DATE: January 22, 2021
TO: All Bidders
FROM: Jo Nell Miller, Purchasing Specialist
SUBJECT: Addendum 1 – Bid 618 Fire Technology Apparatus Building Phase III Fabrication, Installation and Final Utilities Connections

This addendum is hereby made part of the Contract Documents to the same extent as though it was originally included therein and takes precedence over the original documents. The outdated pages must be replaced with any updated and/or changed pages when submitting your bid. ***Acknowledge receipt of all addenda on the Bid Form****.*

The bid opening remains on **Monday, February 8, 2021**. Bids must be received no later than **3:00 p.m**. at 761 E Daily Drive, Suite 200, Camarillo, CA 93010. Properly mark the outside of the exterior envelope on your submitted bid with the Bid Number and Name according to the requirements stated in the bid packet directions.

If you choose not to participate in this particular bid, please sign the Bid Proposal stating "no bid" and email it back to me.

It is the responsibility of the Bidder to verify that their proposal has been received by the VCCCD Purchasing Department prior to the opening date. Verification of receipt can be made through the listed Purchasing Specialist.

The following information is in answer to questions that were asked at the job walk and via email request. The deadline for questions is **Thursday, January 28, 2021**. No further questions will be accepted after this date.

1. See the attached Geotechnical Report, Project No. 302245-001 Report No. 20-4-70 prepared by Earth Systems. This report shall become a part of the Contract Documents.
2. Earth Systems shall be the Testing Lab for the project, 805-642-6727.
3. The soil improvement sheets, G1-3, of the construction drawings, represent work that has already been completed under a separate contract. These sheets are a part of the Contract Drawings for reference only. See the attached Verification of Ground Improvement Report, Project No. 302245-003, Report No. 21-01-029 for the testing results of the soil improvement work. This report is supplied for reference only. This report also includes as-built information for the locations of the displacement grouted columns. It is the contractor's responsibility to confirm these locations in the field.

4. See the attached Sheet C-17713 "Water Improvement Plan" for clarification of the domestic and irrigation water services Phase II work that is already completed and the Phase III work that shall be a part of the scope of this contract.
5. Sheet A6.4, Specification Section 13121 Pre-Engineered Building Components, Paragraph 2.1.A: Requests for substitutions shall be per Section 00100 Instructions to Bidders, Paragraph 1.10 of the Bid 618 bid Packet.
6. See attached DSA-approved Form 103-19 for the DSA required listing of structural tests and special inspections for the project. All required testing will be provided by the District, however the contractor shall coordinate with the DSA inspector for all required inspections. Inspector shall be given 48 hours notice for all required inspections. Items 4.a., 4.b., 4.c., 6.a., and 6.b. of the Form 103 have been previously completed.
7. Bryan Reeve of BR & Associates will be the District-provided DSA Inspector of Record.
8. Sheet E2.2: The retractable drop cord reels shall be provided by the Owner. The receptacles, noted for the reels, shall be provided by the Contractor.

End of Section

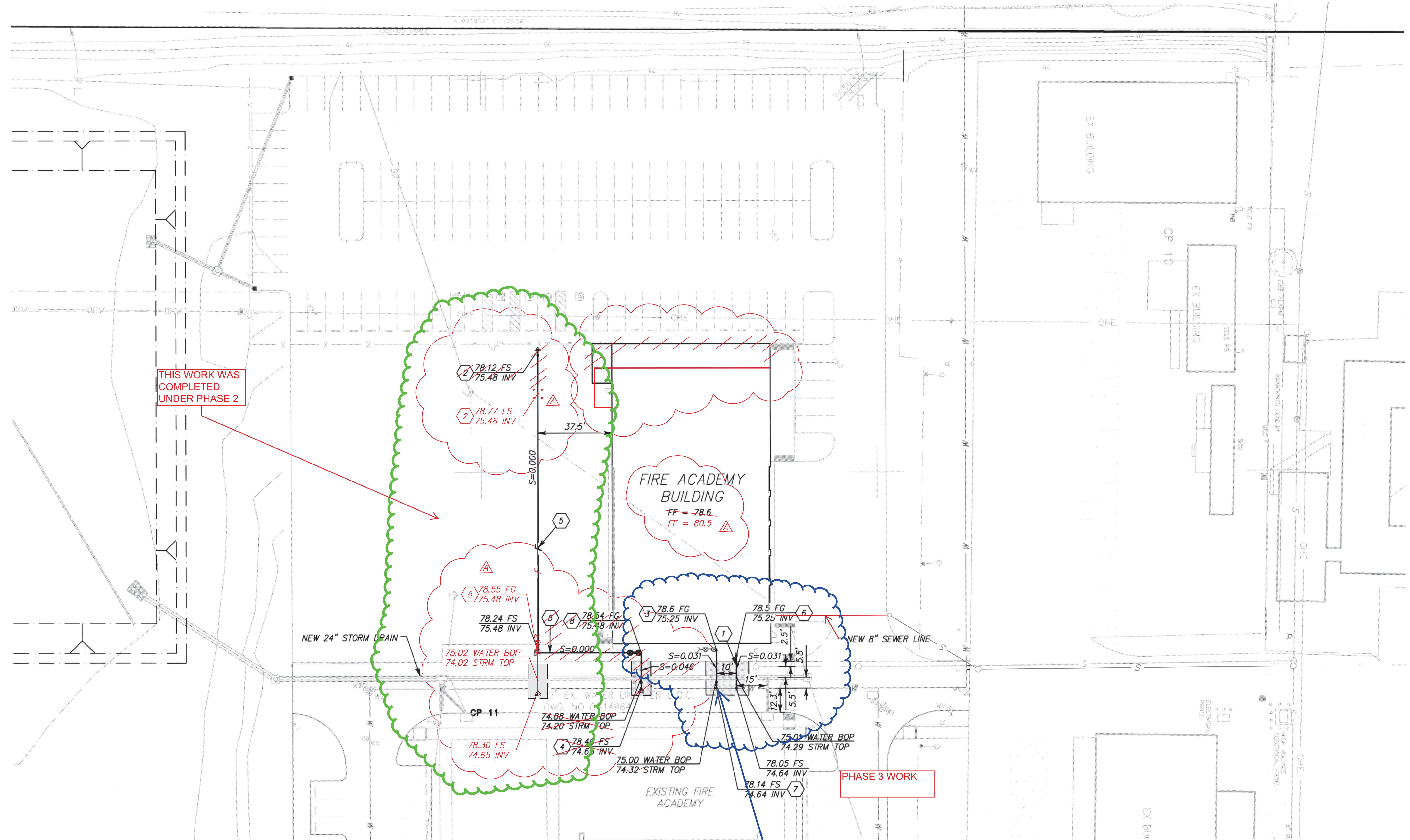
WATER GENERAL NOTES:

CITY OF CAMARILLO WATER DIVISION
283 SOUTH GLENN DRIVE – P.O. BOX 248
CAMARILLO, CALIFORNIA 93010 (805) 388-5373

1. ALL WATER FACILITY INSTALLATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF CAMARILLO WATER DIVISION MANUAL OF DESIGN AND CONSTRUCTION STANDARDS.
2. ALL STANDARD PLATES REFER TO CITY OF CAMARILLO MANUAL OF DESIGN AND CONSTRUCTION STANDARDS FOR THE WATER DIVISION.
3. CONTRACTOR SHALL NOTIFY WATER DIVISION AND ARRANGE FOR PRE-CONSTRUCTION CONFERENCES 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
4. CONTRACTOR SHALL NOTIFY THE WATER DIVISION 24 HOURS PRIOR TO ANY REQUIRED CONSTRUCTION SPECIAL INSPECTIONS.
5. STATIONING AS SHOWN IS ON THE CENTERLINE OF THE STREET UNLESS OTHERWISE NOTED.
6. ALL PAVEMENT REMOVALS SHALL BE SAW CUT TO A NEAT VERTICAL LINE AS DIRECTED BY THE ENGINEER.
7. SEPARATION OF WATER AND SEWER LINES SHALL BE IN ACCORDANCE WITH VENTURA COUNTY ORDINANCE AS ADOPTED BY THE CITY OF CAMARILLO COUNCIL AND DRAWING NO. W-2.
8. FOR SEPARATION OF ALL CROSSING OF SEWER AND WATER MAINS, SEE SEWER PLANS FOR LOCATION.
9. WATER LATERALS SHALL BE PLACED 5 FEET UPSTREAM OF THE CENTERLINE OF EACH LOT WITH A MINIMUM CLEARANCE OF 10 FEET FROM THE SEWER LATERALS IN EVERY CASE, UNLESS SHOWN OTHERWISE.
10. WATER MAIN CROSSING BELOW STORM DRAINS SHALL BE IN ACCORDANCE WITH CITY OF CAMARILLO WATER DIVISION DRAWING NO. W-45 OR DRAWING NO. W-46 OR AS APPROVED BY CITY ENGINEER.
11. MINIMUM COVER OF 42" SHALL BE MAINTAINED FOR ALL MAIN LINES UNLESS OTHERWISE SPECIFIED ON APPROVED PLANS.
12. ALL WATER METERS, APPURTENANCES AND FIRE HYDRANTS SHALL BE CONSTRUCTED PER STANDARD DRAWING NO. W-3 THROUGH W-31. WATER METER AND FIRE HYDRANTS SHALL BE PLACED PER STANDARD DRAWING W-7, W-8, W-11, W-12 AND W-13.
13. THRUST BLOCKS SHALL BE INSTALLED FOR ALL WATER SERVICE FITTINGS IN ACCORDANCE WITH PLATES W-3, W-4, W-7, W-18, W-26, W-38, W-47 THROUGH W-50, AND SIZED AS SPECIFIED BY THE DESIGN ENGINEER.
14. SERVICE LATERALS SHALL BE A MINIMUM OF 1" PER DRAWING No. W-11.
15. MINIMUM COVER OF 30" SHALL BE MAINTAINED FOR ALL SERVICE CONNECTIONS.
16. ALL SADDLES WILL BE DOUBLE-STRAPPED (BRONZE) FORD MODEL 202BS OR EQUAL.
17. LOCATIONS OF ALL WATER SERVICES SHALL BE MARKED ON FACE OF CURB WITH THE LETTER "W" INSCRIBED 3" HIGH AND 3/16" DEEP IN A UNIFORM AND NEAT MANNER.
18. ALL WATER LINES SHALL BE STUBBED OUT TO PROPERTY LINES PRIOR TO THE INSTALLATION OF CURBS, GUTTERS OR SIDEWALKS.
19. BACKFILL SHALL BE GOVERNED BY SECTION 306.1.3.3 OF THE 2006 STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION. COMPACTION WORK SHALL NOT DISTURB ADJACENT STREET STRUCTURAL SECTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES.
20. ALL VALVES SHALL BE STACKED WITH 8" OF NON-CORROSIVE MATERIALS AND TOPPED WITH A BRIGHAM MARK 5 VALVE BOX MARKED "WATER."
21. APPROVAL OF BACTERIOLOGICAL SAMPLES MUST BE OBTAINED PRIOR TO TYING INTO THE EXISTING WATER SYSTEM. EACH BACTERIOLOGICAL TEST REQUIRES A MINIMUM OF 48 HOURS.
22. ALL WATER LINES SHALL BE CHLORINATED AND PRESSURE TESTED TO MEET WATER DIVISION REQUIREMENTS AS FAR AS LEAKAGE PRIOR TO TYING INTO EXISTING SYSTEM.
23. NEW WATER MAINS WILL BE CHLORINATED AFTER THE LINE HAS BEEN THOROUGHLY FLUSHED. NO CONNECTION SHALL BE MADE TO THE EXISTING WATER MAIN UNTIL THE NEW PIPE HAS BEEN SUCCESSFULLY PRESSURE TESTED, CHLORINATED, FLUSHED (TO REDUCE CHLORINE TO SYSTEM RESIDUAL), AND PASSED COLIFORM BACTERIA EXAMINATION.
24. WATER SYSTEM SHALL BE FLUSHED UNDER THE DIRECTION OF THE WATER INSPECTOR AND SHALL NOT BE LEFT UNATTENDED DURING FLUSHING OPERATIONS.
25. THE HYDROSTATIC PRESSURE TEST WILL BE 225 psi BETWEEN VALVES FOR 1 HOUR AND LEAKAGE TEST WILL BE 150 psi FOR 4 HOURS.
26. CONTRACTOR SHALL KEEP A STRICT RECORD OF ALL VALVES, TEES AND LATERAL STUBS TO BE SUBMITTED TO THE ENGINEER TO PREPARE "AS BUILT" PLANS PRIOR TO FINAL ACCEPTANCE OF IMPROVEMENTS.
27. POT HOLE (EXPOSE) PIPING AT ALL JOINT POINTS WITH EXISTING, TO VERIFY LOCATION AND ALIGNMENT BOTH VERTICAL AND HORIZONTAL PRIOR TO JOINING WITH EXISTING WATER.
28. BEDDING SHALL BE GOVERNED BY STANDARD SECTION 306-1.2.1 OF THE 1997 STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTIONS AND SHALL BE FREE DRAINING GRANULAR MATERIAL HAVING A SAND EQUIVALENT OF OR NOT LESS THAN 30.
29. ALL GATE VALVES TO BE RESILIENT SEATED (RW) TYPE CONSTRUCTION AND SHALL MEET THE REQUIREMENTS OF THE CITY OF CAMARILLO; ACCEPTABLE GATE VALVES ARE: AMERICAN FLOW CONTROL, CLOW, AVK, AND THOSE WHICH ARE EQUAL, HAVE FULL SIZE UNOBSTRUCTED WATER WAY AND THE VALVE GATE IS FULLY ENCAPSULATED WITH RUBBER.
30. FITTING SHALL MEET THE REQUIREMENT OF AWWA C-110/A21.10; CEMENT MORTAR LINING BE IN ACCORDANCE WITH AWWA C104/A21.4.
31. <u>WATER MAIN LOCATION IN ROAD OR STREET:</u> THE CENTERLINE OF THE WATER MAIN SHALL BE LOCATED IN PUBLIC STREETS PARALLEL TO AND 5 FEET NORTH OR WEST OF THE STREET CENTERLINE.
32. <u>LOCATION WIRE:</u> INSTALL AN 8-GAUGE INSULATED LOCATION WIRE AFFIXED TO THE TOP OF THE NONMETALLIC WATER PIPE PER DRAWING No. W-38.
33. <u>UNDERGROUND PIPES AND UTILITIES:</u> SHOW AND LABEL ON THE PLANS AND PROFILE THE SIZE AND OWNERSHIP OF ALL EXISTING UNDERGROUND UTILITIES THAT CROSS OR PARALLEL THE WATER MAIN. NON-EXISTING BUT PLANNED IMPROVEMENTS FOR UNDERGROUND UTILITIES SHALL ALSO BE SHOWN. ANY PIPE LINE WHICH CROSSES THE WATER MAIN AND ESPECIALLY WATER, SEWER, STORM DRAINS, OPEN CHANNEL, GAS, TELEPHONE, POWER, TELEVISION AND OIL LINES SHALL BE SHOWN AND LABELED ON THE PROFILE WITH STATION AND ELEVATION. CONTRACTOR SHALL CONTACT UTILITIES FOR EXACT LOCATION OF EXISTING UTILITIES.
34. PVC WATER PIPE SIZE 4" SHALL BE C-900 CL200 6" TO 12" PIPE SHALL BE C-900, CL-150 OR CL-200. SIZES 14" PIPE AND LARGER SHALL BE C-905, DR-18 OR CL-235.
35. IN CASES WHERE THE WATER MAIN PRESSURE IS BETWEEN 80 psi AND 130 psi, INDIVIDUAL PRESSURE REGULATORS ARE REQUIRED ON THE CUSTOMER SIDE OF THE WATER METER CONNECTION TO MAINTAIN 80 psi MAXIMUM PRESSURE PER CAMARILLO ORDINANCE NO. 361.
36. ALL EXISTING WATER MAINS WHICH ARE TO BE ABANDONED SHALL BE CUT AND THE END PLUGGED WITH CONCRETE. THE ABANDONED VALVES AND FITTINGS ARE TO BE REMOVED, SALVAGED AND DELIVERED TO THE CAMARILLO WATER DIVISION LOCATED AT THE CORPORATE YARD, 283 S. GLENN DRIVE.
37. BACTERIA SAMPLES TO BE TAKEN BY CITY OF CAMARILLO AND PAID FOR BY CONTRACTOR.
38. ALL METER BOXES AND AIR-VAC CANS TO BE ARMORCAST.

STANDARD PLANS REFERENCED:

CAMARILLO STANDARD DRAWING W-7
CAMARILLO STANDARD DRAWING W-11
CAMARILLO STANDARD DRAWING W-26
CAMARILLO STANDARD DRAWING W-33
CAMARILLO STANDARD DRAWING W-48
CAMARILLO STANDARD DRAWING W-58
CAMARILLO STANDARD DRAWING E-10.1



CONSTRUCTION NOTES:

1. INSTALL 1" MUNICIPEX WITH TRENCH WIDTH AND BEDDING DETAIL PER C.O.C. WATER DIVISION STD. DWG. NO. W-33 AND W-58. (L = ±16 FT)
2. INSTALL FIRE HYDRANT ASSEMBLY PER CITY OF CAMARILLO STANDARD PLATE W-7. TRENCH AND BACKFILL PER CITY OF CAMARILLO PLATE E-10.1.
3. INSTALL ~~3"~~ 4" AMES (COLT 300 OR APPROVED EQUAL) DOUBLE CHECK VALVE BACK FLOW PREVENTER WITH FDC PER CITY OF CAMARILLO STANDARD PLATE W-26. (L = ±19 FT) A
4. INSTALL THRUST BLOCK, WATER VALVE, AND 12" X 6" PVC TEE PER CITY OF CAMARILLO STANDARD PLATE W-36 AND W-48.
5. INSTALL 6" PVC PIPE C900 CLASS 150 WITH TRENCH WIDTH AND BEDDING DETAIL PER C.O.C. WATER DIVISION STD. DWG. NO. W-33 AND W-58. (L = ±170 FT)
6. INSTALL 1" WATER METER PER C.O.C DWG. NO. W-11.
7. INSTALL 4" PVC PIPE C900 CLASS 150, WATER VALVE, AND 4" X 3" C900 90° REDUCER ABOVE GROUND WITH TRENCH WIDTH AND BEDDING DETAIL PER C.O.C. WATER DIVISION STD. DWG. NO. W-33, W-36, AND W-58.
8. INSTALL 6" AMES (COLT 300 OR APPROVED EQUAL) DOUBLE CHECK VALVE BACK FLOW PREVENTER WITH FDC PER CITY OF CAMARILLO STANDARD PLATE W-26. (L = ±19 FT).

Note: Hot taps to existing main have been performed. Contractor to install service line from tap, to Backflow/Meter, BFP and Meter. Contractor shall contact City of Camarillo Water Department for required coordination.

BENCH MARK DATA:

COUNTY OF VENTURA VCPID 537 DESIGNATION 21-236 FROM NAVD 88 AT AN ELEVATION OF 20.869 METERS LOCATED 0.9 MILE EASTERLY ALONG PLEASANT VALLEY ROAD FROM ITS INTERSECTION WITH WOOD ROAD, AT THE NORTHEASTERLY CORNER OF THE INTERSECTION OF PLEASANT VALLEY ROAD AND EUBANKS STREET AT AN ENTRANCE TO CAMARILLO AIRPORT, 53.3 FEET NORTHERLY FROM THE CENTER OF PLEASANT VALLEY ROAD, 37.0 FEET EASTERLY FROM THE CENTER OF EUBANKS STREET, 4.0 FEET EASTERLY FROM A CORNER OF A CHAIN LINK FENCE, 1.0 FOOT SOUTHERLY FROM A CORNER OF A CHAIN LINK FENCE, 1.0 FOOT SOUTHERLY FROM A STEEL GUARD POST

30' 15' 0' 30' 60'
GRAPHIC SCALE: 1"=30'

DIGALERT
DIAL TOLL FREE 811 AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT(USA) OF SOUTHERN CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER FREDERICK T. GIROUX No. C 057289 Exp. 12-31-21 CIVIL STATE OF CALIFORNIA

PLAN CHECK CONSULTANT
WILLDAN Engineering
374 POLI STREET, SUITE 101 VENTURA, CALIFORNIA 93001 (805) 653-6597

PREPARED BY:
JENSEN DESIGN & SURVEY, INC
www.jdscivil.com
1672 DONLON STREET
VENTURA, CALIF. 93003
PHONE 805/654-6977
FAX 805/654-6979
FREDERICK T. GIROUX RCE 057289 (EXP 12-31-21) 1/30/2020 DATE

REVIEWED BY:
N/A
TRAFFIC ENGINEER DATE

REVIEWED:
N/A
DIRECTOR, COMMUNITY DEVELOPMENT DATE

REVIEWED:
N/A
STORMWATER PROGRAM MANAGER DATE

REVIEWED:
2/12/20
WATER SUPERINTENDENT DATE
N/A
WATER RECLAMATION SUPERINTENDENT DATE
N/A
PUBLIC WORKS MAINTENANCE SUPERINTENDENT DATE

REV.	DESCRIPTION	APP'D	DATE
A	REVISED FIRE LINE/HYD & BLDG		

DEPARTMENT OF PUBLIC WORKS
CITY OF CAMARILLO

WATER IMPROVEMENT PLAN
VCCCD OXNARD FIRE ACADEMY
CAMARILLO AIRPORT 104 DURLEY AVE
CAMARILLO, CA
EP # 19-247

DRN BY: | DES BY: FTG | CK'D BY: FTG

APPROVED:
2/12/2020
CITY ENGINEER DATE
DEPARTMENT OF PUBLIC WORKS
RCE 50878 EXPIRES: 9/30/2021

RECOMMENDED BY:
SPEC. NUMBER | PROJ. NUMBER
IMP. SHEET 9 OF 13 | SHEET 1 OF 1 | C- 17713

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Jan 30, 2020
UTILITY PLAN

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS, 2019 CBC

Application Number:	**School Name:**	**School District:**
03-120764	Oxnard College	Ventura County Community College District
DSA File Number:	**Increment Number:**	**Date Created:**
56-C1	1	2020-10-14 16:42:38

2019 CBC

IMPORTANT: This form is only a summary list of structural tests and some of the special inspections required for the project. Generally, the structural tests and special inspections noted on this form are those that will be performed by the Geotechnical Engineer of Record, Laboratory of Record, or Special Inspector. The actual complete test and inspection program must be performed as detailed on the DSA approved documents. The appendix at the bottom of this form identifies work NOT subject to DSA requirements for special inspection or structural testing. The project inspector is responsible for providing inspection of all facets of construction, including but not limited to, special inspections not listed on this form such as structural wood framing, high-load wood diaphragms, cold-formed steel framing, anchorage of non-structural components, etc., per Title 24, Part 2, Chapter 17A (2019 CBC).

****NOTE:** Undefined section and table references found in this document are from the CBC, or California Building Code.

KEY TO COLUMNS

1. TYPE	2. PERFORMED BY
Continuous – Indicates that a continuous special inspection is required **Periodic** – Indicates that a periodic special inspection is required **Test** – Indicates that a test is required	**GE** – Indicates that the special inspection shall be performed by a registered geotechnical engineer or his or her authorized representative. **LOR** – Indicates that the test or special inspection shall be performed by a testing laboratory accepted in the DSA Laboratory Evaluation and Acceptance (LEA) Program. See CAC Section 4-335. **PI –** Indicates that the special inspection may be performed by a project inspector when specifically approved by DSA. **SI** – Indicates that the special inspection shall be performed by an appropriately qualified/approved special inspector.

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS (SOILS), 2019 CBC

Application Number: 03-120764	**School Name:** Oxnard College	**School District:** Ventura County Community College District
DSA File Number: 56-C1	**Increment Number:** 1	**Date Created:** 2020-10-14 16:42:38

Geotechnical Reports: Project has a geotechnical report, or CDs indicate soils special inspection is required by GE

	1. GENERAL:	**Table 1705A.6**		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Verify that: • Site has been prepared properly prior to placement of controlled fill and/or excavations for foundations. • Foundation excavations are extended to proper depth and have reached proper material. • Materials below footings are adequate to achieve the design bearing capacity.	**Periodic**	**GE***	* By geotechnical engineer or his or her qualified representative. (See Appendix for exemptions.)

	2. SOIL COMPACTION AND FILL:	**Table 1705A.6**		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Perform classification and testing of fill materials.	**Test**	**LOR***	* Under the supervision of the geotechnical engineer.
☑	**b.** Verify use of proper materials, densities and inspect lift thicknesses, placement and compaction during placement of fill.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative. (Refer to specific items identified in the Appendix for exemptions where soils SI and testing may be conducted under the supervision of a geotechnical engineer or LOR's engineering manager. In such cases, the LOR's form DSA 291 shall satisfy the soil SI and test reporting requirements for the exempt items.)

☑	**c.** Compaction testing.	**Test**	**LOR***	* Under the supervision of the geotechnical engineer. (Refer to specific items identified in the Appendix for exemptions where soils testing may be conducted under the supervision of a geotechnical engineer or LOR's engineering manager. In such cases, the LOR's form DSA 291 shall satisfy the soil test reporting requirements for the exempt items.)

	3. DRIVEN DEEP FOUNDATIONS (PILES):	**Table 1705A.7**		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Verify pile materials, sizes and lengths comply with the requirements.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**b.** Determine capacities of test piles and conduct additional load tests as required.	**Test**	**LOR***	* Under the supervision of the geotechnical engineer.
☐	**c.** Inspect driving operations and maintain complete and accurate records for each pile.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**d.** Verify locations of piles and their plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and record any pile damage.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**e.** Steel piles.	Provide tests and inspections per STEEL section below.		
☐	**f.** Concrete piles and concrete filled piles.	Provide tests and inspections per CONCRETE section below.		

☐	**g.** For specialty piles, perform additional inspections as determined by the registered design professional in responsible charge.	*	*	* As defined on drawings or specifications.

	4. CAST-IN-PLACE DEEP FOUNDATIONS (PIERS):	**Table 1705A.8**		
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Inspect drilling operations and maintain complete and accurate records for each pier.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative. (See Appendix for exemptions.)
☑	**b.** Verify pier locations, diameters, plumbness, bell diameters (if applicable), lengths and embedment into bedrock (if applicable); record concrete or grout volumes.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative. (See Appendix for exemptions.)
☐	**c.** Confirm adequate end strata bearing capacity.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative. (See Appendix for exemptions.)
☑	**d.** Concrete piers.	Provide tests and inspections per CONCRETE section below.		

	5. RETAINING WALLS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Placement, compaction and inspection of backfill.	**Continuous**	**GE***	**1705A.6.1.** * By geotechnical engineer or his or her qualified representative. (See Section 2 above).

☐	**b.** Placement of soil reinforcement and/or drainage devices.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**c.** Segmental retaining walls; inspect placement of units, dowels, connectors, etc.	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative. See DSA IR 16-3.
☐	**d.** Concrete retaining walls.	Provide tests and inspections per CONCRETE section below.		
☐	**e.** Masonry retaining walls.	Provide tests and inspections per MASONRY section below.		

	6. OTHER SOILS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Soil Improvements	**Test**	**GE***	Submit a comprehensive report documenting final soil improvements constructed, construction observation and the results of the confirmation testing and analysis to CGS for final acceptance. * By geotechnical engineer or his or her qualified representative.
☑	**b.** Inspection of Soil Improvements	**Continuous**	**GE***	* By geotechnical engineer or his or her qualified representative.
☐	**c.**			

Application Number:	**School Name:**	**School District:**
03-120764	Oxnard College	Ventura County Community College District
DSA File Number:	**Increment Number:**	**Date Created:**
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	7. CAST-IN-PLACE CONCRETE			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
Material Verification and Testing:				
☑	**a.** Verify use of required design mix.	**Periodic**	**SI**	**Table 1705A.3 Item 5, 1910A.1.**
☑	**b.** Identifiy, sample, and test reinforcing steel.	**Test**	**LOR**	**1910A.2;** ACI 318-14 Section 26.6.1.2; DSA IR 17-10. (See Appendix for exemptions.)
☑	**c.** During concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	**Test**	**LOR**	**Table 1705A.3 Item 6**; ACI 318-14 Sections 26.5 & 26.12.
☑	**d.** Test concrete (f'_c).	**Test**	**LOR**	**1905A.1.15;** ACI 318-14 Section 26.12.
Inspection:				
☑	**e.** Batch plant inspection:	**See Notes**	**SI**	Default of **'Continuous'** per **1705A.3.3**. If approved by DSA, batch plant inspection may be reduced to **'Periodic'** subject to requirements in Section **1705A.3.3.1,** or eliminated per **1705A.3.3.2.** (See Appendix for exemptions.)
☑	**f.** Welding of reinforcing steel.	Provide special inspection per STEEL, Category 19.1(d) & (e) and/or 19.2(g) & (h) below.		

	8. PRESTRESSED / POST-TENSIONED CONCRETE (in addition to Cast-in-Place Concrete tests and inspections):

Application Number:	**School Name:**	**School District:**
03-120764	Oxnard College	Ventura County Community College District
DSA File Number:	**Increment Number:**	**Date Created:**
56-C1	1	2020-10-14 16:42:38

	Test or Special Inspection	Type	Performed By	Code References and Notes
☐	**a.** Sample and test prestressing tendons and anchorages.	**Test**	**LOR**	**1705A.3.4, 1910A.3**
☐	**b.** Inspect placement of prestressing tendons.	**Periodic**	**SI**	**1705A.3.4, Table 1705A.3 Items 1 & 9.**
☐	**c.** Verify in-situ concrete strength prior to stressing of post-tensioning tendons.	**Periodic**	**SI**	**Table 1705A.3 Item 11.** Special inspector to verify specified concrete strength test prior to stressing.
☐	**d.** Inspect application of post-tensioning or prestressing forces and grouting of bonded prestressing tendons.	**Continuous**	**SI**	**1705A.3.4, Table 1705A.3 Item 9;** ACI 318-14 Section 26.13

	9. PRECAST CONCRETE (in addition to Cast-in-Place Concrete tests and inspections):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Inspect fabrication of precast concrete members.	**Continuous**	**SI**	ACI 318-14 Section 26.13.
☐	**b.** Inspect erection of precast concrete members.	**Periodic**	**SI***	**Table 1705A.3 Item 10.** * May be performed by PI when specifically approved by DSA.

	10. SHOTCRETE (in addition to Cast-in-Place Concrete tests and inspections):			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**

☐	**a.** Inspect shotcrete placement for proper application techniques.	**Continuous**	**SI**	**1705A.19, Table 1705A.3 Item 7, 1908A.6, 1908A.7, 1908A.8, 1908A.9, 1908A.11, 1908A.12.** See ACI 506.2-13 Section 3.4, ACI 506R-16.
☐	**b.** Sample and test shotcrete (f'_c).	**Test**	**LOR**	**1908A.5, 1908A.10.**

	11. POST-INSTALLED ANCHORS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Inspect installation of post-installed anchors	**See Notes**	**SI***	**1617A.1.19, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic), 1705A.3.8** (See Appendix for exemptions). ACI 318-14 Sections 17.8 & 26.13. * May be performed by the project inspector when specifically approved by DSA.
☑	**b.** Test post-installed anchors.	**Test**	**LOR**	**1910A.5.** (See Appendix for exemptions.)

	12. OTHER CONCRETE:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.**			

	17. STRUCTURAL STEEL, COLD-FORMED STEEL AND ALUMINUM USED FOR STRUCTURAL PURPOSES			
Material Verification and Testing:				
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Verify identification of all materials and: • Mill certificates indicate material properties that comply with requirements. • Material sizes, types and grades comply with requirements.	**Periodic**	*	**Table 1705A.2.1 Item 3a–3c.** 2202A.1; AISI S100-16 Section A3.1 & A3.2, AISI S240-15 Section A3 & A5, AISI S220-15 Sections A4 & A6. * By special inspector or qualified technician when performed off-site.
☑	**b.** Test unidentified materials	**Test**	**LOR**	**2202A.1.**
☐	**c.** Examine seam welds of HSS shapes	**Periodic**	**SI**	DSA IR 17-3.
Inspection:				
☑	**d.** Verify and document steel fabrication per DSA-approved construction documents.	**Periodic**	**SI**	Not applicable to cold-formed steel light-frame construction, except for trusses (**1705A.2.4**).

	18. HIGH-STRENGTH BOLTS: RCSC 2014			
Material Verification and Testing of High-Strength Bolts, Nuts and Washers:				
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Verify identification markings and manufacturer's certificates of compliance conform to ASTM standards specified in the DSA-approved documents.	**Periodic**	**SI**	**Table 1705A.2.1 Items 1a & 1b, 2202A.1;** AISC 360-16 Section A3.3, J3.1, and N3.2; RCSC 2014 Section 1.5 & 2.1; DSA IR 17-8 & DSA IR 17-9.

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☑	**b.** Test high-strength bolts, nuts and washers.	**Test**	**LOR**	**Table 1705A.2.1 Item 1c, 2213A.1**; RCSC 2014 Section 7.2; DSA IR 17-8.
Inspection of High-Strength Bolt Installation:				
☑	**c.** Bearing-type (“snug tight”) connections.	**Periodic**	**SI**	**Table 1705A.2.1 Item 2a, 1705A.2.6, 2204A.2**; AISC 360-16 J3.1, J3.2, M2.5 & N5.6; RCSC 2014 Section 9.1; DSA IR 17-9.
☑	**d.** Pretensioned and slip-critical connections.	*	**SI**	**Table 1705A.2.1 Items 2b & 2c, 1705A.2.6, 2204A.2;** AISC 360-16 J3.1, J3.2, M2.5 & N5.6; RCSC 2014 Sections 9.2 & 9.3; DSA IR 17-9. * “Continuous” or “Periodic” depends on the tightening method used.

	19. WELDING:	**1705A.2.5, Table 1705A.2.1 Items 4 & 5;** AWS D1.1 and AWS D1.8 for structural steel; AWS D1.2 for Aluminum; AWS D1.3 for cold-formed steel; AWS D1.4 for reinforcing steel; DSA IR 17-3 (See Appendix for exemptions.)		
Verification of Materials, Equipment, Welders, etc.:				
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Verify weld filler material identification markings per AWS designation listed on the DSA-approved documents and the WPS.	**Periodic**	**SI**	DSA IR 17-3.
☑	**b.** Verify weld filler material manufacturer’s certificate of compliance.	**Periodic**	**SI**	DSA IR 17-3.
☑	**c.** Verify WPS, welder qualifications and equipment.	**Periodic**	**SI**	DSA IR 17-3.

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	19.1 SHOP WELDING:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Inspect groove welds, multi-pass fillet welds, single pass fillet welds > 5/16", plug and slot welds.	**Continuous**	**SI**	**Table 1705A.2.1 Items 5a.1–4;** AISC 360-16 (and AISC 341-16 as applicable); DSA IR 17-3.
☑	**b.** Inspect single-pass fillet welds ≤ 5/16”, floor and roof deck welds.	**Periodic**	**SI**	**1705A.2.2, Table 1705A.2.1 Items 5a.5 & 5a.6;** AISC 360-16 (and AISC 341-16 as applicable); DSA IR 17-3.
☐	**c.** Inspect welding of stairs and railing systems.	**Periodic**	**SI**	**1705A.2.1**; AISC 360-16 (and AISC 341-16 as applicable); AWS D1.1 & D1.3; DSA IR 17-3.
☑	**d.** Verification of reinforcing steel weldability other than ASTM A706.	**Periodic**	**SI**	**1705A.3.1**; AWS D1.4; DSA IR 17-3. Verify carbon equivalent reported on mill certificates.
☐	**e.** Inspect welding of reinforcing steel.	**Continuous**	**SI**	**Table 1705A.2.1 Item 5b, 1705A.3.1, Table 1705A.3 Item 2, 1903A.8;** AWS D1.4; DSA IR 17-3.

	19.2 FIELD WELDING:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Inspect groove welds, multi-pass fillet welds, single pass fillet welds > 5/16", plug and slot welds.	**Continuous**	**SI**	**Table 1705A.2.1 Items 5a.1–4;** AISC 360-16 (AISC 341-16 as applicable); DSA IR 17-3.
☑	**b.** Inspect single-pass fillet welds ≤ 5/16”.	**Periodic**	**SI**	**Table 1705A.2.1 Item 5a.5;** AISC 360-16 (AISC 341-16 as applicable); DSA IR 17-3.

☐	**c.** Inspect end-welded studs (ASTM A-108) installation (including bend test).	**Periodic**	**SI**	**2213A.2**; AISC 360-16 (AISC 341-16 as applicable); AWS D1.1; DSA IR 17-3.
☐	**d.** Inspect floor and roof deck welds.	**Periodic**	**SI**	**1705A.2.2, Table 1705A.2.1 Item 5a.6;** AISC 360-16 (AISC 341-16 as applicable); AWS D1.3; DSA IR 17-3.
☐	**e.** Inspect welding of structural cold-formed steel.	**Periodic**	**SI***	**1705A.2.5; AWS D1.3; DSA IR 17-3.** The quality control provisions of AISI S240-15 Chapter D shall also apply. * May be performed by the project inspector when specifically approved by DSA.
☑	**f.** Inspect welding of stairs and railing systems.	**Periodic**	**SI***	**1705A.2.1;** AISC 360-16 (AISC 341-16 as applicable); AWS D1.1 & D1.3; DSA IR 17-3. * May be performed by the project inspector when specifically approved by DSA.
☑	**g.** Verification of reinforcing steel weldability.	**Periodic**	**SI**	**1705A.3.1**; AWS D1.4; DSA IR 17-3. Verify carbon equivalent reported on mill certificates.
☑	**h.** Inspect welding of reinforcing steel.	**Continuous**	**SI**	**Table 1705A.2.1 Item 5b, 1705A.3.1, Table 1705A.3 Item 2, 1903A.8;** AWS D1.4; DSA IR 17-3.

	20. NONDESTRUCTIVE TESTING: **1705A.2.1, Table 1705A.2.1; AISC 303-16, AISC 341-16, AISC 358-16, AISC 360-16; AISI S100-16**			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Ultrasonic	**Test**	**LOR**	**1705A.2.1, 1705A.2.5;** AISC 341-16 J6.2, AISC 360-16 N5.5; ANSI/ASNT CP-189, SNT-TC-1A; AWS D1.1, AWS D1.8; DSA IR 17-2.

☑	**b.** Magnetic Particle	**Test**	**LOR**	**1705A.2.1, 1705A.2.5;** AISC 341-16 J6.2, AISC 360-16 N5.5; ANSI/ ASNT CP-189, SNT-TC-1A; AWS D1.1, AWS D1.8; DSA IR 17-2.
☐	**c.**	**Test**	**LOR**	

	21. STEEL JOISTS AND TRUSSES: 1705A.2.1, Table 1705A.2.1; AISC 303-16, AISC 341-16, AISC 358-16, AISC 360-16; AISI S100-16			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Verify size, type and grade for all chord and web members as well as connectors and weld filler material; verify joist profile, dimensions and camber (if applicable); verify all weld locations, lengths and profiles; mark or tag each joist.	**Continuous**	**SI**	**1705A.2.3, Table 1705A.2.3;** AWS D1.1; DSA IR 22-3 for steel joists only. **1705A.2.4;** AWS D1.3 for cold-formed steel trusses.

	22. SPRAY APPLIED FIRE-PROOFING: 1705A.2.1, Table 1705A.2.1; AISC 303-16, AISC 341-16, AISC 358-16, AISC 360-16; AISI S100-16			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☐	**a.** Examine structural steel surface conditions, inspect application, take samples, measure thickness and verify compliance of all aspects of application with DSA-approved documents.	**Periodic**	**SI**	**1705A.14.**
☐	**b.** Test bond strength.	**Test**	**LOR**	**1705A.14.6.**

☐	**c.** Test density.	**Test**	**LOR**	**1705A.14.5.**

	23. ANCHOR BOLTS AND ANCHOR RODS:			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Anchor Bolts and Anchor Rods	**Test**	**LOR**	Sample and test anchor bolts and anchor rods not readily identifiable per procedures noted in DSA IR 17-11.
☐	**b.** Threaded rod not used for foundation anchorage.	**Test**	**LOR**	Sample and test threaded rods not readily identifiable per procedures noted in DSA IR 17-11.

	Other Steel			
	Test or Special Inspection	**Type**	**Performed By**	**Code References and Notes**
☑	**a.** Tapered steel girder			

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Exempt items given in DSA IR A-22 or the 2019 CBC (including DSA amendments) and those items identified below with a check mark by the design professional are NOT subject to DSA requirements for the structural tests / special inspections noted. **Items marked as exempt shall be identified on the approved construction documents**. The project inspector shall verify all construction complies with the approved construction documents.

	SOILS:
☐	1. Deep foundations acting as a cantilever footing designed based on minimum allowable pressures per CBC Table 1806A.2 and having no geotechnical report for the following cases: A) free standing sign or scoreboard, B) cell or antenna towers and poles less than 35'-0" tall (e.g., lighting poles, flag poles, poles supporting open mesh fences, etc.), C) single-story structure with dead load less than 5 psf (e.g., open fabric shade structure), or D) covered walkway structure with an apex height less than 10'-0" above adjacent grade.
☐	2. Shallow foundations, etc. are exempt from special inspections and testing by a Geotechnical Engineer for the following cases: A) buildings without a geotechnical report and meeting the exception item #1 criteria in CBC Section 1803A.2 supported by native soil (any excavation depth) or fill soil (not exceeding 12" depth per CBC Section 1804A.6), B) soil scarification/recompaction not exceeding 12" depth, C) native or fill soil supporting exterior non-structural flatwork (e.g., sidewalks, site concrete ramps, site stairs, parking lots, driveways, etc.), D) unpaved landscaping and playground areas, or E) utility trench backfill.

	CONCRETE/MASONRY:
☐	1. Post-installed anchors for the following: A) exempt non-structural components (e.g., mechanical, electrical, plumbing equipment - see item 7 for "Welding") given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) or B) interior nonstructural wall partitions meeting criteria listed in exempt item 3 for "Welding."
☐	2. Concrete batch plant inspection is not required for items given in CBC Section 1705A.3.3.2 subject to the requirements and limitations in that section.

☐	3. Non-bearing non-shear masonry walls may be exempt from certain DSA masonry testing and special inspection items as allowed per DSA IR 21-1.16. Refer to construction documents for specific exemptions accordingly for each applicable wall condition.
☐	4. Epoxy shear dowels in site flatwork and/or other non-structural concrete.
☐	5. Testing of reinforcing bars is not required for items given in CBC Section 1910A.2 subject to the requirements and limitations in that section.

	Welding:
☐	1. Solid-clad and open-mesh gates with maximum leaf span or rolling section for rolling gates of 10' and apex height less than 8'-0" above lowest adjacent grade. When located above circulation or occupied space below, these gates are not located within 1.5x gate/fence height (max 8'-0") to the edge of floor or roof.
☐	2. Handrails, guardrails, and modular or relocatable ramps associated with walking surfaces less than 30" above adjacent grade (excluding post base connections per the 'Exception' language in Section 1705A.2.1); fillet welds shall not be ground flush.
☐	3. Non-structural interior cold-formed steel framing spanning less than 15'-0", such as in interior partitions, interior soffits, etc. supporting only self weight and light-weight finishes or adhered tile, masonry, stone, or terra cotta veneer no more than 5/8" thickness and apex less than 20'-0" in height and not over an exit way. Maximum tributary load to a member shall not exceed the equivalent of that occurring from a 10'x10' opening in a 15' tall wall for a header or king stud.
☐	4. Manufactured support frames and curbs using hot rolled or cold-formed steel (i.e., light gauge) for mechanical, electrical, or plumbing equipment weighing less than 2000# (equipment only) (connections of such frames to superstructure elements using welding will require special inspection as noted in selected item(s) for Sections 19, 19.1 and/or 19.2 of listing above).
☐	5. Manufactured components (e.g., Tolco, B-Line, Afcon, etc.) for mechanical, electrical, or plumbing hanger support and bracing (connections of such components to superstructure elements using welding will require special inspection as noted in selected item(s) for Sections 19, 19.1 and/or 19.2 of listing above).

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☐	6. TV Brackets, projector mounts with a valid listing (see DSA IR A-5) and recreational equipment (e.g., playground structures, basketball backstops, etc.) (connections of such elements to superstructure elements using welding will require special inspection as noted in selected item(s) for section 19, 19.1 and/or 19.2 located in the Steel/Aluminum category).
☐	7. Any support for exempt non-structural components given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) meeting the following: A) when supported on a floor/roof, <400# and resulting composite center of mass (including component's center of mass) ≤4' above supporting floor/roof, B) when hung from a wall or roof/floor, <20# for discrete units or <5 plf for distributed systems.

DSA 103-19: LISTING OF STRUCTURAL TESTS & SPECIAL INSPECTIONS(SIGNATURE), 2019 CBC

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Name of Architect or Engineer in general responsible charge: LARRY RASMUSSEN	
Name of Structural Engineer (When structural design has been delegated): ARMEN BAROONIAN	
Signature of Architect or Structural Engineer: *Larry Rasmussen*	Date: 10/14/2020

Note: To facilitate DSA electronic mark-ups and identification stamp application, DSA recommends against using secured electronic or digital signatures.

DSA STAMP

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-120764 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 11/19/2020

DSA 103-19: LIST OF REQUIRED VERIFIED REPORTS, CBC 2019

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1. Soils Testing and Inspection: Geotechnical Verified Report Form DSA 293
2. Structural Testing and Inspection: Laboratory Verified Report Form DSA 291
3. Post-installed Anchors: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292
4. Shop Welding Inspection: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292
5. Field Welding Inspection: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292
6. High-Strength Bolt Installation Inspection: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292
7. Steel Joist Fabrication Inspection: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292

ENGINEERING GEOLOGY AND

GEOTECHNICAL ENGINEERING REPORT

FOR

PROPOSED OXNARD COLLEGE FIRE ACADEMY

OXNARD, CALIFORNIA

PROJECT NO.: 302245-001

APRIL 22, 2020

PREPARED FOR

RASMUSSEN & ASSOCIATES

BY

EARTH SYSTEMS PACIFIC

1731-A WALTER STREET

VENTURA, CALIFORNIA 93003

Earth Systems
1731 Walter Street, Suite A | Ventura, CA 93003 | Ph: 805.642.6727 | www.earthsystems.com

April 22, 2020

Project No.: 302245-001
Report No.: 20-4-70

Jay Lomagno
Rasmussen & Associates
21 South California Street, Fourth Floor
Ventura, California 93001

Project: Proposed Oxnard College Fire Academy
Camarillo Area of Ventura County, California
Subject: Engineering Geology and Geotechnical Engineering Report

As authorized, Earth Systems Pacific (Earth Systems) has performed an engineering geology and geotechnical study for a proposed Oxnard College Fire Academy that will be located off the northwest corner of the intersection of Pleasant Valley Road and South Las Posas Road in the Camarillo Airport complex in the Camarillo area of Ventura County, California. The accompanying Engineering Geology and Geotechnical Engineering Report presents the results of our subsurface exploration and laboratory testing programs, and our conclusions and recommendations pertaining to geotechnical aspects of project design. This report completes the scope of services described within our proposal No. VEN-18-05-002, dated May 4, 2018, and authorized by you on June 18, 2018.

We have appreciated the opportunity to be of service to you on this project. Please call if you have any questions, or if we can be of further service.

Respectfully submitted,

EARTH SYSTEMS PACIFIC

PROFESSIONAL GEOLOGIST
PATRICK V. BOALES
No. 1346
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Patrick V. Boales 4-22-20
Engineering Geologist

REGISTERED PROFESSIONAL ENGINEER
ANTHONY P. MAZZEI
GE 2823
Exp. 6-30-21
GEOTECHNICAL
STATE OF CALIFORNIA

Anthony P. Mazzei
Geotechnical Engineer
4/22/20

Copies: 4 - Rasmussen and Associates (3 via US mail, 1 via email)
1 - Project File

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PROJECT DESCRIPTION

This report presents results of an Engineering Geology and Geotechnical Engineering study performed for a proposed Oxnard College Fire Academy that will be located off the northwest corner of the intersection of Pleasant Valley Road and South Las Posas Road in the Camarillo area of Ventura County, California. The Fire Academy will be located on a vacant square-shaped site of about 2-acres in the southeast corner of the Camarillo Airport complex, and which presently serves as a detention basin. The detention basin will be relocated to an open field south of the proposed Fire Academy building. The proposed approximate 12,200 square-foot Fire Academy building will be a one-story structure that will be centered in the 2-acre site and surrounded by parking/pavement areas.

The project site is located within one of the liquefaction hazard zones delineated by the California Geological Survey. It is understood that the project will be under the jurisdiction of the Division of the State Architect (DSA).

Topographically, the flat site slopes gently down toward the south. We understand that the site will be raised to match the elevation of the adjacent grade along the north and east sides. Based on a preliminary grading plan, fill thicknesses of approximately 4.5 to 8 feet are expected to be placed beneath the proposed building during site grading. Fill thicknesses within the proposed parking lot will range from approximately 0.5 to 4.5 feet. In other areas of the site to bring it up to finished subgrade elevation, fill thicknesses of approximately 0.5 to 6.5 feet are expected to be placed. Minor cuts will be made around the perimeter of the site to remove high spots, and cuts on the order of about 2.5 to 4 feet will be made for construction of the new detention basin.

We anticipate the proposed building will be a one-story structure supported on conventional spread footings with a slab-on-grade floor system. Based on discussions with the Project Structural Engineer, we understand the maximum column load will be 70 kips with a maximum wall load of 2 kips per lineal foot. The floor slab load (dead and live loads) in the Light Storage Area of the building is anticipated to be about 125 pounds per square foot (psf) [superimposed live load plus weight of slab], and about 500 psf [superimposed live load plus weight of slab] in the Truck Area. These structural considerations were used as a basis for the recommendations of this report. If actual loads vary significantly from these assumed loads, Earth Systems Pacific

(Earth Systems) should be notified since re-evaluation of the recommendations contained in this report may be required.

PURPOSE AND SCOPE OF WORK

The purpose of the geotechnical study that led to this report was to evaluate and analyze the soil conditions of the site with respect to the proposed resort hotel as planned. These conditions include surface and subsurface soil types, expansion potential, settlement potential, bearing capacity, and the presence or absence of subsurface water.

The scope of work performed as part of the overall study included:

1. Performing a reconnaissance of the site.
2. Reviewing available maps and documents relevant to the site geology, seismic setting, and geotechnical conditions.
3. Advancing a total of one (1) cone penetrometer test (CPT) sounding to study soil properties and conditions.
4. Drilling, sampling, and logging two (2) exploratory borings (B-1 and B-2) to study soil and groundwater conditions.
5. Two borings (I-1 and I-2) were advanced within the proposed detention basin for use in infiltration testing.
6. Laboratory testing soil samples obtained from the subsurface exploration to determine their physical and engineering properties.
7. Consulting with Owner representatives and design professionals.
8. Analyzing the geotechnical data obtained.
9. Preparing this report.

Contained in this report are:

1. Descriptions and results of field and laboratory tests that were performed.
2. Discussions pertaining to the local geologic, soil, and groundwater conditions.
3. Conclusions pertaining to geohazards that could affect the site.
4. Conclusions and recommendations pertaining to site grading and structural design.

SITE SETTING

The site of the proposed building is a vacant 2-acre square-shaped parcel of land situated west of the existing Oxnard College Fire Academy. The site presently serves as a detention basin for the existing facility. Small earth berms are present along the north, south and west sides of the existing detention basin. An existing paved access road serves as the containment berm along the east side of the existing detention basin. The bottom of the existing detention basin is approximately 6 feet lower than the adjacent paved interior road to the east. We understand that the existing detention basin will be relocated to an open field south of the proposed new Fire Academy. The ground surface outside of the detention basin slopes to the southwest to a small drainage feature running along the west side of the site. Stockpiles of end-dumped soil are present on the site within the proposed parking lot area. The site coordinates are Latitude 34.2077° North and Longitude 119.0733° West.

GEOLOGY

The Camarillo Airport site is located in the Oxnard Plain, which is in the western portion of the Transverse Ranges geologic province. The vicinity of the project is underlain by about 1,500-2,000 feet of relatively horizontal Holocene and Pleistocene alluvial sediments over Tertiary age bedrock units (Jakes, 1979). The Camarillo Fault, a relatively short and steeply-dipping east-west trending fault showing north side up displacement projects to about 2,100 feet north of the project site (C.D.M.G., 1998).

The project site is not within any of the State of California designated seismic hazard zones for earthquake induced landslides or fault rupture but is within a seismic hazard zone for liquefaction potential (C.D.M.G., 2002b).

Although the Camarillo Fault is the nearest fault to the site, the nearest fault of interpreted seismogenic significance is the Simi-Santa Rosa-Springville fault. It is a north dipping reverse fault that strikes along a northeasterly trend. At the closest position relative to the site, the surface trace is approximately 1.3 miles to the northwest. Portions of this fault system are considered "active" by the State.

No faults or landslides were observed to be located on or trending into the subject property during the field study, or during reviews of the referenced geologic literature, or during review of the aerial photographs taken of the site.

GEOLOGIC HAZARDS

Geologic hazards that may impact a site include seismic shaking, fault rupture, landsliding, liquefaction, seismic-induced settlement of dry sands, and flooding.

A. Seismic Shaking

1. Southern California is a seismically active region where the potential for significant ground shaking is universal. Earthquakes of a size large enough to cause structural damage are relatively common in the region. Per the State of California guidelines for these types of reports, when evaluating the seismicity potential of a specific site, it is general practice to look at the historical seismic record of the area and also review the site location with respect to mapped potentially active and active faults. By using this procedure, estimates of maximum ground accelerations are determined for consideration in structural design for buildings. The geotechnical community uses the method even though most are well aware of its shortcomings. The most significant shortcomings relate to the presence of unknown seismogenic intervals between earthquake events on many of the recognized faults. The 1983 Coalinga and 1994 Northridge Earthquakes are examples of relatively large events that occurred on previously unrecognized faults. Man has only been using instruments to monitor earthquakes since the 1930's, which is a relatively short time span considering that the intervals between large earthquakes on some of the regional faults are on the order of thousands of years. Considering the above, an evaluation of site acceleration potential will lead to a value that must be considered an approximation. The structural designers must be aware that there are inherent uncertainties in the determined value or range.

2. The Camarillo area has not experienced any local large earthquakes since records have been kept; however, regional earthquakes have led to significant ground shaking and structural damage. Notable regional earthquakes include the 1812 Santa Barbara Channel and 1857 Fort Tejon events. The epicenter of the 1812 earthquake is thought to have been in the western part of the Santa Barbara Channel. Associated with this earthquake, a tsunami with a disputed run up height of up to 15 feet impacted the Ventura coastal area. On January 9, 1857, the Fort Tejon earthquake with an estimated Richter magnitude of 8.25 impacted the region. According to C.D.M.G., (1975), the earthquake caused the roof of the Mission San Buenaventura to fall in.

3. One measure of ground shaking is intensity. The Modified Mercalli Intensity Scale of ground shaking ranges from I to XII with XII indicating the maximum possible intensity of ground movement. Structural damage begins to occur when the intensity exceeds a value of VI. Southern Ventura County has been mapped by the California Division of Mines and Geology to delineate areas of varying predicted seismic response. The deposits that underlie the subject area are mapped as having a probable maximum intensity of earthquake response of approximately IX on the Modified Mercalli Scale. Historically, the highest estimated intensity in the Camarillo area has been VI (C.D.M.G., 1975, 1994).

4. The school site, like any other site in the region, is subject to relatively severe ground shaking in the event of a maximum earthquake on a nearby fault. In Appendix A is a Regional Fault Location Map that shows the site's relationship to the identified faults in the region. The Fault Parameters table in Appendix C lists the significant "active" and "potentially active" faults within an approximate 35-mile radius of the project site. The distance between the project site and the nearest portion of each fault is shown as well as the respective estimated maximum earthquake magnitudes.

5. It is assumed that the 2019 CBC and ASCE 7-16 guidelines will apply for the seismic design parameters. The 2019 CBC includes several seismic design parameters that are influenced by the geographic site location with respect to active and potentially active faults, and with respect to subsurface soil or rock conditions. The “general procedure” (i.e. probabilistic) seismic design parameters presented below were

determined by the U.S. Seismic Design Maps "risk-targeted" calculator on the SEAOC/OSHPD website for ASCE 7-16 for the site coordinates (34.2076° North Latitude and 119.0732° West Longitude, Soil Site Class E (for soft clay soils), and Occupancy (Risk) Category II. (A listing of the calculated 2019 CBC and ASCE 7-16 Seismic Parameters is presented below and again in Appendix C.)

Summary of Seismic Parameters – 2019 CBC "General Procedure"

Site Class (ASCE 7-16)	E
Occupancy (Risk) Category	II
Seismic Design Category	See CBC Section 11.4.8
Maximum Considered Earthquake (MCE) Ground Motion	
Spectral Response Acceleration, Short Period – S_s	1.682 g
Spectral Response Acceleration at 1 sec. – S_1	0.623 g
Site Coefficient – F_a	See CBC Section 11.4.8
Site Coefficient – F_v	See CBC Section 11.4.8
Site-Modified Spectral Response Acceleration, Short Period – S_{MS}	See CBC Section 11.4.8
Site-Modified Spectral Response Acceleration at 1 sec. – S_{M1}	See CBC Section 11.4.8
Design Earthquake Ground Motion	
Short Period Spectral Response – S_{DS}	See CBC Section 11.4.8
One Second Spectral Response – S_{D1}	See CBC Section 11.4.8
Site Modified Peak Ground Acceleration - PGA_M	0.809 g
Values appropriate for a 2% probability of exceedance in 50 years	

The seismic factor S_1 is greater than 0.2 g and the Site Class is "E". If the structural engineer determines that ASCE 7-16, Section 11.4.8, Exception 1 or 3 does not apply, a site-specific (i.e. deterministic) ground motion hazard analysis is required. The site-specific study takes into account soil amplification effects. The United States Geological Survey (USGS, 2009) has undertaken a probabilistic earthquake analyses that covers the continental United States. A reasonable site-specific spectral response curve may be developed from USGS Unified Hazard Tool web page, which adjusts for site-specific ground factors. The interactive webpage appears to be a precise calculation based on site coordinates. For the purposes of this study, the Dynamic:

Conterminous U.S. 2014 (Update) (Version 4.20) values have been chosen for use in the analysis.

NGA West 2014 attenuation relationships were used in the analyses. These attenuations included those of Abrahamson, Silva and Kamai, Boore and Stewart, Campbell and Bozorgnia, Chiou and Youngs, and Idriss.

Summary of Seismic Parameters – 2019 CBC "Site-Specific Procedure"

Site Class (ASCE 7-16)	E
Occupancy (Risk) Category	II
Seismic Design Category	D
Maximum Considered Earthquake (MCE) Ground Motion	
Spectral Response Acceleration, Short Period – S_s	1.682 g
Spectral Response Acceleration at 1 sec. – S_1	0.623 g
Site Coefficient – F_a	1.00
Site Coefficient – F_v	4.00
Site-Modified Spectral Response Acceleration, Short Period – S_{MS}	1.666 g
Site-Modified Spectral Response Acceleration at 1 sec. – S_{M1}	2.393 g
Design Earthquake Ground Motion	
Short Period Spectral Response – S_{DS}	1.110 g
One Second Spectral Response – S_{D1}	1.595 g
Site Modified Peak Ground Acceleration - PGA_M	0.685 g
Values appropriate for a 2% probability of exceedance in 50 years	

6. California has had several large earthquakes in this century, and studies on the structural effects of the ground shaking have led to changes in the building codes. After the 1933 Long Beach Earthquake, the State of California Field Act was written with the intention of making public schools more earthquake resistant. The intent of the act, as is the intent of the most modern codes, is as follows: "School buildings constructed pursuant to these regulations are expected to resist earthquake forces generated by major earthquakes in California without catastrophic collapse, but may experience some repairable architectural or structural damage". Following the

1971 San Fernando Earthquake, many changes were made to the public-school building codes. After the 1994 Northridge Earthquake, a study of 127 public schools in the Los Angeles area by the State of California Division of the State Architect (1994a) revealed that the intent of the Field Act was being met even when buildings were subjected to horizontal accelerations approaching 0.9 g (much higher than expected) over a large area. None of the schools collapsed and most of the damage that would have caused injury to students, had school been in session, was from failures of non-structural items such as light fixtures, florescent bulbs, suspended ceilings, etc. Most of the schools that experienced these non-structural failures were built before the changes to the building code that applied to these non-structural items. The study also resulted in recommended changes to building codes regarding steel framed school buildings, (State of Calif. Div. of State Architect, 1994b).

B. Fault Rupture

Surficial displacement along a fault trace is known as fault rupture. Fault rupture typically occurs along previously existing fault traces. As mentioned in the "Structure" section above, no existing fault traces were observed to be crossing the site. As a result, it is the opinion of this firm that the potential for fault rupture on this site is low.

C. Landsliding and Rock Fall

As mentioned previously, the subject site is relatively flat. As a result, it appears that the hazards posed by landsliding and rock fall are considered nil.

D. Earthquake-Induced Settlement, Cyclic Softening, and Lateral Spread

Earthquake-induced cyclic loading can be the cause of several significant phenomena, including liquefaction in fine sands and silty sands. Liquefaction results in a loss of strength and can cause structures to settle or even overturn if it occurs in the bearing zone. Cyclic softening in clays during earthquakes has resulted in buildings experiencing foundation failure and ground surface deformation similar to that resultant from liquefaction. If liquefaction or cyclic softening occurs beneath sloping ground, a phenomenon known as lateral spreading can occur. Liquefaction and cyclic softening are typically limited to the upper 50 feet of the subsurface soils. There are a number of conditions that need to be satisfied for liquefaction or cyclic softening to occur. Of primary importance is that groundwater, perched or otherwise, usually must be within the upper 50 feet of soils.

The subject site is located within one of the Liquefaction Hazard Zones delineated by the State of California (C.G.S., 2002b).

Fine sands and silty sands that are poorly graded and lie below the groundwater table are the soils most susceptible to liquefaction. Soils that have I_c values greater than 2.6, soils with plasticity indices (PI) greater than 7, sufficiently dense soils, and/or soils located above the groundwater table are not generally susceptible to liquefaction.

An examination of the conditions existing at the site, in relation to the criteria listed above, indicates the following:

1. Groundwater was encountered in the exploratory borings at a depth of 8 feet below the existing ground surface. However, mapping of historically shallowest groundwater elevations by C.D.M.G. (2002a) indicates groundwater may have risen to within about 13 to 14 feet of the ground surface in the past. Although the elevated groundwater level may be more indicative of former discharge practices carried out in the project site area rather than a static groundwater level, a high groundwater of 8 feet below the existing ground surface was used in our analysis to be conservative.
2. Interpretation of the CPT data indicates that the upper 50 feet of the soil profile in sounding CPT-1 includes numerous layers with I_c values greater than 2.6, which is considered the boundary between soils prone and not prone to liquefaction (see CPT Interpretations in Appendix A).
3. Standard penetration tests conducted in the borings, and interpretations of blow counts from CPT data indicate that the near-surface fine-grained soils within the tested depths are generally very soft to stiff, whereas the deeper sands are in a medium dense to dense state.

Based on the above, cyclic mobility analyses were undertaken to analyze liquefaction potentials of soil layers underlying the project site. The analysis was performed in general accordance with the methods proposed by NCEER (1997). In the analysis, the design earthquake was considered to be a 7.2 moment magnitude event, and a peak ground acceleration of 0.809 g, as per the discussion in the "Seismicity and Seismic Design" section of this report.

The analysis for CPT-1 indicated that the majority of the soil layers analyzed in the model had factors of safety that exceeded 1.3 (see Appendix D for calculations), except for the zones between the depths of approximately 24.5 to 27.5 feet, 31.5 to 32 feet, and 36 to 39 feet below the existing ground surface. Zones with factors of safety less than 1.3 are considered potentially liquefiable (C.G.S., 2008, and SCEC, 1999).

The volumetric strain for the potentially liquefiable zones was estimated using a chart derived by Tokimatsu and Seed (1987) after reducing the $N_{1(60)}$ values derived by the analytical program by the calculated "FC Delta" value, then making adjustments for fines content as per Seed (1987) and SCEC (1999). Using this methodology, the volumetric strain was found to be 1.0 inch.

There is a potential for differential areal settlement suggested by our findings. As mentioned previously, the total seismic-induced-related settlement could potentially range up to about 1.0 inch near sounding CPT-1. (Calculations are included within Appendix E of this report.) According to SCEC (1999), up to about half of the total settlement could be realized as differential settlement. As a result, differential settlement could range up to about 0.5 inch at the ground surface.

According to data generated by Ishihara (National Academy Press, 1985), no "ground" damage would be expected due to the thickness of the non-liquefiable soils above the shallowest liquefiable zone. (Examples of ground damage are sand boils and ground cracks.)

Ground oscillation, which is the other type of lateral spreading, occurs where sites are not adjacent to sloped areas or canyons. It can pose a hazard when corrected standard blow counts ($N1_{(60)}$) in the zones of potential liquefaction are less than 15. The potential ground oscillation was analyzed in accordance with procedures developed by Youd, Hansen and Bartlett (2002). In the analyses, it was assumed that the surface slope was 0.5%, which is equivalent to the 10 feet of fall in 2,000 feet shown near the subject site on the Camarillo Quadrangle. A fines content of 30% was assumed based on averaging the soil types of the potentially liquefiable soils. The cumulative displacement was calculated to be about 0.6 feet (i.e., 7 inches), if all potentially liquefiable zones with $N1_{(60)}$ values of less than 15 were to simultaneously liquefy. (Calculations are included in Appendix D.)

Calculations based on the measured liquidity indices indicate that the clay layers tested have sensitivities of 5 or less. As a result, these clay layers do not appear to be sensitive. Hence, cyclic softening of clays and post-liquefaction settlement from consolidation of clays disturbed by a design level earthquake do not appear to be significant at the subject site.

Based on the above, it is the opinion of this firm that a potential for lateral spreading and liquefaction exists at this site. Results of the lateral spreading and liquefaction analyses are included in Appendix D of this report. Due to the fine-grained nature of the near-surface soils at the subject site, seismic induced settlement of dry sand not expected. Mitigation should include designing for the estimated seismically-induced settlements and horizontal displacements related to liquefaction that may be experienced during seismic events. The project Structural Engineer should account for the displacements discussed above when designing the foundation system for the proposed structure.

E. Seismic-Induced Settlement of Dry Sands

Dry sands tend to settle and densify when subjected to earthquake shaking. The amount of settlement is a function of relative density, cyclic shear strain magnitude, and the number of strain cycles. Because the upper 24 feet are predominantly fine-grained soils that are not susceptible to dry sand settlements, it is opinion that the potential for seismically-induced settlement of dry sands at the site is nil.

F. Hydroconsolidation Potential

Hydroconsolidation is a phenomenon whereby dry alluvial soils collapse as they become wetted. Data presented by El-Ehwany and Houston (1990) show that most hydrocollapse occurs as dry soils become wetted to 60% saturation, and that wetting above that level produces little additional collapse.

Because groundwater was encountered in the exploratory borings at a depth of 8 feet below the existing ground surface and the upper 24 feet consists of clayey soils not prone to hydrocollapse, it is opinion that the potential for hydroconsolidation of the soils underlying the site is nil.

G. Flooding

Earthquake-induced flooding types include tsunamis, seiches, and reservoir failure. Due to the inland location of the site, hazards from tsunamis and seiches are considered extremely unlikely.

According to the Ventura County General Plan Hazards Appendix (2013), this site, like most of the Oxnard Plain, is within a dam failure inundation zone. Proper maintenance of these dams is anticipated, and assuming the maintenance continues as planned, the hazard posed by reservoir failure appears to be low.

The site is within an area mapped within Zone X (F.E.M.A., 2019). Zone X is defined as "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile." From this, it appears that the hazard posed by storm-induced flooding is low.

ENGINEERING GEOLOGY CONCLUSIONS AND RECOMMENDATIONS

Based on the data provided in this report, it appears that the site is suitable for the proposed development from an Engineering Geology standpoint provided that the recommendations provided herein are properly implemented into the project.

SOIL CONDITIONS

Alluvial soils were encountered in Borings B-1 and B-2 and sounding CPT-1 to the maximum depths explored. The near-surface soils within the upper 24 feet consisted predominantly of soft, compressible clays and silts. Below a depth of 24 feet below the ground surface, the alluvial deposits are interbedded, discontinuous strata of medium dense to dense silty sands and poorly-graded sands, and stiff to very stiff, silty clays and clayey silts.

Testing indicates that anticipated bearing soils lie in the "high" expansion range based on an expansion index value of 97. [A locally adopted version of this classification of soil expansion, Table 1809.7, is included in Appendix C of this report.] It appears that soils can be cut by normal grading equipment, but soils are several percent above optimum moisture content.

Groundwater was encountered at a depth of approximately 8 feet below the existing ground surface in both of the exploratory borings drilled for this study. According to mapping by the California Division of Mines and Geology (2002a), historically shallowest groundwater has been as shallow as 13 to 14 feet below the existing ground surface at the site. It should also be noted that fluctuations in the groundwater levels and soil moisture conditions do occur due to change in seasons, variations in rainfall, irrigation practices, construction impacts, and other factors. Because the area of the proposed building is located in an area where collected storm water was discharged into the catch basin and the fact that the existing fire academy used this area to practice fire drills, the groundwater level encountered in the borings may be more indicative of these practices in this area rather than a static groundwater level.

A sample of near-surface soils was tested for pH, resistivity, soluble sulfates, and soluble chlorides. The test results provided in Appendix B should be distributed to the design team for their interpretations pertaining to the corrosivity or reactivity of various construction materials (such as concrete and piping) with the soils. It should be noted that the sulfate content (1,955 mg/Kg) is at the upper limits of the "S1" exposure class of Table 4.2.1 of ACI 318; therefore, special concrete designs will be necessary for the measured sulfate contents. Earth Systems recommends that the concrete should have Type V Portland cement, a maximum water-cement ratio of 0.45, and a 28-day compressive strength of 4,500 psi.

Based on criteria established by the County of Los Angeles, measurements of resistivity of near-surface soils (628 ohms-cm) indicate that they are "severely corrosive" to ferrous metal (i.e. cast iron, etc.) pipes.

INFILTRATION FEASIBILITY TESTING

Infiltration testing was performed at the location of the proposed retention basin. Two infiltration tests were performed in accordance with the guidelines referenced in the Ventura County Technical Guidance Manual for Stormwater Quality Control Measures (TGM). A version of the falling-head borehole infiltration test method was used. The test results include both vertical and lateral infiltration from the borehole. Both tests were performed at a depth of 3 feet below the existing ground surface. Deeper testing was not feasible because of the relatively shallow depth to groundwater when the tests were performed (approximately 8 feet). After the borehole walls were drilled, a 2-inch nominal diameter slotted pipe was inserted in each test hole and the annulus between the borehole walls and the slotted pipes backfilled with pea-gravel. About 2 feet of water was then added to the bottom of the test holes and the water depth was monitored until almost all the water had percolated away. Subsequently, the holes were re-filled with about 2 feet of water and the drop in the water depth was measured after a period of time. For these tests, readings were taken at 30-minute intervals in the shallow test hole. The water level was adjusted after every reading. The tests were run until the rate that the water surface dropped had stabilized.

It should be noted that the rate the water surface drops in a borehole is a percolation rate, which is related to, but is not an infiltration rate. Percolation rate ignores the wetted soil surface area into which the water is infiltrating and does not account for the volume of water infiltrated. An infiltration rate considers both factors. Hence, percolation rates (in unit length per unit time) are an overestimation of infiltration rates (also in unit length per unit time). Earth Systems uses the Porchet equation to account for the wetted surface area and volume of water infiltrated to estimate an infiltration rate. Forms of the equation can be found in the Riverside County - Low Impact Development BMP Design Handbook (2001), the South Orange County Version, Technical Guidance Documents Appendices (2017), or in a paper by J.W. Van Hoorn, “Determining Hydraulic Conductivity with the Inversed Auger Hole and Infiltrometer Methods.” The Porchet equation in its most simple form is the volume of water infiltrated divided by the product of the change in time and the wetted surface area. By substitution, the equation can be shown to be equal to:

$$\text{Infiltration Rate (inches /hr.)} = \frac{\Delta H * r * 60}{\Delta t * (r + 2H_{avg})}$$

where: ΔH = change is water level (inches)
Δt = change in time (minutes)
r = radius of test hole (inches)
H_{avg} = average height of water in test hole (inches)

The above equation does not account for the gravel pack in the annulus between the borehole wall and the slotted pipe fitted in the test hole. Ignoring the gravel pack inflates the amount of water infiltrated and, hence, yields an unconservative infiltration rate. A method to account for the volume occupied by the gravel (and the slotted pile) and adjust he infiltration rate accordingly is presented in Caltrans Test 750. Earth Systems makes this additional adjustment to our test data. The equation is:

$$\text{Correction Factor} = n * [\,1 - (O/D)^2] + (I/D)^2$$

Where: n = pea gravel porosity
O = Outside diameter of slotted pipe (inches)
D = Test hole diameter (inches)
I = inside diameter of slotted pipe (inches)

Earth Systems has determined an average porosity for the pea gravel used in our testing. The other values are simple measurements.

The stabilized test infiltration rates for the depths tested and boring locations were determined using the above formulas and the measured percolation rates, and other test data. The data are presented on Appendix E and summarized as follows:

Boring No.	Boring Depth (feet)	Average Infiltration Rate (in./hr.)
IT-1	3	0.2
IT-2	3	0.1

Both test results failed to satisfy the recommended minimum value infiltration systems (0.5 inches per hour) per the TGM. Hence, the project site does not appear to be suitable for on-site stormwater infiltration.

Please note that there are many factors that influence the infiltration rate. Clear water was used in all our tests, whereas oil residue, silt, organic matter, and other deleterious material will likely be contained in the stormwater. Variations in soil composition and density within the limits of a project site, and within the limits of the proposed stormwater disposal system are likely to affect infiltration characteristics. At a given location in a soil profile, horizontal and vertical infiltration rates can be quite different. The test measures neither but is a composite of the two.

GEOTECHNICAL CONCLUSIONS AND RECOMMENDATIONS

Based on the data provided in this report, it appears that the site is suitable for the proposed development from a Geotechnical Engineering standpoint provided that the recommendations provided herein are properly implemented into the project. Given the site conditions encountered and the preference to support the structure on conventional spread footings, we conclude that ground improvement will be required within the upper 24 feet to mitigate the potential for settlement of the soft, compressible fine-grained soils within this zone. The primary geotechnical considerations from a development standpoint are as follows:

- The potential for about 1 inch of seismic-induced settlement due to liquefaction.
- The potential for about 0.6 feet of horizontal ground displacement due to lateral spreading.
- The upper 24 feet of native soil underlying the site are soft, compressible fine-grained soils that may consolidate or settle significantly under the anticipated structural loads.
- Shallow groundwater encountered in the test borings at a depth of approximately 8 feet below the existing ground surface.

Under the anticipated structural loads, conventional spread footings supported on at least 8 feet of compacted engineered fill could experience settlements on the order of 2 to 3 inches. Combined with the estimated seismic-induced settlement due to liquefaction of 1 inch, a conventional spread foundation system would need to be designed to accommodate about 3 to

4 inches of total settlement (static and seismic), with a differential settlement of about 2 inches over a horizontal distance of 30 feet. The floor slab areas of the proposed building supported on at least 8 feet of compacted engineered fill could undergo maximum settlements on the order of about 1.7 inches in the Light Storage Area to as much as 6.3 inches in the Truck Area. Because of these estimated total and differential settlements (static and seismic), Earth Systems recommends that ground improvement be performed to a depth of at least 24 feet below the existing ground surface in order to support the proposed building on conventional spread foundations.

If the ground improvement is carried out to a depth of 27.5 feet below the existing ground surface (or 35.5 feet below finished subgrade), the estimated seismic-induced settlement due to liquefaction in the soils underlying the depth of ground improvement can be reduced to about 0.5 inch.

In addition to seismic-induced settlement due to liquefaction and static settlement due to the anticipated structural loads, the soft, compressible fine-grained soils underlying the site will consolidate or settle under the weight of the new fill anticipated to bring the site up to finished subgrade elevation. With as much as 8 feet of new fill being placed within the footprint of the proposed building, the estimated static settlement of the underlying native soils due to the weight of the new fill could be on the order of 9 to 11 inches. Settlement of the underlying native soils due to the the new fill will also affect the proposed parking lot area. Surcharging the site prior to the commencement of construction activities will reduce the amount of settlement due to the weight of the new fill. The height of fill used to surcharge the site and the duration that the surcharge load should remain in order to mitigate the static settlement from the new fill will need to be evaluated if surcharging the site is considered.

Because shallow groundwater is present beneath the site at the current site grade, remedial grading performed to reduce the amount of settlement due to the new fill and structural loads is limited. In addition, the near-surface soils are expected to be at high moisture contents (i.e., 12 percent or higher above the optimum moisture content), and as a result significant drying will be necessary if the excavated soils are to be used as structural fill. Also, because of the anticipated wet soil conditions at the bottom of any remedial excavations or utility trench excavations, stabilization of the excavation bottoms is anticipated to be required prior to placing fill.

We understand that the existing detention basin that currently occupies the location of the proposed building will be relocated to an open field south of the proposed building. It is recommended that stormwater-related sediments accumulated in the bottom of the existing basin be removed until native soils are encountered prior to placement of new fill. The berms along the north, south and west sides should be removed. We understand that the site will be raised with fill thicknesses of approximately 4.5 to 8 feet expected to be placed beneath the proposed building during site grading. Fill thicknesses within the proposed parking lot will range from approximately 0.5 to 4.5 feet. In other areas of the site to bring it up to finished subgrade elevation, fill thicknesses of approximately 0.5 to 6.5 feet are expected to be placed. Assuming these thicknesses of fill are placed to achieve finished subgrade elevations, there should only be limited overexcavation of the existing ground surface. Some overexcavation will be required in isolated areas to achieve the recommended thickness of compacted fill beneath the proposed improvements. The exposed surface in all areas to receive fill would need to be scarified and recompacted prior to fill placement to bring the site to finished grade.

The recommendations presented within do not address post-earthquake performance in regard to flatwork, pavements, etc. It is anticipated that it will not be economically feasible or cost effective to implement engineering measures to mitigate or reduce the potential for the occurrence of seismically-induced settlement across the whole site. The manifestation and effect of seismically-induced differential settlement may generally affect the flatwork, pavement, etc. It is likely that the effects of seismically-induced settlement, should they occur, will most likely require repair in the form of re-leveling portions of the site flatwork and pavement after a major seismic event.

Specific conclusions and recommendations addressing these geotechnical considerations, as well as general recommendations regarding the geotechnical aspects of design and construction, are presented in the following sections

A. Grading

1. Pre-Grading Considerations

   a. Plans and specifications should be provided to Earth Systems prior to grading. Plans should include the grading plans, foundation plans, and foundation details.

   b. Roof draining systems, if required by the appropriate jurisdictional agency, should be designed so that water is not discharged into bearing soils or near structures.

c. Final site grade should be designed so that all water is diverted away from the structures over paved surfaces, or over landscaped surfaces in accordance with current codes. Water should not be allowed to pond anywhere on the pad.

d. Shrinkage of on-site soils affected by compaction is estimated to be about 20 percent based on an anticipated average compaction of 92 percent.

e. It is recommended that Earth Systems be retained to provide Geotechnical Engineering services during site development and grading, and foundation construction phases of the work to observe compliance with the design concepts, specifications and recommendations, and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

f. Compaction tests shall be made to determine the relative compaction of the fills in accordance with the following minimum guidelines: one test for each 2-foot vertical lift; one test for each 1,000 cubic yards of material placed; and two tests at finished subgrade elevation in the building pad.

2. <u>Rough Grading/Areas of Development</u>

a. Grading at a minimum should conform to Appendix J in the 2019 California Building Code (CBC), and with the recommendations of the Geotechnical Engineer during construction. Where the recommendations of this report and the cited section of the 2019 CBC are in conflict, the Owner should request clarification from the Geotechnical Engineer.

b. The existing ground surface should be initially prepared for grading by removing all vegetation, trees, large roots, debris, other organic material, and non-complying fill. Organics and debris should be stockpiled away from areas to be graded, and ultimately removed from the site to prevent their inclusion in fills. Voids created by removal of such material should be properly backfilled and compacted. No compacted fill should be placed unless the underlying soil has been observed by the Geotechnical Engineer.

c. During abandonment of the existing detention basin, all loose sediments in the bottom of the basin should be removed to expose firm, native soils. The earth berms present along the north, south, and west sides should also be removed to expose native soils. The exposed surfaces should then be scarified to a depth of 6 inches; uniformly moisture-conditioned to above optimum moisture content and compacted to achieve a relative compaction of between 90 percent of the ASTM D 1557 maximum dry density prior to the placement of engineered fill to achieve final grade.

d. To mitigate the anticipated settlement effects and provide a means to uniformly transfer the structural load onto the rigid inclusions, Earth Systems recommends that a geogrid reinforced raft be constructed beneath the proposed building. In addition to the grouted columns, an essential element of rigid inclusion ground improvement is the load transfer platform, or LTP. This is a layer of granular, structural fill that bridges the load between the rigid inclusions and prevents too much point stress on the footing. The intent of the geogrid reinforced raft is to create the LTP beneath the proposed building. Other benefits of the geogrid reinforced raft are the soil will act as a rigid mass that would move as a unit during horizontal displacements from lateral spreading and result in more uniform settlement beneath the structure to reduce the differential settlement.

e. To create the geogrid reinforced raft, native soils beneath the proposed buildings should be excavated a minimum of 5 feet below existing grade, or as deep to remove all fill soils, whichever is deeper. The limits of overexcavation should be extended laterally to a distance of at least 10 feet beyond the outside edges of the foundation element. The base of the overexcavation zone should be relatively level.

f. The bottom of the remedial excavation should be scarified to a depth of 6 inches, uniformly moisture conditioned to above optimum moisture content; and compacted to achieve a relative compaction of at least 90 percent of the ASTM D 1557 maximum dry density. Following compaction of the bottom, a layer of geogrid should be placed on the prepared subgrade that extends across the entire area of overexcavation and up the sidewalls of the remedial excavation. The reinforcing geogrids should consist of Tensar Tri-Axial TX7, or equivalent as approved by the Geotechnical Engineer. Where more than one geogrid roll is required, the rolls should be overlapped at least 3 feet. A 1-foot layer of one-inch minus aggregate base material should be placed and compacted over the bottom layer of geogrid. The aggregate base material should be uniformly moisture conditioned to at or above optimum moisture content and compacted to achieve a relative compaction of at least 95 percent of the ASTM D 1557 maximum dry density. A second layer of geogrid should be placed over the compacted aggregate base material, and an additional foot of aggregate base material should be placed and compacted on top of the second geogrid layer. The second layer of geogrid rolls should be overlapped by 3 feet where necessary, and extend across the entire excavation; however, it does not need to extend up the sidewalls. Once the second lift of aggregate base material has been placed and compacted, the remedial excavation may then be brought up to finished subgrade elevation using the excavated soil compacted to at least 90 percent of the ASTM D 1557 maximum dry density. Once the fill reaches 1 foot below finished subgrade elevation, the bottom layer of geogrid extending up the sidewall of the remedial excavation should be pulled down onto the compacted surface to create an 10-foot overlap. The remedial excavation may then be brought up to finished subgrade using the excavated soil compacted to at least 90 percent of the ASTM D 1557 maximum dry density.

g. Areas outside of the limits of the geogrid reinforced raft to receive exterior slabs-on-grade, sidewalks, and pavements should underlain by a minimum of 2 feet of compacted fill below finished subgrade. Some overexcavation will be required in the parking lot area to achieve the 2 feet of compacted fill below finished subgrade. The limits of the compacted fill should extend at least 2 feet beyond the outside edge of the proposed improvement.

h. If overexcavation is not required to achieve the thicknesses of compacted fill beneath the proposed improvements as discussed above, the exposed surface following clearing operations should be scarified to a depth of 6 inches; uniformly moisture-conditioned to above optimum moisture content, and compacted to achieve a relative compaction of between 90 percent of the ASTM D 1557 maximum dry density. Compaction of the prepared subgrade should be verified by testing prior to the placement of engineered fill.

i. If additional overexcavation is required to achieve the thicknesses of compacted fill discussed above, the bottoms of all excavations should be observed by a representative of this firm prior to processing. The exposed surface at the bottoms of the excavations should be scarified to a depth of 6 inches; uniformly moisture-conditioned to above optimum moisture content and compacted to achieve a relative compaction of between 90 percent of the ASTM D 1557 maximum dry density. Compaction of the prepared subgrade should be verified by testing prior to the placement of engineered fill.

j. Fill material placed against the slopes along the north and east sides of the subject site during site grading should be benched into the existing slopes as the fill placement progresses upward to finished subgrade elevation.

k. Engineered fill should be placed in a series of horizontal layers not exceeding 8 inches in loose thickness, uniformly moisture-conditioned to above optimum moisture content, and compacted to achieve a minimum relative compaction of 90 percent of the ASTM D 1557 maximum dry density. Compaction of the engineered fill should be verified by testing. Additional fill lifts should not be placed if the previous lift did not meet the required relative compaction or if soil conditions are not stable. Discing, tilling, and/or blending may be required to uniformly moisture-condition soils used for engineered fill.

l. On-site soils may be used for fill once they are cleaned of all organic material, rock, debris and irreducible material larger than 6 inches. Excavated soils are expected to be at a high moisture content and drying will be necessary before replacing as compacted backfill.

m. Import soils used to raise site grade should be equal to, or better than, on-site soils in strength, expansion, and compressibility characteristics. Import soil can be evaluated, but will not be prequalified by the Geotechnical Engineer. Final comments on the characteristics of the import will be given after the material is at the project site.

n. Backfill around or adjacent to confined areas (i.e. interior utility trench excavations, etc.) may be performed with a lean sand/cement slurry (maximum 28-day compressive strength of 200 psi) or "flowable fill" material (a mixture of sand/cement/fly ash). The fluidity and lift placement thickness of any such material should be controlled in order to prevent "floating" of any "submerged" structure. Alternatively, a gravel backfill could be used, subject to approval by the Geotechnical Engineer and the City official.

o. If pumping soils or otherwise unstable soils are encountered during the overexcavation, stabilization of the excavation bottom will be required prior to placing fill. This can be accomplished by various means. The first method would include drying the soils as much as possible through scarification, and working thin lifts of "6-inch minus" crushed angular rock into the excavation bottom with small equipment (such as a D-4) until stabilization is achieved. Use of a geotextile fabric such as Mirafi 500X, or Tensar BX-1200, or the equivalent, is another possible means of stabilizing the bottom. If this material is used, it should be laid on the excavation bottom and covered with approximately 12 inches of "6-inch minus" crushed angular rock prior to placement of filter fabric (until the bottom is stabilized). The rock should then be covered with a geotextile filter fabric before placing fill above. It is anticipated that stabilization will probably be necessary due to the existing high moistures of the soils, and due to the shallow groundwater depth. Unit prices should be obtained from the Contractor in advance for this work.

3. Excavations
   a. Excavations at the site will typically encounter clays and silts. These materials should be easily excavated with conventional earthmoving equipment.
   b. Temporary unshored, unsurcharged, open excavations that are free of seeps and less than 10 feet deep in the **drained soils** may be cut at least 1H:1V (horizontal to vertical) or flatter provided the adjacent ground is not subject to surcharge loading. If excavations dry out, sloughing will occur. No excavation should be made within a 1:1 line projected downward from the outside edge at the base of any existing footing or slab.
   c. During the time excavations are open, no heavy grading equipment or other surcharge loads (i.e. excavation spoils) should be allowed within a horizontal distance from the top of any slope equal to the depth of the excavation (both distances measured from the top of the excavation slope).
   d. Adequate measures should be taken to protect any structural foundations, pavements, or utilities adjacent to any excavations.

e. All open cuts should be in compliance with applicable Occupational Safety Health Administration (OSHA) regulations (California Construction Safety Orders, Title 8) and should be monitored for evidence of incipient instability. Standard construction techniques should be sufficient for temporary site excavations. Project safety is the responsibility of the Contractor and the Owner. Earth Systems will not be responsible for project safety.

4. Utility Trenches

a. Utility trench backfill should be governed by the provisions of this report relating to minimum compaction standards. In general, on-site service lines may be backfilled with native soils compacted to 90 percent of the maximum dry density. Backfill of offsite service lines will be subject to the specifications of the jurisdictional agency or this report, whichever are greater.

b. Utility trenches running parallel to footings should be located at least 5 feet outside the footing line, or above a 1:1 (horizontal to vertical) projection downward from the outside edge of the bottom of the footing.

c. Compacted native soils should be utilized for backfill below structures. Sand should not be used under structures because it provides a conduit for water to migrate under foundations.

d. Backfill operations should be observed and tested by the Geotechnical Engineer to monitor compliance with these recommendations.

e. Jetting should not be utilized for compaction in utility trenches.

f. If the utility trench depths extend below the depth of the fill placed, the excavated soils are anticipated to be at a high moisture content and drying may be necessary before replacing as compacted backfill. If water is present in trenches, the lower sections of the trenches should be backfilled with gravel to at least 6 inches above the water.

B. Structural Design

1. Ground Improvement

To mitigate the estimated static settlements within the proposed building footprint and reduce the estimated seismic-induced settlement due to liquefaction in the soils underlying the depth of ground improvement can be reduced to about 0.5 inch, Earth Systems recommends that the soft, compressible native soils to a depth of at least 27.5 feet below the existing ground surface be improved. Based upon discussions with the project team and ground improvement companies, grouted rigid inclusions were selected for the project. Rigid inclusions are unreinforced, grouted or concrete columns installed in very soft soils to meet settlement criteria and improve bearing capacity for support of conventional shallow foundations of a structure. The rigid inclusions are considered ground improvement because they are not structurally connected to the building they support. As the rigid inclusions are installed the soil is displaced laterally to improve the soils between the rigid inclusions.

The ground improvement program should be implemented to achieve the following design goals after the construction of the improvements.

a. Ground improvement should reduce the total static settlement within the building footprint to 1 inch. This will result in a total differential settlement of 1/2 inch in a span of 30 feet.
b. Ground improvement should provide an allowable 3,500 psf bearing pressure.
c. The layout and spacing of the rigid inclusions should be determined by the specialty geotechnical contractor to meet the settlement and bearing capacity requirements.
d. Ground improvement should extend at least 10 feet outside of the building footprint to provide lateral support.
e. The rigid inclusions should be designed to maintain internal stability of the element under the anticipated loads (i.e., bulging failure).

The design of the rigid inclusions to stabilize the soils below the proposed structure should be undertaken by a specialty geotechnical contractor, who has extensive knowledge and experience in such techniques. Their scope of services would include specific design by in-house geotechnical engineers, and onsite implementation of this design by their firm. Given the complexity of this project, this work should only be performed by a contractor with substantial experience, and experienced crew, and a verifiable record of successful project completion in similar soil conditions. The information and requirements outlined within this report should be considered as the minimum information required to obtain regulatory approval and to inform the design team. Additional detailing by the specialty contractor's engineering team will be required. It should be emphasized, that the ground improvement specialty contractor is responsible for the final site-specific program design.

2. Conventional Spread Foundations
   a. Conventional continuous footings and/or isolated pad footings may be used to support the proposed building. Perimeter footings for the proposed structure should have minimum depths of 3 feet and minimum widths of 30 inches.
   b. Footings should bear into the reinforced soil pad prepared as recommended in Section A of this report. Foundation excavations should be observed by a representative of this firm after excavation, but prior to placing of reinforcing steel or concrete, to verify bearing conditions.
   c. Conventional continuous footings may be designed based on an allowable bearing value of 2,800 psf. This value is based on a factor of safety of at least 3.
   d. Isolated pad footings that are a minimum of 4 feet wide may be designed based on an allowable bearing value of 3,200 psf. This value is based on a factor of safety of at least 3.
   e. Allowable bearing values are net (weight of footing and soil surcharge may be neglected) and are applicable for dead plus reasonable live loads.
   f. A one-third increase is permitted for use with the alternative load combinations given in Section 1605.3.2 of the 2019 CBC.
   g. Lateral loads may be resisted by soil friction on floor slabs and foundations and by passive resistance of the soils acting on foundation stem walls. Lateral capacity is based on the assumption that any required backfill adjacent to foundations and grade beams is properly compacted.

h. The information that follows regarding reinforcement and pre-moistening for footings is the same as that given in Table 1809.7 for the "high" expansion range. Actual footing designs should be provided by the Project Structural Engineer, and should consider potential settlements that might be induced by liquefaction, but the dimensions and reinforcement that are recommended should not be less than the criteria set forth in Table 1809.7 for the appropriate expansion range.

i. Continuous footings bottomed in soils in the "high" expansion range should be reinforced, at a minimum, with two No. 4 bars along the bottom and two No. 4 bars along the top. In addition, bent No. 3 bars on 24-inch centers should extend from within the footings to a minimum of 3 feet into adjacent interior slabs.

j. Bearing soils in the "high" expansion range should be premoistened to 140 percent of optimum moisture content to a depth of 33 inches below lowest adjacent grade. Premoistening should be confirmed by testing.

3. <u>Slabs-on-Grade</u>

a. Interior building concrete slab-on-grade construction should be supported by the geogrid reinforced gravel raft prepared as recommended in Section A of this report.

b. A modulus of subgrade reaction (“k” value) of 200 psi/inch (pci) may be used for design of the slab-on-grade provided the geogrid reinforced gravel raft is prepared as recommended in Section A of this report.

c. It is recommended that exterior perimeter slabs (walks, patios, etc.) be designed relatively independent of footing stems (i.e. free floating) so foundation adjustment will be less likely to cause cracking.

d. The information that follows regarding design criteria for slabs is the same as that given in The Minimum Foundation Design Table for the “high” expansion range. Actual slab designs should be provided by the Project Structural Engineer, but the reinforcement and slab thicknesses he recommends should not be less than the criteria set forth in The Minimum Foundation Design Table for the appropriate expansion range.

e. Slabs bottomed on soils in the "high" expansion range should be underlaid with a minimum of 4 inches of sand. Areas where floor wetness would be undesirable should be underlaid with a vapor retarder (as specified by the Project Architect or Civil Engineer) to reduce moisture transmission from the subgrade soils to the slab. The retarder should be placed as specified by the structural designer.

f. Slabs bottomed on soils in the "high" expansion range should at a minimum be reinforced at mid-slab with No. 4 bars on 16-inch centers, each way.

g. Soils underlying slabs that are in the "high" expansion range should be premoistened to 140 percent of optimum moisture content to a depth of 33 inches below lowest adjacent grade. Premoistening should be confirmed by testing.

4. Frictional and Lateral Coefficients

a. Resistance to lateral loading may be provided by friction acting on the base of foundations. Assuming the mat foundations will be found into compacted native soils a coefficient of friction of 0.53 may be applied to dead load forces. This value does not include a factor of safety.

b. Passive resistance acting on the sides of the thickened edge of the mat foundation in compacted native soils equal to 310 pcf of equivalent fluid weight may be included for resistance to lateral load. This value does not include a factor of safety.

c. A minimum factor of safety of 1.5 should be used when designing for sliding or overturning.

d. For the building foundations, passive resistance may be combined with frictional resistance provided that a one-third reduction in the coefficient of friction is used.

5. Settlement Considerations

a. With as much as 8 feet of new fill being placed within the footprint of the proposed building, static settlement of the underlying native soils due to the weight of the new fill could be on the order of 9 to 11 inches. Surcharging the site prior to the commencement of construction activities will reduce the amount of settlement due to the weight of the new fill.

b. In the event of a strong seismic event, the native soils underlying the site will undergo seismically-induced settlement due to liquefaction. The estimated seismic-induced settlement is about 1 inch. Improving the soils to a depth of 27.5 feet below the existing ground surface will reduce the estimated seismic-induced settlement to about 0.5 inch.

c. A maximum static settlement of about 1.0 inch is anticipated for foundations and floor slabs supported on at least 27.5 feet below the existing ground surface.

d. Differential settlement between adjacent load bearing members should be about one-half the total settlement (static and seismically-induced) over a horizontal distance of 30 feet.

7. Preliminary Asphalt Pavement Sections

a. Based on the exploratory borings drilled by Earth Systems, the near-surface native soils within the proposed paved areas are generally silts and clays that have a low traffic support capacity when recompacted and used as pavement subgrade. A resistance value (R-value) test performed on an untreated sample of the native subgrade soils yielded an R-value of 8.

b. Asphalt pavement sections for untreated subgrade soils are presented below based on an R-value of 8; current Caltrans design procedures, and traffic indices ranging from 4.0 to 7.0. The traffic index (TI) is a measure of traffic wheel loading frequency and intensity of anticipated traffic. For comparison, TI's between 4 and 6 are often suitable for design of automobile parking areas, TI's between 5 and 6 are commonly used for design of fire truck access lanes and areas subject to channelized flow with light delivery trucks, and TI's greater than 6 are common for design of pavements supporting light to moderate bus and truck traffic. Traffic indices assumed above should be reviewed by the project Owner, Architect, and/or Civil Engineer to evaluate their suitability for this project.

TRAFFIC INDEX	ASPHALT-CONCRETE (INCH)	AGGREGATE BASE (INCH)
4.0	3.0	5.5
4.5	3.0	7.5
5.0	4.0	7.0
5.5	4.0	9.0
6.0	4.0	11.0
6.5	5.0	11.0
7.0	5.0	13.0

c. The preliminary paving sections provided above have been designed for the type of traffic indicated. If the pavement is placed before construction on the project is complete, construction loads, which could increase the traffic index values assumed above, should be taken into account.
d. The subgrade soils in the upper 12 inches below the finished subgrade elevation should be properly moisture conditioned to over optimum moisture content and compacted to achieve a minimum relative compaction of 95 percent of the ASTM D1557 maximum dry density. The subgrade soils should be in a stable, non-pumping condition at the time the aggregate base material is placed and compacted.
e. Aggregate base materials should conform to the specifications stated in the 2015 "Greenbook" and be compacted as engineered fill to at least 95 percent compaction.
f. Asphalt paving materials and placement methods should meet specifications stated in the 2015 "Greenbook" for asphalt concrete.
g. Adequate drainage (both surface and subsurface) should be provided such that the subgrade soils and aggregate base materials are not allowed to become continuously wet.
h. All concrete curbs separating pavement and landscaped areas should extend at least 6 inches into the subgrade and below the bottom of the adjacent aggregate base to provide a barrier against lateral migration of landscape water or runoff into the pavement section.
i. Periodic maintenance should be performed to repair degraded areas and seal cracks with appropriate filler.

If imported fill material will be used to raise the site, and differs from the native subgrade soils encountered in our borings and tested in the laboratory, we recommend that a representative sample of the imported fill material be obtained and R-value testing be performed. If the results of the R-value testing vary significantly from those assumed, the pavement sections presented above will need to be revised.

8. Preliminary Concrete Paving Sections

   a. For rigid pavements in heavy traffic driveways and access lanes, the following minimum criteria may be used for design:

Concrete thickness (parking area and interior lanes) =	5.75 inches
Concrete thickness (entrance and exterior lanes) =	6.75 inches
PMB or Class II base thickness under concrete =	4.0 inches
Compressive strength of concrete, fc =	4,000 psi at 28 days
Modulus of flexural strength of 4,000 psi concrete =	595 psi
Maximum spacing of contraction joints, each way =	15 feet

   b If additional resistance to cracking is desired beyond that provided by the contraction joints, steel reinforcement can be added to the pavement section at approximately 2 inches below the top of concrete; however, reinforcement is not required.

   c The preliminary paving sections discussed above have been designed for the type of traffic indicated. If the pavement is placed before construction on the project is complete, construction loads should be taken into account. If bus traffic is expected to exceed 10 per day, these sections should be reevaluated. Traffic should not be allowed on the pavement until 28 days after concrete placement, or until the 28-day design strength is achieved.

ADDITIONAL SERVICES

This report is based on the assumption that an adequate program of monitoring and testing will be performed by Earth Systems during construction to check compliance with the recommendations given in this report. The recommended tests and observations include, but are not necessarily limited to the following:

1. Review of the building and grading plans during the design phase of the project.
2. Observation and testing during site preparation, grading, placing of engineered fill, and foundation construction.
3. Consultation as required during construction.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The analysis and recommendations submitted in this report are based in part upon the data obtained from the CPT sounding and the borings advanced on the site. The nature and extent of variations between and beyond the sounding and borings may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

The scope of services did not include any environmental assessment or investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water, groundwater or air, on, below, or around this site. Any statements in this report or on the soil boring logs regarding odors noted, unusual or suspicious items or conditions observed, are strictly for the information of the client.

Findings of this report are valid as of this date; however, changes in conditions of a property can occur with passage of time whether they are due to natural processes or works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur whether they result from legislation or broadening of knowledge. Accordingly, findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of 1 year.

In the event that any changes in the nature, design, or location of the structures and other improvements are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and conclusions of this report modified or verified in writing.

This report is issued with the understanding that it is the responsibility of the Owner, or of his representative to insure the information and recommendations contained herein are called to the attention of the Architect and Engineers for the project and incorporated into the plan and that the necessary steps are taken to see that the Contractor and Subcontractors carry out such recommendations in the field.

As the Geotechnical Engineers for this project, Earth Systems has striven to provide services in accordance with generally accepted geotechnical engineering practices in this community at this time. No warranty or guarantee is expressed or implied. This report was prepared for the exclusive use of the Client for the purposes stated in this document for the referenced project only. No third party may use or rely on this report without express written authorization from Earth Systems for such use or reliance.

It is recommended that Earth Systems be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications. If Earth Systems is not accorded the privilege of making this recommended review, it can assume no responsibility for misinterpretation of the recommendations.

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APPENDIX A

Field Study
Vicinity Map
Regional Fault Map
Regional Geologic Map 1
Regional Geologic Map 2
Seismic Hazard Zones Map
Historical High Groundwater Map
Site Plan
Boring Logs
Symbols Commonly Used on Boring Logs
Unified Soil Classification
Log of Cone Penetrometer Test Sounding
Interpretation of Cone Penetrometer Test Sounding

FIELD STUDY

A. On March 28, 2019, one Cone Penetrometer Test (CPT) sounding was performed to obtain information pertaining to the soil profile. The sounding was advanced to a depth of approximately 50 feet. The CPT sounding was advanced using equipment owned and operated by Middle Earth. During advancement of the cone penetrometer, readings of sleeve friction (in tons per square foot), tip resistance (also in tons per square foot), and friction ratio (in percent) were recorded at 0.05-meter intervals as per ASTM D 5778 and ASTM D 3441. The approximate locations of the test sounding was determined in the field by pacing and sighting, and are shown on the Site Plan in this Appendix.

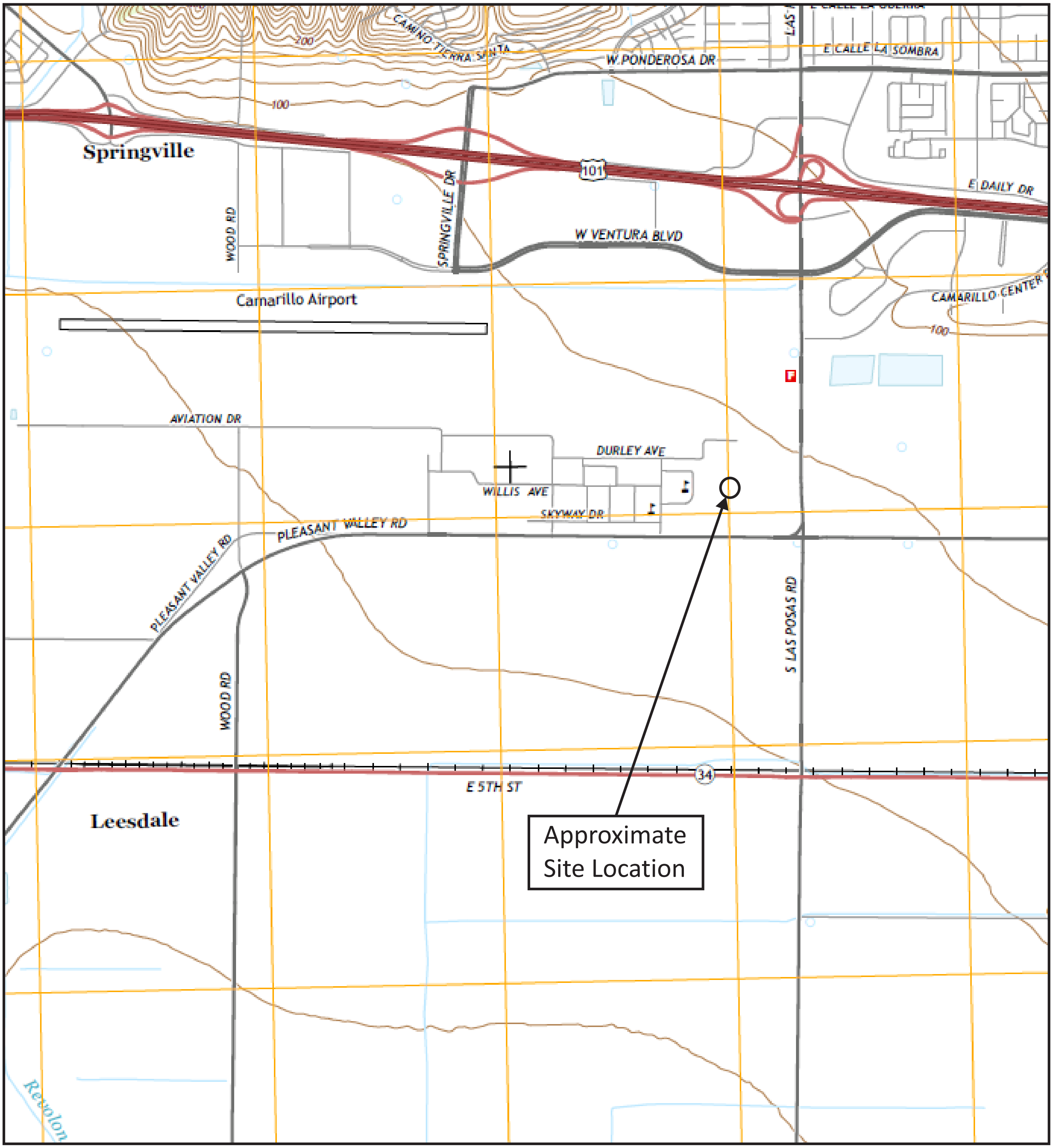
B. On March 19, 2019, two (2) exploratory borings (B-1 and B-2) were drilled to observe the soil profile and to obtain samples for laboratory analysis. Boring depths ranged from approximately 16.5 feet to 31.5 feet below the existing ground surface. The borings were drilled using a hollow stem 8-inch diameter continuous flight auger powered by a CME-75 truck mounted drilling rig. The approximate locations of the test borings were determined in the field by pacing and sighting, and are shown on the Site Plan in this Appendix

C. While onsite for drilling the exploratory borings, two other borings (I-1 and I-2) were drilled for infiltration testing. The borings were drilled using a hollow stem 8-inch diameter continuous flight auger powered by a CME-75 truck mounted drilling rig. The approximate locations of the infiltration test borings were determined in the field by pacing and sighting, and are shown on the Site Plan in this Appendix.

D. Samples were obtained within the test borings with a Modified California (M.C.) ring sampler (ASTM D 3550 with shoe similar to ASTM D 1586), and with a Standard Penetration Test (SPT) sampler (ASTM D 1586). The M.C. sampler has a 3-inch outside diameter, and a 2.42-inch inside diameter when used with brass ring liners (as it was during this study). The SPT sampler has a 2-inch outside diameter and a 1.37-inch inside diameter, but when used without liners, as was done for this project, the inside diameter is 1.63 inches. The samples were obtained by driving the sampler with a 140-pound hammer dropping 30 inches in accordance with ASTM D 1586. The hammer was operated with an automatic trip hammer.

E. A bulk (disturbed) sample of the near-surface materials was obtained from upper 5 feet during the drilling of boring B-1. The sample was secured for classification and testing purposes and represent a mixture of soils and bedrock within the noted depths.

F. The final logs of the test borings represent interpretations of the contents of the field logs and the results of laboratory testing performed on the samples obtained during the subsurface study. The final boring logs, as well as log and interpretation of the CPT sounding are included in this Appendix.



*Taken from USGS Topo Map, Camarillo Quadrangle, California, 2015.

Approximate Scale: 1" = 2,000’

0 2,000’ 4,000’

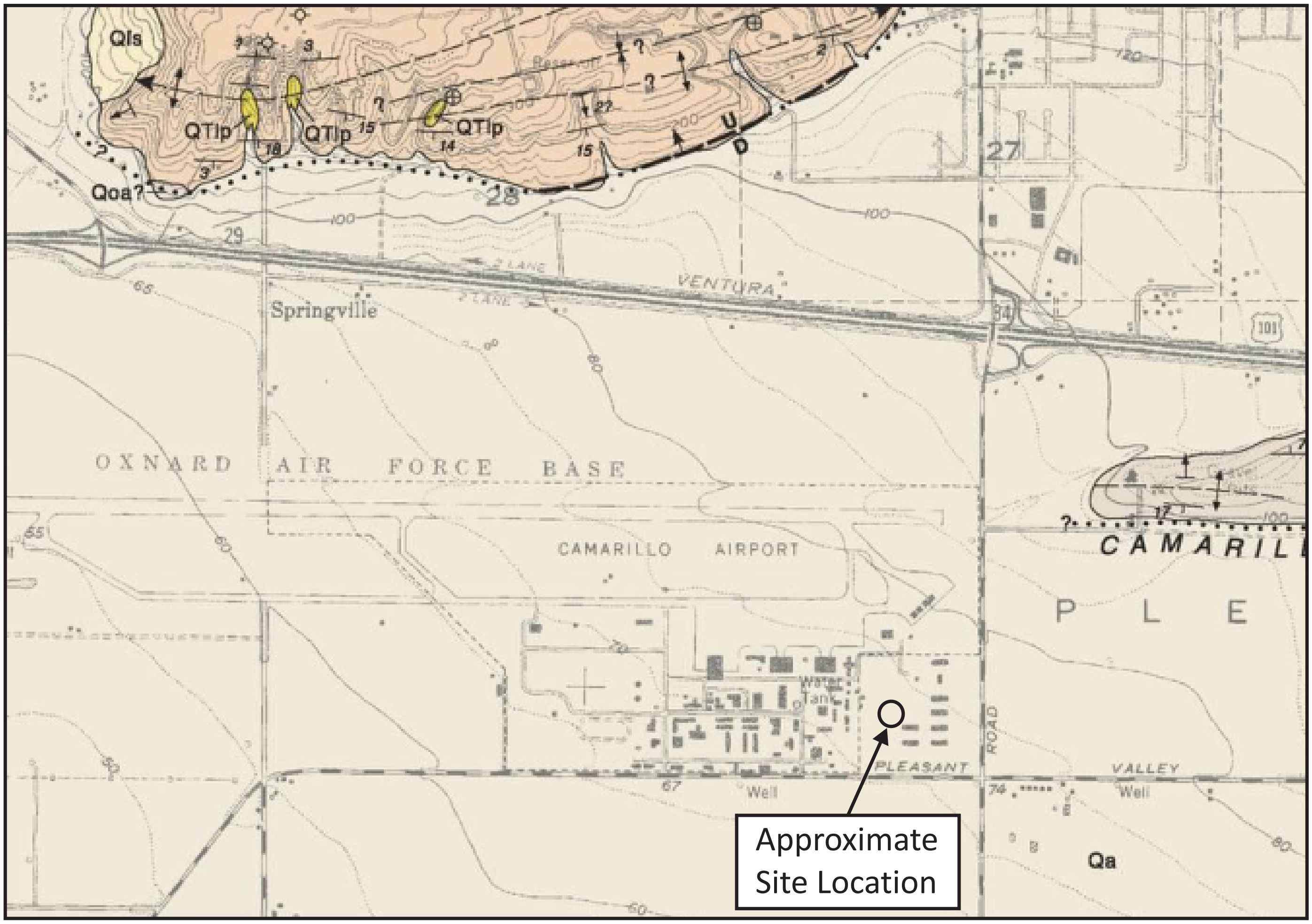
N

VICINITY MAP

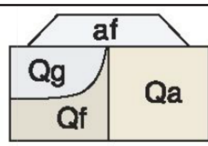
Oxnard College Fire Academy
Camarillo, California

Earth Systems

April 2020	302245-001



*Taken from Dibblee, Jr., Geologic Map of The Camarillo and Newbury Park Quadrangles, Ventura County, California, 1990, DF-28.



SURFICIAL SEDIMENTS

af *Artificial fill*
Qg *Stream channel sand and gravel*
Qf *Alluvial fan gravel and sand, locally slightly indurated*
Qa *Alluvium: gravel, sand and clay of flatlands*

GEOLOGIC SYMBOLS

not all symbols shown on each map

FORMATION CONTACT *dashed where inferred or indefinite dotted where concealed*

MEMBER CONTACT *between units of a formation* .... Prominent bed

CONTACT BETWEEN SURFICIAL SEDIMENTS *located only approximately in places*

FAULT: *Dashed where indefinite or inferred, dotted where concealed, queried where existence is doubtful. Parallel arrows indicate inferred relative lateral movement. Relative vertical movement is shown by U/D (U=upthrown side, D=downthrown side). Short arrow indicates dip of fault plane. Sawteeth are on upper plate of low angle thrust fault.* U D 25 ?

FOLDS: overturned ANTICLINE SYNCLINE

arrow on axial trace of fold indicates direction of plunge; dotted where concealed by surficial sediments

Strike and dip of sedimentary rocks: 18 *inclined*; 20 *inclined (approximate)*; 80 *overturned*; *horizontal*; *vertical*

Strike and dip of metamorphic or igneous rock foliation or flow banding or compositional layers: 75 *inclined*; *inclined (approximate)*; *vertical*; 80 *overturned*

OTHER SYMBOLS: *Direction of landslide movement*; *outline of water bodies shown on map*; *water well*; *oil well*; *springs*

Approximate Scale: 1" = 2,000’

0 2,000’ 4,000’

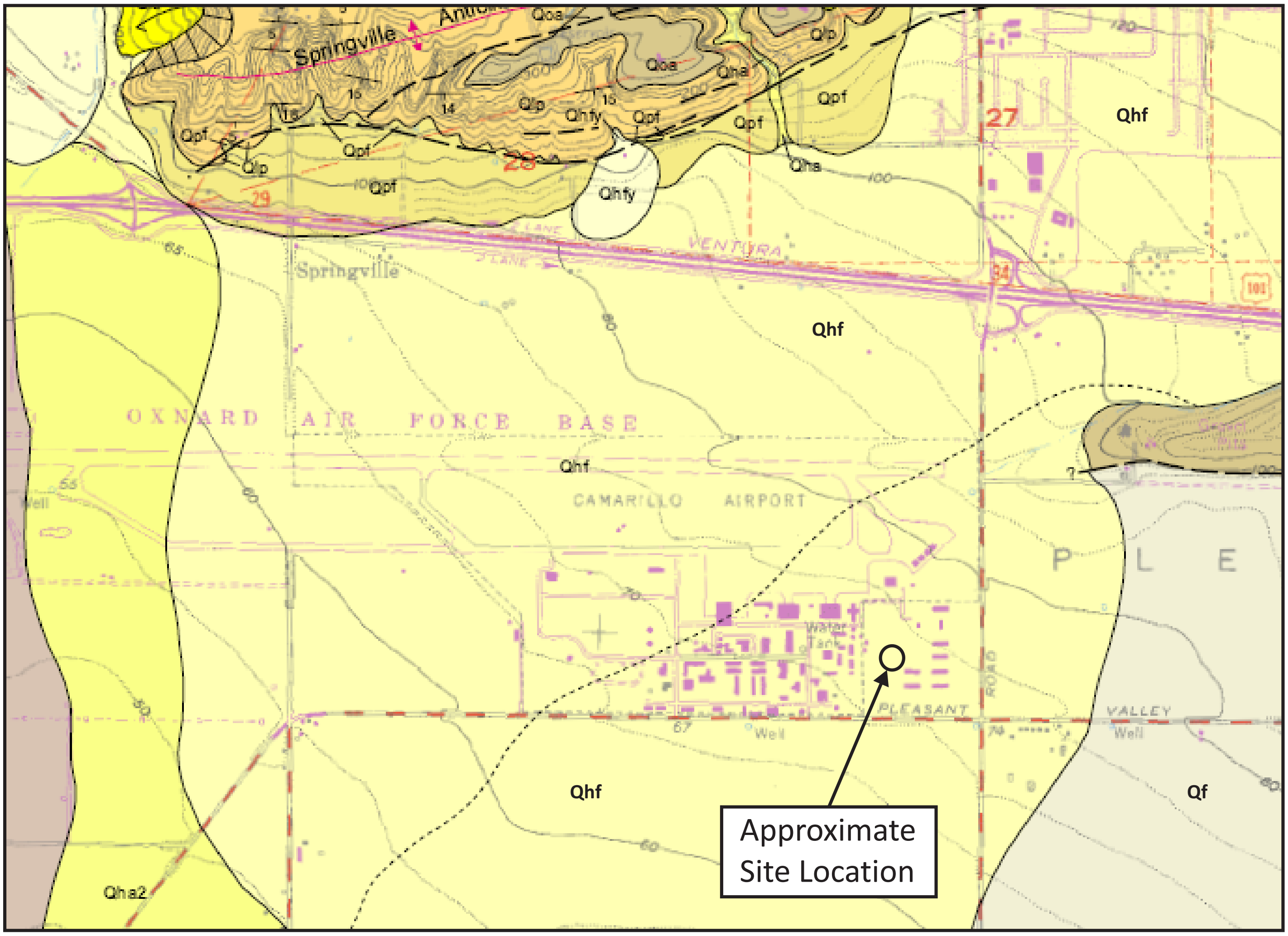
N

REGIONAL GEOLOGIC MAP 1

Oxnard College Fire Academy
Camarillo, California

Earth Systems

April 2020	302245-001



*Taken from USGS, SCAMP Geologic Map of the Camarillo 7.5' Quadrangle, Ventura County, California, 2004.

Qhf	Alluvial fan deposits (Holocene) - Includes active fan deposits, deposited by streams emanating from mountain canyons to the north onto the alluvial valley floor; deposits originate as debris flows, hyperconcentrated mudflows or braided stream flows; composed of moderately to poorly sorted and moderately to poorly bedded sandy clay with some silt and gravel.
Qf	Alluvial fan deposits (late Pleistocene to Holocene) - Deposited on gently sloping, relatively undissected alluvial surfaces where deposits might be of either late Pleistocene or Holocene age, composed of moderately to poorly sorted sand, gravel, silt , and clay.
———-------	Contact between map units - Generally approximately located or inferred, dotted where concealed.
- - - - - - - -	Contact between similar map units of different relative age - Recognized by scour and incised channelling features. Generally approximately located.
——— — — —-----?--	Fault - Generally approximately located or inferred, dotted where concealed, queried where location is uncertain.

Approximate Scale: 1" = 2,000'

0 2,000' 4,000'

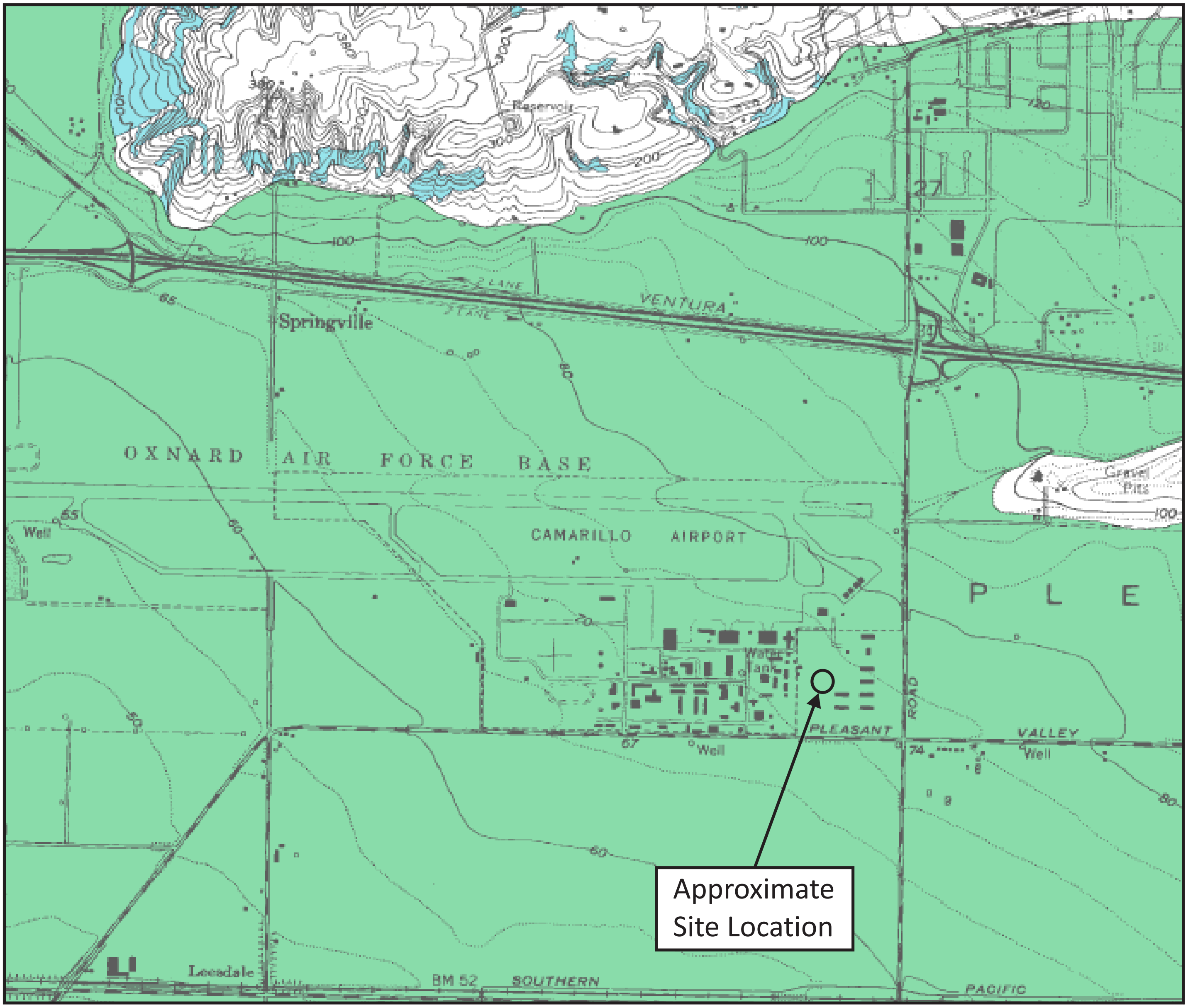
N

REGIONAL GEOLOGIC MAP 2

Oxnard College Fire Academy
Camarillo, California

Earth Systems

April 2020 | 302245-001



MAP EXPLANATION

Zones of Required Investigation:

Liquefaction

Areas where historical occurrence of liquefaction, or local geological, geotechnical and ground-water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Earthquake-Induced Landslides

Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

NOTE: Seismic Hazard Zones identified on this map may include developed land where delineated hazards have already been mitigated to city or county standards. Check with your local building/planning department for information regarding the location of such mitigated areas.

Approximate Scale: 1" = 2,000’

0 2,000’ 4,000’

STATE OF CALIFORNIA

SEISMIC HAZARD ZONES

Delineated in compliance with Chapter 7.8, Division 2 of the California Public Resources Code (Seismic Hazards Mapping Act)

CAMARILLO QUADRANGLE

OFFICIAL MAP

Released: February 7, 2002

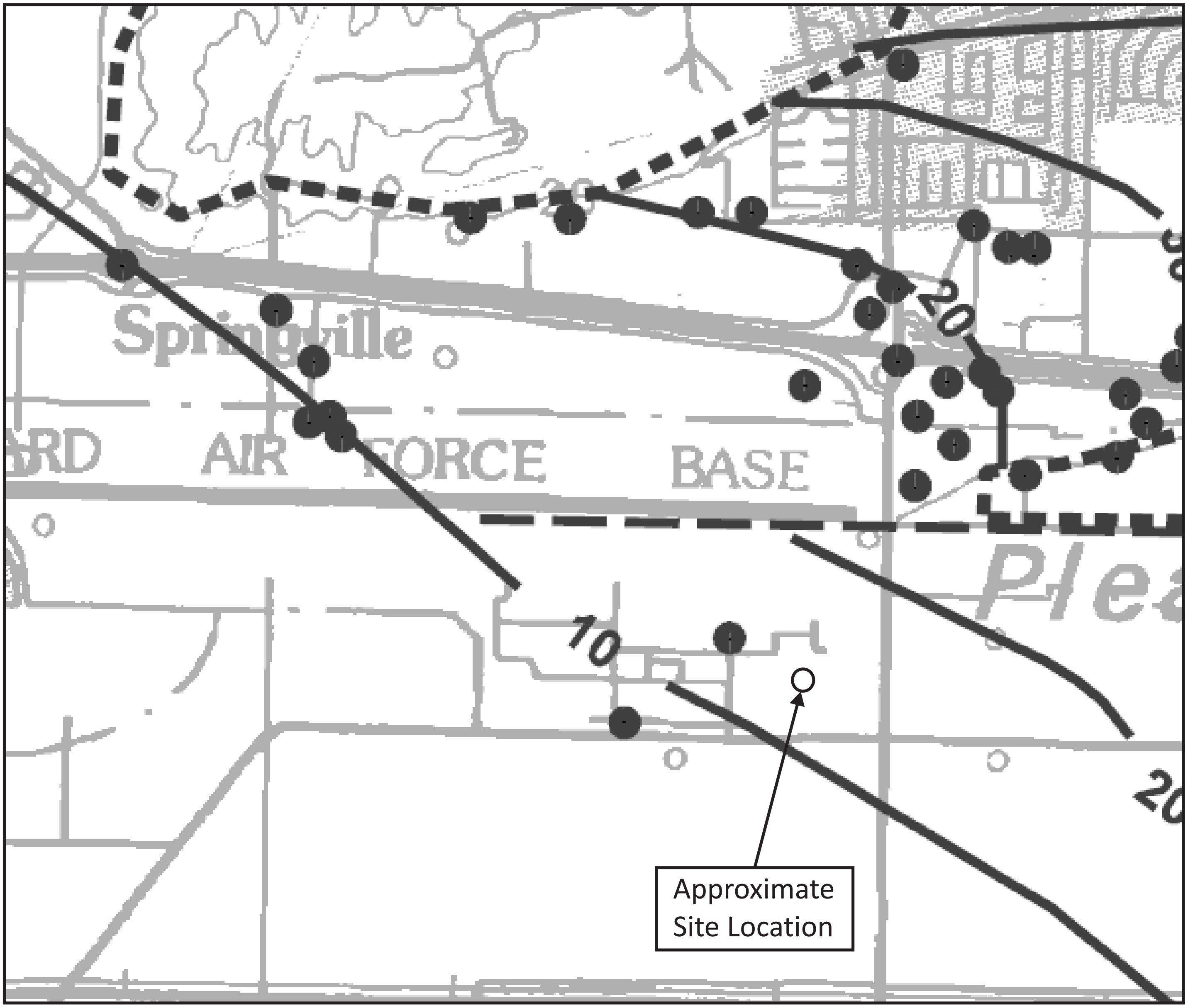
N

SEISMIC HAZARD ZONES MAP

Oxnard College Fire Academy
Camarillo, California

Earth Systems

April 2020	302245-001



*Taken from Seismic Hazard Zone Report For The Camarillo 7.5 Minute Quadrangle, Ventura County, California, 2002.

LEGEND

30 Depth to historically highest ground water level in feet

Borehole Site

Valley / Mountains Boundary

Approximate Scale: 1" = 2,000’

0 2,000’ 4,000’

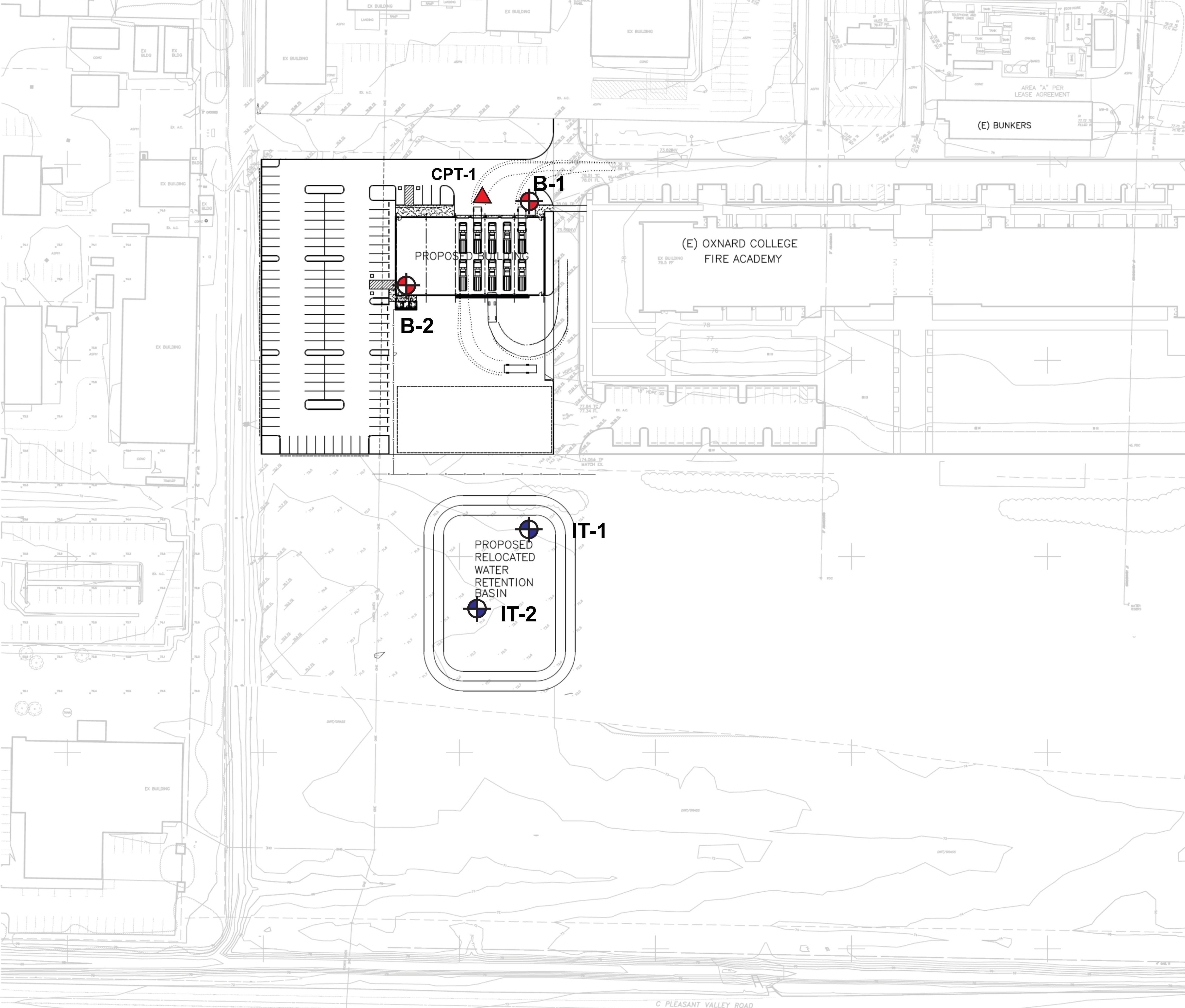
N

HISTORICAL HIGH GROUNDWATER

Oxnard College Fire Academy
Camarillo, California

Earth Systems

April 2020	302245-001



B-2
Approximate Location of Boring

CPT-1
Approximate Location of
Cone Penetration Test (CPT)

IT-2
Approximate Location of Infiltration Test

N

Approximate Scale: 1" = 100'

0 100' 200'

SITE PLAN

Oxnard College Fire Academy
Oxnard, California

Earth Systems

April 2020	302245-001

Earth Systems

1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: B-1
PROJECT NAME: Oxnard College Fire Academy
PROJECT NUMBER: 302245-001
BORING LOCATION: Per Plan

DRILLING DATE: March 19, 2019
DRILL RIG: CME-75
DRILLING METHOD: Eight-Inch Hollow Stem Auger
LOGGED BY: SC

Vertical Depth	Sample Type	PENETRATION RESISTANCE (BLOWS/6")	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0–5	Bulk; Mod. Calif.	3/6/8	CL/ML	91.8	23.9	**ALLUVIUM:** Mottled olive brown silty clay to clayey silt; stiff; moist.
5	Mod. Calif.	1/1/2	CL	81.2	36.6	**ALLUVIUM:** Dark yellowish brown silty clay; soft; very moist.
	Mod. Calif.	1/1/2	CL	72.7	45.3	As above; with caliche.
10	Mod. Calif.	1/3/2	CL	78.4	43.1	**ALLUVIUM:** Dark yellowish brown silty clay; minor sand; some caliche; soft; very moist to wet.
15	SPT	1/2/3	CH		43.1	**ALLUVIUM:** Interbedded dark yellowish brown fat clay; caliche; medium stiff; wet.
20	SPT	2/3/7	SC/ CL			**ALLUVIUM:** Olive brown sandy clay to clayey sand; medium dense to stiff; wet.
25	SPT	8/16/19	SM/ SP			**ALLUVIUM:** Interbedded pale yellowish brown fine silty sand and fine sand; dense; wet.
30	SPT	8/10/10	SM/ SP			**ALLUVIUM:** Interbedded pale yellowish brown sandy silt; silty sand and fine sand; medium dense; wet.
35						Total Depth: 31.5 feet. Groundwater Depth 8.0 feet.

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems
1731-A Walter Street, Ventura, California 93003
PHONE: (805) 642-6727 FAX: (805) 642-1325

BORING NO: B-2
PROJECT NAME: Oxnard College Fire Academy
PROJECT NUMBER: 302245-001
BORING LOCATION: Per Plan

DRILLING DATE: March 19, 2019
DRILL RIG: CME-75
DRILLING METHOD: Eight-Inch Hollow Stem Auger
LOGGED BY: SC

Vertical Depth	Sample Type: Bulk	Sample Type: SPT	Sample Type: Mod. Calif.	PENETRATION RESISTANCE (BLOWS/6")	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
0									
			■	2/2/2		CL/ML	80.7	39.6	**ALLUVIUM:** Mottled olive brown silty clay to clayey silt; soft; moist.
5			■	1/1/1		CL	69.8	50.2	Same as above; with caliche and very soft.
10			■	1/2/3		CL			**ALLUVIUM:** Dark olive brown silty clay; caliche; soft; very moist to wet.
15		■		1/1/1		CL/ ML			**ALLUVIUM:** Dark olive brown silty clay; caliche; soft; very moist to wet.
20									
25									
30									
35									

Total Depth: 16.5 feet.
Groundwater Depth 8.0 feet.

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

Earth Systems

CPT No: CPT-1

Project Name: Oxnard College Fire Academy

Project No.: 302245-001

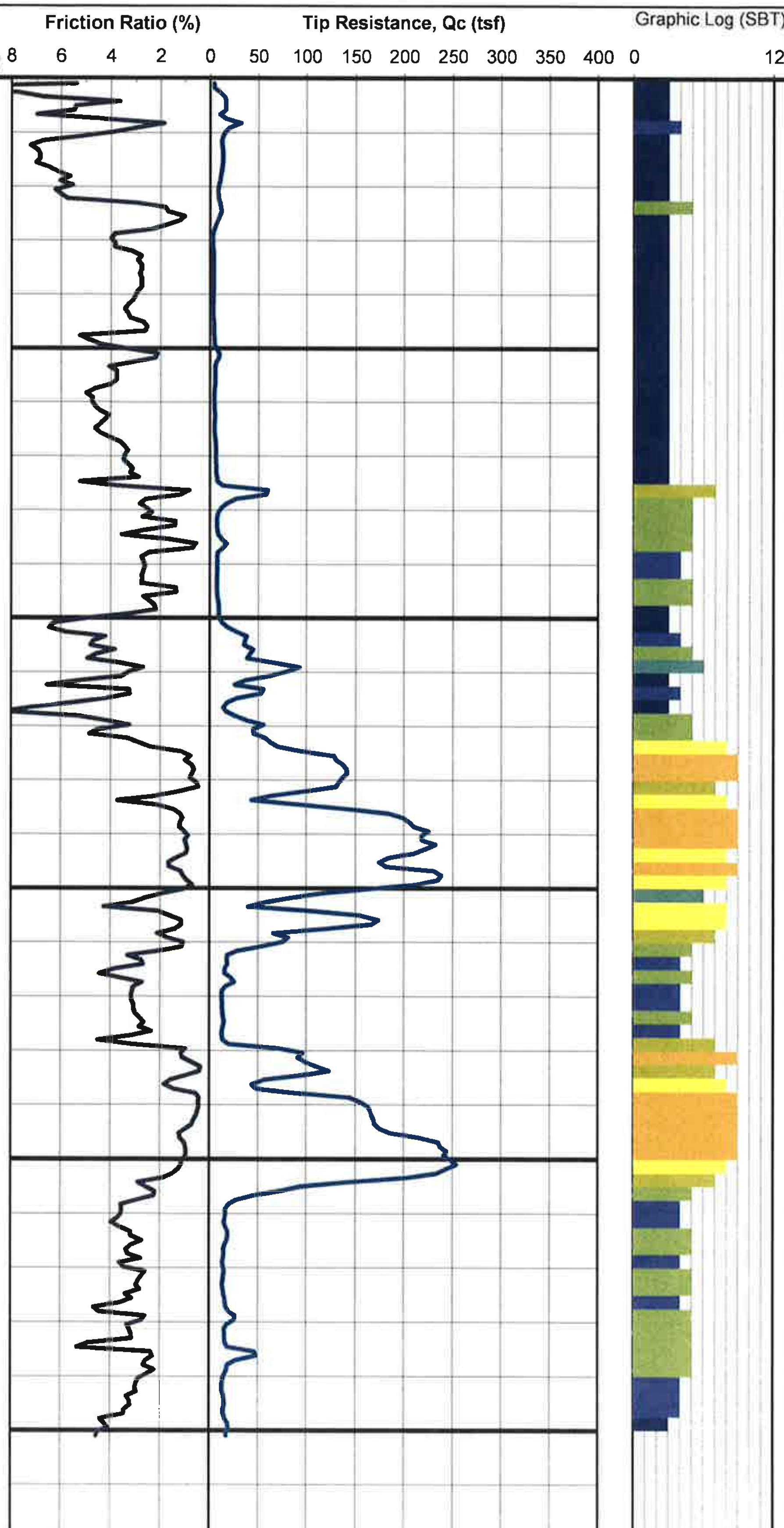
Location: See Site Exploration Plan

CPT Vendor: **Middle Earth GeoTesting**
Truck Mounted Electric
Cone with 23-ton reaction

Date: 3/28/2019

DEPTH (FEET)

Interpreted Soil Stratigraphy Robertson & Campanella ('89)	Density/Consistency
Clay	stiff
Silty Clay to Clay	very stiff
Clay	stiff
Clay	stiff
Silty Clay to Clay	stiff
Clay	soft
Clay	soft
Clay	soft
Clay	soft
Clay	firm
Clay	firm
Clay	soft
Clay	soft
Clay	firm
Clay	firm
Sandy Silt to Clayey Silt	medium dense
Clayey Silt to Silty Clay	stiff
Silty Clay to Clay	firm
Silty Clay to Clay	firm
Clay	stiff
Clay	very stiff
Clayey Silt to Silty Clay	dense
Silty Clay to Clay	hard
Clay	very stiff
Sandy Silt to Clayey Silt	dense
Sand	medium dense
Silty Sand to Sandy Silt	dense
Sand	dense
Sand	dense
Sand	dense
Silty Sand to Sandy Silt	dense
Sand to Silty Sand	medium dense
Clayey Silt to Silty Clay	very stiff
Clayey Silt to Silty Clay	stiff
Clayey Silt to Silty Clay	stiff
Sandy Silt to Clayey Silt	medium dense
Sand to Silty Sand	medium dense
Sand	medium dense
Sand	dense
Sand	dense
Silty Sand to Sandy Silt	dense
Clayey Silt to Silty Clay	very stiff
Clayey Silt to Silty Clay	stiff
Clayey Silt to Silty Clay	stiff
Clayey Silt to Silty Clay	stiff
Clayey Silt to Silty Clay	very stiff
Clayey Silt to Silty Clay	very stiff
Clayey Silt to Silty Clay	stiff
Silty Clay to Clay	stiff
Silty Clay to Clay	stiff



End of Sounding @ 50.4 feet

Project: Oxnard College Fire Academy | Project No: 302245-001 | Date: 03/28/19

CPT SOUNDING: CPT-1 | Plot: 1 | Density: 1 | SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 8.0 | Dr correlation: 0 | Baldi | Qc/N: 1 | Robertson | Phi Correlation: 4 | SPT N | Nk: 17

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Su (tsf)	OCR
0.15	0.5	9.77	8.81	Clay	CL/CH	stiff	110	1.0	10	0.014	0.014	8.82	0.95	1.70	15.7	3.14		10				0.57	####
0.30	1.0	16.47	4.86	Clay	CL/CH	stiff	110	1.0	16	0.041	0.041	4.87	0.85	1.70	26.5	2.80		16				0.97	####
0.46	1.5	19.37	4.40	Clay	CL/CH	very stiff	110	1.0	19	0.069	0.069	4.42	0.82	1.70	31.1	2.72		19				1.14	84.2
0.61	2.0	16.30	4.06	Silty Clay to Clay	CL	stiff	110	1.5	11	0.096	0.096	4.08	0.83	1.70	26.2	2.75		11				0.95	50.5
0.76	2.5	12.37	7.00	Clay	CL/CH	stiff	110	1.0	12	0.124	0.124	7.08	0.91	1.70	19.9	3.00		12				0.72	29.7
0.91	3.0	13.00	6.92	Clay	CL/CH	stiff	110	1.0	13	0.151	0.151	7.01	0.90	1.70	20.9	2.98		13				0.76	25.5
1.07	3.5	11.43	6.10	Clay	CL/CH	stiff	110	1.0	11	0.179	0.179	6.20	0.91	1.70	18.4	2.99		11				0.66	18.9
1.22	4.0	8.97	5.96	Clay	CL/CH	stiff	110	1.0	9	0.206	0.206	6.10	0.93	1.70	14.4	3.06		9				0.52	12.7
1.37	4.5	9.00	4.92	Clay	CL/CH	stiff	110	1.0	9	0.234	0.234	5.06	0.91	1.70	14.5	3.01		9				0.52	11.3
1.52	5.0	10.83	1.51	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	5	0.263	0.263	1.55	0.80	1.70	17.4	2.64		5				0.62	12.1
1.68	5.5	5.15	2.30	Clay	CL/CH	firm	120	1.0	5	0.293	0.293	2.44	0.92	1.70	8.3	3.02		5				0.29	5.0
1.83	6.0	2.57	3.90	Clay	CL/CH	soft	120	1.0	3	0.323	0.323	4.46	1.00	1.70	4.1	3.41		3				0.13	2.1
1.98	6.5	3.40	2.95	Clay	CL/CH	soft	120	1.0	3	0.353	0.353	3.29	0.99	1.70	5.5	3.24		3				0.18	2.6
2.13	7.0	3.57	2.80	Clay	CL/CH	soft	120	1.0	4	0.383	0.383	3.14	0.98	1.70	5.7	3.21		4				0.19	2.5
2.29	7.5	3.60	2.78	Clay	CL/CH	soft	120	1.0	4	0.413	0.413	3.14	0.98	1.70	5.8	3.21		4				0.19	2.3
2.44	8.0	3.30	3.03	Clay	CL/CH	soft	120	1.0	3	0.443	0.443	3.50	1.00	1.70	5.3	3.26		3				0.17	1.9
2.59	8.5	2.97	3.37	Clay	CL/CH	soft	120	1.0	3	0.473	0.457	4.01	1.00	1.70	4.8	3.33		3				0.15	1.6
2.74	9.0	3.57	2.83	Clay	CL/CH	soft	120	1.0	4	0.503	0.471	3.30	0.99	1.70	5.7	3.22		4				0.18	2.0
2.90	9.5	3.90	4.26	Clay	CL/CH	soft	120	1.0	4	0.533	0.486	4.93	1.00	1.70	6.3	3.29		4				0.20	2.1
3.05	10.0	6.60	3.32	Clay	CL/CH	firm	120	1.0	7	0.563	0.500	3.63	0.92	1.70	10.6	3.02		7				0.36	3.6
3.20	10.5	6.77	3.14	Clay	CL/CH	firm	120	1.0	7	0.593	0.515	3.44	0.92	1.70	10.9	3.00		7				0.37	3.6
3.35	11.0	5.30	3.77	Clay	CL/CH	firm	120	1.0	5	0.623	0.529	4.28	0.96	1.70	8.5	3.14		5				0.28	2.7
3.51	11.5	4.43	4.55	Clay	CL/CH	soft	120	1.0	4	0.653	0.543	5.34	1.00	1.70	7.1	3.26		4				0.23	2.1
3.66	12.0	4.23	4.72	Clay	CL/CH	soft	120	1.0	4	0.683	0.558	5.63	1.00	1.70	6.8	3.29		4				0.22	1.9
3.81	12.5	4.70	4.26	Clay	CL/CH	soft	120	1.0	5	0.713	0.572	5.02	0.99	1.70	7.6	3.23		5				0.24	2.1
3.96	13.0	4.43	4.51	Clay	CL/CH	soft	120	1.0	4	0.743	0.587	5.42	1.00	1.70	7.1	3.27		4				0.23	1.9
4.11	13.5	5.40	3.72	Clay	CL/CH	firm	120	1.0	5	0.773	0.601	4.34	0.96	1.70	8.7	3.14		5				0.28	2.3
4.27	14.0	5.83	3.43	Clay	CL/CH	firm	120	1.0	6	0.803	0.615	3.98	0.95	1.67	9.2	3.10		6				0.31	2.5
4.42	14.5	6.20	3.23	Clay	CL/CH	firm	120	1.0	6	0.833	0.630	3.73	0.94	1.63	9.5	3.07		6				0.33	2.6
4.57	15.0	9.27	3.97	Clay	CL/CH	stiff	120	1.0	9	0.863	0.644	4.38	0.91	1.57	13.8	2.98		9				0.51	3.9
4.72	15.5	48.03	1.55	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	16	0.893	0.659	1.58	0.67	1.37	62.3	2.20	103.2	20	21	57	33		
4.88	16.0	11.28	2.62	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	0.923	0.673	2.86	0.86	1.48	15.7	2.82		6				0.62	4.6
5.03	16.5	7.17	1.85	Clayey Silt to Silty Clay	ML/CL	firm	120	2.0	4	0.953	0.687	2.13	0.89	1.47	10.0	2.92		4				0.38	2.7
5.18	17.0	12.57	1.94	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	6	0.983	0.702	2.11	0.83	1.41	16.7	2.73		6				0.70	5.0
5.33	17.5	9.73	1.99	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	5	1.013	0.716	2.22	0.87	1.40	12.9	2.83		5				0.53	3.7
5.49	18.0	7.47	2.68	Silty Clay to Clay	CL	firm	120	1.5	5	1.043	0.731	3.11	0.92	1.41	9.9	3.01		5				0.40	2.6
5.64	18.5	7.27	2.75	Silty Clay to Clay	CL	firm	120	1.5	5	1.073	0.745	3.23	0.93	1.39	9.5	3.03		5				0.38	2.5
5.79	19.0	7.30	1.82	Clayey Silt to Silty Clay	ML/CL	firm	120	2.0	4	1.103	0.759	2.14	0.90	1.35	9.3	2.94		4				0.38	2.4
5.94	19.5	8.73	2.29	Clayey Silt to Silty Clay	ML/CL	firm	120	2.0	4	1.133	0.774	2.64	0.90	1.32	10.9	2.93		4				0.47	2.9
6.10	20.0	10.43	4.94	Clay	CL/CH	stiff	120	1.0	10	1.163	0.788	5.56	0.94	1.32	13.0	3.07		10				0.57	3.5
6.25	20.5	27.93	5.52	Clay	CL/CH	very stiff	120	1.0	28	1.193	0.803	5.76	0.84	1.26	33.3	2.78		28				1.60	10.0
6.40	21.0	38.53	4.46	Silty Clay to Clay	CL	hard	120	1.5	26	1.223	0.817	4.60	0.80	1.23	44.7	2.62		26				2.22	13.7
6.55	21.5	48.67	4.39	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	24	1.253	0.831	4.50	0.77	1.21	55.4	2.55	167.4	27	33	52	35		
6.71	22.0	78.03	3.17	Sandy Silt to Clayey Silt	ML	dense	120	2.5	31	1.283	0.846	3.23	0.70	1.17	86.3	2.31	171.3	34	34	71	37		
6.86	22.5	39.10	5.03	Clay	CL/CH	hard	120	1.0	39	1.313	0.860	5.20	0.81	1.18	43.7	2.66		39				2.25	13.2
7.01	23.0	33.23	4.28	Silty Clay to Clay	CL	very stiff	120	1.5	22	1.343	0.875	4.47	0.81	1.17	36.7	2.67		22				1.90	10.9
7.16	23.5	19.07	6.92	Clay	CL/CH	very stiff	120	1.0	19	1.373	0.889	7.45	0.91	1.17	21.1	3.00		19				1.07	6.0
7.32	24.0	45.90	3.99	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	23	1.403	0.903	4.12	0.78	1.13	49.1	2.56	150.4	24	30	47	34		
7.47	24.5	55.13	3.68	Clayey Silt to Silty Clay	ML/CL	medium dense	120	2.0	28	1.433	0.918	3.78	0.75	1.11	58.0	2.48	154.4	29	31	54	36		
7.62	25.0	98.03	1.44	Sand to Silty Sand	SP/SM	medium dense	120	4.0	25	1.463	0.932	1.46	0.61	1.08	100.2	2.02	132.9	25	27	77	35		
7.77	25.5	135.90	0.79	Sand	SP	medium dense	120	5.0	27	1.493	0.947	0.80	0.53	1.06	136.3	1.74	145.5	28	29	90	35		
7.92	26.0	136.63	0.68	Sand	SP	medium dense	120	5.0	27	1.523	0.961	0.69	0.52	1.05	135.8	1.71	141.4	28	28	90	35		
8.08	26.5	84.13	1.90	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	28	1.553	0.975	1.94	0.66	1.05	83.9	2.16	131.9	28	26	70	36		
8.23	27.0	139.30	1.62	Sand to Silty Sand	SP/SM	dense	120	4.0	35	1.583	0.990	1.64	0.60	1.04	137.0	1.96	171.1	35	34	90	37		
8.38	27.5	204.73	1.19	Sand	SP	dense	120	5.0	41	1.613	1.004	1.20	0.53	1.03	199.0	1.75	213.0	41	43	100	39		
8.53	28.0	220.17	0.97	Sand	SP	dense	120	5.0	44	1.643	1.019	0.98	0.51	1.02	212.2	1.66	215.0	44	43	100	39		
8.69	28.5	221.27	0.93	Sand	SP	dense	120	5.0	44	1.673	1.033	0.94	0.50	1.01	211.7	1.65	212.9	44	43	100	39		
8.84	29.0	179.67	1.56	Sand to Silty Sand	SP/SM	dense	120	4.0	45	1.703	1.047	1.58	0.57	1.01	170.8	1.88	200.2	44	40	99	39		
8.99	29.5	234.37	1.07	Sand	SP	dense	120	5.0	47	1.733	1.062	1.08	0.51	1.00	221.1	1.68	226.9	45	45	100	40		
9.14	30.0	164.17	1.22	Sand to Silty Sand	SP/SM	dense	120	4.0	41	1.763	1.076	1.23	0.56	0.99	153.7	1.83	174.0	40	35	95	38		
9.30	30.5	60.73	3.33	Sandy Silt to Clayey Silt	ML	medium dense	120	2.5	24	1.793	1.091	3.43	0.75	0.98	56.1	2.46	144.0	23	29	53	34		
9.45	31.0	144.33	1.62	Sand to Silty Sand	SP/SM	dense	120	4.0	36	1.823	1.105	1.64	0.60	0.97	132.9	1.97	167.5	34	33	89	37		
9.60	31.5	117.90	1.56	Sand to Silty Sand	SP/SM	medium dense	120	4.0	29	1.853	1.119	1.58	0.61	0.97	107.6	2.02	142.9	26	29	80	35		
9.75	32.0	69.83	1.31	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	23	1.883	1.134	1.34	0.65	0.96	63.1	2.15	97.4	22	19	58	34		
9.91	32.5	21.63	2.73	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	1.913	1.148	2.99	0.84	0.93	19.1	2.77		11				1.21	5.2
10.06	33.0	16.67	3.65	Silty Clay to Clay	CL	stiff	120	1.5	11	1.943	1.163	4.13	0.90	0.92	14.5	2.95		11				0.91	3.8
10.21	33.5	21.33	3.14	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	1.973	1.177	3.46	0.86	0.91	18.4	2.82		11				1.19	4.9
10.36	34.0	12.70	3.15	Silty Clay to Clay	CL	stiff	120	1.5	8	2.003	1.191	3.74	0.93	0.90	10.8	3.03		8				0.68	2.7
10.52	34.5	13.10	3.05	Silty Clay to Clay	CL	stiff	120	1.5	9	2.033	1.206	3.61	0.92	0.89	11.0	3.01		9				0.70	2.8
10.67	35.0	14.40	2.78	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.063	1.220	3.25	0.90	0.88	12.0	2.95		7				0.78	3.0
10.82	35.5	12.90	3.34	Silty Clay to Clay	CL	stiff	120	1.5	9	2.093	1.235	3.99	0.93	0.87	10.6	3.05		9				0.69	2.6
10.97	36.0	62.70	1.72	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	21	2.123	1.249	1.78	0.70	0.89	52.8	2.28	100.3	19	20	50	33		
11.13	36.5	106.03	0.64	Sand	SP	medium dense	120	5.0	21	2.153	1.263	0.66	0.56	0.91	90.7	1.83	102.7	19	21	73	33		
11.28	37.0	64.60	1.47	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	22	2.183	1.278	1.52	0.68	0.88	53.7	2.23	94.2	19	19	51	33		
11.43	37.5	93.83	0.81	Sand to Silty Sand	SP/SM	medium dense	120	4.0	23	2.213	1.292	0.83	0.59	0.89	78.8	1.94	97.1	21	19	67	33		
11.58	38.0	160.87	0.46	Sand	SP	medium dense	120	5.0	32	2.243	1.307	0.46	0.50	0.90	136.8	1.60	136.8	28	27	90	36		
11.73	38.5	168.27	0.63	Sand	SP	medium dense	120	5.0	34	2.273	1.321	0.64	0.51	0.89	142.0	1.67	144.6	29	29	91	36		
11.89	39.0	192.23	1.14	Sand	SP	dense	120	5.0	38	2.303	1.335	1.15	0.55	0.88	159.9	1.80	177.1	33	35	96	37		
12.04	39.5	238.43	0.98	Sand	SP	dense	120	5.0	48	2.333	1.350	0.99	0.52	0.88	198.8	1.69	204.7	41	41	100	39		
12.19	40.0	247.43	1.08	Sand	SP	dense	120	5.0	49	2.363	1.364	1.09	0.52	0.88	204.9	1.71	213.8	42	43	100	39		

Project: Oxnard College Fire Academy | Project No: 302245-001 | Date: 03/28/19

CPT SOUNDING: CPT-1 | Plot: 1 | Density: 1 SPT N | Program developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Est. GWT (feet): 8.0 | Dr correlation: 0 Baldi | Qc/N: 1 Robertson | Phi Correlation: 4 SPT N

Base Depth meters	Base Depth feet	Avg Tip Qc, tsf	Avg Friction Ratio, %	Soil Classification	USCS	Density or Consistency	Est. Density (pcf)	Qc to N	SPT N(60)	Total po tsf	p'o tsf	F	n	Cq	Norm. Qc1n	2.6 Ic	Clean Sand Qc1n	$N_{1(60)}$	Clean Sand $N_{1(60)}$	Rel. Dens. Dr (%)	Phi (deg.)	Nk: 17 Su (tsf)	OCR
12.34	40.5	227.03	1.56	Sand to Silty Sand	SP/SM	dense	120	4.0	57	2.393	1.379	1.58	0.57	0.86	184.7	1.86	213.0	48	43	100	40		
12.50	41.0	102.37	2.56	Silty Sand to Sandy Silt	SM/ML	medium dense	120	3.0	34	2.423	1.393	2.62	0.69	0.83	80.0	2.27	147.9	29	30	68	36		
12.65	41.5	30.43	2.92	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	15	2.453	1.407	3.17	0.83	0.79	22.7	2.73		15				1.71	6.0
12.80	42.0	16.63	3.61	Silty Clay to Clay	CL	stiff	120	1.5	11	2.483	1.422	4.24	0.92	0.76	12.0	3.02		11				0.89	3.0
12.95	42.5	16.80	3.60	Silty Clay to Clay	CL	stiff	120	1.5	11	2.513	1.436	4.23	0.92	0.75	12.0	3.02		11				0.90	3.0
13.11	43.0	17.67	3.02	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	9	2.543	1.451	3.53	0.90	0.75	12.6	2.96		9				0.95	3.1
13.26	43.5	14.77	3.16	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.573	1.465	3.82	0.93	0.74	10.3	3.05		7				0.78	2.5
13.41	44.0	14.50	3.24	Silty Clay to Clay	CL	stiff	120	1.5	10	2.603	1.479	3.94	0.94	0.73	10.0	3.07		10				0.77	2.4
13.56	44.5	13.97	2.87	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.633	1.494	3.53	0.94	0.72	9.6	3.05		7				0.73	2.3
13.72	45.0	14.93	3.12	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.663	1.508	3.80	0.93	0.72	10.1	3.05		7				0.79	2.4
13.87	45.5	17.97	4.25	Silty Clay to Clay	CL	stiff	120	1.5	12	2.693	1.523	5.00	0.94	0.71	12.1	3.06		12				0.97	3.0
14.02	46.0	23.40	2.90	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	12	2.723	1.537	3.28	0.87	0.72	16.0	2.86		12				1.29	4.0
14.17	46.5	15.73	3.18	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	8	2.753	1.551	3.85	0.93	0.70	10.4	3.05		8				0.83	2.5
14.33	47.0	32.23	3.74	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	16	2.783	1.566	4.09	0.86	0.71	21.8	2.81		16				1.80	5.6
14.48	47.5	21.23	2.50	Clayey Silt to Silty Clay	ML/CL	very stiff	120	2.0	11	2.813	1.580	2.88	0.88	0.70	14.1	2.86		11				1.16	3.5
14.63	48.0	14.43	2.78	Clayey Silt to Silty Clay	ML/CL	stiff	120	2.0	7	2.843	1.595	3.47	0.94	0.68	9.3	3.06		7				0.76	2.2
14.78	48.5	13.90	3.11	Silty Clay to Clay	CL	stiff	120	1.5	9	2.873	1.609	3.92	0.95	0.67	8.8	3.11		9				0.72	2.1
14.94	49.0	15.20	3.29	Silty Clay to Clay	CL	stiff	120	1.5	10	2.903	1.623	4.07	0.95	0.67	9.6	3.09		10				0.80	2.3
15.09	49.5	16.33	4.05	Silty Clay to Clay	CL	stiff	120	1.5	11	2.933	1.638	4.94	0.95	0.66	10.2	3.12		11				0.86	2.5
15.24	50.0	18.23	4.40	Clay	CL/CH	stiff	120	1.0	18	2.963	1.652	5.25	0.95	0.66	11.3	3.10		18				0.98	2.8

APPENDIX B

Laboratory Testing

Tabulated Laboratory Test Results

Individual Laboratory Test Results

Table 1809.7

LABORATORY TESTING

A. Samples were reviewed along with field logs to determine which would be analyzed further. Those chosen for laboratory analysis were considered representative of soils that would be exposed and/or used during grading, and those deemed to be within the influence of proposed structures. Test results are presented in graphic and tabular form in this Appendix.

B. In-situ Moisture Content and Unit Dry Weight for the ring samples were determined in general accordance with ASTM D 2937.

C. The relative strength characteristics were determined from the results of Direct Shear tests on relatively undisturbed samples of formational bedrock and on a remolded sample of the near-surface soils. The compacted sample was remolded to approximately 90% of the maximum dry density (ASTM D 1557). Specimens were placed in contact with water at least 24 hours before testing, and were then sheared under normal loads ranging from 1 to 3 ksf in general accordance with ASTM D 3080. The samples were sheared to sufficient strains so that both peak and ultimate values were evaluated. The relatively undisturbed samples of formational bedrock were sheared to sufficient strains so that peak, ultimate, and residual values were evaluated.

D. An expansion index test was performed on a bulk soil sample in accordance with ASTM D 4829. The sample was surcharged under 144 pounds per square foot at moisture content of near 50 percent saturation. The sample was then submerged in water for 24 hours, and the amount of expansion was recorded with a dial indicator.

E. A maximum density test was performed to estimate the moisture-density relationship of typical near-surface materials. The test was performed in accordance with ASTM D 1557.

F. The gradation characteristics of certain samples were evaluated by hydrometer (in accordance with ASTM D 422) and sieve analysis procedures. The samples were soaked in water until individual soil particles were separated, then washed on the No. 200 mesh sieve, oven dried, weighed to calculate the percent passing the No. 200 sieve, and mechanically sieved. Additionally, hydrometer analyses were performed to assess the grain size distribution of the particles that passed the No. 200 screen. The hydrometer portions of the tests were run using sodium hexametaphosphate as a dispersing agent.

G. The Plasticity Indices of selected samples were evaluated in accordance with ASTM D 4318.

H. One resistance value (R-value) test was conducted on a bulk sample secured during the field study from within the proposed paved parking lot. The test was performed in accordance with California Method 301. Three specimens at different moisture contents were tested for each sample and the R-Values at 300 psi exudation pressure were determined from the plotted results.

I. A portion of the bulk sample collected in boring B-1 was sent to another laboratory for analyses of soil pH, resistivity, chloride contents, and sulfate contents. Soluble chloride and sulfate contents were determined on a dry weight basis. Resistivity testing was performed in accordance with California Test Method 424, wherein the ratio of soil to water was 1:3.

TABULATED LABORATORY TEST RESULTS

	REMOLDED SAMPLE
TEST PIT/BORING AND DEPTH	B-1 @ 0’-5’
USCS	CL
MAXIMUM DRY DENSITY (pcf)	113.0
OPTIMUM MOISTURE (%)	11.5
COHESION (PSF)	250* 220**
ANGLE OF INTERNAL FRICTION	28°* 28°**
EXPANSION INDEX	97
pH	8.1
SOLUBLE CHLORIDES (mg/kg)	110
RESISTIVITY (ohms-cm)	628
SOLUBLE SULFATES (mg/Kg)	1,955

* = Peak Strength Parameters; ** = Ultimate Strength Parameters

	RELATIVELY UNDISTURBED SAMPLES	
BORING AND DEPTH	B-1 @ 5'	B-1 @ 15'
USCS	CL	CH
IN-PLACE DRY DENSITY (PCF)	81.2	--
IN-PLACE MOISTURE (%)	36.6	43.1
LIQUID LIMIT	44	62
PLASTIC LIMIT	23	23
PLASTICITY INDEX	21	39
GRAIN SIZE DISTRIBUTION (%)		
GRAVEL	0.0	0.0
SAND	11.7	6.2
SILT	55.5	36.5
CLAY (2ųm to 5ųm)	8.2	14.3
CLAY (≤2ųm)	24.6	43.0

UNIT DENSITIES AND MOISTURE CONTENT

ASTM D2937 & D2216

Job Name: Oxnard College Fire Academy

Sample Location	Depth (feet)	Unit Dry Density (pcf)	Moisture Content (%)	USCS Group Symbol
B1	2.5	91.8	23.9	CL/ML
B1	5	81.2	36.6	CL
B1	7.5	72.7	45.3	CL
B1	10	78.4	43.1	CL
B1	15	---	43.1	CH
B2	2.5	80.7	39.6	CL/ML
B2	10	69.8	50.2	CL

File Number: 302245-001 Lab Number: 098127

MAXIMUM DENSITY / OPTIMUM MOISTURE

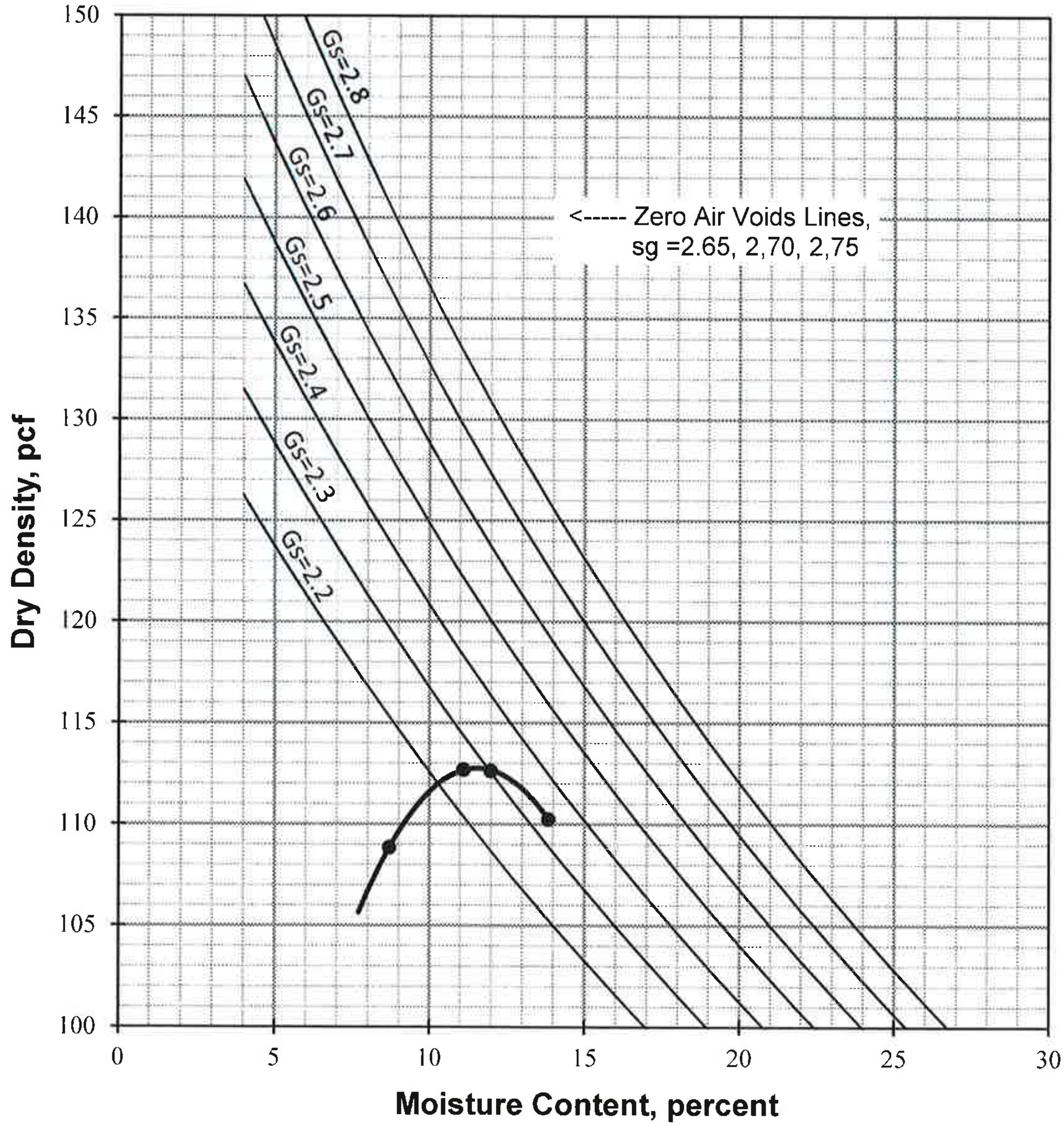
ASTM D 1557-12 (Modified)

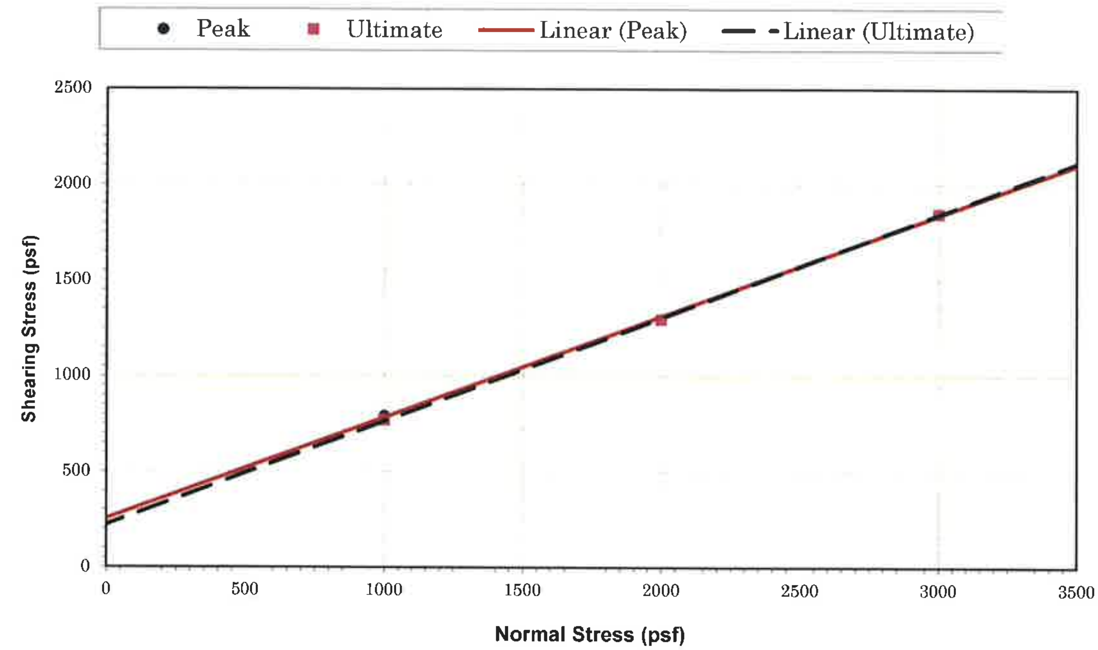
Job Name: Oxnard College Fire Academy
Sample ID: B-1 @ 0-5'
Date: 4/29/2019
Description: Greyish Brown Clayey Silt/Silty Clay
SG: 2.28

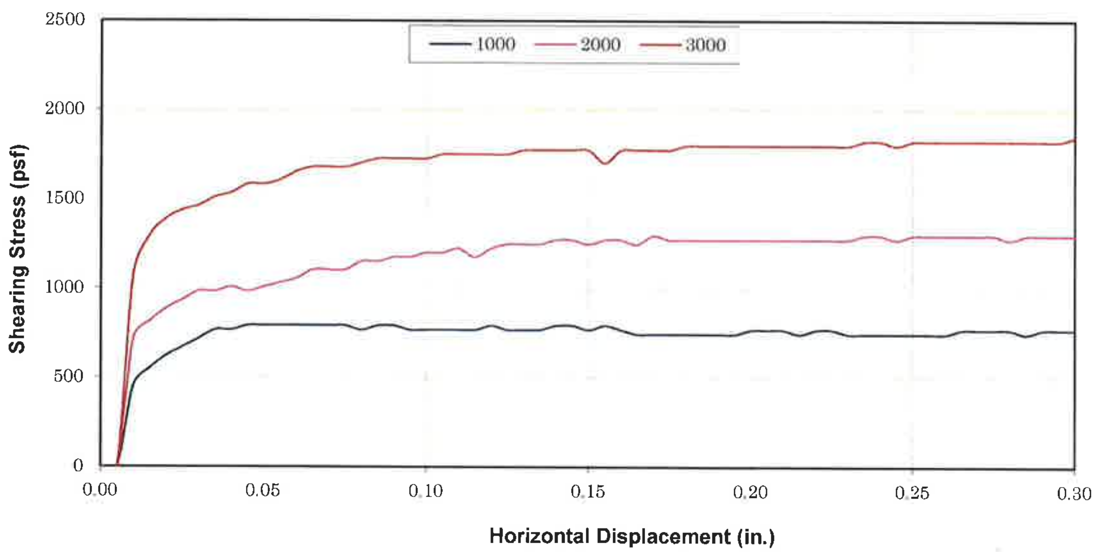
Procedure Used: B
Prep. Method: Moist
Rammer Type: Automatic

Maximum Density: **113 pcf**
Optimum Moisture: **11.5%**

Sieve Size	% Retained
3/4"	0.0
3/8"	0.0
#4	0.0







DIRECT SHEAR DATA*

Sample Location: B-1 @ 0-5'
Sample Description: Clayey Silt/Silty Clay
Dry Density (pcf): 100.4
Intial % Moisture: 11.6
Average Degree of Saturation: 100.0
Shear Rate (in/min): 0.005 in/min

Normal stress (psf)	1000	2000	3000
Peak stress (psf)	792	1296	1848
Ultimate stress (psf)	768	1296	1848

	Peak	Ultimate
ϕ Angle of Friction (degrees):	28	28
c Cohesive Strength (psf):	250	220

Test Type: Peak & Ultimate

* Test Method: ASTM D-3080

DIRECT SHEAR TEST

Oxnard College Fire Academy

Earth

5/22/2019 | 302245-001

File No.: 302245-001

EXPANSION INDEX

ASTM D-4829, UBC 18-2

Job Name: Oxnard College Fire Academy
Sample ID: B-1 @ 0-5'
Soil Description: CL/ML

Initial Moisture, %:	10.3
Initial Compacted Dry Density, pcf:	107.4
Initial Saturation, %:	49
Final Moisture, %:	26.6
Volumetric Swell, %:	9.7

Expansion Index: 97 High

EI	UBC Classification
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
130+	Very High

MECHANICAL ANALYSIS

Job Name:	Oxnard College Fire Academy
Job No.:	302245-001
Sample ID:	**B-1 @ 15'**
Soil Description:	**CH**
Hydrometer ID:	504229

Hydroscopic Moisture

Air Dry Wt, g:	100.0
Oven Dry Wt, g	100.0
% Moisture:	0.0

Air Dry Sample Wt., g:	346.3
Corrected Wt., g:	346.3

Sieve Analysis for +#10 Material

Sieve Size	Wt Ret	% Ret	% Passing
1/2 inch	0.0	0.00	100.00
3/8 inch	0.0	0.00	100.00
#4	0.0	0.00	100.00
#8	0.0	0.00	100.00
#10	0.0	0.00	100.00

Air Dry Hydro Sample Wt., g:	63
Corrected Wt., g:	63.0
Calculation Factor	0.6300

Hydrometer Analysis for <#10 Material

Start time: 2:04:00 AM

Short Hydro	Time of Reading	Hydro Reading	Temp. at Reading, °C	Correction Factor	Corrected Hydro Reading
20 sec	2:04:20 AM	64	21	4.9	59.1
1 hour	3:04:00 AM	41	21	4.9	36.1
6 hour	8:04:00 AM	32	21	4.9	27.1

% Gravel:	0.0
% Sand(2mm - 74µm):	6.2
% Silt(74µm- 5µm):	36.5
% Clay(5µm - 2µm):	14.3
% Clay(≤2µm):	43.0

MECHANICAL ANALYSIS

CTM 203-08

Job Name:	Oxnard College Fire Academy
Job No.:	302245-001
Sample ID:	**B-1 @ 5'**
Soil Description:	**CL**
Hydrometer ID:	504229

Hydroscopic Moisture

Air Dry Wt, g:	100.0
Oven Dry Wt, g	100.0
% Moisture:	0.0
Air Dry Sample Wt., g:	467.8
Corrected Wt., g:	467.8

Sieve Analysis for +#10 Material

Sieve Size	Wt Ret	% Ret	% Passing
1/2 inch	0.0	0.00	100.00
3/8 inch	0.0	0.00	100.00
#4	0.0	0.00	100.00
#8	0.7	0.15	99.85
#10	1.5	0.32	99.68

Air Dry Hydro Sample Wt., g:	61.1
Corrected Wt., g:	61.1
Calculation Factor	0.6130

Hydrometer Analysis for <#10 Material

Start time: 2:11:00 AM

Short Hydro	Time of Reading	Hydro Reading	Temp. at Reading, °C	Correction Factor	Corrected Hydro Reading
20 sec	2:11:20 AM	59	21	4.9	54.1
1 hour	3:11:00 AM	25	21	4.9	20.1
6 hour	8:11:00 AM	20	21	4.9	15.1

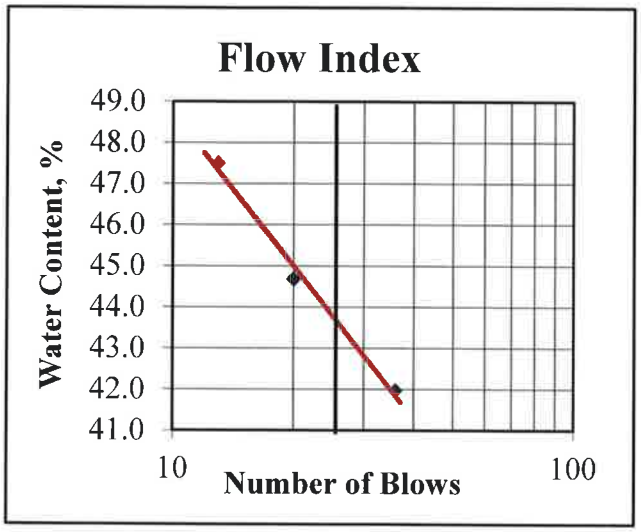
% Gravel:	0.0
% Sand(2mm - 74µm):	11.7
% Silt(74µm- 5µm):	55.5
% Clay(5µm - 2µm):	8.2
% Clay(≤2µm):	24.6

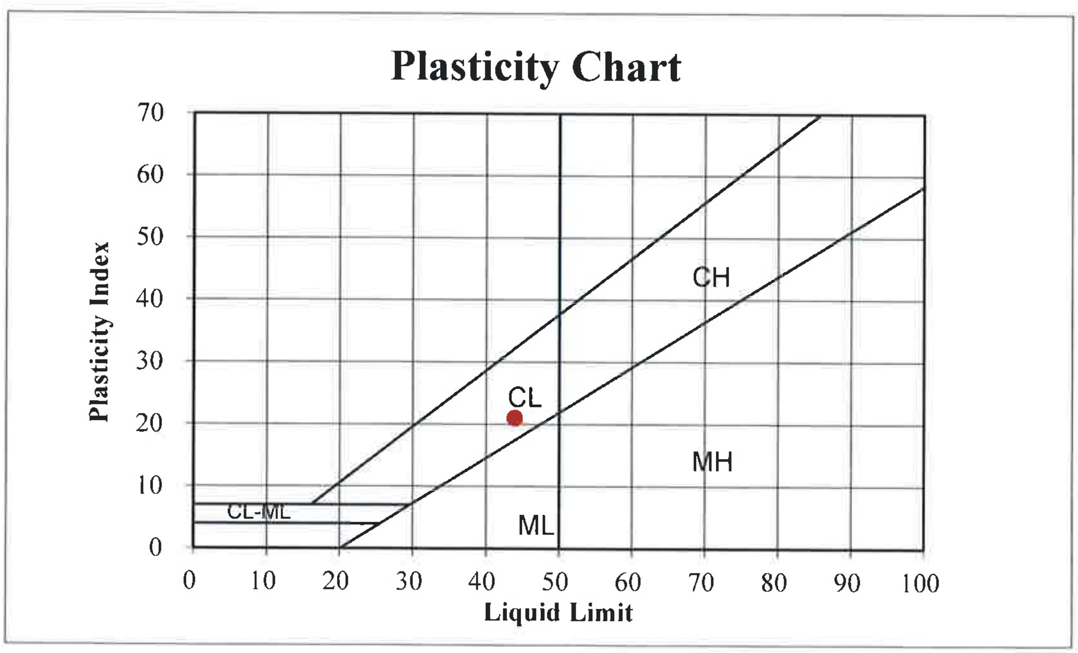
PLASTICITY INDEX

ASTM D-4318

Job Name: Oxnard College Fire Academy
Sample ID: B-1 @ 5'
Soil Description: CL

DATA SUMMARY				TEST RESULTS	
Number of Blows:	13	20	36	**LIQUID LIMIT**	**44**
Water Content, %	47.5	44.7	42.0	**PLASTIC LIMIT**	**23**
Plastic Limit:	23.7	23.2		**PLASTICITY INDEX**	**21**





PLASTICITY INDEX

ASTM D-4318

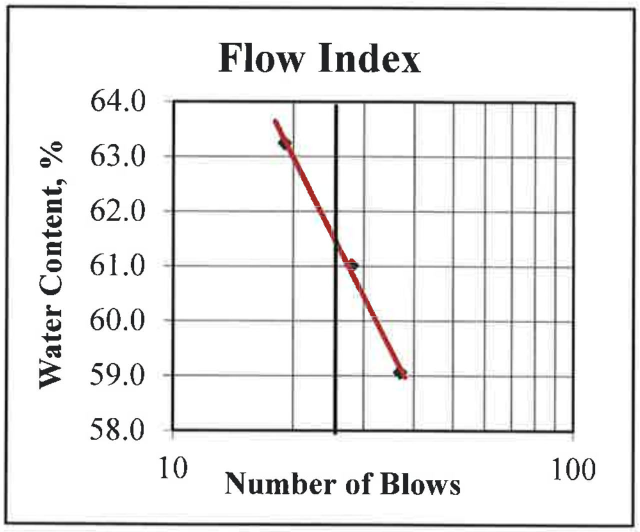
Job Name: Oxnard College Fire Academy
Sample ID: B-1 @ 15'
Soil Description: CH

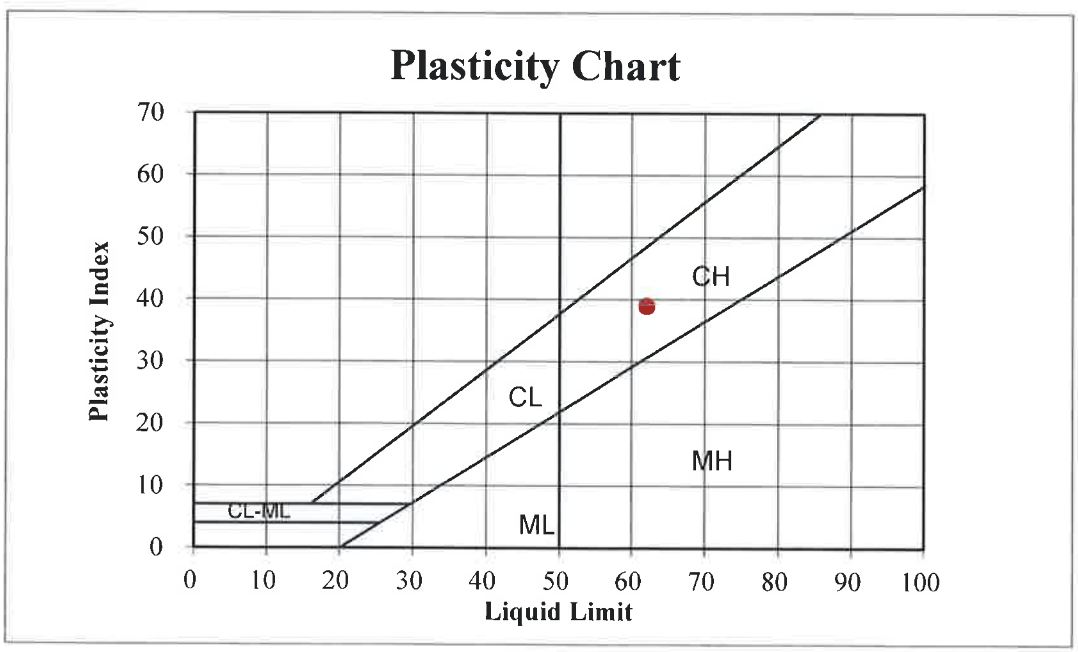
DATA SUMMARY

Number of Blows:	19	28	37
Water Content, %	63.3	61.0	59.1
Plastic Limit:	23.3	23.5	

TEST RESULTS

LIQUID LIMIT	**62**
PLASTIC LIMIT	**23**
PLASTICITY INDEX	**39**



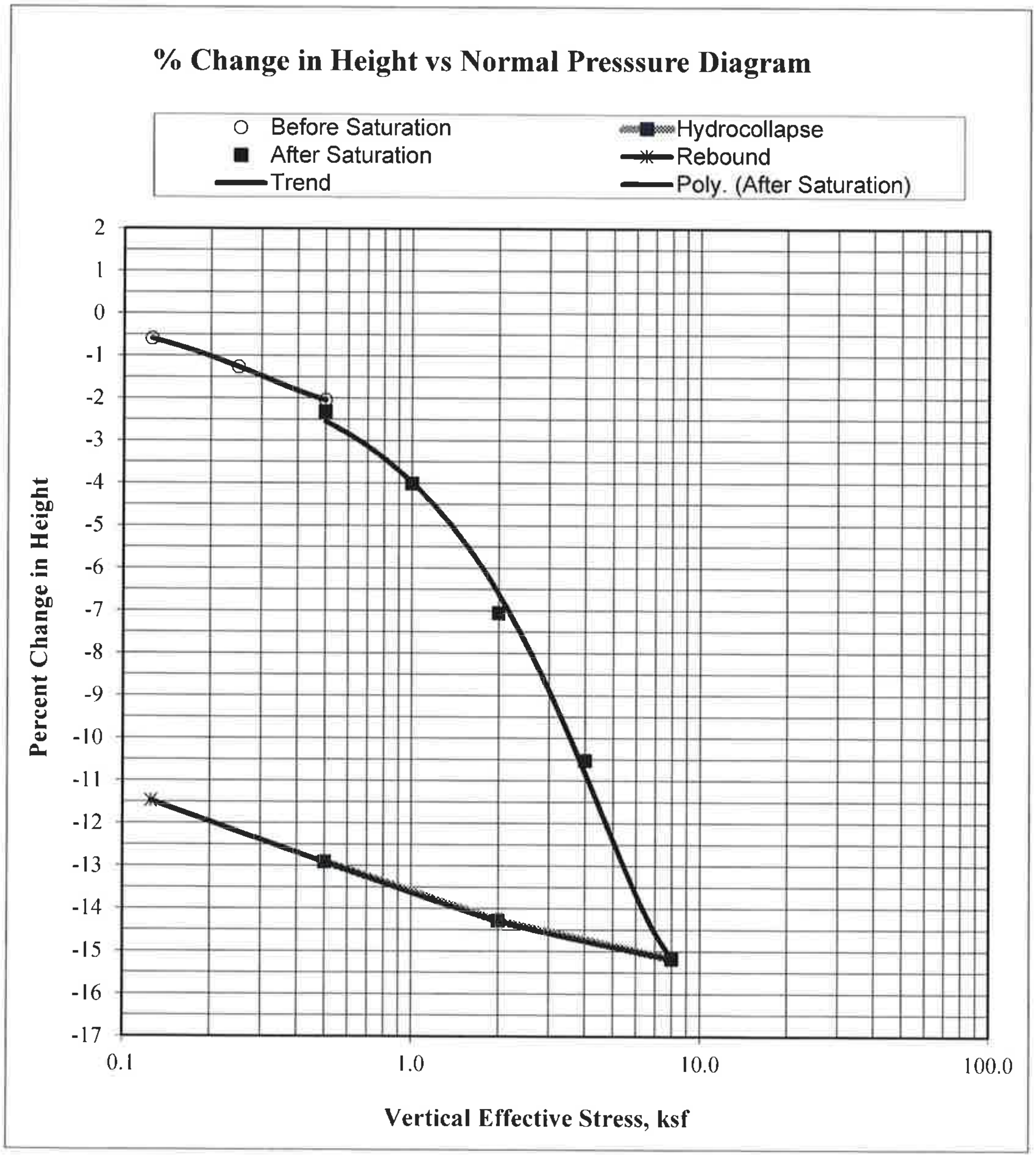


CONSOLIDATION TEST

ASTM D 2435-90 & D5333

Oxnard College Fire Academy
B-1 @ 5'
CL
Ring Sample

Initial Dry Density: 78.9 pcf
Initial Moisture, %: 36.6%
Specific Gravity: 2.67 (assumed
Initial Void Ratio: 1.113



302245-001

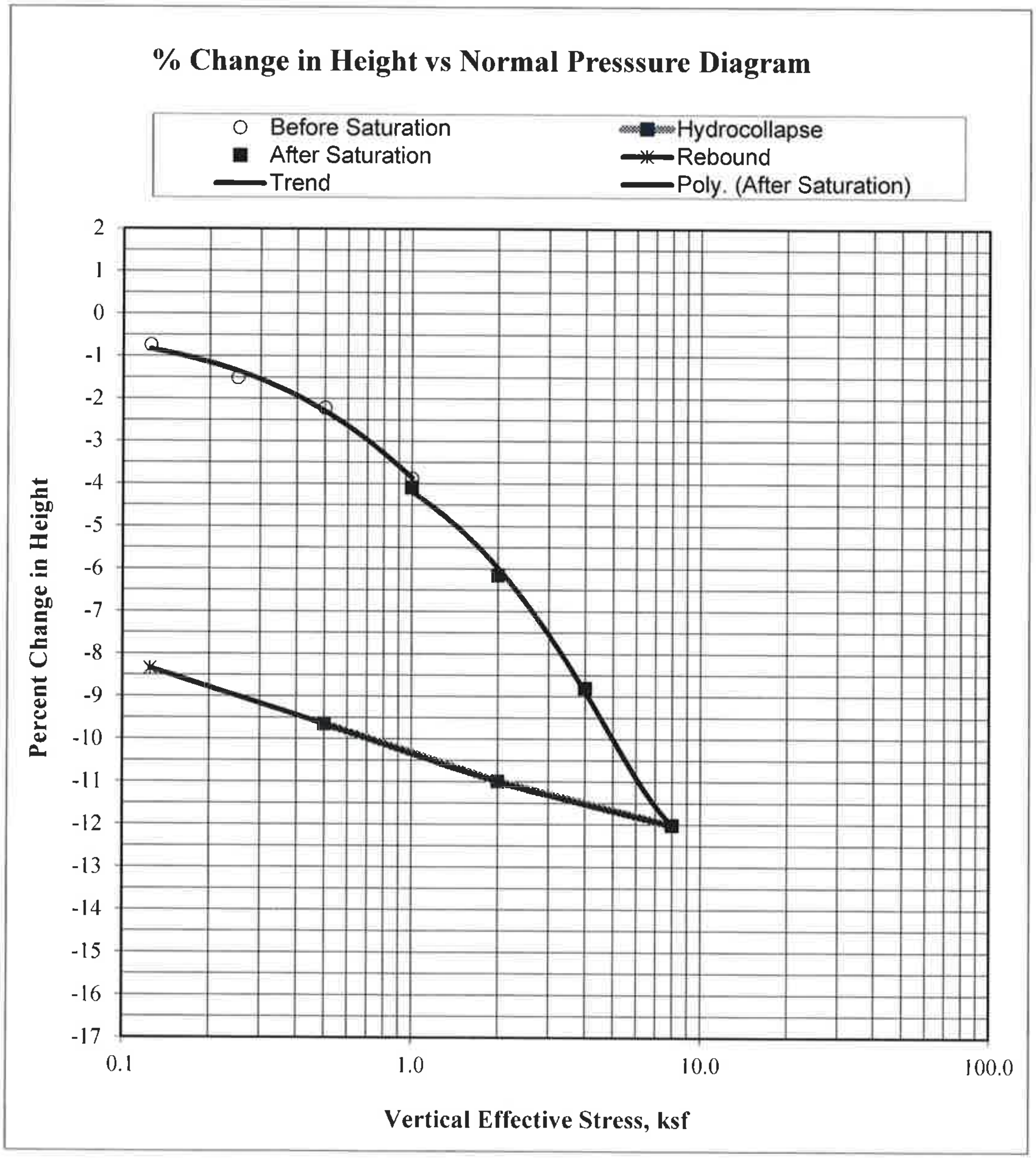
May 7, 2019

CONSOLIDATION TEST

ASTM D 2435-90 & D5333

Oxnard College Fire Academy
B-1 @ 10'
CL
Ring Sample

Initial Dry Density: 76.2 pcf
Initial Moisture, %: 43.1%
Specific Gravity: 2.67 (assumed
Initial Void Ratio: 1.189



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CERTIFICATE OF ANALYSIS

Client: Earth Systems Pacific
CAS LAB NO: 190628-01
Sample ID: B-1@0-5
Analyst: GP

Date Sampled: 04/02/19
Date Received: 04/02/19
Sample Matrix: Soil

WET CHEMISTRY ANALYSIS SUMMARY

COMPOUND	RESULTS	UNITS	DF	PQL	METHOD	ANALYZED
pH (Corrosivity)	8.1	S.U.	1	---	9045	04/03/19
Resistivity*	628	Ohms-cm	1	---	SM 120.1M	04/03/19
Chloride	110	mg/Kg	2	1.2	300.0M	04/03/19
Sulfate	1955	mg/Kg	4	2.4	300.0M	04/03/19

*Sample was extracted using a 1:3 ratio of soil and DI water.

DF: Dilution Factor
PQL: Practical Quantitation Limit
BQL: Below Quantitation Limit
mg/Kg: Milligrams/Kilograms (ppm)

APPENDIX C

Site Class Determination Calculation
2019 CBC & ASCE 7-16 Seismic Parameters
OSHPD Design Maps Report
Spectral Response Values Table
Fault Parameters

EARTH SYSTEMS

Job Number:	302245-001
Job Name:	Oxnard College Fire Academy
Calc Date:	6/17/2019
CPT/Boring ID:	

Use "SPT N_{60}" if correlated from CPT.
Use "Raw SPT blow/ft" if from SPT/ModCal.
Input Number Max Limit = 100.

Depth (ft)	SPT N	Sublayer Thick (ft)	Sublayer Thick/N
5.0	3.0	5.0	1.667
10.0	4.0	5.0	1.250
15.0	3.0	5.0	1.667
20.0	4.0	5.0	1.250
25.0	4.0	5.0	1.250
30.0	8.0	5.0	0.625
35.0	8.0	5.0	0.625
40.0	11.0	5.0	0.455
45.0	22.0	5.0	0.227
50.0	30.0	5.0	0.167
52.5	23.0	2.5	0.109
55.0	33.0	2.5	0.076
100.0	30.0	45.0	1.500

Total Thickness of Soil =	100.00	ft
N-bar Value =	9.2	*
Site Classification =	Class E	

*Equation 20.4-2 of ASCE 7-16

2019 California Building Code (CBC) (ASCE 7-16) Seismic Design Parameters

(Values presented should only be used by a Structural Engineer to determine if the exception in 11.4.8 (ASCE 7-16) can be used)

			CBC Reference	ASCE 7-16 Reference
Seismic Design Category		**D**	Table 1613.5.6	Table 11.6-1
Site Class		**E**	Table 1613.5.2	Table 20.3-1
Latitude:		34.208 N		
Longitude:		-119.073 W		
Maximum Considered Earthquake (MCE) Ground Motion				
Short Period Spectral Reponse	S_S	**1.682 g**	Figure 1613.5	Figure 22-1
1 second Spectral Response	S_1	**0.623 g**	Figure 1613.5	Figure 22-2
Site Coefficient	F_a	0.90 **	Table 1613.5.3(1)	Table 11.4-1
Site Coefficient	F_v	2.00	Table 1613.5.3(2)	Table 11-4.2
	S_{MS}	1.514 g **	$= F_a{*}S_S$	
	S_{M1}	1.246 g	$= F_v{*}S_1$	

****Exception of ASCE7-16, Section 11.4.8, Exception Note 1 Applied as Site Class is E, Ss >= 1.0, and therefore Fa was taken to be equal to that of Site Class C.**

Design Earthquake Ground Motion			
Short Period Spectral Reponse	S_{DS}	**1.009 g** **	$= 2/3{*}S_{MS}$
1 second Spectral Response	S_{D1}	**0.831 g**	$= 2/3{*}S_{M1}$

Site Specific Evaluation May Be Required Due to Site Class = D or E and S1>=0.2. The Presented SDS and SD1 are NOT Valid Unless the Exception of ASCE7-16, Section 11.4.8 Applies

Site Specific Evaluation May Be Required Due to Site Class = E and Ss>=1.0. The Presented SDS and SD1 are NOT Valid Unless the Exception of ASCE7-16, Section 11.4.8 Applies

To	0.16 sec	$= 0.2{*}S_{D1}/S_{DS}$
Ts (11.4.8 ASCE 7-16 Exception Assumed)	0.82 sec	$= S_{D1}/S_{DS}$
Risk Category	II	Table 1604.5
Seismic Importance Factor	1.00	
F_{PGA}	1.10	
PGA_M	**0.81**	
Vertical Coefficient (C_V)	1.44	Table 11.9-1

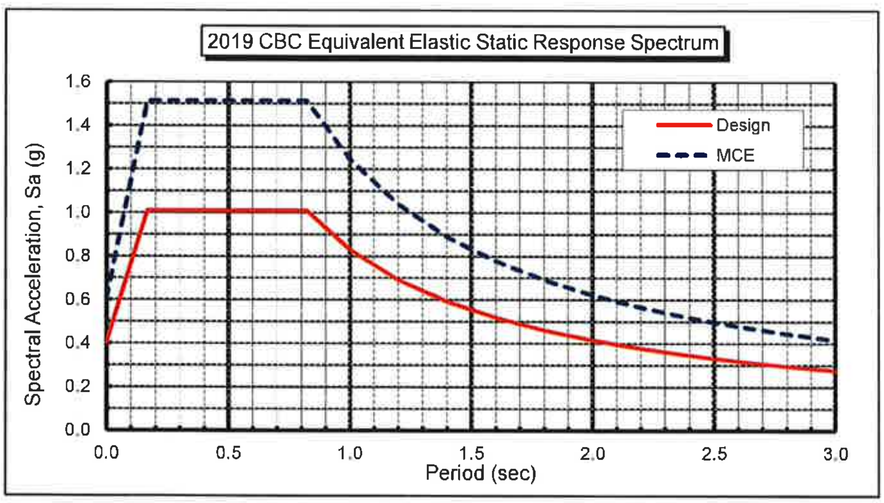


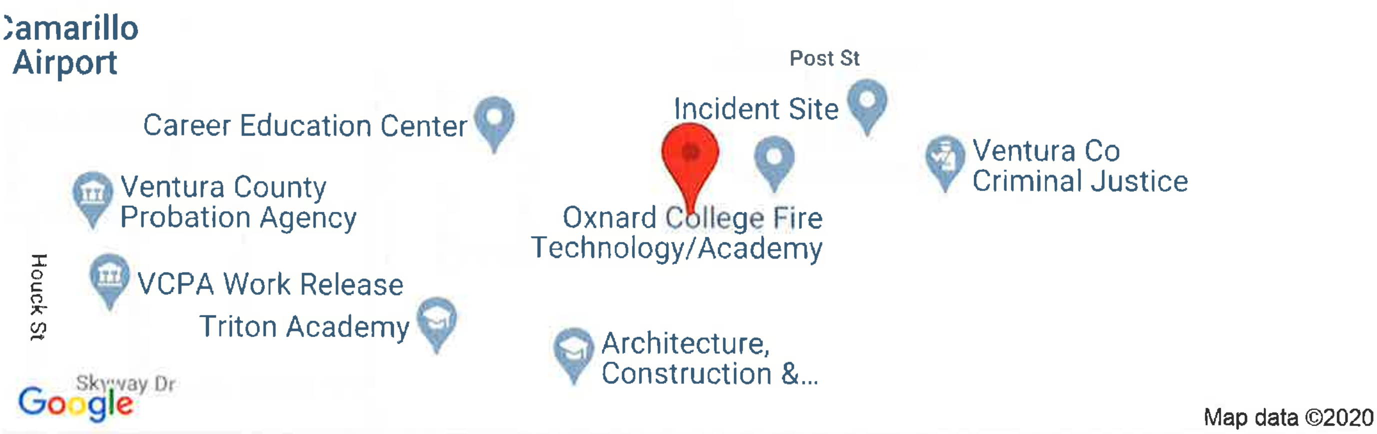
Table 11.5-1 Design

Period T (sec)	Sa (g)
0.00	0.404
0.05	0.588
0.16	1.009
0.82	1.009
1.00	0.831
1.20	0.692
1.40	0.593
1.60	0.519
1.80	0.461
2.00	0.415
2.20	0.378
2.40	0.346
2.60	0.319
2.80	0.297
3.00	0.277
3.20	0.260

OSHPD

Oxnard College Fire Academy

Latitude, Longitude: 34.2076, -119.0732



Map data ©2020

Date	4/23/2020, 1:20:32 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	E - Soft Clay Soil

Type	Value	Description
S_S	1.682	MCE_R ground motion. (for 0.2 second period)
S_1	0.623	MCE_R ground motion. (for 1.0s period)
S_{MS}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	null -See Section 11.4.8	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	null -See Section 11.4.8	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.735	MCE_G peak ground acceleration
F_{PGA}	1.1	Site amplification factor at PGA
PGA_M	0.809	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	1.682	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.883	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	2.244	Factored deterministic acceleration value. (0.2 second)
S1RT	0.623	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.698	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.679	Factored deterministic acceleration value. (1.0 second)
PGAd	0.889	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.893	Mapped value of the risk coefficient at short periods
C_{R1}	0.892	Mapped value of the risk coefficient at a period of 1 s

34.2076 -119.0732 Lat/Long

Spectral Response Values
Probabilistic and Deterministic Response Spectra for MCE compared to Code Spectra for 5% Viscous Damping Ratio

Natural Period T (seconds)	GeoMean Probab. 2% in 50 year MCE Spectrum (1) 2475-year (ASCE 21.2.1)	Max Rotated Probab. 2% in 50 year MCEr Spectrum (2) 2475-year (ASCE 21.2.1.1)	Max 84th Percentile Determ. MCE Spectrum (3) 1.5*Fa = 1.500 (ASCE 21.2.2)	Determ. Lower Limit MCE Spectrum (4) (3) * 1.00=Scaling (ASCE 21.2.2)	Determ. MCE Spectrum (5) Max (3),(4) (ASCE 21.2.2)	Site Specific MCE Ground Response (6) Min (2),(5) (ASCE 21.2.3)	Site Specific MCE Spectrum Comparator (6b) Max (6),1.5*(8) (ASCE 21.2.3)	2019 CBC MCE Spectrum (7)	Site Specific Design Spectrum (8) (ASCE 21.3)	2019 CBC Design Spectrum (9) 2/3*(7)
0.00	0.685	0.673	0.714	0.714	0.714	0.673	0.673	0.673	0.449	0.449
0.05	0.881	0.865	0.684	0.684	0.684	0.684	0.684	0.843	0.456	0.562
0.10	1.076	1.057	0.885	0.885	0.885	0.885	0.885	1.013	0.590	0.676
0.15	1.257	1.235	1.067	1.067	1.067	1.067	1.067	1.184	0.711	0.789
0.20	1.438	1.412	1.232	1.232	1.232	1.232	1.232	1.354	0.821	0.903
0.30	1.698	1.705	1.558	1.558	1.558	1.558	1.558	1.682	1.038	1.121
0.40	1.762	1.769	1.759	1.759	1.759	1.759	1.759	1.682	1.173	1.121
0.50	1.826	1.915	1.851	1.851	1.851	1.851	1.851	1.682	1.234	1.121
0.75	1.655	1.735	1.794	1.794	1.794	1.735	1.735	1.682	1.157	1.121
1.00	1.484	1.721	1.768	1.768	1.768	1.721	1.721	1.682	1.147	1.121
1.50	1.239	1.436	1.578	1.578	1.578	1.436	1.436	1.661	0.958	1.108
2.00	0.994	1.196	1.389	1.389	1.389	1.196	1.196	1.246	0.798	0.831
3.00	-	-	-	-	-	-	-	-	-	-
4.00	-	-	-	-	-	-	-	-	-	-
5.00	-	-	-	-	-	-	-	-	-	-
8.00	-	-	-	-	-	-	-	-	-	-
10.00	-	-	-	-	-	-	-	-	-	-

C_{RS}:	0.893	
C_{R1}:	0.892	
Site Specific To:	0.287	$= 0.2*S_{D1}/S_{DS}$
Site Specific Ts:	1.437	$= S_{D1}/S_{DS}$

The value of Fa used in Column (3) is defined within ASCE 21.2.2 Supplement 1. This Fa value only applies within Column (3).

Probabilistic Spectrum from 2014 USGS Ground Motion Mapping Program adjusted for site conditions and maximum rotated component of ground motion using NGA, Column 2 has risk coefficients C_R applied if ASCE7-16 Section 21.2.1.1 - Method 1 is used.

Reference: ASCE 7-16, Chapters 21.2, 21.3, 21.4, 21.5, 11.4, and 11.8

Calculation Utilized ASCE7-16, Section 21.2.1.1 - Method 1

Short-Period Seismic Design Category:	1-Second Period Seismic Design Category:
D	D

Vertical Coefficient (C_V)
1.44

1 g = 980.6 cm/sec² =32.2 ft/sec²
PSV (ft/sec) = $32.2(S_a)T/(2p)$

Site Coefficients	
F_{PGA}	1.10
F_a	1.00
F_v	4.00

Mapped MCE Acceleration Values		
PGA	0.735	g
S_S	1.682	g
S_1	0.623	g

Site Class	**E**
Risk Category	**II**

Site-Specific Design Acceleration Values		
PGA_M	**0.685**	**g**
S_{DS}	**1.110**	**g**
S_{D1}	**1.595**	**g**

Site-Specific MCE_R, 5% damped, Spectral Response Acceleration Parameter		
S_{MS}	**1.666**	**g**
S_{M1}	**2.393**	**g**

Key: Probab. = Probabilistic, Determ. = Deterministic, MCE = Maximum Considered Earthquake

Table 1
Fault Parameters

Fault Section Name	**Distance** (miles)	(km)	Upper Seis. Depth (km)	Lower Seis. Depth (km)	Avg Dip Angle (deg.)	Avg Dip Direction (deg.)	Avg Rake (deg.)	Trace Length (km)	Fault Type	**Mean Mag**	Mean Return Interval (years)	Slip Rate (mm/yr)
Simi-Santa Rosa	1.3	2.1	1.0	12.1	60	346	30	39	B	**6.8**		1
Oak Ridge (Onshore)	6.2	9.9	1.0	19.4	65	159	90	49	B	**7.2**		4
Ventura-Pitas Point	9.9	16.0	1.0	15.0	64	353	60	44	B	**6.9**		1
Malibu Coast (Extension), alt 1	10.3	16.5	0.0	7.8	74	4	30	35	B'	**6.5**		
Malibu Coast (Extension), alt 2	10.3	16.5	0.0	16.6	74	4	30	35	B'	**6.9**		
Oak Ridge (Offshore)	11.8	19.0	0.0	7.9	32	180	90	38	B	**6.9**		3
Malibu Coast, alt 1	13.7	22.1	0.0	7.8	75	3	30	38	B	**6.6**		0.3
Malibu Coast, alt 2	13.7	22.1	0.0	16.6	74	3	30	38	B	**6.9**		0.3
San Cayetano	15.0	24.2	0.0	16.0	42	3	90	42	B	**7.2**		6
Sisar	15.5	25.0	0.0	17.4	29	168	na	20	B'	**7.0**		
Red Mountain	16.0	25.7	0.0	14.1	56	2	90	101	B	**7.4**		2
Anacapa-Dume, alt 1	16.3	26.2	0.0	15.5	45	354	60	51	B	**7.2**		3
Anacapa-Dume, alt 2	16.3	26.2	1.2	11.4	41	352	60	65	B	**7.2**		3
Channel Islands Thrust	16.6	26.7	5.0	12.3	20	354	90	59	B	**7.3**		1.5
Mission Ridge-Arroyo Parida-Santa Ana	18.3	29.4	0.0	7.6	70	176	90	69	B	**6.8**		0.4
Santa Cruz Island	18.8	30.3	0.0	13.3	90	188	30	69	B	**7.1**		1
Santa Susana, alt 1	20.4	32.8	0.0	16.3	55	9	90	27	B	**6.8**		5
Santa Susana, alt 2	20.6	33.2	0.0	10.6	53	10	90	43	B'	**6.8**		
Shelf (Projection)	20.7	33.3	2.0	18.1	17	21	na	70	B'	**7.8**		
Channel Islands Western Deep Ramp	21.3	34.3	4.8	12.5	21	204	90	62	B'	**7.3**		
North Channel	21.5	34.6	1.1	4.5	26	10	90	51	B	**6.7**		1
Northridge Hills	21.9	35.3	0.0	14.9	31	19	90	25	B'	**7.0**		
Santa Ynez (East)	23.0	36.9	0.0	13.3	70	172	0	68	B	**7.2**		2
Pitas Point (Lower)-Montalvo	23.2	37.4	0.4	12.7	16	359	90	30	B	**7.3**		2.5
Del Valle	23.8	38.3	0.0	18.8	73	195	90	9	B'	**6.3**		
Holser, alt 1	24.2	39.0	0.0	18.6	58	187	90	20	B	**6.7**		0.4
Holser, alt 2	24.2	39.0	0.0	18.5	58	182	90	17	B'	**6.7**		
San Pedro Basin	24.3	39.0	0.8	12.3	88	51	na	69	B'	**7.0**		
Santa Monica Bay	24.7	39.8	2.3	18.0	20	44	na	17	B'	**7.0**		
Northridge	25.2	40.5	7.4	16.8	35	201	90	33	B	**6.8**		1.5
Pine Mtn	25.6	41.1	0.0	16.3	45	5	na	62	B'	**7.3**		
Santa Cruz Catalina Ridge	27.4	44.1	0.0	11.0	90	38	na	137	B'	**7.3**		
Compton	29.3	47.2	5.2	15.6	20	34	90	65	B'	**7.5**		
Pitas Point (Upper)	30.0	48.3	1.4	10.0	42	15	90	35	B	**6.8**		1
San Pedro Escarpment	31.5	50.8	1.0	16.0	17	38	na	27	B'	**7.3**		
Santa Monica, alt 1	32.0	51.5	0.0	17.9	75	343	30	14	B	**6.5**		1
San Gabriel	32.4	52.1	0.0	14.7	61	39	180	71	B	**7.3**		1
Santa Monica, alt 2	32.5	52.3	0.0	11.6	50	338	30	28	B	**6.7**		1
Palos Verdes	33.8	54.3	0.0	13.6	90	53	180	99	B	**7.3**		3
Oak Ridge (Offshore), west extension	34.6	55.7	0.0	3.1	67	195	na	28	B'	**6.1**		

Reference: USGS OFR 2007-1437 (CGS SP 203)

Based on Site Coordinates of 34.2076 Latitude, -119.0732 Longitude

Mean Magnitude for Type A Faults based on 0.1 weight for unsegmented section, 0.9 weight for segmented model (weighted by probability of each scenario with section listed as given on Table 3 of Appendix G in OFR 2007-1437). Mean magntude is average of Ellworths-B and Hanks & Bakun moment area relationship.

APPENDIX D

Total Seismically-Induced Settlement Calculations
Prediction of Liquefaction Induced Lateral Spreading

CPT-LIQUEFY.XLS - A SPREADSHEET FOR EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL USING CPT DATA
Developed 2003 by Shelton L. Stringer, GE, Earth Systems Southwest

Project: Oxnard College Fire Academy
Job No: 302245-001
Date: 4/22/2020
Sounding: CPT-1

Liquefaction Analysis using 1998 NCEER (Robertson & Wride) method
Settlement Analysis using Tokimatsu & Seed (1987), clean sand Qc1n/N1(60) ratio =5

EARTHQUAKE INFORMATION:		
Magnitude:	7.2	7.5
PGA, g:	0.81	0.73
MSF:	1.11	
GWT, feet:	8.0	
Calc GWT, feet:	8.0	

Plot: 1
Method Used: 1 — 1998 NCEER (Robertson & Wride)
Averaging Increment: 2 — 0.10 m
Induced CSR (M=7.5) = 0.65*PGA*(po/p'o)*rd/MSF
Clean Sand Qc1n = C_Q*K_C*K_H*Qc
SF = $CRR_{7.5}$*Kσ/CSR

Ignore 1st/last increment into sand/silt soils: 1 yes
Ignore/remediate upper: 1.0 m
Unit Weight of unsaturated soils: 115 pcf
Unit Weight of saturated soils: 130 pcf
Limiting Ic for liquefiable soils: 2.60 Limiting Ic for K_H: 2.6

Use Moss @ P_L: 15%
Use Tokimatsu & Seed (0) or Ishihara &Yoshmine (1): 0
Required SF: 1.30 Max $\Delta N_{1(60)}$ - post liquefied 5.5
Min SF of Liquefiable Layers: 0.18 Max $\Delta N_{1(60)}$ - non liquefied 5.0
Avg SF of Liquefiable Layers: 0.39

Total Liquefied Thickness (feet)	6.2
Total Induced Subsidence (inches)	**1.0**

SETTLEMENT OF DRY SANDS
Qc1n / N1(60) Ratio for clean sand: 5
p = 0.67*po
τ_{av} = 0.65*PGA*po*rd
G_{max} = 447*$N_{1(60)CS}^{(1/3)}$*$p^{0.5}$
a = 0.0389*(p/1)+0.124
b = 6400*$(p/1)^{(-0.6)}$
γ = [1+a*EXP(b*τ_{av}/G_{max})]/[(1+a)*τ_{av}/G_{max}]
E_{15} = γ*$(N_{1(60)CS}/20)^{-1.2}$
Nc = $(MAG-4)^{2.17}$
E_{nc} = $(Nc/15)^{0.45}$*E15
S = 2*H*E_{nc}
Nc = 12.5

Depth (feet)	(m)	Tip Qc (tsf)	Friction Fs (tsf)	Friction Ratio Rf %	qc MPa	Total Unit Wt (pcf)	Total Stress po (tsf)	Eff. Stress p'o (tsf)	rd	F %	n	Max 1.70 Cq	Q	Moss qc1 MPa	Moss Δqc MPa	Moss qc_{1mod} MPa	Moss eff K_C	Qc1n	Ic	Override	Liquef. Suscept (0 or 1)	Rel. Dens Dr (%)	K_C	K_H	Clean Sand Qc1n	1.0 Kσ	CRR	Induced M=7.5 CSR	Liquefac. Safety Factor	Qc1n $N_{1(60)}$ Ratio	Equiv. $N_{1(60)}$	FC Adj $\Delta N_{1(60)}$	Equiv. $N_{1(60)cs}$	Volumetric Strain (%)	p (tsf)	G_{max} (tsf)	τ_{av} (tsf)	Shear Strain γ	Strain E_{15}	Strain Enc	Dry Sand Subsidence (in.)
0.33	0.10	3.95	0.35	8.86	0.38	115	0.019	0.019	1.000	8.90	1.00	1.70	6.32	0.64	4.60	5.24		6.35	3.44		0			1.00		1.00		0.316	Non-Liq.	2.3	2.8			0.00	0.013						
0.66	0.20	12.55	0.31	2.49	1.20	115	0.038	0.038	1.000	2.50	0.82	1.70	20.10	2.04	2.03	4.08		20.17	2.70		0			1.00		1.00		0.316	Non-Liq.	3.7	5.4			0.00	0.025						
0.98	0.30	16.50	0.83	5.00	1.58	115	0.057	0.057	1.000	5.02	0.85	1.70	26.42	2.69	4.60	7.28		26.51	2.81		0			1.00		1.00		0.316	Non-Liq.	3.5	7.6			0.00	0.038						
1.31	0.40	16.40	0.83	5.03	1.57	115	0.075	0.075	0.999	5.05	0.85	1.70	26.23	2.67	4.60	7.27		26.35	2.81		0			1.00		1.00		0.316	Non-Liq.	3.5	7.5			0.00	0.051						
1.64	0.50	13.10	0.80	6.11	1.25	115	0.094	0.094	0.998	6.15	0.89	1.70	20.90	2.13	4.60	6.73		21.05	2.94		0			1.00		1.00		0.315	Non-Liq.	3.2	6.5			0.00	0.063						
1.97	0.60	23.60	0.65	2.75	2.26	115	0.113	0.113	0.997	2.77	0.76	1.70	37.74	6.32	2.30	8.62		62.35	2.52		0			1.64		1.00		0.315	Non-Liq.	4.1	15.3			0.00	0.076						
2.30	0.70	12.50	0.68	5.40	1.20	115	0.132	0.132	0.997	5.46	0.89	1.70	19.87	2.03	4.59	6.63		20.09	2.92		0			1.00		1.00		0.315	Non-Liq.	3.3	6.1			0.00	0.088						
2.62	0.80	12.65	0.83	6.52	1.21	115	0.151	0.151	0.996	6.60	0.90	1.70	20.08	2.06	4.59	6.65		20.33	2.98		0			1.00		1.00		0.315	Non-Liq.	3.2	6.4			0.00	0.101						
2.95	0.90	13.10	0.90	6.87	1.25	115	0.170	0.170	0.995	6.96	0.90	1.70	20.78	2.13	4.59	6.72		21.05	2.98		0			1.00		1.00		0.314	Non-Liq.	3.2	6.7			0.00	0.114						
3.28	1.00	12.55	0.88	6.97	1.20	115	0.189	0.189	0.994	7.08	0.91	1.70	19.86	2.04	4.59	6.63		20.17	3.00		0			1.00		1.00		0.314	Non-Liq.	3.1	6.4			0.00	0.126						
3.61	1.10	11.00	0.75	6.82	1.05	115	0.208	0.208	0.994	6.95	0.92	1.70	17.34	1.79	4.59	6.38		17.67	3.04		0			1.00		1.00		0.314	Non-Liq.	3.1	5.8			0.00	0.139						
3.94	1.20	9.45	0.60	6.35	0.90	115	0.226	0.226	0.993	6.51	0.93	1.70	14.82	1.54	4.59	6.13		15.18	3.07		0			1.00		1.00		0.314	Non-Liq.	3.0	5.1			0.00	0.152						
4.27	1.30	8.15	0.53	6.44	0.78	115	0.245	0.245	0.992	6.64	0.95	1.70	12.70	1.33	4.59	5.91		13.10	3.13		0			1.00		1.00		0.313	Non-Liq.	2.9	4.5			0.00	0.164						
4.59	1.40	9.35	0.45	4.81	0.90	115	0.264	0.264	0.991	4.95	0.91	1.70	14.60	1.52	4.39	5.92		15.02	3.00		0			1.00		1.00		0.313	Non-Liq.	3.1	4.8			0.00	0.177						
4.92	1.50	11.40	0.30	2.63	1.09	115	0.283	0.283	0.990	2.70	0.84	1.70	17.86	1.86	2.17	4.03		18.32	2.77		0			1.00		1.00		0.313	Non-Liq.	3.6	5.1			0.00	0.190						
5.25	1.60	8.90	0.15	1.69	0.85	130	0.304	0.304	0.990	1.75	0.83	1.70	13.81	1.45	1.21	2.66		14.30	2.75		0			1.00		1.00		0.313	Non-Liq.	3.6	4.0			0.00	0.204						
5.58	1.70	4.95	0.10	2.02	0.47	130	0.326	0.326	0.989	2.16	0.92	1.70	7.43	0.81	1.55	2.35		7.95	3.03		0			1.00		1.00		0.312	Non-Liq.	3.1	2.6			0.00	0.218						
5.91	1.80	2.55	0.10	3.92	0.24	130	0.347	0.347	0.988	4.54	1.00	1.70	3.54	0.42	3.48	3.90		4.10	3.47		0			1.00		1.00		0.312	Non-Liq.	2.2	1.9			0.00	0.232						
6.23	1.90	2.60	0.10	3.85	0.25	130	0.368	0.368	0.987	4.48	1.00	1.70	3.59	0.42	3.40	3.83		4.18	3.46		0			1.00		1.00		0.312	Non-Liq.	2.2	1.9			0.00	0.247						
6.56	2.00	3.40	0.10	2.94	0.33	130	0.390	0.390	0.987	3.32	1.00	1.70	4.84	0.55	2.48	3.04		5.46	3.28		0			1.00		1.00		0.312	Non-Liq.	2.6	2.1			0.00	0.261						
6.89	2.10	3.50	0.10	2.86	0.34	130	0.411	0.411	0.986	3.24	1.00	1.70	4.96	0.57	2.40	2.97		5.62	3.27		0			1.00		1.00		0.311	Non-Liq.	2.6	2.2			0.00	0.275						
7.22	2.20	3.55	0.10	2.82	0.34	130	0.432	0.432	0.985	3.21	1.00	1.70	5.01	0.58	2.35	2.93		5.70	3.26		0			1.00		1.00		0.311	Non-Liq.	2.6	2.2			0.00	0.290						
7.55	2.30	3.60	0.10	2.78	0.34	130	0.454	0.454	0.984	3.18	1.00	1.70	5.06	0.59	2.31	2.90		5.78	3.26		0			1.00		1.00		0.311	Non-Liq.	2.6	2.2			0.00	0.304						
7.87	2.40	3.60	0.10	2.78	0.34	130	0.475	0.475	0.984	3.20	1.00	1.70	5.02	0.59	2.31	2.90		5.78	3.26		0			1.00		1.00		0.311	Non-Liq.	2.6	2.2			0.00	0.318						
8.20	2.50	3.35	0.10	2.99	0.32	130	0.496	0.495	0.983	3.50	1.00	1.70	4.59	0.55	2.91	3.45		5.38	3.32		0			1.00		1.00		0.467	Non-Liq.	2.5	2.1			0.00	0.332						
8.53	2.60	3.10	0.10	3.23	0.30	130	0.518	0.506	0.982	3.86	1.00	1.70	4.17	0.50	3.21	3.72		4.98	3.37		0			1.00		1.00		0.476	Non-Liq.	2.4	2.1			0.00	0.347						
8.86	2.70	2.95	0.10	3.39	0.28	130	0.539	0.517	0.982	4.11	1.00	1.70	3.91	0.48	3.42	3.90		4.74	3.41		0			1.00		1.00		0.485	Non-Liq.	2.3	2.0			0.00	0.361						
9.19	2.80	3.40	0.10	2.94	0.33	130	0.560	0.528	0.981	3.48	1.00	1.70	4.61	0.55	2.91	3.46		5.46	3.31		0			1.00		1.00		0.493	Non-Liq.	2.5	2.2			0.00	0.375						
9.51	2.90	3.85	0.10	2.60	0.37	130	0.582	0.539	0.980	3.02	1.00	1.70	5.32	0.63	2.51	3.14		6.19	3.23		0			1.00		1.00		0.501	Non-Liq.	2.7	2.3			0.00	0.390						
9.84	3.00	3.95	0.15	3.80	0.38	130	0.603	0.550	0.979	4.41	1.00	1.70	5.46	0.64	3.97	4.61		6.35	3.31		0			1.00		1.00		0.508	Non-Liq.	2.5	2.5			0.00	0.404						
10.17	3.10	5.20	0.20	3.85	0.50	130	0.624	0.562	0.979	4.31	0.99	1.70	7.45	0.85	4.04	4.89		8.36	3.19		0			1.00		1.00		0.515	Non-Liq.	2.8	3.0			0.00	0.418						
10.50	3.20	9.20	0.20	2.17	0.88	130	0.646	0.573	0.978	2.32	0.88	1.70	13.86	1.38	2.03	3.41		14.78	2.82		0			1.00		1.00		0.522	Non-Liq.	3.5	4.2			0.00	0.432						
10.83	3.30	5.65	0.20	3.54	0.54	130	0.667	0.584	0.977	3.95	0.97	1.70	8.14	0.90	3.70	4.60		9.08	3.14		0			1.00		1.00		0.529	Non-Liq.	2.9	3.2			0.00	0.447						
11.15	3.40	5.30	0.20	3.77	0.51	130	0.688	0.595	0.977	4.25	0.99	1.70	7.56	0.84	4.00	4.84		8.52	3.18		0			1.00		1.00		0.535	Non-Liq.	2.8	3.1			0.00	0.461						
11.48	3.50	5.15	0.20	3.88	0.49	130	0.709	0.606	0.976	4.40	1.00	1.70	7.30	0.81	4.15	4.96		8.28	3.20		0			1.00		1.00		0.542	Non-Liq.	2.7	3.0			0.00	0.475						
11.81	3.60	4.15	0.20	4.82	0.40	130	0.731	0.617	0.975	5.66	1.00	1.70	5.68	0.67	5.32	5.99		6.67	3.36		0			1.00		1.00		0.547	Non-Liq.	2.4	2.7			0.00	0.490						
12.14	3.70	4.20	0.20	4.76	0.40	130	0.752	0.628	0.975	5.60	1.00	1.68	5.69	0.67	5.26	5.93		6.69	3.35		0			1.00		1.00		0.553	Non-Liq.	2.4	2.7			0.00	0.504						
12.47	3.80	4.40	0.20	4.55	0.42	130	0.773	0.639	0.974	5.32	1.00	1.66	5.88	0.68	5.01	5.69		6.88	3.33		0			1.00		1.00		0.558	Non-Liq.	2.5	2.8			0.00	0.518						
12.80	3.90	4.80	0.20	4.17	0.46	130	0.795	0.650	0.973	4.82	1.00	1.63	6.38	0.72	4.55	5.27		7.38	3.27		0			1.00		1.00		0.564	Non-Liq.	2.6	2.8			0.00	0.533						
13.12	4.00	4.40	0.20	4.55	0.42	130	0.816	0.661	0.973	5.35	1.00	1.60	5.65	0.66	5.04	5.70		6.65	3.34		0			1.00		1.00		0.569	Non-Liq.	2.5	2.7			0.00	0.547						
13.45	4.10	4.70	0.20	4.26	0.45	130	0.837	0.672	0.972	4.97	1.00	1.57	5.99	0.68	4.69	5.37		6.99	3.30		0			1.00		1.00		0.573	Non-Liq.	2.5	2.8			0.00	0.561						
13.78	4.20	5.65	0.20	3.54	0.54	130	0.859	0.684	0.971	4.03	0.99	1.54	7.22	0.78	3.81	4.59		8.22	3.19		0			1.00		1.00		0.578	Non-Liq.	2.8	3.0			0.00	0.575						
14.11	4.30	5.90	0.20	3.39	0.56	130	0.880	0.695	0.970	3.84	0.98	1.51	7.43	0.80	3.63	4.43		8.42	3.16		0			1.00		1.00		0.583	Non-Liq.	2.8	3.0			0.00	0.590						
14.44	4.40	5.85	0.20	3.42	0.56	130	0.901	0.706	0.970	3.89	0.98	1.49	7.24	0.79	3.67	4.46		8.23	3.18		0			1.00		1.00		0.587	Non-Liq.	2.8	3.0			0.00	0.604						
14.76	4.50	6.30	0.20	3.17	0.60	130	0.923	0.717	0.969	3.58	0.97	1.46	7.69	0.83	3.37	4.20		8.68	3.13		0			1.00		1.00		0.591	Non-Liq.	2.9	3.0			0.00	0.618						
15.09	4.60	7.25	0.25	3.45	0.69	130	0.944	0.728	0.968	3.83	0.96	1.43	8.82	0.92	3.72	4.64		9.80	3.10		0			1.00		1.00		0.595	Non-Liq.	2.9	3.3			0.00	0.633						
15.42	4.70	36.45	0.40	1.10	3.49	130	0.965	0.739	0.968	1.12	0.68	1.28	43.15	6.40	0.76	7.15		66.89	2.23		0			1.52		1.00		0.599	Non-Liq.	4.6	14.4			0.00	0.647						
15.75	4.80	42.25	0.60	1.42	4.05	130	0.987	0.750	0.967	1.45	0.69	1.27	49.71	7.21	1.17	8.38		76.86	2.25		0			1.52		1.00		0.603	Non-Liq.	4.6	16.7			0.00	0.661						
16.08	4.90	14.65	0.55	3.75	1.40	130	1.008	0.761	0.966	3.96	0.88	1.34	17.56	1.68	4.13	5.81		18.52	2.87		0			1.00		1.00		0.606	Non-Liq.	3.4	5.5			0.00	0.675						
16.40	5.00	7.90	0.30	3.80	0.76	130	1.029	0.772	0.965	4.21	0.96	1.35	9.11	0.95	4.19	5.14		10.09	3.12		0			1.00		1.00		0.610	Non-Liq.	2.9	3.5			0.00	0.690						
16.73	5.10	7.05	0.15	2.13	0.68	130	1.051	0.783	0.965	2.39	0.93	1.32	7.84	0.86	2.07	2.94		8.82	3.03		0			1.00		1.00		0.613	Non-Liq.	3.1	2.9			0.00	0.704						
17.06	5.20	7.90	0.18	2.22	0.76	130	1.072	0.794	0.964	2.46	0.92	1.30	8.74	0.94	2.19	3.13		9.72	3.00		0			1.00		1.00		0.616	Non-Liq.	3.1	3.1			0.00	0.718						
17.39	5.30	14.65	0.20	1.37	1.40	130	1.093	0.806	0.963	1.44	0.81	1.25	16.32	1.68	1.11	2.79		17.27	2.65		0			1.00		1.00		0.619	Non-Liq.	3.8	4.5			0.00	0.733						
17.72	5.40	11.00	0.15	1.36	1.05	130	1.115	0.817	0.962	1.47	0.85	1.25	11.99	1.27	1.11	2.38		12.95	2.77		0			1.00		1.00		0.623	Non-Liq.	3.6	3.6			0.00	0.747						
18.04	5.50	7.30	0.18	2.40	0.70	130	1.136	0.828	0.962	2.70	0.94	1.26	7.70	0.85	2.43	3.28		8.69	3.07		0			1.00		1.00		0.625	Non-Liq.	3.0	2.9			0.00	0.761						
18.37	5.60	7.50	0.20	2.67	0.72	130	1.157	0.839	0.961	3.00	0.94	1.25	7.84	0.86	2.78	3.64		8.83	3.08		0			1.00		1.00		0.628	Non-Liq.	3.0	3.0			0.00	0.775						
18.70	5.70	7.30	0.20	2.74	0.70	130	1.179	0.850	0.960	3.10	0.95	1.23	7.51	0.83	2.88	3.71		8.50	3.11		0			1.00		1.00		0.631	Non-Liq.	2.9	2.9			0.00	0.790						
19.03	5.80	7.20	0.18	2.43	0.69	130	1.200	0.861	0.959	2.76	0.95	1.22	7.28	0.81	2.48	3.30		8.27	3.09		0			1.00		1.00		0.634	Non-Liq.	2.9	2.8			0.00	0.804						
19.36	5.90	7.35	0.15	2.04	0.70	130	1.221	0.872	0.959	2.32	0.93	1.20	7.33	0.82	1.98	2.81		8.32	3.05		0			1.00		1.00		0.636	Non-Liq.	3.0	2.7			0.00	0.818						
19.69	6.00	8.55	0.18	2.05	0.82	130	1.243	0.883	0.958	2.28	0.91	1.18	8.55	0.94	1.99	2.93		9.53	2.99		0			1.00		1.00		0.638	Non-Liq.	3.1	3.0			0.00	0.833						
20.01	6.10	9.00	0.23	2.50	0.86	130	1.264	0.894	0.957	2.78	0.92	1.17	8.94	0.97	2.58	3.55		9.93	3.02		0			1.00		1.00		0.641	Non-Liq.	3.1	3.2			0.00	0.847						
20.34	6.20	11.20	0.45	4.02	1.07	130	1.285	0.905	0.956	4.37	0.93	1.16	11.25	1.18	4.55	5.72		12.24	3.05		0			1.00		1.00		0.643	Non-Liq.	3.0	4.0			0.00	0.861						
20.67	6.30	22.95	1.03	4.47	2.20	130	1.307	0.916	0.955	4.65	0.86	1.13	23.56	2.34	5.13	7.47		24.54	2.82		0			1.00		1.00		0.645	Non-Liq.	3.5	7.1			0.00	0.875						
21.00	6.40	37.00	1.53	4.12	3.54	130	1.328	0.928	0.954	4.23	0.80	1.11	37.90	3.71	4.69	8.40		38.88	2.64		0			1.00		1.00		0.647	Non-Liq.	3.8	10.2			0.00	0.890						
21.33	6.50	39.75	1.68	4.21	3.81	130	1.349	0.939	0.953	4.32	0.80	1.10	40.37	3.97	4.81	8.78		41.35	2.63		0			1.00		1.00		0.649	Non-Liq.	3.9	10.7			0.00	0.904						

Depth (feet)	(m)	Tip Qc (tsf)	Friction Fs (tsf)	Friction Ratio Rf %	qc MPa	Total Unit Wt (pcf)	Total Stress po (tsf)	Eff. Stress p'o (tsf)	rd	F %	n	Max 1.70 Cq	Q	Moss qc1 MPa	Moss Δqc MPa	Moss qc_{1mod} MPa	Moss eff K_C	Qc1n	Ic	Override	Liquef. Suscept. (0 or 1)	Rel. Dens. Dr (%)	K_C	K_H	Clean Sand Qc1n	1.0 $K\sigma$	CRR	Induced M=7.5 CSR	Liquefac. Safety Factor	Qc1n $N_{1(60)}$ Ratio	Equiv. $N_{1(60)}$	FC Adj $\Delta N_{1(60)}$	Equiv. $N_{1(60)cs}$	Volumetric Strain (%)	p (tsf)	G_{max} (tsf)	τ_{av} (tsf)	Shear Strain γ	Strain E_{15}	Strain Enc	Dry Sand Subsidence (in.)
21.65	6.60	39.90	1.80	4.51	3.82	130	1.371	0.950	0.952	4.62	0.81	1.09	40.17	3.96	5.20	9.17		41.15	2.65		0			1.00		1.00		0.651	Non-Liq.	3.8	10.8			0.00	0.918						
21.98	6.70	79.45	2.18	2.74	7.61	130	1.392	0.961	0.951	2.77	0.70	1.07	79.33	11.03	2.90	13.93		112.97	2.29		0			1.41		1.00		0.653	Non-Liq.	4.5	25.0			0.00	0.933						
22.31	6.80	70.70	2.43	3.43	6.77	130	1.413	0.972	0.951	3.48	0.73	1.06	70.11	9.77	3.81	13.58		100.01	2.40		0			1.41		1.00		0.655	Non-Liq.	4.3	23.2			0.00	0.947						
22.64	6.90	31.10	2.10	6.75	2.98	130	1.435	0.983	0.950	6.97	0.87	1.07	30.35	3.05	5.85	8.90		31.34	2.87		0			1.00		1.00		0.657	Non-Liq.	3.4	9.2			0.00	0.961						
22.97	7.00	53.80	1.78	3.30	5.15	130	1.456	0.994	0.949	3.36	0.75	1.05	52.31	6.06	3.64	9.71		61.42	2.47		0			1.15		1.00		0.658	Non-Liq.	4.2	14.8			0.00	0.975						
23.29	7.10	23.60	1.43	6.04	2.26	130	1.477	1.005	0.948	6.31	0.89	1.05	22.35	2.31	5.86	8.16		23.35	2.93		0			1.00		1.00		0.660	Non-Liq.	3.3	7.1			0.00	0.990						
23.62	7.20	15.45	1.15	7.44	1.48	130	1.499	1.016	0.946	7.97	0.95	1.04	14.18	1.51	5.86	7.37		15.17	3.14		0			1.00		1.00		0.661	Non-Liq.	2.8	5.3			0.00	1.004						
23.95	7.30	32.10	1.35	4.21	3.07	130	1.520	1.027	0.945	4.34	0.83	1.02	30.09	3.11	4.83	7.94		31.09	2.72		0			1.00		1.00		0.663	Non-Liq.	3.7	8.5			0.00	1.018						
24.28	7.40	49.90	1.70	3.41	4.78	130	1.541	1.038	0.944	3.48	0.76	1.01	46.85	4.83	3.79	8.62		48.02	2.52		0			1.00		1.00		0.664	Non-Liq.	4.1	11.8			0.00	1.033						
24.61	7.50	51.30	1.98	3.85	4.91	130	1.563	1.050	0.943	3.93	0.77	1.01	47.79	4.93	4.37	9.30	1.89	48.79	2.55		1	47	3.03	1.00	147.8	1.00	0.380	0.665	**0.57**	4.0	12.2	5.5	17.7	1.70	1.047	1,191	0.517	1.3E-03			
24.93	7.60	66.95	1.90	2.84	6.41	130	1.584	1.061	0.942	2.88	0.72	1.00	62.17	6.41	3.05	9.46	1.48	63.17	2.37		1	58	2.21	1.00	139.4	1.00	0.332	0.667	**0.50**	4.4	14.5	5.5	20.0	1.51	1.061	1,250	0.523	1.1E-03			
25.26	7.70	111.50	1.40	1.26	10.68	130	1.605	1.072	0.941	1.27	0.60	0.99	103.58	10.63	0.99	11.61	1.09	104.58	1.97		1	79	1.26	1.00	131.6	0.99	0.292	0.668	**0.44**	5.1	20.3	5.5	25.8	1.14	1.075	1,370	0.529	9.2E-04			
25.59	7.80	133.60	1.10	0.82	12.79	130	1.626	1.083	0.940	0.83	0.54	0.99	123.69	12.67	0.42	13.09	1.03	124.70	1.79		1	86	1.10	1.00	136.9	0.99	0.319	0.669	**0.47**	5.5	22.7	4.7	27.4	1.05	1.090	1,406	0.536	8.8E-04			
25.92	7.90	140.75	1.05	0.75	13.48	130	1.648	1.094	0.938	0.75	0.53	0.98	129.68	13.29	0.32	13.61	1.02	130.70	1.74		1	88	1.07	1.00	139.6	0.99	0.333	0.670	**0.49**	5.6	23.4	4.5	27.9	1.02	1.104	1,425	0.542	8.7E-04			
26.25	8.00	134.45	0.93	0.69	12.87	130	1.669	1.105	0.937	0.69	0.53	0.98	123.17	12.63	0.25	12.88	1.02	124.19	1.74		1	86	1.07	1.00	132.3	0.98	0.295	0.671	**0.43**	5.6	22.2	4.2	26.5	1.10	1.118	1,409	0.548	9.1E-04			
26.57	8.10	115.20	0.90	0.78	11.03	130	1.690	1.116	0.936	0.79	0.56	0.97	104.67	10.78	0.37	11.15	1.03	105.69	1.83		1	79	1.13	1.00	119.4	0.98	0.238	0.672	**0.35**	5.4	19.5	4.4	23.9	1.25	1.133	1,370	0.555	9.9E-04			
26.90	8.20	53.05	1.20	2.26	5.08	130	1.712	1.127	0.935	2.31	0.73	0.96	46.87	4.96	2.31	7.27	1.47	47.89	2.40		1	46	2.30	1.00	110.1	0.99	0.204	0.673	**0.30**	4.3	11.1	5.5	16.6	1.79	1.147	1,222	0.561	1.4E-03			
27.23	8.30	116.95	1.78	1.52	11.20	130	1.733	1.138	0.933	1.53	0.61	0.96	104.67	10.92	1.33	12.26	1.12	105.70	2.02		1	79	1.33	1.00	140.2	0.97	0.336	0.673	**0.48**	5.0	21.0	5.5	26.5	1.10	1.161	1,435	0.567	9.1E-04			
27.56	8.40	191.45	2.13	1.11	18.33	130	1.754	1.149	0.932	1.12	0.54	0.96	172.03	17.82	0.80	18.62	1.04	173.06	1.77		1	100	1.09	1.00	187.8	0.97	Infin.	0.674	Non-Liq.	5.5	31.3	5.0	36.3	0.00	1.175	1,604	0.573	7.2E-04			
27.89	8.50	207.65	2.38	1.14	19.88	130	1.776	1.160	0.930	1.15	0.53	0.95	185.77	19.29	0.84	20.13	1.04	186.81	1.76		1	100	1.08	1.00	200.9	0.96	Infin.	0.675	Non-Liq.	5.6	33.6	5.0	38.6	0.00	1.190	1,648	0.579	6.9E-04			
28.22	8.60	221.40	2.33	1.05	21.20	130	1.797	1.171	0.929	1.06	0.52	0.95	197.39	20.49	0.72	21.21	1.04	198.44	1.71		1	100	1.05	1.00	207.4	0.96	Infin.	0.675	Non-Liq.	5.6	35.1	5.0	40.1	0.00	1.204	1,679	0.585	6.7E-04			
28.54	8.70	224.95	2.15	0.96	21.54	130	1.818	1.183	0.928	0.96	0.51	0.94	199.80	20.72	0.60	21.32	1.03	200.86	1.68		1	100	1.02	1.00	205.4	0.96	Infin.	0.676	Non-Liq.	5.7	35.2	5.0	40.2	0.00	1.218	1,690	0.591	6.7E-04			
28.87	8.80	215.80	2.10	0.97	20.67	130	1.840	1.194	0.926	0.98	0.52	0.94	190.57	19.82	0.62	20.44	1.03	191.63	1.70		1	100	1.04	1.00	198.6	0.95	Infin.	0.676	Non-Liq.	5.7	33.8	5.0	38.8	0.00	1.233	1,680	0.597	6.9E-04			
29.20	8.90	178.80	2.35	1.31	17.12	130	1.861	1.205	0.925	1.32	0.56	0.93	156.02	16.42	1.07	17.48	1.07	157.08	1.85		1	96	1.15	1.00	180.1	0.95	Infin.	0.677	Non-Liq.	5.4	29.2	5.0	34.2	0.00	1.247	1,621	0.603	7.6E-04			
29.53	9.00	205.90	2.78	1.35	19.72	130	1.882	1.216	0.923	1.36	0.55	0.93	179.14	18.88	1.11	19.99	1.06	180.21	1.82		1	100	1.12	1.00	202.0	0.95	Infin.	0.677	Non-Liq.	5.4	33.1	5.0	38.1	0.00	1.261	1,690	0.609	7.0E-04			
29.86	9.10	236.35	2.63	1.11	22.63	130	1.904	1.227	0.921	1.12	0.52	0.93	205.68	21.57	0.80	22.37	1.04	206.75	1.72		1	100	1.05	1.00	216.8	0.94	Infin.	0.677	Non-Liq.	5.6	36.7	5.0	41.7	0.00	1.275	1,750	0.615	6.6E-04			
30.18	9.20	188.65	2.00	1.06	18.07	130	1.925	1.238	0.920	1.07	0.54	0.92	162.75	17.11	0.73	17.84	1.04	163.82	1.77		1	97	1.09	1.00	178.1	0.94	Infin.	0.678	Non-Liq.	5.5	29.6	5.0	34.6	0.00	1.290	1,655	0.621	7.6E-04			
30.51	9.30	99.95	1.90	1.90	9.57	130	1.946	1.249	0.918	1.93	0.65	0.90	83.70	9.06	1.84	10.90		84.76	2.16		0			1.00		0.97		0.678	Non-Liq.	4.8	17.8			0.00	1.304						
30.84	9.40	48.75	1.98	4.05	4.67	130	1.968	1.260	0.916	4.16	0.79	0.87	39.08	4.41	4.66	9.07		40.12	2.63		0			1.00		0.97		0.678	Non-Liq.	3.9	10.4			0.00	1.318						
31.17	9.50	163.75	2.00	1.22	15.68	130	1.989	1.271	0.914	1.23	0.57	0.90	138.39	19.28	0.95	20.22		182.51	1.87		0			1.31		0.96		0.678	Non-Liq.	5.3	34.1			0.00	1.333						
31.50	9.60	144.00	2.03	1.41	13.79	130	2.010	1.282	0.913	1.42	0.59	0.89	120.37	16.92	1.19	18.11	1.07	158.93	1.95		1	96	1.24	1.31	197.5	0.93	Infin.	0.678	Non-Liq.	5.2	30.7	5.0	35.7	0.00	1.347	1,708	0.643	7.4E-04			
31.82	9.70	73.30	1.60	2.18	7.02	130	2.032	1.293	0.911	2.22	0.70	0.87	59.16	8.57	2.21	10.78	1.26	78.80	2.31		1	67	1.98	1.31	156.2	0.94	0.435	0.678	**0.60**	4.5	17.6	5.5	23.1	1.30	1.361	1,485	0.649	1.0E-03			
32.15	9.80	64.30	1.05	1.63	6.16	130	2.053	1.305	0.909	1.67	0.69	0.87	51.57	7.42	1.49	8.91		68.88	2.27		0			1.31		0.96		0.678	Non-Liq.	4.5	15.1			0.00	1.376						
32.48	9.90	23.45	0.65	2.77	2.25	130	2.074	1.316	0.907	2.94	0.84	0.83	17.42	2.02	2.98	5.01		18.46	2.80		0			1.00		0.96		0.678	Non-Liq.	3.5	5.2			0.00	1.390						
32.81	10.00	18.25	0.55	3.01	1.75	130	2.096	1.327	0.905	3.25	0.88	0.82	13.12	1.56	3.30	4.85		14.15	2.92		0			1.00		0.96		0.677	Non-Liq.	3.3	4.3			0.00	1.404						
33.14	10.10	15.75	0.58	3.65	1.51	130	2.117	1.338	0.903	3.99	0.91	0.81	11.01	1.33	4.13	5.47		12.03	3.04		0			1.00		0.95		0.677	Non-Liq.	3.1	3.9			0.00	1.418						
33.46	10.20	23.90	0.70	2.93	2.29	130	2.138	1.349	0.901	3.10	0.84	0.81	17.37	2.04	3.19	5.23		18.41	2.81		0			1.00		0.95		0.677	Non-Liq.	3.5	5.3			0.00	1.433						
33.79	10.30	14.50	0.60	4.14	1.39	130	2.160	1.360	0.899	4.57	0.93	0.79	9.83	1.22	4.77	5.99		10.85	3.11		0			1.00		0.95		0.676	Non-Liq.	2.9	3.7			0.00	1.447						
34.12	10.40	12.65	0.43	3.36	1.21	130	2.181	1.371	0.897	3.77	0.93	0.79	8.37	1.04	3.75	4.79		9.39	3.12		0			1.00		0.95		0.676	Non-Liq.	2.9	3.2			0.00	1.461						
34.45	10.50	13.00	0.40	3.08	1.24	130	2.202	1.382	0.894	3.44	0.92	0.78	8.58	1.06	3.38	4.44		9.60	3.09		0			1.00		0.95		0.675	Non-Liq.	3.0	3.2			0.00	1.476						
34.78	10.60	13.75	0.40	2.91	1.32	130	2.224	1.393	0.892	3.24	0.91	0.78	9.09	1.12	3.16	4.28		10.11	3.05		0			1.00		0.95		0.675	Non-Liq.	3.0	3.3			0.00	1.490						
35.10	10.70	14.50	0.40	2.76	1.39	130	2.245	1.404	0.890	3.05	0.90	0.77	9.59	1.18	2.96	4.14		10.62	3.02		0			1.00		0.94		0.674	Non-Liq.	3.1	3.4			0.00	1.504						
35.43	10.80	12.70	0.38	2.95	1.22	130	2.266	1.415	0.888	3.32	0.92	0.76	8.15	1.02	3.21	4.23		9.17	3.10		0			1.00		0.94		0.673	Non-Liq.	2.9	3.1			0.00	1.518						
35.76	10.90	16.45	0.48	2.89	1.58	130	2.288	1.427	0.885	3.16	0.89	0.77	10.88	1.34	3.13	4.47		11.92	2.98		0			1.00		0.94		0.673	Non-Liq.	3.2	3.8			0.00	1.533						
36.09	11.00	84.25	0.75	0.89	8.07	130	2.309	1.438	0.883	0.91	0.61	0.83	64.83	7.06	0.51	7.57		66.21	2.03		0			1.00		0.94		0.672	Non-Liq.	5.0	13.2			0.00	1.547						
36.42	11.10	94.85	0.88	0.92	9.08	130	2.330	1.449	0.880	0.94	0.60	0.83	73.00	7.94	0.55	8.49	1.07	74.13	2.00		1	64	1.30	1.00	96.4	0.91	0.163	0.671	**0.22**	5.1	14.6	4.7	19.3	1.57	1.561	1,498	0.719	1.2E-03			
36.75	11.20	117.20	0.65	0.55	11.22	130	2.352	1.460	0.878	0.56	0.54	0.84	91.82	9.59	0.07	9.66	1.01	92.98	1.79		1	74	1.10	1.00	102.4	0.88	0.180	0.670	**0.24**	5.5	16.9	3.5	20.5	1.48	1.576	1,535	0.724	1.1E-03			
37.07	11.30	75.15	0.68	0.90	7.20	130	2.373	1.471	0.875	0.92	0.63	0.81	56.61	6.19	0.52	6.71	1.08	57.74	2.08		1	54	1.43	1.00	82.4	0.91	0.132	0.669	**0.18**	4.9	11.7	4.7	16.5	1.80	1.590	1,434	0.728	1.4E-03			
37.40	11.40	45.75	0.83	1.80	4.38	130	2.394	1.482	0.873	1.86	0.74	0.78	32.63	3.80	1.70	5.50	1.45	33.73	2.46		1	32	2.57	1.00	86.7	0.93	0.141	0.668	**0.20**	4.2	8.1	5.5	13.6	2.09	1.604	1,350	0.733	1.6E-03			
37.73	11.50	116.75	0.65	0.56	11.18	130	2.416	1.493	0.870	0.56	0.55	0.83	90.26	9.45	0.07	9.53	1.01	91.43	1.80		1	73	1.11	1.00	101.1	0.87	0.176	0.667	**0.23**	5.5	16.7	3.5	20.2	1.50	1.618	1,549	0.737	1.1E-03			
38.06	11.60	158.80	0.63	0.39	15.21	130	2.437	1.504	0.868	0.40	0.50	0.84	124.69	12.67	0.00	12.67	1.00	125.88	1.60		1	86	1.00	1.00	125.9	0.87	0.266	0.666	**0.35**	5.9	21.5	3.7	25.2	1.18	1.633	1,674	0.741	9.5E-04			
38.39	11.70	165.70	0.78	0.47	15.87	130	2.458	1.515	0.865	0.47	0.50	0.84	129.67	13.34	0.00	13.34	1.00	130.87	1.63		1	88	1.00	1.00	130.9	0.87	0.288	0.665	**0.38**	5.8	22.5	3.7	26.2	1.12	1.647	1,703	0.745	9.2E-04			
38.71	11.80	169.20	1.00	0.59	16.20	130	2.479	1.526	0.862	0.60	0.51	0.83	131.41	13.78	0.12	13.90	1.01	132.61	1.68		1	89	1.02	1.00	135.7	0.86	0.312	0.664	**0.41**	5.7	23.2	3.9	27.1	1.06	1.661	1,731	0.749	8.9E-04			
39.04	11.90	180.65	1.58	0.87	17.30	130	2.501	1.537	0.859	0.88	0.54	0.82	138.53	15.03	0.48	15.51	1.03	139.72	1.77		1	91	1.08	1.00	151.3	0.86	0.402	0.662	**0.52**	5.5	25.2	5.0	30.3	0.76	1.676	1,803	0.753	8.2E-04			
39.37	12.00	225.10	2.25	1.00	21.56	130	2.522	1.549	0.857	1.01	0.53	0.82	172.81	18.93	0.65	19.58	1.03	174.01	1.74		1	100	1.06	1.00	184.8	0.86	Infin.	0.661	Non-Liq.	5.6	31.1	5.0	36.1	0.00	1.690	1,920	0.757	7.3E-04			
39.70	12.10	240.25	2.40	1.00	23.01	130	2.543	1.560	0.854	1.01	0.52	0.82	184.23	20.19	0.65	20.84	1.03	185.44	1.72		1	100	1.05	1.00	194.5	0.86	Infin.	0.660	Non-Liq.	5.6	32.9	5.0	37.9	0.00	1.704	1,960	0.761	7.0E-04			
40.03	12.20	244.25	2.43	0.99	23.39	130	2.565	1.571	0.851	1.00	0.52	0.81	186.75	20.48	0.64	21.12	1.03	187.96	1.71		1	100	1.04	1.00	196.4	0.85	Infin.	0.658	Non-Liq.	5.6	33.3	5.0	38.3	0.00	1.718	1,975	0.765	7.0E-04			
40.35	12.30	248.70	2.78	1.12	23.82	130	2.586	1.582	0.848	1.12	0.53	0.81	188.74	20.94	0.80	21.74	1.04	189.94	1.74		1	100	1.07	1.00	202.7	0.85	Infin.	0.657	Non-Liq.	5.6	34.0	5.0	39.0	0.00	1.733	1,996	0.769	6.9E-04			
40.68	12.40	218.75	3.35	1.53	20.95	130	2.607	1.593	0.845	1.54	0.57	0.79	162.41	18.59	1.34	19.93	1.07	163.60	1.89		1	97	1.18	1.00	192.9	0.85	Infin.	0.655	Non-Liq.	5.3	30.9	5.0	35.9	0.00	1.747	1,948	0.772	7.2E-04			
41.01	12.50	117.45	3.48	2.96	11.25	130	2.629	1.604	0.842	3.00	0.69	0.75	82.11	10.05	3.19	13.24		83.25	2.30		0			1.00		0.92		0.654	Non-Liq.	4.5	18.5			0.00	1.761						
41.34	12.60	58.30	2.28	3.90	5.58	130	2.650	1.615	0.839	4.01	0.78	0.72	38.46	4.90	4.41	9.32		39.56	2.62		0			1.00		0.92		0.652	Non-Liq.	3.9	10.2			0.00	1.776						
41.67	12.70	23.45	1.03	4.37	2.25	130	2.671	1.626	0.836	4.70	0.89	0.68	14.07	1.87	5.02	6.89		15.12	2.99		0			1.00		0.92		0.651	Non-Liq.	3.1	4.8			0.00	1.790						
41.99	12.80	16.85	0.68	4.01	1.61	130	2.693	1.637	0.833	4.44	0.92	0.67	9.61	1.30	4.54	5.84		10.65	3.11		0			1.00		0.92		0.649	Non-Liq.	2.9	3.7			0.00	1.804						
42.32	12.90	15.65	0.60	3.83	1.50	130	2.714	1.648	0.830	4.29	0.93	0.66	8.77	1.19	4.32	5.51		9.80	3.13		0			1.00		0.92		0.647	Non-Liq.	2.9	3.4			0.00	1.818						
42.65	13.00	17.65	0.60	3.40	1.69	130	2.735	1.659	0.827	3.75	0.90	0.67	10.06	1.34	3.75	5.10		11.11	3.05		0			1.00		0.91		0.646	Non-Liq.	3.0	3.7			0.00	1.833						
42.98	13.10	18.60	0.58	3.09	1.78	130	2.757	1.670	0.823	3.40	0.89	0.67	10.65	1.41	3.35	4.76		11.70	3.01		0			1.00		0.91		0.644	Non-Liq.	3.1	3.8			0.00	1.847						
43.31	13.20	15.30	0.53	3.43	1.47	130	2.778	1.682	0.820	3.86	0.92	0.65	8.39	1.14	3.79	4.93		9.43	3.12		0			1.00		0.91		0.642	Non-Liq.	2.9	3.3			0.00	1.861						
43.64	13.30	14.75	0.48	3.22	1.41	130	2.799	1.693	0.817	3.64	0.92	0.65	7.99	1.09	3.51	4.60		9.03	3.12		0			1.00		0.91		0.640	Non-Liq.	2.9	3.1			0.00	1.876						
43.96	13.40	14.10	0.48	3.37	1.35	130	2.821	1.704	0.814	3.83	0.93	0.64	7.51	1.03	3.70	4.73		8.54	3.16		0			1.00		0.91		0.638	Non-Liq.	2.8	3.0			0.00	1.890						
44.29	13.50	14.90	0.45	3.02	1.43	130	2.842	1.715	0.811	3.41	0.92	0.64	8.00	1.09	3.25	4.34		9.04	3.11		0			1.00		0.91		0.637	Non-Liq.	2.9	3.1			0.00	1.904						
44.62	13.60	13.70	0.40	2.92	1.31	130	2.863	1.726	0.807	3.34	0.93	0.63	7.19	0.99	3.11	4.10		8.22	3.14		0			1.00		0.91		0.635	Non-Liq.	2.9	2.9			0.00	1.918						
44.95	13.70	14.45	0.43	2.94	1.38	130	2.885	1.737	0.804	3.34	0.92	0.63	7.61	1.04	3.14	4.18		8.65	3.12		0			1.00		0.91		0.633	Non-Liq.	2.9	3.0			0.00	1.933						
45.28	13.80	16.25	0.50	3.08	1.56	130	2.906	1.748	0.801	3.45	0.91	0.63	8.68	1.19	3.31	4.50		9.72	3.08		0			1.00		0.90		0.631	Non-Liq.	3.0	3.3			0.00	1.947						
45.60	13.90	18.65	0.70	3.75	1.79	130	2.927	1.759	0.798	4.14	0.91	0.63	10.05	1.40	4.18	5.57		11.10	3.08		0			1.00		0.90		0.629	Non-Liq.	3.0	3.7			0.00	1.961						
45.93	14.00	26.10	0.78	2.97	2.50	130	2.949	1.770	0.794	3.19	0.85	0.65	14.84	1.98	3.17	5.15		15.92	2.87		0			1.00		0.90		0.627	Non-Liq.	3.4	4.7			0.00	1.976						
46.26	14.10	16.75	0.63	3.73	1.60	130	2.970	1.781	0.791	4.18	0.92	0.62	8.75	1.23	4.14	5.37		9.79	3.13		0			1.00		0.90		0.625	Non-Liq.	2.9	3.4			0.00	1.990						
46.59	14.20	15.85	0.53	3.31	1.52	130	2.991	1.792	0.788	3.73	0.92	0.62	8.17	1.15	3.60	4.74		9.22	3.12		0			1.00		0.90		0.623	Non-Liq.	2.9	3.2			0.00	2.004						
46.92	14.30	17.50	0.70	4.00	1.68	130	3.013	1.804	0.784	4.46	0.92	0.61	9.06	1.29	4.48	5.77		10.10	3.13		0			1.00		0.90		0.621	Non-Liq.	2.9	3.5			0.00	2.018						
47.24	14.40	46.95	1.00	2.13	4.50	130	3.034	1.815	0.781	2.22	0.76	0.66	28.31	5.96	2.08	8.04		48.42	2.55		0			1.64		0.90		0.619	Non-Liq.	4.0	12.1			0.00	2.033						
47.57	14.50	22.90	0.85	3.71	2.19	130	3.055	1.826	0.778	4.03	0.89	0.62	12.28	1.72	4.10	5.82		13.34	3.00		0			1.00		0.90		0.617	Non-Liq.	3.1	4.3			0.00	2.047						

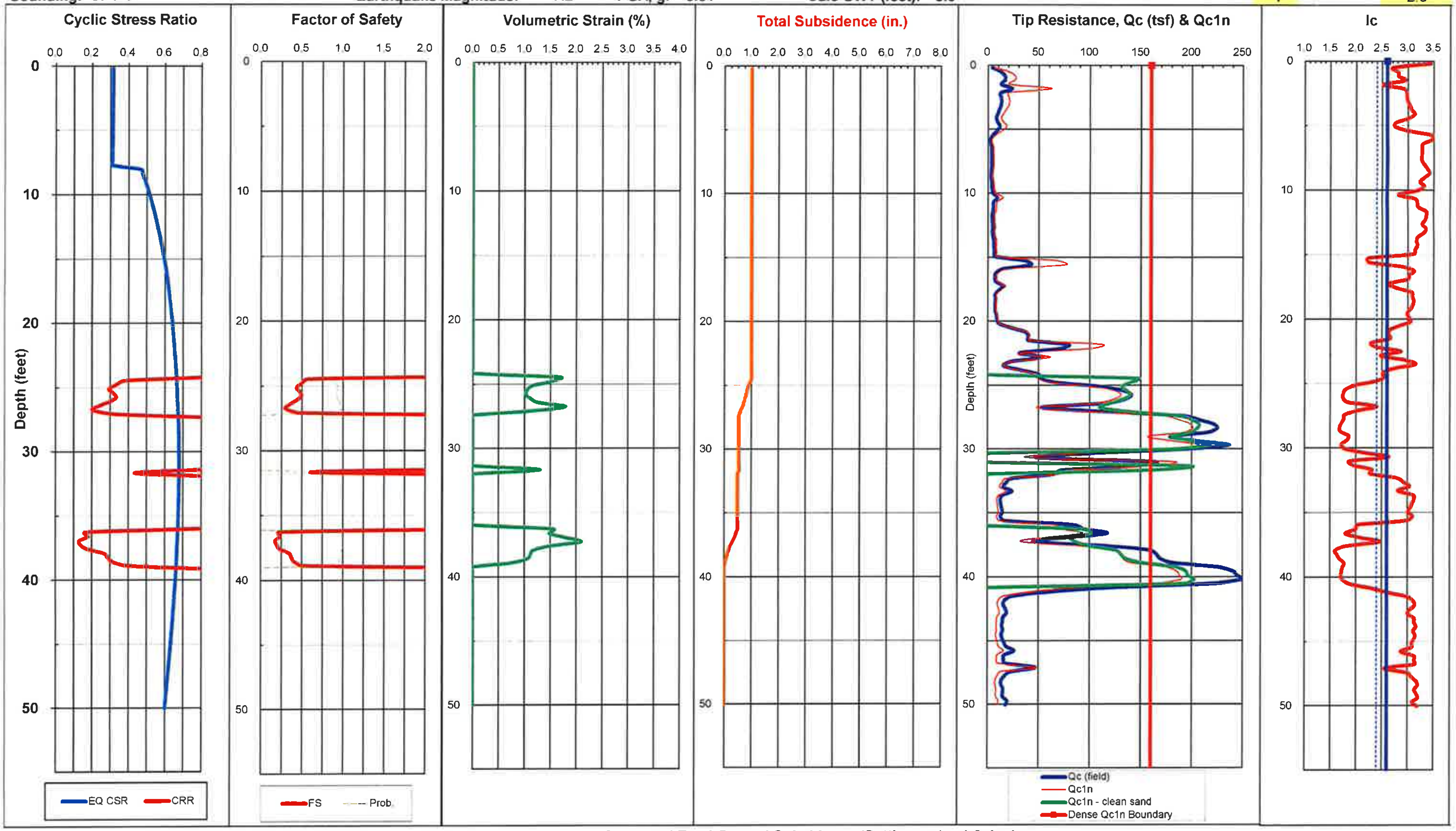
Depth (feet)	(m)	Tip Qc (tsf)	Friction Fs (tsf)	Friction Ratio Rf %	qc MPa	Total Unit Wt (pcf)	Total Stress po (tsf)	Eff. Stress p'o (tsf)	rd	F %	n	Max 1.70 Cq	Q	Moss qc1 MPa	Moss Δqc MPa	Moss qc_{1mod} MPa	Moss eff K_C	Qc1n	Ic	Override	Liquef. Suscept (0 or 1)	Rel Dens Dr (%)	K_C	K_H	Clean Sand Qc1n	1.0 $K\sigma$	CRR	Induced M=7.5 CSR	Liquefac. Safety Factor	Qc1n/$N_{1(60)}$ Ratio	Equiv. $N_{1(60)}$	FC Adj $\Delta N_{1(60)}$	Equiv. $N_{1(60)cs}$	*Volumetric Strain (%)*	p (tsf)	G_{max} (tsf)	τ_{av} (tsf)	Shear Strain γ	Strain E_{15}	Strain Enc	Dry Sand Subsidence (in.)
47.90	14.60	16.85	0.50	2.97	1.61	130	3.077	1.837	0.774	3.33	0.91	0.61	8.60	1.20	3.15	4.35		9.66	3.08		0			1.00		0.90		0.614	**Non-Liq.**	3.0	3.2			**0.00**	2.061						
48.23	14.70	13.75	0.40	2.91	1.32	130	3.098	1.848	0.771	3.36	0.93	0.59	6.69	0.95	3.07	4.02		7.73	3.17		0			1.00		0.89		0.612	**Non-Liq.**	2.8	2.8			**0.00**	2.076						
48.56	14.80	13.40	0.40	2.99	1.28	130	3.119	1.859	0.767	3.47	0.94	0.59	6.43	0.92	3.16	4.08		7.46	3.19		0			1.00		0.89		0.610	**Non-Liq.**	2.8	2.7			**0.00**	2.090						
48.88	14.90	15.20	0.45	2.96	1.46	130	3.141	1.870	0.764	3.38	0.92	0.59	7.45	1.06	3.13	4.19		8.50	3.13		0			1.00		0.89		0.608	**Non-Liq.**	2.9	3.0			**0.00**	2.104						
49.21	15.00	15.05	0.50	3.32	1.44	130	3.162	1.881	0.761	3.80	0.93	0.58	7.28	1.05	3.58	4.64		8.32	3.17		0			1.00		0.89		0.606	**Non-Liq.**	2.8	3.0			**0.00**	2.118						
49.54	15.10	15.10	0.55	3.64	1.45	130	3.183	1.892	0.757	4.16	0.94	0.58	7.23	1.06	3.99	5.04		8.27	3.19		0			1.00		0.89		0.604	**Non-Liq.**	2.7	3.0			**0.00**	2.133						
49.87	15.20	19.15	0.70	3.66	1.83	130	3.205	1.903	0.754	4.06	0.91	0.59	9.55	1.38	4.00	5.38		10.61	3.09		0			1.00		0.89		0.602	**Non-Liq.**	3.0	3.6			**0.00**	2.147						
50.20	15.30	17.60	0.80	4.55	1.69	130	3.226	1.914	0.751	5.10	0.94	0.57	8.50	1.27	5.12	6.39		9.54	3.19		0			1.00		0.89		0.599	**Non-Liq.**	2.8	3.5			**0.00**	2.161						

EARTH SYSTEMS - EVALUATION OF LIQUEFACTION POTENTIAL AND INDUCED GROUND SUBSIDENCE

Oxnard College Fire Academy **Project No: 302245-001** Method Used: 1 1998 NCEER (Robertson & Wride)

Settlement Analysis using Tokimatsu & Seed (1987), clean sand Qc1n/N1(60) ratio =5

Sounding: CPT-1 **Earthquake Magnitude: 7.2** **PGA, g: 0.81** **Calc GWT (feet): 8.0** Plot 1 Limiting Ic: 2.6



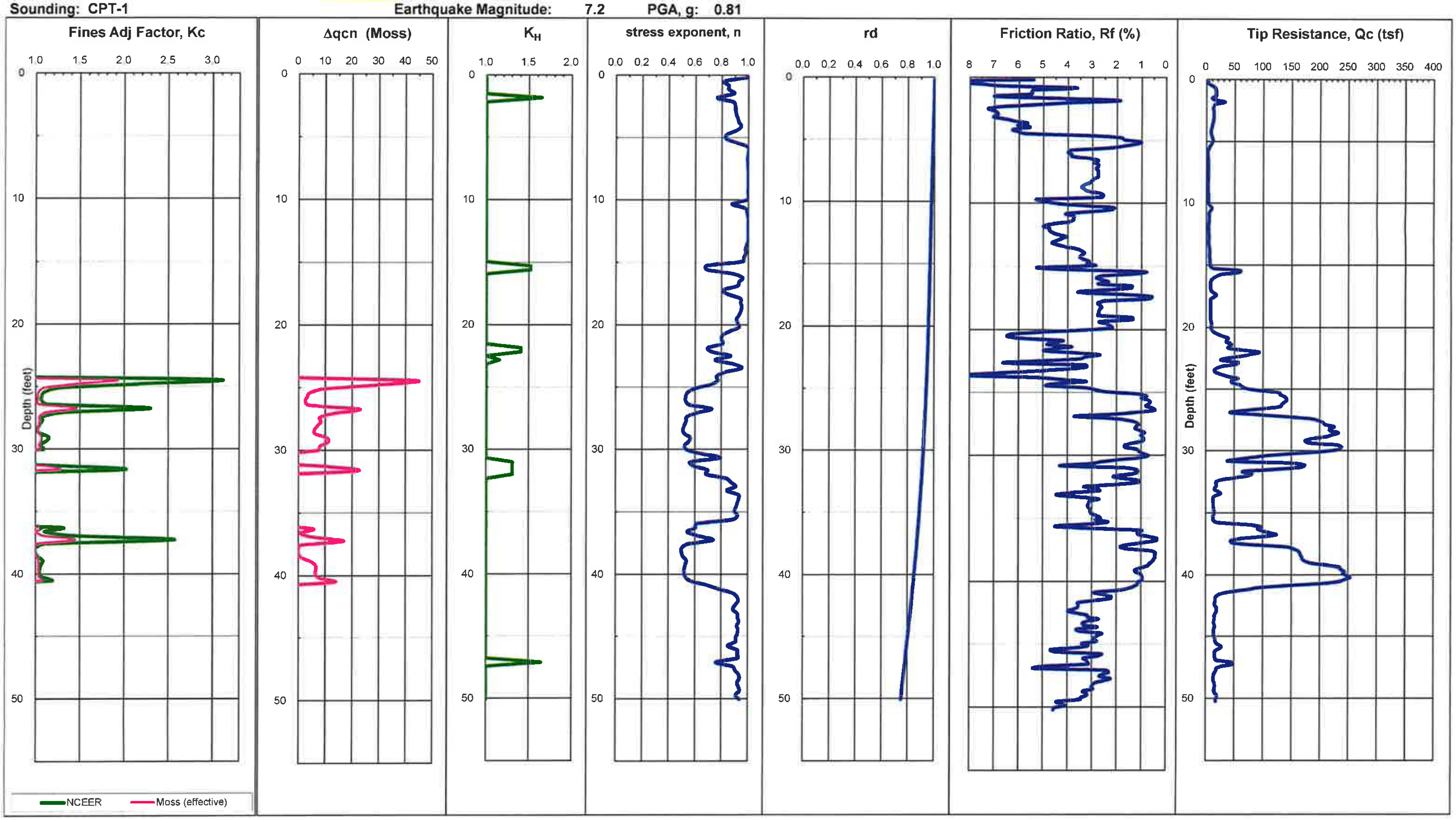
Total Thickness of Liquefiable Layers: 6.2 feet **Estimated Total Ground Subsidence (Settlement): 1.0 inches**

EARTH SYSTEMS - EVALUATION OF LIQUEFACTION POTENTIAL AND INDUCED GROUND SUBSIDENCE

3 avg increment =0.10m Qc1n/N1(60): 5 — Method Used: 1998 NCEER (Robertson & Wride)

Ignore 1st/last increment into sand/silt soils: 0

Sounding: CPT-1 — **Earthquake Magnitude: 7.2** — **PGA, g: 0.81**



Job Number:	302245-001
Job Name:	Oxnard College Fire Academy
Boring Number:	CPT-1
Date:	April 16, 2019
Calculated By:	A. Mazzei

Prediction of Liquefaction Induced Lateral Spreading with Ground Slope Conditions

Based on Data Published in the ASCE Journal of Geotechnicial and Geoenvironmental Engineering December 2002
(Youd, Hansen and Bartlett, 2002)

Variables Used in Calculation Defined

Earthquake Magnitude (M)
Horizontal Distance to Nearest Seismic Energy Source, km (R)
Percent Slope (S)
Cumulative Thickness in Meters of Saturated Cohesionless Sediments with SPT $(N1)_{60}$ Values <= 15 (T_{15})
Average Fines Content in Percent (F_{15})
Mean Grain size in milimeters $(D50_{15})$

$\text{Log } D_H=-16.213+1.532M-1.406\text{Log}(R+10^{(0.89M-5.64)})-0.012R+0.338\text{LogS}+0.540\text{LogT}_{15}+3.413\text{Log}(100-F_{15})-0.795\text{Log}(D50_{15}+0.1\text{mm})$

Requirements and Limitations Used to Develop this Model

Soils must be Liquefiable
Saturated Cohesionless Sediments with SPT $(N1)_{60}$ less than 15
Earthquake Magnitude (M) must be between 6 and 8
Percent Slope (S) must be between 0.1% and 6%
Cumulative Thickness (T15) must be between 1 and 15 meters
Depth to top of Liquefied layer must be between 1 and 10 meters
Distance to Fault Rupture (R_{eq}) must be determined using Figure 10 if soft soils are present.
F_{15} and $D50_{15}$ must be within bounds shown in Fig. 5.
If R or R_{eq} < 0.5 km use 0.5; otherwise use R or R_{eq}.

Input Values		
M =	7.2	
R =	9.9	km
S =	0.5	%
T_{15} =	0.6	m
F_{15} =	30	%
$D50_{15}$ =	0.7	mm

Horizontal Ground Displacement in meters (D_H) = 0.15
Horizontal Ground Displacement in feet (D_H) = 0.5

Displacements should be between 0.1 and 6 meters and should be multiplied by a FOS of 2 for a conservative estimate. Any displacement greater than 6 meters is outside of the data set used in the analysis and may not be an accurate estimate.

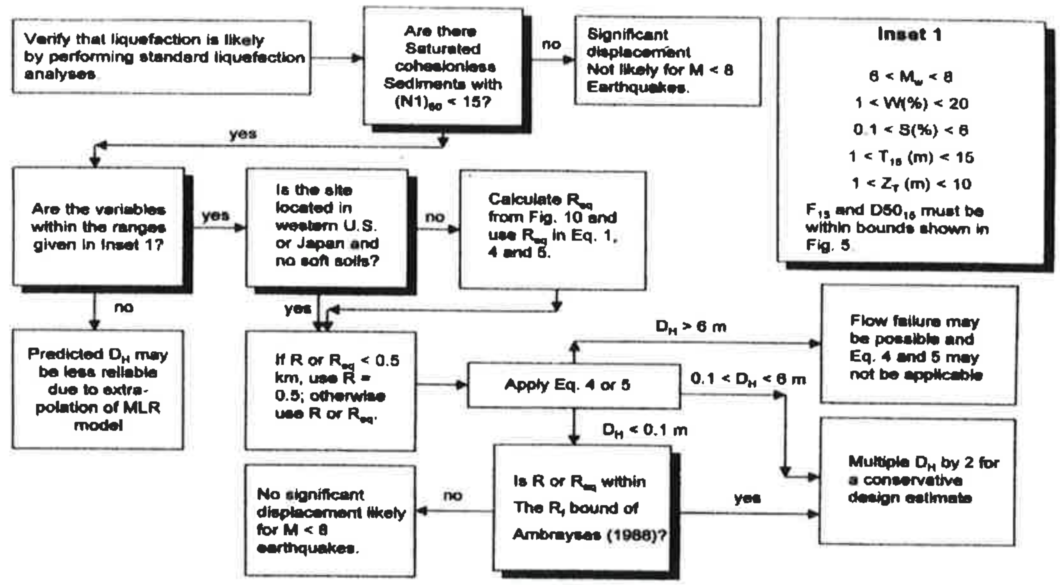


Fig. 9. Flow chart [for application of Eq. (6)]

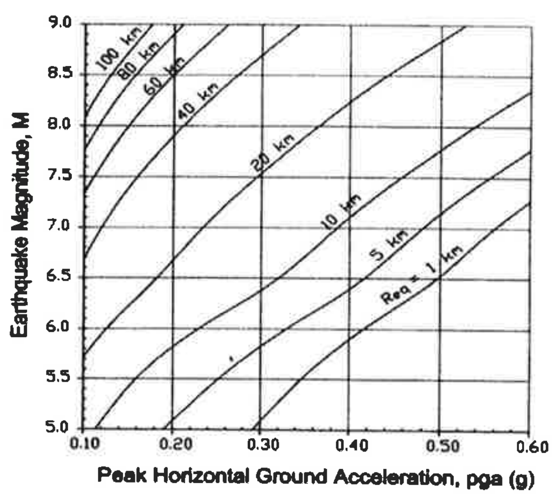


Fig. 10. Graph for determining equivalent source distance, R_{eq}, from magnitude, M, and peak acceleration, a_{max} (revised from Bartlett and Youd 1992, 1995). The above curves are the averages of pga from three different attenuation relations: Abrahamson and Silva (1997); Boore et al. (1997); and Campbell (1997). For the Abrahamson and Silva (1997) relation, the following parameters were used in the regression equation: a) R equals the distance to the fault rupture, b) fault type was set to "otherwise", c) HW=hanging wall factor was set to 1, which implies that sites are found on the hanging wall, d) site classification was set to 1 for deep soil sites. For the Boore, Joyner and Fumal (1997) relation, the following parameters were used in the regression equation: a) R is the closest horizontal distance (km) to a vertical projection of fault rupture surface (km), b) Vs in the upper 30 meters was set to 270 m/s, which is the mid range for a medium stiff soil (site class D), c) fault type was set to "fault mechanism not specified." For the Campbell (1997) relation, the following parameters were used in the regression equation: a) R is the closest distance to the seismogenic rupture surface (km), b) fault style factor was set to "otherwise", c) soft rock and hard rock site factors were set to "otherwise", which implies a stiff soil site.

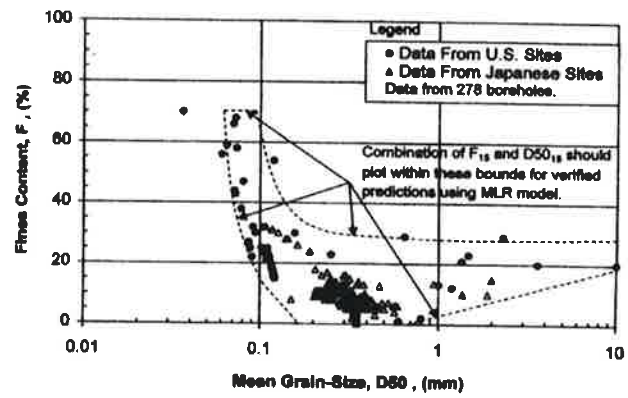


Fig. 5. Compiled grain-size data with ranges of F_{15} and $D50_{15}$ [for which Eq. (6) is applicable]

APPENDIX E

Infiltration Test Results

INFILTRATION RATE BY THE BOREHOLE PERCOLATION TEST METHOD

This workbook calculates an adjusted infiltration rate from a borehole percolation test. The percolation rate is adjusted for sidewall area according to the Porchet method, and then re-adjusted for the effect of the gravel placed in annulus between the borehole wall and a pipe placed in the borehole by a method presented in Caltrans Test 750.

Project Name	Oxnard College Fire Academy
Project Number	302245-001
Test Hole No.	IT-1
Tester	Scott Calvert
Pre-Soak Date	3/28/2019
Test Date	3/29/2019

Test Hole Radius, r (inches)	2
Total Depth of Test Hole, D_T (feet)	3.0
Inside Diameter of Pipe, I (inches)	2.00
Outside Diameter of Pipe, O (inches)	2.38
Pipe Stick-Up (feet)	0.0
Porosity of Gravel, n	0.41
Porosity Correction Factor, C	0.51
Factor of Safety (FOS), F	N/A

Interval No.	Delta Time, Δt (min.)	Initial Depth to Water from TOP, D_o (ft.)	Final Depth to Water from TOP, D_f (ft.)	Initial Water Height, H_o (in.)	Final Water Height, H_f (in.)	Change in Water Height, ΔH (in.)	Perc Rate, (in/hr)	Infiltration Rate (in./hr.)	Corrected Infiltration Rate (in/hr)
1	30.00	0.92	0.98	24.96	24.24	0.72	1.44	0.06	0.03
2	30.00	0.98	1.02	24.24	23.76	0.48	0.96	0.04	0.02
3	30.00	1.02	1.08	23.76	23.04	0.72	1.44	0.06	0.03
4	30.00	1.08	1.13	23.04	22.44	0.60	1.20	0.05	0.03
5	30.00	1.13	1.18	22.44	21.84	0.60	1.20	0.05	0.03
6	30.00	1.18	1.22	21.84	21.36	0.48	0.96	0.04	0.02
7	30.00	1.22	1.26	21.36	20.88	0.48	0.96	0.04	0.02
8	30.00	0.92	0.96	24.96	24.48	0.48	0.96	0.04	0.02
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INFILTRATION RATE BY THE BOREHOLE PERCOLATION TEST METHOD

This workbook calculates an adjusted infiltration rate from a borehole percolation test. The percolation rate is adjusted for sidewall area according to the Porchet method, and then re-adjusted for the effect of the gravel placed in annulus between the borehole wall and a pipe placed in the borehole by a method presented in Caltrans Test 750.

Project Name	Oxnard College Fire Academy
Project Number	302245-001
Test Hole No.	IT-2
Tester	Scott Calvert
Pre-Soak Date	3/28/2019
Test Date	3/29/2019

Test Hole Radius, r (inches)	2
Total Depth of Test Hole, D_T (feet)	3.0
Inside Diameter of Pipe, I (inches)	2.00
Outside Diameter of Pipe, O (inches)	2.38
Pipe Stick-Up (feet)	0.0
Porosity of Gravel, n	0.41
Porosity Correction Factor, C	0.51
Factor of Safety (FOS), F	N/A

Interval No.	Delta Time, Δt (min.)	Initial Depth to Water from TOP, D_o (in.)	Final Depth to Water from TOP, D_f (in.)	Initial Water Height, H_o (in.)	Final Water Height, H_f (in.)	Change in Water Height, ΔH (in.)	Perc Rate, (in/hr)	Infiltration Rate (in./hr.)	Corrected Infiltration Rate (in/hr)
1	30.00	1.10	1.15	1.90	1.85	0.05	0.10	0.03	0.02
2	30.00	1.15	1.22	1.85	1.78	0.07	0.14	0.05	0.03
3	30.00	1.22	1.28	1.78	1.72	0.06	0.12	0.04	0.02
4	30.00	1.28	1.32	1.72	1.68	0.04	0.08	0.03	0.02
5	30.00	1.32	1.35	1.68	1.65	0.03	0.06	0.02	0.01
6	30.00	1.35	1.40	1.65	1.60	0.05	0.10	0.04	0.02
7	30.00	1.40	1.45	1.60	1.55	0.05	0.10	0.04	0.02
8	30.00	1.10	1.14	1.90	1.86	0.04	0.08	0.03	0.01
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VERIFICATION OF GROUND IMPROVEMENT PROGRAM
FOR PROPOSED OXNARD FIRE ACADEMY
OXNARD, CALIFORNIA

PROJECT NO.: 302245-003
January 20, 2021

PREPARED FOR
Jay Lomagno
Rasmussen & Associates
21 South California Street, Fourth Floor
Ventura, California 93001

BY

EARTH SYSTEMS PACIFIC
1731-A WALTER STREET
VENTURA, CALIFORNIA 93003

January 20, 2021

Project No.: 302245-003
Report No.: 21-01-029
CGS Application No. 03-CGS4406
DSA No. 03-120764

Jay Lomagno
Rasmussen & Associates
21 South California Street, Fourth Floor
Ventura, California 93001

Project: Proposed Oxnard College Fire Academy
Camarillo Area of Ventura County, California

Subject: Verification of Ground Improvement Program

References:
1) Engineering Geology and Geotechnical Engineering Report, Proposed Oxnard College Fire Academy, Oxnard, California, by Earth Systems Pacific, Project No. 302245-001, Report No. 20-4-70, dated April 22, 2020.
2) California Geological Survey, August 3, 2020, Engineering Geology and Seismology Review for Oxnard College - Fire Apparatus Technology Building, 104 Durley Avenue, Camarillo, CA, CGS Application No. 03-CGS4406, DSA No. 03-120764.
3) Response to CGS Review for Engineering Geology and Geotechnical Engineering Report, Proposed Oxnard College Fire Academy, Oxnard, California, by Earth Systems Pacific, Project No. 302245-001, Report No. 20-8-10, dated August 10, 2020.
4) California Geological Survey, November 19, 2020, Second Engineering Geology and Seismology Review for Oxnard College - Fire Apparatus Technology Building, 104 Durley Avenue, Camarillo, CA, CGS Application No. 03-CGS4406, DSA No. 03-120764.
5) As-Built Report for Displacement Grouted Column (DGC), Oxnard College Fire Training Academy, Oxnard, California, by Advanced Geosolutions, Inc., Submittal No. 02, dated January 11, 2021.

In Reference 4, the California Geological Survey (CGS) concluded that the engineering geology and seismology issues at the site had been adequately addressed in References 1 and 3. The project was provisionally accepted; however, CGS requested that additional documentation be provided following completion of the ground improvement program. A copy of the as-built report for the ground improvement program prepared by Advanced Geosolutions, Inc. (AGI) is included as Attachment A.

QUALITY ASSURANCE PROGRAM

Earth Systems Pacific (Earth Systems) personnel were onsite on a full-time basis during the ground improvement program. During installation of each individual displacement grouted column (DGC), the depth of the DGC and the quantity of grout placed was electronically recorded by the rig. Daily data and logs for each individual DGC are provided in Reference 5 provided in Attachment A.

One set of grout test cylinders was prepared for every 50 cubic yards, or fraction thereof, placed in preparation for compressive strength testing in the laboratory. A minimum of one set was prepared per shift. It should be noted that only four test cylinders were cast for the first three days of production (one 7-day and three 28-day). Six test cylinders were cast for each set prepared thereafter. Within 24 hours of casting, the test cylinders were transported to our laboratory and stored in a temperature-controlled environment for curing until compression tests are performed. One test cylinder was tested at 7 days and three were tested at 28 days. The average 28-day compressive strength based on three test cylinders was required to be at least 2,000 psi. Copies of the compression strength test results are provided in Attachment B.

During DGC production, one load test was performed in general accordance with the ASTM D1143 test method (Quick Load Test). The loads were applied and maintained per the compression test loading schedule shown on Sheet GI-2 of AGI's design submittal provided in Attachment C. The results of the load test are summarized and plotted in AGI's as-built report provided in Attachment A.

CONCLUSION

Based on our field observations, data recorded for each individual DGC, results of the load testing program, and compressive strength test results on the grout, it is our professional opinion that the design objective of the ground improvement program has been met.

CLOSURE

Earth Systems trusts this letter is sufficient at this time and meets your current needs. Earth Systems appreciates this opportunity to provide professional engineering geology and geotechnical engineering services for this project. If you have any questions regarding the information contained in this letter, or if you require additional information, please contact the undersigned.

January 20, 2021

Project No.: 302245-003
Report No.: 21-01-029
CGS Application No. 03-CGS4406
DSA No. 03-120764

Respectfully submitted,

EARTH SYSTEMS PACIFIC

PROFESSIONAL GEOLOGIST
PATRICK V. BOALES
No. 1346
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

Patrick V. Boales

Patrick V. Boales
Engineering Geologist

1-20-21

REGISTERED PROFESSIONAL ENGINEER
ANTHONY P. MAZZEI
GE 2823
Exp. 6-30-21
GEOTECHNICAL
STATE OF CALIFORNIA

Anthony P. Mazzei
Geotechnical Engineer

1/21/21

ATTACHMENTS

Attachment A: As-Built Report for Displacement Grouted Column (DGC), Oxnard College Fire Training Academy, Oxnard, California, by Advanced Geosolutions, Inc., Submittal No. 02, dated January 11, 2021.

Attachment B: Compressive Strength Test Results

Attachment C: Sheet No. GI-2

Copies:
2 - Rasmussen and Associates (1 via US mail, 1 via email)
1 - Chase White, CGS (1 via email)
1 - Project File

ATTACHMENT A

As-Built Report for Displacement Grouted Column (DGC), Oxnard College Fire Training Academy, Oxnard, California, by Advanced Geosolutions, Inc., Submittal No. 02, dated January 11, 2021

ADVANCED GEOSOLUTIONS INC
Ground Improvement and Specialty Piling Contractors

DISPLACEMENT GROUTED COLUMN (DGC)

Oxnard College Fire Training Academy
OXNARD, CA

Submittal No. 02

AS-BUILT REPORT

January 11, 2021

1.0 INTRODUCTION

In accordance with Submittal No. 1, “Design Submittal”, AGI installed Displacement Grouted Columns (DGC) for foundation support at the referenced project.

This submittal presents the as-built drawing, the installation logs of each individual DGC, and the results from the testing thereof to confirm that the ground improvement design objective has been met.

2.0 AS-BUILT AND INSTALLATION RECORD

The as-built drawing is included in Appendix A. All DGCs were installed within 6 inches of the staked location. DGCs 199-204 and 163 were moved eastward 2’ to provide enough horizontal clearance between the rig and the existing power lines. All DGCs reached the minimum design depth, extending the required 20.4’ or 34.4’ from the surface elevation of +74.7’. It should be noted, the drawings show the columns within the footprint of the slab to be installed to 20.4’, though, these DGCs were installed to 34.4’.

Daily data and logs for each individual column were collected during installation and are herein reported in Appendix B. That information includes the column identification, date of installation, start/end times, depth, quantity of grout, and concrete truck ticket ID.

3.0 LOAD TESTING

In accordance with the project specifications, one modulus test was performed on a constructed DGC. The method and results of the modulus test is provided in Appendix C.

For the load test, measured deflection at design load (70 kips) and max load (105 kips) is lower than allowable static settlement. The results indicate that the DGCs meet our design requirements.

4.0 CONCLUDING REMARKS

On the basis of our review of the installation record and load test results, the ground improvement work conforms to the design requirement as outlined in our design submittal.

We trust the enclosed submittal meets the project requirements. Should you have any questions regarding this submittal, or require further information please contact the undersigned.

---- 0 ----

We appreciate your interest in our services. Please contact the undersigned with any questions regarding this document.

Sincerely,

ADVANCED GEOSOLUTIONS, Inc.

Patrick Magnier
Project Manager

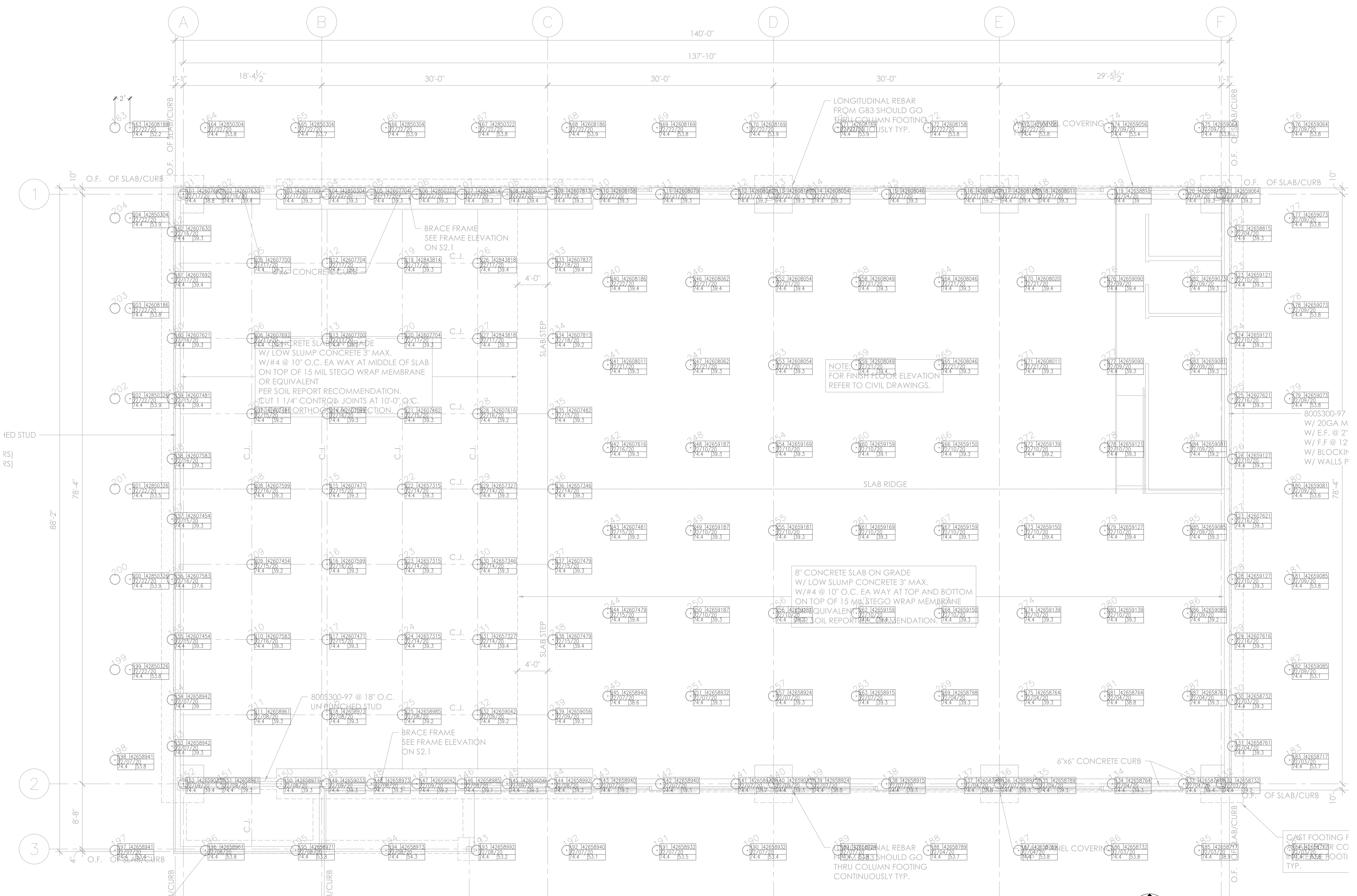
Juan Baez Pd.D., P.E.
President and CEO

Alex Corob
Field Engineer

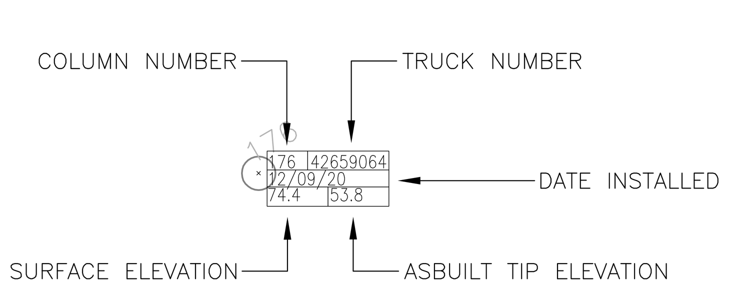
Attachments: Appendix A, "As-Built Drawings"
Appendix B, "Installation Logs"
Appendix C, "Modulus Test Results"

APPENDIX A

Displacement Grouted Columns As-Built Drawing



GROUND IMPROVEMENT LAYOUT
SCALE: 1" = 5'



S:\Projects\P714275 Oxnard College Fire Academy\Drawings\Main Files\AGI_Layout.dwg

AGI
ADVANCED GEOSOLUTIONS Inc.
13 Orchard Rd, Suite 105
Lake Forest, CA 92630
Phone (310) 796-9000 | Fax (310) 796-9001
www.advgeosolutions.com

REVISIONS

NO.	DATE	DESCRIPTION
–	–	–

PROJECT:

OXNARD COLLEGE FIRE ACADEMY
FIRE APPARATUS BUILDING
CAMARILLO, CALIFORNIA

SHEET TITLE:

GROUND IMPROVEMENT LAYOUT ASBUILT

PROJECT NO. –
SHEET NUMBER: GI-3A
DATE: 01/05/2021
SCALE: AS SHOWN

APPENDIX B

Installation Logs

ADVANCED GEOSOLUTIONS INC

Daily Production Summary- Displacement Grout Columns

Project No. : **P271275**
Project Name: Oxnard College Fire Training Academy
Rig: BG-30
Rig Operator: Benny Sandoval
Oiler: Jimmy Edwards

Date: Thursday, December 3, 2020

Seq. No	Rig No.	Col. ID	Start Time	Bottom Time	End Time	Surface Elev.	Column Depth (ft)	*Act. Tip Elev.*	Concrete Volume (cu. feet)	*Truck ID*	Comments
1		184	13:34	13:42	13:45	74.4	20.6	53.8	43	42658717	
2		183	13:48	13:53	13:56	74.4	20.7	53.7	44	42658717	
3		185	15:07	15:14	15:28	74.4	35.5	38.9	73	42658717	
4		132	15:51	15:58	16:03	74.4	35.2	39.2	70	42658732	Grout Pressure sensor temporary disfunction due to concrete plug
5		130	16:11	16:18	16:23	74.4	35.1	39.3	71	42658732	Grout Pressure sensor temporary disfunction due to concrete plug
6		186	16:30	16:34	16:38	74.4	20.6	53.8	44	42658732	Grout Pressure sensor temporary disfunction due to concrete plug

DGC Log Sheet

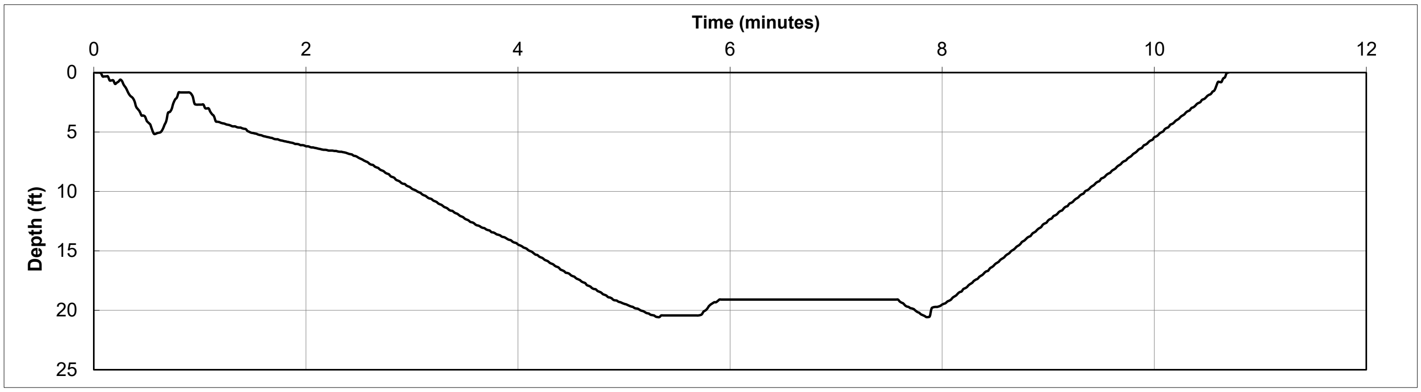
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

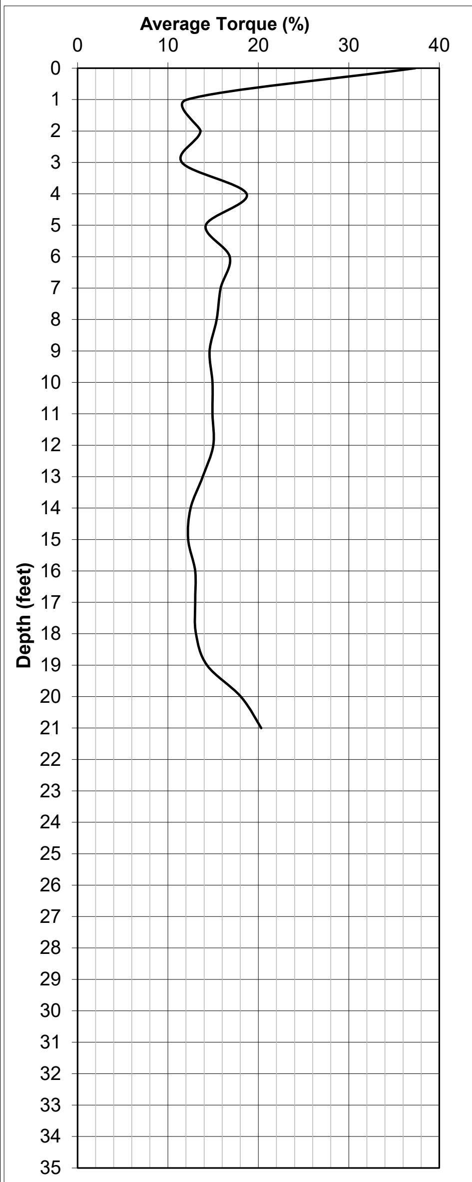
Project Site Data | **Data for Column No: 184**

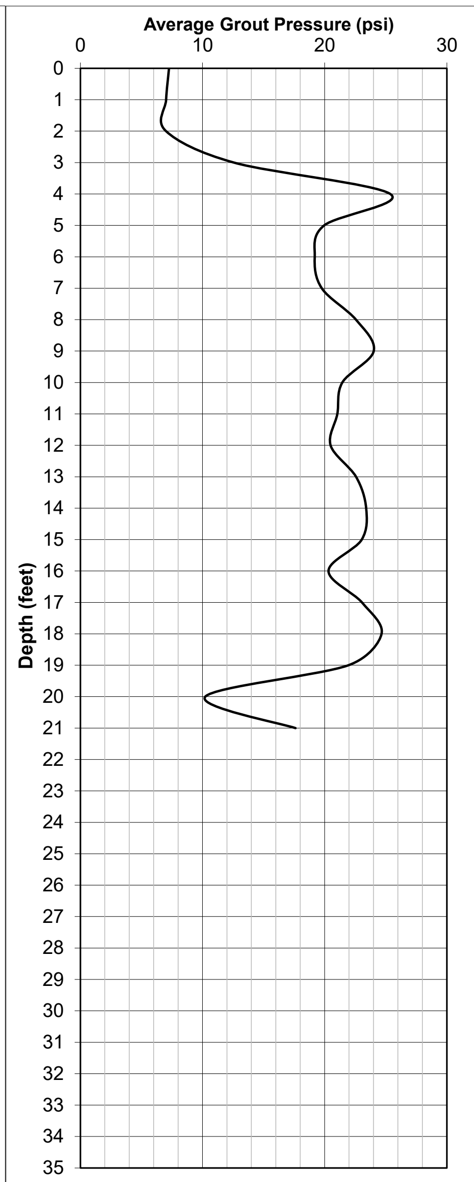
Project Name:	Oxnard College Fire Training	Date:	12/3/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:34 PM	Concrete Volume:	42.7	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:42 PM	Column Depth:	20.6	ft
		End Time:	1:45 PM	Pre Auger:		
		Total Time:	11 min			

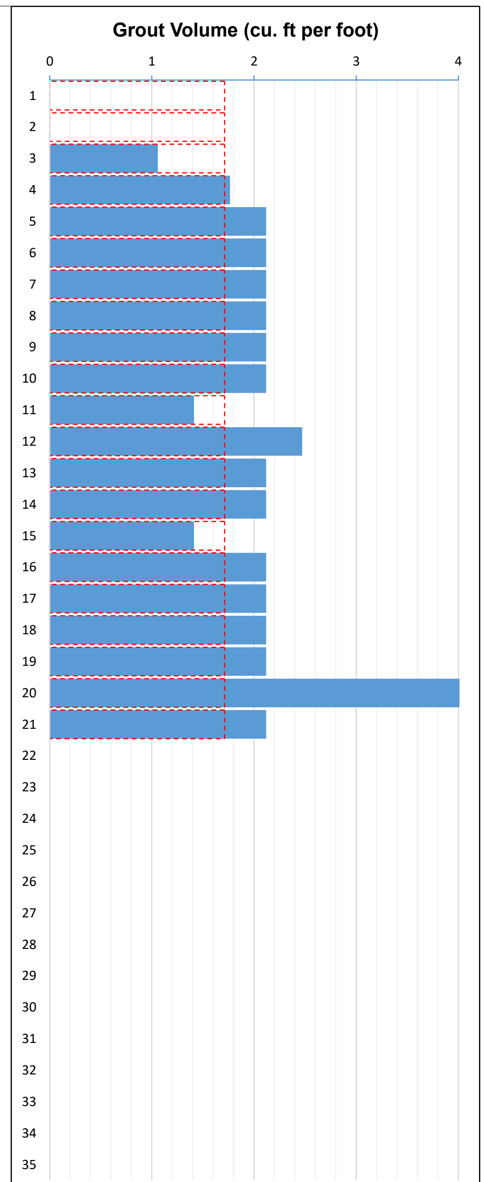
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" nominal requirement









DGC Log Sheet

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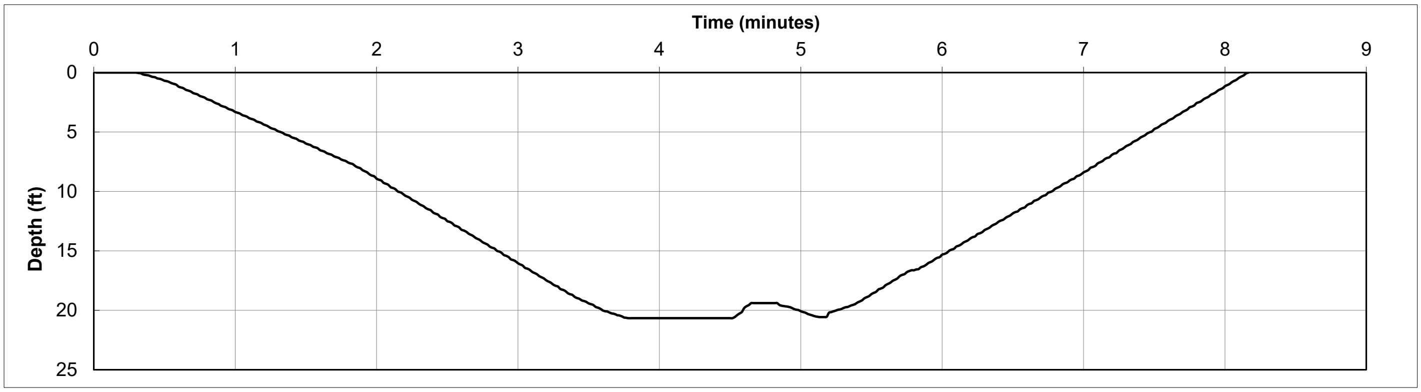
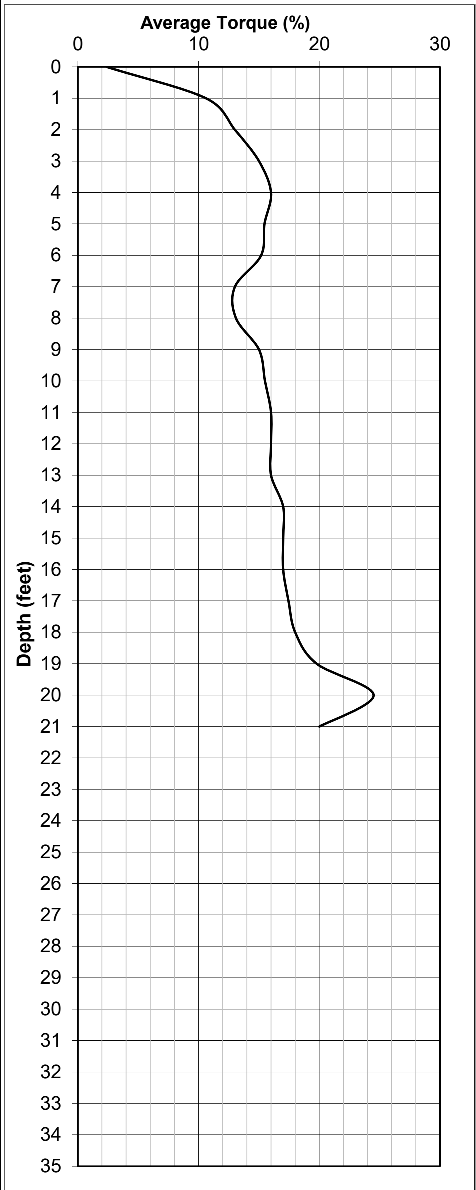
Project Site Data — **Data for Column No: 183**

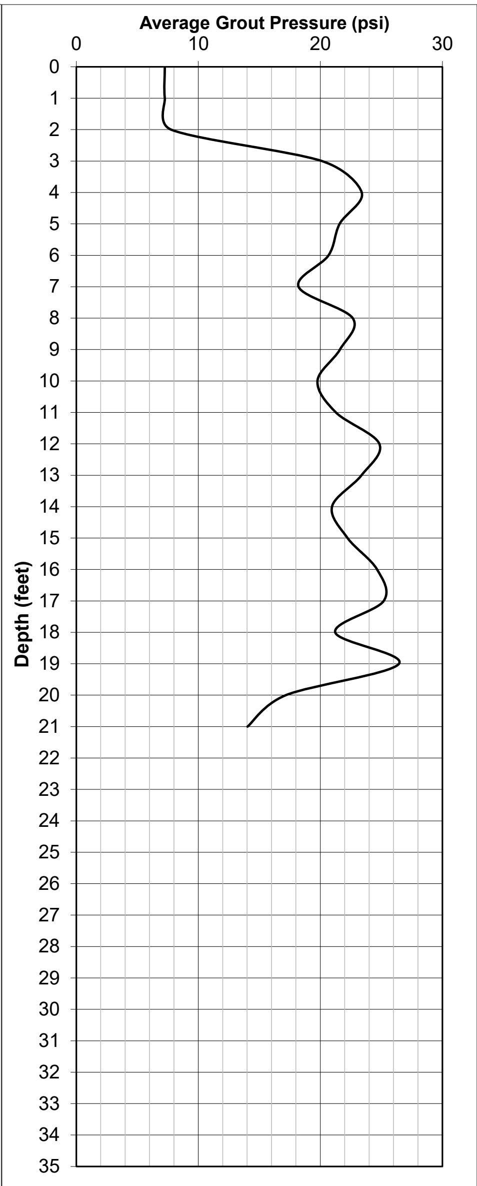
Project Name:	Oxnard College Fire Training	Date:	12/3/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:48 PM	Concrete Volume:	44.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:53 PM	Column Depth:	20.7	ft
		End Time:	1:56 PM	Pre Auger:		
		Total Time:	8 min			

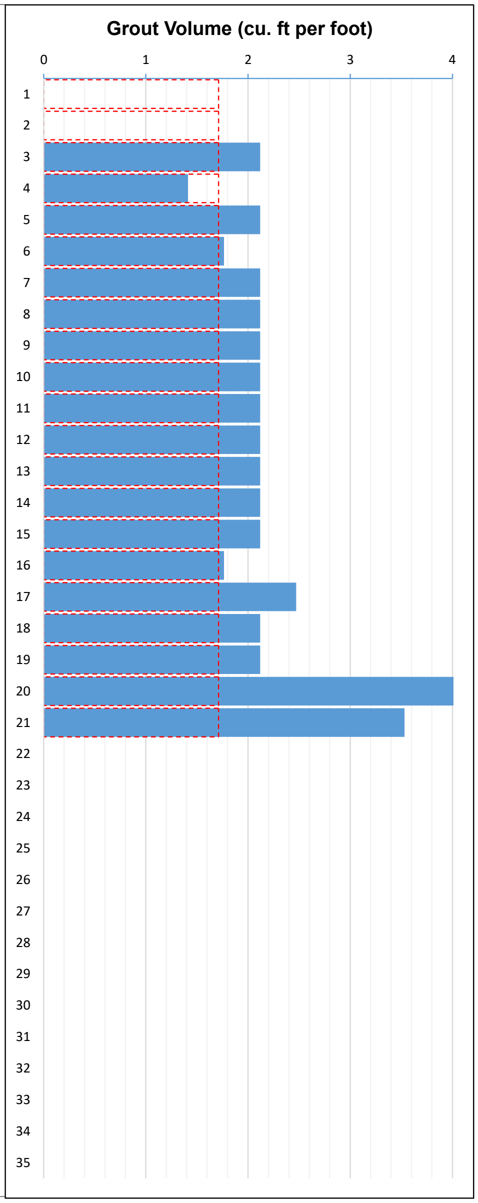
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" nominal requirement









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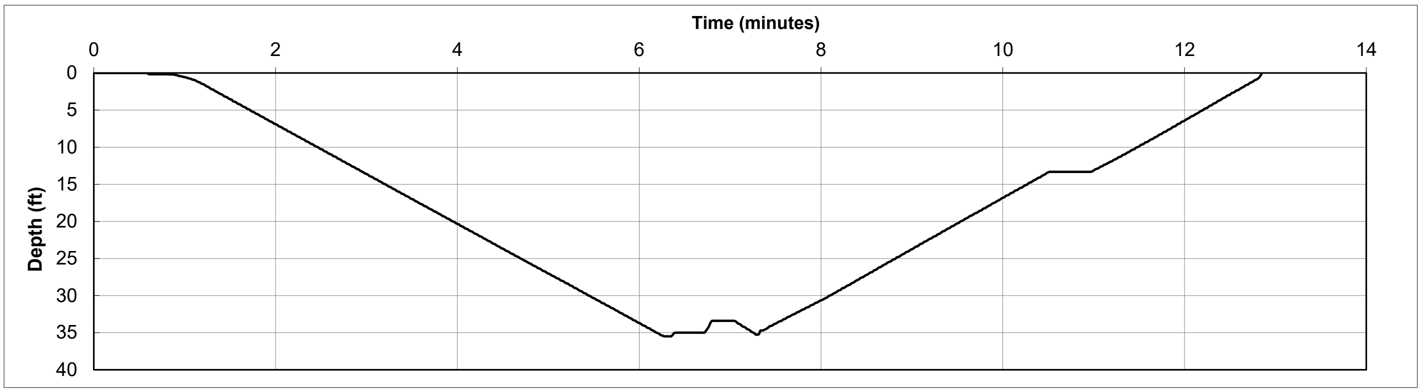
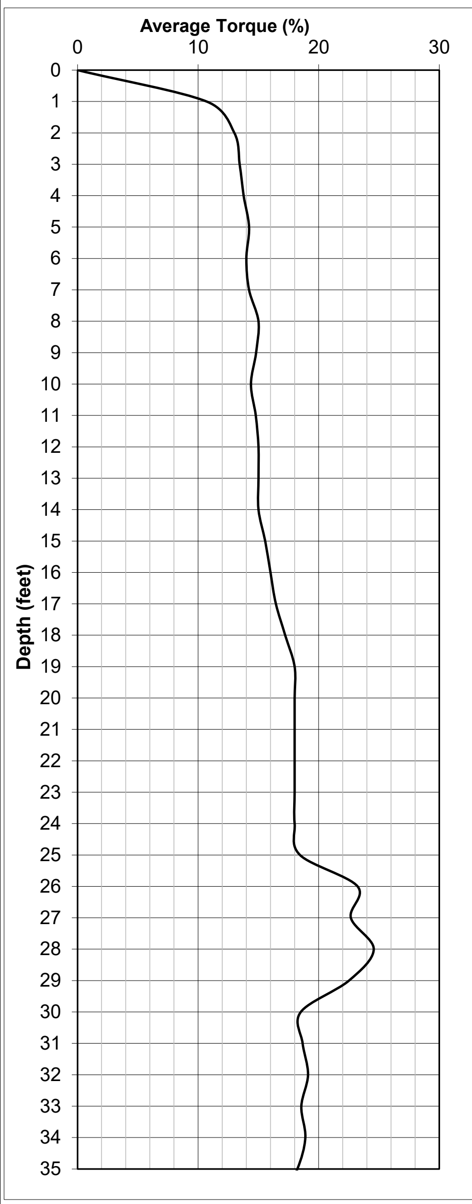
Project Site Data **Data for Column No: 185**

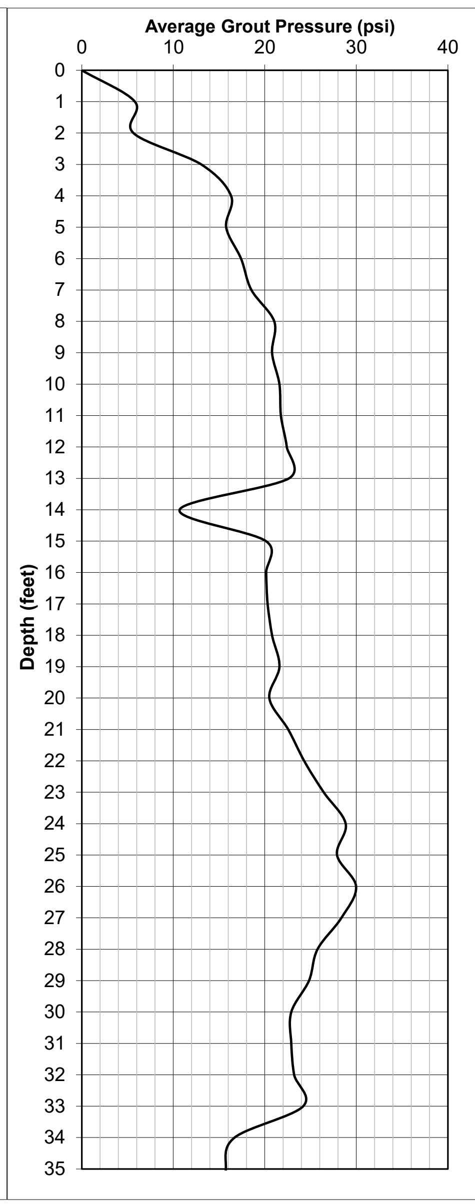
Project Name:	Oxnard College Fire Training	Date:	12/3/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	3:07 PM	Concrete Volume:	73.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	3:14 PM	Column Depth:	35.5	ft
		End Time:	3:28 PM	Pre Auger:		
		Total Time:	20 min			

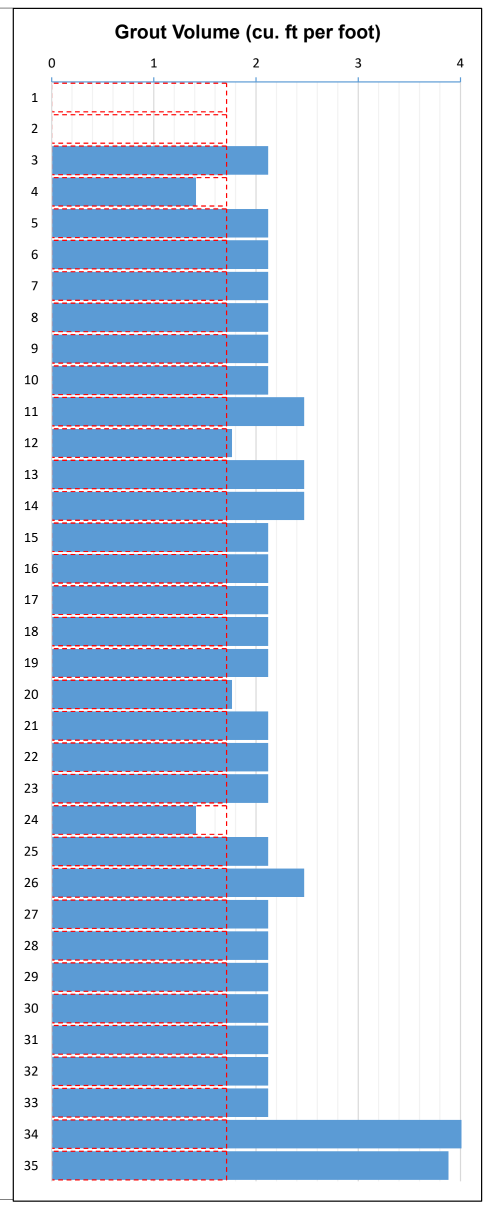
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" nominal requirement









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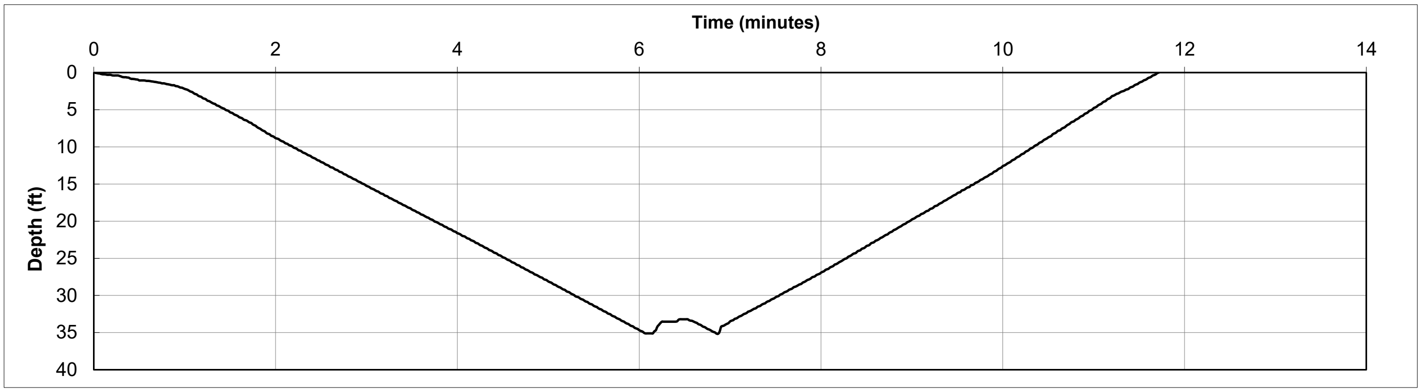
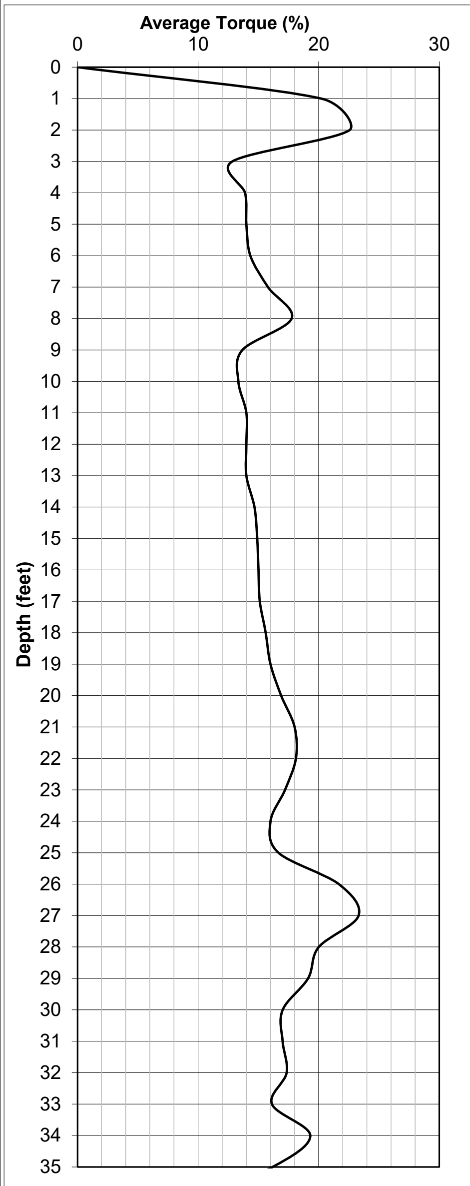
Project Site Data **Data for Column No: 132**

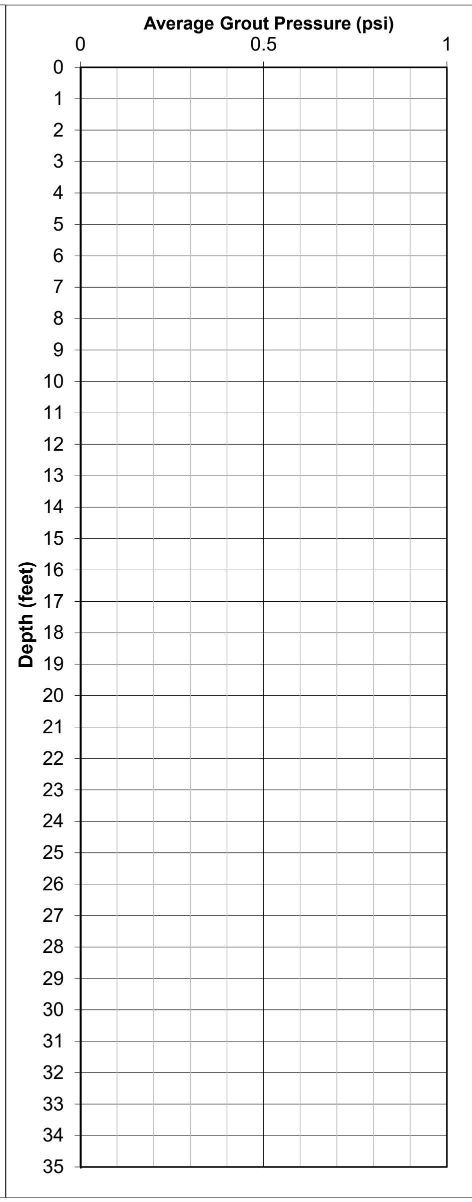
Project Name:	Oxnard College Fire Training	Date:	12/3/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	3:51 PM	Concrete Volume:	70.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	3:58 PM	Column Depth:	35.2	ft
		End Time:	4:03 PM	Pre Auger:		
		Total Time:	12 min			

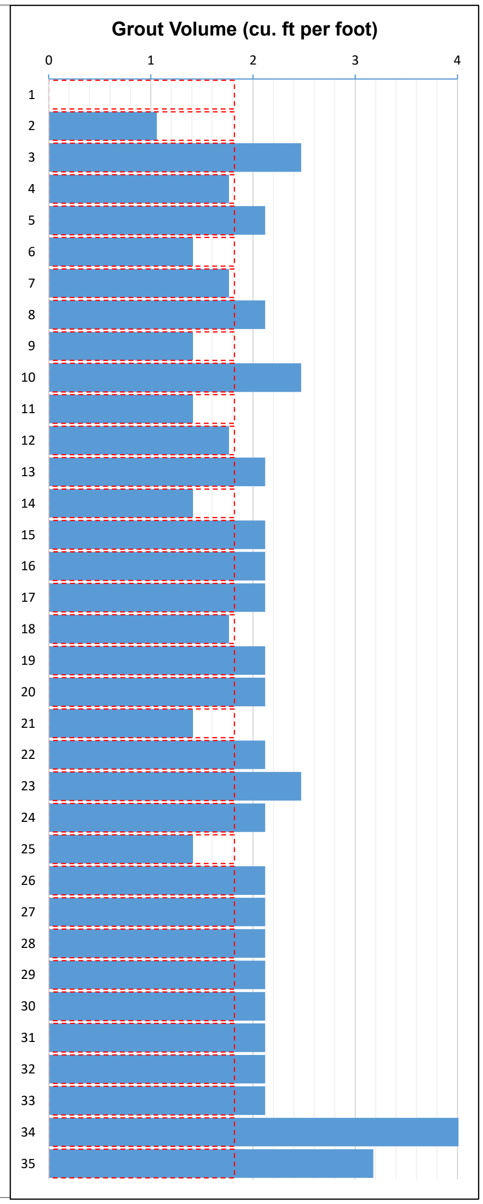
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" nominal requirement









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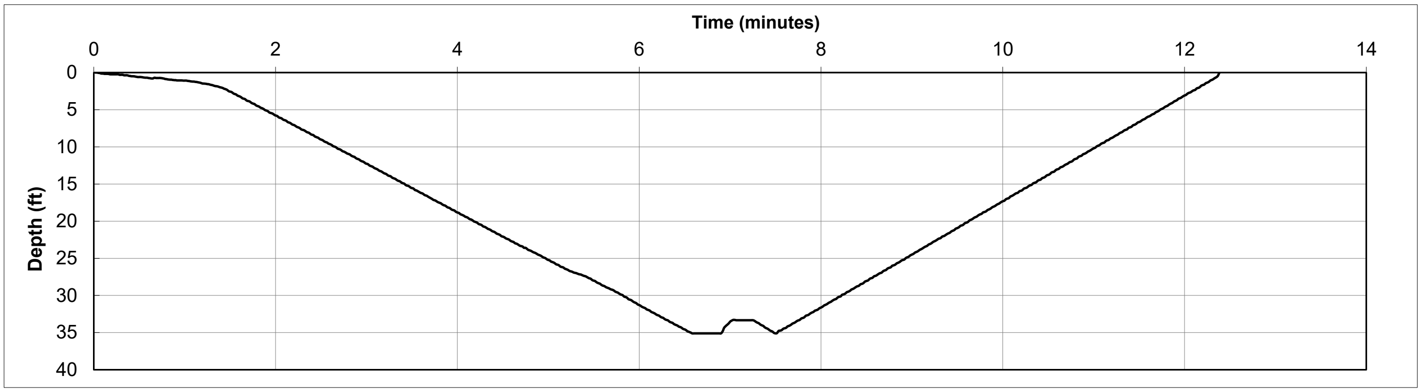
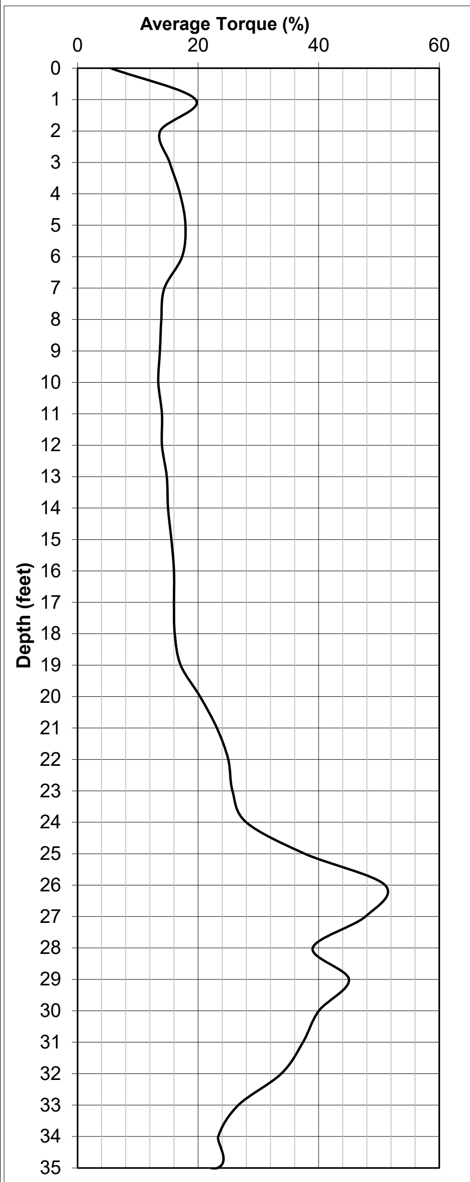
Project Site Data | **Data for Column No: 130**

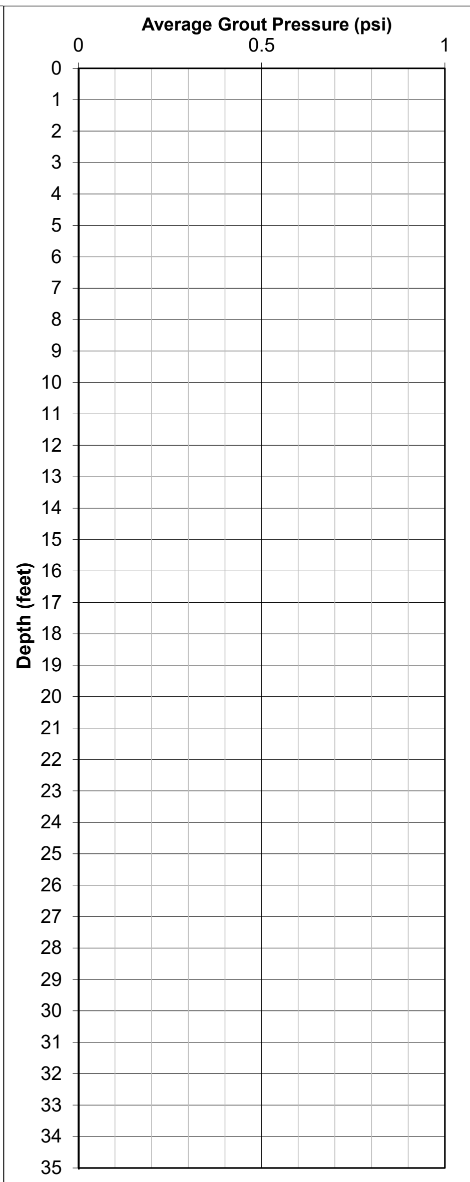
Project Name:	Oxnard College Fire Training	Date:	12/3/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	4:11 PM	Concrete Volume:	71.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	4:18 PM	Column Depth:	35.1	ft
		End Time:	4:23 PM	Pre Auger:		
		Total Time:	12 min			

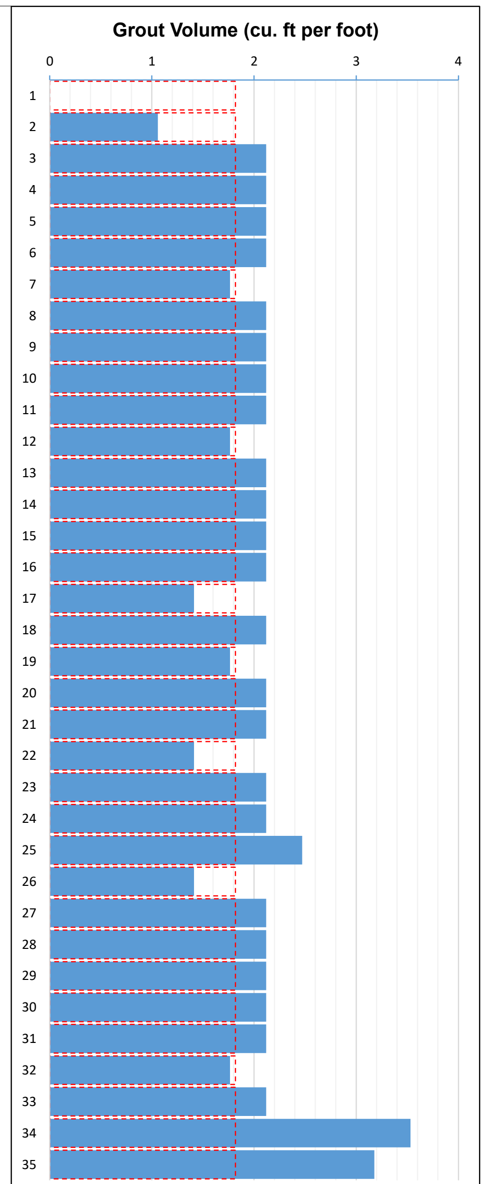
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" nominal requirement









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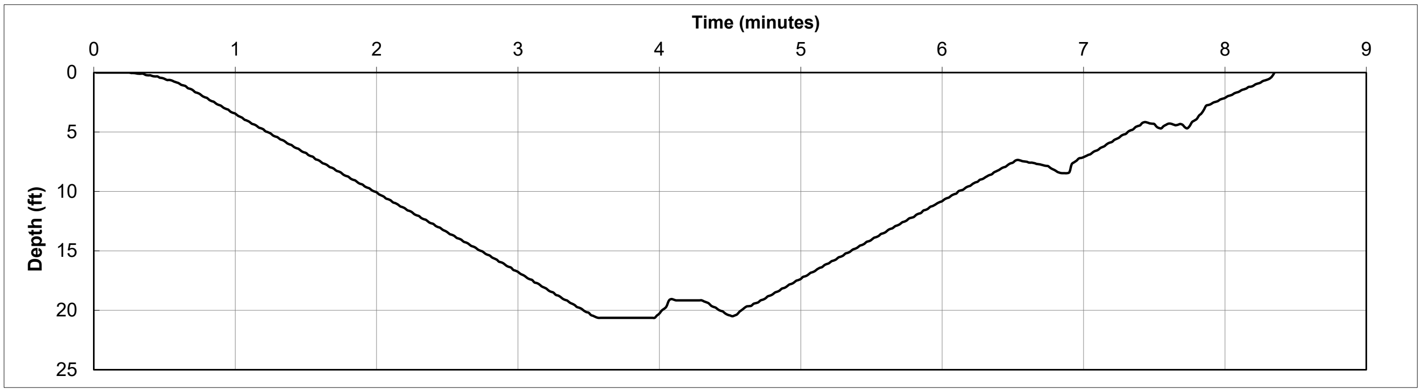
Project Site Data

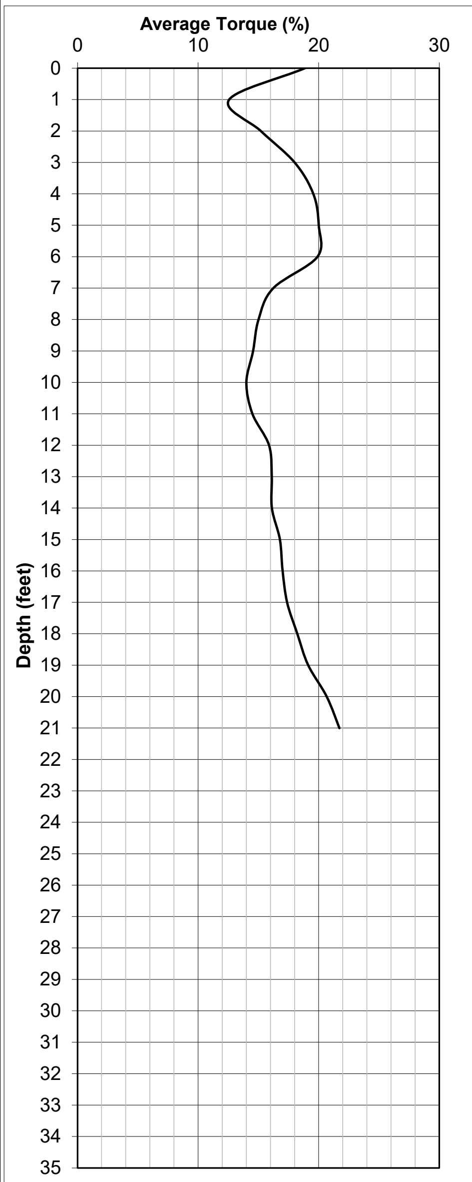
Data for Column No: 186

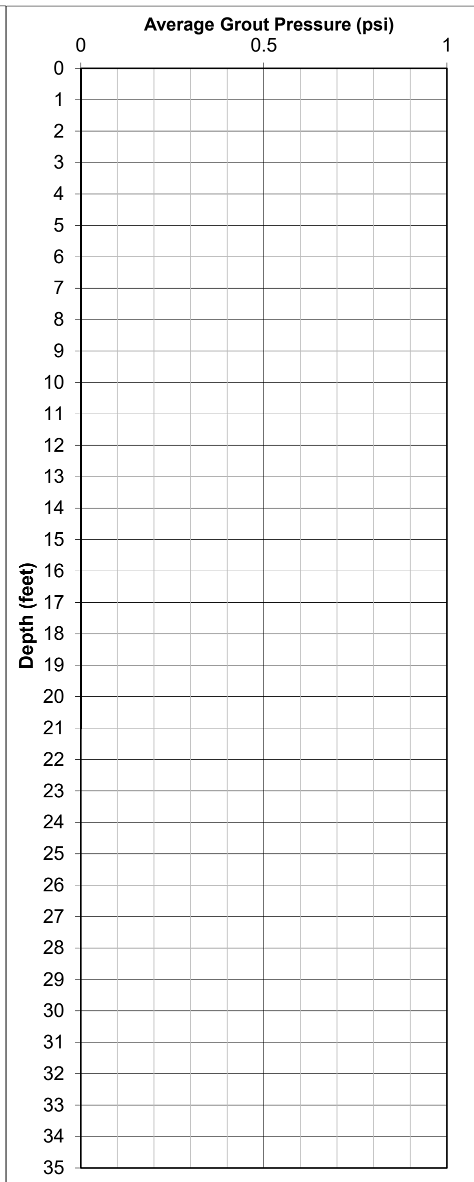
Project Name:	Oxnard College Fire Training	Date:	12/3/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	4:30 PM	Concrete Volume:	43.8	cubic ft
General Contractor:	Oxnard College	Bottom Time:	4:34 PM	Column Depth:	20.6	ft
		End Time:	4:38 PM	Pre Auger:		
		Total Time:	8 min			

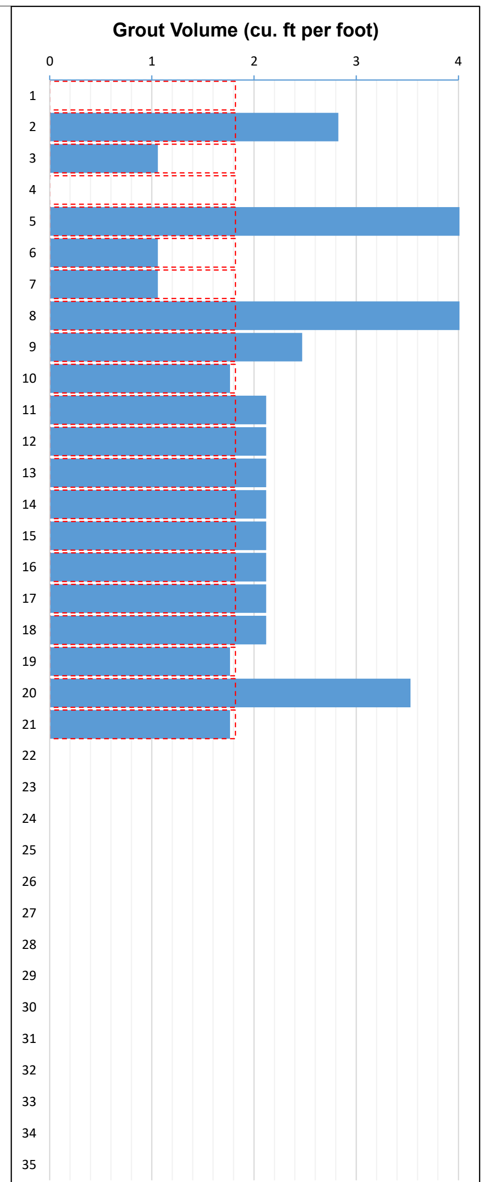
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" nominal requirement









ADVANCED GEOSOLUTIONS INC

Daily Production Summary- Displacement Grout Columns

Project No. :	**P271275**	Date:	Friday, December 4, 2020
Project Name:	Oxnard College Fire Training Academy		
Rig:	BG-30		
Rig Operator:	Benny Sandoval		
Oiler:	Jimmy Edwards		

Seq. No	Rig No.	Col. ID	Start Time	Bottom Time	End Time	Surface Elev.	Column Depth (ft)	*Act. Tip Elev.*	Concrete Volume (cu. feet)	Truck ID	Comments
1		131	08:13	08:21	08:28	74.4	35.1	39.3	84	42658761	
2		287	08:31	08:38	08:45	74.4	35.1	39.3	97	42658761	
3		133	09:29	09:31	10:51	74.4	7.7	66.7	71	42658761	Operator error in recording of data acquisition file. Manual logs reviewed and column installation meets requirements
4		281	10:54	11:00	11:06	74.4	35.6	38.8	75	42658764	
5		134	11:09	11:19	11:25	74.4	35.1	39.3	76	42658764	
6		275	12:43	12:50	12:55	74.4	35.1	39.3	76	42658764	
7		187	13:01	13:05	13:08	74.4	20.6	53.8	43	42658789	
8		135	13:11	13:18	13:25	74.4	35.1	39.3	89	42658789	
9		188	13:45	13:50	13:53	74.4	20.7	53.7	48	42658789	
10		269	14:00	14:07	14:12	74.4	35.1	39.3	79	42658798	
11		137	14:34	14:39	14:44	74.4	35.6	38.8	75	42658798	
12		120	16:16	16:23	16:26	74.4	35.1	39.3	97	42658815	
13		122	16:31	16:38	16:43	74.4	35.1	39.3	78	42658815	
14		119	17:03	17:08	17:13	74.4	35.4	39.0	74	42658815	

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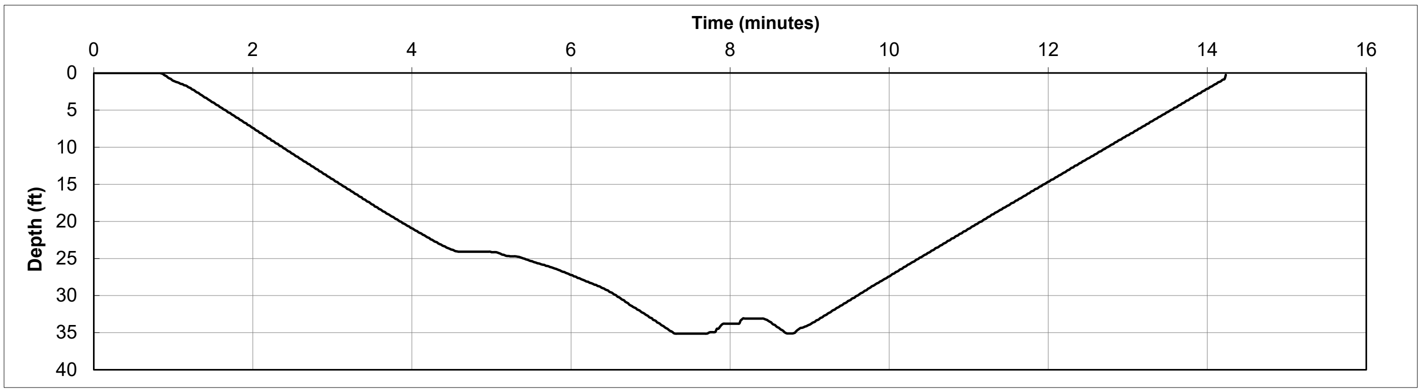
DGC Log Sheet

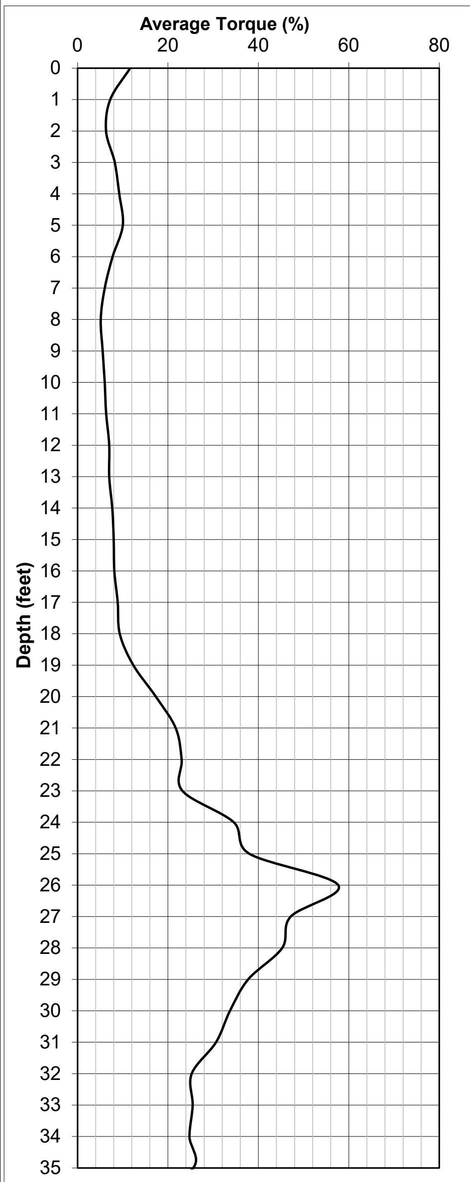
Project Site Data **Data for Column No: 131**

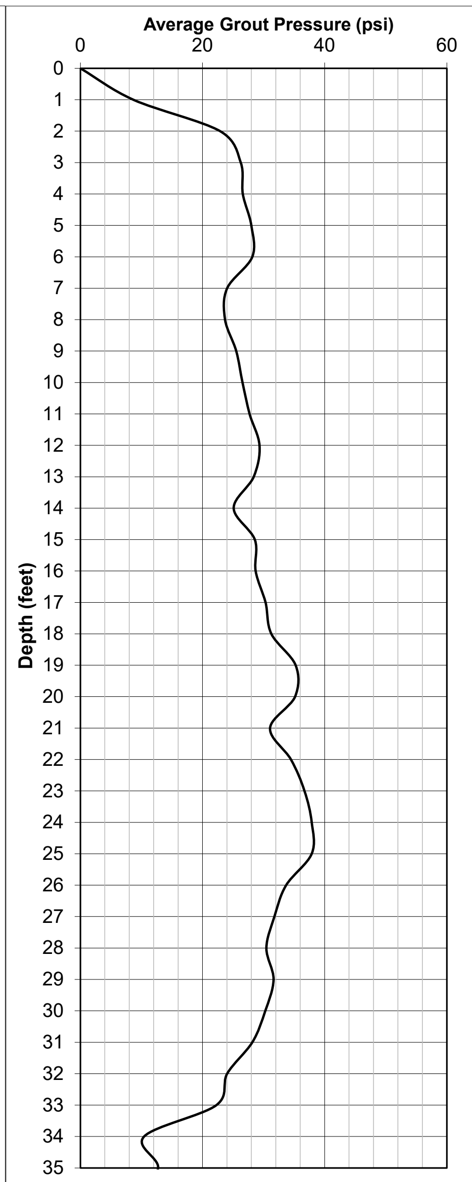
Project Name:	Oxnard College Fire Training	Date:	12/4/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:13 AM	Concrete Volume:	83.7	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:21 AM	Column Depth:	35.1	ft
		End Time:	8:28 AM	Pre Auger:		
		Total Time:	14 min			

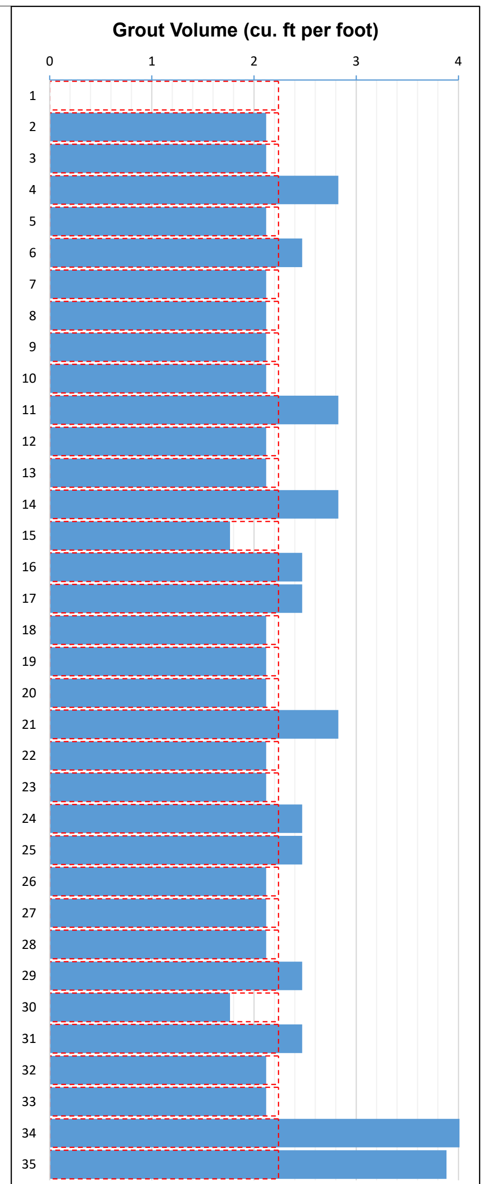
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" Nominal Requirement









DGC Log Sheet

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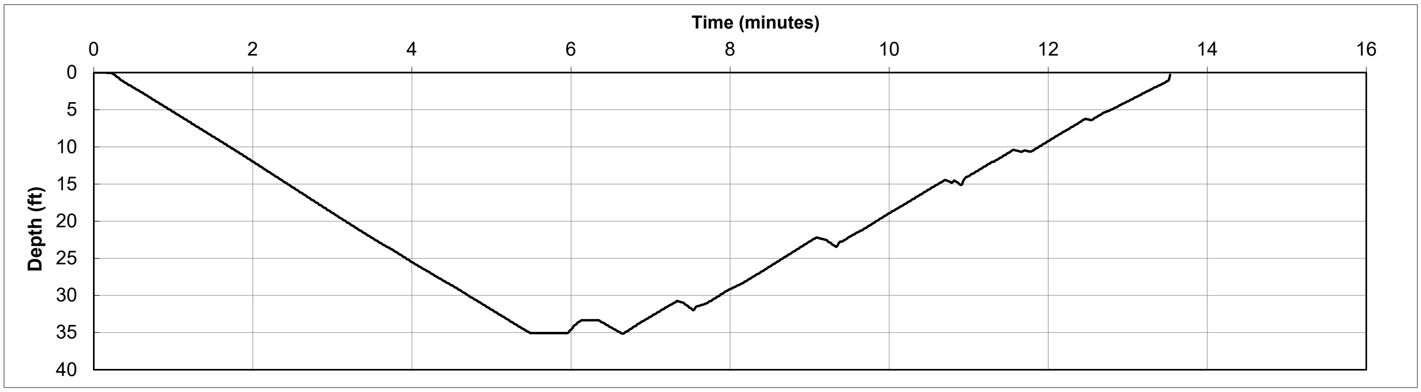
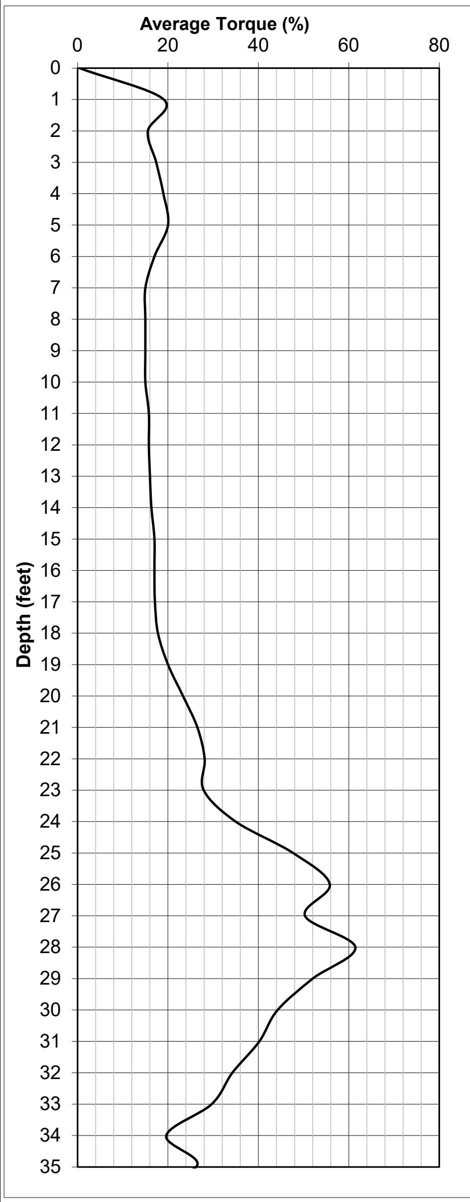
Project Site Data | **Data for Column No: 287**

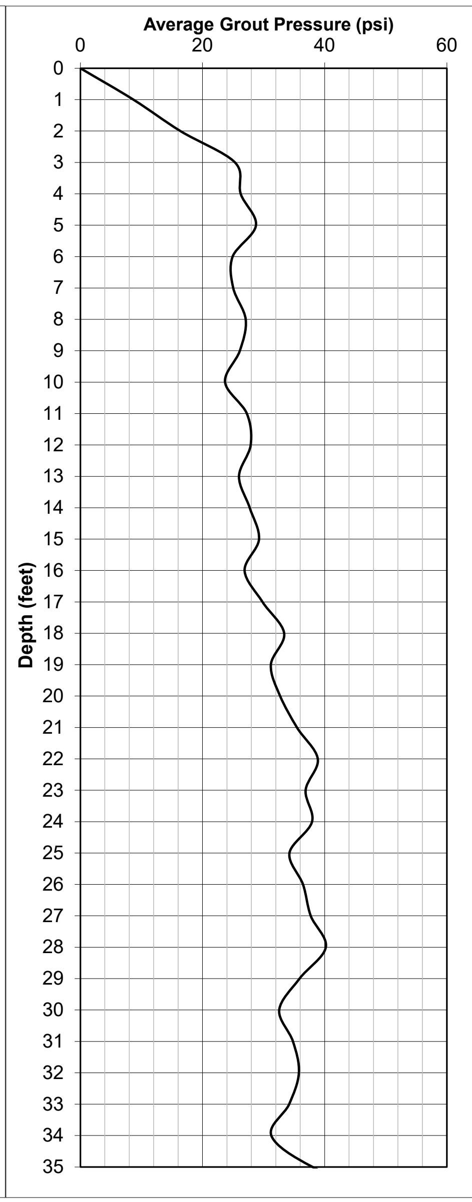
Project Name:	Oxnard College Fire Training	Date:	12/4/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:31 AM	Concrete Volume:	97.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:38 AM	Column Depth:	35.1	ft
		End Time:	8:45 AM	Pre Auger:		
		Total Time:	14 min			

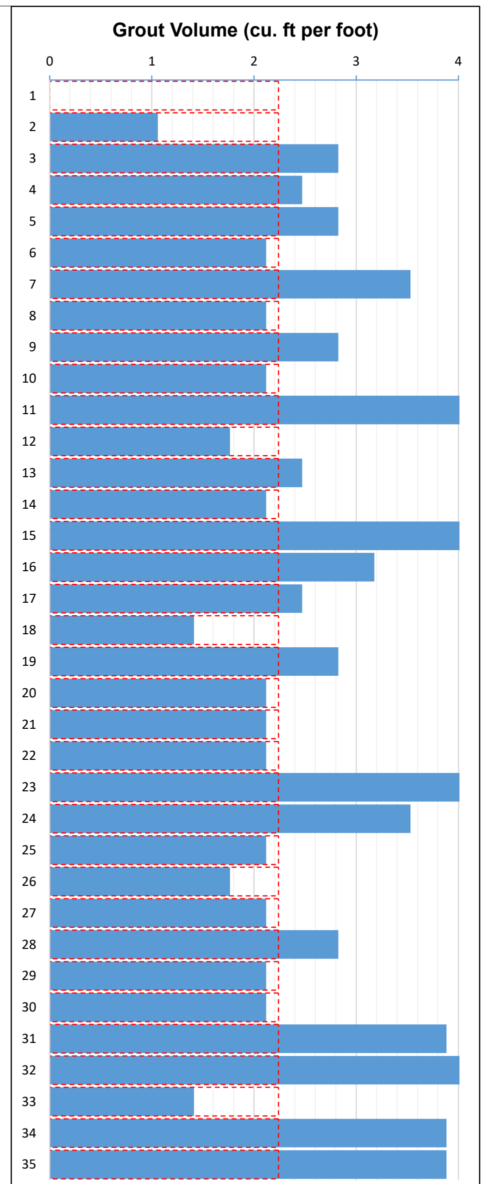
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" Nominal Requirement









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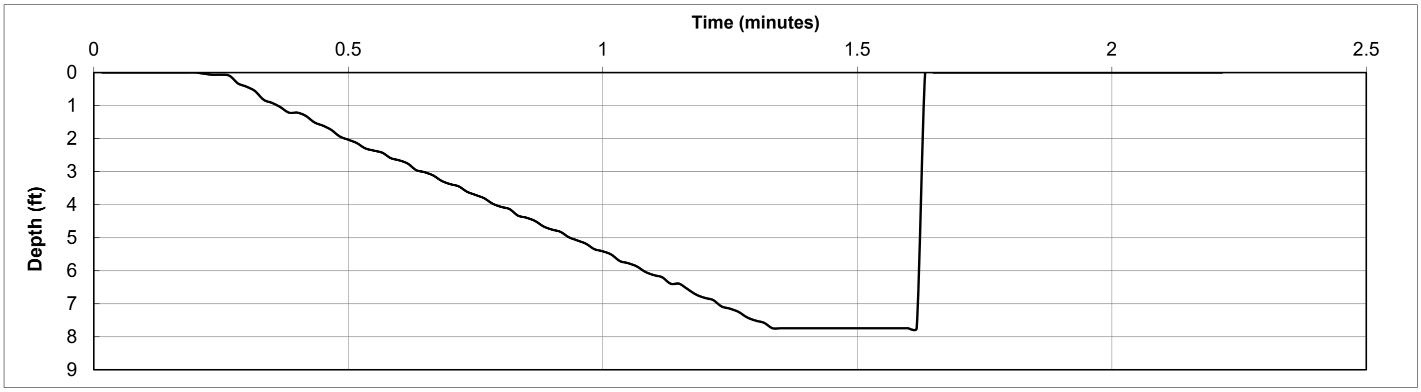
DGC Log Sheet

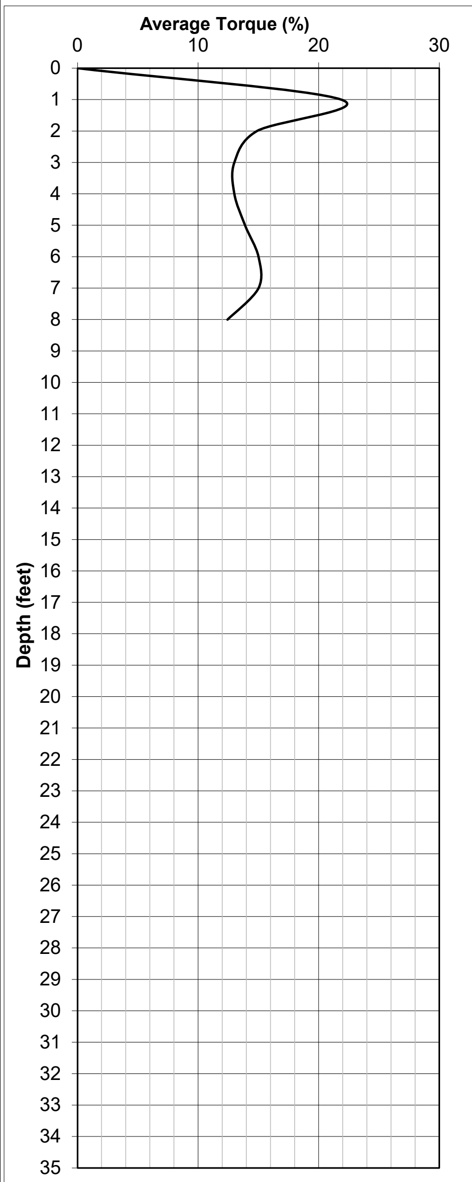
Project Site Data **Data for Column No: 133**

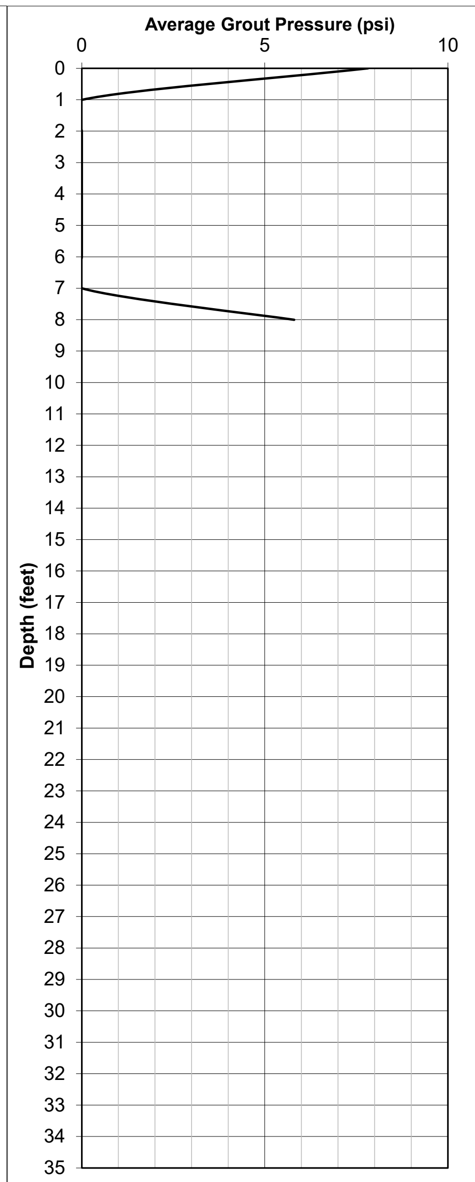
Project Name:	Oxnard College Fire Training	Date:	12/4/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:29 AM	Concrete Volume:	21.9	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:31 AM	Column Depth:	7.7	ft
		End Time:	10:51 AM	Pre Auger:		
		Total Time:	82 min			

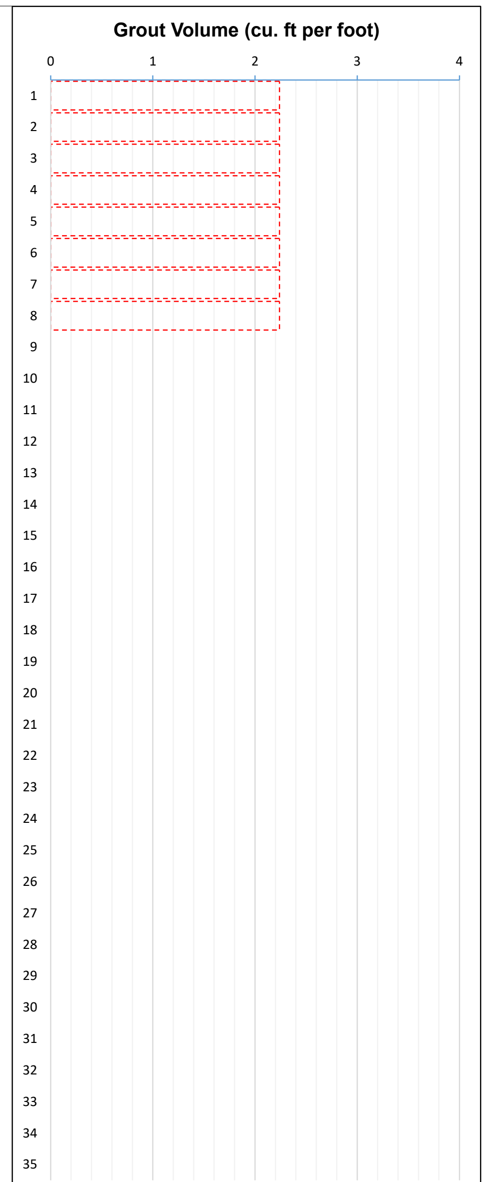
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" Nominal Requirement









DGC Log Sheet

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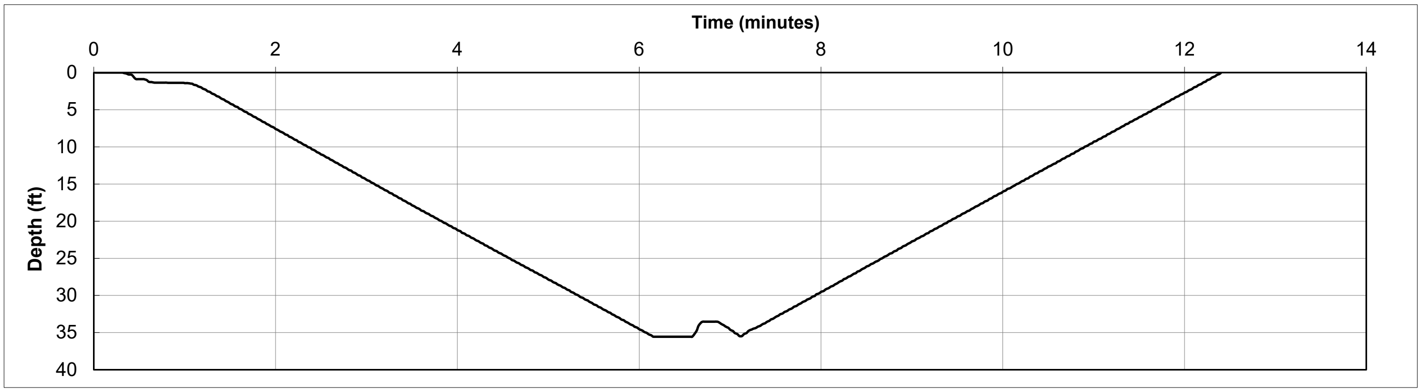
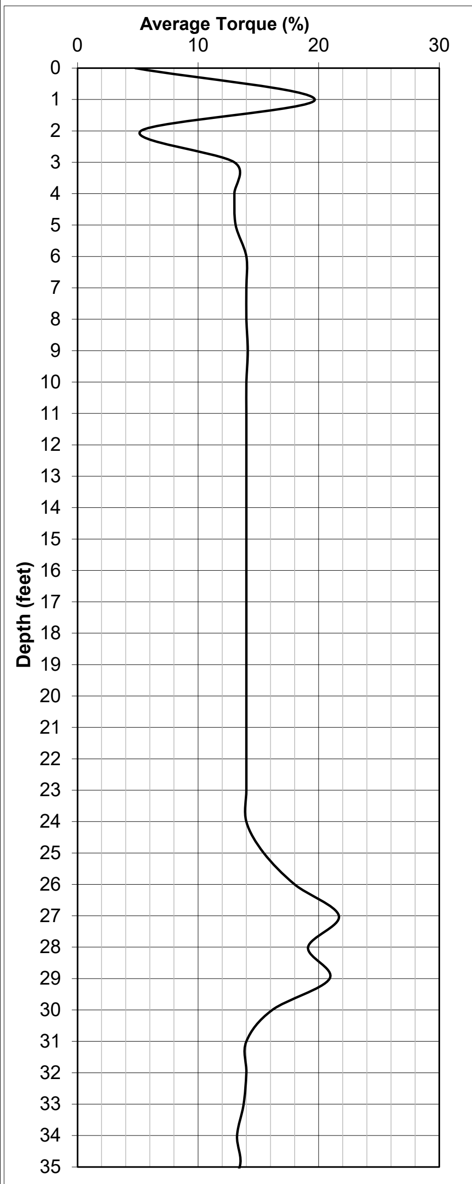
Project Site Data **Data for Column No: 281**

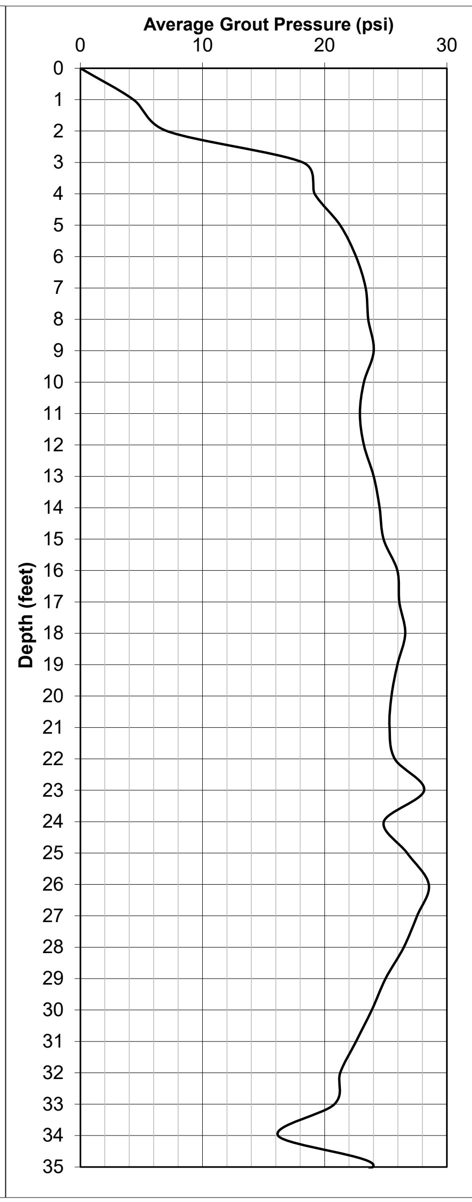
Project Name:	Oxnard College Fire Training	Date:	12/4/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:54 AM	Concrete Volume:	74.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:00 AM	Column Depth:	35.6	ft
		End Time:	11:06 AM	Pre Auger:		
		Total Time:	12 min			

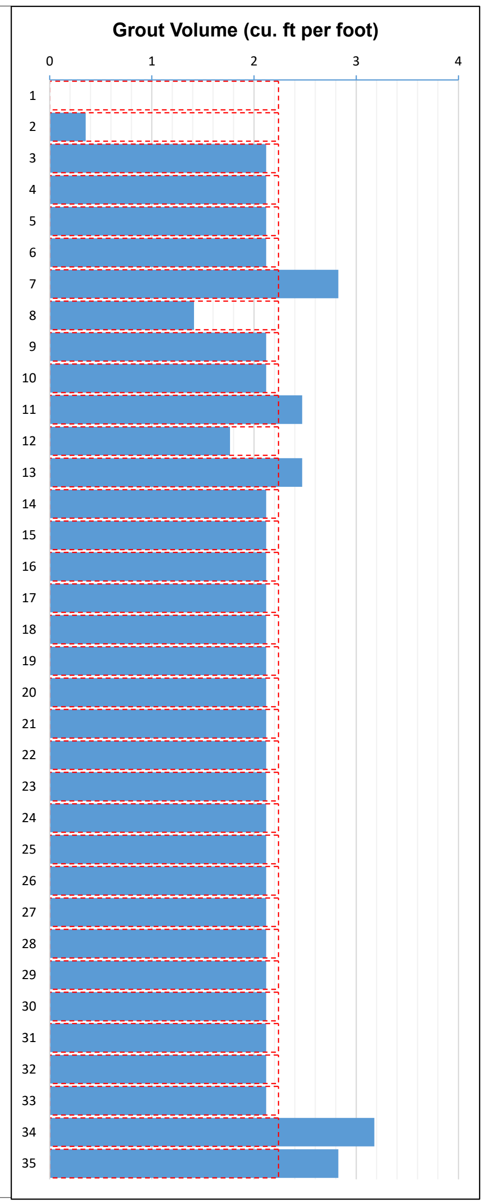
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" Nominal Requirement









DGC Log Sheet

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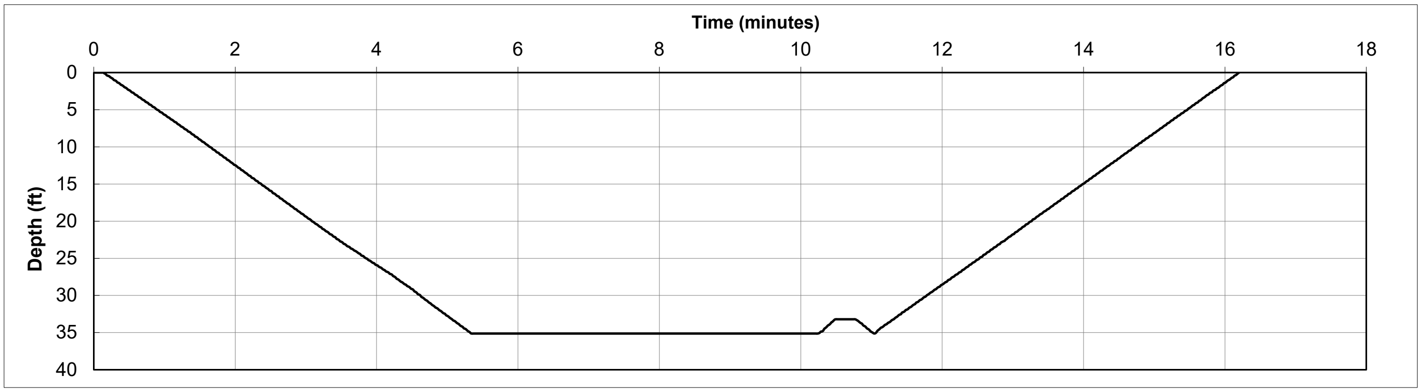
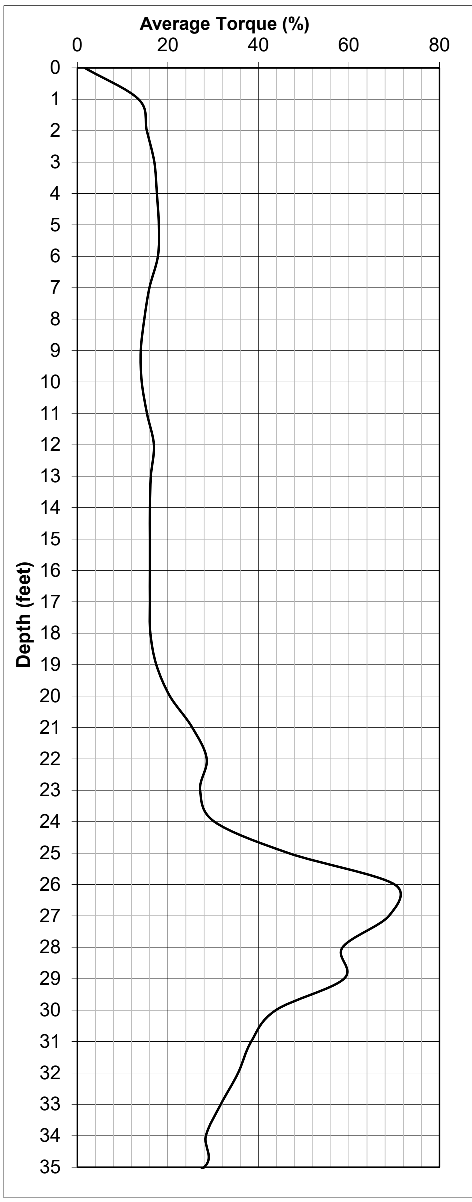
Project Site Data | **Data for Column No: 134**

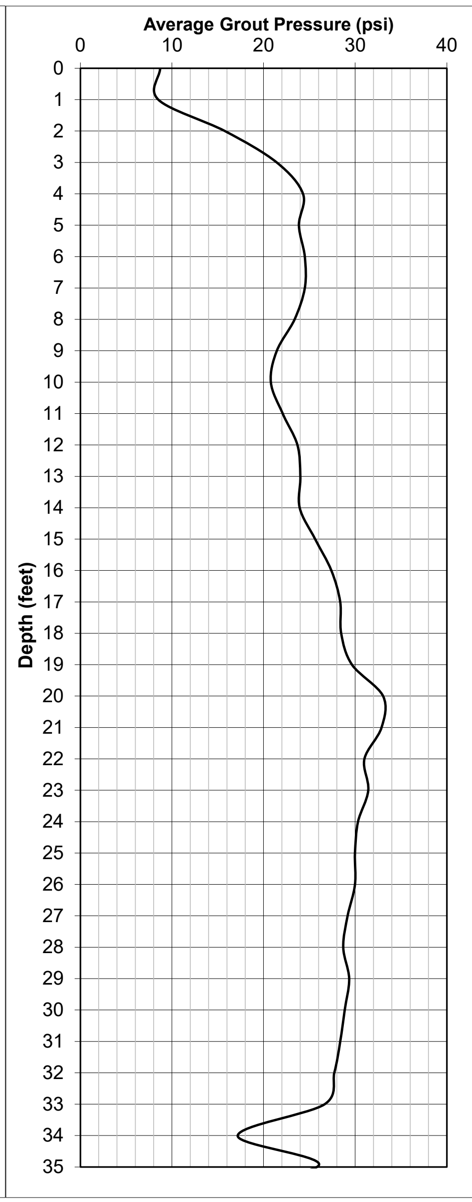
Project Name:	Oxnard College Fire Training	Date:	12/4/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:09 AM	Concrete Volume:	75.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:19 AM	Column Depth:	35.1	ft
		End Time:	11:25 AM	Pre Auger:		
		Total Time:	16 min			

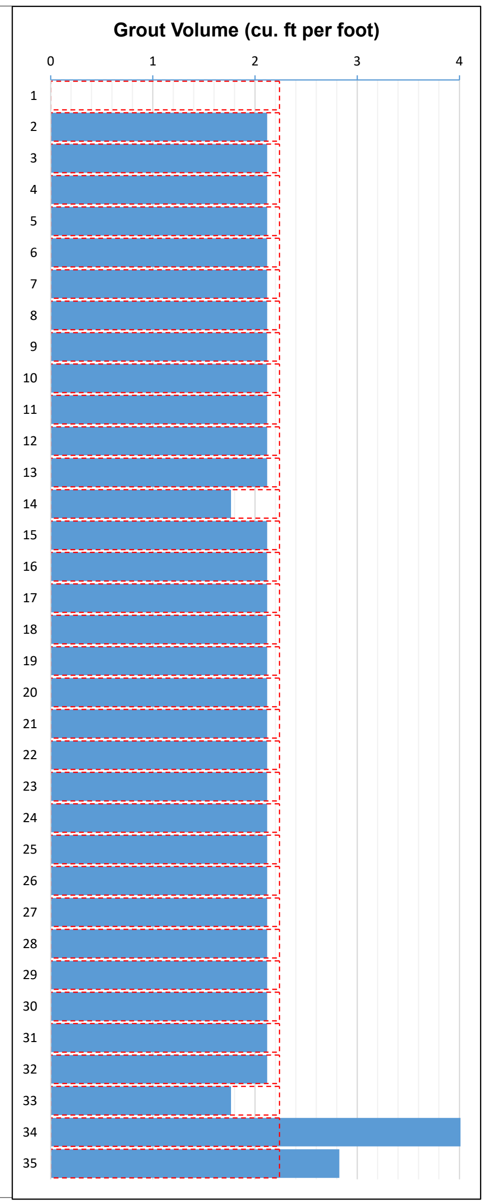
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" Nominal Requirement









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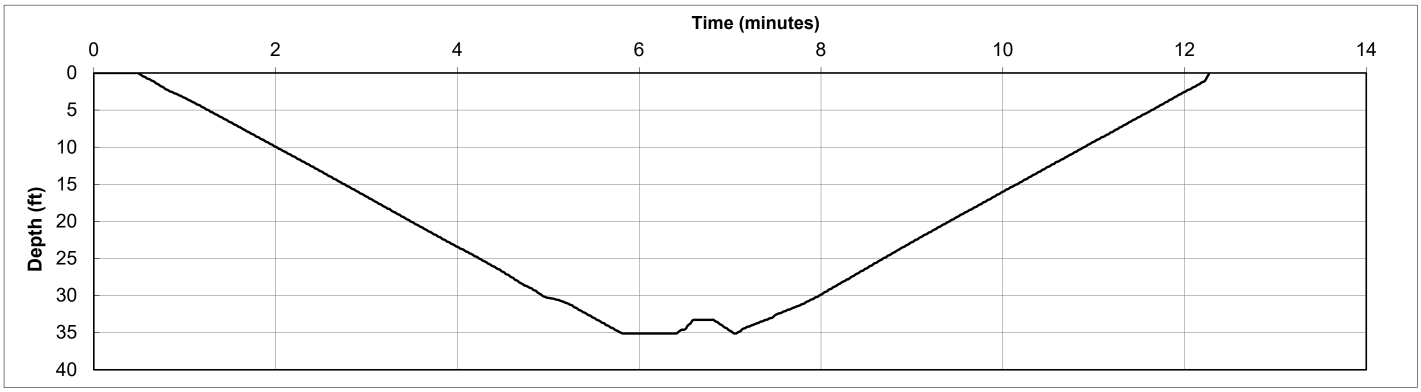
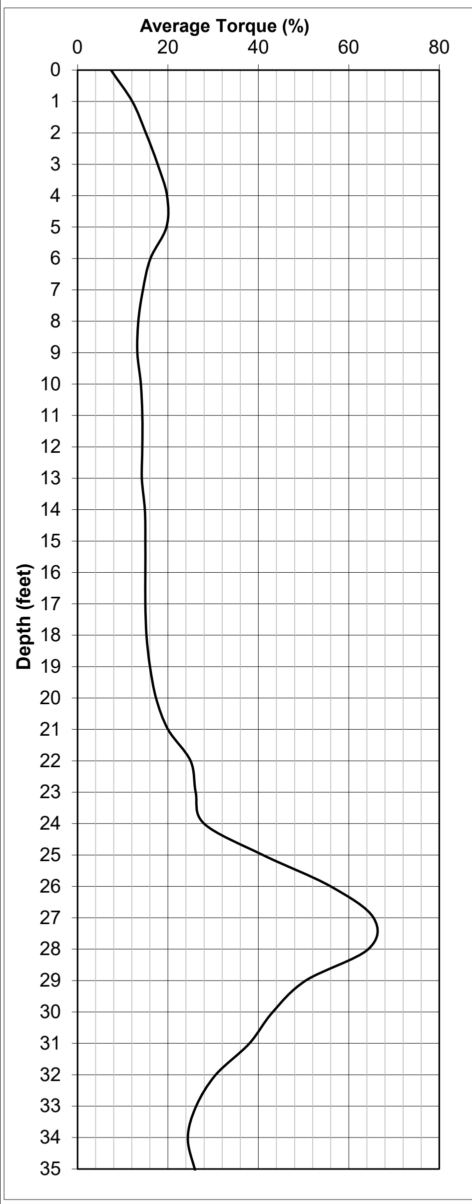
Project Site Data **Data for Column No: 275**

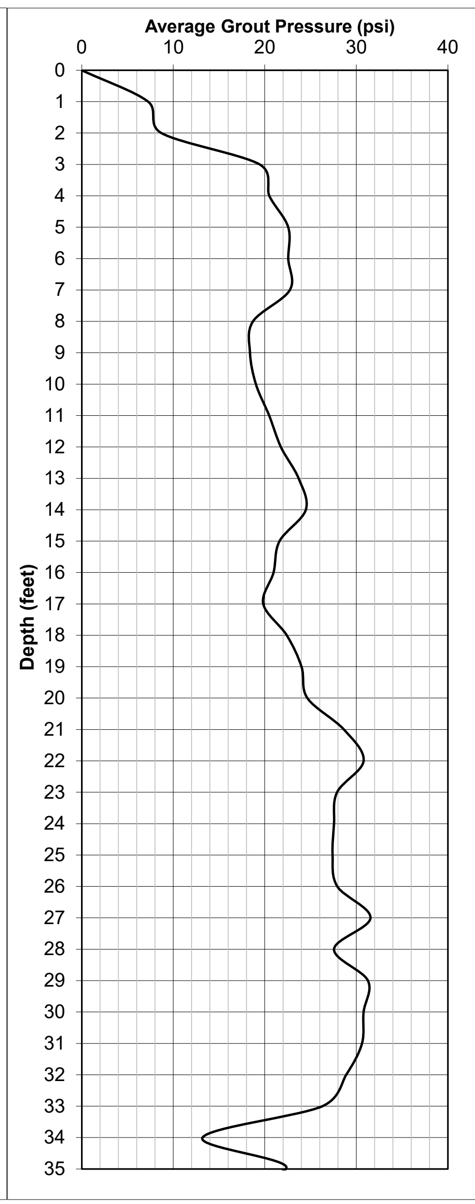
Project Name:	Oxnard College Fire Training	Date:	12/4/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:43 PM	Concrete Volume:	76.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:50 PM	Column Depth:	35.1	ft
		End Time:	12:55 PM	Pre Auger:		
		Total Time:	12 min			

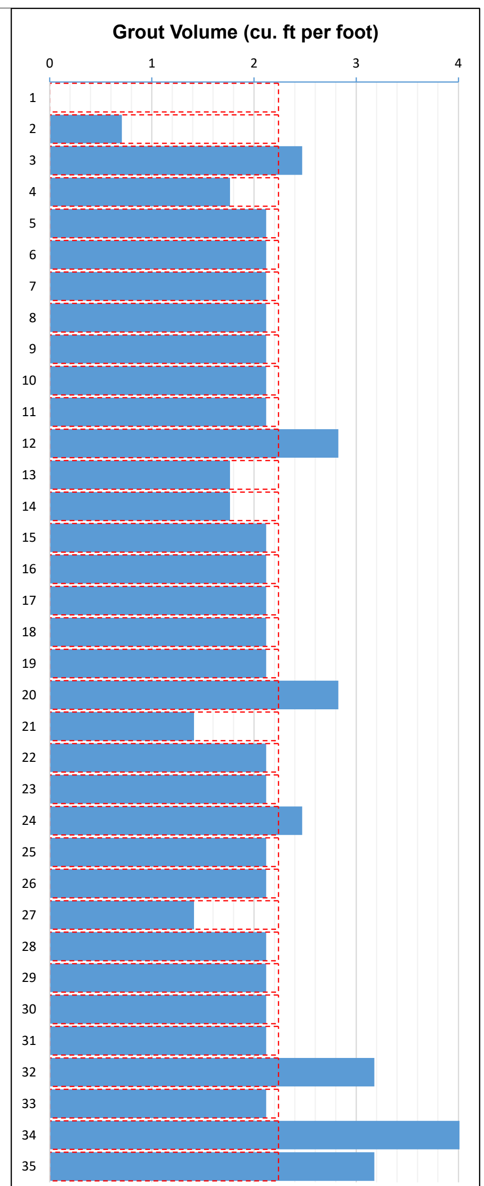
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" Nominal Requirement









DGC Log Sheet

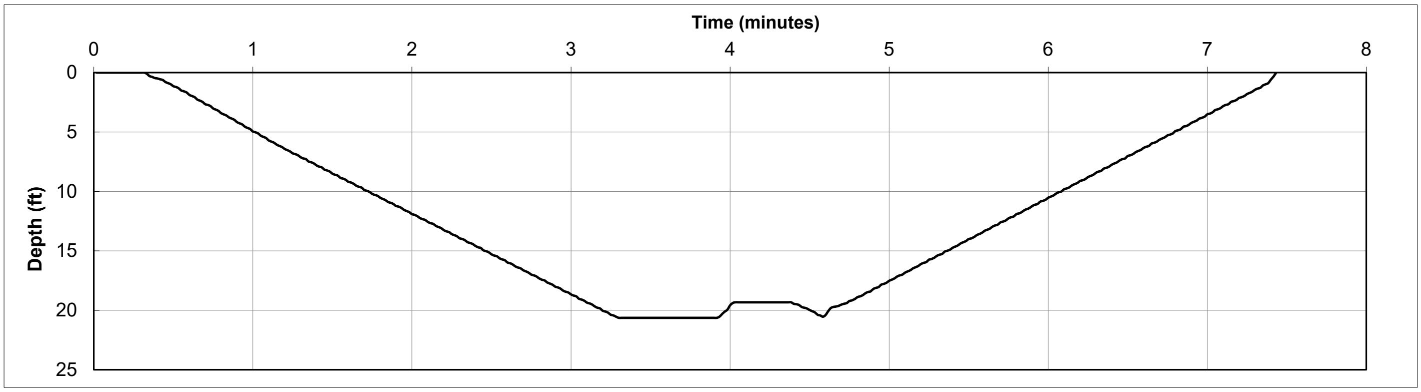
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

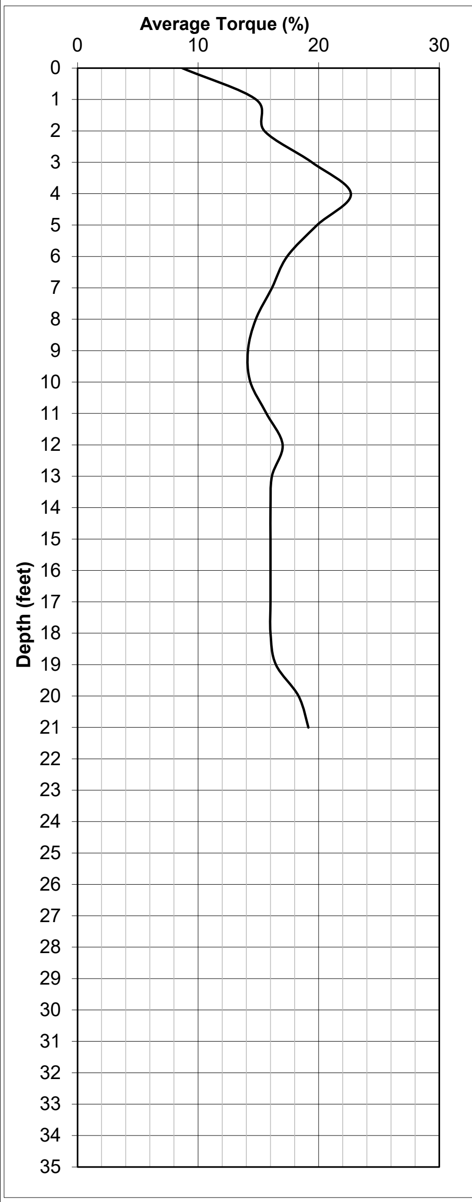
Project Site Data | **Data for Column No: 187**

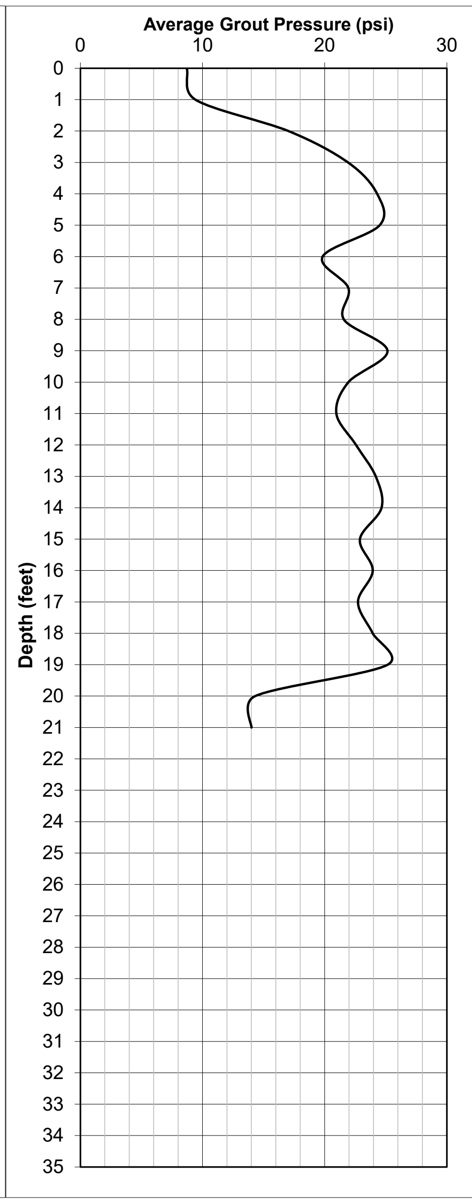
Project Name:	Oxnard College Fire Training	Date:	12/4/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:01 PM	Concrete Volume:	43.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:05 PM	Column Depth:	20.6	ft
		End Time:	1:08 PM	Pre Auger:		
		Total Time:	7 min			

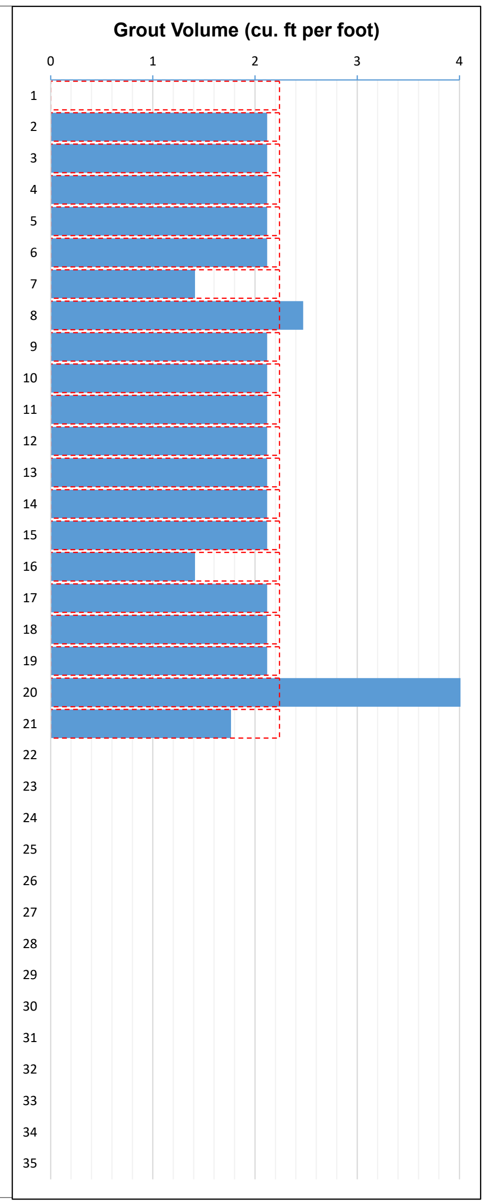
Tool meets 16" Nominal Requirement

Rig Id: BG-30
Operator: Benny Sandoval









DGC Log Sheet

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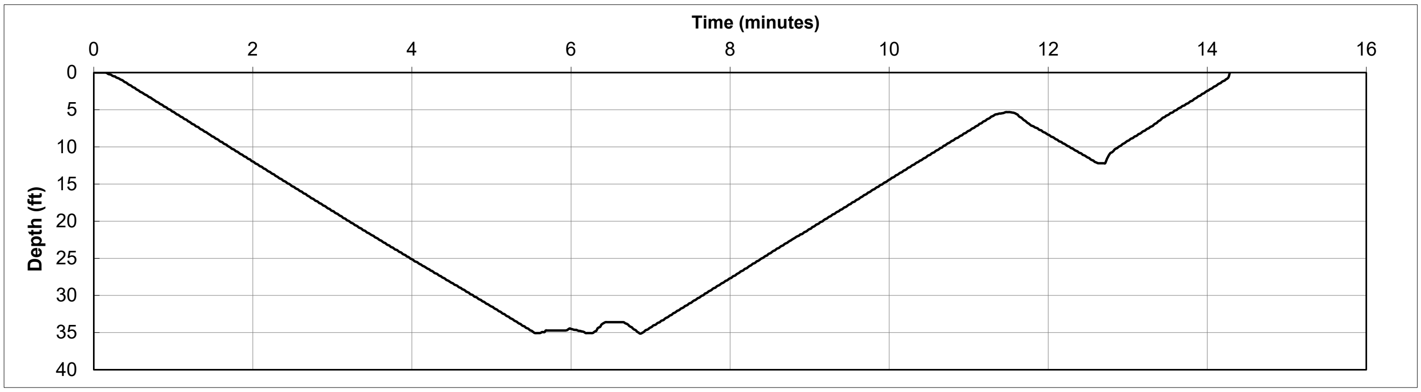
Lake Forest, CA 92630
P: 310-796-9000

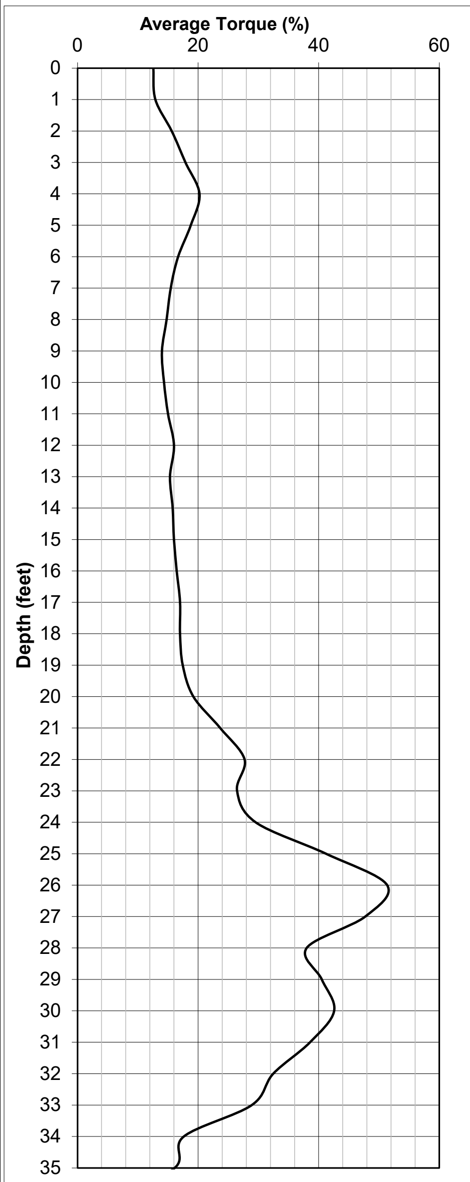
Project Site Data — **Data for Column No: 135**

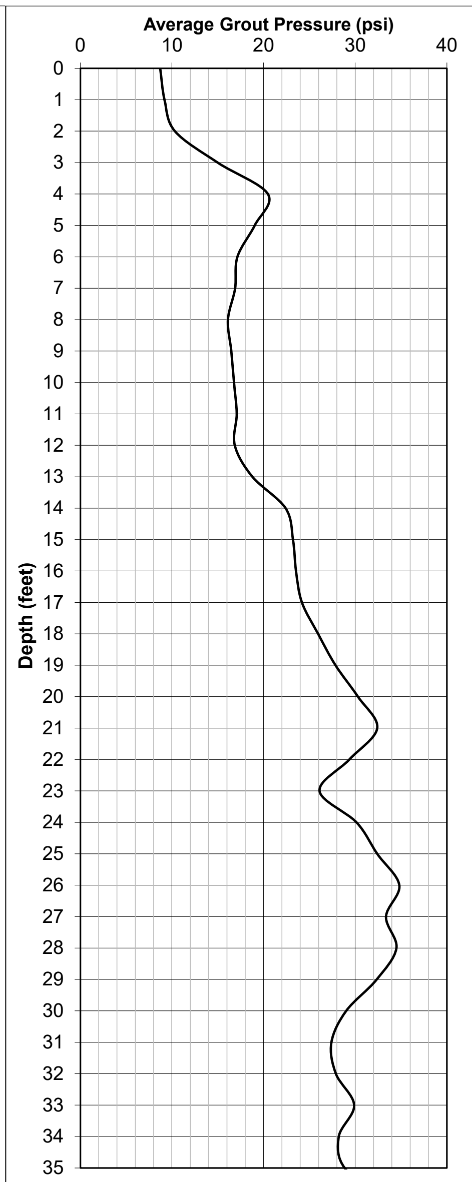
Project Name:	Oxnard College Fire Training	Date:	12/4/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:11 PM	Concrete Volume:	88.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:18 PM	Column Depth:	35.1	ft
		End Time:	1:25 PM	Pre Auger:		
		Total Time:	14 min			

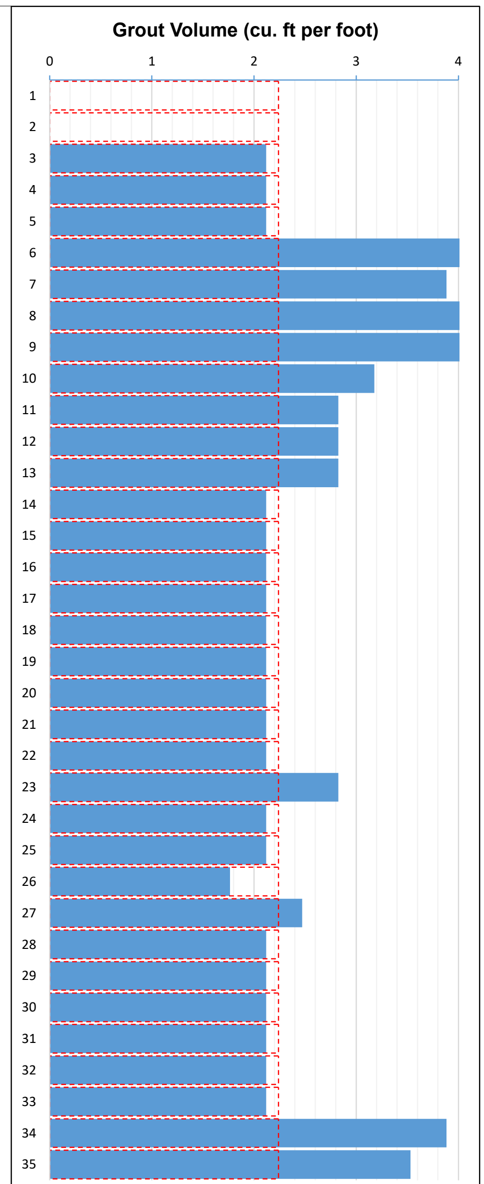
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" Nominal Requirement









DGC Log Sheet

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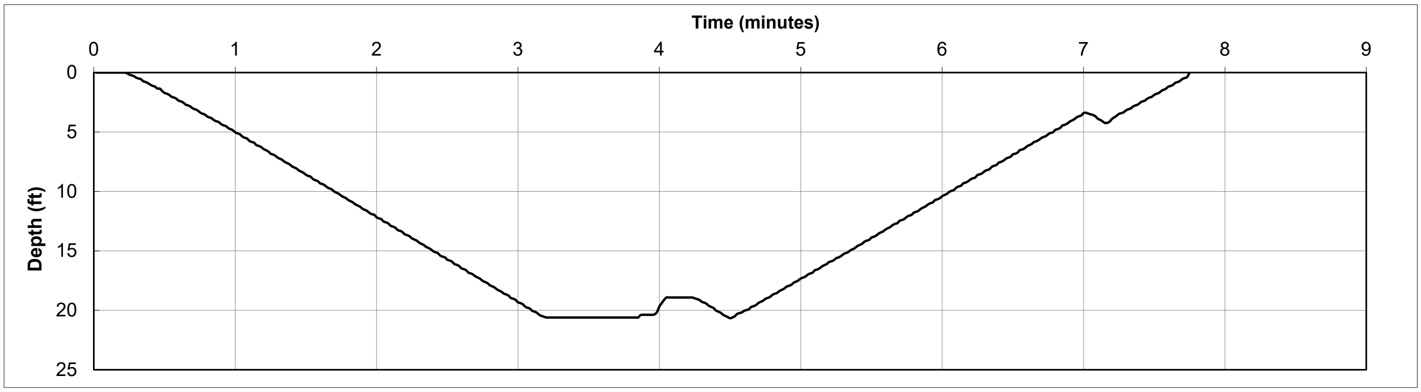
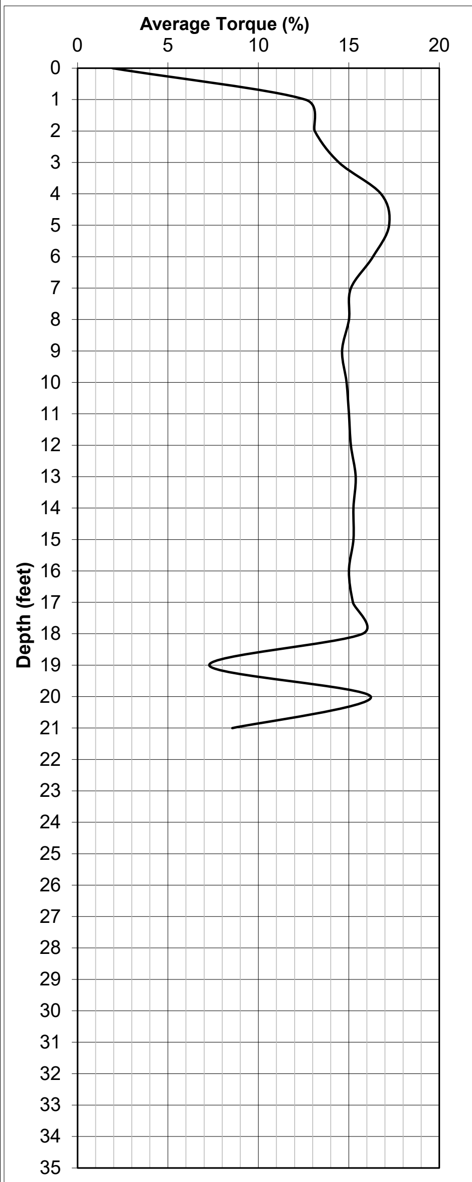
Project Site Data **Data for Column No: 188**

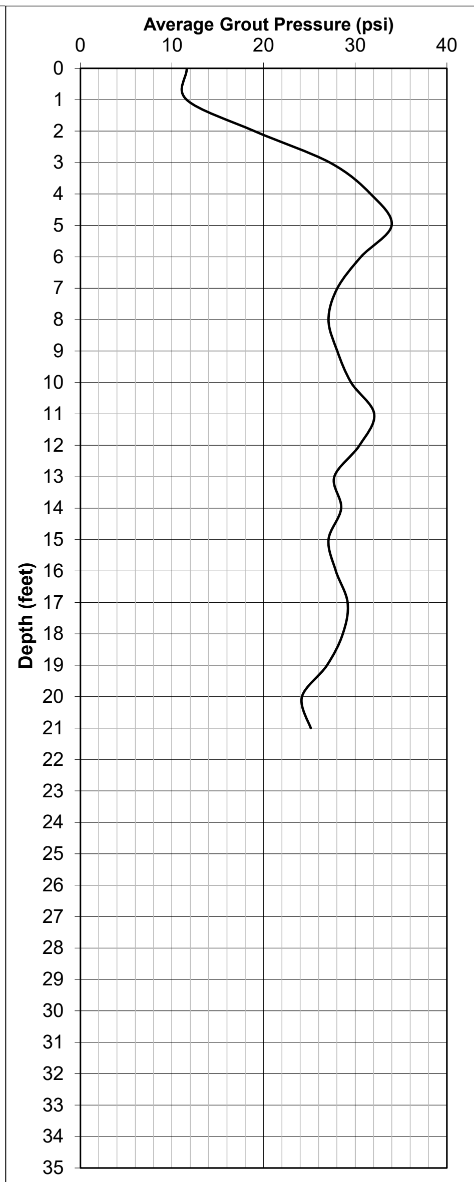
Project Name:	Oxnard College Fire Training	Date:	12/4/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:45 PM	Concrete Volume:	48.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:50 PM	Column Depth:	20.7	ft
		End Time:	1:53 PM	Pre Auger:		
		Total Time:	8 min			

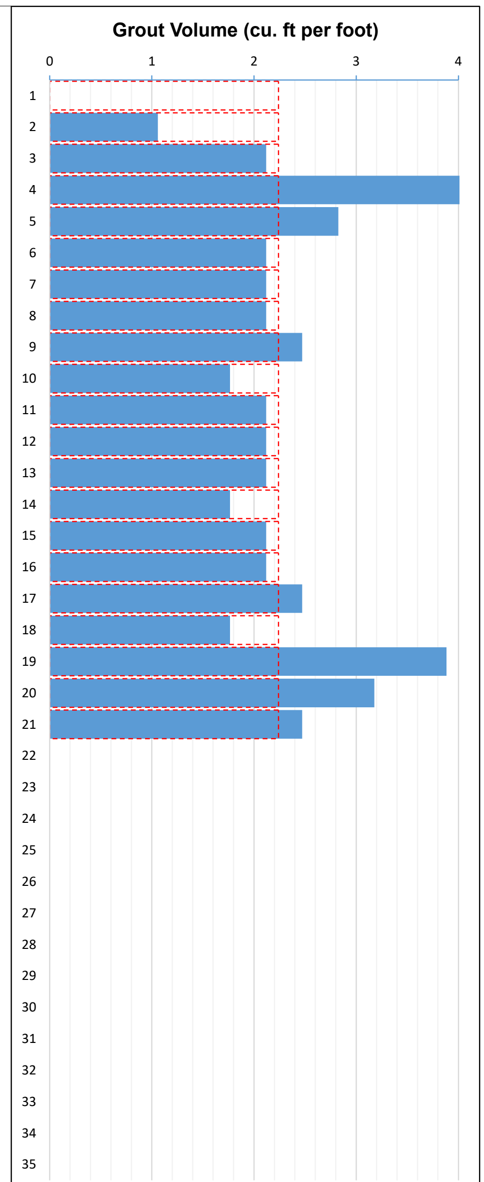
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" Nominal Requirement









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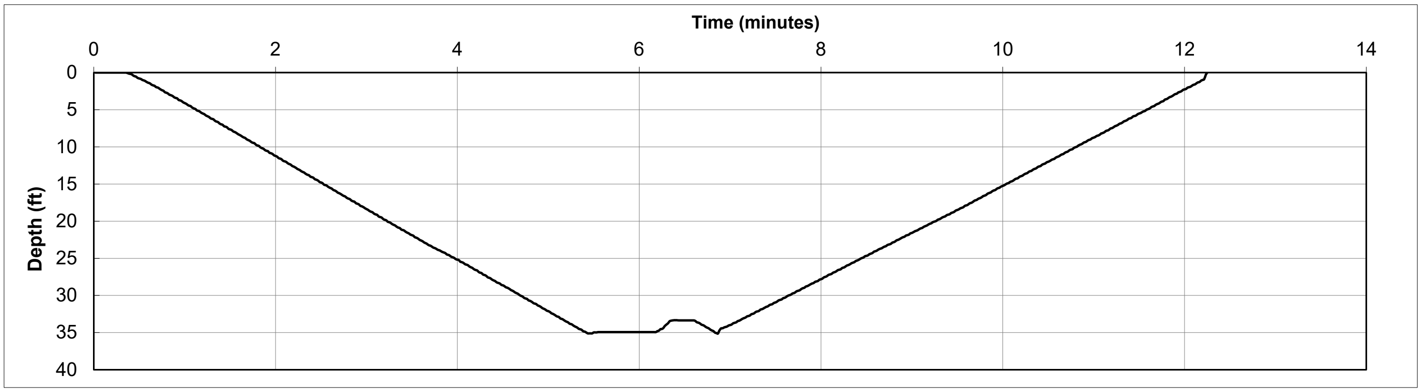
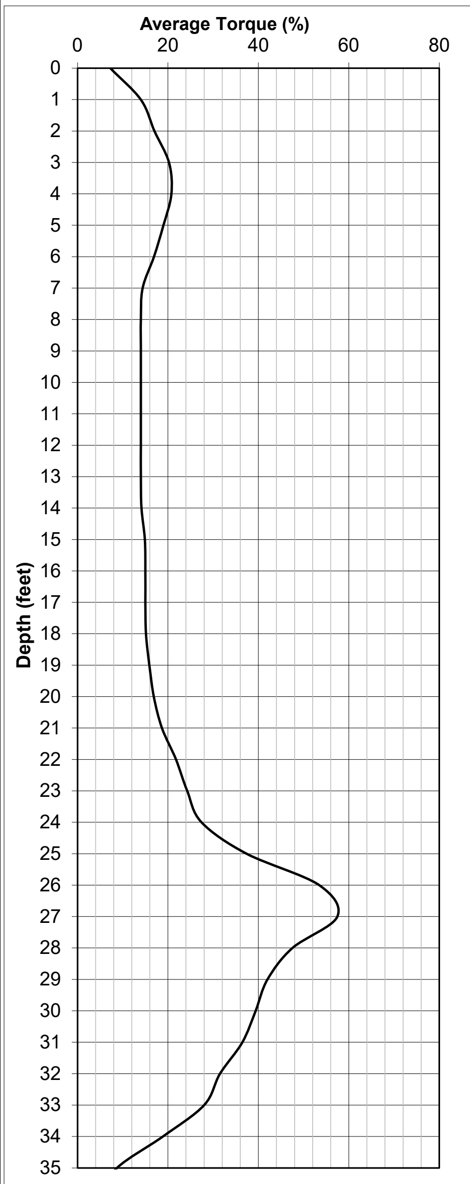
Project Site Data | **Data for Column No: 269**

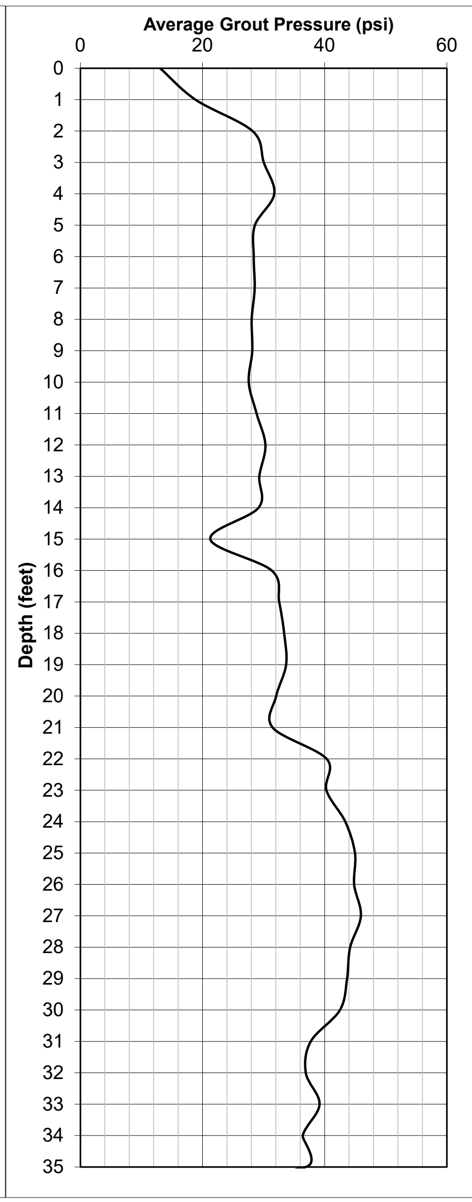
Project Name:	Oxnard College Fire Training	Date:	12/4/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:00 PM	Concrete Volume:	79.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:07 PM	Column Depth:	35.1	ft
		End Time:	2:12 PM	Pre Auger:		
		Total Time:	12 min			

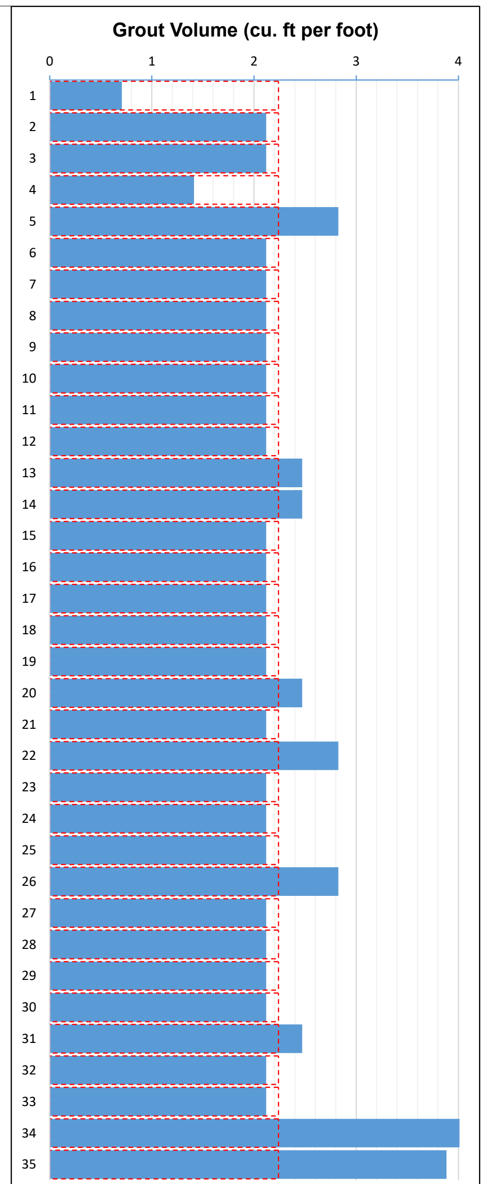
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" Nominal Requirement









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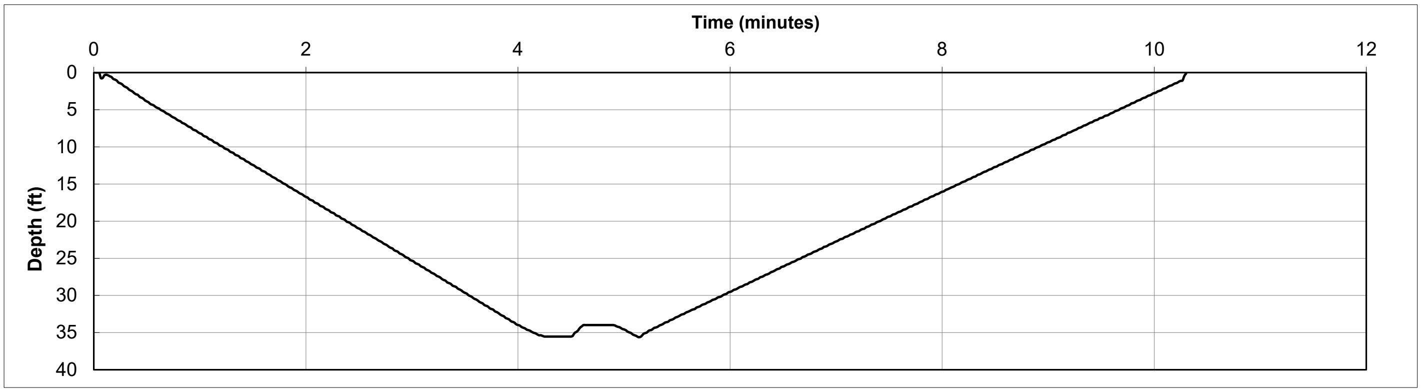
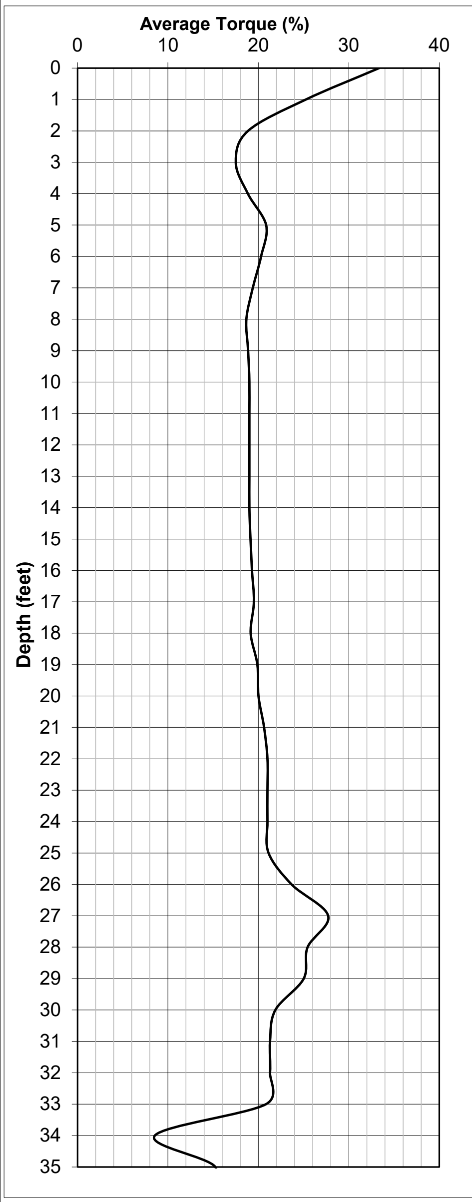
Project Site Data | **Data for Column No: 137**

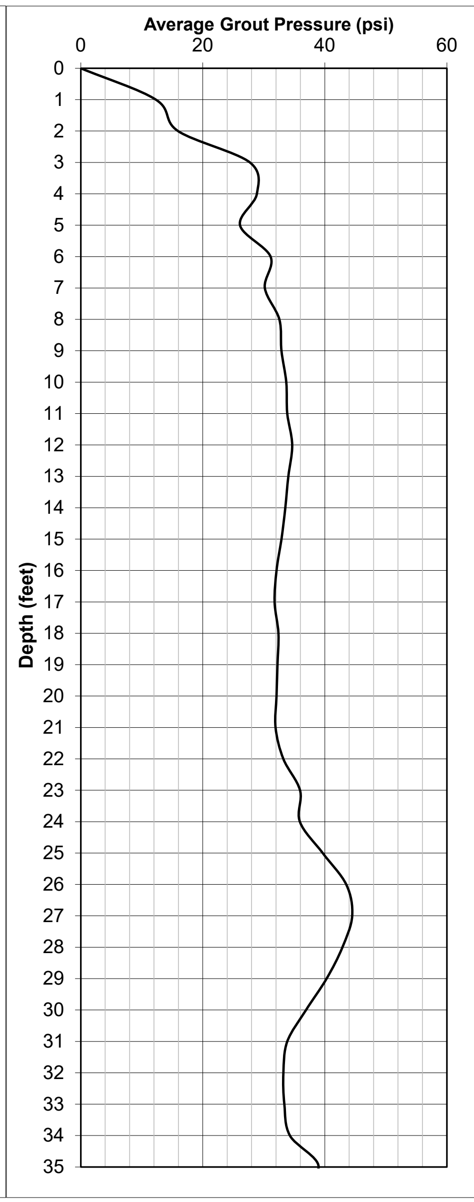
Project Name:	Oxnard College Fire Training	Date:	12/4/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:34 PM	Concrete Volume:	74.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:39 PM	Column Depth:	35.6	ft
		End Time:	2:44 PM	Pre Auger:		
		Total Time:	10 min			

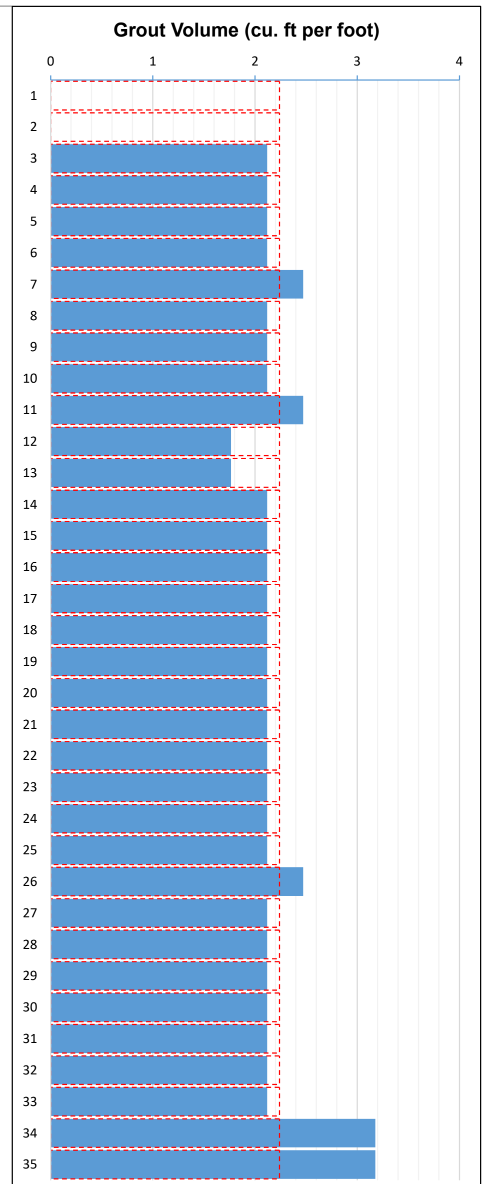
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" Nominal Requirement









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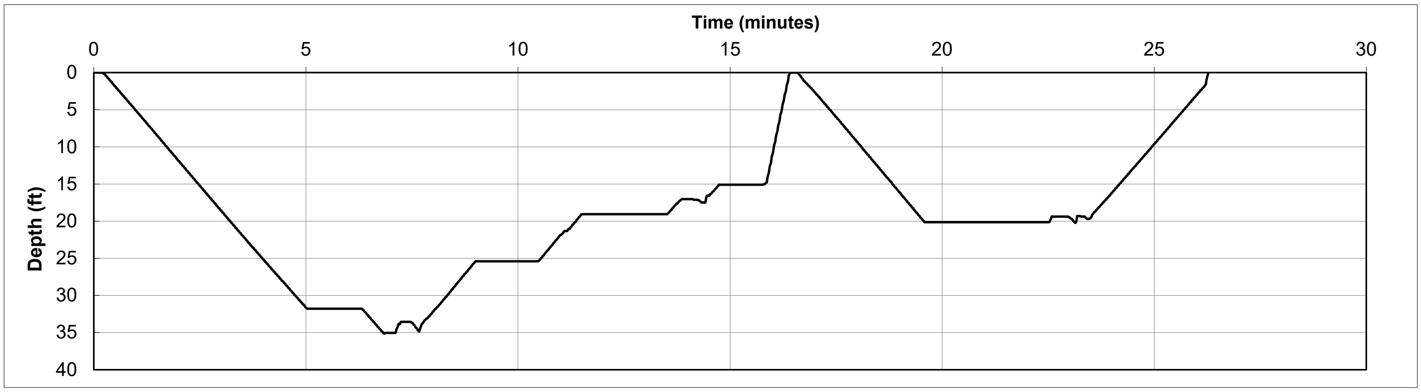
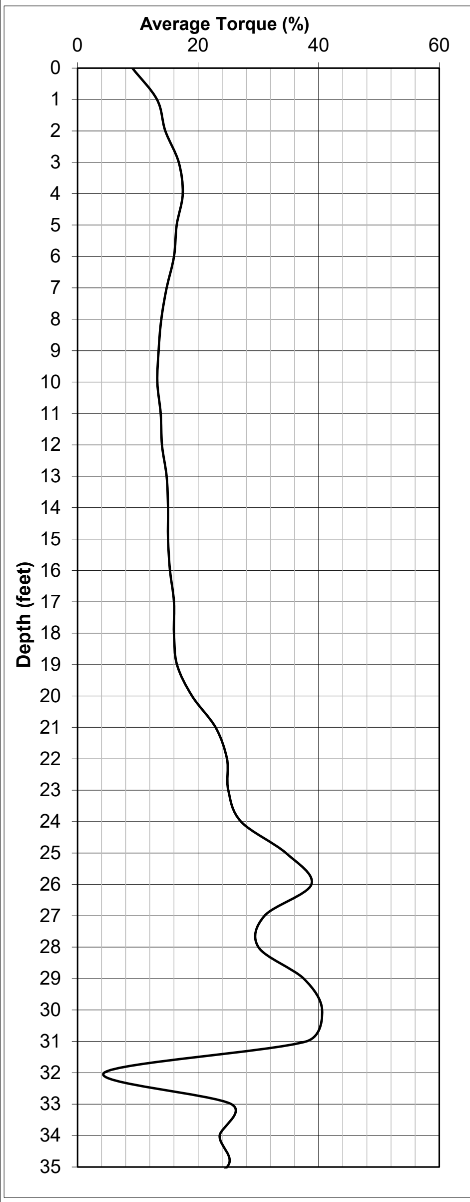
Project Site Data **Data for Column No: 120**

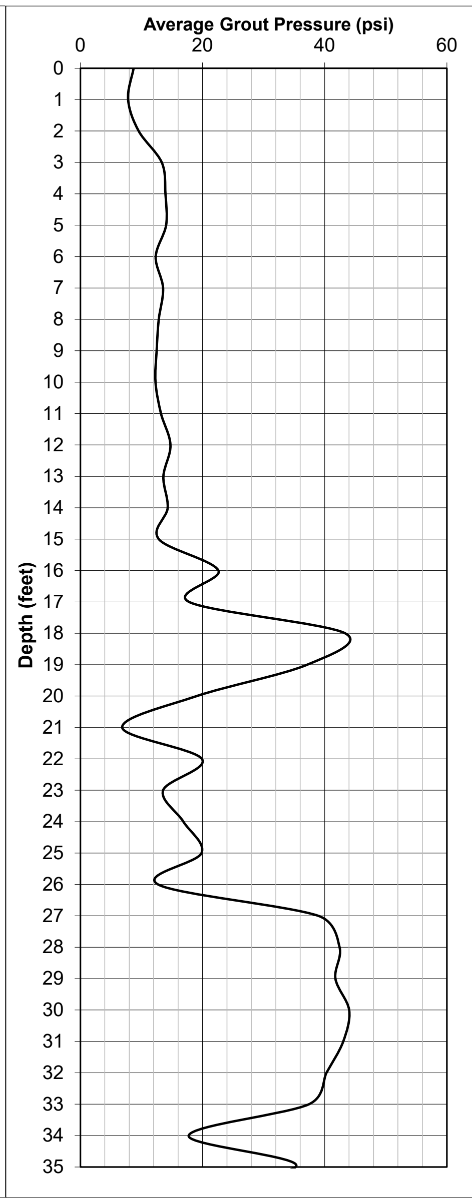
Project Name:	Oxnard College Fire Training	Date:	12/4/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:52 PM	Concrete Volume:	97.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:59 PM	Column Depth:	35.1	ft
		End Time:	4:26 PM	Pre Auger:		
		Total Time:	94 min			

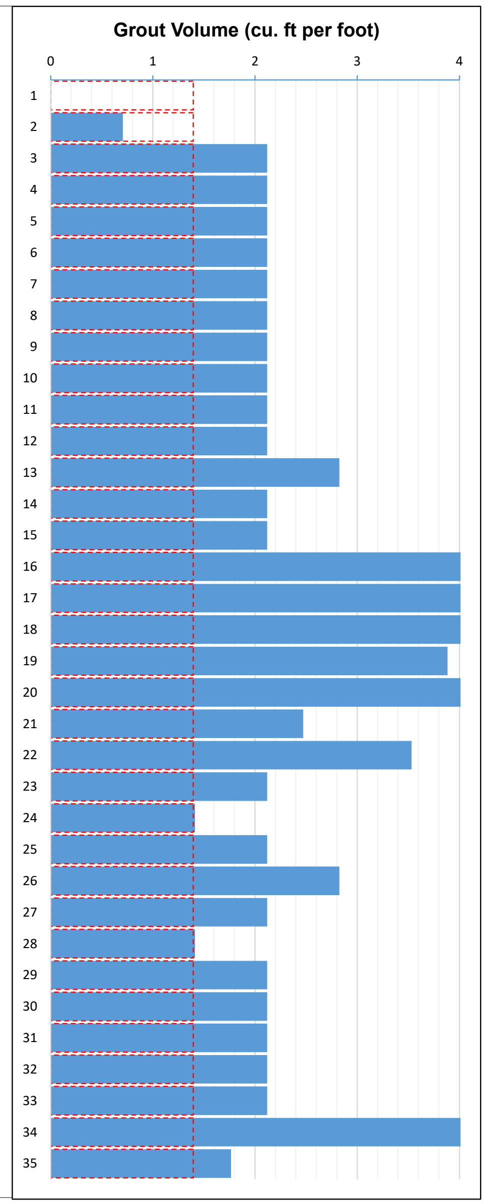
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" Nominal Requirement









DGC Log Sheet

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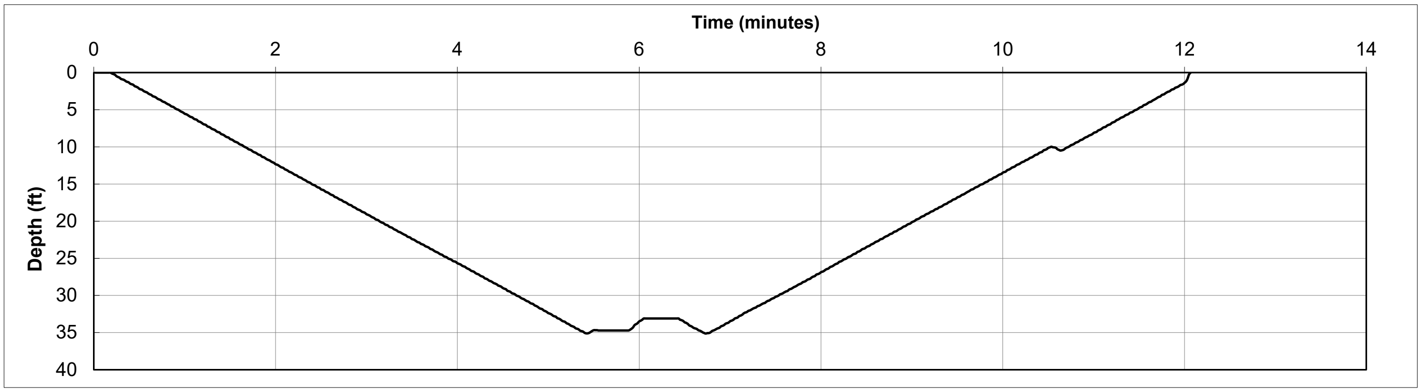
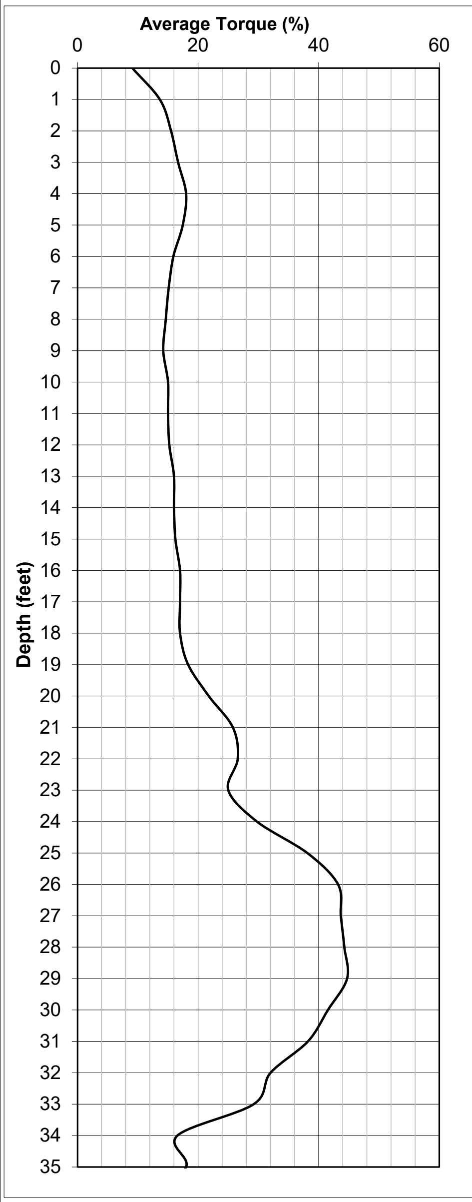
Project Site Data | **Data for Column No: 122**

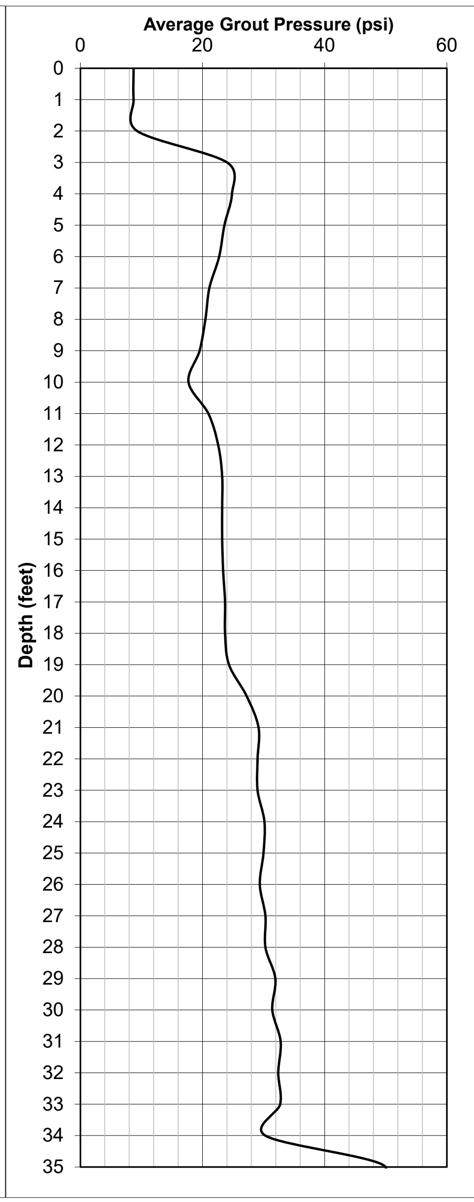
Project Name:	Oxnard College Fire Training	Date:	12/4/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	4:31 PM	Concrete Volume:	78.4	cubic ft
General Contractor:	Oxnard College	Bottom Time:	4:38 PM	Column Depth:	35.1	ft
		End Time:	4:43 PM	Pre Auger:		
		Total Time:	12 min			

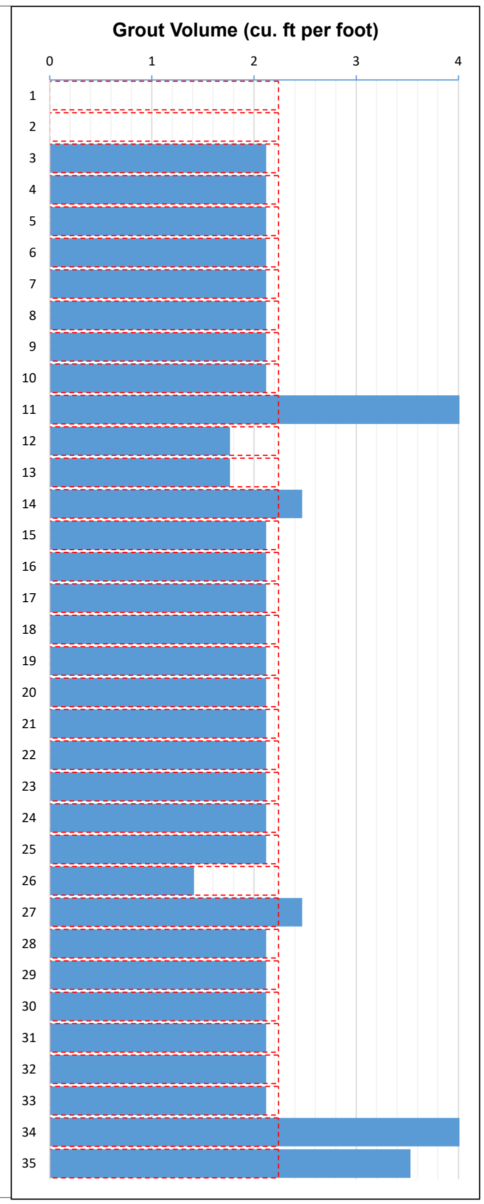
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" Nominal Requirement









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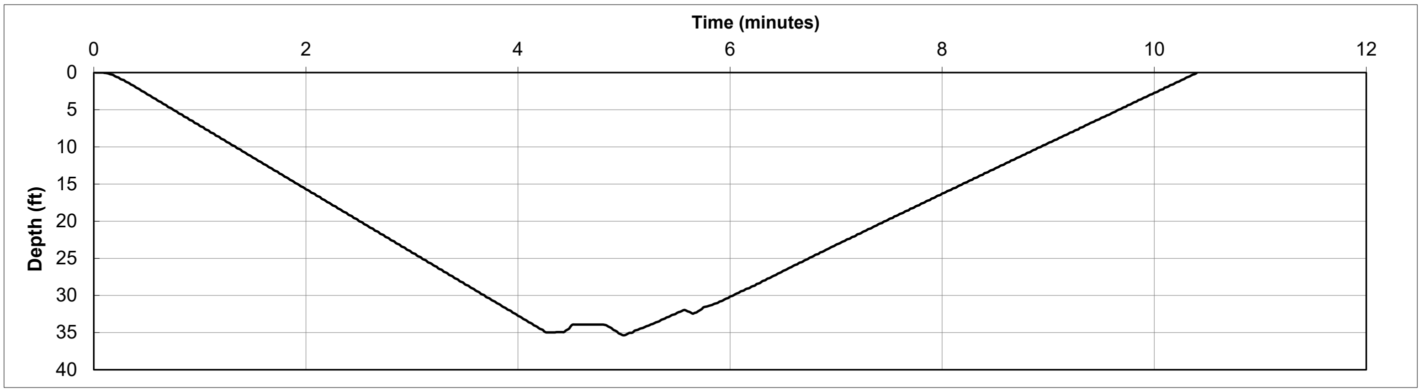
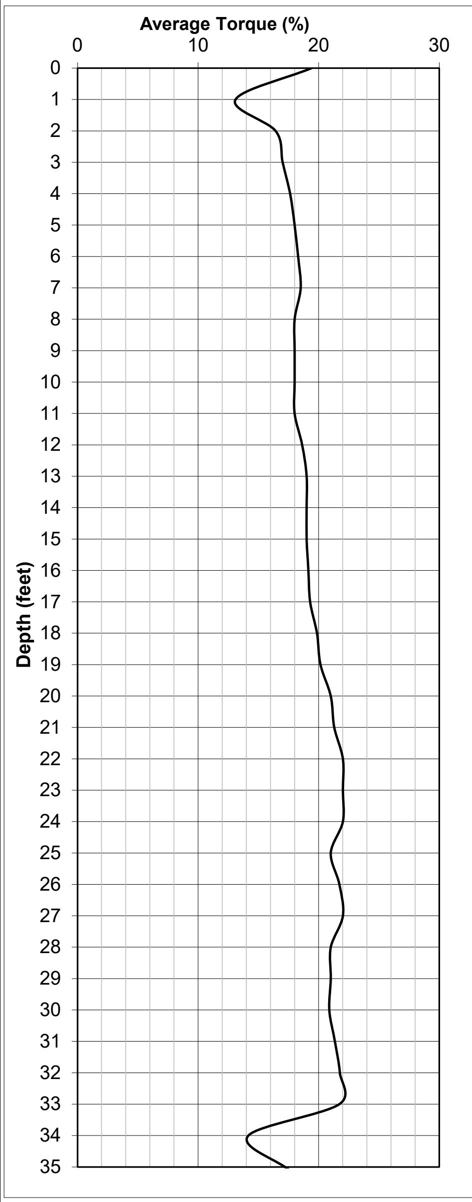
Project Site Data **Data for Column No: 119**

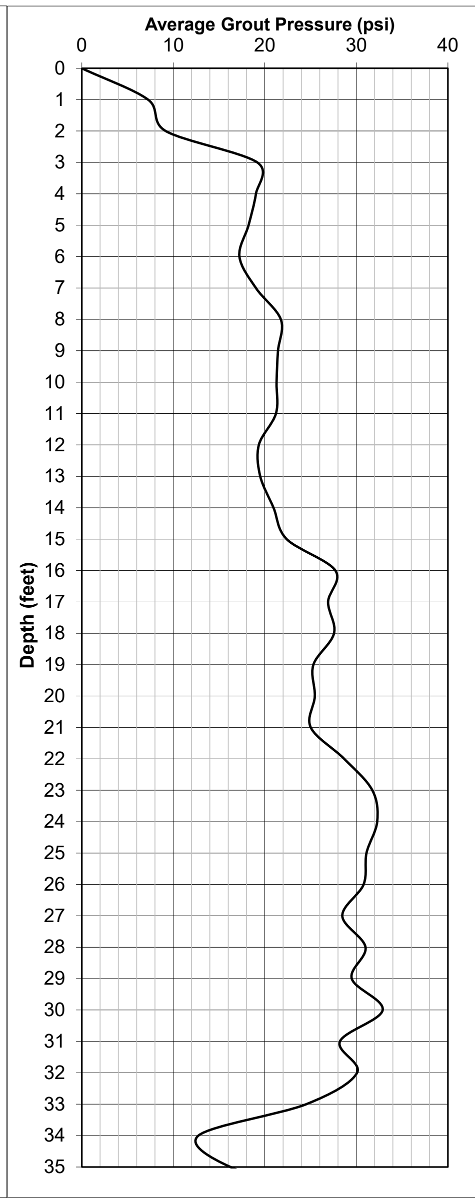
Project Name:	Oxnard College Fire Training	Date:	12/4/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	5:03 PM	Concrete Volume:	74.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	5:08 PM	Column Depth:	35.4	ft
		End Time:	5:13 PM	Pre Auger:		
		Total Time:	10 min			

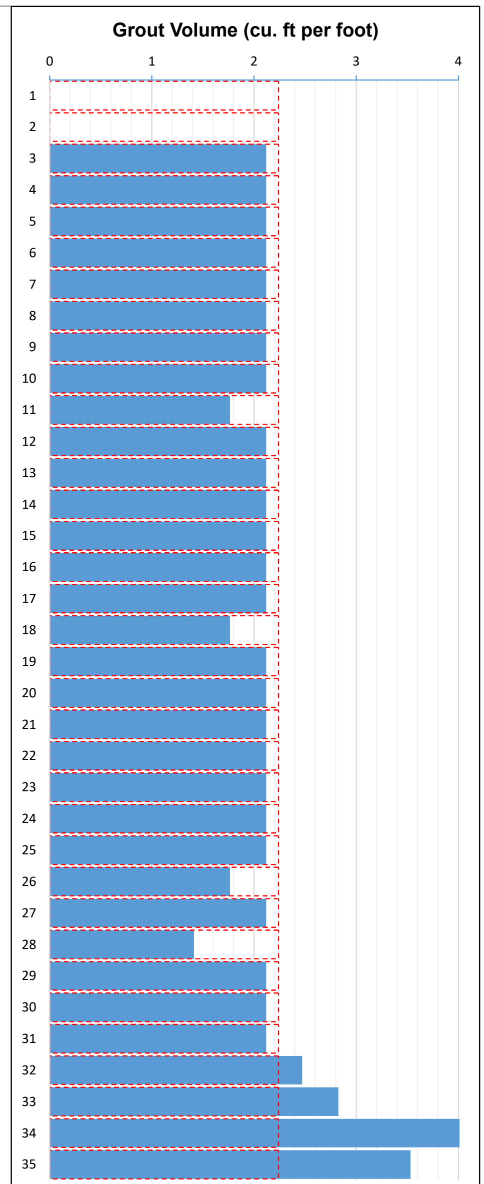
Rig Id: BG-30
Operator: Benny Sandoval

Tool meets 16" Nominal Requirement









ADVANCED GEOSOLUTIONS INC

Daily Production Summary- Displacement Grout Columns

Project No. :	**P271275**	Date:	Monday, December 7, 2020
Project Name:	Oxnard College Fire Training Academy		
Rig:	BG-30		
Rig Operator:	James "Smitty" Smith		
Oiler:	Jimmy Edwards		

Seq. No	Rig No.	Col. ID	Start Time	Bottom Time	End Time	Surface Elev.	Column Depth (ft)	*Act. Tip Elev.*	Concrete Volume (cu. feet)	Truck ID	Comments
1		136	09:22	09:29	09:34	74.4	35.1	39.3	79	42658915	
2		138	09:54	10:00	10:05	74.4	35.1	39.3	75	42658915	
3		263	10:07	10:13	10:23	74.4	35.1	39.3	77	42658915	
4		189	10:37	10:40	10:44	74.4	20.6	53.8	47	42658924	
5		139	11:02	11:08	11:14	74.4	35.6	38.8	77	42658924	
6		257	11:17	11:23	11:28	74.4	35.1	39.3	79	42658924	
7		190	11:31	11:35	11:39	74.4	21.0	53.4	51	42658932	
8		141	11:42	11:48	11:55	74.4	35.7	38.7	90	42658932	
9		251	12:09	12:15	12:20	74.4	35.1	39.3	81	42658932	
10		191	12:24	12:28	12:44	74.4	20.9	53.5	52	42658932	
11		142	12:59	13:05	13:11	74.4	35.1	39.3	78	42658940	
12		143	13:54	14:00	14:07	74.4	35.2	39.2	100	42658940	
13		245	14:10	14:16	14:23	74.4	35.8	38.6	83	42658940	
14		192	14:26	14:29	14:33	74.4	21.3	53.1	51	42658940	
15		197	14:38	14:42	14:47	74.4	21.0	53.4	57	42658941	
16		198	14:51	14:55	14:58	74.4	20.6	53.8	57	42658941	
17		154	15:10	15:18	15:24	74.4	35.4	39.0	101	42658942	
18		153	15:42	15:49	15:55	74.4	35.1	39.3	94	42658942	

DGC Log Sheet

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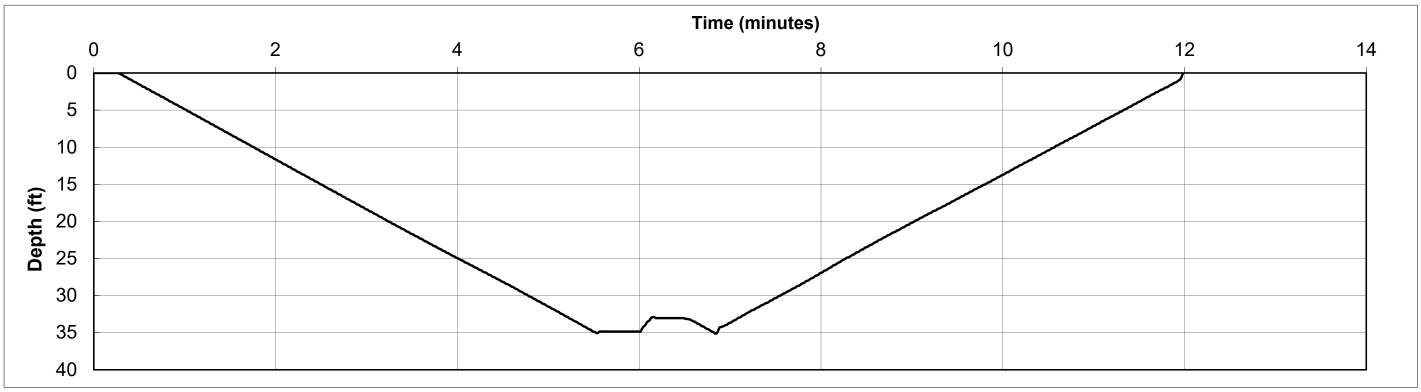
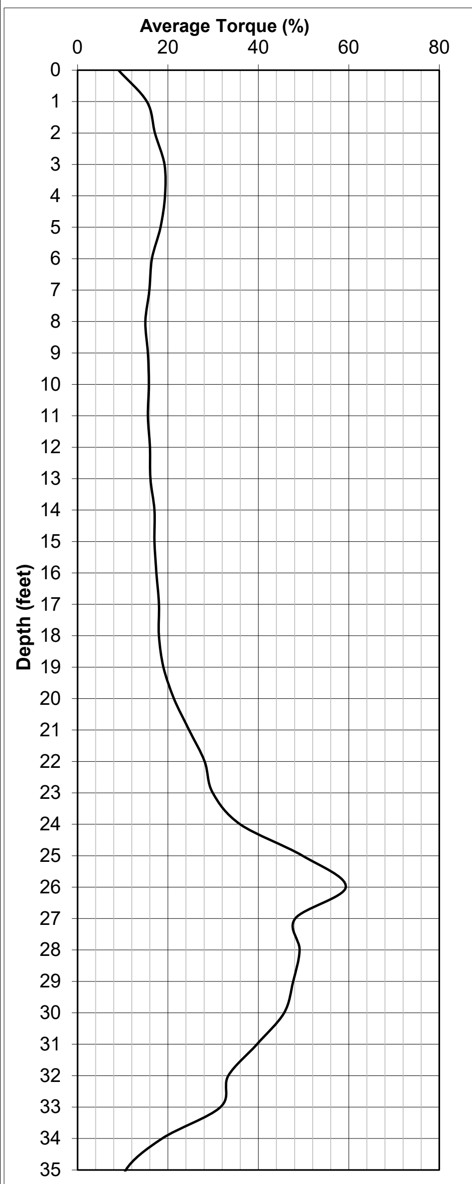
Project Site Data **Data for Column No: 136**

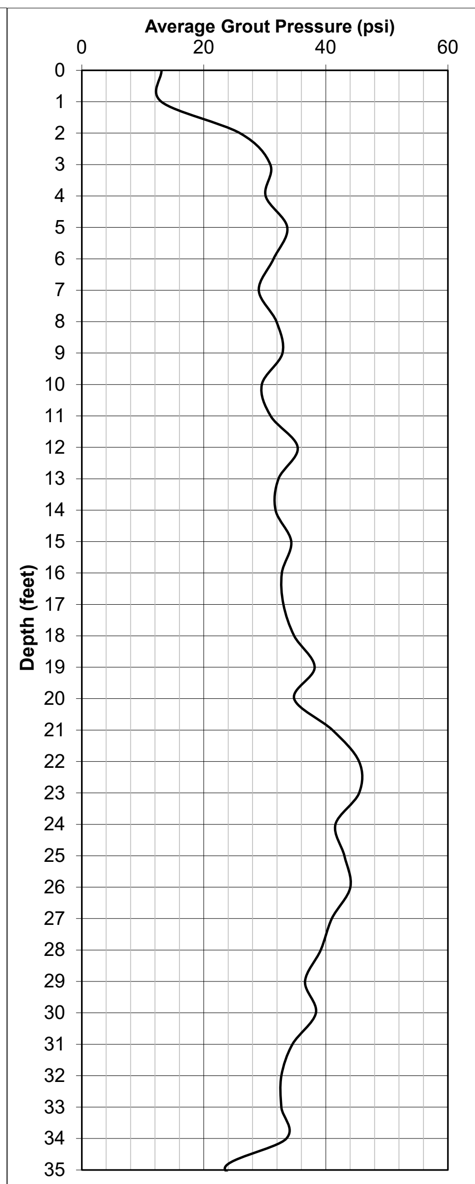
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:22 AM	Concrete Volume:	79.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:29 AM	Column Depth:	35.1	ft
		End Time:	9:34 AM	Pre Auger:		
		Total Time:	12 min			

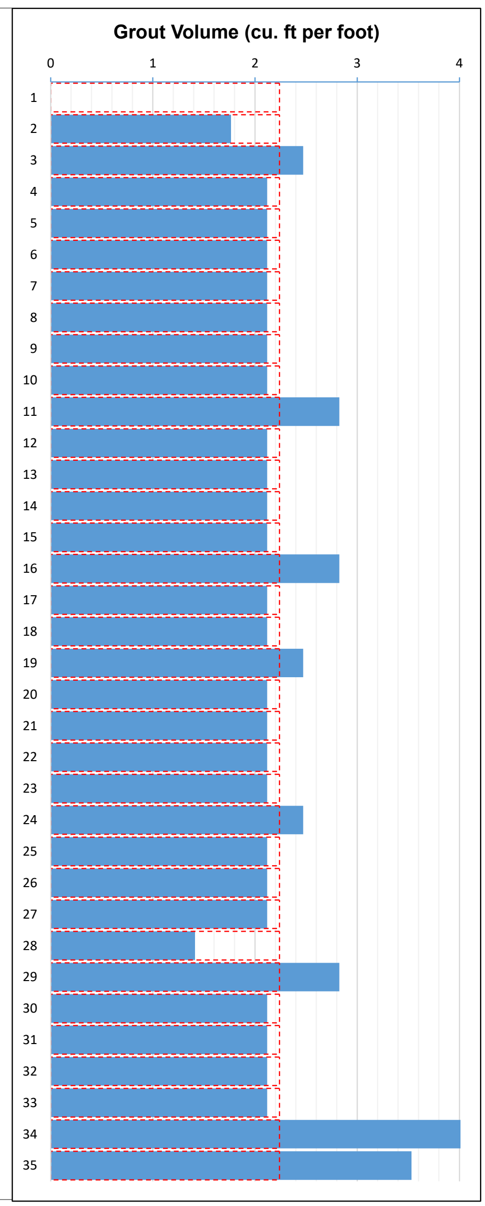
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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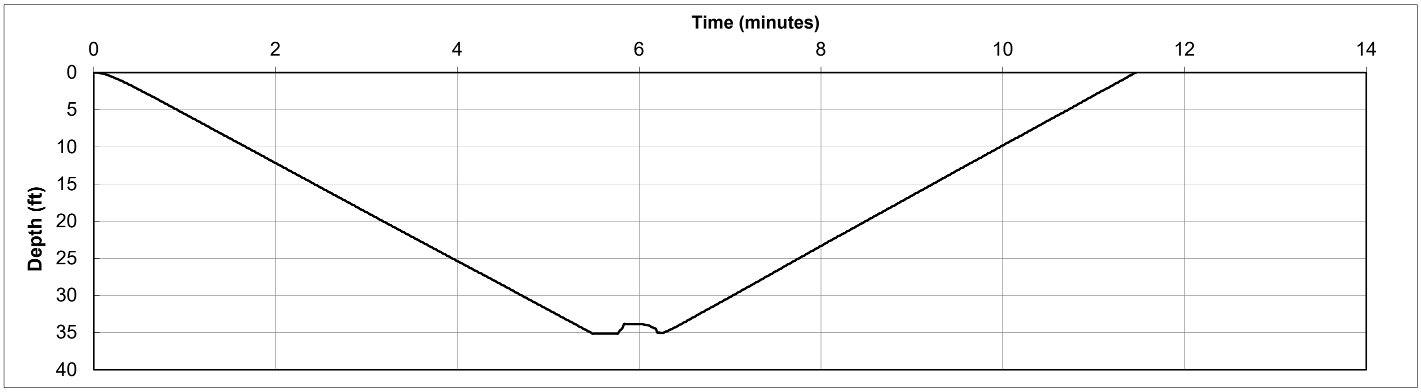
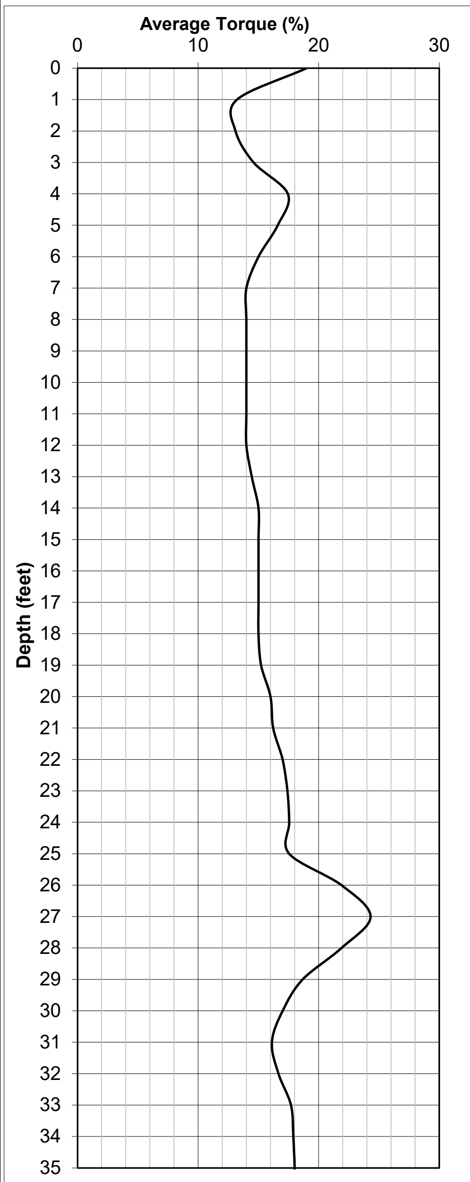
Project Site Data | **Data for Column No: 138**

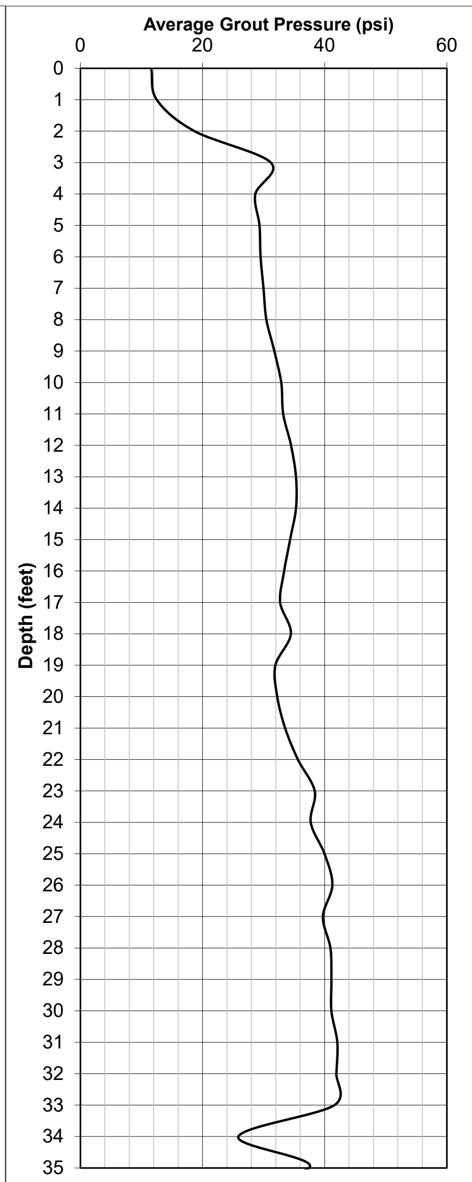
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:54 AM	Concrete Volume:	75.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:00 AM	Column Depth:	35.1	ft
		End Time:	10:05 AM	Pre Auger:		
		Total Time:	11 min			

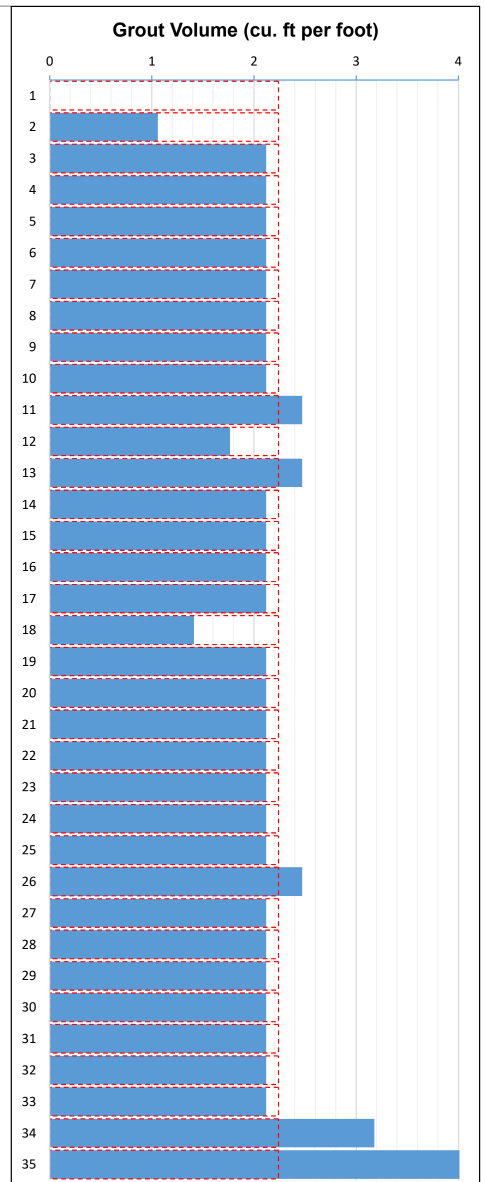
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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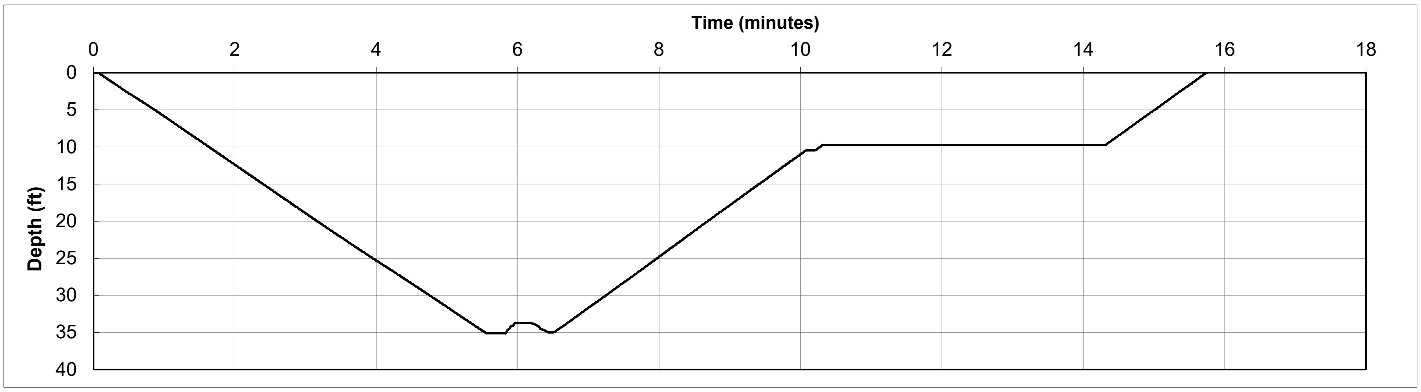
P: 310-796-9000

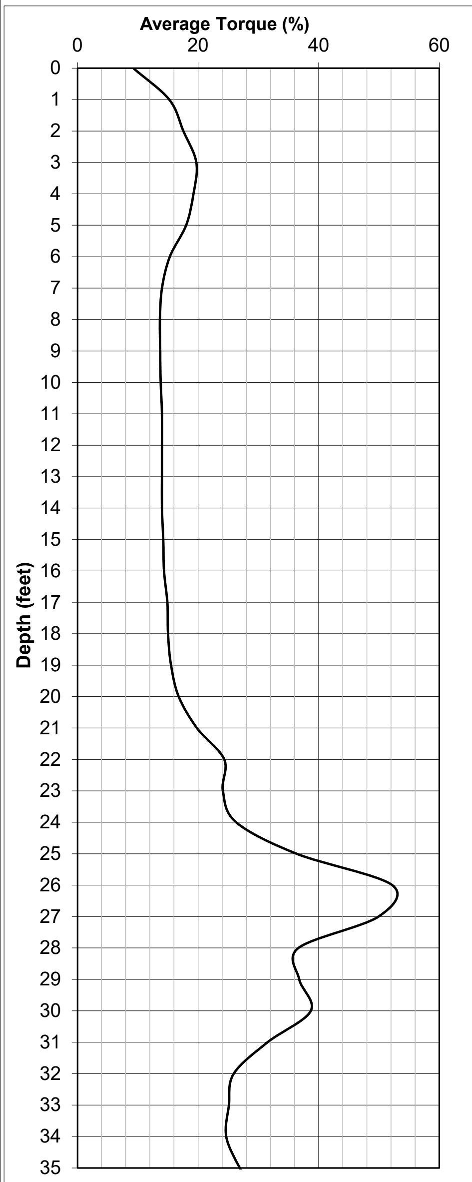
Project Site Data | **Data for Column No: 263**

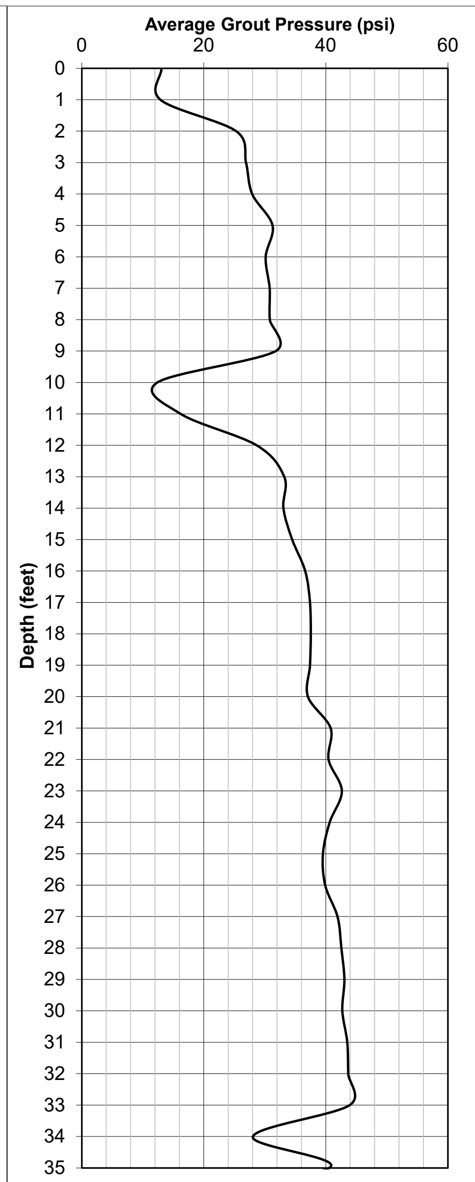
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:07 AM	Concrete Volume:	76.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:13 AM	Column Depth:	35.1	ft
		End Time:	10:23 AM	Pre Auger:		
		Total Time:	16 min			

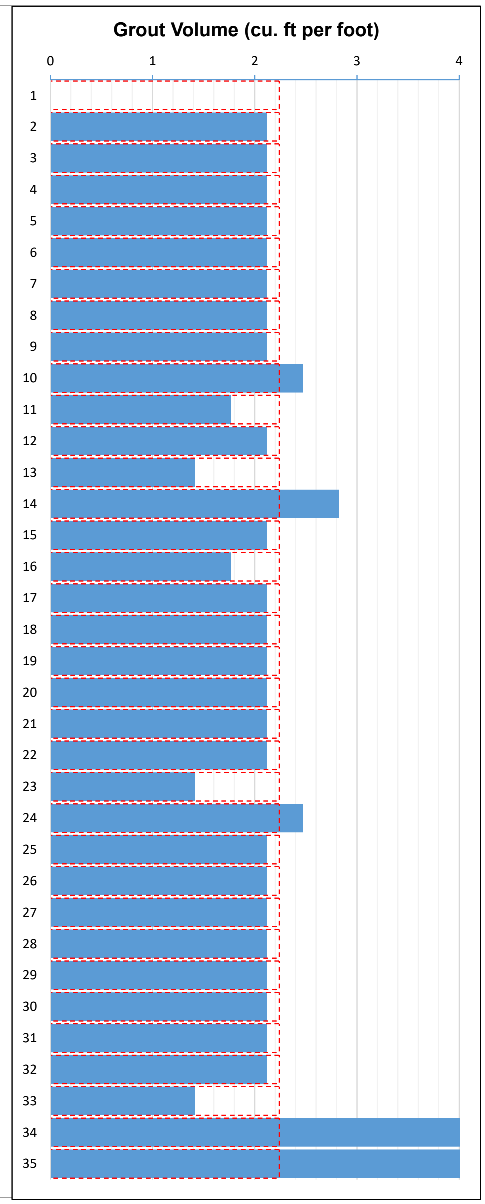
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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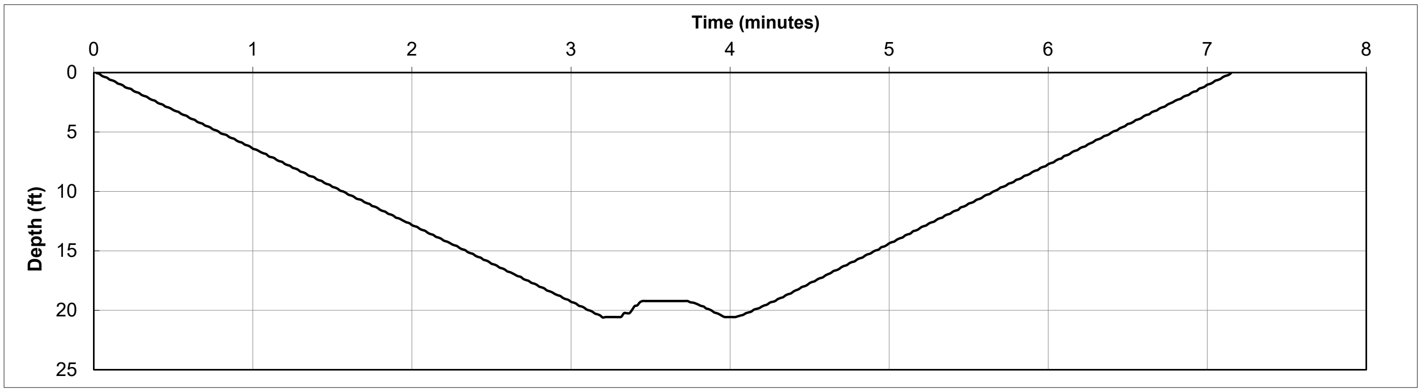
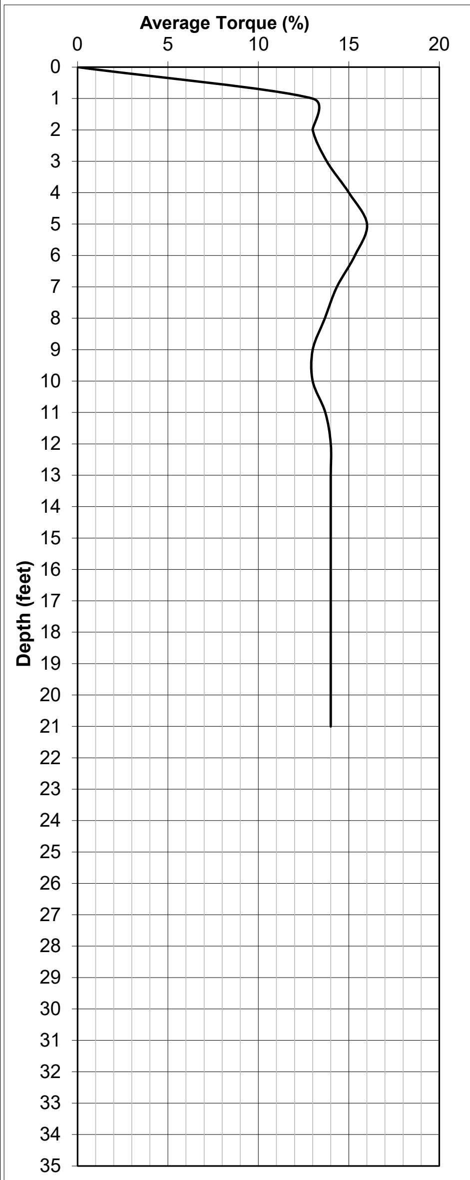
Project Site Data | **Data for Column No: 189**

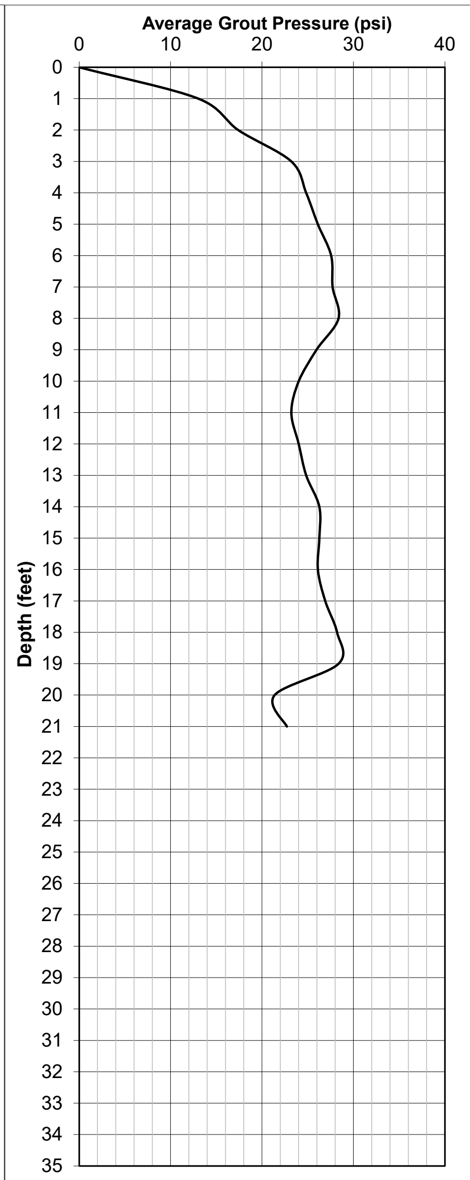
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:37 AM	Concrete Volume:	47.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:40 AM	Column Depth:	20.6	ft
		End Time:	10:44 AM	Pre Auger:		
		Total Time:	7 min			

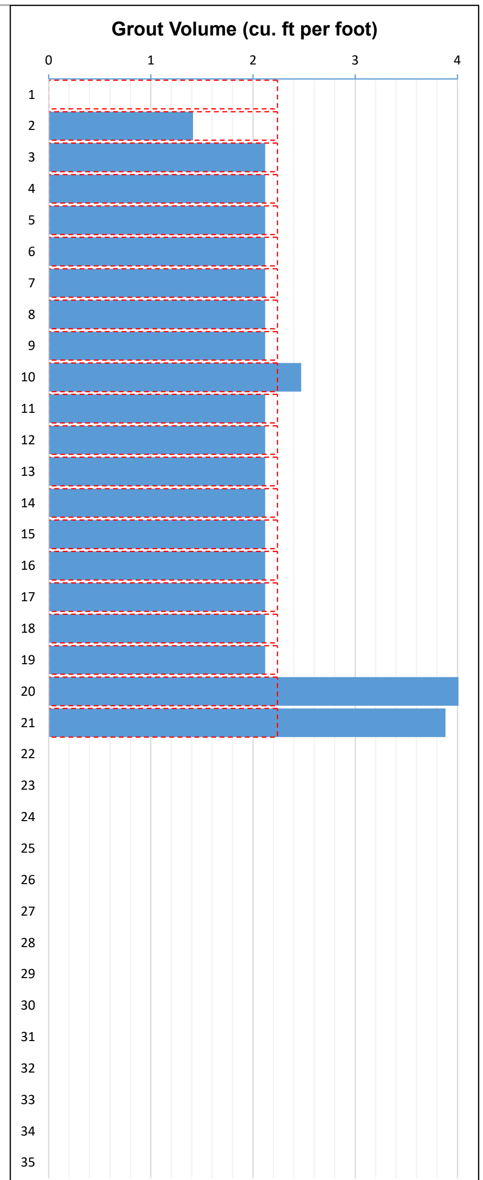
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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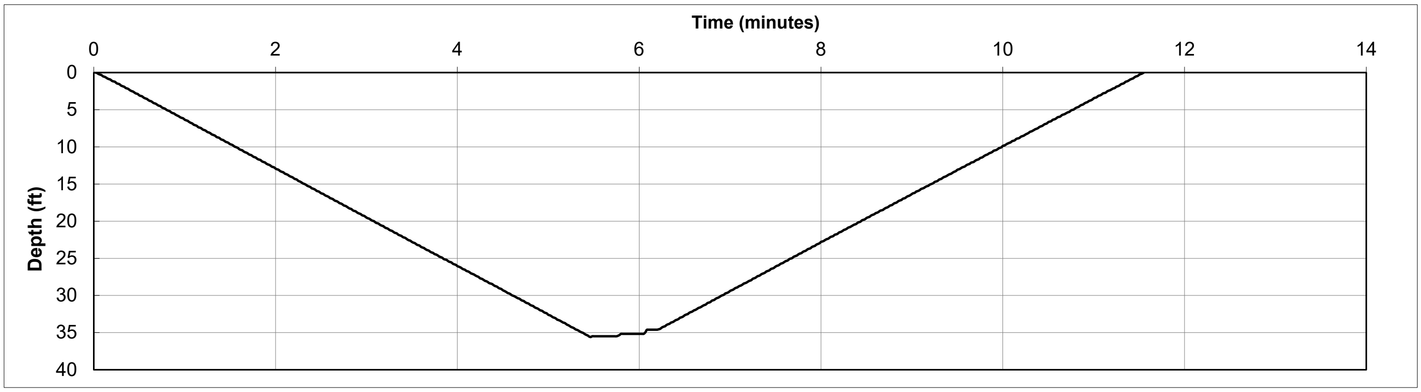
Project Site Data

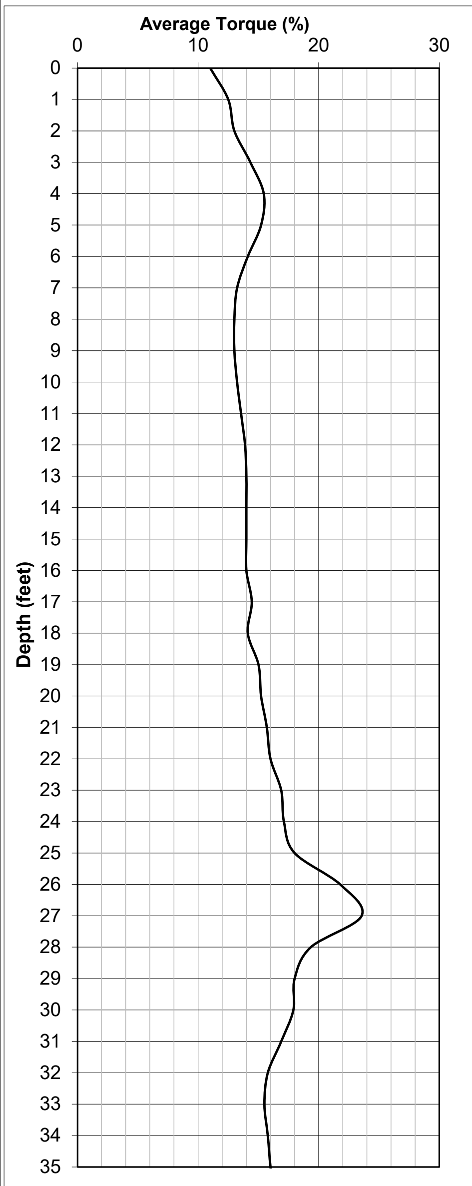
Data for Column No: 139

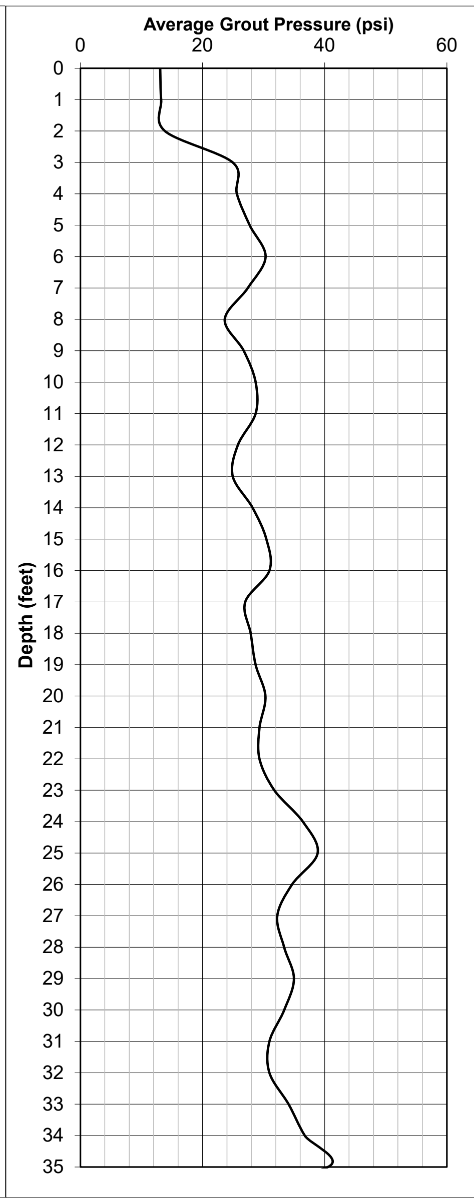
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:02 AM	Concrete Volume:	77.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:08 AM	Column Depth:	35.6	ft
		End Time:	11:14 AM	Pre Auger:		
		Total Time:	12 min			

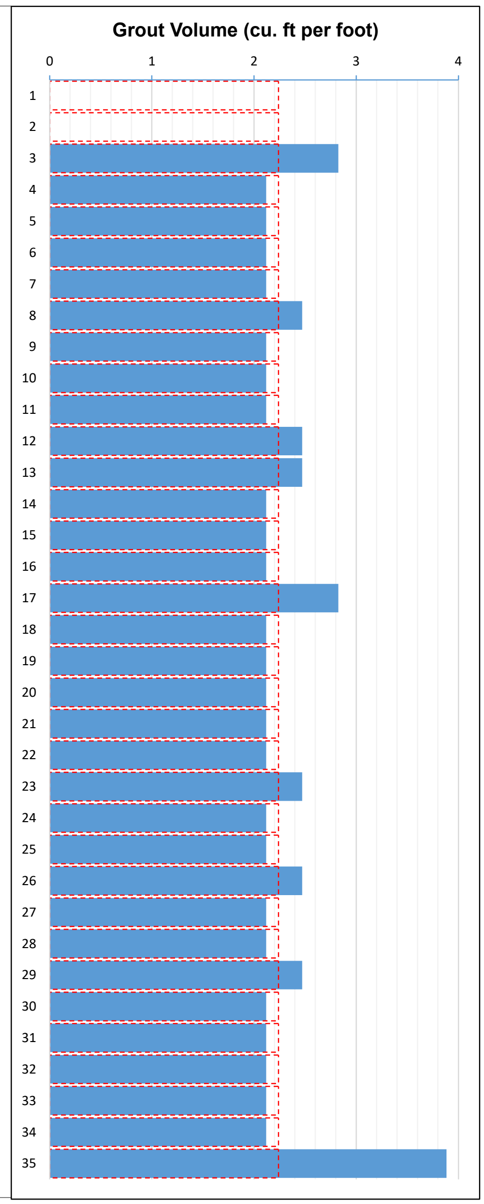
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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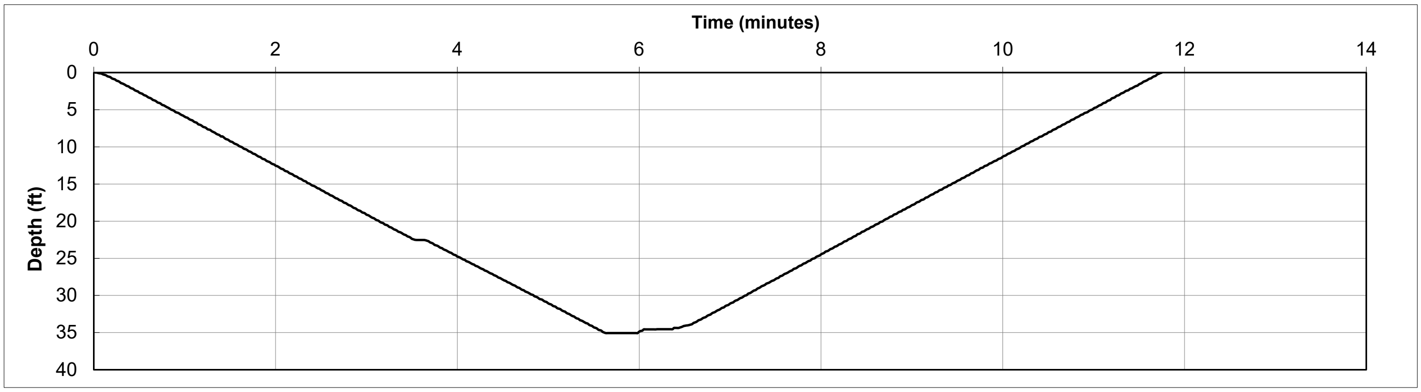
Project Site Data

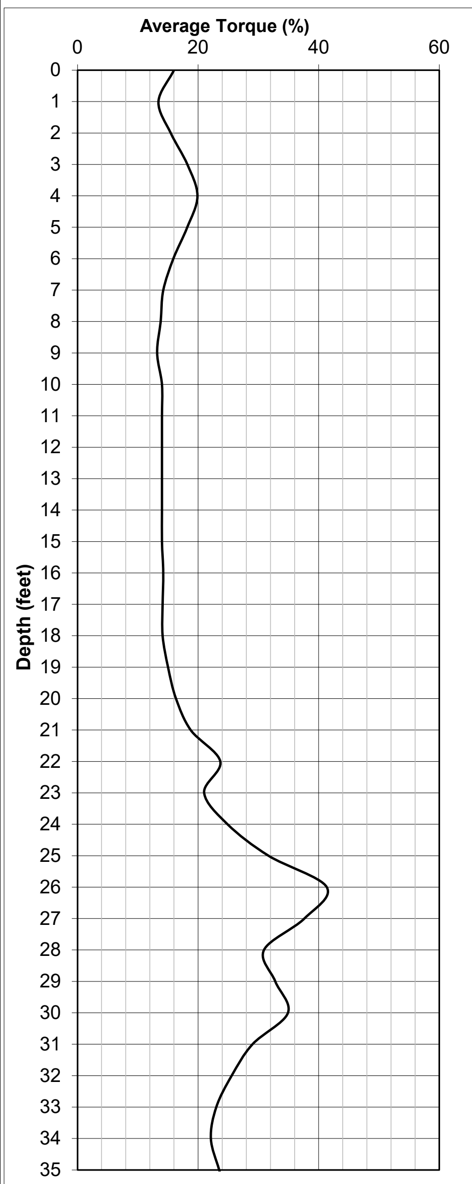
Data for Column No: 257

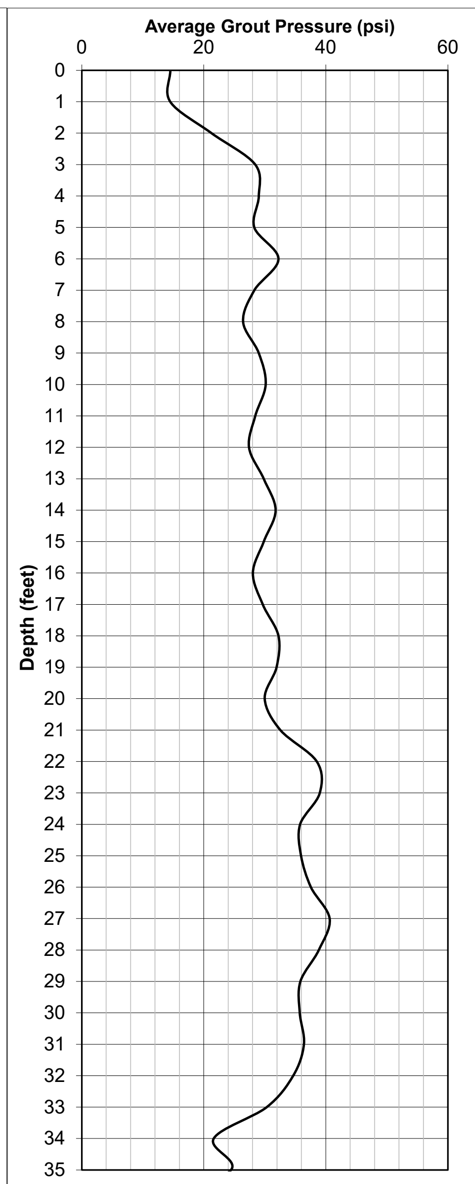
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:17 AM	Concrete Volume:	78.8	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:23 AM	Column Depth:	35.1	ft
		End Time:	11:28 AM	Pre Auger:		
		Total Time:	12 min			

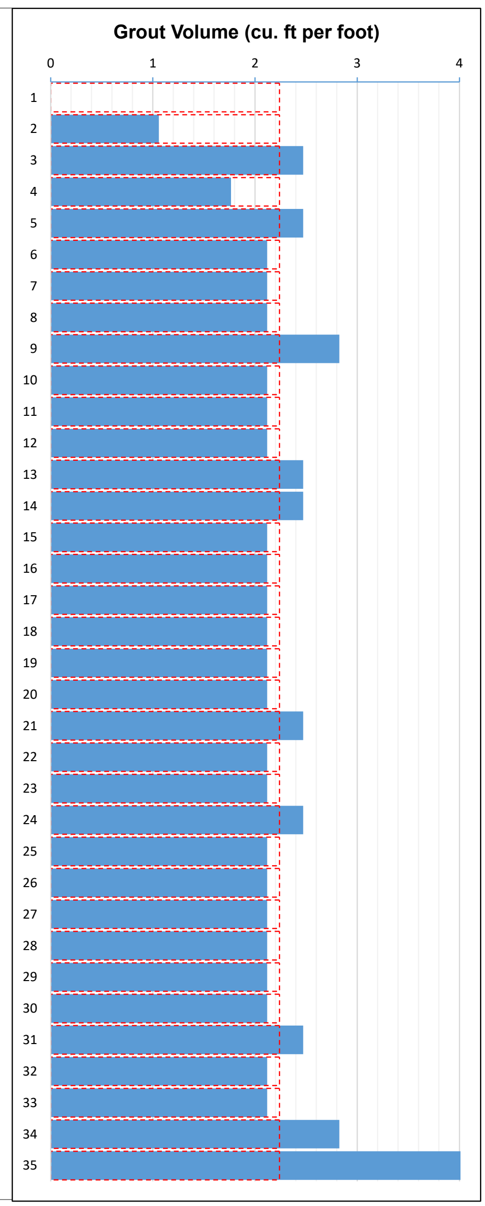
Tool meets 16" Nominal Requirement

Rig Id: BG-30
Operator: James "Smitty" Smith









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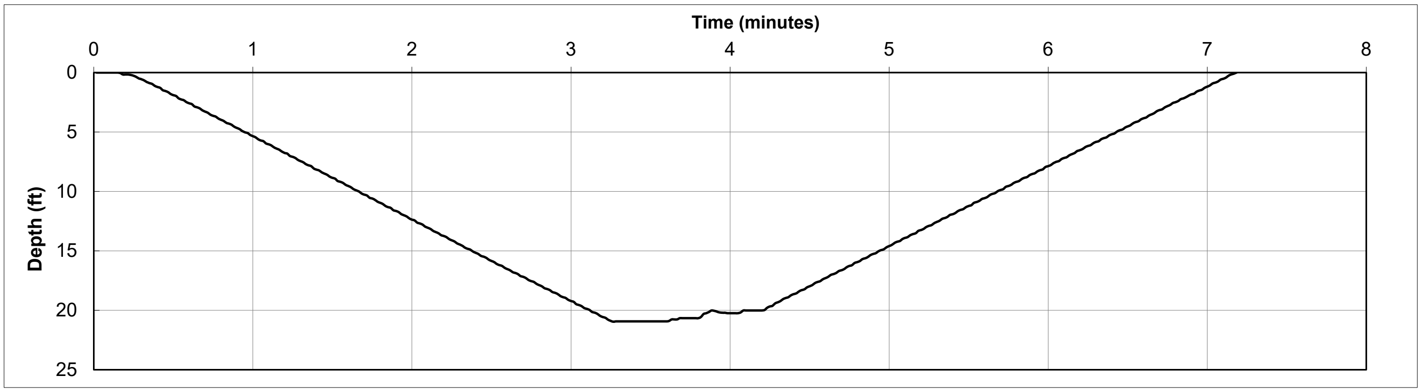
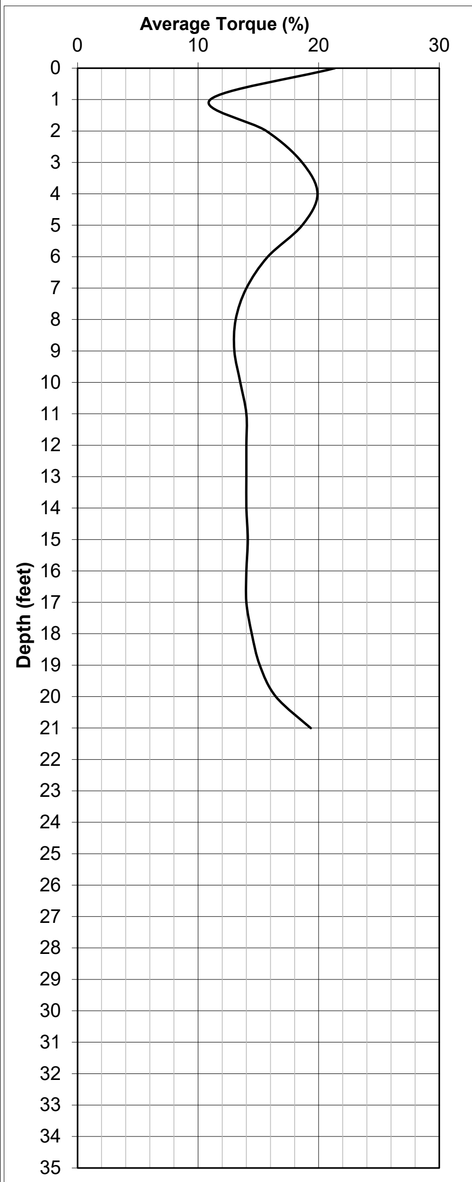
Project Site Data **Data for Column No: 190**

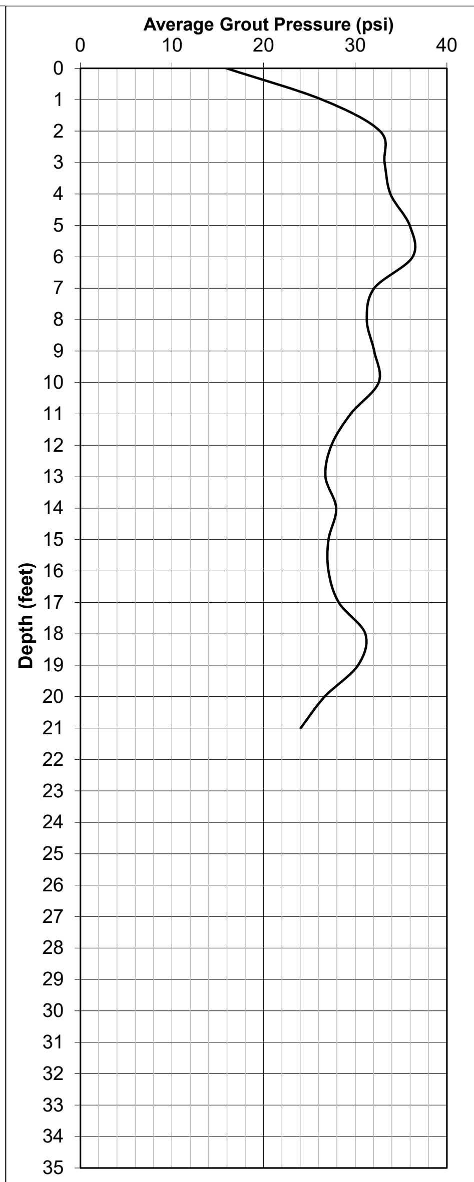
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:31 AM	Concrete Volume:	50.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:35 AM	Column Depth:	21.0	ft
		End Time:	11:39 AM	Pre Auger:		
		Total Time:	7 min			

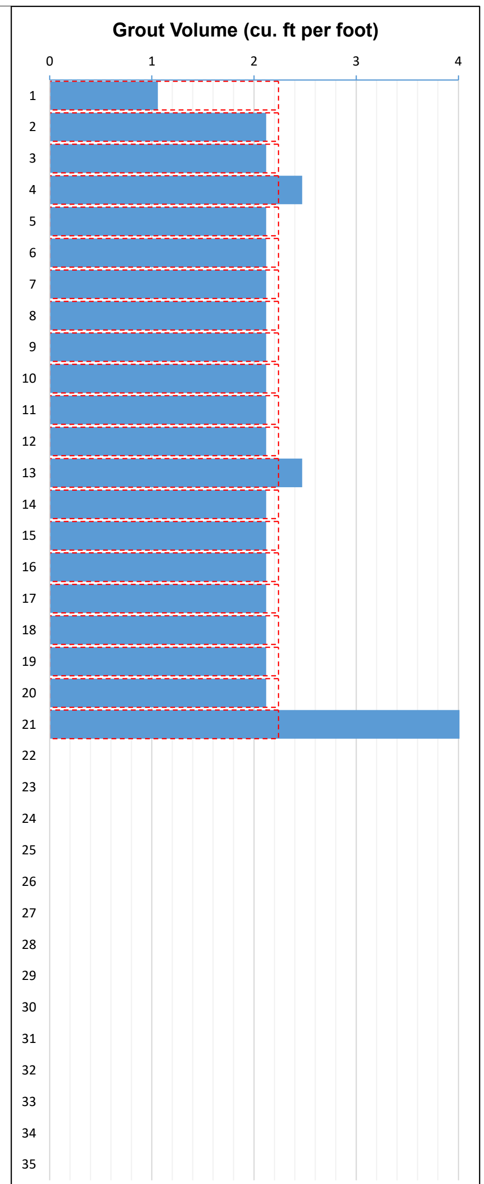
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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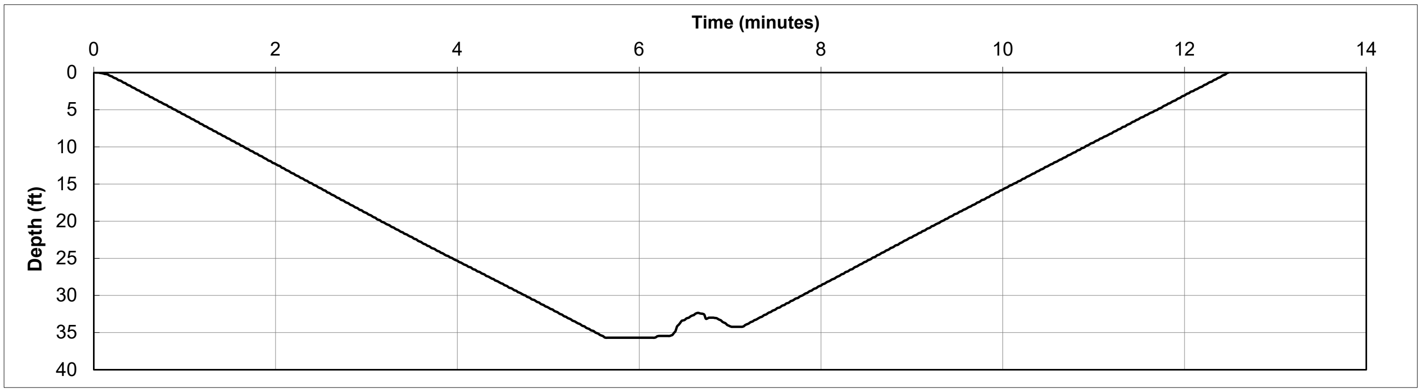
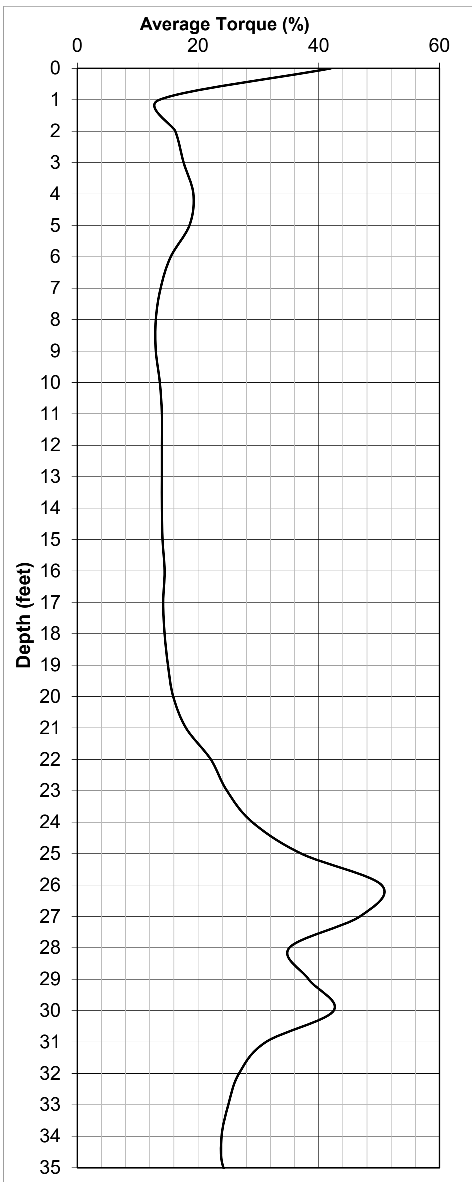
Project Site Data | **Data for Column No: 141**

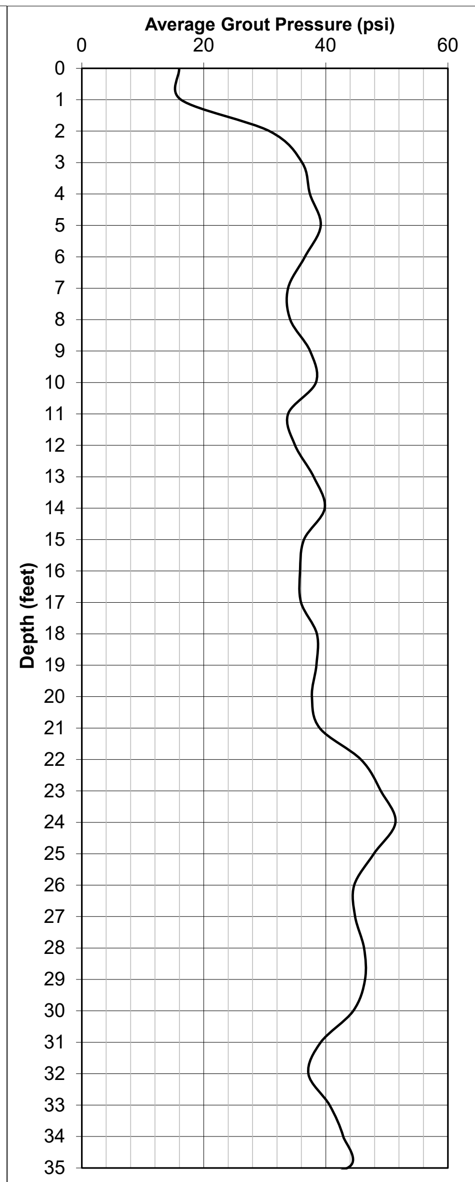
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:42 AM	Concrete Volume:	90.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:48 AM	Column Depth:	35.7	ft
		End Time:	11:55 AM	Pre Auger:		
		Total Time:	13 min			

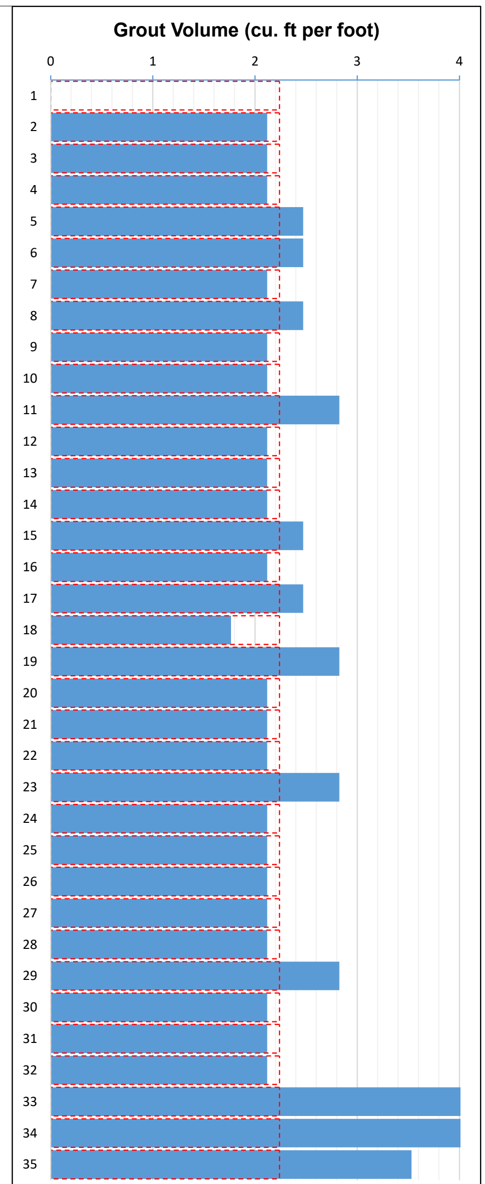
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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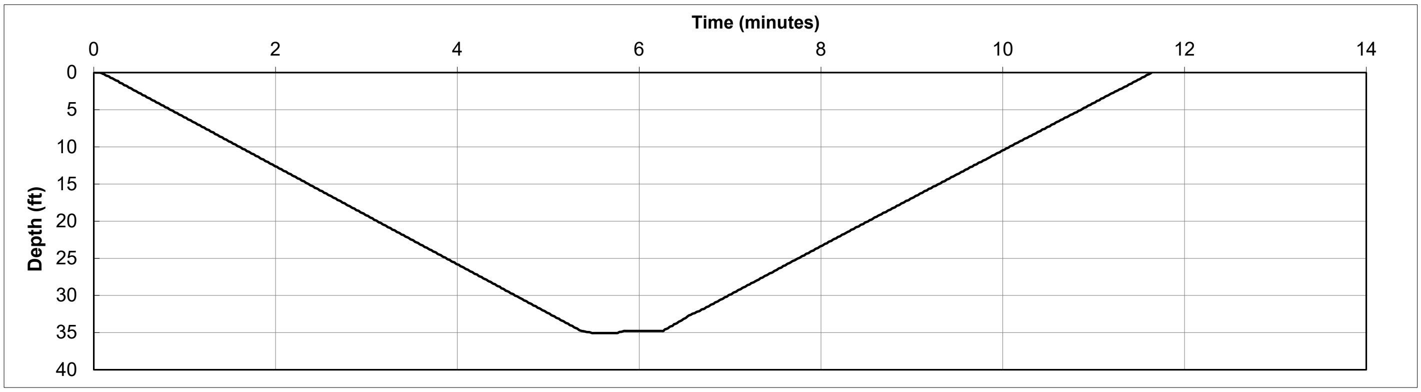
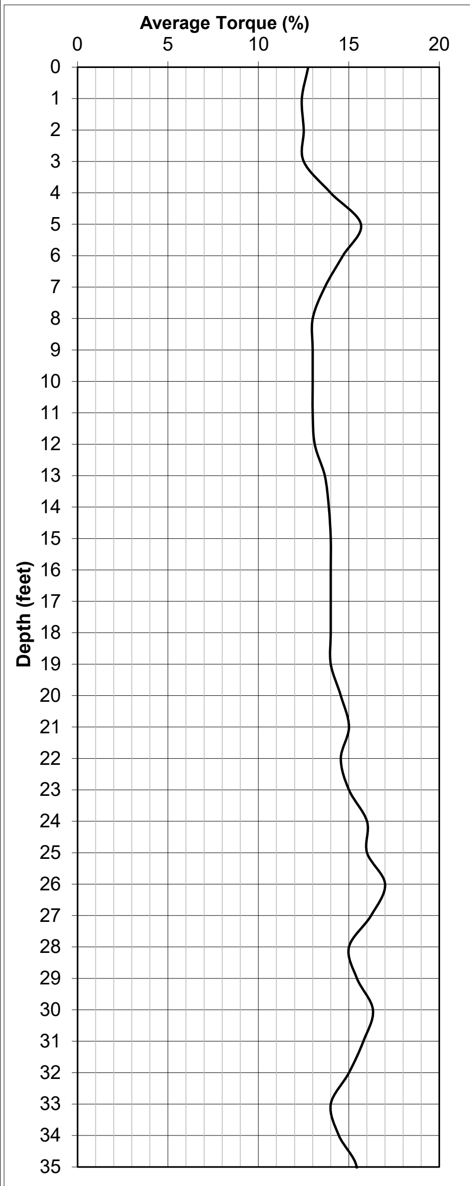
Project Site Data | **Data for Column No: 251**

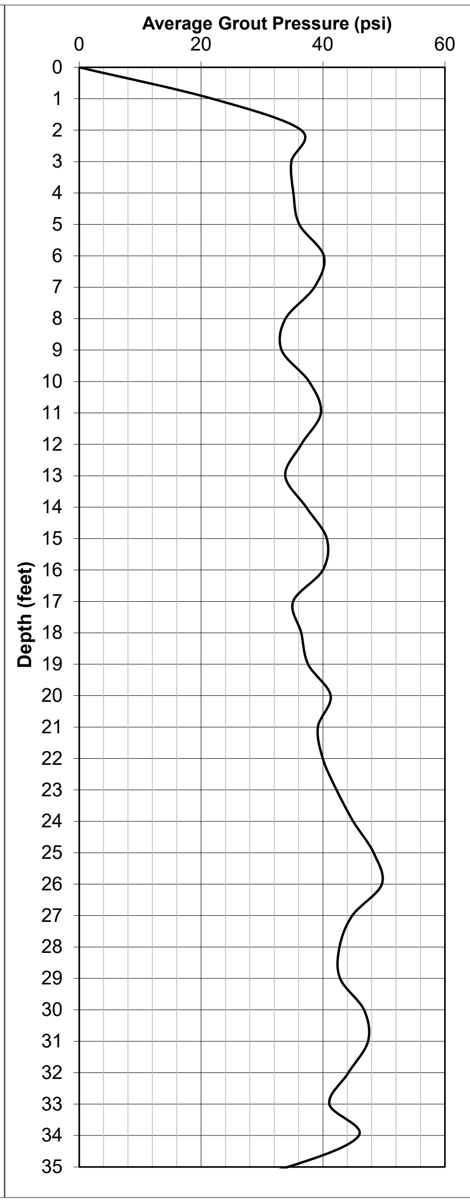
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:09 PM	Concrete Volume:	80.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:15 PM	Column Depth:	35.1	ft
		End Time:	12:20 PM	Pre Auger:		
		Total Time:	12 min			

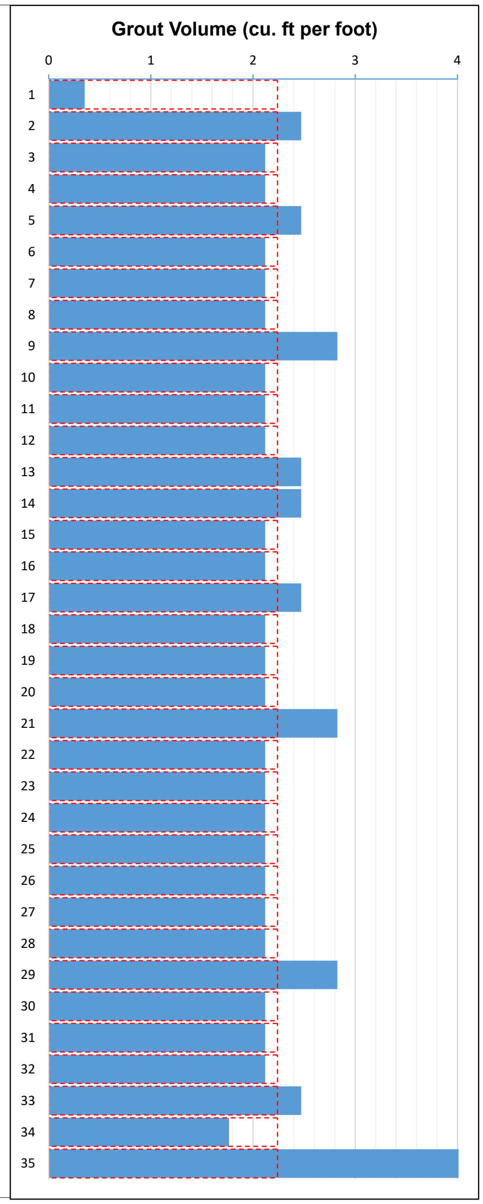
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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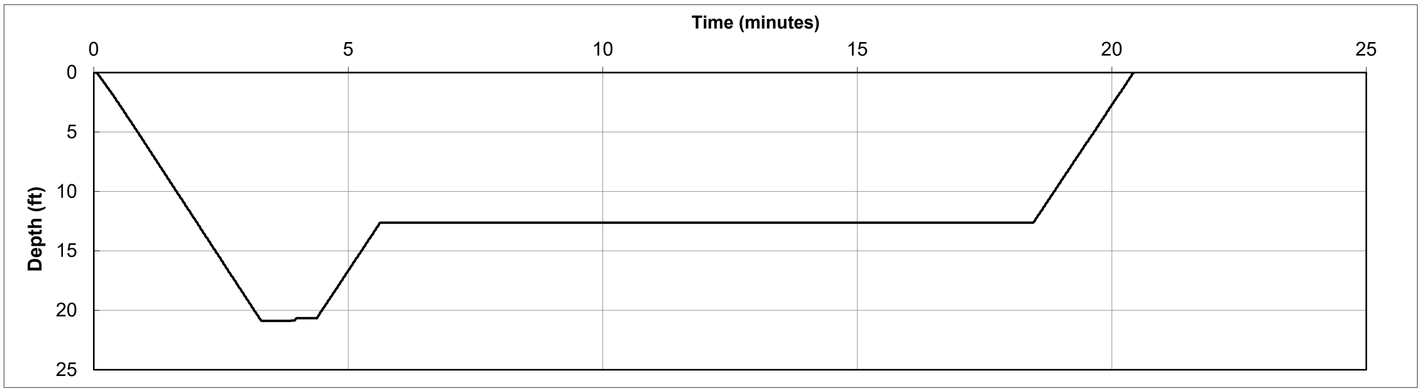
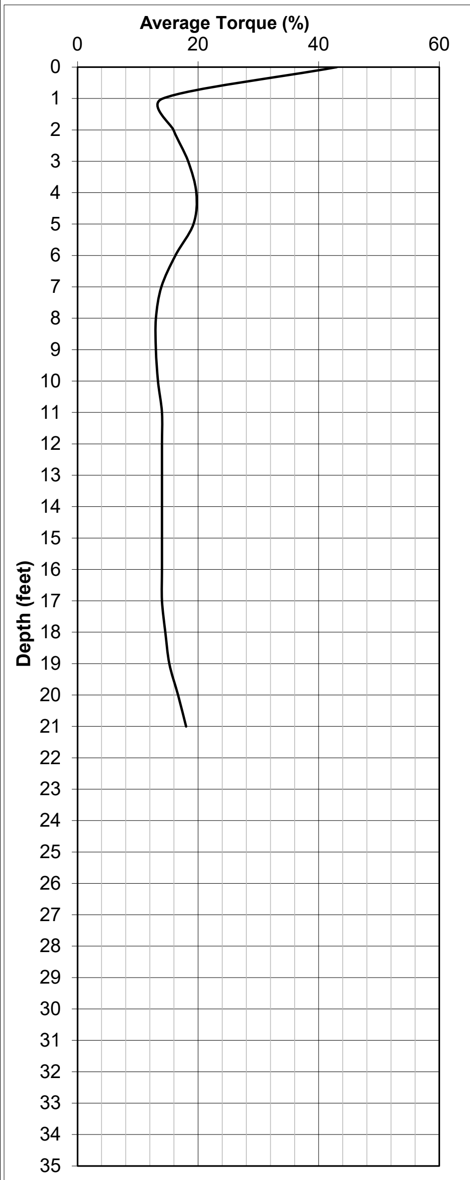
Project Site Data | **Data for Column No: 191**

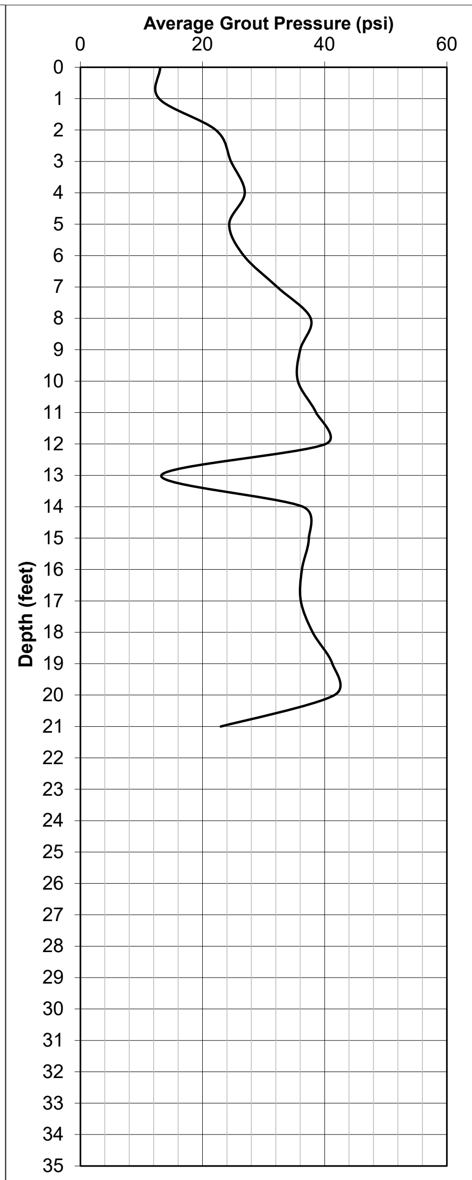
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:24 PM	Concrete Volume:	52.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:28 PM	Column Depth:	20.9	ft
		End Time:	12:44 PM	Pre Auger:		
		Total Time:	20 min			

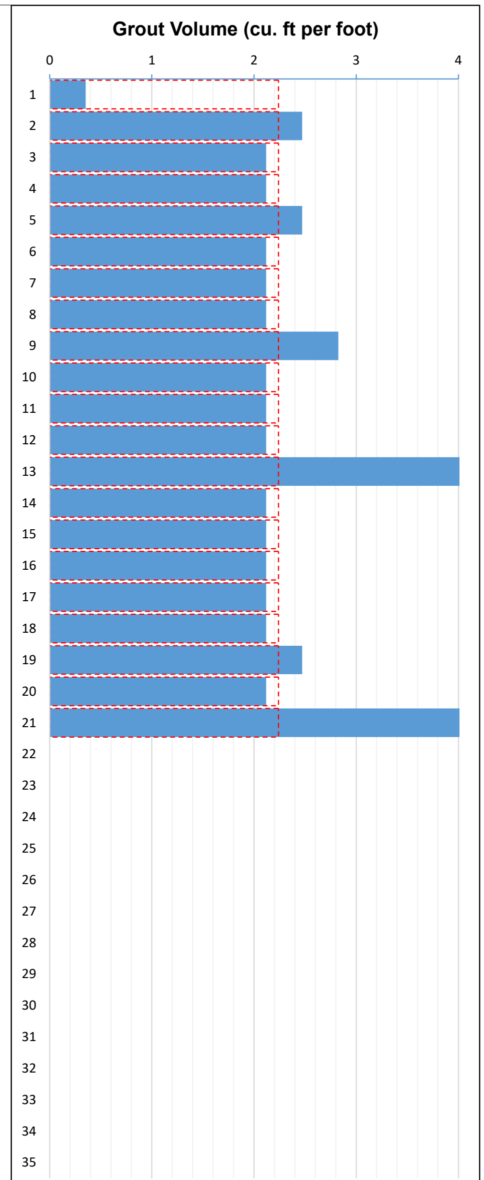
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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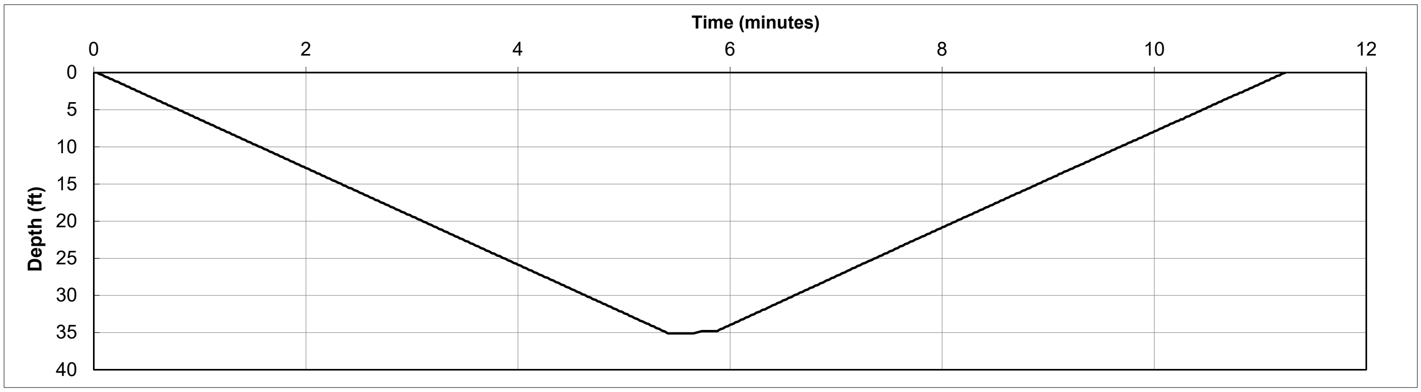
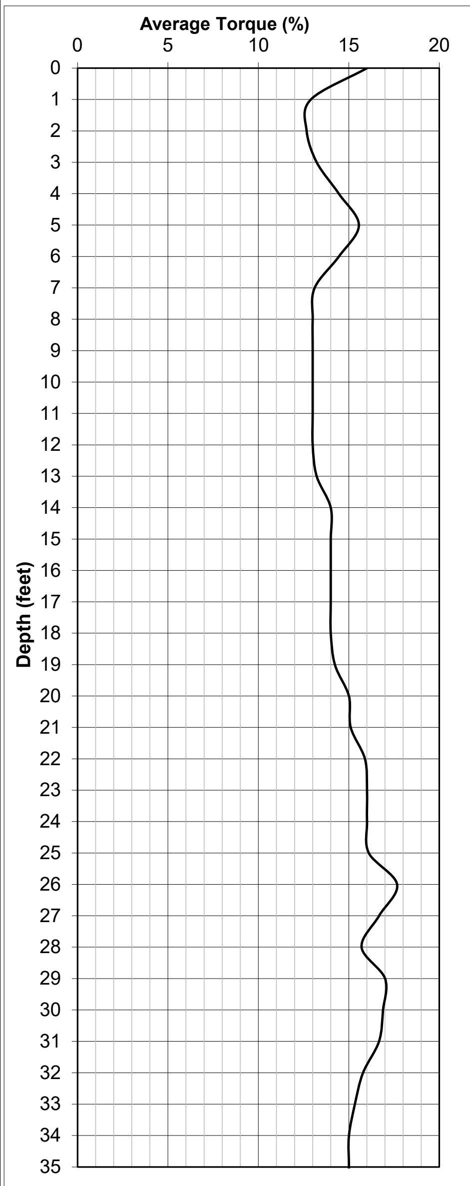
Project Site Data | **Data for Column No: 142**

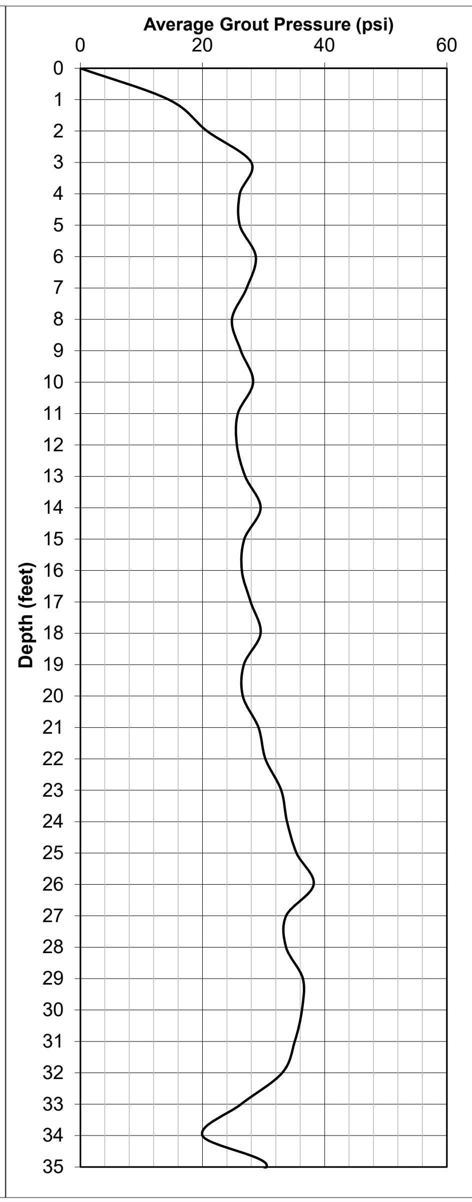
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:59 PM	Concrete Volume:	78.4	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:05 PM	Column Depth:	35.1	ft
		End Time:	1:11 PM	Pre Auger:		
		Total Time:	11 min			

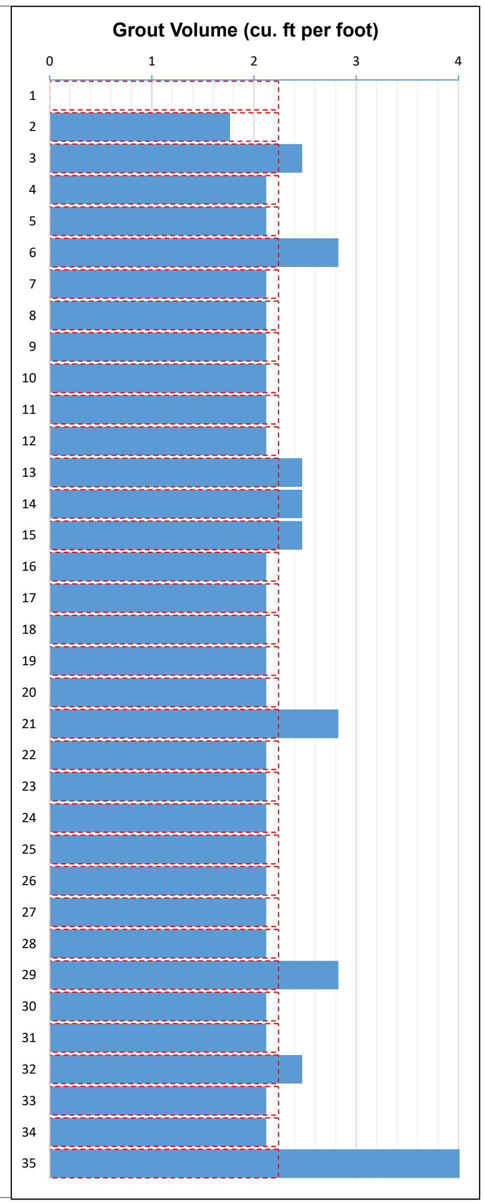
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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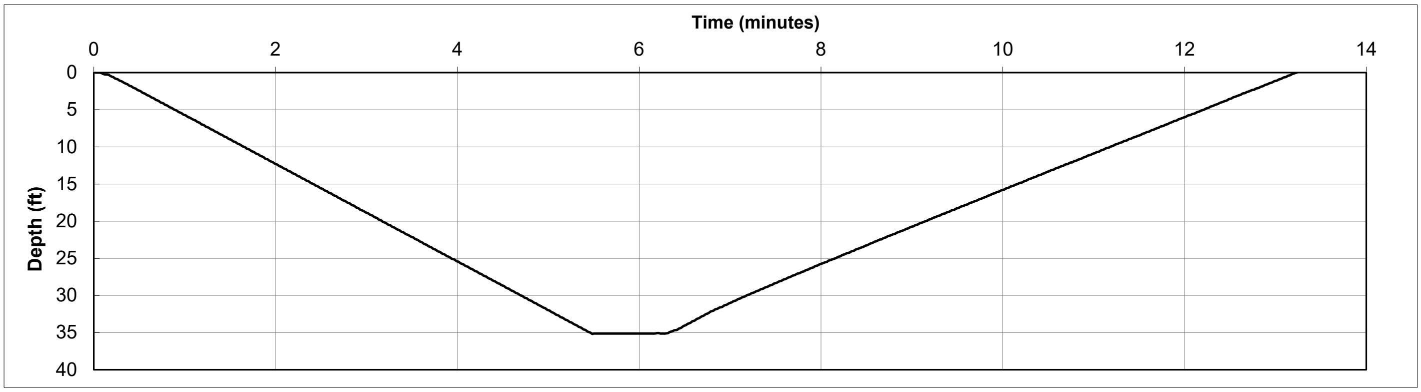
Project Site Data

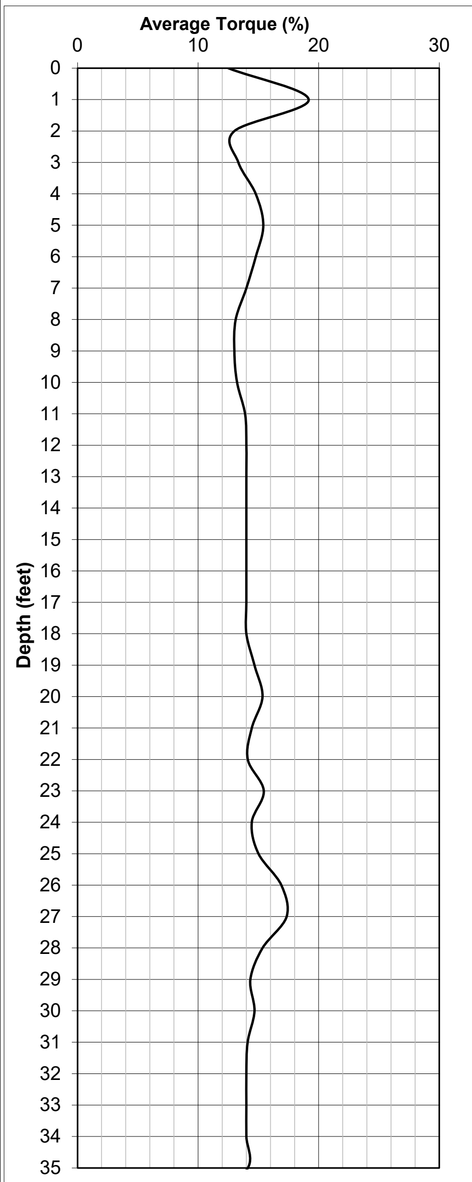
Data for Column No: 143

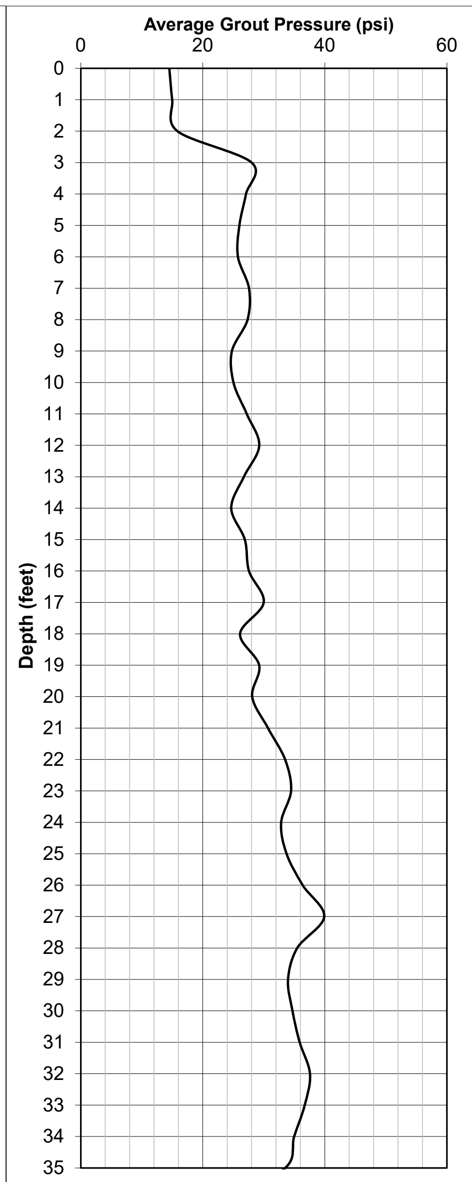
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16 in
Project Location:	Camarillo, CA	Start Time:	1:54 PM	Concrete Volume:	99.8 cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:00 PM	Column Depth:	35.2 ft
		End Time:	2:07 PM	Pre Auger:	
		Total Time:	13 min		

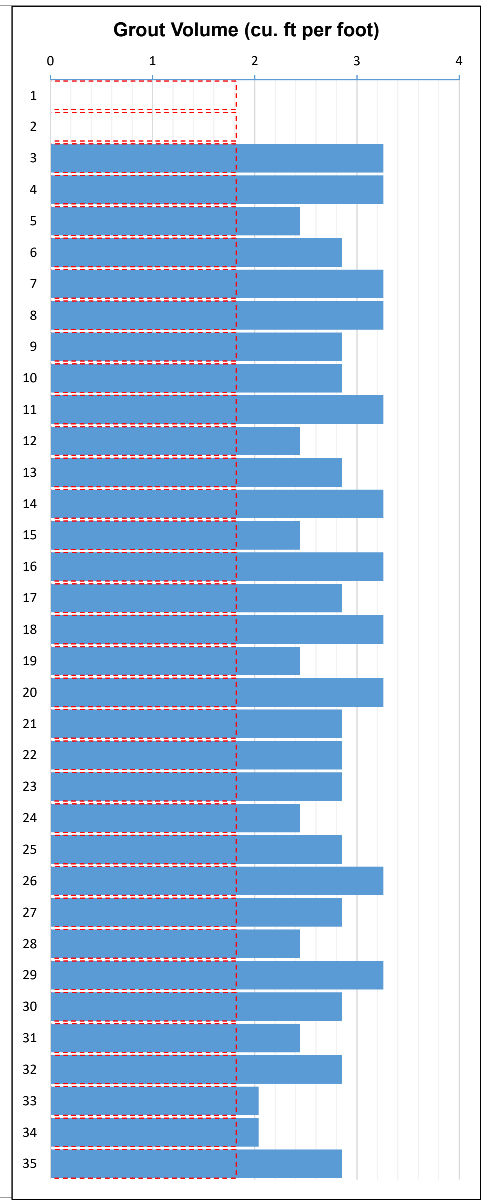
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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Project Site Data

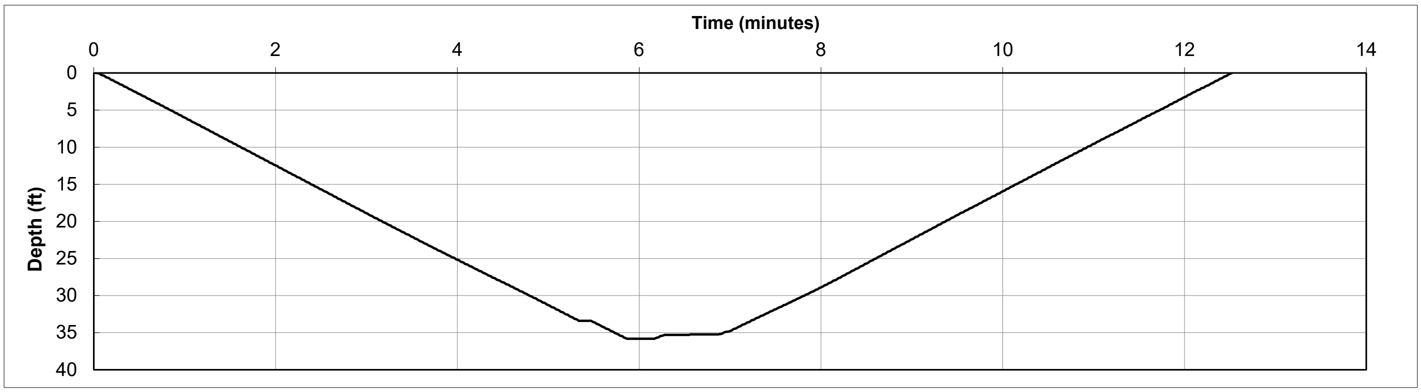
Data for Column No: 245

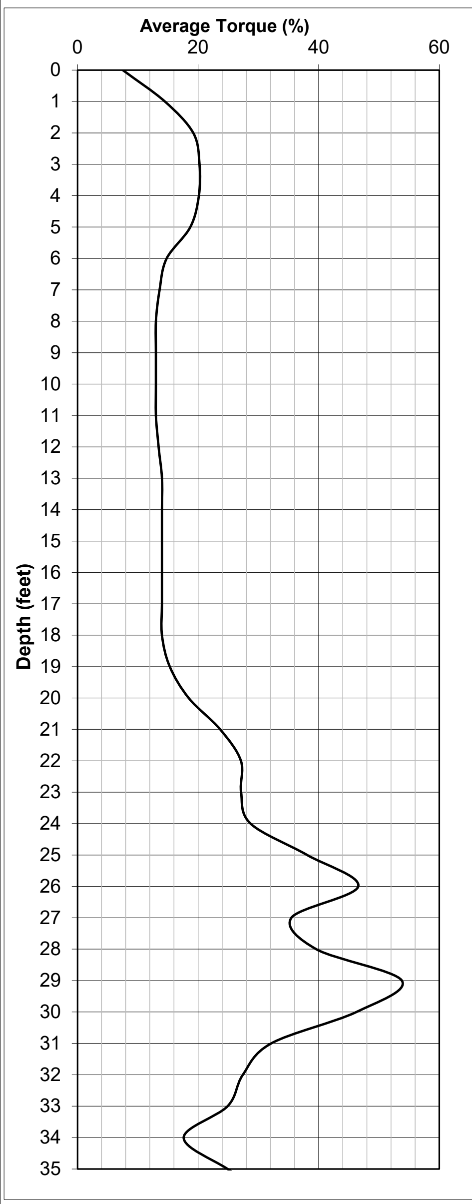
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:10 PM	Concrete Volume:	83.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:16 PM	Column Depth:	35.8	ft
		End Time:	2:23 PM	Pre Auger:		
		Total Time:	13 min			

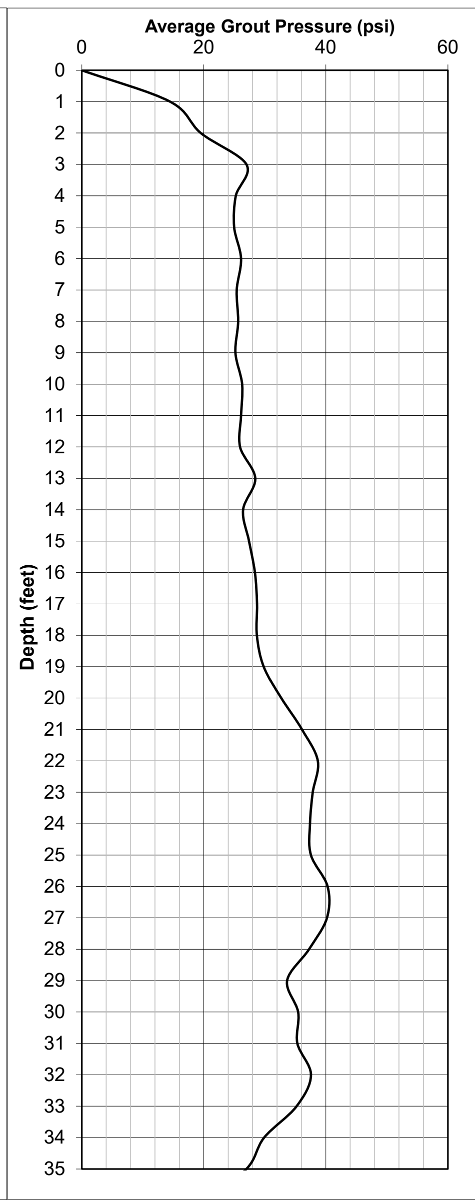
Rig Id: BG-30

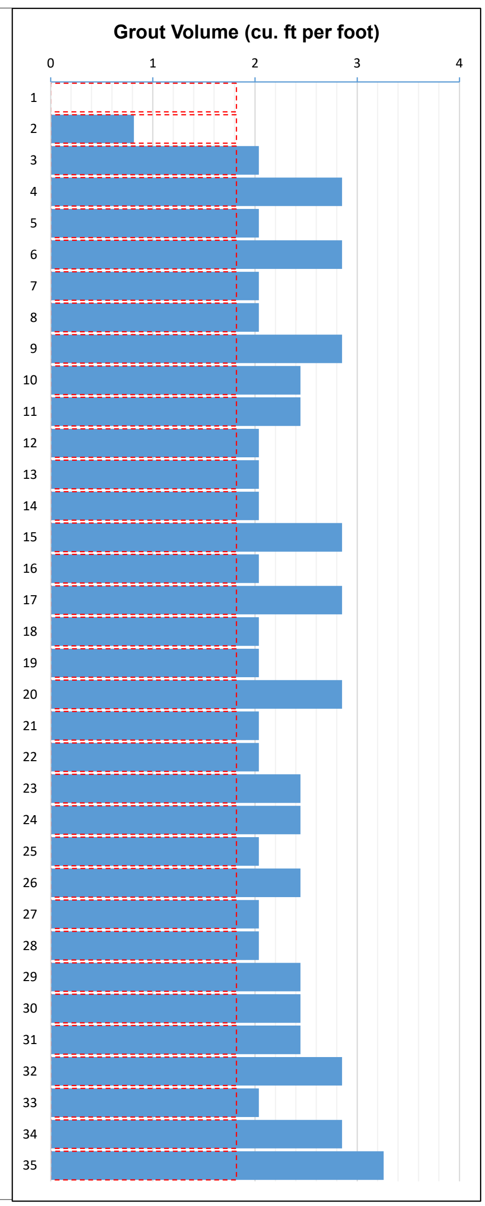
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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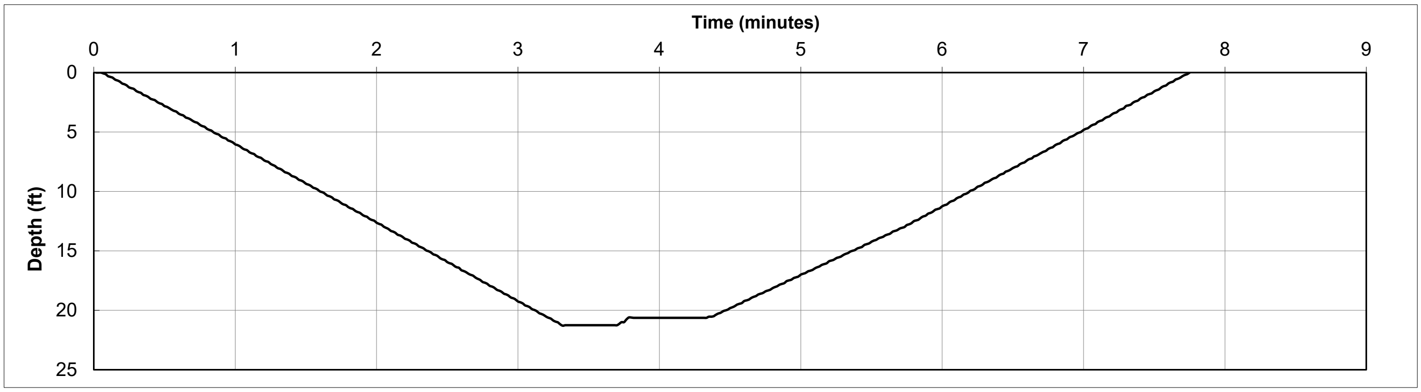
Project Site Data

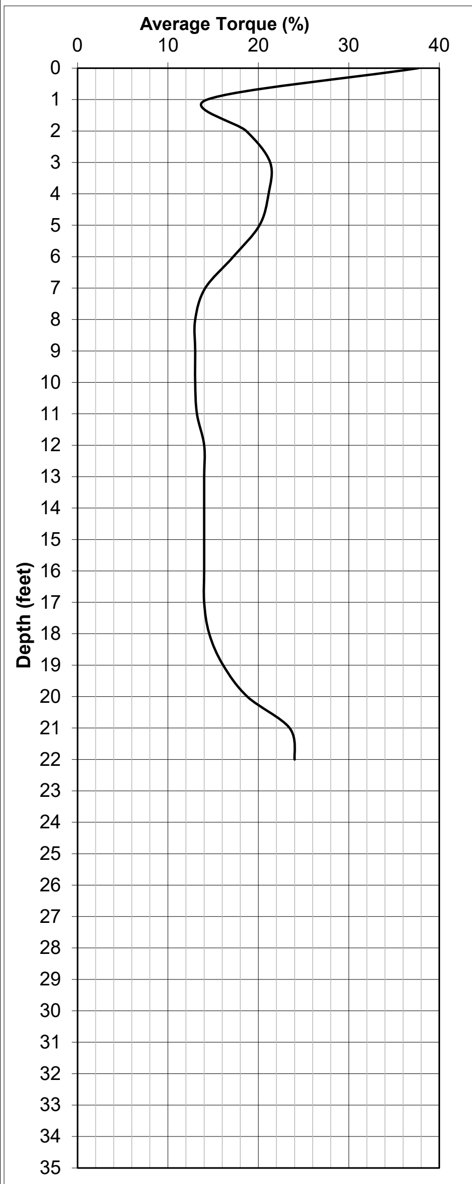
Data for Column No: 192

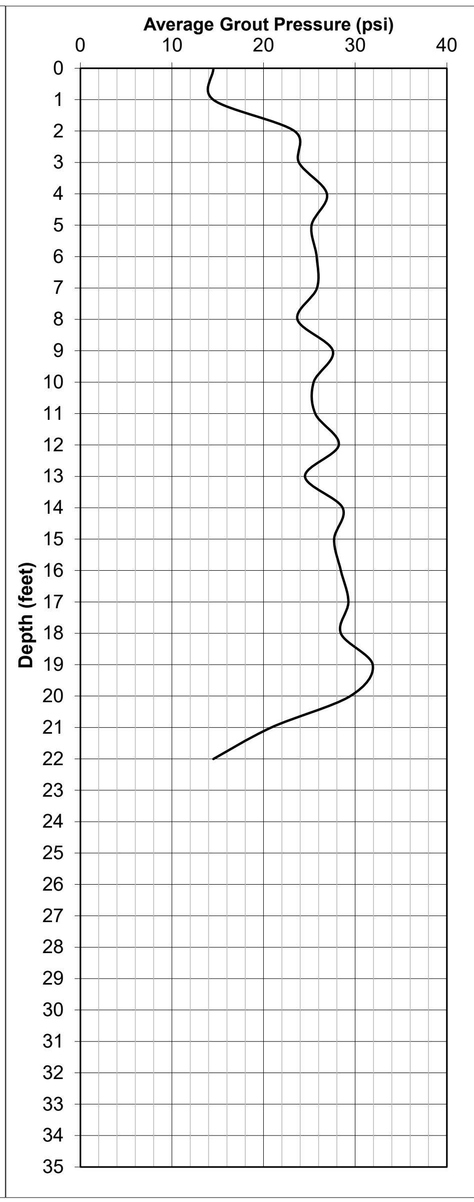
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:26 PM	Concrete Volume:	51.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:29 PM	Column Depth:	21.3	ft
		End Time:	2:33 PM	Pre Auger:		
		Total Time:	8 min			

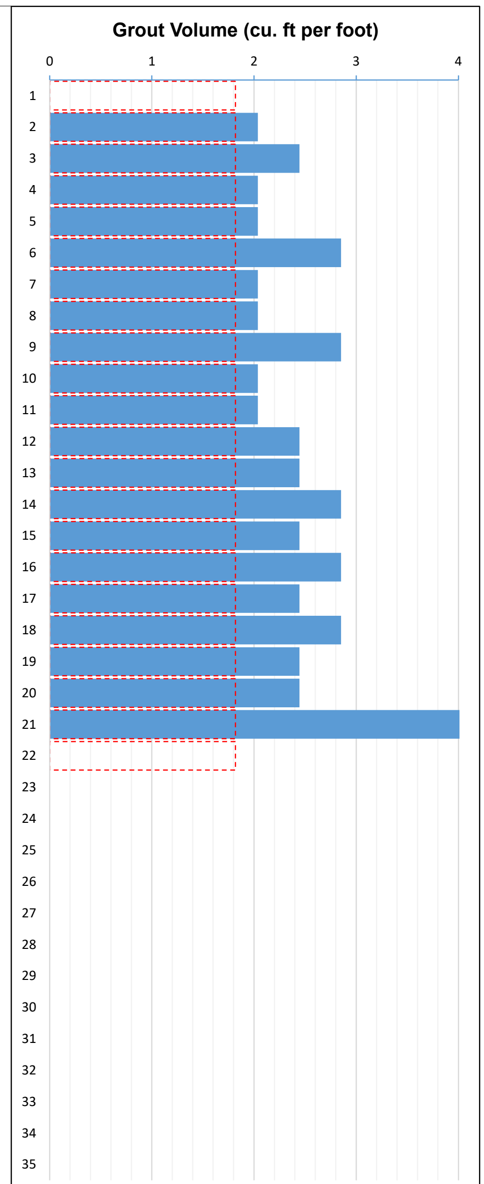
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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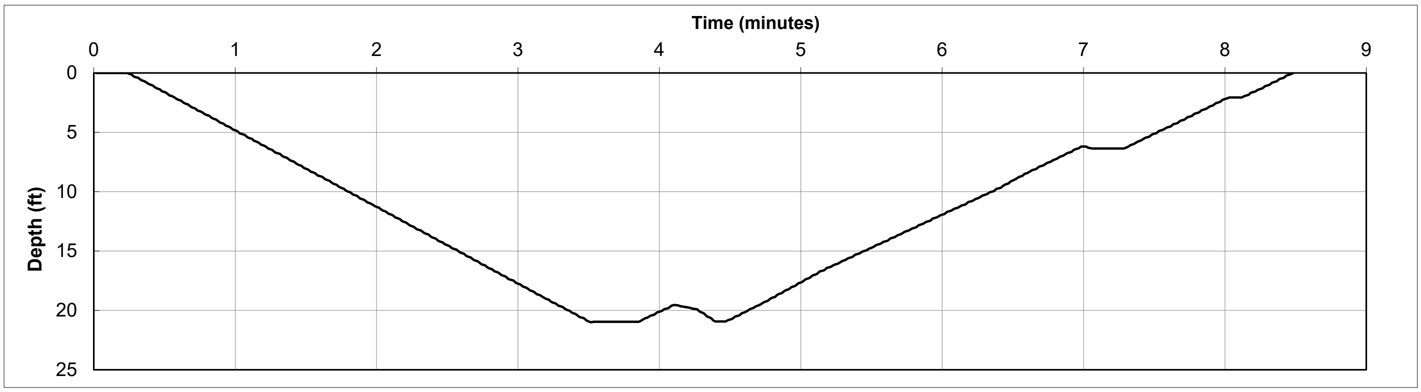
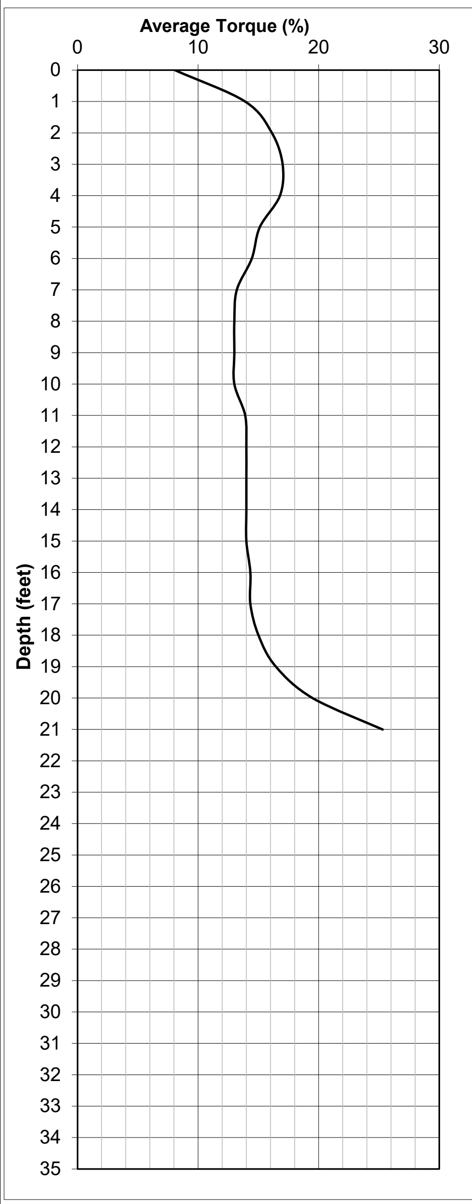
Project Site Data | **Data for Column No: 197**

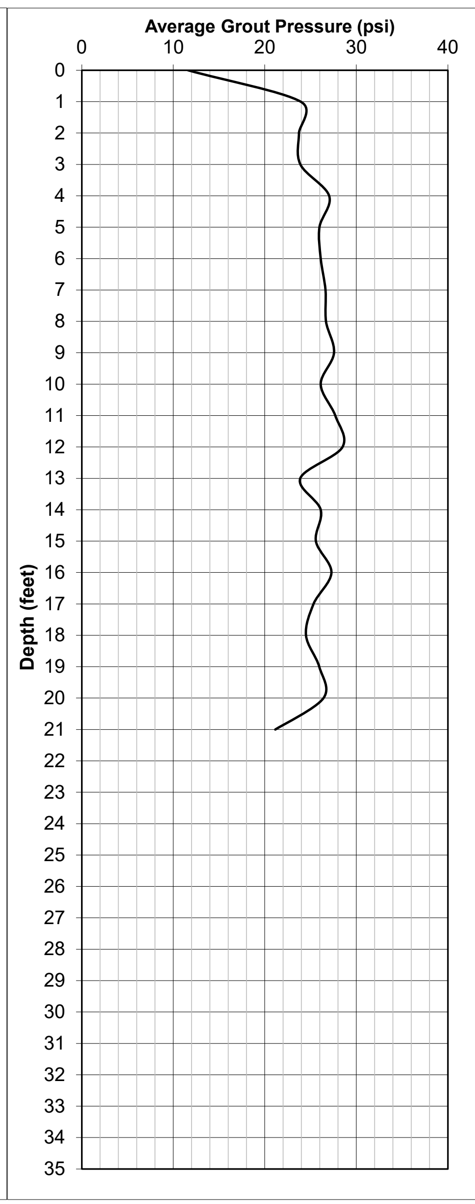
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:38 PM	Concrete Volume:	56.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:42 PM	Column Depth:	21.0	ft
		End Time:	2:47 PM	Pre Auger:		
		Total Time:	8 min			

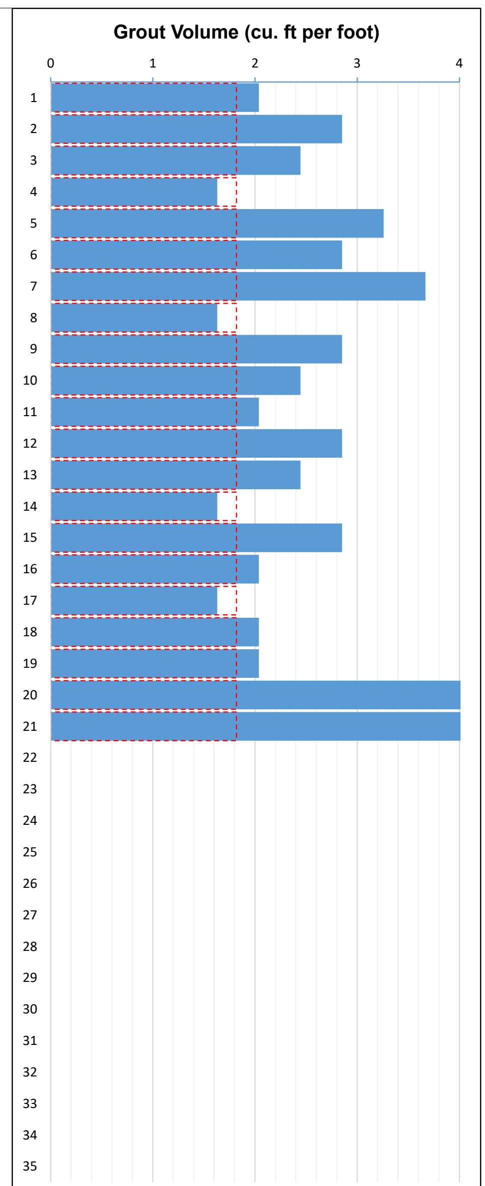
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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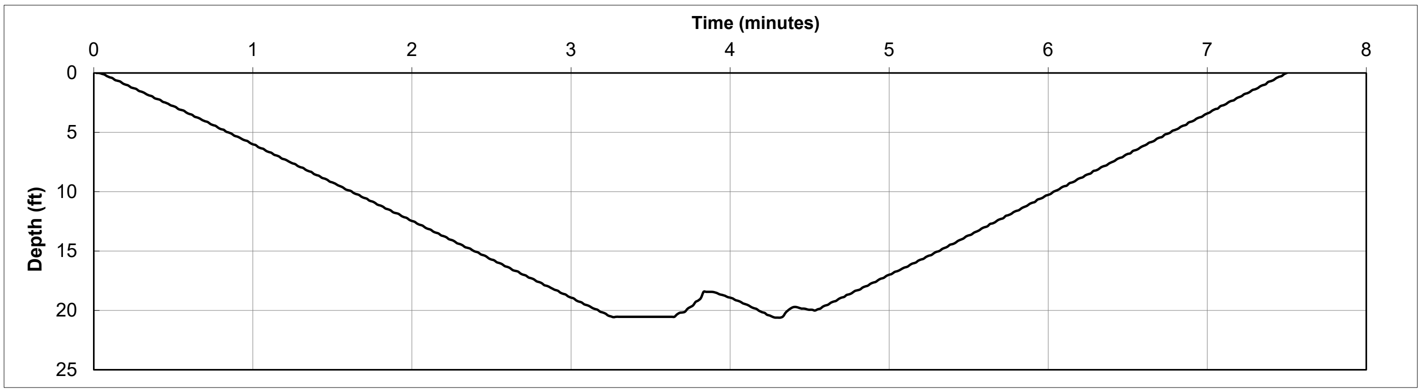
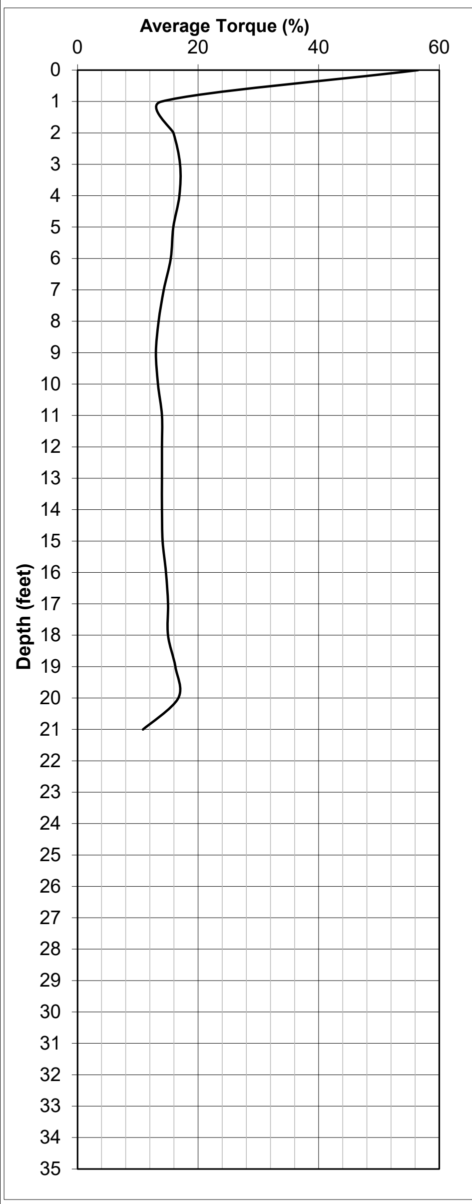
Project Site Data | **Data for Column No: 198**

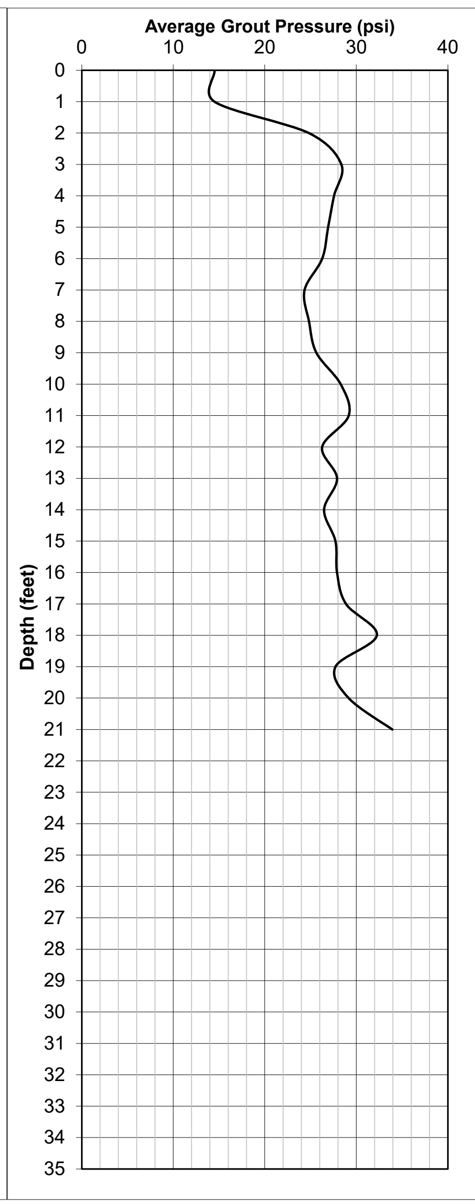
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:51 PM	Concrete Volume:	57.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:55 PM	Column Depth:	20.6	ft
		End Time:	2:58 PM	Pre Auger:		
		Total Time:	8 min			

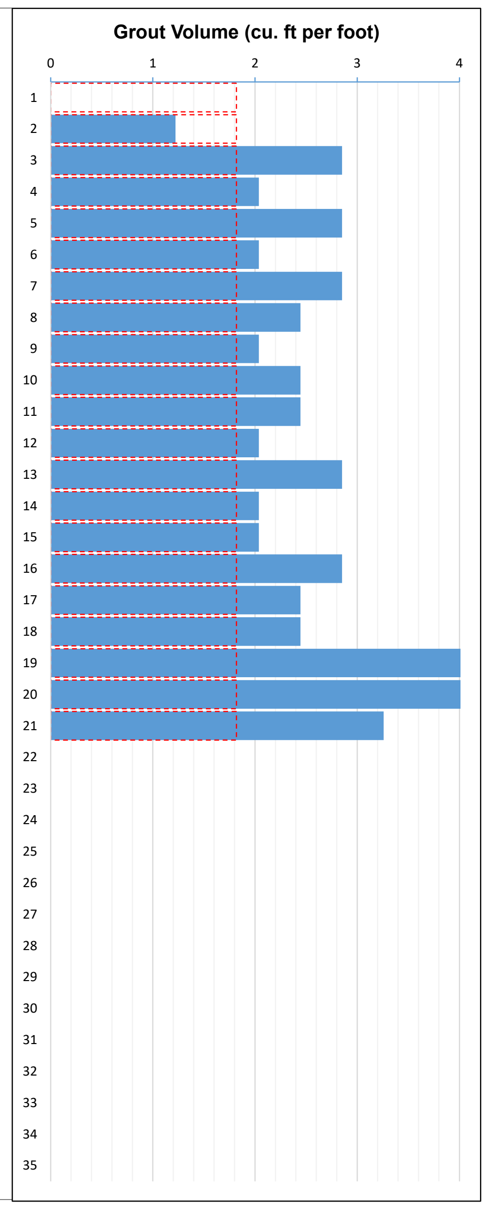
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

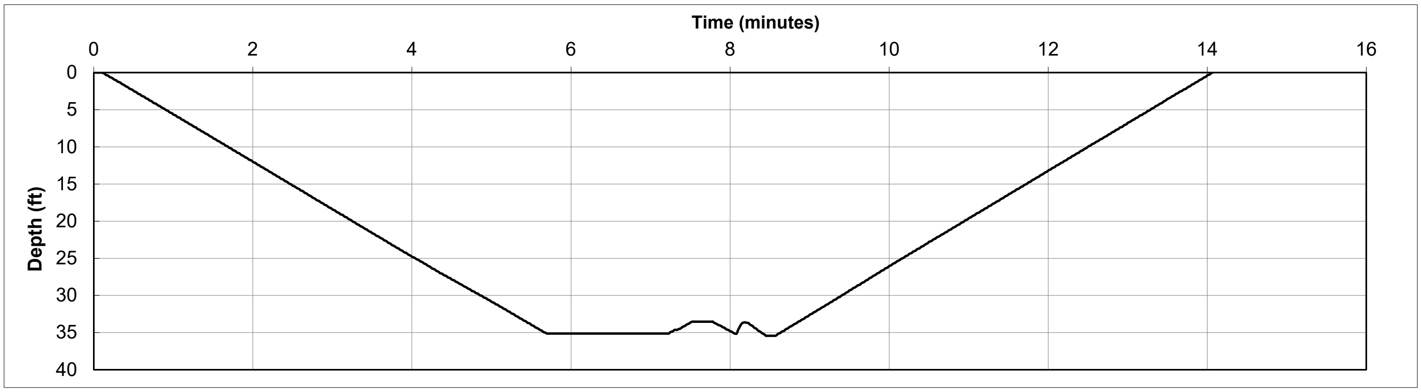
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

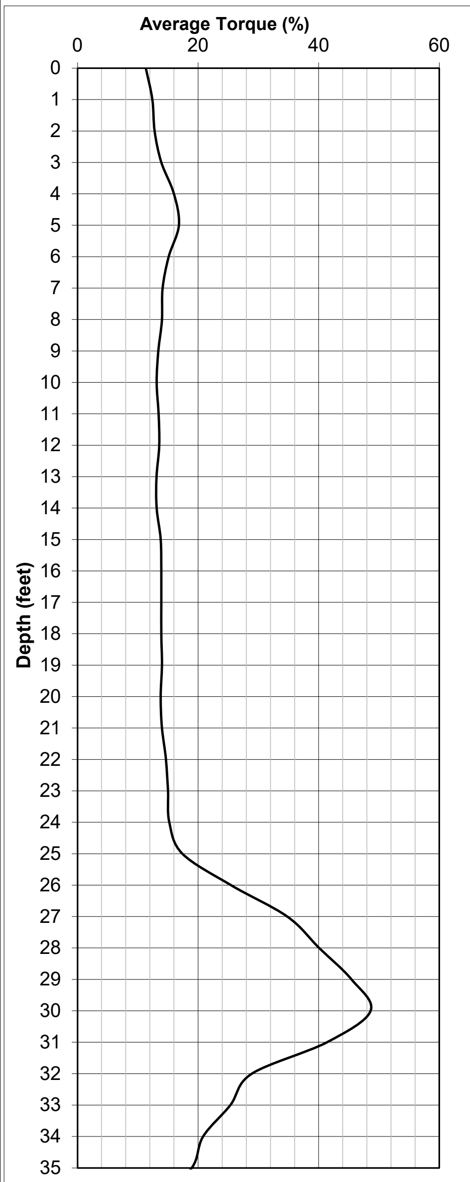
Project Site Data **Data for Column No: 154**

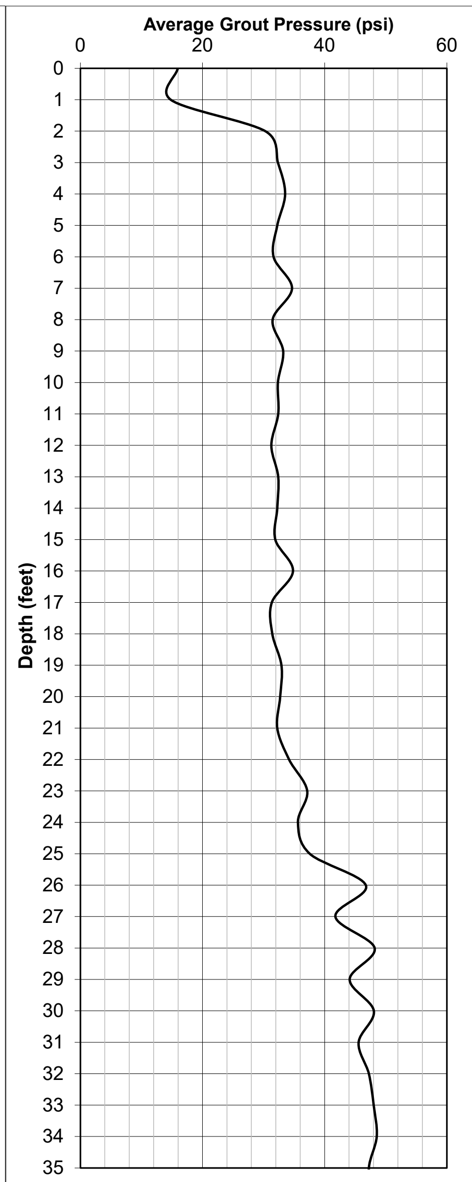
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	3:10 PM	Concrete Volume:	101.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	3:18 PM	Column Depth:	35.4	ft
		End Time:	3:24 PM	Pre Auger:		
		Total Time:	14 min			

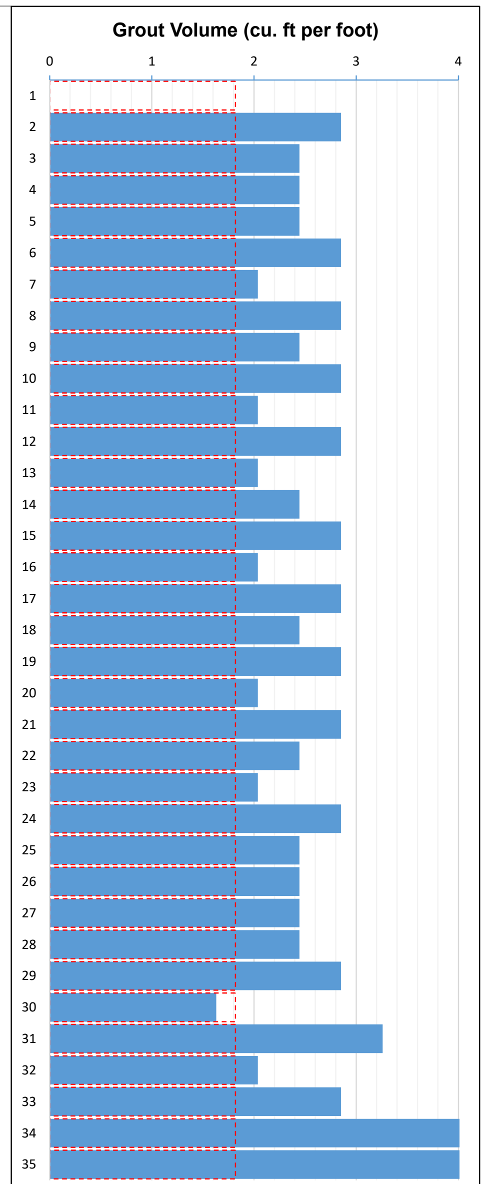
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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Lake Forest, CA 92630
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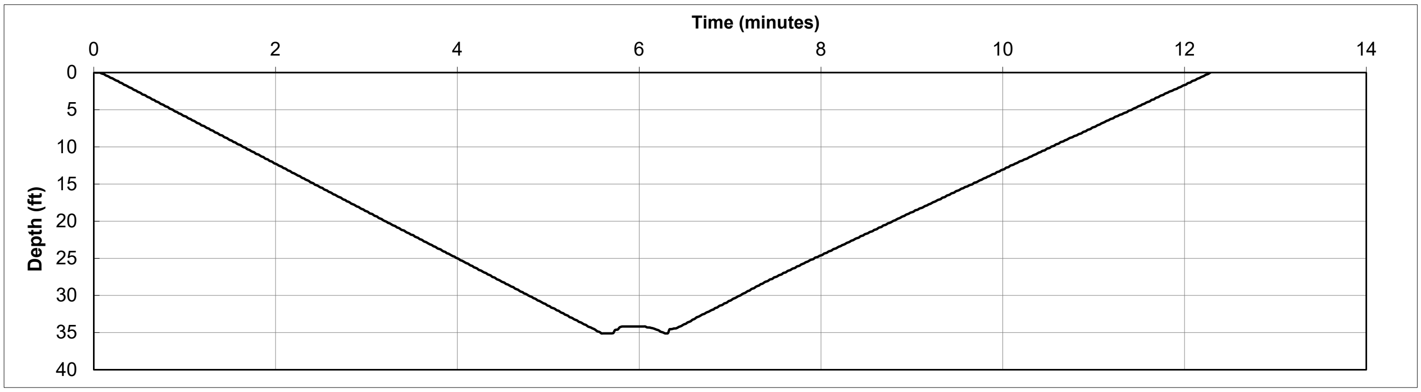
Project Site Data

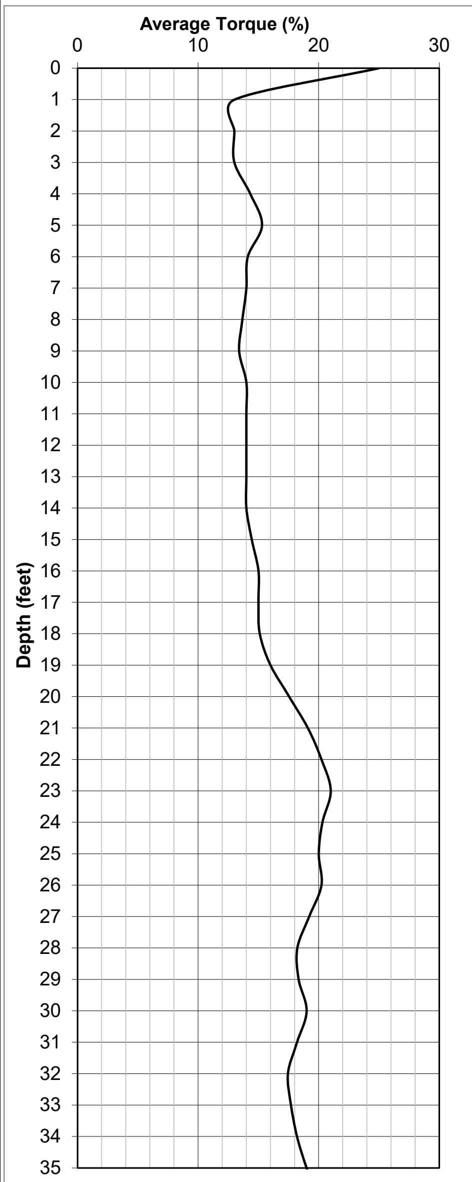
Data for Column No: 153

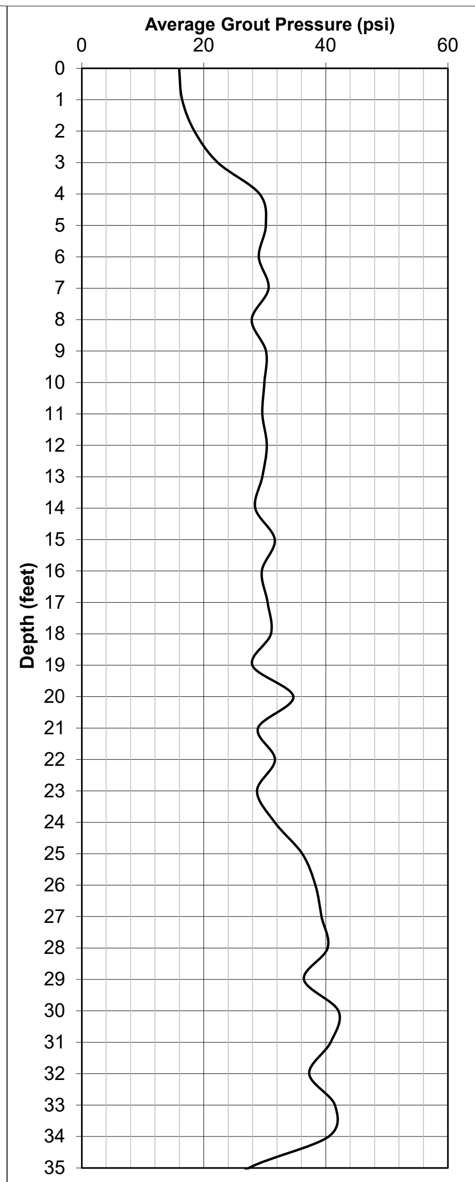
Project Name:	Oxnard College Fire Training	Date:	12/7/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	3:42 PM	Concrete Volume:	94.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	3:49 PM	Column Depth:	35.1	ft
		End Time:	3:55 PM	Pre Auger:		
		Total Time:	12 min			

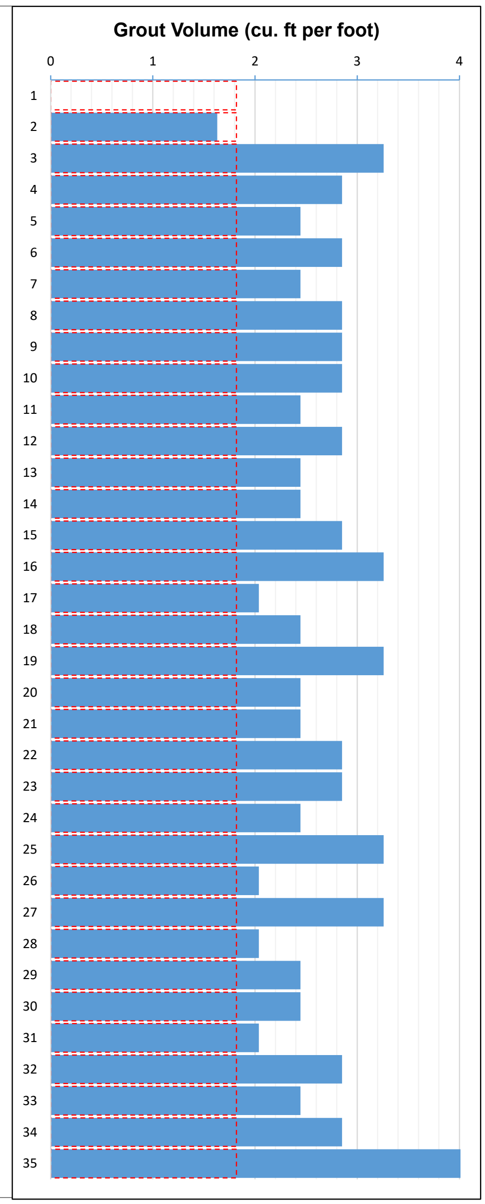
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









ADVANCED GEOSOLUTIONS INC
Daily Production Summary- Displacement Grout Columns

Project No. : **P271275**
Project Name: Oxnard College Fire Training Academy
Rig: BG-30
Rig Operator: James "Smitty" Smith
Oiler: Benny Sandoval

Date: Tuesday, December 8, 2020

Seq. No	Rig No.	Col. ID	Start Time	Bottom Time	End Time	Surface Elev.	Column Depth (ft)	*Act. Tip Elev.*	Concrete Volume (cu. feet)	Truck ID	Comments
1		196	09:12	09:16	09:21	74.4	20.6	53.8	54	42658961	
2		151	10:14	10:20	10:28	74.4	35.1	39.3	117	42658961	
3		211	10:33	10:39	10:56	74.4	35.1	39.3	81	42658961	
4		150	13:05	13:11	13:19	74.4	35.1	39.3	112	42658971	
5		195	13:23	13:26	13:31	74.4	20.6	53.8	59	42658971	
6		218	13:33	13:40	13:46	74.4	35.1	39.3	91	42658973	
7		148	13:49	13:55	14:02	74.4	35.2	39.2	97	42658973	
8		194	15:15	15:19	15:23	74.4	20.1	54.3	62	42658973	
9		225	16:13	16:18	16:26	74.4	35.2	39.2	115	42658985	
10		146	16:43	16:50	16:57	74.4	35.3	39.1	117	42658985	
11		193	17:01	17:05	17:09	74.4	21.2	53.2	55	42658992	
12		144	17:13	17:19	17:25	74.4	35.1	39.3	88	42658992	

DGC Log Sheet

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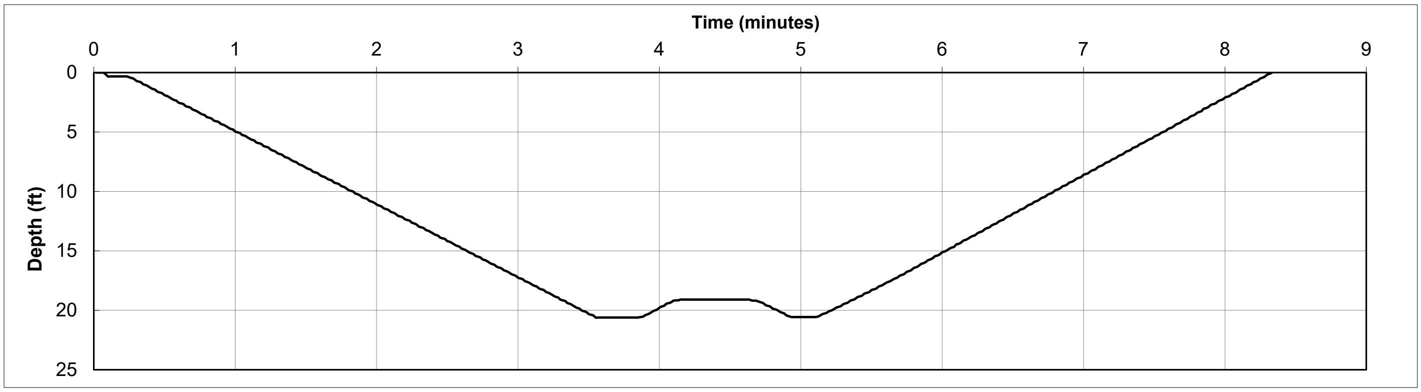
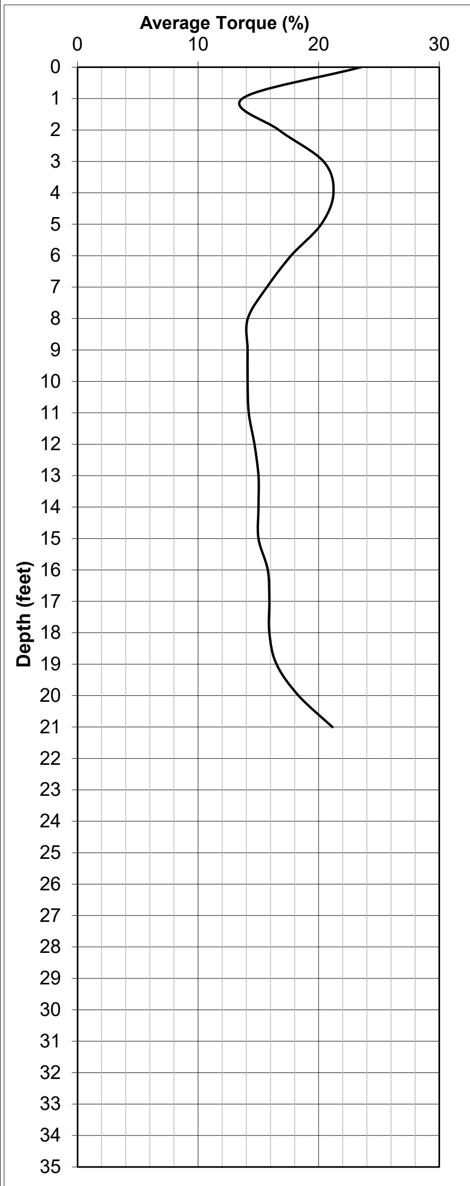
Project Site Data | **Data for Column No: 196**

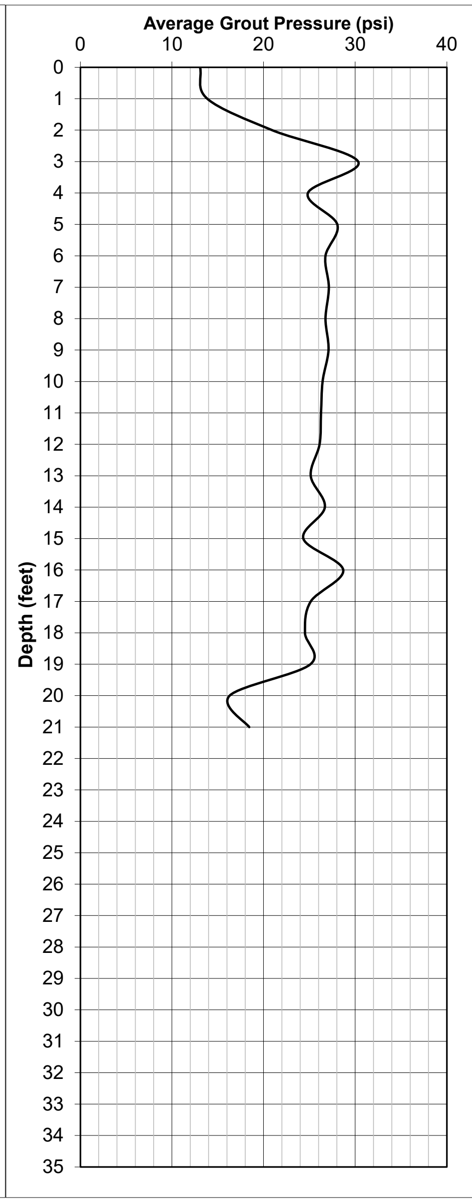
Project Name:	Oxnard College Fire Training	Date:	12/8/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:12 AM	Concrete Volume:	53.8	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:16 AM	Column Depth:	20.6	ft
		End Time:	9:21 AM	Pre Auger:		
		Total Time:	8 min			

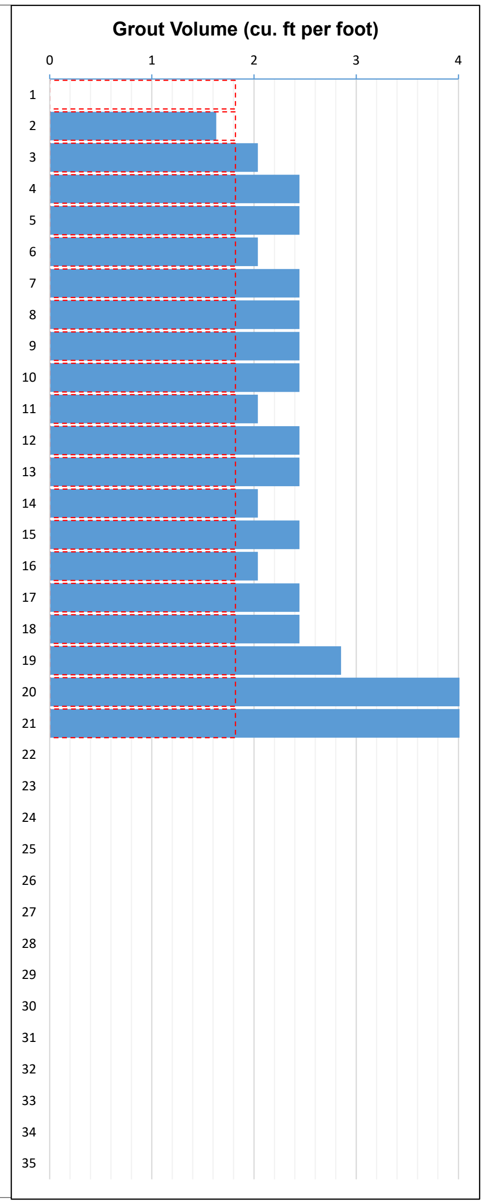
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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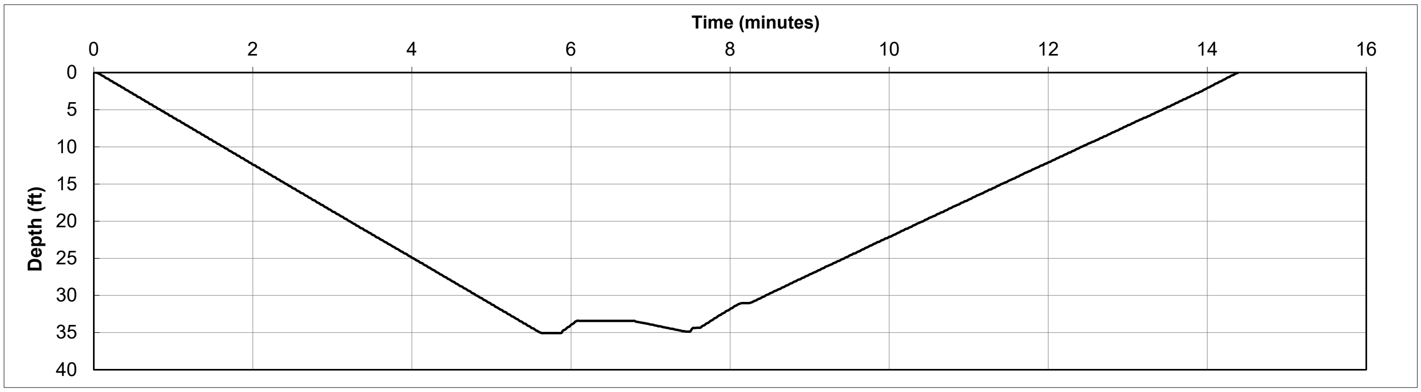
Project Site Data

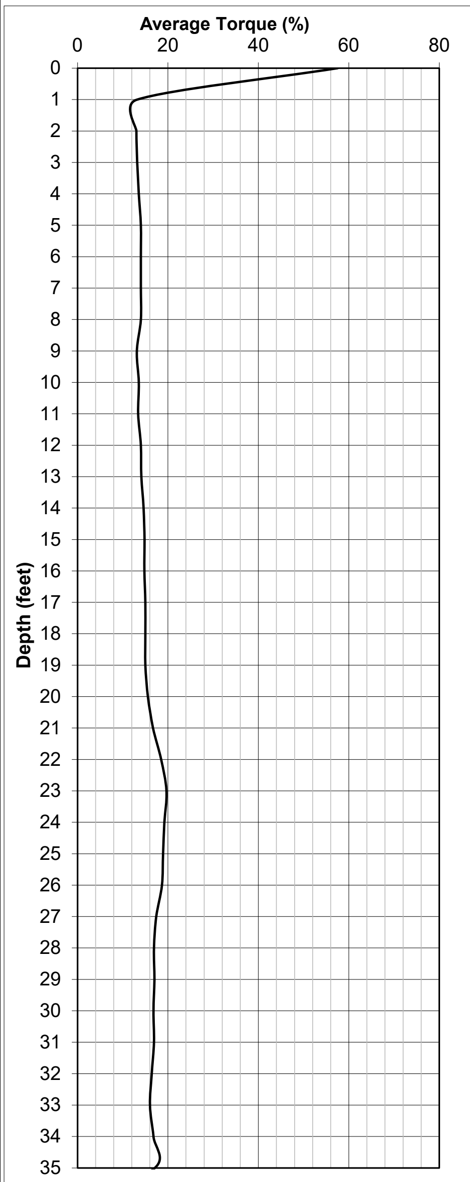
Data for Column No: 151

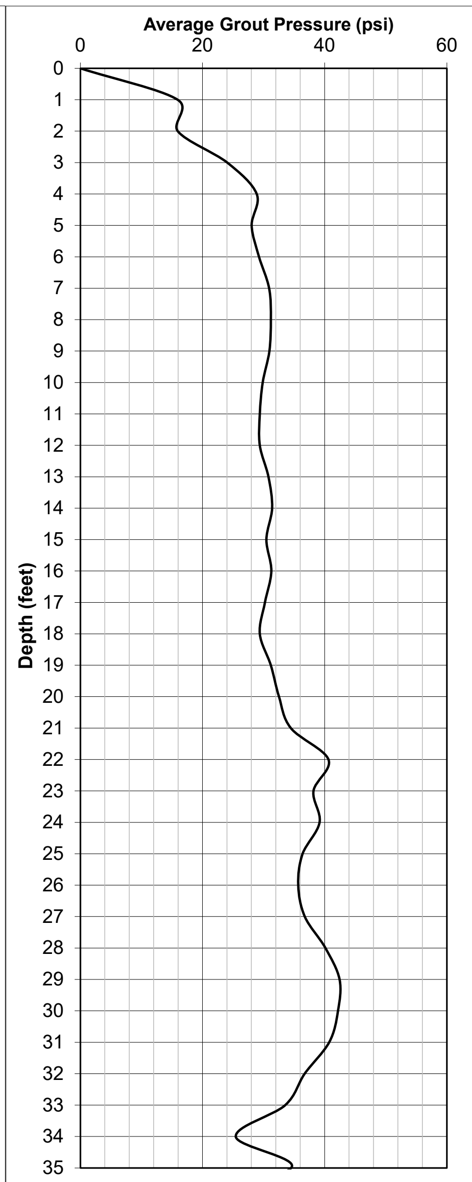
Project Name:	Oxnard College Fire Training	Date:	12/8/20	Nominal Diameter:	16 in
Project Location:	Camarillo, CA	Start Time:	10:14 AM	Concrete Volume:	60.3 cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:20 AM	Column Depth:	35.1 ft
		End Time:	10:28 AM	Pre Auger:	
		Total Time:	14 min		

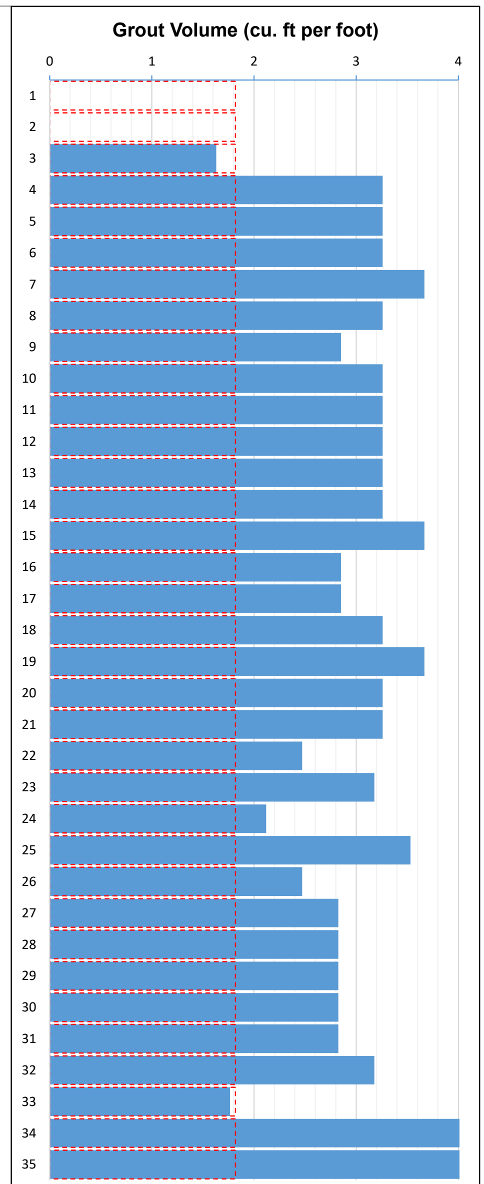
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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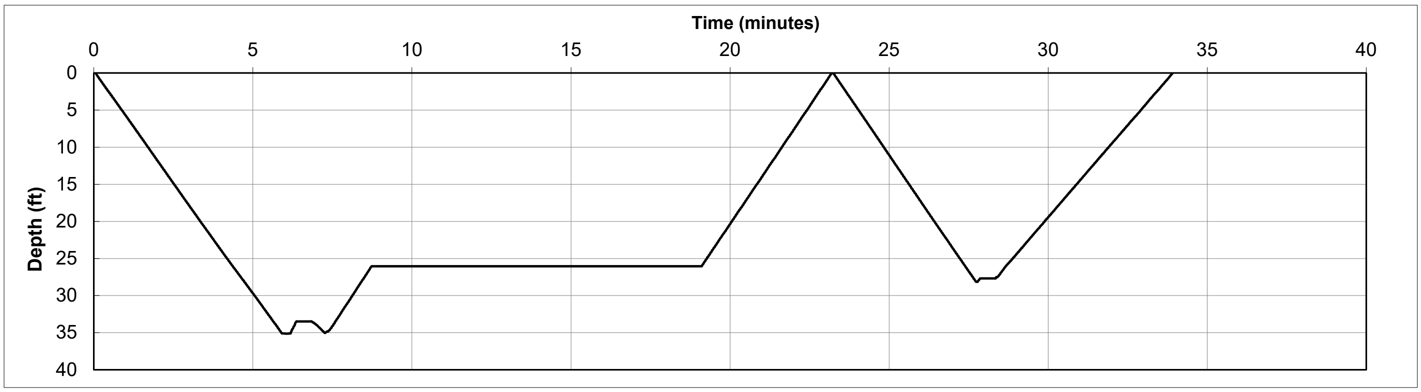
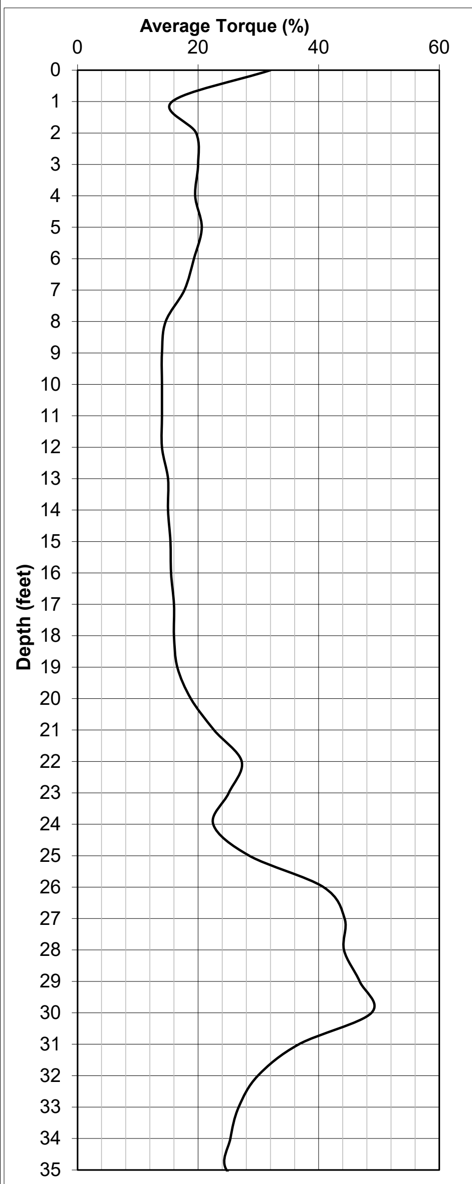
Project Site Data **Data for Column No: 211**

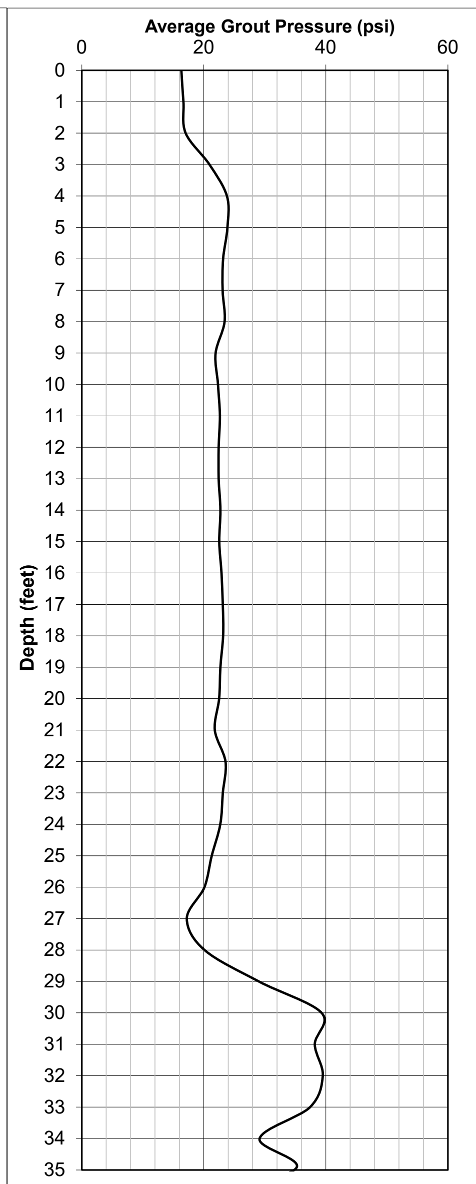
Project Name:	Oxnard College Fire Training	Date:	12/8/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:33 AM	Concrete Volume:	81.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:39 AM	Column Depth:	35.1	ft
		End Time:	12:47 PM	Pre Auger:		
		Total Time:	134 min			

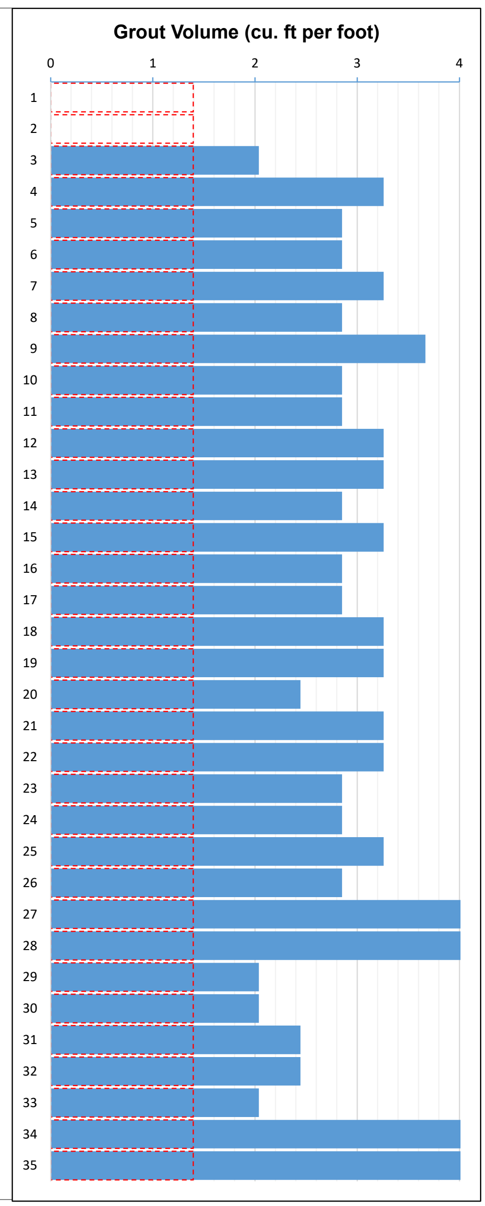
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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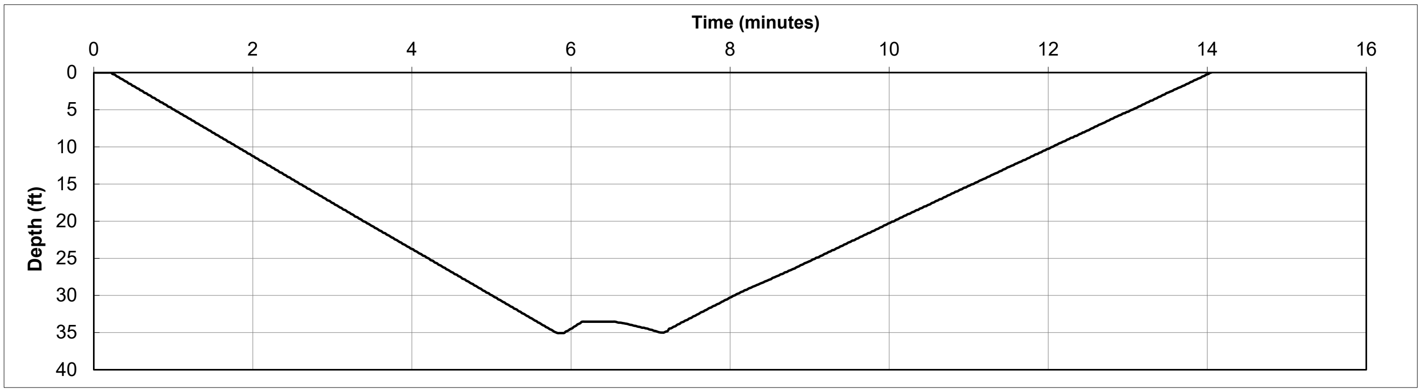
Project Site Data

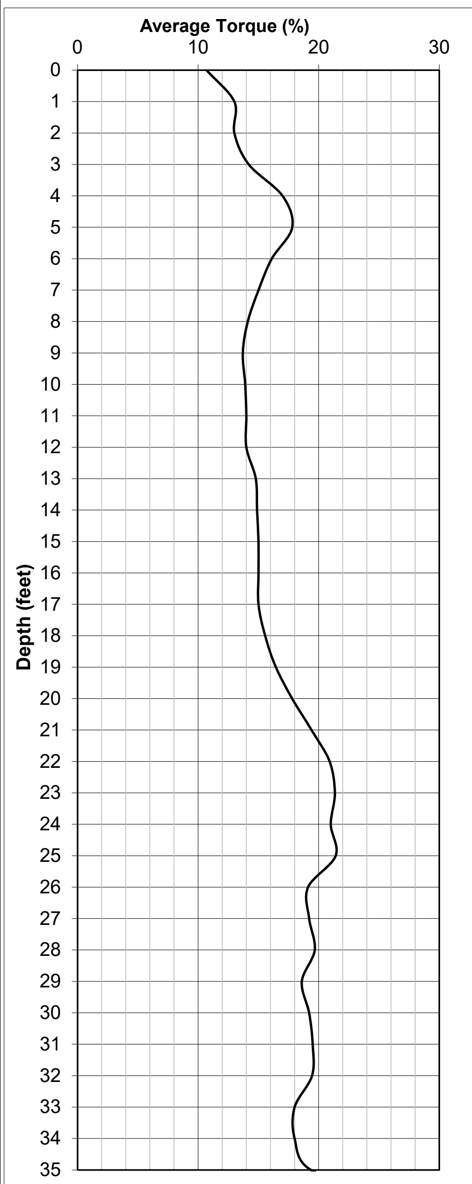
Data for Column No: 150

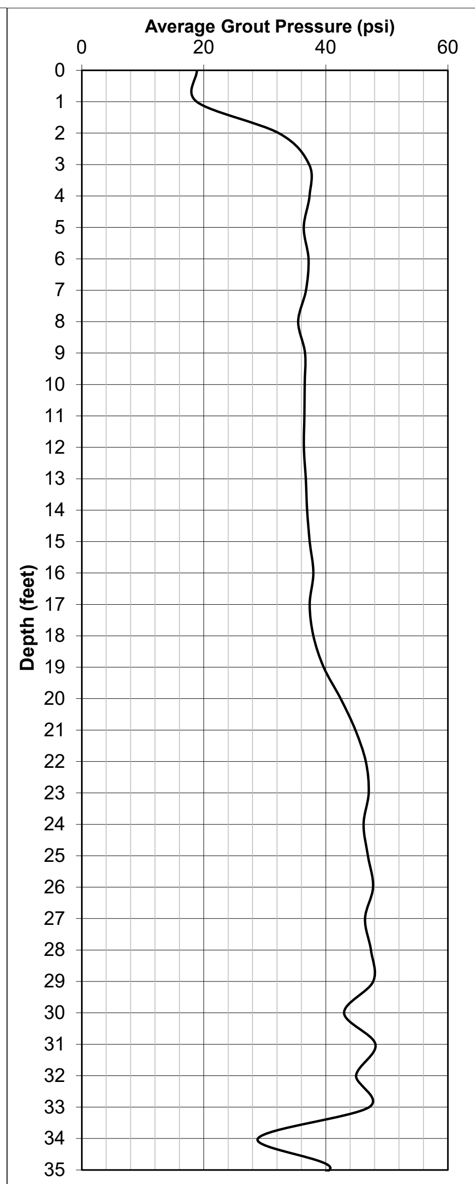
Project Name:	Oxnard College Fire Training	Date:	12/8/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:05 PM	Concrete Volume:	60.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:11 PM	Column Depth:	35.1	ft
		End Time:	1:19 PM	Pre Auger:		
		Total Time:	14 min			

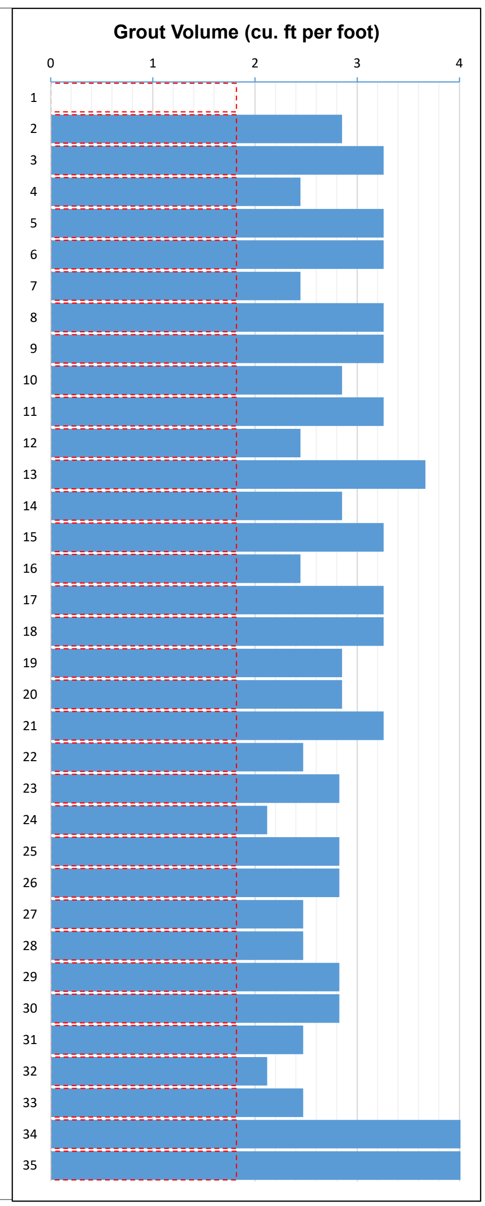
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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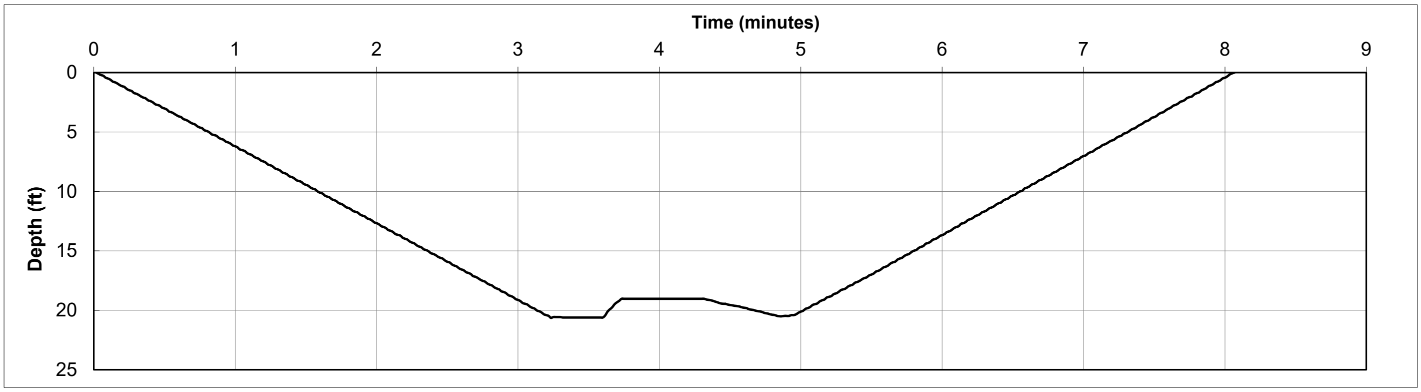
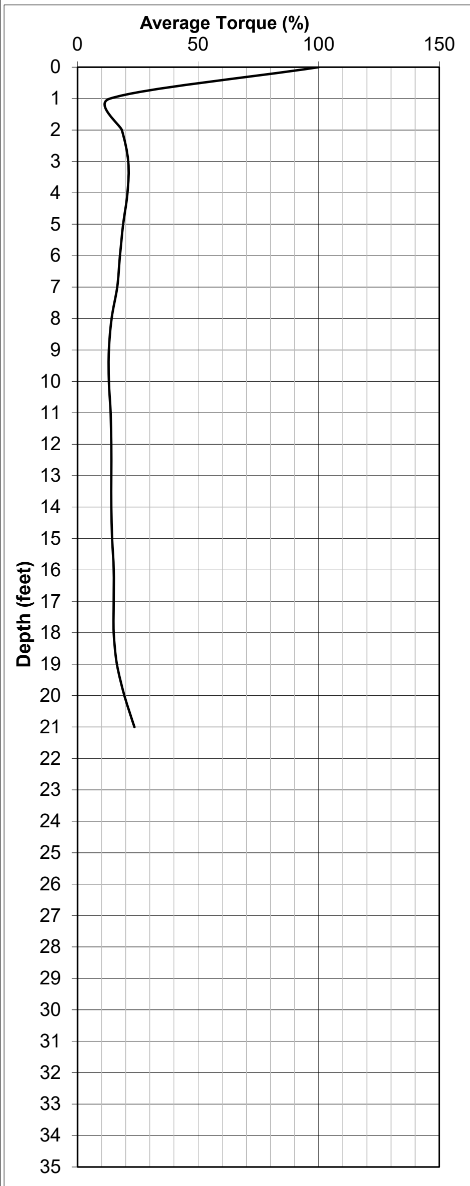
Project Site Data — **Data for Column No: 195**

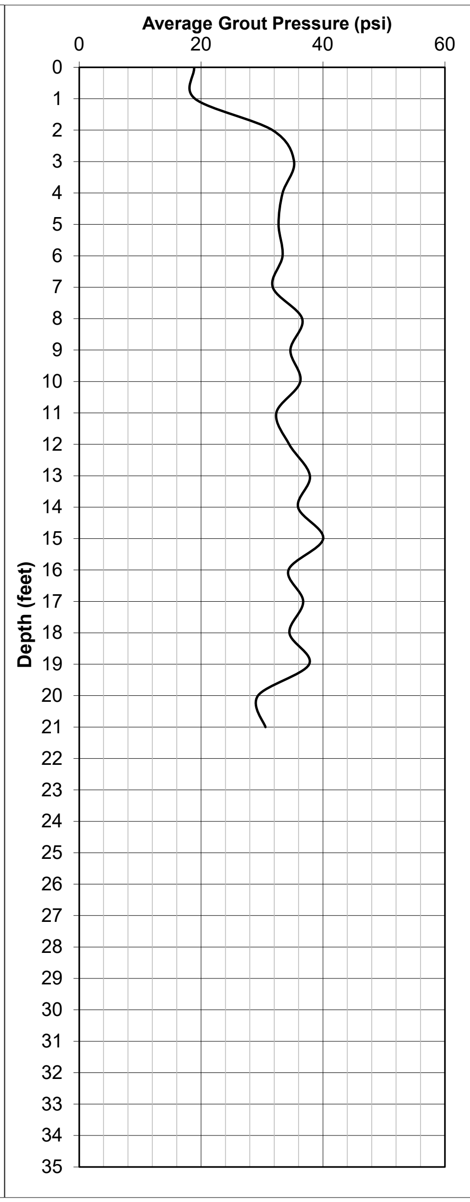
Project Name:	Oxnard College Fire Training	Date:	12/8/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:23 PM	Concrete Volume:	58.7	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:26 PM	Column Depth:	20.6	ft
		End Time:	1:31 PM	Pre Auger:		
		Total Time:	8 min			

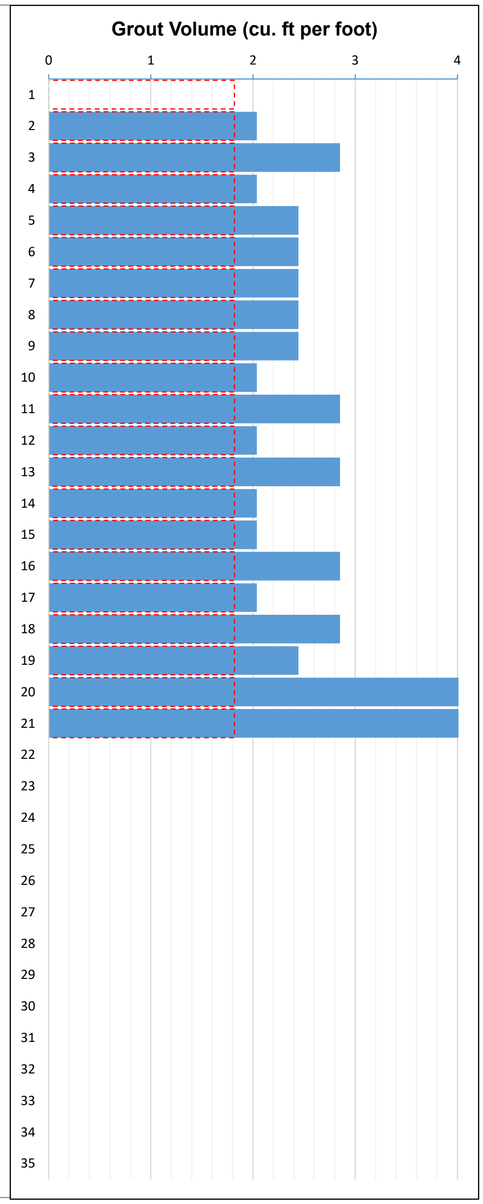
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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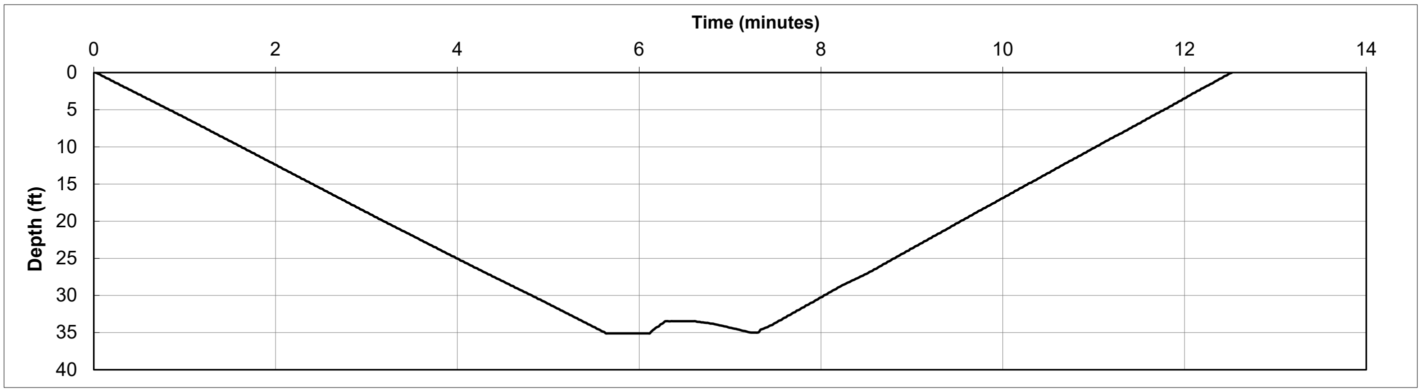
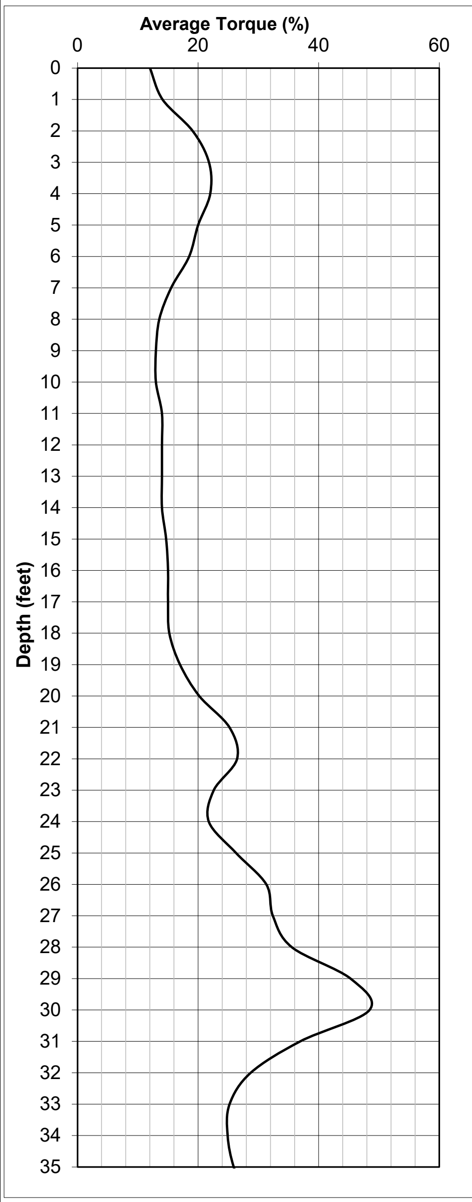
Project Site Data | **Data for Column No: 218**

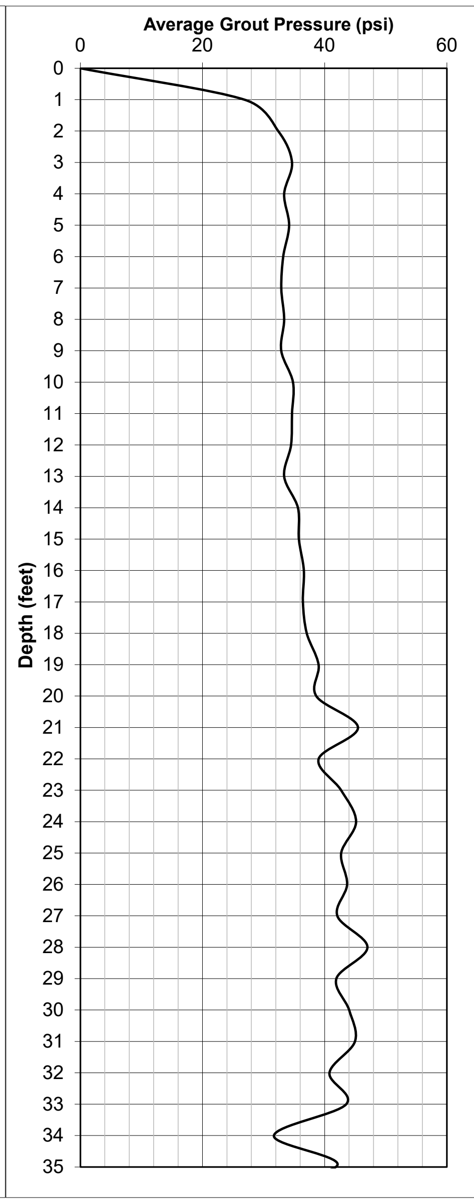
Project Name:	Oxnard College Fire Training	Date:	12/8/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:33 PM	Concrete Volume:	46.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:40 PM	Column Depth:	35.1	ft
		End Time:	1:46 PM	Pre Auger:		
		Total Time:	13 min			

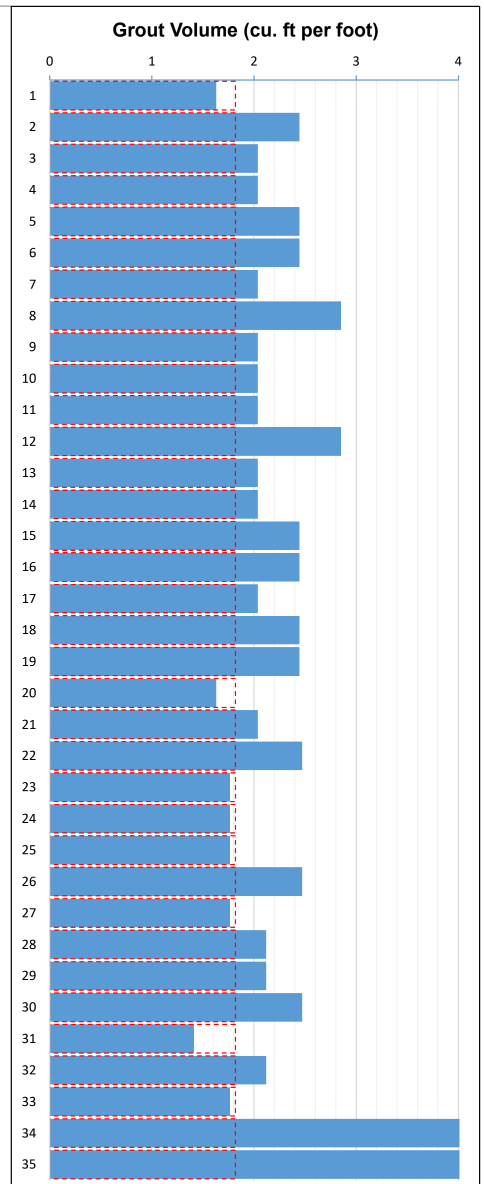
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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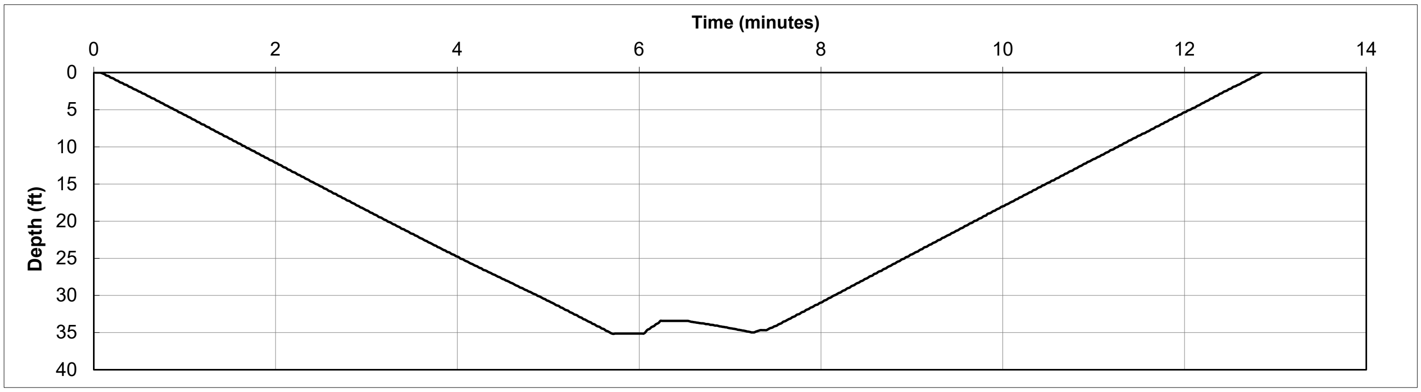
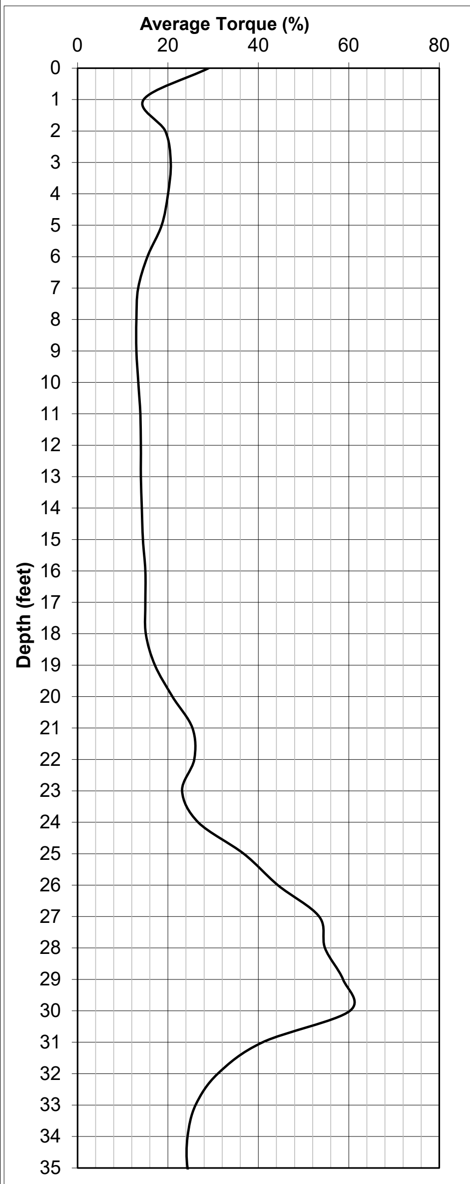
Project Site Data — **Data for Column No: 148**

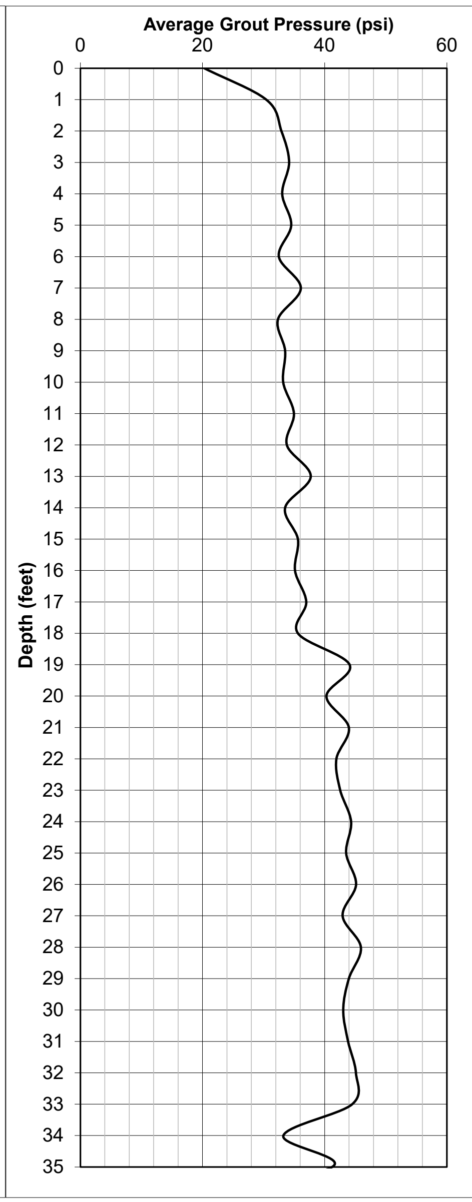
Project Name:	Oxnard College Fire Training	Date:	12/8/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:49 PM	Concrete Volume:	50.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:55 PM	Column Depth:	35.2	ft
		End Time:	2:02 PM	Pre Auger:		
		Total Time:	13 min			

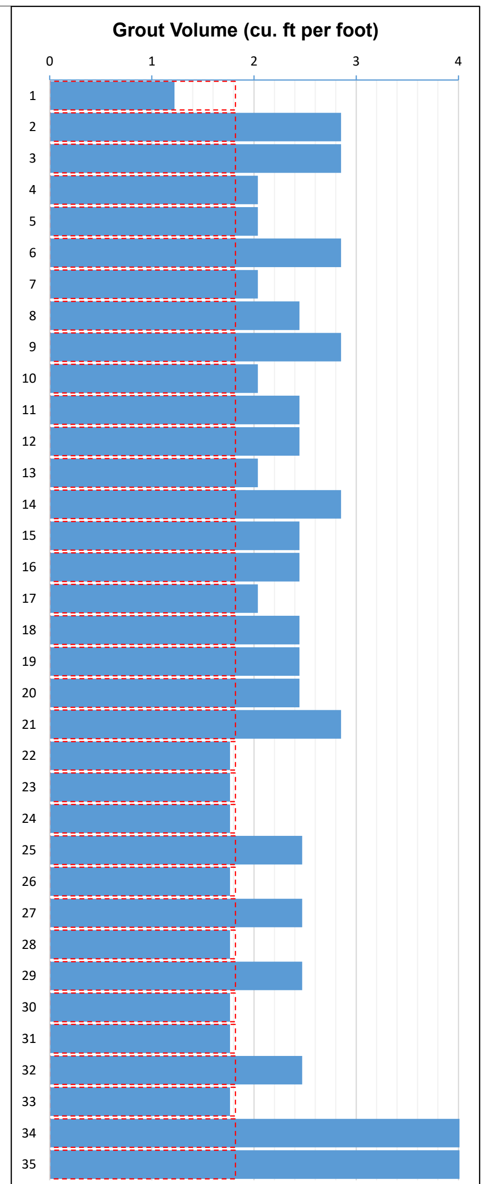
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
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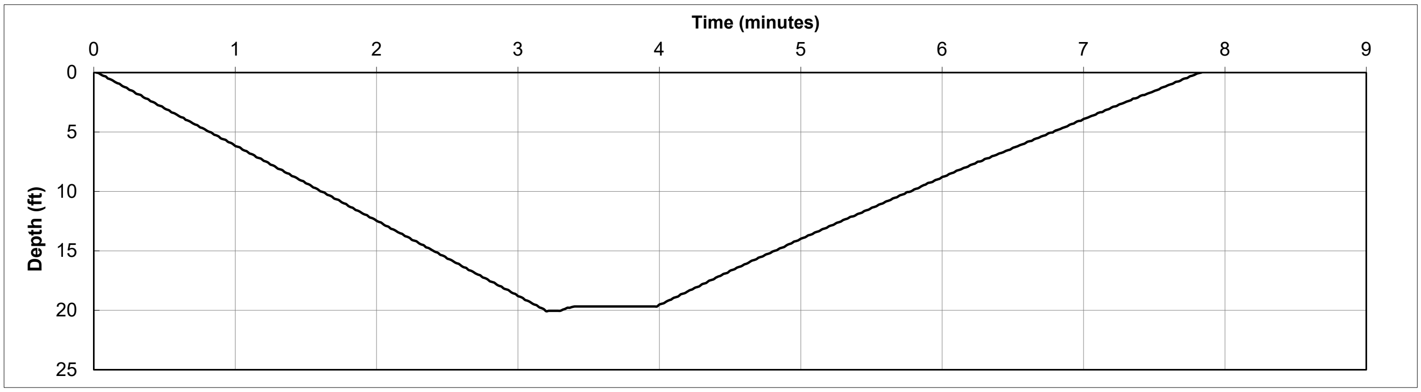
Project Site Data

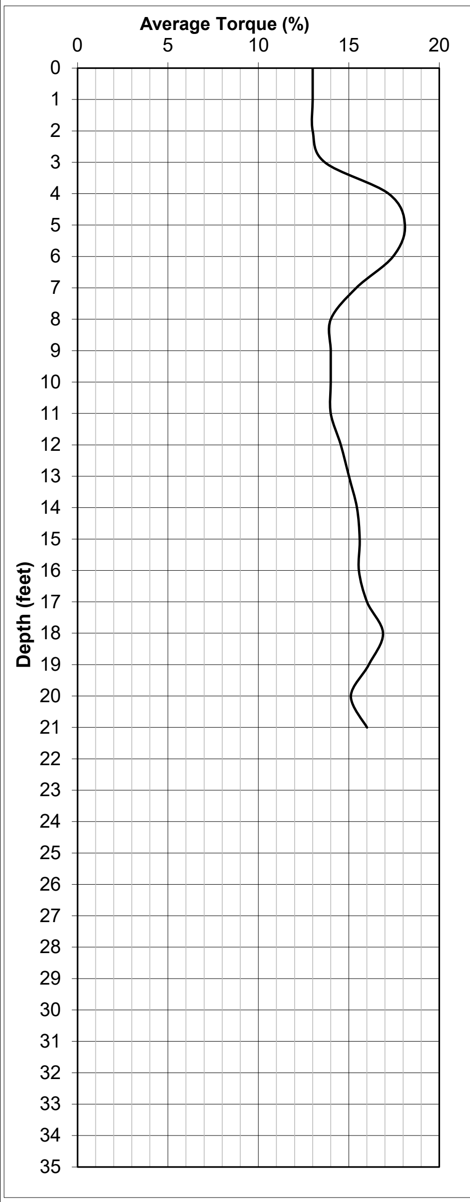
Data for Column No: 194

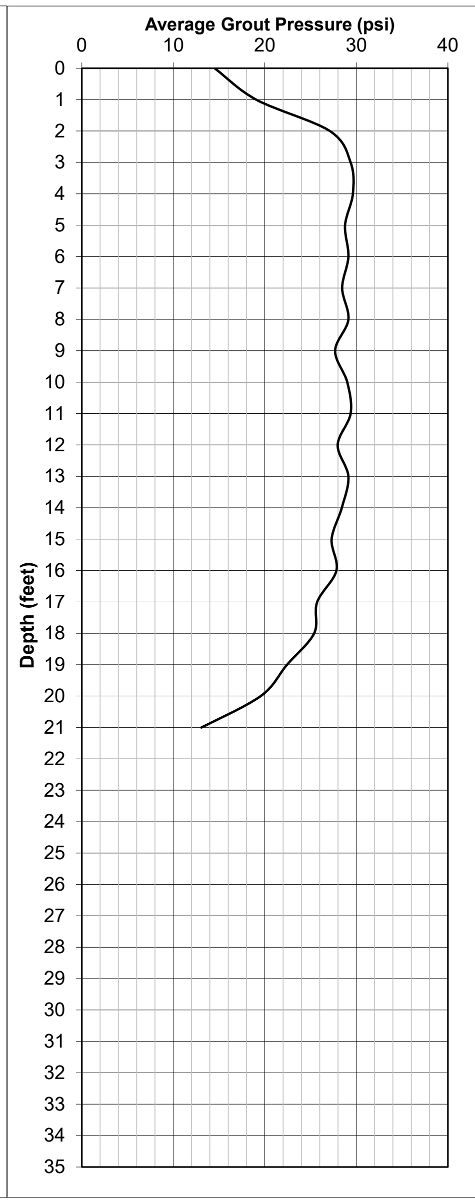
Project Name:	Oxnard College Fire Training	Date:	12/8/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	3:15 PM	Concrete Volume:	61.9	cubic ft
General Contractor:	Oxnard College	Bottom Time:	3:19 PM	Column Depth:	20.1	ft
		End Time:	3:23 PM	Pre Auger:		
		Total Time:	8 min			

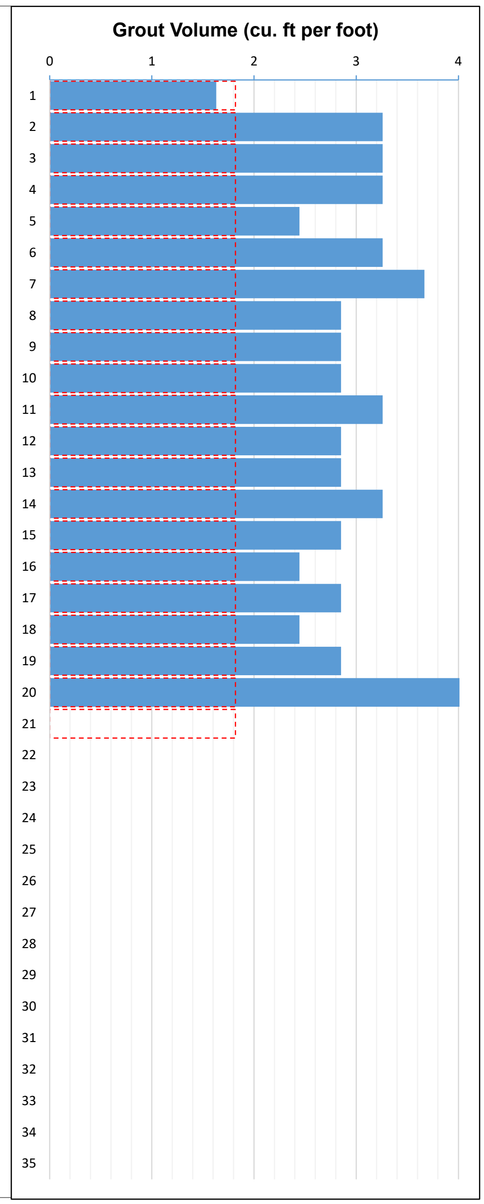
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
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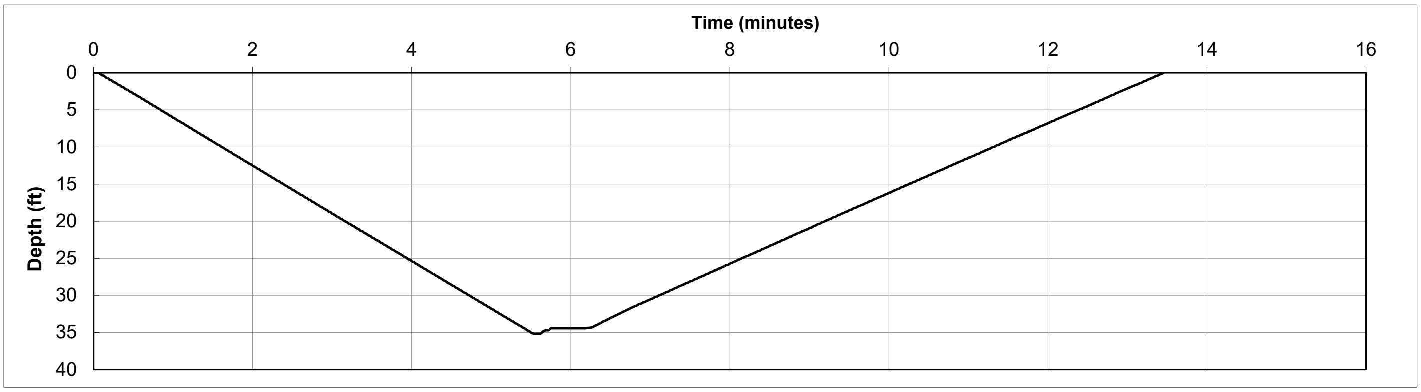
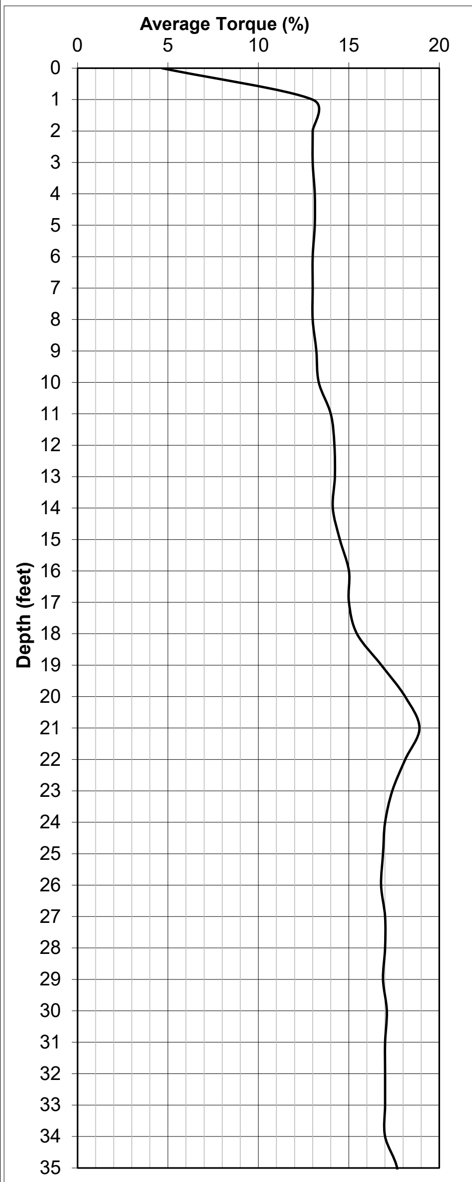
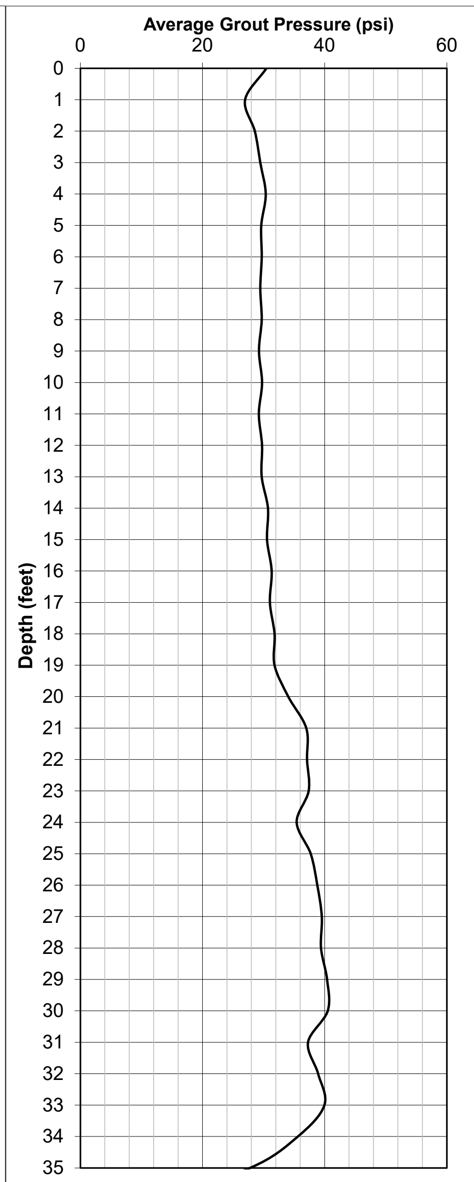
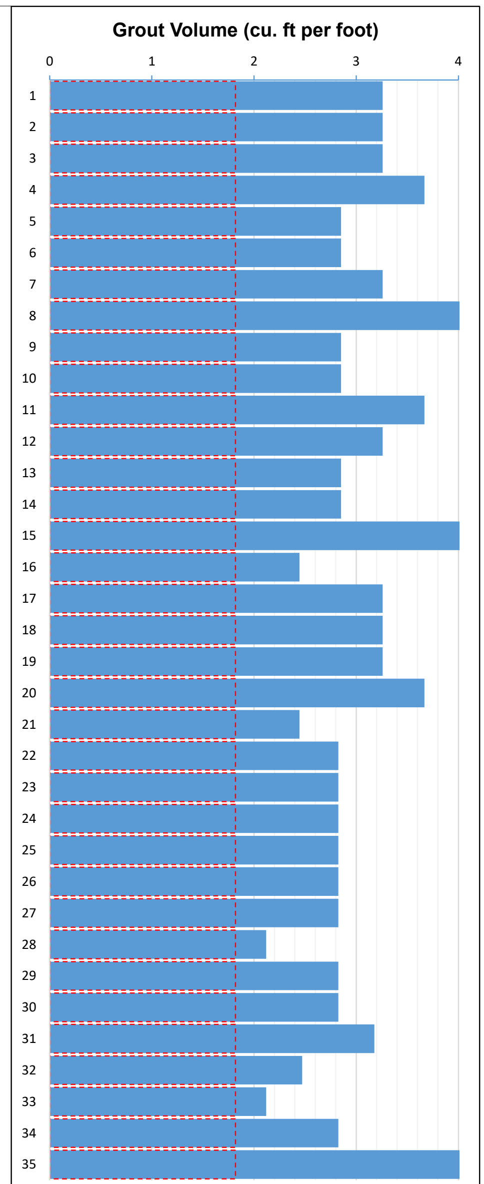
Project Site Data | **Data for Column No: 225**

Project Name:	Oxnard College Fire Training	Date:	12/8/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	4:13 PM	Concrete Volume:	67.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	4:18 PM	Column Depth:	35.2	ft
		End Time:	4:26 PM	Pre Auger:		
		Total Time:	13 min			
Rig Id:	BG-30			Tool meets 16" Nominal Requirement		
Operator:	James "Smitty" Smith					









DGC Log Sheet

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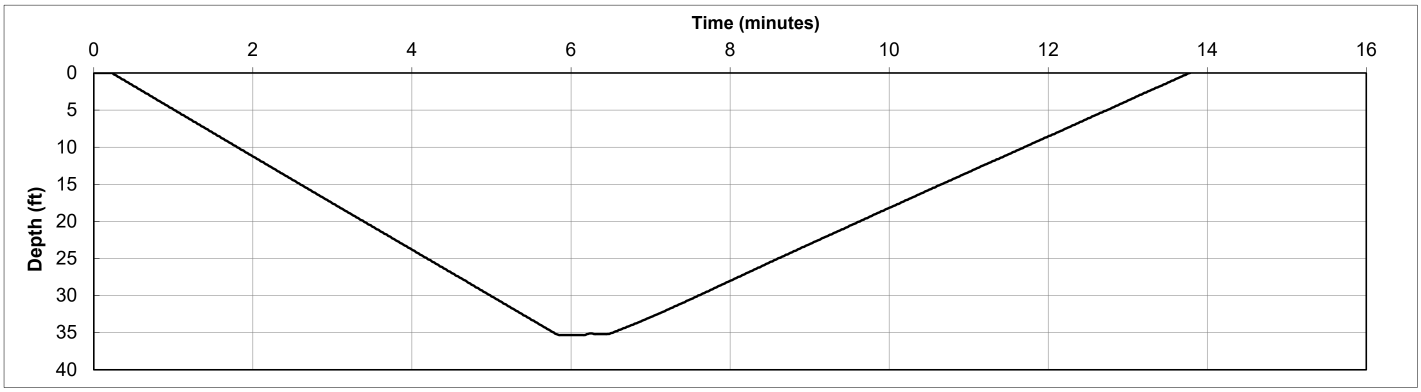
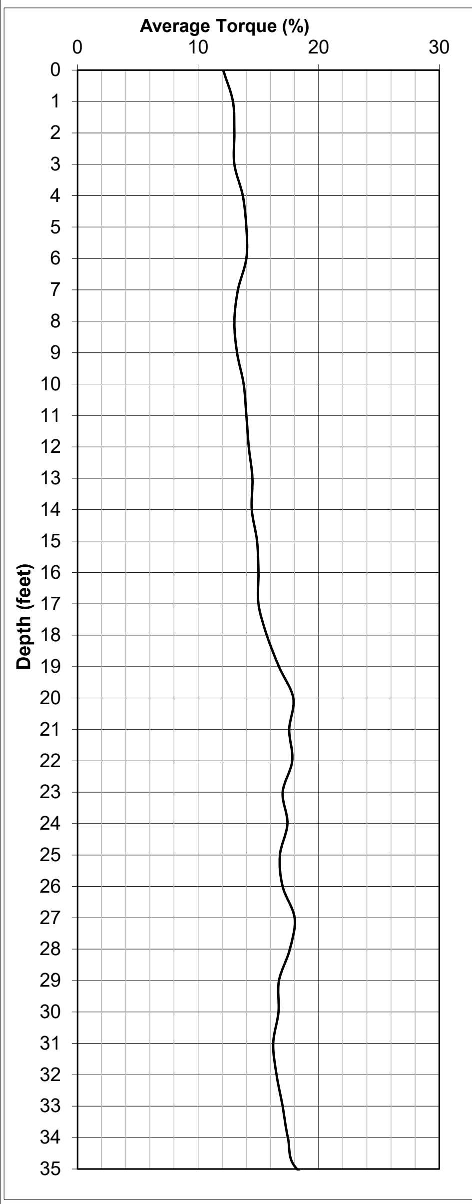
Project Site Data **Data for Column No: 146**

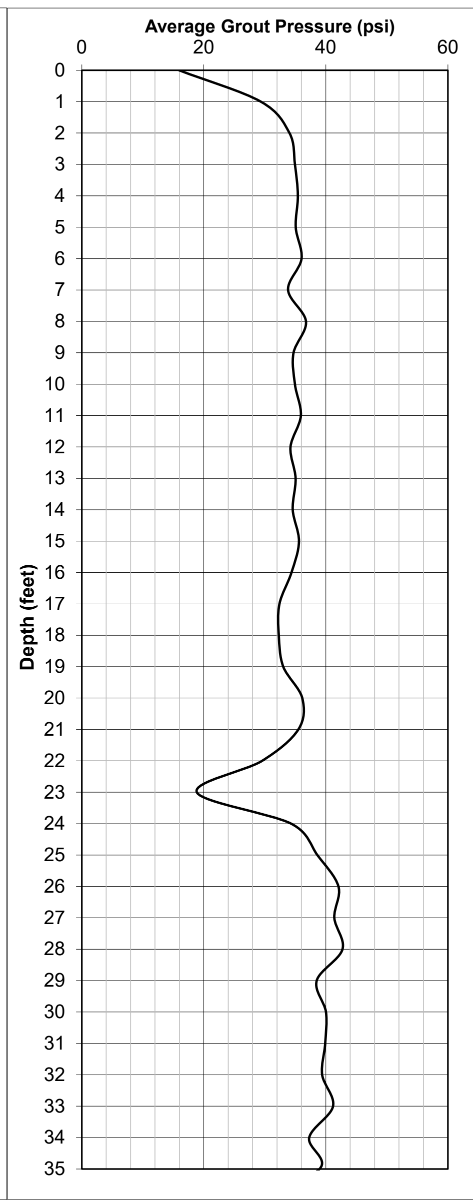
Project Name:	Oxnard College Fire Training	Date:	12/8/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	4:43 PM	Concrete Volume:	66.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	4:50 PM	Column Depth:	35.3	ft
		End Time:	4:57 PM	Pre Auger:		
		Total Time:	14 min			

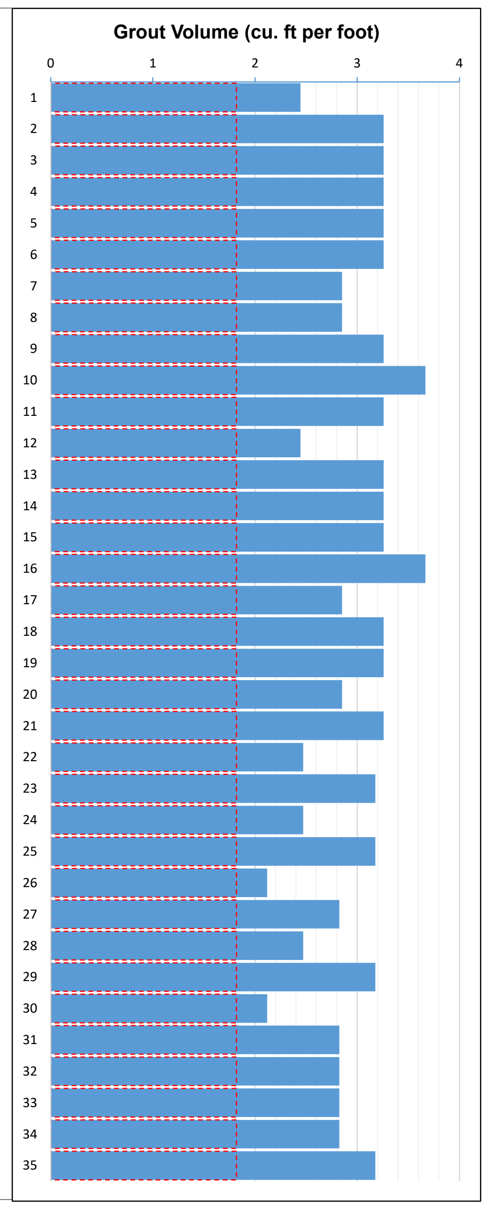
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

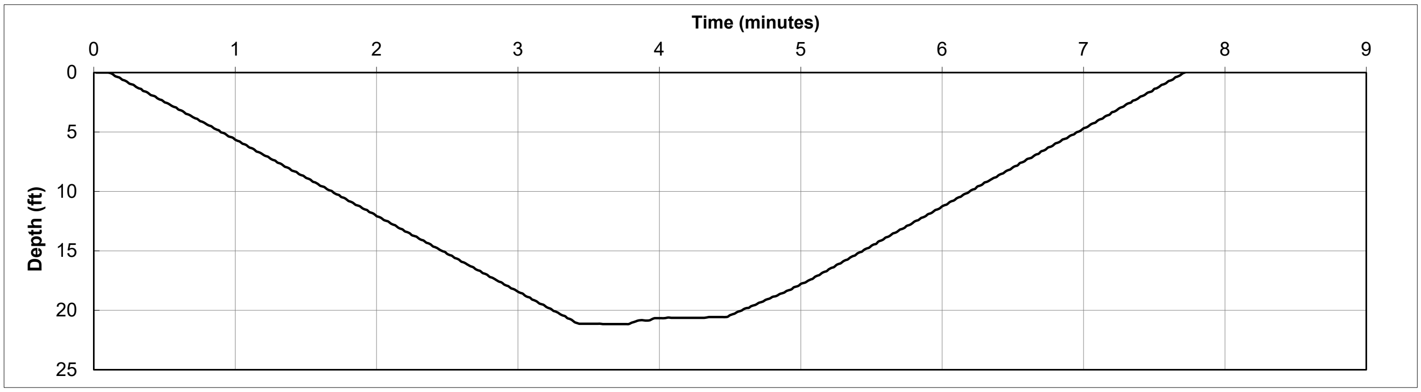
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

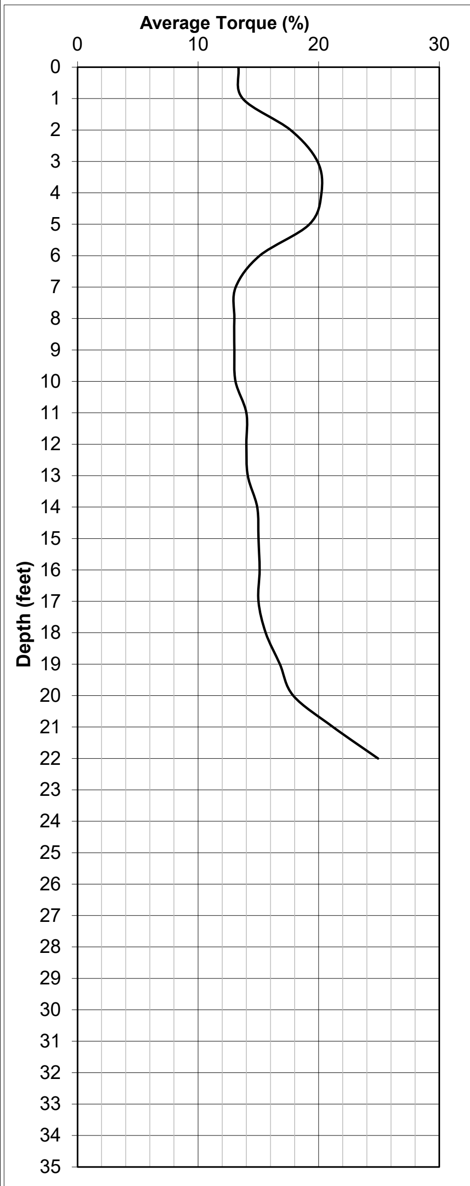
Project Site Data | **Data for Column No: 193**

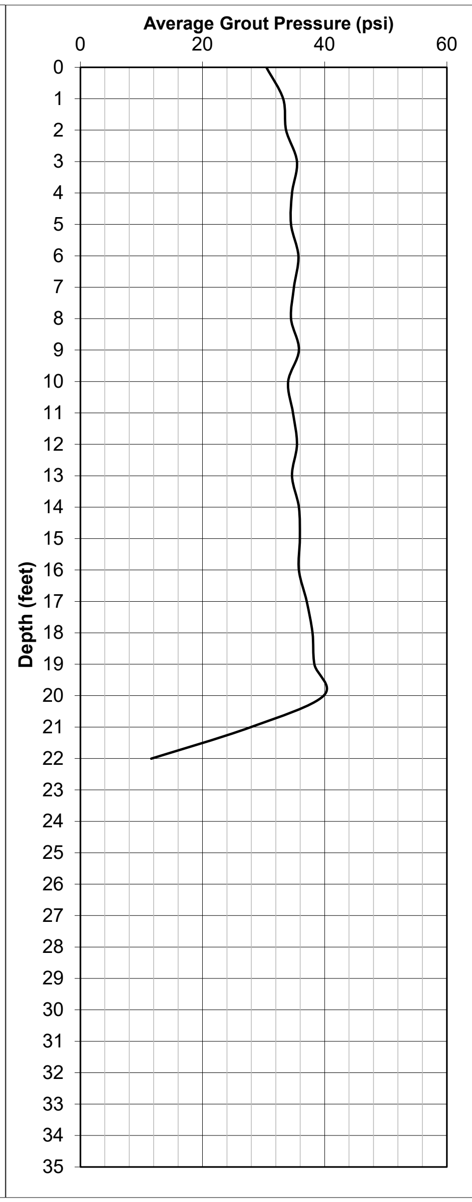
Project Name:	Oxnard College Fire Training	Date:	12/8/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	5:01 PM	Concrete Volume:	55.4	cubic ft
General Contractor:	Oxnard College	Bottom Time:	5:05 PM	Column Depth:	21.2	ft
		End Time:	5:09 PM	Pre Auger:		
		Total Time:	8 min			

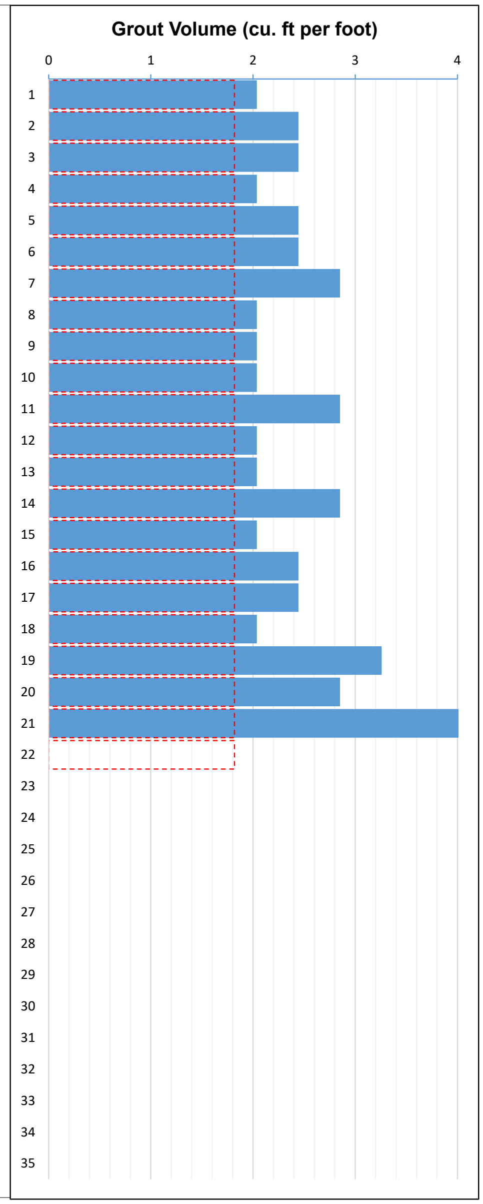
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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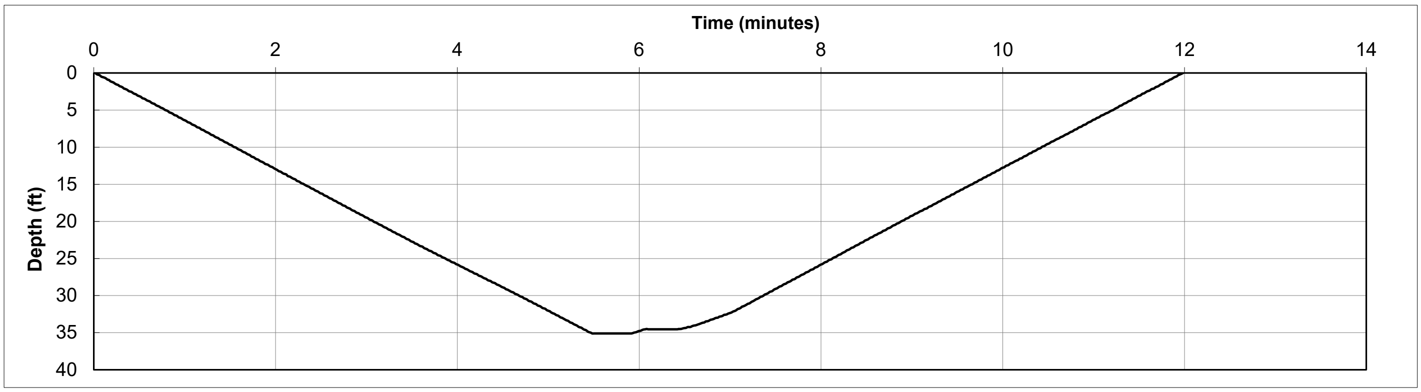
P: 310-796-9000

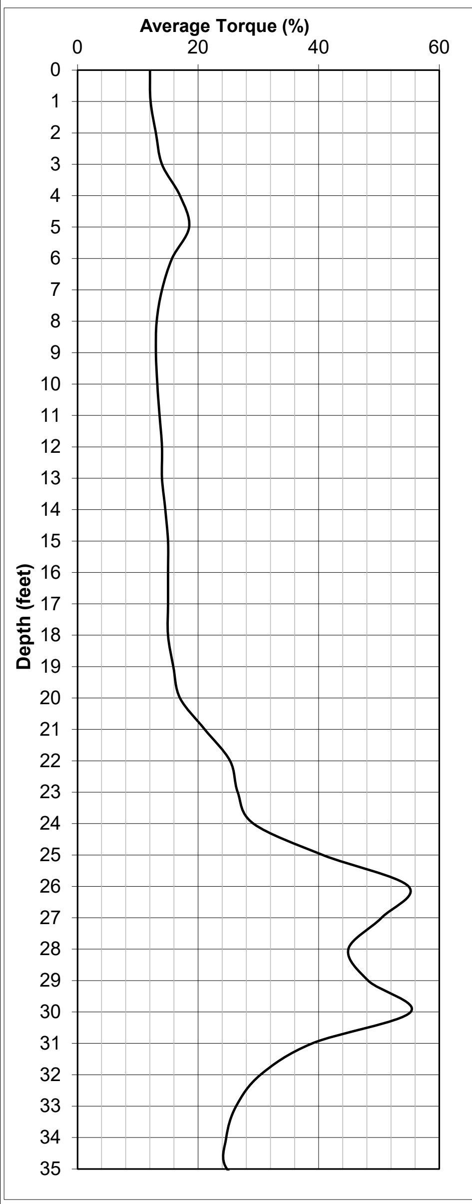
Project Site Data **Data for Column No: 144**

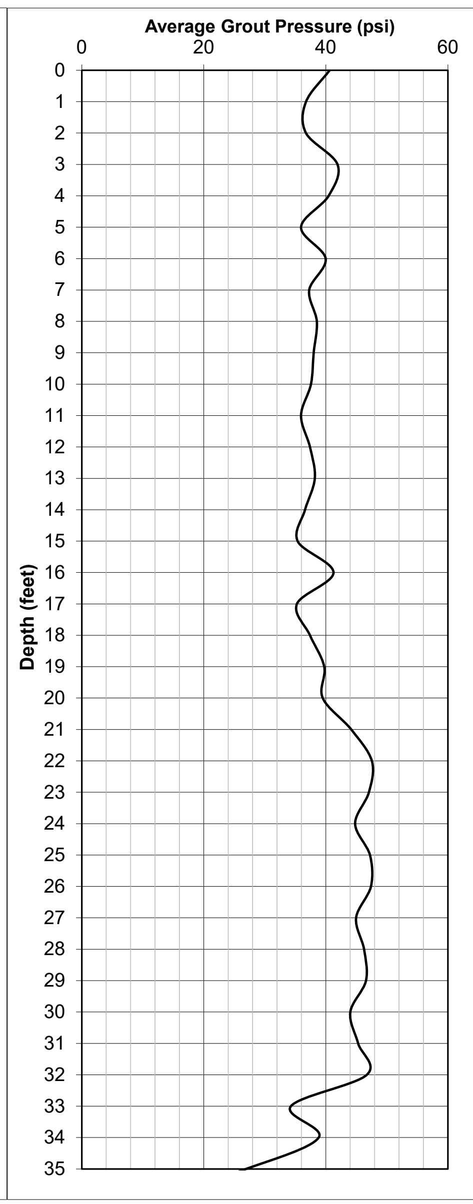
Project Name:	Oxnard College Fire Training	Date:	12/8/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	5:13 PM	Concrete Volume:	50.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	5:19 PM	Column Depth:	35.1	ft
		End Time:	5:25 PM	Pre Auger:		
		Total Time:	12 min			

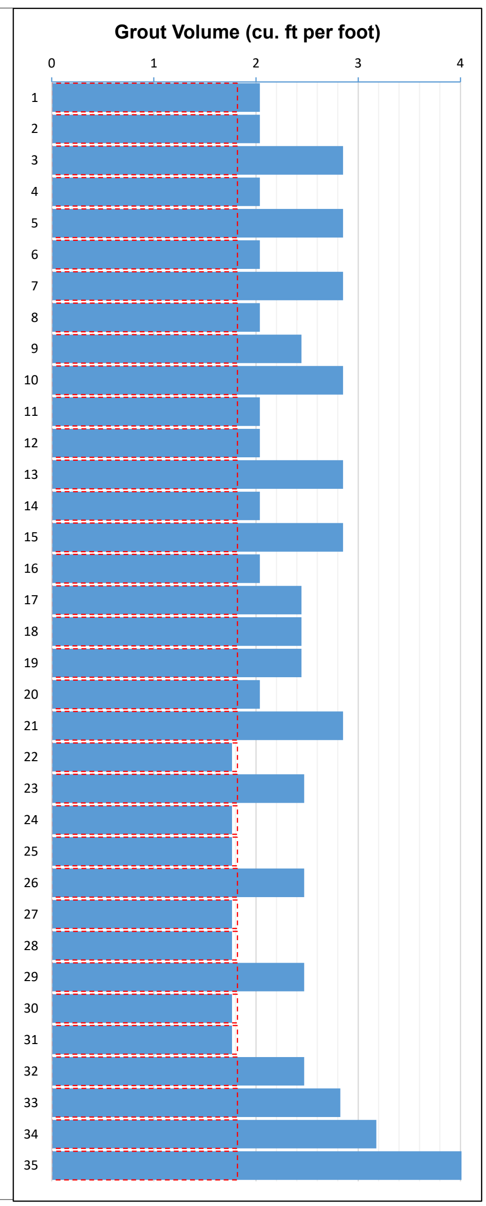
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









ADVANCED GEOSOLUTIONS INC

Daily Production Summary- Displacement Grout Columns

Project No. : **P271275**
Date: Wednesday, December 9, 2020
Project Name: Oxnard College Fire Training Academy
Rig: BG-30
Rig Operator: James "Smitty" Smith
Oiler: Benny Sandoval

Seq. No	Rig No.	Col. ID	Start Time	Bottom Time	End Time	Surface Elev.	Column Depth (ft)	*Act. Tip Elev.*	Concrete Volume (cu. feet)	Truck ID	Comments
1		140	08:12	08:18	08:24	74.4	35.1	39.3	85	42659033	
2		152	08:35	08:41	08:47	74.4	35.0	39.4	81	42659033	
3		149	09:03	09:08	09:23	74.4	35.1	39.3	103	42659033	
4		147	09:25	09:31	09:38	74.4	35.2	39.2	86	42659042	
5		232	09:41	09:47	09:53	74.4	35.2	39.2	86	42659042	
6		145	10:29	10:36	10:42	74.4	35.1	39.3	87	42659056	
7		239	10:45	10:51	10:57	74.4	35.1	39.3	87	42659056	
8		174	11:06	11:10	11:32	74.4	21.0	53.4	55	42659056	
9		176	11:38	11:42	11:46	74.4	20.6	53.8	53	42659064	
10		175	11:49	11:53	11:57	74.4	20.6	53.8	55	42659064	
11		121	12:00	12:06	12:12	74.4	35.1	39.3	88	42659064	
12		177	12:35	12:40	12:43	74.4	20.6	53.8	51	42659073	
13		178	12:49	12:53	12:57	74.4	20.6	53.8	52	42659073	
14		282	12:59	13:06	13:12	74.4	35.1	39.3	86	42659073	
15		179	13:15	13:19	13:23	74.4	20.6	53.8	55	42659073	
16		283	13:28	13:34	13:42	74.4	35.1	39.3	86	42659081	
17		180	13:45	13:49	13:53	74.4	20.8	53.6	51	42659081	
18		284	13:57	14:03	14:09	74.4	35.2	39.2	86	42659081	
19		181	14:14	14:18	14:26	74.4	20.6	53.8	53	42659085	
20		285	14:29	14:36	14:42	74.4	35.1	39.3	83	42659085	
21		182	14:48	14:52	14:56	74.4	21.3	53.1	52	42659085	
22		286	14:59	15:06	15:45	74.4	35.2	39.2	99	42659085	
23		276	15:52	16:01	16:08	74.4	35.0	39.4	84	42659090	
24		277	16:12	16:18	16:24	74.4	35.1	39.3	84	42659090	

DGC Log Sheet

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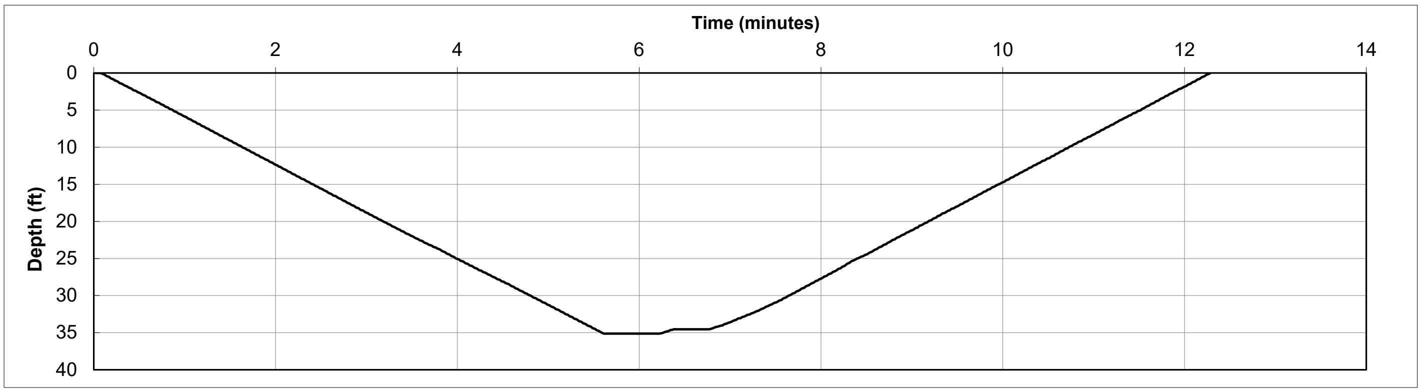
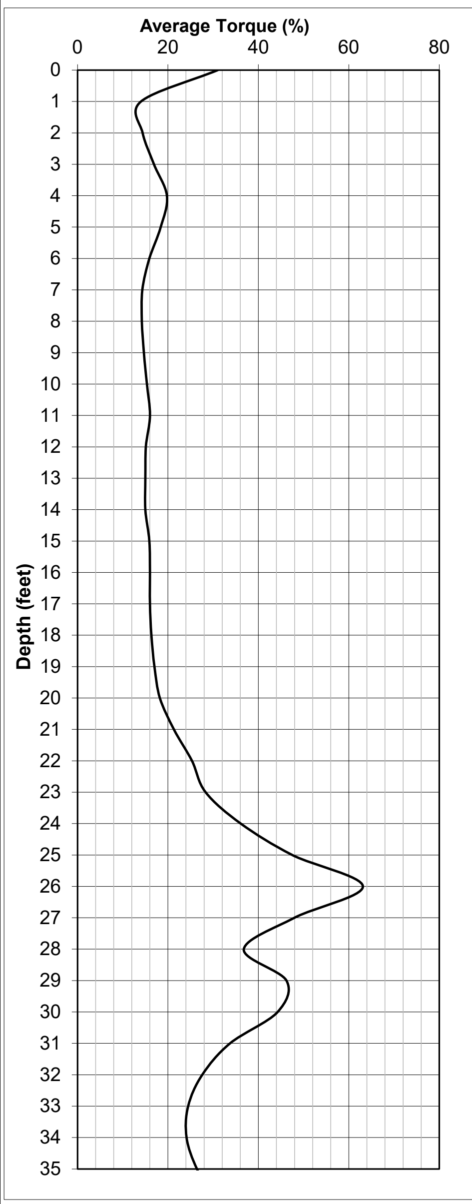
Project Site Data | **Data for Column No: 140**

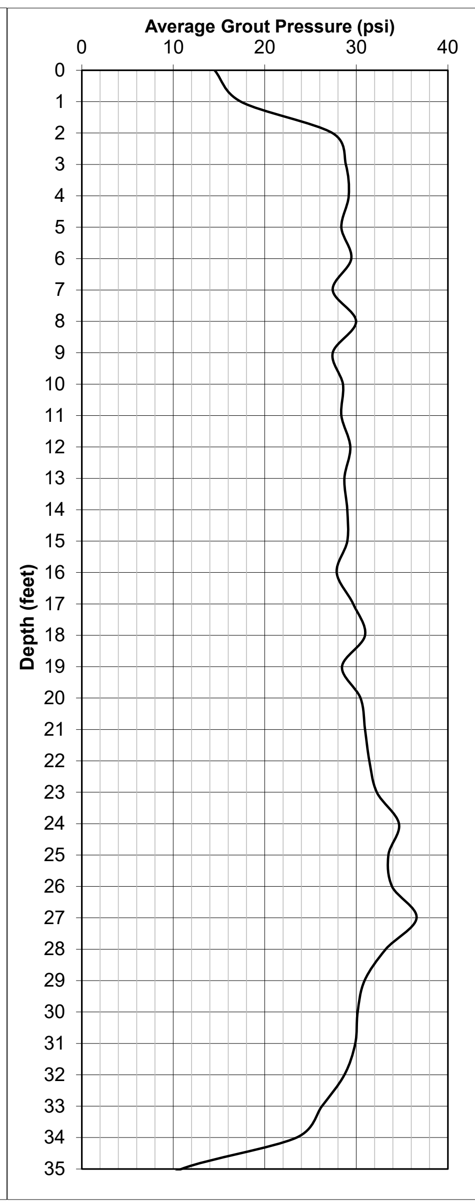
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:12 AM	Concrete Volume:	84.8	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:18 AM	Column Depth:	35.1	ft
		End Time:	8:24 AM	Pre Auger:		
		Total Time:	12 min			

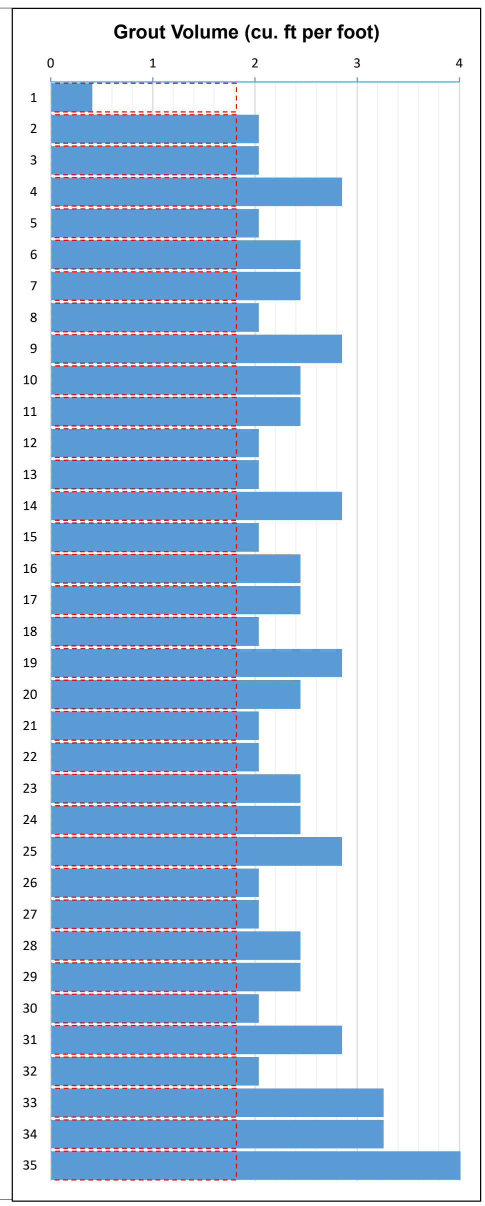
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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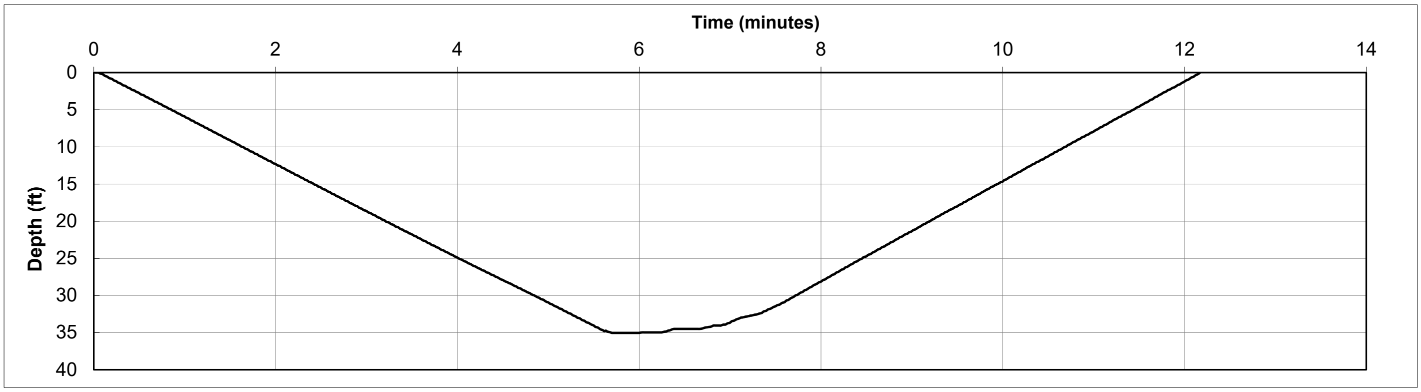
P: 310-796-9000

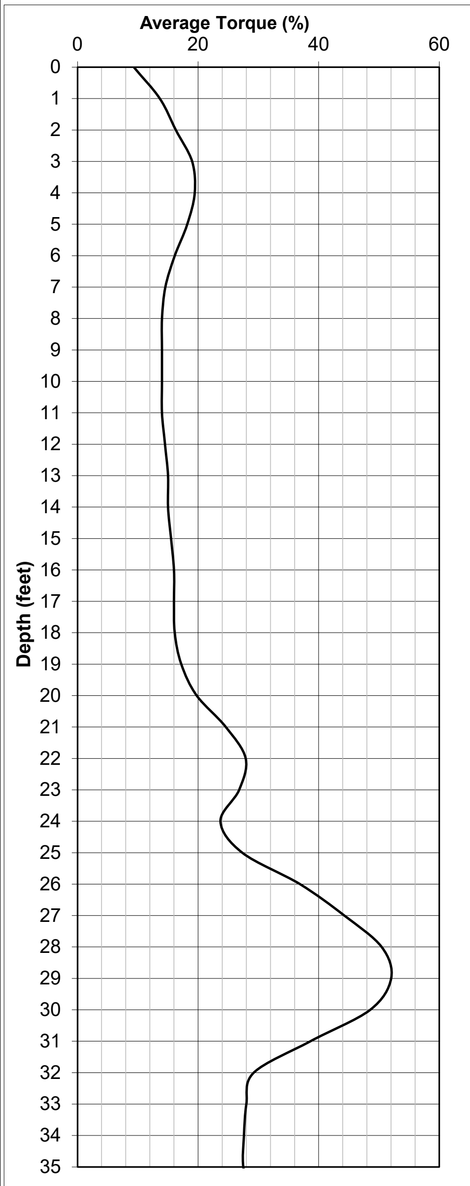
Project Site Data | **Data for Column No: 152**

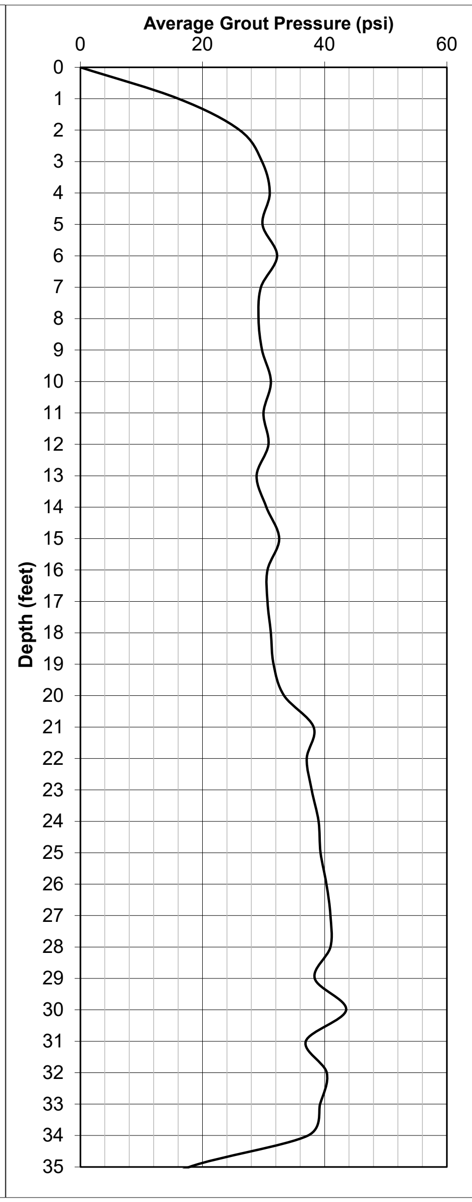
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:35 AM	Concrete Volume:	81.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:41 AM	Column Depth:	35.0	ft
		End Time:	8:47 AM	Pre Auger:		
		Total Time:	12 min			

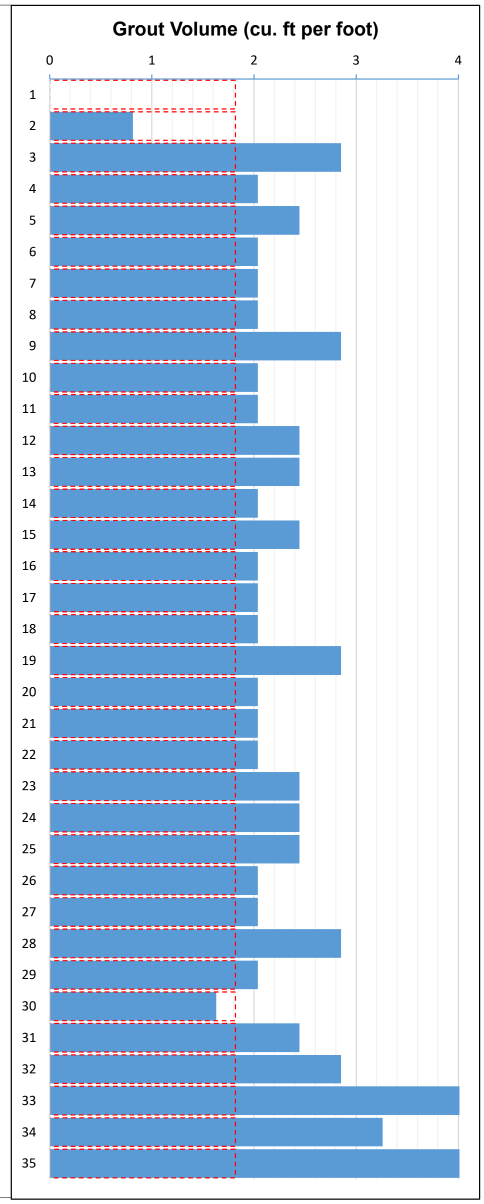
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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P: 310-796-9000

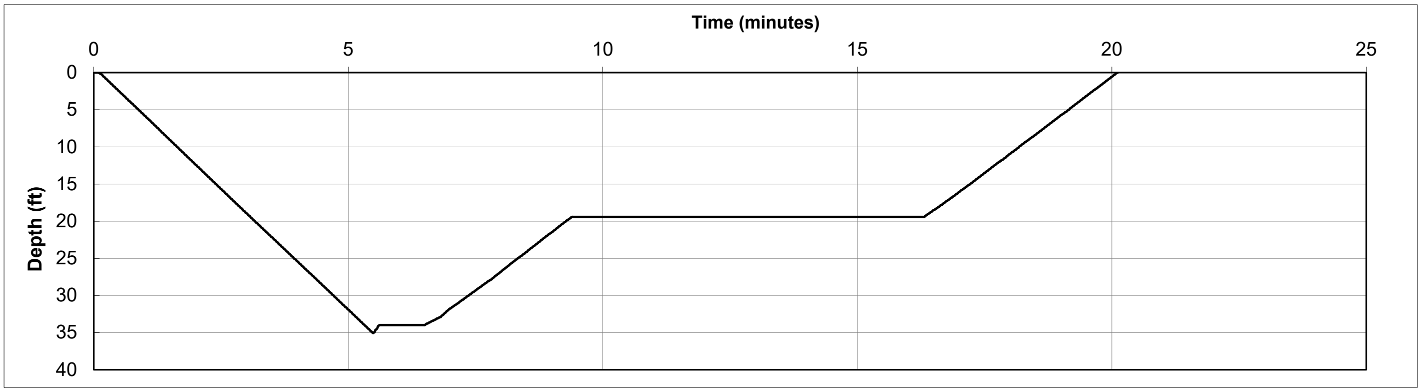
Project Site Data

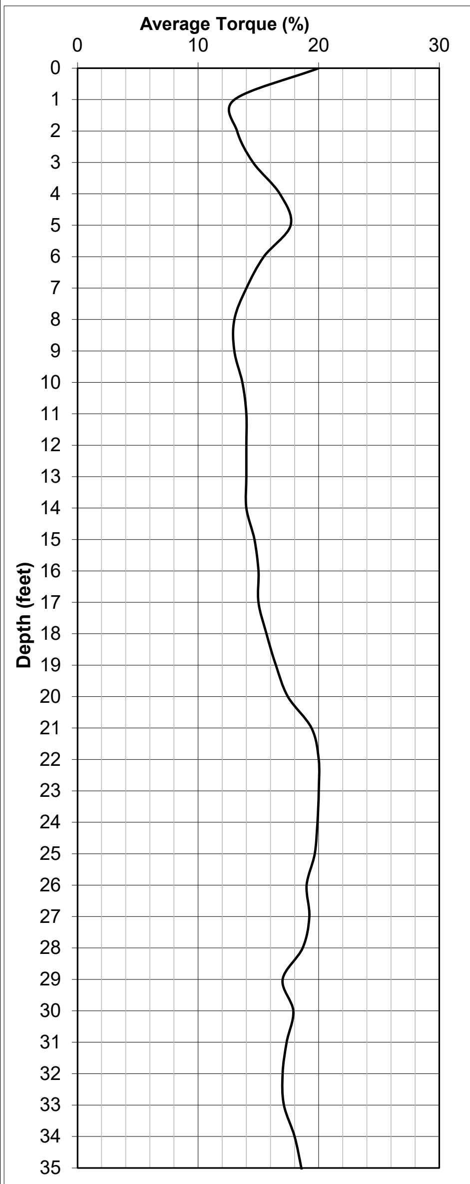
Data for Column No: 149

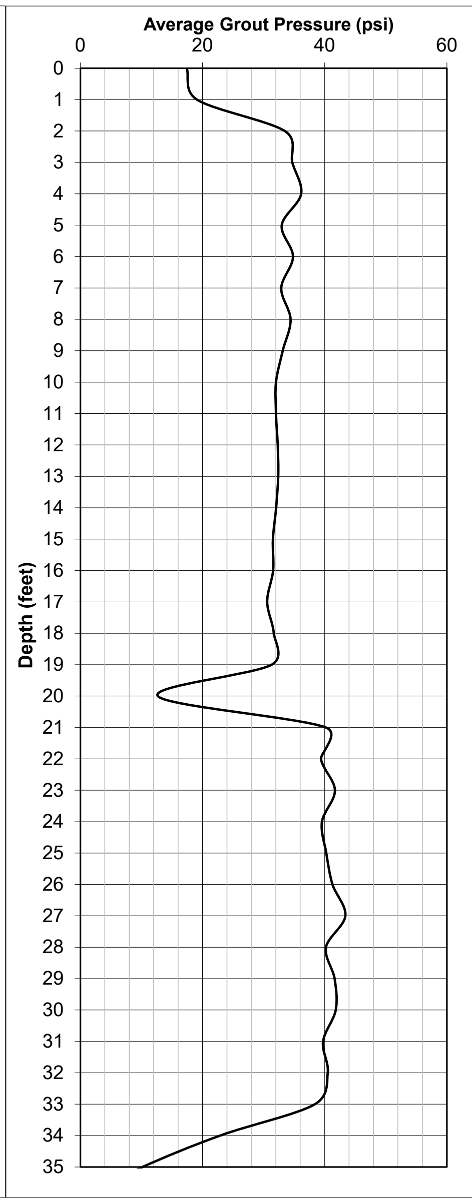
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:03 AM	Concrete Volume:	103.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:08 AM	Column Depth:	35.1	ft
		End Time:	9:23 AM	Pre Auger:		
		Total Time:	20 min			

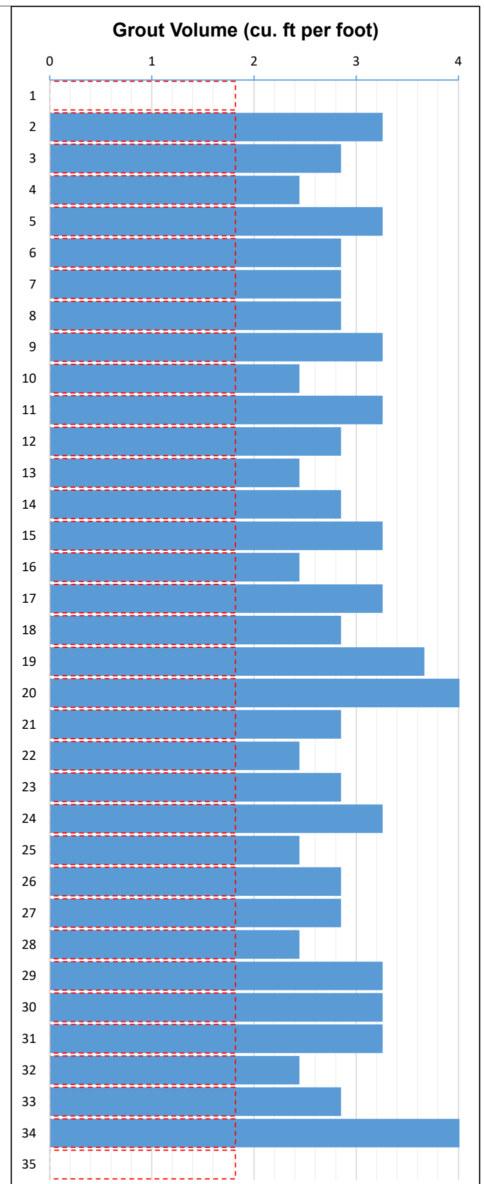
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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Lake Forest, CA 92630
P: 310-796-9000

Project Site Data **Data for Column No: 147**

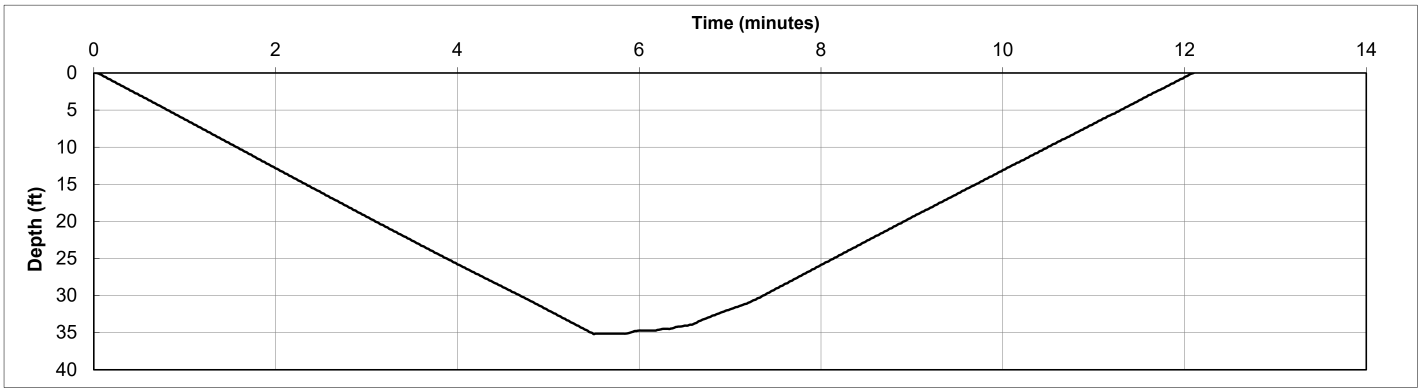
Project Name: Oxnard College Fire Training
Project Location: Camarillo, CA
General Contractor: Oxnard College

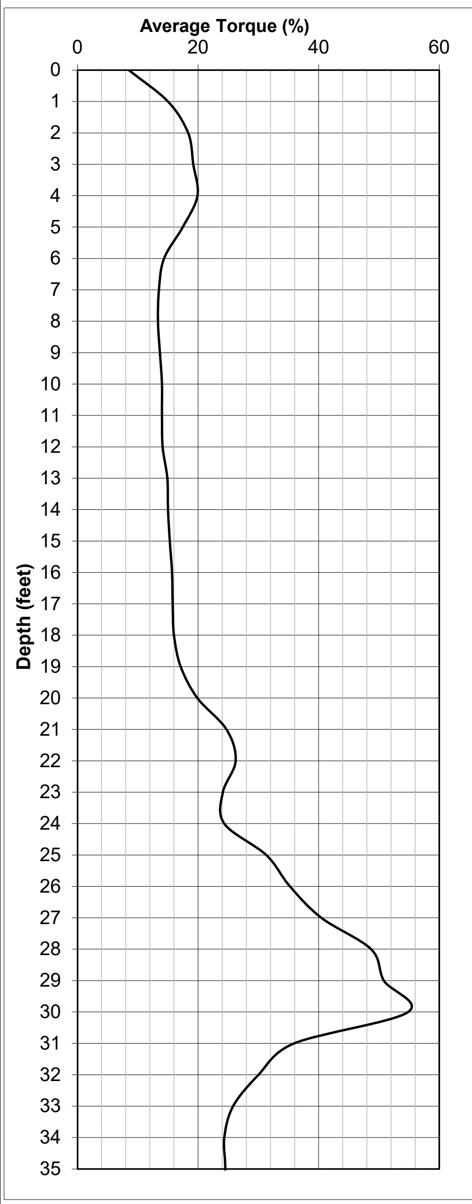
Date: 12/9/20
Start Time: 9:25 AM
Bottom Time: 9:31 AM
End Time: 9:38 AM
Total Time: 12 min

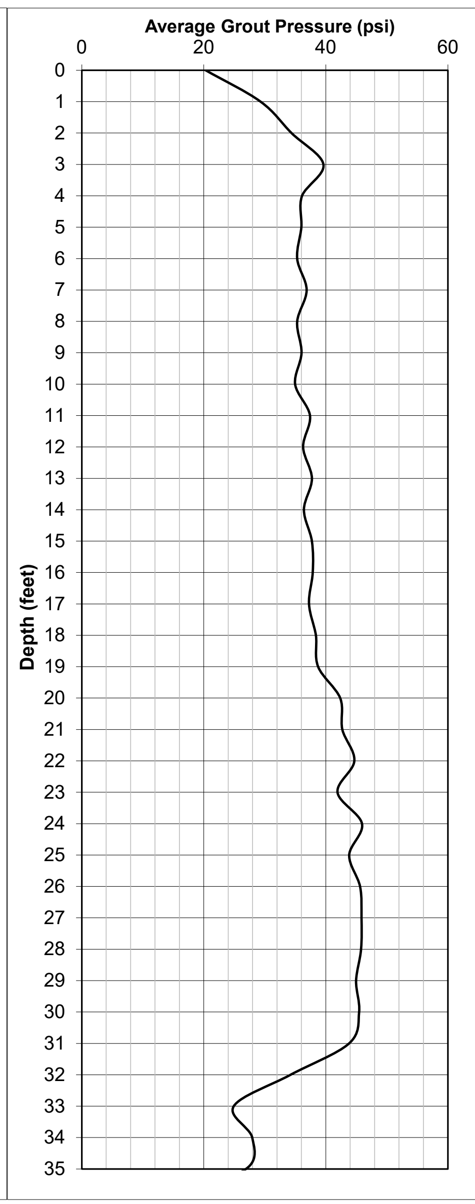
Nominal Diameter: 16 in
Concrete Volume: 86.4 cubic ft
Column Depth: 35.2 ft
Pre Auger:

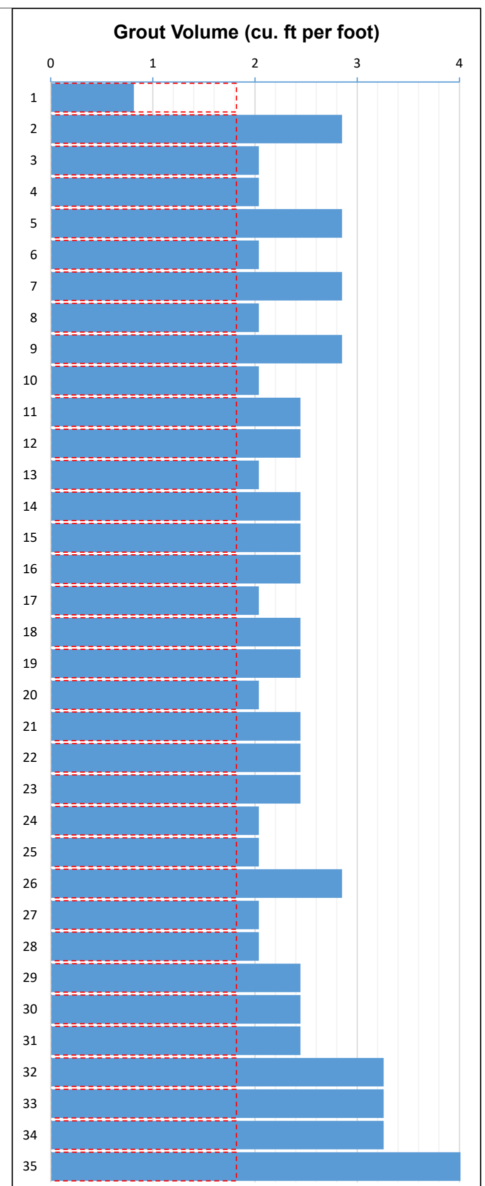
Tool meets 16" Nominal Requirement

Rig Id: BG-30
Operator: James "Smitty" Smith









DGC Log Sheet

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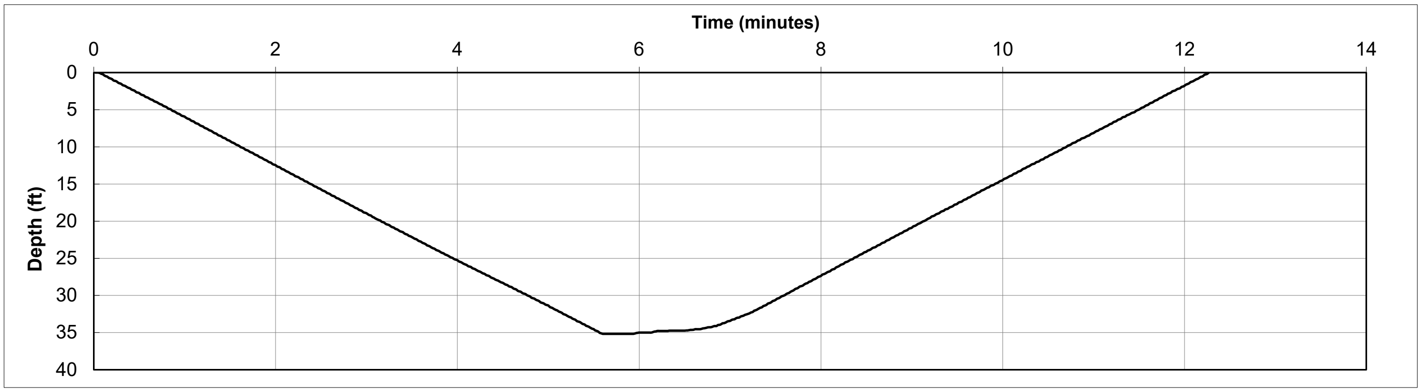
Lake Forest, CA 92630
P: 310-796-9000

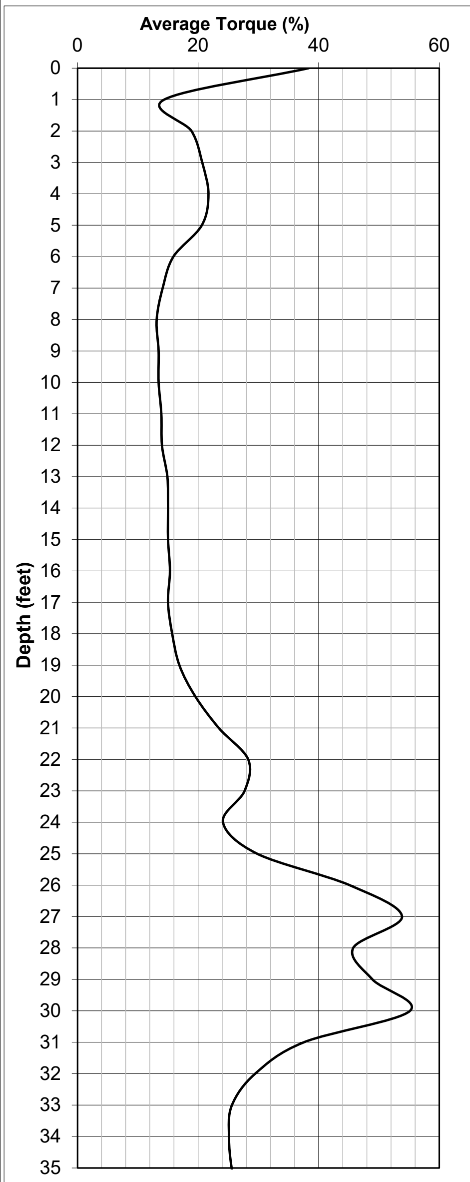
Project Site Data **Data for Column No: 232**

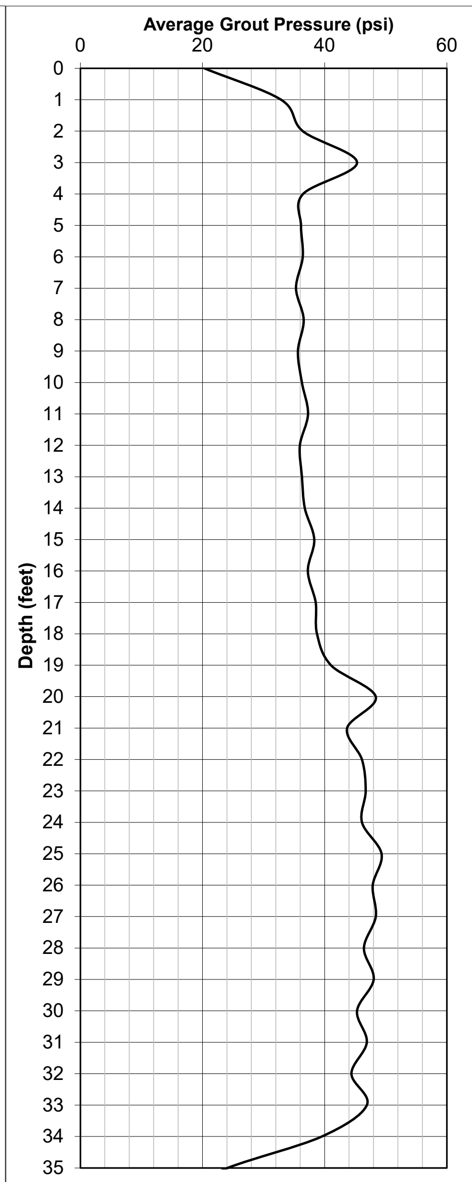
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:41 AM	Concrete Volume:	86.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:47 AM	Column Depth:	35.2	ft
		End Time:	9:53 AM	Pre Auger:		
		Total Time:	12 min			

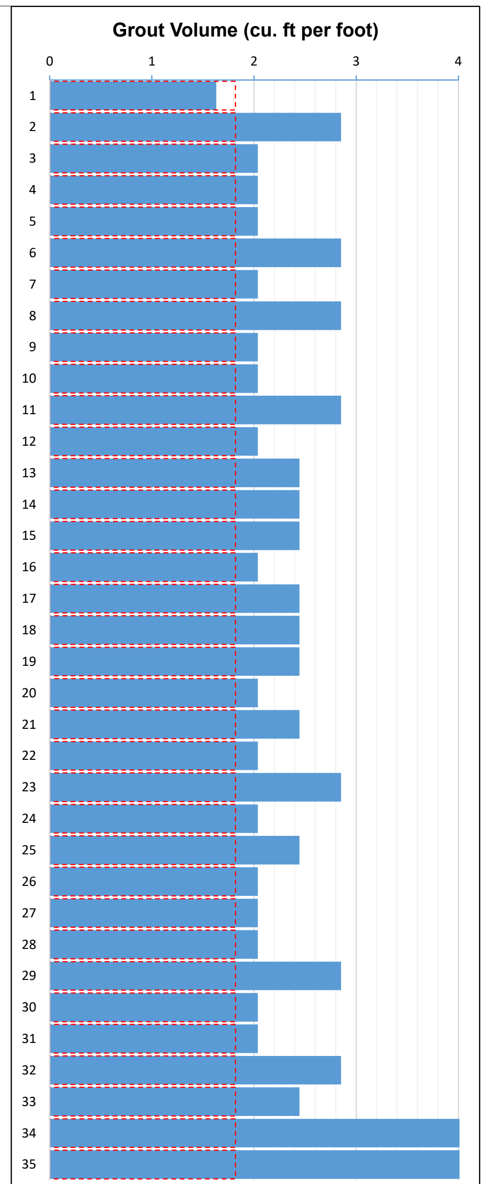
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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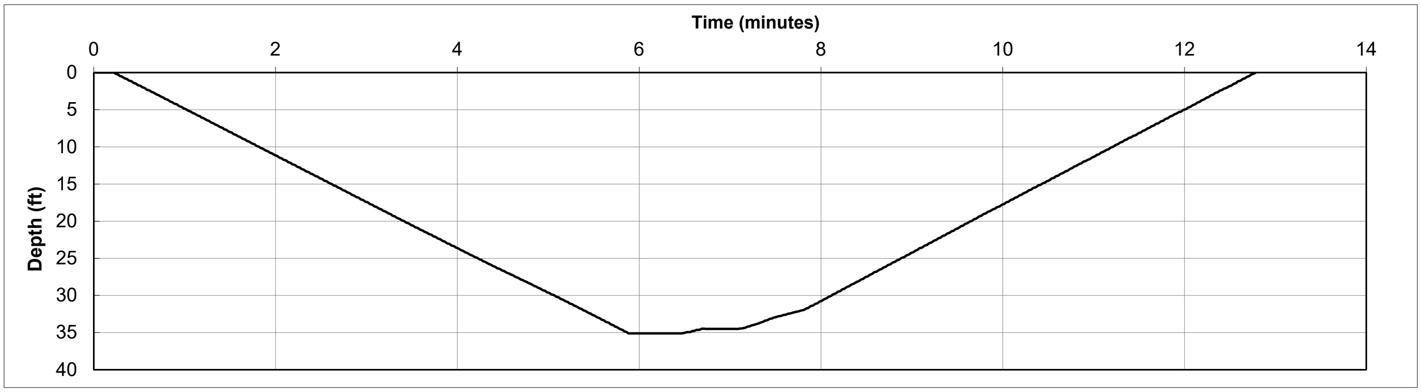
Lake Forest, CA 92630
P: 310-796-9000

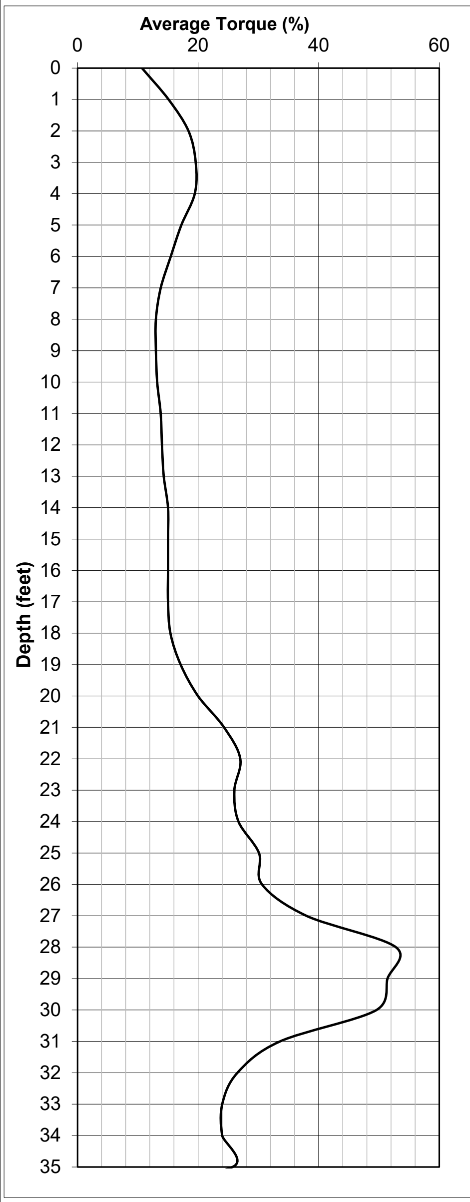
Project Site Data | **Data for Column No: 145**

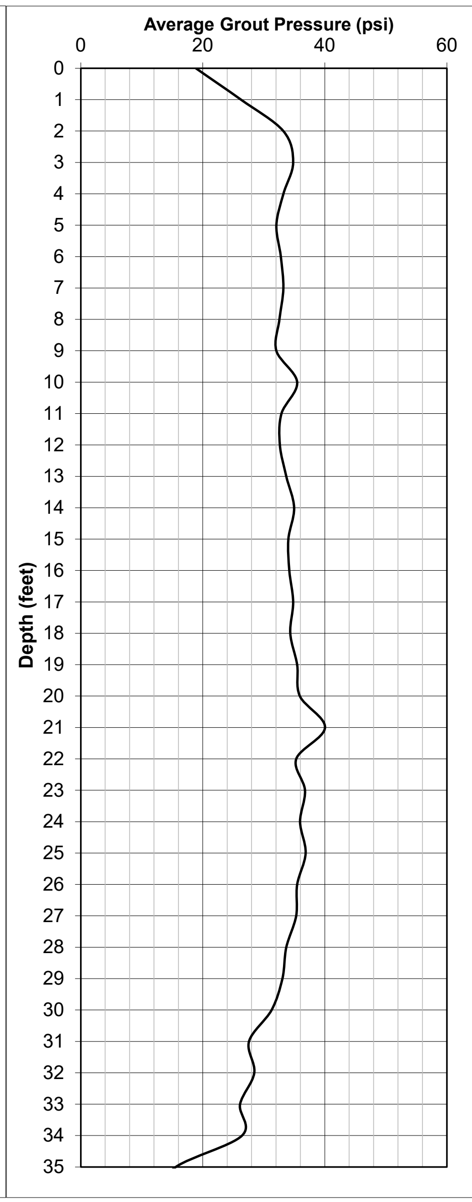
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:29 AM	Concrete Volume:	86.8	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:36 AM	Column Depth:	35.1	ft
		End Time:	10:42 AM	Pre Auger:		
		Total Time:	13 min			

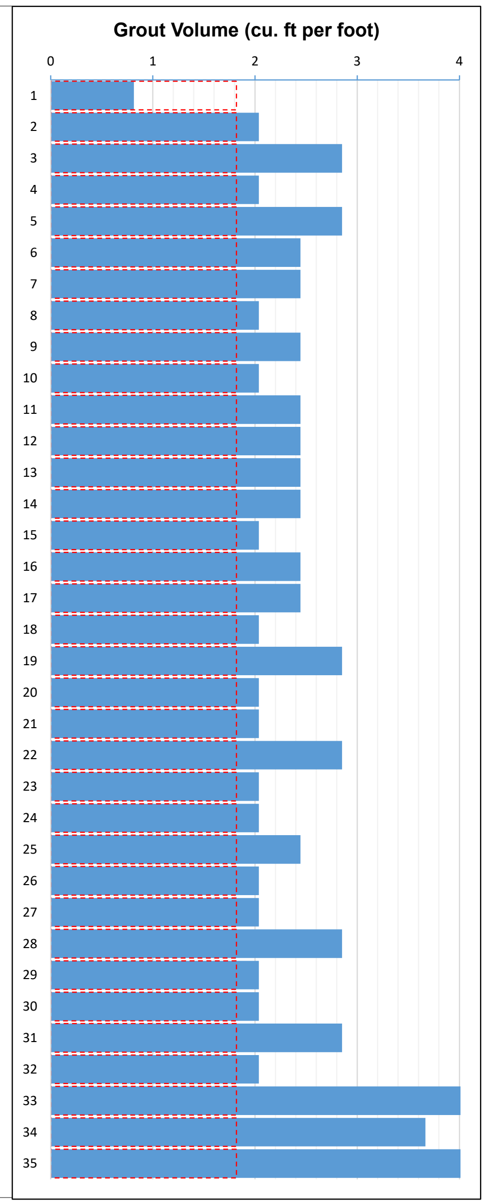
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
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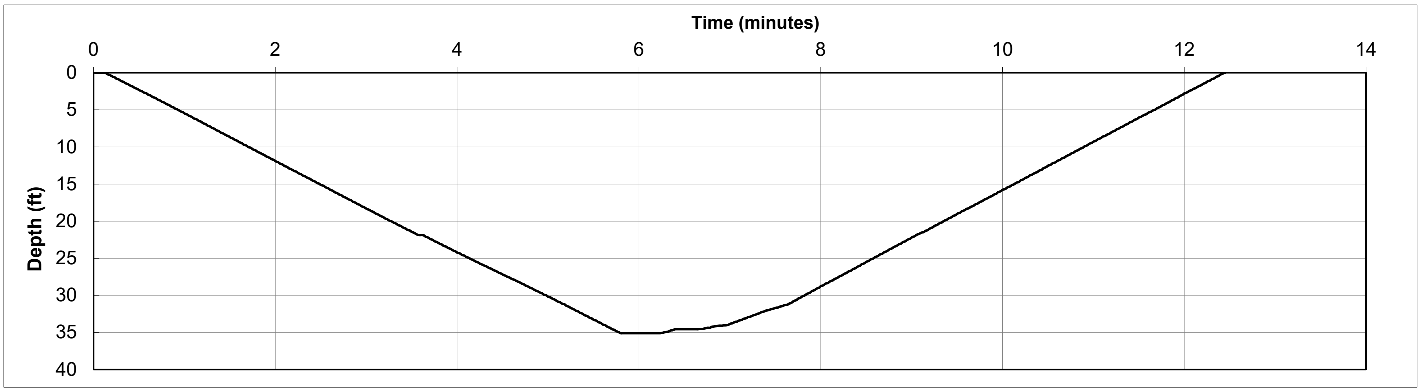
Project Site Data

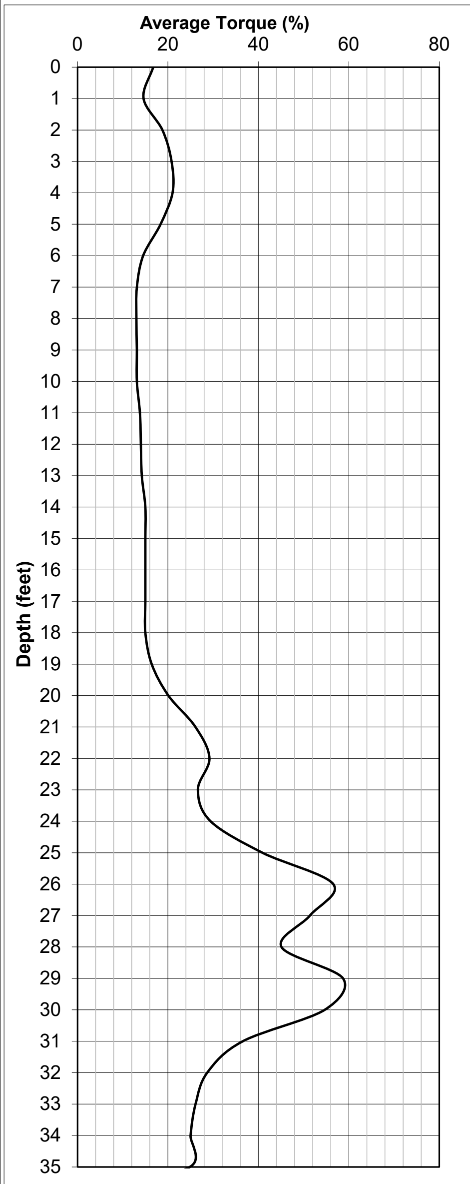
Data for Column No: 239

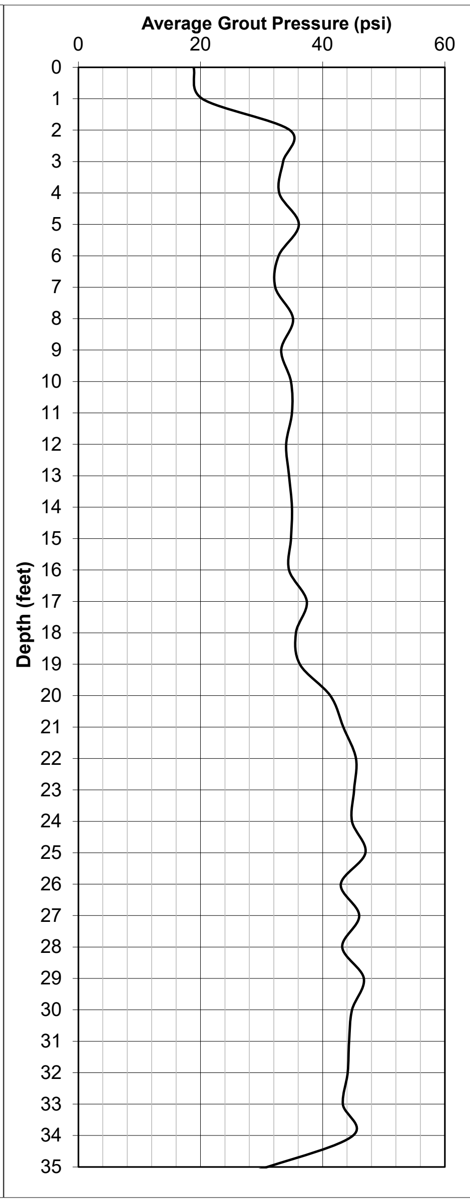
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:45 AM	Concrete Volume:	86.8	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:51 AM	Column Depth:	35.1	ft
		End Time:	10:57 AM	Pre Auger:		
		Total Time:	12 min			

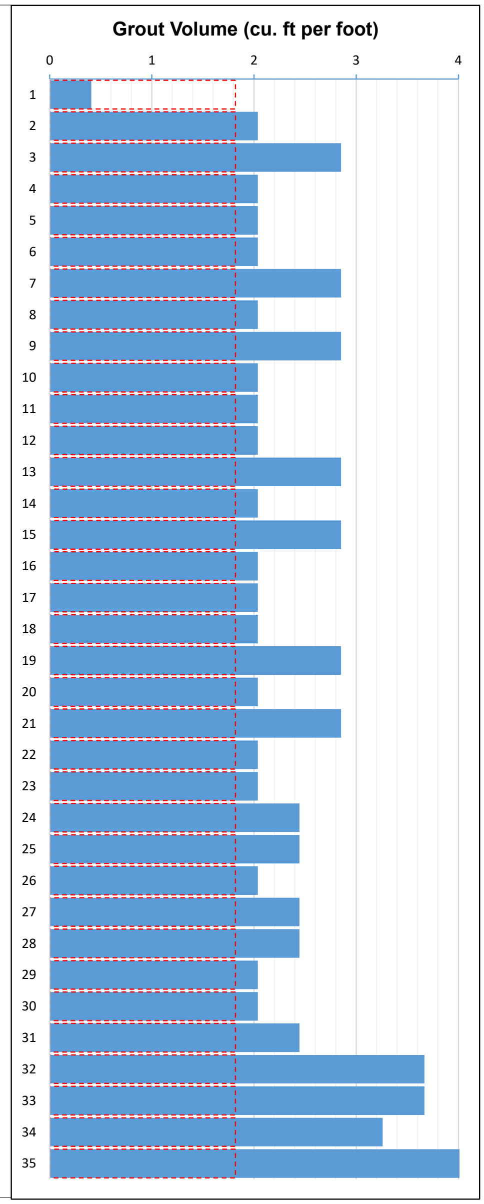
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
P: 310-796-9000

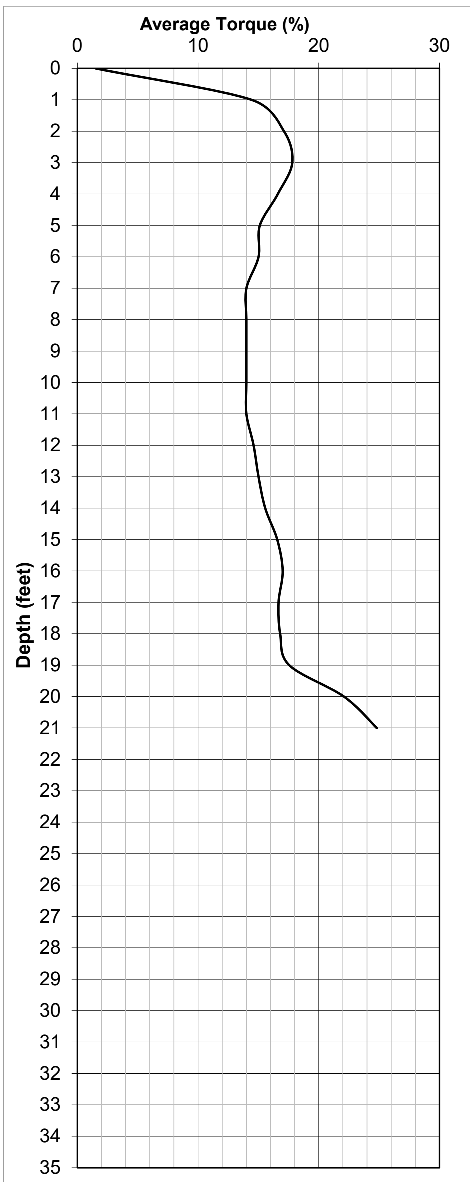
Project Site Data

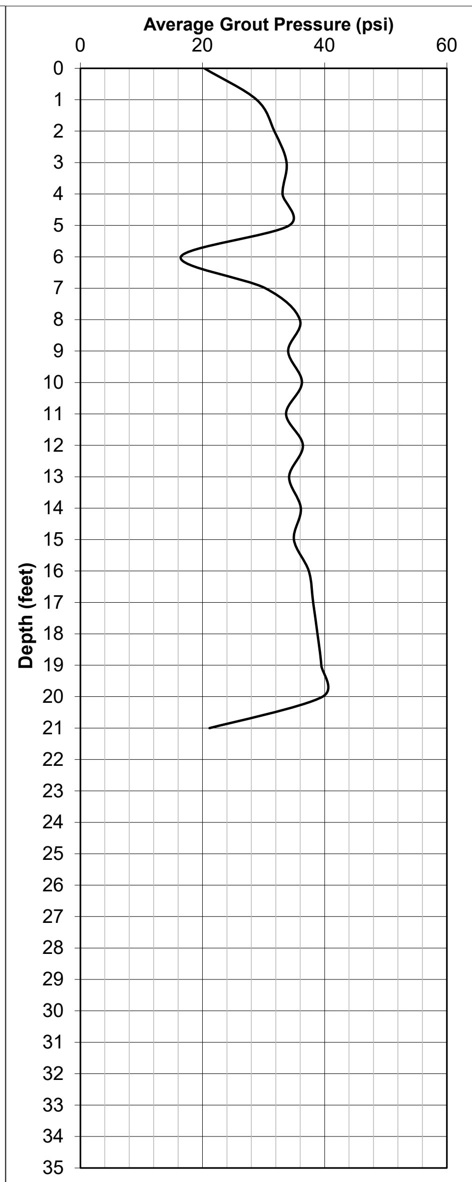
Data for Column No: 174

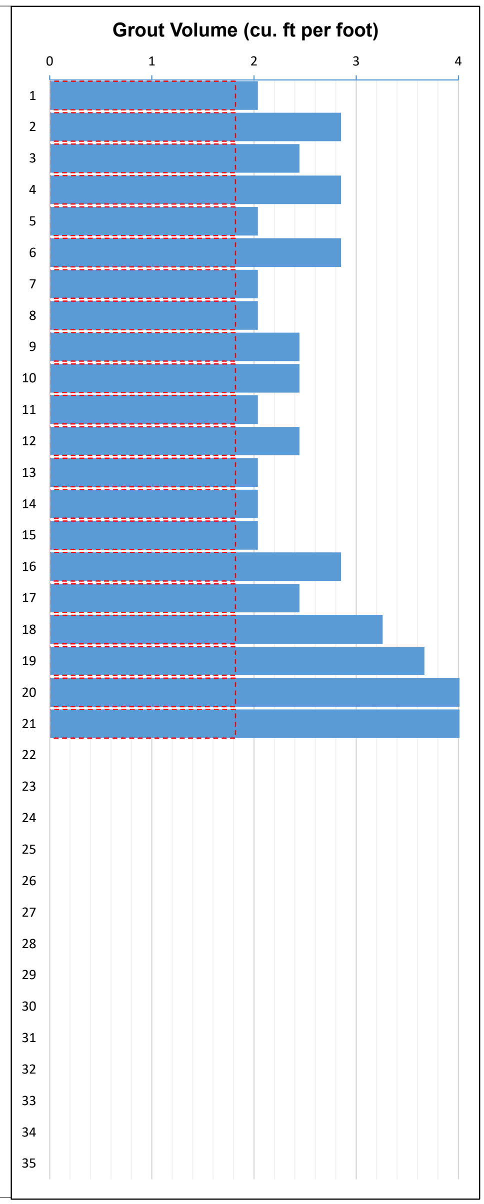
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:06 AM	Concrete Volume:	55.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:10 AM	Column Depth:	21.0	ft
		End Time:	11:32 AM	Pre Auger:		
		Total Time:	26 min			

Tool meets 16" Nominal Requirement

Rig Id: BG-30
Operator: James "Smitty" Smith







DGC Log Sheet

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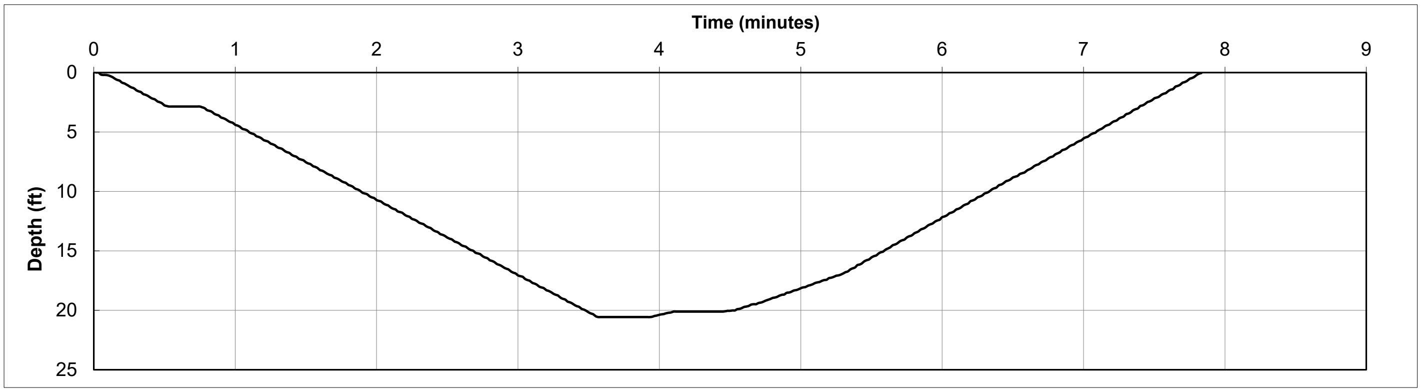
Lake Forest, CA 92630
P: 310-796-9000

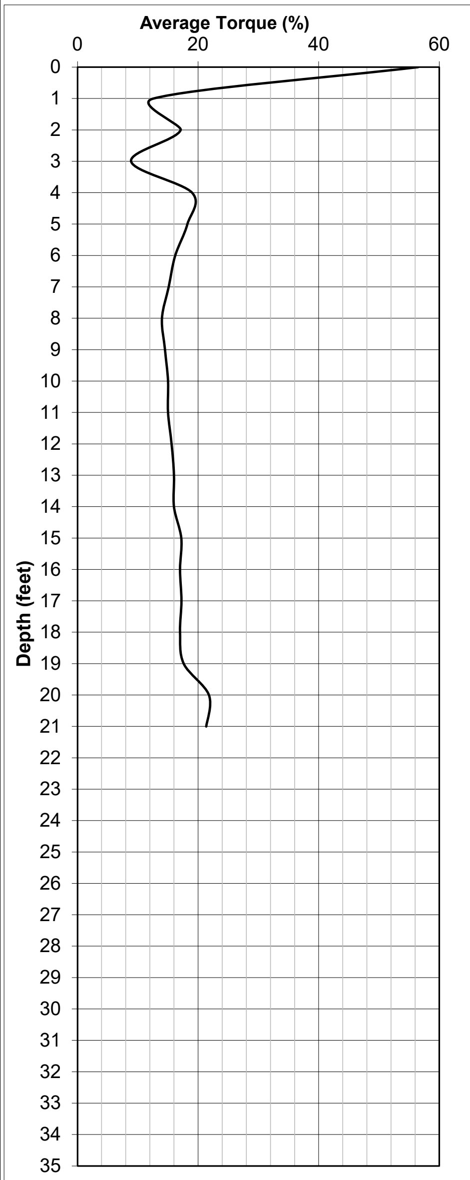
Project Site Data | **Data for Column No: 176**

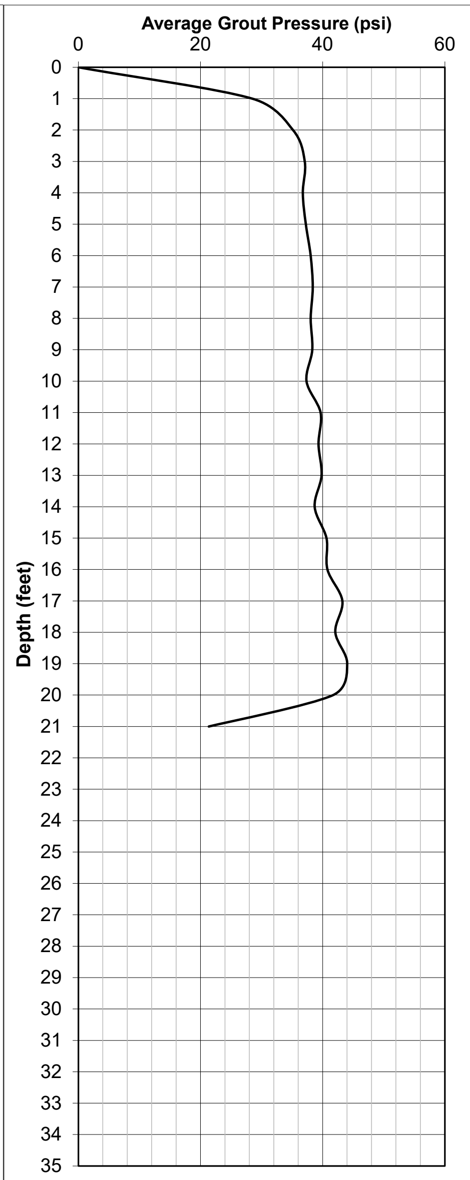
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:38 AM	Concrete Volume:	53.4	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:42 AM	Column Depth:	20.6	ft
		End Time:	11:46 AM	Pre Auger:		
		Total Time:	8 min			

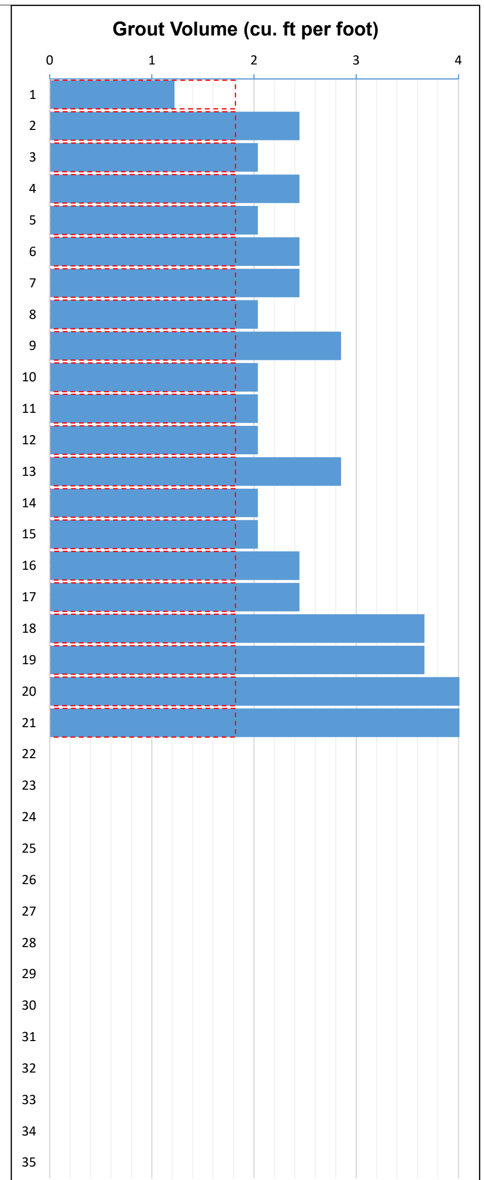
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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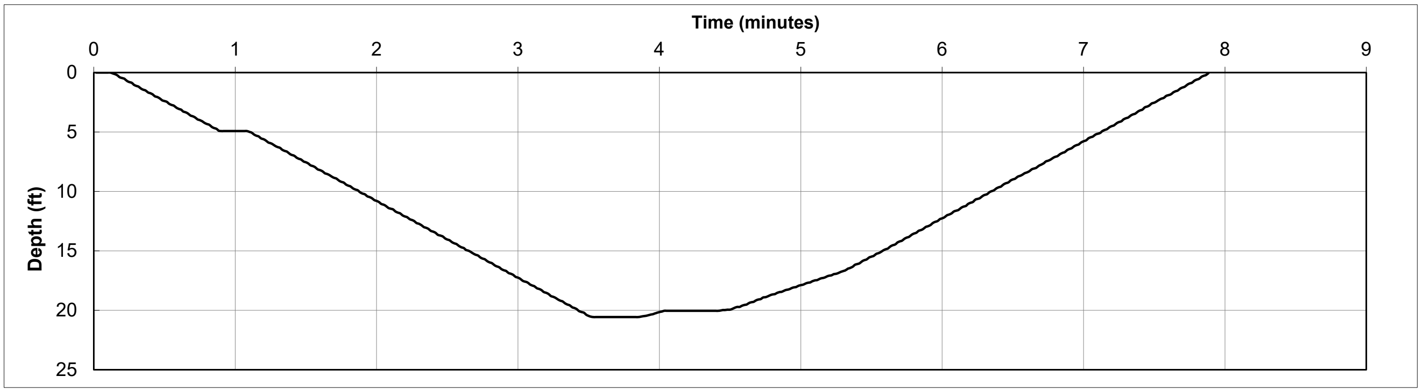
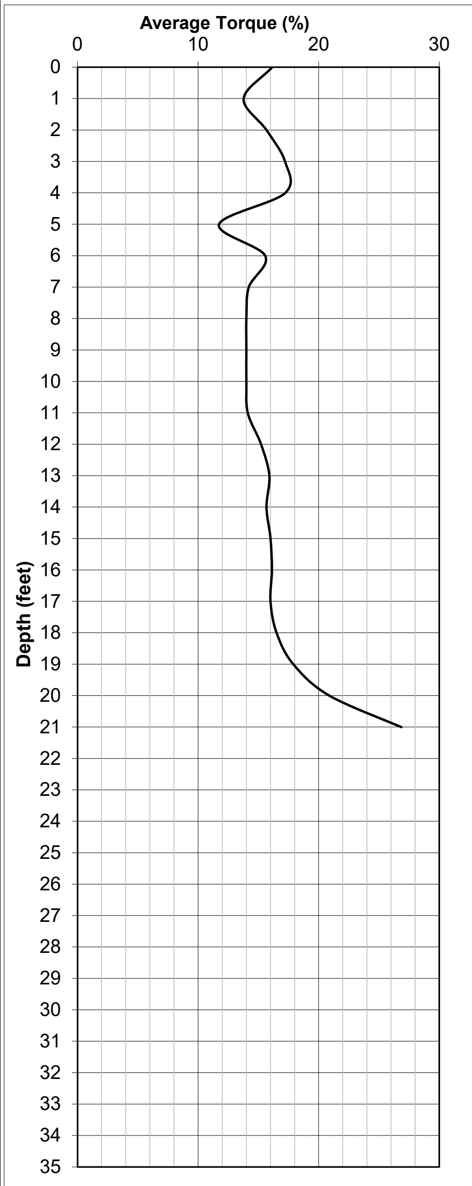
Project Site Data **Data for Column No: 175**

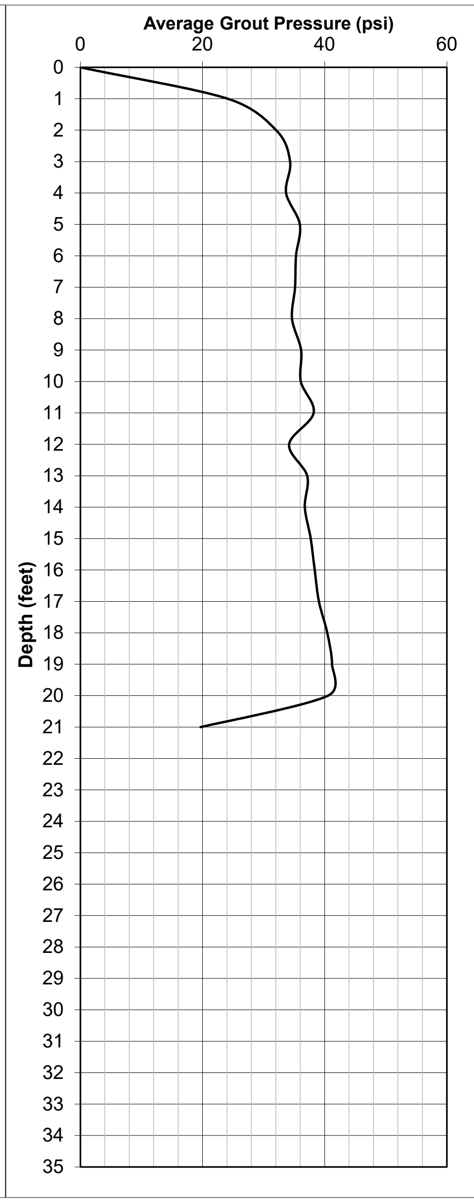
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:49 AM	Concrete Volume:	55.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:53 AM	Column Depth:	20.6	ft
		End Time:	11:57 AM	Pre Auger:		
		Total Time:	8 min			

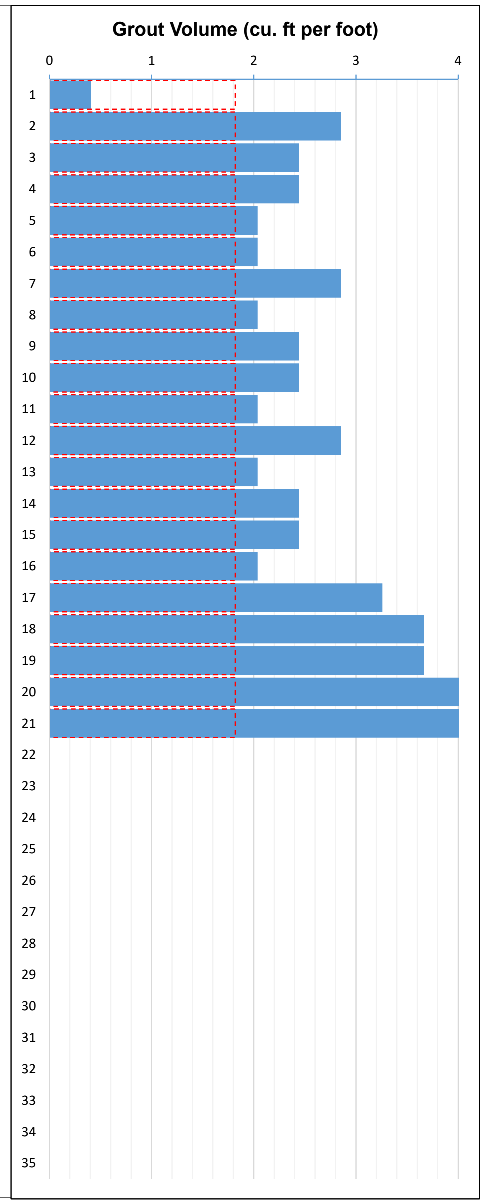
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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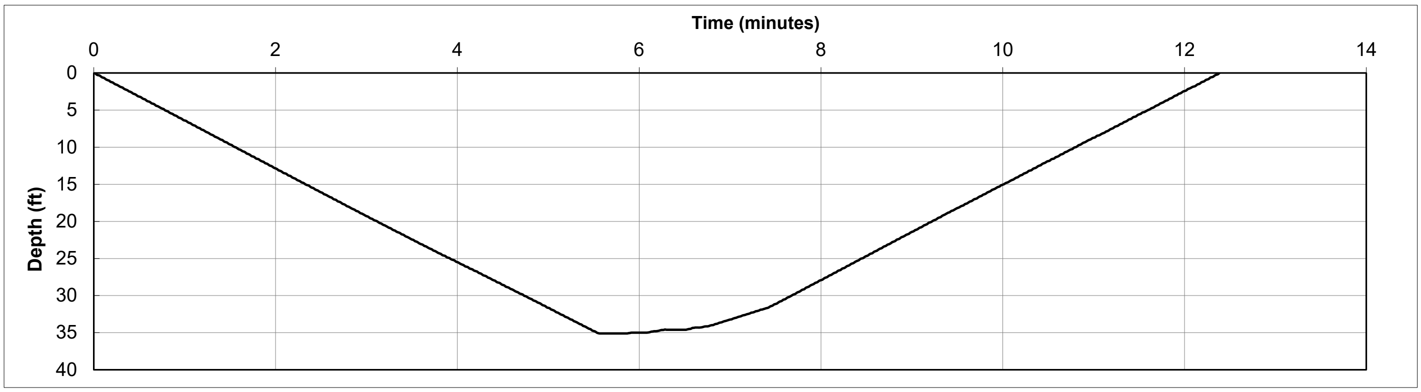
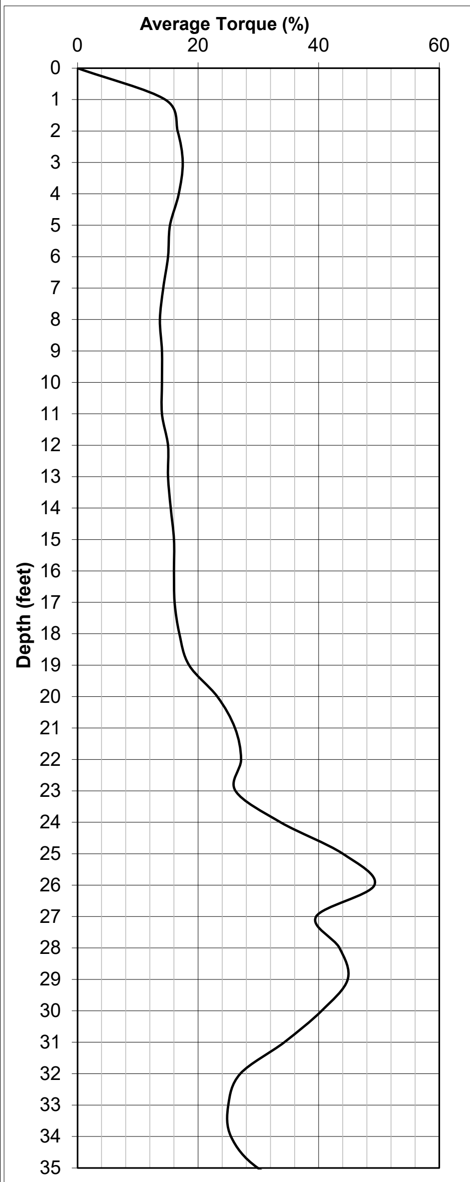
Project Site Data | **Data for Column No: 121**

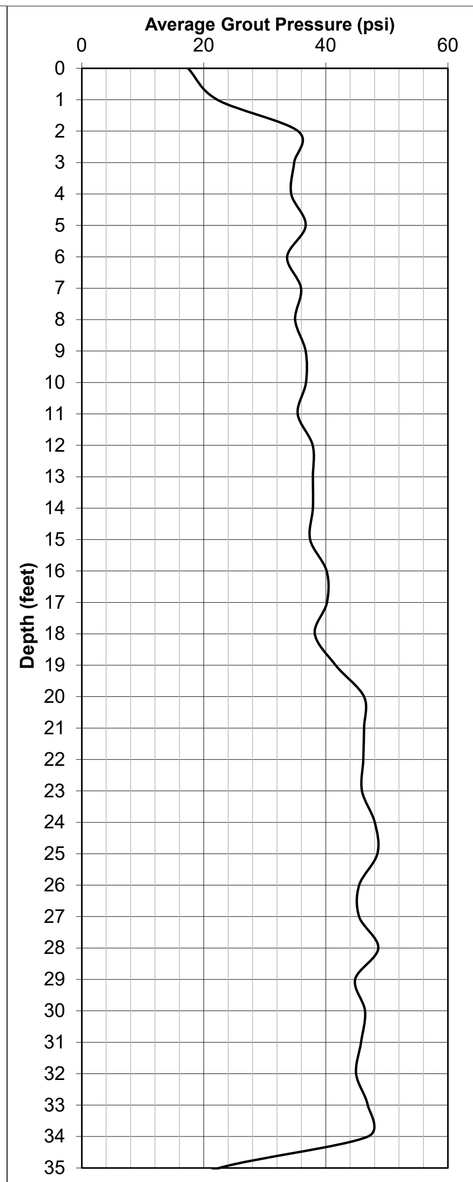
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:00 PM	Concrete Volume:	87.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:06 PM	Column Depth:	35.1	ft
		End Time:	12:12 PM	Pre Auger:		
		Total Time:	12 min			

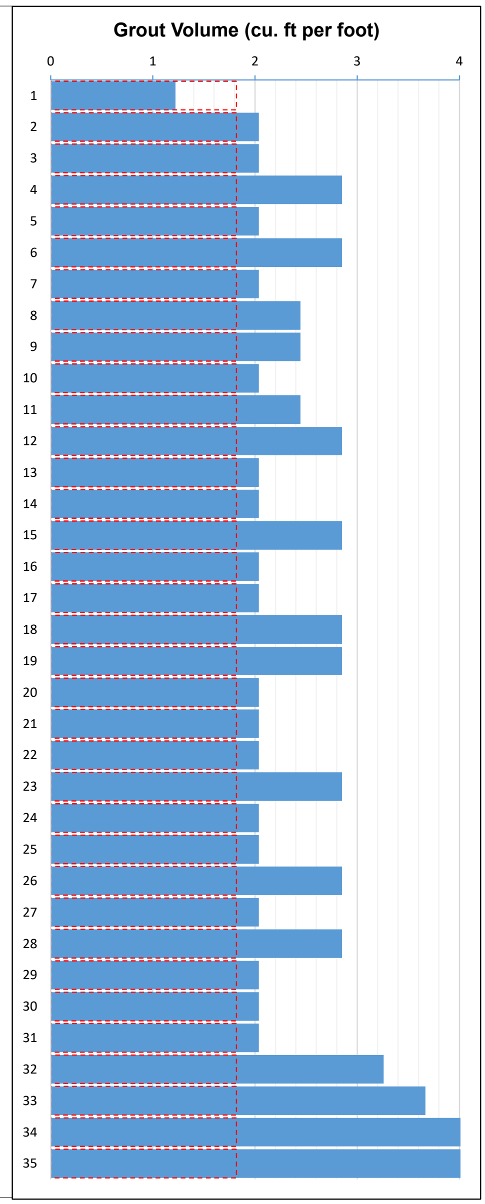
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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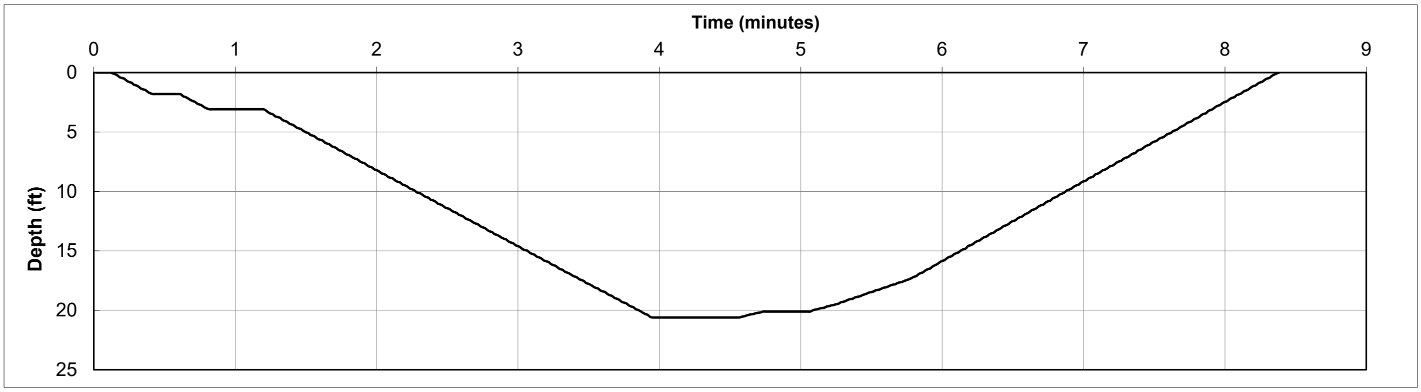
Project Site Data

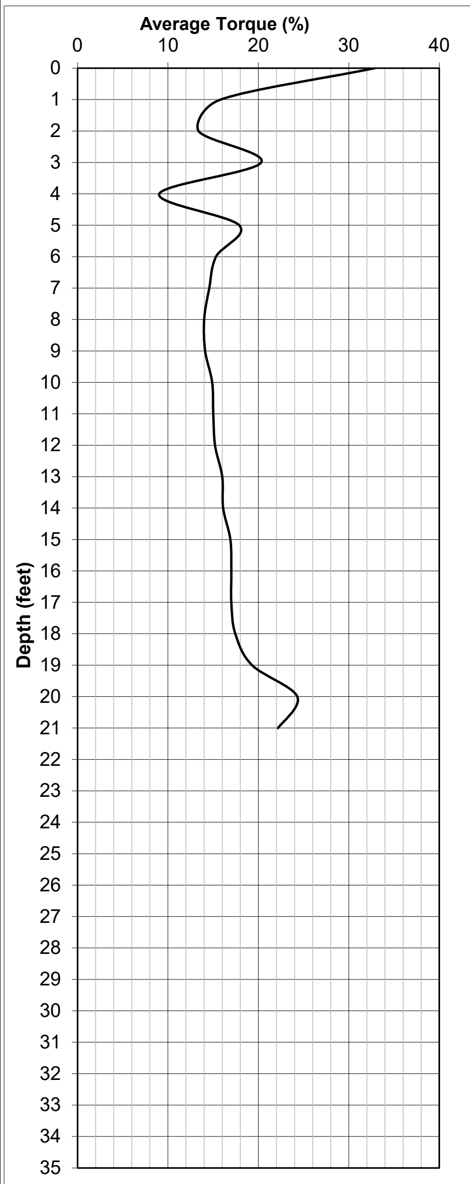
Data for Column No: 177

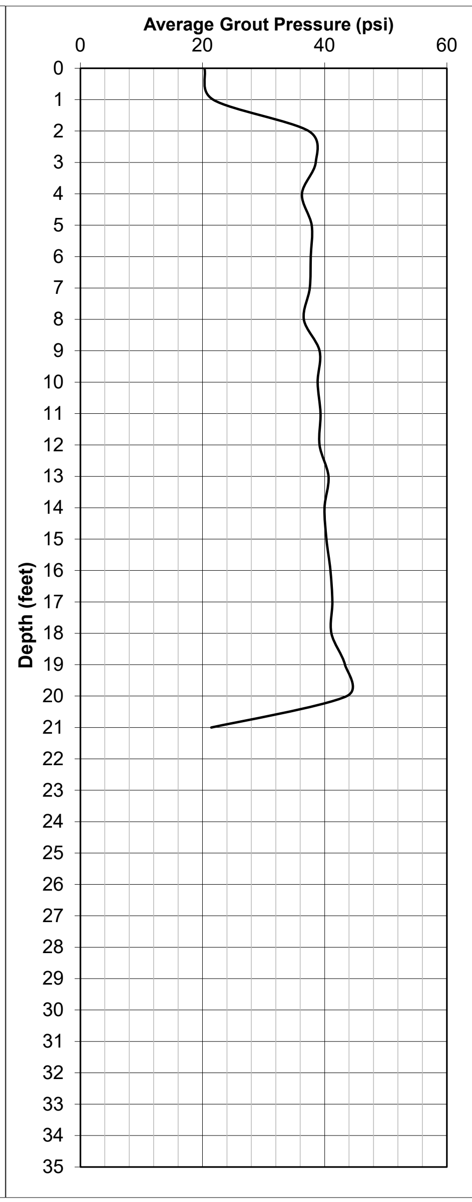
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:35 PM	Concrete Volume:	51.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:40 PM	Column Depth:	20.6	ft
		End Time:	12:43 PM	Pre Auger:		
		Total Time:	8 min			

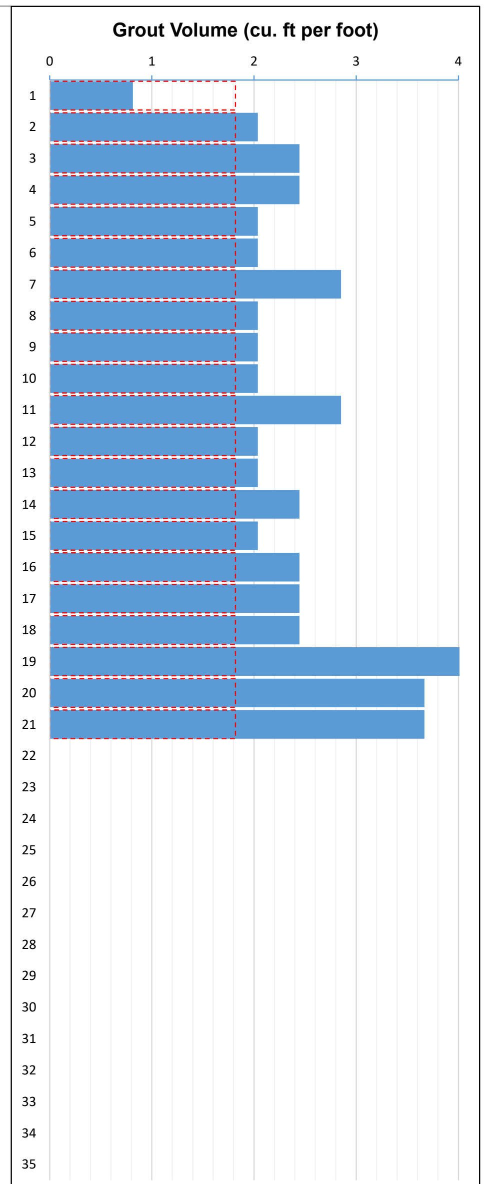
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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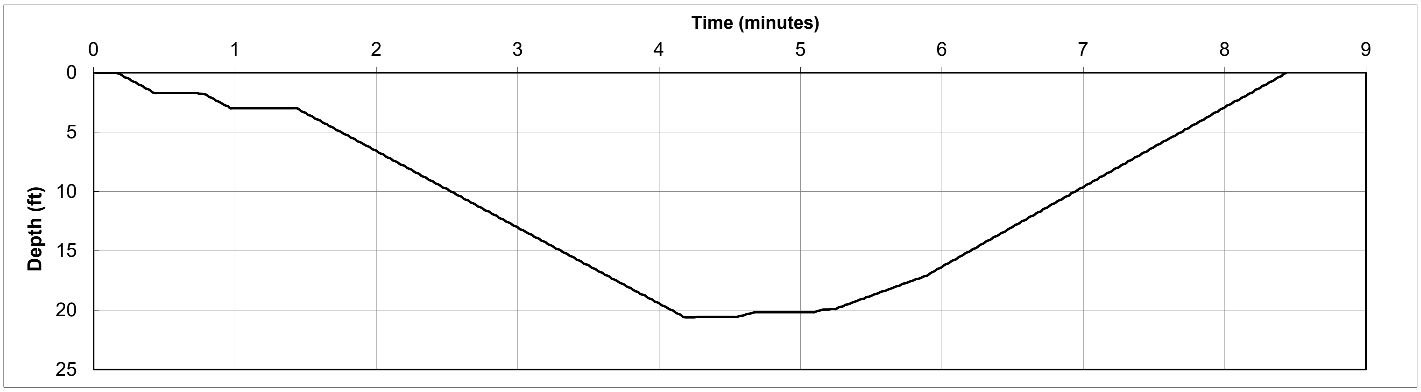
Project Site Data

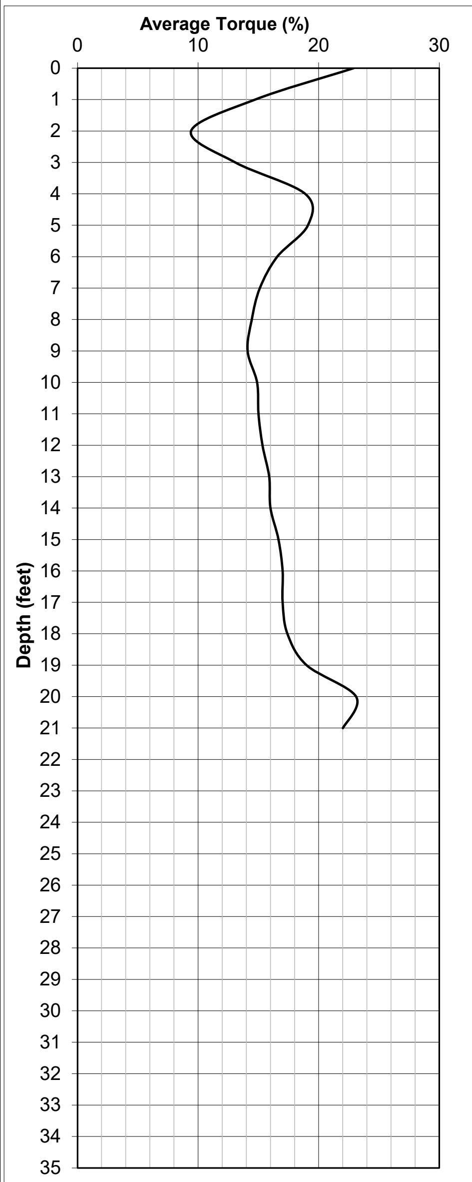
Data for Column No: 178

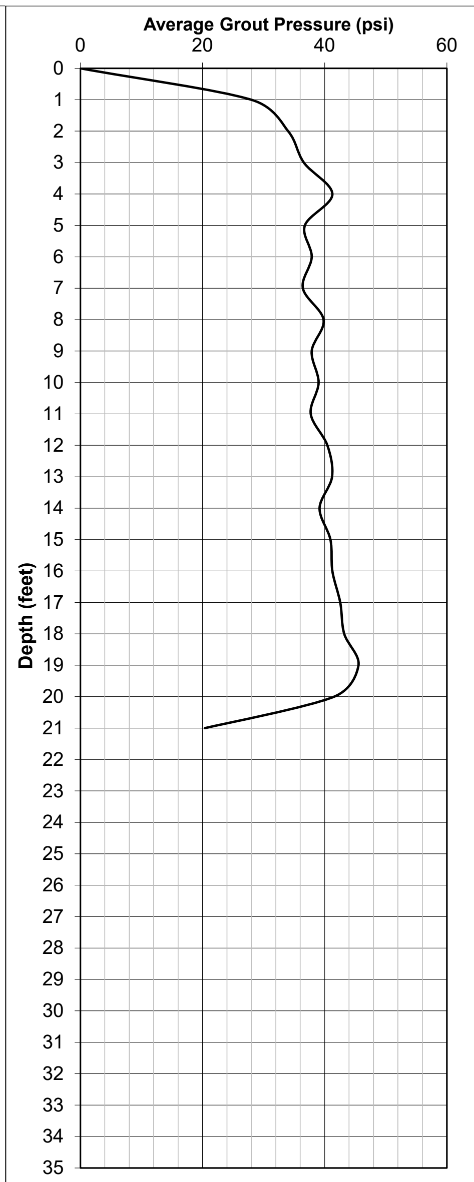
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:49 PM	Concrete Volume:	52.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:53 PM	Column Depth:	20.6	ft
		End Time:	12:57 PM	Pre Auger:		
		Total Time:	8 min			

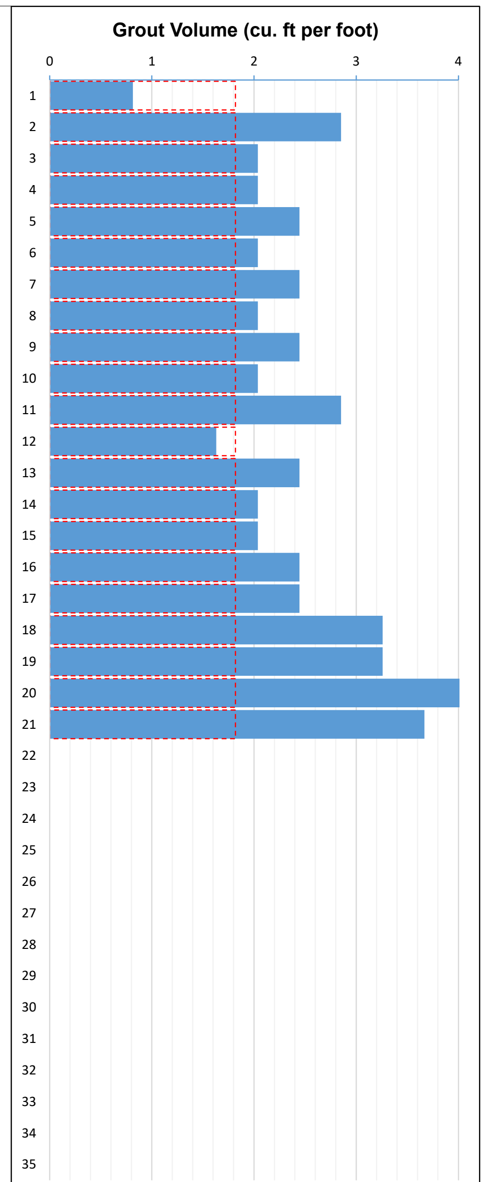
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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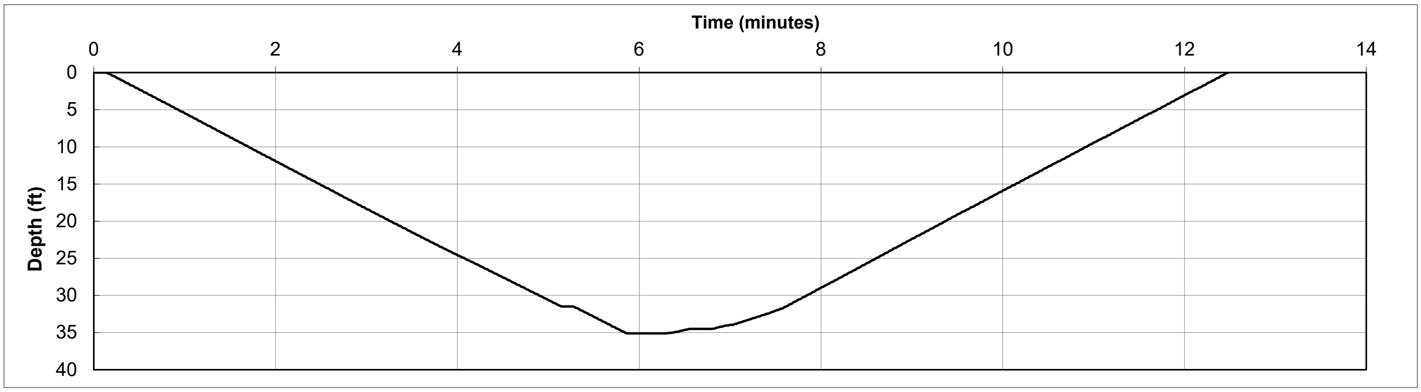
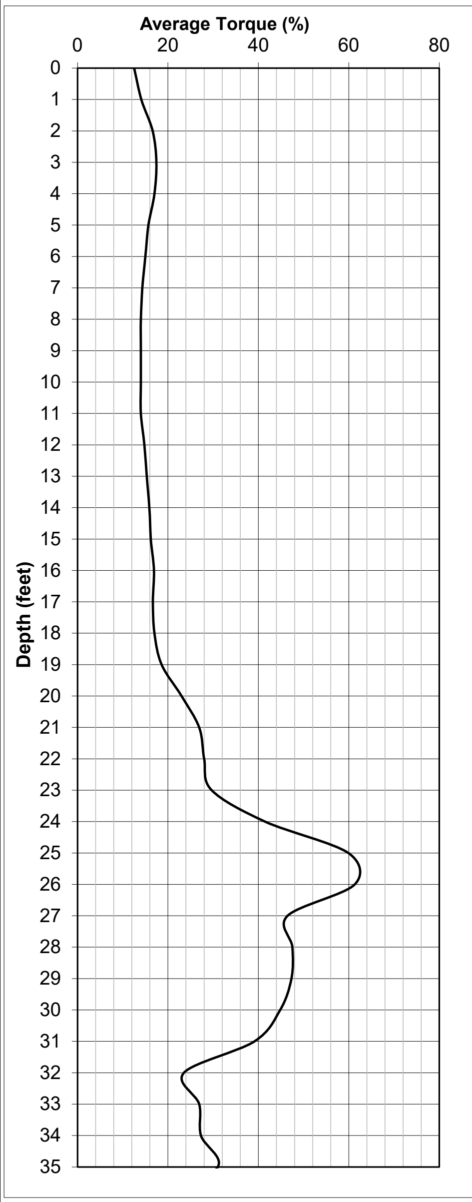
Project Site Data | **Data for Column No: 282**

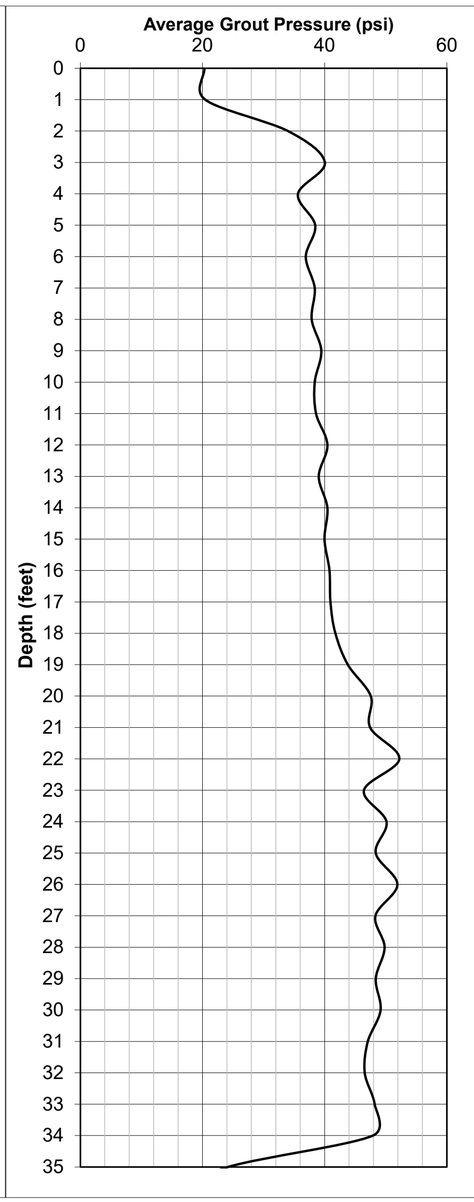
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:59 PM	Concrete Volume:	86.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:06 PM	Column Depth:	35.1	ft
		End Time:	1:12 PM	Pre Auger:		
		Total Time:	13 min			

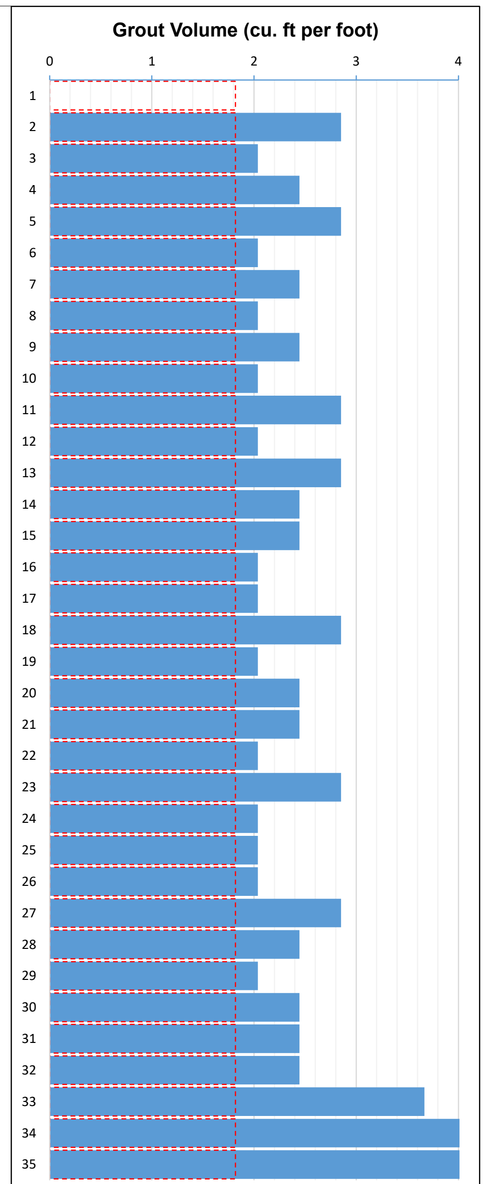
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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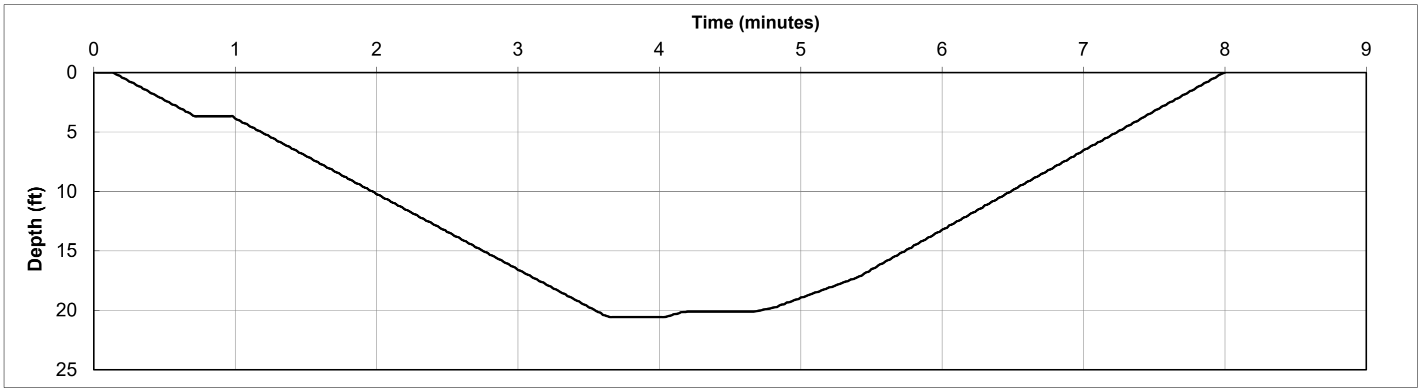
Project Site Data

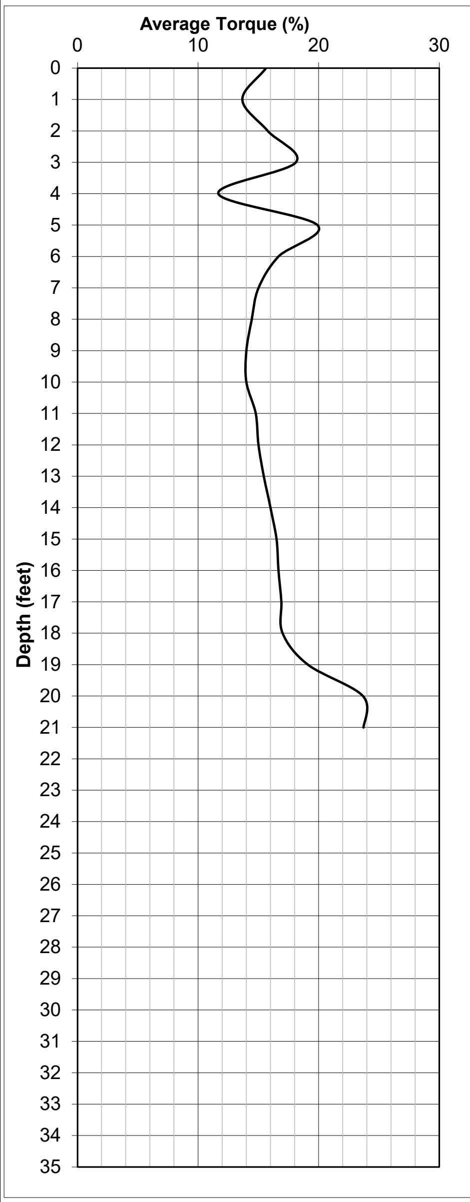
Data for Column No: 179

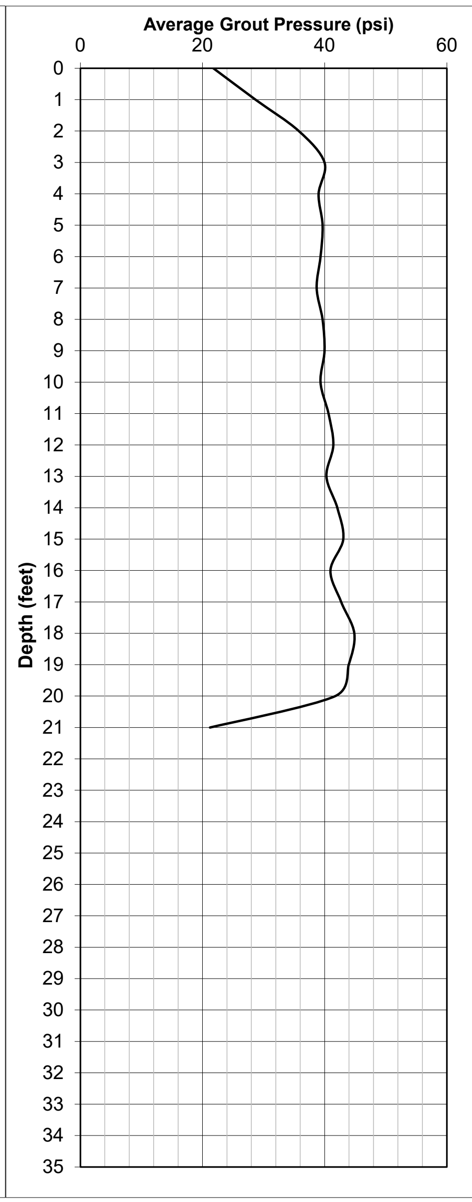
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:15 PM	Concrete Volume:	54.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:19 PM	Column Depth:	20.6	ft
		End Time:	1:23 PM	Pre Auger:		
		Total Time:	8 min			

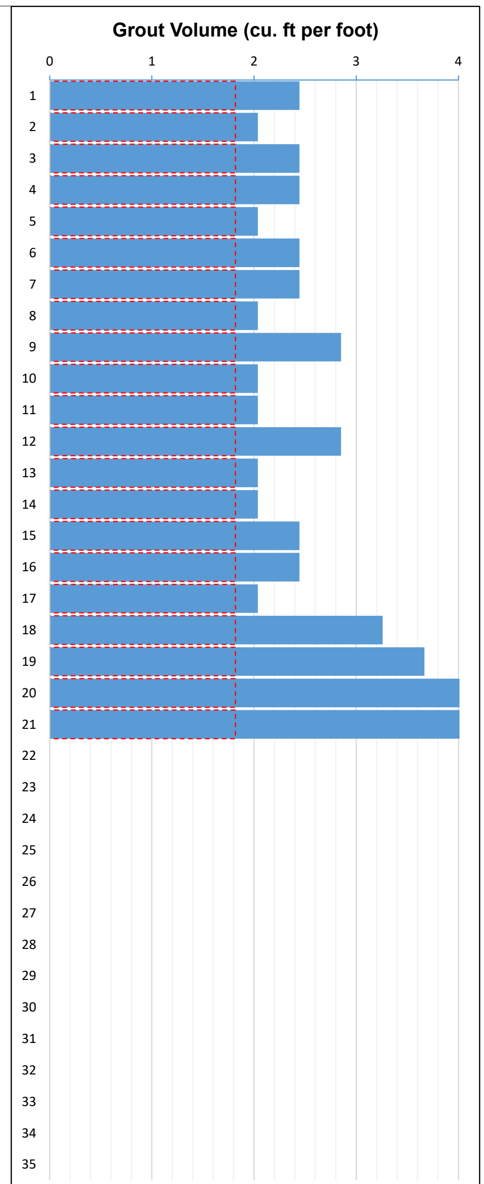
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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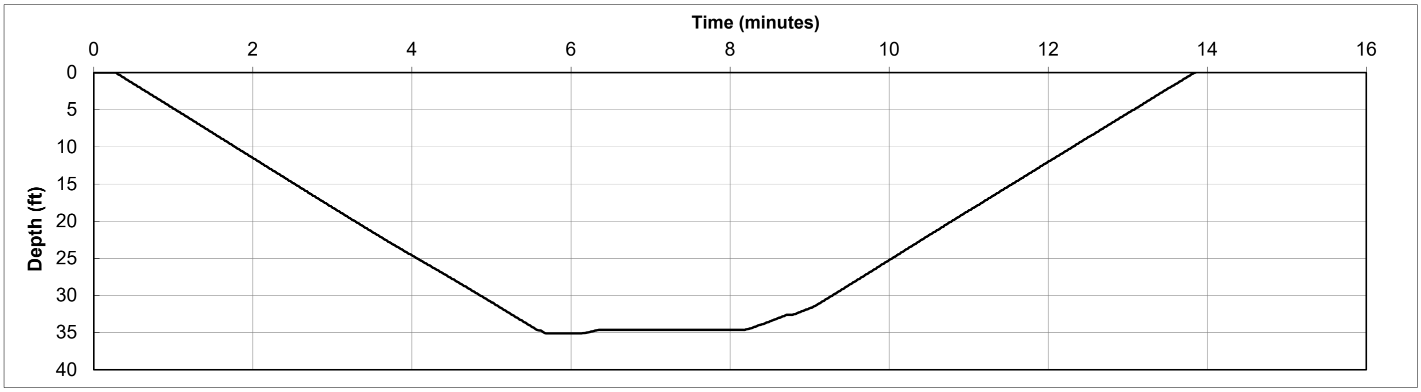
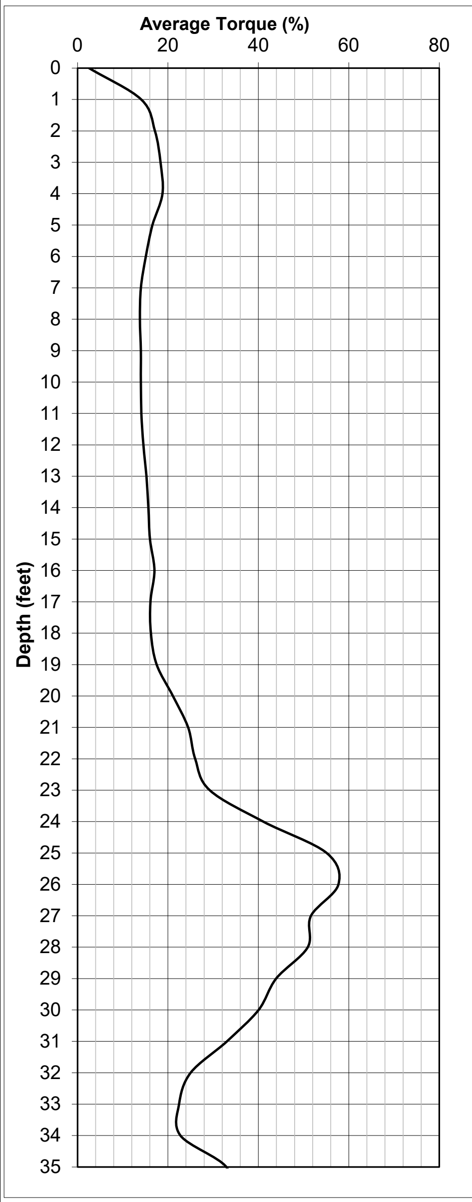
Project Site Data **Data for Column No: 283**

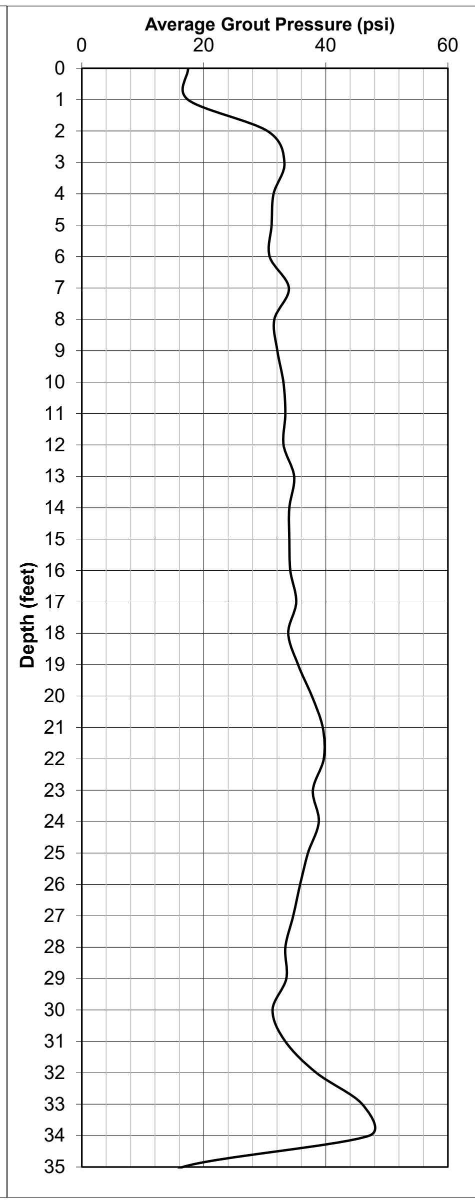
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:28 PM	Concrete Volume:	85.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:34 PM	Column Depth:	35.1	ft
		End Time:	1:42 PM	Pre Auger:		
		Total Time:	14 min			

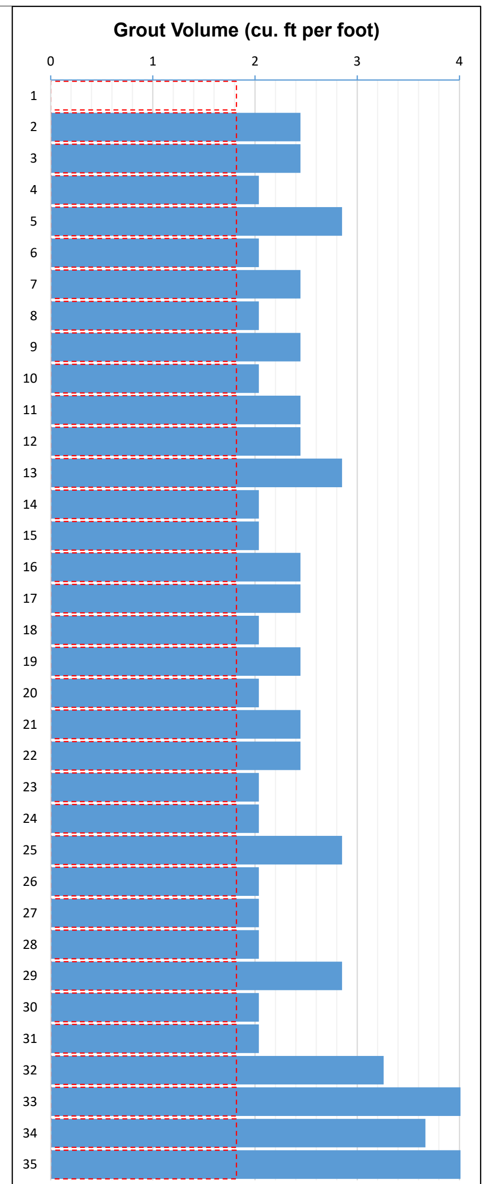
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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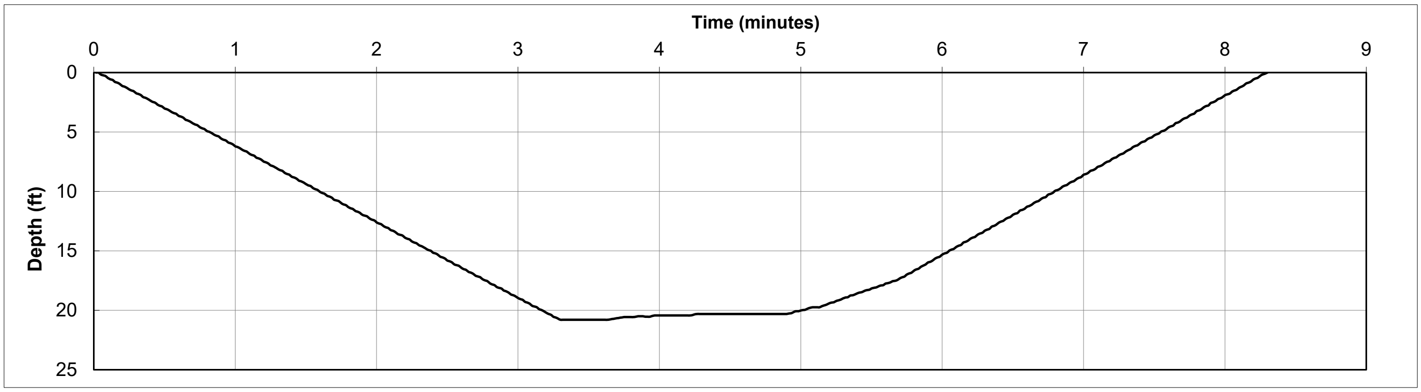
Project Site Data

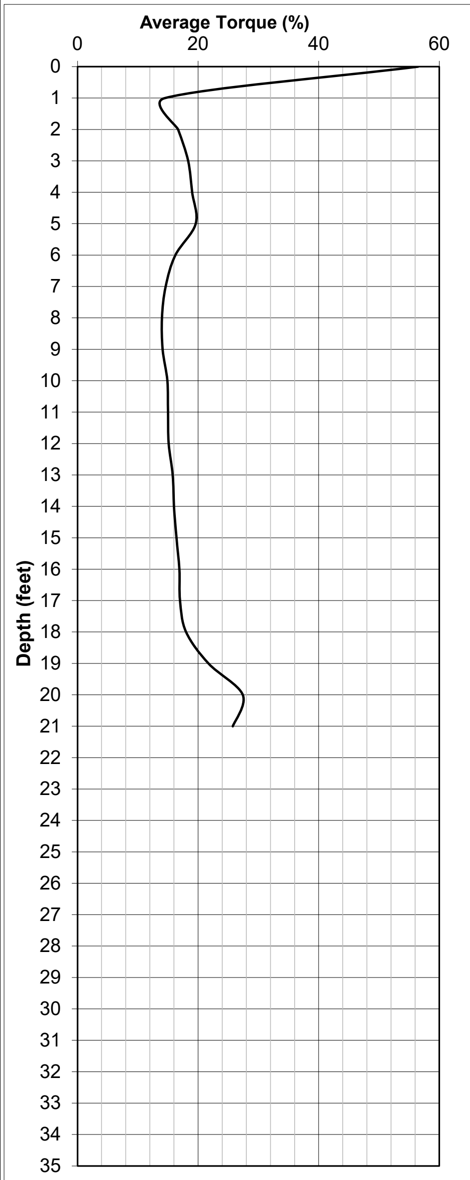
Data for Column No: 180

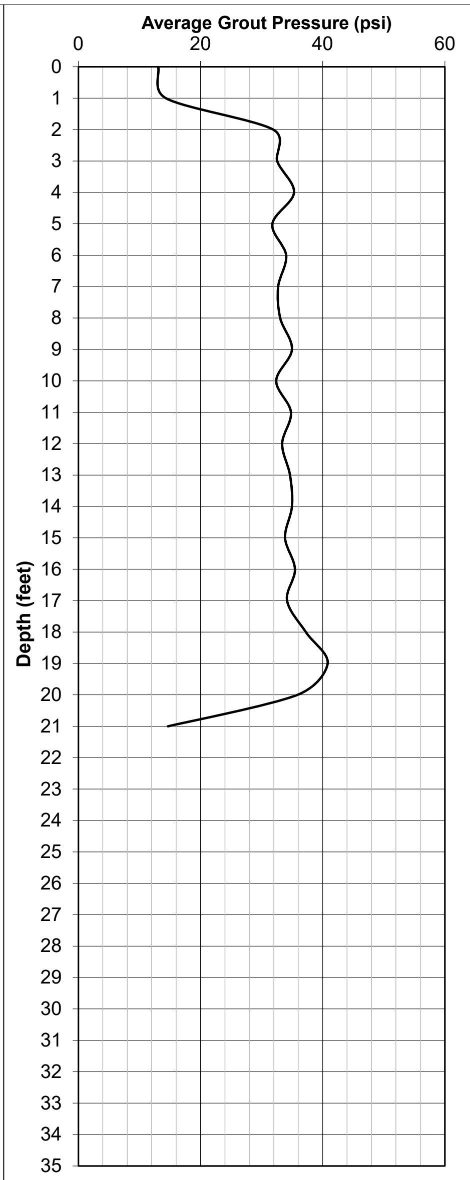
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:45 PM	Concrete Volume:	50.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:49 PM	Column Depth:	20.8	ft
		End Time:	1:53 PM	Pre Auger:		
		Total Time:	8 min			

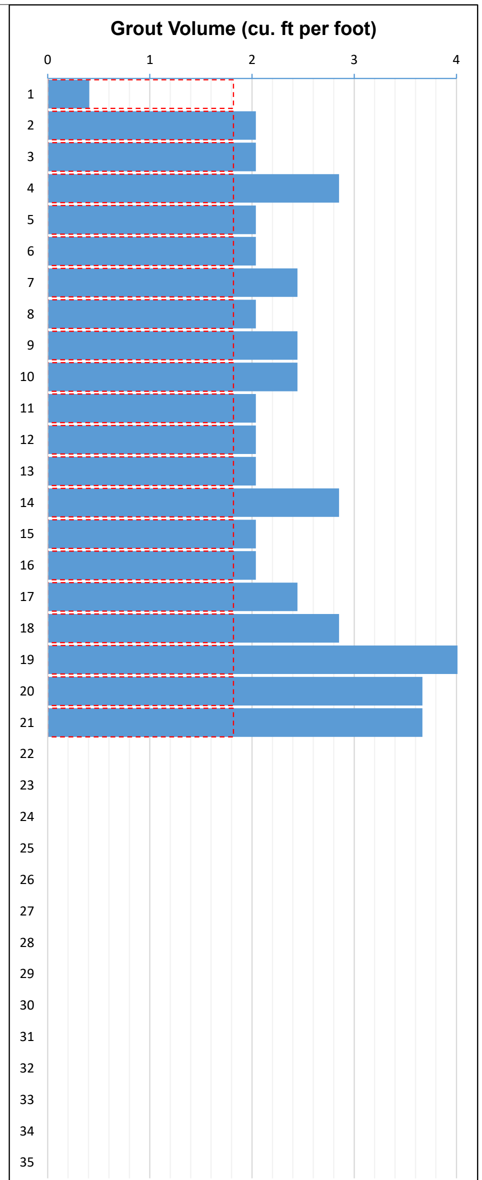
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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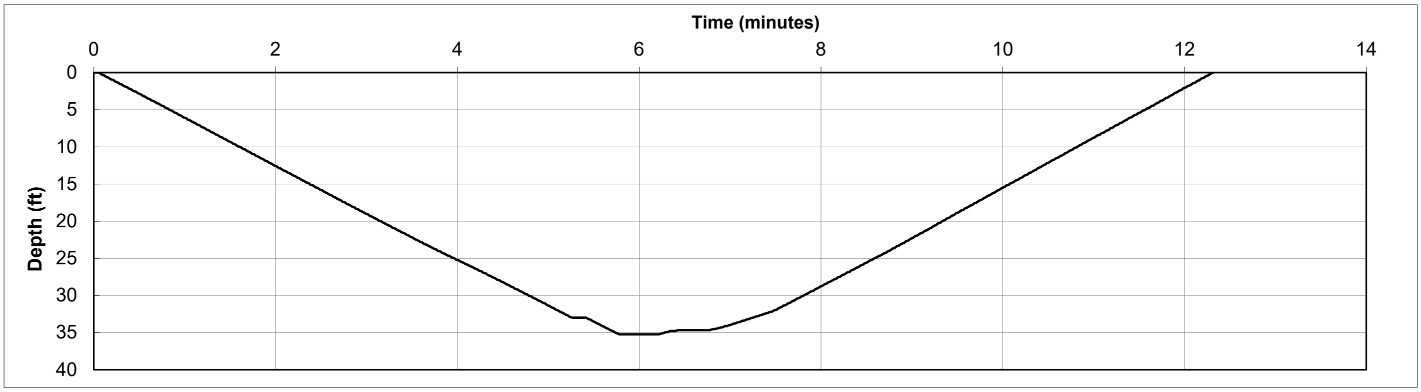
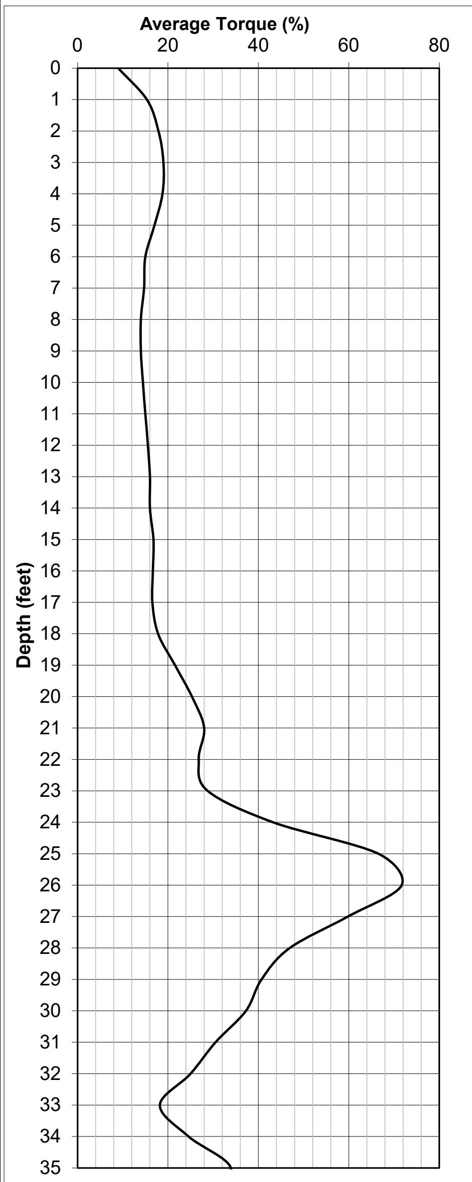
Project Site Data | **Data for Column No: 284**

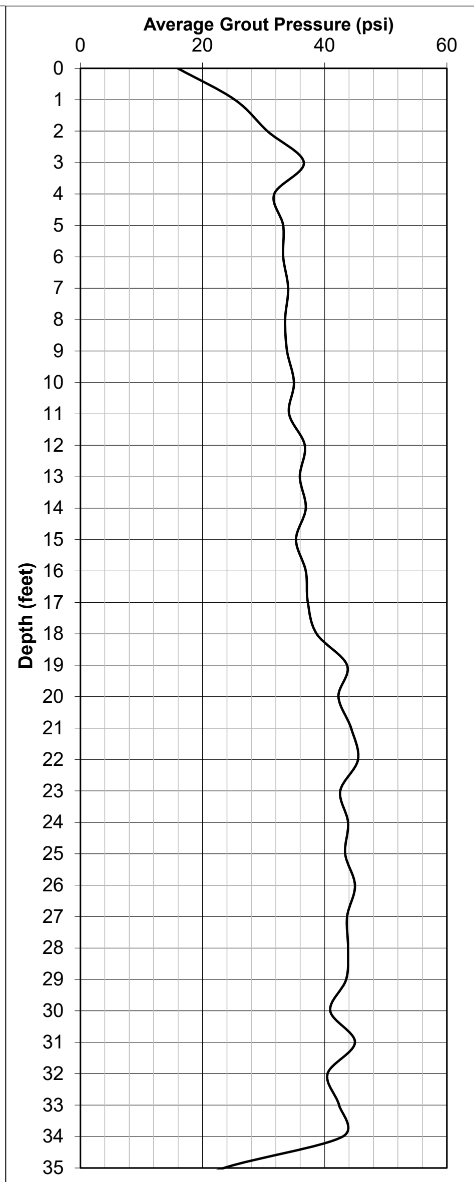
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:57 PM	Concrete Volume:	86.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:03 PM	Column Depth:	35.2	ft
		End Time:	2:09 PM	Pre Auger:		
		Total Time:	12 min			

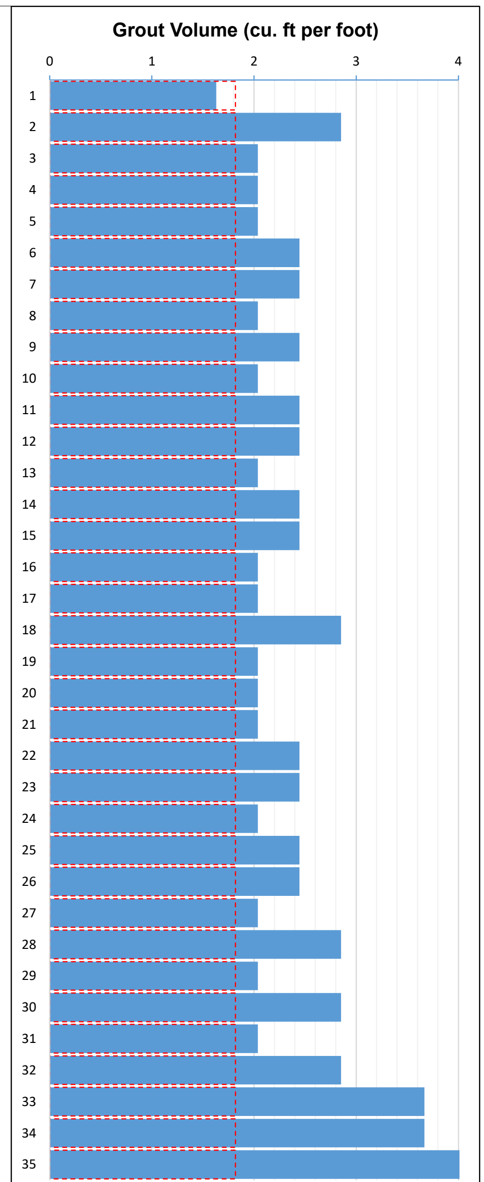
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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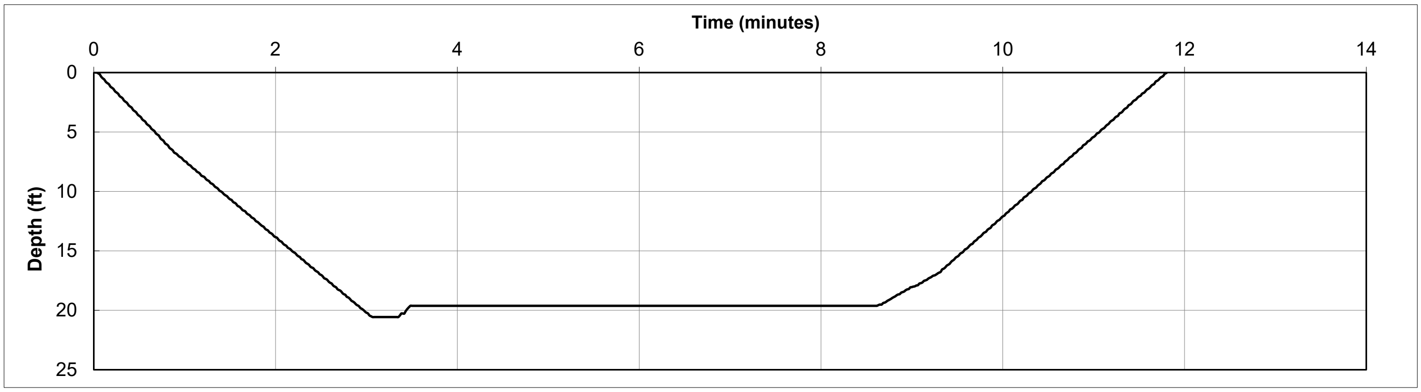
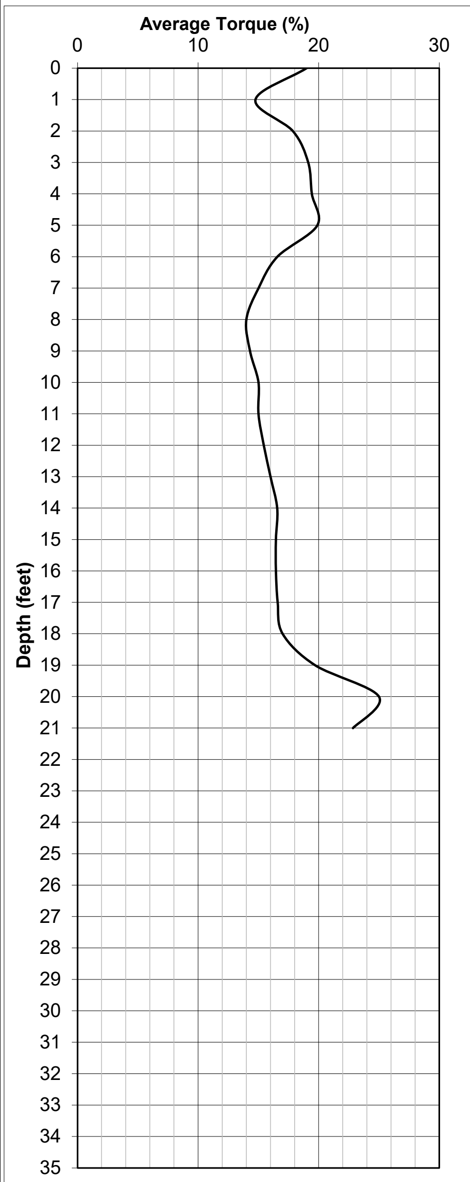
Project Site Data | **Data for Column No: 181**

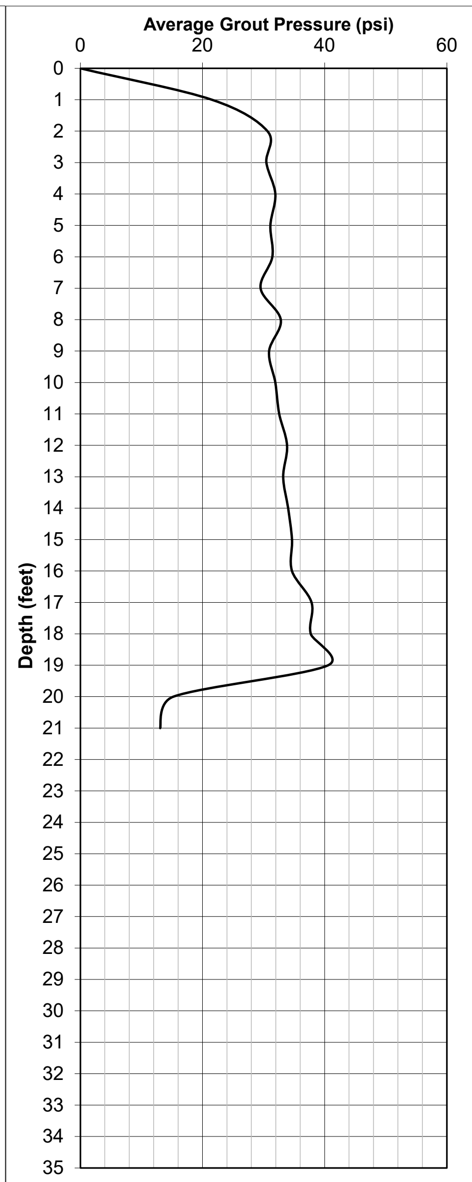
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:14 PM	Concrete Volume:	53.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:18 PM	Column Depth:	20.6	ft
		End Time:	2:26 PM	Pre Auger:		
		Total Time:	12 min			

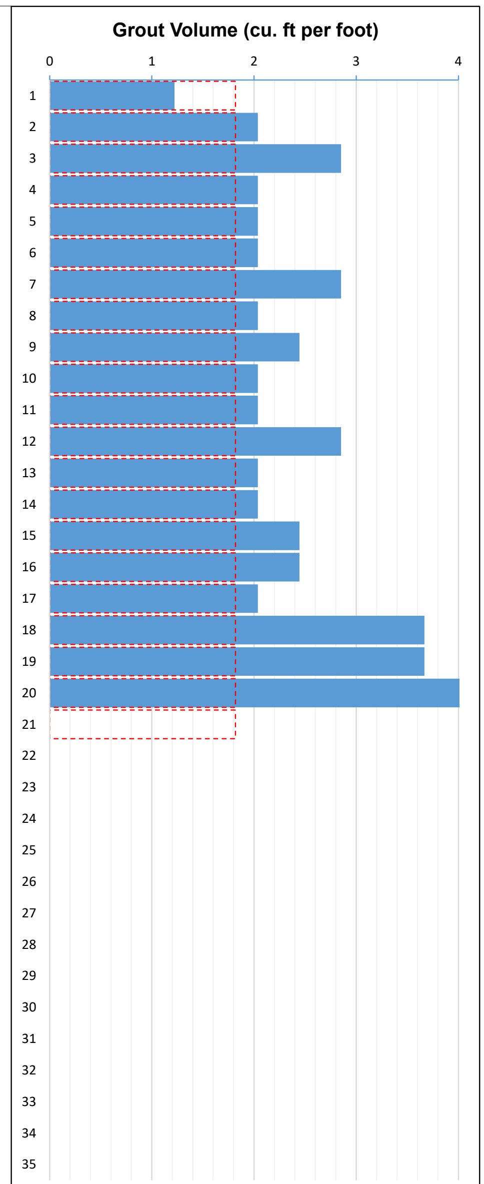
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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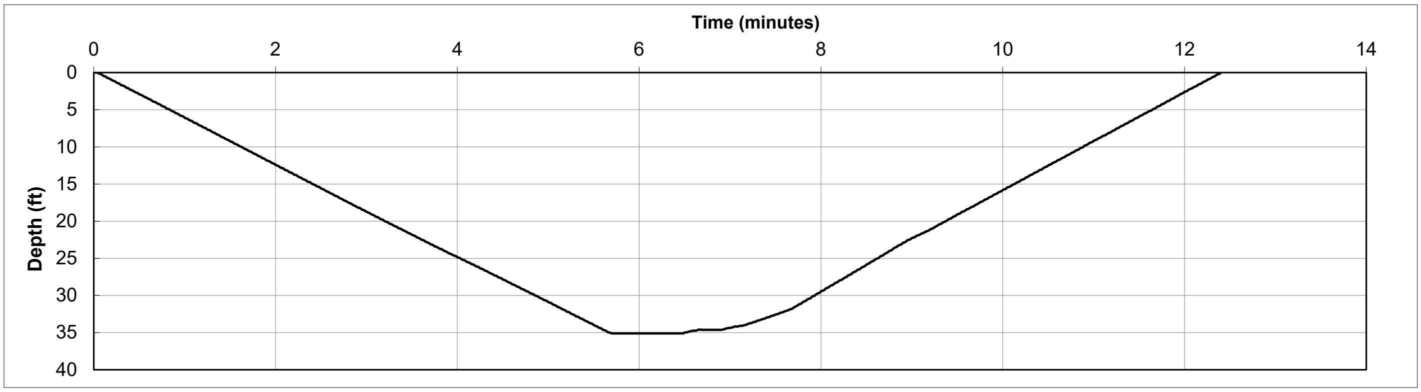
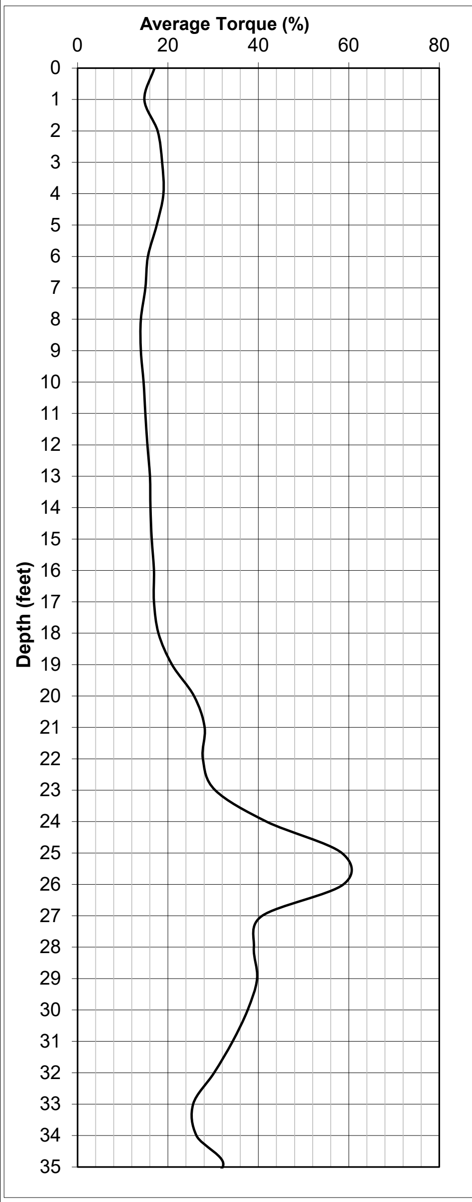
Project Site Data | **Data for Column No: 285**

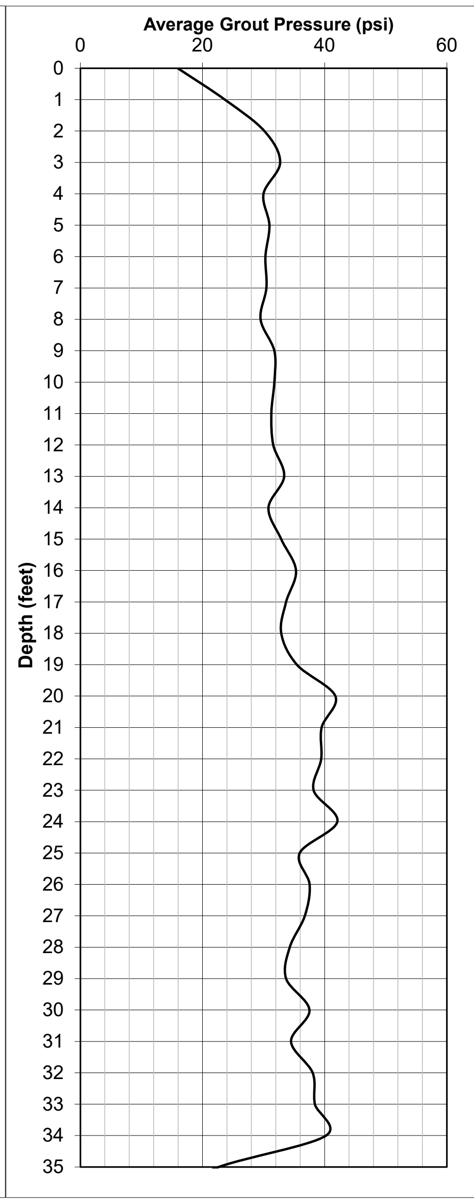
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:29 PM	Concrete Volume:	83.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:36 PM	Column Depth:	35.1	ft
		End Time:	2:42 PM	Pre Auger:		
		Total Time:	12 min			

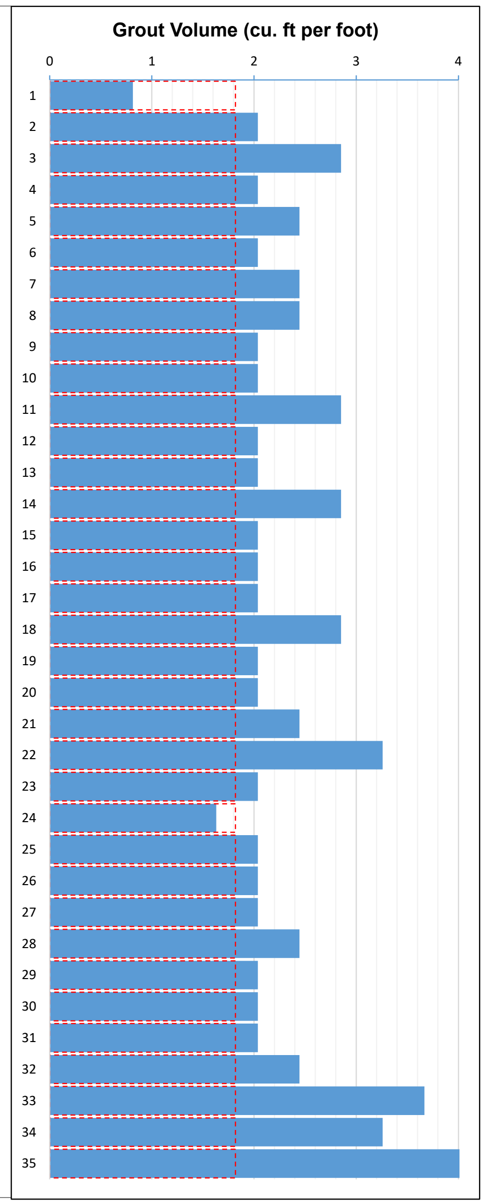
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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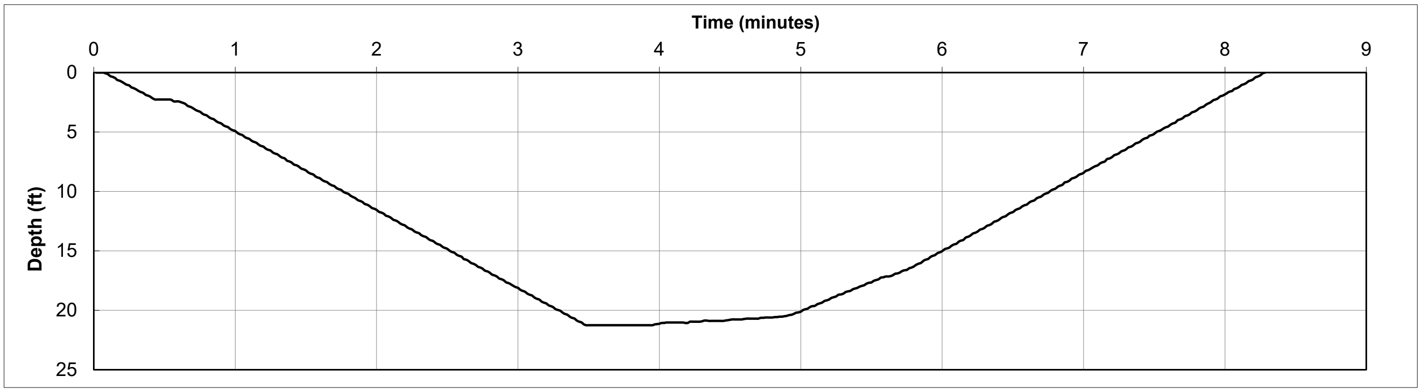
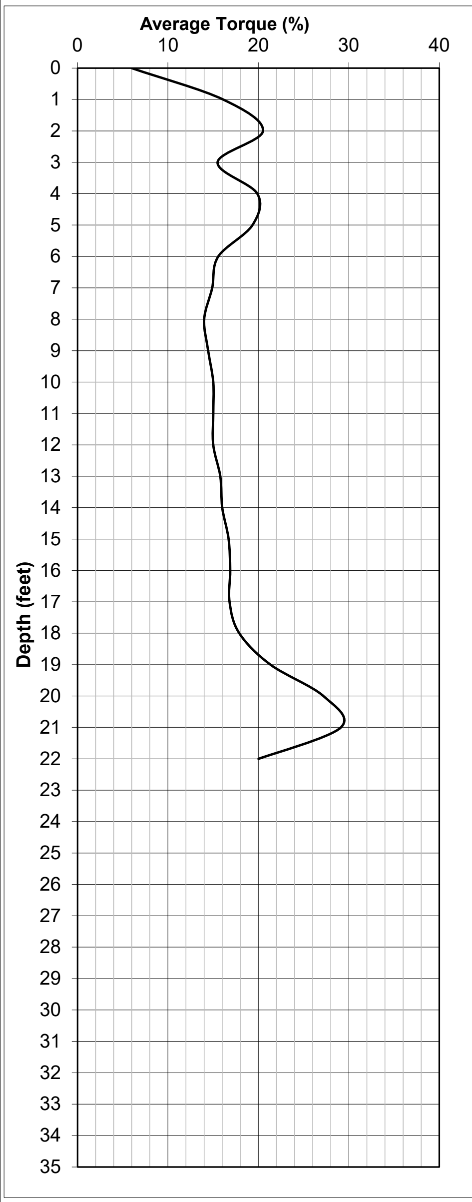
Project Site Data | **Data for Column No: 182**

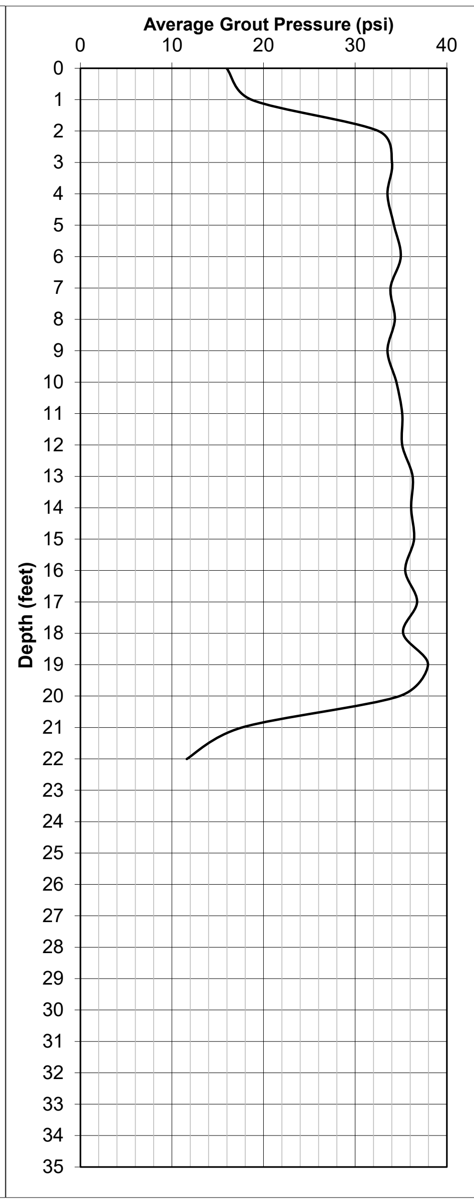
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:48 PM	Concrete Volume:	51.7	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:52 PM	Column Depth:	21.3	ft
		End Time:	2:56 PM	Pre Auger:		
		Total Time:	8 min			

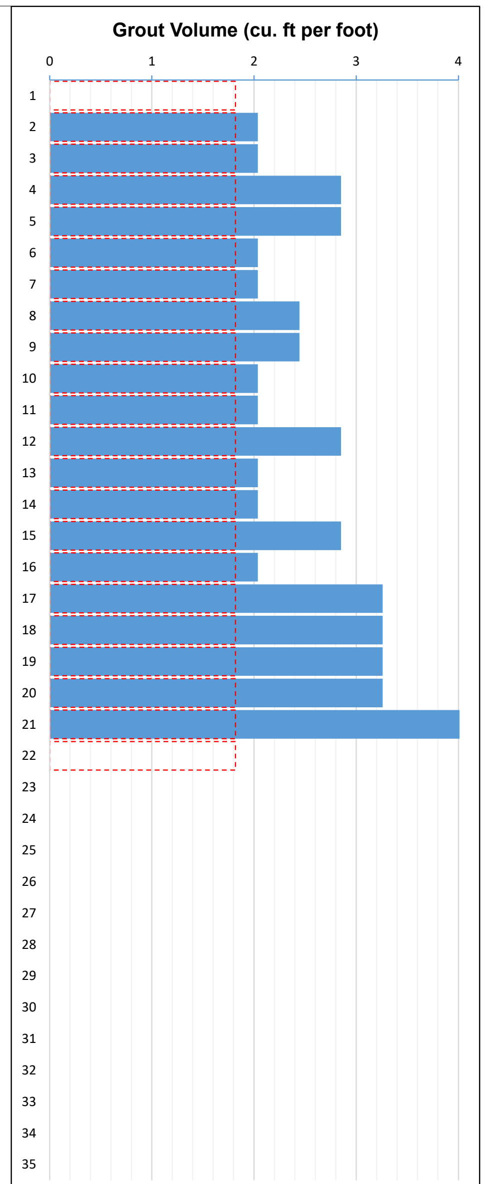
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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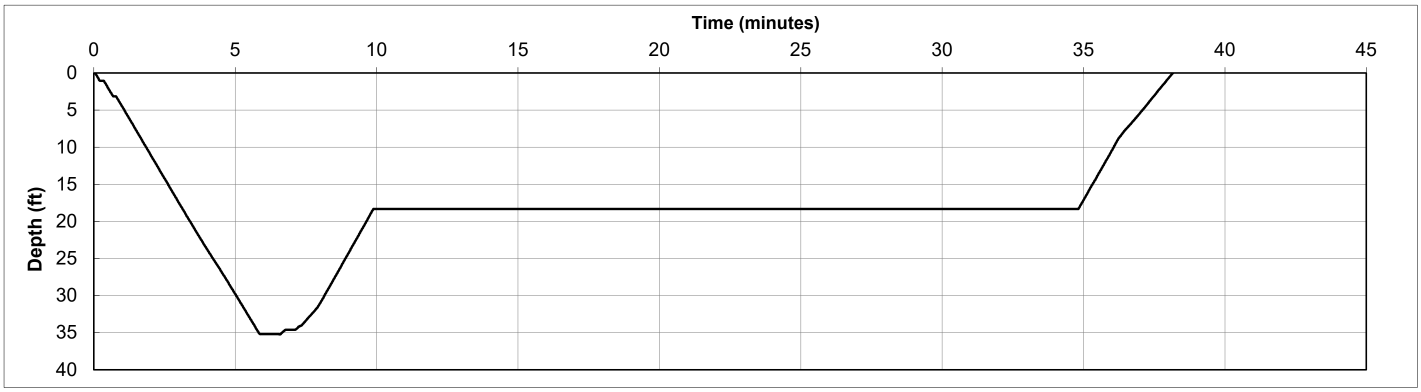
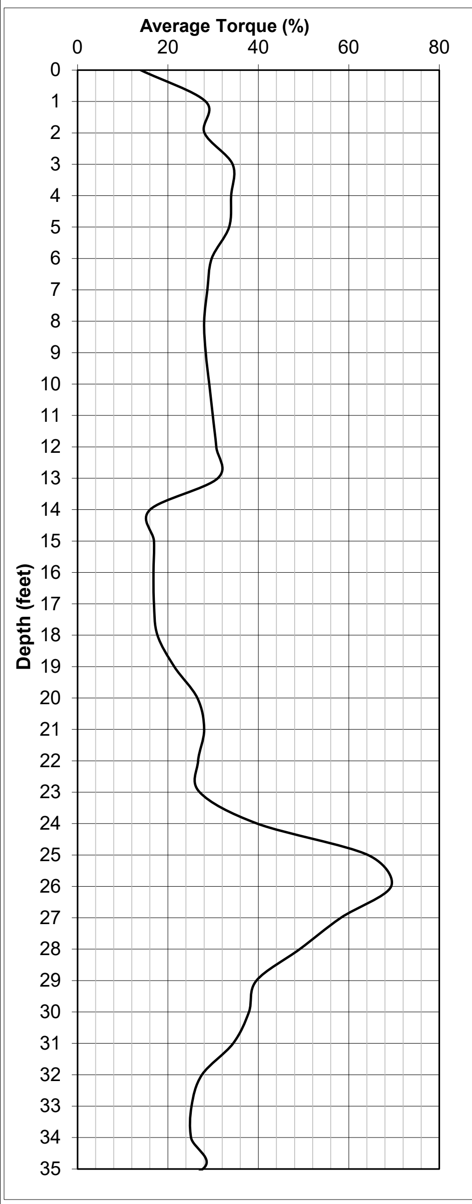
Project Site Data | **Data for Column No: 286**

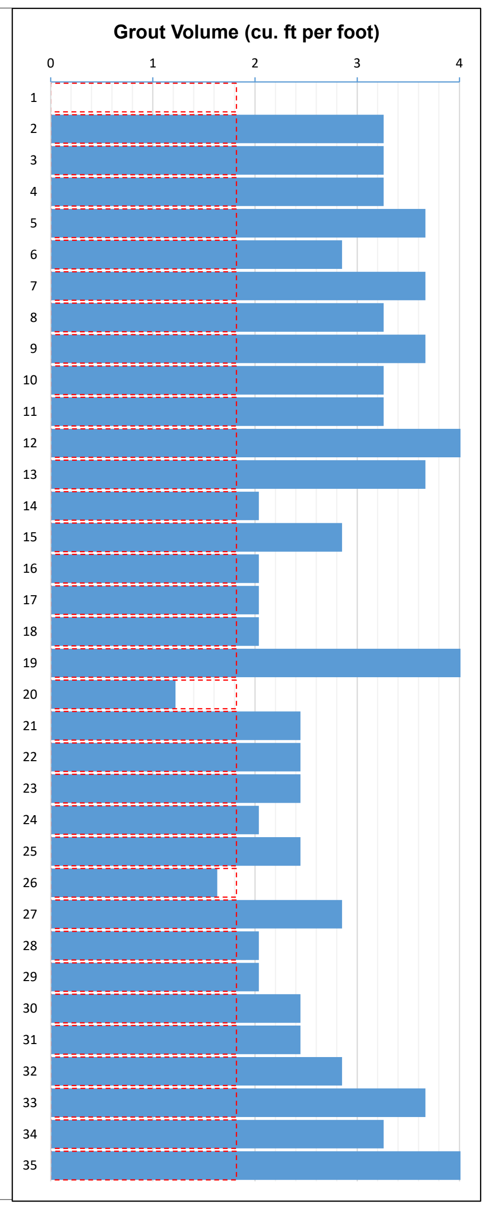
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:59 PM	Concrete Volume:	99.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	3:06 PM	Column Depth:	66.0	ft
		End Time:	3:45 PM	Pre Auger:		
		Total Time:	46 min			

Tool meets 16" Nominal Requirement

Rig Id: BG-30
Operator: James "Smitty" Smith







DGC Log Sheet

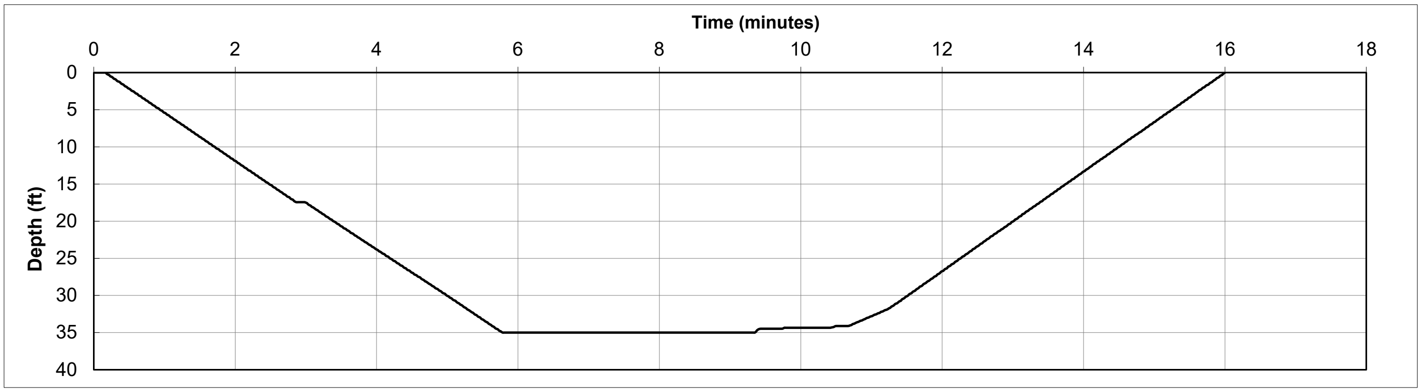
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

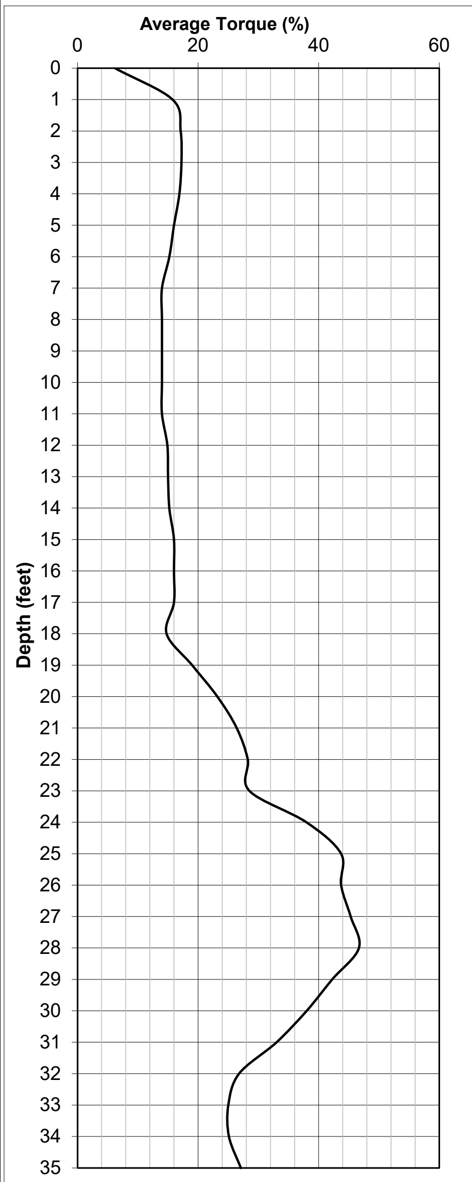
Project Site Data | **Data for Column No: 276**

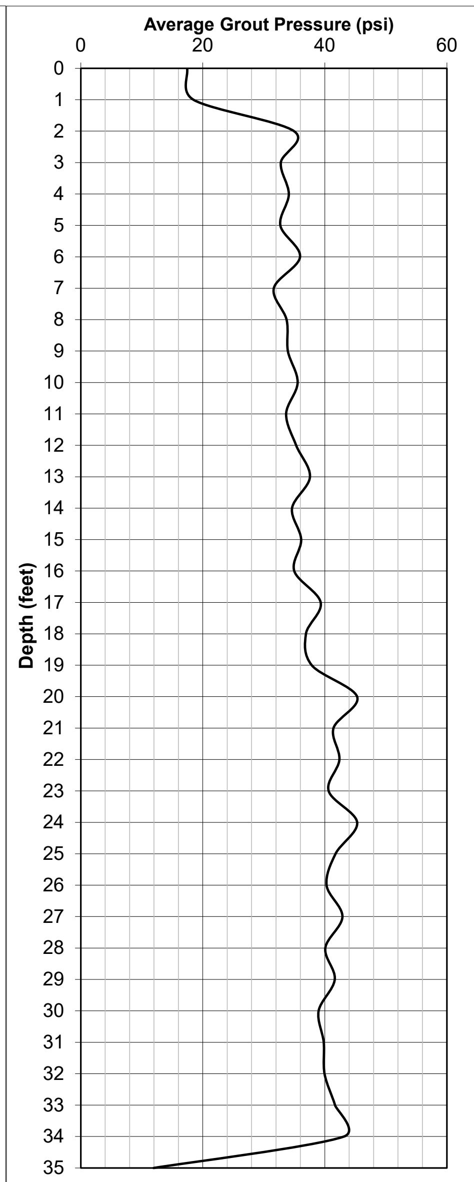
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	3:52 PM	Concrete Volume:	84.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	4:01 PM	Column Depth:	35.0	ft
		End Time:	4:08 PM	Pre Auger:		
		Total Time:	16 min			

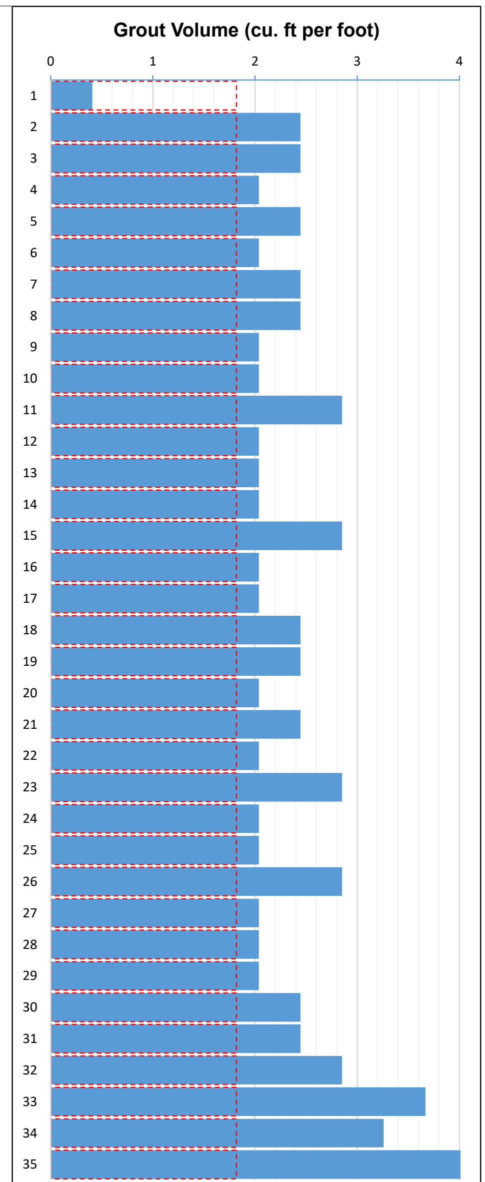
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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Lake Forest, CA 92630
P: 310-796-9000

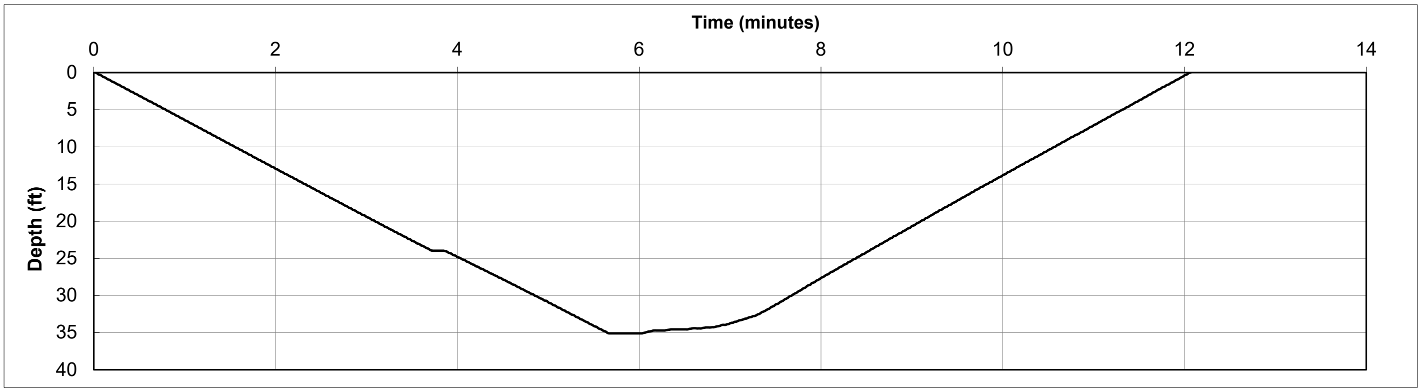
Project Site Data

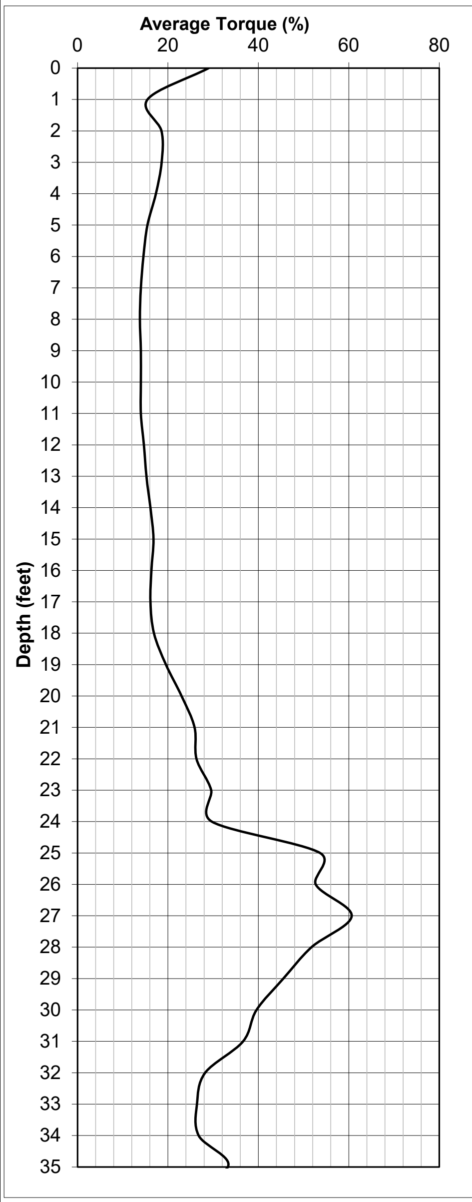
Data for Column No: 277

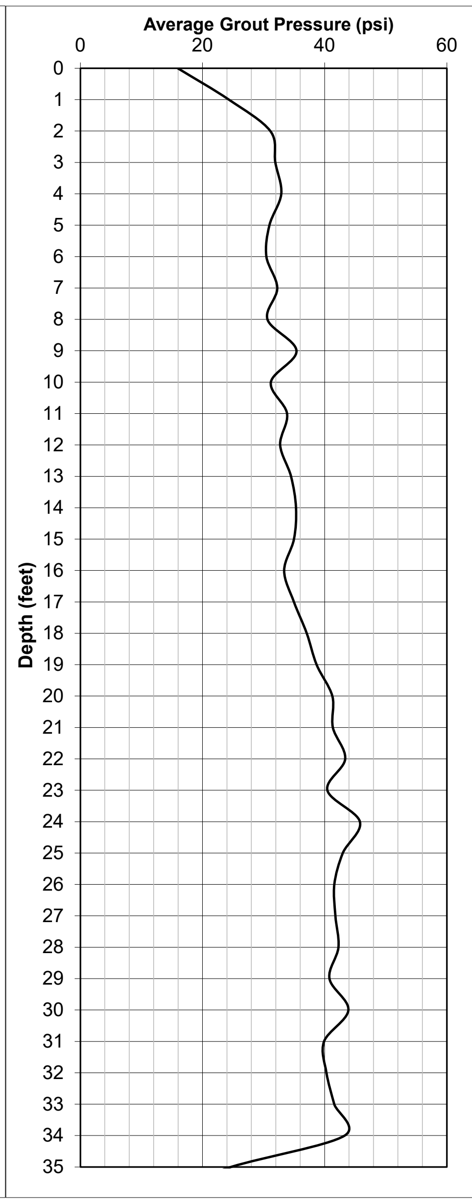
Project Name:	Oxnard College Fire Training	Date:	12/9/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	4:12 PM	Concrete Volume:	83.9	cubic ft
General Contractor:	Oxnard College	Bottom Time:	4:18 PM	Column Depth:	35.1	ft
		End Time:	4:24 PM	Pre Auger:		
		Total Time:	12 min			

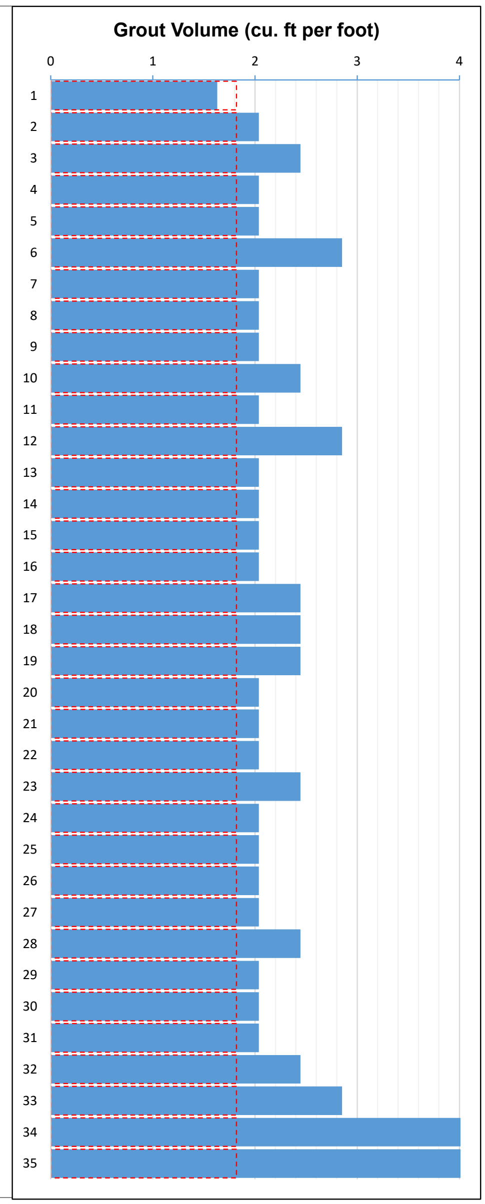
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









ADVANCED GEOSOLUTIONS INC

Daily Production Summary- Displacement Grout Columns

Project No. : **P271275**

Project Name: Oxnard College Fire Training Academy

Rig: BG-30

Rig Operator: James "Smitty" Smith

Oiler: Benny Sandoval

Date: Thursday, December 10, 2020

Seq. No	Rig No.	Col. ID	Start Time	Bottom Time	End Time	Surface Elev.	Column Depth (ft)	*Act. Tip Elev.*	Concrete Volume (cu. feet)	Truck ID	Comments
1		123	07:50	07:56	08:02	74.4	35.1	39.3	83	42659121	
2		124	08:05	08:11	08:16	74.4	35.1	39.3	76	42659121	
3		278	08:21	08:27	08:37	74.4	35.1	39.3	79	42659121	
4		126	08:41	08:47	08:52	74.4	35.1	39.3	78	42659127	
5		128	08:57	09:03	09:09	74.4	35.1	39.3	75	42659127	
6		279	09:13	09:19	09:57	74.4	35.0	39.4	77	42659127	
7		280	10:01	10:07	10:13	74.4	35.1	39.3	75	42659139	
8		272	10:19	10:25	10:31	74.4	35.2	39.2	75	42659139	
9		274	10:33	10:40	10:45	74.4	35.1	39.3	77	42659139	
10		273	11:08	11:14	11:20	74.4	35.0	39.4	73	42659150	
11		266	11:22	11:29	11:34	74.4	35.1	39.3	76	42659150	
12		268	11:37	11:43	11:49	74.4	35.1	39.3	76	42659150	
13		267	11:59	12:05	12:11	74.4	35.3	39.1	75	42659159	
14		260	12:14	12:19	12:25	74.4	35.3	39.1	73	42659159	
15		262	12:28	12:34	12:39	74.4	35.0	39.4	75	42659159	
16		261	13:09	13:16	13:21	74.4	35.1	39.3	76	42659169	
17		254	13:25	13:31	13:43	74.4	35.1	39.3	75	42659169	
18		256	14:33	14:39	14:45	74.4	35.2	39.2	93	42659181	
19		255	15:06	15:12	15:18	74.4	35.1	39.3	92	42659181	
20		248	15:21	15:28	15:33	74.4	35.1	39.3	75	42659187	
21		250	15:35	15:41	15:47	74.4	35.1	39.3	76	42659187	
22		249	15:50	15:58	16:03	74.4	35.1	39.3	75	42659187	

DGC Log Sheet

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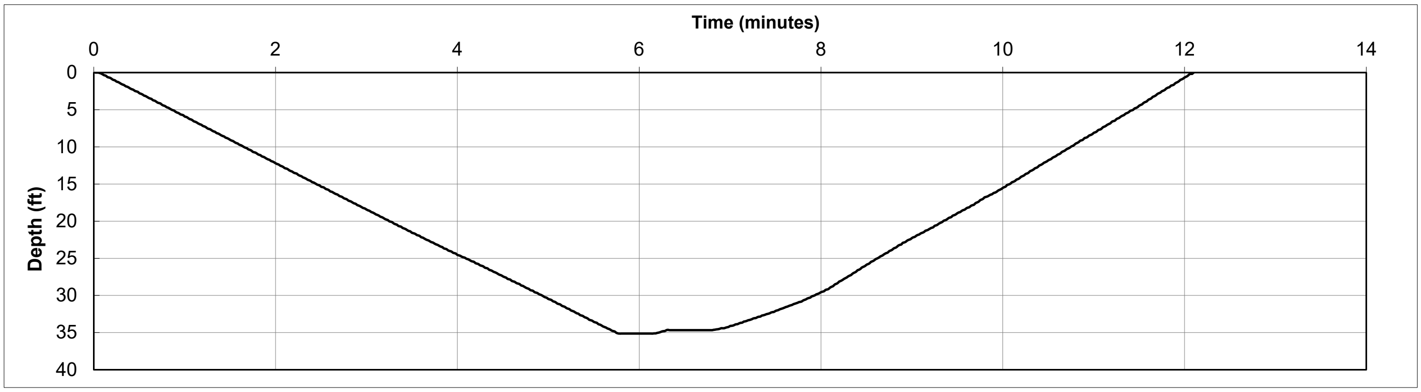
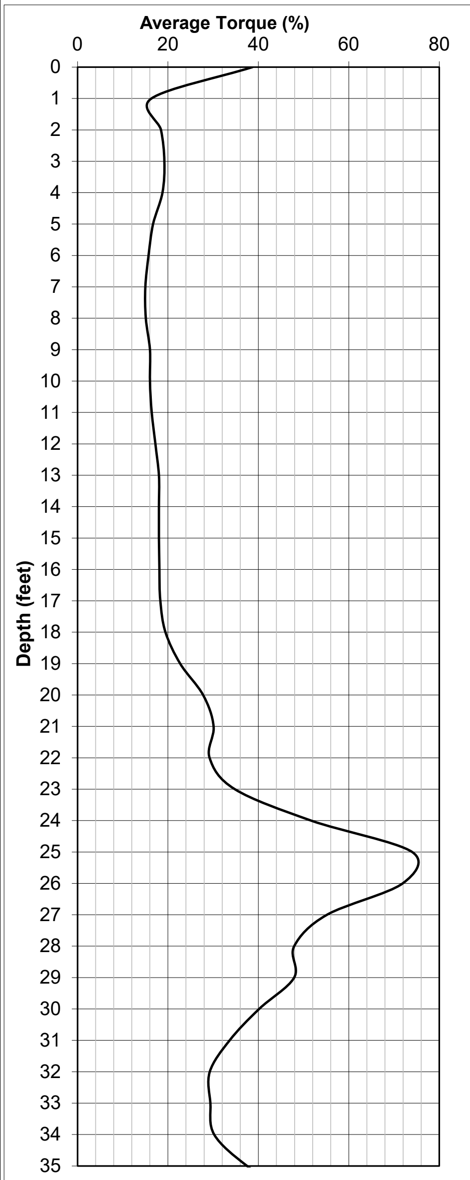
Project Site Data **Data for Column No: 123**

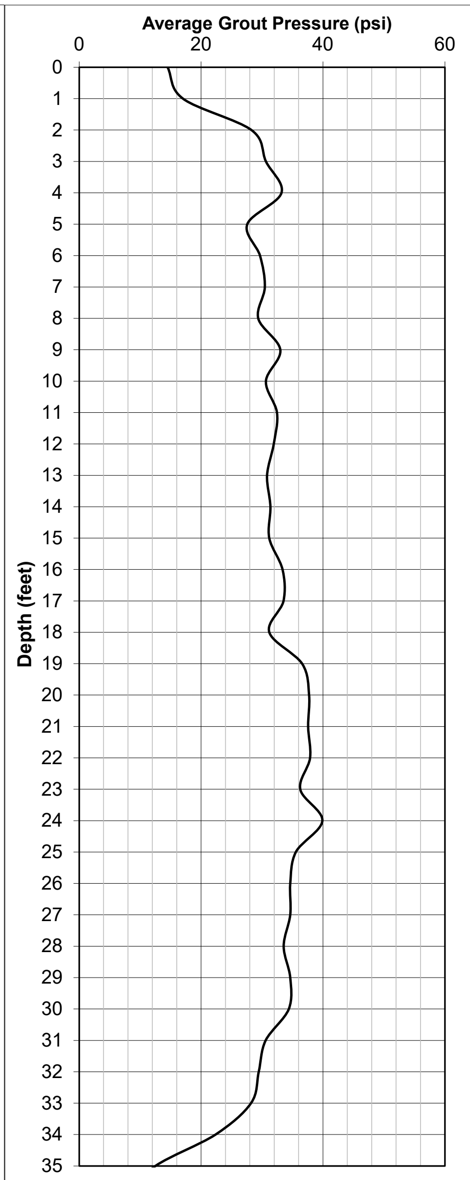
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	7:50 AM	Concrete Volume:	82.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	7:56 AM	Column Depth:	35.1	ft
		End Time:	8:02 AM	Pre Auger:		
		Total Time:	12 min			

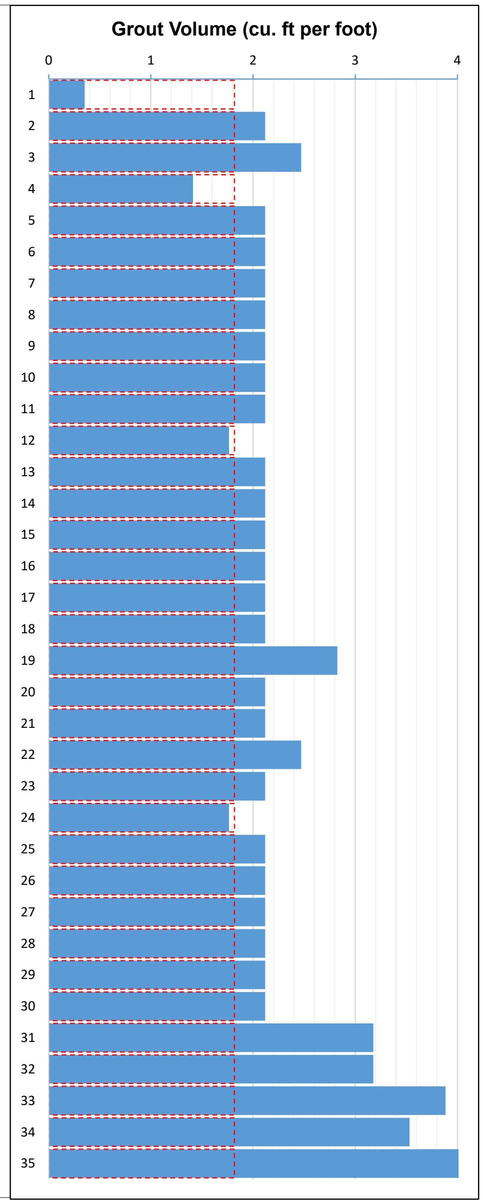
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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Lake Forest, CA 92630
P: 310-796-9000

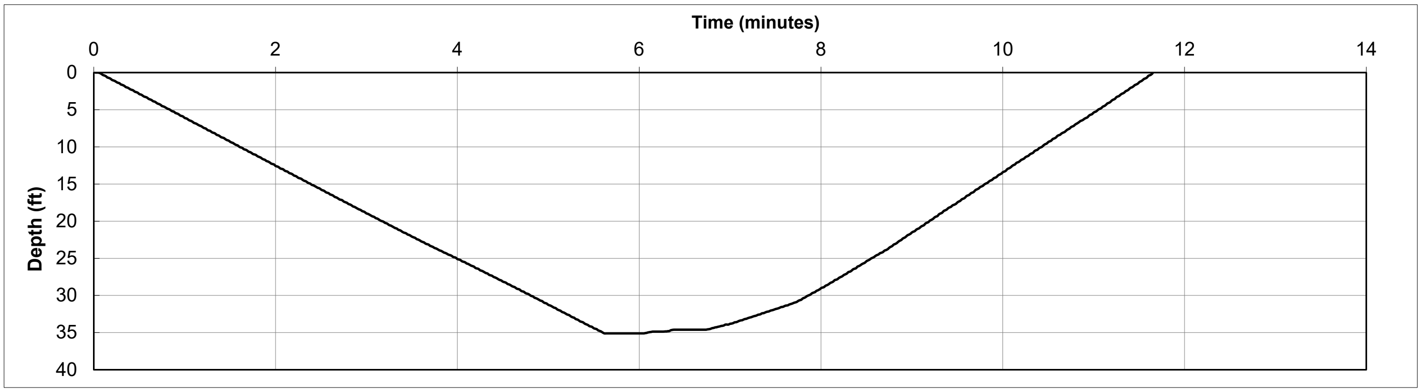
Project Site Data

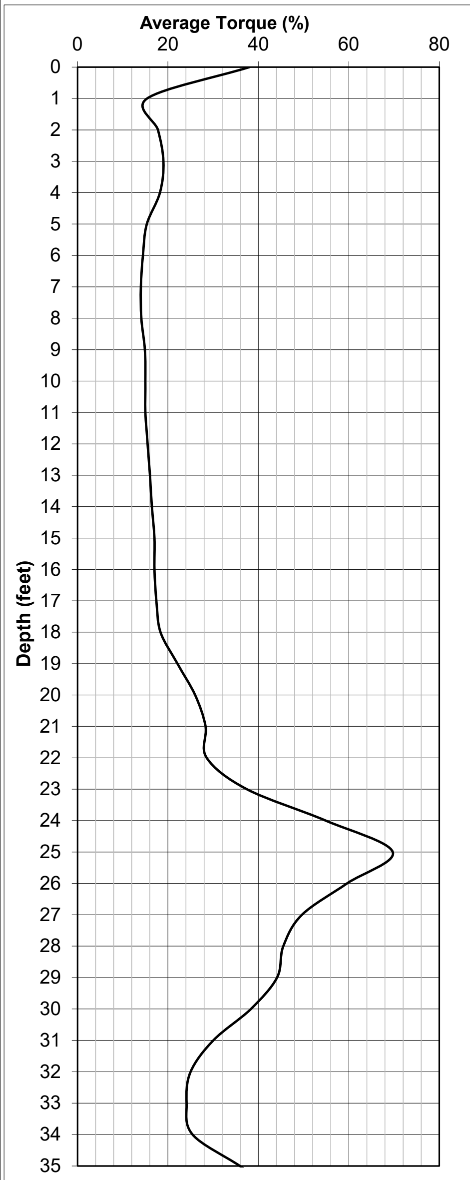
Data for Column No: 124

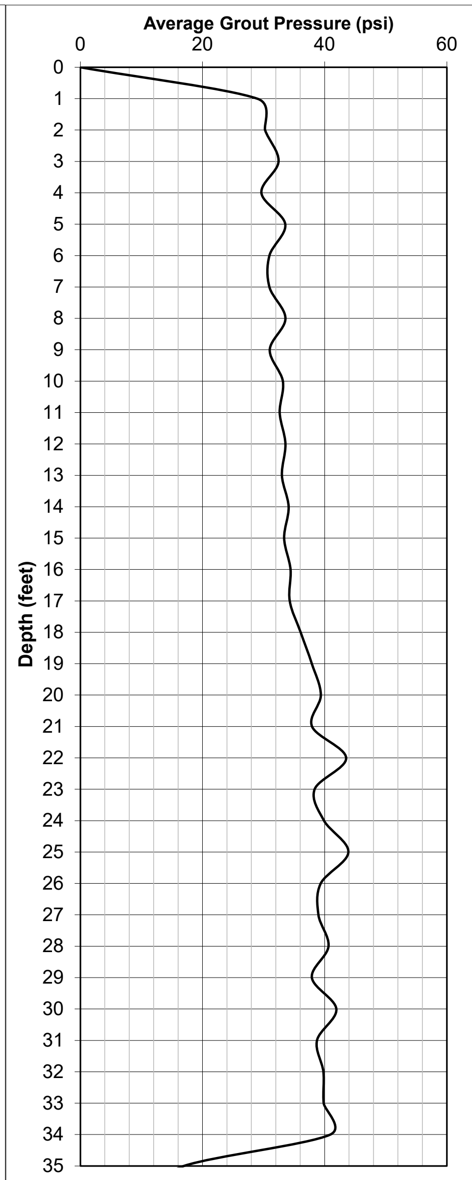
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:05 AM	Concrete Volume:	76.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:11 AM	Column Depth:	35.1	ft
		End Time:	8:16 AM	Pre Auger:		
		Total Time:	12 min			

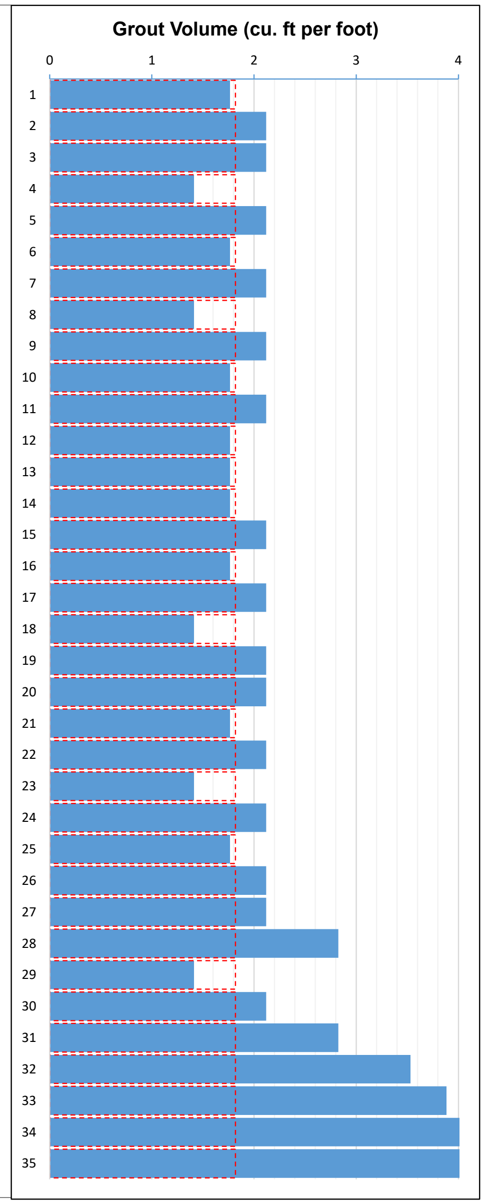
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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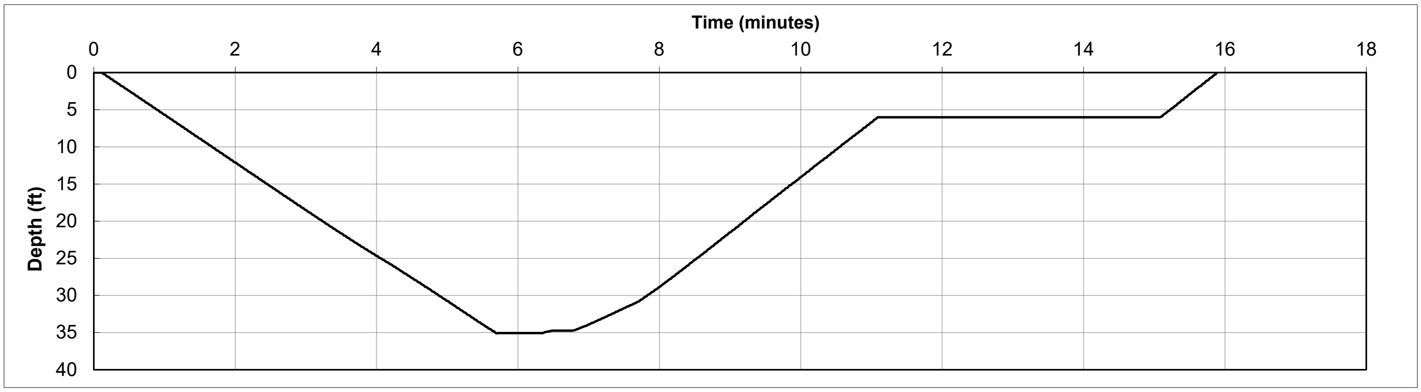
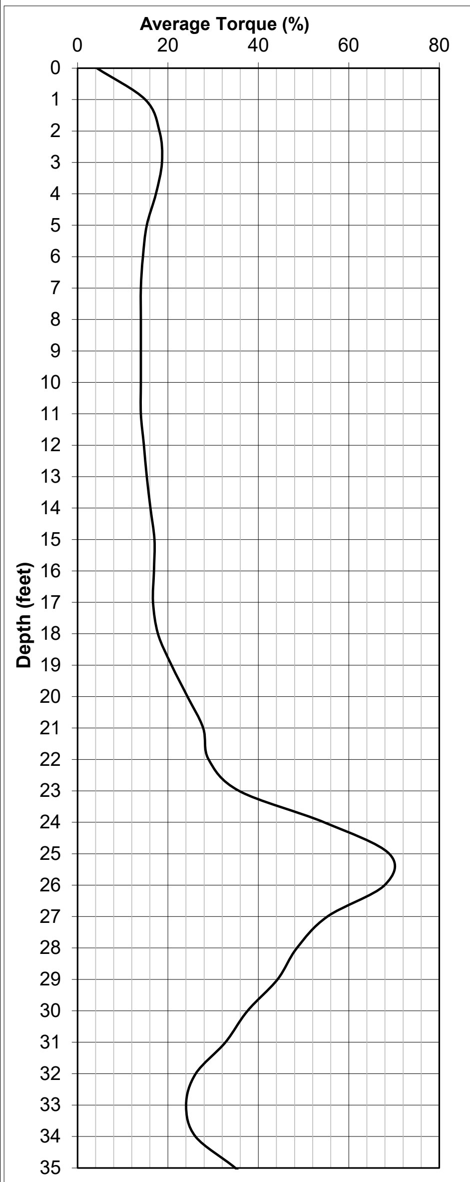
Project Site Data | **Data for Column No: 278**

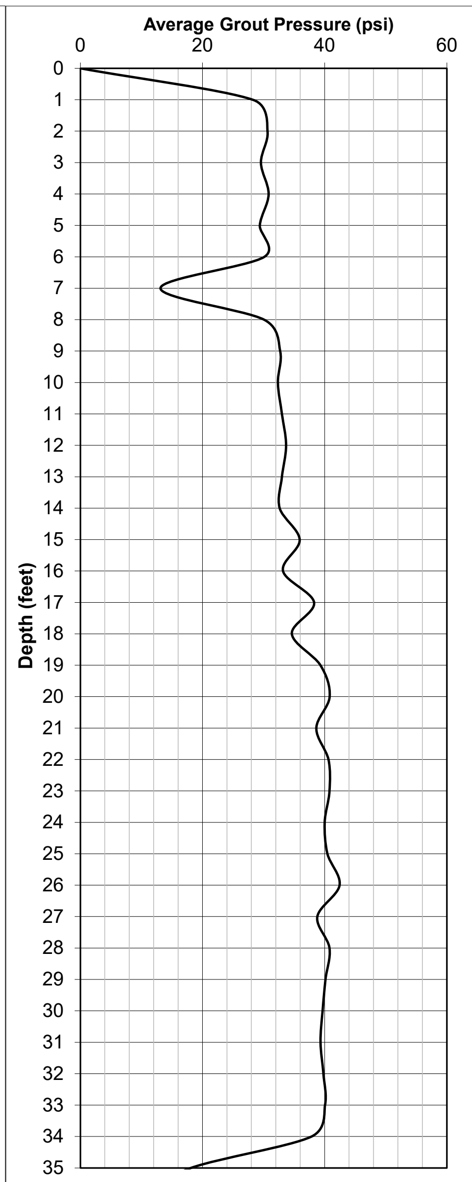
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:21 AM	Concrete Volume:	79.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:27 AM	Column Depth:	35.1	ft
		End Time:	8:37 AM	Pre Auger:		
		Total Time:	16 min			

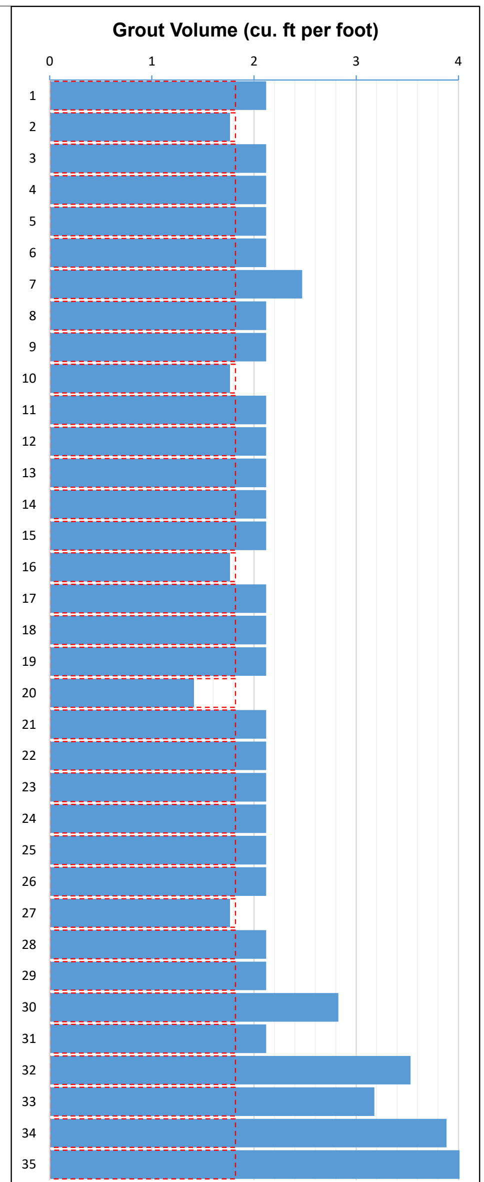
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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Lake Forest, CA 92630
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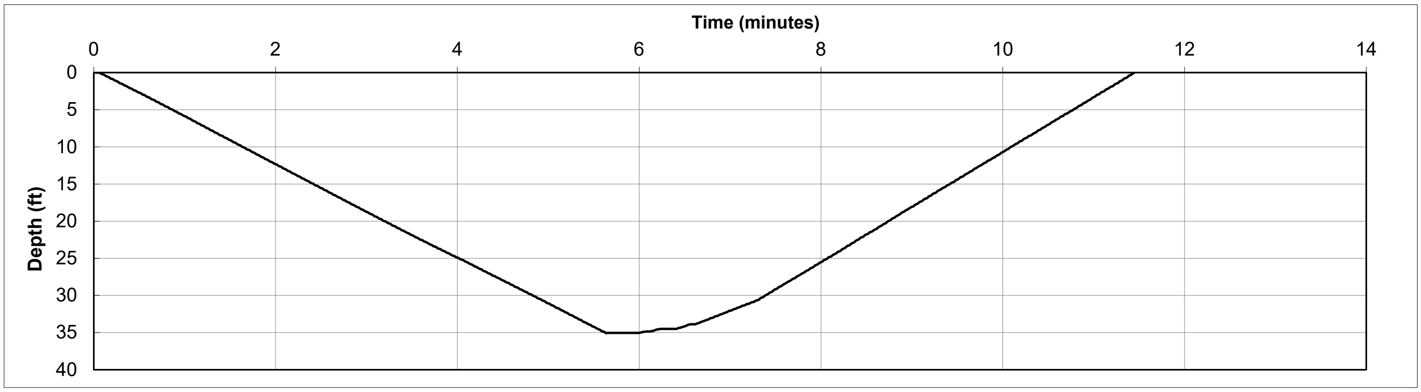
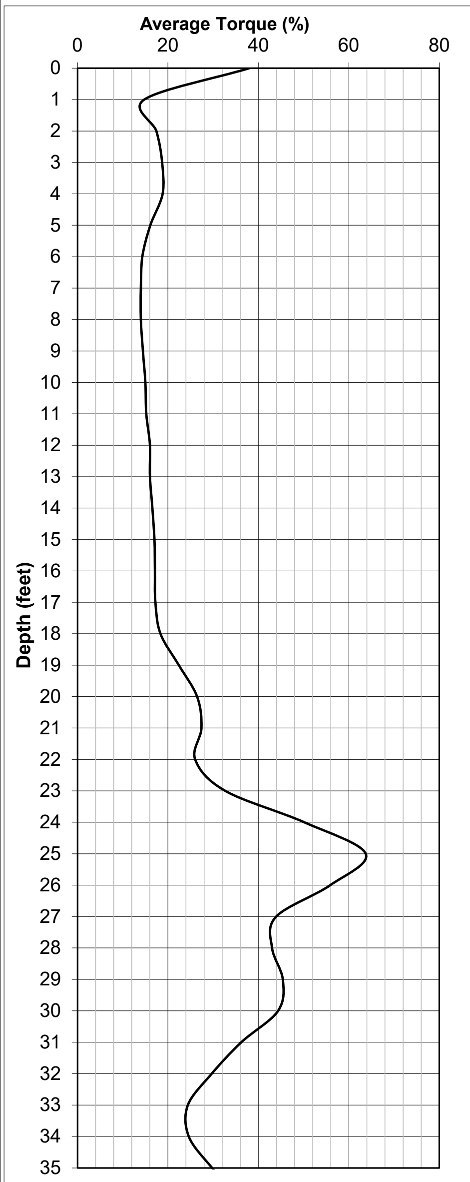
Project Site Data — **Data for Column No: 126**

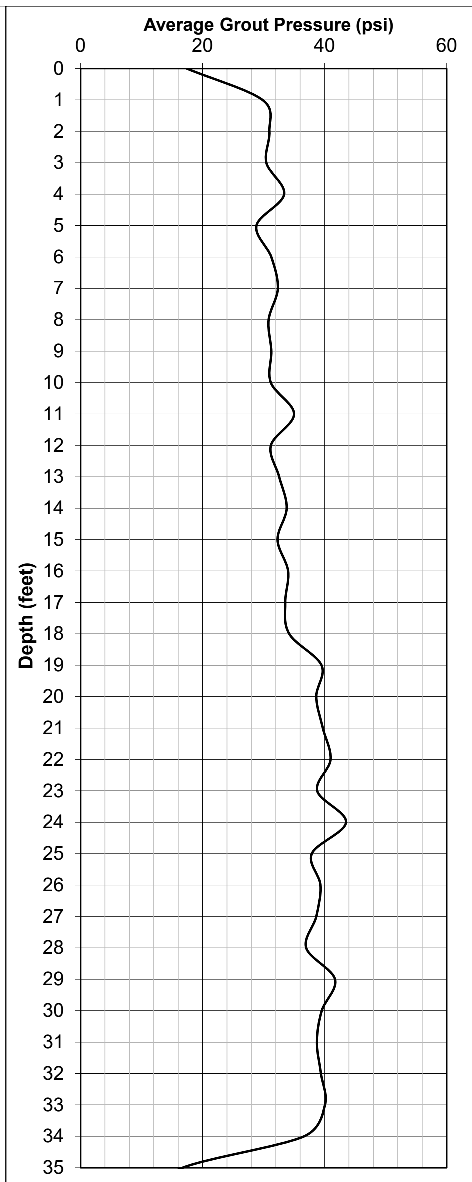
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:41 AM	Concrete Volume:	77.7	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:47 AM	Column Depth:	35.1	ft
		End Time:	8:52 AM	Pre Auger:		
		Total Time:	11 min			

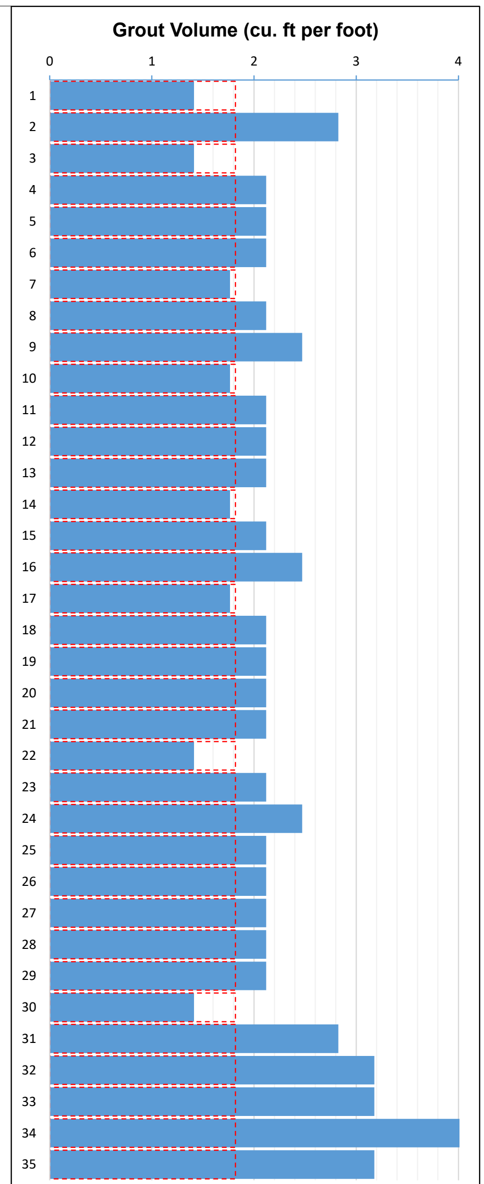
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









AGI

DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
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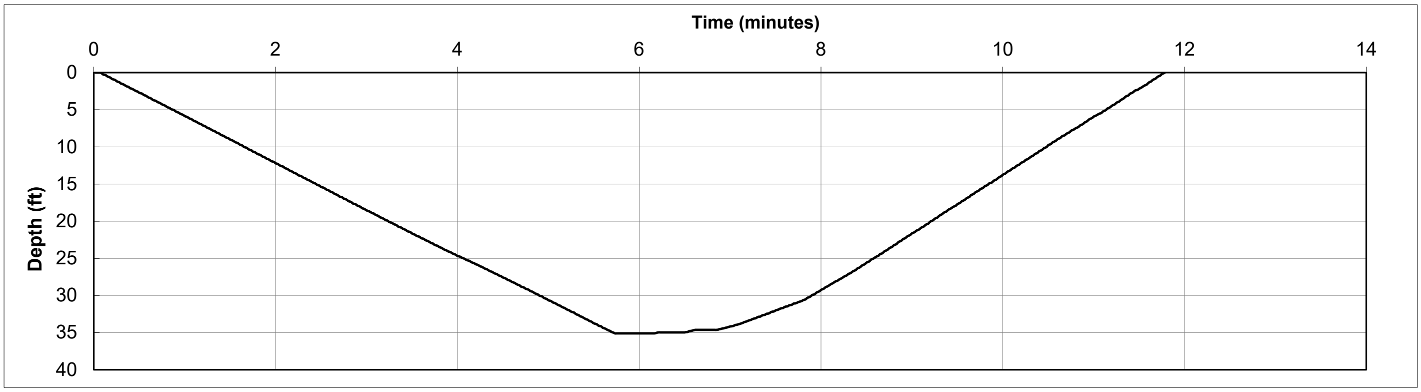
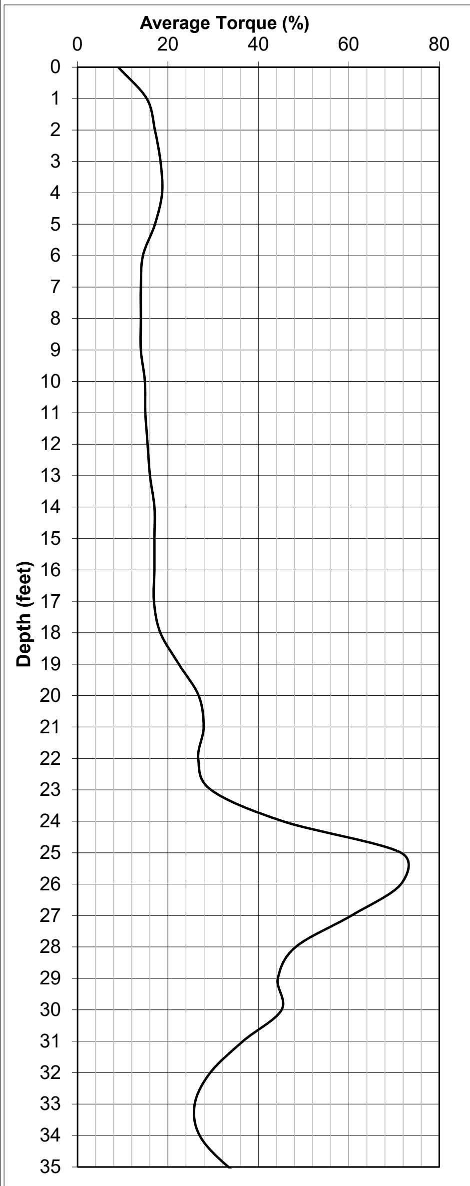
Project Site Data | **Data for Column No: 128**

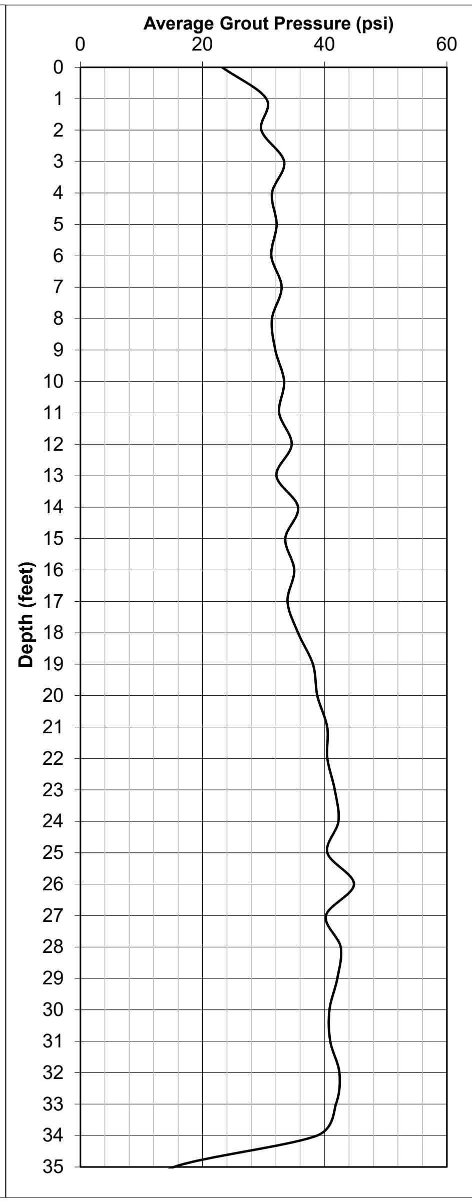
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:57 AM	Concrete Volume:	75.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:03 AM	Column Depth:	35.1	ft
		End Time:	9:09 AM	Pre Auger:		
		Total Time:	12 min			

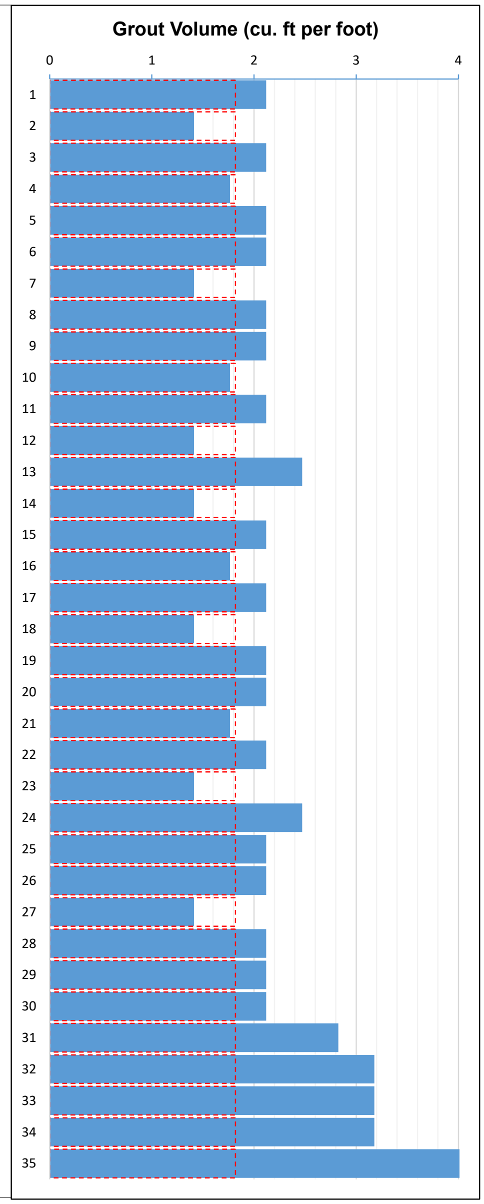
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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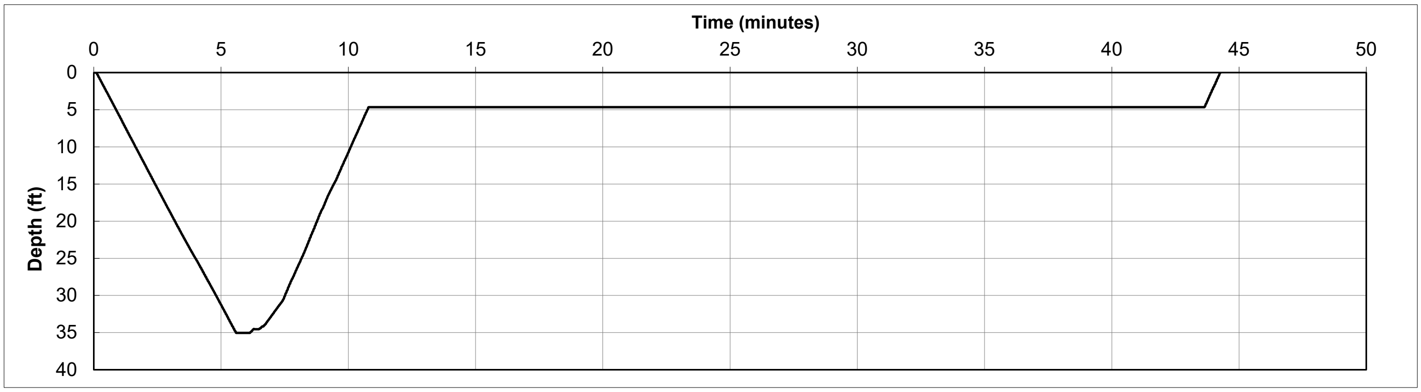
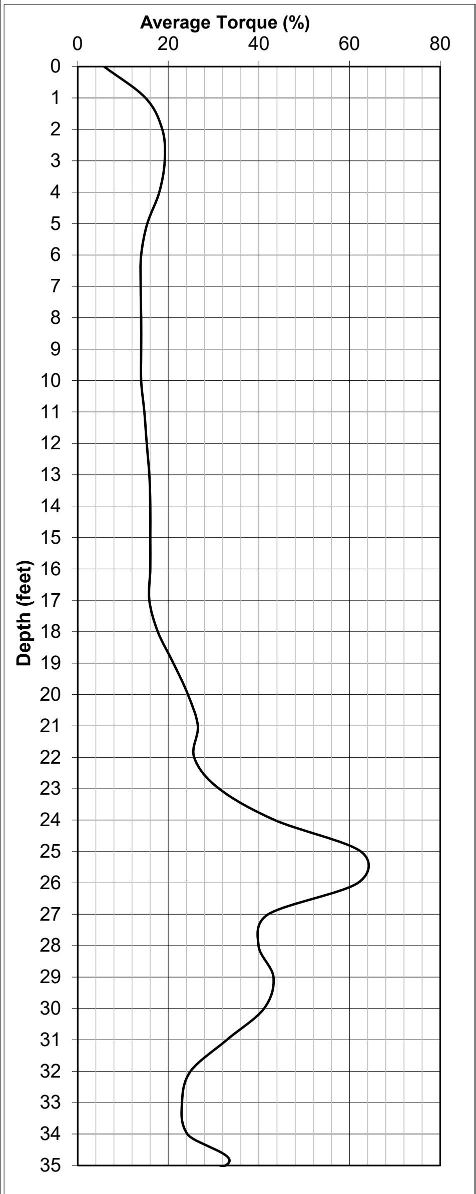
Project Site Data | **Data for Column No: 279**

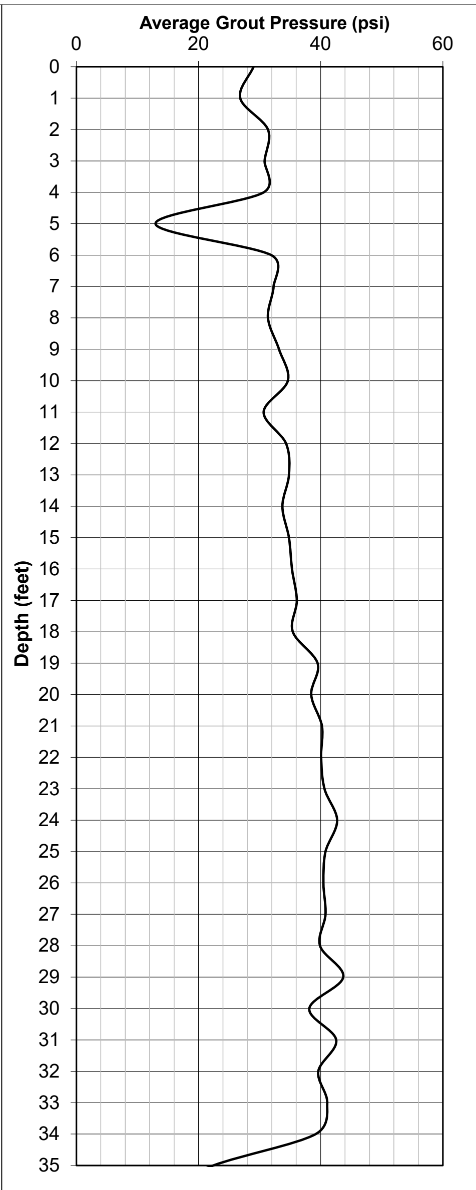
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:13 AM	Concrete Volume:	76.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:19 AM	Column Depth:	35.0	ft
		End Time:	9:57 AM	Pre Auger:		
		Total Time:	44 min			

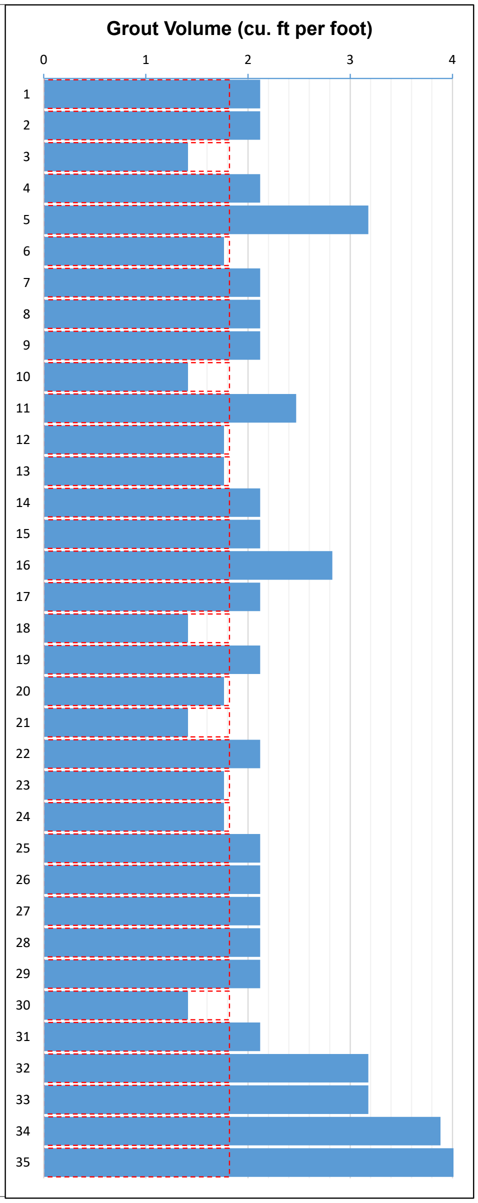
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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DGC Log Sheet

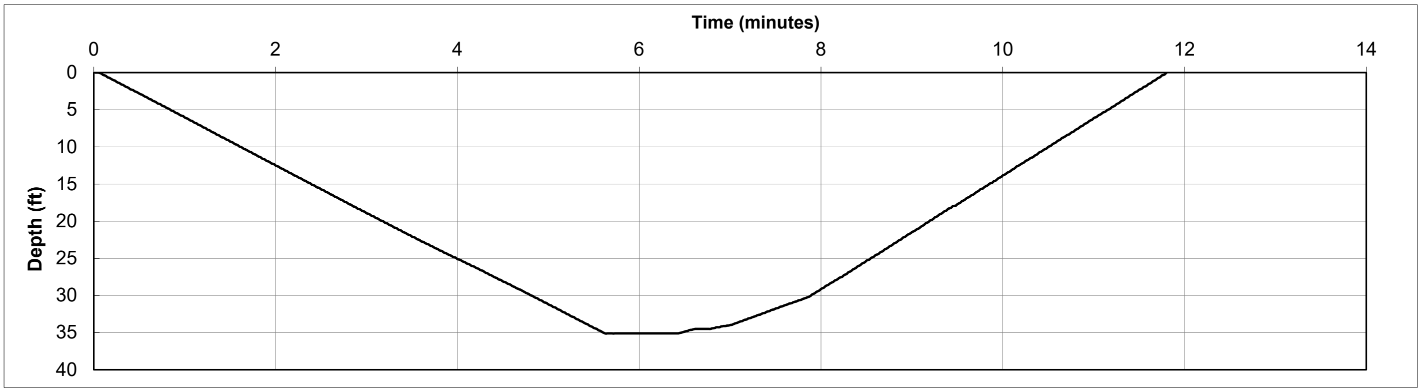
Project Site Data

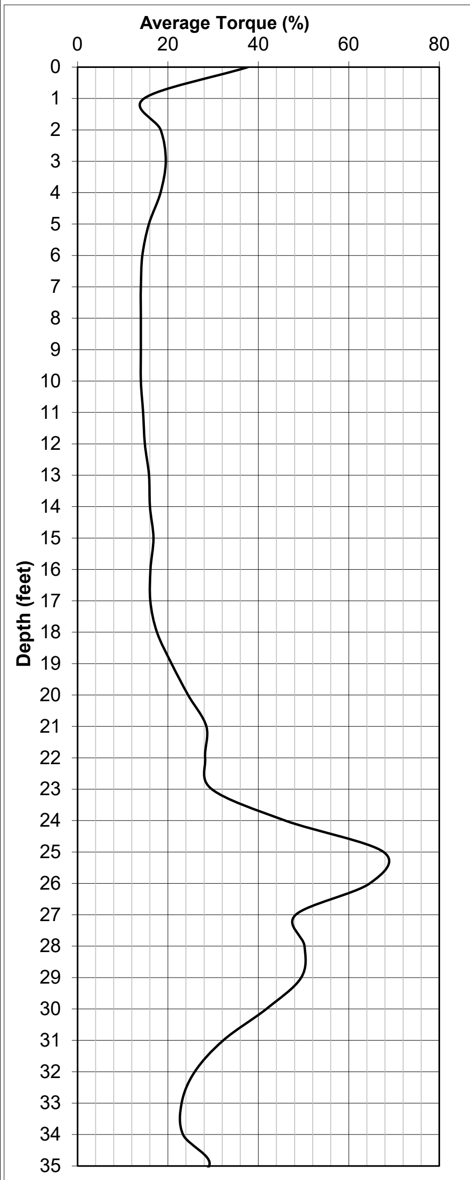
Data for Column No: 280

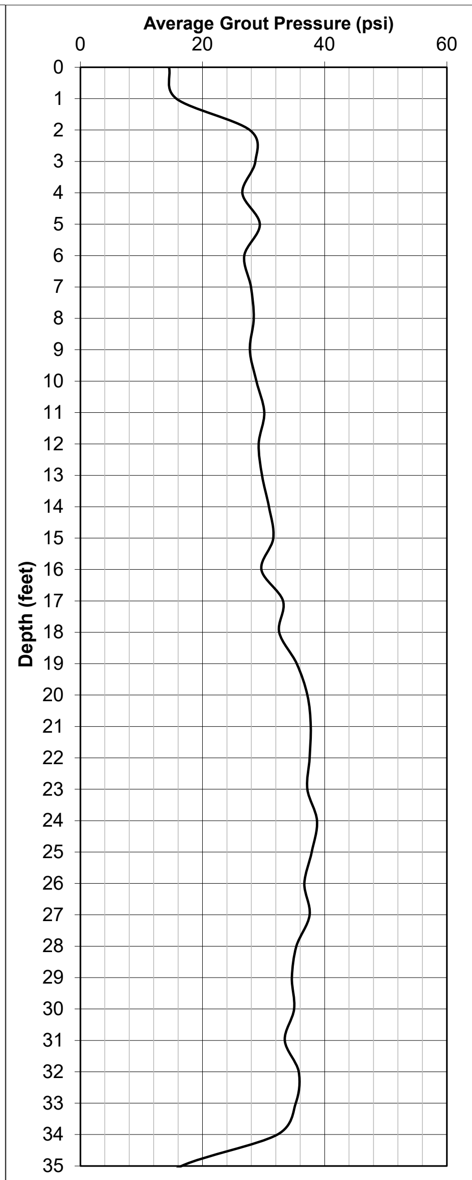
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16 in
Project Location:	Camarillo, CA	Start Time:	10:01 AM	Concrete Volume:	75.2 cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:07 AM	Column Depth:	35.1 ft
		End Time:	10:13 AM	Pre Auger:	
		Total Time:	12 min		

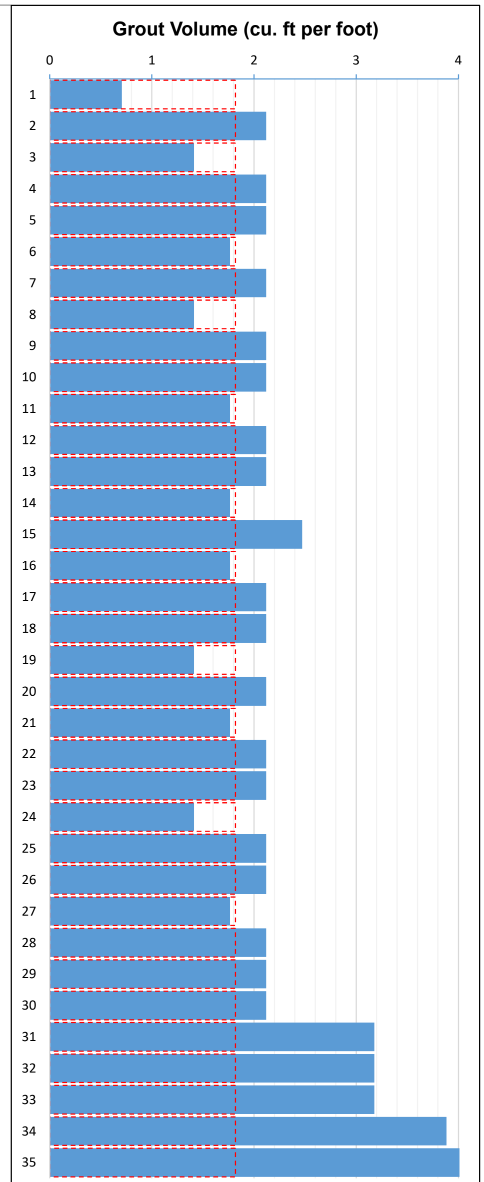
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
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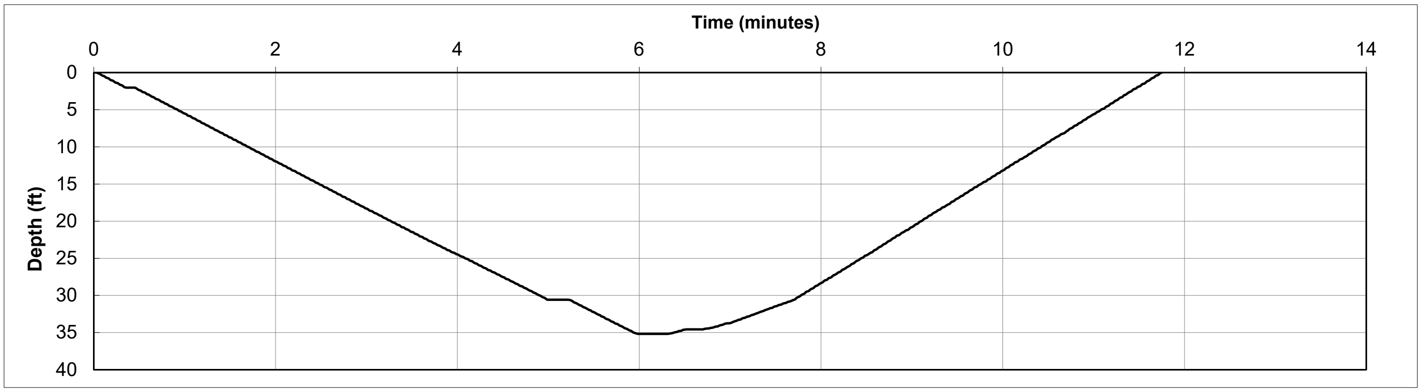
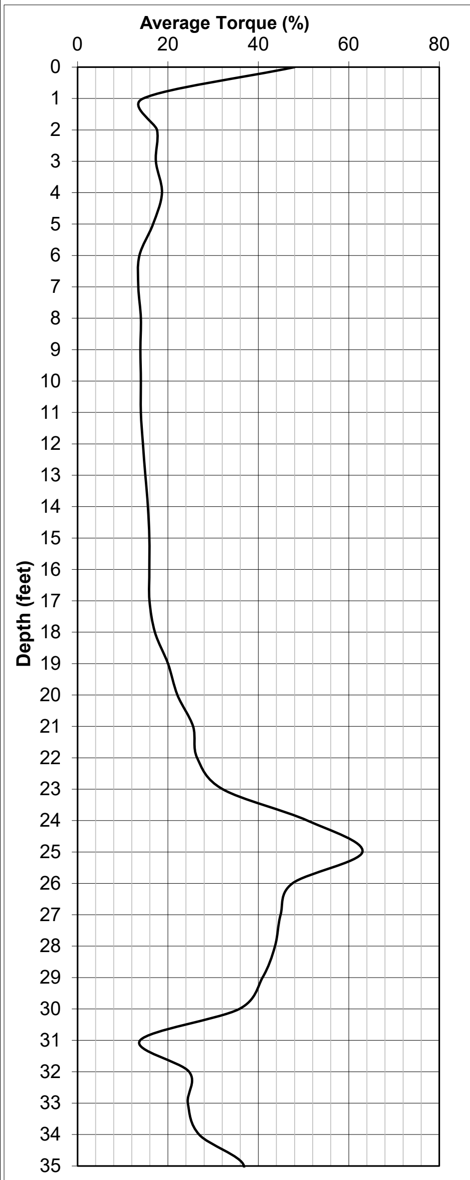
Project Site Data **Data for Column No: 272**

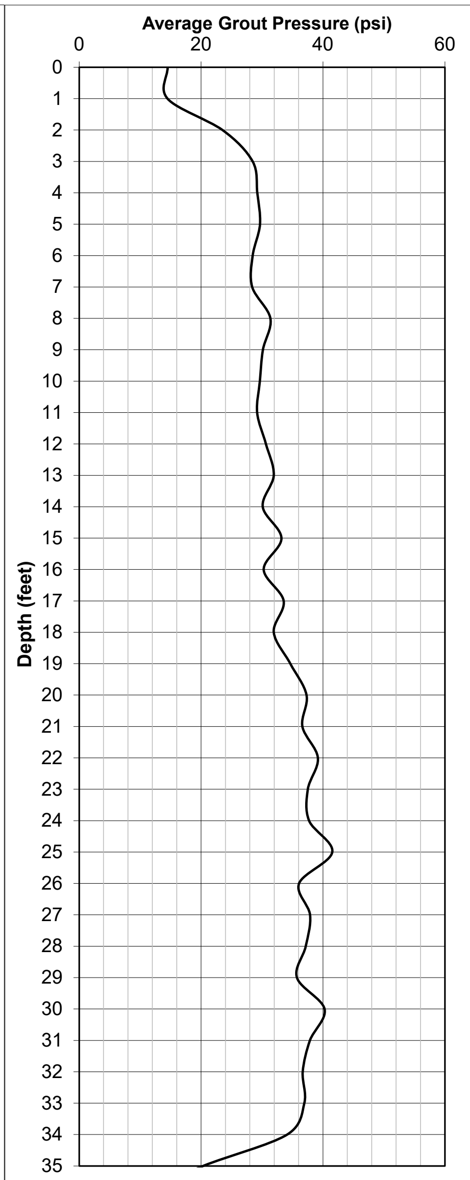
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:19 AM	Concrete Volume:	74.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:25 AM	Column Depth:	35.2	ft
		End Time:	10:31 AM	Pre Auger:		
		Total Time:	12 min			

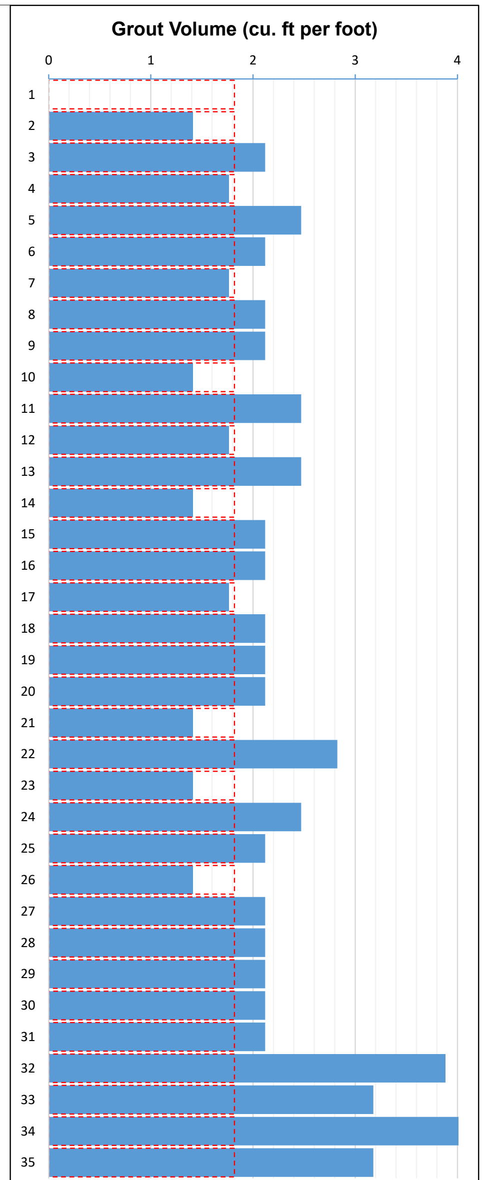
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
P: 310-796-9000

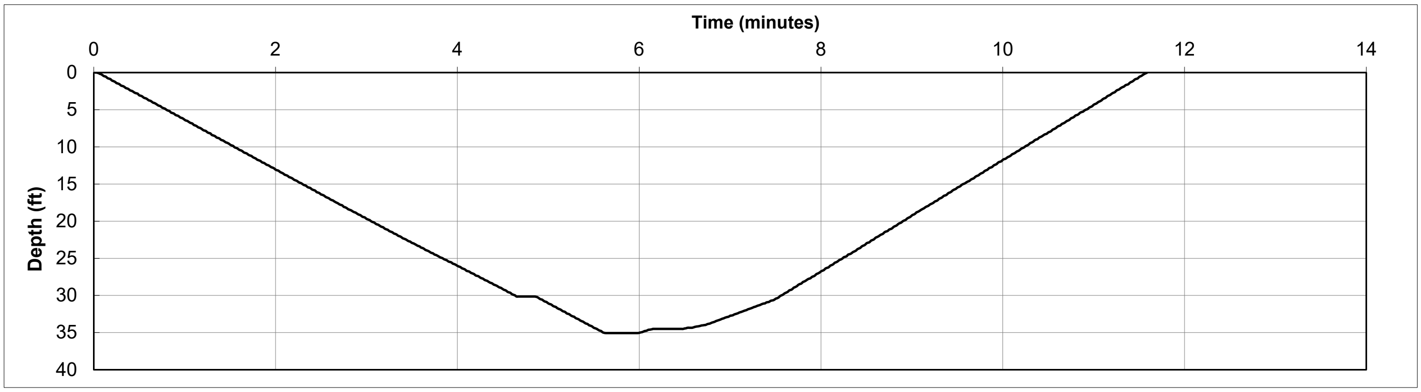
Project Site Data

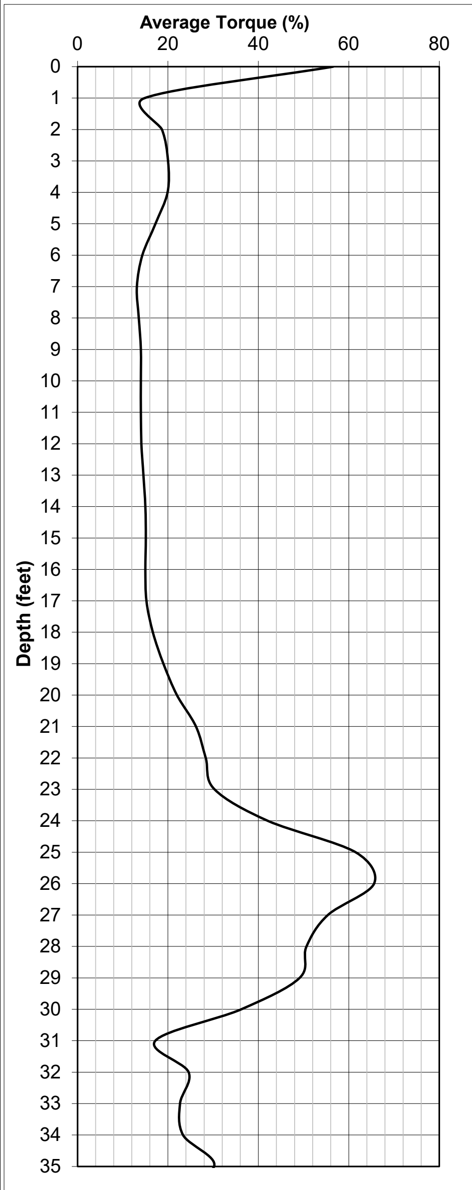
Data for Column No: 274

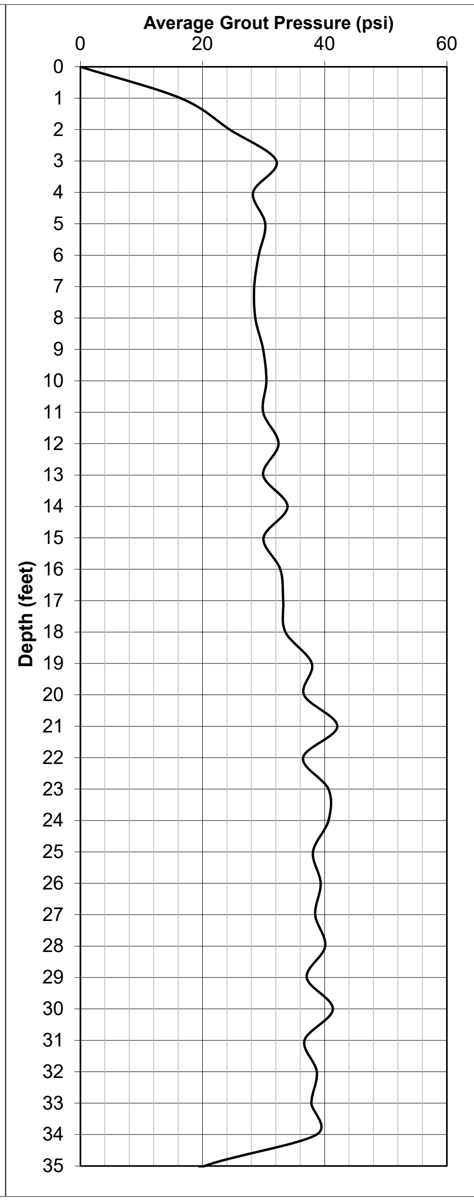
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:33 AM	Concrete Volume:	76.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:40 AM	Column Depth:	35.1	ft
		End Time:	10:45 AM	Pre Auger:		
		Total Time:	12 min			

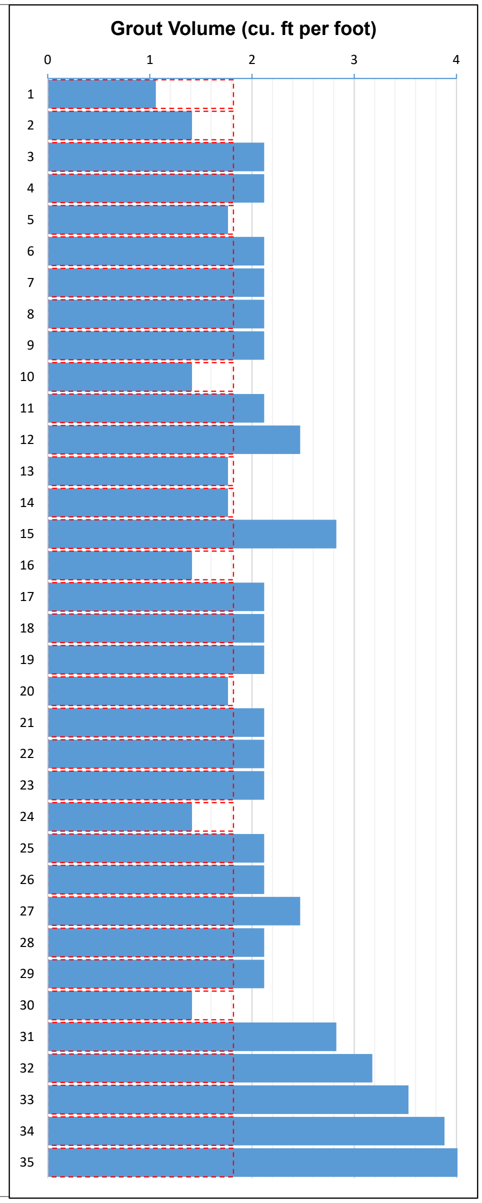
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

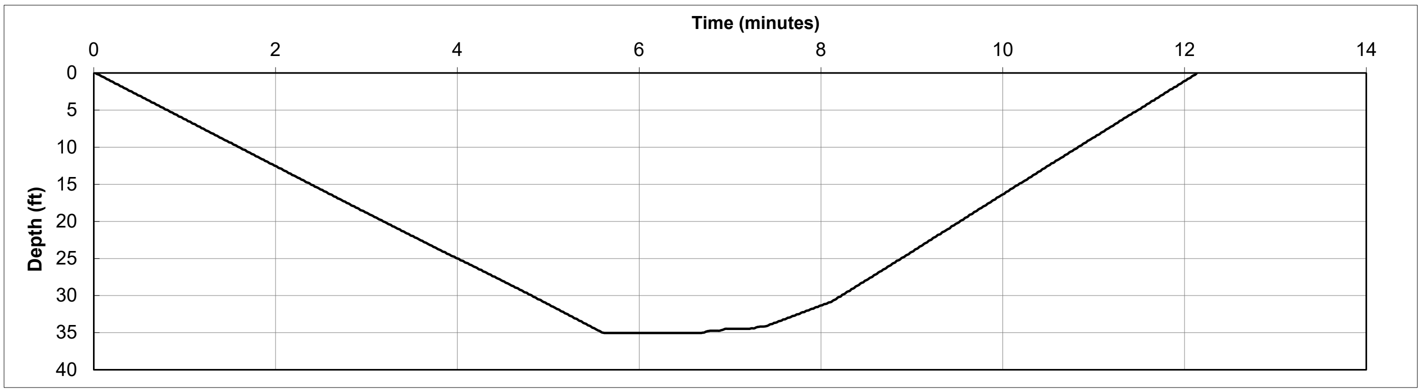
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

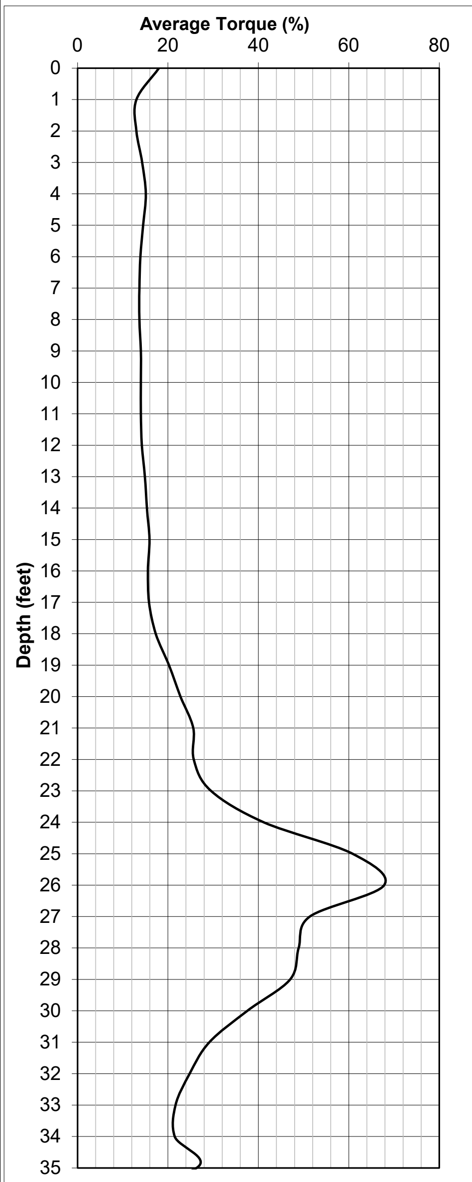
Project Site Data | **Data for Column No: 273**

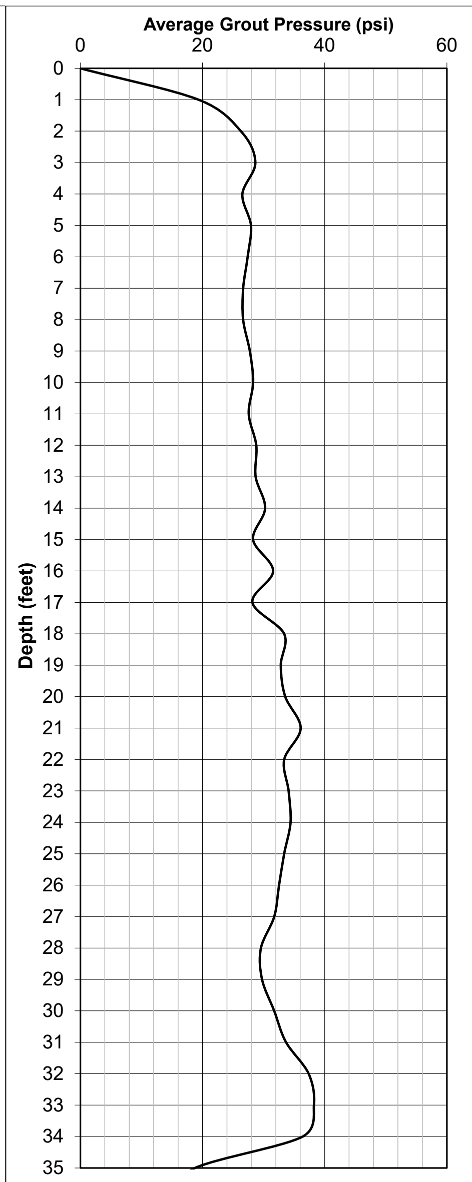
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:08 AM	Concrete Volume:	73.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:14 AM	Column Depth:	35.0	ft
		End Time:	11:20 AM	Pre Auger:		
		Total Time:	12 min			

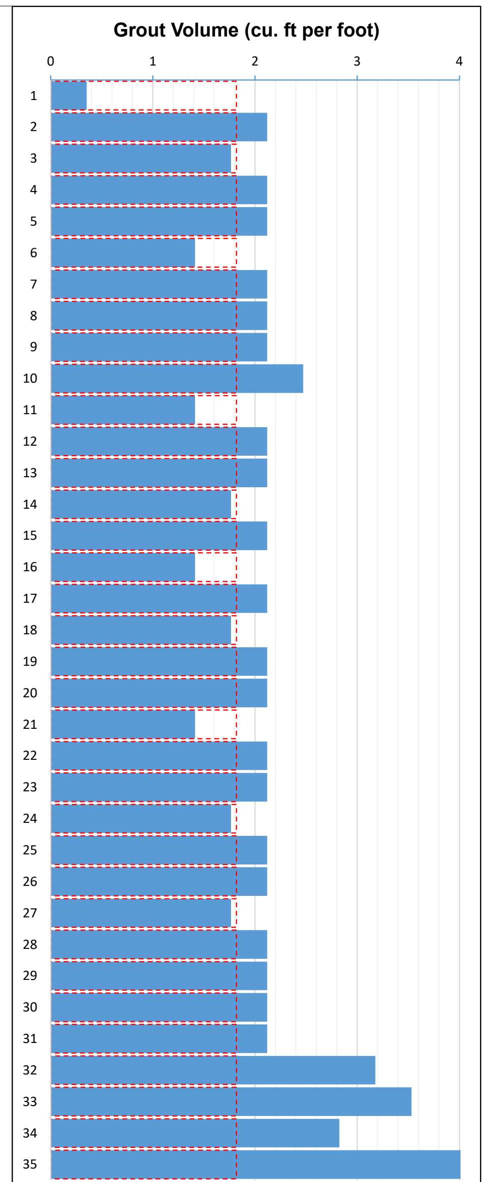
Tool meets 16" Nominal Requirement

Rig Id: BG-30
Operator: James "Smitty" Smith









DGC Log Sheet

Advanced Geosolutions Inc
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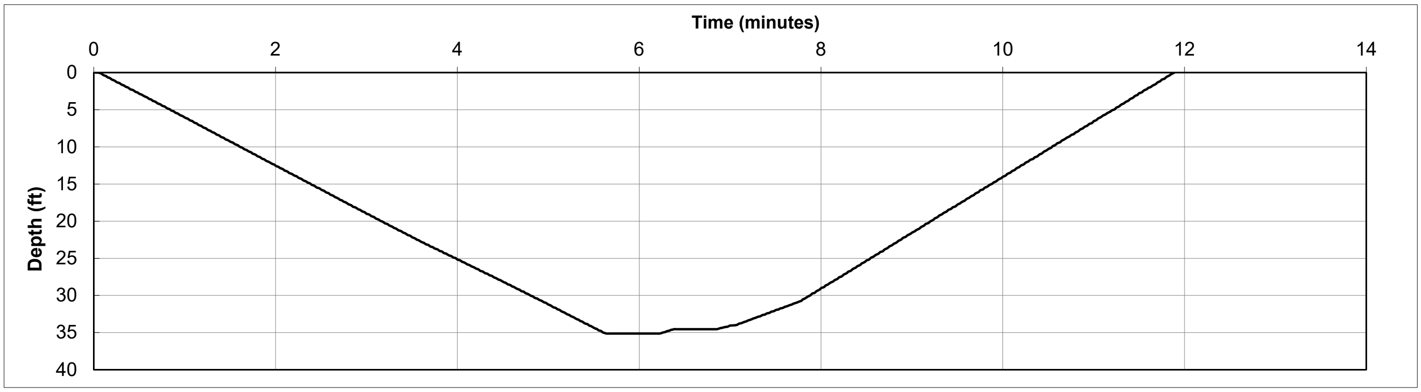
Lake Forest, CA 92630
P: 310-796-9000

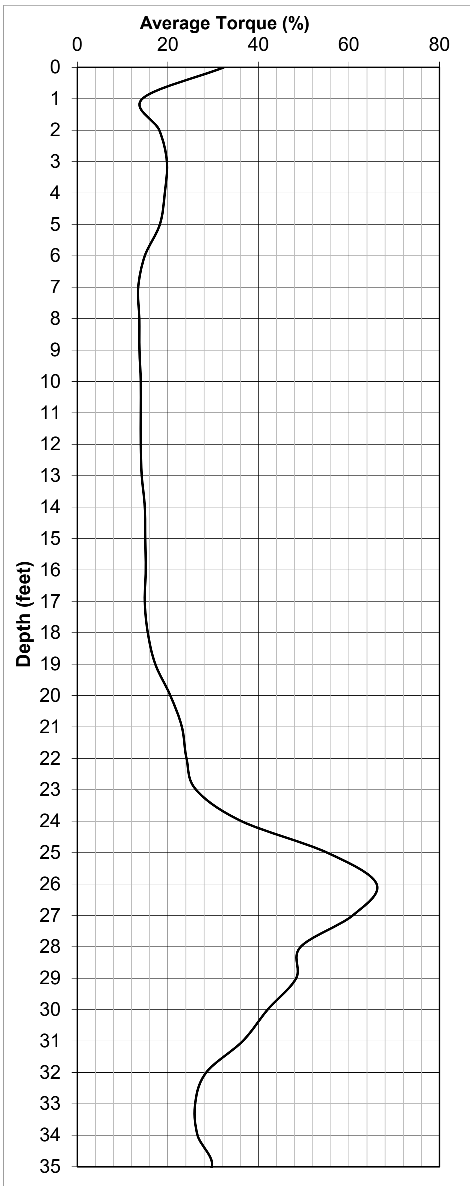
Project Site Data — **Data for Column No: 266**

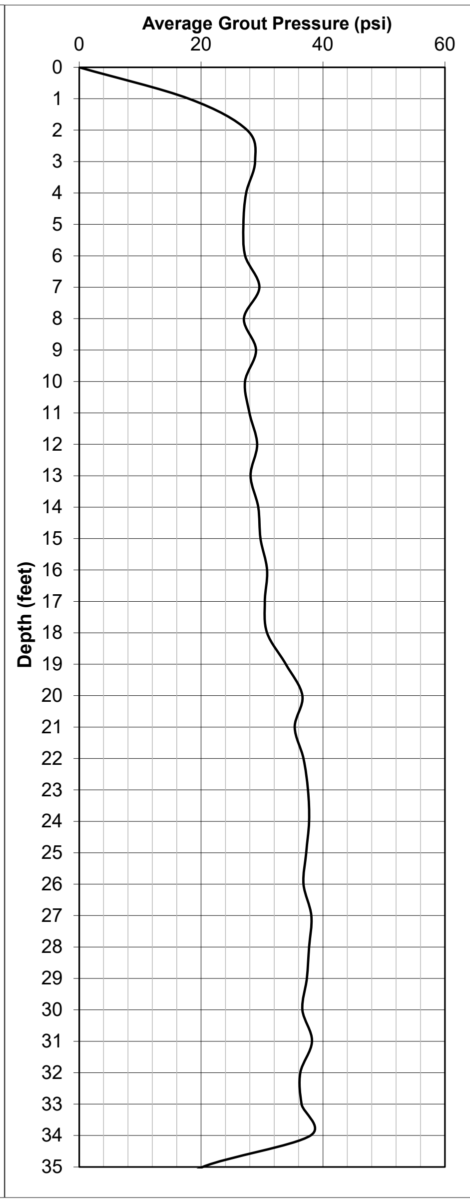
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:22 AM	Concrete Volume:	75.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:29 AM	Column Depth:	35.1	ft
		End Time:	11:34 AM	Pre Auger:		
		Total Time:	12 min			

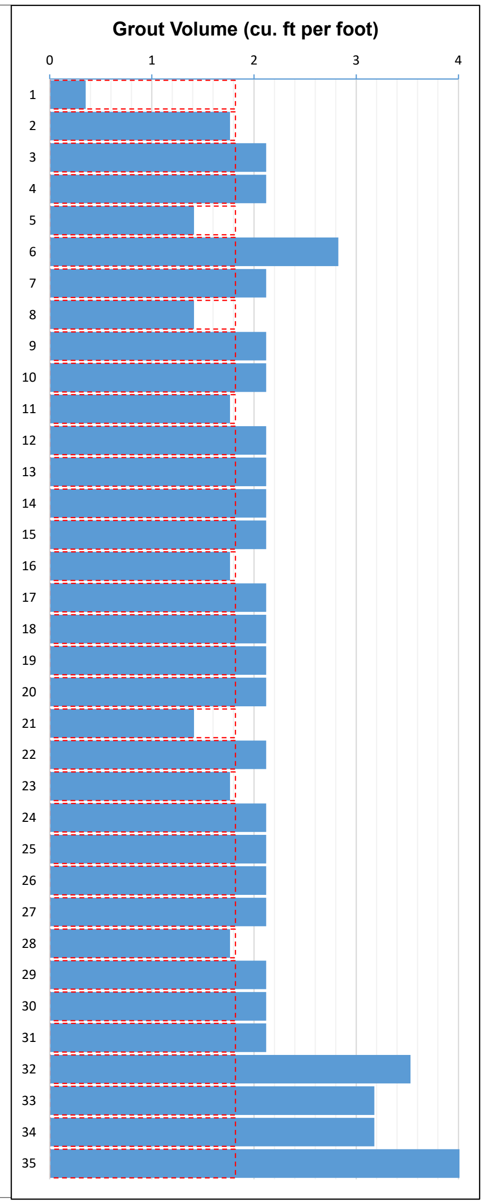
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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Lake Forest, CA 92630
P: 310-796-9000

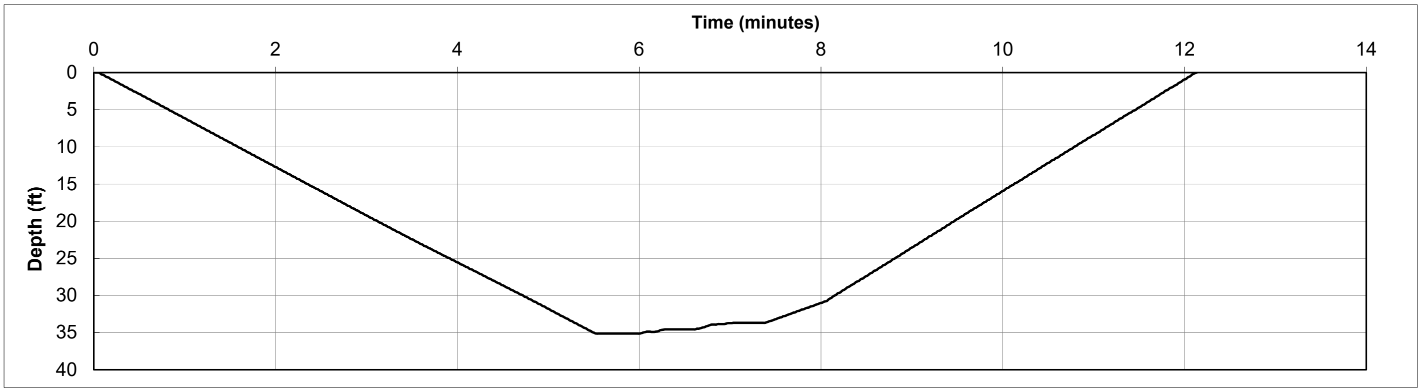
Project Site Data

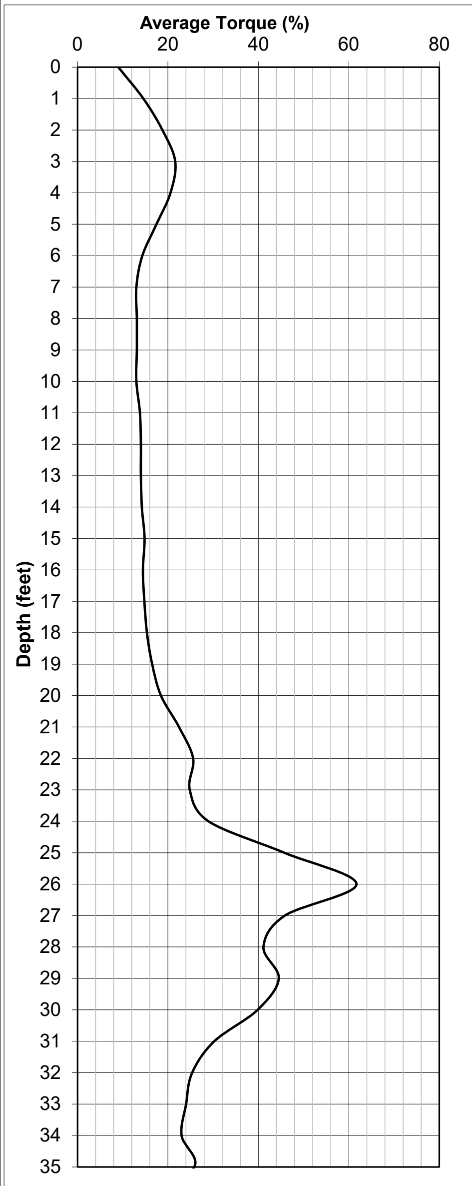
Data for Column No: 268

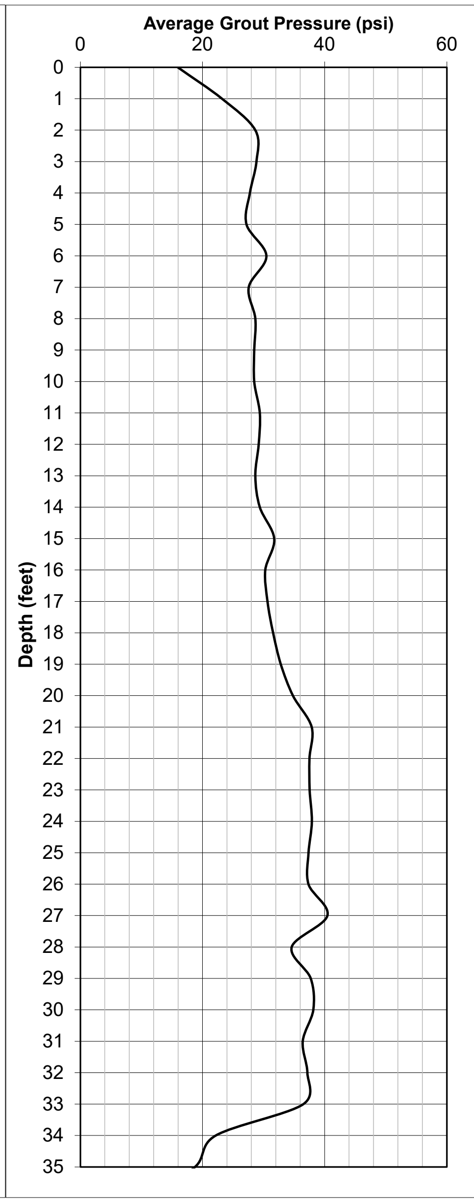
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:37 AM	Concrete Volume:	75.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:43 AM	Column Depth:	35.1	ft
		End Time:	11:49 AM	Pre Auger:		
		Total Time:	12 min			

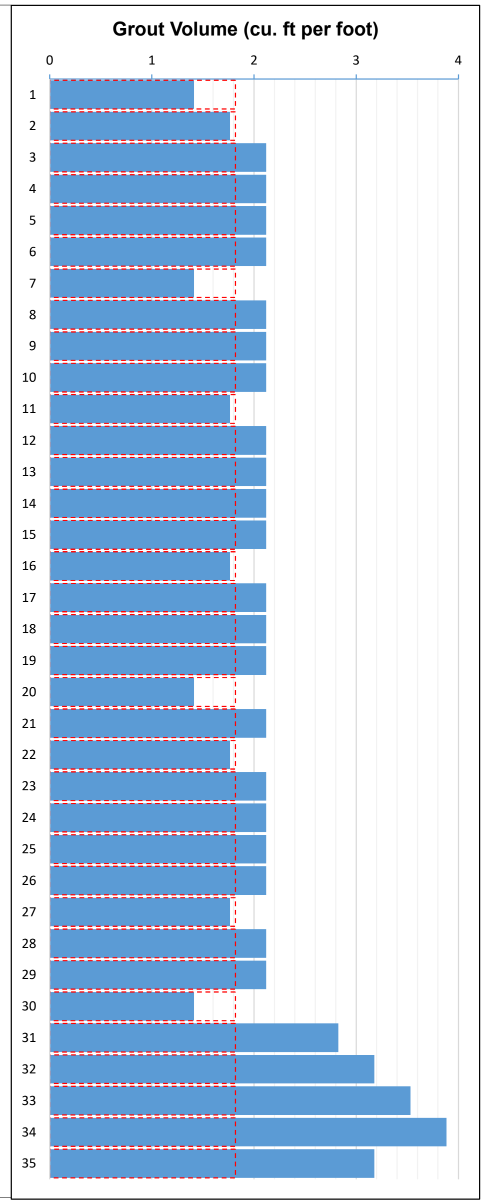
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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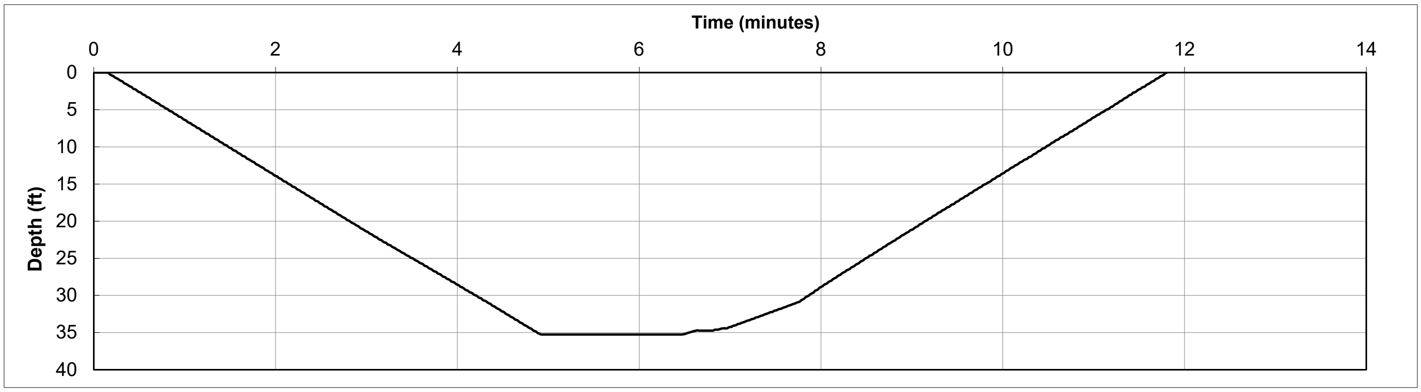
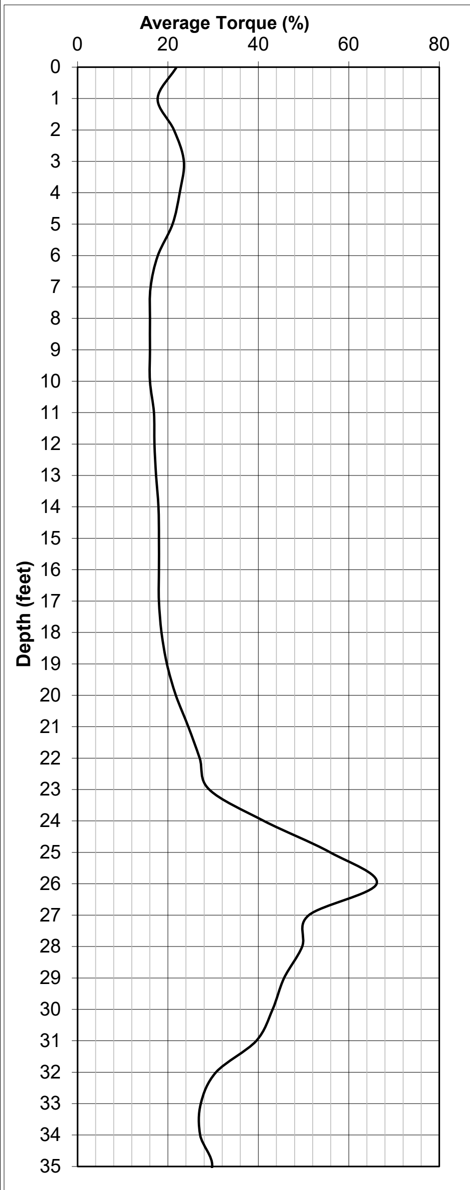
Project Site Data **Data for Column No: 267**

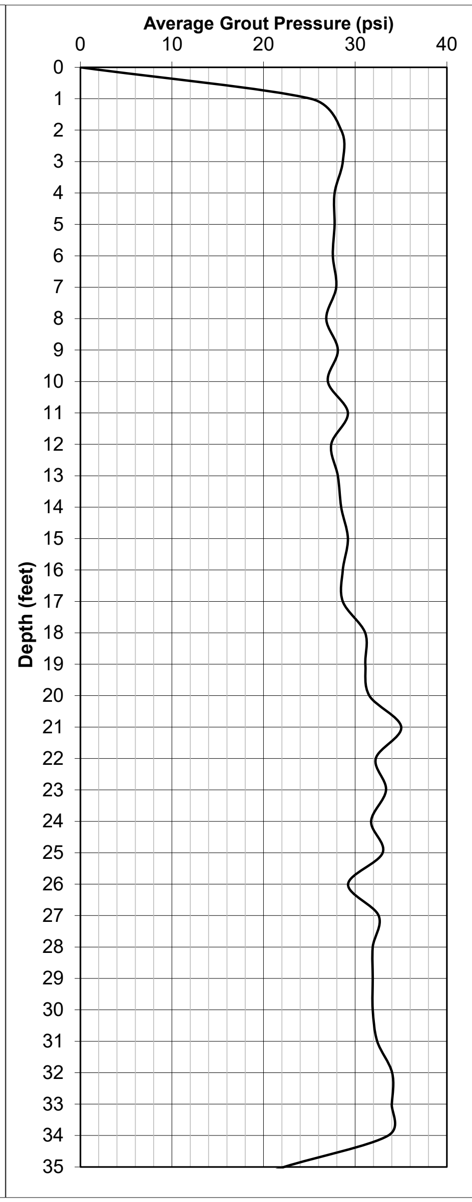
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:59 AM	Concrete Volume:	75.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:05 PM	Column Depth:	35.3	ft
		End Time:	12:11 PM	Pre Auger:		
		Total Time:	12 min			

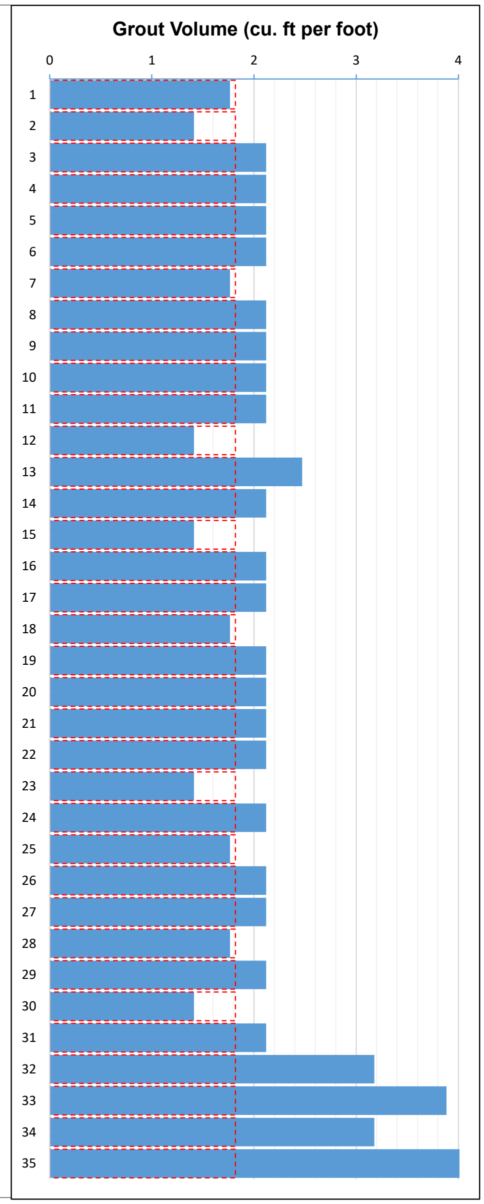
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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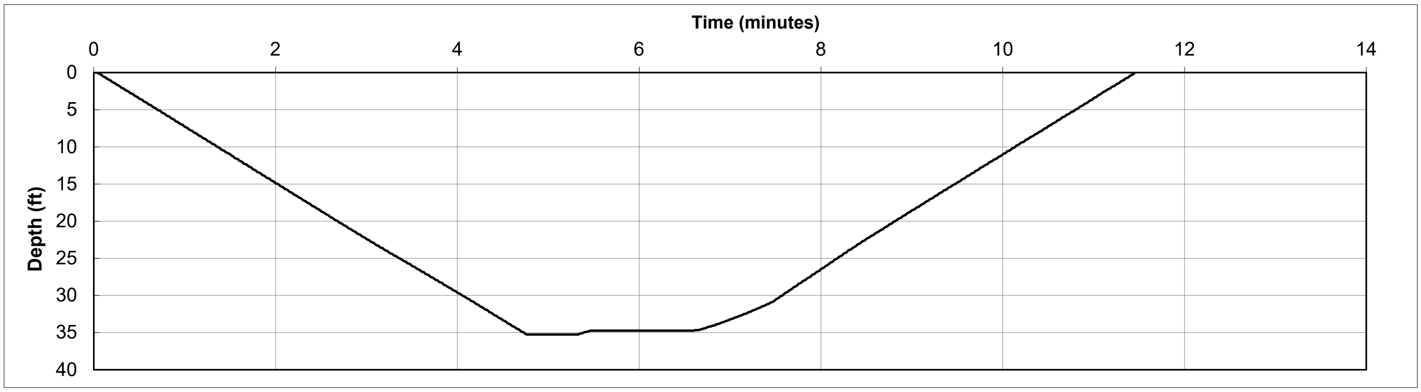
P: 310-796-9000

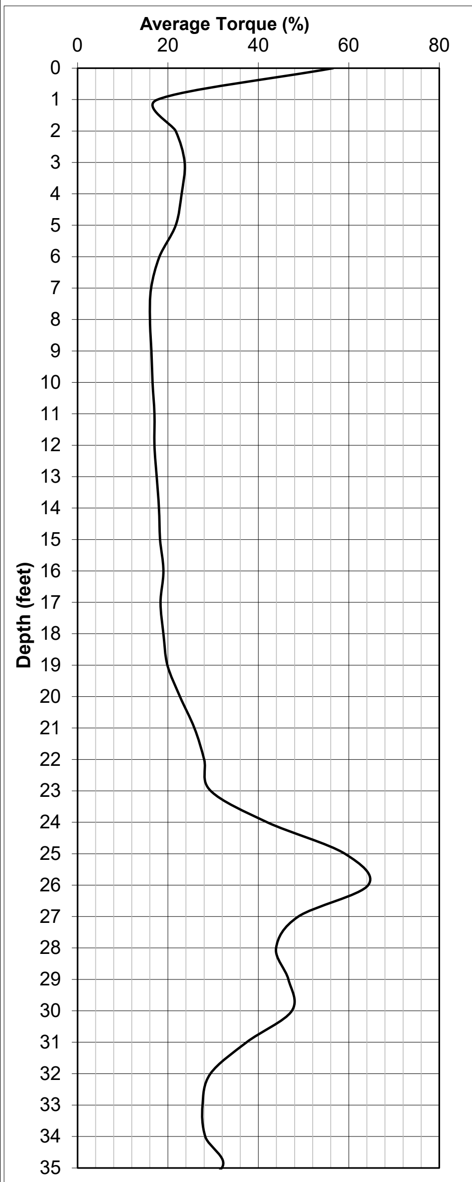
Project Site Data | **Data for Column No: 260**

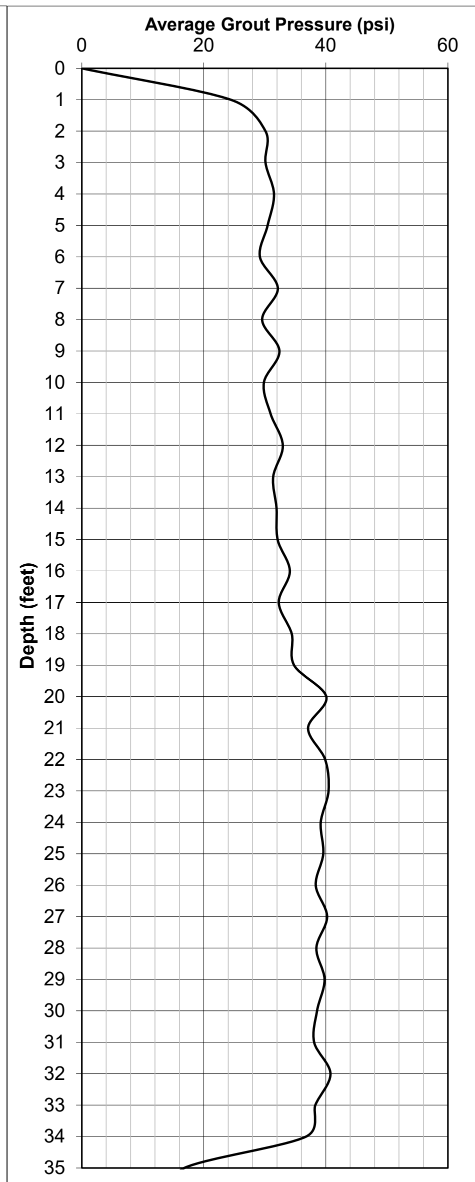
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:14 PM	Concrete Volume:	73.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:19 PM	Column Depth:	35.3	ft
		End Time:	12:25 PM	Pre Auger:		
		Total Time:	11 min			

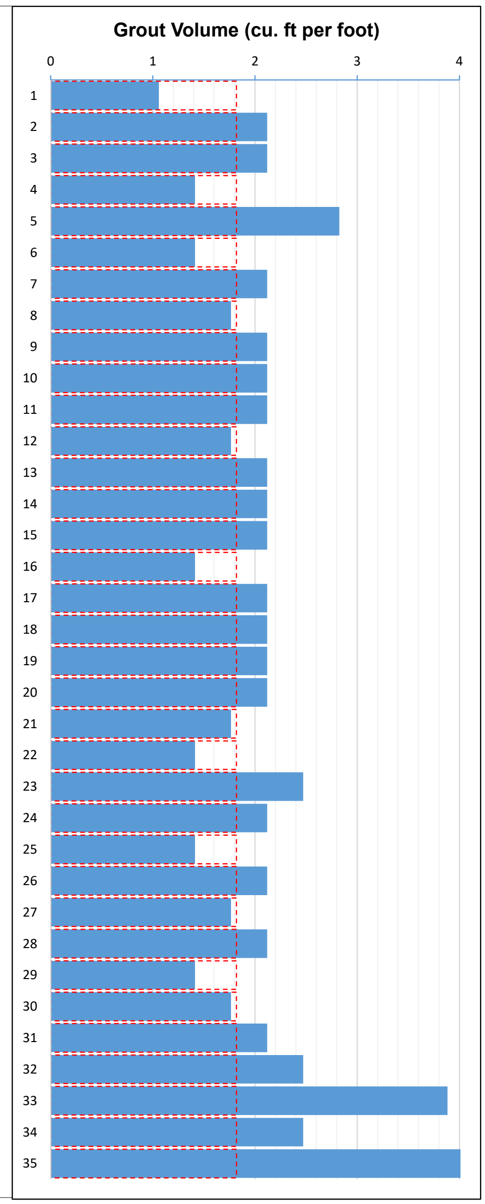
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
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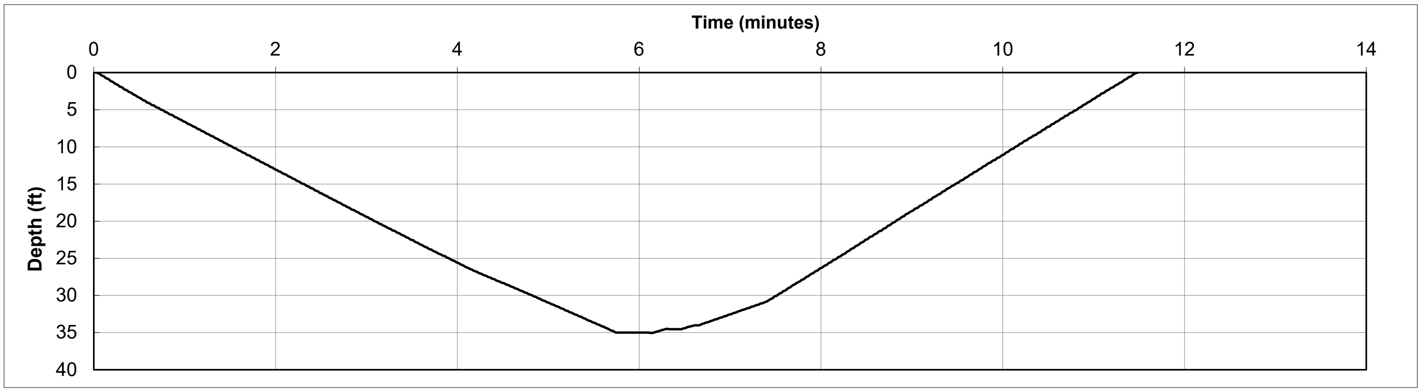
Project Site Data

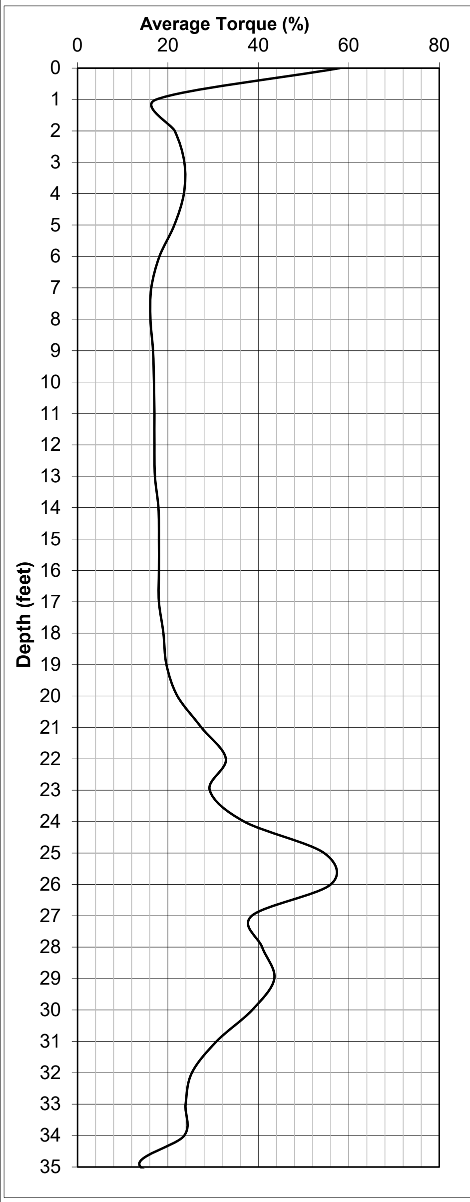
Data for Column No: 262

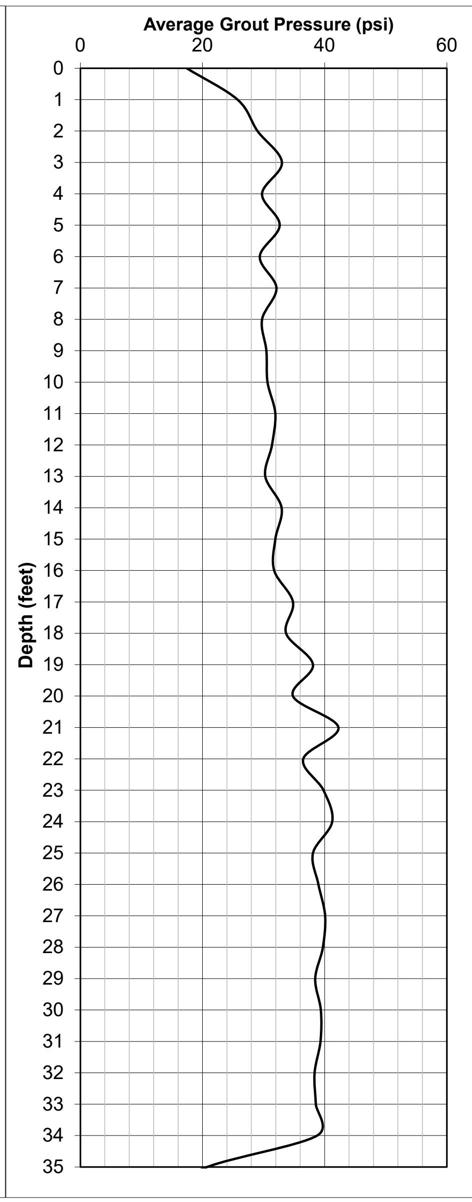
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:28 PM	Concrete Volume:	75.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:34 PM	Column Depth:	35.0	ft
		End Time:	12:39 PM	Pre Auger:		
		Total Time:	11 min			

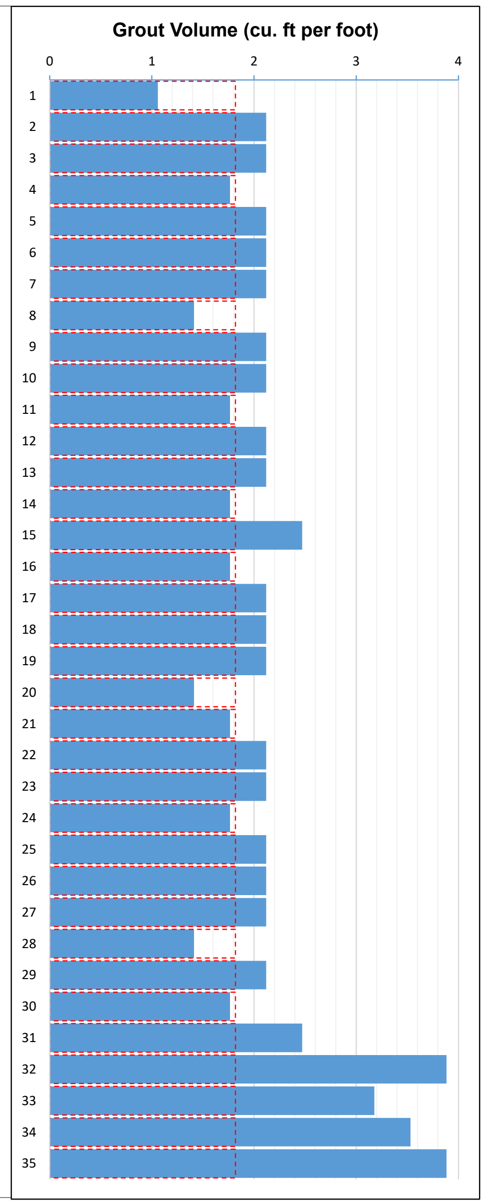
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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Lake Forest, CA 92630
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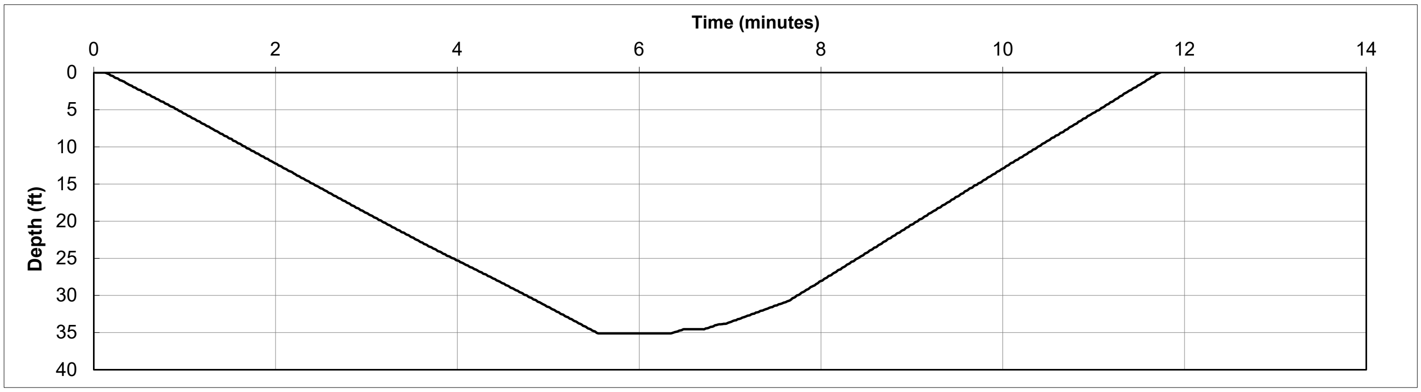
Project Site Data

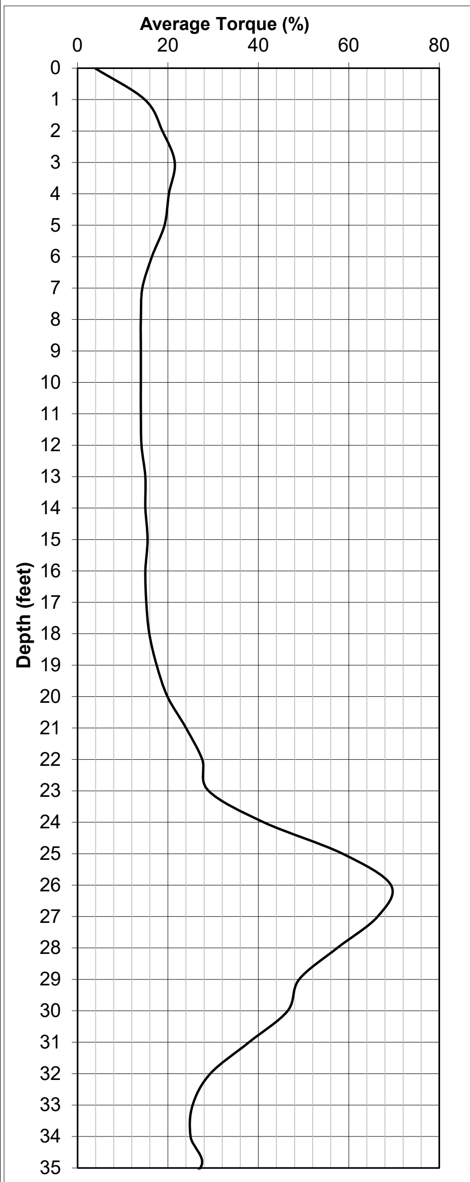
Data for Column No: 261

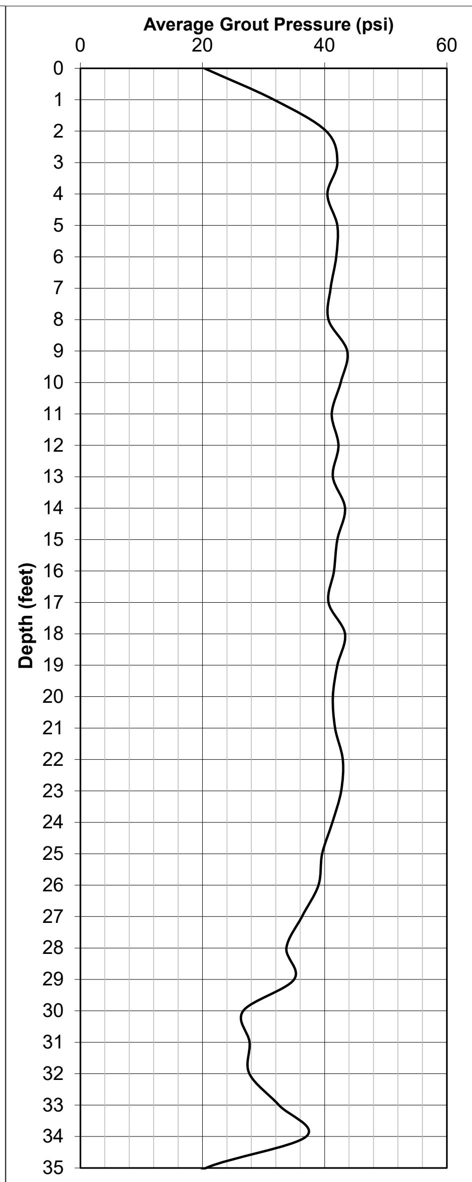
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:09 PM	Concrete Volume:	76.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:16 PM	Column Depth:	35.1	ft
		End Time:	1:21 PM	Pre Auger:		
		Total Time:	12 min			

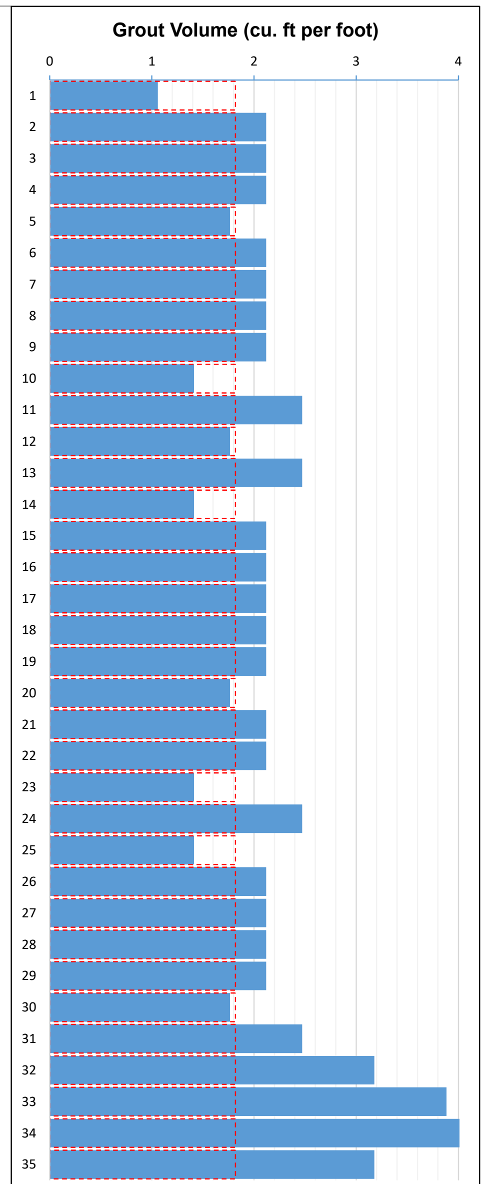
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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Lake Forest, CA 92630
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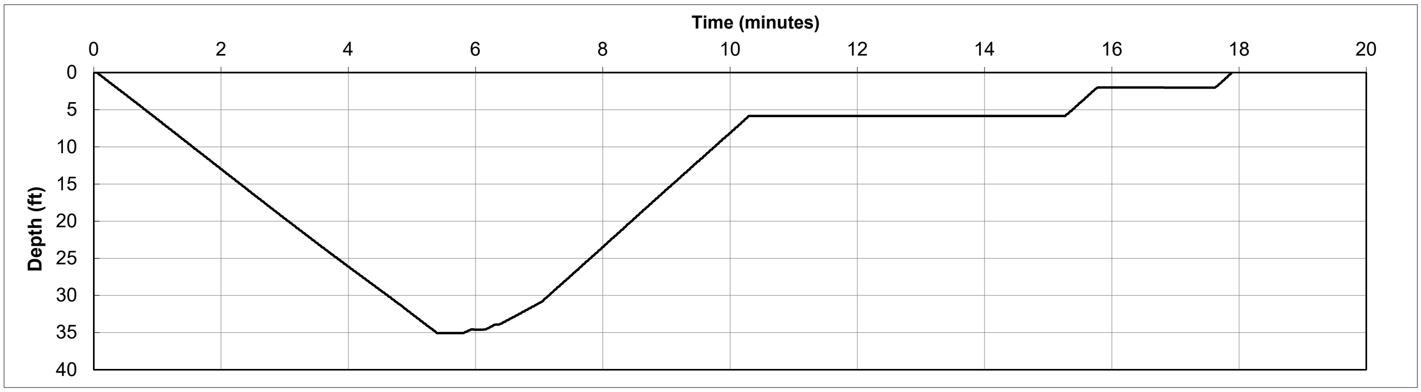
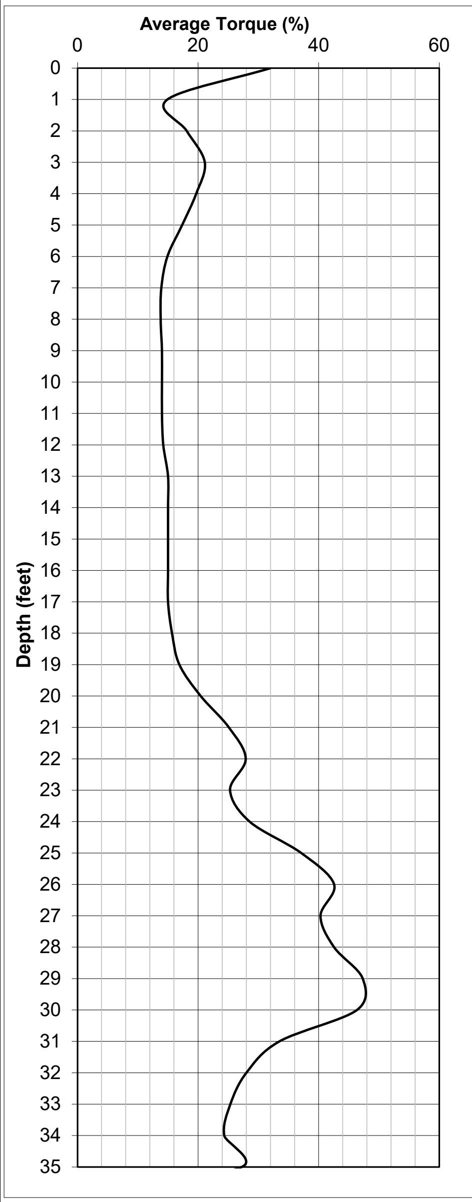
Project Site Data | **Data for Column No: 254**

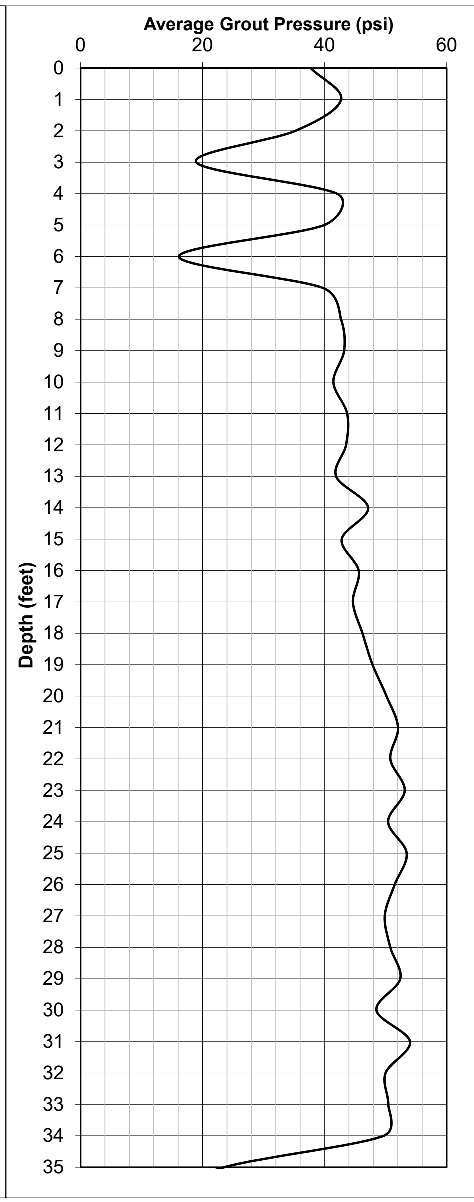
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:25 PM	Concrete Volume:	75.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:31 PM	Column Depth:	35.1	ft
		End Time:	1:43 PM	Pre Auger:		
		Total Time:	18 min			

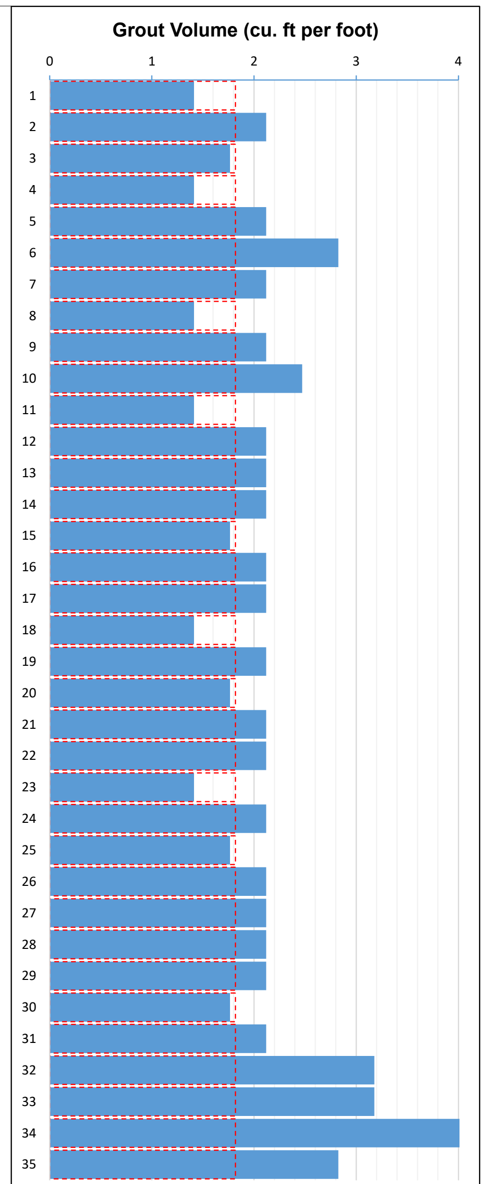
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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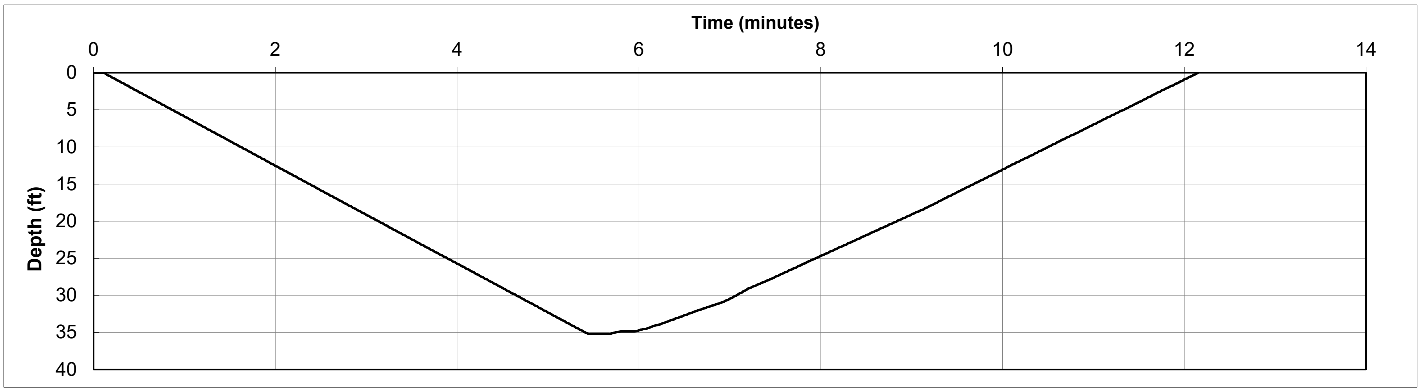
Lake Forest, CA 92630
P: 310-796-9000

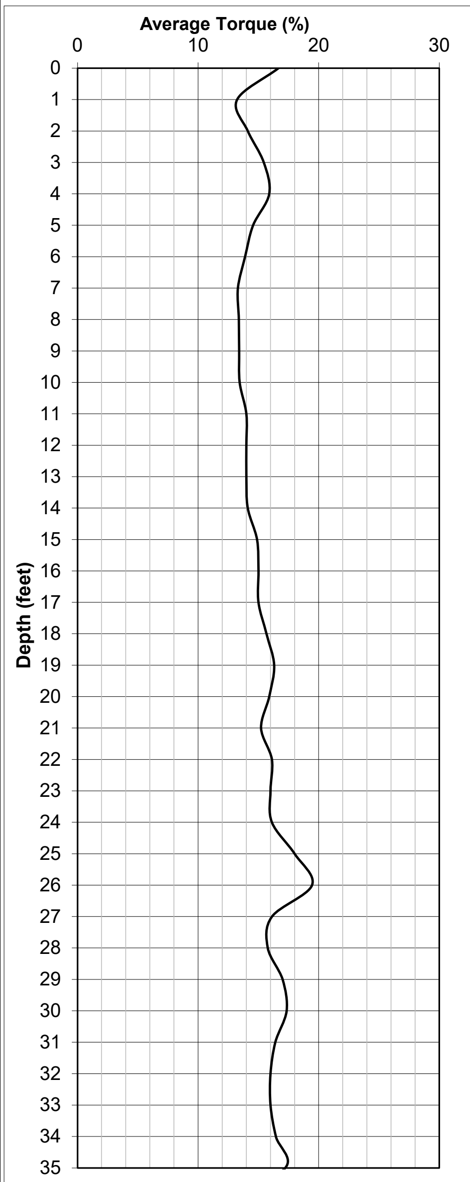
Project Site Data | **Data for Column No: 256**

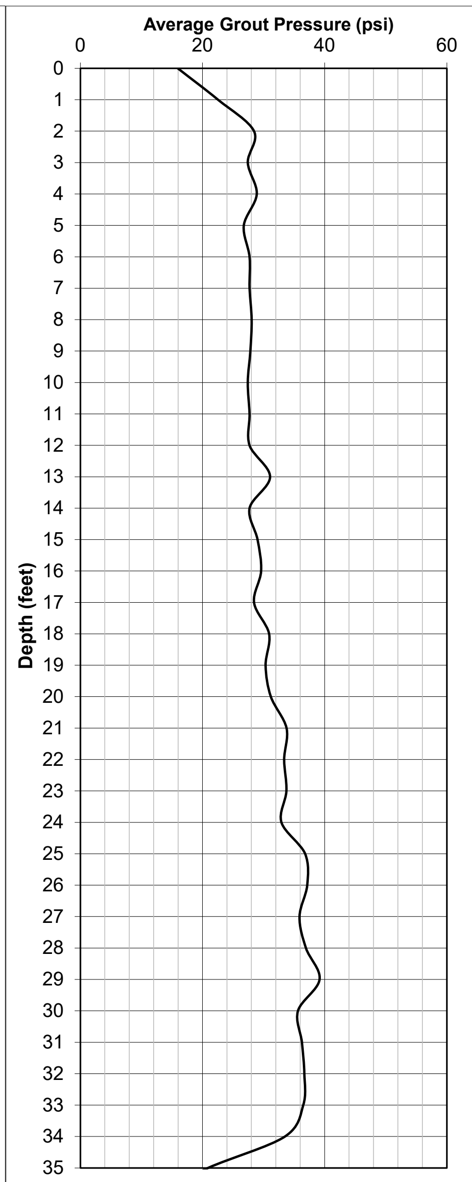
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:33 PM	Concrete Volume:	93.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:39 PM	Column Depth:	35.2	ft
		End Time:	2:45 PM	Pre Auger:		
		Total Time:	12 min			

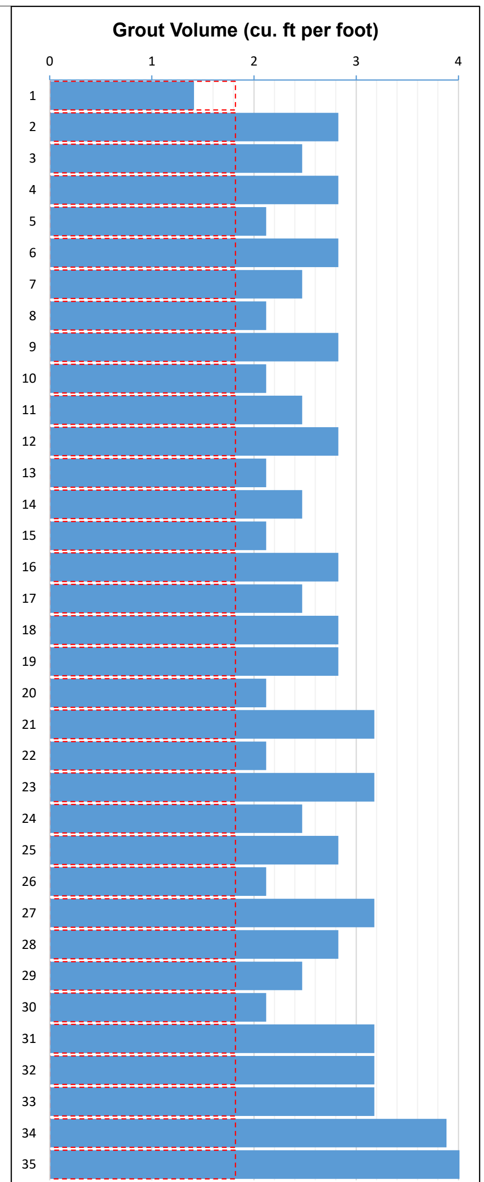
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
P: 310-796-9000

Project Site Data

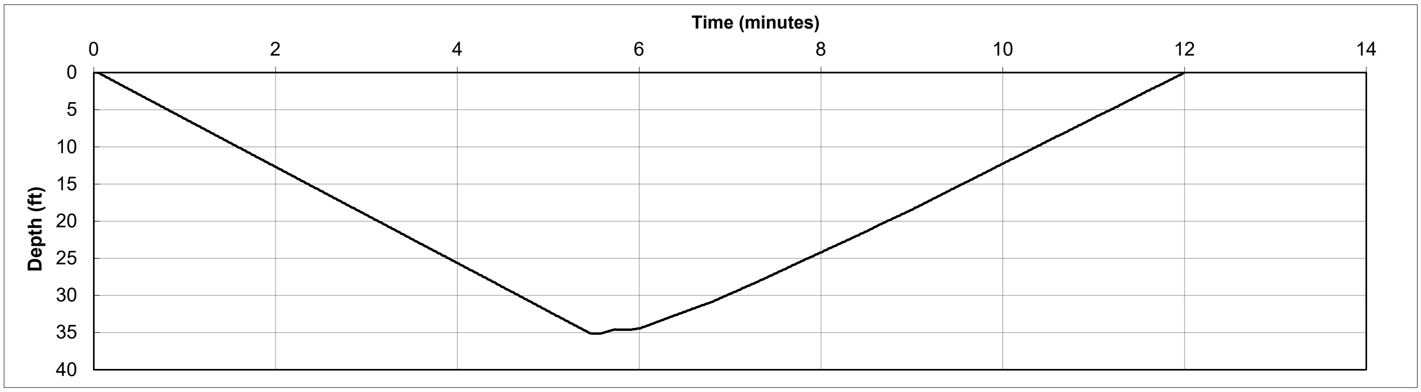
Data for Column No: 255

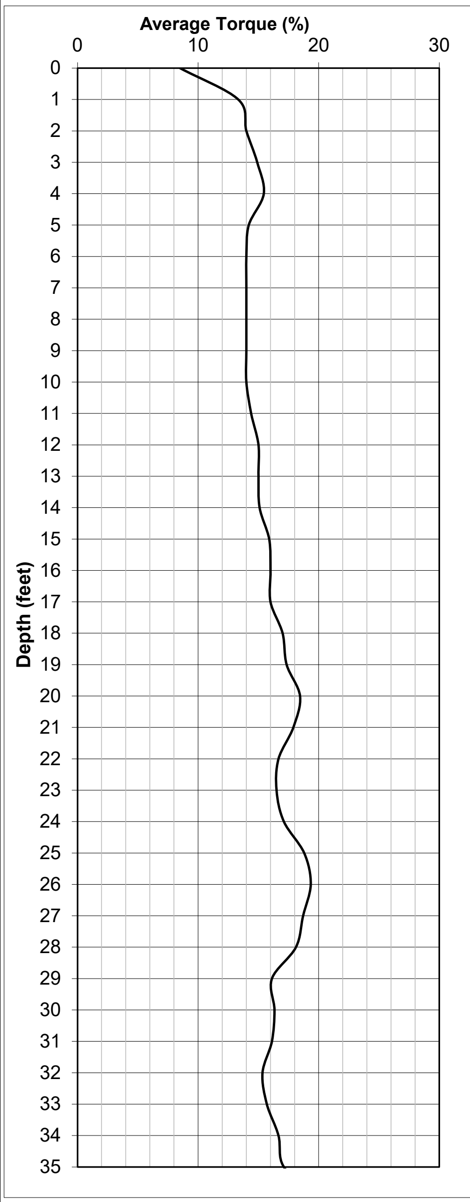
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	3:06 PM	Concrete Volume:	92.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	3:12 PM	Column Depth:	35.1	ft
		End Time:	3:18 PM	Pre Auger:		
		Total Time:	12 min			

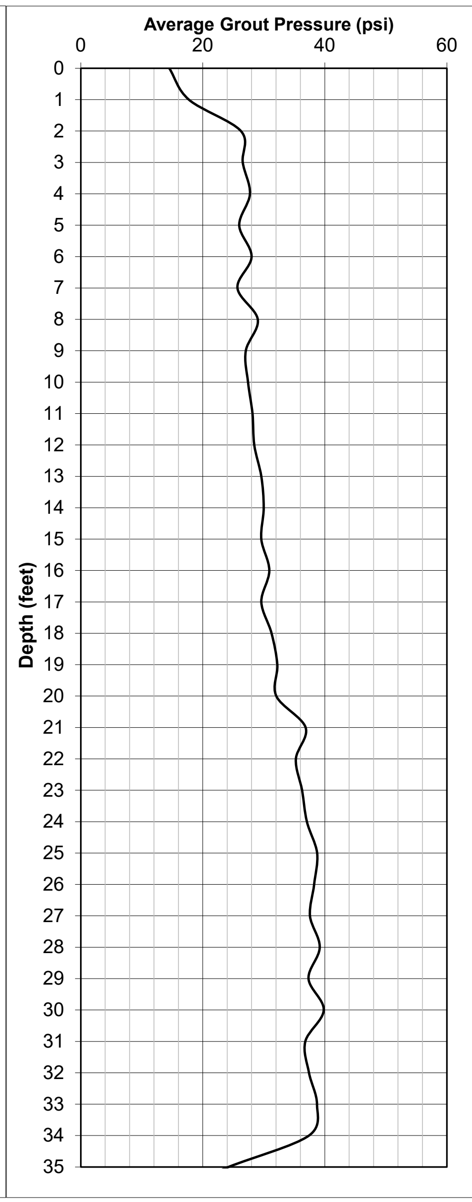
Rig Id: BG-30

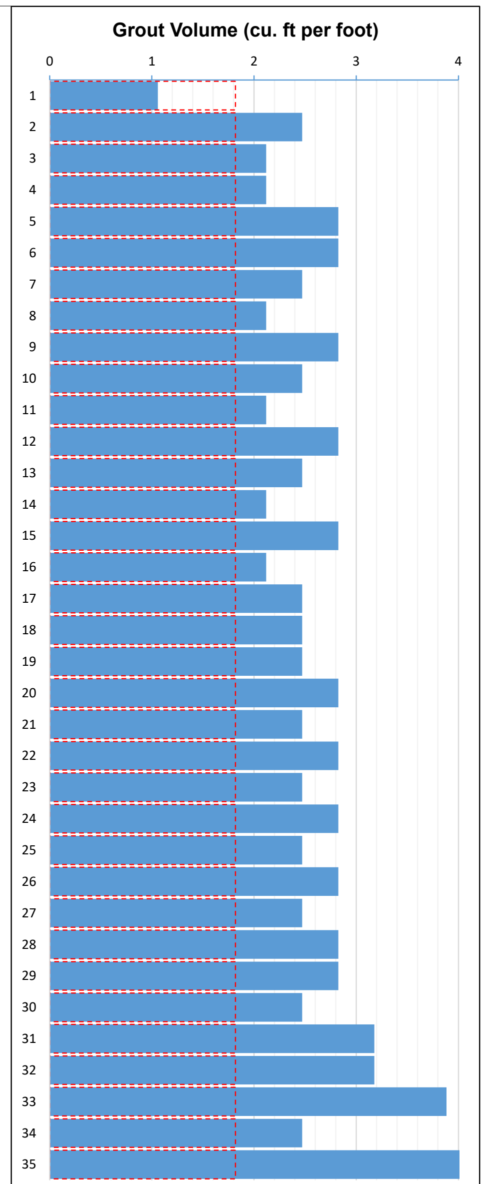
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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Lake Forest, CA 92630
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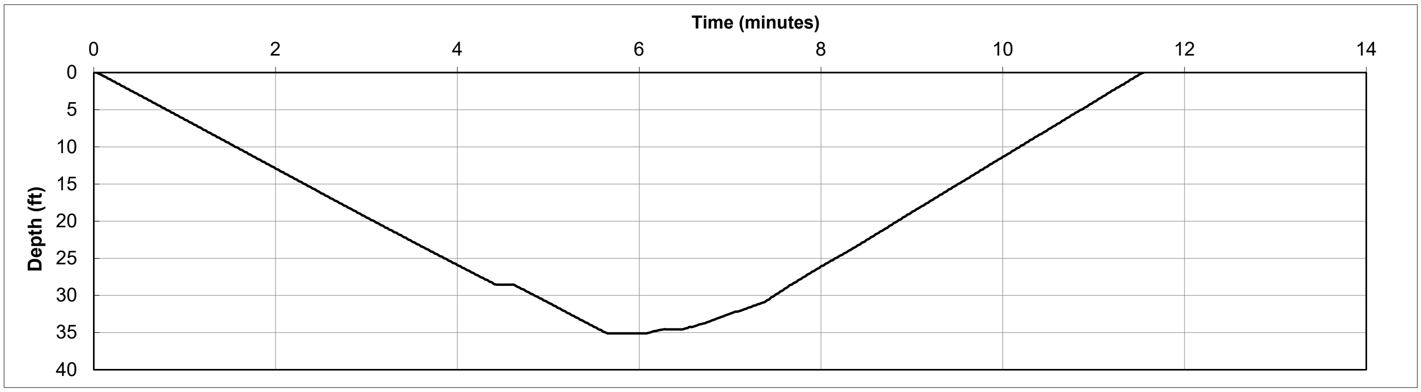
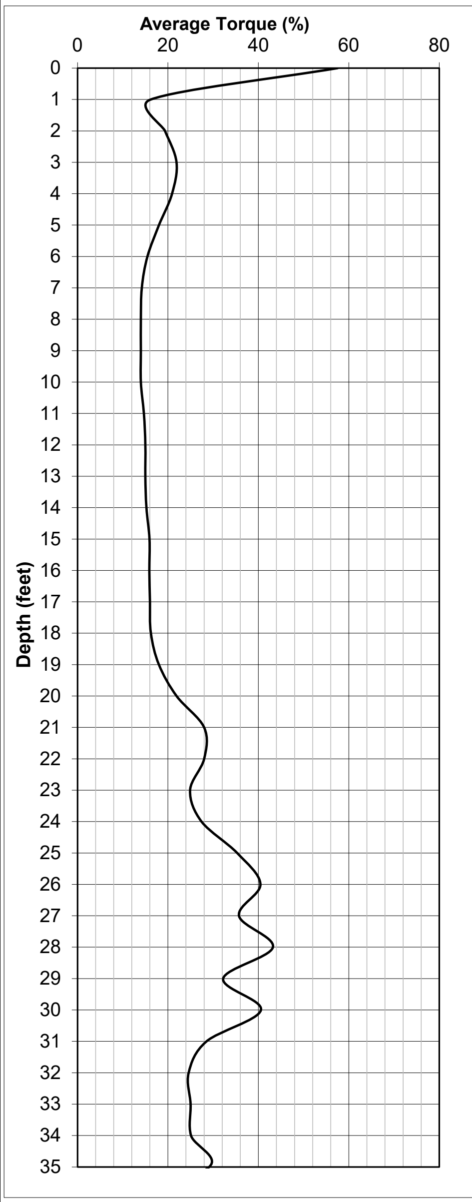
Project Site Data — **Data for Column No: 248**

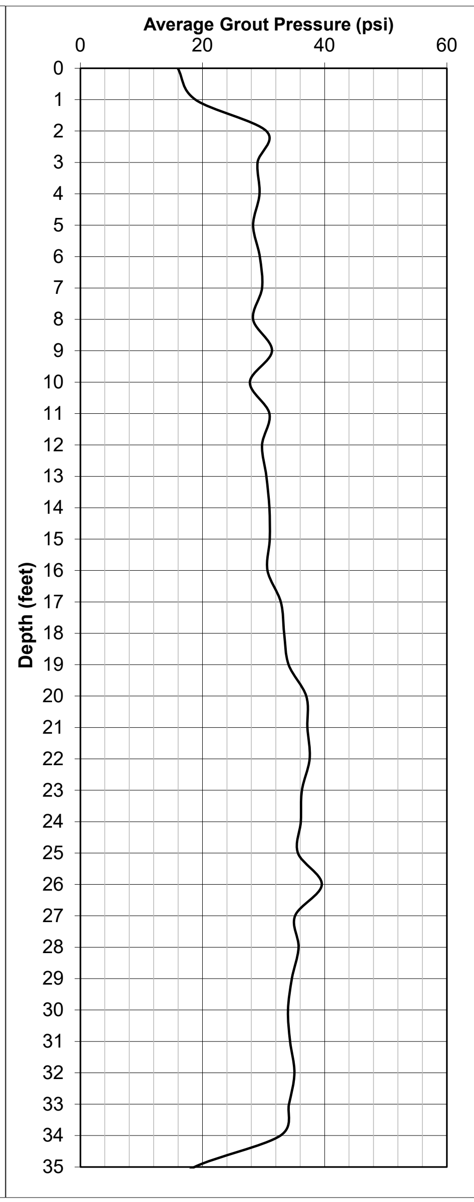
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	3:21 PM	Concrete Volume:	74.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	3:28 PM	Column Depth:	35.1	ft
		End Time:	3:33 PM	Pre Auger:		
		Total Time:	12 min			

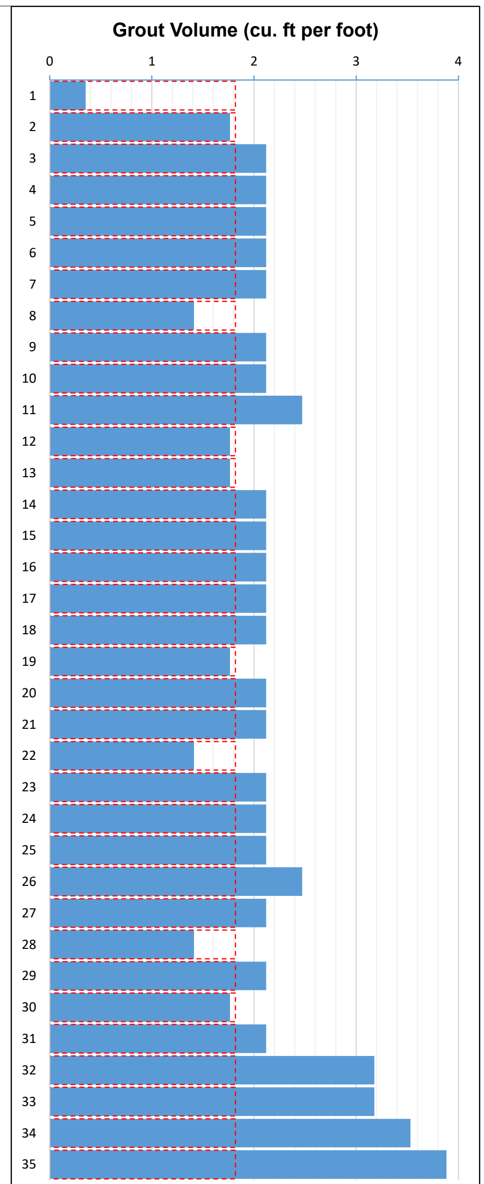
Tool meets 16" Nominal Requirement

Rig Id: BG-30
Operator: James "Smitty" Smith









DGC Log Sheet

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Lake Forest, CA 92630
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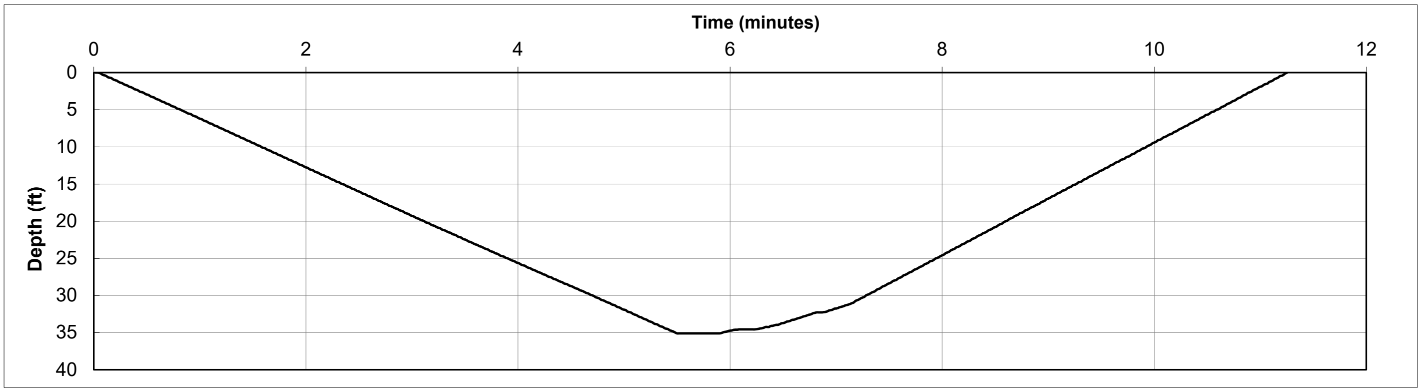
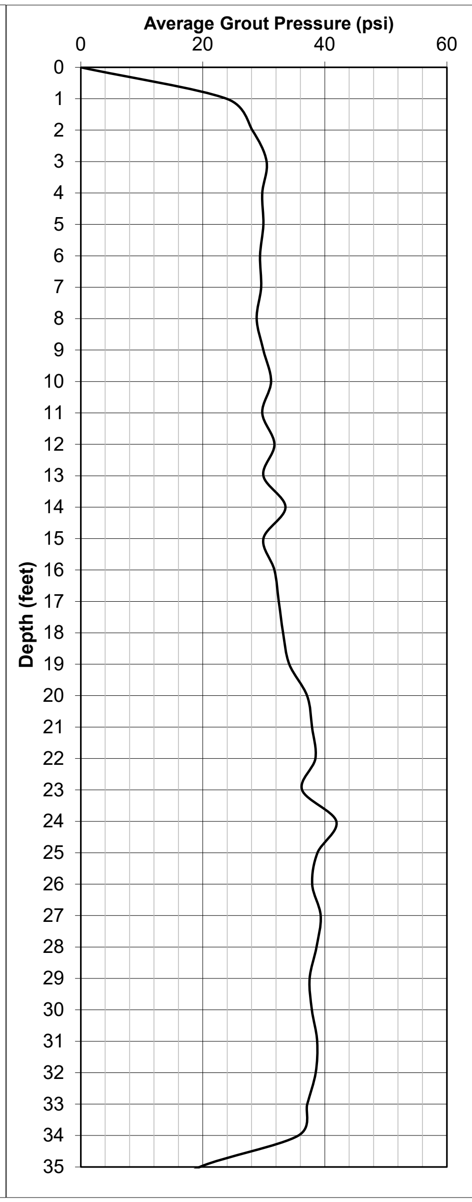
Project Site Data | **Data for Column No: 250**

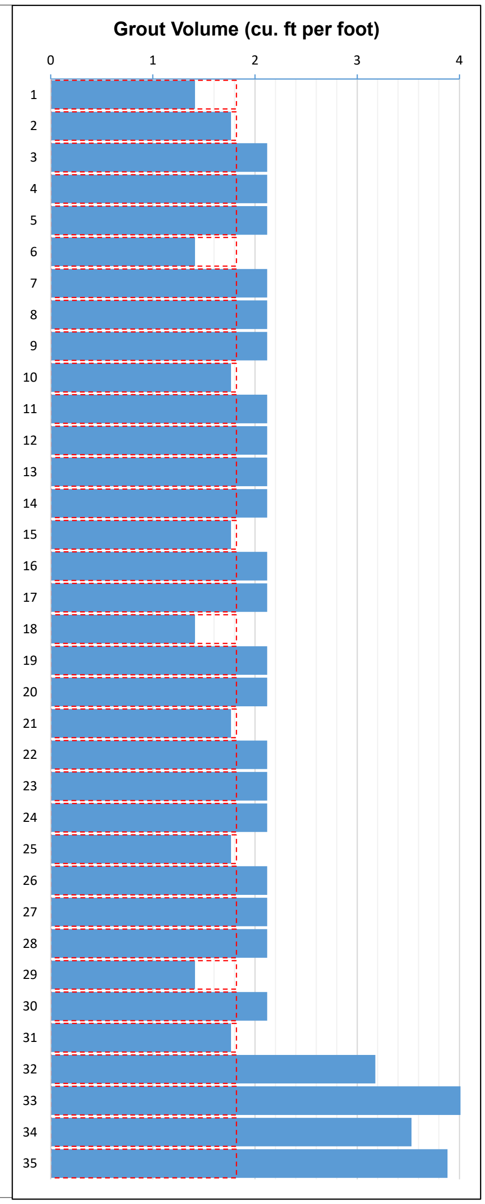
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	3:35 PM	Concrete Volume:	75.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	3:41 PM	Column Depth:	35.1	ft
		End Time:	3:47 PM	Pre Auger:		
		Total Time:	11 min			

Tool meets 16" Nominal Requirement

Rig Id: BG-30
Operator: James "Smitty" Smith







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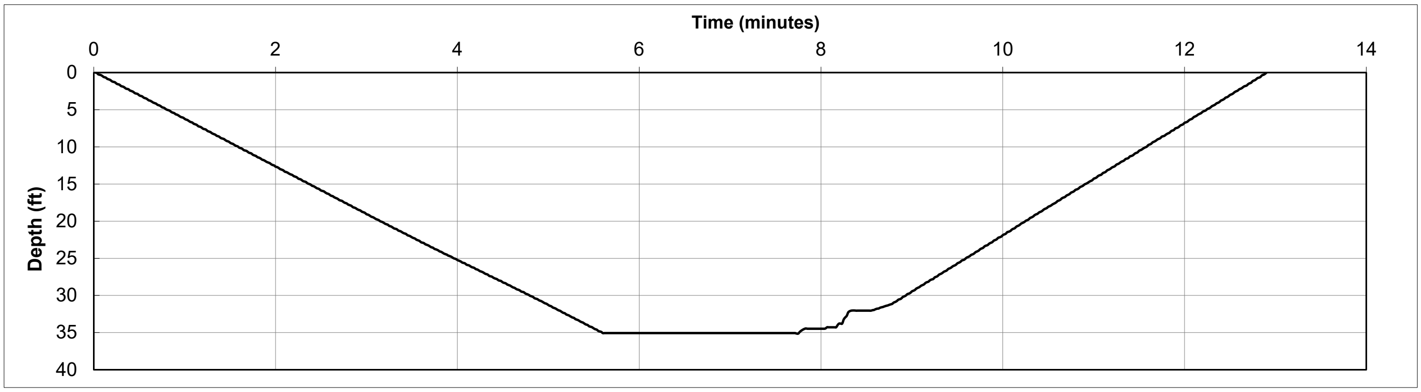
P: 310-796-9000

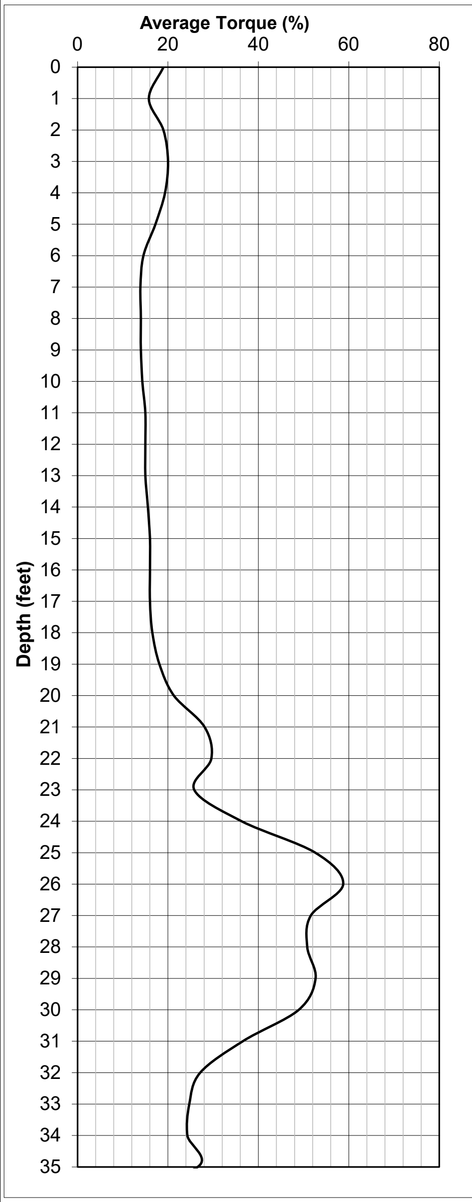
Project Site Data | **Data for Column No: 249**

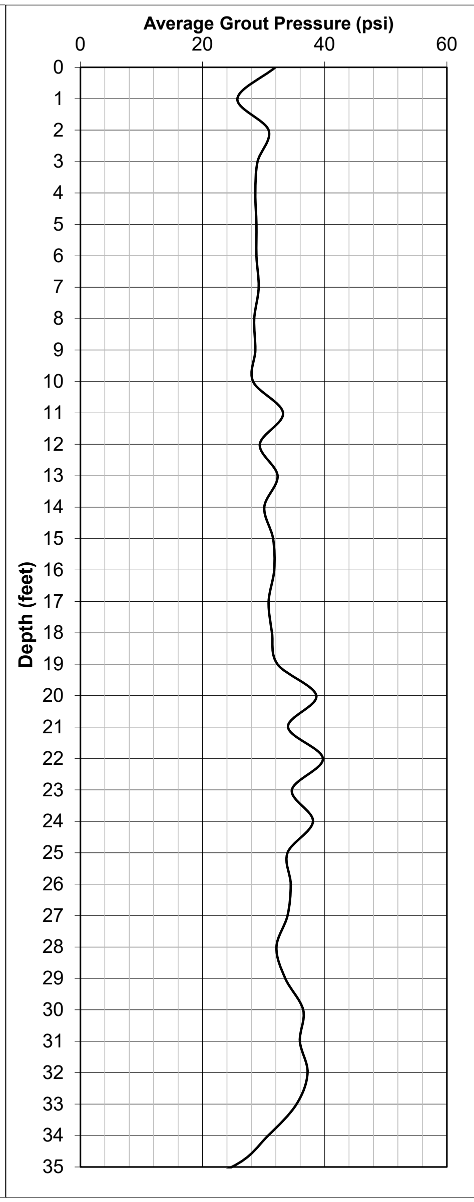
Project Name:	Oxnard College Fire Training	Date:	12/10/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	3:50 PM	Concrete Volume:	75.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	3:58 PM	Column Depth:	35.1	ft
		End Time:	4:03 PM	Pre Auger:		
		Total Time:	13 min			

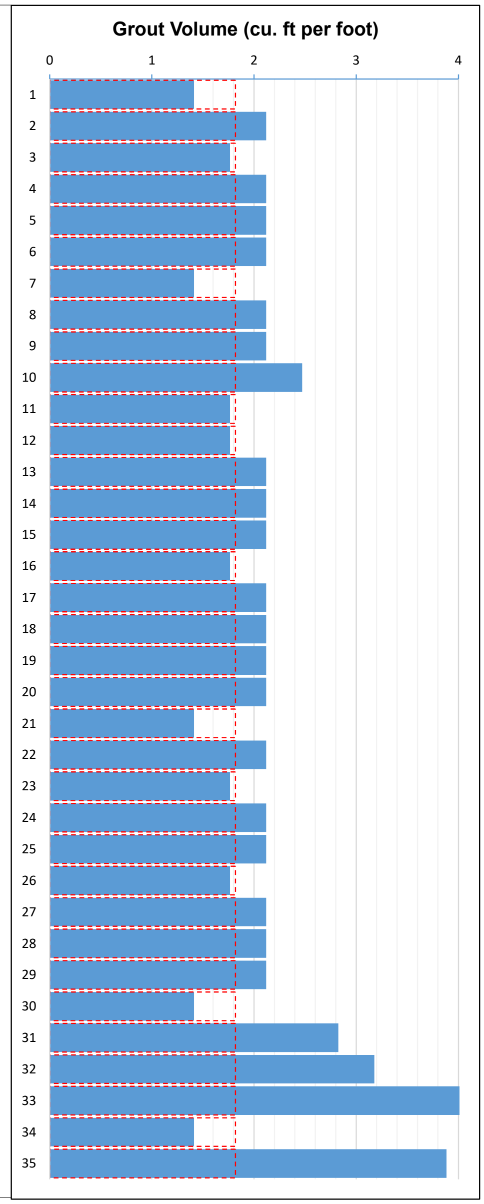
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









ADVANCED GEOSOLUTIONS INC

Daily Production Summary- Displacement Grout Columns

Project No. : **P271275**

Project Name: Oxnard College Fire Training Academy

Rig: BG-30

Rig Operator: James "Smitty" Smith

Oiler: Benny Sandoval

Date: Monday, December 14, 2020

Seq. No	Rig No.	Col. ID	Start Time	Bottom Time	End Time	Surface Elev.	Column Depth (ft)	*Act. Tip Elev.*	Concrete Volume (cu. feet)	Truck ID	Comments
1		222	08:37	08:45	08:51	74.4	35.1	39.3	77	42657315	
2		224	08:56	09:03	09:08	74.4	35.1	39.3	75	42657315	
3		223	09:11	09:18	09:47	74.4	35.1	39.3	76	42657315	
4		229	09:49	09:55	10:00	74.4	35.1	39.3	72	42657327	
5		231	10:03	10:09	11:07	74.4	35.0	39.4	77	42657327	
6		230	11:10	11:16	11:21	74.4	35.1	39.3	77	42657346	
7		236	11:29	11:35	11:40	74.4	35.1	39.3	75	42657346	

DGC Log Sheet

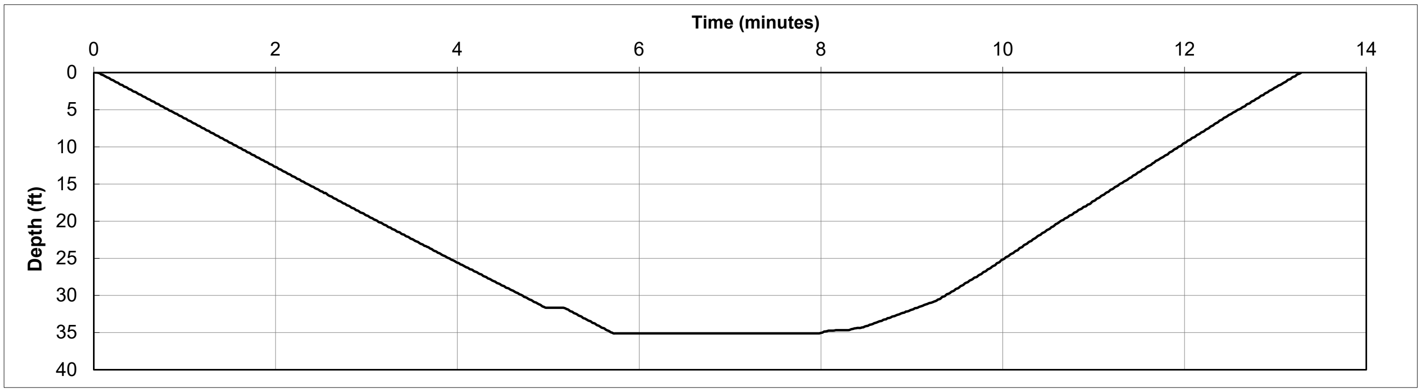
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

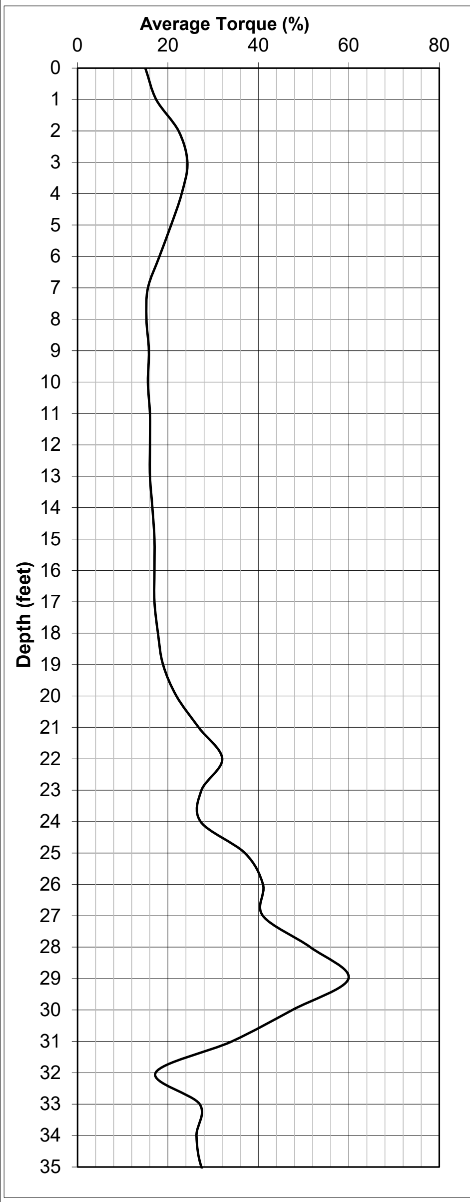
Project Site Data **Data for Column No: 222**

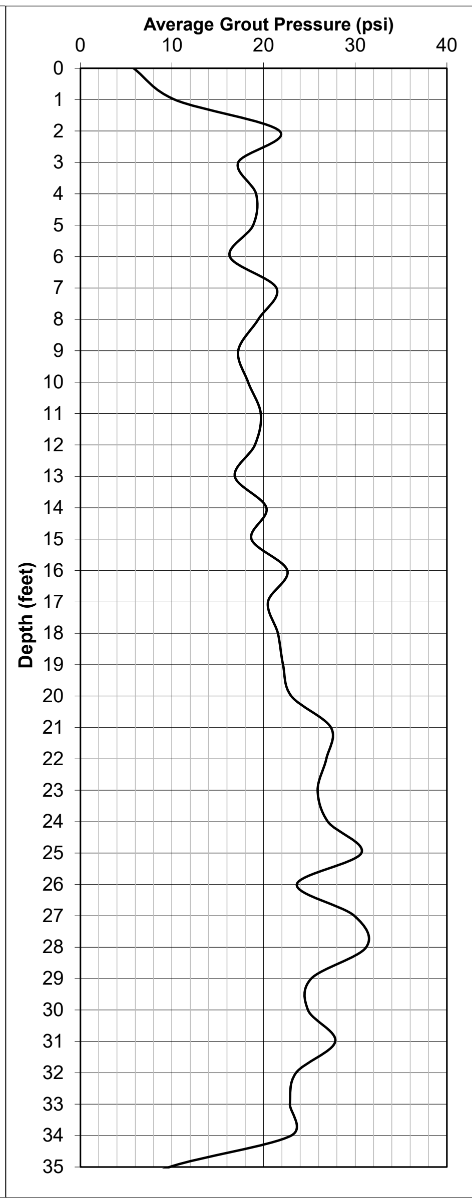
Project Name:	Oxnard College Fire Training	Date:	12/14/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:37 AM	Concrete Volume:	76.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:45 AM	Column Depth:	35.1	ft
		End Time:	8:51 AM	Pre Auger:		
		Total Time:	13 min			

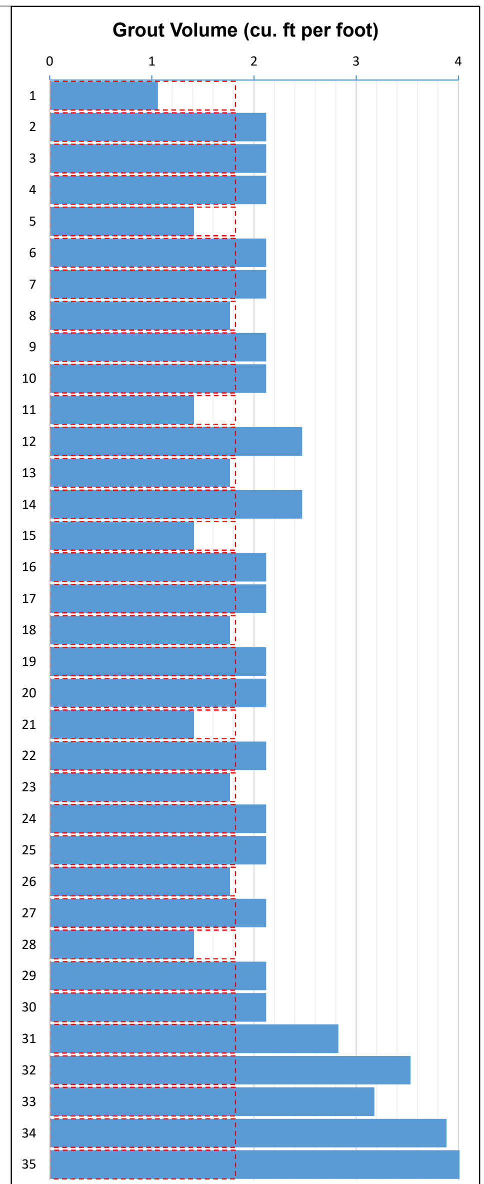
Tool meets 16" Nominal Requirement

Rig Id: BG-30
Operator: James "Smitty" Smith









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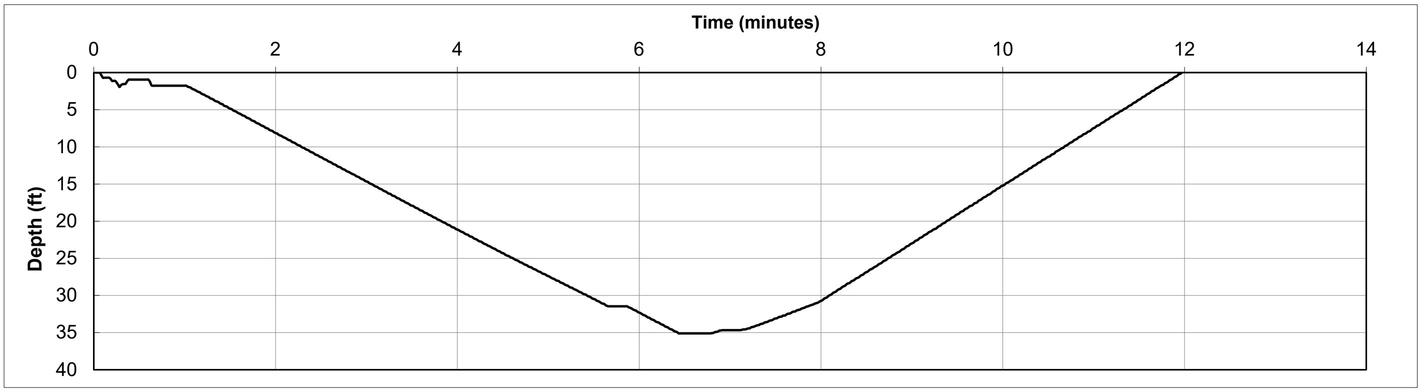
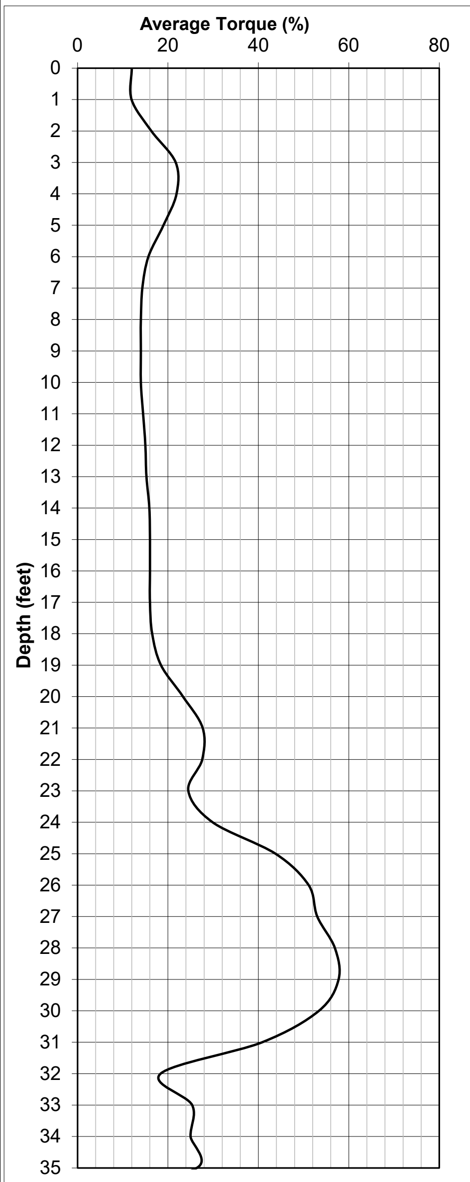
Project Site Data | **Data for Column No: 224**

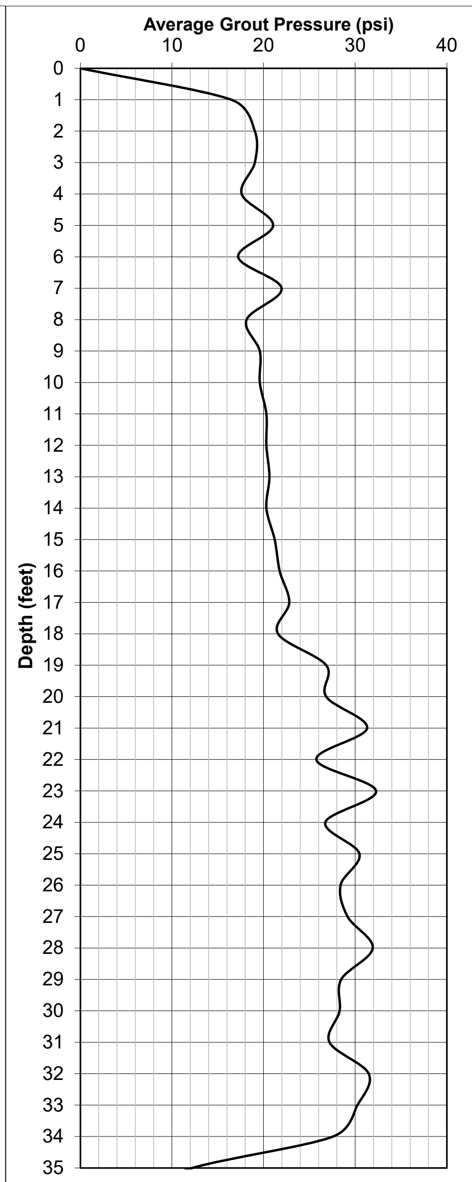
Project Name:	Oxnard College Fire Training	Date:	12/14/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:56 AM	Concrete Volume:	74.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:03 AM	Column Depth:	35.1	ft
		End Time:	9:08 AM	Pre Auger:		
		Total Time:	12 min			

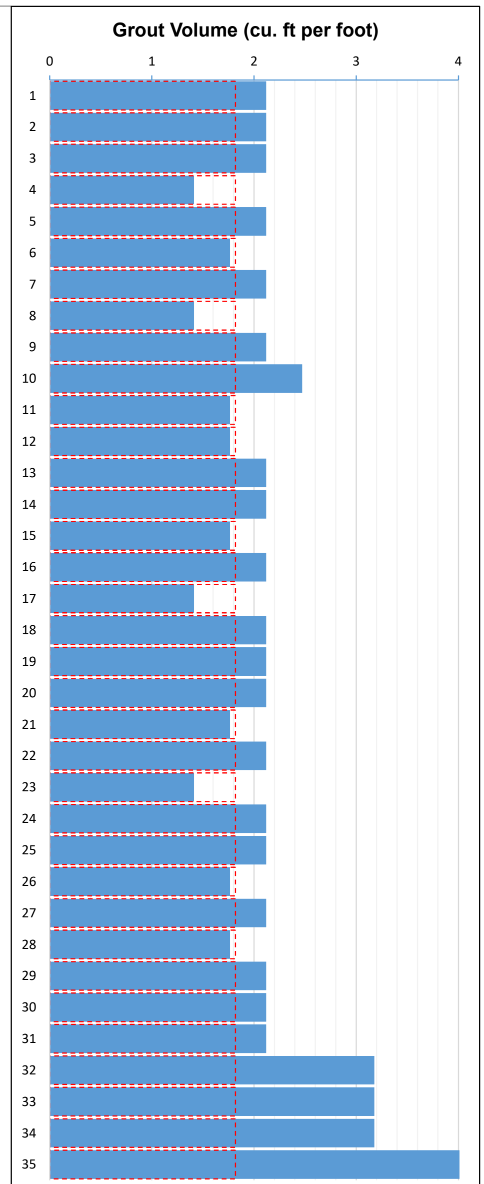
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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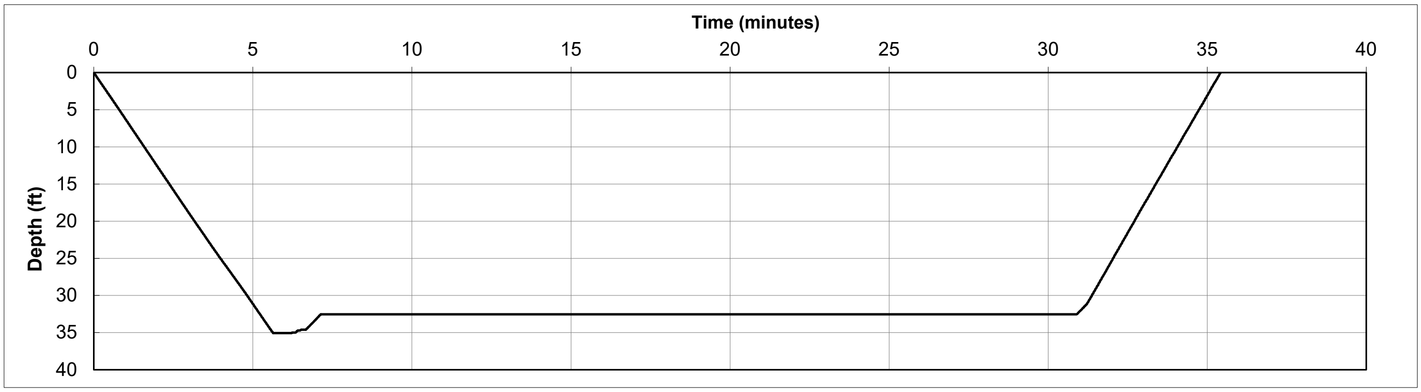
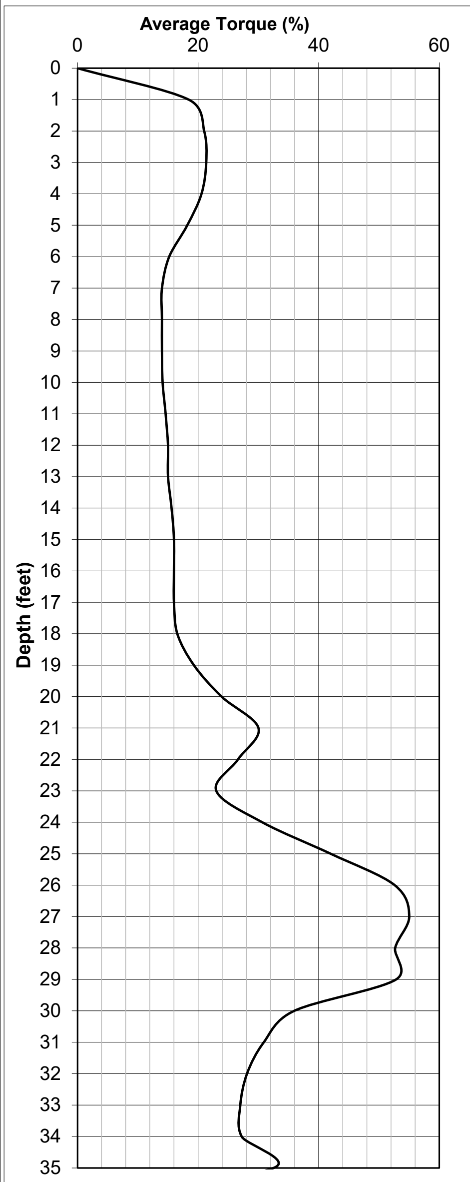
Project Site Data | **Data for Column No: 223**

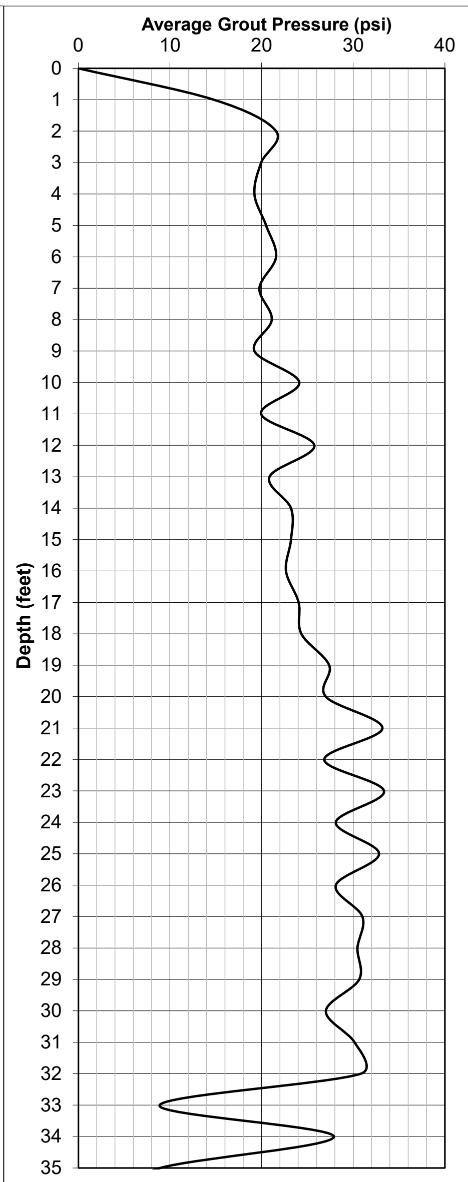
Project Name:	Oxnard College Fire Training	Date:	12/14/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:11 AM	Concrete Volume:	75.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:18 AM	Column Depth:	35.1	ft
		End Time:	9:47 AM	Pre Auger:		
		Total Time:	35 min			

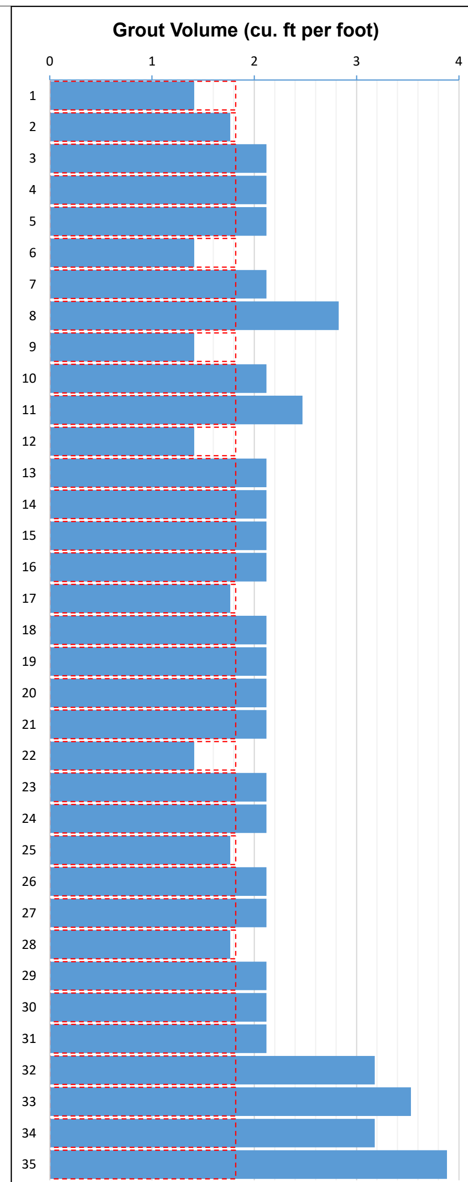
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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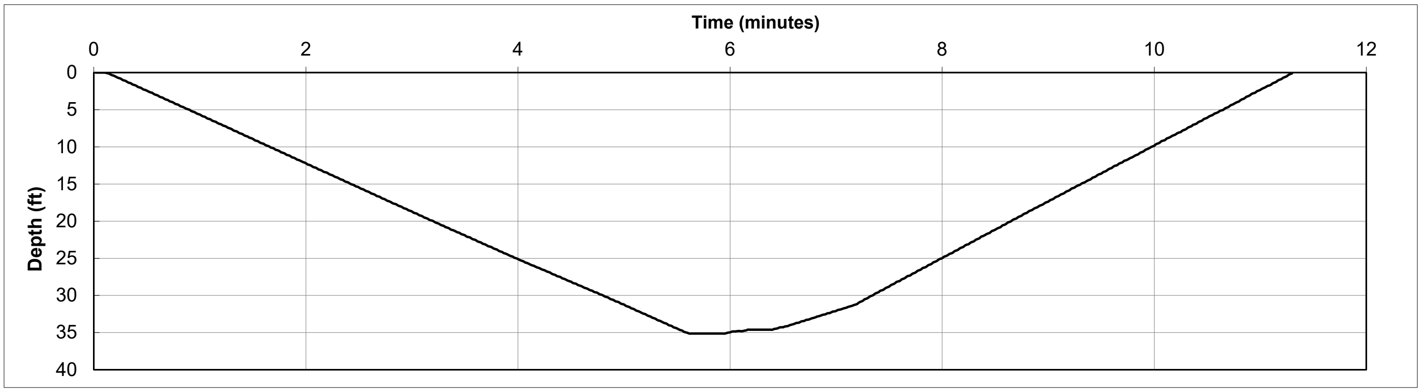
Project Site Data

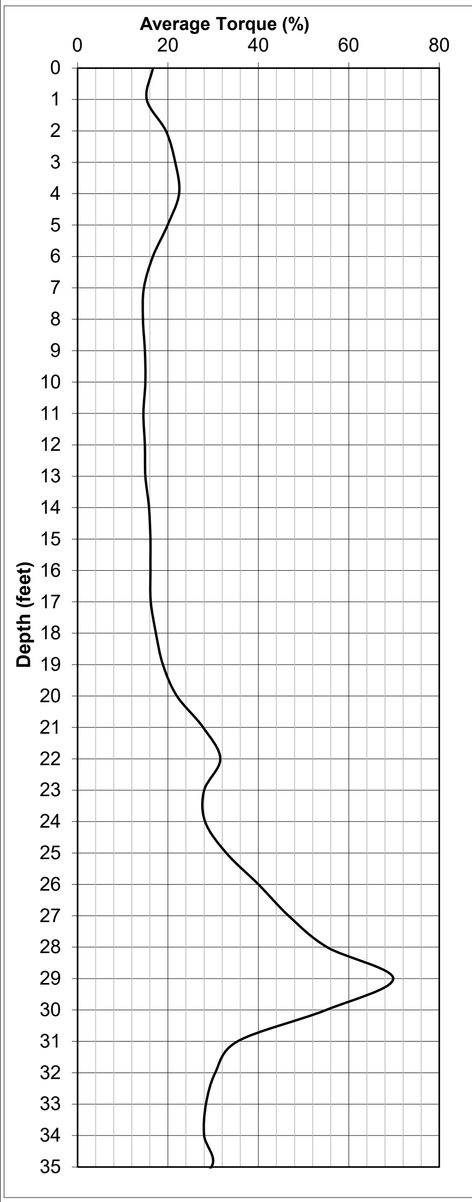
Data for Column No: 229

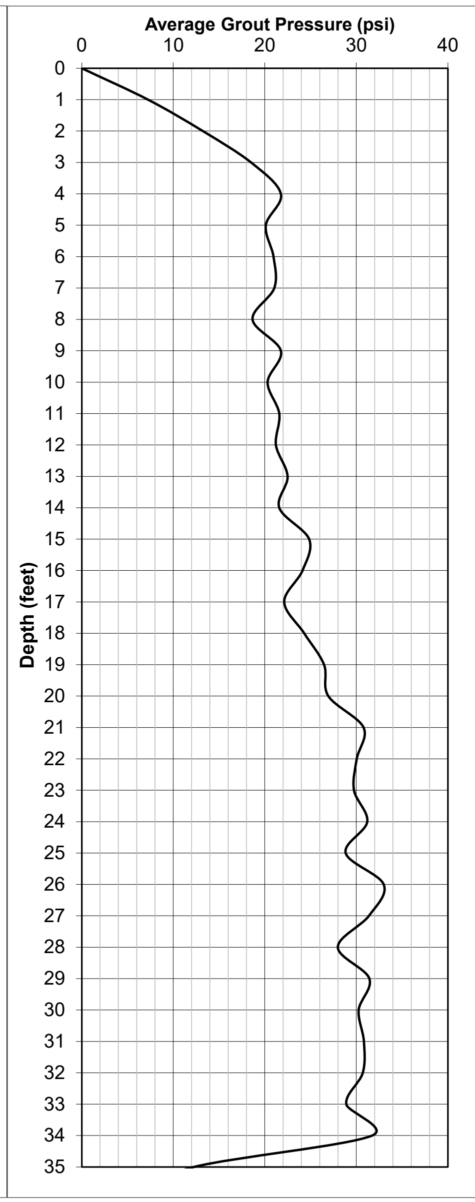
Project Name:	Oxnard College Fire Training	Date:	12/14/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:49 AM	Concrete Volume:	72.4	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:55 AM	Column Depth:	35.1	ft
		End Time:	10:00 AM	Pre Auger:		
		Total Time:	11 min			

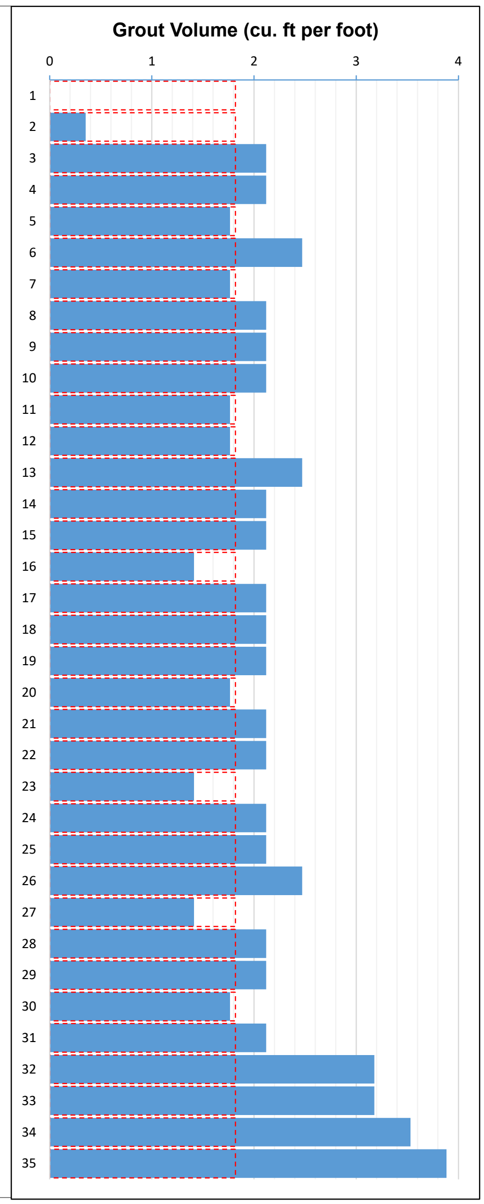
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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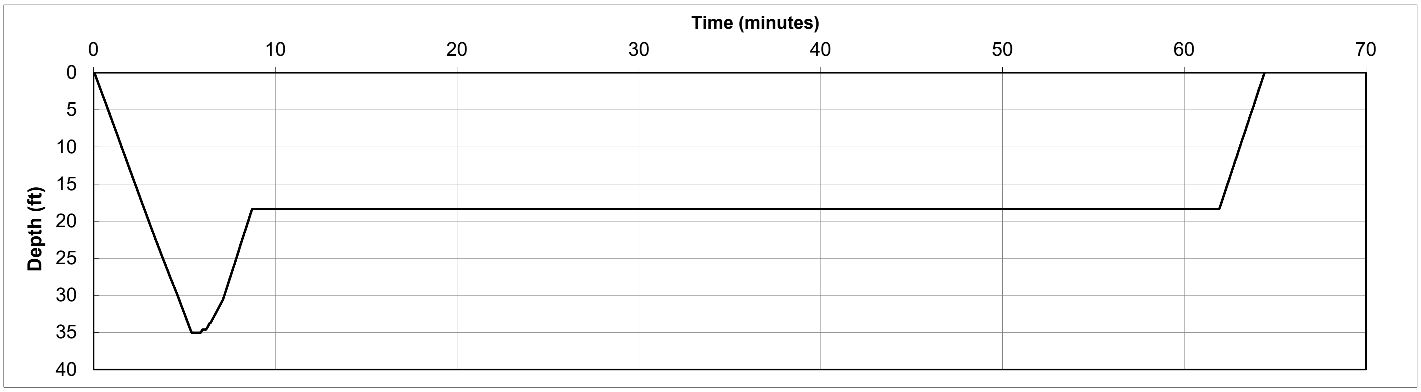
Project Site Data

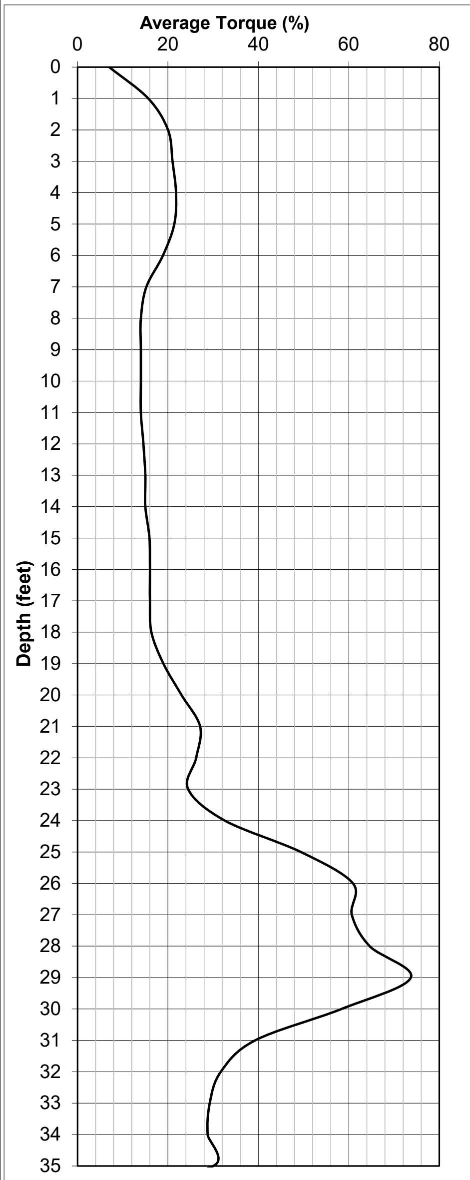
Data for Column No: 231

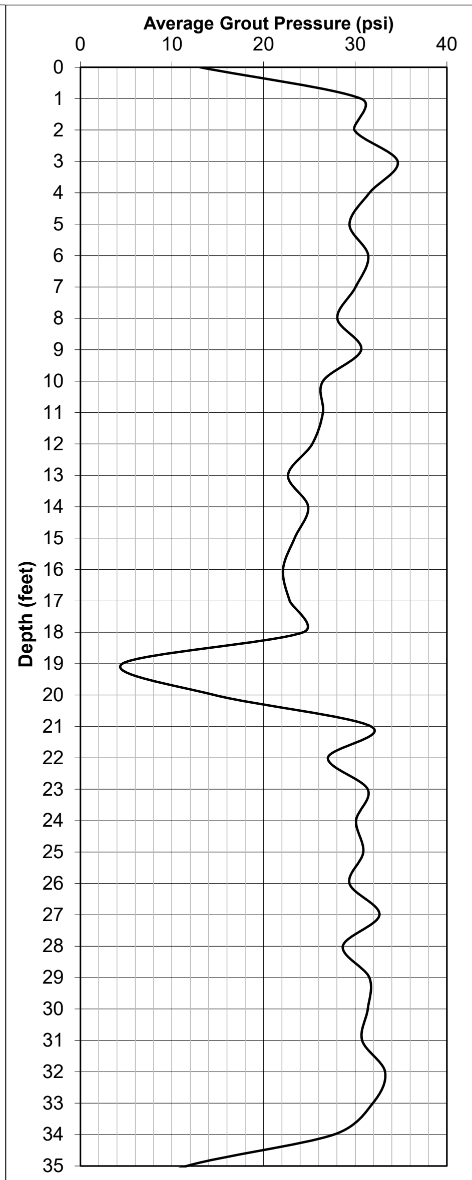
Project Name:	Oxnard College Fire Training	Date:	12/14/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:03 AM	Concrete Volume:	77.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:09 AM	Column Depth:	35.0	ft
		End Time:	11:07 AM	Pre Auger:		
		Total Time:	64 min			

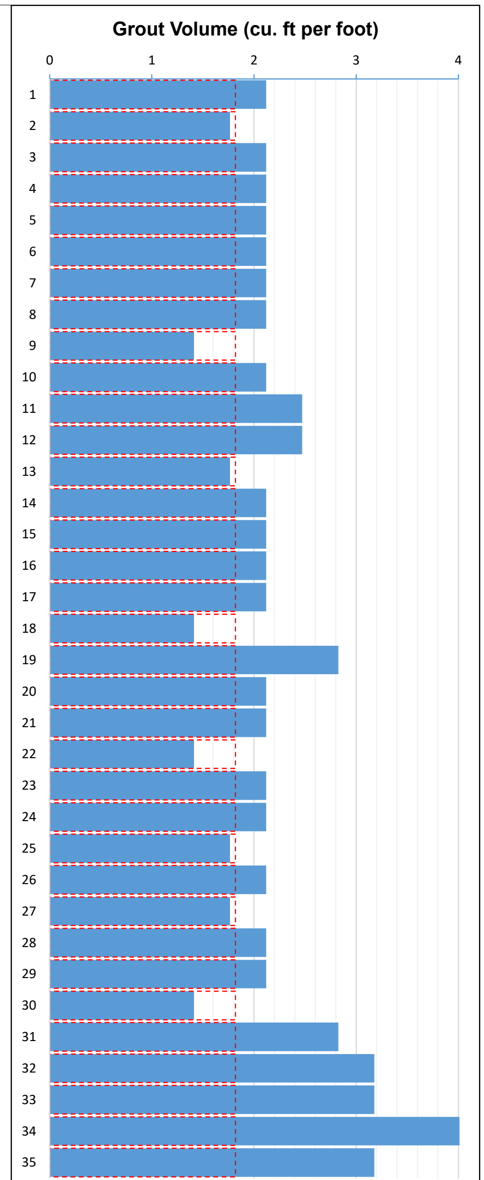
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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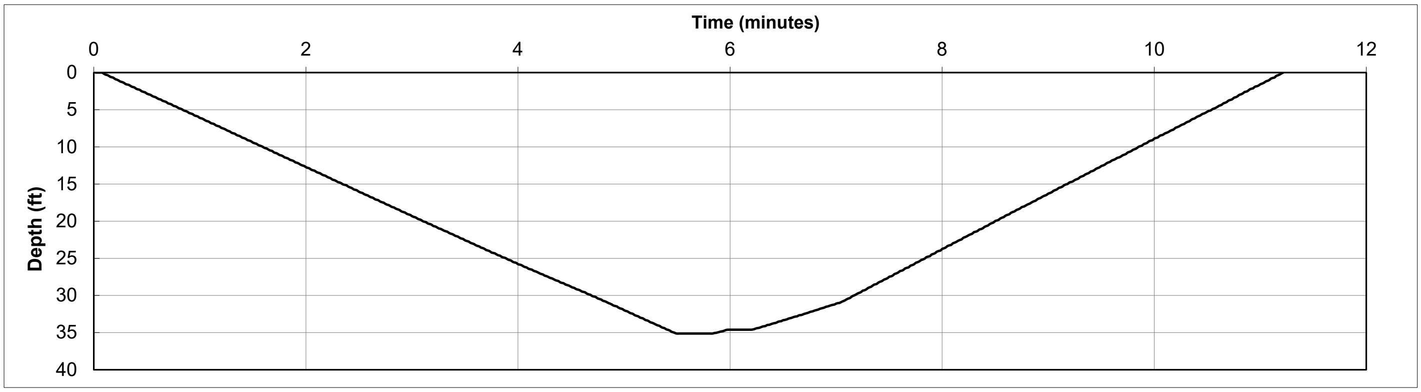
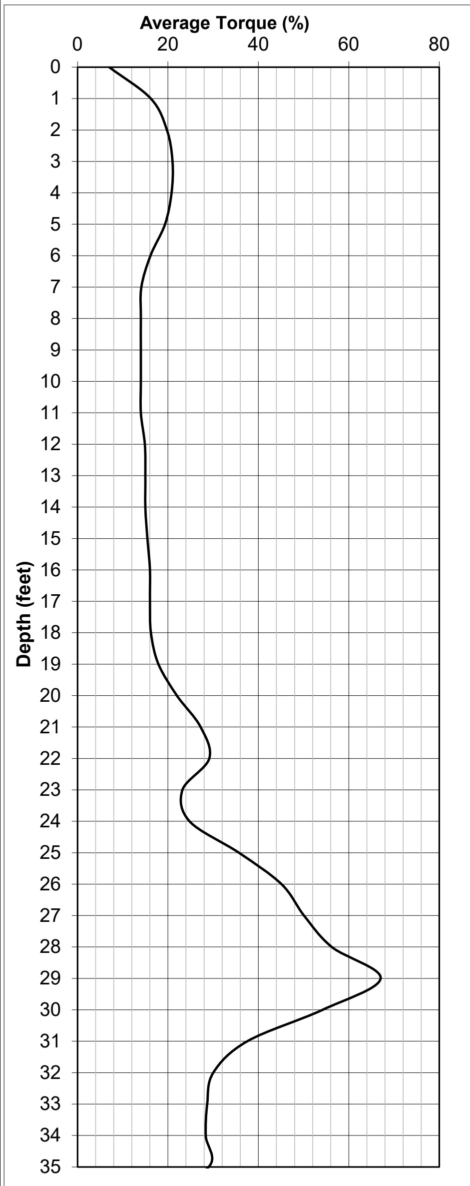
Project Site Data | **Data for Column No: 230**

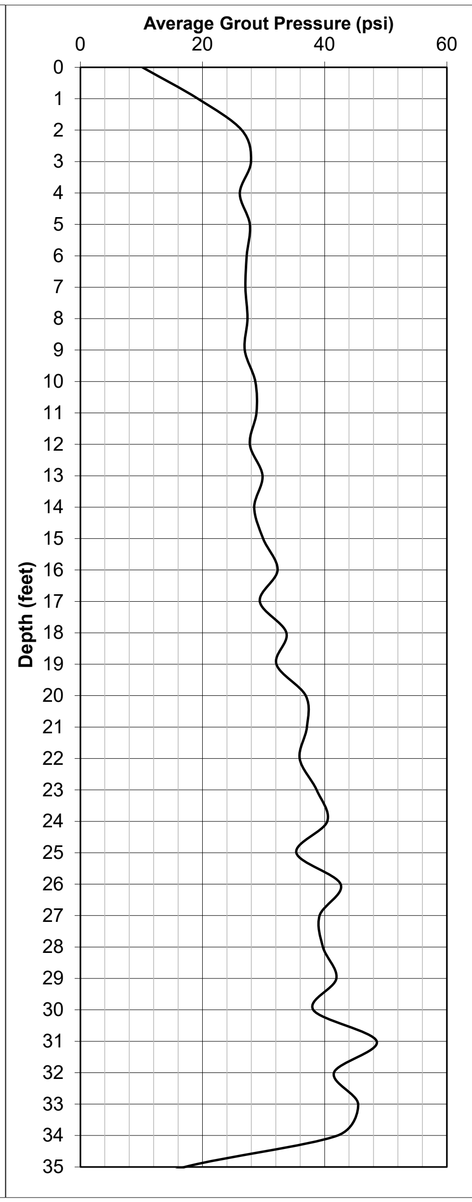
Project Name:	Oxnard College Fire Training	Date:	12/14/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:10 AM	Concrete Volume:	77.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:16 AM	Column Depth:	35.1	ft
		End Time:	11:21 AM	Pre Auger:		
		Total Time:	11 min			

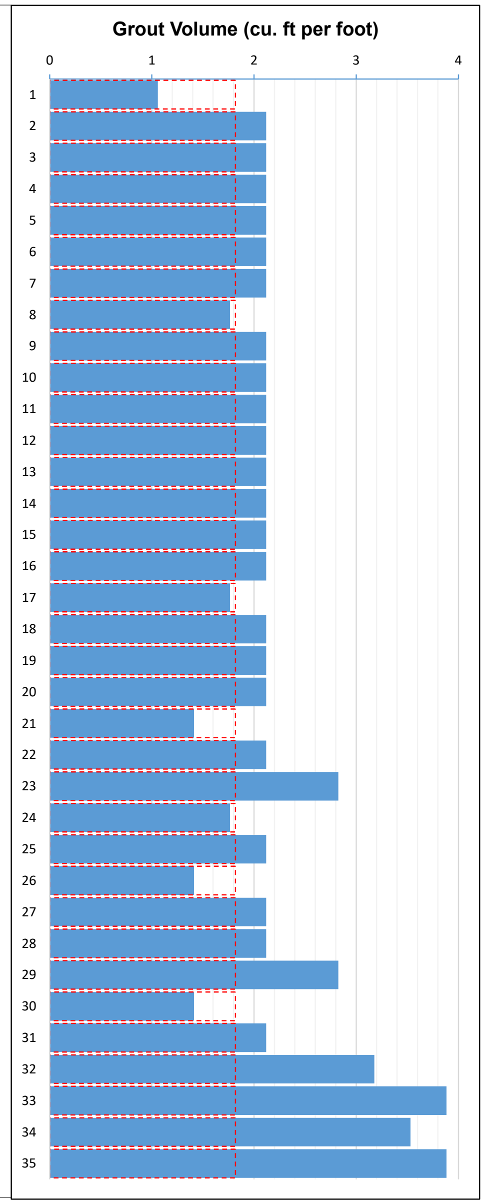
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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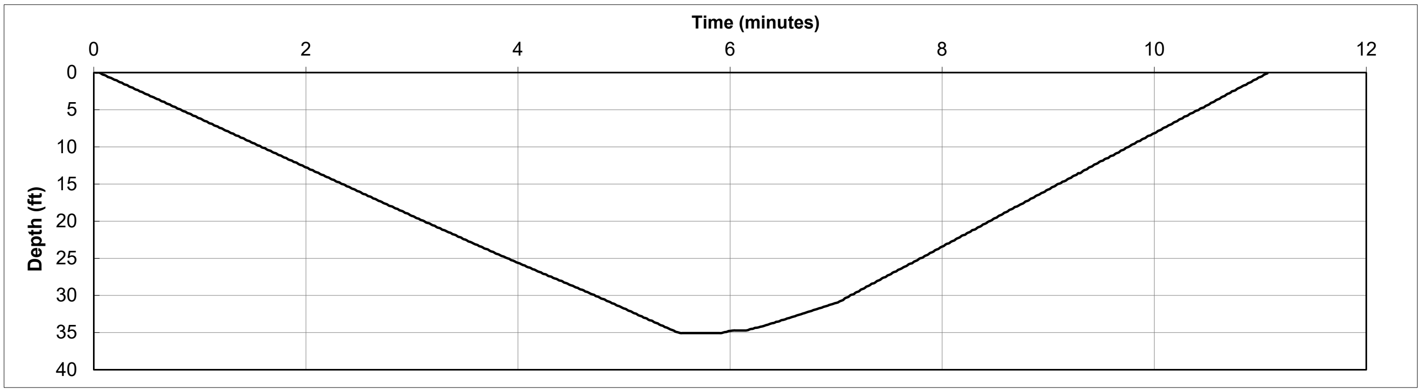
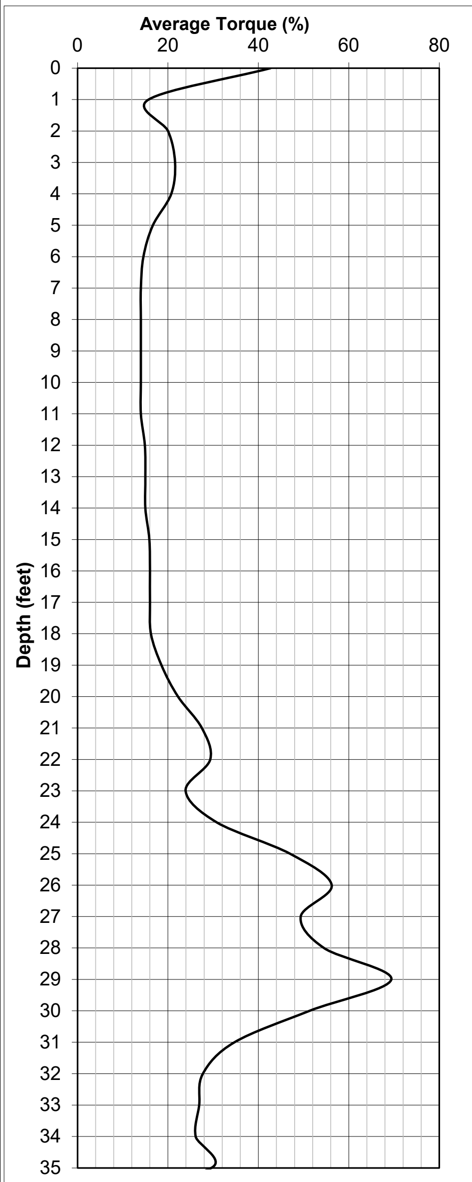
Project Site Data | **Data for Column No: 236**

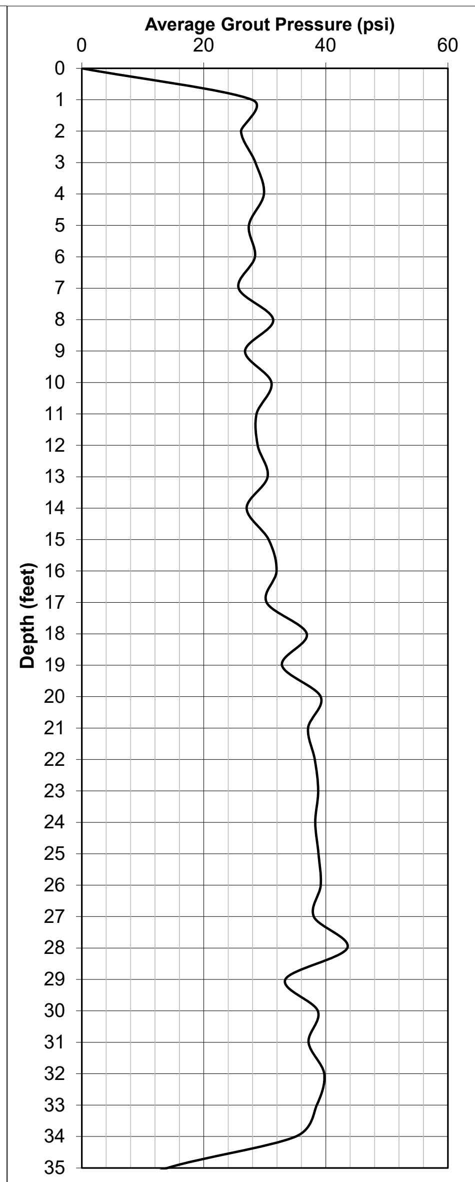
Project Name:	Oxnard College Fire Training	Date:	12/14/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:29 AM	Concrete Volume:	75.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:35 AM	Column Depth:	35.1	ft
		End Time:	11:40 AM	Pre Auger:		
		Total Time:	11 min			

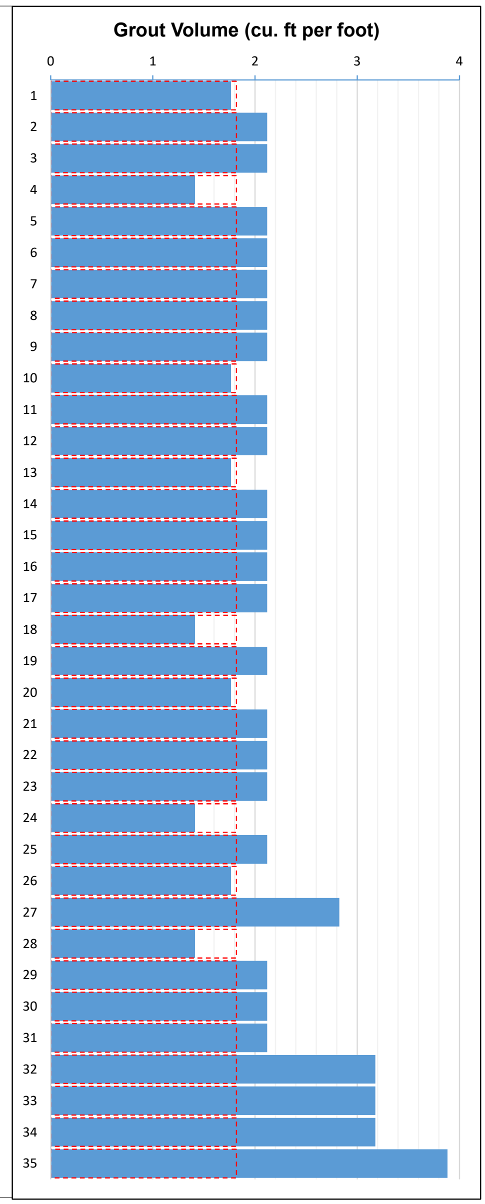
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









ADVANCED GEOSOLUTIONS INC
Daily Production Summary- Displacement Grout Columns

Project No. :	**P271275**	Date:	Tuesday, December 15, 2020
Project Name:	Oxnard College Fire Training Academy		
Rig:	BG-30		
Rig Operator:	James "Smitty" Smith		
Oiler:	Benny Sandoval		

Seq. No	Rig No.	Col. ID	Start Time	Bottom Time	End Time	Surface Elev.	Column Depth (ft)	*Act. Tip Elev.*	Concrete Volume (cu. feet)	Truck ID	Comments
1		157	08:12	08:18	08:23	74.4	35.1	39.3	76	42607454	
2		155	08:26	08:32	08:37	74.4	35.1	39.3	75	42607454	
3		209	08:54	08:59	09:51	74.4	35.2	39.2	94	42607454	
4		217	09:54	10:00	10:05	74.4	35.1	39.3	76	42607471	
5		215	10:08	10:14	10:44	74.4	35.1	39.3	75	42607471	
6		238	10:49	10:55	11:00	74.4	35.0	39.4	72	42607479	
7		237	11:16	11:22	11:28	74.4	35.1	39.3	93	42607479	
8		244	11:30	11:37	11:55	74.4	35.0	39.4	75	42607479	
9		243	11:57	12:04	12:09	74.4	35.1	39.3	74	42607481	
10		159	12:12	12:18	12:24	74.4	35.0	39.4	77	42607481	
11		207	12:42	12:47	14:43	74.4	35.2	39.2	94	42607481	
12		221	14:45	14:51	14:57	74.4	35.1	39.3	76	42607482	
13		235	15:00	15:06	15:11	74.4	35.1	39.3	79	42607482	

DGC Log Sheet

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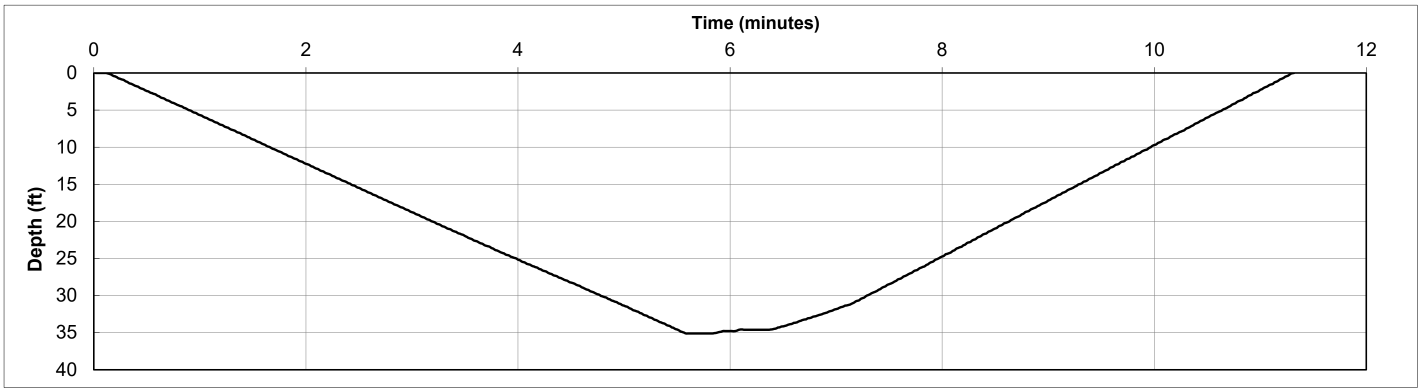
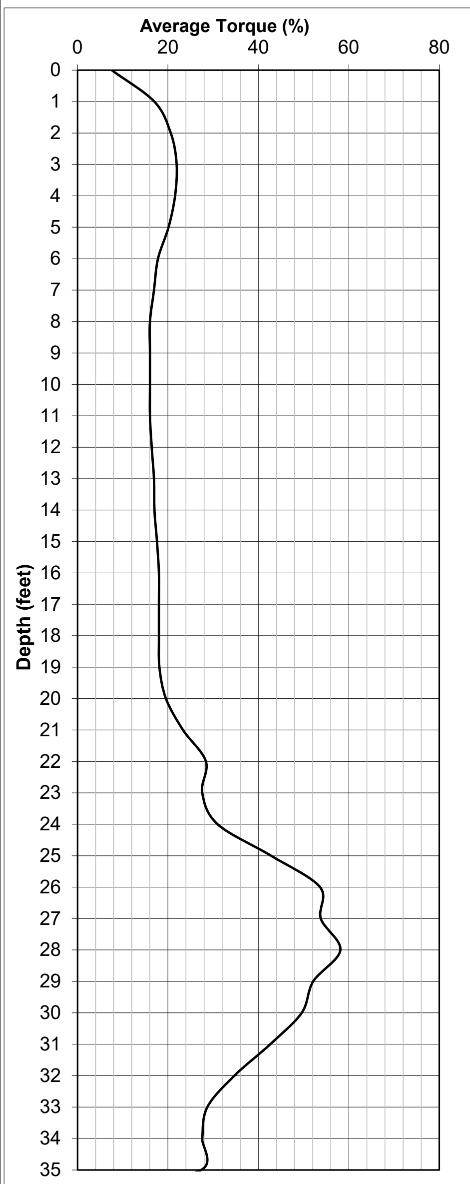
Project Site Data | **Data for Column No: 157**

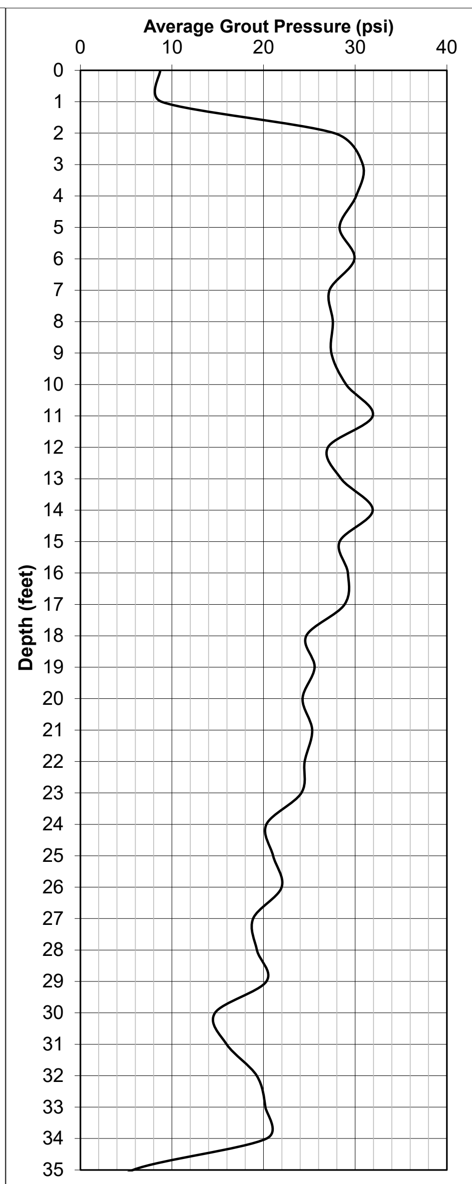
Project Name:	Oxnard College Fire Training	Date:	12/15/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:12 AM	Concrete Volume:	75.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:18 AM	Column Depth:	35.1	ft
		End Time:	8:23 AM	Pre Auger:		
		Total Time:	11 min			

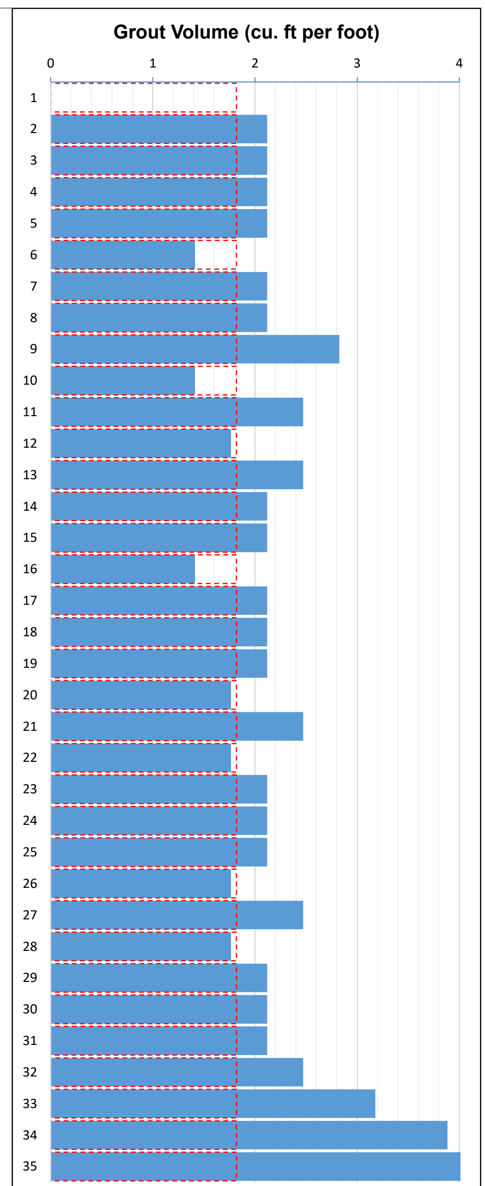
Tool meets 16" Nominal Requirement

Rig Id: BG-30
Operator: James "Smitty" Smith









DGC Log Sheet

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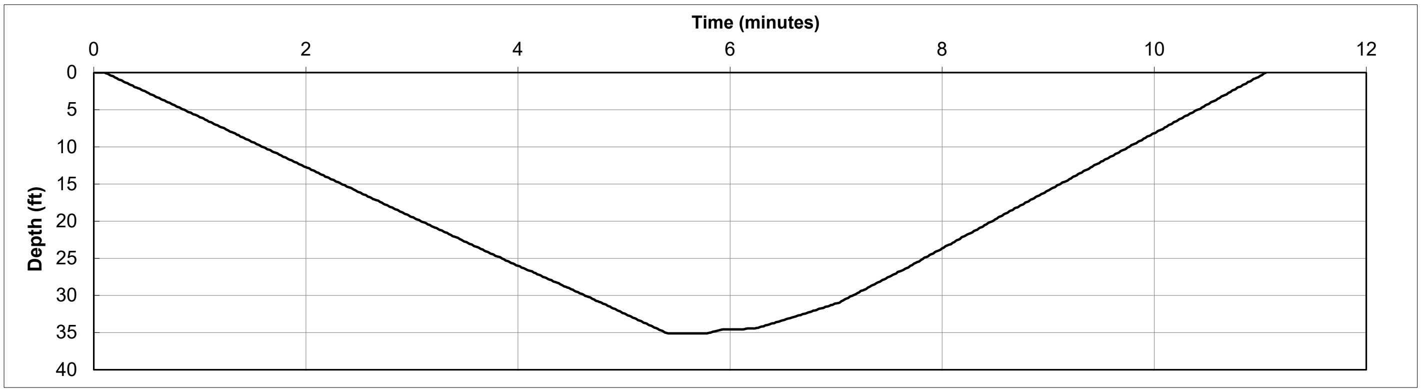
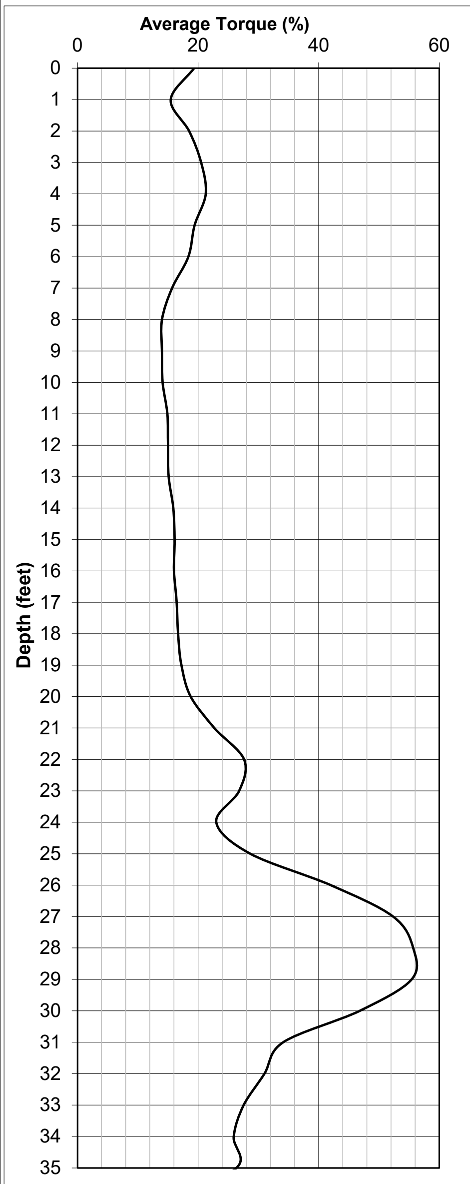
Project Site Data | **Data for Column No: 155**

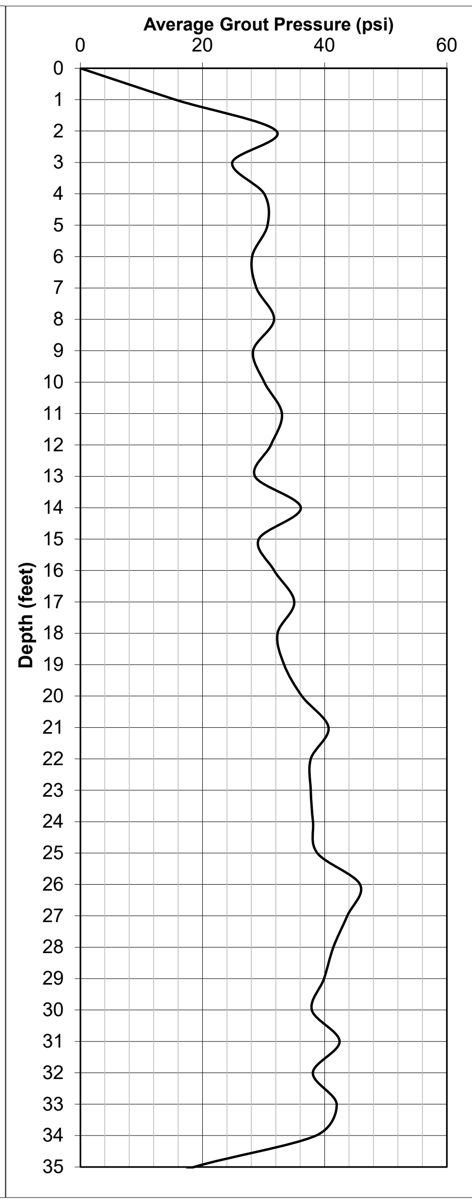
Project Name:	Oxnard College Fire Training	Date:	12/15/20	Nominal Diameter:	16 in
Project Location:	Camarillo, CA	Start Time:	8:26 AM	Concrete Volume:	74.5 cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:32 AM	Column Depth:	35.1 ft
		End Time:	8:37 AM	Pre Auger:	
		Total Time:	11 min		

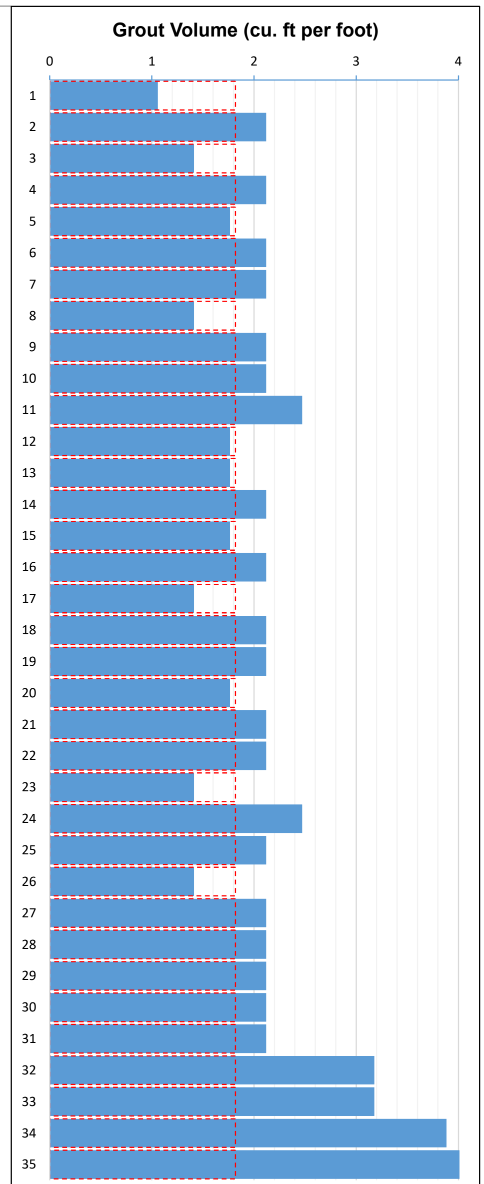
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
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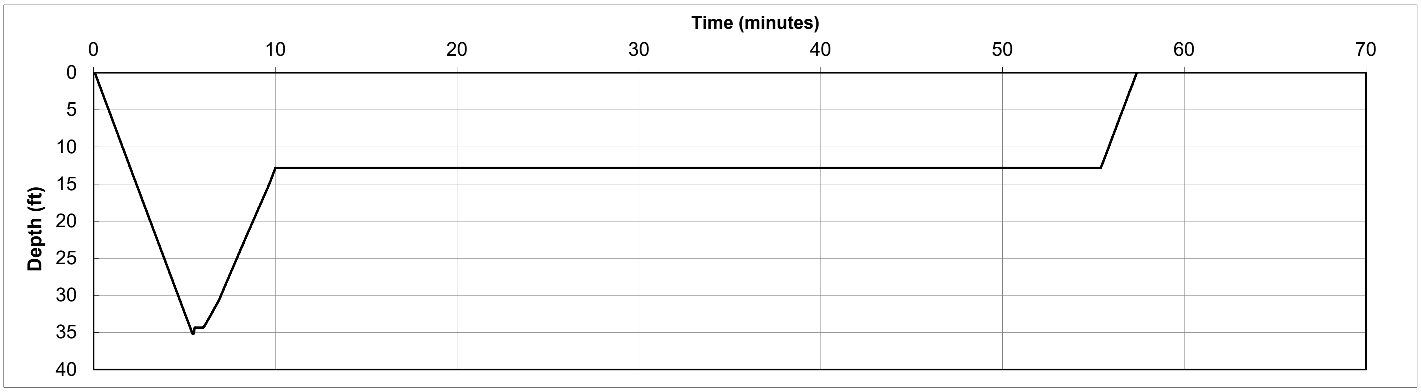
Project Site Data

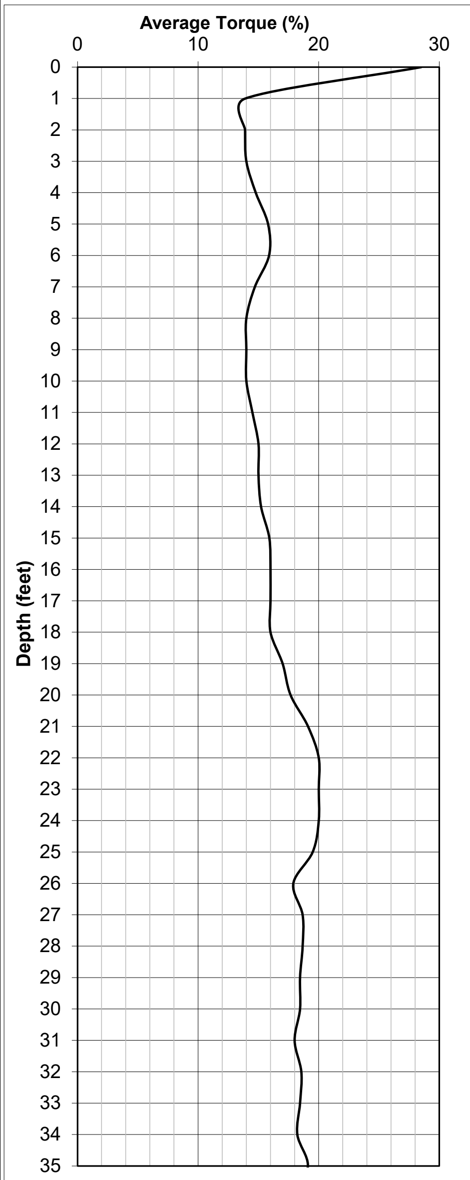
Data for Column No: 209

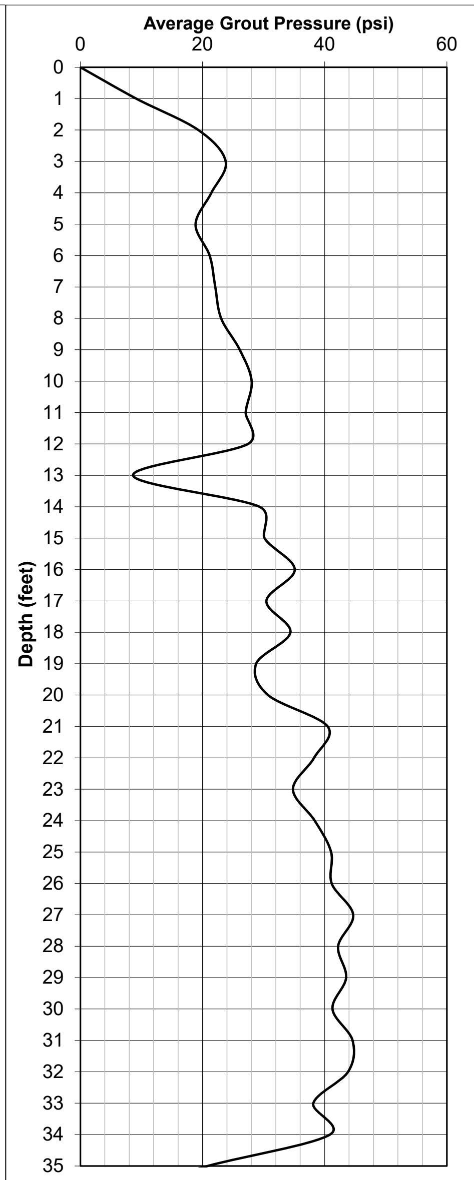
Project Name:	Oxnard College Fire Training	Date:	12/15/20	Nominal Diameter:	16 in
Project Location:	Camarillo, CA	Start Time:	8:54 AM	Concrete Volume:	93.9 cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:59 AM	Column Depth:	35.2 ft
		End Time:	9:51 AM	Pre Auger:	
		Total Time:	57 min		

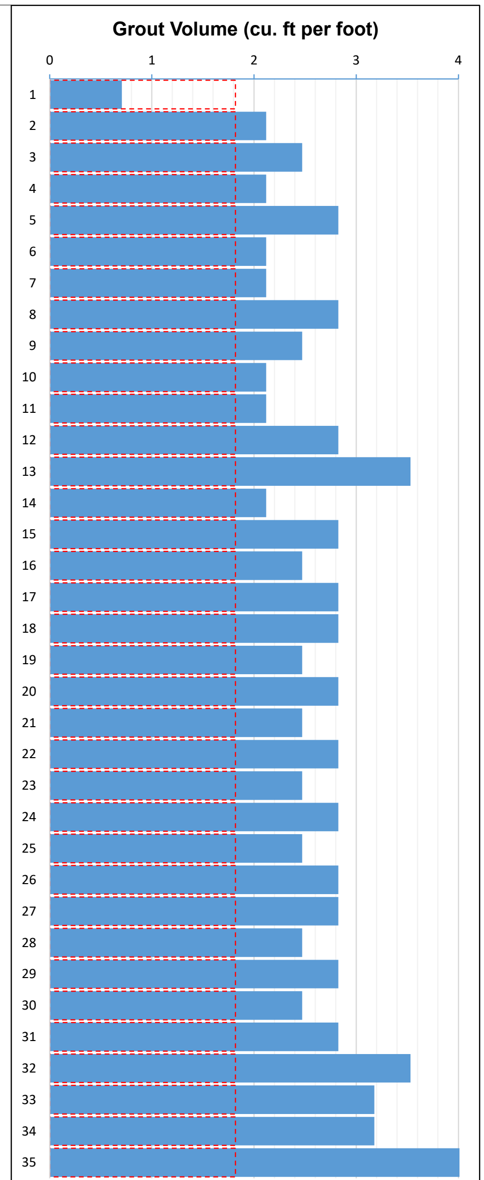
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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Lake Forest, CA 92630
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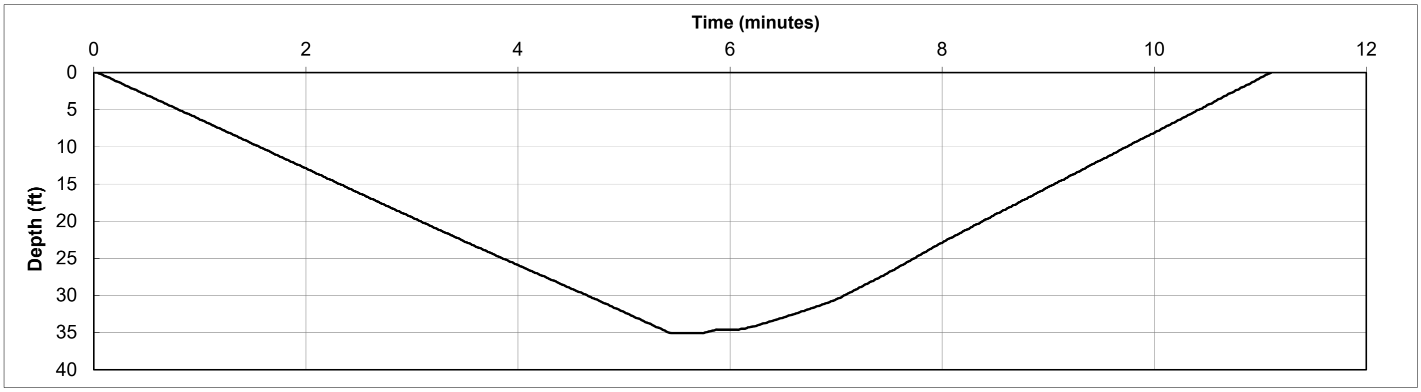
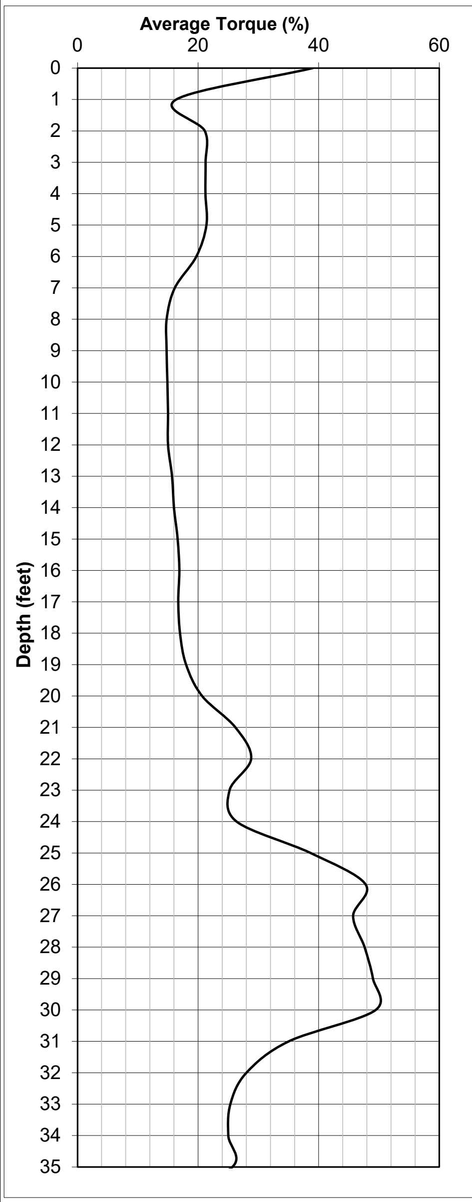
Project Site Data | **Data for Column No: 217**

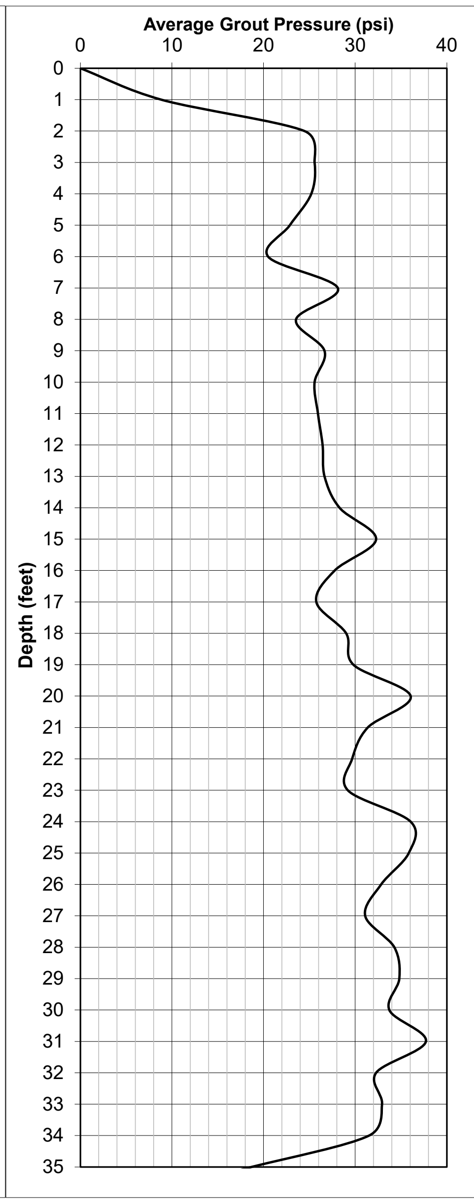
Project Name:	Oxnard College Fire Training	Date:	12/15/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:54 AM	Concrete Volume:	75.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:00 AM	Column Depth:	35.1	ft
		End Time:	10:05 AM	Pre Auger:		
		Total Time:	11 min			

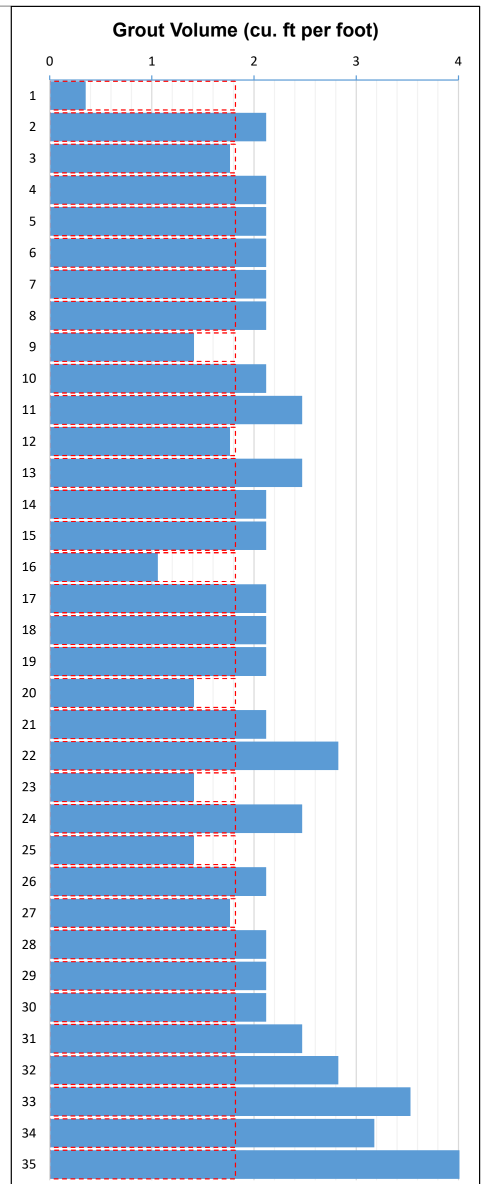
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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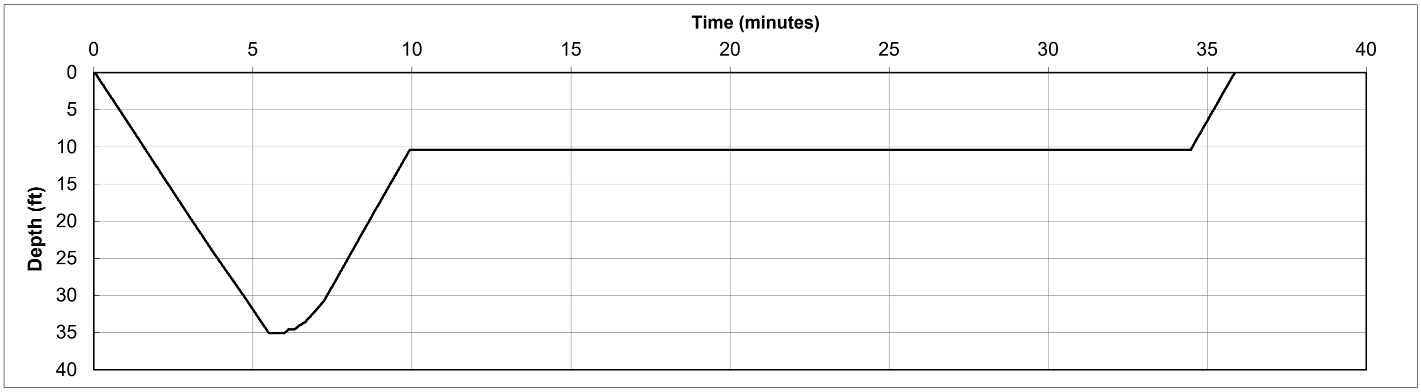
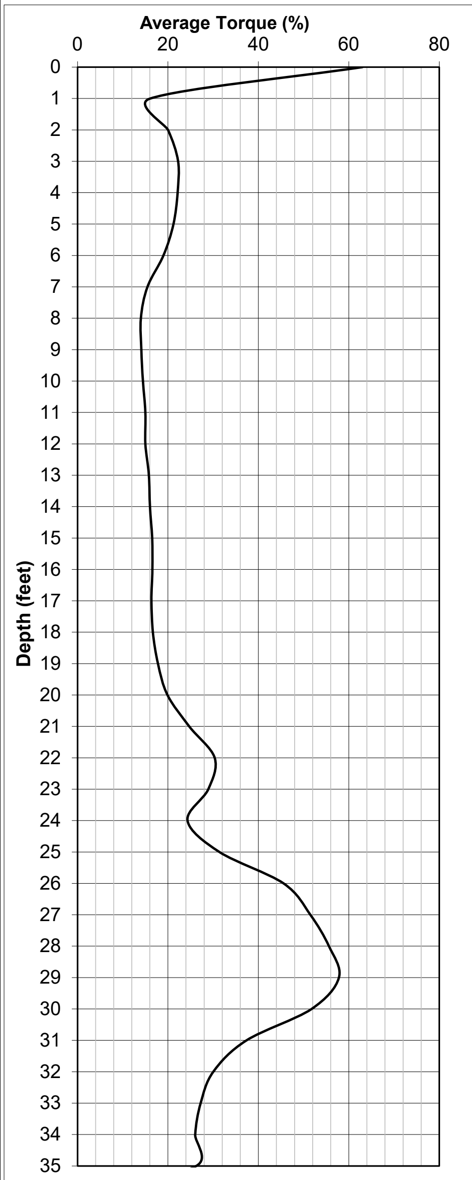
Project Site Data **Data for Column No: 215**

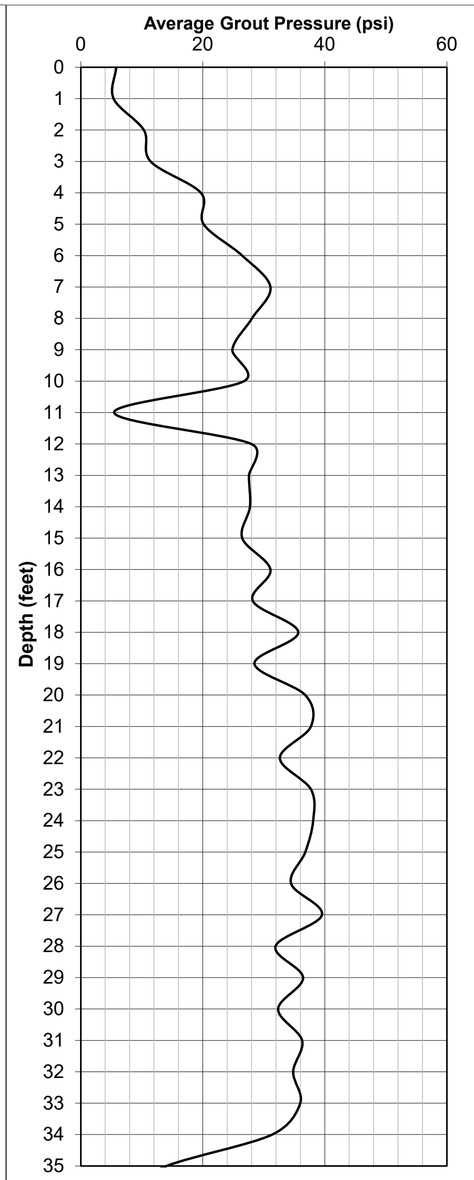
Project Name:	Oxnard College Fire Training	Date:	12/15/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:08 AM	Concrete Volume:	75.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:14 AM	Column Depth:	35.1	ft
		End Time:	10:44 AM	Pre Auger:		
		Total Time:	36 min			

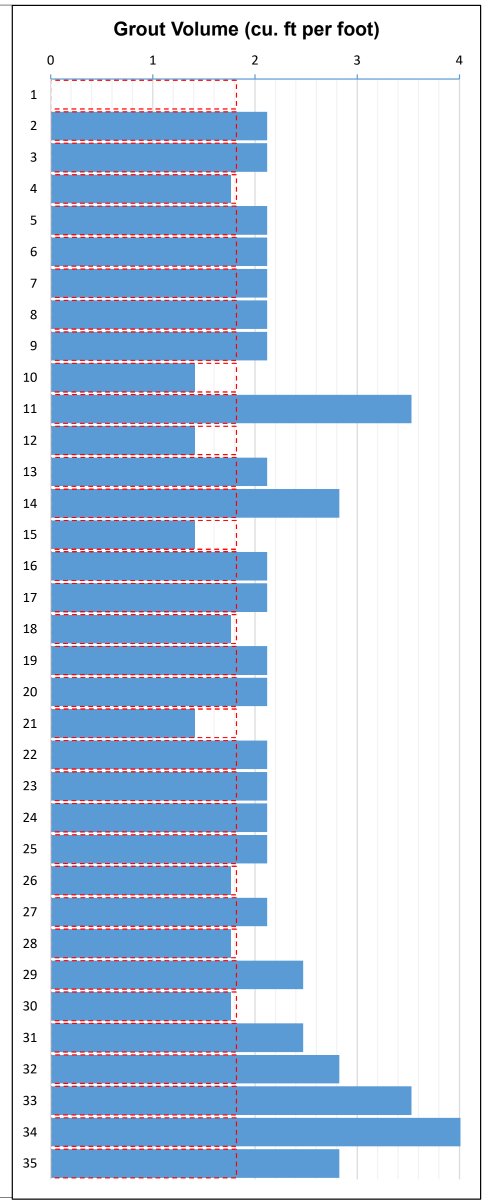
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

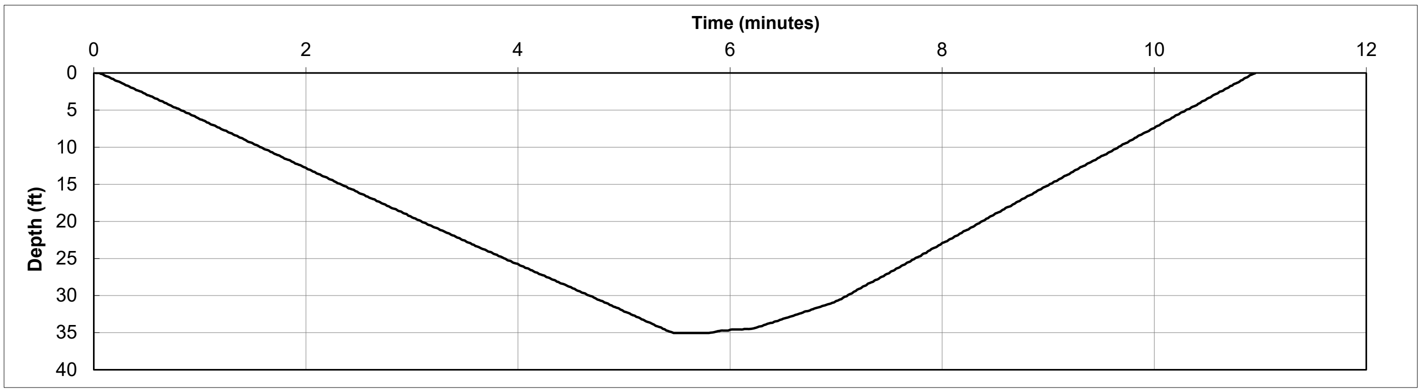
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

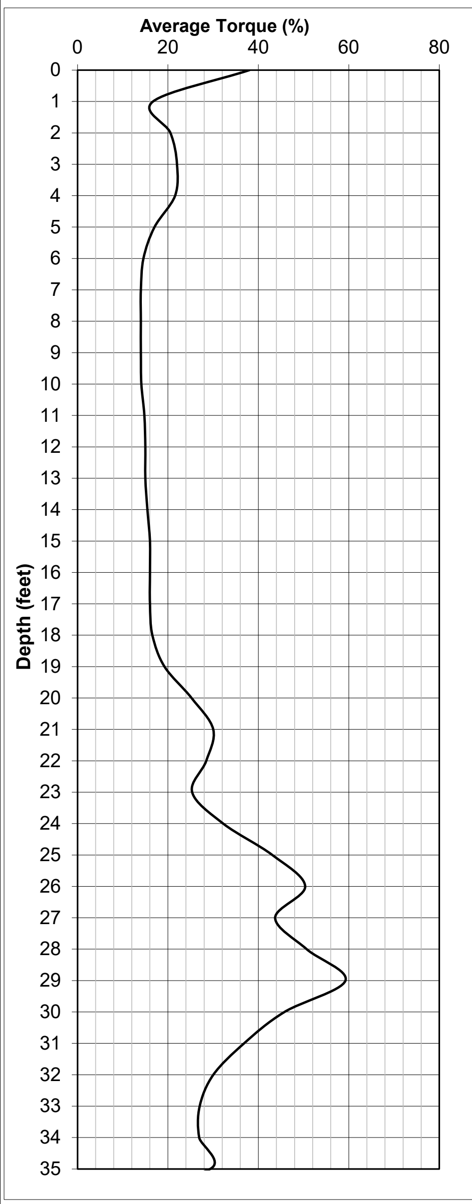
Project Site Data | **Data for Column No: 238**

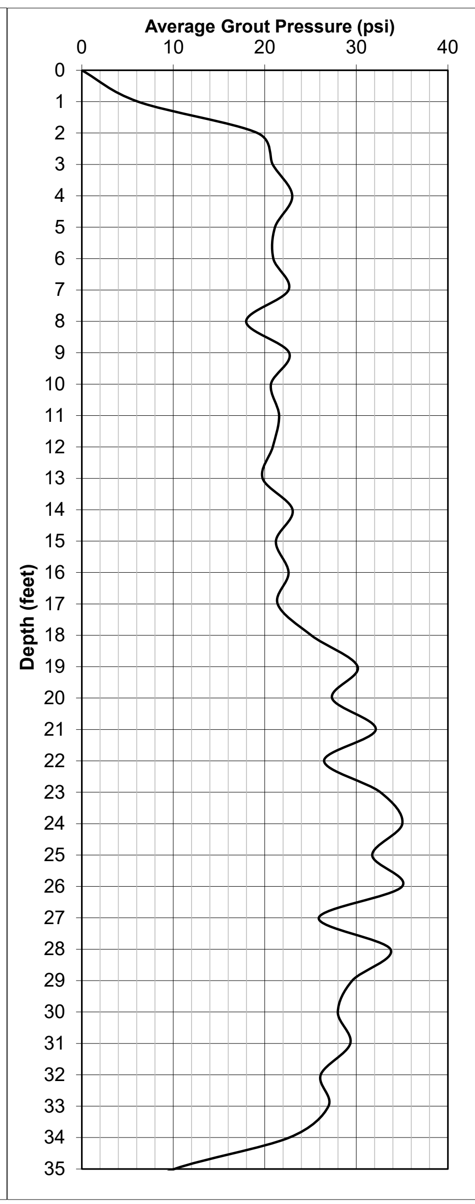
Project Name:	Oxnard College Fire Training	Date:	12/15/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:49 AM	Concrete Volume:	72.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:55 AM	Column Depth:	35.0	ft
		End Time:	11:00 AM	Pre Auger:		
		Total Time:	11 min			

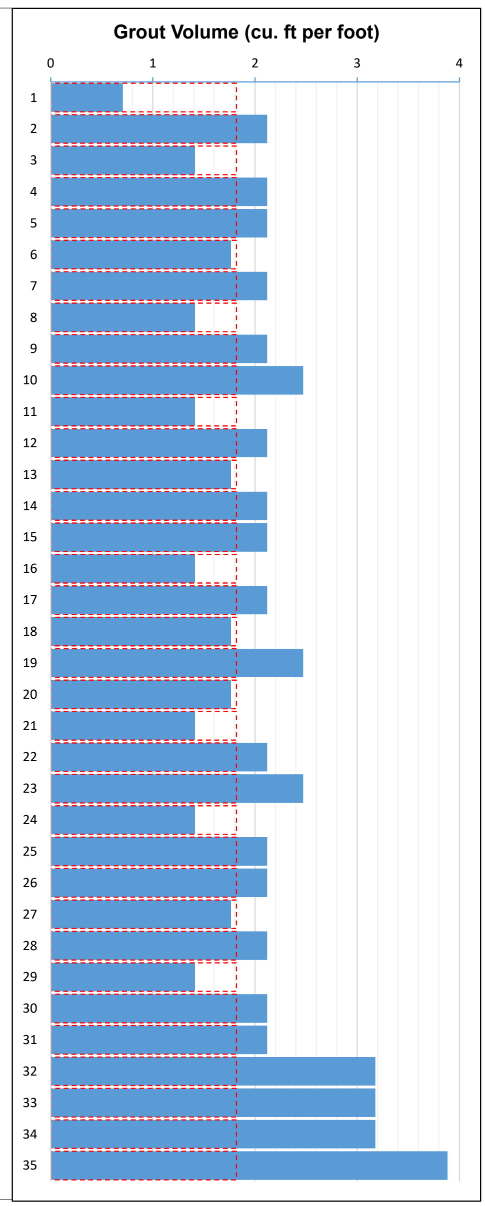
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

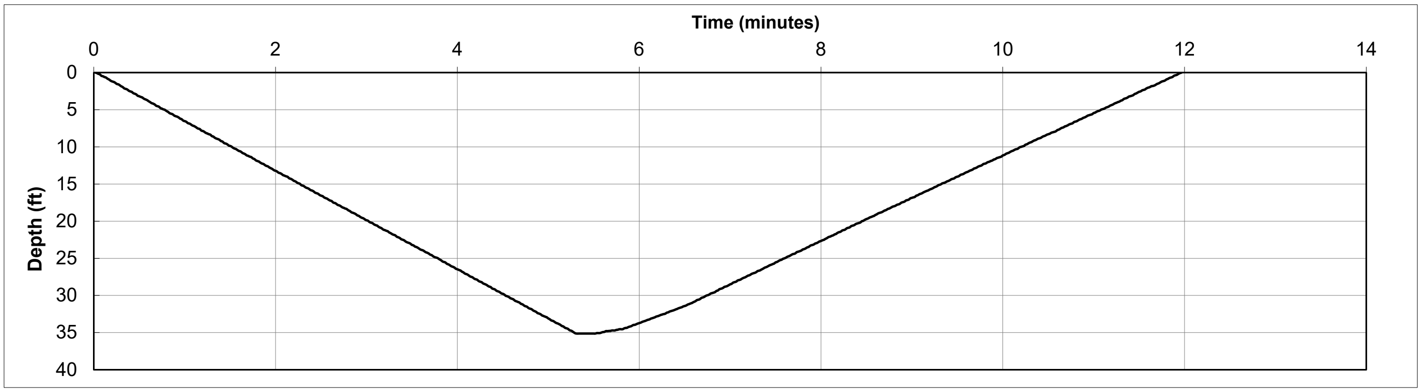
Project Site Data

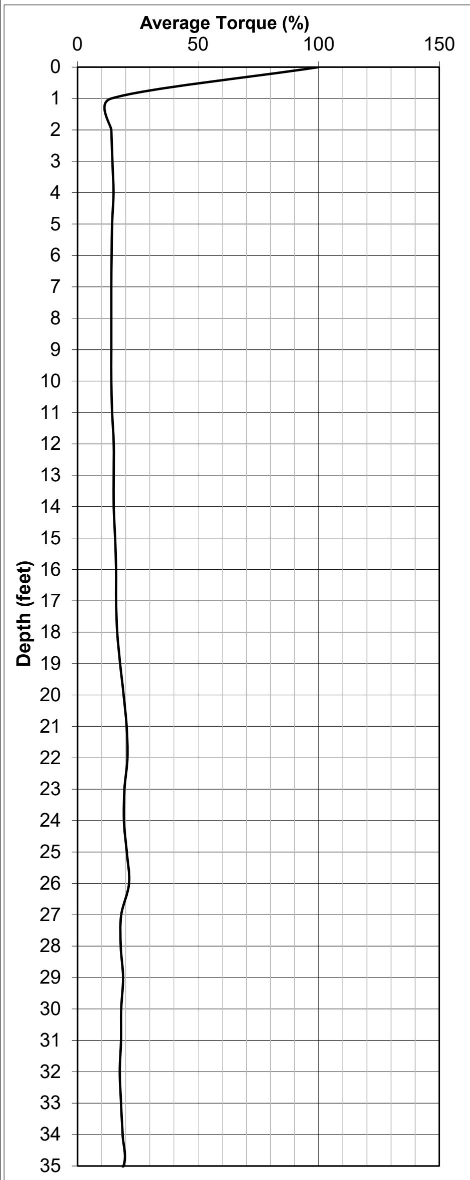
Data for Column No: 237

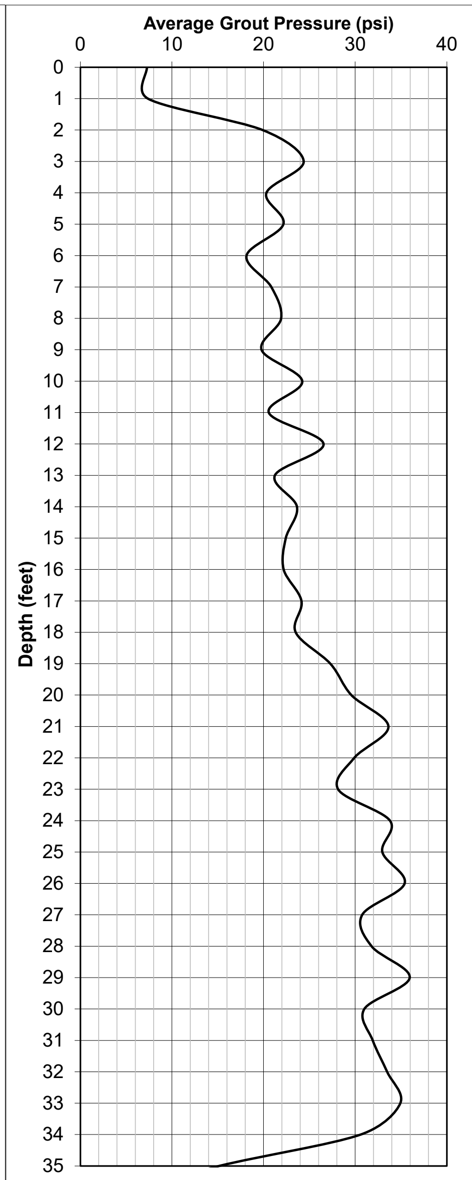
Project Name:	Oxnard College Fire Training	Date:	12/15/20	Nominal Diameter:	16 in
Project Location:	Camarillo, CA	Start Time:	11:16 AM	Concrete Volume:	92.9 cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:22 AM	Column Depth:	35.1 ft
		End Time:	11:28 AM	Pre Auger:	
		Total Time:	12 min		

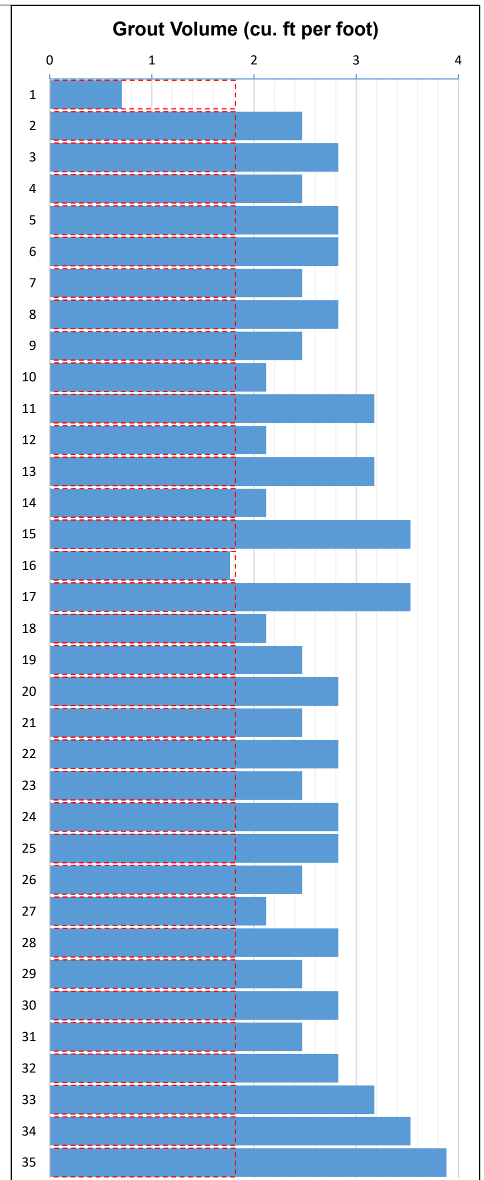
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
P: 310-796-9000

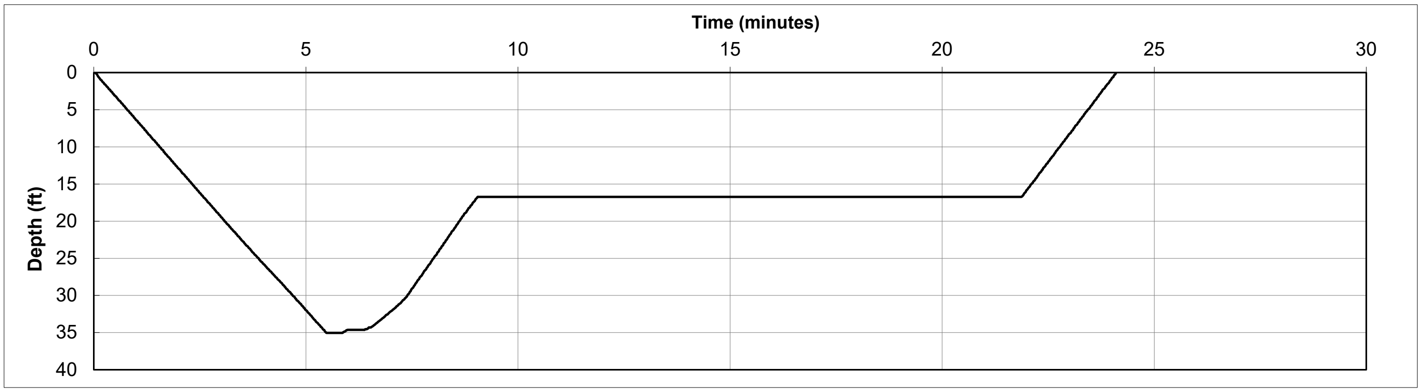
Project Site Data | **Data for Column No: 244**

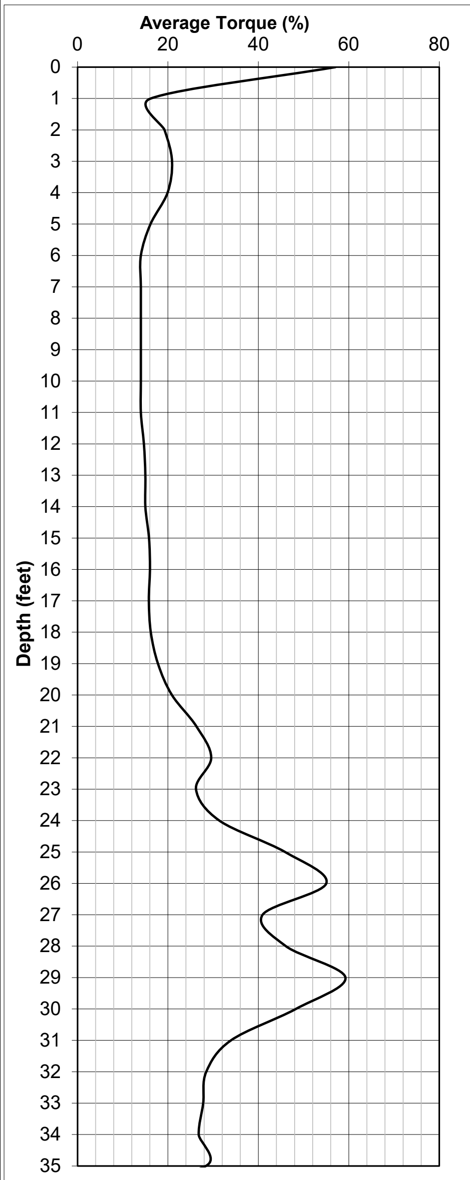
Project Name:	Oxnard College Fire Training	Date:	12/15/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:30 AM	Concrete Volume:	75.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:37 AM	Column Depth:	35.0	ft
		End Time:	11:55 AM	Pre Auger:		
		Total Time:	24 min			

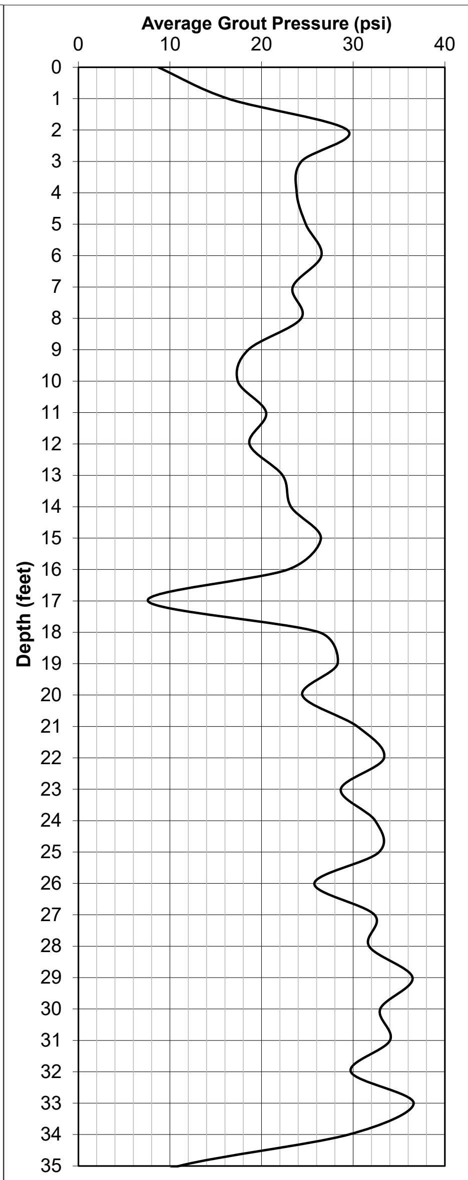
Rig Id: BG-30

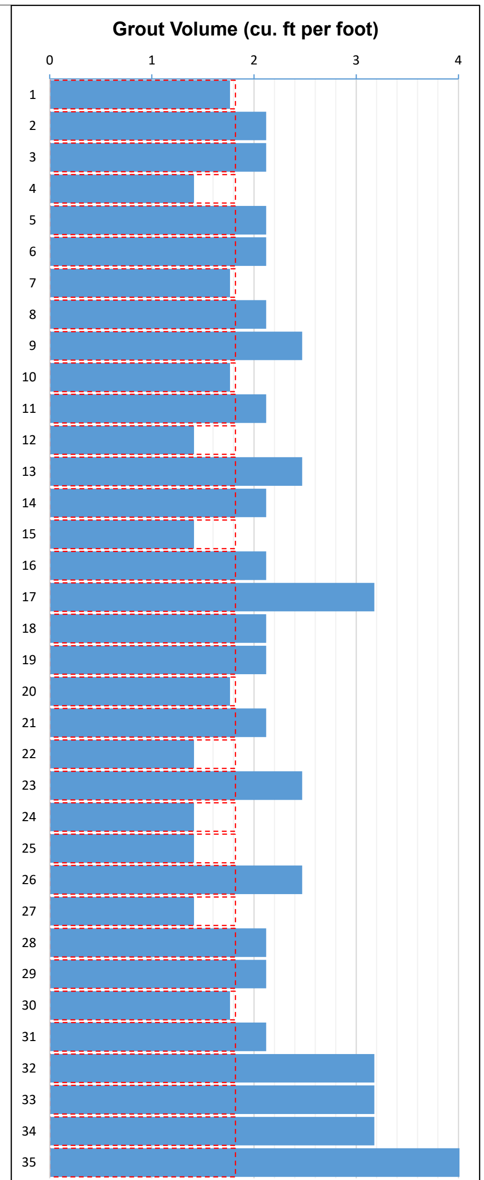
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

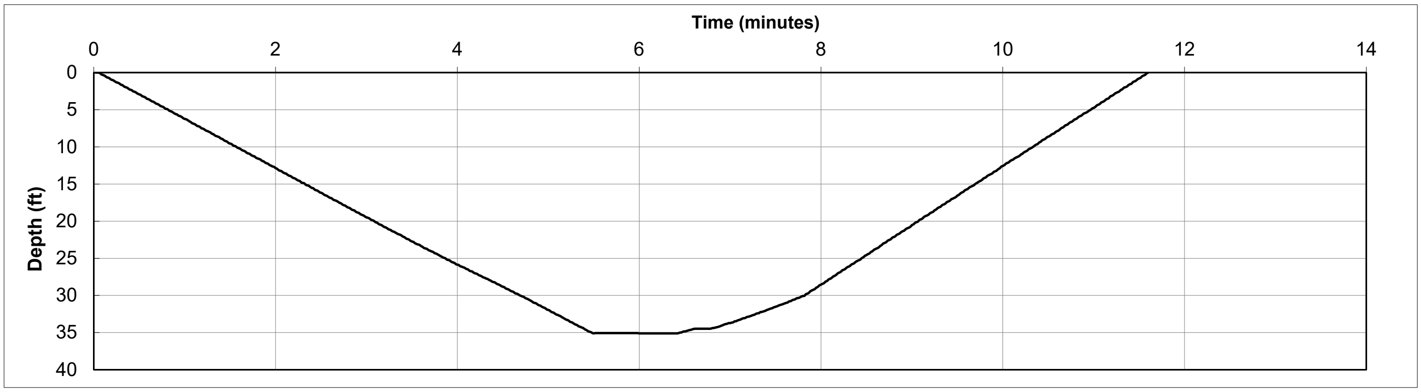
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

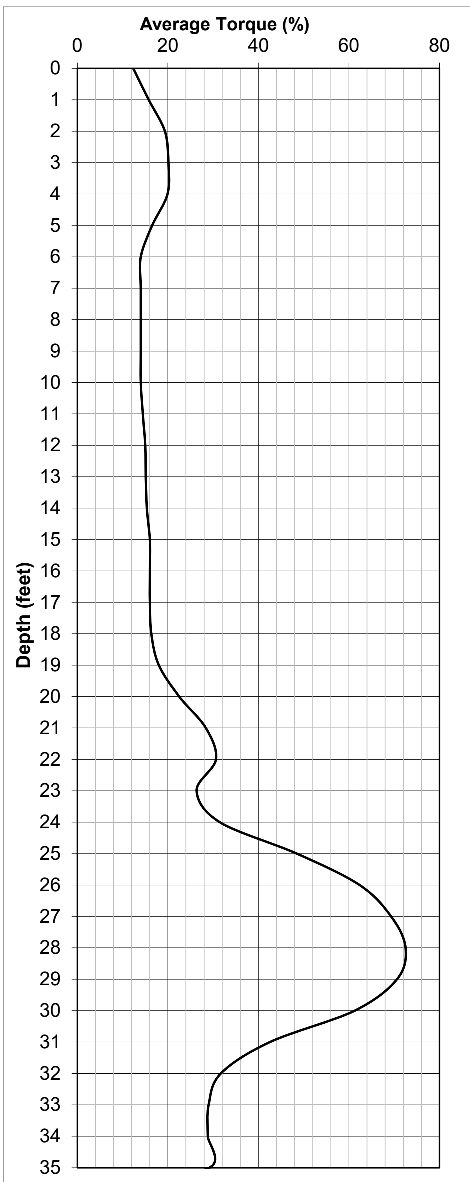
Project Site Data | **Data for Column No: 243**

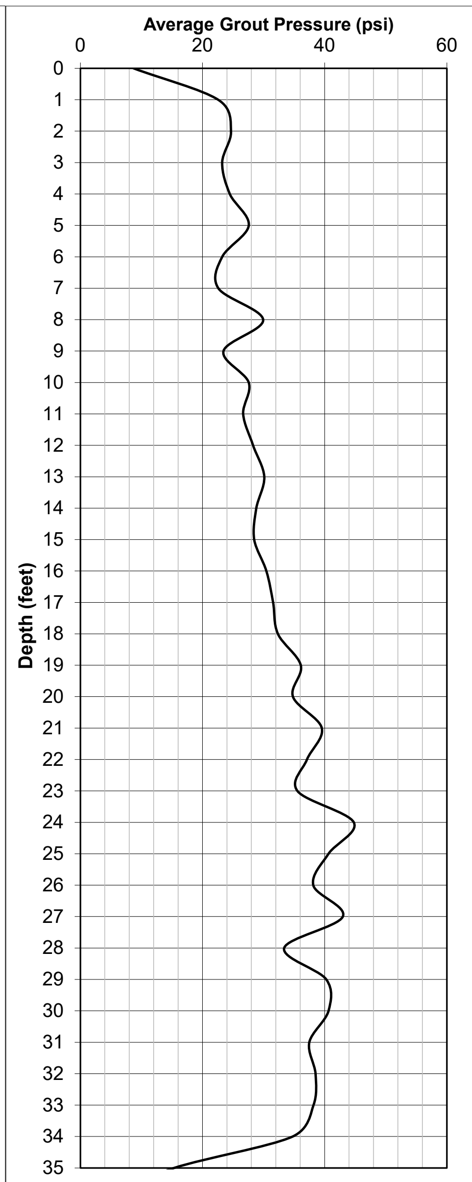
Project Name:	Oxnard College Fire Training	Date:	12/15/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:57 AM	Concrete Volume:	74.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:04 PM	Column Depth:	35.1	ft
		End Time:	12:09 PM	Pre Auger:		
		Total Time:	12 min			

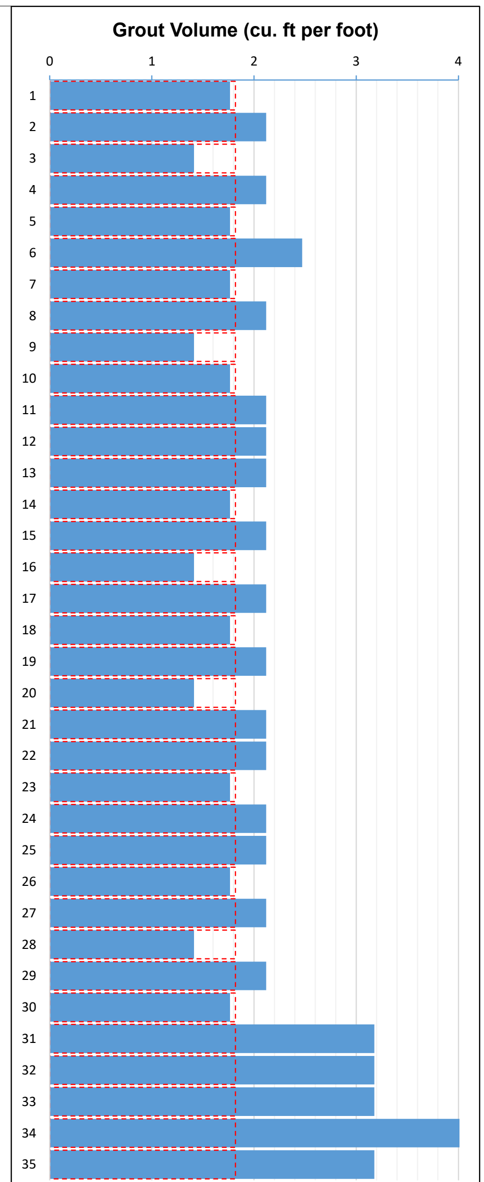
Tool meets 16" Nominal Requirement

Rig Id: BG-30
Operator: James "Smitty" Smith









DGC Log Sheet

Advanced Geosolutions Inc
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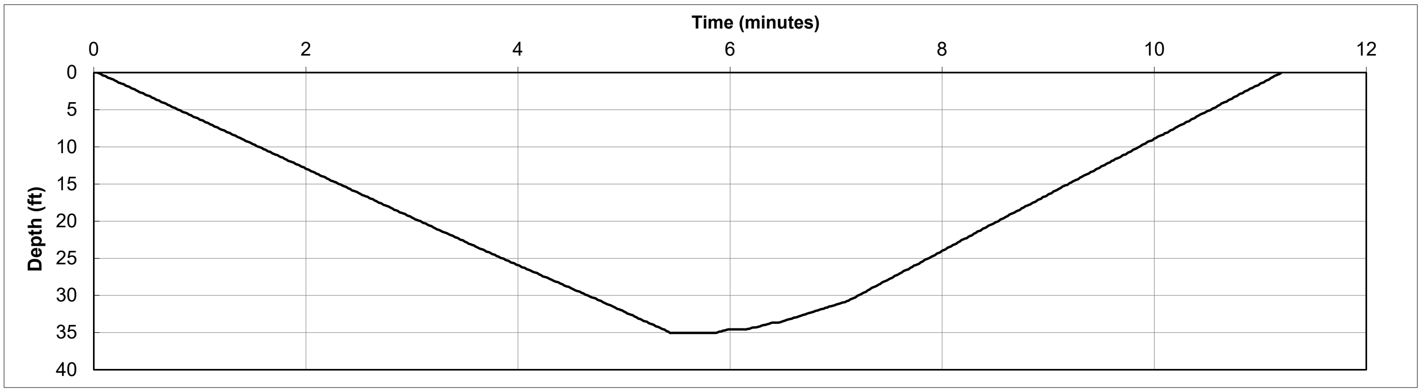
Lake Forest, CA 92630
P: 310-796-9000

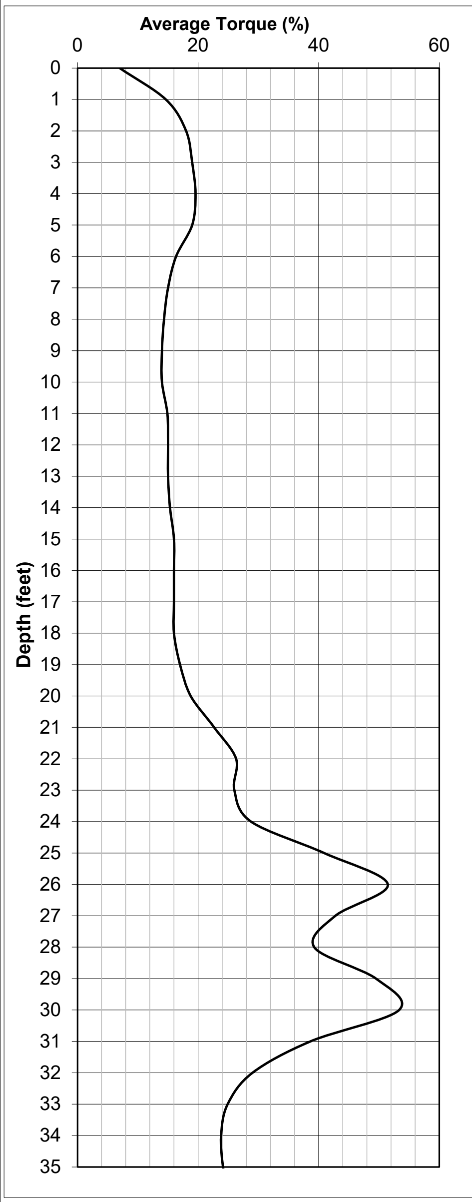
Project Site Data | **Data for Column No: 159**

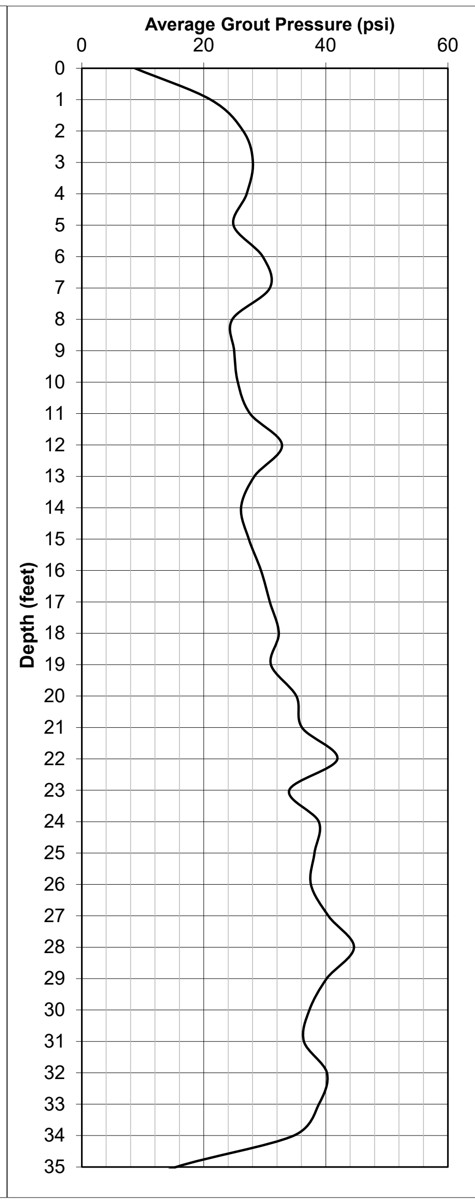
Project Name:	Oxnard College Fire Training	Date:	12/15/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:12 PM	Concrete Volume:	76.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:18 PM	Column Depth:	35.0	ft
		End Time:	12:24 PM	Pre Auger:		
		Total Time:	11 min			

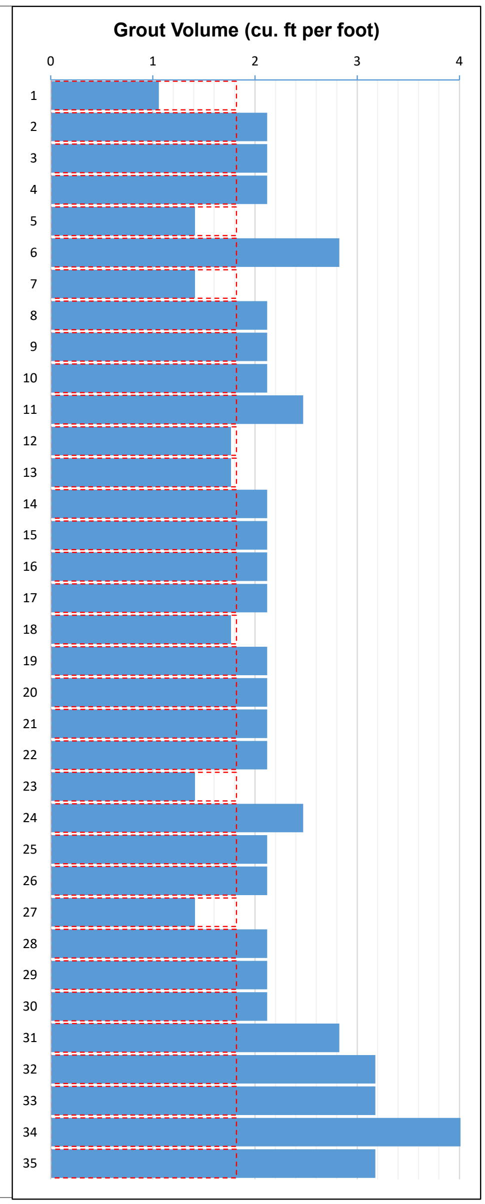
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
P: 310-796-9000

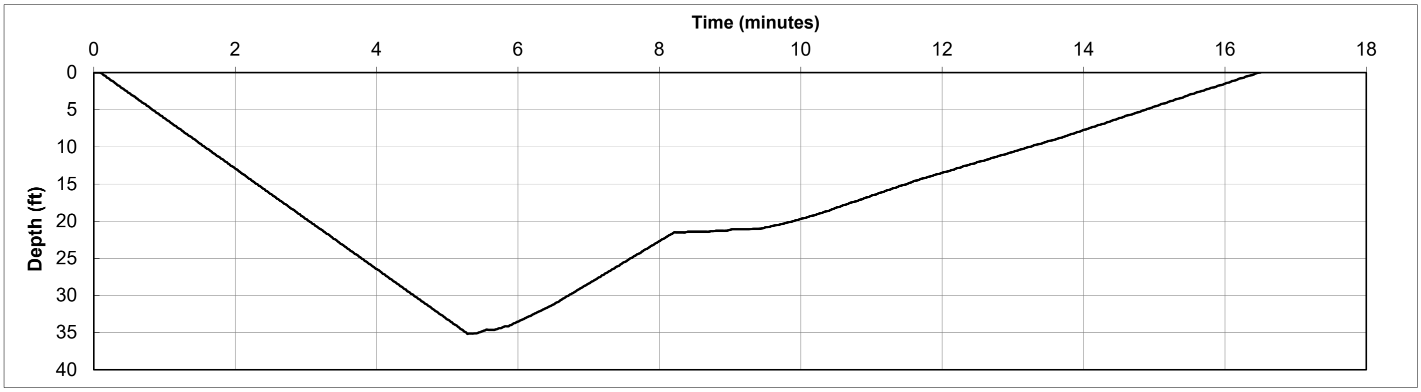
Project Site Data

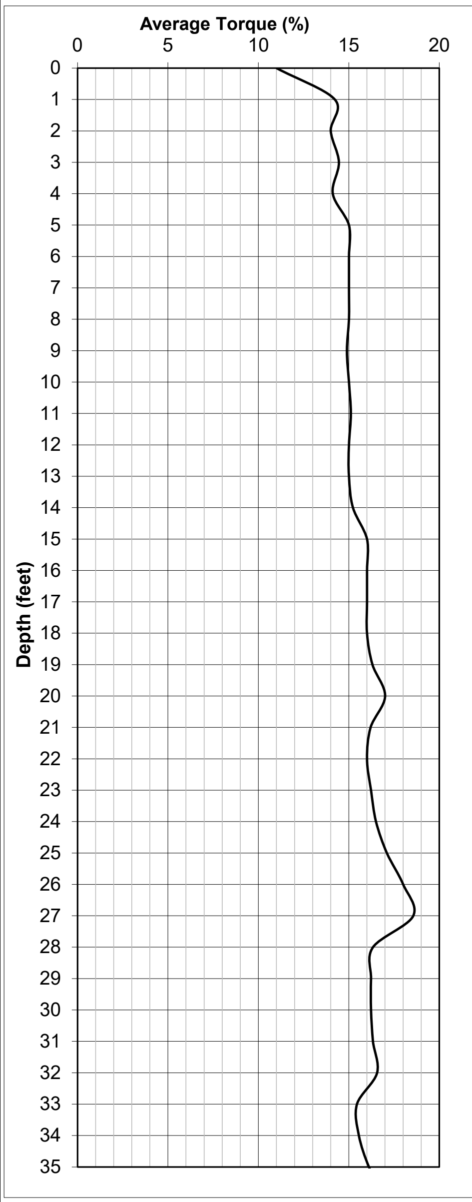
Data for Column No: 207

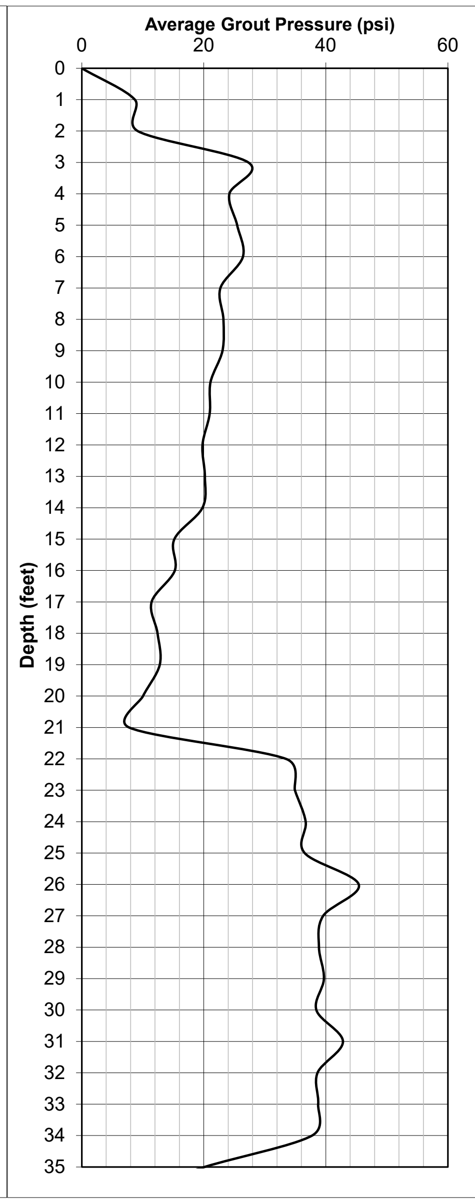
Project Name:	Oxnard College Fire Training	Date:	12/15/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:42 PM	Concrete Volume:	93.9	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:47 PM	Column Depth:	35.2	ft
		End Time:	2:43 PM	Pre Auger:		
		Total Time:	121 min			

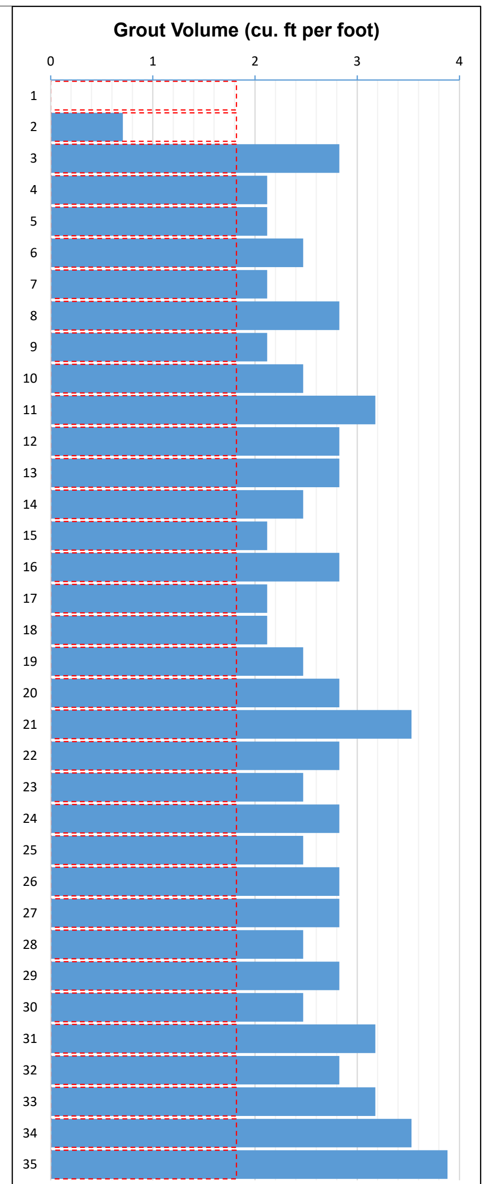
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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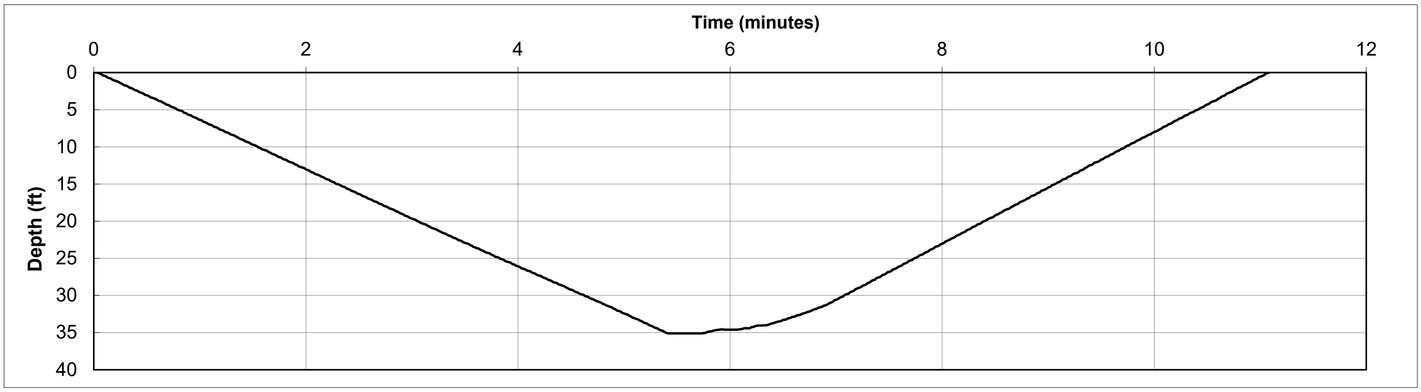
Lake Forest, CA 92630
P: 310-796-9000

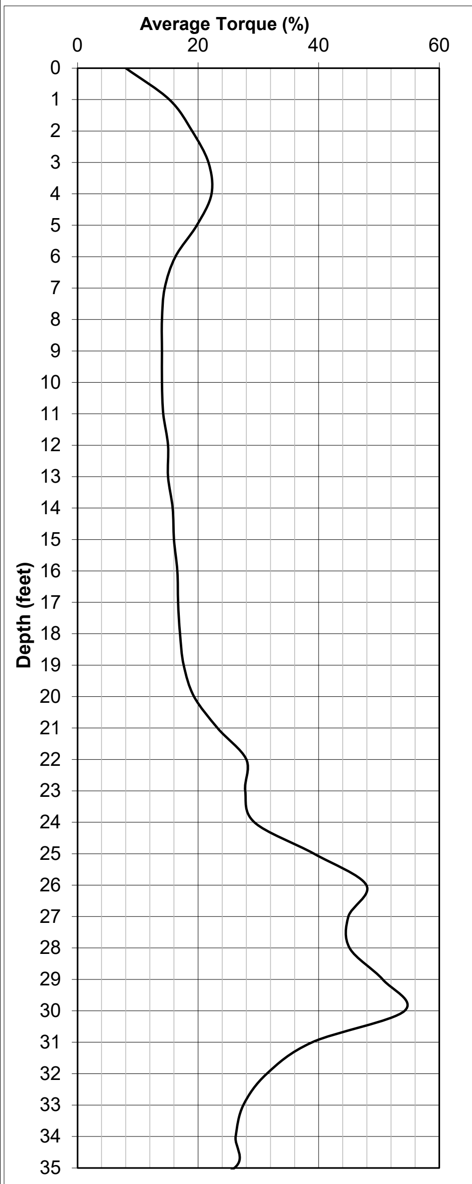
Project Site Data | **Data for Column No: 221**

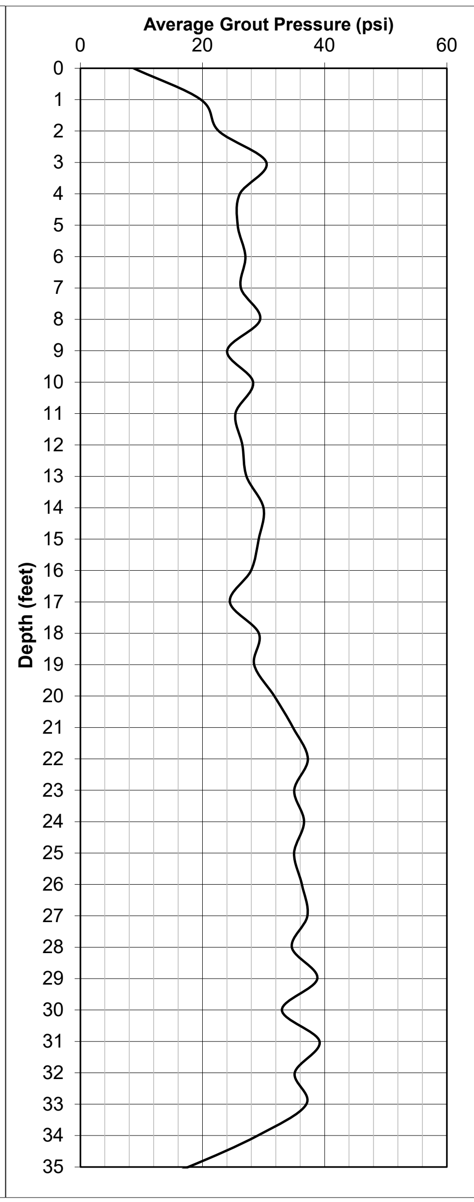
Project Name:	Oxnard College Fire Training	Date:	12/15/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:45 PM	Concrete Volume:	75.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:51 PM	Column Depth:	35.1	ft
		End Time:	2:57 PM	Pre Auger:		
		Total Time:	11 min			

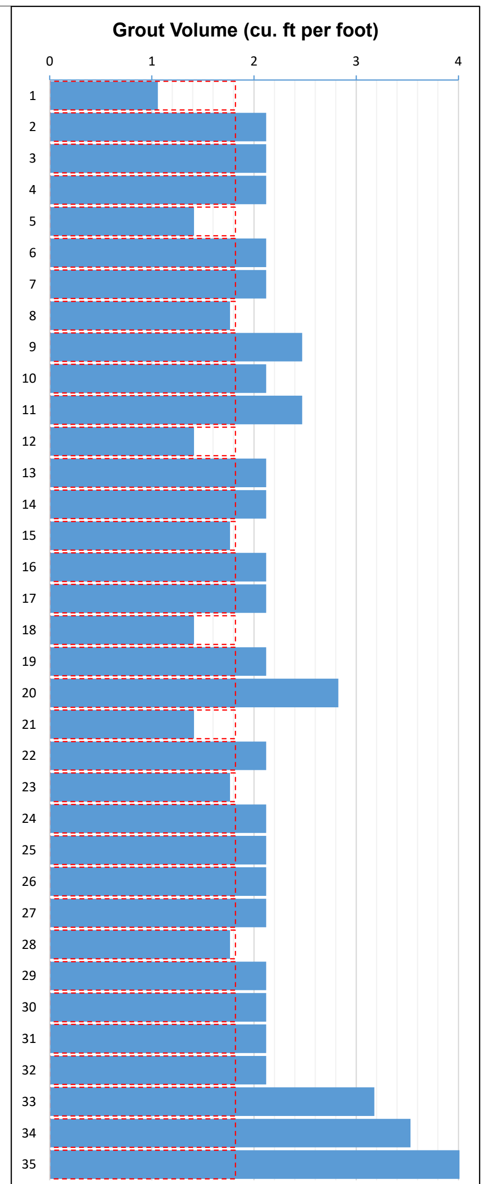
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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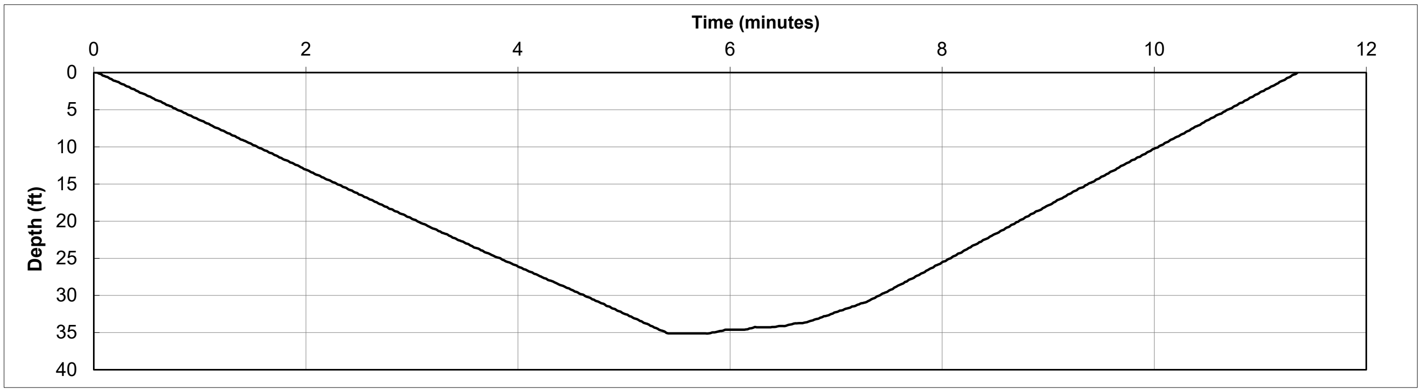
Lake Forest, CA 92630
P: 310-796-9000

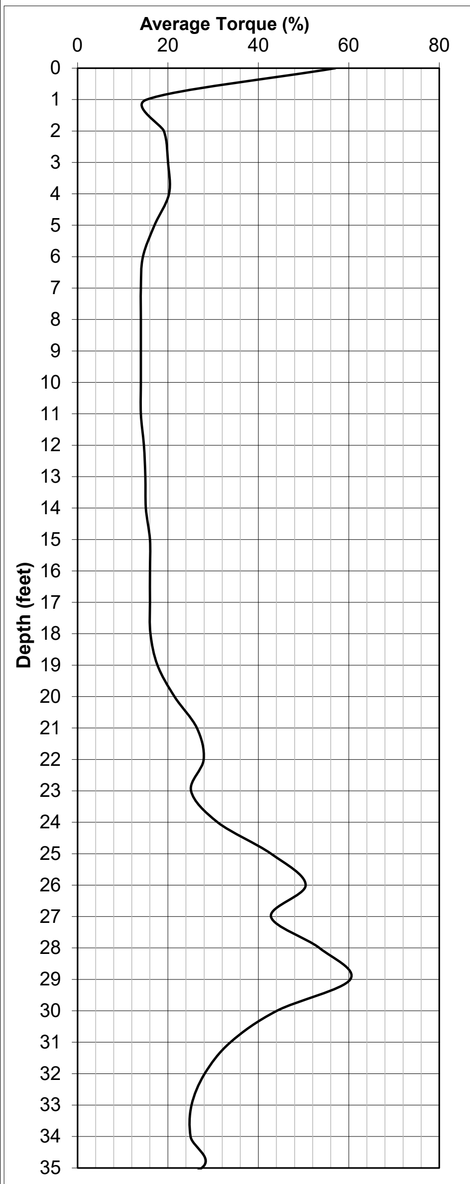
Project Site Data | **Data for Column No: 235**

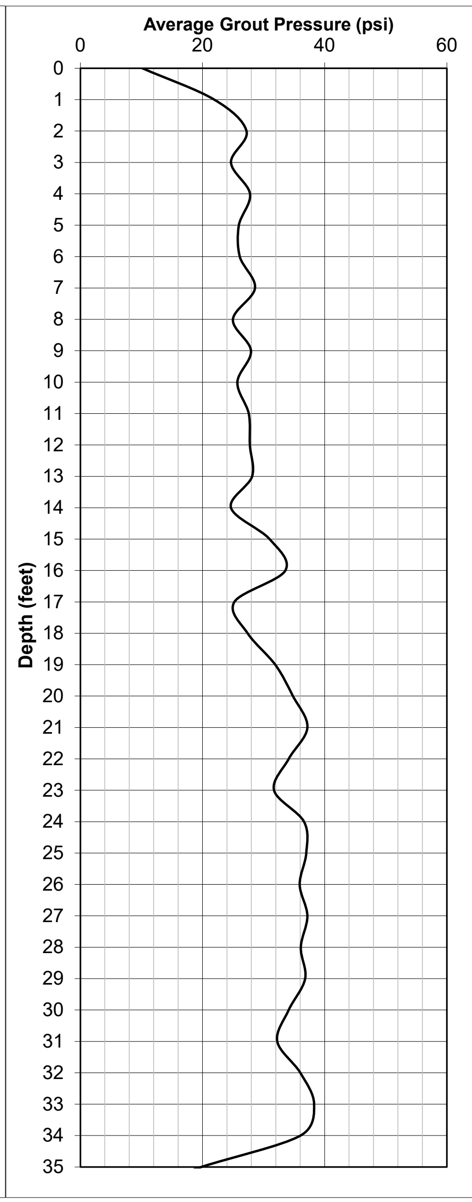
Project Name:	Oxnard College Fire Training	Date:	12/15/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	3:00 PM	Concrete Volume:	78.8	cubic ft
General Contractor:	Oxnard College	Bottom Time:	3:06 PM	Column Depth:	35.1	ft
		End Time:	3:11 PM	Pre Auger:		
		Total Time:	11 min			

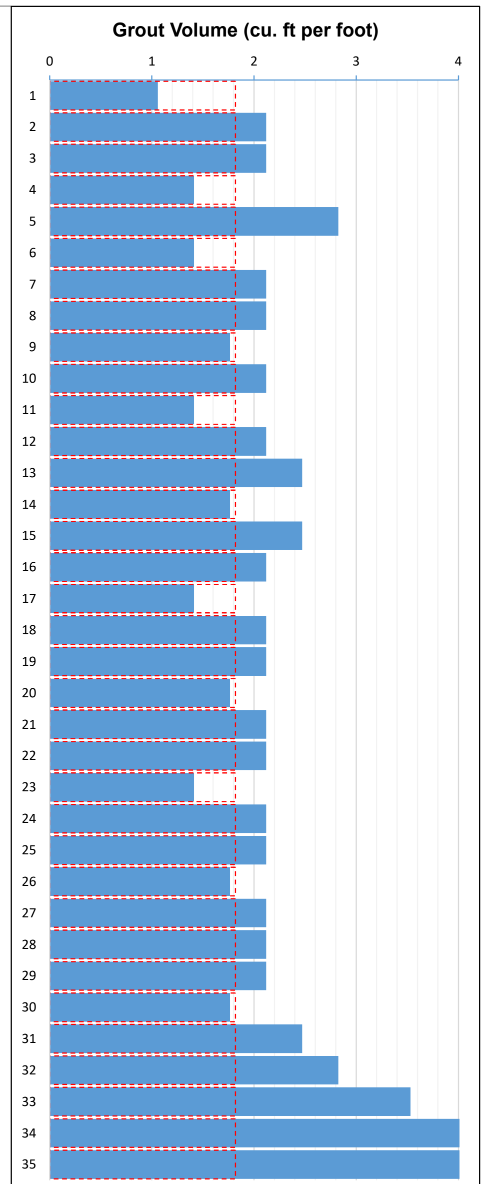
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









ADVANCED GEOSOLUTIONS INC
Daily Production Summary- Displacement Grout Columns

Project No. : **P271275**
Project Name: Oxnard College Fire Training Academy
Rig: BG-30
Rig Operator: James "Smitty" Smith
Oiler: Benny Sandoval

Date: Wednesday, December 16, 2020

Seq. No	Rig No.	Col. ID	Start Time	Bottom Time	End Time	Surface Elev.	Column Depth (ft)	*Act. Tip Elev.*	Concrete Volume (cu. feet)	Truck ID	Comments
1		158	08:44	08:50	08:55	74.4	35.1	39.3	75	42607583	
2		156	08:57	09:04	09:10	74.4	36.8	37.6	81	42607583	
3		210	09:12	09:18	10:06	74.4	35.1	39.3	78	42607583	
4		208	10:10	10:16	10:21	74.4	35.1	39.3	76	42607599	
5		214	10:24	10:30	10:35	74.4	35.1	39.3	75	42607599	
6		216	10:38	10:44	11:42	74.4	35.1	39.3	76	42607599	
7		228	11:48	11:54	12:00	74.4	35.2	39.2	76	42607616	
8		242	12:05	12:11	12:16	74.4	35.1	39.3	76	42607616	
9		129	12:21	12:27	12:36	74.4	35.1	39.3	73	42607616	
10		127	12:39	12:45	12:51	74.4	35.1	39.3	72	42607621	
11		125	12:58	13:04	13:09	74.4	35.1	39.3	73	42607621	
12		160	13:14	13:20	13:39	74.4	35.1	39.3	75	42607621	
13		162	13:42	13:48	13:53	74.4	35.1	39.3	75	42607630	
14		102	13:56	14:02	14:07	74.4	35.0	39.4	73	42607630	

DGC Log Sheet

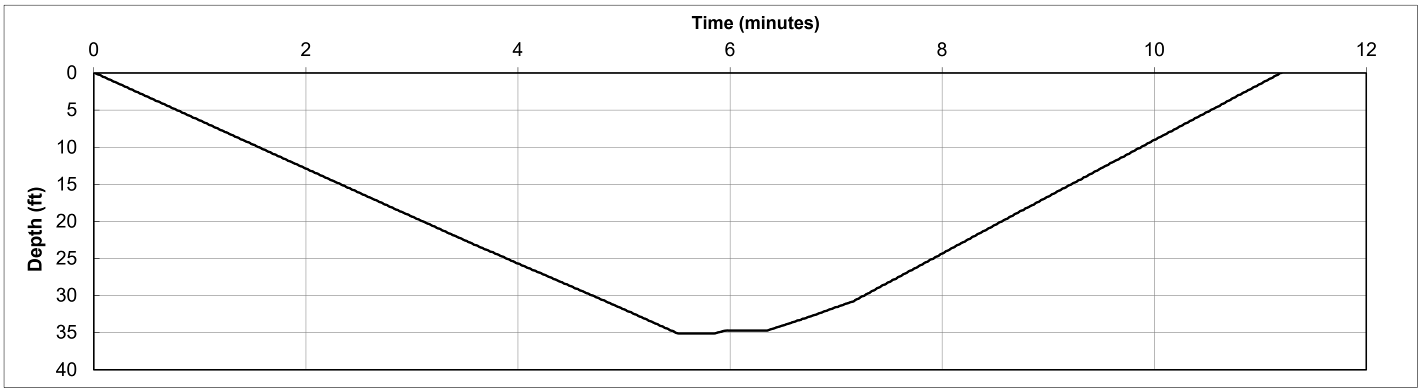
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

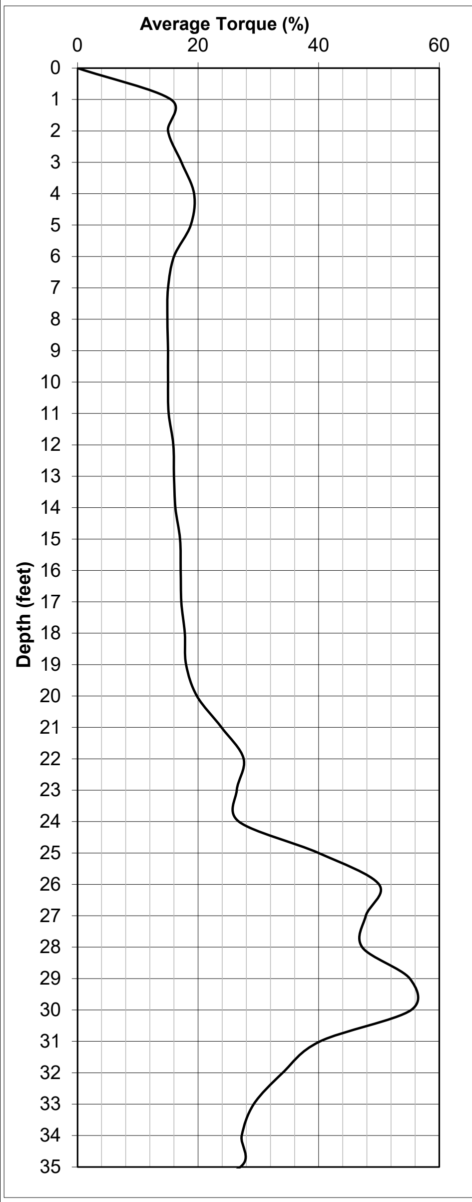
Project Site Data **Data for Column No: 158**

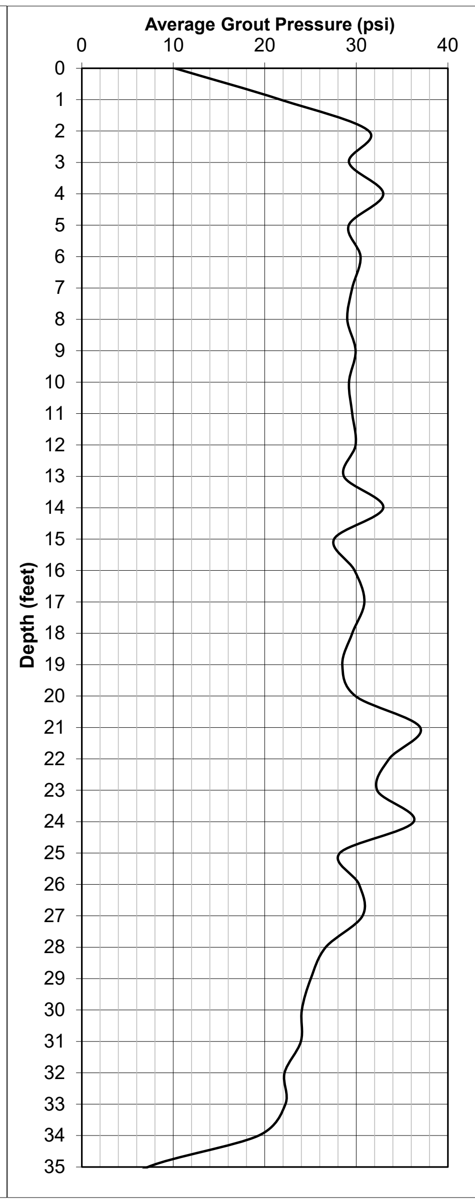
Project Name:	Oxnard College Fire Training	Date:	12/16/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:44 AM	Concrete Volume:	74.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:50 AM	Column Depth:	35.1	ft
		End Time:	8:55 AM	Pre Auger:		
		Total Time:	11 min			

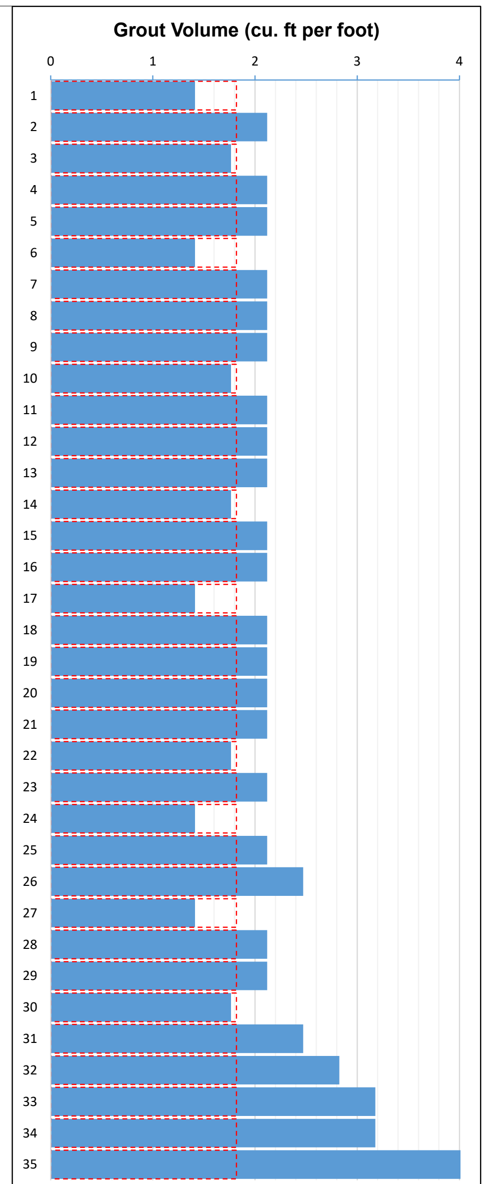
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

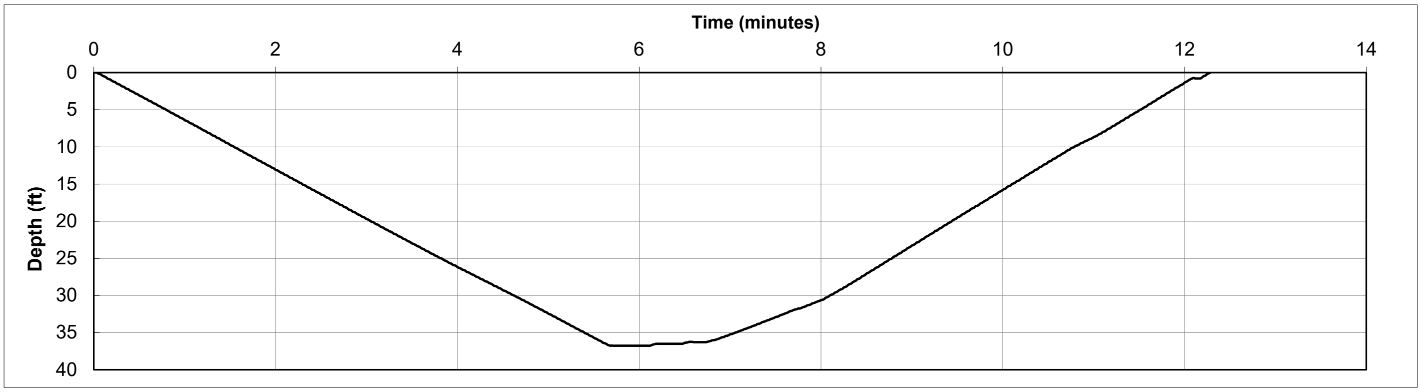
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

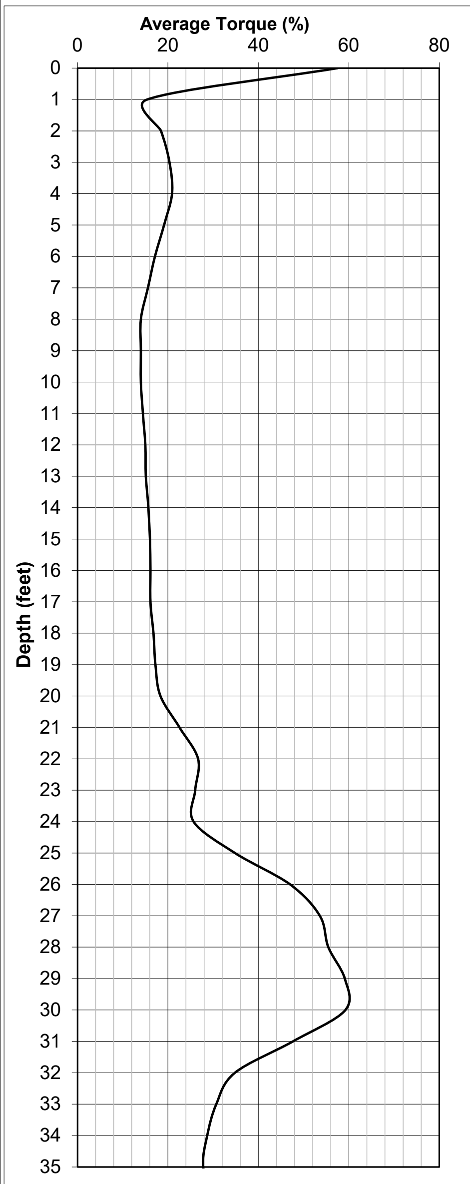
Project Site Data — **Data for Column No: 156**

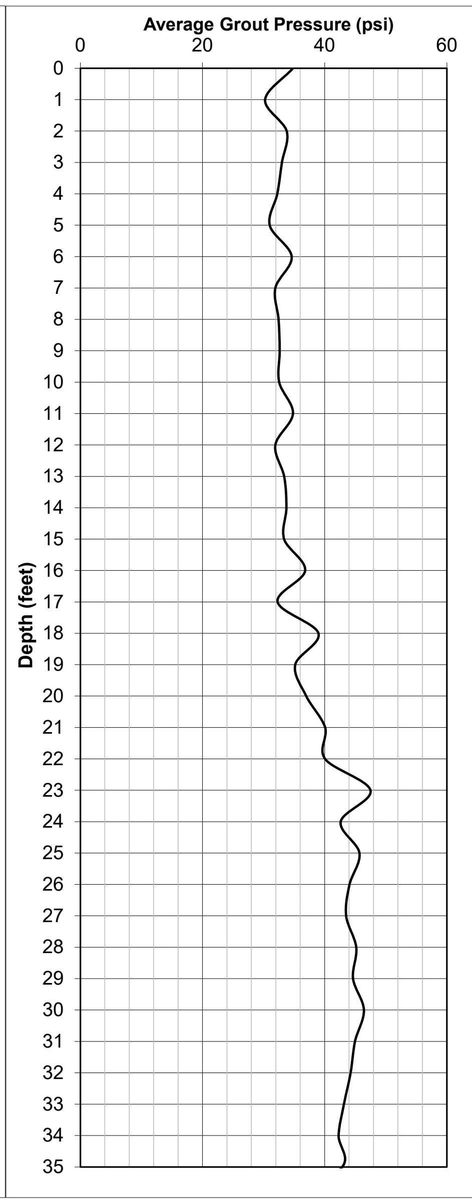
Project Name:	Oxnard College Fire Training	Date:	12/16/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:57 AM	Concrete Volume:	80.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:04 AM	Column Depth:	36.8	ft
		End Time:	9:10 AM	Pre Auger:		
		Total Time:	12 min			

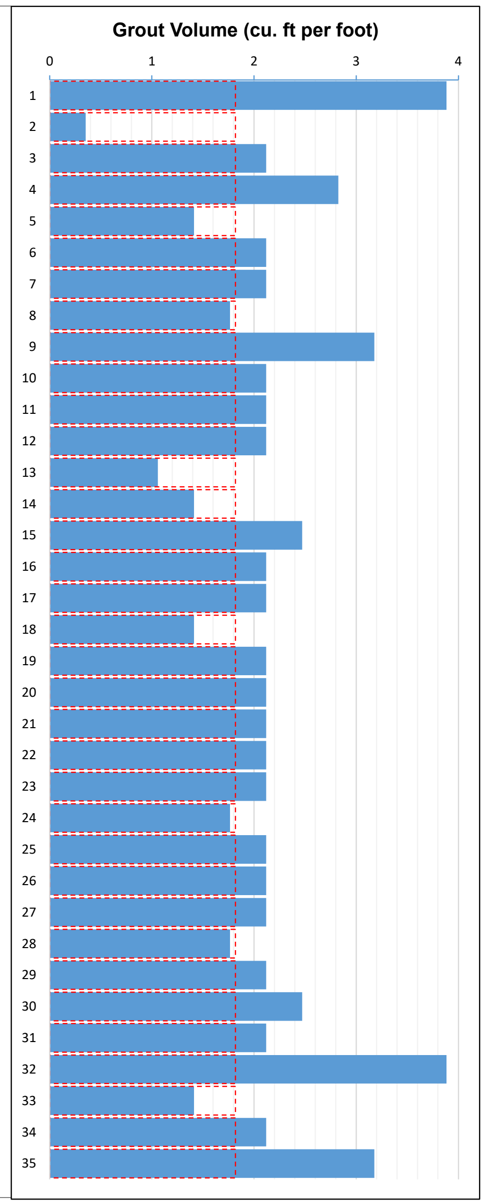
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

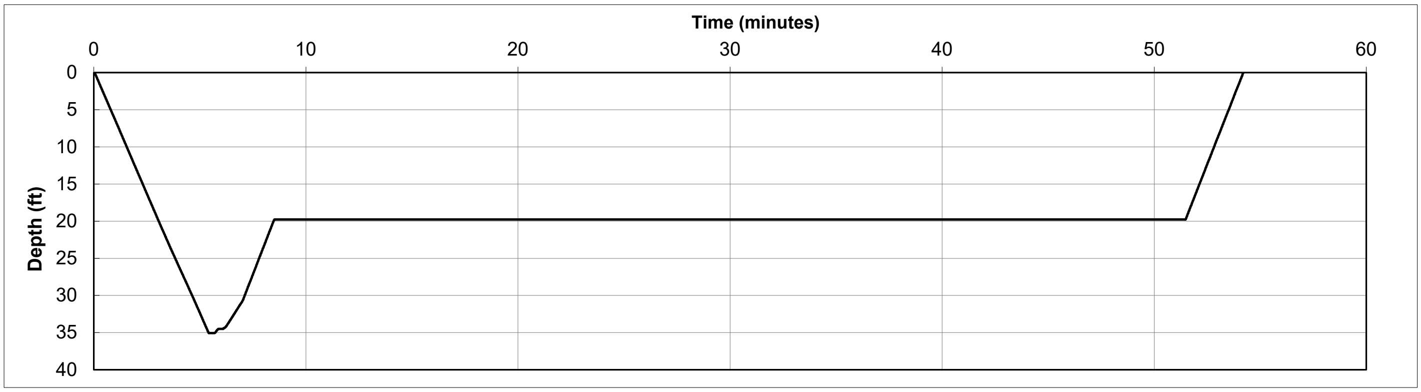
Project Site Data

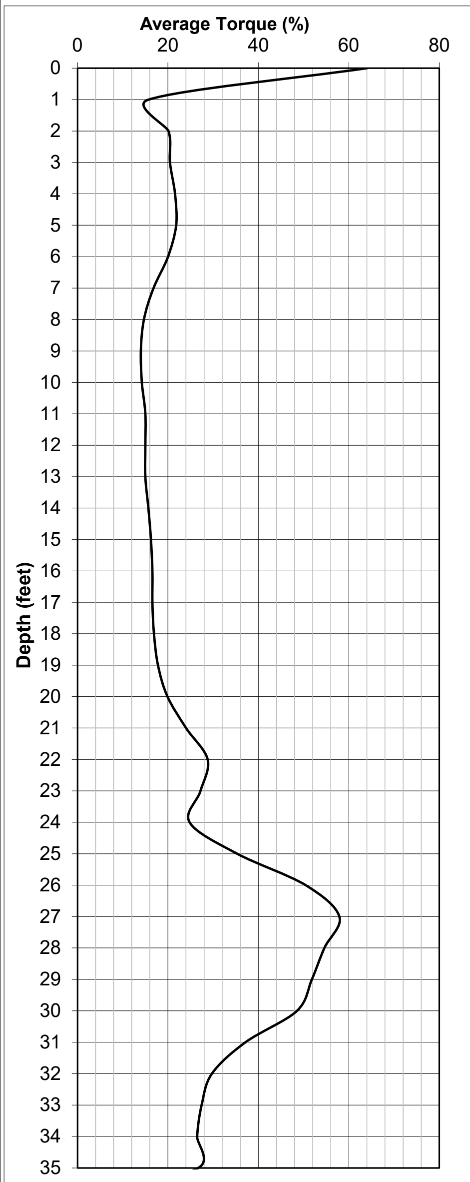
Data for Column No: 210

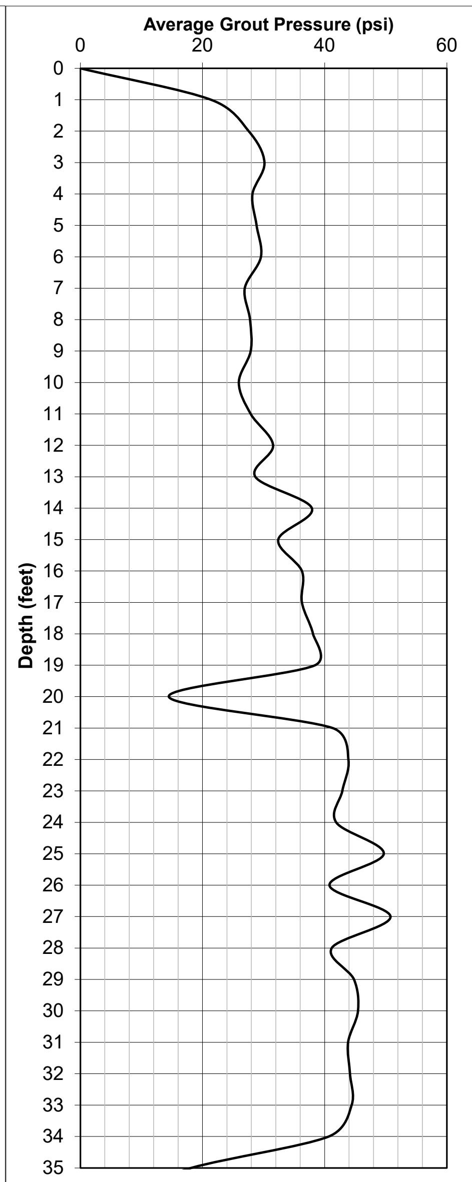
Project Name:	Oxnard College Fire Training	Date:	12/16/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:12 AM	Concrete Volume:	77.7	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:18 AM	Column Depth:	35.1	ft
		End Time:	10:06 AM	Pre Auger:		
		Total Time:	54 min			

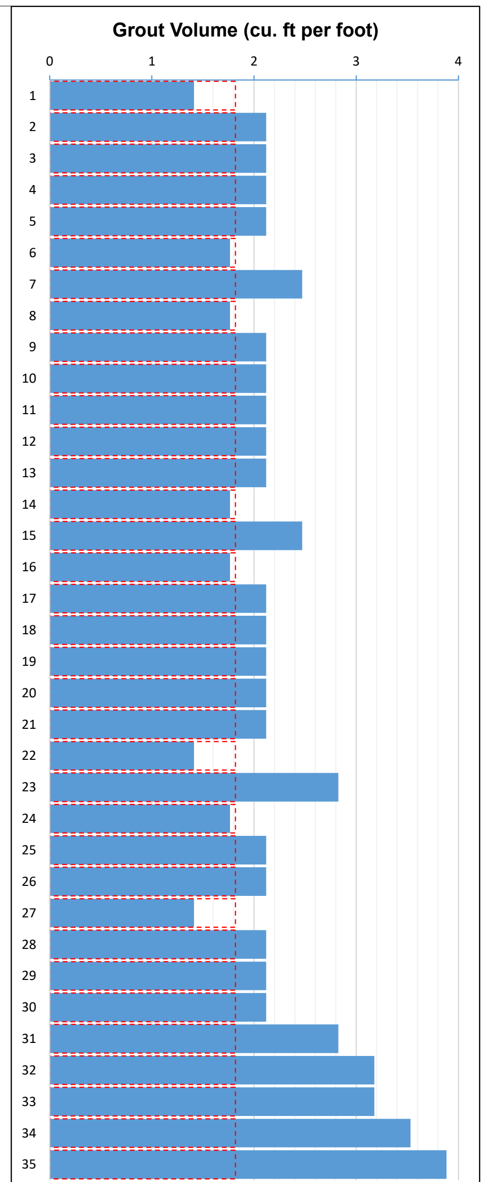
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

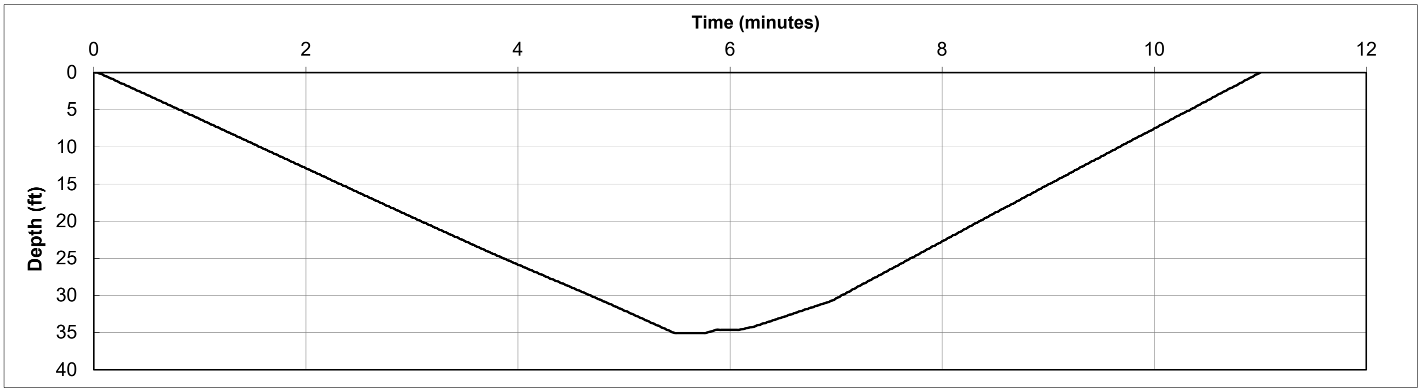
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

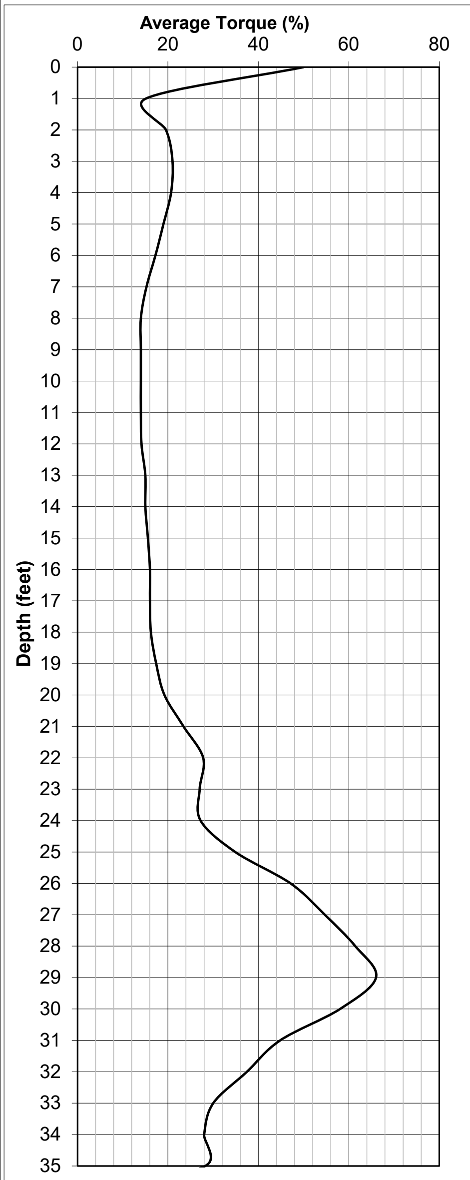
Project Site Data | **Data for Column No: 208**

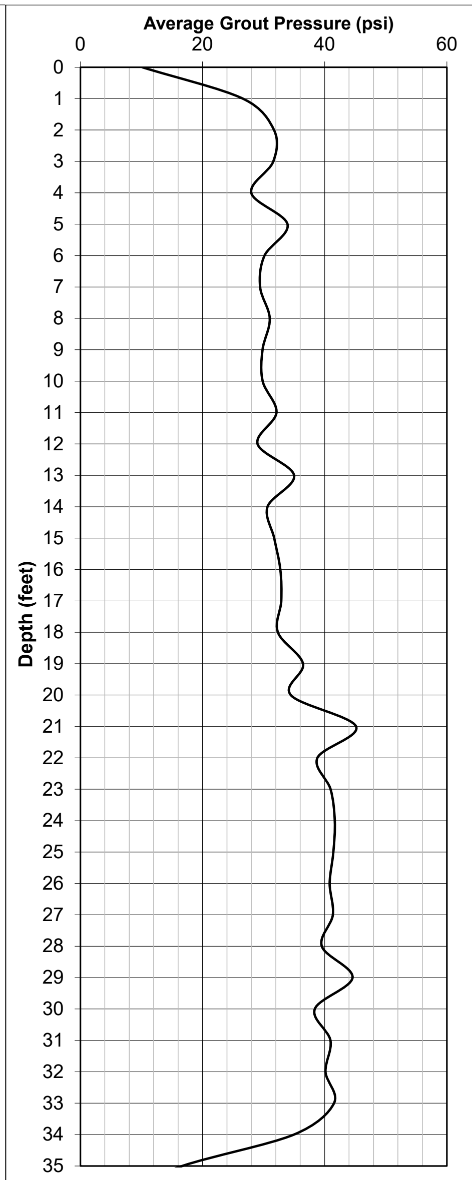
Project Name:	Oxnard College Fire Training	Date:	12/16/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:10 AM	Concrete Volume:	75.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:16 AM	Column Depth:	35.1	ft
		End Time:	10:21 AM	Pre Auger:		
		Total Time:	11 min			

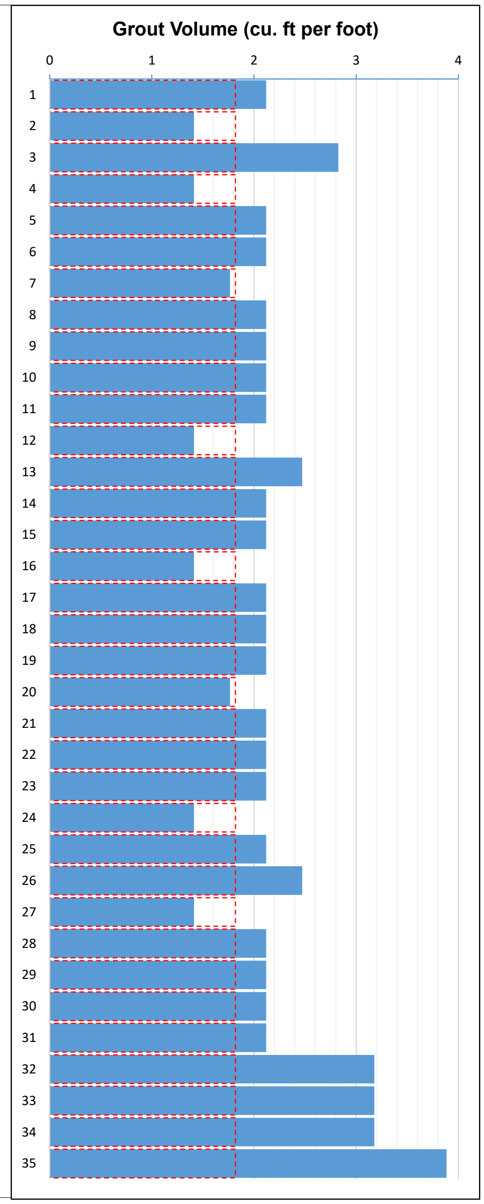
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

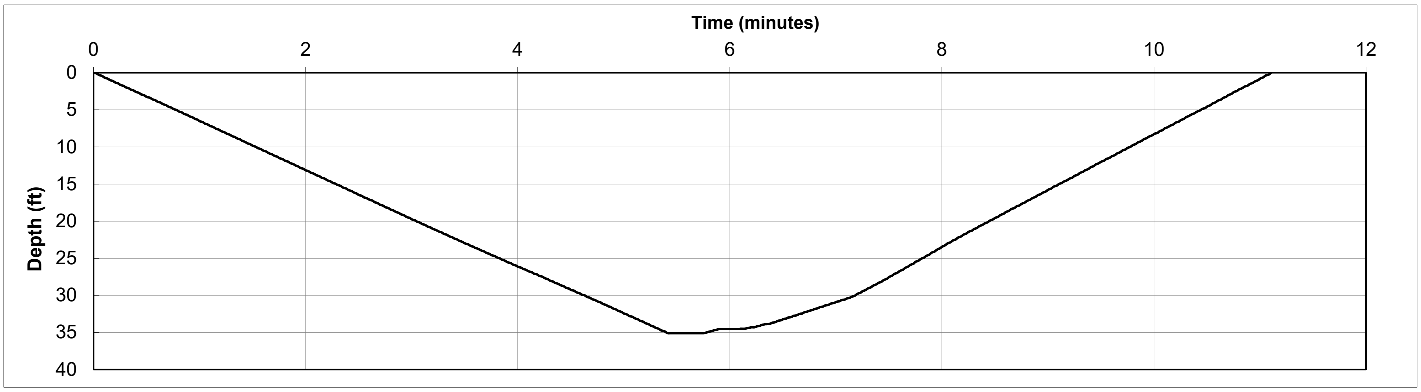
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

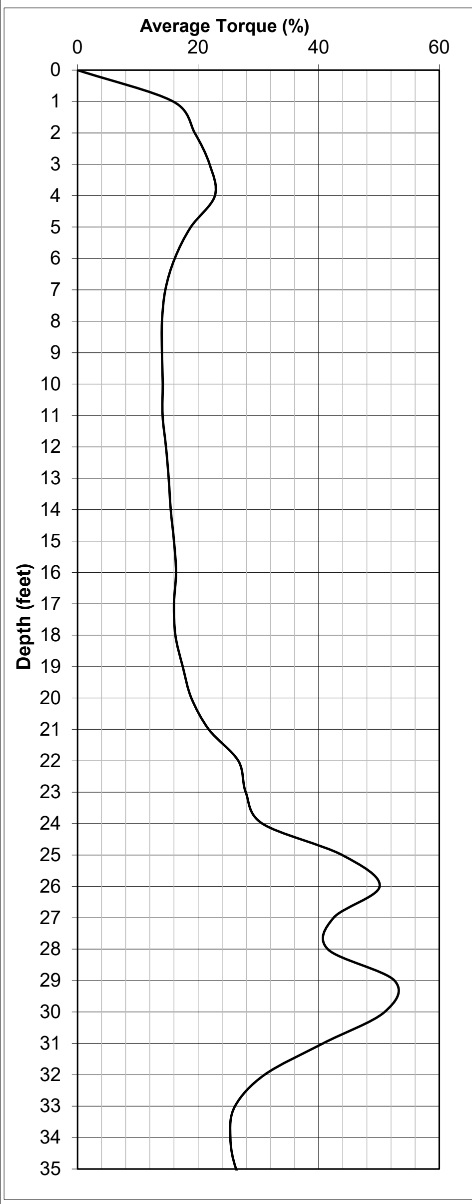
Project Site Data | **Data for Column No: 214**

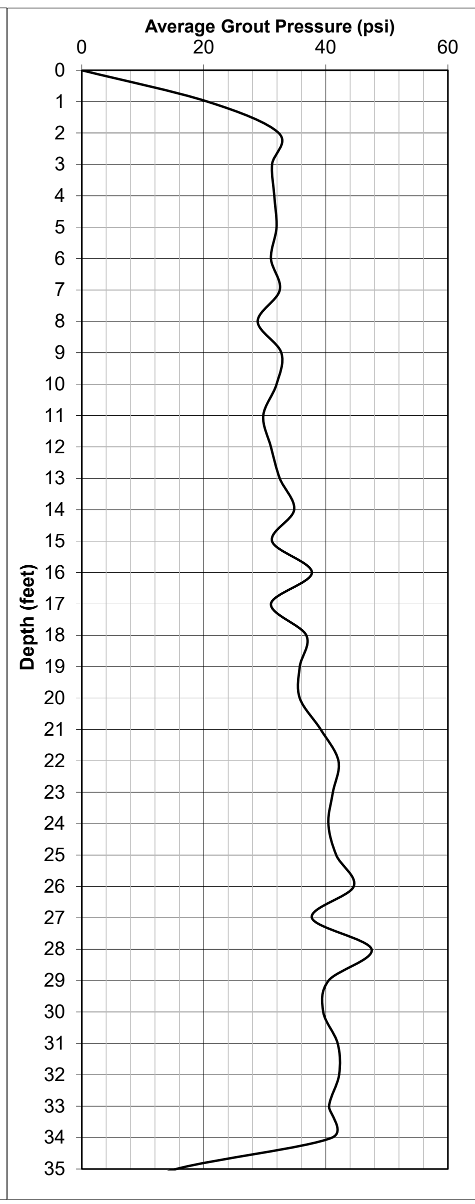
Project Name:	Oxnard College Fire Training	Date:	12/16/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:24 AM	Concrete Volume:	75.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:30 AM	Column Depth:	35.1	ft
		End Time:	10:35 AM	Pre Auger:		
		Total Time:	11 min			

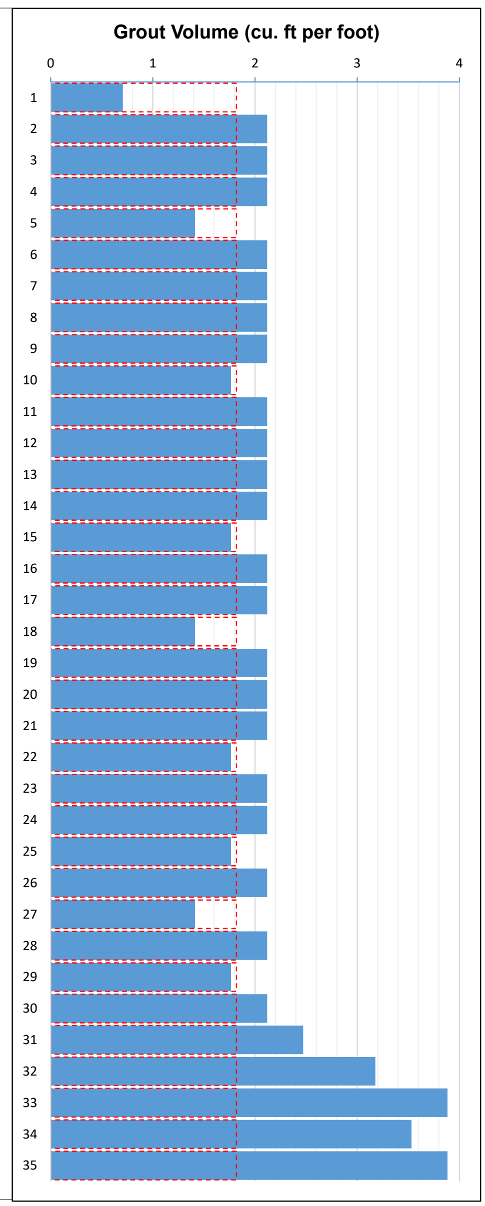
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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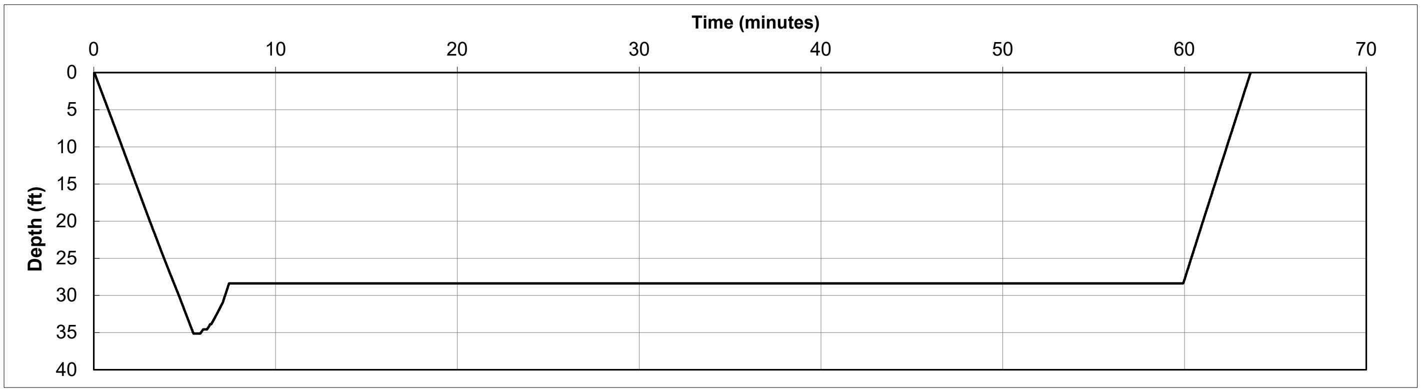
Lake Forest, CA 92630
P: 310-796-9000

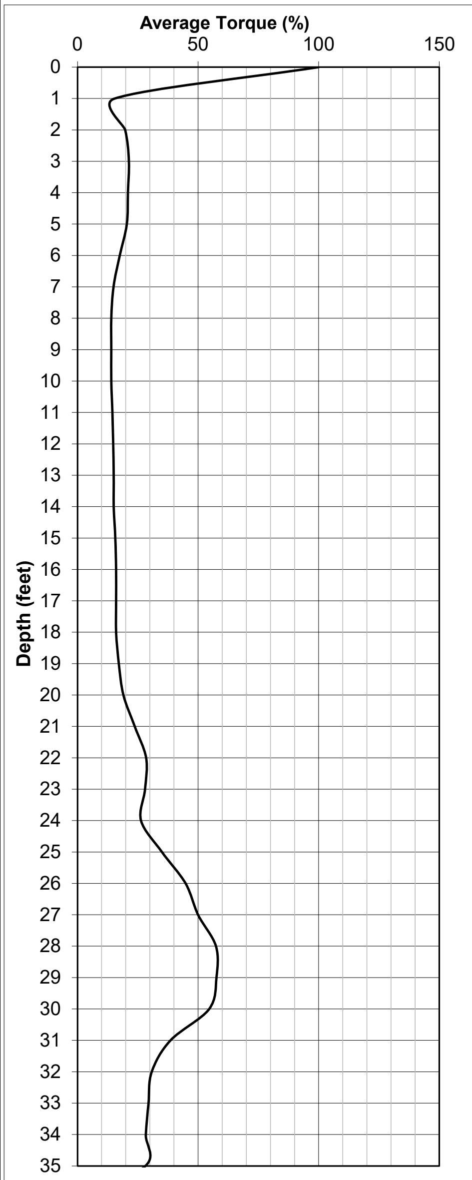
Project Site Data | **Data for Column No: 216**

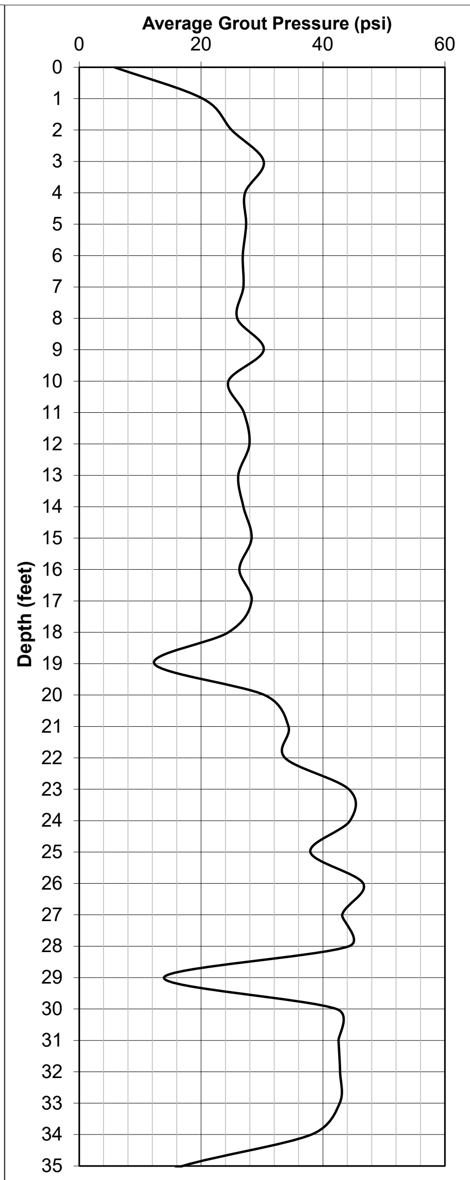
Project Name:	Oxnard College Fire Training	Date:	12/16/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:38 AM	Concrete Volume:	75.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:44 AM	Column Depth:	35.1	ft
		End Time:	11:42 AM	Pre Auger:		
		Total Time:	64 min			

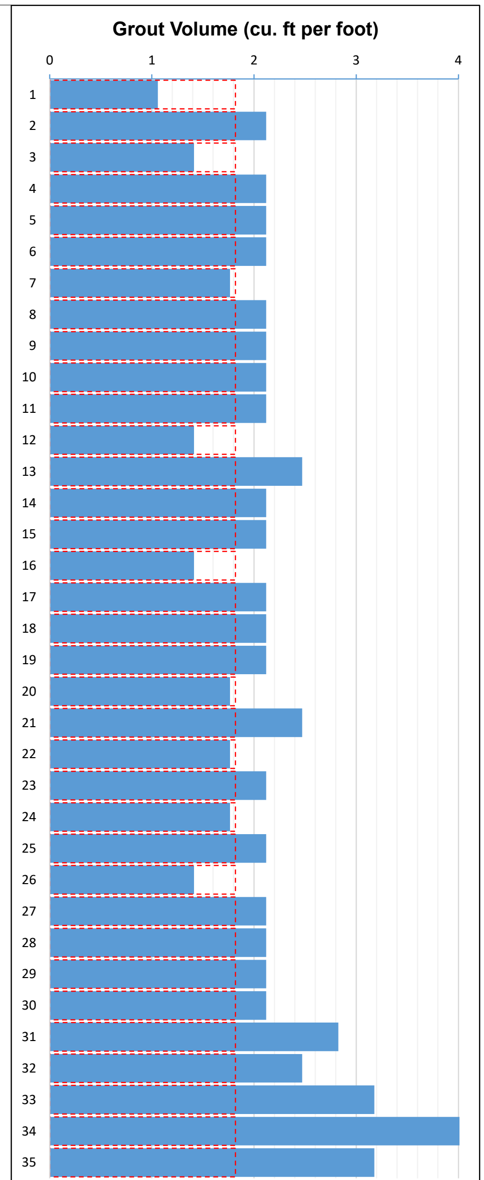
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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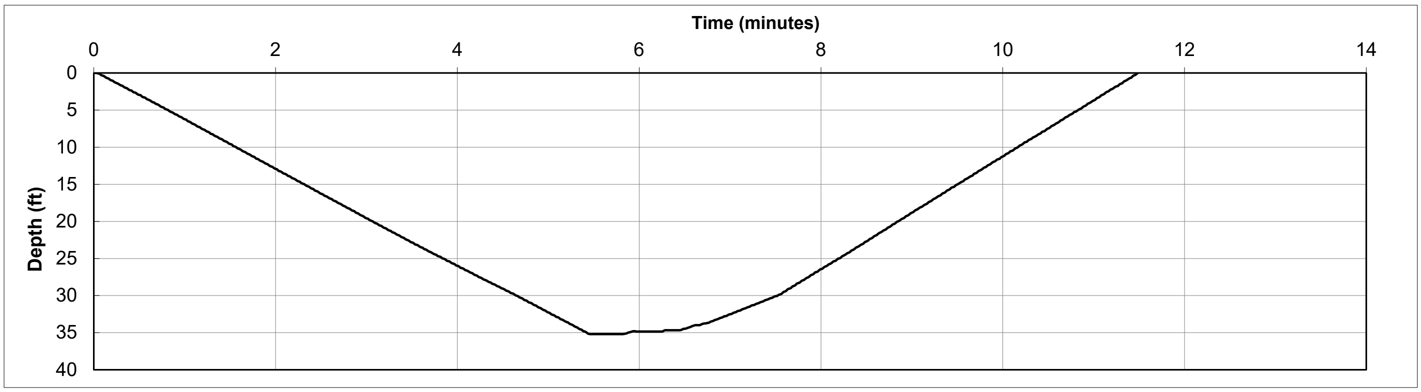
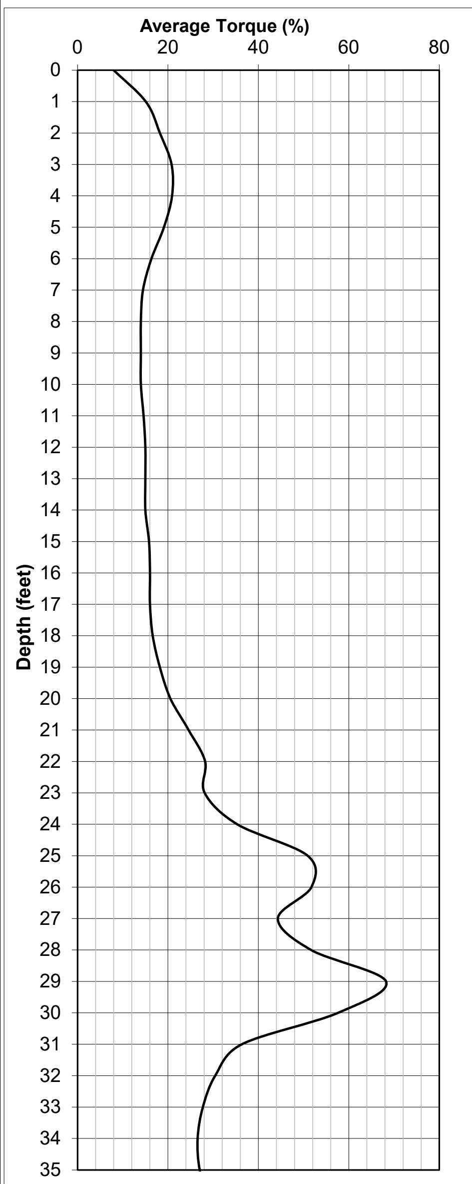
Project Site Data | **Data for Column No: 228**

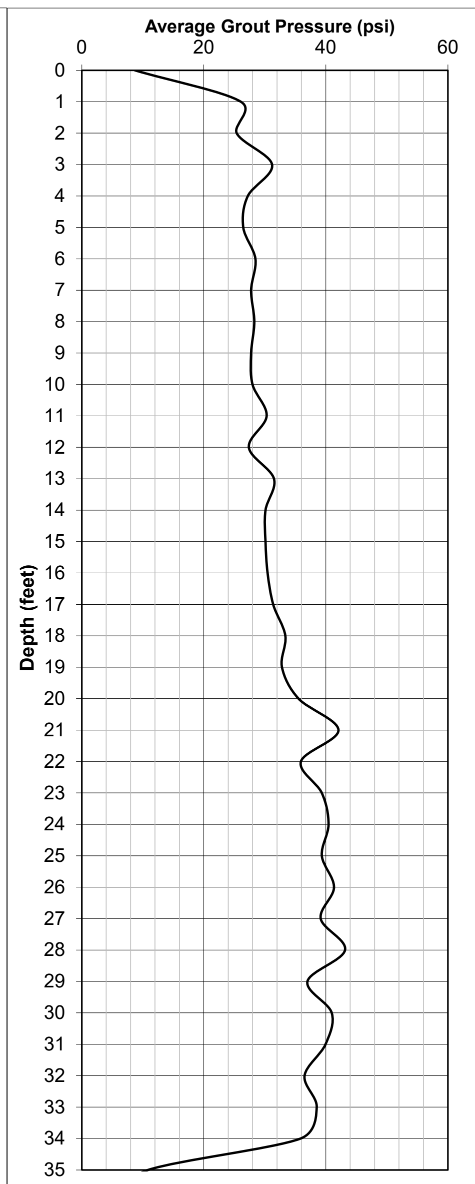
Project Name:	Oxnard College Fire Training	Date:	12/16/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:48 AM	Concrete Volume:	75.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:54 AM	Column Depth:	35.2	ft
		End Time:	12:00 PM	Pre Auger:		
		Total Time:	11 min			

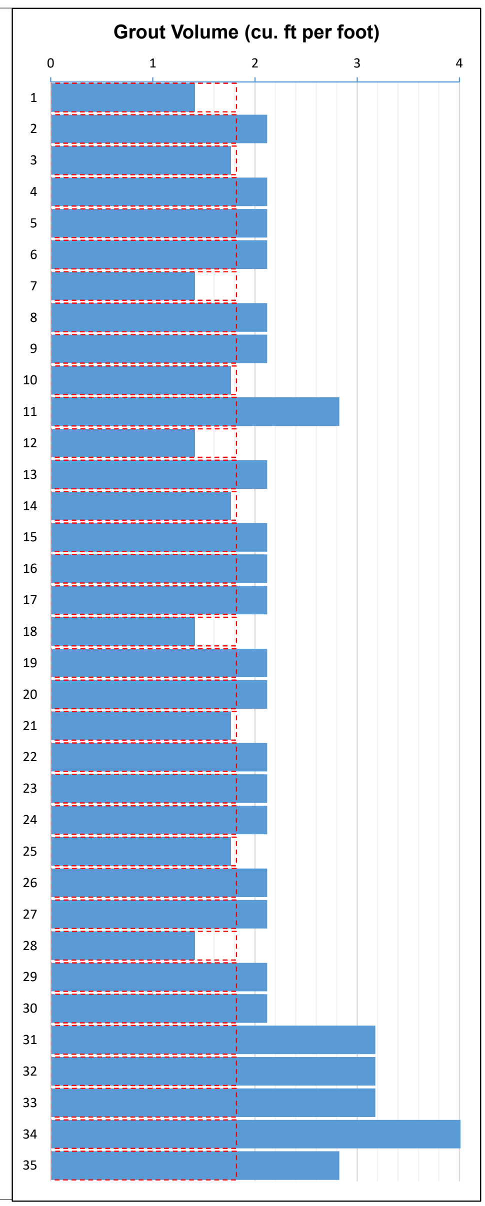
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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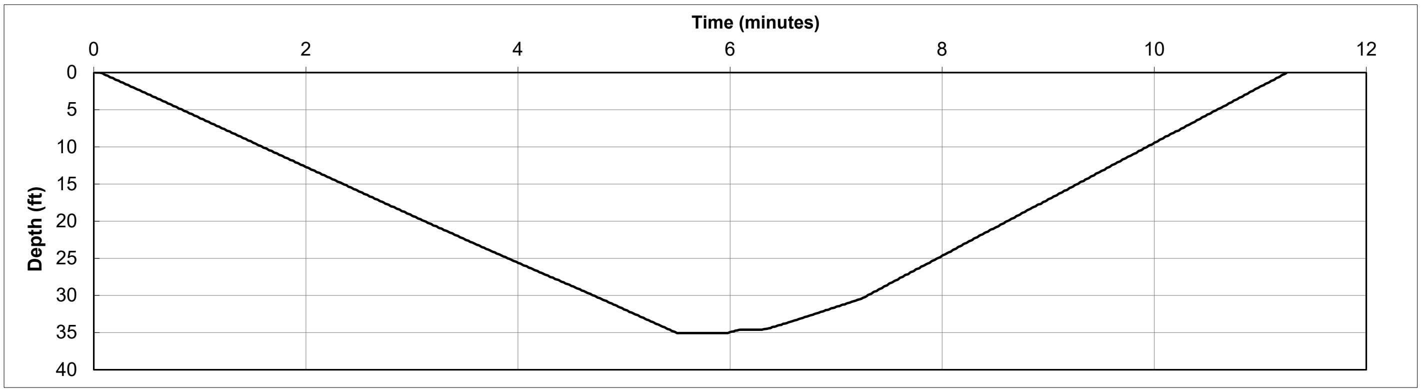
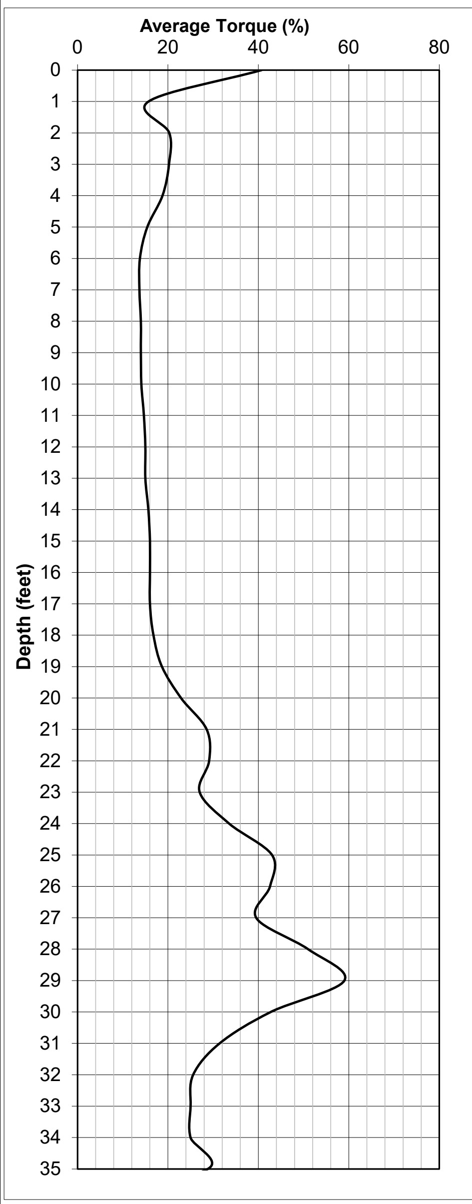
Project Site Data | **Data for Column No: 242**

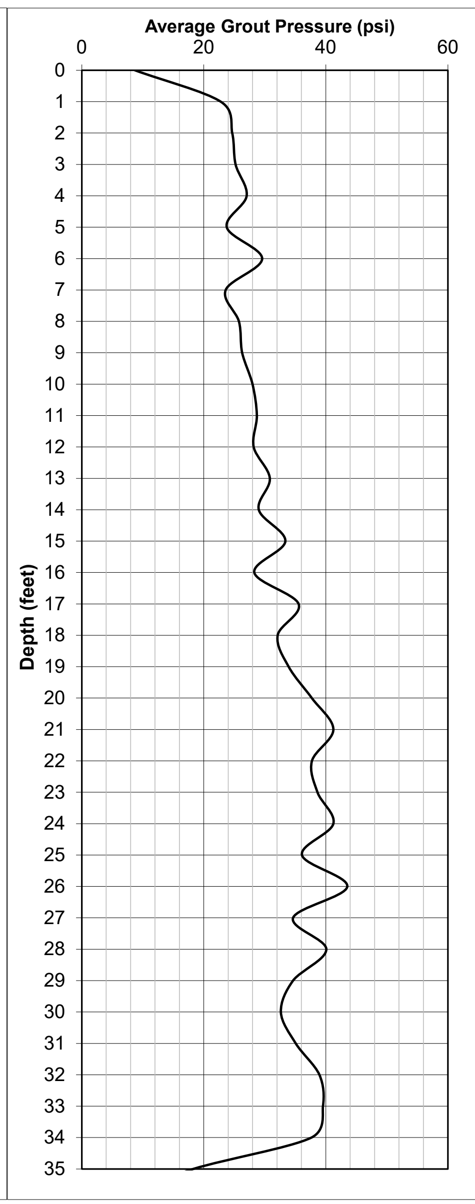
Project Name:	Oxnard College Fire Training	Date:	12/16/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:05 PM	Concrete Volume:	76.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:11 PM	Column Depth:	35.1	ft
		End Time:	12:16 PM	Pre Auger:		
		Total Time:	11 min			

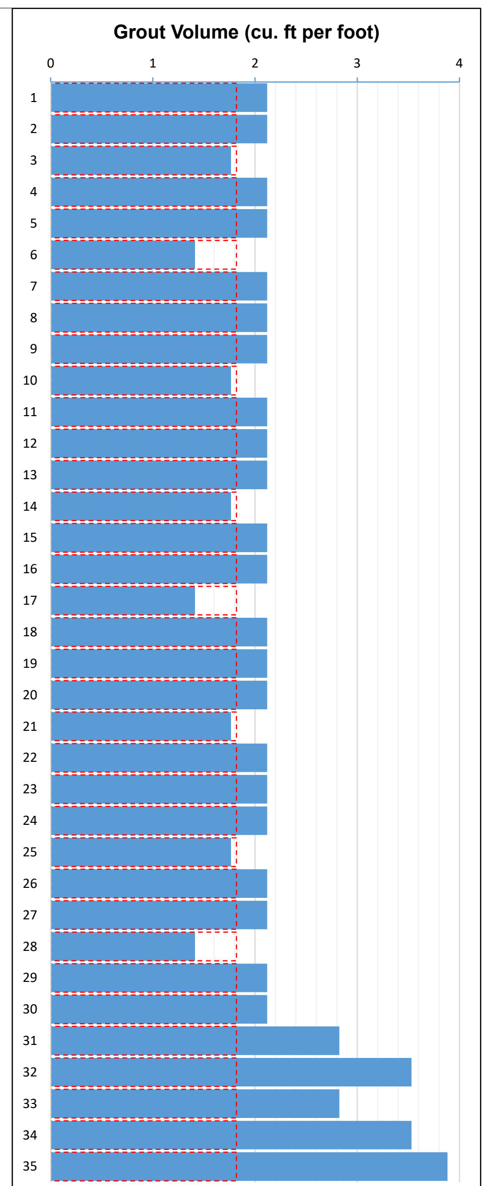
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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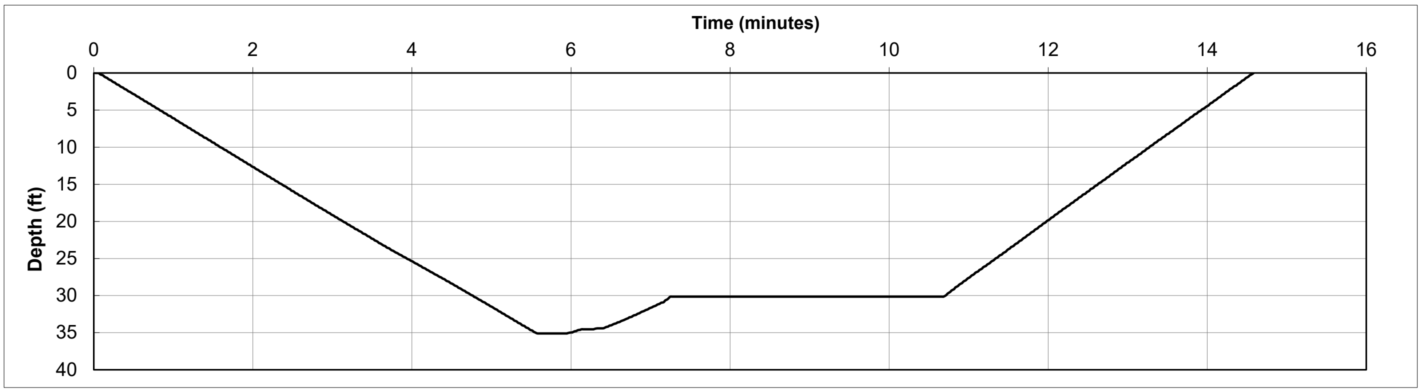
DGC Log Sheet

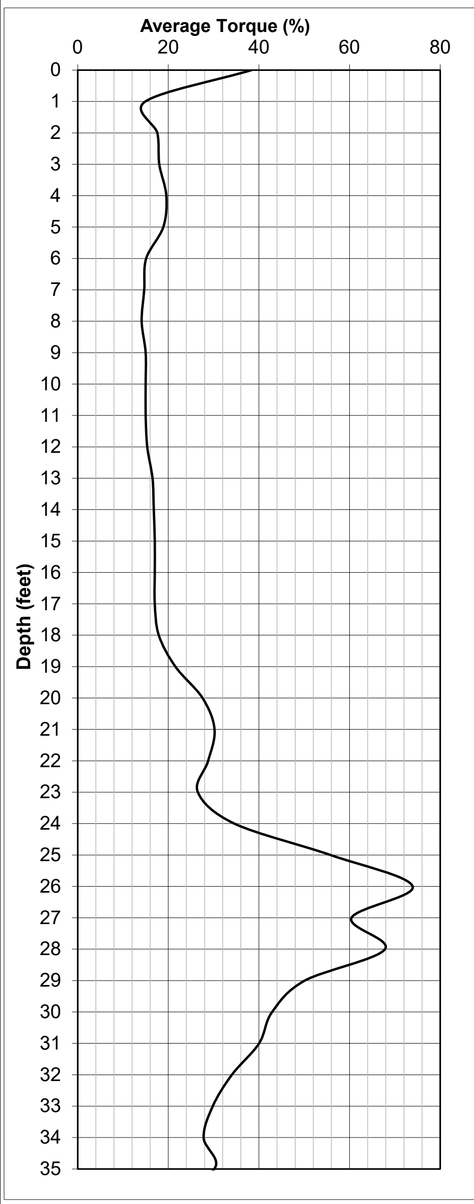
Project Site Data | **Data for Column No: 129**

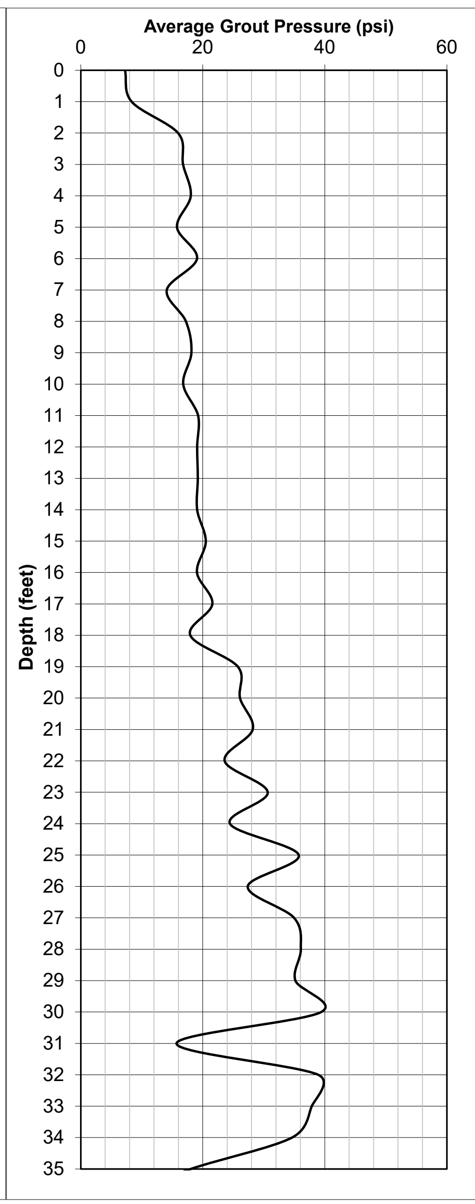
Project Name:	Oxnard College Fire Training	Date:	12/16/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:21 PM	Concrete Volume:	73.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:27 PM	Column Depth:	35.1	ft
		End Time:	12:36 PM	Pre Auger:		
		Total Time:	15 min			

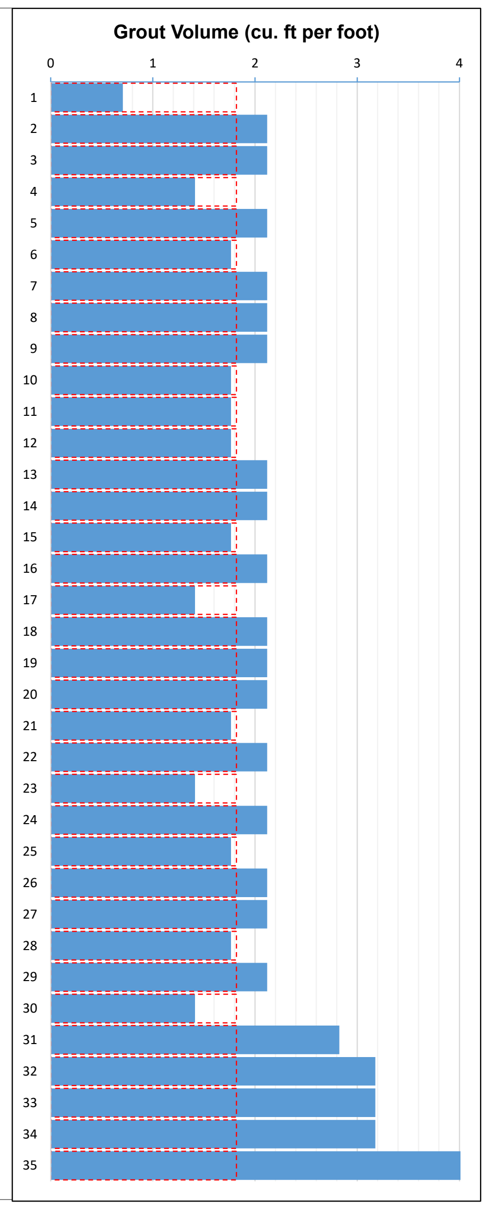
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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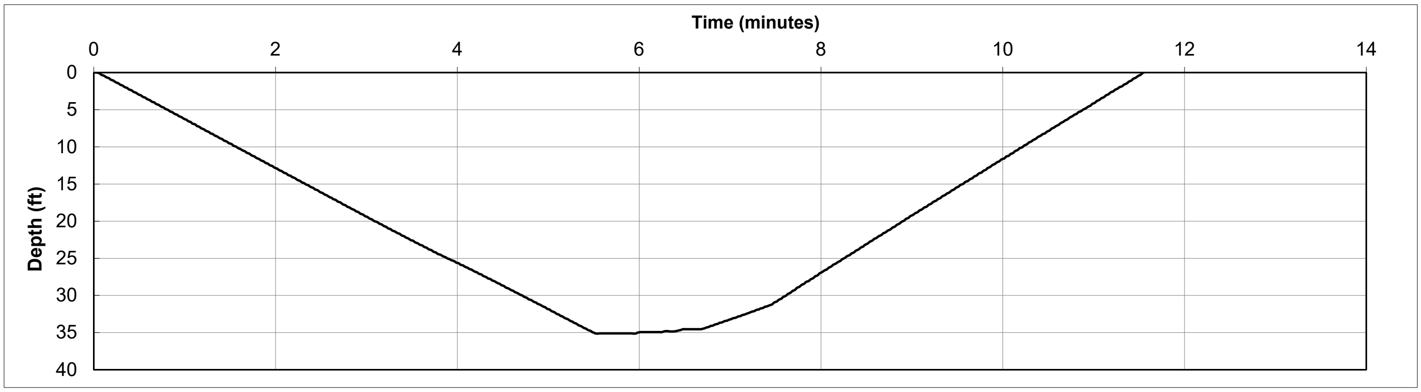
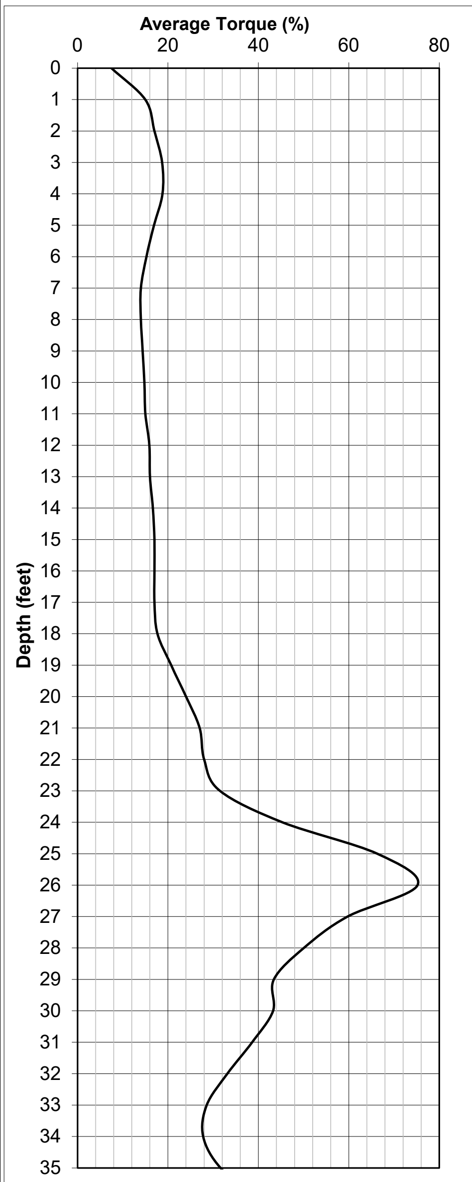
Project Site Data **Data for Column No: 127**

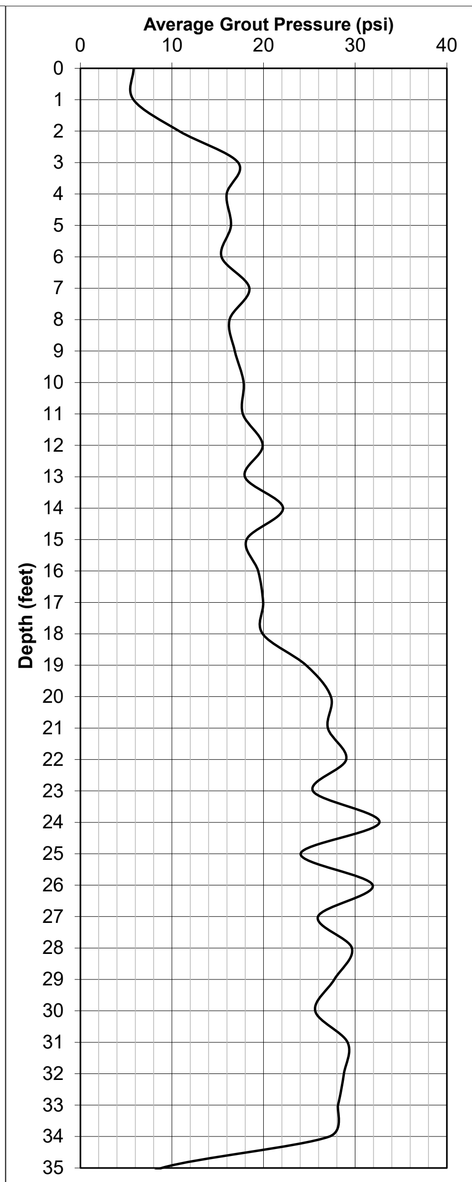
Project Name:	Oxnard College Fire Training	Date:	12/16/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:39 PM	Concrete Volume:	72.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:45 PM	Column Depth:	35.1	ft
		End Time:	12:51 PM	Pre Auger:		
		Total Time:	12 min			

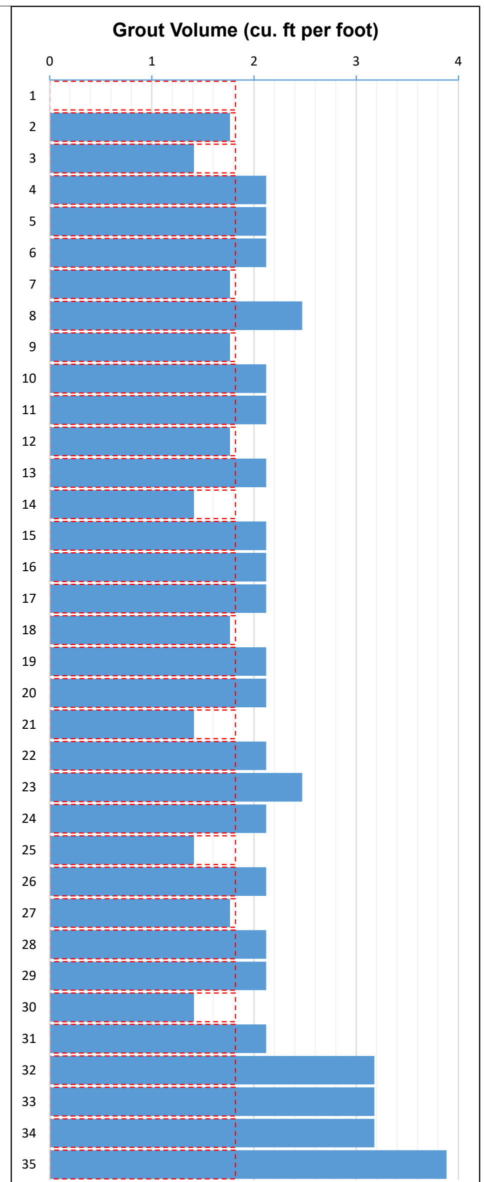
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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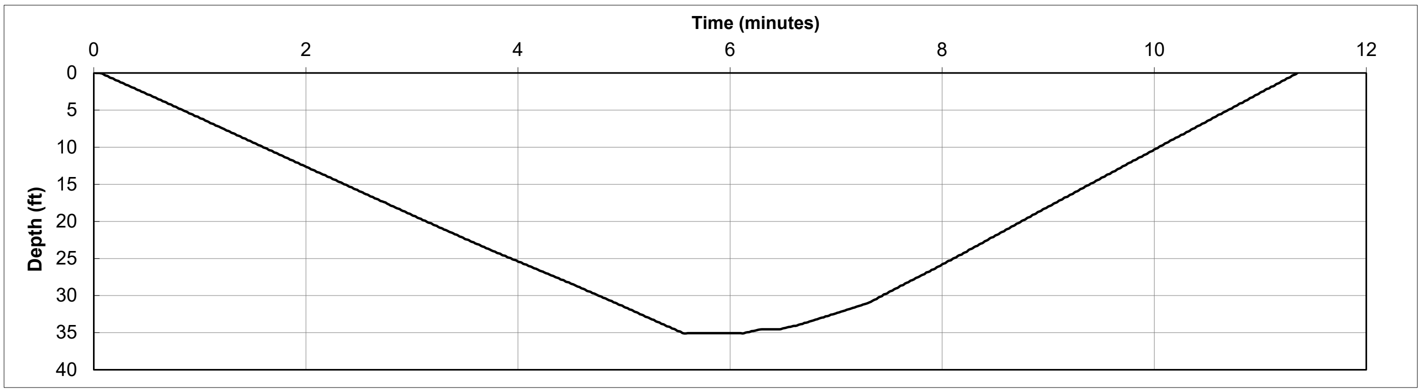
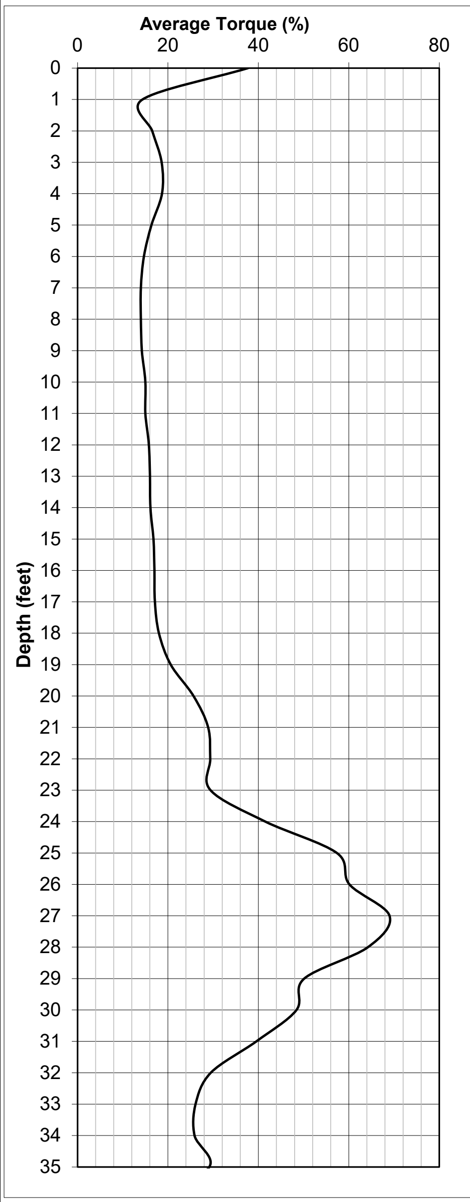
Project Site Data | **Data for Column No: 125**

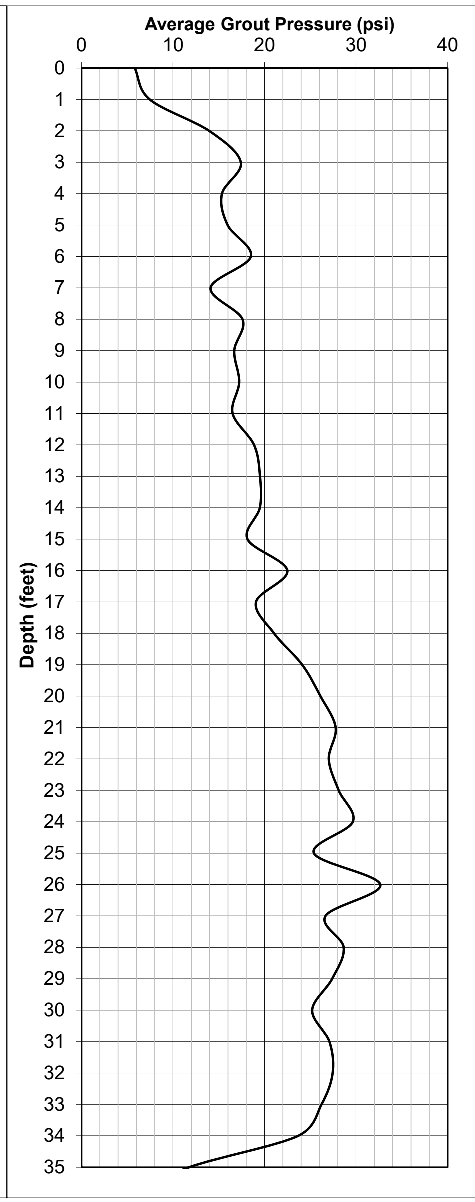
Project Name:	Oxnard College Fire Training	Date:	12/16/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:58 PM	Concrete Volume:	73.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:04 PM	Column Depth:	35.1	ft
		End Time:	1:09 PM	Pre Auger:		
		Total Time:	11 min			

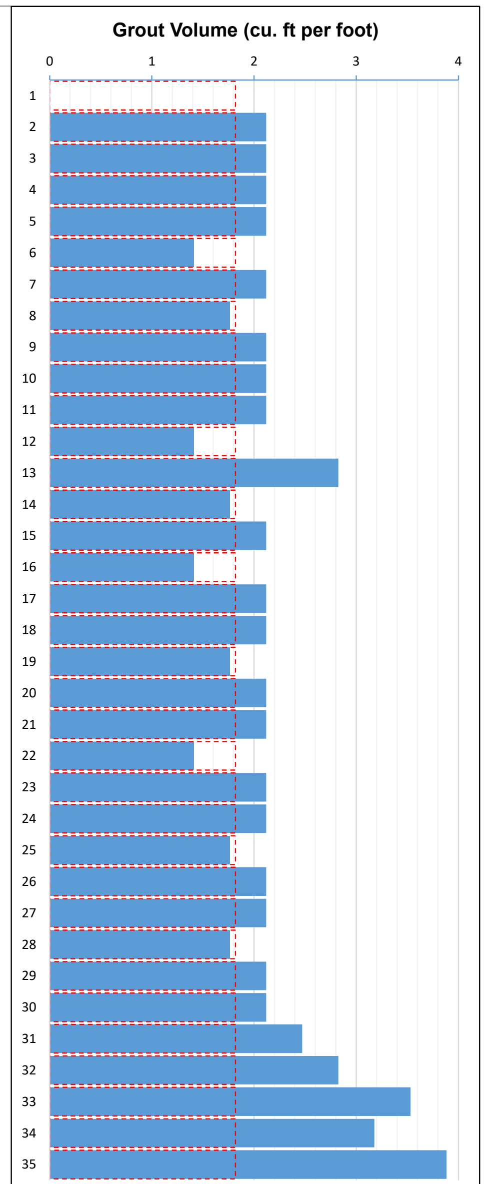
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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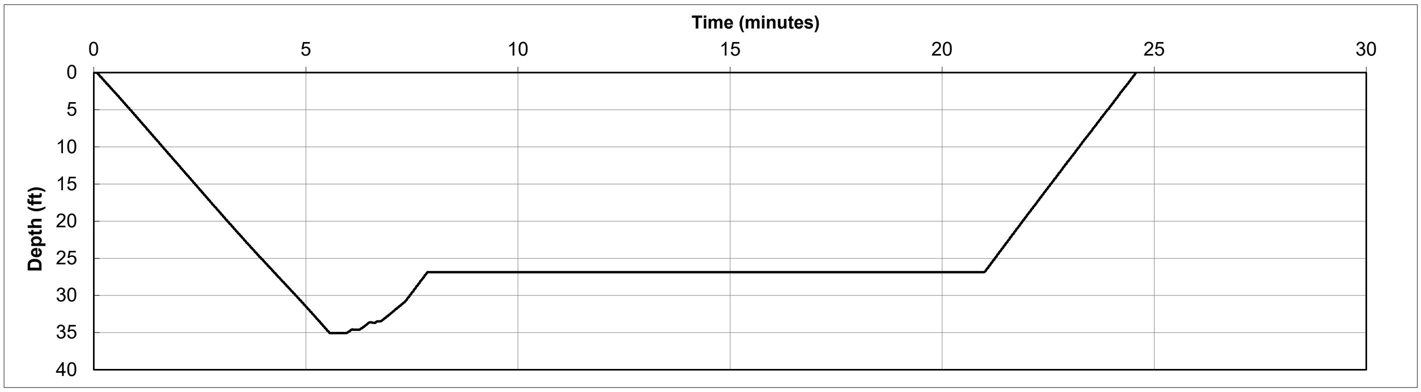
Project Site Data

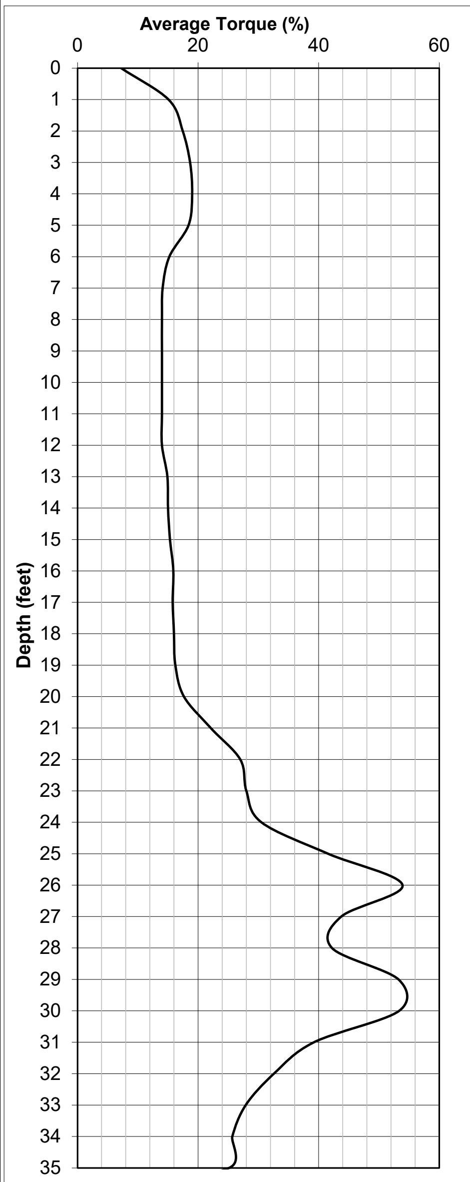
Data for Column No: 160

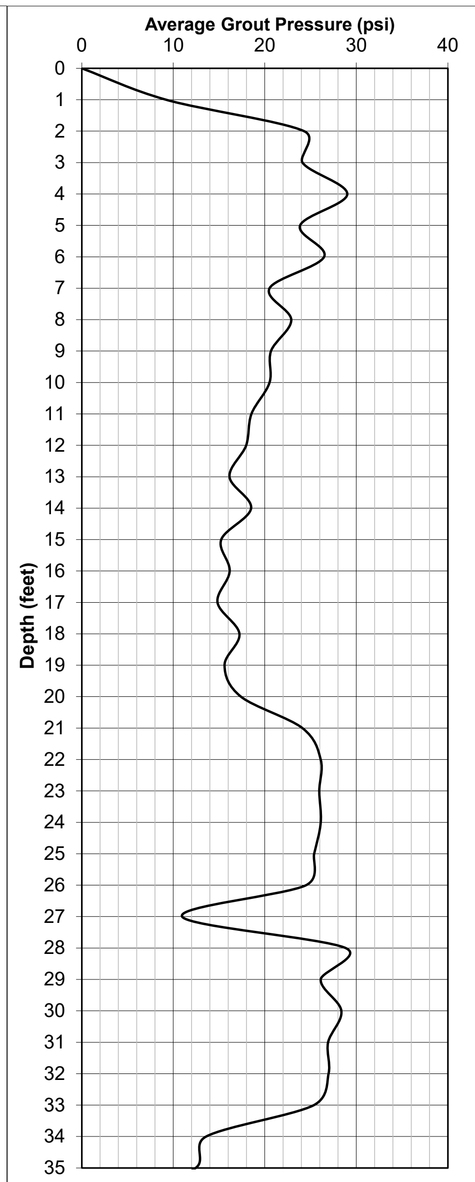
Project Name:	Oxnard College Fire Training	Date:	12/16/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:14 PM	Concrete Volume:	74.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:20 PM	Column Depth:	35.1	ft
		End Time:	1:39 PM	Pre Auger:		
		Total Time:	25 min			

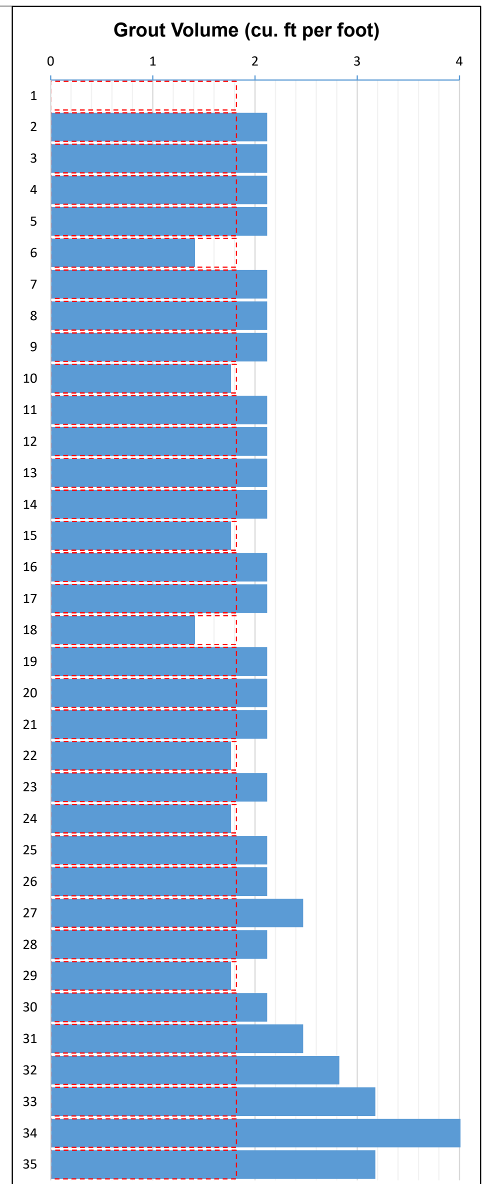
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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Lake Forest, CA 92630
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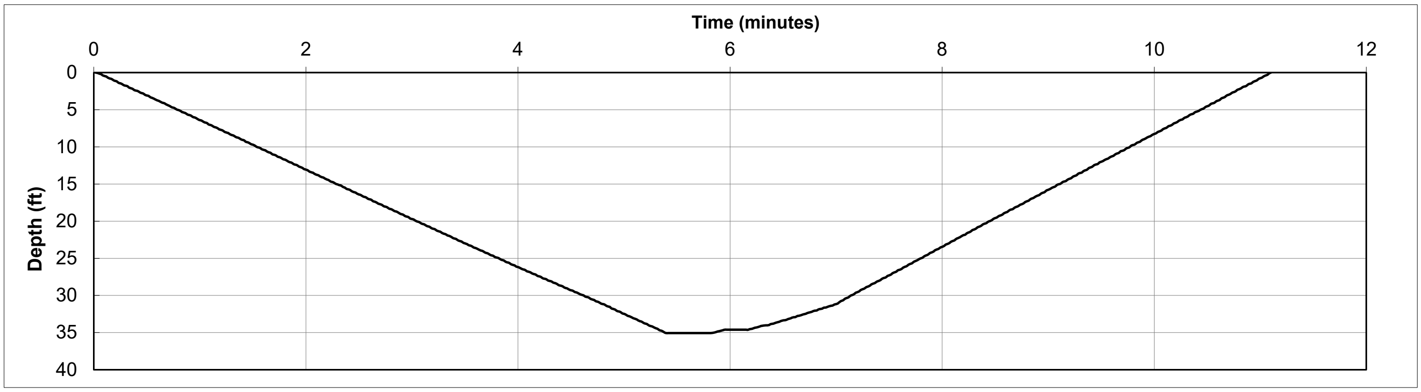
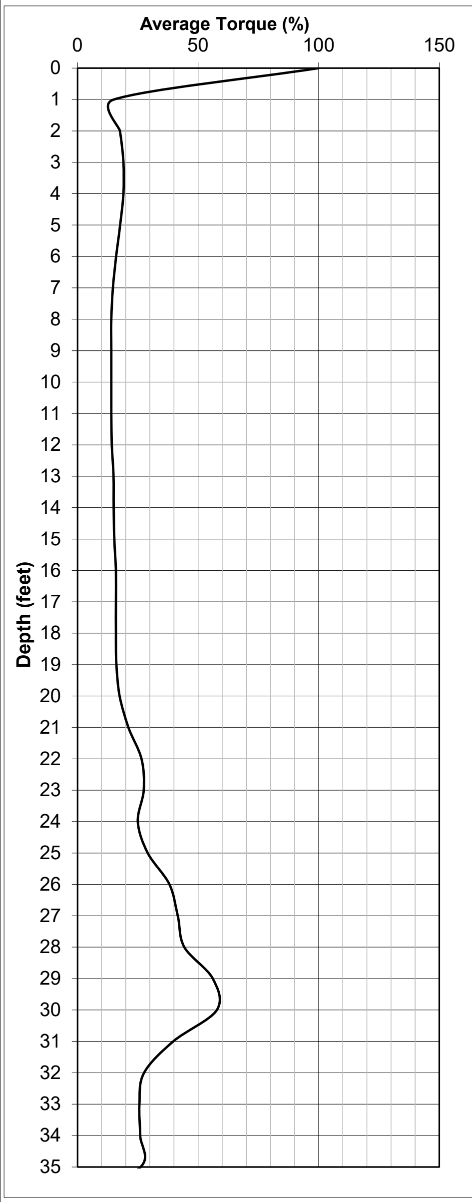
Project Site Data | **Data for Column No: 162**

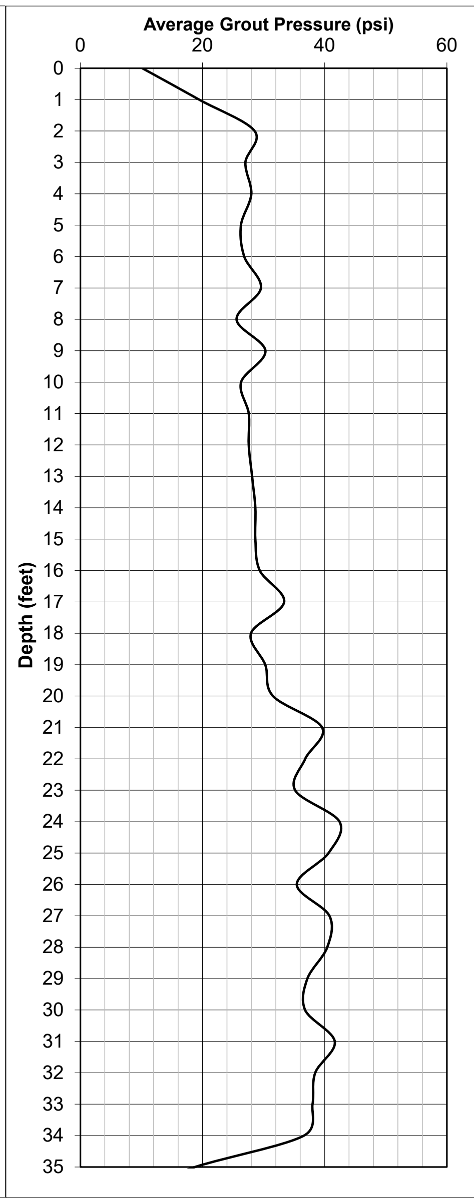
Project Name:	Oxnard College Fire Training	Date:	12/16/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:42 PM	Concrete Volume:	75.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:48 PM	Column Depth:	35.1	ft
		End Time:	1:53 PM	Pre Auger:		
		Total Time:	11 min			

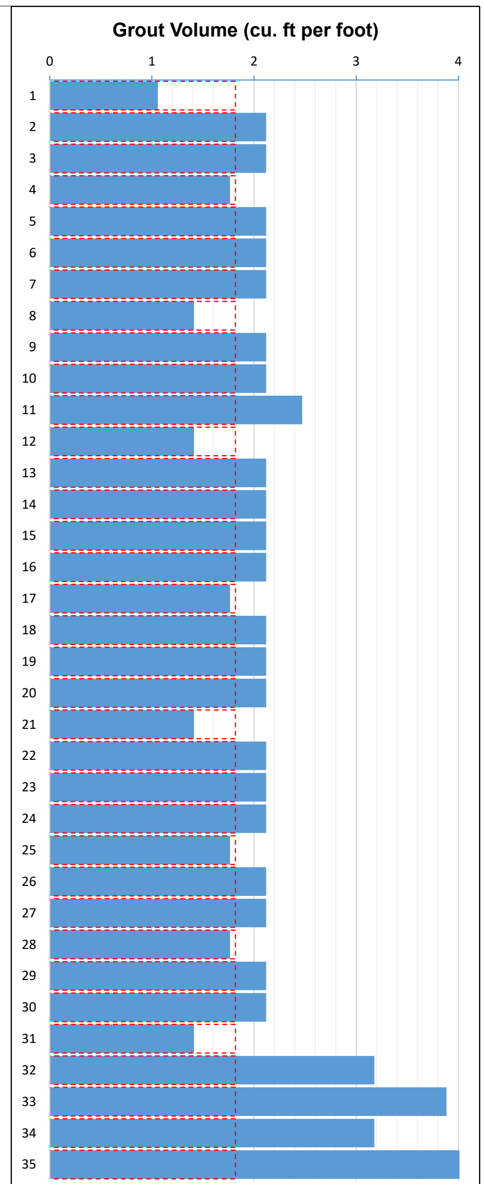
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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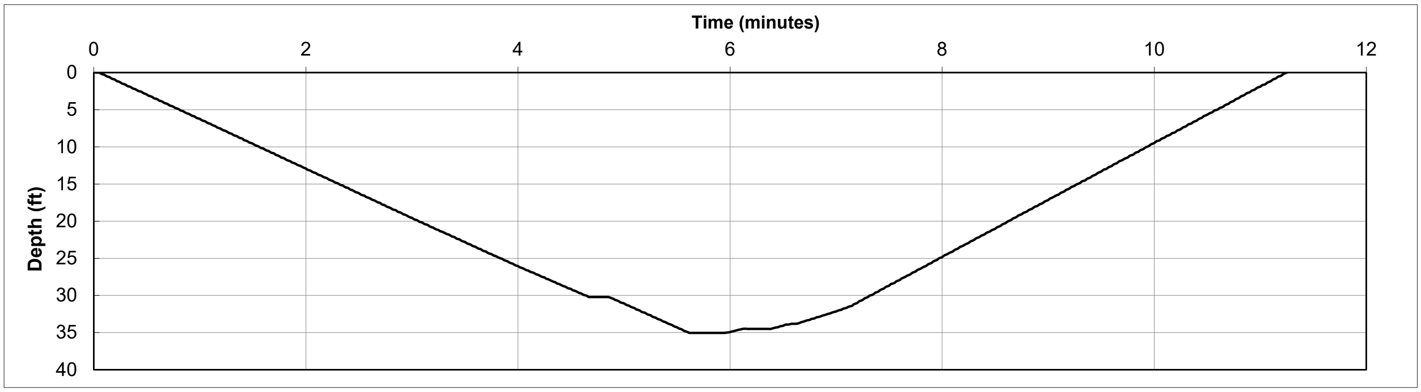
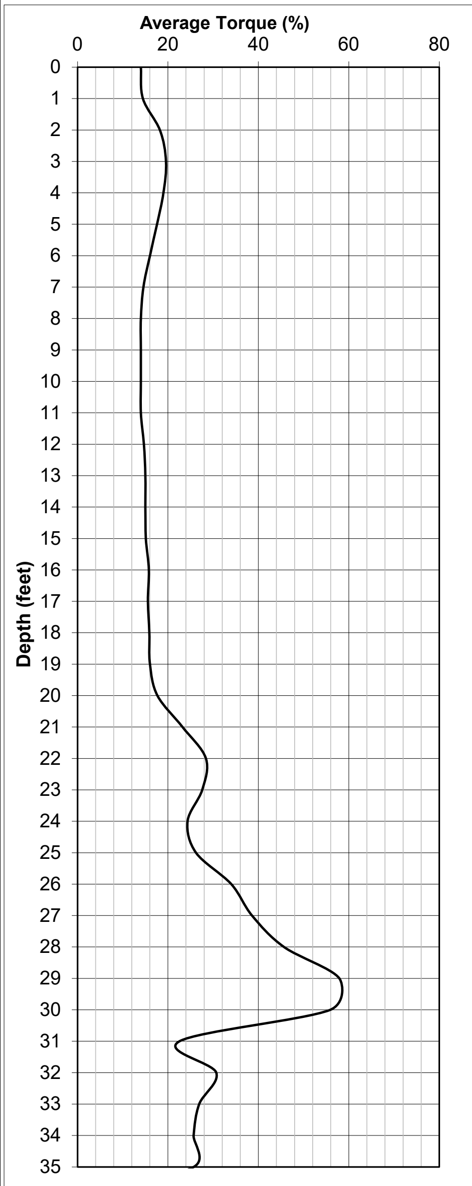
Project Site Data | **Data for Column No: 102**

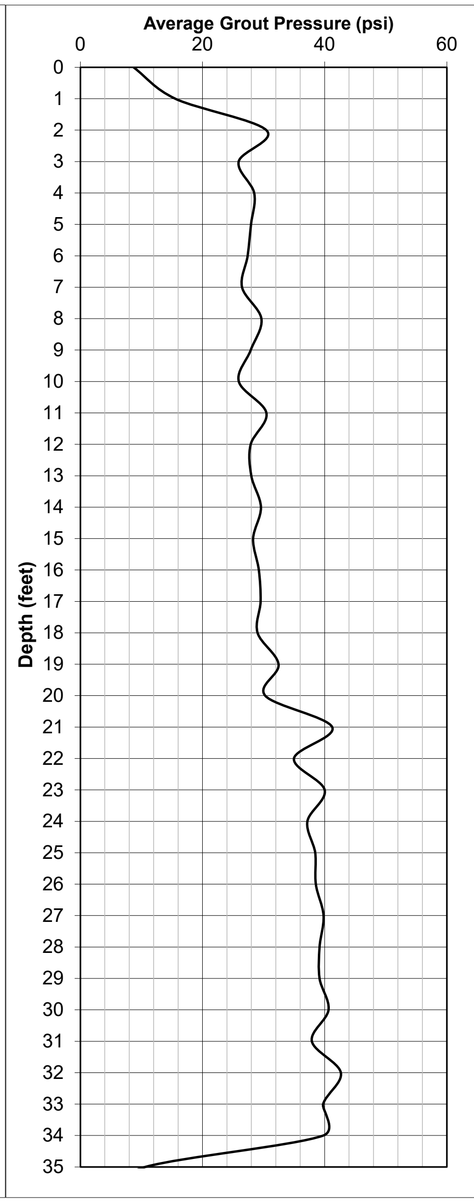
Project Name:	Oxnard College Fire Training	Date:	12/16/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:56 PM	Concrete Volume:	73.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:02 PM	Column Depth:	35.0	ft
		End Time:	2:07 PM	Pre Auger:		
		Total Time:	11 min			

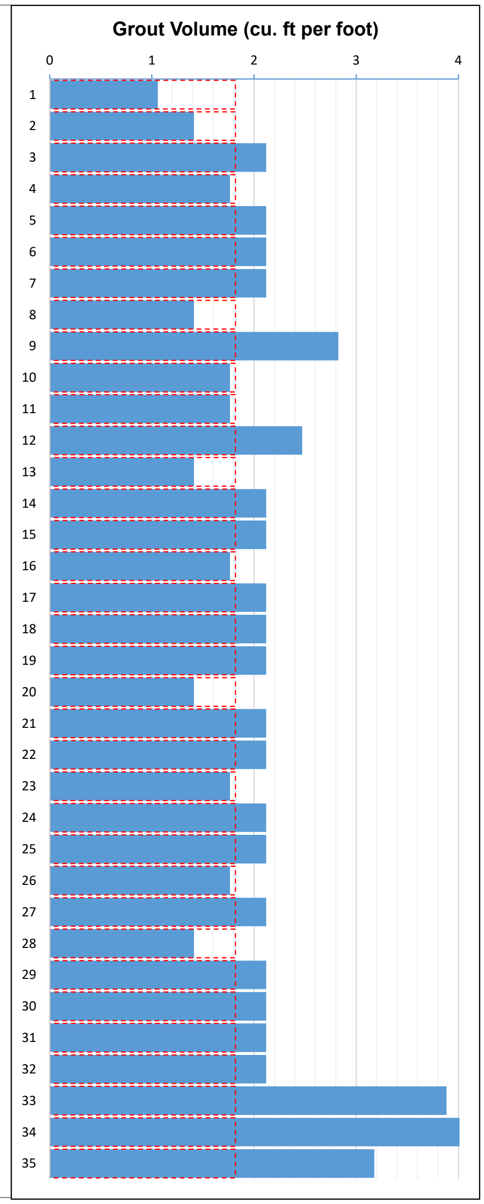
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









ADVANCED GEOSOLUTIONS INC

Daily Production Summary- Displacement Grout Columns

Project No. : **P271275**
Date: Thursday, December 17, 2020
Project Name: Oxnard College Fire Training Academy
Rig: BG-30
Rig Operator: James "Smitty" Smith
Oiler: Benny Sandoval

Seq. No	Rig No.	Col. ID	Start Time	Bottom Time	End Time	Surface Elev.	Column Depth (ft)	*Act. Tip Elev.*	Concrete Volume (cu. feet)	Truck ID	Comments
1		206	08:36	08:43	08:47	74.4	35.1	39.3	73	42607692	
2		101	09:05	09:10	09:17	74.4	35.6	38.8	95	42607692	
3		161	09:19	09:24	09:53	74.4	35.0	39.4	76	42607692	
4		205	10:07	10:13	10:19	74.4	35.1	39.3	92	42607700	
5		103	10:34	10:40	10:47	74.4	35.1	39.3	93	42607700	
6		213	10:50	10:56	11:01	74.4	35.2	39.2	73	42607700	
7		212	11:07	11:13	11:18	74.4	35.3	39.1	76	42607704	
8		105	11:21	11:27	11:33	74.4	35.1	39.3	75	42607704	
9		220	11:35	11:41	12:28	74.4	35.1	39.3	98	42607704	
10		219	14:28	14:34	14:39	74.4	35.1	39.3	77	42843814	
11		107	14:42	14:48	15:13	74.4	35.1	39.3	74	42843814	
12		227	15:16	15:22	15:27	74.4	35.1	39.3	72	42843818	
13		226	15:30	15:36	15:42	74.4	35.0	39.4	78	42843818	

DGC Log Sheet

Advanced Geosolutions Inc
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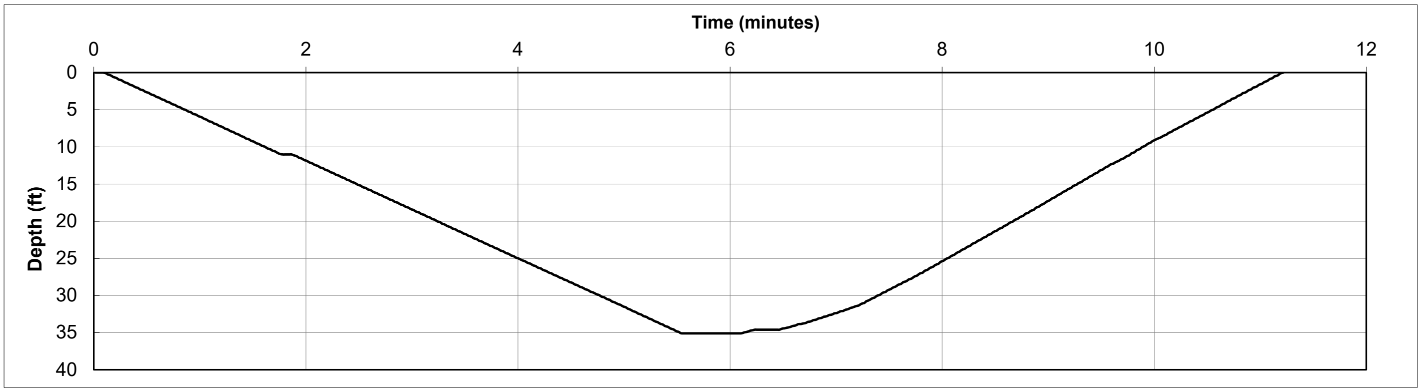
Lake Forest, CA 92630
P: 310-796-9000

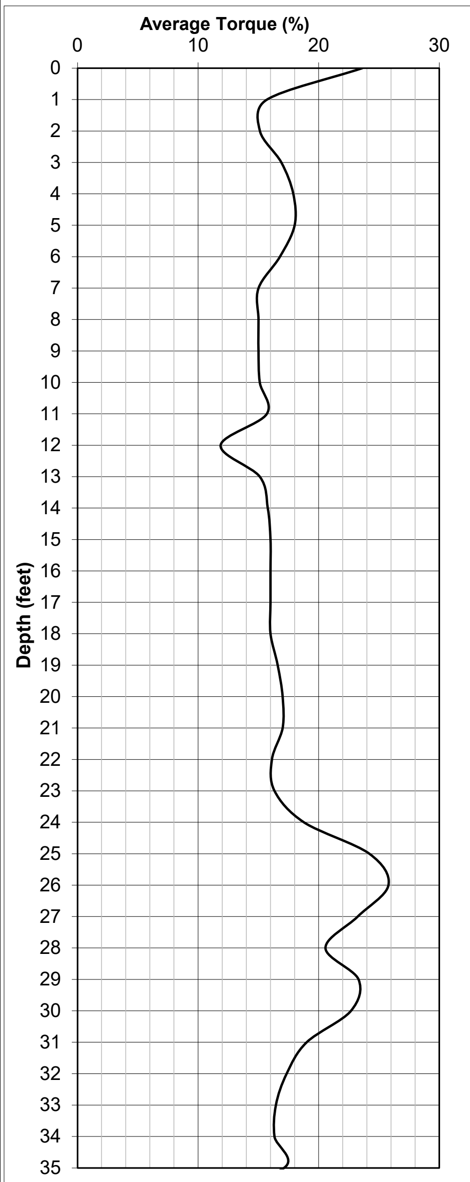
Project Site Data | **Data for Column No: 206**

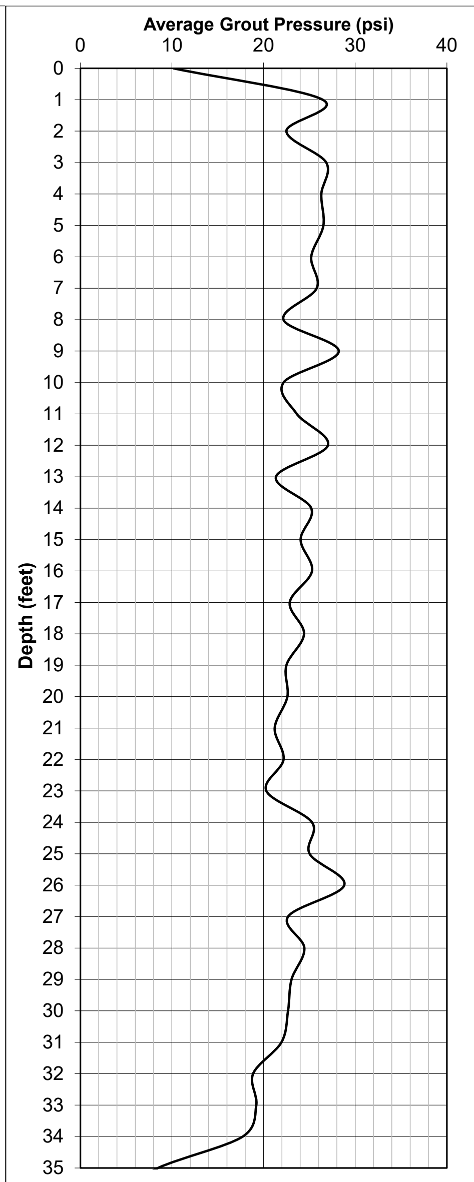
Project Name:	Oxnard College Fire Training	Date:	12/17/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:36 AM	Concrete Volume:	73.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:43 AM	Column Depth:	35.1	ft
		End Time:	8:47 AM	Pre Auger:		
		Total Time:	11 min			

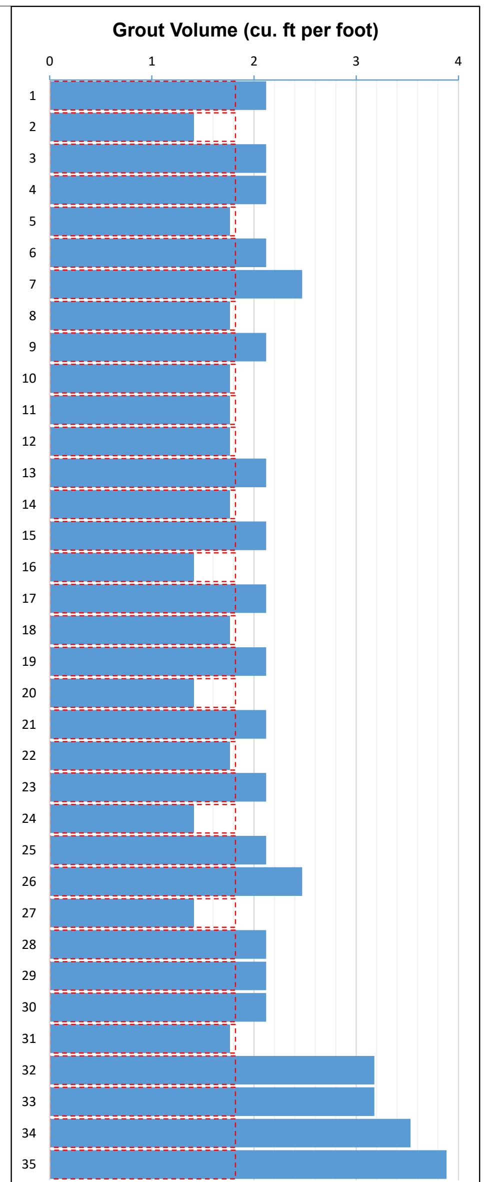
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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P: 310-796-9000

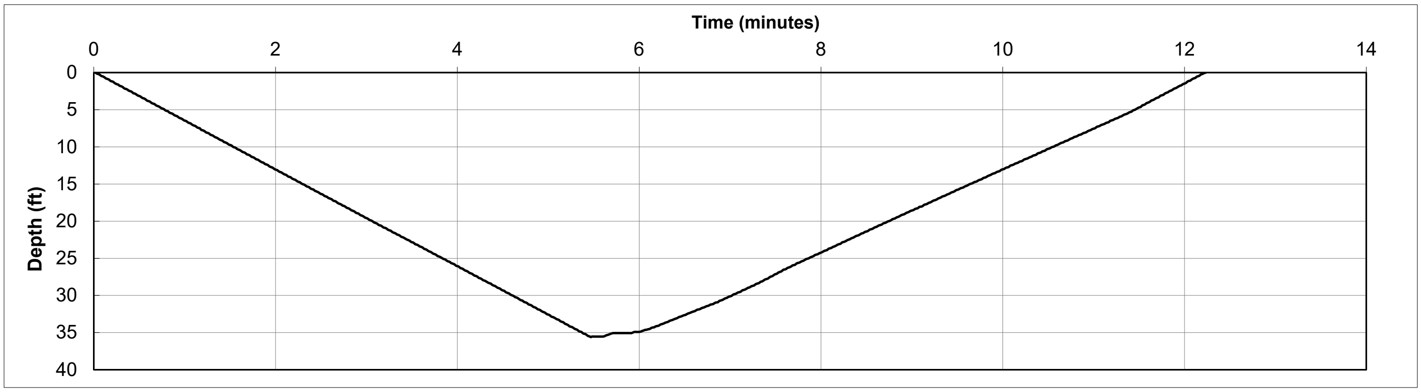
Project Site Data

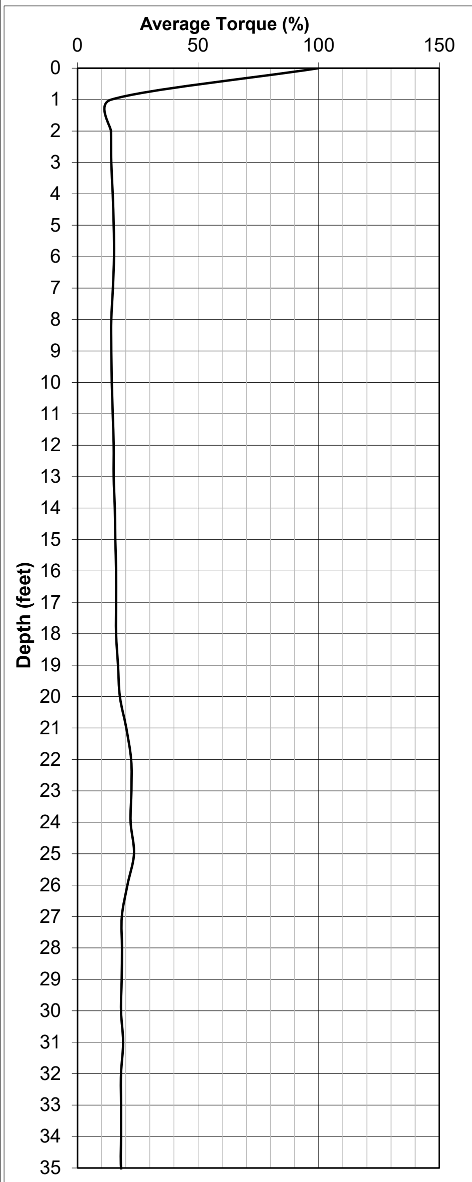
Data for Column No: 101

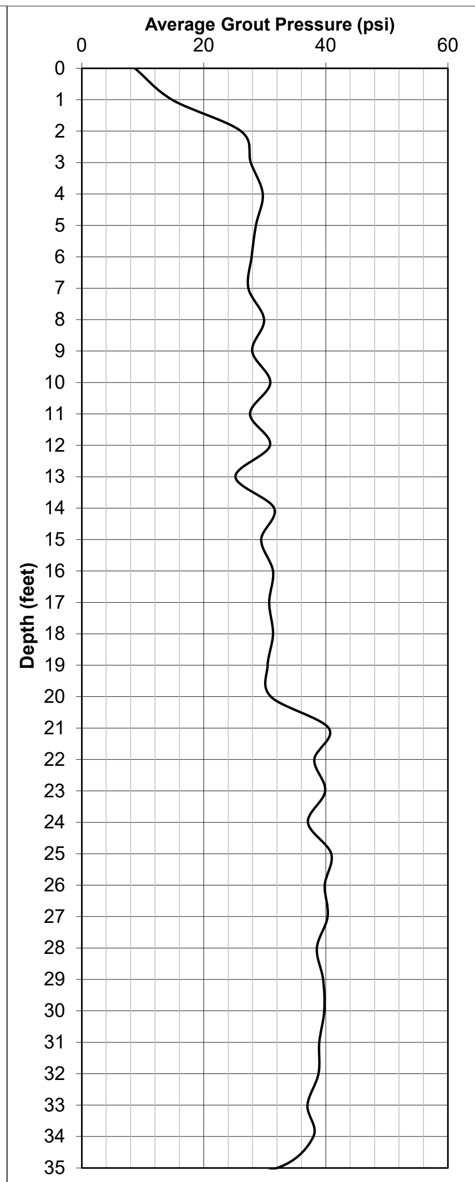
Project Name:	Oxnard College Fire Training	Date:	12/17/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:05 AM	Concrete Volume:	95.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:10 AM	Column Depth:	35.6	ft
		End Time:	9:17 AM	Pre Auger:		
		Total Time:	12 min			

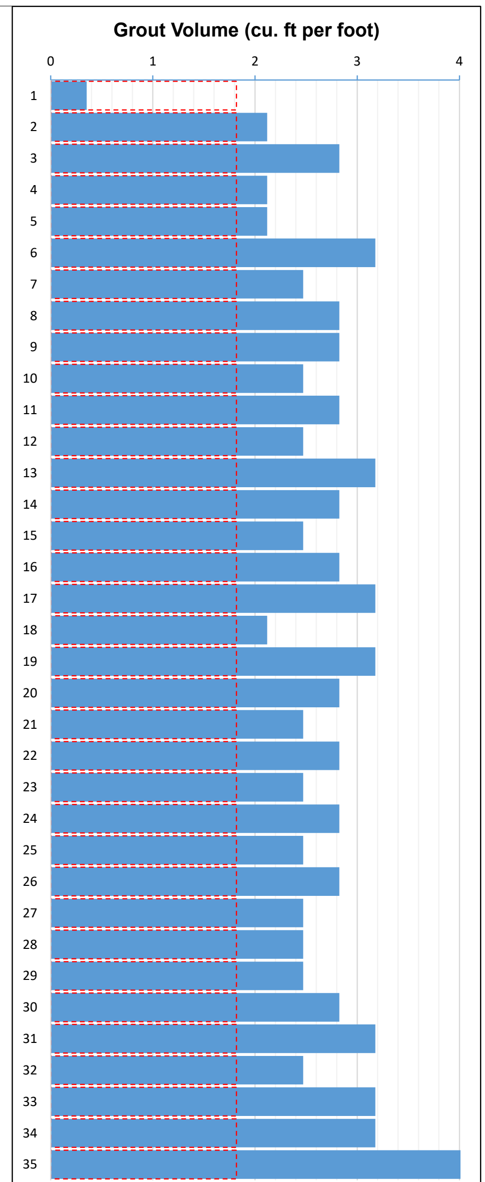
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

Project Site Data

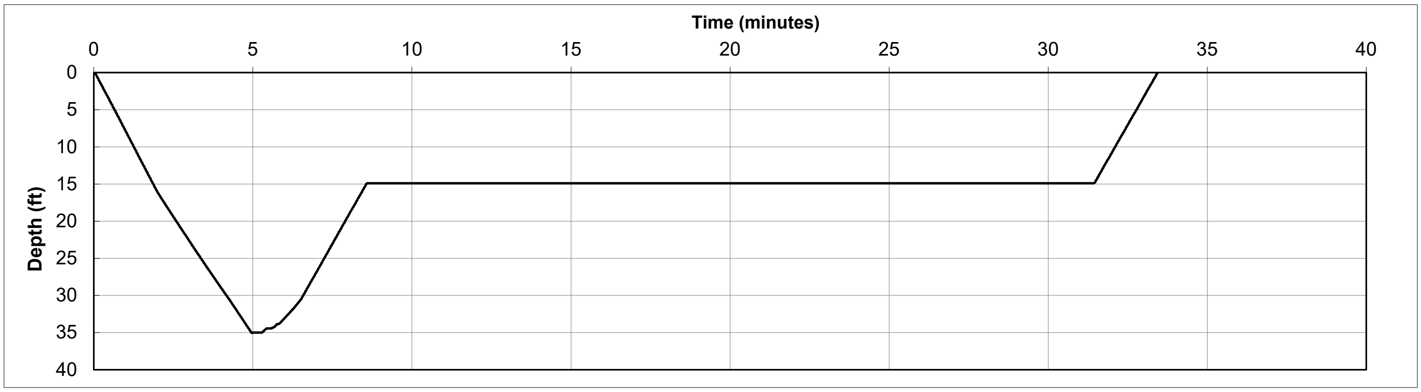
Data for Column No: 161

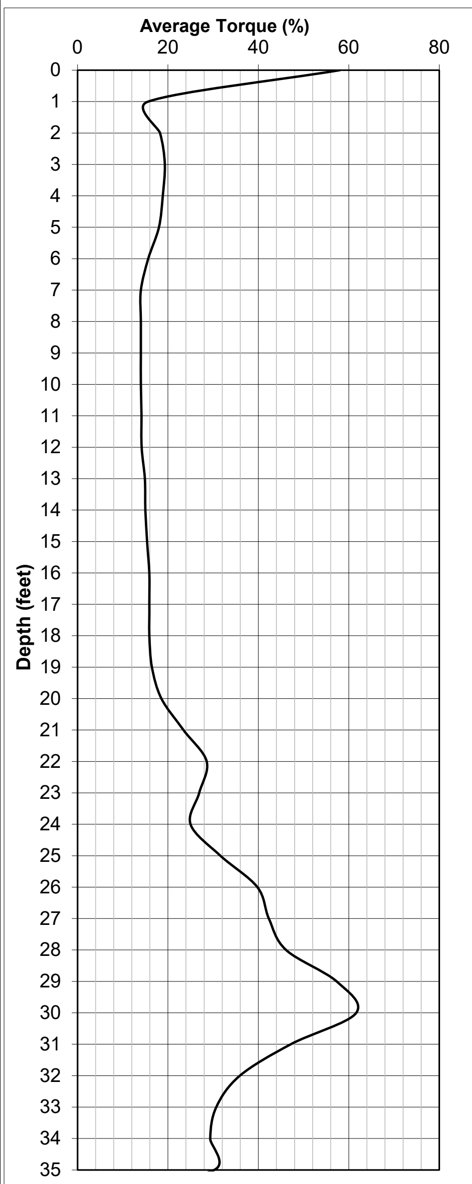
Project Name:	Oxnard College Fire Training	Date:	12/17/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:19 AM	Concrete Volume:	76.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:24 AM	Column Depth:	35.0	ft
		End Time:	9:53 AM	Pre Auger:		
		Total Time:	33 min			

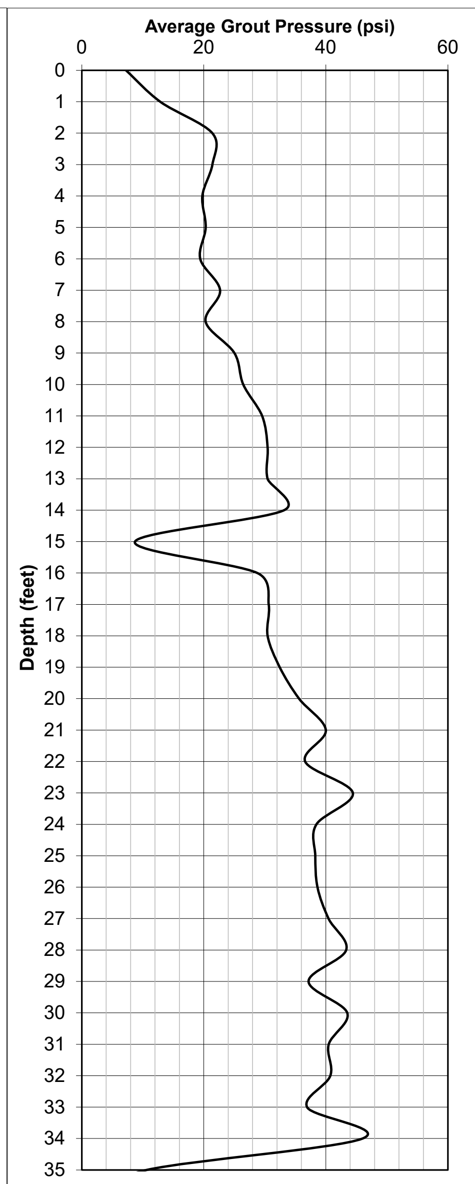
Rig Id: BG-30

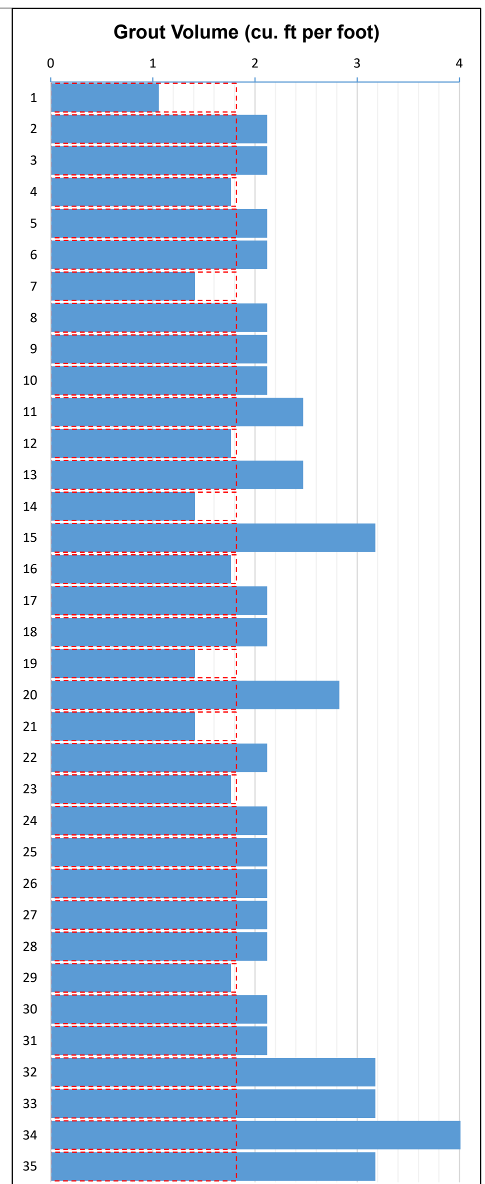
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

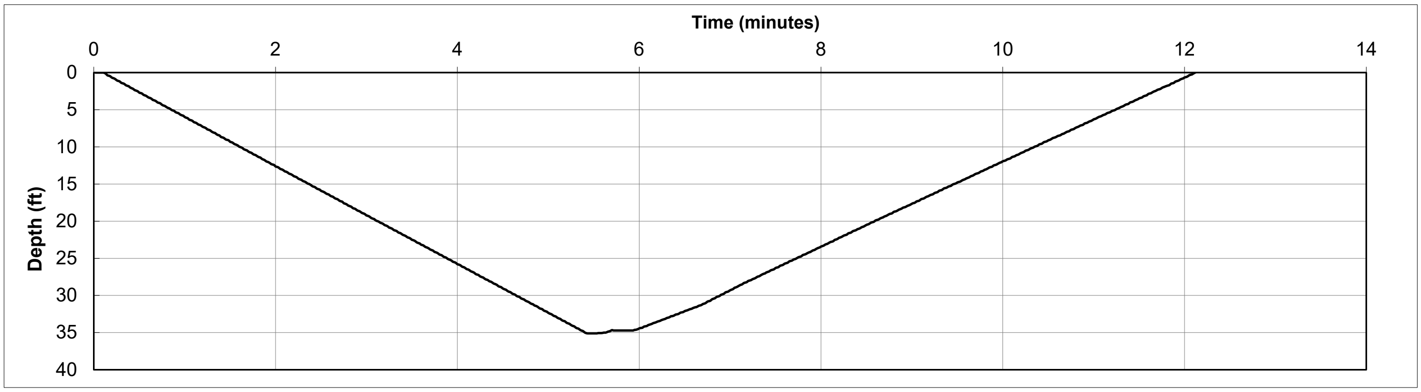
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

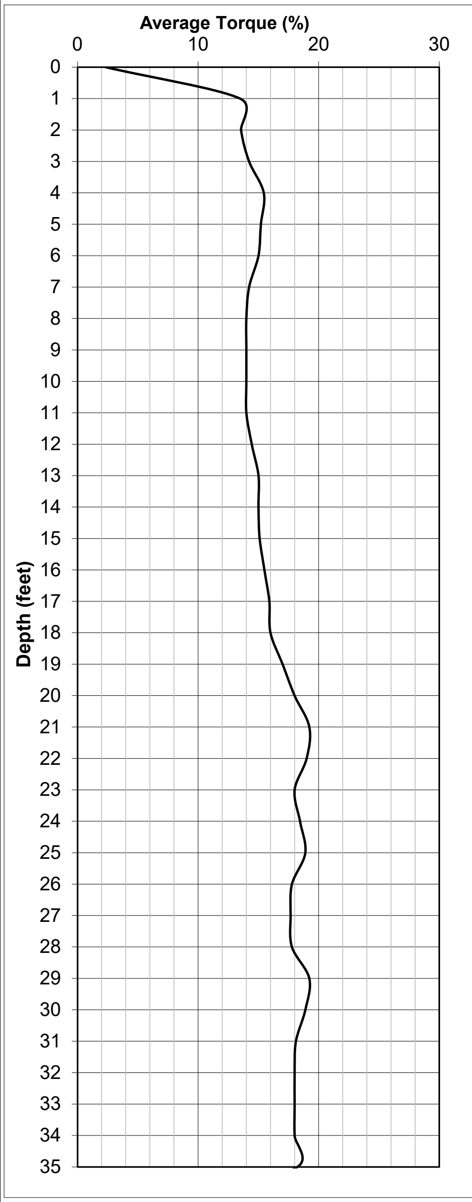
Project Site Data **Data for Column No: 205**

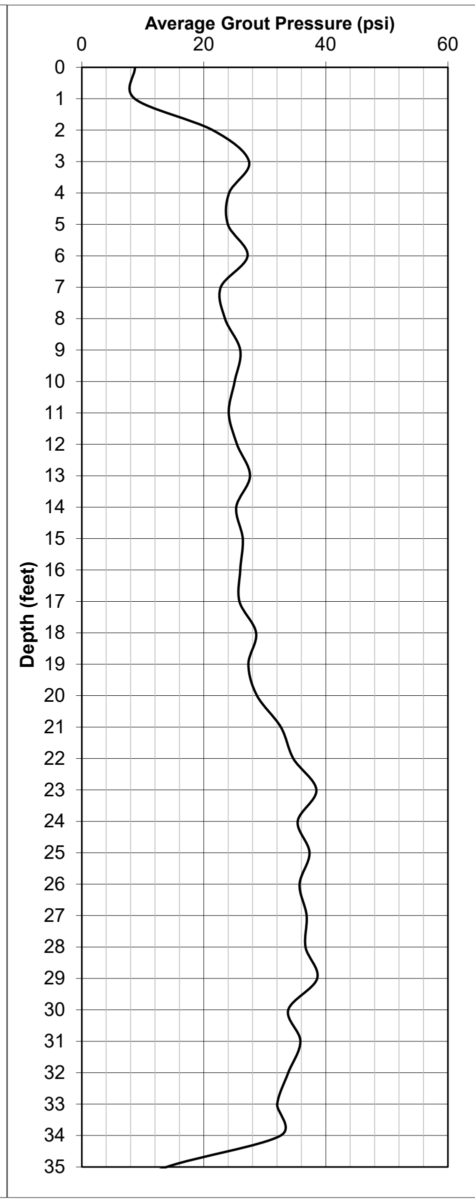
Project Name:	Oxnard College Fire Training	Date:	12/17/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:07 AM	Concrete Volume:	91.8	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:13 AM	Column Depth:	35.1	ft
		End Time:	10:19 AM	Pre Auger:		
		Total Time:	12 min			

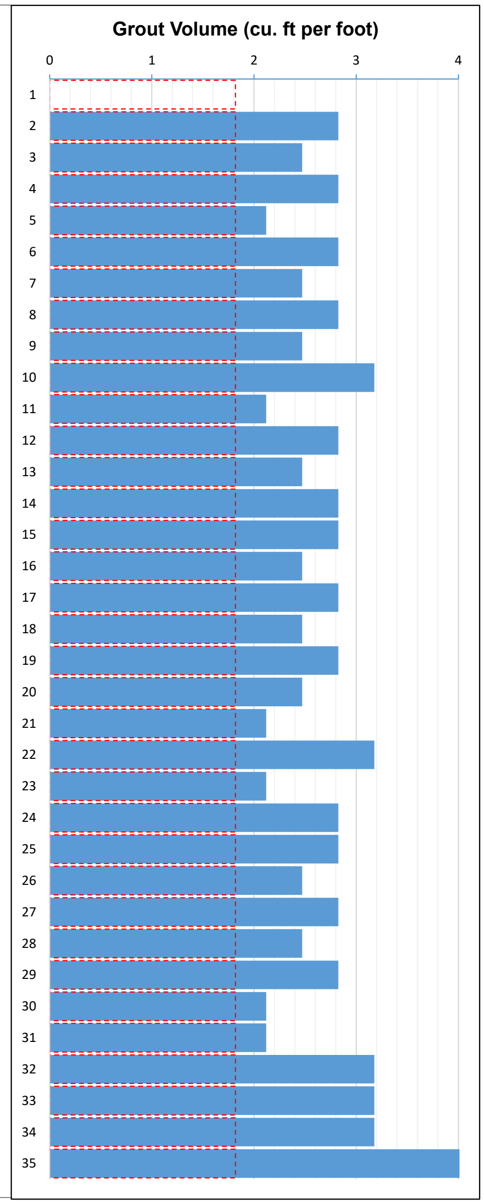
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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Lake Forest, CA 92630
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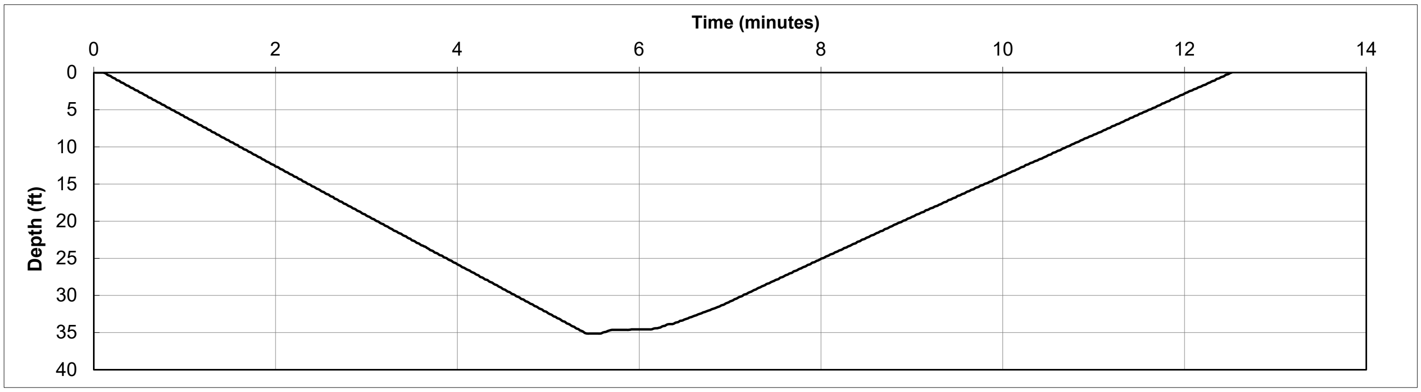
Project Site Data

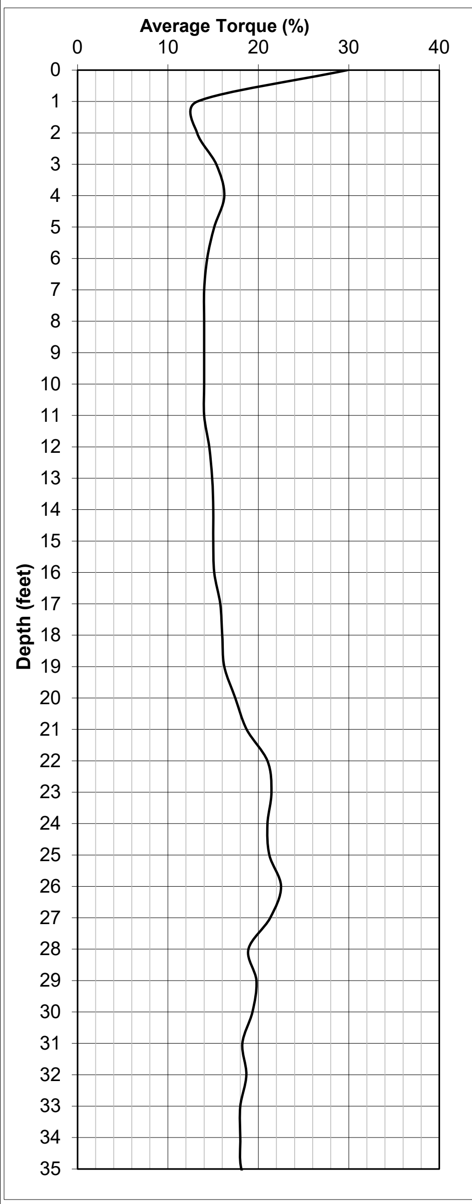
Data for Column No: 103

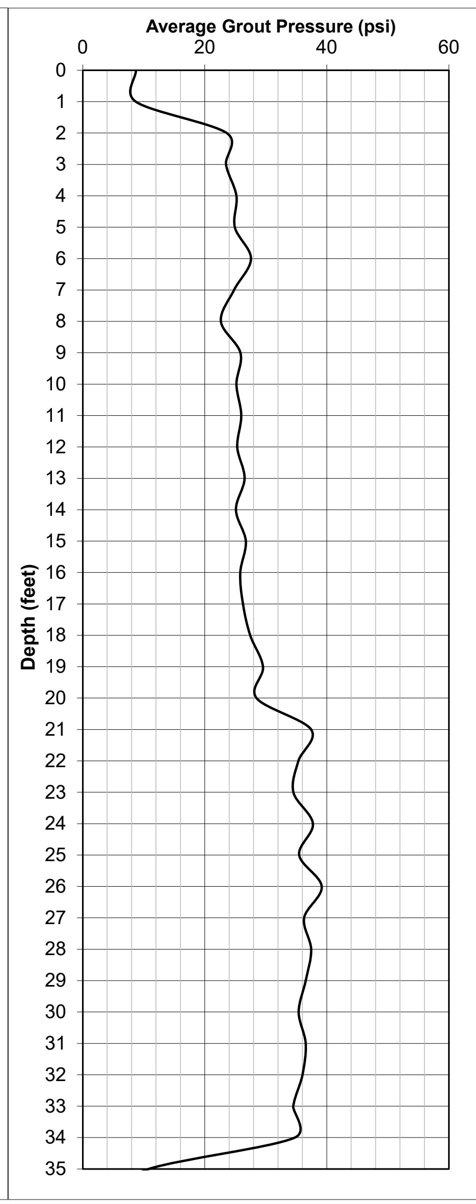
Project Name:	Oxnard College Fire Training	Date:	12/17/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:34 AM	Concrete Volume:	92.9	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:40 AM	Column Depth:	35.1	ft
		End Time:	10:47 AM	Pre Auger:		
		Total Time:	13 min			

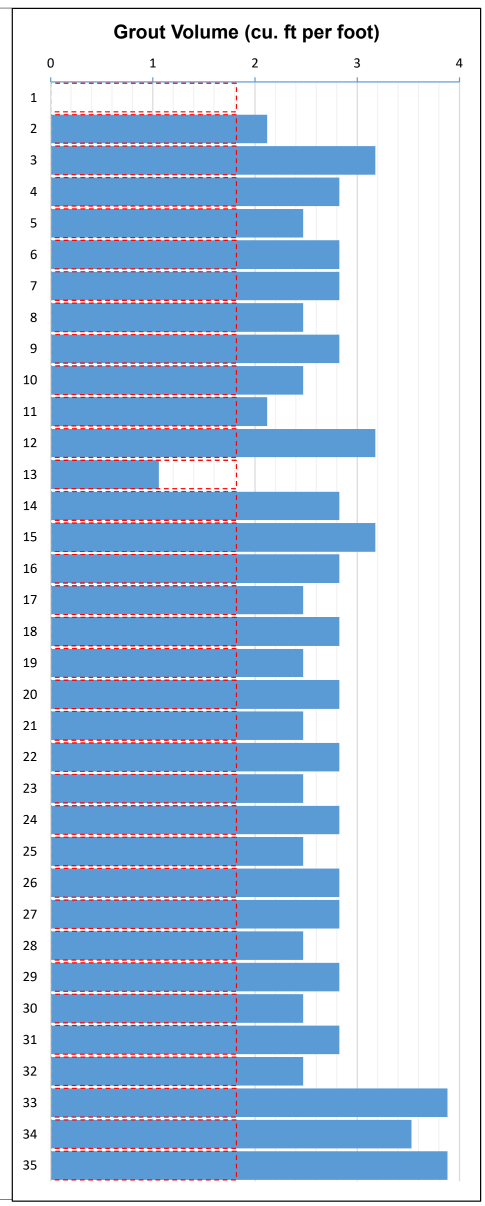
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

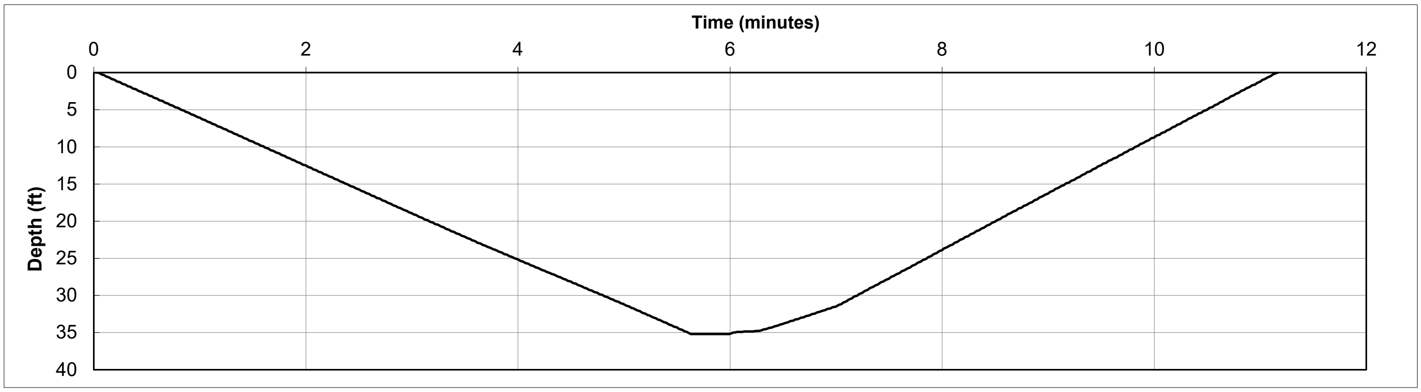
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

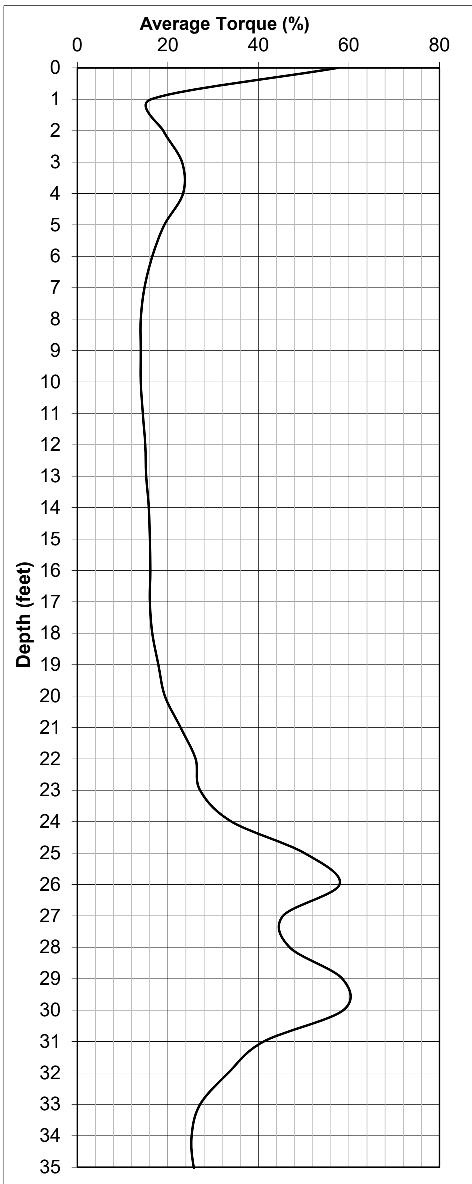
Project Site Data | **Data for Column No: 213**

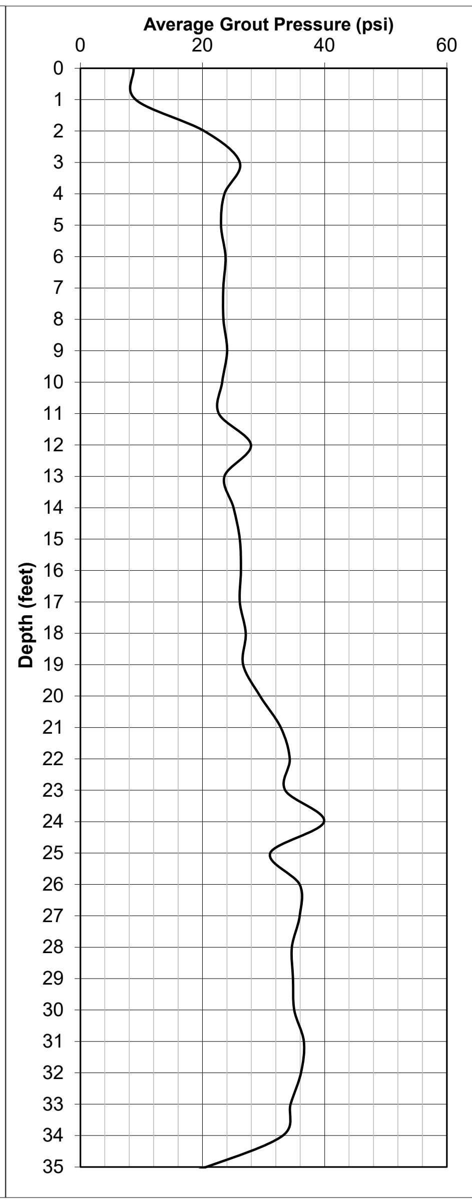
Project Name:	Oxnard College Fire Training	Date:	12/17/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:50 AM	Concrete Volume:	73.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:56 AM	Column Depth:	35.2	ft
		End Time:	11:01 AM	Pre Auger:		
		Total Time:	11 min			

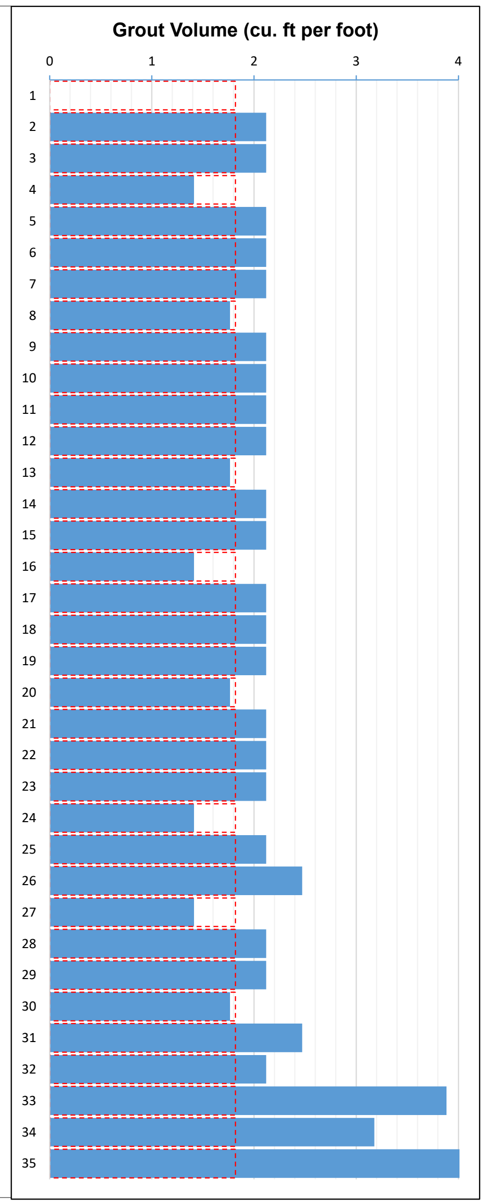
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

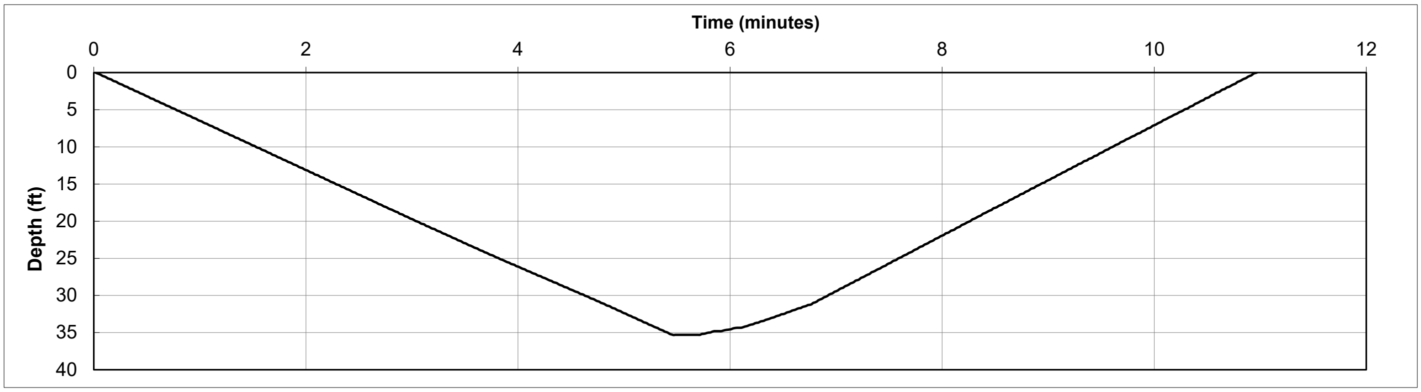
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

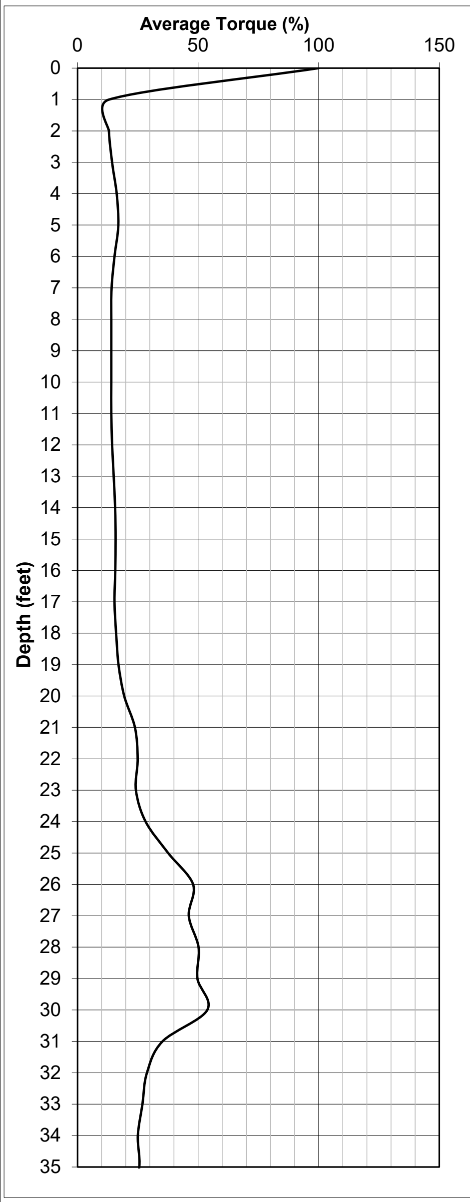
Project Site Data | **Data for Column No: 212**

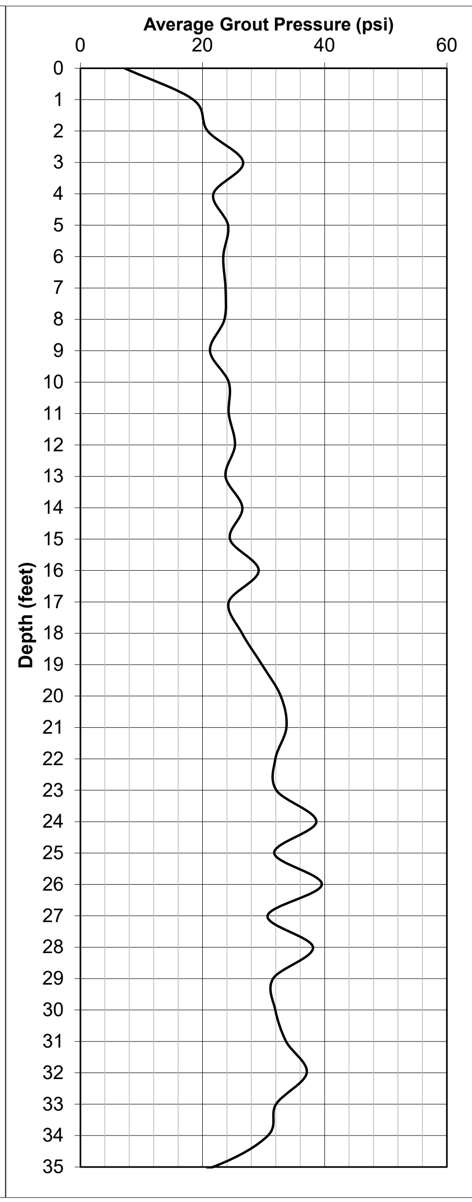
Project Name:	Oxnard College Fire Training	Date:	12/17/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:07 AM	Concrete Volume:	75.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:13 AM	Column Depth:	35.3	ft
		End Time:	11:18 AM	Pre Auger:		
		Total Time:	11 min			

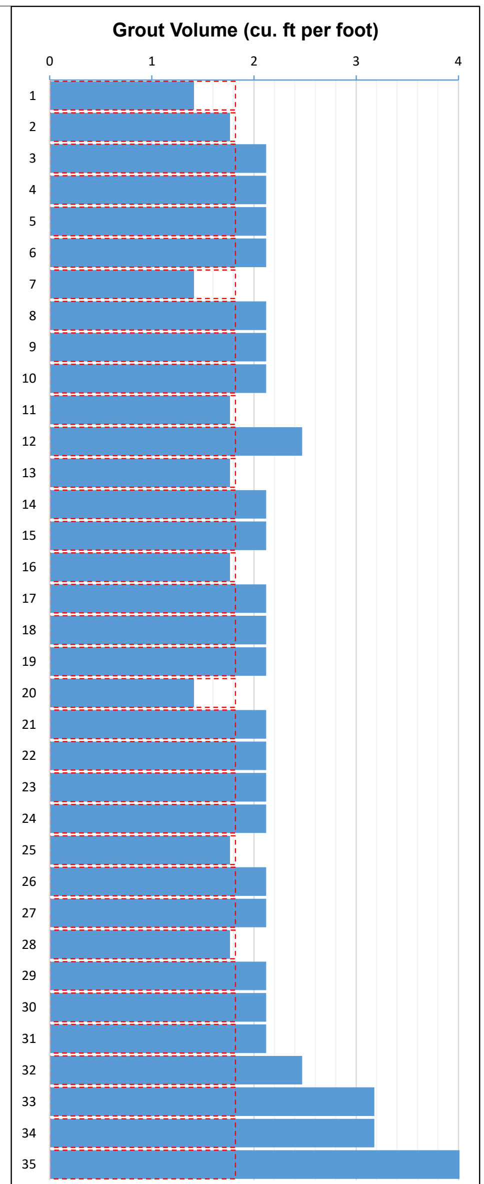
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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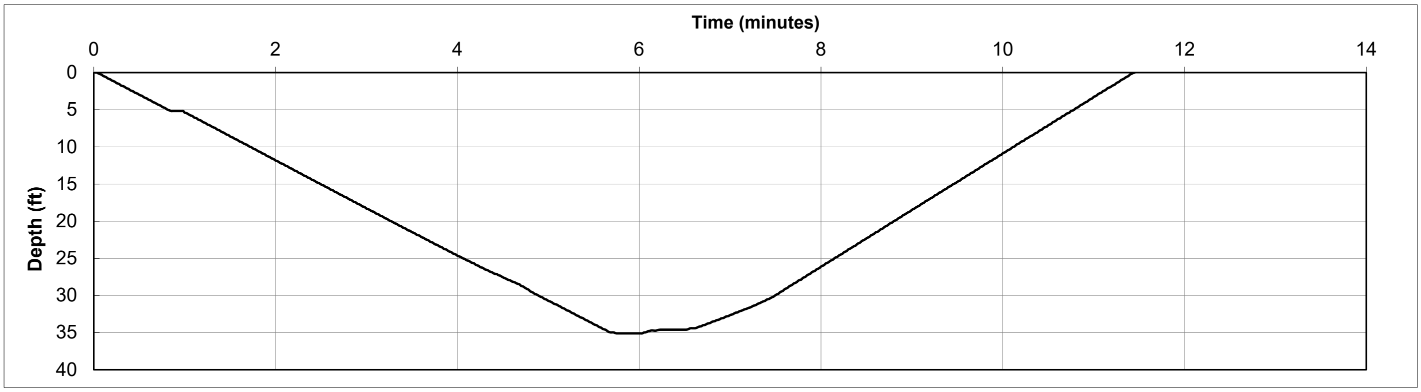
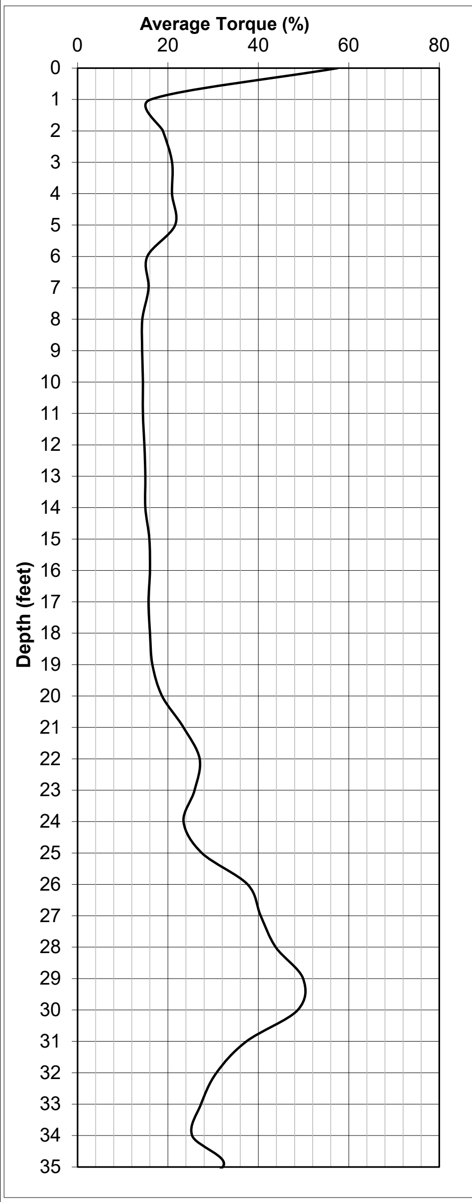
Project Site Data | **Data for Column No: 105**

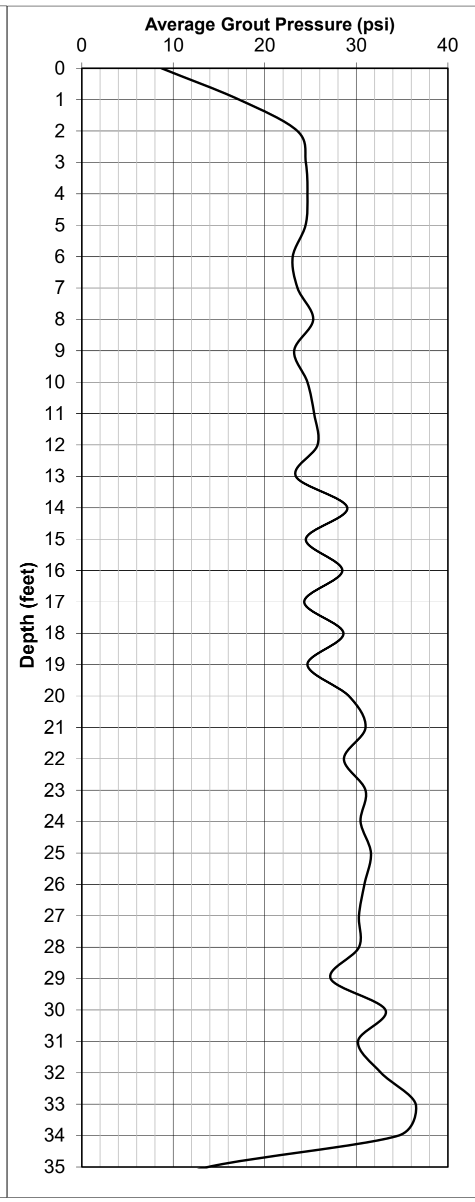
Project Name:	Oxnard College Fire Training	Date:	12/17/20	Nominal Diameter:	16 in
Project Location:	Camarillo, CA	Start Time:	11:21 AM	Concrete Volume:	75.2 cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:27 AM	Column Depth:	35.1 ft
		End Time:	11:33 AM	Pre Auger:	
		Total Time:	11 min		

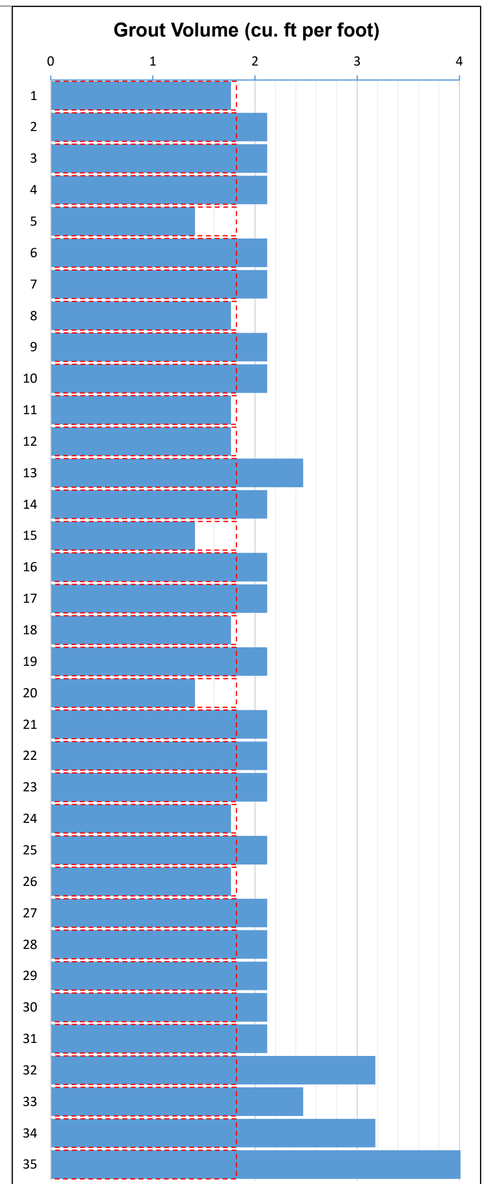
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

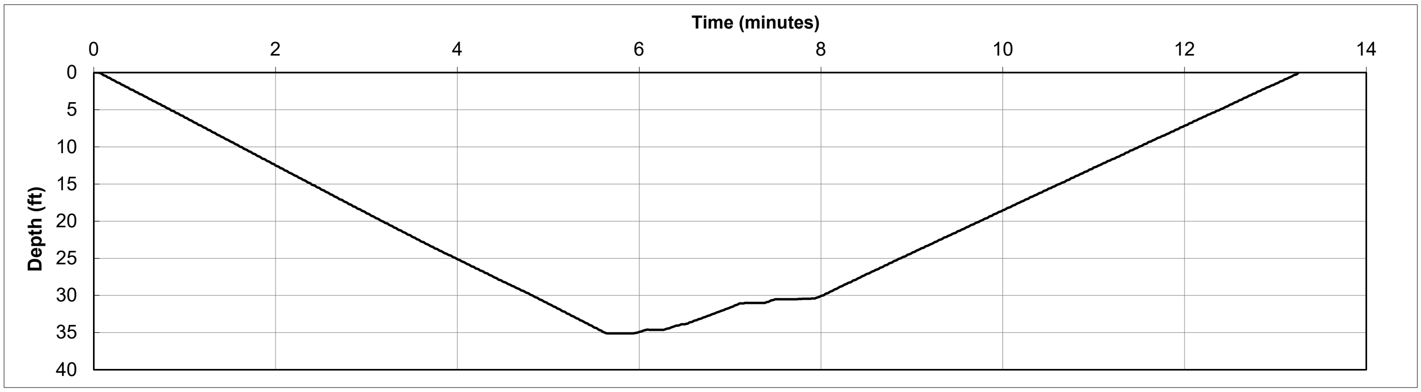
Project Site Data

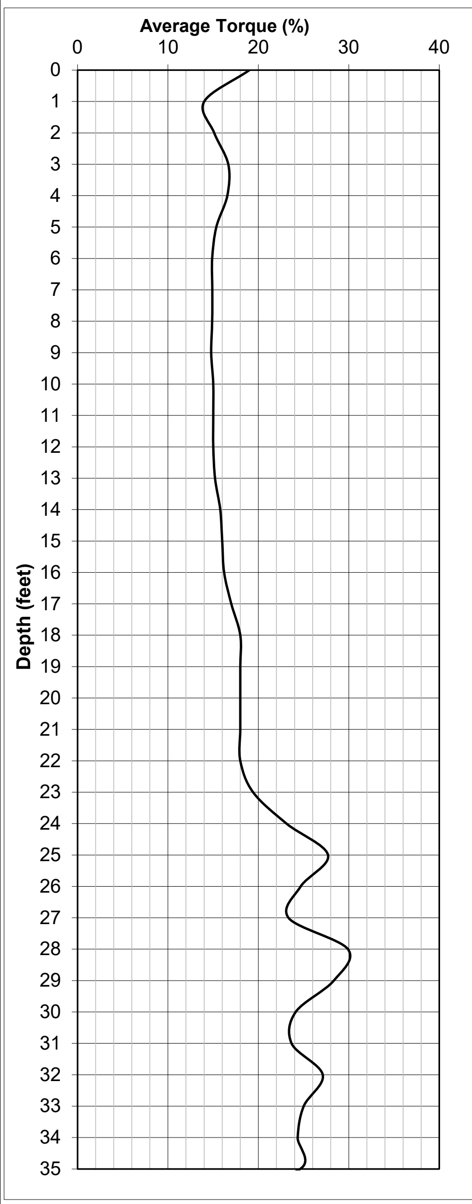
Data for Column No: 220

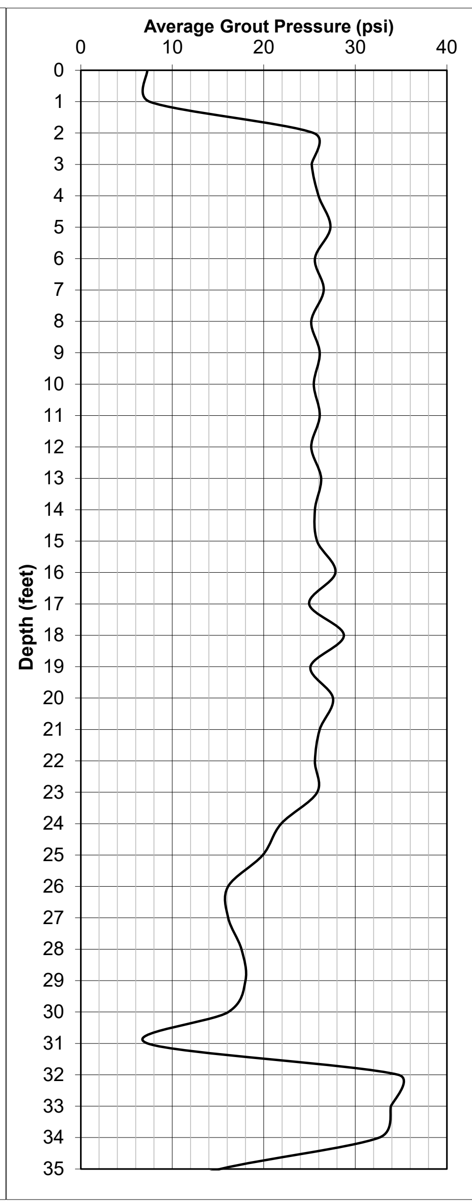
Project Name:	Oxnard College Fire Training	Date:	12/17/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:35 AM	Concrete Volume:	98.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:41 AM	Column Depth:	35.1	ft
		End Time:	12:28 PM	Pre Auger:		
		Total Time:	52 min			

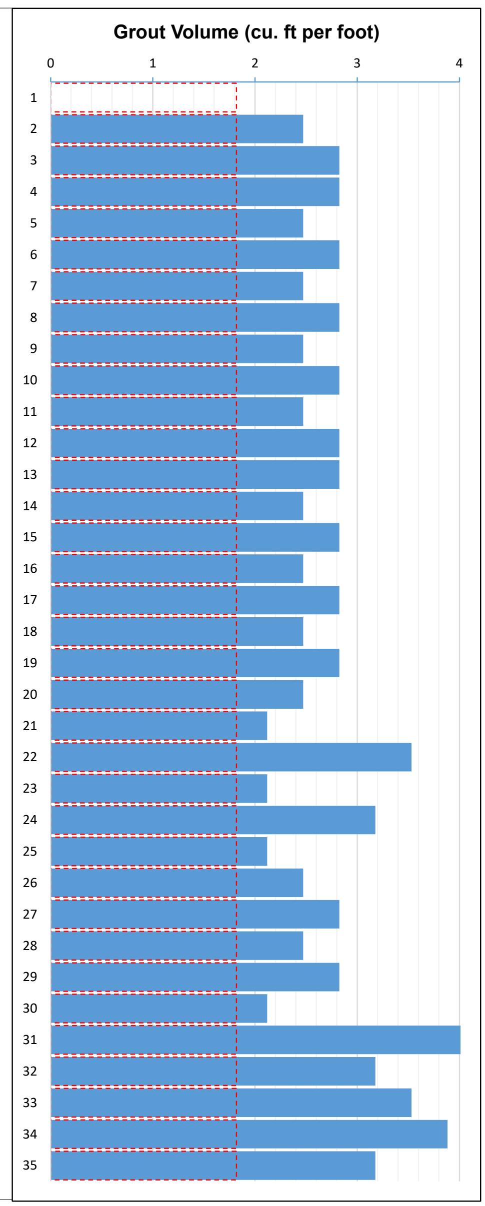
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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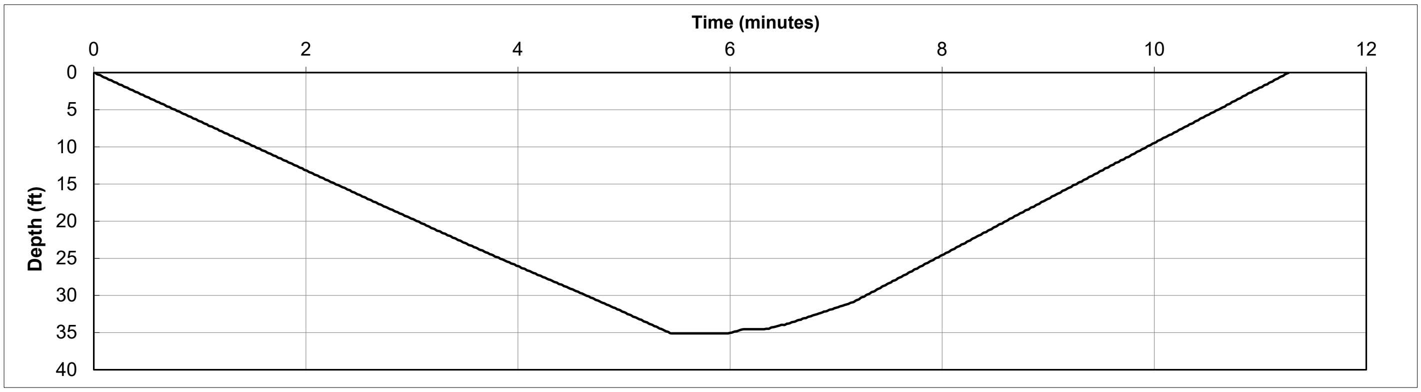
Lake Forest, CA 92630
P: 310-796-9000

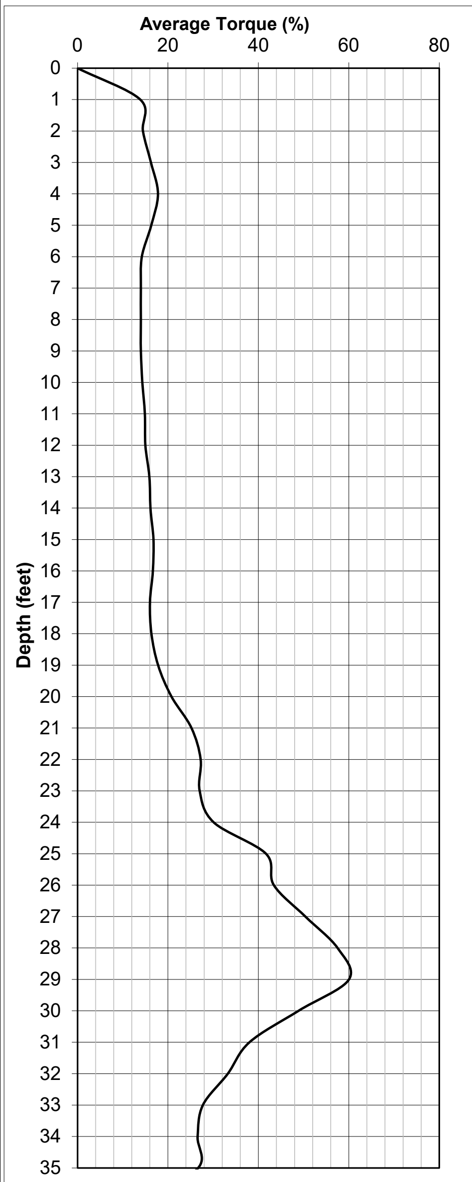
Project Site Data | **Data for Column No: 219**

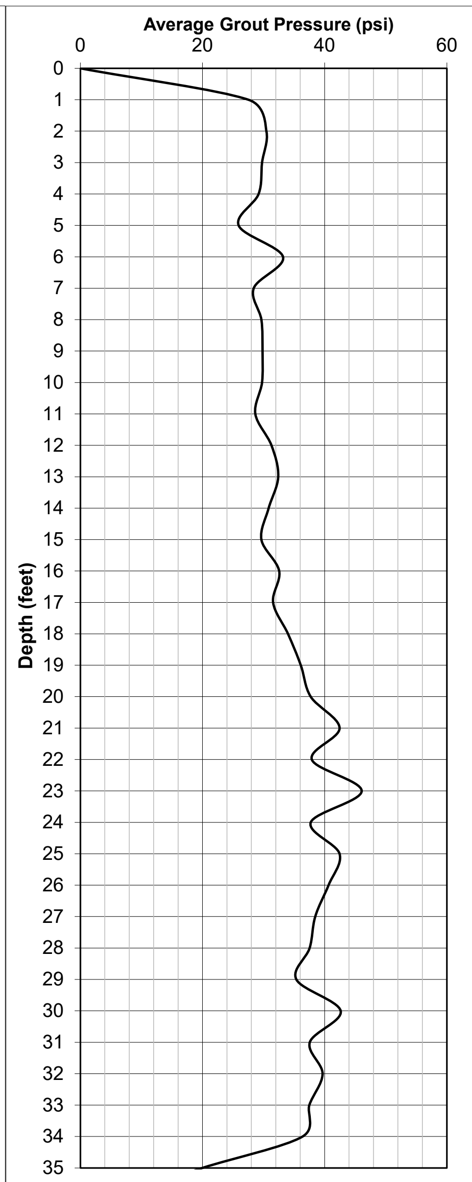
Project Name:	Oxnard College Fire Training	Date:	12/17/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:28 PM	Concrete Volume:	76.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:34 PM	Column Depth:	35.1	ft
		End Time:	2:39 PM	Pre Auger:		
		Total Time:	11 min			

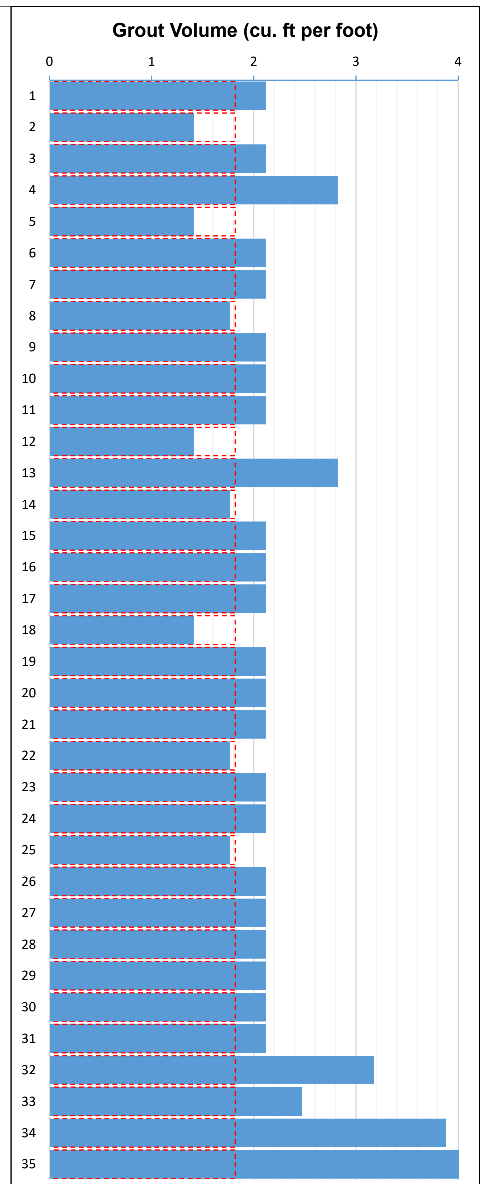
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

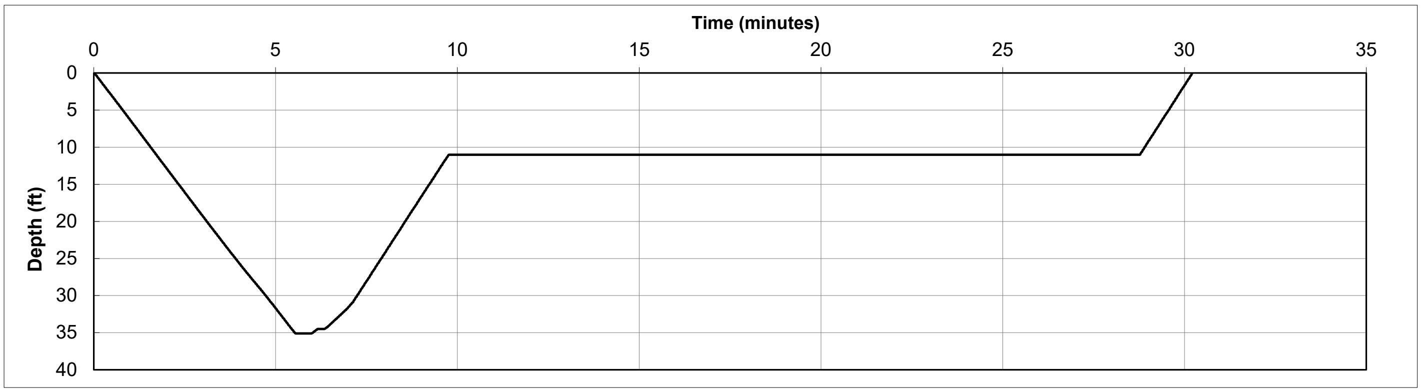
Project Site Data

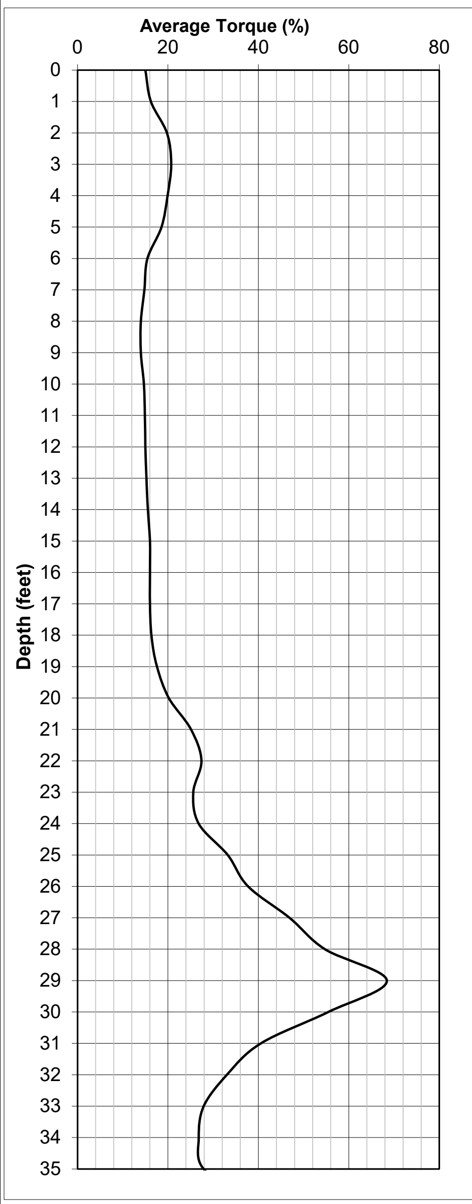
Data for Column No: 107

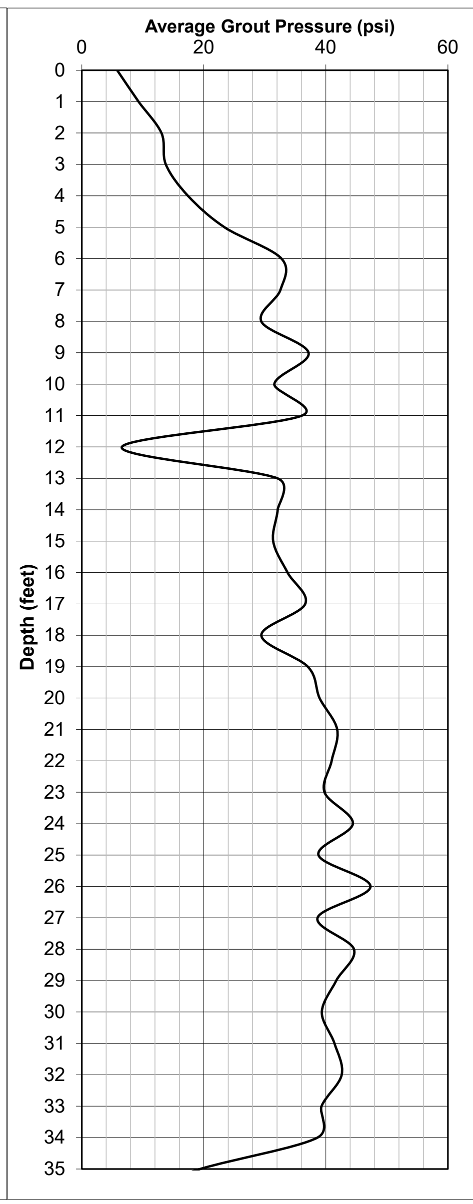
Project Name:	Oxnard College Fire Training	Date:	12/17/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:42 PM	Concrete Volume:	74.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:48 PM	Column Depth:	35.1	ft
		End Time:	3:13 PM	Pre Auger:		
		Total Time:	30 min			

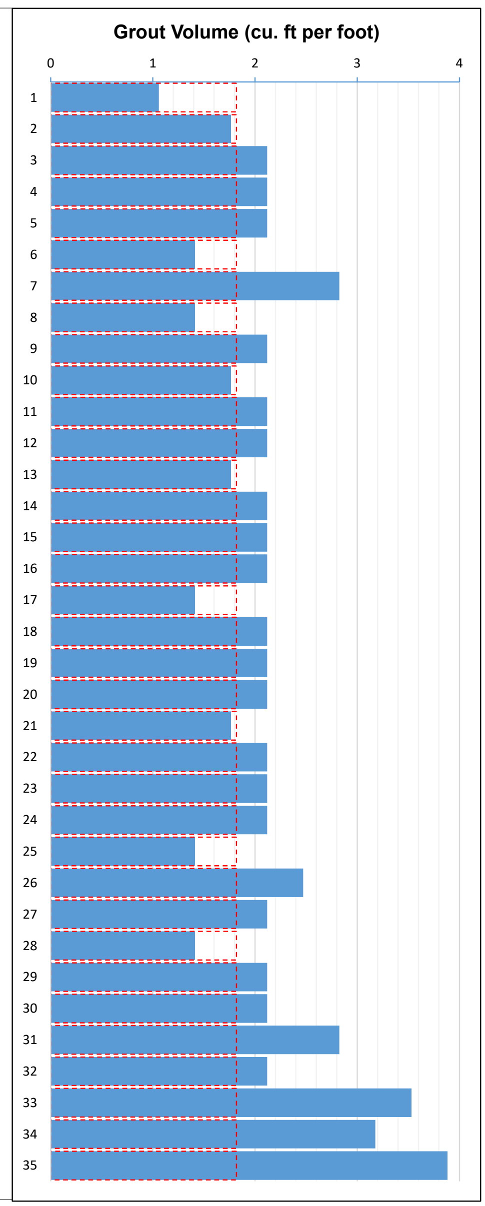
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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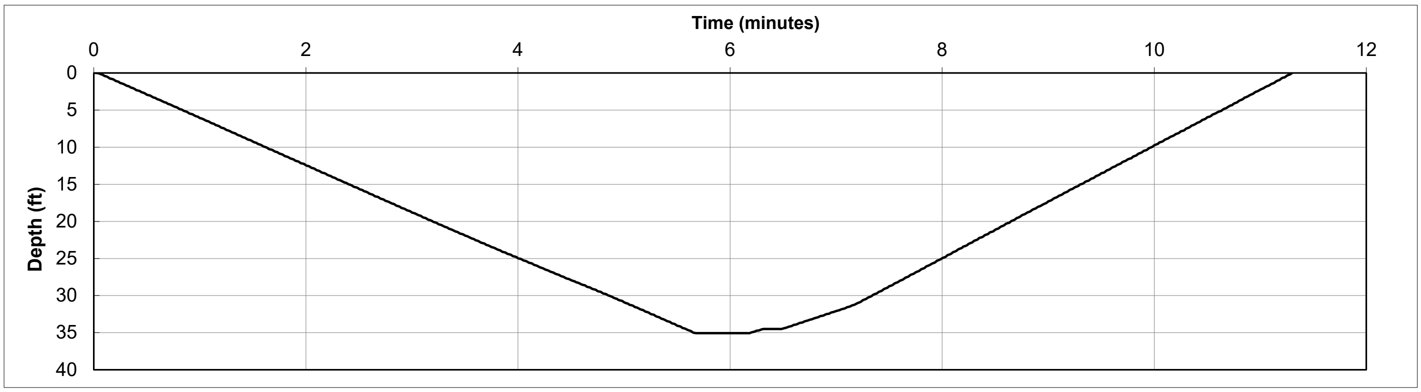
P: 310-796-9000

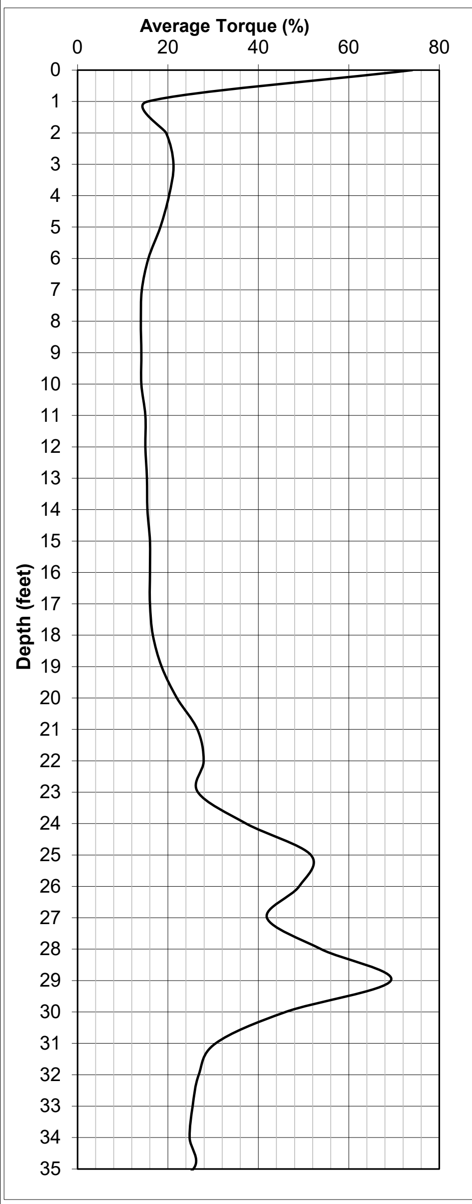
Project Site Data | **Data for Column No: 227**

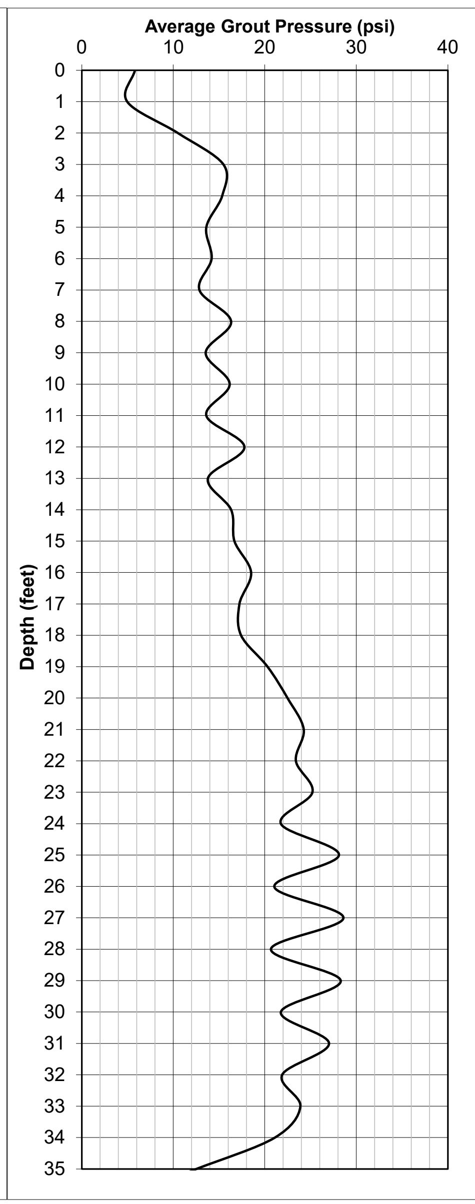
Project Name:	Oxnard College Fire Training	Date:	12/17/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	3:16 PM	Concrete Volume:	72.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	3:22 PM	Column Depth:	35.1	ft
		End Time:	3:27 PM	Pre Auger:		
		Total Time:	11 min			

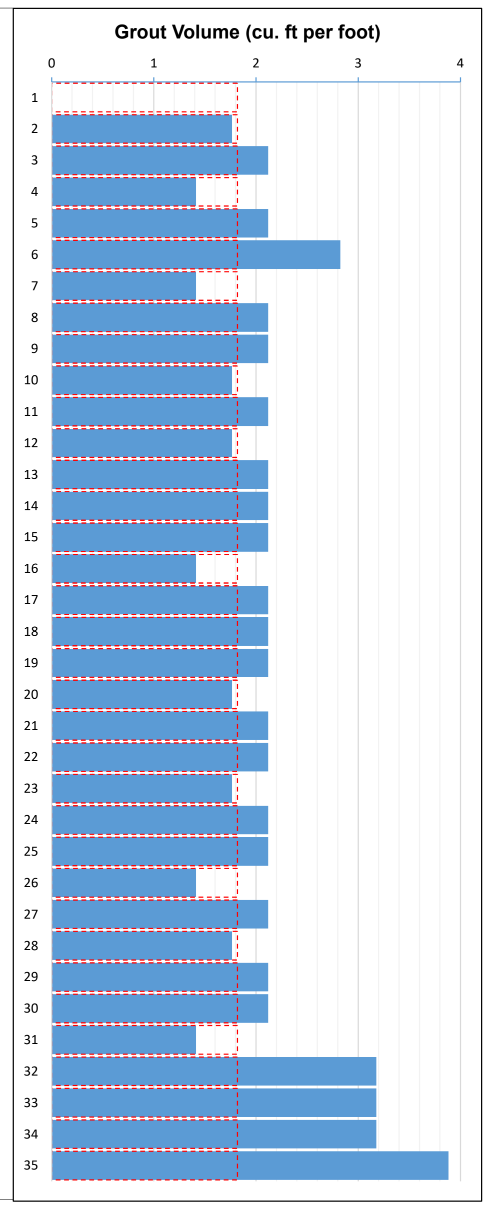
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

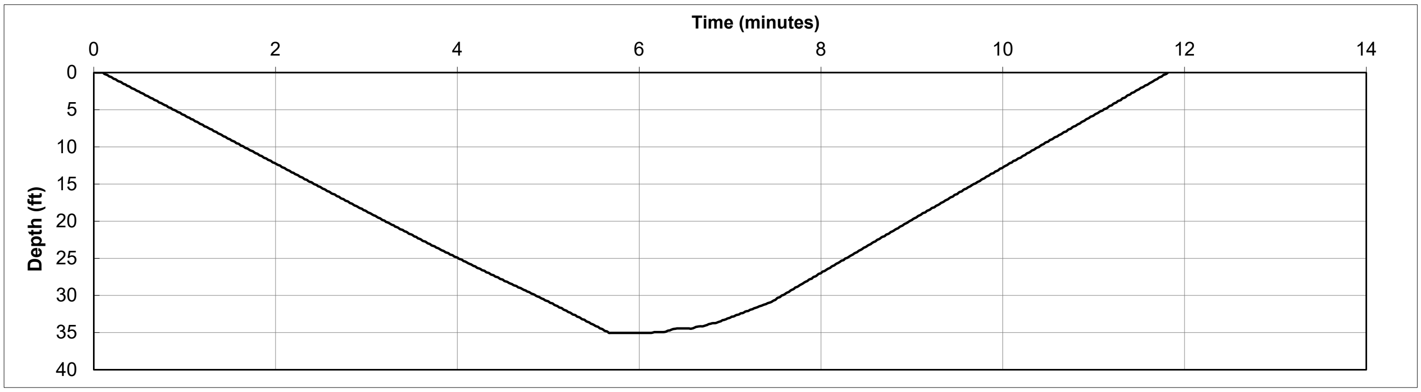
Project Site Data

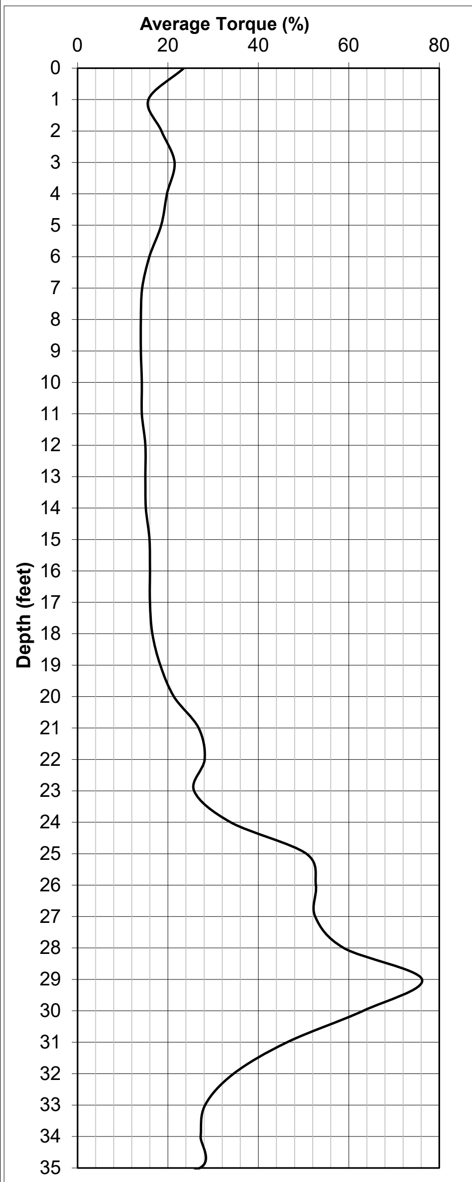
Data for Column No: 226

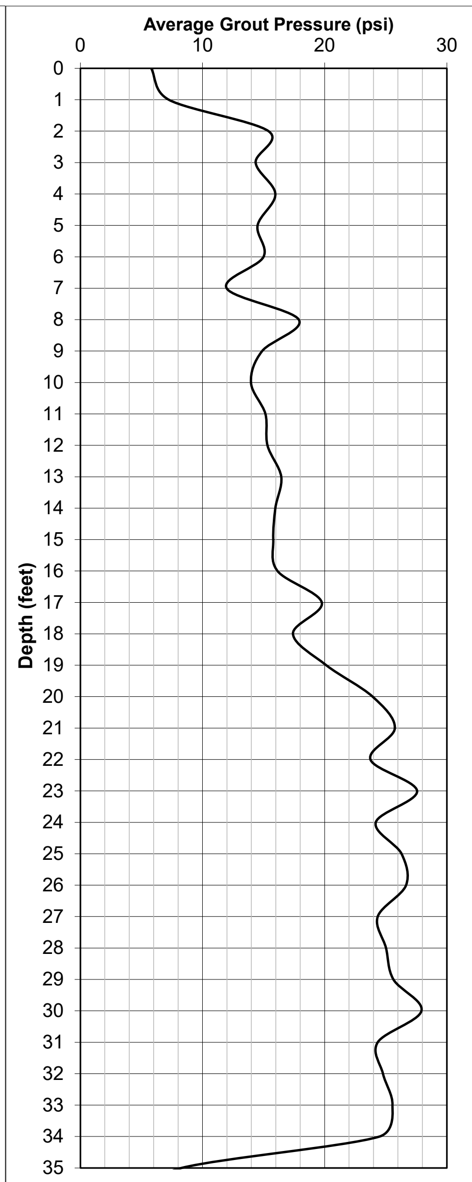
Project Name:	Oxnard College Fire Training	Date:	12/17/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	3:30 PM	Concrete Volume:	77.7	cubic ft
General Contractor:	Oxnard College	Bottom Time:	3:36 PM	Column Depth:	35.0	ft
		End Time:	3:42 PM	Pre Auger:		
		Total Time:	12 min			

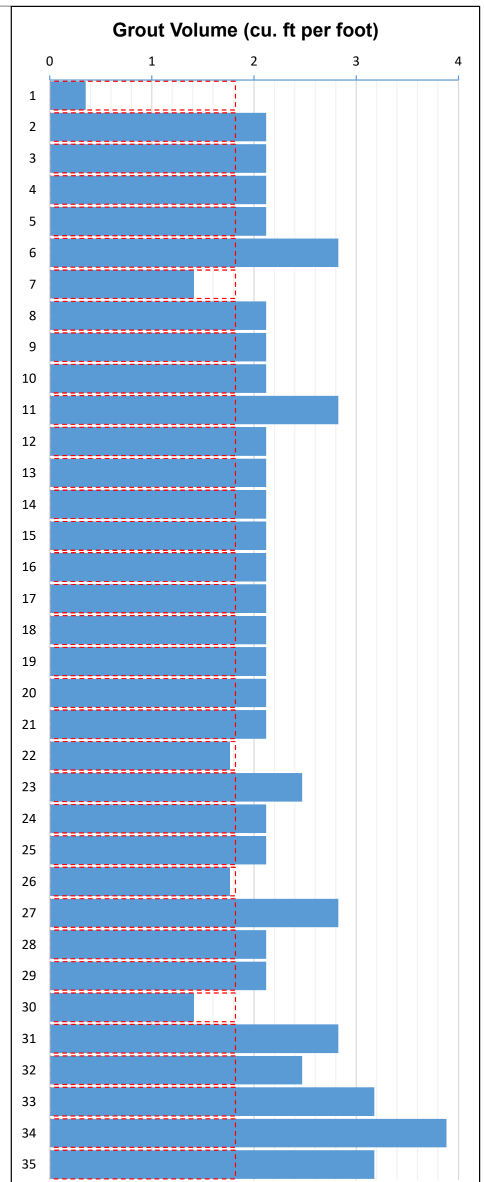
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









ADVANCED GEOSOLUTIONS INC
Daily Production Summary- Displacement Grout Columns

Project No. :	**P271275**	Date:	Friday, December 18, 2020
Project Name:	Oxnard College Fire Training Academy		
Rig:	BG-30		
Rig Operator:	James "Smitty" Smith		
Oiler:	Benny Sandoval		

Seq. No	Rig No.	Col. ID	Start Time	Bottom Time	End Time	Surface Elev.	Column Depth (ft)	*Act. Tip Elev.*	Concrete Volume (cu. feet)	Truck ID	Comments
1		109	10:04	10:10	10:16	74.4	35.1	39.3	93	42607813	
2		234	10:54	11:00	11:07	74.4	35.2	39.2	96	42607813	
3		233	11:09	11:15	11:20	74.4	35.0	39.4	76	42607837	

DGC Log Sheet

Advanced Geosolutions Inc
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P: 310-796-9000

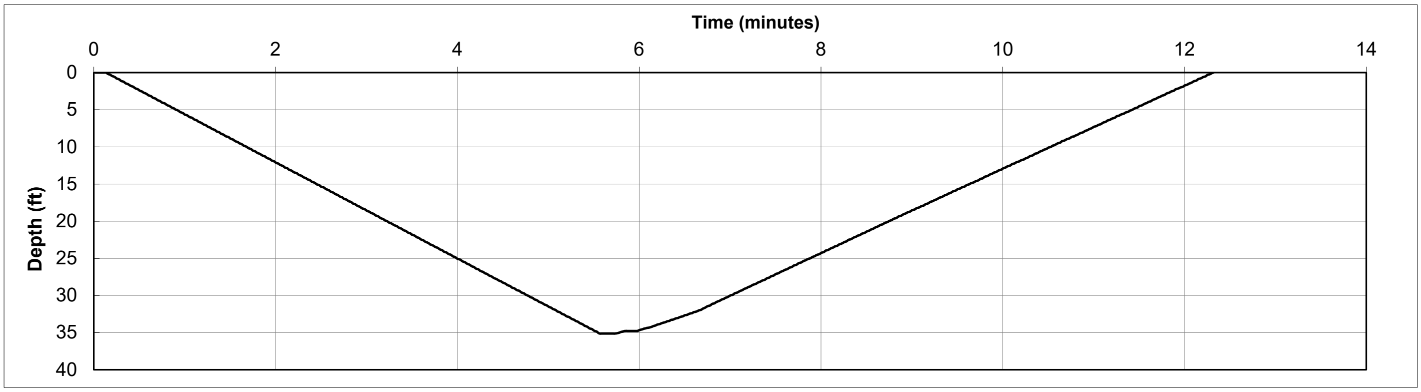
Project Site Data

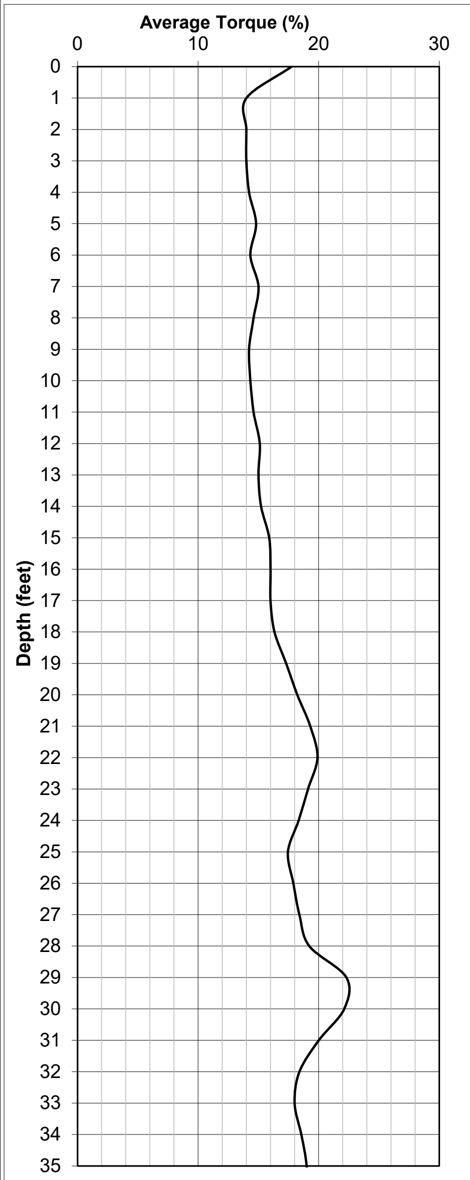
Data for Column No: 109

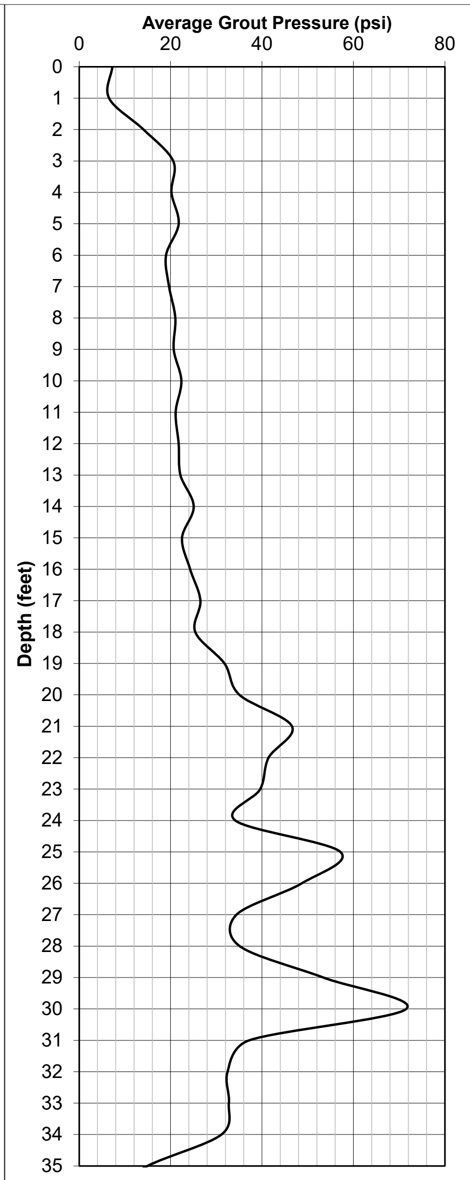
Project Name:	Oxnard College Fire Training	Date:	12/18/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:04 AM	Concrete Volume:	93.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:10 AM	Column Depth:	35.1	ft
		End Time:	10:16 AM	Pre Auger:		
		Total Time:	12 min			

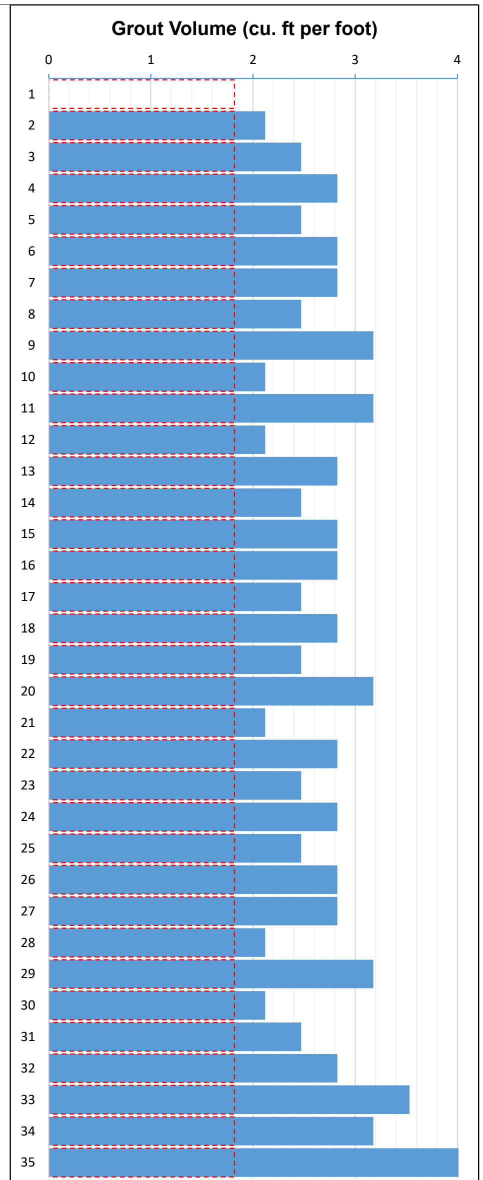
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

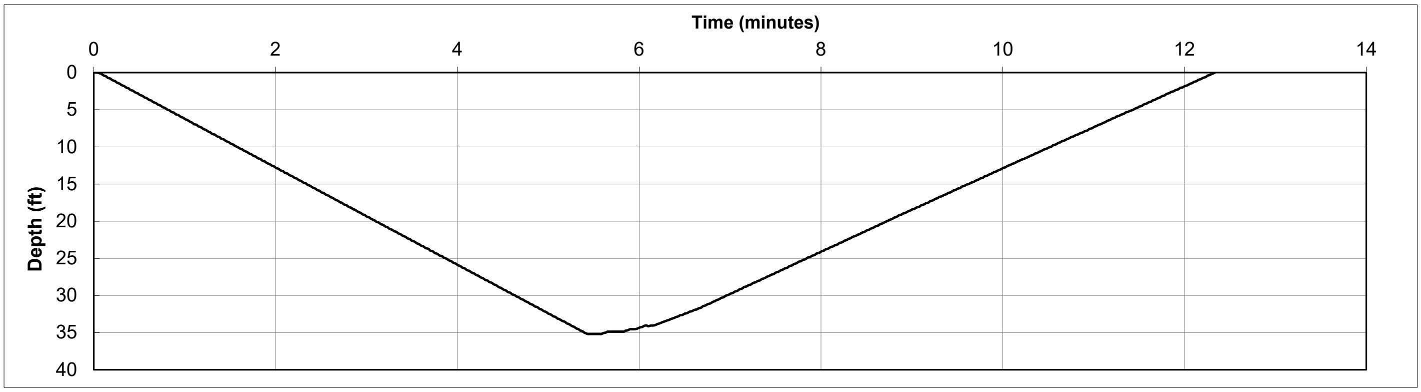
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

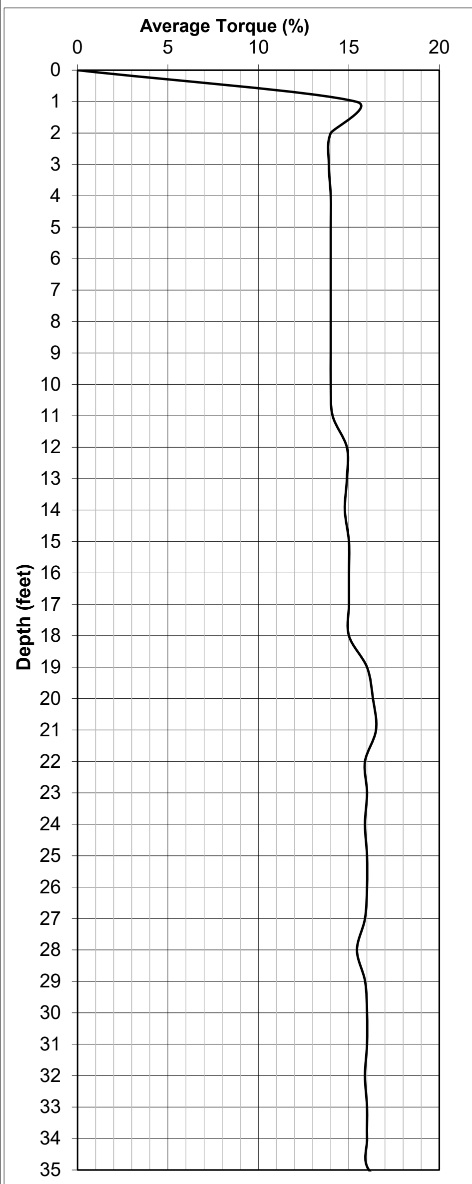
Project Site Data — **Data for Column No: 234**

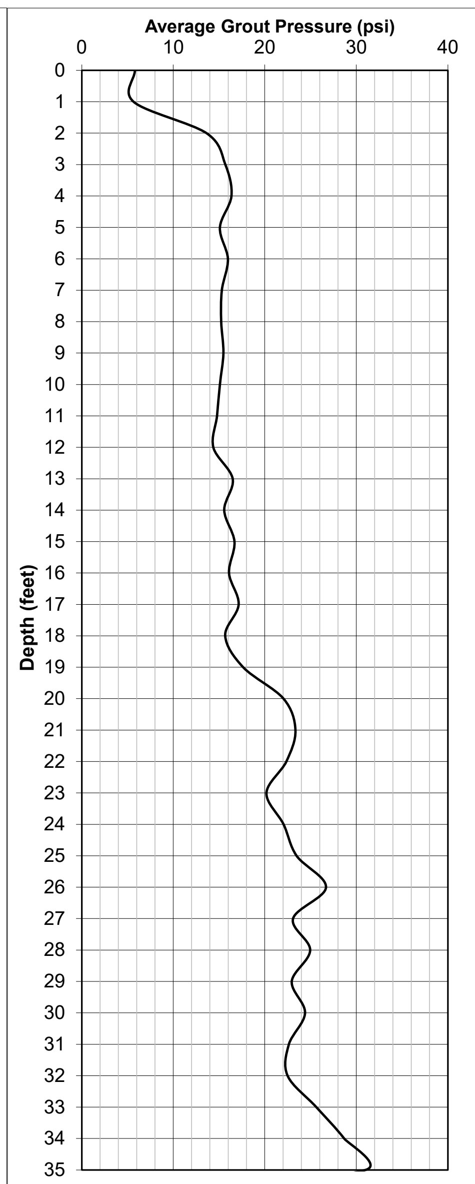
Project Name:	Oxnard College Fire Training	Date:	12/18/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:54 AM	Concrete Volume:	96.4	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:00 AM	Column Depth:	35.2	ft
		End Time:	11:07 AM	Pre Auger:		
		Total Time:	12 min			

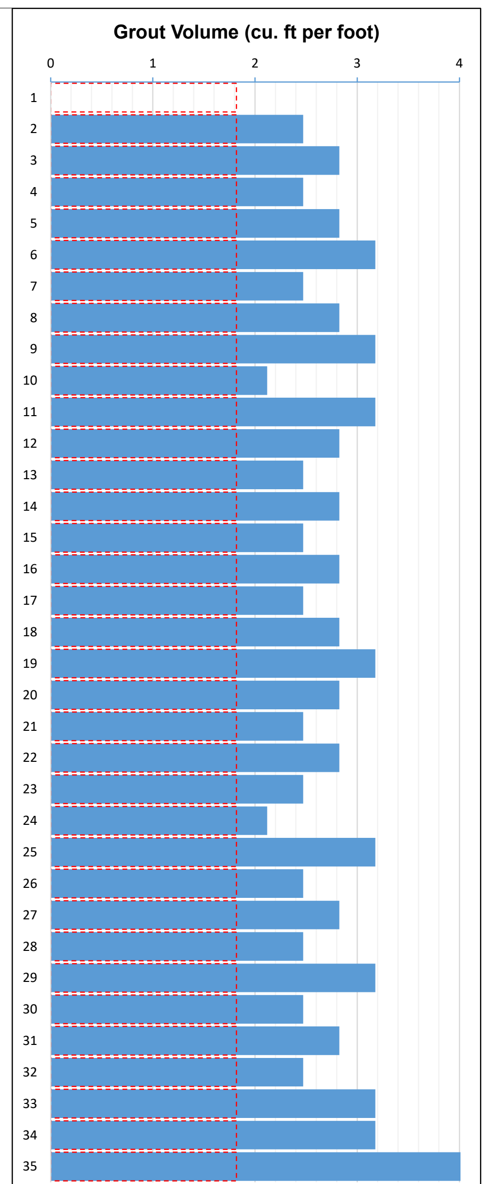
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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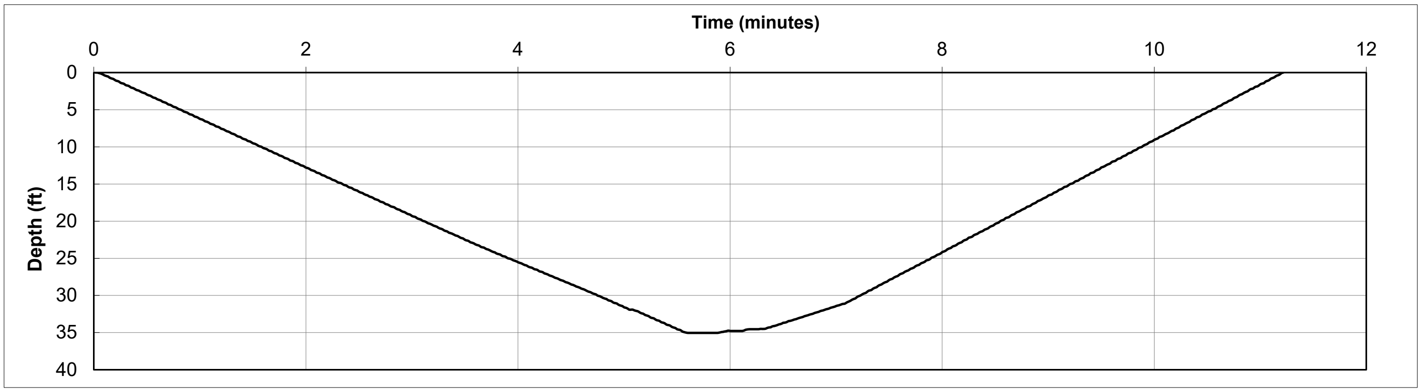
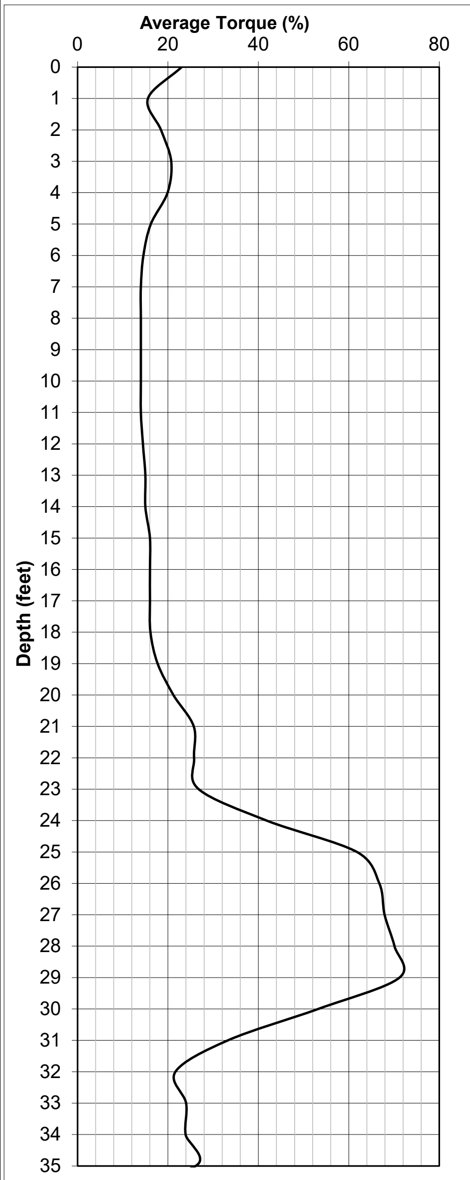
Project Site Data | **Data for Column No: 233**

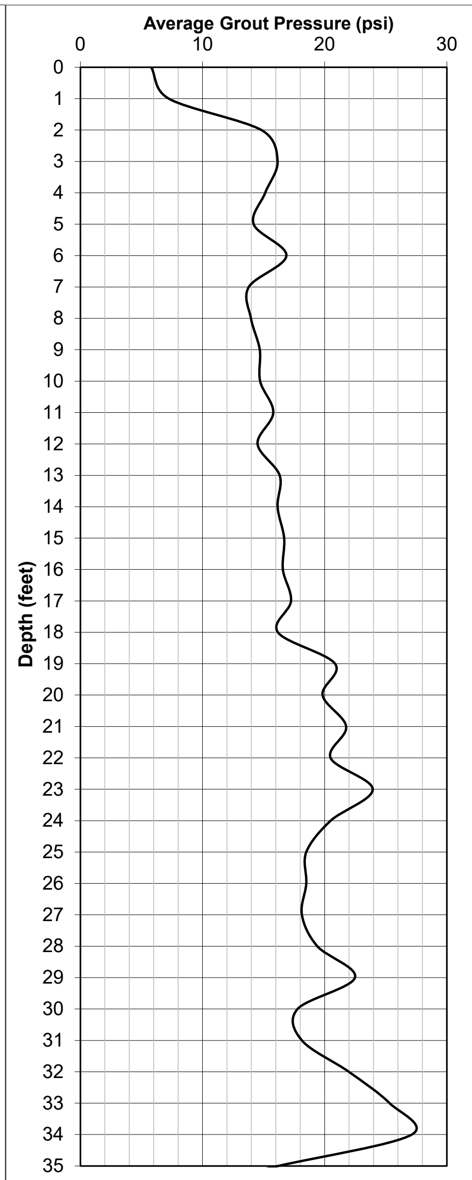
Project Name:	Oxnard College Fire Training	Date:	12/18/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:09 AM	Concrete Volume:	76.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:15 AM	Column Depth:	35.0	ft
		End Time:	11:20 AM	Pre Auger:		
		Total Time:	11 min			

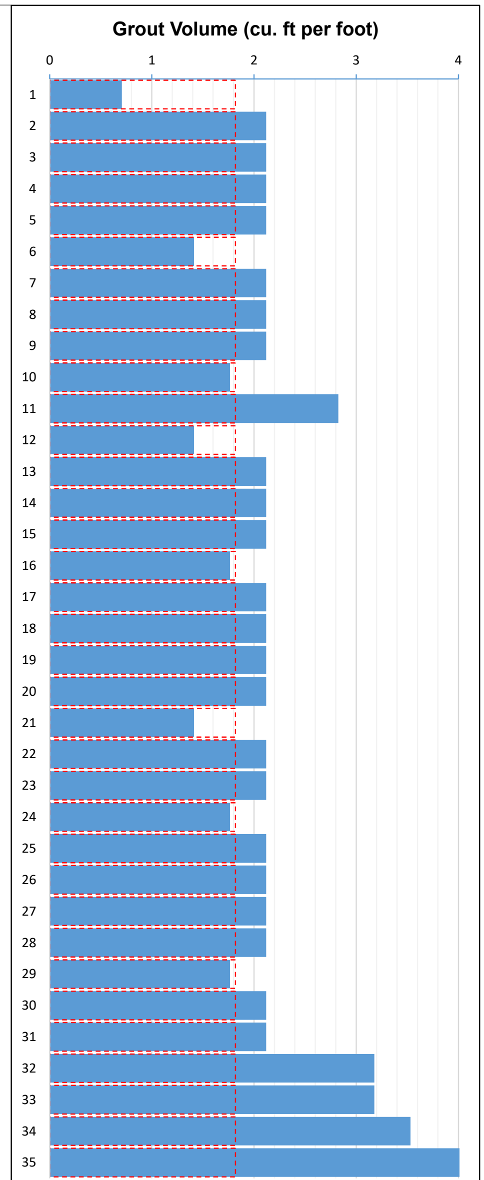
Tool meets 16" Nominal Requirement

Rig Id: BG-30
Operator: James "Smitty" Smith









ADVANCED GEOSOLUTIONS INC
Daily Production Summary- Displacement Grout Columns

Project No. : **P271275** Date: Monday, December 21, 2020
Project Name: Oxnard College Fire Training Academy
Rig: BG-30
Rig Operator: James "Smitty" Smith
Oiler: Benny Sandoval

Seq. No	Rig No.	Col. ID	Start Time	Bottom Time	End Time	Surface Elev.	Column Depth (ft)	*Act. Tip Elev.*	Concrete Volume (cu. feet)	Truck ID	Comments
1		241	07:45	07:49	07:54	74.4	35.1	39.3	64	42608011	Installed from bottom to 24' on 12/18, ran out of concrete. Drilled several feet into top of existing column before installing remainder of column
2		118	08:34	08:40	08:46	74.4	35.1	39.3	93	42608011	
3		271	09:04	09:09	09:16	74.4	35.1	39.3	96	42608011	
4		270	09:18	09:25	09:30	74.4	35.0	39.4	73	42608020	
5		116	09:32	09:38	09:50	74.4	35.2	39.2	77	42608020	
6		265	10:19	10:25	10:33	74.4	35.1	39.3	75	42608046	
7		264	10:50	10:56	11:02	74.4	35.1	39.3	95	42608046	
8		115	12:08	12:14	12:21	74.4	35.1	39.3	94	42608046	
9		259	12:23	12:30	12:35	74.4	35.0	39.4	74	42608049	
10		258	12:38	12:44	12:49	74.4	35.1	39.3	77	42608049	
11		114	13:04	13:09	13:15	74.4	35.1	39.3	88	42608054	
12		253	13:18	13:24	13:30	74.4	35.1	39.3	74	42608054	
13		252	13:35	13:41	14:07	74.4	35.0	39.4	74	42608054	
14		112	14:24	14:30	14:36	74.4	35.1	39.3	92	42608062	
15		247	14:39	14:45	14:50	74.4	35.1	39.3	72	42608062	
16		246	14:53	14:59	15:23	74.4	35.0	39.4	77	42608062	
17		111	15:37	15:42	15:49	74.4	35.1	39.3	94	42608079	

DGC Log Sheet

Advanced Geosolutions Inc
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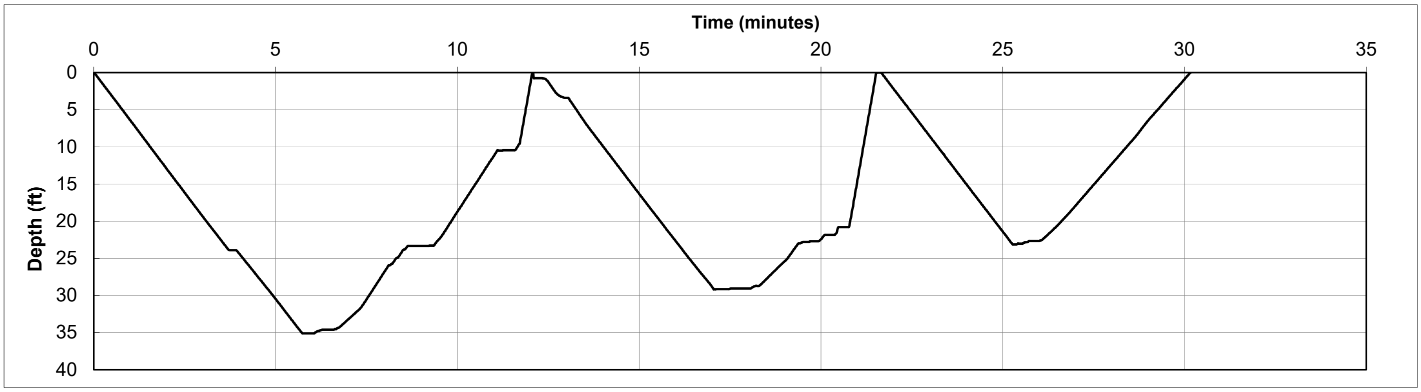
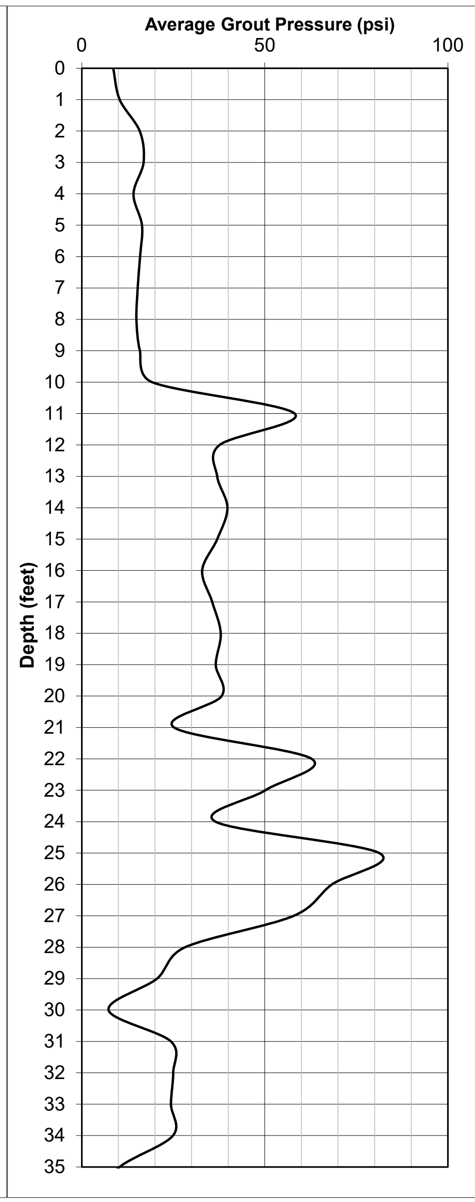
Project Site Data **Data for Column No: 241**

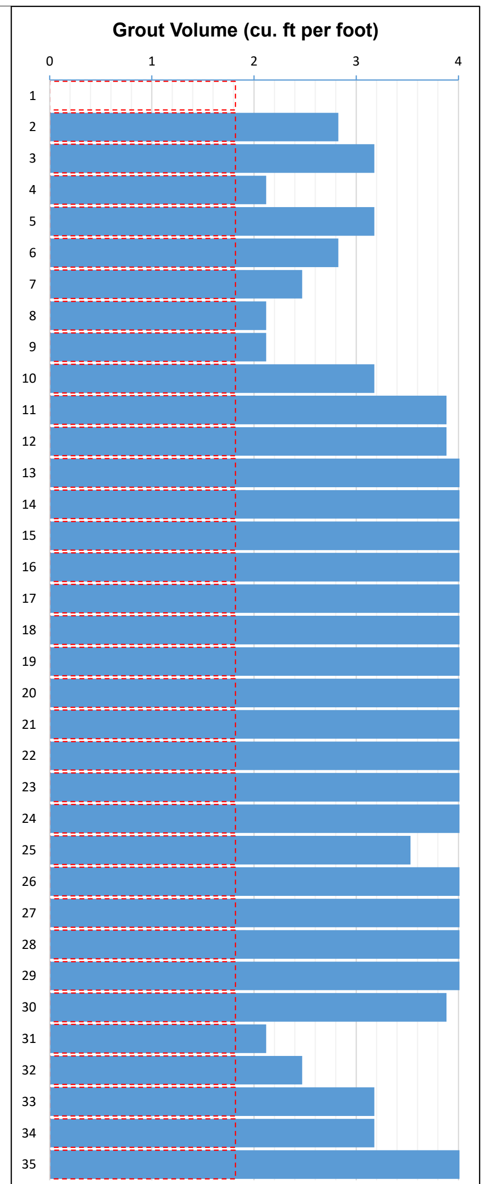
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:23 AM	Concrete Volume:	147.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:29 AM	Column Depth:	35.1	ft
		End Time:	11:54 AM	Pre Auger:		
		Total Time:	31 min			

Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement







DGC Log Sheet

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Lake Forest, CA 92630
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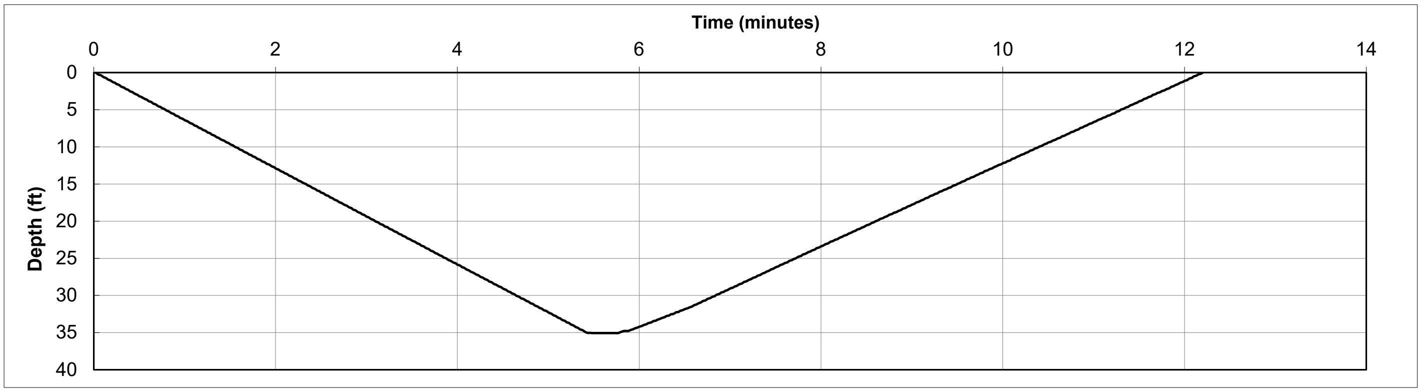
Project Site Data

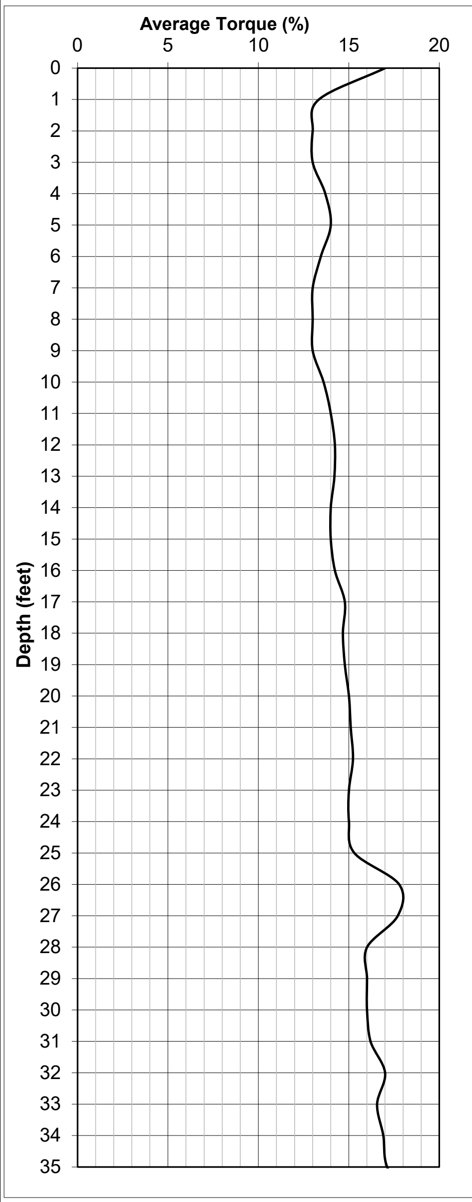
Data for Column No: 118

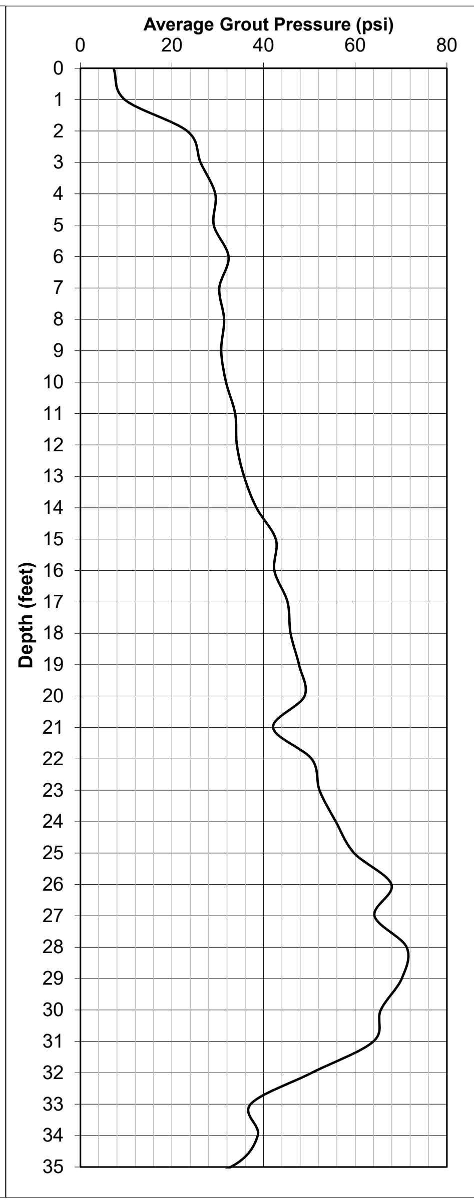
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:34 AM	Concrete Volume:	93.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:40 AM	Column Depth:	35.1	ft
		End Time:	8:46 AM	Pre Auger:		
		Total Time:	12 min			

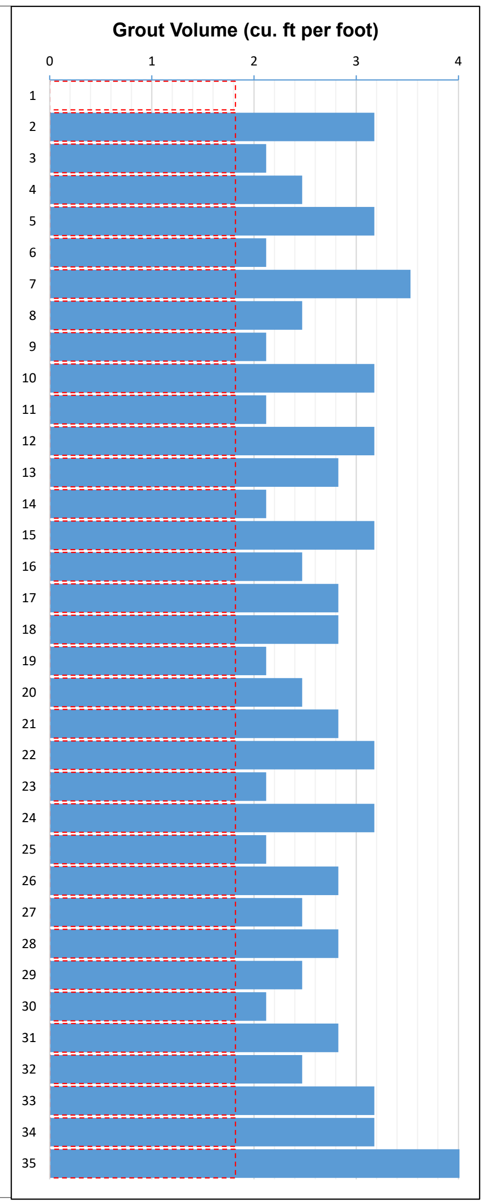
Tool meets 16" Nominal Requirement

Rig Id: BG-30
Operator: James "Smitty" Smith









DGC Log Sheet

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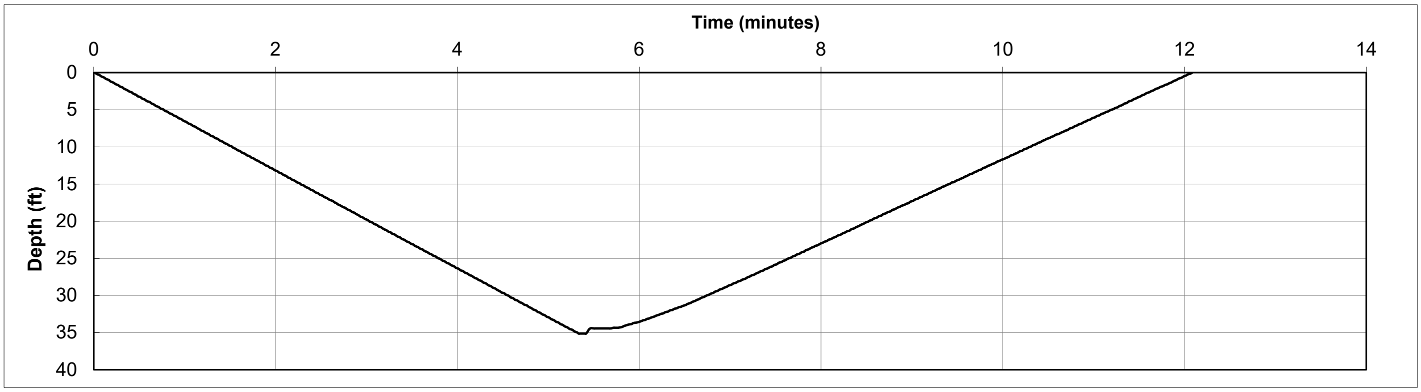
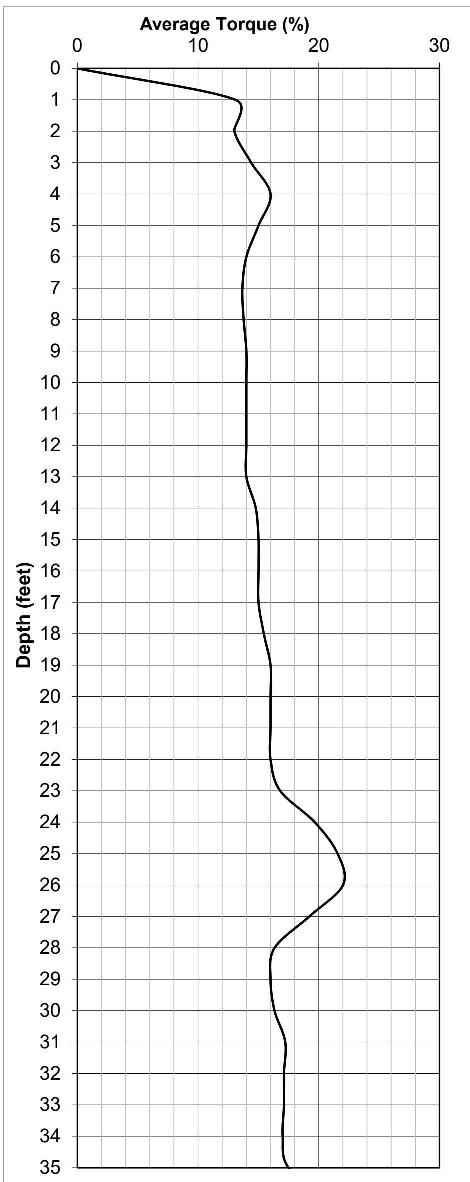
Project Site Data **Data for Column No: 271**

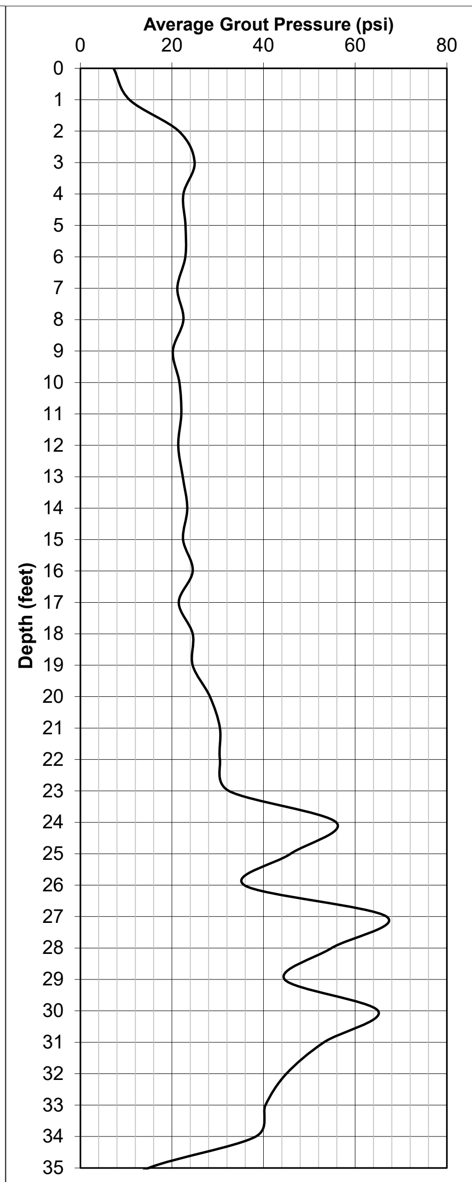
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:04 AM	Concrete Volume:	96.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:09 AM	Column Depth:	35.1	ft
		End Time:	9:16 AM	Pre Auger:		
		Total Time:	12 min			

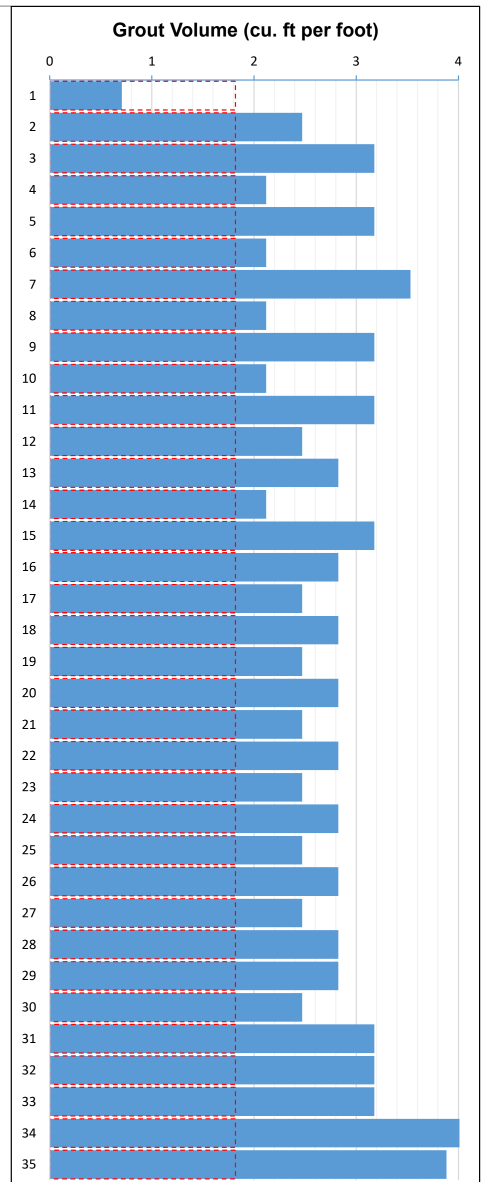
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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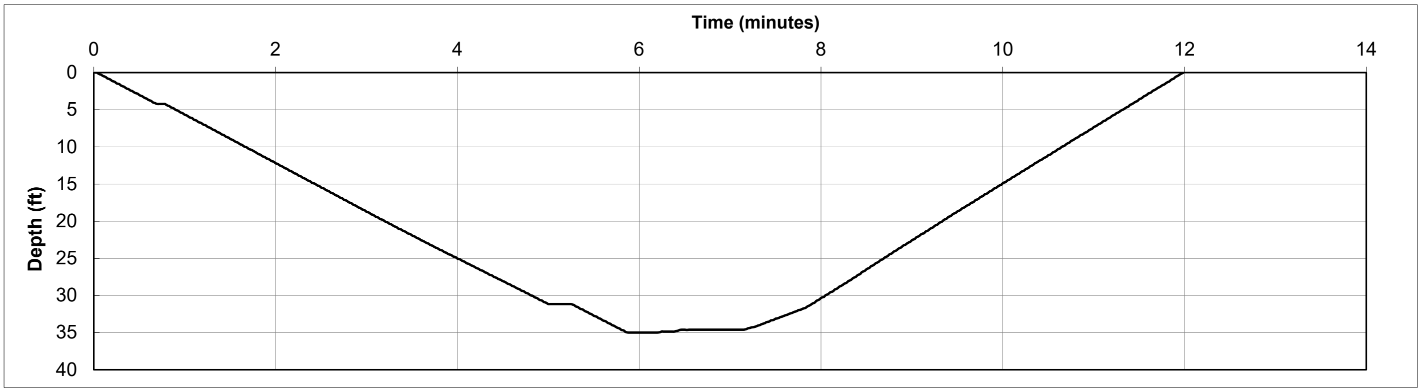
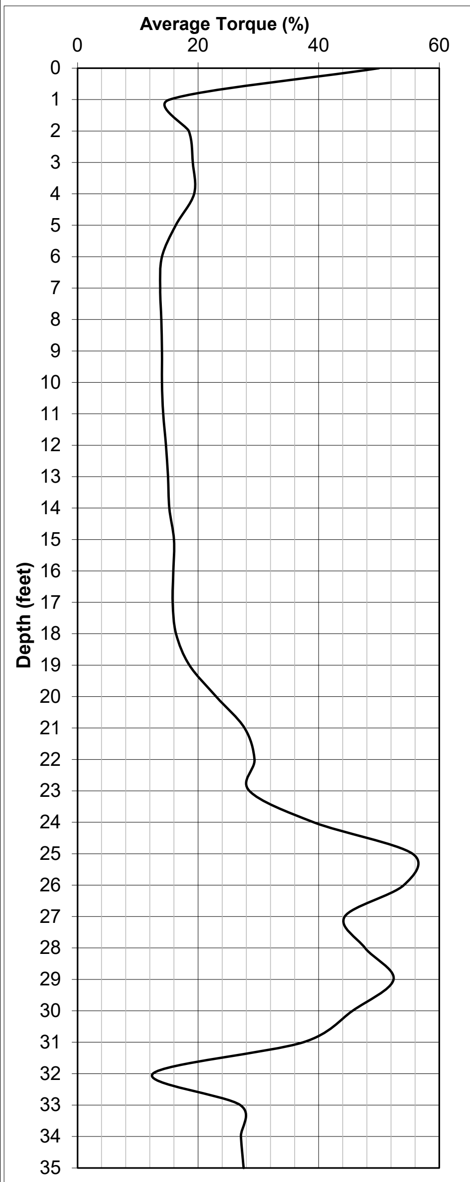
Project Site Data | **Data for Column No: 270**

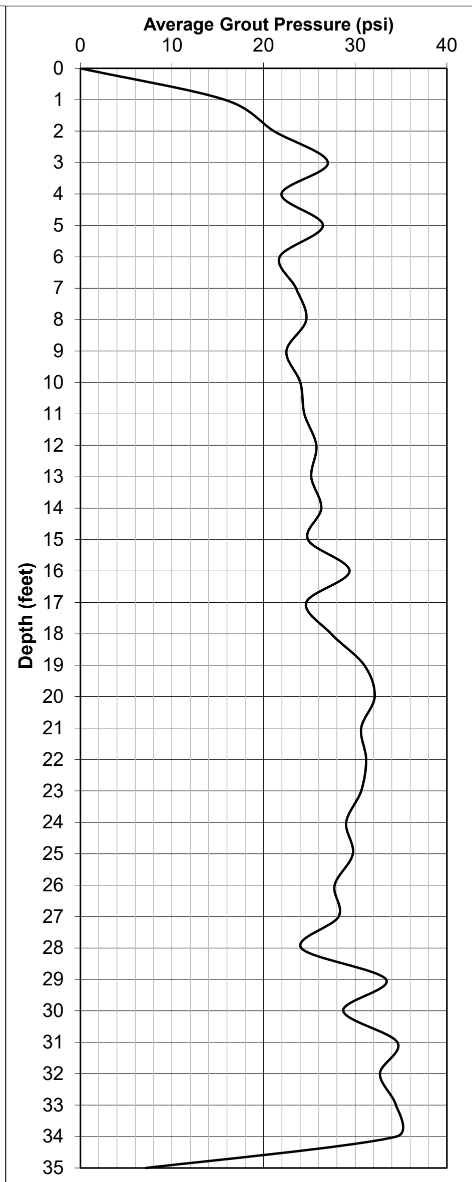
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:18 AM	Concrete Volume:	73.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:25 AM	Column Depth:	35.0	ft
		End Time:	9:30 AM	Pre Auger:		
		Total Time:	12 min			

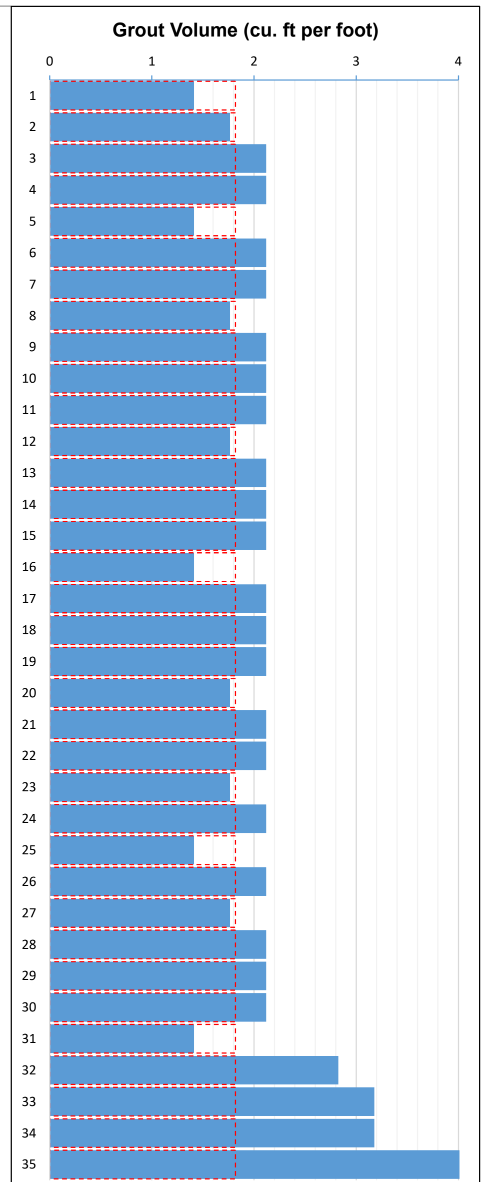
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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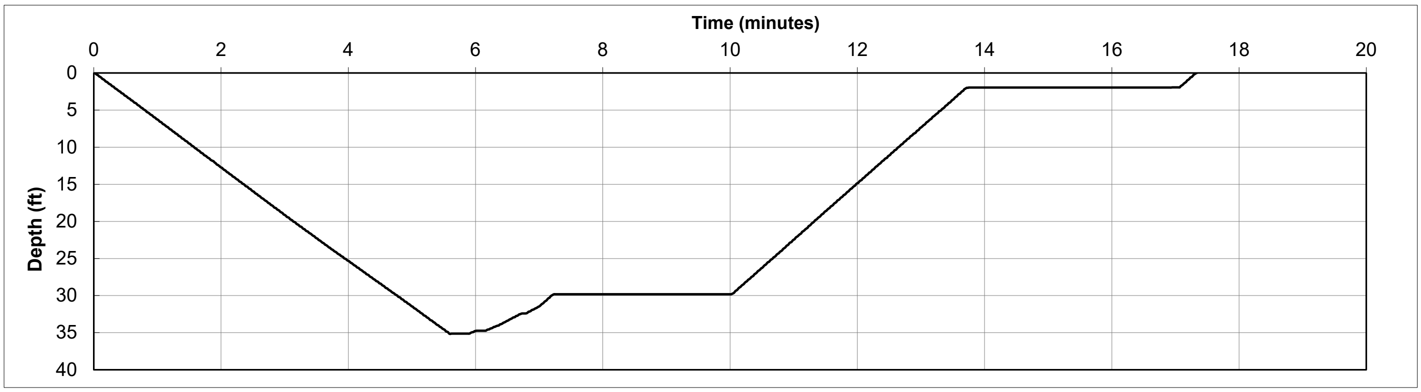
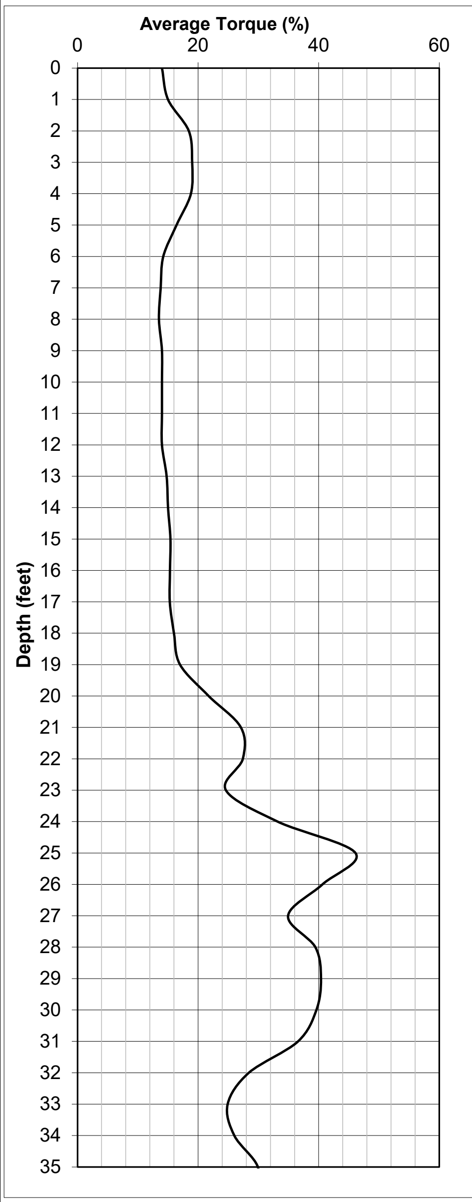
Project Site Data | **Data for Column No: 116**

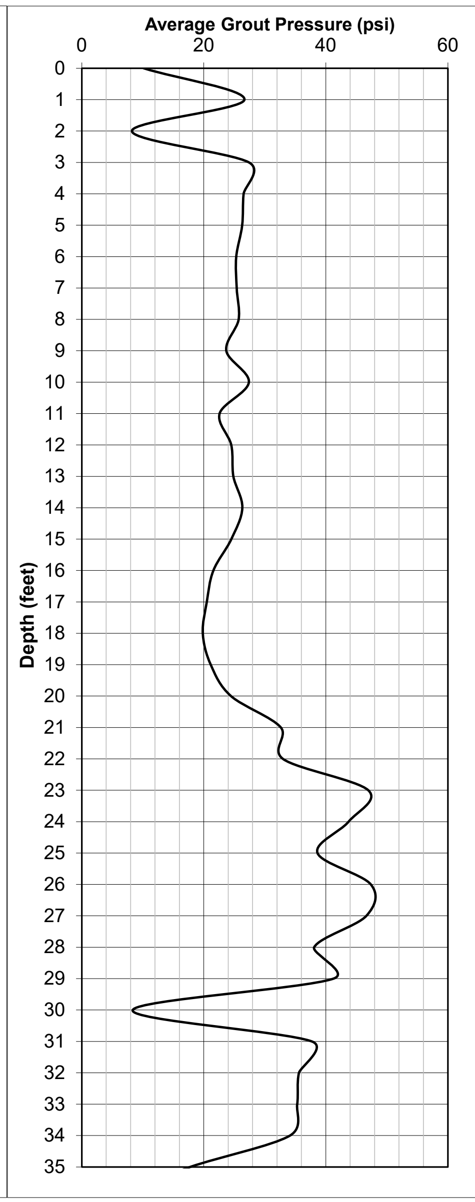
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:32 AM	Concrete Volume:	77.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:38 AM	Column Depth:	35.2	ft
		End Time:	9:50 AM	Pre Auger:		
		Total Time:	17 min			

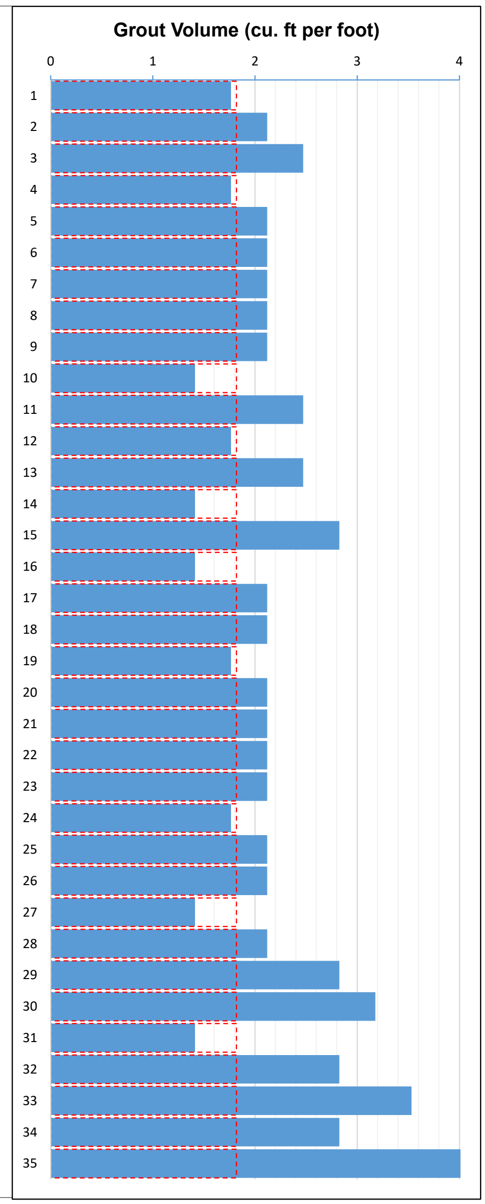
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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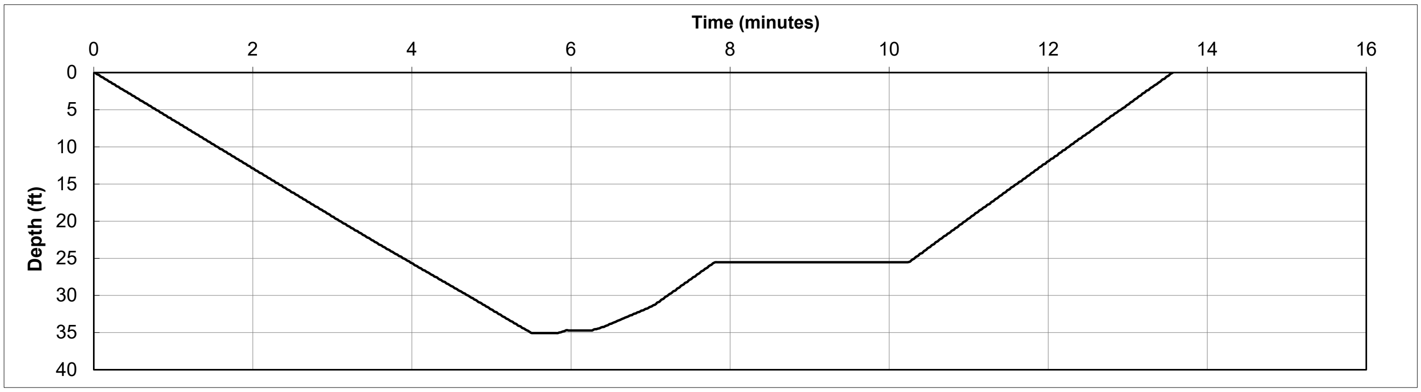
Project Site Data

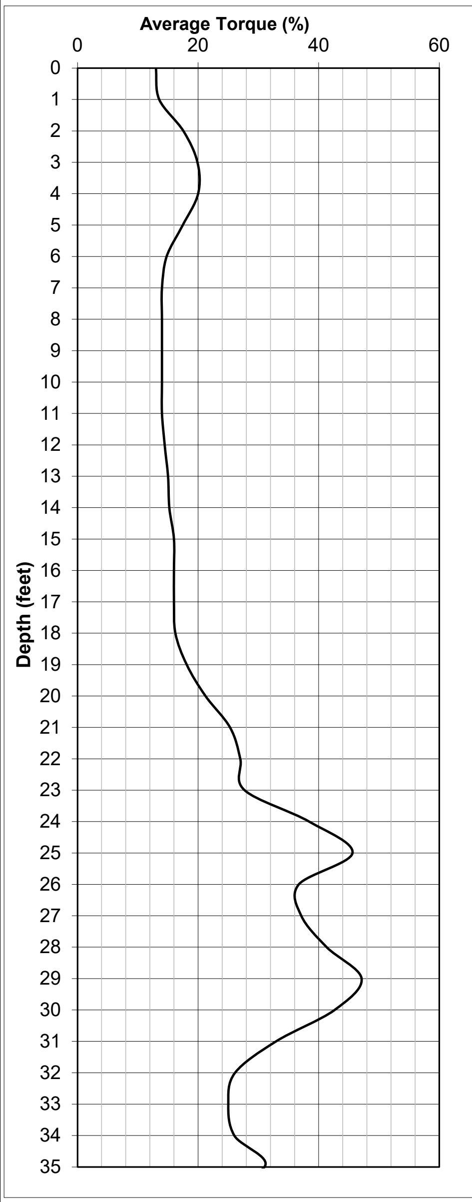
Data for Column No: 265

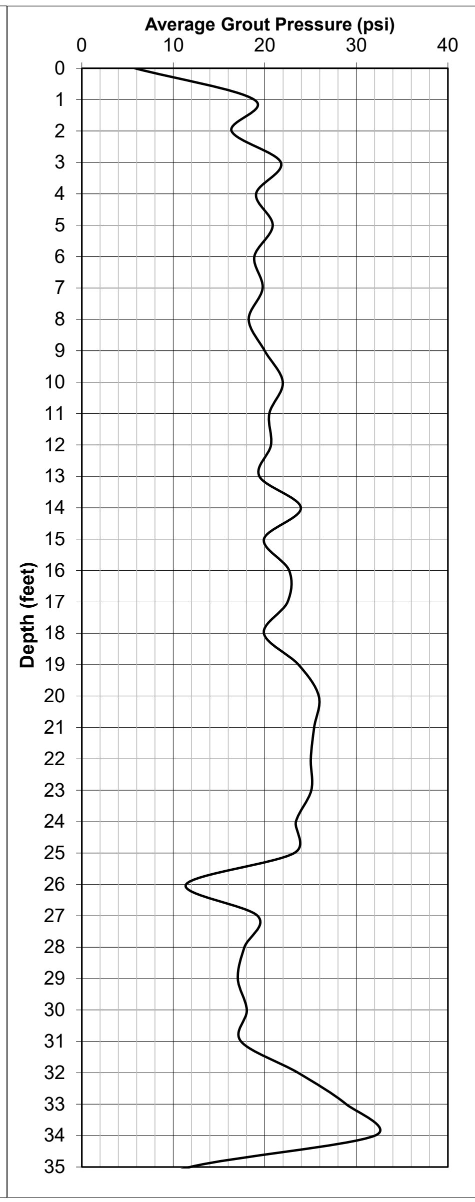
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:19 AM	Concrete Volume:	74.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:25 AM	Column Depth:	35.1	ft
		End Time:	10:33 AM	Pre Auger:		
		Total Time:	14 min			

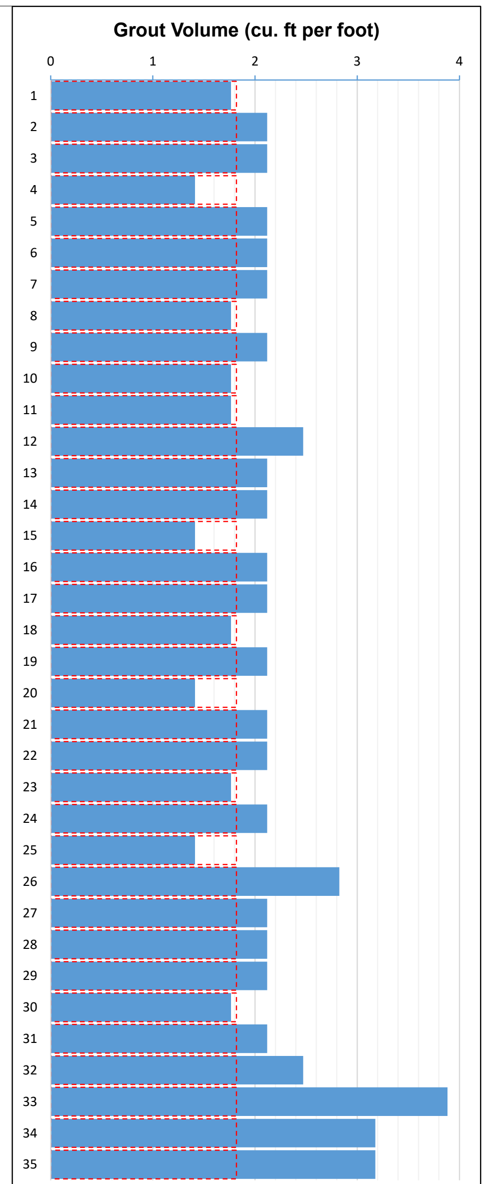
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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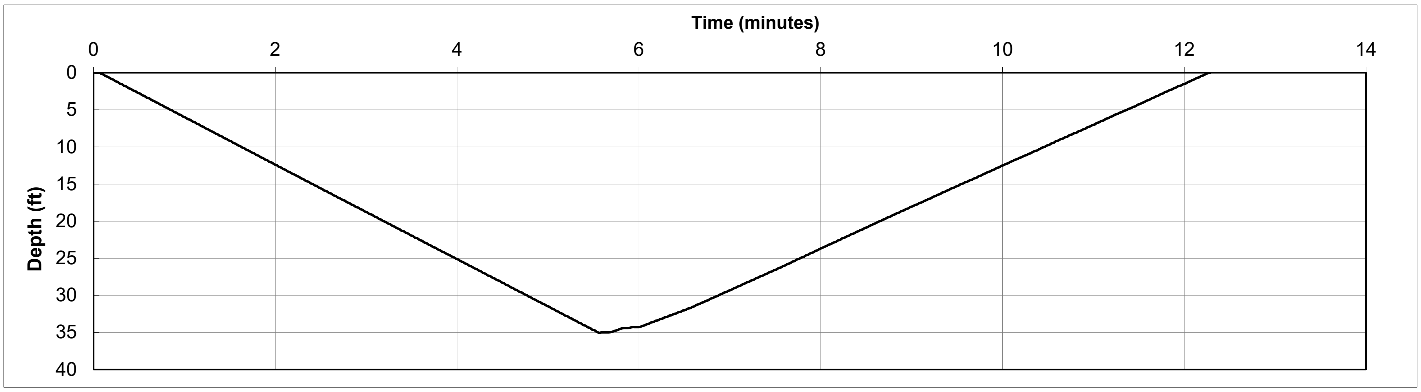
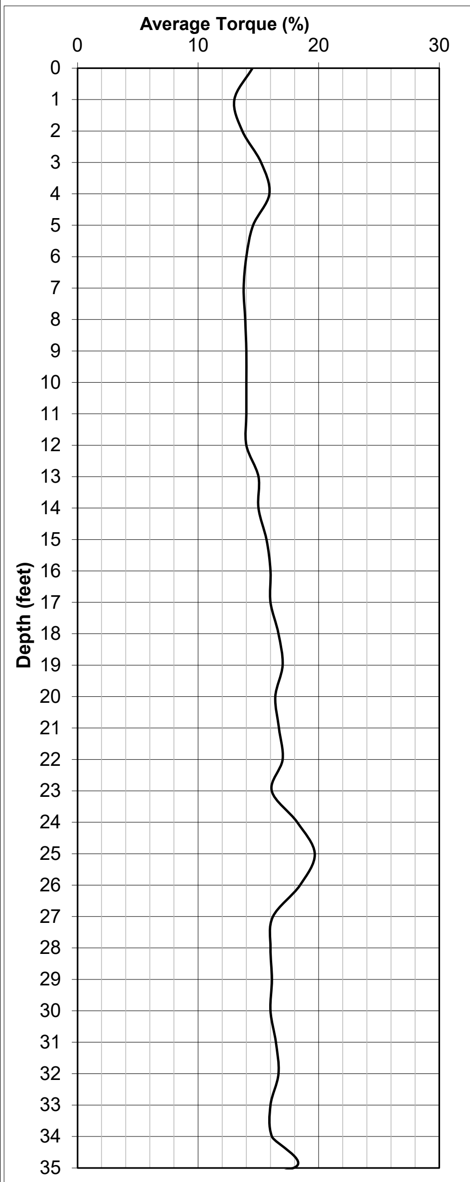
Project Site Data **Data for Column No: 264**

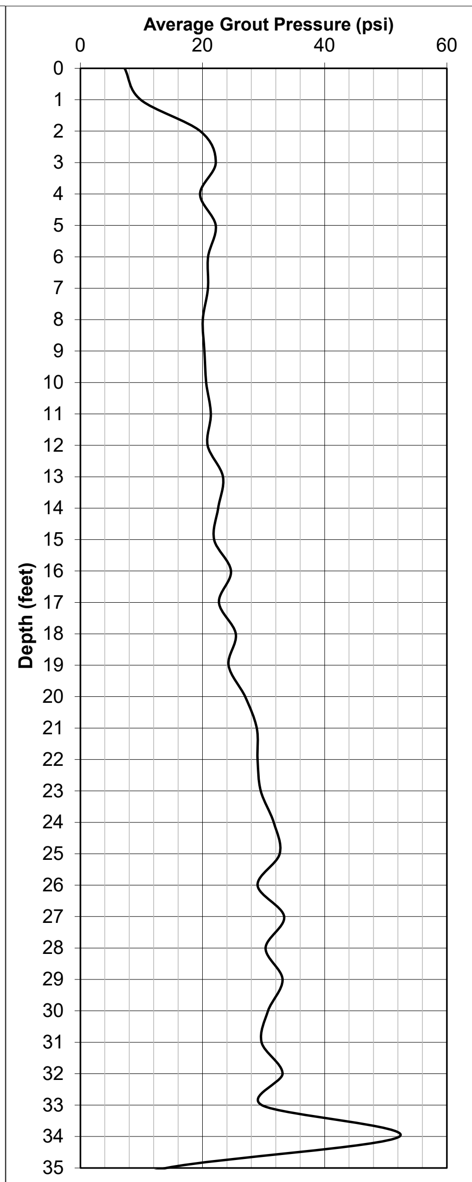
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:50 AM	Concrete Volume:	95.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:56 AM	Column Depth:	35.1	ft
		End Time:	11:02 AM	Pre Auger:		
		Total Time:	12 min			

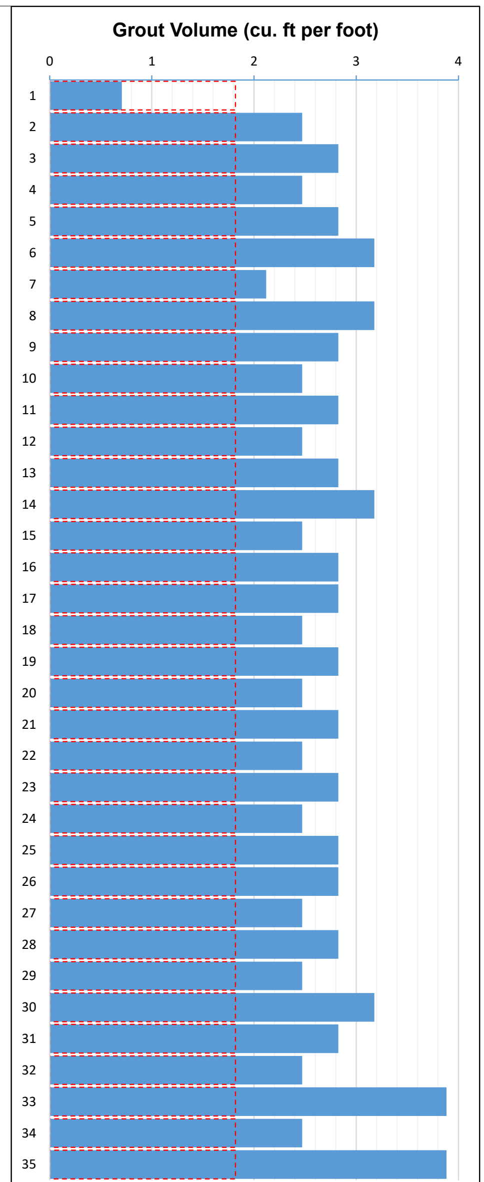
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
P: 310-796-9000

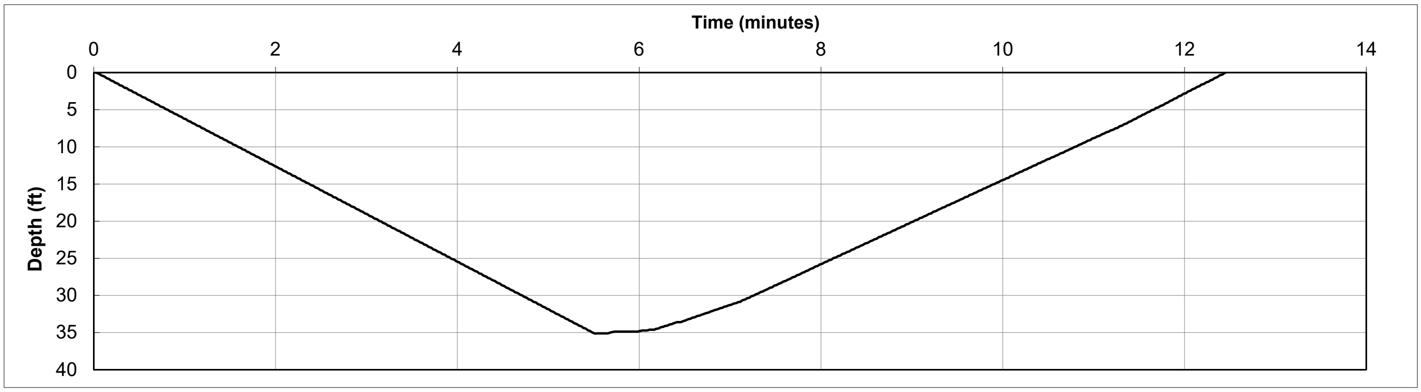
Project Site Data

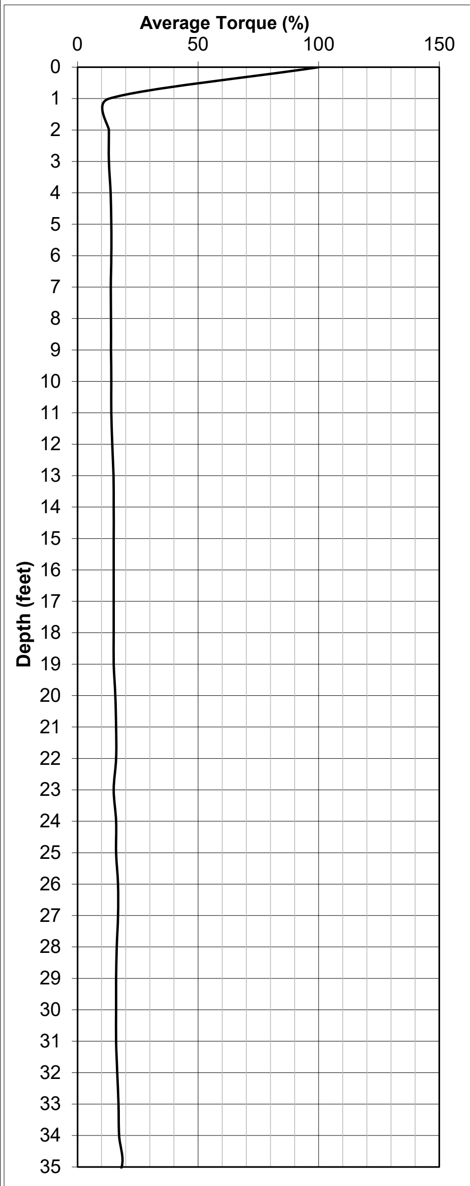
Data for Column No: 115

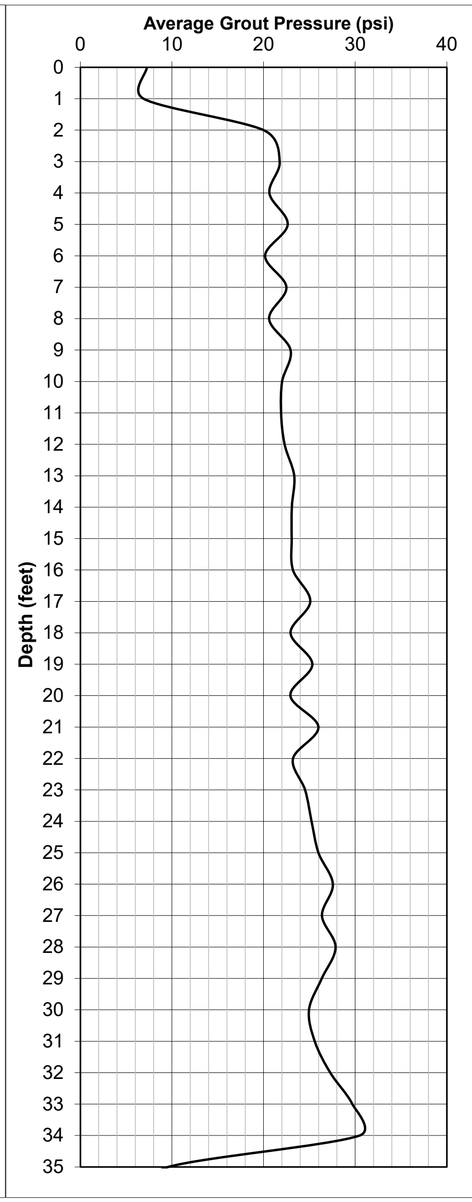
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:08 PM	Concrete Volume:	93.9	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:14 PM	Column Depth:	35.1	ft
		End Time:	12:21 PM	Pre Auger:		
		Total Time:	12 min			

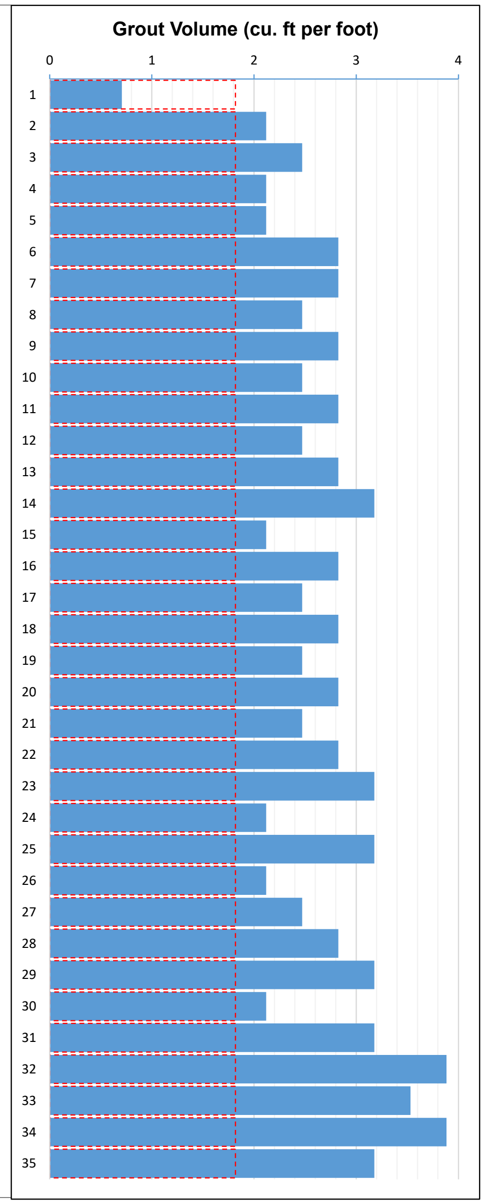
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
P: 310-796-9000

Project Site Data **Data for Column No: 259**

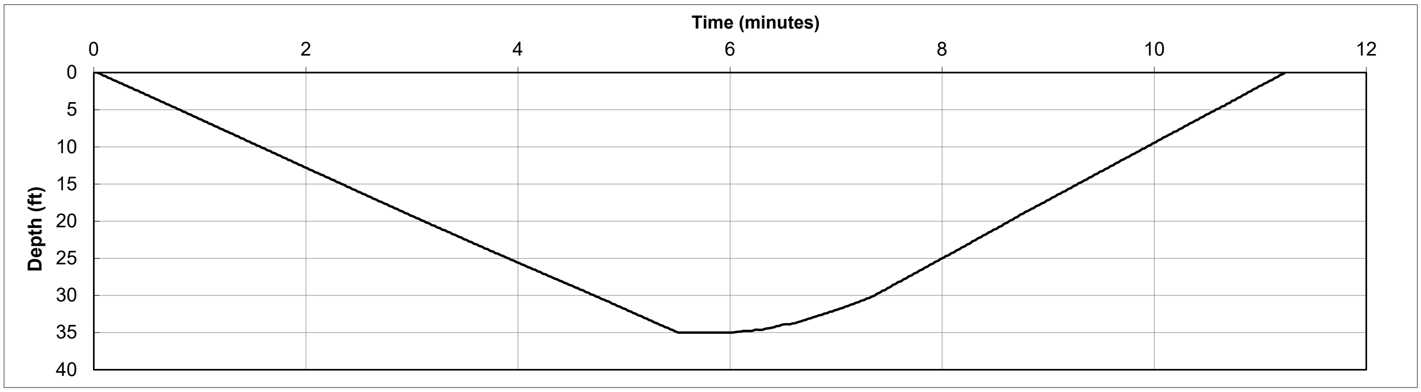
Project Name: Oxnard College Fire Training
Project Location: Camarillo, CA
General Contractor: Oxnard College

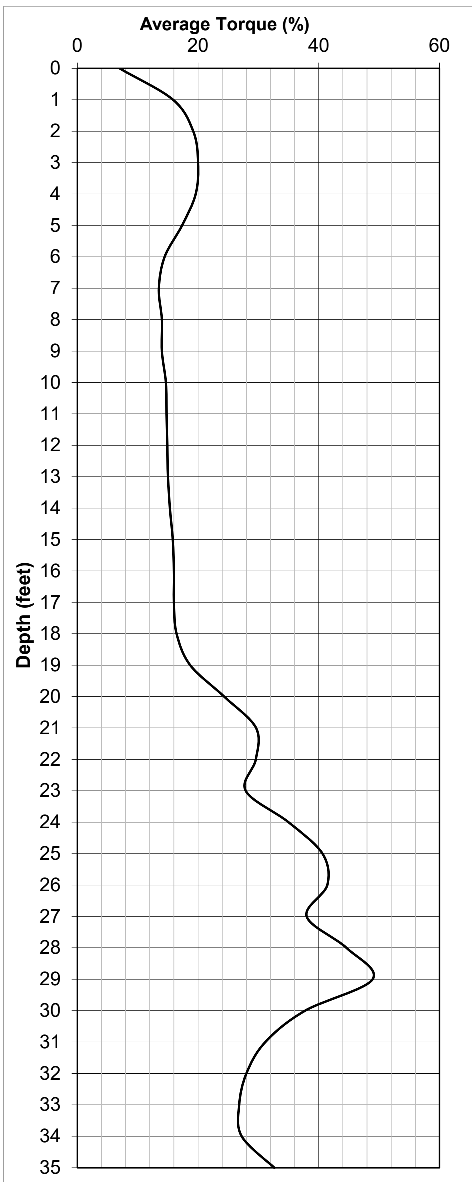
Date: 12/21/20
Start Time: 12:23 PM
Bottom Time: 12:30 PM
End Time: 12:35 PM
Total Time: 11 min

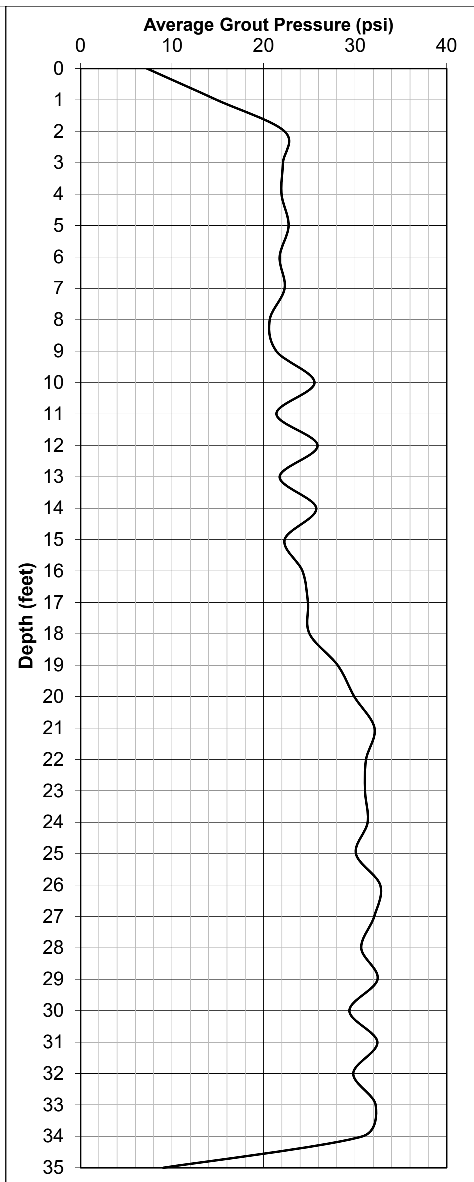
Nominal Diameter: 16 in
Concrete Volume: 74.2 cubic ft
Column Depth: 35.0 ft
Pre Auger:

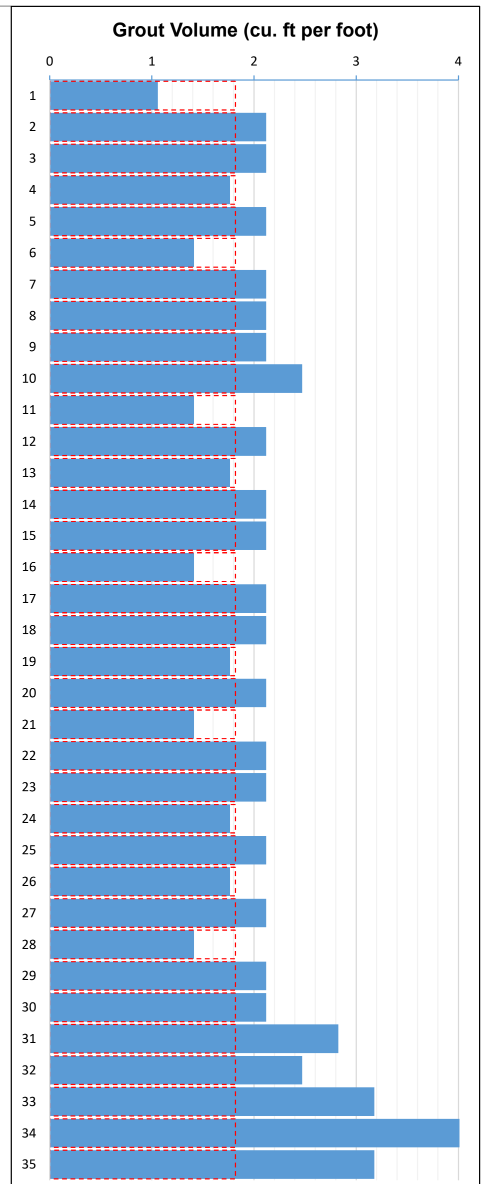
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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Lake Forest, CA 92630
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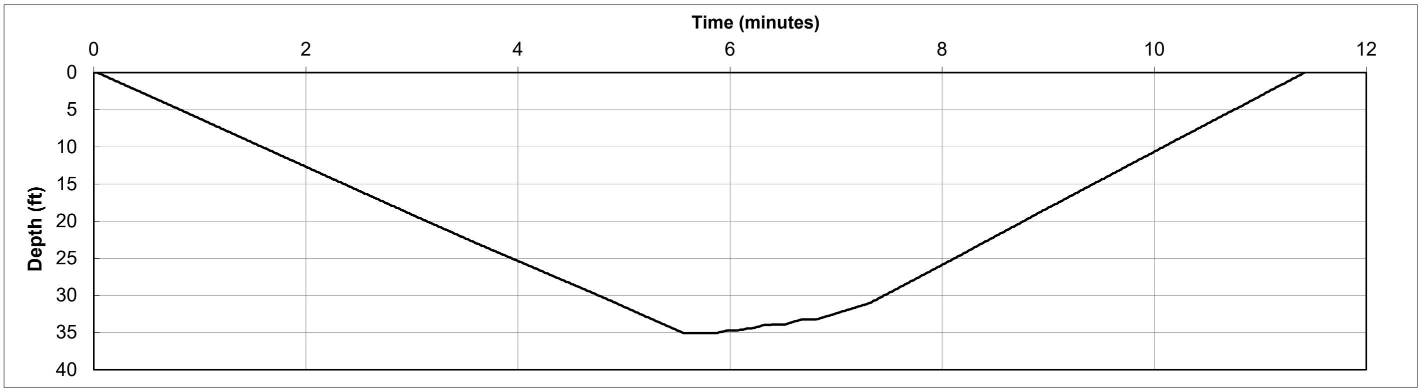
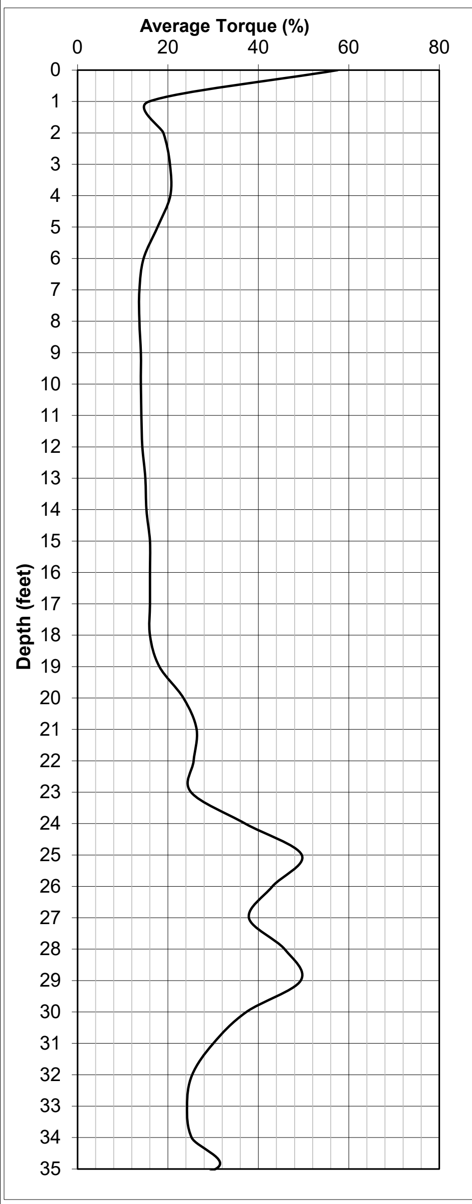
Project Site Data | **Data for Column No: 258**

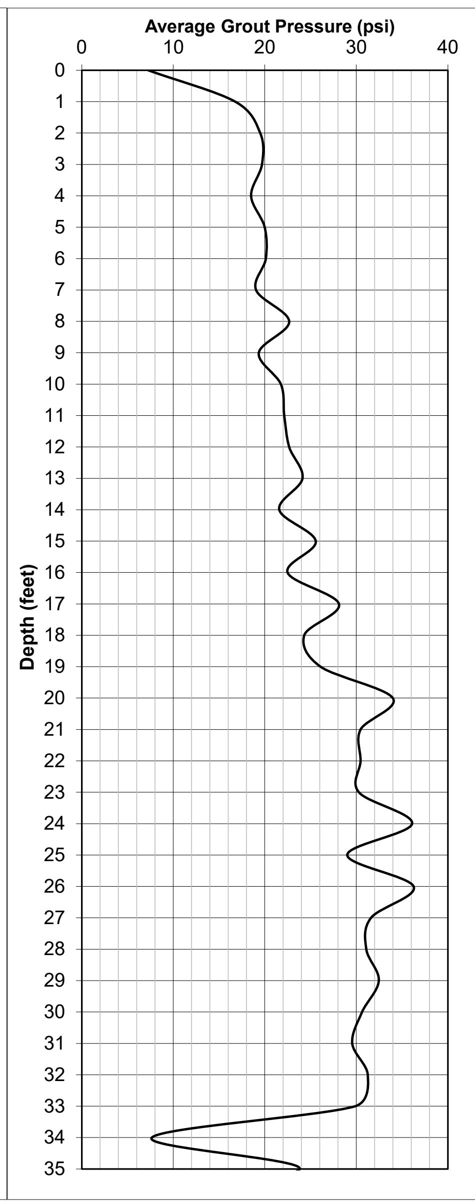
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:38 PM	Concrete Volume:	76.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:44 PM	Column Depth:	35.1	ft
		End Time:	12:49 PM	Pre Auger:		
		Total Time:	11 min			

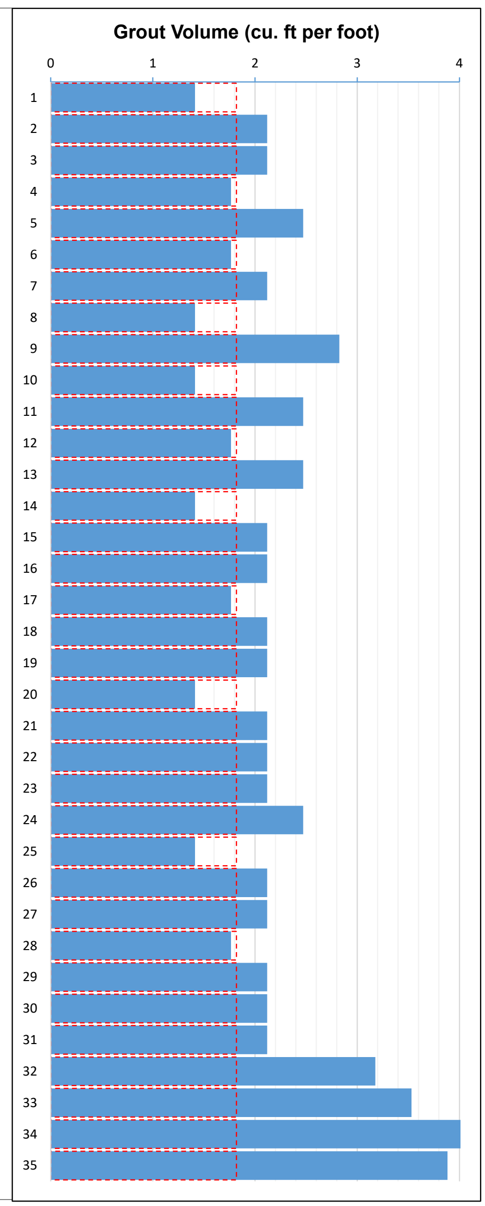
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

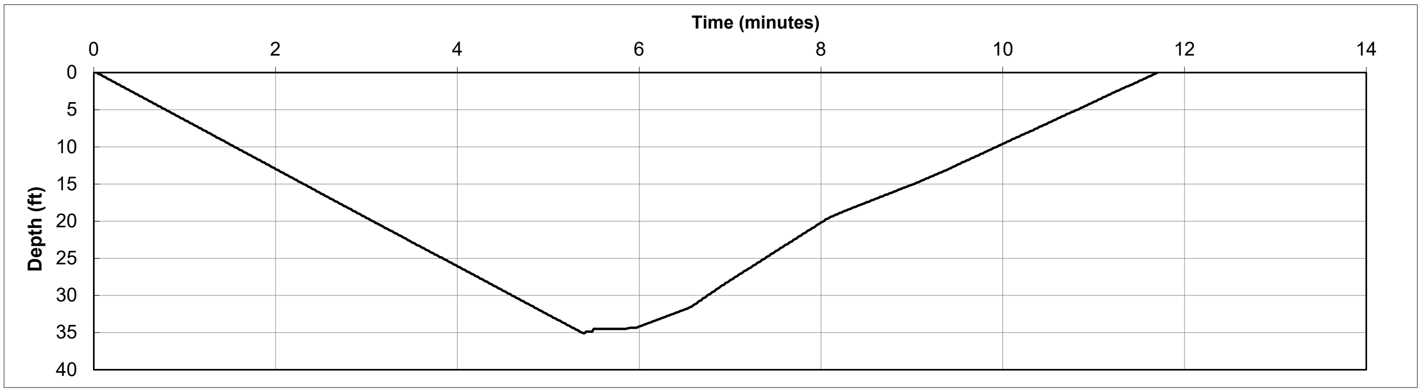
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

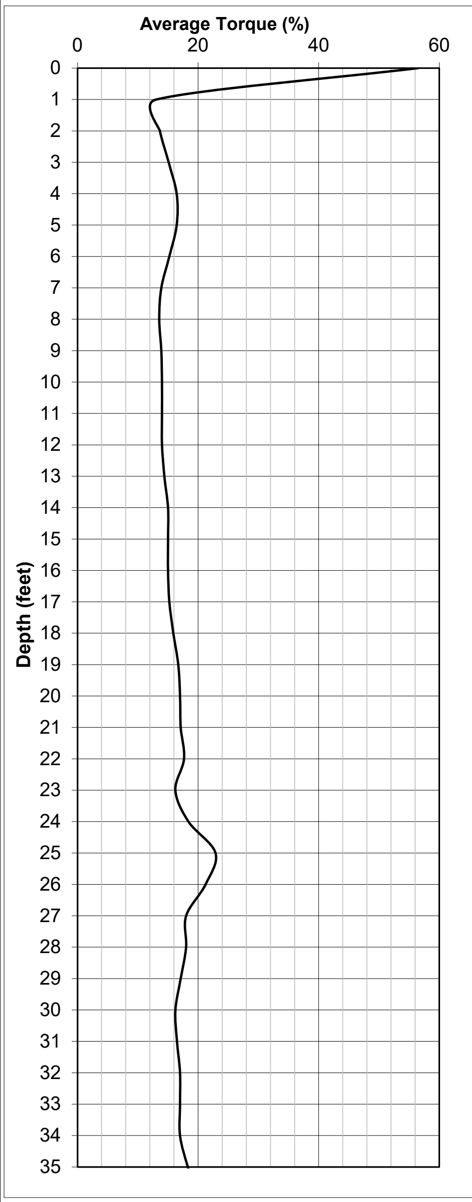
Project Site Data | **Data for Column No: 114**

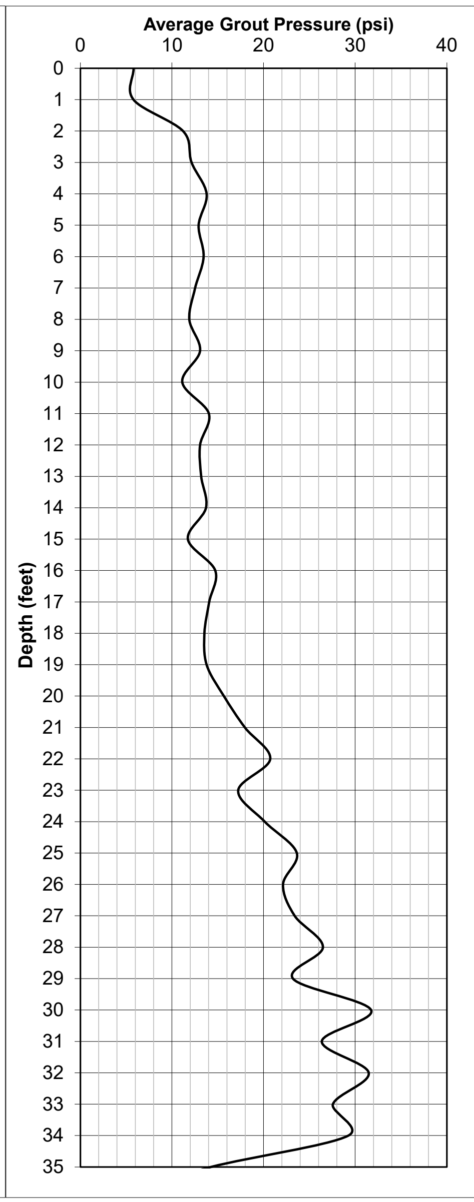
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:04 PM	Concrete Volume:	87.9	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:09 PM	Column Depth:	35.1	ft
		End Time:	1:15 PM	Pre Auger:		
		Total Time:	12 min			

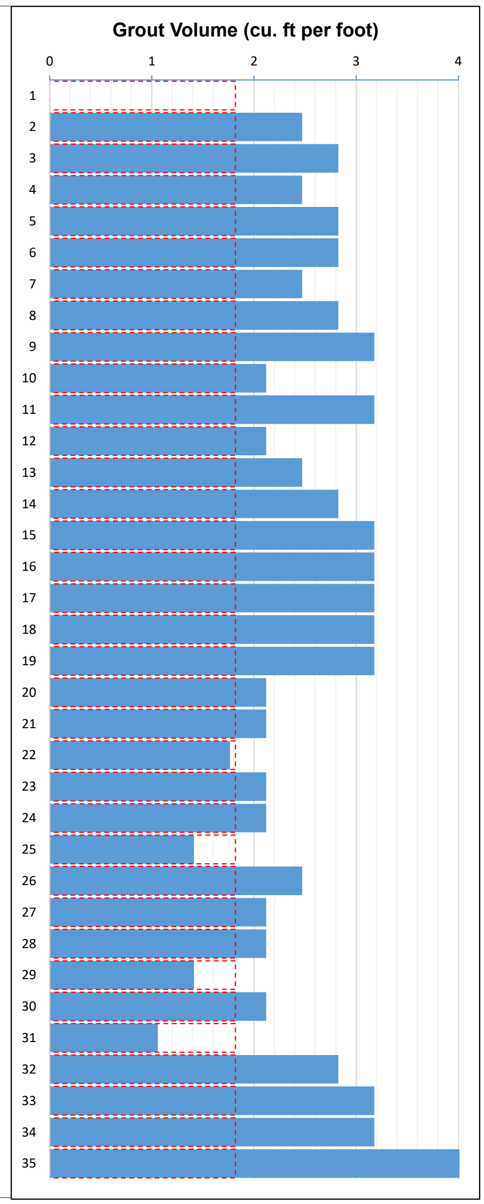
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

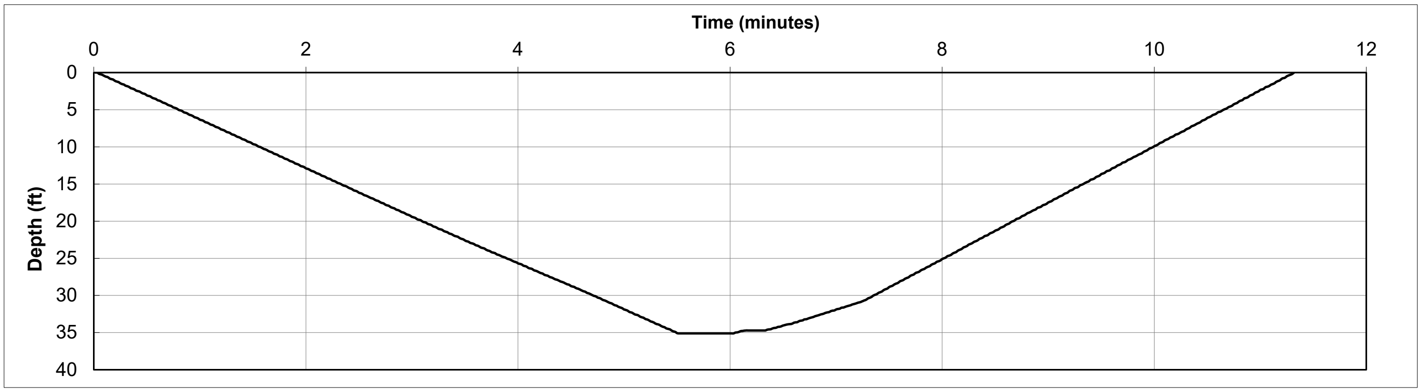
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

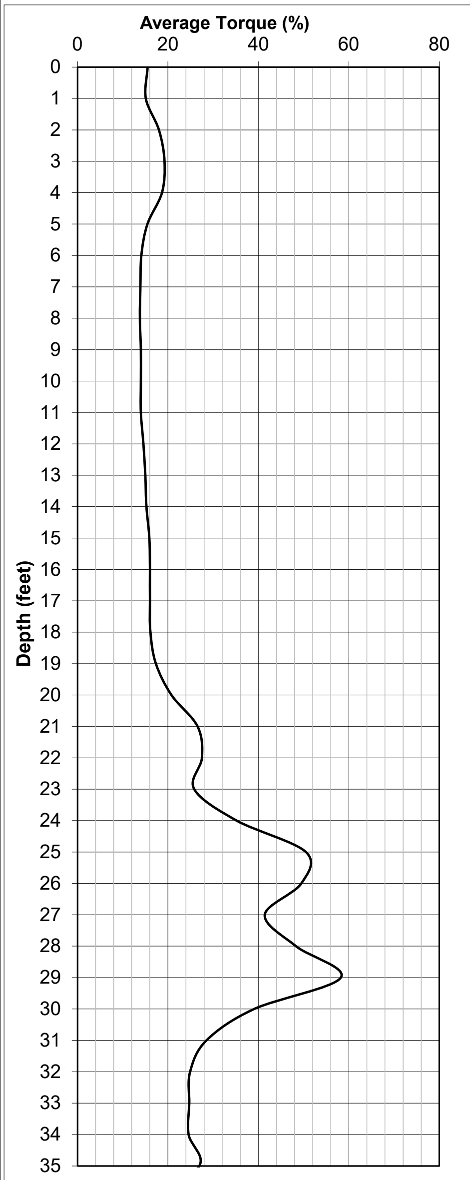
Project Site Data | **Data for Column No: 253**

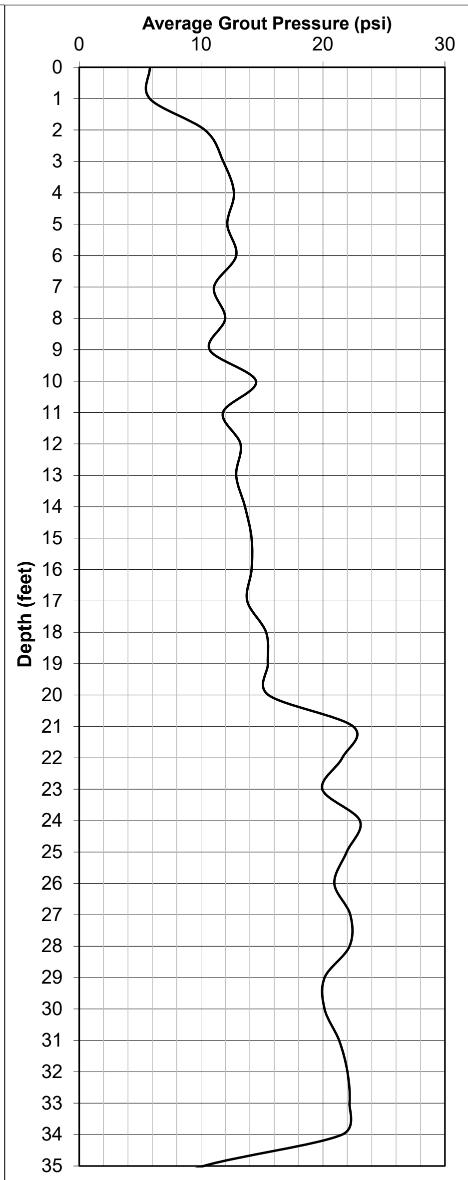
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:18 PM	Concrete Volume:	74.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:24 PM	Column Depth:	35.1	ft
		End Time:	1:30 PM	Pre Auger:		
		Total Time:	11 min			

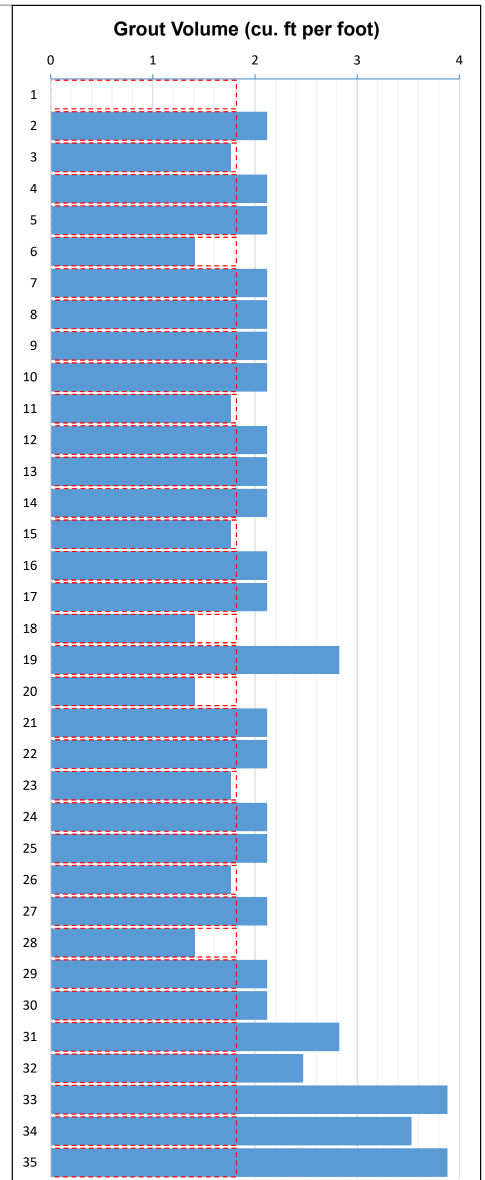
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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Lake Forest, CA 92630
P: 310-796-9000

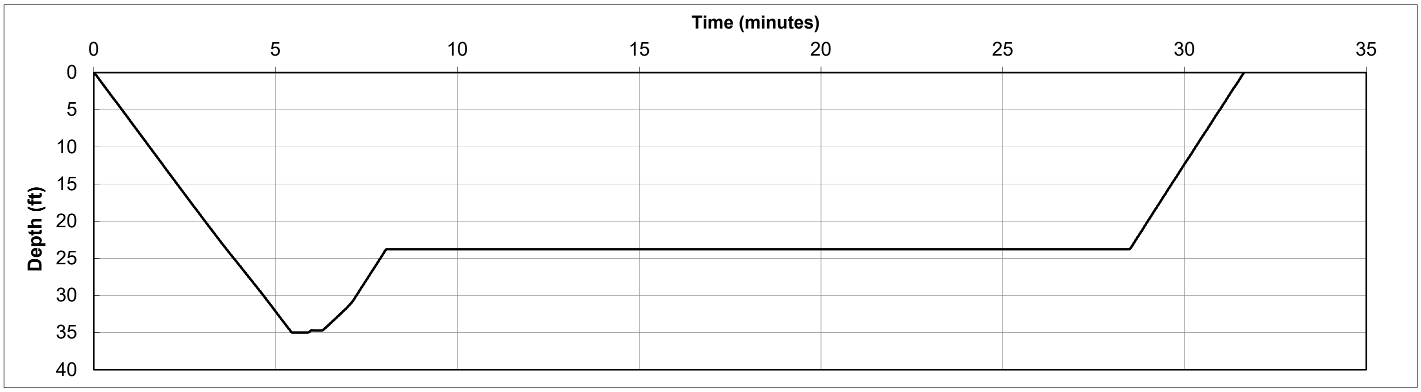
Project Site Data

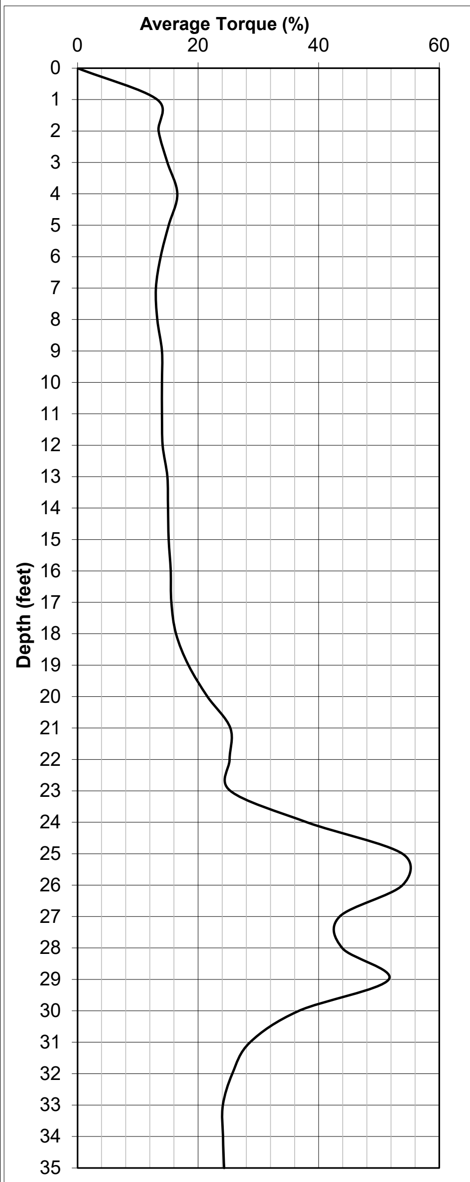
Data for Column No: 252

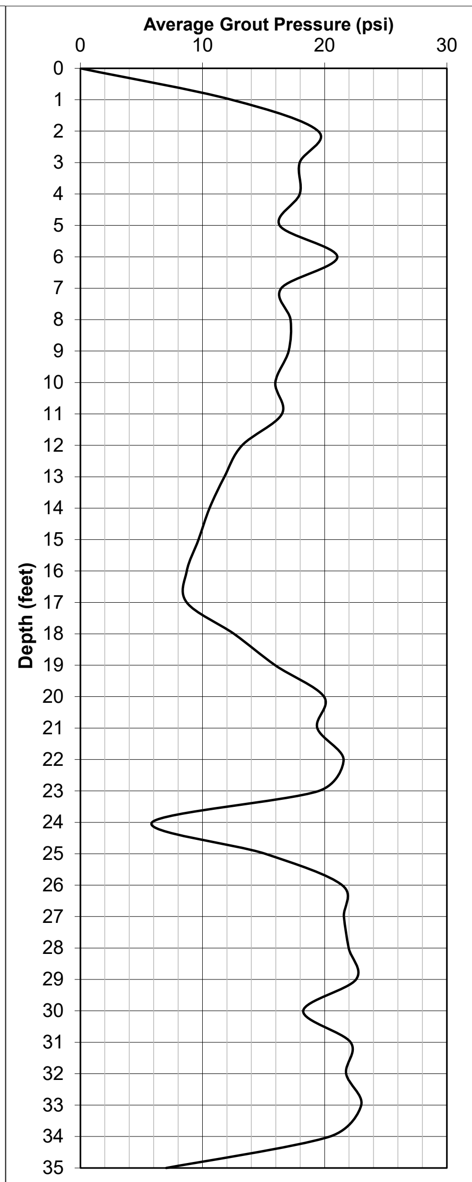
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16 in
Project Location:	Camarillo, CA	Start Time:	1:35 PM	Concrete Volume:	74.2 cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:41 PM	Column Depth:	35.0 ft
		End Time:	2:07 PM	Pre Auger:	
		Total Time:	32 min		

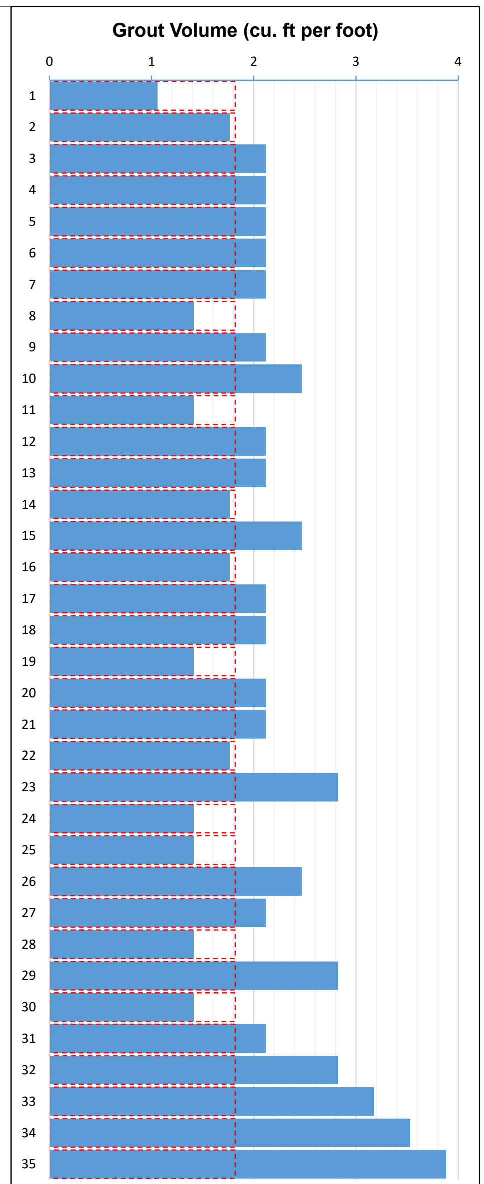
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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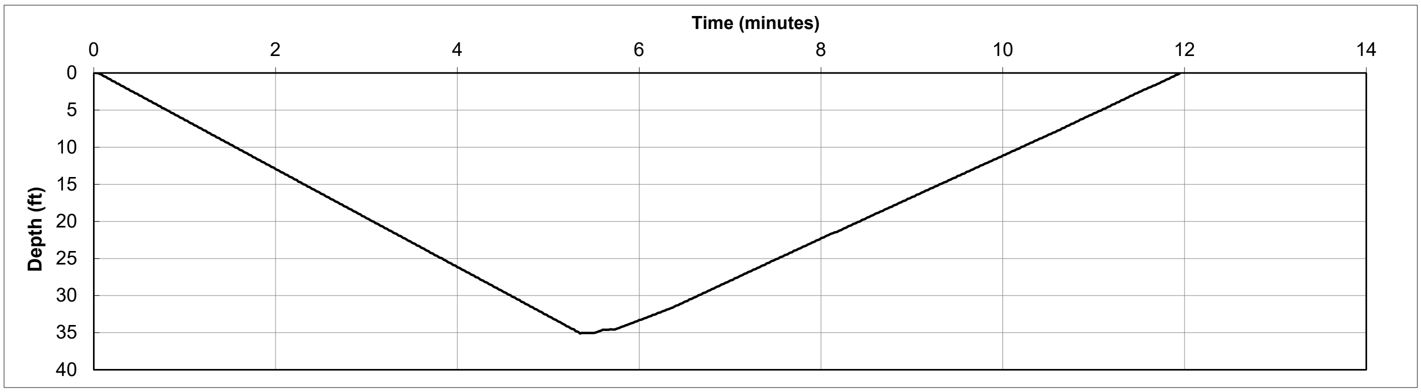
Lake Forest, CA 92630
P: 310-796-9000

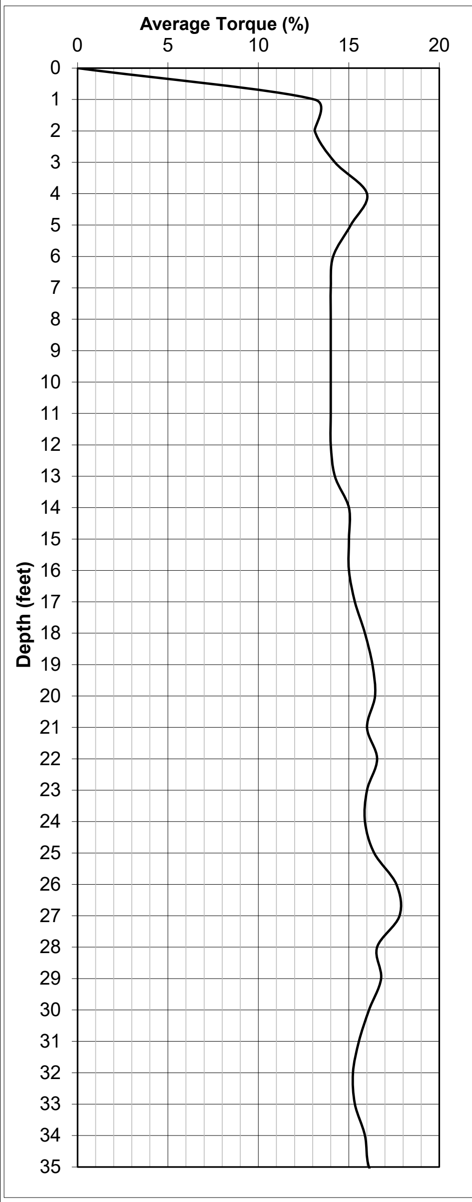
Project Site Data | **Data for Column No: 112**

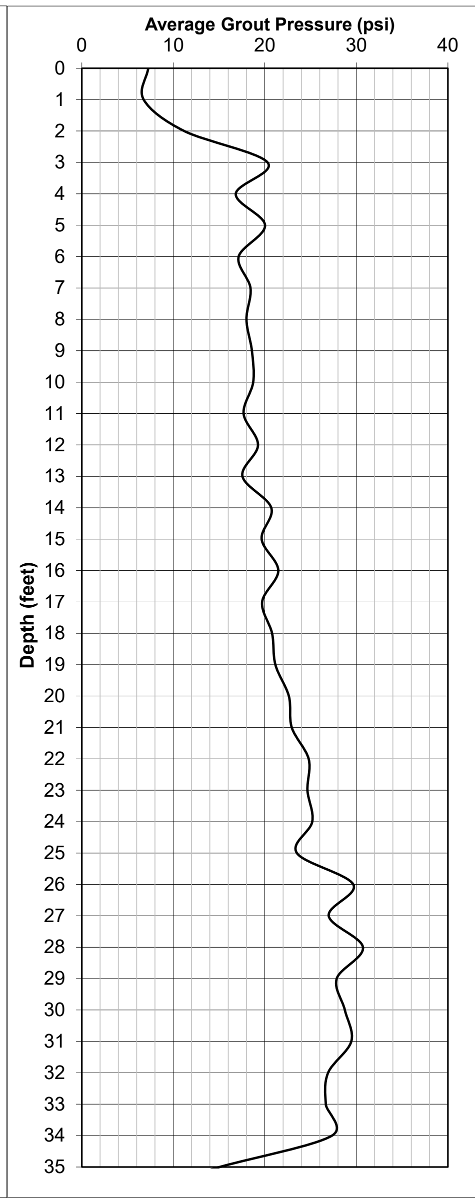
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:24 PM	Concrete Volume:	92.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:30 PM	Column Depth:	35.1	ft
		End Time:	2:36 PM	Pre Auger:		
		Total Time:	12 min			

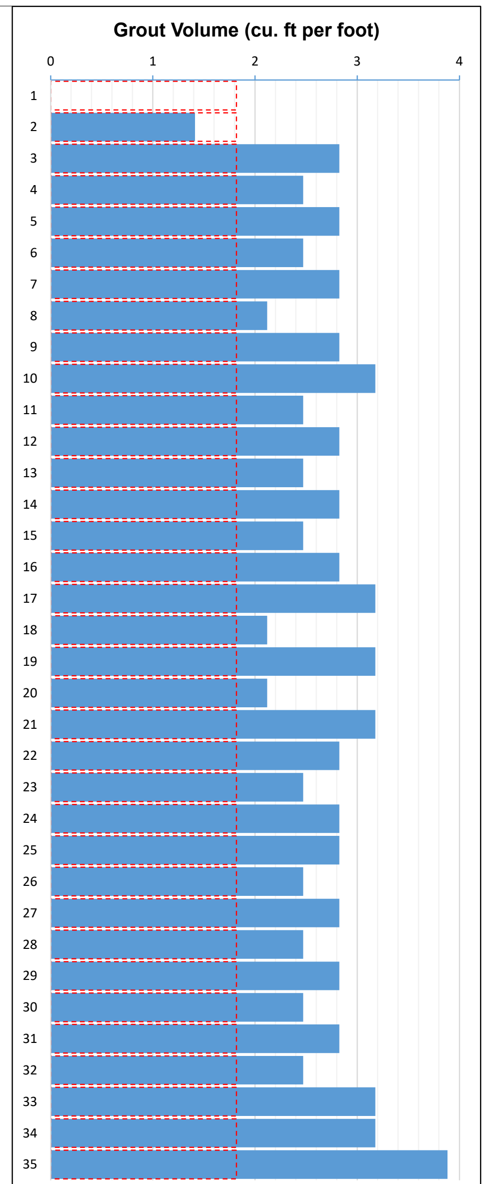
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

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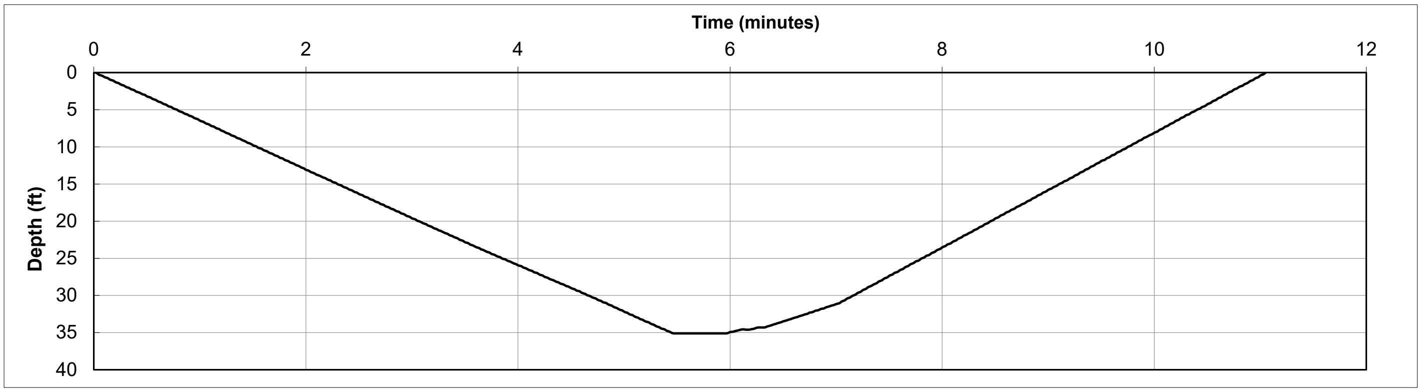
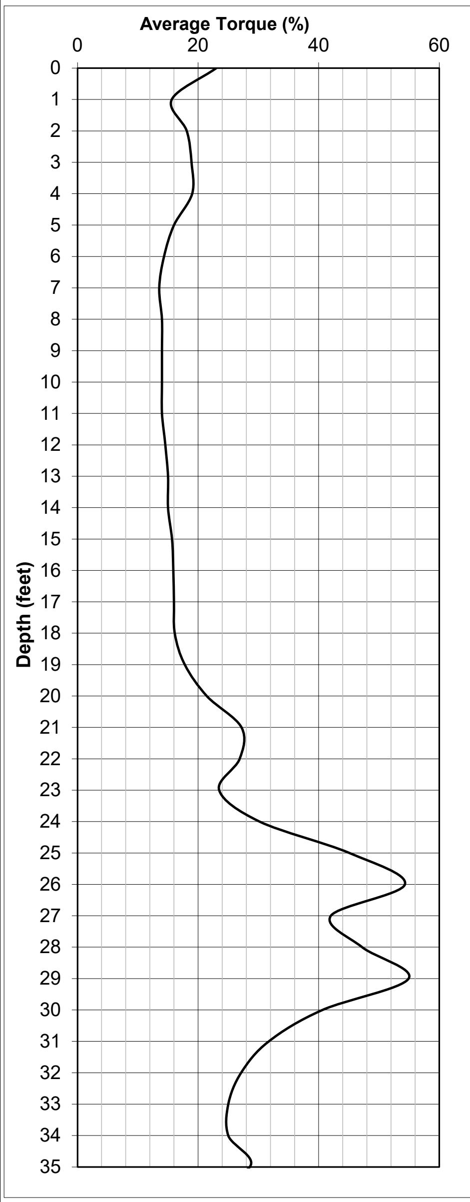
Project Site Data **Data for Column No: 247**

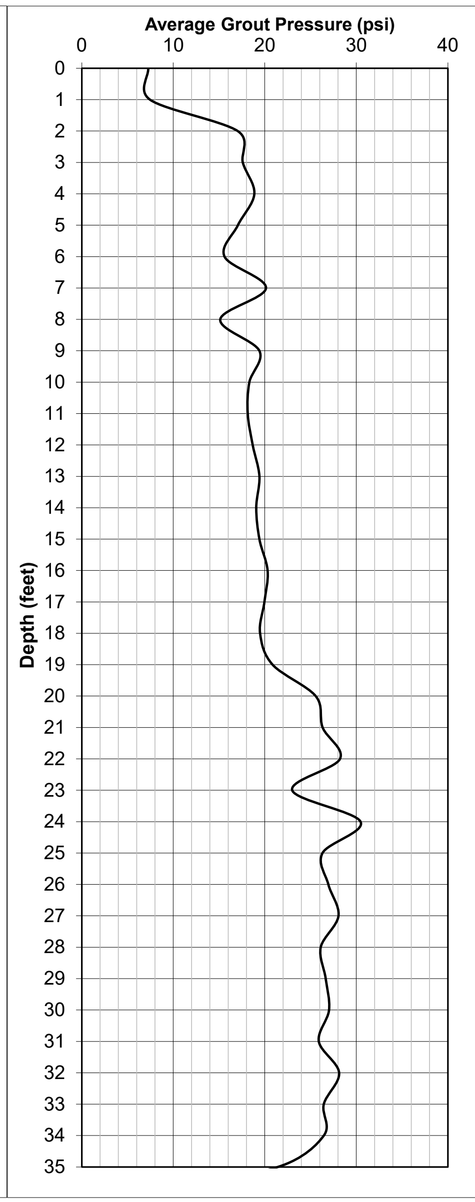
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:39 PM	Concrete Volume:	72.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:45 PM	Column Depth:	35.1	ft
		End Time:	2:50 PM	Pre Auger:		
		Total Time:	11 min			

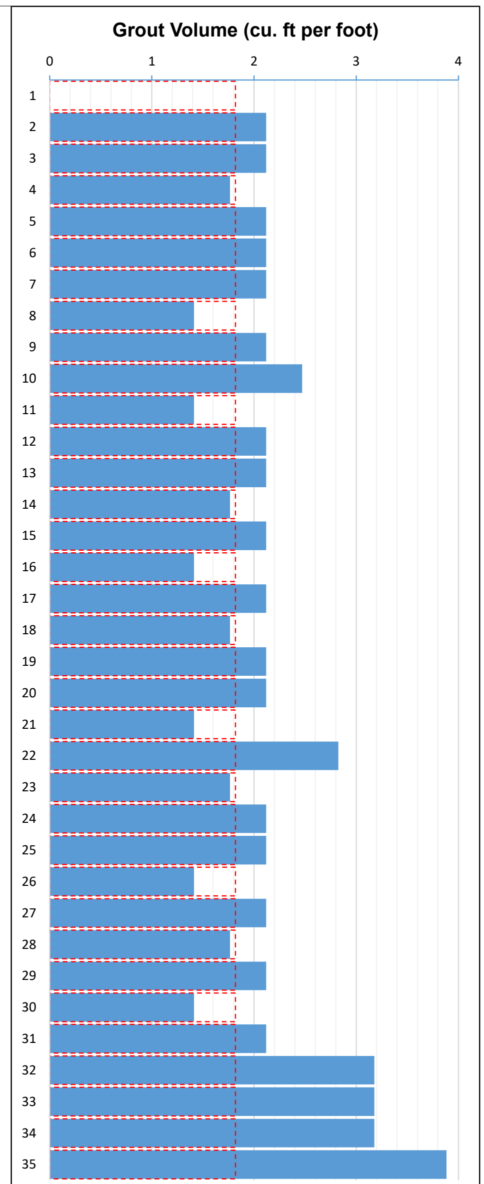
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

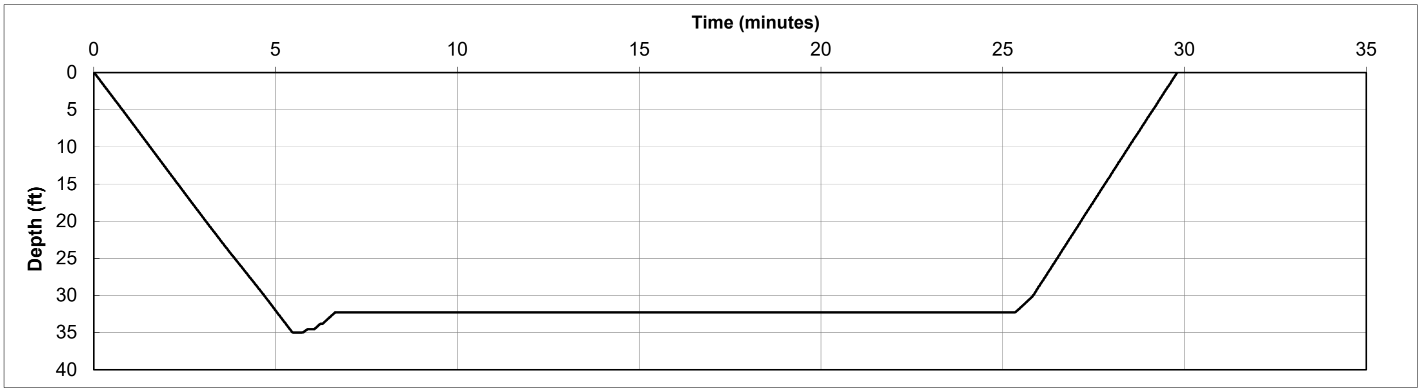
Project Site Data | **Data for Column No: 246**

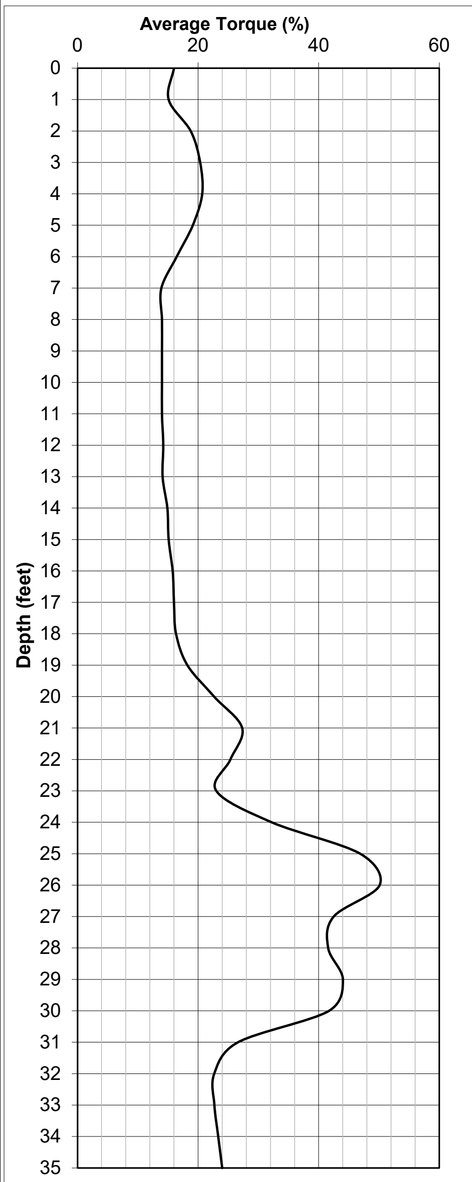
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	2:53 PM	Concrete Volume:	77.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	2:59 PM	Column Depth:	35.0	ft
		End Time:	3:23 PM	Pre Auger:		
		Total Time:	30 min			

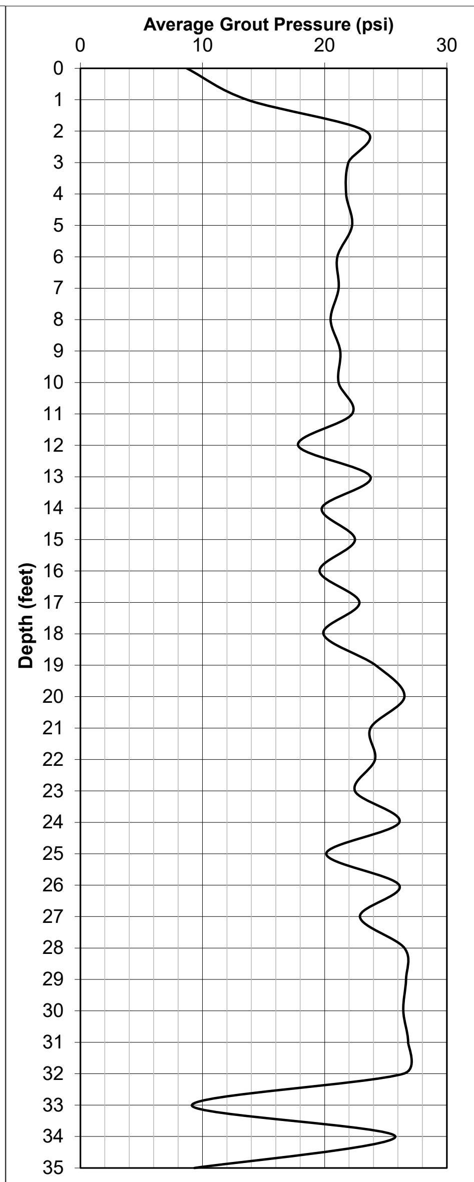
Rig Id: BG-30

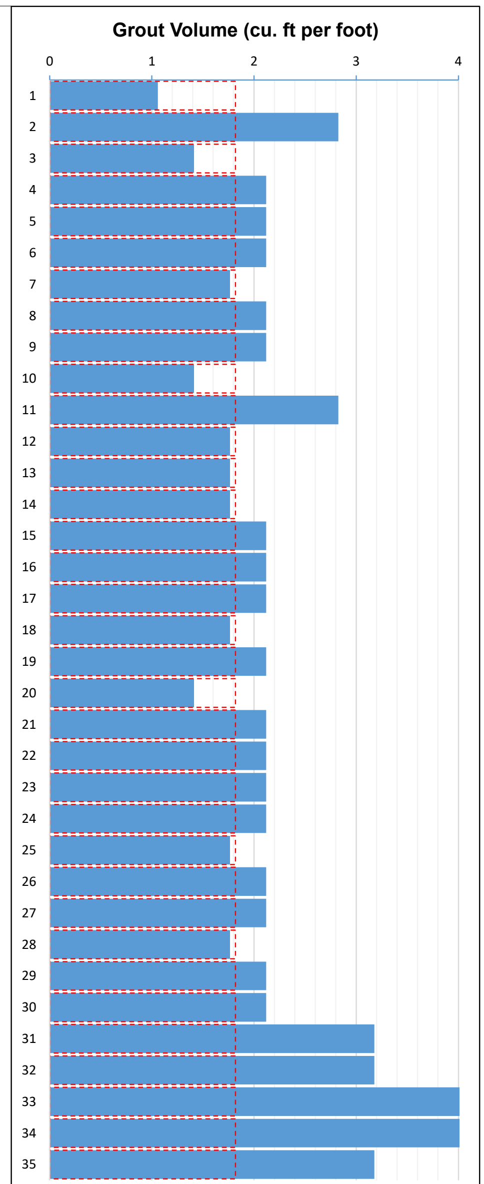
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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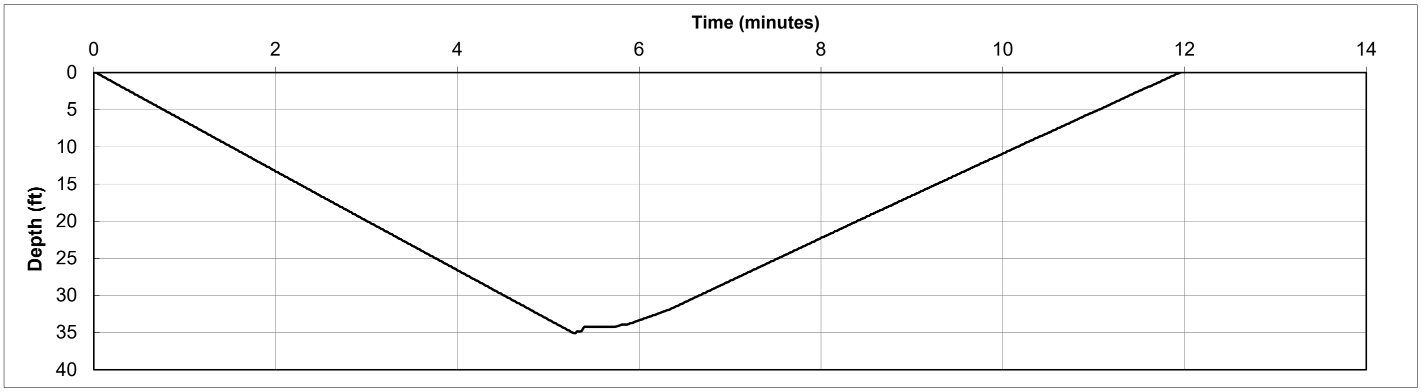
Lake Forest, CA 92630
P: 310-796-9000

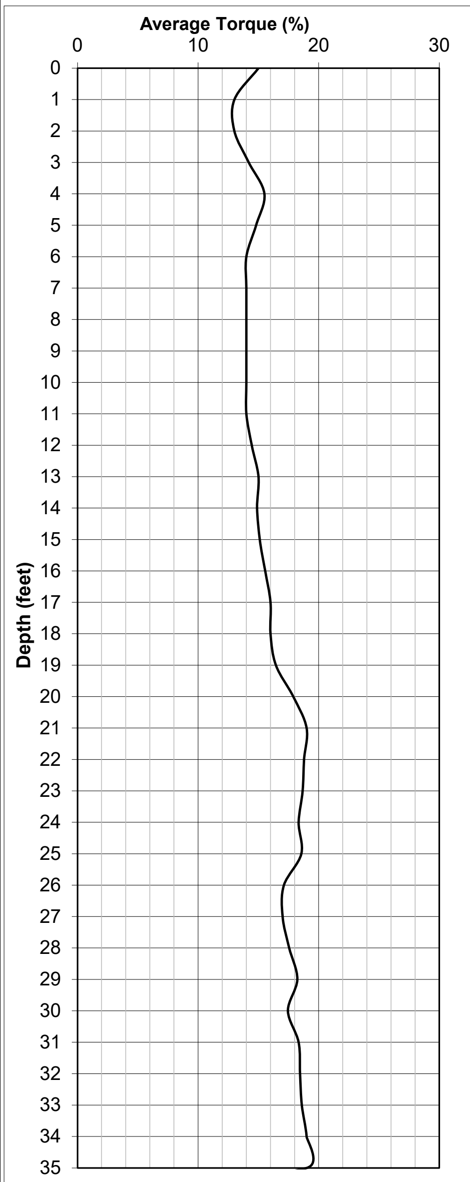
Project Site Data **Data for Column No: 111**

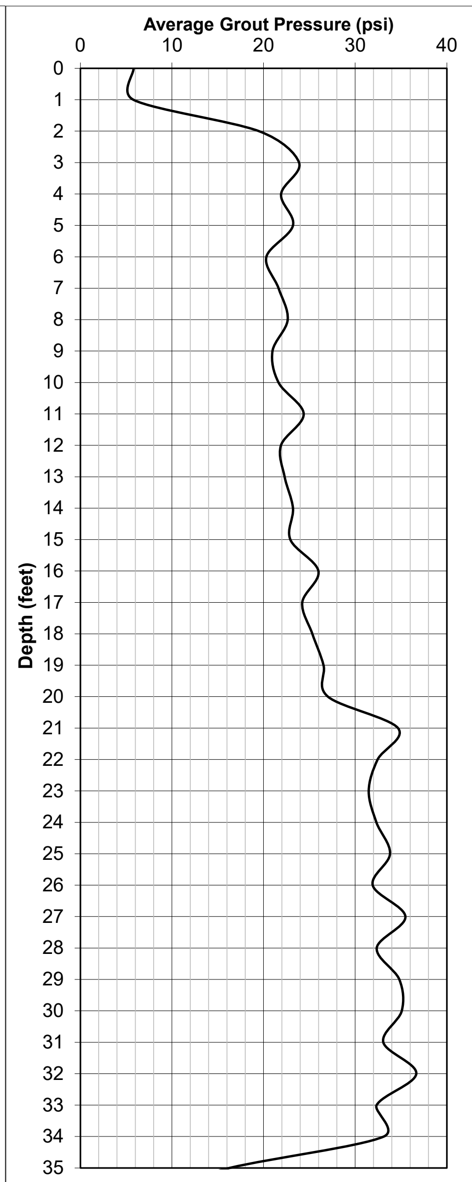
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	3:37 PM	Concrete Volume:	94.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	3:42 PM	Column Depth:	35.1	ft
		End Time:	3:49 PM	Pre Auger:		
		Total Time:	12 min			

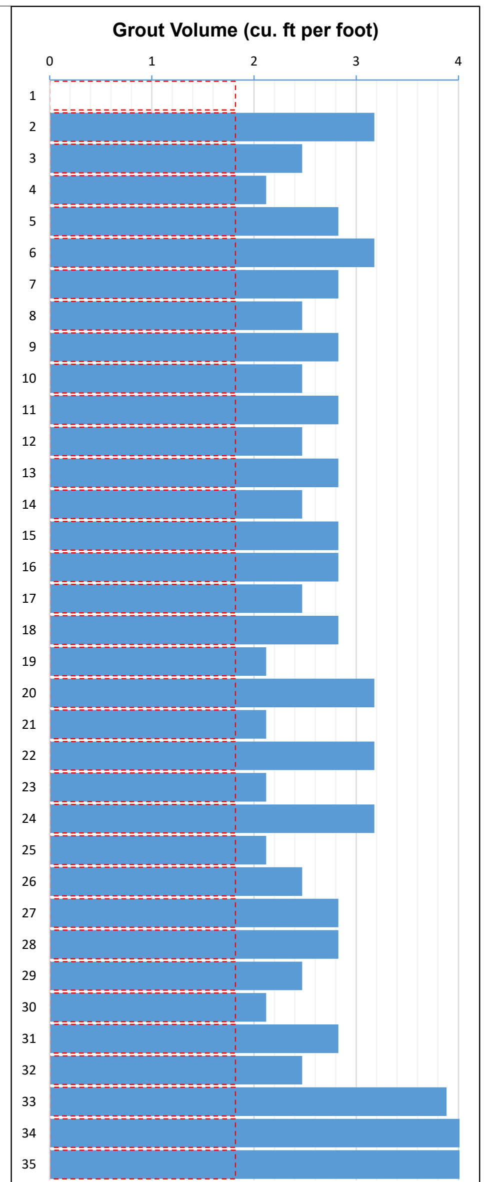
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









ADVANCED GEOSOLUTIONS INC

Daily Production Summary- Displacement Grout Columns

Project No. : **P271275**
Date: Tuesday, December 22, 2020
Project Name: Oxnard College Fire Training Academy
Rig: BG-30
Rig Operator: James "Smitty" Smith
Oiler: Benny Sandoval

Seq. No	Rig No.	Col. ID	Start Time	Bottom Time	End Time	Surface Elev.	Column Depth (ft)	*Act. Tip Elev.*	Concrete Volume (cu. feet)	Truck ID	Comments
1		110	07:40	07:43	07:47	74.4	35.4	39.0	112	42608158	Installed from bottom to 12' on 12/21, ran out of concrete. Drilled several feet into top of existing column before installing remainder of column
2		173	07:52	07:56	07:59	74.4	20.6	53.8	46	42608158	
3		117	08:01	08:07	08:12	74.4	35.0	39.4	77	42608158	
4		172	08:15	08:19	08:22	74.4	20.6	53.8	46	42608158	
5		171	08:30	08:34	08:39	74.4	20.5	53.9	46	42608169	
6		113	09:08	09:13	09:19	74.4	35.1	39.3	83	42608169	
7		170	09:22	09:25	09:28	74.4	20.5	53.9	46	42608169	
8		169	09:32	09:36	09:42	74.4	20.6	53.8	46	42608169	
9		240	09:55	10:01	10:08	74.4	35.0	39.4	97	42608186	
10		168	10:11	10:14	10:17	74.4	20.5	53.9	44	42608186	
11		203	10:22	10:26	10:29	74.4	20.6	53.8	48	42608186	
12		163	10:32	10:36	10:58	74.4	22.2	52.2	50	42608186	
13		204	11:00	11:04	11:07	74.4	20.5	53.9	44	42850304	
14		164	11:09	11:14	11:17	74.4	20.6	53.8	45	42850304	
15		165	11:20	11:23	11:27	74.4	20.7	53.7	45	42850304	
16		104	11:29	11:35	11:40	74.4	35.1	39.3	73	42850304	
17		166	11:43	11:47	12:40	74.4	20.5	53.9	44	42850304	
18		106	12:42	12:48	12:53	74.4	35.1	39.3	75	42850322	
19		167	12:55	12:59	13:02	74.4	20.6	53.8	48	42850322	
20		108	13:05	13:13	13:18	74.4	35.0	39.4	74	42850322	
21		202	13:22	13:25	13:28	74.4	20.5	53.9	45	42850326	
22		201	13:31	13:34	13:38	74.4	20.9	53.5	46	42850326	
23		200	13:41	13:44	13:47	74.4	20.5	53.9	47	42850326	
24		199	13:50	13:54	13:57	74.4	20.6	53.8	46	42850326	

DGC Log Sheet

Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

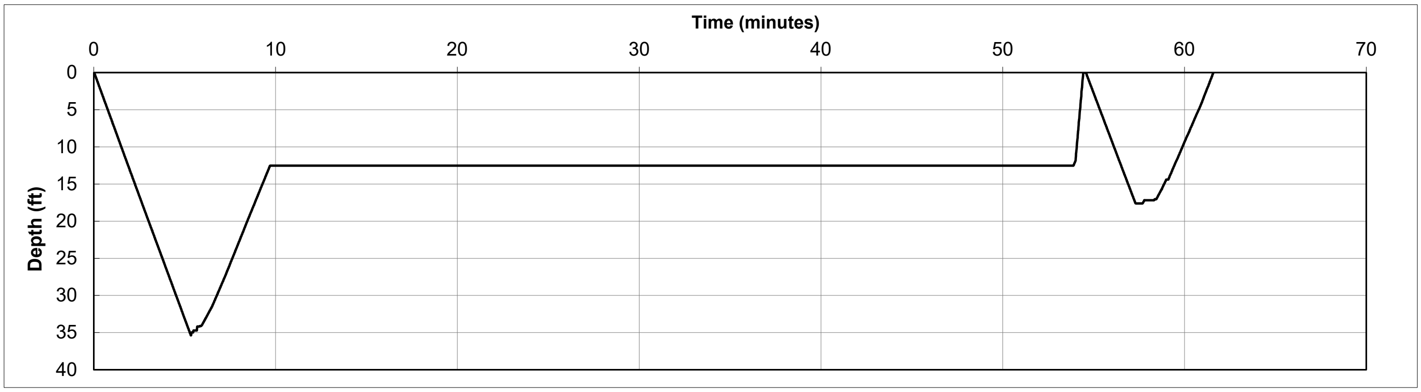
Project Site Data

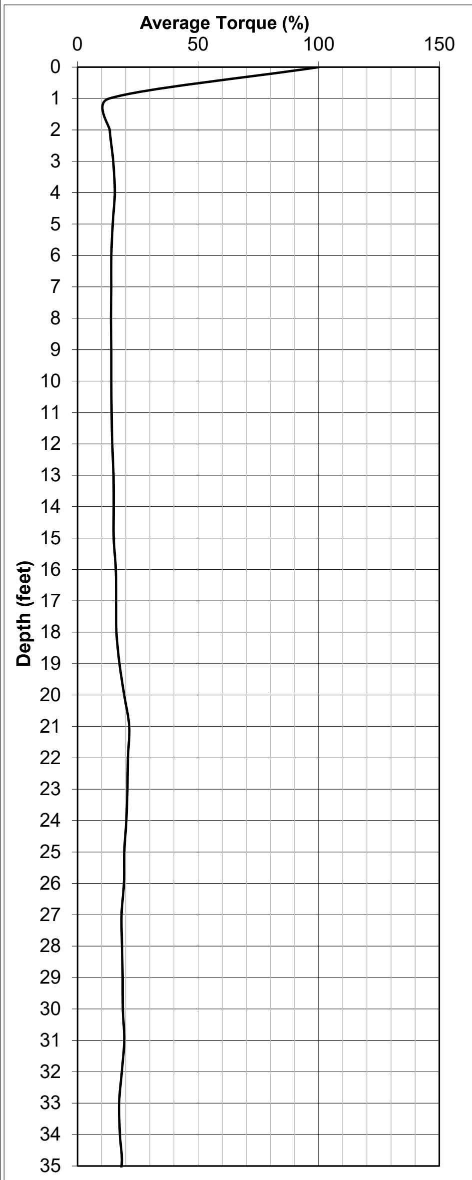
Data for Column No: 110

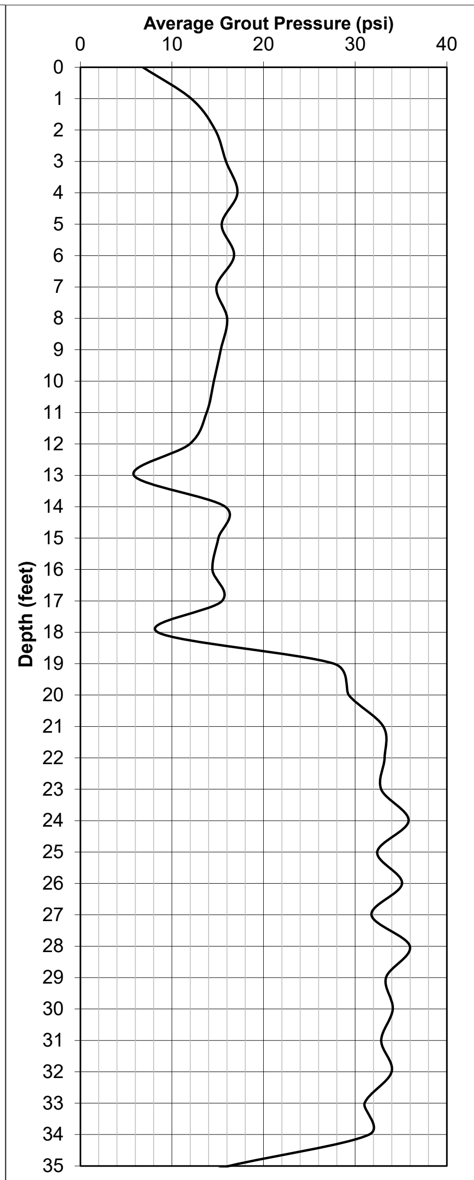
Project Name:	Oxnard College Fire Training	Date:	12/21/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	4:03 PM	Concrete Volume:	111.9	cubic ft
General Contractor:	Oxnard College	Bottom Time:	4:09 PM	Column Depth:	35.4	ft
		End Time:	4:19 PM	Pre Auger:		
		Total Time:	16 min			

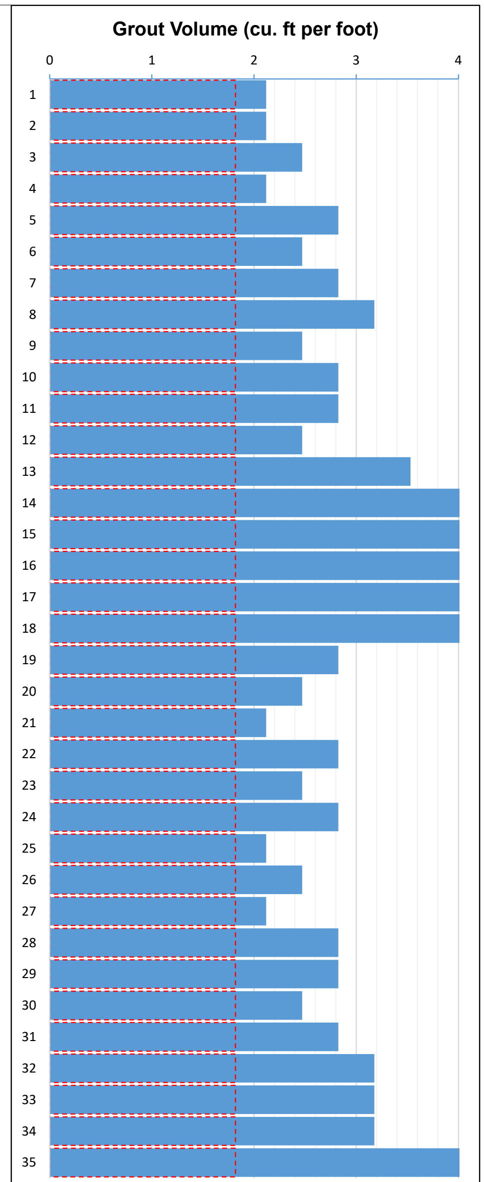
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

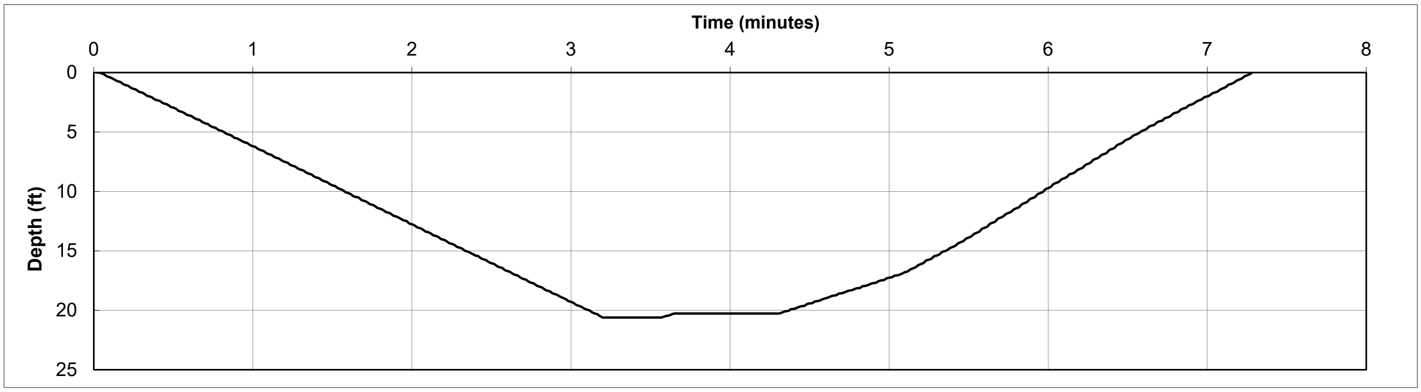
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

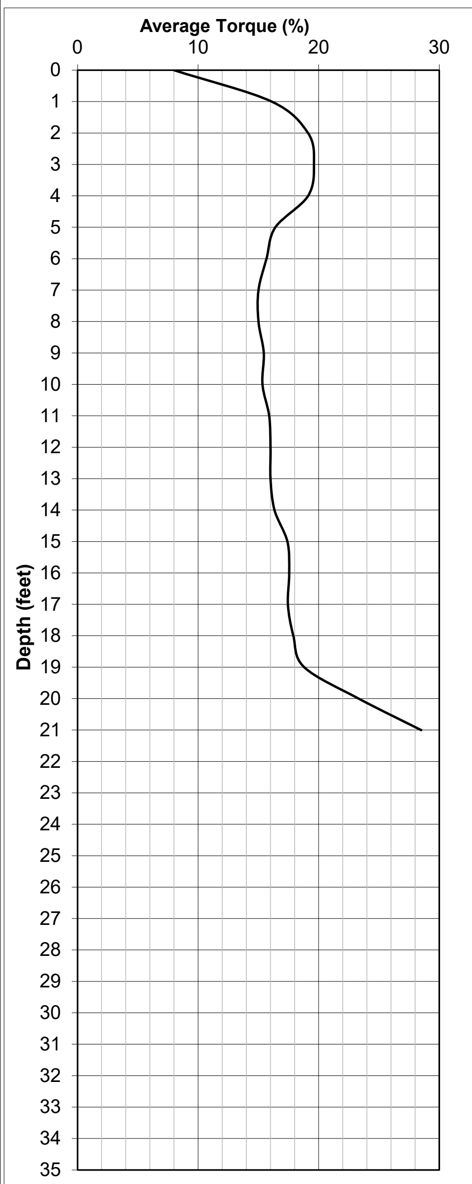
Project Site Data | **Data for Column No: 173**

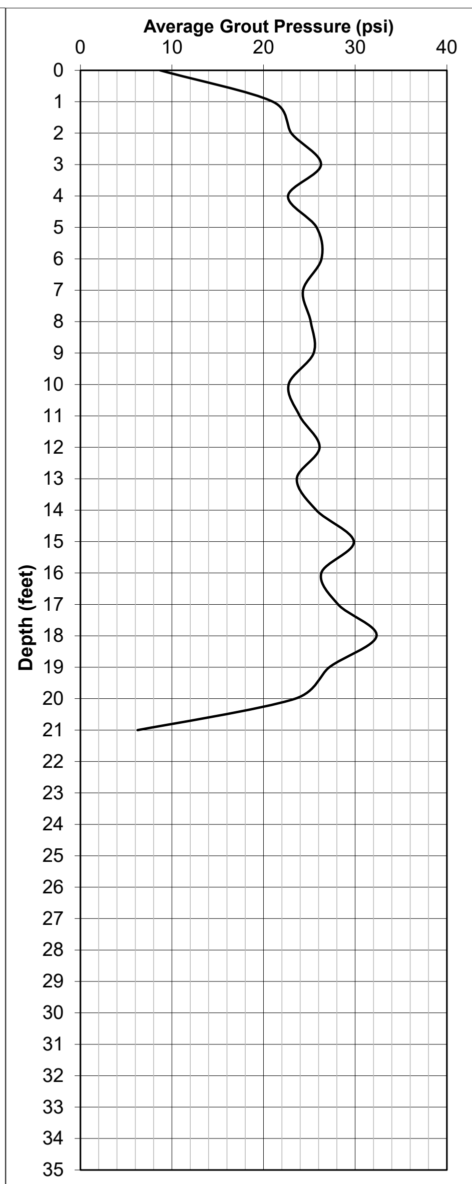
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	7:52 AM	Concrete Volume:	46.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	7:56 AM	Column Depth:	20.6	ft
		End Time:	7:59 AM	Pre Auger:		
		Total Time:	7 min			

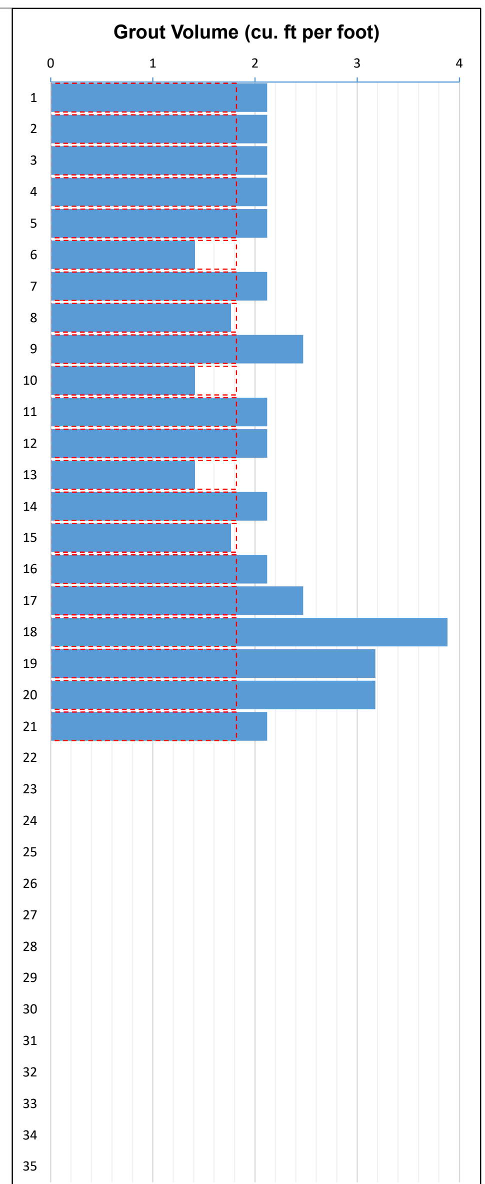
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
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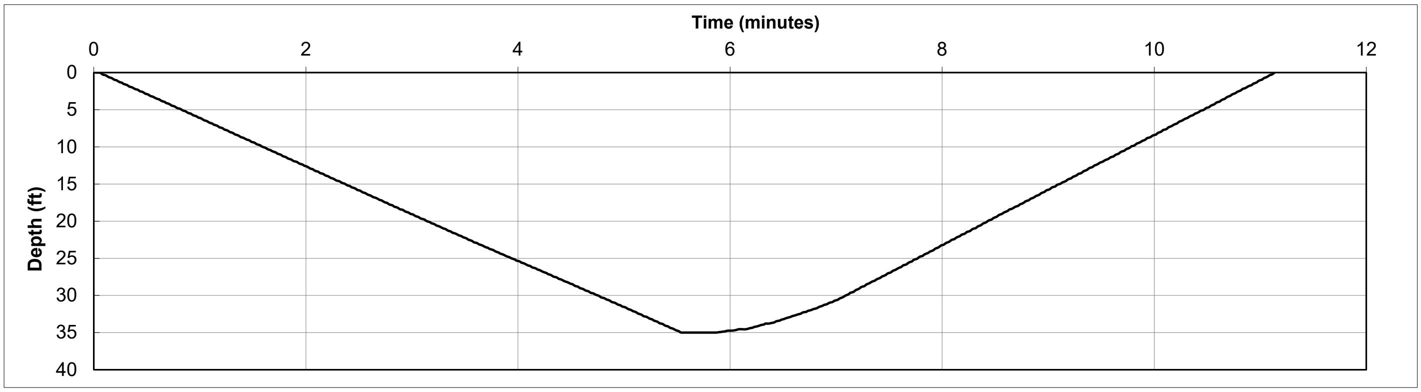
Lake Forest, CA 92630
P: 310-796-9000

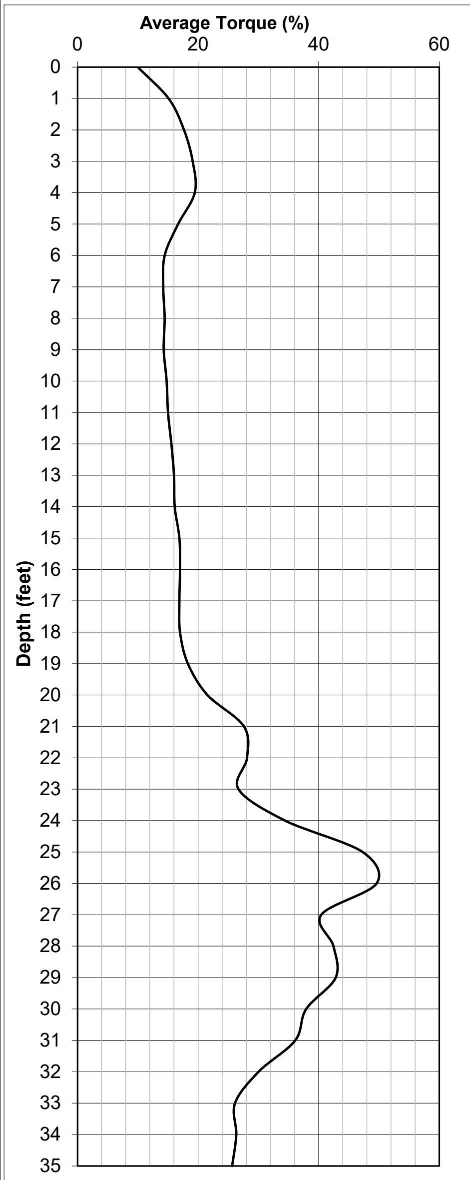
Project Site Data | **Data for Column No: 117**

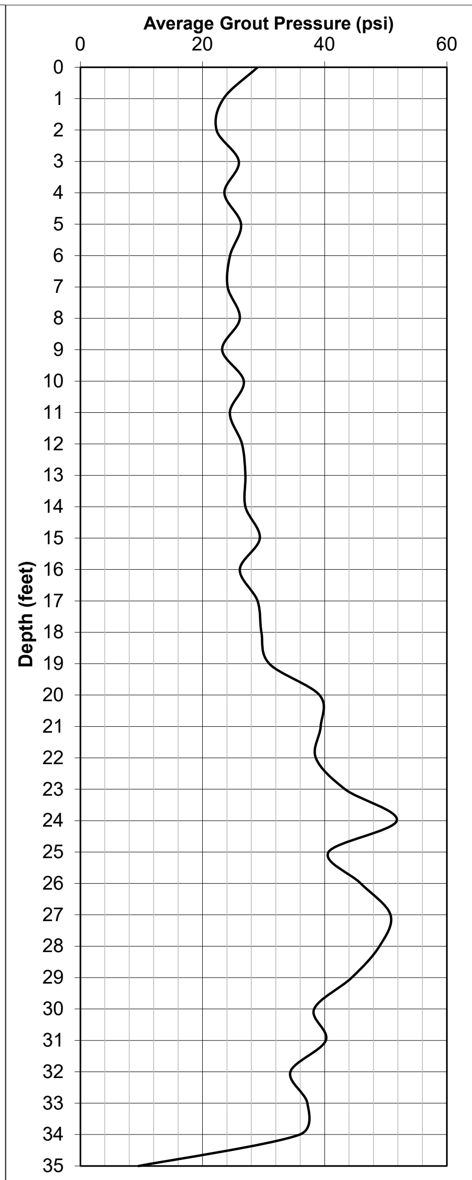
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:01 AM	Concrete Volume:	76.6	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:07 AM	Column Depth:	35.0	ft
		End Time:	8:12 AM	Pre Auger:		
		Total Time:	11 min			

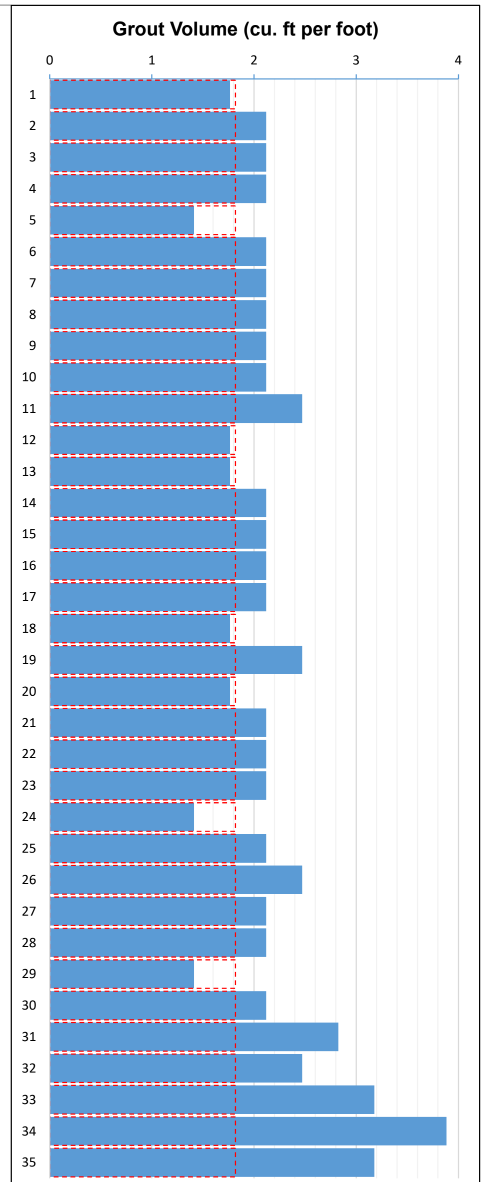
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

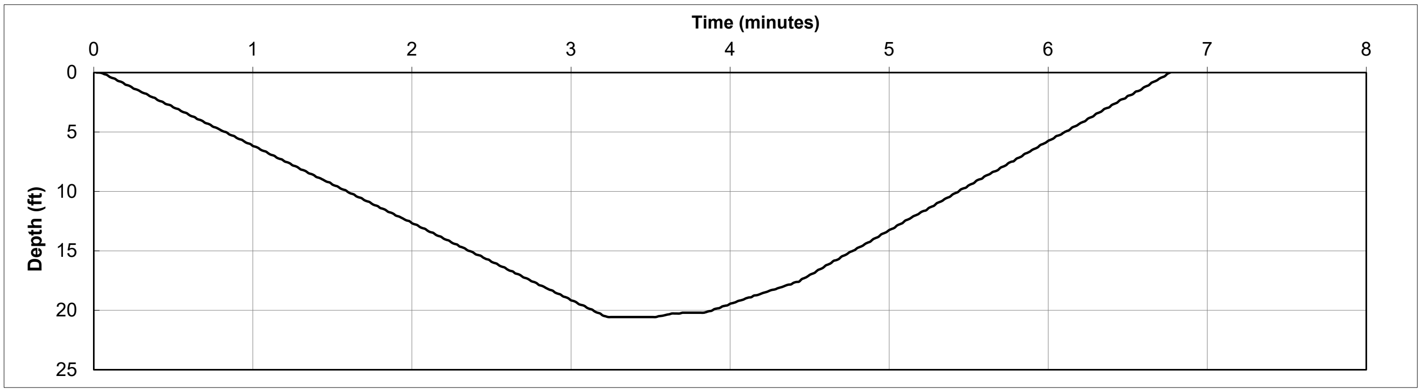
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

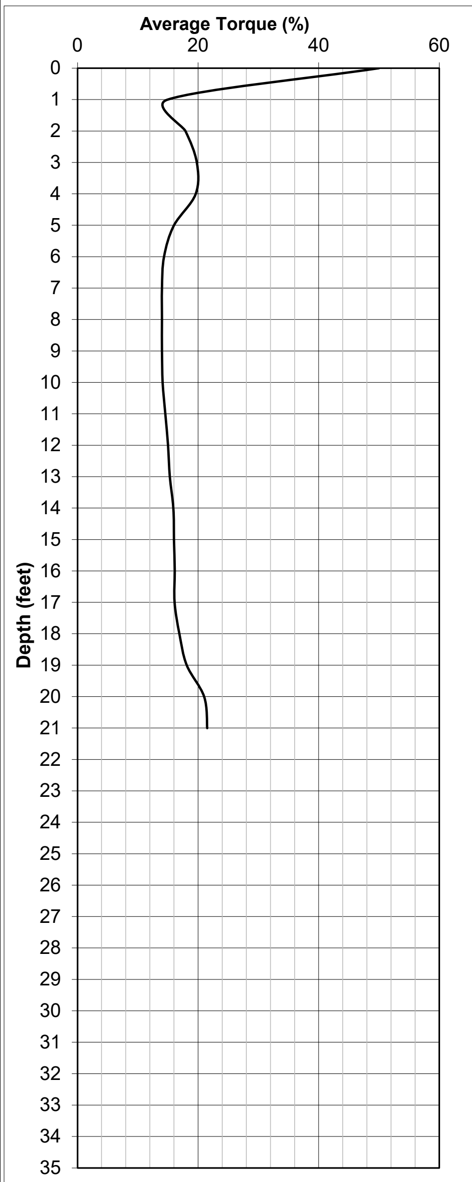
Project Site Data | **Data for Column No: 172**

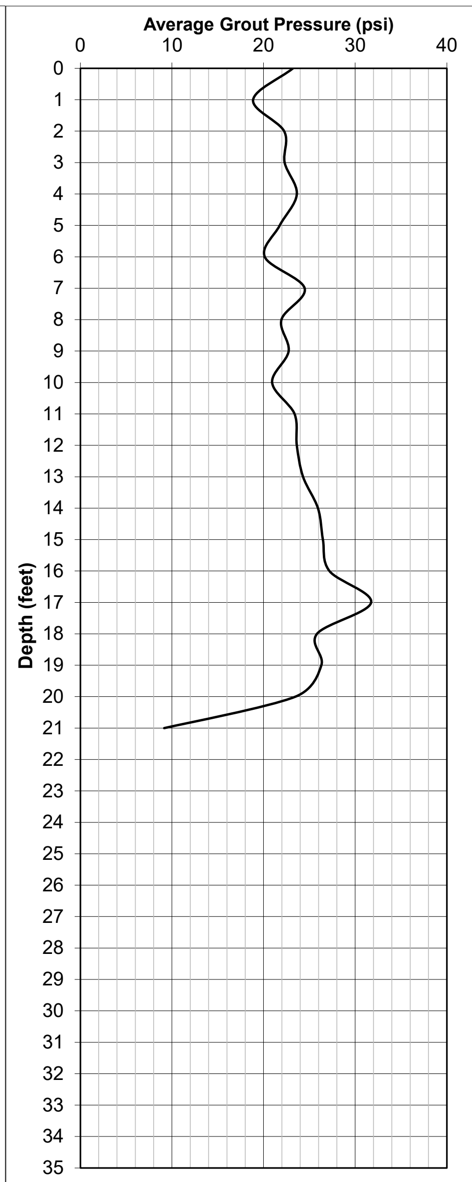
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:15 AM	Concrete Volume:	46.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:19 AM	Column Depth:	20.6	ft
		End Time:	8:22 AM	Pre Auger:		
		Total Time:	7 min			

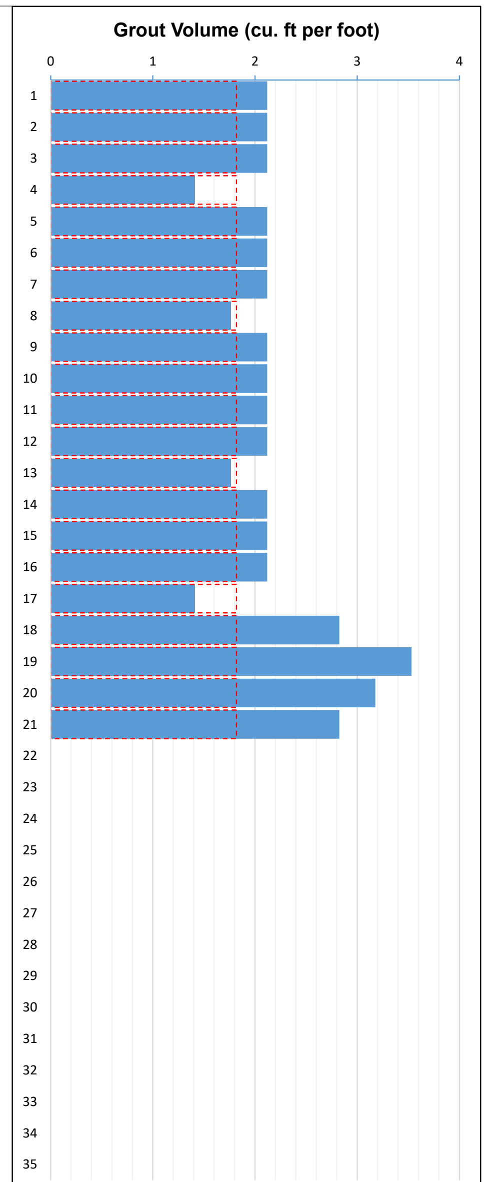
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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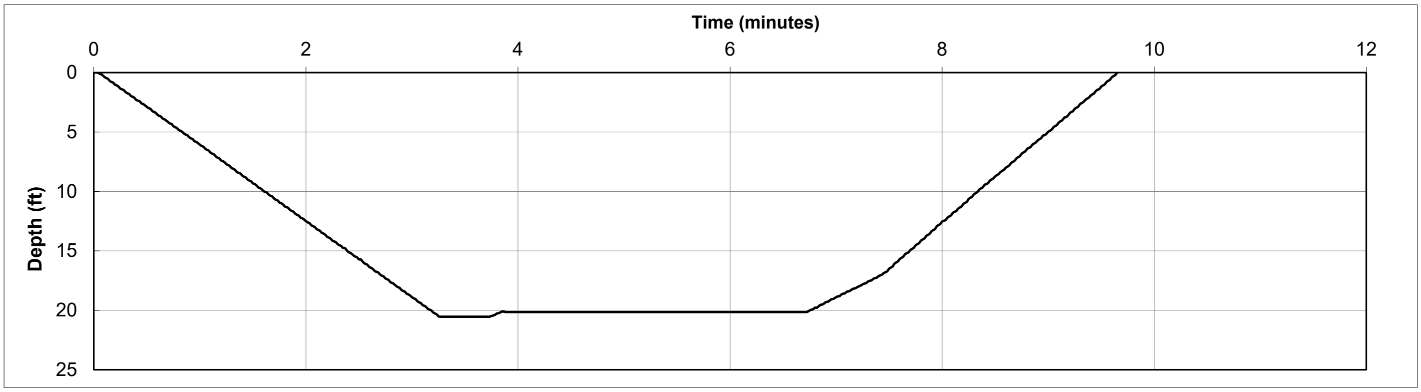
Project Site Data

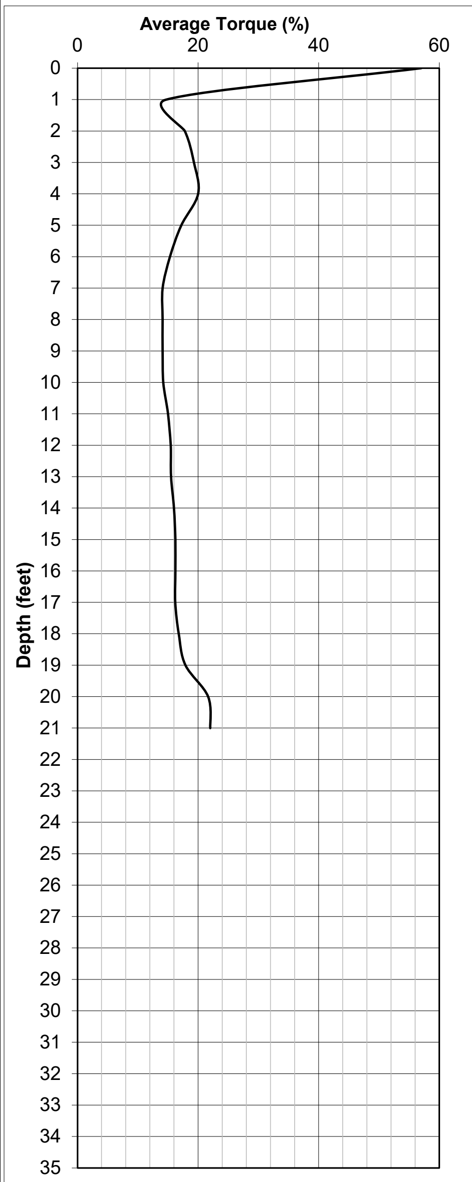
Data for Column No: 171

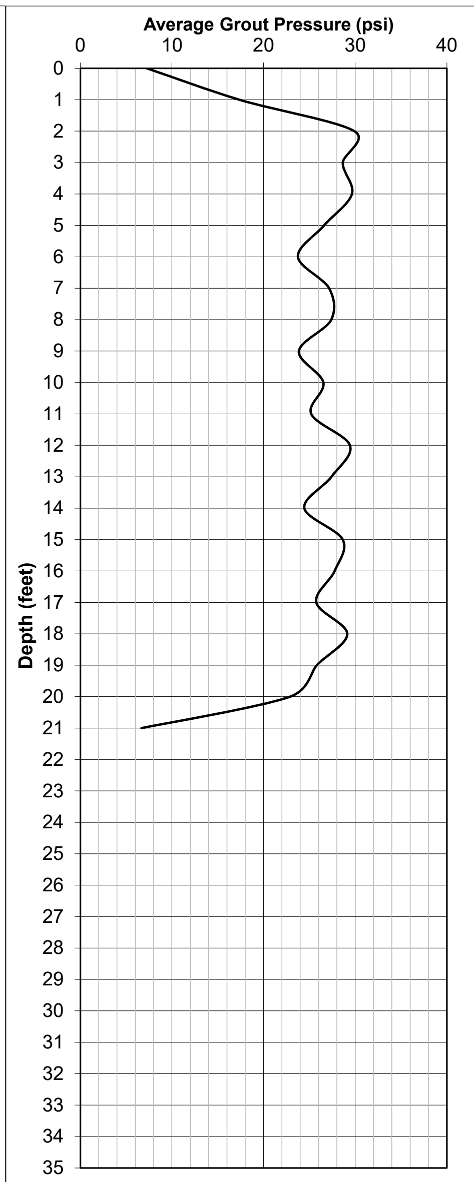
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:30 AM	Concrete Volume:	46.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:34 AM	Column Depth:	20.5	ft
		End Time:	8:39 AM	Pre Auger:		
		Total Time:	10 min			

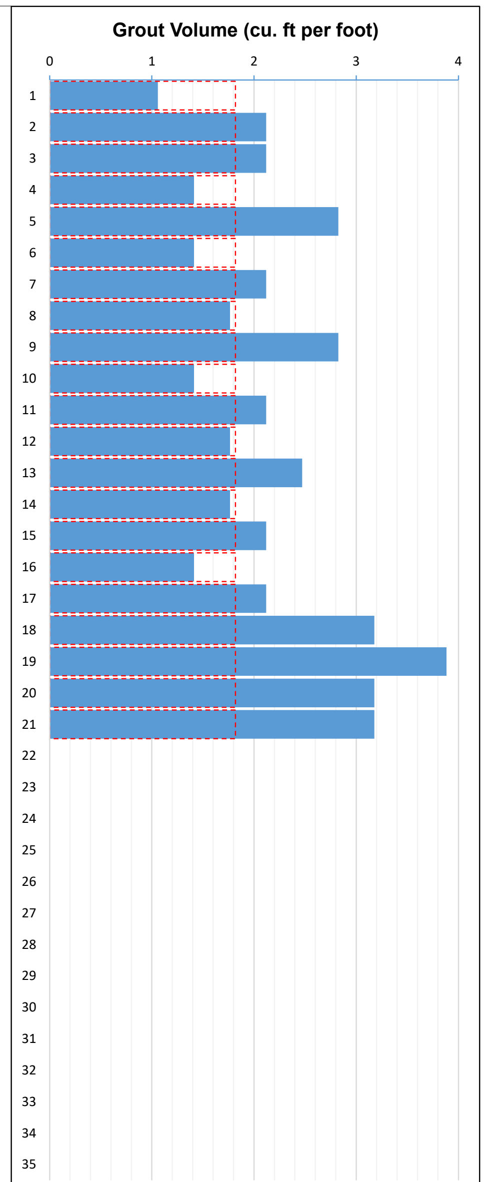
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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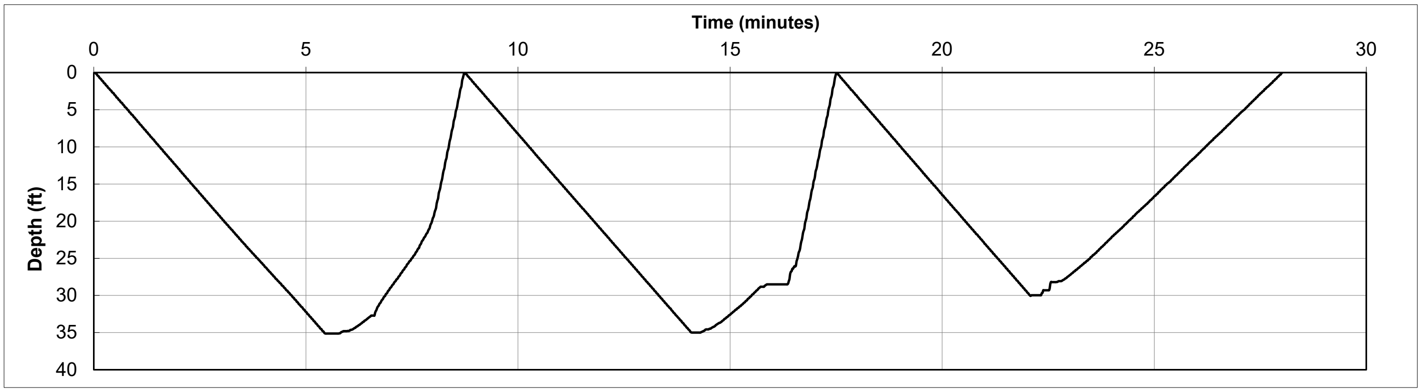
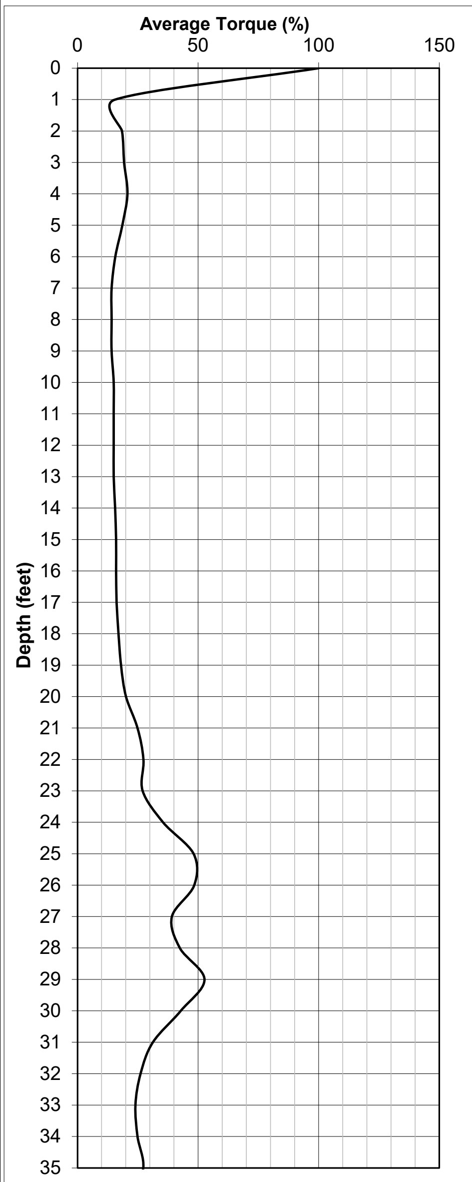
Project Site Data **Data for Column No: 113**

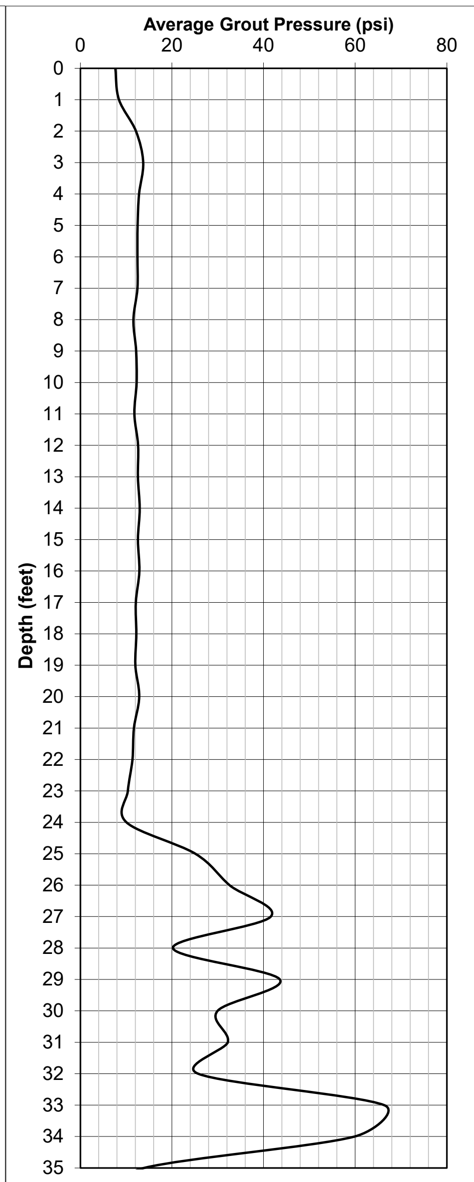
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	8:43 AM	Concrete Volume:	83.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	8:48 AM	Column Depth:	35.1	ft
		End Time:	9:19 AM	Pre Auger:		
		Total Time:	36 min			

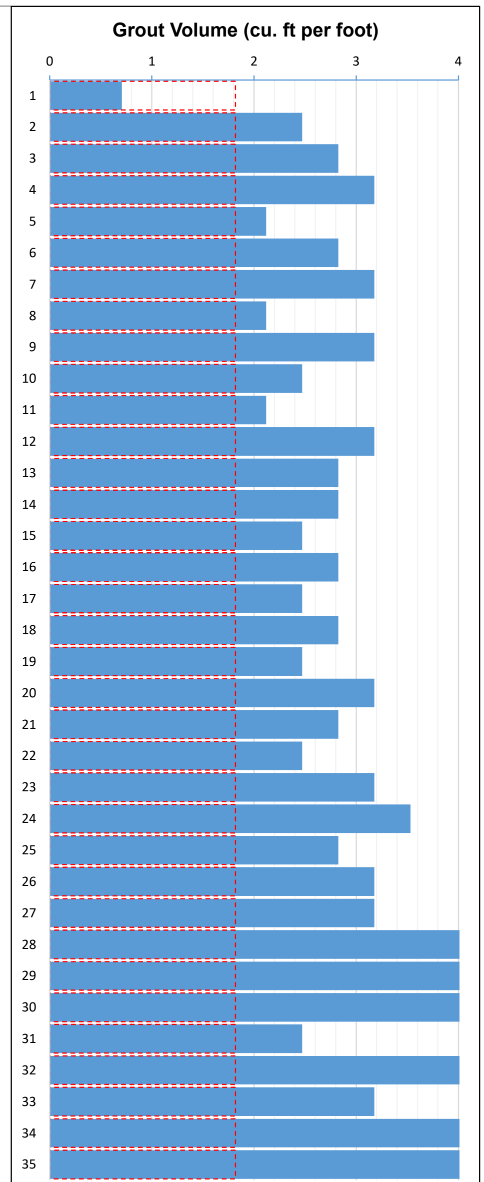
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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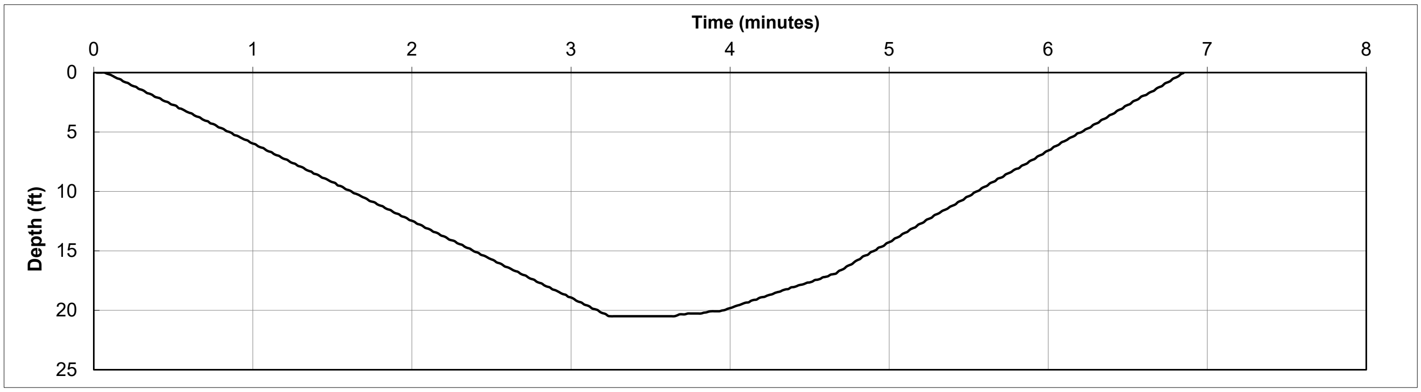
Project Site Data

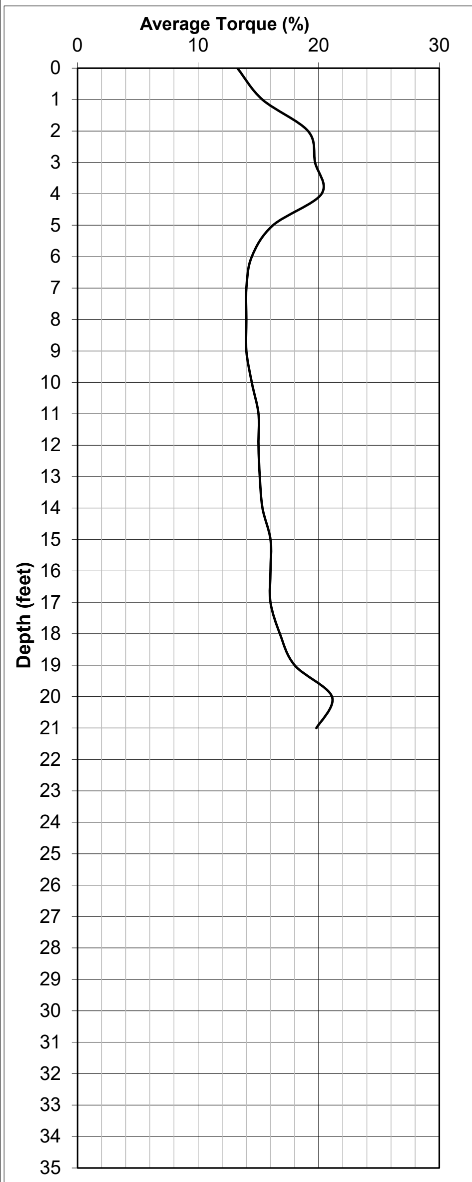
Data for Column No: 170

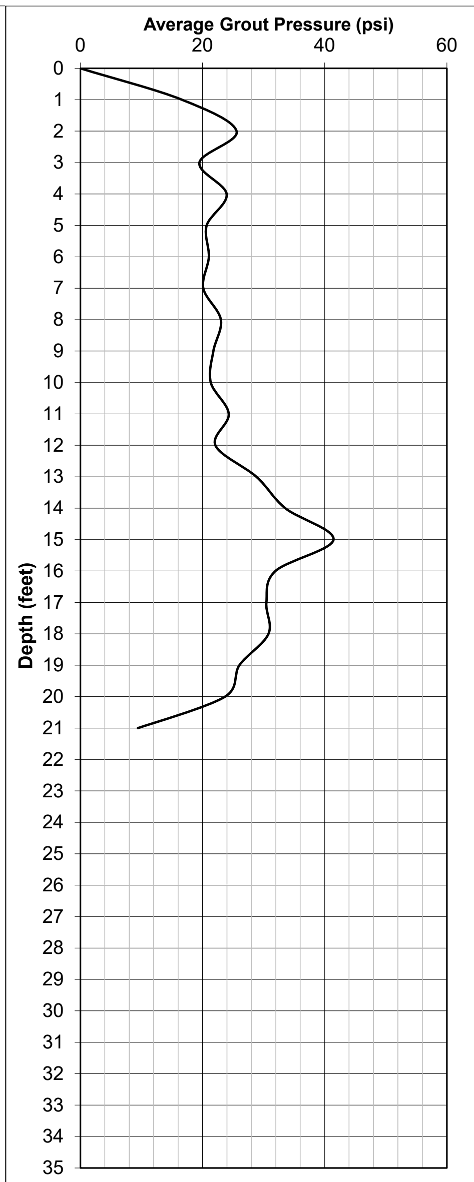
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:22 AM	Concrete Volume:	46.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:25 AM	Column Depth:	20.5	ft
		End Time:	9:28 AM	Pre Auger:		
		Total Time:	7 min			

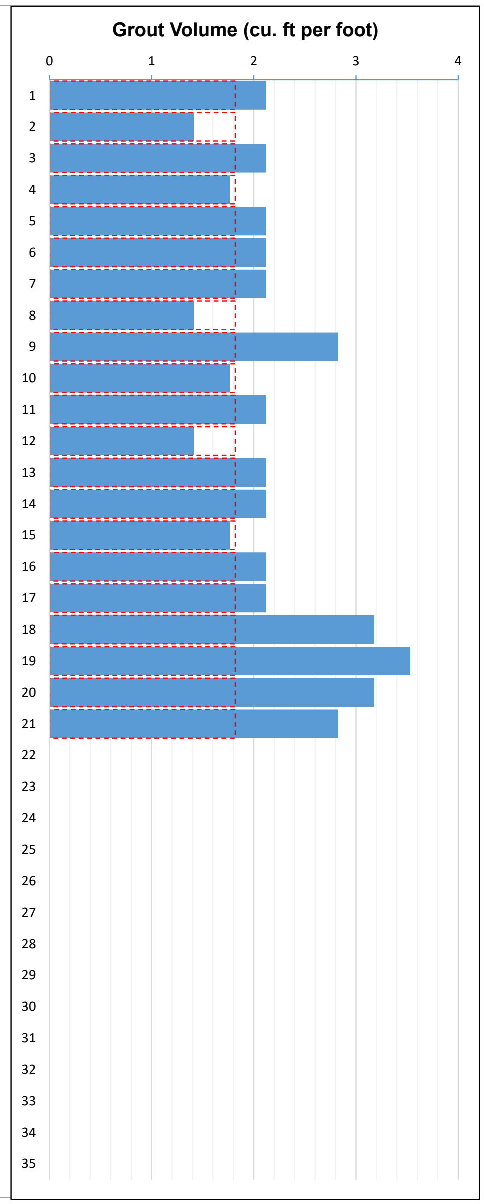
Tool meets 16" Nominal Requirement

Rig Id: BG-30
Operator: James "Smitty" Smith









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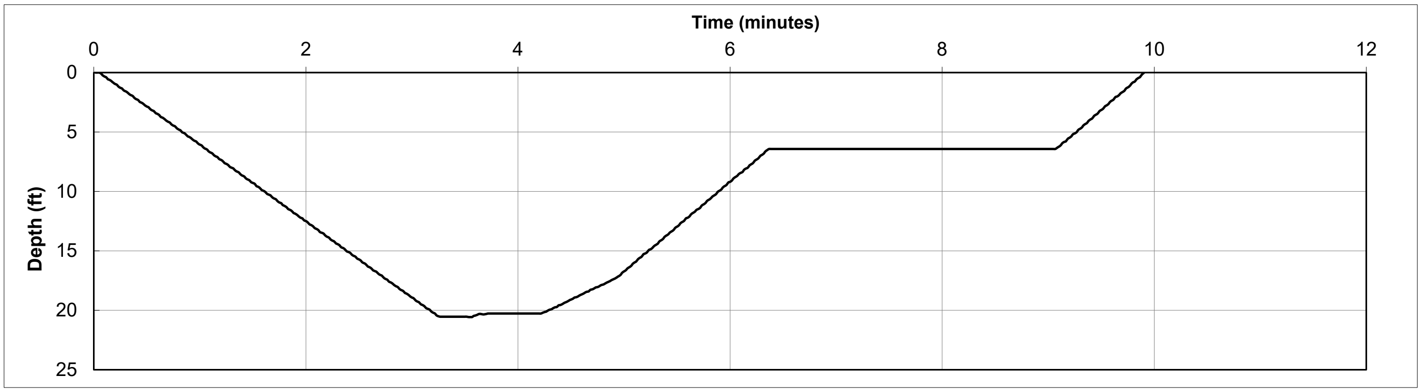
Project Site Data

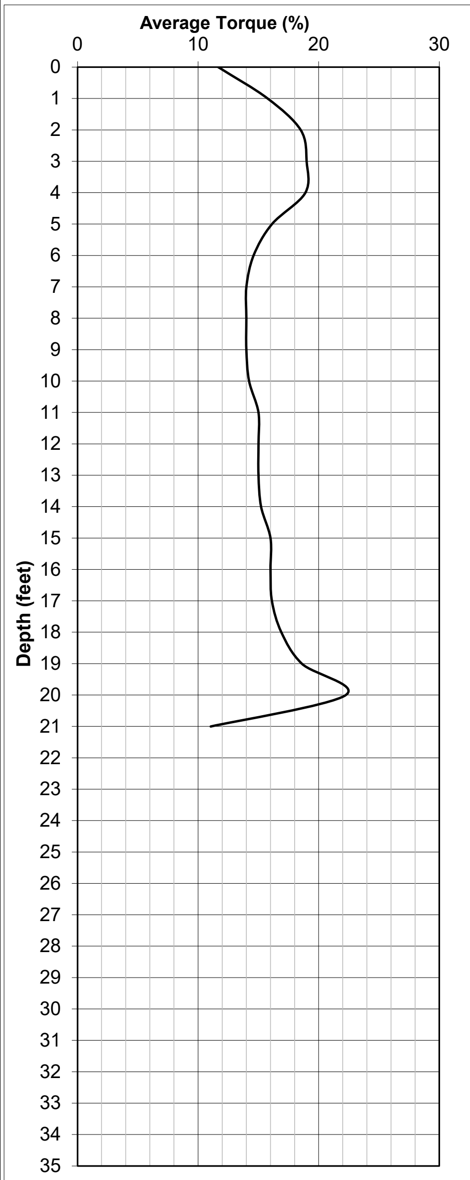
Data for Column No: 169

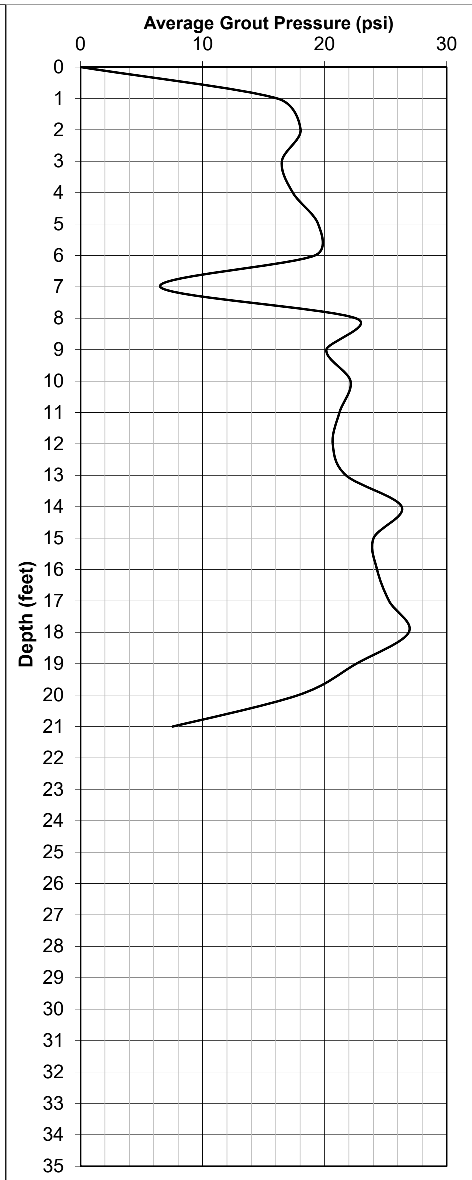
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:32 AM	Concrete Volume:	46.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	9:36 AM	Column Depth:	20.6	ft
		End Time:	9:42 AM	Pre Auger:		
		Total Time:	10 min			

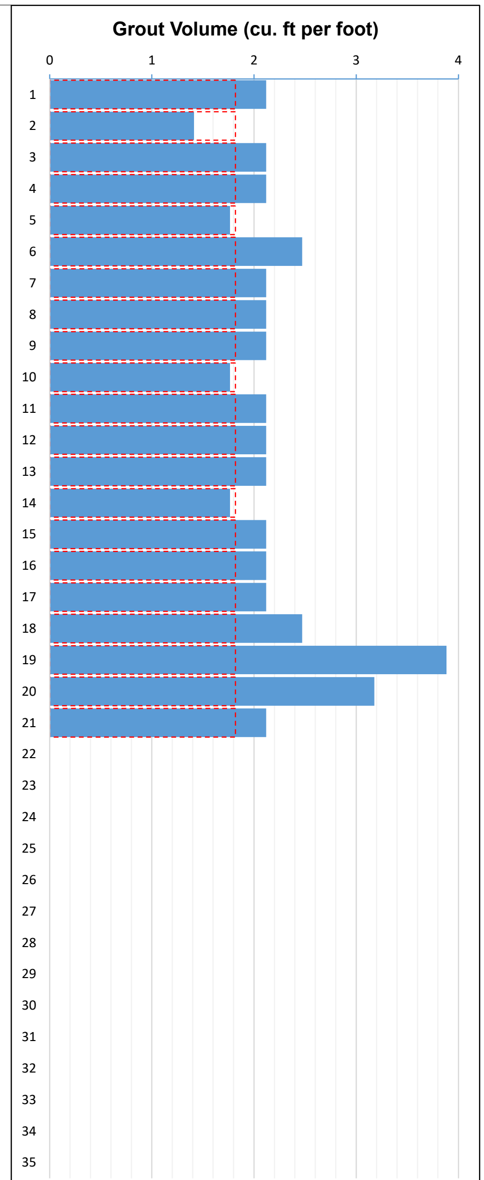
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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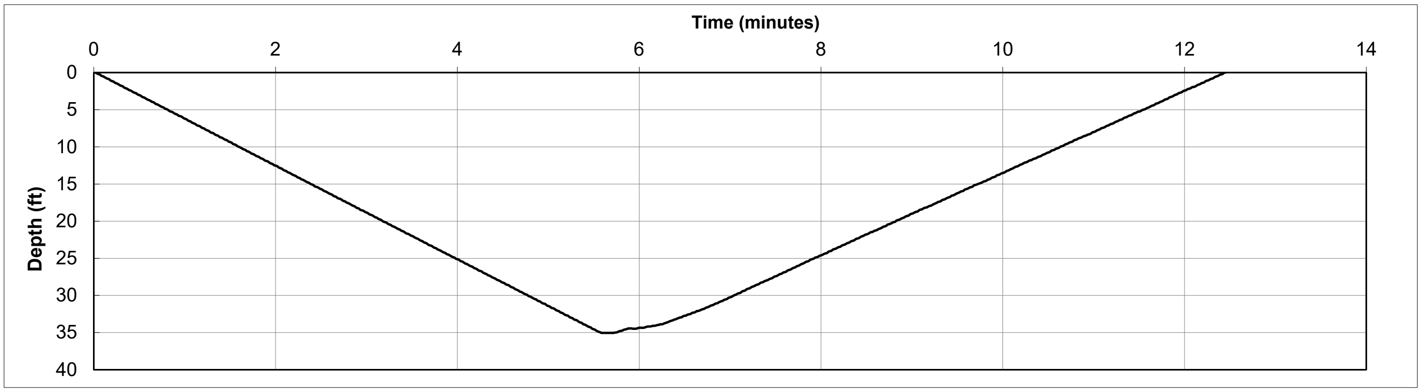
Project Site Data

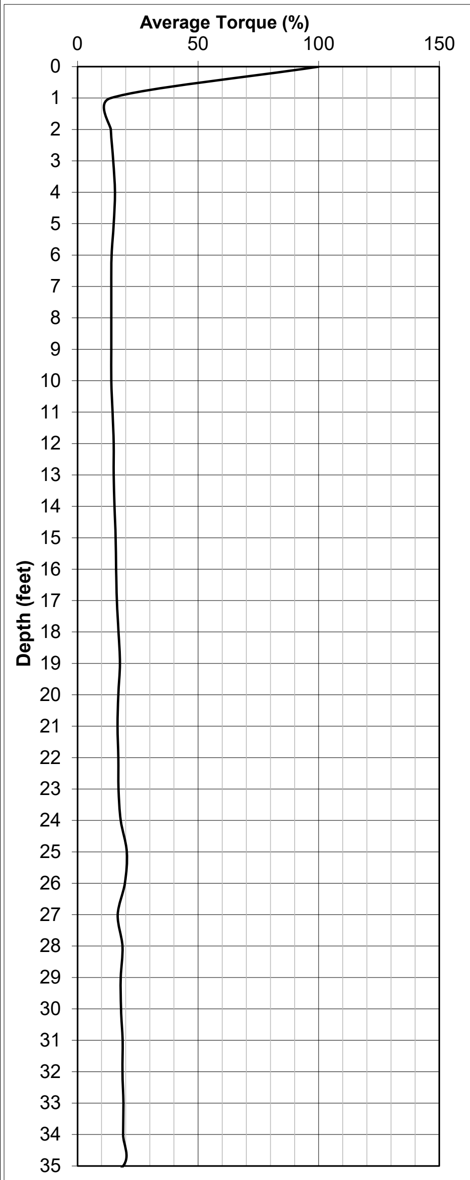
Data for Column No: 240

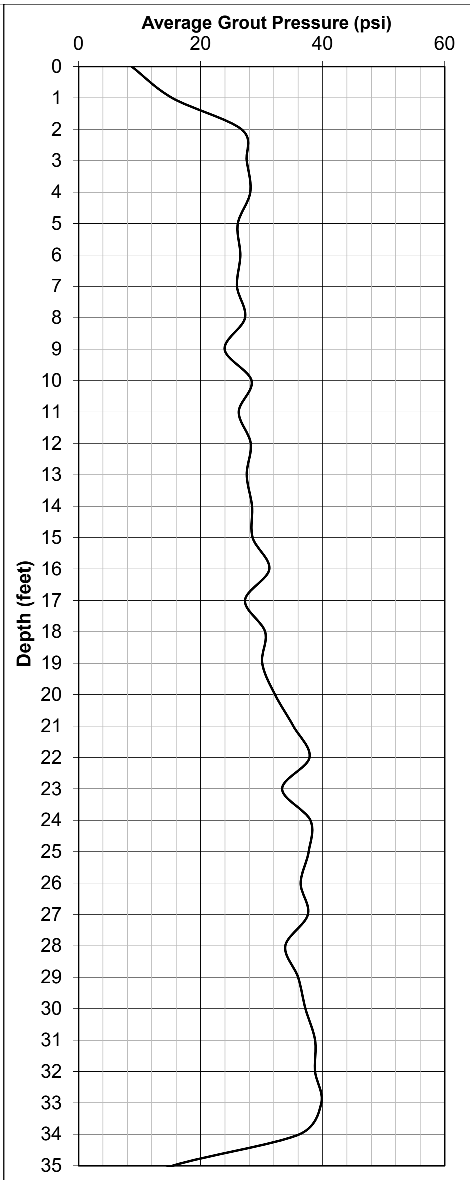
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	9:55 AM	Concrete Volume:	97.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:01 AM	Column Depth:	35.0	ft
		End Time:	10:08 AM	Pre Auger:		
		Total Time:	12 min			

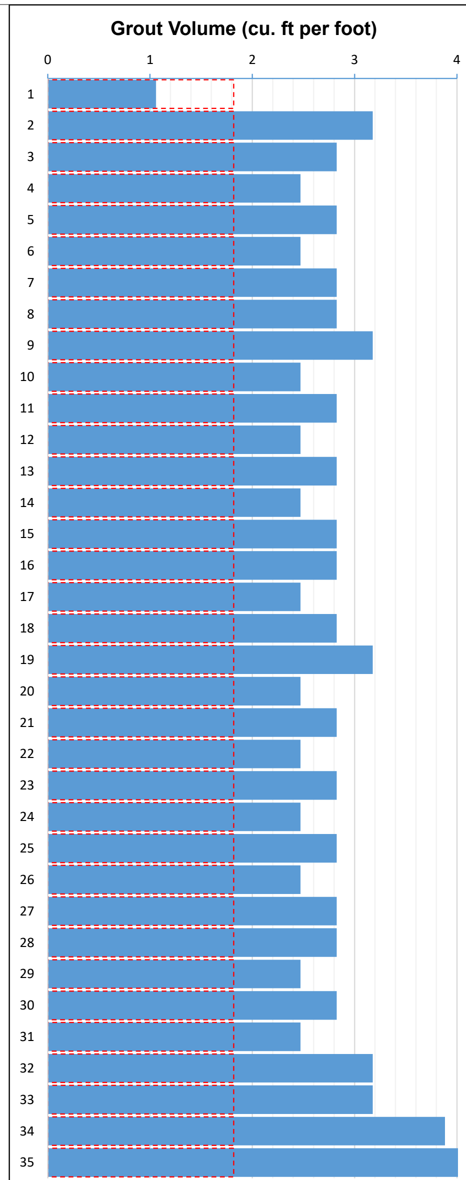
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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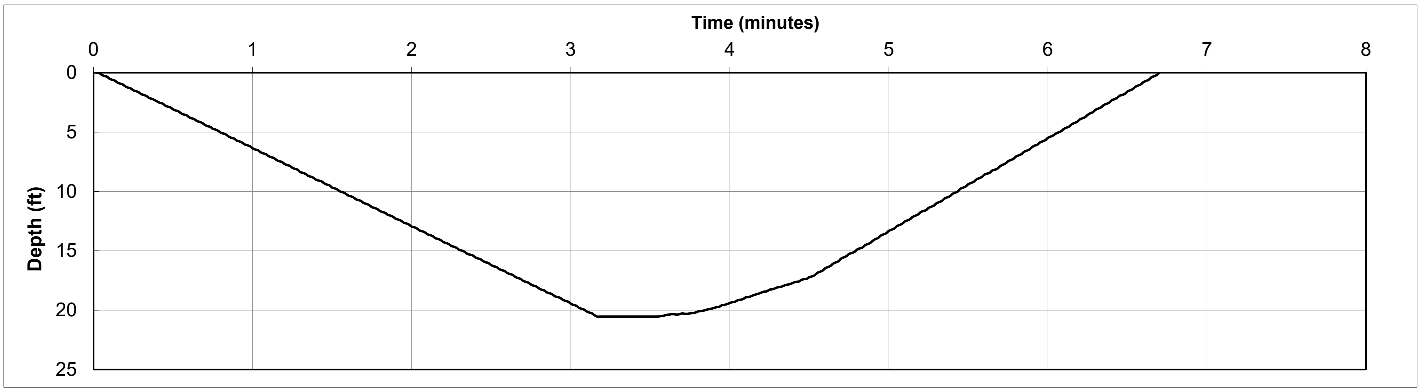
Project Site Data

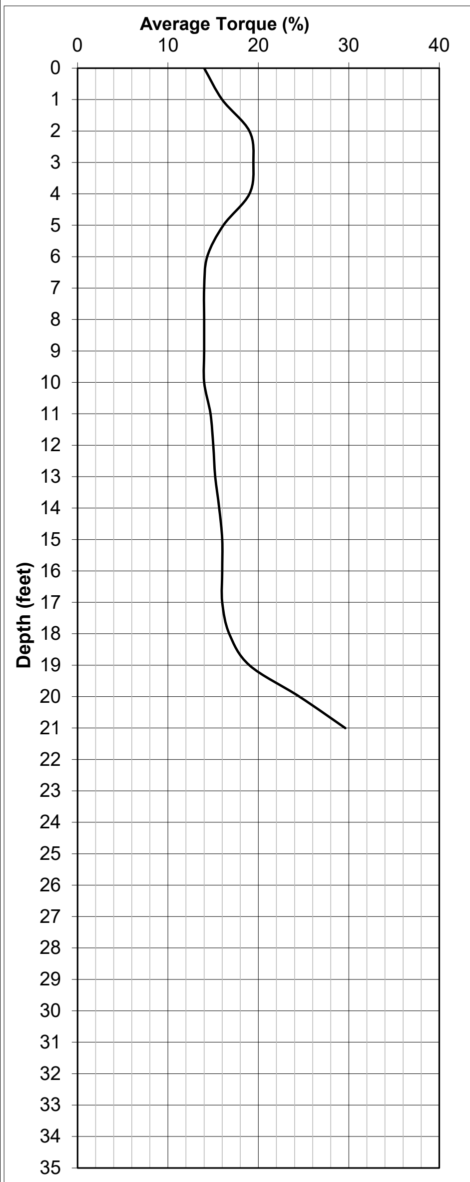
Data for Column No: 168

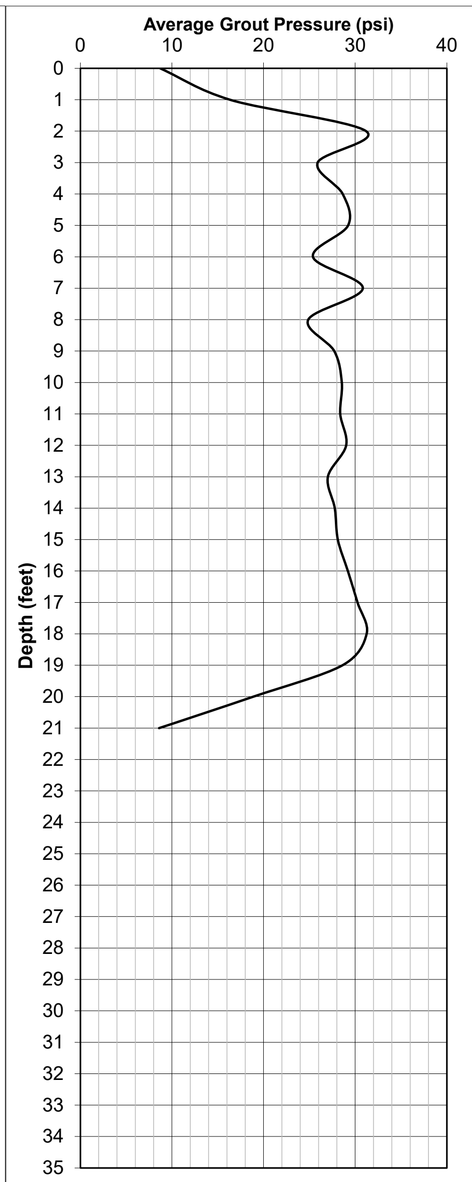
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:11 AM	Concrete Volume:	44.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:14 AM	Column Depth:	20.5	ft
		End Time:	10:17 AM	Pre Auger:		
		Total Time:	7 min			

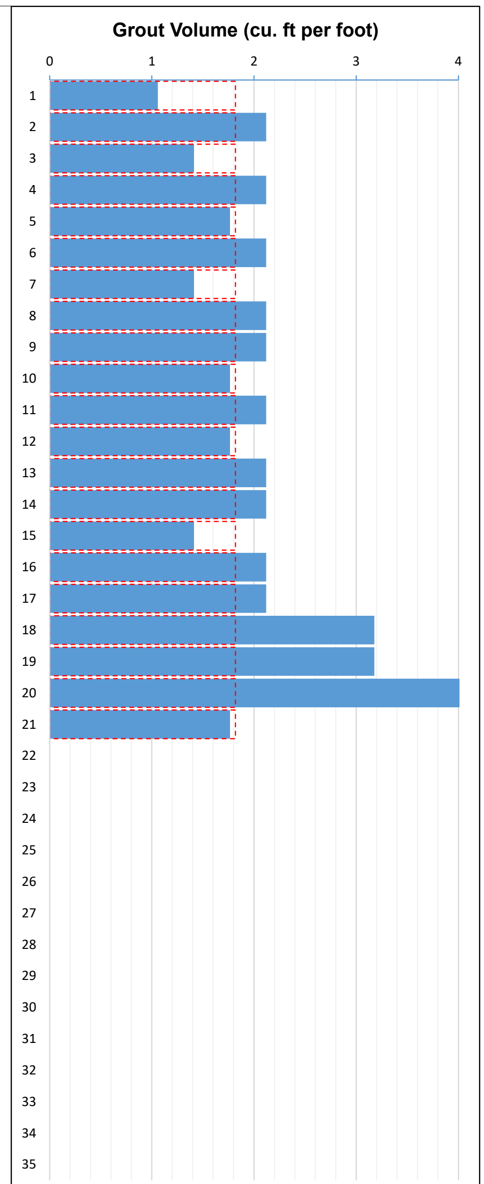
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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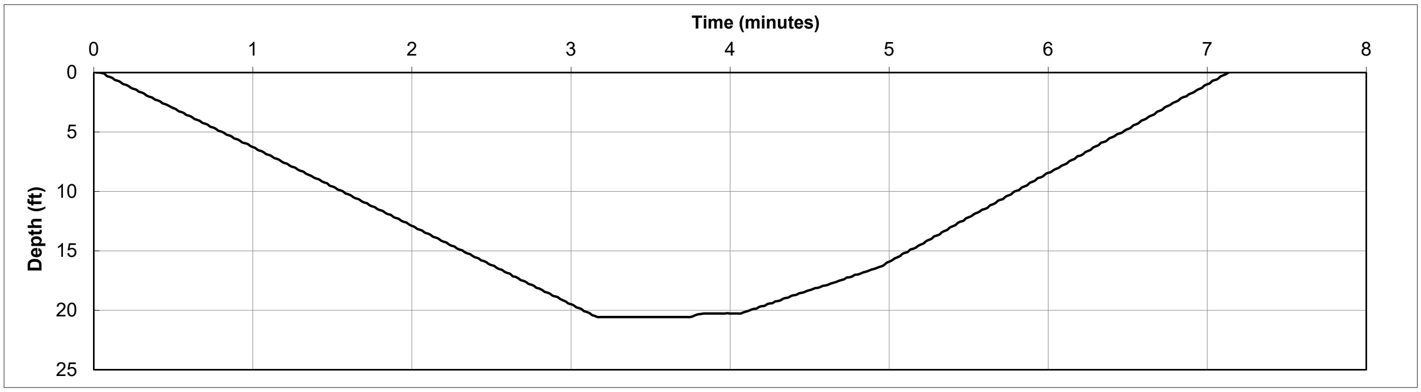
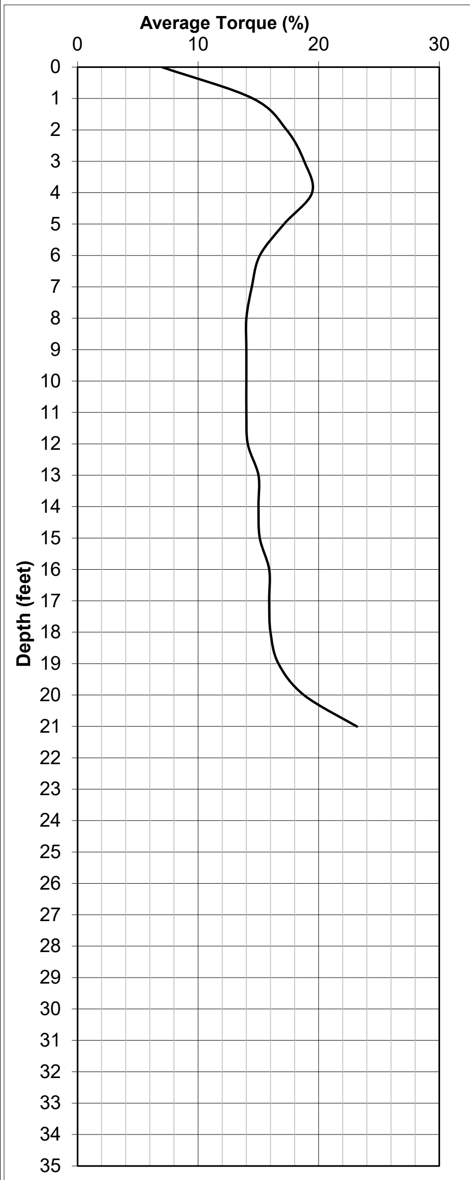
Project Site Data **Data for Column No: 203**

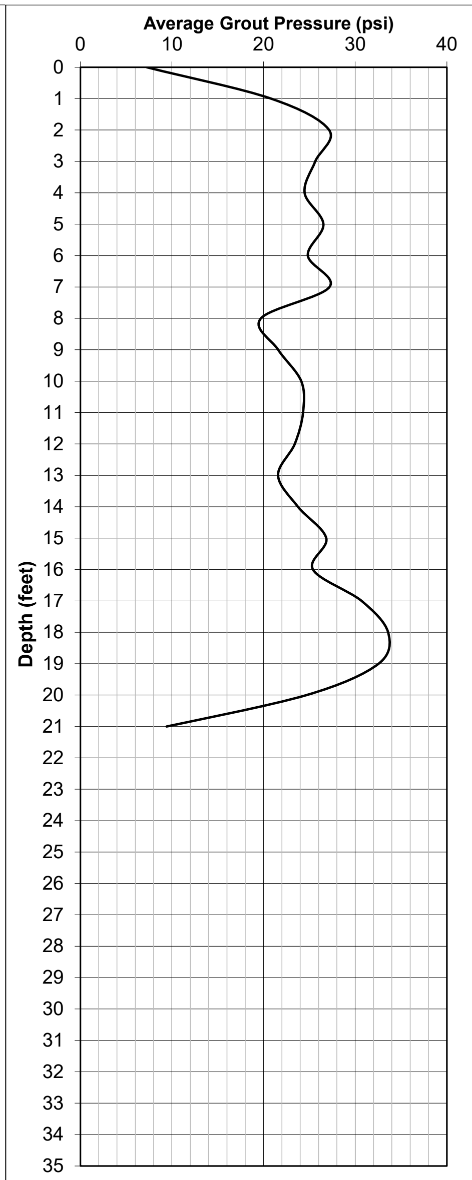
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:22 AM	Concrete Volume:	48.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:26 AM	Column Depth:	20.6	ft
		End Time:	10:29 AM	Pre Auger:		
		Total Time:	7 min			

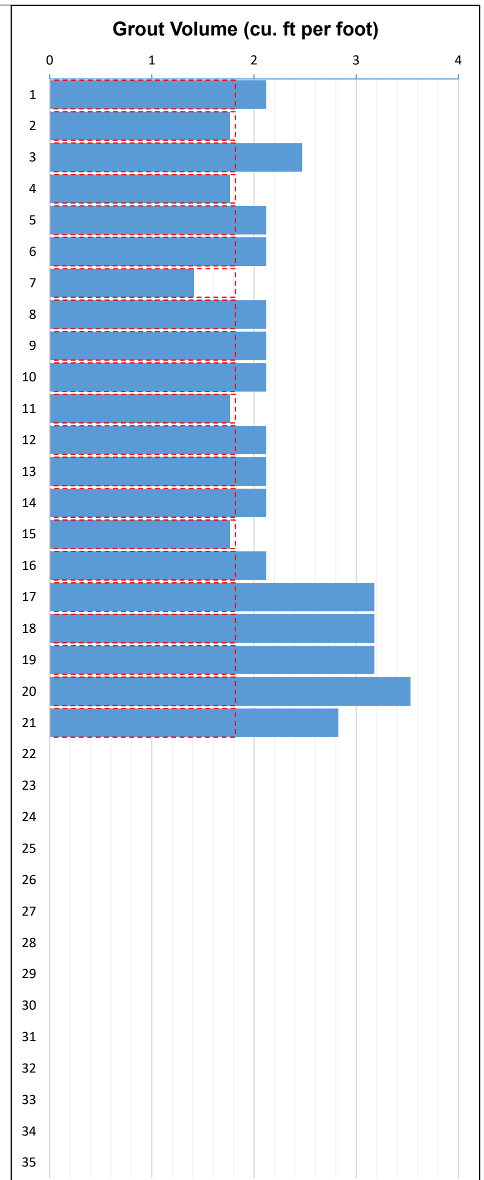
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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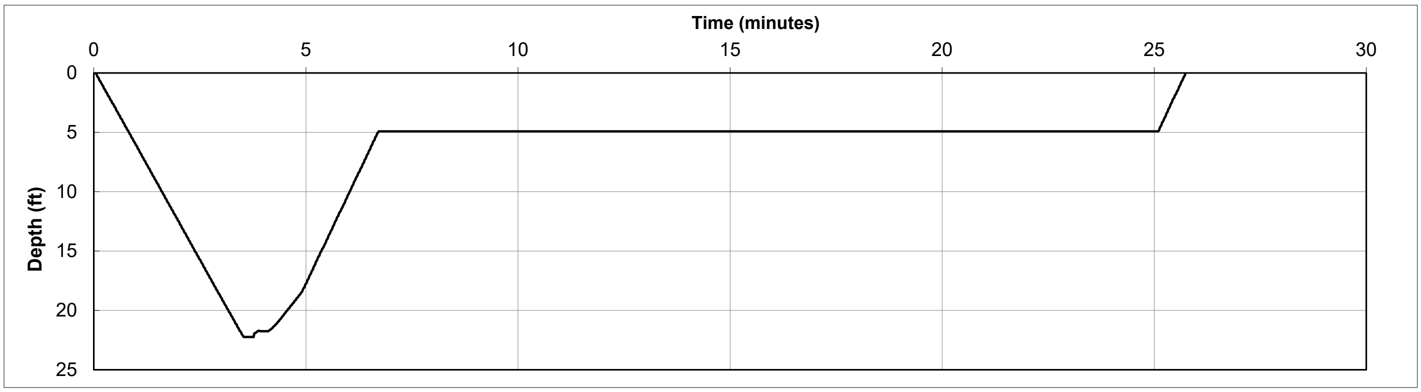
Project Site Data

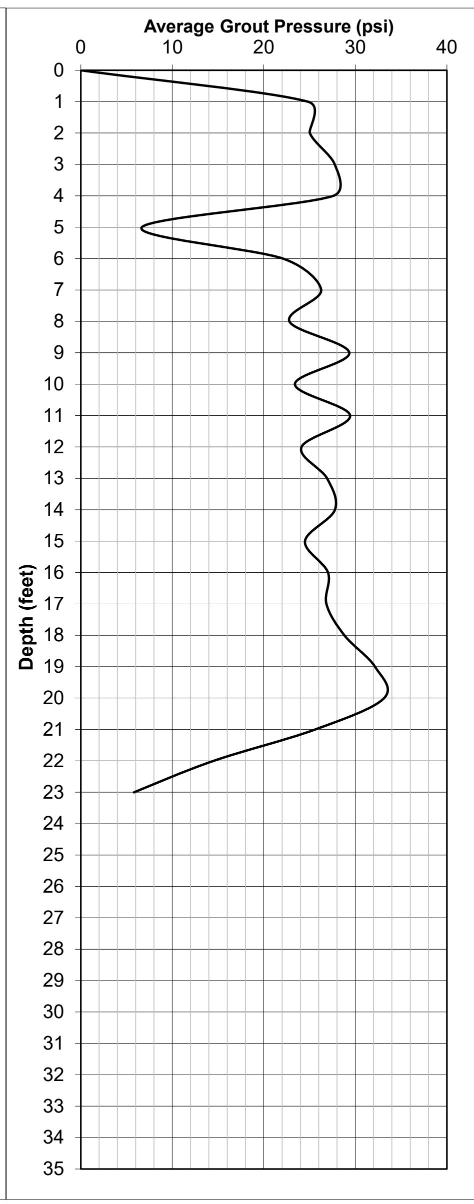
Data for Column No: 163

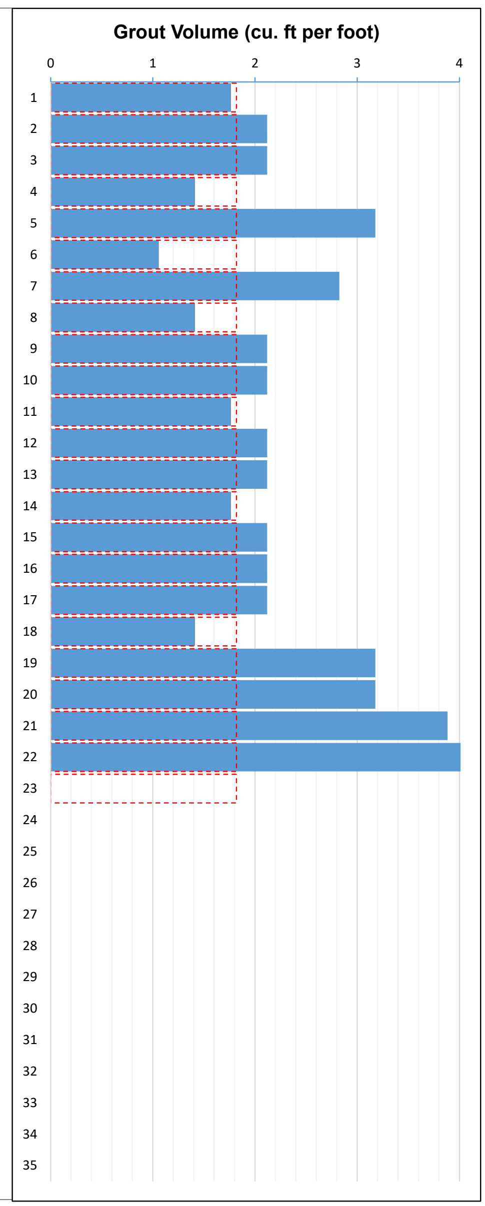
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	10:32 AM	Concrete Volume:	50.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	10:36 AM	Column Depth:	22.2	ft
		End Time:	10:58 AM	Pre Auger:		
		Total Time:	26 min			

Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement







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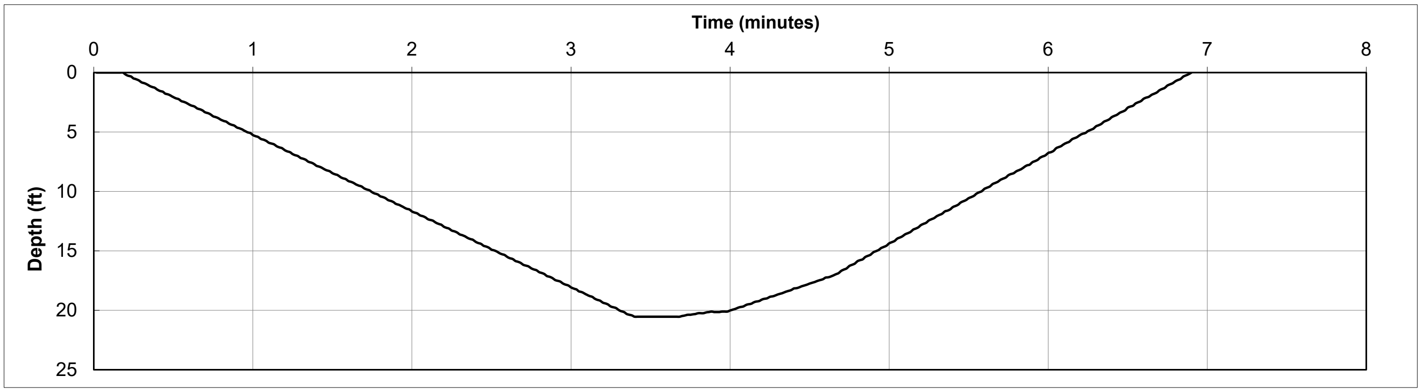
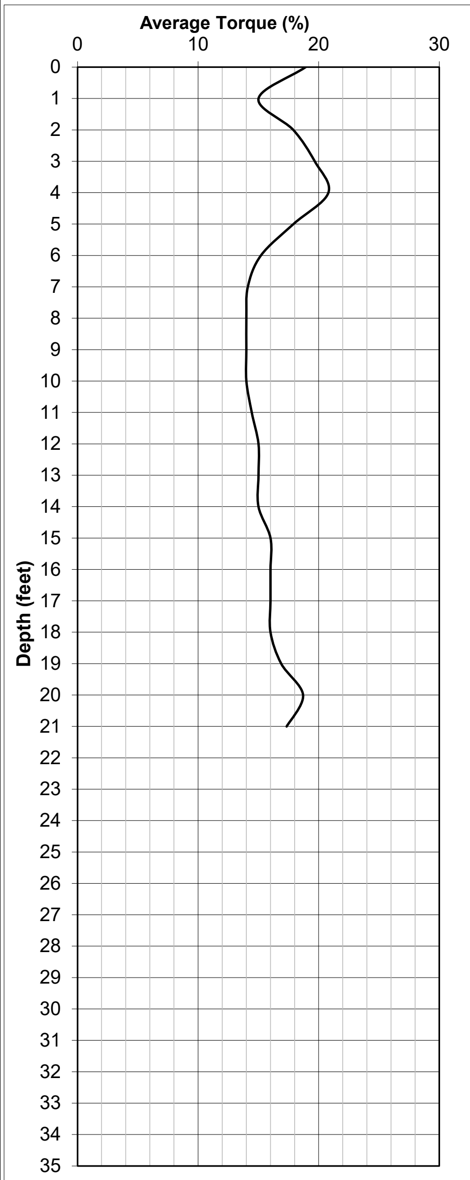
Project Site Data | **Data for Column No: 204**

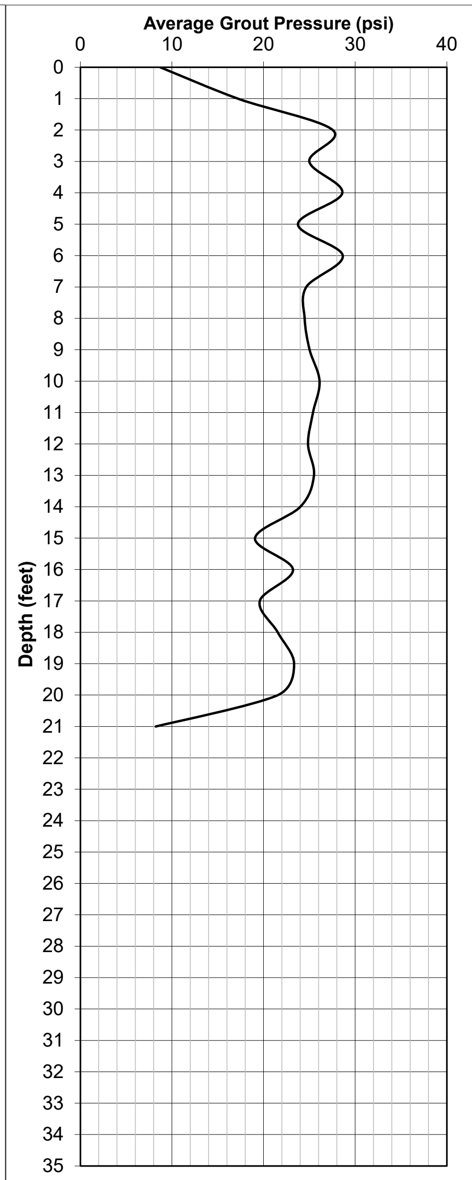
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16 in
Project Location:	Camarillo, CA	Start Time:	11:00 AM	Concrete Volume:	43.8 cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:04 AM	Column Depth:	20.5 ft
		End Time:	11:07 AM	Pre Auger:	
		Total Time:	7 min		

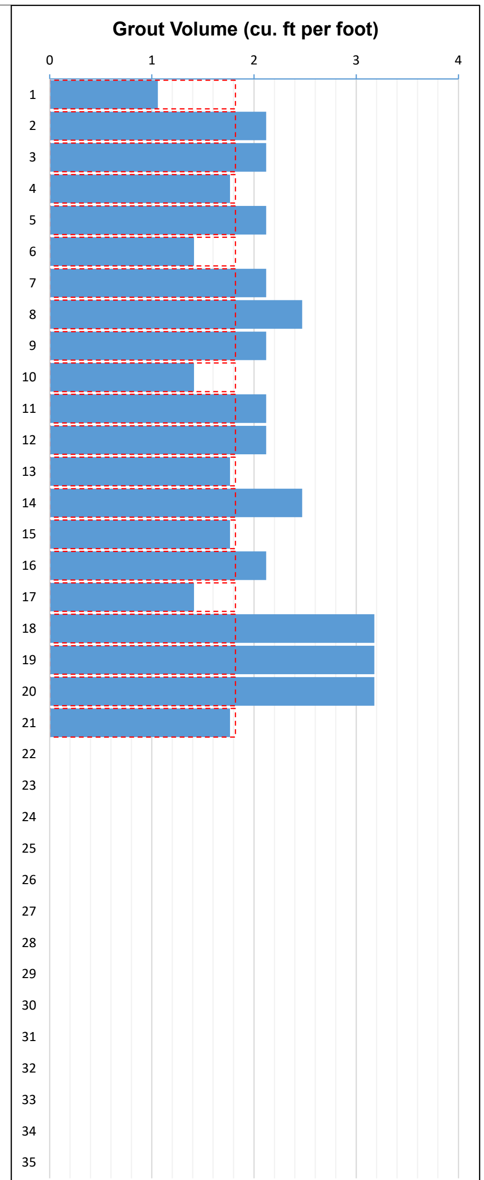
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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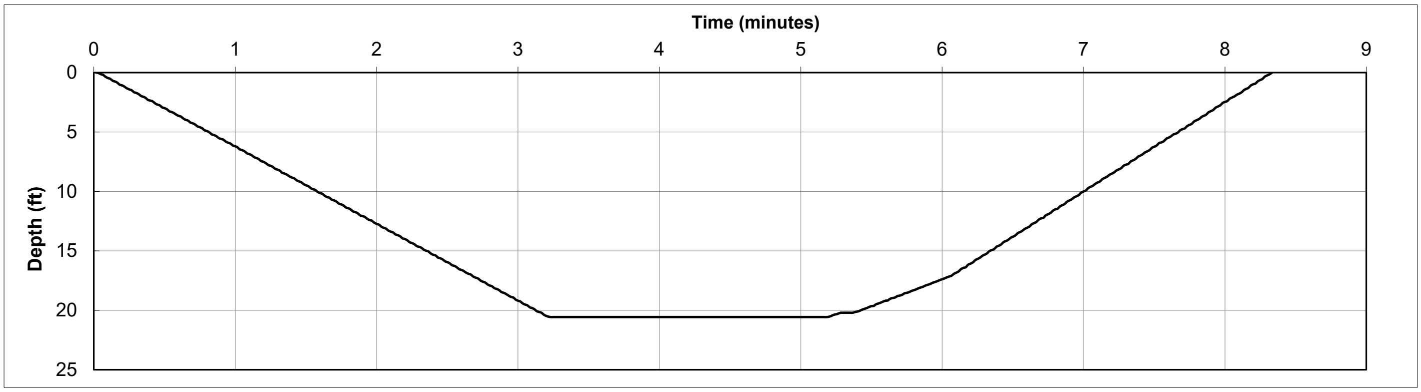
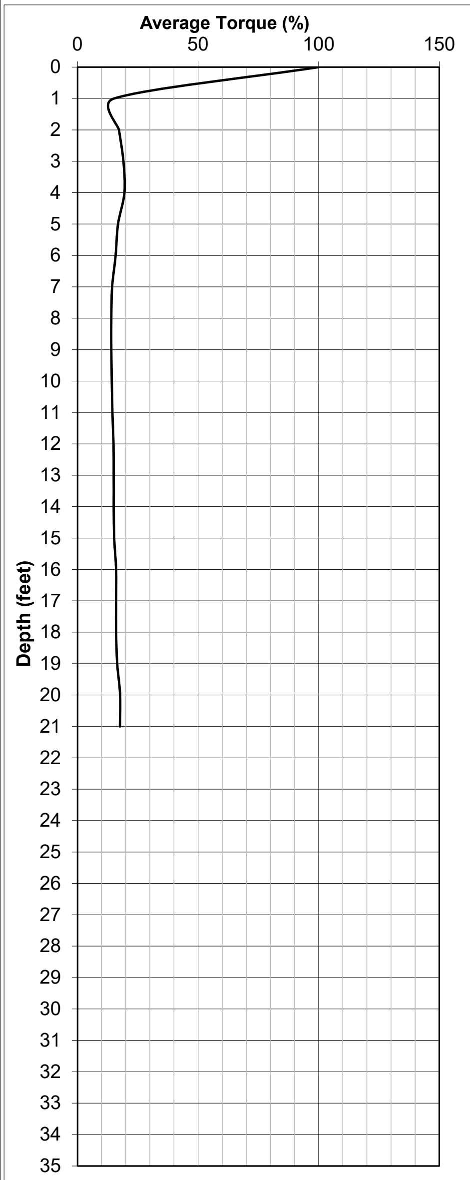
Project Site Data **Data for Column No: 164**

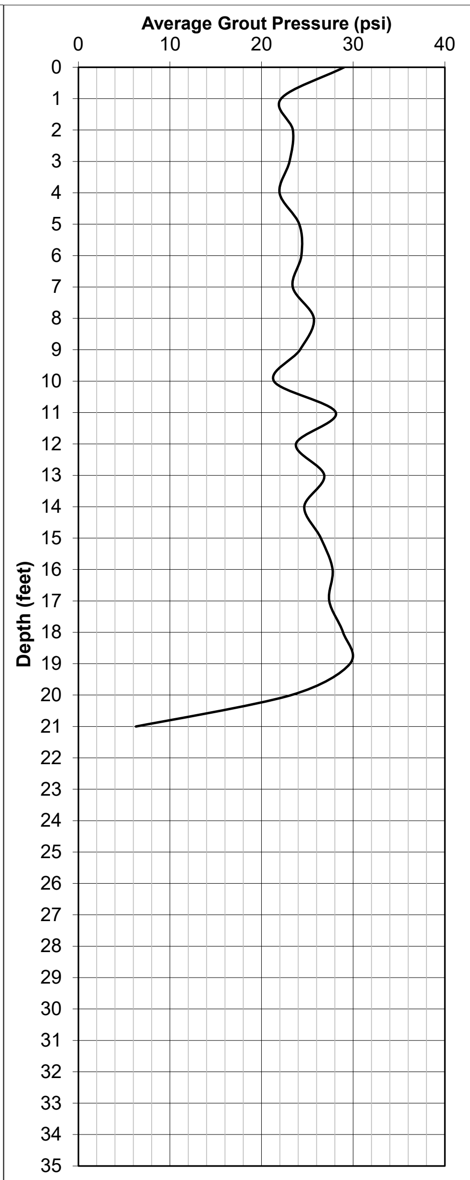
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:09 AM	Concrete Volume:	45.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:14 AM	Column Depth:	20.6	ft
		End Time:	11:17 AM	Pre Auger:		
		Total Time:	8 min			

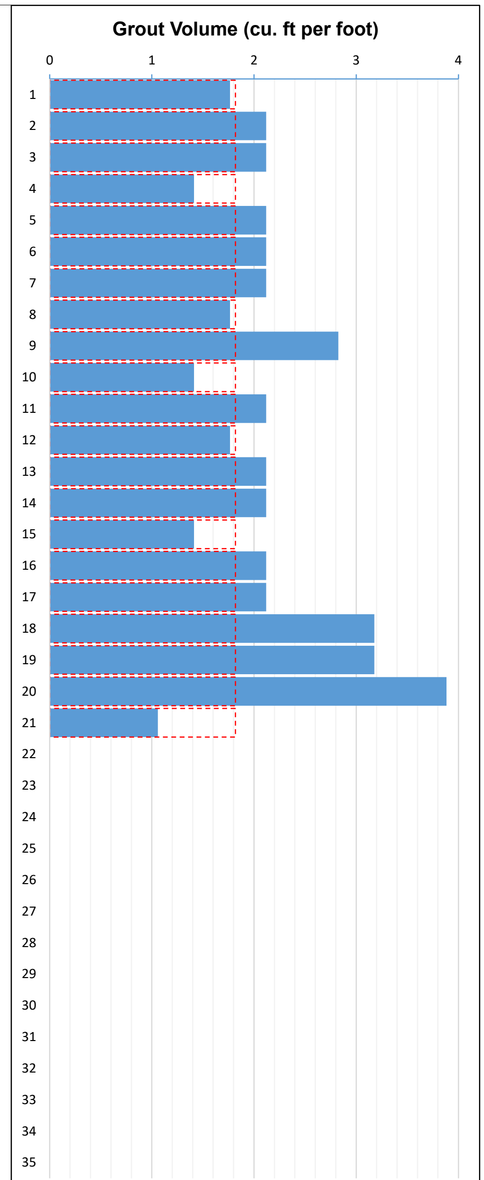
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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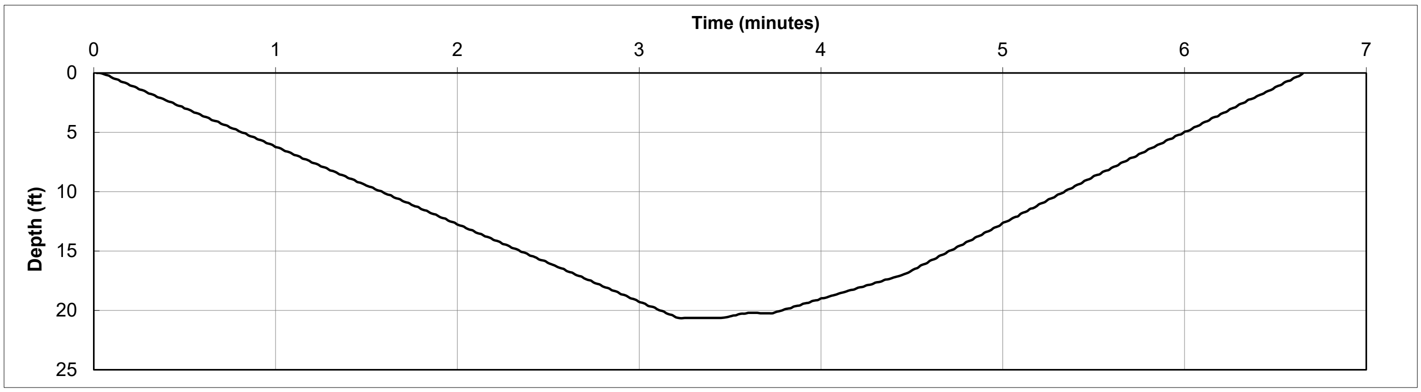
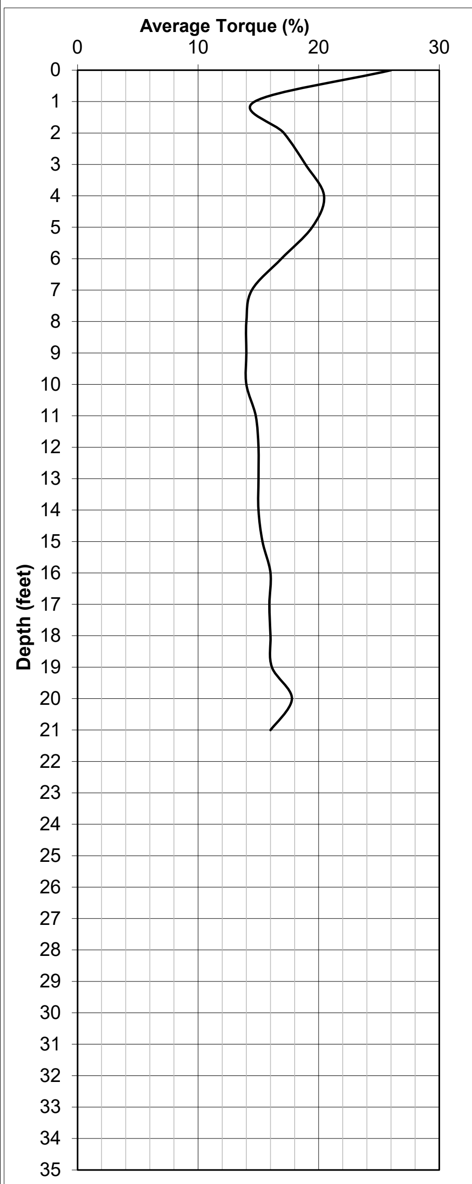
Project Site Data **Data for Column No: 165**

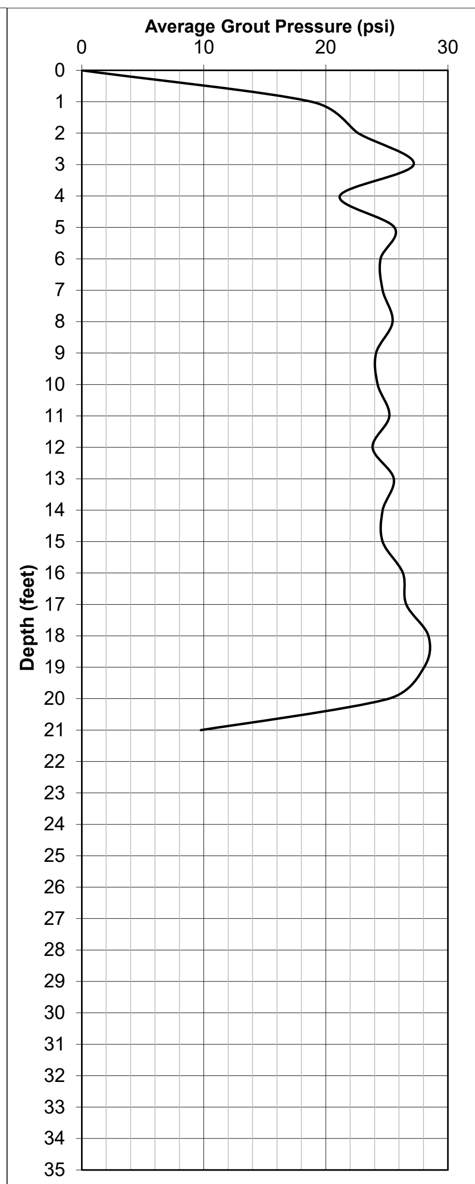
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:20 AM	Concrete Volume:	44.8	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:23 AM	Column Depth:	20.7	ft
		End Time:	11:27 AM	Pre Auger:		
		Total Time:	7 min			

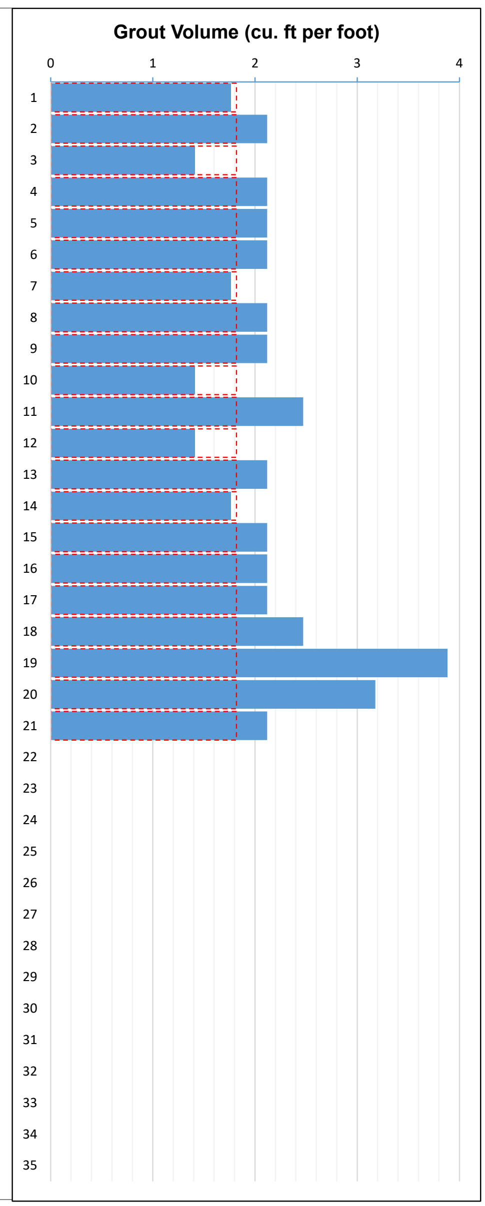
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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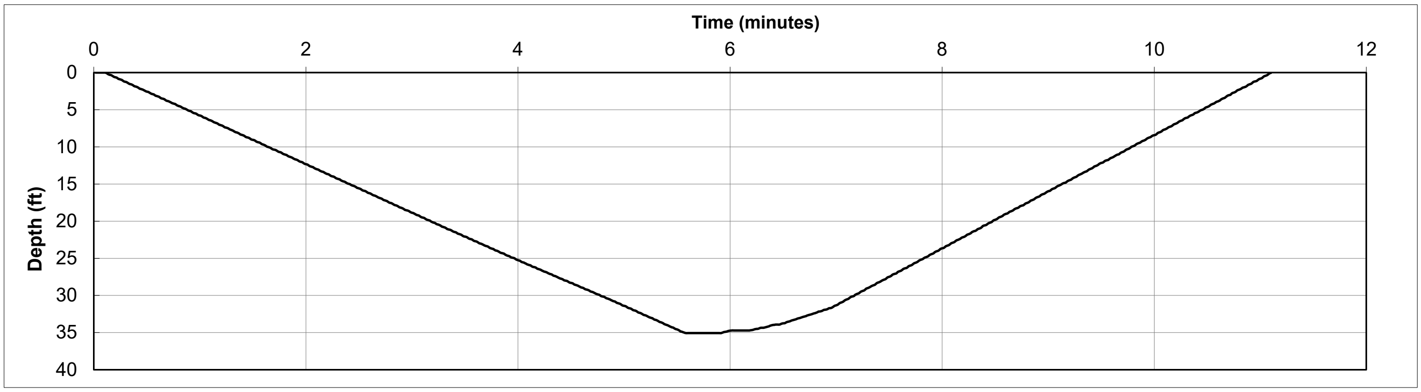
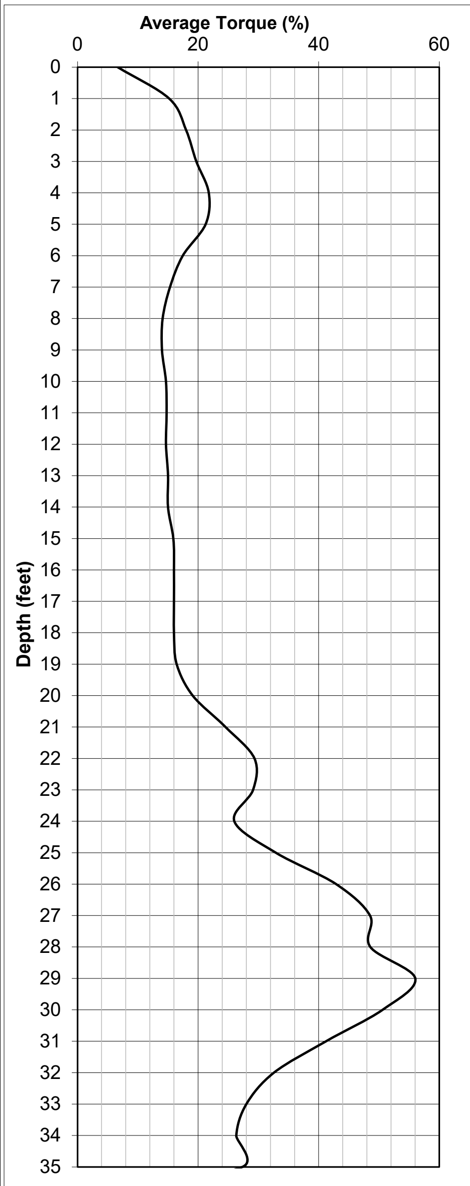
Project Site Data | **Data for Column No: 104**

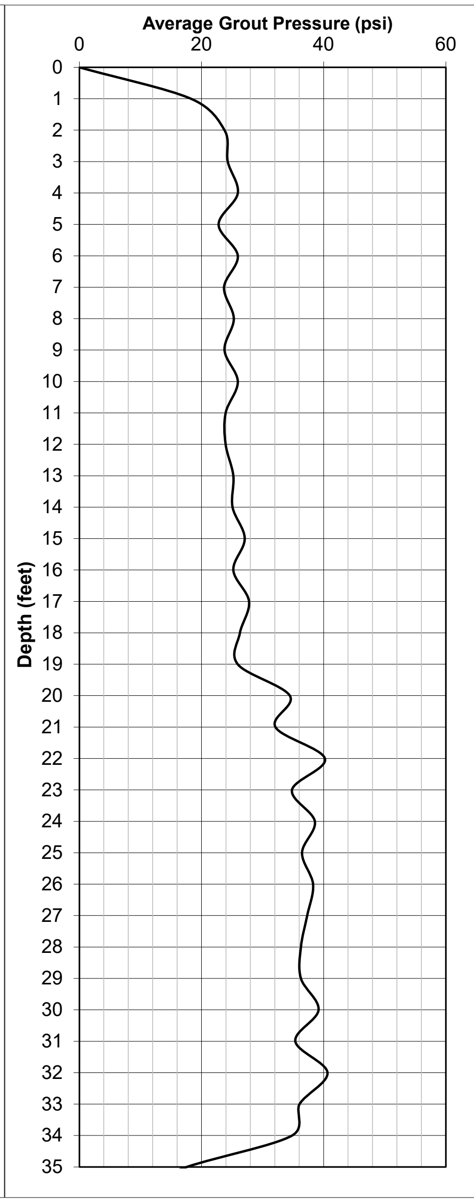
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:29 AM	Concrete Volume:	73.5	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:35 AM	Column Depth:	35.1	ft
		End Time:	11:40 AM	Pre Auger:		
		Total Time:	11 min			

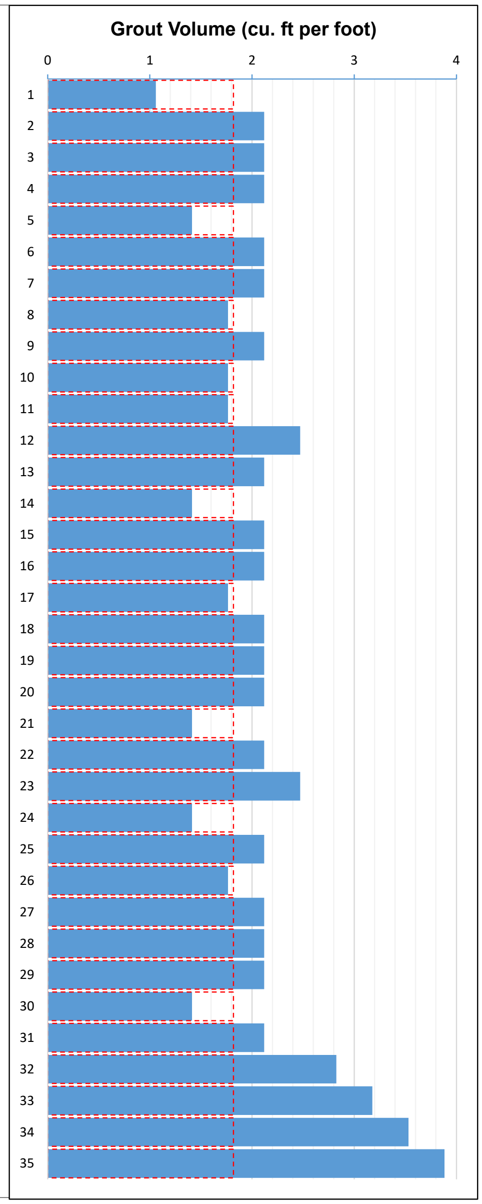
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









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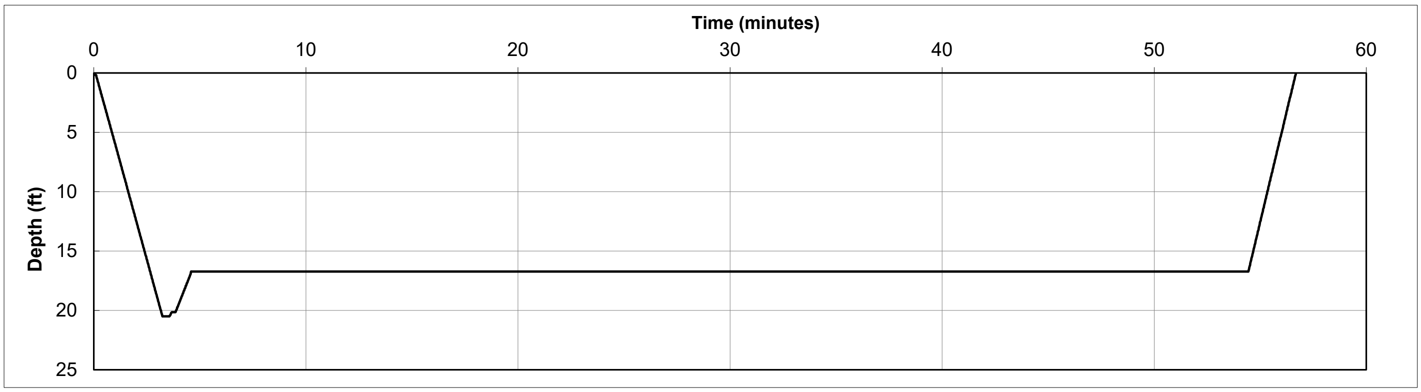
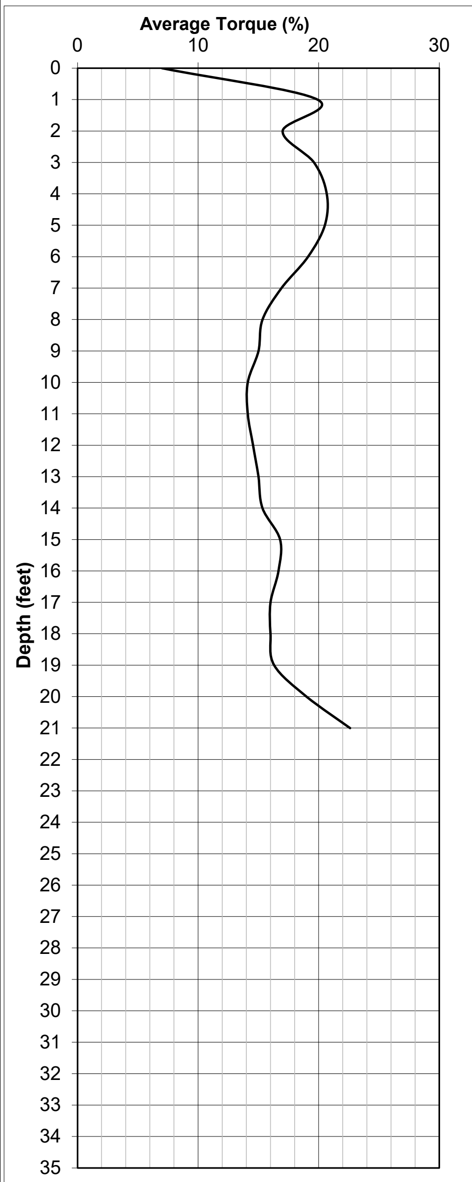
Project Site Data **Data for Column No: 166**

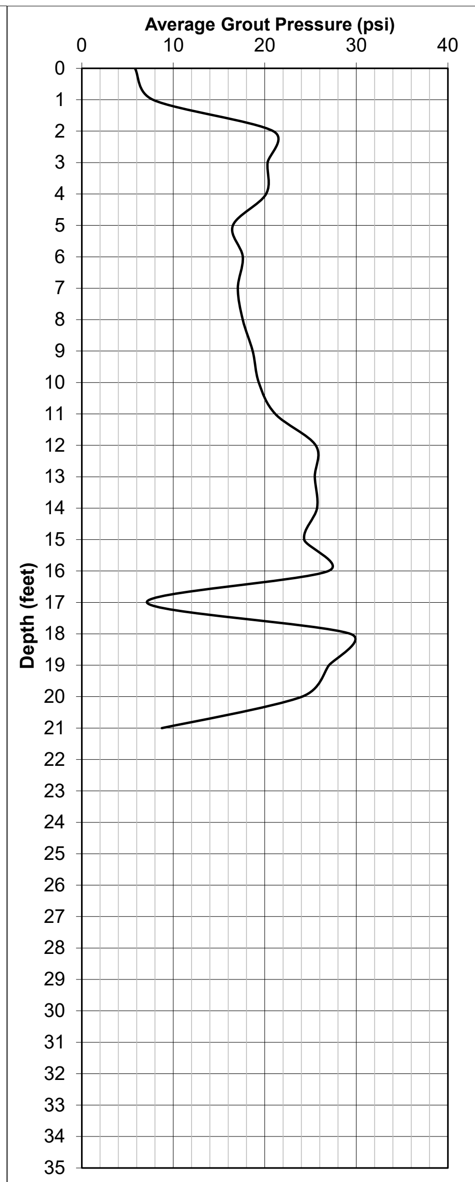
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	11:43 AM	Concrete Volume:	44.1	cubic ft
General Contractor:	Oxnard College	Bottom Time:	11:47 AM	Column Depth:	20.5	ft
		End Time:	12:40 PM	Pre Auger:		
		Total Time:	57 min			

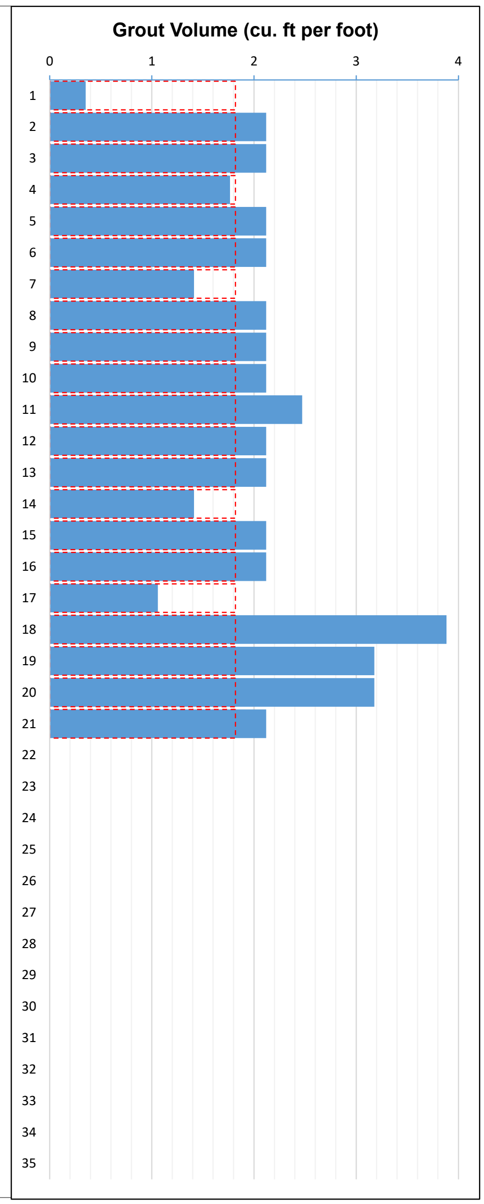
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

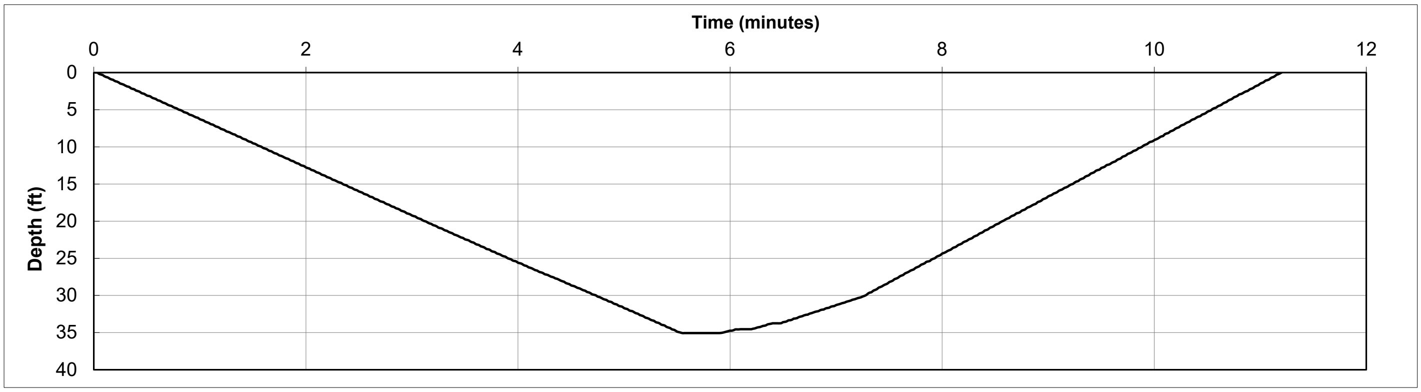
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

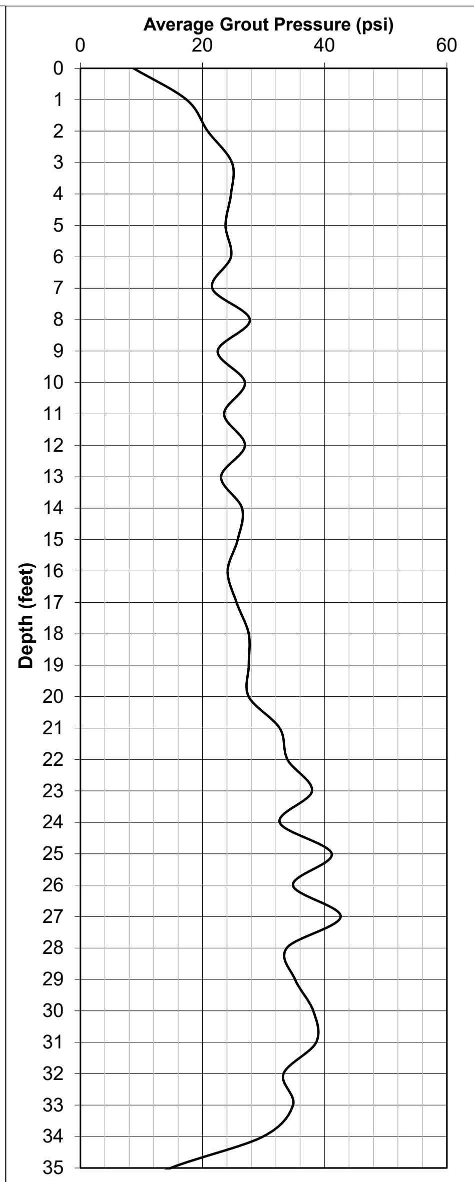
Project Site Data **Data for Column No: 106**

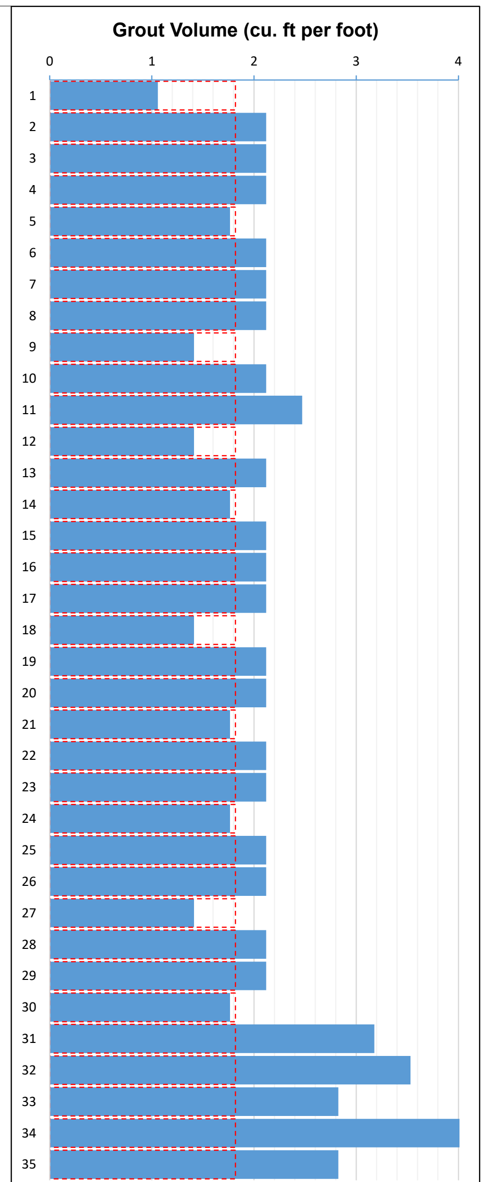
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:42 PM	Concrete Volume:	75.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:48 PM	Column Depth:	35.1	ft
		End Time:	12:53 PM	Pre Auger:		
		Total Time:	11 min			

Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement







DGC Log Sheet

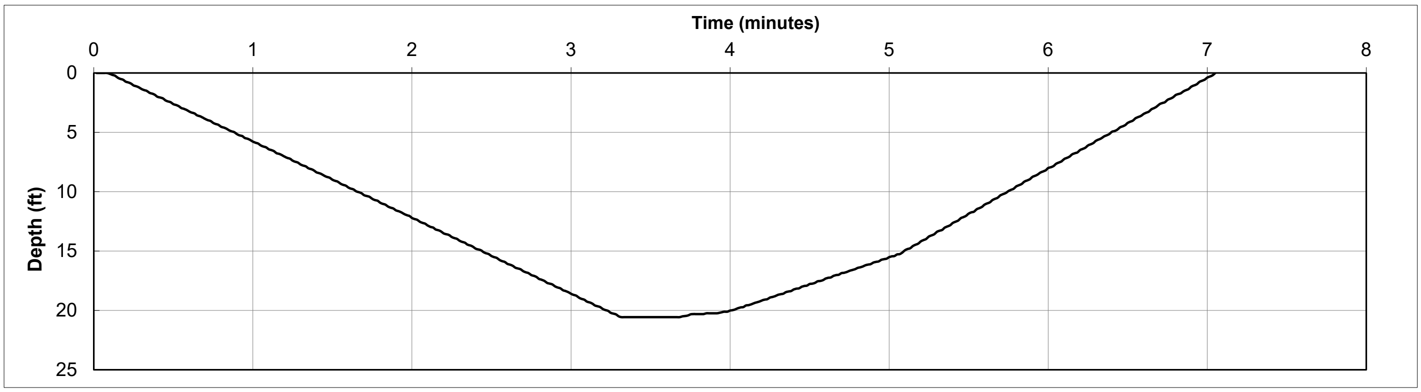
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

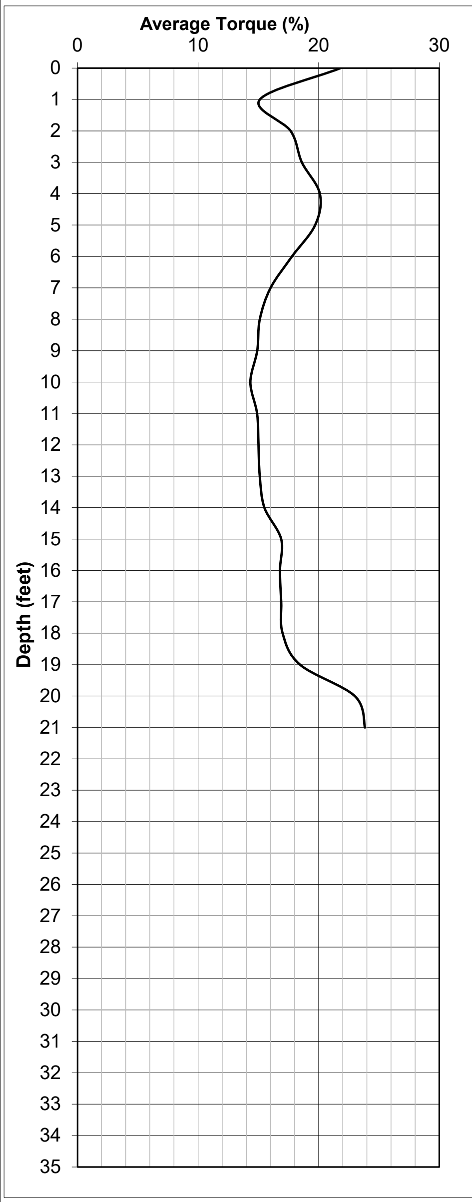
Project Site Data | **Data for Column No: 167**

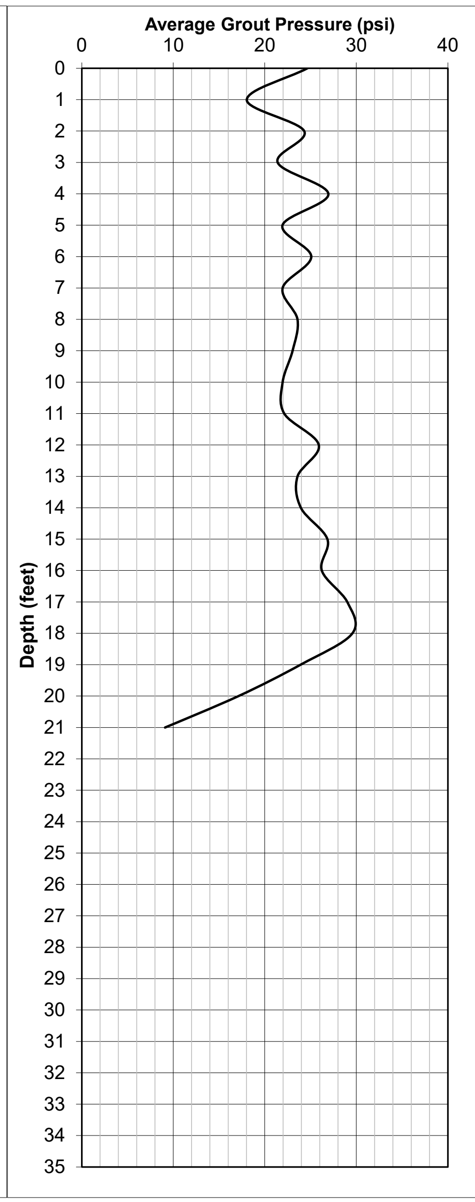
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	12:55 PM	Concrete Volume:	48.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	12:59 PM	Column Depth:	20.6	ft
		End Time:	1:02 PM	Pre Auger:		
		Total Time:	7 min			

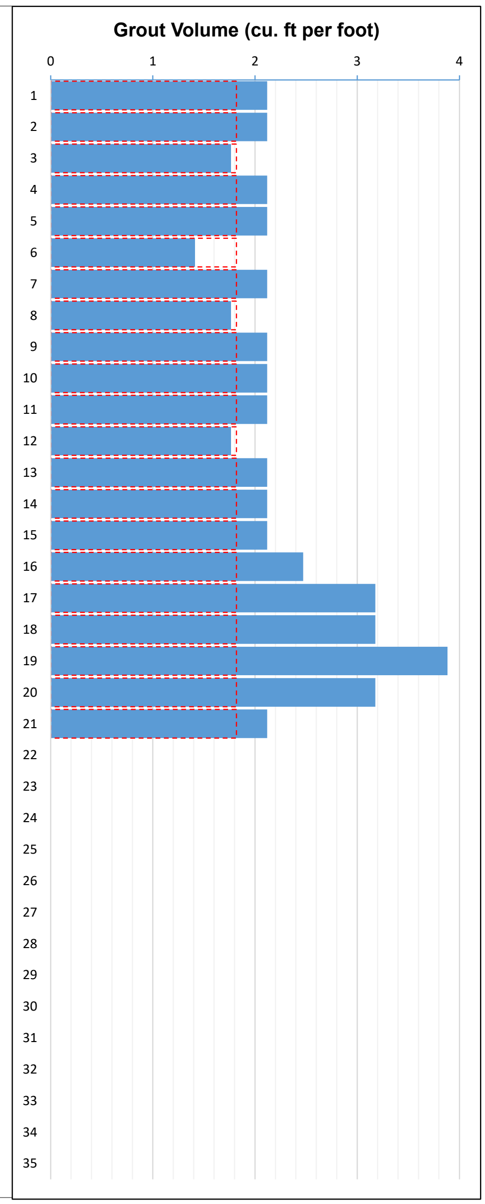
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

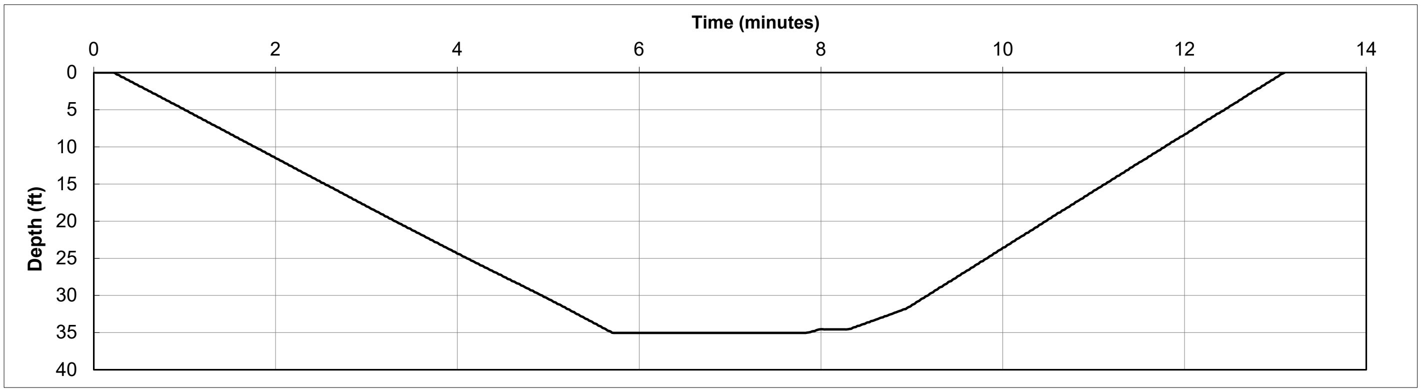
Project Site Data

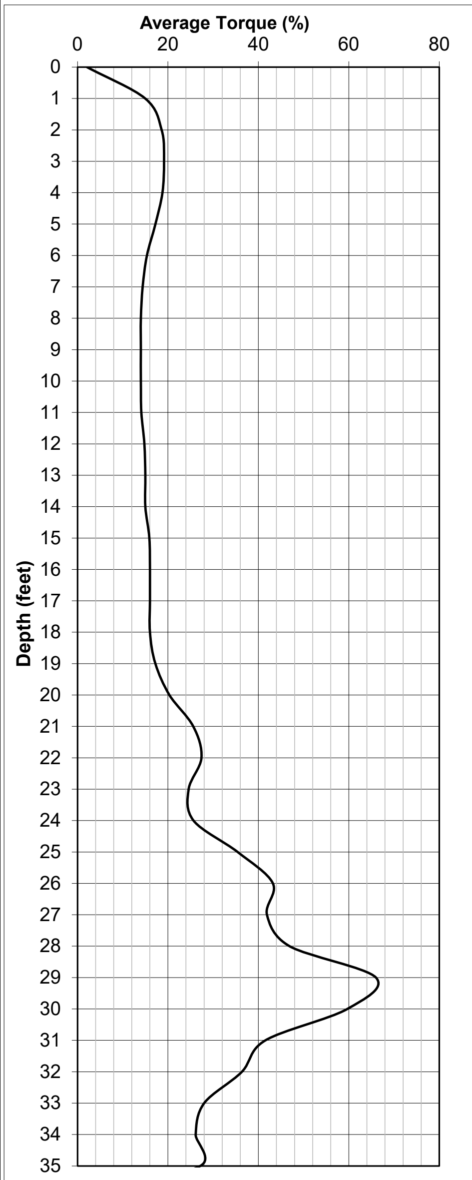
Data for Column No: 108

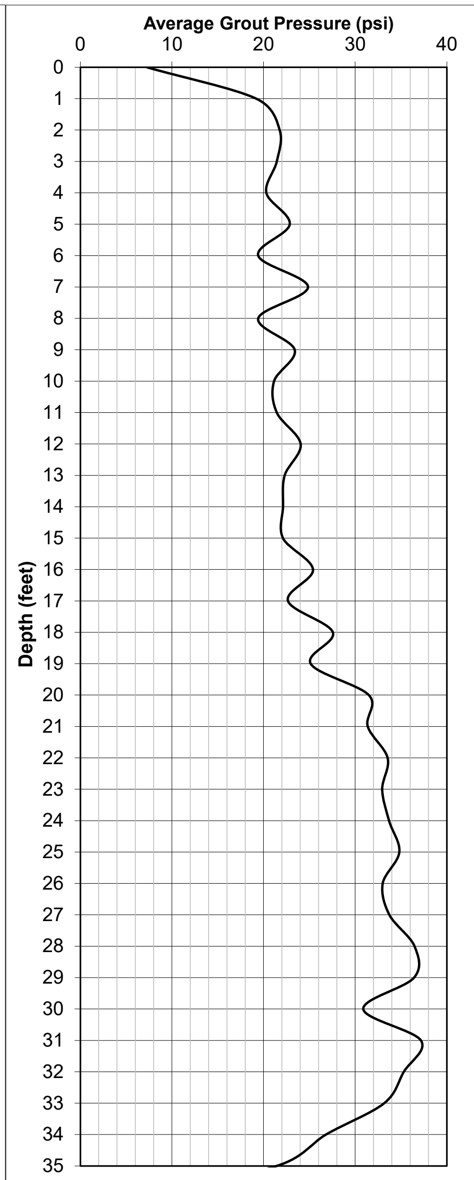
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:05 PM	Concrete Volume:	74.2	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:13 PM	Column Depth:	35.0	ft
		End Time:	1:18 PM	Pre Auger:		
		Total Time:	13 min			

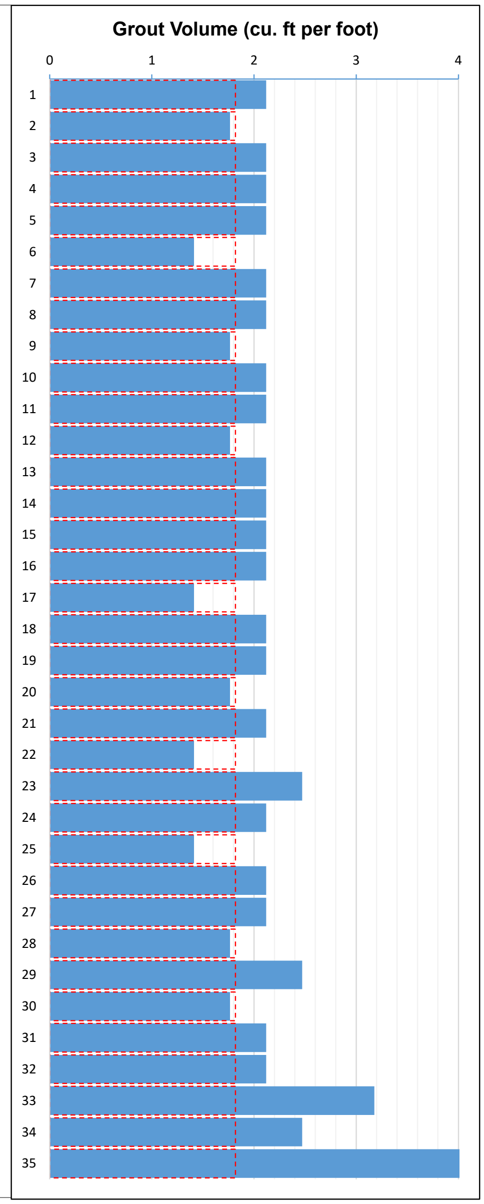
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

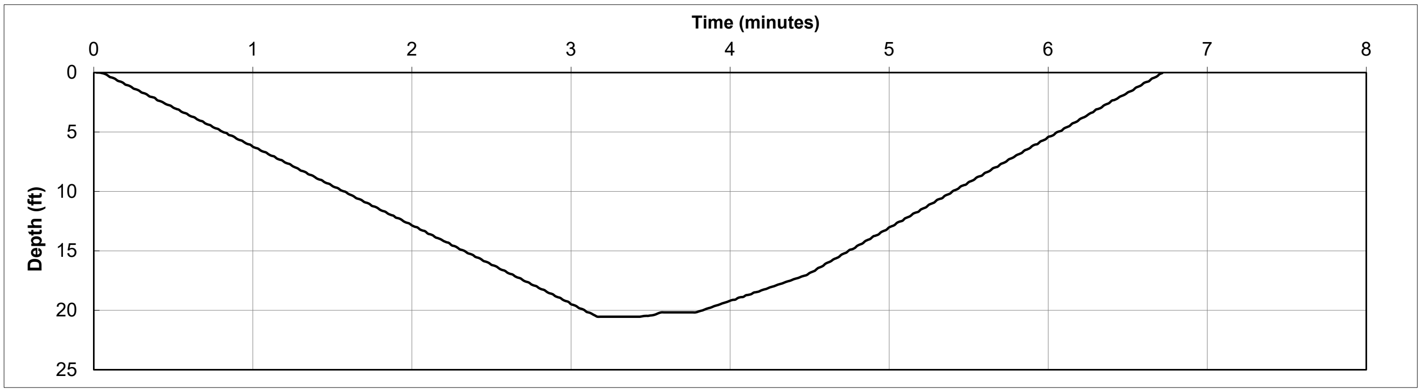
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

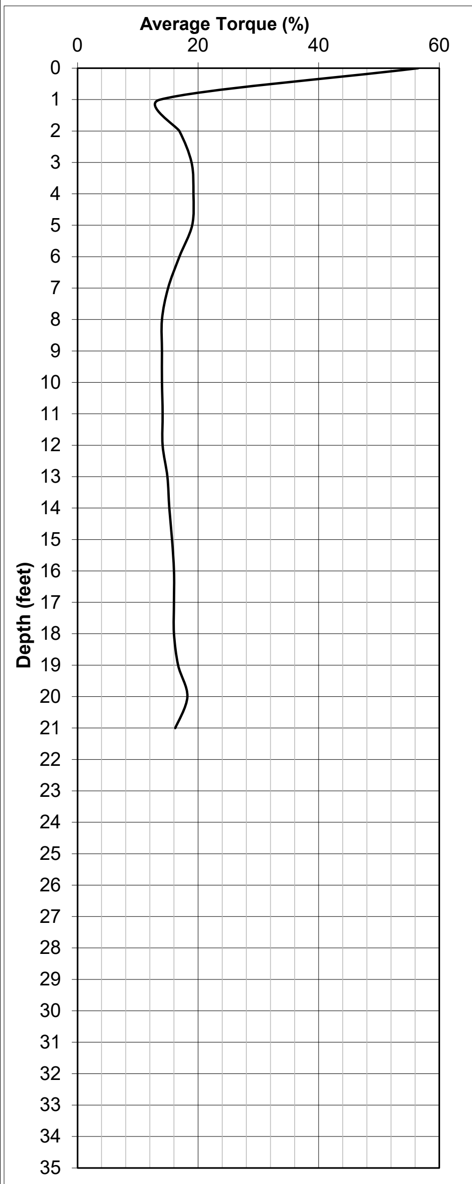
Project Site Data — **Data for Column No: 202**

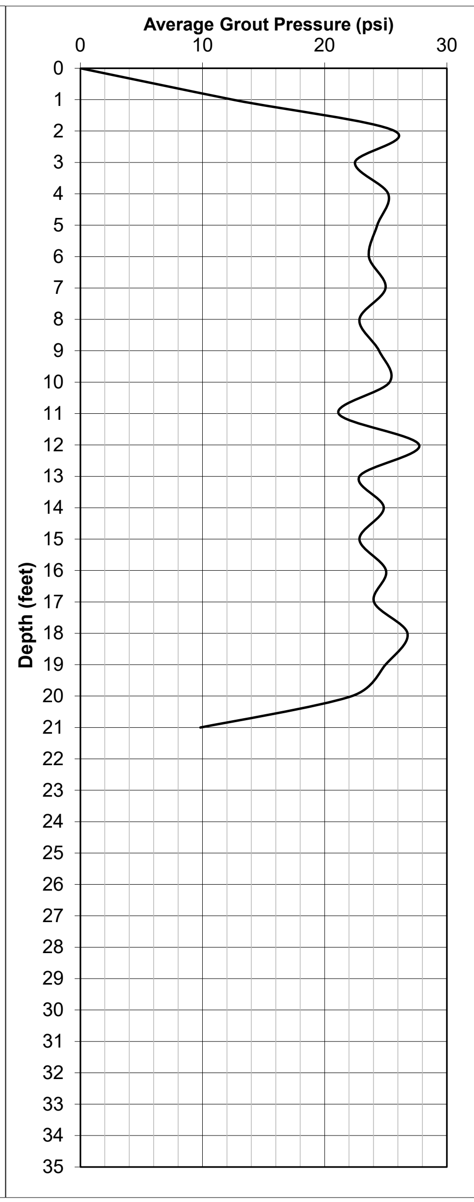
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:22 PM	Concrete Volume:	44.8	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:25 PM	Column Depth:	20.5	ft
		End Time:	1:28 PM	Pre Auger:		
		Total Time:	7 min			

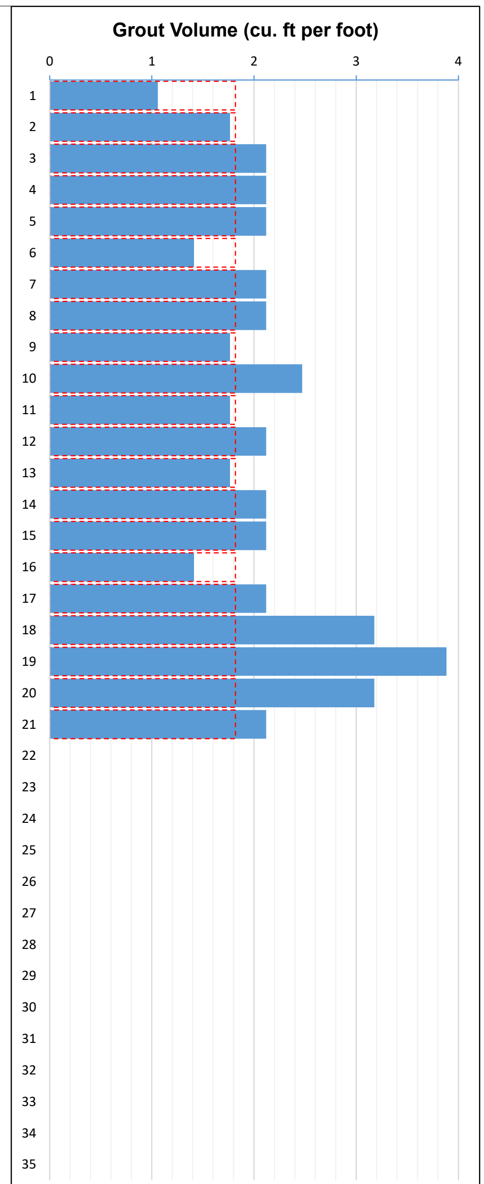
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

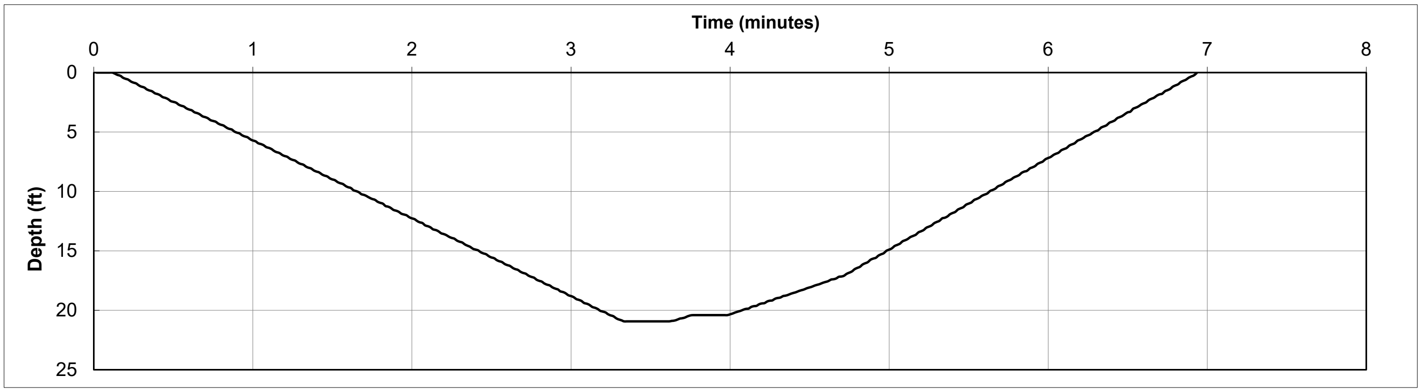
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

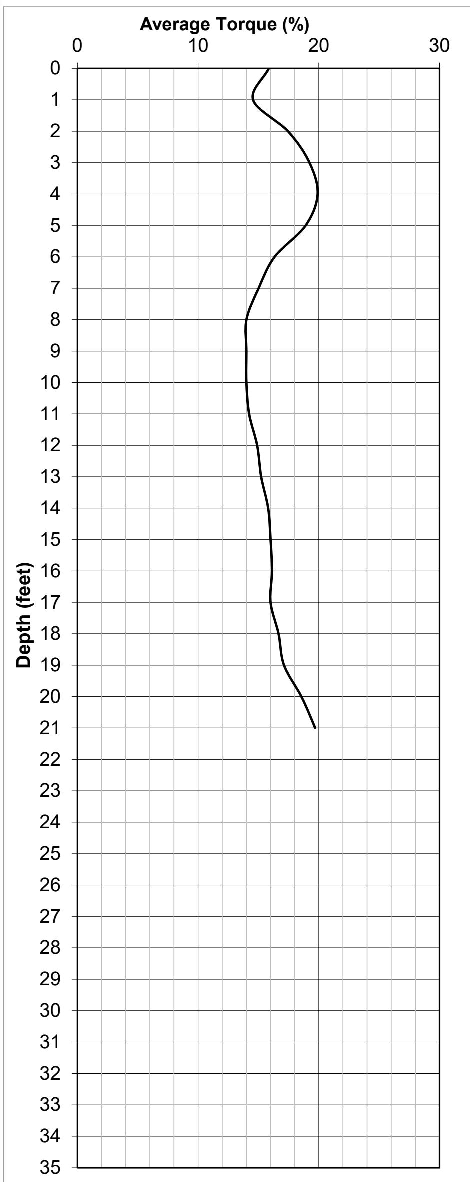
Project Site Data | **Data for Column No: 201**

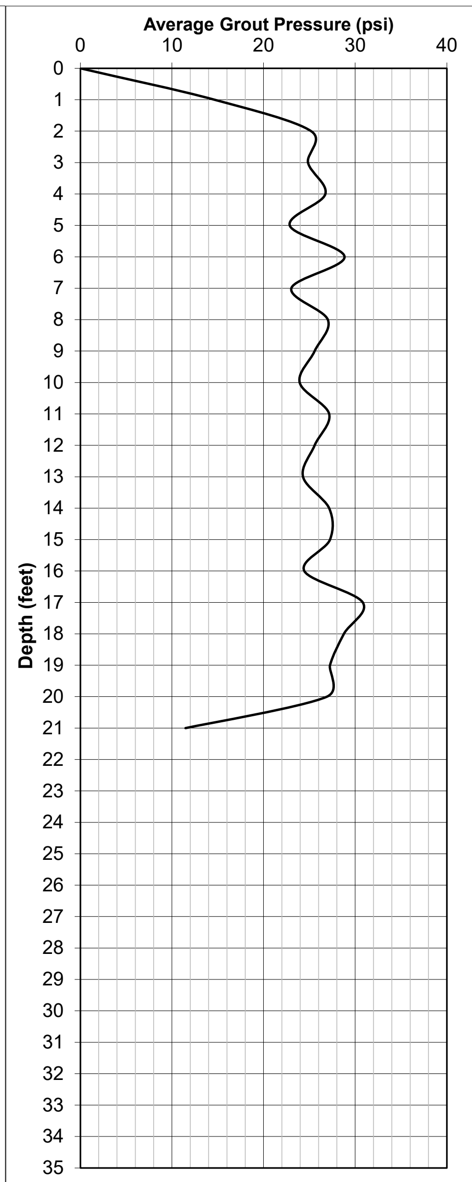
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:31 PM	Concrete Volume:	46.3	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:34 PM	Column Depth:	20.9	ft
		End Time:	1:38 PM	Pre Auger:		
		Total Time:	7 min			

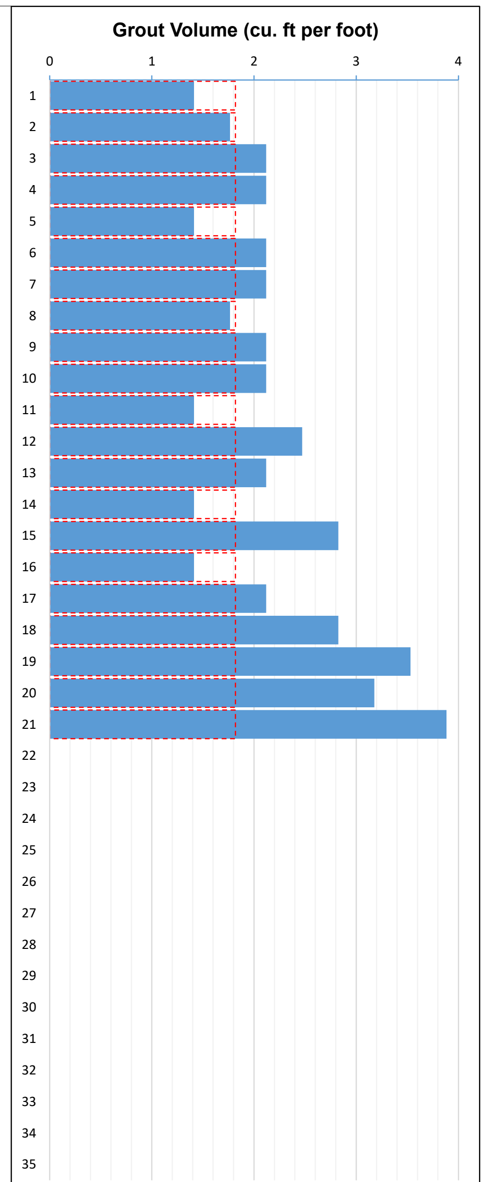
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









DGC Log Sheet

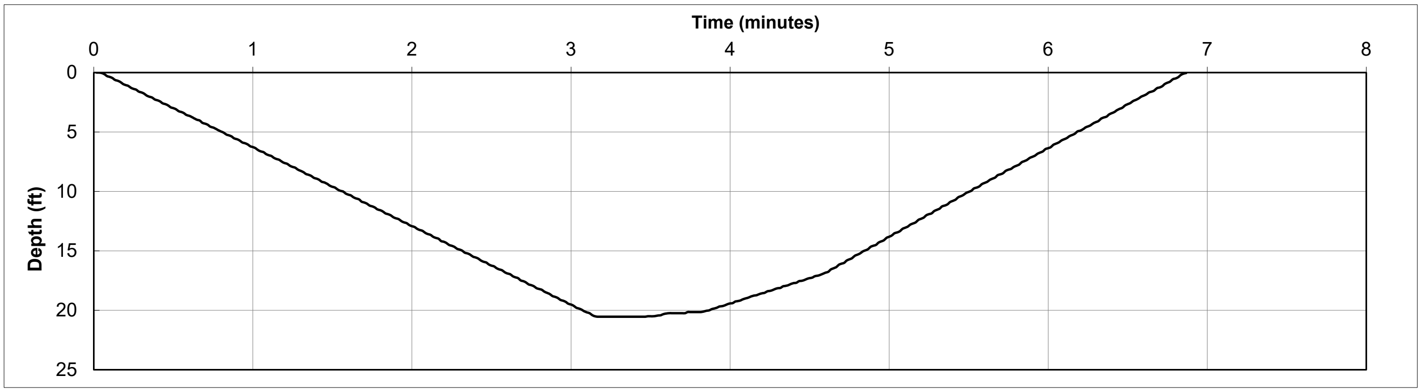
Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

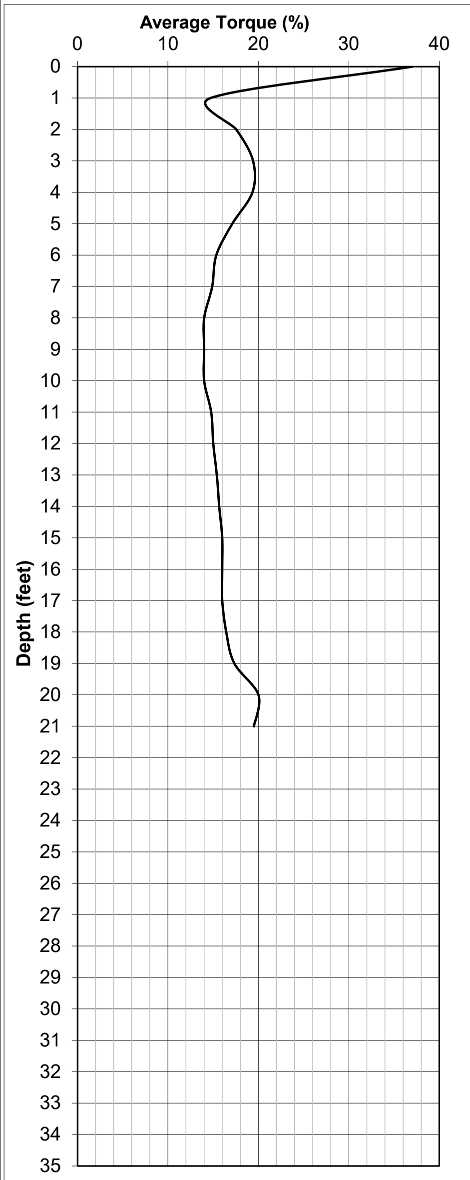
Project Site Data | **Data for Column No: 200**

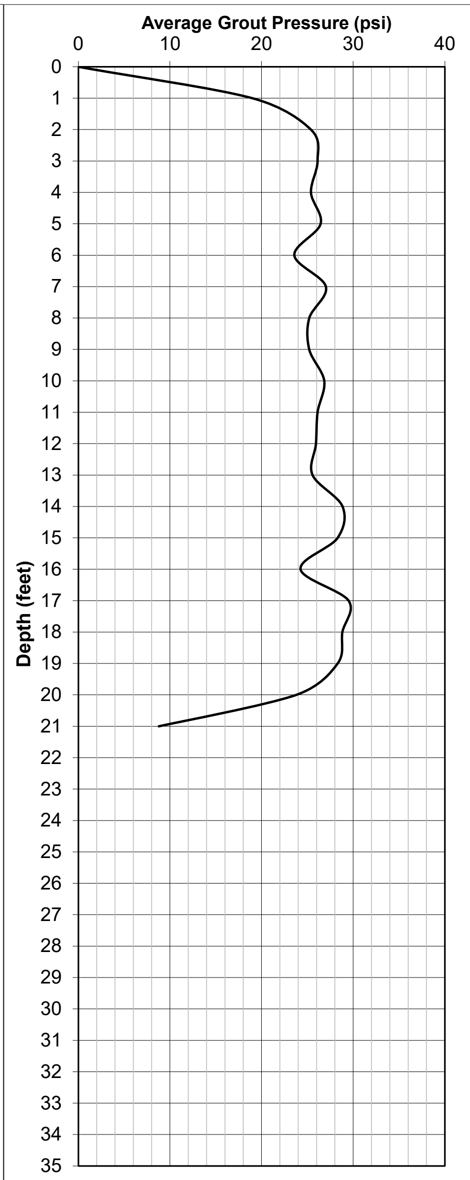
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:41 PM	Concrete Volume:	47.0	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:44 PM	Column Depth:	20.5	ft
		End Time:	1:47 PM	Pre Auger:		
		Total Time:	7 min			

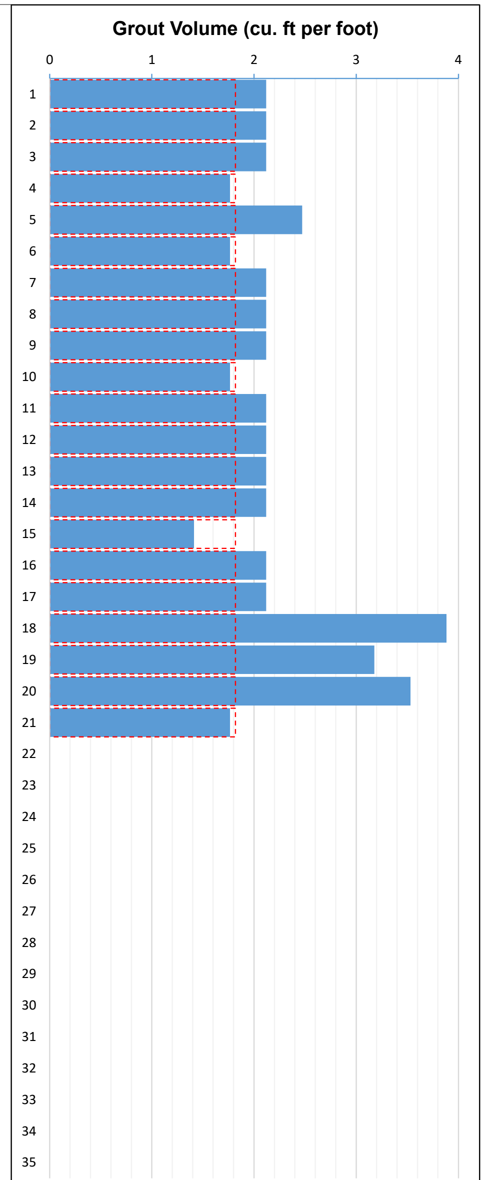
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









Advanced Geosolutions Inc
13 Orchard Road, Suite 105
Lake Forest, CA 92630
P: 310-796-9000

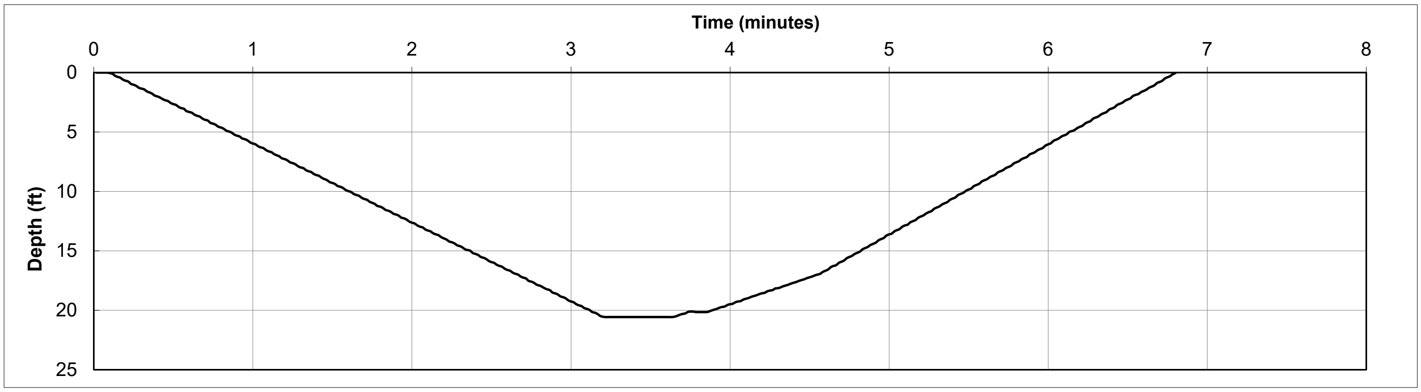
DGC Log Sheet

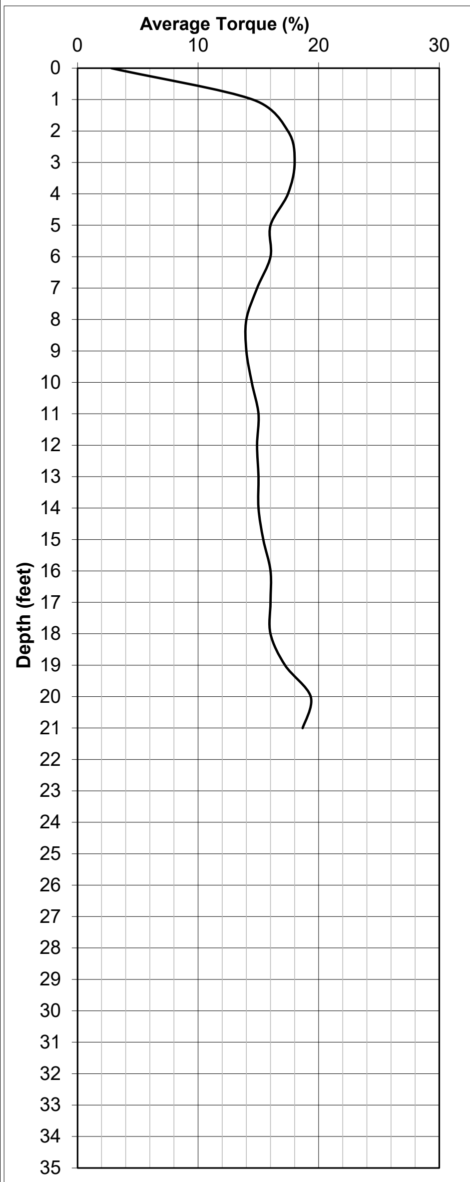
Project Site Data | **Data for Column No: 199**

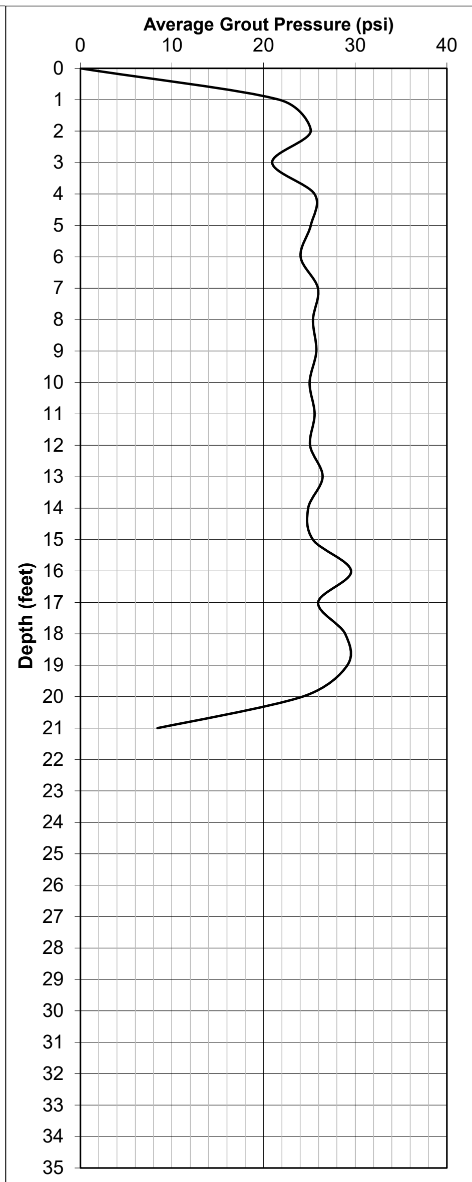
Project Name:	Oxnard College Fire Training	Date:	12/22/20	Nominal Diameter:	16	in
Project Location:	Camarillo, CA	Start Time:	1:50 PM	Concrete Volume:	45.9	cubic ft
General Contractor:	Oxnard College	Bottom Time:	1:54 PM	Column Depth:	20.6	ft
		End Time:	1:57 PM	Pre Auger:		
		Total Time:	7 min			

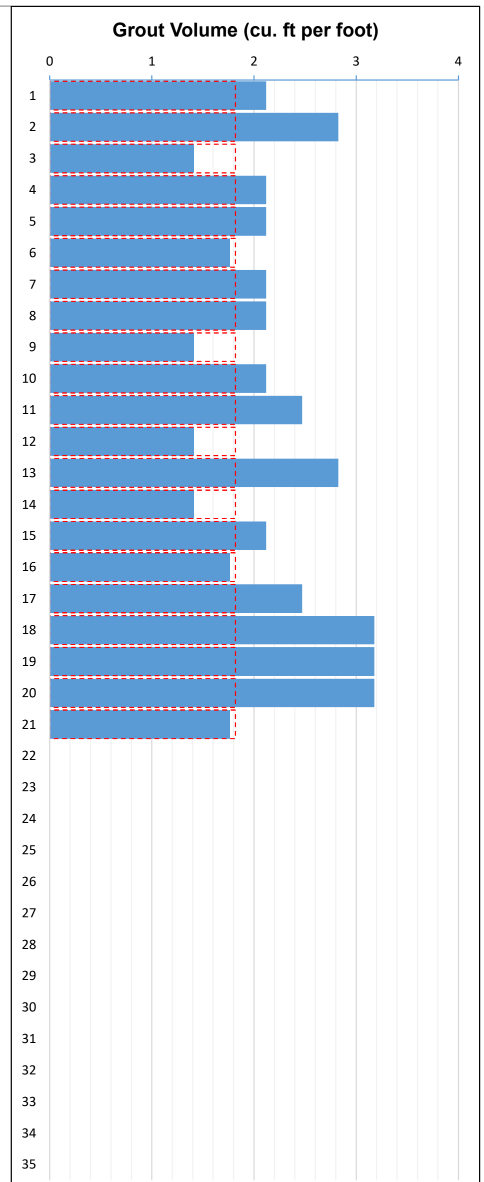
Rig Id: BG-30
Operator: James "Smitty" Smith

Tool meets 16" Nominal Requirement









APPENDIX C

Modulus Test Results

Load Test 1

Figure 1. AGI Load Test 1 Setup

Test Equipment

The following test equipment was used:

- Calibrated Hydraulic jack & pump
- Pressure Gauge
- Steel test plates
- 4 Dial Indicators
- Magnetic bases and supporting reference beams.

Test Procedure

Column #135 was chosen for the full scale load test and was excavated to the top of the column, where a sonotube was filled and leveled with quickrete, and the required testing and instrumentation equipment centered over the DGC.

The hydraulic jack was centered and aligned with the longitudinal axis of the pier. The rig car body was used as reaction to perform the load test. For measuring movement, two parallel reference beams independently supported the four dial indicators around the sides of the load plate.

The jack was first engaged to a seating load of 4 kips (5% of max load) and then increased incrementally. The max load was 105 kips (150% DL).

The test results are presented in Table 1 and a load-deformation graph of the applied axial load vs the vertical head movement is presented in Figure 2.

Test Results and Analysis

Design Load (DL):	70	kips
Seating Load at 5% of Max Load:	4	kips

Table 1 Load Test Results

	Load (kips)	Dial Indicator 1 Mvt (in)	Dial Indicator 2 Mvt (in)	Dial Indicator 3 Mvt (in)	Dial Indicator 4 Mvt (in)	Avg (in)	Cumulative avg mvt (in)
	4	0.000	0.000	0.000	0.000	0.000	0.000
	7	0.007	0.007	0.007	0.007	-0.007	0.007
	11	0.008	0.008	0.008	0.008	-0.008	0.015
	14	0.005	0.005	0.005	0.005	-0.005	0.019
	18	0.007	0.007	0.007	0.007	-0.007	0.026
	21	0.006	0.006	0.006	0.006	-0.006	0.032
	25	0.007	0.007	0.007	0.007	-0.007	0.039
	28	0.006	0.006	0.006	0.006	-0.006	0.045
	32	0.006	0.006	0.006	0.006	-0.006	0.050
	35	0.004	0.004	0.004	0.004	-0.004	0.054
	39	0.005	0.005	0.005	0.005	-0.005	0.059
	42	0.007	0.007	0.007	0.007	-0.007	0.066
	46	0.001	0.001	0.001	0.001	-0.001	0.067
	49	0.005	0.005	0.005	0.005	-0.005	0.072
	53	0.005	0.005	0.005	0.005	-0.005	0.076
	56	0.004	0.004	0.004	0.004	-0.004	0.081
	60	0.006	0.006	0.006	0.006	-0.006	0.087
	63	0.003	0.003	0.003	0.003	-0.003	0.089
	67	0.004	0.004	0.004	0.004	-0.004	0.094
DL	70	0.005	0.005	0.005	0.005	-0.005	0.098
	74	0.003	0.003	0.003	0.003	-0.003	0.101
	77	0.004	0.004	0.004	0.004	-0.004	0.105
	81	0.004	0.004	0.004	0.004	-0.004	0.108
	84	0.003	0.003	0.003	0.003	-0.003	0.111
	88	0.006	0.006	0.006	0.006	-0.006	0.117
	91	0.005	0.005	0.005	0.005	-0.005	0.121
	95	0.003	0.003	0.003	0.003	-0.003	0.124
	98	0.005	0.005	0.005	0.005	-0.005	0.128
	102	0.004	0.004	0.004	0.004	-0.004	0.132
Max load	105	0.004	0.004	0.004	0.004	-0.004	0.136
	88	0.001	0.001	0.001	0.001	-0.001	0.137
	70	-0.007	-0.007	-0.007	-0.007	0.007	0.129
	53	-0.013	-0.013	-0.013	-0.013	0.013	0.117
	35	-0.008	-0.008	-0.008	-0.008	0.008	0.108
	18	-0.012	-0.012	-0.012	-0.012	0.012	0.097
	4	-0.016	-0.016	-0.016	-0.016	0.016	0.081
	0	-0.016	-0.016	-0.016	-0.016	0.016	0.065

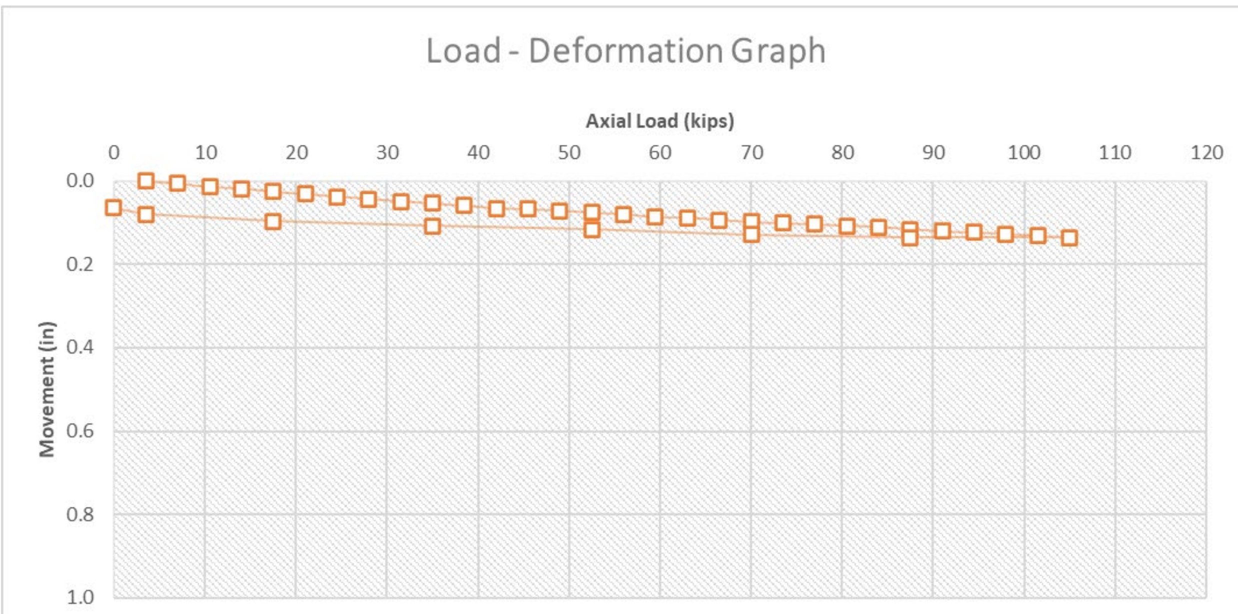


Figure 2 Result of Load Test

ATTACHMENT B

Compressive Strength Test Results

Earth Systems
1731 Walter Street, Suite A | Ventura, CA 93003 | Ph: 805.642.6727 | www.earthsystems.com

Client: Rasmussen & Associates
Attention: Jay Lomagno
21 S. California Street, 4th Floor
Ventura, CA 93001

DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-55

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy **Location in Structure:** 218

Sampled By: Alex Corob **Report Date:** January 12, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):	9	
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):		
Mix Temperature, ASTM (C1064 (°F):		

Notes: All items must be filled in

Set # 1 **Time Sampled:** 1:25 PM

Mix number: 1586813 **Environment Conditions:**

Required Strength, 28 days (psi)

Concrete Supplier: Cemex
Truck #: **Ticket #:** 42658973

Specimens were fabricated in accordance with ASTM C31 Yes ☑ No ☐

Specimens were tested in accordance with ASTM C39 Yes ☑ No ☐

TESTING INFORMATION

Identification	G5630	G5631	G5632	G5633		
Date Sampled:	12/8/20	12/8/20	12/8/20	12/8/20		
Date Received:	12/10/20	12/10/20	12/10/20	12/10/20		
Date Tested:	12/15/20	1/6/21	1/6/21	1/6/21		
Age in Days:	7	28	28	28		
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	22,500	29,500	30,000	30,000		
Compr. Strength (psi):	3,180	4,170	4,240	4,240		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	2	2	2	2		

Test Method C1231 ☑ Test Method C617 ☐ 28 Day Avg. Break: 4,220 psi

The Material WAS ☑ **WAS NOT** ☐ Sampled and Tested in Accordance with the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET The requirements of the DSA Approved Documents.

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Remarks:

Copy To: 1 - Client
1 - Project File

REGISTERED PROFESSIONAL ENGINEER ANTHONY P. MAZZEI GE 2823 Exp. 6-30-21 GEOTECHNICAL STATE OF CALIFORNIA

Signature

1/12/21
Date

Anthony P. Mazzei/Sr. Geotechnical Engineer
Print Name / Title

Earth Systems

1731 Walter Street, Suite A | Ventura, CA 93003 | Ph: 805.642.6727 | www.earthsystems.com

Client: Rasmussen & Associates
Attention: Jay Lomagno
21 S. California Street, 4th Floor
Ventura, CA 93001

DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-56
Page: 1 of 1

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy
Location in Structure: 145

Sampled By: Alex Corob
Report Date: January 12, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):	10	
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):		
Mix Temperature, ASTM (C1064 (°F):		

Notes: All items must be filled in

Set # 1 **Time Sampled:** 10:25 AM

Mix number: 1586813 **Environment Conditions:**

Required Strength, 28 days (psi)

Concrete Supplier: Cemex
Truck #: **Ticket #:** 426590563

Specimens were fabricated in accordance with ASTM C31 **Yes** ☑ **No** ☐

Specimens were tested in accordance with ASTM C39 **Yes** ☑ **No** ☐

TESTING INFORMATION

Identification	G5634	G5635	G5636	G5637		
Date Sampled:	12/9/20	12/9/20	12/9/20	12/9/20		
Date Received:	12/11/20	12/11/20	12/11/20	12/11/20		
Date Tested:	12/16/20	1/7/21	1/7/21	1/7/21		
Age in Days:	7	28	28	28		
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	21,000	27,000	27,000	27,500		
Compr. Strength (psi):	2,970	3,820	3,820	3,890		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	2	2	2	2		

Test Method C1231 ☑ **Test Method C617** ☐ 28 Day Avg. Break: 3,840 psi

The Material WAS ☑ **WAS NOT** ☐
Sampled and Tested in Accordance with the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET
The requirements of the DSA Approved Documents.

Remarks:

Copy To: 1 - Client
1 - Project File

REGISTERED PROFESSIONAL ENGINEER
ANTHONY P. MAZZEI
GE 2823
Exp. 6-30-21
GEOTECHNICAL
STATE OF CALIFORNIA

Signature

1/12/21
Date

Anthony P. Mazzei/Sr. Geotechnical Engineer
Print Name / Title

Earth Systems

1731 Walter Street, Suite A | Ventura, CA 93003 | Ph: 805.642.6727 | www.earthsystems.com

Client: Rasmussen & Associates
Attention: Jay Lomagno
21 S. California Street, 4th Floor
Ventura, CA 93001

DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-57
Page: 1 of 1

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy **Location in Structure:** 181

Sampled By: Alex Corob **Report Date:** January 12, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):	9	
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):		
Mix Temperature, ASTM (C1064 (°F):		

Notes: All items must be filled in

Set # 1 **Time Sampled:** 2:20 PM

Mix number: 1586813 **Environment Conditions:**

Required Strength, 28 days (psi)

Concrete Supplier: Cemex
Truck #: **Ticket #:** 42659085

Specimens were fabricated in accordance with ASTM C31 Yes ☑ No ☐

Specimens were tested in accordance with ASTM C39 Yes ☑ No ☐

TESTING INFORMATION

Identification	G5638	G5639	G5640	G5641		
Date Sampled:	12/9/20	12/9/20	12/9/20	12/9/20		
Date Received:	12/11/20	12/11/20	12/11/20	12/11/20		
Date Tested:	12/16/20	1/7/21	1/7/21	1/7/21		
Age in Days:	7	28	28	28		
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	22,500	28,000	27,500	29,000		
Compr. Strength (psi):	3,180	3,960	3,890	4,100		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	2	2	2	2		

Test Method C1231 ☑ **Test Method C617** ☐ 28 Day Avg. Break: 3,980 psi

The Material WAS ☑ **WAS NOT** ☐ Sampled and Tested in Accordance with the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET The requirements of the DSA Approved Documents.

Remarks:

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REGISTERED PROFESSIONAL ENGINEER ANTHONY P. MAZZEI GE 2823 Exp. 6-30-21 GEOTECHNICAL STATE OF CALIFORNIA

Signature

1/12/21
Date

Anthony P. Mazzei/Sr. Geotechnical Engineer
Print Name / Title

Earth Systems
1731 Walter Street, Suite A | Ventura, CA 93003 | Ph: 805.642.6727 | www.earthsystems.com

Client: Rasmussen & Associates
Attention: Jay Lomagno
21 S. California Street, 4th Floor
Ventura, CA 93001

DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-60

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy **Location in Structure:** 280

Sampled By: Alex Corob **Report Date:** January 12, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):	10	
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):	62	
Mix Temperature, ASTM (C1064 (°F):	67	

Notes: All items must be filled in

Set # 1 **Time Sampled:** 10:00 AM

Mix number: 1586813 **Environment Conditions:**

Required Strength, 28 days (psi)

Concrete Supplier: Cemex
Truck #: **Ticket #:**

Specimens were fabricated in accordance with ASTM C31 Yes ☑ No ☐

Specimens were tested in accordance with ASTM C39 Yes ☑ No ☐

TESTING INFORMATION

Identification	G5669	G5670	G5671	G5672		
Date Sampled:	12/10/20	12/10/20	12/10/20	12/10/20		
Date Received:	12/11/20	12/11/20	12/11/20	12/11/20		
Date Tested:	12/17/20	1/8/21	1/8/21	1/8/21		
Age in Days:	7	28	28	28		
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	24,000	31,000	32,000	30,500		
Compr. Strength (psi):	3,390	4,380	4,530	4,310		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	2	2	3	3		

Test Method C1231 ☑ **Test Method C617** ☐ 28 Day Avg. Break: 4,410 psi

The Material WAS ☑ **WAS NOT** ☐
Sampled and Tested in Accordance with the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET
The requirements of the DSA Approved Documents.

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GE 2823
Exp. 6-30-21
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STATE OF CALIFORNIA

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Date
Anthony P. Mazzei/Sr. Geotechnical Engineer
Print Name / Title

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21 S. California Street, 4th Floor
Ventura, CA 93001

DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-61

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy
Location in Structure: 256

Sampled By: Alex Corob
Report Date: January 12, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):	9-1/2	
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):	65	
Mix Temperature, ASTM (C1064 (°F):	71	

Notes: All items must be filled in

Set # 1 **Time Sampled:** 2:15 PM

Mix number: 1586813 **Environment Conditions:**

Required Strength, 28 days (psi)

Concrete Supplier: Cemex
Truck #: **Ticket #:** 42659181

Specimens were fabricated in accordance with ASTM C31 Yes ☑ No ☐

Specimens were tested in accordance with ASTM C39 Yes ☑ No ☐

TESTING INFORMATION

Identification	G5673	G5674	G5675	G5676		
Date Sampled:	12/10/20	12/10/20	12/10/20	12/10/20		
Date Received:	12/11/20	12/11/20	12/11/20	12/11/20		
Date Tested:	12/17/20	1/8/21	1/8/21	1/8/21		
Age in Days:	7	28	28	28		
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	22,000	29,000	29,500	30,500		
Compr. Strength (psi):	3,110	4,100	4,170	4,310		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	2	2	2	3		

Test Method C1231 ☑ **Test Method C617** ☐ 28 Day Avg. Break: 4,190 psi

The Material **WAS** ☑ **WAS NOT** ☐
Sampled and Tested in Accordance with the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET
The requirements of the DSA Approved Documents.

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GE 2823
Exp. 6-30-21
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Date
Anthony P. Mazzei/Sr. Geotechnical Engineer
Print Name / Title

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Client: Rasmussen & Associates
Attention: Jay Lomagno
21 S. California Street, 4th Floor
Ventura, CA 93001

DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-71
Page: 1 of 1

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy
Location in Structure: 222

Sampled By: Alex Corob
Report Date: January 18, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):	11	
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):	52	
Mix Temperature, ASTM (C1064 (°F):	68	

Notes: All items must be filled in

Set # 1
Time Sampled: 8:30 AM
Mix number: 1586813
Environment Conditions:
Required Strength, 28 days (psi)
Concrete Supplier: Cemex
Truck #:
Ticket #: 42607315

Specimens were fabricated in accordance with ASTM C31 **Yes** ☑ **No** ☐

Specimens were tested in accordance with ASTM C39 **Yes** ☑ **No** ☐

TESTING INFORMATION

Identification	G5690	G5691	G5692	G5693	G5694	G5695
Date Sampled:	12/14/20	12/14/20	12/14/20	12/14/20	12/14/20	12/14/20
Date Received:	12/16/20	12/16/20	12/16/20	12/16/20	12/16/20	12/16/20
Date Tested:	12/21/20	1/12/21	1/12/21	1/12/21		
Age in Days:	7	28	28	28	HOLD	HOLD
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	29,000	39,500	40,000	40,000		
Compr. Strength (psi):	4,100	5,590	5,660	5,660		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	2	2	2	2		

Test Method C1231 ☑ **Test Method C617** ☐

28 Day Avg. Break: 5,640 psi

The Material WAS ☑ **WAS NOT** ☐
Sampled and Tested in Accordance with
the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET
The requirements of the DSA Approved Documents.

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GE 2823
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Anthony P. Mazzei/Sr. Geotechnical Engineer
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Client: Rasmussen & Associates
Attention: Jay Lomagno
21 S. California Street, 4th Floor
Ventura, CA 93001

DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-78

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy
Location in Structure: 217

Sampled By: Alex Corob
Report Date: January 18, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):	11	
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):	62	
Mix Temperature, ASTM (C1064 (°F):	72	

Notes: All items must be filled in

Set # 1
Time Sampled: 9:50 AM
Mix number: 1586813
Environment Conditions:
Required Strength, 28 days (psi)
Concrete Supplier: Cemex
Truck #:
Ticket #: 42607471

Specimens were fabricated in accordance with ASTM C31 Yes ☑ No ☐

Specimens were tested in accordance with ASTM C39 Yes ☑ No ☐

TESTING INFORMATION

Identification	G5696	G5697	G5698	G5699	G5700	G5701
Date Sampled:	12/15/20	12/15/20	12/15/20	12/15/20	12/15/20	12/15/20
Date Received:	12/17/20	12/17/20	12/17/20	12/17/20	12/17/20	12/17/20
Date Tested:	12/22/20	1/13/21	1/13/21	1/13/21		
Age in Days:	7	28	28	28	HOLD	HOLD
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	25,000	41,000	44,000	41,000		
Compr. Strength (psi):	3,540	5,800	6,220	5,800		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	3	2	2	2		

Test Method C1231 ☑ **Test Method C617** ☐ 28 Day Avg. Break: 5,940 psi

The Material WAS ☑ **WAS NOT** ☐
Sampled and Tested in Accordance with the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET
The requirements of the DSA Approved Documents.

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Anthony P. Mazzei/Sr. Geotechnical Engineer
Print Name / Title

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Attention: Jay Lomagno
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Ventura, CA 93001

DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-84

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy
Location in Structure: 216

Sampled By: Alex Corob
Report Date: January 18, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):	9	
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):	73	
Mix Temperature, ASTM (C1064 (°F):	69	

Notes: All items must be filled in

Set # 1
Time Sampled: 11:40 AM
Mix number: 1586813
Environment Conditions:
Required Strength, 28 days (psi)
Concrete Supplier: Cemex
Truck #:
Ticket #: 42607616

Specimens were fabricated in accordance with ASTM C31 **Yes** ☑ **No** ☐

Specimens were tested in accordance with ASTM C39 **Yes** ☑ **No** ☐

TESTING INFORMATION

Identification	G5702	G5703	G5704	G5705	G5706	G5707
Date Sampled:	12/16/20	12/16/20	12/16/20	12/16/20	12/16/20	12/16/20
Date Received:	12/18/20	12/18/20	12/18/20	12/18/20	12/18/20	12/18/20
Date Tested:	12/23/20	1/14/21	1/14/21	1/14/21		
Age in Days:	7	28	28	28	HOLD	HOLD
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	25,000	44,000	45,000	45,500		
Compr. Strength (psi):	3,540	6,220	6,360	6,440		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	2	3	2	2		

Test Method C1231 ☑ **Test Method C617** ☐ 28 Day Avg. Break: 6,340 psi

The Material WAS ☑ **WAS NOT** ☐ Sampled and Tested in Accordance with the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET The requirements of the DSA Approved Documents.

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1/18/21
Date

Anthony P. Mazzei/Sr. Geotechnical Engineer
Print Name / Title

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Attention: Jay Lomagno
21 S. California Street, 4th Floor
Ventura, CA 93001

DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-85

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy **Location in Structure:** 109

Sampled By: Alex Corob **Report Date:** January 18, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):	10	
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):	55	
Mix Temperature, ASTM (C1064 (°F):	61	

Notes: All items must be filled in

Set # 1 **Time Sampled:** 8:10 AM

Mix number: 1586813 **Environment Conditions:**

Required Strength, 28 days (psi)

Concrete Supplier: Cemex
Truck #: **Ticket #:** 42607813

Specimens were fabricated in accordance with ASTM C31

TESTING INFORMATION Yes ☑ No ☐

Specimens were tested in accordance with ASTM C39 Yes ☑ No ☐

Identification	G5753	G5754	G5755	G5756	G5757	G5758
Date Sampled:	12/18/20	12/18/20	12/18/20	12/18/20	12/18/20	12/18/20
Date Received:	12/21/20	12/21/20	12/21/20	12/21/20	12/21/20	12/21/20
Date Tested:	12/25/20	1/16/21	1/16/21	1/16/21		
Age in Days:	7	28	28	28	HOLD	HOLD
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	23,000	41,000	40,000	42,000		
Compr. Strength (psi):	3,250	5,800	5,660	5,940		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	3	3	3	2		

Test Method C1231 ☑ **Test Method C617** ☐ 28 Day Avg. Break: 5,800 psi

The Material WAS ☑ **WAS NOT** ☐ Sampled and Tested in Accordance with the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET The requirements of the DSA Approved Documents.

Remarks:

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Print Name / Title

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1731 Walter Street, Suite A | Ventura, CA 93003 | Ph: 805.642.6727 | www.earthsystems.com

Client: Rasmussen & Associates
Attention: Jay Lomagno
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DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-86

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy **Location in Structure:**

Sampled By: Alex Corob **Report Date:** January 18, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):		
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):		
Mix Temperature, ASTM (C1064 (°F):		

Notes: All items must be filled in

Set # 1 **Time Sampled:**

Mix number: 1586813 **Environment Conditions:**

Required Strength, 28 days (psi)

Concrete Supplier: Cemex
Truck #: **Ticket #:**

Specimens were fabricated in accordance with ASTM C31 Yes ☑ No ☐

Specimens were tested in accordance with ASTM C39 Yes ☑ No ☐

TESTING INFORMATION

Identification	G5759	G5760	G5761	G5762	G5763	G5764
Date Sampled:	12/17/20	12/17/20	12/17/20	12/17/20	12/17/20	12/17/20
Date Received:	12/18/20	12/18/20	12/18/20	12/18/20	12/18/20	12/18/20
Date Tested:	12/24/20	1/15/21	1/15/21	1/15/21		
Age in Days:	7	28	28	28	HOLD	HOLD
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	22,000	39,000	39,000	41,000		
Compr. Strength (psi):	3,110	5,520	5,520	5,800		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	2	2	2	3		

Test Method C1231 ☑ **Test Method C617** ☐ 28 Day Avg. Break: 5,610 psi

The Material WAS ☑ **WAS NOT** ☐
Sampled and Tested in Accordance with the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET
The requirements of the DSA Approved Documents.

Remarks:

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Anthony P. Mazzei/Sr. Geotechnical Engineer
Print Name / Title

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DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-87
Page: 1 of 1

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy **Location in Structure:** 227

Sampled By: Alex Corob **Report Date:** January 18, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):	11	
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):	60	
Mix Temperature, ASTM (C1064 (°F):	72	

Notes: All items must be filled in
Set # 1 **Time Sampled:** 3:20 PM
Mix number: 1586813 **Environment Conditions:**
Required Strength, 28 days (psi)
Concrete Supplier: Cemex
Truck #: **Ticket #:** 42843818

Specimens were fabricated in accordance with ASTM C31 **Yes** ☑ **No** ☐

Specimens were tested in accordance with ASTM C39 **Yes** ☑ **No** ☐

TESTING INFORMATION

Identification	G5765	G5766	G5767	G5768	G5769	G5770
Date Sampled:	12/17/20	12/17/20	12/17/20	12/17/20	12/17/20	12/17/20
Date Received:	12/18/20	12/18/20	12/18/20	12/18/20	12/18/20	12/18/20
Date Tested:	12/24/20	1/15/21	1/15/21	1/15/21		
Age in Days:	7	28	28	28	HOLD	HOLD
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	22,500	38,000	40,000	37,500		
Compr. Strength (psi):	3,180	5,370	5,660	5,300		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	2	2	2	2		

Test Method C1231 ☑ **Test Method C617** ☐ 28 Day Avg. Break: 5,440 psi

The Material WAS ☑ **WAS NOT** ☐
Sampled and Tested in Accordance with the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET
The requirements of the DSA Approved Documents.

Remarks:

Copy To: 1 - Client
1 - Project File

REGISTERED PROFESSIONAL ENGINEER ANTHONY P. MAZZEI GE 2823 Exp. 6-30-21 GEOTECHNICAL STATE OF CALIFORNIA

Signature
1/18/21
Date
Anthony P. Mazzei/Sr. Geotechnical Engineer
Print Name / Title

Earth Systems

1731 Walter Street, Suite A | Ventura, CA 93003 | Ph: 805.642.6727 | www.earthsystems.com

Client: Rasmussen & Associates
Attention: Jay Lomagno
21 S. California Street, 4th Floor
Ventura, CA 93001

DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-88
Page: 1 of 1

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy **Location in Structure:**

Sampled By: Alex Corob **Report Date:** January 21, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):		
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):		
Mix Temperature, ASTM (C1064 (°F):		

Notes: All items must be filled in

Set # 1 **Time Sampled:** AM

Mix number: 1586813 **Environment Conditions:**

Required Strength, 28 days (psi)

Concrete Supplier: Cemex

Truck #: **Ticket #:**

Specimens were fabricated in accordance with ASTM C31 Yes ☑ No ☐

Specimens were tested in accordance with ASTM C39 Yes ☑ No ☐

TESTING INFORMATION

Identification	G5771	G5772	G5773	G5774	G5775	G5776
Date Sampled:	12/21/20	12/21/20	12/21/20	12/21/20	12/21/20	12/21/20
Date Received:	12/23/20	12/23/20	12/23/20	12/23/20	12/23/20	12/23/20
Date Tested:	12/28/20	1/19/21	1/19/21	1/19/21		
Age in Days:	7	28	28	28	HOLD	HOLD
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	25,000	40,000	42,000	42,500		
Compr. Strength (psi):	3,540	5,660	5,940	6,010		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	2	2	2	2		

Test Method C1231 ☑ **Test Method C617** ☐ 28 Day Avg. Break: 5,870 psi

The Material WAS ☑ **WAS NOT** ☐ Sampled and Tested in Accordance with the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET The requirements of the DSA Approved Documents.

Remarks:

Copy To: 1 - Client
1 - Project File

REGISTERED PROFESSIONAL ENGINEER ANTHONY P. MAZZEI GE 2823 Exp. 6-30-21 GEOTECHNICAL STATE OF CALIFORNIA

Signature

1/21/21
Date

Anthony P. Mazzei/Sr. Geotechnical Engineer
Print Name / Title

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Client: Rasmussen & Associates
Attention: Jay Lomagno
21 S. California Street, 4th Floor
Ventura, CA 93001

DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-89

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy **Location in Structure:**

Sampled By: Alex Corob **Report Date:** January 21, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):		
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):		
Mix Temperature, ASTM (C1064 (°F):		

Notes: All items must be filled in

Set # 1 **Time Sampled:** PM

Mix number: 1586813 **Environment Conditions:**

Required Strength, 28 days (psi)

Concrete Supplier: Cemex
Truck #: **Ticket #:**

Specimens were fabricated in accordance with ASTM C31 Yes ☑ No ☐

Specimens were tested in accordance with ASTM C39 Yes ☑ No ☐

TESTING INFORMATION

Identification	G5777	G5778	G5779	G5780	G5781	G5781
Date Sampled:	12/21/20	12/21/20	12/21/20	12/21/20	12/21/20	12/21/20
Date Received:	12/23/20	12/23/20	12/23/20	12/23/20	12/23/20	12/23/20
Date Tested:	12/28/20	1/19/21	1/19/21	1/19/21		
Age in Days:	7	28	28	28	HOLD	HOLD
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	36,000	44,000	41,000	45,000		
Compr. Strength (psi):	3,680	6,220	5,800	6,360		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	3	2	2	3		

Test Method C1231 ☑ **Test Method C617** ☐ 28 Day Avg. Break: 6,130 psi

The Material WAS ☑ **WAS NOT** ☐ Sampled and Tested in Accordance with the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET The requirements of the DSA Approved Documents.

Remarks:

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REGISTERED PROFESSIONAL ENGINEER
ANTHONY P. MAZZEI
GE 2823
Exp. 6-30-21
GEOTECHNICAL
STATE OF CALIFORNIA

Signature

1/21/21
Date

Anthony P. Mazzei/Sr. Geotechnical Engineer
Print Name / Title

Earth Systems

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Client: Rasmussen & Associates
Attention: Jay Lomagno
21 S. California Street, 4th Floor
Ventura, CA 93001

DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-95
Page: 1 of 1

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy **Location in Structure:**

Sampled By: Alex Corob **Report Date:** January 21, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):		
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):		
Mix Temperature, ASTM (C1064 (°F):		

Notes: All items must be filled in

Set # 1 **Time Sampled:** AM

Mix number: 1586813 **Environment Conditions:**

Required Strength, 28 days (psi)

Concrete Supplier: Cemex

Truck #: **Ticket #:**

Specimens were fabricated in accordance with ASTM C31

Specimens were tested in accordance with ASTM C39 Yes ☑ No ☐

TESTING INFORMATION Yes ☑ No ☐

Identification	G5783	G5784	G5785	G5786	G5787	G5788
Date Sampled:	12/22/20	12/22/20	12/22/20	12/22/20	12/22/20	12/22/20
Date Received:	12/23/20	12/23/20	12/23/20	12/23/20	12/23/20	12/23/20
Date Tested:	12/29/20	1/20/21	1/20/21	1/20/21		
Age in Days:	7	28	28	28	HOLD	HOLD
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	22,500	39,500	41,000	41,000		
Compr. Strength (psi):	3,180	5,590	5,800	5,800		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	2	2	3	3		

Test Method C1231 ☑ **Test Method C617** ☐ 28 Day Avg. Break: 5,730 psi

The Material WAS ☑ **WAS NOT** ☐ Sampled and Tested in Accordance with the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET The requirements of the DSA Approved Documents.

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Signature

1/21/21

Date

Anthony P. Mazzei/Sr. Geotechnical Engineer

Print Name / Title

Earth Systems

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Client: Rasmussen & Associates
Attention: Jay Lomagno
21 S. California Street, 4th Floor
Ventura, CA 93001

DSA Application No.: 03-120764
DSA/LEA No.: 6
File Number: 302245-003
Report Number: 20-12-96
Page: 1 of 1

COMPRESSION TEST REPORT

Project Name: Oxnard College Fire Academy **Location in Structure:**

Sampled By: Alex Corob **Report Date:** January 21, 2021

SAMPLING INFORMATION

Test Results pertain only to the sample locations identified.

Material: Concrete ☐ Grout ☑ Mortar ☐ Other ☐

	Actual	Spec
Slump, ASTM C143 (Inches):		
Percent Air, ASTM C231 (%):		
Unit weight, ASTM C138/ (pcf):		
Air Temperature (°F):		
Mix Temperature, ASTM (C1064 (°F):		

Notes: All items must be filled in

Set # 1 **Time Sampled:** PM

Mix number: 1586813 **Environment Conditions:**

Required Strength, 28 days (psi)

Concrete Supplier: Cemex

Truck #: **Ticket #:**

Specimens were fabricated in accordance with ASTM C31 Yes ☑ No ☐

Specimens were tested in accordance with ASTM C39 Yes ☑ No ☐

TESTING INFORMATION

Identification	G5789	G5790	G5791	G5792	G5793	G5794
Date Sampled:	12/22/20	12/22/20	12/22/20	12/22/20	12/22/20	12/22/20
Date Received:	12/23/20	12/23/20	12/23/20	12/23/20	12/23/20	12/23/20
Date Tested:	12/29/20	1/20/21	1/20/21	1/20/21		
Age in Days:	7	28	28	28	HOLD	HOLD
Diameter (in.):	3.00x6.00	3.00x6.00	3.00x6.00	3.00x6.00		
Cross Sect. Area (in.^{2}):	7.07	7.07	7.07	7.07		
Maximum Load (lbs.):	24,000	42,000	41,000	41,500		
Compr. Strength (psi):	3,400	5,940	5,800	5,870		
Tested By	Steve DeBolt	Steve DeBolt	Steve DeBolt	Steve DeBolt		
Fracture Type:	3	3	3	3		

Test Method C1231 ☑ **Test Method C617** ☐ 28 Day Avg. Break: 5,870 psi

The Material WAS ☑ **WAS NOT** ☐ Sampled and Tested in Accordance with the Requirements of the DSA Approved Documents.

The Material Tested ☑ MET ☐ DID NOT MEET The requirements of the DSA Approved Documents.

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Signature

1/21/21

Date

Anthony P. Mazzei/Sr. Geotechnical Engineer

Print Name / Title

ATTACHMENT C

Sheet No. GI-2

GENERAL

1. ADVANCED GEOSOLUTIONS, INC. (AGI) SCOPE OF WORK INVOLVES CONSTRUCTION OF THE GROUND IMPROVEMENT BY DISPLACEMENT GROUTED COLUMNS (DGC) INSTALLATION AS SHOWN ON THESE PLANS.

2. A STABLE AND LEVEL (< 2%) WORKING PAD SHALL BE PROVIDED BY OTHERS. THE WORKING SURFACE MUST BE FREE OF STANDING WATER AND BE CAPABLE OF SUPPORTING A 150+ TON DRILL RIG/ CRANE IN ALL WEATHER CONDITIONS.

3. A LICENSED SURVEYOR, PROVIDED BY OTHERS, WILL STAKE AND IDENTIFY EACH DGC LOCATION AS SHOWN ON THESE PLANS.

REFERENCE DOCUMENTS:

4. ENGINEERING GEOLOGY AND GEOTECHNICAL ENGINEERING REPORT, PREPARED BY EARTH SYSTEMS PACIFIC AND DATED 4/22/2020.

DGC INSTALLATION

1. THE GROUT USED TO CONSTRUCT THE DGC WILL MEET THE DESIGN STRENGTH OF 2,000 PSI AT 28 DAYS.

2. THE DGC WILL EXTEND TO THE DEPTH INDICATED ON THE PLAN OR TO PRACTICAL REFUSAL, WHICHERVER OCCURS FIRST.

3. CONSTRUCTION TOLERANCE ARE:
   HORIZONTAL TOLERANCE = ±6 INCHES FROM STAKED LOCATION
   VERTICAL TOLERANCE = ±2 DEGREES

4. THE VOLUME OF INJECTED GROUT SHALL BE RECORDED PER LINEAR FOOT. THIS VOLUME SHALL NOT BE LESS THAN THE NEAT VOLUME. ALL VOLUME MEASUREMENT SHALL BE RECORDED USING A DATA ACQUISITION SYSTEM.

5. ADJACENT DGCS LESS THAN 6 FEET CENTER-TO-CENTER SHALL NOT BE INSTALLED WITHIN 3 HOURS OF EACH OTHER.

6. GROUT MIX SHALL BE CONTINUOUSLY PLACED AGAINST UNDISTURBED SOIL UNDER PRESSURE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

7. SHOULD ANY OBSTRUCTION BE ENCOUNTERED DURING INSTALLATION, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING SUCH OBSTRUCTION OR THE DGC SHALL BE RELOCATED OR ABANDONED AS DIRECTED BY THE GEOR.

8. THE FINISHED DGC ELEMENT WILL BE POST-EXCAVATED BY OTHERS, WHERE REQUIRED, TO ESTABLISH THE FINAL TOP ELEVATION OF THE DGC.

9. DGC INSTALLATION DATA LOGS WILL BE COMPILED BY AGI AND SUBMITTED TO OWNER'S REPRESENTATIVE WITHIN ONE WEEK AFTER INSTALLATION.

10. INSTALLATION RECORD OF EACH DGC WILL INCLUDE THE FOLLOWING:
   IDENTIFICATION NUMBER AND DATE OF INSTALLATION
   DGC TOOL DIAMETER
   TOTAL DRILLED DEPTH
   VOLUME OF GROUT MIX PLACED
   DGC PUMPING PRESSURE (WHERE APPLICABLE)
   CONCRETE TRUCK TICKET ID ASSOCIATED WITH THE DGC
   DOCUMENTATION OF OBSTRUCTION, PLACEMENT DELAYS, UNUSUAL GROUND CONDITIONS, OR UNUSUAL OCCURRENCES OBSERVED DURING DGC INSTALLATION.

GROUND IMPROVEMENT TESTING

1. GROUT MIX SAMPLE WILL BE COLLECTED AND PROVIDED TO THE OWNER'S THIRD PARTY LAB TO CONFIRM DESIGN STRENGTH.

2. THE FREQUENCY OF GROUT MIX SAMPLING WILL BE ONE SET OF FOUR 3"X6" CYLINDERS FOR EVERY 50 CUBIC YARDS PLACED. A MINIMUM OF ONE SET WILL BE COLLECTED PER SHIFT.

3. ONE (1) COMPRESSIVE LOAD TEST, IN GENERAL ACCORDANCE WITH ASTM D1143 PROCEDURE A, WILL BE CONDUCTED ON A REPRESENTATIVE 34' DEEP DGC ELEMENT TO VERIFY THE TEST LOAD (DESIGN LOAD + 50%).

4. A SEATING LOAD EQUAL TO 5% OF THE DESIGN LOAD SHALL BE APPLIED PRIOR TO APPLICATION OF LOAD INCREMENTS

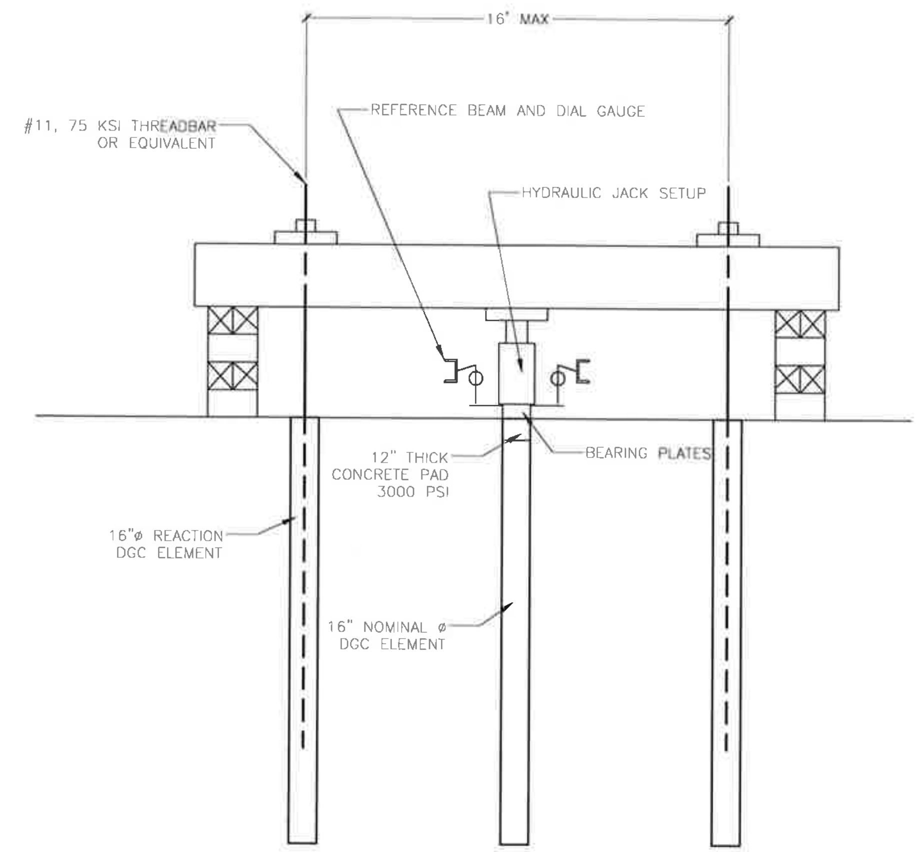
5. THE LOAD TEST RESULTS SHALL BE EVALUATED BY THE 90% HANSEN CRITERIA.

6. SEE LOAD TEST SETUP AND TEST SCHEDULE ON THIS SHEET.

7. MAXIMUM ACCEPTABLE DGC TOP DEFLECTION AT DESIGN LOAD = 1.0 INCH

COMPRESSION TEST LOADING SCHEDULE

DESIGN LOAD	70	KIPS
PERCENT OF DL	LOAD VALUE	HOLD DURATION
[%]	[KIP]	[MIN]
5%	3.5	ALIGNMENT LOAD
10%	7.0	4
15%	10.5	4
20%	14.0	4
25%	17.5	4
30%	21.0	4
35%	24.5	4
40%	28.0	4
45%	31.5	4
50%	35.0	4
55%	38.5	4
60%	42.0	4
65%	45.5	4
70%	49.0	4
75%	52.5	4
80%	56.0	4
85%	59.5	4
90%	63.0	4
95%	66.5	4
100%	70.0	4
105%	73.5	4
110%	77.0	4
115%	80.5	4
120%	84.0	4
125%	87.5	4
130%	91.0	4
135%	94.5	4
140%	98.0	4
145%	101.5	4
150%	105.0	4
125%	87.5	4
100%	70.0	4
75%	52.5	4
50%	35.0	4
25%	17.5	4
5%	3.5	4
0%	0.0	-



LOAD TEST SETUP
NOT TO SCALE

FILE PATH & NAME: S:\PROJECTS\P714275 OXNARD COLLEGE FIRE ACADEMY\DRAWINGS\MAIN FILES\AGI_LAYOUT.DWG PLOTTED: 6:31 PM

THIS SHEET WAS ORIGINALLY PRINTED ON A 24"x36" SHEET.

AGI

ADVANCED GEOSOLUTIONS Inc.

RASMUSSEN & ASSOCIATES
Architecture
Planning
Interiors
21 S. California Street
Fourth Floor
Ventura, California 93001
(805) 648-1234

GENERAL NOTES AND DETAILS

FIRE TECHNOLOGY APPARATUS BUILDING
OXNARD COLLEGE FIRE ACADEMY
104 DURLEY AVENUE
CAMARILLO, CALIFORNIA 93010

Sheet No.
GI-2