

STRUCTURAL GENERAL NOTES:

1. GENERAL:

- A. THE CONTRACTOR IS RESPONSIBLE FOR:
- 1) DIMENSIONS TO BE CONFIRMED AND CORRELATED AT THE JOBSITE.
  - 2) INFORMATION THAT PERTAINS SOLELY TO THE FABRICATION PROCESSES OR TO THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION.
  - 3) COORDINATION OF THE WORK WITH THAT OF ALL OTHER TRADES AND PERFORMING ALL WORK IN A SAFE AND SATISFACTORY MANNER.
  - 4) DEVIATION FROM CONTRACT DOCUMENTS.

- B. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING SUCH REQUIREMENTS INTO THE SHOP DRAWINGS AND WORK.

- C. NEITHER OPENINGS NOR NOTCHES SHALL BE MADE IN ANY STRUCTURAL BEAM, JOIST, COLUMN, SUPPORT FLOOR, LOAD BEARING WALL OR PANEL, FOOTING OR FOUNDATION WALL WITHOUT THE APPROVAL OF THE ARCHITECT/ENGINEER. OPENINGS IN NON-LOAD BEARING WALLS REQUIRE THE ARCHITECTS APPROVAL.

- D. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED UPON NEW STRUCTURAL FRAMING. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED.

- E. GENERAL CONTRACTOR SHALL COORDINATE INSTALLATION OF THE REQUIRED INSERTS WITH THE MECHANICAL CONTRACTOR. SEE MECHANICAL DRAWINGS FOR SUPPORTING STRUCTURE AND INSERTS. MECHANICAL CONTRACTOR SHALL FURNISH ALL NECESSARY STRUCTURES FOR MECHANICAL EQUIPMENT AND ALL NECESSARY HANGING DEVICES AND INSERTS FOR INSTALLATION OF MECHANICAL EQUIPMENT.

- F. CONSULT MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL CHASES, SLEEVES, OPENINGS, DUCTS, ETC., AS REQUIRED.

- G. WHERE CONFLICTS OCCUR BETWEEN SPECIFICATIONS, NOTES, REFERENCED CODES, REFERENCED STANDARDS AND WORKING DRAWINGS, THE MOST STRINGENT REQUIREMENT SHALL APPLY.

- H. FIREPROOFING METHODS AND MATERIALS FOR STRUCTURAL MEMBERS ARE NOT SHOWN ON STRUCTURAL DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR FIRE RATING REQUIREMENTS, FIREPROOFING METHODS AND MATERIALS.

- I. SEISMIC RESTRAINT AND SEISMIC BRACING ELEMENTS FOR NON-STRUCTURAL ITEMS INCLUDING CEILING SYSTEMS, ARE NOT SHOWN ON STRUCTURAL DRAWINGS. REFER TO ITEMS APPLICABLE DRAWINGS AND SPECIFICATIONS FOR SUCH WORK.

- J. SECTIONS AND DETAILS NOT SPECIFICALLY NOTED, SHALL BE CONSTRUCTED PER SECTIONS AND DETAILS SHOWN MOST APPLICABLE.

K. SUBMITTALS

- 1) SHOP DRAWINGS SHALL BE FURNISHED AND REVIEWED PRIOR TO ANY FABRICATION OR ERECTION. THE CONTRACTOR SHALL REVIEW AND APPROVE SHOP DRAWINGS PRIOR TO SUBMITTING TO THE ARCHITECT FOR REVIEW. POORLY EXECUTED DRAWINGS WILL BE REJECTED AND SHALL BE RESUBMITTED.
- 2) ELECTRONIC SUBMITTALS ARE ACCEPTABLE PROVIDED THE FOLLOWING CONDITIONS ARE MET:
  - A) CONTRACTOR SHALL REVIEW AND STAMP SUBMITTALS AS FOLLOWS
    - 1: FABRICATION SHOP DRAWINGS: EACH SHEET SHALL BEAR THE CONTRACTOR'S REVIEW STAMP
    - 2: MIX DESIGN, ACCESSORIES SUBMITTALS, COMPLIANCE REPORTS, ETC.: THE FIRST SHEET OF THE SUBMITTAL SHALL BEAR THE CONTRACTOR'S REVIEW STAMP.
  - B) THE SUBMITTAL SHALL BE AN ELECTRONIC SCAN OF THE CONTRACTOR'S REVIEWED SUBMITTAL. THE ELECTRONIC SCAN SHALL BE MADE IN .PDF FORMAT. THE SCAN SHALL INCLUDE CONTRACTOR'S REVIEW STAMP AND, IF APPLICABLE, ANY REMARKS ON THE SUBMITTAL MADE BY THE CONTRACTOR.
  - C) "COVER-ALL" STAMPS ON A TRANSMITTAL LETTER WILL NOT BE CONSIDERED TO BE IN COMPLIANCE WITH PART A OF THIS SECTION.
  - D) FAILURE TO COMPLY WITH THE ITEMS OF THIS SECTION WILL NOT BE REVIEWED AND RETURNED AS A "REJECTED" SUBMITTAL
  - E) HIGH DESERT STRUCTURAL ENGINEERING LLC. WILL RETURN ONE REVIEWED HARD-COPY OF THE SUBMITTAL WITH A SHEET SIZE LARGER THAT 11X17. SHEET SIZES 11X17 & SMALLER WILL BE RETURNED IN .PDF FORMAT. HIGH DESERT STRUCTURAL ENGINEERING LLC. WILL NOT BE RESPONSIBLE FOR DISTRIBUTION OF THE SUBMITTAL.

2. BUILDING CODES AND STANDARDS:

- A. 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY 2015 NMBRC
- B. AMERICAN SOCIETY OF CIVIL ENGINEERS STANDARD ASCE 7
- C. AMERICAN INSTITUTE OF STEEL CONSTRUCTION 14TH EDITION: "MANUAL OF STEEL CONSTRUCTION"
- D. AMERICAN INSTITUTE OF CONCRETE INSTITUTE 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE"
- E. AMERICAN CONCRETE INSTITUTE ACI 530: "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES"
- F. ANCI/NF&PA NDS "NATIONAL DESIGN STANDARD FOR WOOD CONSTRUCTION."
- G. AMERICAN INSTITUTE OF TIMBER CONSTRUCTION: "TIMBER CONSTRUCTION MANUAL"

3. DESIGN LOADS: OCCUPANCY CATEGORY: II

- A. LIVE LOADS (LIVE LOAD REDUCTION PER IBC 1607.10)
- 1) ROOF 20 PSF
  - 2) FLOORS 50 PSF
  - 3) CORRIDORS 100 PSF

- B. SNOW LOADS
- 1) FLAT ROOF SNOW LOAD PF: 1020 PSF
  - 2) FACTORS:
$$CE = 1.2$$
$$CT = 1.0$$
$$I = 1.0$$
$$PG = 121.4 \text{ PSF}$$
  - 3) GROUND SNOW LOAD

- C. WIND LOAD
- 1) BASIC WIND SPEED 115 MPH 3 SECOND GUST
  - 2) RISK CATEGORY II
  - 3) EXPOSURE B
  - 4) GABLE ROOF
  - 5) ZONE 1 13.7/-21.8 PSF
  - 6) ZONE 2 13.7/-37.9 PSF
  - 7) ZONE 3 13.7/-56.0 PSF
  - 8) ZONE 4 23.8/-25.8 PSF
  - 9) ZONE 5 23.8/-31.9 PSF

- D. SEISMIC DESIGN
- 1) FACTOR
$$I = 1.0$$
$$SDS = 0.395$$
$$SS = 0.400$$
$$SD1 = 0.182$$
$$S1 = 0.117$$
$$SITE CLASS: C$$
  - 2) SEISMIC DESIGN CATEGORY: PER ASCE 7-10 TABLE 12.2-1: PART 2
  - 3) SEISMIC RESISTING SYSTEM: V = 14,280 LBS
  - 4) SEISMIC BASE SHEAR: CS=0.061
  - 5) SEISMIC RESPONSE COEFFICIENT: R= 6.5
  - 6) RESPONSE MODIFICATION FACTOR (S): R= 6.5
  - 7) ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE

4. SOIL DESIGN PARAMETERS:

- A. ALLOWABLE BEARING CAPACITY: 3000 PSF (ASSUMED)

5. CONCRETE

A. MATERIALS

- 1) 28 DAY STRENGTH:
  - A) EXTERIOR, EXPOSED TO WEATHER  $f'c = 4000 \text{ PSI}$  AIR ENTRAINED
  - B) OTHER  $f'c = 3000 \text{ PSI}$
- 2) CEMENT ASTM C150 TYPE I-II
- 3) FINE AND COARSE AGGREGATE ASTM C33
- 4) AIR ENTRAINING ADMIXTURE ASTM C260
- 5) WATER REDUCING ADMIXTURE ASTM C494 TYPE A
- 6) CURING COMPOUND ASTM C309
- 7) MIXING AND DELIVERY ASTM C94
- 8) CONCRETE ANCHORS ASTM A307
- 9) CONCRETE REINFORCEMENT ASTM A615 GR 60
- 10) CONCRETE EXPANSION ANCHORS FED SPEC. A-A-55614

B. SPECIFICATIONS:

- 1) ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 301.
- 2) ALL HOT WEATHER CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 305.
- 3) ALL COLD WEATHER CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 306.
- 4) FORMWORK SHALL BE IN ACCORDANCE WITH ACI 347. PROVIDE CLASS A TOLERANCE FOR CONCRETE SURFACES EXPOSED TO VIEW. PROVIDE CLASS C TOLERANCE FOR OTHER CONCRETE SURFACES.

C. FORMING:

- 1) FORM ALL STEM WALLS, PEDESTALS AND GRADE BEAMS.
- 2) FOOTINGS MAY BE POURED AGAINST EXCAVATED TRENCH WALLS PROVIDED TRENCH WALLS ARE STABLE, WITHOUT SLOUGHING OF SOIL.

D. FOOTINGS:

- 1) UNLESS DIMENSIONED OTHERWISE, CENTER CONTINUOUS FOOTINGS ON WALL.
- 2) WHERE COLUMN AND WALL FOOTINGS INTERSECT, CAST THESE MONOLITHIC AND CONTINUE WALL FOOTING REINFORCING THROUGH THE COLUMN FOOTING.
- 3) CENTER COLUMN FOOTINGS ABOUT COLUMN CENTER LINES BOTH WAYS, UNLESS DIMENSIONED OTHERWISE.
- 4) ALL FOOTINGS SHALL BEAR AT THE MINIMUM DEPTH REQUIRED BY THE LOCAL BUILDING OFFICIAL OR THE MINIMUM DEPTH SHOWN ON THESE DRAWINGS, WHICHEVER IS GREATER.

E. CONCRETE REINFORCING:

- 1) PROVIDE VERTICAL DOWELS IN CONTINUOUS FOOTING, SAME SIZE AND SPACING AS THE VERTICAL WALL STEEL.
- 2) UNLESS NOTED OR DETAILED, PROVIDE CORNER BARS THE SAME SIZE AND SPACING AS THE HORIZONTAL REINFORCING AT THE CORNERS AND INTERSECTION OF ALL WALLS, BEAMS, AND FOOTINGS.
- 3) UNLESS OTHERWISE NOTED, REBAR LAP SPLICES SHALL BE 40 BAR DIAMETER. WELDING OF REINFORCING IS NOT PERMITTED WITHOUT PRIOR APPROVAL BY ENGINEER.

F. SLABS ON GRADE:

- 6) UNLESS OTHERWISE NOTED, PROVIDE #3 STEEL REINFORCING BARS SPACED AT 16 INCHES ON CENTER EACH WAY, CHAIRED AT MID-DEPTH OF OF SLAB. HOOKING OR LIFTING OF REINFORCING DURING SLAB POUR WILL NOT BE PERMITTED.
- 7) CONTRACTION JOINTS MAY BE SAWCUT JOINTS WITHIN 12 HOURS OF CONCRETE PLACEMENT OR PLACE METAL KEYED TYPE JOINTS.
- 8) WHERE THICKENED SLAB IS INTERRUPTED BY SLAB JOINT, PROVIDE 2 #4 DOWELS THROUGH JOINT. PROVIDE PAPER OR POLYSLLEEVE AND GREASE FOR DOWELS ON ONE SIDE OF JOINT.
- 9) PROVIDE (3)-#4 REBARS BY 4'-0" LONG SPACED AT 4" ON CENTER, DIAGONALLY PLACED AT ALL NON-JOINTED, RE-ENTRANT SLAB CORNERS.
- 10) MAINTAIN SURFACE FLATNESS, WITH A MAXIMUM VARIATION OF 1/8" IN 10 FEET.
- 11) IN AREAS WITH FLOOR DRAINS, MAINTAIN FLOOR LEVEL AT WALLS AND SLOPE SURFACES UNIFORMLY TO DRAINS.
- 12) CONSTRUCT SLABS OVER A MINIMUM OF 4 INCHES OF COMPACTED GRANULAR FILL.

G. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR CAST-IN-PLACE CONCRETE REINFORCEMENT:

- 1) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3 INCH
- 2) CONCRETE EXPOSED TO EARTH OR WEATHER:
  - A) #6 THROUGH #11 BARS 2 INCH
  - B) #5 BAR AND SMALLER 1-1/2 INCH
- 3) CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
  - A) SLABS, WALLS, JOISTS #11 BAR AND SMALLER 3/4 INCH
  - B) BEAMS, COLUMNS: PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS 1-1/2 INCH

I. CURING:

- 1) MAINTAIN CONCRETE WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.

J. QUALITY CONTROL:

- 1) MIX DESIGNS:
  - A) ENGAGE A QUALIFIED TESTING LABORATORY TO PERFORM MATERIAL EVALUATION AND DESIGN CONCRETE MIXES, AND TO PERFORM TESTING DURING CONCRETE PLACEMENT. SUBMIT WRITTEN REPORTS TO ARCHITECT/ENGINEER OF EACH PROPOSED MIX FOR EACH CLASS OF CONCRETE AT LEAST 15 DAYS PRIOR TO START OF WORK. DO NOT BEGIN CONCRETE PRODUCTION UNTIL PROPOSED MIX DESIGNS HAVE BEEN REVIEWED BY ARCHITECT/ENGINEER.
  - C) SLUMP LIMITS: MIXES TO RESULT IN THE CONCRETE PLACEMENT AS FOLLOWS:
    - 1: RAMPS, SLABS, AND SLOPING SURFACES: NOT MORE THAN 3 INCHES
    - 2: REINFORCED FOUNDATION SYSTEMS: NOT LESS THAN 1 INCH AND NOT MORE THAN 3 INCHES
    - 3: CONCRETE CONTAINING HIGH-RANGE, WATER REDUCING ADMIXTURE (SUPERPLASTICIZER) OR SCC ADMIXTURE: NOT MORE THAN 8 INCHES AFTER ADDING ADMIXTURE TO SITE. VERIFIED 2-TO-3 INCH SLUMP CONCRETE.
    - 4: OTHER CONCRETE: NOT MORE THAN 4 INCHES.
- 2) SAMPLING AND TESTING DURING CONCRETE PLACEMENT:
  - A) SAMPLING FRESH CONCRETE: ASTM C 172, EXCEPT MODIFIED FOR SLUMP TO COMPLY WITH ASTM C 94
  - 1: SLUMP: ASTM C 143; ONE TEST AT POINT OF DISCHARGE FOR EACH DAYS POUR OF EACH TYPE OF CONCRETE; ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY SEEMS TO HAVE CHANGED.
  - 2: AIR CONTENT: ASTM C 173; VOLUMETRIC METHOD FOR LIGHT OR NORMAL WEIGHT CONCRETE. ASTM C231; PRESSURE METHOD FOR NORMAL WEIGHT CONCRETE; ONE FOR EACH DAYS POUR OF EACH TYPE OF AIR ENTRAINED CONCRETE.
  - 3: CONCRETE TEMPERATURE: ASTM C 1064; ONE TEST HOURLY WHEN TEMPERATURE IS 40 DEG. F (4 DEG. C) AND BELOW OR WHEN 80 DEG. F (27 DEG. C) AND ABOVE; AND ONE TEST FOR EACH SET OF COMPRESSIVE STRENGTH SPECIMENS

- 4: COMPRESSION TEST SPECIMEN: ASTM C31; ONE SET OF FOUR STANDARD CYLINDERS FOR EACH COMPRESSIVE STRENGTH TEST, UNLESS OTHERWISE DIRECTED. MOLD AND STORE CYLINDERS FOR LABORATORY CURED TEST SPECIMENS EXCEPT WHEN FIELD-CURED TEST SPECIMENS ARE REQUIRED.

B) COMPRESSIVE STRENGTH TESTS:

- 1: ASTM C 39 ONE SET FOR EACH DAYS POUR EXCEEDING 5 CU. YD. PLUS ADDITIONAL SETS FOR EACH 50 CU. YD. MORE THAN THE FIRST 25 CU. YD. OF EACH CONCRETE CLASS PLACED IN ANY ONE DAY; ONE SPECIMEN TESTED AT 7 DAYS, TWO SPECIMENS TESTED AT 28 DAYS, AND ONE SPECIMEN RETAINED IN RESERVE FOR LATER TESTING IF REQUIRED.

- C) WHEN FREQUENCY OF TESTING WILL PROVIDE FEWER THAN FIVE STRENGTH TESTS FOR A GIVEN CLASS OF CONCRETE, CONDUCT TESTING FROM AT LEAST FIVE RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF FEWER THAN FIVE ARE USED.

K. FINISHES:

- 1) REFER TO ARCHITECTURAL DRAWINGS FOR CONCRETE FINISHES AND REQUIRED RECESSES FOR FINISHES.

L. BASEMENT WALLS AND RETAINING WALLS:

- 1) DO NOT BACKFILL AGAINST BASEMENT OR RETAINING WALLS UNTIL CONCRETE AND/OR GROUT HAVE ACHIEVED AT LEAST 80% OF THE SPECIFIED COMPRESSIVE STRENGTH.

- 2) WHERE BASEMENT OR RETAINING WALL PRIMARY VERTICAL REINFORCING IS LOCATED AT THE INSIDE FACE OF WALL (OPPOSITE SIDE FROM EARTH BACKFILL), PROVIDE LATERAL BRACING FOR TOP OF WALL OR COMPLETE THE STRUCTURAL FRAMING (INCLUDING DECK INSTALLATION) TO LATERALLY SUPPORT THE TOP OF WALL PRIOR TO BACKFILLING AGAINST THE WALL.

- 3) WHERE BASEMENT OR RETAINING WALL PRIMARY VERTICAL REINFORCING IS LOCATED AT THE INSIDE FACE OF WALL (OPPOSITE SIDE FROM EARTH BACKFILL), AND THE TOP OF THE WALL IS RESTRAINED BY A CONCRETE SLAB, BRACE THE RETAINING WALL TO LATERALLY SUPPORT THE TOP OF WALL PRIOR TO BACKFILLING AGAINST THE WALL AND UNTIL THE SLAB HAS BEEN PLACED AND CURED A MINIMUM OF 7 DAYS.

6. MASONRY

A. MATERIAL

- 1) CMU  $f'm = 1900 \text{ PSI}$  MEDIUM WEIGHT ASTM C90
- 2) MORTAR TYPE S BY PROPORTION ASTM C270
- 3) GROUT  $f'c = 2000 \text{ PSI}$  ASTM C476
- 4) MASONRY ANCHORS ASTM A307
- 5) MASONRY REINFORCEMENT ASTM A615 GR 60
- 6) MASONRY EXPANSION ANCHORS FED SPEC. A-A-55614

B. UNLESS OTHERWISE NOTED, PROVIDE KNOCK-OUT BOND BEAMS AT 4'-0" O.C. REINFORCING SHALL BE PER SCHEDULE SHOWN ON THE FOLLOWING LIST. PROVIDE CONTINUOUS BOND BEAM TO BE CONCRETE FILLED WITH TWO NO. 5 CONTINUOUS AT TOP OF ALL MASONRY WALLS AND CONTINUOUS ALL SIDES AT ALL JOIST BEARING ELEVATIONS EXTEND VERTICALS THROUGH BOND BLOCK COURSES UNLESS OTHERWISE NOTED OR DETAILED.

SCHEDULE OF MINIMUM WALL REINFORCING

- | VERTICALS            | HORIZONTAL BOND BMS AT 4'-0" O.C. |
|----------------------|-----------------------------------|
| 8" CMU #4 @24" O.C.  | (2)-#4 CONT.                      |
| 10" CMU #5 @24" O.C. | (2)-#4 CONT.                      |
| 12" CMU #5 @24" O.C. | (2)-#5 CONT.                      |

C. UNLESS NOTED OR DETAILED OTHERWISE:

VERTICAL REINFORCING FOR ALL CONCRETE WALLS SHALL BE: "ASTM-A615-60".

ALL CMU WALLS SHALL BE REINFORCED AS FOLLOWS, UNLESS NOTED OTHERWISE:

- #4 (1/2 INCH DIAMETER) REBAR:
- (3) VERTICALS AT ALL CORNERS (ONE IN CORNER CELL AND EACH ADJACENT)
  - (1) VERTICAL AT END OF ALL DISCONTINUOUS WALL RUNS
  - (1) VERTICAL EACH SIDE OF ALL MASONRY WALL OPENINGS
  - (1) VERTICAL AT 24" O.C. IN ALL STRAIGHT WALL RUNS
  - (1) VERTICAL EACH SIDE OF ALL CONTROL JOINTS

PROVIDE VERTICAL DOWELS SAME AS VERTICAL BARS TOP AND BOTTOM OF EACH VERTICAL EXTENDING 30 DIA. INTO ADJUTING CONSTRUCTION 40 DIA. INTO CONCRETE FILLED CELLS.

D. UNLESS SHOWN OTHERWISE:

- PROVIDE MASONRY CONTROL JOINTS, NO. 8 (1 INCH DIAMETER) WIDE FLANGE RAPID CONTROL JOINT ON MASONRY WALLS AT THE FOLLOWING LOCATIONS:
- 1) AT 12'-0" FROM ALL CORNERS
  - 2) AT 32'-0" O.C. IN ALL STRAIGHT WALL RUNS

- E. ALL MASONRY WORK SHALL HAVE A MINIMUM 1/2" CLEARANCE TO STEEL CONSTRUCTION

- F. ALL BELOW GRADE CELLS SHALL BE GROUTED SOLID

G. SPECIAL INSPECTION:

- 1) CONCRETE MASONRY UNITS
  - A) SPECIAL INSPECTION SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE PROGRAM REQUIREMENTS OF TMS 402/ACI 530/ASCE 5 AND TMS 602/ACI 530.1/ASCE 6.

STRUCTURAL EARTHWORK NOTES

THE BUILDING FOUNDATIONS HAVE BEEN BASED UPON THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER'S REPORT BY EARTHWORKS ENGINEERING GROUP, LLC, "1346 NM-150," VILLAGE OF TAOS SKI VALLEY, NM, REPORT NO. A17-705, DATED SEPTEMBER 6, 2017. CONTRACTOR SHALL OBTAIN A COPY OF THIS REPORT AND ALL AMENDMENTS THERETO AND BECOME FAMILIAR WITH THE SOILS REPORT AND THE REQUIREMENTS CONTAINED THEREIN.

- A. TESTING SERVICE: THE CONTRACTOR SHALL EMPLOY A QUALIFIED INDEPENDENT GEOTECHNICAL ENGINEERING TESTING AGENCY (GEOTECHNICAL ENGINEER) TO CLASSIFY PROPOSED ON-SITE AND BORROW SOILS TO VERIFY THAT SOILS COMPLY WITH SPECIFIED REQUIREMENTS AND TO PERFORM REQUIRED FIELD AND LABORATORY TESTING. WHERE FOUNDATIONS OR FLOOR SLABS ARE TO BE SUPPORTED ON ENGINEERED FILL, CONTINUOUS TESTS OF GRADING OPERATIONS SHALL BE MADE BY THE GEOTECHNICAL ENGINEER. ALL TESTS SHALL BE PERFORMED IN ACCORDANCE WITH PROCEDURES SET FORTH IN THE CURRENT BOOK OF STANDARDS OF THE AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM). THE CONTRACTOR SHALL PAY FOR ALL SUCH TESTING AND OBSERVATION SERVICES.

- B. INSPECTION SERVICE: THE OWNER SHALL PROVIDE SPECIAL INSPECTION FOR THE GRADING, IN COMPLIANCE WITH CHAPTER 17 OF THE IBC. THE INSPECTOR SHALL BE QUALIFIED TO CONDUCT THE OBSERVATIONS AS REQUIRED BY CHAPTER 17.

- C. ALL FOOTINGS SHALL BEAR ON UNDISTURBED NATIVE SOILS.

- D. ALL SLAB AREAS SHALL BEAR ON UNDISTURBED NATIVE SOILS.

E. PREPARATION:

1. ALL EXISTING FILL, VEGETATION, DEBRIS, AND DISTURBED NATURAL SOLS IN AREAS FOR SUPPORT OF FOOTINGS, FLOOR SLABS OR PAVEMENTS SHALL BE EXCAVATED TO EXPOSE UNDISTURBED NATURAL SOILS. ALL NON-ACCEPTABLE MATERIAL SHALL BE DISPOSED OF OFF SITE.
2. FOLLOWING ALL CUT EARTHWORK, THE EXPOSED NATIVE SOILS SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF MAXIMUM DRY DENSITY, AS DETERMINED BY ASTM D-1557.

3. PROTECT STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT, AND OTHER HAZARDS CREATED BY EARTHWORK OPERATIONS.
4. PROTECT SUBGRADES AND FOUNDATION SOILS AGAINST FREEZING TEMPERATURES OR FROST. PROVIDE PROTECTIVE INSULATING MATERIALS AS NECESSARY.
5. PROVIDE EROSION CONTROL MEASURES TO PREVENT EROSION OR DISPLACEMENT OF SOILS AND DISCHARGE OF SOIL-BEARING WATER RUNOFF OR AIRBORNE DUST TO ADJACENT PROPERTIES AND WALKWAYS.

F. APPROVAL OF SUBGRADE:

2. NOTIFY ARCHITECT/ENGINEER/GEOTECHNICAL ENGINEER WHEN EXCAVATIONS HAVE REACHED REQUIRED SUBGRADE.
3. WHEN ARCHITECT/ENGINEER/GEOTECHNICAL ENGINEER DETERMINES THAT UNFORESEEN UNSATISFACTORY SOIL IS PRESENT, CONTINUE EXCAVATION AND REPLACE WITH COMPACTED BACKFILL OR FILL MATERIAL AS DIRECTED.
4. RECONSTRUCT SUBGRADES DAMAGED BY FREEZING TEMPERATURES, FROST, RAIN, ACCUMULATED WATER, OR CONSTRUCTION ACTIVITIES, AS DIRECTED BY THE ARCHITECT/ENGINEER/GEOTECHNICAL ENGINEER.

G. ENGINEERED FILL:

1. EXCAVATED SOILS MAY BE RE-USED WITH SCREENING TO REMOVE OVERSIZED MATERIAL. ALL BACKFILL MATERIAL SHALL BE NON-EXPANSIVE ENGINEERED FILL, FREE OF VEGETATION AND CONTAIN NO ROCKS LARGER THAN 6 INCHES. GRADATION OF THE BACKFILL MATERIAL, AS DETERMINED IN ACCORDANCE WITH ASTM D-422, SHALL BE AS FOLLOWS:

GRADATION OF BACKFILL MATERIAL

SIEVE SIZE	PERCENT PASSING
6 INCH	100
3 INCH	80-100
NO. 4	40-80
NO. 200	5-40

2. THE PLASTICITY INDEX SHALL BE NO GREATER THAN 12 WHEN TESTED IN ACCORDANCE WITH ASTM D-4318.

3. TEST REPORTS: IN ADDITION TO TEST REPORTS REQUIRED UNDER FIELD QUALITY CONTROL, SUBMIT THE FOLLOWING:

LABORATORY ANALYSIS OF EACH SOIL MATERIAL PROPOSED FOR FILL AND BACKFILL FROM ON-SITE AND BORROW SOURCES.

ONE OPTIMUM MOISTURE-MAXIMUM DENSITY CURVE FOR EACH PROPOSED SOIL MATERIAL.

- H. FILL OR BACKFILL, CONSISTING OF SOIL APPROVED BY THE GEOTECHNICAL ENGINEER, SHALL BE PLACED IN CONTROLLED AND COMPACTED LAYERS WITH APPROVED COMPACTION EQUIPMENT. THICKNESS OF COMPACTION LIFTS SHALL NOT EXCEED 8 INCHES. ALL COMPACTION SHALL BE TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH ASTM D-1557 TEST METHOD.

- I. TESTS FOR DEGREE OF COMPACTION SHALL BE DETERMINED BY THE ASTM D-1556 METHOD OR ASTM D-2922. OBSERVATION AND FIELD TESTS SHALL BE CARRIED ON DURING FILL AND BACKFILL PLACEMENT BY THE GEOTECHNICAL ENGINEER TO ASSIST THE CONTRACTOR IN OBTAINING THE REQUIRED DEGREE OF COMPACTION.

- J. FIELD QUALITY CONTROL TESTING:
1. FOOTING SUBGRADE: AT FOOTING SUBGRADES, PERFORM AT LEAST ONE DENSITY TEST OF EACH SOIL STRATUM TO VERIFY COMPLIANCE WITH PROJECT REQUIREMENTS.

2. PAVED AND BUILDING SLAB AREAS: AT SUBGRADE AND AT EACH COMPACTED FILL AND BACKFILL LAYER, PERFORM AT LEAST ONE FIELD IN-PLACE DENSITY TEST FOR EVERY 2,000 SQ. FT. OR LESS OF PAVED AREA OR OR BUILDING SLAB, BUT IN NO CASE FEWER THAN THREE TESTS.

3. FOUNDATION WALL BACKFILL: IN EACH COMPACTED BACKFILL LAYER, PERFORM AT LEAST ONE FIELD IN-PLACE DENSITY TEST FOR EACH 100 FEET OR LESS OF WALL LENGTH, BUT NO FEWER THAN TWO TESTS ALONG A WALL FACE.
4. TRENCH BACKFILL: IN EACH COMPACTED INITIAL AND FINAL BACKFILL LAYER, PERFORM AT LEAST ONE FIELD IN-PLACE DENSITY TEST FOR EACH 150 FEET OR LESS OF TRENCH, BUT NO FEWER THAN TWO TESTS.

5. WHEN TESTING AGENCY REPORTS THAT SUBGRADES, FILLS, OR BACKFILLS ARE BELOW SPECIFIED DENSITY, SCARIFY AND MOISTEN OR AERATE, OR REMOVE AND REPLACE SOIL TO THE DEPTH REQUIRED, RECOMPACT AND RETEST UNTIL REQUIRED DENSITY IS OBTAINED.

- K. COMPLY WITH LOCAL CODES, ORDINANCES AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION TO MAINTAIN STABLE EXCAVATIONS. WHENEVER, IN THE OPINION OF THE GEOTECHNICAL ENGINEER, AN UNSTABLE CONDITION IS BEING CREATED EITHER BY CUTTING OR FILLING, THE WORK SHALL NOT PROCEED IN THAT AREA UNTIL AN INVESTIGATION HAS BEEN MADE AND THE GRADING PLAN REVISED IF FOUND NECESSARY.

- L. PRECAUTIONS SHALL BE TAKEN DURING AND AFTER CONSTRUCTION TO MINIMIZE SATURATION OF THE FOUNDATION SOILS. POSITIVE DRAINAGE SHALL BE ESTABLISHED AWAY FROM THE EXTERIOR WALLS OF THE STRUCTURE. ALL UTILITY TRENCHES LEADING INTO THE BUILDING SHALL BE BACKFILLED WITH COMPACTED, ENGINEERED FILL. SPECIAL CARE SHALL BE TAKEN DURING INSTALLATION OF SUBFLOOR SEWER AND WATERLINES TO REDUCE THE POSSIBILITY OF FUTURE SUBSURFACE SATURATION. DRIP IRRIGATION AND / OR AUTOMATIC SPRINKLER SYSTEMS SHALL NOT BE INSTALLED WITHIN 10 FEET OF THE BUILDING. CONSULT THE GEOTECHNICAL ENGINEERING REPORT FOR ADDITIONAL MOISTURE PROTECTION RECOMMENDATIONS FOR FOUNDATIONS.

- M. PROPER LANDSCAPING AND DRAINAGE MAINTENANCE IS REQUIRED TO PRECLUDE ACCUMULATION OF EXCESSIVE MOISTURE IN THE SOILS BELOW THE STRUCTURE OF BEHIND RETAINING WALLS. ACCUMULATIONS OF EXCESSIVE MOISTURE WOULD WEAKEN THE SOILS SUPPORTING THE FOUNDATIONS AND CREATE PRESSURES BEHIND RETAINING WALLS EXCEEDING THOSE RECOMMENDED TO DESIGN. THIS CAN CAUSE DIFFERENTIAL MOVEMENT OF FOUNDATIONS AND CAN RESULT IN COSMETIC OR STRUCTURAL DAMAGE TO THE STRUCTURE.

- N. THE FOLLOWING GUIDELINES ARE PRESENTED TO AID THE CONTRACTOR AND/OR OWNER IN PROVIDING ADEQUATE MOISTURE PROTECTION OF THE SUPPORTING SOILS AND SHALL BE CONSIDERED IN THE OVERALL SITE DEVELOPMENT.
1. LANDSCAPING SHOULD NOT BE ALLOWED TO CHANGE THE OVERALL DRAINAGE PATTERNS ESTABLISHED FOR DEVELOPMENT.

2. THE GROUND SURFACE SHOULD SLOPE ADEQUATELY AWAY FROM ALL PORTIONS OF THE STRUCTURE. A TYPICAL ADEQUATE SLOPE IS 6 INCHES IN THE FIRST 5 FEET WITH POSITIVE DRAINAGE BEING PROVIDED FROM THOSE POINTS TO STREETS OR NATURAL WATER COURSES.

3. SHRUBBERY PLANTED WITHIN 10 FEET OF FOUNDATION WALLS SHOULD BE HAND IRRIGATED WITH A CAREFULLY CONTROLLED DRIP IRRIGATION SYSTEM.

4. GRASS INSTALLED WITHIN 10 FEET OF FOUNDATION WALL SHOULD BE HAND WATERED OR, IF IRRIGATED BY SPRINKLER, SHOULD BE VERY CAREFULLY CONTROLLED. SPRINKLER HEADS SHOULD ALWAYS POINT AWAY FROM FOUNDATION WALLS.

5. DECORATIVE BARK OR GRAVEL SHOULD BE UNDERLAIN BY A GEO-TEXTILE FABRIC (WEED FABRIC) TO ALLOW EVAPORATION OF SOIL MOISTURE. POLYETHYLENE OR OTHER PLASTIC UNDERLAYMENTS ARE DISCOURAGED.

6. IF THE STRUCTURE HAS GUTTERS AND DOWNSPOUTS, THE DOWNSPOUTS SHOULD DISCHARGE A MINIMUM OF 10 FEET AWAY FROM FOUNDATION WALLS. IF THE STRUCTURE DRAINS BY ROOF CANALES, THE CANALES SHOULD DISCHARGE TO SPLASH BLOCKS THAT CARRY WATER AWAY FROM THE FOUNDATIONS. IT IS ALSO ADVISABLE TO PLACE SPLASH BLOCKS UNDERNEATH SILL COCKS AND TO LOCATE SPRINKLER VALVE BOXES WELL AWAY FROM FOUNDATIONS.

7. SIDEWALKS PLACED CLOSE TO FOUNDATIONS SHOULD NOT IMPEDE FLOW OF WATER AWAY FROM THE FOUNDATIONS. THE GROUND SURFACE BETWEEN THE SIDEWALKS AND THE FOUNDATIONS SHOULD BE GRADED SO THAT WATER FLOWS OVER THE SIDEWALKS.

8. IF MOWING STRIPS ARE INSTALLED TO SEPARATE DECORATIVE GRAVEL OR BARK FROM GRASS, THE MOWING STRIPS SHOULD BE PERFORATED TO ALLOW DRAINAGE AND PRECLUDE POOLING OF WATER, OR GROUND SURFACE GRADE SHOULD BE CAREFULLY CONTROLLED TO ALLOW DRAINAGE OF WATER OVER THE MOWING STRIPS.

- O. IF ANY WATER LINE LEAKS OR IF IRRIGATION SYSTEM LEAKS ARE DETECTED, THEY SHOULD BE PROMPTLY REPAIRED. AND, IF ANY DEPRESSIONS DEVELOP FROM THE SETTLEMENT OF SOILS IN UTILITY TRENCHES OR OTHER AREAS, THEY SHOULD BE BACKFILLED TO MAINTAIN THE GRADE SO THAT SURFACE WATER DRAINS RAPIDLY AWAY FROM THE STRUCTURE.

QUALITY ASSURANCE PLAN:

- A. CONTRACTOR SHALL COORDINATE WITH THE OWNER, ARCHITECT, ENGINEER, AND BUILDING OFFICIAL, THE PLAN AND METHOD OF SCHEDULING AND ACHIEVING THE REQUIRED SITE INSPECTIONS, AND SPECIAL INSPECTIONS REQUIRED.

- B. 2015 IBC CHAPTER 17 FOR SPECIAL INSPECTION REQUIREMENTS.

- C. ALL INSPECTION AND SPECIAL INSPECTIONS AS REQUIRED BY IBC OR BY THE BUILDING OFFICIAL SHALL BE CONDUCTED BY AN INDEPENDENT CERTIFIED AGENT RETAINED BY THE OWNER. REFER TO TABLES 1705.2.3, 1705.3, 1705.6, 1705.7 AND 1705.8 AS APPLICABLE.

- D. REPORTS OF INSPECTION SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEER OF RECORD FOR THE APPROVAL OF WORK.

HIGH DESERT  
STRUCTURAL ENGINEERING

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GENERAL NOTES

PROJECT TITLE:  
VTSV ADMINISTRATION BUILDING  
VILLAGE OF TAOS SKI VALLEY, NM

SHEET TITLE: