



Hands Engineering, Inc.

September 12, 2022

Mr. Roy Woods
Conron and Woods
1222 Luisa Street, Suite A
Santa Fe, NM 87505

**RE: *STRUCTURAL ASSESSMENT
KIT CARSON HOUSE
TAOS, NEW MEXICO
Hands Engineering Project No. 2022-5971***

Dear Mr. Woods:

Per your request, Hands Engineering, Inc. was employed to perform a site visit to the referenced site. James Hands conducted a field inspection in order to gather the information necessary to submit a structural assessment report of the building.

KIT CARSON HOUSE STRUCTURAL ASSESSMENT

The Kit Carson House consists of three primary components; the Kit Carson house, the Romero house and the Carson House Shops. (See attached). Our review is limited to the Kit Carson house and the Romero house and is based solely on visual observations. Invasive or exhaustive investigations are beyond the scope of this report.

ROOF STRUCTURE

- **Portal:** The portal along Kit Carson Road along the south side of the Kit Carson House reportedly dates from at least 1850 and was restored under the supervision of the National Park Service about 20 years ago.
- **Rooms C-1 through C-3 and R2 through R-4:** Construction consists of approximately 6 1/2" to 8" diameter (small end) vigas at 2'0" to 2'6" c/c spanning approximately 13' at the Carson House and 16' at the Romero House with 1" wood board ceiling above of varying widths. The original earthen roof is reported to still be in place over the Carson rooms and partially in place over the Romero rooms. An over structure was added above the dirt roof at some date to create additional slope for roof drainage. Some vigas are deteriorated at the interior face of the walls from past roof leaks. At least some of the vigas in all rooms are either shored up or 2X sister joists are added. It was reported that some of the vigas date from the 18th or 19th century and are important from a historic preservation standpoint.

- **Room C-4:** Construction consists of (2) 2" x 8" joists at 2'4" c/c spanning approximately 17' with 1X wood board ceiling above. The joists are shored at the east end. Over framing of unknown configuration appears to be present to form the roof slope.
- **Room C-5:** Construction consists of 4" x 10" wood beams at 2'0" c/c spanning approximately 18'6" with 1X wood board ceiling above. Room C-5 is reported to date from 1952. Over framing of unknown configuration appears to be present to form the roof slope.
- **Room R-1:** Construction consists of 7" to 8" diameter (small end) vigas at approximately 2'0" c/c spanning approximately 17' with 1X wood board ceiling above. Room R-1 is reported to date from 1958. Over framing of unknown configuration appears to be present forming the roof slope. One of the vigas is shored approximately 3' from the north wall.

RECOMMENDATIONS:

- The portal should be inspected and maintained on a regular basis to preserve the historic fabric.
- For the remainder of the roof assemblies remove existing decking and over structure.
- Remove any remaining dirt roofs.
- Inspect vigas at wall bearing.
- Construct new bond beams and rebuild parapets to match existing where present.
- Install new wood trusses mimicking the profile of the existing over structure to fullest extent possible.
- Suspend the deteriorated vigas where needed from wood trusses above.
- Install new plywood deck and roofing above.

WALLS

- Rooms C-1 through C-4, R-2 through R-4 and North Wall of Room R-1: The exterior walls are constructed of adobe approximately 20" thick. Interior walls are mostly adobe of varying thickness. A cobble foundation is apparent in a few areas. A 1" to 2" wood board was evident in a couple of areas under the vigas. In numerous areas the outside finish grade is significantly above the cobble foundation and the interior finish floor. Concrete has been poured against the base of the north wall of the Romero House about 6" thick. The base of the adobe walls in a number of areas is badly eroded several inches from the exterior face of the wall. The exterior finish is a combination of cement stucco and in other areas mud plaster. The intent to replace the stucco with mud plaster was reported. Minor cracks were observed outside of rooms C-1 and R-2. A larger crack was observed on the interior non load bearing wall between rooms R-2 and R-3.
- Room C-5 and east and portion of south wall of Room C-1: The exterior walls are CMU constructed in the 1950's with cement stucco on the exterior and plaster on the interior. Only hairline cracks were observed.

RECOMMENDATIONS

- Carefully remove the concrete contra pared in sections along the north wall of the Romero House in small sections protecting and repairing the adobe as works proceeds.
- Carefully remove the remaining stucco sections repairing the adobe as work proceeds.
- Repair the adobe walls with mud plaster.
- Regrade finish grade to a lower level where above original levels.
- Regrade to provide positive drainage away from the walls.
- Install a foundation drainage system approximately 3' away from the base of the walls.
- Re-mud adobe walls.
- Repair stucco and apply new finish coat at CMU walls.

FLOORS

- Rooms C-1 through C-3: 1X T & G wood flooring of varying width. Flooring reported to be on joists at or near the ground and dating from 1927 and 1950's. Flooring is worn and several soft spots were observed. Flooring has separated (lowered) away from wall finish and/or baseboard in some cases as much as 1" or more.
- Rooms C-4 and C-5: Concrete slab on grade covered by carpet. Cracking or other issues in the slab are not visible.
- Room R-1: 1x6 T & G on 2" x 6" full cut joist at approximately 2'0" c/c. The floor reportedly dates from the 1958 construction. Joists run north/south and rooms measures approximately 17'. Floor joists were inaccessible to determine clear span. Crawl space appears to extend at least under most of room R-1. At access panel there is approximately 16" from bottom of joists to dirt. Flooring appears to be in fair condition.
- Room R-2 and R-3: Room 2 has 1x T & G wood flooring of varying widths. Room 3 has 1 x 6 T & G wood flooring. Floor structure was not accessible but reported as joists at or near the dirt below. A number of soft spots were observed. Some separation at walls was observed where floor structure has apparently sunk.
- Room 4: Flooring is 1x8 planks. Floor assembly was reported as being constructed in the early 2000's and on 6x6 treated sleepers resting on the ground. Floor appears to be in good condition.

RECOMMENDATIONS

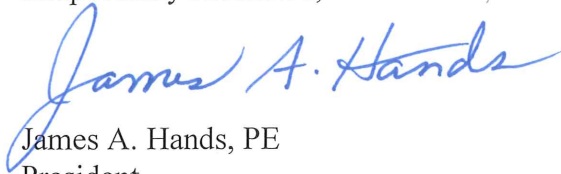
- Rooms C-1 through C-3 and Rooms R-2 and R-3: Remove existing floor assembly and install new floor appropriate to the preservation of these rooms.
- Rooms C-4 and C-5: Remove carpet and inspect slab to verify conditions observed during preparation of this report. Repair as needed and install new flooring/finish.
- Room R-1: Remove sections of flooring to verify spans and condition of 2x6 joists. Repair/replace as needed.

The conclusions and opinions stated are based on our understanding of the facts and evidence stated in the discussion above. Should additional facts or evidence become available pertaining to this project I reserve the right to review that information and revise my opinions when appropriate.

Please note that our office has provided structural consultation for only those items listed in this letter. Hands Engineering, Inc. assumes no responsibility for the structural adequacy of any other members or systems in this project.

Please do not hesitate to contact our office should you have any questions or if we can be of further assistance.

Respectfully submitted,

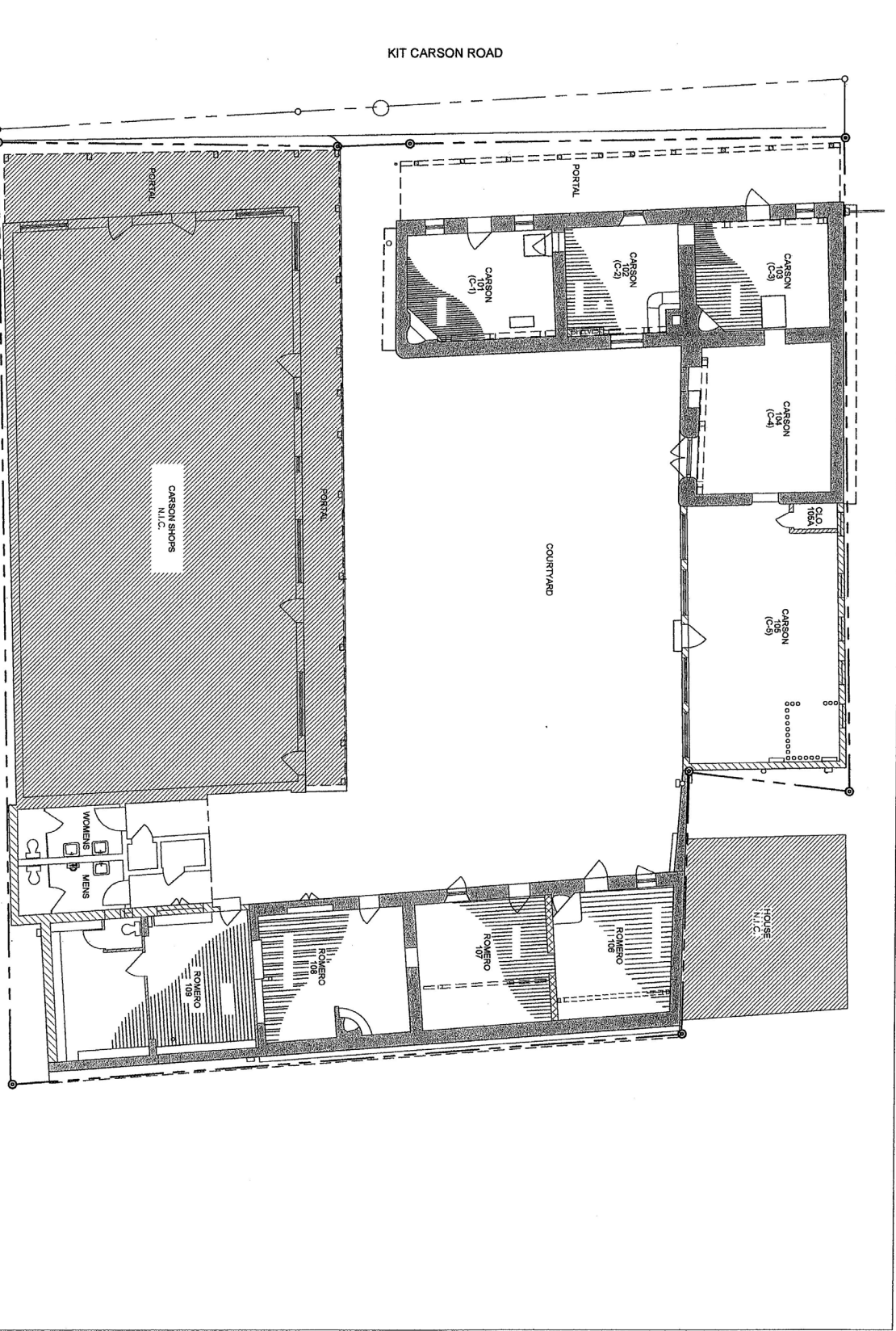


James A. Hands, PE
President

JAH/lmh

Encl: Drawing

FLOOR PLAN
SCALE 3/16" = 1'-0"



SHEET
EA-101

PROJECT 228101
DRAWN ANY
CHECKED R.W.
DATE 08/22

DATE	REVISION

PRELIMINARY
NOT FOR
CONSTRUCTION

FLOOR PLANS - CARSON / ROMERO HOUSE (EXISTING)
KIT CARSON HOUSE & MUSEUM - CONDITION ASSESSMENT & PRESERVATION PLAN
TAOS, NEW MEXICO

