GRADING & DRAINAGE PLAN
DEWANJEE RESIDENCE
5749 E QUARTZ MOUNTAIN RD., PARADISE VALLEY, AZ 85253
LOT 7 - LA PLACE DU SOMMET LOT 1-31 TR A-C
A SUBDIVISION PLAT RECORDED IN BOOK 250 OF MAPS, PAGE 44, MCR., LOCATED IN A PORTION OF THE SE 1/4 OF THE N 1/2 OF THE SW 1/4 OF SECTION 4, T.2N, R.4E OF THE GILA & SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA

TOWN OF PARADISE VALLEY NOTES

1. PRIOR TO THE FIRST INSPECTION OF STRUCTURES WITHIN 3 FEET OF A SETBACK LINE, THE PROPERTY PINS SHALL BE PLACED BY A REGISTERED CIVIL ENGINEER OR LAND SURVEYOR OF THE STATE OF ARIZONA, AND THE PROPERTY LINE(S) IDENTIFIED.
2. WHERE EXCAVATION IS TO OCCUR THE TOP 4" OF EXCAVATED NATIVE SOIL SHALL REMAIN ON THE SITE AND SHALL BE REUSED IN A MANNER THAT TAKES ADVANTAGE OF THE NATURAL SOIL SEED BANK IT CONTAINS.
3. ALL WORK REQUIRED TO COMPLETE THE CONSTRUCTION COVERED BY THIS PLAN SHALL BE IN ACCORDANCE WITH THE MARICOPA ASSOCIATION OF GOVERNMENTS (M.A.G.) STANDARD SPECIFICATIONS AND DETAILS AND CURRENT SUPPLEMENTS THEREOF PER THE LOCAL MUNICIPALITY UNLESS SPECIFIED OTHERWISE IN THESE PLANS OR ELSEWHERE IN THE CONTRACT DOCUMENTS.
4. THE CONTRACTOR IS TO COMPLY WITH ALL LOCAL STATE, AND FEDERAL LAWS AND REGULATIONS APPLICABLE TO THE CONSTRUCTION COVERED BY THIS PLAN.
5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND COMPLYING WITH ALL PERMITS REQUIRED TO COMPLETE ALL WORK COVERED BY THIS PLAN.
6. ALL EXTERIOR SITE LIGHTING SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS FOR TYPE, LOCATION, HEIGHT, WATTAGE, AND LUMEN BASED UPON THE FIXTURES INSTALLED PURSUANT TO SECTION 1023 OF THE TOWN OF PARADISE VALLEY ZONING ORDINANCE FOR NON-HILLSIDE PROPERTIES, SECTION 2208 OF THE TOWN OF PARADISE VALLEY ZONING ORDINANCE FOR HILLSIDE PROPERTIES, OR AS SPECIFIED IN THE SPECIAL USE PERMIT FOR SPECIAL USE PERMIT PROPERTIES.
7. A DUST CONTROL PLAN AND PERMIT MEETING THE REQUIREMENTS OF RULE 310 OF THE MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS, AS AMENDED, IS REQUIRED.
8. A SEPARATE RIGHT-OF-WAY PERMIT IS NECESSARY FOR ANY OFF-SITE CONSTRUCTION.
9. AN APPROVED GRADING AND DRAINAGE PLAN SHALL BE ON THE JOB SITE AT ALL TIMES. DEVIATIONS FROM THE PLAN MUST BE PRECEDED BY AN APPROVED PLAN REVISION.
10. EAVE PROJECTIONS INTO REQUIRED SETBACKS ARE LIMITED TO A MAXIMUM OF 24" PURSUANT TO SECTION 1008 OF THE TOWN OF PARADISE VALLEY ZONING ORDINANCES.
11. ALL STRUCTURES AND LANDSCAPING WITHIN THE SIGHT VISIBILITY TRIANGLE SHALL HAVE A 2 FOOT MAXIMUM HEIGHT.
12. ALL NEW AND EXISTING ELECTRICAL SERVICE LINES SHALL BE BURIED PER THE TOWN OF PARADISE VALLEY REQUIREMENTS.
13. IT SHALL BE THE RESPONSIBILITY OF THE PERMITTEE TO ARRANGE FOR THE RELOCATION AND RELOCATION COSTS OF ALL UTILITIES, AND TO SUBMIT A UTILITY RELOCATION SCHEDULE PRIOR TO THE ISSUANCE OF AN ENGINEERING CONSTRUCTION PERMIT.
14. EXISTING AND/OR NEW UTILITY CABINETS AND PEDESTALS SHALL BE LOCATED A MINIMUM OF 4'BEHIND ULTIMATE BACK OF CURB LOCATION.
15. POOL, SPA, BARBECUE AND ANY PROPOSED STRUCTURES OVER 8"ABOVE GRADE REQUIRE SEPARATE PERMIT APPLICATIONS.
16. POOLS SHALL BE CONSTRUCTED BY SEPARATE PERMIT AND SECURED FROM UNWANTED ACCESS PER TOWN CODE, ARTICLE 5-2.
17. ALL FILL MATERIAL UNDER SLABS AND WALKS SHALL BE COMPACTED TO NOT LESS THAN 95%.
18. SETBACK CERTIFICATION IS REQUIRED AND SHALL BE PROVIDED TO TOWN INSPECTOR PRIOR TO STEM WALL INSPECTION.
19. FOR BUILDING PADS THAT HAVE 1'OR MORE OF FILL MATERIAL, SOILS COMPACTION TEST RESULTS ARE REQUIRED AND SHALL BE PROVIDED TO TOWN INSPECTOR PRIOR TO PRE-SLAB INSPECTION.
20. FINISHED FLOOR ELEVATION CERTIFICATION IS REQUIRED AND SHALL BE PROVIDED TO TOWN INSPECTOR PRIOR TO FRAMING INSPECTION.
21. MAIL BOXES SHALL COMPLY WITH THE TOWN OF PARADISE VALLEY STANDARDS FOR MAIL BOXES IN THE RIGHTOF-WAY FOR HEIGHT, WIDTH AND BREAK AWAY FEATURES.
22. ALL PATIOS, WALKS, AND DRIVES TO SLOPE AWAY FROM BUILDING AND GARAGES AT A MINIMUM SLOPE OF 1/4" PER FOOT UNLESS SPECIFIED OTHERWISE.
23. TRENCH BEDDING AND SHADING SHALL BE FREE OF ROCKS AND DEBRIS.
24. THE TOWN ONLY APPROVES THE SCOPE OF WORK AND NOT THE ENGINEERING DESIGN. ANY CONSTRUCTION QUANTITIES SHOWN ARE NOT VERIFIED BY THE TOWN.
25. THE APPROVAL OF THE PLANS IS VALID FOR 180 DAYS. IF A PERMIT FOR CONSTRUCTION HAS NOT BEEN ISSUED WITHIN 180 DAYS, THE PERMIT MUST BE RENEWED.
26. A TOWN INSPECTOR WILL INSPECT ALL WORK WITHIN THE TOWN'S RIGHTS-OF-WAY. NOTIFY TOWN INSPECTION SERVICES TO SCHEDULE A PRECONSTRUCTION MEETING PRIOR TO STARTING CONSTRUCTION.
27. WHENEVER EXCAVATION IS NECESSARY, CALL ARIZONA811 BY DIALING 811 or 602-263-1100, TWO (2) WORKING DAYS BEFORE EXCAVATION BEGINS.
28. EXCAVATIONS SHALL COMPLY WITH REQUIREMENTS OF OSHA EXCAVATION STANDARDS (29 CFR, PART 1926, SUBPART P). UNDER NO CIRCUMSTANCES WILL THE CONTRACTORS BE ALLOWED TO WORK IN A TRENCH LOCATED WITHIN THE TOWN'S RIGHT-OF-WAY WITHOUT PROPER SHORING OR EXCAVATION METHODS.
29. PERMIT HOLDER SHALL POST A 6 SQUARE FOOT (2'X3') IDENTIFICATION SIGN, MADE OF DURABLE MATERIAL, IN THE FRONT YARD OF SUBJECT PROPERTY AND NOT IN THE TOWN'S RIGHT-OF-WAY. THE SIGN MAY NOT EXCEED A MAXIMUM OF 6 FEET IN HEIGHT FROM GRADE TO TOP OF THE SIGN. THE SIGN MUST INCLUDE THE PERMITTEE OR COMPANY NAME, PHONE NUMBER. TYPE OF WORK, ADDRESS OF PROJECT AND TOWN CONTACT NUMBER, 480-348-3556.
30. WHEN DEEMED NECESSARY, A 6-FOOT HIGH CHAIN LINK FENCE MUST BE INSTALLED AROUND THE CONSTRUCTION AREA TO PREVENT ANY POTENTIAL SAFETY HAZARD FOR THE PUBLIC. THE FENCE SHALL BE SETBACK AT LEAST 10 FEET FROM ALL RIGHTS-OF-WAY AND HAVE A 50-FOOT STREET CORNER SITE TRIANGLE WHERE APPLICABLE.
31. CLEAR ACCESS FOR NEIGHBORING PROPERTIES AND EMERGENCY VEHICLES MUST BE MAINTAINED AT ALL TIMES. CONSTRUCTION RELATED VEHICLES MUST BE LEGALLY PARKED ONLY ON ONE SIDE OF THE STREET OR JOB SITE PROPERTY.
32. ALL CONSTRUCTION DEBRIS AND EQUIPMENT MUST BE CONTAINED ON SITE AT ALL TIMES. CONTRACTOR AND PROPERTY OWNER MUST MAINTAIN THE JOB SITE FREE OF LITTER AND UNSIGHTLY MATERIALS AT ALL TIMES. CONSTRUCTION MATERIALS ARE PROHIBITED IN THE TOWN'S RIGHT-OF-WAY.
33. CONSTRUCTION ACTIVITIES ARE PERMITTED BETWEEN THE HOURS OF 7 AM AND 5 PM MONDAY THROUGH CONSTRUCTION ACTIVITIES MAY START ONE (1) HOUR EARLIER DURING THE SUMMER (MAY 1ST THROUGH SEPTEMBER 30TH).
34. THE USE AND OPERATION OF FUEL-FIRED GENERATORS IS PROHIBITED UNLESS DUE TO A HARDSHIP. TOWN APPROVAL SHALL BE REQUIRED.
35. THE CONTRACTOR AND PROPERTY OWNER SHALL BE LIABLE FOR ANY DAMAGE DONE TO ANY PUBLIC PROPERTY AS A RESULT OF ANY CONSTRUCTION OR CONSTRUCTION RELATED ACTIVITIES. NO CERTIFICATE OF OCCUPANCY WILL BE ISSUED UNTIL ALL AFFECTED RIGHTS-OF-WAY ARE CLEANED AND/OR REPAIRED TO THEIR ORIGINAL CONDITION AND UNTIL ANY AND ALL DAMAGES TO AFFECTED PROPERTIES ARE RESTORED TO ORIGINAL CONDITION.
36. A KEYED SWITCH SHALL BE REQUIRED ON ALL NEW AND EXISTING ELECTRIC ENTRY GATES. THE KEYED SWITCH SHALL BE INSTALLED IN A LOCATION THAT IS READILY VISIBLE AND ACCESSIBLE. KNOX BOX ORDER FORMS ARE AVAILABLE AT THE TOWN'S BUILDING SAFETY DEPARTMENT.
37. PROPERTY OWNER, BUILDER, OR GENERAL CONTRACTOR WILL BE RESPONSIBLE FOR CONTROLLING DUST FROM THE SITE AT ALL TIMES. ALL MEANS NECESSARY SHALL BE USED BY THE BUILDER OR GENERAL CONTRACTOR TO CONTROL THE EXISTENCE OF DUST CAUSED BY ANY EARTHWORK, SPRAY APPLICATION OF MATERIALS, OR OTHER DUST-CAUSING PRACTICES REQUIRED BY THE CONSTRUCTION PROCESS.
38. APPROVAL OF THESE PLANS ARE FOR PERMIT PURPOSES ONLY AND SHALL NOT PREVENT THE TOWN FROM REQUIRING CORRECTION OF ERRORS IN THE PLANS WHERE SUCH ERRORS ARE SUBSEQUENTLY FOUND TO BE IN VIOLATION OF ANY LAW, ORDINANCE, HEALTH, SAFETY, OR OTHER DESIGN ISSUES.
39. ALL DRAINAGE PROTECTIVE DEVICES SUCH AS SWALES, INTERCEPTION DITCHES, PIPES PROTECTIVE BERMS, CONCRETE CHANNELS OR OTHER MEASURES DESIGNED TO PROTECT PROPOSED AND EXISTING IMPROVEMENTS FROM RUNOFF OR DAMAGE FROM STORM WATER, MUST BE CONSTRUCTED PRIOR TO THE CONSTRUCTION OF ANY IMPROVEMENTS.

DRAINAGE STATEMENT

1. ULTIMATE STORM OUTFALL IS LOCATED NEAR THE NORTHEAST PROP. CORNER AT ELEVATION OF 1678.09.
2. NEW SINGLE FAMILY RESIDENCE, WITH IMPROVED DRIVEWAY AND SITE IMPROVEMENTS WITH UNDERGROUND WATER RETENTION ARE PROPOSED WITH THIS PROJECT.
3. PROPOSED DEVELOPMENT DOES NOT IMPACT DRAINAGE CONDITIONS OF ADJOINING LOTS.
4. HISTORIC DRAINAGE PATTERNS ARE PRESERVED.
5. THE MINIMUM FINISH FLOOR ELEVATIONS SHOWN ARE SAFE FROM INUNDATION DURING A 100-YEAR PEAK RUN-OFF EVENT IF CONSTRUCTED PER THE APPROVED CIVIL PLANS.
6. PROPOSED STORM DRAIN SYSTEM SHALL BE INSPECTED AND CLEANED FROM DEBRIS AND SILT AFTER EVERY MAJOR STORM EVENT.

APPROVAL

THIS SET OF PLANS HAS BEEN REVIEWED FOR COMPLIANCE WITH TOWN OF PARADISE VALLEY REQUIREMENTS PRIOR TO ISSUANCE OF PERMIT. THE TOWN NEITHER ACCEPTS NOR ASSUMES ANY LIABILITY FOR ERRORS OR OMISSIONS. THIS COMPLIANCE APPROVAL SHALL NOT PREVENT THE TOWN ENGINEER FROM REQUIRING CORRECTIONS OF ERRORS OR OMISSIONS IN THE PLANS TO BE FOUND IN VIOLATION OF LAWS OR ORDINANCES.

TOWN ENGINEER ______________________ DATE
TOWN OF PARADISE VALLEY

ENGINEERS NOTES

1. MARICOPA ASSOCIATION OF GOVERNMENTS (M.A.G.) UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION INCLUDING LATEST REVISION AND CURRENT SUPPLEMENTS THEREOF PER THE LOCAL TOWN OR CITY) ARE INCORPORATED INTO THIS PLAN IN THEIR ENTIRETY.
2. ALL WORK REQUIRED TO COMPLETE THE CONSTRUCTION COVERED BY THIS PLAN SHALL BE IN ACCORDANCE WITH THE M.A.G. STANDARD SPECIFICATIONS AND DETAILS AND CURRENT SUPPLEMENTS THEREOF PER THE LOCAL CITY OR TOWN UNLESS SPECIFIED OTHERWISE IN THESE PLANS OR ELSEWHERE IN THE CONTRACT DOCUMENTS. CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH ALL REQUIRED STANDARD SPECIFICATIONS, DETAILS AND SUPPLEMENTS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THIS PLAN.
3. GRADING SHALL BE IN CONFORMANCE WITH 2018 IBC SEC. 1803 AND APPENDIX J.
4. 5% MINIMUM SLOPE AWAY FROM BUILDING FOR A MINIMUM 10', U.N.O.
5. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (M.A.G.) SPECIFICATIONS AND STANDARD DETAILS.
6. A DUST CONTROL PLAN MEETING THE REQUIREMENTS OF RULE 310 OF THE MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS, AS AMENDED, IS REQUIRED.
7. A SEPARATE PERMIT IS NECESSARY FOR ANY OFFSITE CONSTRUCTION.
8. AN APPROVED GRADING AND DRAINAGE PLAN SHALL BE ON THE JOB SITE AT ALL TIMES. DEVIATIONS FROM THE PLAN MUST BE PRECEDED BY AN APPROVED PLAN REVISION.
9. ALL DRAINAGE PROTECTIVE DEVICES SUCH AS SWALES, INTERCEPTOR DITCHES, PIPES, PROTECTIVE BERMS, BARRIER WALLS, CONCRETE CHANNELS OR OTHER MEASURES DESIGNED TO PROTECT ADJACENT BUILDINGS OR PROPERTY FROM STORM RUNOFF MUST BE COMPLETED PRIOR TO BUILDING CONSTRUCTION.
10. ALL STRUCTURES AND LANDSCAPING WITHIN THE SIGHT VISIBILITY TRIANGLE SHALL HAVE A 2 FOOT MAXIMUM HEIGHT.
11. ALL PATIOS, WALKS, AND DRIVES TO SLOPE AWAY FROM BUILDING AND GARAGES AT A MINIMUM SLOPE OF 1/4" PER FOOT UNLESS SPECIFIED OTHERWISE. ALL LAWN AREAS ADJOINING WALKS OR SLABS WILL BE GRADED TO 2" BELOW THE TOP OF SLAB. TYPICAL FINISHED GRADE AROUND PERIMETER OF BUILDING IS MINUS 6" BELOW FINISHED FLOOR UNLESS SPECIFIED OTHERWISE.
12. ALL MATERIAL TO BE UNDER SLABS AND WALKS SHALL BE COMPACTED TO NOT LESS THAN 95% PER ASTM D698.
13. THE QUANTITIES AND SITE CONDITIONS DEPICTED IN THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE SUBJECT TO ERROR AND OMISSION. CONTRACTORS SHALL SATISFY THEMSELVES AS TO ACTUAL QUANTITIES AND SITE CONDITIONS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THIS PLAN.
14. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND COMPLYING WITH ALL PERMITS REQUIRED TO COMPLETE ALL WORK COVERED BY THIS PLAN.
15. THE CONTRACTOR IS RESPONSIBLE FOR ALL METHODS, SEQUENCING, AND SAFETY CONCERNS ASSOCIATED WITH THIS PROJECT DURING CONSTRUCTION, UNLESS SPECIFICALLY ADDRESSED OTHERWISE IN THIS PLAN OR ELSEWHERE.
16. A REASONABLE EFFORT HAS BEEN MADE TO SHOW THE LOCATIONS OF EXISTING UNDERGROUND FACILITIES AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND/OR FACILITIES CAUSED DURING THEIR CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL CALL 48 HOURS IN ADVANCE FOR BLUE STAKE (1-800-STAKE-IT) PRIOR TO ANY EXCAVATION.
17. THE CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION OF CONSTRUCTION AFFECTING UTILITIES AND THE COORDINATION OF ANY NECESSARY UTILITY RELOCATION WORK.
18. ALL PAVING, GRADING, EXCAVATION, TRENCHING, PIPE BEDDING, CUT, FILL AND BACKFILL SHALL COMPLY WITH THE RECOMMENDATIONS SET FORTH IN THE SOILS (GEOTECHNICAL) REPORT FOR THIS PROJECT IN ADDITION TO THE REFERENCED REQUIRED SPECIFICATIONS AND DETAILS.
19. THE CONTRACTOR IS TO VERIFY THE LOCATION AND THE ELEVATIONS OF ALL EXISTING UTILITIES AT POINTS OF TIE-IN PRIOR TO COMMENCING ANY NEW CONSTRUCTION. SHOULD ANY LOCATION OR ELEVATION DIFFER FROM THAT SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT THE OWNER'S AGENT.
20. CONTRACTOR TO VERIFY AND COORDINATE ALL DIMENSIONS AND SITE LAYOUT WITH ARCHITECTURE'S FINAL SITE PLAN AND FINAL BUILDING DIMENSIONS BEFORE STARTING WORK. REPORT DISCREPANCIES TO OWNER'S AGENT.
21. COORDINATION BETWEEN ALL PARTIES IS ESSENTIAL PART OF CONTRACT.
22. CONTRACTOR IS RESPONSIBLE FOR PROJECT AND SITE CONDITIONS, AND TO WORK WITH WEATHER CONDITIONS AS THE PROJECT SITE MAY BE LOCATED IN A FLOOD PRONE AREA AND SUBJECT TO FLOODING AND ITS HAZARDS.
23. THE CONTRACTOR IS TO VERIFY THE LOCATION, ELEVATION, CONDITION, AND PAVEMENT CROSS-SLOPE OF ALL EXISTING SURFACES AT POINTS OF TIE-IN AND MATCHING, PRIOR TO COMMENCEMENT OF GRADING, PAVING, CURB AND GUTTER, OR OTHER SURFACE CONSTRUCTION. SHOULD EXISTING LOCATIONS, ELEVATIONS, CONDITION, OR PAVEMENT CROSS-SLOPE DIFFER FROM THAT SHOWN ON THESE PLANS, RESULTING IN THE DESIGN INTENT REFLECTED ON THESE PLANS NOT ABLE TO BE CONSTRUCTED, THE CONTRACTOR SHALL NOTIFY THE OWNER'S AGENT IMMEDIATELY FOR DIRECTION ON HOW TO PROCEED PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR ACCEPTS RESPONSIBILITY FOR ALL COSTS ASSOCIATED WITH CORRECTIVE ACTION IF THESE PROCEDURES ARE NOT FOLLOWED.
24. CONTRACTOR IS RESPONSIBLE TO COORDINATE UTILITY CROSSINGS AT CULVERT CROSSINGS BEFORE STARTING WORK ON CULVERT. COORDINATE WITH OWNER REPRESENTATIVE. VERIFY UTILITY LINES AND/OR CONDUITS ARE IN PLACE BEFORE STARTING CULVERT WORK.
25. ALL ON-SITE UTILITIES PER OTHERS.
26. THIS PROJECT REQUIRES A REGULAR ONGOING MAINTENANCE PROGRAM FOR THE DESIGNED DRAINAGE SYSTEM(S) TO PRESERVE THE DESIGN INTEGRITY AND THE ABILITY TO PERFORM ITS OPERATIONAL INTENT. FAILURE TO PROVIDE MAINTENANCE WILL JEOPARDIZE THE DRAINAGE SYSTEM(S)' PERFORMANCE AND MAY LEAD TO IT'S INABILITY TO PERFORM PROPERLY AND/OR CAUSE DAMAGE ELSEWHERE IN THE PROJECT.
27. IF A DISCREPANCY IS FOUND BETWEEN ENGINEER'S PLAN OR SURVEYOR'S STAKING AND THE ARCHITECTURAL PLAN. ENGINEER SHALL BE NOTIFIED IMMEDIATELY. FAILURE TO NOTIFY ENGINEER SHALL NEGATE ENGINEER'S LIABILITY.
28. ALL DISTURBED AREAS ARE TO BE ROPED AND ROPING MUST MATCH PLAN.
29. VEGETATION OUTSIDE OF CONSTRUCTION AREA TO REMAIN.
30. AREAS OUTSIDE THE WALL AND CUT AND FILL SLOPES SHALL BE REVEGETATED WITH SIMILAR PLANT TYPES AND DENSITIES FOUND ON THE SITE. REVEGETATION SHALL BE COMPLETED PRIOR TO OCCUPANCY AND THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
31. MECHANICAL EQUIPMENT SHALL BE SCREENED TO A MINIMUM OF ONE FOOT ABOVE TOP OF EQUIPMENT.
32. ANY FUTURE IMPROVEMENTS SHOWN HEREON SHALL REQUIRE A SEPARATE PERMIT.
33. ANY POINTS OF DRAINAGE CONCENTRATION SHOULD BE PROTECTED AGAINST EROSION WITH NATIVE STONE.
34. THIS PLAN IS DESIGNED TO SHOW SITE GRADING AND DRAINAGE CONTRACTOR SHALL USE THE ARCHITECTURAL SITE PLAN TO DETERMINE FINAL HOUSE, WALL, STEP, ETC., LOCATIONS AND ELEVATIONS.
35. ALL DRAINAGE FACILITIES TO BE MAINTAINED BY HOMEOWNER.
36. SEE ARCHITECTURAL AND STRUCTURAL PLANS FOR SITE AND RETAINING WALLS LAYOUT, DIMENSIONS, AND DETAILS. TOP OF FOOTING ELEVATIONS SHOWN IN PLAN ARE APPROXIMATE ONLY. ACTUAL TOP OF FOOTINGS TO BE DETERMINED AT TIME OF CONSTRUCTION AND TO BE A MINIMUM OF SIX INCHES BELOW EXISTING NATURAL GRADE OR FINISHED GRADE WHICHEVER IS LOWER (TYPICAL).
37. REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING LAYOUT, DIMENSIONS AND ELEVATIONS.
38. REFER TO STRUCTURAL DRAWINGS, DETAILS AND CALCULATIONS FOR ALL PROPOSED RETAINING WALLS.
39. FOR CHANGE IN ELEVATION THAT ARE GREATER THAN 30", PROVIDE 36" HIGH GUARDRAILS FOR TOTAL OF 42" FALL PROTECTION BARRIER U.N.O.
40. ALL WATER AND SEWER LINES AND CONNECTIONS MUST BE INSTALLED PER IPC 2018, MAG AND CITY OF PHOENIX SUPPLEMENT TO MAG.
41. ALL PIPES AND FITTINGS SHALL BE INSTALLED PER MANUFACTURE'S SPECIFICATIONS AND DETAILS.
42. ABANDONMENT OR REMOVAL OF EXISTING SEPTIC SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPARTMENT RULES AND STANDARDS, AND WILL REQUIRE SEPARATE PERMIT.
43. COORDINATE RIPRAP COLOR WITH LANDSCAPE PLANS AND DETAILS.
44. VERIFY AND COORDINATE WITH ARCHITECTURAL AND LANDSCAPE PLANS LOCATION AND HEIGHT OF ALL SITE WALLS.
45. DISTURBED AREA 1.131 > 1 ACRE; NPDES PERMIT IS REQUIRED.
46. REFER TO ARCHITECTURAL PLANS AND DETAILS FOR DEMOLITION OF EXISTING BUILDING STRUCTURE, SITE WALLS AND PAVEMENT.
47. VERIFY AND COORDINATE WITH LANDSCAPE PLANS FINAL LOCATION AND GRATE TYPE OF SPECIFIED AREA DRAINS AND TRENCH DRAINS.

LEGEND

◉	BRASS CAP FLUSH
●	FOUND REBAR OR AS NOTED
◎	SET 1/2" REBAR & TAG OR AS NOTED
○	CALCULATED POINT
━ ━ - - ━ ━	PROPERTY LINE
— — — —	EASEMENT LINE
—— — ——	MONUMENT LINE
	FIRE HYDRANT
WM	WATER METER
⊗	WATER VALVE
E.M.	ELECTRIC METER
GM	GAS METER
☼	LIGHT POLE
T	TELEPHONE BOX
	HOSE BIB
	BACKLASH FLOW PIPE
A	A/C UNIT
	BOULDER
▤	STORM DRAIN INLET
CTV	CABLE TV RISER
	SATELITE DISH
——T——	CATV, PHONE
——S——	SEWER LINE
——G——	GAS LINE
——W——	WATER LINE
——E——	ELECTRIC LINE
	EXISTING CONTOUR
	EXIST. DRAINAGE FLOW
	CITRUS TREE
	PALM TREE
	TREE
	PALO VERDE
	SAGUARO
	EVERGREEN
	FLUTED CACTUS
	OLEANDERS
XX.XX	PROPOSED SPOT ELEVATION
XX	PROPOSED CONTOUR
	PROPOSED DISTURBED AREA
	EXISTING DISTURBED AREA
▤	CATCH BASIN
	STORM DRAIN PIPE
TIF: XX.XX TGR: XX.XX TW: XX.XX TRW: XX.XX FG: XX.XX BW: XX.XX TF: XX.XX	TOP OF IRON FENCE TOP OF GUARD RAIL TOP OF WALL TOP OF RETAINING WALL FINISH GRADE BACK OF WALL TOP OF FOOTING
▨	AREAS TO BE REVEGETATED
- - - - - -	EXISTING EDGE OF PAVEMENT
——— ———	TRIBUTARY AREA LIMITS

DISTURBED AREA CALCULATIONS

EXISTING LOT AREA:	149,230 S.F. (3.426 AC.)
TOTAL FLOOR AREA:	9,688 S.F.
FLOOR AREA RATIO: (TOTAL FLOOR AREA/AREA OF LOT)	6.49% < 25%
BUILDING PAD SLOPE:	46.7%
VERTICAL:	53 FT
HORIZONTAL:	113.50 FT
ALLOWABLE NET DISTURBED AREA:	9.3%
ALLOWABLE NET DISTURBED AREA:	13,878 S.F.
EXIST. GROSS DISTURBED AREA:	28.82%
EXIST. GROSS DISTURBED AREA:	43,011 S.F.
PROPOSED NEW DISTURBED AREA:	6,286 S.F. (4.21%)
TOTAL DISTURBED AREA:	49,297 S.F. (33.03%)
LESS TEMPORARY AREAS OF DISTURBANCE	
BUILDING FOOTPRINT AREA:	9,688 S.F.
TO BE RESTORED, REGRADED, AND REVEG.:	3,589 S.F.
PROPOSED NET DISTURBED AREA:	36,020 S.F. (24.14%)
APPROVED NET DISTURBED AREA PER VARIANCE BA-06-12:	25,796 S.F. (17.29%)
ALLOWED SLOPES STEEPER THAN NATURAL GRADE (5% MAX.):	7,462 S.F. (5%)
PROPOSED SLOPES STEEPER THAN NATURAL GRADE:	6,789 S.F. (4.55%)
VOLUME OF CUT:	3,736 C.Y.
VOLUME OF FILL:	552 C.Y.
TOTAL CUT&FILL:	4,288 C.Y.

HILLSIDE ASSURANCE = 35 TIMES THE GRADING PERMIT FEE. = $147,000

GRADING PERMIT FEE: $4,200 ($168 FIRST 100 CY / $96 EA. ADDITIONAL 100 CY).

ALL QUANTITIES LISTED ON THESE PLANS ARE ESTIMATES ONLY. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF THE QUANTITIES AND BASE THEIR BIDS ON THEIR ESTIMATES.

UTILITIES

WATER: EPCOR WATER
SANITARY SEWER: SEPTIC
ELECTRIC: ARIZONA PUBLIC SERVICE
TELEPHONE: CENTURY LINK, COX COMMUNICATIONS
NATURAL GAS: SOUTHWEST GAS CORPORATION
CABLE TV: CENTURY LINK, COX COMMUNICATIONS

EARTHWORK QUANTITIES

CUT:	3,643 C.Y.
CUT FROM PIPES:	93 C.Y.
FILL:	552 C.Y.
NET CUT:	3,184 C.Y.

ALL QUANTITIES LISTED ON THESE PLANS ARE ESTIMATES ONLY. NO SHRINK OR SWELL IS ASSUMED. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF THE QUANTITIES AND BASE THEIR BIDS ON THEIR ESTIMATES.

GRADING SPECIFICATIONS

1. EXCAVATION AND GRADING OF THIS SITE IS CLASSIFIED AS "ENGINEERED GRADING" PER 2018 I.B.C. AND WILL BE PERFORMED ACCORDINGLY.
2. THE CONTRACTOR WILL RETAIN A SOILS ENGINEER DURING CONSTRUCTION TO INSPECT PROGRESS OF CONSTRUCTION. CONCERNING PREPARATION OF GROUND TO RECEIVE FILLS, TESTING AND REQUIRED COMPACTION STABILITY OF ALL FINISH SLOPES INCLUDING CUT SLOPES.
3. COMPACTION SHALL COMPLY WITH M.A.G. SECTION 601 AND PROVISIONS AS SET FORTH IN THE SOILS REPORT.
4. BEARING MATERIALS FOR FILL UNDER RESIDENCE PAD IF NATIVE MATERIAL IS USED. LARGE ROCK FRAGMENTS MUST BE REMOVED THAT ARE IN EXCESS OF SIX INCHES. REMAINING MATERIAL MUST BE SMALLER PARTICLES OF SAND AND ROCK THAT CAN BE COMPACTED INTO A DENSE CONDITION.
   MAXIMUM PARTICLE SIZE . . . . 6 INCHES
   PERCENT PASSING NO. 4 SIEVE . . . . 35% TO 70%
   PERCENT PASSING NO. 200 SIEVE . . . . 25% MAX.
   PLASTICITY INDEX . . . . 10% MAX.
5. CUT-SLOPES: MAXIMUM ROCK CUT SLOPE TO BE 1.0 FEET HORIZONTAL TO 3.0 FEET VERTICAL PER GEOTECHNICAL STUDY.
6. FILL SLOPES: MAXIMUM FILL SLOPE TO BE 2.0 FEET HORIZONTAL TO 1.0 FEET VERTICAL.
7. COMPACTION FILL MATERIAL MUST BE PLACED ON LEVELED BENCHES CUT INTO UNDISTURBED EXISTING HILLSIDE. PLACE FILL IN HORIZONTAL LIFTS OF THICKNESS COMPATIBLE WITH THE COMPACTION EQUIPMENT USED. COMPACT TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM A.S.T.M. DENSITY AT THE OPTIMUM MOISTURE CONTENT OF ± TWO PERCENT. THIS PERTAINS TO ALL ENGINEERED STRUCTURAL FILL SUPPORTING STRUCTURES AND INCLUDING FILL UNDER ANY OF THE RETAINING WALLS. COMPACTION TEST RESULTS SHALL BE SUBMITTED TO THE SOILS ENGINEER AND TOWN OF PARADISE VALLEY BUILDING AND SAFETY DEPARTMENT.
8. ANY RETAINING WALLS ADJACENT TO THE PROPERTY LINES WILL BE UNDER THE SCOPE OF SPECIAL INSPECTION BY THE SOILS ENGINEER. THE DEVELOPER SHALL NOTIFY THE ADJOINING PROPERTY OWNERS IN WRITING, TEN DAYS PRIOR TO START OF CONSTRUCTION ON THESE WALLS PER SECTION 2903-B OF IBC. THE DEVELOPER WILL HAVE TO PROVIDE MEANS OF PROTECTION OF ADJACENT PROPERTY WHILE THIS WORK IS UNDER CONSTRUCTION.
9. ALL EXPOSED CUT AND FILL SHALL BE TREATED WITH AN APPROVED AGING AGENT TO MINIMIZE TO VISUAL CONTINUITY.
10. NO CERTIFICATE OF OCCUPANCY SHALL BE ISSUED UNTIL ALL HILLSIDE STIPULATIONS AND ALL TOWN CODE REQUIREMENTS ARE COMPLIED INCLUDING, BUT NOT LIMITED TO LANDSCAPING, GROUND RESTORATION, FIRE FLOW, FIRE SAFETY AND ALL ONSITE AND OFFSITE IMPROVEMENTS.
11. ALL OUTDOOR LIGHTING SHALL BE IN CONFORMANCE WITH ARTICLE XXII OF THE TOWN ZONING ORDINANCE.
12. ALL EXCESS FILL MATERIAL SHALL BE REMOVED FROM THE SITE WITH NO NEW SPILL SLOPES.
13. THE USE OF HYDRAULIC RAM HAMMERS, OR OTHER HEAVY EQUIPMENT USED TO CUT THROUGH ROCK, INCLUDING MACHINERY WITH AUDIBLE BACK UP WARNING DEVICES SHALL BE LIMITED TO USE BETWEEN THE HOURS OF 7:00AM OR SUNRISE, WHICHEVER IS LATER, AND 6:00PM OR SUNSET, WHICHEVER IS EARLIER, MONDAY THROUGH FRIDAY, WITH LIMITED WORK ON SATURDAY AND NO WORK ON SUNDAY OR LEGAL HOLIDAYS.
14. CONSTRUCTION STAKING AND/OF FENCING SHALL BE PLACED AROUND THE CONSTRUCTION SITE SO AS TO PROTECT THE UNDISTURBED NATURAL AREAS.

TOWN OF PARADISE VALLEY HILLSIDE NOTES

A. NO CERTIFICATE OF OCCUPANCY SHALL BE ISSUED UNTIL ALL HILLSIDE STIPULATIONS AND ALL TOWN CODE REQUIREMENTS ARE COMPLIED INLCUDING, BUT NOT LIMITED TO LANDSCAPING, GROUND RESTORATION, FIRE FLOW, FIRE SAFETY, AND ALL ONSITE AND OFFSITE IMPROVEMENTS.

B. ALL OUTDOOR LIGHTING SHALL BE IN CONFORMANCE WITH ARTICLE XXII OF THE TOWN ZONING ORDINANCE.

C. ALL EXCESS FILL MATERIAL SHALL BE REMOVED FROM THE SITE WITH NO NEW SPILL SLOPES.

D. THE USE OF HYDRAULIC RAM HAMMERS, OR OTHER HEAVY EQUIPMENT USED TO CUT THROUGH ROCK, INCLUDING MACHINERY WITH AUDIBLE BACK UP WARNING DEVICES SHALL BE LIMITED TO USE BETWEEN THE HOURS OF 7:00AM OR SUNRISE, WHICHEVER IS LATER, AND 6:00PM OR SUNSET, WHICHEVER IS EARLIER, MONDAY THROUGH FRIDAY, WITH LIMITED WORK ON SATURDAY AND NO WORK ON SUNDAY OR LEGAL HOLIDAYS. RAM HAMMERS AND OTHER HEAVY EQUIPMENT CANNOT BE USED ON SATURDAYS WITHOUT A WAIVER FROM THE TOWN MANAGER.

E. CONSTRUCTION STAKING AND/OR FENCING SHALL BE PLACES AROUND THE CONSTRUCTION SITE SO AS TO PROTECT THE UNDISTURBED NATURAL AREA.

F. ALL RETAINING WALLS SHALL NOT EXTEND MORE THAN 6 INCHES ABOVE THE MATERIAL THEY RETAIN (WITH EXCEPTION OF DRIVEWAY RETAINING WALLS IN ACCORDANCE WITH 2207.VI.6).

GEOTECHNICAL ENGINEER

VANN ENGINEERING, INC
9013 N 24TH AVE., SUITE 7
PHOENIX, AZ 85021
EMAIL: SMORGAN@VANNENGINEERINGINC.COM
P:602-943-6997
PROJECT#: 16595
DATE: 02/21/2025

SHEET INDEX

PROJECT PHASING

PHASE 1 – NEW ACCESS DRIVEWAY, RETAINING WALLS, DRAINAGE DEVICES AND UNDERGROUND STORMWATER RETENTION SYSTEMS.
PHASE 2 – NEW SINGLE FAMILY RESIDENCE, POOL AND ADJACENT SITE IMPROVEMENTS.

VICINITY MAP

N.TS.

OWNER

SUMIT DEWANJEE
7301 E 3RD AVE UNIT 413.,
SCOTTSDALE, AZ 85251

ARCHITECT

CANDELARIA DESIGN ASSOCIATES, LLC
6900 E CAMELBACK RD., SUITE 400
SCOTTSDALE, AZ 85251
P: 602-604-2001
F: 602-604-2002

SITE DATA

APN:	169-02-012A
ADDRESS:	5749 E QUARTZ MOUNTAIN RD., PARADISE VALLEY, AZ 85253
ZONING:	R-43
LOT AREA:	149,230 S.F (3.426 AC.)
Q.S.	23-41

CIVIL ENGINEER

LAND DEVELOPMENT GROUP, LLC
8808 N CENTRAL AVE, SUITE 288
PHOENIX, AZ 85020
CONTACT: NICK PRODANOV, PE
P: 602-889-1984

LAND SURVEYOR

BOWMAN CONSULTING GROUP, LTD.
1295 W WASHINGTON, STE 108
TEMPE, AZ 85281
P: 480-629-8830

NOTE: CIVIL ENGINEERING DESIGN PRESENTED HEREIN IS BASED ON THE TOPOGRAPHIC SURVEY MAP, PROVIDED IN AN ELECTRONIC FORMAT BY SURVEYOR LISTED ABOVE.
LAND DEVELOPMENT GROUP, LLC ASSUMES NO LIABILITY FOR ERRORS AND OMMISSIONS SHOWN ON THE SURVEY AND INFORMATION PROVIDED BY OTHERS.

BENCHMARK

ALUMINUM CAP FOUND AT THE INTERSECTION OF INVERGORDON ROAD AND CHENEY DRIVE, HAVING AN ELEVATION OF 1373.058.
TOWN OF PARADISE VALLEY DATUM (NAVD 88) – GDACS 24515-1M.

LEGAL DESCRIPTION

LOT 7, OF LA PLACE DU SOMMET, ACCORDING TO THE PLAT OF RECORD IN THE OFFICE OF THE COUNTY RECORDER OF MARICOPA COUNTY, ARIZONA, RECORDED IN BOOK 250 OF MAPS, PAGE 44 AND IN BOOK 296 OF MAPS, PAGE 4.

EXCEPT ANY PORTION THEREOF LYING WITHIN THAT CERTAIN PROPERTY CONVEYED TO THE TOWN OF PARADISE VALLEY BY DEED RECORDED IN DOCUMENT NO. 83-129223, RECORDS OF MARICOPA COUNTY, ARIZONA; AND

EXCEPT ALL THE COAL NAD OTHER MINERALS, AS RESERVED IN THE PATENET.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

______________________________ __________
REGISTERED ENGINEER/ LAND SURVEYOR DATE

____
REGISTRATION NUMBER

FINISH FLOOR CERTIFICATION

I HEREBY CERTIFY THAT FINISHED FLOOR ELEVATIONS SHOWN ON THE PLAN OF 1747.00 IS MINIMUM OF 12" ABOVE THE 100-YEAR STORM ELEVATION OF 1746.00 ACCORDING TO THE TOWN OF PARADISE VALLEY CODE OF ORDINANCE.

Nick Prodanov 05/06/25
REGISTERED CIVIL ENGINEER DATE

NATIVE PLANTS

ALL NATIVE PLANTS IMPACTED BY CONSTRUCTION SHALL BE RELOCATED ON SITE. SEE LANDSCAPE PLAN AND NATIVE PLANT INVENTORY AND SALVAGE PLAN.

FLOOD INSURANCE RATE MAP (FIRM) DATA

<table>
<tr><td>COMMUNITY #
040049</td><td colspan="2">PANEL #
1765 OF 4425</td><td>SUFFIX
L</td><td rowspan="2">BASE FLOOD ELEVATION
N/A</td></tr>
<tr><td>MAP #
04013C</td><td>PANEL DATE
10/16/2013</td><td>FIRM INDEX DATE
11/04/2015</td><td>ZONE
X*</td></tr>
</table>

*AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 BLUE STAKE, INC.
Call 811 or click Arizona811.com

DATE: 05/06/25
JOB: 1808172
VERSION: 3.3
PLOT DATE: 05/06/25
SCALE: N.T.S.
DESIGNED BY: NP
DRAWN BY: ZA
CHECKED BY: JI
DATE:
REVISIONS:

GRADING & DRAINAGE PLAN
COVER SHEET

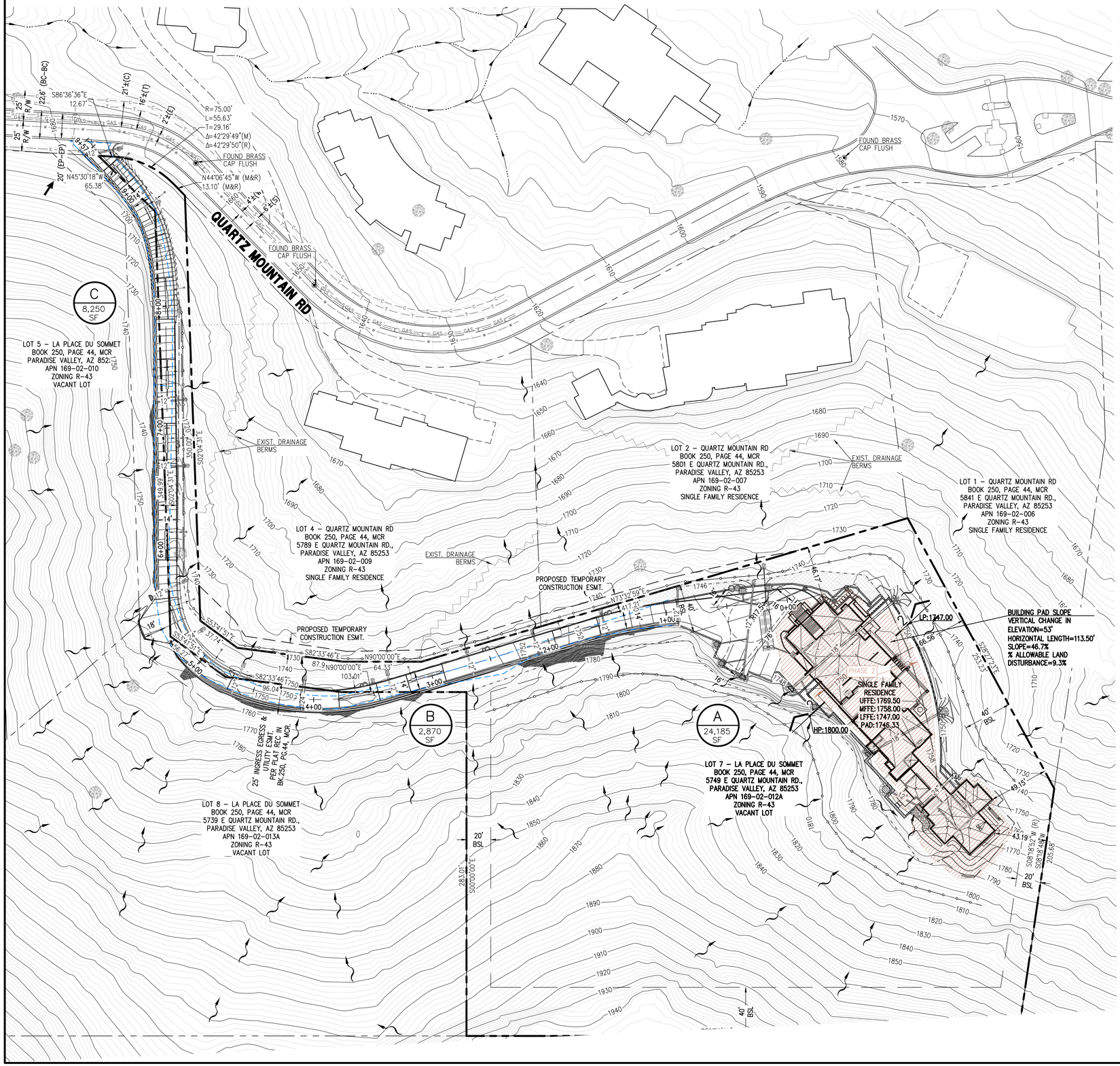
DEWANJEE RESIDENCE
5749 E QUARTZ MOUNTAIN RD.,
PARADISE VALLEY, AZ 85253

Land DEVELOPMENT GROUP
P 602 889 1984 | F 602 445 9482
8808 N CENTRAL AVE., SUITE 288
PHOENIX, AZ 85020
PHOENIX@LDGENG.COM

CERTIFICATE NO. 41005
NICKOLA J. PRODANOV
Date Signed 05/06/25

Nick Prodanov

C-1
1 OF 5



SCALE 1" = 40'

ON-SITE RETENTION FOR THE PRE VS. POST DEVELOPMENT RUNOFF FROM 100-YEAR, 2-HOUR STORM EVENT

V=DxAx(Cw,post-Cw,pre)/12 | D – RAINFALL DEPTH = 2.22" | A – TRIBUTARY AREA, SF | Cw – WEIGHTED RUNOFF COEFFICIENT
Vf=(DfxAxCw,post)/12 | Df – RAINFALL DEPTH = 0.5" FIRST FLUSH | A – TRIBUTARY AREA, SF | Cw – WEIGHTED RUNOFF COEFFICIENT

DRAINAGE AREA	AREA	RUNOFF COEFFICIENT	VOLUME REQUIRED PRE VS POST	VOLUME REQUIRED FIRST FLUSH	RETENTION BASIN ID	CONTOUR ELEVATION	CONTOUR AREA	DEPTH	VOLUME PROVIDED	AS-BUILT VOLUME PROVIDED
	S.F.	Cw	C.F.	C.F.			S.F.	FT	C.F.	C.F.
A	29,119	0.20	1,077	1,031	A1	UNDERGROUND HDPE PIPE	L=(2)-40'	D=48"	1,005	
					A2	UNDERGROUND HDPE PIPE	L=25'	D=24"	79	
TOTAL AREA A			1,077	1,031					1,084	
B	2,870	0.10	53	102	B1	UNDERGROUND HDPE PIPE	L=(2)-25'	D=24"	157	
TOTAL AREA B			53	102					157	
C	8,250	0.10	153	327	C1	UNDERGROUND HDPE PIPE	L=(8)-15'	D=24"	377	
TOTAL AREA C			153	327					377	
TOTAL			1,283	1,460					1,618	

(1) RAINFALL DEPTH IS PER NOAA ATLAS 14, VOLUME 1, VERSION 5.

WEIGHTED RUNOFF COEFFICIENT, Cw PRE- DEVELOPMENT FOR AREA A

SURFACE TYPE	RUNOFF COEFFICIENT	AREA	C*AREA
	C	SF	
STREET PAVEMENT	0.95	1,125	1,069
NATIVE HILLSIDE	0.70	23,059	16,142
	TOTAL	24,185	17,211
Cw = C * AREA / TOTAL AREA			0.71

WEIGHTED RUNOFF COEFFICIENT, Cw POST- DEVELOPMENT FOR AREA A

SURFACE TYPE	RUNOFF COEFFICIENT	AREA	C*AREA
	C	SF	
PAVEMENT & ROOF	0.95	24,185	22,976
NATIVE HILLSIDE	0.70	0	0
	TOTAL	24,185	22,976
Cw = C * AREA / TOTAL AREA			0.95

WEIGHTED RUNOFF COEFFICIENT, Cw PRE- DEVELOPMENT FOR AREA B

SURFACE TYPE	RUNOFF COEFFICIENT	AREA	C*AREA
	C	SF	
STREET PAVEMENT	0.95	1,740	1,653
NATIVE HILLSIDE	0.70	1,130	791
	TOTAL	2,870	2,444
Cw = C * AREA / TOTAL AREA			0.85

WEIGHTED RUNOFF COEFFICIENT, Cw POST- DEVELOPMENT FOR AREA A

SURFACE TYPE	RUNOFF COEFFICIENT	AREA	C*AREA
	C	SF	
PAVEMENT & ROOF	0.95	2,870	2,727
NATIVE HILLSIDE	0.70	0	0
	TOTAL	2,870	2,727
Cw = C * AREA / TOTAL AREA			0.95

WEIGHTED RUNOFF COEFFICIENT, Cw PRE- DEVELOPMENT FOR AREA C

SURFACE TYPE	RUNOFF COEFFICIENT	AREA	C*AREA
	C	SF	
STREET PAVEMENT	0.95	6,411	6,090
NATIVE HILLSIDE	0.70	1,839	1,287
	TOTAL	8,250	7,378
Cw = C * AREA / TOTAL AREA			0.89

WEIGHTED RUNOFF COEFFICIENT, Cw POST- DEVELOPMENT FOR AREA C

SURFACE TYPE	RUNOFF COEFFICIENT	AREA	C*AREA
	C	SF	
PAVEMENT & ROOF	0.95	8,250	7,838
NATIVE HILLSIDE	0.70	0	0
	TOTAL	8,250	7,838
Cw = C * AREA / TOTAL AREA			0.95

N

40' 20' 0 40'

SCALE 1" = 40'

Contact Arizona 811 at least two full working days before you begin excavation

ARIZONA811 Arizona Blue Stake, Inc.

Call 811 or click Arizona811.com

DATE: 05/06/25
SCALE: 1"=40'
DESIGNED BY: NP
DRAWN BY: ZA
CHECKED BY: JM
JOB: 1808172
VERSION: 3.3
PLOT DATE: 05/06/25

DATE:
REVISIONS:

GRADING & DRAINAGE PLAN
OVERALL SITE PLAN
DRIVEWAY PROFILE

DEWANJEE RESIDENCE
5749 E QUARTZ MOUNTAIN RD, PARADISE VALLEY, AZ 85253

P. 602 889 1984 | F. 602 445 9482
8808 N CENTRAL AVE., SUITE 288
PHOENIX, AZ. 85020
PHOENIXBUILDCENC.COM

Land DEVELOPMENT GROUP

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO. 41005
NICKOLA J. PRODANOV
Date Signed 05/06/25
ARIZONA, U.S.A.

Nicka Prodanov

C-2
2 OF 5

MATCH LINE SEE SHEET C-4

LOT 4 – QUARTZ MOUNTAIN RD
BOOK 250, PAGE 44, MCR
5789 E QUARTZ MOUNTAIN RD.,
PARADISE VALLEY, AZ 85253
APN 169-02-009
ZONING R-43
SINGLE FAMILY RESIDENCE

LOT 2 – QUARTZ MOUNTAIN RD
BOOK 250, PAGE 44, MCR
5801 E QUARTZ MOUNTAIN RD.,
PARADISE VALLEY, AZ 85253
APN 169-02-007
ZONING R-43
SINGLE FAMILY RESIDENCE

LOT 1 – QUARTZ MOUNTAIN RD
BOOK 250, PAGE 44, MCR
5841 E QUARTZ MOUNTAIN RD.,
PARADISE VALLEY, AZ 85253
APN 169-02-006
ZONING R-43
SINGLE FAMILY RESIDENCE

LOT 7 – LA PLACE DU SOMMET
BOOK 250, PAGE 44, MCR
5749 E QUARTZ MOUNTAIN RD.,
PARADISE VALLEY, AZ 85253
APN 169-02-012A
ZONING R-43
VACANT LOT

EXIST. DRAINAGE BERMS

EXIST. DISTURBED AREA 43,011 SF

PROPOSED TEMPORARY CONSTRUCTION ESMT.

RET. PIPE B-1
L=25.00', D=24"
VP=79 CF

RET. PIPE B-2
L=25.00', D=24"
VP=79 CF

RET. PIPE A-1
L=(2)-40.00', D=48"
VP=1,005 CF

RET. PIPE A-2
L=25.00', D=24"
VP=79 CF

COLORED TO MATCH SURROUNDING AREA, GROUTED RIP-RAP AT PIPE OUTLET TYP.

NEW RETAINING WALL

12" STORM DRAIN PIPE

CATCH BASIN W/ GRATE AT 45 DEGREES

CONC. DITCH 3' WIDE, 1.5' DEEP

12" ADS DURASLOT

12" HDPE PIPE

HAMMERHEAD FIRE TRUCK TURNAROUND

DROP INLET PER MAG STD DET. 501-5

NDS 12" CATCH BASIN TYP.

AREA TO BE RESTORED, REGRADED AND REVEGED: 3,589 S.F.

NEW WATER FEATURE

RGRCP CLASS V

LP:1747.00

HP:1800.00

BUILDING PAD SLOPE
VERTICAL CHANGE IN ELEVATION=53'
HORIZONTAL LENGTH=113.50'
SLOPE=46.7%
% ALLOWABLE LAND DISTURBANCE=9.3%

KITCHEN ABOVE
MFFE:1758.00
GARAGE BELOW
LFFE:1747.00
PAD:1746.33

SINGLE FAMILY RESIDENCE
UFFE:1769.50
MFFE:1758.00
LFFE:1747.00
PAD:1746.33

ATTACHED CASITA
MFFE:1758.00
PAD:1757.33

POOL ABOVE

PATIO ABOVE

PHASE 2

NEW RETAINING WALL

LOWER ROCK CATCH FENCE

UPPER ROCK CATCH FENCE

COLORED TO MATCH SURROUNDING AREA, GROUTED RIP-RAP AT PIPE OUTLET TYP.

NEW DISTURBED AREA 5,557 SF

A 24,185 SF

B 2,870 SF

20' BSL

283.01' S00°00'00"E

582°33'46"E 87.98'

N90°00'00"E 64.33'

N90°00'00"E 103.01'

N73°32'58"E 417.21'

S08°27'02"E 253.12'

S08°18'52"W (R) S08°18'48"W 205.68'

43.19'

49.15'

66.56'

SCALE 1" = 20'

20' 10' 0 20'

N

Contact Arizona 811 at least two full working days before you begin excavation

Call 811 or click Arizona811.com

REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO. 41005
NICKOLA J. PRODANOV
Date Signed 06/06/25
REGISTERED U.S.A.

Nicka Prodanov

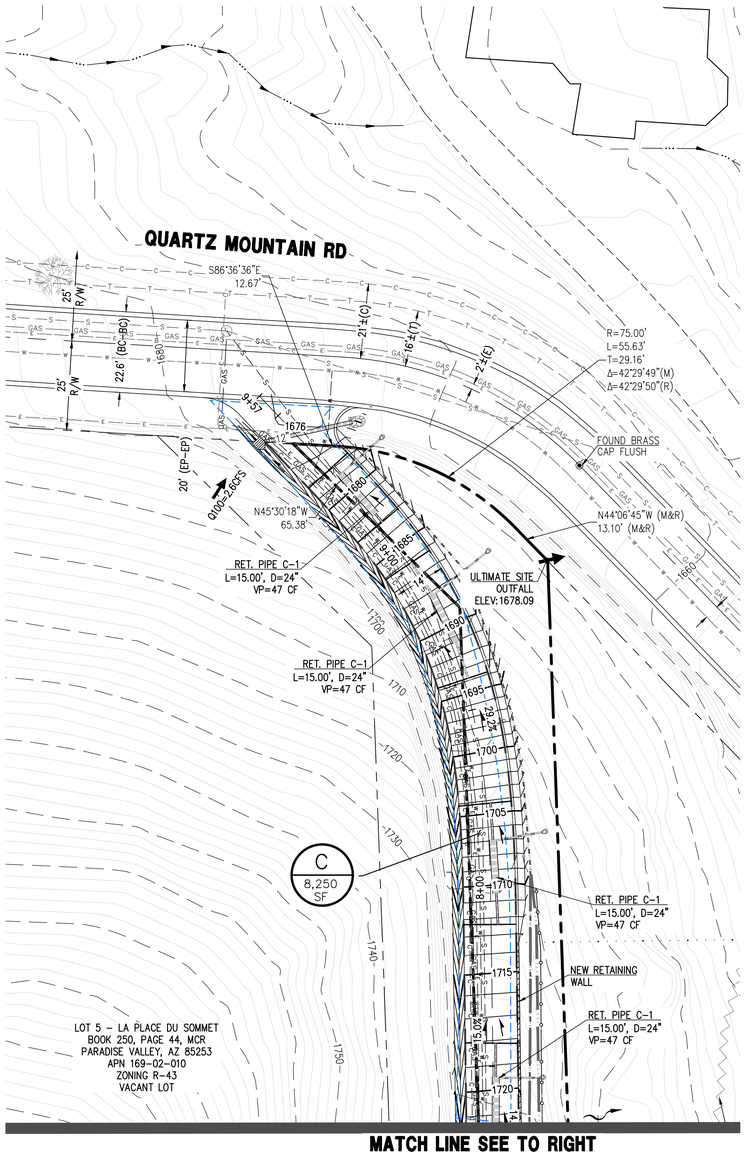
REVISIONS:	DATE:	SCALE: 1"=20'	DATE: 05/06/25
		DESIGNED BY: NP	JOB: 1808172
		DRAWN BY: ZA	VERSION: 3.3
		CHECKED BY: JM	PLOT DATE: 05/06/25

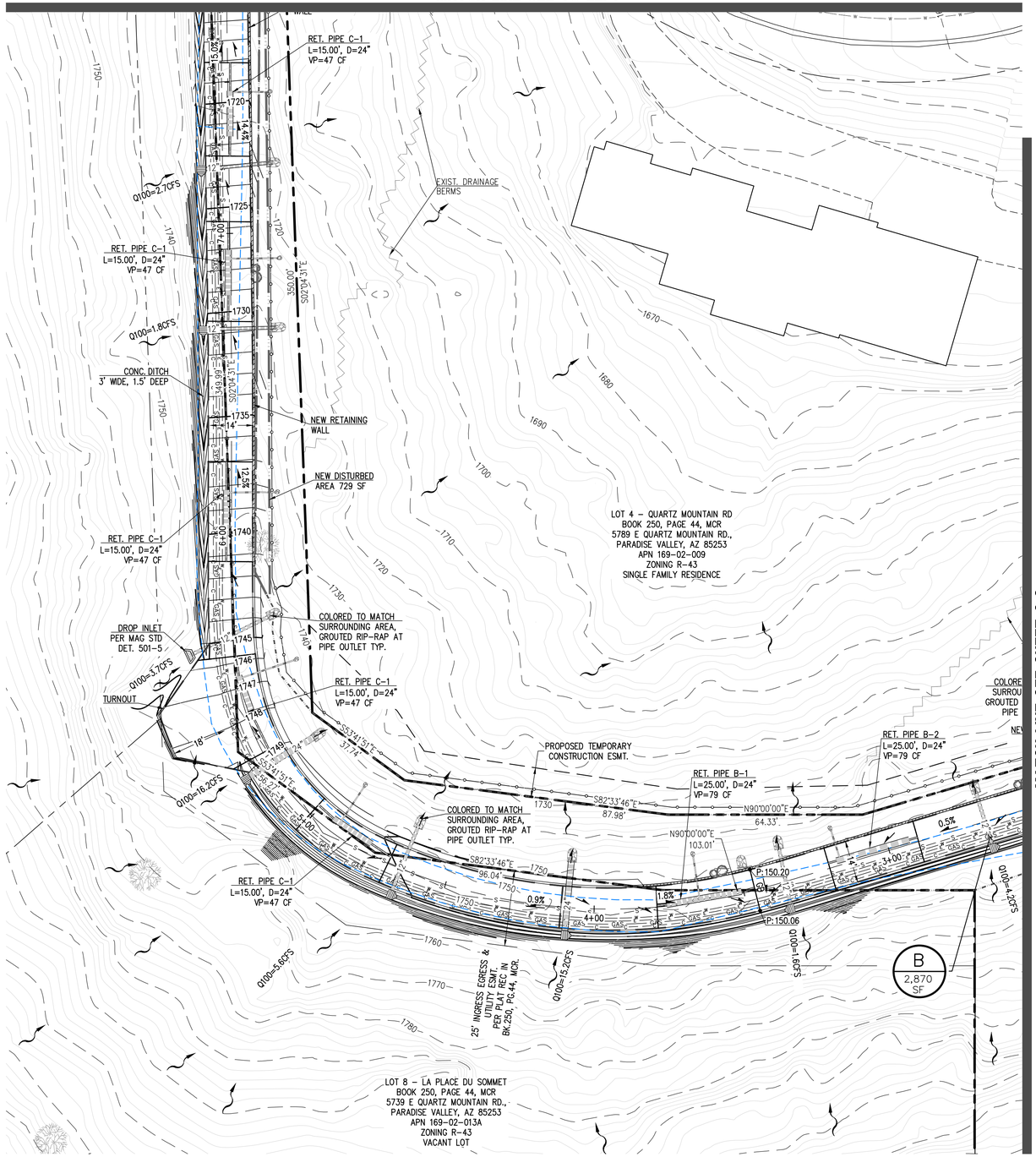
GRADING & DRAINAGE PLAN ENLARGED VIEW

DEWANJEE RESIDENCE
5749 E QUARTZ MOUNTAIN RD, PARADISE VALLEY, AZ 85253

Land DEVELOPMENT GROUP
P. 602 889 1984 | F. 602 445 9482
8608 N CENTRAL AVE., SUITE 288
PHOENIX, AZ 85020
PHOENIXBUILDGEN.COM

C-3
3 OF 5





20' 10' 0 20'

SCALE 1" = 20'

Contact Arizona 811 at least two full working days before you begin excavation

ARIZONA811 BLUE STAKE, INC.

Call 811 or click Arizona811.com

REVISIONS:	DATE:

SCALE: 1"=20'	DATE: 05/06/25
DESIGNED BY: NP	JOB: 1808172
DRAWN BY: ZA	VERSION: 3.3
CHECKED BY: JH	PLOT DATE: 05/06/25

GRADING & DRAINAGE PLAN ENLARGED VIEW

DEWANJEE RESIDENCE
5749 E QUARTZ MOUNTAIN RD., PARADISE VALLEY, AZ 85253

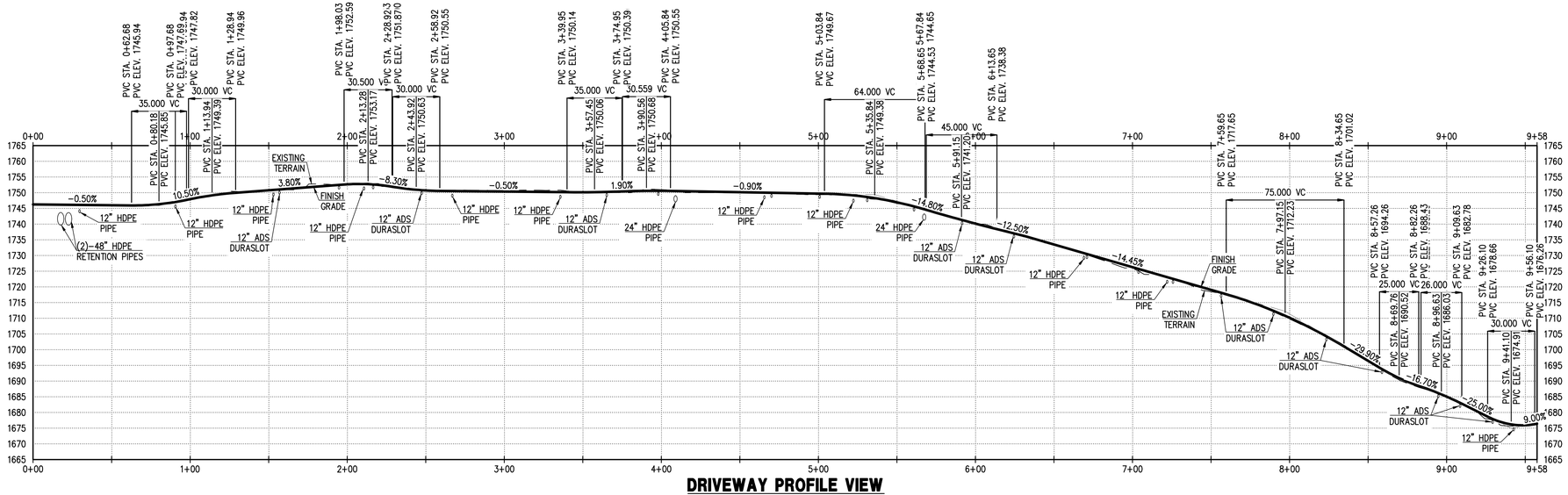
P. 602 889 1984 | F. 602 445 9482
8808 N CENTRAL AVE., SUITE 288
PHOENIX, AZ 85020
PHOENIX@LDGCNG.COM

Land DEVELOPMENT GROUP

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO.
41005
NICKOLA J PRODANOV
Date Signed 05/06/25
ARIZONA U.S.A.

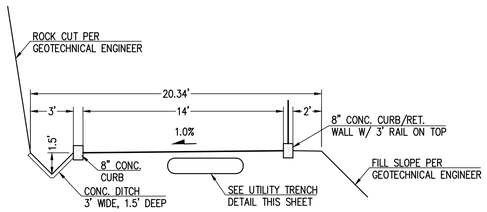
Nikola Prodanov

C-4



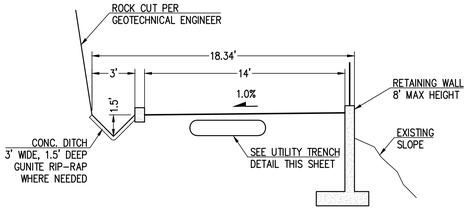
DRIVEWAY PROFILE VIEW

SCALE HOR. 1" = 40' VER. 1" = 20'



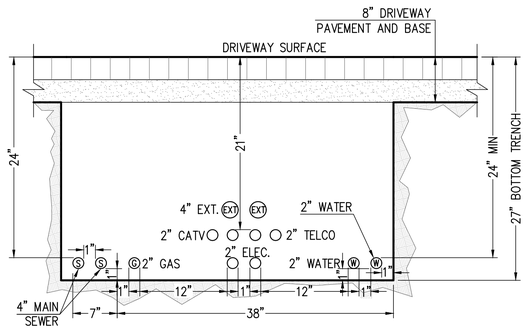
TYPICAL DRIVEWAY CROSS SECTION - CURB

N.T.S.



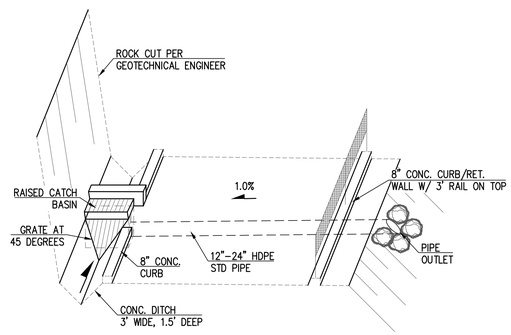
TYPICAL DRIVEWAY CROSS SECTION - RET. WALL

N.T.S.



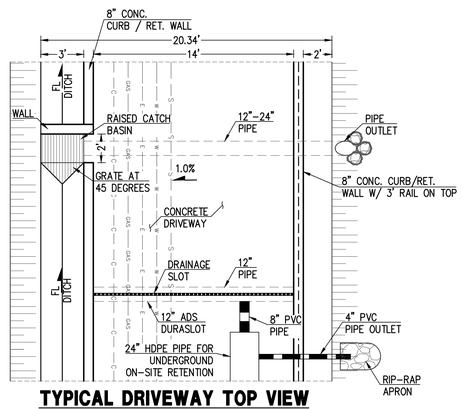
UTILITY TRENCH DETAIL

N.T.S.



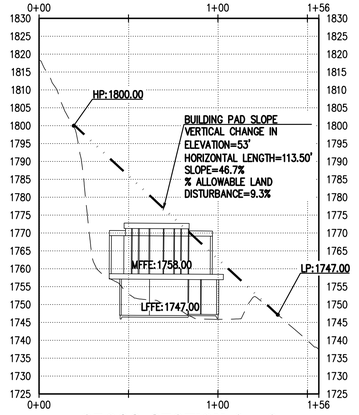
TYPICAL DITCH DRAINAGE

N.T.S.



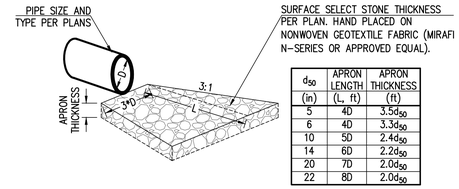
TYPICAL DRIVEWAY TOP VIEW

N.T.S.



CROSS SECTION 2 - 2

SCALE HOR. 1" = 40', VER. 1" = 20'



d_{50}	APRON LENGTH (L, ft)	APRON THICKNESS (ft)
(in)		
5	4D	$3.5d_{50}$
6	4D	$3.3d_{50}$
10	5D	$2.4d_{50}$
14	6D	$2.2d_{50}$
20	7D	$2.0d_{50}$
22	8D	$2.0d_{50}$

APRON LENGTH AND THICKNESS

N.T.S.

Contact Arizona 811 at least two full working days before you begin excavation

Call 811 or click Arizona811.com

REVISIONS: | DATE:

SCALE: HOR. 1"=40', VER. 1"=20'
DESIGNED BY: NP
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PLOT DATE: 05/06/25

GRADING & DRAINAGE PLAN
DRIVEWAY PROFILE
DETAILS

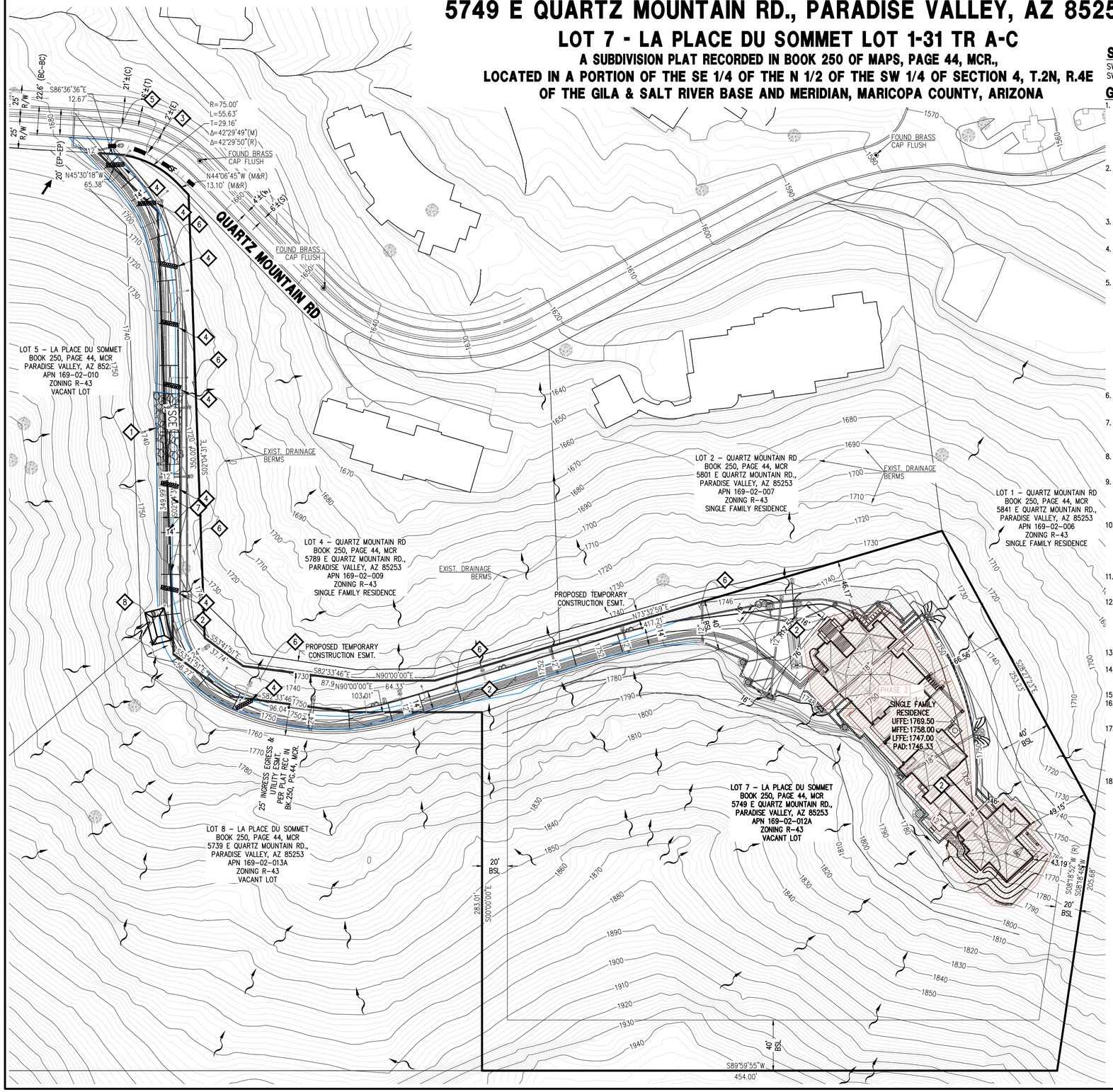
DEWANJEE RESIDENCE
5749 E QUARTZ MOUNTAIN RD.,
PARADISE VALLEY, AZ 85253

Land DEVELOPMENT GROUP
P. 602 889 1984 | F. 602 445 9482
8808 N. CENTRAL AVE., SUITE 288
PHOENIX, AZ 85020
PHOENIX@LDGENG.COM

REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO.
41005
NICKOLA J. PRODANOV
Date Signed 05/06/25
ARIZONA U.S.A.

C-5
5 OF 5

STORM WATER POLLUTION PREVENTION PLAN
DEWANJEE RESIDENCE
5749 E QUARTZ MOUNTAIN RD., PARADISE VALLEY, AZ 85253
LOT 7 - LA PLACE DU SOMMET LOT 1-31 TR A-C
A SUBDIVISION PLAT RECORDED IN BOOK 250 OF MAPS, PAGE 44, MCR.,
LOCATED IN A PORTION OF THE SE 1/4 OF THE N 1/2 OF THE SW 1/4 OF SECTION 4, T.2N, R.4E
OF THE GILA & SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA



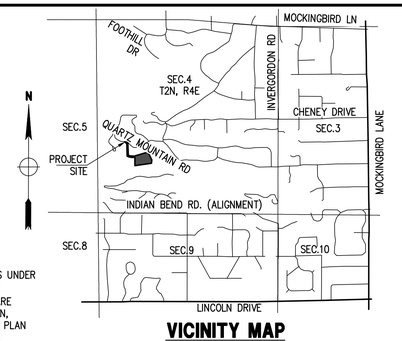
SHEET INDEX

GENERAL NOTES

1. THIS PROJECT IS SUBJECT TO THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS FOR CONSTRUCTION SITES UNDER THE ENVIRONMENTAL PROTECTION AGENCY (EPA) GENERAL PERMIT FOR ARIZONA. OWNERS, DEVELOPERS, ENGINEERS, AND/OR CONTRACTORS ARE REQUIRED TO PREPARE ALL DOCUMENTS REQUIRED BY THIS REGULATION, INCLUDING BUT NOT LIMITED TO STORM WATER POLLUTION PROTECTION PLAN (SWPPP), NOTICE OF INTENT (NOI) AND NOTICE OF TERMINATION (NOT).
2. A COPY OF THE APPROVED GRADING AND DRAINAGE PLAN FOR THIS PROJECT, TOGETHER WITH A COPY OF THE NOTICE OF INTENT (NOI) AND THIS STORM WATER POLLUTION PROTECTION PLAN (SWPPP), SHALL BE MAINTAINED ON THE SITE AND AVAILABLE FOR REVIEW. THOSE ELEMENTS OF THE GRADING AND DRAINAGE PLAN PERTINENT TO OR REFERENCED ON THE SWPPP SHALL BE CONSIDERED A PART OF THE SWPPP.
3. COMMUNITY DEVELOPMENT DEPARTMENT'S FIELD INSPECTION GROUP SHALL BE NOTIFIED 48 HOURS BEFORE ANY ON-SITE AND/OR OFF-SITE CONSTRUCTION BEGINS, AT (480) 348-3692.
4. 3THE OPERATOR SHALL OBTAIN A DUST CONTROL PERMIT FROM MARICOPA COUNTY HEALTH DEPARTMENT AND PERFORM MEASURES AS REQUIRED BY THE PERMIT TO PREVENT EXCESS DUST. ALL PERMITTEES MUST SUBMIT A TENTATIVE CONSTRUCTION SCHEDULE AND COMPLETION TIME.
5. THE OPERATOR SHALL PERFORM, AT A MINIMUM, A VISUAL INSPECTION OF THE CONSTRUCTION SITE ONCE EVERY MONTH AND WITHIN 24 HOURS OF RAINFALL GREATER THAN OR EQUAL TO A HALF OF AN INCH OR MORE. THE OPERATOR SHALL PREPARE A REPORT DOCUMENTING HIS/HER FINDINGS ON THE CONDITIONS OF THE SWPPP CONTROLS AND NOTE ANY EROSION PROBLEM AREAS. THE OPERATOR'S REPORT IS TO BE SUBMITTED TO THE DEVELOPMENT SERVICES DEPARTMENT PROJECT ENGINEERING DIVISION CONSTRUCTION INSPECTOR FOR REVIEW AND APPROVAL. FACILITIES SHALL BE MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING. IN ADDITION, ALL TEMPORARY SILTATION CONTROLS SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED, PERMANENT DRAINAGE FACILITIES ARE OPERATIONAL, AND THE POTENTIAL FOR EROSION HAS PASSED.
6. THE OPERATOR SHALL AMEND THIS PLAN AS NECESSARY DURING THE COURSE OF CONSTRUCTION TO RESOLVE ANY PROBLEM AREAS, WHICH BECOME EVIDENT DURING THE CONSTRUCTION AND/OR DURING RAINFALLS.
7. THE PERMITTEE SHALL FILE A NOTICE OF TERMINATION (NOT) AFTER COMPLETION OF CONSTRUCTION AND PLACEMENT OF FINAL LANDSCAPE MATERIALS. THE NOT IS TO BE SUBMITTED TO THE DEVELOPMENT SERVICES DEPARTMENT PROJECT ENGINEERING INSPECTOR TO FINAL THE SWPPP PERMIT.
8. THE PERMITTEE SHALL SAVE ALL RECORDS, INCLUDING THE NOI, SWPPP, NOT, AND INSPECTION REPORTS, ON FILE FOR A MINIMUM OF THREE YEARS FROM THE DATE OF FILING THE NOT.
9. THE IMPLEMENTATION OF THESE PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE FACILITIES IS THE RESPONSIBILITY OF THE PERMITTEE/CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED AND NOT SUBMITTED TO THE DEVELOPMENT SERVICES DEPARTMENT PROJECT ENGINEERING DIVISION INSPECTOR.
10. THE FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES IN SUCH A MANNER AS TO INSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM OR VIOLATE APPLICABLE WATER STANDARDS, AND MUST BE INSTALLED AND IN OPERATION PRIOR TO ANY GRADING OR LAND CLEARING. WHEREVER POSSIBLE, MAINTAIN NATURAL VEGETATION FOR SILT CONTROL.
11. THE CONTRACTOR'S NOI MUST BE RECEIVED PRIOR TO THE SWPPP PERMIT BEING ISSUED. THE CONTRACTOR THAT WILL BE PULLING THE G&D PERMIT MUST HAVE THE SWPPP PERMIT ISSUED IN THEIR NAME.
12. ALL DRAINAGE PROTECTIVE DEVICES SUCH AS SWALES, INTERCEPTOR DITCHES, PIPES, PROTECTIVE BERMS, BARRIER WALLS, CONCRETE CHANNELS OR OTHER MEASURES DESIGNED TO PROTECT ADJACENT BUILDINGS OR PROPERTY FROM STORM RUNOFF MUST BE COMPLETED PRIOR TO BUILDING CONSTRUCTION. THE NATURAL FLOW OF RAINWATER AND OTHER SURFACE DRAINAGE FROM THE PROPERTY MAY NOT BE ALTERED IN ANY WAY.
13. CONTRACTOR SHALL PROVIDE STABILIZATION FABRIC TO ALL SLOPES EQUAL TO OR GREATER THAN 3H:1V.
14. STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROVIDED AT ALL LOCATIONS WHERE CONSTRUCTION VEHICLES WILL ENTER AND EXIT THE CONSTRUCTION SITE.
15. REFER TO SHEET 2 FOR STANDARD DETAILS OF BEST MANAGEMENT PRACTICES.
16. WHEN DEEMED NECESSARY, A 6-FOOT HIGH CHAIN LINK FENCE MUST BE INSTALLED AROUND THE CONSTRUCTION AREA TO PREVENT ANY POTENTIAL SAFETY HAZARD FOR THE PUBLIC.
17. THE SCOPE OF THIS STORM WATER POLLUTION PREVENTION PLAN COVERS CERTAIN TEMPORARY IMPROVEMENTS TO MITIGATE EXISTING EROSION ISSUES AND TO REDUCE THE RISK OF ADVERSE IMPACT TO DOWNSTREAM PROPERTIES. LAND DEVELOPMENT GROUP (LDG) ASSUMES NO LIABILITY FOR FAILURES OF EXISTING BMPS AND DRAINAGE ISSUES BEYOND THE LIMITS OF THE SCOPE OF WORK SHOWN ON THESE PLANS.
18. ANY WORK THAT IS BEYOND THE OWNER'S PROPERTY BOUNDARIES SHALL REQUIRE ACCEPTANCE AND FORMAL APPROVAL BY THE OWNER OF THE NEIGHBORING PROPERTY ON WHICH ACCESS OR WORK IS NECESSARY IN ORDER TO IMPLEMENT THE BMP MEASURES SHOWN ON THIS PLAN.

SWMP KEY-NOTES

1. STABILIZED CONSTRUCTION ENTRANCE PER FCDMC EC-5 DETAIL ON SHEET SW-2.
2. DUST CONTROL PER FCDMC EC-7 DETAILS ON SHEET SW-2.
3. SILT FENCE PER FCDMC SPC-5 DETAIL ON SHEET SW-2.
4. SAND BAG BARRIER PER FCDMC SPC-2 DETAIL ON SHEET SW-2. WORK SHALL BE COMPLETED AFTER THE REPAIR OF THE ERODED UTILITY TRENCH. SEE CONSTRUCTION NOTE #7 BELOW.
5. STREET TRACKOUT CLEANING PER FCDMC GH-6 DETAIL ON SHEET SW-2.
6. CONTRACTOR TO REPLACE CURRENTLY INSTALLED STRAW BALES WHERE THEY DO NOT MEET THE ORIGINAL DESIGN INTENT AND DETAILS AS SHOWN ON SHEET SW-2.
7. REPAIR EXISTING ERODED UTILITY TRENCH IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER RECOMMENDATIONS AS FOLLOWS:
   - REMOVE ALL LOOSE SOILS AND OVERSIZED MATERIAL (PARTICLES GREATER THAN 3 INCHES);
   - BACKFILL THE TRENCH WITH ½-SACK CLSM (SLURRY) TO WITHIN 3-INCHES OF THE SUBGRADE SURFACE;
   - BACKFILL THE REMAINING 3-INCHES WITH GRAVEL (COLOR TO MATCH NATIVE ROCKS).
8. DESIGNATED CONCRETE WASHOUT VESSEL PER FCDMC BMP-99 THROUGH BMP-100 AND DETAILS ON SHEET SW-2.



VICINITY MAP
N.T.S.

OWNER
SUMIT DEWANJEE
7301 E 3RD AVE UNIT 413.,
SCOTTSDALE, AZ 85251

ARCHITECT
CANDELARIA DESIGN ASSOCIATES, LLC
6900 E CAMELBACK RD., SUITE 400
SCOTTSDALE, AZ 85251
P: 602-604-2001
F: 602-604-2002

SITE DATA
APN: 169-02-012A
ADDRESS: 5749 E QUARTZ MOUNTAIN RD., PARADISE VALLEY, AZ 85253
ZONING: R-43
LOT AREA: 149,230 S.F (3.426 AC.)
CONSTRUCTION YEAR: VACANT LOT
Q.S. 23-41

CIVIL ENGINEER
LAND DEVELOPMENT GROUP, LLC
8808 N CENTRAL AVE, SUITE 288
PHOENIX, AZ 85020
CONTACT: NICK PRODANOV, PE
P: 602-889-1984

LEGAL DESCRIPTION
LOT 7, OF LA PLACE DU SOMMET, ACCORDING TO THE PLAT OF RECORD IN THE OFFICE OF THE COUNTY RECORDER OF MARICOPA COUNTY, ARIZONA, RECORDED IN BOOK 250 OF MAPS, PAGE 44 AND IN BOOK 296 OF MAPS, PAGE 4.

EXCEPT ANY PORTION THEREOF LYING WITHIN THAT CERTAIN PROPERTY CONVEYED TO THE TOWN OF PARADISE VALLEY BY DEED RECORDED IN DOCUMENT NO. 83-129223, RECORDS OF MARICOPA COUNTY, ARIZONA; AND

EXCEPT ALL THE COAL NAD OTHER MINERALS, AS RESERVED IN THE PATENET.

FLOOD INSURANCE RATE MAP (FIRM) DATA

COMMUNITY #	PANEL #		SUFFIX	BASE FLOOD ELEVATION
040049	1765 OF 4425		L	N/A
MAP #	PANEL DATE	FIRM INDEX DATE	ZONE	
04013C	10/16/2013	10/16/2013	X*	

*AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN

UTILITIES
WATER: EPCOR WATER
SANITARY SEWER: SEPTIC
ELECTRIC: ARIZONA PUBLIC SERVICE
TELEPHONE: CENTURY LINK, COX COMMUNICATIONS
NATURAL GAS: SOUTHWEST GAS CORPORATION
CABLE TV: CENTURY LINK, COX COMMUNICATIONS

N

40' 20' 0 40'
SCALE 1" = 40'

LEGEND
PROPERTY LINE
EASEMENT LINE
MONUMENT LINE

LEGEND
SF SILT FENCE
SCE STABILIZED CONSTRUCTION ENTRANCE
GRAVEL BAGS BARRIER

NOTE
1. NO WORK OF ANY KIND CAN COMMENCE UNTIL ALL STORM WATER POLLUTION BMP'S ARE IN PLACE AND INSPECTED BY THE TOWN. ONLY UNTIL THE TOWN HAS APPROVED THE STORM WATER BMP'S MAY ANY CONSTRUCTION BEGIN.
2. SEDIMENTATION CONTROL DEVICES (SILT BARRIERS) SHALL REMAIN IN PLACE AT ALL TIME. SEDIMENTATION CONTROL DEVICES SHALL BE KEPT IN GOOD REPAIR, INSPECTED MONTHLY, INSPECTED AFTER EACH RAIN EVENT, AND MAINTAINED AS NEEDED BY THE APPLICANT/OWNER.
3. SEDIMENTATION CONTROL DEVICE INSPECTION LOG SHALL BE MAINTAINED BY APPLICANT AND/OR OWNER AND MADE AVAILABLE TO THE TOWN UPON REQUEST.

APPROVAL

TOWN ENGINEER
TOWN OF PARADISE VALLEY

DATE

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

DATE: 05/06/25
JOB: 1808172
VERSION: 3.3
PLOT DATE: 05/06/25
SCALE: 1"=40'
DESIGNED BY: NP
DRAWN BY: ZA
CHECKED BY: JH
DATE:
REVISIONS:

STORM WATER POLLUTION PREVENTION PLAN

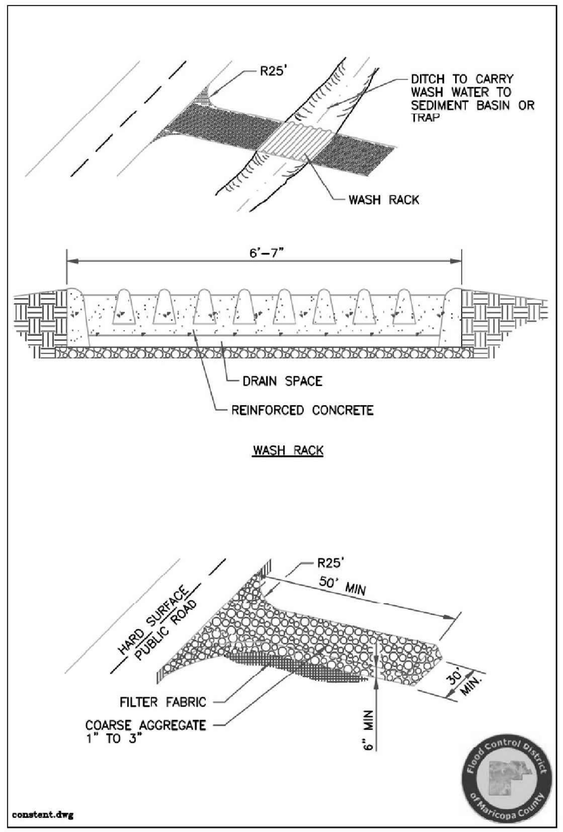
DEWANJEE RESIDENCE
5749 E QUARTZ MOUNTAIN RD,
PARADISE VALLEY, AZ 85253

P. 602 889 1984 | F. 602 445 9482
8808 N CENTRAL AVE., SUITE 288
PHOENIX, AZ 85020
PHOENIXBUILDCENC.COM
Land DEVELOPMENT GROUP

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO. 41005
NICKOLA J. PRODANOV
Date Signed 05/06/25
ARIZONA, U.S.A.

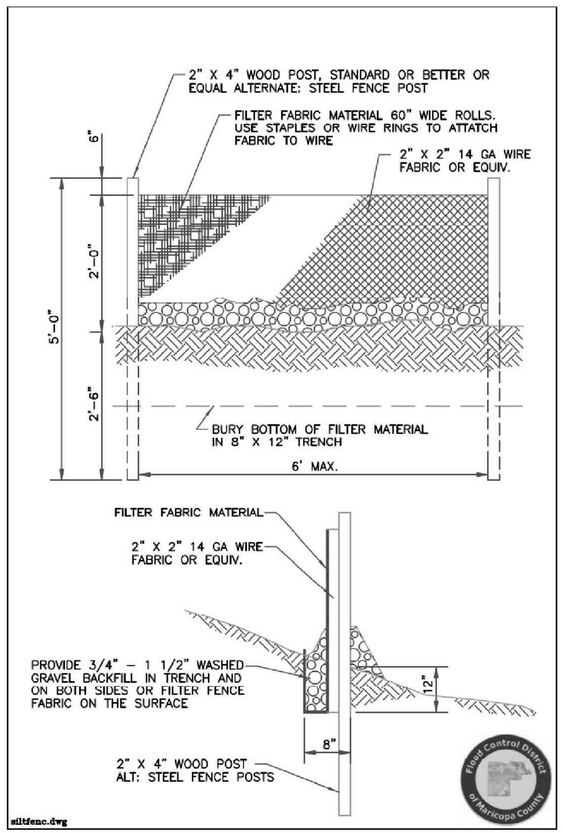
SW-1
1 OF 2

EC-5 Stabilized Construction Entrance Drawing



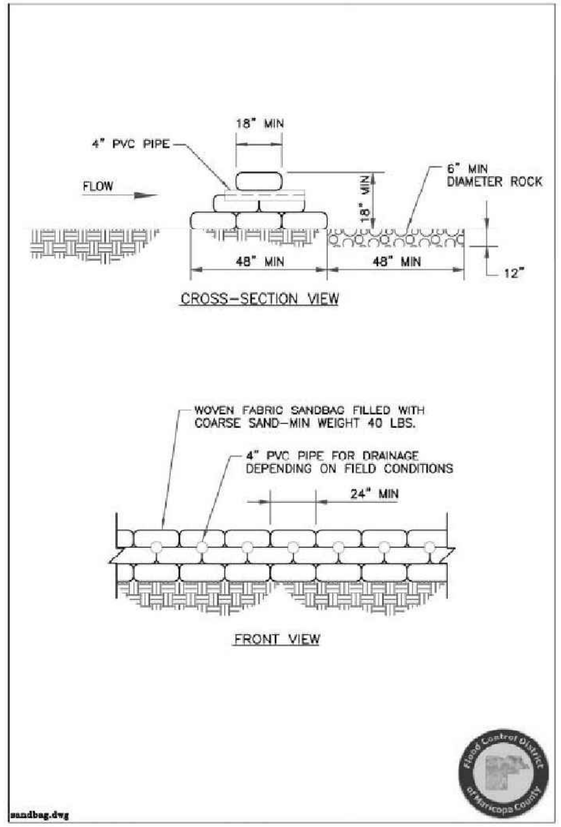
STABILIZED CONSTRUCTION ENTRANCE-EC5

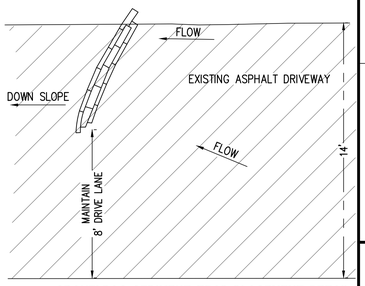
SPC-5 Silt Fence Drawing



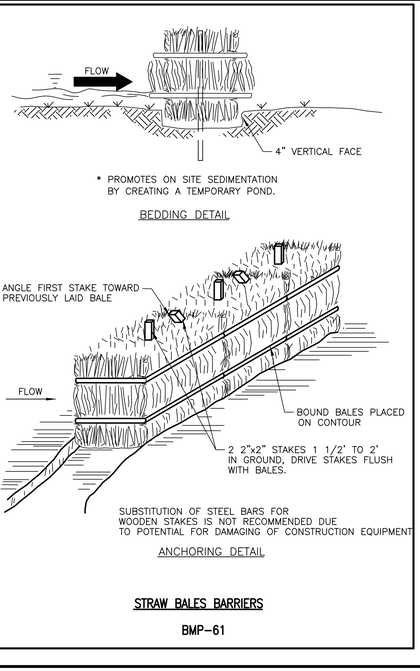
SILT FENCE-SPC5

SPC-2 Sand Bag Barrier Drawing





GRAVELBAG SEDIMENT TRAP PLACEMENT DETAIL



STRAW BALES BARRIERS

BMP–61

STREET CLEANING & SWEEPING SPECIFICATIONS

PURPOSE
CLEANING ROAD TRACKOUT PREVENTS THE SEDIMENT FROM ENTERING A STORM DRAIN OR WATERCOURSE.

APPROPRIATE APPLICATIONS
THESE PRACTICES ARE IMPLEMENTED ANYWHERE SEDIMENT ISTRACKED FROM THE PROJECT SITE ONTO PUBLIC OR PRIVATE PAVED ROADS, TYPICALLY AT POINTS OF INGRESS/EGRESS. STUDIES HAVE SHOWN THAT VACUUM OR REGENERATIVE AIR STREET SWEEPERS CAN EFFECTIVELY REMOVE FINE DUST PARTICLES AND YIELD SIGNIFICANT RUNOFF QUALITY BENEFITS

LIMITATIONS
- SWEEPING AND VACUUMING MAY NOT BE EFFECTIVE WHEN SOIL IS WET OR MUDDY.
- MECHANICAL BRUSH SWEEPERS MAY ONLY REMOVE COARSER PARTICLES.

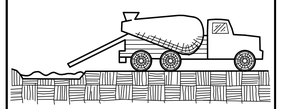
RECOMMENDED STANDARDS AND SPECIFICATIONS
- VISIBLE SEDIMENT TRACKING SHOULD BE SWEPT AND/OR VACUUMED DAILY. FOR SMALLER AREAS OF TRACKOUT, KICK BROOMS CAN BE USED. FOR LARGER AREAS, CONSIDER MECHANICAL BRUSH OR VACUUM SWEEPERS. SOME MECHANICAL SWEEPERS CAN REMOVE DEBRIS AND DUST PARTICLES DOWN TO 2.5 MICRONS.
- CONDUCT SWEEPINGS AT LEAST ONCE PER WEEK DURING THE PROJECT OPERATIONS. DURING RAINY SEASONS, IMPLEMENT SWEEPINGS ON A MORE FREQUENT BASIS.
- CONSIDER INCORPORATING THE REMOVED SEDIMENTBACK INTO THE PROJECT, RATHER THAN HAULING OFFSITE TO DISPOSAL.

RECOMMENDED MAINTENANCE AND INSPECTION
- INSPECT INGRESS/EGRESS ACCESS POINTS DAILY AND SWEEP TRACKED SEDIMENT AS NEEDED.
- PROPERLY DISPOSE OF ANY UNKNOWN SUBSTANCES OR OBJECTS THAT MAY BE POTENTIALLY HAZARDOUS.
- ADJUST BROOMS FREQUENTLY; MAXIMIZEEFFICIENCY OF SWEEPING OPERATIONS.
- AFTER SWEEPING IS FINISHED, SWEEPER WATER CAN BE REUSED OR DISPOSED OF AT AN APPROVED DUMP–SITE.
- THE OPERATOR IS RESPONSIBLE FOR COMPLIANCE WITH MARICOPA COUNTY DUST CONTROL RULES FOR TRACKOUT CONTROL

ROAD SWEEPING/TRACKOUT CLEANING-GH-6

SYMBOL	DESIGNATED WASHOUT AREA
W.A.	

DIAGRAM



CONDITIONS WHERE PRACTICE APPLIES
- ___ PERIMETER CONTROL
- ___ SLOPE PROTECTION
- ___ SEDIMENT TRAPPING
- ___ DRAINAGEWAY & STREAM PROTECTION
- ___ TEMPORARY STABILIZATION
- ___ PERMANENT STABILIZATION & EXPOSURE LIMITS
- * NON–SEDIMENT POLLUTION CONTROL

DEFINITION

A TEMPORARY PIT OR BERMED AREA FOR WASHOUT OF CONCRETE TRUCKS, TOOLS, MORTAR MIXERS, ETC.

PURPOSE

IMPROPER WASHOUT OF CONCRETE TRUCKS, TOOLS, ETC. MAY ALLOW FRESH CONCRETE OR CEMENT LADEN MORTAR TO ENTER A STORM DRAINAGE SYSTEM.

APPROPRIATE APPLICATIONS

EFFECTIVE WHEN VEHICLES, TOOLS, AND MIXERS CAN BE MOVED TO THE PIT LOCATION. WHERE THIS IS NOT PRACTICAL, TEMPORARY PONDS MAY BE CONSTRUCTED TO ALLOW FOR SETTLING AND HARDENING OF CEMENT AND AGGREGATES. WASHOUT AREA/PITS ARE APPROPRIATE FOR MINOR AMOUNTS OF WASH WATER WHICH RESULT FROM CLEANING OF AGGREGATE MATERIALS OR CONCRETE TRUCKS, TOOLS, ETC.

PLANNING CONSIDERATIONS

1. WASH OUT INTO A SLURRY PIT WHICH WILL LATER BE BACKFILLED. DO THIS ONLY WITH THE APPROVAL OF THE PROPERTY OWNER.

2. WASH OUT INTO A TEMPORARY PIT WHERE THE CONCRETE WASH CAN HARDEN, BE BROKEN UP, AND THEN PROPERLY DISPOSED OF OFF–SITE.

DESIGN & SIZING CRITERIA

1. LOCATE WASHOUT PITS AWAY FROM STORM DRAINS, OPEN DITCHES, OR STORMWATER RECEIVING WATERS.

2. DO NOT WASHOUT CONCRETE TRUCKS INTO STORM DRAINS, SANITARY SEWERS, STREET GUTTERS, OR STORMWATER CHANNELS.

MAINTENANCE REQUIREMENTS

PROPERLY DISPOSE OF HARDENED CONCRETE PRODUCTS ON A ROUTINE BASIS TO PREVENT THE BUILDUP OF WASTE MATERIALS TO AN UNMANAGEABLE SIZE AND TO MAINTAIN PERCOLATION OF WATER.

REFERENCE (14)

BMP–99&100

EC-7 Dust Control Table

TABLE 5.2
COMMONLY USED DUST SUPPRESSANTS

Types	Functional Mechanism	Advantages	Limitations
Freshwater	Moisture wets particles, thereby increasing their mass and binding them together.	Usually readily available, low material cost, and easy to apply	Frequent light applications may be necessary during hot dry weather and can be labor intensive. Over application may result in loss of traction, erosion, or points of road failure.

TABLE 5.2
COMMONLY USED DUST SUPPRESSANTS (CONTINUED)

Types	Ideal Soil Characteristics	Relative Cost Comparison (average life expectancy)	Environmental Considerations
Freshwater	None	Low initial cost, high long-term maintenance cost (0 months)	Minimal environmental hazard. If applied excessively, may result in erosion and sediment runoff. Supply may be limited in some areas and, depending on the source, may require a water right permit.

DUST CONTROL-EC7

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 Arizona Blue Stake, Inc.
Call 811 or click Arizona811.com

DATE: 05/06/25
SCALE: N.T.S.
DESIGNED BY: NP
DRAWN BY: ZA
CHECKED BY: JI
JOB: 1808172
VERSION: 3.3
PLOT DATE: 05/06/25
REVISIONS: DATE:

STORM WATER POLLUTION PREVENTION PLAN

DEWANJEE RESIDENCE
5749 E QUARTZ MOUNTAIN RD,
PARADISE VALLEY, AZ 85253

P. 602 889 1984 | F. 602 445 9482
8808 N CENTRAL AVE., SUITE 288
PHOENIX, AZ. 85020
PHOENIX@LDGCNG.COM
Land DEVELOPMENT GROUP

REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO. 41005
NICKOLA J. PRODANOV
My Signed at 1/8/25
ARIZONA U.S.A.

SW-2
2 OF 2

ROCK SLOPE STABILITY, ROCK BOLTING, TECCO MESH, AND CATCH FENCE INSTALLATION REPORT

PROPOSED DEWANJEE RESIDENCE
APN 169-02-012A
LA PLACE DU SOMMET, LOT 7
5749 EAST QUARTZ MOUNTAIN ROAD
PARADISE VALLEY, ARIZONA 85253

SHEET INDEX:

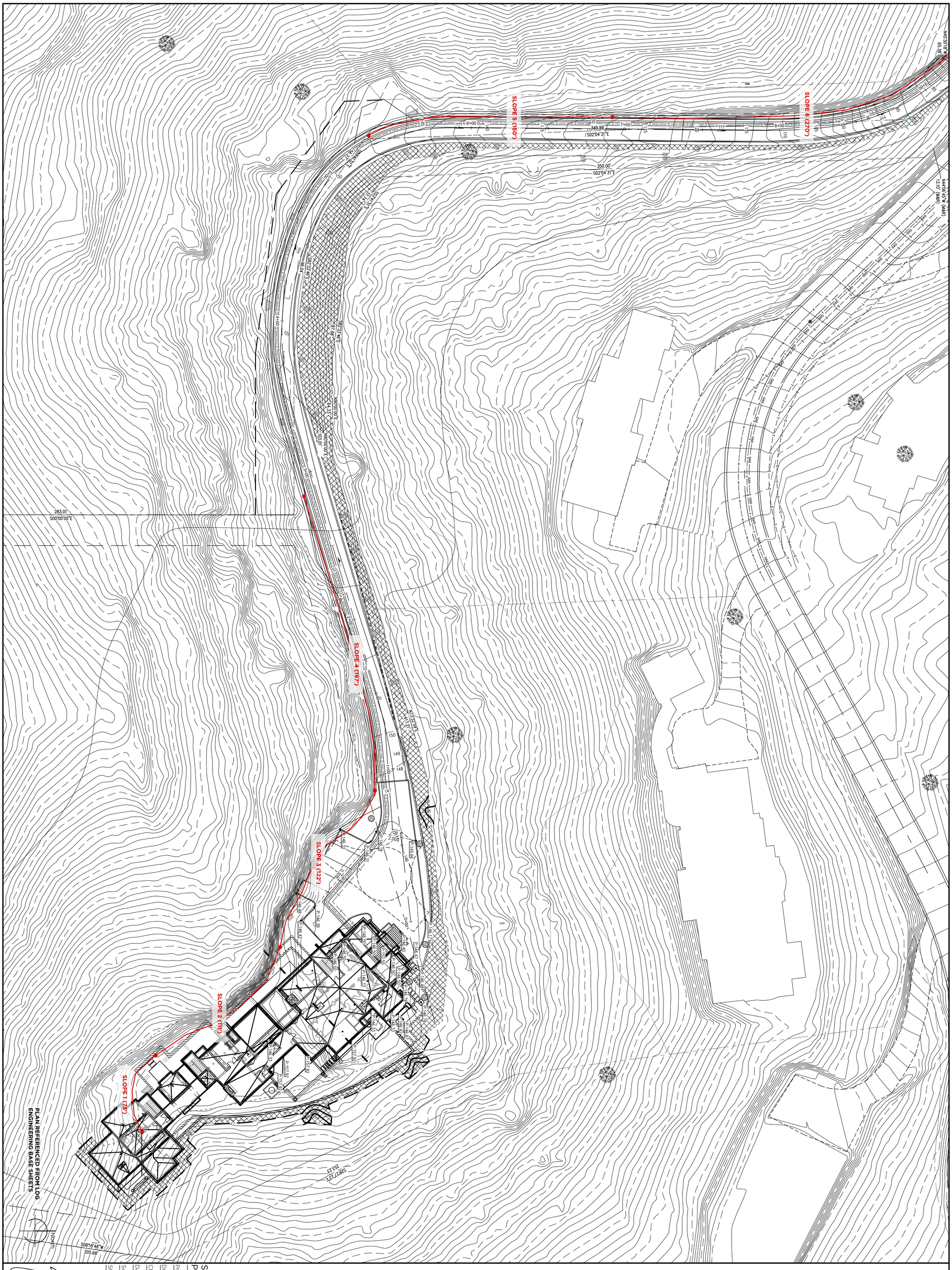
Note: This report and the recommendations contained herein are predicated on three reports serving in congress; the Rock Slope Stability, Rock Bolting, TECCO Mesh, and Catch Fence Installation Report, the Boulder Commentary, and the Geotechnical Investigation Report. This report is, therefore, a portion of the overall study of the site. Due to the uniqueness of each report, the contents are constrained to separate submittals. Notwithstanding, the reports will work together and are identified by the project number 16595.

VANN ENGINEERING INC

ROCK SLOPE STABILITY, ROCK BOLTING, TECCO MESH, AND CATCH FENCE INSTALLATION REPORT
PROPOSED DEWANJEE RESIDENCE
LA PLACE DU SOMMET, LOT 7
5749 EAST QUARTZ MOUNTAIN ROAD
PARADISE VALLEY, ARIZONA 85253

TITLE

Project	16595
Drawn	SM
Checked	JDV
Date	2/21/25
Scale	NTS
Sheet	01



SITE PLAN

Project	16595
Drawn	SM
Checked	JDV
Date	2/21/25
Scale	1:250
Sheet	02

ROCK SLOPE STABILITY, ROCK BOLTING, TECCO MESH, AND CATCH FENCE INSTALLATION REPORT

PROPOSED DEWANJEE RESIDENCE
LA PLACE DU SOMMET, LOT 7
5749 EAST QUARTZ MOUNTAIN ROAD
PARADISE VALLEY, ARIZONA 85253

VANN ENGINEERING INC

PROPOSED CATCH FENCE LOCATION
2m GEOBRUGG GBE-100A-R OR EQUIVALENT
PHASE 1, APPROXIMATELY 1083 LF
(REFER TO DETAILS SHEET)

PROPOSED CATCH FENCE LOCATION
2m GEOBRUGG GBE-100A-R OR EQUIVALENT
PHASE 2, APPROXIMATELY 502 LF
(REFER TO DETAILS SHEET)

PLAN REFERENCED FROM LDG
ENGINEERING BASE SHEETS

North

VANN ENGINEERING INC

ROCK SLOPE STABILITY, ROCK BOLTING, TECCO MESH, AND CATCH FENCE INSTALLATION REPORT

PROPOSED DEWANJEE RESIDENCE
LA PLACE DU SOMMET, LOT 7
5749 EAST QUARTZ MOUNTAIN ROAD
PARADISE VALLEY, ARIZONA 85253

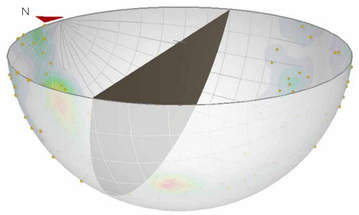
CATCH FENCE

Project	16595
Drawn	SM
Checked	JDV
Date	2/21/25
Scale	1:250
Sheet	03

Professional Engineer
CERTIFICATE NO.
15009
JEFFRY D. VANN
12/31/25
ARIZONA U.S.A.

SLOPE 1
Stereonet Plots with Kinematic Analysis

3D Illustration



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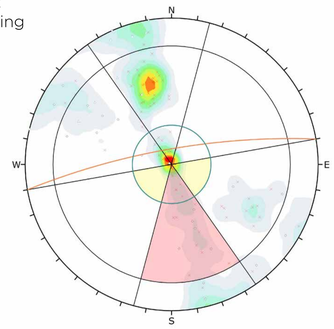
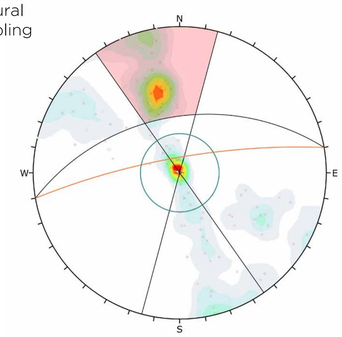
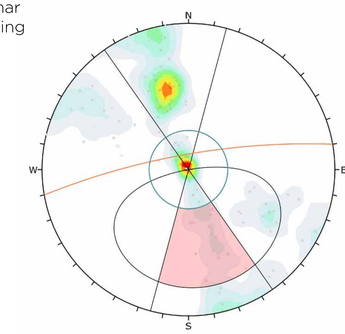


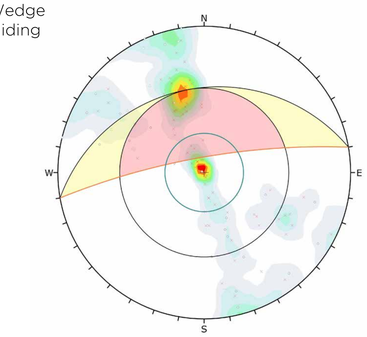
Flexural Toppling



Planar Sliding

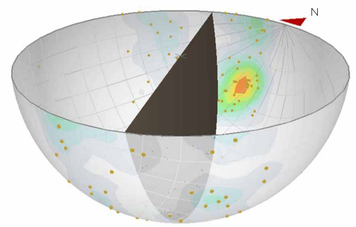


Wedge Sliding



SLOPE 2
Stereonet Plots with Kinematic Analysis

3D Illustration



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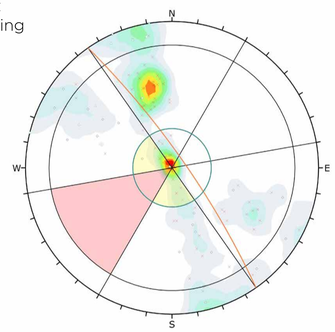

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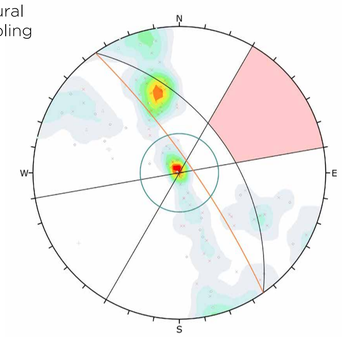
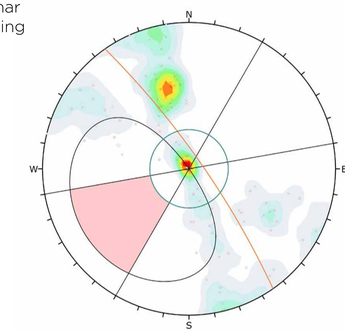
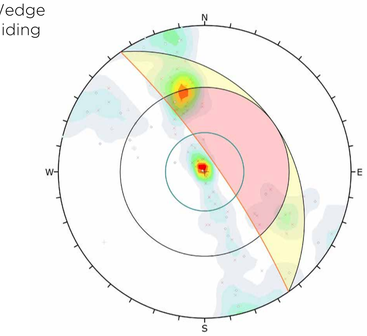


Planar Sliding



Wedge Sliding



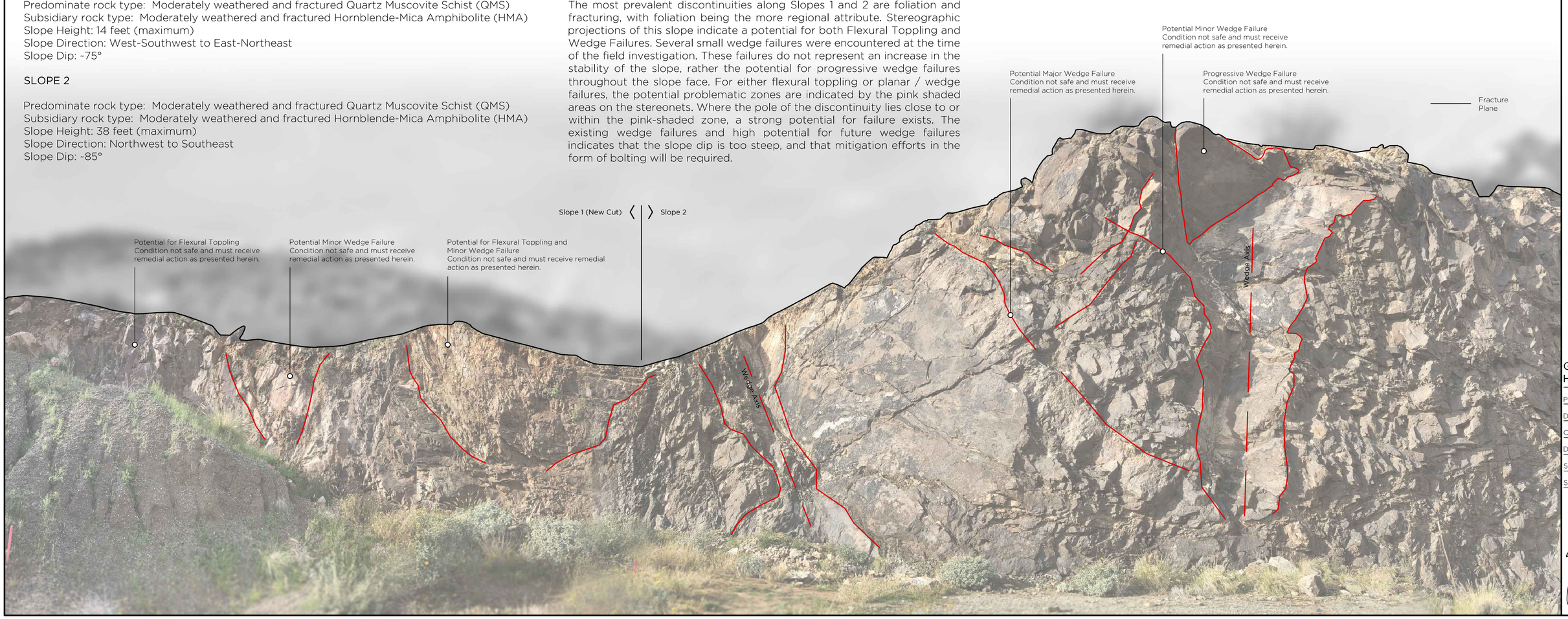
SLOPE 1

Predominate rock type: Moderately weathered and fractured Quartz Muscovite Schist (QMS)
Subsidiary rock type: Moderately weathered and fractured Hornblende-Mica Amphibolite (HMA)
Slope Height: 14 feet (maximum)
Slope Direction: West-Southwest to East-Northeast
Slope Dip: ~75°

SLOPE 2

Predominate rock type: Moderately weathered and fractured Quartz Muscovite Schist (QMS)
Subsidiary rock type: Moderately weathered and fractured Hornblende-Mica Amphibolite (HMA)
Slope Height: 38 feet (maximum)
Slope Direction: Northwest to Southeast
Slope Dip: ~85°

The most prevalent discontinuities along Slopes 1 and 2 are foliation and fracturing, with foliation being the more regional attribute. Stereographic projections of this slope indicate a potential for both Flexural Toppling and Wedge Failures. Several small wedge failures were encountered at the time of the field investigation. These failures do not represent an increase in the stability of the slope, rather the potential for progressive wedge failures throughout the slope face. For either flexural toppling or planar / wedge failures, the potential problematic zones are indicated by the pink shaded areas on the stereonets. Where the pole of the discontinuity lies close to or within the pink-shaded zone, a strong potential for failure exists. The existing wedge failures and high potential for future wedge failures indicates that the slope dip is too steep, and that mitigation efforts in the form of bolting will be required.



VANN ENGINEERING INC

ROCK SLOPE STABILITY, ROCK BOLTING, TECCO MESH, AND CATCH FENCE INSTALLATION REPORT
PROPOSED DEWANJEE RESIDENCE
LA PLACE DU SOMMET, LOT 7
5749 EAST QUARTZ MOUNTAIN ROAD
PARADISE VALLEY, ARIZONA 85253

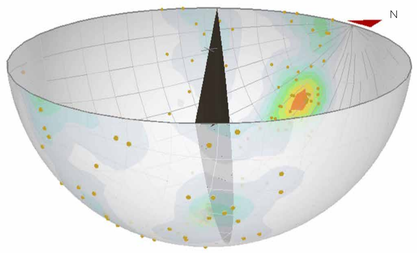
GEOLOGIC HAZARDS 1+2

Project	16595
Drawn	SM
Checked	JDV
Date	2/21/25
Scale	NTS
Sheet	04

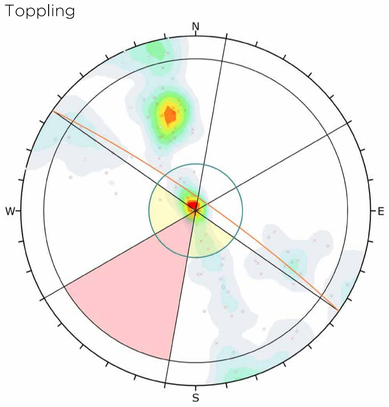
Professional Engineer Certificate No. 15208 JEFFRY D. VANN 2/21/25 Date Signed ARIZONA U.S.A.

SLOPE 3
Stereonet Plots with Kinematic Analysis

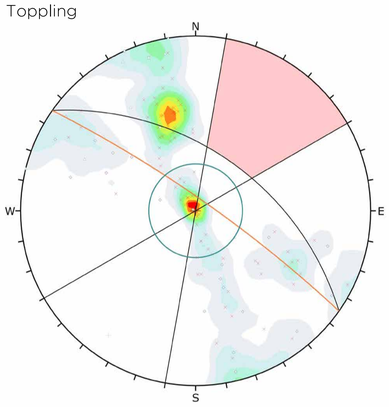
3D
Illustration



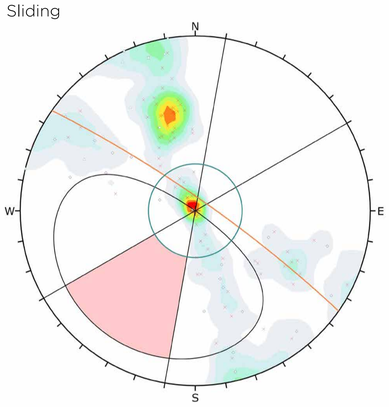
Direct
Toppling



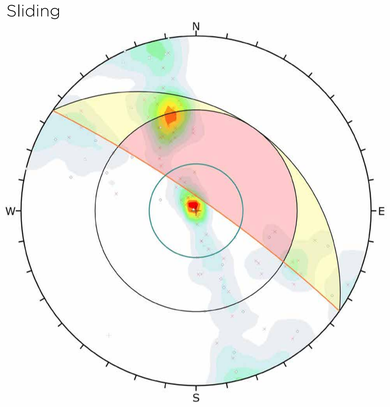
Flexural
Toppling



Planar
Sliding



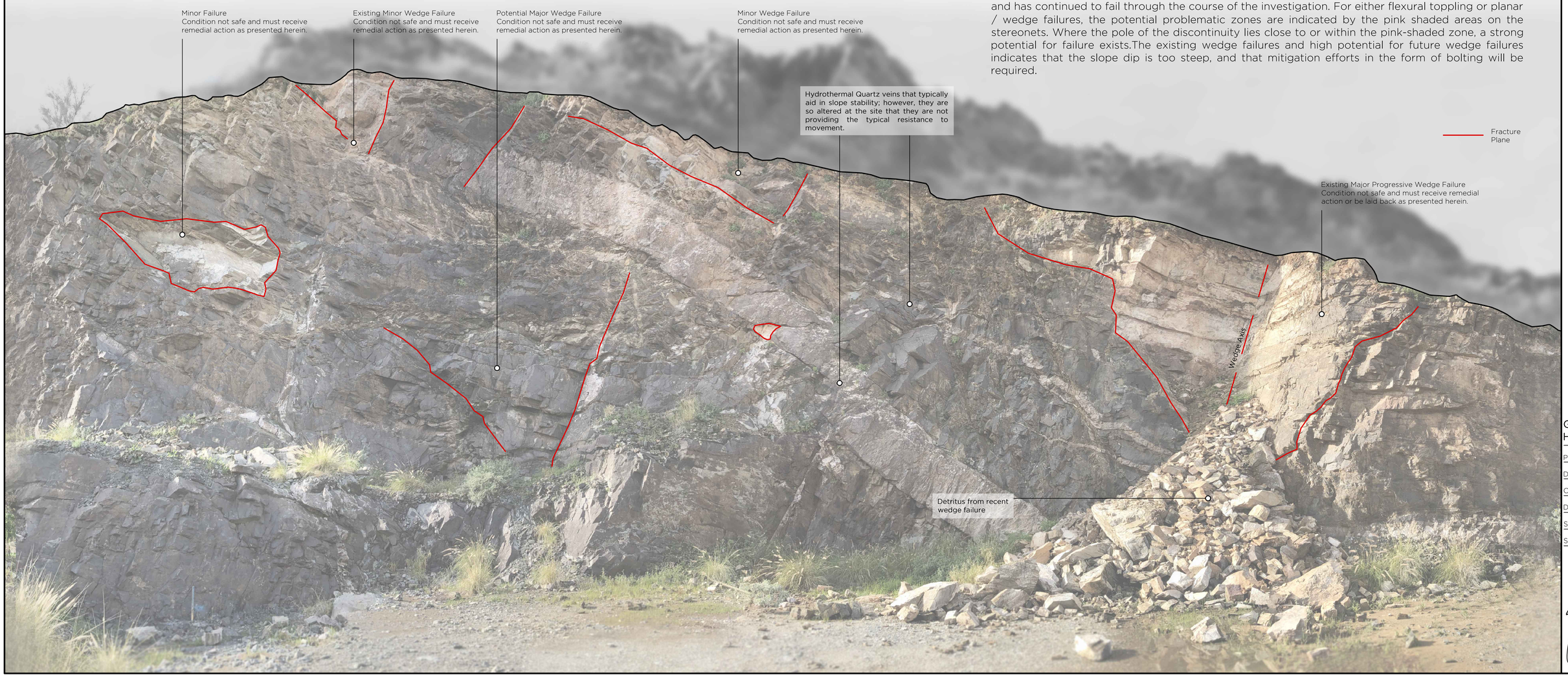
Wedge
Sliding



SLOPE 3

Predominate rock type: Moderately weathered and fractured Quartz Muscovite Schist (QMS)
Subsidiary rock type: Moderately weathered and fractured Hornblende-Mica Amphibolite (HMA)
Slope Height: 40 feet (maximum)
Slope Direction: Northwest to Southeast
Slope Dip: ~80°

The most prevalent discontinuities along Slope 3 is foliation and fracturing, with foliation being the more regional attribute. Stereographic projections of this slope indicate a potential for major and minor Wedge Failures. One major progressive wedge failure was encountered during the field effort, and has continued to fail through the course of the investigation. For either flexural toppling or planar / wedge failures, the potential problematic zones are indicated by the pink shaded areas on the stereonets. Where the pole of the discontinuity lies close to or within the pink-shaded zone, a strong potential for failure exists.The existing wedge failures and high potential for future wedge failures indicates that the slope dip is too steep, and that mitigation efforts in the form of bolting will be required.



VANN ENGINEERING INC

ROCK SLOPE STABILITY, ROCK BOLTING, TECCO MESH, AND CATCH FENCE INSTALLATION REPORT

PROPOSED DEWANJEE RESIDENCE
LA PLACE DU SOMMET, LOT 7
5749 EAST QUARTZ MOUNTAIN ROAD
PARADISE VALLEY, ARIZONA 85253

GEOLOGIC HAZARDS 3

Project	16595
Drawn	SM
Checked	JDV
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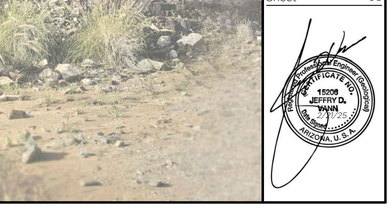
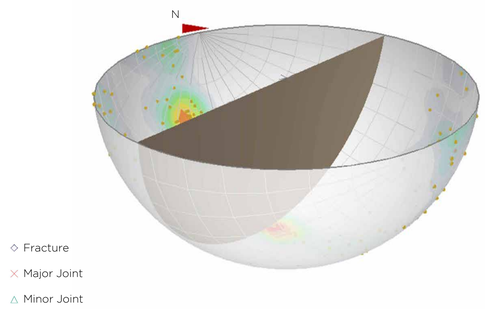
Sheet	05

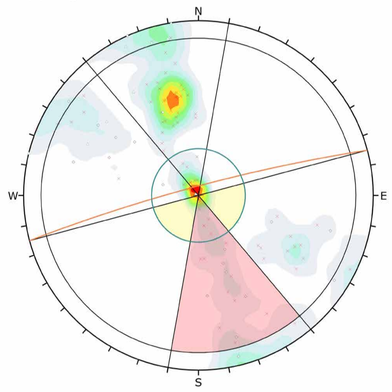


SLOPE 4
Stereonet Plots with Kinematic Analysis

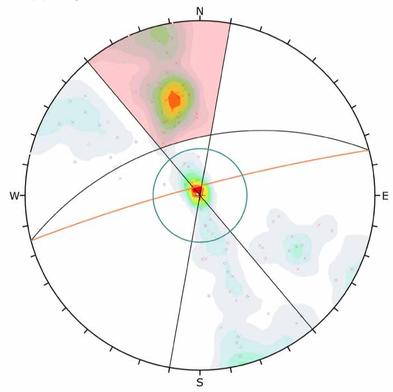
3D
Illustration



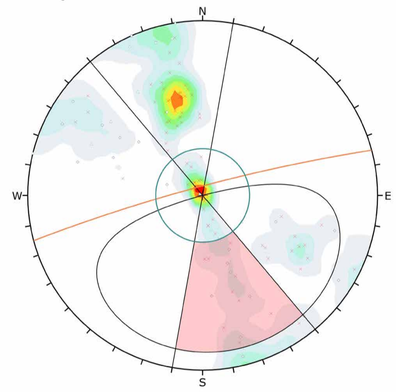
Direct
Toppling



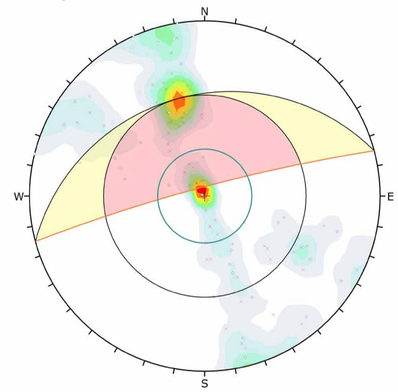
Flexural
Toppling



Planar
Sliding



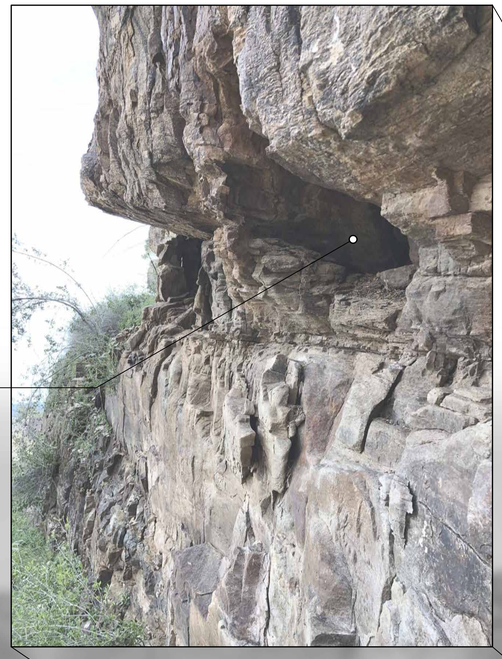
Wedge
Sliding



SLOPE 4

Predominate rock type: Moderately weathered and fractured Quartz Muscovite Schist (QMS)
Subsidiary rock type: Moderately weathered and fractured Hornblende-Mica Amphibolite (HMA)
Slope Height: 28 feet (maximum)
Slope Direction: West-southwest to East-northeast
Slope Dip: ~85°

The most prevalent discontinuities along Slope 4 is foliation and fracturing, with foliation being the more regional attribute. Stereographic projections of this slope indicate a potential for major and minor Wedge Failures. Significant erosion has occurred, resulting in an overhang as shown in the image to the right. This entire mass may be removed. For either flexural toppling or planar / wedge failures, the potential problematic zones are indicated by the pink shaded areas on the stereonets. Where the pole of the discontinuity lies close to or within the pink-shaded zone, a strong potential for failure exists.



Highly eroded portion of Slope 4, leaving overhangs on the slope face. This portion of the mass is to be removed.

Hydrothermal Quartz veins that typically aid in slope stability; however, they are so altered at the site that they are not providing the typical resistance to movement.

Hydrothermal Quartz veins that typically aid in slope stability; however, they are so altered at the site that they are not providing the typical resistance to movement.

Note: It is the understanding of this firm that the geometry of Slope 4 will change upon the removal of the eroded portions of the slope. It is also the understanding of this firm that it will be desired to maintain a steep slope (1:5 H:V), and that bolting mitigation will still be required. Assuming that the slope geometry does not change significantly from what is presented in this report, the bolting mitigation recommendations will still apply. If the geometry of the slope changes vastly, this firm must be notified immediately in order to modify or augment the recommendations presented herein.

VANN ENGINEERING INC

ROCK SLOPE STABILITY, ROCK BOLTING, TECCO MESH, AND CATCH FENCE INSTALLATION REPORT
PROPOSED DEWANJEE RESIDENCE
LA PLACE DU SOMMET, LOT 7
5749 EAST QUARTZ MOUNTAIN ROAD
PARADISE VALLEY, ARIZONA 85253

GEOLOGIC HAZARDS 4

Project	16595
Drawn	SM
Checked	JDV
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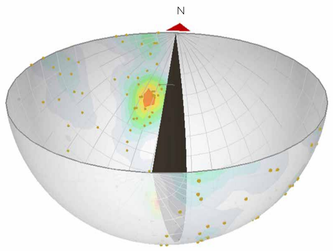
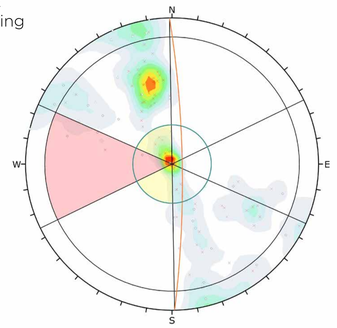
SLOPE 5
Stereonet Plots with Kinematic Analysis

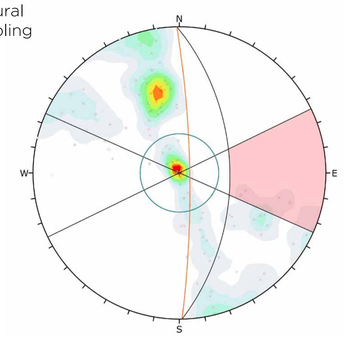
3D Illustration



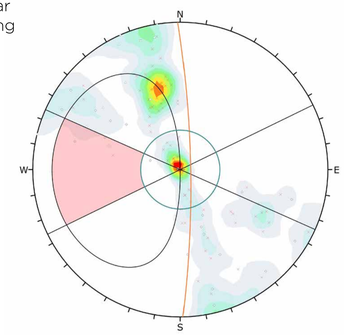
Direct Toppling



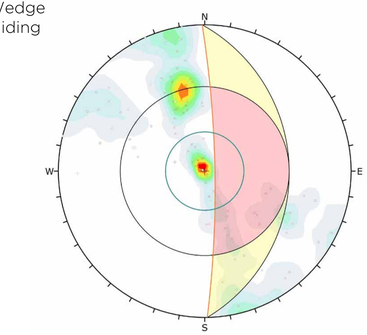
Flexural Toppling



Planar Sliding

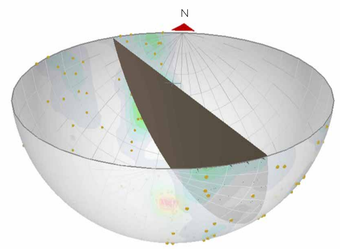


Wedge Sliding



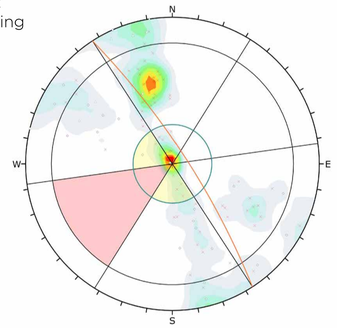
SLOPE 6
Stereonet Plots with Kinematic Analysis

3D Illustration

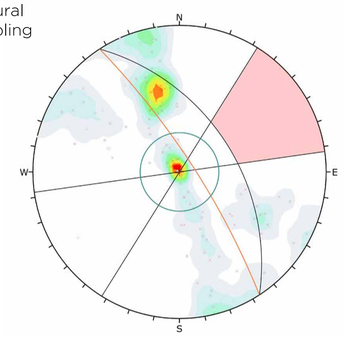


◇ Fracture
× Major Joint
△ Minor Joint

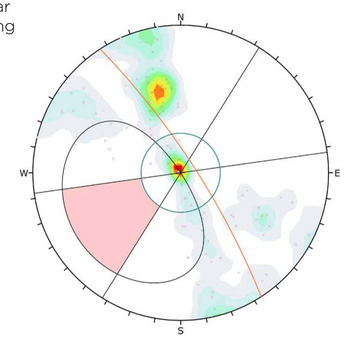
Direct Toppling



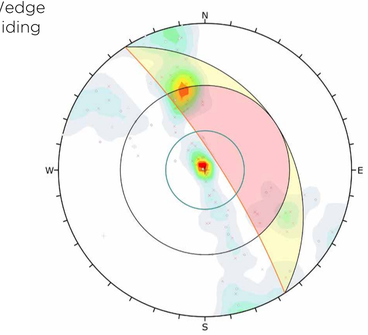
Flexural Toppling

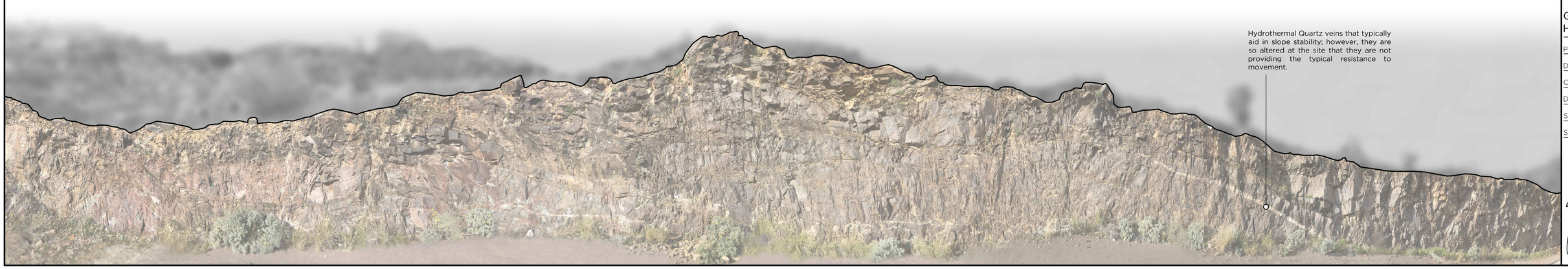


Planar Sliding



Wedge Sliding





VANN ENGINEERING INC

ROCK SLOPE STABILITY, ROCK BOLTING, TECCO MESH, AND CATCH FENCE INSTALLATION REPORT

PROPOSED DEWANJEE RESIDENCE
LA PLACE DU SOMMET, LOT 7
5749 EAST QUARTZ MOUNTAIN ROAD
PARADISE VALLEY, ARIZONA 85253

GEOLOGIC HAZARDS 5+6

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Drawn	SM
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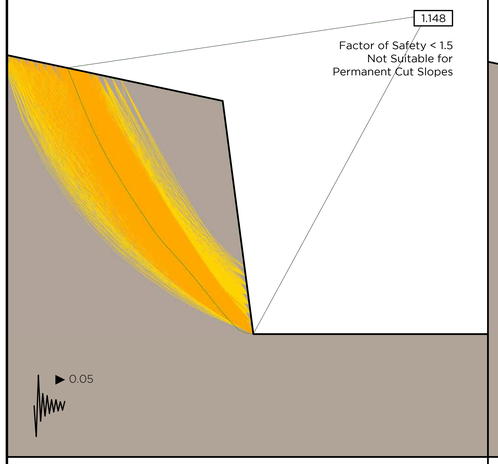
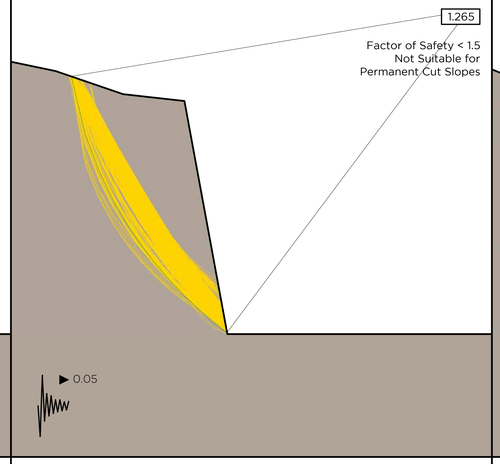
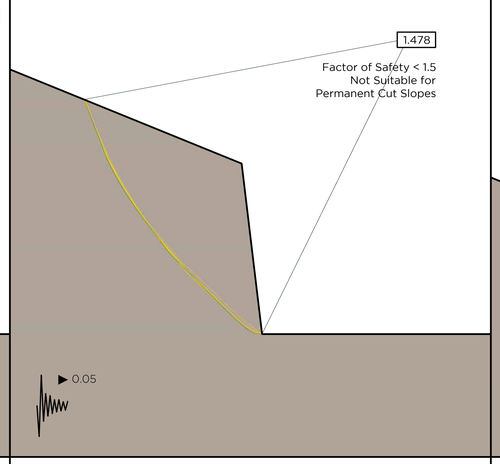
SLOPES 1 AND 2
Existing Condition with an Applied Seismic Force



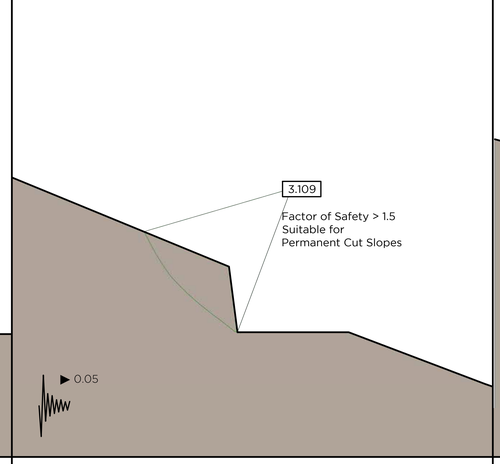
SLOPE 3
Existing Condition with an Applied Seismic Force



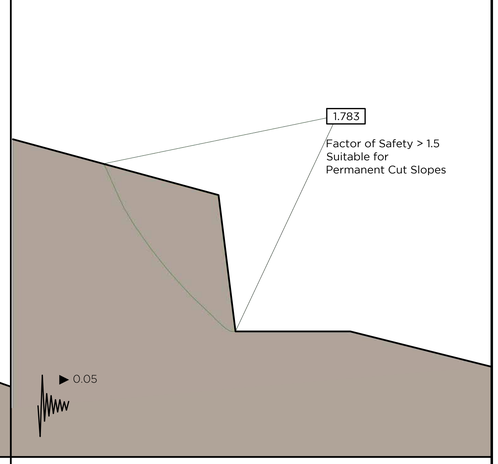
SLOPE 4
Existing Condition with an Applied Seismic Force



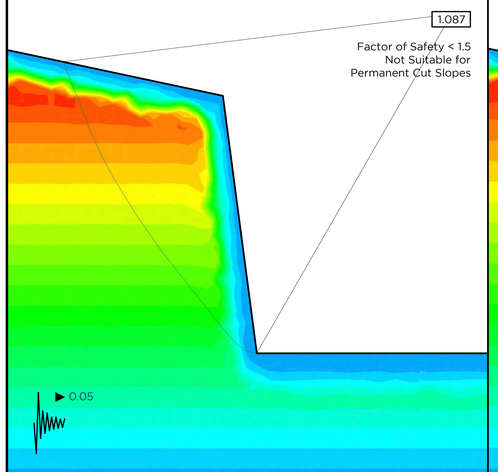
SLOPE 5
Existing Condition with an Applied Seismic Force



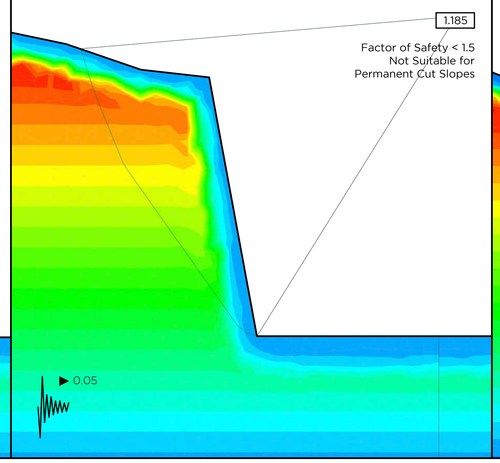
SLOPE 6
Existing Condition with an Applied Seismic Force



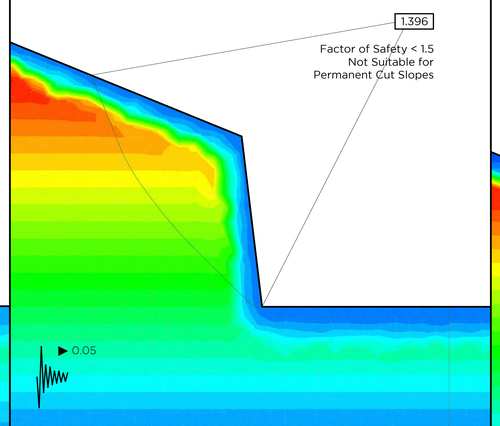
SLOPE 2
Existing Condition Following a Heavy Rainfall Event
with an Applied Seismic Force



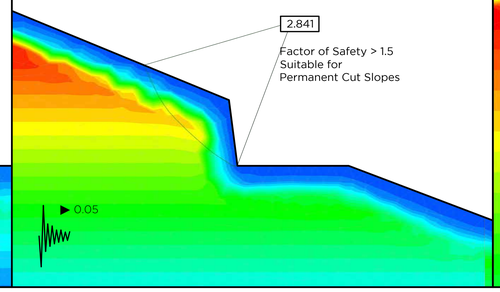
SLOPE 3
Existing Condition Following a Heavy Rainfall Event
with an Applied Seismic Force



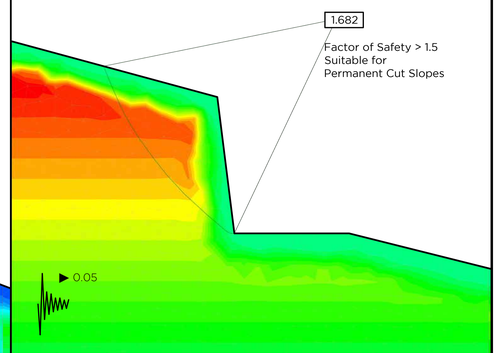
SLOPE 4
Existing Condition Following a Heavy Rainfall Event
with an Applied Seismic Force

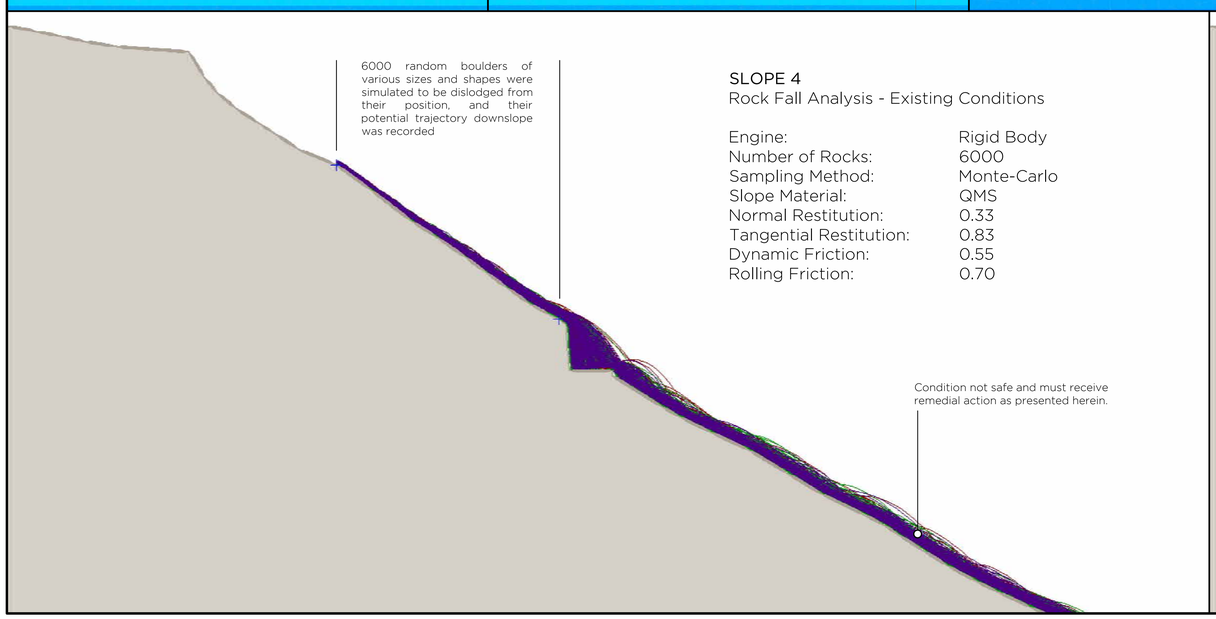


SLOPE 5
Existing Condition Following a Heavy Rainfall Event
with an Applied Seismic Force



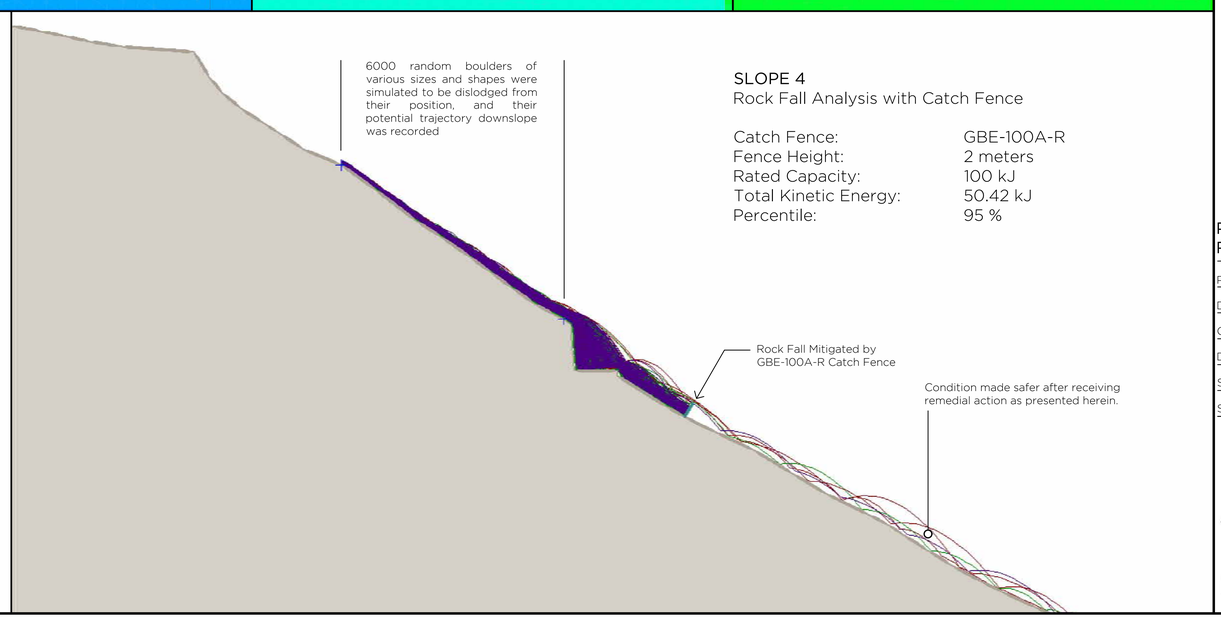
SLOPE 6
Existing Condition Following a Heavy Rainfall Event
with an Applied Seismic Force





SLOPE 4
Rock Fall Analysis - Existing Conditions

Engine:	Rigid Body
Number of Rocks:	6000
Sampling Method:	Monte-Carlo
Slope Material:	QMS
Normal Restitution:	0.33
Tangential Restitution:	0.83
Dynamic Friction:	0.55
Rolling Friction:	0.70



SLOPE 4
Rock Fall Analysis with Catch Fence

Catch Fence:	GBE-100A-R
Fence Height:	2 meters
Rated Capacity:	100 kJ
Total Kinetic Energy:	50.42 kJ
Percentile:	95 %

VANN ENGINEERING INC

ROCK SLOPE STABILITY, ROCK BOLTING, TECCO MESH, AND CATCH FENCE INSTALLATION REPORT
PROPOSED DEWANJEE RESIDENCE
LA PLACE DU SOMMET, LOT 7
5749 EAST QUARTZ MOUNTAIN ROAD
PARADISE VALLEY, ARIZONA 85253

PLANAR AND ROCK FALL

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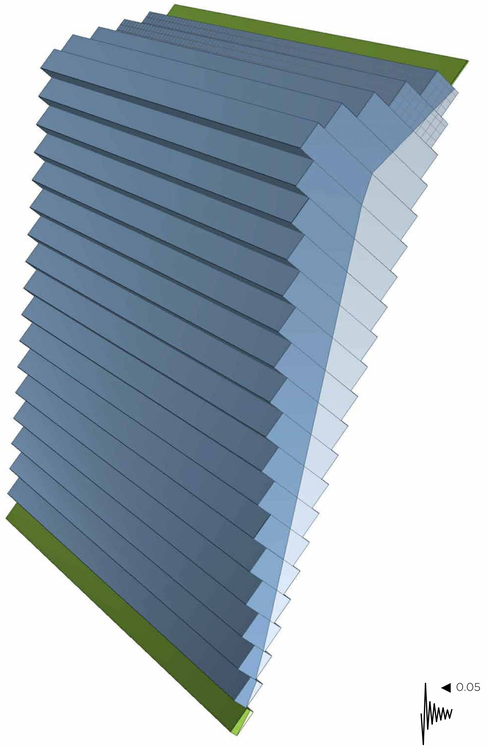
SLOPES 1 AND 2
Toppling Analysis with Applied Seismic Force

Slope Angle	83°
Slope Height	16'-0"
Upper Slope Angle	12°
Joint Spacing	9"
Joint Dip	41-81°
Base Inclination	70°
Factor of Safety	1.063

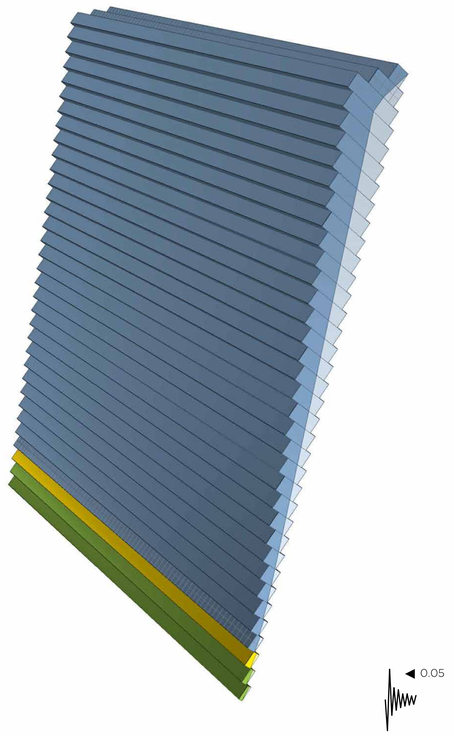
Condition not safe and must receive remedial action as presented herein.



SLOPE 3
Toppling Analysis with Applied Seismic Force

Slope Angle	80°
Slope Height	38'-0"
Upper Slope Angle	6°
Joint Spacing	9"
Joint Dip	36-88°
Base Inclination	75°
Factor of Safety	1.053

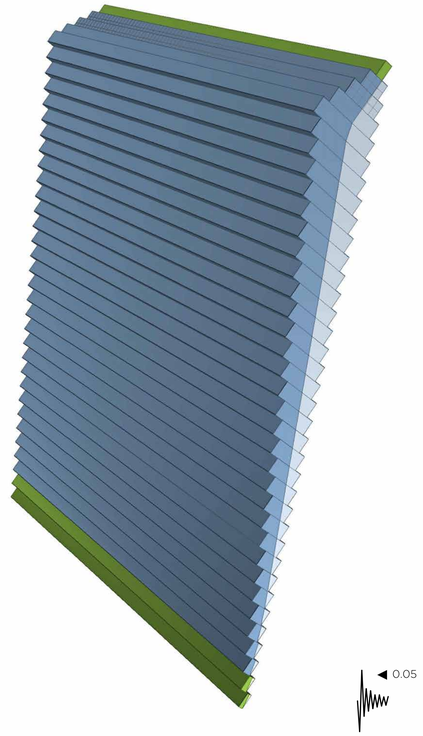
Condition not safe and must receive remedial action as presented herein.



SLOPE 4
Toppling Analysis with Applied Seismic Force

Slope Angle	83°
Slope Height	28'-0"
Upper Slope Angle	22°
Joint Spacing	9"
Joint Dip	40-80°
Base Inclination	77°
Factor of Safety	1.048

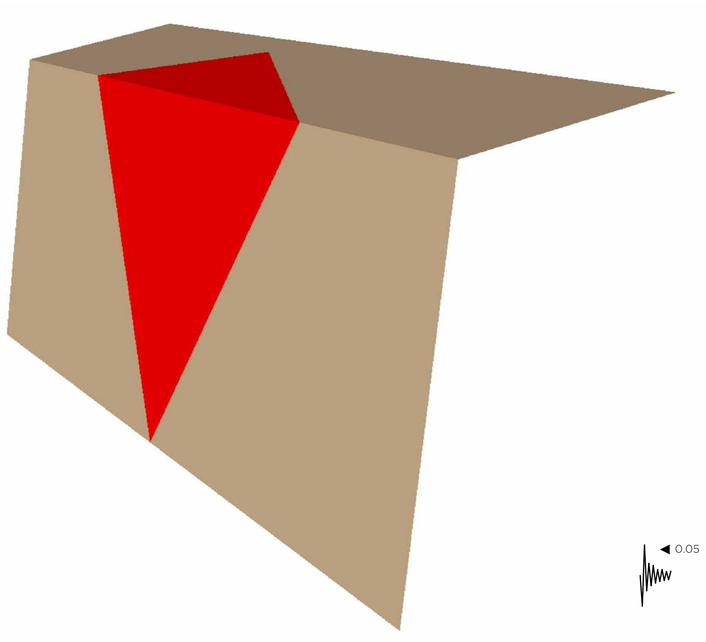
Condition not safe and must receive remedial action as presented herein.



SLOPE 1 AND 2
Wedge Analysis with Applied Seismic Force

Factor of Safety 1.2370

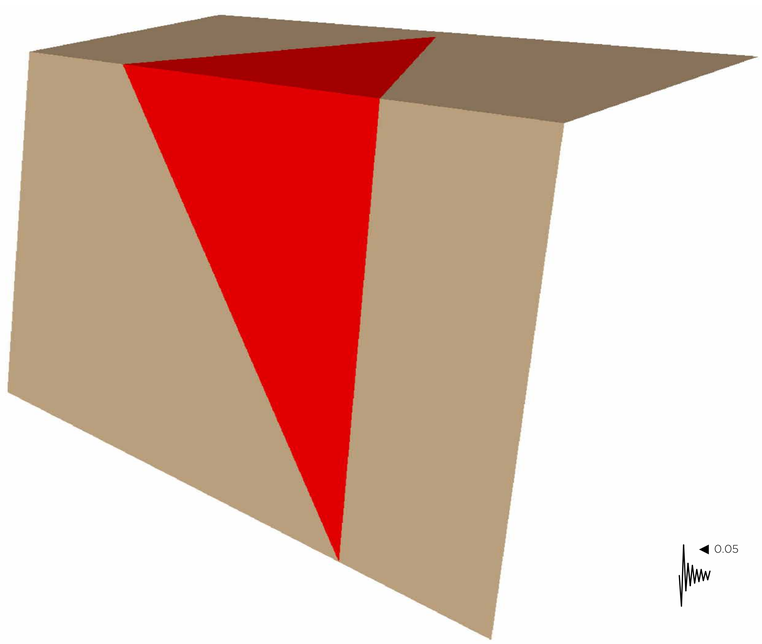
Condition not safe and must receive remedial action as presented herein.



SLOPE 3
Wedge Analysis with Applied Seismic Force

Factor of Safety 1.0545

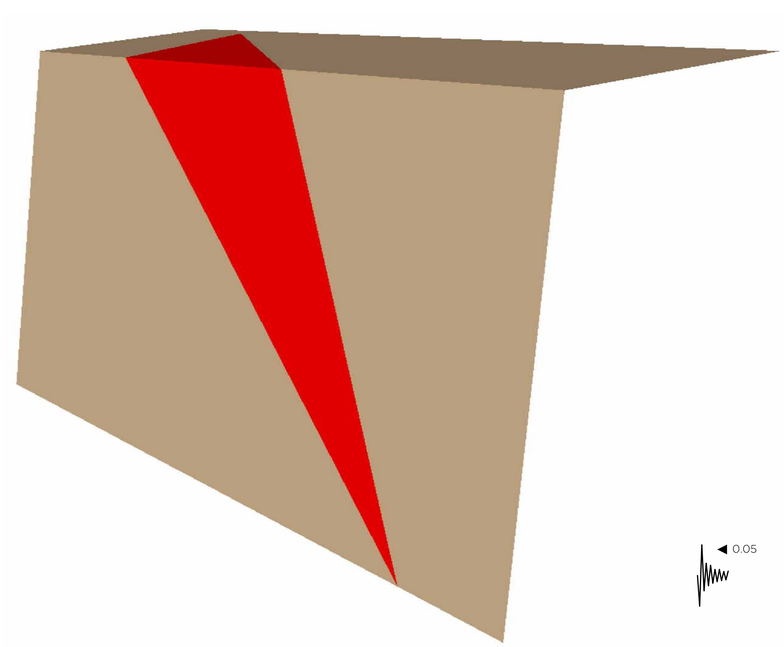
Condition not safe and must receive remedial action as presented herein.



SLOPE 4
Wedge Analysis with Applied Seismic Force

Factor of Safety 1.5505

Condition not safe and must receive remedial action as presented herein.



VANN ENGINEERING INC

ROCK SLOPE STABILITY, ROCK BOLTING, TECCO MESH, AND CATCH FENCE INSTALLATION REPORT

PROPOSED DEWANJEE RESIDENCE
LA PLACE DU SOMMET, LOT 7
5749 EAST QUARTZ MOUNTAIN ROAD
PARADISE VALLEY, ARIZONA 85253

TOPPLE AND WEDGE

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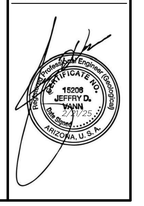
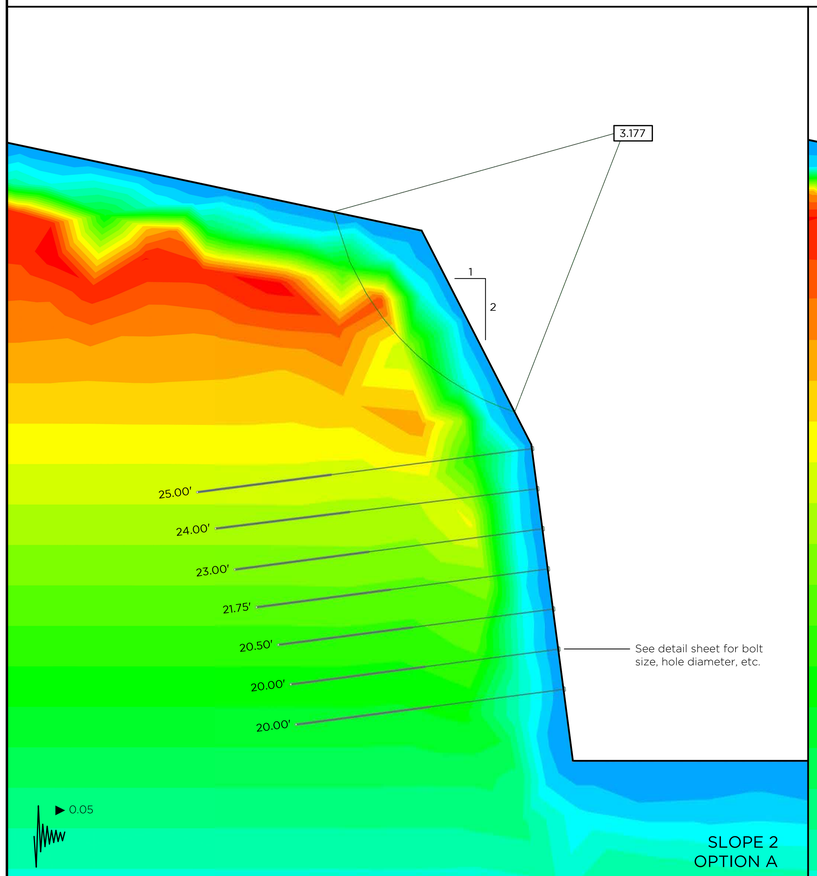
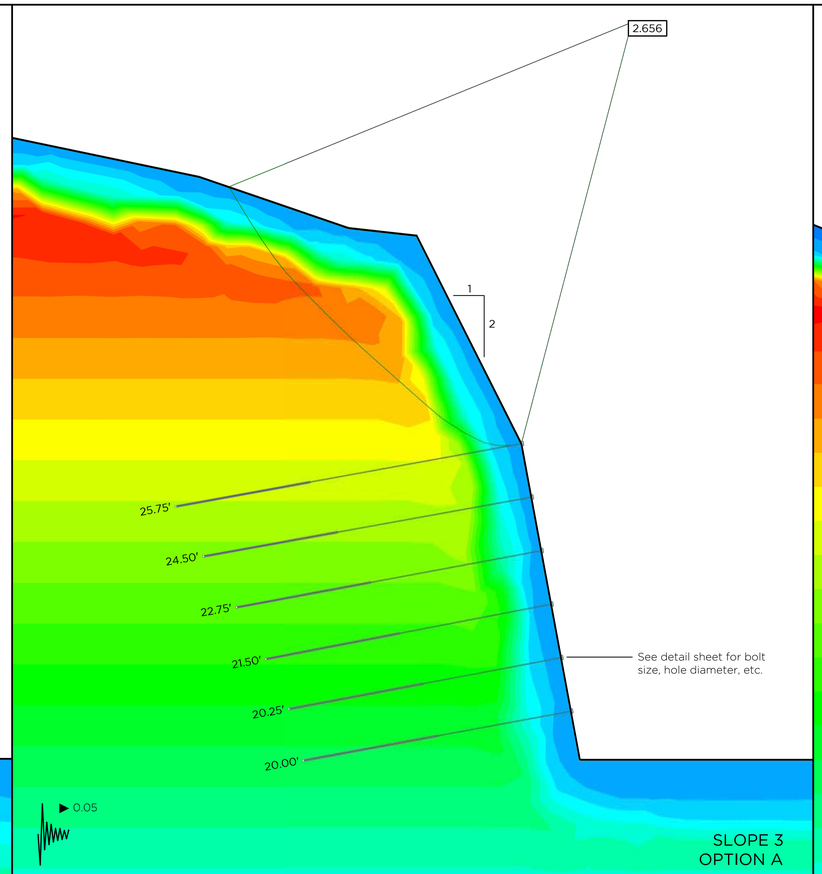


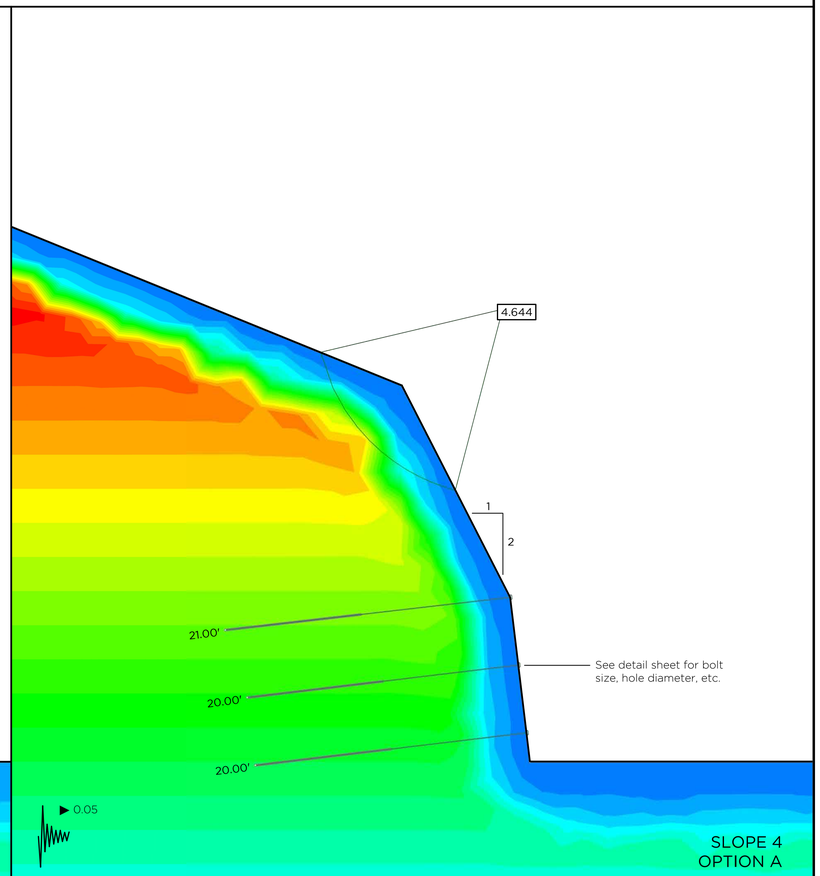
The following models represent a mitigated (Bolted) condition with an applied seismic force following a heavy rainfall event. A detailed limit equilibrium analysis was completed using the program Slide2. Several failure modes and loading scenarios were considered in determination of the presented factors of safety. The GLE / Morgenstern-Price method was chosen due to the ability of the method to take consider both force and moment equilibrium between slices. Any slope with a factor of safety less than 1.5 is considered by this firm to be unstable for permanent slopes. A site specific seismic load is included in the analysis, as well as a transient rainfall analysis. The bolts shall be bonded a minimum of 10.0 feet.. Any boulders or rock fragments within 10'-0" of the crest of the cut slope shall be removed. Prior to any bolting effort, the slopes shall be scaled and power washed to remove any loose debris from the slope of the face and to mitigate the potential for localized failures during the construction process. The lateral spacing of the bolts shall be equal to the vertical spacing, i.e. 3.0 feet for Slope 2, 4.0 feet for Slope 3, and 5.0 feet for Slope 4. Additional spot bolting may be required as determined in the field. Options for a partially laid back slope (1H:2V as defined in the Geotechnical Investigation Report) with bolts, as well as a fully bolted slope, are presented below. It is the understanding of this firm that Slope 1 is to be retained. and will therefore not require bolting.



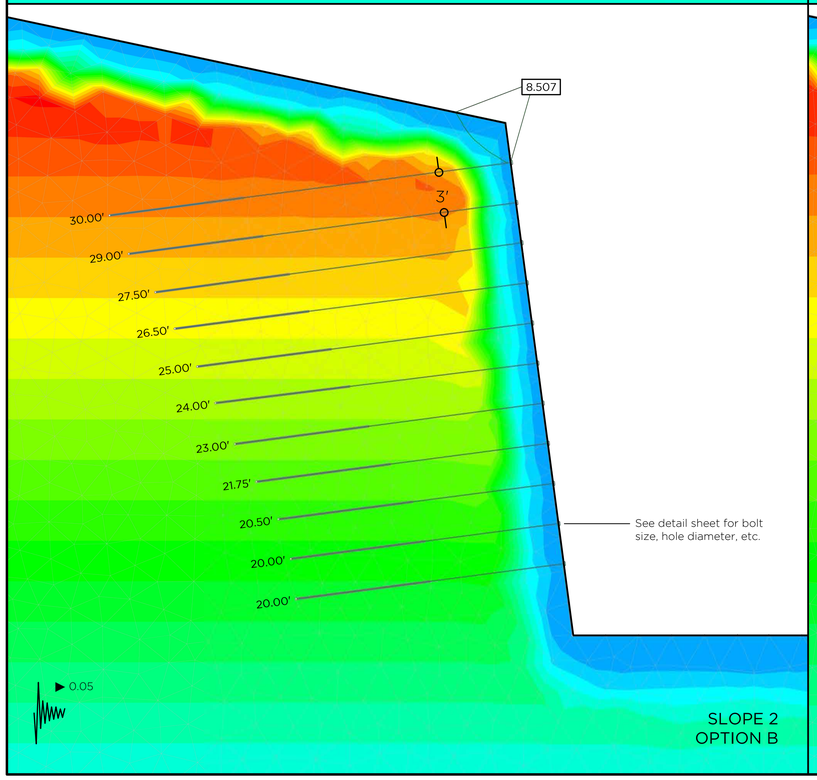
SLOPE 2
OPTION A



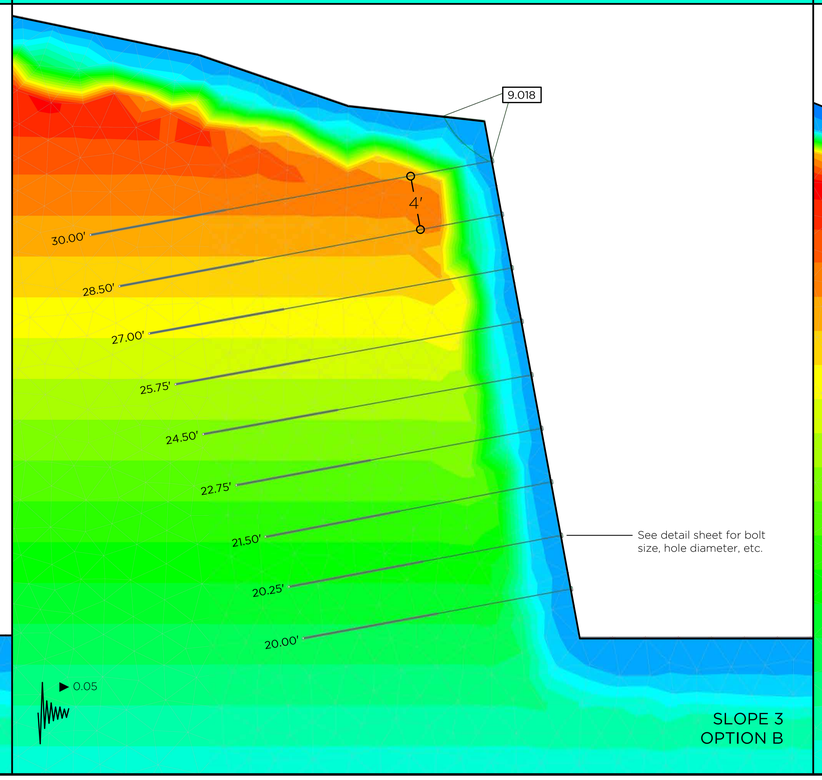
SLOPE 3
OPTION A



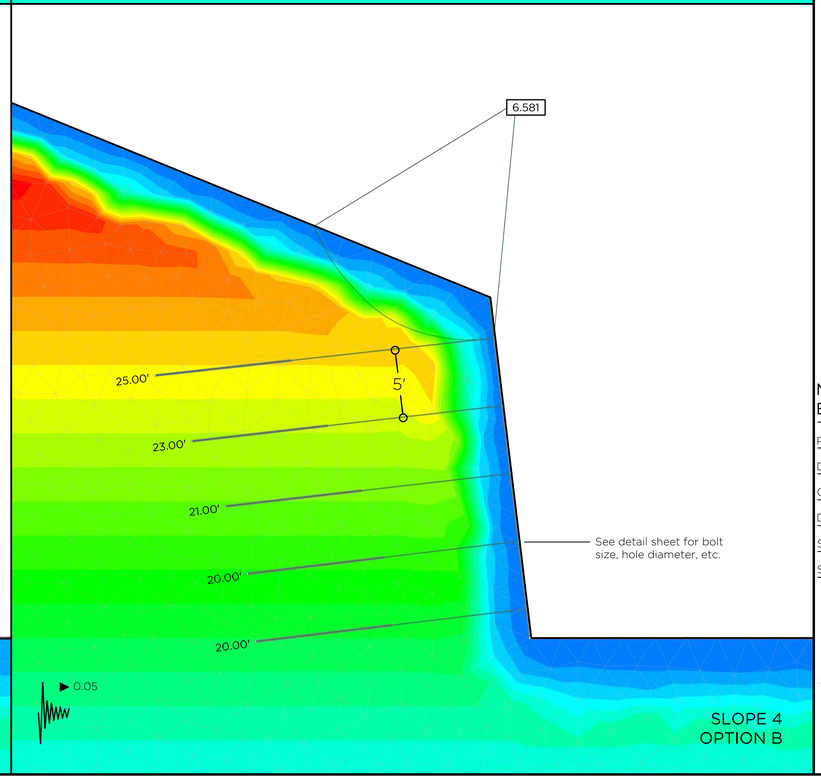
SLOPE 4
OPTION A



SLOPE 2
OPTION B



SLOPE 3
OPTION B



SLOPE 4
OPTION B

YANN ENGINEERING INC

ROCK SLOPE STABILITY, ROCK BOLTING, TECCO MESH, AND CATCH FENCE INSTALLATION REPORT

PROPOSED DEWANJEE RESIDENCE
LA PLACE DU SOMMET, LOT 7
5749 EAST QUARTZ MOUNTAIN ROAD
PARADISE VALLEY, ARIZONA 85253

MITIGATION EFFORTS

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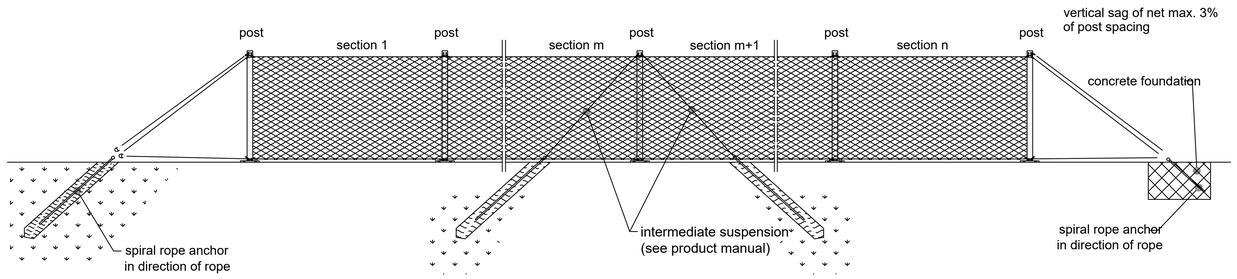
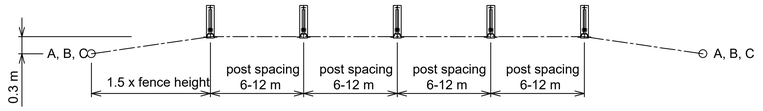
Professional Engineer Jeffry D. Yann
CERTIFICATE NO. 15208
JEFFRY D. YANN
2/21/25
ARIZONA, U.S.A.

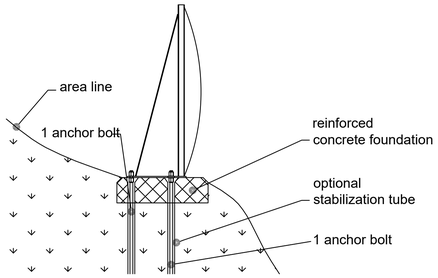


layout of anchor points

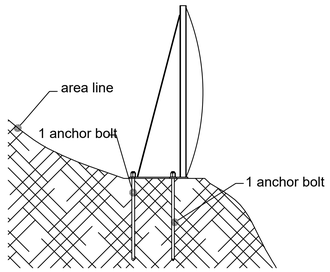
(details see product manual GBE-100A-R)



- anchoring in loose soil: with 2 anchor bolts vertical



- anchoring in bedrock: with 2 anchor bolts vertical



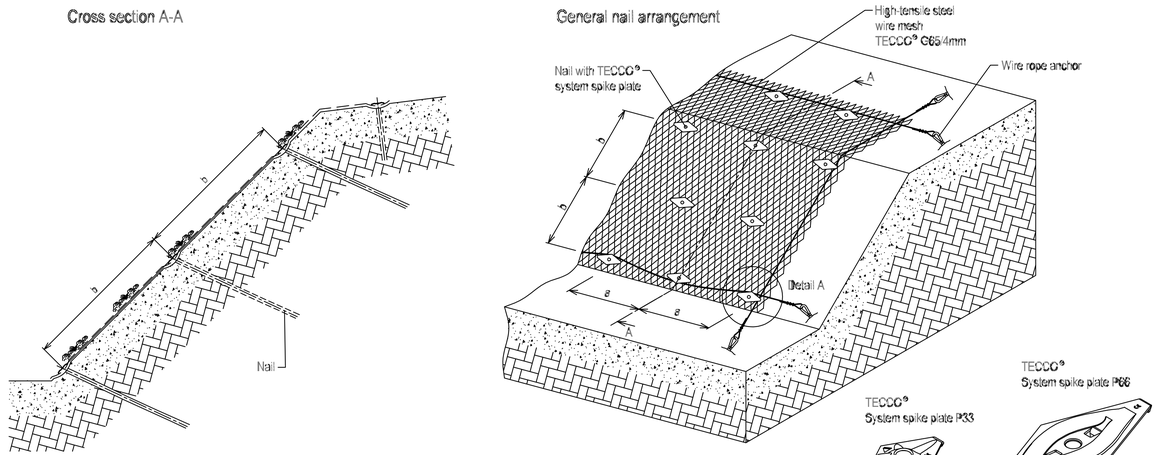
- anchoring concrete foundation: for all types of soil

modification: -	M:%	substitute for: GS-1131e ed. 18.05.16
		replaced by:

Rockfall protection barrier
GBE-100A-R system
EOTA classification 0 (100 kJ)

GEOBRUGG AG
CH-8590 Romanshorn

GS-1131 e

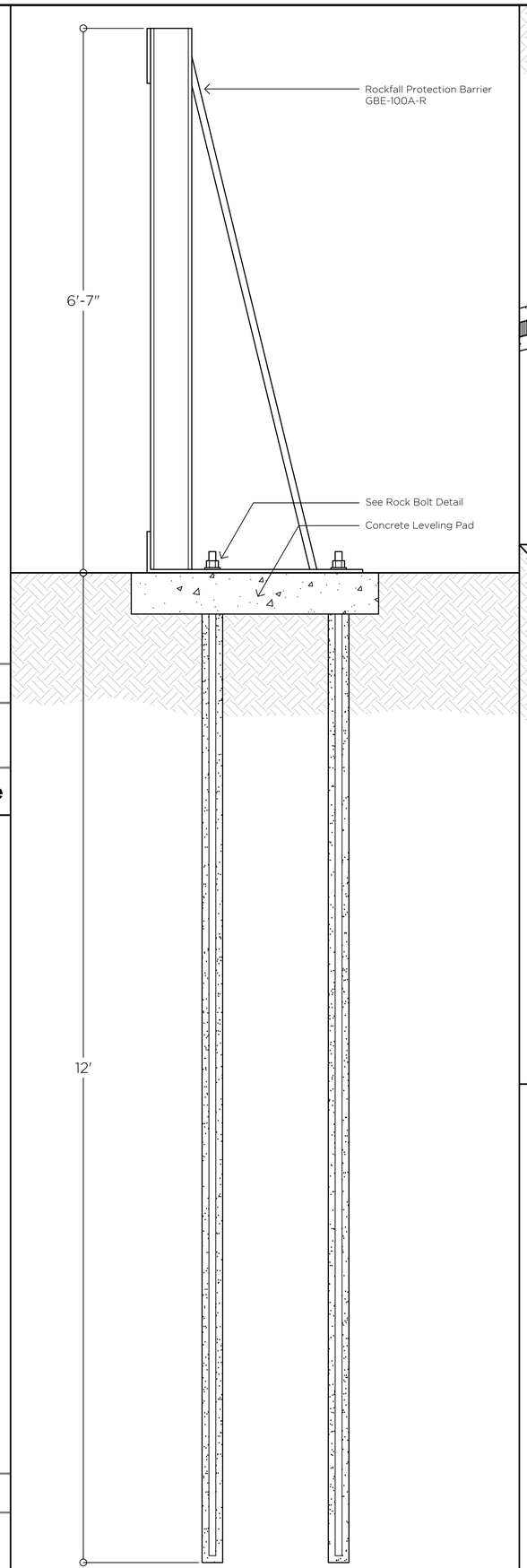


modification: -	M:%	substitute for: GE-1006e ed. 29.07.16
		replaced by:

TECCO® G65/4
System drawing

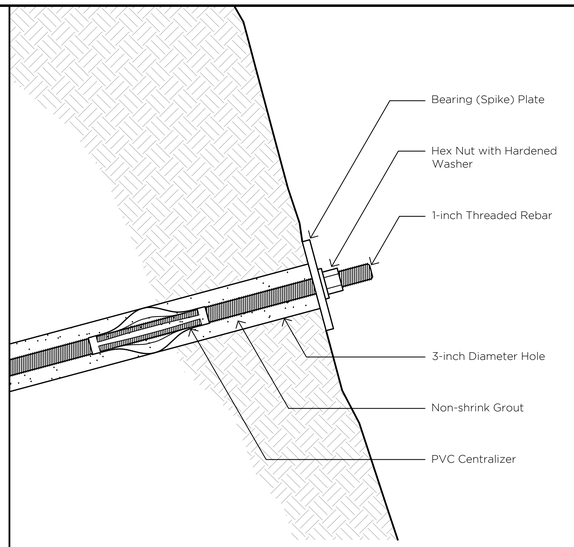
GEOBRUGG AG
CH-8590 Romanshorn

GE-1006 e



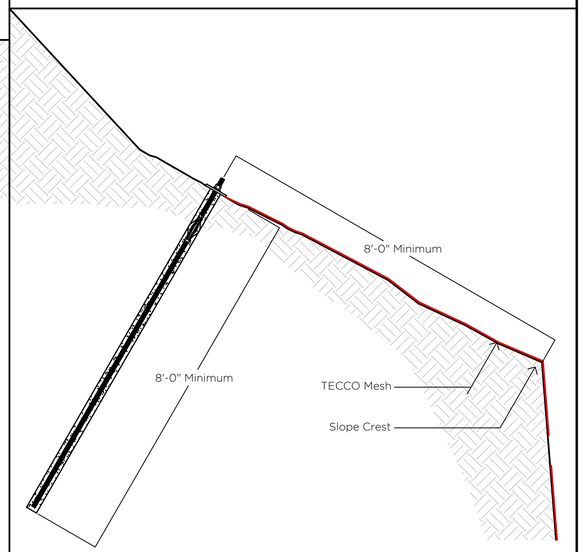
CATCH FENCE ANCHOR DETAIL

1-1/2" = 1'-0"



ROCK BOLT DETAIL

Scale 3" = 1'-0"



TECCO CONNECTION DETAIL

Scale 3/4" = 1'-0"

Note: Rock falls, landslides, and debris flows are sporadic and unpredictable. Causes may be related to human activity (i.e. construction, etc.) or environmental (i.e. weather, earthquakes, etc.). Due to the multiplicity of factors affecting such events, it is not and cannot be an exact science that guarantees the safety of individuals and property.

However, by the application of sound engineering principles to a predictable range of parameters and by the implementation of correctly designed protection measures in identified risk areas the risks of injury and loss of property can be reduced substantially.

Inspection and maintenance of such systems are an absolute requirement to ensure the desired protection level. The system safety can also be impaired by events such as natural disasters, inadequate dimensioning parameters, or failure to use the prescribed standard components, systems original parts; and/or corrosion (caused by pollution of the environment, man-made factors, and external influences.

This report and the recommendations contained herein are predicated on two reports serving in congress; the Geotechnical Hillside Safety Plan and the Geotechnical Investigation Report. This report is, therefore, a portion of the overall study of the site. Due to the uniqueness of each report, the contents are constrained to separate submittals. Notwithstanding, the reports will work together. All reports are identified by the project number 16595.

VANN ENGINEERING INC

ROCK SLOPE STABILITY, ROCK BOLTING, TECCO MESH, AND CATCH FENCE INSTALLATION REPORT

PROPOSED DEWANJEE RESIDENCE
LA PLACE DU SOMMET, LOT 7
5749 EAST QUARTZ MOUNTAIN ROAD
PARADISE VALLEY, ARIZONA 85253

SAFETY AND DETAILS

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INTRODUCTION TO SEISMIC REFRACTION PRINCIPLES

Any disturbance to a soil or rock mass creates seismic waves which are merely the propagation of energy into that mass, manifested by distinct waveforms. There are two basic types of seismic waves; body waves and surface waves.

Body waves are either compression or shear in nature, they penetrate deep into the substrata, and reflect from or refract through the various geologic layers. Any emission of an energy source into a medium exhibits both a compression wave (P Wave) and a shear wave (S Wave). P-Waves propagate in the form of oscillating pulses, traveling forward and backward, parallel to the direction of the wave front. S-Waves propagate in the form of distortional pulses, oscillating perpendicular to the wave front.

P-Waves travel at the highest velocities. Recording instruments that detect an energy transmission will generally observe the arrival of the P-Wave, followed by the S-Wave and surface waves. All geologic materials exhibit P-Wave velocities in certain ranges, which relate to the density, specific gravity, elastic modulus, and moisture content of the specific material. As a material density and specific gravity increase so does its P-Wave velocity. Similarly, an increase in moisture content will cause an increase in P-Wave velocity. Generally, materials exhibiting higher P-Wave velocities will display higher elastic moduli.

In keeping with this relationship, determining the P-Wave velocities for the various subsurface layers, may yield very important and useful data relative to the engineering properties of the individual layers. In order to accomplish this task, methods of investigation, or surveys, were developed to establish the P-Wave velocity for subsurface layers. The method adopted by the Vann Engineering Geophysical team examines the layer velocities, through refraction theory. Assuming that a P-Wave will refract through the various layers, according to the angle of incidence of the propagating wave form and the medium it is traveling through, it is then possible to detect a contrasting subsurface stratum by changes in the velocity of an induced seismic wave.

The procedure is outlined as follows:

A geophone is inserted into the ground or on a rock surface. Attached to it is a recording device. At predetermined intervals away from the geophone, in a linear array, a heavy sledgehammer strikes a stable plate or rock surface. Typically, the intervals of successive hammer impacts range from five to twenty feet. A timing device attached to the hammer, trips a measured recording sweep time, at the moment of impact. The arrival time of the induced P-Wave is measured and recorded at each interval. The length of a survey is closely related to the depth of investigation. Generally, the depth of investigation is approximately equal to one-third the length of the survey. For example, if it is desired to examine the substrata to a depth of twenty feet, the survey should extend a distance of at least sixty feet. Changes in the calculated velocity indicate strata breaks or distinct changes within the same stratum. The important concept to remember with this method is that it is predominantly effective where velocities increase from layer to layer, moving downward from the surface. Analytical methods are also available for determining the depth to the various layers, even in the most complex multi-layer situations.

SUBSURFACE INVESTIGATION

The site subsurface was explored through the utilization of twelve (12) 24-channel refraction seismic survey lines, denoted on the Site Plan in Section II of this report. The seismic survey lines involved the retrieval of data in two separate directions (*forward and reverse*). As such, twenty-four (24) refraction seismic surveys were conducted at the site. The length of each seismic survey line was 72.0 feet, thereby allowing an examination of the subsurface to a depth of 28.0 feet below the existing site grade.

Information pertaining to the subsurface profile was obtained through analysis of seismic refraction data and geological observations of the site. Seismic wave velocities, representative of the various strata, are listed herein. Note: Changes in the calculated velocity indicate strata breaks or distinct changes within the same stratum. The important concept to remember with this method is that it is predominantly effective where velocities increase from layer to layer, moving downward from the surface. Analytical methods are used by this firm for determining the depth to the various layers, even in the most complex multi-layer situations. However, when a denser harder soil or rock layer overlies a weaker or less dense soil or rock layer, the weaker or less dense layer is masked and not detected by the seismograph. Thus, the Cross Sections presented herein may not reveal a possible weaker underlying layer, within or below the depicted layers. If a weaker layer is encountered during the excavation efforts, this office should be contacted immediately for further recommendations.

Generally, the depth of a seismic survey investigation is approximately equal to one-third the length of the survey. For example, if it is desired to examine the substrata to a depth of 20.0 feet, the survey should extend a distance of 60.0 feet. However, seismic survey exploration depths, as mentioned above and depicted on the Cross Sections presented herein, are calculated by using a computer program (SeisImager 2D) that generates cross sections of the subsurface geology at each seismic survey location. Further, total exploration depths, as stated above, of the seismic survey study may vary from one survey line to the next. Furthermore, the calculated depths are dependent on the program's ability to interpret the subsurface layering and are based primarily on the penetration and refraction of the seismic wave into and through the subsurface stratum. Thus, the actual seismic survey exploration depth was 28.0 feet below the existing grade, regardless of the length of the survey lines.

The materials encountered on the subject site are believed to be representative of the total area; however, soil and rock materials do vary in character between points of investigation. The recommendations contained in this report assume that the soil conditions do not deviate appreciably from those disclosed by the investigation. Should unusual material or conditions be encountered during construction, the soil engineer must be notified so that they may make supplemental recommendations if they should be required.

As an additional service, this firm would be pleased to review the project plans and structural notes for conformance to the intent of this report. Vann Engineering, Inc. should be retained to provide documentation that the recommendations set forth are met. These include but are not limited to documentation of site clearing activities, verification of fill suitability and compaction, and inspection of footing excavations. Relative to field density testing, a minimum of 1 field density test should be taken for every 2500 square feet of building area, per 6-inch layer of compacted fill. This firm possesses the capability of performing testing and inspection services during the course of construction. Such services include, but are not limited to, compaction testing as related to fill control, foundation inspections and concrete sampling. Please notify this firm if a proposal for these services is desired.

AUTHORIZATION

The obtaining of data from the site and the preparation of this geotechnical investigation report have been carried out according to this firm's proposal Project 16595 dated 9/11/18, authorized by Sumit Dewanjee on 1/30/19. Our efforts and report are limited to the scope and limitations set forth in the proposal.

STANDARD OF CARE

Since our investigation is based upon review of background data, observation of site materials, and engineering analysis, the conclusions and recommendations are professional opinions. Our professional services have been performed using that degree and skill ordinarily exercised, under similar circumstances, by reputable geotechnical engineers practicing in this or similar localities. These opinions have been derived in accordance with current standards of practice and no other warranty, express or implied, is made.

LIMITATIONS

The materials encountered on the subject site are believed to be representative of the total area; however, soil and rock materials do vary in character between points of investigation. The recommendations contained in this report assume that the soil conditions do not deviate appreciably from those disclosed by the investigation. Should unusual material or conditions be encountered during construction, the soil engineer must be notified so that they may make supplemental recommendations if they should be required.

This report is not intended as a bidding document, and any contractor reviewing this report must draw their own conclusions regarding specific construction techniques to be used on this project. The scope of services carried out by this firm does not include an evaluation pertaining to environmental issues. If these services are required by the lender, we would be most pleased to discuss the varying degrees of environmental site assessments. This report is issued with the understanding that it is the responsibility of the owner to see that its provisions are carried out or brought to the attention of those concerned. In the event that any changes to the proposed project are planned, the conclusions and recommendations contained in this report shall be reviewed and the report shall be modified or supplemented as necessary.

Prior to construction, we recommend the following in conjunction with the Geotechnical Report::

1. Consultation with the design team in all areas that concern soils and rocks to ensure a clear understanding of all key elements contained within this report.

2. Review of the General Structural Notes to confirm compliance to this report and determination of which allowable soil bearing capacity has been selected by the project structural engineer (this directly affects the extent of earthwork and foundation preparation at the site).

3. This firm be notified of all specific areas to be treated as special inspection items (designated by the architect, structural engineer or governmental agency).

Relative to this firm's involvement with the project during the course of construction, we offer the following recommendations:

1. The site or development owner should be directly responsible for the selection of the Geotechnical consultant to provide testing and observation services during the course of construction.

2. This firm should be contracted by the owner to provide the course of construction testing and observation services for this project, as we are most familiar with the interpretation of the methodology followed herein.

All parties concerned should understand that there exists a priority surrounding the testing and observation services completed at the site.

DRAINAGE

The major cause of slope failures in this locality is moisture increase in the joints of the rock. Therefore, it is extremely important that positive drainage be provided during construction and maintained throughout the life of any proposed development.

NOTE

Rock falls, landslides, and debris flows are sporadic and unpredictable. Causes may be related to human activity (i.e. construction, etc.) or environmental (i.e. weather, earthquakes, etc.). Due to the multiplicity of factors affecting such events, it is not and cannot be an exact science that guarantees the safety of individuals and property.

However, by the application of sound engineering principles to a predictable range of parameters and by the implementation of correctly designed protection measures in identified risk areas the risks of injury and loss of property can be reduced substantially.

Inspection and maintenance of such systems are an absolute requirement to ensure the desired protection level. The system safety can also be impaired by events such as natural disasters, inadequate dimensioning parameters, or failure to use the prescribed standard components, systems original parts; and/or corrosion (caused by pollution of the environment, man-made factors, and external influences.

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BOULDER STABILITY
UNDER SEPARTE COVER

VANN ENGINEERING INC

ROCK SLOPE STABILITY, ROCK BOLTING, TECCO MESH, AND CATCH FENCE INSTALLATION REPORT

PROPOSED DEWANJEE RESIDENCE
LA PLACE DU SOMMET, LOT 7
5749 EAST QUARTZ MOUNTAIN ROAD
PARADISE VALLEY, ARIZONA 85253

NOTES AND LIMITATIONS

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Wire mesh with Natina before installation.

Natina Color Examples

Natina chain-link and wildlife fencing before installation

Natina Steel Solution applied in 2012

Closer shot of mesh to see the detail.

CE European Technical Approval ETA-17/0117

BRUGG Geobrugg

TECHNICAL DATA SHEET

High-tensile steel wire mesh TECCO® G65/4

TECCO® high-performance steel wire mesh	
Mesh shape:	rhomboid
Diagonal:	x · y = 3.27 · 5.43 in (+/- 3%)
Mesh width:	D_i = 2.56 in (+/- 3%)
Angle of mesh:	ε = 49°
Total height of mesh:	h_{tot} = 0.59 in (+/- 10%)
Clearance of mesh:	h_i = 0.28 in (+/- 10%)
No. of meshes longitudinal:	n_l = 2.21 pcs/ft
No. of meshes transversal:	n_q = 3.67 pcs/ft

TECCO® steel wire	
Wire diameter:	d = 0.157 in
Tensile strength:	f_t ≥ 256 ksi
Material:	high-tensile steel wire
Tensile resistance of a wire:	Z_w = 4.9 kips

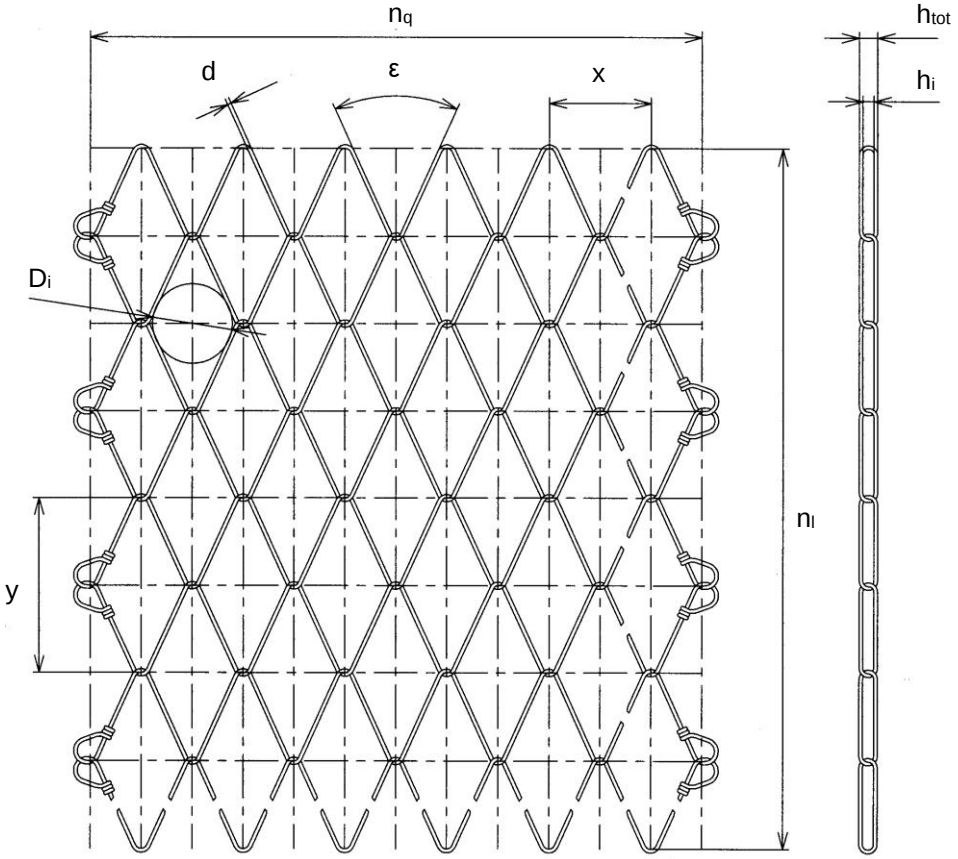
TECCO® corrosion protection	
Corrosion protection:	GEOBRUGG SUPERCOATING
Compound:	95% Zn / 5% Al
Coating:	min. 0.0256 lb/ft²
≤ 5% dark brown rust in salt spray test according to EN ISO 9227:	2'500 hours (ETA-17/0117)

Load capacity	
Tensile strength of mesh:	z_k ≥ 17.1 kips/ft *)
Bearing resistance against puncturing:	D_R ≥ 62.9 lips / 83.2 kips *)
Bearing resistance against shearing-off:	P_R ≥ 31.5 kips / 41.6 kips *)
Bearing resistance against slope-parallel tensile stress:	Z_R ≥ 11.2 kips / 16.9 kips *)
Elongation in longitudinal tensile strength test:	δ < 6.0 % *)
Classification according to EAD 230025-00-0106	group 1, class A (P33 and P66)

TECCO® mesh standard roll	
Roll width:	b_{Roll} = 11.5 ft
Roll length:	l_{Roll} = 65.6 ft
Total surface per roll:	A_{Roll} = 754 ft²
Weight per ft²:	g = 0.676 lbs/ft²
Weight per mesh roll:	G_{Roll} = 510 lbs
Mesh edges:	mesh ends knotted

*) As in EAD 230025-00-0106 and referring to TÜV Rheinland LGA test report 01/2014 using spike plate P33 / P66

TECCO® G65/4



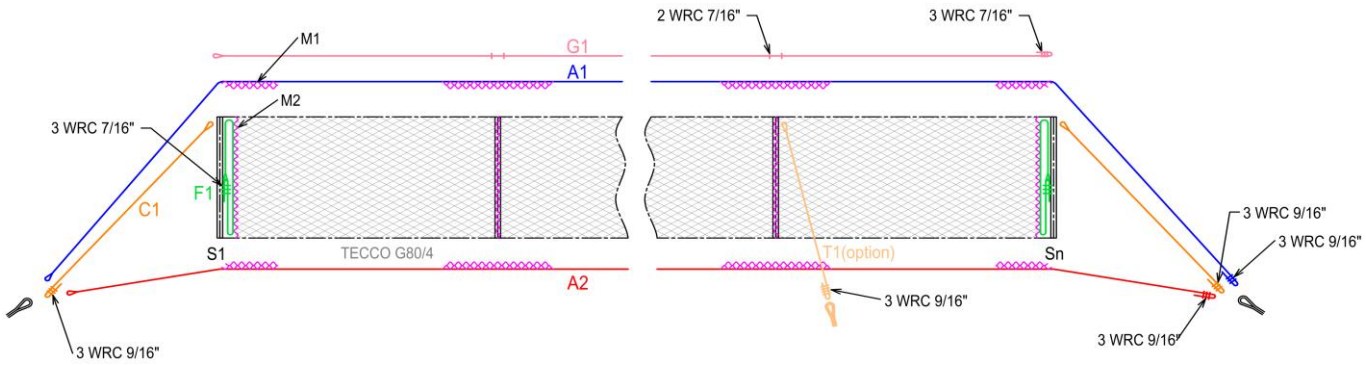
Rockfall, slides, mudflows and avalanches are natural events and therefore cannot be calculated. This is why it is impossible to determine or guarantee absolute safety for persons and property with scientific methods. This means that to provide the protection we strive for, it is imperative to maintain and service protective systems regularly and appropriately. Moreover, the degree of protection can be diminished by events that exceed the absorption capacity of the system as calculated to good engineering practice, failure to use original parts or corrosion (i.e., from environmental pollution or other outside influences).

TECHNICAL DATA SHEET

Rockfall protection barrier GBE-100A-R

Certification details			
System drawing no. / Rope assembly no.	GS-1131 / GS-1212	Residual height MEL / in % of tested height	1.54 m / 78%
Total absorbed energy until total stopping of the block	115 kJ	Residual height SEL 33% / in % of tested height	-
Kinetic energy of the block	106 kJ	Elongation MEL (acc. to ETAG 027)	2.45 m
Energy class acc. EAD-340059-00-0106	0	Braking distance MEL (FOEN)	2.60 m
Energy class acc. FOEN	1	Braking distance SEL 50% (FOEN)	-
Swiss Guideline Certificate (FOEN)	FOEN 14-6	Residual height (category)	Cat. A (> 50%)
European Technical Assessment (ETA)	ETA 15/0304		
Certificate of constancy of performance	1301 - CPR - 1117	**System Specification**	
Certification test layout	vertical drop	Mesh type / Net type	TECCO® G80/4
Weight of test body	320 kg	LATERAL Characteristic anchor force	205 kN
Tested heights	2.0 m	UPSLOPE ANCHOR ROPES Characteristic anchor force	-
Certified heights acc. ETA	2.0 - 2.5 m	Standard heights	2.0 / 2.5 / 3.0 m
Certified heights acc. FOEN	2.0 - 3.0 m	Post spacing (min. / max.)	6 - 12 m

GBE-100A-R



Details see installation manual

Rockfall, slides, mudflows and avalanches are natural events and therefore cannot be calculated. This is why it is impossible to determine or guarantee absolute safety for persons and property with scientific methods. This means that to provide the protection we strive for, it is imperative to maintain and service protective systems regularly and appropriately. Moreover, the degree of protection can be diminished by events that exceed the absorption capacity of the system as calculated to good engineering practice, failure to use original parts or corrosion (i.e., from environmental pollution or other outside influences).