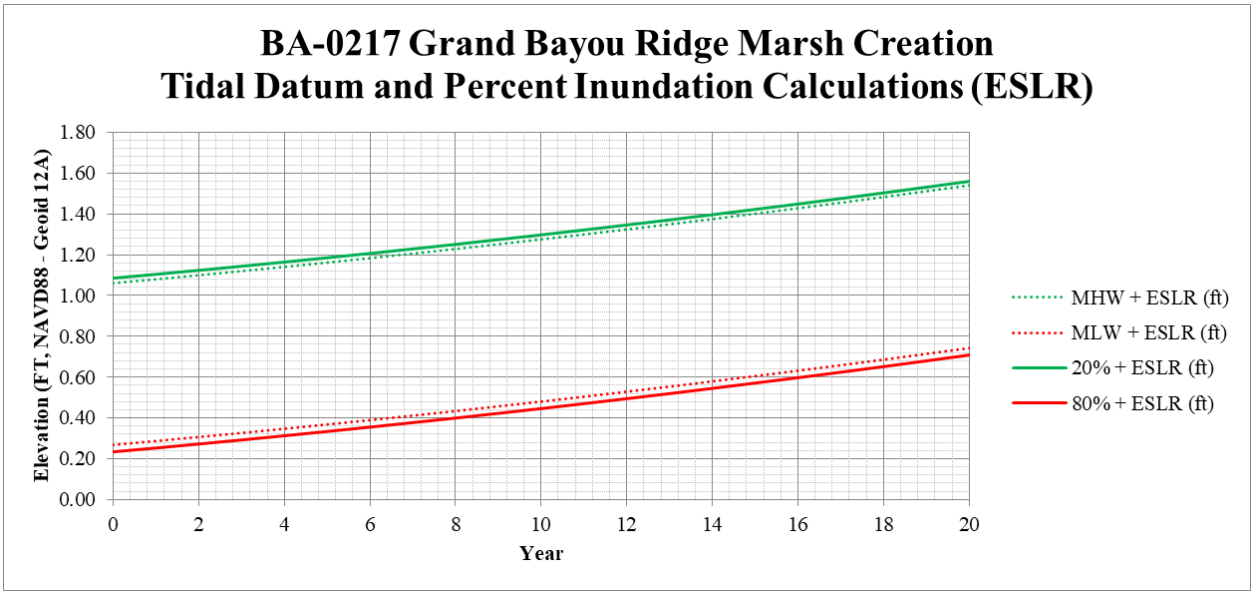


Figure 3: Tidal Datum and Percent Inundation Range accounting for ELSR

Constructed Marsh Fill Elevations (CMFE). CPRA would like fill heights of +3.5 ft, +3.0 ft, and +2.5 ft analyzed for settlement. If these fill elevations result in settlement curves that do not meet the TY20 criterion, please inform CPRA so that discussions can be held on additional fill elevations.

Mudlines. CRPA would like to evaluate multiple mudlines for each cell or reach depending on how Eustis decides to divide the project area. Ideally, we want to evaluate mudlines that are representative of the entire project area, but still account for some variability in the distribution. Therefore, mudlines we would like to have evaluated for each cell are:

- MCA-1 (Figure 2): -2.0 ft, -2.5 ft, -3.0 ft
    - Average ML Elevation = -1.82 ft.
    - 48% of the project area is deeper than -2.0 ft. Therefore, -2.5 ft and -3.0 ft, which encompass 77% and 98% of the project area, were also selected.
- MCA-2 (Figure 2): -2.0 ft, -2.5 ft, -3.0 ft
    - Average ML Elevation = -1.98 ft
    - 36% of the project area is deeper than -2.0 ft. Therefore, -2.5 ft and -3.0 ft, which encompass 66% and 90% of the project area, were also selected.
- MCA-3 (Figure 2): -2.0 ft, -2.5 ft, -3.0 ft
    - Average ML Elevation = -1.96 ft
    - 47% of the project area is deeper than -2.0 ft. Therefore, -2.5 ft and -3.0 ft, which encompass 70% and 89% of the project area, were also selected.

Summary. CPRA would like -2.0 ft, -2.5 ft, and -3.0 ft mudlines evaluated.

Ridge Parameters

Mudlines. CPRA would like multiple mudlines evaluated for the ridge. After a review of Eustis' recommendations, CPRA understands Eustis believes a single profile is appropriate for the entire ridge. Mudlines for the western portion of the ridge (along MCA-1) and the eastern portion (along MCA-2 and MCA-3) are as follows:

- Western Ridge: -1.0 ft, -2.0 ft
    - Average ML Elevation = -0.68 ft
- Eastern Ridge: 0.0 ft, -1.0 ft, -2.0 ft
    - Average ML Elevation = 0.29 ft

Therefore, CPRA would like mudline elevations of 0.0 ft, -1.0 ft, and -2.0 ft evaluated for the ridge profile.

Crown Width. 10 ft

Target Crown Elevation. +4.0 ft (NAVD88, Geoid12B) 30-60 days after construction, not initial construction. TY20 elevation should be +2.0 ft. If this criteria is unable to be met, please inform CPRA.

Side Slopes (Preferred). 5H:1V on the marsh side and 7H:1V on the Grand Bayou side. If analysis determines that geotextile fabric is needed, please inform CPRA. Flatter slopes are preferred over fabric.

Borrow Area Modeling. Assume 25 ft bench widths (minimum) and 3H:1V side slopes for borrow. Cut elevations should be -8.0 ft in Grand Bayou (external) and -10.0 ft internally. Please model one scenario with external borrow only, and one with both internal and external borrow.

Additional Scenarios.

- Please evaluate the ridge feature constructed of in situ material only. Include one scenario where external borrow only is used, and one where both internal and external are used (as noted above).
- Please evaluate the ridge feature assuming sand/in-situ mix. This would the placement of in-situ material first (from access dredging) followed by sand placement. This would include external borrow only.

Notes. Ideally, we would like to have the same geometry across the ridge feature.

Earthen Containment Dike Parameters

Mudlines. Mudlines selected for each marsh creation area:

- MCA-1: -2.0, -3.0
    - Average = -1.67 ft.
- MCA-2: -2.0, -4.0
    - Average = -1.34 ft.
- MCA-3: -2.0, -4.0
    - Average = -1.45 ft.

Crown Width. 5 ft

Crown Elevation. +4.0 ft (NAVD88, Geoid12B). 1 foot of freeboard is generally recommended, however CPRA may be willing to reduce the amount of freeboard for this project due to fill being Mississippi River sand.

Side Slopes. 4H:1V, if possible. 5H:1V is acceptable and preferred over the use of geotextile fabric and 4H:1V.

Borrow Area Modeling. Assume 25 ft bench widths (minimum) and 3H:1V side slopes for borrow. Cut elevations should be -10.0 ft internally.

Terrace Parameters

Mudlines. CPRA would like multiple mudlines evaluated for the terrace fields. After a review of Eustis' recommendations, CPRA understands Eustis believes two profiles, a western and an eastern profile, best characterizes the site. Mudlines for the western and eastern terrace fields are as follows:

- Western Terrace Field: -2.5 ft, -3.0 ft
    - Average ML Elevation = -2.30 ft
- Eastern Terrace Field: -2.5 ft, -3.0 ft
    - Average ML Elevation = -1.84 ft

Crown Width. 15 ft

Crown Elevation. +2.5 ft (NAVD88, Geoid12B) post-construction.

Side Slopes. 4H:1V, if possible. 5H:1V is acceptable and preferred over the use of geotextile fabric and 4H:1V.

Borrow Area Modeling. Assume 25 ft bench widths (minimum) and 3H:1V side slopes for borrow. Cut elevations should be -10.0 ft internally.

Mudline Distributions

Marsh Creation Area Mudline Distributions

Feature	Avg. ML	Mudline Distribution								
		Above -3.0'	Above -2.5'	Above -2.0'	Above -1.5'	Above -1.0'	Above -0.5'	Above 0'	Above +0.5'	Above +1.0'
MCA-1 (Alt.)	-1.82	98%	73%	48%	24%	11%	6%	5%	-	-
MCA-2 (Alt.)	-1.98	90%	66%	36%	24%	11%	9%	8%	-	-
MCA-3	-1.96	89%	70%	47%	23%	9%	6%	5%	-	-
West Terraces	-2.30	80%	42%	23%	15%	10%	7%	6%	4%	2%
East Terraces	-1.84	90%	72%	50%	27%	13%	9%	8%	6%	4%

Ridge Mudline Distributions

Feature	Avg. ML	Mudline Distribution								
		Above -3.0'	Above -2.5'	Above -2.0'	Above -1.5'	Above -1.0'	Above -0.5'	Above 0'	Above +0.5'	Above +1.0'
Ridge West (Centerline)	-0.68	-	-	98%	77%	47%	36%	22%	16%	8%
Ridge East (ALL Centerline)	0.29	-	100%	92%	79%	68%	61%	59%	57%	49%

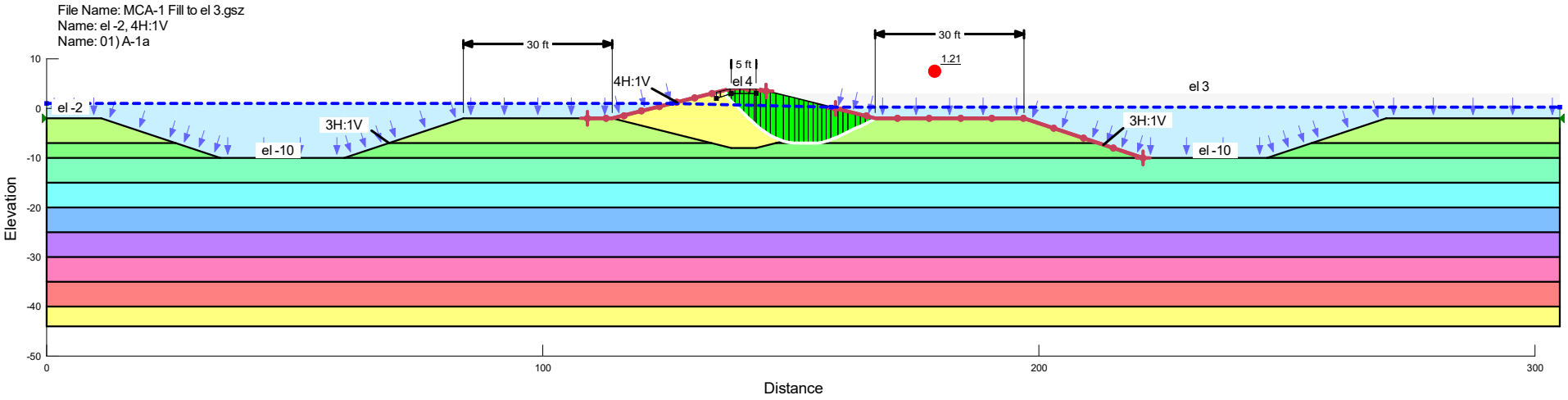
ECD Mudline Distributions

Feature	Avg. ML	Max	Min	Mudline Distribution					
				Above -2.5'	Above -2.0'	Above -1.5'	Above -1.0'	Above -0.5'	Above 0'
MCA-1 ECD	-1.67	0.9	-2.95	73%	53%	20%	20%	13%	13%
MCA-2 ECD	-1.34	1.31	-4.02	57%	50%	43%	36%	36%	36%
MCA-3 ECD	-1.45	2.09	-3.39	72%	61%	56%	28%	22%	6%

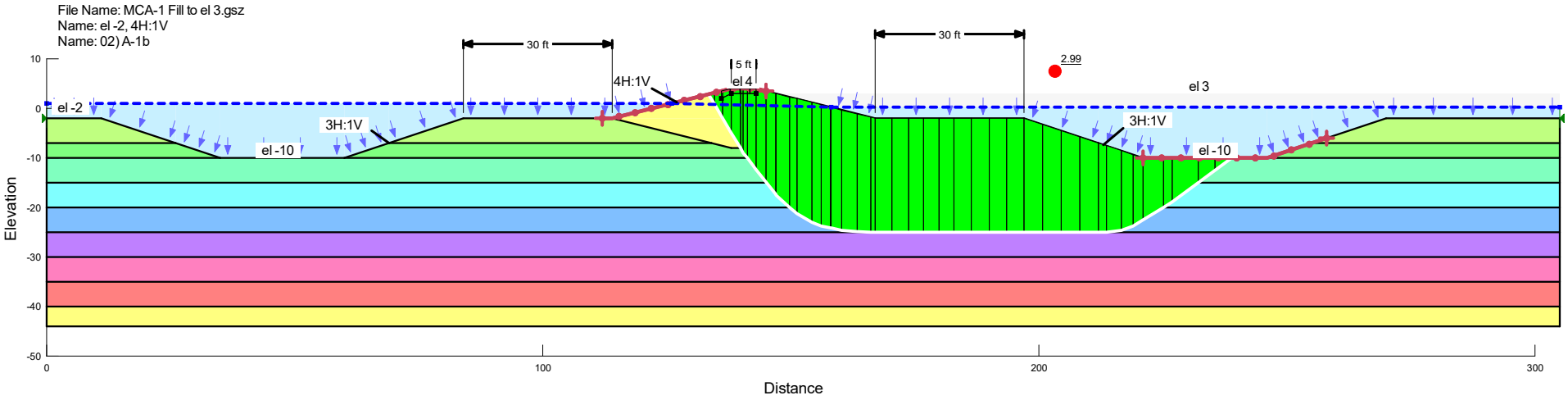
APPENDIX II

CELL 1

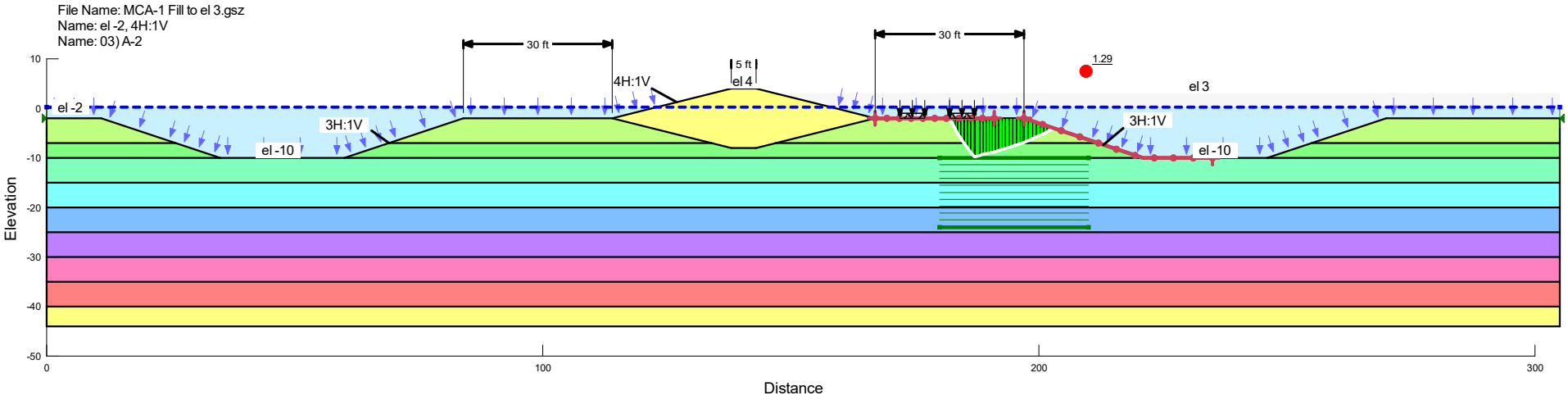
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	02) OH/CH el -7 to -10	Mohr-Coulomb	111	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	113	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	101	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	101	175	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	94	250	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	108	300	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	105	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	103	450	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1



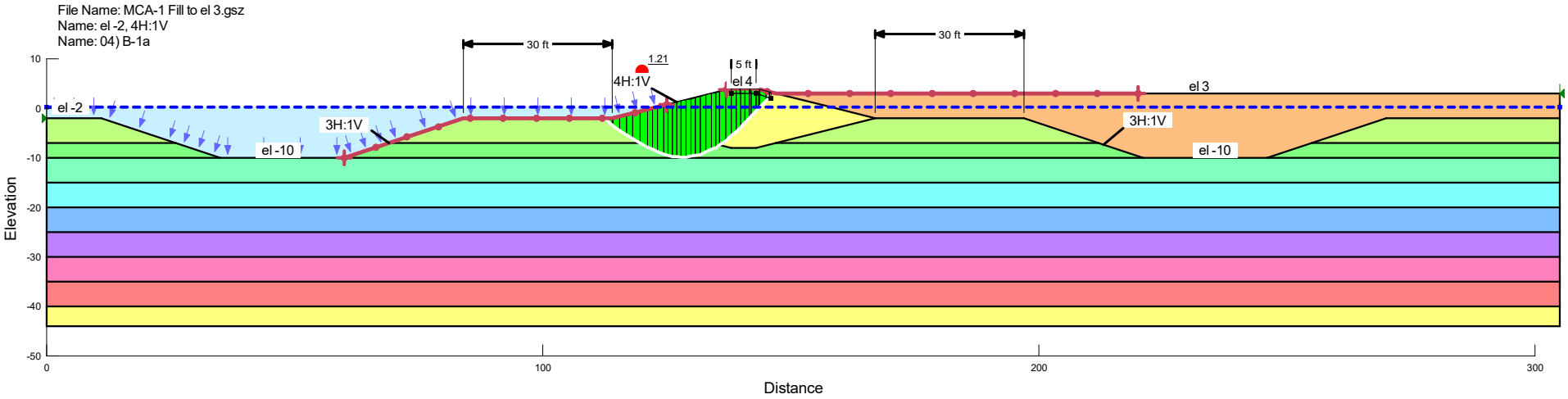
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	02) OH/CH el -7 to -10	Mohr-Coulomb	111	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	113	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	101	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	101	175	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	94	250	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	108	300	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	105	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	103	450	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1



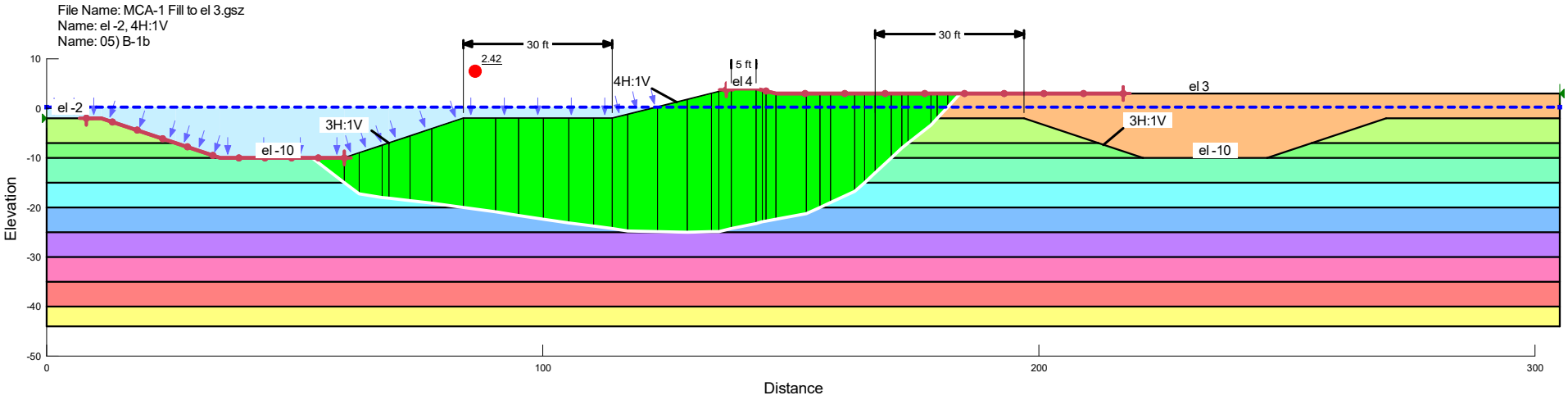
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	02) OH/CH el -7 to -10	Mohr-Coulomb	111	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	113	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	101	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	101	175	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	94	250	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	108	300	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	105	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	103	450	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1



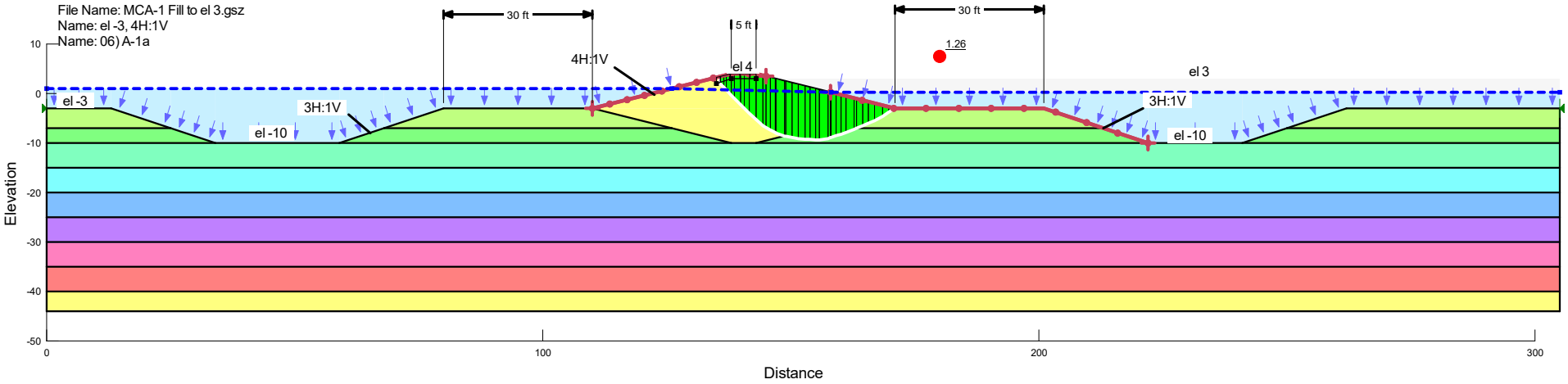
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	02) OH/CH el -7 to -10	Mohr-Coulomb	111	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	113	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	101	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	101	175	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	94	250	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	108	300	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	105	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	103	450	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



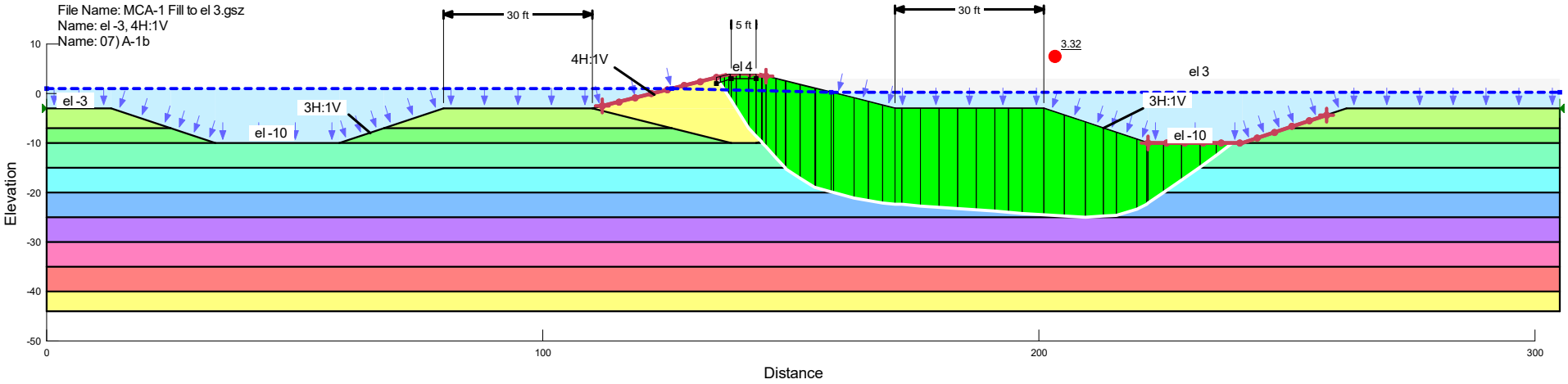
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	02) OH/CH el -7 to -10	Mohr-Coulomb	111	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	113	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	101	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	101	175	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	94	250	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	108	300	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	105	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	103	450	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



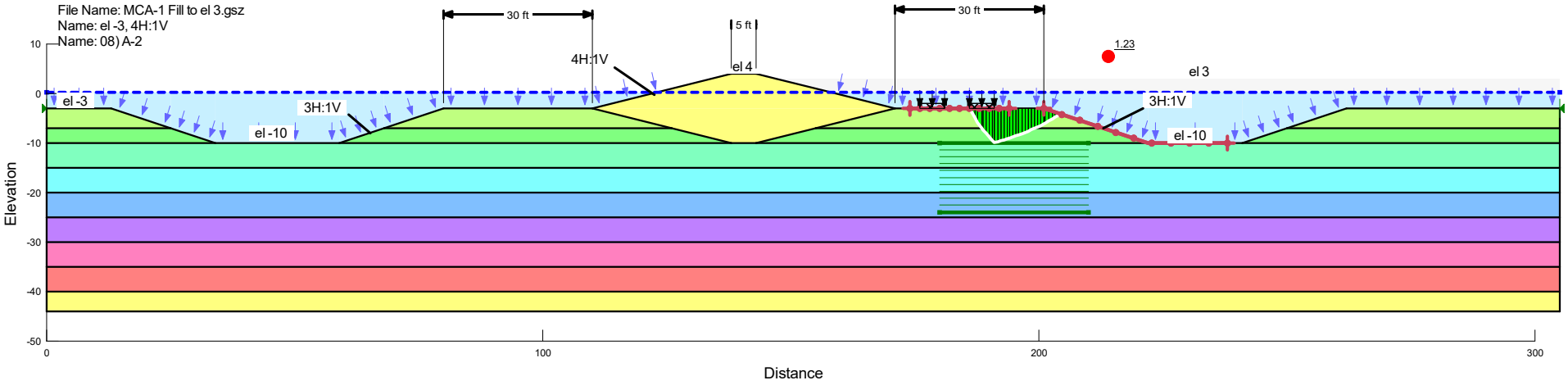
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	03) ML el -10 to -15	Mohr-Coulomb	113	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	101	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	101	175	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	94	250	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	108	300	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	105	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	103	450	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1



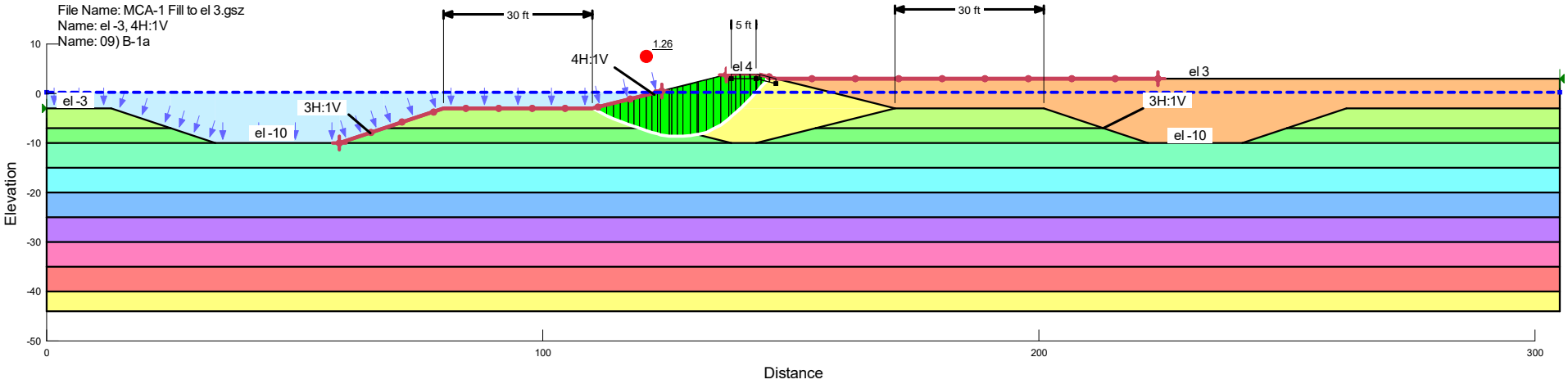
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	03) ML el -10 to -15	Mohr-Coulomb	113	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	101	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	101	175	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	94	250	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	108	300	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	105	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	103	450	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1



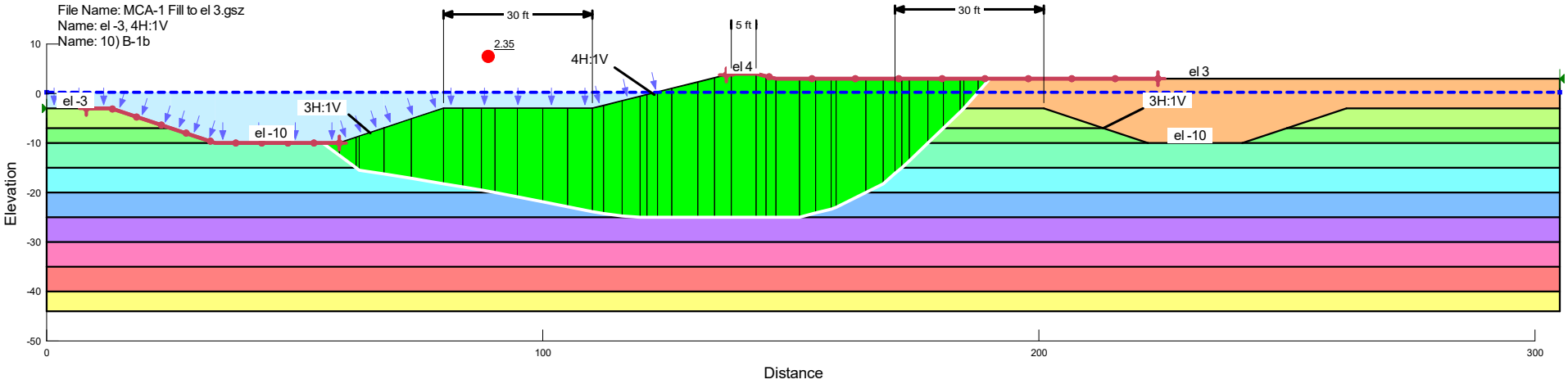
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	03) ML el -10 to -15	Mohr-Coulomb	113	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	101	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	101	175	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	94	250	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	108	300	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	105	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	103	450	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
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	02) OH/CH el -7 to -10	Mohr-Coulomb	111	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	113	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	101	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	101	175	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	94	250	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	108	300	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	105	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	103	450	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1

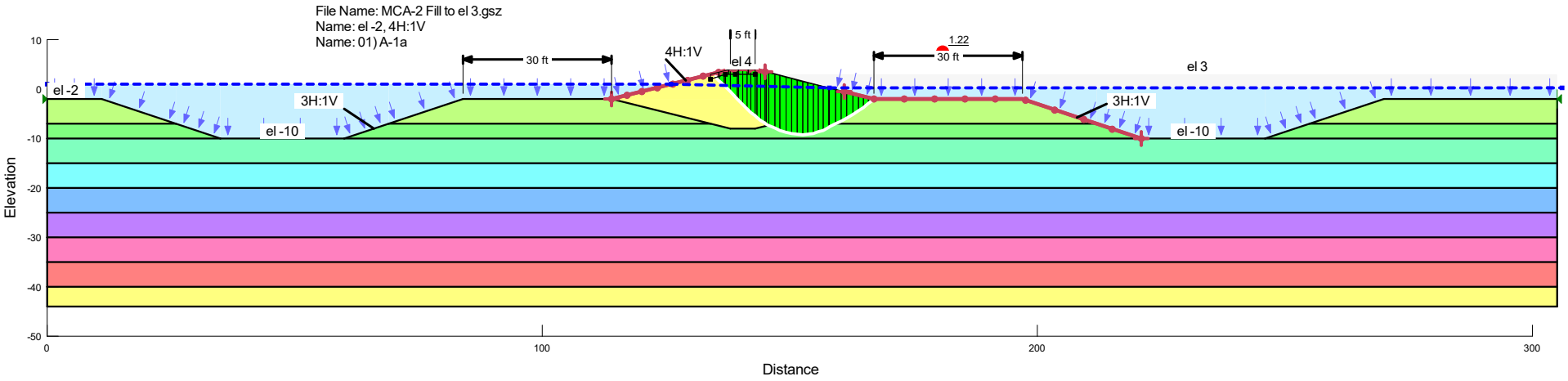


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	03) ML el -10 to -15	Mohr-Coulomb	113	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	101	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	101	175	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	94	250	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	108	300	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	105	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	103	450	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1
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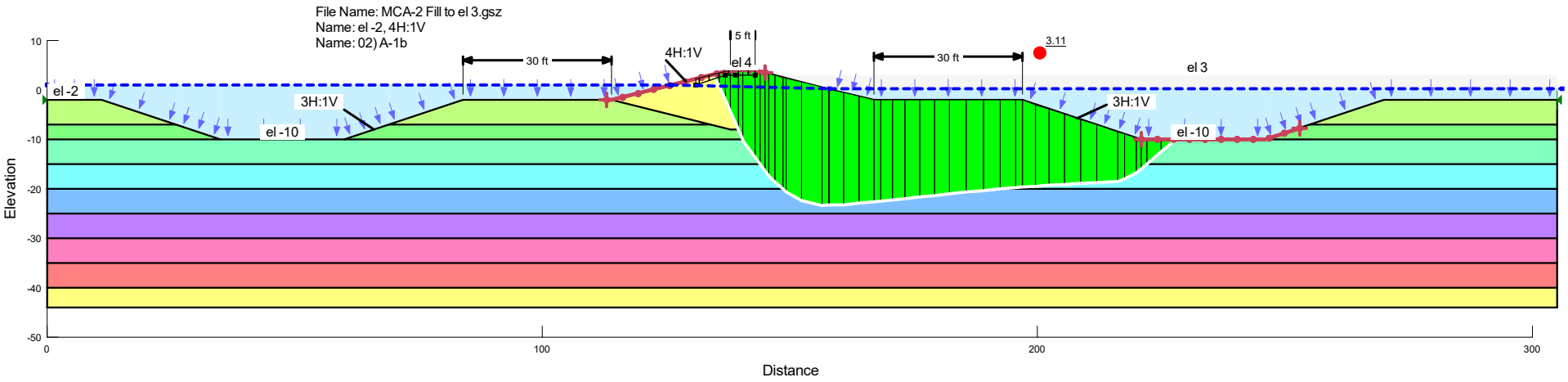


CELL 2

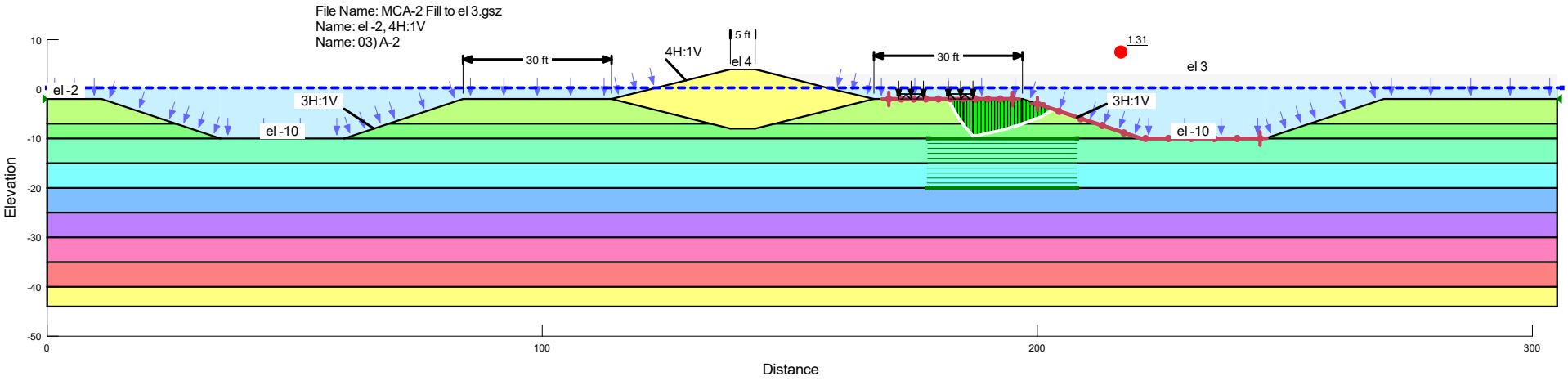
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	02) OH/CH el -7 to -10	Mohr-Coulomb	102	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	108	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	104	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	100	200	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	103	300	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	116	320	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	104	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	104	500	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1



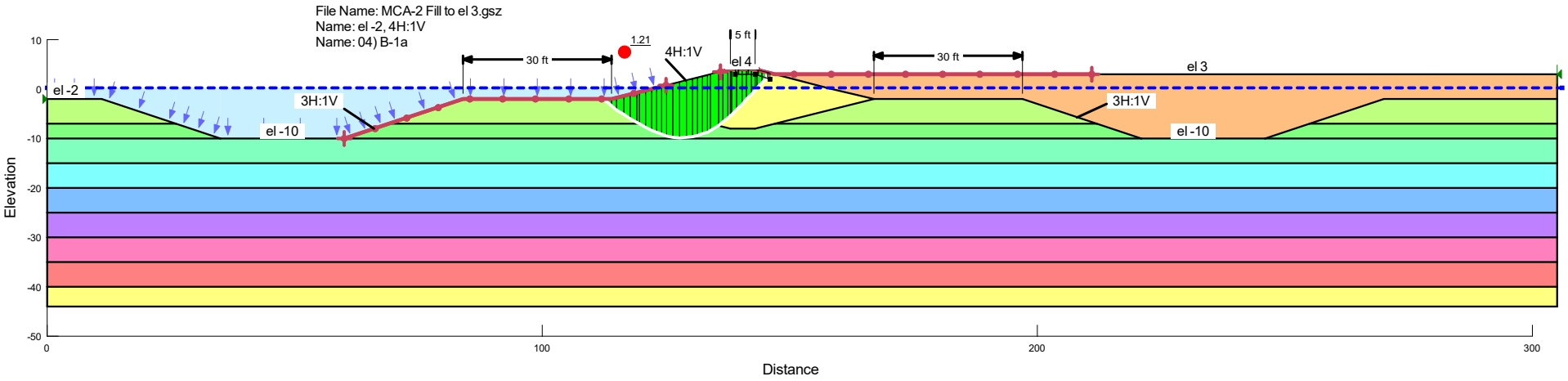
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	03) ML el -10 to -15	Mohr-Coulomb	108	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	104	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	100	200	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	103	300	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	116	320	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	104	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	104	500	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1



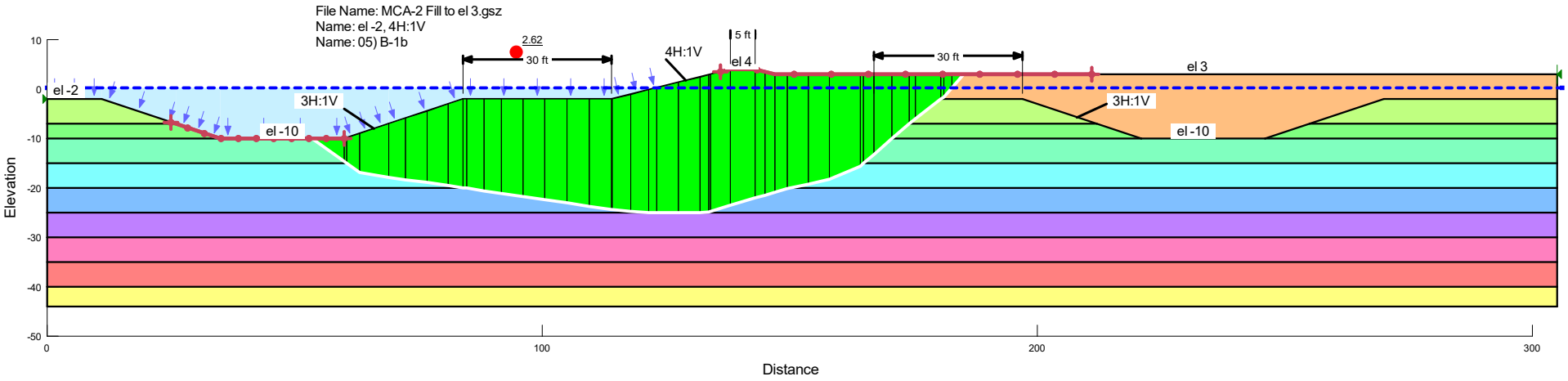
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	01) PT/OH el -2 to -7	Mohr-Coulomb	70	60	0	0	1
	02) OH/CH el -7 to -10	Mohr-Coulomb	102	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	108	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	104	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	100	200	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	103	300	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	116	320	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	104	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	104	500	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1



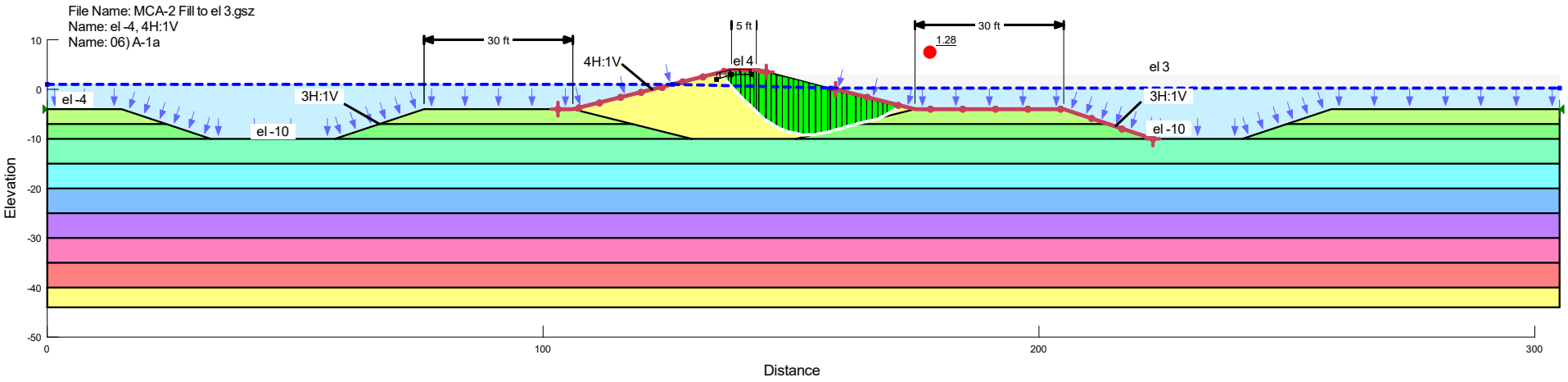
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	01) PT/OH el -2 to -7	Mohr-Coulomb	70	60	0	0	1
	02) OH/CH el -7 to -10	Mohr-Coulomb	102	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	108	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	104	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	100	200	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	103	300	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	116	320	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	104	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	104	500	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



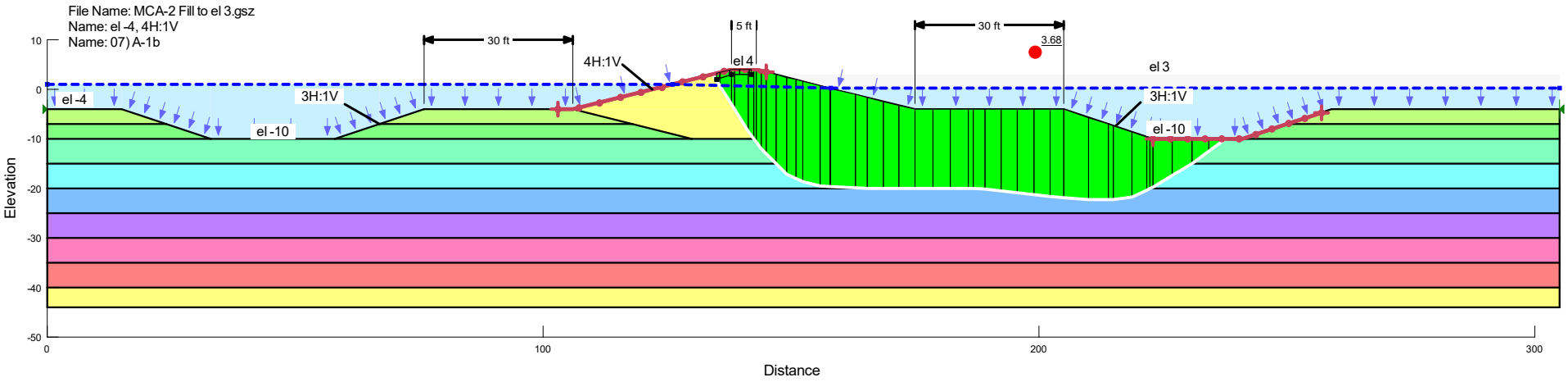
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	01) PT/OH el -2 to -7	Mohr-Coulomb	70	60	0	0	1
	02) OH/CH el -7 to -10	Mohr-Coulomb	102	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	108	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	104	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	100	200	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	103	300	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	116	320	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	104	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	104	500	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



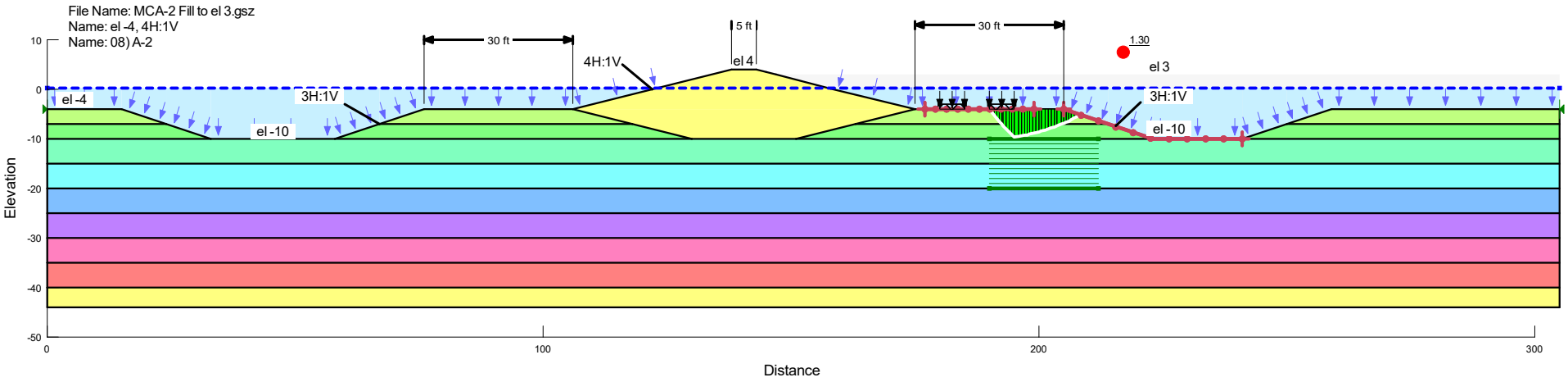
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	01) PT/OH el -2 to -7	Mohr-Coulomb	70	60	0	0	1
	02) OH/CH el -7 to -10	Mohr-Coulomb	102	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	108	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	104	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	100	200	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	103	300	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	116	320	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	104	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	104	500	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1



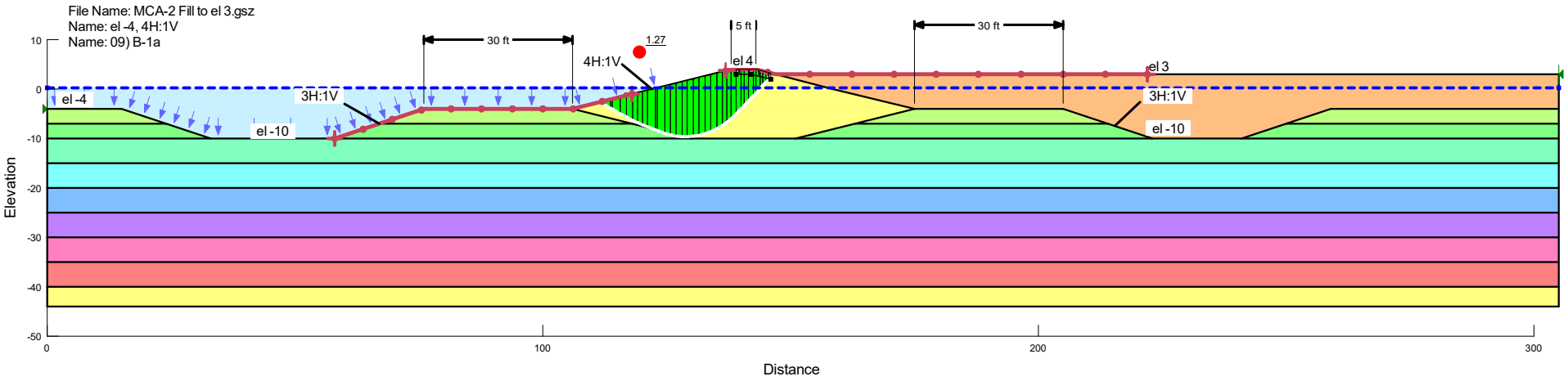
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	01) PT/OH el -2 to -7	Mohr-Coulomb	70	60	0	0	1
	02) OH/CH el -7 to -10	Mohr-Coulomb	102	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	108	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	104	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	100	200	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	103	300	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	116	320	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	104	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	104	500	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1



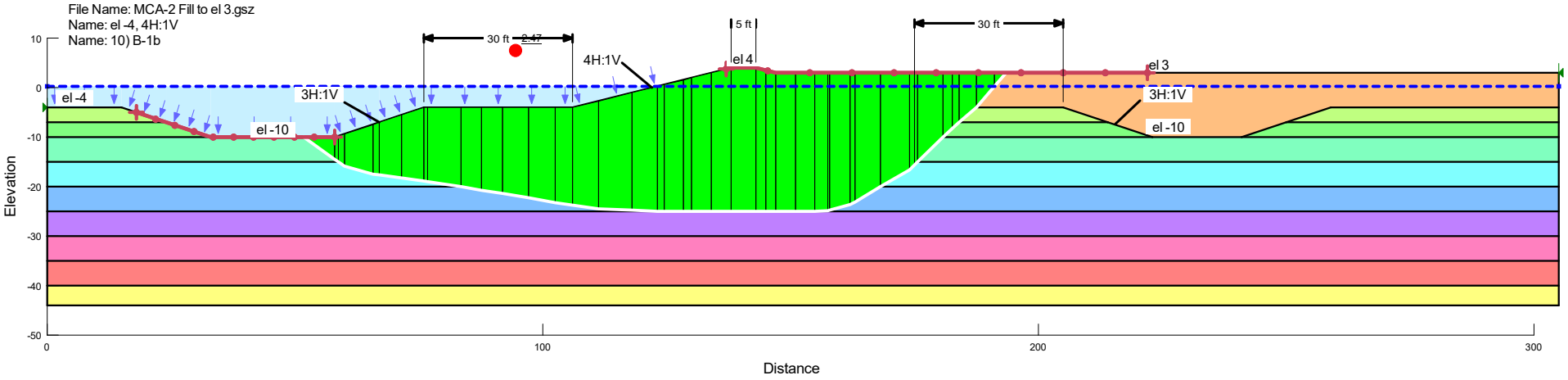
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	01) PT/OH el -2 to -7	Mohr-Coulomb	70	60	0	0	1
	02) OH/CH el -7 to -10	Mohr-Coulomb	102	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	108	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	104	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	100	200	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	103	300	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	116	320	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	104	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	104	500	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	01) PT/OH el -2 to -7	Mohr-Coulomb	70	60	0	0	1
	02) OH/CH el -7 to -10	Mohr-Coulomb	102	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	108	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	104	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	100	200	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	103	300	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	116	320	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	104	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	104	500	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	01) PT/OH el -2 to -7	Mohr-Coulomb	70	60	0	0	1
	02) OH/CH el -7 to -10	Mohr-Coulomb	102	70	0	0	1
	03) ML el -10 to -15	Mohr-Coulomb	108	200	15	0	1
	04) CH el -15 to -20	Mohr-Coulomb	104	150	0	0	1
	05) CH el -20 to -25	Mohr-Coulomb	100	200	0	0	1
	06) CL el -25 to -30	Mohr-Coulomb	103	300	0	0	1
	07) CL el -30 to -35	Mohr-Coulomb	116	320	0	0	1
	08) CL el -35 to -40	Mohr-Coulomb	104	400	0	0	1
	09) CH el -40 to -44	Mohr-Coulomb	104	500	0	0	1
	ECD	Mohr-Coulomb	75	70	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



CELL 1

01) A-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 183
Date: 07/02/2021
Time: 10:04:11 AM
Tool Version: 10.2.2.20559
File Name: MCA-1 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:04:16 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

01) A-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb

Unit Weight: 75 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb

Unit Weight: 70 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb

Unit Weight: 111 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 113 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 175 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 94 pcf
Cohesion': 250 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 105 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (109, -2) ft
Left-Zone Right Coordinate: (145, 3.5) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (159, -0) ft
Right-Zone Right Coordinate: (221, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (305, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	126 ft	1.06 ft
Coordinate 3	158.04 ft	0.27 ft
Coordinate 4	305 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	135 ft	2 ft
Coordinate 2	138 ft	3 ft
Coordinate 3	143 ft	3 ft

Geometry

Name: el -2, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-2 ft
Point 17	114 ft	-2 ft
Point 18	167 ft	-2 ft
Point 19	197 ft	-2 ft
Point 20	221 ft	-10 ft
Point 21	246 ft	-10 ft
Point 22	270 ft	-2 ft
Point 23	0 ft	-7 ft
Point 24	212 ft	-7 ft
Point 25	255 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	138 ft	-8 ft
Point 33	143 ft	-8 ft
Point 34	134 ft	-7 ft
Point 35	147 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft

Point 38	147 ft	3 ft
Point 39	84 ft	-2 ft
Point 40	69 ft	-7 ft
Point 41	60 ft	-10 ft
Point 42	35 ft	-10 ft
Point 43	26 ft	-7 ft
Point 44	11 ft	-2 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	174 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	163.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	212.5 ft²
Region 10	ECD	17,34,32,33,35,18	174 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	237.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13		38,29,18,19,24,20,21,25,22,16,31	1,132 ft²
Region 14	01) PT/OH el -2 to -7	1,23,43,44	92.5 ft²
Region 15	01) PT/OH el -2 to -7	34,17,39,40	237.5 ft²
Region 16	02) OH/CH el -7 to -10	2,42,43,23	91.5 ft²
Region 17	02) OH/CH el -7 to -10	20,24,35,33,32,34,40,41	447 ft²

Slip Results

Slip Surfaces Analysed: 1123 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.21
Volume: 183.74835 ft³
Weight: 13,661.443 lbf
Resisting Moment: 37,091.602 lbf·ft
Activating Moment: 30,556.623 lbf·ft
Resisting Force: 1,926.8988 lbf
Activating Force: 1,587.3429 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (167.00399, -2) ft
Entry: (136.82011, 2.6067036) ft
Radius: 14.03071 ft
Center: (153.12539, 9.6663571) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	137.12617 ft	2.3090928 ft	-95.107848 psf	54.703192 psf	0 psf	70 psf	0 psf	ECD
Slice 2	137.71612 ft	1.7267792 ft	-59.662013 psf	103.98669 psf	0 psf	70 psf	0 psf	ECD
Slice 3	138.34652 ft	1.094554 ft	-21.162476 psf	153.16093 psf	0 psf	70 psf	0 psf	ECD
Slice 4	139.13587 ft	0.30293294 ft	27.043515 psf	208.51867 psf	0 psf	70 psf	0 psf	ECD
Slice 5	140.02152 ft	-0.58526435 ft	81.130546 psf	270.62994 psf	0 psf	70 psf	0 psf	ECD
Slice 6	140.98813 ft	-1.5146815 ft	137.66631 psf	341.48333 psf	0 psf	70 psf	0 psf	ECD
Slice 7	142.05572 ft	-2.5038675 ft	197.77801 psf	411.01446 psf	0 psf	70 psf	0 psf	ECD
Slice 8	142.79977 ft	-3.177495 ft	238.68738 psf	465.10134 psf	0 psf	70 psf	0 psf	ECD
Slice 9	143.41565 ft	-3.699649 ft	270.3375 psf	494.65769 psf	0 psf	70 psf	0 psf	ECD
Slice 10	144.41565 ft	-4.4700545 ft	316.89474 psf	543.53296 psf	0 psf	70 psf	0 psf	ECD
Slice 11	145.3969 ft	-5.171985 ft	359.20595 psf	576.0954 psf	0 psf	70 psf	0 psf	ECD
Slice 12	146.3969 ft	-5.7271723 ft	392.32708 psf	623.80304 psf	0 psf	70 psf	0 psf	ECD
Slice 13	147.70337 ft	-6.3148068 ft	427.00213 psf	642.76267 psf	0 psf	70 psf	0 psf	ECD
Slice 14	149.02756 ft	-6.7634615 ft	452.97337 psf	675.48785 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 15	150.15154 ft	-6.9474245 ft	462.72804 psf	676.76426 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 16	151.12824 ft	-6.9985091 ft	464.41382 psf	671.02771 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 17	152.07529 ft	-6.9973293 ft	462.88235 psf	652.00237 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 18	153.02234 ft	-6.9961495 ft	461.35087 psf	632.97703 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 19	153.96939 ft	-6.9949697 ft	459.8194 psf	613.95169 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 20	154.91644 ft	-6.9937899 ft	458.28793 psf	594.92635 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 21	155.81845 ft	-6.90955 ft	451.64034 psf	588.8313 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 22	156.67542 ft	-6.74225 ft	439.87662 psf	559.56796 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7

Slice 23	157.50538 ft	-6.5034727 ft	423.69212 psf	542.96929 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 24	157.97343 ft	-6.3226257 ft	411.68133 psf	521.29696 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 25	158.72328 ft	-6.0328995 ft	393.4912 psf	497.1553 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 26	159.92628 ft	-5.5169612 ft	361.28108 psf	463.30336 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 27	160.96573 ft	-5.0130977 ft	329.82479 psf	422.32424 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 28	162.23974 ft	-4.3973395 ft	291.38289 psf	372.03972 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 29	163.48714 ft	-3.8000125 ft	254.09165 psf	322.73853 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 30	164.47337 ft	-3.3330115 ft	224.93669 psf	284.6922 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 31	165.47486 ft	-2.825171 ft	193.23211 psf	248.23172 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 32	166.49162 ft	-2.276491 ft	158.97792 psf	203.91589 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 33	167.00199 ft	-2.0010755 ft	141.78367 psf	179.01415 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7

02) A-1b

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File Information

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Tool Version: 10.2.2.20559
File Name: MCA-1 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:04:26 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

02) A-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb

Unit Weight: 75 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb

Unit Weight: 70 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb

Unit Weight: 111 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 113 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 175 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 94 pcf
Cohesion': 250 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 105 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (112, -2) ft
Left-Zone Right Coordinate: (145, 3.5) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (221, -10) ft
Right-Zone Right Coordinate: (258, -6) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (305, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	126 ft	1.06 ft
Coordinate 3	158.04 ft	0.27 ft
Coordinate 4	305 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	136 ft	2 ft
Coordinate 2	138 ft	3 ft
Coordinate 3	143 ft	3 ft

Geometry

Name: el -2, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-2 ft
Point 17	114 ft	-2 ft
Point 18	167 ft	-2 ft
Point 19	197 ft	-2 ft
Point 20	221 ft	-10 ft
Point 21	246 ft	-10 ft
Point 22	270 ft	-2 ft
Point 23	0 ft	-7 ft
Point 24	212 ft	-7 ft
Point 25	255 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	138 ft	-8 ft
Point 33	143 ft	-8 ft
Point 34	134 ft	-7 ft
Point 35	147 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft

Point 38	147 ft	3 ft
Point 39	84 ft	-2 ft
Point 40	69 ft	-7 ft
Point 41	60 ft	-10 ft
Point 42	35 ft	-10 ft
Point 43	26 ft	-7 ft
Point 44	11 ft	-2 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	174 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	163.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	212.5 ft²
Region 10	ECD	17,34,32,33,35,18	174 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	237.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13		38,29,18,19,24,20,21,25,22,16,31	1,132 ft²
Region 14	01) PT/OH el -2 to -7	1,23,43,44	92.5 ft²
Region 15	01) PT/OH el -2 to -7	34,17,39,40	237.5 ft²
Region 16	02) OH/CH el -7 to -10	2,42,43,23	91.5 ft²
Region 17	02) OH/CH el -7 to -10	20,24,35,33,32,34,40,41	447 ft²

Slip Results

Slip Surfaces Analysed: 1231 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 2.99
Volume: 1,883.5432 ft³
Weight: 184,879.17 lbf
Resisting Moment: 1,836,600.5 lbf·ft
Activating Moment: 614,131.84 lbf·ft
Resisting Force: 18,395.086 lbf
Activating Force: 6,151.5157 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (238.81542, -10) ft
Entry: (133.367, 2.8417502) ft
Radius: 46.353097 ft
Center: (194.99215, 62.16135) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	133.95961 ft	1.8454405 ft	-61.287592 psf	45.040989 psf	0 psf	70 psf	0 psf	ECD
Slice 2	135.39955 ft	-0.5754346 ft	87.631568 psf	244.43519 psf	0 psf	70 psf	0 psf	ECD
Slice 3	137.12344 ft	-3.4737004 ft	265.91722 psf	483.14944 psf	0 psf	70 psf	0 psf	ECD
Slice 4	138.90785 ft	-6.4737004 ft	450.46101 psf	713.96932 psf	0 psf	70 psf	0 psf	ECD
Slice 5	140.10633 ft	-8.4886245 ft	574.40826 psf	875.26117 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 6	140.79501 ft	-9.4886245 ft	635.77835 psf	1,000.6331 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 7	142.09653 ft	-11.160692 ft	738.16238 psf	1,090.954 psf	94.530239 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 8	144 ft	-13.606088 ft	887.89886 psf	1,337.901 psf	120.5777 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 9	145.97307 ft	-16.140898 ft	1,043.1104 psf	1,651.8369 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 10	146.97307 ft	-17.415832 ft	1,121.1654 psf	1,801.9361 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 11	148.38804 ft	-18.72033 ft	1,200.4273 psf	1,903.1152 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 12	150.47629 ft	-20.645537 ft	1,317.4039 psf	2,044.7441 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 13	152.66971 ft	-22.137034 ft	1,407.142 psf	2,189.9466 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 14	155.14144 ft	-23.382252 ft	1,481.0764 psf	2,284.0033 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 15	157.01341 ft	-23.947022 ft	1,513.4535 psf	2,330.3299 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 16	157.97343 ft	-24.124863 ft	1,523.0783 psf	2,330.0356 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 17	159.15837 ft	-24.344367	1,536.6796 psf	2,346.9385 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25

		ft						
Slice 18	161.81647 ft	-24.67978 ft	1,557.6195 psf	2,381.8576 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 19	164.73706 ft	-24.868455 ft	1,569.3985 psf	2,393.2715 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 20	166.55895 ft	-24.932124 ft	1,573.3733 psf	2,396.4115 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 21	168.67219 ft	-24.947614 ft	1,574.3404 psf	2,395.1169 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 22	172.01656 ft	-24.972128 ft	1,575.8708 psf	2,397.5923 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 23	175.21455 ft	-24.986934 ft	1,576.7952 psf	2,399.7901 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 24	178.26618 ft	-24.992033 ft	1,577.1135 psf	2,400.305 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 25	181.31781 ft	-24.997132 ft	1,577.4318 psf	2,400.82 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 26	184.61317 ft	-24.999652 ft	1,577.5891 psf	2,401.2841 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 27	188.15226 ft	-24.999594 ft	1,577.5855 psf	2,401.2782 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 28	191.69136 ft	-24.999536 ft	1,577.5819 psf	2,401.2724 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 29	195.23045 ft	-24.999479 ft	1,577.5783 psf	2,401.2665 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 30	198.875 ft	-24.999419 ft	1,577.5746 psf	2,398.1774 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 31	202.625 ft	-24.999358 ft	1,577.5708 psf	2,389.4206 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 32	206.375 ft	-24.999296 ft	1,577.5669 psf	2,380.6637 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 33	210.125 ft	-24.999235 ft	1,577.5631 psf	2,371.9068 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 34	212.81073 ft	-24.999191 ft	1,577.5604 psf	2,354.5552 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 35	215.11757 ft	-24.774558 ft	1,563.5364 psf	2,313.2438 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25

Slice 36	217.80916 ft	-24.122492 ft	1,522.8279 psf	2,228.7585 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 37	220.00232 ft	-23.086944 ft	1,458.1784 psf	2,117.3295 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 38	223.03345 ft	-21.23942 ft	1,342.8372 psf	1,905.3863 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 39	225.96957 ft	-19.449801 ft	1,231.1109 psf	1,716.1543 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 40	229.48886 ft	-16.949801 ft	1,075.0355 psf	1,471.8478 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 41	233.78296 ft	-13.75 ft	875.27124 psf	1,159.9372 psf	76.276017 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 42	237.13794 ft	-11.25 ft	719.19577 psf	861.4974 psf	38.129606 psf	200 psf	0 psf	03) ML el -10 to -15

03) A-2

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 183
Date: 07/02/2021
Time: 10:04:11 AM
Tool Version: 10.2.2.20559
File Name: MCA-1 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:04:16 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

03) A-2

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb
Unit Weight: 75 pcf
Cohesion': 70 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb
Unit Weight: 70 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 70 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 113 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 175 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 94 pcf
Cohesion': 250 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 105 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (167, -2) ft
Left-Zone Right Coordinate: (191, -2) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (197, -2) ft
Right-Zone Right Coordinate: (235, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (305, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	305 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	172 ft	-1 ft
	177 ft	-1 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	182 ft	-1 ft
	187 ft	-1 ft

Tension Crack Line

Geometry

Name: el -2, 4H:1V

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-2 ft
Point 17	114 ft	-2 ft
Point 18	167 ft	-2 ft
Point 19	197 ft	-2 ft
Point 20	221 ft	-10 ft
Point 21	246 ft	-10 ft

Point 22	270 ft	-2 ft
Point 23	0 ft	-7 ft
Point 24	212 ft	-7 ft
Point 25	255 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	138 ft	-8 ft
Point 33	143 ft	-8 ft
Point 34	134 ft	-7 ft
Point 35	147 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft
Point 38	147 ft	3 ft
Point 39	84 ft	-2 ft
Point 40	69 ft	-7 ft
Point 41	60 ft	-10 ft
Point 42	35 ft	-10 ft
Point 43	26 ft	-7 ft
Point 44	11 ft	-2 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	174 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	163.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	212.5 ft²
Region 10	ECD	17,34,32,33,35,18	174 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	237.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13		38,29,18,19,24,20,21,25,22,16,31	1,132 ft²
Region 14	01) PT/OH el -2 to -7	1,23,43,44	92.5 ft²
Region 15	01) PT/OH el -2 to -7	34,17,39,40	237.5 ft²
Region 16	02) OH/CH el -7 to -10	2,42,43,23	91.5 ft²
Region 17	02) OH/CH el -7 to -10	20,24,35,33,32,34,40,41	447 ft²

Slip Results

Slip Surfaces Analysed: 796 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.29
Volume: 100.05942 ft³
Weight: 7,696.2046 lbf
Resisting Moment: 19,904.589 lbf·ft
Activating Moment: 15,412.11 lbf·ft
Resisting Force: 1,375.3685 lbf
Activating Force: 1,065.5595 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (202.974, -3.9913324) ft
Entry: (181.99646, -2) ft
Radius: 9.362395 ft
Center: (193.64037, 3.364165) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	181.99823 ft	-2.0035456 ft	141.93788 psf	47.342201 psf	-0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 2	182.26958 ft	-2.5469231 ft	175.86104 psf	326.78281 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 3	182.80874 ft	-3.626587 ft	243.26466 psf	397.64374 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 4	183.3538 ft	-4.632544 ft	306.06675 psf	481.85041 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 5	183.94118 ft	-5.5740018 ft	364.84213 psf	554.56258 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 6	184.56496 ft	-6.5246673 ft	424.19236 psf	617.90128 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 7	184.91315 ft	-7.0553185 ft	457.32102 psf	644.43009 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 8	185.27898 ft	-7.5346537 ft	487.24601 psf	712.65917 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 9	185.93803 ft	-8.3826872 ft	540.1889 psf	802.93078 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 10	186.62812 ft	-9.2483825 ft	594.23441 psf	900.06738 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 11	186.99435 ft	-9.6894573 ft	621.7708 psf	1,061.6015 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
		-						

Slice 12	187.06161 ft	9.6822763 ft	621.32249 psf	799.87592 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 13	187.58265 ft	-9.5647175 ft	613.98327 psf	797.6983 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 14	188.35881 ft	-9.3761469 ft	602.21077 psf	776.87287 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 15	188.99226 ft	-9.2209687 ft	592.52297 psf	759.50672 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 16	189.62571 ft	-9.0657905 ft	582.83516 psf	742.14056 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 17	190.25916 ft	-8.9106123 ft	573.14736 psf	724.7744 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 18	190.89261 ft	-8.7554341 ft	563.45955 psf	707.40824 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 19	191.54574 ft	-8.5791402 ft	552.45349 psf	691.44733 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 20	192.21856 ft	-8.3817307 ft	540.12918 psf	669.31912 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 21	192.91485 ft	-8.1812413 ft	527.61259 psf	646.03722 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 22	193.63462 ft	-7.977672 ft	514.90372 psf	623.22663 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 23	194.3544 ft	-7.7741027 ft	502.19485 psf	600.41604 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 24	195.08586 ft	-7.538812 ft	487.50561 psf	579.72172 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 25	195.82901 ft	-7.2718 ft	470.836 psf	549.72523 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 26	196.37453 ft	-7.069147 ft	458.18433 psf	529.73727 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 27	196.77424 ft	-6.9102525 ft	448.26452 psf	512.2128 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 28	197.42998 ft	-6.6495772 ft	431.99051 psf	494.31307 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 29	198.28993 ft	-6.3077217 ft	410.64841 psf	468.06478 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 30	199.10847 ft	-5.951556 ft	388.41291 psf	445.81437 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 31	199.8856 ft	-5.58108 ft	365.28403 psf	417.65314 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7

Slice 32	200.61807 ft	-5.235493 ft	343.70897 psf	390.73488 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 33	201.29731 ft	-4.8945087 ft	322.42125 psf	369.22694 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 34	201.96798 ft	-4.5332382 ft	299.86707 psf	341.91133 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 35	202.63866 ft	-4.1719676 ft	277.31288 psf	314.59573 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7

04) B-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 183
Date: 07/02/2021
Time: 10:04:11 AM
Tool Version: 10.2.2.20559
File Name: MCA-1 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:04:18 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

04) B-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb

Unit Weight: 75 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb

Unit Weight: 70 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb

Unit Weight: 111 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 113 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 175 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 94 pcf
Cohesion': 250 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 105 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (60, -10) ft
Left-Zone Right Coordinate: (125, 0.75) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (137, 3.75) ft
Right-Zone Right Coordinate: (220, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (305, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	305 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	138 ft	3 ft
Coordinate 2	143 ft	3 ft
Coordinate 3	146 ft	2 ft

Geometry

Name: el -2, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-2 ft
Point 17	114 ft	-2 ft
Point 18	167 ft	-2 ft
Point 19	197 ft	-2 ft
Point 20	221 ft	-10 ft
Point 21	246 ft	-10 ft
Point 22	270 ft	-2 ft
Point 23	0 ft	-7 ft
Point 24	212 ft	-7 ft
Point 25	255 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft

Point 31	305 ft	3 ft
Point 32	138 ft	-8 ft
Point 33	143 ft	-8 ft
Point 34	134 ft	-7 ft
Point 35	147 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft
Point 38	147 ft	3 ft
Point 39	84 ft	-2 ft
Point 40	69 ft	-7 ft
Point 41	60 ft	-10 ft
Point 42	35 ft	-10 ft
Point 43	26 ft	-7 ft
Point 44	11 ft	-2 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	174 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	163.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	212.5 ft²
Region 10	ECD	17,34,32,33,35,18	174 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	237.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13	Sand Fill	38,29,18,19,24,20,21,25,22,16,31	1,132 ft²
Region 14	01) PT/OH el -2 to -7	1,23,43,44	92.5 ft²
Region 15	01) PT/OH el -2 to -7	34,17,39,40	237.5 ft²
Region 16	02) OH/CH el -7 to -10	2,42,43,23	91.5 ft²
Region 17	02) OH/CH el -7 to -10	20,24,35,33,32,34,40,41	447 ft²

Slip Results

Slip Surfaces Analysed: 1272 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.21
Volume: 256.17167 ft³
Weight: 20,094.334 lbf
Resisting Moment: 51,854.467 lbf·ft
Activating Moment: 42,804.647 lbf·ft
Resisting Force: 2,255.8384 lbf

Activating Force: 1,861.4819 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (112.35133, -2) ft
Entry: (145.61859, 2.1271358) ft
Radius: 15.69609 ft
Center: (127.04284, 10.301515) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	113.17567 ft	-2.7065637 ft	185.82744 psf	249.13066 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 2	114.07153 ft	-3.4744382 ft	233.76599 psf	308.26155 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 3	114.80288 ft	-3.9924893 ft	266.10801 psf	337.60322 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 4	116.12253 ft	-4.9059697 ft	323.13677 psf	409.99685 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 5	117.45074 ft	-5.7605905 ft	376.4909 psf	470.32328 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 6	118.87873 ft	-6.5792355 ft	427.59906 psf	532.40767 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 7	120.36054 ft	-7.400068 ft	478.84379 psf	620.36895 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 8	121.58207 ft	-8.0249771 ft	517.85699 psf	686.80378 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 9	122.58069 ft	-8.4746593 ft	545.93073 psf	742.35112 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 10	123.70826 ft	-8.9824082 ft	577.62959 psf	815.29309 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 11	124.76282 ft	-9.3814842 ft	602.54398 psf	862.61928 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 12	125.6154 ft	-9.6138208 ft	617.04879 psf	906.16067 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 13	126.50505 ft	-9.7510913 ft	625.61862 psf	913.96592 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 14	127.43175 ft	-9.793296 ft	628.25347 psf	937.24728 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 15	128.35846 ft	-9.8355007 ft	630.88831 psf	960.52864 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 16	129.30927 ft	-9.764857 ft	626.47801 psf	945.12381 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 17	130.2842 ft	-9.581365 ft	615.02257 psf	944.26421 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 18	131.25912 ft	-9.397873 ft	603.56713 psf	943.40462 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 19	132.30993 ft	-9.050192 ft	581.86134 psf	896.89311 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 20	133.43664 ft	-8.538322 ft	549.90521 psf	863.50491 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice	134.39269	-8.103986	522.78953	831.25412				02) OH/CH el

21	ft	ft	psf	psf	0 psf	70 psf	0 psf	-7 to -10
Slice 22	135.18931 ft	-7.6619464 ft	495.19291 psf	771.08333 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 23	136.22361 ft	-6.9868644 ft	453.04741 psf	728.36456 psf	0 psf	70 psf	0 psf	ECD
Slice 24	137.427 ft	-6.0492601 ft	394.5126 psf	657.68735 psf	0 psf	70 psf	0 psf	ECD
Slice 25	138.45824 ft	-5.1023234 ft	335.39517 psf	600.50947 psf	0 psf	70 psf	0 psf	ECD
Slice 26	139.37471 ft	-4.2607718 ft	282.85694 psf	540.63761 psf	0 psf	70 psf	0 psf	ECD
Slice 27	140.28229 ft	-3.379997 ft	227.87 psf	469.42511 psf	0 psf	70 psf	0 psf	ECD
Slice 28	141.18096 ft	-2.459999 ft	170.43435 psf	404.35645 psf	0 psf	70 psf	0 psf	ECD
Slice 29	141.8133 ft	-1.8126545 ft	130.02051 psf	358.57175 psf	0 psf	70 psf	0 psf	ECD
Slice 30	142.49815 ft	-1.0798985 ft	84.274416 psf	302.25072 psf	0 psf	70 psf	0 psf	ECD
Slice 31	143.25841 ft	-0.25364796 ft	32.691441 psf	239.46378 psf	0 psf	70 psf	0 psf	ECD
Slice 32	143.63833 ft	0.148596 ft	7.5792746 psf	210.19912 psf	0 psf	70 psf	0 psf	ECD
Slice 33	144.37992 ft	0.88954073 ft	-38.678045 psf	144.59193 psf	0 psf	70 psf	0 psf	ECD
Slice 34	145.3093 ft	1.8181086 ft	-96.648714 psf	62.371592 psf	0 psf	70 psf	0 psf	ECD

05) B-1b

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File Information

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Time: 10:04:11 AM
Tool Version: 10.2.2.20559
File Name: MCA-1 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:04:30 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

05) B-1b

Kind: SLOPE/W
Method: Spencer
Settings
PWP Conditions from: Piezometric Line
Apply Phreatic Correction: No
Use Staged Rapid Drawdown: No
Unit Weight of Water: 62.430189 pcf
Slip Surface
Direction of movement: Right to Left
Use Passive Mode: No
Slip Surface Option: Entry and Exit
Critical slip surfaces saved: 1
Optimize Critical Slip Surface Location: Yes
Optimizations Settings
Maximum Iterations: 2,000
Starting Points: 8
Ending Points: 16
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °
Tension Crack Option: Tension Crack Line
Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb

Unit Weight: 75 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb

Unit Weight: 70 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb

Unit Weight: 111 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 113 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 175 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 94 pcf
Cohesion': 250 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 105 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (8, -2) ft
Left-Zone Right Coordinate: (60, -10) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (137, 3.75) ft
Right-Zone Right Coordinate: (217, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (305, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	305 ft	0.27 ft

Tension Crack Line

Geometry

Name: el -2, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-2 ft
Point 17	114 ft	-2 ft
Point 18	167 ft	-2 ft
Point 19	197 ft	-2 ft
Point 20	221 ft	-10 ft
Point 21	246 ft	-10 ft
Point 22	270 ft	-2 ft
Point 23	0 ft	-7 ft
Point 24	212 ft	-7 ft
Point 25	255 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	138 ft	-8 ft
Point 33	143 ft	-8 ft
Point 34	134 ft	-7 ft

Point 35	147 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft
Point 38	147 ft	3 ft
Point 39	84 ft	-2 ft
Point 40	69 ft	-7 ft
Point 41	60 ft	-10 ft
Point 42	35 ft	-10 ft
Point 43	26 ft	-7 ft
Point 44	11 ft	-2 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	174 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	163.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	212.5 ft²
Region 10	ECD	17,34,32,33,35,18	174 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	237.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13	Sand Fill	38,29,18,19,24,20,21,25,22,16,31	1,132 ft²
Region 14	01) PT/OH el -2 to -7	1,23,43,44	92.5 ft²
Region 15	01) PT/OH el -2 to -7	34,17,39,40	237.5 ft²
Region 16	02) OH/CH el -7 to -10	2,42,43,23	91.5 ft²
Region 17	02) OH/CH el -7 to -10	20,24,35,33,32,34,40,41	447 ft²

Slip Results

Slip Surfaces Analysed: 1214 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 2.42
Volume: 2,361.9667 ft³
Weight: 230,603.89 lbf
Resisting Moment: 3,195,124.4 lbf·ft
Activating Moment: 1,318,343 lbf·ft
Resisting Force: 22,209.669 lbf
Activating Force: 9,165.8015 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (53.489579, -10) ft
Entry: (184.12818, 3) ft

Radius: 54.584423 ft
Center: (110.98008, 108.81697) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	56.744789 ft	-12.468347 ft	795.25742 psf	1,028.5149 psf	62.501145 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 2	61.504895 ft	-16.07782 ft	1,020.5975 psf	1,425.8006 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 3	65.32385 ft	-17.614112 ft	1,116.5085 psf	1,582.0132 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 4	68.318955 ft	-18.089245 ft	1,146.1711 psf	1,672.3899 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 5	71.138177 ft	-18.420269 ft	1,166.837 psf	1,721.8375 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 6	75.414533 ft	-18.922385 ft	1,198.1842 psf	1,782.6747 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 7	80.776355 ft	-19.606091 ft	1,240.8681 psf	1,866.4158 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 8	87.26064 ft	-20.476353 ft	1,295.1988 psf	1,962.4572 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 9	92.80964 ft	-21.251584 ft	1,343.5966 psf	2,042.8434 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 10	97.613765 ft	-21.955157 ft	1,387.5207 psf	2,113.9354 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 11	102.6453 ft	-22.687067 ft	1,433.214 psf	2,188.1781 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 12	107.67682 ft	-23.418977 ft	1,478.9073 psf	2,262.4208 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 13	112.09629 ft	-24.039086 ft	1,517.6209 psf	2,323.629 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 14	115.55026 ft	-24.500208 ft	1,546.4088 psf	2,378.097 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 15	120.09025 ft	-24.781726 ft	1,563.984 psf	2,410.4865 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 16	126.10267 ft	-24.931648	1,573.3436 psf	2,498.7581 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25

		ft						
Slice 17	131.56267 ft	-24.9271 ft	1,573.0597 psf	2,599.2715 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 18	134.70979 ft	-24.823907 ft	1,566.6174 psf	2,644.3386 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 19	136.70979 ft	-24.525785 ft	1,548.0055 psf	2,606.8374 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 20	140.5 ft	-23.71837 ft	1,497.5985 psf	2,538.3004 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 21	143.63351 ft	-23.05085 ft	1,455.9251 psf	2,465.1655 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 22	144.63351 ft	-22.845716 ft	1,443.1185 psf	2,437.9781 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 23	146 ft	-22.584047 ft	1,426.7825 psf	2,398.4504 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 24	150.02721 ft	-21.812872 ft	1,378.6379 psf	2,337.6446 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 25	154.41943 ft	-20.616595 ft	1,303.954 psf	2,220.0228 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 26	156.85222 ft	-19.517672 ft	1,235.3481 psf	2,135.7993 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 27	160.39953 ft	-17.915311 ft	1,135.3124 psf	2,007.2442 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 28	163.84301 ft	-15.897639 ft	1,009.3488 psf	1,781.1234 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 29	165.90349 ft	-13.978926 ft	889.56313 psf	1,518.9936 psf	168.65537 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 30	168.58819 ft	-11.478926 ft	733.48766 psf	1,263.0947 psf	141.90777 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 31	171.24457 ft	-9.005311 ft	579.05941 psf	1,091.4531 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 32	172.9527 ft	-7.505311 ft	485.41413 psf	937.22472 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 33	175.92626 ft	-5.15735 ft	338.83048 psf	759.44236 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 34	178.87076 ft	-2.65735 ft	182.75501 psf	576.73024 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 35	180.53641 ft	-0.865 ft	70.858264 psf	365.24806 psf	156.52983 psf	0 psf	0 psf	Sand Fill
Slice 36	182.85968 ft	1.635 ft	-85.217207 psf	124.4398 psf	66.165817 psf	0 psf	0 psf	Sand Fill

06) A-1a

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File Information

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Last Edited By: Clay Worley
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Tool Version: 10.2.2.20559
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Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:04:20 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

06) A-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb

Unit Weight: 75 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb

Unit Weight: 70 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb

Unit Weight: 111 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 113 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 175 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 94 pcf
Cohesion': 250 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 105 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (110, -3) ft
Left-Zone Right Coordinate: (145, 3.5) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (158, 0.25) ft
Right-Zone Right Coordinate: (222, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -3) ft
Right Coordinate: (305, -3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	126 ft	1.06 ft
Coordinate 3	158.04 ft	0.27 ft
Coordinate 4	305 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	135 ft	2 ft
Coordinate 2	138 ft	3 ft
Coordinate 3	143 ft	3 ft

Geometry

Name: el -3, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-3 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-3 ft
Point 17	110 ft	-3 ft
Point 18	171 ft	-3 ft
Point 19	201 ft	-3 ft
Point 20	222 ft	-10 ft
Point 21	241 ft	-10 ft
Point 22	262 ft	-3 ft
Point 23	0 ft	-7 ft
Point 24	213 ft	-7 ft
Point 25	250 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	138 ft	-10 ft
Point 33	143 ft	-10 ft
Point 34	126 ft	-7 ft
Point 35	155 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft

Point 38	147 ft	3 ft
Point 39	80 ft	-3 ft
Point 40	68 ft	-7 ft
Point 41	59 ft	-10 ft
Point 42	34 ft	-10 ft
Point 43	25 ft	-7 ft
Point 44	13 ft	-3 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	231 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	178.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,33,32,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	196 ft²
Region 10	ECD	17,34,32,33,35,18	231 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	176 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13	02) OH/CH el -7 to -10	33,35,24,20	205.5 ft²
Region 14		38,29,18,19,24,20,21,25,22,16,31	1,156 ft²
Region 15	01) PT/OH el -2 to -7	1,23,43,44	76 ft²
Region 16	01) PT/OH el -2 to -7	34,17,39,40	176 ft²
Region 17	02) OH/CH el -7 to -10	23,2,42,43	88.5 ft²
Region 18	02) OH/CH el -7 to -10	32,34,40,41	205.5 ft²

Slip Results

Slip Surfaces Analysed: 1123 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.26
Volume: 263.00244 ft³
Weight: 20,348.02 lbf
Resisting Moment: 62,385.755 lbf·ft
Activating Moment: 49,354.594 lbf·ft
Resisting Force: 2,404.55 lbf
Activating Force: 1,901.8874 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (171.03317, -3) ft
Entry: (135.56474, 2.1882465) ft
Radius: 16.48934 ft
Center: (154.81497, 13.698191) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	136.03725 ft	1.7275052 ft	-57.123037 psf	78.223409 psf	0 psf	70 psf	0 psf	ECD
Slice 2	136.72945 ft	1.0283975 ft	-14.543113 psf	133.07507 psf	0 psf	70 psf	0 psf	ECD
Slice 3	137.47456 ft	0.2198845 ft	34.785535 psf	202.73349 psf	0 psf	70 psf	0 psf	ECD
Slice 4	138.31528 ft	-0.69237302 ft	90.443799 psf	275.81083 psf	0 psf	70 psf	0 psf	ECD
Slice 5	139.22871 ft	-1.6656125 ft	149.79726 psf	346.14356 psf	0 psf	70 psf	0 psf	ECD
Slice 6	140.18594 ft	-2.6483705 ft	209.67755 psf	420.97807 psf	0 psf	70 psf	0 psf	ECD
Slice 7	141.05775 ft	-3.50209 ft	261.63343 psf	481.1476 psf	0 psf	70 psf	0 psf	ECD
Slice 8	142.28524 ft	-4.6423082 ft	330.92797 psf	569.04173 psf	0 psf	70 psf	0 psf	ECD
Slice 9	143.64413 ft	-5.8555027 ft	404.57617 psf	643.59422 psf	0 psf	70 psf	0 psf	ECD
Slice 10	144.64413 ft	-6.6369955 ft	451.82558 psf	711.3981 psf	0 psf	70 psf	0 psf	ECD
Slice 11	145.44785 ft	-7.103196 ft	479.69339 psf	730.56515 psf	0 psf	70 psf	0 psf	ECD
Slice 12	146.34354 ft	-7.622744 ft	510.75011 psf	751.92549 psf	0 psf	70 psf	0 psf	ECD
Slice 13	146.89569 ft	-7.9193176 ft	528.41532 psf	786.7989 psf	0 psf	70 psf	0 psf	ECD
Slice 14	147.86587 ft	-8.2615901 ft	548.29002 psf	794.10944 psf	0 psf	70 psf	0 psf	ECD
Slice 15	148.87293 ft	-8.6168719 ft	568.92015 psf	804.69245 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 16	149.6422 ft	-8.7654533 ft	577.01196 psf	834.52028 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 17	150.89837 ft	-8.962998 ft	587.41108 psf	844.10146 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 18	152.15453 ft	-9.1605427 ft	597.81019 psf	853.68263 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 19	153.33696 ft	-9.2722933 ft	602.96666 psf	869.4365 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 20	154.44565 ft	-9.29825 ft	602.8805 psf	861.52005 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 21	155.35161 ft	-9.3194601 ft	602.8101 psf	851.45273 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 22	156.5771 ft	-9.1959465 ft	593.2127 psf	832.41097 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10

Slice 23	157.67892 ft	-8.9897714 ft	578.64509 psf	806.25334 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 24	157.97343 ft	-8.8936068 ft	572.18816 psf	790.29943 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 25	158.55867 ft	-8.7025144 ft	560.15576 psf	766.04423 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 26	159.596 ft	-8.3637998 ft	539.00975 psf	723.24011 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 27	160.63333 ft	-8.0250853 ft	517.86374 psf	680.43599 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 28	161.92359 ft	-7.538769 ft	487.50292 psf	628.13496 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 29	162.95217 ft	-7.110905 ft	460.79129 psf	576.9444 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 30	163.80764 ft	-6.7417333 ft	437.74383 psf	537.98024 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 31	165.00457 ft	-6.2252 ft	405.49656 psf	495.6755 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 32	166.20151 ft	-5.7086667 ft	373.24929 psf	453.37076 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 33	167.62952 ft	-5.012498 ft	329.78735 psf	404.47773 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 34	169.09429 ft	-4.1860192 ft	278.19012 psf	344.35769 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 35	170.36477 ft	-3.4088657 ft	229.67228 psf	282.2111 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 36	171.01658 ft	-3.0101445 ft	204.78004 psf	246.91552 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7

07) A-1b

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File Information

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Tool Version: 10.2.2.20559
File Name: MCA-1 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:04:26 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

07) A-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb

Unit Weight: 75 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb

Unit Weight: 70 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb

Unit Weight: 111 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 113 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 175 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 94 pcf
Cohesion': 250 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 105 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (112, -2.5) ft
Left-Zone Right Coordinate: (145, 3.5) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (222, -10) ft
Right-Zone Right Coordinate: (258, -4.333333) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -3) ft
Right Coordinate: (305, -3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	126 ft	1.06 ft
Coordinate 3	158.04 ft	0.27 ft
Coordinate 4	305 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	135 ft	2 ft
Coordinate 2	138 ft	3 ft
Coordinate 3	143 ft	3 ft

Geometry

Name: el -3, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-3 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-3 ft
Point 17	110 ft	-3 ft
Point 18	171 ft	-3 ft
Point 19	201 ft	-3 ft
Point 20	222 ft	-10 ft
Point 21	241 ft	-10 ft
Point 22	262 ft	-3 ft
Point 23	0 ft	-7 ft
Point 24	213 ft	-7 ft
Point 25	250 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	138 ft	-10 ft
Point 33	143 ft	-10 ft
Point 34	126 ft	-7 ft
Point 35	155 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft

Point 38	147 ft	3 ft
Point 39	80 ft	-3 ft
Point 40	68 ft	-7 ft
Point 41	59 ft	-10 ft
Point 42	34 ft	-10 ft
Point 43	25 ft	-7 ft
Point 44	13 ft	-3 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	231 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	178.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,33,32,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	196 ft²
Region 10	ECD	17,34,32,33,35,18	231 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	176 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13	02) OH/CH el -7 to -10	33,35,24,20	205.5 ft²
Region 14		38,29,18,19,24,20,21,25,22,16,31	1,156 ft²
Region 15	01) PT/OH el -2 to -7	1,23,43,44	76 ft²
Region 16	01) PT/OH el -2 to -7	34,17,39,40	176 ft²
Region 17	02) OH/CH el -7 to -10	23,2,42,43	88.5 ft²
Region 18	02) OH/CH el -7 to -10	32,34,40,41	205.5 ft²

Slip Results

Slip Surfaces Analysed: 1210 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 3.32
Volume: 1,669.8933 ft³
Weight: 164,117.97 lbf
Resisting Moment: 1,698,312.7 lbf·ft
Activating Moment: 511,764.23 lbf·ft
Resisting Force: 17,817.955 lbf
Activating Force: 5,368.1207 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (238.96802, -10) ft
Entry: (135.62821, 2.2094039) ft
Radius: 44.808487 ft
Center: (193.44166, 60.588251) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	136.09827 ft	1.504412 ft	-43.289205 psf	115.32529 psf	0 psf	70 psf	0 psf	ECD
Slice 2	137.03443 ft	0.10035705 ft	42.925152 psf	232.90047 psf	0 psf	70 psf	0 psf	ECD
Slice 3	137.75027 ft	-0.99583172 ft	110.25852 psf	321.76541 psf	0 psf	70 psf	0 psf	ECD
Slice 4	138.50529 ft	-2.1964787 ft	184.05292 psf	412.1892 psf	0 psf	70 psf	0 psf	ECD
Slice 5	140.24642 ft	-4.965259 ft	354.22824 psf	610.40602 psf	0 psf	70 psf	0 psf	ECD
Slice 6	142.24113 ft	-7.7649733 ft	525.94443 psf	832.39242 psf	0 psf	70 psf	0 psf	ECD
Slice 7	143.51888 ft	-9.1699936 ft	611.69324 psf	924.98997 psf	0 psf	70 psf	0 psf	ECD
Slice 8	144.15574 ft	-9.8702793 ft	654.43189 psf	969.82532 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 9	144.63685 ft	-10.399317 ft	686.71921 psf	959.52822 psf	73.098955 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 10	146 ft	-11.898236 ft	778.1987 psf	1,106.0369 psf	87.84398 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 11	147.9104 ft	-13.998919 ft	906.40403 psf	1,311.3637 psf	108.50862 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 12	148.91867 ft	-15.10761 ft	974.06775 psf	1,471.3483 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 13	150.46014 ft	-16.149488 ft	1,036.7395 psf	1,599.4554 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 14	153.34736 ft	-18.018023 ft	1,148.9482 psf	1,756.9735 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 15	154.89549 ft	-18.981337 ft	1,206.705 psf	1,874.3212 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 16	156.52 ft	-19.432826 ft	1,232.3909 psf	1,888.468 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 17	158.30038 ft	-19.927634 ft	1,260.9421 psf	1,908.5667 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 18	160.60867 ft	-20.569159 ft	1,300.9926 psf	1,961.1851 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 19	164.10508 ft	-21.379335 ft	1,351.5721 psf	2,040.1042 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 20	167.00211 ft	-21.861372 ft	1,381.6657 psf	2,076.2234 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 21	169.72531 ft	-22.204235 ft	1,403.0707 psf	2,109.0711 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 22	171.67289 ft	-22.359842 ft	1,412.7853 psf	2,117.7877 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice	174.22547	-22.545563	1,424.3799	2,137.6302	0 psf	175 psf	0 psf	05) CH el -20

23	ft	ft	psf	psf				to -25
Slice 24	177.98487 ft	-22.809481 ft	1,440.8563 psf	2,164.23 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 25	181.74427 ft	-23.073398 ft	1,457.3328 psf	2,190.8297 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 26	185.50368 ft	-23.337316 ft	1,473.8092 psf	2,217.4295 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 27	189.26308 ft	-23.601234 ft	1,490.2856 psf	2,244.0293 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 28	192.49453 ft	-23.845264 ft	1,505.5205 psf	2,267.0949 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 29	195.19804 ft	-24.069408 ft	1,519.5138 psf	2,289.6773 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 30	198.77489 ft	-24.317293 ft	1,534.9893 psf	2,317.3166 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 31	203.07382 ft	-24.579687 ft	1,551.3706 psf	2,341.0115 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 32	207.22147 ft	-24.832847 ft	1,567.1755 psf	2,356.9477 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 33	211.14765 ft	-24.847871 ft	1,568.1134 psf	2,364.3433 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 34	214.26556 ft	-24.660098 ft	1,556.3907 psf	2,320.7841 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 35	217.63013 ft	-23.99138 ft	1,514.6425 psf	2,225.8141 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 36	220.70791 ft	-22.888119 ft	1,445.7658 psf	2,091.7049 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 37	221.84333 ft	-22.268418 ft	1,407.0777 psf	2,029.7032 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 38	223.55271 ft	-21.079737 ft	1,332.8681 psf	1,897.9975 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 39	226.90296 ft	-18.75 ft	1,187.4222 psf	1,652.1078 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 40	230.55646 ft	-16.209394 ft	1,028.8117 psf	1,389.5504 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 41	234.0513 ft	-13.689092 ft	871.46873 psf	1,148.3012 psf	74.177044 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 42	237.32911 ft	-11.229697 ft	717.92827 psf	854.9916 psf	36.72601 psf	200 psf	0 psf	03) ML el -10 to -15

08) A-2

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 183
Date: 07/02/2021
Time: 10:04:11 AM
Tool Version: 10.2.2.20559
File Name: MCA-1 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:04:24 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

08) A-2

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb
Unit Weight: 75 pcf
Cohesion': 70 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb
Unit Weight: 70 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 70 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 113 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 175 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 94 pcf
Cohesion': 250 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 105 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (174, -3) ft
Left-Zone Right Coordinate: (194, -3) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (201, -3) ft
Right-Zone Right Coordinate: (238, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -3) ft
Right Coordinate: (305, -3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	305 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	176 ft	-2 ft
	181 ft	-2 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	186 ft	-2 ft
	191 ft	-2 ft

Tension Crack Line

Geometry

Name: el -3, 4H:1V

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-3 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-3 ft
Point 17	110 ft	-3 ft
Point 18	171 ft	-3 ft
Point 19	201 ft	-3 ft
Point 20	222 ft	-10 ft
Point 21	241 ft	-10 ft

Point 22	262 ft	-3 ft
Point 23	0 ft	-7 ft
Point 24	213 ft	-7 ft
Point 25	250 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	138 ft	-10 ft
Point 33	143 ft	-10 ft
Point 34	126 ft	-7 ft
Point 35	155 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft
Point 38	147 ft	3 ft
Point 39	80 ft	-3 ft
Point 40	68 ft	-7 ft
Point 41	59 ft	-10 ft
Point 42	34 ft	-10 ft
Point 43	25 ft	-7 ft
Point 44	13 ft	-3 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	231 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	178.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,33,32,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	196 ft²
Region 10	ECD	17,34,32,33,35,18	231 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	176 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13	02) OH/CH el -7 to -10	33,35,24,20	205.5 ft²
Region 14		38,29,18,19,24,20,21,25,22,16,31	1,156 ft²
Region 15	01) PT/OH el -2 to -7	1,23,43,44	76 ft²
Region 16	01) PT/OH el -2 to -7	34,17,39,40	176 ft²
Region 17	02) OH/CH el -7 to -10	23,2,42,43	88.5 ft²
Region 18	02) OH/CH el -7 to -10	32,34,40,41	205.5 ft²

Slip Results

Slip Surfaces Analysed: 807 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.23
Volume: 76.052948 ft³
Weight: 5,997.7255 lbf
Resisting Moment: 13,137.636 lbf·ft
Activating Moment: 10,645.689 lbf·ft
Resisting Force: 1,204.6472 lbf
Activating Force: 976.04034 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (204.30899, -4.1029958) ft
Entry: (186, -3) ft
Radius: 8.0935755 ft
Center: (195.54261, 0.0043891948) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	186.27528 ft	-3.4733592 ft	233.69862 psf	398.11272 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 2	186.82584 ft	-4.4200775 ft	292.80242 psf	461.70756 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 3	187.37639 ft	-5.3667958 ft	351.90623 psf	525.30239 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 4	188.08556 ft	-6.4200775 ft	417.6628 psf	619.49695 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 5	188.63913 ft	-7.159963 ft	463.85399 psf	665.70352 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 6	189.05644 ft	-7.673993 ft	495.94498 psf	731.57414 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 7	189.65171 ft	-8.382127 ft	540.15392 psf	807.95402 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 8	190.24698 ft	-9.090261 ft	584.36286 psf	884.33389 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 9	190.7574 ft	-9.665087 ft	620.24935 psf	958.18669 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 10	190.98509 ft	-9.8914898 ft	634.38373 psf	1,035.4295 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 11	191.01426 ft	-9.9025333 ft	635.07317 psf	779.02983 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 12	191.36757 ft	-9.803408 ft	628.88476 psf	820.3902 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10

Slice 13	192.04564 ft	-9.594358 ft	615.83373 psf	797.00929 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 14	192.67156 ft	-9.3975464 ft	603.54674 psf	776.0173 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 15	193.24535 ft	-9.2129731 ft	592.0238 psf	755.36715 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 16	193.81914 ft	-9.0283999 ft	580.50086 psf	734.71701 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 17	194.39293 ft	-8.8438266 ft	568.97791 psf	714.06686 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 18	194.9817 ft	-8.6474368 ft	556.71726 psf	693.81712 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 19	195.58544 ft	-8.4392303 ft	543.71889 psf	670.50955 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 20	196.22328 ft	-8.2044125 ft	529.05917 psf	647.45789 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 21	196.89523 ft	-7.9429835 ft	512.73811 psf	618.1604 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 22	197.56717 ft	-7.6815545 ft	496.41705 psf	588.86291 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 23	198.20992 ft	-7.41313 ft	479.65925 psf	563.03999 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 24	198.82347 ft	-7.13771 ft	462.46473 psf	532.12889 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 25	199.39744 ft	-6.880059 ft	446.37953 psf	504.30561 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 26	199.99847 ft	-6.5965972 ft	428.68296 psf	486.74736 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 27	200.66616 ft	-6.2695555 ft	408.26568 psf	463.57678 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 28	201.13948 ft	-6.0377153 ft	393.79186 psf	448.50392 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 29	201.62971 ft	-5.7544697 ft	376.10878 psf	434.64264 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 30	202.3312 ft	-5.3246172 ft	349.27301 psf	402.41888 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 31	202.95311 ft	-4.9419085 ft	325.38043 psf	374.08477 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7

Slice 32	203.49546 ft	-4.6063434 ft	304.43104 psf	348.93811 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 33	204.03781 ft	-4.2707783 ft	283.48165 psf	323.79145 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7

09) B-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
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Tool Version: 10.2.2.20559
File Name: MCA-1 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:04:24 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

09) B-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb

Unit Weight: 75 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb

Unit Weight: 70 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb

Unit Weight: 111 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 113 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 175 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 94 pcf
Cohesion': 250 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 105 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (59, -10) ft
Left-Zone Right Coordinate: (124, 0.5) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (137, 3.75) ft
Right-Zone Right Coordinate: (224, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -3) ft
Right Coordinate: (305, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	305 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	138 ft	3 ft
Coordinate 2	143 ft	3 ft
Coordinate 3	147 ft	2 ft

Geometry

Name: el -3, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-3 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-3 ft
Point 17	110 ft	-3 ft
Point 18	171 ft	-3 ft
Point 19	201 ft	-3 ft
Point 20	222 ft	-10 ft
Point 21	241 ft	-10 ft
Point 22	262 ft	-3 ft
Point 23	0 ft	-7 ft
Point 24	213 ft	-7 ft
Point 25	250 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft

Point 31	305 ft	3 ft
Point 32	138 ft	-10 ft
Point 33	143 ft	-10 ft
Point 34	126 ft	-7 ft
Point 35	155 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft
Point 38	147 ft	3 ft
Point 39	80 ft	-3 ft
Point 40	68 ft	-7 ft
Point 41	59 ft	-10 ft
Point 42	34 ft	-10 ft
Point 43	25 ft	-7 ft
Point 44	13 ft	-3 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	231 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	178.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,33,32,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	196 ft²
Region 10	ECD	17,34,32,33,35,18	231 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	176 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13	02) OH/CH el -7 to -10	33,35,24,20	205.5 ft²
Region 14	Sand Fill	38,29,18,19,24,20,21,25,22,16,31	1,156 ft²
Region 15	01) PT/OH el -2 to -7	1,23,43,44	76 ft²
Region 16	01) PT/OH el -2 to -7	34,17,39,40	176 ft²
Region 17	02) OH/CH el -7 to -10	23,2,42,43	88.5 ft²
Region 18	02) OH/CH el -7 to -10	32,34,40,41	205.5 ft²

Slip Results

Slip Surfaces Analysed: 1279 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.26
Volume: 242.32926 ft³
Weight: 18,500.423 lbf
Resisting Moment: 58,818.811 lbf·ft
Activating Moment: 46,553.58 lbf·ft

Resisting Force: 2,359.4674 lbf
Activating Force: 1,867.7896 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (110.04462, -2.9888442) ft
Entry: (145.09983, 2.4750428) ft
Radius: 16.314066 ft
Center: (126.02832, 13.463978) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	110.05521 ft	-2.9944221 ft	203.79849 psf	249.39169 psf	0 psf	70 psf	0 psf	ECD
Slice 2	110.78426 ft	-3.3784999 ft	227.77654 psf	275.57389 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 3	112.19147 ft	-4.1198469 ft	274.05897 psf	335.47908 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 4	113.57112 ft	-4.7732265 ft	314.84958 psf	380.71575 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 5	114.95292 ft	-5.3542915 ft	351.12558 psf	428.46764 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 6	116.43869 ft	-5.939987 ft	387.69066 psf	472.94683 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 7	117.80154 ft	-6.4263625 ft	418.05517 psf	510.71393 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 8	118.93751 ft	-6.8087875 ft	441.93004 psf	542.91302 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 9	120.15686 ft	-7.2192835 ft	467.55738 psf	589.96195 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 10	121.37617 ft	-7.6225203 ft	492.73153 psf	639.63129 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 11	122.51206 ft	-7.990427 ft	515.70002 psf	686.18883 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 12	123.40856 ft	-8.2808007 ft	533.8281 psf	728.2694 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 13	124.58676 ft	-8.51456 ft	548.42174 psf	759.7673 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 14	125.71819 ft	-8.6429211 ft	556.43534 psf	780.92253 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 15	126.56182 ft	-8.6459809 ft	556.62637 psf	792.37884 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 16	127.68545 ft	-8.6500563 ft	556.8808 psf	803.78949 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 17	128.96021 ft	-8.5577599 ft	551.11872 psf	791.05997 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 18	130.38609 ft	-8.3690918 ft	539.34013 psf	784.08347 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 19	131.21064 ft	-8.2599898 ft	532.52887 psf	781.57145 psf	0 psf	70 psf	0 psf	ECD
Slice 20	132.12222 ft	-8.0274595 ft	518.01196 psf	766.25757 psf	0 psf	70 psf	0 psf	ECD

Slice 21	133.64506 ft	-7.4487813 ft	481.88497 psf	728.19516 psf	0 psf	70 psf	0 psf	ECD
Slice 22	135.09077 ft	-6.7269498 ft	436.82089 psf	702.06029 psf	0 psf	70 psf	0 psf	ECD
Slice 23	136.63807 ft	-5.754088 ft	376.08495 psf	636.29456 psf	0 psf	70 psf	0 psf	ECD
Slice 24	137.73126 ft	-4.8956058 ft	322.48975 psf	578.68579 psf	0 psf	70 psf	0 psf	ECD
Slice 25	138.4494 ft	-4.2368022 ft	281.36051 psf	536.94196 psf	0 psf	70 psf	0 psf	ECD
Slice 26	139.34819 ft	-3.4122674 ft	229.88465 psf	478.76387 psf	0 psf	70 psf	0 psf	ECD
Slice 27	140.18627 ft	-2.6434335 ft	181.8862 psf	424.51596 psf	0 psf	70 psf	0 psf	ECD
Slice 28	141.18121 ft	-1.6484549 ft	119.7695 psf	344.22905 psf	0 psf	70 psf	0 psf	ECD
Slice 29	142.39374 ft	-0.37163074 ft	40.057128 psf	254.92004 psf	0 psf	70 psf	0 psf	ECD
Slice 30	143.00153 ft	0.26839067 ft	0.10047065 psf	210.12624 psf	0 psf	70 psf	0 psf	ECD
Slice 31	143.0193 ft	0.287103 ft	-1.0677435 psf	208.50665 psf	0 psf	70 psf	0 psf	ECD
Slice 32	143.52377 ft	0.81989775 ft	-34.33022 psf	162.21885 psf	0 psf	70 psf	0 psf	ECD
Slice 33	144.50024 ft	1.8512812 ft	-98.719687 psf	73.020819 psf	0 psf	70 psf	0 psf	ECD
Slice 34	144.99424 ft	2.3725677 ft	-131.2637 psf	32.538036 psf	0 psf	70 psf	0 psf	ECD
Slice 35	145.04991 ft	2.4266027 ft	-134.63711 psf	27.759613 psf	0 psf	70 psf	0 psf	ECD

10) B-1b

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File Information

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Tool Version: 10.2.2.20559
File Name: MCA-1 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:04:28 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

10) B-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb

Unit Weight: 75 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb

Unit Weight: 70 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb

Unit Weight: 111 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 113 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 101 pcf
Cohesion': 175 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 94 pcf
Cohesion': 250 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 105 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (8, -3) ft
Left-Zone Right Coordinate: (59, -10) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (137, 3.75) ft
Right-Zone Right Coordinate: (224, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -3) ft
Right Coordinate: (305, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	305 ft	0.27 ft

Tension Crack Line

Geometry

Name: el -3, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-3 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-3 ft
Point 17	110 ft	-3 ft
Point 18	171 ft	-3 ft
Point 19	201 ft	-3 ft
Point 20	222 ft	-10 ft
Point 21	241 ft	-10 ft
Point 22	262 ft	-3 ft
Point 23	0 ft	-7 ft
Point 24	213 ft	-7 ft
Point 25	250 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	138 ft	-10 ft
Point 33	143 ft	-10 ft
Point 34	126 ft	-7 ft

Point 35	155 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft
Point 38	147 ft	3 ft
Point 39	80 ft	-3 ft
Point 40	68 ft	-7 ft
Point 41	59 ft	-10 ft
Point 42	34 ft	-10 ft
Point 43	25 ft	-7 ft
Point 44	13 ft	-3 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	231 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	178.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,33,32,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	196 ft²
Region 10	ECD	17,34,32,33,35,18	231 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	176 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13	02) OH/CH el -7 to -10	33,35,24,20	205.5 ft²
Region 14	Sand Fill	38,29,18,19,24,20,21,25,22,16,31	1,156 ft²
Region 15	01) PT/OH el -2 to -7	1,23,43,44	76 ft²
Region 16	01) PT/OH el -2 to -7	34,17,39,40	176 ft²
Region 17	02) OH/CH el -7 to -10	23,2,42,43	88.5 ft²
Region 18	02) OH/CH el -7 to -10	32,34,40,41	205.5 ft²

Slip Results

Slip Surfaces Analysed: 1221 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 2.35
Volume: 2,511.0987 ft³
Weight: 246,008.31 lbf
Resisting Moment: 3,283,422.3 lbf·ft
Activating Moment: 1,399,525 lbf·ft
Resisting Force: 23,224.764 lbf
Activating Force: 9,901.8543 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (55.559177, -10) ft

Entry: (190.11799, 3) ft
Radius: 55.952329 ft
Center: (118.22257, 105.49332) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	57.279588 ft	-11.258924 ft	719.75292 psf	881.02531 psf	43.212808 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 2	60.69602 ft	-13.758924 ft	875.82839 psf	1,219.9477 psf	92.206498 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 3	62.692325 ft	-15.219736 ft	967.02711 psf	1,371.4024 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 4	65.496305 ft	-15.831496 ft	1,005.2194 psf	1,418.5388 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 5	70.754915 ft	-16.654881 ft	1,056.6235 psf	1,548.7191 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 6	76.754915 ft	-17.638972 ft	1,118.0605 psf	1,664.1116 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 7	81.897892 ft	-18.514967 ft	1,172.7491 psf	1,758.6116 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 8	85.693678 ft	-19.161498 ft	1,213.1121 psf	1,824.236 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 9	88.978243 ft	-19.742382 ft	1,249.3768 psf	1,885.0407 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 10	92.625858 ft	-20.420041 ft	1,291.6832 psf	1,956.1578 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 11	97.405667 ft	-21.334755 ft	1,348.789 psf	2,050.4761 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 12	102.4434 ft	-22.3241 ft	1,410.5539 psf	2,150.9734 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 13	107.48113 ft	-23.313445 ft	1,472.3189 psf	2,251.4707 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 14	111.13895 ft	-24.031792 ft	1,517.1655 psf	2,330.8334 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 15	114.09407 ft	-24.489199 ft	1,545.7214 psf	2,380.2271 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice	117.72535	-	1,567.9058	2,422.8696				05) CH el -20

16	ft	24.844545 ft	psf	psf	0 psf	175 psf	0 psf	to -25
Slice 17	120.24729 ft	-24.980493 ft	1,576.393 psf	2,440.6276 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 18	122.01705 ft	-24.995095 ft	1,577.3046 psf	2,446.7613 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 19	124.54 ft	-24.995733 ft	1,577.3444 psf	2,480.5744 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 20	128.60334 ft	-24.99676 ft	1,577.4086 psf	2,535.2612 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 21	132.90502 ft	-24.996855 ft	1,577.4145 psf	2,577.125 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 22	136.30167 ft	-24.995728 ft	1,577.3442 psf	2,610.1283 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 23	140.5 ft	-24.994335 ft	1,577.2572 psf	2,626.5462 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 24	144 ft	-24.993174 ft	1,577.1847 psf	2,616.679 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 25	146 ft	-24.99251 ft	1,577.1433 psf	2,597.1122 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 26	149.35692 ft	-24.991397 ft	1,577.0738 psf	2,632.0309 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 27	153.35692 ft	-24.5607 ft	1,550.1853 psf	2,625.1037 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 28	156.52 ft	-23.733073 ft	1,498.5163 psf	2,585.8055 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 29	158.59259 ft	-23.190774 ft	1,464.6605 psf	2,549.966 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 30	162.13274 ft	-21.523094 ft	1,360.5469 psf	2,378.1525 psf	0 psf	175 psf	0 psf	05) CH el -20 to -25
Slice 31	166.84298 ft	-19.121758 ft	1,210.6311 psf	2,184.8192 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 32	169.78283 ft	-17.1889 ft	1,089.9624 psf	1,975.1582 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 33	171.65456 ft	-15.567143 ft	988.71581 psf	1,825.7721 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 34	173.09313 ft	-14.320697 ft	910.89993 psf	1,612.1871 psf	187.90932 psf	200 psf	0 psf	03) ML el -10 to -15
Slice		-	754.82446	1,330.2448	154.18341			03) ML el -10

35	175.765 ft	11.820697 ft	psf	psf	psf	200 psf	0 psf	to -15
Slice 36	179.2082 ft	-8.5 ft	547.51275 psf	1,078.3701 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 37	182.42811 ft	-5.394646 ft	353.64492 psf	810.97589 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 38	184.44292 ft	-3.394646 ft	228.78454 psf	667.68824 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 39	186.24417 ft	-1.365 ft	102.07336 psf	411.51343 psf	164.53221 psf	0 psf	0 psf	Sand Fill
Slice 40	188.90659 ft	1.635 ft	-85.217207 psf	122.48945 psf	65.128793 psf	0 psf	0 psf	Sand Fill

CELL 2

01) A-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 187
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Time: 10:57:54 AM
Tool Version: 10.2.2.20559
File Name: MCA-2 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:58:00 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

01) A-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb

Unit Weight: 75 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb

Unit Weight: 70 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb

Unit Weight: 102 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 108 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 116 pcf
Cohesion': 320 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (114, -2) ft
Left-Zone Right Coordinate: (145, 3.5) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (161, -0.5) ft
Right-Zone Right Coordinate: (221, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (305, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	126 ft	1.06 ft
Coordinate 3	158.04 ft	0.27 ft
Coordinate 4	306 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	134 ft	2 ft
Coordinate 2	137 ft	3 ft
Coordinate 3	139 ft	3 ft

Coordinate 4	143 ft	3 ft

Geometry

Name: el -2, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-2 ft
Point 17	114 ft	-2 ft
Point 18	167 ft	-2 ft
Point 19	197 ft	-2 ft
Point 20	221 ft	-10 ft
Point 21	246 ft	-10 ft
Point 22	270 ft	-2 ft
Point 23	0 ft	-7 ft
Point 24	212 ft	-7 ft
Point 25	255 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	138 ft	-8 ft
Point 33	143 ft	-8 ft
Point 34	134 ft	-7 ft
Point 35	147 ft	-7 ft
Point 36	0 ft	-44 ft

Point 37	305 ft	-44 ft
Point 38	147 ft	3 ft
Point 39	84 ft	-2 ft
Point 40	69 ft	-7 ft
Point 41	60 ft	-10 ft
Point 42	35 ft	-10 ft
Point 43	26 ft	-7 ft
Point 44	11 ft	-2 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	174 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	163.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	212.5 ft²
Region 10	ECD	17,34,32,33,35,18	174 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	237.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13		38,29,18,19,24,20,21,25,22,16,31	1,132 ft²
Region 14	01) PT/OH el -2 to -7	1,23,43,44	92.5 ft²
Region 15	01) PT/OH el -2 to -7	34,17,39,40	237.5 ft²
Region 16	02) OH/CH el -7 to -10	2,42,43,23	91.5 ft²
Region 17	02) OH/CH el -7 to -10	20,24,35,33,32,34,40,41	447 ft²

Slip Results

Slip Surfaces Analysed: 1180 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.22
Volume: 234.75938 ft³
Weight: 17,966.808 lbf
Resisting Moment: 46,630.519 lbf·ft
Activating Moment: 38,361.574 lbf·ft
Resisting Force: 2,156.2117 lbf
Activating Force: 1,773.2403 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (167.0186, -2) ft
Entry: (135.10303, 2.3676771) ft
Radius: 15.130922 ft
Center: (152.85899, 9.8926877) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	135.4627 ft	2.0338775 ft	-75.365493 psf	47.285847 psf	0 psf	70 psf	0 psf	ECD
Slice 2	136.29514 ft	1.2472885 ft	-27.539986 psf	116.02674 psf	0 psf	70 psf	0 psf	ECD
Slice 3	136.89201 ft	0.67564796 ft	7.2288636 psf	167.07094 psf	0 psf	70 psf	0 psf	ECD
Slice 4	137.50806 ft	0.040200324 ft	45.951694 psf	216.7823 psf	0 psf	70 psf	0 psf	ECD
Slice 5	138.72545 ft	-1.2381982 ft	123.88839 psf	315.483 psf	0 psf	70 psf	0 psf	ECD
Slice 6	139.54638 ft	-2.1002655 ft	176.44374 psf	376.19912 psf	0 psf	70 psf	0 psf	ECD
Slice 7	140.08191 ft	-2.6244055 ft	208.34156 psf	419.92759 psf	0 psf	70 psf	0 psf	ECD
Slice 8	140.962 ft	-3.4721545 ft	259.91195 psf	479.93766 psf	0 psf	70 psf	0 psf	ECD
Slice 9	141.80153 ft	-4.262183 ft	307.94126 psf	539.86991 psf	0 psf	70 psf	0 psf	ECD
Slice 10	142.60051 ft	-4.9944911 ft	352.42951 psf	591.84974 psf	0 psf	70 psf	0 psf	ECD
Slice 11	143.17244 ft	-5.5186911 ft	384.27503 psf	625.99798 psf	0 psf	70 psf	0 psf	ECD
Slice 12	143.75865 ft	-5.9721632 ft	411.68301 psf	666.72115 psf	0 psf	70 psf	0 psf	ECD
Slice 13	144.58622 ft	-6.5630157 ft	447.29615 psf	694.30172 psf	0 psf	70 psf	0 psf	ECD
Slice 14	145.10455 ft	-6.933087 ft	469.60189 psf	711.57638 psf	0 psf	70 psf	0 psf	ECD
Slice 15	145.51129 ft	-7.1521818 ft	482.65392 psf	743.40178 psf	0 psf	70 psf	0 psf	ECD
Slice 16	146.40674 ft	-7.5802204 ft	507.99807 psf	769.60267 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 17	147.50572 ft	-8.1055486 ft	539.10273 psf	804.91002 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 18	148.61273 ft	-8.5088113 ft	562.57445 psf	845.69559 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 19	149.81531 ft	-8.8318578 ft	580.89113 psf	854.44927 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 20	150.97455 ft	-9.034099 ft	591.73266 psf	873.40166 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 21	152.09042 ft	-9.115535 ft	595.09903 psf	859.45352 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 22	153.16507 ft	-9.092831 ft	592.02739 psf	857.29113 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice	154.19849	-8.965987 ft	582.51773	823.42786	0 psf	70 psf	0 psf	02) OH/CH el

23	ft		psf	psf				-7 to -10
Slice 24	155.23063 ft	-8.7447755 ft	567.11866 psf	799.6622 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 25	156.26147 ft	-8.4291965 ft	545.8302 psf	745.83819 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 26	157.34188 ft	-7.9786792 ft	516.04122 psf	698.74443 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 27	157.97343 ft	-7.651463 ft	494.6409 psf	652.19843 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 28	158.6354 ft	-7.3084873 ft	473.12639 psf	613.11165 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 29	159.80285 ft	-6.7036135 ft	435.36401 psf	549.23769 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 30	160.94694 ft	-6.1108405 ft	398.35708 psf	501.46485 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 31	162.15374 ft	-5.4263535 ft	355.62442 psf	454.25416 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 32	163.31152 ft	-4.6934458 ft	309.86885 psf	399.62093 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 33	164.35759 ft	-4.0038313 ft	266.81609 psf	344.77138 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 34	165.41047 ft	-3.2478757 ft	219.62164 psf	293.26319 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 35	166.47016 ft	-2.425579 ft	168.28551 psf	228.18338 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 36	167.0093 ft	-2.0072154 ft	142.16698 psf	192.81399 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7

02) A-1b

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File Information

File Version: 10.02
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Revision Number: 187
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Tool Version: 10.2.2.20559
File Name: MCA-2 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:58:04 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

02) A-1b

Kind: SLOPE/W
Method: Morgenstern-Price
Settings
- Side Function
  - Interslice force function option: Half-Sine
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °

Tension Crack Option: Tension Crack Line
Filled with water (0 to 1): 0
Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb
Unit Weight: 75 pcf
Cohesion': 70 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb
Unit Weight: 70 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb
Unit Weight: 102 pcf
Cohesion': 70 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb
Unit Weight: 108 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
    Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
    Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
    Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
    Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 116 pcf
Cohesion': 320 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
    Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 104 pcf

Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (113, -2) ft
Left-Zone Right Coordinate: (145, 3.5) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (221, -10) ft
Right-Zone Right Coordinate: (253, -7.666667) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (305, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	126 ft	1.06 ft
Coordinate 3	158.04 ft	0.27 ft
Coordinate 4	306 ft	0.27 ft

Tension Crack Line

	X	Y

Coordinate 1	131 ft	1 ft
Coordinate 2	137 ft	3 ft
Coordinate 3	139 ft	3 ft
Coordinate 4	143 ft	3 ft

Geometry

Name: el -2, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-2 ft
Point 17	114 ft	-2 ft
Point 18	167 ft	-2 ft
Point 19	197 ft	-2 ft
Point 20	221 ft	-10 ft
Point 21	246 ft	-10 ft
Point 22	270 ft	-2 ft
Point 23	0 ft	-7 ft
Point 24	212 ft	-7 ft
Point 25	255 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	138 ft	-8 ft
Point 33	143 ft	-8 ft

Point 34	134 ft	-7 ft
Point 35	147 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft
Point 38	147 ft	3 ft
Point 39	84 ft	-2 ft
Point 40	69 ft	-7 ft
Point 41	60 ft	-10 ft
Point 42	35 ft	-10 ft
Point 43	26 ft	-7 ft
Point 44	11 ft	-2 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	174 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	163.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	212.5 ft²
Region 10	ECD	17,34,32,33,35,18	174 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	237.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13		38,29,18,19,24,20,21,25,22,16,31	1,132 ft²
Region 14	01) PT/OH el -2 to -7	1,23,43,44	92.5 ft²
Region 15	01) PT/OH el -2 to -7	34,17,39,40	237.5 ft²
Region 16	02) OH/CH el -7 to -10	2,42,43,23	91.5 ft²
Region 17	02) OH/CH el -7 to -10	20,24,35,33,32,34,40,41	447 ft²

Slip Results

Slip Surfaces Analysed: 1241 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 3.11
Volume: 1,511.9398 ft³
Weight: 143,833.69 lbf
Resisting Moment: 1,198,353.6 lbf·ft
Activating Moment: 385,210.5 lbf·ft
Resisting Force: 16,846.463 lbf
Activating Force: 5,414.2626 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (228.02442, -10) ft

Entry: (135.0701, 2.3567005) ft
Radius: 40.702892 ft
Center: (183.98771, 38.958366) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	135.40618 ft	1.5882444 ft	-47.457528 psf	80.629163 psf	0 psf	70 psf	0 psf	ECD
Slice 2	136.35886 ft	-0.59010586 ft	87.070803 psf	260.17112 psf	0 psf	70 psf	0 psf	ECD
Slice 3	137.48773 ft	-3.1713156 ft	246.47852 psf	470.72982 psf	0 psf	70 psf	0 psf	ECD
Slice 4	138.79976 ft	-6.1713156 ft	431.74945 psf	697.42722 psf	0 psf	70 psf	0 psf	ECD
Slice 5	140.03686 ft	-9 ft	606.44046 psf	926.24567 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 6	140.50844 ft	-10.078286 ft	673.03214 psf	895.4543 psf	59.597838 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 7	141.77134 ft	-11.860387 ft	782.34503 psf	1,144.6261 psf	97.072924 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 8	143.51769 ft	-14.282101 ft	930.84489 psf	1,377.8539 psf	119.77571 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 9	144.51769 ft	-15.668827 ft	1,015.8791 psf	1,578.3863 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 10	145.36751 ft	-16.847296 ft	1,088.1431 psf	1,683.2351 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 11	146.36751 ft	-17.935524 ft	1,154.542 psf	1,813.0381 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 12	147.81216 ft	-19.257054 ft	1,234.8216 psf	1,918.566 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 13	148.94497 ft	-20.293326 ft	1,297.7725 psf	1,981.9984 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 14	150.83685 ft	-21.435125 ft	1,366.143 psf	2,091.9676 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 15	154.4377 ft	-22.775415 ft	1,444.2747 psf	2,184.2474 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 16	157.18709 ft	-23.250786 ft	1,469.72 psf	2,211.862 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 17	157.97343 ft	-23.232818 ft	1,467.3878 psf	2,196.2344 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 18	159.48737 ft	-23.198224 ft	1,465.1256 psf	2,188.1251 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 19	162.45106 ft	-23.014981 ft	1,453.6858 psf	2,172.2843 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 20	165.48369 ft	-22.714641 ft	1,434.9355 psf	2,134.1808 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 21	167.68139 ft	-22.496989 ft	1,421.3474 psf	2,107.9252 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25

Slice 22	169.57292 ft	-22.293723 ft	1,408.6575 psf	2,092.4082 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 23	171.99323 ft	-22.022155 ft	1,391.7034 psf	2,068.716 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 24	174.71779 ft	-21.728416 ft	1,373.3652 psf	2,041.7642 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 25	177.7466 ft	-21.412505 ft	1,353.6428 psf	2,013.925 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 26	180.7754 ft	-21.096594 ft	1,333.9205 psf	1,985.7303 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 27	183.99499 ft	-20.782198 ft	1,314.2927 psf	1,955.5455 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 28	187.40538 ft	-20.469319 ft	1,294.7596 psf	1,927.2126 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 29	190.81576 ft	-20.15644 ft	1,275.2265 psf	1,898.376 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 30	194.10214 ft	-19.854937 ft	1,256.4036 psf	1,867.3769 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 31	196.34166 ft	-19.66088 ft	1,244.2886 psf	1,846.142 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 32	198.3393 ft	-19.512211 ft	1,235.0071 psf	1,830.3016 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 33	201.0179 ft	-19.312863 ft	1,222.5618 psf	1,804.0974 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 34	203.96433 ft	-19.117636 ft	1,210.3738 psf	1,775.6467 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 35	207.1786 ft	-18.92653 ft	1,198.443 psf	1,748.1303 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 36	210.39287 ft	-18.735425 ft	1,186.5122 psf	1,719.8946 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 37	214.11046 ft	-18.514393 ft	1,172.7132 psf	1,663.7793 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 38	216.91917 ft	-18.183069 ft	1,152.0286 psf	1,608.1295 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 39	218.84579 ft	-17.359929 ft	1,100.6398 psf	1,507.1016 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 40	220.53707 ft	-16.350028 ft	1,037.5915 psf	1,396.3203 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 41	221.56445 ft	-15.47871 ft	983.19496 psf	1,292.4686 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 42	223.60278 ft	-13.75 ft	875.27124 psf	1,132.6125 psf	68.95437 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 43	226.55054 ft	-11.25 ft	719.19577 psf	843.37275 psf	33.273121 psf	200 psf	0 psf	03) ML el -10 to -15

03) A-2

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 187
Date: 07/02/2021
Time: 10:57:54 AM
Tool Version: 10.2.2.20559
File Name: MCA-2 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:57:58 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

03) A-2

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb
Unit Weight: 75 pcf
Cohesion': 70 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb
Unit Weight: 70 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb
Unit Weight: 102 pcf
Cohesion': 70 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 108 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 116 pcf
Cohesion': 320 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (170, -2) ft
Left-Zone Right Coordinate: (195, -2) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (200, -3) ft
Right-Zone Right Coordinate: (245, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (305, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	306 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	172 ft	-1 ft
	177 ft	-1 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	182 ft	-1 ft
	187 ft	-1 ft

Tension Crack Line

Geometry

Name: el -2, 4H:1V

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-2 ft
Point 17	114 ft	-2 ft
Point 18	167 ft	-2 ft
Point 19	197 ft	-2 ft
Point 20	221 ft	-10 ft
Point 21	246 ft	-10 ft

Point 22	270 ft	-2 ft
Point 23	0 ft	-7 ft
Point 24	212 ft	-7 ft
Point 25	255 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	138 ft	-8 ft
Point 33	143 ft	-8 ft
Point 34	134 ft	-7 ft
Point 35	147 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft
Point 38	147 ft	3 ft
Point 39	84 ft	-2 ft
Point 40	69 ft	-7 ft
Point 41	60 ft	-10 ft
Point 42	35 ft	-10 ft
Point 43	26 ft	-7 ft
Point 44	11 ft	-2 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	174 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	163.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	212.5 ft²
Region 10	ECD	17,34,32,33,35,18	174 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	237.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13		38,29,18,19,24,20,21,25,22,16,31	1,132 ft²
Region 14	01) PT/OH el -2 to -7	1,23,43,44	92.5 ft²
Region 15	01) PT/OH el -2 to -7	34,17,39,40	237.5 ft²
Region 16	02) OH/CH el -7 to -10	2,42,43,23	91.5 ft²
Region 17	02) OH/CH el -7 to -10	20,24,35,33,32,34,40,41	447 ft²

Slip Results

Slip Surfaces Analysed: 984 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.31
Volume: 100.61604 ft³
Weight: 7,559.676 lbf
Resisting Moment: 18,694.556 lbf·ft
Activating Moment: 14,305.246 lbf·ft
Resisting Force: 1,391.2195 lbf
Activating Force: 1,065.3639 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (203.21138, -4.0704606) ft
Entry: (182.00285, -2) ft
Radius: 9.4534628 ft
Center: (194.06691, 2.3620859) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	182.31752 ft	-2.589713 ft	178.53242 psf	336.17564 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 2	182.94687 ft	-3.769139 ft	252.16421 psf	413.57562 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 3	183.57854 ft	-4.913676 ft	323.61787 psf	496.06117 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 4	184.1673 ft	-5.851375 ft	382.1586 psf	579.22813 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 5	184.71081 ft	-6.617125 ft	429.96451 psf	630.27238 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 6	185.08142 ft	-7.139283 ft	462.56293 psf	659.31577 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 7	185.47915 ft	-7.6391112 ft	493.7673 psf	723.15691 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 8	186.07689 ft	-8.3602015 ft	538.78511 psf	793.68164 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 9	186.67462 ft	-9.0812918 ft	583.80291 psf	864.20637 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 10	186.98675 ft	-9.4498054 ft	606.80928 psf	950.96317 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 11	187.01343 ft	-9.4658474 ft	607.81079 psf	698.00887 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 12	187.4337 ft	-9.3977515 ft	603.55955 psf	753.23906 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice	188.24738	-9.2454125	594.049	737.5963	0 psf	70 psf	0 psf	02) OH/CH el -

13	ft	ft	psf	psf				7 to -10
Slice 14	189.09059 ft	-9.0801365 ft	583.73078 psf	721.97963 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 15	189.84149 ft	-8.9233784 ft	573.94435 psf	706.73682 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 16	190.47054 ft	-8.7880751 ft	565.49734 psf	692.82948 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 17	191.09959 ft	-8.6527719 ft	557.05033 psf	678.92214 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 18	191.72864 ft	-8.5174686 ft	548.60332 psf	665.0148 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 19	192.28807 ft	-8.388072 ft	540.52507 psf	654.58268 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 20	192.88967 ft	-8.2211884 ft	530.10649 psf	640.69143 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 21	193.60306 ft	-8.0109111 ft	516.97884 psf	619.01588 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 22	194.31646 ft	-7.8006339 ft	503.85119 psf	597.34032 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 23	195.02985 ft	-7.5903566 ft	490.72355 psf	575.66477 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 24	195.72761 ft	-7.3729425 ft	477.15034 psf	555.80638 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 25	196.40972 ft	-7.1483915 ft	463.13158 psf	532.63078 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 26	196.80205 ft	-7.018058 ft	454.99484 psf	520.85819 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 27	196.92666 ft	-6.9741688 ft	452.25483 psf	514.15643 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 28	197.37933 ft	-6.814733 ft	442.30122 psf	503.68155 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 29	198.13799 ft	-6.5475237 ft	425.61929 psf	482.99055 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 30	198.91805 ft	-6.2677397 ft	408.15233 psf	462.15262 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 31	199.71951 ft	-5.9753812 ft	389.90033 psf	439.56995 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice	200.43126	-5.671136	370.90624	425.22219				01) PT/OH el -

32	ft	ft	psf	psf	0 psf	60 psf	0 psf	2 to -7
Slice 33	201.1538 ft	-5.2726351 ft	346.02775 psf	399.79603 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 34	201.97683 ft	-4.7917653 ft	316.00696 psf	363.50728 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 35	202.79986 ft	-4.3108955 ft	285.98617 psf	327.21852 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7

04) B-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 187
Date: 07/02/2021
Time: 10:57:54 AM
Tool Version: 10.2.2.20559
File Name: MCA-2 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:58:00 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

04) B-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb

Unit Weight: 75 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb

Unit Weight: 70 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb

Unit Weight: 102 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 108 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 116 pcf
Cohesion': 320 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (60, -10) ft
Left-Zone Right Coordinate: (125, 0.75) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (136, 3.5) ft
Right-Zone Right Coordinate: (211, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (305, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	306 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	139 ft	3 ft
Coordinate 2	143 ft	3 ft
Coordinate 3	146 ft	2 ft

Geometry

Name: el -2, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-2 ft
Point 17	114 ft	-2 ft
Point 18	167 ft	-2 ft
Point 19	197 ft	-2 ft
Point 20	221 ft	-10 ft
Point 21	246 ft	-10 ft
Point 22	270 ft	-2 ft
Point 23	0 ft	-7 ft
Point 24	212 ft	-7 ft
Point 25	255 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft

Point 31	305 ft	3 ft
Point 32	138 ft	-8 ft
Point 33	143 ft	-8 ft
Point 34	134 ft	-7 ft
Point 35	147 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft
Point 38	147 ft	3 ft
Point 39	84 ft	-2 ft
Point 40	69 ft	-7 ft
Point 41	60 ft	-10 ft
Point 42	35 ft	-10 ft
Point 43	26 ft	-7 ft
Point 44	11 ft	-2 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	174 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	163.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	212.5 ft²
Region 10	ECD	17,34,32,33,35,18	174 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	237.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13	Sand Fill	38,29,18,19,24,20,21,25,22,16,31	1,132 ft²
Region 14	01) PT/OH el -2 to -7	1,23,43,44	92.5 ft²
Region 15	01) PT/OH el -2 to -7	34,17,39,40	237.5 ft²
Region 16	02) OH/CH el -7 to -10	2,42,43,23	91.5 ft²
Region 17	02) OH/CH el -7 to -10	20,24,35,33,32,34,40,41	447 ft²

Slip Results

Slip Surfaces Analysed: 1289 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.21
Volume: 251.78231 ft³
Weight: 19,477.878 lbf
Resisting Moment: 46,796.149 lbf·ft
Activating Moment: 38,655.235 lbf·ft
Resisting Force: 2,226.1441 lbf

Activating Force: 1,838.1393 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (112.41833, -2) ft
Entry: (145.25892, 2.247027) ft
Radius: 15.596925 ft
Center: (126.36462, 8.2171695) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	113.20917 ft	-2.6436976 ft	181.90269 psf	242.08776 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 2	114.53572 ft	-3.7234431 ft	249.31141 psf	326.20761 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 3	115.77658 ft	-4.6420245 ft	306.65862 psf	389.29352 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 4	117.14764 ft	-5.5222535 ft	361.61148 psf	452.52579 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 5	118.47947 ft	-6.3176445 ft	411.26789 psf	516.04178 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 6	119.41671 ft	-6.85767 ft	444.98178 psf	553.04061 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 7	120.30837 ft	-7.3254168 ft	474.1833 psf	606.43678 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 8	121.54905 ft	-7.9762503 ft	514.81496 psf	680.33214 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 9	122.6247 ft	-8.4832925 ft	546.4697 psf	725.14703 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 10	123.59725 ft	-8.871252 ft	570.69009 psf	778.24243 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 11	124.63174 ft	-9.28392 ft	596.45303 psf	842.58351 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 12	125.79744 ft	-9.5791227 ft	614.88259 psf	867.67452 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 13	127.09435 ft	-9.7568603 ft	625.97878 psf	912.112 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 14	128.41159 ft	-9.7837297 ft	627.65624 psf	915.16762 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 15	129.74916 ft	-9.6597313 ft	619.91499 psf	929.19209 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 16	130.90356 ft	-9.4376513 ft	606.0505 psf	903.07931 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 17	131.87481 ft	-9.11749 ft	586.06277 psf	890.10754 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 18	132.84606 ft	-8.7973287 ft	566.07504 psf	877.13577 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 19	133.66584 ft	-8.4508817 ft	544.44629 psf	834.3069 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 20	134.82047 ft	-7.8069292 ft	504.24421 psf	787.55836 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice	136.0969		452.41453	708.65841				

21	ft	-6.976727 ft	psf	psf	0 psf	70 psf	0 psf	ECD
Slice 22	137.00885 ft	-6.231495 ft	405.88956 psf	671.69968 psf	0 psf	70 psf	0 psf	ECD
Slice 23	137.73241 ft	-5.5995618 ft	366.43785 psf	625.60638 psf	0 psf	70 psf	0 psf	ECD
Slice 24	138.10603 ft	-5.2374878 ft	343.8335 psf	604.69894 psf	0 psf	70 psf	0 psf	ECD
Slice 25	138.7462 ft	-4.6081787 ft	304.54562 psf	558.67452 psf	0 psf	70 psf	0 psf	ECD
Slice 26	139.81445 ft	-3.5550742 ft	238.80011 psf	484.15439 psf	0 psf	70 psf	0 psf	ECD
Slice 27	140.831 ft	-2.514261 ft	173.82194 psf	404.27393 psf	0 psf	70 psf	0 psf	ECD
Slice 28	141.76949 ft	-1.5138335 ft	111.36506 psf	333.80514 psf	0 psf	70 psf	0 psf	ECD
Slice 29	142.61278 ft	-0.59899726 ft	54.251663 psf	266.51225 psf	0 psf	70 psf	0 psf	ECD
Slice 30	143.19888 ft	0.049836238 ft	13.744865 psf	217.42212 psf	0 psf	70 psf	0 psf	ECD
Slice 31	143.88371 ft	0.807979 ft	-33.58613 psf	152.11279 psf	0 psf	70 psf	0 psf	ECD
Slice 32	144.68483 ft	1.6653121 ft	-87.1096 psf	83.312517 psf	0 psf	70 psf	0 psf	ECD
Slice 33	145.12946 ft	2.1158466 ft	-115.23655 psf	43.628454 psf	0 psf	70 psf	0 psf	ECD

05) B-1b

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File Information

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Last Edited By: Clay Worley
Revision Number: 187
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Time: 10:57:54 AM
Tool Version: 10.2.2.20559
File Name: MCA-2 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:58:10 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

05) B-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb

Unit Weight: 75 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb

Unit Weight: 70 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb

Unit Weight: 102 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 108 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 116 pcf
Cohesion': 320 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (25, -6.666667) ft
Left-Zone Right Coordinate: (60, -10) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (136, 3.5) ft
Right-Zone Right Coordinate: (211, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (305, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	306 ft	0.27 ft

Tension Crack Line

Geometry

Name: el -2, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-2 ft
Point 17	114 ft	-2 ft
Point 18	167 ft	-2 ft
Point 19	197 ft	-2 ft
Point 20	221 ft	-10 ft
Point 21	246 ft	-10 ft
Point 22	270 ft	-2 ft
Point 23	0 ft	-7 ft
Point 24	212 ft	-7 ft
Point 25	255 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	138 ft	-8 ft
Point 33	143 ft	-8 ft
Point 34	134 ft	-7 ft

Point 35	147 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft
Point 38	147 ft	3 ft
Point 39	84 ft	-2 ft
Point 40	69 ft	-7 ft
Point 41	60 ft	-10 ft
Point 42	35 ft	-10 ft
Point 43	26 ft	-7 ft
Point 44	11 ft	-2 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	174 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	163.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	212.5 ft²
Region 10	ECD	17,34,32,33,35,18	174 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	237.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13	Sand Fill	38,29,18,19,24,20,21,25,22,16,31	1,132 ft²
Region 14	01) PT/OH el -2 to -7	1,23,43,44	92.5 ft²
Region 15	01) PT/OH el -2 to -7	34,17,39,40	237.5 ft²
Region 16	02) OH/CH el -7 to -10	2,42,43,23	91.5 ft²
Region 17	02) OH/CH el -7 to -10	20,24,35,33,32,34,40,41	447 ft²

Slip Results

Slip Surfaces Analysed: 1232 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 2.62
Volume: 2,330.3019 ft³
Weight: 222,965.12 lbf
Resisting Moment: 3,386,070.8 lbf·ft
Activating Moment: 1,291,512.3 lbf·ft
Resisting Force: 23,857.827 lbf
Activating Force: 9,100.0665 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (53.465119, -10) ft
Entry: (185.1543, 3) ft

Radius: 54.941188 ft
Center: (114.2563, 108.43828) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	56.73256 ft	-12.310154 ft	785.38137 psf	983.6321 psf	53.121122 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 2	60.268515 ft	-14.810154 ft	941.45684 psf	1,281.0191 psf	90.985421 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 3	61.822345 ft	-15.908746 ft	1,010.0422 psf	1,378.6602 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 4	66.05383 ft	-17.286819 ft	1,096.0755 psf	1,522.6766 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 5	70.699345 ft	-18.026852 ft	1,142.2759 psf	1,642.3767 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 6	74.554663 ft	-18.583977 ft	1,177.0573 psf	1,706.6069 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 7	78.866608 ft	-19.156815 ft	1,212.8197 psf	1,776.4176 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 8	82.51129 ft	-19.664617 ft	1,244.5219 psf	1,839.7169 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 9	84.383301 ft	-19.943 ft	1,261.9014 psf	1,870.7711 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 10	86.522327 ft	-20.26109 ft	1,281.7598 psf	1,906.4042 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 11	90.033776 ft	-20.783271 ft	1,314.3597 psf	1,958.866 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 12	93.939745 ft	-21.366512 ft	1,350.7715 psf	2,017.6179 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 13	98.328741 ft	-22.012974 ft	1,391.1303 psf	2,081.8644 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 14	102.80624 ft	-22.661598 ft	1,431.624 psf	2,147.0217 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 15	107.28375 ft	-23.310222 ft	1,472.1177 psf	2,212.179 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 16	111.76125 ft	-23.958846 ft	1,512.6114 psf	2,277.3362 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25

Slice 17	114.05124 ft	-24.29058 ft	1,533.3216 psf	2,311.9921 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 18	115.97028 ft	-24.473213 ft	1,544.7235 psf	2,330.9252 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 19	119.7059 ft	-24.823635 ft	1,566.6004 psf	2,382.0704 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 20	122.32685 ft	-24.998884 ft	1,577.5412 psf	2,396.6623 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 21	125.29533 ft	-24.999035 ft	1,577.5506 psf	2,444.2003 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 22	129.72599 ft	-24.99926 ft	1,577.5646 psf	2,532.8362 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 23	132.77497 ft	-24.911791 ft	1,572.104 psf	2,568.6196 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 24	133.8043 ft	-24.765178 ft	1,562.9509 psf	2,544.0109 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 25	136 ft	-24.102842 ft	1,521.6011 psf	2,506.0489 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 26	140.5 ft	-22.745408 ft	1,436.8562 psf	2,395.3486 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 27	144 ft	-21.689625 ft	1,370.9435 psf	2,278.868 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 28	146 ft	-21.086321 ft	1,333.2792 psf	2,195.3249 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 29	148.23327 ft	-20.412649 ft	1,291.2217 psf	2,127.389 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 30	151.62848 ft	-19.588456 ft	1,239.7671 psf	2,090.7133 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 31	155.90797 ft	-18.693386 ft	1,183.8878 psf	2,034.1297 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 32	161.17117 ft	-16.884404 ft	1,070.9526 psf	1,867.6514 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 33	164.61619 ft	-15.259158 ft	969.48829 psf	1,683.8451 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 34	165.95779 ft	-14.097859 ft	896.98813 psf	1,507.9717 psf	163.71254 psf	200 psf	0 psf	03) ML el -10 to -15
Slice	168.84594	-11.597859	740.91266	1,261.4649	139.48155	200 psf	0 psf	03) ML el -10

35	ft	ft	psf	psf	psf			to -15
Slice 36	172.42476 ft	-8.5 ft	547.51275 psf	1,027.9359 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 37	174.80417 ft	-6.440362 ft	418.92917 psf	843.9184 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 38	177.99248 ft	-3.940362 ft	262.85369 psf	677.91045 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 39	180.85415 ft	-1.755798 ft	126.47095 psf	482.55775 psf	189.33471 psf	0 psf	0 psf	Sand Fill
Slice 40	181.95993 ft	-0.620798 ft	55.612687 psf	340.64105 psf	151.55227 psf	0 psf	0 psf	Sand Fill
Slice 41	183.95005 ft	1.635 ft	-85.217207 psf	124.69649 psf	66.302299 psf	0 psf	0 psf	Sand Fill

06) A-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 187
Date: 07/02/2021
Time: 10:57:54 AM
Tool Version: 10.2.2.20559
File Name: MCA-2 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:58:02 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

06) A-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb
Unit Weight: 75 pcf
Cohesion': 70 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb
Unit Weight: 70 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb
Unit Weight: 102 pcf
Cohesion': 70 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 108 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 116 pcf
Cohesion': 320 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (103, -4) ft
Left-Zone Right Coordinate: (145, 3.5) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (159, -0) ft
Right-Zone Right Coordinate: (223, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -4) ft
Right Coordinate: (305, -4) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	126.2 ft	1.06 ft
Coordinate 3	158.04 ft	0.27 ft
Coordinate 4	305 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	135 ft	2 ft
Coordinate 2	138 ft	3 ft
Coordinate 3	142 ft	3 ft

Geometry

Name: el -4, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-4 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-4 ft
Point 17	106 ft	-4 ft
Point 18	175 ft	-4 ft
Point 19	205 ft	-4 ft
Point 20	223 ft	-10 ft
Point 21	241 ft	-10 ft
Point 22	259 ft	-4 ft
Point 23	0 ft	-7 ft
Point 24	214 ft	-7 ft
Point 25	250 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	130 ft	-10 ft
Point 33	151 ft	-10 ft
Point 34	118 ft	-7 ft
Point 35	163 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft

Point 38	147 ft	3 ft
Point 39	76 ft	-4 ft
Point 40	67 ft	-7 ft
Point 41	58 ft	-10 ft
Point 42	33 ft	-10 ft
Point 43	24 ft	-7 ft
Point 44	15 ft	-4 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	296 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	178.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,33,32,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	151.5 ft²
Region 10	ECD	17,34,32,33,35,18	270 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	121.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13	02) OH/CH el -7 to -10	33,35,24,20	184.5 ft²
Region 14		38,29,18,19,24,20,21,25,22,16,31	1,224 ft²
Region 15	01) PT/OH el -2 to -7	1,23,43,44	58.5 ft²
Region 16	01) PT/OH el -2 to -7	34,17,39,40	121.5 ft²
Region 17	02) OH/CH el -7 to -10	23,2,42,43	85.5 ft²
Region 18	02) OH/CH el -7 to -10	32,34,40,41	184.5 ft²

Slip Results

Slip Surfaces Analysed: 1100 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.28
Volume: 253.20547 ft³
Weight: 19,012.717 lbf
Resisting Moment: 64,459.975 lbf·ft
Activating Moment: 50,305.51 lbf·ft
Resisting Force: 2,466.8425 lbf
Activating Force: 1,924.8956 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (172.20333, -3.3008337) ft
Entry: (136.33965, 2.4465487) ft
Radius: 16.772341 ft
Center: (156.76387, 14.013057) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	136.89454 ft	1.8780348 ft	-67.635805 psf	80.610776 psf	0 psf	70 psf	0 psf	ECD
Slice 2	137.68915 ft	1.0392548 ft	-16.50145 psf	147.20023 psf	0 psf	70 psf	0 psf	ECD
Slice 3	137.96443 ft	0.72888889 ft	2.4483376 psf	173.63678 psf	0 psf	70 psf	0 psf	ECD
Slice 4	138.46466 ft	0.16491815 ft	36.882294 psf	213.5762 psf	0 psf	70 psf	0 psf	ECD
Slice 5	139.39397 ft	-0.88282395 ft	100.85353 psf	286.62375 psf	0 psf	70 psf	0 psf	ECD
Slice 6	140.32521 ft	-1.8662913 ft	160.80909 psf	365.66981 psf	0 psf	70 psf	0 psf	ECD
Slice 7	141.25839 ft	-2.7854838 ft	216.74898 psf	430.33012 psf	0 psf	70 psf	0 psf	ECD
Slice 8	142.1152 ft	-3.62254 ft	267.67936 psf	490.6701 psf	0 psf	70 psf	0 psf	ECD
Slice 9	142.75272 ft	-4.2391914 ft	305.18952 psf	534.09682 psf	0 psf	70 psf	0 psf	ECD
Slice 10	143.25501 ft	-4.7250424 ft	334.74325 psf	563.82254 psf	0 psf	70 psf	0 psf	ECD
Slice 11	144.21765 ft	-5.5652125 ft	385.7041 psf	617.64092 psf	0 psf	70 psf	0 psf	ECD
Slice 12	144.96265 ft	-6.1826835 ft	423.09894 psf	666.82058 psf	0 psf	70 psf	0 psf	ECD
Slice 13	145.5 ft	-6.527357 ft	443.78461 psf	681.94395 psf	0 psf	70 psf	0 psf	ECD
Slice 14	146.5 ft	-7.168783 ft	482.27997 psf	710.08806 psf	0 psf	70 psf	0 psf	ECD
Slice 15	147.04452 ft	-7.5180555 ft	503.24166 psf	725.41323 psf	0 psf	70 psf	0 psf	ECD
Slice 16	147.68562 ft	-7.7965198 ft	519.63318 psf	756.39848 psf	0 psf	70 psf	0 psf	ECD
Slice 17	148.87877 ft	-8.2963293 ft	548.98821 psf	771.09899 psf	0 psf	70 psf	0 psf	ECD
Slice 18	149.97794 ft	-8.6452087 ft	569.06622 psf	799.89194 psf	0 psf	70 psf	0 psf	ECD
Slice 19	150.98313 ft	-8.843158 ft	579.8672 psf	795.94307 psf	0 psf	70 psf	0 psf	ECD
Slice 20	151.98832 ft	-9.0411073 ft	590.66819 psf	791.9942 psf	0 psf	70 psf	0 psf	ECD
Slice 21	153.08621 ft	-9.1130539 ft	593.45919 psf	802.96137 psf	0 psf	70 psf	0 psf	ECD
Slice 22	154.27682 ft	-9.0589976 ft	588.24021 psf	776.50258 psf	0 psf	70 psf	0 psf	ECD
Slice	154.9577	-9.0280843	585.25561	761.84565	0 psf	70 psf	0 psf	02) OH/CH el

23	ft	ft	psf	psf				-7 to -10
Slice 24	155.6158 ft	-8.9178905 ft	577.35679 psf	757.49222 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 25	156.76087 ft	-8.7052735 ft	562.30937 psf	721.6169 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 26	157.62009 ft	-8.5189786 ft	549.34802 psf	701.54723 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 27	157.97339 ft	-8.4204075 ft	542.64696 psf	687.95075 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 28	158.58103 ft	-8.2508716 ft	531.95962 psf	672.61714 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 29	159.6631 ft	-7.9489694 ft	513.11181 psf	645.50211 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 30	160.74517 ft	-7.6470671 ft	494.26399 psf	618.38708 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 31	162.1431 ft	-7.2671214 ft	470.54391 psf	583.28043 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 32	163.07134 ft	-7.0190634 ft	455.0576 psf	560.59248 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 33	163.61149 ft	-6.8747145 ft	446.04587 psf	544.75414 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 34	164.65097 ft	-6.6043935 ft	429.16968 psf	520.02532 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 35	165.79227 ft	-6.3143225 ft	411.0605 psf	494.57176 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 36	166.93358 ft	-6.0242515 ft	392.95131 psf	469.1182 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 37	167.98681 ft	-5.6314938 ft	368.43137 psf	461.21809 psf	0 psf	70 psf	0 psf	ECD
Slice 38	168.94193 ft	-5.1411918 ft	337.82173 psf	420.28259 psf	0 psf	70 psf	0 psf	ECD
Slice 39	170.19872 ft	-4.449306 ft	294.62716 psf	367.68096 psf	0 psf	70 psf	0 psf	ECD
Slice 40	171.59315 ft	-3.6504168 ft	244.75236 psf	301.18852 psf	0 psf	70 psf	0 psf	ECD

07) A-1b

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 187
Date: 07/02/2021
Time: 10:57:54 AM
Tool Version: 10.2.2.20559
File Name: MCA-2 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:58:08 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

07) A-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb

Unit Weight: 75 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb

Unit Weight: 70 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb

Unit Weight: 102 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 108 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 116 pcf
Cohesion': 320 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (103, -4) ft
Left-Zone Right Coordinate: (145, 3.5) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (223, -10) ft
Right-Zone Right Coordinate: (257, -4.666667) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -4) ft
Right Coordinate: (305, -4) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	126.2 ft	1.06 ft
Coordinate 3	158.04 ft	0.27 ft
Coordinate 4	305 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	135 ft	2 ft
Coordinate 2	138 ft	3 ft
Coordinate 3	142 ft	3 ft

Geometry

Name: el -4, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-4 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-4 ft
Point 17	106 ft	-4 ft
Point 18	175 ft	-4 ft
Point 19	205 ft	-4 ft
Point 20	223 ft	-10 ft
Point 21	241 ft	-10 ft
Point 22	259 ft	-4 ft
Point 23	0 ft	-7 ft
Point 24	214 ft	-7 ft
Point 25	250 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	130 ft	-10 ft
Point 33	151 ft	-10 ft
Point 34	118 ft	-7 ft
Point 35	163 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft

Point 38	147 ft	3 ft
Point 39	76 ft	-4 ft
Point 40	67 ft	-7 ft
Point 41	58 ft	-10 ft
Point 42	33 ft	-10 ft
Point 43	24 ft	-7 ft
Point 44	15 ft	-4 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	296 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	178.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,33,32,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	151.5 ft²
Region 10	ECD	17,34,32,33,35,18	270 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	121.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13	02) OH/CH el -7 to -10	33,35,24,20	184.5 ft²
Region 14		38,29,18,19,24,20,21,25,22,16,31	1,224 ft²
Region 15	01) PT/OH el -2 to -7	1,23,43,44	58.5 ft²
Region 16	01) PT/OH el -2 to -7	34,17,39,40	121.5 ft²
Region 17	02) OH/CH el -7 to -10	23,2,42,43	85.5 ft²
Region 18	02) OH/CH el -7 to -10	32,34,40,41	184.5 ft²

Slip Results

Slip Surfaces Analysed: 1215 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 3.68
Volume: 1,490.8435 ft³
Weight: 142,992.63 lbf
Resisting Moment: 1,651,429.2 lbf·ft
Activating Moment: 448,521.61 lbf·ft
Resisting Force: 17,935.138 lbf
Activating Force: 4,870.6914 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (237.60136, -10) ft
Entry: (134.24066, 3.0601658) ft
Radius: 44.118744 ft
Center: (193.84493, 60.460602) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	134.9342 ft	1.9431245 ft	-68.662817 psf	63.497969 psf	0 psf	70 psf	0 psf	ECD
Slice 2	136.81387 ft	-1.0843615 ft	117.43212 psf	312.9619 psf	0 psf	70 psf	0 psf	ECD
Slice 3	138.31205 ft	-3.4974031 ft	265.7581 psf	506.23136 psf	0 psf	70 psf	0 psf	ECD
Slice 4	139.99586 ft	-6.209438 ft	432.46273 psf	699.67628 psf	0 psf	70 psf	0 psf	ECD
Slice 5	141.95281 ft	-9.209438 ft	616.72201 psf	925.66216 psf	0 psf	70 psf	0 psf	ECD
Slice 6	142.76899 ft	-10.31209 ft	684.29654 psf	946.07403 psf	70.143069 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 7	143.50365 ft	-11.304603 ft	745.12133 psf	1,037.0057 psf	78.210177 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 8	144.50365 ft	-12.468632 ft	816.24285 psf	1,175.9388 psf	96.38025 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 9	146 ft	-13.926561 ft	904.94383 psf	1,299.1365 psf	105.6236 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 10	148.07882 ft	-15.95201 ft	1,028.1729 psf	1,508.224 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 11	150.07882 ft	-17.448896 ft	1,118.5258 psf	1,667.7509 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 12	151.69405 ft	-18.230511 ft	1,164.8202 psf	1,722.5901 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 13	154.15255 ft	-18.983086 ft	1,207.9954 psf	1,794.5441 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 14	156.91189 ft	-19.458173 ft	1,233.381 psf	1,828.191 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 15	157.97339 ft	-19.520446 ft	1,235.6245 psf	1,822.8833 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 16	160.52 ft	-19.669844 ft	1,244.8482 psf	1,847.7746 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 17	164.19008 ft	-19.885149 ft	1,258.2898 psf	1,874.2936 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice	166.98346	-	1,262.6572	1,875.5432				04) CH el -15

18	ft	19.955107 ft	psf	psf	0 psf	150 psf	0 psf	to -20
Slice 19	170.19008 ft	-19.955391 ft	1,262.6749 psf	1,861.8877 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 20	173.39669 ft	-19.955674 ft	1,262.6927 psf	1,848.2322 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 21	176.79106 ft	-19.955975 ft	1,262.7114 psf	1,839.291 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 22	180.37319 ft	-19.956292 ft	1,262.7312 psf	1,839.324 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 23	183.95531 ft	-19.956609 ft	1,262.751 psf	1,839.3569 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 24	186.22689 ft	-19.978383 ft	1,264.1104 psf	1,837.1562 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 25	187.91774 ft	-20.054448 ft	1,268.8591 psf	1,844.6612 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 26	190.76937 ft	-20.292113 ft	1,283.6966 psf	1,860.8207 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 27	194.05194 ft	-20.658548 ft	1,306.5732 psf	1,897.3339 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 28	197.33451 ft	-21.024982 ft	1,329.4498 psf	1,933.8471 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 29	200.61708 ft	-21.391417 ft	1,352.3263 psf	1,970.3603 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 30	203.62919 ft	-21.683596 ft	1,370.5672 psf	2,003.2649 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 31	207.50675 ft	-21.991814 ft	1,389.8092 psf	2,031.0864 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 32	212.00675 ft	-22.180994 ft	1,401.6198 psf	2,049.7307 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 33	214.50981 ft	-22.168343 ft	1,400.83 psf	2,037.2646 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 34	216.87007 ft	-21.911622 ft	1,384.8028 psf	1,996.6052 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 35	220.27227 ft	-20.993675 ft	1,327.4953 psf	1,893.5923 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
		-						

Slice 36	222.10062 ft	20.164936 ft	1,275.7569 psf	1,804.6635 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 37	222.68862 ft	-19.814331 ft	1,253.8686 psf	1,751.6938 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 38	224.94067 ft	-18.471497 ft	1,170.0352 psf	1,598.2464 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 39	228.89452 ft	-16.113921 ft	1,022.8513 psf	1,348.1189 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 40	232.58112 ft	-13.685133 ft	871.2216 psf	1,120.9878 psf	66.92466 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 41	235.92794 ft	-11.228378 ft	717.84589 psf	842.11976 psf	33.299082 psf	200 psf	0 psf	03) ML el -10 to -15

08) A-2

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 187
Date: 07/02/2021
Time: 10:57:54 AM
Tool Version: 10.2.2.20559
File Name: MCA-2 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:58:06 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

08) A-2

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb
Unit Weight: 75 pcf
Cohesion': 70 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb
Unit Weight: 70 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb
Unit Weight: 102 pcf
Cohesion': 70 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 108 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 116 pcf
Cohesion': 320 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (177, -4) ft
Left-Zone Right Coordinate: (199, -4) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (205, -4) ft
Right-Zone Right Coordinate: (241, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -4) ft
Right Coordinate: (305, -4) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	305 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	180 ft	-3 ft
	185 ft	-3 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	190 ft	-3 ft
	195 ft	-3 ft

Tension Crack Line

Geometry

Name: el -4, 4H:1V

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-4 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-4 ft
Point 17	106 ft	-4 ft
Point 18	175 ft	-4 ft
Point 19	205 ft	-4 ft
Point 20	223 ft	-10 ft
Point 21	241 ft	-10 ft

Point 22	259 ft	-4 ft
Point 23	0 ft	-7 ft
Point 24	214 ft	-7 ft
Point 25	250 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	130 ft	-10 ft
Point 33	151 ft	-10 ft
Point 34	118 ft	-7 ft
Point 35	163 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft
Point 38	147 ft	3 ft
Point 39	76 ft	-4 ft
Point 40	67 ft	-7 ft
Point 41	58 ft	-10 ft
Point 42	33 ft	-10 ft
Point 43	24 ft	-7 ft
Point 44	15 ft	-4 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	296 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	178.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,33,32,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	151.5 ft²
Region 10	ECD	17,34,32,33,35,18	270 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	121.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13	02) OH/CH el -7 to -10	33,35,24,20	184.5 ft²
Region 14		38,29,18,19,24,20,21,25,22,16,31	1,224 ft²
Region 15	01) PT/OH el -2 to -7	1,23,43,44	58.5 ft²
Region 16	01) PT/OH el -2 to -7	34,17,39,40	121.5 ft²
Region 17	02) OH/CH el -7 to -10	23,2,42,43	85.5 ft²
Region 18	02) OH/CH el -7 to -10	32,34,40,41	184.5 ft²

Slip Results

Slip Surfaces Analysed: 991 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.30
Volume: 63.344744 ft³
Weight: 4,989.8799 lbf
Resisting Moment: 13,410.586 lbf·ft
Activating Moment: 10,324.015 lbf·ft
Resisting Force: 1,215.4923 lbf
Activating Force: 935.54771 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (208.27923, -5.0930751) ft
Entry: (190.01514, -4) ft
Radius: 7.7895543 ft
Center: (199.67761, 0.48542516) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	190.25726 ft	-4.3014782 ft	285.39825 psf	476.17255 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 2	190.74149 ft	-4.9044348 ft	323.04094 psf	517.07541 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 3	191.24534 ft	-5.521763 ft	361.58086 psf	561.20978 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 4	191.76205 ft	-6.1282098 ft	399.44144 psf	606.39964 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 5	192.27199 ft	-6.7094033 ft	435.72546 psf	645.92959 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 6	192.66125 ft	-7.153047 ft	463.42222 psf	672.52995 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 7	193.09839 ft	-7.623079 ft	492.76641 psf	725.66717 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 8	193.7041 ft	-8.257049 ft	532.34528 psf	788.64437 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 9	194.24556 ft	-8.8201272 ft	567.49836 psf	845.7014 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 10	194.72277 ft	-9.3123138 ft	598.22565 psf	894.61273 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 11	194.98068 ft	-9.5820464 ft	615.06511 psf	906.9576 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice	195.00306	-9.6094309	616.77473	657.56614	0 psf	70 psf	0 psf	02) OH/CH el -

12	ft	ft	psf	psf				7 to -10
Slice 13	195.41954 ft	-9.538363 ft	612.33795 psf	750.09479 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 14	196.14762 ft	-9.4080163 ft	604.20038 psf	736.41111 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 15	196.77693 ft	-9.2969488 ft	597.26641 psf	725.0308 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 16	197.35421 ft	-9.1867025 ft	590.38372 psf	716.04397 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 17	197.9092 ft	-9.0542011 ft	582.11163 psf	706.63505 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 18	198.49392 ft	-8.8986233 ft	572.39888 psf	690.65726 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 19	199.07864 ft	-8.7430455 ft	562.68613 psf	674.67948 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 20	199.66336 ft	-8.5874677 ft	552.97338 psf	658.70169 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 21	200.24808 ft	-8.4318899 ft	543.26063 psf	642.7239 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 22	200.87244 ft	-8.2476427 ft	531.75804 psf	627.6462 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 23	201.53645 ft	-8.034726 ft	518.46561 psf	605.74892 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 24	202.20046 ft	-7.8218093 ft	505.17318 psf	583.85163 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 25	202.80598 ft	-7.623964 ft	492.82166 psf	564.43135 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 26	203.35304 ft	-7.44119 ft	481.41105 psf	545.62753 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 27	204.05912 ft	-7.1749015 ft	464.7866 psf	522.99743 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 28	204.74584 ft	-6.8972319 ft	447.45164 psf	494.35779 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 29	205.25427 ft	-6.6916539 ft	434.61737 psf	481.51316 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 30	205.75086 ft	-6.48906 ft	421.96939 psf	466.44245 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 31	206.27894 ft	-6.2272509 ft	405.6246 psf	455.74572 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7

Slice 32	206.85045 ft	-5.9032007 ft	385.39408 psf	431.36772 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 33	207.42196 ft	-5.5791505 ft	365.16357 psf	406.98972 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 34	207.99347 ft	-5.2551003 ft	344.93305 psf	382.61171 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7

09) B-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 187
Date: 07/02/2021
Time: 10:57:54 AM
Tool Version: 10.2.2.20559
File Name: MCA-2 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:58:06 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

09) B-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb

Unit Weight: 75 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb

Unit Weight: 70 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb

Unit Weight: 102 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 108 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 116 pcf
Cohesion': 320 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (58, -10) ft
Left-Zone Right Coordinate: (118, -1) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (137, 3.75) ft
Right-Zone Right Coordinate: (222, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -4) ft
Right Coordinate: (305, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	305 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	139 ft	3 ft
Coordinate 2	142 ft	3 ft
Coordinate 3	146 ft	2 ft

Geometry

Name: el -4, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-4 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-4 ft
Point 17	106 ft	-4 ft
Point 18	175 ft	-4 ft
Point 19	205 ft	-4 ft
Point 20	223 ft	-10 ft
Point 21	241 ft	-10 ft
Point 22	259 ft	-4 ft
Point 23	0 ft	-7 ft
Point 24	214 ft	-7 ft
Point 25	250 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft

Point 31	305 ft	3 ft
Point 32	130 ft	-10 ft
Point 33	151 ft	-10 ft
Point 34	118 ft	-7 ft
Point 35	163 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft
Point 38	147 ft	3 ft
Point 39	76 ft	-4 ft
Point 40	67 ft	-7 ft
Point 41	58 ft	-10 ft
Point 42	33 ft	-10 ft
Point 43	24 ft	-7 ft
Point 44	15 ft	-4 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	296 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	178.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,33,32,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	151.5 ft²
Region 10	ECD	17,34,32,33,35,18	270 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	121.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13	02) OH/CH el -7 to -10	33,35,24,20	184.5 ft²
Region 14	Sand Fill	38,29,18,19,24,20,21,25,22,16,31	1,224 ft²
Region 15	01) PT/OH el -2 to -7	1,23,43,44	58.5 ft²
Region 16	01) PT/OH el -2 to -7	34,17,39,40	121.5 ft²
Region 17	02) OH/CH el -7 to -10	23,2,42,43	85.5 ft²
Region 18	02) OH/CH el -7 to -10	32,34,40,41	184.5 ft²

Slip Results

Slip Surfaces Analysed: 1304 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.27
Volume: 258.48074 ft³
Weight: 19,409.518 lbf
Resisting Moment: 53,884.668 lbf·ft
Activating Moment: 42,294.642 lbf·ft

Resisting Force: 2,372.8728 lbf
Activating Force: 1,861.9019 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (111.69539, -2.5761527) ft
Entry: (145.59357, 2.1016069) ft
Radius: 15.932425 ft
Center: (126.99032, 10.31458) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	112.18398 ft	-2.8837533 ft	196.88941 psf	252.11885 psf	0 psf	70 psf	0 psf	ECD
Slice 2	113.16117 ft	-3.4989544 ft	235.29654 psf	303.00894 psf	0 psf	70 psf	0 psf	ECD
Slice 3	113.81833 ft	-3.9032775 ft	260.5385 psf	332.16978 psf	0 psf	70 psf	0 psf	ECD
Slice 4	114.83066 ft	-4.484117 ft	296.80042 psf	380.32264 psf	0 psf	70 psf	0 psf	ECD
Slice 5	116.29854 ft	-5.2897805 ft	347.09815 psf	442.37795 psf	0 psf	70 psf	0 psf	ECD
Slice 6	117.54679 ft	-5.9328735 ft	387.24656 psf	495.8827 psf	0 psf	70 psf	0 psf	ECD
Slice 7	118.67277 ft	-6.4772293 ft	421.2308 psf	535.00603 psf	0 psf	70 psf	0 psf	ECD
Slice 8	119.67646 ft	-6.922848 ft	449.05086 psf	572.33449 psf	0 psf	70 psf	0 psf	ECD
Slice 9	120.68016 ft	-7.3684667 ft	476.87091 psf	609.66295 psf	0 psf	70 psf	0 psf	ECD
Slice 10	121.95094 ft	-7.8856214 ft	509.15698 psf	647.42781 psf	0 psf	70 psf	0 psf	ECD
Slice 11	122.89993 ft	-8.2488961 ft	531.83629 psf	678.7953 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 12	123.86301 ft	-8.6175612 ft	554.85212 psf	726.18307 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 13	125.22046 ft	-9.04451 ft	581.50662 psf	770.77384 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 14	126.36934 ft	-9.298936 ft	597.39048 psf	811.0424 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 15	127.52346 ft	-9.475966 ft	608.4425 psf	829.05673 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 16	128.65303 ft	-9.573041 ft	614.50291 psf	855.0822 psf	0 psf	70 psf	0 psf	ECD
Slice 17	129.77907 ft	-9.5561155 ft	613.44624 psf	854.0515 psf	0 psf	70 psf	0 psf	ECD
Slice 18	130.93133 ft	-9.4277485 ft	605.43227 psf	865.95017 psf	0 psf	70 psf	0 psf	ECD
Slice 19	132.11552 ft	-9.1750172 ft	589.65421 psf	848.3719 psf	0 psf	70 psf	0 psf	ECD
Slice 20	133.33163 ft	-8.7979218 ft	566.11206 psf	842.99098 psf	0 psf	70 psf	0 psf	ECD

Slice 21	134.51414 ft	-8.2983068 ft	534.92101 psf	804.60942 psf	0 psf	70 psf	0 psf	ECD
Slice 22	135.66307 ft	-7.6761722 ft	496.08103 psf	780.27559 psf	0 psf	70 psf	0 psf	ECD
Slice 23	136.67815 ft	-7.0026761 ft	454.03454 psf	723.10613 psf	0 psf	70 psf	0 psf	ECD
Slice 24	137.55938 ft	-6.2778182 ft	408.78153 psf	687.03035 psf	0 psf	70 psf	0 psf	ECD
Slice 25	138.00214 ft	-5.9136331 ft	386.04538 psf	668.8669 psf	0 psf	70 psf	0 psf	ECD
Slice 26	138.49662 ft	-5.4339078 ft	356.09604 psf	621.57555 psf	0 psf	70 psf	0 psf	ECD
Slice 27	139.48132 ft	-4.4779693 ft	296.41662 psf	553.79487 psf	0 psf	70 psf	0 psf	ECD
Slice 28	140.3016 ft	-3.681643 ft	246.70182 psf	497.33148 psf	0 psf	70 psf	0 psf	ECD
Slice 29	141.09934 ft	-2.8556503 ft	195.13493 psf	430.40851 psf	0 psf	70 psf	0 psf	ECD
Slice 30	142.03895 ft	-1.8403787 ft	131.75134 psf	358.86243 psf	0 psf	70 psf	0 psf	ECD
Slice 31	142.75438 ft	-1.0466233 ft	82.197042 psf	297.17247 psf	0 psf	70 psf	0 psf	ECD
Slice 32	143.44233 ft	-0.24525182 ft	32.167268 psf	233.20874 psf	0 psf	70 psf	0 psf	ECD
Slice 33	144.1418 ft	0.5695355 ft	-18.700058 psf	163.7951 psf	0 psf	70 psf	0 psf	ECD
Slice 34	144.69947 ft	1.1791362 ft	-56.757545 psf	118.98084 psf	0 psf	70 psf	0 psf	ECD
Slice 35	145.29679 ft	1.7954041 ft	-95.231267 psf	64.88171 psf	0 psf	70 psf	0 psf	ECD

10) B-1b

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 187
Date: 07/02/2021
Time: 10:57:54 AM
Tool Version: 10.2.2.20559
File Name: MCA-2 Fill to el 3.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 10:58:12 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

10) B-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 0

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

ECD

Model: Mohr-Coulomb

Unit Weight: 75 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

01) PT/OH el -2 to -7

Model: Mohr-Coulomb

Unit Weight: 70 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

02) OH/CH el -7 to -10

Model: Mohr-Coulomb

Unit Weight: 102 pcf

Cohesion': 70 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

03) ML el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 108 pcf
Cohesion': 200 psf
Phi': 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

04) CH el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 150 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

05) CH el -20 to -25

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

06) CL el -25 to -30

Model: Mohr-Coulomb
Unit Weight: 103 pcf
Cohesion': 300 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

07) CL el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 116 pcf
Cohesion': 320 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

08) CL el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

09) CH el -40 to -44

Model: Mohr-Coulomb
Unit Weight: 104 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (18, -5) ft
Left-Zone Right Coordinate: (58, -10) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (137, 3.75) ft
Right-Zone Right Coordinate: (222, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -4) ft
Right Coordinate: (305, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	305 ft	0.27 ft

Tension Crack Line

Geometry

Name: el -4, 4H:1V

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-4 ft
Point 2	0 ft	-10 ft
Point 3	0 ft	-15 ft
Point 4	0 ft	-20 ft
Point 5	0 ft	-25 ft
Point 6	0 ft	-30 ft
Point 7	0 ft	-35 ft
Point 8	0 ft	-40 ft
Point 9	305 ft	-40 ft
Point 10	305 ft	-35 ft
Point 11	305 ft	-30 ft
Point 12	305 ft	-25 ft
Point 13	305 ft	-20 ft
Point 14	305 ft	-15 ft
Point 15	305 ft	-10 ft
Point 16	305 ft	-4 ft
Point 17	106 ft	-4 ft
Point 18	175 ft	-4 ft
Point 19	205 ft	-4 ft
Point 20	223 ft	-10 ft
Point 21	241 ft	-10 ft
Point 22	259 ft	-4 ft
Point 23	0 ft	-7 ft
Point 24	214 ft	-7 ft
Point 25	250 ft	-7 ft
Point 26	305 ft	-7 ft
Point 27	138 ft	4 ft
Point 28	143 ft	4 ft
Point 29	158.04 ft	0.24 ft
Point 30	145 ft	3.5 ft
Point 31	305 ft	3 ft
Point 32	130 ft	-10 ft
Point 33	151 ft	-10 ft
Point 34	118 ft	-7 ft

Point 35	163 ft	-7 ft
Point 36	0 ft	-44 ft
Point 37	305 ft	-44 ft
Point 38	147 ft	3 ft
Point 39	76 ft	-4 ft
Point 40	67 ft	-7 ft
Point 41	58 ft	-10 ft
Point 42	33 ft	-10 ft
Point 43	24 ft	-7 ft
Point 44	15 ft	-4 ft

Regions

	Material	Points	Area
Region 1	08) CL el -35 to -40	8,9,10,7	1,525 ft²
Region 2	ECD	17,18,29,38,30,28,27	296 ft²
Region 3	02) OH/CH el -7 to -10	15,26,25,21	178.5 ft²
Region 4	03) ML el -10 to -15	2,3,14,15,21,20,33,32,41,42	1,525 ft²
Region 5	04) CH el -15 to -20	3,4,13,14	1,525 ft²
Region 6	05) CH el -20 to -25	4,5,12,13	1,525 ft²
Region 7	06) CL el -25 to -30	5,6,11,12	1,525 ft²
Region 8	07) CL el -30 to -35	6,7,10,11	1,525 ft²
Region 9	01) PT/OH el -2 to -7	16,22,25,26	151.5 ft²
Region 10	ECD	17,34,32,33,35,18	270 ft²
Region 11	01) PT/OH el -2 to -7	24,19,18,35	121.5 ft²
Region 12	09) CH el -40 to -44	36,8,9,37	1,220 ft²
Region 13	02) OH/CH el -7 to -10	33,35,24,20	184.5 ft²
Region 14	Sand Fill	38,29,18,19,24,20,21,25,22,16,31	1,224 ft²
Region 15	01) PT/OH el -2 to -7	1,23,43,44	58.5 ft²
Region 16	01) PT/OH el -2 to -7	34,17,39,40	121.5 ft²
Region 17	02) OH/CH el -7 to -10	23,2,42,43	85.5 ft²
Region 18	02) OH/CH el -7 to -10	32,34,40,41	184.5 ft²

Slip Results

Slip Surfaces Analysed: 1236 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 2.47
Volume: 2,657.7319 ft³
Weight: 257,076.92 lbf
Resisting Moment: 3,848,138.4 lbf·ft
Activating Moment: 1,556,001 lbf·ft
Resisting Force: 26,651.916 lbf
Activating Force: 10,777.191 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (51.751421, -10) ft

Entry: (193.46465, 3) ft
Radius: 58.277407 ft
Center: (115.0111, 108.06377) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	54.875711 ft	-12.219936 ft	779.74906 psf	978.23357 psf	53.183764 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 2	58.394156 ft	-14.719936 ft	935.82453 psf	1,278.0474 psf	91.698344 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 3	59.375596 ft	-15.41729 ft	979.36044 psf	1,322.933 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 4	62.86054 ft	-16.619205 ft	1,054.3963 psf	1,449.6058 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 5	66.3791 ft	-17.490648 ft	1,108.8006 psf	1,572.6292 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 6	69.25 ft	-17.892067 ft	1,133.8613 psf	1,627.868 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 7	73.75 ft	-18.521273 ft	1,173.1427 psf	1,704.0262 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 8	76.38216 ft	-18.88931 ft	1,196.1193 psf	1,744.9358 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 9	80.122027 ft	-19.471373 ft	1,232.4576 psf	1,807.791 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 10	85.58282 ft	-20.331104 ft	1,286.1308 psf	1,900.133 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 11	89.788993 ft	-20.993311 ft	1,327.4725 psf	1,966.6767 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 12	94.544565 ft	-21.786828 ft	1,377.0119 psf	2,048.8605 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 13	99.849535 ft	-22.711655 ft	1,434.749 psf	2,141.8427 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 14	104.25101 ft	-23.432112 ft	1,479.7273 psf	2,210.2641 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 15	108.63554 ft	-24.079002 ft	1,520.1128 psf	2,288.623 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 16	114.63554 ft	-24.602091	1,552.7693 psf	2,350.3431 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25

		ft						
Slice 17	120.54 ft	-24.837682 ft	1,567.4773 psf	2,378.8422 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 18	123.78898 ft	-24.967318 ft	1,575.5705 psf	2,390.8597 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 19	126.4552 ft	-24.997815 ft	1,577.4744 psf	2,419.9779 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 20	129.20621 ft	-24.999724 ft	1,577.5936 psf	2,452.6835 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 21	132 ft	-24.998674 ft	1,577.5281 psf	2,499.8011 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 22	136 ft	-24.997172 ft	1,577.4343 psf	2,574.65 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 23	140.5 ft	-24.995482 ft	1,577.3288 psf	2,611.9805 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 24	144 ft	-24.994167 ft	1,577.2467 psf	2,593.0993 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 25	146 ft	-24.993416 ft	1,577.1998 psf	2,555.5246 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 26	149 ft	-24.992289 ft	1,577.1295 psf	2,556.6619 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 27	152.95023 ft	-24.990806 ft	1,577.0369 psf	2,609.1794 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 28	156.23544 ft	-24.887759 ft	1,570.6036 psf	2,641.5243 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 29	157.74521 ft	-24.737756 ft	1,561.239 psf	2,620.1533 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 30	159.99741 ft	-24.123294 ft	1,522.878 psf	2,597.6259 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 31	162.53741 ft	-23.28576 ft	1,470.5905 psf	2,506.7608 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 32	165.57554 ft	-21.5075 ft	1,359.5734 psf	2,361.8337 psf	0 psf	200 psf	0 psf	05) CH el -20 to -25
Slice 33	171.06885 ft	-18.292192 ft	1,158.8412 psf	2,097.5174 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice 34	174.4933 ft	-16.09093 ft	1,021.4159 psf	1,857.0789 psf	0 psf	150 psf	0 psf	04) CH el -15 to -20
Slice	175.30675	-	971.95921	1,781.3963				04) CH el -15

35	ft	15.298737 ft	psf	psf	0 psf	150 psf	0 psf	to -20
Slice 36	178.18058 ft	-12.5 ft	797.23351 psf	1,409.8217 psf	164.14252 psf	200 psf	0 psf	03) ML el -10 to -15
Slice 37	181.68064 ft	-9.0913935 ft	584.43356 psf	1,166.6105 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 38	183.29863 ft	-7.5913935 ft	490.78828 psf	1,024.4947 psf	0 psf	70 psf	0 psf	02) OH/CH el -7 to -10
Slice 39	185.77709 ft	-5.45161 ft	357.20119 psf	861.31644 psf	0 psf	60 psf	0 psf	01) PT/OH el -2 to -7
Slice 40	189.35215 ft	-1.81661 ft	130.26746 psf	457.23575 psf	173.85213 psf	0 psf	0 psf	Sand Fill
Slice 41	192.29919 ft	1.635 ft	-85.217207 psf	122.51357 psf	65.141622 psf	0 psf	0 psf	Sand Fill

APPENDIX III

PROJECT TITLE: Grand Bayou PAGE: 1

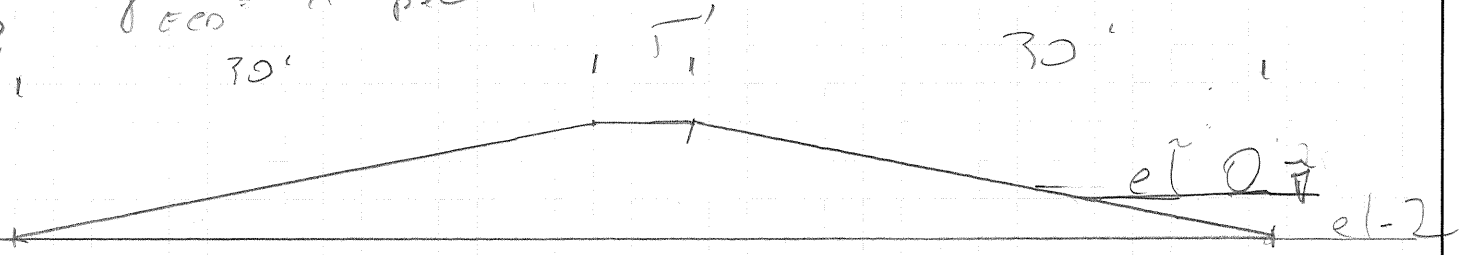
SUBJECT: ECD Bearing Capacity - Cell 1 JOB NO: 24365

BY: HCW DATE: 4/30/21 CHECKED BY: _____ DATE: _____

EUSTIS ENGINEERING L.L.C. SINCE 1946

- Check worst case scenario - Cell 1 ML el -2
- Water level @ el 0.
- γ_{ECD} = 75 pcf

NTS



c = 60 psf — el -7

c = 70 psf — el -10

c = 200 psf ϕ = 11°, conservatively use c_{eq} = 200 psf — el -11

c = 150 psf — el -20

c = 175 psf — el -25

c = 250 psf — el -30

c = 300 psf — el -35

c = 400 psf — el -40

c = 450 psf

USBV = 5.14 $\bar{c}$

z = depth of influence = 0.7B = 0.7(65') = 45'

$\bar{c}$ = (5' x 60 psf) + (3' x 70 psf) + (5' x 200 psf) + (5' x 150 psf) + (5' x 175 psf) + (5' x 250 psf) + (5' x 300 psf) + (5' x 400 psf) + (7' x 450 psf) / 45' = 245 psf

USBV = 5.14 (245 psf) = 1260 psf

Conservatively assume dike as rectangle
- applied pressure = (4' x 75 pcf) + (2' x (75 pcf - 62.4 pcf))
= 325 psf

FS = 1260 psf / 325 psf = 3.88

APPENDIX IV

MCA-1 ML at el -2.0

SOIL DESIGN PARAMETERS

THIS SPREADSHEET USES DYNAMIC CR VALUES. PLEASE CHECK USCS AND MOISTURE CONTENTS

EE 24365
CPRA Grande Bayou
Cell 1

RED = INPUT VALUE

$$\frac{c_u}{\sigma'_{vc}} = S(OCR)^m$$

Homogeneous CL and CH sedimentary clays of low to moderate sensitivity (I_p = 20%–80%):
$S = 0.20 + 0.05I_p$, or simply $S = 0.22$.
$m = 0.88(1 - C_r/C_c) \pm 0.06$ SD, or simply $m = 0.8$.
Sedimentary deposits of silts and organic soils (Atterberg limits plot below the *A*-line, but excluding peats) and clays with shells:
$S = 0.25$, with nominal SD = 0.05.
$m = 0.88\ (1 - C_r/C_c) \pm 0.06$ SD, or simply $m = 0.8$.

S	**0.22**
m	**0.800**

Ground Surface El -2.00 (NAVD 88)
GWL (depth ft BGS/MLS) 0.00

extrapolated

Str No.	USCS	Depth (ft)	NAVD 88 EL (ft)	γ pcf	γ' (pcf)	P'o Zero Burden (psf)	C_u=0.18*P'o Theoretical Cohesion, C_u (psf)	.20*P'o Theoretical Cohesion, C (psf)	C_u=0.22*P'o Theoretical Cohesion, C_u (psf)	C_u=0.25*P'o Theoretical Cohesion, C_u (psf)	C_u=0.27*P'o Theoretical Cohesion, C_u (psf)	C_u=0.31*P'o Theoretical Cohesion, C_u (psf)	Design Line Assigned Cohesion, C_u (psf)	C_u/P'_o	OCR 0.22	P'_c=OCR*P'_o Past Maximum (psf)	W_c %	CR (N/D)	RR (N/D)	c_v (ft^2/yr)	Poisson's Ratio (N/D)	Total H (ft)
		0.0	**-2.0**			0	0	0	0	0	0	0	**60.0**	0.00	**10.0**							
1	**OH**	2.5	-4.5	**70**	7.6	19	3	4	4	5	5	6	**60.0**	3.16	10.00	**190**	**300**	0.418	0.063		**0.00**	5.0
		5.0	**-7.0**			38	7	8	8	10	10	12	**60.0**	1.58	10.00	**380**						
2	**OH**	6.5	-8.5	**111**	48.6	111	20	22	24	28	30	34	**70.0**	0.63	3.73	**414**	**90**	0.290	0.044		**0.00**	3.0
		8.0	**-10.0**			184	33	37	40	46	50	57	**70.0**	0.38	1.99	**365**						
3	**ML**	10.5	-12.5	**113**	50.6	310	56	62	68	78	84	96	**280.0**	0.90	5.84	**1811**	**40**	0.124	0.019		**0.00**	5.0
		13.0	**-15.0**			437	79	87	96	109	118	135	**280.0**	0.64	5.84	**2550**						
4	**CH**	15.5	-17.5	**101**	38.6	533	96	107	117	133	144	165	**150.0**	0.28	1.36	**725**	**70**	0.223	0.033		**0.00**	5.0
		18.0	**-20.0**			630	113	126	139	157	170	195	**150.0**	0.24	1.36	**856**						
5	**CH**	20.5	-22.5	**101**	38.6	726	131	145	160	182	196	225	**175.0**	0.24	1.12	**814**	**70**	0.223	0.033		**0.00**	5.0
		23.0	**-25.0**			823	148	165	181	206	222	255	**175.0**	0.21	1.12	**922**						
6	**CH**	25.5	-27.5	**94**	31.6	902	162	180	198	225	243	280	**250.0**	0.28	1.34	**1204**	**70**	0.223	0.033		**0.00**	5.0
		28.0	**-30.0**			981	177	196	216	245	265	304	**250.0**	0.25	1.34	**1309**						
7	**CL**	30.5	-32.5	**108**	45.6	1095	197	219	241	274	296	339	**300.0**	0.27	1.32	**1441**	**41**	0.127	0.019		**0.00**	5.0
		33.0	**-35.0**			1209	218	242	266	302	326	375	**300.0**	0.25	1.32	**1591**						
8	**CL**	35.5	-37.5	**105**	42.6	1315	237	263	289	329	355	408	**400.0**	0.30	1.50	**1971**	**48**	0.150	0.023		**0.00**	5.0
		38.0	**-40.0**			1422	256	284	313	355	384	441	**400.0**	0.28	1.50	**2131**						
9	**CH**	40.0	-42.0	**103**	40.6	1503	271	301	331	376	406	466	**450.0**	0.30	1.47	**2209**	**50**	0.157	0.024		**0.00**	4.0
		42.0	**-44.0**			1584	285	317	349	396	428	491	**450.0**	0.28	1.47	**2329**						
10	**CH**	47.0	-49.0	**103**	40.6	1787	322	357	393	447	483	554	**450.0**	0.25	1.18	**2116**	**50**	0.157	0.024		**0.00**	10.0
		52.0	**-54.0**			1990	358	398	438	498	537	617	**450.0**	0.23	1.18	**2356**						
11	**CH**	57.0	-59.0	**103**	40.6	2193	395	439	483	548	592	680	**450.0**	0.21	1.00	**2193**	**50**	0.157	0.024		**0.00**	10.0
		62.0	**-64.0**			2396	431	479	527	599	647	743	**450.0**	0.19	1.00	**2396**						
12	**CH**	67.0	-69.0	**103**	40.6	2599	468	520	572	650	702	806	**450.0**	0.17	1.00	**2599**	**50**	0.157	0.024		**0.00**	10.0
		72.0	**-74.0**			2802	504	560	616	701	757	869	**450.0**	0.16	1.00	**2802**						
13	**CH**	77.0	-79.0	**103**	40.6	3005	541	601	661	751	811	932	**450.0**	0.15	1.00	**3005**	**50**	0.157	0.024		**0.00**	10.0
		82.0	**-84.0**			3208	577	642	706	802	866	995	**450.0**	0.14	1.00	**3208**						
14	**CH**	89.5	-91.5	**103**	40.6	3513	632	703	773	878	948	1089	**450.0**	0.13	1.00	**3513**	**50**	0.157	0.024		**0.00**	15.0
		97.0	**-99.0**			3817	687	763	840	954	1031	1183	**450.0**	0.12	1.00	**3817**						
15	**CH**	104.5	-106.5	**103**	40.6	4122	742	824	907	1030	1113	1278	**450.0**	0.11	1.00	**4122**	**50**	0.157	0.024		**0.00**	15.0
		112.0	**-114.0**			4426	797	885	974	1107	1195	1372	**450.0**	0.10	1.00	**4426**						
16	**CH**	119.5	-121.5	**103**	40.6	4731	852	946	1041	1183	1277	1467	**450.0**	0.10	1.00	**4731**	**50**	0.157	0.024		**0.00**	15.0
		127.0	**-129.0**			5035	906	1007	1108	1259	1360	1561	**450.0**	0.09	1.00	**5035**						
17	**CH**	134.5	-136.5	**103**	40.6	5340	961	1068	1175	1335	1442	1655	**450.0**	0.08	1.00	**5340**	**50**	0.157	0.024		**0.00**	15.0
		142.0	**-144.0**			5644	1016	1129	1242	1411	1524	1750	**450.0**	0.08	1.00	**5644**						

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 3.5

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	3200.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	2700.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	477.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	20.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	6.38	26.73	**33.11**	31.00	6.23	18.13	24.35	24.19
	(ft)	0.53	2.23	2.76	2.58	0.52	1.51	2.03	2.02
	%Ultimate			100.0	93.6			73.6	73.1
REDUCD	(in)	6.38	26.73	33.11	31.00	6.23	18.13	24.35	24.19
	(ft)	0.53	2.23	2.76	2.58	0.52	1.51	2.03	2.02
	%Ultimate			100.0	93.6			73.6	73.1

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Northwest
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: HCW

Group	L (ft)		Region 1 20.00	Region 2 20.00	Region 3 20.00	Region 4 20.00	Region 5 20.00	Region 6 20.00	Region 7 20.00	Region 8 20.00	Region 9 20.00	Region 10 20.00
I	119.43	Tv	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
		Uv	14.01	14.01	14.01	14.01	14.01	14.01	14.01	14.01	14.01	14.01
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate: Change (psf)	Ultimate: Value (psf)	Induced: Change (psf)	Induced: Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
33.11		0.0								0			(33.11)	(31.00)					(24.35)	(24.19)																								
	1	2.5	7.6	0.418	0.063	9999.0	110.0	5.0	190	19	476	495	475	494	3.76	10.44	14.20	14.20	3.76	10.41	14.17	14.17	0.999	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.17	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
18.91		5.0								38	2507.8%		2499.9%				(18.91)	(16.80)			(10.18)	(10.02)	(476)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(475)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.5	48.6	0.290	0.044	110.0	110.0	3.0	414	111	476	587	464	575	0.90	1.58	2.47	2.47	0.90	1.49	2.38	2.38	0.997	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.95	0.005	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
16.43		8.0								184	428.9%		418.5%				(16.43)	(14.32)			(7.80)	(7.63)	(476)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(464)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.5	50.6	0.124	0.019	1000.0	110.0	5.0	1811	310	475	785	450	760	0.45	0.00	0.45	0.45	0.43	0.00	0.43	0.43	0.995	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.012	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
15.98		13.0								437	153.0%		145.0%				(15.98)	(13.87)			(7.37)	(7.20)	(475)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(450)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.5	38.6	0.223	0.033	110.0	110.0	5.0	725	533	474	1007	430	963	0.27	1.91	2.18	2.18	0.27	1.65	1.92	1.92	0.993	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
13.80		18.0								630	88.8%		80.6%				(13.80)	(11.69)			(5.45)	(5.28)	(474)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(430)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.5	38.6	0.223	0.033	110.0	110.0	5.0	814	726	473	1199	401	1127	0.10	2.25	2.35	2.35	0.10	1.89	1.99	1.99	0.991	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.034	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
11.45		23.0								823	65.1%		55.2%				(11.45)	(9.34)			(3.45)	(3.29)	(473)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(401)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.5	31.6	0.223	0.033	110.0	110.0	5.0	1204	902	472	1373	373	1274	0.25	0.77	1.02	1.02	0.25	0.33	0.58	0.58	0.989	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.047	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
10.44		28.0								981	52.3%		41.3%				(10.44)	(8.32)			(2.87)	(2.71)	(472)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(373)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.5	45.6	0.127	0.019	110.0	110.0	5.0	1441	1095	471	1565	345	1439	0.14	0.28	0.41	0.41	0.14	0.00	0.14	0.14	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
10.02		33.0								1209	43.0%		31.5%				(10.02)	(7.91)			(2.73)	(2.57)	(471)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(345)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.5	42.6	0.150	0.023	110.0	110.0	5.0	1971	1315	470	1785	318	1633	0.18	0.00	0.18	0.18	0.13	0.00	0.13	0.13	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
9.85		38.0								1422	35.7%		24.2%				(9.85)	(7.73)			(2.61)	(2.44)	(470)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(318)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	40.0	40.6	0.157	0.024	110.0	110.0	4.0	2209	1503	469	1972	294	1797	0.13	0.00	0.13	0.13	0.09	0.00	0.09	0.09	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
9.71		42.0								1584	31.2%		19.6%				(9.71)	(7.60)			(2.52)	(2.35)	(469)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(294)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	47.0	40.6	0.157	0.024	110.0	110.0	10.0	2116	1787	467	2254	259	2046	0.21	0.52	0.73	0.73	0.17	0.00	0.17	0.17	0.979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.104	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
8.99		52.0								1990	26.1%		14.5%				(8.99)	(6.87)			(2.35)	(2.19)	(467)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(259)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	57.0	40.6	0.157	0.024	110.0	110.0	10.0	2193	2193	465	2658	213	2406	0.00	1.57	1.57	1.57	0.00	0.76	0.76	0.76	0.975	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
7.41		62.0								2396	21.2%		9.7%				(7.41)	(5.30)			(1.59)	(1.43)	(465)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(213)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	67.0	40.6	0.157	0.024	110.0	110.0	10.0	2599	2599	463	3062	172	2772	0.00	1.34	1.34	1.34	0.00	0.53	0.53	0.53	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.157	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
6.07		72.0								2802	17.8%		6.6%				(6.07)	(3.96)			(1.07)	(0.90)	(463)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(172)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	77.0	40.6	0.157	0.024	110.0	110.0	10.0	3005	3005	461	3466	137	3142	0.00	1.17	1.17	1.17	0.00	0.36	0.36	0.36	0.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.183	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
4.90		82.0								3208	15.3%		4.6%				(4.90)	(2.79)			(0.71)	(0.54)	(461)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(137)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.5	40.6	0.157	0.024	110.0	110.0	15.0	3513	3513	458	3971	100	3613	0.00	1.51	1.51	1.51	0.00	0.34	0.34	0.34	0.961	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.216	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
3.40		97.0								3817	13.0%		2.8%				(3.40)	(1.29)			(0.36)	(0.19)	(458)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(100)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	104.5	40.6	0.157	0.024	110.0	110.0	15.0	4122	4122	455	4577	66	4188	0.00	1.29	1.29	1.29	0.00	0.19	0.19	0.19	0.954	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.256	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
2.11		112.0								4426	11.0%		1.6%				(2.11)	(0.00)			(0.17)	(0.00)	(455)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(66)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.5	40.6	0.157	0.024	110.0	110.0	15.0	4731	4731	452	5183	42	4772	0.00	1.12	1.12	0.00	0.00	0.11	0.11	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.296	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
0.99		127.0								5035	9.6%		0.9%				(0.99)	(0.00)			(0.06)	(0.00)	(452)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(42)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.5	40.6	0.157	0.024	110.0	110.0	15.0	5340	5340	449	5789	25	5365	0.00	0.99	0.99	0.00	0.00	0.06	0.06	0.00	0.941	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.335	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
0.00		142.0								5644	8.4%		0.5%				(0.00)	(0.00)			(0.00)	(0.00)	(449)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(25)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	176.0	57.6	0.000	0.000	11.0	11.0	68.0	7603	7603	440	8043	0	7603	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.923	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.00	0.640	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9561	5.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(440)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9585	9585	433	10018	0	9585	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.909	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9609	4.5%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(433)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9632	9632	433	10066	0	9632	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9656	4.5%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(433)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9680	9680	433	10113	0	9680	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9704	4.5%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(433)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9728	9728	433	10160	0	9728	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9751	4.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(433)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9775	9775	433	10208	0	9775	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9799	4.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(433)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9823	9823	432	10255	0	9823	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9847	4.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(432)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	9918	9918	432	10350	0	9918	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								9989	4.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(432)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	6.38	26.73	33.11	31.00	6.23	18.13	24.35	24.19
	(ft)	0.53	2.23	2.76	2.58	0.52	1.51	2.03	2.02
	%Ultimate			100.0	93.6			73.6	73.1
REDUCD	(in)	6.38	26.73	33.11	31.00	6.23	18.13	24.35	24.19
	(ft)	0.53	2.23	2.76	2.58	0.52	1.51	2.03	2.02
	%Ultimate			100.0	93.6			73.6	73.1

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 3

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	3200.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	2700.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	419.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	7.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	6.31	22.66	**28.97**	25.97	5.96	13.19	19.15	19.13
	(ft)	0.53	1.89	2.41	2.16	0.50	1.10	1.60	1.59
	%Ultimate			100.0	89.6			66.1	66.0
REDUCD	(in)	6.31	22.66	28.97	25.97	5.96	13.19	19.15	19.13
	(ft)	0.53	1.89	2.41	2.16	0.50	1.10	1.60	1.59
	%Ultimate			100.0	89.6			66.1	66.0

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Northwest
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: HCW

Group	L (ft)		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
			7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
I	119.43	Tv	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		Uv	8.29	8.29	8.29	8.29	8.29	8.29	8.29	8.29	8.29	8.29
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate: Change (psf)	Ultimate: Value (psf)	Induced: Change (psf)	Induced: Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
28.97		0.0								0							(28.97)	(25.97)			(19.15)	(19.13)																									
	1	2.5	7.6	0.418	0.063	9999.0	110.0	5.0	190	19	419	438	416	435	3.76	9.09	12.85	12.85	3.76	9.03	12.79	12.79	0.999	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.17	0.001	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
16.13		5.0								38	2202.9%		2191.1%				(16.13)	(13.13)			(6.36)	(6.34)	(419)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(416)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.5	48.6	0.290	0.044	110.0	110.0	3.0	414	111	418	529	401	512	0.90	1.11	2.00	2.00	0.90	0.96	1.85	1.85	0.997	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.95	0.005	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
14.12		8.0								184	376.7%		361.3%				(14.12)	(11.12)			(4.50)	(4.48)	(418)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(401)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.5	50.6	0.124	0.019	1000.0	110.0	5.0	1811	310	417	727	380	691	0.41	0.00	0.41	0.41	0.39	0.00	0.39	0.39	0.995	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.012	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
13.71		13.0								437	134.4%		122.5%				(13.71)	(10.71)			(4.12)	(4.09)	(417)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(380)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.5	38.6	0.223	0.033	110.0	110.0	5.0	725	533	416	949	352	885	0.27	1.57	1.83	1.83	0.27	1.16	1.43	1.43	0.993	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
11.87		18.0								630	78.0%		65.9%				(11.87)	(8.87)			(2.69)	(2.67)	(416)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(352)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.5	38.6	0.223	0.033	110.0	110.0	5.0	814	726	415	1142	310	1036	0.10	1.97	2.07	2.07	0.10	1.41	1.50	1.50	0.991	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.034	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
9.81		23.0								823	57.2%		42.7%				(9.81)	(6.81)			(1.19)	(1.16)	(415)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(310)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.5	31.6	0.223	0.033	110.0	110.0	5.0	1204	902	414	1316	270	1172	0.25	0.52	0.77	0.77	0.23	0.00	0.23	0.23	0.989	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.047	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
9.04		28.0								981	45.9%		30.0%				(9.04)	(6.04)			(0.96)	(0.94)	(414)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(270)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.5	45.6	0.127	0.019	110.0	110.0	5.0	1441	1095	413	1508	233	1328	0.14	0.15	0.29	0.29	0.10	0.00	0.10	0.10	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
8.75		33.0								1209	37.8%		21.3%				(8.75)	(5.75)			(0.86)	(0.84)	(413)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(233)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.5	42.6	0.150	0.023	110.0	110.0	5.0	1971	1315	413	1728	198	1514	0.16	0.00	0.16	0.16	0.08	0.00	0.08	0.08	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
8.59		38.0								1422	31.4%		15.1%				(8.59)	(5.59)			(0.78)	(0.76)	(413)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(198)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	40.0	40.6	0.157	0.024	110.0	110.0	4.0	2209	1503	412	1915	170	1673	0.12	0.00	0.12	0.12	0.05	0.00	0.05	0.05	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
8.47		42.0								1584	27.4%		11.3%				(8.47)	(5.47)			(0.73)	(0.71)	(412)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(170)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	47.0	40.6	0.157	0.024	110.0	110.0	10.0	2116	1787	410	2198	131	1918	0.21	0.31	0.52	0.52	0.09	0.00	0.09	0.09	0.979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.104	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
7.95		52.0								1990	23.0%		7.3%				(7.95)	(4.95)			(0.64)	(0.62)	(410)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(131)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	57.0	40.6	0.157	0.024	110.0	110.0	10.0	2193	2193	409	2602	86	2279	0.00	1.40	1.40	1.40	0.00	0.31	0.31	0.31	0.975	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
6.56		62.0								2396	18.6%		3.9%				(6.56)	(3.56)			(0.33)	(0.30)	(409)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(86)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	67.0	40.6	0.157	0.024	110.0	110.0	10.0	2599	2599	407	3006	53	2653	0.00	1.19	1.19	1.19	0.00	0.17	0.17	0.17	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.157	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
5.37		72.0								2802	15.6%		2.1%				(5.37)	(2.37)			(0.16)	(0.14)	(407)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(53)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	77.0	40.6	0.157	0.024	110.0	110.0	10.0	3005	3005	405	3410	32	3037	0.00	1.03	1.03	1.03	0.00	0.09	0.09	0.09	0.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.183	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
4.33		82.0								3208	13.5%		1.1%				(4.33)	(1.33)			(0.07)	(0.05)	(405)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(32)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.5	40.6	0.157	0.024	110.0	110.0	15.0	3513	3513	403	3915	15	3528	0.00	1.33	1.33	1.33	0.00	0.05	0.05	0.05	0.961	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.216	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
3.00		97.0								3817	11.5%		0.4%				(3.00)	(0.00)			(0.02)	(0.00)	(403)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(15)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	104.5	40.6	0.157	0.024	110.0	110.0	15.0	4122	4122	400	4522	5	4127	0.00	1.14	1.14	0.00	0.00	0.02	0.02	0.00	0.954	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.256	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
1.86		112.0								4426	9.7%		0.1%				(1.86)	(0.00)			(0.01)	(0.00)	(400)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(5)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.5	40.6	0.157	0.024	110.0	110.0	15.0	4731	4731	397	5128	2	4732	0.00	0.99	0.99	0.00	0.00	0.00	0.00	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.296	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.87		127.0								5035	8.4%		0.0%				(0.87)	(0.00)			(0.00)	(0.00)	(397)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.5	40.6	0.157	0.024	110.0	110.0	15.0	5340	5340	394	5734	0	5340	0.00	0.87	0.87	0.00	0.00	0.00	0.00	0.00	0.941	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		142.0								5644	7.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(394)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	176.0	57.6	0.000	0.000	11.0	11.0	68.0	7603	7603	387	7990	0	7603	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.923	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.00	0.640	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9561	5.1%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(387)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9585	9585	381	9965	0	9585	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.909	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9609	4.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(381)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9632	9632	381	10013	0	9632	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9656	4.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(381)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9680	9680	380	10060	0	9680	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9704	3.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(380)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9728	9728	380	10108	0	9728	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9751	3.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(380)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9775	9775	380	10155	0	9775	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9799	3.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(380)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9823	9823	380	10203	0	9823	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9847	3.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(380)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	9918	9918	379	10297	0	9918	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								9989	3.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(379)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	6.31	22.66	28.97	25.97	5.96	13.19	19.15	19.13
	(ft)	0.53	1.89	2.41	2.16	0.50	1.10	1.60	1.59
	%Ultimate			100.0	89.6			66.1	66.0
REDUCD	(in)	6.31	22.66	28.97	25.97	5.96	13.19	19.15	19.13
	(ft)	0.53	1.89	2.41	2.16	0.50	1.10	1.60	1.59
	%Ultimate			100.0	89.6			66.1	66.0

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 2.5

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	3200.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	2700.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	362.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	0.08
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	6.24	18.36	**24.59**	20.83	5.37	8.13	13.51	13.44
	(ft)	0.52	1.53	2.05	1.74	0.45	0.68	1.13	1.12
	%Ultimate			100.0	84.7			54.9	54.6
REDUCD	(in)	6.24	18.36	24.59	20.83	5.37	8.13	13.51	13.44
	(ft)	0.52	1.53	2.05	1.74	0.45	0.68	1.13	1.12
	%Ultimate			100.0	84.7			54.9	54.6

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Northwest
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: HCW

Group	L (ft)		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
			0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
I	119.43	Tv	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Uv	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
24.59		0.0								0							(24.59)	(20.83)				(13.51)	(13.44)																							
	1	2.5	7.6	0.418	0.063	9999.0	110.0	5.0	190	19	362	381	356	375	3.76	7.57	11.33	11.33	3.76	7.41	11.17	11.17	0.999	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.17	0.001	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
13.27		5.0								38	1903.2%		1874.8%				(13.27)	(9.50)			(2.33)	(2.26)	(362)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(356)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.5	48.6	0.290	0.044	110.0	110.0	3.0	414	111	361	472	320	430	0.90	0.59	1.49	1.49	0.90	0.18	1.07	1.07	0.997	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.95	0.005	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
11.78		8.0								184	325.5%		288.1%				(11.78)	(8.01)			(1.26)	(1.19)	(361)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(320)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.5	50.6	0.124	0.019	1000.0	110.0	5.0	1811	310	360	671	272	582	0.37	0.00	0.37	0.37	0.31	0.00	0.31	0.31	0.995	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.012	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
11.40		13.0								437	116.1%		87.6%				(11.40)	(7.64)			(0.96)	(0.89)	(360)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(272)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.5	38.6	0.223	0.033	110.0	110.0	5.0	725	533	360	893	207	740	0.27	1.21	1.48	1.48	0.27	0.12	0.39	0.39	0.993	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
9.93		18.0								630	67.4%		38.8%				(9.93)	(6.16)			(0.57)	(0.50)	(360)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(207)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.5	38.6	0.223	0.033	110.0	110.0	5.0	814	726	359	1085	118	845	0.10	1.67	1.77	1.77	0.10	0.22	0.32	0.32	0.991	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.034	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
8.16		23.0								823	49.4%		16.3%				(8.16)	(4.39)			(0.25)	(0.19)	(359)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(118)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.5	31.6	0.223	0.033	110.0	110.0	5.0	1204	902	358	1260	46	947	0.25	0.26	0.52	0.52	0.04	0.00	0.04	0.04	0.989	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.047	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
7.64		28.0								981	39.7%		5.0%				(7.64)	(3.87)			(0.21)	(0.14)	(358)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(46)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.5	45.6	0.127	0.019	110.0	110.0	5.0	1441	1095	357	1452	0	1095	0.14	0.03	0.16	0.16	0.00	0.00	0.00	0.00	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.48		33.0								1209	32.6%		0.0%				(7.48)	(3.71)			(0.21)	(0.14)	(357)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.5	42.6	0.150	0.023	110.0	110.0	5.0	1971	1315	356	1672	0	1315	0.14	0.00	0.14	0.14	0.00	0.00	0.00	0.00	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.34		38.0								1422	27.1%		0.0%				(7.34)	(3.57)			(0.21)	(0.14)	(356)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	40.0	40.6	0.157	0.024	110.0	110.0	4.0	2209	1503	356	1859	0	1503	0.10	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.23		42.0								1584	23.7%		0.0%				(7.23)	(3.47)			(0.21)	(0.14)	(356)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	47.0	40.6	0.157	0.024	110.0	110.0	10.0	2116	1787	355	2142	0	1787	0.21	0.10	0.31	0.31	0.00	0.00	0.00	0.00	0.979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.93		52.0								1990	19.8%		0.0%				(6.93)	(3.16)			(0.21)	(0.14)	(355)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	57.0	40.6	0.157	0.024	110.0	110.0	10.0	2193	2193	353	2546	0	2193	0.00	1.22	1.22	1.22	0.00	0.00	0.00	0.00	0.975	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.70		62.0								2396	16.1%		0.0%				(5.70)	(1.94)			(0.21)	(0.14)	(353)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	67.0	40.6	0.157	0.024	110.0	110.0	10.0	2599	2599	351	2951	18	2618	0.00	1.04	1.04	1.04	0.00	0.06	0.06	0.06	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.157	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
4.67		72.0								2802	13.5%		0.7%				(4.67)	(0.90)			(0.15)	(0.09)	(351)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(18)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	77.0	40.6	0.157	0.024	110.0	110.0	10.0	3005	3005	350	3355	32	3037	0.00	0.90	0.90	0.90	0.00	0.09	0.09	0.09	0.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.183	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
3.77		82.0								3208	11.6%		1.1%				(3.77)	(0.00)			(0.07)	(0.00)	(350)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(32)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.5	40.6	0.157	0.024	110.0	110.0	15.0	3513	3513	348	3861	14	3526	0.00	1.16	1.16	0.00	0.00	0.05	0.05	0.00	0.961	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.216	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2.61		97.0								3817	9.9%		0.4%				(2.61)	(0.00)			(0.02)	(0.00)	(348)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(14)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	104.5	40.6	0.157	0.024	110.0	110.0	15.0	4122	4122	346	4467	0	4122	0.00	0.99	0.99	0.00	0.00	0.00	0.00	0.00	0.954	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.256	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.62		112.0								4426	8.4%		0.0%				(1.62)	(0.00)			(0.02)	(0.00)	(346)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.5	40.6	0.157	0.024	110.0	110.0	15.0	4731	4731	343	5074	0	4731	0.00	0.86	0.86	0.00	0.00	0.00	0.00	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.296	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.76		127.0								5035	7.3%		0.0%				(0.76)	(0.00)			(0.02)	(0.00)	(343)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.5	40.6	0.157	0.024	110.0	110.0	15.0	5340	5340	341	5680	9	5348	0.00	0.76	0.76	0.00	0.00	0.02	0.02	0.00	0.941	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.335	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0.00		142.0								5644	6.4%		0.2%				(0.00)	(0.00)			(0.00)	(0.00)	(341)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(9)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	176.0	57.6	0.000	0.000	11.0	11.0	68.0	7603	7603	334	7937	0	7603	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.923	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.00	0.640	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9561	4.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(334)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9585	9585	329	9914	7	9592	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.909	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
		211.0								9609	3.4%		0.1%				(0.00)	(0.00)			(0.00)	(0.00)	(329)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(7)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9632	9632	329	9961	5	9637	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
		212.0								9656	3.4%		0.1%				(0.00)	(0.00)			(0.00)	(0.00)	(329)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(5)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9680	9680	329	10009	3	9683	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		213.0								9704	3.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(329)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9728	9728	328	10056	0	9728	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9751	3.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(328)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9775	9775	328	10103	0	9775	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9799	3.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(328)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9823	9823	328	10151	0	9823	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9847	3.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(328)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	9918	9918	328	10246	0	9918	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								9989	3.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(328)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	6.24	18.36	24.59	20.83	5.37	8.13	13.51	13.44
	(ft)	0.52	1.53	2.05	1.74	0.45	0.68	1.13	1.12
	%Ultimate			100.0	84.7			54.9	54.6
REDUCD	(in)	6.24	18.36	24.59	20.83	5.37	8.13	13.51	13.44
	(ft)	0.52	1.53	2.05	1.74	0.45	0.68	1.13	1.12
	%Ultimate			100.0	84.7			54.9	54.6

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 2

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	3200.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	2700.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	304.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	11.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	6.12	13.81	**19.93**	15.99	5.79	8.12	13.92	13.63
	(ft)	0.51	1.15	1.66	1.33	0.48	0.68	1.16	1.14
	%Ultimate			100.0	80.2			69.8	68.4
REDUCD	(in)	6.12	13.81	19.93	15.99	5.79	8.12	13.92	13.63
	(ft)	0.51	1.15	1.66	1.33	0.48	0.68	1.16	1.14
	%Ultimate			100.0	80.2			69.8	68.4

extrapolated

PROJECT TITLE: CPRA Grand Bayou - Northwest
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: HCW

Group	L (ft)		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
			11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
I	119.43	Tv	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		Uv	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
19.93		0.0								0							(19.93)	(15.99)				(13.92)	(13.63)																							
	1	2.5	7.6	0.418	0.063	9999.0	110.0	5.0	190	19	304	323	302	321	3.76	5.77	9.53	9.53	3.76	5.72	9.49	9.49	0.999	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.17	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10.40		5.0								38	1598.3%		1591.5%				(10.40)	(6.46)			(4.43)	(4.14)	(304)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(302)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.5	48.6	0.290	0.044	110.0	110.0	3.0	414	111	303	414	293	404	0.90	0.00	0.90	0.90	0.88	0.00	0.88	0.88	0.997	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.95	0.005	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
9.51		8.0								184	273.3%		264.4%				(9.51)	(5.56)			(3.55)	(3.26)	(303)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(293)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.5	50.6	0.124	0.019	1000.0	110.0	5.0	1811	310	303	613	281	592	0.33	0.00	0.33	0.33	0.31	0.00	0.31	0.31	0.995	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.012	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
9.18		13.0								437	97.5%		90.6%				(9.18)	(5.23)			(3.24)	(2.95)	(303)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(281)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.5	38.6	0.223	0.033	110.0	110.0	5.0	725	533	302	835	264	798	0.27	0.82	1.09	1.09	0.27	0.56	0.82	0.82	0.993	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
8.09		18.0								630	56.6%		49.6%				(8.09)	(4.14)			(2.41)	(2.12)	(302)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(264)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.5	38.6	0.223	0.033	110.0	110.0	5.0	814	726	301	1028	240	966	0.10	1.36	1.45	1.45	0.10	1.00	1.10	1.10	0.991	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.034	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
6.63		23.0								823	41.5%		33.0%				(6.63)	(2.69)			(1.32)	(1.03)	(301)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(240)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.5	31.6	0.223	0.033	110.0	110.0	5.0	1204	902	301	1202	216	1118	0.25	0.00	0.25	0.25	0.19	0.00	0.19	0.19	0.989	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.047	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
6.38		28.0								981	33.3%		24.0%				(6.38)	(2.44)			(1.13)	(0.84)	(301)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(216)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.5	45.6	0.127	0.019	110.0	110.0	5.0	1441	1095	300	1395	193	1288	0.12	0.00	0.12	0.12	0.08	0.00	0.08	0.08	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
6.26		33.0								1209	27.4%		17.7%				(6.26)	(2.32)			(1.05)	(0.76)	(300)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(193)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.5	42.6	0.150	0.023	110.0	110.0	5.0	1971	1315	299	1615	172	1487	0.12	0.00	0.12	0.12	0.07	0.00	0.07	0.07	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
6.14		38.0								1422	22.8%		13.1%				(6.14)	(2.20)			(0.98)	(0.69)	(299)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(172)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	40.0	40.6	0.157	0.024	110.0	110.0	4.0	2209	1503	299	1802	153	1656	0.09	0.00	0.09	0.09	0.05	0.00	0.05	0.05	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
6.05		42.0								1584	19.9%		10.2%				(6.05)	(2.11)			(0.93)	(0.64)	(299)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(153)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	47.0	40.6	0.157	0.024	110.0	110.0	10.0	2116	1787	298	2085	127	1914	0.19	0.00	0.19	0.19	0.08	0.00	0.08	0.08	0.979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.104	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
5.86		52.0								1990	16.7%		7.1%				(5.86)	(1.92)			(0.85)	(0.55)	(298)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(127)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	57.0	40.6	0.157	0.024	110.0	110.0	10.0	2193	2193	296	2490	94	2287	0.00	1.04	1.04	1.04	0.00	0.34	0.34	0.34	0.975	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
4.83		62.0								2396	13.5%		4.3%				(4.83)	(0.88)			(0.50)	(0.21)	(296)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(94)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	67.0	40.6	0.157	0.024	110.0	110.0	10.0	2599	2599	295	2894	68	2667	0.00	0.88	0.88	0.88	0.00	0.21	0.21	0.21	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.157	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
3.95		72.0								2802	11.4%		2.6%				(3.95)	(0.00)			(0.29)	(0.00)	(295)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(68)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	77.0	40.6	0.157	0.024	110.0	110.0	10.0	3005	3005	294	3299	47	3052	0.00	0.76	0.76	0.00	0.00	0.13	0.13	0.00	0.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.183	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
3.18		82.0								3208	9.8%		1.6%				(3.18)	(0.00)			(0.16)	(0.00)	(294)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(47)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.5	40.6	0.157	0.024	110.0	110.0	15.0	3513	3513	292	3805	28	3541	0.00	0.98	0.98	0.00	0.00	0.10	0.10	0.00	0.961	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.216	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
2.20		97.0								3817	8.3%		0.8%				(2.20)	(0.00)			(0.07)	(0.00)	(292)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(28)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	104.5	40.6	0.157	0.024	110.0	110.0	15.0	4122	4122	290	4412	14	4136	0.00	0.83	0.83	0.00	0.00	0.04	0.04	0.00	0.954	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.256	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
1.37		112.0								4426	7.0%		0.3%				(1.37)	(0.00)			(0.02)	(0.00)	(290)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(14)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.5	40.6	0.157	0.024	110.0	110.0	15.0	4731	4731	288	5019	7	4737	0.00	0.73	0.73	0.00	0.00	0.02	0.02	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.296	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0.64		127.0								5035	6.1%		0.1%				(0.64)	(0.00)			(0.01)	(0.00)	(288)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(7)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.5	40.6	0.157	0.024	110.0	110.0	15.0	5340	5340	286	5626	3	5343	0.00	0.64	0.64	0.00	0.00	0.01	0.01	0.00	0.941	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.335	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00		142.0								5644	5.4%		0.1%				(0.00)	(0.00)			(0.00)	(0.00)	(286)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	176.0	57.6	0.000	0.000	11.0	11.0	68.0	7603	7603	281	7883	0	7603	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.923	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.00	0.640	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9561	3.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(281)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9585	9585	276	9861	0	9585	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.909	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9609	2.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(276)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9632	9632	276	9908	0	9632	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9656	2.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(276)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9680	9680	276	9956	0	9680	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9704	2.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(276)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9728	9728	276	10003	0	9728	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9751	2.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(276)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9775	9775	276	10051	0	9775	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9799	2.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(276)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9823	9823	276	10098	0	9823	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9847	2.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(276)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	9918	9918	275	10193	0	9918	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								9989	2.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(275)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	6.12	13.81	19.93	15.99	5.79	8.12	13.92	13.63
	(ft)	0.51	1.15	1.66	1.33	0.48	0.68	1.16	1.14
	%Ultimate			100.0	80.2			69.8	68.4
REDUCD	(in)	6.12	13.81	19.93	15.99	5.79	8.12	13.92	13.63
	(ft)	0.51	1.15	1.66	1.33	0.48	0.68	1.16	1.14
	%Ultimate			100.0	80.2			69.8	68.4

EE 24365 Grand Bayou
Cell 1
ML el -2

Existing Grade = **-2.00** **NAVD 88**
Target Grade at 20 years = **0.71 to 1.56** **NAVD 88**

time (yrs)	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	0.032	0.030	0.027	0.024	
0.16	0.032	0.030	0.027	0.024	
0.50	0.032	0.030	0.027	0.024	
1.00	0.032	0.030	0.027	0.024	
1.50	0.032	0.030	0.027	0.024	
2.00	0.032	0.030	0.027	0.024	
3.00	0.032	0.030	0.027	0.024	
4.00	0.032	0.030	0.027	0.024	
7.00	0.032	0.030	0.027	0.024	
11.00	0.032	0.030	0.027	0.024	
20.00	0.032	0.030	0.027	0.024	
ultimate	0.032	0.030	0.027	0.024	

finished elevation (ft NAVD 88) of MARSH FILL (SELF WEIGHT)				
3.5	3	2.5	2	
3.50	3.00	2.50	2.00	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	

Ultimate self weight consolidation settlement = 0.0059* height of fill (e.g., Ultimate Consol for 1 feet of fill = 0.0059* 3 = 0.018 feet)

time (yrs)	Percent Consolidation due to consolidation settlement (ft) of marsh fill				
	3	2.5	2.5	2	
0.00	0.0	0.0	0.0	0.0	
0.08	100.0	100.0	100.0	100.0	
0.16	100.0	100.0	100.0	100.0	
0.50	100.0	100.0	100.0	100.0	
1.00	100.0	100.0	100.0	100.0	
1.50	100.0	100.0	100.0	100.0	
2.00	100.0	100.0	100.0	100.0	
3.00	100.0	100.0	100.0	100.0	
4.00	100.0	100.0	100.0	100.0	
7.00	100.0	100.0	100.0	100.0	
11.00	100.0	100.0	100.0	100.0	
20.00	100.0	100.0	100.0	100.0	
ultimate	100.0	100.0	100.0	100.0	

Existing Grade = **-2.00** **NAVD 88**
Target Grade at 20 years = **0.71 to 1.56** **NAVD 88**

time (yrs)	consolidation settlement (inches) of subsurface				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	18.23	15.95	13.44	10.99	
0.16	18.29	16.03	13.51	11.03	
0.50	18.62	16.34	13.80	11.20	
1.00	19.03	16.72	14.16	11.47	
1.50	19.38	17.04	14.45	11.72	
2.00	19.69	17.32	14.72	11.94	
3.00	20.25	17.83	15.18	12.31	
4.00	20.70	18.24	15.54	12.60	
7.00	21.72	19.13	16.30	13.18	
11.00	22.77	19.91	16.92	13.63	
20.00	24.19	21.05	17.69	14.16	
ultimate	31.00	25.97	20.83	15.99	

3.5		3		2.5		2			
+20%	-20%	+20%	-20%	+20%	-20%	+20%	-20%		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
21.88	14.58	19.14	12.76	16.13	10.75	13.19	8.79		
21.95	14.63	19.24	12.82	16.21	10.81	13.24	8.82		
22.34	14.90	19.61	13.07	16.56	11.04	13.44	8.96		
22.84	15.22	20.06	13.38	16.99	11.33	13.76	9.18		
23.26	15.50	20.45	13.63	17.34	11.56	14.06	9.38		
23.63	15.75	20.78	13.86	17.66	11.78	14.33	9.55		
24.30	16.20	21.40	14.26	18.22	12.14	14.77	9.85		
24.84	16.56	21.89	14.59	18.65	12.43	15.12	10.08		
26.06	17.38	22.96	15.30	19.56	13.04	15.82	10.54		
27.32	18.22	23.89	15.93	20.30	13.54	16.36	10.90		
29.03	19.35	25.26	16.84	21.23	14.15	16.99	11.33		
37.20	24.80	31.16	20.78	25.00	16.66	19.19	12.79		

time (yrs)	consolidation settlement (feet) of subsurface with subsidence				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	1.52	1.33	1.12	0.92	
0.16	1.53	1.34	1.13	0.92	
0.50	1.56	1.37	1.16	0.94	
1.00	1.61	1.41	1.20	0.98	
1.50	1.65	1.45	1.24	1.01	
2.00	1.68	1.49	1.27	1.04	
3.00	1.75	1.55	1.33	1.09	
4.00	1.81	1.60	1.38	1.13	
7.00	1.96	1.74	1.51	1.25	
11.00	2.13	1.89	1.64	1.37	
20.00	2.44	2.17	1.89	1.60	

233

0.02016	0.00168
0.04032	0.00336
0.126	0.0105
0.252	0.021
0.378	0.0315
0.504	0.042
0.756	0.063
1.008	0.084
1.764	0.147
2.772	0.231
5.04	0.42

Existing Grade = -2.00 NAVD 88 **CELL 1**
Target Grade at 20 years = 0.71 to 1.56 NAVD 88
fill height 5.5 5 4.5 4

time (yrs)	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)					consolidation settlement (ft) of subsurface with subsidence				
	3.5	3	2.5	2		3.5	3	2.5	2	
0.00	0.000	0.000	0.000	0.000		0.00	0.00	0.00	0.00	
0.08	0.032	0.030	0.027	0.024		1.52	1.33	1.12	0.92	
0.16	0.032	0.030	0.027	0.024		1.53	1.34	1.13	0.92	
0.50	0.032	0.030	0.027	0.024		1.56	1.37	1.16	0.94	
1.00	0.032	0.030	0.027	0.024		1.61	1.41	1.20	0.98	
1.50	0.032	0.030	0.027	0.024		1.65	1.45	1.24	1.01	
2.00	0.032	0.030	0.027	0.024		1.68	1.49	1.27	1.04	
3.00	0.032	0.030	0.027	0.024		1.75	1.55	1.33	1.09	
4.00	0.032	0.030	0.027	0.024		1.81	1.60	1.38	1.13	
7.00	0.032	0.030	0.027	0.024		1.96	1.74	1.51	1.25	
11.00	0.032	0.030	0.027	0.024		2.13	1.89	1.64	1.37	
20.00	0.032	0.030	0.027	0.024		2.44	2.17	1.89	1.60	

time (yrs)	Finished Elevation from TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils				
0.00	3.50	3.00	2.50	2.00	
0.08	1.95	1.64	1.35	1.06	
0.16	1.94	1.63	1.34	1.05	
0.5	1.91	1.60	1.31	1.03	
1	1.86	1.56	1.27	1.00	
1.5	1.82	1.52	1.24	0.97	
2	1.78	1.49	1.20	0.94	
3	1.72	1.42	1.15	0.89	
4	1.66	1.37	1.09	0.84	
7	1.51	1.23	0.97	0.73	
11	1.34	1.08	0.83	0.61	
20	1.03	0.80	0.58	0.38	

time (yrs)	TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils with subsidence				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	1.55	1.36	1.15	0.94	
0.16	1.56	1.37	1.16	0.95	
0.5	1.59	1.40	1.19	0.97	
1	1.64	1.44	1.23	1.00	
1.5	1.68	1.48	1.26	1.03	
2	1.72	1.51	1.30	1.06	
3	1.78	1.58	1.35	1.11	
4	1.84	1.63	1.41	1.16	
7	1.99	1.77	1.53	1.27	
11	2.16	1.92	1.67	1.39	
20	2.47	2.20	1.92	1.62	

MCA-1 ML at el -2.5

SOIL DESIGN PARAMETERS

THIS SPREADSHEET USES DYNAMIC CR VALUES. PLEASE CHECK USCS AND MOISTURE CONTENTS

EE 24365
CPRA Grande Bayou
Cell 1

RED = INPUT VALUE

$$\frac{c_u}{\sigma'_{vc}} = S(OCR)^m$$

Homogeneous CL and CH sedimentary clays of low to moderate sensitivity (I_p = 20%–80%):
$S = 0.20 + 0.05I_p$, or simply $S = 0.22$.
$m = 0.88(1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.
Sedimentary deposits of silts and organic soils (Atterberg limits plot below the *A*-line, but excluding peats) and clays with shells:
$S = 0.25$, with nominal SD = 0.05.
$m = 0.88\ (1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.

S	**0.22**
m	**0.800**

Ground Surface El **-2.50** (NAVD 88)
GWL (depth ft BGS/MLS) **0.00**

extrapolated

Str No.	USCS	Depth (ft)	NAVD 88 EL (ft)	γ pcf	γ' (pcf)	P'o Zero Burden (psf)	C_u=0.18*P'o Theoretical Cohesion, C_u (psf)	.20*P'o Theoretical Cohesion, C (psf)	C_u=0.22*P'o Theoretical Cohesion, C_u (psf)	C_u=0.25*P'o Theoretical Cohesion, C_u (psf)	C_u=0.27*P'o Theoretical Cohesion, C_u (psf)	C_u=0.31*P'o Theoretical Cohesion, C_u (psf)	Design Line Assigned Cohesion, C_u (psf)	C_u/P'_o	OCR 0.22	P'_c=OCR*P'_o Past Maximum (psf)	W_c %	CR (N/D)	RR (N/D)	c_v (ft^2/yr)	Poisson's Ratio (N/D)	Total H (ft)
		0.0	**-2.5**			0	0	0	0	0	0	0	**60.0**	0.00	**10.0**							
1	**OH**	2.3	-4.8	**70**	7.6	17	3	3	4	4	5	5	**60.0**	3.51	10.00	**171**	**300**	0.418	0.063		**0.00**	4.5
		4.5	**-7.0**			34	6	7	8	9	9	11	**60.0**	1.75	10.00	**342**						
2	**OH**	6.0	-8.5	**111**	48.6	107	19	21	24	27	29	33	**70.0**	0.65	3.90	**418**	**90**	0.290	0.044		**0.00**	3.0
		7.5	**-10.0**			180	32	36	40	45	49	56	**70.0**	0.39	2.04	**367**						
3	**ML**	10.0	-12.5	**113**	50.6	307	55	61	67	77	83	95	**280.0**	0.91	5.93	**1817**	**40**	0.124	0.019		**0.00**	5.0
		12.5	**-15.0**			433	78	87	95	108	117	134	**280.0**	0.65	5.93	**2567**						
4	**CH**	15.0	-17.5	**101**	38.6	530	95	106	116	132	143	164	**150.0**	0.28	1.37	**726**	**70**	0.223	0.033		**0.00**	5.0
		17.5	**-20.0**			626	113	125	138	157	169	194	**150.0**	0.24	1.37	**859**						
5	**CH**	20.0	-22.5	**101**	38.6	723	130	145	159	181	195	224	**175.0**	0.24	1.13	**815**	**70**	0.223	0.033		**0.00**	5.0
		22.5	**-25.0**			819	147	164	180	205	221	254	**175.0**	0.21	1.13	**924**						
6	**CH**	25.0	-27.5	**94**	31.6	898	162	180	198	225	242	278	**250.0**	0.28	1.34	**1205**	**70**	0.223	0.033		**0.00**	5.0
		27.5	**-30.0**			977	176	195	215	244	264	303	**250.0**	0.26	1.34	**1311**						
7	**CL**	30.0	-32.5	**108**	45.6	1091	196	218	240	273	295	338	**300.0**	0.27	1.32	**1442**	**41**	0.127	0.019		**0.00**	5.0
		32.5	**-35.0**			1205	217	241	265	301	325	374	**300.0**	0.25	1.32	**1592**						
8	**CL**	35.0	-37.5	**105**	42.6	1312	236	262	289	328	354	407	**400.0**	0.30	1.50	**1973**	**48**	0.150	0.023		**0.00**	5.0
		37.5	**-40.0**			1418	255	284	312	355	383	440	**400.0**	0.28	1.50	**2133**						
9	**CH**	39.5	-42.0	**103**	40.6	1499	270	300	330	375	405	465	**450.0**	0.30	1.47	**2211**	**50**	0.157	0.024		**0.00**	4.0
		41.5	**-44.0**			1580	284	316	348	395	427	490	**450.0**	0.28	1.47	**2330**						
10	**CH**	46.5	-49.0	**103**	40.6	1783	321	357	392	446	482	553	**450.0**	0.25	1.19	**2117**	**50**	0.157	0.024		**0.00**	10.0
		51.5	**-54.0**			1986	358	397	437	497	536	616	**450.0**	0.23	1.19	**2358**						
11	**CH**	56.5	-59.0	**103**	40.6	2189	394	438	482	547	591	679	**450.0**	0.21	1.00	**2189**	**50**	0.157	0.024		**0.00**	10.0
		61.5	**-64.0**			2392	431	478	526	598	646	742	**450.0**	0.19	1.00	**2392**						
12	**CH**	66.5	-69.0	**103**	40.6	2595	467	519	571	649	701	805	**450.0**	0.17	1.00	**2595**	**50**	0.157	0.024		**0.00**	10.0
		71.5	**-74.0**			2798	504	560	616	700	756	868	**450.0**	0.16	1.00	**2798**						
13	**CH**	76.5	-79.0	**103**	40.6	3001	540	600	660	750	810	930	**450.0**	0.15	1.00	**3001**	**50**	0.157	0.024		**0.00**	10.0
		81.5	**-84.0**			3204	577	641	705	801	865	993	**450.0**	0.14	1.00	**3204**						
14	**CH**	86.5	-89.0	**103**	40.6	3407	613	681	750	852	920	1056	**450.0**	0.13	1.00	**3407**	**50**	0.157	0.024		**0.00**	10.0
		91.5	**-94.0**			3610	650	722	794	903	975	1119	**450.0**	0.12	1.00	**3610**						
15	**CH**	101.5	-104.0	**103**	40.6	4016	723	803	884	1004	1084	1245	**450.0**	0.11	1.00	**4016**	**50**	0.157	0.024		**0.00**	20.0
		111.5	**-114.0**			4422	796	884	973	1106	1194	1371	**450.0**	0.10	1.00	**4422**						
16	**CH**	119.0	-121.5	**103**	40.6	4727	851	945	1040	1182	1276	1465	**450.0**	0.10	1.00	**4727**	**50**	0.157	0.024		**0.00**	15.0
		126.5	**-129.0**			5031	906	1006	1107	1258	1358	1560	**450.0**	0.09	1.00	**5031**						
17	**CH**	134.0	-136.5	**103**	40.6	5336	960	1067	1174	1334	1441	1654	**450.0**	0.08	1.00	**5336**	**50**	0.157	0.024		**0.00**	15.0
		141.5	**-144.0**			5640	1015	1128	1241	1410	1523	1749	**450.0**	0.08	1.00	**5640**						

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 3.5

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	3200.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	2700.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	503.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	2.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	6.09	28.20	**34.29**	33.25	5.43	14.72	20.16	20.15
	(ft)	0.51	2.35	2.86	2.77	0.45	1.23	1.68	1.68
	%Ultimate			100.0	97.0			58.8	58.8
REDUCD	(in)	6.09	28.20	34.29	33.25	5.43	14.72	20.16	20.15
	(ft)	0.51	2.35	2.86	2.77	0.45	1.23	1.68	1.68
	%Ultimate			100.0	97.0			58.8	58.8

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Northwest
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1 2.00	Region 2 2.00	Region 3 2.00	Region 4 2.00	Region 5 2.00	Region 6 2.00	Region 7 2.00	Region 8 2.00	Region 9 2.00	Region 10 2.00
I	119.92	Tv	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Uv	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
34.29		0.0								0							(34.29)	(33.25)				(20.16)	(20.15)																							
	1	2.3	7.6	0.418	0.063	9999.0	110.0	4.5	171	17	503	520	498	515	3.39	10.90	14.28	14.28	3.39	10.81	14.20	14.20	0.999	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.15	0.001	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
20.01		4.5								34	2938.6%		2913.7%				(20.01)	(18.97)			(5.96)	(5.95)	(503)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(498)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.0	48.6	0.290	0.044	110.0	110.0	3.0	418	107	502	609	466	573	0.93	1.71	2.63	2.63	0.93	1.44	2.36	2.36	0.997	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.95	0.005	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
17.38		7.5								180	468.4%		435.3%				(17.38)	(16.33)			(3.59)	(3.59)	(502)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(466)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.0	50.6	0.124	0.019	1000.0	110.0	5.0	1817	307	501	807	424	730	0.47	0.00	0.47	0.47	0.42	0.00	0.42	0.42	0.996	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.011	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
16.91		12.5								433	163.4%		138.3%				(16.91)	(15.86)			(3.17)	(3.17)	(501)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(424)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.0	38.6	0.223	0.033	110.0	110.0	5.0	726	530	500	1029	365	894	0.28	2.03	2.30	2.30	0.28	1.21	1.49	1.49	0.993	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
14.61		17.5								626	94.4%		68.9%				(14.61)	(13.56)			(1.69)	(1.69)	(500)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(365)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.0	38.6	0.223	0.033	110.0	110.0	5.0	815	723	499	1221	282	1005	0.10	2.35	2.46	2.46	0.10	1.22	1.32	1.32	0.991	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
12.15		22.5								819	69.0%		39.1%				(12.15)	(11.11)			(0.37)	(0.36)	(499)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(282)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.0	31.6	0.223	0.033	110.0	110.0	5.0	1205	898	498	1396	208	1106	0.26	0.85	1.11	1.11	0.18	0.00	0.18	0.18	0.989	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
11.04		27.5								977	55.4%		23.2%				(11.04)	(10.00)			(0.18)	(0.18)	(498)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(208)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.0	45.6	0.127	0.019	110.0	110.0	5.0	1442	1091	496	1587	145	1236	0.14	0.32	0.46	0.46	0.06	0.00	0.06	0.06	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
10.59		32.5								1205	45.5%		13.3%				(10.59)	(9.54)			(0.12)	(0.12)	(496)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(145)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.0	42.6	0.150	0.023	110.0	110.0	5.0	1973	1312	495	1807	95	1406	0.19	0.00	0.19	0.19	0.04	0.00	0.04	0.04	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
10.40		37.5								1418	37.8%		7.2%				(10.40)	(9.35)			(0.08)	(0.08)	(495)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(95)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.5	40.6	0.157	0.024	110.0	110.0	4.0	2211	1499	494	1994	60	1559	0.14	0.00	0.14	0.14	0.02	0.00	0.02	0.02	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
10.26		41.5								1580	33.0%		4.0%				(10.26)	(9.21)			(0.06)	(0.06)	(494)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(60)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.5	40.6	0.157	0.024	110.0	110.0	10.0	2117	1783	493	2276	24	1807	0.21	0.59	0.80	0.80	0.02	0.00	0.02	0.02	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
9.45		51.5								1986	27.6%		1.3%				(9.45)	(8.41)			(0.05)	(0.04)	(493)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(24)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.5	40.6	0.157	0.024	110.0	110.0	10.0	2189	2189	491	2680	3	2192	0.00	1.65	1.65	1.65	0.00	0.01	0.01	0.01	0.975	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
7.80		61.5								2392	22.4%		0.1%				(7.80)	(6.76)			(0.04)	(0.03)	(491)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.5	40.6	0.157	0.024	110.0	110.0	10.0	2595	2595	488	3084	2	2597	0.00	1.41	1.41	1.41	0.00	0.01	0.01	0.01	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.156	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.39		71.5								2798	18.8%		0.1%				(6.39)	(5.35)			(0.03)	(0.03)	(488)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.5	40.6	0.157	0.024	110.0	110.0	10.0	3001	3001	486	3488	6	3007	0.00	1.23	1.23	1.23	0.00	0.02	0.02	0.02	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.182	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
5.16		81.5								3204	16.2%		0.2%				(5.16)	(4.12)			(0.02)	(0.01)	(486)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(6)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	86.5	40.6	0.157	0.024	110.0	110.0	10.0	3407	3407	484	3891	6	3413	0.00	1.09	1.09	1.09	0.00	0.01	0.01	0.01	0.962	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.209	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
4.07		91.5								3610	14.2%		0.2%				(4.07)	(3.03)			(0.00)	(0.00)	(484)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(6)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	101.5	40.6	0.157	0.024	110.0	110.0	20.0	4016	4016	481	4497	0	4016	0.00	1.85	1.85	1.85	0.00	0.00	0.00	0.00	0.956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.32	0.248	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.22		111.5								4422	12.0%		0.0%				(2.22)	(1.18)			(0.00)	(0.00)	(481)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.0	40.6	0.157	0.024	110.0	110.0	15.0	4727	4727	477	5204	0	4727	0.00	1.18	1.18	1.18	0.00	0.00	0.00	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.294	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.04		126.5								5031	10.1%		0.0%				(1.04)	(0.00)			(0.00)	(0.00)	(477)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.0	40.6	0.157	0.024	110.0	110.0	15.0	5336	5336	474	5810	1	5337	0.00	1.04	1.04	0.00	0.00	0.00	0.00	0.00	0.942	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.334	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		141.5								5640	8.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(474)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.8	57.6	0.000	0.000	11.0	11.0	68.5	7613	7613	465	8078	0	7613	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.924	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.50	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9586	6.1%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(465)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9610	9610	457	10067	2	9611	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.909	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9634	4.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(457)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9657	9657	457	10114	1	9659	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9681	4.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(457)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9705	9705	457	10162	1	9706	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9729	4.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(457)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9753	9753	456	10209	0	9753	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9776	4.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(456)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9800	9800	456	10256	0	9800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9824	4.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(456)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9848	9848	456	10304	0	9848	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9872	4.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(456)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	9943	9943	455	10398	0	9943	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10014	4.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(455)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	6.09	28.20	34.29	33.25	5.43	14.72	20.16	20.15
	(ft)	0.51	2.35	2.86	2.77	0.45	1.23	1.68	1.68
	%Ultimate			100.0	97.0			58.8	58.8
REDUCD	(in)	6.09	28.20	34.29	33.25	5.43	14.72	20.16	20.15
	(ft)	0.51	2.35	2.86	2.77	0.45	1.23	1.68	1.68
	%Ultimate			100.0	97.0			58.8	58.8

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 3

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	3200.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	2700.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	445.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	3.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	6.03	24.37	**30.40**	28.42	5.47	13.06	18.53	18.53
	(ft)	0.50	2.03	2.53	2.37	0.46	1.09	1.54	1.54
	%Ultimate			100.0	93.5			61.0	61.0
REDUCD	(in)	6.03	24.37	30.40	28.42	5.47	13.06	18.53	18.53
	(ft)	0.50	2.03	2.53	2.37	0.46	1.09	1.54	1.54
	%Ultimate			100.0	93.5			61.0	61.0

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Northwest
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1 3.00	Region 2 3.00	Region 3 3.00	Region 4 3.00	Region 5 3.00	Region 6 3.00	Region 7 3.00	Region 8 3.00	Region 9 3.00	Region 10 3.00
I	119.92	Tv	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Uv	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
30.40		0.0								0							(30.40)	(28.42)				(18.53)	(18.53)																							
	1	2.3	7.6	0.418	0.063	9999.0	110.0	4.5	171	17	445	462	441	458	3.39	9.74	13.12	13.12	3.39	9.67	13.05	13.05	0.999	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.15	0.001	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
17.28		4.5								34	2599.8%		2581.1%				(17.28)	(15.30)			(5.48)	(5.48)	(445)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(441)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.0	48.6	0.290	0.044	110.0	110.0	3.0	418	107	444	551	417	524	0.93	1.25	2.18	2.18	0.93	1.03	1.96	1.96	0.997	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.95	0.005	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
15.10		7.5								180	414.4%		389.5%				(15.10)	(13.12)			(3.52)	(3.52)	(444)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(417)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.0	50.6	0.124	0.019	1000.0	110.0	5.0	1817	307	443	750	385	692	0.43	0.00	0.43	0.43	0.39	0.00	0.39	0.39	0.996	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.011	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
14.66		12.5								433	144.6%		125.7%				(14.66)	(12.68)			(3.13)	(3.13)	(443)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(385)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.0	38.6	0.223	0.033	110.0	110.0	5.0	726	530	442	972	341	870	0.28	1.69	1.97	1.97	0.28	1.05	1.33	1.33	0.993	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
12.70		17.5								626	83.5%		64.3%				(12.70)	(10.72)			(1.80)	(1.80)	(442)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(341)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.0	38.6	0.223	0.033	110.0	110.0	5.0	815	723	441	1164	277	1000	0.10	2.07	2.18	2.18	0.10	1.19	1.29	1.29	0.991	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
10.52		22.5								819	61.1%		38.4%				(10.52)	(8.54)			(0.51)	(0.51)	(441)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(277)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.0	31.6	0.223	0.033	110.0	110.0	5.0	1205	898	440	1338	219	1117	0.26	0.61	0.86	0.86	0.19	0.00	0.19	0.19	0.989	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
9.66		27.5								977	49.0%		24.4%				(9.66)	(7.68)			(0.32)	(0.32)	(440)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(219)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.0	45.6	0.127	0.019	110.0	110.0	5.0	1442	1091	439	1530	168	1259	0.14	0.20	0.34	0.34	0.07	0.00	0.07	0.07	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
9.32		32.5								1205	40.3%		15.4%				(9.32)	(7.34)			(0.25)	(0.25)	(439)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(168)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.0	42.6	0.150	0.023	110.0	110.0	5.0	1973	1312	438	1750	124	1436	0.17	0.00	0.17	0.17	0.05	0.00	0.05	0.05	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
9.15		37.5								1418	33.4%		9.5%				(9.15)	(7.17)			(0.19)	(0.19)	(438)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(124)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.5	40.6	0.157	0.024	110.0	110.0	4.0	2211	1499	437	1937	92	1591	0.13	0.00	0.13	0.13	0.03	0.00	0.03	0.03	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
9.03		41.5								1580	29.2%		6.1%				(9.03)	(7.05)			(0.17)	(0.16)	(437)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(92)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.5	40.6	0.157	0.024	110.0	110.0	10.0	2117	1783	436	2219	54	1837	0.21	0.39	0.60	0.60	0.04	0.00	0.04	0.04	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
8.43		51.5								1986	24.4%		3.0%				(8.43)	(6.45)			(0.13)	(0.13)	(436)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(54)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.5	40.6	0.157	0.024	110.0	110.0	10.0	2189	2189	434	2623	22	2212	0.00	1.48	1.48	1.48	0.00	0.08	0.08	0.08	0.975	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
6.95		61.5								2392	19.8%		1.0%				(6.95)	(4.97)			(0.05)	(0.05)	(434)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(22)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.5	40.6	0.157	0.024	110.0	110.0	10.0	2595	2595	432	3027	9	2604	0.00	1.26	1.26	1.26	0.00	0.03	0.03	0.03	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.156	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
5.69		71.5								2798	16.6%		0.3%				(5.69)	(3.71)			(0.02)	(0.02)	(432)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(9)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.5	40.6	0.157	0.024	110.0	110.0	10.0	3001	3001	430	3432	4	3006	0.00	1.10	1.10	1.10	0.00	0.01	0.01	0.01	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.182	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
4.59		81.5								3204	14.3%		0.1%				(4.59)	(2.62)			(0.01)	(0.01)	(430)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(4)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	86.5	40.6	0.157	0.024	110.0	110.0	10.0	3407	3407	428	3836	3	3410	0.00	0.97	0.97	0.97	0.00	0.01	0.01	0.01	0.962	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.209	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
3.62		91.5								3610	12.6%		0.1%				(3.62)	(1.65)			(0.00)	(0.00)	(428)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	101.5	40.6	0.157	0.024	110.0	110.0	20.0	4016	4016	425	4442	0	4016	0.00	1.65	1.65	1.65	0.00	0.00	0.00	0.00	0.956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.32	0.248	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.98		111.5								4422	10.6%		0.0%				(1.98)	(0.00)			(0.00)	(0.00)	(425)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.0	40.6	0.157	0.024	110.0	110.0	15.0	4727	4727	422	5149	0	4727	0.00	1.05	1.05	0.00	0.00	0.00	0.00	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.294	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.93		126.5								5031	8.9%		0.0%				(0.93)	(0.00)			(0.00)	(0.00)	(422)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.0	40.6	0.157	0.024	110.0	110.0	15.0	5336	5336	419	5755	0	5336	0.00	0.93	0.93	0.00	0.00	0.00	0.00	0.00	0.942	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.334	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		141.5								5640	7.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(419)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.8	57.6	0.000	0.000	11.0	11.0	68.5	7613	7613	411	8024	0	7613	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.924	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.50	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9586	5.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(411)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9610	9610	404	10014	1	9610	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.909	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9634	4.2%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(404)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9657	9657	404	10062	0	9658	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9681	4.2%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(404)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9705	9705	404	10109	0	9705	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9729	4.2%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(404)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9753	9753	404	10156	0	9753	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9776	4.1%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(404)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9800	9800	404	10204	0	9800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9824	4.1%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(404)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9848	9848	403	10251	0	9848	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9872	4.1%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(403)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	9943	9943	403	10346	0	9943	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10014	4.1%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(403)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	6.03	24.37	30.40	28.42	5.47	13.06	18.53	18.53
	(ft)	0.50	2.03	2.53	2.37	0.46	1.09	1.54	1.54
	%Ultimate			100.0	93.5			61.0	61.0
REDUCD	(in)	6.03	24.37	30.40	28.42	5.47	13.06	18.53	18.53
	(ft)	0.50	2.03	2.53	2.37	0.46	1.09	1.54	1.54
	%Ultimate			100.0	93.5			61.0	61.0

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 2.5

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	3200.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	2700.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	388.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	20.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	5.95	20.34	**26.30**	23.12	5.76	13.61	19.36	18.99
	(ft)	0.50	1.70	2.19	1.93	0.48	1.13	1.61	1.58
	%Ultimate			100.0	87.9			73.6	72.2
REDUCD	(in)	5.95	20.34	26.30	23.12	5.76	13.61	19.36	18.99
	(ft)	0.50	1.70	2.19	1.93	0.48	1.13	1.61	1.58
	%Ultimate			100.0	87.9			73.6	72.2

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Northwest
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1 20.00	Region 2 20.00	Region 3 20.00	Region 4 20.00	Region 5 20.00	Region 6 20.00	Region 7 20.00	Region 8 20.00	Region 9 20.00	Region 10 20.00
I	119.92	Tv	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
		Uv	13.96	13.96	13.96	13.96	13.96	13.96	13.96	13.96	13.96	13.96
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
26.30		0.0								0							(26.30)	(23.12)				(19.36)	(18.99)																										
	1	2.3	7.6	0.418	0.063	9999.0	110.0	4.5	171	17	388	405	387	404	3.39	8.45	11.83	11.83	3.39	8.42	11.80	11.80	0.999	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.15	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
14.47		4.5								34	2266.8%		2260.3%				(14.47)	(11.29)			(7.56)	(7.19)	(388)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(387)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.0	48.6	0.290	0.044	110.0	110.0	3.0	418	107	387	494	378	485	0.93	0.76	1.69	1.69	0.93	0.68	1.60	1.60	0.997	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.95	0.005	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
12.78		7.5								180	361.3%		352.8%				(12.78)	(9.60)			(5.95)	(5.59)	(387)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(378)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.0	50.6	0.124	0.019	1000.0	110.0	5.0	1817	307	386	693	366	673	0.40	0.00	0.40	0.40	0.38	0.00	0.38	0.38	0.996	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.011	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
12.38		12.5								433	126.0%		119.5%				(12.38)	(9.21)			(5.57)	(5.20)	(386)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(366)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.0	38.6	0.223	0.033	110.0	110.0	5.0	726	530	385	915	350	880	0.28	1.34	1.62	1.62	0.28	1.11	1.39	1.39	0.993	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
10.77		17.5								626	72.8%		66.1%				(10.77)	(7.59)			(4.19)	(3.82)	(385)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(350)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.0	38.6	0.223	0.033	110.0	110.0	5.0	815	723	385	1107	327	1049	0.10	1.78	1.89	1.89	0.10	1.47	1.57	1.57	0.991	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
8.88		22.5								819	53.2%		45.2%				(8.88)	(5.70)			(2.61)	(2.24)	(385)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(327)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.0	31.6	0.223	0.033	110.0	110.0	5.0	1205	898	384	1282	303	1201	0.26	0.36	0.61	0.61	0.25	0.00	0.25	0.25	0.989	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
8.27		27.5								977	42.7%		33.8%				(8.27)	(5.09)			(2.36)	(1.99)	(384)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(303)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.0	45.6	0.127	0.019	110.0	110.0	5.0	1442	1091	383	1474	281	1372	0.14	0.07	0.21	0.21	0.11	0.00	0.11	0.11	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
8.06		32.5								1205	35.1%		25.7%				(8.06)	(4.88)			(2.24)	(1.88)	(383)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(281)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.0	42.6	0.150	0.023	110.0	110.0	5.0	1973	1312	382	1694	259	1570	0.15	0.00	0.15	0.15	0.11	0.00	0.11	0.11	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
7.91		37.5								1418	29.1%		19.7%				(7.91)	(4.73)			(2.14)	(1.77)	(382)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(259)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.5	40.6	0.157	0.024	110.0	110.0	4.0	2211	1499	381	1881	240	1739	0.11	0.00	0.11	0.11	0.07	0.00	0.07	0.07	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
7.79		41.5								1580	25.4%		16.0%				(7.79)	(4.62)			(2.07)	(1.70)	(381)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(240)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.5	40.6	0.157	0.024	110.0	110.0	10.0	2117	1783	380	2164	211	1994	0.21	0.18	0.39	0.39	0.14	0.00	0.14	0.14	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
7.41		51.5								1986	21.3%		11.8%				(7.41)	(4.23)			(1.93)	(1.56)	(380)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(211)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.5	40.6	0.157	0.024	110.0	110.0	10.0	2189	2189	378	2568	174	2363	0.00	1.30	1.30	1.30	0.00	0.62	0.62	0.62	0.975	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
6.10		61.5								2392	17.3%		7.9%				(6.10)	(2.92)			(1.30)	(0.94)	(378)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(174)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.5	40.6	0.157	0.024	110.0	110.0	10.0	2595	2595	377	2972	140	2736	0.00	1.11	1.11	1.11	0.00	0.43	0.43	0.43	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.156	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
4.99		71.5								2798	14.5%		5.4%				(4.99)	(1.81)			(0.87)	(0.50)	(377)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(140)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.5	40.6	0.157	0.024	110.0	110.0	10.0	3001	3001	375	3376	112	3113	0.00	0.96	0.96	0.96	0.00	0.30	0.30	0.30	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.182	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
4.03		81.5								3204	12.5%		3.7%				(4.03)	(0.85)			(0.58)	(0.21)	(375)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(112)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	86.5	40.6	0.157	0.024	110.0	110.0	10.0	3407	3407	373	3781	87	3494	0.00	0.85	0.85	0.85	0.00	0.21	0.21	0.21	0.962	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.209	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
3.18		91.5								3610	11.0%		2.6%				(3.18)	(0.00)			(0.37)	(0.00)	(373)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(87)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	101.5	40.6	0.157	0.024	110.0	110.0	20.0	4016	4016	371	4387	58	4074	0.00	1.45	1.45	0.00	0.00	0.23	0.23	0.00	0.956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.32	0.248	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
1.73		111.5								4422	9.2%		1.4%				(1.73)	(0.00)			(0.14)	(0.00)	(371)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(58)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.0	40.6	0.157	0.024	110.0	110.0	15.0	4727	4727	368	5095	34	4761	0.00	0.92	0.92	0.00	0.00	0.09	0.09	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.294	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
0.81		126.5								5031	7.8%		0.7%				(0.81)	(0.00)			(0.05)	(0.00)	(368)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(34)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.0	40.6	0.157	0.024	110.0	110.0	15.0	5336	5336	365	5701	21	5356	0.00	0.81	0.81	0.00	0.00	0.05	0.05	0.00	0.942	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.334	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
0.00		141.5								5640	6.8%		0.4%				(0.00)	(0.00)			(0.00)	(0.00)	(365)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(21)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.8	57.6	0.000	0.000	11.0	11.0	68.5	7613	7613	358	7972	0	7613	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.924	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.50	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9586	4.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(358)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9610	9610	353	9962	0	9610	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.909	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9634	3.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(353)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9657	9657	352	10010	0	9657	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9681	3.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(352)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9705	9705	352	10057	0	9705	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9729	3.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(352)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9753	9753	352	10105	0	9753	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9776	3.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(352)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9800	9800	352	10152	0	9800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9824	3.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(352)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9848	9848	352	10199	0	9848	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9872	3.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(352)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	9943	9943	351	10294	0	9943	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10014	3.5%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(351)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	5.95	20.34	26.30	23.12	5.76	13.61	19.36	18.99
	(ft)	0.50	1.70	2.19	1.93	0.48	1.13	1.61	1.58
	%Ultimate			100.0	87.9			73.6	72.2
REDUCD	(in)	5.95	20.34	26.30	23.12	5.76	13.61	19.36	18.99
	(ft)	0.50	1.70	2.19	1.93	0.48	1.13	1.61	1.58
	%Ultimate			100.0	87.9			73.6	72.2

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 2

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	3200.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	2700.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	330.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	0.16
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement: Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	5.86	16.00	**21.86**	18.42	4.99	7.14	12.13	12.07
	(ft)	0.49	1.33	1.82	1.53	0.42	0.59	1.01	1.01
	%Ultimate			100.0	84.2			55.5	55.2
REDUCD	(in)	5.86	16.00	21.86	18.42	4.99	7.14	12.13	12.07
	(ft)	0.49	1.33	1.82	1.53	0.42	0.59	1.01	1.01
	%Ultimate			100.0	84.2			55.5	55.2

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Northwest
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
			0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
I	119.92	Tv	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Uv	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate: Change (psf)	Ultimate: Value (psf)	Induced: Change (psf)	Induced: Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
21.86		0.0								0							(21.86)	(18.42)				(12.13)	(12.07)																						
	1	2.3	7.6	0.418	0.063	9999.0	110.0	4.5	171	17	330	347	325	342	3.39	6.93	10.32	10.32	3.39	6.81	10.19	10.19	0.999	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.15	0.001	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
11.55		4.5								34	1927.9%		1902.8%				(11.55)	(8.10)			(1.94)	(1.88)	(330)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(325)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.0	48.6	0.290	0.044	110.0	110.0	3.0	418	107	329	436	293	400	0.93	0.20	1.12	1.12	0.90	0.00	0.90	0.90	0.997	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.95	0.005	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
10.43		7.5								180	307.3%		273.9%				(10.43)	(6.98)			(1.04)	(0.98)	(329)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(293)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.0	50.6	0.124	0.019	1000.0	110.0	5.0	1817	307	329	635	251	558	0.35	0.00	0.35	0.35	0.29	0.00	0.29	0.29	0.996	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.011	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
10.07		12.5								433	107.2%		81.9%				(10.07)	(6.62)			(0.75)	(0.69)	(329)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(251)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.0	38.6	0.223	0.033	110.0	110.0	5.0	726	530	328	857	193	722	0.28	0.96	1.24	1.24	0.27	0.00	0.27	0.27	0.993	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
8.83		17.5								626	61.9%		36.4%				(8.83)	(5.39)			(0.48)	(0.42)	(328)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(193)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.0	38.6	0.223	0.033	110.0	110.0	5.0	815	723	327	1050	114	837	0.10	1.47	1.58	1.58	0.10	0.15	0.26	0.26	0.991	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
7.26		22.5								819	45.3%		15.8%				(7.26)	(3.81)			(0.22)	(0.16)	(327)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(114)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.0	31.6	0.223	0.033	110.0	110.0	5.0	1205	898	326	1224	49	947	0.26	0.09	0.35	0.35	0.05	0.00	0.05	0.05	0.989	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
6.91		27.5								977	36.3%		5.4%				(6.91)	(3.46)			(0.17)	(0.12)	(326)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(49)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.0	45.6	0.127	0.019	110.0	110.0	5.0	1442	1091	326	1417	0	1091	0.13	0.00	0.13	0.13	0.00	0.00	0.00	0.00	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.78		32.5								1205	29.9%		0.0%				(6.78)	(3.33)			(0.17)	(0.12)	(326)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.0	42.6	0.150	0.023	110.0	110.0	5.0	1973	1312	325	1636	0	1312	0.13	0.00	0.13	0.13	0.00	0.00	0.00	0.00	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.65		37.5								1418	24.8%		0.0%				(6.65)	(3.20)			(0.17)	(0.12)	(325)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.5	40.6	0.157	0.024	110.0	110.0	4.0	2211	1499	324	1824	0	1499	0.10	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.55		41.5								1580	21.6%		0.0%				(6.55)	(3.11)			(0.17)	(0.12)	(324)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.5	40.6	0.157	0.024	110.0	110.0	10.0	2117	1783	323	2107	0	1783	0.20	0.00	0.20	0.20	0.00	0.00	0.00	0.00	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.35		51.5								1986	18.1%		0.0%				(6.35)	(2.90)			(0.17)	(0.12)	(323)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.5	40.6	0.157	0.024	110.0	110.0	10.0	2189	2189	322	2511	0	2189	0.00	1.12	1.12	1.12	0.00	0.00	0.00	0.00	0.975	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.23		61.5								2392	14.7%		0.0%				(5.23)	(1.78)			(0.17)	(0.12)	(322)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.5	40.6	0.157	0.024	110.0	110.0	10.0	2595	2595	320	2916	14	2609	0.00	0.95	0.95	0.95	0.00	0.04	0.04	0.04	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.156	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
4.27		71.5								2798	12.3%		0.5%				(4.27)	(0.83)			(0.13)	(0.07)	(320)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(14)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.5	40.6	0.157	0.024	110.0	110.0	10.0	3001	3001	319	3320	27	3028	0.00	0.83	0.83	0.83	0.00	0.07	0.07	0.07	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.182	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
3.45		81.5								3204	10.6%		0.9%				(3.45)	(0.00)			(0.06)	(0.00)	(319)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(27)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	86.5	40.6	0.157	0.024	110.0	110.0	10.0	3407	3407	318	3725	17	3425	0.00	0.73	0.73	0.00	0.00	0.04	0.04	0.00	0.962	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.209	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
2.72		91.5								3610	9.3%		0.5%				(2.72)	(0.00)			(0.02)	(0.00)	(318)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(17)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	101.5	40.6	0.157	0.024	110.0	110.0	20.0	4016	4016	315	4332	0	4016	0.00	1.24	1.24	0.00	0.00	0.00	0.00	0.00	0.956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.32	0.248	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.48		111.5								4422	7.9%		0.0%				(1.48)	(0.00)			(0.02)	(0.00)	(315)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.0	40.6	0.157	0.024	110.0	110.0	15.0	4727	4727	313	5040	0	4727	0.00	0.79	0.79	0.00	0.00	0.00	0.00	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.294	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.69		126.5								5031	6.6%		0.0%				(0.69)	(0.00)			(0.02)	(0.00)	(313)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.0	40.6	0.157	0.024	110.0	110.0	15.0	5336	5336	311	5647	7	5343	0.00	0.69	0.69	0.00	0.00	0.02	0.02	0.00	0.942	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.334	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0.00		141.5								5640	5.8%		0.1%				(0.00)	(0.00)			(0.00)	(0.00)	(311)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(7)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.8	57.6	0.000	0.000	11.0	11.0	68.5	7613	7613	305	7918	0	7613	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.924	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.50	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9586	4.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(305)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9610	9610	300	9910	6	9616	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.909	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
		211.0								9634	3.1%		0.1%				(0.00)	(0.00)			(0.00)	(0.00)	(300)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(6)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9657	9657	300	9957	4	9662	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		212.0								9681	3.1%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(300)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(4)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9705	9705	300	10005	2	9707	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		213.0								9729	3.1%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(300)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9753	9753	299	10052	0	9753	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9776	3.1%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(299)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9800	9800	299	10099	0	9800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9824	3.1%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(299)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9848	9848	299	10147	0	9848	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9872	3.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(299)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	9943	9943	299	10242	0	9943	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10014	3.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(299)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	5.86	16.00	21.86	18.42	4.99	7.14	12.13	12.07	
	(ft)	0.49	1.33	1.82	1.53	0.42	0.59	1.01	1.01	
	%Ultimate			100.0	84.2			55.5	55.2	
REDUCD	(in)	5.86	16.00	21.86	18.42	4.99	7.14	12.13	12.07	
	(ft)	0.49	1.33	1.82	1.53	0.42	0.59	1.01	1.01	
	%Ultimate			100.0	84.2			55.5	55.2	

EE 24365 Grand Bayou
Cell 1
ML el -2.5

Existing Grade = **-2.50** **NAVD 88**
Target Grade at 20 years = **0.71 to 1.56** **NAVD 88**

time (yrs)	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)					finished elevation (ft NAVD 88) of MARSH FILL (SELF WEIGHT)				
	3.5	3	2.5	2		3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00		3.50	3.00	2.50	2.00	
0.08	0.035	0.032	0.030	0.027		3.47	2.97	2.47	1.97	
0.16	0.035	0.032	0.030	0.027		3.46	2.97	2.47	1.97	
0.50	0.035	0.032	0.030	0.027		3.46	2.97	2.47	1.97	
1.00	0.035	0.032	0.030	0.027		3.46	2.97	2.47	1.97	
1.50	0.035	0.032	0.030	0.027		3.46	2.97	2.47	1.97	
2.00	0.035	0.032	0.030	0.027		3.46	2.97	2.47	1.97	
3.00	0.035	0.032	0.030	0.027		3.46	2.97	2.47	1.97	
4.00	0.035	0.032	0.030	0.027		3.46	2.97	2.47	1.97	
7.00	0.035	0.032	0.030	0.027		3.46	2.97	2.47	1.97	
11.00	0.035	0.032	0.030	0.027		3.46	2.97	2.47	1.97	
20.00	0.035	0.032	0.030	0.027		3.46	2.97	2.47	1.97	
ultimate	0.035	0.032	0.030	0.027		3.46	2.97	2.47	1.97	

Ultimate self weight consolidation settlement = 0.0059* height of fill (e.g., Ultimate Consol for 1 feet of fill = 0.0059* 3 = 0.018 feet)

time (yrs)	Percent Consolidation due to consolidation settlement (ft) of marsh fill				
	3	2.5	2.5	2	
0.00	0.0	0.0	0.0	0.0	
0.08	100.0	100.0	100.0	100.0	
0.16	100.0	100.0	100.0	100.0	
0.50	100.0	100.0	100.0	100.0	
1.00	100.0	100.0	100.0	100.0	
1.50	100.0	100.0	100.0	100.0	
2.00	100.0	100.0	100.0	100.0	
3.00	100.0	100.0	100.0	100.0	
4.00	100.0	100.0	100.0	100.0	
7.00	100.0	100.0	100.0	100.0	
11.00	100.0	100.0	100.0	100.0	
20.00	100.0	100.0	100.0	100.0	
ultimate	100.0	100.0	100.0	100.0	

EE 24365 Grand Bayou
Cell 1
ML el -2.5

Existing Grade = **-2.50** **NAVD 88**
Target Grade at 20 years = **0.71 to 1.56** **NAVD 88**

time (yrs)	consolidation settlement (inches) of subsurface				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	18.65	16.61	14.39	12.04	
0.16	18.73	16.69	14.48	12.07	
0.50	19.07	17.00	14.75	12.28	
1.00	19.48	17.38	15.10	12.57	
1.50	19.84	17.71	15.40	12.82	
2.00	20.15	18.00	15.67	13.04	
3.00	20.73	18.53	16.15	13.44	
4.00	21.20	18.96	16.53	13.76	
7.00	22.32	19.91	17.36	14.46	
11.00	23.43	20.81	18.07	15.03	
20.00	25.08	22.14	18.99	15.74	
ultimate	33.25	28.42	23.12	18.42	

3.5		3		2.5		2			
+20%	-20%	+20%	-20%	+20%	-20%	+20%	-20%		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
22.38	14.92	19.93	13.29	17.27	11.51	14.45	9.63		
22.48	14.98	20.03	13.35	17.38	11.58	14.48	9.66		
22.88	15.26	20.40	13.60	17.70	11.80	14.74	9.82		
23.38	15.58	20.86	13.90	18.12	12.08	15.08	10.06		
23.81	15.87	21.25	14.17	18.48	12.32	15.38	10.26		
24.18	16.12	21.60	14.40	18.80	12.54	15.65	10.43		
24.88	16.58	22.24	14.82	19.38	12.92	16.13	10.75		
25.44	16.96	22.75	15.17	19.84	13.22	16.51	11.01		
26.78	17.86	23.89	15.93	20.83	13.89	17.35	11.57		
28.12	18.74	24.97	16.65	21.68	14.46	18.04	12.02		
30.10	20.06	26.57	17.71	22.79	15.19	18.89	12.59		
39.90	26.60	34.10	22.74	27.74	18.50	22.10	14.74		

time (yrs)	consolidation settlement (feet) of subsurface with subsidence				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	1.56	1.39	1.20	1.01	
0.16	1.56	1.39	1.21	1.01	
0.50	1.60	1.43	1.24	1.03	
1.00	1.64	1.47	1.28	1.07	
1.50	1.68	1.51	1.31	1.10	
2.00	1.72	1.54	1.35	1.13	
3.00	1.79	1.61	1.41	1.18	
4.00	1.85	1.66	1.46	1.23	
7.00	2.01	1.81	1.59	1.35	
11.00	2.18	1.97	1.74	1.48	
20.00	2.51	2.27	2.00	1.73	

0.02016	0.00168
0.04032	0.00336
0.126	0.0105
0.252	0.021
0.378	0.0315
0.504	0.042
0.756	0.063
1.008	0.084
1.764	0.147
2.772	0.231
5.04	0.42

Existing Grade = -2.50 NAVD 88 **CELL 1**
Target Grade at 20 years = 0.71 to 1.56 NAVD 88
fill height 6 5.5 5 4.5

time (yrs)	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)					consolidation settlement (ft) of subsurface with subsidence				
	3.5	3	2.5	2		3.5	3	2.5	2	
0.00	0.000	0.000	0.000	0.000		0.00	0.00	0.00	0.00	
0.08	0.035	0.032	0.030	0.027		1.56	1.39	1.20	1.01	
0.16	0.035	0.032	0.030	0.027		1.56	1.39	1.21	1.01	
0.50	0.035	0.032	0.030	0.027		1.60	1.43	1.24	1.03	
1.00	0.035	0.032	0.030	0.027		1.64	1.47	1.28	1.07	
1.50	0.035	0.032	0.030	0.027		1.68	1.51	1.31	1.10	
2.00	0.035	0.032	0.030	0.027		1.72	1.54	1.35	1.13	
3.00	0.035	0.032	0.030	0.027		1.79	1.61	1.41	1.18	
4.00	0.035	0.032	0.030	0.027		1.85	1.66	1.46	1.23	
7.00	0.035	0.032	0.030	0.027		2.01	1.81	1.59	1.35	
11.00	0.035	0.032	0.030	0.027		2.18	1.97	1.74	1.48	
20.00	0.035	0.032	0.030	0.027		2.51	2.27	2.00	1.73	

time (yrs)	Finished Elevation from TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils				
0.00	3.50	3.00	2.50	2.00	
0.08	1.91	1.58	1.27	0.97	
0.16	1.90	1.57	1.26	0.96	
0.5	1.86	1.54	1.23	0.94	
1	1.82	1.50	1.19	0.90	
1.5	1.78	1.46	1.16	0.87	
2	1.74	1.43	1.12	0.84	
3	1.67	1.36	1.06	0.79	
4	1.61	1.30	1.01	0.74	
7	1.46	1.16	0.88	0.62	
11	1.28	1.00	0.73	0.49	
20	0.95	0.70	0.47	0.24	

time (yrs)	TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils with subsidence				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	1.59	1.42	1.23	1.03	
0.16	1.60	1.43	1.24	1.04	
0.5	1.64	1.46	1.27	1.06	
1	1.68	1.50	1.31	1.10	
1.5	1.72	1.54	1.34	1.13	
2	1.76	1.57	1.38	1.16	
3	1.83	1.64	1.44	1.21	
4	1.89	1.70	1.49	1.26	
7	2.04	1.84	1.62	1.38	
11	2.22	2.00	1.77	1.51	
20	2.55	2.30	2.03	1.76	

MCA-1 ML at el -3.0

SOIL DESIGN PARAMETERS

THIS SPREADSHEET USES DYNAMIC CR VALUES. PLEASE CHECK USCS AND MOISTURE CONTENTS

EE 24365
CPRA Grande Bayou
Cell 1

RED = INPUT VALUE

$$\frac{C_u}{\sigma'_{vc}} = S(OCR)^m$$

Homogeneous CL and CH sedimentary clays of low to moderate sensitivity (I_p = 20%–80%):
$S = 0.20 + 0.05I_p$, or simply $S = 0.22$.
$m = 0.88(1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.
Sedimentary deposits of silts and organic soils (Atterberg limits plot below the *A*-line, but excluding peats) and clays with shells:
$S = 0.25$, with nominal SD = 0.05.
$m = 0.88\ (1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.

S	**0.22**
m	**0.800**

Ground Surface El -3.00 (NAVD 88)
GWL (depth ft BGS/MLS) 0.00

extrapolated

Str No.	USCS	Depth (ft)	NAVD 88 EL (ft)	γ pcf	γ' (pcf)	P'o Zero Burden (psf)	C_u=0.18*P'o Theoretical Cohesion, C_u (psf)	.20*P'o Theoretical Cohesion, C (psf)	C_u=0.22*P'o Theoretical Cohesion, C_u (psf)	C_u=0.25*P'o Theoretical Cohesion, C_u (psf)	C_u=0.27*P'o Theoretical Cohesion, C_u (psf)	C_u=0.31*P'o Theoretical Cohesion, C_u (psf)	Design Line Assigned Cohesion, C_u (psf)	C_u/P'_o	OCR 0.22	P'_c=OCR*P'_o Past Maximum (psf)	W_c %	CR (N/D)	RR (N/D)	c_v (ft^2/yr)	Poisson's Ratio (N/D)	Total H (ft)
		0.0	**-3.0**			0	0	0	0	0	0	0	**60.0**	0.00	**10.0**							
1	**OH**	2.0	-5.0	**70**	7.6	15	3	3	3	4	4	5	**60.0**	3.95	10.00	**152**	**300**	0.418	0.063		**0.00**	4.0
		4.0	**-7.0**			30	5	6	7	8	8	9	**60.0**	1.97	10.00	**304**						
2	**OH**	5.5	-8.5	**111**	48.6	103	19	21	23	26	28	32	**70.0**	0.68	4.08	**422**	**90**	0.290	0.044		**0.00**	3.0
		7.0	**-10.0**			176	32	35	39	44	48	55	**70.0**	0.40	2.09	**369**						
3	**ML**	9.5	-12.5	**113**	50.6	303	54	61	67	76	82	94	**280.0**	0.93	6.02	**1822**	**40**	0.124	0.019		**0.00**	5.0
		12.0	**-15.0**			429	77	86	94	107	116	133	**280.0**	0.65	6.02	**2584**						
4	**CH**	14.5	-17.5	**101**	38.6	526	95	105	116	131	142	163	**150.0**	0.29	1.38	**728**	**70**	0.223	0.033		**0.00**	5.0
		17.0	**-20.0**			622	112	124	137	156	168	193	**150.0**	0.24	1.38	**861**						
5	**CH**	19.5	-22.5	**101**	38.6	719	129	144	158	180	194	223	**175.0**	0.24	1.14	**816**	**70**	0.223	0.033		**0.00**	5.0
		22.0	**-25.0**			815	147	163	179	204	220	253	**175.0**	0.21	1.14	**925**						
6	**CH**	24.5	-27.5	**94**	31.6	894	161	179	197	224	241	277	**250.0**	0.28	1.35	**1207**	**70**	0.223	0.033		**0.00**	5.0
		27.0	**-30.0**			973	175	195	214	243	263	302	**250.0**	0.26	1.35	**1313**						
7	**CL**	29.5	-32.5	**108**	45.6	1087	196	217	239	272	294	337	**300.0**	0.28	1.33	**1443**	**41**	0.127	0.019		**0.00**	5.0
		32.0	**-35.0**			1201	216	240	264	300	324	372	**300.0**	0.25	1.33	**1594**						
8	**CL**	34.5	-37.5	**105**	42.6	1308	235	262	288	327	353	405	**400.0**	0.31	1.51	**1974**	**48**	0.150	0.023		**0.00**	5.0
		37.0	**-40.0**			1414	255	283	311	354	382	438	**400.0**	0.28	1.51	**2135**						
9	**CH**	39.0	-42.0	**103**	40.6	1495	269	299	329	374	404	464	**450.0**	0.30	1.48	**2212**	**50**	0.157	0.024		**0.00**	4.0
		41.0	**-44.0**			1577	284	315	347	394	426	489	**450.0**	0.29	1.48	**2332**						
10	**CH**	46.0	-49.0	**103**	40.6	1780	320	356	392	445	480	552	**450.0**	0.25	1.19	**2118**	**50**	0.157	0.024		**0.00**	10.0
		51.0	**-54.0**			1983	357	397	436	496	535	615	**450.0**	0.23	1.19	**2359**						
11	**CH**	56.0	-59.0	**103**	40.6	2186	393	437	481	546	590	678	**450.0**	0.21	1.00	**2186**	**50**	0.157	0.024		**0.00**	10.0
		61.0	**-64.0**			2389	430	478	525	597	645	740	**450.0**	0.19	1.00	**2389**						
12	**CH**	66.0	-69.0	**103**	40.6	2592	466	518	570	648	700	803	**450.0**	0.17	1.00	**2592**	**50**	0.157	0.024		**0.00**	10.0
		71.0	**-74.0**			2795	503	559	615	699	755	866	**450.0**	0.16	1.00	**2795**						
13	**CH**	76.0	-79.0	**103**	40.6	2998	540	600	659	749	809	929	**450.0**	0.15	1.00	**2998**	**50**	0.157	0.024		**0.00**	10.0
		81.0	**-84.0**			3201	576	640	704	800	864	992	**450.0**	0.14	1.00	**3201**						
14	**CH**	86.0	-89.0	**103**	40.6	3404	613	681	749	851	919	1055	**450.0**	0.13	1.00	**3404**	**50**	0.157	0.024		**0.00**	10.0
		91.0	**-94.0**			3607	649	721	793	902	974	1118	**450.0**	0.12	1.00	**3607**						
15	**CH**	101.0	-104.0	**103**	40.6	4013	722	803	883	1003	1083	1244	**450.0**	0.11	1.00	**4013**	**50**	0.157	0.024		**0.00**	20.0
		111.0	**-114.0**			4419	795	884	972	1105	1193	1370	**450.0**	0.10	1.00	**4419**						
16	**CH**	118.5	-121.5	**103**	40.6	4723	850	945	1039	1181	1275	1464	**450.0**	0.10	1.00	**4723**	**50**	0.157	0.024		**0.00**	15.0
		126.0	**-129.0**			5028	905	1006	1106	1257	1357	1559	**450.0**	0.09	1.00	**5028**						
17	**CH**	133.5	-136.5	**103**	40.6	5332	960	1066	1173	1333	1440	1653	**450.0**	0.08	1.00	**5332**	**50**	0.157	0.024		**0.00**	15.0
		141.0	**-144.0**			5637	1015	1127	1240	1409	1522	1747	**450.0**	0.08	1.00	**5637**						

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 3.5

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	3200.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	2700.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	529.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	1.50
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	5.81	29.41	35.22	34.12	5.06	14.99	20.05	20.05
	(ft)	0.48	2.45	2.93	2.84	0.42	1.25	1.67	1.67
	%Ultimate			100.0	96.9			56.9	56.9
REDUCD	(in)	5.81	29.41	35.22	34.12	5.06	14.99	20.05	20.05
	(ft)	0.48	2.45	2.93	2.84	0.42	1.25	1.67	1.67
	%Ultimate			100.0	96.9			56.9	56.9

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Northwest
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
			1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
I	120.40	Tv	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Uv	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
35.22		0.0								0							(35.22)	(34.12)				(20.05)	(20.05)																							
	1	2.0	7.6	0.418	0.063	9999.0	110.0	4.0	152	15	529	544	524	539	3.01	11.11	14.12	14.12	3.01	11.04	14.05	14.05	0.999	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.13	0.001	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
21.10		4.0								30	3477.2%		3448.4%				(21.10)	(20.00)			(6.00)	(6.00)	(529)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(524)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	5.5	48.6	0.290	0.044	110.0	110.0	3.0	422	103	528	631	488	591	0.96	1.83	2.79	2.79	0.96	1.53	2.49	2.49	0.998	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.95	0.005	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
18.31		7.0								176	510.9%		472.1%				(18.31)	(17.22)			(3.51)	(3.51)	(528)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(488)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	9.5	50.6	0.124	0.019	1000.0	110.0	5.0	1822	303	527	830	439	741	0.49	0.00	0.49	0.49	0.43	0.00	0.43	0.43	0.996	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.52	0.011	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
17.83		12.0								429	174.0%		144.9%				(17.83)	(16.73)			(3.08)	(3.08)	(527)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(439)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	14.5	38.6	0.223	0.033	110.0	110.0	5.0	728	526	526	1051	371	897	0.28	2.14	2.42	2.42	0.28	1.21	1.50	1.50	0.994	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	1.58	0.020	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
15.40		17.0								622	100.0%		70.5%				(15.40)	(14.31)			(1.58)	(1.58)	(526)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(371)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	19.5	38.6	0.223	0.033	110.0	110.0	5.0	816	719	524	1243	276	995	0.11	2.45	2.56	2.56	0.11	1.15	1.26	1.26	0.991	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
12.85		22.0								815	73.0%		38.4%				(12.85)	(11.75)			(0.32)	(0.32)	(524)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(276)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	24.5	31.6	0.223	0.033	110.0	110.0	5.0	1207	894	523	1418	193	1087	0.26	0.94	1.20	1.20	0.17	0.00	0.17	0.17	0.989	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
11.65		27.0								973	58.5%		21.5%				(11.65)	(10.55)			(0.15)	(0.15)	(523)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(193)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	29.5	45.6	0.127	0.019	110.0	110.0	5.0	1443	1087	522	1609	123	1210	0.14	0.36	0.50	0.50	0.05	0.00	0.05	0.05	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.059	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
11.15		32.0								1201	48.0%		11.3%				(11.15)	(10.05)			(0.10)	(0.10)	(522)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(123)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	34.5	42.6	0.150	0.023	110.0	110.0	5.0	1974	1308	521	1829	69	1377	0.20	0.00	0.20	0.20	0.03	0.00	0.03	0.03	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.072	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
10.95		37.0								1414	39.8%		5.3%				(10.95)	(9.85)			(0.07)	(0.07)	(521)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(69)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.0	40.6	0.157	0.024	110.0	110.0	4.0	2212	1495	520	2015	34	1529	0.15	0.00	0.15	0.15	0.01	0.00	0.01	0.01	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.084	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
10.80		41.0								1577	34.8%		2.3%				(10.80)	(9.71)			(0.06)	(0.05)	(520)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(34)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.0	40.6	0.157	0.024	110.0	110.0	10.0	2118	1780	518	2298	2	1781	0.21	0.67	0.88	0.88	0.00	0.00	0.00	0.00	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.92		51.0								1983	29.1%		0.1%				(9.92)	(8.83)			(0.06)	(0.05)	(518)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.0	40.6	0.157	0.024	110.0	110.0	10.0	2186	2186	516	2702	0	2186	0.00	1.73	1.73	1.73	0.00	0.00	0.00	0.00	0.976	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.129	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8.19		61.0								2389	23.6%		0.0%				(8.19)	(7.09)			(0.06)	(0.05)	(516)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.0	40.6	0.157	0.024	110.0	110.0	10.0	2592	2592	514	3105	1	2592	0.00	1.48	1.48	1.48	0.00	0.00	0.00	0.00	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.71		71.0								2795	19.8%		0.0%				(6.71)	(5.61)			(0.05)	(0.05)	(514)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.0	40.6	0.157	0.024	110.0	110.0	10.0	2998	2998	511	3509	10	3008	0.00	1.29	1.29	1.29	0.00	0.03	0.03	0.03	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.181	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
5.42		81.0								3201	17.1%		0.3%				(5.42)	(4.32)			(0.03)	(0.02)	(511)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(10)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	86.0	40.6	0.157	0.024	110.0	110.0	10.0	3404	3404	509	3913	10	3413	0.00	1.14	1.14	1.14	0.00	0.02	0.02	0.02	0.963	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.208	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
4.28		91.0								3607	15.0%		0.3%				(4.28)	(3.18)			(0.00)	(0.00)	(509)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(10)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	101.0	40.6	0.157	0.024	110.0	110.0	20.0	4013	4013	506	4518	0	4013	0.00	1.94	1.94	1.94	0.00	0.00	0.00	0.00	0.956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.32	0.247	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.34		111.0								4419	12.6%		0.0%				(2.34)	(1.24)			(0.00)	(0.00)	(506)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	118.5	40.6	0.157	0.024	110.0	110.0	15.0	4723	4723	502	5225	0	4723	0.00	1.24	1.24	1.24	0.00	0.00	0.00	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.293	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.10		126.0								5028	10.6%		0.0%				(1.10)	(0.00)			(0.00)	(0.00)	(502)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	133.5	40.6	0.157	0.024	110.0	110.0	15.0	5332	5332	498	5830	1	5334	0.00	1.10	1.10	0.00	0.00	0.00	0.00	0.00	0.942	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.332	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		141.0								5637	9.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(498)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.5	57.6	0.000	0.000	11.0	11.0	69.0	7624	7624	489	8112	0	7624	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.924	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.00	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9611	6.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(489)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9635	9635	481	10115	3	9638	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.909	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		211.0								9659	5.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(481)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9682	9682	480	10163	2	9684	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.938	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9706	5.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(480)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9730	9730	480	10210	1	9731	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9754	4.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(480)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9778	9778	480	10258	0	9778	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9801	4.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(480)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9825	9825	480	10305	0	9825	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.963	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9849	4.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(480)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9873	9873	479	10352	0	9873	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9897	4.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(479)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	9968	9968	479	10447	0	9968	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.988	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10039	4.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(479)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	5.81	29.41	35.22	34.12	5.06	14.99	20.05	20.05
	(ft)	0.48	2.45	2.93	2.84	0.42	1.25	1.67	1.67
	%Ultimate			100.0	96.9			56.9	56.9
REDUCD	(in)	5.81	29.41	35.22	34.12	5.06	14.99	20.05	20.05
	(ft)	0.48	2.45	2.93	2.84	0.42	1.25	1.67	1.67
	%Ultimate			100.0	96.9			56.9	56.9

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 3

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	3200.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	2700.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	471.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	4.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	5.74	25.80	31.54	29.45	5.26	14.15	19.41	19.41
	(ft)	0.48	2.15	2.63	2.45	0.44	1.18	1.62	1.62
	%Ultimate			100.0	93.4			61.5	61.5
REDUCD	(in)	5.74	25.80	31.54	29.45	5.26	14.15	19.41	19.41
	(ft)	0.48	2.15	2.63	2.45	0.44	1.18	1.62	1.62
	%Ultimate			100.0	93.4			61.5	61.5

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Northwest
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
			4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
I	120.40	Tv	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Uv	6.22	6.22	6.22	6.22	6.22	6.22	6.22	6.22	6.22	6.22
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate: Change (psf)	Ultimate: Value (psf)	Induced: Change (psf)	Induced: Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
31.54		0.0								0							(31.54)	(29.45)			(19.41)	(19.41)																									
	1	2.0	7.6	0.418	0.063	9999.0	110.0	4.0	152	15	471	486	468	483	3.01	10.12	13.13	13.13	3.01	10.08	13.09	13.09	0.999	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.13	0.001	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
18.41		4.0								30	3096.0%		3078.6%				(18.41)	(16.32)			(6.32)	(6.32)	(471)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(468)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	5.5	48.6	0.290	0.044	110.0	110.0	3.0	422	103	470	573	446	549	0.96	1.39	2.35	2.35	0.96	1.20	2.16	2.16	0.998	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.95	0.005	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
16.06		7.0								176	454.9%		431.6%				(16.06)	(13.97)			(4.17)	(4.17)	(470)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(446)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	9.5	50.6	0.124	0.019	1000.0	110.0	5.0	1822	303	469	772	416	719	0.45	0.00	0.45	0.45	0.42	0.00	0.42	0.42	0.996	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.52	0.011	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
15.61		12.0								429	155.0%		137.4%				(15.61)	(13.52)			(3.75)	(3.75)	(469)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(416)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	14.5	38.6	0.223	0.033	110.0	110.0	5.0	728	526	468	994	374	900	0.28	1.81	2.09	2.09	0.28	1.24	1.52	1.52	0.994	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	1.58	0.020	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
13.51		17.0								622	89.0%		71.2%				(13.51)	(11.42)			(2.23)	(2.23)	(468)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(374)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	19.5	38.6	0.223	0.033	110.0	110.0	5.0	816	719	467	1186	314	1033	0.11	2.17	2.28	2.28	0.11	1.37	1.48	1.48	0.991	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
11.23		22.0								815	65.0%		43.8%				(11.23)	(9.14)			(0.75)	(0.75)	(467)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(314)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	24.5	31.6	0.223	0.033	110.0	110.0	5.0	1207	894	466	1360	259	1153	0.26	0.70	0.96	0.96	0.22	0.00	0.22	0.22	0.989	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
10.27		27.0								973	52.1%		28.9%				(10.27)	(8.18)			(0.52)	(0.52)	(466)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(259)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	29.5	45.6	0.127	0.019	110.0	110.0	5.0	1443	1087	465	1552	208	1295	0.14	0.24	0.38	0.38	0.09	0.00	0.09	0.09	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.059	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
9.89		32.0								1201	42.8%		19.2%				(9.89)	(7.80)			(0.44)	(0.44)	(465)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(208)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	34.5	42.6	0.150	0.023	110.0	110.0	5.0	1974	1308	464	1772	164	1472	0.18	0.00	0.18	0.18	0.07	0.00	0.07	0.07	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.072	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
9.71		37.0								1414	35.5%		12.5%				(9.71)	(7.62)			(0.37)	(0.37)	(464)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(164)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.0	40.6	0.157	0.024	110.0	110.0	4.0	2212	1495	463	1958	129	1625	0.13	0.00	0.13	0.13	0.04	0.00	0.04	0.04	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.084	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
9.58		41.0								1577	31.0%		8.7%				(9.58)	(7.49)			(0.33)	(0.33)	(463)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(129)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.0	40.6	0.157	0.024	110.0	110.0	10.0	2118	1780	462	2241	86	1866	0.21	0.46	0.68	0.68	0.06	0.00	0.06	0.06	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
8.90		51.0								1983	25.9%		4.8%				(8.90)	(6.81)			(0.27)	(0.27)	(462)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(86)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.0	40.6	0.157	0.024	110.0	110.0	10.0	2186	2186	459	2645	44	2230	0.00	1.56	1.56	1.56	0.00	0.16	0.16	0.16	0.976	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.129	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
7.34		61.0								2389	21.0%		2.0%				(7.34)	(5.25)			(0.10)	(0.10)	(459)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(44)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.0	40.6	0.157	0.024	110.0	110.0	10.0	2592	2592	457	3049	21	2613	0.00	1.33	1.33	1.33	0.00	0.07	0.07	0.07	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.155	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
6.01		71.0								2795	17.7%		0.8%				(6.01)	(3.92)			(0.04)	(0.04)	(457)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(21)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.0	40.6	0.157	0.024	110.0	110.0	10.0	2998	2998	455	3453	9	3007	0.00	1.16	1.16	1.16	0.00	0.03	0.03	0.03	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.181	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
4.85		81.0								3201	15.2%		0.3%				(4.85)	(2.76)			(0.01)	(0.01)	(455)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(9)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	86.0	40.6	0.157	0.024	110.0	110.0	10.0	3404	3404	453	3857	4	3408	0.00	1.02	1.02	1.02	0.00	0.01	0.01	0.01	0.963	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.208	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
3.83		91.0								3607	13.3%		0.1%				(3.83)	(1.74)			(0.00)	(0.00)	(453)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(4)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	101.0	40.6	0.157	0.024	110.0	110.0	20.0	4013	4013	450	4463	1	4013	0.00	1.74	1.74	1.74	0.00	0.00	0.00	0.00	0.956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.32	0.247	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.09		111.0								4419	11.2%		0.0%				(2.09)	(0.00)			(0.00)	(0.00)	(450)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	118.5	40.6	0.157	0.024	110.0	110.0	15.0	4723	4723	447	5170	0	4723	0.00	1.11	1.11	0.00	0.00	0.00	0.00	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.293	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.98		126.0								5028	9.5%		0.0%				(0.98)	(0.00)			(0.00)	(0.00)	(447)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	133.5	40.6	0.157	0.024	110.0	110.0	15.0	5332	5332	444	5776	0	5332	0.00	0.98	0.98	0.00	0.00	0.00	0.00	0.00	0.942	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.332	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		141.0								5637	8.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(444)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.5	57.6	0.000	0.000	11.0	11.0	69.0	7624	7624	435	8059	0	7624	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.924	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.00	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9611	5.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(435)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9635	9635	428	10063	0	9635	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.909	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9659	4.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(428)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9682	9682	428	10110	0	9683	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.938	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9706	4.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(428)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9730	9730	428	10158	0	9730	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9754	4.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(428)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9778	9778	427	10205	0	9778	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9801	4.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(427)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9825	9825	427	10252	0	9825	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.963	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9849	4.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(427)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9873	9873	427	10300	0	9873	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9897	4.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(427)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	9968	9968	427	10395	0	9968	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.988	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10039	4.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(427)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	5.74	25.80	31.54	29.45	5.26	14.15	19.41	19.41
	(ft)	0.48	2.15	2.63	2.45	0.44	1.18	1.62	1.62
	%Ultimate			100.0	93.4			61.5	61.5
REDUCD	(in)	5.74	25.80	31.54	29.45	5.26	14.15	19.41	19.41
	(ft)	0.48	2.15	2.63	2.45	0.44	1.18	1.62	1.62
	%Ultimate			100.0	93.4			61.5	61.5

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 2.5

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	3200.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	2700.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	414.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	11.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	5.67	22.03	**27.70**	24.31	5.39	13.56	18.95	18.83
	(ft)	0.47	1.84	2.31	2.03	0.45	1.13	1.58	1.57
	%Ultimate			100.0	87.8			68.4	68.0
REDUCD	(in)	5.67	22.03	27.70	24.31	5.39	13.56	18.95	18.83
	(ft)	0.47	1.84	2.31	2.03	0.45	1.13	1.58	1.57
	%Ultimate			100.0	87.8			68.4	68.0

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Northwest
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1 11.00	Region 2 11.00	Region 3 11.00	Region 4 11.00	Region 5 11.00	Region 6 11.00	Region 7 11.00	Region 8 11.00	Region 9 11.00	Region 10 11.00
I	120.40	Tv	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		Uv	10.31	10.31	10.31	10.31	10.31	10.31	10.31	10.31	10.31	10.31
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Virgin Sett (in.)	Ultimate Total Sett (in.)	Ultimate Bulb Sett (in.)	Induced Recomp Sett (in.)	Induced Virgin Sett (in.)	Induced Total Sett (in.)	Induced Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
27.70		0.0								0									(27.70)	(24.31)																						
	1	2.0	7.6	0.418	0.063	9999.0	110.0	4.0	152	15	414	429	412	427	3.01	9.04	12.05	12.05	3.01	9.01	12.02	12.02	0.999	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.13	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15.65		4.0								30	2721.3%		2712.0%				(15.65)	(12.26)			(6.93)	(6.81)	(414)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(412)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	5.5	48.6	0.290	0.044	110.0	110.0	3.0	422	103	413	516	400	503	0.96	0.92	1.88	1.88	0.96	0.81	1.76	1.76	0.998	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.95	0.005	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
13.77		7.0								176	399.8%		387.4%				(13.77)	(10.39)			(5.17)	(5.05)	(413)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(400)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	9.5	50.6	0.124	0.019	1000.0	110.0	5.0	1822	303	412	715	384	687	0.42	0.00	0.42	0.42	0.40	0.00	0.40	0.40	0.996	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.52	0.011	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
13.36		12.0								429	136.2%		126.8%				(13.36)	(9.97)			(4.77)	(4.65)	(412)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(384)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	14.5	38.6	0.223	0.033	110.0	110.0	5.0	728	526	411	937	361	887	0.28	1.47	1.75	1.75	0.28	1.15	1.43	1.43	0.994	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	1.58	0.020	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
11.60		17.0								622	78.3%		68.7%				(11.60)	(8.22)			(3.34)	(3.22)	(411)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(361)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	19.5	38.6	0.223	0.033	110.0	110.0	5.0	816	719	410	1129	328	1046	0.11	1.89	2.00	2.00	0.11	1.45	1.56	1.56	0.991	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
9.60		22.0								815	57.1%		45.6%				(9.60)	(6.22)			(1.78)	(1.66)	(410)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(328)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	24.5	31.6	0.223	0.033	110.0	110.0	5.0	1207	894	410	1304	295	1189	0.26	0.45	0.71	0.71	0.25	0.00	0.25	0.25	0.989	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
8.89		27.0								973	45.8%		33.0%				(8.89)	(5.51)			(1.54)	(1.41)	(410)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(295)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	29.5	45.6	0.127	0.019	110.0	110.0	5.0	1443	1087	409	1496	264	1351	0.14	0.12	0.26	0.26	0.11	0.00	0.11	0.11	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.059	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
8.63		32.0								1201	37.6%		24.3%				(8.63)	(5.25)			(1.43)	(1.31)	(409)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(264)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	34.5	42.6	0.150	0.023	110.0	110.0	5.0	1974	1308	408	1715	234	1542	0.16	0.00	0.16	0.16	0.10	0.00	0.10	0.10	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.072	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
8.47		37.0								1414	31.2%		17.9%				(8.47)	(5.09)			(1.33)	(1.21)	(408)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(234)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.0	40.6	0.157	0.024	110.0	110.0	4.0	2212	1495	407	1902	209	1705	0.12	0.00	0.12	0.12	0.06	0.00	0.06	0.06	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.084	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
8.35		41.0								1577	27.2%		14.0%				(8.35)	(4.97)			(1.27)	(1.14)	(407)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(209)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.0	40.6	0.157	0.024	110.0	110.0	10.0	2118	1780	406	2185	173	1953	0.21	0.26	0.47	0.47	0.11	0.00	0.11	0.11	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
7.88		51.0								1983	22.8%		9.7%				(7.88)	(4.50)			(1.15)	(1.03)	(406)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(173)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.0	40.6	0.157	0.024	110.0	110.0	10.0	2186	2186	404	2589	129	2314	0.00	1.39	1.39	1.39	0.00	0.47	0.47	0.47	0.976	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.129	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
6.50		61.0								2389	18.5%		5.9%				(6.50)	(3.11)			(0.69)	(0.56)	(404)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(129)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.0	40.6	0.157	0.024	110.0	110.0	10.0	2592	2592	402	2994	92	2684	0.00	1.18	1.18	1.18	0.00	0.29	0.29	0.29	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.155	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
5.32		71.0								2795	15.5%		3.6%				(5.32)	(1.93)			(0.40)	(0.28)	(402)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(92)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.0	40.6	0.157	0.024	110.0	110.0	10.0	2998	2998	400	3398	64	3062	0.00	1.03	1.03	1.03	0.00	0.17	0.17	0.17	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.181	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
4.29		81.0								3201	13.4%		2.1%				(4.29)	(0.91)			(0.23)	(0.10)	(400)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(64)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	86.0	40.6	0.157	0.024	110.0	110.0	10.0	3404	3404	398	3802	43	3447	0.00	0.91	0.91	0.91	0.00	0.10	0.10	0.10	0.963	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.208	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
3.39		91.0								3607	11.7%		1.3%				(3.39)	(0.00)			(0.12)	(0.00)	(398)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(43)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	101.0	40.6	0.157	0.024	110.0	110.0	20.0	4013	4013	396	4408	22	4035	0.00	1.54	1.54	0.00	0.00	0.09	0.09	0.00	0.956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.32	0.247	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
1.85		111.0								4419	9.9%		0.6%				(1.85)	(0.00)			(0.03)	(0.00)	(396)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(22)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	118.5	40.6	0.157	0.024	110.0	110.0	15.0	4723	4723	393	5116	9	4732	0.00	0.98	0.98	0.00	0.00	0.02	0.02	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.293	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0.87		126.0								5028	8.3%		0.2%				(0.87)	(0.00)			(0.01)	(0.00)	(393)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(9)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	133.5	40.6	0.157	0.024	110.0	110.0	15.0	5332	5332	390	5722	4	5336	0.00	0.87	0.87	0.00	0.00	0.01	0.01	0.00	0.942	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.332	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00		141.0								5637	7.3%		0.1%				(0.00)	(0.00)			(0.00)	(0.00)	(390)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(4)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.5	57.6	0.000	0.000	11.0	11.0	69.0	7624	7624	382	8006	0	7624	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.924	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.00	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9611	5.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(382)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9635	9635	376	10011	0	9635	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.909	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9659	3.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(376)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9682	9682	376	10058	0	9682	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.938	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9706	3.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(376)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9730	9730	376	10106	0	9730	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9754	3.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(376)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9778	9778	376	10153	0	9778	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9801	3.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(376)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9825	9825	375	10201	0	9825	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.963	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9849	3.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(375)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9873	9873	375	10248	0	9873	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9897	3.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(375)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	9968	9968	375	10343	0	9968	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.988	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10039	3.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(375)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	5.67	22.03	27.70	24.31	5.39	13.56	18.95	18.83
	(ft)	0.47	1.84	2.31	2.03	0.45	1.13	1.58	1.57
	%Ultimate			100.0	87.8			68.4	68.0
REDUCD	(in)	5.67	22.03	27.70	24.31	5.39	13.56	18.95	18.83
	(ft)	0.47	1.84	2.31	2.03	0.45	1.13	1.58	1.57
	%Ultimate			100.0	87.8			68.4	68.0

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 2

Load Region Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	3200.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	2700.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	357.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	20.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	5.59	17.97	**23.57**	20.63	5.36	12.05	17.41	17.07
	(ft)	0.47	1.50	1.96	1.72	0.45	1.00	1.45	1.42
	%Ultimate			100.0	87.5			73.9	72.4
REDUCD	(in)	5.59	17.97	23.57	20.63	5.36	12.05	17.41	17.07
	(ft)	0.47	1.50	1.96	1.72	0.45	1.00	1.45	1.42
	%Ultimate			100.0	87.5			73.9	72.4

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1600.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	1350.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1600.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-1350.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Northwest
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1 20.00	Region 2 20.00	Region 3 20.00	Region 4 20.00	Region 5 20.00	Region 6 20.00	Region 7 20.00	Region 8 20.00	Region 9 20.00	Region 10 20.00
I	120.40	Tv	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
		Uv	13.90	13.90	13.90	13.90	13.90	13.90	13.90	13.90	13.90	13.90
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate: Change (psf)	Ultimate: Value (psf)	Induced: Change (psf)	Induced: Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
23.57		0.0								0							(23.57)	(20.63)			(17.41)	(17.07)																								
	1	2.0	7.6	0.418	0.063	9999.0	110.0	4.0	152	15	357	372	356	371	3.01	7.80	10.81	10.81	3.01	7.78	10.78	10.78	0.999	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.13	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12.76		4.0								30	2346.6%		2340.7%				(12.76)	(9.83)			(6.63)	(6.29)	(357)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(356)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	5.5	48.6	0.290	0.044	110.0	110.0	3.0	422	103	356	459	348	451	0.96	0.39	1.35	1.35	0.96	0.31	1.27	1.27	0.998	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.95	0.005	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
11.42		7.0								176	344.8%		336.8%				(11.42)	(8.48)			(5.36)	(5.02)	(356)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(348)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	9.5	50.6	0.124	0.019	1000.0	110.0	5.0	1822	303	356	658	337	640	0.38	0.00	0.38	0.38	0.36	0.00	0.36	0.36	0.996	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.52	0.011	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
11.04		12.0								429	117.4%		111.5%				(11.04)	(8.10)			(5.00)	(4.66)	(356)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(337)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	14.5	38.6	0.223	0.033	110.0	110.0	5.0	728	526	355	880	322	848	0.28	1.11	1.39	1.39	0.28	0.89	1.17	1.17	0.994	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	1.58	0.020	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
9.65		17.0								622	67.5%		61.3%				(9.65)	(6.71)			(3.82)	(3.48)	(355)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(322)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	19.5	38.6	0.223	0.033	110.0	110.0	5.0	816	719	354	1073	301	1019	0.11	1.59	1.70	1.70	0.11	1.29	1.40	1.40	0.991	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
7.95		22.0								815	49.3%		41.8%				(7.95)	(5.01)			(2.42)	(2.08)	(354)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(301)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	24.5	31.6	0.223	0.033	110.0	110.0	5.0	1207	894	353	1247	279	1174	0.26	0.19	0.45	0.45	0.24	0.00	0.24	0.24	0.989	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
7.49		27.0								973	39.5%		31.2%				(7.49)	(4.56)			(2.18)	(1.84)	(353)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(279)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	29.5	45.6	0.127	0.019	110.0	110.0	5.0	1443	1087	352	1440	259	1346	0.14	0.00	0.14	0.14	0.11	0.00	0.11	0.11	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.059	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
7.35		32.0								1201	32.4%		23.8%				(7.35)	(4.42)			(2.08)	(1.74)	(352)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(259)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	34.5	42.6	0.150	0.023	110.0	110.0	5.0	1974	1308	352	1659	238	1546	0.14	0.00	0.14	0.14	0.10	0.00	0.10	0.10	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.072	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
7.21		37.0								1414	26.9%		18.2%				(7.21)	(4.28)			(1.98)	(1.64)	(352)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(238)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.0	40.6	0.157	0.024	110.0	110.0	4.0	2212	1495	351	1846	221	1716	0.10	0.00	0.10	0.10	0.07	0.00	0.07	0.07	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.084	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
7.11		41.0								1577	23.5%		14.8%				(7.11)	(4.17)			(1.91)	(1.57)	(351)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(221)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.0	40.6	0.157	0.024	110.0	110.0	10.0	2118	1780	350	2129	194	1974	0.21	0.04	0.26	0.26	0.13	0.00	0.13	0.13	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
6.85		51.0								1983	19.7%		10.9%				(6.85)	(3.92)			(1.78)	(1.44)	(350)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(194)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.0	40.6	0.157	0.024	110.0	110.0	10.0	2186	2186	348	2534	160	2346	0.00	1.21	1.21	1.21	0.00	0.58	0.58	0.58	0.976	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.129	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
5.64		61.0								2389	15.9%		7.3%				(5.64)	(2.71)			(1.21)	(0.86)	(348)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(160)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.0	40.6	0.157	0.024	110.0	110.0	10.0	2592	2592	347	2938	129	2721	0.00	1.03	1.03	1.03	0.00	0.40	0.40	0.40	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.155	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
4.61		71.0								2795	13.4%		5.0%				(4.61)	(1.68)			(0.81)	(0.47)	(347)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(129)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.0	40.6	0.157	0.024	110.0	110.0	10.0	2998	2998	345	3343	103	3100	0.00	0.89	0.89	0.89	0.00	0.28	0.28	0.28	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.181	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
3.72		81.0								3201	11.5%		3.4%				(3.72)	(0.79)			(0.53)	(0.19)	(345)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(103)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	86.0	40.6	0.157	0.024	110.0	110.0	10.0	3404	3404	344	3747	80	3484	0.00	0.79	0.79	0.79	0.00	0.19	0.19	0.19	0.963	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.208	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
2.94		91.0								3607	10.1%		2.4%				(2.94)	(0.00)			(0.34)	(0.00)	(344)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(80)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	101.0	40.6	0.157	0.024	110.0	110.0	20.0	4013	4013	341	4354	53	4066	0.00	1.34	1.34	0.00	0.00	0.22	0.22	0.00	0.956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.32	0.247	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
1.60		111.0								4419	8.5%		1.3%				(1.60)	(0.00)			(0.12)	(0.00)	(341)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(53)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	118.5	40.6	0.157	0.024	110.0	110.0	15.0	4723	4723	339	5062	31	4754	0.00	0.85	0.85	0.00	0.00	0.08	0.08	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.293	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
0.75		126.0								5028	7.2%		0.7%				(0.75)	(0.00)			(0.04)	(0.00)	(339)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(31)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	133.5	40.6	0.157	0.024	110.0	110.0	15.0	5332	5332	336	5668	19	5351	0.00	0.75	0.75	0.00	0.00	0.04	0.04	0.00	0.942	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.332	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
0.00		141.0								5637	6.3%		0.4%				(0.00)	(0.00)			(0.00)	(0.00)	(336)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(19)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.5	57.6	0.000	0.000	11.0	11.0	69.0	7624	7624	330	7954	0	7624	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.924	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.00	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9611	4.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(330)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9635	9635	324	9959	0	9635	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.909	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9659	3.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(324)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9682	9682	324	10007	0	9682	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.938	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9706	3.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(324)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9730	9730	324	10054	0	9730	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9754	3.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(324)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9778	9778	324	10101	0	9778	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9801	3.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(324)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9825	9825	324	10149	0	9825	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.963	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9849	3.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(324)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9873	9873	324	10196	0	9873	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9897	3.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(324)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	9968	9968	323	10291	0	9968	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.988	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10039	3.2%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(323)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	5.59	17.97	23.57	20.63	5.36	12.05	17.41	17.07		
	(ft)	0.47	1.50	1.96	1.72	0.45	1.00	1.45	1.42		
	%Ultimate			100.0	87.5			73.9	72.4		
REDUCD	(in)	5.59	17.97	23.57	20.63	5.36	12.05	17.41	17.07		
	(ft)	0.47	1.50	1.96	1.72	0.45	1.00	1.45	1.42		
	%Ultimate			100.0	87.5			73.9	72.4		

EE 24365 Grand Bayou
Cell 1
ML el -3.0

Existing Grade = **-3.00 NAVD 88**
Target Grade at 20 years = **0.71 to 1.56** **NAVD 88**

time (yrs)	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	0.038	0.035	0.033	0.030	
0.16	0.038	0.035	0.033	0.030	
0.50	0.038	0.035	0.033	0.030	
1.00	0.038	0.035	0.033	0.030	
1.50	0.038	0.035	0.033	0.030	
2.00	0.038	0.035	0.033	0.030	
3.00	0.038	0.035	0.033	0.030	
4.00	0.038	0.035	0.033	0.030	
7.00	0.038	0.035	0.033	0.030	
11.00	0.038	0.035	0.033	0.030	
20.00	0.038	0.035	0.033	0.030	
ultimate	0.038	0.035	0.033	0.030	

finished elevation (ft NAVD 88) of MARSH FILL (SELF WEIGHT)				
3.5	3	2.5	2	
3.50	3.00	2.50	2.00	
3.46	2.97	2.47	1.97	
3.46	2.96	2.47	1.97	
3.46	2.96	2.47	1.97	
3.46	2.96	2.47	1.97	
3.46	2.96	2.47	1.97	
3.46	2.96	2.47	1.97	
3.46	2.96	2.47	1.97	
3.46	2.96	2.47	1.97	
3.46	2.96	2.47	1.97	
3.46	2.96	2.47	1.97	
3.46	2.96	2.47	1.97	
3.46	2.96	2.47	1.97	

Ultimate self weight consolidation settlement = 0.0059* height of fill (e.g., Ultimate Consol for 1 feet of fill = 0.0059* 3 = 0.018 feet)

time (yrs)	Percent Consolidation due to consolidation settlement (ft) of marsh fill				
	3	2.5	2.5	2	
0.00	0.0	0.0	0.0	0.0	
0.08	100.0	100.0	100.0	100.0	
0.16	100.0	100.0	100.0	100.0	
0.50	100.0	100.0	100.0	100.0	
1.00	100.0	100.0	100.0	100.0	
1.50	100.0	100.0	100.0	100.0	
2.00	100.0	100.0	100.0	100.0	
3.00	100.0	100.0	100.0	100.0	
4.00	100.0	100.0	100.0	100.0	
7.00	100.0	100.0	100.0	100.0	
11.00	100.0	100.0	100.0	100.0	
20.00	100.0	100.0	100.0	100.0	
ultimate	100.0	100.0	100.0	100.0	

EE 24365 Grand Bayou
Cell 1
ML el -3.0

Existing Grade = **-3.00** **NAVD 88**
Target Grade at 20 years = **0.71 to 1.56** **NAVD 88**

time (yrs)	consolidation settlement (inches) of subsurface				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	18.85	17.00	15.01	12.80	
0.16	18.93	17.08	15.08	12.86	
0.50	19.27	17.39	15.37	13.12	
1.00	19.69	17.79	15.73	13.45	
1.50	20.05	18.12	16.04	13.73	
2.00	20.37	18.42	16.31	13.98	
3.00	20.96	18.96	16.81	14.42	
4.00	21.44	19.41	17.21	14.78	
7.00	22.66	20.40	18.08	15.55	
11.00	23.82	21.40	18.83	16.21	
20.00	25.50	22.79	19.85	17.07	
ultimate	34.12	29.45	24.31	20.63	

3.5		3		2.5		2			
+20%	-20%	+20%	-20%	+20%	-20%	+20%	-20%		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
22.62	15.08	20.40	13.60	18.01	12.01	15.36	10.24		
22.72	15.14	20.50	13.66	18.10	12.06	15.43	10.29		
23.12	15.42	20.87	13.91	18.44	12.30	15.74	10.50		
23.63	15.75	21.35	14.23	18.88	12.58	16.14	10.76		
24.06	16.04	21.74	14.50	19.25	12.83	16.48	10.98		
24.44	16.30	22.10	14.74	19.57	13.05	16.78	11.18		
25.15	16.77	22.75	15.17	20.17	13.45	17.30	11.54		
25.73	17.15	23.29	15.53	20.65	13.77	17.74	11.82		
27.19	18.13	24.48	16.32	21.70	14.46	18.66	12.44		
28.58	19.06	25.68	17.12	22.60	15.06	19.45	12.97		
30.60	20.40	27.35	18.23	23.82	15.88	20.48	13.66		
40.94	27.30	35.34	23.56	29.17	19.45	24.76	16.50		

time (yrs)	consolidation settlement (feet) of subsurface with subsidence				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	1.57	1.42	1.25	1.07	
0.16	1.58	1.43	1.26	1.08	
0.50	1.62	1.46	1.29	1.10	
1.00	1.66	1.50	1.33	1.14	
1.50	1.70	1.54	1.37	1.18	
2.00	1.74	1.58	1.40	1.21	
3.00	1.81	1.64	1.46	1.26	
4.00	1.87	1.70	1.52	1.32	
7.00	2.04	1.85	1.65	1.44	
11.00	2.22	2.01	1.80	1.58	
20.00	2.55	2.32	2.07	1.84	

0.02016	0.00168
0.04032	0.00336
0.126	0.0105
0.252	0.021
0.378	0.0315
0.504	0.042
0.756	0.063
1.008	0.084
1.764	0.147
2.772	0.231
5.04	0.42

Existing Grade = -3.00 NAVD 88 **CELL 1**
Target Grade at 20 years = 0.71 to 1.56 NAVD 88
fill height 6.5 6 5.5 5

time (yrs)	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)					consolidation settlement (ft) of subsurface with subsidence				
	3.5	3	2.5	2		3.5	3	2.5	2	
0.00	0.000	0.000	0.000	0.000		0.00	0.00	0.00	0.00	
0.08	0.038	0.035	0.033	0.030		1.57	1.42	1.25	1.07	
0.16	0.038	0.035	0.033	0.030		1.58	1.43	1.26	1.08	
0.50	0.038	0.035	0.033	0.030		1.62	1.46	1.29	1.10	
1.00	0.038	0.035	0.033	0.030		1.66	1.50	1.33	1.14	
1.50	0.038	0.035	0.033	0.030		1.70	1.54	1.37	1.18	
2.00	0.038	0.035	0.033	0.030		1.74	1.58	1.40	1.21	
3.00	0.038	0.035	0.033	0.030		1.81	1.64	1.46	1.26	
4.00	0.038	0.035	0.033	0.030		1.87	1.70	1.52	1.32	
7.00	0.038	0.035	0.033	0.030		2.04	1.85	1.65	1.44	
11.00	0.038	0.035	0.033	0.030		2.22	2.01	1.80	1.58	
20.00	0.038	0.035	0.033	0.030		2.55	2.32	2.07	1.84	

time (yrs)	Finished Elevation from TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils				
0.00	3.50	3.00	2.50	2.00	
0.08	1.89	1.55	1.214	0.90	
0.16	1.88	1.54	1.207	0.89	
0.5	1.85	1.50	1.18	0.87	
1	1.80	1.46	1.14	0.83	
1.5	1.76	1.42	1.10	0.79	
2	1.72	1.39	1.07	0.76	
3	1.65	1.32	1.00	0.71	
4	1.59	1.26	0.95	0.65	
7	1.43	1.12	0.81	0.53	
11	1.25	0.95	0.67	0.39	
20	0.92	0.65	0.39	0.13	

time (yrs)	TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils with subsidence				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	1.61	1.45	1.29	1.10	
0.16	1.62	1.46	1.29	1.11	
0.5	1.65	1.50	1.32	1.13	
1	1.70	1.54	1.36	1.17	
1.5	1.74	1.58	1.40	1.21	
2	1.78	1.61	1.43	1.24	
3	1.85	1.68	1.50	1.29	
4	1.91	1.74	1.55	1.35	
7	2.07	1.88	1.69	1.47	
11	2.25	2.05	1.83	1.61	
20	2.58	2.35	2.11	1.87	

MCA-2 ML at el -2.0

SOIL DESIGN PARAMETERS

THIS SPREADSHEET USES DYNAMIC CR VALUES. PLEASE CHECK USCS AND MOISTURE CONTENTS

EE 24365
CPRA Grande Bayou
Cell 2

RED = INPUT VALUE

$$\frac{c_u}{\sigma'_{vc}} = S(OCR)^m$$

Homogeneous CL and CH sedimentary clays of low to moderate sensitivity (I_p = 20%–80%):
$S = 0.20 + 0.05I_p$, or simply $S = 0.22$.
$m = 0.88(1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.
Sedimentary deposits of silts and organic soils (Atterberg limits plot below the *A*-line, but excluding peats) and clays with shells:
$S = 0.25$, with nominal SD = 0.05.
$m = 0.88\ (1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.

S	**0.22**
m	**0.800**

Ground Surface El -2.00 (NAVD 88)
GWL (depth ft BGS/MLS) 0.00

extrapolated

Str No.	USCS	Depth (ft)	NAVD 88 EL (ft)	γ pcf	γ' (pcf)	P'o Zero Burden (psf)	C_u=0.18*P'o Theoretical Cohesion, C_u (psf)	.20*P'o Theoretical Cohesion, C (psf)	C_u=0.22*P'o Theoretical Cohesion, C_u (psf)	C_u=0.25*P'o Theoretical Cohesion, C_u (psf)	C_u=0.27*P'o Theoretical Cohesion, C_u (psf)	C_u=0.31*P'o Theoretical Cohesion, C_u (psf)	Design Line Assigned Cohesion, C_u (psf)	C_u/P'_o	OCR 0.22	P'_c=OCR*P'_o Past Maximum (psf)	W_c %	CR (N/D)	RR (N/D)	c_v (ft^2/yr)	Poisson's Ratio (N/D)	Total H (ft)
		0.0	**-2.0**			0	0	0	0	0	0	0	**60.0**	0.00	**10.0**							
1	**OH**	2.5	-4.5	**70**	7.6	19	3	4	4	5	5	6	**60.0**	3.16	10.00	**190**	**300**	0.418	0.063		**0.00**	5.0
		5.0	**-7.0**			38	7	8	8	10	10	12	**60.0**	1.58	10.00	**380**						
2	**CH**	6.5	-8.5	**102**	39.6	97	18	19	21	24	26	30	**70.0**	0.72	4.39	**428**	**70**	0.223	0.033		**0.00**	3.0
		8.0	**-10.0**			157	28	31	34	39	42	49	**70.0**	0.45	2.42	**380**						
3	**ML**	10.5	-12.5	**108**	45.6	271	49	54	60	68	73	84	**270.0**	1.00	6.61	**1791**	**35**	0.108	0.016		**0.00**	5.0
		13.0	**-15.0**			385	69	77	85	96	104	119	**270.0**	0.70	6.61	**2544**						
4	**CH**	15.5	-17.5	**104**	41.6	489	88	98	108	122	132	152	**150.0**	0.31	1.52	**741**	**56**	0.177	0.027		**0.00**	5.0
		18.0	**-20.0**			593	107	119	130	148	160	184	**150.0**	0.25	1.52	**899**						
5	**CH**	20.5	-22.5	**100**	37.6	687	124	137	151	172	185	213	**200.0**	0.29	1.42	**975**	**70**	0.223	0.033		**0.00**	5.0
		23.0	**-25.0**			781	141	156	172	195	211	242	**200.0**	0.26	1.42	**1109**						
6	**CL**	25.5	-27.5	**103**	40.6	882	159	176	194	221	238	274	**300.0**	0.34	1.72	**1520**	**60**	0.190	0.029		**0.00**	5.0
		28.0	**-30.0**			984	177	197	216	246	266	305	**300.0**	0.30	1.72	**1695**						
7	**CH**	30.5	-32.5	**116**	53.6	1118	201	224	246	279	302	347	**320.0**	0.29	1.39	**1554**	**38**	0.117	0.018		**0.00**	5.0
		33.0	**-35.0**			1252	225	250	275	313	338	388	**320.0**	0.26	1.39	**1740**						
8	**CL**	35.5	-37.5	**104**	41.6	1356	244	271	298	339	366	420	**400.0**	0.30	1.44	**1957**	**50**	0.157	0.024		**0.00**	5.0
		38.0	**-40.0**			1460	263	292	321	365	394	453	**400.0**	0.27	1.44	**2107**						
9	**CH**	40.0	-42.0	**104**	41.6	1543	278	309	339	386	417	478	**500.0**	0.32	1.62	**2504**	**55**	0.174	0.026		**0.00**	4.0
		42.0	**-44.0**			1626	293	325	358	407	439	504	**500.0**	0.31	1.62	**2639**						
10	**CH**	47.0	-49.0	**104**	41.6	1834	330	367	404	459	495	569	**500.0**	0.27	1.31	**2398**	**55**	0.174	0.026		**0.00**	10.0
		52.0	**-54.0**			2042	368	408	449	511	551	633	**500.0**	0.24	1.31	**2670**						
11	**CH**	57.0	-59.0	**104**	41.6	2250	405	450	495	563	608	698	**500.0**	0.22	1.01	**2278**	**55**	0.174	0.026		**0.00**	10.0
		62.0	**-64.0**			2458	442	492	541	615	664	762	**500.0**	0.20	1.01	**2489**						
12	**CH**	67.0	-69.0	**104**	41.6	2666	480	533	587	667	720	827	**500.0**	0.19	1.00	**2666**	**55**	0.174	0.026		**0.00**	10.0
		72.0	**-74.0**			2874	517	575	632	719	776	891	**500.0**	0.17	1.00	**2874**						
13	**CH**	77.0	-79.0	**104**	41.6	3082	555	616	678	771	832	955	**500.0**	0.16	1.00	**3082**	**55**	0.174	0.026		**0.00**	10.0
		82.0	**-84.0**			3290	592	658	724	823	888	1020	**500.0**	0.15	1.00	**3290**						
14	**CH**	89.5	-91.5	**104**	41.6	3602	648	720	792	901	973	1117	**500.0**	0.14	1.00	**3602**	**55**	0.174	0.026		**0.00**	15.0
		97.0	**-99.0**			3914	705	783	861	979	1057	1213	**500.0**	0.13	1.00	**3914**						
15	**CH**	104.5	-106.5	**104**	41.6	4226	761	845	930	1057	1141	1310	**500.0**	0.12	1.00	**4226**	**55**	0.174	0.026		**0.00**	15.0
		112.0	**-114.0**			4538	817	908	998	1135	1225	1407	**500.0**	0.11	1.00	**4538**						
16	**CH**	119.5	-121.5	**104**	41.6	4850	873	970	1067	1213	1310	1504	**500.0**	0.10	1.00	**4850**	**55**	0.174	0.026		**0.00**	15.0
		127.0	**-129.0**			5162	929	1032	1136	1291	1394	1600	**500.0**	0.10	1.00	**5162**						
17	**CH**	134.5	-136.5	**104**	41.6	5474	985	1095	1204	1369	1478	1697	**500.0**	0.09	1.00	**5474**	**55**	0.174	0.026		**0.00**	15.0
		142.0	**-144.0**			5786	1042	1157	1273	1447	1562	1794	**500.0**	0.09	1.00	**5786**						

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 2

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	2000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	4000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	304.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	20.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	6.18	12.33	**18.51**	**14.27**	5.90	7.38	13.28	12.55
	(ft)	0.51	1.03	1.54	1.19	0.49	0.62	1.11	1.05
	%Ultimate			100.0	77.1			71.8	67.8
REDUCD	(in)	6.18	12.33	18.51	14.27	5.90	7.38	13.28	12.55
	(ft)	0.51	1.03	1.54	1.19	0.49	0.62	1.11	1.05
	%Ultimate			100.0	77.1			71.8	67.8

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Southeast
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1 20.00	Region 2 20.00	Region 3 20.00	Region 4 20.00	Region 5 20.00	Region 6 20.00	Region 7 20.00	Region 8 20.00	Region 9 20.00	Region 10 20.00
I	119.43	Tv	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
		Uv	14.01	14.01	14.01	14.01	14.01	14.01	14.01	14.01	14.01	14.01
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate: Change (psf)	Ultimate: Value (psf)	Induced: Change (psf)	Induced: Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
18.51		0.0								0							(18.51)	(14.27)				(13.28)	(12.55)																						
	1	2.5	7.6	0.418	0.063	9999.0	110.0	5.0	190	19	304	323	303	322	3.76	5.77	9.53	9.53	3.76	5.73	9.50	9.50	0.999	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.17	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
8.98		5.0								38	1598.0%		1592.9%				(8.98)	(4.74)			(3.79)	(3.05)	(304)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(303)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.5	39.6	0.223	0.033	110.0	110.0	3.0	428	97	303	400	296	393	0.74	0.00	0.74	0.74	0.73	0.00	0.73	0.73	0.997	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.95	0.005	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
8.24		8.0								157	311.1%		303.5%				(8.24)	(4.00)			(3.06)	(2.32)	(303)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(296)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.5	45.6	0.108	0.016	1000.0	110.0	5.0	1791	271	302	573	287	557	0.32	0.00	0.32	0.32	0.30	0.00	0.30	0.30	0.995	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.012	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
7.92		13.0								385	111.7%		105.8%				(7.92)	(3.68)			(2.75)	(2.02)	(302)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(287)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.5	41.6	0.177	0.027	110.0	110.0	5.0	741	489	302	790	274	763	0.29	0.30	0.59	0.59	0.29	0.13	0.42	0.42	0.992	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
7.34		18.0								593	61.7%		56.0%				(7.34)	(3.10)			(2.33)	(1.60)	(302)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(274)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.5	37.6	0.223	0.033	110.0	110.0	5.0	975	687	301	988	255	942	0.31	0.07	0.38	0.38	0.28	0.00	0.28	0.28	0.990	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.034	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
6.96		23.0								781	43.8%		37.2%				(6.96)	(2.72)			(2.06)	(1.32)	(301)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(255)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.5	40.6	0.190	0.029	110.0	110.0	5.0	1520	882	300	1182	237	1119	0.22	0.00	0.22	0.22	0.18	0.00	0.18	0.18	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.047	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
6.74		28.0								984	34.0%		26.9%				(6.74)	(2.50)			(1.88)	(1.14)	(300)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(237)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.5	53.6	0.117	0.018	110.0	110.0	5.0	1554	1118	299	1417	219	1337	0.11	0.00	0.11	0.11	0.08	0.00	0.08	0.08	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
6.63		33.0								1252	26.8%		19.6%				(6.63)	(2.39)			(1.80)	(1.06)	(299)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(219)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.5	41.6	0.157	0.024	110.0	110.0	5.0	1957	1356	299	1654	202	1558	0.12	0.00	0.12	0.12	0.09	0.00	0.09	0.09	0.982	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
6.51		38.0								1460	22.0%		14.9%				(6.51)	(2.27)			(1.71)	(0.98)	(299)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(202)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	40.0	41.6	0.174	0.026	110.0	110.0	4.0	2504	1543	298	1841	187	1730	0.10	0.00	0.10	0.10	0.06	0.00	0.06	0.06	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
6.41		42.0								1626	19.3%		12.1%				(6.41)	(2.17)			(1.65)	(0.92)	(298)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(187)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	47.0	41.6	0.174	0.026	110.0	110.0	10.0	2398	1834	297	2131	165	1999	0.20	0.00	0.20	0.20	0.12	0.00	0.12	0.12	0.976	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.104	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
6.21		52.0								2042	16.2%		9.0%				(6.21)	(1.97)			(1.53)	(0.80)	(297)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(165)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	57.0	41.6	0.174	0.026	110.0	110.0	10.0	2278	2250	295	2545	135	2386	0.02	1.01	1.02	1.02	0.02	0.42	0.43	0.43	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
5.19		62.0								2458	13.1%		6.0%				(5.19)	(0.95)			(1.10)	(0.36)	(295)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(135)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	67.0	41.6	0.174	0.026	110.0	110.0	10.0	2666	2666	294	2960	109	2776	0.00	0.95	0.95	0.95	0.00	0.36	0.36	0.36	0.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.157	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
4.24		72.0								2874	11.0%		4.1%				(4.24)	(0.00)			(0.74)	(0.00)	(294)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(109)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	77.0	41.6	0.174	0.026	110.0	110.0	10.0	3082	3082	292	3374	87	3169	0.00	0.82	0.82	0.00	0.00	0.25	0.25	0.00	0.961	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.183	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
3.42		82.0								3290	9.5%		2.8%				(3.42)	(0.00)			(0.48)	(0.00)	(292)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(87)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.5	41.6	0.174	0.026	110.0	110.0	15.0	3602	3602	290	3893	63	3666	0.00	1.05	1.05	0.00	0.00	0.24	0.24	0.00	0.955	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.216	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
2.36		97.0								3914	8.1%		1.8%				(2.36)	(0.00)			(0.25)	(0.00)	(290)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(63)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	104.5	41.6	0.174	0.026	110.0	110.0	15.0	4226	4226	288	4514	42	4268	0.00	0.90	0.90	0.00	0.00	0.13	0.13	0.00	0.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.256	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
1.47		112.0								4538	6.8%		1.0%				(1.47)	(0.00)			(0.11)	(0.00)	(288)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(42)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.5	41.6	0.174	0.026	110.0	110.0	15.0	4850	4850	286	5136	26	4877	0.00	0.78	0.78	0.00	0.00	0.07	0.07	0.00	0.940	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.296	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
0.69		127.0								5162	5.9%		0.5%				(0.69)	(0.00)			(0.04)	(0.00)	(286)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(26)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.5	41.6	0.174	0.026	110.0	110.0	15.0	5474	5474	283	5758	16	5490	0.00	0.69	0.69	0.00	0.00	0.04	0.04	0.00	0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.335	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
0.00		142.0								5786	5.2%		0.3%				(0.00)	(0.00)			(0.00)	(0.00)	(283)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(16)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	176.0	57.6	0.000	0.000	11.0	11.0	68.0	7745	7745	277	8022	0	7745	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.912	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.00	0.640	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9703	3.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(277)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9727	9727	272	9999	0	9727	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9751	2.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(272)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9774	9774	272	10046	0	9774	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9798	2.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(272)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9822	9822	272	10094	0	9822	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9846	2.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(272)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9870	9870	272	10141	0	9870	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9893	2.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(272)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9917	9917	271	10189	0	9917	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9941	2.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(271)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9965	9965	271	10236	0	9965	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.892	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9989	2.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(271)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	10060	10060	271	10331	0	10060	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.891	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10131	2.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(271)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	6.18	12.33	18.51	14.27	5.90	7.38	13.28	12.55
	(ft)	0.51	1.03	1.54	1.19	0.49	0.62	1.11	1.05
	%Ultimate			100.0	77.1			71.8	67.8
REDUCD	(in)	6.18	12.33	18.51	14.27	5.90	7.38	13.28	12.55
	(ft)	0.51	1.03	1.54	1.19	0.49	0.62	1.11	1.05
	%Ultimate			100.0	77.1			71.8	67.8

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 2.5

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	2000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	4000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	362.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	20.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	6.38	16.17	**22.54**	18.50	6.10	10.06	16.16	15.59
	(ft)	0.53	1.35	1.88	1.54	0.51	0.84	1.35	1.30
	%Ultimate			100.0	82.1			71.7	69.1
REDUCD	(in)	6.38	16.17	22.54	18.50	6.10	10.06	16.16	15.59
	(ft)	0.53	1.35	1.88	1.54	0.51	0.84	1.35	1.30
	%Ultimate			100.0	82.1			71.7	69.1

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Southeast
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1 20.00	Region 2 20.00	Region 3 20.00	Region 4 20.00	Region 5 20.00	Region 6 20.00	Region 7 20.00	Region 8 20.00	Region 9 20.00	Region 10 20.00
I	119.43	Tv	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
		Uv	14.01	14.01	14.01	14.01	14.01	14.01	14.01	14.01	14.01	14.01
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate: Change (psf)	Ultimate: Value (psf)	Induced: Change (psf)	Induced: Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
22.54		0.0								0							(22.54)	(18.50)			(16.16)	(15.59)																									
	1	2.5	7.6	0.418	0.063	9999.0	110.0	5.0	190	19	362	381	360	379	3.76	7.57	11.33	11.33	3.76	7.53	11.29	11.29	0.999	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.17	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11.22		5.0								38	1902.9%		1896.9%				(11.22)	(7.17)			(4.87)	(4.29)	(362)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(360)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.5	39.6	0.223	0.033	110.0	110.0	3.0	428	97	361	458	352	449	0.77	0.24	1.01	1.01	0.77	0.17	0.95	0.95	0.997	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.95	0.005	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
10.20		8.0								157	370.4%		361.4%				(10.20)	(6.16)			(3.92)	(3.34)	(361)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(352)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.5	45.6	0.108	0.016	1000.0	110.0	5.0	1791	271	360	631	341	612	0.36	0.00	0.36	0.36	0.34	0.00	0.34	0.34	0.995	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.012	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
9.85		13.0								385	133.0%		126.0%				(9.85)	(5.80)			(3.58)	(3.00)	(360)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(341)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.5	41.6	0.177	0.027	110.0	110.0	5.0	741	489	359	848	326	815	0.29	0.62	0.91	0.91	0.29	0.44	0.73	0.73	0.992	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
8.94		18.0								593	73.5%		66.7%				(8.94)	(4.89)			(2.85)	(2.27)	(359)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(326)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.5	37.6	0.223	0.033	110.0	110.0	5.0	975	687	358	1045	304	991	0.31	0.40	0.71	0.71	0.31	0.09	0.40	0.40	0.990	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.034	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
8.23		23.0								781	52.2%		44.3%				(8.23)	(4.18)			(2.45)	(1.88)	(358)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(304)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.5	40.6	0.190	0.029	110.0	110.0	5.0	1520	882	357	1240	282	1165	0.25	0.00	0.25	0.25	0.21	0.00	0.21	0.21	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.047	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
7.97		28.0								984	40.5%		32.0%				(7.97)	(3.93)			(2.25)	(1.67)	(357)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(282)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.5	53.6	0.117	0.018	110.0	110.0	5.0	1554	1118	356	1474	261	1379	0.13	0.00	0.13	0.13	0.10	0.00	0.10	0.10	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
7.85		33.0								1252	31.9%		23.4%				(7.85)	(3.80)			(2.15)	(1.57)	(356)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(261)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.5	41.6	0.157	0.024	110.0	110.0	5.0	1957	1356	356	1711	240	1596	0.14	0.00	0.14	0.14	0.10	0.00	0.10	0.10	0.982	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
7.70		38.0								1460	26.2%		17.7%				(7.70)	(3.66)			(2.05)	(1.47)	(356)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(240)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	40.0	41.6	0.174	0.026	110.0	110.0	4.0	2504	1543	355	1898	223	1766	0.11	0.00	0.11	0.11	0.07	0.00	0.07	0.07	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
7.59		42.0								1626	23.0%		14.4%				(7.59)	(3.55)			(1.98)	(1.40)	(355)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(223)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	47.0	41.6	0.174	0.026	110.0	110.0	10.0	2398	1834	353	2188	196	2030	0.24	0.00	0.24	0.24	0.14	0.00	0.14	0.14	0.976	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.104	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
7.35		52.0								2042	19.3%		10.7%				(7.35)	(3.31)			(1.84)	(1.26)	(353)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(196)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	57.0	41.6	0.174	0.026	110.0	110.0	10.0	2278	2250	352	2602	161	2411	0.02	1.20	1.22	1.22	0.02	0.51	0.53	0.53	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
6.13		62.0								2458	15.6%		7.2%				(6.13)	(2.09)			(1.31)	(0.73)	(352)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(161)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	67.0	41.6	0.174	0.026	110.0	110.0	10.0	2666	2666	350	3016	130	2796	0.00	1.12	1.12	1.12	0.00	0.43	0.43	0.43	0.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.157	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
5.01		72.0								2874	13.1%		4.9%				(5.01)	(0.97)			(0.87)	(0.30)	(350)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(130)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	77.0	41.6	0.174	0.026	110.0	110.0	10.0	3082	3082	348	3430	103	3186	0.00	0.97	0.97	0.97	0.00	0.30	0.30	0.30	0.961	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.183	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
4.04		82.0								3290	11.3%		3.4%				(4.04)	(0.00)			(0.58)	(0.00)	(348)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(103)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.5	41.6	0.174	0.026	110.0	110.0	15.0	3602	3602	346	3948	75	3678	0.00	1.25	1.25	0.00	0.00	0.28	0.28	0.00	0.955	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.216	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
2.80		97.0								3914	9.6%		2.1%				(2.80)	(0.00)			(0.29)	(0.00)	(346)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(75)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	104.5	41.6	0.174	0.026	110.0	110.0	15.0	4226	4226	343	4569	50	4276	0.00	1.06	1.06	0.00	0.00	0.16	0.16	0.00	0.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.256	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
1.74		112.0								4538	8.1%		1.2%				(1.74)	(0.00)			(0.13)	(0.00)	(343)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(50)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.5	41.6	0.174	0.026	110.0	110.0	15.0	4850	4850	340	5190	31	4882	0.00	0.92	0.92	0.00	0.00	0.09	0.09	0.00	0.940	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.296	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
0.81		127.0								5162	7.0%		0.6%				(0.81)	(0.00)			(0.05)	(0.00)	(340)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(31)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.5	41.6	0.174	0.026	110.0	110.0	15.0	5474	5474	338	5812	19	5493	0.00	0.81	0.81	0.00	0.00	0.05	0.05	0.00	0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.335	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
0.00		142.0								5786	6.2%		0.3%				(0.00)	(0.00)			(0.00)	(0.00)	(338)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(19)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	176.0	57.6	0.000	0.000	11.0	11.0	68.0	7745	7745	330	8075	0	7745	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.912	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.00	0.640	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9703	4.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(330)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9727	9727	324	10051	0	9727	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9751	3.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(324)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9774	9774	324	10098	0	9774	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9798	3.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(324)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9822	9822	324	10146	0	9822	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9846	3.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(324)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9870	9870	323	10193	0	9870	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9893	3.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(323)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9917	9917	323	10240	0	9917	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9941	3.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(323)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9965	9965	323	10288	0	9965	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.892	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9989	3.2%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(323)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	10060	10060	323	10383	0	10060	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.891	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10131	3.2%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(323)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	6.38	16.17	22.54	18.50	6.10	10.06	16.16	15.59		
	(ft)	0.53	1.35	1.88	1.54	0.51	0.84	1.35	1.30		
	%Ultimate			100.0	82.1			71.7	69.1		
REDUCD	(in)	6.38	16.17	22.54	18.50	6.10	10.06	16.16	15.59		
	(ft)	0.53	1.35	1.88	1.54	0.51	0.84	1.35	1.30		
	%Ultimate			100.0	82.1			71.7	69.1		

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 3.0

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	2000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	4000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	419.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	20.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	6.53	19.80	**26.34**	23.12	6.23	12.83	19.06	18.72
	(ft)	0.54	1.65	2.19	1.93	0.52	1.07	1.59	1.56
	%Ultimate			100.0	87.8			72.4	71.1
REDUCD	(in)	6.53	19.80	26.34	23.12	6.23	12.83	19.06	18.72
	(ft)	0.54	1.65	2.19	1.93	0.52	1.07	1.59	1.56
	%Ultimate			100.0	87.8			72.4	71.1

extrapolated

PROJECT TITLE: CPRA Grand Bayou - Southeast
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 1	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 4	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

Group	L (ft)		Region 1 20.00	Region 2 20.00	Region 3 20.00	Region 4 20.00	Region 5 20.00	Region 6 20.00	Region 7 20.00	Region 8 20.00	Region 9 20.00	Region 10 20.00
I	119.43	Tv	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
		Uv	14.01	14.01	14.01	14.01	14.01	14.01	14.01	14.01	14.01	14.01
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate: Change (psf)	Ultimate: Value (psf)	Induced: Change (psf)	Induced: Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
26.34		0.0								0							(26.34)	(23.12)			(19.06)	(18.72)																									
	1	2.5	7.6	0.418	0.063	9999.0	110.0	5.0	190	19	418	437	417	436	3.76	9.08	12.85	12.85	3.76	9.05	12.81	12.81	0.999	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.17	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13.49		5.0								38	2202.5%		2195.5%				(13.49)	(10.27)			(6.25)	(5.91)	(418)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(417)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.5	39.6	0.223	0.033	110.0	110.0	3.0	428	97	418	515	407	505	0.77	0.65	1.42	1.42	0.77	0.58	1.35	1.35	0.997	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.95	0.005	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
12.07		8.0								157	428.8%		418.3%				(12.07)	(8.85)			(4.90)	(4.56)	(418)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(407)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.5	45.6	0.108	0.016	1000.0	110.0	5.0	1791	271	417	688	395	666	0.39	0.00	0.39	0.39	0.38	0.00	0.38	0.38	0.995	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.012	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
11.68		13.0								385	153.9%		145.9%				(11.68)	(8.46)			(4.52)	(4.18)	(417)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(395)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.5	41.6	0.177	0.027	110.0	110.0	5.0	741	489	416	905	377	866	0.29	0.92	1.21	1.21	0.29	0.72	1.01	1.01	0.992	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
10.47		18.0								593	85.1%		77.2%				(10.47)	(7.25)			(3.51)	(3.17)	(416)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(377)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.5	37.6	0.223	0.033	110.0	110.0	5.0	975	687	415	1101	352	1039	0.31	0.71	1.01	1.01	0.31	0.37	0.67	0.67	0.990	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.034	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
9.46		23.0								781	60.4%		51.2%				(9.46)	(6.23)			(2.84)	(2.50)	(415)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(352)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.5	40.6	0.190	0.029	110.0	110.0	5.0	1520	882	414	1296	327	1209	0.29	0.00	0.29	0.29	0.23	0.00	0.23	0.23	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.047	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
9.17		28.0								984	46.9%		37.0%				(9.17)	(5.95)			(2.60)	(2.26)	(414)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(327)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.5	53.6	0.117	0.018	110.0	110.0	5.0	1554	1118	413	1530	302	1420	0.14	0.00	0.14	0.14	0.11	0.00	0.11	0.11	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
9.03		33.0								1252	36.9%		27.0%				(9.03)	(5.80)			(2.49)	(2.15)	(413)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(302)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.5	41.6	0.157	0.024	110.0	110.0	5.0	1957	1356	412	1767	278	1634	0.16	0.00	0.16	0.16	0.11	0.00	0.11	0.11	0.982	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
8.86		38.0								1460	30.4%		20.5%				(8.86)	(5.64)			(2.38)	(2.04)	(412)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(278)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	40.0	41.6	0.174	0.026	110.0	110.0	4.0	2504	1543	411	1954	258	1801	0.13	0.00	0.13	0.13	0.08	0.00	0.08	0.08	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
8.73		42.0								1626	26.6%		16.7%				(8.73)	(5.51)			(2.29)	(1.95)	(411)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(258)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
8.46	10	47.0	41.6	0.174	0.026	110.0	110.0	10.0	2398	1834	409	2243	227	2061	0.27	0.00	0.27	0.27	0.16	0.00	0.16	0.16	0.976	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.104	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
		52.0								2042	22.3%		12.4%				(8.46)	(5.24)			(2.14)	(1.80)	(409)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(227)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
7.05	11	57.0	41.6	0.174	0.026	110.0	110.0	10.0	2278	2250	407	2657	187	2437	0.02	1.39	1.41	1.41	0.02	0.61	0.63	0.63	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
		62.0								2458	18.1%		8.3%				(7.05)	(3.83)			(1.51)	(1.17)	(407)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(187)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
5.77	12	67.0	41.6	0.174	0.026	110.0	110.0	10.0	2666	2666	405	3071	151	2817	0.00	1.28	1.28	1.28	0.00	0.50	0.50	0.50	0.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.157	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
		72.0								2874	15.2%		5.7%				(5.77)	(2.55)			(1.01)	(0.67)	(405)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(151)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
4.65	13	77.0	41.6	0.174	0.026	110.0	110.0	10.0	3082	3082	403	3485	120	3202	0.00	1.11	1.11	1.11	0.00	0.35	0.35	0.35	0.961	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.183	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
		82.0								3290	13.1%		3.9%				(4.65)	(1.43)			(0.67)	(0.33)	(403)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(120)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
3.22	14	89.5	41.6	0.174	0.026	110.0	110.0	15.0	3602	3602	400	4002	87	3690	0.00	1.43	1.43	1.43	0.00	0.33	0.33	0.33	0.955	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.216	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
		97.0								3914	11.1%		2.4%				(3.22)	(0.00)			(0.34)	(0.00)	(400)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(87)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
2.00	15	104.5	41.6	0.174	0.026	110.0	110.0	15.0	4226	4226	397	4623	58	4284	0.00	1.22	1.22	0.00	0.00	0.18	0.18	0.00	0.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.256	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
		112.0								4538	9.4%		1.4%				(2.00)	(0.00)			(0.16)	(0.00)	(397)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(58)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
0.94	16	119.5	41.6	0.174	0.026	110.0	110.0	15.0	4850	4850	394	5244	36	4887	0.00	1.06	1.06	0.00	0.00	0.10	0.10	0.00	0.940	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.296	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
		127.0								5162	8.1%		0.7%				(0.94)	(0.00)			(0.05)	(0.00)	(394)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(36)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
0.00	17	134.5	41.6	0.174	0.026	110.0	110.0	15.0	5474	5474	391	5865	22	5496	0.00	0.94	0.94	0.00	0.00	0.05	0.05	0.00	0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.335	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
		142.0								5786	7.1%		0.4%				(0.00)	(0.00)			(0.00)	(0.00)	(391)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(22)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
0.00	18	176.0	57.6	0.000	0.000	11.0	11.0	68.0	7745	7745	382	8127	0	7745	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.912	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.00	0.640	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		210.0								9703	4.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(382)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9727	9727	375	10102	0	9727	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9751	3.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(375)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9774	9774	375	10149	0	9774	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9798	3.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(375)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9822	9822	375	10197	0	9822	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9846	3.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(375)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9870	9870	374	10244	0	9870	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9893	3.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(374)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9917	9917	374	10291	0	9917	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9941	3.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(374)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9965	9965	374	10339	0	9965	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.892	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9989	3.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(374)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	10060	10060	373	10433	0	10060	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.891	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10131	3.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(373)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	6.53	19.80	26.34	23.12	6.23	12.83	19.06	18.72		
	(ft)	0.54	1.65	2.19	1.93	0.52	1.07	1.59	1.56		
	%Ultimate			100.0	87.8			72.4	71.1		
REDUCD	(in)	6.53	19.80	26.34	23.12	6.23	12.83	19.06	18.72		
	(ft)	0.54	1.65	2.19	1.93	0.52	1.07	1.59	1.56		
	%Ultimate			100.0	87.8			72.4	71.1		

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 3.5

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	2000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	4000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	477.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	11.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement: Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	6.68	23.29	**29.96**	27.70	6.23	14.03	20.27	20.23
	(ft)	0.56	1.94	2.50	2.31	0.52	1.17	1.69	1.69
	%Ultimate			100.0	92.4			67.6	67.5
REDUCD	(in)	6.68	23.29	29.96	27.70	6.23	14.03	20.27	20.23
	(ft)	0.56	1.94	2.50	2.31	0.52	1.17	1.69	1.69
	%Ultimate			100.0	92.4			67.6	67.5

extrapolated

	dX/dY	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Southeast
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
			11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
I	119.43	Tv	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		Uv	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39	10.39
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate: Change (psf)	Ultimate: Value (psf)	Induced: Change (psf)	Induced: Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate: Virgin Sett (in.)	Ultimate: Total Sett (in.)	Ultimate: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced: Virgin Sett (in.)	Induced: Total Sett (in.)	Induced: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
29.96		0.0								0							(29.96)	(27.70)				(20.27)	(20.23)																							
	1	2.5	7.6	0.418	0.063	9999.0	110.0	5.0	190	19	476	495	474	493	3.76	10.44	14.20	14.20	3.76	10.39	14.16	14.16	0.999	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.17	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15.76		5.0								38	2507.4%		2496.7%				(15.76)	(13.50)			(6.11)	(6.07)	(476)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(474)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.5	39.6	0.223	0.033	110.0	110.0	3.0	428	97	475	573	460	557	0.77	1.02	1.79	1.79	0.77	0.92	1.70	1.70	0.997	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.95	0.005	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
13.97		8.0								157	488.1%		472.1%				(13.97)	(11.70)			(4.42)	(4.38)	(475)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(460)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.5	45.6	0.108	0.016	1000.0	110.0	5.0	1791	271	474	745	441	712	0.43	0.00	0.43	0.43	0.41	0.00	0.41	0.41	0.995	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.012	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
13.54		13.0								385	175.2%		162.9%				(13.54)	(11.28)			(4.01)	(3.97)	(474)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(441)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.5	41.6	0.177	0.027	110.0	110.0	5.0	741	489	473	962	415	903	0.29	1.20	1.49	1.49	0.29	0.91	1.20	1.20	0.992	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
12.05		18.0								593	96.8%		84.8%				(12.05)	(9.78)			(2.81)	(2.77)	(473)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(415)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.5	37.6	0.223	0.033	110.0	110.0	5.0	975	687	472	1159	376	1063	0.31	1.00	1.31	1.31	0.31	0.50	0.81	0.81	0.990	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.034	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
10.74		23.0								781	68.7%		54.8%				(10.74)	(8.48)			(2.00)	(1.96)	(472)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(376)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.5	40.6	0.190	0.029	110.0	110.0	5.0	1520	882	471	1353	339	1221	0.32	0.00	0.32	0.32	0.24	0.00	0.24	0.24	0.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.047	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
10.42		28.0								984	53.4%		38.4%				(10.42)	(8.16)			(1.76)	(1.72)	(471)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(339)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.5	53.6	0.117	0.018	110.0	110.0	5.0	1554	1118	470	1587	303	1421	0.15	0.07	0.22	0.22	0.11	0.00	0.11	0.11	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
10.21		33.0								1252	42.0%		27.1%				(10.21)	(7.94)			(1.65)	(1.61)	(470)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(303)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.5	41.6	0.157	0.024	110.0	110.0	5.0	1957	1356	468	1824	269	1625	0.18	0.00	0.18	0.18	0.11	0.00	0.11	0.11	0.982	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
10.02		38.0								1460	34.6%		19.8%				(10.02)	(7.76)			(1.54)	(1.50)	(468)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(269)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	40.0	41.6	0.174	0.026	110.0	110.0	4.0	2504	1543	467	2010	240	1783	0.14	0.00	0.14	0.14	0.08	0.00	0.08	0.08	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
9.88		42.0								1626	30.3%		15.5%				(9.88)	(7.61)			(1.46)	(1.42)	(467)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(240)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	47.0	41.6	0.174	0.026	110.0	110.0	10.0	2398	1834	466	2300	198	2032	0.31	0.00	0.31	0.31	0.14	0.00	0.14	0.14	0.976	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.104	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
9.57		52.0								2042	25.4%		10.8%				(9.57)	(7.31)			(1.32)	(1.28)	(466)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(198)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	57.0	41.6	0.174	0.026	110.0	110.0	10.0	2278	2250	463	2714	147	2397	0.02	1.58	1.60	1.60	0.02	0.46	0.48	0.48	0.971	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
7.97		62.0								2458	20.6%		6.5%				(7.97)	(5.71)			(0.84)	(0.80)	(463)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(147)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	67.0	41.6	0.174	0.026	110.0	110.0	10.0	2666	2666	461	3127	106	2772	0.00	1.45	1.45	1.45	0.00	0.35	0.35	0.35	0.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.157	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
6.52		72.0								2874	17.3%		4.0%				(6.52)	(4.26)			(0.49)	(0.45)	(461)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(106)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	77.0	41.6	0.174	0.026	110.0	110.0	10.0	3082	3082	459	3541	73	3155	0.00	1.26	1.26	1.26	0.00	0.21	0.21	0.21	0.961	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.183	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
5.27		82.0								3290	14.9%		2.4%				(5.27)	(3.00)			(0.28)	(0.24)	(459)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(73)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.5	41.6	0.174	0.026	110.0	110.0	15.0	3602	3602	456	4058	44	3646	0.00	1.62	1.62	1.62	0.00	0.17	0.17	0.17	0.955	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.216	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
3.65		97.0								3914	12.6%		1.2%				(3.65)	(1.38)			(0.11)	(0.07)	(456)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(44)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	104.5	41.6	0.174	0.026	110.0	110.0	15.0	4226	4226	452	4678	22	4249	0.00	1.38	1.38	1.38	0.00	0.07	0.07	0.07	0.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.256	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
2.27		112.0								4538	10.7%		0.5%				(2.27)	(0.00)			(0.04)	(0.00)	(452)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(22)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.5	41.6	0.174	0.026	110.0	110.0	15.0	4850	4850	448	5299	10	4861	0.00	1.20	1.20	0.00	0.00	0.03	0.03	0.00	0.940	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.296	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
1.06		127.0								5162	9.2%		0.2%				(1.06)	(0.00)			(0.01)	(0.00)	(448)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(10)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.5	41.6	0.174	0.026	110.0	110.0	15.0	5474	5474	445	5919	4	5479	0.00	1.06	1.06	0.00	0.00	0.01	0.01	0.00	0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.335	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00		142.0								5786	8.1%		0.1%				(0.00)	(0.00)			(0.00)	(0.00)	(445)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(4)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	176.0	57.6	0.000	0.000	11.0	11.0	68.0	7745	7745	435	8180	0	7745	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.912	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.00	0.640	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9703	5.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(435)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9727	9727	427	10154	0	9727	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9751	4.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(427)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9774	9774	427	10201	0	9774	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9798	4.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(427)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9822	9822	426	10248	0	9822	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9846	4.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(426)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9870	9870	426	10296	0	9870	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9893	4.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(426)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9917	9917	426	10343	0	9917	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9941	4.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(426)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9965	9965	426	10390	0	9965	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.892	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								9989	4.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(426)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	10060	10060	425	10485	0	10060	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.891	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10131	4.2%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(425)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	6.68	23.29	29.96	27.70	6.23	14.03	20.27	20.23
	(ft)	0.56	1.94	2.50	2.31	0.52	1.17	1.69	1.69
	%Ultimate			100.0	92.4			67.6	67.5
REDUCD	(in)	6.68	23.29	29.96	27.70	6.23	14.03	20.27	20.23
	(ft)	0.56	1.94	2.50	2.31	0.52	1.17	1.69	1.69
	%Ultimate			100.0	92.4			67.6	67.5

EE 24365 Grand Bayou
Cell 2
ML el -2

Existing Grade = **-2.00** **NAVD 88**
Target Grade at 20 years = **0.71 to 1.56** **NAVD 88**

time (yrs)	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	0.032	0.030	0.027	0.024	
0.16	0.032	0.030	0.027	0.024	
0.50	0.032	0.030	0.027	0.024	
1.00	0.032	0.030	0.027	0.024	
1.50	0.032	0.030	0.027	0.024	
2.00	0.032	0.030	0.027	0.024	
3.00	0.032	0.030	0.027	0.024	
4.00	0.032	0.030	0.027	0.024	
7.00	0.032	0.030	0.027	0.024	
11.00	0.032	0.030	0.027	0.024	
20.00	0.032	0.030	0.027	0.024	
ultimate	0.032	0.030	0.027	0.024	

finished elevation (ft NAVD 88) of MARSH FILL (SELF WEIGHT)				
3.5	3	2.5	2	
3.50	3.00	2.50	2.00	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	
3.47	2.97	2.47	1.98	

Ultimate self weight consolidation settlement = 0.0059* height of fill (e.g., Ultimate Consol for 1 feet of fill = 0.0059* 3 = 0.18 feet)

time (yrs)	Percent Consolidation due to consolidation settlement (ft) of marsh fill				
	3	2.5	2.5	2.5	
0.00	0.0	0.0	0.0	0.0	
0.08	100.0	100.0	100.0	100.0	
0.16	100.0	100.0	100.0	100.0	
0.50	100.0	100.0	100.0	100.0	
1.00	100.0	100.0	100.0	100.0	
1.50	100.0	100.0	100.0	100.0	
2.00	100.0	100.0	100.0	100.0	
3.00	100.0	100.0	100.0	100.0	
4.00	100.0	100.0	100.0	100.0	
7.00	100.0	100.0	100.0	100.0	
11.00	100.0	100.0	100.0	100.0	
20.00	100.0	100.0	100.0	100.0	
ultimate	100.0	100.0	100.0	100.0	

Existing Grade = **-2.00 NAVD 88**
Target Grade at 20 years = **0.71 to 1.56** **NAVD 88**

time (yrs)	consolidation settlement (inches) of subsurface				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	16.75	14.81	12.80	10.74	
0.16	16.79	14.84	12.81	10.75	
0.50	16.93	14.91	12.85	10.81	
1.00	17.13	15.10	12.91	10.89	
1.50	17.31	15.27	13.00	10.97	
2.00	17.49	15.44	13.16	11.06	
3.00	17.85	15.72	13.42	11.20	
4.00	18.27	16.01	13.66	11.32	
7.00	19.28	16.85	14.27	11.71	
11.00	20.23	17.65	14.81	12.09	
20.00	21.56	18.72	15.59	12.55	
ultimate	27.70	23.12	18.50	14.27	

3.5		3		2.5		2			
+20%	-20%	+20%	-20%	+20%	-20%	+20%	-20%		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
20.10	13.40	17.77	11.85	15.36	10.24	12.89	8.59		
20.15	13.43	17.81	11.87	15.37	10.25	12.90	8.60		
20.32	13.54	17.89	11.93	15.42	10.28	12.97	8.65		
20.56	13.70	18.12	12.08	15.49	10.33	13.07	8.71		
20.77	13.85	18.32	12.22	15.60	10.40	13.16	8.78		
20.99	13.99	18.53	12.35	15.79	10.53	13.27	8.85		
21.42	14.28	18.86	12.58	16.10	10.74	13.44	8.96		
21.92	14.62	19.21	12.81	16.39	10.93	13.58	9.06		
23.14	15.42	20.22	13.48	17.12	11.42	14.05	9.37		
24.28	16.18	21.18	14.12	17.77	11.85	14.51	9.67		
25.87	17.25	22.46	14.98	18.71	12.47	15.06	10.04		
33.24	22.16	27.74	18.50	22.20	14.80	17.12	11.42		

time (yrs)	consolidation settlement (feet) of subsurface with subsidence				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	1.40	1.24	1.07	0.90	
0.16	1.40	1.24	1.07	0.90	
0.50	1.42	1.25	1.08	0.91	
1.00	1.45	1.28	1.10	0.93	
1.50	1.47	1.30	1.11	0.95	
2.00	1.50	1.33	1.14	0.96	
3.00	1.55	1.37	1.18	1.00	
4.00	1.61	1.42	1.22	1.03	
7.00	1.75	1.55	1.34	1.12	
11.00	1.92	1.70	1.47	1.24	
20.00	2.22	1.98	1.72	1.47	

0.02016	0.00168
0.04032	0.00336
0.126	0.0105
0.252	0.021
0.378	0.0315
0.504	0.042
0.756	0.063
1.008	0.084
1.764	0.147
2.772	0.231
5.04	0.42

Existing Grade = -2.00 NAVD 88 **CELL 2**
Target Grade at 20 years = 0.71 to 1.56 NAVD 88
fill height 5.5 5 4.5 4

time (yrs)	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)					consolidation settlement (ft) of subsurface with subsidence				
	3.5	3	2.5	2		3.5	3	2.5	2	
0.00	0.000	0.000	0.000	0.000		0.00	0.00	0.00	0.00	
0.08	0.032	0.030	0.027	0.024		1.40	1.24	1.07	0.90	
0.16	0.032	0.030	0.027	0.024		1.40	1.24	1.07	0.90	
0.50	0.032	0.030	0.027	0.024		1.42	1.25	1.08	0.91	
1.00	0.032	0.030	0.027	0.024		1.45	1.28	1.10	0.93	
1.50	0.032	0.030	0.027	0.024		1.47	1.30	1.11	0.95	
2.00	0.032	0.030	0.027	0.024		1.50	1.33	1.14	0.96	
3.00	0.032	0.030	0.027	0.024		1.55	1.37	1.18	1.00	
4.00	0.032	0.030	0.027	0.024		1.61	1.42	1.22	1.03	
7.00	0.032	0.030	0.027	0.024		1.75	1.55	1.34	1.12	
11.00	0.032	0.030	0.027	0.024		1.92	1.70	1.47	1.24	
20.00	0.032	0.030	0.027	0.024		2.22	1.98	1.72	1.47	

time (yrs)	Finished Elevation from TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils				
0.00	3.50	3.00	2.50	2.00	
0.08	2.07	1.73	1.40	1.08	
0.16	2.07	1.73	1.40	1.08	
0.5	2.05	1.72	1.39	1.06	
1	2.02	1.69	1.38	1.05	
1.5	1.99	1.67	1.36	1.03	
2	1.97	1.64	1.33	1.01	
3	1.92	1.60	1.29	0.98	
4	1.86	1.55	1.25	0.95	
7	1.71	1.42	1.14	0.85	
11	1.55	1.27	1.01	0.74	
20	1.25	0.99	0.75	0.51	

time (yrs)	TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils with subsidence				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	1.43	1.27	1.10	0.92	
0.16	1.43	1.27	1.10	0.92	
0.5	1.45	1.28	1.11	0.94	
1	1.48	1.31	1.12	0.95	
1.5	1.51	1.33	1.14	0.97	
2	1.53	1.36	1.17	0.99	
3	1.58	1.40	1.21	1.02	
4	1.64	1.45	1.25	1.05	
7	1.79	1.58	1.36	1.15	
11	1.95	1.73	1.49	1.26	
20	2.25	2.01	1.75	1.49	

MCA-2 ML at el -2.5

SOIL DESIGN PARAMETERS

THIS SPREADSHEET USES DYNAMIC CR VALUES. PLEASE CHECK USCS AND MOISTURE CONTENTS

EE 24365
CPRA Grande Bayou
Cell 2

RED = INPUT VALUE

$$\frac{C_u}{\sigma'_{vc}} = S(OCR)^m$$

Homogeneous CL and CH sedimentary clays of low to moderate sensitivity (I_p = 20%–80%):
$S = 0.20 + 0.05I_p$, or simply $S = 0.22$.
$m = 0.88(1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.
Sedimentary deposits of silts and organic soils (Atterberg limits plot below the *A*-line, but excluding peats) and clays with shells:
$S = 0.25$, with nominal SD = 0.05.
$m = 0.88\ (1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.

S	**0.22**
m	**0.800**

Ground Surface El -2.50 (NAVD 88)
GWL (depth ft BGS/MLS) 0.00

extrapolated

Str No.	USCS	Depth (ft)	NAVD 88 EL (ft)	γ pcf	γ' (pcf)	P'o Zero Burden (psf)	C_u=0.18*P'o Theoretical Cohesion, C_u (psf)	.20*P'o Theoretical Cohesion, C (psf)	C_u=0.22*P'o Theoretical Cohesion, C_u (psf)	C_u=0.25*P'o Theoretical Cohesion, C_u (psf)	C_u=0.27*P'o Theoretical Cohesion, C_u (psf)	C_u=0.31*P'o Theoretical Cohesion, C_u (psf)	Design Line Assigned Cohesion, C_u (psf)	C_u/P'_o	OCR 0.22	P'_c=OCR*P'_o Past Maximum (psf)	W_c %	CR (N/D)	RR (N/D)	c_v (ft^2/yr)	Poisson's Ratio (N/D)	Total H (ft)
		0.0	**-2.5**			0	0	0	0	0	0	0	**60.0**	0.00	**10.0**							
1	**OH**	2.3	-4.8	**70**	7.6	17	3	3	4	4	5	5	**60.0**	3.51	10.00	**171**	**300**	0.418	0.063		**0.00**	4.5
		4.5	**-7.0**			34	6	7	8	9	9	11	**60.0**	1.75	10.00	**342**						
2	**OH**	6.0	-8.5	**102**	39.6	94	17	19	21	23	25	29	**70.0**	0.75	4.62	**432**	**70**	0.223	0.033		**0.00**	3.0
		7.5	**-10.0**			153	28	31	34	38	41	47	**70.0**	0.46	2.50	**382**						
3	**ML**	10.0	-12.5	**108**	45.6	267	48	53	59	67	72	83	**270.0**	1.01	6.73	**1797**	**35**	0.108	0.016		**0.00**	5.0
		12.5	**-15.0**			381	69	76	84	95	103	118	**270.0**	0.71	6.73	**2564**						
4	**CH**	15.0	-17.5	**104**	41.6	485	87	97	107	121	131	150	**150.0**	0.31	1.53	**742**	**56**	0.177	0.027		**0.00**	5.0
		17.5	**-20.0**			589	106	118	130	147	159	183	**150.0**	0.25	1.53	**902**						
5	**CH**	20.0	-22.5	**100**	37.6	683	123	137	150	171	184	212	**200.0**	0.29	1.43	**976**	**70**	0.223	0.033		**0.00**	5.0
		22.5	**-25.0**			777	140	155	171	194	210	241	**200.0**	0.26	1.43	**1111**						
6	**CL**	25.0	-27.5	**103**	40.6	879	158	176	193	220	237	272	**300.0**	0.34	1.73	**1522**	**60**	0.190	0.029		**0.00**	5.0
		27.5	**-30.0**			980	176	196	216	245	265	304	**300.0**	0.31	1.73	**1698**						
7	**CH**	30.0	-32.5	**116**	53.6	1114	201	223	245	279	301	345	**320.0**	0.29	1.40	**1555**	**38**	0.117	0.018		**0.00**	5.0
		32.5	**-35.0**			1248	225	250	275	312	337	387	**320.0**	0.26	1.40	**1742**						
8	**CL**	35.0	-37.5	**104**	41.6	1352	243	270	297	338	365	419	**400.0**	0.30	1.45	**1958**	**50**	0.157	0.024		**0.00**	5.0
		37.5	**-40.0**			1456	262	291	320	364	393	451	**400.0**	0.27	1.45	**2109**						
9	**CH**	39.5	-42.0	**104**	41.6	1539	277	308	339	385	416	477	**500.0**	0.32	1.63	**2505**	**55**	0.174	0.026		**0.00**	4.0
		41.5	**-44.0**			1622	292	324	357	406	438	503	**500.0**	0.31	1.63	**2641**						
10	**CH**	46.5	-49.0	**104**	41.6	1830	329	366	403	458	494	567	**500.0**	0.27	1.31	**2399**	**55**	0.174	0.026		**0.00**	10.0
		51.5	**-54.0**			2038	367	408	448	510	550	632	**500.0**	0.25	1.31	**2672**						
11	**CH**	56.5	-59.0	**104**	41.6	2246	404	449	494	562	607	696	**500.0**	0.22	1.01	**2279**	**55**	0.174	0.026		**0.00**	10.0
		61.5	**-64.0**			2454	442	491	540	614	663	761	**500.0**	0.20	1.01	**2490**						
12	**CH**	66.5	-69.0	**104**	41.6	2662	479	532	586	666	719	825	**500.0**	0.19	1.00	**2662**	**55**	0.174	0.026		**0.00**	10.0
		71.5	**-74.0**			2870	517	574	631	718	775	890	**500.0**	0.17	1.00	**2870**						
13	**CH**	76.5	-79.0	**104**	41.6	3078	554	616	677	770	831	954	**500.0**	0.16	1.00	**3078**	**55**	0.174	0.026		**0.00**	10.0
		81.5	**-84.0**			3286	592	657	723	822	887	1019	**500.0**	0.15	1.00	**3286**						
14	**CH**	89.0	-91.5	**104**	41.6	3598	648	720	792	900	972	1116	**500.0**	0.14	1.00	**3598**	**55**	0.174	0.026		**0.00**	15.0
		96.5	**-99.0**			3910	704	782	860	978	1056	1212	**500.0**	0.13	1.00	**3910**						
15	**CH**	104.0	-106.5	**104**	41.6	4222	760	844	929	1056	1140	1309	**500.0**	0.12	1.00	**4222**	**55**	0.174	0.026		**0.00**	15.0
		111.5	**-114.0**			4534	816	907	998	1134	1224	1406	**500.0**	0.11	1.00	**4534**						
16	**CH**	119.0	-121.5	**104**	41.6	4846	872	969	1066	1212	1309	1502	**500.0**	0.10	1.00	**4846**	**55**	0.174	0.026		**0.00**	15.0
		126.5	**-129.0**			5158	929	1032	1135	1290	1393	1599	**500.0**	0.10	1.00	**5158**						
17	**CH**	134.0	-136.5	**104**	41.6	5470	985	1094	1203	1368	1477	1696	**500.0**	0.09	1.00	**5470**	**55**	0.174	0.026		**0.00**	15.0
		141.5	**-144.0**			5782	1041	1156	1272	1446	1561	1793	**500.0**	0.09	1.00	**5782**						

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 2

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	2000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	4000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	330.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	2.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	5.95	14.24	**20.18**	16.48	5.13	6.88	12.01	11.99
	(ft)	0.50	1.19	1.68	1.37	0.43	0.57	1.00	1.00
	%Ultimate			100.0	81.7			59.5	59.4
REDUCD	(in)	5.95	14.24	20.18	16.48	5.13	6.88	12.01	11.99
	(ft)	0.50	1.19	1.68	1.37	0.43	0.57	1.00	1.00
	%Ultimate			100.0	81.7			59.5	59.4

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Southeast
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
			2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
I	119.92	Tv	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Uv	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Virgin Sett (in.)	Ultimate Total Sett (in.)	Ultimate Bulb Sett (in.)	Induced Recomp Sett (in.)	Induced Virgin Sett (in.)	Induced Total Sett (in.)	Induced Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
20.18		0.0								0							(20.18)	(16.48)				(12.01)	(11.99)																								
	1	2.3	7.6	0.418	0.063	9999.0	110.0	4.5	171	17	330	347	327	344	3.39	6.93	10.32	10.32	3.39	6.85	10.24	10.24	0.999	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.15	0.001	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
9.87		4.5								34	1927.6%		1911.3%				(9.87)	(6.16)			(1.77)	(1.76)	(330)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(327)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.0	39.6	0.223	0.033	110.0	110.0	3.0	432	94	329	423	306	399	0.79	0.00	0.79	0.79	0.76	0.00	0.76	0.76	0.997	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.95	0.005	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
9.08		7.5								153	351.5%		326.6%				(9.08)	(5.38)			(1.01)	(1.00)	(329)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(306)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.0	45.6	0.108	0.016	1000.0	110.0	5.0	1797	267	328	595	278	545	0.34	0.00	0.34	0.34	0.30	0.00	0.30	0.30	0.995	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.011	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
8.74		12.5								381	123.0%		104.1%				(8.74)	(5.04)			(0.71)	(0.70)	(328)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(278)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.0	41.6	0.177	0.027	110.0	110.0	5.0	742	485	328	813	239	724	0.29	0.42	0.71	0.71	0.28	0.00	0.28	0.28	0.992	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
8.03		17.5								589	67.5%		49.3%				(8.03)	(4.33)			(0.44)	(0.42)	(328)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(239)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.0	37.6	0.223	0.033	110.0	110.0	5.0	976	683	327	1010	185	868	0.31	0.19	0.51	0.51	0.21	0.00	0.21	0.21	0.990	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
7.52		22.5								777	47.8%		27.1%				(7.52)	(3.82)			(0.23)	(0.21)	(327)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(185)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.0	40.6	0.190	0.029	110.0	110.0	5.0	1522	879	326	1204	136	1015	0.23	0.00	0.23	0.23	0.11	0.00	0.11	0.11	0.987	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
7.29		27.5								980	37.1%		15.5%				(7.29)	(3.59)			(0.12)	(0.11)	(326)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(136)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.0	53.6	0.117	0.018	110.0	110.0	5.0	1555	1114	325	1439	95	1209	0.12	0.00	0.12	0.12	0.04	0.00	0.04	0.04	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
7.17		32.5								1248	29.2%		8.5%				(7.17)	(3.47)			(0.08)	(0.07)	(325)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(95)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.0	41.6	0.157	0.024	110.0	110.0	5.0	1958	1352	324	1676	62	1414	0.13	0.00	0.13	0.13	0.03	0.00	0.03	0.03	0.982	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
7.04		37.5								1456	24.0%		4.6%				(7.04)	(3.34)			(0.05)	(0.04)	(324)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(62)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.5	41.6	0.174	0.026	110.0	110.0	4.0	2505	1539	323	1863	39	1578	0.10	0.00	0.10	0.10	0.01	0.00	0.01	0.01	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
6.94		41.5								1622	21.0%		2.5%				(6.94)	(3.23)			(0.04)	(0.03)	(323)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(39)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.5	41.6	0.174	0.026	110.0	110.0	10.0	2399	1830	322	2153	15	1846	0.22	0.00	0.22	0.22	0.01	0.00	0.01	0.01	0.977	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
6.72		51.5								2038	17.6%		0.8%				(6.72)	(3.01)			(0.03)	(0.02)	(322)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(15)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.5	41.6	0.174	0.026	110.0	110.0	10.0	2279	2246	321	2567	2	2248	0.02	1.08	1.10	1.10	0.00	0.00	0.00	0.00	0.972	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
5.62		61.5								2454	14.3%		0.1%				(5.62)	(1.92)			(0.03)	(0.01)	(321)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.5	41.6	0.174	0.026	110.0	110.0	10.0	2662	2662	319	2981	1	2664	0.00	1.03	1.03	1.03	0.00	0.00	0.00	0.00	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.156	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.59		71.5								2870	12.0%		0.0%				(4.59)	(0.89)			(0.02)	(0.01)	(319)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.5	41.6	0.174	0.026	110.0	110.0	10.0	3078	3078	317	3396	4	3082	0.00	0.89	0.89	0.89	0.00	0.01	0.01	0.01	0.962	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.182	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
3.70		81.5								3286	10.3%		0.1%				(3.70)	(0.00)			(0.01)	(0.00)	(317)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(4)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.0	41.6	0.174	0.026	110.0	110.0	15.0	3598	3598	315	3914	3	3602	0.00	1.14	1.14	0.00	0.00	0.01	0.01	0.00	0.955	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.215	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
2.56		96.5								3910	8.8%		0.1%				(2.56)	(0.00)			(0.00)	(0.00)	(315)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	104.0	41.6	0.174	0.026	110.0	110.0	15.0	4222	4222	313	4535	0	4222	0.00	0.97	0.97	0.00	0.00	0.00	0.00	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.255	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.59		111.5								4534	7.4%		0.0%				(1.59)	(0.00)			(0.00)	(0.00)	(313)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.0	41.6	0.174	0.026	110.0	110.0	15.0	4846	4846	310	5157	0	4846	0.00	0.84	0.84	0.00	0.00	0.00	0.00	0.00	0.940	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.294	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.74		126.5								5158	6.4%		0.0%				(0.74)	(0.00)			(0.00)	(0.00)	(310)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.0	41.6	0.174	0.026	110.0	110.0	15.0	5470	5470	308	5778	0	5471	0.00	0.74	0.74	0.00	0.00	0.00	0.00	0.00	0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.334	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		141.5								5782	5.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(308)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.8	57.6	0.000	0.000	11.0	11.0	68.5	7755	7755	301	8056	0	7755	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.912	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.50	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9728	3.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(301)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9752	9752	295	10047	1	9753	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9776	3.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(295)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9799	9799	295	10095	1	9800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9823	3.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(295)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9847	9847	295	10142	0	9847	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9871	3.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(295)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9895	9895	295	10189	0	9895	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9918	3.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(295)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9942	9942	295	10237	0	9942	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9966	3.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(295)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9990	9990	294	10284	0	9990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.892	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								10014	2.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(294)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	10085	10085	294	10379	0	10085	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.891	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10156	2.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(294)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	5.95	14.24	20.18	16.48	5.13	6.88	12.01	11.99
	(ft)	0.50	1.19	1.68	1.37	0.43	0.57	1.00	1.00
	%Ultimate			100.0	81.7			59.5	59.4
REDUCD	(in)	5.95	14.24	20.18	16.48	5.13	6.88	12.01	11.99
	(ft)	0.50	1.19	1.68	1.37	0.43	0.57	1.00	1.00
	%Ultimate			100.0	81.7			59.5	59.4

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 2.5

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	2000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	4000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	388.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	20.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	6.12	17.90	**24.02**	21.02	5.83	11.40	17.23	16.91
	(ft)	0.51	1.49	2.00	1.75	0.49	0.95	1.44	1.41
	%Ultimate			100.0	87.5			71.7	70.4
REDUCD	(in)	6.12	17.90	24.02	21.02	5.83	11.40	17.23	16.91
	(ft)	0.51	1.49	2.00	1.75	0.49	0.95	1.44	1.41
	%Ultimate			100.0	87.5			71.7	70.4

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Southeast
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1 20.00	Region 2 20.00	Region 3 20.00	Region 4 20.00	Region 5 20.00	Region 6 20.00	Region 7 20.00	Region 8 20.00	Region 9 20.00	Region 10 20.00
I	119.92	Tv	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
		Uv	13.96	13.96	13.96	13.96	13.96	13.96	13.96	13.96	13.96	13.96
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate (psf)	Induced (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
24.02		0.0								0					(24.02)	(21.02)			(17.23)	(16.91)																			
	1	2.3	7.6	0.418	0.063	9999.0	110.0	4.5	171	17	388	405	386	404	3.39	8.44	11.83	11.83	3.39	8.42	11.80	11.80	0.999	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.15	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12.19		4.5								34	2266.4%		2260.0%		(12.19)	(9.19)			(5.43)	(5.11)	(388)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(386)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.0	39.6	0.223	0.033	110.0	110.0	3.0	432	94	387	480	378	471	0.80	0.37	1.17	1.17	0.80	0.30	1.10	1.10	0.997	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.95	0.005	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
11.02		7.5								153	413.3%		403.5%		(11.02)	(8.02)			(4.32)	(4.01)	(387)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(378)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.0	45.6	0.108	0.016	1000.0	110.0	5.0	1797	267	386	653	366	633	0.38	0.00	0.38	0.38	0.36	0.00	0.36	0.36	0.995	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.011	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
10.64		12.5								381	144.6%		137.1%		(10.64)	(7.65)			(3.96)	(3.64)	(386)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(366)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.0	41.6	0.177	0.027	110.0	110.0	5.0	742	485	385	870	350	835	0.29	0.73	1.03	1.03	0.29	0.54	0.84	0.84	0.992	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
9.61		17.5								589	79.4%		72.1%		(9.61)	(6.62)			(3.12)	(2.81)	(385)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(350)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.0	37.6	0.223	0.033	110.0	110.0	5.0	976	683	384	1067	326	1009	0.31	0.52	0.83	0.83	0.31	0.19	0.50	0.50	0.990	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
8.79		22.5								777	56.2%		47.7%		(8.79)	(5.79)			(2.62)	(2.30)	(384)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(326)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.0	40.6	0.190	0.029	110.0	110.0	5.0	1522	879	383	1262	303	1181	0.27	0.00	0.27	0.27	0.22	0.00	0.22	0.22	0.987	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
8.52		27.5								980	43.6%		34.5%		(8.52)	(5.52)			(2.40)	(2.08)	(383)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(303)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.0	53.6	0.117	0.018	110.0	110.0	5.0	1555	1114	382	1496	280	1394	0.13	0.00	0.13	0.13	0.10	0.00	0.10	0.10	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
8.38		32.5								1248	34.3%		25.1%		(8.38)	(5.39)			(2.30)	(1.98)	(382)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(280)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.0	41.6	0.157	0.024	110.0	110.0	5.0	1958	1352	381	1733	258	1610	0.15	0.00	0.15	0.15	0.11	0.00	0.11	0.11	0.982	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
8.23		37.5								1456	28.2%		19.1%		(8.23)	(5.24)			(2.19)	(1.87)	(381)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(258)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.5	41.6	0.174	0.026	110.0	110.0	4.0	2505	1539	380	1919	239	1778	0.12	0.00	0.12	0.12	0.08	0.00	0.08	0.08	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
8.11		41.5								1622	24.7%		15.5%		(8.11)	(5.12)			(2.11)	(1.80)	(380)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(239)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.5	41.6	0.174	0.026	110.0	110.0	10.0	2399	1830	379	2209	210	2041	0.26	0.00	0.26	0.26	0.15	0.00	0.15	0.15	0.977	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
7.85		51.5								2038	20.7%		11.5%		(7.85)	(4.86)			(1.96)	(1.65)	(379)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(210)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.5	41.6	0.174	0.026	110.0	110.0	10.0	2279	2246	377	2623	173	2419	0.02	1.27	1.29	1.29	0.02	0.54	0.56	0.56	0.972	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
6.56		61.5								2454	16.8%		7.7%		(6.56)	(3.57)			(1.40)	(1.09)	(377)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(173)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.5	41.6	0.174	0.026	110.0	110.0	10.0	2662	2662	375	3037	140	2802	0.00	1.20	1.20	1.20	0.00	0.46	0.46	0.46	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.156	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
5.37		71.5								2870	14.1%		5.2%		(5.37)	(2.37)			(0.94)	(0.62)	(375)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(140)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.5	41.6	0.174	0.026	110.0	110.0	10.0	3078	3078	373	3451	111	3189	0.00	1.04	1.04	1.04	0.00	0.32	0.32	0.32	0.962	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.182	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
4.33		81.5								3286	12.1%		3.6%		(4.33)	(1.33)			(0.62)	(0.30)	(373)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(111)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.0	41.6	0.174	0.026	110.0	110.0	15.0	3598	3598	371	3969	81	3679	0.00	1.33	1.33	1.33	0.00	0.30	0.30	0.30	0.955	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.215	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
2.99		96.5								3910	10.3%		2.3%		(2.99)	(0.00)			(0.32)	(0.00)	(371)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(81)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	104.0	41.6	0.174	0.026	110.0	110.0	15.0	4222	4222	368	4590	53	4276	0.00	1.14	1.14	0.00	0.00	0.17	0.17	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.255	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
1.86		111.5								4534	8.7%		1.3%		(1.86)	(0.00)			(0.14)	(0.00)	(368)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(53)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.0	41.6	0.174	0.026	110.0	110.0	15.0	4846	4846	365	5211	34	4880	0.00	0.99	0.99	0.00	0.00	0.09	0.09	0.00	0.940	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.294	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
0.87		126.5								5158	7.5%		0.7%		(0.87)	(0.00)			(0.05)	(0.00)	(365)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(34)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.0	41.6	0.174	0.026	110.0	110.0	15.0	5470	5470	362	5832	20	5491	0.00	0.87	0.87	0.00	0.00	0.05	0.05	0.00	0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.334	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
0.00		141.5								5782	6.6%		0.4%		(0.00)	(0.00)			(0.00)	(0.00)	(362)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(20)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.8	57.6	0.000	0.000	11.0	11.0	68.5	7755	7755	354	8109	0	7755	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.912	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.50	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9728	4.6%		0.0%		(0.00)	(0.00)			(0.00)	(0.00)	(354)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9752	9752	347	10099	0	9752	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9776	3.6%		0.0%		(0.00)	(0.00)			(0.00)	(0.00)	(347)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9799	9799	347	10146	0	9799	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9823	3.5%		0.0%		(0.00)	(0.00)			(0.00)	(0.00)	(347)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9847	9847	347	10194	0	9847	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9871	3.5%		0.0%		(0.00)	(0.00)			(0.00)	(0.00)	(347)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9895	9895	347	10241	0	9895	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9918	3.5%		0.0%		(0.00)	(0.00)			(0.00)	(0.00)	(347)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9942	9942	346	10289	0	9942	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9966	3.5%		0.0%		(0.00)	(0.00)			(0.00)	(0.00)	(346)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9990	9990	346	10336	0	9990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.892	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								10014	3.5%		0.0%		(0.00)	(0.00)			(0.00)	(0.00)	(346)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	10085	10085	346	10431	0	10085	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.891	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10156	3.4%		0.0%		(0.00)	(0.00)			(0.00)	(0.00)	(346)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	6.12	17.90	24.02	21.02	5.83	11.40	17.23	16.91
	(ft)	0.51	1.49	2.00	1.75	0.49	0.95	1.44	1.41
	%Ultimate			100.0	87.5			71.7	70.4
REDUCD	(in)	6.12	17.90	24.02	21.02	5.83	11.40	17.23	16.91
	(ft)	0.51	1.49	2.00	1.75	0.49	0.95	1.44	1.41
	%Ultimate			100.0	87.5			71.7	70.4

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 3.0

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	2000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	4000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	445.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	11.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	6.27	21.27	**27.54**	24.13	5.85	12.64	18.48	18.38
	(ft)	0.52	1.77	2.30	2.01	0.49	1.05	1.54	1.53
	%Ultimate			100.0	87.6			67.1	66.7
REDUCD	(in)	6.27	21.27	27.54	24.13	5.85	12.64	18.48	18.38
	(ft)	0.52	1.77	2.30	2.01	0.49	1.05	1.54	1.53
	%Ultimate			100.0	87.6			67.1	66.7

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Southeast
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1 11.00	Region 2 11.00	Region 3 11.00	Region 4 11.00	Region 5 11.00	Region 6 11.00	Region 7 11.00	Region 8 11.00	Region 9 11.00	Region 10 11.00
I	119.92	Tv	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		Uv	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Virgin Sett (in.)	Ultimate Total Sett (in.)	Ultimate Bulb Sett (in.)	Induced Recomp Sett (in.)	Induced Virgin Sett (in.)	Induced Total Sett (in.)	Induced Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
27.54		0.0								0																																	
	1	2.3	7.6	0.418	0.063	9999.0	110.0	4.5	171	17	444	462	443	460	3.39	9.73	13.12	13.12	3.39	9.70	13.08	13.08	0.999	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.15	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
14.42		4.5								34	2599.4%		2589.4%				(14.42)	(11.01)			(5.40)	(5.30)	(444)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(443)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.0	39.6	0.223	0.033	110.0	110.0	3.0	432	94	444	537	429	523	0.80	0.76	1.56	1.56	0.80	0.67	1.47	1.47	0.997	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.95	0.005	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
12.86		7.5								153	474.0%		458.8%				(12.86)	(9.45)			(3.93)	(3.83)	(444)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(429)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.0	45.6	0.108	0.016	1000.0	110.0	5.0	1797	267	443	710	412	679	0.41	0.00	0.41	0.41	0.39	0.00	0.39	0.39	0.995	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.011	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
12.45		12.5								381	165.8%		154.3%				(12.45)	(9.03)			(3.54)	(3.44)	(443)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(412)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.0	41.6	0.177	0.027	110.0	110.0	5.0	742	485	442	927	387	872	0.29	1.02	1.32	1.32	0.29	0.74	1.04	1.04	0.992	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
11.13		17.5								589	91.1%		79.8%				(11.13)	(7.72)			(2.50)	(2.40)	(442)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(387)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.0	37.6	0.223	0.033	110.0	110.0	5.0	976	683	441	1124	351	1034	0.31	0.82	1.13	1.13	0.31	0.33	0.65	0.65	0.990	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
10.01		22.5								777	64.5%		51.4%				(10.01)	(6.59)			(1.86)	(1.75)	(441)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(351)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.0	40.6	0.190	0.029	110.0	110.0	5.0	1522	879	439	1318	316	1195	0.30	0.00	0.30	0.30	0.23	0.00	0.23	0.23	0.987	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
9.71		27.5								980	50.0%		36.0%				(9.71)	(6.29)			(1.63)	(1.52)	(439)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(316)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.0	53.6	0.117	0.018	110.0	110.0	5.0	1555	1114	438	1552	283	1397	0.15	0.00	0.15	0.15	0.10	0.00	0.10	0.10	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
9.55		32.5								1248	39.3%		25.4%				(9.55)	(6.14)			(1.53)	(1.42)	(438)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(283)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.0	41.6	0.157	0.024	110.0	110.0	5.0	1958	1352	437	1789	251	1603	0.17	0.00	0.17	0.17	0.10	0.00	0.10	0.10	0.982	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
9.38		37.5								1456	32.3%		18.6%				(9.38)	(5.97)			(1.42)	(1.32)	(437)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(251)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.5	41.6	0.174	0.026	110.0	110.0	4.0	2505	1539	436	1975	224	1763	0.14	0.00	0.14	0.14	0.07	0.00	0.07	0.07	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
9.25		41.5								1622	28.3%		14.6%				(9.25)	(5.83)			(1.35)	(1.24)	(436)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(224)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.5	41.6	0.174	0.026	110.0	110.0	10.0	2399	1830	435	2265	185	2016	0.29	0.00	0.29	0.29	0.13	0.00	0.13	0.13	0.977	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
8.96		51.5								2038	23.7%		10.1%				(8.96)	(5.54)			(1.22)	(1.11)	(435)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(185)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.5	41.6	0.174	0.026	110.0	110.0	10.0	2279	2246	432	2679	137	2384	0.02	1.46	1.48	1.48	0.02	0.41	0.43	0.43	0.972	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
7.47		61.5								2454	19.2%		6.1%				(7.47)	(4.06)			(0.79)	(0.68)	(432)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(137)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.5	41.6	0.174	0.026	110.0	110.0	10.0	2662	2662	430	3093	99	2761	0.00	1.36	1.36	1.36	0.00	0.33	0.33	0.33	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.156	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
6.12		71.5								2870	16.2%		3.7%				(6.12)	(2.70)			(0.46)	(0.35)	(430)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(99)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.5	41.6	0.174	0.026	110.0	110.0	10.0	3078	3078	428	3506	68	3147	0.00	1.18	1.18	1.18	0.00	0.20	0.20	0.20	0.962	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.182	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
4.93		81.5								3286	13.9%		2.2%				(4.93)	(1.52)			(0.26)	(0.16)	(428)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(68)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.0	41.6	0.174	0.026	110.0	110.0	15.0	3598	3598	425	4023	41	3640	0.00	1.52	1.52	1.52	0.00	0.16	0.16	0.16	0.955	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.215	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
3.42		96.5								3910	11.8%		1.1%				(3.42)	(0.00)			(0.10)	(0.00)	(425)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(41)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	104.0	41.6	0.174	0.026	110.0	110.0	15.0	4222	4222	422	4644	21	4243	0.00	1.29	1.29	0.00	0.00	0.07	0.07	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.255	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
2.12		111.5								4534	10.0%		0.5%				(2.12)	(0.00)			(0.04)	(0.00)	(422)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(21)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.0	41.6	0.174	0.026	110.0	110.0	15.0	4846	4846	418	5265	10	4856	0.00	1.13	1.13	0.00	0.00	0.03	0.03	0.00	0.940	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.294	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0.99		126.5								5158	8.6%		0.2%				(0.99)	(0.00)			(0.01)	(0.00)	(418)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(10)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.0	41.6	0.174	0.026	110.0	110.0	15.0	5470	5470	415	5885	4	5475	0.00	0.99	0.99	0.00	0.00	0.01	0.01	0.00	0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.334	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00		141.5								5782	7.6%		0.1%				(0.00)	(0.00)			(0.00)	(0.00)	(415)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(4)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.8	57.6	0.000	0.000	11.0	11.0	68.5	7755	7755	406	8161	0	7755	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.912	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.50	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9728	5.2%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(406)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9752	9752	398	10150	0	9752	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9776	4.1%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(398)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9799	9799	398	10197	0	9799	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9823	4.1%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(398)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9847	9847	398	10245	0	9847	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9871	4.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(398)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9895	9895	398	10292	0	9895	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9918	4.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(398)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9942	9942	397	10340	0	9942	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9966	4.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(397)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9990	9990	397	10387	0	9990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.892	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								10014	4.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(397)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	10085	10085	397	10482	0	10085	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.891	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10156	3.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(397)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	6.27	21.27	27.54	24.13	5.85	12.64	18.48	18.38		
	(ft)	0.52	1.77	2.30	2.01	0.49	1.05	1.54	1.53		
	%Ultimate			100.0	87.6			67.1	66.7		
REDUCD	(in)	6.27	21.27	27.54	24.13	5.85	12.64	18.48	18.38		
	(ft)	0.52	1.77	2.30	2.01	0.49	1.05	1.54	1.53		
	%Ultimate			100.0	87.6			67.1	66.7		

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 3.5

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	2000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	4000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	503.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	11.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	6.41	24.56	**30.97**	28.59	5.95	14.83	20.79	20.74
	(ft)	0.53	2.05	2.58	2.38	0.50	1.24	1.73	1.73
	%Ultimate			100.0	92.3			67.1	67.0
REDUCD	(in)	6.41	24.56	30.97	28.59	5.95	14.83	20.79	20.74
	(ft)	0.53	2.05	2.58	2.38	0.50	1.24	1.73	1.73
	%Ultimate			100.0	92.3			67.1	67.0

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Southeast
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1 11.00	Region 2 11.00	Region 3 11.00	Region 4 11.00	Region 5 11.00	Region 6 11.00	Region 7 11.00	Region 8 11.00	Region 9 11.00	Region 10 11.00
I	119.92	Tv	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		Uv	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.35
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate: Change (psf)	Ultimate: Value (psf)	Induced: Change (psf)	Induced: Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
30.97		0.0								0							(30.97)	(28.59)				(20.79)	(20.74)																							
	1	2.3	7.6	0.418	0.063	9999.0	110.0	4.5	171	17	502	520	501	518	3.39	10.89	14.28	14.28	3.39	10.86	14.24	14.24	0.999	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.057	0.15	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16.69		4.5								34	2938.2%		2926.9%				(16.69)	(14.31)			(6.54)	(6.50)	(502)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(501)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.0	39.6	0.223	0.033	110.0	110.0	3.0	432	94	501	595	485	579	0.80	1.12	1.92	1.92	0.80	1.02	1.82	1.82	0.997	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.95	0.005	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
14.78		7.5								153	535.8%		518.6%				(14.78)	(12.39)			(4.72)	(4.68)	(501)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(485)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.0	45.6	0.108	0.016	1000.0	110.0	5.0	1797	267	500	767	466	733	0.45	0.00	0.45	0.45	0.43	0.00	0.43	0.43	0.995	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.52	0.011	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
14.33		12.5								381	187.4%		174.4%				(14.33)	(11.94)			(4.30)	(4.25)	(500)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(466)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.0	41.6	0.177	0.027	110.0	110.0	5.0	742	485	499	984	438	923	0.29	1.30	1.59	1.59	0.29	1.00	1.30	1.30	0.992	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.020	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
12.74		17.5								589	102.9%		90.2%				(12.74)	(10.35)			(3.00)	(2.96)	(499)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(438)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	20.0	37.6	0.223	0.033	110.0	110.0	5.0	976	683	498	1181	397	1080	0.31	1.10	1.42	1.42	0.31	0.59	0.90	0.90	0.990	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
11.32		22.5								777	72.9%		58.1%				(11.32)	(8.93)			(2.10)	(2.06)	(498)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(397)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	25.0	40.6	0.190	0.029	110.0	110.0	5.0	1522	879	497	1375	358	1236	0.33	0.00	0.33	0.33	0.25	0.00	0.25	0.25	0.987	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
10.99		27.5								980	56.5%		40.7%				(10.99)	(8.60)			(1.85)	(1.80)	(497)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(358)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.0	53.6	0.117	0.018	110.0	110.0	5.0	1555	1114	495	1609	320	1434	0.15	0.11	0.26	0.26	0.12	0.00	0.12	0.12	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.060	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
10.73		32.5								1248	44.5%		28.7%				(10.73)	(8.34)			(1.73)	(1.69)	(495)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(320)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.0	41.6	0.157	0.024	110.0	110.0	5.0	1958	1352	494	1846	284	1636	0.19	0.00	0.19	0.19	0.12	0.00	0.12	0.12	0.982	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
10.54		37.5								1456	36.5%		21.0%				(10.54)	(8.15)			(1.62)	(1.57)	(494)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(284)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.5	41.6	0.174	0.026	110.0	110.0	4.0	2505	1539	493	2032	253	1792	0.15	0.00	0.15	0.15	0.08	0.00	0.08	0.08	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.085	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
10.39		41.5								1622	32.0%		16.5%				(10.39)	(8.00)			(1.53)	(1.49)	(493)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(253)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.5	41.6	0.174	0.026	110.0	110.0	10.0	2399	1830	491	2322	209	2040	0.32	0.00	0.32	0.32	0.15	0.00	0.15	0.15	0.977	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
10.06		51.5								2038	26.8%		11.4%				(10.06)	(7.68)			(1.38)	(1.34)	(491)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(209)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.5	41.6	0.174	0.026	110.0	110.0	10.0	2279	2246	489	2735	155	2402	0.02	1.65	1.67	1.67	0.02	0.47	0.49	0.49	0.972	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.130	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
8.39		61.5								2454	21.8%		6.9%				(8.39)	(6.00)			(0.89)	(0.85)	(489)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(155)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.5	41.6	0.174	0.026	110.0	110.0	10.0	2662	2662	486	3149	112	2774	0.00	1.52	1.52	1.52	0.00	0.37	0.37	0.37	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.156	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
6.87		71.5								2870	18.3%		4.2%				(6.87)	(4.48)			(0.52)	(0.48)	(486)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(112)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.5	41.6	0.174	0.026	110.0	110.0	10.0	3078	3078	484	3562	77	3156	0.00	1.32	1.32	1.32	0.00	0.23	0.23	0.23	0.962	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.182	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
5.55		81.5								3286	15.7%		2.5%				(5.55)	(3.16)			(0.29)	(0.25)	(484)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(77)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.0	41.6	0.174	0.026	110.0	110.0	15.0	3598	3598	480	4079	47	3645	0.00	1.70	1.70	1.70	0.00	0.18	0.18	0.18	0.955	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.215	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
3.84		96.5								3910	13.4%		1.3%				(3.84)	(1.46)			(0.12)	(0.08)	(480)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(47)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	104.0	41.6	0.174	0.026	110.0	110.0	15.0	4222	4222	477	4699	24	4246	0.00	1.46	1.46	1.46	0.00	0.08	0.08	0.08	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.255	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
2.39		111.5								4534	11.3%		0.6%				(2.39)	(0.00)			(0.04)	(0.00)	(477)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(24)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	119.0	41.6	0.174	0.026	110.0	110.0	15.0	4846	4846	473	5319	11	4857	0.00	1.27	1.27	0.00	0.00	0.03	0.03	0.00	0.940	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.294	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
1.12		126.5								5158	9.8%		0.2%				(1.12)	(0.00)			(0.01)	(0.00)	(473)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(11)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	134.0	41.6	0.174	0.026	110.0	110.0	15.0	5470	5470	469	5940	5	5475	0.00	1.12	1.12	0.00	0.00	0.01	0.01	0.00	0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.334	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00		141.5								5782	8.6%		0.1%				(0.00)	(0.00)			(0.00)	(0.00)	(469)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(5)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.8	57.6	0.000	0.000	11.0	11.0	68.5	7755	7755	459	8214	0	7755	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.912	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	68.50	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9728	5.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(459)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9752	9752	450	10202	0	9752	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9776	4.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(450)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9799	9799	450	10249	0	9799	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9823	4.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(450)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9847	9847	450	10297	0	9847	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9871	4.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(450)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9895	9895	449	10344	0	9895	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9918	4.5%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(449)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9942	9942	449	10391	0	9942	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.962	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9966	4.5%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(449)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	9990	9990	449	10439	0	9990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.892	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								10014	4.5%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(449)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	10085	10085	448	10533	0	10085	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.891	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.987	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10156	4.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(448)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	6.41	24.56	30.97	28.59	5.95	14.83	20.79	20.74
	(ft)	0.53	2.05	2.58	2.38	0.50	1.24	1.73	1.73
	%Ultimate			100.0	92.3			67.1	67.0
REDUCD	(in)	6.41	24.56	30.97	28.59	5.95	14.83	20.79	20.74
	(ft)	0.53	2.05	2.58	2.38	0.50	1.24	1.73	1.73
	%Ultimate			100.0	92.3			67.1	67.0

EE 24365 Grand Bayou
Cell 2
ML -2.5

Existing Grade = **-2.50** **NAVD 88**
Target Grade at 20 years = **0.71 to 1.56** **NAVD 88**

time (yrs)	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	0.035	0.032	0.030	0.027	
0.16	0.035	0.032	0.030	0.027	
0.50	0.035	0.032	0.030	0.027	
1.00	0.035	0.032	0.030	0.027	
1.50	0.035	0.032	0.030	0.027	
2.00	0.035	0.032	0.030	0.027	
3.00	0.035	0.032	0.030	0.027	
4.00	0.035	0.032	0.030	0.027	
7.00	0.035	0.032	0.030	0.027	
11.00	0.035	0.032	0.030	0.027	
20.00	0.035	0.032	0.030	0.027	
ultimate	0.035	0.032	0.030	0.027	

time (yrs)	finished elevation (ft NAVD 88) of MARSH FILL (SELF WEIGHT)				
	3.5	3	2.5	2	
0.00	3.50	3.00	2.50	2.00	
0.08	3.46	2.97	2.47	1.97	
0.16	3.46	2.97	2.47	1.97	
0.50	3.46	2.97	2.47	1.97	
1.00	3.46	2.97	2.47	1.97	
1.50	3.46	2.97	2.47	1.97	
2.00	3.46	2.97	2.47	1.97	
3.00	3.46	2.97	2.47	1.97	
4.00	3.46	2.97	2.47	1.97	
7.00	3.46	2.97	2.47	1.97	
11.00	3.46	2.97	2.47	1.97	
20.00	3.46	2.97	2.47	1.97	
ultimate	3.46	2.97	2.47	1.97	

Ultimate self weight consolidation settlement = 0.0059* height of fill (e.g., Ultimate Consol for 1 feet of fill = 0.0059* 3 = 0.18 feet)

time (yrs)	Percent Consolidation due to consolidation settlement (ft) of marsh fill				
	3	2.5	2.5	2	
0.00	0.0	0.0	0.0	0.0	
0.08	100.0	100.0	100.0	100.0	
0.16	100.0	100.0	100.0	100.0	
0.50	100.0	100.0	100.0	100.0	
1.00	100.0	100.0	100.0	100.0	
1.50	100.0	100.0	100.0	100.0	
2.00	100.0	100.0	100.0	100.0	
3.00	100.0	100.0	100.0	100.0	
4.00	100.0	100.0	100.0	100.0	
7.00	100.0	100.0	100.0	100.0	
11.00	100.0	100.0	100.0	100.0	
20.00	100.0	100.0	100.0	100.0	
ultimate	100.0	100.0	100.0	100.0	

EE 24365 Grand Bayou
Cell 2
ML -2.5

Existing Grade = **-2.50** **NAVD 88**
Target Grade at 20 years = **0.71 to 1.56** **NAVD 88**

time (yrs)	consolidation settlement (inches) of subsurface				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	17.11	15.32	13.53	11.74	
0.16	17.15	15.35	13.54	11.75	
0.50	17.29	15.49	13.60	11.78	
1.00	17.49	15.67	13.68	11.85	
1.50	17.67	15.85	13.84	11.92	
2.00	17.85	16.01	14.00	11.99	
3.00	18.27	16.31	14.27	12.15	
4.00	18.71	16.60	14.51	12.30	
7.00	19.76	17.54	15.19	12.83	
11.00	20.74	18.38	15.91	13.31	
20.00	22.14	19.51	16.91	13.93	
ultimate	28.59	24.13	21.02	16.48	

3.5		3		2.5		2			
+20%	-20%	+20%	-20%	+20%	-20%	+20%	-20%		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
20.53	13.69	18.38	12.26	16.24	10.82	14.09	9.39		
20.58	13.72	18.42	12.28	16.25	10.83	14.10	9.40		
20.75	13.83	18.59	12.39	16.32	10.88	14.14	9.42		
20.99	13.99	18.80	12.54	16.42	10.94	14.22	9.48		
21.20	14.14	19.02	12.68	16.61	11.07	14.30	9.54		
21.42	14.28	19.21	12.81	16.80	11.20	14.39	9.59		
21.92	14.62	19.57	13.05	17.12	11.42	14.58	9.72		
22.45	14.97	19.92	13.28	17.41	11.61	14.76	9.84		
23.71	15.81	21.05	14.03	18.23	12.15	15.40	10.26		
24.89	16.59	22.06	14.70	19.09	12.73	15.97	10.65		
26.57	17.71	23.41	15.61	20.29	13.53	16.72	11.14		
34.31	22.87	28.96	19.30	25.22	16.82	19.78	13.18		

time (yrs)	consolidation settlement (feet) of subsurface with subsidence				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	1.43	1.28	1.13	0.98	
0.16	1.43	1.28	1.13	0.98	
0.50	1.45	1.30	1.14	0.99	
1.00	1.48	1.33	1.16	1.01	
1.50	1.50	1.35	1.18	1.02	
2.00	1.53	1.38	1.21	1.04	
3.00	1.59	1.42	1.25	1.08	
4.00	1.64	1.47	1.29	1.11	
7.00	1.79	1.61	1.41	1.22	
11.00	1.96	1.76	1.56	1.34	
20.00	2.27	2.05	1.83	1.58	

0.02016	0.00168
0.04032	0.00336
0.126	0.0105
0.252	0.021
0.378	0.0315
0.504	0.042
0.756	0.063
1.008	0.084
1.764	0.147
2.772	0.231
5.04	0.42

Existing Grade = -2.50 NAVD 88 **CELL 2**
Target Grade at 20 years = 0.71 to 1.56 NAVD 88
fill height 6 5.5 5 4.5

time (yrs)	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)					consolidation settlement (ft) of subsurface with subsidence				
	3.5	3	2.5	2		3.5	3	2.5	2	
0.00	0.000	0.000	0.000	0.000		0.00	0.00	0.00	0.00	
0.08	0.035	0.032	0.030	0.027		1.43	1.28	1.13	0.98	
0.16	0.035	0.032	0.030	0.027		1.43	1.28	1.13	0.98	
0.50	0.035	0.032	0.030	0.027		1.45	1.30	1.14	0.99	
1.00	0.035	0.032	0.030	0.027		1.48	1.33	1.16	1.01	
1.50	0.035	0.032	0.030	0.027		1.50	1.35	1.18	1.02	
2.00	0.035	0.032	0.030	0.027		1.53	1.38	1.21	1.04	
3.00	0.035	0.032	0.030	0.027		1.59	1.42	1.25	1.08	
4.00	0.035	0.032	0.030	0.027		1.64	1.47	1.29	1.11	
7.00	0.035	0.032	0.030	0.027		1.79	1.61	1.41	1.22	
11.00	0.035	0.032	0.030	0.027		1.96	1.76	1.56	1.34	
20.00	0.035	0.032	0.030	0.027		2.27	2.05	1.83	1.58	

time (yrs)	Finished Elevation from TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils				
0.00	3.50	3.00	2.50	2.00	
0.08	2.04	1.69	1.34	0.99	
0.16	2.03	1.69	1.34	0.99	
0.5	2.01	1.67	1.33	0.98	
1	1.99	1.64	1.31	0.96	
1.5	1.96	1.62	1.29	0.95	
2	1.94	1.59	1.26	0.93	
3	1.88	1.55	1.22	0.90	
4	1.82	1.50	1.18	0.86	
7	1.67	1.36	1.06	0.76	
11	1.51	1.20	0.91	0.63	
20	1.20	0.92	0.64	0.39	

time (yrs)	TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils with subsidence				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	1.46	1.31	1.16	1.01	
0.16	1.47	1.31	1.16	1.01	
0.5	1.49	1.33	1.17	1.02	
1	1.51	1.36	1.19	1.04	
1.5	1.54	1.38	1.21	1.05	
2	1.56	1.41	1.24	1.07	
3	1.62	1.45	1.28	1.10	
4	1.68	1.50	1.32	1.14	
7	1.83	1.64	1.44	1.24	
11	1.99	1.80	1.59	1.37	
20	2.30	2.08	1.86	1.61	

MCA-2 ML at el -3.0

SOIL DESIGN PARAMETERS

THIS SPREADSHEET USES DYNAMIC CR VALUES. PLEASE CHECK USCS AND MOISTURE CONTENTS

EE 24365
CPRA Grande Bayou
Cell 2

RED = INPUT VALUE

$$\frac{c_u}{\sigma'_{vc}} = S(OCR)^m$$

Homogeneous CL and CH sedimentary clays of low to moderate sensitivity (I_p = 20%–80%):
$S = 0.20 + 0.05I_p$, or simply $S = 0.22$.
$m = 0.88(1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.
Sedimentary deposits of silts and organic soils (Atterberg limits plot below the *A*-line, but excluding peats) and clays with shells:
$S = 0.25$, with nominal SD = 0.05.
$m = 0.88\ (1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.

S	**0.22**
m	**0.800**

Ground Surface El -3.00 (NAVD 88)
GWL (depth ft BGS/MLS) 0.00

extrapolated

Str No.	USCS	Depth (ft)	NAVD 88 EL (ft)	γ pcf	γ' (pcf)	P'o Zero Burden (psf)	C_u=0.18*P'o Theoretical Cohesion, C_u (psf)	.20*P'o Theoretical Cohesion, C (psf)	C_u=0.22*P'o Theoretical Cohesion, C_u (psf)	C_u=0.25*P'o Theoretical Cohesion, C_u (psf)	C_u=0.27*P'o Theoretical Cohesion, C_u (psf)	C_u=0.31*P'o Theoretical Cohesion, C_u (psf)	Design Line Assigned Cohesion, C_u (psf)	C_u/P'_o	OCR 0.22	P'_c=OCR*P'_o Past Maximum (psf)	W_c %	CR (N/D)	RR (N/D)	c_v (ft^2/yr)	Poisson's Ratio (N/D)	Total H (ft)
		0.0	**-3.0**			0	0	0	0	0	0	0	**60.0**	0.00	**10.0**							
1	**OH**	2.0	-5.0	**70**	7.6	15	3	3	3	4	4	5	**60.0**	3.95	10.00	**152**	**300**	0.418	0.063		**0.00**	4.0
		4.0	**-7.0**			30	5	6	7	8	8	9	**60.0**	1.97	10.00	**304**						
2	**OH**	5.5	-8.5	**102**	39.6	90	16	18	20	22	24	28	**70.0**	0.78	4.86	**437**	**70**	0.223	0.033		**0.00**	3.0
		7.0	**-10.0**			149	27	30	33	37	40	46	**70.0**	0.47	2.58	**385**						
3	**ML**	9.5	-12.5	**108**	45.6	263	47	53	58	66	71	82	**270.0**	1.03	6.85	**1803**	**35**	0.108	0.016		**0.00**	5.0
		12.0	**-15.0**			377	68	75	83	94	102	117	**270.0**	0.72	6.85	**2585**						
4	**CH**	14.5	-17.5	**104**	41.6	481	87	96	106	120	130	149	**150.0**	0.31	1.55	**744**	**56**	0.177	0.027		**0.00**	5.0
		17.0	**-20.0**			585	105	117	129	146	158	181	**150.0**	0.26	1.55	**905**						
5	**CH**	19.5	-22.5	**100**	37.6	679	122	136	149	170	183	211	**200.0**	0.29	1.44	**978**	**70**	0.223	0.033		**0.00**	5.0
		22.0	**-25.0**			773	139	155	170	193	209	240	**200.0**	0.26	1.44	**1113**						
6	**CL**	24.5	-27.5	**103**	40.6	875	157	175	192	219	236	271	**300.0**	0.34	1.74	**1524**	**60**	0.190	0.029		**0.00**	5.0
		27.0	**-30.0**			976	176	195	215	244	264	303	**300.0**	0.31	1.74	**1701**						
7	**CH**	29.5	-32.5	**116**	53.6	1110	200	222	244	278	300	344	**320.0**	0.29	1.40	**1556**	**38**	0.117	0.018		**0.00**	5.0
		32.0	**-35.0**			1244	224	249	274	311	336	386	**320.0**	0.26	1.40	**1744**						
8	**CL**	34.5	-37.5	**104**	41.6	1348	243	270	297	337	364	418	**400.0**	0.30	1.45	**1959**	**50**	0.157	0.024		**0.00**	5.0
		37.0	**-40.0**			1452	261	290	319	363	392	450	**400.0**	0.28	1.45	**2110**						
9	**CH**	39.0	-42.0	**104**	41.6	1535	276	307	338	384	415	476	**500.0**	0.33	1.63	**2507**	**55**	0.174	0.026		**0.00**	4.0
		41.0	**-44.0**			1619	291	324	356	405	437	502	**500.0**	0.31	1.63	**2643**						
10	**CH**	46.0	-49.0	**104**	41.6	1827	329	365	402	457	493	566	**500.0**	0.27	1.31	**2400**	**55**	0.174	0.026		**0.00**	10.0
		51.0	**-54.0**			2035	366	407	448	509	549	631	**500.0**	0.25	1.31	**2674**						
11	**CH**	56.0	-59.0	**104**	41.6	2243	404	449	493	561	606	695	**500.0**	0.22	1.02	**2280**	**55**	0.174	0.026		**0.00**	10.0
		61.0	**-64.0**			2451	441	490	539	613	662	760	**500.0**	0.20	1.02	**2492**						
12	**CH**	66.0	-69.0	**104**	41.6	2659	479	532	585	665	718	824	**500.0**	0.19	1.00	**2659**	**55**	0.174	0.026		**0.00**	10.0
		71.0	**-74.0**			2867	516	573	631	717	774	889	**500.0**	0.17	1.00	**2867**						
13	**CH**	76.0	-79.0	**104**	41.6	3075	553	615	676	769	830	953	**500.0**	0.16	1.00	**3075**	**55**	0.174	0.026		**0.00**	10.0
		81.0	**-84.0**			3283	591	657	722	821	886	1018	**500.0**	0.15	1.00	**3283**						
14	**CH**	88.5	-91.5	**104**	41.6	3595	647	719	791	899	971	1114	**500.0**	0.14	1.00	**3595**	**55**	0.174	0.026		**0.00**	15.0
		96.0	**-99.0**			3907	703	781	859	977	1055	1211	**500.0**	0.13	1.00	**3907**						
15	**CH**	103.5	-106.5	**104**	41.6	4219	759	844	928	1055	1139	1308	**500.0**	0.12	1.00	**4219**	**55**	0.174	0.026		**0.00**	15.0
		111.0	**-114.0**			4531	816	906	997	1133	1223	1404	**500.0**	0.11	1.00	**4531**						
16	**CH**	118.5	-121.5	**104**	41.6	4843	872	969	1065	1211	1308	1501	**500.0**	0.10	1.00	**4843**	**55**	0.174	0.026		**0.00**	15.0
		126.0	**-129.0**			5155	928	1031	1134	1289	1392	1598	**500.0**	0.10	1.00	**5155**						
17	**CH**	133.5	-136.5	**104**	41.6	5467	984	1093	1203	1367	1476	1695	**500.0**	0.09	1.00	**5467**	**55**	0.174	0.026		**0.00**	15.0
		141.0	**-144.0**			5779	1040	1156	1271	1445	1560	1791	**500.0**	0.09	1.00	**5779**						

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 2

Cell 2

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	2000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	4000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	357.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	11.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	5.71	15.94	**21.65**	17.65	5.33	8.98	14.31	14.10
	(ft)	0.48	1.33	1.80	1.47	0.44	0.75	1.19	1.18
	%Ultimate			100.0	81.5			66.1	65.1
REDUCD	(in)	5.71	15.94	21.65	17.65	5.33	8.98	14.31	14.10
	(ft)	0.48	1.33	1.80	1.47	0.44	0.75	1.19	1.18
	%Ultimate			100.0	81.5			66.1	65.1

extrapolated

	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1 dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 1 dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2 dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2 dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3 dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3 dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4 dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 4 dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Southeast
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1 11.00	Region 2 11.00	Region 3 11.00	Region 4 11.00	Region 5 11.00	Region 6 11.00	Region 7 11.00	Region 8 11.00	Region 9 11.00	Region 10 11.00
I	120.40	Tv	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		Uv	10.31	10.31	10.31	10.31	10.31	10.31	10.31	10.31	10.31	10.31
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
21.65		0.0								0							(21.65)	(17.65)				(14.31)	(14.10)																						
	1	2.0	7.6	0.418	0.063	9999.0	110.0	4.0	152	15	357	372	355	371	3.01	7.80	10.80	10.80	3.01	7.77	10.78	10.78	0.999	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.13	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10.84		4.0								30	2346.3%		2338.3%				(10.84)	(6.84)				(3.53)	(3.32)	(357)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(355)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	5.5	39.6	0.223	0.033	110.0	110.0	3.0	437	90	356	446	345	435	0.83	0.07	0.90	0.90	0.82	0.00	0.82	0.82	0.997	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.95	0.005	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
9.94		7.0								149	396.4%		384.1%				(9.94)	(5.94)				(2.71)	(2.50)	(356)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(345)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	9.5	45.6	0.108	0.016	1000.0	110.0	5.0	1803	263	355	618	331	594	0.36	0.00	0.36	0.36	0.34	0.00	0.34	0.34	0.995	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.52	0.011	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
9.58		12.0								377	135.0%		125.7%				(9.58)	(5.58)				(2.37)	(2.16)	(355)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(331)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	14.5	41.6	0.177	0.027	110.0	110.0	5.0	744	481	354	836	311	792	0.30	0.54	0.84	0.84	0.30	0.29	0.59	0.59	0.993	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	1.58	0.020	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
8.75		17.0								585	73.6%		64.6%				(8.75)	(4.75)				(1.77)	(1.56)	(354)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(311)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	19.5	37.6	0.223	0.033	110.0	110.0	5.0	978	679	353	1033	282	961	0.32	0.32	0.63	0.63	0.30	0.00	0.30	0.30	0.990	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
8.11		22.0								773	52.0%		41.5%				(8.11)	(4.11)				(1.47)	(1.26)	(353)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(282)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	24.5	40.6	0.190	0.029	110.0	110.0	5.0	1524	875	353	1227	254	1129	0.25	0.00	0.25	0.25	0.19	0.00	0.19	0.19	0.988	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
7.86		27.0								976	40.3%		29.1%				(7.86)	(3.86)				(1.28)	(1.07)	(353)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(254)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	29.5	53.6	0.117	0.018	110.0	110.0	5.0	1556	1110	352	1462	227	1337	0.13	0.00	0.13	0.13	0.09	0.00	0.09	0.09	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.059	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
7.73		32.0								1244	31.7%		20.5%				(7.73)	(3.73)				(1.20)	(0.99)	(352)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(227)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	34.5	41.6	0.157	0.024	110.0	110.0	5.0	1959	1348	351	1699	202	1550	0.14	0.00	0.14	0.14	0.09	0.00	0.09	0.09	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.072	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
7.59		37.0								1452	26.0%		15.0%				(7.59)	(3.59)				(1.11)	(0.90)	(351)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(202)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.0	41.6	0.174	0.026	110.0	110.0	4.0	2507	1535	350	1885	180	1715	0.11	0.00	0.11	0.11	0.06	0.00	0.06	0.06	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.084	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
7.48		41.0								1619	22.8%		11.7%				(7.48)	(3.48)				(1.05)	(0.84)	(350)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(180)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.0	41.6	0.174	0.026	110.0	110.0	10.0	2400	1827	349	2175	149	1976	0.24	0.00	0.24	0.24	0.11	0.00	0.11	0.11	0.977	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
7.24		51.0								2035	19.1%		8.2%				(7.24)	(3.24)				(0.94)	(0.73)	(349)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(149)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.0	41.6	0.174	0.026	110.0	110.0	10.0	2280	2243	347	2590	110	2353	0.02	1.15	1.18	1.18	0.02	0.28	0.31	0.31	0.972	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.129	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
6.07		61.0								2451	15.5%		4.9%				(6.07)	(2.07)				(0.64)	(0.43)	(347)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(110)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.0	41.6	0.174	0.026	110.0	110.0	10.0	2659	2659	345	3004	79	2738	0.00	1.11	1.11	1.11	0.00	0.27	0.27	0.27	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.155	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
4.96		71.0								2867	13.0%		3.0%				(4.96)	(0.96)				(0.37)	(0.16)	(345)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(79)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.0	41.6	0.174	0.026	110.0	110.0	10.0	3075	3075	343	3418	55	3130	0.00	0.96	0.96	0.96	0.00	0.16	0.16	0.16	0.962	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.181	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
4.00		81.0								3283	11.2%		1.8%				(4.00)	(0.00)				(0.21)	(0.00)	(343)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(55)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	88.5	41.6	0.174	0.026	110.0	110.0	15.0	3595	3595	341	3936	33	3628	0.00	1.23	1.23	0.00	0.00	0.12	0.12	0.00	0.956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.214	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
2.77		96.0								3907	9.5%		0.9%				(2.77)	(0.00)				(0.08)	(0.00)	(341)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(33)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	103.5	41.6	0.174	0.026	110.0	110.0	15.0	4219	4219	338	4557	17	4235	0.00	1.05	1.05	0.00	0.00	0.05	0.05	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.254	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
1.72		111.0								4531	8.0%		0.4%				(1.72)	(0.00)				(0.03)	(0.00)	(338)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(17)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	118.5	41.6	0.174	0.026	110.0	110.0	15.0	4843	4843	336	5178	8	4850	0.00	0.91	0.91	0.00	0.00	0.02	0.02	0.00	0.940	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.293	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0.80		126.0								5155	6.9%		0.2%				(0.80)	(0.00)				(0.01)	(0.00)	(336)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(8)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	133.5	41.6	0.174	0.026	110.0	110.0	15.0	5467	5467	333	5800	3	5470	0.00	0.80	0.80	0.00	0.00	0.01	0.01	0.00	0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.332	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00		141.0								5779	6.1%		0.1%				(0.00)	(0.00)				(0.00)	(0.00)	(333)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.5	57.6	0.000	0.000	11.0	11.0	69.0	7766	7766	326	8091	0	7766	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.912	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.00	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9753	4.2%		0.0%				(0.00)	(0.00)				(0.00)	(0.00)	(326)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9777	9777	319	10096	0	9777	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9801	3.3%		0.0%				(0.00)	(0.00)				(0.00)	(0.00)	(319)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9824	9824	319	10144	0	9824	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.938	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9848	3.2%		0.0%				(0.00)	(0.00)				(0.00)	(0.00)	(319)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9872	9872	319	10191	0	9872	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9896	3.2%		0.0%				(0.00)	(0.00)				(0.00)	(0.00)	(319)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9920	9920	319	10239	0	9920	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9943	3.2%		0.0%				(0.00)	(0.00)				(0.00)	(0.00)	(319)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9967	9967	319	10286	0	9967	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.963	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9991	3.2%		0.0%				(0.00)	(0.00)				(0.00)	(0.00)	(319)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	10015	10015	319	10333	0	10015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.892	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								10039	3.2%		0.0%				(0.00)	(0.00)				(0.00)	(0.00)	(319)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	10110	10110	318	10428	0	10110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.891	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.988	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10181	3.1%		0.0%				(0.00)	(0.00)				(0.00)	(0.00)	(318)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	5.71	15.94	21.65	17.65	5.33	8.98	14.31	14.10
	(ft)	0.48	1.33	1.80	1.47	0.44	0.75	1.19	1.18
	%Ultimate			100.0	81.5			66.1	65.1
REDUCD	(in)	5.71	15.94	21.65	17.65	5.33	8.98	14.31	14.10
	(ft)	0.48	1.33	1.80	1.47	0.44	0.75	1.19	1.18
	%Ultimate			100.0	81.5			66.1	65.1

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 2.5

Cell 2

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	2000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	4000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	414.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	20.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	5.87	19.33	**25.19**	22.00	5.56	12.44	18.00	17.66
	(ft)	0.49	1.61	2.10	1.83	0.46	1.04	1.50	1.47
	%Ultimate			100.0	87.3			71.4	70.1
REDUCD	(in)	5.87	19.33	25.19	22.00	5.56	12.44	18.00	17.66
	(ft)	0.49	1.61	2.10	1.83	0.46	1.04	1.50	1.47
	%Ultimate			100.0	87.3			71.4	70.1

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Southeast
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1 20.00	Region 2 20.00	Region 3 20.00	Region 4 20.00	Region 5 20.00	Region 6 20.00	Region 7 20.00	Region 8 20.00	Region 9 20.00	Region 10 20.00
I	120.40	Tv	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
		Uv	13.90	13.90	13.90	13.90	13.90	13.90	13.90	13.90	13.90	13.90
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate: Change (psf)	Ultimate: Value (psf)	Induced: Change (psf)	Induced: Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
25.19		0.0								0							(25.19)	(22.00)			(18.00)	(17.66)																								
	1	2.0	7.6	0.418	0.063	9999.0	110.0	4.0	152	15	414	429	413	428	3.01	9.04	12.05	12.05	3.01	9.02	12.03	12.03	0.999	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.13	0.001	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13.14		4.0								30	2720.9%		2714.1%				(13.14)	(9.95)			(5.97)	(5.63)	(414)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(413)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	5.5	39.6	0.223	0.033	110.0	110.0	3.0	437	90	413	503	403	493	0.83	0.49	1.32	1.32	0.83	0.42	1.25	1.25	0.997	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.95	0.005	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
11.83		7.0								149	459.7%		449.1%				(11.83)	(8.63)			(4.72)	(4.38)	(413)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(403)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	9.5	45.6	0.108	0.016	1000.0	110.0	5.0	1803	263	412	675	391	654	0.40	0.00	0.40	0.40	0.38	0.00	0.38	0.38	0.995	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.52	0.011	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
11.43		12.0								377	156.5%		148.5%				(11.43)	(8.24)			(4.34)	(4.00)	(412)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(391)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	14.5	41.6	0.177	0.027	110.0	110.0	5.0	744	481	411	892	374	855	0.30	0.84	1.14	1.14	0.30	0.64	0.94	0.94	0.993	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	1.58	0.020	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
10.29		17.0								585	85.4%		77.6%				(10.29)	(7.10)			(3.39)	(3.06)	(411)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(374)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	19.5	37.6	0.223	0.033	110.0	110.0	5.0	978	679	410	1089	348	1027	0.32	0.63	0.94	0.94	0.32	0.29	0.61	0.61	0.990	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
9.34		22.0								773	60.4%		51.3%				(9.34)	(6.15)			(2.79)	(2.45)	(410)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(348)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	24.5	40.6	0.190	0.029	110.0	110.0	5.0	1524	875	409	1284	323	1198	0.28	0.00	0.28	0.28	0.23	0.00	0.23	0.23	0.988	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
9.06		27.0								976	46.7%		37.0%				(9.06)	(5.87)			(2.55)	(2.22)	(409)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(323)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	29.5	53.6	0.117	0.018	110.0	110.0	5.0	1556	1110	408	1518	299	1409	0.14	0.00	0.14	0.14	0.11	0.00	0.11	0.11	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.059	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
8.92		32.0								1244	36.7%		26.9%				(8.92)	(5.73)			(2.45)	(2.11)	(408)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(299)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	34.5	41.6	0.157	0.024	110.0	110.0	5.0	1959	1348	407	1755	276	1624	0.16	0.00	0.16	0.16	0.11	0.00	0.11	0.11	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.072	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
8.75		37.0								1452	30.2%		20.4%				(8.75)	(5.56)			(2.33)	(1.99)	(407)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(276)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.0	41.6	0.174	0.026	110.0	110.0	4.0	2507	1535	406	1941	255	1791	0.13	0.00	0.13	0.13	0.08	0.00	0.08	0.08	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.084	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
8.63		41.0								1619	26.4%		16.6%				(8.63)	(5.44)			(2.25)	(1.91)	(406)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(255)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.0	41.6	0.174	0.026	110.0	110.0	10.0	2400	1827	404	2231	225	2051	0.27	0.00	0.27	0.27	0.16	0.00	0.16	0.16	0.977	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
8.35		51.0								2035	22.1%		12.3%				(8.35)	(5.16)			(2.09)	(1.75)	(404)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(225)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.0	41.6	0.174	0.026	110.0	110.0	10.0	2280	2243	402	2645	185	2427	0.02	1.35	1.37	1.37	0.02	0.57	0.59	0.59	0.972	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.129	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
6.99		61.0								2451	17.9%		8.2%				(6.99)	(3.80)			(1.50)	(1.16)	(402)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(185)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.0	41.6	0.174	0.026	110.0	110.0	10.0	2659	2659	400	3059	149	2808	0.00	1.27	1.27	1.27	0.00	0.50	0.50	0.50	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.155	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
5.72		71.0								2867	15.1%		5.6%				(5.72)	(2.52)			(1.00)	(0.67)	(400)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(149)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.0	41.6	0.174	0.026	110.0	110.0	10.0	3075	3075	398	3473	119	3193	0.00	1.10	1.10	1.10	0.00	0.34	0.34	0.34	0.962	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.181	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
4.61		81.0								3283	13.0%		3.9%				(4.61)	(1.42)			(0.66)	(0.32)	(398)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(119)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	88.5	41.6	0.174	0.026	110.0	110.0	15.0	3595	3595	396	3990	87	3681	0.00	1.42	1.42	1.42	0.00	0.32	0.32	0.32	0.956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.214	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
3.19		96.0								3907	11.0%		2.4%				(3.19)	(0.00)			(0.34)	(0.00)	(396)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(87)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	103.5	41.6	0.174	0.026	110.0	110.0	15.0	4219	4219	392	4611	57	4276	0.00	1.21	1.21	0.00	0.00	0.18	0.18	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.254	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
1.98		111.0								4531	9.3%		1.4%				(1.98)	(0.00)			(0.15)	(0.00)	(392)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(57)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	118.5	41.6	0.174	0.026	110.0	110.0	15.0	4843	4843	389	5232	36	4879	0.00	1.05	1.05	0.00	0.00	0.10	0.10	0.00	0.940	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.293	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
0.93		126.0								5155	8.0%		0.7%				(0.93)	(0.00)			(0.05)	(0.00)	(389)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(36)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	133.5	41.6	0.174	0.026	110.0	110.0	15.0	5467	5467	386	5853	22	5488	0.00	0.93	0.93	0.00	0.00	0.05	0.05	0.00	0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.332	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
0.00		141.0								5779	7.1%		0.4%				(0.00)	(0.00)			(0.00)	(0.00)	(386)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(22)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.5	57.6	0.000	0.000	11.0	11.0	69.0	7766	7766	378	8143	0	7766	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.912	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.00	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9753	4.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(378)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9777	9777	370	10147	0	9777	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9801	3.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(370)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9824	9824	370	10195	0	9824	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.938	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9848	3.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(370)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9872	9872	370	10242	0	9872	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9896	3.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(370)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9920	9920	370	10289	0	9920	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9943	3.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(370)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9967	9967	370	10337	0	9967	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.963	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9991	3.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(370)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	10015	10015	369	10384	0	10015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.892	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								10039	3.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(369)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	10110	10110	369	10479	0	10110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.891	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.988	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10181	3.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(369)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	5.87	19.33	25.19	22.00	5.56	12.44	18.00	17.66
	(ft)	0.49	1.61	2.10	1.83	0.46	1.04	1.50	1.47
	%Ultimate			100.0	87.3			71.4	70.1
REDUCD	(in)	5.87	19.33	25.19	22.00	5.56	12.44	18.00	17.66
	(ft)	0.49	1.61	2.10	1.83	0.46	1.04	1.50	1.47
	%Ultimate			100.0	87.3			71.4	70.1

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 3.0

Cell 2

Load Region Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	2000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	4000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	471.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	0.16
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	6.01	22.49	**28.50**	26.26	4.75	10.92	15.67	15.65
	(ft)	0.50	1.87	2.38	2.19	0.40	0.91	1.31	1.30
	%Ultimate			100.0	92.1			55.0	54.9
REDUCD	(in)	6.01	22.49	28.50	26.26	4.75	10.92	15.67	15.65
	(ft)	0.50	1.87	2.38	2.19	0.40	0.91	1.31	1.30
	%Ultimate			100.0	92.1			55.0	54.9

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Southeast
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
			0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
I	120.40	Tv	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Uv	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
28.50		0.0								0							(28.50)	(26.26)				(15.67)	(15.65)																							
	1	2.0	7.6	0.418	0.063	9999.0	110.0	4.0	152	15	471	486	465	480	3.01	10.12	13.13	13.13	3.01	10.03	13.03	13.03	0.999	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.13	0.001	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
15.37		4.0								30	3095.6%		3059.8%				(15.37)	(13.13)			(2.64)	(2.62)	(471)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(465)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	5.5	39.6	0.223	0.033	110.0	110.0	3.0	437	90	470	559	420	510	0.83	0.87	1.69	1.69	0.83	0.54	1.37	1.37	0.997	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.95	0.005	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
13.68		7.0								149	523.0%		467.8%				(13.68)	(11.44)			(1.27)	(1.25)	(470)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(420)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	9.5	45.6	0.108	0.016	1000.0	110.0	5.0	1803	263	469	732	360	623	0.43	0.00	0.43	0.43	0.36	0.00	0.36	0.36	0.995	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.52	0.011	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
13.25		12.0								377	178.1%		136.7%				(13.25)	(11.01)			(0.91)	(0.89)	(469)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(360)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	14.5	41.6	0.177	0.027	110.0	110.0	5.0	744	481	468	949	277	758	0.30	1.12	1.42	1.42	0.30	0.09	0.39	0.39	0.993	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	1.58	0.020	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
11.82		17.0								585	97.2%		57.6%				(11.82)	(9.58)			(0.52)	(0.50)	(468)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(277)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	19.5	37.6	0.223	0.033	110.0	110.0	5.0	978	679	466	1146	165	844	0.32	0.92	1.24	1.24	0.19	0.00	0.19	0.19	0.990	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
10.59		22.0								773	68.7%		24.3%				(10.59)	(8.34)			(0.33)	(0.31)	(466)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(165)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	24.5	40.6	0.190	0.029	110.0	110.0	5.0	1524	875	465	1340	71	946	0.32	0.00	0.32	0.32	0.06	0.00	0.06	0.06	0.988	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
10.27		27.0								976	53.2%		8.2%				(10.27)	(8.03)			(0.27)	(0.25)	(465)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(71)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	29.5	53.6	0.117	0.018	110.0	110.0	5.0	1556	1110	464	1574	1	1111	0.15	0.04	0.19	0.19	0.00	0.00	0.00	0.00	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.059	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.08		32.0								1244	41.8%		0.1%				(10.08)	(7.84)			(0.27)	(0.25)	(464)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	34.5	41.6	0.157	0.024	110.0	110.0	5.0	1959	1348	463	1811	0	1348	0.18	0.00	0.18	0.18	0.00	0.00	0.00	0.00	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.072	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.90		37.0								1452	34.3%		0.0%				(9.90)	(7.66)			(0.27)	(0.25)	(463)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.0	41.6	0.174	0.026	110.0	110.0	4.0	2507	1535	462	1997	0	1535	0.14	0.00	0.14	0.14	0.00	0.00	0.00	0.00	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.084	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.76		41.0								1619	30.1%		0.0%				(9.76)	(7.51)			(0.27)	(0.25)	(462)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.0	41.6	0.174	0.026	110.0	110.0	10.0	2400	1827	460	2287	0	1827	0.31	0.00	0.31	0.31	0.00	0.00	0.00	0.00	0.977	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.45		51.0								2035	25.2%		0.0%				(9.45)	(7.21)			(0.27)	(0.25)	(460)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.0	41.6	0.174	0.026	110.0	110.0	10.0	2280	2243	458	2700	0	2243	0.02	1.53	1.56	1.56	0.00	0.00	0.00	0.00	0.972	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.129	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.90		61.0								2451	20.4%		0.0%				(7.90)	(5.65)			(0.27)	(0.25)	(458)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.0	41.6	0.174	0.026	110.0	110.0	10.0	2659	2659	455	3114	19	2678	0.00	1.43	1.43	1.43	0.00	0.06	0.06	0.06	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.155	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
6.46		71.0								2867	17.1%		0.7%				(6.46)	(4.22)			(0.20)	(0.18)	(455)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(19)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.0	41.6	0.174	0.026	110.0	110.0	10.0	3075	3075	453	3528	38	3113	0.00	1.25	1.25	1.25	0.00	0.11	0.11	0.11	0.962	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.181	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
5.22		81.0								3283	14.7%		1.2%				(5.22)	(2.97)			(0.09)	(0.07)	(453)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(38)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	88.5	41.6	0.174	0.026	110.0	110.0	15.0	3595	3595	450	4045	19	3614	0.00	1.60	1.60	1.60	0.00	0.07	0.07	0.07	0.956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.214	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
3.61		96.0								3907	12.5%		0.5%				(3.61)	(1.37)			(0.02)	(0.00)	(450)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(19)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	103.5	41.6	0.174	0.026	110.0	110.0	15.0	4219	4219	447	4665	0	4219	0.00	1.37	1.37	1.37	0.00	0.00	0.00	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.254	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.24		111.0								4531	10.6%		0.0%				(2.24)	(0.00)			(0.02)	(0.00)	(447)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	118.5	41.6	0.174	0.026	110.0	110.0	15.0	4843	4843	443	5286	0	4843	0.00	1.19	1.19	0.00	0.00	0.00	0.00	0.00	0.940	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.293	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.05		126.0								5155	9.1%		0.0%				(1.05)	(0.00)			(0.02)	(0.00)	(443)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	133.5	41.6	0.174	0.026	110.0	110.0	15.0	5467	5467	439	5906	8	5475	0.00	1.05	1.05	0.00	0.00	0.02	0.02	0.00	0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.332	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0.00		141.0								5779	8.0%		0.2%				(0.00)	(0.00)			(0.00)	(0.00)	(439)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(8)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.5	57.6	0.000	0.000	11.0	11.0	69.0	7766	7766	430	8195	0	7766	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.912	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.00	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9753	5.5%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(430)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9777	9777	421	10198	8	9785	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
		211.0								9801	4.3%		0.1%				(0.00)	(0.00)			(0.00)	(0.00)	(421)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(8)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9824	9824	421	10246	6	9830	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.938	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		212.0								9848	4.3%		0.1%				(0.00)	(0.00)			(0.00)	(0.00)	(421)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(6)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9872	9872	421	10293	3	9875	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		213.0								9896	4.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(421)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9920	9920	421	10340	0	9920	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9943	4.2%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(421)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9967	9967	421	10388	0	9967	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.963	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9991	4.2%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(421)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	10015	10015	420	10435	0	10015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.892	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								10039	4.2%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(420)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	10110	10110	420	10530	0	10110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.891	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.988	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10181	4.2%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(420)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	6.01	22.49	28.50	26.26	4.75	10.92	15.67	15.65
	(ft)	0.50	1.87	2.38	2.19	0.40	0.91	1.31	1.30
	%Ultimate			100.0	92.1			55.0	54.9
REDUCD	(in)	6.01	22.49	28.50	26.26	4.75	10.92	15.67	15.65
	(ft)	0.50	1.87	2.38	2.19	0.40	0.91	1.31	1.30
	%Ultimate			100.0	92.1			55.0	54.9

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

el 3.5

Cell 2

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	2000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	4000.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	529.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	4.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement				Induced Settlement			
		Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)
TOTAL	(in)	6.14	25.58	**31.72**	30.55	5.41	13.48	18.89	18.89
	(ft)	0.51	2.13	2.64	2.55	0.45	1.12	1.57	1.57
	%Ultimate			100.0	96.3			59.5	59.5
REDUCD	(in)	6.14	25.58	31.72	30.55	5.41	13.48	18.89	18.89
	(ft)	0.51	2.13	2.64	2.55	0.45	1.12	1.57	1.57
	%Ultimate			100.0	96.3			59.5	59.5

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	1000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	2000.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-1000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-2000.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Southeast
PROJECT NO.: 24365
DATE: 7/12/21
ENGINEER: TKM

Group	L (ft)		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
			4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
I	120.40	Tv	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Uv	6.22	6.22	6.22	6.22	6.22	6.22	6.22	6.22	6.22	6.22
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Virgin Sett (in.)	Total Sett (in.)	Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
31.72		0.0								0							(31.72)	(30.55)				(18.89)	(18.89)																							
	1	2.0	7.6	0.418	0.063	9999.0	110.0	4.0	152	15	528	544	526	541	3.01	11.11	14.11	14.11	3.01	11.06	14.07	14.07	0.999	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.13	0.001	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
17.61		4.0								30	3476.8%		3457.3%				(17.61)	(16.43)			(4.82)	(4.82)	(528)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(526)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	5.5	39.6	0.223	0.033	110.0	110.0	3.0	437	90	528	617	501	590	0.83	1.21	2.04	2.04	0.83	1.05	1.88	1.88	0.997	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.95	0.005	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
15.57		7.0								149	587.5%		557.4%				(15.57)	(14.40)			(2.94)	(2.94)	(528)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(501)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	9.5	45.6	0.108	0.016	1000.0	110.0	5.0	1803	263	526	790	467	730	0.46	0.00	0.46	0.46	0.43	0.00	0.43	0.43	0.995	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.52	0.011	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
15.11		12.0								377	200.0%		177.4%				(15.11)	(13.94)			(2.51)	(2.51)	(526)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(467)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	14.5	41.6	0.177	0.027	110.0	110.0	5.0	744	481	525	1006	420	901	0.30	1.39	1.70	1.70	0.30	0.88	1.19	1.19	0.993	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	1.58	0.020	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
13.42		17.0								585	109.1%		87.3%				(13.42)	(12.24)			(1.32)	(1.32)	(525)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(420)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	19.5	37.6	0.223	0.033	110.0	110.0	5.0	978	679	524	1203	353	1032	0.32	1.20	1.52	1.52	0.32	0.31	0.63	0.63	0.990	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.033	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
11.89		22.0								773	77.1%		51.9%				(11.89)	(10.72)			(0.69)	(0.69)	(524)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(353)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	24.5	40.6	0.190	0.029	110.0	110.0	5.0	1524	875	522	1397	290	1165	0.35	0.00	0.35	0.35	0.21	0.00	0.21	0.21	0.988	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.046	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
11.55		27.0								976	59.7%		33.2%				(11.55)	(10.37)			(0.48)	(0.48)	(522)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(290)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	29.5	53.6	0.117	0.018	110.0	110.0	5.0	1556	1110	521	1631	233	1344	0.15	0.14	0.30	0.30	0.09	0.00	0.09	0.09	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.059	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
11.25		32.0								1244	46.9%		21.0%				(11.25)	(10.07)			(0.39)	(0.39)	(521)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(233)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	34.5	41.6	0.157	0.024	110.0	110.0	5.0	1959	1348	520	1868	184	1532	0.20	0.00	0.20	0.20	0.08	0.00	0.08	0.08	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.072	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
11.05		37.0								1452	38.6%		13.6%				(11.05)	(9.87)			(0.31)	(0.31)	(520)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(184)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	39.0	41.6	0.174	0.026	110.0	110.0	4.0	2507	1535	519	2054	145	1680	0.16	0.00	0.16	0.16	0.05	0.00	0.05	0.05	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.084	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
10.89		41.0								1619	33.8%		9.4%				(10.89)	(9.71)			(0.27)	(0.27)	(519)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(145)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	46.0	41.6	0.174	0.026	110.0	110.0	10.0	2400	1827	517	2343	96	1923	0.34	0.00	0.34	0.34	0.07	0.00	0.07	0.07	0.977	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.103	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
10.55		51.0								2035	28.3%		5.3%				(10.55)	(9.37)			(0.20)	(0.20)	(517)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(96)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	56.0	41.6	0.174	0.026	110.0	110.0	10.0	2280	2243	514	2757	50	2292	0.02	1.72	1.74	1.74	0.02	0.05	0.07	0.07	0.972	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.129	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
8.81		61.0								2451	22.9%		2.2%				(8.81)	(7.63)			(0.13)	(0.13)	(514)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(50)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	66.0	41.6	0.174	0.026	110.0	110.0	10.0	2659	2659	511	3170	23	2682	0.00	1.60	1.60	1.60	0.00	0.08	0.08	0.08	0.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.155	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
7.21		71.0								2867	19.2%		0.9%				(7.21)	(6.04)			(0.05)	(0.05)	(511)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(23)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	76.0	41.6	0.174	0.026	110.0	110.0	10.0	3075	3075	509	3583	11	3085	0.00	1.39	1.39	1.39	0.00	0.03	0.03	0.03	0.962	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.181	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
5.82		81.0								3283	16.5%		0.3%				(5.82)	(4.65)			(0.02)	(0.02)	(509)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(11)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	88.5	41.6	0.174	0.026	110.0	110.0	15.0	3595	3595	505	4100	4	3598	0.00	1.79	1.79	1.79	0.00	0.01	0.01	0.01	0.956	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.214	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
4.03		96.0								3907	14.1%		0.1%				(4.03)	(2.86)			(0.00)	(0.00)	(505)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(4)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	103.5	41.6	0.174	0.026	110.0	110.0	15.0	4219	4219	501	4720	0	4219	0.00	1.53	1.53	1.53	0.00	0.00	0.00	0.00	0.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.254	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.51		111.0								4531	11.9%		0.0%				(2.51)	(1.33)			(0.00)	(0.00)	(501)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	118.5	41.6	0.174	0.026	110.0	110.0	15.0	4843	4843	498	5340	0	4843	0.00	1.33	1.33	1.33	0.00	0.00	0.00	0.00	0.940	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.293	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.18		126.0								5155	10.3%		0.0%				(1.18)	(0.00)			(0.00)	(0.00)	(498)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	133.5	41.6	0.174	0.026	110.0	110.0	15.0	5467	5467	494	5960	0	5467	0.00	1.18	1.18	0.00	0.00	0.00	0.00	0.00	0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.74	0.332	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		141.0								5779	9.0%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(494)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	175.5	57.6	0.000	0.000	11.0	11.0	69.0	7766	7766	483	8248	0	7766	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.912	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	69.00	0.639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								9753	6.2%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(483)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	9777	9777	473	10250	0	9777	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								9801	4.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(473)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	9824	9824	473	10297	0	9825	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.938	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								9848	4.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(473)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	9872	9872	473	10345	0	9872	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								9896	4.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(473)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	9920	9920	473	10392	0	9920	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								9943	4.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(473)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	9967	9967	472	10440	0	9967	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.963	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								9991	4.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(472)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	10015	10015	472	10487	0	10015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.892	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								10039	4.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(472)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	10110	10110	472	10582	0	10110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.891	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.988	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								10181	4.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(472)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	6.14	25.58	31.72	30.55	5.41	13.48	18.89	18.89		
	(ft)	0.51	2.13	2.64	2.55	0.45	1.12	1.57	1.57		
	%Ultimate			100.0	96.3			59.5	59.5		
REDUCD	(in)	6.14	25.58	31.72	30.55	5.41	13.48	18.89	18.89		
	(ft)	0.51	2.13	2.64	2.55	0.45	1.12	1.57	1.57		
	%Ultimate			100.0	96.3			59.5	59.5		

EE 24365 Grand Bayou
Cell 2
ML -3

Existing Grade = **-3.00** **NAVD 88**
Target Grade at 20 years = **0.71 to 1.56** **NAVD 88**

time (yrs)	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	0.038	0.035	0.032	0.030	
0.16	0.038	0.035	0.032	0.030	
0.50	0.038	0.035	0.032	0.030	
1.00	0.038	0.035	0.032	0.030	
1.50	0.038	0.035	0.032	0.030	
2.00	0.038	0.035	0.032	0.030	
3.00	0.038	0.035	0.032	0.030	
4.00	0.038	0.035	0.032	0.030	
7.00	0.038	0.035	0.032	0.030	
11.00	0.038	0.035	0.032	0.030	
20.00	0.038	0.035	0.032	0.030	
ultimate	0.038	0.035	0.032	0.030	

finished elevation (ft NAVD 88) of MARSH FILL (SELF WEIGHT)				
3.5	3	2.5	2	
3.50	3.00	2.50	2.00	
3.46	2.97	2.47	1.97	
3.46	2.97	2.47	1.97	
3.46	2.97	2.47	1.97	
3.46	2.97	2.47	1.97	
3.46	2.97	2.47	1.97	
3.46	2.97	2.47	1.97	
3.46	2.97	2.47	1.97	
3.46	2.97	2.47	1.97	
3.46	2.97	2.47	1.97	
3.46	2.97	2.47	1.97	
3.46	2.97	2.47	1.97	
3.46	2.97	2.47	1.97	

Ultimate self weight consolidation settlement = 0.0059* height of fill (e.g., Ultimate Consol for 1 feet of fill = 0.0059* 3 = 0.18 feet)

time (yrs)	Percent Consolidation due to consolidation settlement (ft) of marsh fill				
	3	2.5	2.5	2	
0.00	0.0	0.0	0.0	0.0	
0.08	100.0	100.0	100.0	100.0	
0.16	100.0	100.0	100.0	100.0	
0.50	100.0	100.0	100.0	100.0	
1.00	100.0	100.0	100.0	100.0	
1.50	100.0	100.0	100.0	100.0	
2.00	100.0	100.0	100.0	100.0	
3.00	100.0	100.0	100.0	100.0	
4.00	100.0	100.0	100.0	100.0	
7.00	100.0	100.0	100.0	100.0	
11.00	100.0	100.0	100.0	100.0	
20.00	100.0	100.0	100.0	100.0	
ultimate	100.0	100.0	100.0	100.0	

Existing Grade = **-3.00** **NAVD 88**
Target Grade at 20 years = **0.71 to 1.56** **NAVD 88**

time (yrs)	consolidation settlement (inches) of subsurface				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	17.23	15.62	14.00	12.37	
0.16	17.26	15.65	14.01	12.38	
0.50	17.40	15.79	14.06	12.41	
1.00	17.60	15.97	14.21	12.47	
1.50	17.78	16.15	14.37	12.55	
2.00	17.97	16.32	14.53	12.63	
3.00	18.45	16.62	14.81	12.84	
4.00	18.89	16.98	15.05	13.04	
7.00	19.98	17.98	15.81	13.59	
11.00	21.04	18.91	16.60	14.10	
20.00	22.59	20.23	17.66	14.78	
ultimate	30.55	26.26	22.00	17.65	

3.5		3		2.5		2			
+20%	-20%	+20%	-20%	+20%	-20%	+20%	-20%		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
20.68	13.78	18.74	12.50	16.80	11.20	14.84	9.90		
20.71	13.81	18.78	12.52	16.81	11.21	14.86	9.90		
20.88	13.92	18.95	12.63	16.87	11.25	14.89	9.93		
21.12	14.08	19.16	12.78	17.05	11.37	14.96	9.98		
21.34	14.22	19.38	12.92	17.24	11.50	15.06	10.04		
21.56	14.38	19.58	13.06	17.44	11.62	15.16	10.10		
22.14	14.76	19.94	13.30	17.77	11.85	15.41	10.27		
22.67	15.11	20.38	13.58	18.06	12.04	15.65	10.43		
23.98	15.98	21.58	14.38	18.97	12.65	16.31	10.87		
25.25	16.83	22.69	15.13	19.92	13.28	16.92	11.28		
27.11	18.07	24.28	16.18	21.19	14.13	17.74	11.82		
36.66	24.44	31.51	21.01	26.40	17.60	21.18	14.12		

time (yrs)	consolidation settlement (feet) of subsurface with subsidence				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	1.44	1.30	1.17	1.03	
0.16	1.44	1.31	1.17	1.04	
0.50	1.46	1.33	1.18	1.04	
1.00	1.49	1.35	1.21	1.06	
1.50	1.51	1.38	1.23	1.08	
2.00	1.54	1.40	1.25	1.09	
3.00	1.60	1.45	1.30	1.13	
4.00	1.66	1.50	1.34	1.17	
7.00	1.81	1.65	1.46	1.28	
11.00	1.98	1.81	1.61	1.41	
20.00	2.30	2.11	1.89	1.65	

0.02016	0.00168
0.04032	0.00336
0.126	0.0105
0.252	0.021
0.378	0.0315
0.504	0.042
0.756	0.063
1.008	0.084
1.764	0.147
2.772	0.231
5.04	0.42

Existing Grade = -3.00 NAVD 88 **CELL 2**
Target Grade at 20 years = 0.71 to 1.56 NAVD 88
fill height 6.5 6 5.5 5

time (yrs)	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)					consolidation settlement (ft) of subsurface with subsidence				
	3.5	3	2.5	2		3.5	3	2.5	2	
0.00	0.000	0.000	0.000	0.000		0.00	0.00	0.00	0.00	
0.08	0.038	0.035	0.032	0.030		1.44	1.30	1.17	1.03	
0.16	0.038	0.035	0.032	0.030		1.44	1.31	1.17	1.04	
0.50	0.038	0.035	0.032	0.030		1.46	1.33	1.18	1.04	
1.00	0.038	0.035	0.032	0.030		1.49	1.35	1.21	1.06	
1.50	0.038	0.035	0.032	0.030		1.51	1.38	1.23	1.08	
2.00	0.038	0.035	0.032	0.030		1.54	1.40	1.25	1.09	
3.00	0.038	0.035	0.032	0.030		1.60	1.45	1.30	1.13	
4.00	0.038	0.035	0.032	0.030		1.66	1.50	1.34	1.17	
7.00	0.038	0.035	0.032	0.030		1.81	1.65	1.46	1.28	
11.00	0.038	0.035	0.032	0.030		1.98	1.81	1.61	1.41	
20.00	0.038	0.035	0.032	0.030		2.30	2.11	1.89	1.65	

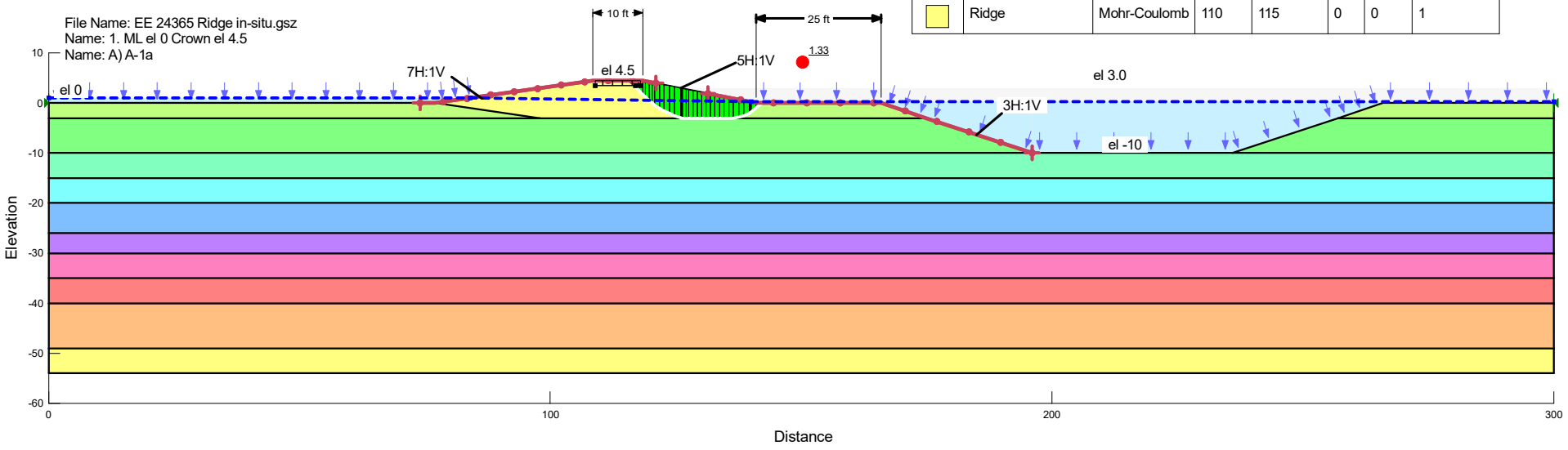
time (yrs)	Finished Elevation from TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils				
0.00	3.50	3.00	2.50	2.00	
0.08	2.02	1.66	1.30	0.94	
0.16	2.02	1.66	1.30	0.93	
0.5	2.00	1.64	1.29	0.93	
1	1.97	1.61	1.26	0.91	
1.5	1.95	1.59	1.24	0.89	
2	1.92	1.56	1.22	0.88	
3	1.86	1.52	1.17	0.84	
4	1.80	1.47	1.13	0.80	
7	1.65	1.32	1.00	0.69	
11	1.48	1.16	0.85	0.56	
20	1.16	0.86	0.58	0.32	

time (yrs)	TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils with subsidence				
	3.5	3	2.5	2	
0.00	0.00	0.00	0.00	0.00	
0.08	1.48	1.34	1.20	1.06	
0.16	1.48	1.34	1.20	1.07	
0.5	1.50	1.36	1.21	1.07	
1	1.53	1.39	1.24	1.09	
1.5	1.55	1.41	1.26	1.11	
2	1.58	1.44	1.28	1.12	
3	1.64	1.48	1.33	1.16	
4	1.70	1.53	1.37	1.20	
7	1.85	1.68	1.50	1.31	
11	2.02	1.84	1.65	1.44	
20	2.34	2.14	1.92	1.68	

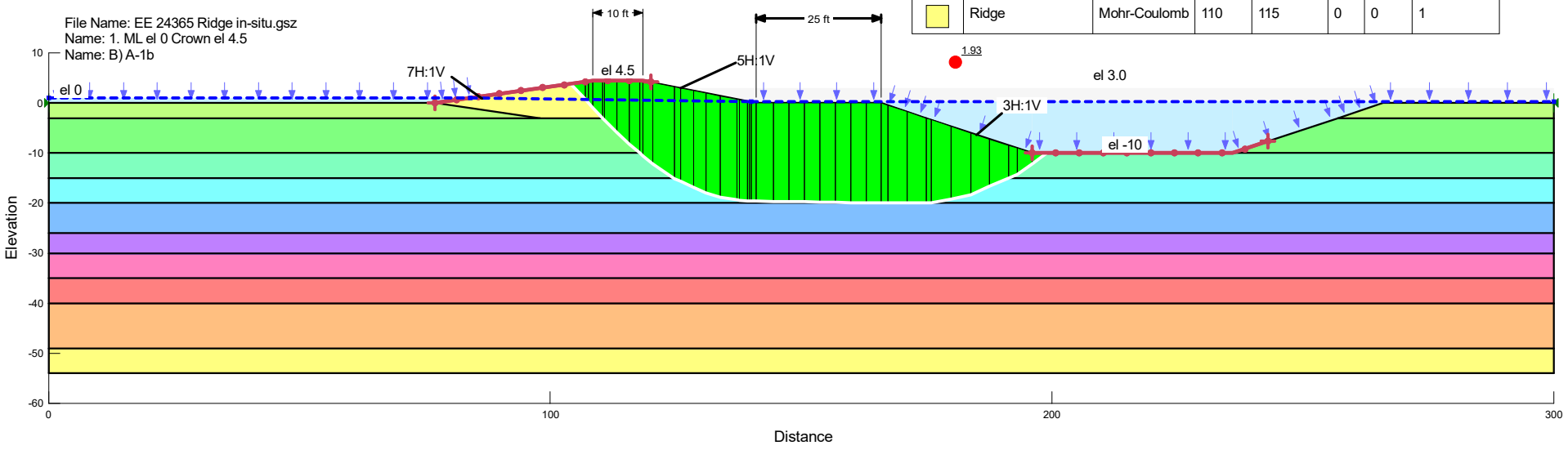
APPENDIX V

IN-SITU

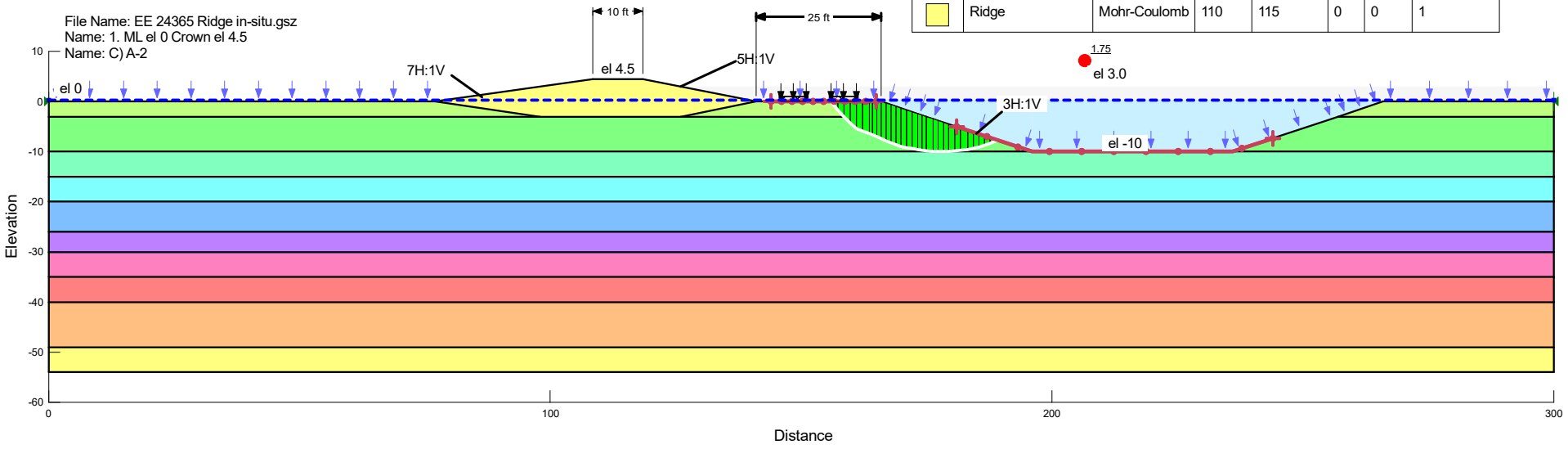
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1



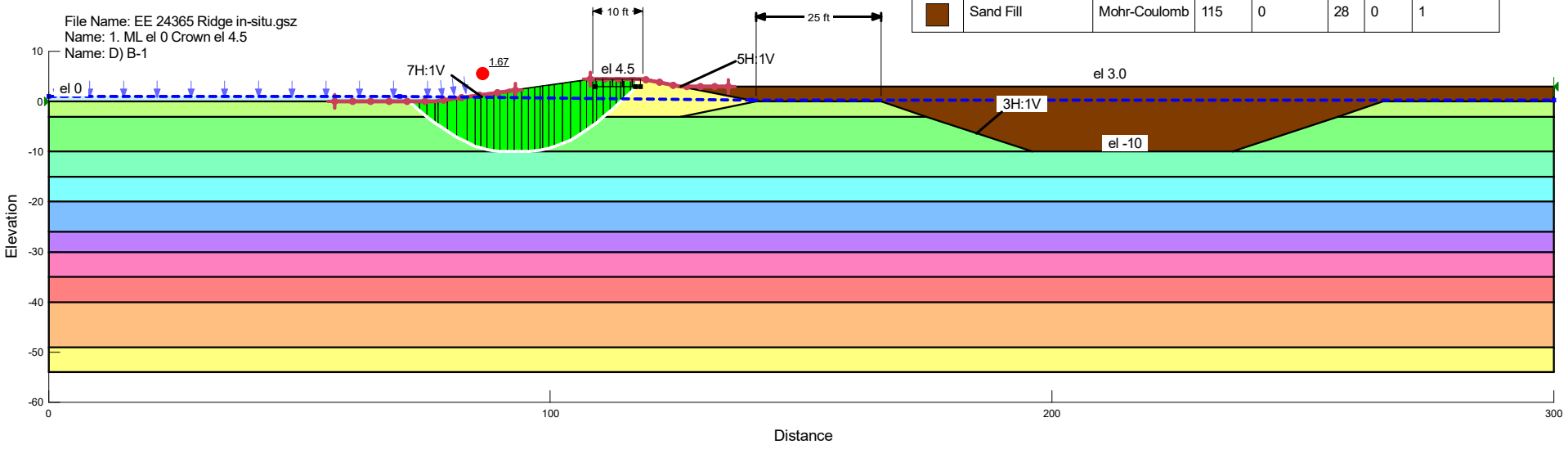
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1



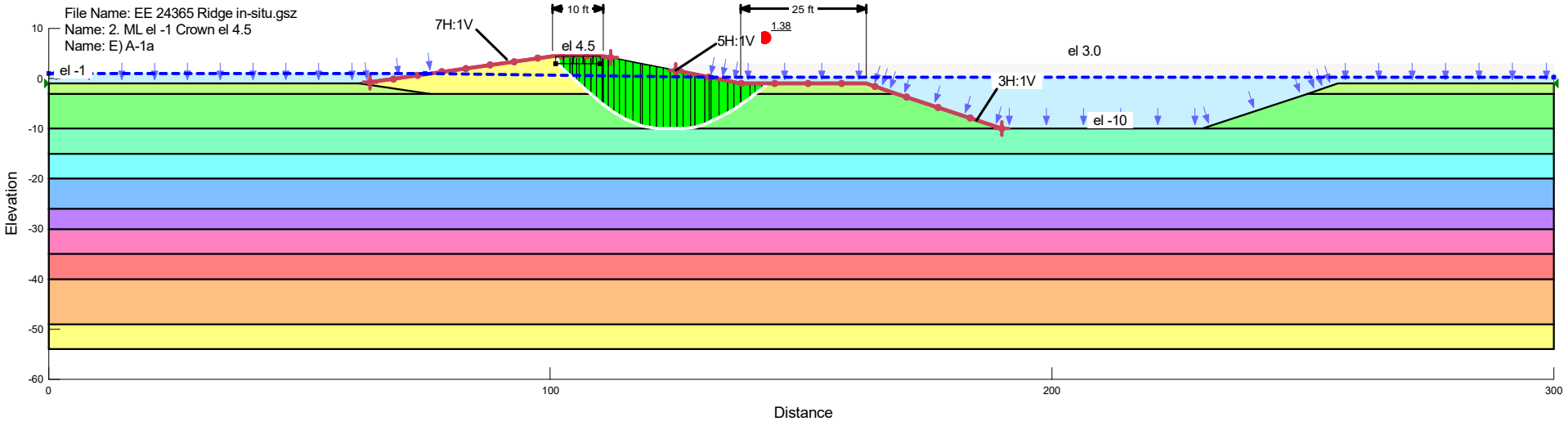
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1



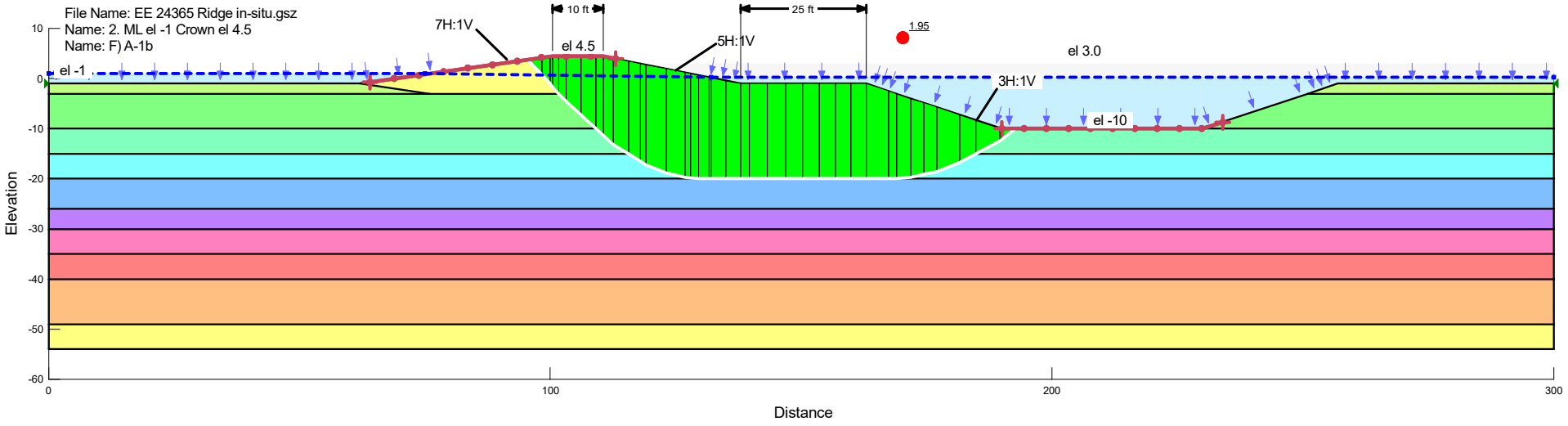
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



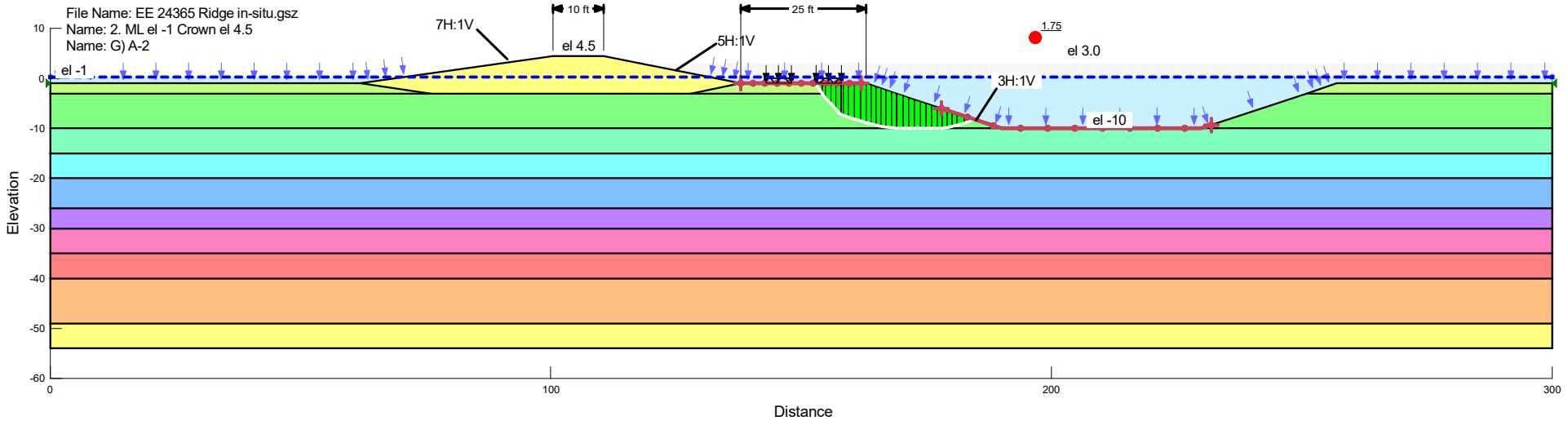
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1



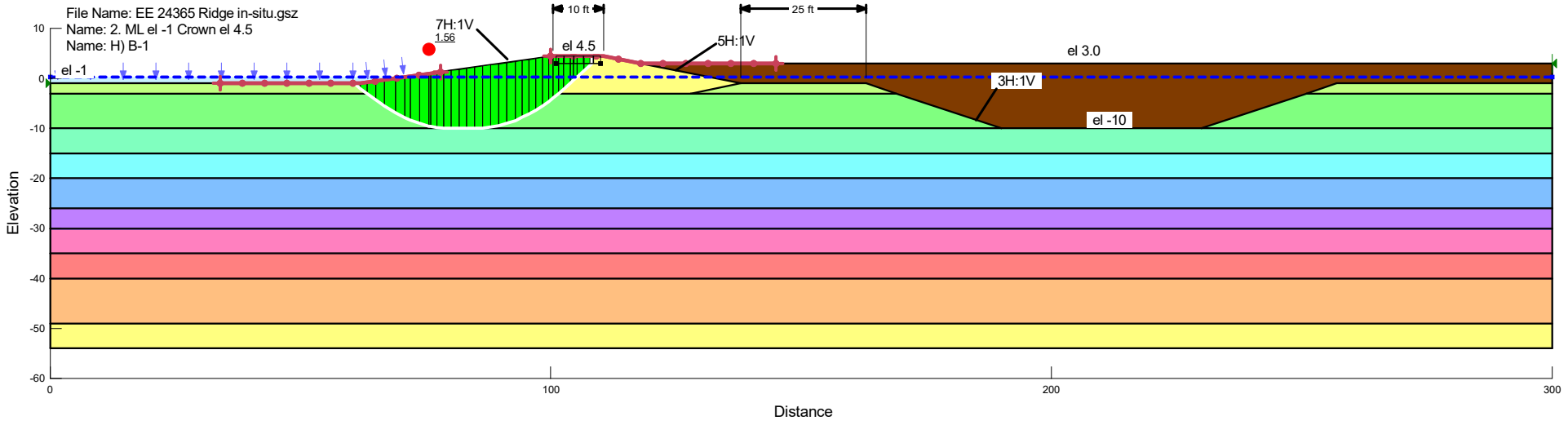
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1



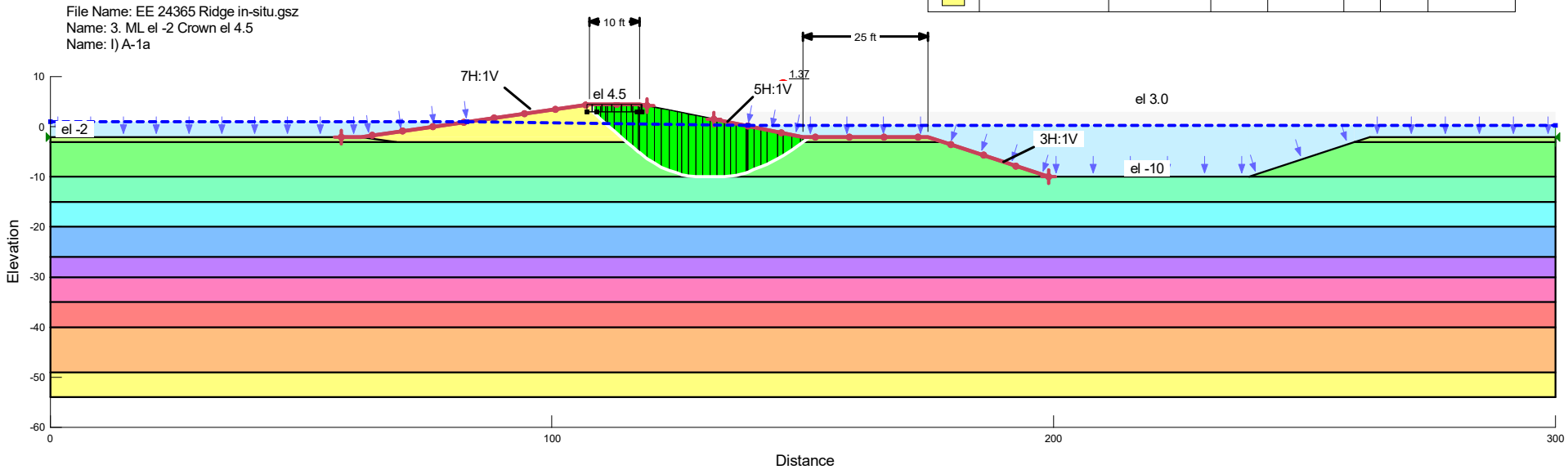
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1



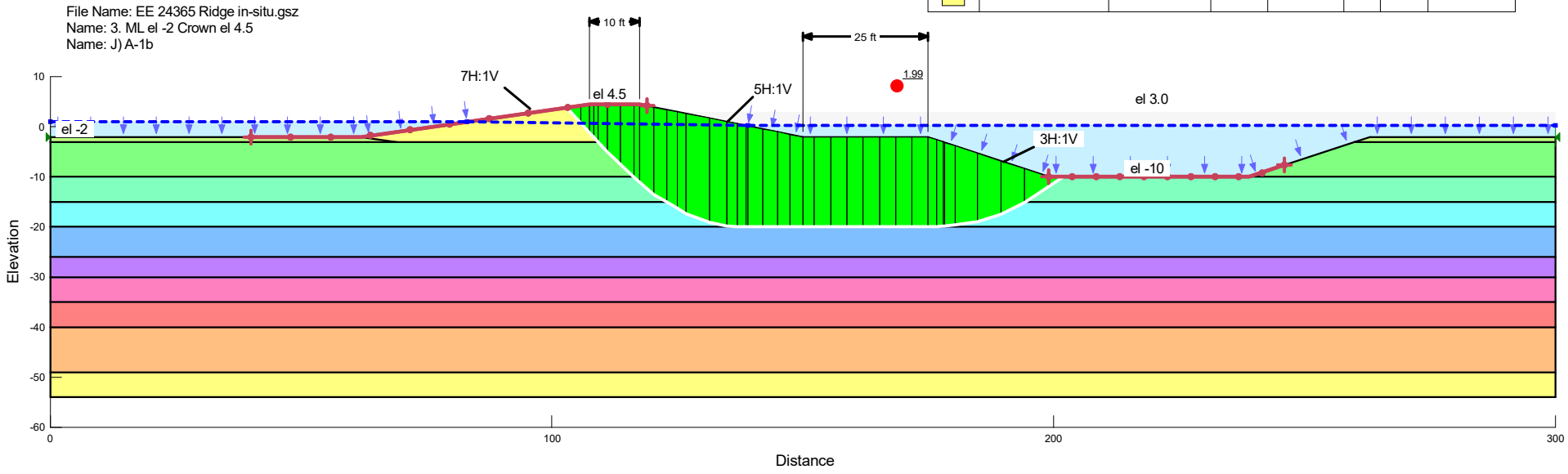
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1

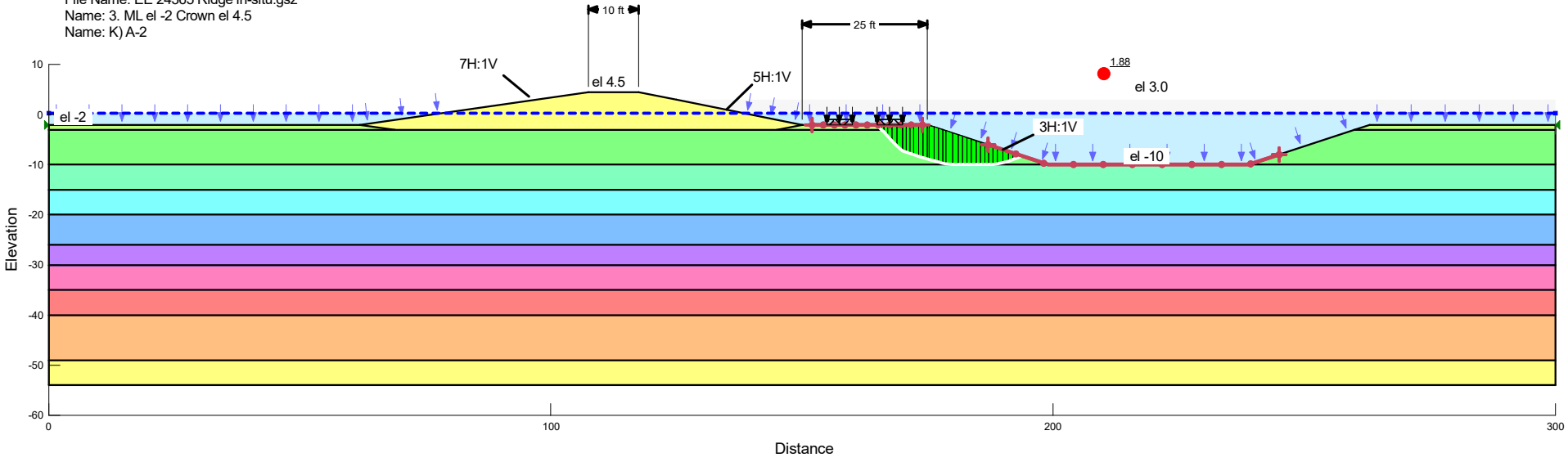


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1

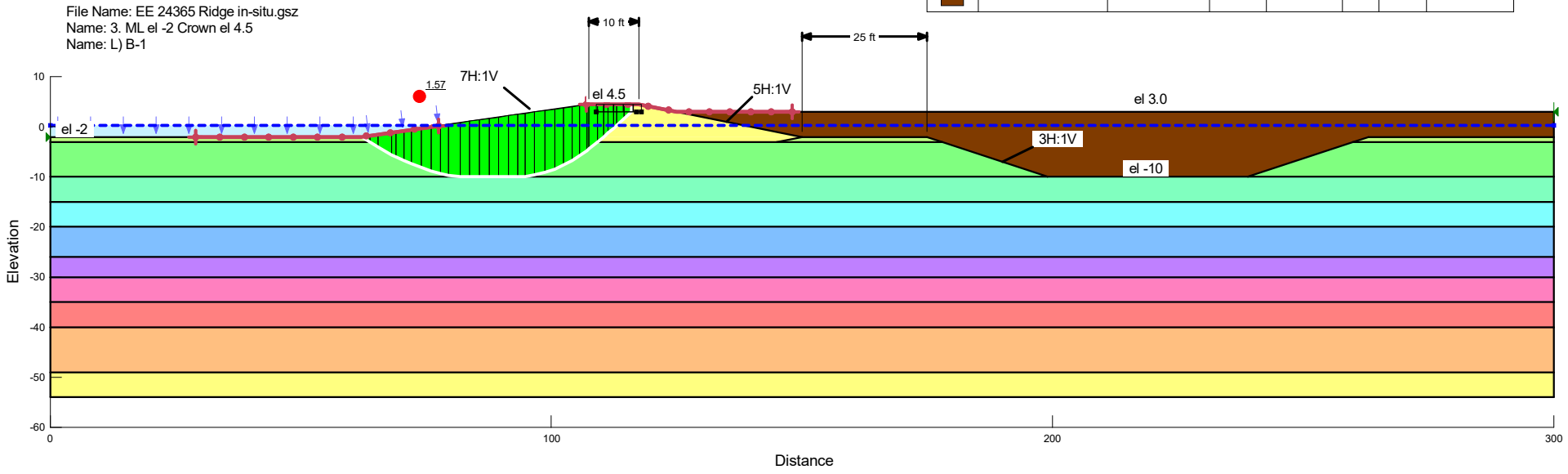


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1

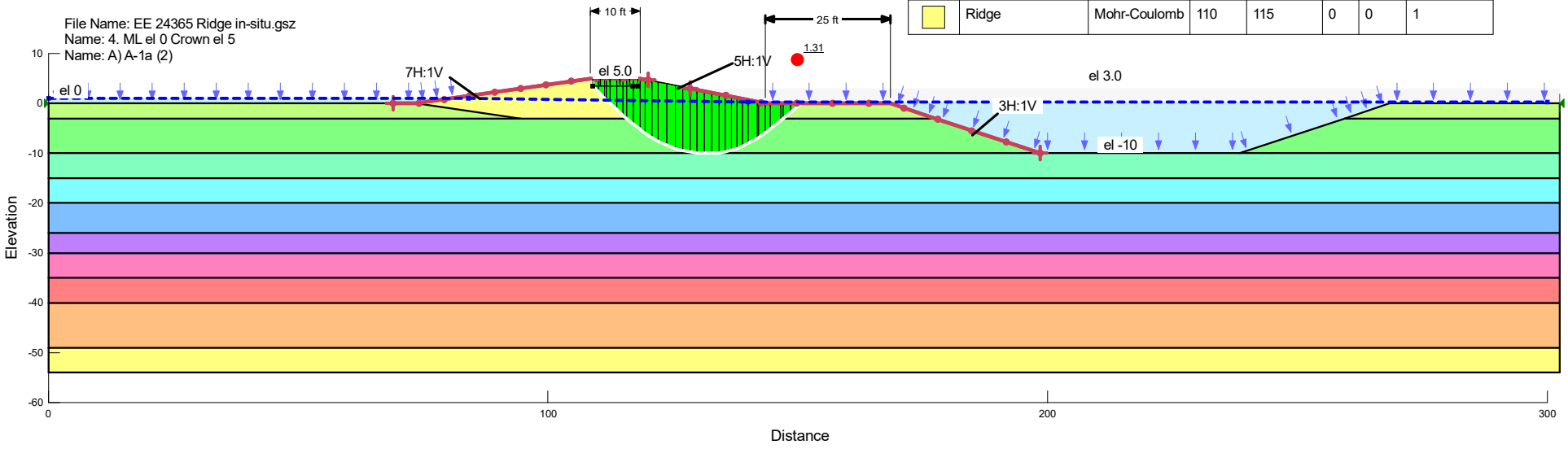
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Name: K) A-2



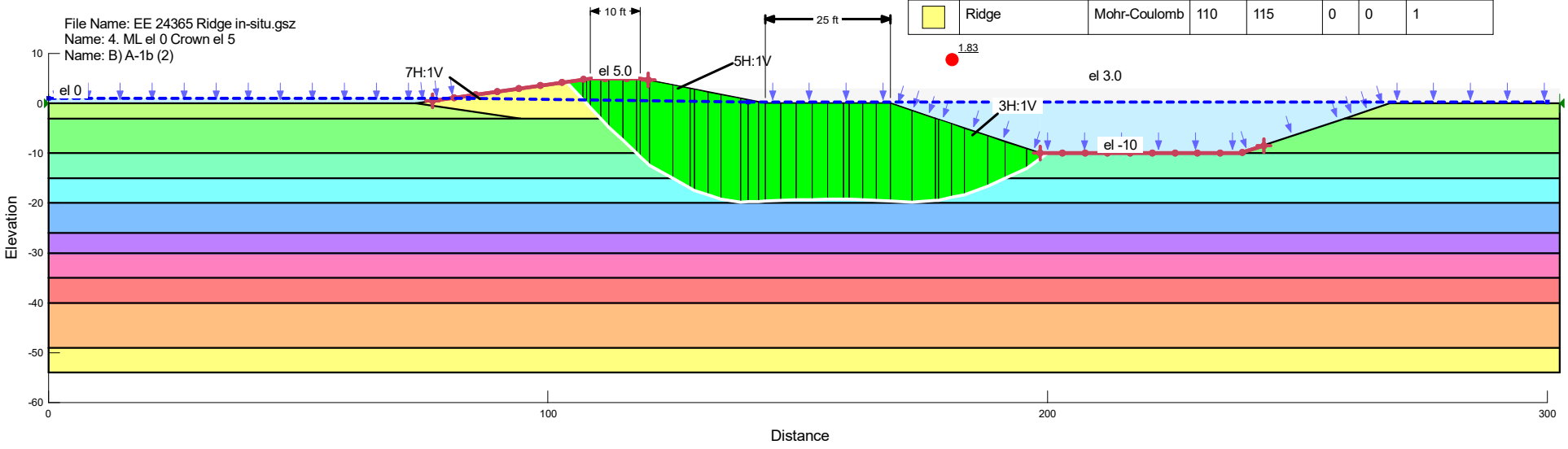
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



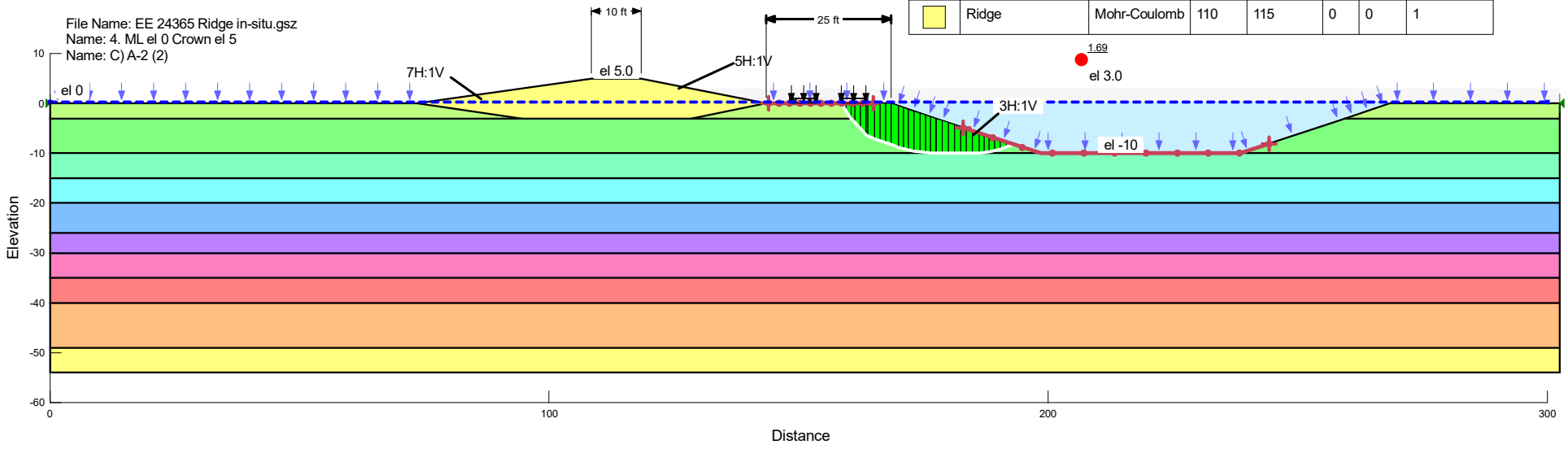
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1



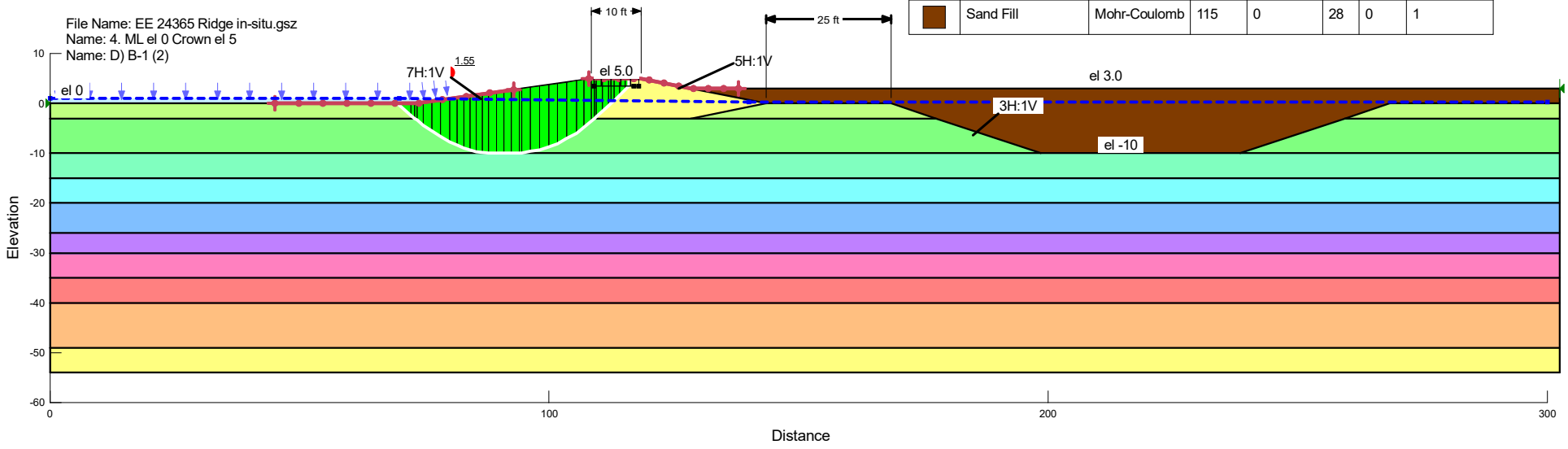
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1



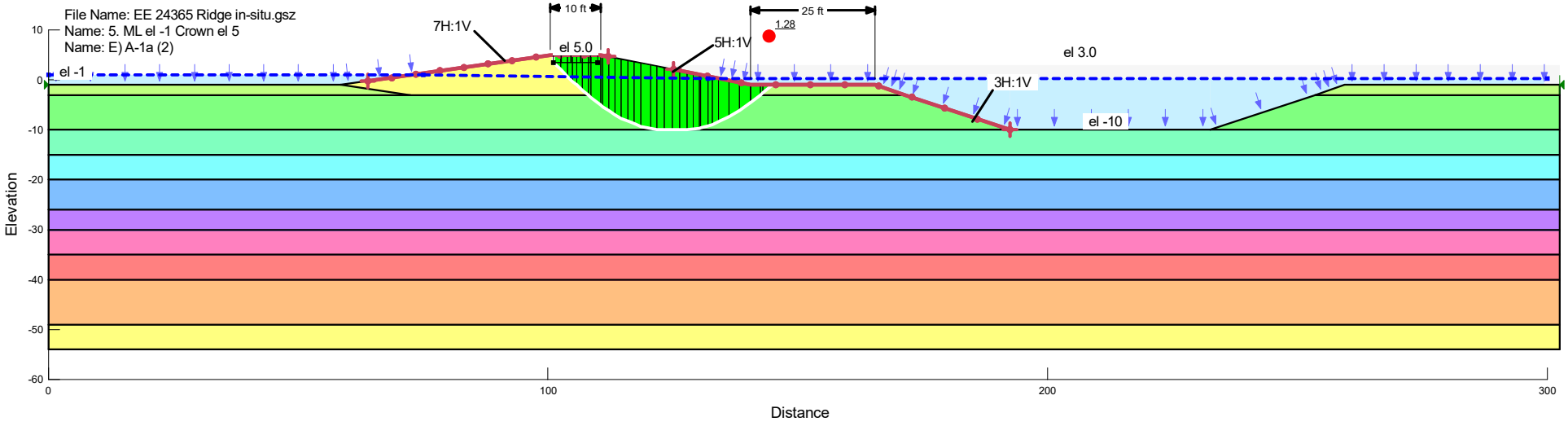
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1



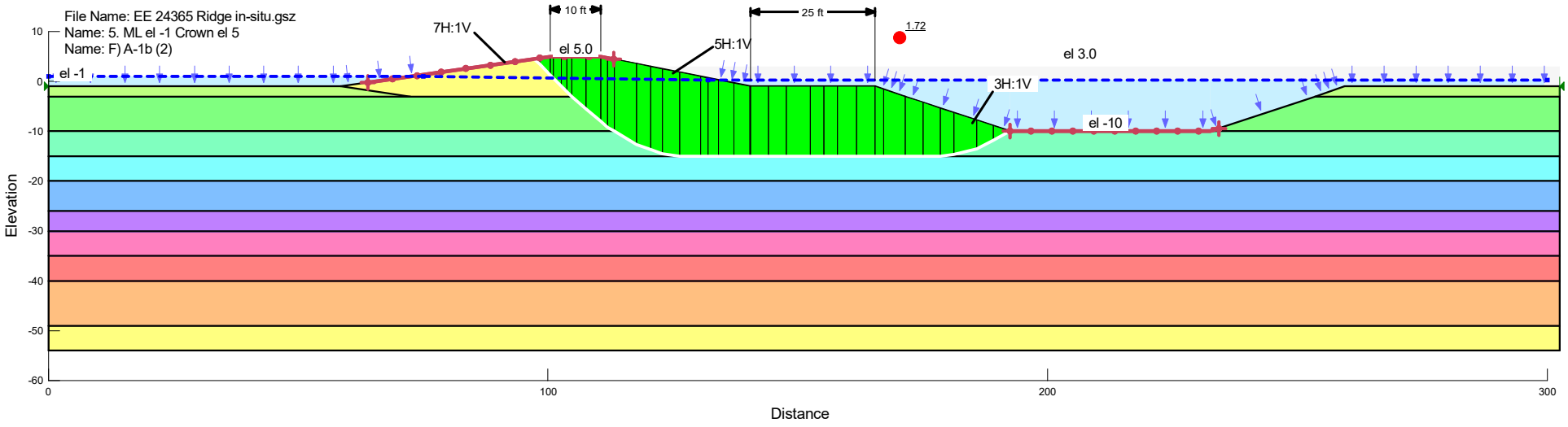
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



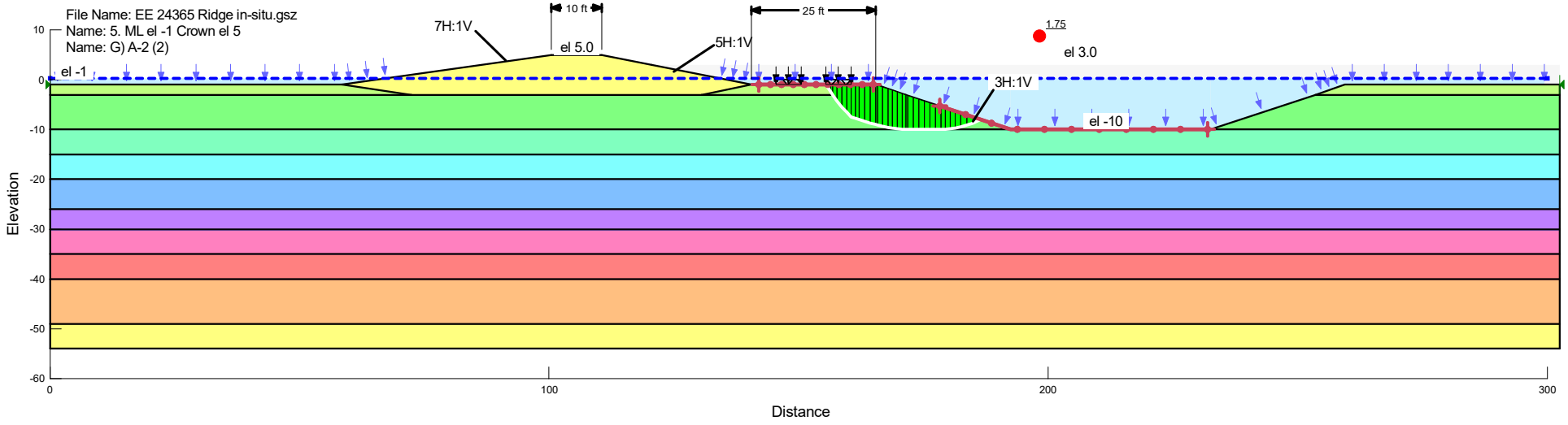
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1



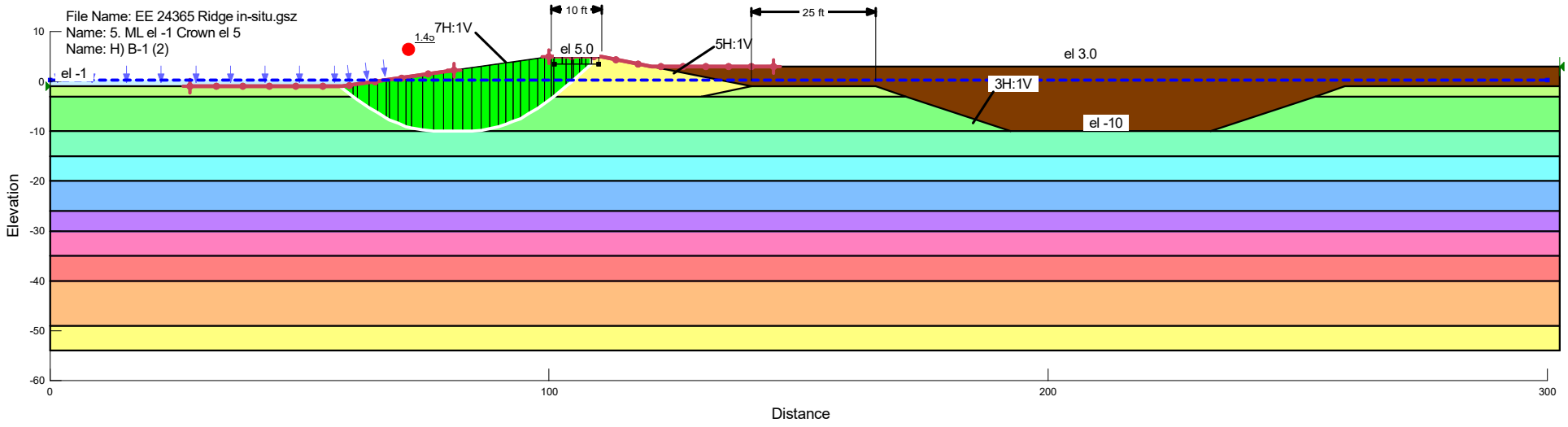
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1



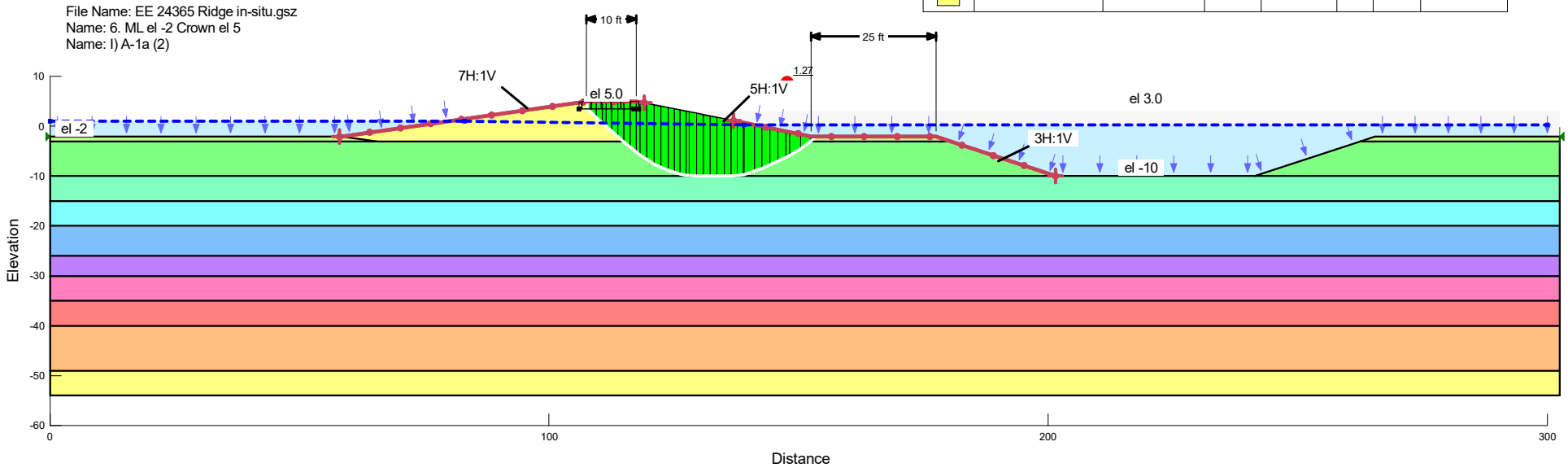
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1



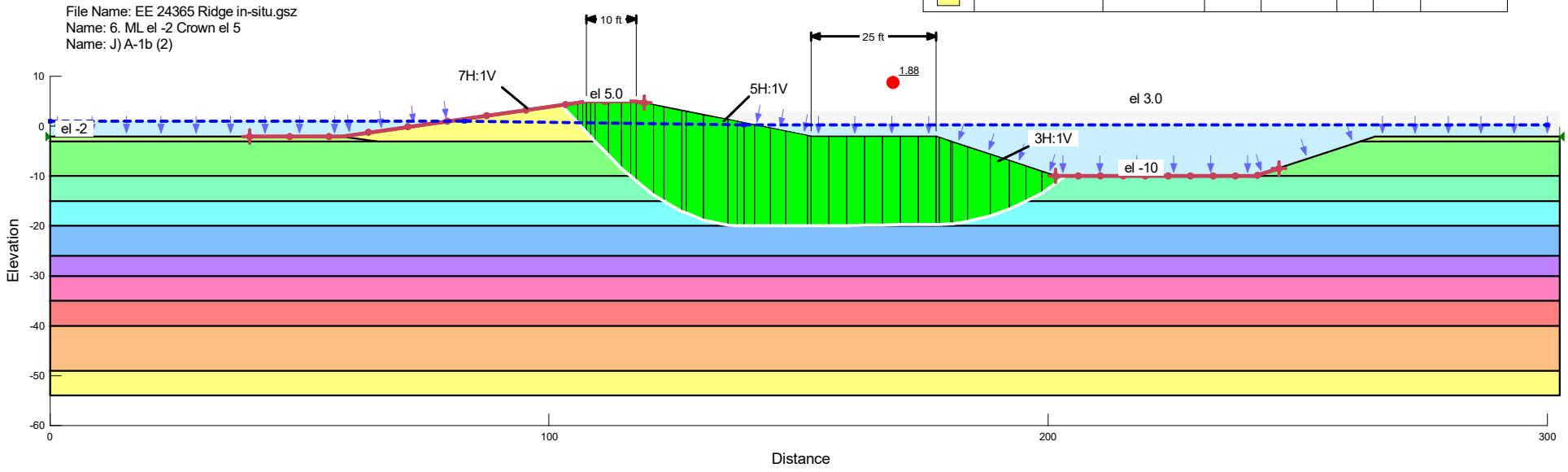
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



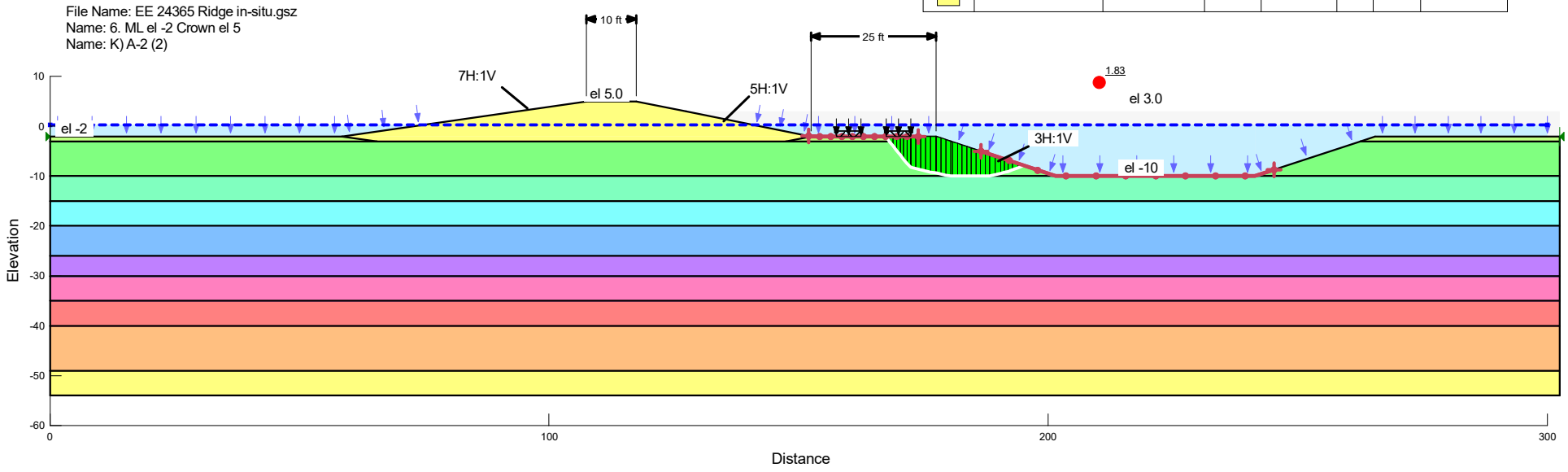
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1



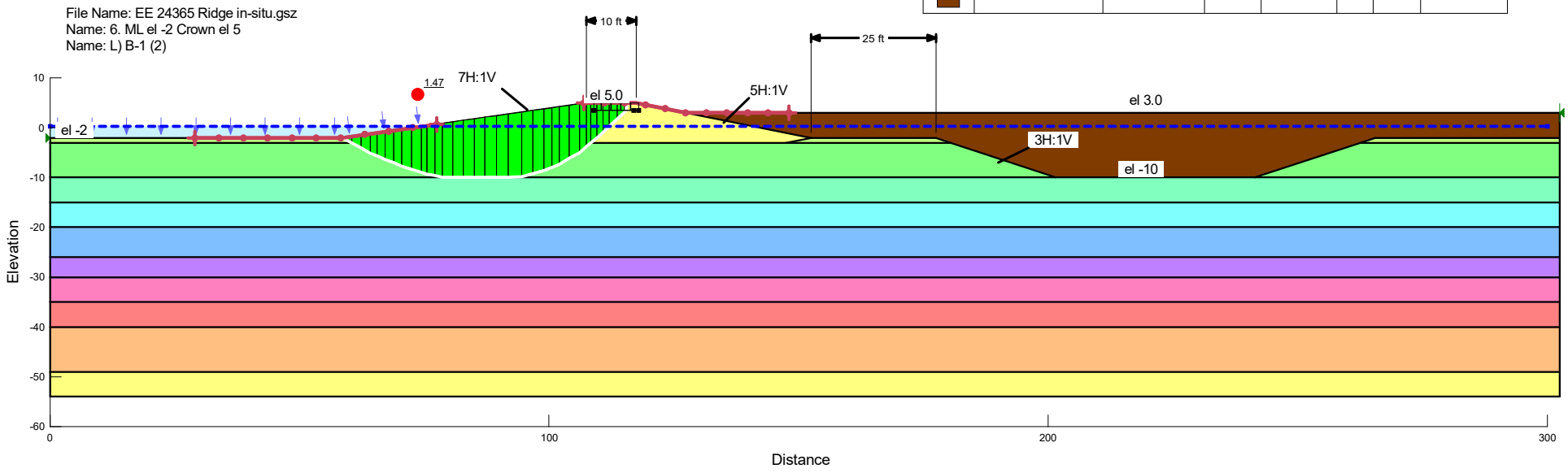
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1

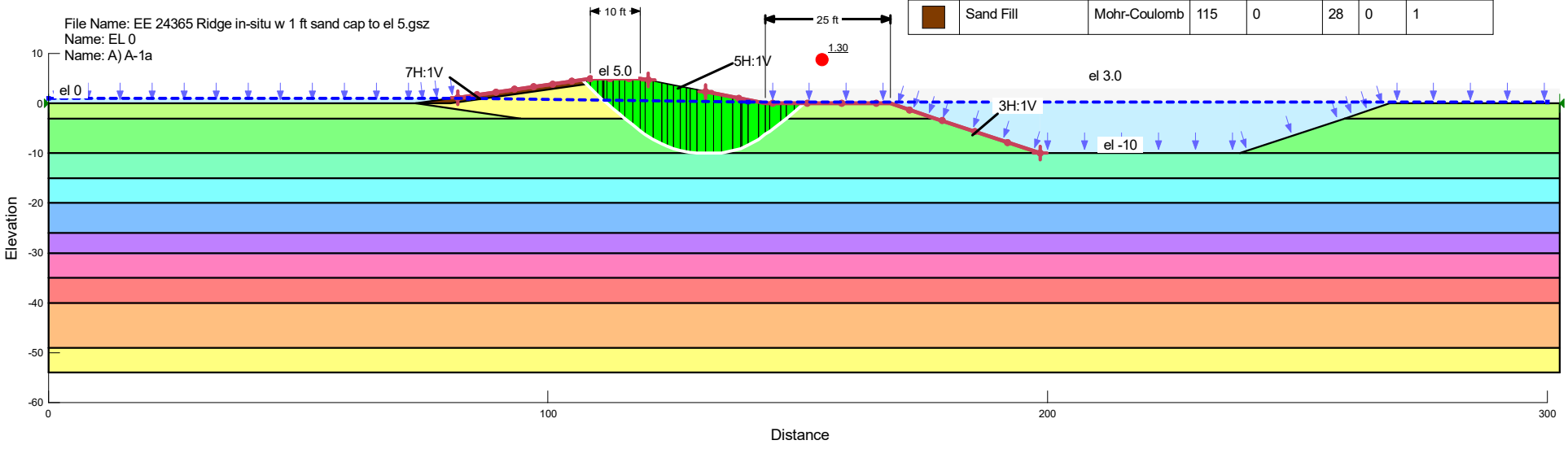


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1

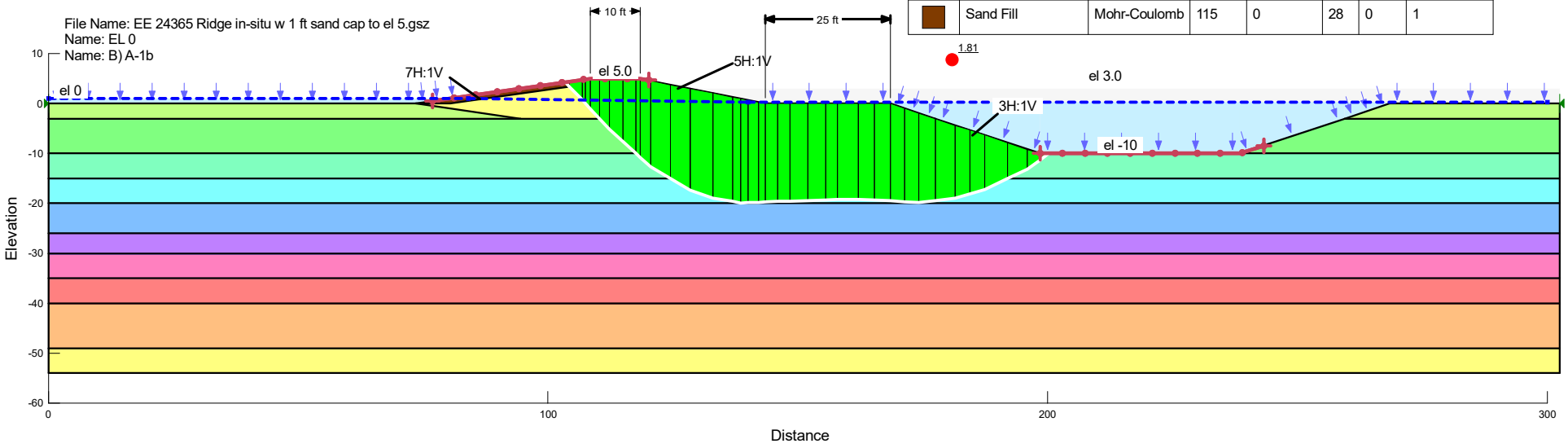


IN-SITU WITH 1-FT. SAND CAP

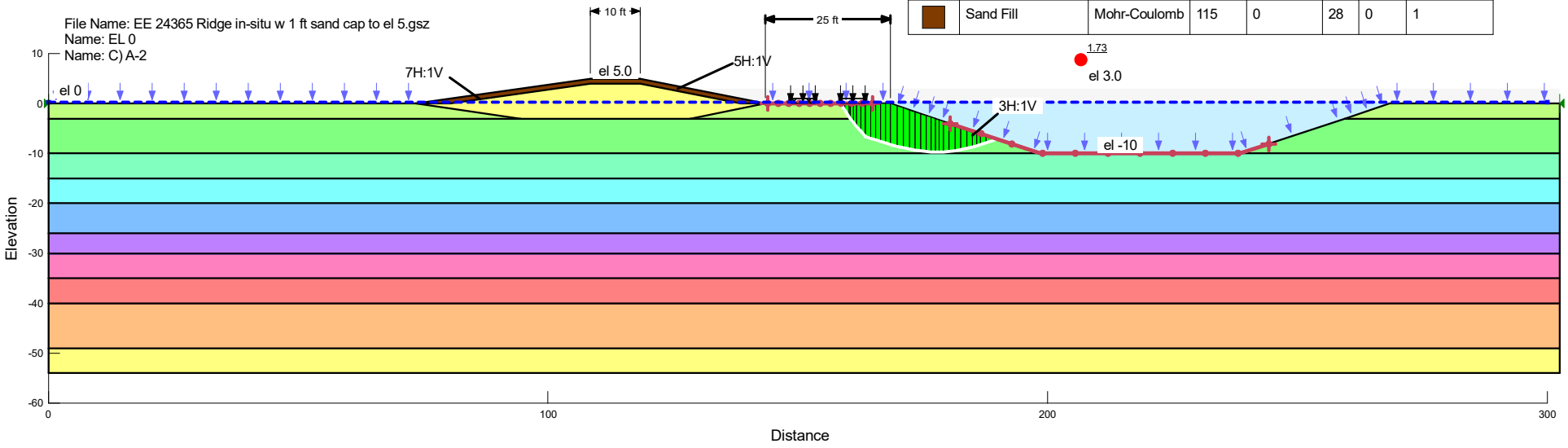
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



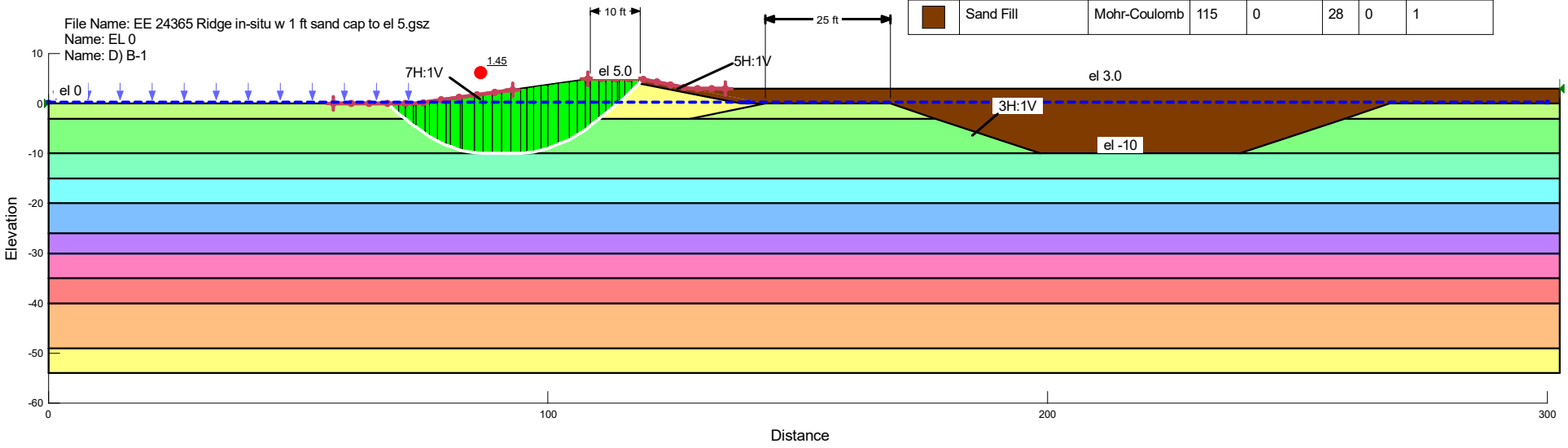
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



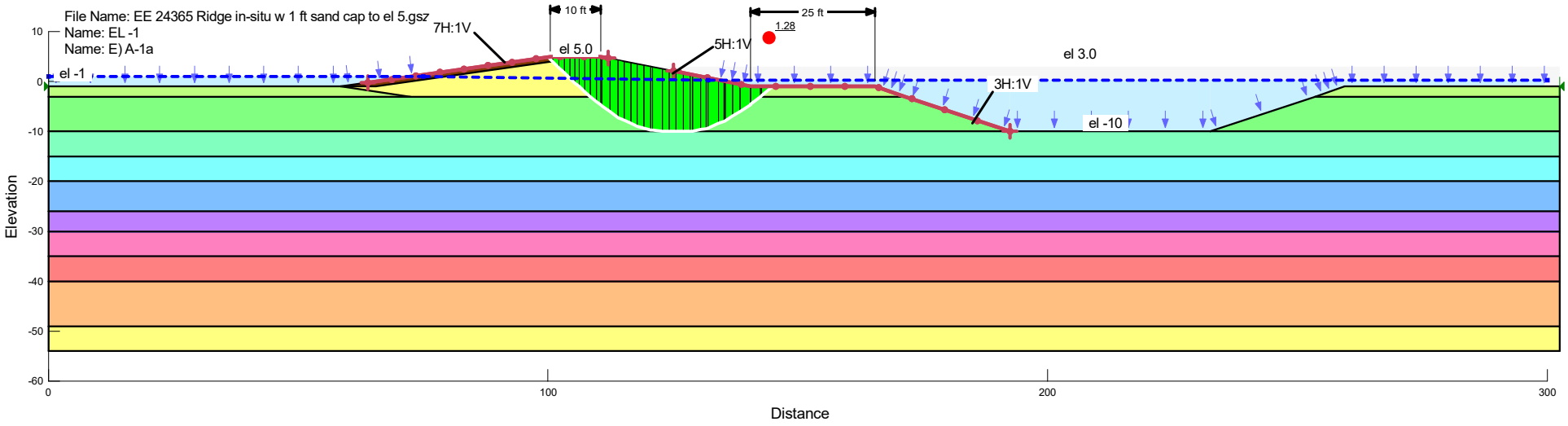
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



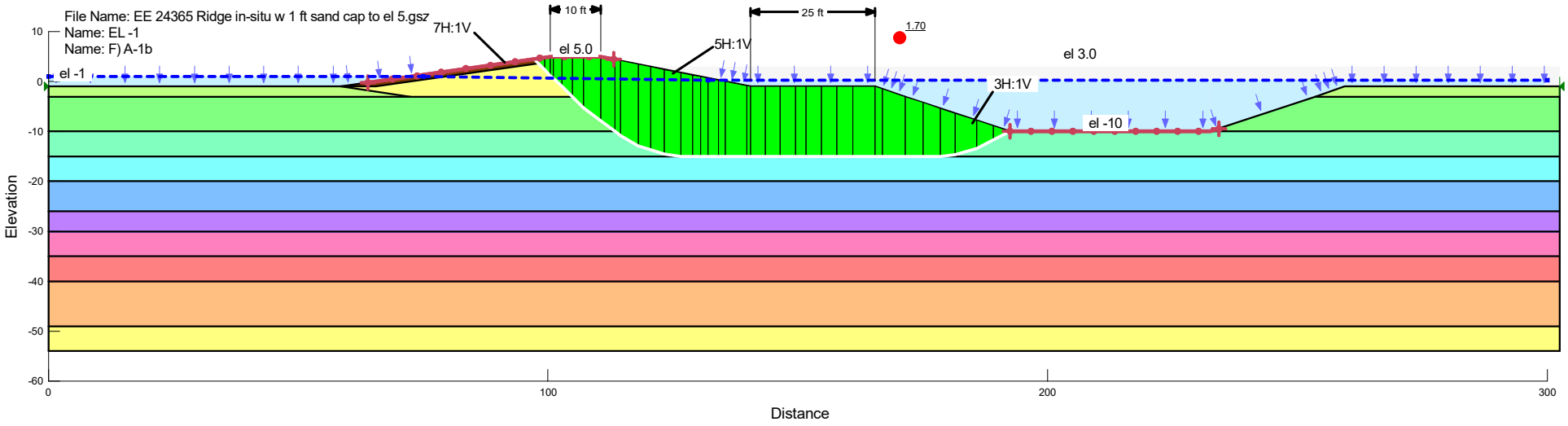
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



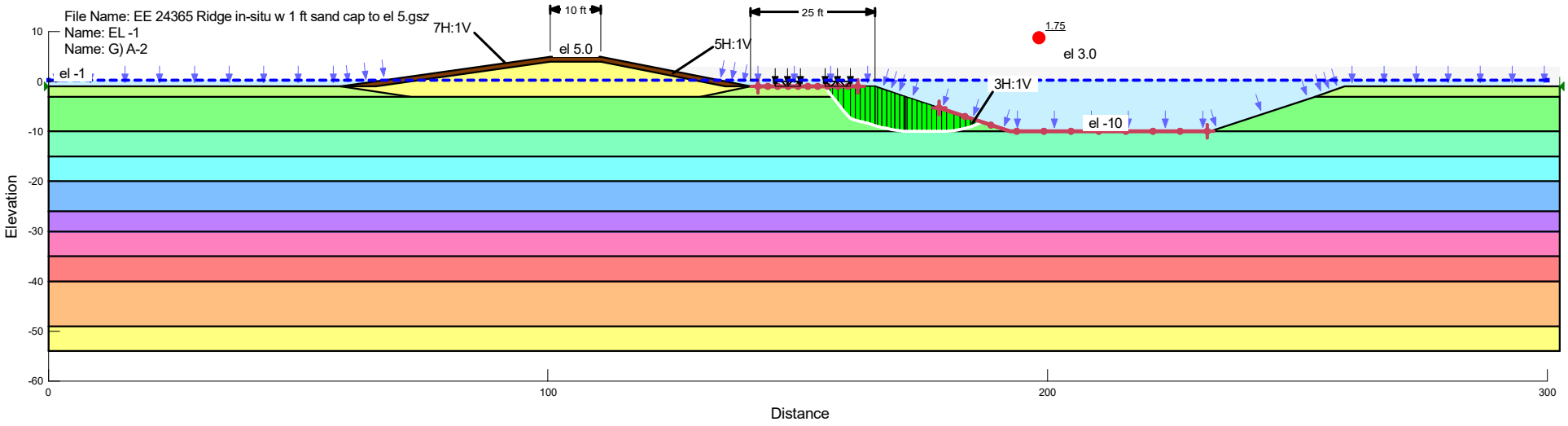
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



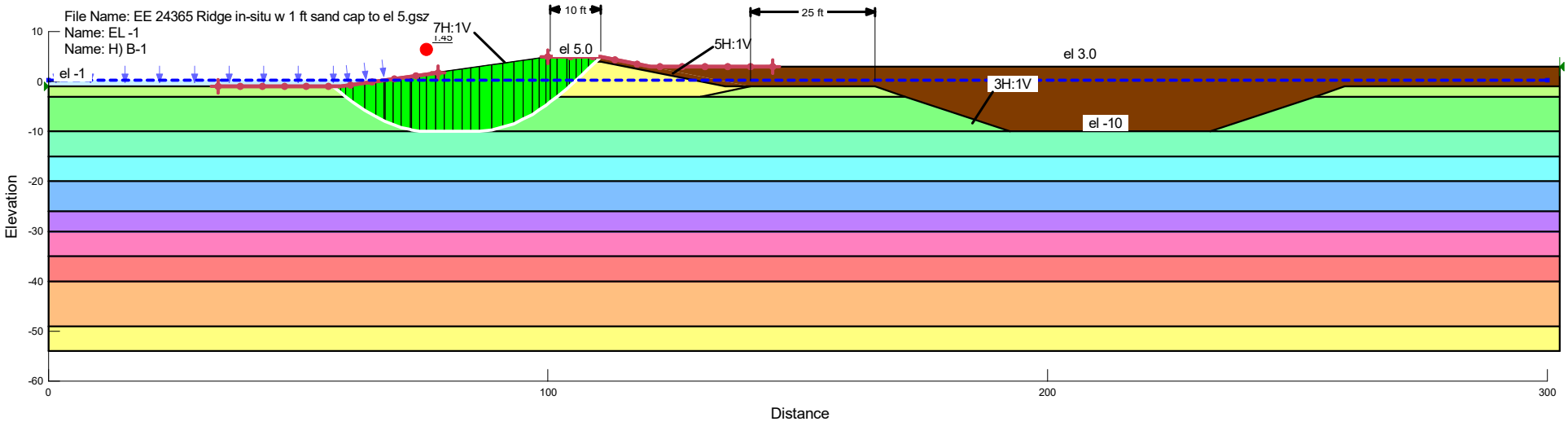
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



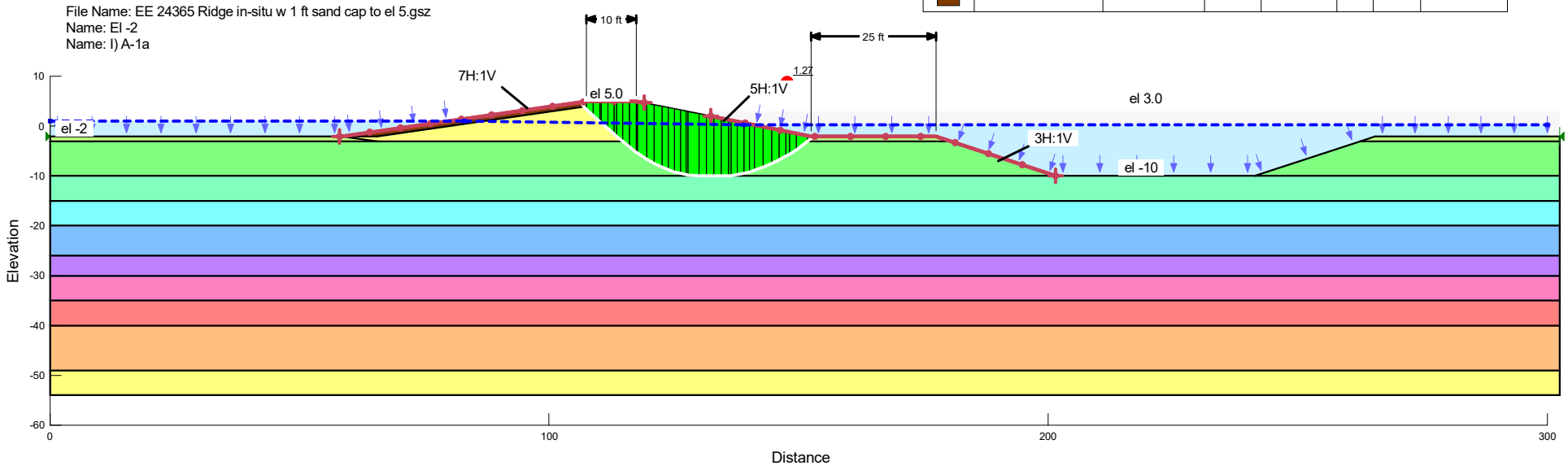
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



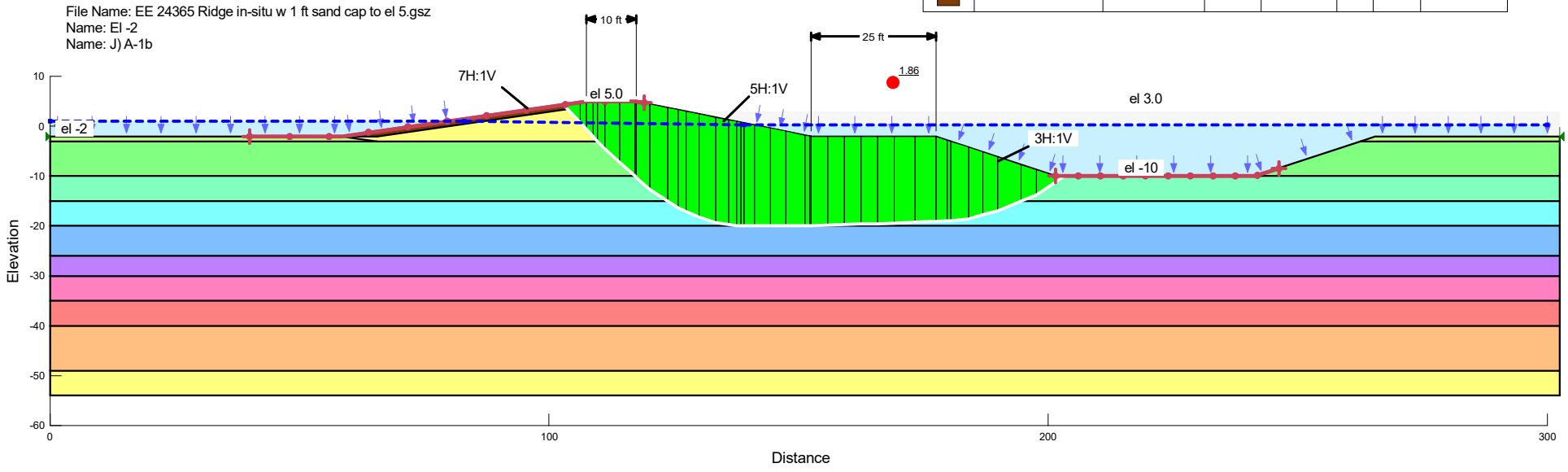
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1

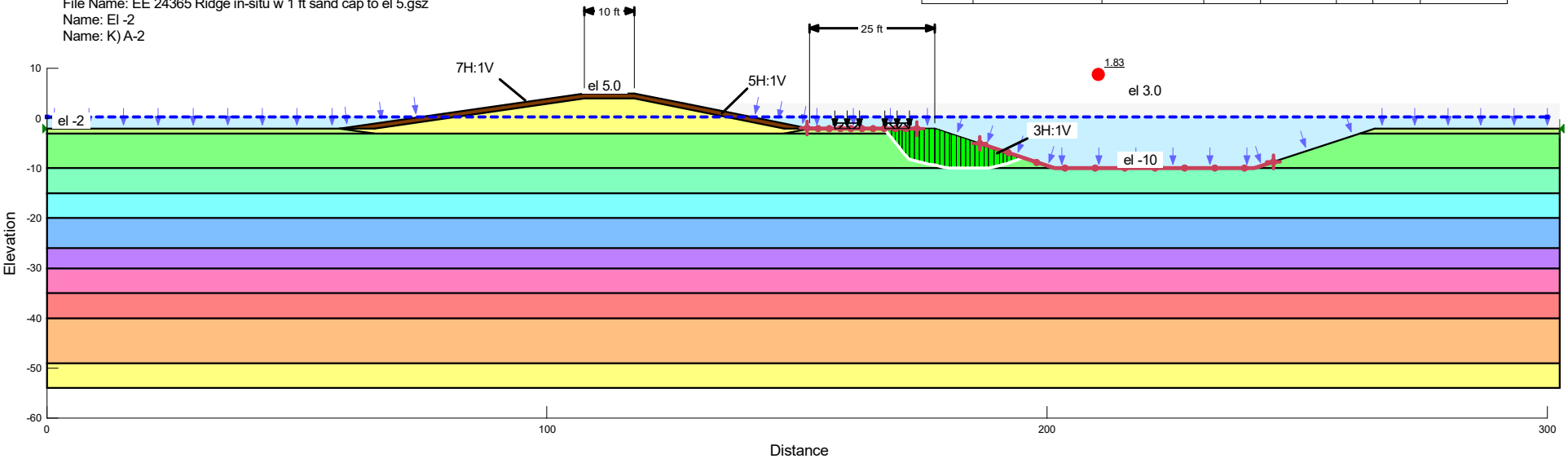


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1

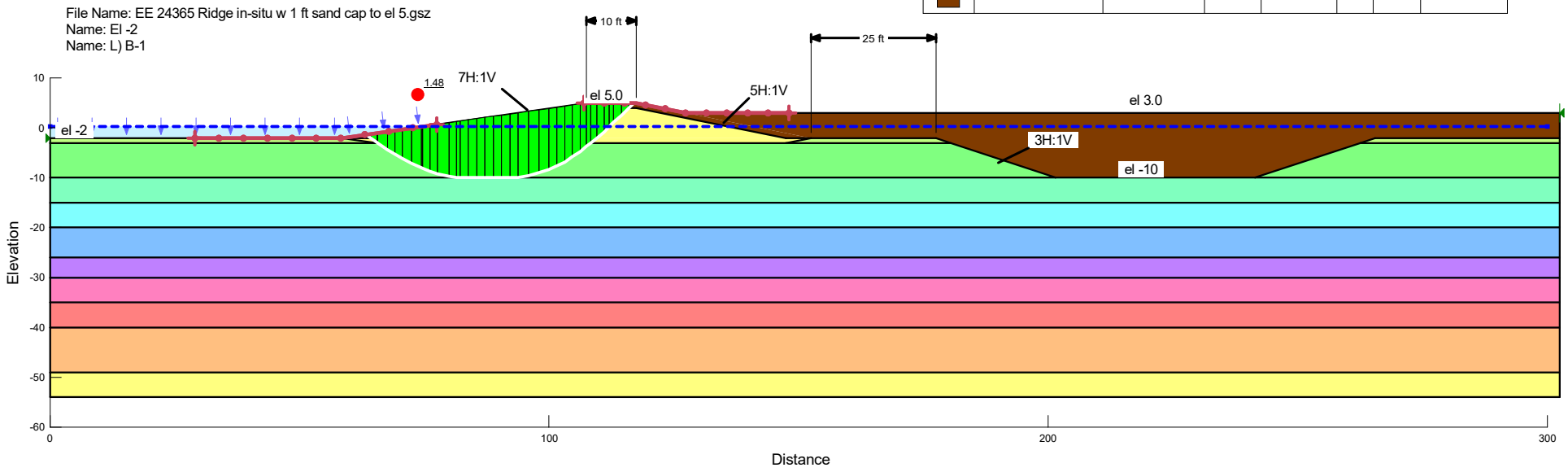


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1

File Name: EE 24365 Ridge in-situ w 1 ft sand cap to el 5.gsz
Name: El -2
Name: K) A-2

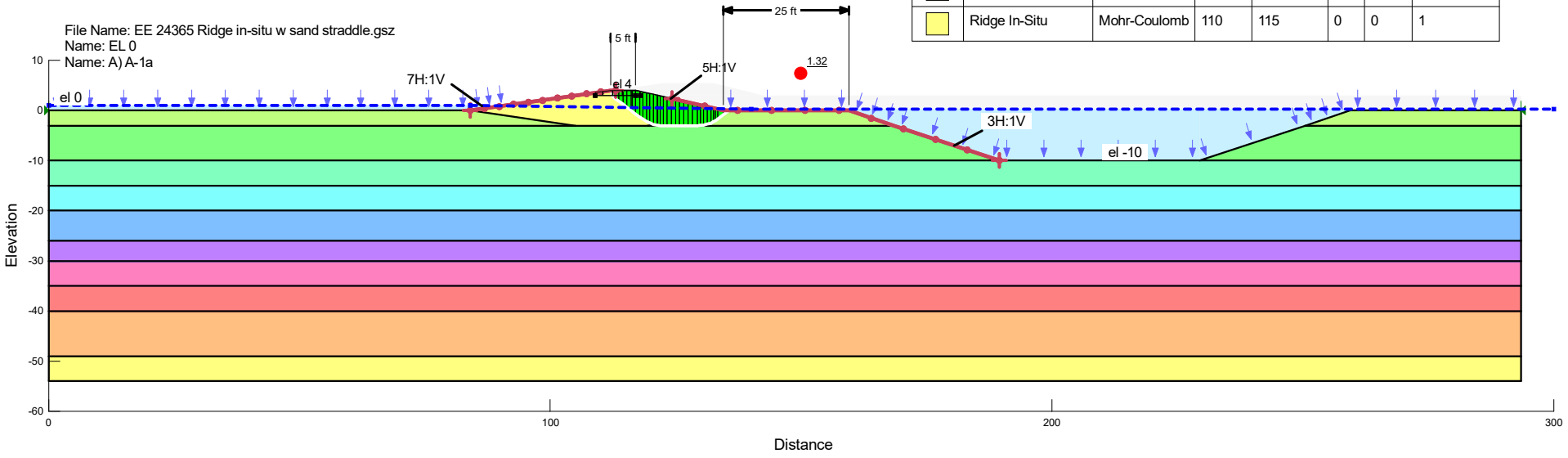


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1

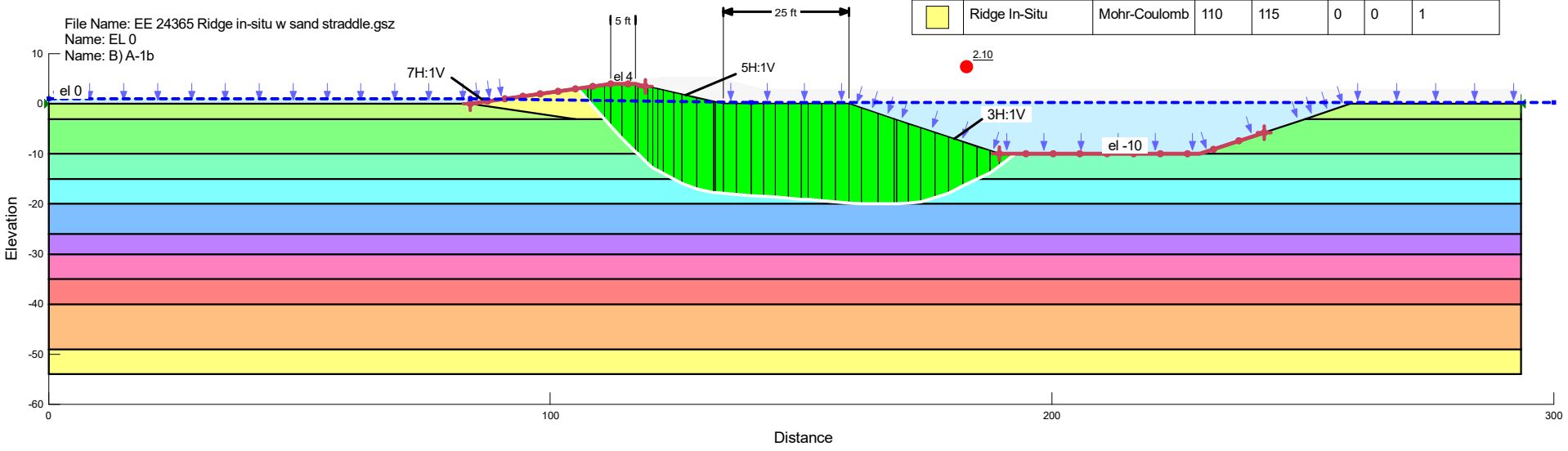


IN-SITU WITH SAND STRADDLE

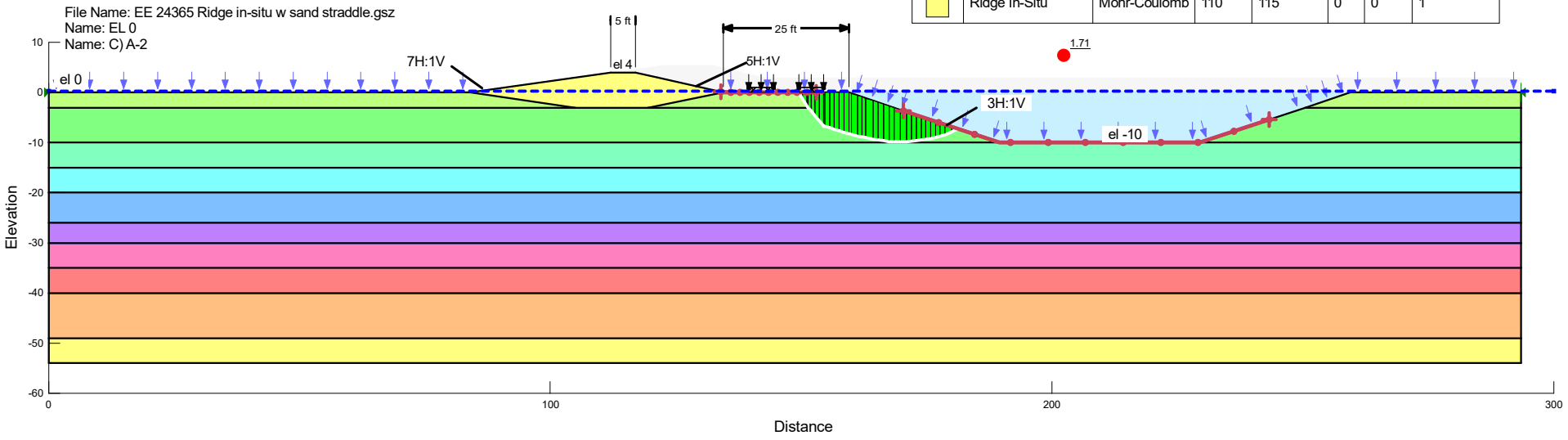
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1



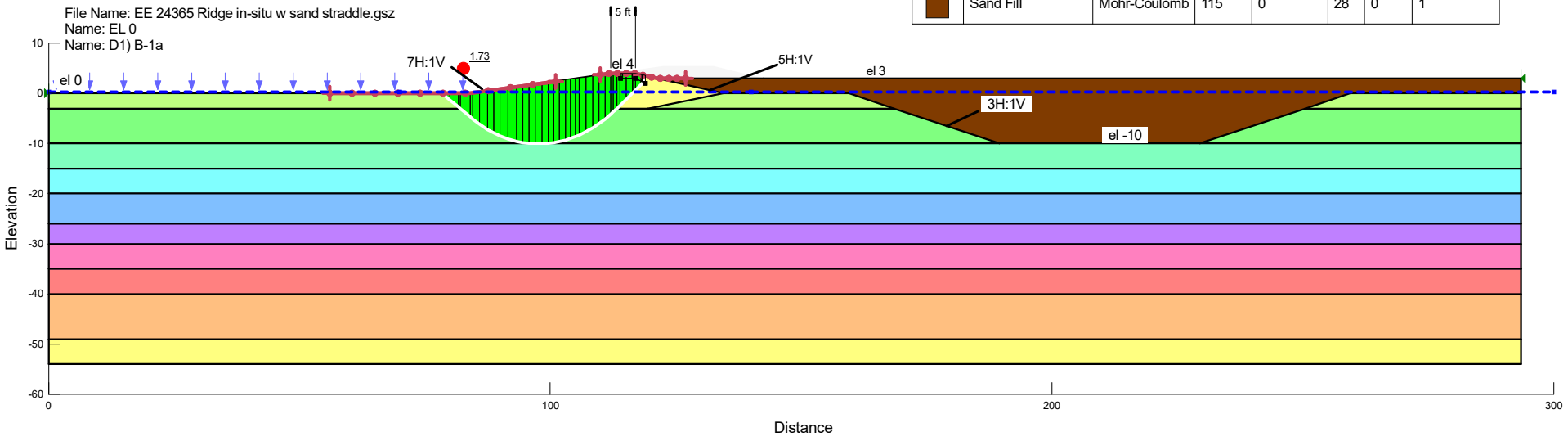
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1



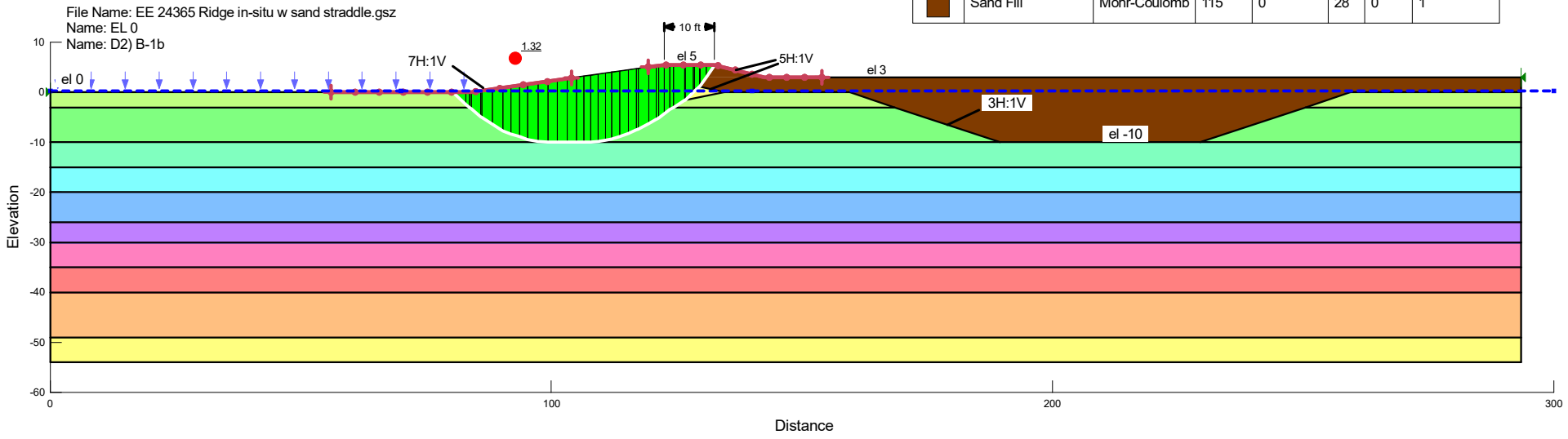
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1



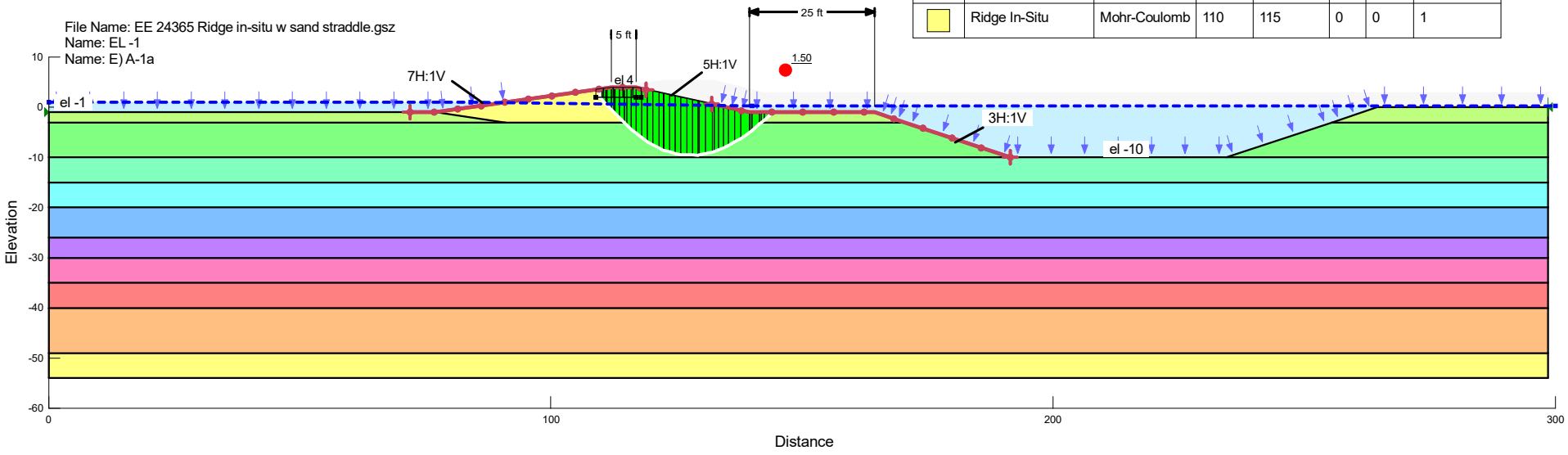
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



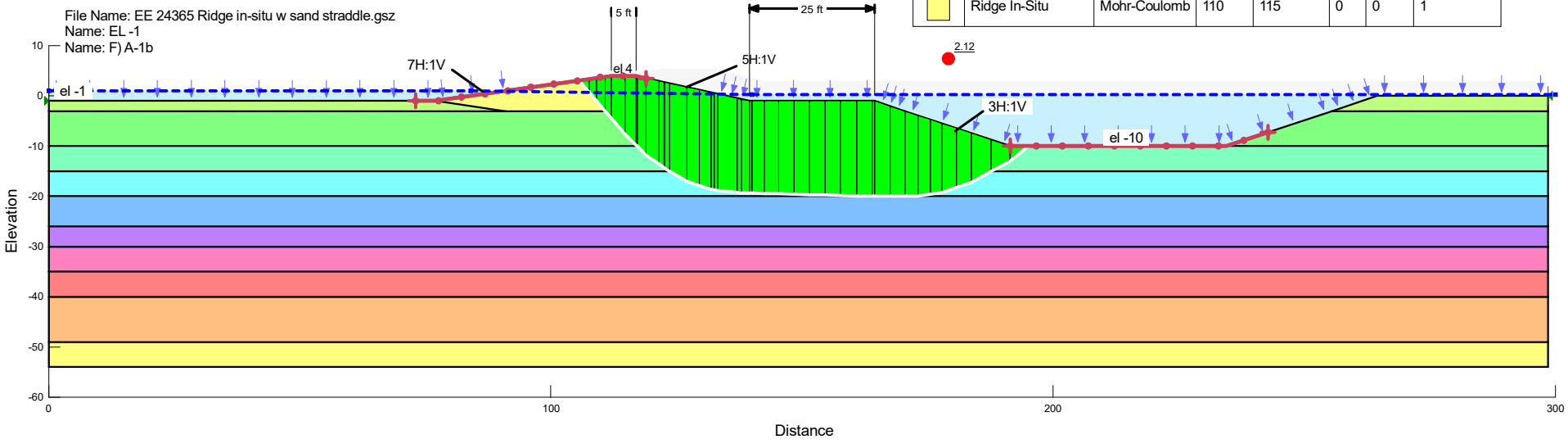
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



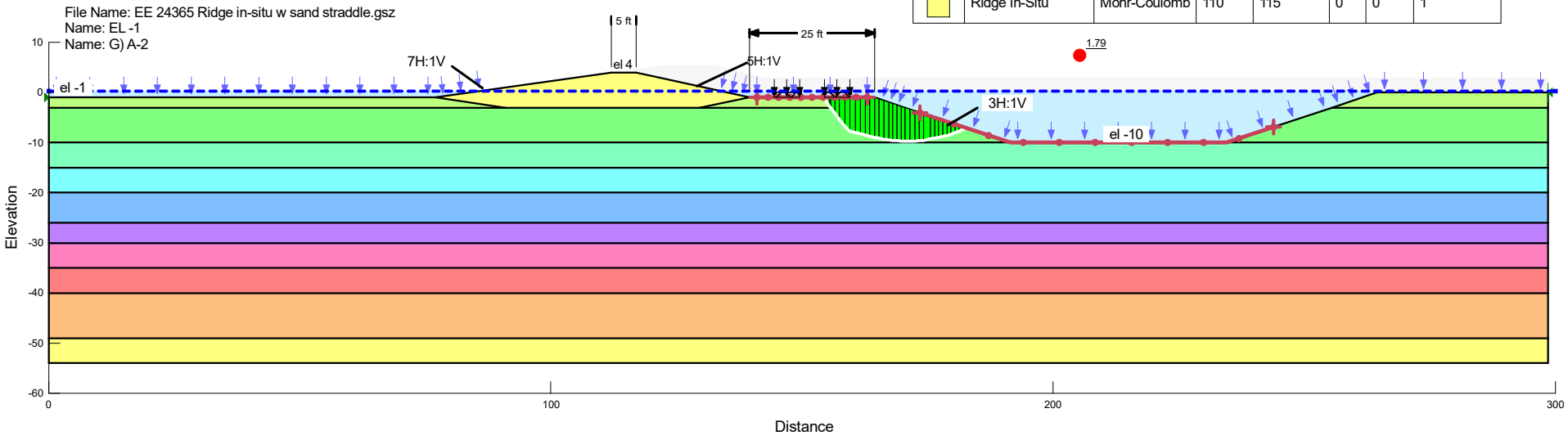
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1



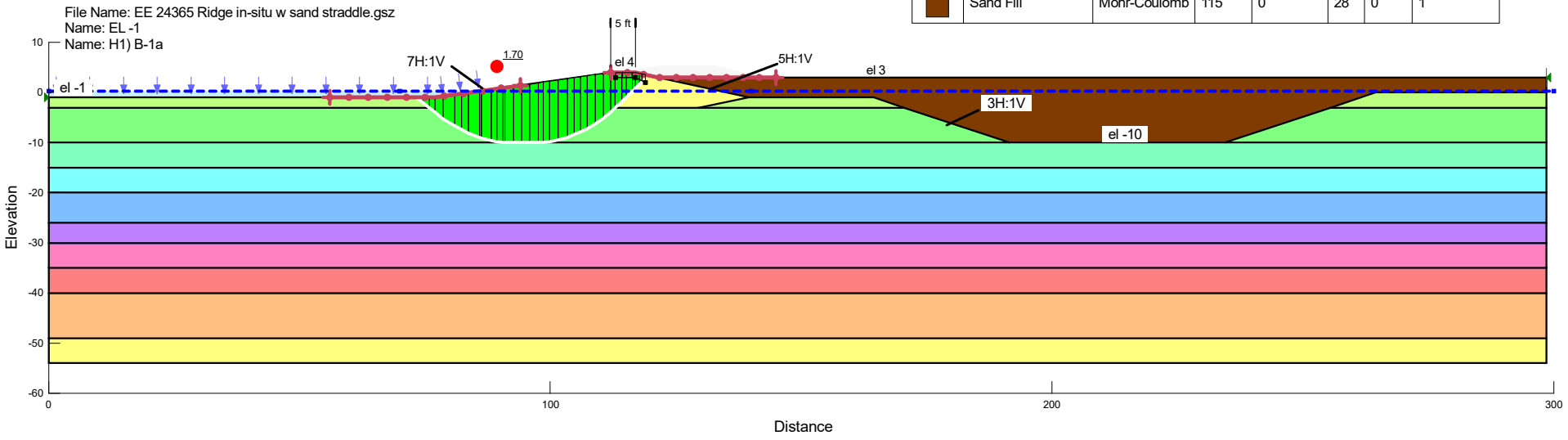
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1



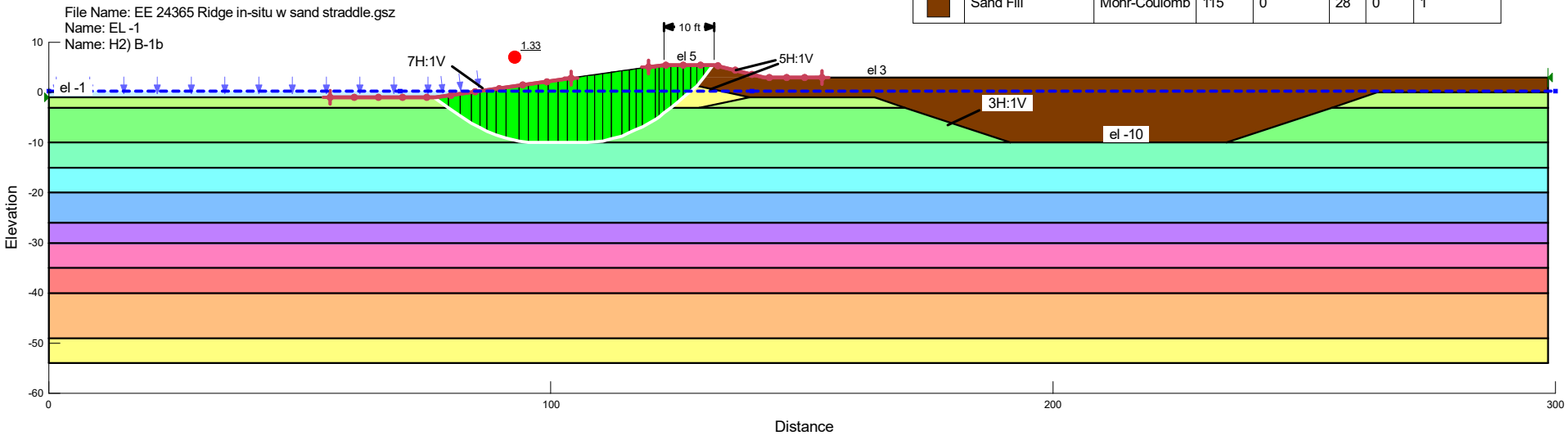
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1



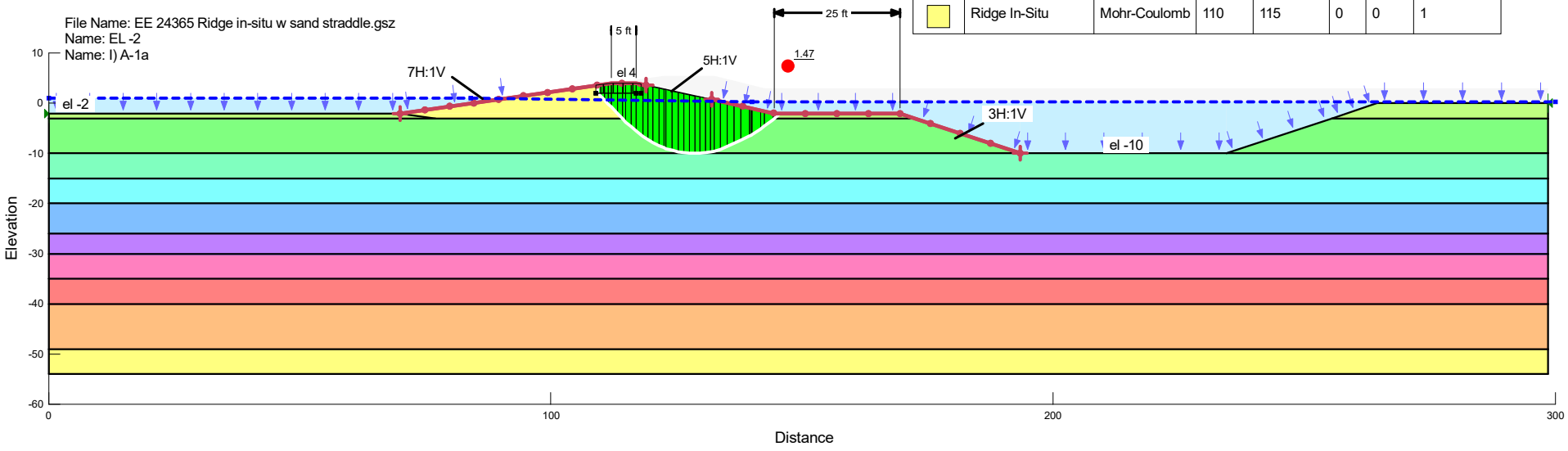
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



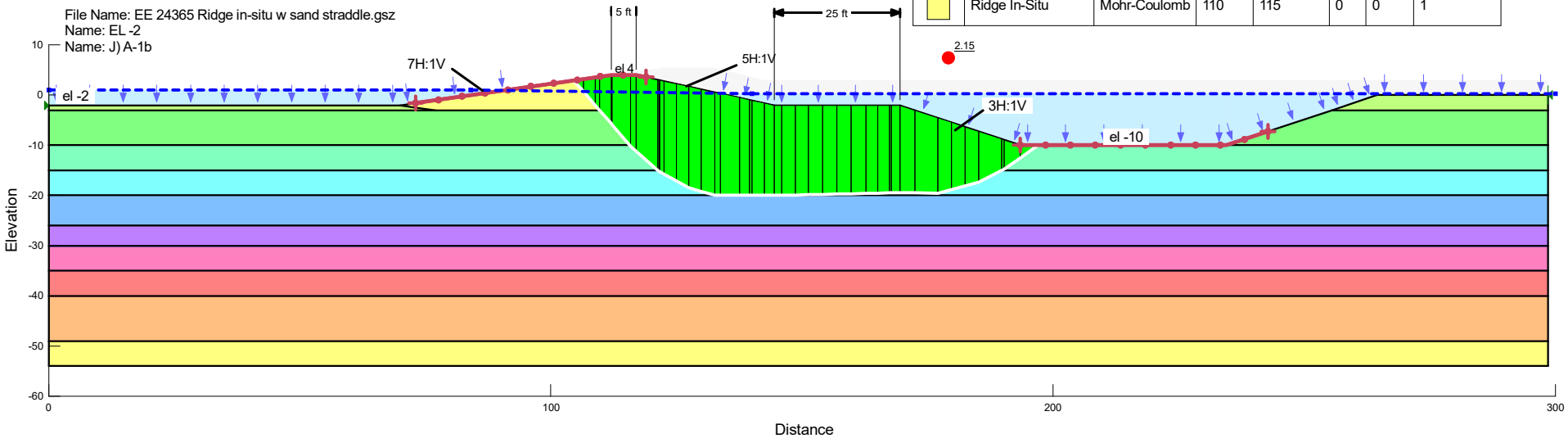
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



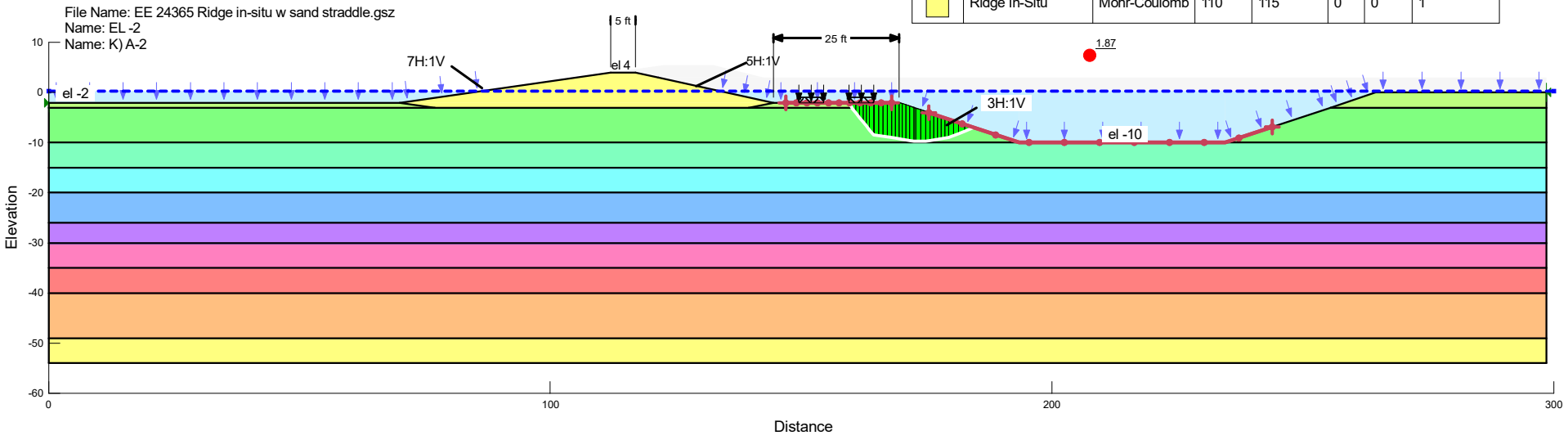
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1



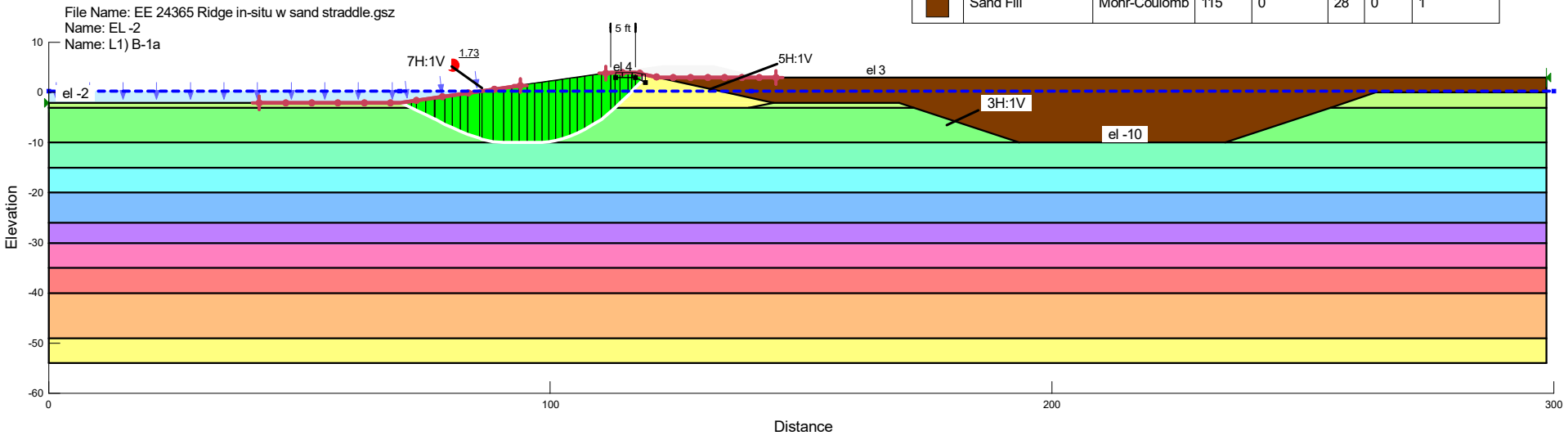
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1



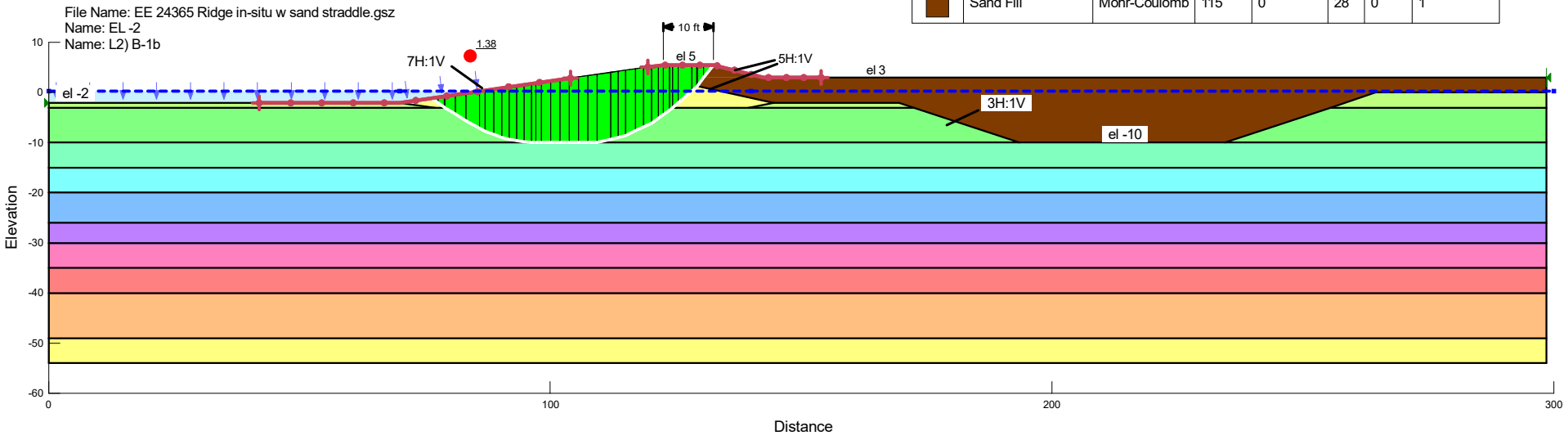
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



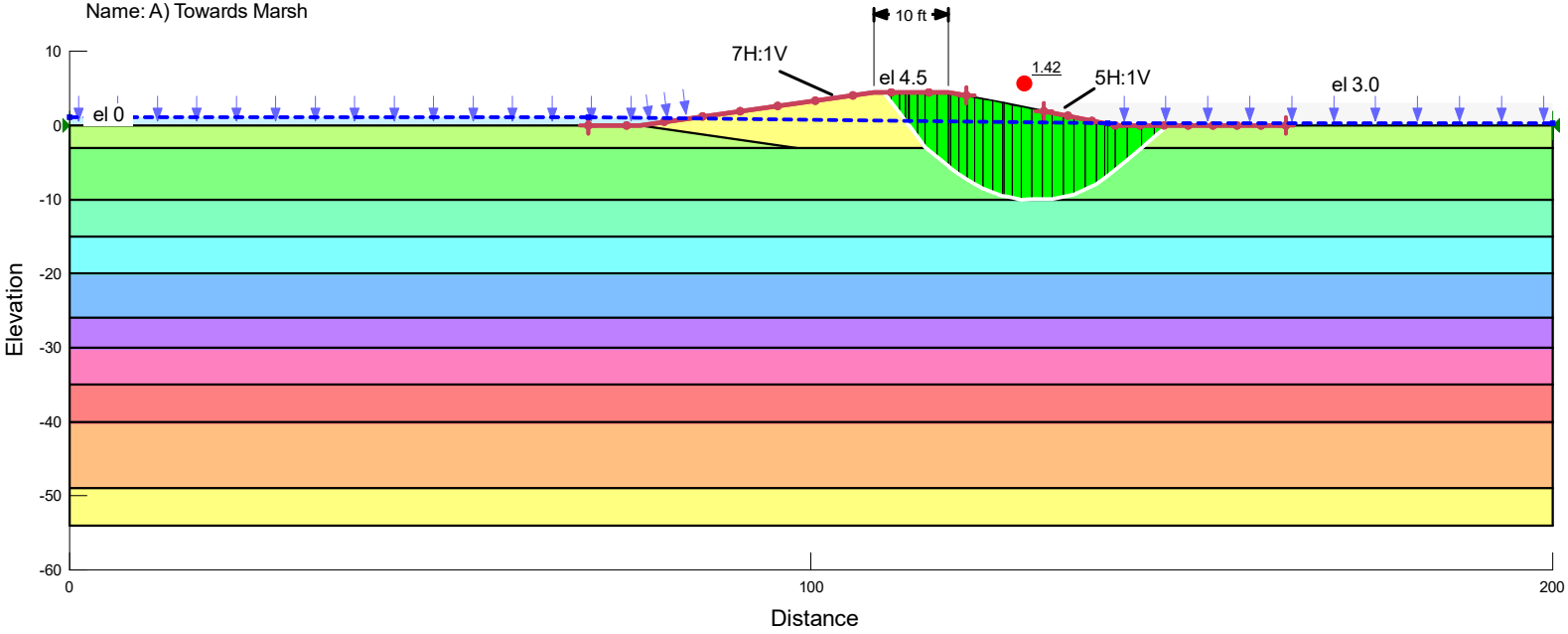
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
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	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge In-Situ	Mohr-Coulomb	110	115	0	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



SAND

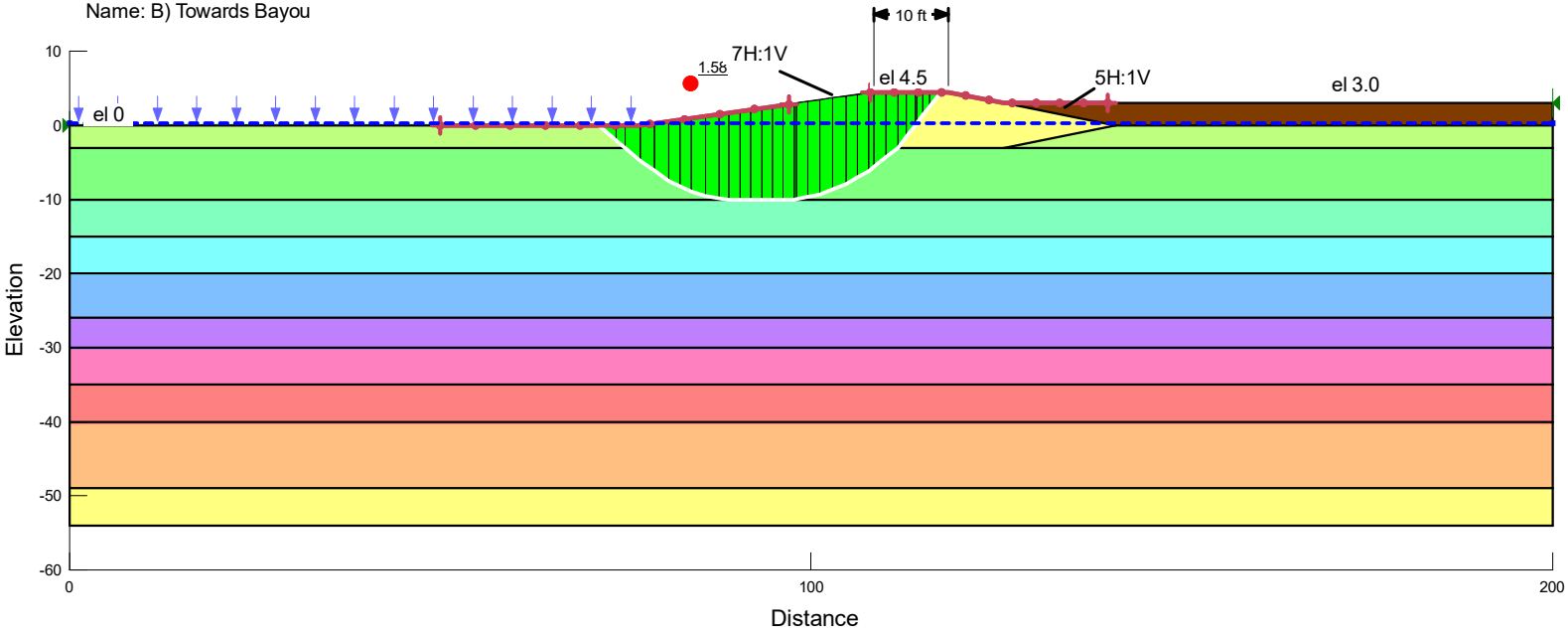
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	115	0	28	0	1

File Name: EE 24365 Ridge sand.gsz
Name: 1. ML el 0 Crown el 4.5
Name: A) Towards Marsh

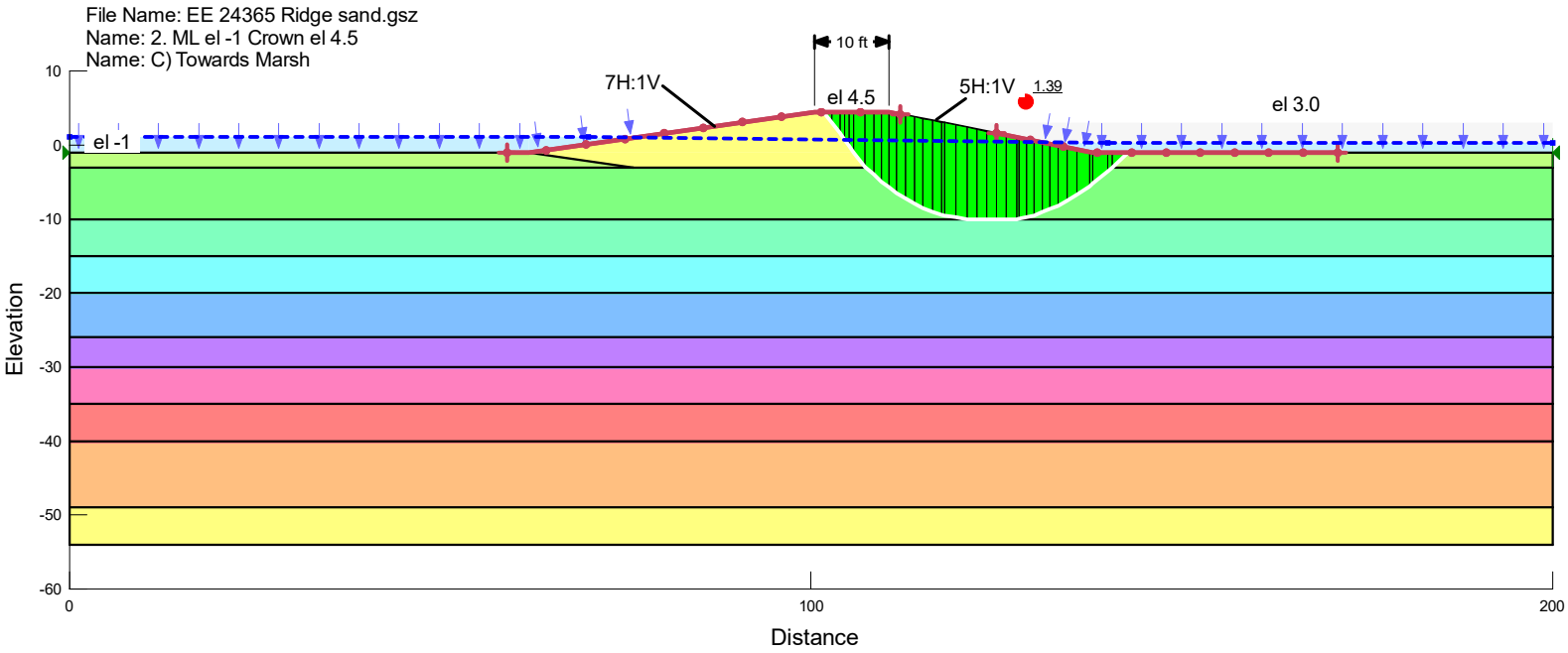


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	115	0	28	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1

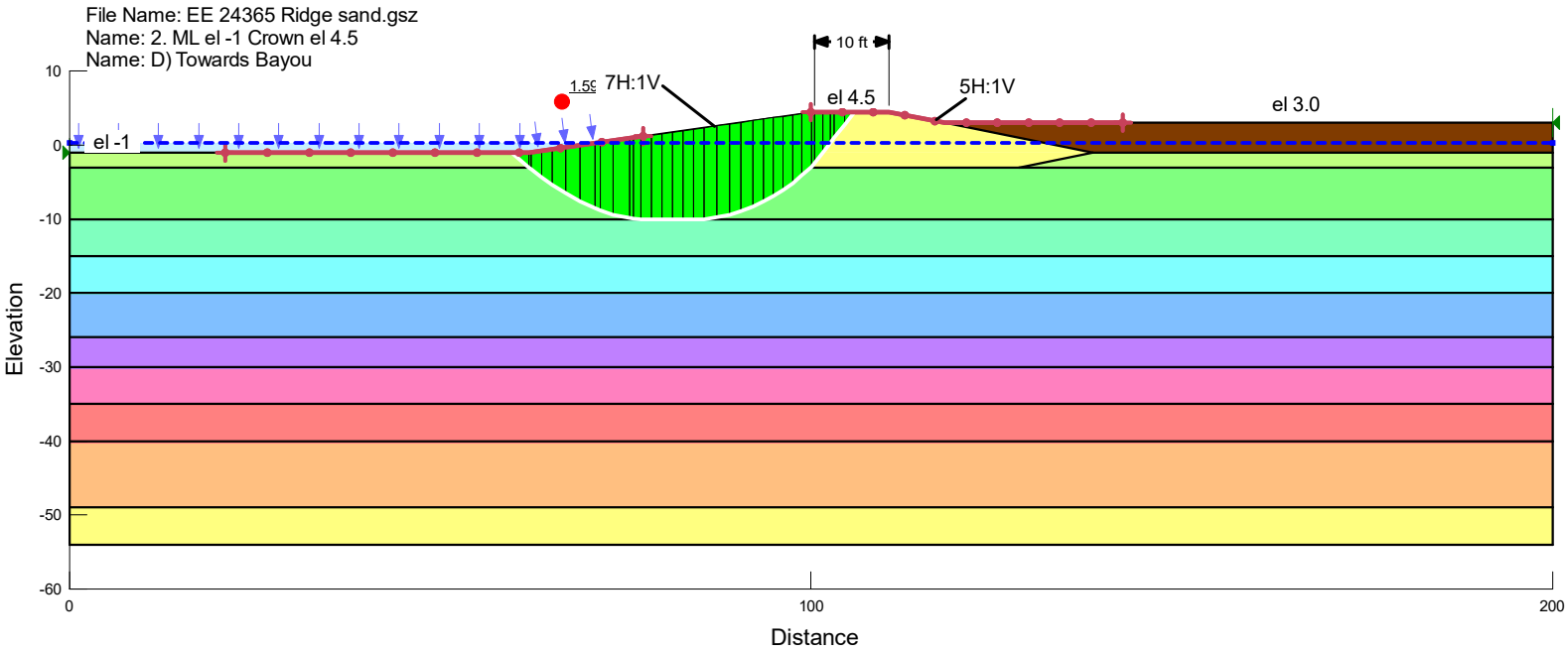
File Name: EE 24365 Ridge sand.gsz
Name: 1. ML el 0 Crown el 4.5
Name: B) Towards Bayou



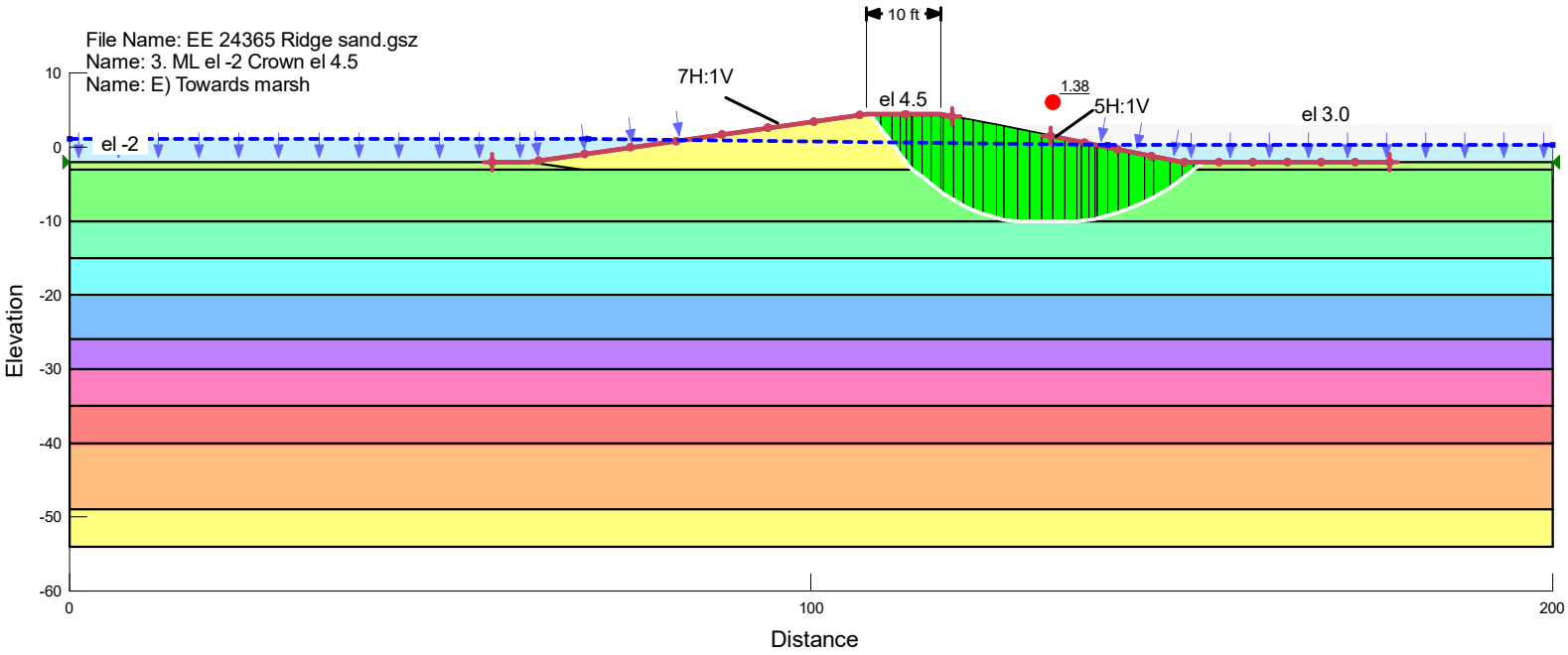
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	115	0	28	0	1



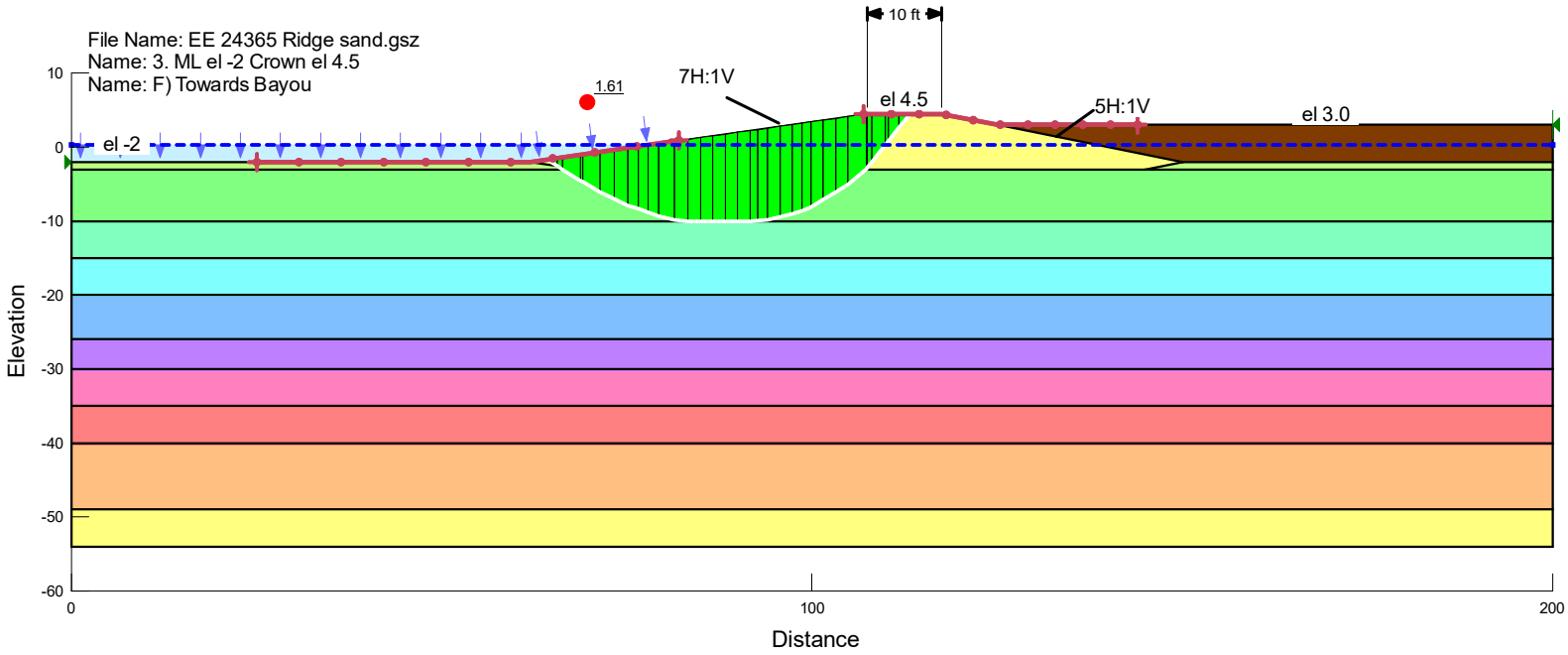
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	115	0	28	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	115	0	28	0	1

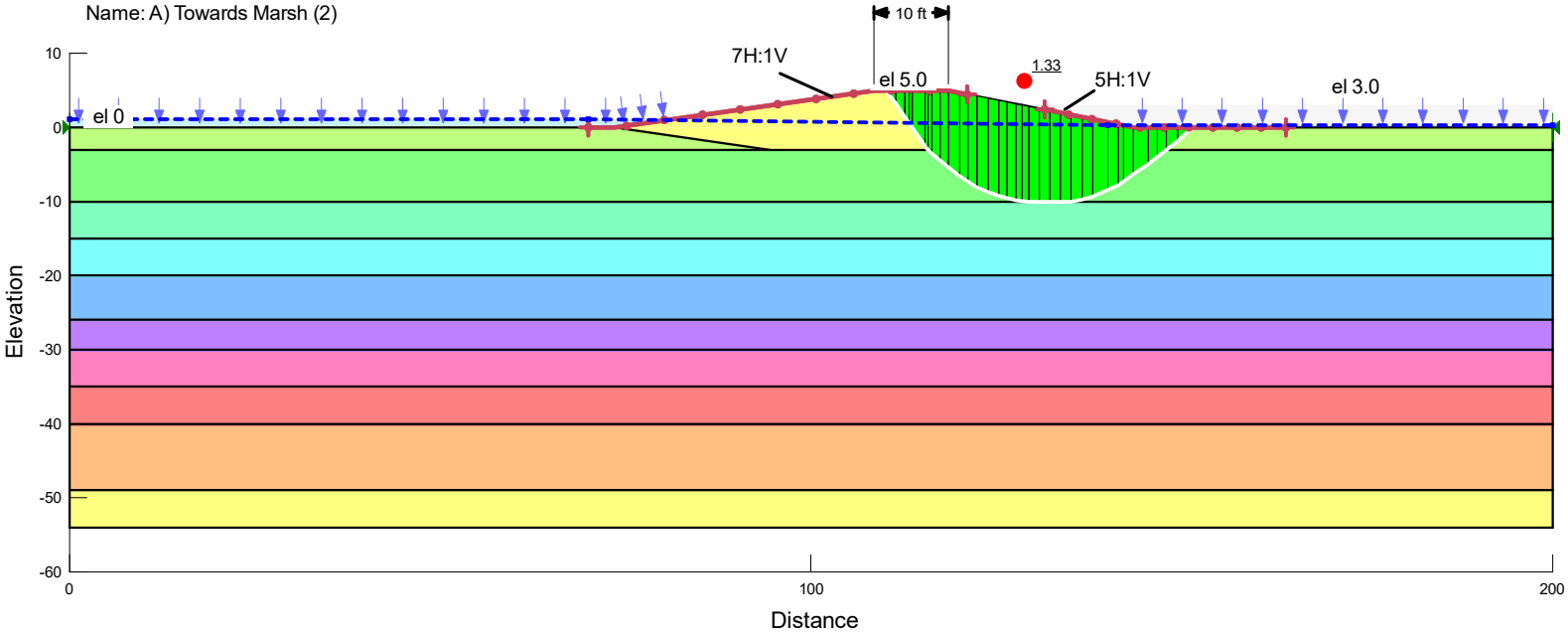


			Weight (pcf)	(psf)	(°)	(°)	Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	115	0	28	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



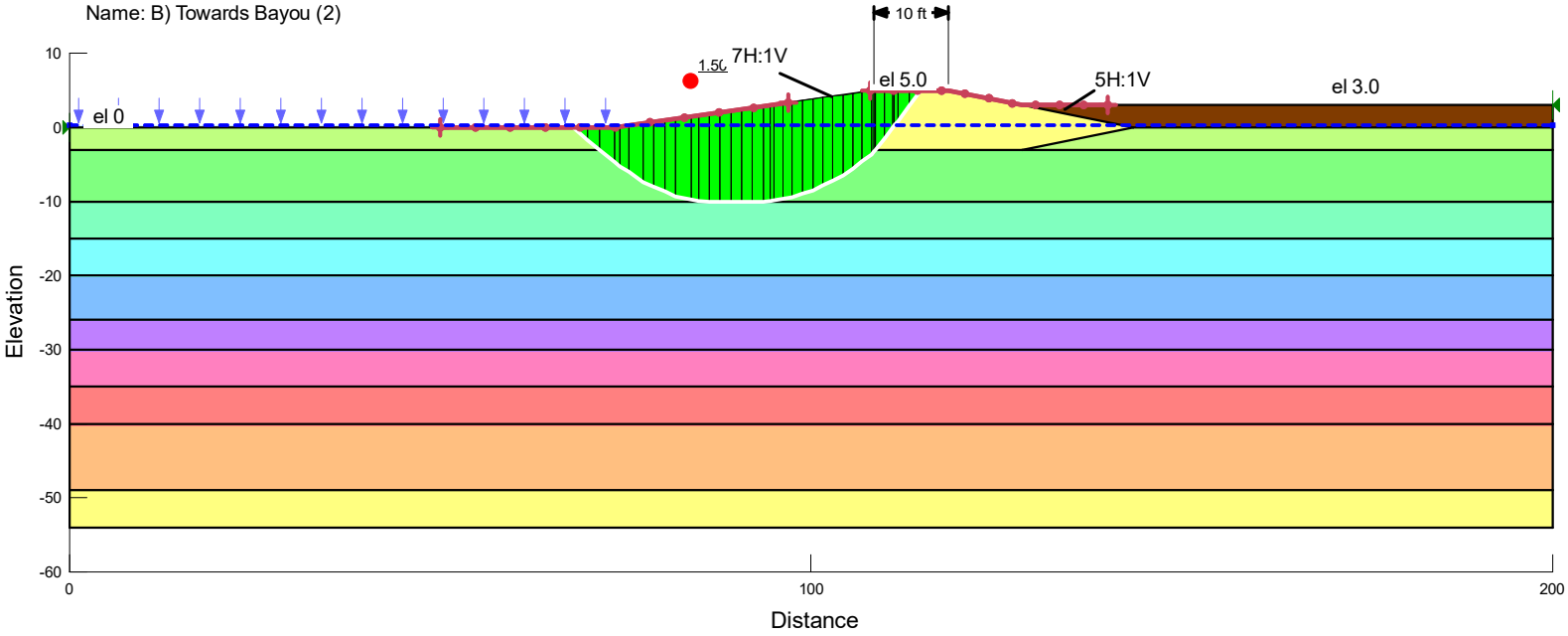
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	115	0	28	0	1

File Name: EE 24365 Ridge sand.gsz
Name: 4. ML el 0 Crown el 5
Name: A) Towards Marsh (2)

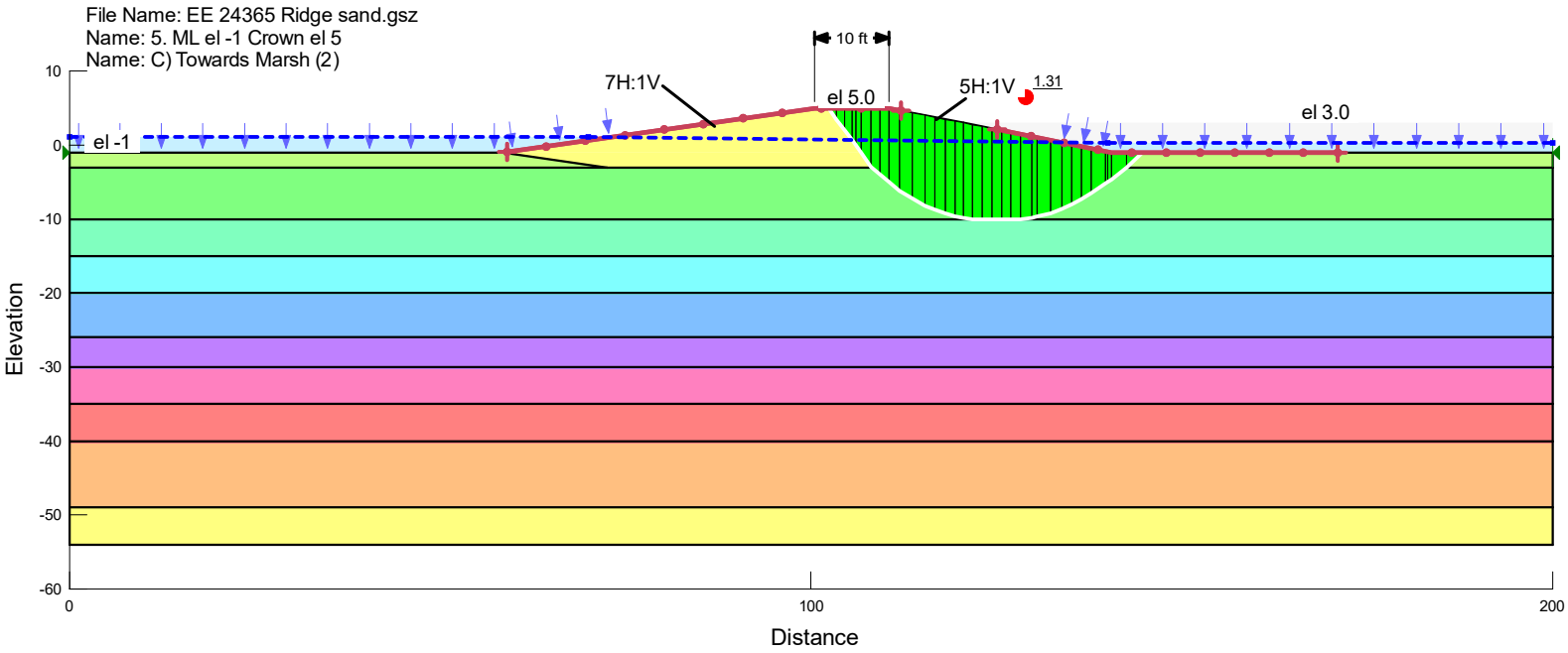


Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	115	0	28	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1

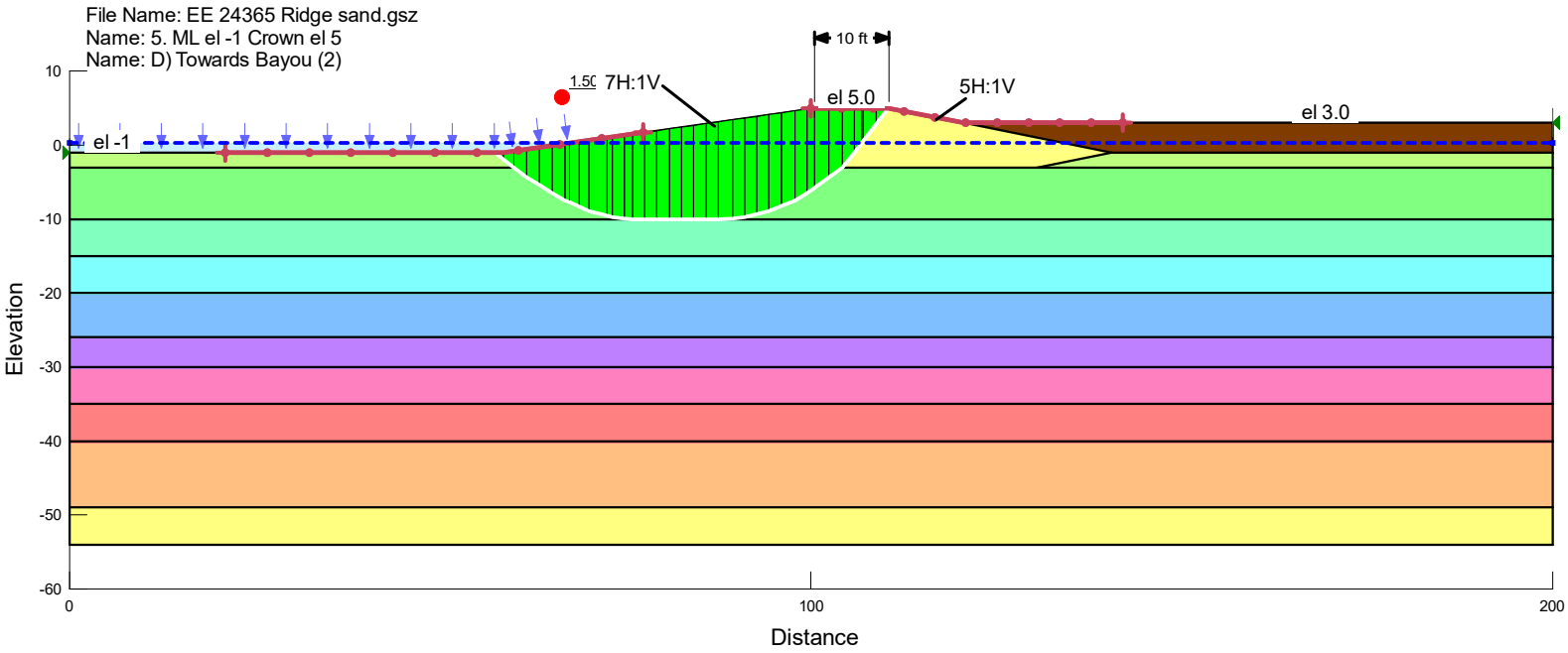
File Name: EE 24365 Ridge sand.gsz
Name: 4. ML el 0 Crown el 5
Name: B) Towards Bayou (2)



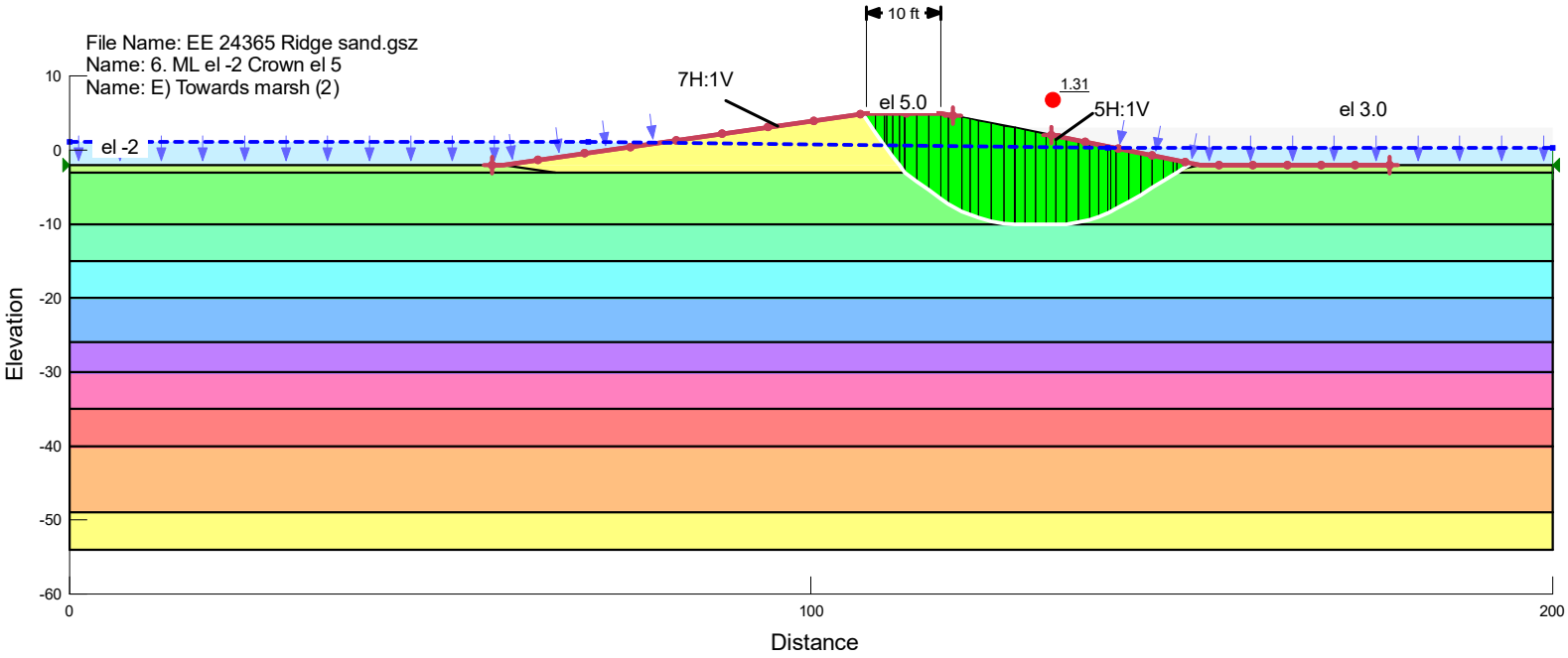
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	115	0	28	0	1



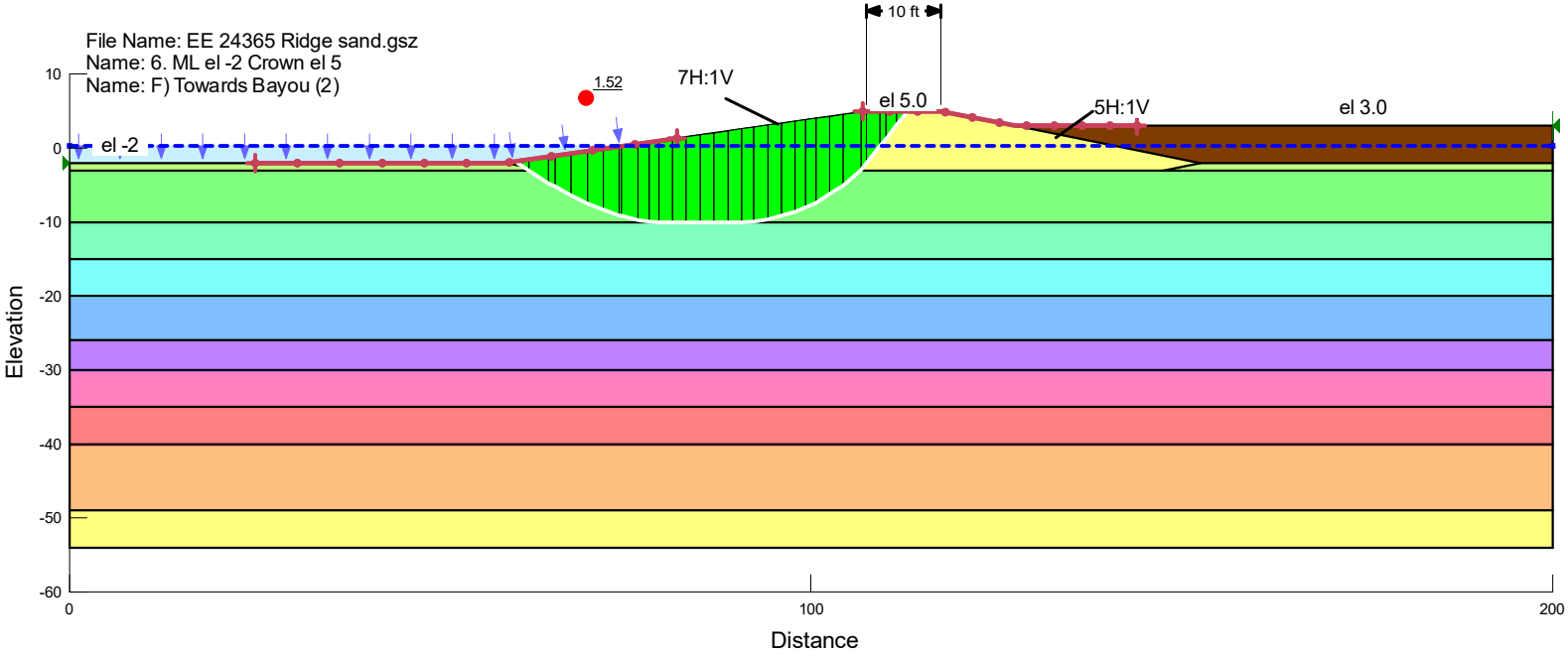
Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	115	0	28	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



Color	Name	Model	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)	Phi-B (°)	Piezometric Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	115	0	28	0	1



			Weight (pcf)	(psf)	(°)	(°)	Line
	A. CH, el 0 to -3	Mohr-Coulomb	100	60	0	0	1
	B. CL, el -3 to -10	Mohr-Coulomb	112	130	0	0	1
	C. CL, el -10 to -15	Mohr-Coulomb	116	200	0	0	1
	D. CL, el -15 to -20	Mohr-Coulomb	113	260	0	0	1
	E. CH, el -20 to -26	Mohr-Coulomb	97	350	0	0	1
	F. CH, el -26 to -30	Mohr-Coulomb	97	400	0	0	1
	G. CL, el -30 to -35	Mohr-Coulomb	109	450	0	0	1
	H. CH, el -35 to -40	Mohr-Coulomb	99	500	0	0	1
	I. CL, el -40 to -49	Mohr-Coulomb	106	600	0	0	1
	J. CH, el -49 to -54	Mohr-Coulomb	111	650	0	0	1
	Ridge	Mohr-Coulomb	115	0	28	0	1
	Sand Fill	Mohr-Coulomb	115	0	28	0	1



IN-SITU

A) A-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:13:08 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

A) A-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (74, 0) ft
Left-Zone Right Coordinate: (121, 4) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (131.41678, 1.916644) ft
Right-Zone Right Coordinate: (196, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (300, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	84 ft	1.06 ft

Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	109 ft	3.5 ft
Coordinate 2	117 ft	3.5 ft
Coordinate 3	118 ft	3.5 ft

Geometry

Name: 1. ML el 0 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	77 ft	0 ft
Point 3	141 ft	0 ft
Point 4	300 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft
Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	300 ft	-54 ft
Point 16	300 ft	-49 ft
Point 17	300 ft	-40 ft
Point 18	300 ft	-35 ft
Point 19	300 ft	-30 ft
Point 20	300 ft	-26 ft
Point 21	300 ft	-20 ft
Point 22	300 ft	-15 ft
Point 23	300 ft	-10 ft
Point 24	300 ft	-3 ft
Point 25	98 ft	-3 ft
Point 26	126 ft	-3 ft
Point 27	126 ft	3 ft
Point 28	300 ft	3 ft

Point 29	108.5 ft	4.5 ft
Point 30	118.5 ft	4.5 ft
Point 31	166 ft	0 ft
Point 32	175 ft	-3 ft
Point 33	196 ft	-10 ft
Point 34	236 ft	-10 ft
Point 35	257 ft	-3 ft
Point 36	266 ft	0 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,500 ft²
Region 2	Ridge	2,3,27,30,29	166.5 ft²
Region 3	C. CL, el -10 to -15	6,7,22,23,34,33	1,500 ft²
Region 4	D. CL, el -15 to -20	7,8,21,22	1,500 ft²
Region 5	E. CH, el -20 to -26	8,9,20,21	1,800 ft²
Region 6	F. CH, el -26 to -30	9,10,19,20	1,200 ft²
Region 7	G. CL, el -30 to -35	10,11,18,19	1,500 ft²
Region 8	H. CH, el -35 to -40	11,12,17,18	1,500 ft²
Region 9	I. CL, el -40 to -49	12,13,16,17	2,700 ft²
Region 10	Ridge	2,25,26,3	138 ft²
Region 11	A. CH, el 0 to -3	1,5,25,2	262.5 ft²
Region 12		32,33,34,35,36,4,28,27,3,31	1,199.5 ft²
Region 13	B. CL, el -3 to -10	5,6,33,32,26,25	1,298.5 ft²
Region 14	B. CL, el -3 to -10	23,24,35,34	374.5 ft²
Region 15	A. CH, el 0 to -3	24,4,36,35	115.5 ft²
Region 16	A. CH, el 0 to -3	3,26,32,31	111 ft²

Slip Results

Slip Surfaces Analysed: 1127 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.33
Volume: 104.84578 ft³
Weight: 11,334.191 lbf
Resisting Moment: 54,764.793 lbf·ft
Activating Moment: 41,036.512 lbf·ft
Resisting Force: 2,057.0126 lbf
Activating Force: 1,541.807 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (142.26649, 0) ft
Entry: (116.62941, 3.5) ft
Radius: 11.265178 ft
Center: (133.23249, 19.937537) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	117.09706 ft	3.0371853 ft	-152.58501 psf	73.711579 psf	0 psf	115 psf	0 psf	Ridge
Slice 2	118.03235 ft	2.1115558 ft	-95.621513 psf	169.57475 psf	0 psf	115 psf	0 psf	Ridge
Slice 3	118.69933 ft	1.4514755 ft	-54.999988 psf	231.8312 psf	0 psf	115 psf	0 psf	Ridge
Slice 4	119.291 ft	0.90541 ft	-21.430106 psf	285.21355 psf	0 psf	115 psf	0 psf	Ridge
Slice 5	119.99639 ft	0.278305 ft	17.098927 psf	334.43812 psf	0 psf	115 psf	0 psf	Ridge
Slice 6	120.55018 ft	-0.2140155 ft	47.346865 psf	373.0828 psf	0 psf	115 psf	0 psf	Ridge
Slice 7	121.26973 ft	-0.7190395 ft	78.241886 psf	443.07115 psf	0 psf	115 psf	0 psf	Ridge
Slice 8	122.22738 ft	-1.3010565 ft	113.73391 psf	483.63707 psf	0 psf	115 psf	0 psf	Ridge
Slice 9	123.21606 ft	-1.8283945 ft	145.78497 psf	536.69201 psf	0 psf	115 psf	0 psf	Ridge
Slice 10	124.23579 ft	-2.3010535 ft	174.39508 psf	564.98063 psf	0 psf	115 psf	0 psf	Ridge
Slice 11	125.37283 ft	-2.7509118 ft	201.47842 psf	605.44897 psf	0 psf	115 psf	0 psf	Ridge
Slice 12	126.03096 ft	-2.9749813 ft	214.88749 psf	615.29305 psf	0 psf	115 psf	0 psf	Ridge
Slice 13	126.21782 ft	-2.992541 ft	215.81918 psf	653.49607 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 14	126.74757 ft	-2.999766 ft	215.80367 psf	646.32886 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 15	127.33176 ft	-2.999971 ft	215.30198 psf	632.3888 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 16	127.98142 ft	-2.9999716 ft	214.72984 psf	616.79599 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 17	128.86012 ft	-2.9999747 ft	213.95615 psf	595.70745 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 18	129.73883 ft	-2.9999778 ft	213.18247 psf	574.61891 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 19	130.61753 ft	-2.9999809 ft	212.40878 psf	553.53037 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 20	131.49623 ft	-2.9999841 ft	211.63509 psf	532.44183 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 21	132.37493 ft	-2.9999872 ft	210.8614 psf	511.35329 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 22	133.25364 ft	-2.9999903 ft	210.08771 psf	490.26475 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

Slice 23	134.13234 ft	-2.9999934 ft	209.31402 psf	469.17621 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 24	135.05965 ft	-2.9999608 ft	208.49529 psf	446.92392 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 25	136.03558 ft	-2.9998922 ft	207.6315 psf	423.49471 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 26	137.0574 ft	-2.916726 ft	201.53948 psf	403.7363 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 27	138.06668 ft	-2.6867565 ft	186.29356 psf	368.33 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 28	139.08276 ft	-2.2721081 ft	159.51211 psf	314.95193 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 29	139.68404 ft	-1.9742801 ft	140.3891 psf	269.26366 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 30	139.87232 ft	-1.8458261 ft	132.20387 psf	274.06454 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 31	140.5 ft	-1.3619061 ft	101.88021 psf	213.99757 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 32	141.63325 ft	-0.48821158 ft	47.335292 psf	113.1343 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

B) A-1b

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:13:38 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

B) A-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (77, 0) ft
Left-Zone Right Coordinate: (120, 4.2) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (196, -10) ft
Right-Zone Right Coordinate: (243, -7.666667) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (300, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	84 ft	1.06 ft

Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

Geometry

Name: 1. ML el 0 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	77 ft	0 ft
Point 3	141 ft	0 ft
Point 4	300 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft
Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	300 ft	-54 ft
Point 16	300 ft	-49 ft
Point 17	300 ft	-40 ft
Point 18	300 ft	-35 ft
Point 19	300 ft	-30 ft
Point 20	300 ft	-26 ft
Point 21	300 ft	-20 ft
Point 22	300 ft	-15 ft
Point 23	300 ft	-10 ft
Point 24	300 ft	-3 ft
Point 25	98 ft	-3 ft
Point 26	126 ft	-3 ft
Point 27	126 ft	3 ft
Point 28	300 ft	3 ft
Point 29	108.5 ft	4.5 ft
Point 30	118.5 ft	4.5 ft
Point 31	166 ft	0 ft
Point 32	175 ft	-3 ft

Point 33	196 ft	-10 ft
Point 34	236 ft	-10 ft
Point 35	257 ft	-3 ft
Point 36	266 ft	0 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,500 ft²
Region 2	Ridge	2,3,27,30,29	166.5 ft²
Region 3	C. CL, el -10 to -15	6,7,22,23,34,33	1,500 ft²
Region 4	D. CL, el -15 to -20	7,8,21,22	1,500 ft²
Region 5	E. CH, el -20 to -26	8,9,20,21	1,800 ft²
Region 6	F. CH, el -26 to -30	9,10,19,20	1,200 ft²
Region 7	G. CL, el -30 to -35	10,11,18,19	1,500 ft²
Region 8	H. CH, el -35 to -40	11,12,17,18	1,500 ft²
Region 9	I. CL, el -40 to -49	12,13,16,17	2,700 ft²
Region 10	Ridge	2,25,26,3	138 ft²
Region 11	A. CH, el 0 to -3	1,5,25,2	262.5 ft²
Region 12		32,33,34,35,36,4,28,27,3,31	1,199.5 ft²
Region 13	B. CL, el -3 to -10	5,6,33,32,26,25	1,298.5 ft²
Region 14	B. CL, el -3 to -10	23,24,35,34	374.5 ft²
Region 15	A. CH, el 0 to -3	24,4,36,35	115.5 ft²
Region 16	A. CH, el 0 to -3	3,26,32,31	111 ft²

Slip Results

Slip Surfaces Analysed: 1213 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.93
Volume: 1,428.9805 ft³
Weight: 160,105.28 lbf
Resisting Moment: 1,762,294.7 lbf·ft
Activating Moment: 911,412.28 lbf·ft
Resisting Force: 21,938.295 lbf
Activating Force: 11,343.745 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (199.04533, -10) ft
Entry: (103.99992, 3.8571317) ft
Radius: 41.814775 ft
Center: (160.49745, 53.029075) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material

Slice 1	105.46479 ft	2.2968298 ft	-96.11981 psf	126.6062 psf	0 psf	115 psf	0 psf	Ridge
Slice 2	107.2754 ft	0.36826399 ft	22.686293 psf	352.23202 psf	0 psf	115 psf	0 psf	Ridge
Slice 3	108.06057 ft	-0.4680563 ft	74.206419 psf	450.07439 psf	0 psf	115 psf	0 psf	Ridge
Slice 4	109.46883 ft	-1.9680563 ft	166.61143 psf	611.28442 psf	0 psf	115 psf	0 psf	Ridge
Slice 5	110.63002 ft	-3.2048995 ft	242.80511 psf	731.96082 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	112.05334 ft	-4.61555 ft	329.61876 psf	889.97324 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	114.51523 ft	-7.027052 ft	478.00106 psf	1,144.5306 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	116.78929 ft	-9.1164015 ft	606.43676 psf	1,384.2378 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	118.1662 ft	-10.28276 ft	678.04011 psf	1,482.4095 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 10	119.4506 ft	-11.370763 ft	744.83314 psf	1,582.4275 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 11	122.5936 ft	-13.634917 ft	883.4166 psf	1,803.4546 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 12	125.393 ft	-15.376609 ft	989.68532 psf	1,968.523 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 13	127.25907 ft	-16.24595 ft	1,042.3149 psf	2,021.6453 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 14	129.77721 ft	-17.419068 ft	1,113.3352 psf	2,091.7384 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 15	132.44708 ft	-18.409535 ft	1,172.8188 psf	2,185.4543 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 16	135.52398 ft	-19.076414 ft	1,211.7424 psf	2,221.3731 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 17	137.45674 ft	-19.366626 ft	1,228.1581 psf	2,222.9606 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 18	138.50449 ft	-19.461565 ft	1,233.1624 psf	2,212.8242 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 19	139.45451 ft	-19.533331 ft	1,236.8061 psf	2,215.1742 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 20	139.81172 ft	-19.54193 ft	1,237.0283 psf	2,209.7933 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 21	140.5 ft	-19.5585 ft	1,237.897 psf	2,203.6892 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 22	142.74621 ft	-19.612575 ft	1,241.2729 psf	2,203.9102 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 23	146.02868 ft	-19.677701 ft	1,245.3387 psf	2,213.7181 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 24	149.10119 ft	-19.723876 ft	1,248.2215 psf	2,218.9311 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 25	152.1737 ft	-19.770052 ft	1,251.1042 psf	2,224.144 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 26	155.24621 ft	-19.816227 ft	1,253.987 psf	2,229.357 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20

Slice 27	158.31872 ft	-19.862403 ft	1,256.8697 psf	2,234.5699 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 28	161.39123 ft	-19.908578 ft	1,259.7524 psf	2,239.7829 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 29	164.46374 ft	-19.954754 ft	1,262.6352 psf	2,244.9959 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 30	166.6729 ft	-19.987954 ft	1,264.7079 psf	2,240.9651 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 31	169.25935 ft	-19.991773 ft	1,264.9463 psf	2,215.1378 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 32	173.08645 ft	-19.979185 ft	1,264.1604 psf	2,167.4313 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 33	175.47349 ft	-19.971333 ft	1,263.6703 psf	2,135.7815 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 34	177.91655 ft	-19.562204 ft	1,238.1283 psf	2,104.3049 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 35	181.85571 ft	-18.747061 ft	1,187.2387 psf	1,946.7774 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 36	185.70735 ft	-17.504617 ft	1,109.6727 psf	1,800.8908 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 37	189.47147 ft	-15.834872 ft	1,005.4302 psf	1,544.558 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 38	192.20616 ft	-14.621775 ft	929.69629 psf	1,341.0181 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 39	194.5294 ft	-13.201115 ft	841.00428 psf	1,181.38 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 40	197.52267 ft	-11.079341 ft	708.54149 psf	885.20206 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15

C) A-2

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 46
Date: 07/12/2021
Time: 03:18:37 PM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/12/2021
Last Solved Time: 03:18:42 PM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

C) A-2

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (144, 0) ft
Left-Zone Right Coordinate: (165, 0) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (181, -5) ft
Right-Zone Right Coordinate: (244, -7.333333) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (300, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	146 ft	1 ft
	151 ft	1 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	156 ft	1 ft
	161 ft	1 ft

Tension Crack Line

Geometry

Name: 1. ML el 0 Crown el 4.5

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	77 ft	0 ft
Point 3	141 ft	0 ft
Point 4	300 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft

Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	300 ft	-54 ft
Point 16	300 ft	-49 ft
Point 17	300 ft	-40 ft
Point 18	300 ft	-35 ft
Point 19	300 ft	-30 ft
Point 20	300 ft	-26 ft
Point 21	300 ft	-20 ft
Point 22	300 ft	-15 ft
Point 23	300 ft	-10 ft
Point 24	300 ft	-3 ft
Point 25	98 ft	-3 ft
Point 26	126 ft	-3 ft
Point 27	126 ft	3 ft
Point 28	300 ft	3 ft
Point 29	108.5 ft	4.5 ft
Point 30	118.5 ft	4.5 ft
Point 31	166 ft	0 ft
Point 32	175 ft	-3 ft
Point 33	196 ft	-10 ft
Point 34	236 ft	-10 ft
Point 35	257 ft	-3 ft
Point 36	266 ft	0 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,500 ft²
Region 2	Ridge	2,3,27,30,29	166.5 ft²
Region 3	C. CL, el -10 to -15	6,7,22,23,34,33	1,500 ft²
Region 4	D. CL, el -15 to -20	7,8,21,22	1,500 ft²
Region 5	E. CH, el -20 to -26	8,9,20,21	1,800 ft²
Region 6	F. CH, el -26 to -30	9,10,19,20	1,200 ft²
Region 7	G. CL, el -30 to -35	10,11,18,19	1,500 ft²
Region 8	H. CH, el -35 to -40	11,12,17,18	1,500 ft²
Region 9	I. CL, el -40 to -49	12,13,16,17	2,700 ft²
Region 10	Ridge	2,25,26,3	138 ft²
Region 11	A. CH, el 0 to -3	1,5,25,2	262.5 ft²
Region 12		32,33,34,35,36,4,28,27,3,31	1,199.5 ft²
Region 13	B. CL, el -3 to -10	5,6,33,32,26,25	1,298.5 ft²
Region 14	B. CL, el -3 to -10	23,24,35,34	374.5 ft²
Region 15	A. CH, el 0 to -3	24,4,36,35	115.5 ft²
Region 16	A. CH, el 0 to -3	3,26,32,31	111 ft²

Slip Results

Slip Surfaces Analysed: 1255 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.75
Volume: 169.90172 ft³
Weight: 18,551.366 lbf
Resisting Moment: 122,197.54 lbf·ft
Activating Moment: 69,704.801 lbf·ft
Resisting Force: 4,129.572 lbf
Activating Force: 2,354.8724 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (189.13867, -7.7128885) ft
Entry: (156.00714, 0) ft
Radius: 15.83878 ft
Center: (176.6626, 17.367033) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	156.67612 ft	-0.8359965 ft	69.04757 psf	288.04704 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	157.94416 ft	-2.3481785 ft	163.45338 psf	431.81405 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	159.15742 ft	-3.627915 ft	243.34757 psf	533.37177 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	160.38581 ft	-4.8350171 ft	318.70718 psf	657.47434 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	161.00315 ft	-5.4416636 ft	356.58023 psf	481.17705 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	161.63991 ft	-5.667518 ft	370.68037 psf	577.81403 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	162.90714 ft	-6.113036 ft	398.49414 psf	626.16581 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	163.89625 ft	-6.4685705 ft	420.69023 psf	661.89771 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	164.68881 ft	-6.7973926 ft	441.21865 psf	687.59101 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	165.56294 ft	-7.1894857 ft	465.6971 psf	729.78393 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	166.47228 ft	-7.5973747 ft	491.16169 psf	768.7714 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	167.41683 ft	-8.0210596 ft	517.61241 psf	803.5713 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 13	168.40528 ft	-8.4026295 ft	541.4339 psf	850.77209 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	169.43763 ft	-8.7420845 ft	562.62613 psf	875.76652 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	170.50364 ft	-9.0304855 ft	580.63106 psf	912.05695 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	171.60331 ft	-9.2678325 ft	595.44868 psf	925.30213 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	172.70298 ft	-9.5051795 ft	610.2663 psf	938.5473 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	173.68962 ft	-9.6768962 ft	620.98661 psf	960.8587 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	174.56321 ft	-9.7829826 ft	627.6096 psf	962.33507 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	175.64372 ft	-9.9141974 ft	635.80136 psf	961.61439 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	176.808 ft	-9.991963 ft	640.65629 psf	971.57492 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	177.84913 ft	-9.991151 ft	640.60559 psf	954.93689 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	178.89026 ft	-9.990339 ft	640.5549 psf	938.29886 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	179.99228 ft	-9.9244952 ft	636.44426 psf	931.16369 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	181.15519 ft	-9.7936198 ft	628.27368 psf	897.68148 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	182.45181 ft	-9.644647 ft	618.97328 psf	860.66149 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	183.72303 ft	-9.437519 ft	606.04224 psf	832.77311 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	184.83514 ft	-9.190333 ft	590.61037 psf	786.47831 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	185.94982 ft	-8.8835857 ft	571.46008 psf	748.66434 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	187.06707 ft	-8.5172772 ft	548.59138 psf	688.07509 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	188.38218 ft	-8.0235057 ft	517.76513 psf	620.66894 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

D) B-1

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:13:12 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

D) B-1

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (57, 0) ft
Left-Zone Right Coordinate: (93, 2.285714) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (108, 4.428571) ft
Right-Zone Right Coordinate: (135.51923, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (300, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	70 ft	1.06 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	109 ft	3 ft
Coordinate 2	117 ft	3 ft
Coordinate 3	118 ft	3 ft

Geometry

Name: 1. ML el 0 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	77 ft	0 ft
Point 3	141 ft	0 ft
Point 4	300 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft
Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	300 ft	-54 ft
Point 16	300 ft	-49 ft
Point 17	300 ft	-40 ft
Point 18	300 ft	-35 ft
Point 19	300 ft	-30 ft

Point 20	300 ft	-26 ft
Point 21	300 ft	-20 ft
Point 22	300 ft	-15 ft
Point 23	300 ft	-10 ft
Point 24	300 ft	-3 ft
Point 25	98 ft	-3 ft
Point 26	126 ft	-3 ft
Point 27	126 ft	3 ft
Point 28	300 ft	3 ft
Point 29	108.5 ft	4.5 ft
Point 30	118.5 ft	4.5 ft
Point 31	166 ft	0 ft
Point 32	175 ft	-3 ft
Point 33	196 ft	-10 ft
Point 34	236 ft	-10 ft
Point 35	257 ft	-3 ft
Point 36	266 ft	0 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,500 ft²
Region 2	Ridge	2,3,27,30,29	166.5 ft²
Region 3	C. CL, el -10 to -15	6,7,22,23,34,33	1,500 ft²
Region 4	D. CL, el -15 to -20	7,8,21,22	1,500 ft²
Region 5	E. CH, el -20 to -26	8,9,20,21	1,800 ft²
Region 6	F. CH, el -26 to -30	9,10,19,20	1,200 ft²
Region 7	G. CL, el -30 to -35	10,11,18,19	1,500 ft²
Region 8	H. CH, el -35 to -40	11,12,17,18	1,500 ft²
Region 9	I. CL, el -40 to -49	12,13,16,17	2,700 ft²
Region 10	Ridge	2,25,26,3	138 ft²
Region 11	A. CH, el 0 to -3	1,5,25,2	262.5 ft²
Region 12	Sand Fill	32,33,34,35,36,4,28,27,3,31	1,199.5 ft²
Region 13	B. CL, el -3 to -10	5,6,33,32,26,25	1,298.5 ft²
Region 14	B. CL, el -3 to -10	23,24,35,34	374.5 ft²
Region 15	A. CH, el 0 to -3	24,4,36,35	115.5 ft²
Region 16	A. CH, el 0 to -3	3,26,32,31	111 ft²

Slip Results

Slip Surfaces Analysed: 1193 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.67
Volume: 392.98799 ft³
Weight: 43,153.179 lbf
Resisting Moment: 172,839.14 lbf·ft

Activating Moment: 103,374.57 lbf·ft
Resisting Force: 5,554.4353 lbf
Activating Force: 3,321.091 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (71.774266, 0) ft
Entry: (117.23361, 3) ft
Radius: 19.842781 ft
Center: (92.373582, 17.266592) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	72.852173 ft	-0.911007 ft	121.04079 psf	196.85931 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	74.68001 ft	-2.411007 ft	213.39823 psf	349.44541 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	76.21497 ft	-3.6165601 ft	287.57965 psf	518.94369 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	77.290425 ft	-4.4612191 ft	339.55414 psf	620.06419 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	78.501255 ft	-5.2900575 ft	390.44556 psf	710.28491 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	80.342065 ft	-6.4915365 ft	464.15715 psf	864.14449 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	82.313348 ft	-7.5962126 ft	531.73338 psf	983.94416 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	84.202978 ft	-8.5023631 ft	586.97315 psf	1,111.0273 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	85.613175 ft	-9.0790812 ft	621.98419 psf	1,176.5916 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	86.756065 ft	-9.4280897 ft	642.96761 psf	1,236.2881 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	87.998945 ft	-9.7017665 ft	659.17761 psf	1,265.3708 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	89.341815 ft	-9.9001115 ft	670.61418 psf	1,310.9813 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	90.718733 ft	-9.9988705 ft	675.80959 psf	1,323.2901 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	92.129698 ft	-9.9980435 ft	674.76384 psf	1,347.3847 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	93.540662 ft	-9.9972165 ft	673.71808 psf	1,371.4793 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	94.951628 ft	-9.9963895 ft	672.67233 psf	1,395.5738 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	96.242832 ft	-9.9208925 ft	667.0493 psf	1,389.4581 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	97.414277 ft	-9.7707255 ft	656.84898 psf	1,392.6982 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	98.24589 ft	-9.6641215 ft	649.60774 psf	1,394.6496 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 20	99.085515 ft	-9.4783433 ft	637.418 psf	1,366.9807 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	100.27299 ft	-9.1698278 ft	617.32066 psf	1,351.3139 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	101.64789 ft	-8.6848058 ft	586.07193 psf	1,294.8939 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	103.21023 ft	-8.0232773 ft	543.6718 psf	1,246.4951 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	105.01725 ft	-7.1002875 ft	484.77621 psf	1,151.911 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	106.65733 ft	-6.0631199 ft	418.87009 psf	1,044.963 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	107.88577 ft	-5.1732357 ft	362.44893 psf	967.71642 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	108.82793 ft	-4.4907388 ft	319.1767 psf	903.51871 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	109.88202 ft	-3.626592 ft	264.48518 psf	794.24802 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	111.23895 ft	-2.4556955 ft	190.42983 psf	677.0691 psf	0 psf	115 psf	0 psf	Ridge
Slice 30	112.50052 ft	-1.3670865 ft	121.5789 psf	562.81269 psf	0 psf	115 psf	0 psf	Ridge
Slice 31	113.59431 ft	-0.411391 ft	61.144006 psf	460.19747 psf	0 psf	115 psf	0 psf	Ridge
Slice 32	114.37003 ft	0.27786162 ft	17.567286 psf	387.95444 psf	0 psf	115 psf	0 psf	Ridge
Slice 33	114.68571 ft	0.55834812 ft	-0.16595344 psf	358.55565 psf	0 psf	115 psf	0 psf	Ridge
Slice 34	115.3249 ft	1.1707298 ft	-38.847408 psf	288.72221 psf	0 psf	115 psf	0 psf	Ridge
Slice 35	116.59737 ft	2.3902433 ft	-115.87841 psf	158.45459 psf	0 psf	115 psf	0 psf	Ridge

E) A-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:13:22 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

E) A-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (64, -0.714286) ft
Left-Zone Right Coordinate: (112, 4.2) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (125, 1.6) ft
Right-Zone Right Coordinate: (190, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (300, -1) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	75 ft	1.06 ft

Coordinate 3	132 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	101 ft	3 ft
Coordinate 2	110 ft	3 ft

Geometry

Name: 2. ML el -1 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	300 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	300 ft	-54 ft
Point 14	300 ft	-49 ft
Point 15	300 ft	-40 ft
Point 16	300 ft	-35 ft
Point 17	300 ft	-30 ft
Point 18	300 ft	-26 ft
Point 19	300 ft	-20 ft
Point 20	300 ft	-15 ft
Point 21	300 ft	-10 ft
Point 22	300 ft	-3 ft
Point 23	300 ft	3 ft
Point 24	62 ft	-1 ft
Point 25	138 ft	-1 ft
Point 26	118 ft	3 ft
Point 27	76 ft	-3 ft
Point 28	128 ft	-3 ft
Point 29	100.5 ft	4.5 ft

Point 30	110.5 ft	4.5 ft
Point 31	163 ft	-1 ft
Point 32	169 ft	-3 ft
Point 33	190 ft	-10 ft
Point 34	230 ft	-10 ft
Point 35	251 ft	-3 ft
Point 36	257 ft	-1 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,500 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,500 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,500 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,800 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,200 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,500 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,500 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,700 ft²
Region 9	Ridge	24,29,30,26,25	236.5 ft²
Region 10	Ridge	24,27,28,25	128 ft²
Region 11	A. CH, el 0 to -3	3,27,24,1	138 ft²
Region 12		32,33,34,35,36,2,23,26,25,31	1,291 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,256.5 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	416.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	92 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	66 ft²

Slip Results

Slip Surfaces Analysed: 1128 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.38
Volume: 344.25387 ft³
Weight: 38,000.645 lbf
Resisting Moment: 156,499.82 lbf·ft
Activating Moment: 113,028.91 lbf·ft
Resisting Force: 5,161.1694 lbf
Activating Force: 3,726.9439 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (143.32369, -1) ft
Entry: (101.49881, 3) ft
Radius: 18.811285 ft
Center: (125.49323, 16.704255) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	102.10224 ft	2.4148206 ft	-108.0322 psf	140.85301 psf	0 psf	115 psf	0 psf	Ridge
Slice 2	103.30909 ft	1.2444619 ft	-36.010735 psf	265.15763 psf	0 psf	115 psf	0 psf	Ridge
Slice 3	104.1271 ft	0.45119329 ft	12.805387 psf	346.7866 psf	0 psf	115 psf	0 psf	Ridge
Slice 4	104.78821 ft	-0.1432885 ft	49.346962 psf	418.98828 psf	0 psf	115 psf	0 psf	Ridge
Slice 5	105.50156 ft	-0.7648405 ft	87.533337 psf	481.6214 psf	0 psf	115 psf	0 psf	Ridge
Slice 6	106.33569 ft	-1.5 ft	132.70775 psf	557.71843 psf	0 psf	115 psf	0 psf	Ridge
Slice 7	107.4703 ft	-2.5 ft	194.15621 psf	661.22934 psf	0 psf	115 psf	0 psf	Ridge
Slice 8	108.60412 ft	-3.4993042 ft	255.56191 psf	757.34527 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	109.73715 ft	-4.4979127 ft	316.92485 psf	862.59155 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	110.40184 ft	-5.0694633 ft	352.03174 psf	944.87183 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	111.03315 ft	-5.5340927 ft	380.49239 psf	983.17582 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	112.09946 ft	-6.3188589 ft	428.56286 psf	1,044.4056 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	113.2215 ft	-7.0617383 ft	473.97009 psf	1,123.2656 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	114.39929 ft	-7.7627308 ft	516.71409 psf	1,173.729 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	115.74114 ft	-8.4051316 ft	555.65825 psf	1,250.8407 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	117.24705 ft	-8.9889409 ft	590.80257 psf	1,282.2318 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	118.16321 ft	-9.3441187 ft	612.18367 psf	1,301.3295 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	119.04927 ft	-9.550915 ft	624.32733 psf	1,339.7234 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	120.49496 ft	-9.837961 ft	640.99677 psf	1,340.0626 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	121.87775 ft	-9.9834629 ft	648.88401 psf	1,362.9383 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	123.19764 ft	-9.9874206 ft	647.98904 psf	1,334.3501 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	124.51753 ft	-9.9913784 ft	647.09408 psf	1,305.7619 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	125.83741 ft	-9.9953361 ft	646.19911 psf	1,277.1737 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	127.24868 ft	-9.8890642 ft	638.34343 psf	1,261.2349 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 25	128.39237 ft	-9.7242812 ft	627.06641 psf	1,216.3737 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	129.81571 ft	-9.3694565 ft	603.68307 psf	1,167.6798 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	131.23531 ft	-8.8822228 ft	572.03665 psf	1,111.9483 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	131.81197 ft	-8.6018666 ft	554.035 psf	1,067.3836 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	132.82439 ft	-8.1096581 ft	523.14364 psf	998.22253 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	134.47315 ft	-7.3080714 ft	473.10042 psf	885.8685 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	135.94626 ft	-6.496851 ft	422.45578 psf	797.31777 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	137.2437 ft	-5.675997 ft	371.20971 psf	685.64867 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	137.94621 ft	-5.2246052 ft	343.02924 psf	643.22302 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 34	138.87659 ft	-4.5160612 ft	298.79471 psf	557.48397 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 35	140.26712 ft	-3.4428175 ft	231.7919 psf	434.05639 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 36	141.42832 ft	-2.5185765 ft	174.09136 psf	285.20797 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 37	142.69963 ft	-1.5 ft	110.50143 psf	177.19482 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

F) A-1b

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
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Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:13:48 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

F) A-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (64, -0.714286) ft
Left-Zone Right Coordinate: (113, 4) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (190, -10) ft
Right-Zone Right Coordinate: (234, -8.666667) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (300, -1) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	75 ft	1.06 ft

Coordinate 3	132 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

Geometry

Name: 2. ML el -1 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	300 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	300 ft	-54 ft
Point 14	300 ft	-49 ft
Point 15	300 ft	-40 ft
Point 16	300 ft	-35 ft
Point 17	300 ft	-30 ft
Point 18	300 ft	-26 ft
Point 19	300 ft	-20 ft
Point 20	300 ft	-15 ft
Point 21	300 ft	-10 ft
Point 22	300 ft	-3 ft
Point 23	300 ft	3 ft
Point 24	62 ft	-1 ft
Point 25	138 ft	-1 ft
Point 26	118 ft	3 ft
Point 27	76 ft	-3 ft
Point 28	128 ft	-3 ft
Point 29	100.5 ft	4.5 ft
Point 30	110.5 ft	4.5 ft
Point 31	163 ft	-1 ft
Point 32	169 ft	-3 ft

Point 33	190 ft	-10 ft
Point 34	230 ft	-10 ft
Point 35	251 ft	-3 ft
Point 36	257 ft	-1 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,500 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,500 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,500 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,800 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,200 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,500 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,500 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,700 ft²
Region 9	Ridge	24,29,30,26,25	236.5 ft²
Region 10	Ridge	24,27,28,25	128 ft²
Region 11	A. CH, el 0 to -3	3,27,24,1	138 ft²
Region 12		32,33,34,35,36,2,23,26,25,31	1,291 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,256.5 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	416.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	92 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	66 ft²

Slip Results

Slip Surfaces Analysed: 1194 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.95
Volume: 1,472.8884 ft³
Weight: 165,585.26 lbf
Resisting Moment: 1,851,765.4 lbf·ft
Activating Moment: 948,159.35 lbf·ft
Resisting Force: 22,554.245 lbf
Activating Force: 11,546.006 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (192.72814, -10) ft
Entry: (95.523253, 3.7890361) ft
Radius: 42.548588 ft
Center: (152.96088, 54.2824) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material

Slice 1	96.919494 ft	2.2629441 ft	-94.066099 psf	121.04277 psf	0 psf	115 psf	0 psf	Ridge
Slice 2	99.11027 ft	-0.13157396 ft	53.528522 psf	400.52438 psf	0 psf	115 psf	0 psf	Ridge
Slice 3	100.2024 ft	-1.3252746 ft	127.1065 psf	539.84986 psf	0 psf	115 psf	0 psf	Ridge
Slice 4	101.11732 ft	-2.3252746 ft	188.74505 psf	647.4639 psf	0 psf	115 psf	0 psf	Ridge
Slice 5	102.45213 ft	-3.784222 ft	278.67245 psf	792.09131 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	104.65784 ft	-5.926333 ft	410.49633 psf	1,039.0853 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	107.63429 ft	-8.642111 ft	577.46745 psf	1,327.454 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	109.81126 ft	-10.628423 ft	699.58965 psf	1,511.7851 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 9	111.53817 ft	-12.204091 ft	796.46468 psf	1,663.4158 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 10	114.06587 ft	-14.075668 ft	911.12046 psf	1,876.0294 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 11	116.7777 ft	-15.758497 ft	1,013.8333 psf	1,987.9135 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 12	118.5381 ft	-16.850911 ft	1,080.5098 psf	2,069.5845 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 13	121.11482 ft	-18.006584 ft	1,150.4291 psf	2,196.3902 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 14	124.9669 ft	-19.255938 ft	1,225.0934 psf	2,295.7506 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 15	127.39019 ft	-19.754657 ft	1,254.1318 psf	2,330.8372 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 16	128.74696 ft	-19.912895 ft	1,262.8366 psf	2,317.4688 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 17	130.55893 ft	-19.999886 ft	1,266.6997 psf	2,315.5042 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 18	131.81197 ft	-19.999739 ft	1,265.6063 psf	2,287.7193 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 19	133.5 ft	-19.99954 ft	1,265.4312 psf	2,268.3493 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 20	136.5 ft	-19.999188 ft	1,265.4092 psf	2,234.2172 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 21	138.82359 ft	-19.998915 ft	1,265.3922 psf	2,216.188 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 22	141.46928 ft	-19.996841 ft	1,265.2627 psf	2,216.2112 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 23	145.11351 ft	-19.992886 ft	1,265.0158 psf	2,215.7643 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 24	148.61896 ft	-19.988898 ft	1,264.7668 psf	2,215.3428 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 25	151.98564 ft	-19.984877 ft	1,264.5158 psf	2,214.8883 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20

Slice 26	155.22415 ft	-19.98483 ft	1,264.5129 psf	2,214.2291 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 27	158.33449 ft	-19.988759 ft	1,264.7582 psf	2,214.6731 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 28	161.44483 ft	-19.992688 ft	1,265.0034 psf	2,215.117 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 29	165.21685 ft	-19.997453 ft	1,265.3009 psf	2,190.4053 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 30	168.21685 ft	-19.950653 ft	1,262.3792 psf	2,165.7981 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 31	170.45401 ft	-19.808964 ft	1,253.5335 psf	2,116.6997 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 32	173.18349 ft	-19.420872 ft	1,229.3049 psf	2,072.17 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 33	175.73443 ft	-18.828866 ft	1,192.3458 psf	1,962.6599 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 34	179.29806 ft	-17.654826 ft	1,119.0503 psf	1,807.0705 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 35	183.22403 ft	-15.888395 ft	1,008.7716 psf	1,575.0147 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 36	187.27026 ft	-13.693615 ft	871.75115 psf	1,228.1078 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 37	189.83934 ft	-12.261457 ft	782.34121 psf	1,054.7961 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 38	191.36407 ft	-11.067841 ft	707.82357 psf	893.32658 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15

G) A-2

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:13:44 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

G) A-2

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (138, -1) ft
Left-Zone Right Coordinate: (162, -1) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (178, -6) ft
Right-Zone Right Coordinate: (232, -9.333333) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (300, -1) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	143 ft	0 ft
	148 ft	0 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	153 ft	0 ft
	158 ft	0 ft

Tension Crack Line

Geometry

Name: 2. ML el -1 Crown el 4.5

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	300 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft

Point 13	300 ft	-54 ft
Point 14	300 ft	-49 ft
Point 15	300 ft	-40 ft
Point 16	300 ft	-35 ft
Point 17	300 ft	-30 ft
Point 18	300 ft	-26 ft
Point 19	300 ft	-20 ft
Point 20	300 ft	-15 ft
Point 21	300 ft	-10 ft
Point 22	300 ft	-3 ft
Point 23	300 ft	3 ft
Point 24	62 ft	-1 ft
Point 25	138 ft	-1 ft
Point 26	118 ft	3 ft
Point 27	76 ft	-3 ft
Point 28	128 ft	-3 ft
Point 29	100.5 ft	4.5 ft
Point 30	110.5 ft	4.5 ft
Point 31	163 ft	-1 ft
Point 32	169 ft	-3 ft
Point 33	190 ft	-10 ft
Point 34	230 ft	-10 ft
Point 35	251 ft	-3 ft
Point 36	257 ft	-1 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,500 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,500 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,500 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,800 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,200 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,500 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,500 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,700 ft²
Region 9	Ridge	24,29,30,26,25	236.5 ft²
Region 10	Ridge	24,27,28,25	128 ft²
Region 11	A. CH, el 0 to -3	3,27,24,1	138 ft²
Region 12		32,33,34,35,36,2,23,26,25,31	1,291 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,256.5 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	416.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	92 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	66 ft²

Slip Results

Slip Surfaces Analysed: 1228 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.75
Volume: 161.04657 ft³
Weight: 17,738.951 lbf
Resisting Moment: 117,497.74 lbf·ft
Activating Moment: 66,989.051 lbf·ft
Resisting Force: 4,005.0761 lbf
Activating Force: 2,283.3244 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (184.45234, -8.1507786) ft
Entry: (152.987, -1) ft
Radius: 14.958122 ft
Center: (172.34071, 16.418491) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	152.9935 ft	-1.0110861 ft	79.978444 psf	21.838558 psf	-0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	153.60362 ft	-2.0518196 ft	144.95163 psf	343.31606 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	154.52988 ft	-3.4870475 ft	234.55318 psf	461.4041 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	155.37315 ft	-4.4561107 ft	295.05198 psf	579.24625 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	156.41442 ft	-5.583076 ft	365.40864 psf	695.67795 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	157.4557 ft	-6.7100413 ft	435.7653 psf	812.10965 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	157.98817 ft	-7.2776393 ft	471.20055 psf	972.09423 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	158.1917 ft	-7.3484418 ft	475.62076 psf	726.65633 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	158.92273 ft	-7.5801295 ft	490.08506 psf	757.35047 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	160.05173 ft	-7.9252385 ft	511.63029 psf	795.16996 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	161.23103 ft	-8.2854555 ft	534.1187 psf	834.57922 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
		-						

Slice 12	162.41035 ft	8.6456725 ft	556.60712 psf	873.98848 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	163.47547 ft	-8.9710105 ft	576.91803 psf	906.02106 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	164.44043 ft	-9.227224 ft	592.91349 psf	934.03123 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	165.41942 ft	-9.449192 ft	606.77099 psf	946.93173 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	166.42689 ft	-9.6365743 ft	618.4693 psf	967.30991 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	167.46282 ft	-9.7893708 ft	628.00841 psf	971.9548 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	168.4904 ft	-9.9077326 ft	635.39777 psf	982.57458 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	169.10233 ft	-9.9581226 ft	638.54362 psf	980.48859 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	169.80626 ft	-9.9830965 ft	640.10275 psf	980.27416 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	170.97226 ft	-9.9995228 ft	641.12825 psf	967.64052 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	172.10107 ft	-9.9992805 ft	641.11312 psf	949.56976 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	173.22987 ft	-9.9990382 ft	641.09799 psf	931.499 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	174.35868 ft	-9.9987958 ft	641.08286 psf	913.42823 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	175.48748 ft	-9.9985535 ft	641.06773 psf	895.35747 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	176.61629 ft	-9.9983112 ft	641.0526 psf	877.28671 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	177.66365 ft	-9.950294 ft	638.05488 psf	869.18046 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	178.62958 ft	-9.854502 ft	632.07457 psf	842.80883 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	179.60188 ft	-9.7022962 ft	622.57234 psf	825.84852 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	180.58056 ft	-9.4936768 ft	609.54818 psf	786.18269 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
		-						

Slice 31	181.85226 ft	9.1512475 ft	588.17026 psf	738.70746 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	183.08905 ft	-8.7225407 ft	561.40601 psf	684.27489 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	183.99791 ft	-8.341366 ft	537.6092 psf	625.12887 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

H) B-1

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:13:26 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

H) B-1

Kind: SLOPE/W
Method: Spencer
Settings
PWP Conditions from: Piezometric Line
Apply Phreatic Correction: No
Use Staged Rapid Drawdown: No
Unit Weight of Water: 62.430189 pcf
Slip Surface
Direction of movement: Right to Left
Use Passive Mode: No
Slip Surface Option: Entry and Exit
Critical slip surfaces saved: 1
Optimize Critical Slip Surface Location: Yes
Optimizations Settings
Maximum Iterations: 2,000
Starting Points: 8
Ending Points: 16
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °
Tension Crack Option: Tension Crack Line
Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (34, -1) ft
Left-Zone Right Coordinate: (78, 1.285714) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (100, 4.428571) ft
Right-Zone Right Coordinate: (145, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (300, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	101 ft	3 ft
Coordinate 2	110 ft	3 ft

Geometry

Name: 2. ML el -1 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	300 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	300 ft	-54 ft
Point 14	300 ft	-49 ft
Point 15	300 ft	-40 ft
Point 16	300 ft	-35 ft
Point 17	300 ft	-30 ft
Point 18	300 ft	-26 ft
Point 19	300 ft	-20 ft
Point 20	300 ft	-15 ft
Point 21	300 ft	-10 ft
Point 22	300 ft	-3 ft

Point 23	300 ft	3 ft
Point 24	62 ft	-1 ft
Point 25	138 ft	-1 ft
Point 26	118 ft	3 ft
Point 27	76 ft	-3 ft
Point 28	128 ft	-3 ft
Point 29	100.5 ft	4.5 ft
Point 30	110.5 ft	4.5 ft
Point 31	163 ft	-1 ft
Point 32	169 ft	-3 ft
Point 33	190 ft	-10 ft
Point 34	230 ft	-10 ft
Point 35	251 ft	-3 ft
Point 36	257 ft	-1 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,500 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,500 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,500 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,800 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,200 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,500 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,500 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,700 ft²
Region 9	Ridge	24,29,30,26,25	236.5 ft²
Region 10	Ridge	24,27,28,25	128 ft²
Region 11	A. CH, el 0 to -3	3,27,24,1	138 ft²
Region 12	Sand Fill	32,33,34,35,36,2,23,26,25,31	1,291 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,256.5 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	416.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	92 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	66 ft²

Slip Results

Slip Surfaces Analysed: 1248 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.56
Volume: 410.50056 ft³
Weight: 45,393.989 lbf
Resisting Moment: 221,025.86 lbf·ft
Activating Moment: 141,994.55 lbf·ft
Resisting Force: 5,893.6809 lbf
Activating Force: 3,785.6044 lbf

Slip Rank: 1 of 1,332 slip surfaces
Exit: (60.757534, -1) ft
Entry: (108.23493, 3) ft
Radius: 20.674328 ft
Center: (82.296257, 23.502073) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	61.378767 ft	-1.4970388 ft	110.31656 psf	171.205 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	62.651265 ft	-2.5151443 ft	173.87708 psf	284.91652 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	64.1798 ft	-3.661177 ft	245.42412 psf	457.86726 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	65.93434 ft	-4.911109 ft	323.45761 psf	619.61299 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	67.924405 ft	-6.2068055 ft	404.34819 psf	773.37908 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	69.9636 ft	-7.3592244 ft	476.29392 psf	912.68345 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	71.402075 ft	-8.1071699 ft	522.9883 psf	1,016.265 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	72.853792 ft	-8.6713327 ft	558.20909 psf	1,075.2375 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	74.733078 ft	-9.2671442 ft	595.40571 psf	1,176.2606 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	75.83636 ft	-9.5888765 ft	615.49152 psf	1,204.0827 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	76.638145 ft	-9.7056187 ft	622.77976 psf	1,230.2379 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	77.914435 ft	-9.8914502 ft	634.38125 psf	1,271.4964 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	79.332448 ft	-9.9859103 ft	640.27841 psf	1,280.5296 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	80.892184 ft	-9.9889989 ft	640.47124 psf	1,305.3888 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	82.45192 ft	-9.9920875 ft	640.66406 psf	1,330.2481 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
		-						

Slice 16	84.011656 ft	9.9951761 ft	640.85688 psf	1,355.1073 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	85.571392 ft	-9.9982647 ft	641.0497 psf	1,379.9666 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	87.15601 ft	-9.8790043 ft	633.60425 psf	1,365.3472 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	88.76551 ft	-9.6373948 ft	618.52052 psf	1,363.5961 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	90.403325 ft	-9.248373 ft	594.23382 psf	1,317.1914 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	92.069455 ft	-8.711939 ft	560.74415 psf	1,283.9858 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	93.585193 ft	-8.1038828 ft	522.78308 psf	1,212.6842 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	94.95054 ft	-7.4242045 ft	480.35064 psf	1,159.7244 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	96.315887 ft	-6.7445262 ft	437.91819 psf	1,106.7647 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	97.647905 ft	-5.965959 ft	389.3121 psf	1,016.8267 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	98.946595 ft	-5.088503 ft	334.53235 psf	942.22648 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	100.04797 ft	-4.2686902 ft	283.35128 psf	848.62614 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	101.02642 ft	-3.4438027 ft	231.8534 psf	767.76074 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	102.04433 ft	-2.5856515 ft	178.27886 psf	684.52395 psf	0 psf	115 psf	0 psf	Ridge
Slice 30	103.19196 ft	-1.5856515 ft	115.84867 psf	575.00495 psf	0 psf	115 psf	0 psf	Ridge
Slice 31	104.20889 ft	-0.6779755 ft	59.182289 psf	480.62088 psf	0 psf	115 psf	0 psf	Ridge
Slice 32	104.91106 ft	-0.0429755 ft	19.539119 psf	412.28928 psf	0 psf	115 psf	0 psf	Ridge
Slice 33	105.90796 ft	0.870952 ft	-37.517547 psf	317.39587 psf	0 psf	115 psf	0 psf	Ridge
Slice 34	107.21897 ft	2.072856 ft	-112.55264 psf	192.60175 psf	0 psf	115 psf	0 psf	Ridge
Slice	108.05471	2.836904	-160.2523	102.24796				

35	ft	ft	psf	psf	0 psf	115 psf	0 psf	Ridge

I) A-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 36
Date: 07/01/2021
Time: 09:17:38 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:17:52 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

I) A-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (58, -2) ft
Left-Zone Right Coordinate: (119, 4.2) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (132.32383, 1.535234) ft
Right-Zone Right Coordinate: (199, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (300, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	83 ft	1.06 ft

Coordinate 3	139 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	107 ft	3 ft
Coordinate 2	109 ft	3 ft
Coordinate 3	117 ft	3 ft
Coordinate 4	118 ft	3 ft

Geometry

Name: 3. ML el -2 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	300 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	300 ft	-54 ft
Point 14	300 ft	-49 ft
Point 15	300 ft	-40 ft
Point 16	300 ft	-35 ft
Point 17	300 ft	-30 ft
Point 18	300 ft	-26 ft
Point 19	300 ft	-20 ft
Point 20	300 ft	-15 ft
Point 21	300 ft	-10 ft
Point 22	300 ft	-3 ft
Point 23	300 ft	3 ft
Point 24	62 ft	-2 ft
Point 25	150 ft	-2 ft
Point 26	125 ft	3 ft
Point 27	69 ft	-3 ft

Point 28	145 ft	-3 ft
Point 29	107.5 ft	4.5 ft
Point 30	117.5 ft	4.5 ft
Point 31	175 ft	-2 ft
Point 32	178 ft	-3 ft
Point 33	199 ft	-10 ft
Point 34	239 ft	-10 ft
Point 35	260 ft	-3 ft
Point 36	263 ft	-2 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,500 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,500 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,500 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,800 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,200 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,500 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,500 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,700 ft²
Region 9	Ridge	24,29,30,26,25	318.5 ft²
Region 10		2,23,26,25,31,32,33,34,35,36	1,324.5 ft²
Region 11	Ridge	24,27,28,25	82 ft²
Region 12	A. CH, el 0 to -3	3,27,24,1	65.5 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,319.5 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	353.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	38.5 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	29 ft²

Slip Results

Slip Surfaces Analysed: 1054 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.37
Volume: 358.94376 ft³
Weight: 39,790.835 lbf
Resisting Moment: 195,775.11 lbf·ft
Activating Moment: 143,058.57 lbf·ft
Resisting Force: 5,423.9198 lbf
Activating Force: 3,962.9808 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (151.4133, -2) ft
Entry: (108.15064, 3) ft
Radius: 19.485194 ft
Center: (132.5834, 22.506384) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	108.49078 ft	2.682116 ft	-123.71903 psf	112.29221 psf	0 psf	115 psf	0 psf	Ridge
Slice 2	109.24677 ft	1.9693105 ft	-79.88426 psf	191.38126 psf	0 psf	115 psf	0 psf	Ridge
Slice 3	110.14626 ft	1.122305 ft	-27.79774 psf	279.91269 psf	0 psf	115 psf	0 psf	Ridge
Slice 4	110.85109 ft	0.46346852 ft	12.712799 psf	347.71081 psf	0 psf	115 psf	0 psf	Ridge
Slice 5	111.736 ft	-0.307463 ft	60.062842 psf	436.25461 psf	0 psf	115 psf	0 psf	Ridge
Slice 6	113.06347 ft	-1.435821 ft	129.33733 psf	553.05212 psf	0 psf	115 psf	0 psf	Ridge
Slice 7	114.31543 ft	-2.5 ft	194.67161 psf	663.2064 psf	0 psf	115 psf	0 psf	Ridge
Slice 8	115.48806 ft	-3.496747 ft	255.86596 psf	759.31071 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	116.65687 ft	-4.490241 ft	316.8606 psf	864.01808 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	117.37063 ft	-5.0933269 ft	353.88274 psf	931.89247 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	118.23542 ft	-5.8041859 ft	397.50018 psf	991.70349 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	119.68364 ft	-6.8304702 ft	460.29584 psf	1,108.4097 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	121.10925 ft	-7.6739987 ft	511.70193 psf	1,168.8827 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	122.61654 ft	-8.3878728 ft	554.94174 psf	1,253.9581 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	124.20551 ft	-8.9720924 ft	590.01525 psf	1,283.6287 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	125.40538 ft	-9.4132486 ft	616.49998 psf	1,306.0335 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	126.52623 ft	-9.6714838 ft	631.6345 psf	1,350.9319 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	127.95718 ft	-9.8898612 ft	644.0076 psf	1,343.9875 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	129.38392 ft	-9.9988732 ft	649.55669 psf	1,354.4784 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	130.80645 ft	-9.9985197 ft	648.28178 psf	1,323.1424 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	132.22899 ft	-9.9981663 ft	647.00686 psf	1,291.8065 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	133.65152 ft	-9.9978128 ft	645.73195 psf	1,260.4706 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	134.96364 ft	-9.9137443 ft	639.32795 psf	1,248.2565 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 24	136.16533 ft	-9.7459608 ft	627.79484 psf	1,202.5569 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	137.69481 ft	-9.4071027 ft	605.29284 psf	1,154.7731 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	138.78064 ft	-9.1089737 ft	585.72428 psf	1,098.2 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	138.96893 ft	-9.0530765 ft	582.06879 psf	1,114.2994 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	139.64957 ft	-8.77415 ft	564.62799 psf	1,075.5093 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	140.9487 ft	-8.241766 ft	531.39116 psf	1,001.5256 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	142.24784 ft	-7.709382 ft	498.15432 psf	927.54192 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	143.9487 ft	-6.8935781 ft	447.22353 psf	835.20555 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	145.54944 ft	-6.0567191 ft	394.97827 psf	721.04215 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	146.95188 ft	-5.179887 ft	340.23747 psf	627.11049 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 34	148.65785 ft	-4.000717 ft	266.62167 psf	467.58298 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 35	149.75542 ft	-3.2297169 ft	218.48798 psf	370.00122 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 36	150.70665 ft	-2.5241509 ft	174.43937 psf	243.1829 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

J) A-1b

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File Information

File Version: 10.02
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Last Edited By: Clay Worley
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Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:13:56 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

J) A-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (40, -2) ft
Left-Zone Right Coordinate: (119, 4.2) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (199, -10) ft
Right-Zone Right Coordinate: (246, -7.666667) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (300, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	83 ft	1.06 ft

Coordinate 3	139 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

Geometry

Name: 3. ML el -2 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	300 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	300 ft	-54 ft
Point 14	300 ft	-49 ft
Point 15	300 ft	-40 ft
Point 16	300 ft	-35 ft
Point 17	300 ft	-30 ft
Point 18	300 ft	-26 ft
Point 19	300 ft	-20 ft
Point 20	300 ft	-15 ft
Point 21	300 ft	-10 ft
Point 22	300 ft	-3 ft
Point 23	300 ft	3 ft
Point 24	62 ft	-2 ft
Point 25	150 ft	-2 ft
Point 26	125 ft	3 ft
Point 27	69 ft	-3 ft
Point 28	145 ft	-3 ft
Point 29	107.5 ft	4.5 ft
Point 30	117.5 ft	4.5 ft
Point 31	175 ft	-2 ft
Point 32	178 ft	-3 ft

Point 33	199 ft	-10 ft
Point 34	239 ft	-10 ft
Point 35	260 ft	-3 ft
Point 36	263 ft	-2 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,500 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,500 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,500 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,800 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,200 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,500 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,500 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,700 ft²
Region 9	Ridge	24,29,30,26,25	318.5 ft²
Region 10		2,23,26,25,31,32,33,34,35,36	1,324.5 ft²
Region 11	Ridge	24,27,28,25	82 ft²
Region 12	A. CH, el 0 to -3	3,27,24,1	65.5 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,319.5 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	353.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	38.5 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	29 ft²

Slip Results

Slip Surfaces Analysed: 1198 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.99
Volume: 1,477.212 ft³
Weight: 166,534.67 lbf
Resisting Moment: 2,576,545.5 lbf·ft
Activating Moment: 1,297,073.8 lbf·ft
Resisting Force: 23,072.529 lbf
Activating Force: 11,612.456 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (202.00746, -10) ft
Entry: (102.85849, 3.8369275) ft
Radius: 43.204053 ft
Center: (159.82302, 83.929179) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material

Slice 1	104.29806 ft	2.2880823 ft	-95.426856 psf	126.08142 psf	0 psf	115 psf	0 psf	Ridge
Slice 2	106.61881 ft	-0.20884259 ft	58.41272 psf	418.52453 psf	0 psf	115 psf	0 psf	Ridge
Slice 3	107.8918 ft	-1.5784611 ft	142.79713 psf	573.14903 psf	0 psf	115 psf	0 psf	Ridge
Slice 4	108.74832 ft	-2.5 ft	199.57463 psf	668.42971 psf	0 psf	115 psf	0 psf	Ridge
Slice 5	110.13029 ft	-3.9868855 ft	291.18405 psf	816.80267 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	112.34354 ft	-6.2303282 ft	429.29337 psf	1,065.8465 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	114.98477 ft	-8.7911858 ft	586.84202 psf	1,337.0454 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	116.915 ft	-10.591608 ft	697.54272 psf	1,521.5691 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 9	118.93156 ft	-12.3018 ft	802.53436 psf	1,680.4542 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 10	121.60858 ft	-14.257936 ft	922.29858 psf	1,891.5809 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 11	123.92702 ft	-15.639291 ft	1,006.495 psf	1,979.5766 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 12	125.85159 ft	-16.785967 ft	1,076.3872 psf	2,063.8291 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 13	129.07229 ft	-18.191448 ft	1,161.2951 psf	2,203.5821 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 14	133.14253 ft	-19.436096 ft	1,235.414 psf	2,299.4283 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 15	135.87181 ft	-19.891217 ft	1,261.4236 psf	2,316.948 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 16	137.76171 ft	-19.999709 ft	1,266.5323 psf	2,316.0073 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 17	138.81172 ft	-19.999613 ft	1,265.6016 psf	2,295.1072 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 18	140.5 ft	-19.999458 ft	1,265.4261 psf	2,279.11 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 19	143.5 ft	-19.999183 ft	1,265.4089 psf	2,250.9818 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 20	146.25 ft	-19.99893 ft	1,265.3931 psf	2,222.6976 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 21	148.75 ft	-19.998701 ft	1,265.3788 psf	2,194.2574 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 22	151.15247 ft	-19.998481 ft	1,265.3651 psf	2,178.342 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 23	153.92602 ft	-19.991296 ft	1,264.9165 psf	2,178.6429 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 24	157.16817 ft	-19.977138 ft	1,264.0326 psf	2,177.0426 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 25	160.41032 ft	-19.96298 ft	1,263.1487 psf	2,175.4423 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20

Slice 26	163.65247 ft	-19.948822 ft	1,262.2649 psf	2,173.8421 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 27	166.89462 ft	-19.934664 ft	1,261.381 psf	2,172.2418 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 28	170.13677 ft	-19.920506 ft	1,260.4971 psf	2,170.6415 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 29	173.37892 ft	-19.906347 ft	1,259.6132 psf	2,169.0412 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 30	175.82443 ft	-19.895668 ft	1,258.9465 psf	2,160.6531 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 31	177.32443 ft	-19.860872 ft	1,256.7741 psf	2,149.3614 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 32	178.16976 ft	-19.821836 ft	1,254.3371 psf	2,133.9912 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 33	179.35613 ft	-19.716317 ft	1,247.7495 psf	2,115.707 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 34	182.58814 ft	-19.31118 ft	1,222.4567 psf	2,028.0863 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 35	187.13879 ft	-18.243683 ft	1,155.8128 psf	1,878.167 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 36	191.83954 ft	-16.315986 ft	1,035.4662 psf	1,617.7332 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 37	196.60253 ft	-13.566382 ft	863.80793 psf	1,226.6661 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 38	200.50373 ft	-10.992218 ft	703.10242 psf	862.47049 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15

K) A-2

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 39
Date: 07/02/2021
Time: 11:19:21 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:19:24 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

K) A-2

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (152, -2) ft
Left-Zone Right Coordinate: (174, -2) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (187, -6) ft
Right-Zone Right Coordinate: (245, -8) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (300, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	155 ft	-1 ft
	160 ft	-1 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	165 ft	-1 ft
	170 ft	-1 ft

Tension Crack Line

Geometry

Name: 3. ML el -2 Crown el 4.5

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	300 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft

Point 13	300 ft	-54 ft
Point 14	300 ft	-49 ft
Point 15	300 ft	-40 ft
Point 16	300 ft	-35 ft
Point 17	300 ft	-30 ft
Point 18	300 ft	-26 ft
Point 19	300 ft	-20 ft
Point 20	300 ft	-15 ft
Point 21	300 ft	-10 ft
Point 22	300 ft	-3 ft
Point 23	300 ft	3 ft
Point 24	62 ft	-2 ft
Point 25	150 ft	-2 ft
Point 26	125 ft	3 ft
Point 27	69 ft	-3 ft
Point 28	145 ft	-3 ft
Point 29	107.5 ft	4.5 ft
Point 30	117.5 ft	4.5 ft
Point 31	175 ft	-2 ft
Point 32	178 ft	-3 ft
Point 33	199 ft	-10 ft
Point 34	239 ft	-10 ft
Point 35	260 ft	-3 ft
Point 36	263 ft	-2 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,500 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,500 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,500 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,800 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,200 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,500 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,500 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,700 ft²
Region 9	Ridge	24,29,30,26,25	318.5 ft²
Region 10		2,23,26,25,31,32,33,34,35,36	1,324.5 ft²
Region 11	Ridge	24,27,28,25	82 ft²
Region 12	A. CH, el 0 to -3	3,27,24,1	65.5 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,319.5 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	353.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	38.5 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	29 ft²

Slip Results

Slip Surfaces Analysed: 1177 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.88
Volume: 128.56336 ft³
Weight: 14,266.436 lbf
Resisting Moment: 95,447.111 lbf·ft
Activating Moment: 50,873.772 lbf·ft
Resisting Force: 3,680.7142 lbf
Activating Force: 1,961.7575 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (193.79129, -8.263763) ft
Entry: (165.01494, -2) ft
Radius: 13.494092 ft
Center: (182.83411, 13.455899) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	165.44502 ft	-2.5 ft	172.93162 psf	384.86036 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	166.07314 ft	-3.2302295 ft	218.51999 psf	417.24282 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 3	166.68328 ft	-3.897183 ft	260.15802 psf	496.16071 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	167.50749 ft	-4.770631 ft	314.68754 psf	587.10317 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	168.43923 ft	-5.7190495 ft	373.89749 psf	694.14217 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	169.47851 ft	-6.7424385 ft	437.78786 psf	801.22974 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	169.99907 ft	-7.2544364 ft	469.75198 psf	938.68596 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	170.37031 ft	-7.3755479 ft	477.31299 psf	697.86214 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	171.11092 ft	-7.617164 ft	492.39713 psf	724.30693 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	171.87147 ft	-7.8670815 ft	507.99953 psf	751.10782 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	172.7181 ft	-8.1463715 ft	525.43566 psf	781.88244 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	173.63086 ft	-8.4467325 ft	544.18726 psf	814.75034 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
		-						

Slice 13	174.54362 ft	8.7470936 ft	562.93885 psf	847.61824 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	175.1884 ft	-8.959269 ft	576.18501 psf	871.91885 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	175.81568 ft	-9.139915 ft	587.46277 psf	891.94628 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	176.69347 ft	-9.377217 ft	602.27758 psf	907.6628 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	177.56618 ft	-9.5817793 ft	615.04844 psf	929.46654 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	178.31199 ft	-9.7294753 ft	624.26913 psf	935.70187 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	179.30175 ft	-9.8692695 ft	632.99651 psf	946.69444 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	180.51883 ft	-9.9734415 ft	639.49998 psf	947.96634 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	181.50664 ft	-9.9996062 ft	641.13345 psf	941.70951 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	182.40365 ft	-9.9996107 ft	641.13374 psf	927.33291 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	183.30067 ft	-9.9996152 ft	641.13402 psf	912.95632 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	184.19768 ft	-9.9996198 ft	641.1343 psf	898.57972 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	185.09468 ft	-9.9996243 ft	641.13458 psf	884.20313 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	185.99169 ft	-9.9996288 ft	641.13486 psf	869.82653 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	186.79953 ft	-9.991042 ft	640.59879 psf	859.04033 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	187.5872 ft	-9.9378212 ft	637.27621 psf	850.88479 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	188.44386 ft	-9.8485577 ft	631.70347 psf	826.97897 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	189.43386 ft	-9.6808078 ft	621.2308 psf	806.76804 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	190.55719 ft	-9.4345713 ft	605.85821 psf	760.45992 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	191.56426	-9.136838	587.27067	731.52519				B. CL, el -3

32	ft	ft	psf	psf	0 psf	130 psf	0 psf	to -10
Slice 33	192.45507 ft	-8.787608 ft	565.46818 psf	676.59558 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 34	193.34588 ft	-8.438378 ft	543.66568 psf	621.66597 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

L) B-1

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:13:18 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

L) B-1

Kind: SLOPE/W
Method: Spencer
Settings
PWP Conditions from: Piezometric Line
Apply Phreatic Correction: No
Use Staged Rapid Drawdown: No
Unit Weight of Water: 62.430189 pcf
Slip Surface
Direction of movement: Right to Left
Use Passive Mode: No
Slip Surface Option: Entry and Exit
Critical slip surfaces saved: 1
Optimize Critical Slip Surface Location: Yes
Optimizations Settings
Maximum Iterations: 2,000
Starting Points: 8
Ending Points: 16
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °
Tension Crack Option: Tension Crack Line
Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (29, -2) ft
Left-Zone Right Coordinate: (77.54, 0.22) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (107, 4.428571) ft
Right-Zone Right Coordinate: (148, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (300, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	109 ft	3 ft
Coordinate 2	117 ft	3 ft
Coordinate 3	118 ft	3 ft

Geometry

Name: 3. ML el -2 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	300 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	300 ft	-54 ft
Point 14	300 ft	-49 ft
Point 15	300 ft	-40 ft
Point 16	300 ft	-35 ft
Point 17	300 ft	-30 ft
Point 18	300 ft	-26 ft
Point 19	300 ft	-20 ft
Point 20	300 ft	-15 ft
Point 21	300 ft	-10 ft

Point 22	300 ft	-3 ft
Point 23	300 ft	3 ft
Point 24	62 ft	-2 ft
Point 25	150 ft	-2 ft
Point 26	125 ft	3 ft
Point 27	69 ft	-3 ft
Point 28	145 ft	-3 ft
Point 29	107.5 ft	4.5 ft
Point 30	117.5 ft	4.5 ft
Point 31	175 ft	-2 ft
Point 32	178 ft	-3 ft
Point 33	199 ft	-10 ft
Point 34	239 ft	-10 ft
Point 35	260 ft	-3 ft
Point 36	263 ft	-2 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,500 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,500 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,500 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,800 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,200 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,500 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,500 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,700 ft²
Region 9	Ridge	24,29,30,26,25	318.5 ft²
Region 10	Sand Fill	2,23,26,25,31,32,33,34,35,36	1,324.5 ft²
Region 11	Ridge	24,27,28,25	82 ft²
Region 12	A. CH, el 0 to -3	3,27,24,1	65.5 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,319.5 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	353.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	38.5 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	29 ft²

Slip Results

Slip Surfaces Analysed: 1272 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.57
Volume: 467.09768 ft³
Weight: 51,816.784 lbf
Resisting Moment: 328,321.99 lbf·ft
Activating Moment: 209,034.82 lbf·ft
Resisting Force: 6,790.437 lbf

Activating Force: 4,322.9123 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (62.156074, -1.9777038) ft
Entry: (116.02596, 3) ft
Radius: 22.954722 ft
Center: (87.684539, 34.092299) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	62.173555 ft	-1.9888519 ft	141.02055 psf	202.22073 psf	0 psf	115 psf	0 psf	Ridge
Slice 2	62.975063 ft	-2.5 ft	172.93162 psf	236.95655 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	64.60653 ft	-3.54044 ft	237.88649 psf	398.53859 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	66.797085 ft	-4.8466825 ft	319.43545 psf	561.19579 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	68.5701 ft	-5.8076863 ft	379.4311 psf	672.75623 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	69.770257 ft	-6.3526325 ft	413.4522 psf	744.4977 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	71.310772 ft	-7.0521222 ft	457.12147 psf	835.77333 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	73.057842 ft	-7.7473255 ft	500.52314 psf	913.54105 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	75.011468 ft	-8.4382425 ft	543.65722 psf	1,006.0872 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	76.93914 ft	-9.0288298 ft	580.5277 psf	1,072.2933 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	78.654265 ft	-9.4709838 ft	608.13146 psf	1,141.3211 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	80.603685 ft	-9.8327325 ft	630.7155 psf	1,194.6396 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	82.751613 ft	-9.9976617 ft	641.01206 psf	1,225.0353 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	84.67716 ft	-9.9980733 ft	641.03775 psf	1,255.3404 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	86.602707 ft	-9.9984847 ft	641.06344 psf	1,285.6455 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 16	88.528253 ft	-9.9988962 ft	641.08913 psf	1,315.9506 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	90.4538 ft	-9.9993077 ft	641.11482 psf	1,346.2557 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	92.379347 ft	-9.9997192 ft	641.14051 psf	1,376.5608 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	94.05954 ft	-9.9493105 ft	637.99348 psf	1,385.3443 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	95.704065 ft	-9.76657 ft	626.58496 psf	1,378.6031 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	97.656235 ft	-9.330837 ft	599.38206 psf	1,335.3403 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	99.706365 ft	-8.723623 ft	561.47358 psf	1,300.1982 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	101.59255 ft	-7.9931408 ft	515.86944 psf	1,217.8674 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	103.31478 ft	-7.1393902 ft	462.56963 psf	1,151.3683 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	104.91763 ft	-6.2112617 ft	404.62639 psf	1,049.0794 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	106.4011 ft	-5.2087552 ft	342.03972 psf	963.71051 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	107.32142 ft	-4.5594157 ft	301.50133 psf	887.46603 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	108.351 ft	-3.7056647 ft	248.2015 psf	799.21891 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	109.80497 ft	-2.5 ft	172.93162 psf	678.741 psf	0 psf	115 psf	0 psf	Ridge
Slice 30	110.86145 ft	-1.6239435 ft	118.23925 psf	587.11623 psf	0 psf	115 psf	0 psf	Ridge
Slice 31	111.83199 ft	-0.803394 ft	67.01219 psf	498.27267 psf	0 psf	115 psf	0 psf	Ridge
Slice 32	112.69323 ft	-0.0444505 ft	19.631204 psf	413.98322 psf	0 psf	115 psf	0 psf	Ridge
Slice 33	113.78458 ft	0.9525 ft	-42.608604 psf	310.23327 psf	0 psf	115 psf	0 psf	Ridge
Slice 34	115.27883 ft	2.3175 ft	-127.82581 psf	165.40634 psf	0 psf	115 psf	0 psf	Ridge

A) A-1a (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 46
Date: 07/12/2021
Time: 03:18:37 PM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/12/2021
Last Solved Time: 03:18:42 PM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

A) A-1a (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (69, 0) ft
Left-Zone Right Coordinate: (120, 4.7) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (128.5, 3) ft
Right-Zone Right Coordinate: (198.5, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (302.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	84 ft	1.06 ft

Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	109 ft	3.5 ft
Coordinate 2	117 ft	3.5 ft
Coordinate 3	118 ft	3.5 ft

Geometry

Name: 4. ML el 0 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	73.5 ft	0 ft
Point 3	143.5 ft	0 ft
Point 4	302.5 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft
Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	302.5 ft	-54 ft
Point 16	302.5 ft	-49 ft
Point 17	302.5 ft	-40 ft
Point 18	302.5 ft	-35 ft
Point 19	302.5 ft	-30 ft
Point 20	302.5 ft	-26 ft
Point 21	302.5 ft	-20 ft
Point 22	302.5 ft	-15 ft
Point 23	302.5 ft	-10 ft
Point 24	302.5 ft	-3 ft
Point 25	94.5 ft	-3 ft
Point 26	128.5 ft	-3 ft
Point 27	128.5 ft	3 ft
Point 28	302.5 ft	3 ft

Point 29	108.5 ft	5 ft
Point 30	118.5 ft	5 ft
Point 31	168.5 ft	0 ft
Point 32	177.5 ft	-3 ft
Point 33	198.5 ft	-10 ft
Point 34	238.5 ft	-10 ft
Point 35	259.5 ft	-3 ft
Point 36	268.5 ft	0 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,512.5 ft²
Region 2	Ridge	2,3,27,30,29	200 ft²
Region 3	C. CL, el -10 to -15	6,7,22,23,34,33	1,512.5 ft²
Region 4	D. CL, el -15 to -20	7,8,21,22	1,512.5 ft²
Region 5	E. CH, el -20 to -26	8,9,20,21	1,815 ft²
Region 6	F. CH, el -26 to -30	9,10,19,20	1,210 ft²
Region 7	G. CL, el -30 to -35	10,11,18,19	1,512.5 ft²
Region 8	H. CH, el -35 to -40	11,12,17,18	1,512.5 ft²
Region 9	I. CL, el -40 to -49	12,13,16,17	2,722.5 ft²
Region 10	Ridge	2,25,26,3	156 ft²
Region 11	A. CH, el 0 to -3	1,5,25,2	252 ft²
Region 12		32,33,34,35,36,4,28,27,3,31	1,199.5 ft²
Region 13	B. CL, el -3 to -10	5,6,33,32,26,25	1,316 ft²
Region 14	B. CL, el -3 to -10	23,24,35,34	374.5 ft²
Region 15	A. CH, el 0 to -3	24,4,36,35	115.5 ft²
Region 16	A. CH, el 0 to -3	3,26,32,31	111 ft²

Slip Results

Slip Surfaces Analysed: 1083 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.31
Volume: 356.81787 ft³
Weight: 39,159.086 lbf
Resisting Moment: 134,902.68 lbf·ft
Activating Moment: 103,112.6 lbf·ft
Resisting Force: 5,062.2079 lbf
Activating Force: 3,868.6344 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (150.65285, 0) ft
Entry: (109.00699, 3.5) ft
Radius: 18.830565 ft
Center: (131.09752, 13.16078) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	109.55823 ft	2.917418 ft	-138.46839 psf	128.27848 psf	0 psf	115 psf	0 psf	Ridge
Slice 2	110.67615 ft	1.710508 ft	-64.105327 psf	251.56312 psf	0 psf	115 psf	0 psf	Ridge
Slice 3	111.46767 ft	0.8777589 ft	-12.813745 psf	354.8544 psf	0 psf	115 psf	0 psf	Ridge
Slice 4	112.05355 ft	0.3346689 ft	20.575469 psf	410.90505 psf	0 psf	115 psf	0 psf	Ridge
Slice 5	113.06247 ft	-0.60054975 ft	78.072782 psf	507.42611 psf	0 psf	115 psf	0 psf	Ridge
Slice 6	114.35822 ft	-1.8016493 ft	151.91647 psf	631.38791 psf	0 psf	115 psf	0 psf	Ridge
Slice 7	115.37436 ft	-2.7010995 ft	207.17439 psf	739.4084 psf	0 psf	115 psf	0 psf	Ridge
Slice 8	116.41696 ft	-3.5473208 ft	259.08591 psf	820.42695 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	117.76563 ft	-4.6419623 ft	326.23679 psf	936.34615 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	118.46998 ft	-5.2123816 ft	361.22785 psf	1,003.5395 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	118.98644 ft	-5.6098261 ft	385.58555 psf	1,035.5998 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	120.12282 ft	-6.4041085 ft	434.17192 psf	1,117.1636 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	121.4227 ft	-7.2439815 ft	485.46052 psf	1,179.76 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	122.92228 ft	-8.0246108 ft	532.87466 psf	1,271.999 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	124.62153 ft	-8.7459963 ft	576.41434 psf	1,314.1402 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	126.22837 ft	-9.2629528 ft	607.27288 psf	1,377.7907 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	127.74279 ft	-9.5754804 ft	625.45027 psf	1,379.4522 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	129.13064 ft	-9.8618891 ft	642.10852 psf	1,379.7318 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	130.51589 ft	-9.9868277 ft	648.68845 psf	1,402.5741 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	132.02509 ft	-9.976415 ft	646.70921 psf	1,365.1687 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	133.5343 ft	-9.9660023 ft	644.72997 psf	1,327.7633 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	134.88148 ft	-9.818202 ft	634.31629 psf	1,324.0733 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 23	136.06664 ft	-9.533014 ft	615.46816 psf	1,262.6387 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	137.25181 ft	-9.247826 ft	596.62004 psf	1,201.204 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	138.38329 ft	-8.8322637 ft	569.67989 psf	1,175.6844 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	139.4611 ft	-8.2863271 ft	534.64773 psf	1,085.4258 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	140.96921 ft	-7.5224259 ft	486.48262 psf	959.1317 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	142.04422 ft	-6.9517769 ft	450.8569 psf	908.0546 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	142.825 ft	-6.3634033 ft	414.12462 psf	827.66413 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	143.98227 ft	-5.4913269 ft	359.68072 psf	716.13208 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	145.50223 ft	-4.2750355 ft	283.74742 psf	582.36317 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	146.80553 ft	-3.2110815 ft	217.32457 psf	452.01787 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	147.8237 ft	-2.401956 ft	166.81072 psf	314.49704 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 34	149.61455 ft	-0.901956 ft	73.165434 psf	160.01368 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

B) A-1b (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:14:06 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

B) A-1b (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (76.93, 0.49) ft
Left-Zone Right Coordinate: (120.09615, 4.68077) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (198.5, -10) ft
Right-Zone Right Coordinate: (243.25, -8.416667) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (302.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	84 ft	1.06 ft

Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

Geometry

Name: 4. ML el 0 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	73.5 ft	0 ft
Point 3	143.5 ft	0 ft
Point 4	302.5 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft
Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	302.5 ft	-54 ft
Point 16	302.5 ft	-49 ft
Point 17	302.5 ft	-40 ft
Point 18	302.5 ft	-35 ft
Point 19	302.5 ft	-30 ft
Point 20	302.5 ft	-26 ft
Point 21	302.5 ft	-20 ft
Point 22	302.5 ft	-15 ft
Point 23	302.5 ft	-10 ft
Point 24	302.5 ft	-3 ft
Point 25	94.5 ft	-3 ft
Point 26	128.5 ft	-3 ft
Point 27	128.5 ft	3 ft
Point 28	302.5 ft	3 ft
Point 29	108.5 ft	5 ft
Point 30	118.5 ft	5 ft
Point 31	168.5 ft	0 ft
Point 32	177.5 ft	-3 ft

Point 33	198.5 ft	-10 ft
Point 34	238.5 ft	-10 ft
Point 35	259.5 ft	-3 ft
Point 36	268.5 ft	0 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,512.5 ft²
Region 2	Ridge	2,3,27,30,29	200 ft²
Region 3	C. CL, el -10 to -15	6,7,22,23,34,33	1,512.5 ft²
Region 4	D. CL, el -15 to -20	7,8,21,22	1,512.5 ft²
Region 5	E. CH, el -20 to -26	8,9,20,21	1,815 ft²
Region 6	F. CH, el -26 to -30	9,10,19,20	1,210 ft²
Region 7	G. CL, el -30 to -35	10,11,18,19	1,512.5 ft²
Region 8	H. CH, el -35 to -40	11,12,17,18	1,512.5 ft²
Region 9	I. CL, el -40 to -49	12,13,16,17	2,722.5 ft²
Region 10	Ridge	2,25,26,3	156 ft²
Region 11	A. CH, el 0 to -3	1,5,25,2	252 ft²
Region 12		32,33,34,35,36,4,28,27,3,31	1,199.5 ft²
Region 13	B. CL, el -3 to -10	5,6,33,32,26,25	1,316 ft²
Region 14	B. CL, el -3 to -10	23,24,35,34	374.5 ft²
Region 15	A. CH, el 0 to -3	24,4,36,35	115.5 ft²
Region 16	A. CH, el 0 to -3	3,26,32,31	111 ft²

Slip Results

Slip Surfaces Analysed: 1213 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.83
Volume: 1,464.8996 ft³
Weight: 164,080.78 lbf
Resisting Moment: 1,819,204.9 lbf·ft
Activating Moment: 992,764.21 lbf·ft
Resisting Force: 22,165.73 lbf
Activating Force: 12,094.199 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (199.964, -10) ft
Entry: (103.66353, 4.3090755) ft
Radius: 42.326398 ft
Center: (162.10368, 54.91271) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material

Slice 1	105.33574 ft	2.5222496 ft	-110.07915 psf	149.4628 psf	0 psf	115 psf	0 psf	Ridge
Slice 2	107.35207 ft	0.36771178 ft	22.653241 psf	400.6855 psf	0 psf	115 psf	0 psf	Ridge
Slice 3	108.0981 ft	-0.42944702 ft	71.762983 psf	493.63555 psf	0 psf	115 psf	0 psf	Ridge
Slice 4	109.50188 ft	-1.929447 ft	164.17194 psf	653.81738 psf	0 psf	115 psf	0 psf	Ridge
Slice 5	111.3481 ft	-3.9022095 ft	285.70588 psf	850.72486 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	113.5843 ft	-6.1033142 ft	421.15182 psf	1,099.2531 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	116.36803 ft	-8.7011047 ft	580.88071 psf	1,373.5545 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	118.12994 ft	-10.345338 ft	681.97879 psf	1,517.2063 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 9	119.4063 ft	-11.536437 ft	755.21523 psf	1,628.6691 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 10	122.62111 ft	-13.691099 ft	886.89984 psf	1,877.4772 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 11	126.71481 ft	-16.01218 ft	1,028.2 psf	2,031.5092 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 12	128.92674 ft	-17.266317 ft	1,104.5479 psf	2,120.4311 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 13	130.6638 ft	-17.943521 ft	1,145.2961 psf	2,218.845 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 14	133.28444 ft	-18.814018 ft	1,197.3333 psf	2,253.5656 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 15	136.56861 ft	-19.505612 ft	1,237.6172 psf	2,310.7699 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 16	139.27123 ft	-19.736562 ft	1,249.6552 psf	2,320.154 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 17	141.075 ft	-19.673708 ft	1,245.0894 psf	2,269.6467 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 18	142.825 ft	-19.612727 ft	1,241.2824 psf	2,229.2019 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 19	145.05569 ft	-19.534997 ft	1,236.4297 psf	2,212.499 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 20	148.16707 ft	-19.426578 ft	1,229.6611 psf	2,200.2198 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 21	151.27845 ft	-19.318159 ft	1,222.8925 psf	2,187.9407 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 22	154.41074 ft	-19.236389 ft	1,217.7875 psf	2,173.7495 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 23	157.56394 ft	-19.181265 ft	1,214.3462 psf	2,167.5135 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 24	159.17262 ft	-19.153691 ft	1,212.6247 psf	2,159.567 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 25	159.72707 ft	-19.156869 ft	1,212.8231 psf	2,158.0874 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20

Slice 26	161.62453 ft	-19.237173 ft	1,217.8365 psf	2,153.0757 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 27	164.37472 ft	-19.3914 ft	1,227.4649 psf	2,170.4399 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 28	167.12491 ft	-19.545626 ft	1,237.0933 psf	2,187.8042 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 29	170.68669 ft	-19.745366 ft	1,249.5631 psf	2,184.355 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 30	175.18669 ft	-19.673302 ft	1,245.0641 psf	2,161.5862 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 31	177.81214 ft	-19.452342 ft	1,231.2695 psf	2,103.3559 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 32	179.43525 ft	-19.152519 ft	1,212.5515 psf	2,077.74 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 33	182.0572 ft	-18.605412 ft	1,178.3955 psf	1,972.3463 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 34	185.68222 ft	-17.492284 ft	1,108.9027 psf	1,826.5074 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 35	189.75449 ft	-15.826355 ft	1,004.8984 psf	1,593.627 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 36	193.6299 ft	-14.004938 ft	891.18704 psf	1,295.9165 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 37	197.12355 ft	-12.027411 ft	767.7297 psf	1,045.919 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 38	199.232 ft	-10.522474 ft	673.77616 psf	825.06772 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15

C) A-2 (2)

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File Information

File Version: 10.02
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Revision Number: 41
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Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:21:04 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

C) A-2 (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (144, 0) ft
Left-Zone Right Coordinate: (165, 0) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (183, -4.833333) ft
Right-Zone Right Coordinate: (244.25, -8.083333) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (302.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	148.5 ft	1 ft
	153.5 ft	1 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	158.5 ft	1 ft
	163.5 ft	1 ft

Tension Crack Line

Geometry

Name: 4. ML el 0 Crown el 5

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	73.5 ft	0 ft
Point 3	143.5 ft	0 ft
Point 4	302.5 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft

Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	302.5 ft	-54 ft
Point 16	302.5 ft	-49 ft
Point 17	302.5 ft	-40 ft
Point 18	302.5 ft	-35 ft
Point 19	302.5 ft	-30 ft
Point 20	302.5 ft	-26 ft
Point 21	302.5 ft	-20 ft
Point 22	302.5 ft	-15 ft
Point 23	302.5 ft	-10 ft
Point 24	302.5 ft	-3 ft
Point 25	94.5 ft	-3 ft
Point 26	128.5 ft	-3 ft
Point 27	128.5 ft	3 ft
Point 28	302.5 ft	3 ft
Point 29	108.5 ft	5 ft
Point 30	118.5 ft	5 ft
Point 31	168.5 ft	0 ft
Point 32	177.5 ft	-3 ft
Point 33	198.5 ft	-10 ft
Point 34	238.5 ft	-10 ft
Point 35	259.5 ft	-3 ft
Point 36	268.5 ft	0 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,512.5 ft²
Region 2	Ridge	2,3,27,30,29	200 ft²
Region 3	C. CL, el -10 to -15	6,7,22,23,34,33	1,512.5 ft²
Region 4	D. CL, el -15 to -20	7,8,21,22	1,512.5 ft²
Region 5	E. CH, el -20 to -26	8,9,20,21	1,815 ft²
Region 6	F. CH, el -26 to -30	9,10,19,20	1,210 ft²
Region 7	G. CL, el -30 to -35	10,11,18,19	1,512.5 ft²
Region 8	H. CH, el -35 to -40	11,12,17,18	1,512.5 ft²
Region 9	I. CL, el -40 to -49	12,13,16,17	2,722.5 ft²
Region 10	Ridge	2,25,26,3	156 ft²
Region 11	A. CH, el 0 to -3	1,5,25,2	252 ft²
Region 12		32,33,34,35,36,4,28,27,3,31	1,199.5 ft²
Region 13	B. CL, el -3 to -10	5,6,33,32,26,25	1,316 ft²
Region 14	B. CL, el -3 to -10	23,24,35,34	374.5 ft²
Region 15	A. CH, el 0 to -3	24,4,36,35	115.5 ft²
Region 16	A. CH, el 0 to -3	3,26,32,31	111 ft²

Slip Results

Slip Surfaces Analysed: 1272 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.69
Volume: 187.75268 ft³
Weight: 20,543.606 lbf
Resisting Moment: 108,384.32 lbf·ft
Activating Moment: 64,200.453 lbf·ft
Resisting Force: 4,340.5195 lbf
Activating Force: 2,570.4966 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (193.00849, -8.1694971) ft
Entry: (158.51675, 0) ft
Radius: 16.545536 ft
Center: (177.38446, 12.46712) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	159.02653 ft	-0.75 ft	63.678792 psf	268.06775 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	160.05087 ft	-2.2570175 ft	157.76218 psf	401.53002 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	160.8896 ft	-3.3996595 ft	229.09753 psf	486.02353 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	161.7689 ft	-4.4126475 ft	292.33857 psf	595.70209 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	162.87913 ft	-5.6673745 ft	370.67141 psf	723.54611 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	163.46713 ft	-6.3126729 ft	410.95751 psf	870.90929 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	163.69814 ft	-6.4387024 ft	418.82555 psf	636.26375 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	164.57989 ft	-6.8157895 ft	442.36717 psf	696.61597 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	165.80292 ft	-7.2815085 ft	471.4421 psf	751.01136 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	166.88175 ft	-7.6749615 ft	496.00544 psf	793.71083 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	167.96059 ft	-8.0684144 ft	520.56879 psf	836.4103 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	169.2422	-8.535822	549.74913	879.04537				B. CL, el -3

12	ft	ft	psf	psf	0 psf	130 psf	0 psf	to -10
Slice 13	170.47899 ft	-8.9331347 ft	574.55344 psf	924.54188 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	171.46819 ft	-9.1863982 ft	590.36473 psf	940.75732 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	172.54461 ft	-9.4181353 ft	604.83211 psf	965.52503 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	173.70826 ft	-9.6283458 ft	617.95559 psf	975.05353 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	174.88046 ft	-9.802699 ft	628.8405 psf	990.7558 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	175.97814 ft	-9.902748 ft	635.08658 psf	998.12206 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	176.99271 ft	-9.96435 ft	638.9324 psf	992.96111 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	177.53401 ft	-9.997216 ft	640.98423 psf	990.07232 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	178.174 ft	-9.9992165 ft	641.10912 psf	990.08228 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	179.38597 ft	-9.9990875 ft	641.10107 psf	970.78012 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	180.59794 ft	-9.9989585 ft	641.09302 psf	951.47797 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	181.8099 ft	-9.9988295 ft	641.08496 psf	932.17582 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	183.02187 ft	-9.9987005 ft	641.07691 psf	912.87367 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	184.23384 ft	-9.9985715 ft	641.06886 psf	893.57151 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	185.5145 ft	-9.9719595 ft	639.40746 psf	876.25099 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	186.69117 ft	-9.8709275 ft	633.10002 psf	862.81788 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	187.69518 ft	-9.7219585 ft	623.79985 psf	829.72427 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	188.72609 ft	-9.5253317 ft	611.52441 psf	803.12841 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	189.7839	-9.2810473	596.27368	758.01962	0 psf	130 psf	0 psf	B. CL, el -3

31	ft	ft	psf	psf				to -10
Slice 32	190.98673 ft	-8.911553 ft	573.20609 psf	715.66799 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	192.33457 ft	-8.4168491 ft	542.32163 psf	636.2521 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

D) B-1 (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:14:10 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

D) B-1 (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (45, 0) ft
Left-Zone Right Coordinate: (92.93, 2.775714) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (107.93, 4.918571) ft
Right-Zone Right Coordinate: (138, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (302.5, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	70 ft	1.06 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	109 ft	3.5 ft
Coordinate 2	117 ft	3.5 ft
Coordinate 3	118 ft	3.5 ft

Geometry

Name: 4. ML el 0 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	73.5 ft	0 ft
Point 3	143.5 ft	0 ft
Point 4	302.5 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft
Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	302.5 ft	-54 ft
Point 16	302.5 ft	-49 ft
Point 17	302.5 ft	-40 ft
Point 18	302.5 ft	-35 ft
Point 19	302.5 ft	-30 ft

Point 20	302.5 ft	-26 ft
Point 21	302.5 ft	-20 ft
Point 22	302.5 ft	-15 ft
Point 23	302.5 ft	-10 ft
Point 24	302.5 ft	-3 ft
Point 25	94.5 ft	-3 ft
Point 26	128.5 ft	-3 ft
Point 27	128.5 ft	3 ft
Point 28	302.5 ft	3 ft
Point 29	108.5 ft	5 ft
Point 30	118.5 ft	5 ft
Point 31	168.5 ft	0 ft
Point 32	177.5 ft	-3 ft
Point 33	198.5 ft	-10 ft
Point 34	238.5 ft	-10 ft
Point 35	259.5 ft	-3 ft
Point 36	268.5 ft	0 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,512.5 ft²
Region 2	Ridge	2,3,27,30,29	200 ft²
Region 3	C. CL, el -10 to -15	6,7,22,23,34,33	1,512.5 ft²
Region 4	D. CL, el -15 to -20	7,8,21,22	1,512.5 ft²
Region 5	E. CH, el -20 to -26	8,9,20,21	1,815 ft²
Region 6	F. CH, el -26 to -30	9,10,19,20	1,210 ft²
Region 7	G. CL, el -30 to -35	10,11,18,19	1,512.5 ft²
Region 8	H. CH, el -35 to -40	11,12,17,18	1,512.5 ft²
Region 9	I. CL, el -40 to -49	12,13,16,17	2,722.5 ft²
Region 10	Ridge	2,25,26,3	156 ft²
Region 11	A. CH, el 0 to -3	1,5,25,2	252 ft²
Region 12	Sand Fill	32,33,34,35,36,4,28,27,3,31	1,199.5 ft²
Region 13	B. CL, el -3 to -10	5,6,33,32,26,25	1,316 ft²
Region 14	B. CL, el -3 to -10	23,24,35,34	374.5 ft²
Region 15	A. CH, el 0 to -3	24,4,36,35	115.5 ft²
Region 16	A. CH, el 0 to -3	3,26,32,31	111 ft²

Slip Results

Slip Surfaces Analysed: 1182 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.55
Volume: 413.51839 ft³
Weight: 45,459.001 lbf
Resisting Moment: 181,914.07 lbf·ft

Activating Moment: 117,141.15 lbf·ft
Resisting Force: 5,686.4619 lbf
Activating Force: 3,660.6895 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (69.574113, 0) ft
Entry: (115.99694, 3.5) ft
Radius: 20.405789 ft
Center: (89.813682, 17.839695) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	69.787057 ft	-0.18638996 ft	77.81236 psf	127.87498 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	71.158575 ft	-1.386884 ft	151.94313 psf	253.87872 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	72.693139 ft	-2.700494 ft	232.87085 psf	386.36895 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 4	73.284564 ft	-3.171612 ft	261.86613 psf	478.2902 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	74.127815 ft	-3.8433295 ft	303.20745 psf	562.7265 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	75.638768 ft	-4.9129728 ft	368.92092 psf	680.48572 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	77.405045 ft	-6.0520485 ft	438.78916 psf	826.99524 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	79.171322 ft	-7.1911242 ft	508.65741 psf	973.50476 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	80.788813 ft	-8.081232 ft	563.08737 psf	1,064.2958 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	82.224508 ft	-8.7079615 ft	601.20266 psf	1,161.6635 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	83.54127 ft	-9.1749487 ft	629.42902 psf	1,210.1561 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	84.77211 ft	-9.4966043 ft	648.64282 psf	1,268.213 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	86.007243 ft	-9.7399885 ft	662.96711 psf	1,296.1758 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	87.246668 ft	-9.9051015 ft	672.40188 psf	1,336.2435 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	88.634734 ft	-9.9879714 ft	676.59748 psf	1,347.3085 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	90.171441 ft	-9.9885981 ft	675.55389 psf	1,373.723 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	91.708149 ft	-9.9892249 ft	674.5103 psf	1,400.1374 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	93.244856 ft	-9.9898516 ft	673.46671 psf	1,426.5518 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	94.256605 ft	-9.9502635 ft	670.28237 psf	1,411.4642 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 20	95.403255 ft	-9.7622847 ft	657.73892 psf	1,408.8039 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	97.209765 ft	-9.4661302 ft	637.97713 psf	1,404.0702 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	99.006005 ft	-9.0113743 ft	608.32105 psf	1,351.9661 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	100.79197 ft	-8.3980168 ft	568.77069 psf	1,312.1743 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	102.62604 ft	-7.5665207 ft	515.56802 psf	1,215.9689 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	104.50818 ft	-6.5168863 ft	448.71303 psf	1,130.8988 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	106.21195 ft	-5.3623863 ft	375.43696 psf	994.26453 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	107.73731 ft	-4.1030209 ft	295.73981 psf	882.83339 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	108.78666 ft	-3.2366691 ft	240.91397 psf	801.88953 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	109.23942 ft	-2.8628645 ft	217.25828 psf	769.32967 psf	0 psf	115 psf	0 psf	Ridge
Slice 30	110.03398 ft	-2.152529 ft	172.35208 psf	685.40706 psf	0 psf	115 psf	0 psf	Ridge
Slice 31	111.29091 ft	-1.006129 ft	99.896518 psf	565.98932 psf	0 psf	115 psf	0 psf	Ridge
Slice 32	112.14473 ft	-0.2164645 ft	49.996036 psf	478.98565 psf	0 psf	115 psf	0 psf	Ridge
Slice 33	112.66945 ft	0.28753319 ft	18.161666 psf	426.63286 psf	0 psf	115 psf	0 psf	Ridge
Slice 34	113.55147 ft	1.1347247 ft	-35.350101 psf	338.63081 psf	0 psf	115 psf	0 psf	Ridge
Slice 35	114.66381 ft	2.2212085 ft	-103.96321 psf	222.94764 psf	0 psf	115 psf	0 psf	Ridge
Slice 36	115.59521 ft	3.124017 ft	-160.98196 psf	128.82876 psf	0 psf	115 psf	0 psf	Ridge

E) A-1a (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:14:12 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

E) A-1a (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (63.93, -0.224286) ft
Left-Zone Right Coordinate: (112.09615, 4.68077) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (125.09615, 2.08077) ft
Right-Zone Right Coordinate: (192.5, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (302.5, -1) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	75 ft	1.06 ft

Coordinate 3	132 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	101 ft	3.5 ft
Coordinate 2	110 ft	3.5 ft

Geometry

Name: 5. ML el -1 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	302.5 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-1 ft
Point 25	140.5 ft	-1 ft
Point 26	120.5 ft	3 ft
Point 27	72.5 ft	-3 ft
Point 28	130.5 ft	-3 ft
Point 29	100.5 ft	5 ft

Point 30	110.5 ft	5 ft
Point 31	165.5 ft	-1 ft
Point 32	171.5 ft	-3 ft
Point 33	192.5 ft	-10 ft
Point 34	232.5 ft	-10 ft
Point 35	253.5 ft	-3 ft
Point 36	259.5 ft	-1 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Ridge	24,29,30,26,25	276 ft²
Region 10	Ridge	24,27,28,25	140 ft²
Region 11	A. CH, el 0 to -3	3,27,24,1	131 ft²
Region 12		32,33,34,35,36,2,23,26,25,31	1,291 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,274 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	416.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	92 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	66 ft²

Slip Results

Slip Surfaces Analysed: 1136 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.28
Volume: 376.80151 ft³
Weight: 41,617.651 lbf
Resisting Moment: 170,074.26 lbf·ft
Activating Moment: 132,814.9 lbf·ft
Resisting Force: 5,431.7909 lbf
Activating Force: 4,241.4158 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (144.94527, -1) ft
Entry: (101.00723, 3.5) ft
Radius: 19.768625 ft
Center: (126.12809, 17.455294) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	101.74384 ft	2.7896781 ft	-131.12452 psf	148.97708 psf	0 psf	115 psf	0 psf	Ridge
Slice 2	103.21706 ft	1.3690342 ft	-43.708173 psf	298.05194 psf	0 psf	115 psf	0 psf	Ridge
Slice 3	104.44496 ft	0.18496212 ft	29.151221 psf	419.52671 psf	0 psf	115 psf	0 psf	Ridge
Slice 4	105.34742 ft	-0.644394 ft	80.147218 psf	516.52419 psf	0 psf	115 psf	0 psf	Ridge
Slice 5	106.33673 ft	-1.5 ft	132.70685 psf	604.9155 psf	0 psf	115 psf	0 psf	Ridge
Slice 6	107.493 ft	-2.5 ft	194.13656 psf	708.22393 psf	0 psf	115 psf	0 psf	Ridge
Slice 7	108.34974 ft	-3.2409535 ft	239.65312 psf	776.5377 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	109.56418 ft	-4.2375969 ft	300.82296 psf	890.42556 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	110.73717 ft	-5.1848044 ft	358.94235 psf	985.54253 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	111.58672 ft	-5.7663298 ft	394.51201 psf	1,058.4148 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	112.81148 ft	-6.5463455 ft	442.1488 psf	1,116.0812 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	114.03624 ft	-7.3263612 ft	489.78559 psf	1,173.7476 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	115.29734 ft	-7.9816042 ft	529.60135 psf	1,259.9303 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	116.59479 ft	-8.5120745 ft	561.59609 psf	1,289.882 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	117.89224 ft	-9.0425448 ft	593.59082 psf	1,319.8336 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	119.52048 ft	-9.5120055 ft	621.49049 psf	1,375.8525 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	121.15463 ft	-9.8527195 ft	641.34736 psf	1,378.0271 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	122.56141 ft	-9.9902022 ft	648.7132 psf	1,404.8772 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	124.06569 ft	-9.9921907 ft	647.53575 psf	1,372.009 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	125.56996 ft	-9.9941793 ft	646.3583 psf	1,339.1409 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	127.07424 ft	-9.9961677 ft	645.18085 psf	1,306.2728 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	128.43016 ft	-9.922771 ft	639.42545 psf	1,292.9185 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	129.63773 ft	-9.773989 ft	629.09211 psf	1,249.2859 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	130.37076	-9.6636136	621.56709	1,251.1079	0 psf	130 psf	0 psf	B. CL, el -3

24	ft	ft	psf	psf				to -10
Slice 25	131.25 ft	-9.4188138 ft	605.52342 psf	1,201.8192 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	132.45356 ft	-9.0837168 ft	583.9543 psf	1,133.9883 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	133.52856 ft	-8.662777 ft	557.67495 psf	1,096.1877 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	135.2106 ft	-7.86523 ft	507.88394 psf	975.65438 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	137.29545 ft	-6.737591 ft	437.48523 psf	843.40574 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	139.40985 ft	-5.3282084 ft	349.49721 psf	670.35494 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	140.52764 ft	-4.5236819 ft	299.27047 psf	560.80709 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	141.50602 ft	-3.751894 ft	251.0876 psf	479.7688 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	142.71746 ft	-2.793821 ft	191.27492 psf	318.05472 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 34	143.96172 ft	-1.793821 ft	128.84473 psf	212.84275 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

F) A-1b (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:14:24 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

F) A-1b (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (63.93, -0.224286) ft
Left-Zone Right Coordinate: (113.09615, 4.48077) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (192.5, -10) ft
Right-Zone Right Coordinate: (234.25, -9.416667) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (302.5, -1) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	75 ft	1.06 ft

Coordinate 3	132 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

Geometry

Name: 5. ML el -1 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	302.5 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-1 ft
Point 25	140.5 ft	-1 ft
Point 26	120.5 ft	3 ft
Point 27	72.5 ft	-3 ft
Point 28	130.5 ft	-3 ft
Point 29	100.5 ft	5 ft
Point 30	110.5 ft	5 ft
Point 31	165.5 ft	-1 ft
Point 32	171.5 ft	-3 ft

Point 33	192.5 ft	-10 ft
Point 34	232.5 ft	-10 ft
Point 35	253.5 ft	-3 ft
Point 36	259.5 ft	-1 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Ridge	24,29,30,26,25	276 ft²
Region 10	Ridge	24,27,28,25	140 ft²
Region 11	A. CH, el 0 to -3	3,27,24,1	131 ft²
Region 12		32,33,34,35,36,2,23,26,25,31	1,291 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,274 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	416.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	92 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	66 ft²

Slip Results

Slip Surfaces Analysed: 1201 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.72
Volume: 1,139.4041 ft³
Weight: 127,764.08 lbf
Resisting Moment: 2,527,745.6 lbf·ft
Activating Moment: 1,466,907.8 lbf·ft
Resisting Force: 17,812.102 lbf
Activating Force: 10,336.341 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (192.5, -10) ft
Entry: (97.273426, 4.5390609) ft
Radius: 40.68134 ft
Center: (156.21293, 119.80034) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material

Slice 1	97.798818 ft	4.010028 ft	-203.89772 psf	3.4022862 psf	0 psf	115 psf	0 psf	Ridge
Slice 2	99.412105 ft	2.3631667 ft	-102.47978 psf	195.59234 psf	0 psf	115 psf	0 psf	Ridge
Slice 3	100.76575 ft	0.9722755 ft	-16.81743 psf	354.95727 psf	0 psf	115 psf	0 psf	Ridge
Slice 4	101.85836 ft	-0.15039374 ft	52.325634 psf	470.66152 psf	0 psf	115 psf	0 psf	Ridge
Slice 5	103.20876 ft	-1.537954 ft	137.78283 psf	613.66588 psf	0 psf	115 psf	0 psf	Ridge
Slice 6	104.26638 ft	-2.537954 ft	199.29791 psf	734.19505 psf	0 psf	115 psf	0 psf	Ridge
Slice 7	106.22533 ft	-4.2327371 ft	303.40853 psf	906.36696 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	109.07511 ft	-6.6982114 ft	454.86275 psf	1,167.6875 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	111.21799 ft	-8.5521148 ft	568.74814 psf	1,349.238 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	112.6069 ft	-9.5866405 ft	632.13201 psf	1,470.4556 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	115.46551 ft	-11.34785 ft	739.61121 psf	1,583.2913 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 12	119.07659 ft	-13.176491 ft	850.64907 psf	1,772.9483 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 13	121.71767 ft	-14.06858 ft	904.05717 psf	1,817.3445 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 14	124.63099 ft	-14.739624 ft	943.42977 psf	1,873.9289 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 15	128.41332 ft	-14.999457 ft	956.37846 psf	1,857.4356 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 16	131.25 ft	-14.999576 ft	953.93143 psf	1,793.5427 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 17	133.075 ft	-14.999652 ft	953.28727 psf	1,749.7517 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 18	135.70285 ft	-14.999762 ft	953.29415 psf	1,706.3392 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 19	138.80856 ft	-14.999893 ft	953.30229 psf	1,671.1036 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 20	140.4307 ft	-14.999751 ft	953.29341 psf	1,653.3561 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 21	142.31213 ft	-14.994121 ft	952.94195 psf	1,650.8771 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 22	145.93639 ft	-14.983276 ft	952.26492 psf	1,649.6189 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 23	150.10519 ft	-14.973705 ft	951.66735 psf	1,648.2323 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 24	153.8424 ft	-14.968751 ft	951.35807 psf	1,647.3937 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice	156.60347	-14.967142	951.25762	1,647.207	0 psf	200 psf	0 psf	C. CL, el -10

25	ft	ft	psf	psf				to -15
Slice 26	159.86301 ft	-14.97332 ft	951.64334 psf	1,646.9608 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 27	163.621 ft	-14.987286 ft	952.51525 psf	1,648.5805 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 28	166.3091 ft	-14.997276 ft	953.13893 psf	1,641.7077 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 29	169.3091 ft	-14.996833 ft	953.11127 psf	1,606.6296 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 30	173.25998 ft	-14.990612 ft	952.72288 psf	1,551.1801 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 31	176.77993 ft	-14.985069 ft	952.37685 psf	1,493.9698 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 32	179.86774 ft	-14.796356 ft	940.59541 psf	1,451.6983 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 33	183.47661 ft	-14.047636 ft	893.85272 psf	1,327.3776 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 34	187.44324 ft	-12.613644 ft	804.32834 psf	1,146.0047 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 35	190.81441 ft	-10.871215 ft	695.54814 psf	880.72886 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15

G) A-2 (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:14:22 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

G) A-2 (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (142, -1) ft
Left-Zone Right Coordinate: (165, -1) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (178.25, -5.25) ft
Right-Zone Right Coordinate: (232, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (302.5, -1) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	145.5 ft	0 ft
	150.5 ft	0 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	155.5 ft	0 ft
	160.5 ft	0 ft

Tension Crack Line

Geometry

Name: 5. ML el -1 Crown el 5

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	302.5 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft

Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-1 ft
Point 25	140.5 ft	-1 ft
Point 26	120.5 ft	3 ft
Point 27	72.5 ft	-3 ft
Point 28	130.5 ft	-3 ft
Point 29	100.5 ft	5 ft
Point 30	110.5 ft	5 ft
Point 31	165.5 ft	-1 ft
Point 32	171.5 ft	-3 ft
Point 33	192.5 ft	-10 ft
Point 34	232.5 ft	-10 ft
Point 35	253.5 ft	-3 ft
Point 36	259.5 ft	-1 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Ridge	24,29,30,26,25	276 ft²
Region 10	Ridge	24,27,28,25	140 ft²
Region 11	A. CH, el 0 to -3	3,27,24,1	131 ft²
Region 12		32,33,34,35,36,2,23,26,25,31	1,291 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,274 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	416.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	92 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	66 ft²

Slip Results

Slip Surfaces Analysed: 1243 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.75
Volume: 161.07888 ft³
Weight: 17,744.215 lbf
Resisting Moment: 90,657.759 lbf·ft
Activating Moment: 51,889.871 lbf·ft
Resisting Force: 3,934.6477 lbf
Activating Force: 2,252.0085 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (186.47573, -7.9919116) ft
Entry: (155.50338, -1) ft
Radius: 14.764126 ft
Center: (172.71078, 10.344619) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	155.96928 ft	-1.7381765 ft	125.37084 psf	321.93365 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	156.6247 ft	-2.7381765 ft	187.80103 psf	423.14533 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	157.26381 ft	-3.6211315 ft	242.92407 psf	462.44108 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	158.21694 ft	-4.867896 ft	320.75982 psf	603.8236 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	159.16535 ft	-5.9963334 ft	391.20838 psf	732.56161 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	160.05512 ft	-7.0019422 ft	453.98872 psf	836.14507 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	160.5027 ft	-7.5078038 ft	485.56976 psf	649.13129 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	160.91581 ft	-7.6355192 ft	493.54306 psf	763.69112 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	161.73659 ft	-7.8848358 ft	509.10793 psf	790.97429 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	162.70583 ft	-8.1751483 ft	527.2322 psf	823.73163 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	163.8235 ft	-8.5064568 ft	547.91585 psf	860.0074 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
		-						

Slice 12	164.94117 ft	8.8377653 ft	568.5995 psf	896.28317 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	165.68063 ft	-9.0569648 ft	582.28417 psf	920.16315 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	166.3647 ft	-9.2263517 ft	592.85903 psf	940.22742 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	167.37155 ft	-9.4580353 ft	607.32308 psf	953.86402 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	168.3423 ft	-9.6423182 ft	618.8279 psf	975.01644 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	169.27693 ft	-9.7792008 ft	627.3735 psf	979.09737 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	170.27703 ft	-9.897286 ft	634.74558 psf	988.26281 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	171.15491 ft	-9.9651094 ft	638.97981 psf	991.42827 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	171.65829 ft	-9.9916274 ft	640.63533 psf	987.74586 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	172.37463 ft	-9.9999545 ft	641.1552 psf	985.16907 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	173.49071 ft	-9.9999315 ft	641.15376 psf	967.32315 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	174.60681 ft	-9.9999085 ft	641.15232 psf	949.47723 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	175.72289 ft	-9.9998855 ft	641.15089 psf	931.63131 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	176.83899 ft	-9.9998625 ft	641.14945 psf	913.78538 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	177.95507 ft	-9.9998395 ft	641.14802 psf	895.93946 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	178.97034 ft	-9.966567 ft	639.07081 psf	886.37312 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	179.88477 ft	-9.900045 ft	634.91783 psf	864.17853 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	180.86163 ft	-9.7631123 ft	626.36909 psf	850.91552 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	181.90089 ft	-9.5557688 ft	613.4246 psf	810.45421 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 31	183.04834 ft	-9.2625683 ft	595.12003 psf	772.41238 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	184.30394 ft	-8.8835107 ft	571.4554 psf	708.39083 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	185.70374 ft	-8.3429468 ft	537.70789 psf	642.90253 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

H) B-1 (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:14:26 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

H) B-1 (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (28, -1) ft
Left-Zone Right Coordinate: (81, 2.214286) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (99.93, 4.918571) ft
Right-Zone Right Coordinate: (145, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (302.5, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	101 ft	3.5 ft
Coordinate 2	110 ft	3.5 ft

Geometry

Name: 5. ML el -1 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	302.5 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft

Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-1 ft
Point 25	140.5 ft	-1 ft
Point 26	120.5 ft	3 ft
Point 27	72.5 ft	-3 ft
Point 28	130.5 ft	-3 ft
Point 29	100.5 ft	5 ft
Point 30	110.5 ft	5 ft
Point 31	165.5 ft	-1 ft
Point 32	171.5 ft	-3 ft
Point 33	192.5 ft	-10 ft
Point 34	232.5 ft	-10 ft
Point 35	253.5 ft	-3 ft
Point 36	259.5 ft	-1 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Ridge	24,29,30,26,25	276 ft²
Region 10	Ridge	24,27,28,25	140 ft²
Region 11	A. CH, el 0 to -3	3,27,24,1	131 ft²
Region 12	Sand Fill	32,33,34,35,36,2,23,26,25,31	1,291 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,274 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	416.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	92 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	66 ft²

Slip Results

Slip Surfaces Analysed: 1192 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.45
Volume: 447.68406 ft³
Weight: 49,523.864 lbf
Resisting Moment: 239,024.89 lbf·ft
Activating Moment: 164,369.81 lbf·ft
Resisting Force: 6,245.2125 lbf
Activating Force: 4,294.2116 lbf

Slip Rank: 1 of 1,332 slip surfaces
Exit: (58.144727, -1) ft
Entry: (108.46986, 3.5) ft
Radius: 21.856453 ft
Center: (81.833774, 24.24872) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	58.322363 ft	-1.1356181 ft	87.753 psf	134.1463 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	59.632193 ft	-2.1356181 ft	150.18319 psf	250.17327 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	61.177218 ft	-3.31518 ft	223.82346 psf	434.09274 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	62.731205 ft	-4.423296 ft	293.00335 psf	569.08086 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	64.75177 ft	-5.7446773 ft	375.49744 psf	727.98641 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	66.51059 ft	-6.8015679 ft	441.47932 psf	866.34047 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	67.68309 ft	-7.5061336 ft	485.46549 psf	961.32506 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	68.821808 ft	-8.0218392 ft	517.66109 psf	1,009.0246 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	70.513062 ft	-8.7010098 ft	560.06183 psf	1,117.0431 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	71.929345 ft	-9.1627692 ft	588.88956 psf	1,162.6629 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	73.60767 ft	-9.5220897 ft	611.32201 psf	1,231.0949 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	75.80069 ft	-9.873808 ft	633.27985 psf	1,286.5336 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	77.84636 ft	-9.989928 ft	640.52924 psf	1,313.2746 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	79.767 ft	-9.993024 ft	640.72252 psf	1,343.8062 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	81.68764 ft	-9.99612 ft	640.91581 psf	1,374.3378 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	83.594082 ft	-9.947714 ft	637.89381 psf	1,388.8583 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	85.486328 ft	-9.847806 ft	631.65654 psf	1,407.3374 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 18	87.27573 ft	-9.631961 ft	618.18129 psf	1,384.9025 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	88.96229 ft	-9.300179 ft	597.46808 psf	1,374.3871 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	90.54001 ft	-8.8512158 ft	569.43922 psf	1,315.8752 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	92.00889 ft	-8.2850715 ft	534.09473 psf	1,276.5824 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	93.47777 ft	-7.7189272 ft	498.75023 psf	1,237.2895 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	95.10205 ft	-6.929103 ft	449.44136 psf	1,145.9144 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	96.88173 ft	-5.915599 ft	386.16811 psf	1,063.5667 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	98.453677 ft	-4.8995613 ft	322.73669 psf	951.49055 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	99.817892 ft	-3.88099 ft	259.14709 psf	863.33715 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	100.69566 ft	-3.2256177 ft	218.23207 psf	803.69154 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	102.12162 ft	-2.0397655 ft	144.1991 psf	674.07598 psf	0 psf	115 psf	0 psf	Ridge
Slice 29	103.91219 ft	-0.5265025 ft	49.725801 psf	516.68874 psf	0 psf	115 psf	0 psf	Ridge
Slice 30	104.6573 ft	0.1084975 ft	10.082632 psf	447.68502 psf	0 psf	115 psf	0 psf	Ridge
Slice 31	105.47267 ft	0.8208745 ft	-34.391199 psf	373.7303 psf	0 psf	115 psf	0 psf	Ridge
Slice 32	106.7337 ft	1.9226235 ft	-103.1736 psf	259.3533 psf	0 psf	115 psf	0 psf	Ridge
Slice 33	107.91703 ft	2.986749 ft	-169.60715 psf	140.21372 psf	0 psf	115 psf	0 psf	Ridge

I) A-1a (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 37
Date: 07/01/2021
Time: 09:23:55 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:24:10 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

I) A-1a (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (58, -2) ft
Left-Zone Right Coordinate: (119.09615, 4.68077) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (137, 1.1) ft
Right-Zone Right Coordinate: (201.5, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (302.5, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	83 ft	1.06 ft

Coordinate 3	139 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	106 ft	3.5 ft
Coordinate 2	117 ft	3.5 ft
Coordinate 3	118 ft	3.5 ft

Geometry

Name: 6. ML el -2 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	302.5 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-2 ft
Point 25	152.5 ft	-2 ft
Point 26	127.5 ft	3 ft
Point 27	65.5 ft	-3 ft
Point 28	147.5 ft	-3 ft

Point 29	107.5 ft	5 ft
Point 30	117.5 ft	5 ft
Point 31	177.5 ft	-2 ft
Point 32	180.5 ft	-3 ft
Point 33	201.5 ft	-10 ft
Point 34	241.5 ft	-10 ft
Point 35	262.5 ft	-3 ft
Point 36	265.5 ft	-2 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Ridge	24,29,30,26,25	364 ft²
Region 10		2,23,26,25,31,32,33,34,35,36	1,324.5 ft²
Region 11	Ridge	24,27,28,25	88 ft²
Region 12	A. CH, el 0 to -3	3,27,24,1	62 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,337 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	353.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	38.5 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	29 ft²

Slip Results

Slip Surfaces Analysed: 1102 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.27
Volume: 398.74626 ft³
Weight: 44,201.557 lbf
Resisting Moment: 223,716.67 lbf·ft
Activating Moment: 176,277.91 lbf·ft
Resisting Force: 5,785.427 lbf
Activating Force: 4,558.3342 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (153.62878, -2) ft
Entry: (107.58453, 3.5) ft
Radius: 20.662678 ft
Center: (134.87878, 24.585916) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	107.93514 ft	3.165184 ft	-153.3877 psf	106.80165 psf	0 psf	115 psf	0 psf	Ridge
Slice 2	108.87335 ft	2.2903092 ft	-99.595396 psf	207.18117 psf	0 psf	115 psf	0 psf	Ridge
Slice 3	110.04855 ft	1.2101916 ft	-33.198465 psf	318.21205 psf	0 psf	115 psf	0 psf	Ridge
Slice 4	111.00681 ft	0.32946743 ft	20.941368 psf	408.74626 psf	0 psf	115 psf	0 psf	Ridge
Slice 5	111.9598 ft	-0.5083985 ft	72.410179 psf	502.74289 psf	0 psf	115 psf	0 psf	Ridge
Slice 6	113.12449 ft	-1.5027995 ft	133.46507 psf	605.44043 psf	0 psf	115 psf	0 psf	Ridge
Slice 7	114.29246 ft	-2.5 ft	194.69184 psf	708.4271 psf	0 psf	115 psf	0 psf	Ridge
Slice 8	114.94766 ft	-3.0594005 ft	229.03828 psf	757.68404 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	115.63792 ft	-3.6186715 ft	263.34575 psf	824.01003 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	116.87931 ft	-4.6184125 ft	324.66647 psf	929.50225 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	117.8655 ft	-5.41264 ft	373.38168 psf	1,005.7329 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	118.92678 ft	-6.1797198 ft	420.33594 psf	1,086.6581 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	120.31831 ft	-7.1251653 ft	478.13474 psf	1,158.2261 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	121.72639 ft	-7.9192132 ft	526.4672 psf	1,256.3569 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	123.151 ft	-8.5618637 ft	565.33332 psf	1,295.6408 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	124.46337 ft	-9.0561915 ft	595.03847 psf	1,353.6177 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	125.6635 ft	-9.4021965 ft	615.58266 psf	1,365.7018 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	126.88178 ft	-9.6781651 ft	631.73848 psf	1,394.5921 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	127.78066 ft	-9.8278766 ft	640.29334 psf	1,391.622 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	128.79142 ft	-9.9342425 ft	646.0436 psf	1,398.9565 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	130.21291 ft	-9.9944767 ft	648.55211 psf	1,391.321 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	131.59571 ft	-9.9957041 ft	647.41089 psf	1,361.039 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	132.9785 ft	-9.9969315 ft	646.26967 psf	1,330.757 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 24	134.3613 ft	-9.9981589 ft	645.12845 psf	1,300.475 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	135.77789 ft	-9.9994163 ft	643.95934 psf	1,269.4529 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	137.12479 ft	-9.9164167 ft	637.59144 psf	1,257.3832 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	138.36796 ft	-9.7491602 ft	626.05471 psf	1,210.823 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	138.99472 ft	-9.6638931 ft	620.17948 psf	1,222.5078 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	140.075 ft	-9.3258354 ft	599.06982 psf	1,159.3724 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	141.91627 ft	-8.7496398 ft	563.09781 psf	1,061.7136 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	143.48545 ft	-8.1316639 ft	524.51746 psf	1,004.8178 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	145.09127 ft	-7.3752958 ft	477.29726 psf	901.41862 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	146.69709 ft	-6.6189277 ft	430.07705 psf	798.01945 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 34	147.84497 ft	-6.0782593 ft	396.32302 psf	723.39185 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 35	149.30116 ft	-5.1960205 ft	341.24469 psf	631.39356 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 36	151.37114 ft	-3.738133 ft	250.2285 psf	452.56961 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 37	152.41495 ft	-2.9345177 ft	200.05865 psf	295.6511 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 38	153.06439 ft	-2.4345177 ft	168.84355 psf	239.21302 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

J) A-1b (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:14:38 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

J) A-1b (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (40, -2) ft
Left-Zone Right Coordinate: (119.09615, 4.68077) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (201.5, -10) ft
Right-Zone Right Coordinate: (246.25, -8.416667) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (302.5, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	83 ft	1.06 ft

Coordinate 3	139 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

Geometry

Name: 6. ML el -2 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	302.5 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-2 ft
Point 25	152.5 ft	-2 ft
Point 26	127.5 ft	3 ft
Point 27	65.5 ft	-3 ft
Point 28	147.5 ft	-3 ft
Point 29	107.5 ft	5 ft
Point 30	117.5 ft	5 ft
Point 31	177.5 ft	-2 ft
Point 32	180.5 ft	-3 ft

Point 33	201.5 ft	-10 ft
Point 34	241.5 ft	-10 ft
Point 35	262.5 ft	-3 ft
Point 36	265.5 ft	-2 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Ridge	24,29,30,26,25	364 ft²
Region 10		2,23,26,25,31,32,33,34,35,36	1,324.5 ft²
Region 11	Ridge	24,27,28,25	88 ft²
Region 12	A. CH, el 0 to -3	3,27,24,1	62 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,337 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	353.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	38.5 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	29 ft²

Slip Results

Slip Surfaces Analysed: 1211 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.88
Volume: 1,525.6423 ft³
Weight: 171,929.3 lbf
Resisting Moment: 2,674,293.4 lbf·ft
Activating Moment: 1,421,836.2 lbf·ft
Resisting Force: 23,471.66 lbf
Activating Force: 12,476.634 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (203.4044, -10) ft
Entry: (102.36544, 4.266492) ft
Radius: 44.054338 ft
Center: (161.42161, 86.198767) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material

Slice 1	104.0247 ft	2.503243 ft	-108.61863 psf	149.00173 psf	0 psf	115 psf	0 psf	Ridge
Slice 2	106.20827 ft	0.18283155 ft	34.322003 psf	420.59836 psf	0 psf	115 psf	0 psf	Ridge
Slice 3	107.11629 ft	-0.77366664 ft	93.236663 psf	534.61548 psf	0 psf	115 psf	0 psf	Ridge
Slice 4	107.89732 ft	-1.5865011 ft	143.2942 psf	624.25161 psf	0 psf	115 psf	0 psf	Ridge
Slice 5	108.77509 ft	-2.5 ft	199.55105 psf	718.62425 psf	0 psf	115 psf	0 psf	Ridge
Slice 6	110.58045 ft	-4.3788582 ft	315.25852 psf	907.98761 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	113.2303 ft	-7.1365747 ft	485.08953 psf	1,198.0644 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	115.45385 ft	-9.2577165 ft	615.5545 psf	1,453.3576 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	116.92624 ft	-10.473935 ft	690.18648 psf	1,557.6788 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 10	119.1846 ft	-12.339376 ft	804.65738 psf	1,728.2409 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 11	121.97245 ft	-14.365441 ft	928.68973 psf	1,947.7311 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 12	124.86197 ft	-16.027413 ft	1,029.9021 psf	2,053.7104 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 13	127.07412 ft	-17.23093 ft	1,103.0896 psf	2,180.7823 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 14	129.19386 ft	-18.107456 ft	1,155.9444 psf	2,231.8807 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 15	133.34747 ft	-19.324417 ft	1,228.2614 psf	2,333.0965 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 16	136.72442 ft	-19.920457 ft	1,262.4982 psf	2,360.9585 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 17	138.32081 ft	-19.99994 ft	1,266.0544 psf	2,359.5451 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 18	140.075 ft	-19.999895 ft	1,265.4534 psf	2,320.9477 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 19	142.7375 ft	-19.999826 ft	1,265.4491 psf	2,282.4332 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 20	145.9125 ft	-19.999744 ft	1,265.4439 psf	2,252.7104 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 21	149.63522 ft	-19.999647 ft	1,265.4379 psf	2,213.5897 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 22	152.13522 ft	-19.994538 ft	1,265.1189 psf	2,188.4113 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 23	154.28571 ft	-19.964741 ft	1,263.2587 psf	2,179.129 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 24	157.85714 ft	-19.915256 ft	1,260.1693 psf	2,173.5323 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 25	161.42857 ft	-19.865771 ft	1,257.08 psf	2,167.9357 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20

Slice 26	165 ft	-19.816286 ft	1,253.9906 psf	2,162.3391 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 27	168.57143 ft	-19.766801 ft	1,250.9012 psf	2,156.7424 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 28	172.14286 ft	-19.717316 ft	1,247.8119 psf	2,151.1458 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 29	175.71429 ft	-19.667831 ft	1,244.7225 psf	2,145.5492 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 30	177.85487 ft	-19.638171 ft	1,242.8709 psf	2,140.8424 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 31	179.35487 ft	-19.582004 ft	1,239.3644 psf	2,124.7014 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 32	180.65887 ft	-19.523644 ft	1,235.721 psf	2,101.6395 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 33	182.35226 ft	-19.313723 ft	1,222.6155 psf	2,073.958 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 34	186.15832 ft	-18.565303 ft	1,175.8915 psf	1,955.2423 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 35	190.32476 ft	-17.334813 ft	1,099.0718 psf	1,776.6486 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 36	193.86695 ft	-15.824965 ft	1,004.8117 psf	1,577.5031 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 37	197.11153 ft	-14.200088 ft	903.37035 psf	1,313.0799 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 38	200.1044 ft	-12.389594 ft	790.34087 psf	1,086.6965 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 39	202.4522 ft	-10.689506 ft	684.20402 psf	842.73425 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15

K) A-2 (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 41
Date: 07/02/2021
Time: 11:20:59 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:21:06 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

K) A-2 (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (152.01923, -1.903846) ft
Left-Zone Right Coordinate: (174, -2) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (186.5, -5) ft
Right-Zone Right Coordinate: (245.25, -8.75) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (302.5, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	157.5 ft	-1 ft
	162.5 ft	-1 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	167.5 ft	-1 ft
	172.5 ft	-1 ft

Tension Crack Line

Geometry

Name: 6. ML el -2 Crown el 5

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	302.5 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft

Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-2 ft
Point 25	152.5 ft	-2 ft
Point 26	127.5 ft	3 ft
Point 27	65.5 ft	-3 ft
Point 28	147.5 ft	-3 ft
Point 29	107.5 ft	5 ft
Point 30	117.5 ft	5 ft
Point 31	177.5 ft	-2 ft
Point 32	180.5 ft	-3 ft
Point 33	201.5 ft	-10 ft
Point 34	241.5 ft	-10 ft
Point 35	262.5 ft	-3 ft
Point 36	265.5 ft	-2 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Ridge	24,29,30,26,25	364 ft²
Region 10		2,23,26,25,31,32,33,34,35,36	1,324.5 ft²
Region 11	Ridge	24,27,28,25	88 ft²
Region 12	A. CH, el 0 to -3	3,27,24,1	62 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,337 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	353.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	38.5 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	29 ft²

Slip Results

Slip Surfaces Analysed: 1194 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.83
Volume: 131.98714 ft³
Weight: 14,648.726 lbf
Resisting Moment: 72,446.832 lbf·ft
Activating Moment: 39,639.853 lbf·ft
Resisting Force: 3,527.7267 lbf
Activating Force: 1,930.0066 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (195.01079, -7.8369291) ft
Entry: (167.49339, -2) ft
Radius: 12.995243 ft
Center: (182.25885, 8.0780887) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	167.49669 ft	-2.0046726 ft	142.00824 psf	89.440396 psf	-0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	167.85052 ft	-2.5046726 ft	173.22333 psf	372.29794 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	168.53511 ft	-3.4720885 ft	233.61929 psf	418.72822 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	169.25766 ft	-4.4407855 ft	294.09523 psf	530.9061 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	169.99262 ft	-5.3618093 ft	351.59491 psf	631.422 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	170.68556 ft	-6.2106398 ft	404.58756 psf	719.19045 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	171.39903 ft	-7.0373012 ft	456.19619 psf	819.75385 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	172.13301 ft	-7.8417935 ft	506.4208 psf	903.61534 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	172.51496 ft	-8.2604423 ft	532.55712 psf	705.26671 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	172.98461 ft	-8.3800555 ft	540.0246 psf	820.32523 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	173.94689 ft	-8.5960098 ft	553.50666 psf	844.762 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 12	174.96206 ft	-8.8214974 ft	567.5839 psf	869.64137 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	175.97724 ft	-9.046985 ft	581.66113 psf	894.52073 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	176.99241 ft	-9.2724727 ft	595.73837 psf	919.40009 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	177.50433 ft	-9.3861782 ft	602.83703 psf	935.05455 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	178.01719 ft	-9.4842557 ft	608.96003 psf	943.93551 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	179.03426 ft	-9.6784872 ft	621.08593 psf	953.30996 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	180.0214 ft	-9.8334383 ft	630.75956 psf	968.17308 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	180.71123 ft	-9.9167983 ft	635.96374 psf	968.34906 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	181.3844 ft	-9.969401 ft	639.24774 psf	971.93746 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	182.30599 ft	-9.9964685 ft	640.93756 psf	968.21611 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	183.2253 ft	-9.9964475 ft	640.93625 psf	953.45683 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	184.1446 ft	-9.9964265 ft	640.93494 psf	938.69755 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	185.06391 ft	-9.9964055 ft	640.93363 psf	923.93828 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	185.98321 ft	-9.9963845 ft	640.93232 psf	909.179 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	186.90252 ft	-9.9963635 ft	640.93101 psf	894.41972 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	187.80244 ft	-9.955771 ft	638.39681 psf	887.5354 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	188.80805 ft	-9.80445 ft	628.94981 psf	867.80812 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	189.93875 ft	-9.582972 ft	615.1229 psf	824.27342 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	190.8616 ft	-9.3684408 ft	601.72967 psf	796.89446 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	191.57664	-	588.77013	761.46879				B. CL, el -3

31	ft	9.1608563 ft	psf	psf	0 psf	130 psf	0 psf	to -10
Slice 32	192.36955 ft	-8.901587 ft	572.58391 psf	727.06958 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	193.35642 ft	-8.5188148 ft	548.68736 psf	673.49573 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 34	194.45933 ft	-8.0642243 ft	520.30719 psf	602.90155 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

L) B-1 (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 35
Date: 07/01/2021
Time: 09:12:52 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:14:40 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

L) B-1 (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (29, -2) ft
Left-Zone Right Coordinate: (77.47, 0.71) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (106.93, 4.918571) ft
Right-Zone Right Coordinate: (148, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (302.5, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	109 ft	3.5 ft
Coordinate 2	117 ft	3.5 ft
Coordinate 3	118 ft	3.5 ft

Geometry

Name: 6. ML el -2 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	302.5 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft

Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-2 ft
Point 25	152.5 ft	-2 ft
Point 26	127.5 ft	3 ft
Point 27	65.5 ft	-3 ft
Point 28	147.5 ft	-3 ft
Point 29	107.5 ft	5 ft
Point 30	117.5 ft	5 ft
Point 31	177.5 ft	-2 ft
Point 32	180.5 ft	-3 ft
Point 33	201.5 ft	-10 ft
Point 34	241.5 ft	-10 ft
Point 35	262.5 ft	-3 ft
Point 36	265.5 ft	-2 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Ridge	24,29,30,26,25	364 ft²
Region 10	Sand Fill	2,23,26,25,31,32,33,34,35,36	1,324.5 ft²
Region 11	Ridge	24,27,28,25	88 ft²
Region 12	A. CH, el 0 to -3	3,27,24,1	62 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,337 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	353.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	38.5 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	29 ft²

Slip Results

Slip Surfaces Analysed: 1264 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.47
Volume: 502.70858 ft³
Weight: 55,756.72 lbf
Resisting Moment: 285,351.65 lbf·ft
Activating Moment: 193,498.96 lbf·ft
Resisting Force: 7,165.2479 lbf

Activating Force: 4,858.6613 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (58.588089, -1.9874158) ft
Entry: (115.50695, 3.5) ft
Radius: 24.188142 ft
Center: (86.214031, 25.499328) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	58.599485 ft	-1.9937079 ft	141.32371 psf	198.39505 psf	0 psf	115 psf	0 psf	Ridge
Slice 2	59.516425 ft	-2.5 ft	172.93162 psf	234.89719 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	61.366739 ft	-3.5216587 ft	236.71397 psf	393.54419 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	63.25628 ft	-4.5649762 ft	301.84848 psf	530.75434 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	64.850525 ft	-5.3596891 ft	351.46255 psf	618.97271 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	66.32221 ft	-5.9784191 ft	390.08998 psf	701.35129 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	67.986863 ft	-6.6627113 ft	432.81047 psf	788.99948 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	69.671748 ft	-7.3399438 ft	475.09022 psf	878.52215 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	71.483142 ft	-8.0007521 ft	516.34461 psf	956.2623 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	73.421048 ft	-8.6451363 ft	556.57364 psf	1,043.3426 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	74.942325 ft	-9.1509852 ft	588.15388 psf	1,116.7848 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	76.287373 ft	-9.476011 ft	608.4453 psf	1,149.81 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	77.872817 ft	-9.758749 ft	626.09669 psf	1,207.0615 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	79.675079 ft	-9.9250885 ft	636.4813 psf	1,228.3294 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	81.739074 ft	-9.9761405 ft	639.66848 psf	1,266.5435 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 16	83.892767 ft	-9.9783032 ft	639.8035 psf	1,292.6258 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	86.040182 ft	-9.9315767 ft	636.88636 psf	1,321.0968 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	88.261685 ft	-9.9315767 ft	636.88636 psf	1,363.2666 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	90.651085 ft	-9.9780232 ft	639.78602 psf	1,406.071 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	93.21512 ft	-9.891136 ft	634.36164 psf	1,418.2563 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	95.669897 ft	-9.4976273 ft	609.79481 psf	1,381.8797 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	97.883533 ft	-8.9316617 ft	574.46148 psf	1,353.7497 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	99.754568 ft	-8.3208125 ft	536.32604 psf	1,285.9512 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	101.283 ft	-7.6650795 ft	495.38851 psf	1,237.882 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	103.04954 ft	-6.745816 ft	437.99872 psf	1,139.2225 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	105.05416 ft	-5.563022 ft	364.15666 psf	1,042.0184 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	106.77824 ft	-4.355957 ft	288.79937 psf	900.65696 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	107.93393 ft	-3.3701445 ft	227.25491 psf	806.84451 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	108.95402 ft	-2.5 ft	172.93162 psf	723.08928 psf	0 psf	115 psf	0 psf	Ridge
Slice 30	110.1942 ft	-1.442113 ft	106.88754 psf	612.89617 psf	0 psf	115 psf	0 psf	Ridge
Slice 31	111.46023 ft	-0.307113 ft	36.029273 psf	485.3101 psf	0 psf	115 psf	0 psf	Ridge
Slice 32	112.83817 ft	0.992262 ft	-45.090953 psf	350.71606 psf	0 psf	115 psf	0 psf	Ridge
Slice 33	114.37004 ft	2.436786 ft	-135.27286 psf	201.08696 psf	0 psf	115 psf	0 psf	Ridge
Slice 34	115.32146 ft	3.329524 ft	-191.00666 psf	98.807371 psf	0 psf	115 psf	0 psf	Ridge

IN-SITU WITH 1-FT. SAND CAP

A) A-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 47
Date: 07/01/2021
Time: 11:29:07 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w 1 ft sand cap to el 5.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 11:29:42 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

A) A-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (81.92879, 1.204113) ft
Left-Zone Right Coordinate: (120, 4.7) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (131.47166, 2.405668) ft
Right-Zone Right Coordinate: (198.5, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (302.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	84 ft	1.06 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Geometry

Name: EL 0

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	73.5 ft	0 ft
Point 3	143.5 ft	0 ft
Point 4	302.5 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft
Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	302.5 ft	-54 ft
Point 16	302.5 ft	-49 ft
Point 17	302.5 ft	-40 ft
Point 18	302.5 ft	-35 ft
Point 19	302.5 ft	-30 ft
Point 20	302.5 ft	-26 ft
Point 21	302.5 ft	-20 ft
Point 22	302.5 ft	-15 ft
Point 23	302.5 ft	-10 ft
Point 24	302.5 ft	-3 ft
Point 25	94.5 ft	-3 ft
Point 26	128.5 ft	-3 ft
Point 27	128.5 ft	3 ft
Point 28	302.5 ft	3 ft

Point 29	108.5 ft	5 ft
Point 30	118.5 ft	5 ft
Point 31	168.5 ft	0 ft
Point 32	177.5 ft	-3 ft
Point 33	198.5 ft	-10 ft
Point 34	238.5 ft	-10 ft
Point 35	259.5 ft	-3 ft
Point 36	268.5 ft	0 ft
Point 37	108.5 ft	4 ft
Point 38	118.5 ft	4 ft
Point 39	138.5 ft	0 ft
Point 40	80.5 ft	0 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,512.5 ft²
Region 2	Sand Fill	2,40,37,38,39,3,27,30,29	64 ft²
Region 3	C. CL, el -10 to -15	6,7,22,23,34,33	1,512.5 ft²
Region 4	D. CL, el -15 to -20	7,8,21,22	1,512.5 ft²
Region 5	E. CH, el -20 to -26	8,9,20,21	1,815 ft²
Region 6	F. CH, el -26 to -30	9,10,19,20	1,210 ft²
Region 7	G. CL, el -30 to -35	10,11,18,19	1,512.5 ft²
Region 8	H. CH, el -35 to -40	11,12,17,18	1,512.5 ft²
Region 9	I. CL, el -40 to -49	12,13,16,17	2,722.5 ft²
Region 10	Ridge In-Situ	2,25,26,3,39,40	156 ft²
Region 11	A. CH, el 0 to -3	1,5,25,2	252 ft²
Region 12		32,33,34,35,36,4,28,27,3,31	1,199.5 ft²
Region 13	B. CL, el -3 to -10	5,6,33,32,26,25	1,316 ft²
Region 14	B. CL, el -3 to -10	23,24,35,34	374.5 ft²
Region 15	A. CH, el 0 to -3	24,4,36,35	115.5 ft²
Region 16	A. CH, el 0 to -3	3,26,32,31	111 ft²
Region 17	Ridge In-Situ	40,39,38,37	136 ft²

Slip Results

Slip Surfaces Analysed: 1196 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.30
Volume: 371.38038 ft³
Weight: 40,923.83 lbf
Resisting Moment: 165,151.92 lbf·ft
Activating Moment: 126,962.21 lbf·ft
Resisting Force: 5,311.7418 lbf
Activating Force: 4,083.7988 lbf
Slip Rank: 1 of 1,332 slip surfaces

Exit: (151.28434, 0) ft
Entry: (106.84782, 4.7639746) ft
Radius: 20.375562 ft
Center: (131.92885, 17.418763) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	107.28332 ft	4.3261885 ft	-224.41466 psf	39.615033 psf	21.063686 psf	0 psf	0 psf	Sand Fill
Slice 2	108.10941 ft	3.4957589 ft	-173.29833 psf	76.20415 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 3	109.24513 ft	2.3540752 ft	-103.02303 psf	199.5474 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 4	110.48244 ft	1.14225 ft	-28.458276 psf	331.11285 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 5	111.081 ft	0.57944953 ft	6.1503065 psf	389.32193 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 6	111.47112 ft	0.239717 ft	27.01629 psf	435.03447 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 7	112.37106 ft	-0.520576 ft	73.688934 psf	514.14951 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 8	113.60345 ft	-1.561728 ft	137.60287 psf	622.49035 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 9	114.79298 ft	-2.541152 ft	197.70086 psf	730.20924 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 10	116.14974 ft	-3.6269865 ft	264.2948 psf	836.6906 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	117.71658 ft	-4.8809594 ft	341.20063 psf	969.92888 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	118.96549 ft	-5.8804859 ft	402.50133 psf	1,066.4162 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	120.25083 ft	-6.7273155 ft	454.23705 psf	1,167.2075 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	121.89052 ft	-7.6758945 ft	512.01292 psf	1,234.7349 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	123.31877 ft	-8.390505 ft	555.36832 psf	1,314.8723 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	124.53556 ft	-8.871147 ft	584.30324 psf	1,341.231 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	125.78044 ft	-9.2697917 ft	608.09433 psf	1,385.6282 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	127.05341 ft	-9.5864393 ft	626.74158 psf	1,392.9642 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	128.09494 ft	-9.7909688 ft	638.5931 psf	1,418.9033 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	129.17412	-9.9140733	645.32809	1,407.6874	0 psf	130 psf	0 psf	B. CL, el -3

20	ft	ft	psf	psf				to -10
Slice 21	130.66646 ft	-9.991951 ft	648.87569 psf	1,402.62 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	132.30291 ft	-9.993909 ft	647.55669 psf	1,363.5677 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	133.93936 ft	-9.995867 ft	646.23769 psf	1,324.5154 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	135.84565 ft	-9.7167955 ft	627.13631 psf	1,296.0175 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	137.71686 ft	-9.2351778 ft	595.42083 psf	1,195.4173 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	138.62779 ft	-9.0007183 ft	579.98121 psf	1,146.3134 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	139.37779 ft	-8.6343094 ft	556.4457 psf	1,135.5883 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	141.04799 ft	-7.7390454 ft	500.00622 psf	988.22543 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	142.79799 ft	-6.6791158 ft	433.83461 psf	856.55366 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	143.90382 ft	-5.8943623 ft	384.8423 psf	754.94788 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	145.41347 ft	-4.7381485 ft	312.65966 psf	630.42766 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	147.07741 ft	-3.434253 ft	231.25721 psf	475.02835 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	148.46898 ft	-2.3515165 ft	163.66177 psf	307.1873 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 34	150.29339 ft	-0.8515165 ft	70.016487 psf	153.70956 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

B) A-1b

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 47
Date: 07/01/2021
Time: 11:29:07 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w 1 ft sand cap to el 5.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 11:29:50 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

B) A-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (76.93, 0.49) ft
Left-Zone Right Coordinate: (120.12703, 4.674594) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (198.5, -10) ft
Right-Zone Right Coordinate: (243.25, -8.416667) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (302.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	84 ft	1.06 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Geometry

Name: EL 0

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	73.5 ft	0 ft
Point 3	143.5 ft	0 ft
Point 4	302.5 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft
Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	302.5 ft	-54 ft
Point 16	302.5 ft	-49 ft
Point 17	302.5 ft	-40 ft
Point 18	302.5 ft	-35 ft
Point 19	302.5 ft	-30 ft
Point 20	302.5 ft	-26 ft
Point 21	302.5 ft	-20 ft
Point 22	302.5 ft	-15 ft
Point 23	302.5 ft	-10 ft
Point 24	302.5 ft	-3 ft
Point 25	94.5 ft	-3 ft
Point 26	128.5 ft	-3 ft
Point 27	128.5 ft	3 ft
Point 28	302.5 ft	3 ft

Point 29	108.5 ft	5 ft
Point 30	118.5 ft	5 ft
Point 31	168.5 ft	0 ft
Point 32	177.5 ft	-3 ft
Point 33	198.5 ft	-10 ft
Point 34	238.5 ft	-10 ft
Point 35	259.5 ft	-3 ft
Point 36	268.5 ft	0 ft
Point 37	108.5 ft	4 ft
Point 38	118.5 ft	4 ft
Point 39	138.5 ft	0 ft
Point 40	80.5 ft	0 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,512.5 ft²
Region 2	Sand Fill	2,40,37,38,39,3,27,30,29	64 ft²
Region 3	C. CL, el -10 to -15	6,7,22,23,34,33	1,512.5 ft²
Region 4	D. CL, el -15 to -20	7,8,21,22	1,512.5 ft²
Region 5	E. CH, el -20 to -26	8,9,20,21	1,815 ft²
Region 6	F. CH, el -26 to -30	9,10,19,20	1,210 ft²
Region 7	G. CL, el -30 to -35	10,11,18,19	1,512.5 ft²
Region 8	H. CH, el -35 to -40	11,12,17,18	1,512.5 ft²
Region 9	I. CL, el -40 to -49	12,13,16,17	2,722.5 ft²
Region 10	Ridge In-Situ	2,25,26,3,39,40	156 ft²
Region 11	A. CH, el 0 to -3	1,5,25,2	252 ft²
Region 12		32,33,34,35,36,4,28,27,3,31	1,199.5 ft²
Region 13	B. CL, el -3 to -10	5,6,33,32,26,25	1,316 ft²
Region 14	B. CL, el -3 to -10	23,24,35,34	374.5 ft²
Region 15	A. CH, el 0 to -3	24,4,36,35	115.5 ft²
Region 16	A. CH, el 0 to -3	3,26,32,31	111 ft²
Region 17	Ridge In-Situ	40,39,38,37	136 ft²

Slip Results

Slip Surfaces Analysed: 1231 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.81
Volume: 1,475.1167 ft³
Weight: 165,424.04 lbf
Resisting Moment: 1,823,335.5 lbf·ft
Activating Moment: 1,007,895.4 lbf·ft
Resisting Force: 22,225.135 lbf
Activating Force: 12,283.489 lbf
Slip Rank: 1 of 1,332 slip surfaces

Exit: (200.23635, -10) ft
Entry: (103.49833, 4.2854751) ft
Radius: 42.489116 ft
Center: (162.11741, 54.905814) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	103.91169 ft	3.8445278 ft	-191.37505 psf	42.145259 psf	22.409032 psf	0 psf	0 psf	Sand Fill
Slice 2	105.57449 ft	2.0708001 ft	-82.105344 psf	203.34639 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 3	107.16984 ft	0.36900992 ft	22.732694 psf	401.70131 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 4	108.00789 ft	-0.52494665 ft	77.804495 psf	505.89787 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 5	109.41407 ft	-2.0249466 ft	170.21134 psf	667.31026 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 6	111.31651 ft	-4.054316 ft	295.22974 psf	870.12514 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	113.63962 ft	-6.331474 ft	435.34716 psf	1,129.0048 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	116.30909 ft	-8.777158 ft	585.68064 psf	1,387.3587 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	118.07191 ft	-10.3922 ft	684.95548 psf	1,528.4094 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 10	119.52969 ft	-11.727765 ft	767.05121 psf	1,653.1668 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 11	122.53113 ft	-13.835565 ft	895.99815 psf	1,893.6927 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 12	126.46746 ft	-16.160183 ft	1,037.6577 psf	2,049.8015 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 13	128.46601 ft	-17.332338 ft	1,109.0754 psf	2,201.1393 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 14	130.7313 ft	-18.130357 ft	1,156.9008 psf	2,236.2043 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 15	134.94816 ft	-19.273071 ft	1,224.5268 psf	2,313.4119 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 16	137.75289 ft	-19.776886 ft	1,253.51 psf	2,303.1865 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 17	139.28603 ft	-19.894267 ft	1,259.4878 psf	2,344.2692 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 18	141.075 ft	-19.819677 ft	1,254.2024 psf	2,290.9703 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 19	142.825 ft	-19.746713 ft	1,249.6472 psf	2,247.3948 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 20	144.72331 ft	-19.667565 ft	1,244.7059 psf	2,229.8452 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20

Slice 21	147.16993 ft	-19.565556 ft	1,238.3375 psf	2,218.2864 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 22	150.18591 ft	-19.459184 ft	1,231.6967 psf	2,203.1057 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 23	153.77125 ft	-19.348451 ft	1,224.7836 psf	2,190.5674 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 24	156.76671 ft	-19.262668 ft	1,219.4281 psf	2,179.2446 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 25	160.03791 ft	-19.197595 ft	1,215.3657 psf	2,169.4317 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 26	162.14285 ft	-19.162948 ft	1,213.2026 psf	2,160.6443 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 27	163.75952 ft	-19.24408 ft	1,218.2677 psf	2,155.2337 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 28	166.91984 ft	-19.406324 ft	1,228.3966 psf	2,173.5056 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 29	169.93556 ft	-19.561145 ft	1,238.0621 psf	2,174.0447 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 30	172.80669 ft	-19.708542 ft	1,247.2642 psf	2,156.1147 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 31	175.87113 ft	-19.589475 ft	1,239.8308 psf	2,154.1054 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 32	179.51976 ft	-19.157685 ft	1,212.874 psf	2,052.4141 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 33	182.9921 ft	-18.484952 ft	1,170.8752 psf	1,969.1945 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 34	185.89726 ft	-17.617535 ft	1,116.7222 psf	1,821.6012 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 35	189.64897 ft	-16.091914 ft	1,021.4773 psf	1,629.3885 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 36	193.95079 ft	-14.048867 ft	893.92957 psf	1,298.2823 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 37	197.22674 ft	-12.176806 ft	777.05642 psf	1,066.1019 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 38	199.36817 ft	-10.627939 ft	680.36036 psf	841.22979 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15

C) A-2

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 49
Date: 07/02/2021
Time: 11:47:23 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w 1 ft sand cap to el 5.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:47:28 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

C) A-2

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (144, 0) ft
Left-Zone Right Coordinate: (165, 0) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (180.5, -4) ft
Right-Zone Right Coordinate: (244.25, -8.083333) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (302.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	148.5 ft	1 ft
	153.5 ft	1 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	158.5 ft	1 ft
	163.5 ft	1 ft

Geometry

Name: EL 0

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	73.5 ft	0 ft
Point 3	143.5 ft	0 ft
Point 4	302.5 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft

Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft
Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	302.5 ft	-54 ft
Point 16	302.5 ft	-49 ft
Point 17	302.5 ft	-40 ft
Point 18	302.5 ft	-35 ft
Point 19	302.5 ft	-30 ft
Point 20	302.5 ft	-26 ft
Point 21	302.5 ft	-20 ft
Point 22	302.5 ft	-15 ft
Point 23	302.5 ft	-10 ft
Point 24	302.5 ft	-3 ft
Point 25	94.5 ft	-3 ft
Point 26	128.5 ft	-3 ft
Point 27	128.5 ft	3 ft
Point 28	302.5 ft	3 ft
Point 29	108.5 ft	5 ft
Point 30	118.5 ft	5 ft
Point 31	168.5 ft	0 ft
Point 32	177.5 ft	-3 ft
Point 33	198.5 ft	-10 ft
Point 34	238.5 ft	-10 ft
Point 35	259.5 ft	-3 ft
Point 36	268.5 ft	0 ft
Point 37	108.5 ft	4 ft
Point 38	118.5 ft	4 ft
Point 39	138.5 ft	0 ft
Point 40	80.5 ft	0 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,512.5 ft²
Region 2	Sand Fill	2,40,37,38,39,3,27,30,29	64 ft²
Region 3	C. CL, el -10 to -15	6,7,22,23,34,33	1,512.5 ft²
Region 4	D. CL, el -15 to -20	7,8,21,22	1,512.5 ft²
Region 5	E. CH, el -20 to -26	8,9,20,21	1,815 ft²
Region 6	F. CH, el -26 to -30	9,10,19,20	1,210 ft²
Region 7	G. CL, el -30 to -35	10,11,18,19	1,512.5 ft²
Region 8	H. CH, el -35 to -40	11,12,17,18	1,512.5 ft²
Region 9	I. CL, el -40 to -49	12,13,16,17	2,722.5 ft²
Region 10	Ridge In-Situ	2,25,26,3,39,40	156 ft²
Region 11	A. CH, el 0 to -3	1,5,25,2	252 ft²
Region 12		32,33,34,35,36,4,28,27,3,31	1,199.5 ft²
Region 13	B. CL, el -3 to -10	5,6,33,32,26,25	1,316 ft²

Region 14	B. CL, el -3 to -10	23,24,35,34	374.5 ft²
Region 15	A. CH, el 0 to -3	24,4,36,35	115.5 ft²
Region 16	A. CH, el 0 to -3	3,26,32,31	111 ft²
Region 17	Ridge In-Situ	40,39,38,37	136 ft²

Slip Results

Slip Surfaces Analysed: 1277 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.73
Volume: 169.27592 ft³
Weight: 18,472.329 lbf
Resisting Moment: 92,292.767 lbf·ft
Activating Moment: 53,447.319 lbf·ft
Resisting Force: 3,930.4824 lbf
Activating Force: 2,276.1462 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (189.81482, -7.104941) ft
Entry: (158.51464, 0) ft
Radius: 15.048909 ft
Center: (175.82841, 11.48881) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	158.94688 ft	-0.67047475 ft	58.714016 psf	257.85573 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	159.81135 ft	-2.0114243 ft	142.42975 psf	375.84214 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	160.3687 ft	-2.8409495 ft	194.21716 psf	467.51974 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 4	160.7843 ft	-3.369318 ft	227.20331 psf	475.88267 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	161.42228 ft	-4.1684625 ft	277.09405 psf	560.22804 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	162.18967 ft	-5.0838315 ft	334.24071 psf	662.40381 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	163.02949 ft	-6.0549165 ft	394.86573 psf	761.11876 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	163.4747 ft	-6.5598897 ft	426.3913 psf	865.84357 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	163.51488 ft	-6.5907522 ft	428.31805 psf	625.54384 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	164.05094 ft	-6.771088 ft	439.57645 psf	701.43931 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 11	165.09328 ft	-7.108896 ft	460.66587 psf	738.22451 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	166.09537 ft	-7.4258837 ft	480.45547 psf	774.99876 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	167.05722 ft	-7.722051 ft	498.94525 psf	807.29424 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	168.01907 ft	-8.0182183 ft	517.43503 psf	839.58972 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	169.17076 ft	-8.3728385 ft	539.57403 psf	870.96093 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	170.48185 ft	-8.7070635 ft	560.43977 psf	908.6011 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	171.72274 ft	-8.9586012 ft	576.14332 psf	920.71332 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	172.92385 ft	-9.2062997 ft	591.60718 psf	933.90751 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	174.05154 ft	-9.3870423 ft	602.89097 psf	955.98643 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	175.10579 ft	-9.500829 ft	609.9947 psf	956.16976 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	176.16004 ft	-9.6146157 ft	617.09842 psf	956.35309 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	177.09358 ft	-9.6738378 ft	620.79567 psf	968.15559 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	177.90294 ft	-9.6784754 ft	621.0852 psf	957.42699 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	178.70883 ft	-9.6830931 ft	621.37348 psf	945.12655 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	179.69763 ft	-9.6142902 ft	617.0781 psf	941.79349 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	180.86934 ft	-9.4720665 ft	608.19905 psf	906.84592 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	182.04105 ft	-9.3298428 ft	599.32 psf	871.89835 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	183.22093 ft	-9.1255235 ft	586.5643 psf	845.35356 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	184.40897 ft	-8.8591085 ft	569.93197 psf	795.62868 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	185.40327 ft	-8.592459 ft	553.28499 psf	764.89682 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	186.20383 ft	-8.325575 ft	536.62337 psf	720.97804 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	187.13923 ft	-8.0109343 ft	516.98029 psf	670.0634 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	188.20947 ft	-7.648537 ft	494.35576 psf	610.67449 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 34	189.2797 ft	-7.2861397 ft	471.73123 psf	551.28559 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

D) B-1

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 47
Date: 07/01/2021
Time: 11:29:07 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w 1 ft sand cap to el 5.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 11:29:42 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

D) B-1

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (57, 0) ft
Left-Zone Right Coordinate: (92.92615, 2.775164) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (107.92253, 4.917504) ft
Right-Zone Right Coordinate: (135.51923, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (302.5, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	140 ft	0.27 ft
Coordinate 3	300 ft	0.27 ft

Geometry

Name: EL 0

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	73.5 ft	0 ft
Point 3	143.5 ft	0 ft
Point 4	302.5 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft
Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	302.5 ft	-54 ft
Point 16	302.5 ft	-49 ft
Point 17	302.5 ft	-40 ft
Point 18	302.5 ft	-35 ft
Point 19	302.5 ft	-30 ft
Point 20	302.5 ft	-26 ft
Point 21	302.5 ft	-20 ft
Point 22	302.5 ft	-15 ft
Point 23	302.5 ft	-10 ft
Point 24	302.5 ft	-3 ft
Point 25	94.5 ft	-3 ft
Point 26	128.5 ft	-3 ft
Point 27	128.5 ft	3 ft
Point 28	302.5 ft	3 ft
Point 29	108.5 ft	5 ft

Point 30	118.5 ft	5 ft
Point 31	168.5 ft	0 ft
Point 32	177.5 ft	-3 ft
Point 33	198.5 ft	-10 ft
Point 34	238.5 ft	-10 ft
Point 35	259.5 ft	-3 ft
Point 36	268.5 ft	0 ft
Point 37	108.5 ft	4 ft
Point 38	118.5 ft	4 ft
Point 39	138.5 ft	0 ft
Point 40	80.5 ft	0 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,512.5 ft²
Region 2	Sand Fill	2,40,37,38,39,3,27,30,29	64 ft²
Region 3	C. CL, el -10 to -15	6,7,22,23,34,33	1,512.5 ft²
Region 4	D. CL, el -15 to -20	7,8,21,22	1,512.5 ft²
Region 5	E. CH, el -20 to -26	8,9,20,21	1,815 ft²
Region 6	F. CH, el -26 to -30	9,10,19,20	1,210 ft²
Region 7	G. CL, el -30 to -35	10,11,18,19	1,512.5 ft²
Region 8	H. CH, el -35 to -40	11,12,17,18	1,512.5 ft²
Region 9	I. CL, el -40 to -49	12,13,16,17	2,722.5 ft²
Region 10	Ridge In-Situ	2,25,26,3,39,40	156 ft²
Region 11	A. CH, el 0 to -3	1,5,25,2	252 ft²
Region 12	Sand Fill	32,33,34,35,36,4,28,27,3,31	1,199.5 ft²
Region 13	B. CL, el -3 to -10	5,6,33,32,26,25	1,316 ft²
Region 14	B. CL, el -3 to -10	23,24,35,34	374.5 ft²
Region 15	A. CH, el 0 to -3	24,4,36,35	115.5 ft²
Region 16	A. CH, el 0 to -3	3,26,32,31	111 ft²
Region 17	Ridge In-Situ	40,39,38,37	136 ft²

Slip Results

Slip Surfaces Analysed: 1165 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.45
Volume: 450.7452 ft³
Weight: 49,747.775 lbf
Resisting Moment: 242,410.46 lbf·ft
Activating Moment: 167,177.87 lbf·ft
Resisting Force: 6,193.4008 lbf
Activating Force: 4,270.5416 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (67.832516, 0) ft

Entry: (119.05038, 4.8899241) ft
Radius: 22.696692 ft
Center: (91.295343, 24.790148) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	68.983668 ft	-1.002539 ft	79.44485 psf	164.75978 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	70.767215 ft	-2.502539 ft	173.09013 psf	317.97283 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	72.253225 ft	-3.67148 ft	246.06734 psf	492.55869 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	73.30342 ft	-4.4859617 ft	296.91559 psf	580.6704 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	74.445 ft	-5.3164019 ft	348.76013 psf	687.06506 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	75.811115 ft	-6.3101797 ft	410.80186 psf	820.35122 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	77.059992 ft	-7.0463107 ft	456.75866 psf	898.23968 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	78.715518 ft	-7.9058943 ft	510.42262 psf	1,028.3195 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	80.02164 ft	-8.4930443 ft	547.07851 psf	1,089.3138 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	81.445 ft	-8.9612638 ft	576.30954 psf	1,168.1254 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	82.580475 ft	-9.3347825 ft	599.62839 psf	1,230.7185 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	84.04097 ft	-9.633502 ft	618.2775 psf	1,265.7298 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	86.180355 ft	-9.934397 ft	637.06243 psf	1,317.5191 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	87.975899 ft	-9.9990779 ft	641.10047 psf	1,342.6566 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	89.828256 ft	-9.9987736 ft	641.08147 psf	1,374.3769 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	91.680614 ft	-9.9984694 ft	641.06248 psf	1,406.0972 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	93.532971 ft	-9.9981651 ft	641.04348 psf	1,437.8175 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 18	95.135802 ft	-9.9218195 ft	636.27722 psf	1,435.5992 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	96.468682 ft	-9.7717325 ft	626.90726 psf	1,439.7201 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	97.838882 ft	-9.5268868 ft	611.62149 psf	1,411.4114 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	99.266828 ft	-9.1849823 ft	590.27632 psf	1,395.7922 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	101.04259 ft	-8.5723778 ft	552.03131 psf	1,325.6156 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	103.16616 ft	-7.6890732 ft	496.88644 psf	1,261.7257 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	105.0484 ft	-6.739154 ft	437.58281 psf	1,154.6955 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	106.68929 ft	-5.72262 ft	374.1204 psf	1,069.9285 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	108.00487 ft	-4.8121888 ft	317.282 psf	963.81441 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	109.36799 ft	-3.7050123 ft	248.16077 psf	853.23444 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	110.87747 ft	-2.4789505 ft	171.6175 psf	730.95012 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 29	112.16046 ft	-1.4368515 ft	106.55906 psf	621.8851 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 30	113.34707 ft	-0.457901 ft	45.442997 psf	516.47562 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 31	114.05289 ft	0.135 ft	8.4280755 psf	454.52608 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 32	114.76341 ft	0.7318555 ft	-28.833726 psf	392.16335 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 33	116.02257 ft	1.8952832 ft	-101.46674 psf	257.09038 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 34	117.44126 ft	3.2984277 ft	-189.06532 psf	111.77459 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 35	118.3253 ft	4.1727867 ft	-243.65171 psf	67.864199 psf	36.084035 psf	0 psf	0 psf	Sand Fill
Slice 36	118.77519 ft	4.6177487 ft	-271.43077 psf	26.844429 psf	14.273436 psf	0 psf	0 psf	Sand Fill

E) A-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 47
Date: 07/01/2021
Time: 11:29:07 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w 1 ft sand cap to el 5.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 11:29:46 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

E) A-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (63.93, -0.224286) ft
Left-Zone Right Coordinate: (112.09615, 4.68077) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (125.09615, 2.08077) ft
Right-Zone Right Coordinate: (192.5, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (302.5, -1) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	75 ft	1.06 ft
Coordinate 3	132 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Geometry

Name: EL -1

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	302.5 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-1 ft
Point 25	140.5 ft	-1 ft
Point 26	120.5 ft	3 ft
Point 27	72.5 ft	-3 ft
Point 28	130.5 ft	-3 ft

Point 29	100.5 ft	5 ft
Point 30	110.5 ft	5 ft
Point 31	165.5 ft	-1 ft
Point 32	171.5 ft	-3 ft
Point 33	192.5 ft	-10 ft
Point 34	232.5 ft	-10 ft
Point 35	253.5 ft	-3 ft
Point 36	259.5 ft	-1 ft
Point 37	100.5 ft	4 ft
Point 38	110.5 ft	4 ft
Point 39	65.5 ft	-1 ft
Point 40	135.5 ft	-1 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Sand Fill	24,39,37,38,40,25,26,30,29	76 ft²
Region 10	Ridge In-Situ	24,27,28,25,40,39	140 ft²
Region 11	A. CH, el 0 to -3	3,27,24,1	131 ft²
Region 12		32,33,34,35,36,2,23,26,25,31	1,291 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,274 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	416.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	92 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	66 ft²
Region 17	Ridge In-Situ	37,39,40,38	200 ft²

Slip Results

Slip Surfaces Analysed: 1159 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.28
Volume: 372.43338 ft³
Weight: 41,319.519 lbf
Resisting Moment: 171,144.53 lbf·ft
Activating Moment: 133,433.08 lbf·ft
Resisting Force: 5,455.5861 lbf
Activating Force: 4,253.0183 lbf
Slip Rank: 1 of 1,332 slip surfaces

Exit: (144.9719, -1) ft
Entry: (100.06347, 4.9376383) ft
Radius: 20.855985 ft
Center: (126.12809, 17.455294) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	100.28173 ft	4.7111037 ft	-249.81438 psf	20.079696 psf	10.676563 psf	0 psf	0 psf	Sand Fill
Slice 2	100.73344 ft	4.2422845 ft	-220.93675 psf	59.036797 psf	31.390422 psf	0 psf	0 psf	Sand Fill
Slice 3	101.54271 ft	3.402357 ft	-169.20015 psf	87.654358 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 4	102.68617 ft	2.266705 ft	-99.290569 psf	212.49387 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 5	103.82142 ft	1.190687 ft	-33.096856 psf	323.11797 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 6	104.90893 ft	0.15993152 ft	30.312432 psf	429.08869 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 7	105.8138 ft	-0.6664075 ft	81.117981 psf	523.79307 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 8	106.77585 ft	-1.5 ft	132.32689 psf	609.97726 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 9	107.92996 ft	-2.5 ft	193.75848 psf	713.36614 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 10	109.09537 ft	-3.509797 ft	255.79191 psf	810.01972 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	110.09186 ft	-4.354824 ft	307.68488 psf	906.102 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	110.65587 ft	-4.818081 ft	336.11809 psf	951.78833 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	111.60046 ft	-5.5032875 ft	378.07834 psf	1,023.7132 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	113.1779 ft	-6.6176465 ft	446.28309 psf	1,109.353 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	114.6192 ft	-7.4770677 ft	498.68981 psf	1,214.8501 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	115.92436 ft	-8.081551 ft	535.29852 psf	1,252.5501 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	117.22953 ft	-8.6860343 ft	571.90722 psf	1,290.2501 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	118.53658 ft	-9.1561641 ft	600.12656 psf	1,353.5526 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	119.84553 ft	-9.4919402 ft	619.95655 psf	1,362.1991 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 20	120.68863 ft	-9.7082151 ft	632.72914 psf	1,367.7683 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	121.8746 ft	-9.8764885 ft	642.2083 psf	1,387.912 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	123.5674 ft	-9.9946498 ft	648.12042 psf	1,388.8978 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	124.9583 ft	-9.9911993 ft	646.70151 psf	1,357.9059 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	126.34919 ft	-9.9877488 ft	645.28261 psf	1,326.914 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	127.74009 ft	-9.9842983 ft	643.8637 psf	1,295.9221 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	128.68667 ft	-9.937546 ft	640.12592 psf	1,304.7997 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	129.7189 ft	-9.7524675 ft	627.67829 psf	1,260.7794 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	131.09518 ft	-9.5057005 ft	611.08173 psf	1,200.8803 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	131.84518 ft	-9.3354913 ft	599.80659 psf	1,207.8646 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	133.075 ft	-8.831126 ft	568.18501 psf	1,119.1758 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	134.71128 ft	-8.1600682 ft	526.29075 psf	1,008.5088 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	135.38628 ft	-7.8632592 ft	507.76091 psf	998.04354 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	136.24539 ft	-7.3599708 ft	476.34052 psf	928.17581 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 34	137.73616 ft	-6.4866396 ft	421.81828 psf	806.73158 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 35	139.49078 ft	-5.3242255 ft	349.24856 psf	669.03862 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 36	140.51442 ft	-4.588111 ft	303.29279 psf	567.59667 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 37	141.52693 ft	-3.7888725 ft	253.39618 psf	483.37339 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 38	142.64117 ft	-2.908205 ft	198.41594 psf	329.74279 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 39	143.8646 ft	-1.908205 ft	135.98575 psf	225.55695 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

F) A-1b

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 47
Date: 07/01/2021
Time: 11:29:07 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w 1 ft sand cap to el 5.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 11:29:54 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

F) A-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (63.93, -0.224286) ft
Left-Zone Right Coordinate: (113.09615, 4.48077) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (192.5, -10) ft
Right-Zone Right Coordinate: (234.25, -9.416667) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (302.5, -1) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	75 ft	1.06 ft
Coordinate 3	132 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Geometry

Name: EL -1

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	302.5 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-1 ft
Point 25	140.5 ft	-1 ft
Point 26	120.5 ft	3 ft
Point 27	72.5 ft	-3 ft
Point 28	130.5 ft	-3 ft

Point 29	100.5 ft	5 ft
Point 30	110.5 ft	5 ft
Point 31	165.5 ft	-1 ft
Point 32	171.5 ft	-3 ft
Point 33	192.5 ft	-10 ft
Point 34	232.5 ft	-10 ft
Point 35	253.5 ft	-3 ft
Point 36	259.5 ft	-1 ft
Point 37	100.5 ft	4 ft
Point 38	110.5 ft	4 ft
Point 39	65.5 ft	-1 ft
Point 40	135.5 ft	-1 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Sand Fill	24,39,37,38,40,25,26,30,29	76 ft²
Region 10	Ridge In-Situ	24,27,28,25,40,39	140 ft²
Region 11	A. CH, el 0 to -3	3,27,24,1	131 ft²
Region 12		32,33,34,35,36,2,23,26,25,31	1,291 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,274 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	416.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	92 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	66 ft²
Region 17	Ridge In-Situ	37,39,40,38	200 ft²

Slip Results

Slip Surfaces Analysed: 1239 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.70
Volume: 1,139.6361 ft³
Weight: 127,993.77 lbf
Resisting Moment: 2,513,621.3 lbf·ft
Activating Moment: 1,478,302.2 lbf·ft
Resisting Force: 17,731.482 lbf
Activating Force: 10,427.777 lbf
Slip Rank: 1 of 1,332 slip surfaces

Exit: (192.5, -10) ft
Entry: (97.236705, 4.533815) ft
Radius: 40.691952 ft
Center: (156.21293, 119.80034) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	97.653789 ft	4.0933984 ft	-208.97706 psf	41.667153 psf	22.154818 psf	0 psf	0 psf	Sand Fill
Slice 2	98.697136 ft	2.9916829 ft	-141.09952 psf	122.06936 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 3	99.9117 ft	1.762776 ft	-65.429549 psf	273.45777 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 4	100.75689 ft	0.94731307 ft	-15.251354 psf	366.39759 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 5	101.89449 ft	-0.15027094 ft	52.286706 psf	479.80346 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 6	103.81165 ft	-2 ft	166.1068 psf	670.92333 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 7	105.99956 ft	-4.1109545 ft	296.00097 psf	883.68147 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	108.82551 ft	-6.5077585 ft	443.18872 psf	1,164.3936 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	111.93663 ft	-8.896804 ft	589.64534 psf	1,388.8182 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	113.9358 ft	-10.431968 ft	683.75615 psf	1,484.7152 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 11	116.3191 ft	-11.87361 ft	771.69589 psf	1,640.0561 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 12	119.31994 ft	-13.26118 ft	855.72565 psf	1,785.1765 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 13	121.89276 ft	-14.085091 ft	904.9364 psf	1,823.3297 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 14	124.94522 ft	-14.765075 ft	944.74679 psf	1,877.5197 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 15	127.77136 ft	-14.999128 ft	956.91341 psf	1,876.7875 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 16	129.7189 ft	-14.999264 ft	955.23681 psf	1,833.9576 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 17	131.25 ft	-14.999372 ft	953.91871 psf	1,798.786 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 18	133.075 ft	-14.9995 ft	953.27776 psf	1,755.0011 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 19	134.825 ft	-14.999623 ft	953.28542 psf	1,721.5564 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15

Slice 20	137.65297 ft	-14.999821 ft	953.2978 psf	1,687.3385 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 21	140.15297 ft	-14.999438 ft	953.27391 psf	1,656.7951 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 22	141.99826 ft	-14.9966 ft	953.09671 psf	1,651.1185 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 23	144.99479 ft	-14.991991 ft	952.80896 psf	1,650.5838 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 24	147.99132 ft	-14.987382 ft	952.52121 psf	1,650.0491 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 25	150.54334 ft	-14.984671 ft	952.35199 psf	1,649.4716 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 26	153.15915 ft	-14.986258 ft	952.45103 psf	1,649.2768 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 27	156.28325 ft	-14.990243 ft	952.69982 psf	1,649.739 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 28	159.40735 ft	-14.994227 ft	952.9486 psf	1,650.2013 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 29	163.2347 ft	-14.997548 ft	953.15592 psf	1,650.7437 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 30	166.20542 ft	-14.99929 ft	953.26468 psf	1,644.2097 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 31	169.20542 ft	-14.999709 ft	953.29083 psf	1,608.2153 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 32	173.25838 ft	-14.999719 ft	953.29142 psf	1,552.3095 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 33	176.77515 ft	-14.999727 ft	953.29193 psf	1,495.8359 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 34	180.00321 ft	-14.803296 ft	941.02868 psf	1,449.914 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 35	183.65534 ft	-14.026521 ft	892.5345 psf	1,327.3781 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 36	187.50333 ft	-12.584637 ft	802.51738 psf	1,143.8841 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 37	190.83444 ft	-10.861546 ft	694.94448 psf	881.41916 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15

G) A-2

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 47
Date: 07/01/2021
Time: 11:29:07 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w 1 ft sand cap to el 5.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 11:29:54 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

G) A-2

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (142, -1) ft
Left-Zone Right Coordinate: (162, -1) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (178.25, -5.25) ft
Right-Zone Right Coordinate: (232, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (302.5, -1) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	145.5 ft	0 ft
	150.5 ft	0 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	155.5 ft	0 ft
	160.5 ft	0 ft

Geometry

Name: EL -1

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	302.5 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft

Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-1 ft
Point 25	140.5 ft	-1 ft
Point 26	120.5 ft	3 ft
Point 27	72.5 ft	-3 ft
Point 28	130.5 ft	-3 ft
Point 29	100.5 ft	5 ft
Point 30	110.5 ft	5 ft
Point 31	165.5 ft	-1 ft
Point 32	171.5 ft	-3 ft
Point 33	192.5 ft	-10 ft
Point 34	232.5 ft	-10 ft
Point 35	253.5 ft	-3 ft
Point 36	259.5 ft	-1 ft
Point 37	100.5 ft	4 ft
Point 38	110.5 ft	4 ft
Point 39	65.5 ft	-1 ft
Point 40	135.5 ft	-1 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Sand Fill	24,39,37,38,40,25,26,30,29	76 ft²
Region 10	Ridge In-Situ	24,27,28,25,40,39	140 ft²
Region 11	A. CH, el 0 to -3	3,27,24,1	131 ft²
Region 12		32,33,34,35,36,2,23,26,25,31	1,291 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,274 ft²

Region 14	B. CL, el -3 to -10	21,22,35,34	416.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	92 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	66 ft²
Region 17	Ridge In-Situ	37,39,40,38	200 ft²

Slip Results

Slip Surfaces Analysed: 1239 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.75
Volume: 160.32215 ft³
Weight: 17,660.203 lbf
Resisting Moment: 90,978.019 lbf·ft
Activating Moment: 51,941.908 lbf·ft
Resisting Force: 3,986.6096 lbf
Activating Force: 2,276.0138 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (186.91808, -8.1393613) ft
Entry: (155.5025, -1) ft
Radius: 14.929734 ft
Center: (172.81742, 10.271325) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	155.97707 ft	-1.7202135 ft	124.2494 psf	323.49763 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	156.6729 ft	-2.7202135 ft	186.67959 psf	428.19997 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	157.45173 ft	-3.7050388 ft	248.16242 psf	482.37424 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	158.56685 ft	-5.1151163 ft	336.19382 psf	626.0481 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	159.81221 ft	-6.6111058 ft	429.58874 psf	792.6855 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	160.5046 ft	-7.4073523 ft	479.29855 psf	636.00271 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	161.00039 ft	-7.5500003 ft	488.2041 psf	757.33581 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	161.98275	-7.824705	505.35396	787.44216	0 psf	130 psf	0 psf	B. CL, el -3

8	ft	ft	psf	psf				to -10
Slice 9	162.96512 ft	-8.0994097 ft	522.50382 psf	817.54852 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	163.96723 ft	-8.3783738 ft	539.91961 psf	848.46185 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	164.98908 ft	-8.6615973 ft	557.6013 psf	879.50772 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	165.69676 ft	-8.8577445 ft	569.84681 psf	900.73134 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	166.36848 ft	-9.030935 ft	580.65913 psf	915.75 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	167.3184 ft	-9.268245 ft	595.47443 psf	930.65742 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	168.20975 ft	-9.4627438 ft	607.61703 psf	951.43151 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	169.04254 ft	-9.6144312 ft	617.08691 psf	958.34577 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	169.91922 ft	-9.744949 ft	625.23515 psf	971.80379 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	170.83979 ft	-9.854297 ft	632.06177 psf	973.01194 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	171.40004 ft	-9.9174637 ft	636.00528 psf	978.43156 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	171.67572 ft	-9.9408862 ft	637.46755 psf	977.0587 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	172.36234 ft	-9.9775265 ft	639.75501 psf	976.59985 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	173.36383 ft	-9.9992723 ft	641.11261 psf	969.43213 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	174.34502 ft	-9.9993429 ft	641.11701 psf	953.76162 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	175.32622 ft	-9.9994134 ft	641.12142 psf	938.09111 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	176.30741 ft	-9.999484 ft	641.12582 psf	922.4206 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	177.2886 ft	-9.9995546 ft	641.13023 psf	906.75009 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	178.2698 ft	-9.9996251 ft	641.13463 psf	891.07958 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 28	179.25099 ft	-9.9996957 ft	641.13904 psf	875.40908 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	180.49618 ft	-9.9272385 ft	636.61552 psf	861.02791 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	181.83611 ft	-9.7362195 ft	624.69017 psf	832.86417 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	183.0068 ft	-9.4991665 ft	609.89091 psf	786.87722 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	184.06605 ft	-9.218991 ft	592.3995 psf	756.60699 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	185.01387 ft	-8.895693 ft	572.21594 psf	703.84018 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 34	186.20293 ft	-8.4367027 ft	543.56109 psf	641.05183 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

H) B-1

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 47
Date: 07/01/2021
Time: 11:29:07 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w 1 ft sand cap to el 5.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 11:29:48 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

H) B-1

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (34, -1) ft
Left-Zone Right Coordinate: (77.93, 1.775714) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (99.93, 4.918571) ft
Right-Zone Right Coordinate: (145, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (302.5, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Geometry

Name: EL -1

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	302.5 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-1 ft
Point 25	140.5 ft	-1 ft
Point 26	120.5 ft	3 ft
Point 27	72.5 ft	-3 ft
Point 28	130.5 ft	-3 ft
Point 29	100.5 ft	5 ft
Point 30	110.5 ft	5 ft

Point 31	165.5 ft	-1 ft
Point 32	171.5 ft	-3 ft
Point 33	192.5 ft	-10 ft
Point 34	232.5 ft	-10 ft
Point 35	253.5 ft	-3 ft
Point 36	259.5 ft	-1 ft
Point 37	100.5 ft	4 ft
Point 38	110.5 ft	4 ft
Point 39	65.5 ft	-1 ft
Point 40	135.5 ft	-1 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Sand Fill	24,39,37,38,40,25,26,30,29	76 ft²
Region 10	Ridge In-Situ	24,27,28,25,40,39	140 ft²
Region 11	A. CH, el 0 to -3	3,27,24,1	131 ft²
Region 12	Sand Fill	32,33,34,35,36,2,23,26,25,31	1,291 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,274 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	416.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	92 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	66 ft²
Region 17	Ridge In-Situ	37,39,40,38	200 ft²

Slip Results

Slip Surfaces Analysed: 1216 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.45
Volume: 473.99354 ft³
Weight: 52,666.385 lbf
Resisting Moment: 265,765.99 lbf·ft
Activating Moment: 183,608.81 lbf·ft
Resisting Force: 6,565.6039 lbf
Activating Force: 4,535.5292 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (56.928356, -1) ft
Entry: (110.5344, 4.9931191) ft

Radius: 23.729628 ft
Center: (79.83168, 25.72041) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	57.714178 ft	-1.6179265 ft	117.86361 psf	185.90151 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	58.985886 ft	-2.6179265 ft	180.2938 psf	296.61227 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	60.205576 ft	-3.5770225 ft	240.17034 psf	459.78937 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	62.14714 ft	-4.9784885 ft	327.66413 psf	629.05011 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	64.42745 ft	-6.3804572 ft	415.1893 psf	793.16423 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	66.34148 ft	-7.4110857 ft	479.53163 psf	929.73302 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	67.28648 ft	-7.9038274 ft	510.29359 psf	970.23135 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	68.176292 ft	-8.2445416 ft	531.56444 psf	1,024.0558 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	69.748877 ft	-8.8466932 ft	569.15688 psf	1,120.8699 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	71.517585 ft	-9.3780872 ft	602.33191 psf	1,187.5502 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	72.600005 ft	-9.6318507 ft	618.17441 psf	1,235.1108 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	73.52292 ft	-9.776586 ft	627.21026 psf	1,251.1559 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	75.02538 ft	-9.9483655 ft	637.93449 psf	1,281.6146 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	76.585797 ft	-9.9986066 ft	641.07105 psf	1,298.8527 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	78.34753 ft	-9.9981098 ft	641.04003 psf	1,326.4809 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	80.109263 ft	-9.9976129 ft	641.00901 psf	1,354.1091 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 17	81.870997 ft	-9.9971161 ft	640.97799 psf	1,381.7373 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	83.63273 ft	-9.9966193 ft	640.94698 psf	1,409.3656 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	85.394463 ft	-9.9961224 ft	640.91596 psf	1,436.9938 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	87.502135 ft	-9.834579 ft	630.83077 psf	1,428.0336 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	89.82233 ft	-9.3574228 ft	601.04182 psf	1,383.1161 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	92.00911 ft	-8.7257003 ft	561.60326 psf	1,347.3989 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	94.040935 ft	-7.9503467 ft	513.1978 psf	1,259.633 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	95.917805 ft	-7.0313622 ft	455.82542 psf	1,188.4699 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	97.540083 ft	-6.1178095 ft	398.79215 psf	1,086.8783 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	98.907768 ft	-5.2096885 ft	342.09799 psf	1,009.9863 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	100.04581 ft	-4.4007868 ft	291.5981 psf	923.42643 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	101.1694 ft	-3.5229728 ft	236.79601 psf	836.66355 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	102.83245 ft	-2.223714 ft	155.68304 psf	706.73396 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 30	104.06403 ft	-1.223714 ft	93.252847 psf	584.28227 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 31	104.97737 ft	-0.365 ft	39.64317 psf	495.27436 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 32	106.17851 ft	0.764313 ft	-30.860054 psf	378.21816 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 33	107.40717 ft	1.9439695 ft	-104.50623 psf	252.79417 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 34	108.81296 ft	3.3146565 ft	-190.07848 psf	111.02202 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 35	110.00793 ft	4.4797869 ft	-262.81779 psf	42.798062 psf	22.756133 psf	0 psf	0 psf	Sand Fill

Slice 36	110.5172 ft	4.9763465 ft	-293.8181 psf	1.6629367 psf	0.88419911 psf	0 psf	0 psf	Sand Fill

I) A-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 47
Date: 07/01/2021
Time: 11:29:07 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w 1 ft sand cap to el 5.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 11:29:44 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

I) A-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (58, -2) ft
Left-Zone Right Coordinate: (119.09615, 4.68077) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (132.41998, 2.016004) ft
Right-Zone Right Coordinate: (201.5, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (302.5, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	83 ft	1.06 ft
Coordinate 3	139 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Geometry

Name: El -2

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	302.5 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-2 ft
Point 25	152.5 ft	-2 ft
Point 26	127.5 ft	3 ft
Point 27	65.5 ft	-3 ft
Point 28	147.5 ft	-3 ft

Point 29	107.5 ft	5 ft
Point 30	117.5 ft	5 ft
Point 31	177.5 ft	-2 ft
Point 32	180.5 ft	-3 ft
Point 33	201.5 ft	-10 ft
Point 34	241.5 ft	-10 ft
Point 35	262.5 ft	-3 ft
Point 36	265.5 ft	-2 ft
Point 37	107.5 ft	4 ft
Point 38	117.5 ft	4 ft
Point 39	147.5 ft	-2 ft
Point 40	65.5 ft	-2 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Sand Fill	24,40,37,38,39,25,26,30,29	88 ft²
Region 10		2,23,26,25,31,32,33,34,35,36	1,324.5 ft²
Region 11	Ridge In-Situ	24,27,28,25,39,40	88 ft²
Region 12	A. CH, el 0 to -3	3,27,24,1	62 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,337 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	353.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	38.5 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	29 ft²
Region 17	Ridge In-Situ	37,40,39,38	276 ft²

Slip Results

Slip Surfaces Analysed: 1089 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.27
Volume: 396.93868 ft³
Weight: 44,217.719 lbf
Resisting Moment: 216,352.48 lbf·ft
Activating Moment: 170,373.59 lbf·ft
Resisting Force: 5,802.9894 lbf
Activating Force: 4,569.4336 lbf
Slip Rank: 1 of 1,332 slip surfaces

Exit: (153.08458, -2) ft
Entry: (106.31133, 4.8301895) ft
Radius: 21.63599 ft
Center: (133.28977, 23.372304) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	106.61628 ft	4.3510248 ft	-226.25843 psf	34.461776 psf	18.323652 psf	0 psf	0 psf	Sand Fill
Slice 2	107.21062 ft	3.6075899 ft	-180.36909 psf	72.734079 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 3	108.17522 ft	2.7267027 ft	-126.22467 psf	167.6727 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 4	109.52565 ft	1.4934682 ft	-50.422952 psf	294.62783 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 5	110.31718 ft	0.77492138 ft	-6.2610474 psf	372.68805 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 6	111.08264 ft	0.10412282 ft	34.942889 psf	441.9226 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 7	112.38092 ft	-1.0336151 ft	104.82867 psf	559.35094 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 8	113.27633 ft	-1.801242 ft	151.96316 psf	647.62394 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 9	114.14213 ft	-2.5 ft	194.82423 psf	720.09777 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 10	115.44625 ft	-3.5525052 ft	259.38378 psf	822.15101 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	116.81542 ft	-4.6575155 ft	327.16394 psf	938.84436 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	117.61657 ft	-5.3041003 ft	366.82477 psf	1,004.7081 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	118.6625 ft	-6.0343315 ft	411.49208 psf	1,081.3335 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	120.3471 ft	-7.0703062 ft	474.68453 psf	1,184.6597 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	121.85757 ft	-7.8699528 ft	523.27632 psf	1,238.8372 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	123.23076 ft	-8.5050273 ft	561.71476 psf	1,306.8589 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	124.46666 ft	-8.9755297 ft	589.99985 psf	1,331.6569 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	125.68846 ft	-9.3391665 ft	611.62571 psf	1,378.7567 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	126.89615 ft	-9.5959376 ft	626.59235 psf	1,380.9114 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 20	127.66804 ft	-9.7600506 ft	636.15814 psf	1,382.2885 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	128.96731 ft	-9.8975495 ft	643.59794 psf	1,394.3012 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	130.82794 ft	-9.9992069 ft	648.30576 psf	1,383.4086 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	132.28673 ft	-9.9989788 ft	647.00674 psf	1,351.2892 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	133.74553 ft	-9.9987507 ft	645.70772 psf	1,319.1698 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	135.20432 ft	-9.9985225 ft	644.4087 psf	1,287.0504 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	136.19415 ft	-9.9983677 ft	643.52728 psf	1,265.2566 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	137.09094 ft	-9.8717717 ft	634.83405 psf	1,270.6405 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	138.36364 ft	-9.618661 ft	617.91142 psf	1,213.4387 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	139.60035 ft	-9.3727118 ft	601.99632 psf	1,157.8555 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	140.67534 ft	-9.0653743 ft	582.80918 psf	1,136.4482 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	142.00121 ft	-8.5403867 ft	550.0341 psf	1,056.9046 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	143.70363 ft	-7.8662989 ft	507.95067 psf	962.73067 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	145.29113 ft	-7.1336204 ft	462.20942 psf	887.51921 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 34	146.76371 ft	-6.3423512 ft	412.81033 psf	780.86199 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 35	147.84019 ft	-5.7639178 ft	376.69862 psf	701.83 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 36	148.83102 ft	-5.1639865 ft	339.2448 psf	635.31591 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 37	150.62728 ft	-3.873427 ft	258.67493 psf	477.8165 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 38	152.13646 ft	-2.7228381 ft	186.84345 psf	275.96402 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 39	152.79229 ft	-2.2228381 ft	155.62835 psf	215.92034 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

J) A-1b

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 47
Date: 07/01/2021
Time: 11:29:07 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w 1 ft sand cap to el 5.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 11:29:56 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

J) A-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (40, -2) ft
Left-Zone Right Coordinate: (119.09615, 4.68077) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (201.5, -10) ft
Right-Zone Right Coordinate: (246.25, -8.416667) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (302.5, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	83 ft	1.06 ft
Coordinate 3	139 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Geometry

Name: El -2

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	302.5 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-2 ft
Point 25	152.5 ft	-2 ft
Point 26	127.5 ft	3 ft
Point 27	65.5 ft	-3 ft
Point 28	147.5 ft	-3 ft

Point 29	107.5 ft	5 ft
Point 30	117.5 ft	5 ft
Point 31	177.5 ft	-2 ft
Point 32	180.5 ft	-3 ft
Point 33	201.5 ft	-10 ft
Point 34	241.5 ft	-10 ft
Point 35	262.5 ft	-3 ft
Point 36	265.5 ft	-2 ft
Point 37	107.5 ft	4 ft
Point 38	117.5 ft	4 ft
Point 39	147.5 ft	-2 ft
Point 40	65.5 ft	-2 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Sand Fill	24,40,37,38,39,25,26,30,29	88 ft²
Region 10		2,23,26,25,31,32,33,34,35,36	1,324.5 ft²
Region 11	Ridge In-Situ	24,27,28,25,39,40	88 ft²
Region 12	A. CH, el 0 to -3	3,27,24,1	62 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,337 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	353.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	38.5 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	29 ft²
Region 17	Ridge In-Situ	37,40,39,38	276 ft²

Slip Results

Slip Surfaces Analysed: 1233 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.86
Volume: 1,490.9703 ft³
Weight: 168,243.96 lbf
Resisting Moment: 2,623,917.9 lbf·ft
Activating Moment: 1,407,698.1 lbf·ft
Resisting Force: 23,132.212 lbf
Activating Force: 12,407.873 lbf
Slip Rank: 1 of 1,332 slip surfaces

Exit: (203.17594, -10) ft
Entry: (102.86187, 4.3374098) ft
Radius: 43.853448 ft
Center: (161.42161, 86.198767) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	103.27467 ft	3.8963815 ft	-194.93197 psf	42.439184 psf	22.565314 psf	0 psf	0 psf	Sand Fill
Slice 2	104.9619 ft	2.0937774 ft	-83.881022 psf	208.57031 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 3	106.86817 ft	0.057165744 ft	41.58616 psf	446.30485 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 4	108.14684 ft	-1.3089351 ft	125.74596 psf	596.25609 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 5	109.26167 ft	-2.5 ft	199.12251 psf	718.89153 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 6	110.45647 ft	-3.7764985 ft	277.76228 psf	844.21059 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	112.68502 ft	-5.9147478 ft	409.29088 psf	1,089.4674 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	115.68851 ft	-8.6382493 ft	576.67438 psf	1,377.7753 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	117.34513 ft	-10.140436 ft	668.99717 psf	1,507.4082 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 10	118.82981 ft	-11.486719 ft	751.73832 psf	1,627.3627 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 11	121.95183 ft	-13.846284 ft	896.29676 psf	1,877.6896 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 12	124.81747 ft	-15.691012 ft	1,008.9397 psf	2,002.7471 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 13	126.69545 ft	-16.741918 ft	1,072.894 psf	2,129.1324 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 14	128.74563 ft	-17.659014 ft	1,128.3429 psf	2,186.032 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 15	131.71132 ft	-18.750261 ft	1,193.8577 psf	2,280.4486 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 16	134.68255 ft	-19.484637 ft	1,237.0882 psf	2,340.3639 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 17	136.77507 ft	-19.819681 ft	1,256.1621 psf	2,332.2712 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 18	138.05594 ft	-19.977054 ft	1,264.8588 psf	2,353.1463 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 19	138.74772 ft	-19.999711 ft	1,265.6641 psf	2,355.4422 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 20	140.075 ft	-19.999703 ft	1,265.4414 psf	2,326.241 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice	142.7375	-19.999686	1,265.4403	2,287.7393				D. CL, el -

21	ft	ft	psf	psf	0 psf	260 psf	0 psf	15 to -20
Slice 22	145.9125 ft	-19.999665 ft	1,265.439 psf	2,258.0374 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 23	149.39367 ft	-19.999643 ft	1,265.4376 psf	2,219.7902 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 24	151.79575 ft	-19.992383 ft	1,264.9844 psf	2,193.2809 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 25	152.40208 ft	-19.981717 ft	1,264.3185 psf	2,190.3582 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 26	154.16632 ft	-19.920124 ft	1,260.4733 psf	2,180.3529 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 27	157.49895 ft	-19.803775 ft	1,253.2095 psf	2,167.176 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 28	160.83158 ft	-19.687425 ft	1,245.9458 psf	2,153.9991 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 29	164.16421 ft	-19.571076 ft	1,238.6821 psf	2,140.8221 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 30	167.49684 ft	-19.454727 ft	1,231.4184 psf	2,127.6452 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 31	171.24737 ft	-19.32046 ft	1,223.0361 psf	2,112.8786 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 32	175.41579 ft	-19.168277 ft	1,213.5353 psf	2,095.6417 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 33	178.63941 ft	-19.050587 ft	1,206.1879 psf	2,071.5449 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 34	180.13941 ft	-18.976491 ft	1,201.5621 psf	2,059.5675 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 35	182.26363 ft	-18.785049 ft	1,189.6103 psf	2,004.9053 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 36	185.49182 ft	-18.204392 ft	1,153.3598 psf	1,939.1381 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 37	188.42094 ft	-17.360967 ft	1,100.7046 psf	1,794.0598 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 38	192.24572 ft	-15.969627 ft	1,013.843 psf	1,601.5194 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 39	196.12488 ft	-14.375993 ft	914.3521 psf	1,334.9015 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 40	199.5719 ft	-12.44432 ft	793.75737 psf	1,096.5867 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 41	202.33797 ft	-10.568327 ft	676.63878 psf	822.40052 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15

K) A-2

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 49
Date: 07/02/2021
Time: 11:47:23 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w 1 ft sand cap to el 5.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:47:28 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

K) A-2

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (152.01923, -1.903846) ft
Left-Zone Right Coordinate: (174, -2) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (186.5, -5) ft
Right-Zone Right Coordinate: (245.25, -8.75) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (302.5, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	157.5 ft	-1 ft
	162.5 ft	-1 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	167.5 ft	-1 ft
	172.5 ft	-1 ft

Geometry

Name: El -2

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	302.5 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft

Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-2 ft
Point 25	152.5 ft	-2 ft
Point 26	127.5 ft	3 ft
Point 27	65.5 ft	-3 ft
Point 28	147.5 ft	-3 ft
Point 29	107.5 ft	5 ft
Point 30	117.5 ft	5 ft
Point 31	177.5 ft	-2 ft
Point 32	180.5 ft	-3 ft
Point 33	201.5 ft	-10 ft
Point 34	241.5 ft	-10 ft
Point 35	262.5 ft	-3 ft
Point 36	265.5 ft	-2 ft
Point 37	107.5 ft	4 ft
Point 38	117.5 ft	4 ft
Point 39	147.5 ft	-2 ft
Point 40	65.5 ft	-2 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Sand Fill	24,40,37,38,39,25,26,30,29	88 ft²
Region 10		2,23,26,25,31,32,33,34,35,36	1,324.5 ft²
Region 11	Ridge In-Situ	24,27,28,25,39,40	88 ft²
Region 12	A. CH, el 0 to -3	3,27,24,1	62 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,337 ft²

Region 14	B. CL, el -3 to -10	21,22,35,34	353.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	38.5 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	29 ft²
Region 17	Ridge In-Situ	37,40,39,38	276 ft²

Slip Results

Slip Surfaces Analysed: 1194 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.83
Volume: 131.98714 ft³
Weight: 14,648.726 lbf
Resisting Moment: 72,446.832 lbf·ft
Activating Moment: 39,639.853 lbf·ft
Resisting Force: 3,527.7267 lbf
Activating Force: 1,930.0066 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (195.01079, -7.8369291) ft
Entry: (167.49339, -2) ft
Radius: 12.995243 ft
Center: (182.25885, 8.0780887) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	167.49669 ft	-2.0046726 ft	142.00824 psf	89.440396 psf	-0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	167.85052 ft	-2.5046726 ft	173.22333 psf	372.29794 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	168.53511 ft	-3.4720885 ft	233.61929 psf	418.72822 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	169.25766 ft	-4.4407855 ft	294.09523 psf	530.9061 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	169.99262 ft	-5.3618093 ft	351.59491 psf	631.422 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	170.68556 ft	-6.2106398 ft	404.58756 psf	719.19045 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	171.39903 ft	-7.0373012 ft	456.19619 psf	819.75385 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	172.13301	-	506.4208	903.61534				B. CL, el -3

8	ft	7.8417935 ft	psf	psf	0 psf	130 psf	0 psf	to -10
Slice 9	172.51496 ft	-8.2604423 ft	532.55712 psf	705.26671 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	172.98461 ft	-8.3800555 ft	540.0246 psf	820.32523 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	173.94689 ft	-8.5960098 ft	553.50666 psf	844.762 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	174.96206 ft	-8.8214974 ft	567.5839 psf	869.64137 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	175.97724 ft	-9.046985 ft	581.66113 psf	894.52073 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	176.99241 ft	-9.2724727 ft	595.73837 psf	919.40009 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	177.50433 ft	-9.3861782 ft	602.83703 psf	935.05455 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	178.01719 ft	-9.4842557 ft	608.96003 psf	943.93551 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	179.03426 ft	-9.6784872 ft	621.08593 psf	953.30996 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	180.0214 ft	-9.8334383 ft	630.75956 psf	968.17308 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	180.71123 ft	-9.9167983 ft	635.96374 psf	968.34906 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	181.3844 ft	-9.969401 ft	639.24774 psf	971.93746 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	182.30599 ft	-9.9964685 ft	640.93756 psf	968.21611 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	183.2253 ft	-9.9964475 ft	640.93625 psf	953.45683 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	184.1446 ft	-9.9964265 ft	640.93494 psf	938.69755 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	185.06391 ft	-9.9964055 ft	640.93363 psf	923.93828 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	185.98321 ft	-9.9963845 ft	640.93232 psf	909.179 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	186.90252 ft	-9.9963635 ft	640.93101 psf	894.41972 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 27	187.80244 ft	-9.955771 ft	638.39681 psf	887.5354 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	188.80805 ft	-9.80445 ft	628.94981 psf	867.80812 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	189.93875 ft	-9.582972 ft	615.1229 psf	824.27342 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	190.8616 ft	-9.3684408 ft	601.72967 psf	796.89446 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	191.57664 ft	-9.1608563 ft	588.77013 psf	761.46879 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	192.36955 ft	-8.901587 ft	572.58391 psf	727.06958 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	193.35642 ft	-8.5188148 ft	548.68736 psf	673.49573 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 34	194.45933 ft	-8.0642243 ft	520.30719 psf	602.90155 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

L) B-1

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 47
Date: 07/01/2021
Time: 11:29:07 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w 1 ft sand cap to el 5.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 11:29:44 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

L) B-1

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (29, -2) ft
Left-Zone Right Coordinate: (77.47, 0.71) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (106.93, 4.918571) ft
Right-Zone Right Coordinate: (148, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (302.5, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Geometry

Name: El -2

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	302.5 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	302.5 ft	-54 ft
Point 14	302.5 ft	-49 ft
Point 15	302.5 ft	-40 ft
Point 16	302.5 ft	-35 ft
Point 17	302.5 ft	-30 ft
Point 18	302.5 ft	-26 ft
Point 19	302.5 ft	-20 ft
Point 20	302.5 ft	-15 ft
Point 21	302.5 ft	-10 ft
Point 22	302.5 ft	-3 ft
Point 23	302.5 ft	3 ft
Point 24	58.5 ft	-2 ft
Point 25	152.5 ft	-2 ft
Point 26	127.5 ft	3 ft
Point 27	65.5 ft	-3 ft
Point 28	147.5 ft	-3 ft
Point 29	107.5 ft	5 ft
Point 30	117.5 ft	5 ft

Point 31	177.5 ft	-2 ft
Point 32	180.5 ft	-3 ft
Point 33	201.5 ft	-10 ft
Point 34	241.5 ft	-10 ft
Point 35	262.5 ft	-3 ft
Point 36	265.5 ft	-2 ft
Point 37	107.5 ft	4 ft
Point 38	117.5 ft	4 ft
Point 39	147.5 ft	-2 ft
Point 40	65.5 ft	-2 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,512.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,34,33	1,512.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,512.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,815 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,210 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,512.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,512.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,722.5 ft²
Region 9	Sand Fill	24,40,37,38,39,25,26,30,29	88 ft²
Region 10	Sand Fill	2,23,26,25,31,32,33,34,35,36	1,324.5 ft²
Region 11	Ridge In-Situ	24,27,28,25,39,40	88 ft²
Region 12	A. CH, el 0 to -3	3,27,24,1	62 ft²
Region 13	B. CL, el -3 to -10	3,4,33,32,28,27	1,337 ft²
Region 14	B. CL, el -3 to -10	21,22,35,34	353.5 ft²
Region 15	A. CH, el 0 to -3	22,2,36,35	38.5 ft²
Region 16	A. CH, el 0 to -3	25,28,32,31	29 ft²
Region 17	Ridge In-Situ	37,40,39,38	276 ft²

Slip Results

Slip Surfaces Analysed: 1277 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.48
Volume: 470.89732 ft³
Weight: 52,494.335 lbf
Resisting Moment: 266,346.32 lbf·ft
Activating Moment: 180,074.87 lbf·ft
Resisting Force: 6,627.262 lbf
Activating Force: 4,480.219 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (63.295833, -1.3148811) ft
Entry: (116.98826, 5) ft

Radius: 23.828122 ft
Center: (86.214031, 25.499328) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	63.779736 ft	-1.6574405 ft	120.33048 psf	161.72128 psf	22.007879 psf	0 psf	0 psf	Sand Fill
Slice 2	64.88182 ft	-2.4376147 ft	169.0369 psf	312.89979 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 3	65.588126 ft	-2.9376147 ft	200.25199 psf	375.963 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 4	66.673736 ft	-3.706127 ft	248.23036 psf	481.86849 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	68.389355 ft	-4.841025 ft	319.08225 psf	612.33387 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	69.825625 ft	-5.698567 ft	372.61876 psf	722.25465 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	71.50532 ft	-6.6016346 ft	428.99745 psf	823.95278 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	73.42844 ft	-7.5502279 ft	488.2183 psf	947.02209 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	74.52167 ft	-8.0894718 ft	521.8834 psf	1,018.207 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	75.38153 ft	-8.415211 ft	542.21936 psf	1,048.1448 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	76.83791 ft	-8.936795 ft	574.78195 psf	1,131.3709 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	78.73623 ft	-9.466752 ft	607.86726 psf	1,200.9826 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	80.64818 ft	-9.8215394 ft	630.01671 psf	1,252.1945 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	81.768975 ft	-9.9509039 ft	638.09296 psf	1,284.5366 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	82.980051 ft	-9.9950917 ft	640.85161 psf	1,288.901 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	84.644252 ft	-9.995983 ft	640.90725 psf	1,315.1534 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	86.308454 ft	-9.9968743 ft	640.9629 psf	1,341.4059 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	87.972656 ft	-9.9977657 ft	641.01855 psf	1,367.6584 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 19	89.636857 ft	-9.998657 ft	641.07419 psf	1,393.9109 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	91.301059 ft	-9.9995483 ft	641.12984 psf	1,420.1634 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	92.95731 ft	-9.948406 ft	637.93701 psf	1,429.0946 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	94.857205 ft	-9.731648 ft	624.40477 psf	1,418.4026 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	96.924903 ft	-9.2591518 ft	594.90674 psf	1,370.8912 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	98.908807 ft	-8.6444993 ft	556.53387 psf	1,333.9638 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	100.70145 ft	-7.9610738 ft	513.86749 psf	1,260.0181 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	102.30283 ft	-7.2088753 ft	466.90759 psf	1,202.674 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	103.88942 ft	-6.3016057 ft	410.26659 psf	1,096.5069 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	105.46121 ft	-5.2392652 ft	343.94447 psf	1,006.1634 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	106.87355 ft	-4.1913056 ft	278.52015 psf	894.16649 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	107.90882 ft	-3.3372581 ft	225.2018 psf	812.69307 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	108.92373 ft	-2.5 ft	172.93162 psf	731.92941 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 32	110.27028 ft	-1.3891595 ft	103.58164 psf	615.91109 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 33	111.54265 ft	-0.2541595 ft	32.723376 psf	480.79806 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 34	112.5079 ft	0.697008 ft	-26.65819 psf	382.4231 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 35	113.69195 ft	1.843012 ft	-98.203436 psf	266.36758 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 36	115.1934 ft	3.281004 ft	-187.97755 psf	117.3925 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 37	116.46619 ft	4.5 ft	-264.0797 psf	41.581089 psf	22.109057 psf	0 psf	0 psf	Sand Fill

IN-SITU WITH SAND STRADDLE

A) A-1a

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File Information

File Version: 10.02
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Last Edited By: Clay Worley
Revision Number: 69
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Time: 11:58:17 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:22 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

A) A-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (84, 0) ft
Left-Zone Right Coordinate: (113, 4) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (124.21722, 2.35035) ft
Right-Zone Right Coordinate: (189.5, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (293.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	84 ft	1.06 ft

Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	109 ft	3 ft
Coordinate 2	117 ft	3 ft
Coordinate 3	118 ft	3 ft

Geometry

Name: EL 0

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	293.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	293.5 ft	-54 ft
Point 14	293.5 ft	-49 ft
Point 15	293.5 ft	-40 ft
Point 16	293.5 ft	-35 ft
Point 17	293.5 ft	-30 ft
Point 18	293.5 ft	-26 ft
Point 19	293.5 ft	-20 ft
Point 20	293.5 ft	-15 ft
Point 21	293.5 ft	-10 ft
Point 22	293.5 ft	-3 ft
Point 23	105 ft	-3 ft
Point 24	119.5 ft	-3 ft
Point 25	293.5 ft	3 ft
Point 26	159.5 ft	0 ft
Point 27	168.5 ft	-3 ft
Point 28	189.5 ft	-10 ft

Point 29	229.5 ft	-10 ft
Point 30	250.5 ft	-3 ft
Point 31	259.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	134.5 ft	0 ft
Point 35	84 ft	0 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft
Point 39	121.375 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,467.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,467.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,467.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,761 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,174 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,467.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,467.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,641.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,253 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	111 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	283.5 ft²
Region 14	Ridge In-Situ	35,34,24,23	97.5 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	111 ft²
Region 16		39,38,25,2,31,30,29,28,27,26,34	1,196.7 ft²
Region 17		32,36,37,38,39,33	48.688 ft²

Slip Results

Slip Surfaces Analysed: 973 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.32
Volume: 93.75573 ft³
Weight: 10,121.602 lbf
Resisting Moment: 44,767.991 lbf·ft
Activating Moment: 34,035.254 lbf·ft
Resisting Force: 1,854.0515 lbf
Activating Force: 1,409.2709 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (135.59011, 0) ft

Entry: (112.26148, 3) ft
Radius: 10.236531 ft
Center: (126.00932, 18.49258) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	112.26573 ft	2.9971285 ft	-145.82925 psf	-241.69536 psf	-0 psf	115 psf	0 psf	Ridge In-Situ
Slice 2	112.61544 ft	2.7143108 ft	-128.48088 psf	73.040534 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 3	113.30637 ft	2.1544183 ft	-94.135195 psf	130.63049 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 4	114.05662 ft	1.5605679 ft	-57.721763 psf	195.10842 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 5	114.86621 ft	0.93275959 ft	-19.240588 psf	259.86511 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 6	115.67003 ft	0.30942773 ft	18.966208 psf	324.16006 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 7	116.23906 ft	-0.1318375 ft	46.013327 psf	369.67535 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 8	116.70454 ft	-0.48051075 ft	67.371114 psf	410.41799 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 9	117.401 ft	-0.99163225 ft	98.667141 psf	453.82961 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 10	118.14692 ft	-1.4964092 ft	129.52353 psf	503.6035 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 11	118.83674 ft	-1.9173917 ft	155.198 psf	531.12819 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 12	119.51677 ft	-2.2916587 ft	177.96466 psf	569.73271 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 13	120.18698 ft	-2.6192102 ft	197.8235 psf	588.14159 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 14	120.90126 ft	-2.857646 ft	212.08001 psf	638.96159 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 15	121.32773 ft	-2.9369002 ft	216.65227 psf	645.32611 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 16	121.66796 ft	-2.9699647 ft	218.41684 psf	639.44643 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 17	122.23046 ft	-2.9985206 ft	219.70419 psf	636.75646 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 18	122.90886 ft	-2.9987361 ft	219.12018 psf	618.36499 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice	123.72657	-2.9989959	218.41622	596.19642	0 psf	60 psf	0 psf	A. CH, el 0

19	ft	ft	psf	psf				to -3
Slice 20	124.54429 ft	-2.9992556 ft	217.71227 psf	574.02785 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 21	125.36201 ft	-2.9995154 ft	217.00831 psf	551.85928 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 22	126.17972 ft	-2.9997751 ft	216.30436 psf	529.69071 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 23	127.02652 ft	-2.9994925 ft	215.54093 psf	506.79073 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 24	127.90239 ft	-2.9986675 ft	214.71803 psf	482.93256 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 25	128.83425 ft	-2.9972605 ft	213.80949 psf	457.5874 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 26	129.62564 ft	-2.9772225 ft	211.86153 psf	439.25998 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 27	130.22058 ft	-2.9391355 ft	208.95978 psf	419.19285 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 28	130.88535 ft	-2.8159535 ft	200.68404 psf	406.41138 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 29	131.61993 ft	-2.6076765 ft	187.03431 psf	364.62991 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 30	132.24362 ft	-2.3651082 ft	171.34144 psf	342.10194 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 31	132.68963 ft	-2.1242895 ft	155.91427 psf	304.15869 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 32	133.1384 ft	-1.8819854 ft	140.39194 psf	269.69049 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 33	133.94877 ft	-1.3041001 ft	103.60075 psf	214.71748 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 34	135.04506 ft	-0.43306507 ft	48.256361 psf	112.30047 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

B) A-1b

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 69
Date: 07/02/2021
Time: 11:58:17 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:26 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

B) A-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (84, 0) ft
Left-Zone Right Coordinate: (119, 3.542857) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (189.5, -10) ft
Right-Zone Right Coordinate: (242.35, -5.716667) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (293.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	84 ft	1.06 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Geometry

Name: EL 0

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	293.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	293.5 ft	-54 ft
Point 14	293.5 ft	-49 ft
Point 15	293.5 ft	-40 ft
Point 16	293.5 ft	-35 ft
Point 17	293.5 ft	-30 ft
Point 18	293.5 ft	-26 ft
Point 19	293.5 ft	-20 ft
Point 20	293.5 ft	-15 ft
Point 21	293.5 ft	-10 ft
Point 22	293.5 ft	-3 ft
Point 23	105 ft	-3 ft
Point 24	119.5 ft	-3 ft
Point 25	293.5 ft	3 ft
Point 26	159.5 ft	0 ft
Point 27	168.5 ft	-3 ft
Point 28	189.5 ft	-10 ft
Point 29	229.5 ft	-10 ft
Point 30	250.5 ft	-3 ft
Point 31	259.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	134.5 ft	0 ft
Point 35	84 ft	0 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft

Point 39	121.375 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,467.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,467.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,467.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,761 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,174 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,467.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,467.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,641.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,253 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	111 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	283.5 ft²
Region 14	Ridge In-Situ	35,34,24,23	97.5 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	111 ft²
Region 16		39,38,25,2,31,30,29,28,27,26,34	1,196.7 ft²
Region 17		32,36,37,38,39,33	48.688 ft²

Slip Results

Slip Surfaces Analysed: 1173 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 2.10
Volume: 1,249.0037 ft³
Weight: 139,890.95 lbf
Resisting Moment: 1,520,592.7 lbf·ft
Activating Moment: 723,538.77 lbf·ft
Resisting Force: 20,175.188 lbf
Activating Force: 9,597.3265 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (192.75752, -10) ft
Entry: (105.43789, 3.0625554) ft
Radius: 38.602918 ft
Center: (155.33919, 49.13043) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	106.46723 ft	1.8955429 ft	-71.950255	80.327861 psf	0 psf	115 psf	0 psf	Ridge In-Situ

			psf					
Slice 2	107.81787 ft	0.3642652 ft	22.458177 psf	257.90045 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 3	109.46222 ft	-1.5 ft	137.39641 psf	474.08749 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 4	111.39264 ft	-3.688593 ft	272.33054 psf	721.99983 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	113.10508 ft	-5.6300615 ft	392.02862 psf	934.51664 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	115.60508 ft	-8.2221973 ft	551.65437 psf	1,228.378 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	117.22838 ft	-9.7807288 ft	647.52412 psf	1,387.9869 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	118.47838 ft	-10.980852 ft	721.34713 psf	1,460.7247 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 9	119.94392 ft	-12.38791 ft	807.89934 psf	1,579.3661 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 10	120.88142 ft	-13.071487 ft	849.74949 psf	1,712.4057 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 11	121.9375 ft	-13.622164 ft	883.19825 psf	1,746.5498 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 12	123.53995 ft	-14.457735 ft	933.95186 psf	1,798.3585 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 13	125.41895 ft	-15.437511 ft	993.46461 psf	1,845.0652 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 14	127.73744 ft	-16.440454 ft	1,054.0365 psf	1,926.2594 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 15	130.84441 ft	-17.367872 ft	1,109.1991 psf	1,984.2031 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 16	132.48597 ft	-17.731019 ft	1,130.4247 psf	2,014.4815 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 17	132.68963 ft	-17.747848 ft	1,131.296 psf	2,010.8732 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 18	133.68963 ft	-17.830483 ft	1,135.5742 psf	2,004.1007 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 19	135.77839 ft	-18.003086 ft	1,144.5102 psf	2,011.1494 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 20	138.52839 ft	-18.202404	1,154.5317 psf	2,035.796 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20

		ft						
Slice 21	141.25 ft	-18.375654 ft	1,164.0517 psf	2,054.0076 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 22	143.65491 ft	-18.528743 ft	1,173.6091 psf	2,071.2408 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 23	146.1141 ft	-18.70844 ft	1,184.8276 psf	2,087.0651 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 24	148.72267 ft	-18.920799 ft	1,198.0852 psf	2,110.9448 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 25	150.69471 ft	-19.06869 ft	1,207.3181 psf	2,132.321 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 26	152.71872 ft	-19.220685 ft	1,216.8071 psf	2,144.6906 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 27	155.43123 ft	-19.441251 ft	1,230.5771 psf	2,169.4934 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 28	158.14374 ft	-19.661817 ft	1,244.3471 psf	2,194.2962 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 29	160.76646 ft	-19.87508 ft	1,257.6612 psf	2,203.3558 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 30	163.64968 ft	-19.982059 ft	1,264.3399 psf	2,200.7254 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 31	166.88323 ft	-19.990056 ft	1,264.8391 psf	2,162.4874 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 32	168.76636 ft	-19.994713 ft	1,265.1299 psf	2,139.1534 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 33	170.22879 ft	-19.884062 ft	1,258.2219 psf	2,127.1203 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 34	172.62095 ft	-19.661441 ft	1,244.3236 psf	2,063.0766 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 35	175.21685 ft	-19.118461 ft	1,210.4252 psf	2,012.2826 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 36	178.01648 ft	-18.255119 ft	1,156.5267 psf	1,866.9403 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 37	180.84384 ft	-17.117587 ft	1,085.5103 psf	1,732.7591 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 38	183.69893 ft	-15.705862 ft	997.37609 psf	1,520.958 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice	186.38992	-	914.30728	1,303.0848				C. CL, el -10

39	ft	14.375275 ft	psf	psf	0 psf	200 psf	0 psf	to -15
Slice 40	188.57668 ft	-13.072094 ft	832.94945 psf	1,151.6926 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 41	191.12876 ft	-11.196819 ft	715.87568 psf	895.12858 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15

C) A-2

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 69
Date: 07/02/2021
Time: 11:58:17 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:26 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

C) A-2

Kind: SLOPE/W
Method: Spencer
Settings
PWP Conditions from: Piezometric Line
Apply Phreatic Correction: No
Use Staged Rapid Drawdown: No
Unit Weight of Water: 62.430189 pcf
Slip Surface
Direction of movement: Left to Right
Use Passive Mode: No
Slip Surface Option: Entry and Exit
Critical slip surfaces saved: 1
Optimize Critical Slip Surface Location: Yes
Optimizations Settings
Maximum Iterations: 2,000
Starting Points: 8
Ending Points: 16
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °
Tension Crack Option: (none)
Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (134.02483, 0.10861) ft
Left-Zone Right Coordinate: (153, 0) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (170.35, -3.616667) ft
Right-Zone Right Coordinate: (243.35, -5.383333) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (293.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	139.5 ft	1 ft
	144.5 ft	1 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	149.5 ft	1 ft
	154.5 ft	1 ft

Geometry

Name: EL 0

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	293.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	293.5 ft	-54 ft
Point 14	293.5 ft	-49 ft
Point 15	293.5 ft	-40 ft
Point 16	293.5 ft	-35 ft
Point 17	293.5 ft	-30 ft

Point 18	293.5 ft	-26 ft
Point 19	293.5 ft	-20 ft
Point 20	293.5 ft	-15 ft
Point 21	293.5 ft	-10 ft
Point 22	293.5 ft	-3 ft
Point 23	105 ft	-3 ft
Point 24	119.5 ft	-3 ft
Point 25	293.5 ft	3 ft
Point 26	159.5 ft	0 ft
Point 27	168.5 ft	-3 ft
Point 28	189.5 ft	-10 ft
Point 29	229.5 ft	-10 ft
Point 30	250.5 ft	-3 ft
Point 31	259.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	134.5 ft	0 ft
Point 35	84 ft	0 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft
Point 39	121.375 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,467.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,467.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,467.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,761 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,174 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,467.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,467.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,641.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,253 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	111 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	283.5 ft²
Region 14	Ridge In-Situ	35,34,24,23	97.5 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	111 ft²
Region 16		39,38,25,2,31,30,29,28,27,26,34	1,196.7 ft²
Region 17		32,36,37,38,39,33	48.688 ft²

Slip Results

Slip Surfaces Analysed: 1262 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.71
Volume: 175.02969 ft³
Weight: 19,115.05 lbf
Resisting Moment: 94,654.329 lbf·ft
Activating Moment: 55,408.05 lbf·ft
Resisting Force: 3,991.5715 lbf
Activating Force: 2,336.5287 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (181.2361, -7.2453668) ft
Entry: (149.51705, 0) ft
Radius: 15.245079 ft
Center: (166.40827, 11.573462) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	149.92812 ft	-0.67228925 ft	58.827296 psf	253.62251 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	150.75025 ft	-2.0168677 ft	142.76958 psf	371.33775 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	151.28136 ft	-2.8445785 ft	194.44372 psf	466.38616 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 4	151.67794 ft	-3.35802 ft	226.49797 psf	471.91735 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	152.35448 ft	-4.199149 ft	279.00981 psf	566.38646 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	153.15451 ft	-5.165367 ft	339.33099 psf	664.31717 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	154.02726 ft	-6.1633529 ft	401.63543 psf	780.92515 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	154.50919 ft	-6.6882389 ft	434.40416 psf	597.12157 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	154.60661 ft	-6.723552 ft	436.60877 psf	701.19962 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	155.17535 ft	-6.8948132 ft	447.30064 psf	717.6252 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	156.13638 ft	-7.1867277 ft	465.52492 psf	749.4782 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	157.09742 ft	-7.4786422 ft	483.74919 psf	781.33121 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	158.05845 ft	-7.7705566 ft	501.97347 psf	813.18421 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	159.01948 ft	-8.0624711 ft	520.19774 psf	845.03722 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	159.73673 ft	-8.2803352 ft	533.79904 psf	866.53687 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 16	160.64119 ft	-8.517661 ft	548.61533 psf	890.30772 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	161.70969 ft	-8.7653348 ft	564.07765 psf	911.45742 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	162.51125 ft	-8.9298442 ft	574.34801 psf	920.17233 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	163.60805 ft	-9.156876 ft	588.52165 psf	931.88153 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	164.83958 ft	-9.382158 ft	602.58604 psf	951.24322 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	165.91062 ft	-9.543168 ft	612.63793 psf	956.44156 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	166.98166 ft	-9.704178 ft	622.68981 psf	961.6399 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	168.00859 ft	-9.7974586 ft	628.51334 psf	979.66411 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	169.12322 ft	-9.8264367 ft	630.32244 psf	967.15859 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	170.36967 ft	-9.8588416 ft	632.34549 psf	950.98109 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	171.49046 ft	-9.8120797 ft	629.42613 psf	952.13621 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	172.48559 ft	-9.686151 ft	621.56438 psf	921.85643 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	173.48072 ft	-9.5602223 ft	613.70263 psf	891.57664 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	174.43274 ft	-9.4253373 ft	605.28173 psf	865.83106 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	175.34165 ft	-9.2814957 ft	596.30168 psf	834.82428 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	176.27771 ft	-9.0801095 ft	583.7291 psf	813.30341 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	177.24092 ft	-8.8211785 ft	567.56399 psf	767.9075 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	178.20413 ft	-8.5622475 ft	551.39888 psf	722.51159 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 34	179.32333 ft	-8.1359282 ft	524.78368 psf	682.6685 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 35	180.59851 ft	-7.5422206 ft	487.71841 psf	592.2097 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

D1) B-1a

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File Information

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Last Edited By: Clay Worley
Revision Number: 69
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File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:22 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

D1) B-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (56, 0) ft
Left-Zone Right Coordinate: (101, 2.428571) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (110, 3.714286) ft
Right-Zone Right Coordinate: (127, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (293.5, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	70 ft	0.27 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	114 ft	3 ft
Coordinate 2	117 ft	3 ft
Coordinate 3	119 ft	2 ft

Geometry

Name: EL 0

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	293.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	293.5 ft	-54 ft
Point 14	293.5 ft	-49 ft
Point 15	293.5 ft	-40 ft
Point 16	293.5 ft	-35 ft
Point 17	293.5 ft	-30 ft
Point 18	293.5 ft	-26 ft
Point 19	293.5 ft	-20 ft

Point 20	293.5 ft	-15 ft
Point 21	293.5 ft	-10 ft
Point 22	293.5 ft	-3 ft
Point 23	105 ft	-3 ft
Point 24	119.5 ft	-3 ft
Point 25	293.5 ft	3 ft
Point 26	159.5 ft	0 ft
Point 27	168.5 ft	-3 ft
Point 28	189.5 ft	-10 ft
Point 29	229.5 ft	-10 ft
Point 30	250.5 ft	-3 ft
Point 31	259.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	134.5 ft	0 ft
Point 35	84 ft	0 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft
Point 39	121.375 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,467.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,467.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,467.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,761 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,174 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,467.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,467.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,641.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,253 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	111 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	283.5 ft²
Region 14	Ridge In-Situ	35,34,24,23	97.5 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	111 ft²
Region 16	Sand Fill	39,38,25,2,31,30,29,28,27,26,34	1,196.7 ft²
Region 17		32,36,37,38,39,33	48.688 ft²

Slip Results

Slip Surfaces Analysed: 1168 of 1332 converged

Current Slip Surface

Slip Surface: 1,332

Factor of Safety: 1.73
Volume: 332.30736 ft³
Weight: 36,421.619 lbf
Resisting Moment: 139,096.52 lbf·ft
Activating Moment: 80,387.805 lbf·ft
Resisting Force: 4,894.9463 lbf
Activating Force: 2,827.9374 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (78.311843, 0) ft
Entry: (118.56495, 2.2175253) ft
Radius: 17.739171 ft
Center: (97.341675, 14.989317) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	79.146427 ft	-0.67542225 ft	59.022889 psf	120.0845 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	80.815596 ft	-2.0262667 ft	143.35637 psf	261.80099 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	81.829922 ft	-2.8508445 ft	194.83491 psf	349.48968 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 4	83.004832 ft	-3.8258219 ft	255.70293 psf	500.02937 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	84.269265 ft	-4.8750884 ft	321.20884 psf	625.92218 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	85.214265 ft	-5.5883551 ft	365.73821 psf	705.14739 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	86.71826 ft	-6.6785606 ft	433.79995 psf	853.16097 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	88.14851 ft	-7.5851938 ft	490.40123 psf	955.32674 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	89.35249 ft	-8.1976933 ft	528.63969 psf	1,047.2711 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	90.777738 ft	-8.7772808 ft	564.82344 psf	1,113.9205 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	92.424253 ft	-9.3239563 ft	598.9525 psf	1,205.1252 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	93.868175 ft	-9.6946523 ft	622.09512 psf	1,246.405 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	95.109505 ft	-9.8893688 ft	634.25131 psf	1,289.8876 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	96.375027 ft	-9.988394 ft	640.43347 psf	1,299.5767 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	97.66474 ft	-9.991728 ft	640.64161 psf	1,322.0629 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	98.954453 ft	-9.995062 ft	640.84976 psf	1,344.549 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	100.16209	-9.8887987	634.21572	1,323.8646	0 psf	130 psf	0 psf	B. CL, el -3

17	ft	ft	psf	psf				to -10
Slice 18	101.28765 ft	-9.672938 ft	620.73949 psf	1,319.0371 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	102.41321 ft	-9.4570773 ft	607.26327 psf	1,314.2096 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	103.48199 ft	-9.1617858 ft	588.82817 psf	1,273.3579 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	104.494 ft	-8.7870635 ft	565.43418 psf	1,249.2538 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	105.38959 ft	-8.4554441 ft	544.73112 psf	1,227.3774 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	106.44407 ft	-7.9517672 ft	513.28648 psf	1,164.616 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	107.77384 ft	-7.2329297 ft	468.40932 psf	1,106.8095 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	109.06707 ft	-6.427095 ft	418.1009 psf	1,016.9335 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	110.32377 ft	-5.534263 ft	362.36123 psf	939.85123 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	111.47606 ft	-4.6329678 ft	306.0932 psf	841.52595 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	112.29208 ft	-3.9245078 ft	261.86391 psf	773.81131 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	112.93755 ft	-3.3354635 ft	225.08977 psf	702.05691 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	113.60383 ft	-2.7029895 ft	185.6043 psf	642.79504 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 31	114.51448 ft	-1.8044842 ft	129.51044 psf	543.81472 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 32	115.71001 ft	-0.60149475 ft	54.407582 psf	418.76223 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 33	116.44194 ft	0.135 ft	8.4280755 psf	342.20254 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 34	116.78805 ft	0.48326847 ft	-13.314391 psf	305.99953 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 35	117.53957 ft	1.2394765 ft	-60.524599 psf	214.57014 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 36	118.32205 ft	1.9999707 ft	-108.00239 psf	117.45168 psf	0 psf	115 psf	0 psf	Ridge In-Situ

D2) B-1b

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File Information

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Last Edited By: Clay Worley
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Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:38 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

D2) B-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (56, 0) ft
Left-Zone Right Coordinate: (104, 2.857143) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (119.36744, 5.052491) ft
Right-Zone Right Coordinate: (154, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (293.5, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	70 ft	0.27 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Geometry

Name: EL 0

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	293.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	293.5 ft	-54 ft
Point 14	293.5 ft	-49 ft
Point 15	293.5 ft	-40 ft
Point 16	293.5 ft	-35 ft
Point 17	293.5 ft	-30 ft
Point 18	293.5 ft	-26 ft
Point 19	293.5 ft	-20 ft
Point 20	293.5 ft	-15 ft
Point 21	293.5 ft	-10 ft
Point 22	293.5 ft	-3 ft
Point 23	105 ft	-3 ft
Point 24	119.5 ft	-3 ft
Point 25	293.5 ft	3 ft
Point 26	159.5 ft	0 ft
Point 27	168.5 ft	-3 ft
Point 28	189.5 ft	-10 ft

Point 29	229.5 ft	-10 ft
Point 30	250.5 ft	-3 ft
Point 31	259.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	134.5 ft	0 ft
Point 35	84 ft	0 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft
Point 39	121.375 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,467.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,467.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,467.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,761 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,174 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,467.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,467.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,641.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,253 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	111 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	283.5 ft²
Region 14	Ridge In-Situ	35,34,24,23	97.5 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	111 ft²
Region 16	Sand Fill	39,38,25,2,31,30,29,28,27,26,34	1,196.7 ft²
Region 17	Sand Fill	32,36,37,38,39,33	48.688 ft²

Slip Results

Slip Surfaces Analysed: 1253 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.32
Volume: 488.74805 ft³
Weight: 53,976.038 lbf
Resisting Moment: 253,657.97 lbf·ft
Activating Moment: 192,245.79 lbf·ft
Resisting Force: 6,226.8198 lbf
Activating Force: 4,718.7718 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (80.298834, 0) ft

Entry: (132.62701, 5.4682486) ft
Radius: 23.362377 ft
Center: (104.37333, 26.010677) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	81.583387 ft	-1.182523 ft	90.681285 psf	192.42883 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	83.254483 ft	-2.682523 ft	184.32657 psf	345.29845 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	83.820513 ft	-3.1474172 ft	213.35 psf	446.59968 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	84.945 ft	-4.0709861 ft	271.00858 psf	564.61824 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	86.02183 ft	-4.9554128 ft	326.22351 psf	680.2074 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	87.20791 ft	-5.7219337 ft	374.07755 psf	761.19425 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	89.31641 ft	-7.0384252 ft	456.26637 psf	953.098 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	91.17977 ft	-7.992206 ft	515.81108 psf	1,051.6938 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	92.79799 ft	-8.583276 ft	552.71169 psf	1,148.0764 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	94.41621 ft	-9.174346 ft	589.6123 psf	1,244.459 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	96.28643 ft	-9.6525375 ft	619.46589 psf	1,294.9749 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	98.32443 ft	-9.916395 ft	635.93856 psf	1,342.971 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	100.2511 ft	-9.9966973 ft	640.95185 psf	1,368.8739 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	102.15066 ft	-9.9948998 ft	640.83963 psf	1,401.2343 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	104.05022 ft	-9.9931023 ft	640.72741 psf	1,433.5947 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	105.71322 ft	-9.9915287 ft	640.62917 psf	1,460.9064 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	107.13965 ft	-9.9901789 ft	640.5449 psf	1,483.1691 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	108.59511 ft	-9.8892207 ft	634.24207 psf	1,467.8495 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	110.07958 ft	-9.6886542 ft	621.72066 psf	1,468.7055 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	111.41091 ft	-9.441836 ft	606.31175 psf	1,439.704 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	112.8122 ft	-9.093269 ft	584.55065 psf	1,423.5437 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	114.46829 ft	-8.5535172 ft	550.85385 psf	1,362.1212 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 23	116.1561 ft	-7.8780777 ft	508.68603 psf	1,315.4945 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	117.16743 ft	-7.4733525 ft	483.41896 psf	1,287.7418 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	118.41743 ft	-6.8075981 ft	441.85579 psf	1,209.4162 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	120.23369 ft	-5.8030546 ft	379.14195 psf	1,130.3861 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	121.17119 ft	-5.2489025 ft	344.54612 psf	1,055.7391 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	121.9375 ft	-4.6910796 ft	309.72113 psf	1,007.6247 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	123.07686 ft	-3.8616956 ft	257.94254 psf	927.06577 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	123.99867 ft	-3.2208885 ft	217.93683 psf	871.25211 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	125.44356 ft	-2.2956493 ft	160.17397 psf	807.96061 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 32	126.60682 ft	-1.5507538 ft	113.67 psf	712.61478 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 33	127.47394 ft	-0.7551045 ft	63.997467 psf	593.00976 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 34	128.42144 ft	0.135 ft	8.4280755 psf	502.10456 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 35	129.03028 ft	0.70695315 ft	-27.279067 psf	443.69173 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 36	129.55811 ft	1.2028126 ft	-58.235669 psf	349.00265 psf	185.568 psf	0 psf	0 psf	Sand Fill
Slice 37	130.24195 ft	2.1308595 ft	-116.17381 psf	237.21904 psf	126.1316 psf	0 psf	0 psf	Sand Fill
Slice 38	131.68154 ft	4.1452654 ft	-241.93355 psf	95.386003 psf	50.717637 psf	0 psf	0 psf	Sand Fill
Slice 39	132.5635 ft	5.3793897 ft	-318.98016 psf	7.3742972 psf	3.9209834 psf	0 psf	0 psf	Sand Fill

E) A-1a

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File Information

File Version: 10.02
Created By: Clay Worley
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Revision Number: 69
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Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:26 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

E) A-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (72, -1) ft
Left-Zone Right Coordinate: (119, 3.555556) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (132, 0.666667) ft
Right-Zone Right Coordinate: (191.5, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (298.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	84 ft	1.06 ft

Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	109 ft	2 ft
Coordinate 2	117 ft	2 ft
Coordinate 3	118 ft	2 ft

Geometry

Name: EL -1

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	298.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	298.5 ft	-54 ft
Point 14	298.5 ft	-49 ft
Point 15	298.5 ft	-40 ft
Point 16	298.5 ft	-35 ft
Point 17	298.5 ft	-30 ft
Point 18	298.5 ft	-26 ft
Point 19	298.5 ft	-20 ft
Point 20	298.5 ft	-15 ft
Point 21	298.5 ft	-10 ft
Point 22	298.5 ft	-3 ft
Point 23	91 ft	-3 ft
Point 24	129.5 ft	-3 ft
Point 25	298.5 ft	3 ft
Point 26	164.5 ft	-1 ft
Point 27	170.5 ft	-3 ft
Point 28	191.5 ft	-10 ft

Point 29	234.5 ft	-10 ft
Point 30	255.5 ft	-3 ft
Point 31	264.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	139.5 ft	-1 ft
Point 35	77 ft	-1 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft
Point 39	121.5 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,492.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,492.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,492.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,791 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,194 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,492.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,492.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,686.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,267 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	168.75 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	168 ft²
Region 14	Ridge In-Situ	35,34,24,23	101 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	66 ft²
Region 16		39,38,25,2,31,30,29,28,27,26,34	1,266.5 ft²
Region 17		32,36,37,38,39,33	48.625 ft²

Slip Results

Slip Surfaces Analysed: 1107 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.50
Volume: 266.05739 ft³
Weight: 29,332.553 lbf
Resisting Moment: 98,720.076 lbf·ft
Activating Moment: 65,843.369 lbf·ft
Resisting Force: 4,258.8195 lbf
Activating Force: 2,839.7164 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (144.22792, -1) ft

Entry: (109.66664, 2) ft
Radius: 15.73674 ft
Center: (128.08599, 10.702845) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	109.90778 ft	1.7664465 ft	-66.920868 psf	122.85649 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 2	110.56374 ft	1.1061513 ft	-26.276228 psf	207.2179 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 3	111.09714 ft	0.55741933 ft	7.5114427 psf	271.30891 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 4	111.60786 ft	0.022524154 ft	40.45525 psf	331.38984 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 5	112.28948 ft	-0.69519035 ft	84.661991 psf	410.6154 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 6	112.68283 ft	-1.109364 ft	110.17251 psf	453.02419 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 7	113.23779 ft	-1.664046 ft	144.31264 psf	516.74765 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 8	114.13999 ft	-2.554682 ft	199.12064 psf	608.33879 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 9	114.8394 ft	-3.2451215 ft	241.60893 psf	671.22686 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	115.52445 ft	-3.9156695 ft	282.86804 psf	743.14195 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	116.48059 ft	-4.7603078 ft	334.75688 psf	854.62591 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	117.53624 ft	-5.612319 ft	387.01838 psf	932.50844 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	118.60872 ft	-6.4779177 ft	440.11332 psf	999.42887 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	119.73372 ft	-7.2025477 ft	484.36131 psf	1,098.5806 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	120.91124 ft	-7.7862091 ft	519.76235 psf	1,133.9307 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	121.96095 ft	-8.3065214 ft	551.32104 psf	1,165.444 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	122.46095 ft	-8.5453102 ft	565.78832 psf	1,218.1229 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	123.06736 ft	-8.7053912 ft	575.24813 psf	1,221.1719 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	124.20208 ft	-9.0049387 ft	592.94958 psf	1,226.8773 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	125.33681 ft	-9.3044862 ft	610.65102 psf	1,232.5827 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	126.47123 ft	-9.4653135 ft	619.69241 psf	1,265.279 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 22	127.60533 ft	-9.4874205 ft	620.07373 psf	1,240.067 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	128.73944 ft	-9.5095275 ft	620.45505 psf	1,214.855 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	129.40325 ft	-9.5022774 ft	619.4178 psf	1,234.0515 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	130.14696 ft	-9.3615783 ft	609.97893 psf	1,198.3431 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	131.44089 ft	-9.1167874 ft	593.55702 psf	1,135.8756 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	132.29393 ft	-8.9079538 ft	579.76821 psf	1,128.1164 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	132.93186 ft	-8.6403728 ft	562.50125 psf	1,079.8493 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	133.86604 ft	-8.2485291 ft	537.21563 psf	1,015.9982 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	134.87069 ft	-7.827127 ft	510.02261 psf	953.64635 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	135.97745 ft	-7.2686693 ft	474.18325 psf	898.1911 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	137.18632 ft	-6.5731557 ft	429.69755 psf	800.30527 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	138.64538 ft	-5.6103638 ft	368.30525 psf	688.10708 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 34	139.56961 ft	-4.9452298 ft	325.96682 psf	596.31852 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 35	139.81961 ft	-4.7481065 ft	313.4402 psf	585.69557 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 36	140.78646 ft	-3.960066 ft	264.08381 psf	491.88173 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 37	141.75556 ft	-3.159525 ft	214.10589 psf	403.89026 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 38	142.2191 ft	-2.7546417 ft	188.82895 psf	311.73664 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 39	143.36396 ft	-1.7546417 ft	126.39876 psf	205.16976 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

F) A-1b

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 69
Date: 07/02/2021
Time: 11:58:17 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:30 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

F) A-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (73, -1) ft
Left-Zone Right Coordinate: (119.00269, 3.554958) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (191.5, -10) ft
Right-Zone Right Coordinate: (242.85, -7.216667) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (298.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	84 ft	1.06 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Geometry

Name: EL -1

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	298.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	298.5 ft	-54 ft
Point 14	298.5 ft	-49 ft
Point 15	298.5 ft	-40 ft
Point 16	298.5 ft	-35 ft
Point 17	298.5 ft	-30 ft
Point 18	298.5 ft	-26 ft
Point 19	298.5 ft	-20 ft
Point 20	298.5 ft	-15 ft
Point 21	298.5 ft	-10 ft
Point 22	298.5 ft	-3 ft
Point 23	91 ft	-3 ft
Point 24	129.5 ft	-3 ft
Point 25	298.5 ft	3 ft
Point 26	164.5 ft	-1 ft
Point 27	170.5 ft	-3 ft
Point 28	191.5 ft	-10 ft
Point 29	234.5 ft	-10 ft
Point 30	255.5 ft	-3 ft
Point 31	264.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	139.5 ft	-1 ft
Point 35	77 ft	-1 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft

Point 39	121.5 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,492.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,492.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,492.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,791 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,194 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,492.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,492.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,686.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,267 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	168.75 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	168 ft²
Region 14	Ridge In-Situ	35,34,24,23	101 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	66 ft²
Region 16		39,38,25,2,31,30,29,28,27,26,34	1,266.5 ft²
Region 17		32,36,37,38,39,33	48.625 ft²

Slip Results

Slip Surfaces Analysed: 1157 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 2.12
Volume: 1,298.3822 ft³
Weight: 146,006.97 lbf
Resisting Moment: 1,610,380.5 lbf·ft
Activating Moment: 760,274.97 lbf·ft
Resisting Force: 20,859.834 lbf
Activating Force: 9,845.2506 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (195.16614, -10) ft
Entry: (105.63, 3.0900005) ft
Radius: 39.556182 ft
Center: (156.43373, 50.066684) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	106.64126 ft	1.9081655 ft	-72.891553	80.152408 psf	0 psf	115 psf	0 psf	Ridge In-Situ

			psf					
Slice 2	108.3911 ft	-0.13683474 ft	53.237091 psf	316.50011 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 3	109.98536 ft	-2 ft	168.15077 psf	531.83253 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 4	111.42051 ft	-3.6772345 ft	271.59688 psf	719.58312 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	113.37317 ft	-5.9592555 ft	412.34416 psf	967.39496 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	115.87317 ft	-8.6900274 ft	580.62498 psf	1,275.2628 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	117.09206 ft	-9.9080064 ft	655.59014 psf	1,402.0419 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	118.05679 ft	-10.872004 ft	714.92305 psf	1,455.6973 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 9	120.21473 ft	-12.657323 ft	824.48034 psf	1,653.5931 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 10	122 ft	-13.925938 ft	902.10787 psf	1,752.9952 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 11	122.5827 ft	-14.34 ft	927.44468 psf	1,785.439 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 12	123.17251 ft	-14.699381 ft	949.36147 psf	1,834.4001 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 13	125.39337 ft	-16.015891 ft	1,029.5954 psf	1,911.9615 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 14	128.30355 ft	-17.428086 ft	1,115.196 psf	2,058.818 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 15	130.70815 ft	-18.224569 ft	1,162.8029 psf	2,087.0797 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 16	132.20815 ft	-18.681733 ft	1,190.0226 psf	2,131.7947 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 17	132.86974 ft	-18.810911 ft	1,197.5046 psf	2,128.929 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 18	135.13822 ft	-19.056946 ft	1,210.8667 psf	2,145.4782 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 19	137.46881 ft	-19.248182 ft	1,220.7531 psf	2,148.9512 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 20	138.70033 ft	-19.290935 ft	1,222.3375 psf	2,139.5656 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 21	139.75 ft	-19.324221 ft	1,223.4911 psf	2,131.4666 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 22	141.25 ft	-19.371786 ft	1,226.2404 psf	2,136.6118 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 23	143.89982 ft	-19.455814 ft	1,231.4863 psf	2,146.0894 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 24	146.85315 ft	-19.539208 ft	1,236.6926 psf	2,157.1331 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 25	149.96015 ft	-19.617217 ft	1,241.5627 psf	2,165.9352 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 26	153.06715 ft	-19.695226 ft	1,246.4328 psf	2,174.7374 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20

Slice 27	156.17416 ft	-19.773236 ft	1,251.303 psf	2,183.5396 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 28	159.28116 ft	-19.851245 ft	1,256.1731 psf	2,192.3418 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 29	162.38816 ft	-19.929254 ft	1,261.0433 psf	2,201.1439 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 30	164.22083 ft	-19.969122 ft	1,263.5322 psf	2,211.1736 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 31	166 ft	-19.974624 ft	1,263.8757 psf	2,195.1602 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 32	169 ft	-19.983902 ft	1,264.4549 psf	2,159.8581 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 33	171.78892 ft	-19.992526 ft	1,264.9933 psf	2,121.8851 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 34	174.2917 ft	-19.800995 ft	1,253.036 psf	2,100.1462 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 35	176.71943 ft	-19.409961 ft	1,228.6237 psf	2,016.0373 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 36	179.36289 ft	-18.714408 ft	1,185.2002 psf	1,938.5841 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 37	182.22207 ft	-17.714336 ft	1,122.7655 psf	1,776.1778 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 38	185.66199 ft	-16.10715 ft	1,022.4286 psf	1,578.231 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 39	189.51014 ft	-13.987838 ft	890.11951 psf	1,245.7633 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 40	191.42399 ft	-12.916438 ft	823.2318 psf	1,123.2473 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 41	193.33307 ft	-11.4286 ft	730.34579 psf	928.11146 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15

G) A-2

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 69
Date: 07/02/2021
Time: 11:58:17 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:30 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

G) A-2

Kind: SLOPE/W
Method: Spencer
Settings
PWP Conditions from: Piezometric Line
Apply Phreatic Correction: No
Use Staged Rapid Drawdown: No
Unit Weight of Water: 62.430189 pcf
Slip Surface
Direction of movement: Left to Right
Use Passive Mode: No
Slip Surface Option: Entry and Exit
Critical slip surfaces saved: 1
Optimize Critical Slip Surface Location: Yes
Optimizations Settings
Maximum Iterations: 2,000
Starting Points: 8
Ending Points: 16
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °
Tension Crack Option: (none)
Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (141, -1) ft
Left-Zone Right Coordinate: (163, -1) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (173.5, -4) ft
Right-Zone Right Coordinate: (243.85, -6.883333) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (298.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	144.5 ft	0 ft
	149.5 ft	0 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	154.5 ft	0 ft
	159.5 ft	0 ft

Geometry

Name: EL -1

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	298.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	298.5 ft	-54 ft
Point 14	298.5 ft	-49 ft
Point 15	298.5 ft	-40 ft
Point 16	298.5 ft	-35 ft
Point 17	298.5 ft	-30 ft

Point 18	298.5 ft	-26 ft
Point 19	298.5 ft	-20 ft
Point 20	298.5 ft	-15 ft
Point 21	298.5 ft	-10 ft
Point 22	298.5 ft	-3 ft
Point 23	91 ft	-3 ft
Point 24	129.5 ft	-3 ft
Point 25	298.5 ft	3 ft
Point 26	164.5 ft	-1 ft
Point 27	170.5 ft	-3 ft
Point 28	191.5 ft	-10 ft
Point 29	234.5 ft	-10 ft
Point 30	255.5 ft	-3 ft
Point 31	264.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	139.5 ft	-1 ft
Point 35	77 ft	-1 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft
Point 39	121.5 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,492.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,492.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,492.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,791 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,194 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,492.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,492.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,686.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,267 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	168.75 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	168 ft²
Region 14	Ridge In-Situ	35,34,24,23	101 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	66 ft²
Region 16		39,38,25,2,31,30,29,28,27,26,34	1,266.5 ft²
Region 17		32,36,37,38,39,33	48.625 ft²

Slip Results

Slip Surfaces Analysed: 1235 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.79
Volume: 146.10416 ft³
Weight: 16,065.677 lbf
Resisting Moment: 78,178.62 lbf·ft
Activating Moment: 43,665.09 lbf·ft
Resisting Force: 3,575.8173 lbf
Activating Force: 1,997.0279 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (182.65418, -7.0513945) ft
Entry: (154.49357, -1) ft
Radius: 13.471244 ft
Center: (169.93889, 9.6493334) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	154.49678 ft	-1.0054746 ft	79.62812 psf	22.468381 psf	-0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	155.00856 ft	-1.8763601 ft	133.99767 psf	329.56441 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	155.61294 ft	-2.8708855 ft	196.08607 psf	438.57046 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 4	156.15195 ft	-3.5972225 ft	241.43143 psf	465.88112 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	157.03835 ft	-4.7916675 ft	316.00086 psf	587.15288 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	158.03965 ft	-6.058807 ft	395.10861 psf	732.97011 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	159.04887 ft	-7.2121447 ft	467.11171 psf	867.66867 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	159.50409 ft	-7.6999482 ft	497.56537 psf	677.86758 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	160.06277 ft	-7.832675 ft	505.85153 psf	795.21903 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	161.10269 ft	-8.081875 ft	521.40913 psf	820.30324 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	162.07335 ft	-8.323587 ft	536.49926 psf	846.86872 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	163.04401 ft	-8.565299 ft	551.58938 psf	873.43421 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	164.01467 ft	-8.807011 ft	566.67951 psf	899.99969 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 14	164.90461 ft	-9.028621 ft	580.51466 psf	921.57914 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	165.79707 ft	-9.21494 ft	592.14659 psf	942.00716 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	166.77278 ft	-9.38607 ft	602.83027 psf	949.37367 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	167.6695 ft	-9.508831 ft	610.49426 psf	964.524 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	168.48721 ft	-9.583223 ft	615.13857 psf	963.0597 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	169.30493 ft	-9.657615 ft	619.78288 psf	961.5954 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	170.1069 ft	-9.6977952 ft	622.29134 psf	968.66279 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	170.99861 ft	-9.7045646 ft	622.71395 psf	956.73967 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	171.99582 ft	-9.7121349 ft	623.18656 psf	941.64843 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	172.92638 ft	-9.6726028 ft	620.71856 psf	937.91457 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	173.79027 ft	-9.5859683 ft	615.30996 psf	914.21385 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	174.90966 ft	-9.4055585 ft	604.04694 psf	889.86743 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	175.99727 ft	-9.1865692 ft	590.3754 psf	848.02783 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	176.79761 ft	-9.0227755 ft	580.14973 psf	816.38808 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	177.59794 ft	-8.8589818 ft	569.92406 psf	784.74833 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	178.41894 ft	-8.6614993 ft	557.59518 psf	758.22896 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	179.2606 ft	-8.4303278 ft	543.1631 psf	718.03267 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	180.08211 ft	-8.1571908 ft	526.11111 psf	688.53572 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	180.88346 ft	-7.8420882 ft	506.4392 psf	638.93608 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	181.96916 ft	-7.3679657	476.83964 psf	574.56794 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

		ft						

H1) B-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 69
Date: 07/02/2021
Time: 11:58:17 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:32 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

H1) B-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (56, -1) ft
Left-Zone Right Coordinate: (94, 1.428571) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (112, 4) ft
Right-Zone Right Coordinate: (145, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (298.5, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	70 ft	0.27 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	113 ft	3 ft
Coordinate 2	117 ft	3 ft
Coordinate 3	119 ft	2 ft

Geometry

Name: EL -1

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	298.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	298.5 ft	-54 ft
Point 14	298.5 ft	-49 ft
Point 15	298.5 ft	-40 ft
Point 16	298.5 ft	-35 ft
Point 17	298.5 ft	-30 ft
Point 18	298.5 ft	-26 ft
Point 19	298.5 ft	-20 ft

Point 20	298.5 ft	-15 ft
Point 21	298.5 ft	-10 ft
Point 22	298.5 ft	-3 ft
Point 23	91 ft	-3 ft
Point 24	129.5 ft	-3 ft
Point 25	298.5 ft	3 ft
Point 26	164.5 ft	-1 ft
Point 27	170.5 ft	-3 ft
Point 28	191.5 ft	-10 ft
Point 29	234.5 ft	-10 ft
Point 30	255.5 ft	-3 ft
Point 31	264.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	139.5 ft	-1 ft
Point 35	77 ft	-1 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft
Point 39	121.5 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,492.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,492.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,492.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,791 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,194 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,492.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,492.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,686.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,267 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	168.75 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	168 ft²
Region 14	Ridge In-Situ	35,34,24,23	101 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	66 ft²
Region 16	Sand Fill	39,38,25,2,31,30,29,28,27,26,34	1,266.5 ft²
Region 17		32,36,37,38,39,33	48.625 ft²

Slip Results

Slip Surfaces Analysed: 1239 of 1332 converged

Current Slip Surface

Slip Surface: 1,332

Factor of Safety: 1.70
Volume: 378.01165 ft³
Weight: 41,764.183 lbf
Resisting Moment: 202,807.82 lbf·ft
Activating Moment: 119,131.21 lbf·ft
Resisting Force: 5,600.0148 lbf
Activating Force: 3,288.6441 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (73.35746, -1) ft
Entry: (118.41299, 2.2935053) ft
Radius: 19.521481 ft
Center: (92.889342, 22.057441) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	73.983383 ft	-1.5 ft	110.50143 psf	167.42589 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	75.235228 ft	-2.5 ft	172.93162 psf	272.38134 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	76.430576 ft	-3.454868 ft	232.54421 psf	415.35048 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	77.82998 ft	-4.572741 ft	302.33323 psf	554.55784 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	79.775205 ft	-5.9516045 ft	388.41594 psf	713.75425 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	81.593343 ft	-7.0187687 ft	455.03921 psf	834.82549 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	82.999128 ft	-7.7213802 ft	498.90338 psf	927.71778 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	84.79601 ft	-8.5049663 ft	547.8228 psf	1,018.5121 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	86.0825 ft	-9.0133113 ft	579.55888 psf	1,089.3152 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	87.247175 ft	-9.3611675 ft	601.2756 psf	1,132.6919 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	88.79565 ft	-9.7245953 ft	623.96447 psf	1,183.1377 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	89.94825 ft	-9.9078677 ft	635.4062 psf	1,223.8053 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	90.762275 ft	-9.9995179 ft	641.12794 psf	1,224.3902 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	91.821327 ft	-9.9995796 ft	641.13179 psf	1,241.3791 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	93.463983 ft	-9.9996755 ft	641.13778 psf	1,267.203 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	95.106638 ft	-9.9997713 ft	641.14376 psf	1,293.027 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	96.749292 ft	-9.9998671 ft	641.14974 psf	1,318.851 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 18	98.069605 ft	-9.9810415 ft	639.97445 psf	1,331.6162 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	99.168215 ft	-9.905721 ft	635.27218 psf	1,331.7115 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	100.67727 ft	-9.6321003 ft	618.18999 psf	1,302.7555 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	102.49614 ft	-9.1977528 ft	591.07359 psf	1,282.97 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	104.067 ft	-8.692201 ft	559.5119 psf	1,222.5792 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	105.38985 ft	-8.115445 ft	523.50491 psf	1,179.8708 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	106.7127 ft	-7.538689 ft	487.49793 psf	1,137.1624 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	108.16858 ft	-6.7220405 ft	436.51441 psf	1,039.5423 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	109.7575 ft	-5.6654995 ft	370.55435 psf	949.70893 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	111.27598 ft	-4.4919374 ft	297.28865 psf	819.03276 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	112.47497 ft	-3.4233229 ft	230.57485 psf	716.1454 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	113.59992 ft	-2.420709 ft	167.98147 psf	617.53743 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 30	114.66695 ft	-1.420709 ft	105.55128 psf	502.1899 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 31	115.71349 ft	-0.365 ft	39.64317 psf	392.59623 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 32	116.67149 ft	0.60138611 ft	-20.688498 psf	292.27521 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 33	117.37219 ft	1.3082161 ft	-64.816028 psf	210.31291 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 34	118.07868 ft	1.9885826 ft	-107.29144 psf	125.17217 psf	0 psf	115 psf	0 psf	Ridge In-Situ

H2) B-1b

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 69
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Time: 11:58:17 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:40 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

H2) B-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (56, -1) ft
Left-Zone Right Coordinate: (104, 2.857143) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (119.38306, 5.054723) ft
Right-Zone Right Coordinate: (154, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (298.5, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	70 ft	0.27 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Geometry

Name: EL -1

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	298.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	298.5 ft	-54 ft
Point 14	298.5 ft	-49 ft
Point 15	298.5 ft	-40 ft
Point 16	298.5 ft	-35 ft
Point 17	298.5 ft	-30 ft
Point 18	298.5 ft	-26 ft
Point 19	298.5 ft	-20 ft
Point 20	298.5 ft	-15 ft
Point 21	298.5 ft	-10 ft
Point 22	298.5 ft	-3 ft
Point 23	91 ft	-3 ft
Point 24	129.5 ft	-3 ft
Point 25	298.5 ft	3 ft
Point 26	164.5 ft	-1 ft
Point 27	170.5 ft	-3 ft
Point 28	191.5 ft	-10 ft

Point 29	234.5 ft	-10 ft
Point 30	255.5 ft	-3 ft
Point 31	264.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	139.5 ft	-1 ft
Point 35	77 ft	-1 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft
Point 39	121.5 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,492.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,492.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,492.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,791 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,194 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,492.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,492.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,686.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,267 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	168.75 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	168 ft²
Region 14	Ridge In-Situ	35,34,24,23	101 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	66 ft²
Region 16	Sand Fill	39,38,25,2,31,30,29,28,27,26,34	1,266.5 ft²
Region 17	Sand Fill	32,36,37,38,39,33	48.625 ft²

Slip Results

Slip Surfaces Analysed: 1253 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.33
Volume: 515.64656 ft³
Weight: 57,261.687 lbf
Resisting Moment: 276,284.85 lbf·ft
Activating Moment: 207,583.26 lbf·ft
Resisting Force: 6,774.3091 lbf
Activating Force: 5,089.5417 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (76.803503, -1) ft

Entry: (132.21165, 5.5) ft
Radius: 24.593212 ft
Center: (104.09617, 26.101231) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	76.901752 ft	-1.072844 ft	83.834002 psf	129.95261 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	78.292975 ft	-2.104333 ft	148.23006 psf	250.65853 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	80.73781 ft	-3.834941 ft	256.27224 psf	499.93296 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	83.04153 ft	-5.378867 ft	352.65983 psf	701.08587 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	85.041695 ft	-6.600157 ft	428.9052 psf	838.61019 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	86.58089 ft	-7.415432 ft	479.80297 psf	952.92955 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	88.203835 ft	-8.1210022 ft	523.85185 psf	1,034.6357 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	90.076335 ft	-8.8033037 ft	566.44806 psf	1,145.9991 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	92.33272 ft	-9.433373 ft	605.78341 psf	1,228.586 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	94.595775 ft	-9.8150675 ft	629.61267 psf	1,285.4112 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	96.49825 ft	-9.9546315 ft	638.32567 psf	1,321.2352 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	98.433843 ft	-9.9998847 ft	641.15084 psf	1,347.6839 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	100.39431 ft	-9.9998721 ft	641.15005 psf	1,378.4898 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	102.35478 ft	-9.9998595 ft	641.14927 psf	1,409.2957 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	104.31524 ft	-9.9998469 ft	641.14848 psf	1,440.1016 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	106.27571 ft	-9.9998343 ft	641.14769 psf	1,470.9075 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	108.00524 ft	-9.9161935 ft	635.92598 psf	1,466.2922 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	109.50384	-9.7489245	625.48335	1,471.07 psf	0 psf	130 psf	0 psf	B. CL, el -3

18	ft	ft	psf					to -10
Slice 19	111.12657 ft	-9.442381 ft	606.34578 psf	1,434.0024 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	113.0803 ft	-8.9437675 ft	575.21724 psf	1,410.0611 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	114.87045 ft	-8.3510916 ft	538.21637 psf	1,337.6814 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	116.29015 ft	-7.7171487 ft	498.6392 psf	1,291.457 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	117.61598 ft	-7.1251241 ft	461.67899 psf	1,248.9526 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	119.49833 ft	-6.1272035 ft	399.37862 psf	1,151.0656 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	121.13236 ft	-5.1219307 ft	336.61925 psf	1,037.9805 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	122 ft	-4.4554521 ft	295.01087 psf	981.60277 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	123.19738 ft	-3.5356894 ft	237.58991 psf	892.93066 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	124.56769 ft	-2.4830865 ft	171.87571 psf	790.97427 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 29	125.81034 ft	-1.4830865 ft	109.44552 psf	677.77219 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 30	127.1289 ft	-0.365 ft	39.64317 psf	563.09556 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 31	128.48693 ft	0.7865545 ft	-32.248595 psf	444.98629 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 32	129.72595 ft	2.1515545 ft	-117.4658 psf	239.93671 psf	127.57661 psf	0 psf	0 psf	Sand Fill
Slice 33	131.28372 ft	4.25 ft	-248.47215 psf	89.570185 psf	47.625312 psf	0 psf	0 psf	Sand Fill

I) A-1a

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File Information

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Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:32 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

I) A-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf
Distribution
F of S Calculation Option: Constant
Advanced
Geometry Settings
Minimum Slip Surface Depth: 0.1 ft
Number of Slices: 30
Factor of Safety Convergence Settings
Maximum Number of Iterations: 100
Tolerable difference in F of S: 0.001
Solution Settings
Search Method: Root Finder
Tolerable difference between starting and converged F of S: 3
Maximum iterations to calculate converged lambda: 20
Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb
Unit Weight: 110 pcf
Cohesion': 115 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb
Unit Weight: 100 pcf
Cohesion': 60 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb
Unit Weight: 112 pcf
Cohesion': 130 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (70, -2) ft
Left-Zone Right Coordinate: (119.00168, 3.56327) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (132.01262, 0.724519) ft
Right-Zone Right Coordinate: (193.5, -10) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (298.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	84 ft	1.06 ft

Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	109 ft	2 ft
Coordinate 2	117 ft	2 ft
Coordinate 3	118 ft	2 ft

Geometry

Name: EL -2

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	298.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	298.5 ft	-54 ft
Point 14	298.5 ft	-49 ft
Point 15	298.5 ft	-40 ft
Point 16	298.5 ft	-35 ft
Point 17	298.5 ft	-30 ft
Point 18	298.5 ft	-26 ft
Point 19	298.5 ft	-20 ft
Point 20	298.5 ft	-15 ft
Point 21	298.5 ft	-10 ft
Point 22	298.5 ft	-3 ft
Point 23	77 ft	-3 ft
Point 24	139.5 ft	-3 ft
Point 25	298.5 ft	3 ft
Point 26	169.5 ft	-2 ft
Point 27	172.5 ft	-3 ft
Point 28	193.5 ft	-10 ft

Point 29	234.5 ft	-10 ft
Point 30	255.5 ft	-3 ft
Point 31	264.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	144.5 ft	-2 ft
Point 35	70 ft	-2 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft
Point 39	121.58333 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,492.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,492.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,492.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,791 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,194 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,492.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,492.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,686.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,281 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	238.5 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	73.5 ft²
Region 14	Ridge In-Situ	35,34,24,23	68.5 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	29 ft²
Region 16		39,38,25,2,31,30,29,28,27,26,34	1,273.3 ft²
Region 17		32,36,37,38,39,33	48.583 ft²

Slip Results

Slip Surfaces Analysed: 1103 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.47
Volume: 291.71817 ft³
Weight: 32,338.98 lbf
Resisting Moment: 108,626.26 lbf·ft
Activating Moment: 73,659.561 lbf·ft
Resisting Force: 4,558.7081 lbf
Activating Force: 3,090.7215 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (145.54918, -2) ft

Entry: (109.35905, 2) ft
Radius: 16.603955 ft
Center: (128.34662, 10.841827) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	109.66465 ft	1.6871745 ft	-61.757776 psf	124.76515 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 2	110.29824 ft	1.0293645 ft	-21.248584 psf	207.97809 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 3	111.03022 ft	0.2594505 ft	26.172625 psf	297.46566 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 4	111.71711 ft	-0.45573642 ft	70.21693 psf	383.2182 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 5	112.61109 ft	-1.3729969 ft	126.69434 psf	481.38646 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 6	113.70949 ft	-2.5 ft	196.08598 psf	596.91221 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 7	114.54856 ft	-3.360924 ft	249.09465 psf	676.78563 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	115.42524 ft	-4.1610509 ft	298.27462 psf	785.72775 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	116.47508 ft	-5.0394566 ft	352.18904 psf	878.57474 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	117.65305 ft	-6.0250692 ft	412.68358 psf	967.96194 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	118.79539 ft	-6.88897 ft	465.611 psf	1,062.4448 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	119.77396 ft	-7.523952 ft	504.3912 psf	1,107.9724 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	120.92329 ft	-8.1378097 ft	541.70222 psf	1,180.2254 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	122.04166 ft	-8.6399749 ft	572.06752 psf	1,208.7155 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	122.72186 ft	-8.9453892 ft	590.53555 psf	1,226.0431 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	123.55757 ft	-9.21694 ft	606.75249 psf	1,265.263 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	124.7853 ft	-9.56081 ft	627.13908 psf	1,274.1339 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	125.9443 ft	-9.7771363 ft	639.62363 psf	1,305.9052 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	127.03457 ft	-9.865919 ft	644.20614 psf	1,289.776 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	128.12484 ft	-9.9547017 ft	648.78865 psf	1,273.6469 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	129.19108	-9.950566	647.5914	1,278.8528	0 psf	130 psf	0 psf	B. CL, el -3

21	ft	ft	psf	psf				to -10
Slice 22	130.23332 ft	-9.853512 ft	640.6144 psf	1,242.7296 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	131.27554 ft	-9.756458 ft	633.63739 psf	1,206.6063 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	132.14833 ft	-9.614594 ft	624.01212 psf	1,199.6352 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	133.10604 ft	-9.3604075 ft	607.29975 psf	1,147.1896 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	134.39733 ft	-8.9005713 ft	577.45484 psf	1,101.4903 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	135.76782 ft	-8.302598 ft	538.91624 psf	1,016.7226 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	137.13831 ft	-7.7046247 ft	500.37764 psf	931.95486 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	138.66178 ft	-6.9654085 ft	452.8865 psf	842.7058 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	139.68988 ft	-6.4254575 ft	418.27181 psf	767.67176 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	139.93988 ft	-6.2871227 ft	409.41536 psf	765.52892 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	140.8725 ft	-5.6881722 ft	371.96982 psf	683.28224 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	142.1225 ft	-4.8516769 ft	319.74726 psf	581.29337 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 34	143.37738 ft	-3.9336714 ft	262.436 psf	456.71595 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 35	144.37738 ft	-3.1694455 ft	214.72523 psf	386.08582 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 36	145.02459 ft	-2.5235335 ft	174.40083 psf	255.75183 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

J) A-1b

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File Information

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Last Edited By: Clay Worley
Revision Number: 69
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Time: 11:58:17 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:36 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

J) A-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (73.08, -1.56) ft
Left-Zone Right Coordinate: (119.00438, 3.56268) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (193.5, -10) ft
Right-Zone Right Coordinate: (242.85, -7.216667) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (298.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	84 ft	1.06 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Geometry

Name: EL -2

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	298.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	298.5 ft	-54 ft
Point 14	298.5 ft	-49 ft
Point 15	298.5 ft	-40 ft
Point 16	298.5 ft	-35 ft
Point 17	298.5 ft	-30 ft
Point 18	298.5 ft	-26 ft
Point 19	298.5 ft	-20 ft
Point 20	298.5 ft	-15 ft
Point 21	298.5 ft	-10 ft
Point 22	298.5 ft	-3 ft
Point 23	77 ft	-3 ft
Point 24	139.5 ft	-3 ft
Point 25	298.5 ft	3 ft
Point 26	169.5 ft	-2 ft
Point 27	172.5 ft	-3 ft
Point 28	193.5 ft	-10 ft
Point 29	234.5 ft	-10 ft
Point 30	255.5 ft	-3 ft
Point 31	264.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	144.5 ft	-2 ft
Point 35	70 ft	-2 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft

Point 39	121.58333 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,492.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,492.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,492.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,791 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,194 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,492.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,492.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,686.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,281 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	238.5 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	73.5 ft²
Region 14	Ridge In-Situ	35,34,24,23	68.5 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	29 ft²
Region 16		39,38,25,2,31,30,29,28,27,26,34	1,273.3 ft²
Region 17		32,36,37,38,39,33	48.583 ft²

Slip Results

Slip Surfaces Analysed: 1164 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 2.15
Volume: 1,347.9472 ft³
Weight: 152,047.81 lbf
Resisting Moment: 1,707,788.5 lbf·ft
Activating Moment: 794,365.91 lbf·ft
Resisting Force: 21,740.187 lbf
Activating Force: 10,109.527 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (197.08978, -10) ft
Entry: (104.57278, 2.938969) ft
Radius: 40.505354 ft
Center: (157.40609, 51.066288) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	105.52084 ft	1.8409985 ft	-67.711538	72.05925 psf	0 psf	115 psf	0 psf	Ridge In-Situ

			psf					
Slice 2	107.65315 ft	-0.62848598 ft	84.580894 psf	358.67799 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 3	109.26914 ft	-2.5 ft	199.99665 psf	575.89377 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 4	110.85043 ft	-4.3313423 ft	312.93503 psf	783.72508 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	112.09315 ft	-5.7705698 ft	401.69179 psf	952.09655 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	114.04429 ft	-8.038721 ft	541.57452 psf	1,190.1565 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	116.45113 ft	-10.683444 ft	704.56534 psf	1,483.2805 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 8	119.17081 ft	-13.083951 ft	852.03416 psf	1,699.0092 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 9	121.46247 ft	-15.106676 ft	976.29499 psf	1,847.9157 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 10	121.63855 ft	-15.262091 ft	985.84254 psf	1,860.6255 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 11	122.09689 ft	-15.529654 ft	1,002.1429 psf	1,953.4387 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 12	123.73675 ft	-16.419824 ft	1,056.2721 psf	2,012.87 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 13	126.21025 ft	-17.762517 ft	1,137.9183 psf	2,102.5136 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 14	128.71025 ft	-18.78982 ft	1,199.8512 psf	2,218.9763 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 15	131.2959 ft	-19.518398 ft	1,243.0592 psf	2,238.9362 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 16	133.15299 ft	-19.902506 ft	1,265.4036 psf	2,301.7056 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 17	135.6175 ft	-19.955447 ft	1,266.5382 psf	2,273.4596 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 18	138.52365 ft	-19.994337 ft	1,266.4066 psf	2,251.555 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 19	139.75 ft	-19.991114 ft	1,265.1254 psf	2,237.071 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 20	141.25 ft	-19.987173 ft	1,264.6591 psf	2,218.0805 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 21	143.5 ft	-19.981261 ft	1,264.29 psf	2,189.9292 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 22	145.24402 ft	-19.976678 ft	1,264.0039 psf	2,175.47 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 23	147.30266 ft	-19.942532 ft	1,261.8722 psf	2,176.9115 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 24	149.9319 ft	-19.87815 ft	1,257.8528 psf	2,169.6264 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 25	152.67717 ft	-19.812774 ft	1,253.7714 psf	2,161.9164 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 26	155.53846 ft	-19.746404 ft	1,249.6279 psf	2,154.4069 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20

Slice 27	158.39975 ft	-19.680033 ft	1,245.4843 psf	2,146.8973 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 28	161.26104 ft	-19.613663 ft	1,241.3408 psf	2,139.3877 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 29	163.86155 ft	-19.551387 ft	1,237.4529 psf	2,132.743 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 30	166.20126 ft	-19.493205 ft	1,233.8206 psf	2,126.1593 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 31	167.56396 ft	-19.462453 ft	1,231.9007 psf	2,118.7867 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 32	168.6284 ft	-19.467071 ft	1,232.189 psf	2,115.5254 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 33	171 ft	-19.484158 ft	1,233.2558 psf	2,101.8951 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 34	174.76618 ft	-19.511293 ft	1,234.9498 psf	2,050.2111 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 35	178.39083 ft	-19.168585 ft	1,213.5545 psf	2,016.4026 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 36	181.10778 ft	-18.450515 ft	1,168.7253 psf	1,889.5482 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 37	183.82473 ft	-17.732444 ft	1,123.896 psf	1,762.6937 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 38	187.48551 ft	-16.186705 ft	1,027.3952 psf	1,578.7428 psf	0 psf	260 psf	0 psf	D. CL, el -15 to -20
Slice 39	190.01992 ft	-14.880363 ft	945.84005 psf	1,367.8635 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 40	191.87601 ft	-13.630041 ft	867.78218 psf	1,217.6604 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15
Slice 41	195.29489 ft	-11.249677 ft	719.17564 psf	890.69195 psf	0 psf	200 psf	0 psf	C. CL, el -10 to -15

K) A-2

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File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:36 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

K) A-2

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (147, -2) ft
Left-Zone Right Coordinate: (168, -2) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (175.5, -4) ft
Right-Zone Right Coordinate: (243.85, -6.883333) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (298.5, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	300 ft	0.27 ft

Surcharge Loads

Surcharge Load 1

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	149.5 ft	-1 ft
	154.5 ft	-1 ft

Surcharge Load 2

Surcharge (Unit Weight): 260 pcf
Direction: Vertical

Coordinates

	X	Y
	159.5 ft	-1 ft
	164.5 ft	-1 ft

Geometry

Name: EL -2

Settings

View: 2D
Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	298.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	298.5 ft	-54 ft
Point 14	298.5 ft	-49 ft
Point 15	298.5 ft	-40 ft
Point 16	298.5 ft	-35 ft
Point 17	298.5 ft	-30 ft

Point 18	298.5 ft	-26 ft
Point 19	298.5 ft	-20 ft
Point 20	298.5 ft	-15 ft
Point 21	298.5 ft	-10 ft
Point 22	298.5 ft	-3 ft
Point 23	77 ft	-3 ft
Point 24	139.5 ft	-3 ft
Point 25	298.5 ft	3 ft
Point 26	169.5 ft	-2 ft
Point 27	172.5 ft	-3 ft
Point 28	193.5 ft	-10 ft
Point 29	234.5 ft	-10 ft
Point 30	255.5 ft	-3 ft
Point 31	264.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	144.5 ft	-2 ft
Point 35	70 ft	-2 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft
Point 39	121.58333 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,492.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,492.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,492.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,791 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,194 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,492.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,492.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,686.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,281 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	238.5 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	73.5 ft²
Region 14	Ridge In-Situ	35,34,24,23	68.5 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	29 ft²
Region 16		39,38,25,2,31,30,29,28,27,26,34	1,273.3 ft²
Region 17		32,36,37,38,39,33	48.583 ft²

Slip Results

Slip Surfaces Analysed: 1189 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.87
Volume: 118.11769 ft³
Weight: 13,094.974 lbf
Resisting Moment: 52,829.674 lbf·ft
Activating Moment: 28,192.113 lbf·ft
Resisting Force: 3,183.4817 lbf
Activating Force: 1,698.4366 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (184.32823, -6.9427449) ft
Entry: (159.50682, -2) ft
Radius: 11.754137 ft
Center: (172.49394, 4.629344) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	159.81612 ft	-2.5 ft	172.93162 psf	363.06272 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	160.1649 ft	-3.063821 ft	208.13107 psf	362.36998 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 3	160.53072 ft	-3.5872675 ft	240.80994 psf	433.76536 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	161.22137 ft	-4.5057855 ft	298.15319 psf	542.17783 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	161.95 ft	-5.4235705 ft	355.45068 psf	637.02822 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	162.65001 ft	-6.273503 ft	408.51213 psf	735.20639 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	163.32141 ft	-7.055583 ft	457.33753 psf	816.5046 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	164.07855 ft	-7.9395291 ft	512.52245 psf	907.82449 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	164.51313 ft	-8.4477916 ft	544.25338 psf	719.39838 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	164.96965 ft	-8.5328898 ft	549.56607 psf	846.24633 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	165.85643 ft	-8.6723735 ft	558.27406 psf	861.70685 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	166.74321 ft	-8.8118572 ft	566.98206 psf	877.16738 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
		-						

Slice 13	167.59023 ft	8.9471677 ft	575.42952 psf	891.50912 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	168.3975 ft	-9.0783052 ft	583.61646 psf	906.03963 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	169.15057 ft	-9.1994815 ft	591.18152 psf	919.89399 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	169.83087 ft	-9.3077417 ft	597.94022 psf	931.05013 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	170.4926 ft	-9.4130472 ft	604.51447 psf	934.82248 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	171.2426 ft	-9.5103342 ft	610.58811 psf	943.53434 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	172.08087 ft	-9.5996026 ft	616.16115 psf	943.42189 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	172.67871 ft	-9.6632674 ft	620.13576 psf	942.63189 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	173.3528 ft	-9.6841132 ft	621.43717 psf	947.71593 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	174.34357 ft	-9.6877437 ft	621.66382 psf	932.21231 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	175.23518 ft	-9.6394652 ft	618.64978 psf	929.5499 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	176.02761 ft	-9.5392775 ft	612.39504 psf	905.39765 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	176.82005 ft	-9.4390898 ft	606.14031 psf	881.24539 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	177.587 ft	-9.3086488 ft	597.99685 psf	865.64719 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	178.32846 ft	-9.1479545 ft	587.96468 psf	835.30277 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	179.06993 ft	-8.9872602 ft	577.9325 psf	804.95834 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	179.93007 ft	-8.739189 ft	562.44537 psf	778.23165 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	180.90891 ft	-8.403741 ft	541.50329 psf	723.69705 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	181.99713 ft	-7.9819115	515.16839 psf	666.96574 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

		ft						
Slice 32	183.02901 ft	-7.5315407 ft	487.05166 psf	601.25012 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 33	183.89516 ft	-7.1390102 ft	462.5459 psf	541.57689 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

L1) B-1a

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 69
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Time: 11:58:17 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:40 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

L1) B-1a

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: Tension Crack Line
  - Filled with water (0 to 1): 1

Tension Crack Fluid Unit Weight: 62.430189 pcf

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf
Cohesion': 200 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (42, -2) ft
Left-Zone Right Coordinate: (94, 1.428571) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (111, 3.857143) ft
Right-Zone Right Coordinate: (145, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (298.5, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	70 ft	0.27 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Tension Crack Line

	X	Y
Coordinate 1	113 ft	3 ft
Coordinate 2	117 ft	3 ft
Coordinate 3	119 ft	2 ft

Geometry

Name: EL -2

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	298.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	298.5 ft	-54 ft
Point 14	298.5 ft	-49 ft
Point 15	298.5 ft	-40 ft
Point 16	298.5 ft	-35 ft
Point 17	298.5 ft	-30 ft
Point 18	298.5 ft	-26 ft
Point 19	298.5 ft	-20 ft

Point 20	298.5 ft	-15 ft
Point 21	298.5 ft	-10 ft
Point 22	298.5 ft	-3 ft
Point 23	77 ft	-3 ft
Point 24	139.5 ft	-3 ft
Point 25	298.5 ft	3 ft
Point 26	169.5 ft	-2 ft
Point 27	172.5 ft	-3 ft
Point 28	193.5 ft	-10 ft
Point 29	234.5 ft	-10 ft
Point 30	255.5 ft	-3 ft
Point 31	264.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	144.5 ft	-2 ft
Point 35	70 ft	-2 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft
Point 39	121.58333 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,492.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,492.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,492.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,791 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,194 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,492.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,492.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,686.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,281 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	238.5 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	73.5 ft²
Region 14	Ridge In-Situ	35,34,24,23	68.5 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	29 ft²
Region 16	Sand Fill	39,38,25,2,31,30,29,28,27,26,34	1,273.3 ft²
Region 17		32,36,37,38,39,33	48.583 ft²

Slip Results

Slip Surfaces Analysed: 1250 of 1332 converged

Current Slip Surface

Slip Surface: 1,332

Factor of Safety: 1.73
Volume: 391.22932 ft³
Weight: 43,402.183 lbf
Resisting Moment: 210,608.26 lbf·ft
Activating Moment: 122,061.54 lbf·ft
Resisting Force: 6,028.6606 lbf
Activating Force: 3,493.5686 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (70.174398, -1.975086) ft
Entry: (118.31396, 2.3430194) ft
Radius: 20.730526 ft
Center: (93.128983, 21.296957) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	70.200501 ft	-1.987543 ft	140.93883 psf	183.93495 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 2	71.274309 ft	-2.5 ft	172.93162 psf	228.32838 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	72.842708 ft	-3.2484915 ft	219.66009 psf	344.18808 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 4	74.228975 ft	-3.9238365 ft	261.822 psf	435.33287 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	75.960125 ft	-4.7775435 ft	315.11909 psf	548.38379 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	76.91285 ft	-5.2490087 ft	344.55276 psf	612.95201 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	77.993465 ft	-5.8021712 ft	379.0868 psf	684.47902 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	79.740258 ft	-6.65054 ft	432.05062 psf	786.92729 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	81.246915 ft	-7.330176 ft	474.48042 psf	875.55873 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	82.753572 ft	-8.009812 ft	516.91022 psf	964.19018 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	84.69845 ft	-8.7325824 ft	562.03291 psf	1,042.4711 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	86.16476 ft	-9.2038399 ft	591.45361 psf	1,108.8506 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	87.544055 ft	-9.537163 ft	612.26304 psf	1,154.3654 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	89.702655 ft	-9.8900105 ft	634.29137 psf	1,210.9033 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	91.521516 ft	-9.997768 ft	641.01869 psf	1,236.4336 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	93.051108 ft	-9.997624 ft	641.0097 psf	1,260.4538 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	94.5807 ft	-9.99748 ft	641.00071 psf	1,284.474 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 18	96.110292 ft	-9.997336 ft	640.99172 psf	1,308.4942 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	97.639884 ft	-9.997192 ft	640.98273 psf	1,332.5143 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	99.056615 ft	-9.8968502 ft	634.71838 psf	1,319.8402 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	100.36048 ft	-9.6963108 ft	622.19866 psf	1,317.8871 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	101.74198 ft	-9.379915 ft	602.44601 psf	1,282.8354 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	103.2011 ft	-8.947663 ft	575.46044 psf	1,257.7953 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	104.65362 ft	-8.4001607 ft	541.27977 psf	1,196.5804 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	106.09952 ft	-7.7374082 ft	499.90401 psf	1,146.4461 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	107.65546 ft	-6.8868925 ft	446.80615 psf	1,055.3181 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	109.32142 ft	-5.8486135 ft	381.98619 psf	968.44419 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	111.0772 ft	-4.5434315 ft	300.50344 psf	826.62411 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	112.42296 ft	-3.397111 ft	228.93843 psf	718.25129 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	113.38904 ft	-2.5184165 ft	174.08137 psf	621.92563 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 31	114.69282 ft	-1.273949 ft	96.389027 psf	492.41797 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 32	115.85812 ft	-0.138949 ft	25.530763 psf	369.58947 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 33	116.63138 ft	0.64253869 ft	-23.257661 psf	288.51976 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 34	117.65698 ft	1.6790484 ft	-87.967158 psf	163.61196 psf	0 psf	115 psf	0 psf	Ridge In-Situ

L2) B-1b

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File Information

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Revision Number: 69
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Time: 11:58:17 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge in-situ w sand straddle.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/02/2021
Last Solved Time: 11:58:38 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

L2) B-1b

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge In-Situ

Model: Mohr-Coulomb

Unit Weight: 110 pcf

Cohesion': 115 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (42, -2) ft
Left-Zone Right Coordinate: (104, 2.857143) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (119.39294, 5.056134) ft
Right-Zone Right Coordinate: (154, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (298.5, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	70 ft	0.27 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	300 ft	0.27 ft

Geometry

Name: EL -2

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	298.5 ft	0 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	298.5 ft	-54 ft
Point 14	298.5 ft	-49 ft
Point 15	298.5 ft	-40 ft
Point 16	298.5 ft	-35 ft
Point 17	298.5 ft	-30 ft
Point 18	298.5 ft	-26 ft
Point 19	298.5 ft	-20 ft
Point 20	298.5 ft	-15 ft
Point 21	298.5 ft	-10 ft
Point 22	298.5 ft	-3 ft
Point 23	77 ft	-3 ft
Point 24	139.5 ft	-3 ft
Point 25	298.5 ft	3 ft
Point 26	169.5 ft	-2 ft
Point 27	172.5 ft	-3 ft
Point 28	193.5 ft	-10 ft

Point 29	234.5 ft	-10 ft
Point 30	255.5 ft	-3 ft
Point 31	264.5 ft	0 ft
Point 32	112 ft	4 ft
Point 33	117 ft	4 ft
Point 34	144.5 ft	-2 ft
Point 35	70 ft	-2 ft
Point 36	122.5 ft	5.5 ft
Point 37	132.5 ft	5.5 ft
Point 38	142.5 ft	3 ft
Point 39	121.58333 ft	3 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,492.5 ft²
Region 2	C. CL, el -10 to -15	4,5,20,21,29,28	1,492.5 ft²
Region 3	D. CL, el -15 to -20	5,6,19,20	1,492.5 ft²
Region 4	E. CH, el -20 to -26	6,7,18,19	1,791 ft²
Region 5	F. CH, el -26 to -30	7,8,17,18	1,194 ft²
Region 6	G. CL, el -30 to -35	8,9,16,17	1,492.5 ft²
Region 7	H. CH, el -35 to -40	9,10,15,16	1,492.5 ft²
Region 8	I. CL, el -40 to -49	10,11,14,15	2,686.5 ft²
Region 9	B. CL, el -3 to -10	3,4,28,27,24,23	1,281 ft²
Region 10	B. CL, el -3 to -10	21,22,30,29	374.5 ft²
Region 11	A. CH, el 0 to -3	22,2,31,30	115.5 ft²
Region 12	Ridge In-Situ	35,34,39,33,32	238.5 ft²
Region 13	A. CH, el 0 to -3	3,1,35,23	73.5 ft²
Region 14	Ridge In-Situ	35,34,24,23	68.5 ft²
Region 15	A. CH, el 0 to -3	34,26,27,24	29 ft²
Region 16	Sand Fill	39,38,25,2,31,30,29,28,27,26,34	1,273.3 ft²
Region 17	Sand Fill	32,36,37,38,39,33	48.583 ft²

Slip Results

Slip Surfaces Analysed: 1266 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.38
Volume: 523.97081 ft³
Weight: 58,307.729 lbf
Resisting Moment: 290,562.31 lbf·ft
Activating Moment: 210,779.58 lbf·ft
Resisting Force: 7,030.5451 lbf
Activating Force: 5,099.7951 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (76.315427, -1.0977961) ft

Entry: (132.46334, 5.5) ft
Radius: 24.851933 ft
Center: (103.65096, 26.416089) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	76.951145 ft	-1.548898 ft	113.55415 psf	214.89929 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 2	78.238447 ft	-2.46236 ft	170.58175 psf	329.3987 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 3	78.949901 ft	-2.96236 ft	201.79684 psf	382.88627 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 4	80.062359 ft	-3.6617445 ft	245.45955 psf	480.22038 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	82.167533 ft	-4.9852335 ft	328.08522 psf	649.63095 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	84.55506 ft	-6.3729436 ft	414.72022 psf	815.39385 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	86.46038 ft	-7.4090926 ft	479.4072 psf	954.3685 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	87.855748 ft	-8.0327155 ft	518.34009 psf	1,022.0348 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	89.505722 ft	-8.6595945 ft	557.47627 psf	1,120.654 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	91.065583 ft	-9.1398992 ft	587.46178 psf	1,174.006 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	92.535327 ft	-9.4736298 ft	608.29664 psf	1,235.4028 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	94.007645 ft	-9.7453725 ft	625.26159 psf	1,274.4006 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	95.520505 ft	-9.908179 ft	635.42563 psf	1,304.4951 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	96.68464 ft	-9.977189 ft	639.73394 psf	1,322.2044 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	97.639905 ft	-9.9897085 ft	640.51554 psf	1,333.898 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	99.133768 ft	-9.9910913 ft	640.60187 psf	1,357.0532 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	100.9884 ft	-9.99098 ft	640.59492 psf	1,386.1849 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
		-						

Slice 18	102.84304 ft	9.9908687 ft	640.58797 psf	1,415.3165 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	104.69767 ft	-9.9907573 ft	640.58102 psf	1,444.4482 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	106.55231 ft	-9.990646 ft	640.57406 psf	1,473.5799 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	108.40694 ft	-9.9905347 ft	640.56711 psf	1,502.7116 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	110.66713 ft	-9.6635994 ft	620.15648 psf	1,454.8745 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	112.74858 ft	-9.1531356 ft	588.28813 psf	1,431.3279 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	114.24572 ft	-8.7859672 ft	565.36574 psf	1,415.0652 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	115.99715 ft	-8.122293 ft	523.93243 psf	1,328.3627 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	117.79592 ft	-7.2611745 ft	470.17264 psf	1,264.3653 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	119.38777 ft	-6.4991175 ft	422.59728 psf	1,208.6685 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	120.88351 ft	-5.6052084 ft	366.79037 psf	1,095.9195 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	122.04166 ft	-4.7564254 ft	313.80069 psf	1,024.6062 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	123.136 ft	-3.9544146 ft	263.731 psf	947.25758 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	124.05605 ft	-3.244153 ft	219.38923 psf	854.12101 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	124.9218 ft	-2.5 ft	172.93162 psf	785.27102 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 33	126.82397 ft	-0.865 ft	70.858264 psf	617.06799 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 34	128.66995 ft	0.7217005 ft	-28.199747 psf	453.83385 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 35	129.24921 ft	1.24456 ft	-60.841962 psf	353.07445 psf	0 psf	115 psf	0 psf	Ridge In-Situ
Slice 36	129.93902 ft	2.1578595 ft	-117.85942 psf	244.37207 psf	129.93494 psf	0 psf	0 psf	Sand Fill
Slice	131.51921	4.25 ft	-248.47215	91.398039	48.597199	0 psf	0 psf	Sand Fill

37	ft		psf	psf	psf			

SAND

A) Towards Marsh

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File Information

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Last Solved Date: 07/01/2021
Last Solved Time: 09:48:58 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

A) Towards Marsh

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 115 pcf

Cohesion': 0 psf

Phi': 28 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (70, 0) ft
Left-Zone Right Coordinate: (121, 4) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (131.41678, 1.916644) ft
Right-Zone Right Coordinate: (164, 0) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (200, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	70 ft	1.06 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	200 ft	0.27 ft

Geometry

Name: 1. ML el 0 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	77 ft	0 ft
Point 3	141 ft	0 ft
Point 4	200 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft
Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	200 ft	-54 ft
Point 16	200 ft	-49 ft
Point 17	200 ft	-40 ft
Point 18	200 ft	-35 ft
Point 19	200 ft	-30 ft
Point 20	200 ft	-26 ft
Point 21	200 ft	-20 ft
Point 22	200 ft	-15 ft
Point 23	200 ft	-10 ft
Point 24	200 ft	-3 ft
Point 25	98 ft	-3 ft
Point 26	126 ft	-3 ft
Point 27	126 ft	3 ft
Point 28	200 ft	3 ft
Point 29	108.5 ft	4.5 ft
Point 30	118.5 ft	4.5 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,000 ft²
Region 2	Ridge	2,3,27,30,29	166.5 ft²
Region 3	B. CL, el -3 to -10	5,6,23,24,26,25	1,400 ft²
Region 4	C. CL, el -10 to -15	6,7,22,23	1,000 ft²
Region 5	D. CL, el -15 to -20	7,8,21,22	1,000 ft²

Region 6	E. CH, el -20 to -26	8,9,20,21	1,200 ft²
Region 7	F. CH, el -26 to -30	9,10,19,20	800 ft²
Region 8	G. CL, el -30 to -35	10,11,18,19	1,000 ft²
Region 9	H. CH, el -35 to -40	11,12,17,18	1,000 ft²
Region 10	I. CL, el -40 to -49	12,13,16,17	1,800 ft²
Region 11	Ridge	2,25,26,3	138 ft²
Region 12	A. CH, el 0 to -3	1,5,25,2	262.5 ft²
Region 13	A. CH, el 0 to -3	24,4,3,26	199.5 ft²
Region 14		27,28,4,3	199.5 ft²

Slip Results

Slip Surfaces Analysed: 1064 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.42
Volume: 315.8049 ft³
Weight: 35,325.39 lbf
Resisting Moment: 123,332.33 lbf·ft
Activating Moment: 87,055.072 lbf·ft
Resisting Force: 4,719.1732 lbf
Activating Force: 3,330.0119 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (148.12082, 0) ft
Entry: (109.80247, 4.5) ft
Radius: 18.265552 ft
Center: (130.38614, 12.004427) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	110.32356 ft	3.8041835 ft	-199.73063 psf	51.265334 psf	27.258261 psf	0 psf	0 psf	Ridge
Slice 2	111.36573 ft	2.4125505 ft	-113.58501 psf	153.796 psf	81.774784 psf	0 psf	0 psf	Ridge
Slice 3	112.31559 ft	1.1471667 ft	-35.256097 psf	247.50672 psf	131.60166 psf	0 psf	0 psf	Ridge
Slice 4	112.96177 ft	0.28879969 ft	17.87664 psf	316.32094 psf	158.68565 psf	0 psf	0 psf	Ridge
Slice 5	113.19306 ft	-0.0184475 ft	36.895176 psf	344.79949 psf	163.71563 psf	0 psf	0 psf	Ridge
Slice 6	113.76068 ft	-0.7677215 ft	83.272564 psf	415.07517 psf	176.42257 psf	0 psf	0 psf	Ridge

Slice 7	114.86816 ft	-2.2293745 ft	173.74355 psf	550.693 psf	200.42758 psf	0 psf	0 psf	Ridge
Slice 8	116.20336 ft	-3.6112487 ft	259.07347 psf	817.67777 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	117.74242 ft	-4.8934446 ft	338.03683 psf	954.23859 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	118.66455 ft	-5.6616804 ft	385.34823 psf	1,032.4284 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	119.38269 ft	-6.183442 ft	417.41592 psf	1,093.2995 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	120.48989 ft	-6.95279 ft	464.66637 psf	1,151.4766 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	121.5723 ft	-7.6302303 ft	506.19646 psf	1,223.09 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	122.62994 ft	-8.2157628 ft	542.00618 psf	1,262.9653 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	123.82221 ft	-8.7568812 ft	574.94827 psf	1,325.2768 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	125.14912 ft	-9.2535857 ft	605.02272 psf	1,349.8151 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	125.90629 ft	-9.5200845 ft	621.12682 psf	1,393.5228 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	126.58704 ft	-9.6519083 ft	628.87697 psf	1,390.9004 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	127.76111 ft	-9.8792628 ft	642.24353 psf	1,385.8987 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	129.04693 ft	-9.990627 ft	648.29008 psf	1,400.0537 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	130.44448 ft	-9.986001 ft	647.0166 psf	1,363.1916 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	131.84203 ft	-9.981375 ft	645.74313 psf	1,326.3295 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	133.27933 ft	-9.8159167 ft	634.40086 psf	1,308.1585 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	134.75637 ft	-9.4896262 ft	612.98981 psf	1,232.1625 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	136.24429 ft	-8.978441 ft	580.02807 psf	1,175.6574 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	137.74309 ft	-8.282361 ft	535.51566 psf	1,055.2351 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	139.06078 ft	-7.4953389 ft	485.45332 psf	977.63643 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	139.81453 ft	-6.9130918 ft	448.57245 psf	890.85307 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	140.5 ft	-6.3835956 ft	415.38523 psf	818.78416 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	141.8439 ft	-5.3454838 ft	350.57571 psf	689.38387 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	143.6261 ft	-3.8722525 ft	258.6016 psf	529.50964 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	145.45047 ft	-2.3009555 ft	160.50524 psf	301.35214 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

Slice 33	147.22868 ft	-0.7755045 ft	65.271043 psf	141.53081 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

B) Towards Bayou

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File Information

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Time: 09:48:44 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge sand.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:49:02 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

B) Towards Bayou

Kind: SLOPE/W
Method: Spencer
Settings
PWP Conditions from: Piezometric Line
Apply Phreatic Correction: No
Use Staged Rapid Drawdown: No
Unit Weight of Water: 62.430189 pcf
Slip Surface
Direction of movement: Right to Left
Use Passive Mode: No
Slip Surface Option: Entry and Exit
Critical slip surfaces saved: 1
Optimize Critical Slip Surface Location: Yes
Optimizations Settings
Maximum Iterations: 2,000
Starting Points: 8
Ending Points: 16
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °
Tension Crack Option: (none)
Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 115 pcf

Cohesion': 0 psf

Phi': 28 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (50, 0) ft
Left-Zone Right Coordinate: (97, 2.857143) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (108, 4.428571) ft
Right-Zone Right Coordinate: (140, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (200, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	200 ft	0.27 ft

Geometry

Name: 1. ML el 0 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	77 ft	0 ft
Point 3	141 ft	0 ft
Point 4	200 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft
Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	200 ft	-54 ft
Point 16	200 ft	-49 ft
Point 17	200 ft	-40 ft
Point 18	200 ft	-35 ft
Point 19	200 ft	-30 ft
Point 20	200 ft	-26 ft
Point 21	200 ft	-20 ft
Point 22	200 ft	-15 ft
Point 23	200 ft	-10 ft
Point 24	200 ft	-3 ft
Point 25	98 ft	-3 ft
Point 26	126 ft	-3 ft
Point 27	126 ft	3 ft
Point 28	200 ft	3 ft
Point 29	108.5 ft	4.5 ft
Point 30	118.5 ft	4.5 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,000 ft²
Region 2	Ridge	2,3,27,30,29	166.5 ft²
Region 3	B. CL, el -3 to -10	5,6,23,24,26,25	1,400 ft²
Region 4	C. CL, el -10 to -15	6,7,22,23	1,000 ft²
Region 5	D. CL, el -15 to -20	7,8,21,22	1,000 ft²
Region 6	E. CH, el -20 to -26	8,9,20,21	1,200 ft²
Region 7	F. CH, el -26 to -30	9,10,19,20	800 ft²
Region 8	G. CL, el -30 to -35	10,11,18,19	1,000 ft²
Region 9	H. CH, el -35 to -40	11,12,17,18	1,000 ft²
Region 10	I. CL, el -40 to -49	12,13,16,17	1,800 ft²
Region 11	Ridge	2,25,26,3	138 ft²
Region 12	A. CH, el 0 to -3	1,5,25,2	262.5 ft²
Region 13	A. CH, el 0 to -3	24,4,3,26	199.5 ft²
Region 14	Sand Fill	27,28,4,3	199.5 ft²

Slip Results

Slip Surfaces Analysed: 1192 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.58
Volume: 408.7742 ft³
Weight: 45,804.371 lbf
Resisting Moment: 185,851.79 lbf·ft
Activating Moment: 117,932.1 lbf·ft
Resisting Force: 5,783.2548 lbf
Activating Force: 3,668.9531 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (71.420806, 0) ft
Entry: (117.46357, 4.5) ft
Radius: 20.794644 ft
Center: (94.109104, 17.048845) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	72.562998 ft	-1.005265 ft	79.615034 psf	160.7383 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	74.296913 ft	-2.505265 ft	173.26032 psf	315.78769 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	75.920818 ft	-3.8629985 ft	258.02388 psf	510.41589 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice		-	312.95328	599.32442				B. CL, el -3

4	76.9765 ft	4.7428517 ft	psf	psf	0 psf	130 psf	0 psf	to -10
Slice 5	77.945 ft	-5.4374797 ft	356.31903 psf	689.87461 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	79.85446 ft	-6.8069835 ft	441.81742 psf	877.61537 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	81.571018 ft	-7.8627397 ft	507.72848 psf	1,000.5375 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	83.075212 ft	-8.5907912 ft	553.18087 psf	1,113.0014 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	84.82115 ft	-9.248511 ft	594.24244 psf	1,193.3327 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	86.700385 ft	-9.7111705 ft	623.12636 psf	1,265.3158 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	88.25849 ft	-9.939472 ft	637.37926 psf	1,304.4198 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	89.66405 ft	-9.9988082 ft	641.08363 psf	1,323.58 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	91.12975 ft	-9.9988085 ft	641.08365 psf	1,350.8002 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	92.59545 ft	-9.9988088 ft	641.08367 psf	1,378.0204 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	94.06115 ft	-9.9988092 ft	641.08369 psf	1,405.2406 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	95.52685 ft	-9.9988095 ft	641.08371 psf	1,432.4607 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	96.99255 ft	-9.9988098 ft	641.08373 psf	1,459.6809 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	97.8627 ft	-9.9714084 ft	639.37306 psf	1,440.5349 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	98.78772 ft	-9.7867978 ft	627.84779 psf	1,435.4057 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	100.36316 ft	-9.4723799 ft	608.21862 psf	1,426.1742 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	102.03594 ft	-8.973625 ft	577.08125 psf	1,369.0551 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	103.80608 ft	-8.290533 ft	534.43569 psf	1,322.613 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	105.45163	-	485.09708	1,232.3945				B. CL, el -3

23	ft	7.5002325 ft	psf	psf	0 psf	130 psf	0 psf	to -10
Slice 24	106.9726 ft	-6.6027235 ft	429.06542 psf	1,159.2301 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	108.11655 ft	-5.850426 ft	382.09935 psf	1,068.2788 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	109.30358 ft	-4.910769 ft	323.43638 psf	973.45584 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	110.91074 ft	-3.638541 ft	244.01095 psf	836.89829 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	112.29231 ft	-2.2512135 ft	157.39983 psf	564.95229 psf	216.69949 psf	0 psf	0 psf	Ridge
Slice 29	113.44735 ft	-0.75 ft	63.678792 psf	422.79268 psf	190.94424 psf	0 psf	0 psf	Ridge
Slice 30	114.12827 ft	0.135 ft	8.4280755 psf	338.98631 psf	175.76093 psf	0 psf	0 psf	Ridge
Slice 31	114.67386 ft	0.8441025 ft	-35.841327 psf	281.92958 psf	149.90461 psf	0 psf	0 psf	Ridge
Slice 32	115.54527 ft	1.981636 ft	-106.85776 psf	193.61841 psf	102.94874 psf	0 psf	0 psf	Ridge
Slice 33	116.71926 ft	3.5225335 ft	-203.05628 psf	75.11097 psf	39.937211 psf	0 psf	0 psf	Ridge

C) Towards Marsh

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File Information

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Revision Number: 25
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Time: 09:48:44 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge sand.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:49:12 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

C) Towards Marsh

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 115 pcf

Cohesion': 0 psf

Phi': 28 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (59, -1) ft
Left-Zone Right Coordinate: (112, 4.2) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (125, 1.6) ft
Right-Zone Right Coordinate: (171, -1) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (200, -1) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	70 ft	1.06 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	200 ft	0.27 ft

Geometry

Name: 2. ML el -1 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	200 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	200 ft	-54 ft
Point 14	200 ft	-49 ft
Point 15	200 ft	-40 ft
Point 16	200 ft	-35 ft
Point 17	200 ft	-30 ft
Point 18	200 ft	-26 ft
Point 19	200 ft	-20 ft
Point 20	200 ft	-15 ft
Point 21	200 ft	-10 ft
Point 22	200 ft	-3 ft
Point 23	200 ft	3 ft
Point 24	62 ft	-1 ft
Point 25	138 ft	-1 ft
Point 26	118 ft	3 ft
Point 27	76 ft	-3 ft
Point 28	128 ft	-3 ft
Point 29	100.5 ft	4.5 ft
Point 30	110.5 ft	4.5 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,000 ft²
Region 2	B. CL, el -3 to -10	3,4,21,22,28,27	1,400 ft²
Region 3	C. CL, el -10 to -15	4,5,20,21	1,000 ft²
Region 4	D. CL, el -15 to -20	5,6,19,20	1,000 ft²
Region 5	E. CH, el -20 to -26	6,7,18,19	1,200 ft²

Region 6	F. CH, el -26 to -30	7,8,17,18	800 ft²
Region 7	G. CL, el -30 to -35	8,9,16,17	1,000 ft²
Region 8	H. CH, el -35 to -40	9,10,15,16	1,000 ft²
Region 9	I. CL, el -40 to -49	10,11,14,15	1,800 ft²
Region 10	Ridge	24,29,30,26,25	236.5 ft²
Region 11		2,23,26,25	288 ft²
Region 12	Ridge	24,27,28,25	128 ft²
Region 13	A. CH, el 0 to -3	3,27,24,1	138 ft²
Region 14	A. CH, el 0 to -3	22,2,25,28	134 ft²

Slip Results

Slip Surfaces Analysed: 1111 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.39
Volume: 347.32151 ft³
Weight: 39,187.377 lbf
Resisting Moment: 161,431.6 lbf·ft
Activating Moment: 116,287.25 lbf·ft
Resisting Force: 5,159.9589 lbf
Activating Force: 3,716.209 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (142.7365, -1) ft
Entry: (101.72019, 4.5) ft
Radius: 19.364702 ft
Center: (124.24025, 16.565016) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	102.2618 ft	3.768067 ft	-191.7958 psf	53.248616 psf	28.312791 psf	0 psf	0 psf	Ridge
Slice 2	103.345 ft	2.304201 ft	-101.16956 psf	159.74585 psf	84.938374 psf	0 psf	0 psf	Ridge
Slice 3	104.21852 ft	1.1211708 ft	-27.928222 psf	245.28228 psf	130.4189 psf	0 psf	0 psf	Ridge
Slice 4	104.84155 ft	0.27444677 ft	24.493949 psf	314.41144 psf	154.15186 psf	0 psf	0 psf	Ridge
Slice 5	105.46383 ft	-0.56059 ft	76.187014 psf	394.19882 psf	169.08988 psf	0 psf	0 psf	Ridge
Slice 6	106.53225 ft	-1.9782115 ft	163.93662 psf	525.0684 psf	192.01717 psf	0 psf	0 psf	Ridge
Slice	107.85045	-3.4687393	256.06178	792.87497	0 psf	130 psf	0 psf	B. CL, el -3

7	ft	ft	psf	psf				to -10
Slice 8	108.98765 ft	-4.4715833 ft	317.86828 psf	899.14905 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	110.02195 ft	-5.3323902 ft	370.87989 psf	1,006.4753 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	111.02775 ft	-6.1114482 ft	418.80797 psf	1,077.9807 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	112.14454 ft	-6.8602355 ft	464.76805 psf	1,165.22 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	113.32259 ft	-7.5402525 ft	506.39162 psf	1,212.5071 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	114.50064 ft	-8.2202695 ft	548.01519 psf	1,259.7943 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	115.73138 ft	-8.7817965 ft	582.20429 psf	1,333.5047 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	117.0148 ft	-9.2248335 ft	608.95891 psf	1,353.1638 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	117.82825 ft	-9.4741051 ft	623.94785 psf	1,395.3189 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	118.76623 ft	-9.6256765 ft	632.74961 psf	1,390.7695 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	120.29868 ft	-9.8733128 ft	647.12988 psf	1,383.3367 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	121.72796 ft	-9.9971835 ft	653.85612 psf	1,394.0278 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	123.05407 ft	-9.9972885 ft	652.92834 psf	1,363.539 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	124.38019 ft	-9.9973935 ft	652.00055 psf	1,333.0503 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	125.70631 ft	-9.9974985 ft	651.07277 psf	1,302.5615 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	127.03242 ft	-9.9976035 ft	650.14498 psf	1,272.0728 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	127.84774 ft	-9.9670244 ft	647.66147 psf	1,285.6104 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	128.52018 ft	-9.8317434 ft	638.74207 psf	1,253.0047 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	129.56054 ft	-9.6224445 ft	624.9425 psf	1,201.8428 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	130.61568 ft	-9.2944265 ft	603.72085 psf	1,174.1306 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	131.68069 ft	-8.8497427 ft	575.20879 psf	1,100.9705 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	132.74078 ft	-8.4071122 ft	546.82838 psf	1,034.6814 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	133.91867 ft	-7.8246125 ft	509.63291 psf	973.18972 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	135.21436 ft	-7.1022435 ft	463.62237 psf	870.32173 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	136.73468 ft	-6.1366945 ft	402.27179 psf	755.96257 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	137.80357	-5.3729474	353.8378	667.68747	0 psf	130 psf	0 psf	B. CL, el -3

33	ft	ft	psf	psf				to -10
Slice 34	139 ft	-4.4021477 ft	292.38763 psf	548.1131 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 35	140.33229 ft	-3.3211048 ft	224.19335 psf	419.5298 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 36	141.70054 ft	-2.0257395 ft	143.32345 psf	243.16762 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

D) Towards Bayou

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 25
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Time: 09:48:44 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge sand.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:49:14 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

D) Towards Bayou

Kind: SLOPE/W
Method: Spencer
Settings
PWP Conditions from: Piezometric Line
Apply Phreatic Correction: No
Use Staged Rapid Drawdown: No
Unit Weight of Water: 62.430189 pcf
Slip Surface
Direction of movement: Right to Left
Use Passive Mode: No
Slip Surface Option: Entry and Exit
Critical slip surfaces saved: 1
Optimize Critical Slip Surface Location: Yes
Optimizations Settings
Maximum Iterations: 2,000
Starting Points: 8
Ending Points: 16
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °
Tension Crack Option: (none)
Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 115 pcf

Cohesion': 0 psf

Phi': 28 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (21, -1) ft
Left-Zone Right Coordinate: (77.4, 1.2) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (100, 4.428571) ft
Right-Zone Right Coordinate: (142, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (200, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	200 ft	0.27 ft

Geometry

Name: 2. ML el -1 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	200 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	200 ft	-54 ft
Point 14	200 ft	-49 ft
Point 15	200 ft	-40 ft
Point 16	200 ft	-35 ft
Point 17	200 ft	-30 ft
Point 18	200 ft	-26 ft
Point 19	200 ft	-20 ft
Point 20	200 ft	-15 ft
Point 21	200 ft	-10 ft
Point 22	200 ft	-3 ft
Point 23	200 ft	3 ft
Point 24	62 ft	-1 ft
Point 25	138 ft	-1 ft
Point 26	118 ft	3 ft
Point 27	76 ft	-3 ft
Point 28	128 ft	-3 ft
Point 29	100.5 ft	4.5 ft
Point 30	110.5 ft	4.5 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,000 ft²
Region 2	B. CL, el -3 to -10	3,4,21,22,28,27	1,400 ft²
Region 3	C. CL, el -10 to -15	4,5,20,21	1,000 ft²
Region 4	D. CL, el -15 to -20	5,6,19,20	1,000 ft²
Region 5	E. CH, el -20 to -26	6,7,18,19	1,200 ft²
Region 6	F. CH, el -26 to -30	7,8,17,18	800 ft²
Region 7	G. CL, el -30 to -35	8,9,16,17	1,000 ft²
Region 8	H. CH, el -35 to -40	9,10,15,16	1,000 ft²
Region 9	I. CL, el -40 to -49	10,11,14,15	1,800 ft²
Region 10	Ridge	24,29,30,26,25	236.5 ft²
Region 11	Sand Fill	2,23,26,25	288 ft²
Region 12	Ridge	24,27,28,25	128 ft²
Region 13	A. CH, el 0 to -3	3,27,24,1	138 ft²
Region 14	A. CH, el 0 to -3	22,2,25,28	134 ft²

Slip Results

Slip Surfaces Analysed: 1282 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.59
Volume: 395.7903 ft³
Weight: 44,692.471 lbf
Resisting Moment: 189,859.9 lbf·ft
Activating Moment: 119,125.09 lbf·ft
Resisting Force: 5,879.1609 lbf
Activating Force: 3,688.3107 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (59.634901, -1) ft
Entry: (105.85701, 4.5) ft
Radius: 21.054438 ft
Center: (80.472444, 17.036493) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	60.81745 ft	-2.0477546 ft	144.69786 psf	232.34862 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	62.11015 ft	-3.1931036 ft	216.20221 psf	401.75936 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 3	62.929857 ft	-3.8145767 ft	255.0009 psf	466.45765 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 4	64.348973 ft	-4.8623342 ft	320.4126 psf	603.60562 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	65.998208 ft	-5.9430785 ft	387.88366 psf	727.67214 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	67.877562 ft	-7.0568095 ft	457.4141 psf	875.78871 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	69.85362 ft	-8.0803189 ft	521.31199 psf	993.3316 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	71.221565 ft	-8.6962544 ft	559.76495 psf	1,080.8133 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	72.449585 ft	-9.134836 ft	587.14568 psf	1,134.952 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	74.42546 ft	-9.646437 ft	619.08503 psf	1,212.2733 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	75.75244 ft	-9.8900727 ft	634.29525 psf	1,245.6997 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	76.51081 ft	-9.9553982 ft	638.37354 psf	1,266.1134 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	77.731265 ft	-9.9990903 ft	641.10125 psf	1,277.2726 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	79.150555 ft	-9.998473 ft	641.06271 psf	1,300.5197 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	80.569845 ft	-9.9978557 ft	641.02417 psf	1,323.7669 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	81.989135 ft	-9.9972383 ft	640.98563 psf	1,347.014 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	83.408425 ft	-9.996621 ft	640.94708 psf	1,370.2612 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	84.827715 ft	-9.9960037 ft	640.90854 psf	1,393.5083 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	86.400015 ft	-9.8509577 ft	631.8533 psf	1,375.3283 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	88.125325 ft	-9.5614833 ft	613.78135 psf	1,371.2931 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	89.7851 ft	-9.1479735 ft	587.96586 psf	1,325.138 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	91.37934 ft	-8.6104285 ft	554.40683 psf	1,291.8133 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 23	92.859968 ft	-7.9918505 ft	515.78888 psf	1,221.0054 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	94.226982 ft	-7.2922395 ft	472.11204 psf	1,166.8085 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	95.56209 ft	-6.5018213 ft	422.76608 psf	1,078.6937 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	96.86529 ft	-5.6205957 ft	367.751 psf	1,004.4844 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	98.148495 ft	-4.6349872 ft	306.21928 psf	894.28523 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	99.422875 ft	-3.5353567 ft	237.56914 psf	797.1742 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	100.28283 ft	-2.69933 ft	185.37583 psf	603.9957 psf	222.58413 psf	0 psf	0 psf	Ridge
Slice 30	101.04717 ft	-1.708969 ft	123.54741 psf	512.94182 psf	207.04468 psf	0 psf	0 psf	Ridge
Slice 31	102.08443 ft	-0.365 ft	39.64317 psf	386.13028 psf	184.23046 psf	0 psf	0 psf	Ridge
Slice 32	102.86071 ft	0.6408215 ft	-23.150456 psf	297.61676 psf	158.24564 psf	0 psf	0 psf	Ridge
Slice 33	103.82443 ft	1.8837322 ft	-100.74561 psf	202.22085 psf	107.52273 psf	0 psf	0 psf	Ridge
Slice 34	105.17948 ft	3.6279107 ft	-209.635 psf	67.40695 psf	35.840911 psf	0 psf	0 psf	Ridge

E) Towards marsh

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 25
Date: 07/01/2021
Time: 09:48:44 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge sand.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:49:04 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

E) Towards marsh

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 115 pcf

Cohesion': 0 psf

Phi': 28 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (57, -2) ft
Left-Zone Right Coordinate: (119, 4.2) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (132.32383, 1.535234) ft
Right-Zone Right Coordinate: (178, -2) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (200, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	70 ft	1.06 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	200 ft	0.27 ft

Geometry

Name: 3. ML el -2 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	200 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	200 ft	-54 ft
Point 14	200 ft	-49 ft
Point 15	200 ft	-40 ft
Point 16	200 ft	-35 ft
Point 17	200 ft	-30 ft
Point 18	200 ft	-26 ft
Point 19	200 ft	-20 ft
Point 20	200 ft	-15 ft
Point 21	200 ft	-10 ft
Point 22	200 ft	-3 ft
Point 23	200 ft	3 ft
Point 24	62 ft	-2 ft
Point 25	150 ft	-2 ft
Point 26	125 ft	3 ft
Point 27	69 ft	-3 ft
Point 28	145 ft	-3 ft
Point 29	107.5 ft	4.5 ft
Point 30	117.5 ft	4.5 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,000 ft²
Region 2	B. CL, el -3 to -10	3,4,21,22,28,27	1,400 ft²
Region 3	C. CL, el -10 to -15	4,5,20,21	1,000 ft²
Region 4	D. CL, el -15 to -20	5,6,19,20	1,000 ft²
Region 5	E. CH, el -20 to -26	6,7,18,19	1,200 ft²

Region 6	F. CH, el -26 to -30	7,8,17,18	800 ft²
Region 7	G. CL, el -30 to -35	8,9,16,17	1,000 ft²
Region 8	H. CH, el -35 to -40	9,10,15,16	1,000 ft²
Region 9	I. CL, el -40 to -49	10,11,14,15	1,800 ft²
Region 10	Ridge	24,29,30,26,25	318.5 ft²
Region 11		26,23,2,25	312.5 ft²
Region 12	Ridge	24,27,28,25	82 ft²
Region 13	A. CH, el 0 to -3	3,27,24,1	65.5 ft²
Region 14	A. CH, el 0 to -3	22,2,25,28	52.5 ft²

Slip Results

Slip Surfaces Analysed: 1028 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.38
Volume: 380.94883 ft³
Weight: 43,167.763 lbf
Resisting Moment: 221,589.87 lbf·ft
Activating Moment: 160,677.37 lbf·ft
Resisting Force: 5,738.4899 lbf
Activating Force: 4,160.5904 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (152.87743, -2) ft
Entry: (107.99296, 4.5) ft
Radius: 20.850137 ft
Center: (133.69296, 23.481589) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	108.71109 ft	3.5247009 ft	-181.14639 psf	70.634251 psf	37.556898 psf	0 psf	0 psf	Ridge
Slice 2	110.14736 ft	1.5741028 ft	-60.38213 psf	211.90275 psf	112.67069 psf	0 psf	0 psf	Ridge
Slice 3	111.44316 ft	-0.18572914 ft	48.571527 psf	354.58715 psf	162.71139 psf	0 psf	0 psf	Ridge
Slice 4	112.42334 ft	-1.485131 ft	129.00283 psf	482.27551 psf	187.83842 psf	0 psf	0 psf	Ridge
Slice 5	113.18262 ft	-2.4563675 ft	189.10234 psf	572.33313 psf	203.76743 psf	0 psf	0 psf	Ridge
Slice 6	113.59562 ft	-2.9563675 ft	220.02645 psf	692.61231 psf	251.27836 psf	0 psf	0 psf	Ridge
Slice	114.29321	-3.4976785	253.32909	809.74411	0 psf	130 psf	0 psf	B. CL, el -3

7	ft	ft	psf	psf				to -10
Slice 8	115.57592 ft	-4.4930354 ft	314.56565 psf	915.77554 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	116.85864 ft	-5.4883924 ft	375.80221 psf	1,021.807 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	117.67178 ft	-6.1193679 ft	414.62122 psf	1,085.2645 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	118.51534 ft	-6.6746745 ft	448.69477 psf	1,149.9159 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	119.85889 ft	-7.5186935 ft	500.44041 psf	1,211.0031 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	121.18078 ft	-8.2144853 ft	542.94746 psf	1,292.3797 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	122.481 ft	-8.7620498 ft	576.21592 psf	1,322.9493 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	124.06556 ft	-9.280099 ft	607.4414 psf	1,372.7114 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	125.53083 ft	-9.663128 ft	630.32158 psf	1,381.7527 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	126.96936 ft	-9.900654 ft	644.13684 psf	1,403.4565 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	128.67149 ft	-9.9994749 ft	649.10697 psf	1,395.7284 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	130.26038 ft	-9.9995887 ft	647.99459 psf	1,359.1969 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	131.84927 ft	-9.9997025 ft	646.88222 psf	1,322.6654 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	133.43816 ft	-9.9998163 ft	645.76984 psf	1,286.1339 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	135.02705 ft	-9.9999301 ft	644.65746 psf	1,249.6024 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	136.15846 ft	-9.986987 ft	643.05227 psf	1,228.9183 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	136.97646 ft	-9.928698 ft	638.83693 psf	1,213.2368 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	137.85966 ft	-9.822139 ft	631.56216 psf	1,190.9247 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	138.41554 ft	-9.7137993 ft	624.40684 psf	1,192.6715 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	139.28463 ft	-9.4476856 ft	607.18097 psf	1,150.5636 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	140.70115 ft	-9.0139491 ft	579.59869 psf	1,085.496 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	142.10346 ft	-8.5845644 ft	552.79212 psf	1,021.5973 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	143.90231 ft	-7.8744668 ft	508.4606 psf	944.64348 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	145.6179 ft	-7.1001933 ft	460.12255 psf	835.04155 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	147.34936 ft	-6.1410925 ft	400.24571 psf	723.87014 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	149.23146	-4.8583422	320.16337	571.79367	0 psf	130 psf	0 psf	B. CL, el -3

33	ft	ft	psf	psf				to -10
Slice 34	150.80094 ft	-3.6279122 ft	243.34739 psf	413.63886 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 35	152.23965 ft	-2.5 ft	172.93162 psf	241.21888 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

F) Towards Bayou

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 25
Date: 07/01/2021
Time: 09:48:44 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge sand.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:49:08 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

F) Towards Bayou

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 115 pcf

Cohesion': 0 psf

Phi': 28 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (25, -2) ft
Left-Zone Right Coordinate: (82, 0.857143) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (107, 4.428571) ft
Right-Zone Right Coordinate: (144, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (200, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	200 ft	0.27 ft

Geometry

Name: 3. ML el -2 Crown el 4.5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	200 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	200 ft	-54 ft
Point 14	200 ft	-49 ft
Point 15	200 ft	-40 ft
Point 16	200 ft	-35 ft
Point 17	200 ft	-30 ft
Point 18	200 ft	-26 ft
Point 19	200 ft	-20 ft
Point 20	200 ft	-15 ft
Point 21	200 ft	-10 ft
Point 22	200 ft	-3 ft
Point 23	200 ft	3 ft
Point 24	62 ft	-2 ft
Point 25	150 ft	-2 ft
Point 26	125 ft	3 ft
Point 27	69 ft	-3 ft
Point 28	145 ft	-3 ft
Point 29	107.5 ft	4.5 ft
Point 30	117.5 ft	4.5 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,000 ft²
Region 2	B. CL, el -3 to -10	3,4,21,22,28,27	1,400 ft²
Region 3	C. CL, el -10 to -15	4,5,20,21	1,000 ft²
Region 4	D. CL, el -15 to -20	5,6,19,20	1,000 ft²
Region 5	E. CH, el -20 to -26	6,7,18,19	1,200 ft²
Region 6	F. CH, el -26 to -30	7,8,17,18	800 ft²
Region 7	G. CL, el -30 to -35	8,9,16,17	1,000 ft²
Region 8	H. CH, el -35 to -40	9,10,15,16	1,000 ft²
Region 9	I. CL, el -40 to -49	10,11,14,15	1,800 ft²
Region 10	Ridge	24,29,30,26,25	318.5 ft²
Region 11	Sand Fill	26,23,2,25	312.5 ft²
Region 12	Ridge	24,27,28,25	82 ft²
Region 13	A. CH, el 0 to -3	3,27,24,1	65.5 ft²
Region 14	A. CH, el 0 to -3	22,2,25,28	52.5 ft²

Slip Results

Slip Surfaces Analysed: 1286 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.61
Volume: 413.89659 ft³
Weight: 46,976.153 lbf
Resisting Moment: 242,169.88 lbf·ft
Activating Moment: 150,302.56 lbf·ft
Resisting Force: 6,211.0219 lbf
Activating Force: 3,854.3847 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (64.301328, -1.6712388) ft
Entry: (113.20979, 4.5) ft
Radius: 22.074853 ft
Center: (86.959341, 23.928277) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	64.554332 ft	-1.8356194 ft	131.45422 psf	154.79579 psf	12.410935 psf	0 psf	0 psf	Ridge
Slice 2	65.202957 ft	-2.2570413 ft	157.76366 psf	219.79725 psf	32.98384 psf	0 psf	0 psf	Ridge
Slice 3	65.972524 ft	-2.7570413 ft	188.97876 psf	295.15735 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

Slice 4	67.536735 ft	-3.773334 ft	252.4261 psf	458.57926 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	68.8635 ft	-4.6248533 ft	305.58662 psf	561.93367 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	70.211425 ft	-5.3969263 ft	353.78728 psf	662.29176 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	72.348265 ft	-6.5357287 ft	424.88293 psf	798.57777 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	74.199095 ft	-7.4255582 ft	480.43515 psf	915.48963 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	75.815883 ft	-8.1180669 ft	523.6686 psf	989.83799 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	77.198628 ft	-8.6132547 ft	554.58327 psf	1,057.0722 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	78.58706 ft	-9.1104793 ft	585.62509 psf	1,130.998 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	80.334445 ft	-9.5847655 ft	615.23487 psf	1,191.8474 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	82.30473 ft	-9.9043605 ft	635.18724 psf	1,243.1999 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	84.068216 ft	-9.9993558 ft	641.11782 psf	1,266.5108 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	85.755268 ft	-9.9994674 ft	641.12479 psf	1,294.2393 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	87.44232 ft	-9.999579 ft	641.13175 psf	1,321.9678 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	89.129372 ft	-9.9996906 ft	641.13872 psf	1,349.6962 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	90.816424 ft	-9.9998022 ft	641.14569 psf	1,377.4247 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	92.14232 ft	-9.9735835 ft	639.50885 psf	1,387.1628 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	93.290865 ft	-9.878017 ft	633.54261 psf	1,387.0545 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	94.810195 ft	-9.6188347 ft	617.36182 psf	1,363.5125 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	96.516505 ft	-9.2390542	593.65205 psf	1,349.2075 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

		ft						
Slice 23	97.996715 ft	-8.8122237 ft	567.00494 psf	1,301.2788 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	99.250825 ft	-8.3383432 ft	537.42049 psf	1,269.5535 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	100.70134 ft	-7.6039683 ft	491.57333 psf	1,178.4319 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	102.34825 ft	-6.609099 ft	429.46345 psf	1,097.1198 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	103.99515 ft	-5.6142297 ft	367.35357 psf	1,015.8077 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	106.08674 ft	-4.006313 ft	266.97103 psf	840.39831 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	107.42743 ft	-2.8044581 ft	191.939 psf	620.78964 psf	228.02393 psf	0 psf	0 psf	Ridge
Slice 30	107.78317 ft	-2.3565426 ft	163.97555 psf	579.14063 psf	220.74719 psf	0 psf	0 psf	Ridge
Slice 31	108.96778 ft	-0.865 ft	70.858264 psf	437.7563 psf	195.08315 psf	0 psf	0 psf	Ridge
Slice 32	110.08051 ft	0.5360425 ft	-16.609083 psf	309.40318 psf	164.51259 psf	0 psf	0 psf	Ridge
Slice 33	111.0213 ft	1.7265637 ft	-90.93355 psf	216.00724 psf	114.85309 psf	0 psf	0 psf	Ridge
Slice 34	112.48029 ft	3.5755212 ft	-206.36431 psf	72.002413 psf	38.284362 psf	0 psf	0 psf	Ridge

A) Towards Marsh (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 25
Date: 07/01/2021
Time: 09:48:44 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge sand.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:49:16 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

A) Towards Marsh (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 115 pcf

Cohesion': 0 psf

Phi': 28 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (70, 0) ft
Left-Zone Right Coordinate: (121.09615, 4.48077) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (131.51293, 2.397414) ft
Right-Zone Right Coordinate: (164, 0) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (200, 0) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	70 ft	1.06 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	200 ft	0.27 ft

Geometry

Name: 4. ML el 0 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	73.5 ft	0 ft
Point 3	143.5 ft	0 ft
Point 4	200 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft
Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	200 ft	-54 ft
Point 16	200 ft	-49 ft
Point 17	200 ft	-40 ft
Point 18	200 ft	-35 ft
Point 19	200 ft	-30 ft
Point 20	200 ft	-26 ft
Point 21	200 ft	-20 ft
Point 22	200 ft	-15 ft
Point 23	200 ft	-10 ft
Point 24	200 ft	-3 ft
Point 25	94.5 ft	-3 ft
Point 26	128.5 ft	-3 ft
Point 27	128.5 ft	3 ft
Point 28	200 ft	3 ft
Point 29	108.5 ft	5 ft
Point 30	118.5 ft	5 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,000 ft²
Region 2	Ridge	2,3,27,30,29	200 ft²
Region 3	B. CL, el -3 to -10	5,6,23,24,26,25	1,400 ft²
Region 4	C. CL, el -10 to -15	6,7,22,23	1,000 ft²
Region 5	D. CL, el -15 to -20	7,8,21,22	1,000 ft²

Region 6	E. CH, el -20 to -26	8,9,20,21	1,200 ft²
Region 7	F. CH, el -26 to -30	9,10,19,20	800 ft²
Region 8	G. CL, el -30 to -35	10,11,18,19	1,000 ft²
Region 9	H. CH, el -35 to -40	11,12,17,18	1,000 ft²
Region 10	I. CL, el -40 to -49	12,13,16,17	1,800 ft²
Region 11	Ridge	2,25,26,3	156 ft²
Region 12	A. CH, el 0 to -3	1,5,25,2	252 ft²
Region 13	A. CH, el 0 to -3	24,4,3,26	192 ft²
Region 14		27,28,4,3	192 ft²

Slip Results

Slip Surfaces Analysed: 1065 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.33
Volume: 357.66366 ft³
Weight: 40,040.085 lbf
Resisting Moment: 144,180.09 lbf·ft
Activating Moment: 108,429.91 lbf·ft
Resisting Force: 5,145.0524 lbf
Activating Force: 3,868.5222 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (151.50828, 0) ft
Entry: (110.11308, 5) ft
Radius: 19.542924 ft
Center: (132.21, 13.168044) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	110.74934 ft	4.1123788 ft	-219.27131 psf	62.962315 psf	33.477657 psf	0 psf	0 psf	Ridge
Slice 2	112.02186 ft	2.3371363 ft	-109.33917 psf	188.88694 psf	100.43297 psf	0 psf	0 psf	Ridge
Slice 3	112.95235 ft	1.0107232 ft	-27.186548 psf	275.39556 psf	146.43042 psf	0 psf	0 psf	Ridge
Slice 4	113.43834 ft	0.2859657 ft	17.717788 psf	331.49861 psf	166.84022 psf	0 psf	0 psf	Ridge
Slice 5	114.48655 ft	-1.2772425 ft	114.57063 psf	472.59514 psf	190.36501 psf	0 psf	0 psf	Ridge
Slice 6	115.55448 ft	-2.7772425 ft	207.46349 psf	667.51228 psf	244.61228 psf	0 psf	0 psf	Ridge

Slice 7	116.04996 ft	-3.2991775 ft	239.69888 psf	802.83575 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	116.87548 ft	-4.041205 ft	285.44216 psf	915.16921 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	117.95849 ft	-4.926905 ft	339.97353 psf	1,009.4496 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	119.24851 ft	-5.9818965 ft	404.92794 psf	1,105.3883 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	120.58814 ft	-6.963865 ft	465.28856 psf	1,212.6108 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	121.77037 ft	-7.703519 ft	510.63233 psf	1,266.1251 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	123.1019 ft	-8.3738975 ft	551.54603 psf	1,347.6901 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	124.58272 ft	-8.9750005 ft	588.02967 psf	1,380.1153 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	125.89861 ft	-9.4140347 ft	614.51152 psf	1,428.9781 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	127.04957 ft	-9.6910003 ft	630.9916 psf	1,433.4574 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	128.06252 ft	-9.8713127 ft	641.53484 psf	1,457.6426 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	128.94133 ft	-9.9553407 ft	646.16155 psf	1,445.5907 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	130.08963 ft	-9.9975416 ft	647.9871 psf	1,438.6236 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	131.50358 ft	-9.9975469 ft	646.9912 psf	1,401.8616 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	132.91753 ft	-9.9975521 ft	645.99531 psf	1,365.0995 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	134.33148 ft	-9.9975574 ft	644.99941 psf	1,328.3375 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	135.78259 ft	-9.84272 ft	634.31048 psf	1,311.0079 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	137.27086 ft	-9.53304 ft	613.9285 psf	1,236.6416 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	139.0075 ft	-8.9179994 ft	574.30782 psf	1,165.6523 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	140.71008 ft	-8.1285479	524.32293 psf	1,028.9227 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

		ft						
Slice 27	141.78509 ft	-7.5402291 ft	487.59408 psf	972.77435 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	142.825 ft	-6.8019515 ft	441.50326 psf	866.78553 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	144.47193 ft	-5.6327294 ft	368.50851 psf	719.95421 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	146.06084 ft	-4.4667585 ft	295.71673 psf	591.89927 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	147.29481 ft	-3.5148415 ft	236.28837 psf	479.76706 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	148.68357 ft	-2.4471585 ft	169.63272 psf	314.41512 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 33	150.48182 ft	-0.927717 ft	74.773698 psf	162.65818 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

B) Towards Bayou (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 25
Date: 07/01/2021
Time: 09:48:44 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge sand.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:49:22 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

B) Towards Bayou (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 115 pcf

Cohesion': 0 psf

Phi': 28 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (50, 0) ft
Left-Zone Right Coordinate: (96.93, 3.347143) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (107.93, 4.918571) ft
Right-Zone Right Coordinate: (140, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, 0) ft
Right Coordinate: (200, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	200 ft	0.27 ft

Geometry

Name: 4. ML el 0 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	0 ft
Point 2	73.5 ft	0 ft
Point 3	143.5 ft	0 ft
Point 4	200 ft	0 ft
Point 5	0 ft	-3 ft
Point 6	0 ft	-10 ft
Point 7	0 ft	-15 ft
Point 8	0 ft	-20 ft
Point 9	0 ft	-26 ft
Point 10	0 ft	-30 ft
Point 11	0 ft	-35 ft
Point 12	0 ft	-40 ft
Point 13	0 ft	-49 ft
Point 14	0 ft	-54 ft
Point 15	200 ft	-54 ft
Point 16	200 ft	-49 ft
Point 17	200 ft	-40 ft
Point 18	200 ft	-35 ft
Point 19	200 ft	-30 ft
Point 20	200 ft	-26 ft
Point 21	200 ft	-20 ft
Point 22	200 ft	-15 ft
Point 23	200 ft	-10 ft
Point 24	200 ft	-3 ft
Point 25	94.5 ft	-3 ft
Point 26	128.5 ft	-3 ft
Point 27	128.5 ft	3 ft
Point 28	200 ft	3 ft
Point 29	108.5 ft	5 ft
Point 30	118.5 ft	5 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	14,15,16,13	1,000 ft²
Region 2	Ridge	2,3,27,30,29	200 ft²
Region 3	B. CL, el -3 to -10	5,6,23,24,26,25	1,400 ft²
Region 4	C. CL, el -10 to -15	6,7,22,23	1,000 ft²
Region 5	D. CL, el -15 to -20	7,8,21,22	1,000 ft²
Region 6	E. CH, el -20 to -26	8,9,20,21	1,200 ft²
Region 7	F. CH, el -26 to -30	9,10,19,20	800 ft²
Region 8	G. CL, el -30 to -35	10,11,18,19	1,000 ft²
Region 9	H. CH, el -35 to -40	11,12,17,18	1,000 ft²
Region 10	I. CL, el -40 to -49	12,13,16,17	1,800 ft²
Region 11	Ridge	2,25,26,3	156 ft²
Region 12	A. CH, el 0 to -3	1,5,25,2	252 ft²
Region 13	A. CH, el 0 to -3	24,4,3,26	192 ft²
Region 14	Sand Fill	27,28,4,3	192 ft²

Slip Results

Slip Surfaces Analysed: 1152 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.50
Volume: 417.86404 ft³
Weight: 46,847.593 lbf
Resisting Moment: 198,847.55 lbf·ft
Activating Moment: 132,185.78 lbf·ft
Resisting Force: 5,942.1136 lbf
Activating Force: 3,949.3676 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (67.960902, 0) ft
Entry: (114.76899, 5) ft
Radius: 21.309722 ft
Center: (89.91983, 18.003462) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	68.930256 ft	-0.849522 ft	69.89197 psf	146.89233 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	70.700739 ft	-2.349522 ft	163.53725 psf	301.2881 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	72.500934 ft	-3.8111938 ft	254.7897 psf	507.84295 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	73.876905	-	324.53811	643.33767				B. CL, el -3

4	ft	4.9284163 ft	psf	psf	0 psf	130 psf	0 psf	to -10
Slice 5	74.821905 ft	-5.6326188 ft	368.5016 psf	720.62263 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	76.393735 ft	-6.7343033 ft	437.27997 psf	874.57728 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	78.111737 ft	-7.7457092 ft	500.42223 psf	985.12589 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	79.54027 ft	-8.3614995 ft	538.86614 psf	1,083.1641 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	80.968803 ft	-8.9772898 ft	577.31005 psf	1,181.2024 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	82.763935 ft	-9.523873 ft	611.43334 psf	1,243.494 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	84.364625 ft	-9.827029 ft	630.35942 psf	1,291.9352 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	85.57404 ft	-9.9456685 ft	637.76611 psf	1,320.3594 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	86.990645 ft	-9.9997779 ft	641.14417 psf	1,339.6923 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	88.444675 ft	-9.9996537 ft	641.13642 psf	1,366.6816 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	89.898705 ft	-9.9995295 ft	641.12866 psf	1,393.671 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	91.352735 ft	-9.9994053 ft	641.12091 psf	1,420.6604 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	92.806765 ft	-9.9992811 ft	641.11316 psf	1,447.6497 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	94.01689 ft	-9.9540526 ft	638.28953 psf	1,448.8537 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	94.774535 ft	-9.8832196 ft	633.86741 psf	1,454.3717 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	95.642565 ft	-9.7436612 ft	625.15476 psf	1,436.1075 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	96.829555 ft	-9.5158777 ft	610.93419 psf	1,430.1648 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	98.12746 ft	-9.1819785 ft	590.0888 psf	1,394.0127 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 23	99.53628 ft	-8.7419635 ft	562.61858 psf	1,368.3575 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	100.91618 ft	-8.1833975 ft	527.7472 psf	1,298.7129 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	102.26715 ft	-7.5062805 ft	485.47466 psf	1,246.639 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	103.61812 ft	-6.8291635 ft	443.20212 psf	1,194.565 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	104.94728 ft	-6.0128448 ft	392.23919 psf	1,093.0966 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	106.25463 ft	-5.0573245 ft	332.58587 psf	1,011.1554 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	107.56198 ft	-4.1018042 ft	272.93256 psf	929.21423 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	108.35783 ft	-3.4419022 ft	231.73476 psf	800.05848 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	108.60138 ft	-3.1298802 ft	212.25516 psf	769.77905 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	109.28819 ft	-2.25 ft	157.32408 psf	597.70015 psf	234.15211 psf	0 psf	0 psf	Ridge
Slice 33	110.45905 ft	-0.75 ft	63.678792 psf	456.56128 psf	208.89932 psf	0 psf	0 psf	Ridge
Slice 34	111.14986 ft	0.135 ft	8.4280755 psf	373.28934 psf	194.00018 psf	0 psf	0 psf	Ridge
Slice 35	111.48241 ft	0.561038 ft	-18.169557 psf	338.39985 psf	179.93039 psf	0 psf	0 psf	Ridge
Slice 36	112.47444 ft	1.889057 ft	-101.07803 psf	232.40189 psf	123.57028 psf	0 psf	0 psf	Ridge
Slice 37	114.00414 ft	3.963019 ft	-230.55587 psf	77.467297 psf	41.190093 psf	0 psf	0 psf	Ridge

C) Towards Marsh (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 25
Date: 07/01/2021
Time: 09:48:44 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge sand.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:49:24 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

C) Towards Marsh (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 115 pcf

Cohesion': 0 psf

Phi': 28 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (58.99, -0.93) ft
Left-Zone Right Coordinate: (112.09615, 4.68077) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (125.09615, 2.08077) ft
Right-Zone Right Coordinate: (171, -1) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (200, -1) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	70 ft	1.06 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	200 ft	0.27 ft

Geometry

Name: 5. ML el -1 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	200 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	200 ft	-54 ft
Point 14	200 ft	-49 ft
Point 15	200 ft	-40 ft
Point 16	200 ft	-35 ft
Point 17	200 ft	-30 ft
Point 18	200 ft	-26 ft
Point 19	200 ft	-20 ft
Point 20	200 ft	-15 ft
Point 21	200 ft	-10 ft
Point 22	200 ft	-3 ft
Point 23	200 ft	3 ft
Point 24	58.5 ft	-1 ft
Point 25	140.5 ft	-1 ft
Point 26	120.5 ft	3 ft
Point 27	72.5 ft	-3 ft
Point 28	130.5 ft	-3 ft
Point 29	100.5 ft	5 ft
Point 30	110.5 ft	5 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,000 ft²
Region 2	B. CL, el -3 to -10	3,4,21,22,28,27	1,400 ft²
Region 3	C. CL, el -10 to -15	4,5,20,21	1,000 ft²
Region 4	D. CL, el -15 to -20	5,6,19,20	1,000 ft²
Region 5	E. CH, el -20 to -26	6,7,18,19	1,200 ft²

Region 6	F. CH, el -26 to -30	7,8,17,18	800 ft²
Region 7	G. CL, el -30 to -35	8,9,16,17	1,000 ft²
Region 8	H. CH, el -35 to -40	9,10,15,16	1,000 ft²
Region 9	I. CL, el -40 to -49	10,11,14,15	1,800 ft²
Region 10	Ridge	24,29,30,26,25	276 ft²
Region 11		2,23,26,25	278 ft²
Region 12	Ridge	24,27,28,25	140 ft²
Region 13	A. CH, el 0 to -3	3,27,24,1	131 ft²
Region 14	A. CH, el 0 to -3	22,2,25,28	129 ft²

Slip Results

Slip Surfaces Analysed: 1109 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.31
Volume: 367.51489 ft³
Weight: 41,511.102 lbf
Resisting Moment: 170,881.92 lbf·ft
Activating Moment: 130,767.18 lbf·ft
Resisting Force: 5,355.942 lbf
Activating Force: 4,098.0924 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (144.71367, -1) ft
Entry: (102.36311, 5) ft
Radius: 20.080046 ft
Center: (124.51088, 17.108141) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	102.91209 ft	4.2440648 ft	-221.97061 psf	53.415984 psf	28.401782 psf	0 psf	0 psf	Ridge
Slice 2	104.01004 ft	2.7321943 ft	-128.35783 psf	160.24795 psf	85.205347 psf	0 psf	0 psf	Ridge
Slice 3	105.03889 ft	1.3177022 ft	-40.775723 psf	260.55227 psf	138.5381 psf	0 psf	0 psf	Ridge
Slice 4	105.77705 ft	0.30468417 ft	21.947097 psf	339.3906 psf	168.78771 psf	0 psf	0 psf	Ridge
Slice 5	106.37584 ft	-0.5248885 ft	73.31559 psf	412.4905 psf	180.3425 psf	0 psf	0 psf	Ridge
Slice 6	107.41738 ft	-1.9781965 ft	163.31204 psf	544.3108 psf	202.58064 psf	0 psf	0 psf	Ridge

Slice 7	108.72653 ft	-3.4779978 ft	256.02253 psf	844.8234 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	109.91732 ft	-4.4994039 ft	318.95012 psf	952.86445 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	111.19822 ft	-5.5981051 ft	386.63976 psf	1,053.8572 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	112.76844 ft	-6.7126317 ft	455.11354 psf	1,183.2283 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	114.51246 ft	-7.7438852 ft	518.2661 psf	1,255.6488 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	116.05674 ft	-8.4901007 ft	563.76442 psf	1,347.82 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	117.40127 ft	-8.951278 ft	591.60849 psf	1,368.0663 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	118.74581 ft	-9.4124553 ft	619.45256 psf	1,388.3126 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	119.95904 ft	-9.7241323 ft	638.05581 psf	1,432.6416 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	121.14715 ft	-9.9022273 ft	648.33721 psf	1,425.3375 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	122.44247 ft	-9.9992122 ft	653.47935 psf	1,436.1305 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	123.7388 ft	-9.9991686 ft	652.56327 psf	1,406.3101 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	125.03512 ft	-9.999125 ft	651.6472 psf	1,376.4896 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	126.33145 ft	-9.9990814 ft	650.73113 psf	1,346.6692 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	127.62778 ft	-9.9990378 ft	649.81505 psf	1,316.8487 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	129.00823 ft	-9.9100885 ft	643.28931 psf	1,298.1337 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	130.12026 ft	-9.73583 ft	631.62681 psf	1,272.1993 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	131.40697 ft	-9.4466935 ft	612.66939 psf	1,206.4772 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	133.05705 ft	-8.923703 ft	578.8564 psf	1,140.5371 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	134.49399 ft	-8.3064945 ft	539.31154 psf	1,039.3246 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	135.84036 ft	-7.6341237 ft	496.38669 psf	966.93872 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	137.14545 ft	-6.8854292 ft	448.72603 psf	860.51079 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	138.7691 ft	-5.865959 ft	383.93633 psf	732.01603 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	139.8701 ft	-5.1217224 ft	336.69776 psf	643.32472 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	140.25 ft	-4.8318515 ft	318.50955 psf	603.5977 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	141.51152 ft	-3.8692791 ft	258.41598 psf	485.08946 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 33	143.61835 ft	-2.048732 ft	144.75888 psf	247.73732 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3

D) Towards Bayou (2)

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File Information

File Version: 10.02
Created By: Clay Worley
Last Edited By: Clay Worley
Revision Number: 25
Date: 07/01/2021
Time: 09:48:44 AM
Tool Version: 10.2.2.20559
File Name: EE 24365 Ridge sand.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:49:28 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

D) Towards Bayou (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 115 pcf

Cohesion': 0 psf

Phi': 28 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (21, -1) ft
Left-Zone Right Coordinate: (77.33, 1.69) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (99.93, 4.918571) ft
Right-Zone Right Coordinate: (142, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -1) ft
Right Coordinate: (200, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	200 ft	0.27 ft

Geometry

Name: 5. ML el -1 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-1 ft
Point 2	200 ft	-1 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	200 ft	-54 ft
Point 14	200 ft	-49 ft
Point 15	200 ft	-40 ft
Point 16	200 ft	-35 ft
Point 17	200 ft	-30 ft
Point 18	200 ft	-26 ft
Point 19	200 ft	-20 ft
Point 20	200 ft	-15 ft
Point 21	200 ft	-10 ft
Point 22	200 ft	-3 ft
Point 23	200 ft	3 ft
Point 24	58.5 ft	-1 ft
Point 25	140.5 ft	-1 ft
Point 26	120.5 ft	3 ft
Point 27	72.5 ft	-3 ft
Point 28	130.5 ft	-3 ft
Point 29	100.5 ft	5 ft
Point 30	110.5 ft	5 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,000 ft²
Region 2	B. CL, el -3 to -10	3,4,21,22,28,27	1,400 ft²
Region 3	C. CL, el -10 to -15	4,5,20,21	1,000 ft²
Region 4	D. CL, el -15 to -20	5,6,19,20	1,000 ft²
Region 5	E. CH, el -20 to -26	6,7,18,19	1,200 ft²
Region 6	F. CH, el -26 to -30	7,8,17,18	800 ft²
Region 7	G. CL, el -30 to -35	8,9,16,17	1,000 ft²
Region 8	H. CH, el -35 to -40	9,10,15,16	1,000 ft²
Region 9	I. CL, el -40 to -49	10,11,14,15	1,800 ft²
Region 10	Ridge	24,29,30,26,25	276 ft²
Region 11	Sand Fill	2,23,26,25	278 ft²
Region 12	Ridge	24,27,28,25	140 ft²
Region 13	A. CH, el 0 to -3	3,27,24,1	131 ft²
Region 14	A. CH, el 0 to -3	22,2,25,28	129 ft²

Slip Results

Slip Surfaces Analysed: 1253 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.50
Volume: 496.06855 ft³
Weight: 56,147.217 lbf
Resisting Moment: 276,674.8 lbf·ft
Activating Moment: 184,990.55 lbf·ft
Resisting Force: 6,825.6744 lbf
Activating Force: 4,563.3363 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (57.341042, -1) ft
Entry: (110.41129, 5) ft
Radius: 23.559508 ft
Center: (84.222085, 24.857581) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	57.920521 ft	-1.4550591 ft	107.69576 psf	166.26294 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 2	59.193936 ft	-2.4550591 ft	170.12595 psf	278.73065 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 3	60.781701 ft	-3.7019155 ft	247.96743 psf	475.56106 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 4	62.532228 ft	-4.9157645 ft	323.74826 psf	611.49506 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 5	64.245625 ft	-5.9396315 ft	387.66847 psf	747.32107 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	65.959022 ft	-6.9634985 ft	451.58868 psf	883.14709 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	67.10286 ft	-7.6029911 ft	491.51232 psf	946.12561 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	68.060585 ft	-8.0284509 ft	518.07385 psf	1,010.6558 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	69.401755 ft	-8.6242523 ft	555.26985 psf	1,104.7344 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	71.28617 ft	-9.2398948 ft	593.70453 psf	1,182.2336 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	72.87442 ft	-9.6556478 ft	619.66007 psf	1,258.6604 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	74.02496 ft	-9.8448785 ft	631.47377 psf	1,275.7327 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	75.346065 ft	-9.9677775 ft	639.14638 psf	1,301.6996 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	76.721182 ft	-9.9994903 ft	641.12622 psf	1,318.377 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	78.381446 ft	-9.9995569 ft	641.13037 psf	1,345.6603 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	80.041711 ft	-9.9996234 ft	641.13453 psf	1,372.9436 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	81.701975 ft	-9.99969 ft	641.13868 psf	1,400.2269 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	83.362239 ft	-9.9997566 ft	641.14284 psf	1,427.5102 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	85.022504 ft	-9.9998231 ft	641.147 psf	1,454.7934 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	86.682768 ft	-9.9998897 ft	641.15115 psf	1,482.0767 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	88.45582 ft	-9.966894 ft	639.09122 psf	1,501.3864 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice	90.20911	-	630.94861	1,500.7165				B. CL, el -3

22	ft	9.8364665 ft	psf	psf	0 psf	130 psf	0 psf	to -10
Slice 23	91.836065 ft	-9.5439977 ft	612.68973 psf	1,474.3348 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	93.469235 ft	-9.1538572 ft	588.33319 psf	1,457.7019 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	95.17022 ft	-8.5840337 ft	552.759 psf	1,391.6538 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	96.93902 ft	-7.8345273 ft	505.96716 psf	1,338.0937 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	98.62503 ft	-6.9978885 ft	453.73565 psf	1,249.8888 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	99.96332 ft	-6.14477 ft	400.4753 psf	1,155.8918 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	101.43925 ft	-5.0688355 ft	333.30451 psf	1,048.7659 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	103.31775 ft	-3.6994325 ft	247.81242 psf	901.65727 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	105.0454 ft	-2.0073655 ft	142.17636 psf	575.21197 psf	230.24912 psf	0 psf	0 psf	Ridge
Slice 32	106.33078 ft	-0.365 ft	39.64317 psf	420.50313 psf	202.50683 psf	0 psf	0 psf	Ridge
Slice 33	106.9463 ft	0.4214685 ft	-9.456207 psf	349.13664 psf	185.63925 psf	0 psf	0 psf	Ridge
Slice 34	107.90146 ft	1.6797027 ft	-88.008009 psf	250.08793 psf	132.97411 psf	0 psf	0 psf	Ridge
Slice 35	109.57468 ft	3.8932342 ft	-226.1992 psf	83.362643 psf	44.324704 psf	0 psf	0 psf	Ridge

E) Towards marsh (2)

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File Information

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File Name: EE 24365 Ridge sand.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:49:28 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

E) Towards marsh (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Left to Right
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 115 pcf

Cohesion': 0 psf

Phi': 28 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (57, -2) ft
Left-Zone Right Coordinate: (119.09615, 4.68077) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (132.41998, 2.016004) ft
Right-Zone Right Coordinate: (178, -2) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (200, -2) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	1.06 ft
Coordinate 2	70 ft	1.06 ft
Coordinate 3	140 ft	0.27 ft
Coordinate 4	200 ft	0.27 ft

Geometry

Name: 6. ML el -2 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	200 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	200 ft	-54 ft
Point 14	200 ft	-49 ft
Point 15	200 ft	-40 ft
Point 16	200 ft	-35 ft
Point 17	200 ft	-30 ft
Point 18	200 ft	-26 ft
Point 19	200 ft	-20 ft
Point 20	200 ft	-15 ft
Point 21	200 ft	-10 ft
Point 22	200 ft	-3 ft
Point 23	200 ft	3 ft
Point 24	58.5 ft	-2 ft
Point 25	152.5 ft	-2 ft
Point 26	127.5 ft	3 ft
Point 27	65.5 ft	-3 ft
Point 28	147.5 ft	-3 ft
Point 29	107.5 ft	5 ft
Point 30	117.5 ft	5 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,000 ft²
Region 2	B. CL, el -3 to -10	3,4,21,22,28,27	1,400 ft²
Region 3	C. CL, el -10 to -15	4,5,20,21	1,000 ft²
Region 4	D. CL, el -15 to -20	5,6,19,20	1,000 ft²
Region 5	E. CH, el -20 to -26	6,7,18,19	1,200 ft²

Region 6	F. CH, el -26 to -30	7,8,17,18	800 ft²
Region 7	G. CL, el -30 to -35	8,9,16,17	1,000 ft²
Region 8	H. CH, el -35 to -40	9,10,15,16	1,000 ft²
Region 9	I. CL, el -40 to -49	10,11,14,15	1,800 ft²
Region 10	Ridge	24,29,30,26,25	364 ft²
Region 11		26,23,2,25	300 ft²
Region 12	Ridge	24,27,28,25	88 ft²
Region 13	A. CH, el 0 to -3	3,27,24,1	62 ft²
Region 14	A. CH, el 0 to -3	22,2,25,28	50 ft²

Slip Results

Slip Surfaces Analysed: 1026 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.31
Volume: 395.58881 ft³
Weight: 44,950.482 lbf
Resisting Moment: 182,564.67 lbf·ft
Activating Moment: 139,377.46 lbf·ft
Resisting Force: 5,631.8805 lbf
Activating Force: 4,299.2527 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (151.37253, -1.7745059) ft
Entry: (106.93855, 4.9197929) ft
Radius: 20.891947 ft
Center: (130.88202, 17.574909) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	107.21928 ft	4.5142948 ft	-241.87583 psf	30.921222 psf	16.441106 psf	0 psf	0 psf	Ridge
Slice 2	108.10565 ft	3.2339588 ft	-162.56873 psf	122.54926 psf	65.160599 psf	0 psf	0 psf	Ridge
Slice 3	109.31694 ft	1.484283 ft	-54.189575 psf	243.9629 psf	129.71737 psf	0 psf	0 psf	Ridge
Slice 4	110.07808 ft	0.38484403 ft	13.912331 psf	324.94404 psf	165.37849 psf	0 psf	0 psf	Ridge
Slice 5	110.6303 ft	-0.354075 ft	59.654112 psf	406.70417 psf	184.52979 psf	0 psf	0 psf	Ridge
Slice 6	111.45264 ft	-1.4341965 ft	126.5069 psf	502.09205 psf	199.70217 psf	0 psf	0 psf	Ridge

Slice 7	112.25439 ft	-2.5 ft	192.48032 psf	599.63833 psf	216.48975 psf	0 psf	0 psf	Ridge
Slice 8	112.65631 ft	-3.0342855 ft	225.55269 psf	732.17342 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	113.48508 ft	-3.6487125 ft	263.32755 psf	884.09268 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	115.09105 ft	-4.8089954 ft	334.63272 psf	1,007.9298 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	116.69702 ft	-5.9692783 ft	405.93788 psf	1,131.767 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	118.00566 ft	-6.9147539 ft	464.04207 psf	1,221.5947 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	119.42508 ft	-7.784581 ft	517.34547 psf	1,314.013 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	120.89799 ft	-8.5072935 ft	561.42678 psf	1,389.6606 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	122.01634 ft	-8.9437325 ft	587.88579 psf	1,412.2182 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	123.42317 ft	-9.379139 ft	614.07709 psf	1,454.1299 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	125.1641 ft	-9.746644 ft	635.79389 psf	1,472.5038 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	126.75965 ft	-9.946637 ft	647.15531 psf	1,477.676 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	127.48097 ft	-9.9963162 ft	649.74858 psf	1,480.7673 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	128.19454 ft	-9.9964746 ft	649.25571 psf	1,464.3733 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	129.58361 ft	-9.9967829 ft	648.29626 psf	1,432.4595 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	130.97269 ft	-9.9970912 ft	647.33681 psf	1,400.5458 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	132.36177 ft	-9.9973995 ft	646.37735 psf	1,368.6321 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	133.75084 ft	-9.9977078 ft	645.4179 psf	1,336.7183 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	135.24043 ft	-9.8566395 ft	635.56146 psf	1,320.354 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	136.83054 ft	-9.5741945 ft	616.80802 psf	1,251.3096 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	138.21919 ft	-9.2075544 ft	592.94021 psf	1,214.6962 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	139.4064 ft	-8.7567192 ft	563.95802 psf	1,134.8241 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	140.22225 ft	-8.4469033 ft	544.19792 psf	1,079.9356 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 30	140.79725 ft	-8.1621402 ft	526.42011 psf	1,066.8851 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 31	141.97549 ft	-7.4928879 ft	484.63855 psf	971.57758 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 32	143.62649 ft	-6.5551126 ft	426.09307 psf	844.53861 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10

Slice 33	145.21399 ft	-5.605102 ft	366.78372 psf	726.57451 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 34	146.738 ft	-4.6428559 ft	306.71052 psf	597.46873 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 35	148.17351 ft	-3.7364879 ft	250.1258 psf	473.74855 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 36	149.10276 ft	-3.1556215 ft	213.8622 psf	389.78603 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 37	149.8135 ft	-2.7231525 ft	186.86308 psf	295.08513 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice 38	150.63521 ft	-2.2231525 ft	155.64798 psf	213.31571 psf	30.662475 psf	0 psf	0 psf	Ridge
Slice 39	151.18724 ft	-1.887253 ft	134.67771 psf	156.89247 psf	11.811796 psf	0 psf	0 psf	Ridge

F) Towards Bayou (2)

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File Information

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File Name: EE 24365 Ridge sand.gsz
Directory: C:\Users\cworley\Desktop\
Last Solved Date: 07/01/2021
Last Solved Time: 09:49:32 AM

Project Settings

Unit System: U.S. Customary Units

Analysis Settings

F) Towards Bayou (2)

Kind: SLOPE/W
Method: Spencer
Settings
- PWP Conditions from: Piezometric Line
  - Apply Phreatic Correction: No
  - Use Staged Rapid Drawdown: No
- Unit Weight of Water: 62.430189 pcf

Slip Surface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Entry and Exit
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: Yes
- Optimizations Settings
  - Maximum Iterations: 2,000
  - Starting Points: 8
  - Ending Points: 16
  - Driving Side Maximum Convex Angle: 5 °
  - Resisting Side Maximum Convex Angle: 1 °
- Tension Crack Option: (none)

Distribution

F of S Calculation Option: Constant

Advanced

Geometry Settings

Minimum Slip Surface Depth: 0.1 ft

Number of Slices: 30

Factor of Safety Convergence Settings

Maximum Number of Iterations: 100

Tolerable difference in F of S: 0.001

Solution Settings

Search Method: Root Finder

Tolerable difference between starting and converged F of S: 3

Maximum iterations to calculate converged lambda: 20

Max Absolute Lambda: 2

Materials

Ridge

Model: Mohr-Coulomb

Unit Weight: 115 pcf

Cohesion': 0 psf

Phi': 28 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

A. CH, el 0 to -3

Model: Mohr-Coulomb

Unit Weight: 100 pcf

Cohesion': 60 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

B. CL, el -3 to -10

Model: Mohr-Coulomb

Unit Weight: 112 pcf

Cohesion': 130 psf

Phi': 0 °

Phi-B: 0 °

Pore Water Pressure

Piezometric Line: 1

C. CL, el -10 to -15

Model: Mohr-Coulomb

Unit Weight: 116 pcf

Cohesion': 200 psf

Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

D. CL, el -15 to -20

Model: Mohr-Coulomb
Unit Weight: 113 pcf
Cohesion': 260 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

E. CH, el -20 to -26

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 350 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

F. CH, el -26 to -30

Model: Mohr-Coulomb
Unit Weight: 97 pcf
Cohesion': 400 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

G. CL, el -30 to -35

Model: Mohr-Coulomb
Unit Weight: 109 pcf
Cohesion': 450 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

H. CH, el -35 to -40

Model: Mohr-Coulomb
Unit Weight: 99 pcf
Cohesion': 500 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

I. CL, el -40 to -49

Model: Mohr-Coulomb
Unit Weight: 106 pcf
Cohesion': 600 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

J. CH, el -49 to -54

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion': 650 psf
Phi': 0 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Sand Fill

Model: Mohr-Coulomb
Unit Weight: 115 pcf
Cohesion': 0 psf
Phi': 28 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1

Slip Surface Entry and Exit

Left Type: Range
Left-Zone Left Coordinate: (25, -2) ft
Left-Zone Right Coordinate: (81.93, 1.347143) ft
Left-Zone Increment: 10
Right Type: Range
Right-Zone Left Coordinate: (106.93, 4.918571) ft
Right-Zone Right Coordinate: (144, 3) ft
Right-Zone Increment: 10
Radius Increments: 10

Slip Surface Limits

Left Coordinate: (0, -2) ft
Right Coordinate: (200, 3) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X	Y
Coordinate 1	0 ft	0.27 ft
Coordinate 2	200 ft	0.27 ft

Geometry

Name: 6. ML el -2 Crown el 5

Settings

View: 2D

Element Thickness: 1 ft

Points

	X	Y
Point 1	0 ft	-2 ft
Point 2	200 ft	-2 ft
Point 3	0 ft	-3 ft
Point 4	0 ft	-10 ft
Point 5	0 ft	-15 ft
Point 6	0 ft	-20 ft
Point 7	0 ft	-26 ft
Point 8	0 ft	-30 ft
Point 9	0 ft	-35 ft
Point 10	0 ft	-40 ft
Point 11	0 ft	-49 ft
Point 12	0 ft	-54 ft
Point 13	200 ft	-54 ft
Point 14	200 ft	-49 ft
Point 15	200 ft	-40 ft
Point 16	200 ft	-35 ft
Point 17	200 ft	-30 ft
Point 18	200 ft	-26 ft
Point 19	200 ft	-20 ft
Point 20	200 ft	-15 ft
Point 21	200 ft	-10 ft
Point 22	200 ft	-3 ft
Point 23	200 ft	3 ft
Point 24	58.5 ft	-2 ft
Point 25	152.5 ft	-2 ft
Point 26	127.5 ft	3 ft
Point 27	65.5 ft	-3 ft
Point 28	147.5 ft	-3 ft
Point 29	107.5 ft	5 ft
Point 30	117.5 ft	5 ft

Regions

	Material	Points	Area
Region 1	J. CH, el -49 to -54	12,13,14,11	1,000 ft²
Region 2	B. CL, el -3 to -10	3,4,21,22,28,27	1,400 ft²
Region 3	C. CL, el -10 to -15	4,5,20,21	1,000 ft²
Region 4	D. CL, el -15 to -20	5,6,19,20	1,000 ft²
Region 5	E. CH, el -20 to -26	6,7,18,19	1,200 ft²
Region 6	F. CH, el -26 to -30	7,8,17,18	800 ft²
Region 7	G. CL, el -30 to -35	8,9,16,17	1,000 ft²
Region 8	H. CH, el -35 to -40	9,10,15,16	1,000 ft²
Region 9	I. CL, el -40 to -49	10,11,14,15	1,800 ft²
Region 10	Ridge	24,29,30,26,25	364 ft²
Region 11	Sand Fill	26,23,2,25	300 ft²
Region 12	Ridge	24,27,28,25	88 ft²
Region 13	A. CH, el 0 to -3	3,27,24,1	62 ft²
Region 14	A. CH, el 0 to -3	22,2,25,28	50 ft²

Slip Results

Slip Surfaces Analysed: 1264 of 1332 converged

Current Slip Surface

Slip Surface: 1,332
Factor of Safety: 1.52
Volume: 466.77743 ft³
Weight: 52,971.438 lbf
Resisting Moment: 282,575.06 lbf·ft
Activating Moment: 185,308.04 lbf·ft
Resisting Force: 6,810.593 lbf
Activating Force: 4,465.9619 lbf
Slip Rank: 1 of 1,332 slip surfaces
Exit: (60.093832, -1.7723097) ft
Entry: (113.00394, 5) ft
Radius: 23.673613 ft
Center: (81.78933, 25.292815) ft

Slip Slices

	X	Y	PWP	Base Normal Stress	Frictional Strength	Cohesive Strength	Suction Strength	Base Material
Slice 1	60.266876 ft	-1.8861548 ft	134.60915 psf	154.45295 psf	10.551132 psf	0 psf	0 psf	Ridge
Slice 2	60.708959 ft	-2.1769998 ft	152.76666 psf	199.95451 psf	25.090227 psf	0 psf	0 psf	Ridge
Slice 3	61.468955 ft	-2.6769998 ft	183.98175 psf	279.11282 psf	0 psf	60 psf	0 psf	A. CH, el 0 to -3
Slice	63.281582	-3.8695225	258.43117	467.07969	0 psf	130 psf	0 psf	B. CL, el -3

4	ft	ft	psf	psf				to -10
Slice 5	65.051625 ft	-4.9744582 ft	327.41252 psf	596.83459 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 6	66.58586 ft	-5.7799876 ft	377.70187 psf	702.93876 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 7	68.75758 ft	-6.9202199 ft	448.88678 psf	851.72316 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 8	70.903748 ft	-7.8881468 ft	509.31464 psf	957.74165 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 9	73.024362 ft	-8.6837682 ft	558.98544 psf	1,065.1566 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 10	74.237335 ft	-9.1198463 ft	586.20987 psf	1,104.6261 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 11	75.525765 ft	-9.4428063 ft	606.37233 psf	1,161.4929 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 12	77.41738 ft	-9.8240435 ft	630.17304 psf	1,216.1945 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 13	78.807665 ft	-9.959532 ft	638.63161 psf	1,243.5536 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 14	80.377138 ft	-9.998558 ft	641.06801 psf	1,263.6596 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 15	82.247215 ft	-9.998722 ft	641.07825 psf	1,294.4008 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 16	84.117292 ft	-9.998886 ft	641.08849 psf	1,325.142 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 17	85.987368 ft	-9.99905 ft	641.09873 psf	1,355.8833 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 18	87.857445 ft	-9.999214 ft	641.10897 psf	1,386.6245 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 19	89.727522 ft	-9.999378 ft	641.11921 psf	1,417.3657 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 20	91.487035 ft	-9.958878 ft	638.59078 psf	1,433.0606 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 21	93.2525 ft	-9.7959775 ft	628.42087 psf	1,429.6376 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 22	95.106192 ft	-9.4118023 ft	604.43674 psf	1,390.2058 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 23	96.931598 ft	-8.8880888 ft	571.74121 psf	1,362.0499 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 24	98.540617 ft	-8.3107707 ft	535.69914 psf	1,297.1991 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 25	99.933253 ft	-7.6798482 ft	496.31053 psf	1,250.7467 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 26	101.5485 ft	-6.7921825 ft	440.89339 psf	1,153.7946 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 27	103.38636 ft	-5.6477735 ft	369.44772 psf	1,059.5291 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 28	105.55063 ft	-3.999958 ft	266.57428 psf	883.33765 psf	0 psf	130 psf	0 psf	B. CL, el -3 to -10
Slice 29	107.14799 ft	-2.4769384 ft	171.49188 psf	616.89291 psf	236.82393 psf	0 psf	0 psf	Ridge
Slice	108.40462	-	71.78004	470.45557	211.97954			

30	ft	0.87976491 ft	psf	psf	psf	0 psf	0 psf	Ridge
Slice 31	109.69403 ft	0.7590725 ft	-30.532888 psf	324.80881 psf	172.70391 psf	0 psf	0 psf	Ridge
Slice 32	110.81011 ft	2.1861087 ft	-119.62303 psf	214.82703 psf	114.22556 psf	0 psf	0 psf	Ridge
Slice 33	112.27266 ft	4.0620363 ft	-236.73754 psf	71.609009 psf	38.075185 psf	0 psf	0 psf	Ridge

APPENDIX VI

RIDGE ML AT EL 0.0

SOIL DESIGN PARAMETERS

THIS SPREADSHEET USES DYNAMIC CR VALUES. PLEASE CHECK USCS AND MOISTURE CONTENTS

EE 24365
CPRA Grande Bayou
Ridge

RED = INPUT VALUE

$$\frac{c_u}{\sigma'_{vc}} = S(OCR)^m$$

Homogeneous CL and CH sedimentary clays of low to moderate sensitivity (I_p = 20%–80%):
$S = 0.20 + 0.05I_p$, or simply $S = 0.22$.
$m = 0.88(1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.

Sedimentary deposits of silts and organic soils (Atterberg limits plot below the A-line, but excluding peats) and clays with shells:
$S = 0.25$, with nominal SD = 0.05.
$m = 0.88\ (1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.

S	**0.25**
m	**0.800**

Ground Surface El 0.00 (NAVD 88)
GWL (depth ft BGS/MLS) 0.00

extrapolated

Str No.	USCS	Depth (ft)	NAVD 88 EL (ft)	γ pcf	γ' (pcf)	P'o Zero Burden (psf)	C_u=0.18*P'o Theoretical Cohesion, C_u (psf)	.20*P'o Theoretical Cohesion, C (psf)	C_u=0.22*P'o Theoretical Cohesion, C_u (psf)	C_u=0.25*P'o Theoretical Cohesion, C_u (psf)	C_u=0.27*P'o Theoretical Cohesion, C_u (psf)	C_u=0.31*P'o Theoretical Cohesion, C_u (psf)	Design Line Assigned Cohesion, C_u (psf)	C_u/P'_o	OCR 0.25	P'_c=OCR*P'_o Past Maximum (psf)	W_c %	CR (N/D)	RR (N/D)	c_v (ft^2/yr)	Poisson's Ratio (N/D)	Total H (ft)
		0.0	**0.0**			0	0	0	0	0	0	0	**50.0**	0.00	**10.0**						
1	**OH**	1.5	-1.5	**100**	37.6	56	10	11	12	14	15	17	**50.0**	0.89	4.87	**274**	**90**	0.289	0.043		**0.00**	3.0
		3.0	**-3.0**			113	20	23	25	28	30	35	**50.0**	0.44	2.05	**231**						
2	**CH**	6.5	-6.5	**112**	49.6	286	52	57	63	72	77	89	**130.0**	0.45	2.11	**604**	**48**	0.150	0.023		**0.00**	7.0
		10.0	**-10.0**			460	83	92	101	115	124	143	**130.0**	0.28	1.17	**536**						
3	**CL**	12.5	-12.5	**116**	53.6	594	107	119	131	149	160	184	**200.0**	0.34	1.45	**862**	**38**	0.117	0.018		**0.00**	5.0
		15.0	**-15.0**			728	131	146	160	182	197	226	**200.0**	0.27	1.45	**1056**						
4	**CL**	17.5	-17.5	**113**	50.6	855	154	171	188	214	231	265	**260.0**	0.30	1.28	**1092**	**34**	0.104	0.016		**0.00**	5.0
		20.0	**-20.0**			981	177	196	216	245	265	304	**260.0**	0.27	1.28	**1254**						
5	**CH**	23.0	-23.0	**97**	34.6	1085	195	217	239	271	293	336	**350.0**	0.32	1.38	**1492**	**50**	0.157	0.024		**0.00**	6.0
		26.0	**-26.0**			1189	214	238	261	297	321	368	**350.0**	0.29	1.38	**1635**						
6	**CH**	28.0	-28.0	**97**	34.6	1258	226	252	277	314	340	390	**400.0**	0.32	1.35	**1699**	**53**	0.167	0.025		**0.00**	4.0
		30.0	**-30.0**			1327	239	265	292	332	358	411	**400.0**	0.30	1.35	**1793**						
7	**CL**	32.5	-32.5	**109**	46.6	1444	260	289	318	361	390	447	**450.0**	0.31	1.32	**1902**	**42**	0.131	0.020		**0.00**	5.0
		35.0	**-35.0**			1560	281	312	343	390	421	484	**450.0**	0.29	1.32	**2056**						
8	**CH**	37.5	-37.5	**99**	36.6	1652	297	330	363	413	446	512	**500.0**	0.30	1.27	**2098**	**56**	0.177	0.027		**0.00**	5.0
		40.0	**-40.0**			1743	314	349	383	436	471	540	**500.0**	0.29	1.27	**2214**						
9	**CL**	44.5	-44.5	**106**	43.6	1939	349	388	427	485	524	601	**600.0**	0.31	1.31	**2531**	**48**	0.150	0.023		**0.00**	9.0
		49.0	**-49.0**			2135	384	427	470	534	577	662	**600.0**	0.28	1.31	**2788**						
10	**CH**	51.5	-51.5	**111**	48.6	2257	406	451	497	564	609	700	**650.0**	0.29	1.19	**2694**	**40**	0.124	0.019		**0.00**	5.0
		54.0	**-54.0**			2378	428	476	523	595	642	737	**650.0**	0.27	1.19	**2839**						
11	**CH**	59.0	-59.0	**111**	48.6	2621	472	524	577	655	708	813	**650.0**	0.25	1.00	**2621**	**40**	0.124	0.019		**0.00**	10.0
		64.0	**-64.0**			2864	516	573	630	716	773	888	**650.0**	0.23	1.00	**2864**						
12	**CH**	69.0	-69.0	**111**	48.6	3107	559	621	684	777	839	963	**650.0**	0.21	1.00	**3107**	**40**	0.124	0.019		**0.00**	10.0
		74.0	**-74.0**			3350	603	670	737	838	905	1039	**650.0**	0.19	1.00	**3350**						
13	**CH**	79.0	-79.0	**111**	48.6	3593	647	719	791	898	970	1114	**650.0**	0.18	1.00	**3593**	**40**	0.124	0.019		**0.00**	10.0
		84.0	**-84.0**			3836	691	767	844	959	1036	1189	**650.0**	0.17	1.00	**3836**						
14	**CH**	89.0	-89.0	**111**	48.6	4079	734	816	897	1020	1101	1265	**650.0**	0.16	1.00	**4079**	**40**	0.124	0.019		**0.00**	10.0
		94.0	**-94.0**			4322	778	864	951	1081	1167	1340	**650.0**	0.15	1.00	**4322**						
15	**CH**	99.0	-99.0	**111**	48.6	4565	822	913	1004	1141	1233	1415	**650.0**	0.14	1.00	**4565**	**40**	0.124	0.019		**0.00**	10.0
		104.0	**-104.0**			4808	866	962	1058	1202	1298	1491	**650.0**	0.14	1.00	**4808**						
16	**CH**	109.0	-109.0	**111**	48.6	5051	909	1010	1111	1263	1364	1566	**650.0**	0.13	1.00	**5051**	**40**	0.124	0.019		**0.00**	10.0
		114.0	**-114.0**			5294	953	1059	1165	1324	1429	1641	**650.0**	0.12	1.00	**5294**						

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

Fill to el 4.5

Load Region Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	64.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	10657.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	518.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	20.00
Depth of Wick Drains (ft) =	0.50
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	2.69	7.19	**9.87**	8.07	2.43	5.13	7.55	7.08
	(ft)	0.22	0.60	0.82	0.67	0.20	0.43	0.63	0.59
	%Ultimate			100.0	81.8			76.5	71.7
REDUCD	(in)	2.69	7.19	9.87	8.07	2.43	5.13	7.55	7.08
	(ft)	0.22	0.60	0.82	0.67	0.20	0.43	0.63	0.59
	%Ultimate			100.0	81.8			76.5	71.7

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	32.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	5328.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	32.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-5328.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-32.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	5328.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-32.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-5328.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Ridge
PROJECT NO.: 24365
DATE: 7/6/21
ENGINEER: TKM

Group	L (ft)		Region 1 20.00	Region 2 20.00	Region 3 20.00	Region 4 20.00	Region 5 20.00	Region 6 20.00	Region 7 20.00	Region 8 20.00	Region 9 20.00	Region 10 20.00
I	141.05	Tv	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		Uv	11.87	11.87	11.87	11.87	11.87	11.87	11.87	11.87	11.87	11.87
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
9.87		0.0								0							(9.87)	(8.07)			(7.55)	(7.08)																								
	1	1.5	37.6	0.289	0.043	110.0	110.0	3.0	274	56	507	563	498	554	1.07	3.25	4.32	4.32	1.07	3.18	4.25	4.25	0.979	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.95	0.003	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
5.55		3.0								113	899.1%		882.8%				(5.55)	(3.75)			(3.31)	(2.83)	(507)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(498)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.5	49.6	0.150	0.023	110.0	110.0	7.0	604	286	471	757	434	721	0.61	1.24	1.86	1.86	0.61	0.97	1.59	1.59	0.909	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	2.21	0.015	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
3.69		10.0								460	164.4%		151.6%				(3.69)	(1.89)			(1.72)	(1.25)	(471)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(434)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	12.5	53.6	0.117	0.018	110.0	110.0	5.0	862	594	429	1023	365	959	0.17	0.52	0.69	0.69	0.17	0.33	0.50	0.50	0.828	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	1.58	0.028	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
3.00		15.0								728	72.2%		61.4%				(3.00)	(1.20)			(1.22)	(0.75)	(429)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(365)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	17.5	50.6	0.104	0.016	110.0	110.0	5.0	1092	855	396	1251	314	1168	0.10	0.37	0.47	0.47	0.10	0.18	0.28	0.28	0.765	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.039	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
2.53		20.0								981	46.4%		36.7%				(2.53)	(0.73)			(0.94)	(0.47)	(396)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(314)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	23.0	34.6	0.157	0.024	110.0	110.0	6.0	1492	1085	363	1448	265	1349	0.21	0.00	0.21	0.21	0.16	0.00	0.16	0.16	0.701	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.90	0.052	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
2.32		26.0								1189	33.5%		24.4%				(2.32)	(0.52)			(0.78)	(0.31)	(363)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(265)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	28.0	34.6	0.167	0.025	110.0	110.0	4.0	1699	1258	335	1593	226	1483	0.12	0.00	0.12	0.12	0.09	0.00	0.09	0.09	0.647	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.063	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
2.20		30.0								1327	26.7%		17.9%				(2.20)	(0.39)			(0.69)	(0.22)	(335)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(226)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	32.5	46.6	0.131	0.020	110.0	110.0	5.0	1902	1444	313	1756	195	1639	0.10	0.00	0.10	0.10	0.06	0.00	0.06	0.06	0.604	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
2.09		35.0								1560	21.7%		13.5%				(2.09)	(0.29)			(0.63)	(0.16)	(313)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(195)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	37.5	36.6	0.177	0.027	110.0	110.0	5.0	2098	1652	290	1941	166	1817	0.11	0.00	0.11	0.11	0.07	0.00	0.07	0.07	0.559	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.084	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
1.98		40.0								1743	17.5%		10.0%				(1.98)	(0.18)			(0.56)	(0.09)	(290)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(166)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	44.5	43.6	0.150	0.023	110.0	110.0	9.0	2531	1939	262	2201	131	2071	0.13	0.00	0.13	0.13	0.07	0.00	0.07	0.07	0.505	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.85	0.100	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
1.85		49.0								2135	13.5%		6.8%				(1.85)	(0.05)			(0.49)	(0.02)	(262)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(131)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	51.5	48.6	0.124	0.019	110.0	110.0	5.0	2694	2257	238	2495	104	2361	0.05	0.00	0.05	0.05	0.02	0.00	0.02	0.02	0.459	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.115	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
1.80		54.0								2378	10.5%		4.6%				(1.80)	(0.00)			(0.47)	(0.00)	(238)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(104)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	59.0	48.6	0.124	0.019	110.0	110.0	10.0	2621	2621	216	2837	81	2702	0.00	0.51	0.51	0.00	0.00	0.20	0.20	0.00	0.417	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.132	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
1.29		64.0								2864	8.2%		3.1%				(1.29)	(0.00)			(0.28)	(0.00)	(216)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(81)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	69.0	48.6	0.124	0.019	110.0	110.0	10.0	3107	3107	191	3299	57	3164	0.00	0.39	0.39	0.00	0.00	0.12	0.12	0.00	0.370	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.155	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
0.90		74.0								3350	6.2%		1.8%				(0.90)	(0.00)			(0.16)	(0.00)	(191)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(57)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	79.0	48.6	0.124	0.019	110.0	110.0	10.0	3593	3593	172	3765	40	3633	0.00	0.30	0.30	0.00	0.00	0.07	0.07	0.00	0.331	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.177	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
0.60		84.0								3836	4.8%		1.1%				(0.60)	(0.00)			(0.09)	(0.00)	(172)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(40)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.0	48.6	0.124	0.019	110.0	110.0	10.0	4079	4079	155	4235	28	4107	0.00	0.24	0.24	0.00	0.00	0.04	0.04	0.00	0.299	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.200	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
0.36		94.0								4322	3.8%		0.7%				(0.36)	(0.00)			(0.04)	(0.00)	(155)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(28)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	99.0	48.6	0.124	0.019	110.0	110.0	10.0	4565	4565	141	4707	19	4585	0.00	0.20	0.20	0.00	0.00	0.03	0.03	0.00	0.273	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.222	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
0.16		104.0								4808	3.1%		0.4%				(0.16)	(0.00)			(0.02)	(0.00)	(141)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(19)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	109.0	48.6	0.124	0.019	110.0	110.0	10.0	5051	5051	130	5181	13	5064	0.00	0.16	0.16	0.00	0.00	0.02	0.02	0.00	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.244	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
0.00		114.0								5294	2.6%		0.3%				(0.00)	(0.00)			(0.00)	(0.00)	(130)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(13)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	159.5	59.6	0.000	0.000	11.0	110.0	91.0	8006	8006	91	8097	0	8006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	91.00	0.578	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		205.0								10718	1.1%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(91)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	207.5	57.6	0.000	0.000	11.0	110.0	5.0	10862	10862	71	10933	0	10862	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.137	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.00	0.918	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								11006	0.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(71)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	11030	11030	70	11100	0	11030	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.135	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.940	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								11054	0.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(70)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	11077	11077	69	11147	0	11077	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.134	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.947	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								11101	0.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(69)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	11125	11125	69	11194	0	11125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.134	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								11149	0.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(69)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	11173	11173	69	11241	0	11173	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.133	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.961	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								11196	0.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(69)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	11220	11220	69	11289	0	11220	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.968	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								11244	0.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(69)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	11268	11268	68	11336	0	11268	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.975	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								11292	0.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(68)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	11363	11363	68	11431	0	11363	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.131	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.989	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								11434	0.6%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(68)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	2.69	7.19	9.87	8.07	2.43	5.13	7.55	7.08
	(ft)	0.22	0.60	0.82	0.67	0.20	0.43	0.63	0.59
	%Ultimate			100.0	81.8			76.5	71.7
REDUCD	(in)	2.69	7.19	9.87	8.07	2.43	5.13	7.55	7.08
	(ft)	0.22	0.60	0.82	0.67	0.20	0.43	0.63	0.59
	%Ultimate			100.0	81.8			76.5	71.7

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

Fill to el 5.0

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	64.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	10657.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	576.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	11.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	2.76	8.42	**11.18**	9.18	2.38	5.66	8.04	7.77
	(ft)	0.23	0.70	0.93	0.77	0.20	0.47	0.67	0.65
	%Ultimate			100.0	82.1			71.9	69.5
REDUCD	(in)	2.76	8.42	11.18	9.18	2.38	5.66	8.04	7.77
	(ft)	0.23	0.70	0.93	0.77	0.20	0.47	0.67	0.65
	%Ultimate			100.0	82.1			71.9	69.5

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	32.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	5328.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	32.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-5328.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-32.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	5328.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-32.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-5328.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Ridge
PROJECT NO.: 24365
DATE: 7/6/21
ENGINEER: TKM

Group	L (ft)		Region 1 11.00	Region 2 11.00	Region 3 11.00	Region 4 11.00	Region 5 11.00	Region 6 11.00	Region 7 11.00	Region 8 11.00	Region 9 11.00	Region 10 11.00
I	141.05	Tv	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		Uv	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80	8.80
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Virgin Sett (in.)	Ultimate Total Sett (in.)	Ultimate Bulb Sett (in.)	Induced Recomp Sett (in.)	Induced Virgin Sett (in.)	Induced Total Sett (in.)	Induced Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
11.18		0.0								0							(11.18)	(9.18)			(8.04)	(7.77)																								
	1	1.5	37.6	0.289	0.043	110.0	110.0	3.0	274	56	564	620	550	607	1.07	3.68	4.76	4.76	1.07	3.58	4.66	4.66	0.979	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.95	0.003	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
6.42		3.0								113	999.7%		975.4%				(6.42)	(4.43)			(3.39)	(3.11)	(564)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(550)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	6.5	49.6	0.150	0.023	110.0	110.0	7.0	604	286	524	810	469	755	0.61	1.61	2.23	2.23	0.61	1.23	1.84	1.84	0.909	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	2.21	0.015	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
4.19		10.0								460	182.9%		163.6%				(4.19)	(2.20)			(1.55)	(1.27)	(524)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(469)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	12.5	53.6	0.117	0.018	110.0	110.0	5.0	862	594	477	1071	381	975	0.17	0.66	0.83	0.83	0.17	0.38	0.55	0.55	0.828	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	1.58	0.028	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
3.36		15.0								728	80.3%		64.2%				(3.36)	(1.36)			(1.00)	(0.72)	(477)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(381)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	17.5	50.6	0.104	0.016	110.0	110.0	5.0	1092	855	441	1295	318	1173	0.10	0.46	0.56	0.56	0.10	0.19	0.29	0.29	0.765	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.039	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
2.80		20.0								981	51.6%		37.2%				(2.80)	(0.80)			(0.71)	(0.43)	(441)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(318)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	23.0	34.6	0.157	0.024	110.0	110.0	6.0	1492	1085	404	1488	258	1343	0.23	0.00	0.23	0.23	0.16	0.00	0.16	0.16	0.701	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.90	0.052	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
2.57		26.0								1189	37.2%		23.8%				(2.57)	(0.57)			(0.55)	(0.27)	(404)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(258)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	28.0	34.6	0.167	0.025	110.0	110.0	4.0	1699	1258	373	1631	212	1470	0.14	0.00	0.14	0.14	0.08	0.00	0.08	0.08	0.647	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.063	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
2.43		30.0								1327	29.6%		16.9%				(2.43)	(0.44)			(0.47)	(0.19)	(373)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(212)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	32.5	46.6	0.131	0.020	110.0	110.0	5.0	1902	1444	348	1791	177	1620	0.11	0.00	0.11	0.11	0.06	0.00	0.06	0.06	0.604	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.073	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
2.32		35.0								1560	24.1%		12.3%				(2.32)	(0.32)			(0.41)	(0.13)	(348)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(177)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	37.5	36.6	0.177	0.027	110.0	110.0	5.0	2098	1652	322	1974	144	1795	0.12	0.00	0.12	0.12	0.06	0.00	0.06	0.06	0.559	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.084	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
2.20		40.0								1743	19.5%		8.7%				(2.20)	(0.20)			(0.35)	(0.07)	(322)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(144)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	44.5	43.6	0.150	0.023	110.0	110.0	9.0	2531	1939	291	2230	106	2046	0.15	0.00	0.15	0.15	0.06	0.00	0.06	0.06	0.505	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.85	0.100	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
2.05		49.0								2135	15.0%		5.5%				(2.05)	(0.05)			(0.29)	(0.02)	(291)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(106)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	51.5	48.6	0.124	0.019	110.0	110.0	5.0	2694	2257	264	2521	78	2335	0.05	0.00	0.05	0.05	0.02	0.00	0.02	0.02	0.459	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.115	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
2.00		54.0								2378	11.7%		3.5%				(2.00)	(0.00)			(0.28)	(0.00)	(264)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(78)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	59.0	48.6	0.124	0.019	110.0	110.0	10.0	2621	2621	240	2861	55	2677	0.00	0.57	0.57	0.00	0.00	0.13	0.13	0.00	0.417	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.132	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
1.43		64.0								2864	9.2%		2.1%				(1.43)	(0.00)			(0.14)	(0.00)	(240)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(55)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	69.0	48.6	0.124	0.019	110.0	110.0	10.0	3107	3107	213	3320	34	3142	0.00	0.43	0.43	0.00	0.00	0.07	0.07	0.00	0.370	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.155	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
1.00		74.0								3350	6.8%		1.1%				(1.00)	(0.00)			(0.07)	(0.00)	(213)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(34)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	79.0	48.6	0.124	0.019	110.0	110.0	10.0	3593	3593	191	3784	21	3614	0.00	0.33	0.33	0.00	0.00	0.04	0.04	0.00	0.331	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.177	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
0.67		84.0								3836	5.3%		0.6%				(0.67)	(0.00)			(0.03)	(0.00)	(191)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(21)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.0	48.6	0.124	0.019	110.0	110.0	10.0	4079	4079	172	4252	12	4092	0.00	0.27	0.27	0.00	0.00	0.02	0.02	0.00	0.299	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.200	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
0.40		94.0								4322	4.2%		0.3%				(0.40)	(0.00)			(0.01)	(0.00)	(172)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(12)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	99.0	48.6	0.124	0.019	110.0	110.0	10.0	4565	4565	157	4723	7	4572	0.00	0.22	0.22	0.00	0.00	0.01	0.01	0.00	0.273	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.222	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.18		104.0								4808	3.4%		0.2%				(0.18)	(0.00)			(0.00)	(0.00)	(157)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(7)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	109.0	48.6	0.124	0.019	110.0	110.0	10.0	5051	5051	144	5196	4	5055	0.00	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.244	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0.00		114.0								5294	2.9%		0.1%				(0.00)	(0.00)			(0.00)	(0.00)	(144)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(4)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	159.5	59.6	0.000	0.000	11.0	110.0	91.0	8006	8006	101	8108	0	8006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	91.00	0.578	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		205.0								10718	1.3%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(101)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	207.5	57.6	0.000	0.000	11.0	110.0	5.0	10862	10862	79	10941	0	10862	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.137	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.00	0.918	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								11006	0.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(79)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	11030	11030	78	11107	0	11030	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.135	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.940	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								11054	0.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(78)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	11077	11077	77	11155	0	11077	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.134	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.947	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								11101	0.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(77)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	11125	11125	77	11202	0	11125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.134	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								11149	0.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(77)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	11173	11173	77	11249	0	11173	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.133	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.961	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								11196	0.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(77)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	11220	11220	76	11296	0	11220	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.968	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								11244	0.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(76)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	11268	11268	76	11344	0	11268	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.975	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								11292	0.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(76)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	11363	11363	75	11438	0	11363	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.131	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.989	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								11434	0.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(75)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

TOTAL	(in)	2.76	8.42	11.18	9.18	2.38	5.66	8.04	7.77
	(ft)	0.23	0.70	0.93	0.77	0.20	0.47	0.67	0.65
	%Ultimate			100.0	82.1			71.9	69.5
REDUCD	(in)	2.76	8.42	11.18	9.18	2.38	5.66	8.04	7.77
	(ft)	0.23	0.70	0.93	0.77	0.20	0.47	0.67	0.65
	%Ultimate			100.0	82.1			71.9	69.5

EE 24365 Grand Bayou
Ridge
ML el 0

Existing Grade = 0.00 **NAVD 88**
Target Grade at 20 years = **NAVD 88**

time (yrs)	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)				
	4.5	5			
0.00	0.00	0.00			
0.08	0.027	0.030			
0.16	0.027	0.030			
0.50	0.027	0.030			
1.00	0.027	0.030			
1.50	0.027	0.030			
2.00	0.027	0.030			
3.00	0.027	0.030			
4.00	0.027	0.030			
7.00	0.027	0.030			
11.00	0.027	0.030			
20.00	0.027	0.030			
ultimate	0.027	0.030			

finished elevation (ft NAVD 88) of MARSH FILL (SELF WEIGHT)				
4.5	5			
4.50	5.00			
4.47	4.97			
4.47	4.97			
4.47	4.97			
4.47	4.97			
4.47	4.97			
4.47	4.97			
4.47	4.97			
4.47	4.97			
4.47	4.97			
4.47	4.97			
4.47	4.97			
4.47	4.97			
4.47	4.97			
4.47	4.97			

Ultimate self weight consolidation settlement = 0.0059* height of fill (e.g., Ultimate Consol for 1 feet of fill = 0.0059* 3 = 0.018 feet)

time (yrs)	Percent Consolidation due to consolidation settlement (ft) of marsh fill				
	4.5	5			
0.00	100.0	100.0			
0.08	100.0	100.0			
0.16	100.0	100.0			
0.50	100.0	100.0			
1.00	100.0	100.0			
1.50	100.0	100.0			
2.00	100.0	100.0			
3.00	100.0	100.0			
4.00	100.0	100.0			
7.00	100.0	100.0			
11.00	100.0	100.0			
20.00	100.0	100.0			
ultimate	100.0	100.0			

Existing Grade = **0.00 NAVD 88**
Target Grade at 20 years = **NAVD 88**

time (yrs)	consolidation settlement (inches) of subsurface				
	4.5	**5**			
0.00	0.00	0.00			
0.08	4.88	5.64			
0.16	4.91	5.68			
0.50	5.05	5.83			
1.00	5.23	6.02			
1.50	5.39	6.18			
2.00	5.52	6.36			
3.00	5.76	6.67			
4.00	5.88	6.92			
7.00	6.42	7.42			
11.00	6.74	7.77			
20.00	7.08	8.13			
ultimate	8.07	9.18			

4.5		5							
+20%	-20%	+20%	-20%						
0.00	0.00	0.00	0.00						
5.86	3.90	6.77	4.51						
5.89	3.93	6.82	4.54						
6.06	4.04	7.00	4.66						
6.28	4.18	7.22	4.82						
6.47	4.31	7.42	4.94						
6.62	4.42	7.63	5.09						
6.91	4.61	8.00	5.34						
7.06	4.70	8.30	5.54						
7.70	5.14	8.90	5.94						
8.09	5.39	9.32	6.22						
8.50	5.66	9.76	6.50						
9.68	6.46	11.02	7.34						

time (yrs)	consolidation settlement (feet) of subsurface with subsidence				
	4.5				
0.00	0.00	0.00			
0.08	0.41	0.47			
0.16	0.41	0.48			
0.50	0.43	0.50			
1.00	0.46	0.52			
1.50	0.48	0.55			
2.00	0.50	0.57			
3.00	0.54	0.62			
4.00	0.57	0.66			
7.00	0.68	0.77			
11.00	0.79	0.88			
20.00	1.01	1.10			

233

0.02016	0.00168
0.04032	0.00336
0.126	0.0105
0.252	0.021
0.378	0.0315
0.504	0.042
0.756	0.063
1.008	0.084
1.764	0.147
2.772	0.231
5.04	0.42

Existing Grade = 0.00 **NAVD 88** **RIDGE**
Target Grade at 20 years = **NAVD 88**
fill height 4.5 5

	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)					consolidation settlement (ft) of subsurface with subsidence				
	4.5	5				4.5	5			
0.00	0.000	0.000				0.00	0.00			
0.08	0.027	0.030				0.41	0.47			
0.16	0.027	0.030				0.41	0.48			
0.50	0.027	0.030				0.43	0.50			
1.00	0.027	0.030				0.46	0.52			
1.50	0.027	0.030				0.48	0.55			
2.00	0.027	0.030				0.50	0.57			
3.00	0.027	0.030				0.54	0.62			
4.00	0.027	0.030				0.57	0.66			
7.00	0.027	0.030				0.68	0.77			
11.00	0.027	0.030				0.79	0.88			
20.00	0.027	0.030				1.01	1.10			

time (yrs)	Finished Elevation from TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils				
0.00	4.50	5.00			
0.08	4.06	4.50			
0.16	4.06	4.49			
0.5	4.04	4.47			
1	4.02	4.45			
1.5	3.99	4.42			
2	3.97	4.40			
3	3.93	4.35			
4	3.90	4.31			
7	3.79	4.20			
11	3.68	4.09			
20	3.46	3.87			

time (yrs)	TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils with subsidence				
	4.5	5			
0.00	0.00	0.00			
0.08	0.44	0.50			
0.16	0.44	0.51			
0.5	0.46	0.53			
1	0.48	0.55			
1.5	0.51	0.58			
2	0.53	0.60			
3	0.57	0.65			
4	0.60	0.69			
7	0.71	0.80			
11	0.82	0.91			
20	1.04	1.13			

RIDGE ML AT EL -2.0

SOIL DESIGN PARAMETERS

THIS SPREADSHEET USES DYNAMIC CR VALUES. PLEASE CHECK USCS AND MOISTURE CONTENTS

EE 24365
CPRA Grande Bayou
Ridge

RED = INPUT VALUE

$$\frac{c_u}{\sigma'_{vc}} = S(OCR)^m$$

Homogeneous CL and CH sedimentary clays of low to moderate sensitivity (I_p = 20%–80%):
$S = 0.20 + 0.05I_p$, or simply $S = 0.22$.
$m = 0.88(1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.

Sedimentary deposits of silts and organic soils (Atterberg limits plot below the A-line, but excluding peats) and clays with shells:
$S = 0.25$, with nominal SD = 0.05.
$m = 0.88\ (1 - C_s/C_c) \pm 0.06$ SD, or simply $m = 0.8$.

S	**0.25**
m	**0.800**

Ground Surface El -2.00 (NAVD 88)
GWL (depth ft BGS/MLS) 0.00

extrapolated

Str No.	USCS	Depth (ft)	NAVD 88 EL (ft)	γ pcf	γ' (pcf)	P'o Zero Burden (psf)	C_u=0.18*P'o Theoretical Cohesion, C_u (psf)	.20*P'o Theoretical Cohesion, C (psf)	C_u=0.22*P'o Theoretical Cohesion, C_u (psf)	C_u=0.25*P'o Theoretical Cohesion, C_u (psf)	C_u=0.27*P'o Theoretical Cohesion, C_u (psf)	C_u=0.31*P'o Theoretical Cohesion, C_u (psf)	Design Line Assigned Cohesion, C_u (psf)	C_u/P'_o	OCR 0.25	P'_c=OCR*P'_o Past Maximum (psf)	W_c %	CR (N/D)	RR (N/D)	c_v (ft^2/yr)	Poisson's Ratio (N/D)	Total H (ft)
		0.0	**-2.0**			0	0	0	0	0	0	0	**50.0**	0.00	**10.0**						
1	**OH**	1.5	-3.5	**100**	37.6	56	10	11	12	14	15	17	**50.0**	0.89	4.87	**274**	**90**	0.289	0.043		**0.00**	3.0
		3.0	**-5.0**			113	20	23	25	28	30	35	**50.0**	0.44	2.05	**231**						
2	**CH**	5.5	-7.5	**112**	49.6	237	43	47	52	59	64	73	**130.0**	0.55	2.67	**633**	**48**	0.150	0.023		**0.00**	5.0
		8.0	**-10.0**			361	65	72	79	90	97	112	**130.0**	0.36	1.58	**570**						
3	**CL**	10.5	-12.5	**116**	53.6	495	89	99	109	124	134	153	**200.0**	0.40	1.82	**902**	**38**	0.117	0.018		**0.00**	5.0
		13.0	**-15.0**			629	113	126	138	157	170	195	**200.0**	0.32	1.82	**1146**						
4	**CL**	15.5	-17.5	**113**	50.6	755	136	151	166	189	204	234	**260.0**	0.34	1.49	**1127**	**34**	0.104	0.016		**0.00**	5.0
		18.0	**-20.0**			882	159	176	194	220	238	273	**260.0**	0.29	1.49	**1315**						
5	**CH**	21.0	-23.0	**97**	34.6	986	177	197	217	246	266	306	**350.0**	0.36	1.55	**1528**	**50**	0.157	0.024		**0.00**	6.0
		24.0	**-26.0**			1089	196	218	240	272	294	338	**350.0**	0.32	1.55	**1689**						
6	**CH**	26.0	-28.0	**97**	34.6	1159	209	232	255	290	313	359	**400.0**	0.35	1.50	**1734**	**53**	0.167	0.025		**0.00**	4.0
		28.0	**-30.0**			1228	221	246	270	307	332	381	**400.0**	0.33	1.50	**1838**						
7	**CL**	30.5	-32.5	**109**	46.6	1344	242	269	296	336	363	417	**450.0**	0.33	1.44	**1936**	**42**	0.131	0.020		**0.00**	5.0
		33.0	**-35.0**			1461	263	292	321	365	394	453	**450.0**	0.31	1.44	**2104**						
8	**CH**	35.5	-37.5	**99**	36.6	1552	279	310	342	388	419	481	**500.0**	0.32	1.37	**2131**	**56**	0.177	0.027		**0.00**	5.0
		38.0	**-40.0**			1644	296	329	362	411	444	510	**500.0**	0.30	1.37	**2256**						
9	**CL**	42.5	-44.5	**106**	43.6	1840	331	368	405	460	497	570	**600.0**	0.33	1.39	**2565**	**48**	0.150	0.023		**0.00**	9.0
		47.0	**-49.0**			2036	367	407	448	509	550	631	**600.0**	0.29	1.39	**2838**						
10	**CH**	49.5	-51.5	**111**	48.6	2158	388	432	475	539	583	669	**650.0**	0.30	1.26	**2724**	**40**	0.124	0.019		**0.00**	5.0
		52.0	**-54.0**			2279	410	456	501	570	615	707	**650.0**	0.29	1.26	**2877**						
11	**CH**	58.0	-60.0	**111**	48.6	2571	463	514	566	643	694	797	**650.0**	0.25	1.01	**2607**	**40**	0.124	0.019		**0.00**	12.0
		64.0	**-66.0**			2862	515	572	630	716	773	887	**650.0**	0.23	1.01	**2903**						
12	**CH**	69.0	-71.0	**111**	48.6	3105	559	621	683	776	838	963	**650.0**	0.21	1.00	**3105**	**40**	0.124	0.019		**0.00**	10.0
		74.0	**-76.0**			3348	603	670	737	837	904	1038	**650.0**	0.19	1.00	**3348**						
13	**CH**	79.0	-81.0	**111**	48.6	3591	646	718	790	898	970	1113	**650.0**	0.18	1.00	**3591**	**40**	0.124	0.019		**0.00**	10.0
		84.0	**-86.0**			3834	690	767	844	959	1035	1189	**650.0**	0.17	1.00	**3834**						
14	**CH**	89.0	-91.0	**111**	48.6	4077	734	815	897	1019	1101	1264	**650.0**	0.16	1.00	**4077**	**40**	0.124	0.019		**0.00**	10.0
		94.0	**-96.0**			4320	778	864	950	1080	1167	1339	**650.0**	0.15	1.00	**4320**						
15	**CH**	99.0	-101.0	**111**	48.6	4563	821	913	1004	1141	1232	1415	**650.0**	0.14	1.00	**4563**	**40**	0.124	0.019		**0.00**	10.0
		104.0	**-106.0**			4806	865	961	1057	1202	1298	1490	**650.0**	0.14	1.00	**4806**						
16	**CH**	109.0	-111.0	**111**	48.6	5049	909	1010	1111	1262	1363	1565	**650.0**	0.13	1.00	**5049**	**40**	0.124	0.019		**0.00**	10.0
		114.0	**-116.0**			5292	953	1058	1164	1323	1429	1641	**650.0**	0.12	1.00	**5292**						

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

FILL to el 4.5

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	64.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	10657.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	623.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	3.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	3.05	7.85	**10.89**	9.35	2.30	4.33	6.63	6.62
	(ft)	0.25	0.65	0.91	0.78	0.19	0.36	0.55	0.55
	%Ultimate			100.0	85.8			60.9	60.8
REDUCD	(in)	3.05	7.85	10.89	9.35	2.30	4.33	6.63	6.62
	(ft)	0.25	0.65	0.91	0.78	0.19	0.36	0.55	0.55
	%Ultimate			100.0	85.8			60.9	60.8

extrapolated

		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1	dX	32.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	5328.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2	dX	32.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	dY	-5328.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3	dX	-32.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	5328.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4	dX	-32.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
	dY	-5328.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Ridge
PROJECT NO.: 24365
DATE: 7/6/21
ENGINEER: TKM

Group	L (ft)		Region 1 3.00	Region 2 3.00	Region 3 3.00	Region 4 3.00	Region 5 3.00	Region 6 3.00	Region 7 3.00	Region 8 3.00	Region 9 3.00	Region 10 3.00
I	141.05	Tv	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Uv	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Settlement: Virgin Sett (in.)	Ultimate Settlement: Total Sett (in.)	Ultimate Settlement: Bulb Sett (in.)	Induced Settlement: Recomp Sett (in.)	Induced Settlement: Virgin Sett (in.)	Induced Settlement: Total Sett (in.)	Induced Settlement: Bulb Sett (in.)	Influence Factors (Ultimate Induced Stresses in Parentheses): Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage (Current Induced Stresses in Parentheses): Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
10.89		0.0								0							(10.89)	(9.35)																										
	1	1.5	37.6	0.289	0.043	110.0	110.0	3.0	274	56	610	666	583	639	1.07	4.01	5.08	5.08	1.07	3.82	4.89	4.89	0.979	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.95	0.003	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
5.81		3.0								113	1081.3%		1033.3%				(5.81)	(4.27)			(1.74)	(1.73)	(610)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(583)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	5.5	49.6	0.150	0.023	110.0	110.0	5.0	633	237	575	812	482	719	0.58	0.98	1.55	1.55	0.58	0.50	1.08	1.08	0.923	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	1.58	0.012	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
4.26		8.0								361	242.8%		203.5%				(4.26)	(2.72)			(0.66)	(0.65)	(575)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(482)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.5	53.6	0.117	0.018	110.0	110.0	5.0	902	495	533	1027	370	865	0.27	0.40	0.67	0.67	0.26	0.00	0.26	0.26	0.855	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.58	0.024	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
3.59		13.0								629	107.6%		74.9%				(3.59)	(2.04)			(0.41)	(0.40)	(533)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(370)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.5	50.6	0.104	0.016	110.0	110.0	5.0	1127	755	492	1247	276	1032	0.16	0.28	0.44	0.44	0.13	0.00	0.13	0.13	0.790	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.035	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
3.15		18.0								882	65.2%		36.6%				(3.15)	(1.61)			(0.28)	(0.27)	(492)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(276)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	21.0	34.6	0.157	0.024	110.0	110.0	6.0	1528	986	451	1436	193	1179	0.28	0.00	0.28	0.28	0.13	0.00	0.13	0.13	0.723	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.90	0.047	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
2.87		24.0								1089	45.7%		19.6%				(2.87)	(1.33)			(0.15)	(0.14)	(451)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(193)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	26.0	34.6	0.167	0.025	110.0	110.0	4.0	1734	1159	416	1575	134	1293	0.16	0.00	0.16	0.16	0.06	0.00	0.06	0.06	0.668	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.058	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
2.71		28.0								1228	35.9%		11.6%				(2.71)	(1.17)			(0.09)	(0.08)	(416)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(134)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.5	46.6	0.131	0.020	110.0	110.0	5.0	1936	1344	388	1732	93	1438	0.13	0.00	0.13	0.13	0.03	0.00	0.03	0.03	0.622	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.068	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
2.58		33.0								1461	28.8%		6.9%				(2.58)	(1.04)			(0.06)	(0.05)	(388)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(93)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.5	36.6	0.177	0.027	110.0	110.0	5.0	2131	1552	359	1911	60	1612	0.14	0.00	0.14	0.14	0.03	0.00	0.03	0.03	0.577	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.080	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
2.44		38.0								1644	23.1%		3.8%				(2.44)	(0.89)			(0.03)	(0.02)	(359)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(60)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	42.5	43.6	0.150	0.023	110.0	110.0	9.0	2565	1840	324	2164	29	1869	0.17	0.00	0.17	0.17	0.02	0.00	0.02	0.02	0.520	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.85	0.095	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
2.27		47.0								2036	17.6%		1.6%				(2.27)	(0.72)			(0.02)	(0.00)	(324)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(29)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	49.5	48.6	0.124	0.019	110.0	110.0	5.0	2724	2158	294	2451	12	2170	0.06	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.111	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2.21		52.0								2279	13.6%		0.6%				(2.21)	(0.66)			(0.01)	(0.00)	(294)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(12)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	58.0	48.6	0.124	0.019	110.0	110.0	12.0	2607	2571	263	2834	3	2574	0.02	0.65	0.66	0.66	0.00	0.00	0.00	0.00	0.422	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.79	0.130	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
1.55		64.0								2862	10.2%		0.1%				(1.55)	(0.00)			(0.01)	(0.00)	(263)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(3)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	69.0	48.6	0.124	0.019	110.0	110.0	10.0	3105	3105	230	3336	1	3107	0.00	0.46	0.46	0.00	0.00	0.00	0.00	0.00	0.370	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.155	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
1.08		74.0								3348	7.4%		0.0%				(1.08)	(0.00)			(0.01)	(0.00)	(230)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	79.0	48.6	0.124	0.019	110.0	110.0	10.0	3591	3591	206	3798	2	3593	0.00	0.36	0.36	0.00	0.00	0.00	0.00	0.00	0.331	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.177	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.72		84.0								3834	5.7%		0.1%				(0.72)	(0.00)			(0.00)	(0.00)	(206)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.0	48.6	0.124	0.019	110.0	110.0	10.0	4077	4077	187	4264	2	4079	0.00	0.29	0.29	0.00	0.00	0.00	0.00	0.00	0.299	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.200	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.43		94.0								4320	4.6%		0.1%				(0.43)	(0.00)			(0.00)	(0.00)	(187)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	99.0	48.6	0.124	0.019	110.0	110.0	10.0	4563	4563	170	4733	1	4565	0.00	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.273	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.222	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.20		104.0								4806	3.7%		0.0%				(0.20)	(0.00)			(0.00)	(0.00)	(170)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	109.0	48.6	0.124	0.019	110.0	110.0	10.0	5049	5049	156	5205	0	5049	0.00	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.244	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		114.0								5292	3.1%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(156)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	159.5	59.6	0.000	0.000	11.0	110.0	91.0	8004	8004	110	8114	0	8005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	91.00	0.578	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		205.0								10716	1.4%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(110)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	207.5	57.6	0.000	0.000	11.0	110.0	5.0	10860	10860	85	10945	0	10860	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.137	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.00	0.918	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								11004	0.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(85)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	11028	11028	84	11112	0	11028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.135	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.940	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								11052	0.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(84)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	11075	11075	84	11159	0	11075	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.134	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.947	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								11099	0.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(84)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	11123	11123	83	11206	0	11123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.134	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								11147	0.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(83)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	11171	11171	83	11253	0	11171	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.133	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.961	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								11194	0.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(83)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	11218	11218	82	11301	0	11218	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.968	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								11242	0.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(82)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	11266	11266	82	11348	0	11266	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.975	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								11290	0.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(82)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	11361	11361	81	11442	0	11361	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.131	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.989	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								11432	0.7%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(81)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	3.05	7.85	10.89	9.35	2.30	4.33	6.63	6.62
	(ft)	0.25	0.65	0.91	0.78	0.19	0.36	0.55	0.55
	%Ultimate			100.0	85.8			60.9	60.8
REDUCD	(in)	3.05	7.85	10.89	9.35	2.30	4.33	6.63	6.62
	(ft)	0.25	0.65	0.91	0.78	0.19	0.36	0.55	0.55
	%Ultimate			100.0	85.8			60.9	60.8

SETTLEMENT ANALYSIS - STRESS DISTRIBUTION BY WESTERGAARD THEORY, MAGNITUDE AND RATE OF CONSOLIDATION BY TERZAGHI THEORY

FILL to el 5.0

Load Region / Parameter	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Bearing Area Center, Xc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Center, Yc (ft) =	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00	2000.00
Bearing Area Width in X-direction, B (ft) =	64.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bearing Area Length in Y-direction, L (ft) =	10657.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Net Applied Pressure (psf) =	681.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depth of Application, Da (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Depth of Foundation, Df (ft) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contact Pressure Multiplier (N/D) =	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Time of Application (yrs) =	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Abscissa for Analysis, Xa (ft) =	2000.00
Ordinate for Analysis, Ya (ft) =	2000.00
Poisson's Ratio, u (N/D) =	0.00
Recompression Factor (N/D) =	0.15
Total Settlement Multiplier (N/D) =	1.00
Stress Bulb Criterion (%) =	10.00%
Current Time (yrs) =	20.00
Depth of Wick Drains (ft) =	0.00
Wick Drain Triangular Grid Spacing (ft) =	0.00
Equivalent Drain Diameter, dw (in) =	0.000
Equivalent Mandrel Diameter, dm (in) =	0.000
Diameter of Smear Zone, ds (in) =	0.000
Drain Capacity Ratio (sqft) =	0.0

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	3.12	8.91	**12.04**	10.35	2.79	6.39	9.18	8.82
	(ft)	0.26	0.74	1.00	0.86	0.23	0.53	0.77	0.74
	%Ultimate			100.0	86.0			76.3	73.3
REDUCD	(in)	3.12	8.91	12.04	10.35	2.79	6.39	9.18	8.82
	(ft)	0.26	0.74	1.00	0.86	0.23	0.53	0.77	0.74
	%Ultimate			100.0	86.0			76.3	73.3

extrapolated

	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
Sub 1 dX	32.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 1 dY	5328.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2 dX	32.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 2 dY	-5328.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3 dX	-32.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 3 dY	5328.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sub 4 dX	-32.0	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Sub 4 dY	-5328.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Strain Factor = 0.50

PROJECT TITLE: CPRA Grand Bayou - Ridge
PROJECT NO.: 24365
DATE: 7/6/21
ENGINEER: TKM

Group	L (ft)		Region 1 20.00	Region 2 20.00	Region 3 20.00	Region 4 20.00	Region 5 20.00	Region 6 20.00	Region 7 20.00	Region 8 20.00	Region 9 20.00	Region 10 20.00
I	141.05	Tv	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
		Uv	11.87	11.87	11.87	11.87	11.87	11.87	11.87	11.87	11.87	11.87
II	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
III	0.00	Tv	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Uv	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Str No.	Depth (ft)	g' (pcf)	CR (N/D)	RR (N/D)	cv (sft/yr)	ch (sft/yr)	Total H (ft)	Eff Vert Stress at Mid-Stratum: Past Maximum (psf)	Zero Burden (psf)	Ultimate Change (psf)	Ultimate Value (psf)	Induced Change (psf)	Induced Value (psf)	Ultimate Settlement: Recomp Sett (in.)	Ultimate Virgin Sett (in.)	Ultimate Total Sett (in.)	Ultimate Bulb Sett (in.)	Induced Recomp Sett (in.)	Induced Virgin Sett (in.)	Induced Total Sett (in.)	Induced Bulb Sett (in.)	Influence Factors Region 1 Iz	Region 2 Iz	Region 3 Iz	Region 4 Iz	Region 5 Iz	Region 6 Iz	Region 7 Iz	Region 8 Iz	Region 9 Iz	Region 10 Iz	Rate Parameters: Effective H* (ft)	Position (z*/L) (N/D)	Percent Consolidation for Combined Drainage Region 1 (N/D)	Region 2 (N/D)	Region 3 (N/D)	Region 4 (N/D)	Region 5 (N/D)	Region 6 (N/D)	Region 7 (N/D)	Region 8 (N/D)	Region 9 (N/D)	Region 10 (N/D)
12.04		0.0								0							(12.04)	(10.35)			(9.18)	(8.82)																							
	1	1.5	37.6	0.289	0.043	110.0	110.0	3.0	274	56	667	723	655	711	1.07	4.38	5.45	5.45	1.07	4.30	5.37	5.37	0.979	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.95	0.003	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
6.59		3.0								113	1182.0%		1160.7%				(6.59)	(4.90)			(3.81)	(3.45)	(667)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(655)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	2	5.5	49.6	0.150	0.023	110.0	110.0	5.0	633	237	629	865	587	824	0.58	1.23	1.80	1.80	0.58	1.03	1.61	1.61	0.923	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	1.58	0.012	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
4.79		8.0								361	265.4%		247.9%				(4.79)	(3.10)			(2.20)	(1.84)	(629)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(587)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	3	10.5	53.6	0.117	0.018	110.0	110.0	5.0	902	495	582	1077	509	1004	0.27	0.54	0.81	0.81	0.27	0.33	0.60	0.60	0.855	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	1.58	0.024	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
3.97		13.0								629	117.7%		102.9%				(3.97)	(2.29)			(1.60)	(1.24)	(582)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(509)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	4	15.5	50.6	0.104	0.016	110.0	110.0	5.0	1127	755	538	1293	439	1194	0.16	0.37	0.54	0.54	0.16	0.16	0.32	0.32	0.790	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.58	0.035	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
3.43		18.0								882	71.2%		58.1%				(3.43)	(1.75)			(1.28)	(0.92)	(538)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(439)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	5	21.0	34.6	0.157	0.024	110.0	110.0	6.0	1528	986	493	1478	370	1356	0.30	0.00	0.30	0.30	0.23	0.00	0.23	0.23	0.723	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1.90	0.047	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
3.14		24.0								1089	50.0%		37.6%				(3.14)	(1.45)			(1.04)	(0.68)	(493)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(370)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	6	26.0	34.6	0.167	0.025	110.0	110.0	4.0	1734	1159	455	1614	316	1475	0.17	0.00	0.17	0.17	0.13	0.00	0.13	0.13	0.668	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.26	0.058	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
2.96		28.0								1228	39.3%		27.3%				(2.96)	(1.28)			(0.92)	(0.56)	(455)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(316)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	7	30.5	46.6	0.131	0.020	110.0	110.0	5.0	1936	1344	424	1768	274	1618	0.14	0.00	0.14	0.14	0.09	0.00	0.09	0.09	0.622	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.068	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
2.82		33.0								1461	31.5%		20.4%				(2.82)	(1.14)			(0.82)	(0.46)	(424)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(274)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	8	35.5	36.6	0.177	0.027	110.0	110.0	5.0	2131	1552	393	1945	233	1785	0.16	0.00	0.16	0.16	0.10	0.00	0.10	0.10	0.577	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.080	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
2.67		38.0								1644	25.3%		15.0%				(2.67)	(0.98)			(0.73)	(0.36)	(393)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(233)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	9	42.5	43.6	0.150	0.023	110.0	110.0	9.0	2565	1840	354	2194	185	2025	0.19	0.00	0.19	0.19	0.10	0.00	0.10	0.10	0.520	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.85	0.095	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
2.48		47.0								2036	19.2%		10.0%				(2.48)	(0.80)			(0.63)	(0.26)	(354)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(185)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	10	49.5	48.6	0.124	0.019	110.0	110.0	5.0	2724	2158	321	2479	146	2304	0.07	0.00	0.07	0.07	0.03	0.00	0.03	0.03	0.471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.58	0.111	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
2.41		52.0								2279	14.9%		6.8%				(2.41)	(0.73)			(0.59)	(0.23)	(321)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(146)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	11	58.0	48.6	0.124	0.019	110.0	110.0	12.0	2607	2571	287	2858	110	2681	0.02	0.71	0.73	0.73	0.02	0.21	0.23	0.23	0.422	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.79	0.130	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
1.69		64.0								2862	11.2%		4.3%				(1.69)	(0.00)			(0.36)	(0.00)	(287)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(110)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	12	69.0	48.6	0.124	0.019	110.0	110.0	10.0	3105	3105	252	3357	75	3180	0.00	0.50	0.50	0.00	0.00	0.15	0.15	0.00	0.370	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.155	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
1.18		74.0								3348	8.1%		2.4%				(1.18)	(0.00)			(0.21)	(0.00)	(252)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(75)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	13	79.0	48.6	0.124	0.019	110.0	110.0	10.0	3591	3591	226	3817	53	3644	0.00	0.39	0.39	0.00	0.00	0.09	0.09	0.00	0.331	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.177	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
0.79		84.0								3834	6.3%		1.5%				(0.79)	(0.00)			(0.12)	(0.00)	(226)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(53)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	14	89.0	48.6	0.124	0.019	110.0	110.0	10.0	4077	4077	204	4281	37	4114	0.00	0.32	0.32	0.00	0.00	0.06	0.06	0.00	0.299	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.200	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
0.47		94.0								4320	5.0%		0.9%				(0.47)	(0.00)			(0.06)	(0.00)	(204)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(37)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	15	99.0	48.6	0.124	0.019	110.0	110.0	10.0	4563	4563	186	4749	25	4589	0.00	0.26	0.26	0.00	0.00	0.04	0.04	0.00	0.273	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.222	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
0.21		104.0								4806	4.1%		0.6%				(0.21)	(0.00)			(0.02)	(0.00)	(186)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(25)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	16	109.0	48.6	0.124	0.019	110.0	110.0	10.0	5049	5049	171	5220	17	5067	0.00	0.21	0.21	0.00	0.00	0.02	0.02	0.00	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.244	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
0.00		114.0								5292	3.4%		0.3%				(0.00)	(0.00)			(0.00)	(0.00)	(171)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(17)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	17	159.5	59.6	0.000	0.000	11.0	110.0	91.0	8004	8004	120	8124	0	8004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	91.00	0.578	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		205.0								10716	1.5%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(120)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	18	207.5	57.6	0.000	0.000	11.0	110.0	5.0	10860	10860	93	10953	0	10860	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.137	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.00	0.918	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		210.0								11004	0.9%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(93)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	19	210.5	47.6	0.000	0.000	11.0	11.0	1.0	11028	11028	92	11120	0	11028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.135	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.940	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		211.0								11052	0.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(92)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	20	211.5	47.6	0.000	0.000	11.0	11.0	1.0	11075	11075	91	11167	0	11075	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.134	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.947	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		212.0								11099	0.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(91)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	21	212.5	47.6	0.000	0.000	11.0	11.0	1.0	11123	11123	91	11214	0	11123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.134	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.954	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		213.0								11147	0.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(91)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	22	213.5	47.6	0.000	0.000	11.0	11.0	1.0	11171	11171	91	11261	0	11171	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.133	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.961	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		214.0								11194	0.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(91)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	23	214.5	47.6	0.000	0.000	11.0	11.0	1.0	11218	11218	90	11308	0	11218	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.968	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		215.0								11242	0.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(90)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	24	215.5	47.6	0.000	0.000	11.0	11.0	1.0	11266	11266	90	11356	0	11266	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00	0.975	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		216.0								11290	0.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(90)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	25	217.5	47.6	0.000	0.000	11.0	11.0	3.0	11361	11361	89	11450	0	11361	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.131	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.00	0.989	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		219.0								11432	0.8%		0.0%				(0.00)	(0.00)			(0.00)	(0.00)	(89)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

		Ultimate Settlement Recomp Sett (in.)	Ultimate Settlement Virgin Sett (in.)	Ultimate Settlement Total Sett (in.)	Ultimate Settlement Bulb Sett (in.)	Induced Settlement Recomp Sett (in.)	Induced Settlement Virgin Sett (in.)	Induced Settlement Total Sett (in.)	Induced Settlement Bulb Sett (in.)
TOTAL	(in)	3.12	8.91	12.04	10.35	2.79	6.39	9.18	8.82
	(ft)	0.26	0.74	1.00	0.86	0.23	0.53	0.77	0.74
	%Ultimate			100.0	86.0			76.3	73.3
REDUCD	(in)	3.12	8.91	12.04	10.35	2.79	6.39	9.18	8.82
	(ft)	0.26	0.74	1.00	0.86	0.23	0.53	0.77	0.74
	%Ultimate			100.0	86.0			76.3	73.3

EE 24365 Grand Bayou
Ridge
ML el -2

Existing Grade = **-2.00** **NAVD 88**
Target Grade at 20 years = **NAVD 88**

time (yrs)	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)				
	4.5	5			
0.00	0.000	0.00			
0.08	0.038	0.041			
0.16	0.038	0.041			
0.50	0.038	0.041			
1.00	0.038	0.041			
1.50	0.038	0.041			
2.00	0.038	0.041			
3.00	0.038	0.041			
4.00	0.038	0.041			
7.00	0.038	0.041			
11.00	0.038	0.041			
20.00	0.038	0.041			
ultimate	0.038	0.041			

finished elevation (ft NAVD 88) of MARSH FILL (SELF WEIGHT)				
4.5	5			
4.50	5.00			
4.46	4.96			
4.46	4.96			
4.46	4.96			
4.46	4.96			
4.46	4.96			
4.46	4.96			
4.46	4.96			
4.46	4.96			
4.46	4.96			
4.46	4.96			
4.46	4.96			
4.46	4.96			
4.46	4.96			

Ultimate self weight consolidation settlement = 0.0059* height of fill (e.g., Ultimate Consol for 1 feet of fill = 0.0059* 3 = 0.18 feet)

time (yrs)	Percent Consolidation due to consolidation settlement (ft) of marsh fill				
	4.5	5			
0.00	0.0	0.0			
0.08	100.0	100.0			
0.16	100.0	100.0			
0.50	100.0	100.0			
1.00	100.0	100.0			
1.50	100.0	100.0			
2.00	100.0	100.0			
3.00	100.0	100.0			
4.00	100.0	100.0			
7.00	100.0	100.0			
11.00	100.0	100.0			
20.00	100.0	100.0			
ultimate	100.0	100.0			

Existing Grade = **-2.00** **NAVD 88**
Target Grade at 20 years = **NAVD 88**

time (yrs)	consolidation settlement (inches) of subsurface				
	4.5	**5**			
0.00	0.00	0.00			
0.08	5.82	6.44			
0.16	5.85	6.47			
0.50	5.98	6.61			
1.00	6.14	6.78			
1.50	6.29	6.93			
2.00	6.41	7.06			
3.00	6.62	7.28			
4.00	6.78	7.49			
7.00	7.12	7.92			
11.00	7.46	8.34			
20.00	8.16	8.82			
ultimate	9.35	10.35			

4.5		5							
+20%	-20%	+20%	-20%						
0.00	0.00	0.00	0.00						
6.98	4.66	7.73	5.15						
7.02	4.68	7.76	5.18						
7.18	4.78	7.93	5.29						
7.37	4.91	8.14	5.42						
7.55	5.03	8.32	5.54						
7.69	5.13	8.47	5.65						
7.94	5.30	8.74	5.82						
8.14	5.42	8.99	5.99						
8.54	5.70	9.50	6.34						
8.95	5.97	10.01	6.67						
9.79	6.53	10.58	7.06						
11.22	7.48	12.42	8.28						

time (yrs)	consolidation settlement (feet) of subsurface with subsidence				
	4.5	**5**			
0.00	0.00	0.00			
0.08	0.49	0.54			
0.16	0.49	0.54			
0.50	0.51	0.56			
1.00	0.53	0.59			
1.50	0.56	0.61			
2.00	0.58	0.63			
3.00	0.61	0.67			
4.00	0.65	0.71			
7.00	0.74	0.81			
11.00	0.85	0.93			
20.00	1.10	1.16			

233

0.02016	0.00168
0.04032	0.00336
0.126	0.0105
0.252	0.021
0.378	0.0315
0.504	0.042
0.756	0.063
1.008	0.084
1.764	0.147
2.772	0.231
5.04	0.42

Existing Grade = -2.00 **NAVD 88** **RIDGE**
Target Grade at 20 years = **NAVD 88**
fill height 6.5 7

	consolidation settlement (ft) of MARSH FILL (SELF WEIGHT)					consolidation settlement (ft) of subsurface with subsidence				
	4.5	5								
0.00	0.000	0.000				0.00	0.00			
0.08	0.038	0.041				0.49	0.54			
0.16	0.038	0.041				0.49	0.54			
0.50	0.038	0.041				0.51	0.56			
1.00	0.038	0.041				0.53	0.59			
1.50	0.038	0.041				0.56	0.61			
2.00	0.038	0.041				0.58	0.63			
3.00	0.038	0.041				0.61	0.67			
4.00	0.038	0.041				0.65	0.71			
7.00	0.038	0.041				0.74	0.81			
11.00	0.038	0.041				0.85	0.93			
20.00	0.038	0.041				1.10	1.16			

time (yrs)	Finished Elevation from TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils					
0.00	4.50	5.00				
0.08	3.98	4.42				
0.16	3.97	4.42				
0.5	3.95	4.40				
1	3.93	4.37				
1.5	3.91	4.35				
2	3.89	4.33				
3	3.85	4.29				
4	3.81	4.25				
7	3.72	4.15				
11	3.61	4.03				
20	3.36	3.80				

time (yrs)	TOTAL consolidation settlement (ft) of marsh fill and underlying subsoils with subsidence				
	4.5	5			
0.00	0.00	0.00			
0.08	0.52	0.58			
0.16	0.53	0.58			
0.5	0.55	0.60			
1	0.57	0.63			
1.5	0.59	0.65			
2	0.61	0.67			
3	0.65	0.71			
4	0.69	0.75			
7	0.78	0.85			
11	0.89	0.97			
20	1.14	1.20			

APPENDIX VII

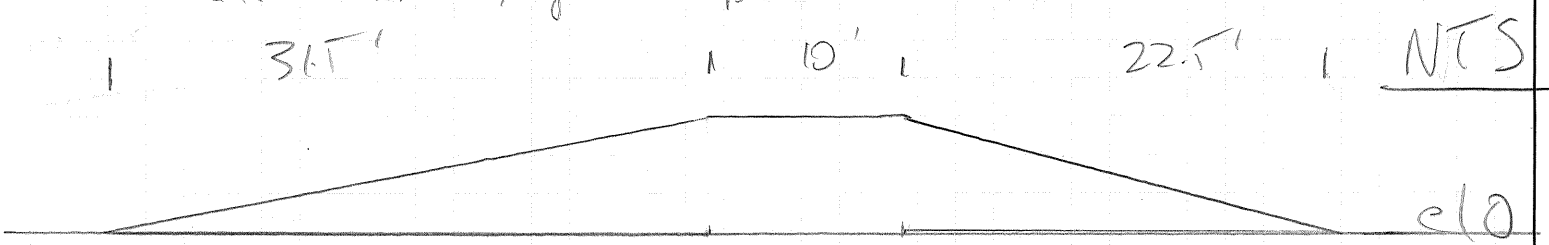
PROJECT TITLE: Grand Bayou PAGE:

SUBJECT: Ridge Bearing Capacity JOB NO: 24365

BY: HCW DATE: 4/20/21 CHECKED BY: DATE:

EUSTIS ENGINEERING L.L.C. SINCE 1946

- Check ML @ el 0
- water level @ el 0
- all sand, $\gamma = 115$ pcf



c = 60 psf — el -5

c = 130 psf — el -10

c = 200 psf — el -15

c = 260 psf — el -20

c = 330 psf — el -25

c = 400 psf — el -30

c = 470 psf — el -35

c = 500 psf — el -40

c = 600 psf — el -45

USBU = 5.14 $\bar{c}$

z = 0.7(B) = 0.7(64') = 45'

$\bar{c} = (3' \times 60 psf) + (7' \times 130 psf) + (5' \times 200 psf) + (5' \times 260 psf) + (5' \times 330 psf) + (5' \times 400 psf) + (5' \times 470 psf) + (5' \times 500 psf) + (5' \times 600 psf) / 45'$

= 331 psf

USBU = 5.14(331 psf) = 1701 psf

Conservatively assume ridge as rectangle

- applied pressure = 4.5' x 115 pcf = 518 psf

FS = 1701 psf / 518 psf = 3.28