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Project No. G1710418

December 23 , 2017

Michael Barnett
NRI PORTFOLIOS, LLC
9587 Bolsa Avenue
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SUBJECT: Soil Report For Proposed Residential Development, Mountain View Apartments, 320 & 330 S. Monte Vista Street, La Habra, California 90631.

Dear Mr. Barnett:

In accordance with the requirement of the controlling governmental agency and per your request and authorization, this soil report has been prepared for the referenced proposed project.

Following is a summary of our findings, conclusions and recommendations for this project.

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The subject site is located on the easterly side of Monte Vista Street, west of Walnut Street, east of Idaho Street (east of Beach Boulevard), north of Lambert Road and south of La Habra Boulevard, within a fully developed area.

Two (2) one-story houses with a detached garage for each house exist at the site.

The proposed development generally consists of construction of new two (three-story) apartment buildings with attached garages. (The existing structures will be demolished).

Please see the full-scale architectural plans for details of the proposed development, as needed.

Subsurface Exploration, Sampling, and Laboratory Testing

For verification of the potential liquefaction at the site, a 50 ft. deep boring (Boring B-1) was drilled by using a hollow stem flight auger drill rig. The approximate location of the boring is depicted on the attached Site Plan/Geotechnical Map. The geotechnical log of the boring B-1 is included in Appendix B.

As the boring was advanced, relatively undisturbed soil samples were secured at selected depth intervals using a steel tube sampler lined with 1-inch-high, thin wall brass rings. The sampler was driven into the undisturbed earth materials using a standard 140 pound “automatic-trip” steel hammer freely dropped 30-inches. Standard Penetration Testing (SPT) was also performed at selected depth intervals; a bulk sample of near ground surface earth materials was secured from the drill cuttings. The approximate sample depths are noted on the boring log. The samples were transported our the laboratory for testing. After completion of sampling, the boring was backfilled with the drill cuttings.

Moisture content and dry density testing was performed on the “undisturbed” ring samples. Moisture content testing was performed on the SPT samples. Atterberg Limits (i.e., liquid limit, plastic limit, and plasticity index), expansion index, percentage of "fine content" passing through No. 200 sieve, and soluble sulfate content tests were performed on selected soil samples. The test results are included in Appendix C and/or on the geotechnical boring log.

Geotechnical Conditions

Based on the published geologic map prepared by California Division of Mines and Geology (CDMG), the site is located within a broad flat alluvium/colluvium area.

Based on the data of our test hole, the near ground surface earth materials underlying the site generally consisted of sandy clay, moist and medium stiff to stiff. See the geotechnical log of the test hole for more details, as needed.

Based on our laboratory test results, the on-site near-ground surface subgrade soils have an expansion index of 78, and a water-soluble sulfate content of 1722 ppm.

Please note that, for conservative purposes, high soil expansion potential should be used for this project. Our recommended footings and slabs contained in this report are also based on high soil expansion potential. Expansion potential of deeper soils will not impact the proposed improvements.

The geotechnical engineer of record for this project should be consulted for additional data for structural design, as needed.

Groundwater

The free standing groundwater was encountered at about 18 ft deep in our boring.

Deep excavations are not proposed for the site and deep footings are not planned for the proposed new structures; therefore adverse effects due to free standing groundwater are not anticipated for the proposed development. However, if wet soils are encountered, removal of the wet soils and replacement with drier soils can be performed. This will be determined by the geotechnical consultant based on the exposed conditions during the excavations at the site.

Liquefaction Analysis

A copy of the computer print-outs of the results of our liquefaction analysis using the computer program prepared by CivilTech software is included in Appendix D.

For conservative purposes, a ground water level of 5 ft was used in our liquefaction analysis. The provisions of the Special Publication 117A [SP117A], "Guidelines For Evaluating and Mitigating Seismic Hazards In California", Published in 2008 by the State of California, Department of Conservation, Division of Mines and Geology have been followed. The seismic data contained in "SEISMIC HAZARD ZONE REPORT 3, [Open-File Report 97-08] - SEISMIC HAZARD ZONE REPORT FOR THE ANAHEIM AND NEWPORT BEACH 7.5-MINUTE QUADRANGLES, ORANGE COUNTY, CALIFORNIA" were used in our liquefaction analysis.

To determine if fine-grained/clayey soils are susceptible to liquefaction, the screening criteria of SP117A were used: Clayey soils having Plasticity Index (PI) smaller than 12 and moisture content greater than 85% of the Liquid Limit (LL) are susceptible to liquefaction. Therefore, the percentage of soil finer than 0.075 mm by washing the soil through the N 200 sieve in accordance with ASTM Test Method D 1140, Atterberg Limits (LL, PL, PI) and in-situ moisture contents were determined on selected samples; and the test results are included in our Laboratory Test Results and/or Boring Logs.

Based on the results of our liquefaction analysis, the calculated total and differential settlements due to liquefaction are 0.83 in. and 0.416 to 0.549 inch, respectively. **It is noted that there is no horizontal distance for the differential settlements due to potential liquefactionprovided in the computer print-out of the results of the liquefaction analysis. The conventional 30 ft horizontal distance can be used, as needed.**

For conservative purposes, a strengthened foundation system as recommended in this report, can be used for support of the purposed structure.

OTHER SECONDARY LIQUEFACTION INDUCED HAZARDS (LATERAL SPREAD, OSCILLATION, SURFACE MANIFESTATION, REDUCTION IN SOIL - BEARING CAPACITY, ETC.):

The subject is situated on a very broad/large **flat** region far away from the ocean. A sloping condition or drainage or stream channel does not exist at the site; therefore, lateral spreads, oscillation, and surface manifestation, etc. are not anticipated to be credible hazards for the proposed development.

To reduce the potential adverse effects to the proposed structures due to potential liquefaction/ seismically induced differential settlement and/or reduction in foundation soil-bearing capacity, we recommend a strengthened foundation system be used for the proposed new structures.

However, it should be recognized that structural mitigation may not reduce the potential of the soils to liquefy during an earthquake; and there will remain some risks that the structure could still suffer damage if liquefaction occurs during a very strong earthquake.

FAULTING AND SEISMICITY

The subject site is located in Southern California, which is a major earthquake-prone region. Therefore, the owner(s) of this property should be aware of the seismic risks associated with being in this zone.

The Site Class D can be used for the soil properties at the subject site.

The following seismic parameters obtained from an Earthquake Hazard computer program prepared by USGS with ASCE 7-10 with July 2013 Erreta can be used for the subject site which has the longitude of -117.954 and latitude of 33.9293:

- Site Coefficients:

  $F_a = 1.0$
  $F_v = 1.5$

- Mapped Spectral Accelerations Values:

  $S_s = 2.057$ (for the short period of 0.2 second)
  $S_1 = 0.750$ (for the 1-second period)

- Maximum Considered Earthquake Spectral Response Accelerations:

  $SM_s = F_aS_s = 2.057$ (for the short period of 0.2 second)
  $SM_1 = F_vS_1 = 1.125$ (for the 1-second period)

- Design Spectral Response Accelerations:

$SD_s = 2/3\ SM_s = 1.371$ (for the short period of 0.2 second)
$SD_1 = 2/3\ SM_1 = 0.750$ (for the 1-second period)

Peak Ground Acceleration, PGA = 0.800 g

The Seismic Design Category D can be used for the site.

It is also noted that the above seismic parameters should be reviewed by the civil/structural design engineer and approved by the appropriate governmental agency prior to using for this project.

The civil/structural design engineer should consult with the project geotechnical consultant, if additional geotechnical information is needed for structural design.

SLOPE STABILITY

The site is a flat area; therefore, slope instability is not a concern for the proposed development.

CONCLUSIONS AND RECOMMENDATIONS

General Conclusions

The proposed development at the subject site will be stable and adequate for its intended use, provided the recommendations outlined in this report are implemented.

Note: The conclusions and recommendations of this report are based on information as interpreted from our limited investigation. It is not anticipated but they should be revised accordingly if geotechnical conditions to be exposed during site preparation/ grading and construction significantly differ from our findings and interpretations.

The following recommendations are considered minimum and may be superseded by more restrictive requirements of the architect, civil/structural design engineer, building codes, or governing agencies. **Again, it is noted that, for conservative purposes, high soil expansion potential should be used for this project**.

Geotechnical Impact on Neighboring Properties

Adverse geotechnical impact of the proposed development on the neighboring properties is not anticipated, provided the recommendations outlined in this report are properly implemented.

Site Preparation/Grading

To create a relative uniform subgrade earth material, for the proposed new structures, the upper 3 ft thick near ground surface earth materials should be over-excavated and recompacted. The over-excavation should be extended laterally outside/beyond the perimeter of the new structures a minimum distance equal to depth of over-excavation (3 ft. in this case). The recommended over-excavation and recompaction will be about 2 ft deep for the proposed new exterior slab

areas including new driveway, if any. The lateral limits of the over-excavation should be about 2 ft. beyond the outside perimeters of the slabs.

No deeper remedial removal is anticipated; however, if deeper loose/soft soils are encountered, such as due to removal of large tree roots or other underground objects such as existing footings, pipes, etc., deeper remedial removal and re-compaction will be required. This will be determined in the field by the project geotechnical engineer, based on the actual conditions exposed at the time of site grading.

In general, fill/backfill materials or imported soils, if any, should be free of organic matter and oversized rocks, 6 inches or greater in diameter, placed in near-horizontal loose lifts not to exceed eight (8) inches in thickness, and moisture conditioned to slightly over optimum moisture content prior to compaction. Thicker lifts can be used if capable of being properly compacted to the required relative compaction (such as by using heavy compaction equipment).

Imported soils, if any, should have a low expansion potential, should be geotechnically observed/tested, and accepted by the geotechnical consultant prior to using at the site.

In general, grading at the site, if any should be performed in accordance with the requirements of the controlling governmental agency and under the geotechnical observation and testing of the project geotechnical consultant. The compaction criterion for fill and backfill materials is a minimum of 90% of the maximum density determined in accordance with ASTM Test Method D1557.

BUILDING FOUNDATION DESIGN GUIDELINES

Geotechnical Parameters For Structural Design

For conservative purposes, the following values can be used for structural design, as needed.

a. Allowable vertical bearing earth pressure: 1,500 psf

   An increase of one-third is permitted when using the alternative load combinations that include wind or earthquake loads.

b. Lateral bearing passive earth pressure: 100 psf per foot into competent materials below the finished ground surface.

   An increase of one third is permitted when using the alternative load combinations that include wind or earthquake loads.

   In addition, the lateral resistance values are permitted to be increased by the above-recommended value for each additional foot of depth to a maximum of 15 times the above-recommended value.

   Isolated poles (caissons) that are not adversely affected by a 0.5-inch motion at the ground surface due to short-term lateral loads, if any, are permitted to be designed building lateral-bearing values equal to two-times the above recommended value.

c. Lateral sliding resistance: coefficient of friction = 0.2 or cohesion = 130 psf

The coefficient of friction value to be multiplied by the dead load.

The cohesion value to be multiplied by the contact area.

In no case shall the lateral sliding resistance exceed one-half the dead load.

d. Soil unit weight: 120 pcf

New (Building) Footings

Minimum depths for new (building) footings should be **24** inches below the adjacent finished grades. Minimum widths for isolated columns/pad footings should be 24-inch, and for continuous wall footings should be **15**-inches for one-story and **18**-inches for two-story and 21-inches for three story portions, if any.

New underpinning pad footings, if any, should have a minimum depth of 1 foot below the bottom of the existing footings.

Where located adjacent to a utility trench, footings should be extended to have the footing bottom located below a one-to-one imaginary plane projected from the inside bottom edge of the trench.

Minimum reinforcement for continuous footings should be **two #5** re-bars at top and **two #5** re-bars at bottom.

New Building Slabs-on-Grade

New building slabs-on-grade should be minimum **5 inches** thick, reinforced with **#4 re-bars at 12-inches** on-centers both ways, or equivalent, placed at mid-height of the slab.

New slabs should be underlain by a 4 **inch thick layer of clean sand**. For moisture sensitive floor areas, the slabs should be underlain by minimum 10-mil polyethylene moisture barrier (such as Visqueen) **or capillary break/vapor retarder in accordance with CAL Green Code**, whichever is stronger to be placed sandwiching within the 4-inch thick clean sand layer. The moisture/vapor barrier should be properly lapped and sealed at joints and around any breaks such as openings for utility conduits.

New Exterior Slabs-on-Grade

To reduce the potential for excessive cracking, new exterior concrete slabs-on-grade, if any, should be minimum 4 inches thick, provided with construction or weakened plane joints at frequent intervals (e. g., every 6 feet or less). Provision of a 4-inch thick layer of crushed rock, gravel, or clean sand to be placed beneath the slabs and/or reinforcement, such as #3 rebars at 18 inches on-centers, or equivalent, placed at the mid-height of the slab should be considered. The subgrade soils for the exterior slabs should be properly recompacted.

Slab Subgrade Pre-Saturation

The conventional presaturation of the slab subgrade earth materials to minimum 140 percent of the optimum moisture content to minimum 2 ft. deep should be performed. This will be verified by the soil engineer based on the conditions to be exposed in the field during site grading.

Other Recommendations for Reducing Slab Cracking

While not a geotechnical issue, the potential for slab cracking may also be reduced by careful control of water/cement ratio and slump of concrete. The contractor should take appropriate curing precautions during the pouring of concrete in hot weather to reduce cracking of slabs.

A slip sheet (or equivalent) can be utilized if grouted tile, marble tile, or other crack-sensitive floor covering is planned directly on concrete slabs.

Settlement

The conventional total settlement of ½ inch and a differential settlement of ¼ inch over a horizontal distance of 30 feet which are considered tolerable for residential buildings are anticipated and would occur during the construction stage.

New Driveway

The minimum section required by the controlling governmental agencies can be used for a new driveway, if any. If there is no minimum requirements by the controlling governmental agencies, a 5-inch thick concrete slab (PPC), reinforced with 6 x 6 – 6/6 WWF placed at mid-height of slabs, or 5-in thick asphalt concrete (AC), or equivalent, over a 6-inch thick layer of aggregate base (AB) can be used. The aggregate base and subgrade should be properly compacted to a minimum of 95% and 90%, respectively, of the maximum density determined in accordance with ASTM D1557 prior to placement of the concrete slab. Spraying the compacted subgrade soils with water should be performed prior to concrete pour.

Note: If pavers are to be used, they must be followed the manufacturer' s requirements, be properly designed by the civil engineer of record, and approved by the controlling governmental agency.

Site Drainage

The requirements of the controlling governmental agency and the current CBC should be followed.

Roof gutters and downspouts should be properly provided and maintained.

Irrigation at the site, if any, should be kept to a minimum required to support plant life.

In the future, sources of uncontrolled water, such as leaky sewer, water (domestic, irrigation) or drain pipes should be repaired if identified.

Seismic Design

We recommend structures be designed to meet the current building codes and requirements of the governing agencies. The seismic parameters provided in the "Faulting and Seismicity" section of this report can be used. The civil/structural design engineer should consult with the project geotechnical consultant, if additional geotechnical information is needed for the seismic design.

Cement Type For Concrete in Contact with On-Site Earth Materials

For conservative purposes, Type V cement with a maximum water/cement ratio of 0.45 and a minimum concrete strength, f'_c of 4,500 psi should be used for this project. If required, additional sulfate content testing can be performed for the final subgrade soils after completion of the precise grading/site preparation but prior to concrete pour.

Corrosion To Ferrous Metals and Copper

For conservative purposes, the on-site soils can be considered severely corrosive to ferrous metals and copper. Underground/buried ferrous metals or copper are not planned to be used for these project. However, if underground/buried ferrous metals or copper are planned to be used at the site, they should be properly protected. A corrosion specialist can be consulted. Testing can be performed for verification of the potential corrosion of the on-site soils to ferrous metals and copper, if needed. The test can be performed during and/or after completion of grading.

Utility and Drain Line Trench Backfill

All utility and drain line trench backfills should be compacted to a minimum relative compaction of 90 percent (per ASTM D1557). The existing subgrade earth materials cannot be densified adequately by water flooding and jetting techniques. Therefore, native trench backfill materials should be placed in lifts approximately 6 inches in thickness, watered as necessary to achieve near optimum moisture conditions, and then mechanically compacted in place to a minimum relative compaction of 90 percent (per ASTM D1557). A representative of the project geotechnical consultant should probe and test the backfills to verify adequate compaction. Note: The pipes should be embedded and shaded with about 6 inch thick layer of imported clean sand (for protection of the pipes) prior to backfilling with native soils.

As an alternative, where drain pipe or utility lines may be damaged by mechanical compaction equipment, imported clean sand having a sand equivalent (SE) value of 30 or greater may be utilized. The clean sand backfill materials should be watered to achieve near optimum moisture conditions and then tamped into place. No specific relative compaction will be required for clean sand backfill; however, observation, probing, and if deemed necessary, testing should be performed by a representative of the project geotechnical consultant to verify an adequate degree of compaction of clean sand backfill.

If imported clean sand is to be used for backfill of exterior trenches, it is recommended that the upper 12 inches of trench backfill materials be consisted of properly compacted on-site soil

materials. This is to reduce the potential substantial infiltration of irrigation and rainwater into granular trench backfill materials.

Where an utility trench is proposed near a building footing, the bottom of the trench should not extend below a 1:1 (horizontal to vertical) plane projected downward from the bottom edge of the adjacent footing. Where this condition occurs, the adjacent footing should be deepened or the utility line should be installed first and the trench backfilled and compacted prior to constructing the footing.

Cooperation With Project Civil Engineer And Other Consultants And Geotechnical Review of Plans

We will cooperate with the civil engineer and other consultants of record for this project and geotechnically review the grading plan and foundation plan and other plans, if any (to be used for this project) to ensure that our recommendations have been properly interpreted and incorporated into the design and preparation of the plans. The accepted foundation and grading plans (to be used for this project) will be wet-signed and stamped by us.

Geotechnical Observation and Testing During Construction

We recommend that a qualified geotechnical consultant be retained to provide geotechnical engineering services, including geotechnical observation/testing, during the construction phase of the project. This is to verify the compliance with the design, specifications and/or recommendations, and to allow design changes in the event that subsurface conditions differ from those anticipated.

Geotechnical observation/testing can be performed at the following stages:

- During ANY grading operations, including excavation, removal, filling and backfilling, etc.
- After excavation for building footings to verify the adequacy of underlying materials.
- After pre-saturation of slab subgrade earth materials, if any, prior to pouring concrete.
- During backfill of drainage and utility line trenches, if any, to verify proper compaction and materials used.
- After compaction of subgrade soils and aggregate base for new driveway, if any.
- When/If any unusual geotechnical conditions are encountered.

Note: If Geotechnical International is not provided the opportunity to perform the geotechnical observation/testing during the construction phase, Geotechnical International will take no responsibility for the conclusions and recommendations contained in our report in the event that subsurface conditions differ from those interpreted and anticipated during our preliminary investigation phase prior to the start of construction.

CLOSURE

The conclusions and recommendations contained in this report are presented based on geotechnical data as described herein which are believed representative of the total project area. However, earth materials can vary in characteristics, both laterally and vertically, and those variations could affect the conclusions and recommendations contained herein. As such, observation and testing by a qualified geotechnical consultant during the construction phase of the project are essential to confirming the basis of this report.

This report has been prepared consistent with that level of care being provided by other professionals providing similar services at the locale and time period. The contents of this report are professional opinions and as such, are not to be considered a guaranty or warranty.

This report should be reviewed and updated after a period of one year or if the property ownership, site conditions or proposed development change from that described herein.

The following are attached and complete our report:

Appendix A – References
Appendix B – Geotechnical Log Of Test Hole
Appendix C – Laboratory Test Results
Appendix D – Seismic Data
Appendix E – Liquefaction Analysis Calculation Sheets

Figure 1 – Vicinity Map
Figure 2 – Site Plan/Geotechnical Map
Figure 3 – General Topographic Map
Figure 4 – Published Geologic Map

If you have any questions or require clarification, please contact this office. This opportunity to be of service is sincerely appreciated.

Very truly yours,

Lan N. Pham, P.E.
Chief Geotechnical Engineer
RGE686, Exp. 3/31/19

APPENDIX A

REFERENCES

REFERENCES

General

1. American Concrete Institute, 2008, ACI 318-08, Building Code Requirements For Structural Concrete And Commentary – An ACI Standard.

2. California Building Code (CBC), 2016.

3. California Division of Mines and Geology (CDMG), The Resources Agency, Department of Conservation, 1965, 1985, "Geologic Map of California, Santa Ana sheet", Olaf P. Jenkins Edition, compilation by Thomas H. Rogers, Scale 1:250,000 (1" = 4 miles), dated 1965, fifth printing 1985.

4. California Division of Mines and Geology (CDMG), the Resources Agency, Dept. of Conservation, 1981, "Geology Map of Orange County Showing Mines and Mineral Deposits", scale 1:48,000, 1" = 4000', or 1" = 0.76 miles, prepared in corporation with County of Orange EMA, compiled by P.K. Morton and R.V. Miller, dated 1981.

5. California Division of Mines and Geology (CDMG), Department of Conservation, 1998, "Seismic Hazard Zones, Anaheim Quadrangle", Scale 1:24,000 (1" = 2,000 ft or 1" = 0.38 miles), released April 15, 1998.

6. U.S.G.S., United States Department of Interior, Geological Survey, 1965, 1981, "Topographic Map, Anaheim Quadrangle, California-Orange Co.", 7.5 Minute Series, scale 1:24,000 (1" = 2000ft or 1" = 0.38 mile), dated 1965, photorevised 1981.

7. CDMG, 1997, Seismic Hazard Zone, Report 03, Seismic Hazard Zone Report For The Anaheim And Anaheim 7.5 – Minute Quadrangles, Orange County, California", dated 1997.

APPENDIX B

GEOTECHNICAL LOG OF TEST HOLE

GEOTECHNICAL INTERNATIONAL

GEOTECHNICAL ENGINEERING

Site Name	320-330 S. Monte Vista St.	Date	11/6/2017
Project Number	04-119.50	Site Address	320-330 S. Monte Vista St., La Habra
Equipment	Hollow Stem Flight Auger	Drive Weight	140 lbs
Average Drop	30 inches	Elevation (ft)	267 (Assumed)
Hole Diameter	8 inches	Eng/Geologist	HW

Depth, ft	Elev,ft	Graphic Log	Sample No.	Drive Sample	Blows/ft	Dry Den,pcf	Moisture,%	U.S.C.S.	GEOTECHNICAL DESCRIPTION
			B-1						@ 0 - 12": top soil
									@ 1'-5': Brown silty clay, damp, very stiff to hard
5	262		R-1		39	110.3	15.4	CL	@ 5': Brown silty clay, damp, very stiff
10	257		R-2		34	125.2	18.7	CL	@ 10': No Recovery
15	252		S-1		9	-	21.9	CL	@ 15': same as before except stiff
20	247		S-2		16	-	23.3	CL	@ 20': same as before except very stiff
25	242		S-3		17	-	26.7	CL	@ 25': Light brown fine sandy clay, very moist, very stiff
30	237								

BORING NO. B-1

GEOTECHNICAL INTERNATIONAL

GEOTECHNICAL ENGINEERING

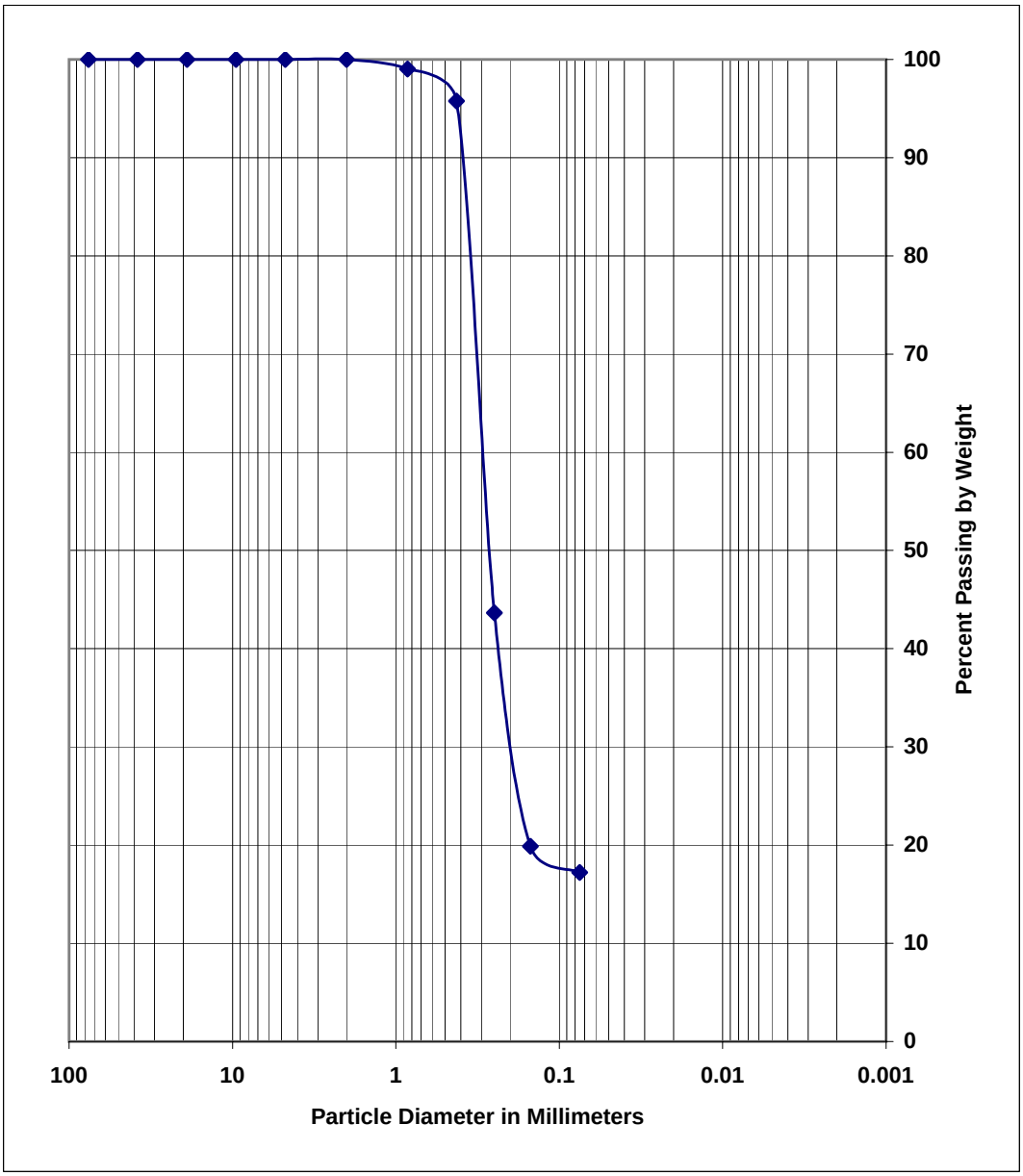
Site Name	320-330 S. Monte Vista St.	Date	11/6/2017
Project Number	04-119.50	Site Address	320-330 S. Monte Vista St., La Habra
Equipment	Hollow Stem Flight Auger	Drive Weight	140 lbs
Average Drop	30 inches	Elevation (ft)	267 (Assumed)
Hole Diameter	8 inches	Eng/Geologist	HW

Depth, ft	Elev,ft	Graphic Log	Sample No.	Drive Sample	Blows/ft	Dry Den,pcf	Moisture,%	U.S.C.S.	GEOTECHNICAL DESCRIPTION
			S-4		45	-	27.9	SM	@ 30': Light brown fine silty sand, wet, dense
35	232		S-5		49	-	28.7	SM	@ 35': same as before
40	227		S-6		31	-	24.3	CL	@ 40': Brown with vein white caliche silty clay, very moist, hard
45	222		S-7		35	-	25.1	CL	@ 45': same as before
50	217		S-8		37	-	22.8	CL	@ 50': Brown very fine sandy clay with concretions, wet, hard
55	212								Total Depth: 51.5 feet Groundwater was Encountered at 18 feet
60	207								

BORING NO. B-1

APPENDIX C

LABORATORY TEST RESULTS



Boring No.	Sample No.	Sample Depth (ft)	Percent Passing No. 200 Sieve	Soil Type
B-1	S-4	30	17.2	SM

GRAIN SIZE DISTRIBUTION CURVE

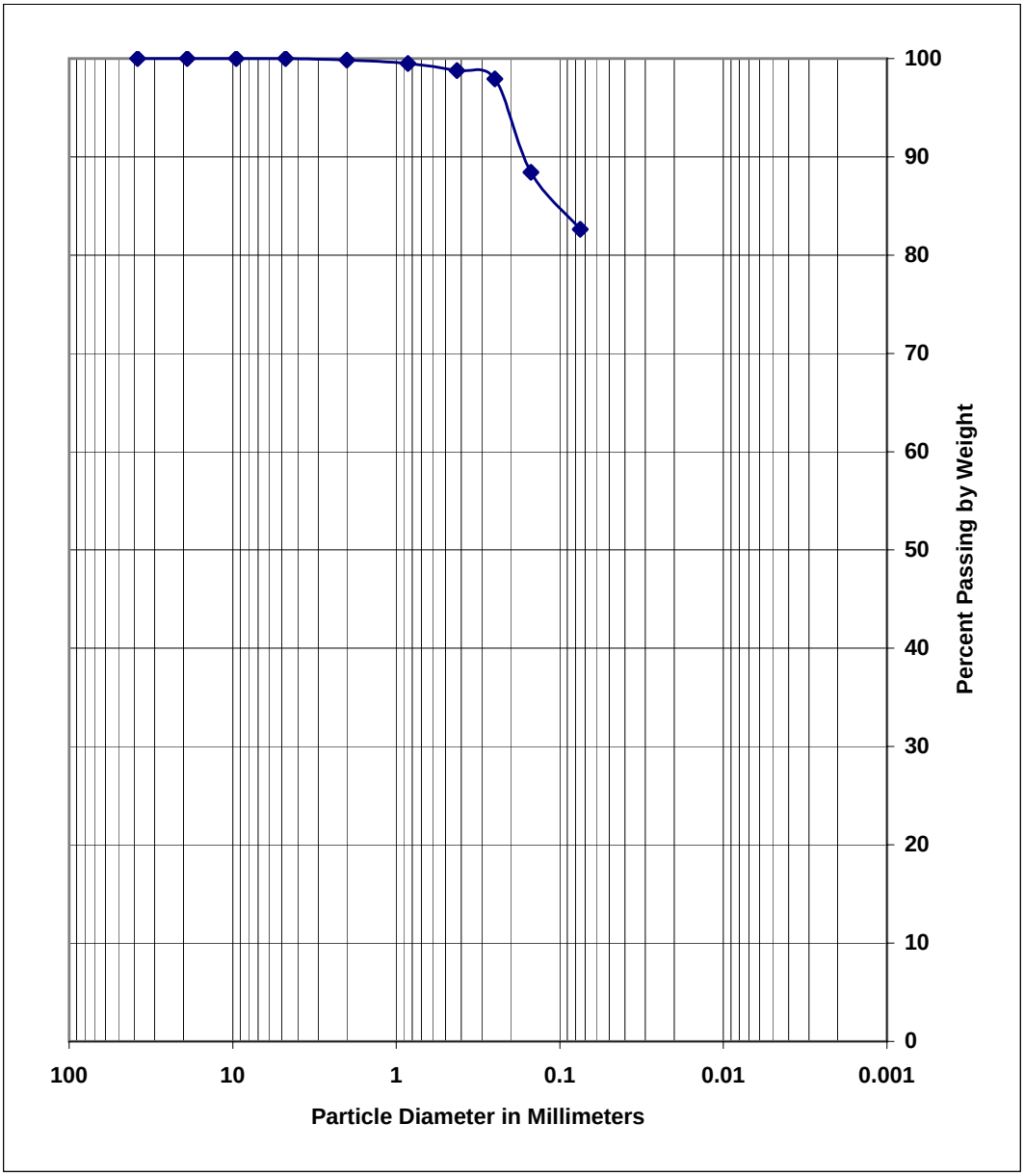
ASTM D422

GEOTECHNICAL INTERNATIONAL

Project Name: 320 S. Monte Vista St., La Habra

Project No.: 09-114.50

Figure: B-1



Boring No.	Sample No.	Sample Depth (ft)	Percent Passing No. 200 Sieve	Soil Type
B-1	S-1	15	82.6	SM

GRAIN SIZE DISTRIBUTION CURVE

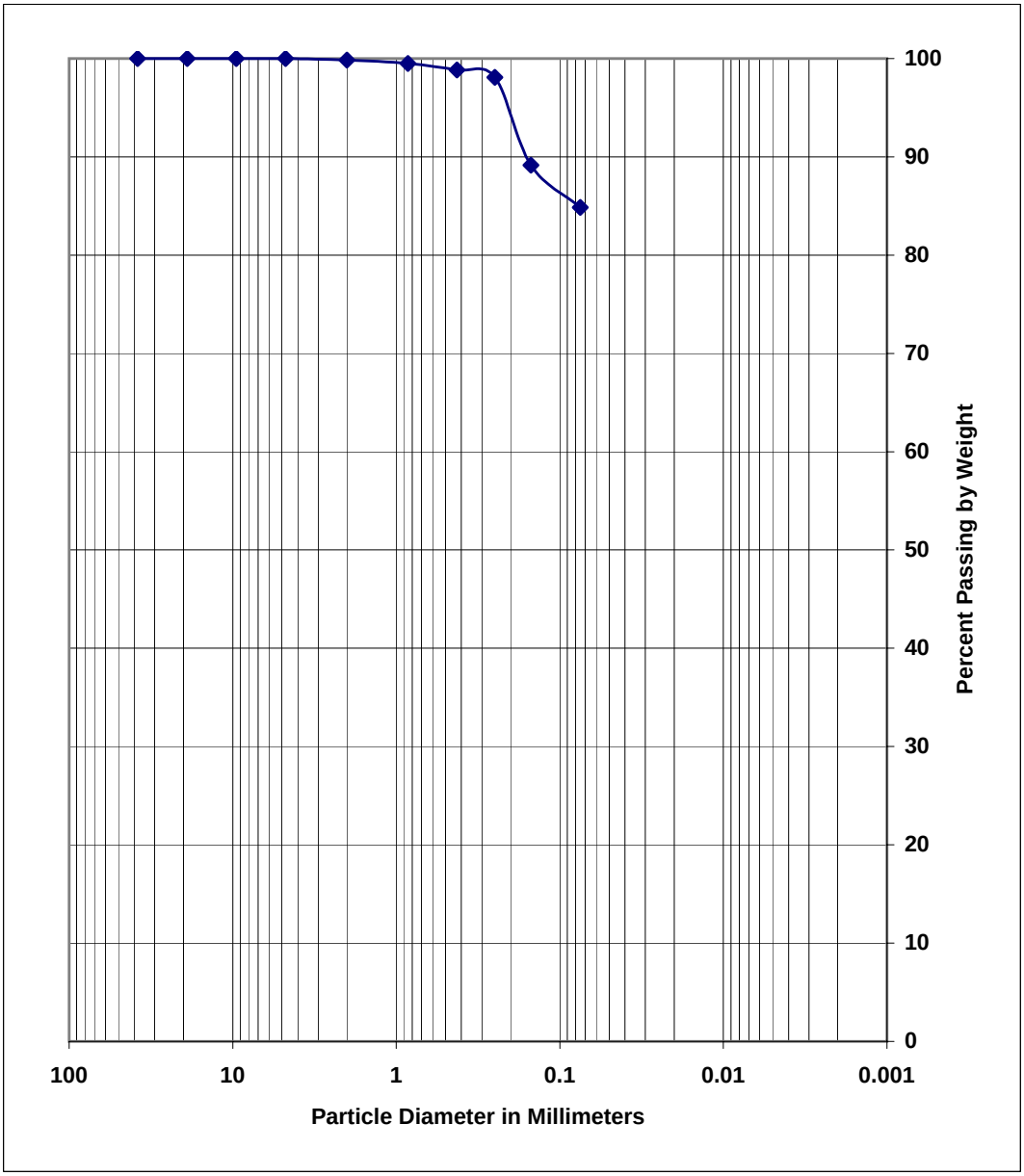
ASTM D422

GEOTECHNICAL INTERNATIONAL

Project Name: 320 S. Monte Vista St., La Habra

Project No.: 04-119.50

Figure: B-2



Boring No.	Sample No.	Sample Depth (ft)	Percent Passing No. 200 Sieve	Soil Type
B-1	S-7	45	84.9	SM

GRAIN SIZE DISTRIBUTION CURVE

ASTM D422

GEOTECHNICAL INTERNATIONAL

Project Name: 320 S. Monte Vista St., La Habra

Project No.: 04-119.50

Figure: B-3

BORING NUMBER AND SAMPLE DEPTH:	B-1 at 0 to 5'
SOIL TYPE:	SILTY CLAY
CONFINING PRESSURE: (lbs./sq. ft.)	144
INITIAL MOISTURE CONTENT: (% dry wt.)	14.8
FINAL MOISTURE CONTENT: (% dry wt.)	30.5
DRY DENSITY: (lbs/cu.ft.)	112.6
EXPANSION INDEX:	78

Proposed 30-Unit Apartment
320-330 S. Monte Vista St.
La Habra, California

GEOTECHNICAL INTERNATIONAL

EXPANSION TEST DATA
Project No. 04-119.50

CORROSION TEST RESULTS

Client Name: Geotechnical International

Project Name: 320 -330 S. Monte Vista St., La Habra

Location: 320 - 330 S. Monte Vista St., La Habra, CA

Project No.: 04-119.50

Boring No.	Sample No.	Depth (ft)	Soil Type	Minimum Resistivity (ohm-cm)	pH	Sulfate Content (ppm)	Chloride Content (ppm)
B-1	B-1	0-5	CL	NR	NR	1722	NR

NOTES: Resistivity Test and pH: California Test Methods 532 and 643

Sulfate Content : California Test Method 417

Chloride Content : California Test Method 422

ND = Not Detectable

NA = Not Sufficient Sample

NR = Not Requested

APPENDIX D

SEISMIC DATA

U.S. Geological Survey - Earthquake Hazards Program

Unified Hazard Tool

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the U.S. Seismic Design Maps web tools (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Input

Edition

Dynamic: Conterminous U.S. 2008 (v3.3.

Spectral Period

Peak ground acceleration

Latitude

Decimal degrees

33.9293

Time Horizon

Return period in years

2475

Longitude

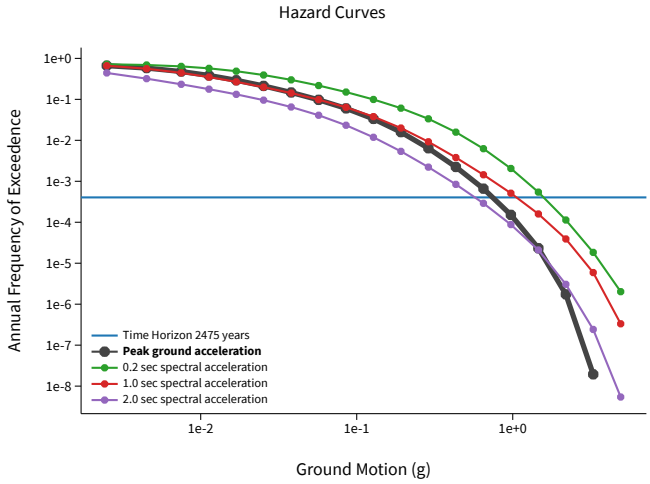
Decimal degrees, negative values for western longitudes

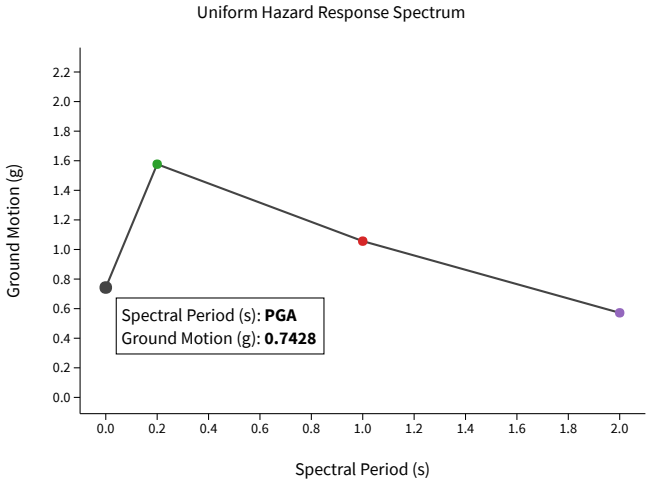
-117.954

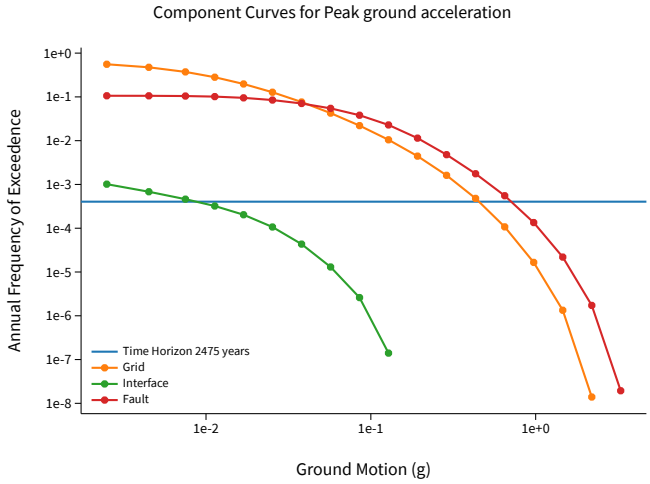
Site Class

259 m/s (Site class D)

Hazard Curve





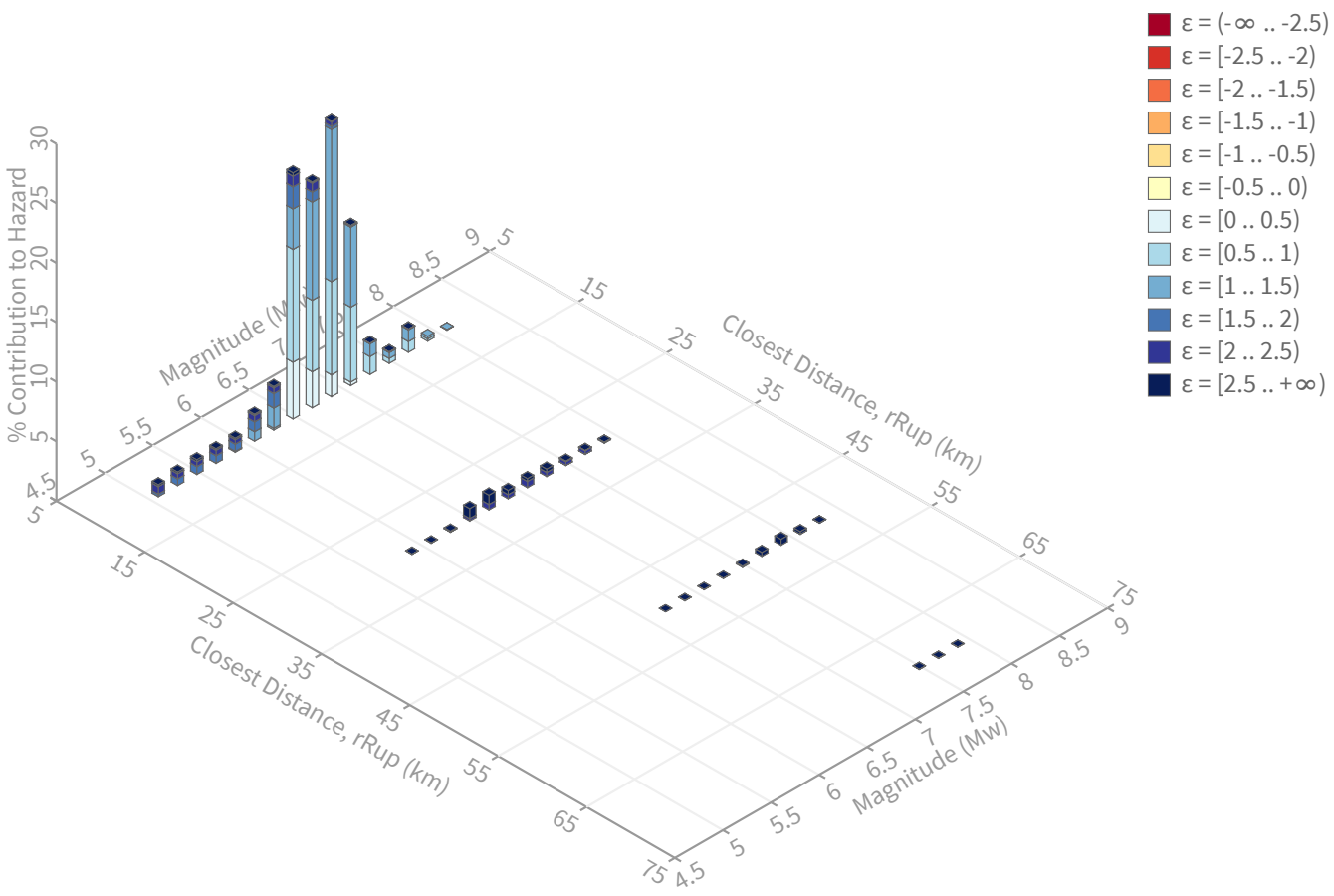


View Raw Data

Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
PGA ground motion: 0.74279905 g

Recovered targets

Return period: 2814.2235 yrs
Exceedance rate: 0.00035533781 yr^{-1}

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.06 %

Mean (for all sources)

r: 7.02 km
m: 6.74
ε_0: 1.2 σ

Mode (largest r-m bin)

r: 4.36 km
m: 6.91
ε_0: 1 σ
Contribution: 23.1 %

Mode (largest ε_0 bin)

r: 3.33 km
m: 6.91
ε_0: 1.2 σ
Contribution: 12.77 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε0: [-∞ .. -2.5)
ε1: [-2.5 .. -2.0)
ε2: [-2.0 .. -1.5)
ε3: [-1.5 .. -1.0)
ε4: [-1.0 .. -0.5)
ε5: [-0.5 .. 0.0)
ε6: [0.0 .. 0.5)
ε7: [0.5 .. 1.0)
ε8: [1.0 .. 1.5)
ε9: [1.5 .. 2.0)
ε10: [2.0 .. 2.5)
ε11: [2.5 .. +∞]

Deaggregation Contributors

Source Set ↳ Source	Type	r	m	ε_0	lon	lat	az	%
bFault.ch	Fault							31.44
Puente Hills (Coyote Hills)		5.26	6.69	0.64	117.966°W	33.874°N	190.58	14.72
Puente Hills		5.00	7.04	0.73	117.867°W	33.927°N	91.93	7.61
Puente Hills (Santa Fe Springs)		6.52	6.50	1.44	118.018°W	33.931°N	271.92	4.86
bFault.gr	Fault							22.37
Puente Hills (Coyote Hills)		5.26	6.60	0.66	117.966°W	33.874°N	190.58	10.70
Puente Hills		5.42	6.79	0.87	117.867°W	33.927°N	91.93	6.87
Puente Hills (Santa Fe Springs)		6.52	6.53	1.42	118.018°W	33.931°N	271.92	2.49
aFault_MoBal	Fault							19.47
Elsinore : W		3.21	6.92	1.19	117.992°W	33.971°N	323.06	15.81
Elsinore : W+GI		3.22	7.18	1.14	117.992°W	33.971°N	323.06	1.23
aFault_aPriori_D2.1	Fault							11.70
Elsinore : W		3.21	6.94	1.19	117.992°W	33.971°N	323.06	10.68
CAmap.21.ch.in (opt)	Grid							4.26
PointSourceFinite: -117.954, 33.979		7.24	5.85	1.70	117.954°W	33.979°N	0.00	2.43
CAmap.24.ch.in (opt)	Grid							4.18
PointSourceFinite: -117.954, 33.979		7.29	5.82	1.71	117.954°W	33.979°N	0.00	2.36
aFault_unseg	Fault							2.58
Elsinore		4.43	7.49	1.16	117.992°W	33.971°N	323.06	2.56
CAmap.21.gr.in (opt)	Grid							2.05
PointSourceFinite: -117.954, 33.979		7.24	5.85	1.70	117.954°W	33.979°N	0.00	1.21
CAmap.24.gr.in (opt)	Grid							1.96
PointSourceFinite: -117.954, 33.979		7.43	5.78	1.74	117.954°W	33.979°N	0.00	1.12

USGS Design Maps Detailed Report

ASCE 7-10 Standard (33.9293°N, 117.954°W)

Site Class D – "Stiff Soil", Risk Category I/II/III

Section 11.4.1 — Mapped Acceleration Parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_S) and 1.3 (to obtain S_1). Maps in the 2010 ASCE-7 Standard are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

From Figure 22-1 [1] S_S = 2.057 g

From Figure 22-2 [2] S_1 = 0.750 g

Section 11.4.2 — Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Chapter 20.

Table 20.3–1 Site Classification

Site Class	$\overline{v}_s$	$\overline{N}$ or $\overline{N}_{ch}$	$\overline{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index *PI* > 20, • Moisture content *w* ≥ 40%, and • Undrained shear strength $\overline{s}_u$ < 500 psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Section 11.4.3 — Site Coefficients and Risk–Targeted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Parameters

Table 11.4–1: Site Coefficient F_a

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at Short Period				
	$S_S \le 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \ge 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of S_S

For Site Class = D and S_S = 2.057 g, F_a = 1.000

Table 11.4–2: Site Coefficient F_v

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at 1–s Period				
	$S_1 \le 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \ge 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of S_1

For Site Class = D and S_1 = 0.750 g, F_v = 1.500

Equation (11.4–1): $S_{MS} = F_a S_S = 1.000 \times 2.057 = 2.057$ g

Equation (11.4–2): $S_{M1} = F_v S_1 = 1.500 \times 0.750 = 1.125$ g

Section 11.4.4 — Design Spectral Acceleration Parameters

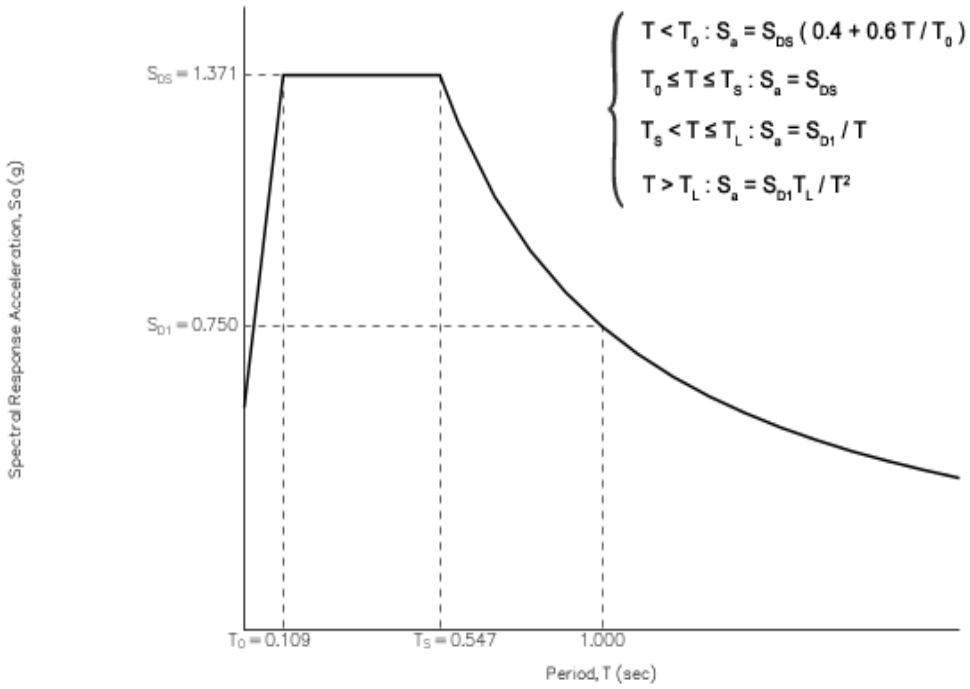
Equation (11.4–3): $S_{DS} = \frac{2}{3} S_{MS} = \frac{2}{3} \times 2.057 = 1.371$ g

Equation (11.4–4): $S_{D1} = \frac{2}{3} S_{M1} = \frac{2}{3} \times 1.125 = 0.750$ g

Section 11.4.5 — Design Response Spectrum

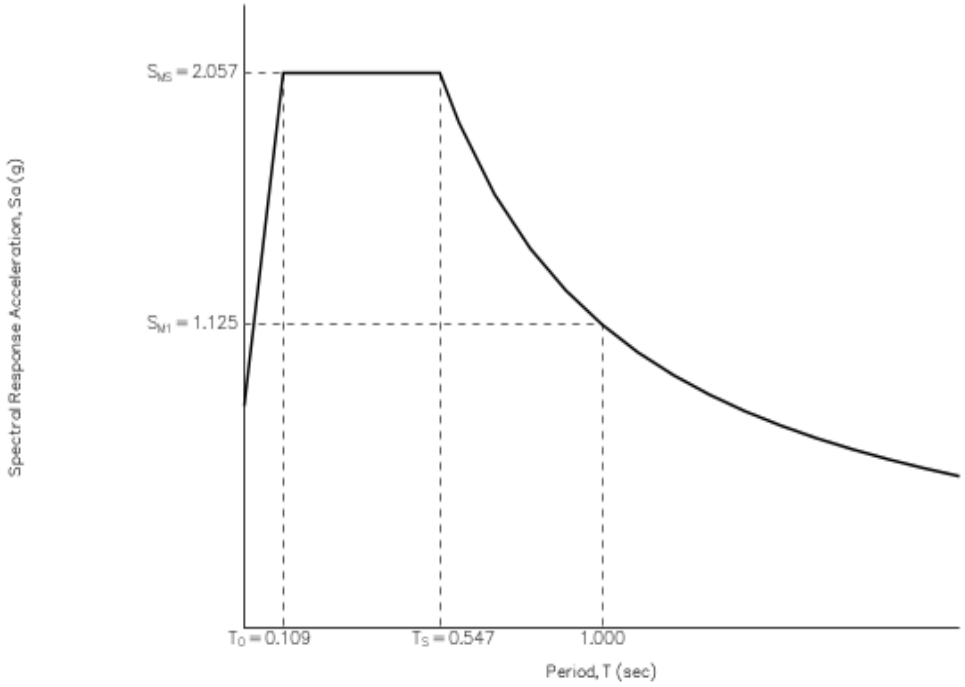
From Figure 22-12 [3] $T_L = 8$ seconds

Figure 11.4–1: Design Response Spectrum



Section 11.4.6 — Risk-Targeted Maximum Considered Earthquake (MCE_R) Response Spectrum

The MCE_R Response Spectrum is determined by multiplying the design response spectrum above by 1.5.



Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

From Figure 22-7 [4] PGA = 0.800

Equation (11.8–1): $PGA_M = F_{PGA}PGA = 1.000 \times 0.800 = 0.8$ g

Table 11.8–1: Site Coefficient F_{PGA}

Site Class	Mapped MCE Geometric Mean Peak Ground Acceleration, PGA				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of PGA

For Site Class = D and PGA = 0.800 g, F_{PGA} = 1.000

Section 21.2.1.1 — Method 1 (from Chapter 21 – Site-Specific Ground Motion Procedures for Seismic Design)

From Figure 22-17 [5] C_{RS} = 0.936

From Figure 22-18 [6] C_{R1} = 0.952

Section 11.6 — Seismic Design Category

Table 11.6-1 Seismic Design Category Based on Short Period Response Acceleration Parameter

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \le S_{DS} < 0.33g$	B	B	C
$0.33g \le S_{DS} < 0.50g$	C	C	D
$0.50g \le S_{DS}$	D	D	D

For Risk Category = I and S_{DS} = 1.371 g, Seismic Design Category = D

Table 11.6-2 Seismic Design Category Based on 1-S Period Response Acceleration Parameter

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \le S_{D1} < 0.133g$	B	B	C
$0.133g \le S_{D1} < 0.20g$	C	C	D
$0.20g \le S_{D1}$	D	D	D

For Risk Category = I and S_{D1} = 0.750 g, Seismic Design Category = D

Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ "the more severe design category in accordance with Table 11.6-1 or 11.6-2" = D

Note: See Section 11.6 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 22-1*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-1.pdf
2. *Figure 22-2*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-2.pdf
3. *Figure 22-12*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-12.pdf
4. *Figure 22-7*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-7.pdf
5. *Figure 22-17*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-17.pdf
6. *Figure 22-18*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-18.pdf

APPENDIX E

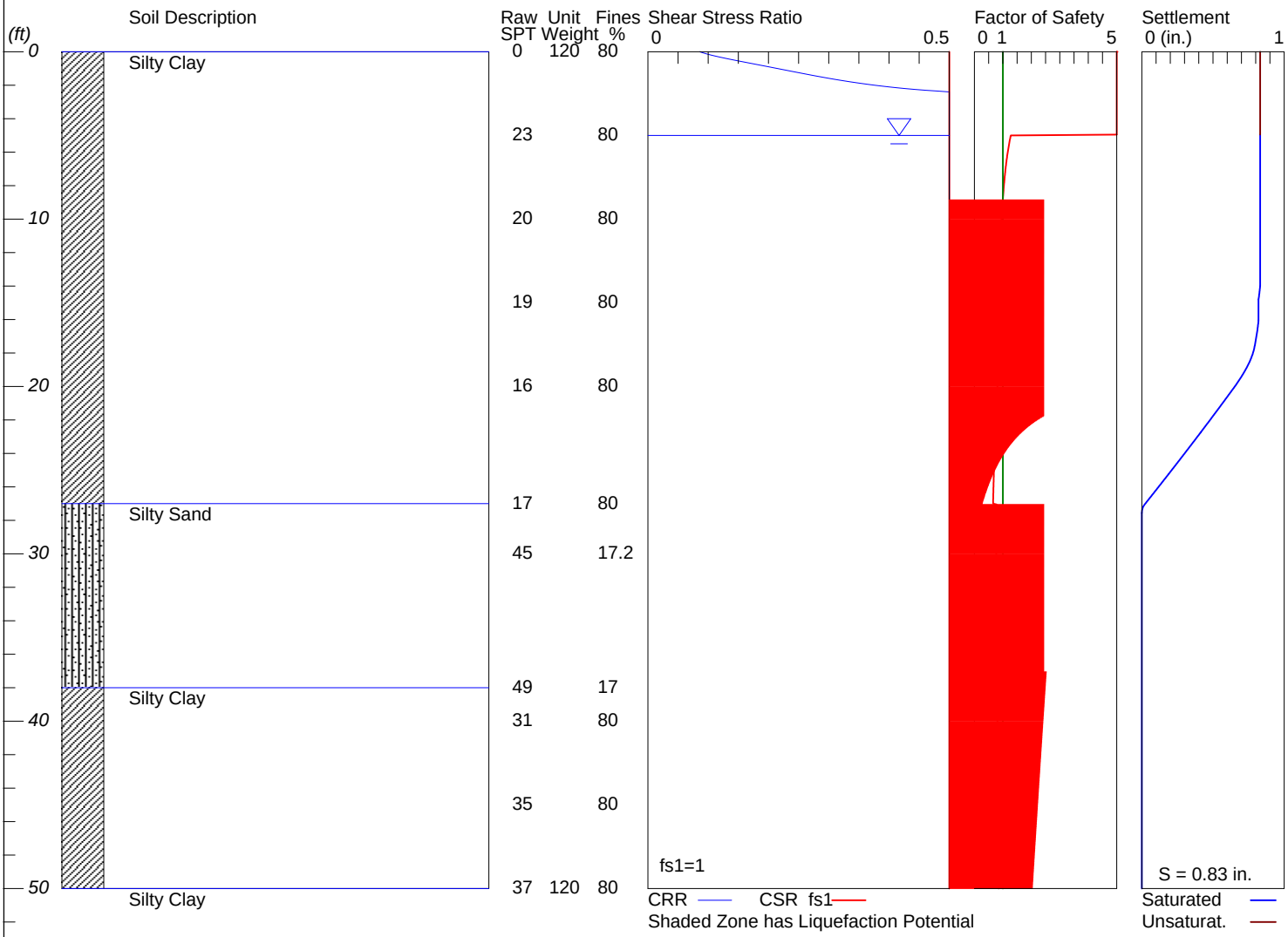
LIQUEFACTION ANAYSIS CALCULATION SHEETS

LIQUEFACTION ANALYSIS

320 - 330 S. Monte Vista St., La Habra

Hole No.=B-1 Water Depth=5 ft Surface Elev.=267

Magnitude=6.74
Acceleration=0.8g



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LIQUEFACTION ANALYSIS SUMMARY

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Font: Courier New, Regular, Size 8 is recommended for this report.
Licensed to , 11/22/2017 9:40:51 AM

Input File Name: D:\Lan Pham\320-330 S. Monte Vista St. La Habra.liq
Title: 320 - 330 S. Monte Vista St., La Habra
Subtitle: Liquefaction

Surface Elev.=267
Hole No.=B-1
Depth of Hole= 50.00 ft
Water Table during Earthquake= 5.00 ft
Water Table during In-Situ Testing= 18.00 ft
Max. Acceleration= 0.8 g
Earthquake Magnitude= 6.74

Input Data:
Surface Elev.=267
Hole No.=B-1
Depth of Hole=50.00 ft
Water Table during Earthquake= 5.00 ft
Water Table during In-Situ Testing= 18.00 ft
Max. Acceleration=0.8 g
Earthquake Magnitude=6.74
No-Liquefiable Soils: Based on Analysis

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu/Seed
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: Liq. zone only
6. Hammer Energy Ratio, Ce = 1.25
7. Borehole Diameter, Cb= 1.15
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1.5
   Plot one CSR curve (fs1=1)
10. Use Curve Smoothing: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	0.00	120.00	80.00
5.00	23.00	120.00	80.00
10.00	20.00	120.00	80.00
15.00	19.00	120.00	80.00
20.00	16.00	120.00	80.00
27.00	17.00	120.00	80.00
30.00	45.00	120.00	17.20
38.00	49.00	120.00	17.00
40.00	31.00	120.00	80.00
45.00	35.00	120.00	80.00
50.00	37.00	120.00	80.00

Output Results:

Settlement of Saturated Sands=0.83 in.
Settlement of Unsaturated Sands=0.00 in.
Total Settlement of Saturated and Unsaturated Sands=0.83 in.
Differential Settlement=0.416 to 0.549 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	0.09	0.52	5.00	0.83	0.00	0.83
0.05	0.09	0.52	5.00	0.83	0.00	0.83
0.10	0.09	0.52	5.00	0.83	0.00	0.83
0.15	0.10	0.52	5.00	0.83	0.00	0.83
0.20	0.11	0.52	5.00	0.83	0.00	0.83
0.25	0.11	0.52	5.00	0.83	0.00	0.83
0.30	0.12	0.52	5.00	0.83	0.00	0.83
0.35	0.12	0.52	5.00	0.83	0.00	0.83
0.40	0.13	0.52	5.00	0.83	0.00	0.83
0.45	0.14	0.52	5.00	0.83	0.00	0.83
0.50	0.14	0.52	5.00	0.83	0.00	0.83
0.55	0.15	0.52	5.00	0.83	0.00	0.83
0.60	0.16	0.52	5.00	0.83	0.00	0.83
0.65	0.16	0.52	5.00	0.83	0.00	0.83
0.70	0.17	0.52	5.00	0.83	0.00	0.83
0.75	0.18	0.52	5.00	0.83	0.00	0.83
0.80	0.19	0.52	5.00	0.83	0.00	0.83
0.85	0.19	0.52	5.00	0.83	0.00	0.83
0.90	0.20	0.52	5.00	0.83	0.00	0.83
0.95	0.21	0.52	5.00	0.83	0.00	0.83
1.00	0.21	0.52	5.00	0.83	0.00	0.83
1.05	0.22	0.52	5.00	0.83	0.00	0.83
1.10	0.23	0.52	5.00	0.83	0.00	0.83
1.15	0.24	0.52	5.00	0.83	0.00	0.83
1.20	0.24	0.52	5.00	0.83	0.00	0.83
1.25	0.25	0.52	5.00	0.83	0.00	0.83
1.30	0.26	0.52	5.00	0.83	0.00	0.83
1.35	0.26	0.52	5.00	0.83	0.00	0.83
1.40	0.27	0.52	5.00	0.83	0.00	0.83
1.45	0.28	0.52	5.00	0.83	0.00	0.83
1.50	0.29	0.52	5.00	0.83	0.00	0.83
1.55	0.29	0.52	5.00	0.83	0.00	0.83
1.60	0.30	0.52	5.00	0.83	0.00	0.83
1.65	0.31	0.52	5.00	0.83	0.00	0.83
1.70	0.32	0.52	5.00	0.83	0.00	0.83
1.75	0.33	0.52	5.00	0.83	0.00	0.83
1.80	0.34	0.52	5.00	0.83	0.00	0.83
1.85	0.35	0.52	5.00	0.83	0.00	0.83
1.90	0.36	0.52	5.00	0.83	0.00	0.83
1.95	0.37	0.52	5.00	0.83	0.00	0.83
2.00	0.38	0.52	5.00	0.83	0.00	0.83
2.05	0.39	0.52	5.00	0.83	0.00	0.83
2.10	0.40	0.52	5.00	0.83	0.00	0.83
2.15	0.41	0.52	5.00	0.83	0.00	0.83
2.20	0.43	0.52	5.00	0.83	0.00	0.83
2.25	0.44	0.52	5.00	0.83	0.00	0.83
2.30	0.46	0.52	5.00	0.83	0.00	0.83
2.35	0.48	0.52	5.00	0.83	0.00	0.83
2.40	0.51	0.52	5.00	0.83	0.00	0.83
2.45	0.56	0.52	5.00	0.83	0.00	0.83
2.50	0.66	0.52	5.00	0.83	0.00	0.83
2.55	0.66	0.52	5.00	0.83	0.00	0.83

2.60	0.66	0.52	5.00	0.83	0.00	0.83
2.65	0.66	0.52	5.00	0.83	0.00	0.83
2.70	0.66	0.52	5.00	0.83	0.00	0.83
2.75	0.66	0.52	5.00	0.83	0.00	0.83
2.80	0.66	0.52	5.00	0.83	0.00	0.83
2.85	0.66	0.52	5.00	0.83	0.00	0.83
2.90	0.66	0.52	5.00	0.83	0.00	0.83
2.95	0.66	0.52	5.00	0.83	0.00	0.83
3.00	0.66	0.52	5.00	0.83	0.00	0.83
3.05	0.66	0.52	5.00	0.83	0.00	0.83
3.10	0.66	0.52	5.00	0.83	0.00	0.83
3.15	0.66	0.52	5.00	0.83	0.00	0.83
3.20	0.66	0.52	5.00	0.83	0.00	0.83
3.25	0.66	0.52	5.00	0.83	0.00	0.83
3.30	0.66	0.52	5.00	0.83	0.00	0.83
3.35	0.66	0.52	5.00	0.83	0.00	0.83
3.40	0.66	0.52	5.00	0.83	0.00	0.83
3.45	0.66	0.52	5.00	0.83	0.00	0.83
3.50	0.66	0.52	5.00	0.83	0.00	0.83
3.55	0.66	0.52	5.00	0.83	0.00	0.83
3.60	0.66	0.52	5.00	0.83	0.00	0.83
3.65	0.66	0.52	5.00	0.83	0.00	0.83
3.70	0.66	0.52	5.00	0.83	0.00	0.83
3.75	0.66	0.52	5.00	0.83	0.00	0.83
3.80	0.66	0.52	5.00	0.83	0.00	0.83
3.85	0.66	0.52	5.00	0.83	0.00	0.83
3.90	0.66	0.52	5.00	0.83	0.00	0.83
3.95	0.66	0.52	5.00	0.83	0.00	0.83
4.00	0.66	0.52	5.00	0.83	0.00	0.83
4.05	0.66	0.52	5.00	0.83	0.00	0.83
4.10	0.66	0.52	5.00	0.83	0.00	0.83
4.15	0.66	0.51	5.00	0.83	0.00	0.83
4.20	0.66	0.51	5.00	0.83	0.00	0.83
4.25	0.66	0.51	5.00	0.83	0.00	0.83
4.30	0.66	0.51	5.00	0.83	0.00	0.83
4.35	0.66	0.51	5.00	0.83	0.00	0.83
4.40	0.66	0.51	5.00	0.83	0.00	0.83
4.45	0.66	0.51	5.00	0.83	0.00	0.83
4.50	0.66	0.51	5.00	0.83	0.00	0.83
4.55	0.66	0.51	5.00	0.83	0.00	0.83
4.60	0.66	0.51	5.00	0.83	0.00	0.83
4.65	0.66	0.51	5.00	0.83	0.00	0.83
4.70	0.66	0.51	5.00	0.83	0.00	0.83
4.75	0.66	0.51	5.00	0.83	0.00	0.83
4.80	0.66	0.51	5.00	0.83	0.00	0.83
4.85	0.66	0.51	5.00	0.83	0.00	0.83
4.90	0.66	0.51	5.00	0.83	0.00	0.83
4.95	0.66	0.51	5.00	0.83	0.00	0.83
5.00	0.66	0.51	1.28	0.83	0.00	0.83
5.05	0.66	0.52	1.27	0.83	0.00	0.83
5.10	0.66	0.52	1.27	0.83	0.00	0.83
5.15	0.66	0.52	1.26	0.83	0.00	0.83
5.20	0.66	0.52	1.25	0.83	0.00	0.83
5.25	0.66	0.53	1.25	0.83	0.00	0.83
5.30	0.66	0.53	1.24	0.83	0.00	0.83
5.35	0.66	0.53	1.24	0.83	0.00	0.83
5.40	0.66	0.53	1.23	0.83	0.00	0.83
5.45	0.66	0.54	1.22	0.83	0.00	0.83
5.50	0.66	0.54	1.22	0.83	0.00	0.83
5.55	0.66	0.54	1.21	0.83	0.00	0.83
5.60	0.66	0.54	1.21	0.83	0.00	0.83
5.65	0.66	0.55	1.20	0.83	0.00	0.83
5.70	0.66	0.55	1.20	0.83	0.00	0.83

5.75	0.66	0.55	1.19	0.83	0.00	0.83
5.80	0.66	0.55	1.19	0.83	0.00	0.83
5.85	0.66	0.55	1.18	0.83	0.00	0.83
5.90	0.66	0.56	1.18	0.83	0.00	0.83
5.95	0.66	0.56	1.17	0.83	0.00	0.83
6.00	0.66	0.56	1.17	0.83	0.00	0.83
6.05	0.66	0.56	1.17	0.83	0.00	0.83
6.10	0.66	0.57	1.16	0.83	0.00	0.83
6.15	0.66	0.57	1.16	0.83	0.00	0.83
6.20	0.66	0.57	1.15	0.83	0.00	0.83
6.25	0.66	0.57	1.15	0.83	0.00	0.83
6.30	0.66	0.57	1.14	0.83	0.00	0.83
6.35	0.66	0.58	1.14	0.83	0.00	0.83
6.40	0.66	0.58	1.14	0.83	0.00	0.83
6.45	0.66	0.58	1.13	0.83	0.00	0.83
6.50	0.66	0.58	1.13	0.83	0.00	0.83
6.55	0.66	0.58	1.13	0.83	0.00	0.83
6.60	0.66	0.59	1.12	0.83	0.00	0.83
6.65	0.66	0.59	1.12	0.83	0.00	0.83
6.70	0.66	0.59	1.11	0.83	0.00	0.83
6.75	0.66	0.59	1.11	0.83	0.00	0.83
6.80	0.66	0.59	1.11	0.83	0.00	0.83
6.85	0.66	0.60	1.10	0.83	0.00	0.83
6.90	0.66	0.60	1.10	0.83	0.00	0.83
6.95	0.66	0.60	1.10	0.83	0.00	0.83
7.00	0.66	0.60	1.09	0.83	0.00	0.83
7.05	0.66	0.60	1.09	0.83	0.00	0.83
7.10	0.66	0.60	1.09	0.83	0.00	0.83
7.15	0.66	0.61	1.08	0.83	0.00	0.83
7.20	0.66	0.61	1.08	0.83	0.00	0.83
7.25	0.66	0.61	1.08	0.83	0.00	0.83
7.30	0.66	0.61	1.07	0.83	0.00	0.83
7.35	0.66	0.61	1.07	0.83	0.00	0.83
7.40	0.66	0.61	1.07	0.83	0.00	0.83
7.45	0.66	0.62	1.07	0.83	0.00	0.83
7.50	0.66	0.62	1.06	0.83	0.00	0.83
7.55	0.66	0.62	1.06	0.83	0.00	0.83
7.60	0.66	0.62	1.06	0.83	0.00	0.83
7.65	0.66	0.62	1.05	0.83	0.00	0.83
7.70	0.66	0.62	1.05	0.83	0.00	0.83
7.75	0.66	0.63	1.05	0.83	0.00	0.83
7.80	0.66	0.63	1.05	0.83	0.00	0.83
7.85	0.66	0.63	1.04	0.83	0.00	0.83
7.90	0.66	0.63	1.04	0.83	0.00	0.83
7.95	0.66	0.63	1.04	0.83	0.00	0.83
8.00	0.66	0.63	1.04	0.83	0.00	0.83
8.05	0.66	0.64	1.03	0.83	0.00	0.83
8.10	0.66	0.64	1.03	0.83	0.00	0.83
8.15	0.66	0.64	1.03	0.83	0.00	0.83
8.20	0.66	0.64	1.03	0.83	0.00	0.83
8.25	0.66	0.64	1.02	0.83	0.00	0.83
8.30	0.66	0.64	1.02	0.83	0.00	0.83
8.35	0.66	0.64	1.02	0.83	0.00	0.83
8.40	0.66	0.65	1.02	0.83	0.00	0.83
8.45	0.66	0.65	1.02	0.83	0.00	0.83
8.50	0.66	0.65	1.01	0.83	0.00	0.83
8.55	0.66	0.65	1.01	0.83	0.00	0.83
8.60	0.66	0.65	1.01	0.83	0.00	0.83
8.65	0.66	0.65	1.01	0.83	0.00	0.83
8.70	0.66	0.65	1.00	0.83	0.00	0.83
8.75	0.66	0.66	1.00	0.83	0.00	0.83
8.80	0.66	0.66	1.00	0.83	0.00	0.83
8.85	0.66	0.66	1.00*	0.83	0.00	0.83

8.90	0.66	0.66	1.00*	0.83	0.00	0.83
8.95	0.66	0.66	0.99*	0.83	0.00	0.83
9.00	0.66	0.66	0.99*	0.83	0.00	0.83
9.05	0.66	0.66	0.99*	0.83	0.00	0.83
9.10	0.66	0.66	0.99*	0.83	0.00	0.83
9.15	0.66	0.67	0.99*	0.83	0.00	0.83
9.20	0.66	0.67	0.98*	0.83	0.00	0.83
9.25	0.66	0.67	0.98*	0.83	0.00	0.83
9.30	0.66	0.67	0.98*	0.83	0.00	0.83
9.35	0.66	0.67	0.98*	0.83	0.00	0.83
9.40	0.66	0.67	0.98*	0.83	0.00	0.83
9.45	0.66	0.67	0.98*	0.83	0.00	0.83
9.50	0.66	0.67	0.97*	0.83	0.00	0.83
9.55	0.66	0.68	0.97*	0.83	0.00	0.83
9.60	0.66	0.68	0.97*	0.83	0.00	0.83
9.65	0.66	0.68	0.97*	0.83	0.00	0.83
9.70	0.66	0.68	0.97*	0.83	0.00	0.83
9.75	0.66	0.68	0.97*	0.83	0.00	0.83
9.80	0.66	0.68	0.96*	0.83	0.00	0.83
9.85	0.66	0.68	0.96*	0.83	0.00	0.83
9.90	0.66	0.68	0.96*	0.83	0.00	0.83
9.95	0.66	0.69	0.96*	0.83	0.00	0.83
10.00	0.66	0.69	0.96*	0.83	0.00	0.83
10.05	0.66	0.69	0.96*	0.83	0.00	0.83
10.10	0.66	0.69	0.95*	0.83	0.00	0.83
10.15	0.66	0.69	0.95*	0.83	0.00	0.83
10.20	0.66	0.69	0.95*	0.83	0.00	0.83
10.25	0.66	0.69	0.95*	0.83	0.00	0.83
10.30	0.66	0.69	0.95*	0.83	0.00	0.83
10.35	0.66	0.69	0.95*	0.83	0.00	0.83
10.40	0.66	0.70	0.95*	0.83	0.00	0.83
10.45	0.66	0.70	0.94*	0.83	0.00	0.83
10.50	0.66	0.70	0.94*	0.83	0.00	0.83
10.55	0.66	0.70	0.94*	0.83	0.00	0.83
10.60	0.66	0.70	0.94*	0.83	0.00	0.83
10.65	0.66	0.70	0.94*	0.83	0.00	0.83
10.70	0.66	0.70	0.94*	0.83	0.00	0.83
10.75	0.66	0.70	0.94*	0.83	0.00	0.83
10.80	0.66	0.70	0.93*	0.83	0.00	0.83
10.85	0.66	0.70	0.93*	0.83	0.00	0.83
10.90	0.66	0.71	0.93*	0.83	0.00	0.83
10.95	0.66	0.71	0.93*	0.83	0.00	0.83
11.00	0.66	0.71	0.93*	0.83	0.00	0.83
11.05	0.66	0.71	0.93*	0.83	0.00	0.83
11.10	0.66	0.71	0.93*	0.83	0.00	0.83
11.15	0.66	0.71	0.93*	0.83	0.00	0.83
11.20	0.66	0.71	0.92*	0.83	0.00	0.83
11.25	0.66	0.71	0.92*	0.83	0.00	0.83
11.30	0.66	0.71	0.92*	0.83	0.00	0.83
11.35	0.66	0.71	0.92*	0.83	0.00	0.83
11.40	0.66	0.71	0.92*	0.83	0.00	0.83
11.45	0.66	0.72	0.92*	0.83	0.00	0.83
11.50	0.66	0.72	0.92*	0.83	0.00	0.83
11.55	0.66	0.72	0.92*	0.83	0.00	0.83
11.60	0.66	0.72	0.91*	0.83	0.00	0.83
11.65	0.66	0.72	0.91*	0.83	0.00	0.83
11.70	0.66	0.72	0.91*	0.83	0.00	0.83
11.75	0.66	0.72	0.91*	0.83	0.00	0.83
11.80	0.66	0.72	0.91*	0.83	0.00	0.83
11.85	0.66	0.72	0.91*	0.83	0.00	0.83
11.90	0.66	0.72	0.91*	0.83	0.00	0.83
11.95	0.66	0.72	0.91*	0.83	0.00	0.83
12.00	0.66	0.73	0.91*	0.83	0.00	0.83

12.05	0.66	0.73	0.90*	0.83	0.00	0.83
12.10	0.66	0.73	0.90*	0.83	0.00	0.83
12.15	0.66	0.73	0.90*	0.83	0.00	0.83
12.20	0.66	0.73	0.90*	0.83	0.00	0.83
12.25	0.66	0.73	0.90*	0.83	0.00	0.83
12.30	0.66	0.73	0.90*	0.83	0.00	0.83
12.35	0.66	0.73	0.90*	0.83	0.00	0.83
12.40	0.66	0.73	0.90*	0.83	0.00	0.83
12.45	0.66	0.73	0.90*	0.83	0.00	0.83
12.50	0.66	0.73	0.90*	0.83	0.00	0.83
12.55	0.66	0.73	0.89*	0.83	0.00	0.83
12.60	0.66	0.74	0.89*	0.83	0.00	0.83
12.65	0.66	0.74	0.89*	0.83	0.00	0.83
12.70	0.66	0.74	0.89*	0.83	0.00	0.83
12.75	0.66	0.74	0.89*	0.83	0.00	0.83
12.80	0.66	0.74	0.89*	0.83	0.00	0.83
12.85	0.66	0.74	0.89*	0.83	0.00	0.83
12.90	0.66	0.74	0.89*	0.83	0.00	0.83
12.95	0.66	0.74	0.89*	0.83	0.00	0.83
13.00	0.66	0.74	0.89*	0.83	0.00	0.83
13.05	0.66	0.74	0.89*	0.83	0.00	0.83
13.10	0.66	0.74	0.88*	0.83	0.00	0.83
13.15	0.66	0.74	0.88*	0.83	0.00	0.83
13.20	0.66	0.74	0.88*	0.83	0.00	0.83
13.25	0.66	0.75	0.88*	0.83	0.00	0.83
13.30	0.66	0.75	0.88*	0.83	0.00	0.83
13.35	0.66	0.75	0.88*	0.83	0.00	0.83
13.40	0.66	0.75	0.88*	0.83	0.00	0.83
13.45	0.66	0.75	0.88*	0.83	0.00	0.83
13.50	0.66	0.75	0.88*	0.83	0.00	0.83
13.55	0.66	0.75	0.88*	0.83	0.00	0.83
13.60	0.66	0.75	0.88*	0.83	0.00	0.83
13.65	0.66	0.75	0.88*	0.83	0.00	0.83
13.70	0.66	0.75	0.87*	0.83	0.00	0.83
13.75	0.66	0.75	0.87*	0.83	0.00	0.83
13.80	0.66	0.75	0.87*	0.83	0.00	0.83
13.85	0.66	0.75	0.87*	0.83	0.00	0.83
13.90	0.66	0.75	0.87*	0.83	0.00	0.83
13.95	0.66	0.75	0.87*	0.83	0.00	0.83
14.00	0.66	0.76	0.87*	0.83	0.00	0.83
14.05	0.66	0.76	0.87*	0.83	0.00	0.83
14.10	0.66	0.76	0.87*	0.83	0.00	0.83
14.15	0.66	0.76	0.87*	0.83	0.00	0.83
14.20	0.66	0.76	0.87*	0.83	0.00	0.83
14.25	0.66	0.76	0.87*	0.83	0.00	0.83
14.30	0.66	0.76	0.87*	0.83	0.00	0.83
14.35	0.66	0.76	0.86*	0.83	0.00	0.83
14.40	0.66	0.76	0.86*	0.83	0.00	0.83
14.45	0.66	0.76	0.86*	0.83	0.00	0.83
14.50	0.66	0.76	0.86*	0.82	0.00	0.82
14.55	0.66	0.76	0.86*	0.82	0.00	0.82
14.60	0.66	0.76	0.86*	0.82	0.00	0.82
14.65	0.66	0.76	0.86*	0.82	0.00	0.82
14.70	0.66	0.76	0.86*	0.82	0.00	0.82
14.75	0.66	0.77	0.86*	0.82	0.00	0.82
14.80	0.66	0.77	0.86*	0.82	0.00	0.82
14.85	0.66	0.77	0.86*	0.82	0.00	0.82
14.90	0.66	0.77	0.86*	0.82	0.00	0.82
14.95	0.66	0.77	0.86*	0.82	0.00	0.82
15.00	0.66	0.77	0.86*	0.82	0.00	0.82
15.05	0.66	0.77	0.85*	0.82	0.00	0.82
15.10	0.66	0.77	0.85*	0.82	0.00	0.82
15.15	0.66	0.77	0.85*	0.82	0.00	0.82

15.20	0.66	0.77	0.85*	0.82	0.00	0.82
15.25	0.66	0.77	0.85*	0.82	0.00	0.82
15.30	0.66	0.77	0.85*	0.82	0.00	0.82
15.35	0.66	0.77	0.85*	0.82	0.00	0.82
15.40	0.66	0.77	0.85*	0.82	0.00	0.82
15.45	0.66	0.77	0.85*	0.82	0.00	0.82
15.50	0.66	0.77	0.85*	0.82	0.00	0.82
15.55	0.66	0.77	0.85*	0.82	0.00	0.82
15.60	0.66	0.77	0.85*	0.82	0.00	0.82
15.65	0.66	0.78	0.85*	0.82	0.00	0.82
15.70	0.66	0.78	0.85*	0.82	0.00	0.82
15.75	0.66	0.78	0.85*	0.82	0.00	0.82
15.80	0.66	0.78	0.85*	0.82	0.00	0.82
15.85	0.66	0.78	0.85*	0.82	0.00	0.82
15.90	0.66	0.78	0.84*	0.82	0.00	0.82
15.95	0.66	0.78	0.84*	0.82	0.00	0.82
16.00	0.66	0.78	0.84*	0.82	0.00	0.82
16.05	0.66	0.78	0.84*	0.82	0.00	0.82
16.10	0.66	0.78	0.84*	0.82	0.00	0.82
16.15	0.66	0.78	0.84*	0.82	0.00	0.82
16.20	0.66	0.78	0.84*	0.82	0.00	0.82
16.25	0.66	0.78	0.84*	0.82	0.00	0.82
16.30	0.66	0.78	0.84*	0.82	0.00	0.82
16.35	0.66	0.78	0.84*	0.82	0.00	0.82
16.40	0.66	0.78	0.84*	0.82	0.00	0.82
16.45	0.66	0.78	0.84*	0.81	0.00	0.81
16.50	0.66	0.78	0.84*	0.81	0.00	0.81
16.55	0.66	0.78	0.84*	0.81	0.00	0.81
16.60	0.66	0.79	0.84*	0.81	0.00	0.81
16.65	0.66	0.79	0.84*	0.81	0.00	0.81
16.70	0.66	0.79	0.84*	0.81	0.00	0.81
16.75	0.66	0.79	0.84*	0.81	0.00	0.81
16.80	0.66	0.79	0.83*	0.81	0.00	0.81
16.85	0.66	0.79	0.83*	0.81	0.00	0.81
16.90	0.66	0.79	0.83*	0.81	0.00	0.81
16.95	0.66	0.79	0.83*	0.81	0.00	0.81
17.00	0.66	0.79	0.83*	0.81	0.00	0.81
17.05	0.66	0.79	0.83*	0.80	0.00	0.80
17.10	0.66	0.79	0.83*	0.80	0.00	0.80
17.15	0.66	0.79	0.83*	0.80	0.00	0.80
17.20	0.66	0.79	0.83*	0.80	0.00	0.80
17.25	0.66	0.79	0.83*	0.80	0.00	0.80
17.30	0.66	0.79	0.83*	0.80	0.00	0.80
17.35	0.66	0.79	0.83*	0.80	0.00	0.80
17.40	0.66	0.79	0.83*	0.80	0.00	0.80
17.45	0.66	0.79	0.83*	0.80	0.00	0.80
17.50	0.66	0.79	0.83*	0.79	0.00	0.79
17.55	0.66	0.79	0.83*	0.79	0.00	0.79
17.60	0.66	0.79	0.83*	0.79	0.00	0.79
17.65	0.66	0.79	0.83*	0.79	0.00	0.79
17.70	0.66	0.80	0.83*	0.79	0.00	0.79
17.75	0.66	0.80	0.83*	0.79	0.00	0.79
17.80	0.66	0.80	0.83*	0.79	0.00	0.79
17.85	0.66	0.80	0.82*	0.79	0.00	0.79
17.90	0.66	0.80	0.82*	0.78	0.00	0.78
17.95	0.66	0.80	0.82*	0.78	0.00	0.78
18.00	0.66	0.80	0.82*	0.78	0.00	0.78
18.05	0.66	0.80	0.82*	0.78	0.00	0.78
18.10	0.66	0.80	0.82*	0.78	0.00	0.78
18.15	0.66	0.80	0.82*	0.77	0.00	0.77
18.20	0.66	0.80	0.82*	0.77	0.00	0.77
18.25	0.66	0.80	0.82*	0.77	0.00	0.77
18.30	0.66	0.80	0.82*	0.77	0.00	0.77

18.35	0.66	0.80	0.82*	0.77	0.00	0.77
18.40	0.66	0.80	0.82*	0.76	0.00	0.76
18.45	0.66	0.80	0.82*	0.76	0.00	0.76
18.50	0.66	0.80	0.82*	0.76	0.00	0.76
18.55	0.66	0.80	0.82*	0.76	0.00	0.76
18.60	0.66	0.80	0.82*	0.75	0.00	0.75
18.65	0.66	0.80	0.82*	0.75	0.00	0.75
18.70	0.66	0.80	0.82*	0.75	0.00	0.75
18.75	0.66	0.80	0.82*	0.74	0.00	0.74
18.80	0.66	0.80	0.82*	0.74	0.00	0.74
18.85	0.66	0.80	0.82*	0.74	0.00	0.74
18.90	0.66	0.80	0.82*	0.73	0.00	0.73
18.95	0.66	0.81	0.82*	0.73	0.00	0.73
19.00	0.66	0.81	0.82*	0.73	0.00	0.73
19.05	0.66	0.81	0.82*	0.73	0.00	0.73
19.10	0.66	0.81	0.81*	0.72	0.00	0.72
19.15	0.66	0.81	0.81*	0.72	0.00	0.72
19.20	0.66	0.81	0.81*	0.71	0.00	0.71
19.25	0.66	0.81	0.81*	0.71	0.00	0.71
19.30	0.66	0.81	0.81*	0.71	0.00	0.71
19.35	0.66	0.81	0.81*	0.70	0.00	0.70
19.40	0.66	0.81	0.81*	0.70	0.00	0.70
19.45	0.66	0.81	0.81*	0.70	0.00	0.70
19.50	0.66	0.81	0.81*	0.69	0.00	0.69
19.55	0.66	0.81	0.81*	0.69	0.00	0.69
19.60	0.66	0.81	0.81*	0.69	0.00	0.69
19.65	0.66	0.81	0.81*	0.68	0.00	0.68
19.70	0.66	0.81	0.81*	0.68	0.00	0.68
19.75	0.66	0.81	0.81*	0.67	0.00	0.67
19.80	0.66	0.81	0.81*	0.67	0.00	0.67
19.85	0.66	0.81	0.81*	0.67	0.00	0.67
19.90	0.66	0.81	0.81*	0.66	0.00	0.66
19.95	0.66	0.81	0.81*	0.66	0.00	0.66
20.00	0.66	0.81	0.81*	0.65	0.00	0.65
20.05	0.66	0.81	0.81*	0.65	0.00	0.65
20.10	0.66	0.81	0.81*	0.64	0.00	0.64
20.15	0.66	0.81	0.81*	0.64	0.00	0.64
20.20	0.66	0.81	0.81*	0.64	0.00	0.64
20.25	0.66	0.81	0.81*	0.63	0.00	0.63
20.30	0.66	0.81	0.81*	0.63	0.00	0.63
20.35	0.66	0.81	0.81*	0.62	0.00	0.62
20.40	0.66	0.82	0.81*	0.62	0.00	0.62
20.45	0.66	0.82	0.81*	0.61	0.00	0.61
20.50	0.66	0.82	0.81*	0.61	0.00	0.61
20.55	0.66	0.82	0.80*	0.61	0.00	0.61
20.60	0.66	0.82	0.80*	0.60	0.00	0.60
20.65	0.66	0.82	0.80*	0.60	0.00	0.60
20.70	0.66	0.82	0.80*	0.59	0.00	0.59
20.75	0.66	0.82	0.80*	0.59	0.00	0.59
20.80	0.66	0.82	0.80*	0.58	0.00	0.58
20.85	0.66	0.82	0.80*	0.58	0.00	0.58
20.90	0.66	0.82	0.80*	0.58	0.00	0.58
20.95	0.66	0.82	0.80*	0.57	0.00	0.57
21.00	0.66	0.82	0.80*	0.57	0.00	0.57
21.05	0.66	0.82	0.80*	0.56	0.00	0.56
21.10	0.66	0.82	0.80*	0.56	0.00	0.56
21.15	0.66	0.82	0.80*	0.55	0.00	0.55
21.20	0.66	0.82	0.80*	0.55	0.00	0.55
21.25	0.66	0.82	0.80*	0.55	0.00	0.55
21.30	0.66	0.82	0.80*	0.54	0.00	0.54
21.35	0.66	0.82	0.80*	0.54	0.00	0.54
21.40	0.66	0.82	0.80*	0.53	0.00	0.53
21.45	0.66	0.82	0.80*	0.53	0.00	0.53

21.50	0.66	0.82	0.80*	0.52	0.00	0.52
21.55	0.66	0.82	0.80*	0.52	0.00	0.52
21.60	0.66	0.82	0.80*	0.51	0.00	0.51
21.65	0.66	0.82	0.80*	0.51	0.00	0.51
21.70	0.66	0.82	0.80*	0.51	0.00	0.51
21.75	0.66	0.82	0.80*	0.50	0.00	0.50
21.80	0.66	0.82	0.80*	0.50	0.00	0.50
21.85	0.65	0.82	0.79*	0.49	0.00	0.49
21.90	0.65	0.82	0.79*	0.49	0.00	0.49
21.95	0.65	0.82	0.79*	0.48	0.00	0.48
22.00	0.65	0.82	0.78*	0.48	0.00	0.48
22.05	0.64	0.82	0.78*	0.48	0.00	0.48
22.10	0.64	0.83	0.78*	0.47	0.00	0.47
22.15	0.64	0.83	0.78*	0.47	0.00	0.47
22.20	0.64	0.83	0.77*	0.46	0.00	0.46
22.25	0.64	0.83	0.77*	0.46	0.00	0.46
22.30	0.63	0.83	0.77*	0.45	0.00	0.45
22.35	0.63	0.83	0.77*	0.45	0.00	0.45
22.40	0.63	0.83	0.76*	0.44	0.00	0.44
22.45	0.63	0.83	0.76*	0.44	0.00	0.44
22.50	0.63	0.83	0.76*	0.44	0.00	0.44
22.55	0.63	0.83	0.76*	0.43	0.00	0.43
22.60	0.62	0.83	0.75*	0.43	0.00	0.43
22.65	0.62	0.83	0.75*	0.42	0.00	0.42
22.70	0.62	0.83	0.75*	0.42	0.00	0.42
22.75	0.62	0.83	0.75*	0.41	0.00	0.41
22.80	0.62	0.83	0.75*	0.41	0.00	0.41
22.85	0.62	0.83	0.74*	0.40	0.00	0.40
22.90	0.62	0.83	0.74*	0.40	0.00	0.40
22.95	0.61	0.83	0.74*	0.40	0.00	0.40
23.00	0.61	0.83	0.74*	0.39	0.00	0.39
23.05	0.61	0.83	0.74*	0.39	0.00	0.39
23.10	0.61	0.83	0.74*	0.38	0.00	0.38
23.15	0.61	0.83	0.73*	0.38	0.00	0.38
23.20	0.61	0.83	0.73*	0.37	0.00	0.37
23.25	0.61	0.83	0.73*	0.37	0.00	0.37
23.30	0.61	0.83	0.73*	0.36	0.00	0.36
23.35	0.60	0.83	0.73*	0.36	0.00	0.36
23.40	0.60	0.83	0.73*	0.35	0.00	0.35
23.45	0.60	0.83	0.72*	0.35	0.00	0.35
23.50	0.60	0.83	0.72*	0.35	0.00	0.35
23.55	0.60	0.83	0.72*	0.34	0.00	0.34
23.60	0.60	0.83	0.72*	0.34	0.00	0.34
23.65	0.60	0.83	0.72*	0.33	0.00	0.33
23.70	0.60	0.83	0.72*	0.33	0.00	0.33
23.75	0.60	0.83	0.72*	0.32	0.00	0.32
23.80	0.59	0.83	0.71*	0.32	0.00	0.32
23.85	0.59	0.83	0.71*	0.31	0.00	0.31
23.90	0.59	0.83	0.71*	0.31	0.00	0.31
23.95	0.59	0.83	0.71*	0.31	0.00	0.31
24.00	0.59	0.83	0.71*	0.30	0.00	0.30
24.05	0.59	0.83	0.71*	0.30	0.00	0.30
24.10	0.59	0.83	0.71*	0.29	0.00	0.29
24.15	0.59	0.84	0.70*	0.29	0.00	0.29
24.20	0.59	0.84	0.70*	0.28	0.00	0.28
24.25	0.59	0.84	0.70*	0.28	0.00	0.28
24.30	0.59	0.84	0.70*	0.27	0.00	0.27
24.35	0.59	0.84	0.70*	0.27	0.00	0.27
24.40	0.58	0.84	0.70*	0.26	0.00	0.26
24.45	0.58	0.84	0.70*	0.26	0.00	0.26
24.50	0.58	0.84	0.70*	0.26	0.00	0.26
24.55	0.58	0.84	0.70*	0.25	0.00	0.25
24.60	0.58	0.84	0.69*	0.25	0.00	0.25

24.65	0.58	0.84	0.69*	0.24	0.00	0.24
24.70	0.58	0.84	0.69*	0.24	0.00	0.24
24.75	0.58	0.84	0.69*	0.23	0.00	0.23
24.80	0.58	0.84	0.69*	0.23	0.00	0.23
24.85	0.58	0.84	0.69*	0.22	0.00	0.22
24.90	0.58	0.84	0.69*	0.22	0.00	0.22
24.95	0.58	0.84	0.69*	0.21	0.00	0.21
25.00	0.58	0.84	0.69*	0.21	0.00	0.21
25.05	0.57	0.84	0.69*	0.20	0.00	0.20
25.10	0.57	0.84	0.68*	0.20	0.00	0.20
25.15	0.57	0.84	0.68*	0.20	0.00	0.20
25.20	0.57	0.84	0.68*	0.19	0.00	0.19
25.25	0.57	0.84	0.68*	0.19	0.00	0.19
25.30	0.57	0.84	0.68*	0.18	0.00	0.18
25.35	0.57	0.84	0.68*	0.18	0.00	0.18
25.40	0.57	0.84	0.68*	0.17	0.00	0.17
25.45	0.57	0.84	0.68*	0.17	0.00	0.17
25.50	0.57	0.84	0.68*	0.16	0.00	0.16
25.55	0.57	0.84	0.68*	0.16	0.00	0.16
25.60	0.57	0.84	0.68*	0.15	0.00	0.15
25.65	0.57	0.84	0.68*	0.15	0.00	0.15
25.70	0.57	0.84	0.67*	0.15	0.00	0.15
25.75	0.57	0.84	0.67*	0.14	0.00	0.14
25.80	0.57	0.84	0.67*	0.14	0.00	0.14
25.85	0.57	0.84	0.67*	0.13	0.00	0.13
25.90	0.57	0.84	0.67*	0.13	0.00	0.13
25.95	0.56	0.84	0.67*	0.12	0.00	0.12
26.00	0.56	0.84	0.67*	0.12	0.00	0.12
26.05	0.56	0.84	0.67*	0.11	0.00	0.11
26.10	0.56	0.84	0.67*	0.11	0.00	0.11
26.15	0.56	0.84	0.67*	0.10	0.00	0.10
26.20	0.56	0.84	0.67*	0.10	0.00	0.10
26.25	0.56	0.84	0.67*	0.09	0.00	0.09
26.30	0.56	0.84	0.67*	0.09	0.00	0.09
26.35	0.56	0.84	0.66*	0.08	0.00	0.08
26.40	0.56	0.84	0.66*	0.08	0.00	0.08
26.45	0.56	0.84	0.66*	0.08	0.00	0.08
26.50	0.56	0.84	0.66*	0.07	0.00	0.07
26.55	0.56	0.84	0.66*	0.07	0.00	0.07
26.60	0.56	0.84	0.66*	0.06	0.00	0.06
26.65	0.56	0.84	0.66*	0.06	0.00	0.06
26.70	0.56	0.84	0.66*	0.05	0.00	0.05
26.75	0.56	0.84	0.66*	0.05	0.00	0.05
26.80	0.56	0.84	0.66*	0.04	0.00	0.04
26.85	0.56	0.85	0.66*	0.04	0.00	0.04
26.90	0.56	0.85	0.66*	0.03	0.00	0.03
26.95	0.56	0.85	0.66*	0.03	0.00	0.03
27.00	0.55	0.85	0.66*	0.02	0.00	0.02
27.05	0.66	0.85	0.78*	0.02	0.00	0.02
27.10	0.66	0.85	0.78*	0.02	0.00	0.02
27.15	0.66	0.85	0.78*	0.01	0.00	0.01
27.20	0.66	0.85	0.78*	0.01	0.00	0.01
27.25	0.66	0.85	0.78*	0.01	0.00	0.01
27.30	0.66	0.85	0.78*	0.00	0.00	0.00
27.35	0.66	0.85	0.78*	0.00	0.00	0.00
27.40	0.66	0.85	0.78*	0.00	0.00	0.00
27.45	0.66	0.85	0.78*	0.00	0.00	0.00
27.50	0.66	0.85	0.78*	0.00	0.00	0.00
27.55	0.66	0.85	0.78*	0.00	0.00	0.00
27.60	0.66	0.85	0.78*	0.00	0.00	0.00
27.65	0.66	0.85	0.78*	0.00	0.00	0.00
27.70	0.66	0.85	0.78*	0.00	0.00	0.00
27.75	0.66	0.85	0.78*	0.00	0.00	0.00

27.80	0.66	0.85	0.77*	0.00	0.00	0.00
27.85	0.66	0.85	0.77*	0.00	0.00	0.00
27.90	0.66	0.85	0.77*	0.00	0.00	0.00
27.95	0.66	0.85	0.77*	0.00	0.00	0.00
28.00	0.66	0.85	0.77*	0.00	0.00	0.00
28.05	0.66	0.85	0.77*	0.00	0.00	0.00
28.10	0.66	0.85	0.77*	0.00	0.00	0.00
28.15	0.66	0.85	0.77*	0.00	0.00	0.00
28.20	0.66	0.85	0.77*	0.00	0.00	0.00
28.25	0.66	0.85	0.77*	0.00	0.00	0.00
28.30	0.66	0.85	0.77*	0.00	0.00	0.00
28.35	0.66	0.85	0.77*	0.00	0.00	0.00
28.40	0.66	0.85	0.77*	0.00	0.00	0.00
28.45	0.66	0.85	0.77*	0.00	0.00	0.00
28.50	0.66	0.85	0.77*	0.00	0.00	0.00
28.55	0.66	0.85	0.77*	0.00	0.00	0.00
28.60	0.66	0.85	0.77*	0.00	0.00	0.00
28.65	0.66	0.85	0.77*	0.00	0.00	0.00
28.70	0.66	0.85	0.77*	0.00	0.00	0.00
28.75	0.66	0.85	0.77*	0.00	0.00	0.00
28.80	0.66	0.85	0.77*	0.00	0.00	0.00
28.85	0.66	0.85	0.77*	0.00	0.00	0.00
28.90	0.66	0.85	0.77*	0.00	0.00	0.00
28.95	0.66	0.85	0.77*	0.00	0.00	0.00
29.00	0.66	0.85	0.77*	0.00	0.00	0.00
29.05	0.66	0.85	0.77*	0.00	0.00	0.00
29.10	0.66	0.85	0.77*	0.00	0.00	0.00
29.15	0.66	0.85	0.77*	0.00	0.00	0.00
29.20	0.66	0.85	0.77*	0.00	0.00	0.00
29.25	0.66	0.85	0.77*	0.00	0.00	0.00
29.30	0.66	0.85	0.77*	0.00	0.00	0.00
29.35	0.66	0.85	0.77*	0.00	0.00	0.00
29.40	0.66	0.85	0.77*	0.00	0.00	0.00
29.45	0.66	0.85	0.77*	0.00	0.00	0.00
29.50	0.66	0.85	0.77*	0.00	0.00	0.00
29.55	0.66	0.85	0.77*	0.00	0.00	0.00
29.60	0.66	0.85	0.77*	0.00	0.00	0.00
29.65	0.66	0.85	0.77*	0.00	0.00	0.00
29.70	0.66	0.85	0.77*	0.00	0.00	0.00
29.75	0.66	0.85	0.77*	0.00	0.00	0.00
29.80	0.66	0.85	0.77*	0.00	0.00	0.00
29.85	0.66	0.85	0.77*	0.00	0.00	0.00
29.90	0.66	0.85	0.77*	0.00	0.00	0.00
29.95	0.66	0.85	0.77*	0.00	0.00	0.00
30.00	0.66	0.85	0.77*	0.00	0.00	0.00
30.05	0.66	0.85	0.77*	0.00	0.00	0.00
30.10	0.66	0.85	0.77*	0.00	0.00	0.00
30.15	0.66	0.85	0.77*	0.00	0.00	0.00
30.20	0.66	0.85	0.77*	0.00	0.00	0.00
30.25	0.66	0.85	0.77*	0.00	0.00	0.00
30.30	0.66	0.85	0.77*	0.00	0.00	0.00
30.35	0.66	0.85	0.77*	0.00	0.00	0.00
30.40	0.66	0.85	0.77*	0.00	0.00	0.00
30.45	0.66	0.85	0.77*	0.00	0.00	0.00
30.50	0.66	0.85	0.77*	0.00	0.00	0.00
30.55	0.66	0.85	0.77*	0.00	0.00	0.00
30.60	0.66	0.85	0.77*	0.00	0.00	0.00
30.65	0.66	0.85	0.77*	0.00	0.00	0.00
30.70	0.66	0.85	0.77*	0.00	0.00	0.00
30.75	0.66	0.85	0.77*	0.00	0.00	0.00
30.80	0.66	0.85	0.77*	0.00	0.00	0.00
30.85	0.66	0.85	0.77*	0.00	0.00	0.00
30.90	0.66	0.85	0.77*	0.00	0.00	0.00

30.95	0.66	0.85	0.77*	0.00	0.00	0.00
31.00	0.66	0.85	0.77*	0.00	0.00	0.00
31.05	0.66	0.85	0.77*	0.00	0.00	0.00
31.10	0.66	0.85	0.77*	0.00	0.00	0.00
31.15	0.66	0.85	0.77*	0.00	0.00	0.00
31.20	0.66	0.85	0.77*	0.00	0.00	0.00
31.25	0.66	0.85	0.77*	0.00	0.00	0.00
31.30	0.66	0.85	0.77*	0.00	0.00	0.00
31.35	0.66	0.85	0.77*	0.00	0.00	0.00
31.40	0.66	0.85	0.77*	0.00	0.00	0.00
31.45	0.66	0.85	0.77*	0.00	0.00	0.00
31.50	0.66	0.85	0.77*	0.00	0.00	0.00
31.55	0.66	0.85	0.77*	0.00	0.00	0.00
31.60	0.66	0.85	0.77*	0.00	0.00	0.00
31.65	0.66	0.85	0.78*	0.00	0.00	0.00
31.70	0.66	0.85	0.78*	0.00	0.00	0.00
31.75	0.66	0.85	0.78*	0.00	0.00	0.00
31.80	0.66	0.85	0.78*	0.00	0.00	0.00
31.85	0.66	0.85	0.78*	0.00	0.00	0.00
31.90	0.66	0.85	0.78*	0.00	0.00	0.00
31.95	0.66	0.85	0.78*	0.00	0.00	0.00
32.00	0.66	0.85	0.78*	0.00	0.00	0.00
32.05	0.66	0.85	0.78*	0.00	0.00	0.00
32.10	0.66	0.85	0.78*	0.00	0.00	0.00
32.15	0.66	0.85	0.78*	0.00	0.00	0.00
32.20	0.66	0.85	0.78*	0.00	0.00	0.00
32.25	0.66	0.85	0.78*	0.00	0.00	0.00
32.30	0.66	0.85	0.78*	0.00	0.00	0.00
32.35	0.66	0.85	0.78*	0.00	0.00	0.00
32.40	0.66	0.84	0.78*	0.00	0.00	0.00
32.45	0.66	0.84	0.78*	0.00	0.00	0.00
32.50	0.66	0.84	0.78*	0.00	0.00	0.00
32.55	0.66	0.84	0.78*	0.00	0.00	0.00
32.60	0.66	0.84	0.78*	0.00	0.00	0.00
32.65	0.66	0.84	0.78*	0.00	0.00	0.00
32.70	0.66	0.84	0.78*	0.00	0.00	0.00
32.75	0.66	0.84	0.78*	0.00	0.00	0.00
32.80	0.66	0.84	0.78*	0.00	0.00	0.00
32.85	0.66	0.84	0.78*	0.00	0.00	0.00
32.90	0.66	0.84	0.78*	0.00	0.00	0.00
32.95	0.66	0.84	0.78*	0.00	0.00	0.00
33.00	0.66	0.84	0.78*	0.00	0.00	0.00
33.05	0.66	0.84	0.78*	0.00	0.00	0.00
33.10	0.66	0.84	0.78*	0.00	0.00	0.00
33.15	0.66	0.84	0.78*	0.00	0.00	0.00
33.20	0.66	0.84	0.78*	0.00	0.00	0.00
33.25	0.66	0.84	0.78*	0.00	0.00	0.00
33.30	0.66	0.84	0.78*	0.00	0.00	0.00
33.35	0.66	0.84	0.78*	0.00	0.00	0.00
33.40	0.66	0.84	0.78*	0.00	0.00	0.00
33.45	0.66	0.84	0.78*	0.00	0.00	0.00
33.50	0.66	0.84	0.78*	0.00	0.00	0.00
33.55	0.66	0.84	0.78*	0.00	0.00	0.00
33.60	0.66	0.84	0.78*	0.00	0.00	0.00
33.65	0.66	0.84	0.78*	0.00	0.00	0.00
33.70	0.66	0.84	0.78*	0.00	0.00	0.00
33.75	0.66	0.84	0.78*	0.00	0.00	0.00
33.80	0.66	0.84	0.78*	0.00	0.00	0.00
33.85	0.66	0.84	0.78*	0.00	0.00	0.00
33.90	0.66	0.84	0.78*	0.00	0.00	0.00
33.95	0.66	0.84	0.78*	0.00	0.00	0.00
34.00	0.66	0.84	0.78*	0.00	0.00	0.00
34.05	0.66	0.84	0.78*	0.00	0.00	0.00

34.10	0.66	0.84	0.78*	0.00	0.00	0.00
34.15	0.66	0.84	0.78*	0.00	0.00	0.00
34.20	0.66	0.84	0.78*	0.00	0.00	0.00
34.25	0.66	0.84	0.78*	0.00	0.00	0.00
34.30	0.66	0.84	0.78*	0.00	0.00	0.00
34.35	0.66	0.84	0.78*	0.00	0.00	0.00
34.40	0.66	0.84	0.79*	0.00	0.00	0.00
34.45	0.66	0.84	0.79*	0.00	0.00	0.00
34.50	0.66	0.84	0.79*	0.00	0.00	0.00
34.55	0.66	0.84	0.79*	0.00	0.00	0.00
34.60	0.66	0.84	0.79*	0.00	0.00	0.00
34.65	0.66	0.84	0.79*	0.00	0.00	0.00
34.70	0.66	0.84	0.79*	0.00	0.00	0.00
34.75	0.66	0.84	0.79*	0.00	0.00	0.00
34.80	0.66	0.84	0.79*	0.00	0.00	0.00
34.85	0.66	0.83	0.79*	0.00	0.00	0.00
34.90	0.66	0.83	0.79*	0.00	0.00	0.00
34.95	0.66	0.83	0.79*	0.00	0.00	0.00
35.00	0.66	0.83	0.79*	0.00	0.00	0.00
35.05	0.66	0.83	0.79*	0.00	0.00	0.00
35.10	0.66	0.83	0.79*	0.00	0.00	0.00
35.15	0.66	0.83	0.79*	0.00	0.00	0.00
35.20	0.66	0.83	0.79*	0.00	0.00	0.00
35.25	0.66	0.83	0.79*	0.00	0.00	0.00
35.30	0.66	0.83	0.79*	0.00	0.00	0.00
35.35	0.66	0.83	0.79*	0.00	0.00	0.00
35.40	0.66	0.83	0.79*	0.00	0.00	0.00
35.45	0.66	0.83	0.79*	0.00	0.00	0.00
35.50	0.66	0.83	0.79*	0.00	0.00	0.00
35.55	0.66	0.83	0.79*	0.00	0.00	0.00
35.60	0.66	0.83	0.79*	0.00	0.00	0.00
35.65	0.66	0.83	0.79*	0.00	0.00	0.00
35.70	0.66	0.83	0.79*	0.00	0.00	0.00
35.75	0.66	0.83	0.79*	0.00	0.00	0.00
35.80	0.66	0.83	0.79*	0.00	0.00	0.00
35.85	0.66	0.83	0.79*	0.00	0.00	0.00
35.90	0.66	0.83	0.79*	0.00	0.00	0.00
35.95	0.66	0.83	0.79*	0.00	0.00	0.00
36.00	0.66	0.83	0.79*	0.00	0.00	0.00
36.05	0.66	0.83	0.79*	0.00	0.00	0.00
36.10	0.66	0.83	0.79*	0.00	0.00	0.00
36.15	0.66	0.83	0.79*	0.00	0.00	0.00
36.20	0.66	0.83	0.79*	0.00	0.00	0.00
36.25	0.66	0.83	0.79*	0.00	0.00	0.00
36.30	0.66	0.83	0.79*	0.00	0.00	0.00
36.35	0.66	0.83	0.79*	0.00	0.00	0.00
36.40	0.66	0.83	0.79*	0.00	0.00	0.00
36.45	0.66	0.83	0.79*	0.00	0.00	0.00
36.50	0.66	0.83	0.79*	0.00	0.00	0.00
36.55	0.66	0.83	0.79*	0.00	0.00	0.00
36.60	0.66	0.83	0.79*	0.00	0.00	0.00
36.65	0.66	0.83	0.79*	0.00	0.00	0.00
36.70	0.66	0.83	0.80*	0.00	0.00	0.00
36.75	0.66	0.83	0.80*	0.00	0.00	0.00
36.80	0.66	0.83	0.80*	0.00	0.00	0.00
36.85	0.66	0.83	0.80*	0.00	0.00	0.00
36.90	0.66	0.83	0.80*	0.00	0.00	0.00
36.95	0.66	0.83	0.80*	0.00	0.00	0.00
37.00	0.66	0.82	0.80*	0.00	0.00	0.00
37.05	0.66	0.82	0.80*	0.00	0.00	0.00
37.10	0.66	0.82	0.80*	0.00	0.00	0.00
37.15	0.66	0.82	0.80*	0.00	0.00	0.00
37.20	0.66	0.82	0.80*	0.00	0.00	0.00

37.25	0.66	0.82	0.80*	0.00	0.00	0.00
37.30	0.66	0.82	0.80*	0.00	0.00	0.00
37.35	0.66	0.82	0.80*	0.00	0.00	0.00
37.40	0.66	0.82	0.80*	0.00	0.00	0.00
37.45	0.66	0.82	0.80*	0.00	0.00	0.00
37.50	0.66	0.82	0.80*	0.00	0.00	0.00
37.55	0.66	0.82	0.80*	0.00	0.00	0.00
37.60	0.66	0.82	0.80*	0.00	0.00	0.00
37.65	0.66	0.82	0.80*	0.00	0.00	0.00
37.70	0.66	0.82	0.80*	0.00	0.00	0.00
37.75	0.66	0.82	0.80*	0.00	0.00	0.00
37.80	0.66	0.82	0.80*	0.00	0.00	0.00
37.85	0.66	0.82	0.80*	0.00	0.00	0.00
37.90	0.66	0.82	0.80*	0.00	0.00	0.00
37.95	0.66	0.82	0.80*	0.00	0.00	0.00
38.00	0.66	0.82	0.80*	0.00	0.00	0.00
38.05	0.66	0.82	0.80*	0.00	0.00	0.00
38.10	0.66	0.82	0.80*	0.00	0.00	0.00
38.15	0.66	0.82	0.80*	0.00	0.00	0.00
38.20	0.66	0.82	0.80*	0.00	0.00	0.00
38.25	0.66	0.82	0.80*	0.00	0.00	0.00
38.30	0.66	0.82	0.80*	0.00	0.00	0.00
38.35	0.66	0.82	0.81*	0.00	0.00	0.00
38.40	0.66	0.82	0.81*	0.00	0.00	0.00
38.45	0.66	0.82	0.81*	0.00	0.00	0.00
38.50	0.66	0.82	0.81*	0.00	0.00	0.00
38.55	0.66	0.82	0.81*	0.00	0.00	0.00
38.60	0.66	0.82	0.81*	0.00	0.00	0.00
38.65	0.66	0.82	0.81*	0.00	0.00	0.00
38.70	0.66	0.82	0.81*	0.00	0.00	0.00
38.75	0.66	0.82	0.81*	0.00	0.00	0.00
38.80	0.66	0.82	0.81*	0.00	0.00	0.00
38.85	0.66	0.82	0.81*	0.00	0.00	0.00
38.90	0.66	0.82	0.81*	0.00	0.00	0.00
38.95	0.66	0.82	0.81*	0.00	0.00	0.00
39.00	0.66	0.81	0.81*	0.00	0.00	0.00
39.05	0.66	0.81	0.81*	0.00	0.00	0.00
39.10	0.66	0.81	0.81*	0.00	0.00	0.00
39.15	0.66	0.81	0.81*	0.00	0.00	0.00
39.20	0.66	0.81	0.81*	0.00	0.00	0.00
39.25	0.66	0.81	0.81*	0.00	0.00	0.00
39.30	0.66	0.81	0.81*	0.00	0.00	0.00
39.35	0.66	0.81	0.81*	0.00	0.00	0.00
39.40	0.66	0.81	0.81*	0.00	0.00	0.00
39.45	0.66	0.81	0.81*	0.00	0.00	0.00
39.50	0.66	0.81	0.81*	0.00	0.00	0.00
39.55	0.66	0.81	0.81*	0.00	0.00	0.00
39.60	0.66	0.81	0.81*	0.00	0.00	0.00
39.65	0.66	0.81	0.81*	0.00	0.00	0.00
39.70	0.66	0.81	0.81*	0.00	0.00	0.00
39.75	0.66	0.81	0.81*	0.00	0.00	0.00
39.80	0.66	0.81	0.81*	0.00	0.00	0.00
39.85	0.66	0.81	0.81*	0.00	0.00	0.00
39.90	0.66	0.81	0.81*	0.00	0.00	0.00
39.95	0.66	0.81	0.81*	0.00	0.00	0.00
40.00	0.66	0.81	0.81*	0.00	0.00	0.00
40.05	0.66	0.81	0.81*	0.00	0.00	0.00
40.10	0.66	0.81	0.81*	0.00	0.00	0.00
40.15	0.66	0.81	0.81*	0.00	0.00	0.00
40.20	0.66	0.81	0.81*	0.00	0.00	0.00
40.25	0.66	0.81	0.81*	0.00	0.00	0.00
40.30	0.66	0.81	0.81*	0.00	0.00	0.00
40.35	0.66	0.81	0.81*	0.00	0.00	0.00

40.40	0.65	0.81	0.81*	0.00	0.00	0.00
40.45	0.65	0.81	0.81*	0.00	0.00	0.00
40.50	0.65	0.81	0.81*	0.00	0.00	0.00
40.55	0.65	0.81	0.81*	0.00	0.00	0.00
40.60	0.65	0.81	0.81*	0.00	0.00	0.00
40.65	0.65	0.81	0.81*	0.00	0.00	0.00
40.70	0.65	0.81	0.81*	0.00	0.00	0.00
40.75	0.65	0.81	0.81*	0.00	0.00	0.00
40.80	0.65	0.81	0.81*	0.00	0.00	0.00
40.85	0.65	0.80	0.81*	0.00	0.00	0.00
40.90	0.65	0.80	0.81*	0.00	0.00	0.00
40.95	0.65	0.80	0.81*	0.00	0.00	0.00
41.00	0.65	0.80	0.81*	0.00	0.00	0.00
41.05	0.65	0.80	0.81*	0.00	0.00	0.00
41.10	0.65	0.80	0.81*	0.00	0.00	0.00
41.15	0.65	0.80	0.81*	0.00	0.00	0.00
41.20	0.65	0.80	0.81*	0.00	0.00	0.00
41.25	0.65	0.80	0.81*	0.00	0.00	0.00
41.30	0.65	0.80	0.81*	0.00	0.00	0.00
41.35	0.65	0.80	0.81*	0.00	0.00	0.00
41.40	0.65	0.80	0.81*	0.00	0.00	0.00
41.45	0.65	0.80	0.81*	0.00	0.00	0.00
41.50	0.65	0.80	0.81*	0.00	0.00	0.00
41.55	0.65	0.80	0.81*	0.00	0.00	0.00
41.60	0.65	0.80	0.82*	0.00	0.00	0.00
41.65	0.65	0.80	0.82*	0.00	0.00	0.00
41.70	0.65	0.80	0.82*	0.00	0.00	0.00
41.75	0.65	0.80	0.82*	0.00	0.00	0.00
41.80	0.65	0.80	0.82*	0.00	0.00	0.00
41.85	0.65	0.80	0.82*	0.00	0.00	0.00
41.90	0.65	0.80	0.82*	0.00	0.00	0.00
41.95	0.65	0.80	0.82*	0.00	0.00	0.00
42.00	0.65	0.80	0.82*	0.00	0.00	0.00
42.05	0.65	0.80	0.82*	0.00	0.00	0.00
42.10	0.65	0.80	0.82*	0.00	0.00	0.00
42.15	0.65	0.80	0.82*	0.00	0.00	0.00
42.20	0.65	0.80	0.82*	0.00	0.00	0.00
42.25	0.65	0.80	0.82*	0.00	0.00	0.00
42.30	0.65	0.80	0.82*	0.00	0.00	0.00
42.35	0.65	0.80	0.82*	0.00	0.00	0.00
42.40	0.65	0.80	0.82*	0.00	0.00	0.00
42.45	0.65	0.80	0.82*	0.00	0.00	0.00
42.50	0.65	0.80	0.82*	0.00	0.00	0.00
42.55	0.65	0.80	0.82*	0.00	0.00	0.00
42.60	0.65	0.80	0.82*	0.00	0.00	0.00
42.65	0.65	0.79	0.82*	0.00	0.00	0.00
42.70	0.65	0.79	0.82*	0.00	0.00	0.00
42.75	0.65	0.79	0.82*	0.00	0.00	0.00
42.80	0.65	0.79	0.82*	0.00	0.00	0.00
42.85	0.65	0.79	0.82*	0.00	0.00	0.00
42.90	0.65	0.79	0.82*	0.00	0.00	0.00
42.95	0.65	0.79	0.82*	0.00	0.00	0.00
43.00	0.65	0.79	0.82*	0.00	0.00	0.00
43.05	0.65	0.79	0.82*	0.00	0.00	0.00
43.10	0.65	0.79	0.82*	0.00	0.00	0.00
43.15	0.65	0.79	0.82*	0.00	0.00	0.00
43.20	0.65	0.79	0.82*	0.00	0.00	0.00
43.25	0.65	0.79	0.82*	0.00	0.00	0.00
43.30	0.65	0.79	0.82*	0.00	0.00	0.00
43.35	0.65	0.79	0.82*	0.00	0.00	0.00
43.40	0.65	0.79	0.82*	0.00	0.00	0.00
43.45	0.65	0.79	0.82*	0.00	0.00	0.00
43.50	0.65	0.79	0.82*	0.00	0.00	0.00

43.55	0.65	0.79	0.82*	0.00	0.00	0.00
43.60	0.65	0.79	0.82*	0.00	0.00	0.00
43.65	0.65	0.79	0.82*	0.00	0.00	0.00
43.70	0.65	0.79	0.82*	0.00	0.00	0.00
43.75	0.65	0.79	0.82*	0.00	0.00	0.00
43.80	0.65	0.79	0.82*	0.00	0.00	0.00
43.85	0.65	0.79	0.82*	0.00	0.00	0.00
43.90	0.65	0.79	0.82*	0.00	0.00	0.00
43.95	0.65	0.79	0.82*	0.00	0.00	0.00
44.00	0.65	0.79	0.82*	0.00	0.00	0.00
44.05	0.65	0.79	0.82*	0.00	0.00	0.00
44.10	0.65	0.79	0.82*	0.00	0.00	0.00
44.15	0.65	0.79	0.82*	0.00	0.00	0.00
44.20	0.65	0.79	0.82*	0.00	0.00	0.00
44.25	0.65	0.79	0.82*	0.00	0.00	0.00
44.30	0.65	0.79	0.83*	0.00	0.00	0.00
44.35	0.65	0.78	0.83*	0.00	0.00	0.00
44.40	0.65	0.78	0.83*	0.00	0.00	0.00
44.45	0.65	0.78	0.83*	0.00	0.00	0.00
44.50	0.65	0.78	0.83*	0.00	0.00	0.00
44.55	0.65	0.78	0.83*	0.00	0.00	0.00
44.60	0.65	0.78	0.83*	0.00	0.00	0.00
44.65	0.65	0.78	0.83*	0.00	0.00	0.00
44.70	0.65	0.78	0.83*	0.00	0.00	0.00
44.75	0.65	0.78	0.83*	0.00	0.00	0.00
44.80	0.65	0.78	0.83*	0.00	0.00	0.00
44.85	0.65	0.78	0.83*	0.00	0.00	0.00
44.90	0.65	0.78	0.83*	0.00	0.00	0.00
44.95	0.65	0.78	0.83*	0.00	0.00	0.00
45.00	0.65	0.78	0.83*	0.00	0.00	0.00
45.05	0.65	0.78	0.83*	0.00	0.00	0.00
45.10	0.65	0.78	0.83*	0.00	0.00	0.00
45.15	0.65	0.78	0.83*	0.00	0.00	0.00
45.20	0.65	0.78	0.83*	0.00	0.00	0.00
45.25	0.65	0.78	0.83*	0.00	0.00	0.00
45.30	0.65	0.78	0.83*	0.00	0.00	0.00
45.35	0.65	0.78	0.83*	0.00	0.00	0.00
45.40	0.65	0.78	0.83*	0.00	0.00	0.00
45.45	0.65	0.78	0.83*	0.00	0.00	0.00
45.50	0.65	0.78	0.83*	0.00	0.00	0.00
45.55	0.65	0.78	0.83*	0.00	0.00	0.00
45.60	0.65	0.78	0.83*	0.00	0.00	0.00
45.65	0.65	0.78	0.83*	0.00	0.00	0.00
45.70	0.65	0.78	0.83*	0.00	0.00	0.00
45.75	0.65	0.78	0.83*	0.00	0.00	0.00
45.80	0.65	0.78	0.83*	0.00	0.00	0.00
45.85	0.65	0.78	0.83*	0.00	0.00	0.00
45.90	0.65	0.78	0.83*	0.00	0.00	0.00
45.95	0.64	0.78	0.83*	0.00	0.00	0.00
46.00	0.64	0.78	0.83*	0.00	0.00	0.00
46.05	0.64	0.77	0.83*	0.00	0.00	0.00
46.10	0.64	0.77	0.83*	0.00	0.00	0.00
46.15	0.64	0.77	0.83*	0.00	0.00	0.00
46.20	0.64	0.77	0.83*	0.00	0.00	0.00
46.25	0.64	0.77	0.83*	0.00	0.00	0.00
46.30	0.64	0.77	0.83*	0.00	0.00	0.00
46.35	0.64	0.77	0.83*	0.00	0.00	0.00
46.40	0.64	0.77	0.83*	0.00	0.00	0.00
46.45	0.64	0.77	0.83*	0.00	0.00	0.00
46.50	0.64	0.77	0.83*	0.00	0.00	0.00
46.55	0.64	0.77	0.83*	0.00	0.00	0.00
46.60	0.64	0.77	0.83*	0.00	0.00	0.00
46.65	0.64	0.77	0.83*	0.00	0.00	0.00

46.70	0.64	0.77	0.84*	0.00	0.00	0.00
46.75	0.64	0.77	0.84*	0.00	0.00	0.00
46.80	0.64	0.77	0.84*	0.00	0.00	0.00
46.85	0.64	0.77	0.84*	0.00	0.00	0.00
46.90	0.64	0.77	0.84*	0.00	0.00	0.00
46.95	0.64	0.77	0.84*	0.00	0.00	0.00
47.00	0.64	0.77	0.84*	0.00	0.00	0.00
47.05	0.64	0.77	0.84*	0.00	0.00	0.00
47.10	0.64	0.77	0.84*	0.00	0.00	0.00
47.15	0.64	0.77	0.84*	0.00	0.00	0.00
47.20	0.64	0.77	0.84*	0.00	0.00	0.00
47.25	0.64	0.77	0.84*	0.00	0.00	0.00
47.30	0.64	0.77	0.84*	0.00	0.00	0.00
47.35	0.64	0.77	0.84*	0.00	0.00	0.00
47.40	0.64	0.77	0.84*	0.00	0.00	0.00
47.45	0.64	0.77	0.84*	0.00	0.00	0.00
47.50	0.64	0.77	0.84*	0.00	0.00	0.00
47.55	0.64	0.77	0.84*	0.00	0.00	0.00
47.60	0.64	0.77	0.84*	0.00	0.00	0.00
47.65	0.64	0.76	0.84*	0.00	0.00	0.00
47.70	0.64	0.76	0.84*	0.00	0.00	0.00
47.75	0.64	0.76	0.84*	0.00	0.00	0.00
47.80	0.64	0.76	0.84*	0.00	0.00	0.00
47.85	0.64	0.76	0.84*	0.00	0.00	0.00
47.90	0.64	0.76	0.84*	0.00	0.00	0.00
47.95	0.64	0.76	0.84*	0.00	0.00	0.00
48.00	0.64	0.76	0.84*	0.00	0.00	0.00
48.05	0.64	0.76	0.84*	0.00	0.00	0.00
48.10	0.64	0.76	0.84*	0.00	0.00	0.00
48.15	0.64	0.76	0.84*	0.00	0.00	0.00
48.20	0.64	0.76	0.84*	0.00	0.00	0.00
48.25	0.64	0.76	0.84*	0.00	0.00	0.00
48.30	0.64	0.76	0.84*	0.00	0.00	0.00
48.35	0.64	0.76	0.84*	0.00	0.00	0.00
48.40	0.64	0.76	0.84*	0.00	0.00	0.00
48.45	0.64	0.76	0.84*	0.00	0.00	0.00
48.50	0.64	0.76	0.84*	0.00	0.00	0.00
48.55	0.64	0.76	0.84*	0.00	0.00	0.00
48.60	0.64	0.76	0.84*	0.00	0.00	0.00
48.65	0.64	0.76	0.84*	0.00	0.00	0.00
48.70	0.64	0.76	0.84*	0.00	0.00	0.00
48.75	0.64	0.76	0.84*	0.00	0.00	0.00
48.80	0.64	0.76	0.84*	0.00	0.00	0.00
48.85	0.64	0.76	0.85*	0.00	0.00	0.00
48.90	0.64	0.76	0.85*	0.00	0.00	0.00
48.95	0.64	0.76	0.85*	0.00	0.00	0.00
49.00	0.64	0.76	0.85*	0.00	0.00	0.00
49.05	0.64	0.76	0.85*	0.00	0.00	0.00
49.10	0.64	0.76	0.85*	0.00	0.00	0.00
49.15	0.64	0.76	0.85*	0.00	0.00	0.00
49.20	0.64	0.75	0.85*	0.00	0.00	0.00
49.25	0.64	0.75	0.85*	0.00	0.00	0.00
49.30	0.64	0.75	0.85*	0.00	0.00	0.00
49.35	0.64	0.75	0.85*	0.00	0.00	0.00
49.40	0.64	0.75	0.85*	0.00	0.00	0.00
49.45	0.64	0.75	0.85*	0.00	0.00	0.00
49.50	0.64	0.75	0.85*	0.00	0.00	0.00
49.55	0.64	0.75	0.85*	0.00	0.00	0.00
49.60	0.64	0.75	0.85*	0.00	0.00	0.00
49.65	0.64	0.75	0.85*	0.00	0.00	0.00
49.70	0.64	0.75	0.85*	0.00	0.00	0.00
49.75	0.64	0.75	0.85*	0.00	0.00	0.00
49.80	0.64	0.75	0.85*	0.00	0.00	0.00

49.85	0.64	0.75	0.85*	0.00	0.00	0.00
49.90	0.64	0.75	0.85*	0.00	0.00	0.00
49.95	0.64	0.75	0.85*	0.00	0.00	0.00
50.00	0.64	0.75	0.85*	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)
CRRm Cyclic resistance ratio from soils
CSRsf Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat Settlement from saturated sands
S_dry Settlement from Unsaturated Sands
S_all Total Settlement from Saturated and Unsaturated Sands
NoLiq No-Liquefy Soils