

## LEGISLATIVE SUMMARY SHEET

Tracking No. 0029-20

**DATE:** January 30, 2020

**TITLE OF RESOLUTION:** AN ACTION RELATING TO RESOURCES AND DEVELOPMENT; APPROVING THE UNITED STATES OF AMERICA DEPARTMENT OF HEALTH AND HUMAN SERVICES INDIAN HEALTH SERVICE TSAILE LAND LEASE FOR 10.71 ACRES, MORE OR LESS, OF NAVAJO NATION TRUST LANDS, LOCATED WITHIN THE TSAILE/WHEATFIELDS CHAPTER VICINITY, NAVAJO NATION (APACHE COUNTY, ARIZONA)

**PURPOSE:** The purpose of the resolution is to approve a lease for the United States of America Department of Health and Human Services Indian Health Service, for 10.71 acres, more or less, of Navajo Nation Trust Lands in the Tsaile/Wheatfields Chapter vicinity, Navajo Nation (Apache County, Arizona).

This written summary does not address recommended amendments as may be provided by the standing committees. The Office of Legislative Counsel requests each Council Delegate to review each proposed resolution in detail.

5-DAY BILL HOLD PERIOD: 2388  
Website Posting Time/Date: 3:55pm 02-07-20  
Posting End Date: 02/12/2020  
Eligible for Action: 02/13/2020

PROPOSED STANDING COMMITTEE RESOLUTION  
24<sup>th</sup> NAVAJO NATION COUNCIL -- Second Year, 2020

INTRODUCED BY

  
OTTO TSO  
(Prime Sponsor)

TRACKING NO. 0029-2020

AN ACTION

RELATING TO RESOURCES AND DEVELOPMENT; APPROVING THE UNITED STATES OF AMERICA DEPARTMENT OF HEALTH AND HUMAN SERVICES INDIAN HEALTH SERVICE TSAILE LAND LEASE FOR 10.71 ACRES, MORE OR LESS, OF NAVAJO NATION TRUST LANDS, LOCATED WITHIN THE TSAILE/WHEATFIELDS CHAPTER VICINITY, NAVAJO NATION (APACHE COUNTY, ARIZONA)

BE IT ENACTED:

**Section One. Authority**

- A. The Resources and Development Committee is a standing committee of the Navajo Nation Council. 2 N.N.C. § 500(A).
- B. The Resources and Development Committee of the Navajo Nation Council has authority to give final approval of all land withdrawals, non-mineral leases, permits, licenses, rights-of-way, surface easements and bonding requirements on Navajo Nation lands and unrestricted (fee) land. This authority shall include subleases, modifications, assignments, leasehold encumbrances, transfers, renewals, and terminations. 2 N.N.C. § 501 (B)(2).

**Section Two. Findings**

- A. United States of America Department of Health and Human Services Indian Health Service has submitted a request for a lease to occupy 10.71 acres, more or



- 1 less, on Navajo Nation Trust Lands in Tsaile, Arizona. The application is  
2 attached as **Exhibit I**.
- 3 B. The proposed Lease is attached hereto as **Exhibit A**.
- 4 C. The proposed Lease of 10.71 acres, more or less, is described in **Exhibit B**.
- 5 D. The Resources and Development Committee through resolution RDCJN-33-15  
6 delegated the authority to approve land withdrawals to the Director of the Navajo  
7 Land Department. Resolution RDCJN-33-15 is attached as **Exhibit L**.
- 8 E. The 10.71 acres, more or less was withdrawn in 2016 by Navajo Land  
9 Department, Department Manager III through his memorandum dated July 6,  
10 2016. The memorandum is attached hereto as **Exhibit C**. These 10.71 acres,  
11 more or less, had initially been included in the 1026.48 acres withdrawn by  
12 resolution of the Advisory Committee in ACO-302-69. The Diné College Board  
13 of Regents through resolution DC-FEB-2099-14 supports the land lease of 10.71  
14 acres between the Navajo Nation and the Indian Health Services as stated in the  
15 Tsaile/Wheatfields Chapter, Lukachukai Chapter, Rock Point Chapter, Round  
16 Rock Chapter supporting resolutions attached as **Exhibit I**.
- 17 F. Environmental and archaeological studies and clearances have been completed  
18 and are attached hereto and incorporated herein by this reference. The  
19 Environmental Assessment is attached hereto as **Exhibit D**. The Biological  
20 Resources Survey is attached hereto as **Exhibit E**. The Cultural Resources  
21 Survey is attached hereto as **Exhibit F**.
- 22 G. The Tsaile Staff Quarters Addition Floodplain Assessment and Geotechnical  
23 Engineering Report are attached as **Exhibits G and H**.
- 24 H. Supporting resolutions from the Tsaile/Wheatfields Chapter, Lukachukai  
25 Chapter, Rock Point Chapter, Round Rock Chapter are attached as **Exhibit I**.
- 26 I. The Lease for the United States of America Department of Health and Human  
27 Services Indian Health Service use of 10.71 acres, more or less, in the vicinity of  
28 Tsaile/Wheatfields Chapter has completed an Executive Official Review with  
29 various Departments and Programs providing approval and supplemental  
30

1            comments. Executive Official Review Document No. 006262 is attached hereto  
2            as **Exhibit K**.

3  
4            **Section Three. Approval:**

- 5            A. The Resources and Development Committee of the Navajo Nation Council  
6            hereby approves a Lease for the United States of America Department of Health  
7            and Human Services Indian Health Service, for 10.71 acres, more or less, of  
8            Navajo Nation Trust Lands in the Tsaile/Wheatfields Chapter vicinity, Navajo  
9            Nation (Apache County, Arizona). The location is more particularly described  
10           on the survey maps attached as **Exhibit B**.
- 11           B. The Navajo Nation hereby approves the Lease subject to, but not limited to the  
12           Terms and Conditions in the Lease attached hereto as **Exhibit A**.
- 13           C. The Navajo Nation hereby authorizes the President of the Navajo Nation to  
14           execute any and all documents necessary to implement the intent and purpose of  
15           this resolution.
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**UNITED STATES OF AMERICAN  
DEPARTMENT OF HEALTH AND HUMAN SERVICES  
INDIAN HEALTH SERVICE  
TRAIL LAND LEASE 10.71 ACRES  
NAVAJO AREA OFFICE**

**Date:** \_\_\_\_\_

**IHS Lease No.** \_\_\_\_\_

**THIS LEASE**, made and entered into this day by and between the **NAVAJO NATION**, a federally recognized Indian Tribe whose address is P.O. Box 9000, Window Rock, AZ 86515, and whose interest in the property hereinafter describe is that of owner, hereinafter called the **Lessor**, pursuant to the authority contained in 2 N.N.C. §501(B)(2)(a), 16 N.N.C. §§2301 *et seq.*, and 25 U.S.C. §415(e), as implemented by the regulations contained in 25 CFR 162; and amendments thereto, which by reference are made a part hereof.

The **UNITED STATES OF AMERICA, Department of Health and Human Service, Indian Health Service**, hereinafter known as (**IHS**), hereinafter called the **Lessee**, Resolution No. \_\_\_\_\_ pursuant to the authority contained in Public Law 94-437, Section 804, and amendments thereto, which by reference area made a part hereof.

**WITNESSETH THEREFORE:** The parties hereto, for the consideration hereinafter mentioned, covenant and agree as follows:

**1. DEFINITIONS**

(A) "*Approved Encumbrance*" means an encumbrance approved in writing by Lessor and the Secretary in accordance with the terms and conditions of this Lease.

(B) "*Encumbrancer*" means the owner and holder of an Approved Encumbrance, including all successors and assigns.

(C) "Hazardous Substance" means any "hazardous substance" as defined under the provisions of section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. §9601(14), including all amendments or successors thereto, and "petroleum" as defined under the provisions of section 900(8) of the Resource Conservation and Recovery Act, 42 U.S.C. §6991(8).

(D) "Secretary" means the Secretary of the United States Department of the Interior or his duly authorized representative or successor.

(E) "Storage Tank" means underground storage tank" as defined under the provisions of section 6991(1) of the Resources Conservation and Recovery Act, 42 U.S.C. 6901 *et seq.*, including all amendments and successors thereto, notwithstanding what percent of volume is located beneath the surface of the ground.



**2. LEASED PREMISES.**

**Whereas**, The Lessor hereby leases to the Lessee a parcel of land approximately 10.71 acres as depicted (Exhibit A, Survey and Land Legal Description and Exhibit B, Aerial Photo and Plot Plan) on attachment together with all rights, infrastructure and roads belonging or appertaining thereto, and more particularly describe below

This parcel as described in attached Exhibit A and lies within Section 4, Township 33 North, Range 29 East, Section 4, Gila and Salt River Meridian in the vicinity of Tsaile, Arizona.

NLD will submit one copy of this document to BIA for recording pursuant to 16 N.N.C. §2322(B).

**3. LEASE TERM**

**TO HAVE AND TO HOLD** the said premises for the term beginning on the date of execution of this lease and extending for a period not to exceed 20 years. This lease provides for no renewal options. However, it is anticipated that a new succeeding lease will be negotiated prior to expiration date.

**4. TERMINATION RIGHTS**

The Government may terminate this Lease, in whole or in part, by providing not less than 90 days' prior written notice to the Lessor. The effective date of the termination shall be the day following the expiration of the required notice period or the termination date set forth in the notice, whichever is later.

In the event the Lessor, during the term of this lease period, shall enter into a contract with the Lessee to operate the health program on these premises under the provision of Public Law 96-638, or compact, the lease shall terminate immediately.

**5. RENTAL CONSIDERATION.**

The Lessee shall pay the Lessor no annual rent. Consideration for the parcel of land leased shall be in lieu of the benefit of IHS providing health care services.

**6. LEASED PURPOSE.**

The Lessor and the Lessee agree that the leased premises will be used for thirty (30) new staff quarters for HIS employees or contract service providers for the Tsaile Health Center providing clinical services to Navajo People.

**7. UTILITY SERVICE LINE AGREEMENTS.**

(A) Lessee specifically is authorized to enter into appropriate service line agreements with utility companies for the provision of utility services to the Leased Premises, including gas,

water, sewer, electricity, telephone, television and other utilities, without further consent by Lessor, on the condition that:

- (1) such agreements are for the sole purpose of supplying utility services to the Leased Premises;
- (2) such agreements authorize utility service lines only within the Leased Premises;
- (3) Such agreements do not extend beyond the term of this Lease;
- (4) Executed copies of such agreements, together with plats or diagrams showing with particularity the location, size and extent of such service lines, are filed by the utility companies with Lessor and with the Secretary within thirty (30) days of their execution; and
- (5) Such agreements are otherwise in accordance with the provisions of 25 C.F.R. Part 169.51-169.56, including any amendments or successors thereto.

(B) Nothing contained herein shall be construed to limit the right of Lessor to enter into service line agreements with utility companies for service lines across the Leased Premises, provided that such service lines do not unreasonably interfere with Lessee's use of the Leased Premises.

## **8. CONSTRUCTION OR PLACEMENT OF IMPROVEMENTS**

Additional improvements may be built or placed on said land by the Lessee when it is determined to be beneficial to the program, and when such construction or placement has been negotiated and agreed to by the parties hereto in writing and memorialized by a lease amendment for any changes of terms herein. All improvements made on the leased premises shall be constructed in accordance with HIS Architect/Engineer Design Guide.

## **9. IMPROVEMENTS AND PERSONAL PROPERTY**

(A) All buildings and other improvements on the Leased Premises, excluding removable personal property and trade fixtures, shall remain on the Leased Premises after termination of this Lease.

(B) Lessee shall remove all removable personal property and trade fixtures prior to termination of this Lease. Should Lessee fail to remove said personal property and trade fixtures prior to termination of this Lease, said property shall thereupon become property of Lessor, and may be disposed of in any manner by Lessor.

(C) As used in this section, the term "removable personal property" shall not include property which normally would be attached or affixed to buildings, other improvements or land in



such a way that it would become a part of the realty, regardless of whether such property in fact is so attached or affixed.

(D) All Hazardous Substances, Hazardous Substance storage systems or conveyance facilities, including but not limited to Storage Tanks, placed on or under the Leased Premises are the property of Lessee and shall remain the property of Lessee upon termination of this Lease. Within a reasonable time prior to termination of this Lease, Lessee shall remove any such substances or improvements, shall assess the Leased Premises for contamination, shall remediate all contamination, if any, and shall address any third party damages occasioned by any contamination or otherwise by the use or storage of such substances or improvements on the Leased Premises. Should Lessee fail to complete such responsibilities prior to the termination of this Lease, Lessee shall remain responsible therefore, and shall be required to post a bond in an amount reasonably required to ensure that such responsibilities are completed within a reasonable time after termination of this Lease.

All questions pertaining to this lease shall be referred to:

Gary Wilson, Realty Specialist  
HHS/IHS/Division of Engineering Services – Seattle  
701 5<sup>th</sup> Avenue, Suite 1650 MS-24  
Seattle, WA 98104-7037  
(206) 615-2792  
[Gary.Wilson2@ihs.gov](mailto:Gary.Wilson2@ihs.gov)

## **10. PROPERTY DAMAGE**

In the event of destruction of or damage to any improvement on the Leased Premises, Lessee shall have the option not to replace or repair said improvement. Lessee shall provide Lessor with written notice of exercise of Lessee's option within thirty (30) days of the said event of damage. Should Lessee exercise its option to not to replace or repair in accordance with this subsection, this Lease shall terminate ninety (90) days after the effective date of notice thereof. Lessee shall clear the Leased Premises of all debris prior to termination of this Lease. If the building is only partially destroyed or damaged and poses no health and/or safety concern, the services will resume in a reduce capacity and the lease will continue under the same terms and conditions stated herein. The Government shall be permitted a reasonable amount of time, not to exceed 180 days from the event of destruction or damage, to repair or restore the Premises, if the Government submits to the Lessor a reasonable schedule for repair of the Premises within 30 days of the event of destruction or damage.

## **11. HOLDING OVER**

Holding over by Lessee after termination of this Lease shall not constitute a renewal or extension thereof or give Lessee any rights hereunder or in or to the Leased Premises or to any improvements located thereon.



## **12. EMINENT DOMAIN**

If, at any time during the term of this lease, the leased premises or any part thereof is taken or condemned under the laws of Eminent Domain, then and in every such case, the leasehold estate and interest of the Lessee in said premises, or part thereof taken, shall forthwith cease and terminate. All compensation awarded by reason of the taking of the leased land and any taking of or injury to the buildings or improvements located thereon shall be credited to the Lessor and the Lessee as their interests appear at the time of such taking.

## **13. FEDERAL TRUST**

Nothing contained in this lease shall operate to delay or prevent a termination of Federal trust responsibilities with respect to the land by the issuance of a fee patent during the term of this lease; however, such termination shall not abrogate the lease. The lessor and the lessee shall be notified of any such change in the status of the land.

## **14. HAZARDOUS SUBSTANCES**

Lessee shall not cause or permit any Hazardous Substance to be used, stored, generated or disposed of on or in the Lease Premises without the prior written approval of Lessor, which approval may be given, given upon conditions or denied in the sole discretion of Lessor. Without limitation of the foregoing, if Lessee causes or permits the presence of any Hazardous Substance on the Leased Premises and such results in contamination to the Leased Premises or any building or other improvement thereon, Lessee shall promptly take any and all actions necessary or appropriate to restore the Leased Premises or building or other improvement to the condition existing prior to the presence of any such Hazardous Substance on the Leased Premises. Except in emergency situation, Lessee shall obtain written approval from Lessor prior to commencement of any such remedial action.

## **15. OFFICIALS NOT TO BENEFIT**

No member of or Delegate to Congress, or Resident Commissioner shall be admitted to any share or part of this lease contract, or to any benefit that might arise therefrom.

## **16. CHANGE OF OWNERSHIP**

(A) If during the term of the Lease, title to the Property is transferred, the Lease is assigned, or the Lessor changes its legal name, the Lessor and its successor shall notify the Government within five days of the transfer of title.

(B) If title to the Property is transferred, or the Lease is assigned, the Government, the original Lessor (Transferor), and the new owner or assignee (Transferee) shall execute a Novation Agreement providing for the transfer of Transferor's rights and obligations under the Lease to the Transferee. When executed on behalf of the Government, a Novation Agreement will be made part of the Lease via Amendment.

(C) If the title to property transfers the Lease Contracting Officer (LCO) may request additional information (e.g., copy of the deed, bill of sale, certificate of merger, contract, court decree, articles of incorporation, operation agreement, partnership certificate of good standing, etc.) from the Transferor or Transferee to verify the parties' representations regarding the transfer, and to determine whether the transfer of the Lease is in the Government's interest.

(D) If the LCO determines that recognizing the Transferee as the Lessor is not in the Government's interest, the Transferor shall remain fully liable to the Government for the Transferee's performance of obligations under the Lease, notwithstanding the transfer. Under no condition shall the Government be obligated to release the Transferor of obligations.

## **17. INTEGRATED AGREEMENT**

This Lease, upon execution, contains the entire agreement of the parties and no prior written or oral agreement, express or implied, shall be admissible to contradict the provisions of the Lease.

## **18. MULUALITY OF AGREEMENT**

The obligations and covenants of the Lessor, and the Government's obligation to perform such other obligations as may be specified herein, are interdependent.

## **19. SUCCESSORS AND ASSIGNS**

The terms and conditions contained herein shall extend to and be binding upon the successors, heirs, assigns, executors, administrators, employees and agents, including all contractors and subcontractors, of Lessee. Except as the context otherwise requires, the term "Lessee," as used in this Lease, shall be deemed to include all such successors, heirs, executors, assigns, employees and agents.

## **20. SITE MAINTENANCE AND ENVIRONMENTAL CONDITIONS**

The Lessee shall maintain the land with its appurtenances under this lease at its sole cost and expense in good repair, and healthful condition, including improvements constructed or alterations to the premises during the term of the lease agreed upon by all parties to this agreement in writing in accordance with applicable tribal and Federal environmental regulations.

The Lessor shall, to the extent of its knowledge, notify Governmental Lease Contracting Officer of the introduction of any hazardous or adverse conditions onto the Property by Lessor or others, including but not limited to, the Government leasing land with its appurtenances under lease.

## **21. UTILITIES**

The Lessee shall pay the cost of services such as utilities, trash and snow removal, general maintenance, and janitorial during the term of this lease.



## **22. DISCOVERY OF HISTORIC PROPERTIES**

If historic properties, archeological resources, human remains, or other cultural items not previously reported are encountered during the course of any activity associated with this Lease, all activity in the immediate vicinity of the properties, resources, remains, or items will cease and the Lessee will contact Lessor to determine how to proceed and appropriate disposition.

## **23. CONDITION OF LEASED PREMISES**

Lessee has examined and knows the Leased Premises and improvements thereon and accepts the same as-is. No presentations as to the condition of the Leased Premises have been made by Lessor, any agent of Lessor prior to or at the time of execution of this Lease. Lessee warrants that it has not relied on any warranty or representation made by or on behalf of Lessor, but solely upon Lessee's independent investigation.

## **24. CONSTRUCTION; MAINTENANCE; REPAIR; ALTERATION**

(A) All buildings and other improvements placed on the Leased Premises shall be constructed in a good and workmanlike manner in compliance with applicable laws and building codes. All parts of buildings or other improvements visible to the public or from adjacent premises shall present a pleasant appearance and all service areas shall be screened from public view.

(B) Lessee shall maintain the Leased Premises and all buildings and other improvements thereon and any alternations, additions or appurtenances thereto, in good order and repair and in a safe, sanitary and neat condition.

(C) Lessee shall have the right to make reasonable alterations, additions or repairs to buildings or other improvements on the Leased Premises, consistent with other provisions of this Lease.

## **25. CONSTRUCTION BOND**

If required by Federal law, including the Miller Act, 40 U.S.C. §3131 *et seq.*, prior to the commencement of construction of any improvement on the leasehold premises, the Lessee shall require its construction contractor to post construction bonds in an amount sufficient to cover such construction as may be approved by the Lessor.

## **26. NON-RESPONSIBILITY NOTICES**

Prior to the commencement of construction of any improvement on the leased premises, or prior to the beginning of any repair or alteration thereto, or work or labor thereon, Lessee shall post non-responsibility notices at the site on Lessor's behalf, and Lessee agrees to post said notices ten (10) days prior to commencing any construction.



## **27. SUBLEASES AND ASSIGNMENTS**

Lessee shall not assign, convey or otherwise transfer this Lease, or any interest therein, without the prior written approval of Lessor and the Secretary, and then only upon the condition that the assignee or other successor in interest shall agree, in writing, to be bound by each and every covenant, agreement, term and condition of this Lease. Any such attempted assignment, conveyance, or transfer, without such written approval shall be void and of no effect. The approval of Lessor may be granted, granted upon conditions, or withheld at the sole discretion of Lessor.

## **28. QUIET ENJOYMENT**

Lessor hereby covenants and agrees that, upon performing each of its covenants, agreements, terms and conditions contained in this Lease, that Lessee shall peaceably and quietly have, hold and enjoy the Leased Premises without any hindrance, interruption, ejection or molestation by Lessor or by any other person or persons claiming from or under Lessor.

## **29. ENCUMBRANCE**

This Lease or any interest therein may not be encumbered and no such encumbrance shall be valid or binding.

## **30. VIOLATION**

(A) Time is declared to be of the essence in this Lease. Should Lessor determine that a provision of this Lease has been violated, Lessor shall send notice of the violation to the Lessee in accordance with Section 40 herein.

- (1) Cure the violation and notify the Lessor in writing that the violation has been cured;
- (2) Dispute the determination that a violation with an explanation of why the additional time is necessary.
- (3) Request additional time to cure the violation with an explanation of why the additional time is necessary.

(B) If a violation is not cured within ten (10) days, Lessor must determine whether:

- (1) To grant additional time for the Lessee to cure the violation;
- (2) To conduct additional inquiries to determine the validity of the Lessee's objections to the findings that the Lease has been violated; or
- (3) Take any action authorized or allowed under applicable law.

(C) If additional time is granted to cure a violation, the Lessee must proceed diligently to complete the necessary corrective actions within a reasonable period from the date on which the Lessor grants the additional time or within the specified time period set forth in the Lessor's written decision to grant additional time.

(D) In accordance with Section 38 herein, the parties agree to use good faith efforts to resolve such disputes through mediation, informal discussion, or other non-binding methods of dispute resolution.

(E) No waiver of a breach of any of the terms and conditions of this Lease shall be construed to be waiver of any succeeding breach of the same or any other term or condition of this Lease. Exercise of any of the remedies herein shall not exclude recourse to any other remedies authorized or allowed under applicable law which may be exercised by Lessor or any other rights or remedies authorized or allowed under the applicable law now held or which may be held by Lessor in the future.

### **31. SANITATION**

Lessee hereby agrees to comply with all applicable sanitation and solid waste disposal laws, regulations or other sanitation or solid waste requirements of the United States and the Navajo Nation, except to the extent those Tribal laws are inconsistent with Federal regulations or other applicable Federal laws.

### **32. LIABILITY**

To the extent authorized by applicable Federal law, including the Federal Tort Claims Act, codified as amended primarily at 28 U.S.C. §§2671-80 (2006), Lessee will be liable for the negligent or wrongful acts or omissions of its officers or employers while acting within the scope of their office or employment. Lessee's commitment to pay any lawful obligation or liability incurred by Lessee under this Lease is backed by the full faith and credit of the United States.

### **33. INSURANCE**

As a Federal Agency, Lessee is self-insured and shall be responsible for any tort claims that arise and for any loss or damage to the Leased Premises, or any building, improvement, or equipment, including removable personal property and equipment, placed upon the Leased Premises by the Lessee, resulting from the actions or omissions of Lessee.

### **34. INSPECTION**

The Lessor and the Lessor's authorized representative shall have the right, at any reasonable time during the term of this Lease, to enter upon the Leased Premises, or any part thereof, to ensure compliance with the provisions of this lease.



**35. MINERALS**

All minerals, including sand and gravel, contained in or on the Leased Premises are reserved for the use of Lessor. Lessor also reserves the right to enter upon the Leased Premises and search for and remove minerals located thereon, paying just compensation for any damage or injury caused to Lessee's personal property or improvements constructed by Lessee.

**36. DELIVERY OF PREMISES**

At the termination of this Lease, Lessee shall peaceably and without legal process deliver up the possession of the Leased Premises in good condition, usual wear and tear excepted. Upon the written request of the Navajo Nation, Lessee shall provide to the Navajo Nation, at Lessee's sole cost and expense, an NEPA review of the Leased land at least sixty (60) days prior to delivery of said premises.

**37. ATTORNEY FEES**

Lessee will be liable for attorney's fees and litigation costs in accordance with applicable federal statute subjecting the United State and its agencies to liability for such fees and costs.

**38. DISPUTE RESOLUTION**

In the event that a dispute arises under this Lease, the Parties agree to use their good faith efforts to resolve such disputes through mediation, informal discussion, or other non-binding methods of dispute resolution.

**39. JURISDICTION AND NO WAIVER OF SOVEREIGN IMMUNITY**

(A) The laws of the Navajo Nation apply to the Leased Premises, except to the extent that those laws are inconsistent with applicable Federal Regulations or other applicable Federal law. As an agency of the United States government, Lessee is subject to Federal laws and nothing in this Agreement shall be construed as requiring Lessee or its employees, agents, or sublessees to violate Federal law.

(B) Nothing in this Lease shall in any way or to the extent limit the right of the United States to reply upon sovereign immunity or any State or Federal statute limiting liability or damages from injuries sustained in connection with the use or occupancy of the designated area under this Lease. Nothing in this Lease shall be interpreted as constituting a waiver, express or implied, of the sovereign immunity of the Navajo Nation or the United States.

**40. NOTICES AND DEMANDS**

(A) Any notices, demands, requests or other communications to or upon either party provided for in this Lease, or given or made in connection with this Lease, (hereinafter referred to as "notices,") shall be in writing and shall be addressed as follows:



To or upon Lessor:

President  
The Navajo Nation  
Office of the President/Vice-President  
Post Office Box 9000  
Window Rock, Navajo Nation (Arizona) 86515

To or upon Lessee:

Navajo Area Indian Health Service  
Post Office Box 9020  
Window Rock, Arizona 86515-9020  
Fax: (928)

(B) All notices shall be given by personal delivery, by registered or certified mail, postage prepaid, or by facsimile transmission, followed by surface mail. Notices shall be effective and shall be deemed delivered: if by personal delivery, on the date of delivery it during normal business hours, or if not during normal business hours on the next business day following delivery; if by registered or certified mail, or by facsimile transmission, followed by surface mail, on the next business day following actual delivery and receipt.

(C) Lessor and Lessee may at any time change its address for purposes of this section by notice.

**THE ATTACHED EXHIBITS ARE INCOPORATED AND MADE A PART HEREOF:**

- A. Land Legal Description and Survey (Exhibit A)
- B. Aerial photo and plot plan (Exhibit B)

**LESSOR:**  
**THE NAVAJO NATION**

**LESSEE:**  
**UNITED STATES OF AMERICA**

By: \_\_\_\_\_  
Jonathan Nez, President                      Date

By: \_\_\_\_\_  
Gary B. Wilson                      Date  
Lease Contracting Officer  
Indian Health Service-DES





[illegible]

VERTICAL	
ELEVATION BASE	TO THE HORIZONTAL LOCATED AND ORIENTED MEASURED AT THE FOLLOWING LOCATIONS: FIND CHIEF OF THE SOUTH-SEWER IN SOUTH-EAST OF TABLE REACH CENTER.
ELEVATION	THRU IN
ELEVATION REFERENCE	TABLE REACH CENTER, SITE PLAN, AS SUBMIT BY MOORE ASSOCIATES INC. A LANDSCAPE ARCHITECTS, DATED AS SUBMIT THE PLAN NO. MP-2008
ELEVATION DATUM	PLAN ELEVATION DATUM (BOOKING)
VERTICAL UNIT	U.S. SURVEY FEET

SURVEY REFERENCES	
R1	STATE HEALTH CENTER PLATEAU MOUNTAIN DATED 12-24-88
R2	STATE HEALTH CENTER PLATEAU MOUNTAIN DATED 12-24-88
R3	STATE HEALTH CENTER PLATEAU MOUNTAIN DATED 12-24-88
R4	STATE HEALTH CENTER PLATEAU MOUNTAIN DATED 12-24-88

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**LOCATION MAP (NOT TO SCALE)**  
TSMALL, APACHE COUNTY, ARIZONA

**SHEET INDEX**

SHEET 1	COVER SHEET
SHEET 2	BOUNDARY INFORMATION
SHEET 3	TOPOGRAPHY INFORMATION
SHEET 4	ORTHOPHOTO INFORMATION

FEATURE	SIGNAL	FEATURE	SIGNAL
FOUND CONTROL MONUMENT AS NOTED	△	TELEPHONE/COMMUNICATION LINE	—
SET 1/4" REBAR BLS 1985Z	●	TELECOM BLUE STAKE	—
POINT POINT AS NOTED	○	CHY PROTECT	—
BENCH MARK	⊙	TELEPHONE/POWER FENCE	—
MAJOR CONTOUR LINE	—	SANITARY SEWER	—
MAJOR CONTOUR LINE	—	SANITARY SEWER BLUE STAKE	—
PROPERTY LINE	XXXX	MANHOLE, SANITARY SEWER	—
ADJUTING LINE	—	CLEAN OUT	—
EXISTENT LINE	—	SLOPE ARROW	—
CENTRE LINE	—	WATER LINE	—
A/C PASSENGER	—	WATER LINE BLUE STAKE	—
CURB	—	WATER VALVE	—
CONCRETE SIDEWALK OF PAV	—	WATER METER	—
BUILDING EXTERIOR WALL	—	WATER MANHOLE	—
BLACK NAIL	—	FIRE HYDRANT	—
STORM DRAIN	—	AIR RELEASE VALVE	—
STORM DRAIN CATCH BASIN	—	FIRE SERVICE	—
STORM WATER MANHOLE, STORM DRAIN	—	SHOCKLOK PREVENTOR	—
GAS LINE BLUE STAKE	—	REGULATOR CONTROL VALVE	—
GAS VALVE	—	REGULATOR BOX	—
GAS METER	—	ROLLAND	—
ELECTRIC LINE BLUE STAKE	—	SPOT ELEVATION	—
UNDERGROUND ELECTRIC LINE	—	RP RAY	—
OVERHEAD ELECTRIC LINE	—	TRAFFIC SIGN	—
ELECTRIC POWER POLE W/OUT WKS	—	TRAFFIC SIGN	—
POLE W/ MANHOLE	—	SHARED SIDE FENCE	—
W/70 A W/400 ARM	—	SHARED FRONT FENCE	—
ELECTRIC TRANSFORMER, PAV MOUNTED	—	CHAIN LINK WIRE FENCE	—
ELECTRIC METER	—	WIRE FENCE	—
FUNCTION BOX	—	DIRT ROAD	—
	—	1/4" LINE	—

**DOWL HKM**  
Alameda Blvd Tucson, Arizona 85701  
(520) 882-4888 Fax (520) 884-0284

[illegible]





# THE NAVAJO NATION

RUSSELL BEGAYE PRESIDENT  
JONATHAN NEZ VICE PRESIDENT



July 6, 2016

Navajo Area  
Indian Health Services  
ATTN: Floyd G. Thompson  
P.O. Box 9020  
Window Rock, AZ 86515-9020

Re: Land Withdrawal Designation for Tsaile Health Center Additional Health Quarters

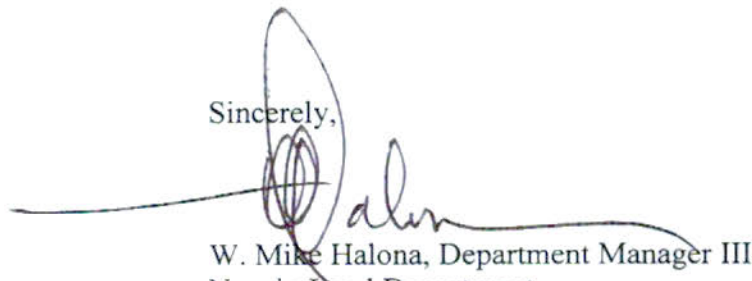
Dear Mr. Thompson:

Enclosed for your information and use is an approved Land Withdrawal Designation for the Tsaile Health Center. The Designation authorizes 10.71 acres more or less for the (30) Additional Health Quarters located in Section 04, T33N, R29E, G&SRM Tsaile, Arizona, Apache County for a five (5) year term, ending August 2021.

On June 16, 2015, the Resources and Development Committee of the Navajo Nation Council (RDCJN-33-15) delegated the Director of Navajo Land Department (NLD), Division of Natural Resources (DNR), the power and authority to give final approval of all Land Withdrawal Designations on the Navajo Nation.

The Land Withdrawal Designation has been approved for five (5) years if no development has transpired during the (5) year period you must notify and request another five (5) year withdrawal from Navajo Land Department (NLD). Thank you.

Sincerely,



W. Mike Halona, Department Manager III  
Navajo Land Department  
Division of Natural Resources

xc: Project Review files

## FIELD CLEARANCE CHECKLIST

(This form covers only damages and compensation to individual land users. It does not cover consideration or other fees to the Navajo Tribe. Use back if necessary to complete this form.)

1. Project Identification:

Applicant Navajo Area Indian Health Service, Division of Facilities Mgmt. & Engineering

Type of Project: Land Withdrawal and Lease

Purpose: Staff Housing & Related Improvements, Tsaile Health Center

Location: Tsaile, Apache County, Arizona

Identification number(s): \_\_\_\_\_

2. Amount of land affected: 11 acres, more or less

3. Land Status: Trust X Fee \_\_\_\_\_ Other \_\_\_\_\_

4. List names of all individuals whose land use rights will be affected by project:

Names	Census Number	Type of Land Use Right
1. <u>No Grazing Permittees and/or Land Users in the Area</u>	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____

5. Are all land users with claims to the affected lands as shown in Branch of Land Operations records included in the list in item 4? N/A

6. Have Grazing Committees or Land Board Member (whichever is appropriate) for the affected area confirm land user list in item 4 by signing acknowledgement below.

### ACKNOWLEDGEMENT

I acknowledge that due notice was given to the affected community of the proposed project, and according to my records and to the best of my knowledge the list of individuals in item 4 includes all land users who have land use rights in the affected lands.

6/27/2016  
Date

Thomas P. [Signature]  
Grazing Committee or Land Board Member

11-3  
District No.



Major 1010  
HCU - 302 - 69

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
Bureau of Indian Affairs  
Navajo Area Office  
Window Rock, Arizona 86515

October 31, 1969

Mr. Raymond Nakai  
Chairman, Navajo Tribal Council

Dear Mr. Nakai:

Please find enclosed herewith a copy of Resolution No. ACO-302-69, of the Advisory Committee of the Navajo Tribal Council, entitled "Withdrawal of Tribal Lands for Navajo Community College and Related Purposes at Tsailee, County of Apache, State of Arizona."

Resolution No. ACO-302-69 authorizes withdrawal of Tribal lands at Tsailee for the Navajo Community College and related facilities.

Under authority delegated to the Area Director by 10 BIAM 3.1 this resolution is hereby approved.

Sincerely yours,

Acting  
Assistant

*Val Vinc Brown*  
Area Director

Enclosure

Distribution:

Assistant Area Director (Programs)  
Assistant Area Director (Administration)  
Assistant Area Director (Education)  
Assistant Area Director (Resources)  
Agency Superintendents - 5  
Tribal Records - 2  
Tribal Operations (*Resolutions File*)  
Field Solicitor  
Tribal Treasurer  
Tribal Controller  
Tribal Land Investigation Dept.

Class "B" Resolution  
Area Approval Required,

ACO-302-69

Amended by,

WAP-87-72

RESOLUTION OF THE ADVISORY COMMITTEE  
OF THE NAVAJO TRIBAL COUNCIL

Withdrawal of Tribal Lands for Navajo Community College and  
Related Purposes at Tsailee, County of Apache, State of Arizona

WHEREAS:

1. Plans are now being made for the construction of Navajo Community College and related facilities at Tsailee, County of Apache, State of Arizona, and
2. The people of the Tsailee area whose land would be affected by the construction of the Navajo Community College and related facilities at Tsailee have consented to the use of the land for the college and related facilities, and
3. Tribal Council Resolution CJ-37-58, dated July 21, 1958, authorizes the Advisory Committee to withdraw, lease and permit Navajo Tribal land for school purposes.

NOW THEREFORE BE IT RESOLVED THAT:

The parcels of Tribal land described in Appendix "A" attached hereto, located at Tsailee, County of Apache, State of Arizona, are hereby set aside for the Navajo Community College and related facilities; said parcels to remain available for so long as they shall be used for the purpose stated.

CERTIFICATION

I hereby certify that the foregoing resolution was duly considered by the Advisory Committee of the Navajo Tribal Council at a duly called meeting at Window Rock, Navajo Nation (Arizona), at which a quorum was present and that same was passed by a vote of 11 in favor and 0 opposed, this 2nd day of October, 1969.

*Delson Almon*  
*Delson Almon*  
Vice Chairman  
Navajo Tribal Council



APPENDIX "A"

DESCRIPTION OF  
TSAILEE NAVAJO COLLEGE TRACT

A tract of land located at Tsailee, Apache County, State of Arizona, on the Navajo Indian Reservation, is more particularly described as follows:

Beginning at a point of 50 feet left from B.I.A. Route 12 Right-of-Way Marker Brass Cap P.T. Station 2434+25.00 Project N12 (19) 2 & 4;

Thence a distance of 1080.90 feet around the circular curve to the right, the radius of which is 5604.58 feet to a point;

Thence S. 46° 23' 54" W., a distance of 950 feet to a point;

Thence S. 43° 36' 06" E., a distance of 1500 feet to a point;

Thence N. 46° 23' 54" E., a distance of 950 feet to a point;

Thence S. 43° 36' 06" E., a distance of 755 feet to a point;

Thence a distance of 214.58 feet around the circular curve to the left, the radius of which is 5854.58 feet to a point;

Thence S. 45° 42' 06" E., a distance of 1625.42 feet to a point;

Thence S. 44° 17' 54" W., a distance of 587.37 feet to a point;

Thence S. 04° 34' 14" W., a distance of 1336.47 feet to a point;

Thence a distance of 1085.09 feet around the circular curve to the left, the radius of which is 2989.79 feet to a point;

Thence S. 73° 46' 34" W., a distance of 6110.38 feet to a point;

Thence N. 16° 13' 26" W., a distance of 1067.93 feet to a point;

Thence N. 58° 50' 46" W., a distance of 4166.47 feet to a

Thence N.  $31^{\circ} 09' 14''$  E., a distance of 2986.11 feet to a point;

Thence S.  $58^{\circ} 50' 46''$  E., a distance of 2650.0 feet to a point;

Thence N.  $31^{\circ} 09' 14''$  E., a distance of 3000 feet to a point;

Thence S.  $58^{\circ} 50' 46''$  E., a distance of 1798.44 feet to a point;

Thence N.  $35^{\circ} 20' 54''$  E., a distance of 1552.91 feet to the point of beginning.

The enclosed area of land contains 1026.48 acres, more or less.

#### CERTIFICATION OF SURVEY

I hereby certify that the survey and plat shown hereon represents a true and correct copy of a survey made in the field under my direction.

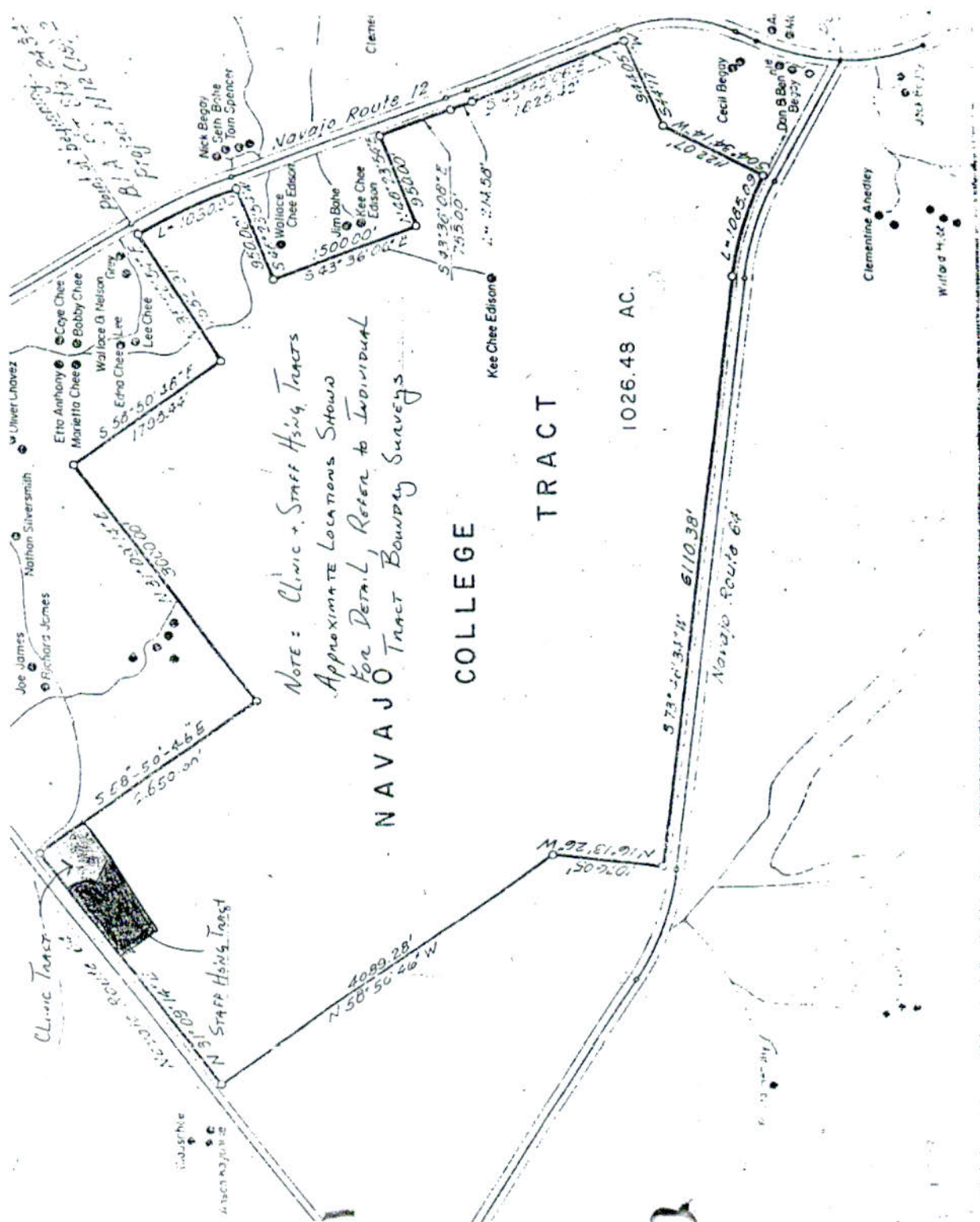
/S/ Harrison A. Yazhe  
Name:

Oct. 2, 1969  
Date:

Reg. P.E. No.: 1894

State of: N. Mex.







# **ENVIRONMENTAL ASSESSMENT**

## **TSAILE HEALTH CENTER ADDITIONAL STAFF QUARTERS TSAILE, ARIZONA**

### **DEPARTMENT OF HEALTH AND HUMAN SERVICES INDIAN HEALTH SERVICE NAVAJO AREA OFFICE**

Contact: Virgil Loretto  
Project Manager  
Navajo Area Indian Health Service  
Division of Facilities Management & Engineering  
Window Rock, Arizona  
Phone (928) 871-1379  
[virgil.loretto@ihs.gov](mailto:virgil.loretto@ihs.gov)

JANUARY 2016



**ENVIRONMENTAL ASSESSMENT REPORT FOR  
ADDITIONAL STAFF QUARTERS  
TSAILE HEALTH CENTER  
TSAILE, ARIZONA**

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## APPENDICES

A	Kickoff Meeting Record
B	Scoping Package
C	Listed Species Consultation Letter (NNDFW)
D	Archaeological Inventory Report (NNAD)
E	Floodplain Assessment (DOWL HKM)
F	Geotechnical Engineering Report (Terracon)
G	Topographic and Boundary Survey (DOWL HKM)



## **8.0 PROPOSED ACTION**

The Indian Health Service (HIS) under the authority of Public Law 94-437 is proposing the construction of additional Staff Quarters located in the Navajo Area Indian Health Service (NAIHS) on the Navajo Nation at Tsaile (Apache County), Arizona, to meet the health needs of the population for the Chinle Service Area (CSA). This Environmental Assessment (EA) has been prepared to analyze and document the potential environmental consequences from the construction activities.

### **8.0 Project Description**

A total of 30 new Staff Quarters, with associated access road and drives, will be constructed on a parcel of land being transferred from Dine College to the Navajo Area Indian Health Service. The Navajo Tribal Utility Authority (NTUA) will provide water, wastewater, and electricity for the proposed project. Wastewater will be tied into the existing sewage lagoon system. Disposal of solid waste will be transported to state-permitted landfills. Propane will be supplied by a private source.

### **1.2 Purpose and Need for Action**

The new Staff Quarters will allow for 30 new staff to serve at the Tsaile Health Center, increasing the number of patients served and the number of services offered.

### **1.3 Location**

The 4.33 ha (10.71 Ac) tract of land is located approximately 1,300 meters (4,265 feet) southwest of Indian Route 12 and 320 meters (1,050 feet) southeast of Indian Route 64 in the community of Tsaile, Arizona, in T33N, R29E, S4, Apache County at Lat 36°17'55.49"N, Long 109°13'16.86"W. See Figure 1-1.

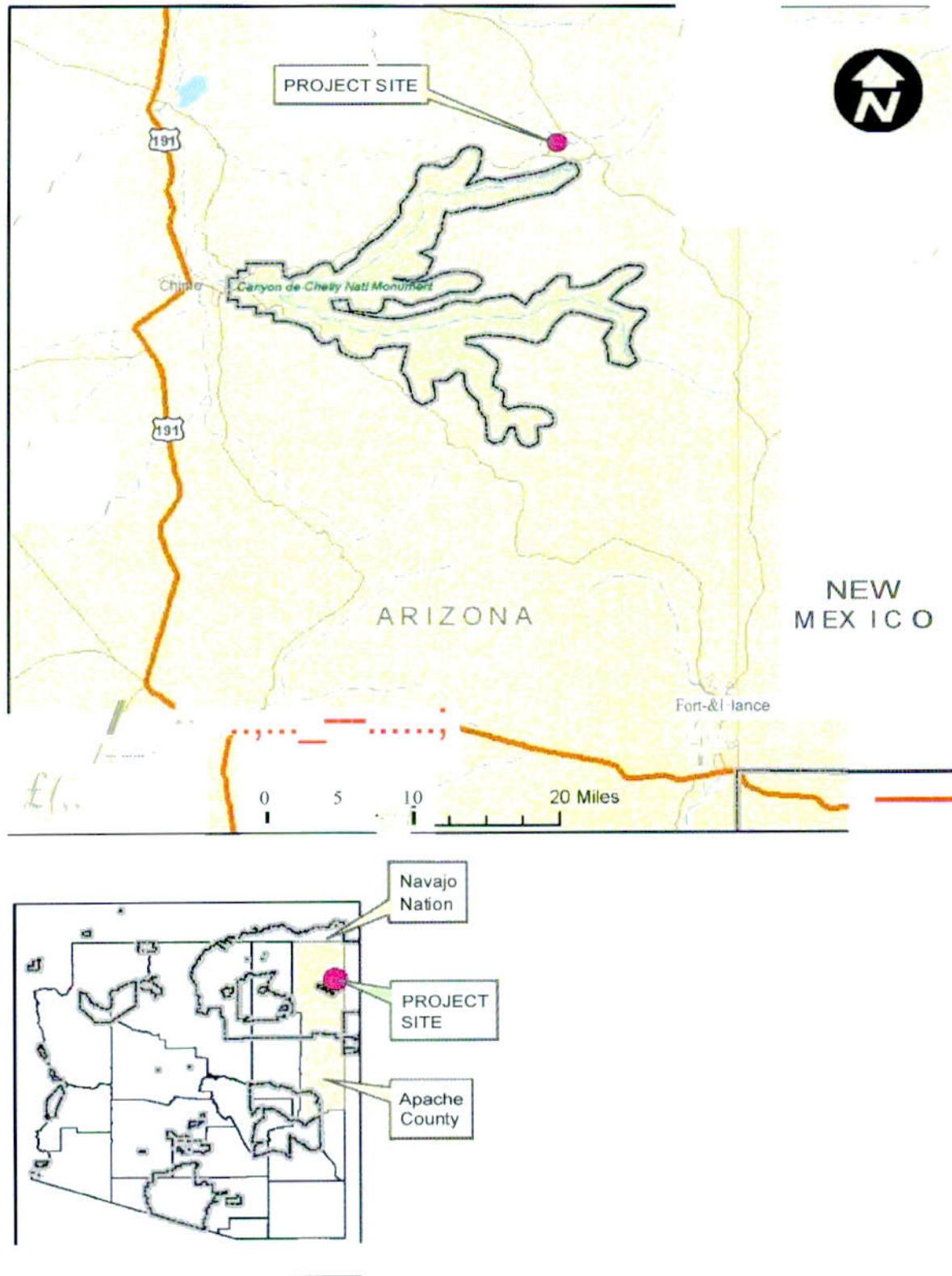


Figure 1-1. Vicinity Map



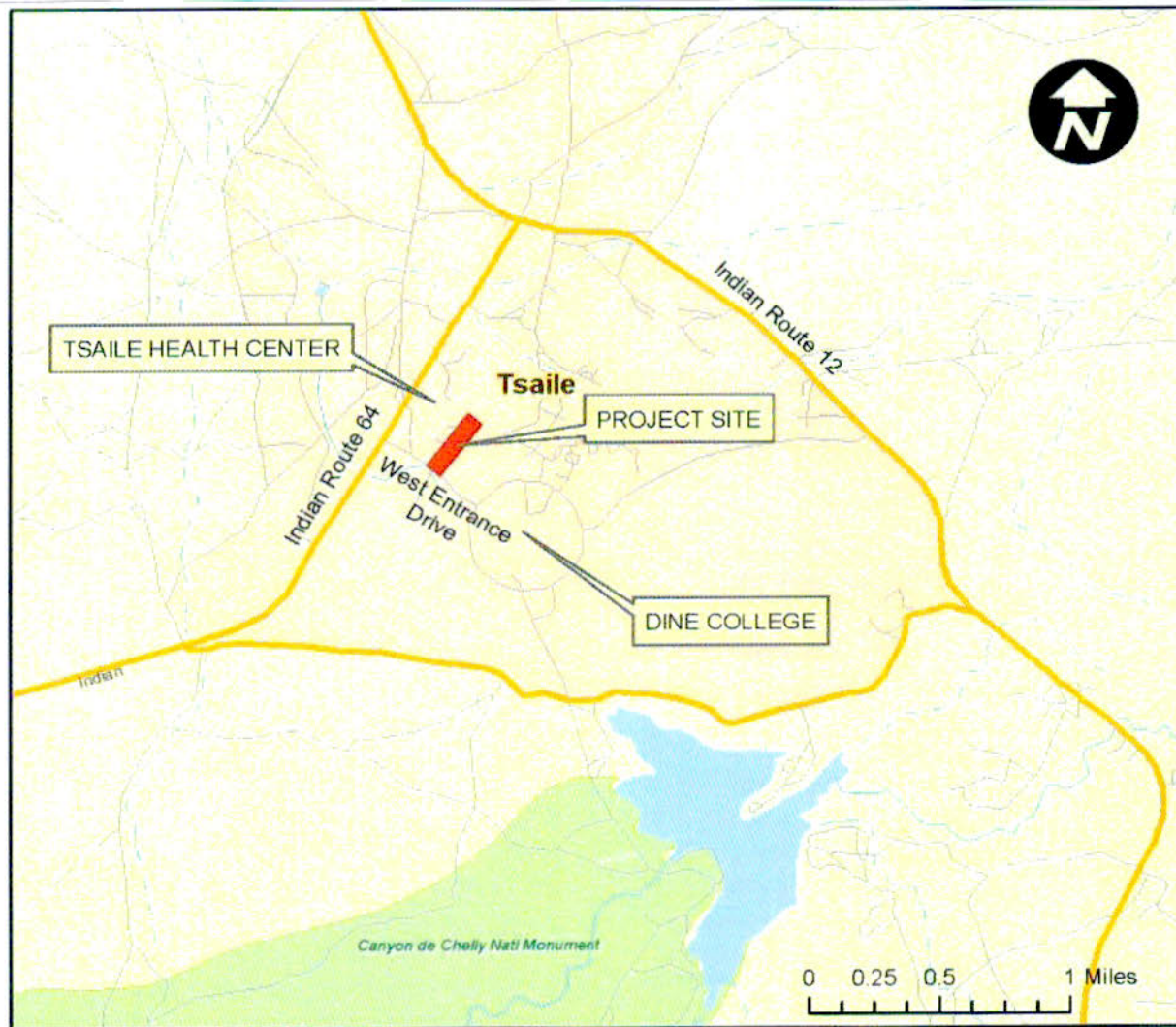


Figure 1-2. Project Area Map

## **2.0 ALTERNATIVES**

In planning the addition of staff quarters to serve people in the project area, HIS considered two options. In considering the different options, there are various constraints, including environmental, archaeological, technical, and fiscal requirements. A project can be postponed, cancelled, or altered because of any of these constraints.

### **2.1 Alternative A: No Action**

This option provides no additional staff quarters and therefore does not allow additional services or increase in patient capacity at the Tsaile Health Center. The environmental impacts would be minimal since no construction would be undertaken. However, this option would not change the present patient care conditions so it was rejected.

### **2.2 Alternative B: Proposed Action**

This option will provide new staff quarters at Tsaile Health Center, thus allowing additional staff to be hired and provide new services to meet the needs of the CSA. This option would aid in upgrading the health care for the CSA user population. The environmental impacts of this action are the subjects of this assessment. The approved Project Justification Document for Quarters delineates the health and technical details of this action, including considerations for alternatives.

### **2.3 Alternatives Dismissed from Consideration**

Two other sites were evaluated as possible locations for the additional staff quarters. Site #1 is located south of the intersection of BIA Route N-64 and the west entrance drive to Dine College. Site #2 is the mobile home park currently in use by staff and students from Dine College; it is owned and operated by the College. Site #1 was removed from further consideration due to a portion of the site being subject to flooding. Site #2 was removed from further consideration due to the necessity to relocate the existing mobile home park and its residents, and the costs to demolish the existing infrastructure.



### **3.0 EXISTING ENVIRONMENT**

#### **3.1 Topography**

The CSA is situated on the Colorado Plateau. Elevations within the project site range from 2,146 to 2,150 meters (7,043 to 7,053 feet) above sea level.

#### **3.2 Climate**

The climate is semi-arid, and temperatures range from 30 °C (85 °F) in the summer to -10 °C (14 °F) in the winter. Average annual rainfall is 27.6 cm (10.86 inches).

#### **3.3 Air Quality**

Apache County is in attainment for all criteria based on the EPA regional air quality designation maps (EPA, 2010).

#### **3.4 Geology**

The geotechnical report describing the borings conducted on the project site indicates that subsurface materials encountered across the site include: clayey sand, clayey silty sand, poorly graded sand, clayey silt, and lean clay with varying amounts of sand. Sandstone was encountered as shallow as 0.15 m (0.5 feet) beneath the surface and as deep as 6.2 m (20.5 feet). The sandstone is prevalent in the southwestern portion of the site. The soils are compressible and expansive. The on-site sandy soils may be suitable for use as engineered fill beneath the foundations, slabs-on-grade, and exterior slabs. No free groundwater was encountered in the explorations (Terracon, 2011).

#### **3.5 Water**

The Navajo Tribal Utility Authority (NTUA) owns and operates a municipal water supply system in the area. The total storage volume is preliminarily determined to be 7,560,000 liters (1,997,200 gal), with a working pressure of 792.9 kPa (115 psi). The maximum flow nearest to the site is in a 6 inch pipe, and is 10,220 lpm (2,700 gpm).

A hydrant flow test was conducted at the existing housing adjacent to the Tsaile Health Center on November 10, 2010. The flow rate tested at 2,915 lpm (770 gpm) with a calculated fire-flow rate of 3,195 lpm (844 gpm) at 137.9 kPa (20 psi). Desired fire flow in a fire hydrant is typically 5,678 lpm (1500 gpm) at 137.9 kPa (20 psi).

There is no visible surface water on the site, and the soils investigation did not encounter any groundwater.

#### **3.6 Vegetation**

The project site is located along the border between two biotic communities, Rocky Mountain Montane Conifer Forest and Great Basin Conifer Woodland (Brown, 2007). The project area vegetation consists of sagebrush, pinyon pine, rabbitbrush, and pincushion cactus. No

vegetation species included on the endangered species list or considered culturally important to the Navajo Nation are known to occur on the site.

### 3.7 Resource Use Patterns

A total of 4.33 ha (10.71 acres) has been set aside by Dine College for use by the HIS to construct the additional staff quarters.

### 3.8 Wildlife

Common species known to frequent the site, and observed during the site visit, include:

**Table 3-1. Species observed on site.**

Common Name	Scientific Name
Common raven	<i>Corvus corax</i>
Dark-eyed junco	<i>Junco hyemalis</i>
Hairy woodpecker	<i>Picoides villosus</i>
Domestic dog	<i>Canis spp</i>
Domestic cat	<i>Felis spp</i>
Cattle	<i>Bos spp</i>
Horses	<i>Equus spp</i>

Nesting habitat for migratory birds is present on the site.

### 3.9 Domestic Livestock

Community stockmen use the proposed site for grazing of sheep, horses, and cattle.

### 3.10 Threatened or Endangered Species

NAIHS consulted with the Navajo Nation Department of Fish and Wildlife (NNDFW) on US Fish and Wildlife Service (USFWS) and NNDFW species of concern with the potential to occur on or near the project site (Figure 1-2). NNDFW indicated that the species listed in Table 3-1 are known to occur within one mile of the project site (\*), are known to occur within three miles of the project site (+), or have the potential to occur within the Tsaile Quadrangle within which the project site is located (remainder of list). A site visit was conducted on October 28, 2010 to assess the site for habitat appropriate for the listed species. Habitat requirements for listed species were obtained from the Navajo Natural Heritage Program Species Accounts (NNHP, 2008).

**Table 3-2. Listed species within Tsaile Quad**

Scientific Name	Common Name	Status	Habitat	Potential to Occur on site based upon habitat
* <i>Cinclus mexicanus</i>	American dipper	NESL 3 MBTA	Clean unpolluted streams	No



Scientific Name	Common Name	Status	Habitat	Potential to Occur on site based upon habitat
<i>*Porzana Carolina</i>	Sora	NESL 4 MBTA	Wetlands	No
<i>+Picoides dorsalis</i>	Three-toed woodpecker	NESL 4 MBTA	Mature, old-growth conifer forests	No
<i>+Strix occidentalis lucida</i>	Mexican spotted owl	NESL 3 ESA T MBTA	Conifer stands, canyons, Douglas fir	No
<i>Aquila chrysaetos</i>	Golden eagle	NESL 3 MBTA EPA	Steep cliffs & adjacent grasslands	No
<i>Aechmophorus clarkii</i>	Clark's grebe	NESL 4 MBTA	Freshwater lakes	No
<i>Aegolius acadicus</i>	Northern saw-whet owl	NESL 4 MBTA	Mixed conifer, Ponderosa pine, Douglas fir	No
<i>Catostomus discobolus</i>	Bluehead sucker	NESL 4	Rivers, streams	No
<i>Cervus elaphus nelsoni</i>	Rocky Mountain elk	Economic	Conifer forests with openings	Yes Transient
<i>Coccyzus americanus</i>	Yellow-billed cuckoo	NESL 2 MBTA ESA C	Riparian broad-leaved woodlands	No
<i>Dendragapus obscurus</i>	Blue (dusky) grouse	NESL 4	High-elevation pine and fir forests	No
<i>Dendroica petechia</i>	Yellow warbler	NESL 4 MBTA	Wet, deciduous thickets	No
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher	NESL 2 ESA E MBTA	Dense riparian vegetation	No
<i>Falco peregrinus</i>	Peregrine falcon	NESL 4 MBTA	Steep cliffs	No
<i>Haliaeetus leucocephalus</i>	Bald eagle	NESL 3 ESA T MBTA EPA	Forested areas near water bodies	Yes Transient
<i>Meleagris gallopavo</i>	Wild turkey	Cultural Economic	Forest and open woodland	Yes Transient
<i>Mustela nigripes</i>	Black-footed ferret	NESL 2 ESA E	Active prairie dog towns	No
<i>Odocoileus hemionus</i>	Mule deer	Cultural Economic	Forests, shrublands	Yes
<i>Patagioenas fasciata</i>	American band-tailed pigeon	NESL 4	Montane conifer or mixed forest	No
<i>Lithobates (Rana) pipiens</i>	Northern leopard frog	NESL 2	Wetlands	No

Scientific Name	Common Name	Status	Habitat	Potential to Occur on site based upon habitat
<i>Speyeria nokomis</i>	Western seep fritillary	NESL 3	Perennially wet meadows	No
<i>Tachycineta bicolor</i>	Tree swallow	NESL 4 MBTA	Tree snags near open fields/water	No
<i>Ursus americanus</i>	Black bear	Cultural Economic	Forests and openings	Yes Transient
<i>Allium gooddingii</i>	Goodding's onion	NESL 3 ESA C	Mixed conifer forests, canyons	No
<i>Cystopteris utahensis</i>	Utah bladder-fern	NESL 4	Cliffs	No
<i>Erigeron rhizomatus</i>	Rhizome fleabane	NESL 2 ESA T	Fine textured clay hillsides	No
<i>Lesquerella navajoensis</i>	Navajo bladderpod	NESL 4	Windward mesa rims	No

Review of the habitat on site and comparison with the habitat required by the listed species results in one species that may be present commonly on site (mule deer), and four species that may utilize the site on a transient basis, during seasonal migration, or while foraging (Rocky Mountain elk, bald eagle, wild turkey, and black bear).

### 3.11 Socioeconomics

The quality of life will be improved for families within the CSA and the Tsaile community with the addition of staff quarters for the Tsaile Health Center. The increased quarters will cause a population growth within the community of Tsaile, which is encouraged and welcomed by the community.

### 3.12 Archaeological

The Navajo Nation Archaeology Department (NNAD) conducted a Cultural Resources Inventory for the proposed site and it is documented in a report dated February 18, 2011. A total of 4.39 ha (10.84 acres) was surveyed. During the course of the survey, no significant cultural resources were encountered. A determination of "no historic properties affected" is recommended for the undertaking, and archaeological approval is recommended by NNAD.



## **4.0 IMPACTS**

### **4.1 Physical Impacts**

The proposed construction will alter the topography of the project area the minimum extent possible to allow construction of homes, driveways, and an access road that will follow grading and accessibility regulations. The impacts will be limited to the 4.33 ha (10.71 acres) of land that has been withdrawn for use by IHS. Additional impacts will be attributed to utility construction and access to the Dine College entrance road.

### **4.2 Biotic Impacts**

Construction of the proposed staff quarters would cause a permanent loss of vegetation on 94% of the project site (4.07 ha (10.06 acres)). Development will include buildings, parking areas, access roads, utility installation, and sidewalks. There will also be a minor unavoidable loss of invertebrates and small mammals. Open space totaling approximately 0.26 ha (0.65 acres) will remain in the vicinity of existing trails and on the boundary side of the larger lots. The project's construction activities has the potential to disturb active nests of migratory birds.

### **4.3 Threatened and Endangered Species Impacts**

Consultation with Navajo Nation Department of Fish and Wildlife indicates that the project site and the surrounding area lack the habitat utilized by the listed species of concern listed by the USFWS and the NNDFW. There will therefore be no impacts to listed species (NNDFW, 2011).

### **4.4 Socioeconomic Impacts**

The proposed project will cause possible minimal change in land use due to an increase in population. Socioeconomic impacts will be minimal and limited to the surrounding community.

### **4.5 Archaeological Impacts**

The proposed project will cause no archaeological impact per the NNAD Cultural Resources Inventory report dated February 18, 2011 (NNAD, 2011).

### **4.6 Tribal Cultural Impacts**

The proposed project will have negligible impact on the tribal culture. Resolutions supporting the project and the site location were passed by the local chapters. Copies of the resolutions are located in Tab B of Phase 1 SSER.

### **4.7 Solid Waste Disposal Impacts**

The non-hazardous solid waste will be controlled, stored, and disposed of by licensed vendors who will transport and dispose of the solid waste at state-permitted landfills off the Navajo Nation in accordance with respective state regulations.

## **5.0 MITIGATION MEASURES**

### **5.1 Physical Resources**

Construction of the proposed staff quarters would be in accordance with the established procedures of the IHS. The site will be designed to balance cut and fill. Excess materials generated during construction would be disposed of in authorized disposal areas. All construction areas will be stabilized and erosion control structure(s) installed and best management practices followed in compliance with the "Navajo Land Clearing, Excavation, and Reclamation Stipulations for Rights-of-Way over Indian Lands," as they may apply to this project.

Based upon the geotechnical engineering analyses, the proposed structures can be supported on post-tensioned foundation/slab systems bearing on a minimum of two feet of non-expansive low permeability engineered fill placed on a minimum of eight inches of scarified, moisture conditioned and compacted competent native soils.

The low fire-flow at the fire hydrant will be compensated for by the residential sprinkler systems installed in each unit. There is enough water capacity and pressure within the water system to operate the residential sprinklers.

### **5.2 Biotic Resources**

To avoid removal and/or disturbance of nests of migratory birds, construction should be initiated during the non-breeding season of August 15 to April 15. The construction may extend into the breeding season if needed, as migratory birds will typically not establish a nest site within an active construction zone. If the seasonal avoidance recommendation is not followed, the activity will require a pre-construction survey for the presence of active nests. If an active nest is discovered, a nest take permit must be obtained from the USFWS for the removal of the nest, eggs, and/or nestlings to be raised in a federally permitted migratory bird rehabilitation facility. The removal must be conducted by a federally permitted migratory bird rehabilitator (NNDFW, 2011).

### **5.3 Socioeconomic Resources**

No mitigation will be required as the project will provide positive social and economic benefits.



## 6.0 LIST OF PREPARERS

Virgil Loretto, NAIHS, Project Manager  
Celia M. Adams, DOWL HKM, Environmental Specialist

## 7.0 PERSONS AND AGENCIES CONSULTED

Several individuals were consulted in preparation of this EA. Their names and affiliations are shown below.

Name	Agency	Department-Position/Title
Sonja Detsoi	Navajo Nation Department of Fish and Wildlife	Wildlife Technician
Pamela Kyselka	Navajo Nation Department of Fish and Wildlife	Wildlife Biologist

## 8.0 REFERENCES

(Brown, 2007). Brown, David et al. A digitized biotic community map for plotting and comparing North American Plant and Animal Distributions. Arizona State University. January 2007.

(EPA, 2010). EPA. Region 9: Air Programs. Air Quality Maps. Accessed December 2010 at: <http://www.epa.gov/region9/air/maps/index.html>

(NAIHS, 2009). Navajo Area Indian Health Service. Phase I Site Selection and Evaluation Report. Additional New Staff Quarters for Tsaile Health Center. May 2009.

(NNAD, 2011). Navajo Nation Archaeology Department. Archaeological Inventory Report. A Cultural Resources Inventory of 10.84 acres of land tract for the Indian Health Service in Tsaile, Apache County, Arizona.

(NNDFW, 2011). Navajo Nation Department of Fish and Wildlife. Biological Resources Compliance Form and concurrence letter. January 3, 2011.

(NNHP, 2008). Navajo Natural Heritage Program. Navajo Nation Endangered Species List. Species Accounts. Version 3.08, August 2008.

(Terracon, 2011). Terracon. Geotechnical engineering report, Tsaile Indian Health Services Staff Housing, Tsaile, Arizona. May 6, 2011.





March 18, 2011

Re: Tsaile Health Center Additional Staff Quarters  
Tribal / Agency Scoping / Request for Comments

Dear Tribal / Agency Representative,

The Navajo Area Indian Health Service (NAIHS) is proposing to construct additional quarters for health center staff in Tsaile, Arizona (AZ), within the Navajo Indian Reservation. DOWL HKM is under contract to prepare the environmental documentation for this project. The parcel proposed for development is southeast of the existing Tsaile Health Center south of the intersection of Indian Route 12 and Indian Route 64 (Figures 1 and 2). The site is located at approximately 36°17' 55.49" North Latitude and 109° 13' 16.86" West Longitude. (Sec. 4, T33N, R29E, Gila-Salt River Meridian), and is shown on USGS Quad Tsaile.

#### **EXISTING CONDITIONS / PURPOSE AND NEED**

Tsaile Health Center is limited in the services it can provide and the number of patients it can serve by the amount of personnel on its staff. In order to hire more staff, the IHS needs to be able to provide housing for new personnel, as there is neither enough housing in the area nor enough qualified personnel.

#### **PROPOSED ACTION**

The proposed action consists of building new staff quarters on a 10 acre (4.05 ha) parcel which is currently undeveloped. The proposed action will allow NAIHS to recruit non-local staff by ensuring the availability of safe, suitable housing. These additional staff are essential to the continuity of the health care delivery at Tsaile Health Center.

Proposed improvements will require the following:

- Construct new staff quarters, consisting of approximately 14 new buildings
- Install new utility infrastructure to serve the quarters, including water, sewer, electric, telephone
- Construct access roadways, including sidewalks

## PRELIMINARY RESEARCH RESULTS

For preliminary research results of environmental resources in the project area, see Appendix A, which is attached. The proposed site is currently undeveloped. Since there are no impacts proposed to nearby streams or their buffers, Section 404 and 401 permitting will not be required. No adverse impacts are anticipated to wetlands. Consultation has been made with Navajo Nation Department of Fish and Wildlife about listed species habitat.

An agency scoping meeting and/or site visit can be arranged, upon request. Scoping comments can be submitted by mail or e-mail to Celia Adams. To ensure that all factors are considered in the environmental and design studies, your comments are requested by April 15, 2011.

Sincerely,  
Cecil M. Adams, EIT  
Environmental Specialist  
cadams@dowlhkm.com

Enclosures: Appendix A  
Figure 1 -Vicinity Map  
Figure 2 – Project Area Map



## **TSAILE HEALTH CENTER ADDITIONAL STAFF QUARTER**

### **APPENDIX A**

#### **Preliminary Research Results**

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3. Farmlands: There are no farmlands on the site or in the project vicinity. Grazing of domestic stock occurs on the site and neighboring properties. Soils mapping is not available in this location. Consultation will be made with USDA for review of the soils, and application will be made to the USDA for review of farmland status on the project site.
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5. Wild and Scenic Rivers: Review of the Wild and Scenic Rivers website (<http://www.rivers.gov/wildriverslist.html>) revealed that the Rio Chama River is designated a Wild and Scenic River and is located 138 miles east of the project site, in New Mexico.
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## APPENDIX A

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  15. Historical, Archeological and Cultural Properties: Chaco Culture National Historic Park is located 70 miles to the east. Consultation in accordance with Section 106 of the National Historic Preservation Act will be conducted with the Tribal Historic Preservation Officer and the Navajo Nation Historic Preservation Department to determine whether this project is likely to affect any historic or cultural properties or practices.
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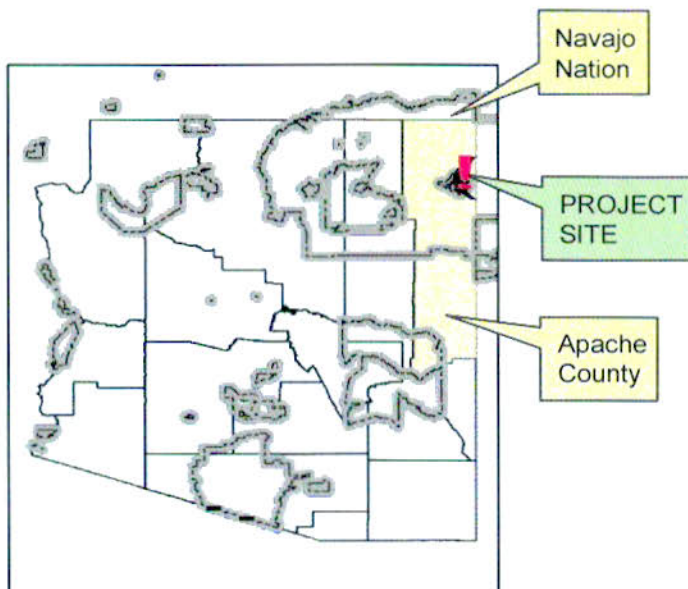
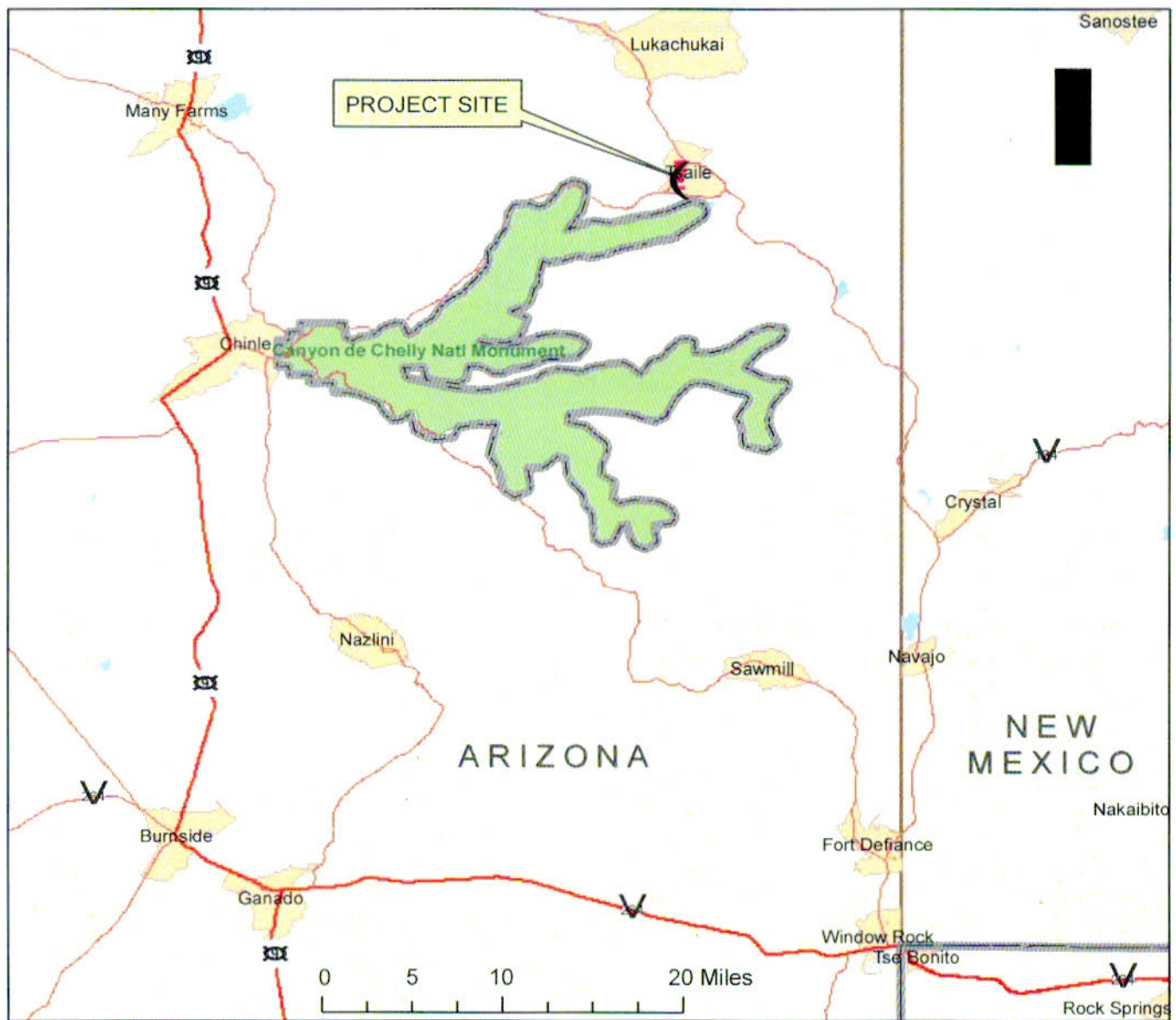
## APPENDIX A

### Preliminary Research

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These sites were evaluated in a Phase I Site Selection Evaluation Report, and the preferred site was selected for proposed action.

18. Socioeconomic Impacts: The additional quarters would increase the local population, which would benefit the local economy, in addition to the construction cost of the buildings. The structures are also anticipated to increase local property values. The project is therefore considered to have net positive socioeconomic impacts.
19. Utilities: The ability of existing utilities to serve the new quarters in terms of capacity and location will be confirmed. The need for any new utilities will be addressed, and coordination will be made with the Navajo Tribal Utility Authority. The exact methods of connection will be determined during the design phase.
20. Transportation and Access: Access to the new quarters would be from the Entrance Drive to Dine College. Coordination will be made with the College and BIA as appropriate.
21. Noise: Noise impacts from both construction and occupation of the quarters are not expected to create adverse impacts.
22. Environmental Justice: No minorities or disadvantaged individuals or businesses are expected to be adversely impacted by the proposed project.
23. Tribal Issues: The Tsaile/Wheatfield Chapter of the Navajo Nation is in full support of the development of the quarters at this location.
24. Public Safety: The Tribal police and fire departments are to be consulted as to the capacity of their forces to serve the new facility.

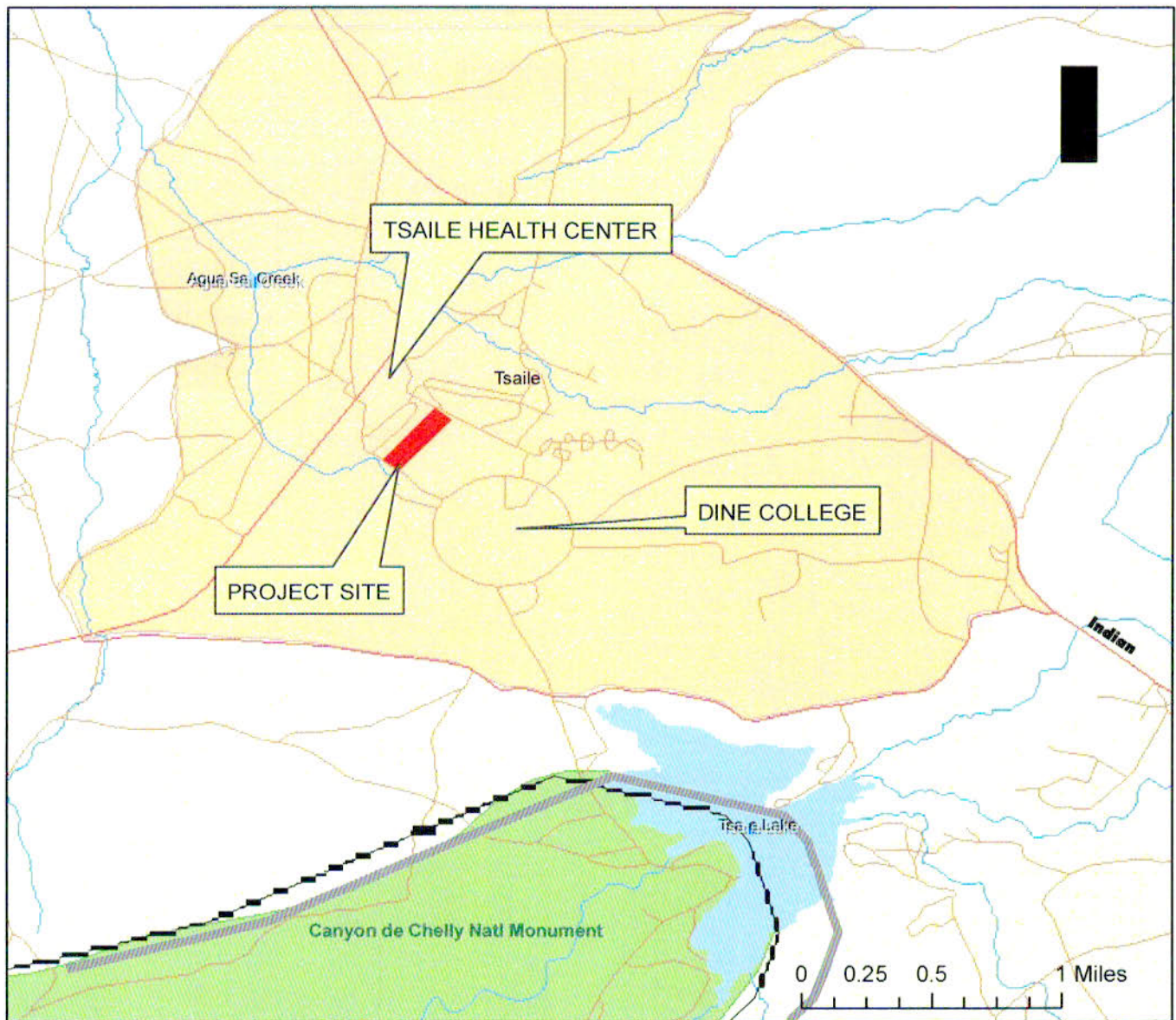


# TSAILE HEALTH CENTER ADDITIONAL STAFF QUARTERS

VICINITY MAP  
 FIGURE 1

MARCH, 2011





TSAILI HEALTH CENTER  
ADDITIONAL STAFF QUARTERS

PROJECT AREA MAP  
FIGURE 2

MARCH, 2011

APPENDIX B

LISTED SPECIES CONSULTATION LETTER  
NNDFW



**DOWL HKM**

## Meeting Record

**Project:** IHS Tsaile HC Additional Staff Quarters W.O. 3033.40527.01  
**Date/Time:** 10/28/10 2 pm  
**Purpose:** Environmental Assessment Kickoff Meeting  
**Reported By:** Celia M. Adams, EIT

Attendees	Representing
Virgil Loretto	IHS – Navajo Area Office
Robert Begay	IHS – Tsaile Health Center
Della Wauneka	IHS – Tsaile Health Center
Fawn Damon	IHS – Tsaile Health Center
Martha Yazzie	IHS – Tsaile Health Center
Ron Tso	ISH – Chinle Service Unit
Jack Jackson	Dine College
Vernon Rosamond	SRa
Bill Draper	SRa
Kim Preston	Terracon
Tyrone Trujillo	NNAD
Celia Adams	DOWL HKM

Action Item	Discussion Items
<ul style="list-style-type: none"><li>•</li></ul>	<ol style="list-style-type: none"><li>1. The purpose of the meeting was stated by Virgil Loretto (IHS) and introductions were made around the table.<ol style="list-style-type: none"><li>a. The purpose of the environmental review is to consider the impacts due to construction of additional staff quarters on a parcel of land currently held by Dine College</li></ol></li></ol>

Action Item	Discussion Items
•	<p>2. Mr. Tso discussed the project background.</p> <ul style="list-style-type: none"> <li>a. The project began several years ago with the intent to accomplish part of the Tsaille Facility Master Plan</li> <li>b. The project originally included construction of a Wellness Center</li> <li>c. The Phase I SSER was completed, and identified the most feasible site.</li> <li>d. Robert Nakai (director of Navajo Nation Special Diabetes Project, NNSDP) toured the Window Rock fitness center with Dr. Clark (former president of Dine College). Dr. Clark decided at that point that the Wellness Center should be located on the Dine College campus adjacent to the existing gym. Dine College agreed with the Navajo Nation that they would develop the Wellness Center together with a grant from the NNSDP. IHS, therefore, removed the Wellness Center from their project.</li> <li>e. IHS is pursuing an expansion of the Tsaille Health Center, to include Public Health facilities. However, in order to expand, they need additional staff, and therefore staff housing. Dine College has offered 10 acres of the land they withdrew from Trust Land for development of the additional quarters.</li> <li>f. This current project will include Phase II SSER of developing the staff quarters on the 10 acres, completing the PJDQ for the staff quarters and revising the Facility Master Plan.</li> </ul>
•	<p>3. Alternatives to be studied in the EA:</p> <ul style="list-style-type: none"> <li>a. Three sites were reviewed in the Phase I SSER.</li> </ul>
•	<p>4. The project received NTP on 10/11/10 and there are 36 weeks to complete, with a final due date of 6/20/11.</p>
• Robert Begay to provide plans to DOWL HKM showing survey control points.	<p>5. Consultant Deliverables for this Phase:</p> <ul style="list-style-type: none"> <li>a. Environmental Assessment – DOWL HKM; includes legal survey and floodplain study. Plans showing control points for the legal survey have been requested from Tsaille HC.             <ul style="list-style-type: none"> <li>i. The legal survey will mark in the field the boundary of the 10 acre parcel as sketched on Exhibit B (attached).</li> </ul> </li> <li>b. Cultural Resources Survey – NNAD             <ul style="list-style-type: none"> <li>i. NNAD will review mitigation procedures based upon results of survey.</li> <li>ii. The survey cannot begin until the legal survey is complete and the site is located in the field.</li> </ul> </li> <li>c. Geotechnical Study – Terracon             <ul style="list-style-type: none"> <li>i. IHS has determined that 10 20' deep borings would be preferred instead of 6 as outlined in the scope. Virgil will request a mod to the contract from IHS Dallas.</li> <li>ii. The geotechnical work cannot begin until the legal survey and the cultural study are complete.</li> <li>iii. The study will take 4-6 weeks to complete.</li> </ul> </li> </ul>



Action Item	Discussion Items
	<ul style="list-style-type: none"> <li>d. Phase II SSER Report – SRa; SRa will be compiling the various studies and reports into the final Phase II SSER. Bill Draper will be the point of contact at SRa.</li> <li>e. Tsaile Health Center Master Plan Update – SRa. The last plan was completed in 2003. Due to the removal of the Wellness Center from the plan, it needs to be revised with updated priorities</li> <li>f. PJDQ/PORQ – SRa. SRa will finalize these two items for signature by IHS.</li> </ul>
•	<p>6. Virgil briefly described the Indian Health Service environmental review process.</p> <ul style="list-style-type: none"> <li>a. IHS will be preparing the FONSI</li> <li>b. Scoping review time will be thirty days</li> <li>c. Celia Adams (DOWL HKM) reviewed potential environmental assessment issues to obtain comments and concerns from personnel present. Discussion items and their associated action items are outlined below.</li> </ul>
•	<p>7. <b>TRANSPORTATION AND ACCESS:</b> No permits/permission are anticipated to be required for access to the Dine College driveway. There will be no access on the east side of the parcel. The Dine College driveway is scheduled to be resurfaced soon.</p>
•	<p>8. <b>EMPLOYMENT:</b> The number of contractors required for construction of the quarters is dependent on how many quarters are to be constructed. This information will be available in the finalized PJDQ.</p>
•	<p>9. <b>CULTURAL/ARCHAEOLOGICAL RESOURCES:</b> NNAD will survey the site after the surveyors have marked the parcel boundaries in the field. If archaeological or cultural sites are located, NNAD will make avoidance and mitigation recommendations.</p>
•	<p>10. <b>VISUAL IMPACTS:</b> The new quarters will be one or two story, single or duplex, depending on the results of the PJDQ. They will be located adjacent to an existing trailer park and will be different architecturally from the existing quarters on the Tsaile HC site.</p>
•	<p>11. <b>ENVIRONMENTAL JUSTICE:</b> The project site is located within the Navajo Reservation. No minorities or disadvantaged individuals or businesses are expected to be adversely impacted by the proposed project.</p>
•	<p>12. <b>VEGETATION AND WILDLIFE:</b> A data request will be submitted to NNDFW for a wildlife review.</p>



Action Item	Discussion Items
<ul style="list-style-type: none"> <li>• Martha Yazzie to provide trail information to DOWL HKM.</li> <li>• IHS to provide DOWL HKM with contact information for solid waste handlers.</li> <li>• Virgil to obtain a copy of the resolution and forward to DOWL HKM.</li> </ul>	<p><b>13. SOILS AND GEOLOGY:</b> Seismic issues will be addressed in the geotech report. The POR will state if the buildings are required to have structural mitigation for seismic issues.</p> <p><b>14. RECREATION:</b> No existing recreational facilities will be eliminated or impacted. A three mile trail is proposed for the perimeter of the Dine College campus and the Health Center.</p> <p><b>15. AIR POLLUTION:</b> Navajo Nation regulations will be followed to reduce impact on air quality.</p> <p><b>16. HUMAN HEALTH AND SAFETY:</b> There is a large amount of foot traffic along the Dine College driveway. Sidewalks along the driveway may be considered in the final design.</p> <p><b>17. WASTE MANAGEMENT (WASTEWATER, CONSTRUCTION WASTES, HOSPITAL AND SOLID WASTE):</b> Residential waste is collected under a Navajo sanitation contract. The construction waste will be bid out to a contractor for removal to an approved landfill off the reservation.</p> <p><b>18. WATER RESOURCES (WATER SUPPLY AND WATER QUALITY ISSUES, GROUNDWATER AND SURFACE WATER):</b> No wetlands or streams are present on the site. NTUA will be contacted concerning water quality and capacity.</p> <p><b>19. FLOODPLAIN:</b> The site is expected to be located outside the 100-year floodplain. The floodplain study will confirm this.</p> <p><b>20. LAND USE, ZONING, AND AIR SPACE USE:</b> The land was withdrawn from Trust Land for use by the Dine College. Dine College has agreed to allow IHS to build the staff quarters on 10 acres of the withdrawn land as a tenant. It is anticipated that the IHS will need a use permit, conduct a land transfer, be approved by the NN Board of Regents, or enter a MOU with Dine College. Rod Begay had the original resolution concerning the land.</p> <p><b>21. UTILITIES (ELECTRIC, TELECOMMUNICATIONS, SEWER and GAS):</b> NTUA will provide water, electric, and sewer services. Natural gas is provided as propane by several available vendors. Telecommunication is provided by Frontier.</p> <p><b>22. HOSPITAL SERVICES, OUTPATIENT AND TRIBAL:</b> There are sufficient services to meet the needs of the additional staff and their families.</p> <p><b>23. NOISE:</b> Construction activities will be limited to weekday, daylight hours to limit impact of noise on neighboring facilities and residences. Construction is anticipated to take 12 months, with a break in the winter.</p>



Action Item	Discussion Items
•	24. <b>SOCIOECONOMICS:</b> The new quarters are anticipated to help the local economy. The existing school system has enough capacity for family members of additional staff. The new staff hires would be given tribal preference, but could be anybody.
•	25. <b>CONTROVERSY:</b> There is no known controversy among the existing residents about the proposed quarters.
•	26. <b>CUMULATIVE IMPACTS:</b> Possible plans in the area include the Wellness Center on the Dine College campus, expansion of the Tsaille Health Center, a new high school, and an archive center adjacent to the library on the Dine College campus.
•	27. <b>TRIBAL ISSUES:</b> The NN is in agreement with the quarters being constructed at this location.
•	28. <b>Communication Schedule:</b> Fawn and Virgil will communicate weekly about the project and monthly with the team via webex or teleconference.

*The directions and information reflected in this memorandum are a summary of the discussions held at the meeting. DOWL HKM is proceeding with work based on the direction and information contained within this memo. Please inform the originator of the memo immediately, but no later than 3 working days of distribution, if there are errors or corrections required.*

Attachments:

1. Attendee List
2. Exhibit B



166 W ALAMEDA, TUCSON, AZ 85701

PH: (520)882-8696 FAX: (520)624-0384

**PROJECT:**

Tsaille Staff Quarters Site Assessment

**MEETING PURPOSE:**

## Kickoff and Scoping Meeting

DATE:

10/28/2010

PROJECT NO:

3033.40527.01

NAME

Celia Adams  
Kim Prestor  
VIRGIL LORETO  
DeLaWayneka  
Wesmon KOSIMOLU  
~~BILL DRAPE~~  
Robert B. Begay  
~~James T. J. II~~  
Monisha-Lazee  
KOHLE  
FANNI DANA  
JACKSON JACKSON

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APPENDIX B  
SCOPING PACKAGE

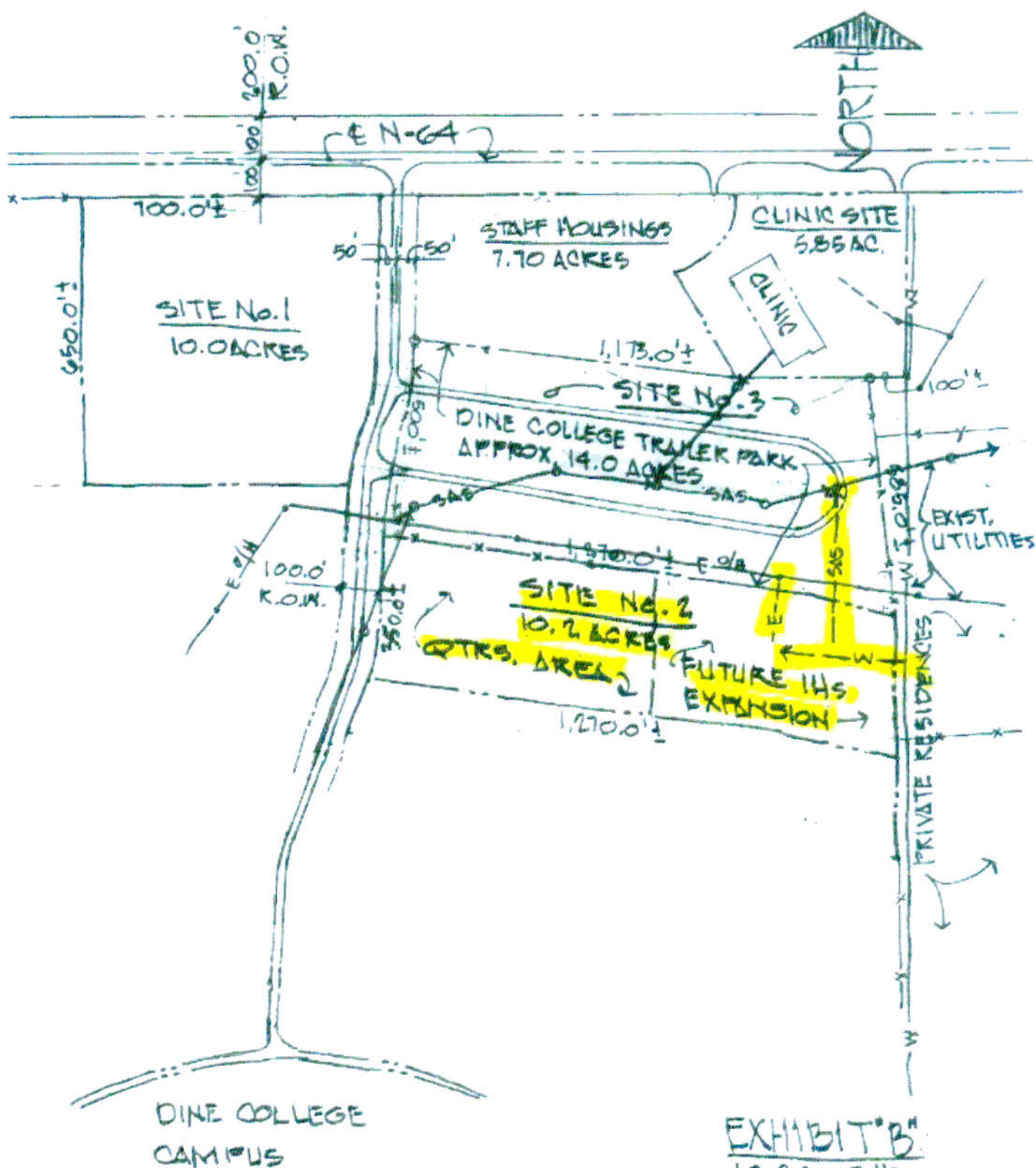


EXHIBIT "B"  
10-26-07  
REV. 9-29-08





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  16. Aesthetic Resources/Visual Impacts: The new structures would be designed so as not to be an adverse aesthetic visual impact to the area. It is the goal of IHS for the new buildings to be architecturally comparable and complementary to existing buildings in the area.
  17. Land Use, Zoning: A Facility Master Plan prepared for the Tsaile Health Center included development of staff quarters on one of three sites near the health center.



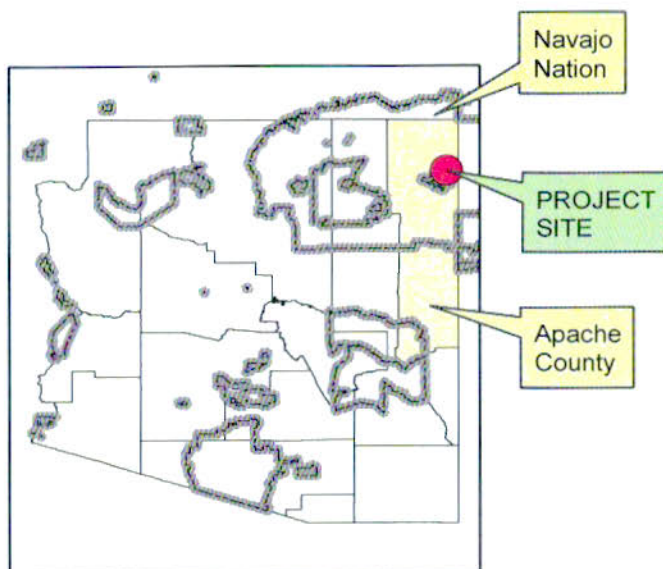
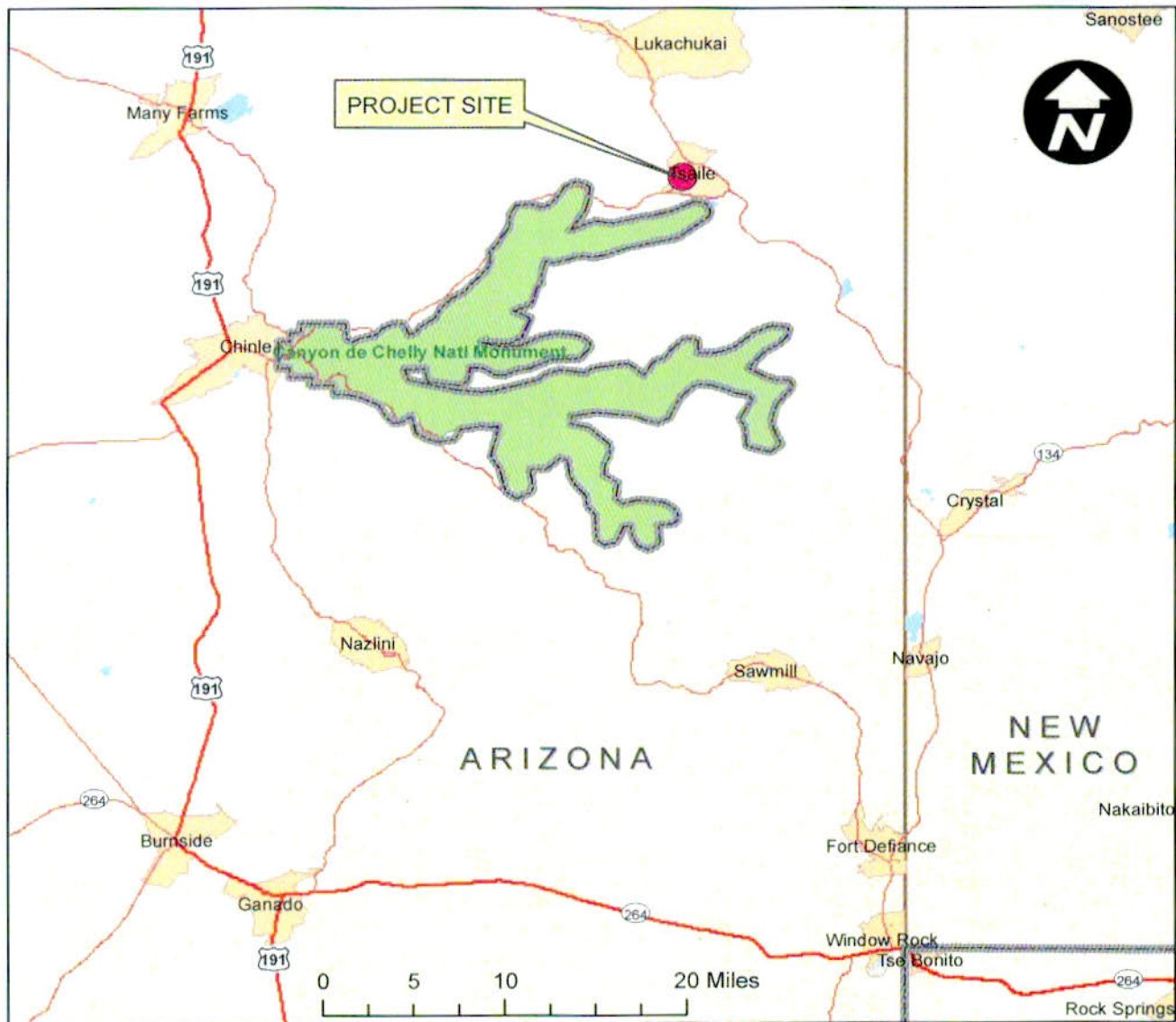
## APPENDIX A

### Preliminary Research

---

These sites were evaluated in a Phase I Site Selection Evaluation Report, and the preferred site was selected for proposed action.

18. Socioeconomic Impacts: The additional quarters would increase the local population, which would benefit the local economy, in addition to the construction cost of the buildings. The structures are also anticipated to increase local property values. The project is therefore considered to have net positive socioeconomic impacts.
19. Utilities: The ability of existing utilities to serve the new quarters in terms of capacity and location will be confirmed. The need for any new utilities will be addressed, and coordination will be made with the Navajo Tribal Utility Authority. The exact methods of connection will be determined during the design phase.
20. Transportation and Access: Access to the new quarters would be from the Entrance Drive to Dine College. Coordination will be made with the College and BIA as appropriate.
21. Noise: Noise impacts from both construction and occupation of the quarters are not expected to create adverse impacts.
22. Environmental Justice: No minorities or disadvantaged individuals or businesses are expected to be adversely impacted by the proposed project.
23. Tribal Issues: The Tsaile/Wheatfield Chapter of the Navajo Nation is in full support of the development of the quarters at this location.
24. Public Safety: The Tribal police and fire departments are to be consulted as to the capacity of their forces to serve the new facility.

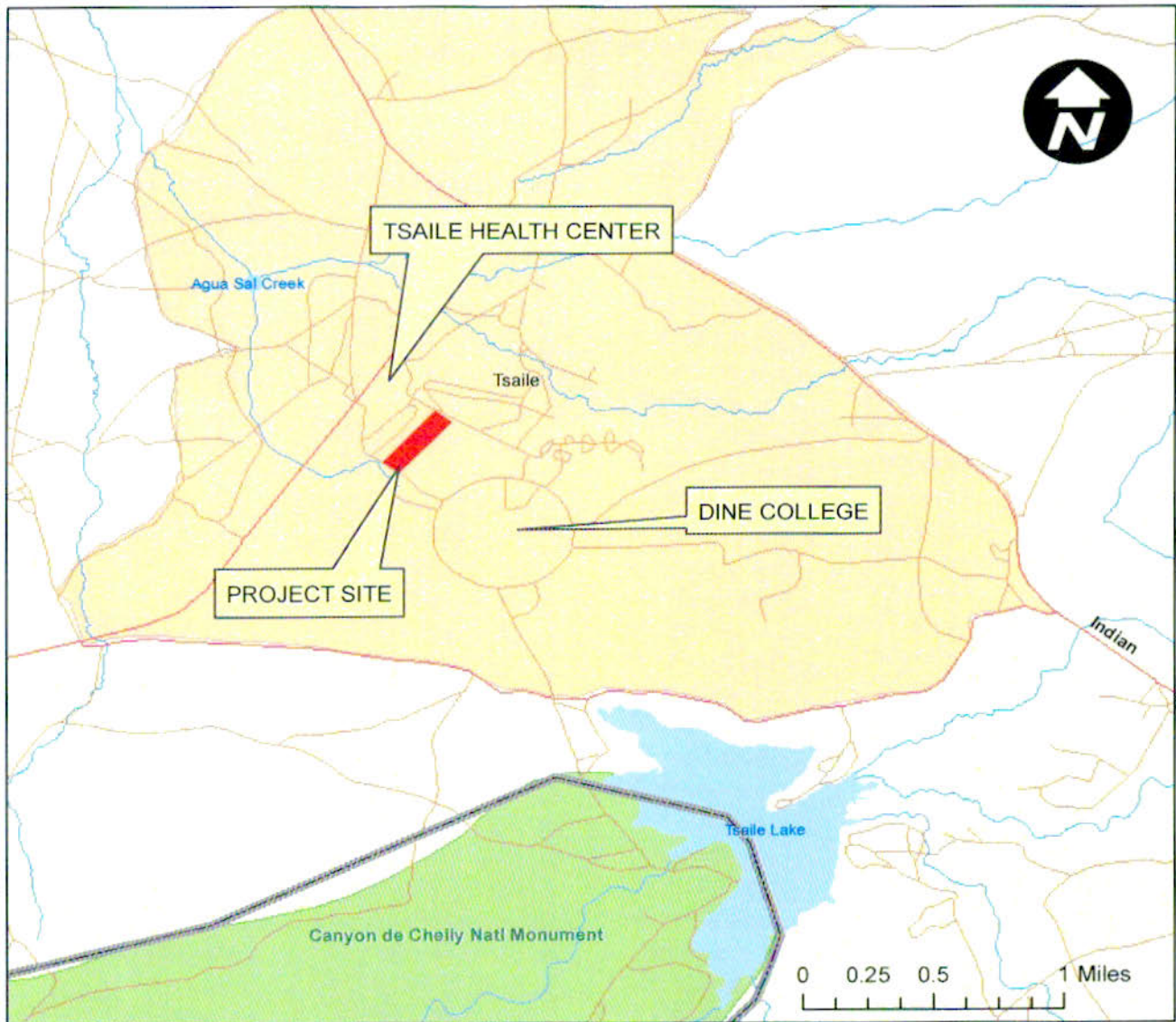


TSAILE HEALTH CENTER  
 ADDITIONAL STAFF QUARTERS

VICINITY MAP  
 FIGURE 1

MARCH, 2011





TSAILÉ HEALTH CENTER  
ADDITIONAL STAFF QUARTERS

PROJECT AREA MAP  
FIGURE 2

MARCH, 2011

APPENDIX C

LISTED SPECIES CONSULTATION LETTER  
NNDFW





RECEIVED

JAN 12 2011

DOWL HKM

**PRESIDENT**  
**JOE SHIRLEY, JR.**  
**VICE PRESIDENT**  
**BEN SHELLEY**



NAVAJO FISH AND WILDLIFE

P O BOX 1480

WINDOW ROCK, AZ 86515

03 January 2010

10NAIO01

Celia M. Adams, Environmental Specialist  
DOWL HKM  
166 West Alameda  
Tucson, Arizona 85701

Ms. Adams,

The Navajo Nation Department of Fish and Wildlife (NNDFW) reviewed Tsaile Health Center's project for the construction of additional staff quarters. The project will require the removal of nesting habitat for non-endangered Migratory Birds. The purpose of this letter is to inform you that we are granting the proposed project a Conditional Approval. The project is approved with the following condition:

(1) Proposed project activities that require the removal or disturbance of nesting habitat during the Migratory Bird breeding season of 15 APR - 15 AUG will require a pre-construction survey for the presence of active nests. If an active nest is discovered during the pre-construction survey, a nest take permit must be obtained from the U.S. Fish and Wildlife Service for the removal of the nest, eggs, and/or nestlings to be raised artificially in a federally permitted migratory bird rehabilitation facility. The nest, eggs, and/or nestlings must be removed by a federally permitted migratory bird rehabilitator.

Please contact me at 928-871-7065 with any questions that you have concerning the review of this project.

Sincerely,

Pamela A. Kyselka, Wildlife Biologist  
Navajo Natural Heritage Program – Environmental Review  
Navajo Nation Department of Fish and Wildlife

CONCURRENCE

Gloria Tom, Director  
Navajo Nation Department of Fish and Wildlife

xc: nnhp\_file  
chron  
BIA, Harilene Yazzie

**BIOLOGICAL RESOURCES COMPLIANCE FORM**  
**NAVAJO NATION DEPARTMENT OF FISH AND WILDLIFE**  
**P.O. BOX 1480, WINDOW ROCK, ARIZONA 86515-1480**

It is the Department's opinion the project described below, with applicable conditions, is in compliance with Tribal and Federal laws protecting biological resources including the Navajo Endangered Species and Environmental Policy Codes, U.S. Endangered Species, Migratory Bird Treaty, Eagle Protection and National Environmental Policy Acts. This form does not preclude or replace consultation with the U.S. Fish and Wildlife Service if a Federally-listed species is affected.

**PROJECT NAME & NO.:** Tsaile Health Center - Land Withdrawal for Additional Staff Housing

**DESCRIPTION:** The Navajo Area Indian Health Service proposes a land withdrawal of 10 acres to construct additional staff quarters. Water, sewer and electric services would be installed by the Navajo Tribal Utility Authority.

**LOCATION:** T33N, R29E, Section 4, Tsaile, Apache County, Arizona

**REPRESENTATIVE:** Celia M. Adams, Environmental Specialist, DOWL HKM

**ACTION AGENCY:** Navajo Area Indian Health Service

**B.R. REPORT TITLE / DATE / PREPARER:** Biological Review for Tsaile Staff Quarters Site/DEC 2010/Adams

**SIGNIFICANT BIOLOGICAL RESOURCES FOUND:** Area 3. Nesting habitat for migratory birds present.

**POTENTIAL IMPACTS**

**NESL SPECIES POTENTIALLY IMPACTED:** NA

**FEDERALLY-LISTED SPECIES AFFECTED:** NA

**OTHER SIGNIFICANT IMPACTS TO BIOLOGICAL RESOURCES:** NA

**AVOIDANCE / MITIGATION MEASURES:** (1) If proposed project activities require the removal and disturbance of nesting habitat for birds protected under the Migratory Bird Treaty Act (MBTA), the NNDFW highly recommends that construction is initiated during the non-breeding season of 15 AUG - 15 APR and may extend into the breeding season if needed as MBTA-protected birds will typically not establish a nest site within an active construction zone; or complete all construction activities during the non-breeding season for Migratory Birds. If this seasonal avoidance recommendation is followed, the project will not result in the take of birds protected under the MBTA.

**CONDITIONS OF COMPLIANCE\*:** (1) Proposed project activities that require the removal or disturbance of nesting habitat during the Migratory Bird breeding season of 15 APR - 15 AUG will require a pre-construction survey for the presence of active nests. If an active nest is discovered during the pre-construction survey, a nest take permit must be obtained from the U.S. Fish and Wildlife Service for the removal of the nest, eggs, and/or nestlings to be raised artificially in a federally permitted migratory bird rehabilitation facility. The nest, eggs, and/or nestlings must be removed by a federally permitted migratory bird rehabilitator.

**FORM PREPARED BY / DATE:** Pamela A. Kyselka/03 JAN 2011



COPIES TO: (add categories as necessary)



B12



**2 NTC § 164 Recommendation:**

Signature

Date

☐ Approval

☒ Conditional Approval (with memo)

☐ Disapproval (with memo)

☐ Categorical Exclusion (with request letter)

☐ None (with memo)

*Gloria M. Tom*  
Gloria M. Tom, Director, Navajo Nation Department of Fish and Wildlife

11/6/11

\*I understand and accept the conditions of compliance, and acknowledge that lack of signature may be grounds for the Department not recommending the above described project for approval to the Tribal Decision-maker.

Representative's signature

Date



## CULTURAL RESOURCES COMPLIANCE FORM

THE NAVAJO NATION  
HISTORIC PRESERVATION DEPARTMENT  
PO BOX 4950  
WINDOW ROCK, ARIZONA 86515

ROUTING: COPIES TO

AZ

SHPO

REAL PROPERTY MGT/330

NNAD

NNHPD NO. HPD-11-134

OTHER PROJECT NO. \_\_\_\_\_

NNAD 10-392

PROJECT TITLE: A Cultural Resources Inventory of 10.84-Acres of Land Tract for the Indian Health Service in Tsailé, Apache County, Arizona

LEAD AGENCY: BIA/NR

SPONSOR: Virgil Loretto, Project Manager, Navajo Area Indian Health Service, Division of Facilities Management, PO Box 9020, Window Rock, Arizona 86515

PROJECT DESCRIPTION: The proposed undertaking will involve the land exchange between the Dine College and the Tsailé Navajo Area Indian Health Services (IHS). Future development include the construction of IHS staff housing quarters and the expansion of the Tsailé Health Center. Ground disturbance will be intensive and extensive with the use of heavy equipment.

LAND STATUS: Navajo Tribal Trust

CHAPTER: Tsailé/Wheatfields

LOCATION: Unplatted & Projected T.34N, R.29E; Tsailé Quadrangle, Apache County, Arizona G&SRPM

PROJECT ARCHAEOLOGIST: Tyrone Trujillo

NAVAJO ANTIQUITIES PERMIT NO.: NTC

DATE INSPECTED: 12/08/10

DATE OF REPORT: 02/18/11

TOTAL ACREAGE INSPECTED: 10.84-ac

METHOD OF INVESTIGATION: Class III pedestrian inventory with transects spaced 7 m apart.

LIST OF CULTURAL RESOURCES FOUND: None

LIST OF ELIGIBLE PROPERTIES: None

LIST OF NON-ELIGIBLE PROPERTIES: None

LIST OF ARCHAEOLOGICAL RESOURCES: None

EFFECT/CONDITIONS OF COMPLIANCE: **No historic properties affected.**

In the event of a discovery ["discovery" means any previously unidentified or incorrectly identified cultural resources including but not limited to archaeological deposits, human remains, or locations reportedly associated with Native American religious/traditional beliefs or practices], all operations in the immediate vicinity of the discovery must cease, and the Navajo Nation Historic Preservation Department must be notified at (928) 871-7148.

FORM PREPARED BY: Tamara Billie

FINALIZED: March 14, 2011


Notification to

Proceed Recommended:

Yes XX No \_\_\_\_\_

Conditions:

Yes \_\_\_\_\_ No XX

  
Alan S. Downer, Navajo Nation  
Historic Preservation Officer

3-15-11  
Date

Navajo Region Approval:

Yes p No \_\_\_\_\_

  
BIA Regional Director

4-1-11  
Date

top 4/1/2011




ARCHAEOLOGICAL INVENTORY REPORT DOCUMENTATION PAGE (HPD JAN/91)

COPY

1. HPD REPORT NO.	2. (FOR HPD USE ONLY)	3. RECIPIENT'S ACCESSION NO.								
4. TITLE OF REPORT: A Cultural Resources Inventory of 10.84 Acres of Land Tract for the Indian Health Service in Tsaile, Apache County, Arizona.		5. FIELDWORK DATES December 8, 2010								
AUTHOR(S): Tyrone Trujillo		6. REPORT DATE February 18, 2011								
7. CONSULTANT NAME AND ADDRESS: Gen'l Charge: Linda Laughing, ASO, Acting Department Manager Org. Name: Navajo Nation Archaeology Department Org. Address: P. O. Box 689 Window Rock, Arizona 86515 Phone: (928) 871-6540		8. Permit No. NTC								
		9. Consultant Report No. NNAD-10-392								
10. SPONSOR NAME AND ADDRESS: Ind. Responsible: Virgil Loretto, Project Manager Org. Name: Navajo Area Indian Health Service, Division of Facilities Management Org. Address: P.O. Box 9020 Window Rock, Arizona 86515 Phone: (928) 871-1339		11. SPONSOR PROJECT NO. NA								
		12. AREA OF EFFECT: 10.84 acres/4.39 ha AREA SURVEYED: 10.84 acres/4.39 ha								
13. LOCATION (MAP ATTACHED):										
<table border="0"> <tr> <td>a. Chapters: Tsaile/Wheatfields</td> <td>e. Land Status: Tribal Trust</td> </tr> <tr> <td>b. Agency: Chinle</td> <td>f. UTM Center: See Supplemental Sheet</td> </tr> <tr> <td>c. County: Apache</td> <td>g. Area: See Supplemental Sheet</td> </tr> <tr> <td>d. State: Arizona</td> <td>h. USGS 7.5' Map Name(s): Tsaile, Arizona, Provisional Edition 1982</td> </tr> </table>			a. Chapters: Tsaile/Wheatfields	e. Land Status: Tribal Trust	b. Agency: Chinle	f. UTM Center: See Supplemental Sheet	c. County: Apache	g. Area: See Supplemental Sheet	d. State: Arizona	h. USGS 7.5' Map Name(s): Tsaile, Arizona, Provisional Edition 1982
a. Chapters: Tsaile/Wheatfields	e. Land Status: Tribal Trust									
b. Agency: Chinle	f. UTM Center: See Supplemental Sheet									
c. County: Apache	g. Area: See Supplemental Sheet									
d. State: Arizona	h. USGS 7.5' Map Name(s): Tsaile, Arizona, Provisional Edition 1982									
14. REPORT /X/ OR SUMMARY (REPORT ATTACHED) //										
<p>a. Description of Undertaking: The archaeological inventory was requested to facilitate a land exchange between the Dine College and the Tsaile Navajo Area Indian Health Services. Future developments on the parcel will include the construction of IHS staff housing quarters and the expansion of the Tsaile Health Center. Construction activities will include surface and subsurface ground disturbances, and are expected to be intensive and extensive from the use of heavy equipment. The area of potential effect measures 472,006 sq-ft (43,849 sq-m), or 10.84 acres (4.39 ha).</p> <p>b. Existing Data Review: The Navajo Nation Historic Preservation Department archival records indicated that one (1) archaeological project has been previously conducted; HPD-94-174, with no sites recorded within 500 ft (152.44 m) of the project area.</p> <p>c. Area Environmental &amp; Cultural Setting: The project area is situated below the southern portion of the Chuska Mountains at an elevation of 7,040 ft (2,146 m) above mean sea level. The area is located approximately 4,080 ft (1,244 m) south of Indian Route 12, 1,180 ft (360 m) east of Indian Route 64, and the Dine Community College is located immediately east of the project area. The vegetation in the area consists of juniper, pinon, snakeweed, sagebrush, beeweed, beeblossom, rabbitbrush, Russian thistle, and various rangeland grasses. Surface sediment is a reddish, coarse sandy loam with white sandstone outcrops. The major water source in the area is Tsaile Lake located approximately 5,280 ft (1,610 m) southeast of the project area. The surrounding area has been impacted by livestock, the development of scattered homesites, housing complexes, fence lines, two-track roads, trails, and paved roads.</p> <p>d. Field Methods: See Supplemental Sheet</p>										
15. CULTURAL RESOURCE FINDINGS:										
<p>a. Location/ Identification of Each Resource: No significant cultural resources were encountered during NNAD-10-392.</p> <p>b. Evaluation of Significance of Each Resource (above): None</p>										
16. MANAGEMENT SUMMARY (RECOMMENDATIONS): A determination of "no historic properties affected" is recommended for the proposed undertaking.										

17. CERTIFICATION:

SIGNATURE:   
General Charge Name: Linda Laughing, ASO, Acting Department Manager

DATE: 2/18/11

SIGNATURE:   
Direct Charge Name: Tyrone Trujillo, Archaeologist

DATE: February 18, 2011

## 13. LOCATION

f. UTM Center: See Table I

g. Area: See Table I

Table I. UTM Coordinates and Legal Descriptions (Zone 12) for the Project Area.

Project Area	Northing	Easting	¼ ¼ ¼ Section	Township	Range	Principal Meridian
Corner A	4018229	659586	Unplatted Section	T34N	R29E	GSRM
Corner B	4018485	659795	'	'	'	'
Corner C	4018548	659865	'	'	'	'
Corner D	4018480	659947	'	'	'	'
Corner E	4018396	659877	'	'	'	'
Corner F	4018175	659658	'	'	'	'

## 14. REPORT

- d. Field Methods: The requested archaeological survey was conducted by Tyrone Trujillo of the Navajo Nation Archaeology Department on December 8, 2010. UTM Coordinates of the project area were taken from a hand-held GPS unit. A Class III pedestrian survey was conducted by walking parallel linear transects spaced 23 ft (7 m) apart within the survey area. The project area was traversed in an east-west direction. The total area surveyed within the project area encompasses 472,006 sq-ft (43,849 sq-m), or 10.84 acres (4.39 ha).

In addition to the survey, ethnographic interviews were also conducted with local residents and Chapter Officials in an attempt to secure information on any possible Traditional Cultural Properties (TCPs—blessed or sacred places or structures), or graves that might be present in or near the project area.



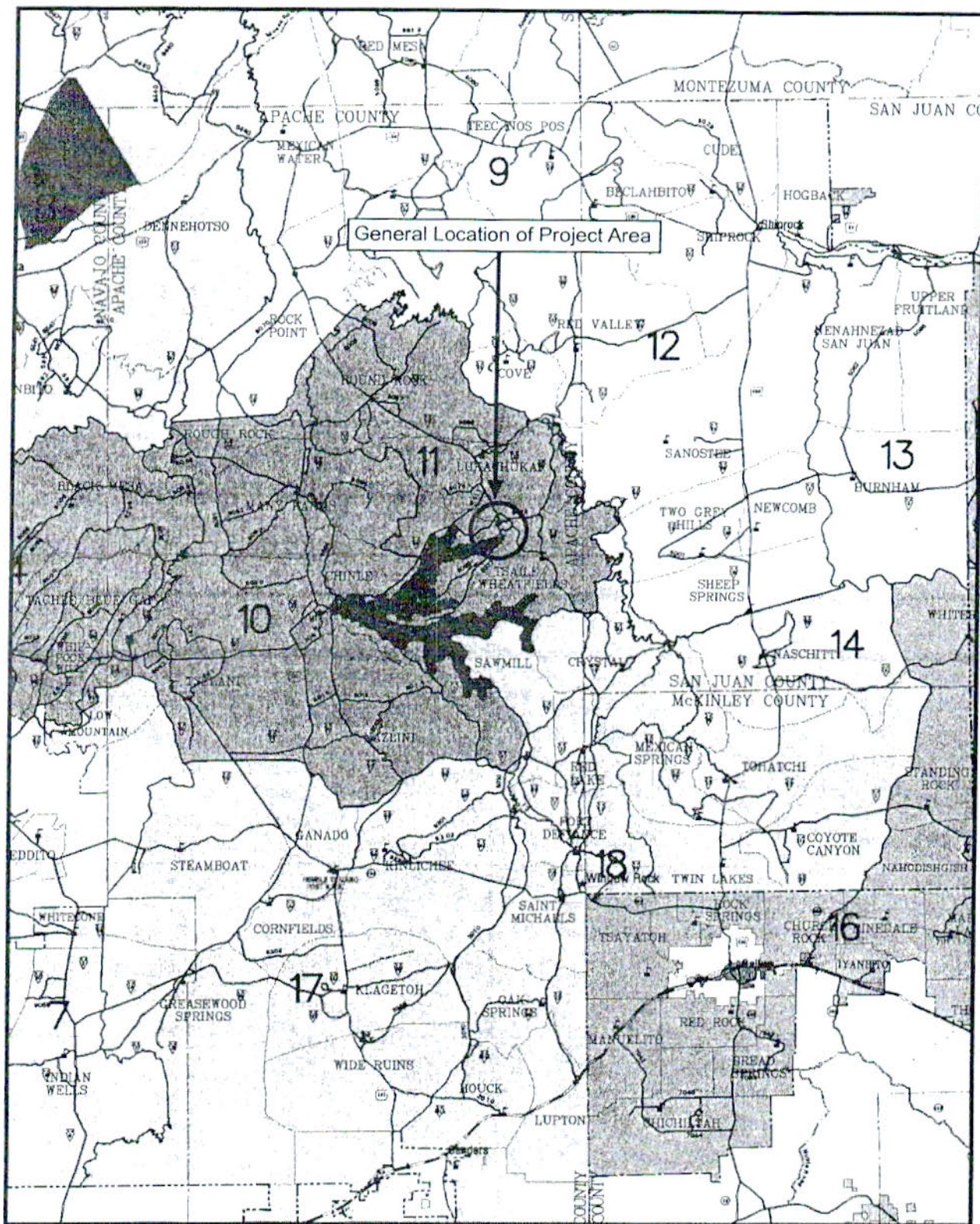
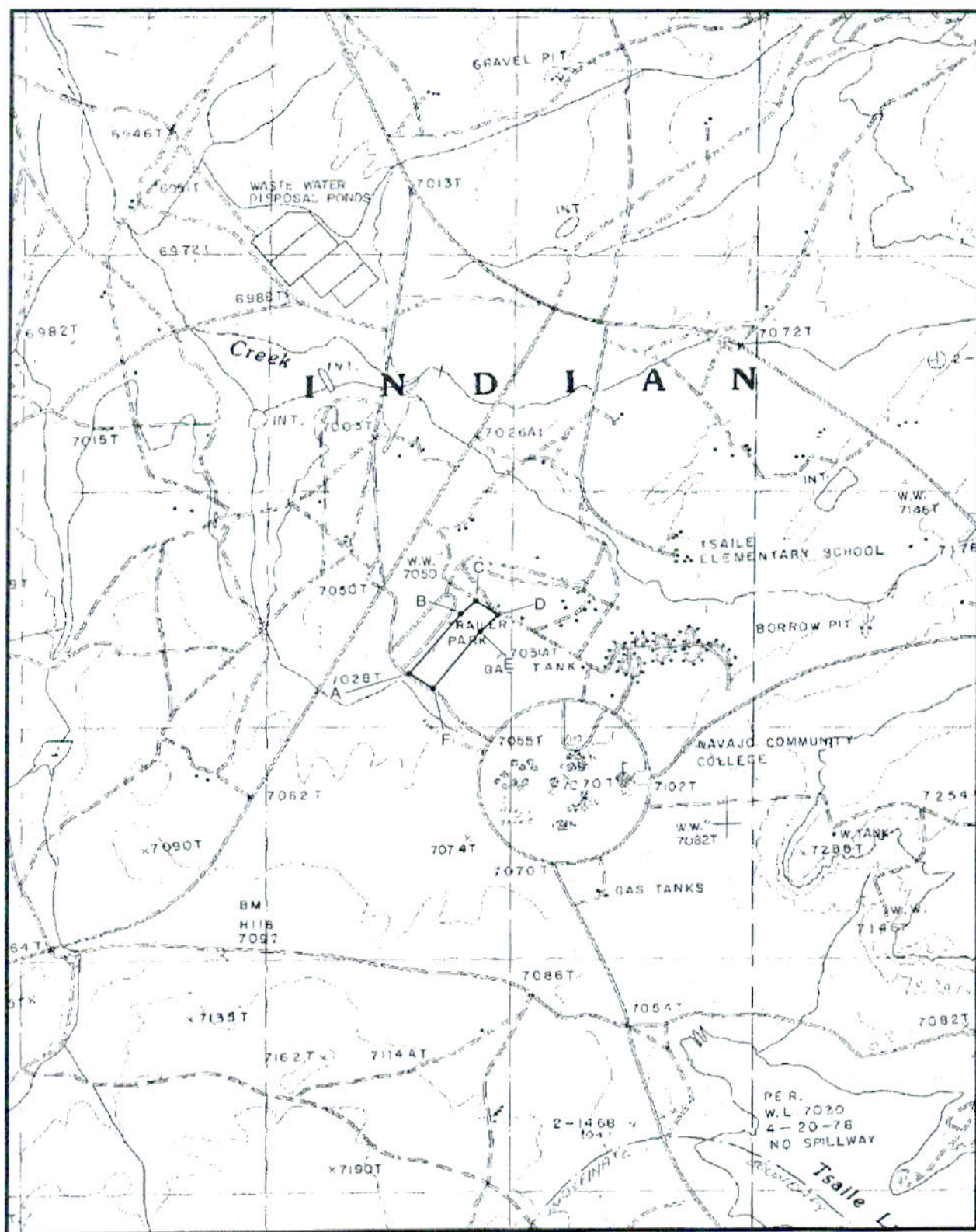


Figure 1. General Location of the NNAD-10-392 Project Area (Goodman 1982).







EXHIBIT

G

**TSAILE STAFF QUARTERS ADDITION  
FLOODPLAIN ASSESSMENT  
SUBMITTAL NO. 1**



**EXPIRES 06/30/2014**

**PROJECT ENGINEER: FRANK E. FRY, P.E.**

**3033.40527.01  
JUNE, 2011**

TSAILE STAFF QUARTERS ADDITION  
SECTION 4, TOWNSHIP 33 NORTH, RANGE 29 EAST  
APACHE COUNTY, AZ

PREPARED FOR:

DEPARTMENT OF HEALTH AND HUMAN SERVICES  
INDIAN HEALTH SERVICE  
NAVAJO AREA OFFICE

PREPARED BY:

DOWL HKM  
166 W ALAMEDA STREET  
TUCSON, ARIZONA 85701  
(520) 882-8696



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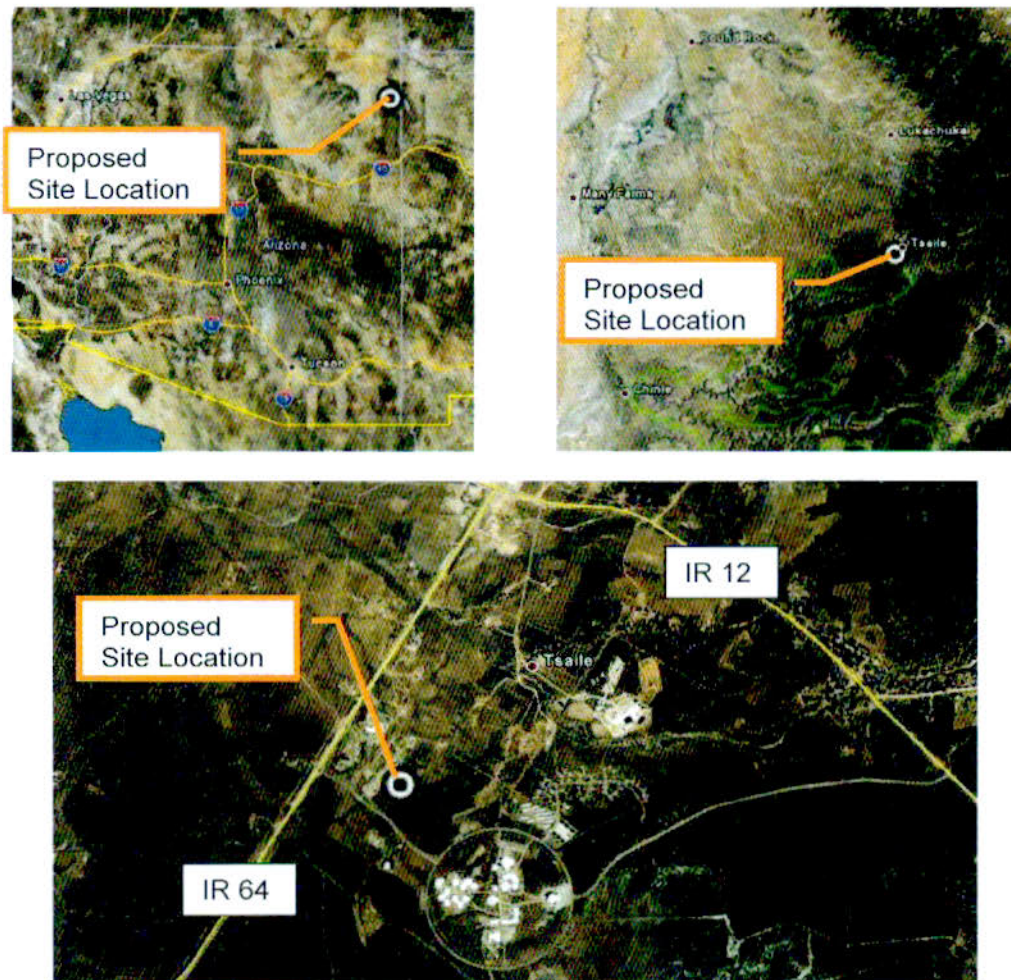
## APPENDIX

APPENDIX A .....	Rainfall Data and Watershed Summaries
APPENDIX B .....	USGS Map
APPENDIX C .....	Hydrology Drawings
Watershed Locations and Summaries .....	Figure 1
WESL Summary .....	Figure 2
APPENDIX D .....	Hydrographs
APPENDIX E .....	Civil Storm Data
APPENDIX F.....	Flow Master Data

## 1. INTRODUCTION

### 1.1. Project Location

The project site is located approximately one mile southwest along Indian Route 64 from the intersection with Indian Route 12 and then 0.2 miles southeast along the paved entry drive to Dine College in Tsale, Arizona. The site is within the Navajo Nation Reservation in Section 4 of Township 33 North, Range 29 East, Apache County, Arizona. The Latitude and Longitude for the site is 36°17'55.49" North and 109°13'16.86" West, see Exhibit 1 for the project location.



***Exhibit 1 – Proposed Site Location***

The proposed project will consist of constructing new staff quarters to supplement existing housing adjacent to the Tsale Health Center at the intersection of the college access road and Indian Route 64 on a tract of land approximately 900 feet southeast of Indian Route 64 in the community of Tsale, Arizona. This report will analyze the existing drainage flows around the project site to determine the 100 year flood water surface elevation (WSEL). A detailed drainage study will be required



during the design phase to manage storm water flow on the site and provide retention storage in accordance with local ordinances.

## **1.2. Methodology**

The Arizona Department of Transportation's Highway Drainage Design Manual - Hydrology, March 1993 was utilized to determine the 100 year peak flows for the site and surrounding area. The rainfall data was determined utilizing the manual as well. To determine the 100 year peak flows the 100 year one hour storm was used. The rainfall data can be seen in Appendix A.

## **2. HYDROLOGY & HYDRAULICS**

### **2.1. Offsite Drainage & Watersheds**

Minimal information about the topographic data for the area surrounding the site was available. The offsite drainage basins were primarily determined from United States Geological Survey (USGS) maps. The USGS map for the site area is appended in Appendix B. An effort was made to ensure the estimated drainage basins represent, at a minimum, the actual drainage area. Therefore, where accurate topographic data was unavailable, conservative estimates for the basin boundaries were developed. A site survey was conducted for the site; therefore, onsite drainage characteristics are accurate.

To the northeast, between the proposed site and Indian Route 64, two developments exist. Along Indian Route 64 is the Tsaile Health Center, approximately 18 acres in size. Based on aerial photographs and the USGS map, it was assumed that the drainage from this development traveled south and west and does not impact the proposed site. However, the second development, which is between the Health Center and the proposed site, may impact the site.

This development is a small mobile home community that slopes southwest towards a 24 inch elliptical culvert that travels beneath the roadway that borders the southwest edge of the proposed development. This culvert also drains a portion of the proposed site and if it is not adequately sized, the drainage may back up onto the site. Along with the mobile home community, this offsite watershed consists of a small portion of the roadway and the roadway right of way. The watershed is approximately 12.55 acres in size and consists mostly of the mobile home community. The resulting flow from the site for the 100 year storm will be approximately 33.9 cubic feet per second (cfs). The watershed area can be found in Figure 1 of Appendix C and is labeled Watershed 7. A summary of the watershed can be found in Exhibit 2 below and also in Appendix A.

The second offsite watershed, Watershed 8, is located southeast of the site paralleling the roadway. This watershed is mostly undeveloped consisting of forested area with multiple pine trees. The watershed area is approximately 5.91 acres, which produces approximately 6.6 cfs during the 100 year storm. The drainage flows into an 18 inch culvert on the southeastern corner of the proposed site. The watershed area can be found in Figure 1 of Appendix C. A summary of the watershed can be found in Exhibit 2 below and also in Appendix A.



The third and final watershed, Watershed 9, is also located east of the site, but north of Watershed 8. This watershed is also undeveloped with the exception of a drainage basin that borders the proposed site. The basin's bottom elevation is approximately 7,041 feet. The elevation along the northeast side of the basin is approximately 7,046 feet. The basin will continue to fill until it reaches the 7,046 foot elevation at which point it will begin to overflow. Any drainage in the basin below the 7,046 foot elevation will remain until it percolates into the ground. The area for Watershed 9 is approximately 38.24 acres, which produces approximately 42.8 cfs which flows northwest. The watershed area can be found in Figure 1 of Appendix C. A summary of the watershed can be found in Exhibit 2 below and also in Appendix A.

Watershed	Area (acres)	Q <sub>100</sub> (cfs)
7	12.55	33.9
8	5.91	6.6
9	38.24	42.8

***Exhibit 2 – Offsite Watershed 100 Year Peak Discharges***

**2.2. Onsite Drainage/Existing Conditions**

The onsite area consists of six watersheds. A ridgeline traverses the proposed site from the southwest to the northeast, essentially dividing the site into two. The drainage to the northwest of the ridgeline generally flows northwest into the offsite Watershed 7. The drainage to the southeast of the ridgeline either drains into the existing drainage basin in Watershed 9, or towards the roadway in watershed 8. All of the onsite watersheds are undeveloped and are within a forested area with multiple pine trees.

Watershed 1 is located in the southwestern corner of the proposed site. The watershed generally slopes from the east to the west. Approximately two thirds of the site drains directly into Watershed 7; however, approximately one third drains into an existing 24 inch culvert just as it enters Watershed 7. The outlet of this culvert is at the inlet of the 24 inch elliptical culvert discussed with Watershed 7 previously. Eventually all of the drainage from Watershed 1 combines with Watershed 7. The area of Watershed 1 is approximately 1.83 acres which produces approximately 2.3 cfs of flow during the 100 year storm. Approximately 0.8 cfs of that flow is diverted through the 24 inch culvert prior to combining with the Watershed 7 drainage. The watershed area can be found in Figure 1 of Appendix C. A summary of the watershed can be found in Exhibit 3 below and also in Appendix A.

Watersheds 2, 3, and 4 are all similar in characteristics. Each watershed slopes from the ridgeline, northwest to Watershed 7. Watershed 2 is the southwestern most watershed of the 3 and Watershed 4 is the northeastern most. Watershed 4 borders the northeast boundary of the proposed site. The areas of Watersheds 2, 3, and 4 are approximately 2.63 acres, 1.43 acres, and 1.81 acres, respectively. These areas produce 100 year peak flows of approximately 3.3 cfs, 1.8 cfs, and 2.2 cfs,



respectively. The watershed areas can be found in Figure 1 of Appendix C. A summary of the watersheds can be found in Exhibit 3 below and also in Appendix A.

Watershed 5 is located in the southern corner of the proposed site. The watershed generally slopes from the northeast to the southwest. This watershed combines with Watershed 8 prior to entering the 18 inch culvert located at the southeastern corner of the site. The area of Watershed 5 is approximately 0.65 acres, which produces approximately 0.8 cfs of flow during the 100 year storm. The watershed area can be found in Figure 1 of Appendix C. A summary of the watershed can be found in Exhibit 3 below and also in Appendix A.

The final onsite watershed, Watershed 6, stretches along the southeastern edge of the proposed site from Watershed 5 at the southwest, northeast to the northeastern border of the proposed site. This watershed generally slopes to the southeast into Watershed 9 prior to entering the drainage basin within Watershed 9. The area of Watershed 6 is approximately 2.48 acres, which produces approximately 3.0 cfs of flow during the 100 year storm. The watershed area can be found in Figure 1 of Appendix C. A summary of the watershed can be found in Exhibit 3 below and also in Appendix A.

Watershed	Area (acres)	Q <sub>100</sub> (cfs)
1	1.83	2.3
2	2.63	3.3
3	1.43	1.8
4	1.81	2.2
5	0.65	0.8
6	2.48	3.0

***Exhibit 3 – Onsite Watershed 100 Year Peak Discharges***

### **3. FLOODPLAIN ANALYSIS**

#### **3.1. FEMA Flood Plain**

The proposed project site is within the Federal Emergency Management Agency's (FEMA) Zone D. No flood map panel was created for this site within the Navajo Nation Reservation. FEMA Zone D is described as "areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk."

#### **3.2. 100 Year Water Surface Elevations**

Based on the peak flow calculations and drainage patterns, there are four areas where the 100 year WSEL could encroach onto the proposed site: at each of the three culverts and at the drainage basin.

The drainage basin was modeled using the hydrographs developed from Watershed 6 and Watershed 9. Bentley Civil Storm software was utilized to determine the WSEL for the drainage basin. From the Civil Storm analysis it was determined that the basin has a maximum storage capacity of 0.13 acre-feet, which is not enough to hold the entire flow entering the basin. Therefore, when the WSEL reaches 7,046 feet the basin begins to drain to the northeast. However, the WSEL will remain at 7,046 feet until the water is able to percolate into the ground. The hydrographs for each basin can be found in Appendix D, while the Civil Storm data can be found in Appendix E.

At the 18 inch culvert located near the southeastern corner of the proposed site, where Watershed 5 and Watershed 8 drain to, there is a possibility of drainage ponding. The maximum flow that would be entering this culvert would be less than 10 cfs. Utilizing the Bentley Flow Master software, it was determined that this culvert could handle up to 12.72 cfs without any drainage ponding. Therefore, no drainage will encroach upon the site at this location. The hydrographs for each basin can be found in Appendix D, while the Flow Master data can be found in Appendix F.

The final areas of concern for drainage ponding are at the two 24 inch culverts near the southwestern corner of the site. The circular 24" culvert that only drains approximately one third of Watershed 1 has a capacity of 30.01 cfs determined from Flow Master. Since there is only approximately 0.8 cfs of flow entering this culvert, the drainage will not pond at the inlet of the culvert.

Based on modeling done utilizing Civil Storm, the 24" elliptical culvert will not handle the entire flow collection at the inlet of the pipe. Therefore, according to the analysis, the drainage will pond to a maximum WSEL of 7,028.25 feet. As the drainage flowing to the culvert decreases, the ponding will decrease as well. This elevation however, does not encroach onto the proposed site. The hydrographs for each basin can be found in Appendix D, while the Civil Storm data can be found in Appendix E and the Flow Master data can be found in Appendix F.

Figure 2 of Appendix C details the areas of the site that the WSEL encroaches on. It is recommended that any structure constructed on the site have a minimum finished floor elevation of one foot above the adjacent 100 year WSEL.

#### **4. SUMMARY AND CONCLUSION**

The proposed site is located in an area where no FEMA flood map panels exist. The area is in Zone D, which is described as "areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk."

Based on reviews of the USGS maps, topographical survey, and drainage modeling, it was determined that the 100 year WSEL encroaches onto the proposed site. Near the northeastern corner of the site the WSEL is at 7,046 feet. This elevation encroaches onto the site approximately 50 feet at its worst case and occupies an area of 0.47 acres within the site.



There is also drainage ponding on the eastern corner of the site; however, this ponding does not develop into a depth deep enough to encroach onto the proposed site.

This project site is encroached upon by the 100 year WSEL; therefore, any structure constructed on the site shall have a minimum finished floor elevation of one foot above the adjacent 100 year WSEL. A detailed drainage study will be required during the design phase to manage on-site water runoff and provide retention storage.

## **5. REFERENCES**

"Highway Drainage Design Manual - Hydrology", Arizona Department of Transportation and Flood Control District, March, 1993.

Software: Haestad Methods Civil Storm version 1.0242, Bentley Flow Master, and Microsoft Excel 2007.

## Existing Peak Discharges

Watershed	1	2	3	4	5	6	7	8	9
Area (Acres)	1.83	2.63	1.43	1.81	0.65	2.48	12.55	5.91	38.24
Longest Length (ft)	550	500	350	500	400	750	1600	950	1300
Elevation Change (ft)	24	17	14	11	15	11	8	12	29
Slope	4.36%	3.40%	4.00%	2.20%	3.75%	1.47%	0.50%	1.26%	2.23%
Zone	6	6	6	6	6	6	6	6	6
Type	Mount.	Mount.	Mount.	Mount.	Mount.	Mount.	Dev.	Mount.	Mount.
$K_b$	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.1
C	0.2	0.2	0.2	0.2	0.2	0.2	0.53	0.2	0.2
$T_{c100}$ (min)	6.17	6.36	5.06	7.28	5.52	10.23	15.48	12.38	12.14
Intensity @ $T_{c100}$ (in/hr)	6.2	6.2	6.2	6.2	6.2	6.0	5.1	5.6	5.6
$Q_{100} = CIA$ (cfs)	2.3	3.3	1.8	2.2	0.8	3.0	33.9	6.6	42.8

Short Duration Rainfall Ratios for Arizona								
Zone	2 Year Return, Duration in Minutes				100 Year Return, Duration in Minutes			
	5	10	15	30	5	10	15	30
6	0.35	0.54	0.65	0.83	0.32	0.50	0.62	0.81
8	0.34	0.51	0.62	0.82	0.30	0.46	0.59	0.80

DDF Values	Inches
$P_{2,6'}$	1.2
$P_{2,24'}$	1.5
$P_{100,6'}$	2.5
$P_{100,24'}$	3.2

DDF Values	Inches
$P_{2,1'}$	0.9
$P_{2,2'}$	1.0
$P_{2,3'}$	1.1
$P_{2,12'}$	1.4

DDF Values	Inches
$P_{100,1'}$	2.0
$P_{100,2'}$	2.1
$P_{100,3'}$	2.3
$P_{100,12'}$	2.9

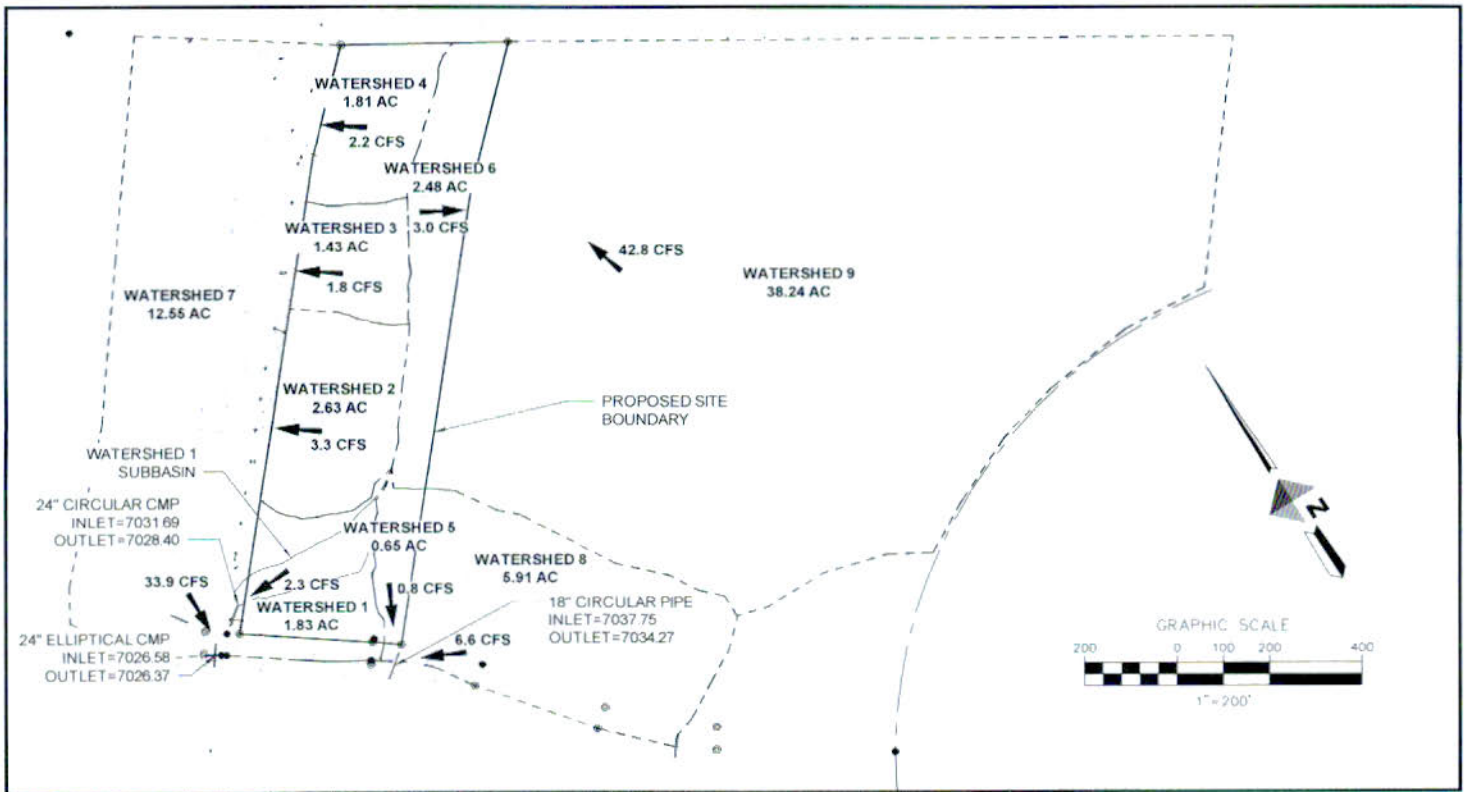
Short Duration Rainfall Statistics for Arizona								
Zone	2 Year Return, Duration in Minutes				100 Year Return, Duration in Minutes			
	5	10	15	30	5	10	15	30
6	0.31	0.48	0.58	0.74	0.63	0.98	1.22	1.59
8	0.30	0.46	0.55	0.73	0.59	0.91	1.16	1.57

Duration	Rainfall Depth, in Inches; Frequency, in Years						
	2	5	10	25	50	100	500
5-min	0.31	0.39	0.44	0.51	0.57	0.63	0.76
10-min	0.48	0.60	0.68	0.80	0.89	0.98	1.20
15-min	0.58	0.73	0.84	0.99	1.10	1.22	1.49
30-min	0.74	0.94	1.08	1.28	1.44	1.59	1.95
1-hour	0.89	1.15	1.33	1.58	1.77	1.97	2.42
2-hour	1.00	1.27	1.46	1.73	1.94	2.15	2.63
3-hour	1.10	1.39	1.60	1.89	2.11	2.34	2.86
6-hour	1.20	1.50	1.72	2.02	2.26	2.50	3.05
12-hour	1.35	1.70	1.95	2.30	2.58	2.85	3.48
24-hour	1.50	1.90	2.18	2.58	2.89	3.20	3.91

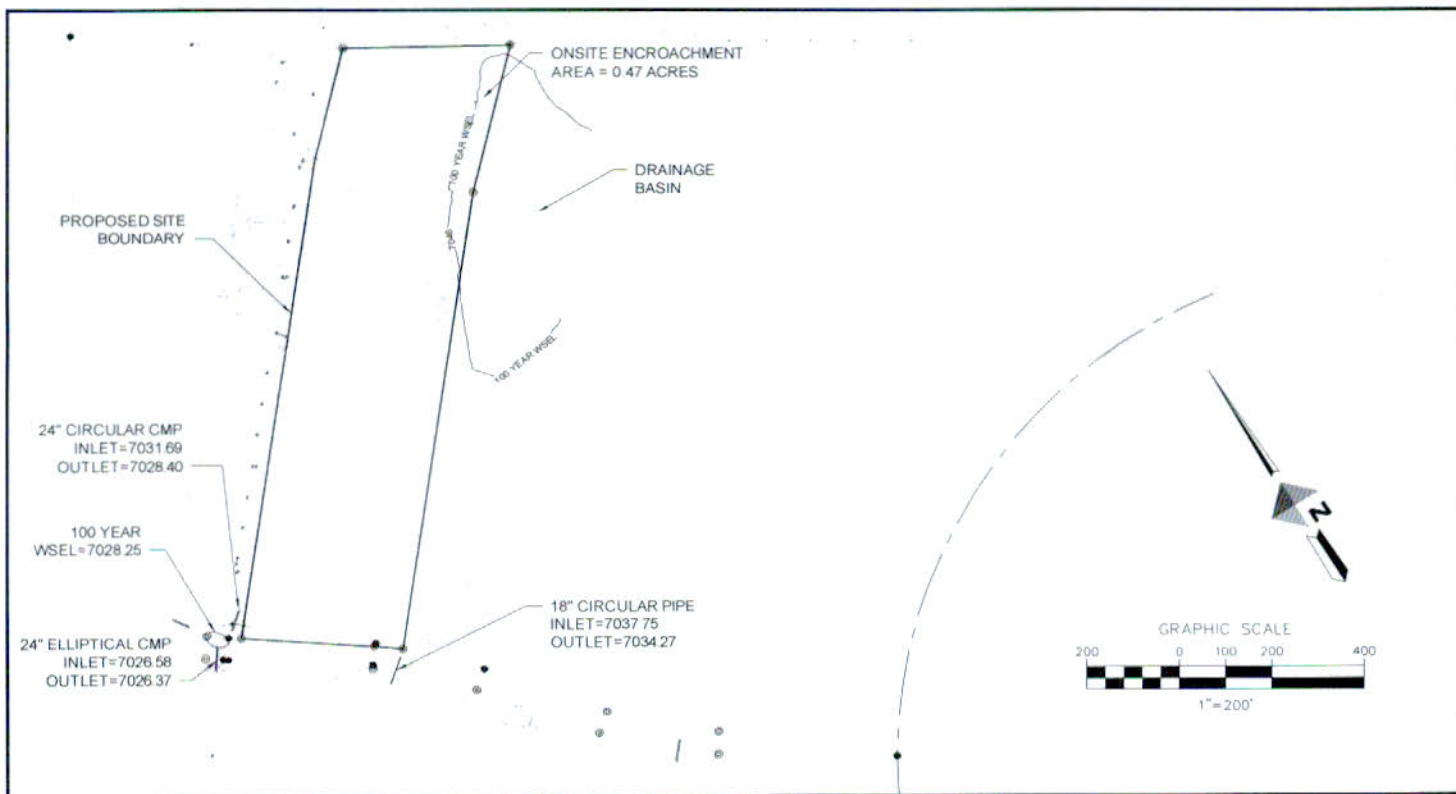
Duration	Rainfall Intensity, in Inches/Hour; Frequency, in Years						
	2	5	10	25	50	100	500
5-min	3.75	4.63	5.26	6.16	6.86	7.56	9.18
10-min	2.89	3.59	4.09	4.80	5.35	5.91	7.18
15-min	2.32	2.92	3.34	3.95	4.42	4.88	5.96
30-min	1.48	1.89	2.17	2.57	2.88	3.19	3.90
1-hour	0.89	1.15	1.33	1.58	1.77	1.97	2.42
2-hour	0.50	0.64	0.73	0.87	0.97	1.07	1.32
3-hour	0.37	0.46	0.53	0.63	0.70	0.78	0.95
6-hour	0.20	0.25	0.29	0.34	0.38	0.42	0.51
12-hour	0.11	0.14	0.16	0.19	0.21	0.24	0.29
24-hour	0.06	0.08	0.09	0.11	0.12	0.13	0.16











# Hydrograph

Watershed 1			$K = Q/q_{tmax} = 0.0042$	
Tabulated Time (hours)	Dimensionless Hydrograph $q_t$ (cfs)	Runoff Hydrograph $q_t = Kq_t$ (cfs)	Average Discharge $q_{avg}$ (cfs)	Volume Calculation $q_{avg}(\Delta t)$ (cfs-hr)
1.0	0	0.00	0.00	0.00
1.3	0	0.00	0.00	0.00
1.6	0	0.00	0.00	0.00
1.9	0	0.00	0.15	0.01
2.0	70	0.29	1.28	0.13
2.1	539	2.27	1.93	0.19
2.2	377	1.59	1.21	0.12
2.3	196	0.83	0.77	0.08
2.4	171	0.72	0.68	0.07
2.5	154	0.65	0.61	0.06
2.6	134	0.56	0.53	0.05
2.7	117	0.49	0.47	0.05
2.8	108	0.45	0.44	0.09
3.0	99	0.42	0.40	0.08
3.2	89	0.37	0.36	0.07
3.4	83	0.35	0.34	0.07
3.6	77	0.32	0.31	0.06
3.8	72	0.30	0.29	0.06
4.0	67	0.28	0.27	0.08
4.3	61	0.26	0.25	0.08
4.6	59	0.25	0.24	0.10
5.0	56	0.24	0.23	0.11
5.5	51	0.21	0.20	0.10
6.0	46	0.19	0.19	0.09
6.5	43	0.18	0.18	0.09
7.0	42	0.18	0.17	0.09
7.5	40	0.17	0.16	0.08
8.0	38	0.16	0.15	0.15
9.0	34	0.14	0.13	0.13
10.0	30	0.13	0.12	0.24
12.0	28	0.12	0.06	0.24
16.0	0	0.00	Total Volume = 2.78 cfs-hr 0.23 acre-ft	



# Hydrograph

Watershed 2			K = Q/q <sub>tmax</sub> =	0.0061
Tabulated Time (hours)	Dimensionless Hydrograph q <sub>t</sub> (cfs)	Runoff Hydrograph q <sub>t</sub> =Kq <sub>t</sub> (cfs)	Average Discharge q <sub>u</sub> (cfs)	Volume Calculation q <sub>u</sub> (Δt) (cfs-hr)
1.0	0	0.00	0.00	0.00
1.3	0	0.00	0.00	0.00
1.6	0	0.00	0.00	0.00
1.9	0	0.00	0.21	0.02
2.0	70	0.42	1.84	0.18
2.1	539	3.26	2.77	0.28
2.2	377	2.28	1.73	0.17
2.3	196	1.19	1.11	0.11
2.4	171	1.03	0.98	0.10
2.5	154	0.93	0.87	0.09
2.6	134	0.81	0.76	0.08
2.7	117	0.71	0.68	0.07
2.8	108	0.65	0.63	0.13
3.0	99	0.60	0.57	0.11
3.2	89	0.54	0.52	0.10
3.4	83	0.50	0.48	0.10
3.6	77	0.47	0.45	0.09
3.8	72	0.44	0.42	0.08
4.0	67	0.41	0.39	0.12
4.3	61	0.37	0.36	0.11
4.6	59	0.36	0.35	0.14
5.0	56	0.34	0.32	0.16
5.5	51	0.31	0.29	0.15
6.0	46	0.28	0.27	0.13
6.5	43	0.26	0.26	0.13
7.0	42	0.25	0.25	0.12
7.5	40	0.24	0.24	0.12
8.0	38	0.23	0.22	0.22
9.0	34	0.21	0.19	0.19
10.0	30	0.18	0.18	0.35
12.0	28	0.17	0.08	0.34
16.0	0	0.00	Total Volume =	3.99 cfs-hr
				0.33 acre-ft

## Hydrograph

Watershed 3			$K = Q/q_{tmax} = 0.0033$	
Tabulated Time (hours)	Dimensionless Hydrograph $q_t$ (cfs)	Runoff Hydrograph $q_t = Kq_t$ (cfs)	Average Discharge $q_{avg}$ (cfs)	Volume Calculation $q_{avg}(\Delta t)$ (cfs-hr)
1.0	0	0.00	0.00	0.00
1.3	0	0.00	0.00	0.00
1.6	0	0.00	0.00	0.00
1.9	0	0.00	0.12	0.01
2.0	70	0.23	1.00	0.10
2.1	539	1.77	1.51	0.15
2.2	377	1.24	0.94	0.09
2.3	196	0.64	0.60	0.06
2.4	171	0.56	0.53	0.05
2.5	154	0.51	0.47	0.05
2.6	134	0.44	0.41	0.04
2.7	117	0.38	0.37	0.04
2.8	108	0.36	0.34	0.07
3.0	99	0.33	0.31	0.06
3.2	89	0.29	0.28	0.06
3.4	83	0.27	0.26	0.05
3.6	77	0.25	0.25	0.05
3.8	72	0.24	0.23	0.05
4.0	67	0.22	0.21	0.06
4.3	61	0.20	0.20	0.06
4.6	59	0.19	0.19	0.08
5.0	56	0.18	0.18	0.09
5.5	51	0.17	0.16	0.08
6.0	46	0.15	0.15	0.07
6.5	43	0.14	0.14	0.07
7.0	42	0.14	0.13	0.07
7.5	40	0.13	0.13	0.06
8.0	38	0.13	0.12	0.12
9.0	34	0.11	0.11	0.11
10.0	30	0.10	0.10	0.19
12.0	28	0.09	0.05	0.18
16.0	0	0.00	Total Volume = 2.17 cfs-hr 0.18 acre-ft	



## Hydrograph

Watershed 4			K = Q/q <sub>tmax</sub> = 0.0042	
Tabulated Time (hours)	Dimensionless Hydrograph q <sub>t</sub> (cfs)	Runoff Hydrograph q <sub>t</sub> =Kq <sub>t</sub> (cfs)	Average Discharge q <sub>-</sub> (cfs)	Volume Calculation q <sub>-</sub> (Δt) (cfs-hr)
1.0	0	0.00	0.00	0.00
1.3	0	0.00	0.00	0.00
1.6	0	0.00	0.00	0.00
1.9	0	0.00	0.15	0.01
2.0	70	0.29	1.27	0.13
2.1	539	2.24	1.91	0.19
2.2	377	1.57	1.19	0.12
2.3	196	0.82	0.76	0.08
2.4	171	0.71	0.68	0.07
2.5	154	0.64	0.60	0.06
2.6	134	0.56	0.52	0.05
2.7	117	0.49	0.47	0.05
2.8	108	0.45	0.43	0.09
3.0	99	0.41	0.39	0.08
3.2	89	0.37	0.36	0.07
3.4	83	0.35	0.33	0.07
3.6	77	0.32	0.31	0.06
3.8	72	0.30	0.29	0.06
4.0	67	0.28	0.27	0.08
4.3	61	0.25	0.25	0.07
4.6	59	0.25	0.24	0.10
5.0	56	0.23	0.22	0.11
5.5	51	0.21	0.20	0.10
6.0	46	0.19	0.19	0.09
6.5	43	0.18	0.18	0.09
7.0	42	0.17	0.17	0.09
7.5	40	0.17	0.16	0.08
8.0	38	0.16	0.15	0.15
9.0	34	0.14	0.13	0.13
10.0	30	0.12	0.12	0.24
12.0	28	0.12	0.06	0.23
16.0	0	0.00	Total Volume =	2.75 cfs-hr
				0.23 acre-ft

## Hydrograph

Watershed 5			$K = Q/q_{tmax} = 0.0015$	
Tabulated Time (hours)	Dimensionless Hydrograph $q_t$ (cfs)	Runoff Hydrograph $q_t = Kq_t$ (cfs)	Average Discharge $q_{avg}$ (cfs)	Volume Calculation $q_{avg}(\Delta t)$ (cfs-hr)
1.0	0	0.00	0.00	0.00
1.3	0	0.00	0.00	0.00
1.6	0	0.00	0.00	0.00
1.9	0	0.00	0.05	0.01
2.0	70	0.10	0.46	0.05
2.1	539	0.81	0.68	0.07
2.2	377	0.56	0.43	0.04
2.3	196	0.29	0.27	0.03
2.4	171	0.26	0.24	0.02
2.5	154	0.23	0.22	0.02
2.6	134	0.20	0.19	0.02
2.7	117	0.17	0.17	0.02
2.8	108	0.16	0.15	0.03
3.0	99	0.15	0.14	0.03
3.2	89	0.13	0.13	0.03
3.4	83	0.12	0.12	0.02
3.6	77	0.12	0.11	0.02
3.8	72	0.11	0.10	0.02
4.0	67	0.10	0.10	0.03
4.3	61	0.09	0.09	0.03
4.6	59	0.09	0.09	0.03
5.0	56	0.08	0.08	0.04
5.5	51	0.08	0.07	0.04
6.0	46	0.07	0.07	0.03
6.5	43	0.06	0.06	0.03
7.0	42	0.06	0.06	0.03
7.5	40	0.06	0.06	0.03
8.0	38	0.06	0.05	0.05
9.0	34	0.05	0.05	0.05
10.0	30	0.04	0.04	0.09
12.0	28	0.04	0.02	0.08
16.0	0	0.00	Total Volume = 0.99 cfs-hr 0.08 acre-ft	



## Hydrograph

Watershed 6			$K = Q/q_{tmax} = 0.0055$	
Tabulated Time (hours)	Dimensionless Hydrograph $q_t$ (cfs)	Runoff Hydrograph $q_t = Kq_t$ (cfs)	Average Discharge $q_{avg}$ (cfs)	Volume Calculation $q_{avg}(\Delta t)$ (cfs-hr)
1.0	0	0.00	0.00	0.00
1.3	0	0.00	0.00	0.00
1.6	0	0.00	0.00	0.00
1.9	0	0.00	0.19	0.02
2.0	70	0.39	1.68	0.17
2.1	539	2.98	2.53	0.25
2.2	377	2.08	1.58	0.16
2.3	196	1.08	1.01	0.10
2.4	171	0.94	0.90	0.09
2.5	154	0.85	0.80	0.08
2.6	134	0.74	0.69	0.07
2.7	117	0.65	0.62	0.06
2.8	108	0.60	0.57	0.11
3.0	99	0.55	0.52	0.10
3.2	89	0.49	0.47	0.09
3.4	83	0.46	0.44	0.09
3.6	77	0.43	0.41	0.08
3.8	72	0.40	0.38	0.08
4.0	67	0.37	0.35	0.11
4.3	61	0.34	0.33	0.10
4.6	59	0.33	0.32	0.13
5.0	56	0.31	0.30	0.15
5.5	51	0.28	0.27	0.13
6.0	46	0.25	0.25	0.12
6.5	43	0.24	0.23	0.12
7.0	42	0.23	0.23	0.11
7.5	40	0.22	0.22	0.11
8.0	38	0.21	0.20	0.20
9.0	34	0.19	0.18	0.18
10.0	30	0.17	0.16	0.32
12.0	28	0.15	0.08	0.31
16.0	0	0.00	Total Volume = 3.64 cfs-hr 0.30 acre-ft	

## Hydrograph

Watershed 7			K = Q/q <sub>tmax</sub> = 0.0424	
Tabulated Time (hours)	Dimensionless Hydrograph q <sub>t</sub> (cfs)	Runoff Hydrograph q <sub>t</sub> =Kq <sub>t</sub> (cfs)	Average Discharge q <sub>-</sub> (cfs)	Volume Calculation q <sub>-</sub> (Δt) (cfs-hr)
1.0	23	0.98	1.14	0.34
1.3	31	1.31	1.65	0.50
1.6	47	1.99	5.43	1.63
1.9	209	8.86	12.98	1.30
2.0	403	17.09	24.21	2.42
2.1	739	31.34	32.63	3.26
2.2	800	33.92	27.16	2.72
2.3	481	20.40	15.50	1.55
2.4	250	10.60	8.82	0.88
2.5	166	7.04	6.23	0.62
2.6	128	5.43	4.88	0.49
2.7	102	4.33	3.99	0.40
2.8	86	3.65	3.31	0.66
3.0	70	2.97	2.78	0.56
3.2	61	2.59	2.44	0.49
3.4	54	2.29	2.18	0.44
3.6	49	2.08	1.97	0.39
3.8	44	1.87	1.78	0.36
4.0	40	1.70	1.59	0.48
4.3	35	1.48	1.44	0.43
4.6	33	1.40	1.34	0.53
5.0	30	1.27	1.21	0.60
5.5	27	1.14	1.08	0.54
6.0	24	1.02	0.95	0.48
6.5	21	0.89	0.87	0.43
7.0	20	0.85	0.83	0.41
7.5	19	0.81	0.78	0.39
8.0	18	0.76	0.72	0.72
9.0	16	0.68	0.61	0.61
10.0	13	0.55	0.53	1.06
12.0	12	0.51	0.25	1.02
16.0	0	0.00	Total Volume =	26.72 cfs-hr
				2.21 acre-ft



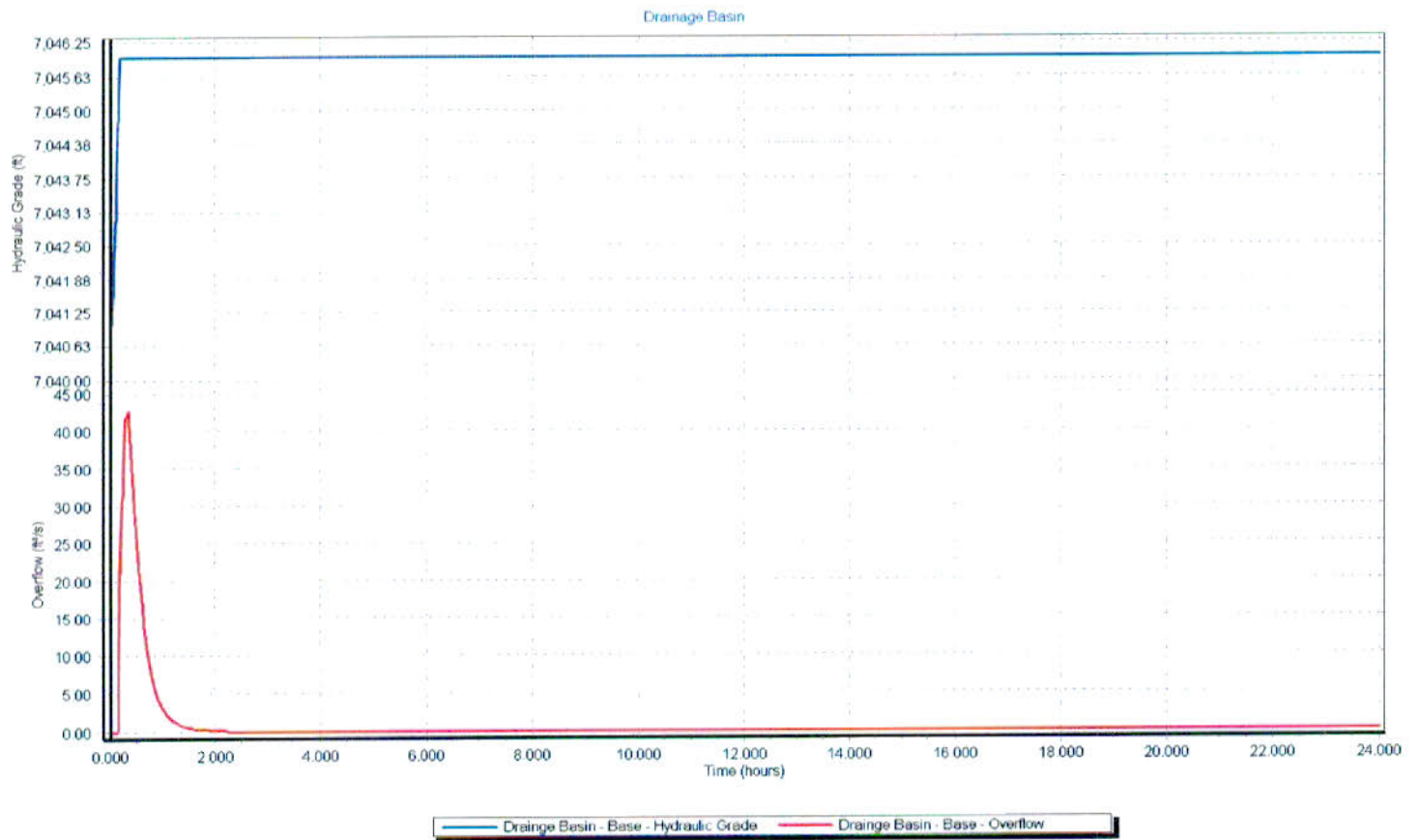
## Hydrograph

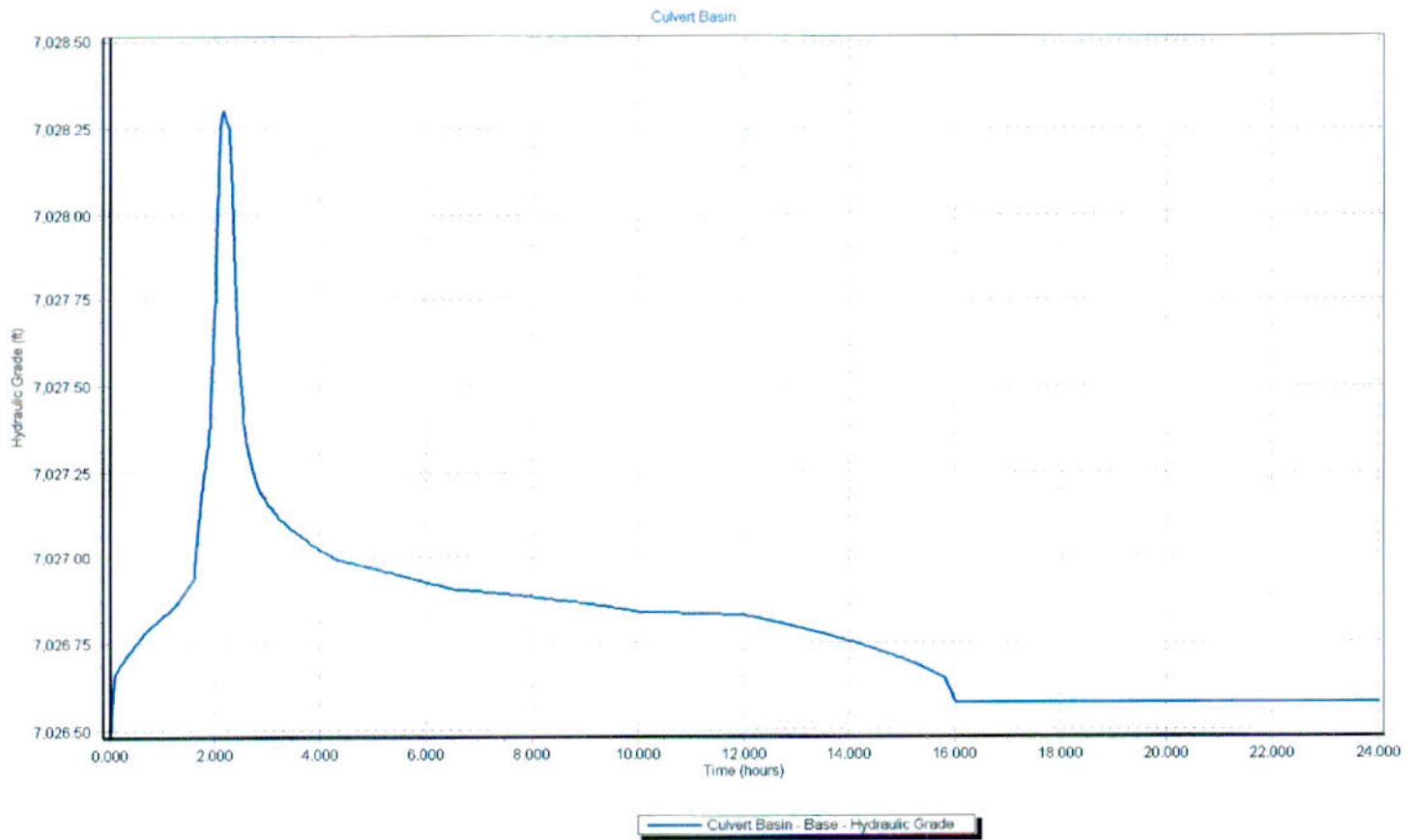
Watershed 8			K = Q/q <sub>tmax</sub> =	0.0178
Tabulated Time (hours)	Dimensionless Hydrograph q <sub>t</sub> (cfs)	Runoff Hydrograph q <sub>t</sub> =Kq <sub>t</sub> (cfs)	Average Discharge q <sub>avg</sub> (cfs)	Volume Calculation q <sub>avg</sub> (Δt) (cfs-hr)
1.0	0	0.00	0.00	0.00
1.3	0	0.00	0.00	0.00
1.6	0	0.00	0.00	0.00
1.9	0	0.00	0.06	0.01
2.0	7	0.12	0.94	0.09
2.1	98	1.75	4.18	0.42
2.2	371	6.62	6.18	0.62
2.3	322	5.74	4.84	0.48
2.4	221	3.94	3.60	0.36
2.5	182	3.25	3.03	0.30
2.6	158	2.82	2.63	0.26
2.7	137	2.44	2.29	0.23
2.8	120	2.14	2.00	0.40
3.0	104	1.86	1.77	0.35
3.2	94	1.68	1.61	0.32
3.4	86	1.53	1.48	0.30
3.6	80	1.43	1.37	0.27
3.8	74	1.32	1.28	0.26
4.0	69	1.23	1.17	0.35
4.3	62	1.11	1.09	0.33
4.6	60	1.07	1.04	0.42
5.0	57	1.02	0.97	0.49
5.5	52	0.93	0.88	0.44
6.0	47	0.84	0.81	0.41
6.5	44	0.79	0.77	0.38
7.0	42	0.75	0.73	0.37
7.5	40	0.71	0.70	0.35
8.0	39	0.70	0.66	0.66
9.0	35	0.62	0.58	0.58
10.0	30	0.54	0.52	1.03
12.0	28	0.50	0.25	1.00
16.0	0	0.00	Total Volume =	11.48 cfs-hr
				0.95 acre-ft

# Hydrograph

Watershed 9			K = Q/q <sub>tmax</sub> =	0.1154
Tabulated Time (hours)	Dimensionless Hydrograph q <sub>t</sub> (cfs)	Runoff Hydrograph q <sub>t</sub> =Kq <sub>t</sub> (cfs)	Average Discharge q <sub>avg</sub> (cfs)	Volume Calculation q <sub>avg</sub> (Δt) (cfs-hr)
1.0	0	0.00	0.00	0.00
1.3	0	0.00	0.00	0.00
1.6	0	0.00	0.00	0.00
1.9	0	0.00	0.40	0.04
2.0	7	0.81	6.06	0.61
2.1	98	11.31	27.07	2.71
2.2	371	42.83	40.00	4.00
2.3	322	37.17	31.34	3.13
2.4	221	25.51	23.26	2.33
2.5	182	21.01	19.63	1.96
2.6	158	18.24	17.03	1.70
2.7	137	15.82	14.83	1.48
2.8	120	13.85	12.93	2.59
3.0	104	12.01	11.43	2.29
3.2	94	10.85	10.39	2.08
3.4	86	9.93	9.58	1.92
3.6	80	9.24	8.89	1.78
3.8	74	8.54	8.25	1.65
4.0	69	7.97	7.56	2.27
4.3	62	7.16	7.04	2.11
4.6	60	6.93	6.75	2.70
5.0	57	6.58	6.29	3.15
5.5	52	6.00	5.71	2.86
6.0	47	5.43	5.25	2.63
6.5	44	5.08	4.96	2.48
7.0	42	4.85	4.73	2.37
7.5	40	4.62	4.56	2.28
8.0	39	4.50	4.27	4.27
9.0	35	4.04	3.75	3.75
10.0	30	3.46	3.35	6.70
12.0	28	3.23	1.62	6.46
16.0	0	0.00	Total Volume =	74.28 cfs-hr
				6.14 acre-ft









## Worksheet for 18" Circular Pipe

### Project Description

Friction Method	Manning Formula
Solve For	Discharge

### Input Data

Roughness Coefficient	0.024	
Channel Slope	0.05000	ft/ft
Normal Depth	1.50	ft
Diameter	1.50	ft

### Results

Discharge	12.72	ft <sup>3</sup> /s
Flow Area	1.77	ft <sup>2</sup>
Wetted Perimeter	4.71	ft
Hydraulic Radius	0.38	ft
Top Width	0.00	ft
Critical Depth	1.34	ft
Percent Full	100.0	%
Critical Slope	0.04425	ft/ft
Velocity	7.20	ft/s
Velocity Head	0.81	ft
Specific Energy	2.31	ft
Froude Number	0.00	
Maximum Discharge	13.69	ft <sup>3</sup> /s
Discharge Full	12.72	ft <sup>3</sup> /s
Slope Full	0.05000	ft/ft
Flow Type	SubCritical	

### GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

### GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s

---

## Worksheet for 18" Circular Pipe

---

### GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.50	ft
Critical Depth	1.34	ft
Channel Slope	0.05000	ft/ft
Critical Slope	0.04425	ft/ft

## Worksheet for 24" Circular Pipe

### Project Description

Friction Method	Manning Formula
Solve For	Discharge

### Input Data

Roughness Coefficient	0.024	
Channel Slope	0.06000	ft/ft
Normal Depth	2.00	ft
Diameter	2.00	ft

### Results

Discharge	30.01	ft <sup>3</sup> /s
Flow Area	3.14	ft <sup>2</sup>
Wetted Perimeter	6.28	ft
Hydraulic Radius	0.50	ft
Top Width	0.00	ft
Critical Depth	1.86	ft
Percent Full	100.0	%
Critical Slope	0.05189	ft/ft
Velocity	9.55	ft/s
Velocity Head	1.42	ft
Specific Energy	3.42	ft
Froude Number	0.00	
Maximum Discharge	32.29	ft <sup>3</sup> /s
Discharge Full	30.01	ft <sup>3</sup> /s
Slope Full	0.06000	ft/ft
Flow Type	SubCritical	

### GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

### GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s



---

## Worksheet for 24" Circular Pipe

---

### GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	2.00	ft
Critical Depth	1.86	ft
Channel Slope	0.06000	ft/ft
Critical Slope	0.05189	ft/ft

APPENDIX F

GEOTECHNICAL ENGINEERING REPORT  
TERRACON



# Geotechnical Engineering Report

Tsaile Indian Health Services Staff Housing

Tsaile, Arizona

May 6, 2011

Terracon Project No. 69105026

**Prepared for:**

DOWL HKM

Tucson, Arizona

**Prepared by:**

Terracon Consultants, Inc.

Flora Vista, New Mexico

Offices Nationwide  
Employee-Owned

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terracon.com

# Terracon

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities





May 6, 2011

DOWL HKM  
166 West Alameda  
Tucson, Arizona 85701

Attn: Ms. Celia Adams  
P: [520] 882 8696, ext. 2117  
C: [520] 275 6019  
E: [cadams@dowlhkm.com](mailto:cadams@dowlhkm.com)

Re: Geotechnical Engineering Report  
Tsaile Indian Health Services Staff Housing  
Tsaile, Arizona  
Project No. 69105026

Dear Ms. Adams:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the above referenced project. These services were performed in general accordance with Terracon's proposal number P69090014, G08-578, Revision No. 2 dated November 9, 2010. This geotechnical engineering report presents the results of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations for the proposed residences.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,  
**Terracon Consultants, Inc.**

Heather M. Woods  
Staff Professional

Kim M. Preston, P.E.  
Office Manager

Mary E. Wells, P.E.  
Principal

Copies to: Addressee (3 via mail, 1 via e-mail)

## EXECUTIVE SUMMARY

This geotechnical executive summary should be used in conjunction with the entire report for design and/or construction purposes. It should be recognized that specific details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. The section titled General Comments should be read for an understanding of the report limitations.

A geotechnical exploration has been performed for the proposed staff housing units to be constructed Tsaile, Arizona. Terracon's geotechnical scope of work included the advancement of ten (10) test borings in the proposed staff housing locations to approximate depths ranging from 5½ feet to 21½ feet below existing site grade.

Based on the information obtained from our subsurface exploration, the site is suitable for development of the proposed project. The following geotechnical considerations were identified:

**Site Soils:** The site surface soils generally consisted of clayey sand and lean clay. The underlying near surface and subsurface materials generally consisted of clayey sand, clayey silty sand, poorly graded sand, clayey silt, and lean clay with varying amounts of sand. These soils were underlain by sandstone in Borings B-5, B-9, and B-10. Groundwater was not encountered in the test borings at the time of excavation. On-site sand soils may be suitable for use as engineered fill beneath the foundations, slabs-on-grade and exterior slabs, provided they meet the recommendations for engineered fill in this report. The soils with greater clay contents may be blended with sufficient granular material to meet the recommendations.

Compressible and expansive soils are present on this site. This report provides recommendations to help mitigate the effects of soil compression and expansion. However, even if these procedures are followed, some movement and cracking in the structure should be anticipated. The severity of cracking and other damage such as uneven floor slabs will probably increase if any modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and distress may not be feasible, but it may be possible to further reduce the risk of movement if significantly more expensive measures are used during construction. We would be pleased to discuss other construction alternatives with you upon request.

Minor cracking and cosmetic distress can also be expected in most structures as a result of differential expansion and contraction of the various materials used in construction, due to seasonal fluctuations of temperature and moisture. Compliance with the moisture control recommendations provided in this report and preventing moisture from infiltrating into the subsurface soils below the structures should reduce the potential for soil related movement caused by changes in soil moisture content.



**Foundations:** Based on the geotechnical engineering analyses, subsurface exploration, laboratory test results, and due to the potential for vertical movement of the subsurface soils, it is our opinion that the proposed structures can be supported on post-tensioned (PT) foundation/slab systems bearing on a minimum of two (2) feet of non-expansive low permeability engineered fill placed on a minimum of eight (8) inches of scarified, moisture conditioned and compacted competent native materials. Soils below the foundation systems should be prepared in accordance with the recommendations in this report.

Earthwork on the project should be observed and evaluated by Terracon personnel. The evaluation of earthwork should include observation and testing of subgrade preparation, engineered fill, foundation and slab bearing soils, foundations and other geotechnical conditions exposed during construction.

**Pavement Sections:** Access drives and parking areas – Standard Duty - 3½ inches AC over 6 inches ABC or 7 inches PCC. Heavy Duty – 4½ inches AC over 6 inches ABC or 7½ inches PCC. Pavement areas should be underlain by 12 inches of engineered fill over 8 inches of scarified, moisture conditioned and compacted subgrade soils.



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# GEOTECHNICAL ENGINEERING REPORT

## TSAILE INDIAN HEALTH SERVICES STAFF HOUSING

### TSAILE, ARIZONA

Terracon Project No. 69105026

May 6, 2011

## 1.0 INTRODUCTION

A geotechnical exploration has been performed for the proposed staff housing units to be constructed in Tsaille, Arizona. Terracon's geotechnical scope of work included the advancement of ten (10) test borings in the proposed staff housing locations to approximate depths ranging from 5½ to 21½ feet below existing site grade. The locations in the field were designated by Terracon personnel. Logs of the borings along with a Site Location Map and a Boring Location Plan are included in Appendix A of this report. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included in Appendix B of this report. Descriptions of the field exploration and laboratory testing are included in their respective appendices.

The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- groundwater conditions
- seismic considerations
- foundation design and construction
- earthwork
- pavement structural section

## 2.0 PROJECT INFORMATION

### 2.1 Project Description

ITEM	DESCRIPTION
Site layout	Please Refer to the Site Location Map and Boring Location Plans (Appendix A).
Structures	The project will include construction of approximately thirty multi-unit one-bedroom staff housing units and individual two- to four-bedroom staff housing units with associated drives and parking areas.
Building construction	One- or two-story, wood-frame construction with post-tensioned floor/foundation systems.



ITEM	DESCRIPTION
Maximum loads	Columns: 15 kips (assumed) Walls: 1,500 plf (assumed) Slabs: 200 psf max (assumed)
Maximum allowable settlement	<1 inch
Grading	Maximum cut/fill should be less than three feet.
Below grade areas	No below grade structures will be included as a part of this project.

## 2.2 Site Location and Description

ITEM	DESCRIPTION
Location	Southeast of the existing Indian Health Service Clinic in Tsaile, Arizona.
Existing site features	None. The site is currently undeveloped.
Surrounding development	North: Light residential South: Access drive to the Dine College West: Mobile-home park East: Dine College
Current ground cover	Exposed earth, native plants, and trees.
Existing topography	The site generally slopes downward from the southeast to the northwest.

## 3.0 SUBSURFACE CONDITIONS

### 3.1 Site Geology

The project area is located in the synclinal valley between the Defiance Plateau and the Chuska Mountains of the Colorado Plateau physiographic province. The Colorado Plateau of Utah, Colorado, Arizona and New Mexico, is an area of uplift that has experienced relatively little deformation allowing the rocks to maintain their "layer cake" appearance. The Defiance Monocline is located to the west of the project site and the Zilditloi Syncline is located to the east. The project site area lies on Quaternary age alluvium deposits generally consisting of sand, silt, clay, and pebbles underlain by the Petrified Forest member of the Chinle Formation generally consisting of siltstone.

### 3.2 Typical Subsurface Profile

Specific conditions encountered at the boring locations are indicated on the individual boring logs. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in-situ, the transition between materials may be gradual. Details for the borings can be

found on the boring logs included in Appendix A of this report. Based on the results of the borings, subsurface conditions on the project site can be generalized as follows:

Description	Approximate Depth to Bottom of Stratum (feet)	Material Encountered	Consistency/Density
Stratum 1	½ to 21½	Clayey Sand, Clayey Silty Sand, Poorly Graded Sand, Clayey Silt and Lean Clay with Varying Amounts of Sand	Loose to Very Dense/Very Stiff to Hard
Stratum 2	5½ to 20½ (Borings B-5, B-9, and B-10)	Sandstone	Soft to Hard

### 3.3 Groundwater

Groundwater was not observed in the borings at the time of field exploration. This observation represents groundwater conditions at the time of the field exploration and may not be indicative of other times, or at other locations. Groundwater conditions can change with varying seasonal and weather conditions, and other factors.

Zones of perched and/or trapped groundwater may also occur at times in the subsurface soils overlying bedrock, on top of the bedrock surface or within permeable fractures in the bedrock materials. The location and amount of perched water is dependent upon several factors, including hydrologic conditions, type of site development, fluctuations in water features, seasonal and weather conditions.

## 4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

### 4.1 Geotechnical Considerations

Based on the geotechnical engineering analyses, subsurface exploration, laboratory test results, and due to the potential for vertical movement of the subsurface soils, it is our opinion that the proposed structures can be supported on post-tensioned (PT) foundation/slab systems bearing on a minimum of two (2) feet of non-expansive low permeability engineered fill placed on a minimum of eight (8) inches of scarified, moisture conditioned and compacted competent native soils. Soils below the foundation systems should be prepared in accordance with the recommendations in this report.

Expansive and compressible soils are present on this site. This report provides recommendations to help mitigate the effects of soil shrinkage and expansion. However, even if



these procedures are followed, some movement and at least minor cracking in the support structure should be anticipated. The severity of cracking and other damage will probably increase if any modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and distress may not be feasible, but it may be possible to further reduce the risk of movement if significantly more expensive measures are used during construction. Some of these options are discussed in this report. We would be pleased to discuss other construction alternatives with you upon request.

The recommendations presented in this report are based on our knowledge of the site soil conditions and our experience with similar sites and structures. These recommendations will not eliminate the risk of movement and cosmetic distress, but this risk could be further reduced if significantly more expensive measures are used during construction. Please contact us if you wish to discuss methods to further reduce risks associated with the presence of expansive soils on your site.

We recommend that the geotechnical engineer be retained to evaluate the bearing material for the foundation subgrade soils. Subsurface conditions, as identified by the field and laboratory testing programs, have been reviewed and evaluated with respect to the proposed construction plans known to us at this time.

On-site sand soils may be suitable for use as engineered fill beneath the foundations, slabs-on-grade, exterior slabs and pavements, provided they meet the recommendations for engineered fill in this report. The soils with greater clay contents may be blended with sufficient granular material to meet the recommendations.

It is anticipated that excavations in the site soils for the proposed construction may be difficult in areas of very dense and hard soils. The correct equipment for site conditions should be selected by the Contractor to perform the earthwork at the site based on the information presented in this report and the contractor's on-site observations and evaluation.

Geotechnical engineering recommendations for the foundation systems and other earth connected phases of the project are outlined below. The recommendations contained in this report are based upon the results of field and laboratory testing (which are presented in Appendices A and B), engineering analyses, and our current understanding of the proposed project.

## **4.2 Earthwork**

The following presents recommendations for site preparation, excavation, subgrade preparation and placement of engineered fills on the project. The recommendations presented for design and construction of earth supported elements including foundations are contingent upon following the recommendations outlined in this section. All grading for the buildings should



incorporate the limits of the proposed structures plus a minimum pad extension of five feet beyond proposed foundation perimeters.

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project.

#### **4.2.1 Site Preparation**

Strip and remove existing fill, existing above and below grade development, vegetation, debris and other deleterious materials from proposed building and pavement areas. Exposed surfaces should be free of mounds and depressions which could prevent uniform engineered fill placement and compaction.

Stripped materials consisting of vegetation and organic materials should be wasted from the site, or used to revegetate landscaped areas or exposed slopes after completion of grading operations. If it is necessary to dispose of organic materials on-site, they should be placed in non-structural areas, and in fill sections not exceeding 5 feet in height.

On-site sand soils may be suitable for use as engineered fill beneath the foundations, slabs-on-grade, exterior slabs and pavements, provided they meet the recommendations for low permeability engineered fill in this report. The soils with greater clay contents may be blended with sufficient granular material to meet the recommendations.

The PT systems should be designed to bear on a minimum of two (2) feet of non-expansive low permeability engineered fill placed on a minimum of eight (8) inches of scarified, moisture conditioned and compacted competent native soils. Prior to placement of engineered fill, the excavations should be graded to create a relatively level surface to receive fill, and to provide for a relatively uniform thickness of fill beneath proposed building structures.

#### **4.2.2 Subgrade Preparation**

Granular, non-expansive engineered fill meeting the specifications contained herein should extend below proposed PT foundation systems to depths recommended above. The granular, low permeability engineered fill should extend laterally at least two (2) feet beyond the footing edges and a distance of eight (8) inches for each additional foot of excavation beyond the two (2) feet minimum.

Exposed areas which will receive granular, non-expansive engineered fill, once properly cleared and benched where necessary, should be scarified to a minimum depth of eight inches, conditioned to near optimum moisture content, and compacted to the densities recommended herein.

PT foundation/slab systems should bear on a minimum of two (2) feet of non-expansive low permeability engineered fill placed on prepared (8-inches minimum scarified, moisture conditioned and compacted site soil) pads and, if a rib post tension system is used, the bottom of the perimeter turndowns and rib excavations should bear on a minimum of two (2) feet non-expansive low permeability engineered fill placed on 8-inches of scarified, moisture conditioned and compacted native soil as noted above to provide a uniform bearing surface. Moisture content and compaction should be in accordance with recommendations in this report.

Areas of loose soils may be encountered at foundation bearing depth after excavation is completed for footings. When such conditions exist beneath planned footing areas, the surface of the subgrade soils should be moisture conditioned and compacted prior to placement of the required depth of granular, non-expansive engineered fill. If sufficient compaction cannot be achieved in-place, the loose soils should be removed and replaced with non-expansive low permeability engineered fill. For placement of non-expansive low permeability engineered fill below foundation/slab systems, the excavation should be widened laterally, at least eight inches for each foot of fill placed below foundation system base elevations.

#### 4.2.3 Fill Materials and Placement

Frozen soils should not be used as fill or backfill. Low permeability engineered, non-expansive fill soils should conform to the following:

<u>Gradation</u>	<u>Percent finer by weight (ASTM C136)</u>
3".....	100
No. 4 Sieve .....	50-100
No. 200 Sieve .....	40 (max)
Liquid Limit.....	40 (max)
Plasticity Index .....	3 to 10
Maximum expansive potential (%)* .....	0.5

\*Measured on a sample compacted to approximately 95 percent of the ASTM D698 maximum dry density at about 3 percent below optimum water content. The sample is confined under a 100 psf surcharge and submerged.

In addition to the above requirements, low permeability engineered fill placed below the foundations and slabs should be non-expansive and relatively impervious to moisture infiltration. To satisfy these requirements, low permeability engineered fill should also meet the following criteria:



**Liquid Limit**

**Percent Passing  
No. 200 Sieve**

More than 40 .....	5 to 15
25 to 40 .....	5 to 35
Less than 25 .....	15 to 40

**4.2.4 Compaction Requirements**

Recommended compaction and moisture content criteria for engineered fill materials are as follows:

Material Type and Location	Per the Standard Proctor Test (ASTM D 698)		
	Minimum Compaction Requirement (%)	Range of Moisture Contents for Compaction	
		Minimum	Maximum
Scarified and moisture conditioned existing native subgrade soils	95	-1%	+3%
Approved on-site clay/granular blend or approved imported fill soils:			
Beneath foundations and floor slabs:	95	-1%	+3%
Beneath exterior slabs:	95	-1%	+3%
Interior and exterior foundation backfill:	95	-1%	+3%
Engineered fill and native subgrade below pavements:	95	-1%	+3%
Miscellaneous backfill:	95	-1%	+3%

**4.2.5 Grading and Drainage**

Final surrounding grades should be sloped away from the structures on all sides of the structures and pavements to prevent ponding of water. A drainage swale should be constructed around the houses to intercept off-site and storm water and divert the water away from the structures to a suitable off-site location.

Positive drainage to carry surface water to drainage channels, ditches or natural water courses should be provided during construction and maintained throughout the life of the proposed project. Infiltration of water below foundations and into utility or foundation excavations must be prevented during construction and for the life of the project. Prevention of water infiltrating into the subsurface soils underling the building will be necessary for long-term satisfactory structure performance. Planters and other surface features that could retain water in areas adjacent to the building foundations, concrete flatwork or pavement should be minimized or eliminated. In areas where sidewalks or paving do not immediately adjoin the structure, we recommend that protective slopes be provided with a minimum grade of approximately 5 percent for at least 15



feet from perimeter walls. Backfill against footings, exterior walls, and in utility trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration. Areas adjacent to all exterior slabs should be well-drained and continuously maintained to prevent water infiltration into the supporting soils.

The native lean clay (CL) soils encountered in the area may be used as compacted fill in the top 12 inches around the perimeter of the structure. This "clayey cap" will tend to act as a moisture barrier to help deter surface water from infiltrating into the subsurface soils. The "clayey cap" should extend for a minimum distance of 10 feet from the structure perimeter and be moisture conditioned within 1 percent below to 3 percent above optimum moisture content and compacted to a minimum of 95 percent of ASTM D698.

Downspouts, roof drains or scuppers should discharge into splash blocks or extensions when the ground surface beneath such features is not protected by exterior slabs or paving. Sprinkler system main lines should not be installed within 10 feet of foundation walls. Landscaped irrigation adjacent to the foundation systems should be frequently checked for leaks and repaired, if necessary.

Utility trenches are a common source of water infiltration and migration. All utility trenches that penetrate beneath the building should be effectively sealed to restrict water intrusion and flow through the trenches that could migrate below the building. We recommend constructing an effective clay "trench plug" that extends at least 5 feet out from the face of the building exterior. The plug material should consist of clay compacted at a water content at or above the soils optimum water content. The clay fill should be placed to completely surround the utility line and be compacted in accordance with recommendations in this report

#### **4.2.6 Corrosion Potential**

Experience with similar soils in the project area indicates that ASTM Type II Portland cement is suitable for concrete on and below grade. Foundation concrete should be designed in accordance with the provisions of the ACI Design Manual, Section 318, Chapter 4.

#### **4.2.7 Construction Considerations**

It is anticipated that excavations in the soils for the proposed construction may be difficult in areas of very dense and hard soils. The correct equipment for site conditions should be selected by the Contractor to perform the earthwork at the site based on the information presented in this report and the contractor's on-site observations and evaluation.

The individual contractor(s) is responsible for designing and constructing stable, temporary excavations as required maintaining stability of both the excavation sides and bottom. Excavations should be sloped or shored in the interest of safety following local and federal regulations, including current OSHA excavation and trench safety standards.

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation; placement and compaction of controlled compacted fills; backfilling of excavations into the completed subgrade, and just prior to construction of foundations.

### **4.3 Foundation Design Recommendations**

Based on the geotechnical engineering analyses, subsurface exploration, laboratory test results, and due to the potential for vertical movement of the subsurface soils, it is our opinion that the proposed structures can be supported on post-tensioned (PT) foundation/slab systems bearing on minimum of two (2) feet of non-expansive low permeability engineered fill placed on a minimum of eight (8) inches of scarified, moisture conditioned and compacted competent native soils. Soils below the foundation systems should be prepared in accordance with the recommendations in this report.

Design and construction recommendations for foundation/slab systems and other earth connected phases of the project are outlined below.

#### **4.3.1 Post Tensioned Foundation Systems**

Based on the soil conditions encountered, use of post-tensioned slabs is feasible for support of the structures provided that the prepared pads are compacted to provide uniform bearing and:

- The post-tensioned slab foundation/slab systems are properly designed and constructed.
- Approved materials supporting the foundation are properly placed and compacted.
- Proper surface drainage is maintained throughout the life of the structures.
- Prudent landscaping measures are used.

Perimeters of the foundation/slab systems should be embedded a minimum of 30 inches below lowest adjacent finished grade for frost protection. Post-tensioned slabs should be designed using criteria outlined by the Post-Tensioning Institute<sup>1</sup> Design recommendations for post-tensioned slabs for the proposed buildings are presented in the following paragraphs.

##### **4.3.1.1 Post Tensioned Foundation Design Recommendations**

Based on the subsurface conditions and the recommended modification of the on-site materials, post-tensioned slabs should be designed using criteria outlined by the Post-Tensioning Institute<sup>1</sup> based on the following:

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<sup>1</sup>PTI Slab-on-Ground Committee, (2004), *Design and Construction of Post-Tensioned Slabs-on-Ground*, Post-Tensioning Institute, Third Edition.



Post-tensioned Slab Design Parameter		PTI, Third Edition 2006 IBC/IRC
Edge Moisture Variation Distance, $e_m$ (feet)	Center Lift Condition	9.0
	Edge Lift Condition	4.7
Differential Soil Movement, $y_m$ (inches)	Center Lift Condition	-1.35
	Edge Lift Condition	1.35

- Maximum Allowable Bearing Pressure ..... 2,000 psf
- Slab-Subgrade Friction Coefficient,  $\mu$ 
  - on polyethylene sheeting ..... 0.75
  - on cohesionless soils ..... 1.00
  - on cohesive soils ..... 2.00

Post-tensioned slabs, thickened or turndown edges and/or interior beams should be designed and constructed in accordance with the requirements of the PTI and the American Concrete Institute (ACI).

It should be noted that  $y_m$  is the estimated vertical movement at the edges of a uniformly loaded slab. These are theoretical values that are used in the design of post-tensioned slabs-on-grade and do not represent the movements that would be expected from the actual loading conditions. As previously discussed, the use of post-tensioned slabs assumes that some potential movement is considered acceptable.

Exterior slab edges should be placed a minimum of 30 inches below finished grade for frost protection. Finished grade is the lowest adjacent grade for perimeter beams.

If portions of the building floor slabs will be unheated, such as patios and entryways, consideration should be given to structurally separating these areas of the slab from the remaining interior portion of the slab. Exterior slab areas may be cantilevered portions of the slab which are subject to uplift from frost heave and swelling of expansive soils, sometimes beyond those used for design, due to over watering of adjacent to landscaped areas. Such movement in the exterior slabs can result in change in slab grade to the point where negative grade results and water ponds adjacent to the interior areas of the slab. Repairs of such conditions are difficult and costly, particularly if the floor slabs are post-tensioned slabs.

Exterior slabs in unheated areas are subject to frost heave beneath the slab. Therefore, in design of the exterior slabs, potential movement from frost heave should be considered in the design.



#### 4.3.1.2 Post Tensioned Construction Considerations

It should be noted that the presence of 1 to 2-foot steps within long spans of post-tensioned slabs could create a situation where the slabs at different elevations perform independently of one another unless the steps are properly reinforced and designed to tie the slabs together to act as one rigid structure. We strongly recommend that joints be designed within the full height of the structure of the buildings over each step in order to help the structures be capable of withstanding movements on the order of 1 to 2 inches.

The above outlined movement estimates should also be considered as the potential amount of tilting of the structure, which could be caused by non-uniform, significant wetting of the subsurface materials below the post-tensioned slab, resulting in potential movement. Failure to maintain soil water content below the slab and to maintain proper drainage around the structure will nullify the movement estimates provided above.

#### 4.4 Seismic Considerations

Description	Value
<b>2009 International Building Code Site Classification (IBC) <sup>1</sup></b>	C <sup>2</sup>
Site Latitude	36.298750
Site Longitude	-109.221412
<b>Spectral Response Accelerations SMs and SM1</b> <b>SMs = FaSs and SM1 = FvS1</b> <b>Site Class C - Fa = 1.6, Fv = 2.4</b>	
<b>SM<sub>s</sub> Spectral Acceleration for a Short Period (0.2 sec)</b>	0.231g
<b>SM1 Spectral Acceleration for a 1-Second Period</b>	0.080g
<b>SDs = 2/3 x SMs and SD1 = 2/3 x SM1</b>	
<b>SD<sub>s</sub> Spectral Acceleration for a Short Period (0.2 sec)</b>	0.154g
<b>SD1 Spectral Acceleration for a 1-Second Period</b>	0.054g

<sup>1</sup> Note: In general accordance with the 2009 International Building Code, Table 1613.5.2. IBC Site Class is based on the average characteristics of the upper 100 feet of the subsurface profile.

<sup>2</sup> Note: The 2009 International Building Code (IBC) requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. The current scope does not include the required 100 foot soil profile determination. The borings extending to a maximum depth of 21½ feet, and this seismic site class definition considers that dense soil and soft rock may be encountered below the maximum depth of the subsurface exploration. Additional exploration to deeper depths would be required to confirm the conditions below the current depth of exploration.

## 4.5 Lateral Earth Pressures

### 4.5.1 Design Recommendations

For soils above any free water surface, recommended equivalent fluid pressures for unrestrained foundation elements are:

- Active:  
Engineered fill ..... 40 psf/ft
- Passive:  
Engineered fill ..... 360 psf/ft
- Coefficient of base friction ..... 0.40\*

\*The coefficient of base friction should be reduced to 0.30 when used in conjunction with passive pressure.

The lateral earth pressures herein do not include any factor of safety and are not applicable for submerged soils/hydrostatic loading. Additional recommendations may be necessary if submerged conditions are to be included in the design.

Fill against the foundation walls should be compacted to densities specified in the Earthwork section of this report.

## 4.7 Pavements

### 4.7.1 Design Recommendations

Pavement sections based upon a more detailed pavement design could be provided if specific traffic loading, frequencies, and desired pavement design life are provided. As a minimum, we suggest the following typical pavement sections be considered.

Traffic Area	Recommended Pavement Section Thickness (inches)			
	Asphalt Concrete Surface	Aggregate Base Course	Portland Cement Concrete	Total
Standard-Duty	3½	6	---	9½
	---	5	7.0	12
Heavy-Duty	4½	8	---	12½
	---	5	7½	12½



The design approach used to populate the above table was based on the National Asphalt Pavement Association (NAPA), which is specific to low volume pavements. Portland Cement Concrete (PCC) pavement thicknesses were based on the American Concrete Institute (ACI) design recommendations.

These pavement sections are considered minimal sections based upon the expected traffic and the existing subgrade conditions. However, they are expected to function with periodic maintenance and overlays if good drainage is provided and maintained.

#### **4.7.2 Construction Considerations**

The pavement areas should be underlain by 12 inches of engineered fill over 8 inches of scarified, moisture conditioned and compacted subgrade soils. Engineered fill should be placed and compacted in accordance with recommendations in this report. The subgrade soils, below the engineered fill and aggregate base course, should be scarified to a minimum depth of 8 inches, moisture conditioned within 1 percent below optimum to 3 percent above optimum and compacted to a minimum of 95 percent of the maximum laboratory dry density as evaluated by ASTM D698 (Standard Proctor).

Aggregate base course should consist of a blend of sand and gravel that meets strict specifications for quality and gradation. Use of materials meeting ADOT (Arizona Department of Transportation) specifications for aggregate base course specifications is recommended. Aggregate base course material should be tested to determine compliance with these specifications prior to importation to the site.

Aggregate base course should be placed in lifts not exceeding 6 inches and should be compacted to a minimum of 100 percent of the Standard Proctor density (ASTM D698), within a moisture content range of 3 percent below, to 3 percent above optimum. Where base course thickness exceeds 6 inches, the material should be placed and compacted in two or more lifts of equal thickness.

Plant-Mix Bituminous Pavement design and construction should conform to the requirements of the ADOT specifications. The mix design should be submitted prior to construction to verify its adequacy. The asphalt materials should be placed in maximum 3-inch lifts, and should be compacted to a minimum of 95 percent Marshall (ASTM D1559) density.

A rigid pavement design analysis was completed, based upon AASHTO design procedures. Rigid pavement design is based on an evaluation of the Modulus of Subgrade Reaction of the soils (K-value), the Modulus of Rupture of the concrete, and other factors previously outlined. The design K-value of 150 for the subgrade soil was determined by correlation to the laboratory tests results. A modulus of rupture of 580 psi (working stress 488 psi) was used for pavement concrete. The rigid pavement thickness was determined on the basis of the AASHTO design equation.



Where rigid pavements are used, the concrete should be obtained from an approved mix design with the following minimum properties:

- Compressive Strength @ 28 days ..... 4000 psi minimum
- Strength Requirements ..... ASTM C94
- Cement Type ..... Type II Portland
- Entrained Air Content ..... 6 to 8%
- Concrete Aggregate ..... ASTM C33
- Aggregate Size ..... 1 inch maximum
- Maximum Allowable Slump ..... 4 inches

Concrete should be deposited by truck mixers or agitators and placed a maximum of 90 minutes from time the water is added to the mix. Other specifications outlined by the Arizona Department of Transportation should be followed.

Longitudinal and transverse joints should be provided as needed in concrete pavements for expansion/contraction and isolation in accordance with Portland Cement Concrete Association recommendations. The location and extent of joints should be based upon the final pavement geometry and ACT or PCA recommendations. All joints should be sealed to prevent entry of foreign material and dowelled where necessary for load transfer.

Future performance of pavements constructed on the soils at this site will be dependent upon several factors, including:

- Maintaining stable moisture content of the subgrade soils; and,
- Providing for a planned program of preventative maintenance.

Since the soils on the site have the potential to change volume due to increase in moisture content, pavements could crack in the future. The cracking, while not desirable, does not necessarily constitute structural failure of the pavement.

The performance of all pavements can be enhanced by minimizing excess moisture that can reach the subgrade soils. The following recommendations should be considered at minimum:

- Site grading at a minimum 2 percent grade away from the pavements;
- Compaction of any utility trenches for landscaped areas to the same criteria as the pavement subgrade;
- Sealing all landscaped areas in, or adjacent to pavements to minimize or prevent moisture migration to subgrade soils;
- Placing compacted backfill against the exterior side of curb and gutter; and,
- Placing curb, gutter and/or sidewalk directly on subgrade soils without the use of base course materials.

Preventative maintenance should be planned and provided for through an on-going pavement management program in order to enhance future pavement performance. Preventative maintenance activities are intended to slow the rate of pavement deterioration, and to preserve the pavement investment.

Preventative maintenance consists of both localized maintenance (e.g. crack sealing and patching) and global maintenance (e.g. surface sealing). Preventative maintenance is usually the first priority when implementing a planned pavement maintenance program and provides the highest return on investment for pavements.

We recommend the pavement areas be rough graded and then thoroughly proofrolled with a loaded tandem axle dump truck prior to final grading and paving. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the materials with properly compacted fills. All pavement areas should be moisture conditioned and properly compacted to the recommendations in this report immediately prior to paving.

The minimum pavement sections outlined above were determined based on the laboratory test results and post-construction traffic loading conditions for this type of development. These pavement sections do not account for heavy construction traffic during the early stages of the development. A partially constructed structural section may be subjected to heavy construction traffic that can result in pavement deterioration and premature failure. Our experience indicates that this pavement construction practice can result in pavements that will not perform as intended. Considering this information, several alternatives are available to mitigate the impact of heavy construction traffic on the pavement construction. These include using thicker sections to account for the construction traffic, using some method of soil stabilization to improve the support characteristics of the pavement subgrade, or by routing heavy construction traffic around paved streets. We are available to discuss these alternatives with you.

## **5.0 GENERAL COMMENTS**

Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the test borings performed at the indicated location and from other information discussed in this report. This report does not reflect variations that may occur across the site, or due to the



modifying effects of weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

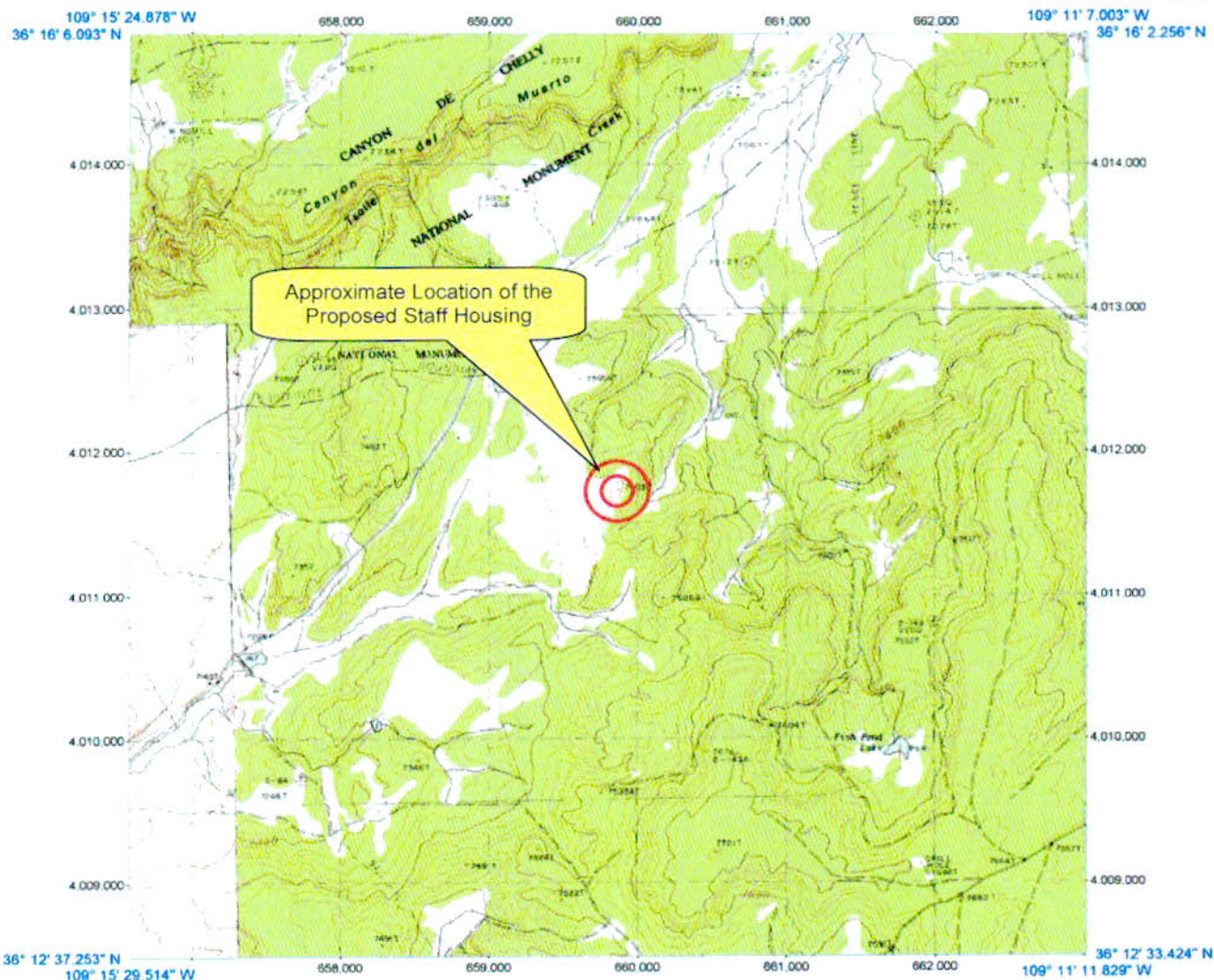
The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

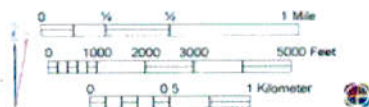


**APPENDIX A**  
**FIELD EXPLORATION**

MAP



1927 North American Datum, UTM grid zone 12  
Generated by BigTopo7 (www.gsg.com)  
Map compiled from USGS Quads: Red Cornfield Mesa, AZ  
Tsaile, AZ, Lower Wheatfields, AZ, Mummy Cave Ruins, AZ



BigTopo Map

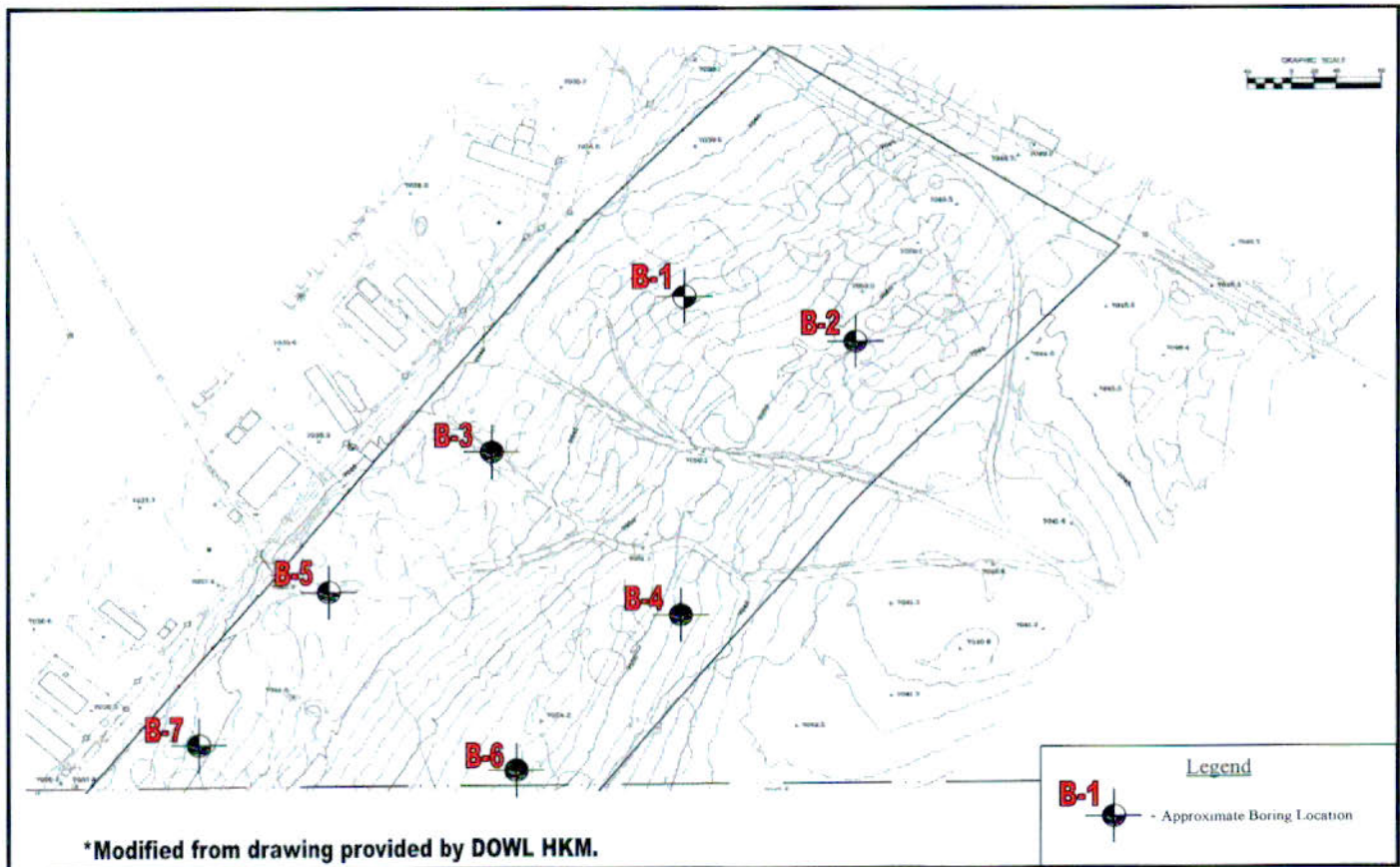
Project Mngr:	KMP
Drawn By:	HMW
Checked By:	KMP
Approved By:	KMP

Project No.	69105026
Scale	~ 1:24,000
File No.	Site Map.doc
Date:	04/27/2011

**Terracon**  
Consulting Engineers & Scientists  
84A CR 3499  
Flora Vista, New Mexico  
505.334.2900 Fax: 505.334.9703

Site Location Map
Tsaile Indian Health Services Staff Housing Tsaile, Arizona

Exh No.
A-1



Project Mgr:	KMP
Drawn By:	HMW
Checked By:	KMP
Approved By:	KMP

Project No:	690105026
Scale:	As Shown
File No:	Boring.doc
Date:	04/18/2011

**Terracon**  
 Consulting Engineers & Scientists  
 84A CR 3499  
 Flora Vista, New Mexico  
 505.334.2900 Fax 505.334.9703

Boring Location Plan
Tsaile Indian Health Services Staff Housing Tsaile, Arizona

Exhibit
A-2





84A CR 3499  
Flora Vista, New Mexico  
505 334 2900 Fax: 505 334 9703

## Field Exploration Description

Ten (10) test borings were advanced in the proposed residence locations to the approximate depths ranging from 5½ feet to 21½ feet below existing site grade at the approximate locations shown on the attached Boring Location Plan. The test borings were advanced with a truck-mounted CME-75 drill rig utilizing 8-inch diameter hollow-stem augers.

The borings were located in the field by Terracon personnel, by measuring from existing site features. The accuracy of the boring locations should only be assumed to the level implied by the method used.

A lithologic log of each boring was recorded by the field geologist during the drilling operations. At selected intervals, samples of the subsurface materials were taken by driving split-spoon or ring-barrel samplers. Bulk samples of subsurface materials were also obtained.

Penetration resistance measurements were obtained by driving the ring-barrel sampler into the subsurface materials with a 140-pound automatic hammer falling 30 inches. The penetration resistance value is a useful index in estimating the consistency or relative density of materials encountered.

A CME automatic SPT hammer was used to advance the ring-barrel sampler in the boring performed on this site. A greater efficiency is typically achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. Published correlations between the SPT values and soil properties are based on the lower efficiency cathead and rope method. This higher efficiency affects the standard penetration resistance blow count (N) value by increasing the penetration per hammer blow over what would be obtained using the cathead and rope method. The effect of the automatic hammer's efficiency has been considered in the interpretation and analysis of the subsurface information for this report.

Groundwater conditions were evaluated in the borings at the time of site exploration.







# LOG OF BORING NO. B-2

Page 1 of 1

CLIENT		DOWL HKM			
SITE		Tsaile, Arizona		PROJECT	
				Tsaile Indian Health Services Staff Housing	
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES	
				CORE SIZE	TESTS
				TYPE	RECOVERY, m
				SPT-N BLOWS 10.3 m	WATER CONTENT, %
				DRY UNIT WT pcf	UNCONFINED STRENGTH, psi
Approx. Surface Elev.: 7049 ft					
	<u>CLAYEY SAND</u> ; red tan, dry to moist, medium dense.		SC	GRAB	3.5
			SC	RS 12 23	5.9
5	7044				
	<u>CLAYEY SILTY SAND</u> ; red brown, dry, medium dense.	5	SC SM	RS 12 14	6.6 106
10	7039				
	<u>CLAYEY SAND</u> ; red brown, dry, dense.	10	SC	RS 12 42	5.6
15	7034				
	<u>LEAN CLAY</u> ; red brown, dry to moist, hard, pinholes.	15	CL	RS 5 25/5"	8.4
20					
		20	CL	RS 6 25/6"	10.2
21	7028				
Exploration terminated at a depth of approximately 21 feet below existing ground surface. No groundwater encountered.					

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\*All blow counts converted to SPT blow counts.

\*\*Elevations interpreted from topographic site map provided by the client.

## WATER LEVEL OBSERVATIONS, ft

WL	NE	WD
WL		
WL		

# Terracon

BORING STARTED	3-28-11
BORING COMPLETED	3-28-11
RIG	CME-75
FOREMAN	HMW
APPROVED	KMP
JOB #	69105026

# LOG OF BORING NO. B-3

Page 1 of 1

CLIENT		DOWL HKM							
SITE		Tsaile, Arizona							
PROJECT		Tsaile Indian Health Services Staff Housing							
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES			TESTS		
				CORE SIZE	TYPE	RECOVERY, m	SPT-N BLOWS \ 0.3 m	WATER CONTENT, %	DRY UNIT WT pcf
	Approx. Surface Elev.: 7042.5 ft								
	<u>LEAN CLAY</u> ; red, dry to moist.		CL	GRAB			3.9		
2		7040.5							
	<u>CLAYEY SILT</u> ; red brown, moist, hard.		CL ML	RS	12	31	8.8		
5		7037.5							
	<u>SANDY LEAN CLAY</u> ; red brown to red tan, dry to moist, hard.		CL	RS	11	41/11"	6.4		
15		7027.5							
	<u>LEAN CLAY</u> ; red brown, moist, hard.		CL	RS	6	25/6"	9.1		
20		7022.5							
	<u>CLAYEY SAND</u> ; red tan and white, dry, very dense.		SC	RS	9	49/9"	6.2		
21.5		7021							
	Exploration terminated at a depth of approximately 21.5 feet below existing ground surface. No groundwater encountered.								

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\*All blow counts converted to SPT blow counts.

\*\*Elevations interpreted from topographic site map provided by the client.

## WATER LEVEL OBSERVATIONS, ft

WL	NE	WD
WL		
WL		

# Terracon

BORING STARTED		3-28-11	
BORING COMPLETED		3-28-11	
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69105026



# LOG OF BORING NO. B-4

Page 1 of 1

CLIENT		DOWL HKM							
SITE		Tsaile, Arizona							
PROJECT		Tsaile Indian Health Services Staff Housing							
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES			TESTS		
				CORE SIZE	TYPE	RECOVERY, m	SPT-N BLOWS \ 0.3 m	WATER CONTENT, %	DRY UNIT WT pcf
	Approx. Surface Elev.: 7048.5 ft								
	<u>LEAN CLAY</u> ; red, dry to moist.		CL	GRAB			4.7		
2		7046.5							
	<u>CLAYEY SAND</u> ; red brown to orange, dry to moist, medium dense.		SC	RS	12	16	9.4	113	
			5						
			SC	RS	12	27	12.7		
10		7038.5							
	<u>POORLY GRADED SAND</u> ; light orange, dry to moist, medium dense.		SP	RS	12	11	2.8		
14		7034.5							
	<u>LEAN CLAY</u> ; red brown, moist, very stiff to hard.		CL	RS	12	23	8.4		
			20						
			CL	RS	6	25/6"	6.6		
21		7027.5							
	Exploration terminated at a depth of approximately 21 feet below existing ground surface. No groundwater encountered.								

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\*All blow counts converted to SPT blow counts.  
\*\*Elevations interpreted from topographic site map provided by the client.

## WATER LEVEL OBSERVATIONS, ft

WL	NE	WD
WL		
WL		

# Terracon

BORING STARTED	3-28-11
BORING COMPLETED	3-28-11
RIG	CME-75
FOREMAN	HMW
APPROVED	KMP
JOB #	69105026

BOREHOLE 98 LOG OF BORING1 GPJ TERRACON GDT 4/27/11



# LOG OF BORING NO. B-5

Page 1 of 1

CLIENT		DOWL HKM			
SITE		Tsaile, Arizona		PROJECT	
				Tsaile Indian Health Services Staff Housing	
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES	
				CORE SIZE	TESTS
				TYPE	RECOVERY, m
				SPT-N BLOWS / 0.3 m	WATER CONTENT, %
				DRY UNIT WT pcf	UNCONFINED STRENGTH, psi
Approx. Surface Elev.: 7042.5 ft					
	<u>CLAYEY SAND</u> ; red brown, dry to moist, very loose.		SC	GRAB	4.1
			SC	RS 12	3 6.2 110
5	7037.5				
	<u>CLAYEY SILTY SAND</u> ; red brown, dry, medium dense.		SC SM	RS 12	11 5.8
10	7032.5				
	<u>LEAN CLAY</u> ; red brown, moist, hard, silty.		CL	RS 12	42 11.5
	Yellow sandstone gravel size pieces.		CL	RS 12	44 9.8
18	7024.5				
	<u>SANDSTONE</u> ; white and gray, dry to moist, complete to severe weathering, soft.				
20.5	7022			RS 4	50/4" 7.8
	Exploration terminated at a depth of approximately 20.5 feet below existing ground surface. No groundwater encountered.				

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\*All blow counts converted to SPT blow counts.

\*\*Elevations interpreted from topographic site map provided by the client.

## WATER LEVEL OBSERVATIONS, ft

WL	NE	WD	
WL			
WL			

# Terracon

BORING STARTED	3-28-11
BORING COMPLETED	3-28-11
RIG CME-75	FOREMAN HMW
APPROVED KMP	JOB # 69105026

BOREHOLE 99 LOG OF BORING1.GPJ TERRACON.GDT 4/27/11

# LOG OF BORING NO. B-6

Page 1 of 1

CLIENT		DOWL HKM								
SITE		Tsaile, Arizona								
PROJECT		Tsaile Indian Health Services Staff Housing								
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES			TESTS			
				CORE SIZE	TYPE	RECOVERY, m	SPT-N BLOWS \ 0.3 m	WATER CONTENT, %		DRY UNIT WT pcf
	Approx. Surface Elev.: 7057.5 ft									
	<u>SANDY LEAN CLAY</u> ; red, dry to moist.		CL	GRAB			5.1			-200: 68% LL: 33 PI: 17
2	7055.5 <u>LEAN CLAY</u> ; red brown, dry to moist, very stiff, silty.		CL	RS	12	16	6.0			
5	7052.5 <u>CLAYEY SILT</u> ; red brown, moist, very stiff.	5	CL ML	RS	12	17	8.7	117		
10	7047.5 <u>CLAYEY SAND</u> ; red tan, dry, very dense.	10	SC	RS	5	25/5"	7.5			
14	7043.5 <u>POORLY GRADED SAND</u> ; pink, dry, dense, lightly cemented.	15	SP	RS	12	30	3.3			
19	7038.5 <u>CLAYEY SILT</u> ; red brown, moist, hard.	20	CL ML	RS	11	42/11"	6.8			
21.5	7036 Exploration terminated at a depth of approximately 21.5 feet below existing ground surface. No groundwater encountered.									

-200: 68%  
LL: 33  
PI: 17

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\*All blow counts converted to SPT blow counts.  
\*\*Elevations interpreted from topographic site map provided by the client.

## WATER LEVEL OBSERVATIONS, ft

WL	NE	WD	
WL			
WL			

# Terracon

BORING STARTED	3-28-11
BORING COMPLETED	3-28-11
RIG	CME-75
FOREMAN	HMW
APPROVED	KMP
JOB #	69105026



# LOG OF BORING NO. B-7

Page 1 of 1

CLIENT		DOWL HKM		PROJECT	
SITE		Tsaile, Arizona		Tsaile Indian Health Services Staff Housing	
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES	
				CORE SIZE	TESTS
				TYPE	RECOVERY, m
				SPT-N BLOWS / 0.3 m	WATER CONTENT, %
				DRY UNIT WT pcf	UNCONFINED STRENGTH, psi
	Approx. Surface Elev.: 7039.5 ft				
	<b>SANDY LEAN CLAY</b> ; red, dry to moist.		CL	GRAB	
2		7037.5			
	<b>LEAN CLAY</b> ; red brown to red tan, dry to moist, hard, silty lenses.		CL	RS	23
				30	5.9
					128
		5			
			CL	RS	12
				29	6.4
	Pinholes.	10			
			CL	RS	5
				25/5"	7.2
					123
12		7027.5			
	<b>LEAN CLAY</b> ; green gray, dry to moist, hard, appears to be completely weathered shale, sandy lenses.				
		15			
			CL	RS	5
				25/5"	10.5
		20			
			CL	SS	2
				50/2"	7.0
21		7018.5			
	Exploration terminated at a depth of approximately 21 feet below existing ground surface. No groundwater encountered.				

-200: 70%  
LL: 28  
PI: 12

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\*All blow counts converted to SPT blow counts.  
\*\*Elevations interpreted from topographic site map provided by the client.

## WATER LEVEL OBSERVATIONS, ft

WL	NE	WD
WL		
WL		

# Terracon

BORING STARTED		3-29-11	
BORING COMPLETED		3-29-11	
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69105026



## Page 1 of 1

Page 1 of 1

BOREHOLE 99 LOG OF BORING1 GPJ TERRACON GDT 4/27/11

\*All blow counts converted to SPT blow counts.  
\*\*Elevations interpreted from topographic site map provided by the client.

BORING STARTED		3-29-11	
BORING COMPLETED		3-29-11	
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69105026

## Page 1 of 1

DOWL HKM

## Tsaile, Arizona

## Tsaile Indian Health Services Staff Housing

### DESCRIPTION

Approx. Surface Elev.: 7037.5 ft

0.5 LEAN CLAY; red, dry.

**SANDSTONE**; light gray, dry, hard, slight weathering.

5.5

7032

Exploration terminated at a depth of approximately 5.5 feet below existing ground surface due to auger refusal on sandstone. No groundwater encountered.

DEPTH, ft.

USCS SYMBOL

CORE SIZE

TYPE

RECOVERY, m

SPT-N

WATER

DRY UNIT V

UNCONFINED

\*All blow counts converted to SPT blow counts.  
\*\*Elevations interpreted from topographic site map provided by the client.

BORING STARTED 3-29-11

BORING COMPLETED 3-29-11

RIG	CME-75	FOREMAN	HMW
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APPROVED	KMP	JOB #	69105026
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# Terracon

## Page 1 of 1

BOREHOLE 99 LOG OF BORING1.GPJ TERRACON.GDT 4/27/11

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

\*All blow counts converted to SPT blow counts.  
\*\*Elevations interpreted from topographic site map provided by the client.

WATER LEVEL OBSERVATIONS, ft

WL	NE	WD
WL		
WL		

# Terracon

BORING STARTED		3-29-11	
BORING COMPLETED		3-29-11	
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69105026



## GENERAL NOTES

### DRILLING & SAMPLING SYMBOLS:

SS:	Split Spoon - 1-3/8" I.D., 2" O.D., unless otherwise noted	HS:	Hollow Stem Auger
ST:	Thin-Walled Tube - 2" O.D., unless otherwise noted	PA:	Power Auger
RS:	Ring Sampler - 2.42" I.D., 3" O.D., unless otherwise noted	HA:	Hand Auger
DB:	Diamond Bit Coring - 4", N, B	RB:	Rock Bit
BS:	Bulk Sample or Auger Sample	WB:	Wash Boring or Mud Rotary

The number of blows required to advance a standard 2-inch O.D. split-spoon sampler (SS) the last 12 inches of the total 18-inch penetration with a 140-pound hammer falling 30 inches is considered the "Standard Penetration" or "N-value". For 3" O.D. ring samplers (RS) the penetration value is reported as the number of blows required to advance the sampler 12 inches using a 140-pound hammer falling 30 inches, reported as "blows per foot," and is not considered equivalent to the "Standard Penetration" or "N-value".

### WATER LEVEL MEASUREMENT SYMBOLS:

WL:	Water Level	WS:	While Sampling	N/E:	Not Encountered
WCI:	Wet Cave in	WD:	While Drilling		
DCI:	Dry Cave in	BCR:	Before Casing Removal		
AB:	After Boring	ACR:	After Casing Removal		

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. Groundwater levels at other times and other locations across the site could vary. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels may not be possible with only short-term observations.

**DESCRIPTIVE SOIL CLASSIFICATION:** Soil classification is based on the Unified Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

### CONSISTENCY OF FINE-GRAINED SOILS

<u>Unconfined Compressive Strength, Qu, psf</u>	<u>Standard Penetration or N-value (SS) Blows/Ft.</u>	<u>Consistency</u>
< 500	0 - 1	Very Soft
500 - 1,000	2 - 4	Soft
1,000 - 2,000	4 - 8	Medium Stiff
2,000 - 4,000	8 - 15	Stiff
4,000 - 8,000	15 - 30	Very Stiff
8,000+	> 30	Hard

### RELATIVE DENSITY OF COARSE-GRAINED SOILS

<u>Standard Penetration or N-value (SS) Blows/Ft.</u>	<u>Ring Sampler (RS) Blows/Ft.</u>	<u>Relative Density</u>
0 - 3	0-6	Very Loose
4 - 9	7-18	Loose
10 - 29	19-58	Medium Dense
30 - 49	59-98	Dense
> 50	> 99	Very Dense

### RELATIVE PROPORTIONS OF SAND AND GRAVEL

<u>Descriptive Term(s) of other constituents</u>	<u>Percent of Dry Weight</u>
Trace	< 15
With	15 - 29
Modifier	> 30

### GRAIN SIZE TERMINOLOGY

<u>Major Component of Sample</u>	<u>Particle Size</u>
Boulders	Over 12 in. (300mm)
Cobbles	12 in. to 3 in. (300mm to 75 mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)
Silt or Clay	Passing #200 Sieve (0.075mm)

### RELATIVE PROPORTIONS OF FINES

<u>Descriptive Term(s) of other constituents</u>	<u>Percent of Dry Weight</u>
Trace	< 5
With	5 - 12
Modifiers	> 12

### PLASTICITY DESCRIPTION

<u>Term</u>	<u>Plasticity Index</u>
Non-plastic	0
Low	1-10
Medium	11-30
High	> 30

## GENERAL NOTES

### Description of Rock Properties

#### WEATHERING

Fresh	Rock fresh, crystals bright, few joints may show slight staining. Rock rings under hammer if crystalline.
Very slight	Rock generally fresh, joints stained, some joints may show thin clay coatings, crystals in broken face show bright. Rock rings under hammer if crystalline.
Slight	Rock generally fresh, joints stained, and discoloration extends into rock up to 1 in. Joints may contain clay. In granitoid rocks some occasional feldspar crystals are dull and discolored. Crystalline rocks ring under hammer.
Moderate	Significant portions of rock show discoloration and weathering effects. In granitoid rocks, most feldspars are dull and discolored; some show clayey. Rock has dull sound under hammer and shows significant loss of strength as compared with fresh rock.
Moderately severe	All rock except quartz discolored or stained. In granitoid rocks, all feldspars dull and discolored and majority show kaolinization. Rock shows severe loss of strength and can be excavated with geologist's pick.
Severe	All rock except quartz discolored or stained. Rock "fabric" clear and evident, but reduced in strength to strong soil. In granitoid rocks, all feldspars kaolinized to some extent. Some fragments of strong rock usually left.
Very severe	All rock except quartz discolored or stained. Rock "fabric" discernible, but mass effectively reduced to "soil" with only fragments of strong rock remaining.
Complete	Rock reduced to "soil". Rock "fabric" not discernible or discernible only in small, scattered locations. Quartz may be present as dikes or stringers.

#### HARDNESS (for engineering description of rock – not to be confused with Moh's scale for minerals)

Very hard	Cannot be scratched with knife or sharp pick. Breaking of hand specimens requires several hard blows of geologist's pick.
Hard	Can be scratched with knife or pick only with difficulty. Hard blow of hammer required to detach hand specimen.
Moderately hard	Can be scratched with knife or pick. Gouges or grooves to ¼ in. deep can be excavated by hard blow of point of a geologist's pick. Hand specimens can be detached by moderate blow.
Medium	Can be grooved or gouged 1/16 in. deep by firm pressure on knife or pick point. Can be excavated in small chips to pieces about 1-in. maximum size by hard blows of the point of a geologist's pick.
Soft	Can be gouged or grooved readily with knife or pick point. Can be excavated in chips to pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.
Very soft	Can be carved with knife. Can be excavated readily with point of pick. Pieces 1-in. or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.

#### Joint, Bedding and Foliation Spacing in Rock<sup>a</sup>

Spacing		Joints		Bedding/Foliation	
Less than 2 in.		Very close		Very thin	
2 in. – 1 ft.		Close		Thin	
1 ft. – 3 ft.		Moderately close		Medium	
3 ft. – 10 ft.		Wide		Thick	
More than 10 ft.		Very wide		Very thick	
Rock Quality Designator (RQD) <sup>b</sup>			Joint Openness Descriptors		
RQD, as a percentage		Diagnostic description	Openness		Descriptor
Exceeding 90		Excellent	No Visible Separation		Tight
90 – 75		Good	Less than 1/32 in.		Slightly Open
75 – 50		Fair	1/32 to 1/8 in.		Moderately Open
50 – 25		Poor	1/8 to 3/8 in.		Open
Less than 25		Very poor	3/8 in. to 0.1 ft.		Moderately Wide
			Greater than 0.1 ft.		Wide

a. Spacing refers to the distance normal to the planes, of the described feature, which are parallel to each other or nearly so.

b. RQD (given as a percentage) = length of core in pieces 4 in. and longer/length of run.

References: American Society of Civil Engineers. Manuals and Reports on Engineering Practice - No. 56. Subsurface Investigation for Design and Construction of Foundations of Buildings. New York: American Society of Civil Engineers, 1976.  
U.S. Department of the Interior, Bureau of Reclamation. Engineering Geology Field Manual.

# Terracon



# UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests<sup>A</sup>

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests <sup>A</sup>					Soil Classification	
					Group Symbol	Group Name <sup>B</sup>
Coarse Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines <sup>C</sup>	Cu ≥ 4 and 1 ≤ Cc ≤ 3 <sup>E</sup>	GW	Well-graded gravel <sup>F</sup>	
			Cu < 4 and/or 1 > Cc > 3 <sup>E</sup>	GP	Poorly graded gravel <sup>F</sup>	
		Gravels with Fines More than 12% fines <sup>C</sup>	Fines classify as ML or MH	GM	Silty gravel <sup>F,G,H</sup>	
			Fines classify as CL or CH	GC	Clayey gravel <sup>F,G,H</sup>	
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines <sup>D</sup>	Cu ≥ 6 and 1 ≤ Cc ≤ 3 <sup>E</sup>	SW	Well-graded sand <sup>I</sup>	
			Cu < 6 and/or 1 > Cc > 3 <sup>E</sup>	SP	Poorly graded sand <sup>I</sup>	
		Sands with Fines More than 12% fines <sup>D</sup>	Fines classify as ML or MH	SM	Silty sand <sup>G,H,I</sup>	
			Fines Classify as CL or CH	SC	Clayey sand <sup>G,H,I</sup>	
Fine-Grained Soils 50% or more passes the No. 200 sieve	Silts and Clays Liquid limit less than 50	inorganic	PI > 7 and plots on or above "A" line <sup>J</sup>	CL	Lean clay <sup>K,L,M</sup>	
			PI < 4 or plots below "A" line <sup>J</sup>	ML	Silt <sup>K,L,M</sup>	
		organic	Liquid limit - oven dried	< 0.75	OL	Organic clay <sup>K,L,M,N</sup>
			Liquid limit - not dried		Organic silt <sup>K,L,M,O</sup>	
	Silts and Clays Liquid limit 50 or more	inorganic	PI plots on or above "A" line	CH	Fat clay <sup>K,L,M</sup>	
			PI plots below "A" line	MH	Elastic Silt <sup>K,L,M</sup>	
		organic	Liquid limit - oven dried	< 0.75	OH	Organic clay <sup>K,L,M,P</sup>
			Liquid limit - not dried		Organic silt <sup>K,L,M,O</sup>	
Highly organic soils	Primarily organic matter, dark in color, and organic odor			PT	Peat	

<sup>A</sup>Based on the material passing the 3-in. (75-mm) sieve

<sup>B</sup>If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

<sup>C</sup>Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

<sup>D</sup>Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

$$^E Cu = D_{60}/D_{10} \quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$$

<sup>F</sup>If soil contains  $\geq 15\%$  sand, add "with sand" to group name.

<sup>G</sup>If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

<sup>H</sup>If fines are organic, add "with organic fines" to group name.

<sup>I</sup>If soil contains  $\geq 15\%$  gravel, add "with gravel" to group name.

<sup>J</sup>If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

<sup>K</sup>If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

<sup>L</sup>If soil contains  $\geq 30\%$  plus No. 200 predominantly sand, add "sandy" to group name.

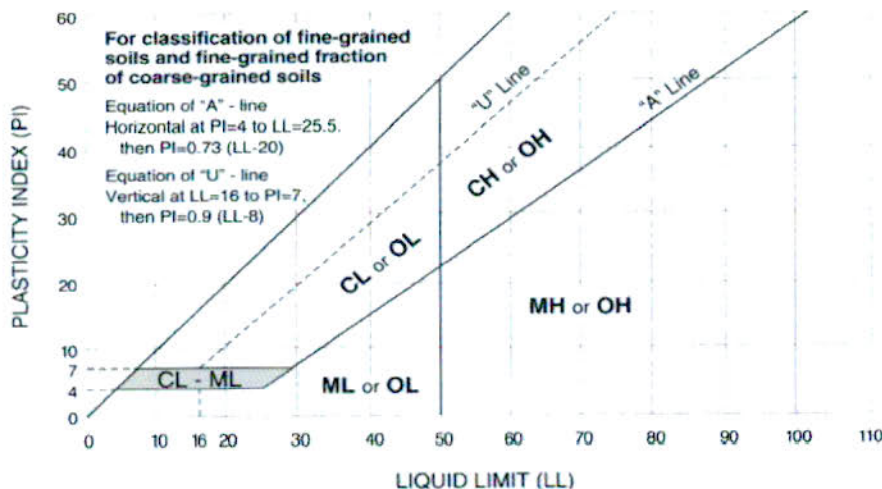
<sup>M</sup>If soil contains  $\geq 30\%$  plus No. 200, predominantly gravel, add "gravelly" to group name.

<sup>N</sup> $PI \geq 4$  and plots on or above "A" line.

<sup>O</sup> $PI < 4$  or plots below "A" line.

<sup>P</sup> $PI$  plots on or above "A" line.

<sup>Q</sup> $PI$  plots below "A" line.



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**APPENDIX B**  
**LABORATORY TESTING**

## Laboratory Testing

Samples retrieved during the field exploration were taken to the laboratory for further observation by the project geotechnical engineer and were classified in accordance with the Unified Soil Classification System (USCS) described in Appendix A. At that time, the field descriptions were confirmed or modified as necessary and an applicable laboratory testing program was formulated to determine engineering properties of the subsurface materials.

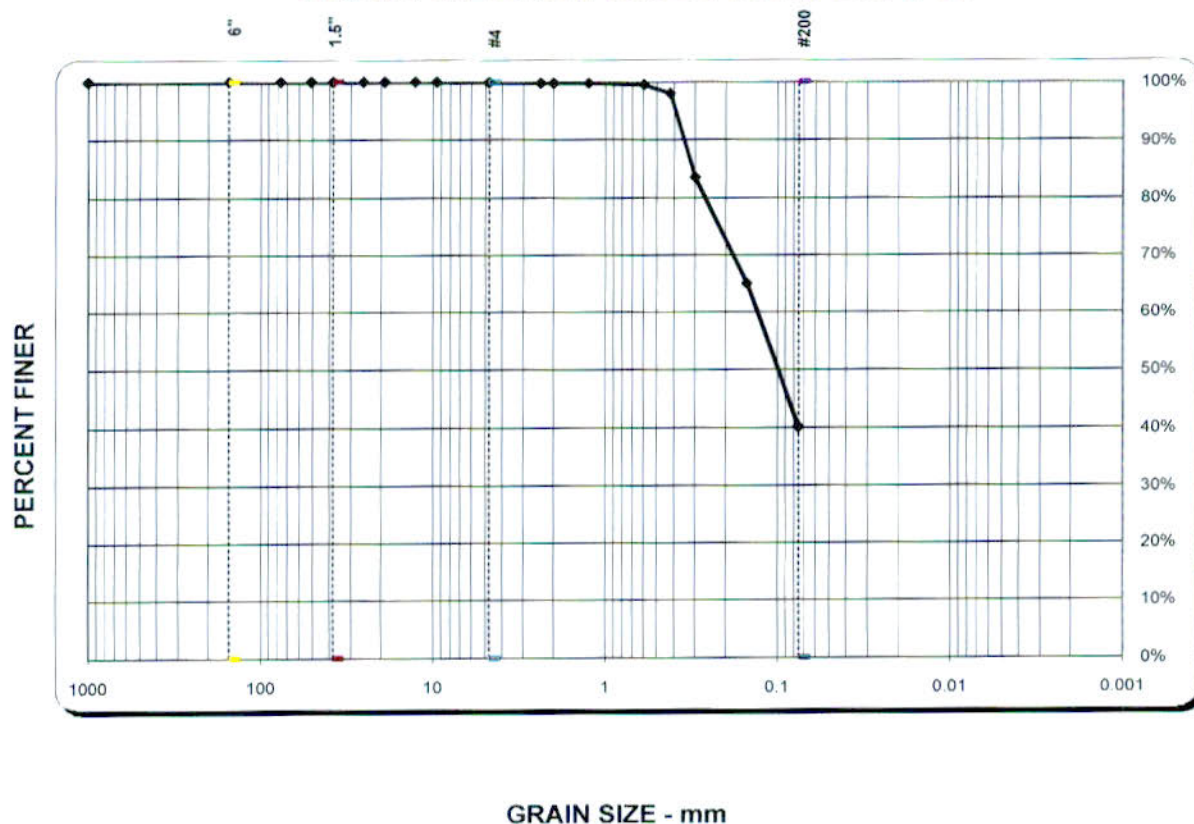
Laboratory tests were conducted on selected soil samples and the test results are presented in this appendix. The laboratory test results were used for the geotechnical engineering analyses, and the development of foundation and earthwork recommendations. Laboratory tests were performed in general accordance with the applicable ASTM, local or other accepted standards.

Selected soil samples obtained from the site were tested for the following engineering properties:

- |                    |                         |
|--------------------|-------------------------|
| ■ Consolidation    | ■ In-situ Water Content |
| ■ Sieve Analysis   | ■ In-situ Dry Density   |
| ■ Atterberg Limits |                         |

Laboratory tests were conducted on selected soil samples and the test results are presented in Appendix B. Laboratory test results indicate that the surface and near surface soils exhibit slight to low compressibility potential at in-situ moisture contents and slight to low collapse potentials when wetted under anticipated foundation loads. Some samples exhibited slight to low expansion potential when wetted under anticipated foundation loads.

## GRAIN SIZE DISTRIBUTION GRAPH



### TEST SUMMARY

Sieve Size	1 1/2"	3/4"	3/8"	#4	#10	#40	#100	#200
% Passing (Cumulative)	100	100	100	100	100	98	65	40.1
Specification								

% GRAVEL = 0.1  
 % SAND = 59.8  
 % SILT & CLAY = 40.1

$D_{85} = 0.3$   
 $D_{60} = 0.1$   
 $D_{50} = 0.1$   
 $D_{30} =$

$D_{15} =$   
 $D_{10} =$   
 $C_U =$   
 $C_C =$

**Sample Date:** 3/28/2011  
**Project No.:** 69105026  
**Project Name:** Tsale IHS Housing  
**Report Date:** 5/6/2011  
**Sample Location:** B-2 @ 0-3'  
**Liquid Limit:** 28  
**Plasticity Index:** 13  
**USCS Classification:** SC  
**Material Description:** Clayey Sand



**Terracon**



Grain size distribution plot showing Percent Finer versus Grain Size (mm). The curve indicates that approximately 68% of the soil is finer than 0.075 mm (No. 200 sieve).

Grain Size (mm)	Percent Finer (%)
1000	100
600	100
425	100
300	100
250	100
200	100
150	100
100	100
75	100
60	100
425	100
300	100
250	100
200	100
150	100
100	100
75	100
60	100
425	100
300	100
250	100
200	100
150	100
100	100
75	100
60	100
425	100
300	100
250	100
200	100
150	100
100	100
75	100
60	100
425	100
300	100
250	100
200	100
150	100
100	100
75	100
60	100
425	100
300	100
250	100
200	100
150	100
100	100
75	100
60	100
425	100
300	100
250	100
200	100
150	100
100	100
75	100
60	100
425	100
300	100
250	100
200	100
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425	100
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200	100
150	100
100	100
75	100
60	100
425	100
300	100
250	100
200	100
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75	100
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425	100
300	100
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75	100
60	100
425	100
300	100
250	100
200	100
150	100
100	100
75	100
60	100
425	100
300	100
250	100
200	100
150	100
100	100
75	100
60	100
425	100
300	100
250	100
200	100
150	100
100	100
75	100
60	100
425	100
300	100
250	

Sieve Size	1 1/2"	3/4"	3/8"	#4	#10	#40	#100	#200
% Passing (Cumulative)	100	100	100	100	100	99	94	67.6
Specification								

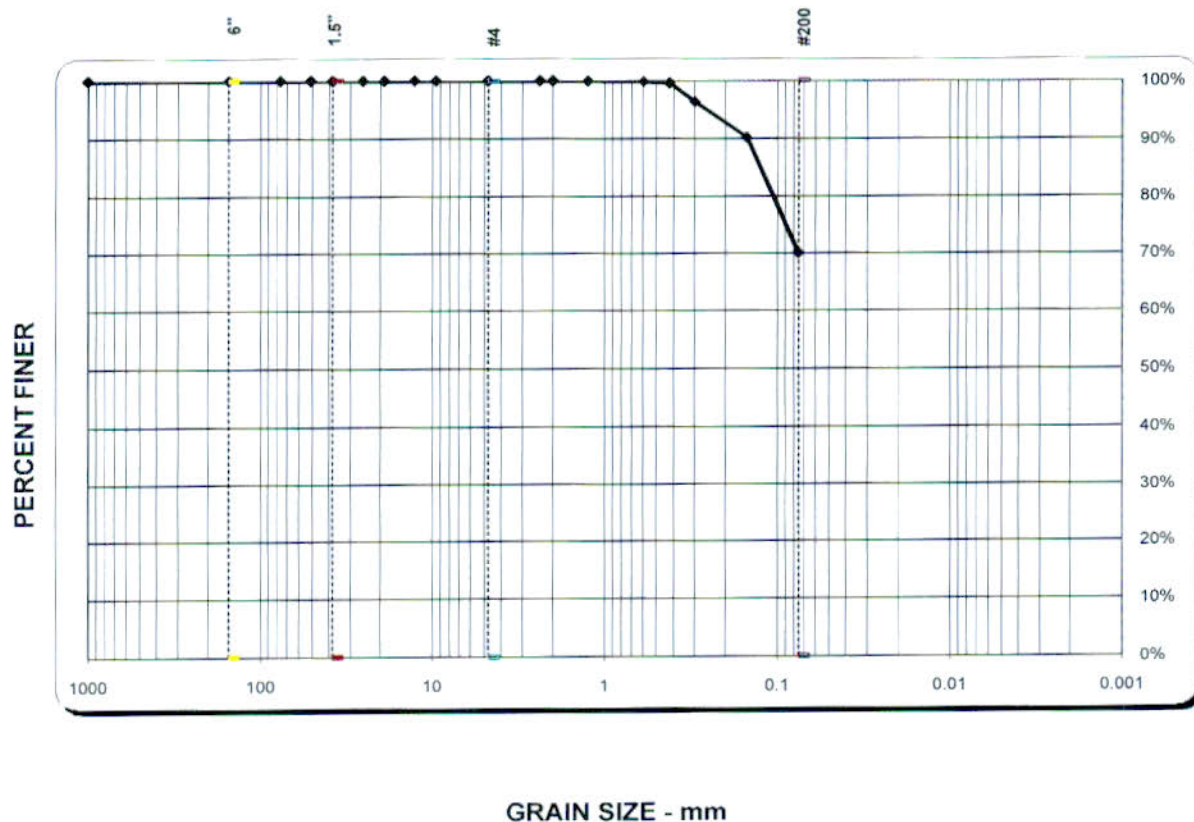
$D_{85} = 0.1$	$D_{15} =$
$D_{60} =$	$D_{10} =$
$D_{50} =$	$C_U =$
$D_{30} =$	$C_C =$

**Material Description:** Sandy Lean Clay



Terracon

# GRAIN SIZE DISTRIBUTION GRAPH



## TEST SUMMARY

Sieve Size	1 1/2"	3/4"	3/8"	#4	#10	#40	#100	#200
% Passing (Cumulative)	100	100	100	100	100	100	90	70.0
Specification								

% GRAVEL = 0.0  
 % SAND = 30.0  
 % SILT & CLAY = 70.0

$D_{85} = 0.1$   
 $D_{60} =$   
 $D_{50} =$   
 $D_{30} =$

$D_{15} =$   
 $D_{10} =$   
 $C_u =$   
 $C_c =$

Sample Date: 3/29/2011

Project No.: 69105026

Project Name: Tsailie IHS Housing

Report Date: 5/6/2011

Sample Location: B-7 @ 0-3'

Liquid Limit: 28

Plasticity Index: 12

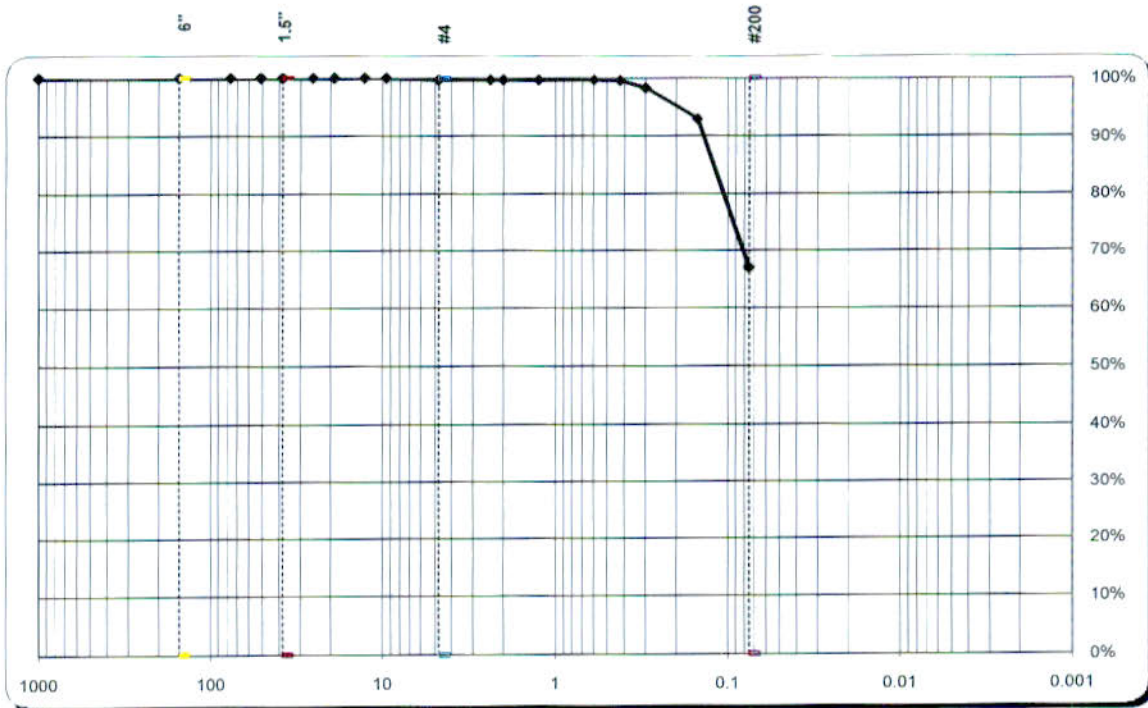
USCS Classification: CL

Material Description: Sandy Lean Clay



**Terracon**

## PERCENT FINER



## TEST SUMMARY

% GRAVEL = 0.4  
% SAND = 32.7  
% SILT & CLAY = 67.0

$$D_{30} =$$
$$C_C =$$

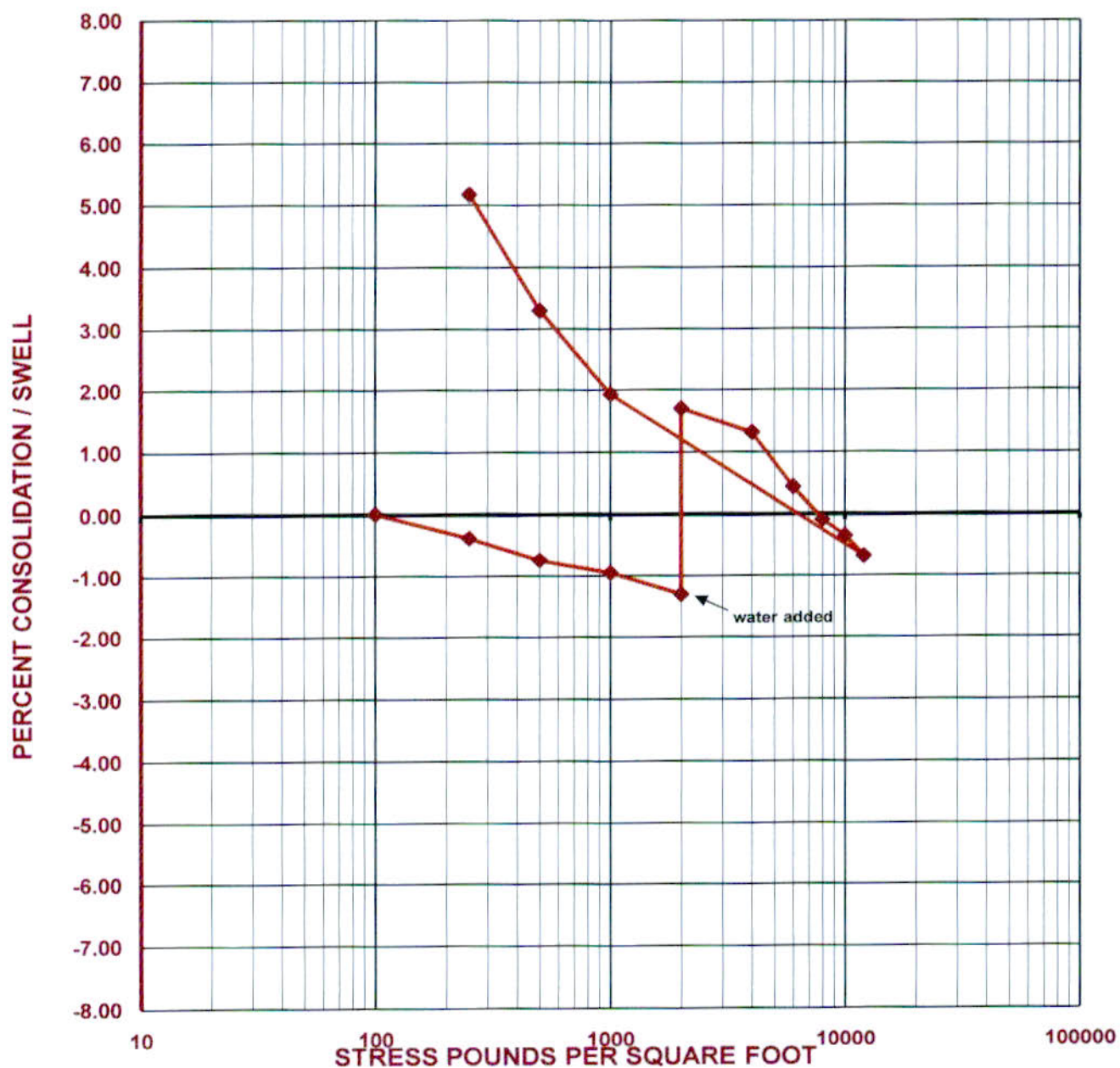
**Material Description:** Sandy Lean Clay



# Terracon



## SWELL / CONSOLIDATION CHART



Sample Date: 3/28/2011

Project No.: 69105026

Project Name: Tsaille IHS Staff Housing

Report Date: 5/6/2011

Sample Location: B-1 @ 15-16.5'

USCS Classification: CL

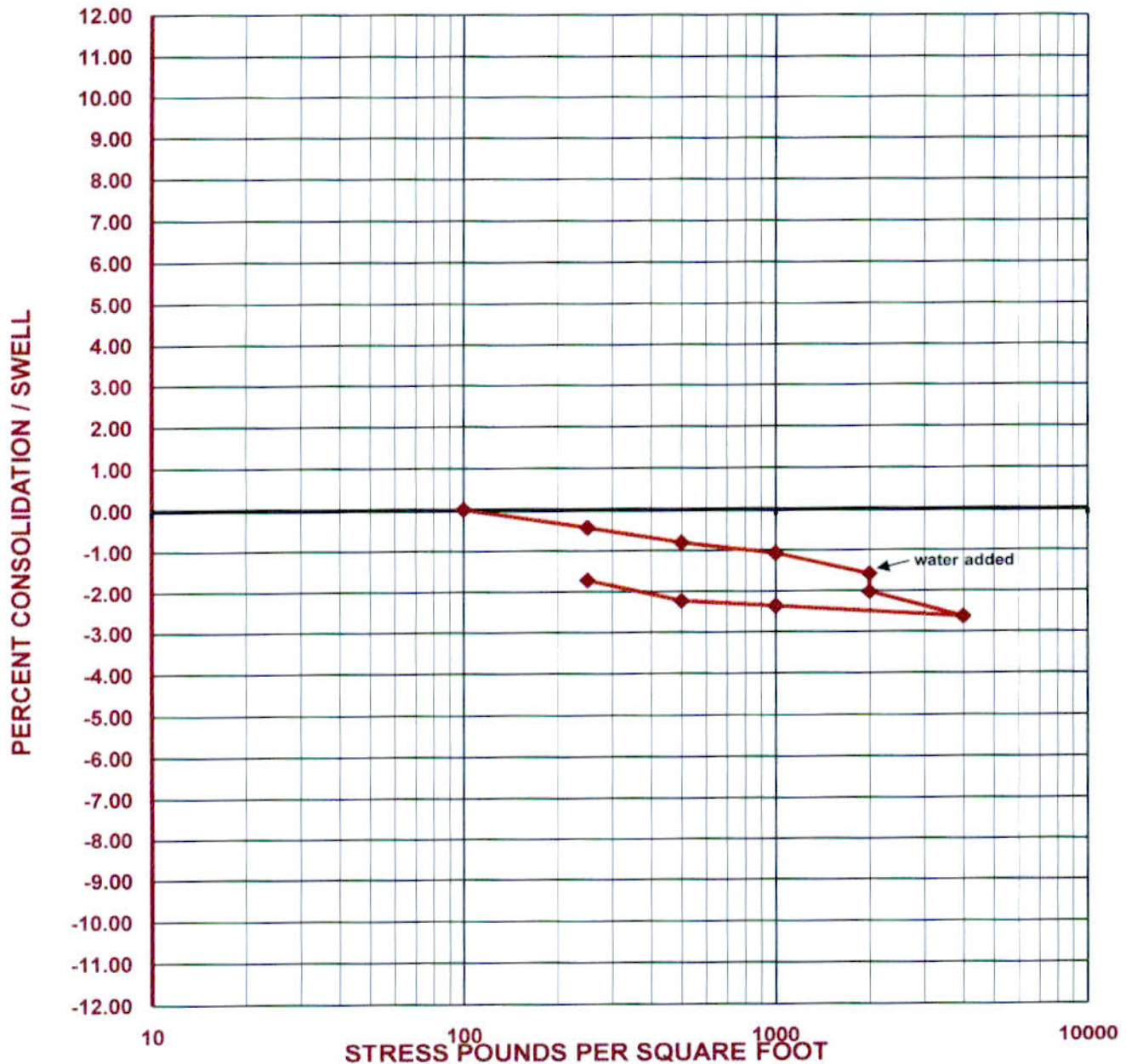
Material Description: Lean Clay

Dry Density: 125

Moisture Content: 9.3



## SWELL / CONSOLIDATION CHART



Sample Date: 3/28/2011

Project No.: 69105026

Project Name: Tsailie IHS Staff Housing

Report Date: 5/6/2011

Sample Location: B-2 @ 5-6.5'

USCS Classification: SC-SM

Material Description: Clayey Silty Sand

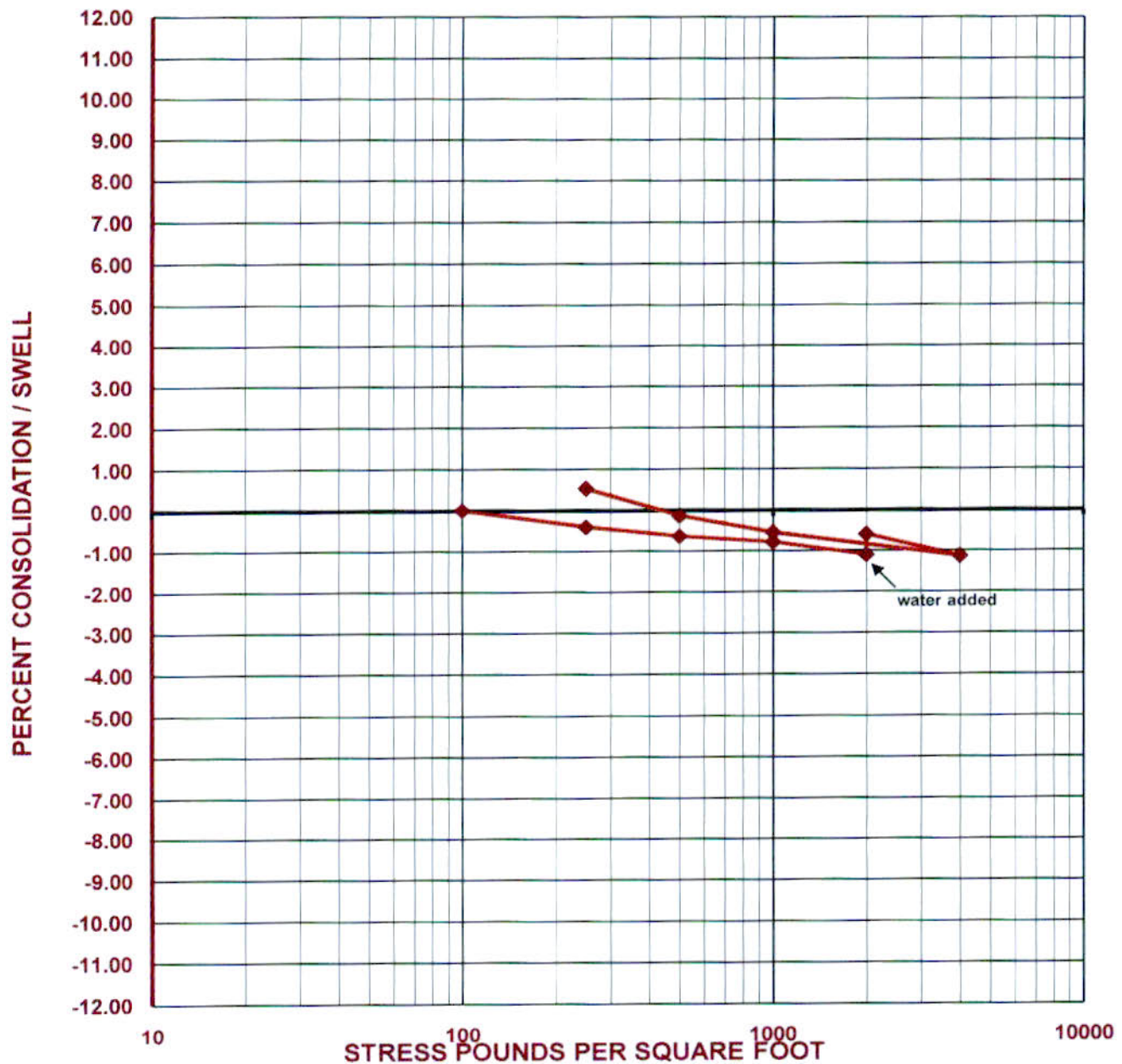
Dry Density: 106

Moisture Content: 6.6





## SWELL / CONSOLIDATION CHART



Sample Date: 3/28/2011

Project No.: 69105026

Project Name: Tsaille IHS Staff Housing

Report Date: 5/6/2011

Sample Location: B-4 @ 2-3.5'

USCS Classification: SC

Material Description: Clayey Sand

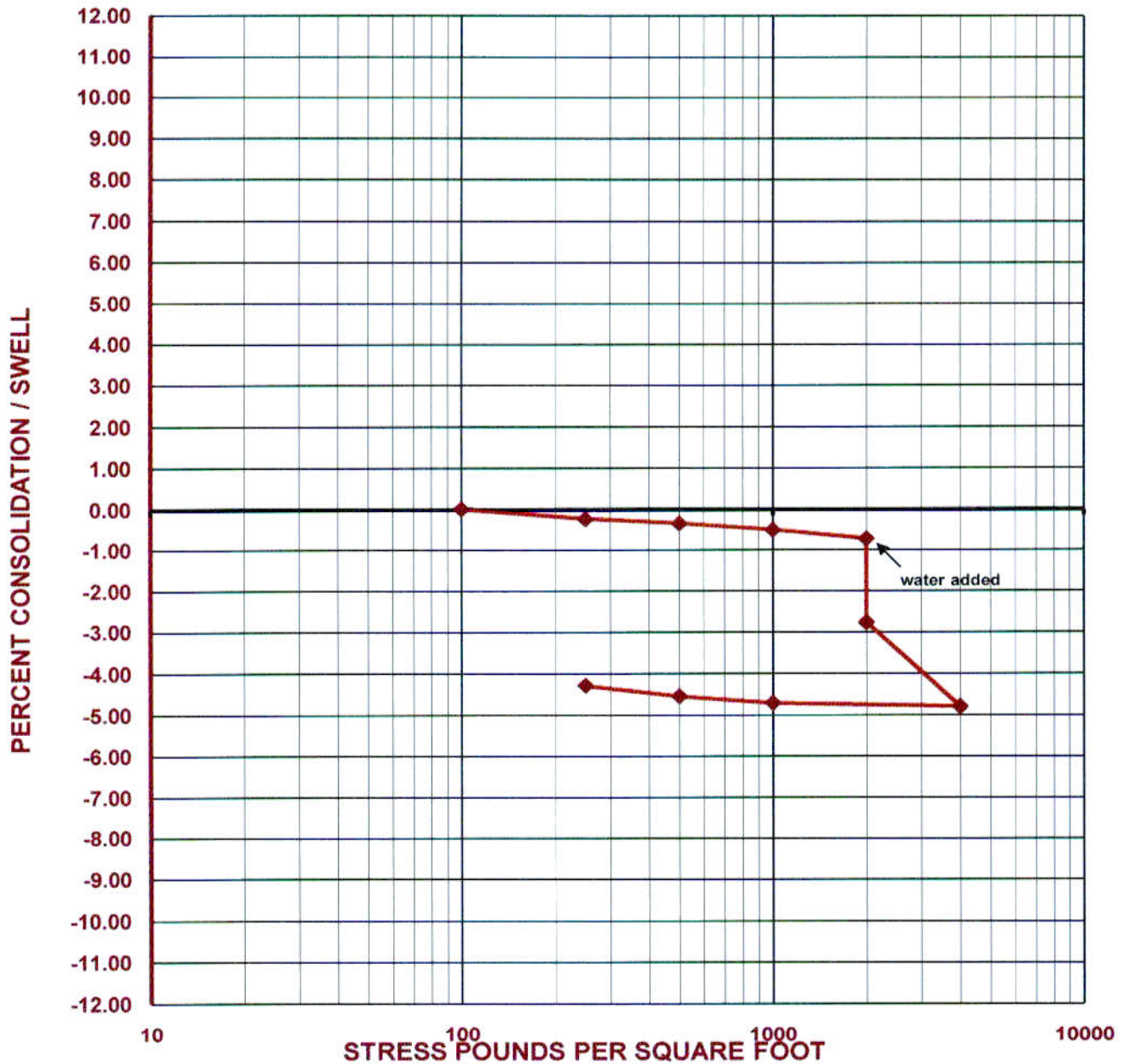
Dry Density: 113

Moisture Content: 9.4





## SWELL / CONSOLIDATION CHART



Sample Date: 3/28/2011

Project No.: 69105026

Project Name: Tsailie IHS Staff Housing

Report Date: 5/6/2011

Sample Location: B-5 @ 2-3.5'

USCS Classification: SC

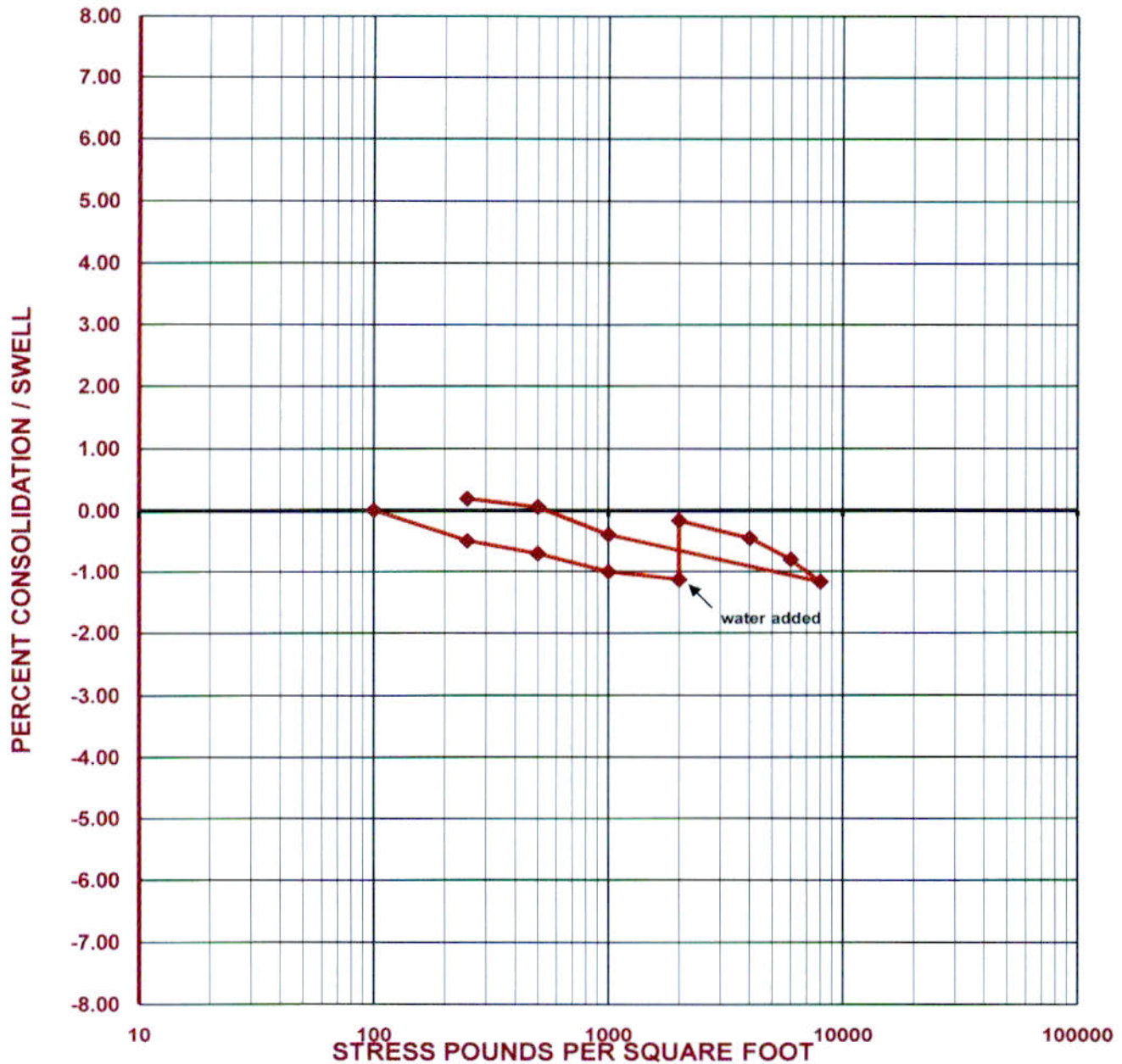
Material Description: Clayey Sand

Dry Density: 110

Moisture Content: 6.2



## SWELL / CONSOLIDATION CHART



Sample Date: 3/28/2011

Project No.: 69105026

Project Name: Tsailie IHS Staff Housing

Report Date: 5/6/2011

Sample Location: B-6 @ 5-6.5'

USCS Classification: CL-ML

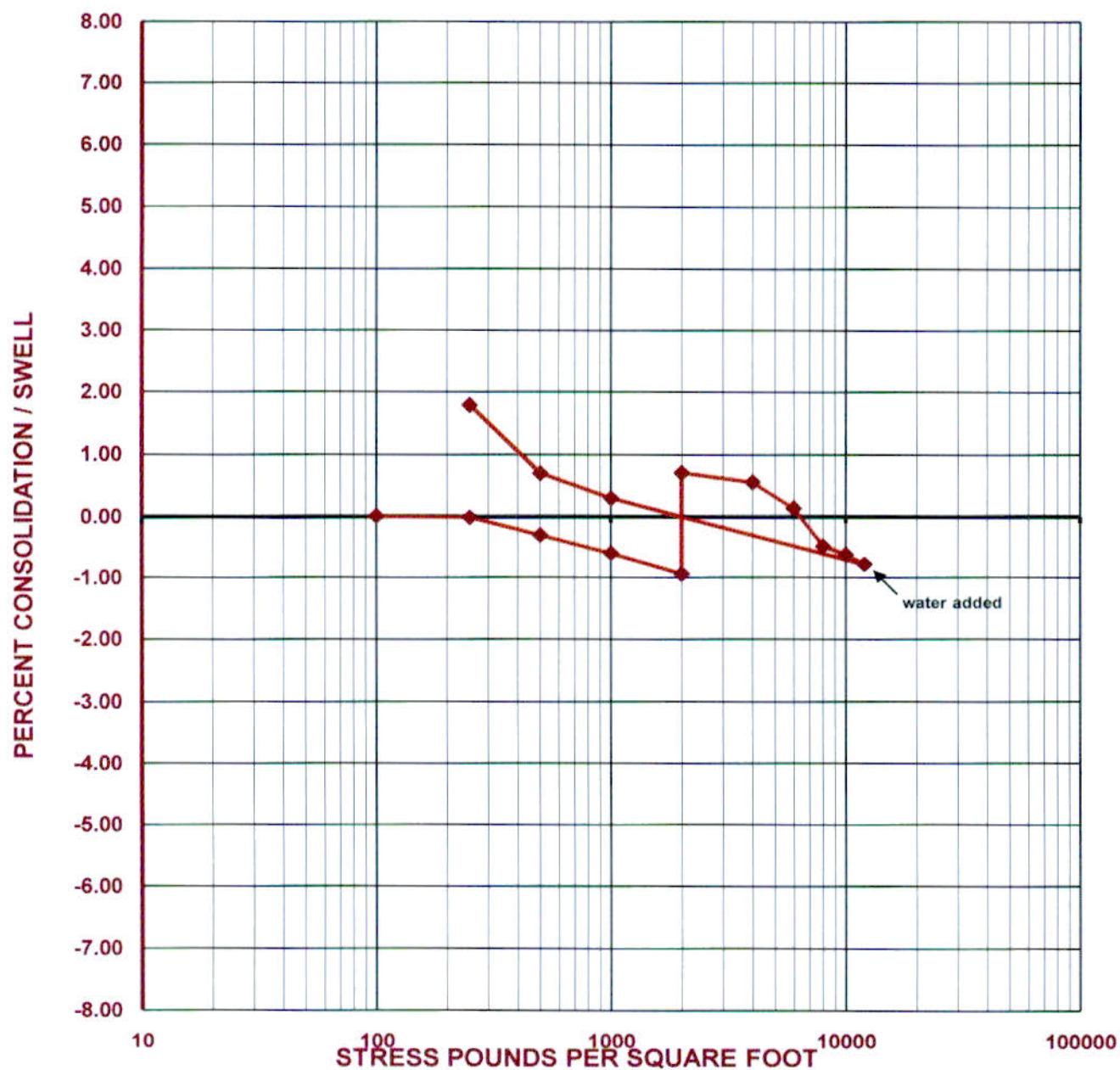
Material Description: Clayey Silt

Dry Density: 117

Moisture Content: 8.7



## SWELL / CONSOLIDATION CHART



Sample Date: 3/29/2011

Project No.: 69105026

Project Name: Tsailie IHS Staff Housing

Report Date: 5/6/2011

Sample Location: B-7 @ 2-3.5'

USCS Classification: CL

Material Description: Lean Clay

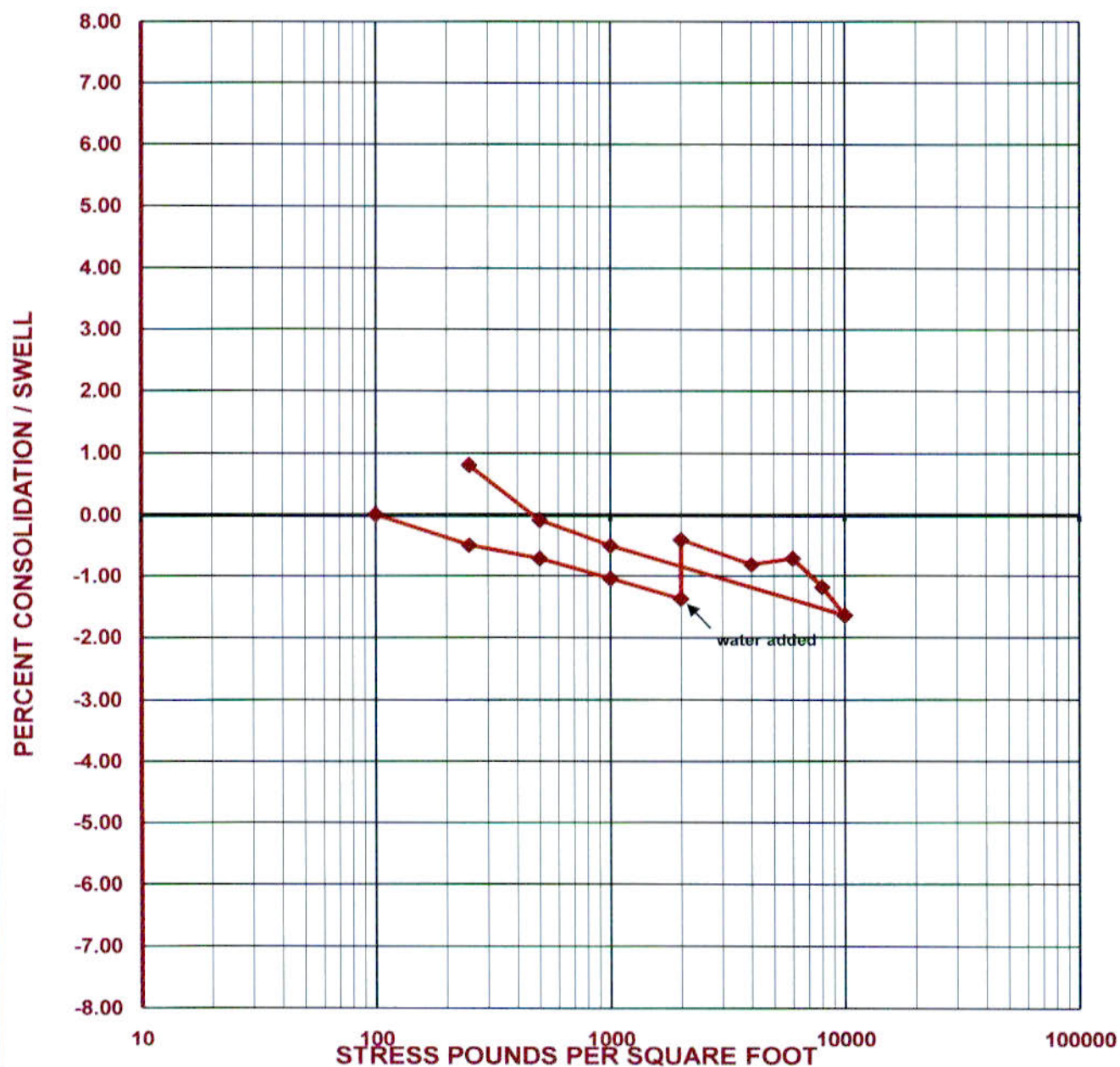
Dry Density: 128

Moisture Content: 5.9





## SWELL / CONSOLIDATION CHART



Sample Date: 3/29/2011

Project No.: 69105026

Project Name: Tsaille IHS Staff Housing

Report Date: 5/6/2011

Sample Location: B-7 @ 10-11.5'

USCS Classification: CL

Material Description: Lean Clay

Dry Density: 123

Moisture Content: 7.2



## SWELL / CONSOLIDATION CHART



Sample Date: 3/28/2011

Project No.: 69105026

Project Name: Tsaille IHS Staff Housing

Report Date: 5/6/2011

Sample Location: B-8 @ 2-3.5'

USCS Classification: SC

Material Description: Clayey Sand

Dry Density: 113

Moisture Content: 6.2



APPENDIX G

BOUNDARY AND TOPOGRAPHIC SURVEY  
DOWL HKM



[illegible]

VERTICAL	
ALPHA TUM BARS	PLACED IN MOUNTAIN LOCATION AND CORRECTLY MOUNTED AT THE FOLLOWING LOCATION: PLOT C-107 "D" ON SOUTH SLOPE AND SOUTHWEST OF TABLE MOUNTAIN
ELEVATION	7560'N
ELEVATION REFERENCE	TABLE MOUNTAIN CENTER, 876' PLAIN, AS ADJUSTED BY MICHAEL ASSOCIATES INC., LAWRENCE AND ASSOCIATES, DATED AS-BUILT 1986, PLAIN 1000000
ELEVATION DATE	PLS. ELEVATION (DATA UNAVAILABLE)
CONDUCTED BY	U.S. SURVEY PARTY

[illegible]

**SHEET INDEX**

SHEET 1	COVER SHEET
SHEET 2	BOUNDARY INFORMATION
SHEET 3 - 5	TOPOGRAPHY INFORMATION
SHEET 6	ORTHOPHOTO INFORMATION

[illegible]

MICHAEL F. YOUNG, RLS  
REGISTERED LAND SURVEYOR  
P.O. BOX 100000, TAMPA, FL 33602

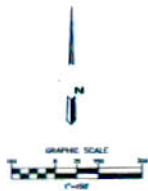


**DOWL HKM**  
185 W. Main Street  
Phone (502) 682-9999

COVER SHEET  
TSAILE IHS  
PHASE II SSER

TOWNSHIP 33N, RANGE 29E, GERM, APACHE COUNTY, TULSA, ARIZONA

1/2/2007	BY	SP 1
1/2/2007	BY	SP 2
1/2/2007	BY	SP 3
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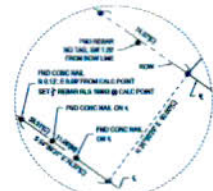
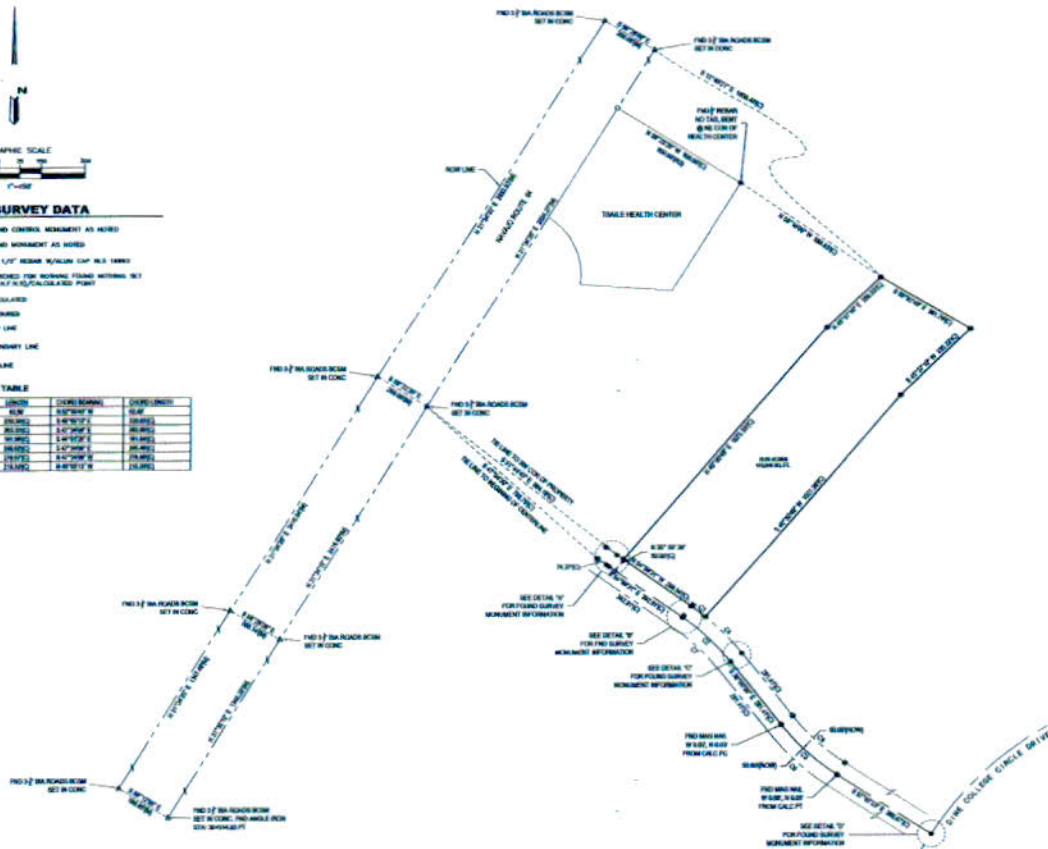


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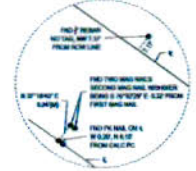
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- FOUND MONUMENT AS NOTED
- SET 1/4" IRON NAIL ON CAP N.O. 1989
- RECOVERED FOR MONITORING FOUND MONUMENT SET (CAP NOT IN PLACE OR A NEW POINT)
- CALCULATED
- ◇ MEASURED
- ROW LINE
- BOUNDARY LINE
- - - - - R/L LINE

## CURVE TABLE

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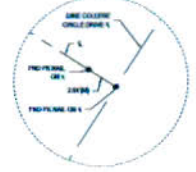
DETAIL "A" NOT TO SCALE



DETAIL "B" NOT TO SCALE



DETAIL "C" NOT TO SCALE



DETAIL "D" NOT TO SCALE

I HEREBY CERTIFY THAT THE BOUNDARY SURVEY SHOWN ON THIS DRAWING WAS PERFORMED UNDER MY DIRECTION AND THAT EXISTING OR PROPOSED SURVEY MONUMENTS AND MARKERS SHOWN ARE CORRECTLY DESCRIBED. I FURTHER CERTIFY THAT THIS DRAWING WAS PREPARED UNDER MY DIRECTION.

MICHAEL T. TONK, M.L.S.  
REGISTERED LAND SURVEYOR  
N.O. NUMBER 19892

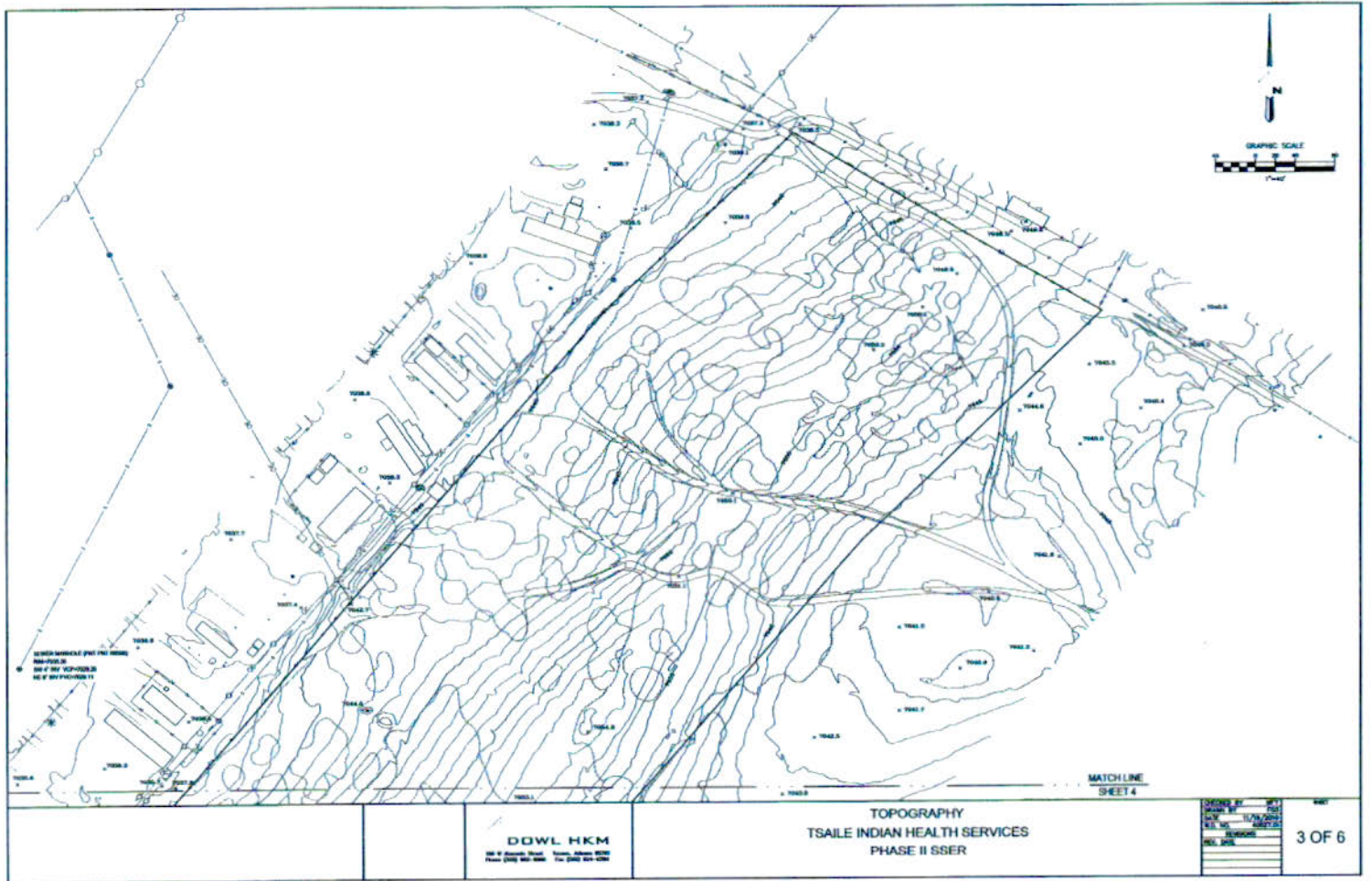


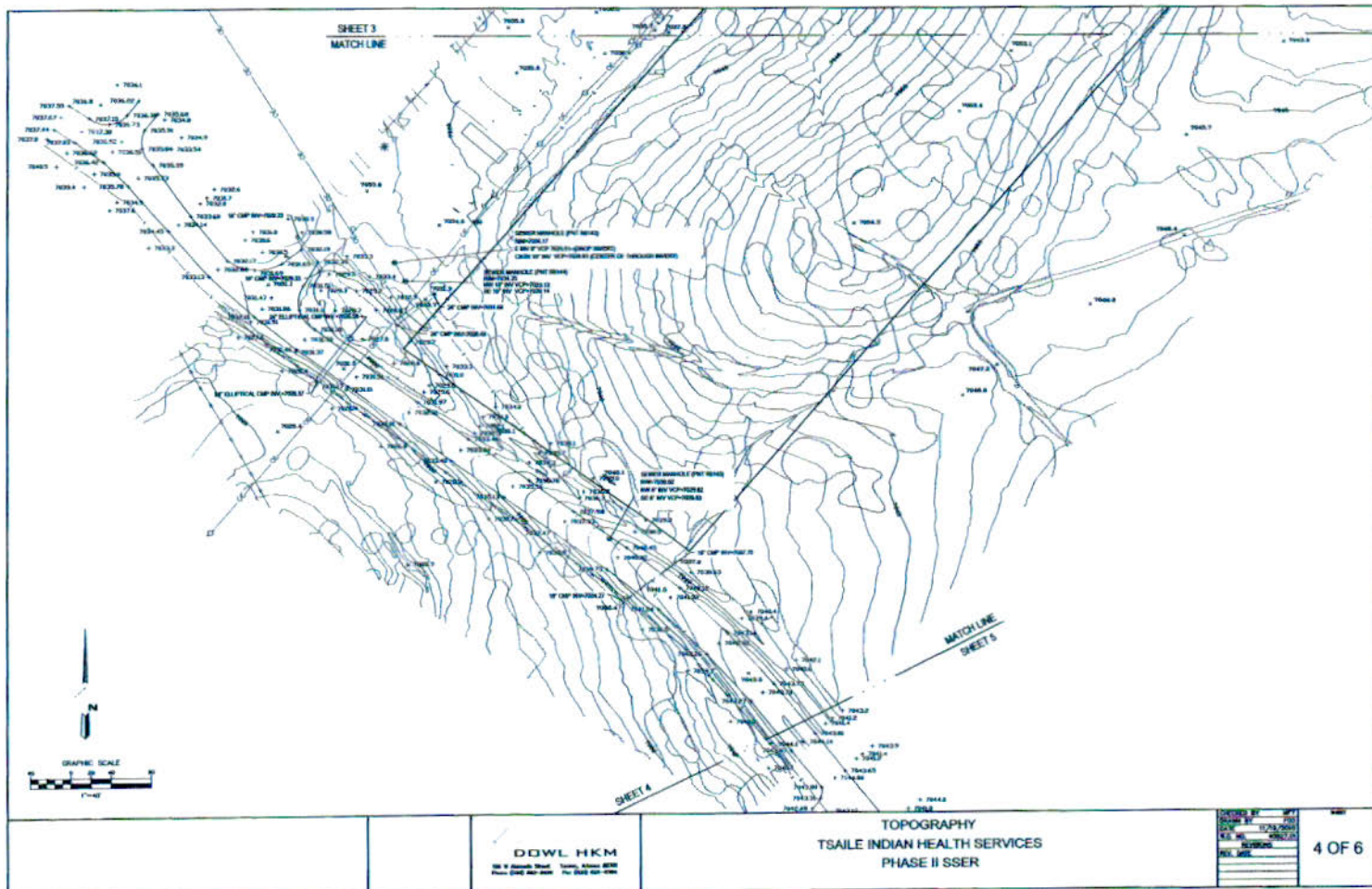
**DOWL HKM**  
300 W. Franklin Street, Suite 100, Albany, NY 12202  
Phone (518) 462-1000 Fax (518) 462-1001

**BOUNDARY  
TSALE IHS  
PHASE II SSER**

DATE	BY	CHKD
11/16/2005	MT	MT
12/15/2005	MT	MT
12/15/2005	MT	MT
12/15/2005	MT	MT

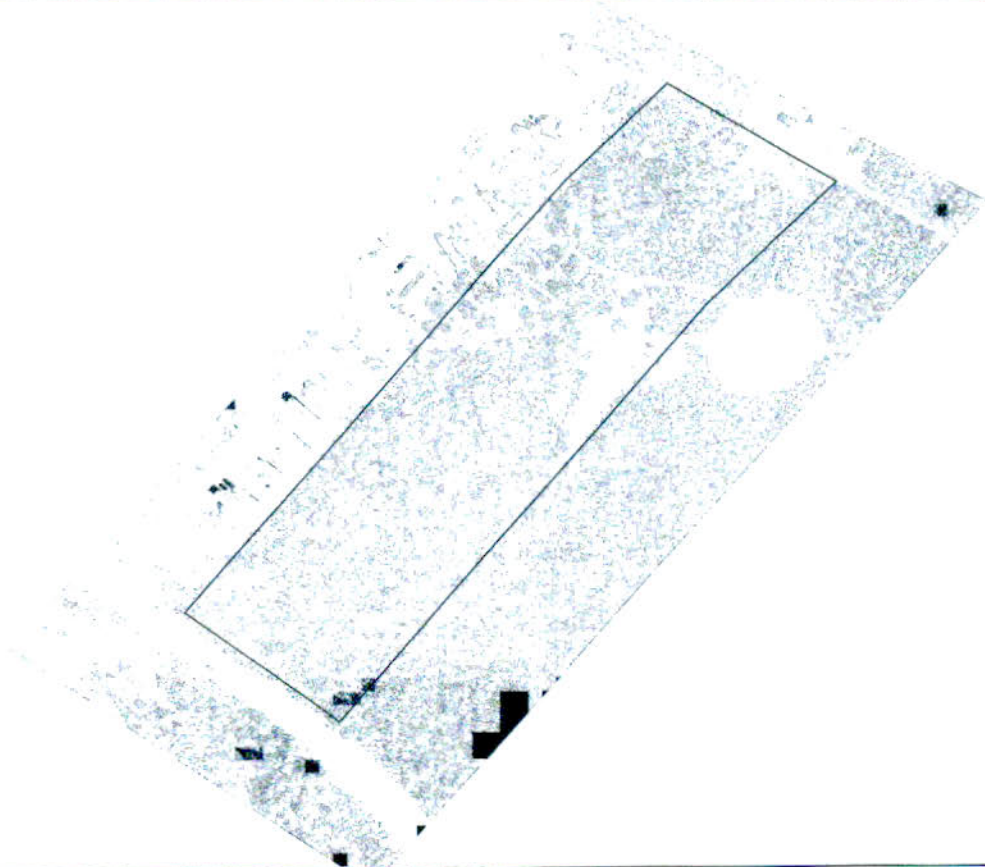












**DOWL HKM**  
DR. H. K. M. DOWL  
 1001 N. 10th St. Suite 100  
 Anchorage, Alaska 99503  
 Phone (907) 562-1000 Fax (907) 562-1001

ORTHOPHOTO  
 TSAILE INDIAN HEALTH SERVICES  
 PHASE II SSER

DATE	11/11/2003
TIME	10:00 AM
FILE	000000
NO. 001	



*Tsaile/Wheatfields Chapter  
Post Office Box C18  
Tsaile, Arizona 86556  
Phone: (928) 724-2220 Fax: (928) 724-2223*



**Tsééhilí**

**TóDzis'á**

**Tsézhine**

*Zane P. James, President  
Thomas Litson, Grazing Committee*

*David Kedelty, Vice President*

*Margie R.S. Begay, Secretary/Treasurer  
Nelson Begaye, Council Delegates*

**TWIFY16-068**

**RESOLUTION OF THE  
TSAILE/WHEATFIELDS CHAPTER #038**

**SUPPORTING THE DESIGNATION OF THE LAND TRACT, APPROXIMATELY 10.71 ACRES, LOCATED ADJACENT AND SOUTH OF THE EXISTING DINE COLLEGE TRAILER COURT, AS THE SITE FOR THE EXPANSION OF STAFF HOUSING DEVELOPMENT FOR THE INDIAN HEALTH SERVICE, TSAILE HEALTH CENTER. (SEE ATTACHED BOUNDARY SURVEY EXHIBIT A, FOR LEGAL DESCRIPTION AND MEASUREMENTS.)**

**WHEREAS:**

1. Pursuant to Navajo Nation Council Resolution No. CJ-20-55, dated December 2, 1955, the Rock Point Chapter is vested with authority and charged with the responsibility to promote, protect and preserve the interest and the general welfare, including the health and safety of its community people; and
2. The Indian Self-Determination Act (P.L. 93-638) of the U.S. Congress and Local Governance Initiatives entities and support us, Navajo Indians, in initiating plans and making decisions, recommendations, requests, etc., according to our actual needs and desires: AND Public Law 93-437, known as the Indian Health Care Improvement Act, affords Indian Communities the opportunity to obtain adequate comprehensive health care under their own directions; and
3. The Tsaile/Wheatfields Chapter, in 1983 unanimously supported the construction of the health center and housing tract on trust land withdrawn to Dine College, known at that time as the Navajo Community College; and
4. The Tsaile IHS Health Center, constructed in 1984 to provide health care to the local community of the Tsaile/Wheatfields Chapter, now requires additional land in order to plan, design and construct required facilities and staff housing to provide continued health care services; and
5. The Dine College Board of Regents, by resolution DC-FEB-2099-14, supports the land lease of 10.71 acres, between the Navajo Nation and Indian Health Service, of property that was initially withdrawn to Dine College, that will be relinquished by Dine College back to the Navajo Nation; and
6. A site selection process was carried out with the participation of the Indian Health Service and Dine College resulting in the selection of the proposed site located adjacent and south of the existing Dine College Trailer Court encompassing approximately 10.71 acres (see attached boundary survey, Exhibit A), and its designation as the site for expansion of IHS Staff quarters and associated facilities for medical services.
7. The Tsaile/Wheatfields Chapter hereby supports and recognizes this land withdrawal for community development, which may include, but is not limited to, the following purposes: housing, education, economic development, healthcare facilities, public use, or governmental use.



SUPPORTING THE DESIGNATION OF THE LAND TRACT, APPROXIMATELY 10.71 ACRES, LOCATED ADJACENT AND SOUTH OF THE EXISTING DINE COLLEGE TRAILER COURT, AS THE SITE FOR THE EXPANSION OF STAFF HOUSING DEVELOPMENT FOR THE INDIAN HEALTH SERVICE, TSAILE HEALTH CENTER. (SEE ATTACHED BOUNDARY SURVEY EXHIBIT A, FOR LEGAL DESCRIPTION AND MEASUREMENTS.)

**NOW THEREFORE BE IT RESOLVED THAT:**


1. The Tsaille/Wheatfields Chapter hereby supports the designation of the land tract, approximately 10.71 acres, located adjacent and south of the existing Dine College Trailer Court, as the site for expansion of Staff Housing Development or the Indian Health Service, Tsaille Health Center. (See attached boundary survey exhibit A, for legal description and measurement).

**CERTIFICATION**

I, hereby certify the forgoing resolution was duly considered by the Tsaille/Wheatfields Chapter at a duly called meeting at Wheatfields, Arizona at which a quorum was present and the same was passed by a vote of 16 in favor, 02 opposed, and 07 abstained, on this 15<sup>th</sup> day of March, 2016.

Motion by: Kathy Johns

Second by: David Tsosie

  
\_\_\_\_\_  
Zane James, President





# The Navajo Nation Lukachukai Chapter

P.O. Box 248, Lukachukai, Arizona 86507  
Telephone: (928) 787-2500 Fax: (928) 787-2332  
Gayla James, CSC  
Vacant, AMS

Nelson E. Begaye, Council Delegate Philip Sandoval, Jr., President Mitchell Bull, Vice-President Marisha Jones, Sec./Treasurer Reederson Dee, Grzg. Representative

**LUK1604-01**

## **RESOLUTION OF THE LUKACHUKAI CHAPTER**

**SUPPORTING THE DESIGNATION OF THE LAND TRACT, APPROXIMATELY 10.71 ACRES, LOCATED ADJACENT AND SOUTH OF THE EXISTING DINE COLLEGE TRAILER COURT, AS THE SITE FOR THE EXPANSION OF STAFF HOUSING DEVELOPMENT FOR THE INDIAN HEALTH SERVICE, TSAILE HEALTH CENTER. (SEE ATTACHED BOUNDARY SURVEY EXHIBIT A, FOR LEGAL DESCRIPTION AND MEASUREMENTS.).**

### **WHEREAS:**

1. Pursuant to the "Local Government Act" 26 NNC Chapter 1. section 3(A) the Lukachukai Chapter #036 ("The Chapter") is continued as a certified local chapter of the Navajo Nation Government by the Navajo Nation Council resolution number CHP-34-98 ; and
2. Pursuant to chapter 1. Subchapter 1. section 131 (1)(2) of the same "Act" the chapter has the responsibility and authority to promote, protect and preserve the interest and general welfare including the safety of its community people, programs, property etc.; and
3. Pursuant to the "Indian Self-Determination Act" (P.L. 93-638) as amended by the U.S. Congress, the Navajo Nation is entitled and supported to initiate plans and make decisions, recommendations, request according to the needs, desires ; and
4. The Lukachhukai Chapter in 1983 unanimously supported the construction of the health center and housing tract in trust land withdrawn to Dine College, known at that time as the Navajo Community Collge; and
5. The Tsaile IHS Health Center, constructed in 1984 to provide health care to the local community of the Lukachukai Chapter, now requires additional land in order to plan, design and construct required facilities and staff housing to provide continued health care services; and
6. The Dine College Board of Regents, by resolution DC-FEB-2099-14, supports the land lease of 10.71 acres, between the Navajo Nation and Indian Health Service of property that was initially withdrawn to Dine College, that will be relinquished by DC back to the NN; and
7. A site selection process was carried out with the participation of the Indian Health Service and Dine College resulting the selection of the proposed site located adjacent and south of the existing Dine College Trailer Court encompassing approximately 10.71 acres (see attached boundary survey, Exhibit A), and its designation as the site for expansion of IHS staff quarters and associated facilities for medical services; and

8. The Lukachukai Chapter supports the land withdrawal for community development, which may include, but is not limited to the following purposes: housing, education, economic development, health care facilities, public use or governmental use.

**NOW THEREFORE BE IT RESOLVED THAT:**

1. The Lukachukai Chapter hereby supports the designation of the land tract, encompassing approximately 10.71 acres located adjacent and south of the existing Dine College Trailer Court as the site for additional IHS housing and related facilities for medical services. See attached Boundary Survey, Exhibit A, for reference.

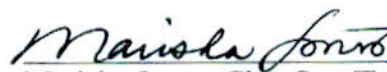
**CERTIFICATION**

We hereby certify that the foregoing resolution was considered by the Lukachukai Chapter at a duly called meeting at Lukachukai, Navajo Nation (Arizona) at which a quorum was present and that the same was passed by a vote of 19 in favor, 01 opposed, 05 abstained, this 21<sup>st</sup> day of April, 2016.

Motion by: Anslem Thompson

Second by: Francis Kinsel

  
Philip Sandoval, Jr., Chp. President

  
Marisha Jones, Chp. Sec./Treasurer





## ROCK POINT CHAPTER, NAVAJO NATION

Janice L. Jim, Chapter President

Jennie M. Harvey, Chapter Vice President

Nancy J. Harvey, Chapter Secretary/Treasurer

Nelson Begaye, Navajo Nation Council

Charlene L. Kirk, Community Services Coordinator

Darion Littleben, Temporary Office Aide

RPC-2016-12

### RESOLUTION OF ROCK POINT CHAPTER

**SUPPORTING & APPROVING THE DINE COLLEGE IN ITS REQUEST FOR DESIGNATION OF THE LAND TRACT, APPROXIMATELY 10.71 ACRES, LOCATED ADJACENT AND SOUTH OF THE EXISTING DINE COLLEGE TRAILER COURT, AS THE SITE FOR THE EXPANSION OF STAFF HOUSING DEVELOPMENT FOR THE INDIAN HEALTH SERVICE, TSAILE HEALTH CENTER. (SEE ATTACHED BOUNDARY SURVEY EXHIBIT A, FOR LEGAL DESCRIPTION AND MEASUREMENTS.)**

#### **WHEREAS:**

1. Pursuant to the Navajo Nation Council Resolution CAP-34-98, the Rock Point Chapter is a certified Navajo Nation Chapter Government and is delegated governmental authority and the responsibility to plan and implement projects for community improvements; to review, recommend, advocate, protect and preserve the general interest and welfare, safety and education and/or support matters pertaining to its constituents and to address and attempt to resolve the needs and concerns of the Rock Point Chapter; and
2. Pursuant to 26 N.N.C., Section 1(B) Rock Point Chapter is vested with the authority to review all matters affecting the community and to make appropriate corrections when necessary and make recommendations to the Navajo Nation and other local/regional agencies for appropriate action(s); and
3. The Indian Self-Determination Act (P.L. 93-638) of the U.S. Congress and Local Governance Initiatives entities and support us, Navajo Indians, in initiating plans and making decisions, recommendations, requests, etc., according to our actual needs and desires: AND Public Law 93-437, known as the Indian Health Care Improvement Act, affords Indian Communities the opportunity to obtain adequate comprehensive health care under their own directions; and
4. The Rock Point Chapter, in 1983 unanimously supported the construction of the health center and housing tract on trust land withdrawn to Dine College, known at that time as the Navajo Community College; and
5. The Tsaile Indian Health Service Health Center, constructed in 1984 to provide health care to the local community of the Rock Point Chapter, now requires additional land in order to plan, design and construct required facilities and staff housing to provide continued health care services; and



6. The Dine College Board of Regents, by resolution DC-FFEB-2099-14, supports the land lease of 10.71 acres, between the Navajo Nation and Indian Health Service, of property that was initially withdrawn to Dine College, that will be relinquished by DC back to the Navajo Nation; and
7. A site selection process was carried out with the participation of the Indian Health Service and Dine College resulting in the selection of the proposed site located adjacent and south of the existing Dine College Trailer Court encompassing approximately 10.71 acres (see attached boundary survey, Exhibit A), and its designation as the site for expansion of Indian Health Service staff quarters and associated facilities for medical services.

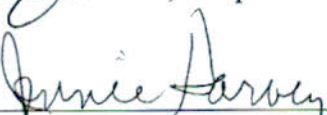
**NOW, THEREFORE, BE IT RESOLVED THAT:**

1. The Rock Point Chapter hereby fully supports the Dine College designation of the land tract, encompassing approximately 10.71 acres, located adjacent and south of the existing Dine College Trailer court as the site for additional Indian Health Service housing and related facilities for medical services (see attached boundary survey, Exhibit A for reference.)
2. The Rock Point Chapter further supports and recognizes this land withdrawal is for community development, which may include, but is not limited to, the following purposes: housing, education, economic development, healthcare facilities, public use, or governmental use.

**CERTIFICATION**

We hereby certify that the foregoing resolution was considered by the Rock Point Chapter at a duly called meeting at Rock Point, Navajo Nation (Arizona) at which a quorum was present and that the same was passed by a vote of 19 in favor, 0 opposed, 3 abstained, this 14th day of March, 2016.

  
Janice Lee Jim, Chapter President

  
Jennie Harvey, Chapter Vice-President

  
Nancy J. Harvey, Chapter Secretary/Treasurer

  
Nelson Begaye, Navajo Nation Council

Reeder Descheny, Chapter Grazing Representative

1<sup>st</sup> Motion: Rex L. Jim

2<sup>nd</sup> Motion: Rosie Suen



**RESOLUTION OF THE  
ROUND ROCK CHAPTER, NAVAJO NATION  
P.O. BOX 10 ROUND ROCK, ARIZONA 86547**

**ROUN-1603-07**

**SUPPORTING THE DESIGNATION OF THE LAND TRACT, APPROXIMATELY 10.71 ACRES, LOCATED ADJACENT AND SOUTH OF THE EXISTING DINE COLLEGE TRAILER COURT, AS THE SITE FOR THE EXPANSION OF STAFF HOUSING DEVELOPMENT FOR THE INDIAN HEALTH SERVICE, TSAILE HEALTH CENTER. (SEE ATTACHED BOUNDARY SURVEY EXHIBIT A, FOR LEGAL DESCRIPTION AND MEASUREMENTS.)**

**WHEREAS:**

1. Pursuant to Navajo Nation Council Resolution No. CJ-20-55, dated December 2, 1955, the Round Rock Chapter is vested with authority and charged with the responsibility to promote, protect and preserve the interest and the general welfare, including the health and safety of its community people, **AND**
2. The Indian Self-Determination Act (P.L. 93-638) of the U.S. Congress and Local Governance Initiatives entities and support us, Navajo Indians, in initiating plans and making decisions, recommendations, requests, etc., according to our actual needs and desires: **AND** Public Law 93-437, known as the Indian Health Care Improvement Act, affords Indian Communities the opportunity to obtain adequate comprehensive health care under their own directions: **AND**
3. The Round Rock Chapter, in 1983 unanimously supported the construction of the health center and housing tract on trust land withdrawn to Dine College, known at that time as the Navajo Community College: **AND**
4. The Tsaile IHS Health Center, constructed in 1984 to provide health care to the local community of the Round Rock Chapter, now requires additional land in order to plan, design and construct required facilities and staff housing to provide continued health care services: **AND**
5. The Dine College Board of Regents, by resolution DC-FEB-2099-14, supports the land lease of 10.71 acres, between the Navajo Nation and Indian Health Service, of property that was initially withdrawn to Dine College, that will be relinquished by DC back to the NN: **AND**



6. A site selection process was carried out with the participation of the Indian Health Service and Dine College resulting in the selection of the proposed site located adjacent and south of the existing Dine College Trailer Court encompassing approximately 10.71 acres (see attached boundary survey, Exhibit A), and its designation as the site for expansion of IHS Staff quarters and associated facilities for medical services.
7. "The Round Rock Chapter hereby supports and recognizes this land withdrawal for community development, which may include, but is not limited to, the following purposes: housing, education, economic development, healthcare facilities, public use, or governmental use.

**NOW THEREFORE BE IT RESOLVED THAT:**

The Round Rock Chapter hereby supports the designation of the land tract, encompassing approximately 10.71 acres, located adjacent and south of the existing Dine College Trailer Court as the site for additional IHS housing and related facilities for medical services. See attached Boundary Survey, Exhibit A, for reference.

**CERTIFICATION**

We hereby certify the forgoing resolution was duly considered by the Round Rock Chapter at a duly called meeting at Round Rock, Arizona, at which a quorum was present and that same was passed by a vote of 27 favor and 0 opposed and 6 abstained on this 13 day of March 2016.

MOTION BY: Laverne Jones

SECOND BY: Ilene Bitsui

Kellywood Harvey, Sr.

Name, Chapter President





Tsaile/Wheatfields Chapter

Post Office Box 667

Tsaile, Arizona 86556

Phone: (928) 724-2220 Fax: (928) 724-2223

Rev. 11-5-08

RESOLUTION OF THE TSAILE/WHEATFIELDS CHAPTER #038

**SUPPORTING THE DESIGNATION OF THE LAND TRACT SOUTHEAST OF THE DINE COLLEGE TRAILER COURT, NORTH OF THE COLLEGE ENTRANCE ROAD, AS SITE FOR THE EXPANSION OF HOUSING FOR THE TSAILE HEALTH CENTER.**

**WHEREAS:**

1. Pursuant to Navajo Nation Council Resolution No. CJ-20-55, dated December 2, 1955, the Tsaile/Wheatfields Chapter is vested with authority and charged with responsibility to promote, protect, and preserve the interest and the general welfare, including the health and safety of its community people; AND
2. The Indian Self-Determination Act (P.L. 93-638) of the U.S. Congress and Local Governance Initiatives entitles and support us, Navajo Indians, in initiating plans and making decisions, recommendation, request, etc., according to our actual needs and desires; AND Public Law 94-437, known as the Indian Health Care Improvement Act, affords Indian Communities the opportunity to obtain adequate comprehensive health care under their own direction; AND
3. The Tsaile/Wheatfields Chapter, in 1983 unanimously supported the construction of the health center and housing tract on land provided by the Dine College, known at that time as Navajo Community College; AND
4. The Tsaile Health Center, built in 1984 to provide health care to the community of the Tsaile/Wheatfields Chapter, now requires additional land in order to plan for and provide extended services including Emergency Medical Services; AND
5. The Dine College Board of Regents, by Resolution DC-JAN-1856-06, authorized an agreement with Indian Health Service to pursue additional land for expansion of medical facilities; AND
6. A site selection process was carried out with the participation of Indian Health Services and Dine College resulting in the selection of the site southeast of the Dine College Trailer Court and its designation as the site for expansion of staff housing and medical services.

SUPPORTING THE DESIGNATION OF THE LAND TRACT SOUTHEAST OF THE DINE COLLEGE TRAILER COURT, NORTH OF THE COLLEGE ENTRANCE ROAD, AS SITE FOR THE EXPANSION OF HOUSING FOR THE TSAILE HEALTH CENTER.

**NOW THEREFORE BE IT RESOLVED THAT:**

The Tsaile/Wheatfields Chapter hereby supports the designation of the land tract located southeast of the Dine College trailer court as the site for additional housing and medical services.

**C E R T I F I C A T I O N**


We, hereby certify the foregoing resolution was duly considered by the Tsaile/Wheatfields Chapter at a duly called meeting at Wheatfields, Arizona, at which a quorum was present and that same was passed by a vote of 25 favor and 00 opposed and 07 abstained on this 12<sup>th</sup> day of October 2008.

MOTION BY: Lorena John

SECOND BY: Danny John

  
\_\_\_\_\_  
Wesley L. Begay, President

  
\_\_\_\_\_  
Lettie M. Nave, Vice-President

  
\_\_\_\_\_  
Mangie R. Begay, Secretary/Treasurer





DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service



Office of Environmental Health  
and Engineering

Navajo Area  
Indian Health Service  
P.O. Box 9020  
Window Rock, Arizona 86515-9020

June 28, 2016

Mr. Mike Halona, Department Manager III  
Navajo Land Department  
P.O. Box 2249  
Window Rock, Arizona 86515

Dear Mr. Halona:

This letter will serve as an application for a designation land withdrawal and lease within the Tsaile Health Center Compound for additional Staff Quarters. The site is located southeast of the Intersection of Indian Route 12 and Indian Route 64. The site location is at approximately 36 degree 17' 55.49" North Latitude and 109 degree 13' 16.86" West Longitude. Diné College has set aside 10.71 acres of land for 30 units of housing development for Tsaile IHS Health Center

The intent of the land withdrawal is to add thirty (30) additional Staff Quarters with associated access road and drives to allow 30 new staff to serve the increasing health needs of the population for the Chinle Service Area.

The Navajo Area Indian Health Service (NAIHS) is submitting this application as a Designation Holder and will ensure all regulations of the land withdrawal process is adhered to.

Attached are Chapter Resolutions from the Rock Point, Round Rock, Lukachukai and Tsaile/ Wheatfields Chapters. Also attached is a letter and Field clearance checklist from the grazing official Thomas Litson concurring that there are no valid grazing permit holders in the area.

Upon approval of the land withdrawal, NAIHS will begin the leasing process as to the Navajo Leasing Act, Business Leasing Regulations prior to any development, disturbance, use or occupancy of the land.

Your attention to expedite our request will be sincerely appreciated. If you need additional information, you can contact Erika Walker, Realty Specialist at 928-871-1347.

Sincerely,

Floyd G. Thompson, Acting Area Director  
Navajo Area Indian Health Service

cc: Candace Tsinigine, Acting Director, DFME, OEHE, Navajo Area IHS  
Brian Johnson, Director, OEHE, Navajo Area IHS  
Project File





DEPARTMENT OF HEALTH & HUMAN SERVICES

MEMORANDUM

**Date:** June 30, 2016

**From:** Erika Walker, Realty Specialist, OEHE, DFM, NAIHS

**Subject:** Land Withdrawal/Lease for the Tsailie Health Center Additional Health Quarters

**To:** Kayla Bia, Project Review Office, Navajo Land Department



Attached are the following documents for the Land Withdrawal/Lease for the Tsailie Health Center Additional Health Quarters

1. Letter of Application
2. Field Clearance Documents
3. Chapter Resolutions
4. Resolutions of the Advisory Committee for the original Land withdrawal of the Navajo Community College
5. Legal survey with centerline description
6. Environmental Assessment with BRCF & Kick Off Meeting Minutes (10/8/10)
7. Archaeological Clearance with report with Cultural Resources Compliance Form
8. Floodplain Assessment
9. Geotechnical Engineering Report

Please process for a Land Withdrawal/Lease per the Navajo Leasing Regulations.

Erika Walker, Realty Specialist  
Division of Facilities Management  
OEHE, Navajo Area HIS



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Navajo Area Indian Health Service  
P.O. Box 9020  
Window Rock, Arizona 86515

03/21/2016

Mr. Thomas Litson, District II Unit 3 Grazing Committee Official  
Tsaile/Wheatfields/Blackrock Chapter  
P.O. Box C18  
Tsaile, Arizona 86556  
1(928)724-2220

Subject: Proposed NAIHS Staff Housing and Related Improvements  
10.71 Acres of Navajo Tribal Trust Land to be withdrawn from the Navajo Nation  
Tsaile, Apache County, Arizona

Dear Mr. Litson:

In reference to the above subject matter and pursuant to our recent discussion, the Indian Health Service (IHS) proposes to construct thirty (30) new staff quarters on a 10.71 acres of property located and identified on the attached site map, to meet the housing shortage that has impaired recruitment for Doctors, Nurses (RN), and Professional Staffing for the Tsaile Health Center (THC) in Tsaile, Arizona. This project will ensure the availability of safe, suitable housing for licensure personnel essential for the Local Community / Tsaile Health Center.

The proposed 10.71 acres of land to be withdrawn is located northeast of the existing Tsaile Health Center southeast of the Intersection of Indian Route 12 and Indian Route 64. The site location is at approximately 36 degree 17' 55.49" North Latitude and 109 degree 13' 16.86" West Longitude. Dine college has set aside 4.38 ha, (10.71) of land area for a (30) unit housing Development for Tsaile IHS Health Center.

To support this effort, the NAIHS has conducted numerous site visits and onsite meetings with the local affected Navajo Nation Chapters, Dine College including assessment of all utility requirements and an Environmental Assessment (EA). This EA concluded that there are no significant impacts on quality of the Natural, Biological, Socioeconomic, or Cultural Environment expected to occur as a result of the Construction for these Staff quarters.

In addition the consent from the original designation holder (Dine College) has been acquired through an approval process (Resolution of the Board of Regents Dine College, DC-JAN-1856-06.); No development or disturbance has taken place on the Land in question since this particular 10.71 acre parcel is fenced in for future development; and the purpose of the new designation is in accordance with all the Chapter Support Resolutions which has been obtained through the approval process within the Local Chapters (Rock Point, Round Rock, Lukachukai and Tsaile / Wheat Fields Chapters.)

Therefore, as discussed, the IHS is hereby requesting Formal Concurrence for this undertaking from your office that will signify support of the (10.71) Acres of Land to be withdrawn to serve the proposed (30) unit housing Development. This Formal Concurrence will also serve as a supporting document in obtaining a lease for Tsaile Health Center as required by the Navajo Nation Land Department. Please acknowledge your Concurrence at the below space.

Also, please complete the attached Field Clearance Checklist which will provide additional verification that said parcel is available for future development without any restrictions. If you have any question, contact me at (928) 724-3665

Sincerely,

*for Dwayne Thompson*

Mr. Dwayne Thompson, Maintenance Mechanic Supervisor  
Tsaile IHS Health Center

**CONCURRENCE:**

*Thomas P. Litson*  
\_\_\_\_\_  
Mr. Thomas Litson, Grazing Committee Official  
District II, Unit 3

Date: 6/27/2016

Attachments (2):      Site Map and Field Clearance Checklist





Document No. 006262

Date Issued: 07/07/2016

**EXECUTIVE OFFICIAL REVIEW**

Title of Document: USPHS, Tsale Health Ctr Quarters Lease Contact Name: DRAPER, HOWARD

Program/Division: DIVISION OF NATURAL RESOURCES

Email: howarddraper@frontiernet.net Phone Number: 928/871-6447

<input type="checkbox"/>	<b>Business Site Lease</b>			<b>Sufficient</b>	<b>Insufficient</b>
	1. Division:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
	2. Office of the Controller:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
	(only if Procurement Clearance is not issued within 30 days of the initiation of the E.O. review)				
	3. Office of the Attorney General:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<b>Business and Industrial Development Financing, Veteran Loans, (i.e. Loan, Loan Guarantee and Investment) or Delegation of Approving and/or Management Authority of Leasing transactions</b>				
	1. Division:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
	2. Office of the Attorney General:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<b>Fund Management Plan, Expenditure Plans, Carry Over Requests, Budget Modifications</b>				
	1. Office of Management and Budget:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
	2. Office of the Controller:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
	3. Office of the Attorney General:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<b>Navajo Housing Authority Request for Release of Funds</b>				
	1. NNEPA:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
	2. Office of the Attorney General:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<b>Lease Purchase Agreements</b>				
	1. Office of the Controller:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
	(recommendation only)				
	2. Office of the Attorney General:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<b>Grant Applications</b>				
	1. Office of Management and Budget:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
	2. Office of the Controller:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
	3. Office of the Attorney General:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<b>Five Management Plan of the Local Governance Act, Delegation of an Approving Authority from a Standing Committee, Local Ordinances (Local Government Units), or Plans of Operation/Division Policies Requiring Committee Approval</b>				
	1. Division:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
	2. Office of the Attorney General:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<b>Relinquishment of Navajo Membership</b>				
	1. Land Department:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
	2. Elections:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
	3. Office of the Attorney General:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>

☐ Land Withdrawal or Relinquishment for Commercial Purposes

			Sufficient	Insufficient
1. Division:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
2. Office of the Attorney General:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>

☒ Land Withdrawals for Non-Commercial Purposes, General Land Leases and Resource Leases

1. NLD	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
2. F&W	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
3. HPD	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
<del>4. Minerals</del>	<del>_____</del>	<del>Date: _____</del>	<del><input type="checkbox"/></del>	<del><input type="checkbox"/></del>
<del>5. NNEPA</del>	<del>_____</del>	<del>Date: _____</del>	<del><input type="checkbox"/></del>	<del><input type="checkbox"/></del>
6. DNR	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
7. DOJ	<i>V. Blakht</i>	Date: <i>1/17/20</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

☐ Rights of Way

1. NLD	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
2. F&W	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
3. HPD	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
4. Minerals	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
5. NNEPA	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
6. Office of the Attorney General:	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
7. OPVP	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>

☐ Oil and Gas Prospecting Permits, Drilling and Exploration Permits, Mining Permit, Mining Lease

1. Minerals	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
2. OPVP	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
3. NLD	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>

☐ Assignment of Mineral Lease

1. Minerals	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
2. DNR	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
3. DOJ	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>

☐ ROW (where there has been no delegation of authority to the Navajo Land Department to grant the Nation's consent to a ROW)

1. NLD	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
2. F&W	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
3. HPD	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
4. Minerals	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
5. NNEPA	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
6. DNR	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
7. DOJ	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
8. OPVP	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>

☐ OTHER:

1.	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
2.	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
3.	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
4.	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>
5.	_____	Date: _____	<input type="checkbox"/>	<input type="checkbox"/>





# NAVAJO NATION DEPARTMENT OF JUSTICE

## DOCUMENT REVIEW REQUEST FORM

☐ RESUBMITTAL



01/14/2020 4:30pm  
DOJ  
DATE / TIME  
☐ 7 Day Deadline  
DOC #: 06262  
SAS #:  
UNIT: NEU

\*\*\* FOR NNDJ USE ONLY - DO NOT CHANGE OR REVISE FORM. VARIATIONS OF THIS FORM WILL NOT BE ACCEPTED. \*\*\*

### CLIENT TO COMPLETE

DATE OF REQUEST: 01/14/20 ENTITY/DIVISION: Division of Natural Resources  
CONTACT NAME: Michelle Hoskie / Stewie Hudson DEPARTMENT: General Land Develop. Dept.  
PHONE NUMBER: 928-871-6447 E-MAIL: michellehoskie@navajo-rish.gov  
TITLE OF DOCUMENT: USPHS, Tsaike Health Ctr Quarters Lease

### DOJ SECRETARY TO COMPLETE

DATE/TIME IN UNIT: 1-15-20 8:15am REVIEWING ATTORNEY/ADVOCATE: Frutin Chee  
DATE/TIME OUT OF UNIT: 1-17-20 10:30 AM 2-27-19

### DOJ ATTORNEY / ADVOCATE COMMENTS

My memo. dated 1-6-2020 has been resolved & settled.  
The lease has been redrafted & re-typed for a clean copy.

REVIEWED BY: (PRINT) DATE / TIME SURNAMED BY: (PRINT) DATE / TIME  
JAMES GILLES 1-16-20 Blackhat 1/17/20 10:22am  
DOJ Secretary Called: Michelle for Document Pick Up on 1-17-20 at 10:30 By: CJ  
PICKED UP BY: (PRINT) DATE / TIME:

NNDJ/DRRF-July 2013

✓ All the required documents such as land w/drawal; Field Clearance Chapter Res. (S); E.A.; CRCF; BRP; Arch. clearance & legal description are attached. Therefore this document is legally sufficient to process for approval.

-6111




# THE NAVAJO NATION

JONATHAN NEZ | PRESIDENT MYRON LIZER | VICE PRESIDENT



## MEMORANDUM

To: Irvin Chee, Principal Tribal Court Advocate  
Department of Justice

From:   
Stevie Rae Hudson, Leasing Agent  
General Land Development Department  
DIVISION OF NATURAL RESOURCES

Date: January 14, 2020

Subject: Document No. 006262 – USPHS Tsaile Health Center Quarter Land Lease

The land survey and/or legal description was overlapping with another project, the Dine College School Lease, which is still going through the 164 process. After reviewing the packet, there is a letter from Mr. W. Mike Halona approving a land withdrawal designation for USPHS dated July 6, 2016 and expires in August 2021.

As a result, this packet does **not** need to be resurveyed and/or the legal description does not need correction as Dine College will need to carve this portion out of their legal survey for further processing of their school lease.

If you should have any questions regarding this letter, please contact me directly at (928) 871-6447 or at [steviehudson@navajo-nsn.gov](mailto:steviehudson@navajo-nsn.gov). Your assistance is appreciated, thank you.

*Attachments*



RDCJN-33-15

RESOLUTION OF THE  
RESOURCES AND DEVELOPMENT COMMITTEE  
OF THE 23RD NAVAJO NATION COUNCIL --- FIRST YEAR, 2015

AN ACTION

RELATING TO RESOURCES AND DEVELOPMENT; DELEGATING AUTHORITY TO THE DIRECTOR OF THE NAVAJO LAND DEPARTMENT TO APPROVE LAND WITHDRAWALS ON THE NAVAJO NATION; AND APPROVING THE ADMINISTRATIVE RULES AND REGULATIONS FOR LAND WITHDRAWALS

BE IT ENACTED:

Section One. Findings

- A. Pursuant to 2 N.N.C. §502(B)(2), the Resources and Development Committee is authorized to give final approval of all land withdrawals; and
- B. Pursuant to 2 N.N.C. §501(B)(3), the Resources and Development Committee is authorized to delegate its powers to appropriate divisions of the Navajo Nation for efficiency and streamlining of government processes provided the Committee first grants final approval of rules and regulations governing such delegations and rescission of such delegations; and
- C. The current system of processing land withdrawals is confusing, time consuming, and inconsistent. It has resulted in delay and loss of development on the Navajo Nation; and
- D. Therefore, there is a need to delegate the authority to approve land withdrawals to the Director of the Navajo Land Department to streamline the land withdrawal process; and
- E. The process of reviewing documents associated with land withdrawals is an administrative task that can be performed by the Director of the Navajo Land Department; and
- F. The Resources and Development Committee finds it is in the best interest of the Navajo Nation to approve the delegation of authority.

**Section Two. Delegation to the Director of the Navajo Land Department to Process Land Withdrawals and Approval of the Administrative Rules and Regulations for Land Withdrawals**

- A. The Resources Committee of the Navajo Nation Council hereby approves the delegation of authority to the director of the Navajo Land Department, Division of Natural Resources, to approve Land Withdrawals on the Navajo Nation.
- B. The Navajo Nation hereby approves the Administrative Rules and Regulations, attached hereto as Exhibit "A".

**CERTIFICATION**

I, hereby, certify that the foregoing resolution was duly considered by the Resources and Development Committee of the 23<sup>rd</sup> Navajo Nation Council at a duly called meeting at Navajo Nation Council Chambers, Window Rock, Navajo Nation (Arizona), at which quorum was present and that same was passed by a vote of 3 in favor, 0 opposed, 0 abstain this 16<sup>th</sup> day of June, 2015.



Benjamin Bennett, Vice-Chairperson  
Resources and Development Committee

Motion: Honorable Benjamin Bennett  
Second: Honorable Davis Filfred  
Vote : 3-0 (Vice Chair not voting)





## LAND WITHDRAWAL DESIGNATION REGULATIONS

### § 1. Purpose.

The purpose of these Regulations is to clarify and expedite the Land Withdrawal Designation process on the Navajo Nation, and explains that a Land Withdrawal Designation does not authorize development or disturbance on Navajo Nation land. This Land Withdrawal Designation process does not apply to how to get a lease. Prior to any development on the land, a lease must be obtained in addition to the withdrawal. The purpose of a Land Withdrawal Designation is to designate an area of land for future development by,

- a. Ensuring that the rights of grazing permittees, who are in compliance with their grazing permits, are properly addressed as applicable and as required under 16 N.N.C. §§ 1401 *et seq.* and to prevent any subsequent claims to the land; and
- b. Ensuring that the affected Chapter supports the Land Withdrawal Designation and use of the land.

### § 2. Scope.

These regulations apply to all Land Withdrawal Designations on the Navajo Nation.

### § 3. Delegation

- a. The Resources and Development Committee hereby delegates to the Director of the Navajo Land Department the power and authority to give final approval of all Land Withdrawal Designations on the Navajo Nation. The Director may sub-delegate this authority to a person under the Director's supervision, but this delegation of authority shall not be re-delegated to any other Department or Division within the Nation without the consent and approval of the Resources and Development Committee of the Navajo Nation Council.
- b. Resources and Development Committee hereby delegates authority to the Navajo Land Department to administer and manage Land Withdrawal Designations on the Navajo Nation, with the express power to adopt rules to further implement these regulations.

### § 4. Definitions.

- a. Community Development: Community Development encompasses infrastructure, economic development projects, installation of public facilities, community centers, housing, public services, businesses, schools, hospitals, government offices, and other similar projects.
- b. Designation Holder: Any person or entity who has obtained a Land Withdrawal Designation.
- c. Industrial Development: Economic activity concerned with the manufacture, and processing of materials or construction.
- d. Land Withdrawal Designation: A formal action used to designate and reserve a parcel of land for:
  - i. Community Development
  - ii. Industrial Development
- e. The Navajo Nation Business Site Leasing Regulations of 2005 (Business Site Leasing Regulations): Navajo Nation regulations that make business site leases mandatory for all businesses operating on the Navajo Nation.
- f. The Navajo Nation General Leasing Regulations of 2013 (General Leasing Regulations): Navajo Nation regulations that apply to all leases and permits for the use or possession of Navajo Nation trust land, with the exception of business and mineral leases.
- g. The Navajo Nation Government: The Navajo Nation Government is comprised of the legislative, executive, and judicial branches, as well as political subdivisions. For the purpose of land use, ownership, and these regulations, enterprises, businesses, housing authorities, or other entities created or owned by the Navajo Nation are not entities of the Navajo Nation Government.
- h. The Navajo Nation Trust Land Leasing Act of 2000 (Navajo Leasing Act, 25 U.S.C. §415(e)): A federal law that regulates the leasing of Navajo Nation lands. It allows the Nation to lease certain lands without Secretarial approval.
- i. Resolution of Support: A Resolution of Support is a resolution passed by an affected Chapter stating that they are in support of a particular entity or business locating within their chapter on withdrawn land.

## **§ 5. Use and Occupation of Navajo Nation Land.**

A Land Withdrawal Designation does not authorize an entity outside the Navajo Nation Government to use, occupy, or disturb Navajo Nation land. The Navajo Leasing Act, Business Site Leasing Regulations, and General Leasing Regulations apply to all land use on the Navajo Nation. A lease is always required if the land is being developed by any entity outside the Navajo Nation Government.

**§ 6. Land Withdrawal Designations for Navajo Nation Government.**

The Navajo Leasing Act, Business Site Leasing Regulations, and General Leasing Regulations do not apply to the Navajo Nation Government. The Navajo Nation Government may develop on land designated by a Land Withdrawal Designation without a lease for government purposes only.

**§ 7. Procedure to Acquire a Land Withdrawal.**

- a. Every individual, chapter, or entity desiring a Land Withdrawal Designation on the Navajo Nation shall submit an Application for Land Withdrawal to the Navajo Land Department (NLD). The Application shall be accompanied by the following supporting documents:
  - i. A letter of application or cover letter;
  - ii. A proposal for the planned use of the land; and
  - iii. A legal survey or GPS land description indicating the location.
- b. An entity requesting a Land Withdrawal Designation shall then submit their proposal to the Chapter to obtain a Resolution of Support.
  - i. All Chapter Resolutions should contain standard language approving a Land Withdrawal for either community development or industrial development.
  - ii. Resolutions of Support for community development Land Withdrawal Designations shall contain the following language: "The \_\_\_\_\_ Chapter hereby supports and recognizes this land withdrawal for community development, which may include, but is not limited to, the following purposes: housing, education, economic development, healthcare facilities, public use, or governmental use. Industrial development is not supported for this area." To change the use, Chapter approval must be obtained.



- iii. Resolutions of Support for industrial development Land Withdrawal Designations shall contain the following language: "The \_\_\_\_\_ Chapter hereby supports and recognizes this Land Withdrawal Designation for the sole purpose of industrial development. Industrial development shall be considered the economic activity concerned with the manufacture, and processing of materials or construction." To change the use, Chapter approval must be obtained.
- iv. Once the Chapter Resolution of Support is passed by the affected Chapter, return the signed Resolution of Support to the NLD.
- c. The NLD will acquire the necessary consent from all grazing permittees holding a valid grazing permit with an interest in the land as applicable and required under 16 N.N.C. sections 1402 *et seq.* Consent will include infrastructure that supports the development and no additional consents are necessary.
- d. In the event the grazing permittees will not consent, but the proposed project is in the best interest of the community and the Navajo Nation, the appropriate authorities may undertake eminent domain as allowed pursuant to 16 N.N.C. §§ 1401-1403.
- e. Approval from NLD.
  - i. If all requirements are met, the NLD will approve the Land Withdrawal Designation. NLD will subsequently record the Land Withdrawal Designation on the Navajo land title recording system.
  - ii. The NLD will not approve and record a Land Withdrawal Designation until all required documents are provided for review.
- f. If the Designation Holder is not the Navajo Nation Government, they must then begin the leasing process pursuant to The Navajo Leasing Act, Business Site Leasing Regulations, or General Leasing Regulations prior to any development, disturbance, use, or occupation of the land.

**§ 8. Change in purpose.**

- a. If the Designation Holder changes the purpose of the Land Withdrawal Designation, they must go back to the affected Chapter to obtain a new Resolution of Support.
- b. If a Chapter, as Designation Holder, wishes to permit an outside entity use of a portion of or the entire Land Withdrawal Designation, the Chapter must relinquish

the Land Withdrawal Designation and the outside entity must apply for their own Land Withdrawal Designation in their name for their specific purpose.

**§ 9. Duration and Renewal.**

- a. All Land Withdrawals shall be issued for a term of no more than five (5) years, with the possibility of extension of the term every five years thereafter, so long as the Designation Holder is not in violation of any provision set forth in these Regulations. The term shall be determined by NLD on a case-by-case basis.
- b. If the Designation Holder wishes to extend the Land Withdrawal Designation, the Designation Holder shall give written notice to NLD ninety (90) days prior to expiration of the original term. Renewal of the Land Withdrawal Designation will be at the sole discretion of NLD.
- c. A Land Withdrawal Designation will be terminated if any provision set forth in these Regulations is violated by a Designation Holder.
- d. A Land Withdrawal will be removed from the Navajo Nation land title recording system and open to other applicants for Land Withdrawal Designation or other land use at the expiration of the term or if the Land Withdrawal Designation is terminated for any reason. In the case of a Land Withdrawal Designation for a portion of a pre-existing Chapter land withdrawal, the area will revert back to the Chapter withdrawal status prior to the Land Withdrawal Designation application.

**§ 10. Environmental Review Process.**

- a. No environmental review is required for Land Withdrawal Designations issued to the non-Navajo Nation Government entities; however, when the entity obtains a lease, the General Leasing Regulations require environmental review.
- b. Since the Navajo Nation Government is not required to obtain a lease prior to development on the land, when the Navajo Nation Government obtains a Land Withdrawal Designation for Navajo Nation Governmental use, an environmental review must be completed.
- c. In the event that a Land Withdrawal Designation was done by the Navajo Nation Government, but the Navajo Nation Government relinquished the Land Withdrawal Designation for use by another non-Navajo Nation Governmental entity, the new Designation Holder must still undergo environmental review when a lease is obtained. Each program conducting an environmental review will determine if the use is

consistent with the former environmental review and will determine whether further analysis needs to be conducted.

**§ 11. Oversight and Enforcement.**

- a. Every department within the Navajo Nation Government that is responsible for such oversight shall work to ensure that all Land Withdrawal Designations are in compliance with these Regulations and other applicable Navajo Nation law.
- b. The Navajo Nation shall have the authority to enforce the provisions set forth in these Regulations in accordance with applicable Navajo Nation and federal law.

**§ 12. Penalties.**

- a. If a Designation Holder develops or otherwise disturbs the land without first having a valid lease, the Designation Holder is subject to trespass, and a penalty will be assessed by the NLD. 16 N.N.C. §§ 2251 and 2252.

**§ 13. Transfer of Land Withdrawal Designations.**

The NLD will approve transfers of Land Withdrawal Designations if the following conditions are met:

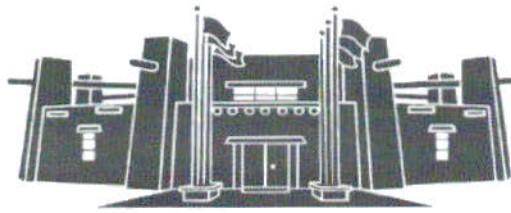
- a. Consent from the original Designation Holder has been acquired.
- b. The original Designation Holder or the transferee are not in violation of the Land Withdrawal Designation;
- c. No development or disturbance has taken place on the land in question;
- d. The purpose of the new Designation Holder is in accordance with the Resolution of Support, or a new Resolution of Support has been obtained;
- e. The transferee agrees to be bound by the terms of the Land Withdrawal Designation; and
- f. The NLD finds no compelling reason to withhold approval.

**§ 14. Review and Amendments.**



The scope and administration of this delegation of authority to the Director of the Navajo Land Department and Administrative Regulations may be amended or rescinded by the Resources and Development Committee of the Navajo Nation Council.

6/16/2015 (3)



## MEMORANDUM

**TO:** Honorable Otto Tso  
To Nanees Dizi Chapter

**FROM:** Mariana Kahn  
Mariana Kahn, Attorney  
Office of Legislative Counsel

**DATE:** January 30, 2020

**SUBJECT:** AN ACTION RELATING TO RESOURCES AND DEVELOPMENT;  
APPROVING THE UNITED STATES OF AMERICA DEPARTMENT OF  
HEALTH AND HUMAN SERVICES INDIAN HEALTH SERVICE TSAILE  
LAND LEASE FOR 10.71 ACRES, MORE OR LESS, OF NAVAJO NATION  
TRUST LANDS, LOCATED WITHIN THE TSAILE/WHEATFIELDS  
CHAPTER VICINITY, NAVAJO NATION (APACHE COUNTY, ARIZONA)

Pursuant to your request, attached is the above-referenced proposed resolution and associated legislative summary sheet. Based on existing law, the resolution as drafted is legally sufficient. However, as with all legislation, it is subject to review by the courts in the event of a challenge.

The Office of Legislative Council confirms the appropriate review is with the Standing Committees and the Navajo Nation Council. Nevertheless, "the Speaker of the Navajo Nation Council shall introduce [the proposed resolution] into the legislative process by assigning it to the respective oversight committee(s) of the Navajo Nation Council having authority over the matters for proper consideration." 2 N.N.C. § 164(A)(5).

Please review the proposed resolution to ensure it is drafted to your satisfaction. If this proposed resolution is acceptable to you, please sign it where it indicates "Prime Sponsor", and submit it to the Office of Legislative Services for the assignment of a tracking number and referral to the Speaker.

If the proposed resolution is unacceptable to you, or if you have further questions, please contact me at the Office of Legislative Counsel and advise me of changes you would like made to the proposed resolution. You may contact me at (928) 871-7166. Thank you.

THE NAVAJO NATION  
LEGISLATIVE BRANCH  
INTERNET PUBLIC REVIEW PUBLICATION



LEGISLATION NO: \_0029-20\_\_

SPONSOR: Otto Tso

TITLE: An Action Relating To Resources And Development; Approving The United States Of America Department Of Health And Human Services Indian Health Services Tsaille Land Lease For 10.71 Acres, More Or Less, Of Navajo Nation Trust Land, Located Within The Tsaille/Wheatfields Chapter Vicinity, Navajo Nation (Apache County, Arizona)

*Date posted:* February 7, 2020 at 3:55 PM

Digital comments may be e-mailed to [comments@navajo-nsn.gov](mailto:comments@navajo-nsn.gov)

Written comments may be mailed to:

Executive Director  
Office of Legislative Services  
P.O. Box 3390  
Window Rock, AZ 86515  
(928) 871-7586

Comments may be made in the form of chapter resolutions, letters, position papers, etc. Please include your name, position title, address for written comments; a valid e-mail address is required. Anonymous comments will not be included in the Legislation packet.

**Please note:** This digital copy is being provided for the benefit of the Navajo Nation chapters and public use. Any political use is prohibited. All written comments received become the property of the Navajo Nation and will be forwarded to the assigned Navajo Nation Council standing committee(s) and/or the Navajo Nation Council for review. Any tampering with public records are punishable by Navajo Nation law pursuant to 17 N.N.C. §374 *et. seq.*



THE NAVAJO NATION  
LEGISLATIVE BRANCH  
INTERNET PUBLIC REVIEW SUMMARY

LEGISLATION NO.: 0029-20

SPONSOR: Honorable Otto Tso

TITLE: An Action Relating to Resources and Development; Approving the United States of America Department of Health and Human Services Indian Health Service Tsaile land lease for 10.71 acres, more or less, of Navajo Nation Trust Lands, located within the Tsaile/Wheatfields Chapter vicinity, Navajo Nation (Apache County, Arizona)

Posted: February 07, 2020 at 3:55 PM

5 DAY Comment Period Ended: February 12, 2020

Digital Comments received:

Comments Supporting	<i>None</i>
Comments Opposing	<i>None</i>
Inconclusive Comments	<i>None</i>

  
\_\_\_\_\_  
Legislative Tracking Secretary  
Office of Legislative Services

2/13/2020 8:10pm

Date/Time