



Twin Falls City Council Agenda

Monday, March 18, 2019, 4:00 PM

City Council Chambers
203 Main Avenue East- Twin Falls, Idaho

****SPECIAL MEETING NOTICE****

The City Council will meet at 4:00 p.m., for the purpose of:

Executive Session: § 74-206(1) (a) To consider hiring a public officer, employee, staff member or individual agent, wherein the respective qualities of individuals are to be evaluated to fill a particular vacancy or need, unless a vacancy in an elective office is being filled.

Executive Session: § 74-206(1)(f) To communicate with legal counsel for the public agency to discuss the legal ramifications of and legal options for pending litigation, or controversies not yet being litigated but imminently likely to be litigated. The mere presence of legal counsel at an executive session does not satisfy this requirement.

The regular meeting will begin at 5:00 p.m.

Members: Shawn Barigar, Suzanne Hawkins, Nikki Boyd, Chris Talkington, Gregory Lanting, Christopher Reid, Ruth Pierce

- 1) CALL MEETING TO ORDER/CONFIRMATION OF QUORUM
- 2) PLEDGE OF ALLEGIANCE
- 3) PROCLAMATION:
 - a) **PRESENTATION: VIETNAM VETERANS' DAY**
- 4) GENERAL PUBLIC INPUT
- 5) CONSENT CALENDAR
 - a) **ACTION ITEM:** Request to approve the Accounts Payable for March 7 thru March 13, 2019.
By: Amy Luna, Finance Administrative Assistant
 - b) **ACTION ITEM:** Request to approve Wells Fargo Commercial Card for January 2019.
By: Amy Luna, Finance Administrative Assistant
 - c) **ACTION ITEM:** Request to approve the March 11, 2019, City Council Minutes.
By: Amy Luna, Finance Administrative Assistant
- 6) ITEMS OF CONSIDERATION

- a) **ACTION ITEM:** Request for approval to enter into contract with Teton Communications, Inc. for a Trunked Digital P25 UHF Communication System for a total cost of \$670,720.00.
By: Kathy Markus, ITC Manager
- b) **ACTION ITEM:** Request to consider the submission of a grant application for the purchase of a Quick Response Unit (QRU) for the fire department.
By: Mandi Thompson, Grant & Community Relations Manager
- c) **ACTION ITEM:** Request to consider a modified roadway cross-section for Locust Street between North College Rd. E and Falls Ave. E
By: Jackie Fields, City Engineer
- 7) GENERAL INPUT/ADVISORY BOARD REPORT/ANNOUNCEMENTS
- 8) PUBLIC HEARINGS
 - a) **ACTION ITEM:** Request to amend PUD #264 to allow "Hotel" as a permitted use and increase maximum building height to sixty feet (60') for property located at 2151 Fillmore Street c/o EHM Engineers on behalf of Geronimo, LLC. (PZ18-0099)
By: Steve O'Connor, City Planner
- 9) ADJOURNMENT

Any person(s) needing special accommodations to participate in the above-noticed meeting could contact Leila Sanchez (208) 735-7287 at least two working days before the meeting. Si desea esta información en español, llame Leila Sanchez (208) 735-7287.

Public Input Procedures

1. Individuals wishing to provide public input regarding matters relevant to the City of Twin Falls shall:
 - Wait to be recognized by the Mayor or Chairman
 - Approach the microphone/podium
 - State their name, and whether they are a resident or property owner in the City of Twin Falls, and proceed with their input.
2. The Mayor or Chairman may limit input to no less than two (2) minutes. Individuals are not permitted to give their time to other speakers.

Public Hearing Procedures for Zoning Requests

1. Prior to opening the first Public Hearing of the session, the Mayor or Chairman shall review the public hearing procedures.
2. Individuals wishing to testify or speak before the City Council or Planning & Zoning Commission shall wait to be recognized by the Mayor or Chairman, approach the microphone/podium, state their name, and then proceed with their comments. Following their statements, they shall write their name and address on the record sheet(s) provided by the staff. The staff shall make an audio recording of the Public Hearing.
3. A City Staff Report shall summarize the application and history of the request.
4. The Applicant, or the spokesperson for the Applicant, will make a presentation on the application/request (request). No changes to the request may be made by the applicant after the publication of the Notice of Public Hearing. The presentation should include the following:
 - A complete explanation and description of the request.
 - Why the request is being made.
 - Location of the Property.
 - Impacts on the surrounding properties and efforts to mitigate those impacts.
5. Applicant is limited to 15 minutes, unless a written request for additional time is received, at least 72 hours prior to the hearing, and granted by the Mayor or Chairman.
6. The City Council or Planning & Zoning Commission may ask questions of staff or the applicant pertaining to the request.
7. The general public will then be given the opportunity to provide their testimony regarding the request. The Mayor or Chairman may limit public testimony to no less than two (2) minutes per person.
 - Individuals are not permitted to give their time to other speakers.
 - However, five (5) or more individuals that received written notice of the public hearing may appoint, by written petition, a spokesperson. The written petition must be received at least 72 hours prior to the hearing and must be granted by the Mayor or Chairman. The spokesperson shall be limited to 15 minutes.
 - Written comments, including e-mail, received by 12:00 p.m. on the date of the hearing shall be either read into the record or displayed to the public on the overhead projector.
8. Following the Public Testimony, the applicant is permitted five (5) minutes to respond to Public Testimony.
9. Following the Public Testimony and Applicant's response, Council or Commission members, as recognized by the Mayor or Chairman, shall be allowed to question the Applicant, Staff or anyone who has testified. Responses shall be limited to answering the questions asked. The Mayor or Chairman may limit the time permitted for the answer.
10. The Mayor or Chairman shall close the Public Hearing. The City Council or Planning & Zoning Commission shall deliberate on the request. Deliberations and decisions shall be based upon the information and testimony provided during the Public Hearing. Once the Public Hearing is closed, additional testimony from the staff, applicant or public is not allowed. Legal or procedural questions may be directed to the City Attorney.

* Any person not conforming to the above rules may be prohibited from speaking. Persons refusing to comply with such prohibitions may be asked to leave the hearing and, thereafter removed from the room by order of the Mayor or Chairman.

*Office of the Mayor
City of Twin Falls, Idaho*

Proclamation

VIETNAM VETERANS' DAY

WHEREAS, March 29, 1973, marked the end of U.S. involvement in the Vietnam Conflict, after more than a decade of combat; and,

WHEREAS, more than three million American men and women served in Vietnam, and nine million served during the Vietnam conflict, including the Cold War; and,

WHEREAS, the names of more than 58,000 men and women are enshrined on the nation's capitol Vietnam Memorial, including 155 Medal of Honor recipients, and 1600 Missing in Action; and,

WHEREAS, the Twin Falls City Park Memorial honors the names of seventeen Twin Falls County men who lost their lives in duty to country during Vietnam; and,

WHEREAS, the Magic Valley and Twin Falls join hands to honor and respect those who gave so much when the sun did not shine of their service; this day we embrace the action of Americans who placed the needs of country above personal comfort;

NOW, THEREFORE, we do hereby proclaim March 29, 2019, as

Vietnam Veterans' Day

and urge all citizens to participate in the events of the day, as a means of honoring men and women who served their country faithfully and courageously during the Vietnam conflict.

In witness whereof, I have hereunto set my hand and caused this seal to be affixed.

Mayor Shawn Barigar

Deputy City Clerk Leila A. Sanchez

Date: March 18, 2019



Twin Falls City Council Minutes

Monday, March 11, 2019, 5:00 PM

City Council Chambers
203 Main Avenue East- Twin Falls, Idaho

Item 6(g) Added

1) CALL MEETING TO ORDER/CONFIRMATION OF QUORUM

Present: Mayor Shawn Barigar, Vice Mayor Nikki Boyd, Council Members Chris Talkington, Christopher Reid & Ruth Pierce.

Absent: Council Members Greg Lanting & Suzanne Hawkins

Staff Present: City Manager Travis Rothweiler, Deputy City Managers Mitch Humble & Brian Pike, City Attorney Shayne Nope, CFO Lorie Race, AFD Brent Hyatt, P&Z Director Jonathan Spendlove, Fire Chief Les Kenworthy, Police Chief Craig Kingsbury, City Engineer Jackie Fields, Assistant City Engineer Troy Vitek, City Planner Brock Cherry, P&R Director Wendy Davis, Human Resource Director Gretchen Scott, Network Administrator Mike Plane, Finance Administrative Assistant Amy Luna

Mayor Barigar called the meeting to order at 5:05 PM. A quorum was present.

2) PLEDGE OF ALLEGIANCE

Mayor Barigar invited the Girl Scouts Troops 418, 470 & 153 to lead all present, who wished, to recite the Pledge of Allegiance to the Flag.

3) PROCLAMATIONS

- a) **PRESENTATION:** March for Meals - Request made by Jeanette Roe, Twin Falls Senior Center

Mayor Barigar read and presented a Proclamation for March for Meals to Jeanette Roe, Twin Falls Senior Center Director.

- b) **PRESENTATION:** Girl Scout Week 2019 - Request made by Roxanne Ray, Service Unit 19 of the Silver Sage Council

Mayor Barigar read and presented Proclamation for Girl Scout Week 2019 to Roxanne Ray, Service Unit 19 of the Silver Sage Council.

4) GENERAL PUBLIC INPUT: None

5) CONSENT CALENDAR

MOTION: Vice Mayor Boyd moved to approve the Consent Calendar as presented. Council Member Reid seconded the motion. Roll call vote showed all members present voted in favor of the motion. 5 to 0.

- a) **ACTION ITEM:** Request to approve the March 4, 2019, City Council Minutes.
- b) **ACTION ITEM:** Request to approve the Accounts Payable for February 28 thru March 6, 2019.

6) ITEMS OF CONSIDERATION

- a) **PRESENTATION:** Presentation for retiring Chairman of the Planning and Zoning Commission: Gerardo "Tato" Munoz.

P&Z Director Spendlove made a presentation of appreciation for retiring Chairman of the Planning & Zoning Commission Gerardo "Tato" Munoz.

Mayor Barigar, Vice Mayor Boyd and Council Member Reid thanked Mr. Munoz for his service

- b) **PRESENTATION:** The Twin Falls Fire Department would like to recognize the achievements of Firefighter Austin Sharp who has successfully completed his Twin Falls Fire Department Firefighter II certification.

Fire Chief Kenworthy made a presentation of achievement to Firefighter Austin Sharp who has successfully completed his Twin Falls Fire Department Firefighter II certification.

Mayor Barigar congratulated Mr. Sharp and thanked him for his dedication and continued commitment to serving the citizens of Twin Falls.

- c) **PRESENTATION:** The Twin Falls Fire Department would like to recognize five new Twin Falls Fire Department Firefighters for their completion of TFFD's Academy Graduation, taking their firefighter oath, and pinning of their badges. We also have two firefighters that were hired in 2018 that are still in their introductory year. They will also be taking their oath, and pinning of their badges.

Fire Chief Kenworthy and Fire Training Captain Bloxham made a presentation to the five new Twin Falls Fire Department Firefighters for their completion of TFFD's Academy Graduation, taking their firefighter oath, and pinning of their badges.

Mayor Barigar thanked all for their commitment to the citizens of Twin Falls

- d) **PRESENTATION:** A presentation of the City of Twin Falls' 2018 audited financial statements. The presentation will be made by Scott Hunsaker of Mahlke Hunsaker & Company, PLLC.

Chief Financial Officer Race introduced Scott Hunsaker of Mahlke Hunsaker & Company, PLLC who made a presentation of the City of Twin Falls' 2018 audited financial statement.

Discussion ensued on the following:

Council Member Talkington: How do we get a better bond rating?

City Manager Rothweiler: Explained the ratings process related to the bonds.

Mayor Barigar thanked Mr. Hunsaker for his presentation.

- e) **ACTION ITEM:** Request to adopt Ordinance 2019-002 to approve a Zoning Title Amendment to repeal and replace City Code 10-11-19 Floodplain Regulations (A through E).

City Planner Cherry made a request to adopt Ordinance 2019-002 to approve a Zoning Title Amendment to repeal and replace City Code 10-11-19 Floodplain Regulations (A through E).

Discussion ensued on the following: None

MOTION: Council Member Talkington moved to suspend the rules and place Ordinance 2019-002 on third and final reading by title only. **Vice Mayor Boyd** seconded the motion. Roll call vote showed all members present voted in favor of the motion. 5 to 0.

Mayor Barigar read Ordinance 2019-002 by title only:

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF TWIN FALLS, IDAHO, AMENDING TWIN FALLS CITY CODE BY REPEALING AND REPLACING §10-11-9 WITH A NEW SECTION PROVIDING FOR NEW REQUIREMENTS AND DEFINITIONS RELATED TO FLOODPLAIN REGULATIONS.

MOTION: Vice Mayor Boyd moved to approve the request to adopt Ordinance 2019-002 to approve a Zoning Title Amendment to repeal and replace City Code 10-11-19 Floodplain Regulations (A through E). **Council Member Pierce** seconded the motion. Roll call vote showed all members present voted in favor of the motion. 5 to 0.

- f) **ACTION ITEM:** Request to adopt Ordinance 2019-003 to vacate an undeveloped portion of Washington Street South right-of-way located at the Southwest corner of Washington Street South and South Park Avenue West c/o the Engineering Department on behalf of the City of Twin Falls. (PZ18-0093)

Planning & Zoning Director Spendlove made a request to adopt Ordinance 2019-003 to vacate an undeveloped portion of Washington Street South right-of-way located at the Southwest corner of Washington Street South and South Park Avenue West c/o the Engineering Department on behalf of the City of Twin Falls. (PZ18-0093).

Discussion ensued on the following: None

MOTION: Vice Mayor Boyd moved to suspend the rules and place Ordinance 2019-003 on third and final reading by title only. **Council Member Reid** seconded the motion. Roll call vote showed all members present voted in favor of the motion. 5 to 0.

Mayor Barigar read Ordinance 2019-003 by title only:

AN ORDINANCE OF THE MAYOR AND THE CITY COUNCIL OF THE CITY OF TWIN FALLS, IDAHO, **VACATING RIGHT-OF-WAY** THE REAL PROPERTY DESCRIBED BELOW AND PROVIDING FOR VESTING OF TITLE TO THE PROPERTY SO VACATED.

MOTION: Council Member Talkington moved to approve a request to adopt Ordinance 2019-003 to vacate an undeveloped portion of Washington Street South right-of-way located at the Southwest corner of Washington Street South and South Park Avenue West c/o the Engineering Department on behalf of the City of Twin Falls. (PZ18-0093). **Council Member Pierce** seconded the motion. Roll call vote showed all members present voted in favor of the motion. 5 to 0.

- g) **ACTION ITEM:** Request for reconsideration of the Twin Falls City Council's decision on February 11, 2019, affirming the Improvement Reimbursement Commission's decision to approve Gerald Martens' application for reimbursement.

Vice Mayor Boyd recused herself from this item.

City Attorney Nope made a request for reconsideration of the Twin Falls City Council's decision on February 11, 2019, affirming the Improvement Reimbursement Commission's decision to approve Gerald Martens' application for reimbursement.

Discussion ensued on the following:

Council Member Talkington: Asked for clarification of the actions needed tonight. Spoke in favor of the reconsideration.

MOTION: Council Member Talkington moved to approve the request for reconsideration of the Twin Falls City Council's decision on February 11, 2019, affirming the Improvement Reimbursement Commission's decision to approve Gerald Martens' application for reimbursement. No second on the motion. Motion failed.

7) GENERAL INPUT/ADVISORY BOARD REPORT/ANNOUNCEMENTS

City Manager Rothweiler advised Council that they are looking at cancelling the meeting on March 25, 2019.

8) PUBLIC HEARINGS

- a) **ACTION ITEM:** Request to adopt Resolution 19-004 to raise vehicle fees at Shoshone Falls/Dierkes Lake Parks to \$5.
Parks & Recreation Director Davis made a request to adopt Resolution 2019-004 to raise vehicle fees at Shoshone Falls/Dierkes Lake Parks to \$5.

Discussion ensued on the following:

Vice Mayor Boyd: Spoke about the costs related to the park.

Council Member Reid: Asked about the taking of credit cards.

Council Member Pierce: Clarified that the fee increase is limited to vehicles.

Council Member Reid: Asked about the possibility of prepaying.

Council Member Talkington: Spoke in favor of the increase.

Mayor Barigar: Spoke in favor of the increase.

Council Member Reid: Spoke in favor of the increase.

Public Discussion: None

MOTION: **Council Member Talkington** moved to approve the request to adopt Resolution 2019-004 to raise vehicle fees at Shoshone Falls/Dierekes Lake Parks to \$5. **Vice Mayor Boyd** seconded the motion. Roll call vote showed all members present voted in favor of the motion. 5 to 0.

9) ADJOURNMENT

The meeting adjourned at 06:35 PM



Date: Monday, March 18, 2019
To: Honorable Mayor and City Council
From: Kathy Markus, Information Services, ITC Manager

ACTION ITEM

Request:

ACTION ITEM: Request for approval to enter into contract with Teton Communications, Inc. for a Trunked Digital P25 UHF Communication System for a total cost of \$670,720.00.

Time Estimate:

10 Minutes

Background:

On January 2nd, the council agreed to have staff enter into contract negotiations with Teton Communications, Inc. for the upgrade of our existing radio system to a Trunked P25 Digital System for Police and Fire services. Teton Communications had the highest score as a result of the bid process. Federal Engineering was approved on November 5th 2018 to assist with these negotiations.

The contract has been reviewed and modified internally by the City Manager, Public Safety Deputy City Manager, Police Chief, Fire Chief, Dispatch Communication Manager, the City Attorney. The contract has also been reviewed and modified by Federal Engineering. Points of contention were discussed and the contract was modified to its current state which meets both the needs of the City and the contractor requirements.

The digital system will remain on the 450 UHF system. The majority of our surrounding agencies use this frequency. For the past several years, all of the radios and repeaters that we have purchased are compatible with the analog system and with an upgrade they are compatible with the digital system. We will be using our existing towers, antennas, and combiners. This past preparation greatly reduces the cost of the Trunked P25 Digital System.

The proposed system will provide the following advantages:

- Radio users will be able to communicate with radio users on other towers without having to manually change channels
- Radios can be programmed with emergency button when reprogramming
- Radio users will receive a confirmation tone when connected
- An alert beep tells if the radio is not registered
- Radio users are identified, if an officer is requesting assistance, we will know who is in need of help
- If one repeater drops, connectivity is not dropped, there will be 1 less conversation
- Existing conversations do not allow interference
- No background noise
- Existing radios can be utilized
- Existing infrastructure can be repurposed
- Existing Quantar Repeaters can be used as cold backup equipment

- The system can easily integrate with SIRCOMM
- The radios can be programmed by our staff
- Talk groups and communication settings can be custom configured
- No yearly provider fees
- Easy to manage
- Channels can be added without having to add radios or antennas
- Technical radio problems are identified faster based on radio ID
- The system will have the same coverage and penetration as our existing system
- When coverage is added, the radios do not need to be reprogrammed
- Digital P25 scanners are required for the public to hear the conversations
- Encryption does not decrease the radio range as with analog.

Approval Process:

Majority Council Vote

Budget Impact:

\$562,840 Reserves

\$ 66,000 101-20-10-442-00

\$ 3,500 Parks Fund

\$38,380 911 Funds

(Parks is purchasing 3 radios under this contract to take advantage of the discounted pricing.)

Regulatory Impact:

N/A

History:

N/A

Analysis:

N/A

Conclusion:

This is an exciting opportunity for us to reach the goal that was set many years ago for the public safety division. The city public safety employees are often involved in incidents that are life threatening. During these incidents, it is critical that communication is clear and that the end user is easily identifiable. A properly installed 450 UHF Trunked P25 Digital System Upgrade will enhance our existing system to provide a safer experience for our employees. Using new equipment and leveraging our existing equipment will minimize the total cost of the upgrade. This contract with Teton Communications will meet the desired goals.

Attachments:

1. Twin Falls Communication System Contract 20190308 -Optimized



Teton Communications Inc.
Communication System
Agreement
March 18, 2019



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1 TERMS OF SUPPLY TO CUSTOMERS

1.1 These terms apply between Teton Communications Inc. ("Teton") and The City of Twin Falls ("Customer") for purpose of Proposal #IT201801, who enter into this Communications System Agreement (the "Agreement"), effective as of the last date signed below (the "Effective Date"), pursuant to which Customer will purchase and Teton will provide Customer with a Trunked Digital P25 Communications System, all necessary interfaces, and system options.

2 WRITTEN ASSENT TO ADDITIONAL TERMS REQUIRED

2.1 These terms, with any special conditions specified by Teton, shall prevail over all others proposed by the Customer. Any additional or different terms and conditions proposed by Customer are hereby rejected and shall be of no force or effect unless expressly assented to in writing by Teton. No contract shall be formed except upon the terms and conditions contained herein or assented to in writing by Teton.

3 EXHIBITS

3.1 The Exhibits below are hereby incorporated into and made a part of this Agreement. In interpreting this Agreement and resolving any ambiguities, the main body of this Agreement will take precedence over the Exhibits.

3.2 Exhibit A, Teton technical and implementation documents including but not limited to:

- System Description
- Statement of Work
- City's Responsibility
- Equipment List
- Project Implementation Plan
- Frequency Plan
- Pricing

3.3 Exhibit B, Manufacturer's Limited Warranties (hardware).

3.4 Exhibit C, Acceptance Test Plans.

4 DEFINITIONS

4.1 Capitalized terms used in this Agreement and not otherwise defined within the Agreement have the following meanings:



4.2 “Communications System” or “System” is the communications system described in the item by item response, including the Equipment and Software described in System Description, Statement of Work, Acceptance Test Plan and Equipment List.

4.3 “Equipment” is the equipment specified in the Equipment List included in Exhibit A. Equipment includes infrastructure and user equipment (mobile, portables).

4.4 “Manufacturer Software” is software whose copyright is owned by the specific Manufacturer.

5 SCOPE OF AGREEMENT

5.1 SCOPE OF WORK

Teton will assemble and integrate the Equipment and Software, and deliver, install commission and test the Communications System, as specified in the statement of work (Exhibit A) and the proposal item-by-item response and in accordance with this Agreement. Customer will perform its responsibilities as specified in Exhibit A and in accordance with this Agreement. If there are discrepancies between the statement of work and the proposal item-by-item response, the statement of work will take precedence.

5.2 CHANGE ORDERS

Either party may request changes within the general scope of this Agreement. If a requested change causes an increase or decrease in the cost of or time required for the performance of this Agreement, Teton and Customer will agree to an equitable adjustment in the Agreement price or performance schedule, or both. Teton is not obligated to comply with requested changes unless and until both parties execute a written change order.

5.3 ADDITIONAL PRODUCTS

Until July 1, 2019, Customer may submit purchase orders for additional System Network and Control Equipment, which is currently available at the time of order. Until July 1, 2019, Customer may submit purchase orders for “other” additional Equipment, including: Handheld and Mobile Subscriber Equipment, which is currently available at the time of order. Each purchase order must specifically refer to this Agreement and will be an offer by Customer subject to Teton’s acceptance. Pricing shall be in accordance with the Equipment List and Pricing schedule in this Agreement. Sale of additional products shall be subject to the terms and conditions of this agreement. Any products offered by Teton that are not listed in the Equipment List, the Customer may purchase from Teton under this contract at a discounted price of 15% off the then published list price. Customer and Teton agree that payment for all additional products so purchased will be due within thirty (30) days after the date of Teton’s invoice for the products.



5.4 SOFTWARE

Any Software furnished will be licensed to Customer solely according to the terms and restrictions as provided by the Manufacturer. Software use (excluding source code) (whether embedded or installed in the Equipment) is solely intended for use with the Equipment during the useful life of such Equipment, as they may be repaired or modified from time to time.

5.5 SOFTWARE LIMITED WARRANTY

See the Manufacturer's Warranty Statements.

5.6 WARRANTY

Teton shall warrant that all goods and services supplied, systems, equipment, software and work shall conform to and perform as called for in the Contract and shall be free from all defects and faulty materials and workmanship. Any services supplied, systems, equipment, or work found to be defective within the Warranty periods described herein shall be repaired, remedied, or replaced, by the Contractor, free of all charges including transportation and incidentals. Teton shall provide to the City a warranty of three years on fixed system infrastructure. With the exception of spare parts, the warranty period for all services, systems and equipment, shall commence on the date of final acceptance of the system. The warranty period for spare parts provided under this contract shall extend either until one year from the placement of each spare part into regular service or until one year after the expiration of the system warranty period, whichever occurs first. Teton shall maintain the appropriate quantities and types of spare parts to support its warranty obligations. In the event that it is necessary to place any spare part or equipment spare purchased by the City into operation or service in support of this warranty obligation during the warranty period, Teton shall replace the spare part and / or spare equipment at no cost to the City. Teton shall provide a copy of the equipment and software warranty(s) as part of the deliverable documentation required by this Contract prior to the start of any warranty period.

5.7 COPYRIGHT

Copyright in all supplied documents (including drawings and software) furnished to the Customer for the purposes of the Contract shall at all times remain vested in the Manufacturers, Suppliers or their licensors. NO TITLE OR OWNERSHIP RIGHTS TO THE SOFTWARE OR ANY OF ITS PARTS IS TRANSFERRED TO CUSTOMER. The Customer undertakes throughout the term of this Contract and after termination of this Contract to not copy, (other than for back-up purposes authorized by Teton), alter, reverse engineer, modify, enhance, compile, disassemble, license, sub-license, lease, sell, assign or reproduce any software, (whether in whole or in part) supplied under this Contract and to write or develop any derivative software or any other software programs based upon the Software. The Software shall not be used for any purpose other than operation and maintenance of the Equipment.



5.8 CONFIDENTIALITY

Data and information embodied in such documents, drawings, and software or in hardware shall be held in confidence by the Customer and shall not be disclosed to third parties nor used for any purpose other than operation and maintenance of the Equipment. The Customer shall take reasonable measures to protect confidentiality and will not cause or permit anything, which may damage or endanger Teton's or its supplier's goodwill, trademarks or intellectual property in the software or Equipment.

5.9 INJUNCTIONS

The Customer acknowledges that Teton and Teton's Suppliers intellectual property in the software and Equipment is unique and extraordinary and the Customer agrees that the loss thereof cannot adequately be compensated by damages and that without limiting Teton and Teton's Suppliers remedies Teton and Teton's suppliers shall be entitled to injunctive relief to enforce the provisions applicable to this Contract.

5.10 COPYRIGHT OWNER

Any Software furnished by Teton will be subject to the terms and restrictions of its copyright owner unless such copyright owner has granted to Teton the right to sublicense such Software, in which case said software's use and care shall be as provided in section 4.4 et seq.

5.11 PERFORMANCE SCHEDULE

Task	02/19	03/19	04/19	05/19	06/19	07/19	08/19	09/19	10/19	11/19	12/19	1/20
System Award & Contracting 2-4 Weeks												
System Design Approval, Order Entry, and Site Inspections 2-4 Weeks												
Equipment delivery and staging and User Group Meetings 6-12 Weeks												
Equipment Installation and Testing (Twin Falls Location) 4-6 Weeks												
Equipment Installation and Testing (Gun Range Location) 4-6 Weeks												
Avec Console Upgrade 2-4 Weeks												
Project/Talk Group Plan Finalization 2-4 Weeks												
2-Way Radio Upgrade and Programming 2-4 Weeks												
Final Testing Agency Cutover 4-8 Weeks												



User / Admin Training 6-12 Weeks												
Warranty Support 3 Years												

5.12 MAJOR MILESTONES

Teton and Customer agree to perform their responsibilities in accordance with the Schedule included in the Statement of Work and the proposal. Although the Statement of Work controls, the major milestones of the Schedule are briefly summarized as follows:

- 5.12.1 Detailed System Design
- 5.12.2 Execution of this Agreement
- 5.12.3 Factory Acceptance Testing
- 5.12.4 Shipment of Equipment
- 5.12.5 Installation of Equipment
- 5.12.6 System Commissioning
- 5.12.7 System Training and User Training
- 5.12.8 Field Acceptance (as applicable)
- 5.12.9 Final System Acceptance.

5.13 AGREEMENT EXECUTION

By executing this Agreement, Customer authorizes Teton to proceed with the engineering, manufacture, assembly, integration, delivery, installation, and commissioning of the Communications System. No further notice to proceed, purchase order, authorization, resolution, or any other action will be required.

6 PAYMENT SCHEDULE

6.1 The total not to exceed contract price excluding mobiles and handhelds is \$670,730. Customer agrees to make payments to Teton within thirty (30) days after the date of invoices unless otherwise stated. Invoices will include the amount billed and designate the milestone for each total. Teton will submit invoices according to the following payment schedule:

- 6.1.1 15% of the total contract materials will be invoiced and due immediately upon the parties' execution of this Agreement;



6.1.2 90% of the actual labor performed to install radio equipment and or options and accessories will be invoiced immediately upon the completion of each task.

6.1.3 75% of the total contract equipment price will be invoiced immediately upon receipt of the Equipment at Teton.

6.1.5 10% of the total contract price will be invoiced immediately upon Final System Acceptance (See Section 9 and Exhibit A for acceptance definitions and procedures.)

6.2 Overdue invoices will bear interest at a rate of 1.25% simple interest per month, unless such rate exceeds the maximum allowed by law, in which case it shall be reduced to the maximum allowable rate.

6.3 All freight charges will be paid by Teton.

6.4 No payment may be withheld by the Customer by way of set-off (legal, equitable or otherwise) against any sums owed to Teton.

7 COMMISSIONING AND SITE CONDITIONS

7.1 In addition to its responsibilities described in the Statement of Work, Customer agrees to provide a designated project director, procure any necessary construction permits, building permits, zoning variances and the like, provide access to the sites identified in the Exhibits as requested by Teton, and have such sites available for commissioning of the Equipment by Teton in accordance with the performance schedule and Statement of Work.

7.2 If Customer and Teton determine that any change in sites, site availability, installation plans, or specifications will require an adjustment in the contract price or in the time required for the performance of this Agreement, the parties will agree to an equitable adjustment in the price, performance schedule, or both; and this Agreement will be modified in accordance with Section 4.2 of this Agreement.

8 TRAINING

8.1 Since training is included in this Agreement, Customer agrees to notify Teton immediately if a date change for a scheduled training program is required. A charge may apply to a training program rescheduled by Customer less than fifteen (15) days prior to its scheduled start date.

9 SYSTEM ACCEPTANCE

9.1 Teton will test the Communications System in accordance with the Acceptance Test Plan. Exhibit C includes a separate ATP for each of the following as applicable:

9.1 Acceptance Testing (Exhibit C),



9.2 At each stage of acceptance testing:

9.2.1 If the Acceptance Test Plans include separate tests for individual subsystems, both parties shall promptly execute certificates of subsystem acceptance upon the successful completion of testing of such subsystems, and the payment milestones in Section 6 may be applied to subsystems separately.

9.2.2 Minor omissions or variances in performance, which do not materially affect the operation of the Communications System as a whole, will not postpone acceptance.

9.2.3 Customer and Teton will jointly prepare a list of such omissions and variances which Teton will correct according to an agreed upon schedule.

9.3 Final System Acceptance will occur upon the successful completion of such testing, when all omissions and variations are resolved, punch list are resolved, as-built and system documentation is received, and training is completed. At that time, both parties shall promptly execute a certificate of system acceptance.

9.4 Teton agrees to notify Customer when the Communications System is ready for acceptance testing. Teton and Customer agree to commence acceptance testing within ten (10) business days after receiving such notification. If testing is delayed for reasons within the control of Customer or its contractors, agents and consultants for more than ten (10) business days after notification, final payment will be due within twenty (20) days after such notification and the Warranty Period will commence immediately.

9.5 Teton may, but is not obligated to, issue written authorization for Customer's use of the Communications System or its subsystem(s) for limited training or testing purposes, prior to the completion of testing by Teton. Any use of the Communications System without prior written authorization by Teton shall constitute System Acceptance.

9.6 Any use of the Communications System or its subsystems by Customer, following a purported notification that the System is not operating properly or is deficient in any aspect or performance shall constitute System Acceptance.

10 FCC LICENSES AND AUTHORIZATIONS

10.1 Customer agrees to obtain all Federal Communications Commission ("FCC") licenses and authorization forms required for installation and use of the Communications System prior to the scheduled commissioning of the Equipment. Teton will complete all license application forms, and Teton may act as an agent or representative of Customer in FCC matters, if Customer so desires. Teton will be required to complete FAA and FCC forms as necessary and provide the forms to the City for review and approval. The City will execute and submit all forms following approval. The licenses will be



issued to the Customer who ultimately responsible for all FCC licenses and for complying with FCC rules, using Teton's assistance.

11 DEFAULT

11.1 If the Customer breaches any provision of this or any other contract with Teton (and such breach is not remedied within 30 days of notice of the breach by Teton to the Customer) or suffers distress or execution on the equipment, or commits an act of bankruptcy, makes arrangements with creditors or goes into liquidation or receivership (except for amalgamation or reconstruction), ceases or threatens to cease trading, Teton may (without affecting any other claim or remedy) suspend performance or terminate this or any other contract between Teton and the Customer by written notice and shall be entitled to be paid for goods already delivered, and work-in-progress (including software generated but not supplied), at a rate reasonably based on the Contract Price.

12 LIMITED WARRANTY

12.1 Teton makes no warranty or representation with respect to any of the supplied products, except those made under the Manufactures standard warranties. Copies of warranties are annexed hereto as Exhibit B. Copies of warranties from other Equipment suppliers are available on request. Customer shall not in any manner make any representation intended to alter or amend said warranties.

12.2 Warranty repairs shall only be undertaken by an Authorized Warranty Service Centers unless specifically authorized in writing by Teton or the Manufacturer. In cases where Teton authorizes the Customer to undertake warranty repairs, Teton will replace faulty components free of charge. No reimbursement will be made with respect to labor.

13 INDEMNIFICATION

13.1 GENERAL INDEMNITY

Teton agrees to and hereby indemnifies and saves Customer harmless from all liabilities which may accrue against Customer on account of direct physical damage to tangible property or personal injury to the extent the damage or injury is caused by Teton's negligence or recklessness, or that of its employees, subcontractors, or agents while on the Customer's premises during the delivery, commissioning, or testing of the Communications System pursuant to this Agreement

Customer agrees to and hereby indemnifies and saves Teton harmless from all liabilities which may accrue against Customer on account of direct physical damage to tangible property or personal injury to the extent the damage or injury is caused by Teton's negligence or recklessness, or that of its employees, subcontractors, or agents while on the Customer's premises during the delivery, commissioning, or testing of the Communications System pursuant to this Agreement



13.2 PATENT AND COPYRIGHT INFRINGEMENT

Teton or Teton's Suppliers will defend, at their own expense, any suit brought against the Customer to the extent that it is based on a claim that the Equipment or Software infringe a United States patent or copyright, and Teton or Teton's Suppliers will pay those costs and damages finally awarded against the Customer in any such suit which are attributable to any such claim, but such defense and payments are conditioned on the following:

- i) Teton must be notified promptly in writing by Customer of any notice of such claim;
- ii) Teton will have sole control of the defense of such suit and all negotiations for its settlement or compromise; and
- iii) should the Equipment or Software become, or in Teton's opinion be likely to become, the subject of a claim of infringement of a United States patent or copyright, Customer will permit Teton, at its option and expense, either to procure for Customer the right to continue using the Equipment or Software or to replace or modify the same so that it becomes non-infringing or to grant Customer a credit for the Equipment or Software as depreciated and accept its return. The depreciation amount will be based upon generally accepted accounting standards for such Equipment and Software. Teton will have no liability with respect to any claim of patent or copyright infringement which is based upon the combination of the Equipment or Software furnished hereunder with software, apparatus or devices not furnished by Teton, nor will Teton have any liability for the use of ancillary equipment or software not furnished by Teton which is attached to or used in connection with the Equipment. The foregoing states the entire liability of Teton with respect to infringement of patents and copyrights by the Equipment and Software or any parts thereof.

13.3 TETON'S INDEMNIFICATION

Teton's indemnification of Customer under this Section will be the full extent of Teton's indemnification of Customer from liabilities that are in any way related to Teton's performance under this Agreement.

14 LIMITATION OF LIABILITY

14.1 Notwithstanding any other provision to this Agreement, except for personal injury or death, Teton's total liability, whether for breach of contract, warranty, negligence, strict liability in tort, indemnification, or otherwise, will be limited to the direct damages recoverable under law, but not to exceed the price of the Equipment or services with respect to which losses or damages are claimed. IN NO EVENT WILL TETON BE LIABLE FOR ANY LOSS OF USE, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS, LOST PROFITS OR SAVINGS, OR OTHER SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES IN ANY WAY RELATED TO OR ARISING FROM THIS AGREEMENT, THE SALE OR USE OF THE EQUIPMENT, OR THE PERFORMANCE OF SERVICES BY TETON PURSUANT TO THIS AGREEMENT. This Limitation of Liability



will survive the expiration or termination of this Agreement. No action for a breach of this Agreement or otherwise relating to the transactions contemplated by this Agreement may be brought more than one year after the accrual of such cause of action except for money due upon an open account.

14.2 To the maximum extent permitted by law, the parties agree that ALL TERMS IMPLIED BY LAW INCLUDING ANY WARRANTY OR CONDITION AS TO MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF THE EQUIPMENT ARE HEREBY EXCLUDED.

14.3 The Customer acknowledges that it uses the Equipment for public Safety purposes and therefore agrees that all consumer protection terms implied by law shall not apply.

14.4 The Customer warrants that it has not relied on any representation made by Teton which has not been stated expressly in this Contract or upon any catalogs or publicity material and no statement made or agreed and no liability undertaken orally shall be binding upon Teton unless confirmed by Teton in writing.

14.5 The standard equipment is not designed or intended for use in on-line control of aircraft, air traffic, aircraft navigation or aircraft communications; intrinsically safe environments (unless intrinsically safe equipment is specifically ordered and supplied and used in accordance with the supplied instructions) or in the design, construction, operation or maintenance of any nuclear facility. Teton disclaims any express or implied warranty of fitness for such uses. The Customer will not use or resell Products for such purposes.

14.6 The Customer acknowledges that any software supplied cannot be tested in every possible permutation and accordingly Teton does not warrant that software supplied will be free of all defects or that its use will be uninterrupted.

15 DELIVERY & RETURN OF EQUIPMENT

15.1 Equipment supplied by Tait Electronics shall be EXW Houston, Texas.

15.2 Equipment supplied by Etherstack shall be EXW (Incoterms) Seller's facility New York, New York.

15.3 Equipment supplied by other Vendors shall be EXW their facilities in the USA.

15.4 No claim for shortage, out of box failures or damage in respect of Equipment delivered will be considered unless received in writing by Teton within 7 days from the earlier of the date of receipt of the Equipment by the Customer or by a third party on the Customer's behalf.

15.5 If Teton, at its sole discretion, agrees to accept the return of products for credit, a restocking fee of 25% of the invoiced value may apply.

15.6 No products or equipment will be accepted for credit after 30 days from the date of receipt at Teton under any circumstances.



16 DELAYS/CANCELLATION

16.1 Successful project implementation will require cooperation and fairness between the parties. Because it is impractical to provide for every contingency, which may arise during the course of performance of this Agreement, the parties agree to notify the other if they become aware that any condition will significantly delay performance. The parties will agree to reasonable extensions of the project schedule by executing a written change order. In the event Teton's performance is delayed by acts of the Customer, Teton shall be entitled to an adjustment for time and expenses resulting there from in addition to an extension of time and of performance.

16.2 Under no circumstances will either party be responsible for delays or lack of performance resulting from events beyond the reasonable control of that party ("Excusable Delays"). Such events include, but are not limited to, acts of God, weather conditions, compliance with laws and regulations (excluding Customer's failure to properly and timely apply for all required FCC licenses), governmental action, bid protests, fire, strikes, lock-outs, and other labor disruptions, material shortages, riots, acts of war, and an Excusable Delay of a Teton subcontractor or supplier. In the event of a delay, the performance schedule will be updated to reflect the delay and set proper project completion expectations.

16.3 Customer will make available to Teton the sites when scheduled and Customer will not otherwise unreasonably delay or prevent Teton's performance of its responsibilities. In the event of a Customer delay during the time of shipment, Teton may ship the equipment as scheduled to a location as designated by the Customer or if no such location is designated, a Teton designated storage facility for which Customer agrees to pay all fees. If Customer delays Teton's performance, the performance schedule will be extended, the Customer will make the milestone payments as if no delay occurred, and the parties will execute a Change Order to compensate Teton for reasonable charges incurred because of such delays. Such charges include, but are not limited to, costs incurred by Teton and/or its subcontractors for additional freight, warehousing and handling; suspending and re-mobilizing the work; additional engineering and standby time calculated at then current man-day rates; and preparing and implementing a "work around" plan.

16.4 Customer cancellation of any order will be by mutual written agreement of the parties only. If Customer proposes in writing to cancel all or part of any contract for purchase, and Teton agrees in writing to the cancellation, work on the specified cancellation shall be stopped as quickly as is practical.

16.5 In the event the Customer cancels an order, the Customer will make payment to Teton in an amount equal to:

16.5.1 For work in process, a percentage of the sales price based on the work completed up to the time of cancellation and work is stopped.



16.5.2 For custom work and/or work that includes unique materials that cannot reasonably be used in normal production or sold to other Teton Customers in a reasonable period of time, then the cancellation fee may be up to 100% of the order value of the custom work and/or materials.

16.5.3 For work completed at the time of cancellation and the equipment is standard Teton product and can be sold to other Teton Customers in a reasonable period of time, the Teton restocking policy shall apply.

16.5.4 For custom work completed and/or work that includes unique materials that cannot be sold to other Teton Customers in a reasonable period of time, then the cancellation fee may be 100%.

17 DISPUTES

17.1 Teton and Customer will attempt to settle any claim or controversy arising from this Agreement through consultation and negotiation in good faith and a spirit of mutual cooperation. If those attempts fail, the dispute will be mediated by a mediator chosen jointly by Teton and Customer within thirty days after notice by one of the parties demanding non-binding mediation. Neither party may unreasonably withhold consent to the selection of a mediator, and Teton and Customer will share the cost of the mediation equally. The parties may postpone mediation until they have completed some specified but limited discovery about the dispute. The parties may also replace mediation with some other form of non-binding alternate dispute resolution ("ADR") procedure.

17.2 Any dispute that cannot be resolved between the parties through negotiation or mediation within two months after the date of the initial demand for non-binding mediation may then be submitted by either party to court. If it is necessary to institute a legal proceeding with respect to the terms or performance of the Contract, the parties hereby agree to submit such dispute to the jurisdiction of the courts located in Twin Falls County, Idaho, USA and applicable appeals courts of the trial court (regardless of where physically situated) which shall be the exclusive forum and venue for resolution of any such disputes. The use of any ADR procedures will not be considered under the doctrine of laches, waiver, or estoppel to affect adversely the rights of either party. Either party may resort to the judicial proceedings described in this paragraph prior to the expiration of the two-month ADR period if (a) good faith efforts to attempt resolution of the dispute under these procedures have been unsuccessful or (b) interim relief from the court is necessary to prevent serious and irreparable injury to such party or any of its affiliates, agents, employees, Customers, suppliers, or subcontractors.



18 GENERAL

18.1 TITLE AND RISK OF LOSS

Title to equipment supplied under this agreement shall pass to the Customer upon full payment to Teton for such equipment. Risk of loss to the Equipment will pass to the Customer upon delivery of the Equipment, except that title to Software will not pass to the Customer at any time.

18.2 DISCLAIMER OF LICENSE

Except as explicitly provided in the Manufacturer Software License Agreements, nothing in this Agreement will be deemed to grant, either directly or by implication, estoppel, or otherwise, any license or right under any patents, patent applications, copyrights, trademarks, trade secrets or other intellectual property of Teton or Teton's Suppliers.

18.3 NOTICES

Notices authorized or required under this Agreement must be in writing and sent to the below addresses:

To Customer:

City of Twin Falls
C/O Kathy Markus
P.O. Box 1907
Twin Falls, ID 83303-1907

To Teton:

Teton Communications Inc.
C/O Tony Hafla
545 South Utah Circle
Idaho Falls, ID 83402



18.4 NOTICE IN WRITING

Any notice required or contemplated by this Contract shall be in writing, delivered in person, by tested telex, by facsimile or by registered mail with return receipt requested, addressed to the parties at their addresses hereinabove set forth, or at such other address as may from time to time be substituted therefore by notice in writing sent by the party changing its address.

18.5 NO WAIVER

Failure or delay on the part of Teton or Customer to exercise any right, power, or privilege hereunder shall not operate as a waiver. If any provision of this Agreement is contrary to, prohibited by or held invalid by any law, rule, order, or regulation of any government or by the final determination of any state or federal court, such invalidity shall not affect the enforceability of any other provisions not held to be invalid. Section and paragraph headings used in this Agreement are for convenience only and are not to be used to construe the provisions of this Agreement.

19 ASSIGNMENT

19.1 BINDING

The Agreement shall accrue to the benefit of and be binding upon the parties hereto and any successor entity into which either party shall have been merged or consolidated or to which either party shall have sold or right to receive payment, without the prior consent of Customer. This Agreement shall not be otherwise assigned by either party without the prior written consent of the other party. There shall be no assignment of any Software license given hereunder. In conjunction with any agreed to assignment of this Agreement, Teton agrees to license the assignee pursuant to the terms set forth in Exhibit A, subject however to the terms, conditions and requirements of Exhibit A. A new License Fee may be required.

19.2 SUBCONTRACT

Teton retains the right to subcontract, in whole or in part, any effort required to fulfill its obligations under this Agreement.

19.3 GOVERNING LAW

This Contract shall be governed and construed in accordance with the laws of Idaho Falls, Idaho, USA. Any US or state conflict of law rule that may require reference to the laws of some other country or state shall be disregarded, the result being that Idaho substantive law will control the issue.

19.4 CONFIDENTIAL INFORMATION

Customer will not disclose any material or information identified as proprietary and confidential to third parties without prior written permission, unless Teton or Teton's Supplier makes such material or information public or law requires disclosure. If Customer is required by law to disclose such material or information, Customer will notify Teton prior to such disclosure.



19.5 TAXES

The purchase price does not include any amount for federal, state, or local excise, sales, lease, service, rental, use, property, occupation, or other taxes, all of which (other than federal, state, and local taxes based on Teton's income or net worth) will be paid by Customer except as exempt by law. Idaho Use Tax is specifically noted as a tax Teton is not collecting, and that the Customer may be liable for this Use Tax. This is not a Public Works Contract and is therefore not subject to the associated taxes and reporting normally imposed by such a project. Customer will be solely responsible for reporting the Equipment for personal property tax purposes. This Contract does not include taxes, as this contract is not subject to taxation. In the event taxes become due, Customer shall pay the same.

20 TERRITORIAL RESTRICTIONS

20.1 RE-EXPORT

The Customer shall not without the express written approval of Teton (which shall not be unreasonably withheld) export or use the Equipment, or sell or hire it to a person who to his knowledge intends to export or use it, outside the country of intended use as declared to Teton. The Customer undertakes to comply with United States re-export control restrictions where applicable.

20.2 PAYMENTS

If export or import restrictions are imposed or export or import licenses are cancelled, withdrawn or not renewed, then the Customer shall pay for all goods and services already delivered at the contract rate and Teton may use payments already made in respect of claims or demands made or losses incurred under or in connection with the Contract.

20.3 SURVIVAL

The provisions of this section and sections 4.4, 4.6, 4.7, 18.8, and 18.10 shall survive termination of this Contract and extend to all media in which data and information may be stored or displayed.

20.4 INDEPENDENT CONTRACTOR

It is understood that neither party is constituted an agent, employee or servant of the other party for any purpose whatsoever. Customer shall conduct its business in its own name as an independent contractor and shall be solely responsible for its acts, conduct and expenses and the acts, conduct and expenses of its employees and agents. Contractor shall provide Certificate of Workers Compensation insurance to Customer.

20.5 PRIOR DISCUSSIONS

This Contract supersedes and cancels all prior discussions, Contracts and understandings with respect to the subject matter hereof between the parties, written, oral or implied.



20.6 ENTIRE AGREEMENT

This Agreement (and any Exhibits, attachments, addenda, and supplements thereto), shall be the complete and exclusive statement of the agreement between the parties as to the subject matter of the Agreement, and shall be binding upon each of the parties hereto, their respective successors and, to the extent permitted, their assigns. Neither this Agreement nor any Exhibit can be amended or otherwise modified, except as agreed to in a written instrument signed by the duly authorized representatives of both parties hereto.

In witness whereof, the parties have caused duly authorized representatives to execute this Agreement on the dates set forth below.

Teton Communications Inc.

By: _____

Name: Tony Hafla

Title: President

Date: _____

City of Twin Falls, ID

By: _____

Name: Kathy Markus

Title: ITC Manager

Date: _____



Exhibit A

System Description

Teton Communications Inc. is very pleased to provide a modern, Standards Based P25 Phase 1 System operating on the 450MHz frequencies the City has licensed to be deployed at the Twin Falls P.D. location and the Gun Range location.

Our solution uses "State of the Art" Industry leading products from Tait, Etherstack, Dell, Kenwood, and Avtec.

The initial installation includes all of the equipment (down to the smallest screws, wire and cable ties) software, licensing and labor to provide a three (3) channel P25 Trunking system at the Gun Range and the Twin Falls location. We are including a HA-RNC (High Availability Radio Network Controller or Master Site Switch) and System Programming / Monitoring Computer.

When the City migrates to the new system, the second phase will be to add one (1) additional Tait Base Station provided by Teton and interface it to the forth channel card. Our solution provides for future re-use of the cities TB8100 Base Stations - no other vendor offers this capability. We can continue adding base stations the City already owns or new ones by simply adding P25 channel cards up to 30 channels per site.

A multi-input KVM will allow direct access to the various computer servers at each location. Using the KVM will consolidate and organize the keyboards, monitors and mice needed to monitor and program the system.

We will be installing all of the equipment into the Cities existing 7' x 19" equipment racks, using the existing antenna systems, combining, multi coupling, and power sensors.

One very important advantage is the ability to connect to any number of ISSI interfaces without a limit on talk-groups or simultaneous talk paths without any further cost! The same is true for the CSSI - no limit on connections, talk groups, or simultaneous conversations.

Your system design consists of a redundant architecture (one HA-RNC at one location and two locations with four channels at each site) that nearly guarantees system operation that may degrade from equipment failure, but will never completely fail.

Another standard feature we offer is the Composite Channel operation, which allows the installation of a single base station out in a remote area that provides both control channel and voice channel operation simultaneously. This keeps your investment very low in areas that you might need additional coverage with a significant expense.



Last, our solution uses off the shelf Tait TB8100 Duplex Base Station for the RF. Some manufacturers put the P25 modem / Controller outside the base station and charge an inflated price. The Etherstack solution puts the P25 modem / Controller outside the base station, which allows us to incorporate any or all of your existing Tait TB8100 base stations into future expansion of your system or simply keep them as spares in the future. Just another example of the efficiency and cost savings built into our exciting solution.

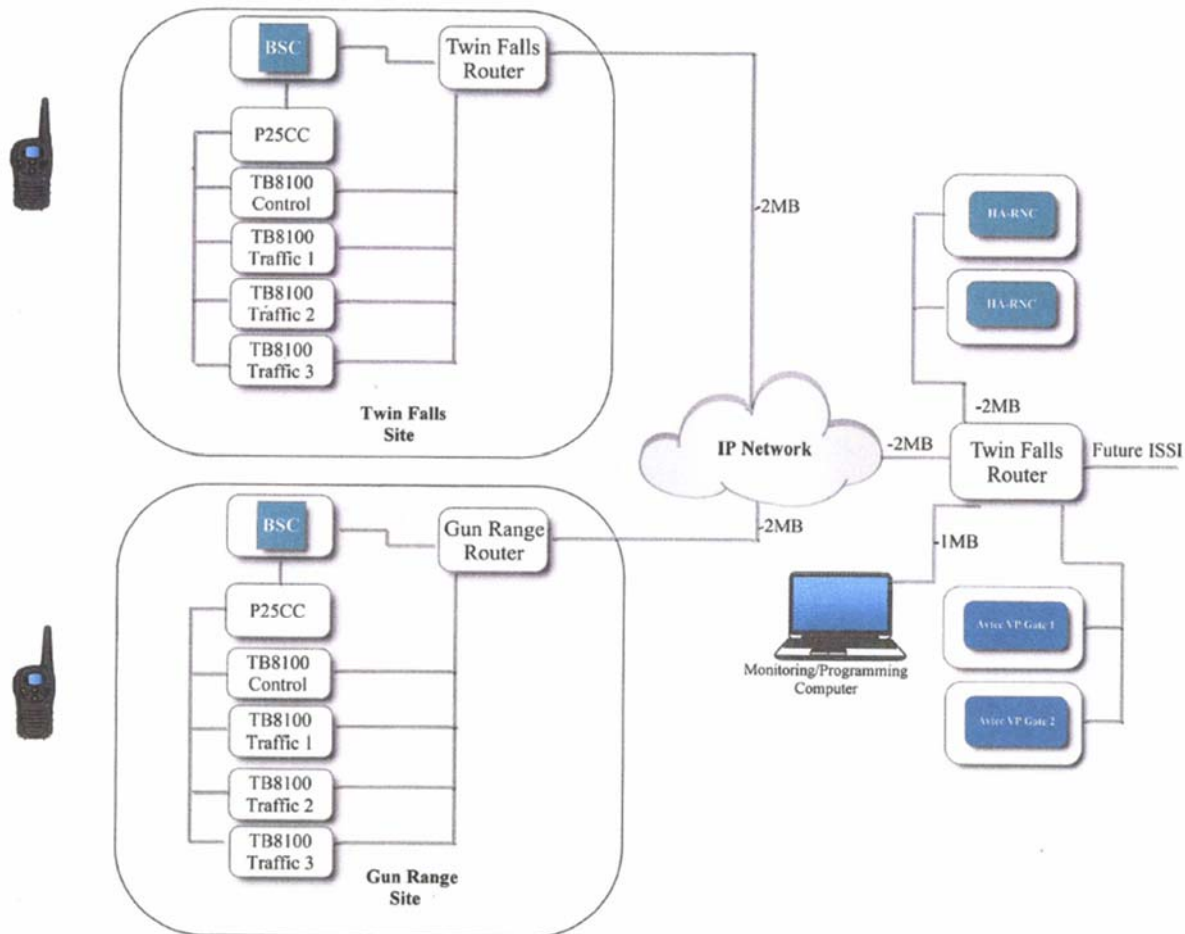
The Etherstack / Tait combination has been proven all over the world. Teton supplied and is maintaining an 18 site, 79 repeater system serving 5 counties in the upper Snake River Valley that uses identical equipment. We are also supplying Ethernet controlled AC and DC power switches that allow a "hard" power reset of any of the products.

As a long time Etherstack, Tait, Kenwood, and Avtec dealer, we have the expertise to upgrade the Avtec console for the CSSI interface, upgrade the Tait and Kenwood Radios to P25 Trunking capabilities and coordinate the planning and implantation of talk group planning, talk group naming and radio / console programming.

Teton Communications Inc. is uniquely qualified to provide the total professional and economical solution you desire without having to subcontract to various other dealers. Teton Communications has a history, supplying and serving the City of Twin Falls - Tait Base Stations and mobiles, Kenwood Mobile and Handhelds, and Avtec console equipment. Most importantly, Teton Communications has always supported what we sell and offers 24x7 support. Our six (6) competent and qualified technicians rotate weekly "On-Call" status to support the hundreds of First Responder radios in the Upper Snake River Valley. We can easily accommodate the 24x7 support you require without having to hire or train more people.



City of Twin Falls P25 Trunked System Overview



Statement of Work

1.0 Summary

1.1 City of Twin Falls and Teton Communications, Inc. are engaged in building a State of the Art P-25 450 MHz Trunking System, to serve all of the "First Responder" Agencies in the City of Twin Falls.

1.2 The System consists of Base Station and Network Equipment to be located at the Twin Falls Police Department and Gun Range locations. The equipment installed at the "Tower" locations will be interconnected to form a region wide end-to-end IP network providing automatic roaming as users move throughout the area. The Control and Monitoring Computer equipment will be installed at the Twin Falls Police Department location. Subscriber units (Mobiles, Handhelds, and Control Stations) will be upgraded for all agencies having radios upgradable to P25 Trunking capabilities. An upgrade of



equipment at the Twin Falls E911 Center for the installation of 450 MHz Control Stations connected to the Console and Recording equipment is also included in this project.

1-3 This Statement of Work (SOW), describes the deliverables to be furnished to the City of Twin Falls (City) and the tasks to be performed by Teton Communications, Inc., and its subcontractors, (Teton) to implement this System Project in reference to the Proposal #IT201801.

1.4 The Statement of Work describes the actual work involved in installation, identifies the Installation standards to be followed, and clarifies the responsibilities for both Teton and the City during the project implementation.

1.5 Each of the interoperability repeaters will have a mobile radio attached to it that is tuned to a talk group.

2.0 Project Meetings

2.1 The system implementation process will begin with the Contract / Project Definition process. During this process, the project teams from Teton and the City meet to begin the project. Project meetings will be held during the entire System Implementation process to facilitate the communications necessary to define the project scope, schedule, roles - responsibilities and terms.

Teton will provide details on the planned installation schedule and procedures to ensure that equipment is installed in a timely logical sequence and in a workmanship like manner.

The Contractor's Project Manager shall convene a project planning session with the City within 30 days of contract award and together they will jointly develop a project plan.

The project plan shall include:

1. Project Statement of Work (SOW)
2. A description of the project management approach or strategy.
3. Updated scheduled start dates, and responsibility assignments
4. Major milestones and target dates for each.
5. Key risks, including constraints and assumptions, and planned responses for each.
6. Subsidiary (supporting) management plans including scope management plan, schedule management plan, project budget(s), change control process, acceptance testing, project closure process, etc.
7. Project communications plan or strategy, including periodic reporting requirements and milestone achievement determination.

3.0 Identify Team for Project Administration

3.1 As the systems integrator, Teton provides the resources and processes necessary to complete the tasks for this project. Teton will designate a single individual to be the project manager whose primary



responsibility and authority will be to manage and administer this project to successful completion as defined within Communications System Agreement (CSA). This individual is Tony Hafla. The project manager will ensure that all objectives are met within cost and schedule constraints, and provide timely reporting of the overall progress of the project. In addition, Teton asks that the City identify a single point of contact to represent the City and be responsible for all City signature approvals.

4.0 Project Kickoff Meeting

4.1 The project will be initiated with a series of Project Meetings that include key City and Teton project participants. The objective of the Kickoff and subsequent meetings includes:

- Introduction of all project participants.
- Review of the roles of the project participants to identify decision-making authority between project participants.
- Review of the scheduling requirements.
- Discuss Pacing items - Manufacturing Periods, Travel Restrictions, etc.
- Initial Review of the project design

5.0 Project Schedule

5.1 The Project Schedule will emphasize the milestones and the critical items pacing the successful completion of the project. The City and Teton will mutually agree upon the Project Schedule and determine implementation tasks, and priorities. This project schedule will provide the framework for task completion. Changes to the schedule will be discussed in ongoing progress reports.

6.0 Perform Site Evaluations

6.1 Teton will conduct site evaluations to collect the details of the system installation. This task includes the testing of existing equipment that will interface with the proposed equipment. The installation pricing assumes that the existing building facilities have sufficient heating, ventilation and air conditioning (HVAC), the physical space necessary, power and back-up power, antenna systems, along with required cable routing facilities to interconnect the hardware. Facility improvement and/or temporary installations of equipment have not been included in this system.

6.2 Teton would be pleased to provide equipment specifications as required to the City for building environmental control sizing and design. Meeting environmental control requirements is necessary for all equipment warranties.

6.3 Teton will prepare a Site Evaluation Report that summarizes the findings of the site evaluations. The report will include awareness of any personnel safety issues and any site preparation recommendations to the City to aid in providing a suitable environment for system installation. If corrective design action is required or recommended, Teton can be contracted to provide the corrective design and oversee the work.



7.0 Final Design Review

7.1 After the Project Kickoff Meetings, Teton and the City project teams will meet to finalize the proposed system design. The goal of this review is to achieve written agreement on the overall system design and equipment deliverables. This meeting will produce the updated System Description, updated Equipment List and System Drawings or other documentation applicable to the project implementation. Teton will provide a draft system design to the City for review prior to the Final Design Review Meeting.

8.0 Order Processing

8.1 The completion of the Design Review will result in a final design and Equipment List and will allow the equipment to be ordered. To ensure an accurate and complete order, the Equipment List goes through a process that checks for valid model numbers, valid versions, compatible options to main equipment, and delivery data.

8.2 As part of this process, Teton also confirms with the City that the storage location(s) for this equipment will be at Teton Communications, Inc. facility in Idaho Falls. The final step for order processing is the creation of the orders for the equipment based on all the information gathered. Once the City has approved the Equipment List, the orders will be placed.

9.0 System Implementation Review / System Cutover Plan

9.1 The goals of this meeting are to review needs that may affect the System Implementation schedule and determine if additional actions to support the schedule are needed. A discussion of the Cutover Plan and methods to implement a procedure for cutover will begin at this meeting also. Teton will provide an Implementation Plan to the City for review and approval

10.0 Manufacturing

10.1 Based on the equipment order, Teton's suppliers will manufacture and or procure the items necessary for the system and test in Twin Falls. The manufacturing facility will test each subsystem from its base kit or module level, up to the complete subsystem at factory staging. In addition to the individual tests applied to all units shipped, Teton's suppliers perform additional tests on periodic samples. These additional tests include performance tests under environmental extremes (e.g., temperature, humidity, vibration, etc.). Teton will provide a test plan to the City for review and approval prior to beginning prior to conducting tests. Teton will perform a City-witnessed test at a location within 195 miles of Twin Falls.

11.0 Talk Groups / Radio Architecture Planning

11.1 All vested agencies in this project will have to provide the input necessary to ensure adequate talk groups are available for all operational scenarios. Common talk group's nomenclature will also be defined for the radios displays.

The Customer currently interoperates with multiple conventional channels, mutual aid and interoperability channels on other neighboring radio systems using donor radios at the existing dispatch



center. All interoperability must continue with the Project 25 Phase 1 Trunked System. This includes but is not limited to Parks and Recreation, Public Works, BLM, Forrest Service, Region Fire District, Airport, SIRCOMM, ATF, ISP, ESChat, FirstNet, NLEC channels, and Twin Falls County.

12.0 Acceptance Test Plan

12.1 The Acceptance Test Plan describes and documents the tests to confirm the operational parameters of each piece of equipment and the operational parameters of all the equipment working as a System. This document forms the basis for incremental and final System Acceptance.

13.0 Manage Receipt of Equipment

13.1 Teton Communications, Inc. will ensure that all equipment is inventoried and accounted for during the receiving process.

14.0 Installation

14.1 Once the equipment is received, Teton will install System Equipment as specified by the Equipment List, System Description and System Drawings. Avtec integration will be part of the system services included in the price table. The supplied equipment will be bonded to the system ground at each site location in accordance with the Standards for Communication Sites Industry. During field installation of the equipment, any required changes to the installation will be noted and included with the final "as-built" documentation of the system. The "as-built" documents will be provided along with the maintenance and operator manuals upon project completion Teton will schedule an inspection by the City when the work is complete and will resolve any deficiencies, as per Section 6.6.4.2 of the City's RFP.

15.0 Subscriber Installation

15.1 Subscriber units will be programmed. If further subscriber unit installation is necessary, it will be billed at the contract rate and will be coordinated with each Agency (Fire, Police, Public Works etc.). Each Agency will be responsible for appointing an individual (s) who will work with Teton in defining the Subscriber Unit installation schedule, installation location, and approve the finished product.

16.0 Subscriber Unit Training

16.1 Classes will be conducted for all subscriber equipment users providing information on all aspects of the System Operation, Subscriber Unit Operation, and Talk Group usage.

17.0 Review Acceptance Test Procedures

17.1 Teton and the City will review the Acceptance Test Plan (s) (ATP) that details the steps to be taken to confirm that the system provided by Teton is complete and meets the acceptance test criteria. Teton will review any System testing that the City wants performed that is not specified in the Acceptance Test Plan and documented in the test procedures. Additional tests may represent a change in the project's scope and may result in a change order to address the supplement costs to perform the extra tests.



18.0 System Optimization

18.1 Upon completion of the installation process, the System will then be optimized by Teton personnel. Teton will verify that all equipment is operating properly and that all electrical and signal levels are properly set. Teton and its subcontractors will optimize each subsystem individually. Audio and data levels will be checked to verify factory settings. Communication interfaces between devices will be verified for proper operation. Features and functionality will be tested to ensure that they are functioning according to the manufacturer's specifications and per the final configuration established during Design Review.

19.1 Remove / Dispose of Debris

19.1 Teton will remove and dispose of any packing or debris that is a result of the delivery, installation, or site improvements provided by Teton.

20.0 System Training

21.1 Training will be scheduled for the supervisors associated with the management and daily operation of the system. This training will include: Providing an overview of the System operation, connectivity, baseline performance, alarms, failure modes, recovery methods, console training, and alternate communications techniques.

21.0 System Documentation

Teton shall provide complete operational and maintenance documentation. In addition to user and technical manuals for each model of equipment, contractor shall supply 2 sets of a complete systems manual, which will include the following:

- System operational overview
- System interconnection and block diagrams
- System trouble shooting procedures
- As built drawings
- User names and passwords

Contractor shall provide user operational and equipment technical manuals on compact disc or USB drive.

User Operational Manuals:

- RF Control Stations
- Monitoring Systems
- System Management Software

Technical Maintenance Manuals:



- Repeater Equipment
- System Management Software
- Master Site Server

22.0 Acceptance Testing

21.1 The Operational Performance Tests will include the following basic test procedures:

- Verify that all equipment is delivered and installed in a workmanship like manner in accordance with the Contract.
- Demonstrate that all equipment performs as specified by examination of test data and the rerunning of specific tests if deemed appropriate.

Teton shall provide a detailed Operational Performance Test Plan to the customer for approval at least 30 days prior to the planned start of the acceptance test. This acceptance test plan will define the tests to be performed by Teton for each phase to verify that the equipment and system perform in accordance with the contract specifications.

All testing will be performed as described in the Acceptance Test Plan. During acceptance testing, the System will be tested and the results documented as defined in the Acceptance Test. Teton will perform a full test using the accepted test plan prior to the customer witnessed test.

23.0 Conduct Field Acceptance Test

23.1 Teton will conduct field acceptance testing based upon the Acceptance Test Documents approved prior to starting the test. This testing is meant to test the hardware, software, and functionality of the System. City representatives have the option to witness or to not witness the conduct of the field acceptance test. City representatives are encouraged to witness field tests in order to gain a better understanding of the System and the test process.

23.2 Resolutions to any deficiencies found during testing will be agreed upon and documented. If the documented deficiencies do not prevent productive operational use of the system, then the test will be deemed complete. Teton will remain responsible for the resolution of any documented deficiencies.

24.0 Perform Coverage Testing/ Mapping

24.1 Personnel from Teton and the City will travel throughout the City and "Map" the signal strength using a custom radio receiver signal meter to set a "base line" for the coverage provided by the System at acceptance. This radio signal density map will provide a "recorded verification of city wide radio coverage." And will compare the existing analog system with the new digital system.



25.0 Accept System

25.1 Upon successful completion of Acceptance Testing, the city and Teton will sign a System Acceptance Certificate.

26.0 Resolve Punch List Items

26.1 Teton will work with the City to resolve punch list items documented during the Acceptance Testing phase and any other phase during project implementation to ensure that all criteria for final acceptance have been met.

27.0 Project Finalization

27.1 The Project Finalization phase ensures that all criteria for Final Project Acceptance have been met. During this phase, Teton will provide the City with software licenses and any equipment manuals supplied as part of the purchased equipment. Teton will develop documentation and drawings of the system not only to assist with the implementation of the project but also to provide the City with reference materials that can be used for training, as a basis for future system upgrades, and even disaster recovery.

For these reasons, Teton creates and updates documentation and drawings during the implementation of the project. Teton will provide an "as-built" documentation package. The documentation contains a description of the system including drawings and equipment lists, screen configurations, programming data sheets, final test plans, and warranty information.

27.2 The project will be deemed complete when Teton and the City sign the Final Project Acceptance portion of the System Acceptance Certificate.

28.0 Initiate Warranty / Post Warranty Support

28.1 Teton will review the items necessary for transitioning the project to warranty support and service. Teton will detail the warranty and post warranty support associated with the equipment supplied as part of this project.

29.0 Conduct System and Project Readiness Review

29.1 During this task Teton conducts a System and Project Readiness Review to obtain concurrence from all Teton Project Management, Teton's Suppliers and the City that:

- The factors and plans necessary for the high quality and reliability of the System, its components, installation, testing and training, have be addressed and successfully completed.
- The system is ready for beneficial use (cut over)
- The project is evaluated and assessed to identify any issues that may affect the satisfaction of the end users of the system.

City



30.0 Perform System Cutover

30.1 Teton and the City will execute the mutually agreed Cutover Plan based upon prior discussions. During cutover, the plan will be followed and the defined contingencies will be implemented as required.

31.0 Project Milestones

31.1 Project Meetings

Communications avenue for project discussion and decision-making.

31.2 Identify Team for Project Administration

Define the decision makers for the Project Administration.

31.3 Project Schedule

Define the schedule for the Project Implementation.

31.4 Perform Site Evaluation Evaluate

Identify the "Sites" where the equipment will be installed for "physical" requirements, electrical requirements, and environmental requirements.

31.5 Final Design Review and Equipment List

Provide agreement on the overall System Design and Equipment deliverables.

31.6 Order Equipment

Place Purchase Orders for all equipment necessary to implement the System.

31.7 System Implementation Plan

This plan will define the order the Project equipment will be installed, along with the various items that need completed to keep the implementation progressing.

31.8 System Cutover Plan

This plan will define the process for moving all "Agency Users" from where they are currently operating to the new System and what "fall back" contingencies will be in place if needed.

31.9 Manufacturing

The factories and other suppliers will manufacture and / or source all of the products ordered in Step 6. In addition, the first phase of product testing takes place, by the suppliers.

31.10 Acceptance Test Plan

This plan describes the type of testing to be completed as part of the project. Industry Standard Acceptance Test Procedures are included in Exhibit C. They are used to perform acceptance testing.

31.11 Receive Equipment



Teton receives and accounts for all equipment needed to implement the Project.

31.12 Install Site Equipment

Travel to and install all of the equipment at each tower site location and "control" site locations.

31.13 Test Site Equipment

Test all of the equipment at each tower site location and control site location for basic operation functionality (Part of the Acceptance Test Plan).

31.14 Install Subscriber Equipment

Install all subscriber equipment in the vehicles and locations necessary for the System operations.

31.15 Test Subscriber Equipment

Test the subscriber equipment for basic operational functionality. (Part of the Acceptance Test Plan).

31.16 Optimize System

Test all of the System components as a "Unit" to verify the full complement of System Features and Operation. (Final part of the Acceptance Test Plan).

31.17 Provide Training

Train all of the subscriber unit users on the proper use of all equipment, the System, and "backup" procedures.

31.18 Equipment Manuals and "As Built" Drawings

Provide all of the technical information describing the installation, programming, and maintenance of the equipment, as well as the documentation showing all interconnection and physical layout.

31.19 Customer Support Plan

Provide a detailed description of the procedure to obtain Warranty support during the Warranty period.

City Responsibilities

32.1 Overview

A successful project requires responsibilities to be managed by both Teton and the City. Teton's and the City's responsibilities are outlined throughout this SOW. The information contained in the Equipment List and work defined in this SOW is based on the understanding that certain tasks will be performed by the City. These tasks are enumerated below to detail the tasks that are to be completed by the City in order to successfully complete the implementation.

32.2 Provide Notice to Proceed



Upon project award, the City needs to officially execute the "Communications System Agreement". By executing the Agreement, formal "Notice to Proceed" is granted.

32.3 Provide Primary Point of Contact

The City needs to identify an individual as a primary point of contact who will work with the Teton program manager. Each agency will also identify an individual as a primary point of contact for discussions concerning talk groups and subscriber unit installation.

32.4 Complete Project Scheduled Tasks

The City needs to ensure that tasks assigned to them as agreed upon during the Project Meetings are completed on a timely basis.

32.5 Upgrade Existing Communication Network and Equipment

The City needs to ensure that recommendations to upgrade/modify existing legacy communication system network and equipment are reviewed and are completed within the Project Schedule time frame. These recommendations are made to ensure compatibility with new equipment and optimal application performance.

32.6 Acquire Site Location

The City needs to obtain locations for site equipment installation and towers for antenna installation.

32.7 Grant Site Access

The City needs to provide a letter to all owners/managers of sites and provide any keys or other necessary items to allow Teton or third party personnel to enter all sites within this SOW.

32.8 Review Documentation

The city needs to review project documentation as it is received to provide feedback for appropriate and timely discussions and or other changes. Documentation includes the Project Schedule, System Design, Training Plans and course materials, Acceptance Test Plans and Procedures, and other deliverables.

32.9 Assume Responsibility for Third Party Equipment, Software, or Services

Third party services and /or equipment contracted by the City are the responsibility thereof. Teton has responsibility for all third party services provided by Teton under this SOW.

32.10 Ensure Performance Standards of the City-provided Site Connectivity Equipment

The connectivity performance standards included in this SOW must be met when such connectivity is supplied by the City. Teton may test for compliance of the connections prior to commencing installation.

32.11 Coordinate Schedules for Installation, Acceptance Tests, and Cutover

The City will be active in the decision for scheduling times and dates to perform these events.

32.12 Provide Permits, Licenses, and Structural Analyses



The City needs to provide all current permits, licenses, and structural analyses related to frequencies, antenna installation, towers, site upgrades and/or buildings of city property.

32.13 Support Integration, Optimization, and Testing

The City needs to provide and install all communications lines/equipment that are not Teton provided deliverables and needs to provide all required liaison support with the agencies and vendors under their jurisdiction.

32.14 Communicate Project Changes

The City needs to communicate schedule changes for tasks or scheduled events, and/or changes to training dates to the program manager.

33.0 Electrical Installation

Sites shall have an electrical service and electrical wiring that meets the requirements of the NEC® as well as all other applicable City, County, and State requirements.

34.0 Electrical Capacity

Sites shall have an electrical service (AC, DC, UPS, generator, etc.) with the necessary capacity to supply power to the equipment associated with this SOW. Critical equipment items will require dedicated circuits as defined by the site review.

35.0 Site Connectivity

35.1 The minimum acceptance performance specifications for microwave or fiber are listed below. A demarcation point will also be established to define the connection point between the Teton supplied equipment and the City supplied link. Teton will perform tests, which will verify site link performance prior to the interconnection of the Teton supplied equipment to the link equipment.

35.2 The minimum Ethernet up/down speed shall be 2MB.

36.0 Antenna Mounting and Installation

36.1 The City shall provide the necessary mounting structures (tower installation, roof mount, parapet mount) and each shall be designed for the intended application. The antenna mounting structure shall support the antenna, meet wind and ice load requirements, and provide sufficient room for the necessary antenna installation.

Teton can be contracted to design, supply, and install the antenna mounting structure.

36.0 Licenses and Certification

36.1 The City shall be responsible for all FCC licenses, building permits, electrical permits, environmental permits, licensed engineering drawings, and all other necessary approvals. Teton will assist the City in obtaining all pertinent licenses and permits.



37.0 Interference

37.1 As part of the design process, Teton will perform and provide an Intermod Analysis. Teton is not responsible for interference caused or received by Teton provided equipment except for interference that is directly caused by the Teton provided transmitter(s) to the Teton provided receiver(s). Should the City's System experience interference, Teton can be contracted to investigate the source and recommend solutions to mitigate the issue.

38.0 System Documentation

38.1 Documentation will be delivered in hardcopy and /or softcopy in its native format Microsoft Word (*.doc) or in Adobe Acrobat format (.pdf) to ensure that all receiving parties are able to read the documentation. Final copies of the drawings will be included in the overall System Manual. Equipment List and Pricing (Bill of Materials)

Equipment at Locations

Twin Falls Location

- 1) Four (4) Tait TB8100, 100 Watt, continuous duty Duplex Base Stations, programmed, tuned and tested.
- 2) One (1) new Base Station Controller (Dell Fileserver operating Linux OS with Etherstack Software) configured with redundant RAID Drives and redundant Power Supplies.
- 3) One (1) new P25 Channel Controller Shelf populated with (4) P25 Channel Control Cards, 4 cards will be interfaced at the start of the project.
- 4) One (1) HA-RNC (Radio Network Controller or Master Site Switch" this product is "twin" Dell Servers with redundant RAID Driver, and redundant power supplies using Linux OS, running Etherstack software.
- 5) One (1) Multi-Port KVM Switch
- 6) One (1) Lot of installation Cables / Hardware / Coax /Connections etc.
- 7) Software and Licensing for the Avtec CSSI.
- 8) AC and DC Ethernet Controlled Power Switches
- 9) Hardware and Software to upgrade the Customers existing Kenwood and Tait Radios.

Gun Range Location

- 1) Four (4) Tait TB8100, 100 Watt, continuous duty Duplex Base Stations, programmed, tuned and tested.
- 2) One (1) new Base Station Controller (Dell Fileserver operating Linux OS with Etherstack Software) configured with redundant RAID Driver and redundant Power Supplies.
- 3) One (1) new P25 Channel Controller Shelf populated with (4) P25 Channel Control Cards, (4 cards will be interfaced at the start of the project.
- 4) One (1) KVM Switch
- 5) One (1) Lot of installation Cables / Hardware Coax /Connections etc.
- 6) AC and DC Ethernet Controlled Power Switches.



Project Implementation Plan

The steps for migration to the new P25 system are as follows:

1.) Planning and Construction

Simultaneously, we will start construction of the Twin Falls site and start a series of meetings with the Twin Falls radio system users. The meetings are designed to provide education on functions and options of the new system so the users can make intelligent decisions concerning the programming and operation of their digital radios.

We will provide guidance for the development of the Channel (or Talk-Groups) programming of the new system. Because the City of Twin Falls is staying in the UHF Band, the radios that are upgradable to P25 will be programmed with both the existing channel plan and the new digital channel plan. New radios will be programmed in the same manner. The Avtec console upgrade planning will be conducted during this time as well.

2.) Operational Testing

When the Twin Falls site is constructed, we will conduct performance testing. In addition, we will work with select members of each city agency to 'proof' or test their programming plan. After proofing, we will make necessary or suggested changes to the programming for possible deployment.

3.) Additional Construction and Operation Testing

At this point, the construction of the Gun Range Site will start. We will also finalize the programming file sets for each agency. We will arrange times to review the existing user radios for upgrade to P25 operation and programming of the new channel plan (this can be accomplished after hours if needed). During this time, we will also interconnect the Avtec Console and program the console for the designated talk groups.

4.) Final Testing of Site Equipment and User Groups Programming

We will finalize the system operational testing. We will finalize the radio programming and operation testing. We will finalize the console programming, operation and operator screen layout.

5.) Phased Operations.

It is anticipated the migration to the new system will take place one agency at a time. We will provide agency by agency training on the use of their radios (during the day or after hours) including the dispatchers and Twin Falls IT Support folks. On a coordinated time and date the first agency will migrate to the new system by simply changing channels (zones) on their radios. If for any reason communications for the agency is compromised, they can readily move back to the "old" radio system. If we discover problems or issues, all further development will be stopped until the problems are resolved. Once the first agency has successfully migrated to the new system, we will continue until all agencies have migrated.

6.) Final Punch List



Any identified issues or items will be corrected, including coverage testing.

7.) System Monitoring and Analysis.

Teton will monitor the system operation on a daily basis to catch issues before they become a major problem. We will also provide answers to questions / education for the users of the system.

8.) System Acceptance

At this point in time the warranty support period will begin.

9.) Contract Maintenance Support

Teton will provide the appropriate response and repairs to outages during the Maintenance Support Contract period.

10.) Re-programming

Experience has taught us, that even with the best planning practices, users change their mind on how they want user groups set up and also how the talk groups are arranged in the radios or displayed on the console screens. Teton will provide one additional reprogramming of all subscriber radios and Avtec consoles within two years of system acceptance - at no additional cost.

Frequency Plan

Gun Range

P25 Digital

Control	460.3125
Traffic 1	453.5625
Traffic 2	460.0875
Traffic 3	453.4875

Police Tower

P25 Digital

Control	460.0375
Traffic 1	453.7875
Traffic 2	460.2875
Traffic 3	New

Analog Interoperability

2T-TFFD IOP1 / Tx-458.18750 CTCSS-107.2 / Rx-453.1875 CTCSS-127.3

(Repeater for Fire Department interoperability to outside agencies coming to Twin Falls located at the Twin Falls PD Tower) Cross Connect Budgeted

2T-TFFD IOP2 / Tx-458.18750 DCS-D072 / Rx-453.18750 CTCSS-74.4

(Repeater for Fire Department interoperability to outside agencies coming to Twin Falls located at the Gun Range Tower) Cross Connect Budgeted



2T-TFPD IOP1 / Tx-465.5000 DCS-D071 / Rx-460.5000 DCS-D071

(Repeater for Police Department interoperability to outside agencies coming to Twin Falls located at the Twin Falls PD Tower) Cross Connect Budgeted

2T-TFPD IOP2 / Tx-465.5000 CTCSS-91.8 / Rx-460.5000 CTCSS-107.2

(Repeater for Police Department interoperability to outside agencies coming to Twin Falls located at the Gun Range Tower) Cross Connect Budgeted

2T-TFMED IOP1 / Tx-468.1500 CTCSS-77.0 / Rx-463.1500 CTCSS-77.0

(Repeater for Ambulance / EMS dispatching located at the Twin Falls PD Tower) Cross Connect from Med funds

2T-TFMED IOP2 / Tx-468.1500 CTCSS-114.8 / Rx-463.1500 CTCSS-151.4

(Repeater for Ambulance / EMS dispatching located at the Gun Range Tower) Cross Connect from Med funds



Pricing

Contract Budget

Budget for Radio System

RFP No	Item	Qty	Total	
1	RFSS Controller	64500	1	64500
2	ISSI/CSSI	0	1	0
4	4 Channel Trunked RF Site	160000	2	320000
6	Training	6000	1	6000
7	System Services - Not to excede 88240	88240	1	88240
9	3 Year Factory Warranty (included parts, labor, travel & Incidentals)	0	1	0
12	Ancillary Equipment Maintenance	0	1	0
14	3 Year Factory Warranty	0	1	0
15	Software Services	0	1	0
16	Hardware Services	0	1	0
17	Preventative Maintenance	0	1	0
18	Avtec Console (includes CSSI Upgrade and Console Programming)	42900	1	42900
19	Higher Ground data Logging Interface		1	0
20	Subscriber Unit Upgrades			
	Kenwood TK-5820 Mobile & Handheld	285	211	60135
21	New Kenwood TK-5820K2	1225	36	44100
	New Kenwood TK5230K2-LKP Handheld	1050	8	8400
25	Additional Licensing & Antennas	0	1	0
28	AES Key Loader for Kenwood	445	1	445
29	AES Encryption for Kenwood	460	12	5520
32	Tait TM-9400 Multi Channel Control Station, Radio, Antennas, Coax, Avtec outpost and Installation)	4750	4	19000
	xConnect Radio (2 Police, 2 Fire)	2870	4	11480
	Radio Licensing - Paid directly to Apco (\$6,800)	0	1	0
Total				\$670,720.00

Contract Labor Rates

Labor



Subscriber unit Installation performed at Teton Communications Inc. location.

Normal Business Hours (8:30-5:30) \$62.00/Hr. plus Parts

Normal Overtime Hours (5:30-9:30) \$93.00/Hr plus Parts

Subscriber Unit / Control Station Installation NOT performed at Teton Communications Inc.

Normal Business Hours (8:30-5:30) \$72.00/Hr. plus Parts

Normal Overtime Hours (5:30-9:30) \$108.00/Hr plus Parts

Tower Work / Labor

Men on the Tower \$155.00/Hr

Men on Ground \$85.00/Hr

Technician Labor performed at Teton Communications Inc. location.

Normal Business Hours (8:30-5:30) \$78.00/Hr. plus Parts

Normal Overtime Hours (5:30-9:30) \$117.00/Hr plus Parts

Technician Labor NOT performed at Teton Communications Inc. location.

Normal Business Hours (8:30-5:30) \$90.00/Hr plus Parts

Normal Overtime Hours (5:30-9:30) \$135.00/Hr plus Parts

Travel Time for Installers

Normal Business Hours (8:30-5:30) \$55.00/Hr. plus Parts

Normal Overtime Hours (5:30-9:30) \$83.00/Hr plus Parts

Travel Time for Technicians

Normal Business Hours (8:30-5:30) \$70.00/Hr. plus Parts

Normal Overtime Hours (5:30-9:30) \$105.00/Hr plus Parts

Travel Mileage for Vehicles \$.75/per Mile

Service Call \$98.00/per Dispatch

Contract Quotes

City of Twin Falls P-25 Project Pricing Breakdown

Item #1

	Item	Total
RFSS Controller (HA Configuration) Equipment	\$64,500.00	\$ 64,500.00
(Includes 3-Year Hardware & Software Warranty and 24x7 Support)		
Equipment includes two Dell R730 Servers, Linux Operating System & Licenses		

Item #2

ISSI / CSSI		
(Includes 3-Year Hardware & Software Warranty and 24x7 Support)	Included	Included
Equipment includes Operating Software & Licenses		

Item #3

System Manangement Computer / Software	\$ 5,450.00	\$ 5,450.00
(Includes 3-Year Hardware & Software Warranty and 24x7 Support)		
Equipment includes Windows Computer, Tait		
Programming Software, What's up Gold Software,		
Programming Cables, and Interconnect Cables.		

Item #4

4-Channel, P-25 Trunked RF Site (2 Sites: Twin Falls & Gun Range)	\$ 160,000.00	\$ 320,000.00
(Includes 3-Year Hardware & Software Warranty and 24x7 Support)		
Equipment includes:		
4 ea. Tait 100 Watt, UHF, 12 VDC Base Stations		
4 ea. Etherstack P25CC Interface Cards, Software & Licenses		
1 ea. Etherstack P25CC Shelf		
1 ea. Dell R730 Server, Linux Operating System & Licenses		
1 ea. Samlex 100 Amp, 12VDC Power Supply		
1 ea. Ethernet Controlled DC Swich Shelf		
1 ea. Multi-Port KVM		
1 ea. Lot Cables, Connectors		

Item #5

Spare Parts including: Etherstack Spare BSC		
(Dell R730 Server, Linux Operating System & Licenses	\$ 11,000.00	\$ 11,000.00
Etherstack Spare P25CC Card		
(Card, Software & Licenses)	\$ 8,156.09	\$ 8,156.09
Avtec Outpost		
(Outpost, Software & Licenses)	\$ 3,270.00	\$ 3,270.00
Tait Control Station		
(TM9455 Mobile Radio, Software & Licenses)	\$ 1,912.60	\$ 1,912.60

City of Twin Falls P-25 Project Pricing Breakdown

Item #6

Training - not to exceed	\$ 6,000.00	\$ 6,000.00
(Time and Material charges for Travel, Per Diem and Labor)		

Item #7

System Services - not to exceed	\$ 88,240.00	\$ 88,240.00
(Project Management, Project Engineering, Installation, Documentation, Coverage Testing)		

Item #8

Voice Recorder	N/A	N/A
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Item #9

Additional cost for 3-Year Warranty	Included	Included
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Item #10

Maintenance & Support on a per year basis for the RF Infrastructure including the RFSS Controller.

Note: This includes all the equipment specified under Items # 1,2,3,4, and 5. and is 24x7

Hardware & Software

HA-RNC	\$350.00/mo x 1	\$	350.00
BSC	\$150.00/mo x 2	\$	300.00
Base Stations and P25CC	\$125.00/mo x 8	\$	1,000.00
Etherstack Software & Licensing and 24x7 Support		\$	1,800.00
System Monitoring / Programming Computer		\$	100.00
System Administration		\$	100.00
TOTAL		\$	3,650.00
		\$	43,800.00

Item #11

Maintenance & Support on a per year basis for the Console Sub-System including Control Stations.

Avtec Software & Support (24x7)

Currently Twin Falls is paying for 24x7 Telephone Support and Avtec Software Support	\$ 9,995.00
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The projected Avtec console Renewal (9/1/2019) is	\$ 9,995.00
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If the additional Avtec Sonsole CSSI upgrade (Item #18) is purchased, the yearly 24x7 phone support and software licensing will increase on 9/1/2020 to:	\$ 15,843.20
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24x7 Hardware and Software support from Teton Communications Inc. will be:

Avtec Console (6 positions and Back Room Equipment	\$300.00 mo.
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Control Stations and Outposts	\$15.00 ea.
-------------------------------	-------------

Total	??
-------	----

City of Twin Falls P-25 Project Pricing Breakdown

Item #12

Maintenance / Support on a per year basis:	Included	Included
Ancillary Equipment (Example: Generators, UPS, etc.)		
All Equipment provided by TCI is covered for 3 years.		

Item #13

15 years of Extended Maintenance broken into two (3) five (5) year increments.

*Note: CPI increase for years 6-15 will be included.

This is 24x7 support.	\$ 188,000.00	
	\$ 564,000.00	

Item #14

3 year Factory warranty - Fees to proposer for uncovered period.
All Equipment provided by TCI is covered for 3 years.

Item #15

Software Services	Included	Included
-------------------	----------	----------

Item #16

Hardware Services	Included	Included
-------------------	----------	----------

Item #17

Preventative Maintenance	Included	Included
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Item #18

(Optional) Avtec Console CSSI Upgrade and Console programming.	\$ 42,900.00	\$ 42,900.00
--	--------------	--------------

Item #19

(Optional) Upgrade Higher Ground logging Recorder and backup recorder to P25 Truning operations.

Technical Support for existing recorder	\$ 600.00	
New Eventide 740 Logging Recorder	\$ 32,300.00	

Item #20

(Optional) Subscriber Unit Upgrades and Programming Per Unit - Include training and programming of unit training.

20A) Upgrade Kenwood TK5820 Mobile or TK5320 Handheld to P25 Trunking	\$	285.00	(174 x \$285.00)	\$49,590.00
20B) Upgrade Tait TM9155 to P25 Trunking	\$	650.00	(26 x \$650.00)	\$16,900.00

City of Twin Falls P-25 Project Pricing Breakdown

20C) The Kenwood TK-5220 Handheld radio is VHF and not able to work in this band.	N/A	N/A
---	-----	-----

20D) All other radios are either end of life, or not upgradable to P25 Operation	N/A	N/A
--	-----	-----

Item #21

(Optional) New Subscriber Unit Upgrades and programming Per Unit with encryption - include trainging and programming of unit training.

21A) New Kenwood TK-5820K2 Mobile Radio	\$	1,225.00
---	----	----------

21B) New Tait TM-9400 Mobile Radio	\$	2,043.40
------------------------------------	----	----------

21C) New Kenwood TK-5320K2-LKP Handheld Radio Package	\$	1,050.00
---	----	----------

21D) New Tait TP-9400 Handhled Radio Package	\$	1,797.75
--	----	----------

Item #22

Additional licensing fees to connect to existing infrastructure. (Include Avtec, Higher Ground, etc.)	None All are Included	None All are Included
---	-----------------------	-----------------------

Item #23

Additonal liceses or hardware that may be required to achieve a total of 5 unique ISSI connections with 10 concurrent calls each.	None All are Included	None All are Included
---	-----------------------	-----------------------

Item #24

Pricing for any additional licenses that may be required to achieve the maximum required sites, dispatch consoles, and RF channels.	None All are Included	None All are Included
---	-----------------------	-----------------------

Item #25

(Optional) Additional Antennas and Installation TCI can use existing Antenna System, Multiplex & Combiners	None	None
--	------	------

Item #26

(Optional) Equipment Buy Back	\$	-	\$	-
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City of Twin Falls P-25 Project Pricing Breakdown

Item #27

(Optional) Portable Repeater \$ 28,000.00
Include any other applicable fees for a complete
breakdown of the total project.

Item #28

AES Keyloader Software for Kenwood Radios \$ 445.00

Item #29

AES Encryption feature for Kenwood Radios \$ 460.00

Item #30

AES Multi-Key Encryption Feature for Tait Radios,
And to Retrofit AES into Customer Radios. \$ 510.00

Item #31

AES Keyloader for Tait Radios \$ 7,100.00

Item #32

4 each Tait TM-9400 Multi-Channel Control Station,
Radio, Antennas, Coax, Avtec Outposts and
Installation. \$4,750.00 ea.

Additional Options

Option #1 - Delete "What's up Gold" from Item #3
Deduct \$ (3,850.00)

Option #2 - Add an additional P25 channel at the Twin
Falls or Gun Range Locations using a customer
supplied Tait TB8100, customer supplied frequency
and customer supplied combiner. \$27,970.00 ea.

Equipment includes:

Etherstack P25CC Shelf, Etherstack P25CC Card, Software & Licenses.

Grand Total



Contract Labor Rates

Labor

Subscriber unit Installation performed at Teton Communications Inc. location.

Normal Business Hours (8:30-5:30)	\$62.00/Hr. plus Parts
Normal Overtime Hours (5:30-9:30)	\$93.00/Hr plus Parts

Subscriber Unit / Control Station Installation NOT performed at Teton Communications Inc.

Normal Business Hours (8:30-5:30)	\$72.00/Hr. plus Parts
Normal Overtime Hours (5:30-9:30)	\$108.00/Hr plus Parts

Tower Work / Labor

Men on the Tower	\$155.00/Hr
Men on Ground	\$85.00/Hr

Technician Labor performed at Teton Communications Inc. location.

Normal Business Hours (8:30-5:30)	\$78.00/Hr. plus Parts
Normal Overtime Hours (5:30-9:30)	\$117.00/Hr plus Parts

Technician Labor NOT performed at Teton Communications Inc. location.

Normal Business Hours (8:30-5:30)	\$90.00/Hr plus Parts
Normal Overtime Hours (5:30-9:30)	\$135.00/Hr plus Parts

Travel Time for Installers

Normal Business Hours (8:30-5:30)	\$55.00/Hr. plus Parts
Normal Overtime Hours (5:30-9:30)	\$83.00/Hr plus Parts

Travel Time for Technicians

Normal Business Hours (8:30-5:30)	\$70.00/Hr. plus Parts
Normal Overtime Hours (5:30-9:30)	\$105.00/Hr plus Parts

Travel Mileage for Vehicles

\$.75/per Mile

Service Call

\$98.00/per Dispatch



Exhibit B

Manufacturer's Limited Warranties (hardware)



TCI Project Warranty

To Whom It May Concern,

Teton Communications Inc. certifies that we will warranty all equipment and software provided under this proposal for three (3) years notwithstanding the original Manufacturer warranty. This warranty covers ALL equipment, even connectors and wire.

Thank you for this opportunity.

Tony Halfa
President of Teton Communications, Inc.
Office 208-522-0750 / Cell 208-709-3094
tony@tetoncommunications.com



Etherstack Inc | New York (GMT -5)
1115 Broadway, Suite #1276
New York, NY 10010
UNITED STATES
E: info.na@etherstack.com
P: +1 917 661 4110

July 24th, 2018

RE: Regional Service Facility _ Teton Communications

To Whom It May Concern:

Teton Communications has been a certified Etherstack MetroNet25 reseller and certified service facility on behalf of Raytheon Communications and Etherstack Inc. since 2009.

Teton is the only certified service center in the State of Idaho and their credentials are currently enforce for the remainder of 2019.

Regards,

Doug Chapman
Etherstack Inc.
V.P. Business Development



Sydney (GMT +10)
P: +61 2 8399 7500
info.au@etherstack.com

Yokohama (GMT +9)
P: +81 45 342 9050
info.jp@etherstack.com

London (GMT)
P: +44 207 734 0200
info.eu@etherstack.com



HARRIS CORPORATION

221 Jefferson Ridge Parkway
Lynchburg, VA 24501
Phone: 800-528-7711
www.harris.com

July 30, 2018

Mr. Tony Halfa
Teton Communications
545 South Utah Circle
Idaho Falls, ID 83402

Subject: Authorization of Sales and Service

Dear Mr. Halfa:

This letter hereby indicates that Teton Communications is an authorized Harris Corporation Public Safety & Professional Communications Dealer and warranty service provider and is authorized to sell, service and program Harris and Harris powered by Tait products.

Sincerely,

A handwritten signature in black ink, appearing to read "A. Todd Perdieu". The signature is fluid and cursive, with a large initial "A" and a stylized "P".

A. Todd Perdieu
Director of North American Channel Partners

cc: Chris Lopez

assuredcommunications™

KENWOOD

August 1, 2018

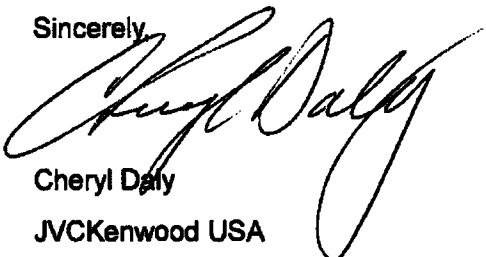
To whom it may concern:

This letter is to confirm that Teton Communications in Idaho Falls, ID is a full line authorized JVCKenwood USA dealer since February 1996. A Kenwood full line dealer carries the complete line of our two way products which consist of Consumer, Public Safety, General Industrial, Trunking, Digital P25 and Systems units. JVCKenwood USA puts its Land Mobile Radio dealers through an approval process, which includes a review of their operations to assure that they can provide the necessary support and service to their customers. When we authorize a dealer, the dealer has the full support of Kenwood including support on service and technical issues.

We cannot guarantee the level of support and service that will be offered through an unauthorized dealer. They do not get direct factory support and in most cases do not have access to the latest technical bulletins and upgrade information on our products. We strongly recommend that all of the JVCKenwood Communication end-users purchase from our authorized dealers who will be able to provide the aftermarket support that the Land Mobile Radio products require.

JVCKenwood Communications Division is very proud of the quality of both our Land Mobile Products and our independent authorized dealers! Thank you for your support of the Kenwood Land Mobile Radio Product Line!

Sincerely,



Cheryl Daly

JVCKenwood USA

National Administration Manager



100 Innovation Place
Lexington, SC 29072 USA
www.avtecinc.com

TEL 803.358.3600
800.310.7045
FAX 803.358.3636

25 July, 2018

To Whom it May Concern,

Teton Communications is an approved Avtec Channel Partner for Idaho. They are Avtec factory trained and approved to provide technical support for Avtec Scout dispatch console solutions.

If you require further information, please contact me at your convenience.

Regards,

David Bremson
Regional Manager
Avtec, Inc
602-421-1741

LIMITED HARDWARE WARRANTY

Etherstack ("Warrantor") warrants to the original owner thereof all parts of every new Etherstack hardware equipment purchased to be free from defects in materials or workmanship, as hereinafter provided, for twelve (12) months from the date of purchase¹.

Warrantor will, at its option, repair or replace any hardware equipment covered by this warranty, which becomes defective, malfunctions or otherwise fails to conform with this warranty under normal use and services during the term of this warranty, at no charge for parts or labor.

In order to obtain hardware warranty service, the equipment, together with the original or a machine reproduction of the bill of sale or other dated, proof-of-purchase document describing the equipment, must be delivered if requested by the Warrantor, to Warrantor at the owner's expense. Any evidence of alteration, erasing or forgery of proof-of-purchase documents will be cause to void the warranty.

This warranty does not cover defects, malfunctions or failures resulting from shipping or transit accidents, abuse, misuse, operation contrary to furnished instructions, operation to incorrect power supplies, operation with faulty associated equipment, modification, alteration, improper servicing, tampering and normal wear and tear. Equipment on which the serial number has been defaced or removed shall not be eligible for warranty service. Should any equipment submitted for warranty service be found ineligible therefore, an estimate of repair cost will be furnished and the repair will be completed if requested by the owner upon receipt of payment or acceptable arrangements for payment.

This warranty is applicable to Etherstack manufactured hardware products only and Warrantor neither assumes nor authorizes anyone to assume for it any other warranty. Where OEM equipment is supplied, this warranty will be replaced on those items with the respective OEM warranty where one is offered. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND OF ANY OTHER OBLIGATIONS OR LIABILITY ON THE PART OF WARRANTOR. WARRANTOR'S LIABILITY FOR ANY AND ALL LOSSES AND DAMAGES RESULTING FROM ANY CAUSE WHATSOEVER, INCLUDING WARRANTOR'S NEGLIGENCE, ALLEGED DAMAGED OR DEFECTIVE GOODS, WHETHER SUCH DEFECTS ARE DISCOVERABLE OR LATENT, SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE EQUIPMENT. IN NO EVENT SHALL WARRANTOR BE LIABLE FOR LOSS OF USE, COMMERCIAL LOSS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER.

¹ Purchase is defined by date of shipment, not receipt or deployment

LIMITED SOFTWARE WARRANTY

Etherstack ("Warrantor") warrants to the original owner thereof that all new Etherstack software modules hereinafter provided, substantially conforms to its published specifications for a period of twelve (12) months from the date of purchase¹. Except for the foregoing, the Software is provided AS IS.

Warrantor will, at its option, repair, replace or refund the Software to the purchasing party. In no event does the Warrantor warrant that the Software is completely error free or that the software will not operate without problems or interruptions however all efforts have been made to ensure the quality, functionality, performance, robustness and reliability of the software operates as intended under normal and excessive stress profiles.

This warranty does not apply if the software (a) has been altered, except by Warrantor, (b) has not been installed, operated, repaired, or maintained in accordance with instructions supplied by Warrantor, (c) has been subjected to operation on hardware devices operated outside specified operating environments or (d) executed with other software co installed on the same hardware platform including but limited to background virus scanners, software firewalls, health diagnostic applications or unapproved device drivers.

In order to obtain software warranty service the original or a machine reproduction of the bill of sale or other dated, proof-of-purchase document describing the software, must be delivered if requested by the Warrantor, to Warrantor at the owner's expense. Any evidence of alteration, erasing or forgery of proof-of-purchase documents will be cause to void the warranty.

This warranty does not cover defects, malfunctions or failures resulting from incorrect re-installation, tampering, operation on unsupported operating systems, operating on unsupported hardware platforms or operation contrary to furnished instructions. Should any software warranty claim submitted be found ineligible, an estimate cost will be furnished to resolve the warranty claim if requested by the owner upon receipt of payment or acceptable arrangements for payment.

This warranty is applicable to Etherstack software products and Warrantor neither assumes nor authorizes anyone to assume for it any other warranty. Where OEM software is supplied, this warranty will be replaced on those items with the respective OEM warranty where one is offered. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND OF ANY OTHER OBLIGATIONS OR LIABILITY ON THE PART OF WARRANTOR. WARRANTOR'S LIABILITY FOR ANY AND ALL LOSSES AND DAMAGES RESULTING FROM ANY CAUSE WHATSOEVER, INCLUDING WARRANTOR'S NEGLIGENCE, ALLEGED DAMAGED OR DEFECTIVE GOODS, WHETHER SUCH DEFECTS ARE DISCOVERABLE OR LATENT, SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE EQUIPMENT. IN NO EVENT SHALL WARRANTOR BE LIABLE FOR LOSS OF USE, COMMERCIAL LOSS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER.

¹ Purchase is defined by date of shipment, not receipt or deployment

WARRANTY AND SUPPORT

Warranty Term

Avtec provides standard warranty coverage for one year from date of system acceptance or fifteen months from shipment of equipment. The warranty includes hardware coverage as well as the support services described in Avtec's ScoutCare program. The initial warranty is included in the system price.

Ongoing Support

Avtec offers ongoing training, software maintenance, and 24x7 support under the ScoutCare Program. Ongoing support is invoiced on an annual basis 90 days prior to expiration of the contract term. ScoutCare does not cover equipment repairs or replacement; a hardware maintenance option is available to qualified customers for years 2-5.

AVTEC LIMITED WARRANTIES

Definitions

For purposes of this document, the following definitions apply:

- "Avtec product" means a Hardware or Software product bearing the Avtec brand.
- "Hardware" means equipment, devices and apparatus of every nature and description, both electronic and mechanical, including without limitation equipment and components related to radio-telephone systems and other methods of electronic communication, and all manner of computer hardware such as computers, monitors, terminals, storage devices, network devices, connectivity devices, printers, etc.
- "Operational" means the functioning of a Product without material deviation from Avtec's most current specifications and user documentation published for such Product.
- "Person" means a natural person, or any private or governmental entity.
- "Service" means any service, assistance, or use of a resource provided by Avtec to Customer.
- "Software" means either: (1) a set of machine-readable instructions designed to perform a task or accomplish a purpose; (2) a set of machine-readable data; (3) a set of machine-readable instructions for formatting data; or (4) text or graphic material in any form describing or otherwise related to any of the foregoing items, or the use thereof, such as program listings, flow charts, manuals or other documentation.
- "Third Party product" means a Hardware or Software product bearing a third party brand.

Warranty of Noninfringement

Avtec warrants that, at the time of delivery, an Avtec product shall not infringe the patent rights or copyrights of any other Person. This warranty shall not apply to any infringement resulting from either: (i) operation or use of an Avtec product with a third party product not approved in writing by Avtec; (ii) operation or use of an Avtec product other than in accordance with the Specifications therefore; (iii) alteration or modification of an Avtec product by Customer or any other Person other than Avtec without Avtec's prior written authorization; or (iv) any infringement arising from a built to order product produced substantially in accordance with specifications provided by Customer, regardless of any prior notice or knowledge possessed by Avtec as to the existence or possibility of such infringement.

Limited Warranty as to Avtec Hardware

Avtec shall repair or replace, at its option, any Avtec Hardware that is (i) not Operational due to defects in materials or workmanship, and (ii) returned to Avtec not later than 15 days after the expiration of the applicable warranty period for the Product in accordance with Avtec's warranty return procedures then in effect. This limited warranty does not cover Hardware modified by anyone other than Avtec, or damaged by casualty, abuse or use not in compliance with Avtec's specifications or usage instructions for the Product.

Limited Warranty as to Avtec Software

Avtec warrants that during the warranty period such Software shall operate substantially in accordance with Avtec's written specifications for such Software; provided, that (a) the nonconformity reported by Customer is reproducible by Avtec under Avtec's customary testing procedures; (b) the nonconformity occurs when the Software is used in accordance with Avtec's published usage guidelines for such Software; and (c) Customer reports such nonconformity to Avtec in writing within the warranty period.

Limited Warranty as to Services

For a period of 90 days following Avtec's performance of any Service for Customer, Avtec warrants that such Service shall have been performed using ordinary skill and care and substantially in accordance with (as reasonably determined by Avtec) the description, specifications, or completion criteria for such Service (if any) agreed to by Avtec in writing.

Exclusive Remedies

In the event of any Avtec Hardware, Software or Service fails to conform to the applicable limited warranty above, Avtec's sole and exclusive obligation, and Customer's sole and exclusive remedy, shall be for Avtec to correct or replace, at no additional charge to Customer, any portion of any Avtec Hardware, Software or Service determined to be nonconforming; provided, however, that if within a commercially reasonable period Avtec neither corrects such nonconformity nor replaces the nonconforming portion of the Avtec Hardware, Software or Service, then Customer's sole and exclusive remedy shall be to receive only direct damages not to exceed the amounts paid to Avtec to acquire such Avtec Hardware, Software or Service, as applicable.

Limited Warranty Claims Procedures

TIME IS OF THE ESSENCE WITH RESPECT TO MAKING WARRANTY CLAIMS WITHIN THE APPLICABLE WARRANTY PERIOD. Avtec's limited warranty claims procedures are available online at www.avtecinc.com or by email request to support@avtecinc.com or regular mail request to: Avtec, Inc., Warranty Department, 4335 Augusta Highway, Gilbert, South Carolina 29054.

Warranty Disclaimer

Except as expressly provided in this Section, or except to the extent a warranty of a manufacturer other than Avtec may apply, ALL PRODUCTS AND SERVICES ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, WHETHER EXPRESS OR IMPLIED. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, Avtec EXPRESSLY DISCLAIMS TO ALL PRODUCTS AND SERVICES ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, DATA INTEGRITY, ERROR-FREE OPERATION, ABSENCE OF ANOMALIES OR NONCONFORMITIES, OR UNINTERRUPTED SERVICE.

Other Rights of Customer

THE FOREGOING LIMITED WARRANTIES AS TO AVTEC HARDWARE, SOFTWARE AND SERVICES GIVE CUSTOMER SPECIFIC LEGAL RIGHTS, AND CUSTOMER MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE (OR JURISDICTION TO JURISDICTION).

KENWOOD

WARRANTY ON LAND MOBILE RADIOS AND ACCESSORIES

JVC Kenwood USA Corporation ("KENWOOD") warrants its Land Mobile Radios and accessories purchased from an authorized KENWOOD dealer in the United States (the "Products") as follows:

WHAT IS COVERED AND WHAT IS EXCLUDED

Except as specified below, Products will be free from defects in material and workmanship under normal use and service for the time specified below. The following are not covered by this Warranty:

1. Damage, defects, deterioration or failure resulting from:
 - A. Accident, misuse, negligence, abuse, neglect, improper handling, product modification or failure to follow instructions contained in your Owners Manual.
 - B. Improper or unauthorized testing, operation, alteration, disassembly, modification, adjustment or repairs.
 - C. Exposure to fire, water, excessive moisture, dampness, extreme changes in climate or temperature or other acts which are not the fault of KENWOOD and which the Product is not specified to tolerate.
 - D. Repair or attempted repair by anyone not authorized by KENWOOD.
 - E. Installation of parts or accessories that do not conform to the quality or specifications of the original parts or accessories.
 - F. Installation of the Product in, or removal of the Product from, the vehicle or other site of its use.
 - G. Use of a Product in conjunction with hardware or software electrically or mechanically incompatible with such Product.
 - H. Use of a Product in conjunction with accessories or ancillary equipment not supplied by KENWOOD.
 - I. Normal and customary wear and tear.
2. Damage, defects, deterioration, failure or loss occurring during shipment (claims must be presented to the carrier).
3. Any unit which is not new when sold to the first end user or upon which the serial number has been defaced, modified or removed.
4. Damage, defects, deterioration or failure of antennas unless caused directly by defects in material and workmanship.
5. Damage, defects, deterioration or failure of rechargeable batteries if any of the seals on the battery enclosure or cells are broken or show evidence of tampering or if caused by use of the batteries in equipment or service other than in conjunction with the Product for which it is specified.

USE OF THE PRODUCT WITH ACCESSORIES OR OTHER EQUIPMENT NOT SUPPLIED BY KENWOOD OR OTHERWISE NOT EXPRESSLY AUTHORIZED BY KENWOOD MAY BE DANGEROUS AND WILL VOID THE PRODUCT WARRANTY. ALL SUCH ACCESSORIES AND ANCILLARY EQUIPMENT ARE EXPRESSLY EXCLUDED FROM THIS WARRANTY. BECAUSE EACH SYSTEM THAT MAY INCORPORATE A PRODUCT IS UNIQUE, KENWOOD DISCLAIMS ANY LIABILITY OR WARRANTY COVERAGE FOR OR WITH RESPECT TO RANGE, COVERAGE OR OPERATION OF THE SYSTEM AS A WHOLE.

HOW LONG IS THE WARRANTY

This Warranty will remain in effect for two (2) years for portables, mobiles and repeaters (except models NX-xxxx, TK-x180 TK-5x10G and TK-5x20 Series which have a three (3) year warranty). One (1) year for accessories including rechargeable batteries. Warranty is measured from date of purchase by the end user.

WHO IS PROTECTED

This Warranty is enforceable only by the first end user. Transfer or resale of a Product will automatically terminate warranty coverage with respect to that Product. This Warranty is not transferable to any third party, including but not limited to any subsequent purchaser or owner of the Product.

WHAT WE WILL DO AND HOW TO OBTAIN WARRANTY SERVICE

KENWOOD will, at its sole absolute discretion, either repair or replace a Product with a new or a rebuilt unit (which unit may include new and/or reconditioned parts) if found by KENWOOD to be defective in material and workmanship. If KENWOOD determines that it is unable to repair or replace such Product, KENWOOD shall refund the purchase price for such Product. The foregoing is subject to your returning the defective Product to an authorized KENWOOD Land Mobile dealer or authorized service center within the Warranty period, accompanied by a sales receipt or other evidence of the date of purchase. If it is necessary to ship the Product for Warranty service, you are responsible for the initial shipping charges, but KENWOOD will pay the return shipping charges if the Product is repaired or replaced under Warranty. You are responsible for any charges incurred in removing the Product from the vehicle or other site of use and for reinstallation of the repaired or replaced Product. All replaced Products or parts and Products or parts for which a refund has been given will become the property of KENWOOD.

EXCLUSION OF OTHER WARRANTIES AND DAMAGES

Unless considered unlawful or unenforceable under applicable law:

- A. THIS IS THE COMPLETE WARRANTY GIVEN BY KENWOOD AND IT IS GIVEN IN LIEU OF ALL OTHER EXPRESS WARRANTIES. KENWOOD ASSUMES NO OBLIGATIONS OR LIABILITY FOR ADDITIONS OR MODIFICATIONS TO THIS WARRANTY. ALL IMPLIED WARRANTIES WITH RESPECT TO PRODUCTS, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXCLUDED.
- B. KENWOOD'S LIABILITY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT, AT KENWOOD'S OPTION, OF ANY DEFECTIVE PRODUCT, AND SHALL NOT INCLUDE DAMAGES OF ANY KIND, WHETHER DIRECT, INDIRECT, SPECIAL, GENERAL, INCIDENTAL, CONSEQUENTIAL OR OTHERWISE, INCLUDING BUT NOT LIMITED TO LOSS OF USE, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS, OR LOSS OF PROFITS OR SAVINGS OR ANTICIPATED PROFITS OR SAVINGS.

This Warranty is enforceable only in the United States of America and governed by the laws of the State of California.

If a problem develops during or after the Warranty Period, or if you have any questions regarding the operation of the product, you should contact your KENWOOD Authorized Dealer or Authorized Service Center. If the problem or your question is not handled to your satisfaction, please contact our Customer Relations Department at (310) 639-4200

JVC KENWOOD USA CORPORATION
PO BOX 22745
2201 East Dominguez Street
Long Beach, CA 90801-5745 U.S.A.

LM PP 17-003 Revised 2/1/18



Etherstack Inc | New York (GMT -5)
1115 Broadway, Suite #1276
New York, NY 10010
UNITED STATES
E: info.na@etherstack.com
P: +1 917 661 4110

July 24th, 2018

RE: MetroNet25™/City of Twin Falls

To Whom It May Concern:

Regarding section 5.8.1 bullet #3, all equipment supplied will be supported for Seven (7) years with new and or equivalent spares from end of life notification.

Regards,

Doug Chapman
Etherstack Inc.
V.P. Business Development



Sydney (GMT +10)
P: +61 2 8399 7500
info.au@etherstack.com

Yokohama (GMT +9)
P: +81 45 342 9050
info.jp@etherstack.com

London (GMT)
P: +44 207 734 0200
info.eu@etherstack.com

Subject: Policy regarding support beyond last date of sale

17 January, 2018

To whom it may concern;

Tait Communications maintains a policy regarding support for products beyond the last date of purchase. Support and spares parts are available for five years on subscribers and seven years for infrastructure products.

If I can answer any questions regarding this event, please do not hesitate to contact me at (407) 389-9378.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Jeffery Hunt".

Jeffery Hunt

Channel Manager

Tait Communications

Jeffery.hunt@taitradio.com

1. PRODUCT LIFECYCLE - SCOUT

Product Platform	Scout
Product Introduction	2007
End of Product Enhancement	7 years notice
End of Software Maintenance	10 years notice
End of New Parts Manufacture	7 years notice
End of Standard Technical Support Services	10 years notice
Notes	Scout is an "Evergreen" software platform

Avtec is continuing to invest significant resources into the Scout product suite and while enhanced hardware and software options will become available due to this investment, Avtec currently has no plans to end-of-life any significant components of the Scout system without providing replacement options that meet or exceed the current feature set.

JVCKENWOOD SERVICE DIVISION
Repair Parts Retention Period Policy

1) Product Category

Land Mobile Radio Products

2) Functional Components

A definition for the functional components:

Any components that are required in order to maintain its products' performance electronically and/or mechanically.

JVCKENWOOD Service American Parts Center (APC) intends to supply items that fall under this classification ten (10) years from the date of which the products are discontinued at the manufacturer.

However these items may be available beyond ten (10) years, not exceeding thirteen (13) years, if they are still in demand.

3) Non-Functional Components

A definition for the nonfunctional components:

Any items which have no direct relation to its products' performance.

Refer to the items listed below.

JVC KEWNOOD Service APC intends to supply items that fall under this classification three (3) years from the date of which the products are discontinued at the manufacturer. However these items may be available beyond three (3) years, not exceeding eight (8) years, if they are still in demand.

<Example>

- a. Packing materials. (Cartons, plastic bags, buffers, etc.)
- b. Model name plates and labels.
- c. Chassis.
- d. Some of cosmetic items. (Cases, Escutcheons, nets, etc.)
- e. Instruction manuals and caution cards.

Our mission is to provide the best possible support in Parts Availability, however it depends on supply of materials to manufacture parts, some parts may be discontinued earlier than the retention period stated in this policy.

Revised
10/8/2015



Exhibit C

Acceptance Tests

The acceptance test will comply with the test identified in the RFP. In addition, the tests on the following document will be completed.



Proposed Acceptance Test (s) Teton Communications Inc. / City of Twin Falls

Standards

The following standards provide descriptions of functionality that relevant software implementations must comply with. These standards can be used as references for the expected functionality and in any test cases to demonstrate conformance however not all of the functionality described below is necessarily implemented or applicable to this system.

Ref ID	Document Ref	Document name	Issued by
[1]	TSB102-A, November 1995	Project 25, System and Standards Definition	Telecommunications Industry Association
[2]	TSB102-BAAA-A, September 2003	<i>Project 25, FDMA – Common Air Interface</i>	Telecommunications Industry Association
[3]	TSB102-AABF-B, July 2009	<i>Project 25, Link Control Word Formats and Messages</i>	Telecommunications Industry Association
[4]	TSB102-AABG, April 2009	<i>Project 25, Conventional Control Messages</i>	Telecommunications Industry Association
[5]	TSB102-AABA-A, June 2004	<i>Project 25, Trunking Overview</i>	Telecommunications Industry Association
[6]	TSB102-AABB-A, June 2005	<i>Project 25, Trunking Control Channel Formats</i>	Telecommunications Industry Association
[7]	TSB102-AABC-A, June 2009	<i>Project 25, Trunking Control Channel Messages</i>	Telecommunications Industry Association
[8]	TSB102-AABD-A, December 2008	<i>Project 25, Trunking Procedures</i>	Telecommunications Industry Association
[9]	TIA/EIA-102.BAEA-A, June 2004	<i>Project 25, Data Overview</i>	Telecommunications Industry Association
[10]	TIA/EIA-102.BAEB-A, June 2004	<i>Project 25, Packet Data Specification</i>	Telecommunications Industry Association
[11]	TIA/EIA-102.BADA, March 2000	<i>Project 25, Telephone Interconnect Requirements and Definitions</i>	Telecommunications Industry Association
[12]	TIA/EIA-102.BACA-B, November 2012	Project 25, Inter-RF Subsystem Interface Messages and Procedures for Voice and Mobility Management Services	Telecommunications Industry Association
[13]	TIA/EIA-102.BACD-B, July 2011	Project 25, Inter-RF Subsystem Interface Message and Procedures for Supplementary Data Services	Telecommunications Industry Association
[14]	RFC 3621, June 2002	SIP: Session Initiation Protocol	Internet Engineering Task Force
[15]	RFC 3550, July 2003	RTP: A transport for Real-Time Applications	Internet Engineering Task Force
[16]	RFC 4566, July 2006	SDP: Session Description Protocol	Internet Engineering Task Force

Glossary

Term	Description
AGID	Announcement Group ID
APCO	Association of Public-Safety Communications Officials. Note that in this document, "APCO" as used invariably refers to APCO Project 25.
BS	Base station
BSC	Base station Controller
CAI	Common Air Interface – See [1].
CSSI	Console SubSystem Interface
FNE	Fixed Network Equipment
FSM	Flexible Signalling Module
FTSP	Fault Tolerant Server Package
HA	High Availability
HW	Hardware
ISSI	Inter RFSS Subsystem Interface
KFD	Key Fill Device
MR, MS	Mobile Radio, Mobile Station – used as an equivalent to SU, terminal, portable or radio.
NCM	Network Configuration Manager
NLR	Network Location Register
OAM	Off Air Monitor
OTAR	Over The Air Rekeying
P25	See APCO P25
P25CC	P25 Channel Controller
RF	Radio Frequency
RFSS	RF Sub-System
RNC	RFSS Network Controller
SGID	Subscriber Group Identifier
SLN	Storage Location Number
SR	Soft Radio
SU	Subscriber Unit – used as an equivalent of MR, MS, terminal, portable or radio.
SUID	Subscriber Unit Identifier
Trunked radio operation	A mode of operation where mobile radios communicate with each other via an intelligent repeater system with centralised control and arbitration of channel access, allocation and operation.
WACN	Wide-Area Communications Network

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1 Preface

1.1 Purpose

This document,

- Specifies the test environment and configurations used during System Acceptance Test of the proposed First Choice / Roanoke radio network.
- Specifies the tests proposed to be executed during System Acceptance of the First Choice / Roanoke radio network.

1.2 Audience

This document is for,

- Etherstack Engineering and Management Teams.
- TAIT Engineering and Management Teams.
- Teton Communications Engineering and Management Teams.
- Teton Communications / City of Twin Falls Management and Project Teams.

1.3 Document Conventions

Text with a grey background represents an example.

- Characters in **bold** highlight features.
- *Characters in italic provide supporting commentary*
- Statements or Values in yellow background highlight indicate areas that are subject to change during system design and deployment.

2 Test Scope and Process

This section describes the scope and process used to validate the Teton Communications Inc. / City of Twin Falls radio network.

2.1 Scope

2.1.1 In Scope

Functionality, performance and reliability of all Etherstack components and features deployed as part of the radio network deliverables are specified below:

1. P25 Channel Controller (P25CC)
2. Base Station Controller – embedded (eBSC)
3. RFSS Network Controller (RNC)
4. Network Location Register (NLR)
5. High Availability of RNC/NLR (HA)
6. Network Configuration Manager (NCM)
7. SNMP Alarms
8. TAIT FR9010-11 Transceivers GPIO Configuration

2.1.2 Outside Scope

Functionality, performance and reliability of some 3rd party systems or devices used to test features of the Teton Communications Inc. / City of Twin Falls Radio Network are outside scope as specified below:

1. Simulcast
2. Voting
3. PSTN calls
4. Disaster Recovery (DR)

5. GPS/AVL location reporting (Tier 2)
6. OTAR
7. CISCO routers/switches
8. SNMP Management Application
9. Key Fill Device

2.2 Test Process

2.2.1 Methodology

Configuration values as specified in this document have been used to baseline the configuration of the test system.

Tests may require a subscriber unit to be physically present on a particular site. This is enabled via the Site Lock feature of subscriber units where required.

Each test area will be executed and an associated report completed per test cycle.

Any unspecified or unexpected issues observed will be raised in the Etherstack Problem Report Management System. This system provides a publically accessible secure website that enables reporting and tracking of any customer issues or questions. Issues raised during CAT will be classified according to their severity and impact upon the system. Resolution of known issues will be prioritised alongside existing product roadmaps and customer feature requests.

2.2.2 Environment

The system level test is performed with the test environment containing two 4 channel sites with-in a single RFSS.

2.2.3 Tools

The following 3rd Party tools have been used to enable encryption:

1. Key Loader (what brand?)

2.2.4 Execution

Test execution requires a good understanding of the P25 network sub systems and associated configuration tools. A prerequisite section is included in each test which must be followed to ensure that the system and subscriber units are in a valid state before executing the test steps. All test descriptions have an appropriate level of detail to ensure correct and valid test execution. Test results should be recorded in the spreadsheet.

3 Test Setup

The following described the test setup for the Roanoke Site Acceptance Tests.

3.1 System Configuration

The primary Test Network consists of a single RFSS with two 4 channel trunked sites.

3.1.1 System

Configuration Item	Value (Decimal)	Value (Hex)
WACN ID	774407	BD107
System ID	772	304
RFSS ID	1	01
Location Registration Area	0	0

3.1.2 NLR Subscriber Home RFSS

The NLR for all RFSSs needs to have the home subscriber ranges programmed. The values are specified below. All values are in hexadecimal. Space in the unit range is left unallocated to allow for future ISSI or CSSI interconnections with other systems.

RFSS	WACN ID (Hex)	System ID (Hex)	RFSS ID (Hex)	Unit ID Min (Hex)	Unit ID Max (Hex)
TCI / TF	BD107	304	01	000000	000FFF

3.1.3 NLR Group Home RFSS

The NLR for all RFSSs needs to have the home group ranges programmed. The values are specified below. All values are in hexadecimal. Space in the group range is left unallocated to allow for future ISSI or CSSI interconnections with other systems.

RFSS	WACN ID (Hex)	System ID (Hex)	RFSS ID (Hex)	Group ID Min (Hex)	Group ID Max (Hex)
TCI / TF	BD107	304	01	0001	1000
TCI / TF	BD107	304	01	FFFF	FFFF

3.1.4 Channel Identifiers

Note that the channel identifier frequencies are from an FNE viewpoint, i.e. the FNE TX frequency is equal to the SU RX frequency which is known as the "Base Freq" field if the SU are required to have these channel identifiers programmed into them.

Channel Identifier	FNE Tx Frequency (Base Frequency)	Transmit Offset (MHz)	Bandwidth (kHz)	Channel Spacing (kHz)
1	453.0000	5	12.5	12.5

3.1.5 Sites

As described above there is a single site within the RFSS. This site should be programmed into the SU for clarification of which site a particular SU is registered at. They should also be programmed into the NLR for alias display and site polling purposes. The site number is the identifier used in test descriptions.

Site Number	Site Id (Decimal)	Site Id (Hex)	Site Name
1	1	00001	TCI / TF GR 2

3.2 Talk Groups

The talk groups described below mirror those used in TIA.102.CABC-B, Section 2.1.1. They shall be programmed into the RFSS NLR and all SU's.

Group ID (Hex)	Label	Announcement Group	Group Type	Encryption	Mode	System Enabled
0001	PATROL-1	PATROL ANNOUNCE	Standard	No	Transmission	Yes
0002	PATROL-2	PATROL ANNOUNCE	Standard	No	Transmission	Yes
0003	TRAFFIC	None	Standard	No	Transmission	Yes
0004	SPECIAL OPS	None	Standard	No	Transmission	Yes
0005	COMMAND-1	None	Standard	No	Transmission	Yes
0006	COMMAND-2	None	Standard	No	Transmission	Yes
0007	TAC-1	None	Standard	Yes	Transmission	Yes
0008	TAC-2	None	Standard	Yes	Transmission	Yes
0009	TAC-3	None	Standard	Yes	Transmission	Yes
0010	PATROL ANNOUNCE	N/A	Announcement	No	Transmission	Yes
FFFF	SYSTEM	None	System	No	Transmission	Yes

3.3 Subscriber Units

The subscriber units are all initially loaded into the NLR with the default profile parameters. Each SU should have matching information programmed where applicable and all other SU's programmed into their individual address book.

All units are part of the System Id and WACN Id outlined above for the system.

Unit ID (Hex)	Unit ID (Decimal)	Label
000001	1	Radio1
000002	2	Radio2
000003	3	Radio3
000004	4	Radio4
000005	5	Radio5
000006	6	Radio6

3.3.1 Emergency Mode

All subscriber unit radios are programmed to send emergency alarm and enter fixed cycling mode of 10 seconds TX, 10 seconds RX for 1 cycles.

3.4 Subscriber Encryption Keys

The subscriber units will be loaded with encryption keys using a key fill device. The encryption keys are shown in the following table. These keys should be regarded as test keys and not used as part of the final deployment.

SLN (Hex)	Name	Key ID (Hex)	Algorithm ID	Key Material (Hex)
1	Key1	0001	AES	11111111.....1111
2	Key2	0002	AES	22222222.....2222

3.5 Message Lists

The subscriber units are required to have pre-programmed message lists to support this supplementary service. The FNE does not need this programmed anywhere (unless at a console) as the service is only repeated to other SU.

Message ID	Label
1	OFF_Duty
2	ON_Duty

3.6 Status Lists

The subscriber units are required to have pre-programmed message lists to support this supplementary service. The FNE does not need this programmed anywhere (unless at a console) as the service is only repeated to other SU.

Status ID	Label
1	Idle
2	Busy

3.7 SU Channel Configuration

Channel Selector	Channel Type	Talk Group
1	Standard	PATROL-1
2	Standard	PATROL-2
3	Standard	TRAFFIC
4	Standard	SPECIAL OPS

5	Standard	COMMAND-1
6	Standard	COMMAND-2
7	Standard	TAC-1
8	Standard	TAC-2
9	Standard	TAC-3
15	Announce	PATROL-ANN
16	System	System Call

3.8 RF Channel Plan

The equipment described above includes a total of 3 reciters, each of which will be tuned to a single RF channel pair for the duration of the tests.

Each reciter is calibrated to a specific P25CC channel position as outlined below.

Transceiver	Reciter	P25CC	Downlink (Base Transmit)	Uplink (Base Receive)
Site1-Trx1	1	CH1	453.4375	458.4375
Site1-Trx2	2	CH2	453.5125	458.5125
Site1-Trx3	3	CH3	460.0625	465.0625

3.9 IP Allocations

3.9.1 RNC/NLR

Description	IP Address
Gateway	TBD
Subnet	TBD
Server 1 (eth0)	TBD
Server 1 (iDRAC)	TBD
Server 2 (eth0)	TBD
Server 2 (iDRAC)	TBD
Address 1 (RNC)	TBD
Address 2 (NIF)	TBD
Server 1 (eth1)	TBD
Server 2 (eth1)	TBD
Subnet	TBD

Description	IP Address
Gateway	TBD
Subnet	TBD
Server 1 (eth1, straight cable)	TBD
Server 2 (eth1, straight cable)	TBD

3.9.1.1 Site 1 – Twin Falls

Description	IP Address
Gateway	TBD
Subnet	TBD
Embedded Server 1 (eth0)	TBD
P25CC CH1	TBD
P25CC CH2	TBD
P25CC CH3	TBD

3.10 TAIT Base Station Digital I/O Settings

The Digital Output on the TAIT base stations are connected to one of the GPIO lines on the corresponding P25CC channel. This digital output is used to indicate when the transceiver is running or has active alarms. The output is treated as an open collector and the appropriate P25CC channel configuration is used to cater to this. As there is only a single digital input, it is recommended to setup the line so that it is activated only during a major failure of the transceiver. This allows the BSC to remove the channel from service and raise SNMP indication to operators.

3.11 Software Versions

Component	Software Version
Server Operating System (EsCentOS) (CentOS 6.7, 64 bit)	ES0112_RL01_R02_05_003
RFSS Network Controller (RNC)	ES0702_RL01_R03_00_011
Network Location Register (NLR)	ES0708_RL01_R03_00_005
High Availability Node (HA)	ES0903_RL01_R01_02_013
Embedded Base Station Controller (eBSC)	ES0611_RL01_R02_20_000
P25CC Channel Card (FSM) Firmware	FSM v2.20.200 (Build 2)
P25CC Command and Configuration Tool (PCCT)	1.28.001
Network Configuration Manager (NCM)	ES1107_RL01_R1_06_000
Tait TB8100 Firmware	3.0.0

4 Firmware and Software Verification tests

4.1 Subscriber Firmware Versions

4.1.1 Background

This test verifies that the correct firmware versions are present on all subscriber radios.

4.1.2 Pre Conditions

- Radio configuration is complete.

4.1.3 Execution

To be determined

4.1.4 Pass Criterion

- The firmware versions displayed for all subscribers match in Section 4 of this document.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

4.2 FR9010 Firmware Versions

4.2.1 Background

This test verifies that the correct firmware versions are present on all TB8100 transceivers.

4.2.2 Pre Conditions

- Transceiver configuration is complete.
- Ensure laptop or device attaching to Transceiver has been loaded with latest TB8100 Programmer (is desktop icon)

4.2.3 Execution

1. Install 911303B cable between TB8100 and laptop
2. Open FR90000 software
3. Click on NEXT
4. Click on MAIN
5. Click on Radio/READ/WRITE
6. Click "Read from radio"
7. Ensure TB8100 Programming software is at 1.05015
8. Ensure TB8100 firmware is at 71MD V024

4.2.4 Pass Criterion

- The firmware versions displayed for all subscribers match in Section 4 of this document.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

4.3 RNC RPM Software Versions

4.3.1 Background

This test verifies that the correct software (RPM) versions are present on all RNC system components.

4.3.2 Pre Conditions

- System configuration is complete and all components are powered on.
- A Windows PC is available with the Etherstack NCM tool installed.
- The system configuration file is available and open on the NCM.

4.3.3 Execution

1. In the NCM, select "HA RNC Node 1" in the left-hand system-tree frame.
2. Click "RPM Control" from the top buttons.
3. In the resulting dialog, enter "Rnc" in the "RPM File Location" box, and select "Check" in the "RPM Process" box.

The dialog should now look as follows:

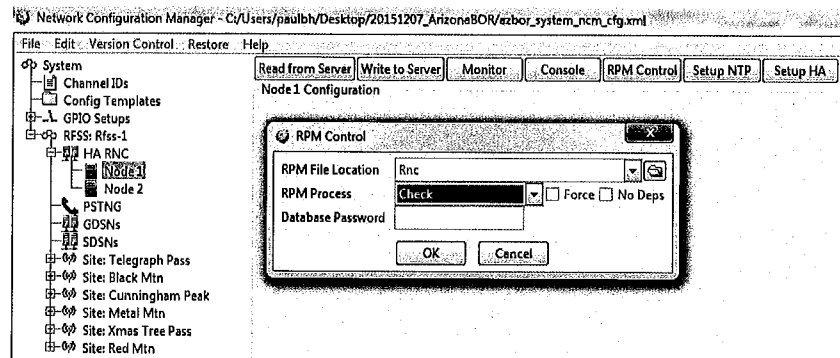


Figure 2: RPM Control Dialog

4. Click "OK".
5. The NCM will query the node 1 server to get the current RNC software version, and display it on the screen.

6. Take note of the software version and ensure it matches that in the "Software Versions" table in Section 5 of this document.
7. Repeat steps 2- 6 for Node 2.

4.3.4 Pass Criterion

- The software versions displayed for all RNC components match those in Section 4 of this document.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

4.4 NLR Software Versions (Node 1 and 2)

4.4.1 Background

This test verifies that the correct software versions are present on all NLR system components.

4.4.2 Pre Conditions

- System configuration is complete and all components are powered on
- A Windows PC is available with a web browser is installed
- A Windows PC is available with the Etherstack NCM tool installed

4.4.3 Execution

Node 1

1. Open web browser.
2. Type in URL of NLR
3. Login using the following Username=Administrator; Password=Etherstack
4. Click SUBMIT
5. Click "Maintenance" top button.
6. Verify "NLR VERSION" information is same as version in Section 5 of this document
7. For Node 2, go to NCM and disable NODE 1 RncService via "Monitor"
8. Verify RncService is ENABLED on RNC Node 2 via "Monitor"
9. Repeat steps 1- 6 for NLR Node 2

4.4.4 Pass Criterion

- The software versions displayed for all NLR components match those in Section 4 of this document.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

4.5 Site Software Versions

4.5.1 Background

This test verifies that the correct software versions are present on Site components.

4.5.2 Pre Conditions

- System configuration is complete and all components are powered on.
- A Windows PC is available with the Etherstack NCM tool installed.

- The system configuration file is available and open on the NCM.

4.5.3 Execution

1. Via NCM, select the site in the left-hand system-tree frame.
2. Click "RPM Control" from the top buttons.
3. In the resulting dialog, enter "Bsc" in the "RPM File Location" box, and select "Check" in the "RPM Process" box.
4. The NCM will query the eBSC to get the current BSC software version, and display it on the screen.
5. Verify the software version and ensure it matches that in the "Software Versions" table in Section 5 of this document.
6. Repeat steps 1- 5 for all other sites.

4.5.4 Pass Criterion

The software version is displayed for all Sites

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

4.6 P25 Channel Card Firmware Versions

4.6.1 Background

This test verifies that the correct channel card firmware is installed on all sites.

4.6.2 Pre Conditions

- System configuration is complete and all components are powered on
- A Windows PC is available with the Etherstack PCCT tool installed.

4.6.3 Execution

1. Click "Connect".
2. Click "Connect" from the top buttons.
3. In the resulting dialog, enter the IP address of the channel card on the first site under test.

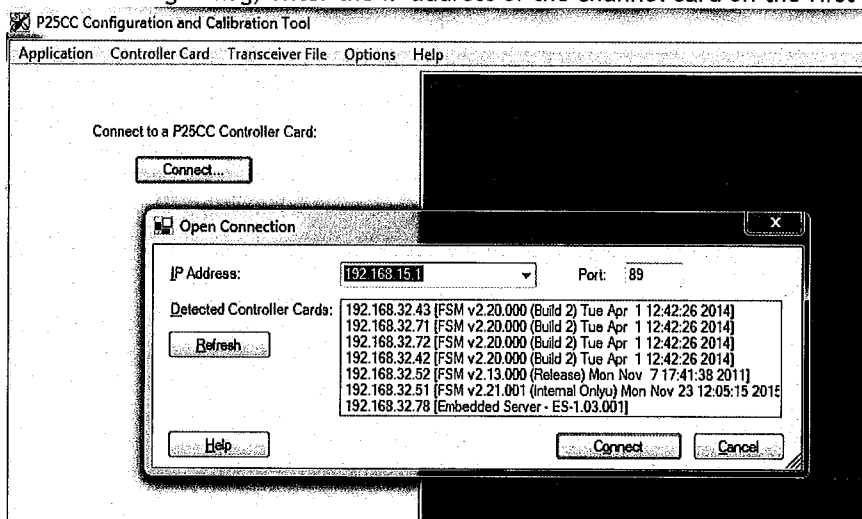


Figure 3: PCCT Connection Menu

4. Click "Connect".

5. The PCCT will connect to the channel-card, and read off all parameters and the firmware version.
6. Take note of the software version at the bottom of the screen (See diagram below) and ensure it matches that in the "Software Versions" table in Section 4 of this document.
7. Confirm FSM card version
8. Click on HELP menu tab and then "About"
9. Note version of PCCT Software is same as in Section 4.

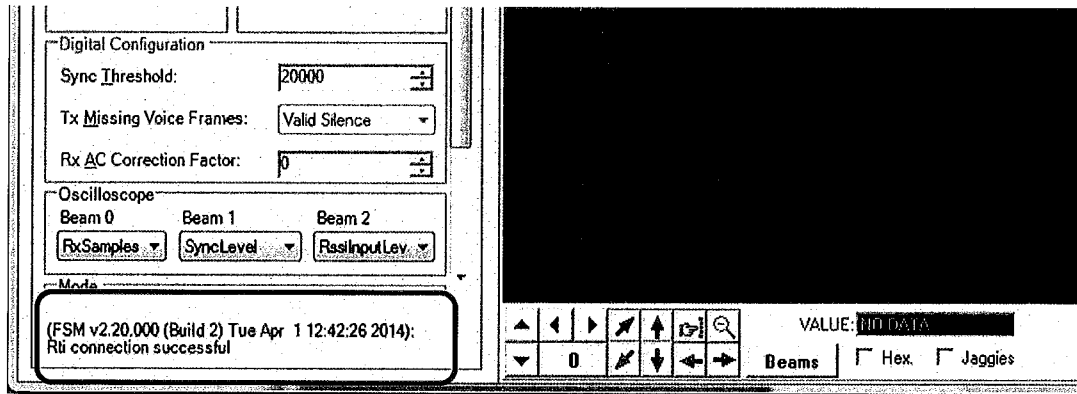


Figure 4: Channel Card Firmware version in PCCT

10. Close the current tab using Application->Close Tab.

4.6.4 Pass Criterion

The firmware versions displayed for all channel cards match those in Section 4 of this document.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5 Trunked Site Test Cases

This suite of tests covers single site within an RFSS, configured as trunked 1+2 (composite).

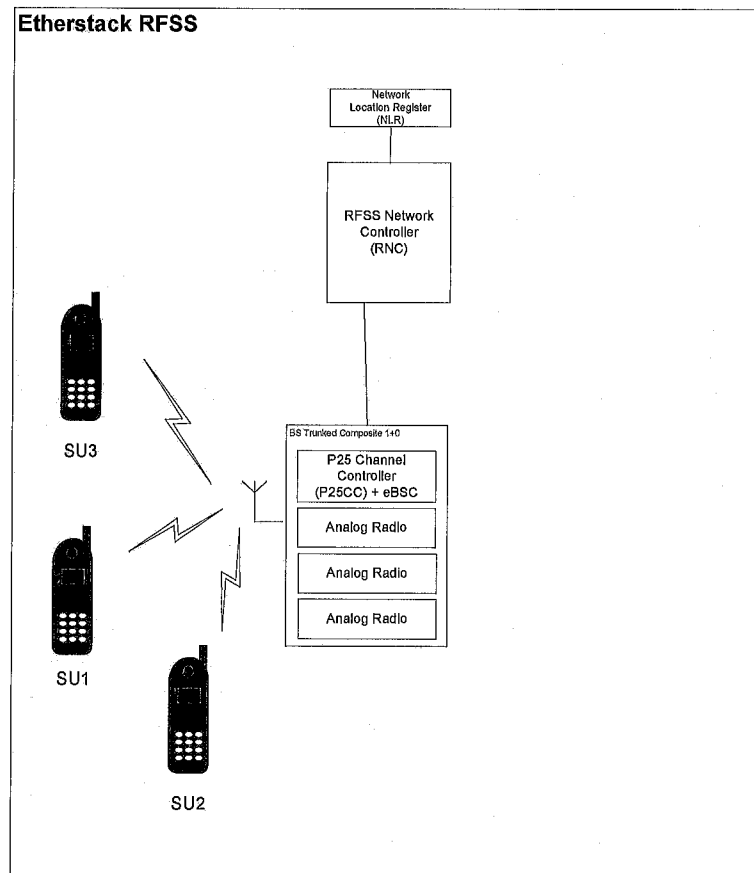


Figure 2: Trunked Site Test Setup

5.1 Registration & Affiliation

5.1.1 Background

This test verifies multiple subscriber units can register with the system and affiliate to a selected talkgroup.

5.1.2 Pre Conditions

- Radio 1 is programmed with correct P25 trunking system & control channel information
- Radio 1 is programmed with correct subscriber identity & talk group values.
- Radio 2 is programmed with correct P25 trunking system & control channel information
- Radio 2 is programmed with correct subscriber identity & talk group values.
- NLR has been programmed with Radio 1 and Radio 2 subscriber identifies and talk group 'SPECIAL OPS'.
- Network is running and a single channel is transmitting a control channel.

5.1.3 Execution

1. Power on Radio 1.
2. Verify the unit finds the control channel and affiliates. If there is a problem the unit will typically beep and display an error message, e.g. Out of Service or No Comms.
3. Verify within the NLR that radio 1 is registered at the site.
4. Power on Radio 2.
5. Verify the unit finds the control channel and affiliates. If there is a problem the unit will typically beep and display an error message, e.g. Out of Service or No Comms.
6. Verify within the NLR that radio 2 is registered at the site.

5.1.4 Pass Criterion

- Multiple subscriber units can register and affiliate with the system.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.2 Group Call

5.2.1 Background

This test verifies a call between 2 units that are part of the same group and located at the same site. This test also covers transmission trunking, e.g. no hang time on the traffic channel.

5.2.2 Pre Conditions

- Two subscriber radios are programmed with valid talk group 'SPECIAL OPS'. Radios are switched on, registered with the system and affiliated with the same talk group.
- Radio 1 is registered with site 1
- Radio 2 is registered with site 1.
- The RF hang time for the talk group is set to 0 seconds in the NLR.

5.2.3 Execution

1. Press the PTT of radio 1, receive grant tone and talk.
2. Audio should be heard in radio 2. The unit ID of radio 1 should be seen on radio 2.
3. Press the PTT of radio 2, receive grant tone and talk.
4. Audio should be heard in radio 1. The unit ID of radio 2 should be seen on radio 1.

5.2.4 Pass Criterion

- Group calls work between radios located at the same and different sites.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.3 Group Call Late Entry

5.3.1 Background

This test verifies late entry of a subscriber into a group call via affiliation by a subscriber that is not part of an existing group call.

5.3.2 Pre Conditions

- Radio 1 and 2 are registered on site 1.
- Radio 3 is switched off.
- All radios are programmed to use the same valid talk group 'SPECIAL OPS'.

5.3.3 Execution

1. Press the PTT button on radio 1, receive grant tone and talk.
2. Audio should be heard in radio 2. The unit ID of radio 1 should be seen on radio 2.
3. While radio 1 is still PTTing, switch radio 3 on. Radio 3 should affiliate with the same talk group as radios 1 and 2.
4. Audio should now be heard in radio 3. The unit ID of radio 1 should be seen on radio 3.

5.3.4 Pass Criterion

- Radio 3 joins the group call after it affiliates with the talk group.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.4 Announcement Group Call**5.4.1 Background**

This test verifies a call on an announcement group between 2 units which are part of different groups but those groups both belong to the same announcement group.

5.4.2 Pre Conditions

- Announcement Group PATROL ANNOUNCE is created on the NLR and two different talk groups (PATROL-1 and PATROL-2) are set to have this same announcement group.
- The announcement group is also programmed into the radios.
- Radio 1 is set to the Announcement Group PATROL ANNOUNCE.
- Radio 2 is set to the talk group PATROL-1.
- Radio 3 is set to the talk group PATROL-2.
- All radios are registered at the site 1.

5.4.3 Execution

1. Place the announcement voice call from radio 1 by selecting the announcement group channel. Upon receiving grant tone, talk.
2. Audio should be heard from the other two radios. The unit ID of radio 1 should be seen at all the other radios.

5.4.4 Pass Criterion

- A subscriber unit is able to make an announcement call which will be heard by any member that is part of a group that belongs to the announcement group.
- A single channel is used for the announcement group voice.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.5 System Group Call**5.5.1 Background**

This test verifies a system call from a subscriber unit that goes to both sites.

5.5.2 Pre Conditions

- A system group is created in the NLR and only Radio 1 is configured to allow initiation of system calls.
- Radios 2 and 3 are affiliated with different talk groups 'PATROL-1' and 'SPECIAL OPS'.
- Radio 2 is registered on site 1.
- Radio 3 is registered on site 1.

5.5.3 Execution

1. Select the channel on radio 1 corresponding to the system group.
2. Verify the system allows affiliation to the system talk group.
3. Press the PTT of radio1, receive grant tone and talk.
4. Audio should be heard in radios 2 and 3. The unit ID of radio 1 should be seen on radios 2 and 3.
5. Select the channel on radio 2 corresponding to the system group.
6. Verify the system does not allow affiliation to the system talk group.

5.5.4 Pass Criterion

- One subscriber unit is able to make a system group call to other subscribers that are located at different sites.
- Subscribers need to be configured through the NLR to be able to make system group calls.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.6 Encrypted Group Call

5.6.1 Background

This test verifies an encrypted call between 2 units that are part of the same group and located at the same site.

5.6.2 Pre Conditions

- Radio 1, 2 & 3 are registered to site 1
- All radios are on the same valid talk group 'COMMAND-1'.
- Radio 3 is programmed to have an encryption key different to that of the other 2 radio's for talk group 'COMMAND-1'.
- Keys and encrypted talk groups have been programmed onto the radios.
- All radios have been configured for Proper Key Detect (or equivalent setting).

5.6.3 Execution

1. Press the PTT button on radio 1, receive grant tone and talk.
2. Decrypted audio should be heard in radio 2. The unit ID of radio 1 should be seen on radio 3 and the audio should be recognized as encrypted voice.
3. Confirm radio 3 cannot decrypt the audio.

5.6.4 Pass Criterion

- Encrypted audio is heard only on radios with the same encryption keys

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.7 Emergency Group Call

5.7.1 Background

This test verifies a call on a group in emergency mode.

5.7.2 Pre Conditions

- Valid talk groups are added to the NLR and programmed on the radios.
- Radios 1 and 2 are registered on site 1.
- All radios are affiliated to the same talk group 'PATROL-1'.
- Radios are programmed to cycle through TX and RX states without user intervention during emergency mode

5.7.3 Execution

1. Press and hold the Emergency call button on radio 1 until radio goes into Emergency Mode. Display on radio 1 should indicate 'Emergency Mode'.
2. Confirm that the radio sounds the emergency declaration tone.
3. Confirm that the emergency call declaration is shown on radio 2. The emergency tone is heard on radio 2, followed by audio from radio 1.
4. Radio 1 should automatically alternate between receive and transmit. To transmit the PTT does not need to be actuated.

5. Clear the emergency by holding down the emergency button on radio1. Confirm the emergency clears in the radios 2.

5.7.4 Pass Criterion

- Subscriber unit is able to make an Emergency Mode group call.
- Emergency mode is recognised by other units

▪ PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.8 Unit-to-Unit Call

5.8.1 Background

This test verifies an individual call between 2 units located at the same site and includes availability check on the called party.

5.8.2 Pre Conditions

- Radios 1, 2 & 3 are registered on site 1.
- Radio 1 is affiliated with talk group 'PATROL-1'
- Radio 2 is affiliated with talk group 'PATROL-1'
- Radio 3 is affiliated with talk group 'PATROL-1'

5.8.3 Execution

1. Using radio 1, initiate an individual call through the menu.
 2. Enter the unit ID of radio 3 and press the PTT of radio 1. Radio 1 should display 'Calling ...' and the unit ID being called. Release PTT.
 3. Confirm that radio 3 receives the call and displays the unit ID of radio 1. Radio 3 should ring until answered, call is cancelled or call is timed out.
 4. Press and hold the PTT of radio 3 to answer the individual call, receive a grant tone and talk.
 5. Confirm that radio 1 receives the call and displays the unit ID of radio 3. Confirm that radio 2 remains idle.
 6. Press and hold the PTT of radio 1 to continue the conversation.
 7. Confirm that radio 3 receives the audio from radio 1.
 8. Press 'Cancel' on radio 1 to end the individual call.
- Repeat the test but clear the call from Radio 3, i.e. the called party
 - Repeat the test but initiate a call to Radio 2

5.8.4 Pass Criterion

- A subscriber unit can call another subscriber unit irrespective of talk group affiliation.
- Other units on the same talk group and site do not hear the individual call.

▪ PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.9 Encrypted Unit-to-Unit Call

5.9.1 Background

This test verifies an encrypted individual call between 2 units located at the same site and includes availability check on the called party.

5.9.2 Pre Conditions

- Radios 1, 2 & 3 are registered on site 1.
- Radio 1 is affiliated with talk group 'PATROL-1'
- Radio 2 is affiliated with talk group 'PATROL-1'
- Radio 3 is affiliated with talk group 'PATROL-2'
- Radios 1, 2 and 3 have the same unit call encryption key programmed into them.

5.9.3 Execution

1. Using radio 1, initiate an individual call through the menu.
 2. Enter the unit ID of radio 3 and press the PTT of radio 1. Radio 1 should display 'Calling ...' and the unit ID being called. Release PTT.
 3. Confirm that radio 3 receives the call and displays the unit ID of radio 1. Radio 3 should ring until answered, call is cancelled or call is timed out.
 4. Press and hold the PTT of radio 3 to answer the individual call, receive a grant tone and talk.
 5. Confirm that radio 1 receives the call and displays the unit ID of radio 3. Confirm that radio 2 remains idle.
 6. Press and hold the PTT of radio 1 to continue the conversation.
 7. Confirm that radio 3 receives the audio from radio 1.
 8. Press 'Cancel' on radio 1 to end the individual call.
- Repeat the test but clear the call from Radio 3, i.e. the called party
 - Repeat the test but initiate a call to Radio 2

5.9.4 Pass Criterion

- A subscriber unit can call another subscriber unit irrespective of talk group affiliation.
- Other units on the same talk group and site do not hear the individual call.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.10 Radio Inhibit/Uninhibit

5.10.1 Background

This test verifies the Radio inhibit/uninhibit feature from the NLR to a unit located within the RFSS.

5.10.2 Pre Conditions

- NLR is installed correctly and the subscriber already exists.
- Radio is turned on and registered with any site.

5.10.3 Execution

1. On the NLR, click on the 'Subscribers' link on the menu.
2. Locate the subscriber entry and click on the 'Inhibit' button. Click the 'ok' verify button.
3. A successful inhibit will be displayed as indicated in Figure 1. Confirm the inhibit task was successful by checking the radio display screen is blank.

Subscribers

Groups

Locations

Subscriber Home RFSSs

Group Home RFSSs

Add a New Subscriber
 Add Multiple Subscribers

Inhibiting 000030020027FE...
Successful!

Page 1 of 238. ◀◀ 1 go ▶▶ Showing 1-100 of 23798. Show per page

Type	SUID	Unit ID	System ID	WACN ID	WUID
(any)					
Unit	000030020027FE	0027FE (10238)	002 (2)	00003 (3)	0027FE (10238)

Figure 1: NLR Inhibit Radio

4. Locate the subscriber entry and click on the 'Uninhibit' button.
5. A successful Uninhibit will be displayed as indicated in Figure 2. Confirm the radio is back online and registered with the site.

Subscribers

Groups

Locations

Subscriber Home RFSSs

Group Home RFSSs

Add a New Subscriber
 Add Multiple Subscribers

Uninhibiting 000030020027FE...
Successful!

Page 1 of 238. ◀◀ 1 go ▶▶ Showing 1-100 of 23798. Show per page

Type	SUID	Unit ID	System ID	WACN ID	WUID
(any)					
Unit	000030020027FE	0027FE (10238)	002 (2)	00003 (3)	0027FE (10238)

Figure 2: NLR Uninhibit Radio

5.10.4 Pass Criterion

- Radio can be inhibited and uninhibited via the NLR web interface.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.11 Group Call Contention

5.11.1 Background

This test will demonstrate group call contention by having two subscribers affiliated to the same group, attempt to PTT at the same time.

5.11.2 Pre Conditions

- Radio 1 is registered on site 1.
- Radio 2 is registered on site 1.
- Radios 1 and 2 are programmed with the same valid talk group 'SPECIAL OPS'.

5.11.3 Execution

1. Press the PTT button on radios 1 and 2 at the same time.
2. Confirm one of the radios receives a channel grant.

3. Confirm the other radio gets their call denied. A message 'Transmit Denied' should be displayed in the radio screen.

5.11.4 Pass Criterion

- Only one radio gets a channel grant tone.
- Other radio gets their call denied and then starts receiving voice.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.13 Simultaneous Group Calls

5.13.1 Background

This test demonstrates two group calls in different talk groups initiated at the same time.

5.13.2 Preconditions

- Radio 1 is registered on site 1 and programmed with talk group 'PATROL-1'.
- Radio 2 is registered on site 1 and programmed with talk group 'PATROL-2'.
- Radio 3 is registered on site 1 and programmed with talk group 'PATROL-1'.
- Radio 4 is registered on site 1 and programmed with talk group 'PATROL-2'.

5.13.3 Execution

1. Press the PTT button on radios 1 and 2. Receive grant tone and talk.
2. Confirm audio is heard on radios 3 and 4. The unit ID of radio 1 should be displayed in radio 3's screen and the unit ID of radio 2 should be displayed in radio 4's screen.

5.13.4 Pass Criterion

- Multiple group calls can be initiated simultaneously.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.14 Group Call Type Priority Queued

5.14.1 Background

This test verifies calls can be queued according to talk group priority when all traffic channels are busy.

5.14.2 Preconditions

- Radio 1 is registered on site 1 and programmed with talk group 'PATROL-1' with priority five.
- Radio 2 is registered on site 1 and programmed with talk group 'SPECIAL OPS' with priority five.
- Radio 3 is registered on site 1 and programmed with talk group 'PATROL-2' with priority five.
- Radio 4 is registered on site 1 and programmed with talk group 'PATROL-2' with priority five.
- Radio 5 is registered on site 1 and programmed with talk group 'TRAFFIC' with priority six.
- Radio 6 is registered on site 1 and programmed with talk group 'TRAFFIC' with priority six.

5.14.3 Execution

1. Make one of the traffic channels busy with radio 1 by pressing and holding the PTT button on radio 1, receive grant tone and continuing to hold until step 7.
2. Make the remaining traffic channel busy with radio 2 by pressing and holding the PTT button on radio 2, receive grant tone and continuing to hold until step 9.
3. With all traffic channels busy, press and release the PTT button on radio 3.

4. Confirm that a 'Call Queue' tone is heard at the radio. Verify 'Call Queued' is shown in radio 2's display.
5. Press and release the PTT button for radio 5.
6. Confirm that a 'Call Queue' tone is heard at the radio. Verify 'Call Queued' is shown in radio 3's display.
7. Release PTT button on radio 1.
8. Confirm that radio 5 is assigned to the newly freed traffic channel and the grant tone is heard at the radio, without having to re-key the radio. Verify valid audio is heard at radio 6.
9. Release PTT button on radio 2.
10. Confirm that radio 3 is assigned the newly freed traffic channel and the grant tone is heard at the radio, without having to re-key the radio. Verify valid audio is heard at radio 4.
11. Release PTT button on radio 3.
12. Release PTT button on radio 5.

5.14.4 Pass Criterion

- Calls in the queue are ordered by the talk group priority.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.15 Group Call Type Pre-Emptive

5.15.1 Background

This test verifies calls of higher priority can bypass the queue and pre-empt existing calls according to talk group priority when all traffic channels at a site are busy.

Pre-emption is only possible when a traffic channel does not have busy uplink, i.e. the group has a hang time and there is no active PTT from units at that site.

5.15.2 Preconditions

- Radio 1 is registered on site 1 and programmed with talk group 'PATROL-1' with priority five.
- Radio 2 is registered on site 1 and programmed with talk group 'COMMAND-1' with priority five.
- Radio 3 is registered on site 1 and programmed with talk group 'PATROL-1' with priority five.
- Radio 4 is registered on site 1 and programmed with talk group 'COMMAND-1' with priority five.
- Radio 5 is registered on site 1 and programmed with talk group 'SPECIAL OPS' with priority eight.
- Radio 6 is registered on site 1 and programmed with talk group 'SPECIAL OPS' with priority eight.
- Talk group 'PATROL-1' has a hang time configured in the NLR
- Talk group 'COMMAND-1' does not have any hang time

5.15.3 Execution

1. Make one of the traffic channels busy with radio 1 by pressing and holding the PTT button on radio 1, receive grant tone and continuing to hold until step 3.
2. Make the remaining traffic channel busy with radio 2 by pressing and holding the PTT button on radio 2, receive grant tone and continuing to hold until step 6.
3. Release PTT on Radio 1 and verify the traffic channel remains in hang time.
4. Press and hold the PTT button on radio 5, receive immediate grant tone and talk. Audio should be heard on radio 6 and the call between radios 1 and 3 should no longer be heard
5. Release PTT button on radio 5.

5.15.4 Pass Criterion

- Calls of high priority can pre-empt existing calls if there is a traffic channel has idle uplink.

PASS/FAIL Sign Off

Result	Initial	Notes

☐ PASS ☐ FAIL ☐ RETEST		
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5.16 Emergency Call Pre-Emptive

5.16.1 Background

This test verifies that emergency group calls are given pre-emptive priority when a site has non-emergency voice in progress.

Pre-emption is only possible when a traffic channel does not have busy uplink, i.e. the group has a hang time and there is no active PTT from units at that site.

5.16.2 Pre Conditions

- Radio 1 is registered on site 1 and programmed with talk group 'PATROL-1' with priority five.
- Radio 2 is registered on site 1 and programmed with talk group 'COMMAND-1' with priority five.
- Radio 3 is registered on site 1 and programmed with talk group 'PATROL-1' with priority five.
- Radio 4 is registered on site 1 and programmed with talk group 'COMMAND-1' with priority five.
- Radio 5 is registered on site 1 and programmed with talk group 'PATROL-2' with priority five.
- Radio 6 is registered on site 1 and programmed with talk group 'PATROL-2' with priority five.
- Talk group 'PATROL-1' has a hang time configured in the NLR
- Talk group 'COMMAND-1' does not have any hang time

5.16.3 Execution

1. Make one of the traffic channels busy by pressing and holding the PTT button on radio 1, receive grant tone and continuing to hold until step 5.
2. Audio and talking party of radio 1 should be heard on radio 3.
3. Make the remaining traffic channel busy by pressing and holding the PTT button on radio 2, receive grant tone and continuing to hold until step 10.
4. Audio and talking party of radio 2 should be heard on radio 4
5. Release PTT on Radio 1 and verify the traffic channel remains in hang time.
6. Press and hold the Emergency call button on radio 5 until radio goes into Emergency Mode. Display on radio 4 should indicate 'Emergency Mode'.
Confirm that the radio sounds the emergency declaration tone.
Radio 5 should automatically alternate between receive and transmit. To transmit the PTT does not need to be actuated.
7. Confirm that the emergency call declaration is shown on radio 6 followed by audio from radio 5.
8. Verify that radio's 1, 2, 3 and 4 do not indicate any emergency and repeated voice of talk group 'PATROL-1' ends.
9. Clear the emergency by holding the emergency button on radio 5. Confirm the emergency clears on the radio 6.
10. Release PTT on Radio 2.

5.16.4 Pass Criterion

- Emergency calls can pre-empt existing voice call if there is a traffic channel has idle uplink.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.17 Emergency Group Call Late Entry by SU

5.17.1 Background

This test demonstrates late entry to an emergency group call by a subscriber not originally on the call.

5.17.2 Pre Conditions

- Radios 1 and 2 are registered with site 1 and affiliated with talk group 'PATROL-1'.
- Radio 3 is powered off

5.17.3 Execution

1. Press and hold the Emergency call button on radio 1 until radio goes into Emergency Mode. Display on radio 1 should indicate 'Emergency Mode'.
2. Confirm that the radio sounds the emergency declaration tone.
3. Confirm that the emergency call declaration is shown on radio 2 and the emergency tone is heard on radio 2 and followed by audio from radio 1.
4. Radio 1 should automatically alternate between receive and transmit. To transmit the PTT does not need to be actuated.
5. While radio 1 is still transmitting, switch radio 3 on. Radio 3 should attempt to find a control channel.
6. Confirm that the emergency call declaration is shown on radio 3 and the emergency tone is heard on radio 3 and followed by audio from radio 1.
7. Clear the emergency by holding the emergency button on radio 1. Confirm the emergency clears in the radios 2 and 3.

5.17.4 Pass Criterion

- Radio 3 joins the emergency group call after it affiliates with the talk group

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.19 Short Message

5.19.1 Background

This test checks successful delivery of a pre-programmed short message from one radio unit to another.

5.19.2 Pre Condition

- Radio 1, 2 and 3 are registered at Site 1
- All radio units have matching pre-programmed short message address book.

5.19.3 Execution

1. Radio 1 sends short message to Radio 2
 2. Verify Radio 2 receives short message from Radio 1
 3. Verify Radio 1 receives an acknowledgement of confirmed delivery
- Repeat test by sending short message to Radio 3.

5.19.4 Pass Criterion

- Short message can be sent by one radio unit to another and the corresponding acknowledgement is returned to the initiating unit.
- Other units do not receive the message.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.20 Call Alert (Page)

5.20.1 Background

This test checks successful delivery of a call alert (page) from one radio unit to another.

5.20.2 Pre Condition

- Radio 1, 2 and 3 are registered at Site 1

5.20.3 Execution

1. Radio 1 sends call alert to Radio 2
 2. Verify Radio 2 receives call alert from Radio 1
 3. Verify Radio 1 receives an acknowledgement of confirmed delivery
- Repeat test by sending call alert to Radio 3.

5.20.4 Pass Criterion

- Call alert can be sent by one radio unit to another and the corresponding acknowledgement is returned to the initiating unit.
- Other units do not receive the call alert.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.21 Status Update

5.21.1 Background

This test checks successful delivery of a status update from one radio unit to another.

5.21.2 Pre Condition

- Radio 1, 2 and 3 registered at Site 1
- All radio units have matching pre-programmed status address book.

5.21.3 Execution

1. Radio 1 sends status update to Radio 2
 2. Verify Radio 2 receives status update from Radio 1 containing Radio 1 current status
 3. Modify the status on Radio 1 to a different value
 4. Radio 1 sends status update to Radio 2
 5. Verify Radio 2 receives status query from Radio 1 containing Radio 1 current status
- Repeat test by sending status update to Radio 3.

5.21.4 Pass Criterion

- Status update can be sent by one radio unit to another.
- Other units do not receive the status update.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.22 Status Query

5.22.1 Background

This test checks successful delivery of a status query from one radio unit to another.

5.22.2 Pre Condition

- Radio 1, 2 and 3 registered at Site 1
- All radio units have matching pre-programmed status address book.

5.22.3 Execution

4. Radio 1 sends status query to Radio 2
 5. Verify Radio 2 receives status query from Radio 1
 6. Verify Radio 1 receives an acknowledgement of status containing Radio 1 current status
 7. Modify the status on Radio 2 to a different value
 8. Radio 1 sends status query to Radio 2
 9. Verify Radio 2 receives status query from Radio 1
 10. Verify Radio 1 receives an acknowledgement of status containing Radio 1 current status
- Repeat test by sending status query to Radio 3.

5.22.4 Pass Criterion

- Status query can be sent by one radio unit to another and the corresponding acknowledgement containing the status is returned to the initiating unit.
- Other units do not receive the status update.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

5.23 BSC Standalone Mode then RNC Link re-established

5.23.1 Background

This test verifies that the BSC can continue to operate in a standalone mode when no connection to the RNC exists and recovers RFSS functionality when the link is re-established.

Note: Some of the test execution steps may be different to those described below for different manufacturers of subscriber equipment.

5.23.2 Pre Conditions

- Site connectivity exists between the BSC and the RNC.
- Radios are programmed with valid talk groups and registered with the system.
- Radio 1 and 2 are registered with Site 1 on talk group 'PATROL-1'

5.23.3 Execution

1. Via the NCM, locate the secondary RNC details and click on the 'Monitor' button.
2. Stop the Heartbeat process by stopping the 'HeartbeatService'.
3. Locate the primary RNC and click on the 'Monitor' button.
4. Stop the Heartbeat process by stopping the 'HeartbeatService'.
5. Stop the RNC process by stopping the 'RncService'.
6. Wait at least 10 seconds for the BSC to enter standalone mode.
7. Verify both radios indicate 'Site Trunking'.
8. Turn radio 1 off and then on again. Verify that system access is still allowed.
9. Press the PTT of radio 1, receive grant tone and talk.

10. Audio should be heard in radio 2.
11. Initiate the individual call button of radio 1.
12. Enter the unit ID of radio 2 and press the PTT of radio 1. Radio 1 should display 'Calling...' and the unit ID being called. Release PTT.
13. Confirm that radio 2 receives the call and displays the unit ID of radio 1. Radio 2 should ring until answered, call is cancelled or call is timed out.
14. Press and hold the PTT of radio 2 to answer the call, receive a grant tone and talk.
15. Confirm that radio 1 receives the call and displays the unit ID of radio 2.
16. Press 'Cancel' on radio 2.
17. Using radio 1, press 'Menu' key, scroll to 'Call Alert' and press 'Select'.
18. Enter the unit ID of radio 2 and press 'Select'.
19. Verify 'Sending Page to <Unit ID>' is displayed, followed by 'Ack Received'.
20. Confirm that radio 2 receives the page.
21. Via the NCM, locate the RNC details and click on the 'Monitor' button.
22. Start the RNC process by starting the 'RncService'.
23. Wait at least 5 seconds for the BSC to enter re-establish a link with the RNC.
24. Verify both radios no longer indicate 'Site Trunking'.
25. Force radio 2 to roam onto site 2.
26. Press the PTT of radio 1, receive grant tone and talk.
27. Audio should be heard in radio 2.
28. Initiate an individual call button of radio 1.
29. Enter the unit ID of radio 2 and press the PTT of radio 1. Radio 1 should display 'Calling...' and the unit ID being called. Release PTT.
30. Confirm that radio 2 receives the call and displays the unit ID of radio 1. Radio 2 should ring until answered, call is cancelled or call is timed out.
31. Press and hold the PTT of radio 2 to answer the call, receive a grant tone and talk.
32. Confirm that radio 1 receives the call and displays the unit ID of radio 2.
33. Press 'Cancel' on radio 2.
34. Using radio 1, press 'Menu' key, scroll to 'Call Alert' and press 'Select'.
35. Enter the unit ID of radio 2 and press 'Select'.
36. Verify 'Sending Page to <Unit ID>' is displayed, followed by 'Ack Received'.
37. Confirm that radio 2 receives the page.
38. Turn radio 1 off and then on again. Verify that system access is still allowed and that the unit no longer indicates 'Site Trunking'.

5.23.4 Pass Criterion

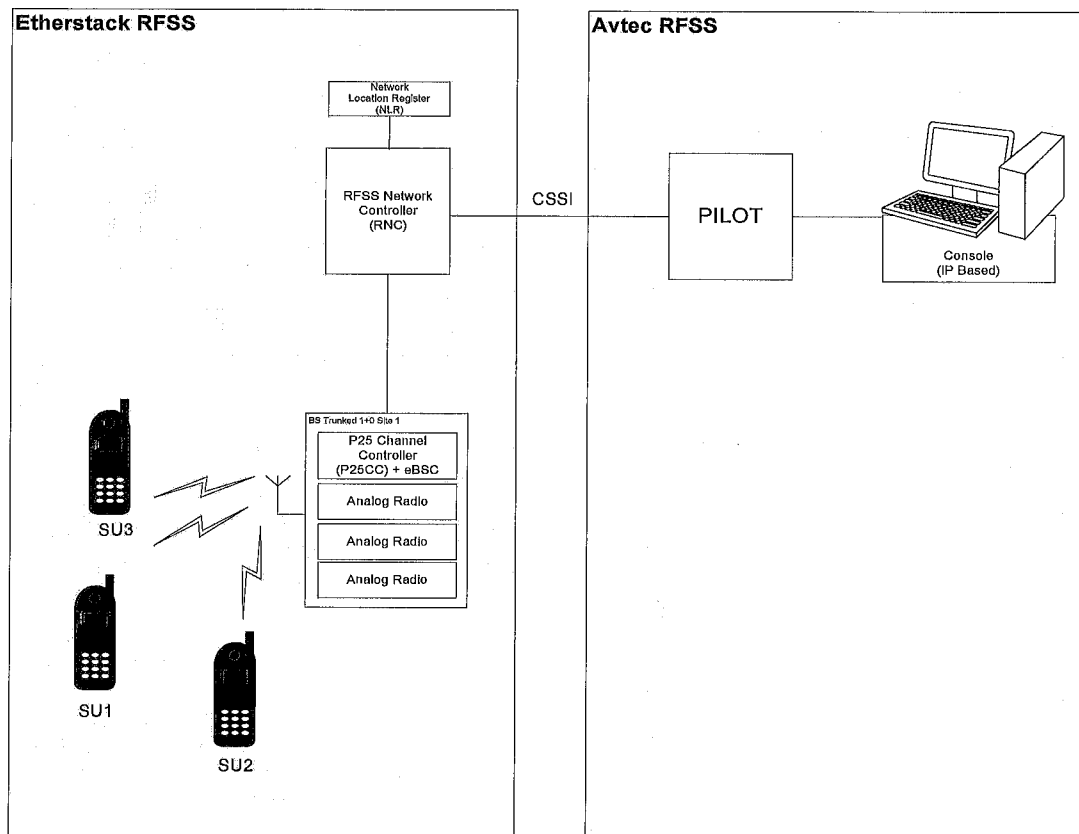
- Whilst the RNC is down all subscriber units recognise they are in 'Site Trunking' mode and the following calls and services still work locally.
 - Registration
 - Group Affiliation
 - Group Calls
 - Unit-to-Unit Calls
 - Call Alert (Page)
- When the RNC link is re-established the following calls and services still work for multi-site and all subscribers no longer display 'Site Trunking'.
 - Registration
 - Group Affiliation
 - Group Calls
 - Unit-to-Unit Calls
 - Call Alert (Page)

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6 CSSI Test Cases

This suite of tests covers the operation of a console connected to the RFSS via the CSSI. In this section an AVTEC console is described but any valid console that supports the CSSI could be substituted instead.



6.1 Group Affiliation

6.1.1 Background

This test checks if the console can affiliate from its serving RFSS to that of the home RFSS for interest in group voice calls.

6.1.2 Pre Condition

- Group PATROL-1 is homed at ETHERSTACK RFSS.
- AVTEC console registers internally within AVTEC RFSS.

6.1.3 Execution

1. AVTEC Console addition of group PATROL-1 interest
2. Verify successful affiliation response from home RFSS.
3. If configured, verify console displays the announcement group is now available.

6.1.4 Pass Criterion

- Verify home NLR has new RFSS in its affiliation list for group PATROL-1

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.2 Group Deaffiliation

6.2.1 Background

This test checks if the console can de-affiliate from its serving RFSS to that of the group home RFSS when it no longer wishes to monitor group voice activity.

6.2.2 Pre Condition

- Group PATROL-1 home is at ETHERSTACK RFSS.
- AVTEC console registered internally within AVTEC RFSS.
- AVTEC console affiliated to Group PATROL-1 at home ETHERSTACK RFSS.

6.2.3 Execution

1. AVTEC Console removal of Group PATROL-1 interest for voice.
2. Verify successful de-affiliation response from home RFSS.

6.2.4 Pass Criterion

- Verify home NLR no longer has AVTEC RFSS in its affiliation list for Group PATROL-1.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.3 Group Interest Supplementary Services

6.6.1 Background

This test checks if the console can affiliate from its serving RFSS to that of the home RFSS for interest in group addressed supplementary services (emergency alarm).

6.6.2 Pre Condition

- Group PATROL-1 home is at ETHERSTACK RFSS.
- AVTEC console registers internally within AVTEC RFSS.

6.6.3 Execution

1. AVTEC Console addition of Group PATROL-1 interest for supplementary services
2. Verify successful affiliation response from home RFSS.

6.6.4 Pass Criterion

- Verify home NLR has new RFSS in its affiliation list for Group PATROL-1 supplementary services.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.5 Group Deregister Supplementary Services

6.5.1 Background

This test checks if the console can remove interest from its serving RFSS with that of the group home RFSS when it no longer wishes to monitor supplementary service activity.

6.5.2 Pre Condition

- Group PATROL-1 home is at ETHERSTACK RFSS.
- AVTEC console registered internally within AVTEC RFSS.
- AVTEC console registered interest for supplementary services to Group PATROL-1 at home ETHERSTACK RFSS.

6.5.3 Execution

1. AVTEC Console removal of Group PATROL-1 interest for services.
2. Verify successful de-registration response from home RFSS.

6.5.4 Pass Criterion

- Verify home NLR no longer has AVTEC RFSS in its supplementary service list for Group PATROL-1.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.6 Group Call

6.6.1 Background

This test checks if the console can make a group call from its serving RFSS and the subscriber can make a group call from its home RFSS.

6.6.2 Pre Condition

- Group PATROL-1 home is at ETHERSTACK RFSS.
- AVTEC console registers internally within AVTEC RFSS and affiliates with talk Group PATROL-1 at ETHERSTACK RFSS.
- Radio 1 registers and affiliates with talk group PATROL-1 internally at ETHERSTACK RFSS

6.2.3 Execution

1. AVTEC Console PTT to Group PATROL-1

2. Verify Radio 1 can hear AVTEC console
3. AVTEC Console stops PTT
4. Verify Radio 1 receives end of PTT
5. Radio 1 PTT to group PATROL-1
6. Verify AVTEC Console can hear the subscriber unit
7. Radio 1 stops PTT
8. Verify AVTEC Console receives end of PTT

6.2.4 Pass Criterion

- Group voice is clear and audible between Radio 1 and the console.
- Talking party ID is present on both Radio Unit and Console when receiving voice.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.7 Group Call – Late Join By Console

6.7.1 Background

This test checks if a console can join a group call during "late entry" after the call has already been setup by the home RFSS. When the console affiliates to the group, the home RFSS should include the new RFSS into the call and if a PTT is in progress start sending voice to the AVTEC console.

6.7.2 Pre Condition

- Group 5 home is at ETHERSTACK RFSS.
- AVTEC console is NOT affiliated to group PATROL-1 at the home RFSS.
- Radio 1 registered and affiliated with talk group PATROL-1 at ETHERSTACK RFSS.

6.7.3 Execution

1. Start group call by initiating a PTT on Radio 1 (continue holding PTT down until step 5)
2. Verify that the AVTEC console is not included in the call setup or voice.
3. AVTEC Console affiliates to group PATROL-1.
4. Verify console receives a call setup and can hear the in-progress PTT on group PATROL-1 shortly after affiliation.
5. Radio 1 stops PTT.
6. Console starts PTT
7. Verify Radio 1 can hear voice from console.
8. Console stops PTT.
9. Wait until the call timer expires (30 seconds) and verify the group call is cleared at the console.

6.7.4 Pass Criterion

- Group voice is clear and audible between Radio 1 and the console once the late entry call is established.
- Talking party ID is present on both Radio Unit and Console when receiving voice.

Note that for step 9 of this test the Ayttec console does not visually clear the call on the console screen, however the call clear may be verified by examining network logs and looking for the BYE request and response.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.8 Group Call – Late Join By SU

6.8.1 Background

This test checks if a subscriber unit can join a group call during "late entry" after the call has already been setup by the console RFSS. When the subscriber unit affiliates to the group, the home RFSS should include the new site into the call and if a PTT is in progress start sending voice to the unit.

This is a similar test to above but with the subscriber unit and console roles reversed.

6.8.2 Pre Condition

- Group PATROL-1 home is at ETHERSTACK RFSS.
- AVTEC console is affiliated to group PATROL-1 at the home RFSS.
- No subscriber units are affiliated to group PATROL-1 at Site 1.

6.8.3 Execution

1. Start group PATROL-1 call by initiating a PTT on the AVTEC console (continue holding PTT down until step 6)
2. Verify that no call is setup to the BSC Site 1
3. Radio 1 registers and affiliates to group PATROL-1
4. Verify the BSC receives a call setup and start receiving the console PTT
5. Verify that voice from console is heard by Radio 1 shortly after affiliation
6. Console stops PTT
7. Radio 1 starts PTT
8. Verify that voice from Radio 1 is heard by the console
9. Radio 1 stops PTT

6.8.4 Pass Criterion

- Group voice is clear and audible between Radio 1 and the console once the late entry call is established.
- Talking party ID is present on both Radio Unit and Console when receiving voice.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.9 Group Call - Multiple

6.9.1 Background

This test checks if a more than one group call can be monitored by the console.

6.9.2 Pre Condition

- Group PATROL-1 home is at ETHERSTACK RFSS.
- Group PATROL-2 home is at ETHERSTACK RFSS.
- AVTEC console is affiliated to group PATROL-1 at the home RFSS.
- AVTEC console is affiliated to group PATROL-2 at the home RFSS.
- SU1 registered and affiliated with talk group PATROL-1 at ETHERSTACK RFSS.
- SU2 registered and affiliated with talk group PATROL-2 at ETHERSTACK RFSS.
- Radio 1 is located at Site 1 and no other units are affiliated to group PATROL-2 at this site.
- Radio 2 is located at Site 1 and no other units are affiliated to group PATROL-1 at this site.

6.9.3 Execution

1. Start group PATROL-1 call by initiating a PTT on Radio 1 (continue holding PTT down until step 6)
2. Verify the console hears group PATROL-1 voice

3. Start group PATROL-2 call by initiating a PTT on Radio 2 (continue holding PTT down until step 7)
4. Verify the console hears group PATROL-2 voice
5. PTT on both Radio 1 and Radio 2 at the same time and verify that audio is mixed together by the console
6. Radio 1 stops PTT
7. Radio 2 stops PTT

6.9.4 Pass Criterion

- Group voice is clear and audible between Radio 1 and the console
- Group voice is clear and audible between Radio 2 and the console
- Talking party ID is present on both Radio Unit and Console when receiving voice.

▪ PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.10 Announcement Group Call

6.10.1 Background

This test checks if the console can make an announcement group call from its RFSS. The announcement group is home to the Etherstack RFSS.

6.10.2 Pre Condition

- Group PATROL-1 is part of announcement group PATROL ANNOUNCE and is home is at ETHERSTACK RFSS.
- Group PATROL-2 is part of announcement group PATROL ANNOUNCE and is home is at ETHERSTACK RFSS.
- Group PATROL ANNOUNCE is announcement group and is home is at ETHERSTACK RFSS.
- AVTEC console registers internally within AVTEC RFSS and affiliates with talk group PATROL-1 at ETHERSTACK RFSS.
- Radio 1 registers and affiliates with talk group PATROL-1 internally at ETHERSTACK RFSS on site 1
- Radio 2 registers and affiliates with talk group PATROL-2 internally at ETHERSTACK RFSS on site 1

6.10.3 Execution

1. AVTEC Console PTT to announcement group
2. Verify Radio 1 can hear AVTEC console and displays that the call is announcement
3. Verify Radio 2 can also hear AVTEC console and displays that the call is announcement
4. Verify that only a single channel is used at the BSC
5. AVTEC Console stops PTT
6. Verify Radio 1 and Radio 2 receive end of PTT
7. Radio 1 PTT to the announcement group.
8. Verify AVTEC Console can hear the subscriber unit and is displayed as an announcement call.
9. Verify Radio 2 can hear the subscriber unit and is displayed as an announcement call.
10. Radio 1 stops PTT
11. Verify AVTEC Console receives end of PTT

6.10.4 Pass Criterion

- Announcement Group voice can be initiated by the console to members of any group that belongs to the announcement group.
- Announcement group voice can also be initiated by a Radio unit and heard by both other subscriber units and the console.
- Group voice is clear and audible

- Talking party ID is present on both Radio Unit and Console when receiving voice.

▪ **PASS/FAIL Sign Off**

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.11 System Group Call

6.11.1 Background

This test checks if the console can make an system group call from its RFSS. The system group is home to the Etherstack RFSS.

6.11.2 Pre Condition

- Group PATROL-1 is home is at ETHERSTACK RFSS.
- Group TRAFFIC is home is at ETHERSTACK RFSS.
- System Group 0xFFFF (65535) is home is at ETHERSTACK RFSS.
- AVTEC console registers internally within AVTEC RFSS and affiliates with talk group PATROL-1 at ETHERSTACK RFSS.
- Radio 1 registers and affiliates with talk group PATROL-1 internally at ETHERSTACK RFSS on site 1
- Radio 2 registers and affiliates with talk group TRAFFIC internally at ETHERSTACK RFSS on site 1
- Radio 3 registers and affiliates with talk group PATROL-2 internally at ETHERSTACK RFSS on site 1

6.11.3 Execution

1. AVTEC Console PTT to system group
2. Radio 1 can hear AVTEC console and displays that the call is system call
3. Radio 2 can also hear AVTEC console and displays that the call is system call
4. Verify that only a single channel is used at the BSC
5. AVTEC Console stops PTT
6. Verify Radio 1 and Radio 2 receive end of PTT

6.11.4 Pass Criterion

- System group voice can be initiated by the console to any subscribers regardless of their current talkgroup.
- Group voice is clear and audible
- Talking party ID is present on Radio Unit when receiving voice.

▪ **PASS/FAIL Sign Off**

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.12 Emergency Group Call

6.12.1 Background

This test checks if the subscriber unit can make an emergency group call from its home RFSS and be received by the console.

6.12.2 Pre Condition

- Group PATROL-1 home is at ETHERSTACK RFSS.
- AVTEC console registers internally within AVTEC RFSS and affiliates with talk group PATROL-1 at ETHERSTACK RFSS.
- Radio 1 registers and affiliates with talk group PATROL-1 internally at ETHERSTACK RFSS

6.12.3 Execution

1. Activate emergency mode on Radio 1
2. Radio 1 PTT to group PATROL-1
3. Verify AVTEC Console can hear the subscriber unit and the call is displayed as an emergency group call.
4. Radio 1 stops PTT
5. Verify AVTEC Console receives end of PTT
6. AVTEC Console PTT to group PATROL-1.
7. Radio 1 can hear AVTEC console.

Depending on Avtec configuration, the call from the Avtec console may be emergency; however this is not a requirement for this test.

8. AVTEC Console stops PTT
9. Wait for end of call timeout at the group's home RFSS.

6.12.4 Pass Criterion

- Emergency group voice can be initiated by a radio unit and recognised as emergency by the console.
- Group voice is clear and audible
- Talking party ID is present on console and radio unit when receiving voice.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.13 Individual call between console and subscriber

6.13.1 Background

This test checks if the console and the subscriber can make an individual call to each other when the call is initiated by the console and an availability check is performed on the called subscriber unit. This test should be repeated to cover both endpoints clearing the call

6.13.2 Pre Condition

- AVTEC console registers with AVTEC RFSS.
- Radio 1 registered with ETHERSTACK RFSS and listening to control channel at BSC Site 1.

6.13.3 Execution

1. Console initiates an individual call to Radio 1
 2. Radio 1 receives call answer request and begins the ring
 3. Console receives a call ringing indication
 4. Radio 1 answers the call by PTT and sends voice
 5. Console can hear the subscriber PTT
 6. Radio 1 stops PTT
 7. Console initiates a PTT
 8. Radio 1 hears the PTT as part of the continuing individual call
 9. Console stops PTT
 10. Radio 1 clears the call
 11. Verify console receives a call clear
- Repeat test but at step 10 clear the call from the console

6.13.4 Pass Criterion

- Individual call can be established from the console and a specific subscriber unit.
- Individual call voice quality is clear and audible
- Talking party ID is present on console and radio unit during individual call.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.14 Individual call between subscriber unit and console

6.14.1 Background

This test checks if the console and the subscriber can make an individual call to each other when the call is initiated by the subscriber unit. This test should be repeated to cover both endpoints clearing the call

6.14.2 Pre Condition

- AVTEC console registers with AVTEC RFSS.
- Radio 1 registered with ETHERSTACK RFSS and listening to control channel at BSC Site 1.

6.14.3 Execution

1. Radio 1 initiates an individual call to the console
 2. Console receives call answer request and begins to ring
 3. Radio 1 receives a call ringing indication
 4. Console answers the call and begins to PTT and sends voice
 5. Radio 1 receives the console answer and PTT
 6. Console stops PTT
 7. Radio 1 initiates a PTT
 8. Console hears the PTT as part of the continuing individual call
 9. Radio 1 stops PTT
 10. Radio 1 clears the call
 11. Verify console receives a call clear
- Repeat test but at step 10 clear the call from the console

6.14.4 Pass Criterion

- Individual call can be established from the subscriber to the console.
- Individual call voice quality is clear and audible
- Talking party ID is present on console and radio unit during individual call.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.15 Individual call between console and subscriber deny

6.15.1 Background

This test checks if the console and the subscriber can make an individual call to each other when the call is initiated by the console and an availability check is performed on the called subscriber unit. The call setup is denied by the subscriber unit in this test case.

6.15.2 Pre Condition

- AVTEC console registers with AVTEC RFSS.
- Radio 1 registered with ETHERSTACK RFSS and listening to control channel at BSC

6.15.3 Execution

1. Console initiates an individual call to Radio 1
2. Radio 1 receives call answer request and begins the ring.
3. Console receives a call ringing indication.
4. Radio 1 denies the call by pressing cancel.
5. Console receives a unit call denied response.

6.15.4 Pass Criterion

- Individual call can be rejected by the console.
- Console receives appropriate call failure indication

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.16 PTT Arbitration – Console Override

6.16.1 Background

This test checks if the home RFSS exercises proper PTT arbitration, that is, a higher priority PTT Transmit Request by a console can override a lower priority subscriber unit that was previously given PTT authority.

6.16.2 Pre Condition

- Group PATROL-1 home is at ETHERSTACK RFSS.
- AVTEC console registered and affiliated with talk group PATROL-1 at ETHERSTACK RFSS.
- Radio 1 registered and affiliated with talk group PATROL-1 at ETHERSTACK RFSS
- Radio 2 registered and affiliated with talk group PATROL-1 at ETHERSTACK RFSS

6.16.3 Execution

1. Radio 1 PTT to group PATROL-1 with priority equals to 4 and non-emergency (hold down PTT until step 5).
2. AVTEC Console receives voice from Radio 1
3. Radio 2 receives voice from Radio 1
4. AVTEC Console attempts to override PTT to group PATROL-1 by sending a console PTT control word transmit request to group home RFSS.
5. ETHERSTACK RFSS grants the override PTT permission
6. Radio 2 starts to receive voice from console instead of Radio 1
7. AVTEC Console stops PTT

6.16.4 Pass Criterion

- PTT Transmit Request whilst the group already has a transmitting party is granted if the new request is coming from a console and the existing PTT is from a radio unit.
- Override voice is heard by a third-party radio unit on the same talk group
- Voice quality is clear and audible
- Talking party ID begins as Radio 1 but then changes to the console ID after console override begins

PASS/FAIL Sign Off

Result	Initial	Notes
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☐ PASS ☐ FAIL ☐ RETEST		
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6.17 PTT Arbitration – Subscriber Unit Denied

6.17.1 Background

This test checks if the home RFSS exercises proper arbitration, that is if there is a PTT in operation and if another PTT Transmit Request is received with lower or equal priority, it will be denied.

6.17.2 Pre Condition

- Group PATROL-1 home is at ETHERSTACK RFSS.
- AVTEC console registered and affiliated with talk group PATROL-1 at ETHERSTACK RFSS.
- Radio 1 registered and affiliated with talk group PATROL-1 at ETHERSTACK RFSS
- Radio 2 registered and affiliated with talk group PATROL-1 at ETHERSTACK RFSS

6.17.3 Execution

1. Console PTT to group PATROL-1 with priority of 4, non-emergency (hold down until step 5)
2. Verify console voice received by both SU1 and SU2
3. Radio 1 attempts PTT to group PATROL-1 with same priority 4 and non-emergency
4. Radio 1 is denied PTT
5. Verify Radio 2 continues to receive voice from console through steps 3-4
6. Console ends PTT

6.17.4 Pass Criterion

- PTT Transmit Request whilst the group already has a transmitting party is denied

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.18 Short Message

6.18.1 Background

This test checks successful delivery of a pre-programmed short message from subscriber to console and vice versa.

6.18.2 Pre Condition

- AVTEC console registered at AVTEC RFSS.
- Radio 1 registered at ETHERSTACK RFSS
- Both Radio 1 and console have matching pre-programmed short message code in their address book

6.18.3 Execution

1. Radio 1 sends short message to the console subscriber unit
2. Verify console receives short message and has correct code
3. Verify Radio 1 receives an acknowledgement of message delivery ok
4. Console sends short message to Radio 1
5. Verify Radio 1 receives short message from console unit and has correct code.
6. Verify console receives an acknowledgement of message delivery ok

6.18.4 Pass Criterion

- Short message can be sent by console to a subscriber unit and the corresponding acknowledgement returned to the console.
- Short message can be sent by subscriber unit to a console and the corresponding acknowledgement returned to the subscriber unit.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.19 Call Alert (Page)

6.19.1 Background

This test checks successful delivery of a call alert from subscriber to console and vice versa.

6.19.2 Pre Condition

- AVTEC console registered at AVTEC RFSS.
- Radio 1 registered at ETHERSTACK RFSS

6.19.3 Execution

1. Radio 1 sends call alert to the console subscriber unit
2. Verify console receives call alert
3. Verify Radio 1 receives an acknowledgement of delivery ok
4. Console sends call alert to Radio 1
5. Verify Radio 1 receives call alert from console unit.
6. Verify console receives an acknowledgement of delivery ok

6.19.4 Pass Criterion

- Call alert can be sent by console to a subscriber unit and the corresponding acknowledgement returned to the console.
- Call alert can be sent by subscriber unit to a console and the corresponding acknowledgement returned to the subscriber unit.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.20 Status Update

6.20.1 Background

This test checks successful delivery of a status update from subscriber to console.

6.20.2 Pre Condition

- AVTEC console registered at AVTEC RFSS.
- Radio 1 registered at ETHERSTACK RFSS
- Both subscriber units and console have a matching pre-programmed status address book.

6.20.3 Execution

1. Radio 1 sends status update to the console unit
2. Verify console receives status update
3. Verify Radio 1 receives an acknowledgement of delivery ok

6.20.4 Pass Criterion

- Status update can be sent by subscriber unit to a console and the corresponding acknowledgement returned to the subscriber unit.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.21 Status Query

6.21.1 Background

This test checks successful delivery of a status query from console to subscriber unit.

6.21.2 Pre Condition

- AVTEC console registered at AVTEC RFSS.
- Radio 1 registered at ETHERSTACK RFSS
- Both subscriber unit and console have matching pre-programmed status address book.

6.21.3 Execution

1. Console sends status query to Radio 1
2. Verify Radio 1 receives status query from console unit
3. Verify console receives an acknowledgement of status containing Radio 1 status
4. Modify the status on Radio 1
5. Console sends status query to Radio 1
6. Verify Radio 1 receives status query from console unit
7. Verify console receives an acknowledgement of status containing Radio 1 status

6.21.4 Pass Criterion

- Status query can be sent by console to a subscriber unit and the corresponding acknowledgement containing the status is returned to the console.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.22 Radio Unit Monitor

6.22.1 Background

This test checks successful radio unit monitor from console of a subscriber unit.

6.22.2 Pre Condition

- AVTEC console registered at AVTEC RFSS.
- Radio 1 registered at ETHERSTACK RFSS

6.22.3 Execution

1. Console sends radio unit monitor to Radio 1
2. Verify Radio 1 receives radio unit monitor from console unit
3. Verify console receives an acknowledgement of delivery ok
4. Verify Radio 1 initiates a unit call to the console unit without any user intervention or display
5. Console unit answers unit call

6. Verify that Radio 1 continues to PTT with audio monitored at the console unit
7. Wait for the monitored call to time out

6.22.4 Pass Criterion

- Radio Unit Monitor can be sent by console to a subscriber unit and the corresponding acknowledgement is returned to the console.
- After successful initiation of the monitoring the SU initiates an individual call back to the console

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.23 Radio Inhibit/Un-inhibit

6.23.1 Background

This test checks successful radio inhibit and un-inhibit from console of a subscriber unit.

6.23.2 Pre Condition

- AVTEC console registered at AVTEC RFSS.
- Radio 1 registered at ETHERSTACK RFSS

6.23.3 Execution

1. Console sends radio inhibit to Radio 1
2. Verify Radio 1 receives radio inhibit from console unit and appears to be powered off, i.e. enters inhibited mode.
3. Verify console receives an acknowledgement of delivery ok
4. Verify status of Radio 1 in the NLR is listed as inhibited.
5. Console sends radio un-inhibit to Radio 1
6. Verify Radio 1 receives radio un-inhibit from console unit and appears to power on again.
7. Verify console receives an acknowledgement of delivery ok
8. Verify status of Radio 1 in NLR is listed as no longer inhibited.

6.23.4 Pass Criterion

- Radio Unit can be inhibited and then uninhibited via the console

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

6.24 Radio Check

6.24.1 Background

This test performs successful radio check from console of a subscriber unit.

6.24.2 Pre Condition

- AVTEC console registered at AVTEC RFSS.
- Radio 1 registered at ETHERSTACK RFSS
- Radio 2 is not powered on, i.e. not currently registered anywhere on the system.

6.24.3 Execution

1. Console sends radio check to Radio 1

6.26.3 Execution

1. AVTEC Console PTT to group PATROL-1
2. Radio 1 can hear AVTEC console with the voice being encrypted
3. AVTEC Console stops PTT
4. Verify SU1 receives end of PTT
5. Radio 1 PTT to group PATROL-1
6. Verify AVTEC Console can hear the subscriber unit and audio is encrypted.
7. Radio 1 stops PTT
8. Verify AVTEC Console receives end of PTT

6.26.4 Pass Criterion

- Encrypted group voice can be initiated by a radio unit and recognised as encrypted by the console.
- The decrypted group voice is clear and audible
- Talking party ID is present on console and radio unit when receiving encrypted voice.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

7 Operations, Maintenance and Debugging Test Cases

This suite of tests covers operation, maintenance and debugging test cases

7.1 P25CC GPIO Event to BSC, Keeping the Channel in Service

7.1.1 Background

This test demonstrates the P25CC GPIO event propagating to the BSC and the BSC sending out an SNMP alarm.

7.1.2 Pre Conditions

BSC application is configured so P25CC monitors GPIO lines.

P25CC configured correctly to use the GPIO lines.

GPIO lines are hooked up to the corresponding RF transceiver.

RF transceiver is configured to output GPIO as specified in Section 0.

SNMP manager is set up correctly to receive SNMP alarm events.

7.1.3 Execution

1. On the RF transceiver, perform an action that results in the GPIO line changing state.
2. Verify that an SNMP alarm is raised.
3. Reverse the RF transceiver action that results in the GPIO line changing back to its original state.
4. Verify that an SNMP alarm clear is raised.

7.1.4 Pass Criterion

- The correct SNMP alarm raise event is triggered when the Digital output lines on the RF transceiver are changed
- The correct SNMP alarm clear event is triggered when the Digital output lines on the RF transceiver are reverted to their original value

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

7.2 P25CC GPIO Event to BSC, Taking the Channel out of Service

7.2.1 Background

This test demonstrates the FSM GPIO event propagating to the BSC.

7.2.2 Pre Conditions

BSC application and P25CC is configured so P25CC monitors GPIO lines and will put the channel out of service.

GPIO lines are hooked up to the RF transceiver.

RF transceiver is configured to output GPIO as specified in Section 0.

SNMP manager is set up correctly to receive SNMP alarm events.

7.2.3 Execution

1. On the RF transceiver, perform an action that results in the GPIO line changing state.
2. Verify that an SNMP alarm is raised and that the composite channel has stopped transmitting control channel information.
3. Reverse the RF transceiver action that results in the GPIO line changing back to its original state.
4. Verify that an SNMP alarm clear is raised and the composite channel returns with a valid control channel.
5. Press the PTT button on a Radio and verify that the channel has returned to being in an operational state.

7.2.4 Pass Criterion

- The correct SNMP alarm raise event is triggered when the Digital output lines on the RF transceiver are changed
- The correct SNMP alarm clear event is triggered when the Digital output lines on the RF transceiver are reverted to their original value
- While the GPIO is in the alarm state the channel is not allocated or used by the BSC

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

7.3 BSC SNMP Events

7.3.1 Background

This test will demonstrate BSC generating SNMP events.

7.3.2 Pre Conditions

BSC is configured to generate SNMP events.

SNMP manager is set up correctly to receive SNMP alarm events.

7.3.3 Execution

1. Verify that the BSC application is currently running.
2. Restart the BSC application via the NCM application.
3. Confirm SNMP alert is triggered and displayed in the SNMP manager, indicating a BSC reset event.

7.3.4 Pass Criterion

- SNMP alarm events are triggered when the BSC application restarts.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

7.4 RNC SNMP Events

7.4.1 Background

This test will demonstrate RNC generating SNMP events.

7.4.2 Pre Conditions

RNC is configured to generate SNMP events.

SNMP manager is set up correctly to receive SNMP alarm events.

7.4.3 Execution

1. Log in to the PC running the RNC application and type the command 'monit stop mysqld'.
2. Confirm a SNMP alarm is triggered and displayed in the SNMP manager.
3. Using the PC running the RNC application type the following command 'monit start mysqld'.
4. Confirm a SNMP event is triggered indicating that the alarm has cleared and is displayed in the SNMP manager.

7.4.4 Pass Criterion

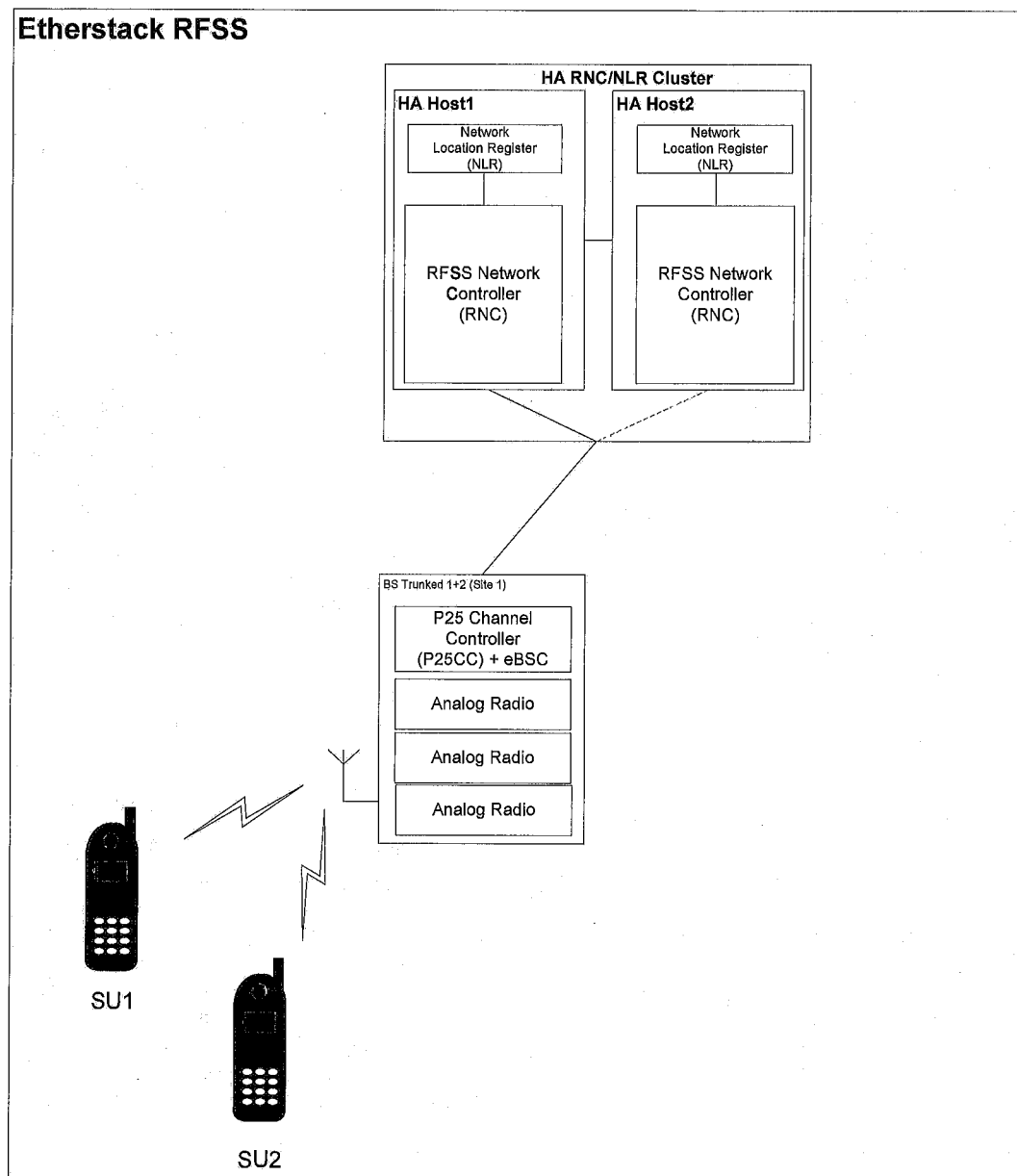
- SNMP alarm events are triggered when the database management system MySQL has stopped.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

8 Fault Tolerant Test Cases

This suite of tests covers operation of the Fault Tolerant Server Package. The FTSP provides a high availability solution through the use of High Availability (HA) – through the use of paired hosts for the RNC/NLR. At any point in time, one of the HA Hosts runs the active RNC/NLR, whilst the other host is waiting in a standby state. The standby host monitors the active and upon failure will become the new primary RNC/NLR node.



▪ **Figure 3: Fault Tolerant RNC/NLR Setup**

8.1 HA RNC/NLR Failover (HW Failure)

8.1.1 Background

This test is to verify that the HA RNC/NLR continues to operate when the primary server encounters a hardware failure. In this case the primary host power supply will be switched off to mimic a power failure and the secondary node should take over as the primary RNC/NLR.

8.1.2 Preconditions

- The HA RNC/NLR is set up properly with the primary and secondary nodes running.
- Radio 1 is registered with site 1; radio 2 is registered with site 2.
- Radios are programmed with talk group TRAFFIC.
- Node 1 is the current primary and node 2 is currently the secondary.

8.1.3 Execution

1. Press the PTT of Radio 1, receive grant tone and talk.
2. Audio should be heard in radio 2. The unit ID of radio 1 should be seen on radio 2.
3. Using the NCM, locate the HA RNC host nodes and click "HA Control"
4. Verify node 1 is primary and the other is secondary.
5. Power off the node 1 (primary node) running the RNC.
6. Wait around 10 seconds for the node 2 (secondary node) to become the primary node.
7. Press the PTT of radio 1, receive grant tone and talk.
8. Audio should be heard in radio 2. The unit ID of radio 1 should be seen on radio 2.
9. Via the NCM screen, verify node 2 is primary and the other is secondary or cannot connect.
10. Reboot node 1 and wait for it to become the new secondary node.
11. Power off the node 2 (primary node).
12. Wait around 10 seconds for node 1 (secondary node) to become the primary node.
13. Press the PTT of radio 1, receive grant tone and talk.
14. Audio should be heard in radio 2. The unit ID of radio 1 should be seen on radio 2.
15. Via the NCM screen, verify node 1 is primary and the other is secondary or cannot connect.

8.1.4 Pass Criterion

- Group calls can still work even after a power failure by the server running the RNC/NLR.
- The secondary node takes over the primary node after approximately 10 seconds.
- The reverse also works; that is the new secondary node takes over the primary node after a power failure.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

8.2 HA RNC/NLR Failover (Network Failure)

8.2.1 Background

This test is to verify that the HA RNC/NLR continues to operate when the primary server encounters a network connection failure. In this case the primary network cable to the switch which is used to communicate with the BSC and rest of the network will be pulled out and the secondary node should take over as the primary RNC/NLR.

8.2.2 Preconditions

- The HA RNC/NLR is set up properly with the primary and secondary nodes running.
- Radio 1 is registered with site 1; radio 2 is registered with site 2.
- Radios are programmed with talk group TRAFFIC.

- Node 1 is the current primary and node 2 is currently the secondary.

8.2.3 Execution

1. Press the PTT of Radio 1, receive grant tone and talk.
2. Audio should be heard in radio 2. The unit ID of radio 1 should be seen on radio 2.
3. Using the NCM, locate the HA RNC host nodes and click "HA Control"
4. Verify node 1 is primary and the other is secondary.
5. On node 1 (primary node) pull the network cable connecting to the network switch.
6. Wait around 10 seconds for the node 2 (secondary node) to become the primary node.
7. Press the PTT of radio 1, receive grant tone and talk.
8. Audio should be heard in radio 2. The unit ID of radio 1 should be seen on radio 2.
9. Via the NCM, verify node 2 is primary and the other is secondary.
10. Plug network cable of node 1 back into the network switch.
11. On node 2 (primary node) pull the network cable connecting to the network switch.
12. Wait around 10 seconds for node 1 (secondary node) to become the primary node.
13. Press the PTT of radio 1, receive grant tone and talk.
14. Audio should be heard in radio 2. The unit ID of radio 1 should be seen on radio 2.
15. Via the NCM, verify node 1 is primary and the other is secondary.

8.2.4 Pass Criterion

- Group calls can still work after the server running the RNC/NLR is disconnected from the network.
- The secondary node takes over as the primary node approximately after 10 seconds.
- The reverse also works; that is the new secondary node takes over the primary node after a network failure.

▪ PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

8.3 HA RNC/NLR Failover (SW Failure)

8.3.1 Background

This test is to verify that the HA RNC/NLR continues to operate when the primary server encounters a software failure. In this case the RNC application or other essential SW services will be rendered unusable to provoke the failover condition and the secondary node shall become the new RNC/NLR for the system.

8.3.2 Preconditions

- The HA RNC/NLR is set up properly with the primary and secondary nodes running.
- Radio 1 is registered with site 1; radio 2 is registered with site 2.
- Radios are programmed with talk group TRAFFIC.
- Node 1 is the current primary and node 2 is currently the secondary.

8.3.3 Execution

1. Press the PTT of Radio 1, receive grant tone and talk.
2. Audio should be heard in radio 2. The unit ID of radio 1 should be seen on radio 2.
3. Using the NCM, locate the HA RNC host nodes and click "HA Control"
4. Verify node 1 is primary and the other is secondary.
5. Login as root on node 1 (primary node) and type the command 'monit stop RncService' to stop the RNC service and mimic a software failure.
6. Wait around 10 seconds for the node 2 (secondary node) to become the primary node.

7. Press the PTT of radio 1, receive grant tone and talk.
8. Audio should be heard in radio 2. The unit ID of radio 1 should be seen on radio 2.
9. Via the NCM, verify node 2 is primary and the other is secondary.
10. Login as root on node 2 (primary node) and type the command 'monit stop RncService' to stop the RNC service and mimic a software failure.
11. Wait around 10 seconds for node 1 (secondary node) to become the primary node.
12. Press the PTT of radio 1, receive grant tone and talk.
13. Audio should be heard in radio 2. The unit ID of radio 1 should be seen on radio 2.
14. Via the NCM, verify node 1 is primary and the other is secondary.
15. Repeat Case
16. Repeat the entire test case by stopping the mysqld service instead of the RncService.

8.3.4 Pass Criterion

- Group calls can still work after the RNC service is stopped.
- The secondary node takes over as the primary node approximately after 10 seconds.
- The reverse also works; that is the new secondary node takes over the primary node after a software failure.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9 Subscriber Management Test Cases

The NLR provides the RNC with subscriber and group information for the RFSS. This information for subscribers and groups is accessed and appended via the NLR Web Interface. Using the NLR web interface, operators may add, modify, and delete subscribers and groups.

Subscribers and groups only need to be directly added to the NLR at their Home RFSS. The home RFSS is the RFSS with the same System ID and WACN ID as the subscriber or group. External subscribers and groups homed at another RNC are not entered directly. Instead, ranges of external subscribers are 'mapped' to their home system using Subscriber and Group Ranges. These ranges associate a range of Unit IDs or Group Call IDs to their home system.

System managers must initially configure the System Database and then maintain it for the life of the system.

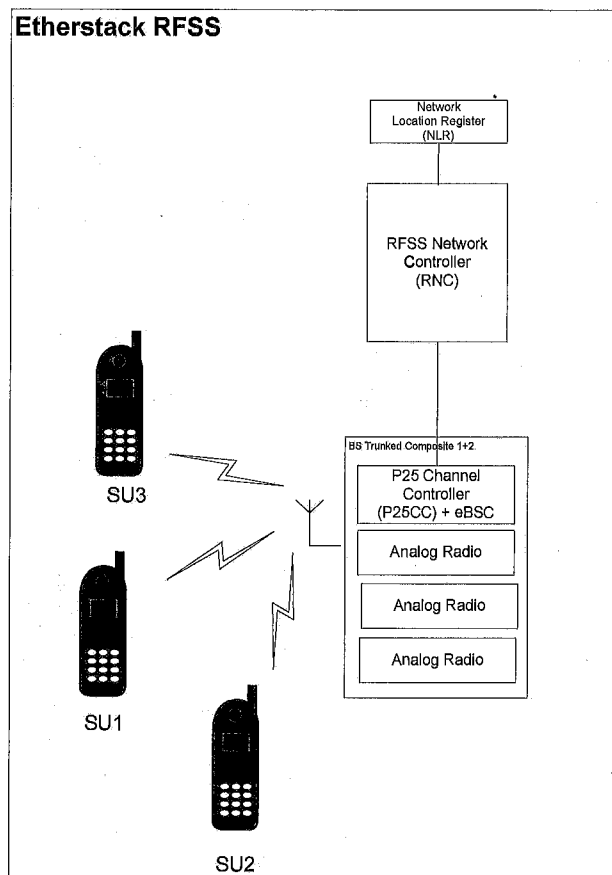


Figure 4: Subscriber Management Setup

Error! Reference source not found. shows the required system setup for the test cases carried out in this section. Not shown is an external PC that is used to access the NLR web interface.

The radio infrastructure and other supporting elements are not strictly necessary for the tests in this section as they only test the web interface and storage of data within the NLR. Further tests are included in other sections which require interaction with subscriber units, e.g. subscriber registration, radio inhibit from the NLR.

9.1 Log In

9.1.1 Background

This test verifies that the NLR provides a useable web interface for subscriber management and restricts users through the use of a username/password login.

9.1.2 Pre Conditions

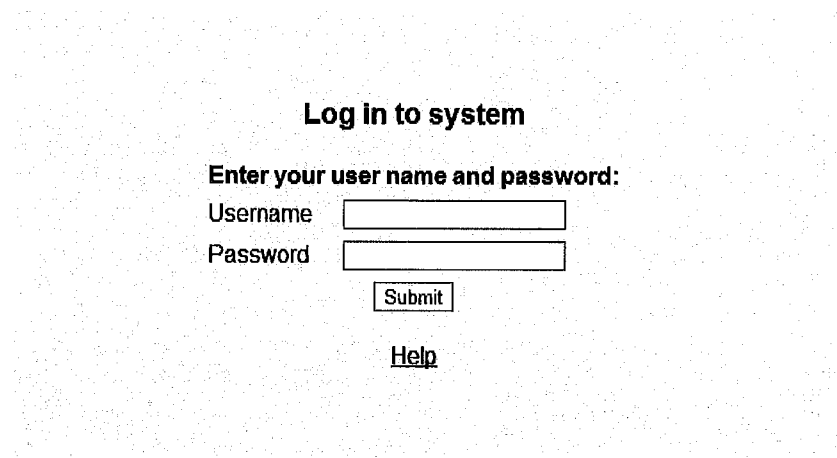
- NLR is installed correctly.

9.1.3 Execution

1. Use a web browser to open the following URL:
http://<nlr_ip_address>/nlr

where <nlr_ip_address> is the IP Address of the machine the NLR is installed on.

The following login screen should be displayed:



Log in to system

Enter your user name and password:

Username

Password

[Help](#)

Figure 5: NLR Login Screen

2. Enter 'administrator' as your username. The password is blank.
3. After logging in, it is advisable to create a password for the Administrator account. To do this, click the 'Change password' link at the top-right of the screen.

9.1.4 Pass Criterion

- Web page accessible and default username/password login accepted.
- Password can be modified

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.2 Customize System Administrator User/Roles Access

9.2.1 Background

From the initial screen the following steps are required to customize system administrator user/role access.

9.2.2 Pre Conditions

- NLR is installed correctly.
- Administrator user successful log in (Test Error! Reference source not found.)

9.2.3 Execution

1. Click 'User/Roles' link in the left hand menu.

2. Type 'Operators' as the name for the role into the 'Add New System Role'. Click 'Add'.
3. Click 'Edit' for the new role created.
4. Ensure everything is checked except 'View', 'Modify', 'Add' and 'Delete' for 'Maintenance Operations' and 'Audit Log'.
5. Click the 'Save Permissions' button.
6. Click 'User/Roles' link in the left hand menu.
7. Type 'Operator' as the new user name into the 'Add New System User' box. Select the newly created 'Operators' role from the drop down box. Type in a password and click 'Add'.
8. Logout of the NLR.
9. Login to the NLR with the 'Operator' user using the password specified earlier.
10. Notice that the left hand menu doesn't include 'Audit Log' and 'Maintenance Operations'.

9.2.4 Pass Criterion

- A new role and user are in the role and user lists.
- The new user does not have visibility of the maintenance and audit log screens.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.3 Add a Subscriber

9.3.1 Background

From the initial NLR screen the following steps are required to add a subscriber who is home to this RFSS.

9.3.2 Pre Conditions

- NLR is installed correctly and user is logged in as Operator.
- The subscriber to be added is not currently in the subscriber table.

9.3.3 Execution

1. Click on the 'Subscribers' link on the left panel.
2. To add a single subscriber click on 'Add a New Subscriber' as seen in **Error! Reference source not found.** the screen shown in **Error! Reference source not found.** should result.

Subscribers
 Groups
 Locations
 Subscriber Home RFSSs
 Group Home RFSSs
 Maintenance Operations
 Users/Roles
 Audit Log

NLR: (01.002.00003.p25dr)
 Logged in as Administrator (A)

Subscriber List

Page 1 of 238. 1 go Showing 1-100 of 23790. Show 100 per page

Type	SUID	Unit ID	System ID	WACN ID	WUID	Alias	Status	Visitor	Location ID	Location Alias	Expires
Unit	000030020027FE	0027FE (10238)	002 (2)	00003 (3)	0027FE (10238)		Unregistered	no			0 0000
Unit	000030020027F2	0027F2 (10226)	002 (2)	00003 (3)	0027F2 (10226)		Unregistered	no			0 0000
Unit	000030020027F1	0027F1 (10225)	002 (2)	00003 (3)	0027F1 (10225)		Unregistered	no			0 0000
Unit	000030020027F0	0027F0 (10224)	002 (2)	00003 (3)	0027F0 (10224)		Unregistered	no			0 0000
Unit	000030020027EF	0027EF (10223)	002 (2)	00003 (3)	0027EF (10223)		Unregistered	no			0 0000
Unit	000030020027EE	0027EE (10222)	002 (2)	00003 (3)	0027EE (10222)		Unregistered	no			0 0000
Unit	000030020027ED	0027ED (10221)	002 (2)	00003 (3)	0027ED (10221)		Unregistered	no			0 0000
Unit	000030020027EC	0027EC (10220)	002 (2)	00003 (3)	0027EC (10220)		Unregistered	no			0 0000
Unit	000030020027EB	0027EB (10219)	002 (2)	00003 (3)	0027EB (10219)		Unregistered	no			0 0000
Unit	000030020027F3	0027F3 (10227)	002 (2)	00003 (3)	0027F3 (10227)		Unregistered	no			0 0000
Unit	000030020027F4	0027F4 (10228)	002 (2)	00003 (3)	0027F4 (10228)		Unregistered	no			0 0000
Unit	000030020027F5	0027F5 (10229)	002 (2)	00003 (3)	0027F5 (10229)		Unregistered	no			0 0000

Figure 6: NLR Subscriber Screen

- Fill out the required fields.
When adding a single subscriber, the minimum fields required are:

Unit ID: The Unit ID of the subscriber
System ID: The system ID of this RFSS
WACN ID: The WACN ID of this RFSS
Type: Ensure the 'Unit' subscriber type is selected.
Alias: A textual description of the subscriber (ex: Fred Taylor).

The remaining fields can be left with their default settings.
- Click 'Add' to add the subscriber.
- Click on the 'Subscribers' link on the left panel. The new subscriber entry should be listed.

- The subscriber table includes the subscriber that was added.

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.4.1 Background

From the initial screen the following steps are required to remove a subscriber

- NLR is installed correctly and the target subscriber is already added to the system.
- User is logged in as Operator.

1. Click the 'Subscribers' link in the left hand menu.
2. Locate the subscriber to be deleted.
3. Click the 'Delete' button located on the far right of the entry selected to be deleted as indicated by **Error!**
Reference source not found..

Figure 8: NLR Remove Subscriber

- #### 9.4.4 Pass Criterion

- ### PASS/FAIL Sign Off

9.5 Add/Remove Multiple Subscribers

9.5.1 Background

9.5.2 Pre Conditions

- ### 9.5.3 Execution

- NLR: (01.002.000)**

The following placeholder variables can be used in the Alias field when adding multiple subscribers. Variables are case-insensitive.

- 56

Figure 9: NLR Add Multiple Subscribers

3. Enter the low-end and high-end values of the range of subscribers to be added. A common alias for all of the new subscribers can be added or left blank.
4. Click 'Add'.
5. Click on the 'Subscriber' link. The new subscribers should be visible in the subscriber table.
6. To remove multiple subscribers, check the 'Delete' check box for all of the subscribers to be removed. Click the 'Delete Selected' button. As indicated in **Error! Reference source not found.**

ber ons								☐	Delete s
	Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☒	Delete
	Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☒	Delete
	Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☒	Delete
	Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☒	Delete
	Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☒	Delete
	Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☒	Delete
	Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☒	Delete
	Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☒	Delete
	Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☐	Delete
	Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☐	Delete
	Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☐	Delete

Figure 10: NLR Remove Multiple Subscribers

7. A confirmation box will appear to confirm all deletions. Select 'OK'.
8. Click on the 'Subscriber' link. The deleted subscribers should no longer be visible in the subscriber table.

9.5.4 Pass Criterion

- The Subscriber table includes the subscribers added minus the subscribers removed.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.6 Customize Call Type Permissions

9.6.1 Background

From the initial screen the following steps are required to customize permissions.

9.6.2 Pre Conditions

- NLR is installed correctly and there exists at least one subscriber with default call type permission.
- User is logged in as Operator.

9.6.3 Execution

1. Click on the 'Subscriber' link on the left panel.
2. Click the 'Edit' button for one of the subscribers unit entries.
3. Change the 'Unit Call' permission to 'Receive Only' as indicated in **Error! Reference source not found.**

Subscribers

Groups

Locations

Subscriber Home RFSSs

Group Home RFSSs

Maintenance Operations

Users/Roles

Audit Log

Editing Subscriber: 000030020027FE

Edit Location Restrictions

Edit Group Membership

Edit Subscriber Details

SUID*:

000030020027FE

Unit ID*:

Decimal:

Hex:

System ID*:

Decimal:

Hex:

WACN ID*:

Decimal:

Hex:

WUID*:

Decimal:

Hex:

Alias*:

Type*:

Group Call Perm.*:

Unit Call Perm.*:

None
Receive only
Initiate only
All

PSTN Call Perm.*:

None
Receive only
Initiate only
All

System Call Perm.*:

None
Receive only
Initiate only
All

Save

Reset

Return to List

Figure 11: NLR Edit Subscriber

4. Click 'Save'. The subscriber unit's 'Unit Call' should now be 'Receive only'.

9.6.4 Pass Criterion

- The customized unit has receive-only permission for unit calls.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.7 Add a Talk Group

9.7.1 Background

From the initial screen the following steps are required to add a talk group.

9.7.2 Pre Conditions

- NLR is installed correctly and user is logged in as Operator.

9.7.3 Execution

1. Click on the 'Groups' link on the left panel.
2. To add a talk group click on 'Add a New Group' and the following screen should be displayed as shown in **Error! Reference source not found.**

Subscribers

Groups

Locations

Subscriber Home RFSSs

Group Home RFSSs

Maintenance Operations

Users/Roles

✎ Add a New Group

✎ Add Multiple Groups

Add a New Group

SGID*:

000000000000

Group ID*:

Decimal: 0

Hex: 0000

System ID*:

Decimal: 2

Hex: 002

WACN ID*:

Decimal: 3

Hex: 00003

WGID*:

Decimal: 0

Hex: 0000

Alias*:

Type*:

Standard ▼

Announcement Group ID:

(none) ▼

RF Hang Time (sec):

0.0

Allow Non Emergency Calls*:

☒

Allow Emergency Calls*:

☒

Membership Type*:

Open ▼

Add

Reset

Figure 12: NLR Add Talk Group

- Fill out the required fields.

When adding a group, the minimum fields required are:

Group ID: The group ID.

System ID: The system ID of the group.

WACN ID: The WACN ID of the group.

Type: Standard (default).

Alias: A textual description of the group (ex: Fairfield)

- Click 'Add' to add the group.
- Click on the 'Groups' link. The new group should now be visible in the group table.

9.7.4 Pass Criterion

- The group table contains the new group.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.8 Remove a Talk Group

9.8.1 Background

From the initial screen the following steps are required to remove a talk group.

9.8.2 Pre Conditions

- NLR is installed correctly and an existing talk group is already added earlier.
- User is logged in as Operator.

9.8.3 Execution

- Click 'Groups' link in the left hand menu.
- Locate the group to be deleted.
- Click the 'Delete' button located on the far right of the entry selected to be deleted as shown in **Error!**
Reference source not found..

Group ID	Announcement Group Alias	RF Hang Time (sec)	Allow Non Emergency Calls	Allow Emergency Calls	Location Restrictions	Subscriber Restrictions					☐ Delete selected
0207d0	Group2000	0.0	yes	yes			Show Subscribers	Block	Edit	☐	Delete
02fffe	announcement group	0.0	yes	yes			Show Subscribers	Block	Edit	☐	Delete
		0.0	yes	yes			Show Subscribers	Block	Edit	☐	Delete
		0.0	yes	yes			Show Subscribers	Block	Edit	☐	Delete
		0.0	yes	yes			Show Subscribers	Block	Edit	☐	Delete
		0.0	yes	yes			Show Subscribers	Block	Edit	☐	Delete
		0.0	yes	yes			Show Subscribers	Block	Edit	☐	Delete
		0.0	yes	yes			Show Subscribers	Block	Edit	☐	Delete

Figure 13: NLR Remove Talk Group

4. A confirmation box will appear to confirm all deletions. Select 'OK'.
5. The entry is now deleted.
6. Click the 'Groups' link. The deleted group should no longer appear in the group table.

9.8.4 Pass Criterion

- The group table does not contain the deleted group.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.9 Add/Remove Multiple Talk Groups

9.9.1 Background

From the initial screen the following steps are required to add/remove multiple talk groups.

9.9.2 Pre Conditions

- NLR is installed correctly and user is logged in as Operator.

9.9.3 Execution

- Click on the 'Groups' link on the left panel. Click on 'Add Multiple Groups' and the following screen will be displayed as shown in.

NLR: (01.002

Subscribers
 Groups
 Locations
 Subscriber Home RFSSs
 Group Home RFSSs
 Maintenance Operations
 Users/Roles
 Audit Log

Add a New Group
 Add Multiple Groups

Add Multiple Groups

Start Group ID: Decimal: Hex:

End Group ID: Decimal: Hex:

System ID: Decimal: Hex:

WACN ID: Decimal: Hex:

Alias:

Type:

Announcement Group ID:

RF Hang Time (sec):

Allow Non Emergency Calls: ☒

Allow Emergency Calls: ☒

Membership Type:

The following placeholder variables can be used in the Alias field when adding multiple groups. Variables are case-insensitive.

- %groupid or \$groupid: The group's ID, e.g. '10'.
- %groupidhex or \$groupidhex: The group's ID formatted in hexadecimal, e.g. '000A'.
- %sgid or \$sgid: The full SGID of the group, e.g. '00003002000A'.

Figure 14: NLR Add Multiple Talk Groups

- Enter the low-end and high-end values of the range of groups to be added. A common alias for all the new groups can be added or left blank.
- Click 'Add'.
- Click on the 'Groups' link. The new groups should be visible in the group table.
- To remove multiple groups, check the 'Delete' check box for all of the groups to be removed. Click the 'Delete Selected' button as indicated in **Error! Reference source not found.**

Low Non Emergency Calls	Allow Emergency Calls	Location Restrictions	Subscriber Restrictions				☐	Delete selected
on	on							
3	yes			Show Subscribers	Block	Edit	☒	Delete
3	yes			Show Subscribers	Block	Edit	☒	Delete
3	yes			Show Subscribers	Block	Edit	☒	Delete
3	yes			Show Subscribers	Block	Edit	☒	Delete
3	yes			Show Subscribers	Block	Edit	☒	Delete
3	yes			Show Subscribers	Block	Edit	☒	Delete
3	yes			Show Subscribers	Block	Edit	☒	Delete
3	yes			Show Subscribers	Block	Edit	☒	Delete
3	yes			Show Subscribers	Block	Edit	☐	Delete
3	yes			Show Subscribers	Block	Edit	☐	Delete

Figure 15: NLR Remove Multiple Talk Groups

- A confirmation box will appear to confirm all deletions/ Select 'OK'.

13. Click on the 'Groups' link. The deleted groups should no longer be visible in the group table.

9.9.4 Pass Criterion

- The group table includes the groups added minus the groups removed.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.10 Add a Broadcast Call Group

9.10.1 Background

From the initial screen the following steps are required to add a Broadcast Group.

9.10.2 Pre Conditions

- NLR is installed correctly and user is logged in as Operator.

9.10.3 Execution

- Click on the 'Groups' link on the left panel.
- To add a broadcast call group click on 'Add a New Group'.
- Fill out the required fields.

When adding a group, the minimum fields required are:

Group ID: The groups ID.

System ID: The system ID of the group.

WACN ID: The WACN ID of the group.

Type: Standard (default).

Alias: A textual description of the group (ex: Broadcastre)

- When defining the group, set the hang time to 0. This will make the group "broadcast" or transmission trunked.
- Click 'Add' to add the broadcast group.
- Click on the 'Groups' link. The new group should now be visible in the group table.

9.10.4 Pass Criterion

- The group table includes the broadcast group.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.11 Add an Announcement Call Group

9.11.1 Background

From the initial screen the following steps are required to add an announcement call group.

9.11.2 Pre Conditions

- NLR is installed correctly and a standard talk group already exists.
- User is logged in as Operator.

9.11.3 Execution

- Click on the 'Group' link on the left panel.
- Click on the 'Add a New Group'.
- Fill out the required fields.

When adding a group, the minimum fields required are:

Group ID: The groups ID.

System ID: The system ID of the group.
WACN ID: The WACN ID of the group.
Type: Announcement.
Alias: A textual description of the group (ex: FireServices Announce)

- When defining the group, make sure to set the type to 'Announcement' as shown in **Error! Reference source not found..**
- Click 'Add' to create the new announcement group.

Subscribers

Groups

Locations

Subscriber Home RFSSs

Group Home RFSSs

Maintenance Operations

Add a New Group **Add Multiple Groups**

Add a New Group

SGID*: 000000000000

Group ID*: Decimal: 0 Hex: 0000

System ID*: Decimal: 2 Hex: 002

WACN ID*: Decimal: 3 Hex: 00003

WGID*: Decimal: 0 Hex: 0000

Alias*:

Type*: Announcement

Announcement Group ID*: Standard

RF Hang Time (sec):

Allow Non Emergency Calls*: ☒

Allow Emergency Calls*: ☒

Membership Type*: Open

Add Reset

Figure 16: NLR Add Announcement Group

- Click on the 'Group' link. The new group should now be visible in the group table.

7. Edit a standard talk groups by clicking on the SGID or clicking the "Edit Details" button or directly on the "Edit" button. Set the 'Announcement Group' to the ID of the new announcement group created earlier.

Subscribers

Groups

Locations

Subscriber Home RFSSs

Group Home RFSSs

Maintenance Operations

Users/Roles

Audit Log

Editing Group: 000030020001

Edit Location Restrictions

Edit Group Details

SGID*:

Group ID*: Decimal: Hex:

System ID*: Decimal: Hex:

WACN ID*: Decimal: Hex:

WGID*: Decimal: Hex:

Alias*:

Type*:

Announcement Group ID:

RF Hang Time (sec):

Allow Non Emergency Calls*:

Allow Emergency Calls*: ☒

Membership Type*:

Return to Details

Figure 17: NLR Set Announcement Group on Talk Group

8. Click 'Save' to commit the change. The talk group now should have the announcement group set as its 'Announcement Group'.

9.11.4 Pass Criterion

- The group table includes the announcement call group. Announcement call groups are associated with the standard talk groups.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.12 Add a System Call Group

9.12.1 Background

From the initial screen the following steps are required to add a System Call Group.

9.12.2 Pre Conditions

- NLR is installed correctly and user is logged in as Operator.

9.12.3 Execution

- Click on the 'Group' link on the left panel.
- To add a system call group click on 'Add a New Group'.
- Fill out the required fields.

When adding a group, the minimum fields required are:
Group ID: The groups ID.

System ID: Already populated if not the first group.
WACN ID: Already populated if not the first group.
Type: System.
Alias: A textual description of the group (ex: Fairfield)

4. When defining the group, make sure to set the type to 'System' and the group ID to 65535 (Hex 'FFFF').
5. Click 'Add' to create the system group.
6. Click on the 'Group' link. The new group should now be visible in the group table.

9.12.4 Pass Criterion

- The group table includes the system call group.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.13 Closed Group Membership

9.13.1 Background

From the initial screen the following steps are required to add a Closed Group. A "Closed Group" is one which has membership restricted only to a selective group of participants.

9.13.2 Pre Conditions

- NLR is installed correctly and there exist subscribers created earlier.
- User is logged in as Operator.

9.13.3 Execution

1. Click on the 'Group' link on the left panel.
2. Click on 'Add a New Group'.
3. Fill out the required fields.

When adding a group, the minimum fields required are:

Group ID: The groups ID.

System ID: The system ID of the group.

WACN ID: The WACN ID of the group.

Type: Standard (default).

Alias: A textual description of the group (ex: Fairfield)

When defining the group, set the 'Membership Type' to 'Closed' as show in

- Click 'Add' to create the new closed group.

Figure 18: NLR Add Closed Group

- Click on the 'Group' link. The new group should now be visible in the group table.
- Locate the new group and click on the 'Edit' button.
- Click on the 'Edit Subscriber Membership' button found on this page.
- Notice that there are no subscribers in the 'Subscriber Membership' table. Click on the button 'Add Subscriber to Group'.
- Click on the 'Include' button for the subscribers that you want to be in the group's membership.
- Click on the 'Return Back' button located at the bottom of the page and notice that the 'Subscriber Membership' table now contains the subscribers included in the earlier step.

9.13.4 Pass Criterion

- The Group table includes the new closed group.
- New group will have the option to add subscriber memberships.
- Subscribers included in the new group's membership will be displayed in the 'Subscriber Membership' table.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.14 Add a Location

9.14.1 Background

From the initial screen the following steps are required to add location.

9.14.2 Pre Conditions

- NLR is installed correctly and user is logged in as Operator.

9.14.3 Execution

- Click on the 'Location' link on the left panel.
- To add location click on 'Add a New Location'.
- Fill out the required fields and click 'Add'.

When adding a location, the minimum fields required are:
Location ID: The locations ID consists of the RFSS ID, System ID, WACN ID and Site ID.
Location Alias: A textual description of the location(ex: Redfern)

- Click on the 'Locations' link and notice that the new location added exists.

9.14.4 Pass Criterion

- The Locations table includes the new location.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Subscriber Location Restrictions

9.14.5 Background

From the initial screen the following steps are required to add location restrictions for a subscriber.

9.14.6 Pre Conditions

- NLR is installed correctly and a subscriber and locations already exists.
- User is logged in as Operator.

9.14.7 Execution

- Click on the 'Subscribers' link on the left hand menu.
- Locate a subscriber and click on the 'Edit' button on the entry.
- Click on the 'Edit Location Restrictions' button.
- Select the locations created earlier and click on the 'Save' button as shown in **Error! Reference source not found..**

Subscribers

Groups

Locations

Subscriber Home RFSSs

Group Home RFSSs

Maintenance Operations

Users/Roles

Audit Log

Location Restrictions for Subscriber: 000030020027FE ()

Check boxes to restrict the subscriber from locations.

☐	Location ID	Location Alias
☒	0000f.01.002.00003.p25dr	0000f.01.002.00003.p25dr
☒	0003d.01.002.00003.p25dr	0003d.01.002.00003.p25dr
☒	000C4.01.002.00003.p25dr	Site 196
☒	000de.01.002.00003.p25dr	000de.01.002.00003.p25dr
☐	0007C.01.002.00003.p25dr	0007C.01.002.00003.p25dr
☐	00002.01.002.00003.p25dr	00002.01.002.00003.p25dr
☐	00032.01.002.00003.p25dr	00032.01.002.00003.p25dr
☐	0007E.01.002.00003.p25dr	0007E.01.002.00003.p25dr
☐	0007f.01.002.00003.p25dr	0007f.01.002.00003.p25dr
☐	0000e.01.002.00003.p25dr	0000e.01.002.00003.p25dr
☐	000C7.01.002.00003.p25dr	NLRNif
☐	0000B.01.002.00003.p25dr	0000B.01.002.00003.p25dr
☐	aa.002.00003.p25dr	aa.002.00003.p25dr

Figure 19: NLR Subscriber Location Restriction

- Click on the 'Subscribers' link on the left hand menu and locate the subscriber just edited. Notice that the column 'Location Restriction' now contains the number of restrictions applied in the previous step.

	Status	Visitor	Location ID	Location Alias	Expires	Last Reg	Inhibited	Location Restrictions	Subscriber Restrictions		
	(any)	☐ y ☐ n					☐ y ☐ n				
	Unregistered	no			0	0000-00-00 00:00:00	no	4		Inhibit	Bloc
	Unregistered	no			0	0000-00-00 00:00:00	no			Inhibit	Bloc
	Unregistered	no			0	0000-00-00 00:00:00	no			Inhibit	Bloc
	Unregistered	no			0	0000-00-00 00:00:00	no			Inhibit	Bloc
	Unregistered	no			0	0000-00-00 00:00:00	no			Inhibit	Bloc
	Unregistered	no			0	0000-00-00 00:00:00	no			Inhibit	Bloc
	Unregistered	no			0	0000-00-00 00:00:00	no			Inhibit	Bloc
	Unregistered	no			0	0000-00-00 00:00:00	no			Inhibit	Bloc
	Unregistered	no			0	0000-00-00 00:00:00	no			Inhibit	Bloc

Figure 20: NLR Subscribers

9.14.8 Pass Criterion

- Subscriber has the location restrictions displayed in the main subscribers page.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Group Location Restrictions

9.14.9 Background

From the initial screen the following steps are required to add location restrictions for a group.

9.14.10 Pre Conditions

- NLR is installed correctly and a group and locations already exists.
- User is logged in as Operator.

9.14.11 Execution

- Click on the 'Groups' link on the left hand menu.
- Locate a group and click on the 'Edit' button on the entry.
- Click on the 'Edit Location Restrictions' button.

4. Select the locations created earlier and click on the 'Save' button as shown in

Subscribers

Groups

Locations

Subscriber Home RFSSs

Group Home RFSSs

Maintenance Operations

Users/Roles

Location Restrictions for Group: 000030020001 (

Check boxes to restrict the group from locations.

☐	Location ID	Location Alias
☒	0000f.01.002.00003.p25dr	0000f.01.002.00003.p25dr
☒	0003d.01.002.00003.p25dr	0003d.01.002.00003.p25dr
☒	000C4.01.002.00003.p25dr	Site 196
☒	000de.01.002.00003.p25dr	000de.01.002.00003.p25dr
☐	0007C.01.002.00003.p25dr	0007C.01.002.00003.p25dr
☐	00002.01.002.00003.p25dr	00002.01.002.00003.p25dr
☐	00032.01.002.00003.p25dr	00032.01.002.00003.p25dr
☐	0007E.01.002.00003.p25dr	0007E.01.002.00003.p25dr
☐	0007f.01.002.00003.p25dr	0007f.01.002.00003.p25dr
☐	0000e.01.002.00003.p25dr	0000e.01.002.00003.p25dr
☐	000C7.01.002.00003.p25dr	NLRNif
☐	0000B.01.002.00003.p25dr	0000B.01.002.00003.p25dr

Figure 21: NLR Group Location Restriction

5. Click on the 'Groups' link on the left hand menu and locate the group just edited. Notice that the column 'Location Restriction' now contains the number of restrictions applied in the previous step.

Groups List

Type	Membership Type	Announcement Group ID	Announcement Group Alias	RF Hang Time (sec)	Allow Non Emergency Calls	Allow Emergency Calls	Location Restrictions	Subscriber Restrictions			
(any)	(any)										
Standard	Open			0.0	yes	yes	4		Show Subscribers	Block	Edit
Standard	Open	0000300207d0	Group2000	0.0	yes	yes			Show Subscribers	Block	Edit
Standard	Open			0.0	yes	yes			Show Subscribers	Block	Edit
Standard	Open			0.0	yes	yes			Show Subscribers	Block	Edit
Standard	Open	00003002fffe	announcement group	0.0	yes	yes			Show Subscribers	Block	Edit
Standard	Open			0.0	yes	yes			Show Subscribers	Block	Edit
Standard	Open			0.0	yes	yes			Show Subscribers	Block	Edit

Figure 22: NLR Groups

9.14.12 Pass Criterion

- Group has the location restrictions displayed in the main groups page.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.15 Subscriber Home RFSS Mapping

9.15.1 Background

From the initial screen the following steps are required to add a subscriber home RFSS mapping.

9.15.2 Pre Conditions

- NLR is installed correctly and user is logged in as Operator.

9.15.3 Execution

1. Click on the 'Subscriber Home RFSSs' link on the left panel.
2. To add subscriber home mapping click on 'Add a New Subscriber Range to Home RFSS Mapping'.
3. Fill out the required fields and click 'Add'.

When adding a group, the minimum fields required are:

System ID: The System ID of the home RFSS for the subscriber.

WACN ID: The WACN ID of the home RFSS for the subscriber.

RFSS ID: The RFSS ID of the home RFSS for the subscriber.

Unit ID Min: The minimum unit ID of subscribers that belong to this home.

Unit ID Max: The maximum unit ID of the subscribers that belong to this home.

Alias: A textual description of the range mapping(ex: Fairfield Subscriber Range)

4. Click on the 'Subscriber Home RFSSs' link and notice that the new range mapping added exists.

9.15.4 Pass Criterion

- The Subscriber Home RFSS Mapping added exists in the 'Subscriber Range to Home RFSS Mappings' table.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.16 Group Home RFSS Mapping

9.16.1 Background

From the initial screen the following steps are required to add a group home RFSS mapping.

9.16.2 Pre Conditions

- NLR is installed correctly and user is logged in as Operator.

9.16.3 Execution

1. Click on the 'Group Home RFSSs' link on the left panel.
2. To add group home mapping click on 'Add a New Group Range to Home RFSS Mapping'.
3. Fill out the required fields and click 'Add'.

When adding a group, the minimum fields required are:

System ID: The System ID of the home RFSS for this group.

WACN ID: The WACN ID of the home RFSS for this group.

RFSS ID: The RFSS ID of the home RFSS for this group.

Group ID Min: The minimum group ID of groups that belong to this home.

Group ID Max: The maximum group ID of the groups that belong to this home.

Alias: A textual description of the range mapping(ex: Fairfield Group Range)

4. Click on the 'Group Home RFSSs' link and notice that the new range mapping added exists.

9.16.4 Pass Criterion

- The Group Home RFSS Mapping added exists in the 'Group Range to Home RFSS Mappings' table.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.17 Sorting Columns

9.17.1 Background

This test will demonstrate the NLR sorting capabilities.

9.17.2 Pre Conditions

- NLR is installed correctly and user is logged in as Operator.
- NLR has already existing groups.

9.17.3 Execution

1. Click on the 'Groups' link on the left hand menu.
2. Click on the arrow pointing up button to sort the entries in ascending order for the 'Group ID' column as indicated in **Error! Reference source not found..**



Figure 23: NLR Sorting Columns

3. Click on the arrow pointing down button to sort the entries in descending order.
4. Confirm the 'Groups' table is sorted via the 'Group ID'.

9.17.4 Pass Criterion

- Groups table is sorted by the 'Group ID' column in ascending or descending order.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.18 Hiding Columns

9.18.1 Background

This test will demonstrate the NLR column hiding capability.

9.18.2 Pre Conditions

- NLR is installed correctly and user is logged in as Operator.

9.18.3 Execution

1. Click on the 'Groups' link on the left hand menu.
2. Click on the hiding button as indicated in **Error! Reference source not found..**

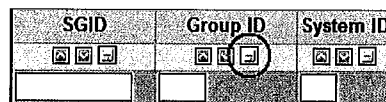


Figure 24: NLR Hiding Columns

3. The column 'Group ID' will be hidden.

9.18.4 Pass Criterion

- The 'Group ID' column will be hidden after clicking on the column hide button.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.19 Filtering Columns

9.19.1 Background

This test will demonstrate the NLR filtering capability. Filtering is supported in any table in the NLR, for this test will demonstrate the feature on the groups table.

9.19.2 Pre Conditions

- NLR is installed correctly and user is logged in as Operator.
- Multiple groups exist in the NLR.

9.19.3 Execution

1. Click on the 'Groups' link on the left hand menu.
2. Enter filter data into the filter row as indicated in **Error! Reference source not found.**

Groups List							
Membership Type	Status	Announcement Group ID	Announcement Group Alias	RF Hang Time (sec)	Allow Non Emergency Calls	Allow Emergency Calls	Location Restrict
  	  	  	  	  	  	  	  
any	(any)				☐ y ☐ n	☐ y ☐ n	
pen	Active			0.0	yes	yes	
pen	Active			0.0	yes	yes	
pen	Active			0.0	yes	yes	
pen	Active			0.0	yes	yes	
pen	Active			0.0	yes	yes	

Figure 25: NLR Filtering Columns

3. The table will include entries that satisfy the filters applied in the earlier step.

9.19.4 Pass Criterion

- Table only includes entries that satisfy the filters applied.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.20 Exporting Data to CSV

9.20.1 Background

This test will demonstrate the NLR feature of exporting data from a table to a CSV file. This feature is supported by all tables in the NLR but for this test we will test it on the subscribers table.

9.20.2 Pre Conditions

- NLR is installed correctly and user is logged in as Administrator.
- Subscribers table contains at least one subscriber.

9.20.3 Execution

1. Click on the 'Subscribers' link on the left hand menu.
2. On the 'Subscribers' table click on the export button located on the right hand corner as shown in

  											
eg	Inhibited	Location Restrictions	Subscriber Restrictions								☐ Delete selected
  	  	  	  								
☐ y ☐ n											
00:00:00	no			Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☐ Delete
00:00:00	no			Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☐ Delete
00:00:00	no			Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☐ Delete
00:00:00	no			Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☐ Delete
00:00:00	no			Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☐ Delete
00:00:00	no			Inhibit	Block	Show Groups	Radio check	Detach	ForceReg	Edit	☐ Delete

Figure 26: NLR Export Data to CSV

3. A box will appear indicating to open or save the file. Choose the option to open and investigate the contents of the file. Ensure the file contains the correct information about the subscribers in the table just exported.

9.20.4 Pass Criterion

- A CSV file is created after the export button is clicked.
- The CSV file contains correct information

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.21 Printing Data

9.21.1 Background

This test will demonstrate the NLR feature of printing data from a table. This feature is supported by all tables in the NLR but for this test we will test it on the subscribers table.

9.21.2 Pre Conditions

- NLR is installed correctly and user is logged in as Administrator.
- Subscribers table already contains data.

9.21.3 Execution

1. Click on the 'Subscribers' link on the left hand menu.
2. On the 'Subscribers' table click on the print button located on the right hand corner as shown in **Error! Reference source not found..**

[illegible]

Figure 27: NLR Print Data

3. A printing dialogue box will appear, select the printer, choose A3 and landscape then click on 'Print'.
4. Inspect the printed file and ensure that the printed document contains the same information as the subscriber table in the NLR.

9.21.4 Pass Criterion

- The subscriber table is printed correctly.
- The printed document contains the same information as the subscriber table in the NLR.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.22 NLR Data Management

9.22.1 Background

The backup and restore will be executed via a Linux terminal running on the platform that has the NLR installed.

9.22.2 Pre Conditions

- NLR is installed correctly and database has been filled with data.

9.22.3 Execution

- Log in to the NLR through the web interface and notice the current subscribers and groups that are stored.
- Log in to the NLR host as 'root' user in the platform running the NLR and open up a terminal window.
- Type the command

```
/home/NlrUser/bin/Nlr_mysql.sh -u root -p <password> backup > nlr_backup.sql
```

This will create a file called 'nlr_backup.sql' that will contain information about the NLR database.
- Remove all the subscribers and groups from the NLR.
- Using the terminal window opened earlier type the command

```
/home/NlrUser/bin/Nlr_mysql.sh -u root -p <password> restore nlr_backup.sql
```
- Confirm the subscribers and groups removed are restored by using the NLR web interface.

9.22.4 Pass Criterion

- A database back up file is created and can be used to restore the database correctly.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.23 Add New RFSS

9.23.1 Background

The NLR can support adding other RFSS that is used to enable home subscriber/group ranges as well as by the RNC to determine if that RFSS is currently available. Note that CSSI consoles appears as a separate RFSS to the system.

9.23.2 Pre Conditions

- NLR is installed correctly

9.23.3 Execution

- Click on the 'RFSS' link on the left panel.
- Click on the 'Add button.
- Enter the details of another RFSS.
- Click on the 'Add' button

9.23.4 Pass Criterion

- The new RFSS location is displayed on the RFSS entries within the NLR.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.24 Remove RFSS Location

9.24.1 Background

The NLR can support removing other RFSS if it is no longer required by the system.

9.24.2 Pre Conditions

- NLR is installed correctly
- RFSS entry already exists

9.24.3 Execution

1. Click on the 'RFSS' link on the left panel.
2. Verify an RFSS entry is present.
3. Click on the X button on the right hand side corresponding to the RFSS to be deleted.
4. Click on the 'Ok verify button

9.24.4 Pass Criterion

- An RFSS location can be removed from the NLR.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.25 Add Site Location

9.25.1 Background

The NLR can support adding local site locations in order to provide an alias and site capability polling feature

9.25.2 Pre Conditions

- NLR is installed correctly
- No site locations are present in the NLR.

9.25.3 Execution

1. Click on the 'Sites' link on the left panel.
2. Verify no site entries are present.
3. Click on the 'Add Site Entry' button and enter details of the new site including the Site ID and Alias.
4. Click on the 'Add' button

9.25.4 Pass Criterion

- An RFSS site location can be added to the NLR.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

9.26 Remove Site Location

9.26.1 Background

The NLR can support removing a local site location

9.26.2 Pre Conditions

- NLR is installed correctly
- A site is already present within the NLR database

9.26.3 Execution

1. Click on the 'Sites' link on the left panel.
2. Verify there is at least one site entry present.
3. Click on the X button on the right hand side corresponding to the site to be deleted
4. Click on the 'Ok' verify button

9.26.4 Pass Criterion

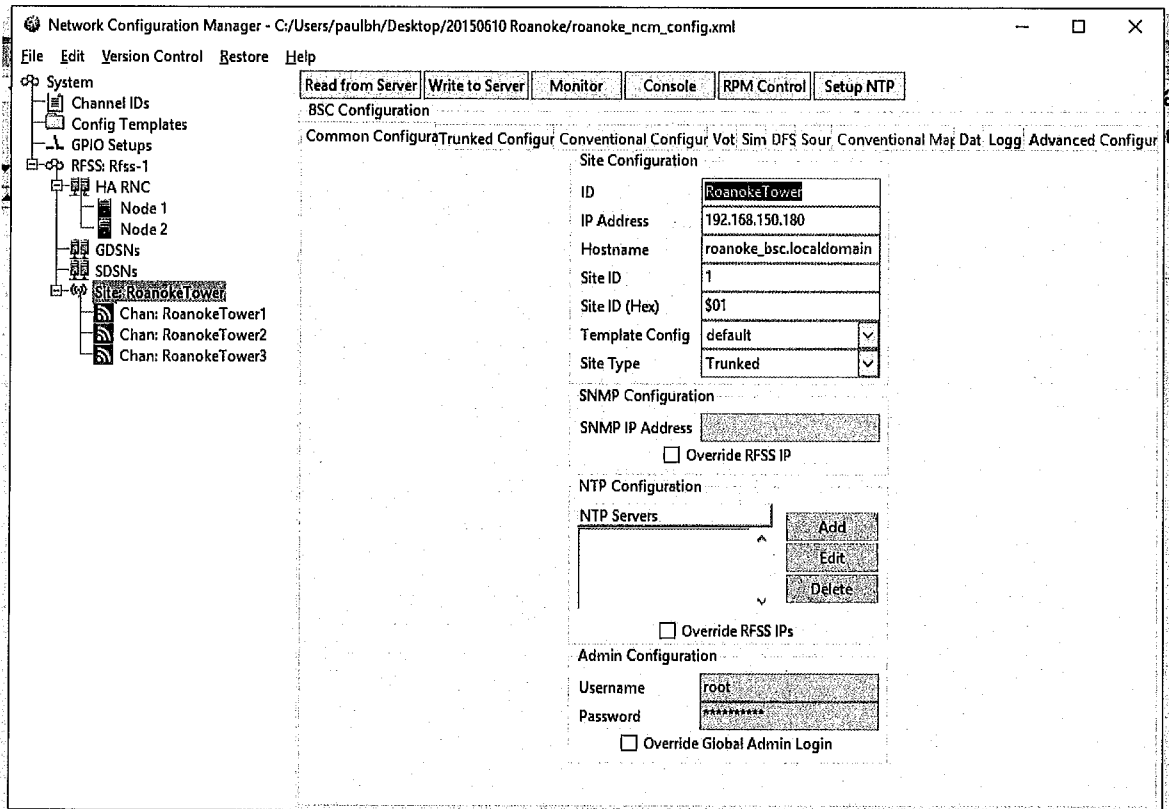
- A local site location can be removed from the NLR.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

10 Network Configuration Manager (NCM) Test Cases

Test procedures to be used for verification of the features and functionality of the Network Configuration Manager software.



10.1 RFSS - Add Site

This will test adding sites to an RFSS.

10.1.1 Pre Conditions

- RFSS in test already exists and is selected using the system tree.

10.1.2 Execution

1. Navigate to the RFSS in test by clicking on the RFSS in test item on the system tree.
2. In the 'Sites' frame click on the 'Add' button.
3. A new row will be added in the sites list.
4. Enter the site information on the new row's fields.
5. Confirm that a new site is added in the system tree by expanding the RFSS item in the system tree.

10.1.3 Pass Criterion

- A site should be added in the system tree and a new row is added in the sites list

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

10.2 RFSS - Remove Site

This will test removing a site from an RFSS.

10.2.1 Pre Conditions

- RFSS in test already exists and is selected using the system tree. A site is already added to the RFSS.

10.2.2 Execution

- Navigate to the RFSS screen that contains the site in test using the system tree.
- In the 'Sites' frame locate the site that will be deleted.
- Select the row by clicking on the selector button. 
- The selected row will be highlighted now click on the 'Delete' button.
- The selected row will be removed from the sites list.
- Confirm the site is removed from the system tree.

10.2.3 Pass Criterion

- The selected site should be removed from the system tree and the sites list.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

10.3 BSC – Basic Configuration

This will test the editing of basic configurations for a site.

10.3.1 Pre Conditions

- A site has been added to an RFSS.

10.3.2 Execution

- Click on the 'Site' item using the system tree on the left hand side.
- Enter new information for 'Site Configuration', 'Admin Configuration' and 'SNMP Configuration' frames.
- Save the system configuration by clicking on the menu File->Save.
- Re-launch the NCM application by closing and opening the NCM again.
- Navigate to the site that had its information edited.
- Confirm that the information shown is the same as what was entered earlier.

10.3.3 Pass Criterion

- BSC configuration can be edited and saved.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

10.4 BSC – Add Channel

This will test adding a channel to a site.

10.4.1 Pre Conditions

- A site was added through the RFSS screen.

10.4.2 Execution

1. Click on the site using the system tree on the left hand side.
2. In the 'Channels' frame click on the 'Add' button.
3. A row will be added to the table.
4. Enter the channel information in the row.
5. Confirm a channel item is added in the system tree.

10.4.3 Pass Criterion

- The channel will be added in the system tree and a row is added in the channels table.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

10.5 BSC – Remove Channel

This will test removing a channel from a site.

10.5.1 Pre Conditions

- A site was added through the RFSS screen and a channel already exists.

10.5.2 Execution

1. Click on the site using the system tree on the left hand side.
2. In the 'Channels' frame locate the channel row that will be deleted
3. Click on the selector button. 
4. The selected row will be highlighted, now click on the 'Delete' button.
5. Confirm that the row is removed from the channel table and the channel is removed from the system tree.

10.5.3 Pass Criterion

- The channel row is removed from the Channels table and the channel is removed from the system.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

10.6 BSC – Disable Site

This will test disabling a site.

10.6.1 Pre Conditions

- A site was added through the RFSS screen.
- The IP address and Admin configuration are entered correctly of the server running the BSC application.

10.6.2 Execution

1. Click on the site using the system tree on the left hand side.
2. Click on the 'Monitor' button at the top of the screen.
3. A pop up window will display the currently monitored applications, locate the BSC application and click on the 'Action' button.
4. Select the 'Stop' option.

10.6.3 Pass Criterion

- The BSC application on the server will halt execution and the monitor window will display that the BSC application has stopped running.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

10.7 BSC – Enable Site

This will test enabling a site.

10.7.1 Pre Conditions

- A site was added through the RFSS screen. The IP address and Admin configuration are entered correctly of the server running the BSC application. The BSC application currently stopped.

10.7.2 Execution

- Click on the site using the system tree on the left hand side.
- Click on the 'Monitor' button at the top of the screen.
- A pop up window will display the currently monitored applications, locate the BSC application and confirm the BSC application is not running.
- Click on the 'Action' button for the BSC application.
- Select the 'Start' option.

10.7.3 Pass Criterion

- The BSC application on the server will be running and the monitor window will display that the BSC application is running.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

10.8 BSC – Disable Channel

This will test disabling a channel.

10.8.1 Pre Conditions

- A site was added through the RFSS screen and a channel is already added to a site.

10.8.2 Execution

- Click on the channel using the system tree on the left hand side.
- In the Channel Service frame uncheck the 'In Service' checkbox.
- Click on the site that has this channel using the system tree on the left hand side.
- Click on the 'Advanced Configuration' tab and locate the line 'Transceiver X.InService' where X is the number ID of the channel.
- Confirm that the value of the above line is 'false'.

10.8.3 Pass Criterion

- BSC config file is configured to disable the channel.

PASS/FAIL Sign Off

Result	Initial	Notes

☐ PASS ☐ FAIL ☐ RETEST		
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10.9 BSC – Enable Channel

This will test enabling a channel

10.9.1 Pre Conditions

- A site was added through the RFSS screen and a channel is already added to a site. The channel in test is disabled.

10.9.2 Execution

1. Click on the site using the system tree on the left hand side.
2. In the Channel Service frame click on the 'In Service' checkbox so that it becomes checked.
3. Click on the site that has this channel using the system tree on the left hand side.
4. Click on the 'Advanced Configuration' tab and locate the line 'Transceiver X.InService' where X is the number ID of the channel.
5. Confirm that the value of the above line is 'true'.

10.9.3 Pass Criterion

- BSC config file is configured to enable the channel.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

10.10 BSC – Change Logging Level

This will test the editing of the logging levels.

10.10.1 Pre Conditions

- A site was added through the RFSS screen and is selected using the system tree.

10.10.2 Execution

1. Navigate to the site screen using the system tree.
2. Click on the 'Logging Levels' tab.
3. Change the logging levels by clicking on the dropdown menus.
4. Click on the 'Advanced Configuration' tab.
5. Locate the logging level parameters and confirm that the value is the same as what was selected earlier.

10.10.3 Pass Criterion

- Site logging levels are changed for the BSC.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

10.11 NCM – Write a Configuration to a Single Network Element

This will test writing a configuration file to a server.

10.11.1 Pre Conditions

- A server with the BSC application is running.

- A site is added in the NCM with the correct configuration information and IP address of the server.

10.11.2 Execution

1. Navigate to the site's screen by clicking on the site using the system tree.
2. Ensure the admin configuration is correct relative to the server.
3. Click on the 'Write to Server' button located at the top of the screen.
4. A process bar window will pop up indicating that the NCM is communicating with the server.
5. Wait until this process is finished, the NCM should indicate that the process is complete when the pop up window closes.
6. Ensure the configuration file was written correctly by observing the file '/home/BscUser/config/Bsc.config' in the server and confirming the information in this file matches the configuration in the NCM. Click on the 'Logging Levels' tab.

10.11.3 Pass Criterion

- The configuration file will be written to the server.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

10.12 NCM – Restart Network Element to Apply Changes

This will test applying the configurations made via the NCM. This test will be performed on a BSC but can be done on any network element.

10.12.1 Pre Conditions

- A server is set up correctly with a BSC application that is running.
- The NCM is correctly been configured with the correct site information

10.12.2 Execution

6. Navigate to the site screen using the system tree.
7. Make changes to the site configuration.
8. Write the configuration file to the server following the steps in test 3.9.2.
9. Ensure the admin configuration is correct with the server running the BSC application.
10. Click on the 'Monitor' button located at the top of the screen.
11. The monitor window will pop up showing all the processes running on the server. Locate the BSC application and click on the 'Action' button.
12. Select the 'Restart' option. The BSC application will restart reading in the new configuration file.
13. Confirm the BSC is behaving according to the new configuration file.

10.12.3 Pass Criterion

- A live BSC can have its configuration updated and can be restarted to apply the new configurations.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

10.13 NCM – Write a Configuration to Multiple Network Elements

This will test writing a configuration fail to a multiple servers.

10.13.1 Pre Conditions

- Servers for a BSC, RNC, SDSN, GDSN and PSTNG are set up.
- A Site, RNC, SDSN, GDSN and PSTNG are configured correctly on the NCM application.

10.13.2 Execution

1. Ensure all the admin configurations for the Site, RNC, SDSN, GDSN and PSTNG are correct.
2. Navigate to the system screen by clicking on the system item on the system tree.
3. Click on the 'Write to Servers' button located at the top of the screen.
4. A window will pop up showing all the network elements in the NCM.
5. Select the correct network elements, multiple selections can be made by holding down on the Ctrl key and clicking on the item in the list.
6. Click on the OK button.
7. The process bar window will pop up for every network element the NCM is writing the configuration file to.
8. When all process bar windows are complete, ensure the configuration file was written correctly by observing the config file in server and confirming the information in this file matches the configuration in the NCM for every network element.

10.13.3 Pass Criterion

- The configuration file will be written for all the network elements selected in the list.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

11.0 RF Testing (Performed on all Base Stations)

11.1 Transmitter Testing

- 11.1.1** Insert a Termline Wattmeter on the output of the Base Station Transmitter. Key the mic and measure the output power. It should be 75 watts. If not adjust up or down. Complete this test for all.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

- 11.1.2** Insert a Thru-line Wattmeter on the Output of the Base Station Transmitter. Key the mic and measure the forward and reverse power. The forward power should be 75 watts and the reverse power should be less than 3 watts.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

- 11.1.3** Insert the Thru-line Wattmeter at the output of the combiner going to the transmit antenna. Key the mic and measure the forward and reverse power. The forward power should be 25 watts or more and the reverse power should be 2.5 watts or less.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

- 11.1.4** Adjust the Wattmeter panel to reflect the measured values in the previous tests.

- 11.1.5** Measure the transmitter frequency on an industry standard test unit. The Transmitter should be within ± 100 Hz of the stated FCC frequency.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

11.2 Receiver Testing (Performed on all Base Stations)

- 11.2.1** Connect the signal generator to the receiver port of the base station. Generate a test signal to determine the sensitivity of the base station. The base station should have a sensitivity of .25mv or less.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

- 11.2.2** Connect the signal generator to the antenna port of the receiver multicoupler. Generate a test signal to determine the sensitivity of the base station through the multicoupler. The sensitivity should be .3mv or less.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

- 11.2.3** Connect the signal generator to the "ISO-TEE" port. Generate a test signal into the base station to determine it's relative sensitivity. Key each base station one at a time and listen for any degradation in signal quality. The signal sensitivity should not degrade more than 6db.

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

12.0 Coverage Testing

- 12.1** Using a "Test" handheld radio with the appropriate signal strength measurement mode turned on; travel to the locations defined by the City for testing. Measure and record the signal level on the test radio. Make a voice test to the radio console and verify adequate voice quality.

Location #1 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #2 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #3 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #4 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #5 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #6 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #7 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #8 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #9 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #10 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #11 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #12 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #13 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #14 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #15 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #16 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #17 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #18 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #19 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

Location #20 _____ Signal Level _____

PASS/FAIL Sign Off

Result	Initial	Notes
☐ PASS ☐ FAIL ☐ RETEST		

F:/TwinFallsProject/SystemTestSpecification-1.0.doc



Date: Monday, March 18, 2019
To: Honorable Mayor and City Council
From: Mandi Thompson, Grant & Community Relations Manger

ACTION ITEM

Request:

ACTION ITEM: Request to consider the submission of a grant application for the purchase of a Quick Response Unit (QRU) for the fire department.

Time Estimate:

5 minute presentation with 5-10 minutes for questions.

Background:

In January 2017, the TFFD began responding to all emergency medical calls (EMS) generated within the City of Twin Falls. This has resulted in an increased level of service for citizens with emergency medical needs as well as a substantial increase in service calls. In 2016, prior to taking on EMS, total call volume for the fire department was 2,788, of which 95 were EMS. In 2017, call volume increased to 5,413, of which 3,148 were EMS calls. In 2018, total call volume was 5,003, of which 3,053 were EMS calls.

Because the TFFD does not have an aid car or quick response unit (QRU), all calls are responded to using a fire engine. This increased level of service has also resulted in a substantial increase in wear and tear on the fire engines, including an increase in maintenance costs. Repairs to Engine 1 in 2017 were nearly \$10,000, which is more than double the highest annual repair costs prior to running EMS calls; repairs to Engine 2 in 2018 were nearly \$18,000 and have already exceeded \$2,500 in the first two months of 2019. These figures illustrate the impact of increased use on these apparatus, and the need to utilize smaller and less expensive vehicles for EMS calls whenever possible.

A QRU is a non-transport apparatus. Because TFFD is not licensed to transport, Magic Valley Paramedics must also be dispatched when transport is required. There are times when MVP is at Level 0 and unable to immediately respond. This apparatus will allow for emergency transport only in situations where MVP is at Level 0, unable to

Approval Process:

Majority approval by Council requires to submit the grant application.

Budget Impact:

The maximum grant available for a non-transport QRU is \$65,000. The total cost of this unit, however, is approximately \$199,000. The impact to the City budget is estimated to be \$134,000.

Regulatory Impact:

N/A

History:

N/A

Analysis:

N/A

Conclusion:

Staff recommends that Council approve the submission of the grant application to the Idaho Department of Welfare, Emergency Services Division for consideration of funding through the EMS Dedicated Grant program in the amount of \$65,000.

Attachments:

None



Date: Monday, March 18, 2019
To: Honorable Mayor and City Council
From: Troy Vitek, Assistant City Engineer

ACTION ITEM

Request:

ACTION ITEM: Request to consider a modified roadway cross-section for Locust Street between North College Rd. E and Falls Ave. E

Time Estimate:

20 minutes

Background:

Funds are budgeted to begin a phased project to address the reconstruction of Locust Street. This road was prioritized because it has very heavy volume and experienced localized, catastrophic failures a few years ago. When considering the scope of a road reconstruction project, it is important to evaluate the opportunity to bring the road into compliance with current standards and values. Locust Street, between North College Road E and Falls Ave. E, is fully built-out. The roadway cross-section doesn't conform to the collector cross-section identified in the Master Transportation Plan. A collector road is planned to have detached sidewalks and to have slightly more pavement than the collector cross-section requirements that were required when this area was developed. The additional width of the current section is an effort to provide minor accommodation for turning vehicles and for bicycles when the volumes get so high that a 4 lane section is essential. Detached sidewalk is known to provide a safer and more comfortable experience for pedestrians on busy streets.

The exhibit showing option 1 demonstrates a new right of way width that would accommodate the current standards. On most properties, this would require between 7-10 feet of additional right of way on each side of the road parallel to the alignment, complete reconstruction of most of the curb and gutter and the vast majority of the driveways, and significant utility relocation. In addition, there are measureable impacts to off-street parking, fencing, and landscaping. While the additional right of way doesn't appear to directly impact structures, there is at least 1 parcel where use of the existing garage would be quite challenging and several where the off-street parking would be significantly impacted.

Option 1 also shows a potential widening on Falls Ave E at the northwest corner of Falls and Locust. The widening on Falls Ave. E would extend the 5th lane. This widening is becoming more important as the community grows and the traffic volumes increase. The work would provide some improvement to the operation of the intersection, particularly on Falls Ave. E. The initial review indicates that some additional right of way would be necessary to fit the relocation of the signal pole. Staff recommends that this widening is incorporated into the reconstruction work with the appropriate (adjacent) phase of Locust Street reconstruction, regardless of the option that is chosen.

The request tonight is to consider a roadway cross-section for Locust Street that retains as much existing curb and driveway as possible by omitting the landscaping strip and placing sidewalk directly adjacent to

the curb. This alternative would require minimal right of way. This project is in the concept development phase but, without design, it appears that, the only additional right of way the City would need would be land to place legal, accessible ramps at intersections and to do some utility relocation to provide a minimum width sidewalk. This option would retain most of the existing fencing and off-street parking. Landscaping will still be affected but should primary be within the existing right of way. Staff believes that this request honors prior development, minimizes impacts to property owners, improves accessibility for pedestrians and minimizes project costs.

Once the roadway cross-section is determined, preliminary costs can be estimates and staff will estimate the number of phases necessary to reconstruct Locust Street within the planned reconstruction budgets. The first phase will include the blow-out at Julie Lane and will proceed north towards North College Road. There are 2 deferrals for sidewalk in the alignment. Staff will approach these property owners to establish a collaborative approach to completing the sidewalk reconstruction.

Approval Process:

A majority vote will provide direction to the Engineer.

Budget Impact:

Funds have been budgeted in the Streets reconstruction line item to begin reconstruction work on Locust.

Regulatory Impact:

none

History:

N/A

Analysis:

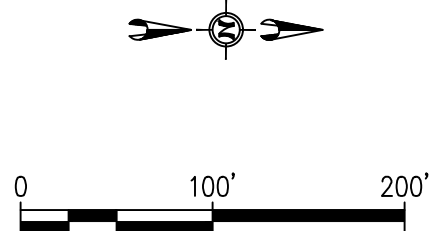
N/A

Conclusion:

Staff recommends approval of the modification to the roadway cross-section on Locust Street between North College Road E and Falls Ave E.

Attachments:

1. Locust St - Property Ownership Exhibit-OPTION 1 - FULL ROW
2. Locust St - Property Ownership Exhibit-OPTION 2 - EXISTING ROW



CITY OF TWIN FALLS
LOCUST STREET NORTH
PROPOSED RIGHT OF WAY & SIDEWALK
OPTION 1

REVISIONS

DESIGNED J. FIELDS	DRAWN KDF
APPROVED	DATE 02/26/19

SHEET



CITY OF TWIN FALLS
205 MAIN AVENUE EAST
TWIN FALLS, ID 83301-1907
PH# (208) 735-7267
FAX (208) 736-2293



CITY OF TWIN FALLS
LOCUST STREET NORTH
PROPOSED SIDEWALK PROJECT
OPTION 2

DESIGNED	DRAWN
J. FIELDS	KDF
APPROVED	DATE
	03/04/19

SHEET

REVISIONS

CITY OF TWIN FALLS
205 MAIN AVENUE EAST
TWIN FALLS, ID 83301-1907
PHONE (208) 735-7267
FAX (208) 736-2293





Date: Monday, March 18, 2019
To: Planning and Zoning Commission
From: Planning & Zoning Department

ACTION ITEM

Request:

ACTION ITEM: Request to amend PUD #264 to allow "Hotel" as a permitted use and increase maximum building height to sixty feet (60') for property located at 2151 Fillmore Street c/o EHM Engineers on behalf of Geronimo, LLC. (PZ18-0099)

Time Estimate:

25 minutes between staff and the applicant.

Background:

See analysis.

Approval Process:

Per Twin Falls City Code 10-6-1.4(E) Approval of a ZDA Sub-District requires a preliminary presentation to the Planning and Zoning Commission for a review of the proposed changes. A public hearing shall then be held before the Commission for a recommendation to the Council to amend the PUD, amend with recommendations or deny the request.

Budget Impact:

N/A

Regulatory Impact:

Approval of the 1st Amendment of PUD #264, will outright permit "Hotels" as a land use on the specified property, and allow for additional height up to sixty feet, an additional thirty-five feet (35') at the fifty foot Canyon Rim Setback.

History:

The history on this property and request is a bit lengthy and convoluted. There have been multiple PUD's approved in this area dating back over two decades, and multiple amendments to those PUD's.

To complicate matters, a Citizen's Design Review Committee was created to consider a 10 story hotel with a convention center in this area. The committee approved the request in January 2007. However, staff has no record of a development agreement being approved by City Council to develop the property in that manner.

Since the committee's approval in 2007, Canyon Park West PUD # 264 has been approved and recorded with no mention of a high rise hotel. It is staff's determination that the current iteration of the governing PUD supersedes that prior committee's approval.

Analysis:

This request is to amend the Canyon Park West PUD #264 to add "Hotel" as a permitted use specifically on the property identified as the "Hotel Property" within the PUD amendment. The amendment also requests to

increase the maximum height to sixty feet (60'), and remove the requirement for a design review committee per the CRO development standards.

The original Canyon Park West PUD #219, approved in 2000, required an SUP for a hotel.

Canyon Park North #1 PUD #222, also approved in the year 2000, would have required an SUP for any hotel on properties within its boundaries. However, PUD #222 is no longer in effect as Canyon Park West PUD #264 encompasses and supersedes all of PUD #222.

Canyon Park West PUD #264, approved in 2012, includes all of PUD #222 and most of PUD #219, a few properties were excluded (such as Zions Bank and Golden Corral). The requested amendment is specific to PUD #264 which must follow both the C-1 and CRO use regulations and development standards as listed in City Code. If the proposed amendment is approved, it would outright permit a hotel on the property identified as the "Hotel Property" and allow for a maximum building height sixty feet (60'), as measured from the top of the existing retaining wall (see attachment #5), without a design review committee recommendation.

As a point of clarification this request does not forego the requirement to meet the design standards for construction as set forth in PUD #264 (see attachment #6). The renderings provided by the applicant have colors and materials depicted. However, those items are not part of the application, and are not being requested for change. The renderings are conceptual, and have not been reviewed for compliance with the applicable design standards. Compliance with colors and materials are reviewed during Building Permit submittals.

On Tuesday, January 29, 2019, the Planning & Zoning Commission voted two (2) in favor, six (6) not in favor, and one (1) abstention of the application as presented.

Conclusion:

The Commission is tasked with making a recommendation to the City Council. The Commission may do one of the following:

- Recommend approval as presented
- Recommend approval with conditions
- Recommend denial
- Table the request to a future date in order to gather additional information

Attachments:

1. PUD Amendment Staff Report PZ18-0099
2. 1 - Vicinity
3. 2 - Narrative
4. 3 - Draft PUD Amendment
5. 4 - Site Plan
6. 5 - Building Renderings
7. 6 - Building Height Exhibit
8. 7 - Building Design Guidelines
9. 8 - Photos
10. 9 - Citizen Emails
11. 03-14-19 GEO Tech Report
12. P&Z Hearing Citizen Exhibits



Comprehensive Staff Report

To: Planning & Zoning Commission

Presenter: Steve O'Connor, City Planner

Request: To **Amend** PUD #264 to allow "Hotel" as a permitted use and to increase maximum building height to sixty feet (60') for property located at 2151 Fillmore Street.

Application: PZ18-0099

Applicant:

Geronimo, LLC

c/o EHM Engineers

208.734.4888

dthibault@ehminc.com

Public Hearing: January 29th, 2019

Analysis

This request is to amend the Canyon Park West PUD #264 to add "Hotel" as a permitted use specifically on the property identified as the "Hotel Property" within the PUD amendment. The amendment also requests to increase the maximum height to sixty feet (60'), and remove the requirement for a design review committee per the CRO development standards.

The original Canyon Park West PUD #219, approved in 2000, required an SUP for a hotel.

Canyon Park North #1 PUD #222, also approved in the year 2000, would have required an SUP for any hotel on properties within its boundaries. However, PUD #222 is no longer in effect as Canyon Park West PUD #264 encompasses and supersedes all of PUD #222.

Canyon Park West PUD #264, approved in 2012, includes all of PUD #222 and most of PUD #219, a few properties were excluded (such as Zions Bank and Golden Corral). The requested amendment is specific to PUD #264 which must follow both the C-1 and CRO use regulations and development standards as listed in City Code. If the proposed amendment is approved, it

would outright permit a hotel on the property identified as the "Hotel Property" and allow for a maximum building height sixty feet (60'), as measured from the top of the existing retaining wall (see attachment #5), without a design review committee recommendation.

As a point of clarification this request does not forego the requirement to meet the design standards for construction as set forth in PUD #264 (see attachment #6). The renderings provided by the applicant have colors and materials depicted. However, those items are not part of the application, and are not being requested for change. The renderings are conceptual, and have not been reviewed for compliance with the applicable design standards. Compliance with colors and materials are reviewed during Building Permit submittals.

History

The history on this property and request is a bit lengthy and convoluted. There have been multiple PUD's approved in this area dating back over two decades, and multiple amendments to those PUD's.

To complicate matters, a Citizen's Design Review Committee was created

to consider a 10 story hotel with a convention center in this area. The committee approved the request in January 2007. However, staff has no record of a development agreement being approved by City Council to develop the property in that manner.

Since the committee's approval in 2007, Canyon Park West PUD # 264 has been approved a recorded with no mention of a high rise hotel. It is staff's determination that the current iteration of the governing PUD supersedes that committee's approval.

Comprehensive Plan Compliance

This area is designated as Mixed Use on the Future Land Use map for the 2016 Comprehensive Plan "Grow With Us." Mixed Use is a broad use category ranging from Multi-Family complexes to Light Commercial all within the same development or even the same building. A hotel meets these criteria as it would add another service to a range of services found along a corridor which supports Civic, Commercial, Recreational and Residential uses.

The Comprehensive Plan also contains a vision and goals with the intent to protect the canyon rim. "Development near the Canyon Rim should be carefully considered. Retail

Public Hearing: January 29th, 2019

development along the Canyon Rim *threatens the appeal and natural quality of the rim. The Canyon Rim is an important feature and viewpoint, a striking visual landscape, and a coveted recreational site. In order to ensure that the integrity of the Canyon Rim is preserved, a balance between acceptable development uses, and necessary preservation should prevail."*

The comprehensive plan further states: *Community Character Goal 2: Preserve the Canyon Rim – Policy 2.1 Continue to protect the Canyon rim through enforcement of City Code and ordinances that balance private property rights and the desire for the public access to the Canyon Rim Trail System.*

Potential Impacts

All development brings its share of impacts; additional development in a developed area brings a new slate of issues and impacts to the surrounding developed properties.

A hotel will bring vehicular traffic to the area, however, the increase will be minimal compared to the overall traffic volume already experienced in this area, and the increase will actually be less than the currently approved Retail Store and Restaurant that could be constructed. Due to its proximity along the Canyon Rim Trail, we can expect increased use of that public amenity.

Another potential impact will be the visual impact on the rim of the canyon. This building will be visible from the Perrine Bridge and from certain areas on the canyon floor. The extent of the impact on individuals is difficult to quantify as visual impacts are perception based, and each individual creates their own narrative and perceived impact. However, staff can point to an existing situation in order to give context to this request. The building which houses Elevation 486, sits back 50' from the rim and is 56' tall, as measured from an elevation which is ten feet (10') higher than the adjacent Canyon Rim Trail.

Approval Process

Per Twin Falls City Code 10-6-1.4(E) Approval of a ZDA Sub-District requires a preliminary presentation to the Planning and Zoning Commission for a review of the proposed changes. A public hearing shall then be held before the Commission for a recommendation to the Council to amend the PUD, amend with recommendations or deny the request.

Applicable Regulations or Codes

Per the Canyon Park West PUD #264, City Code 10-4-8 & 10-4-19: a hotel would require a Special Use Permit and a request to City Council to exceed the height restrictions of the zones. In addition to the SUP requirement, any building proposed to exceed twenty-five feet (25') in the CRO requires a design committee review. As such, the applicant is requesting to amend the PUD as required in **City Code 10-6-1**.

Conclusion

The commission is tasked with making a recommendation to City Council. The Commission may do one of the following:

- Recommend approval as presented
- Recommend approval with conditions
- Recommend denial
- Table the Request for additional information.

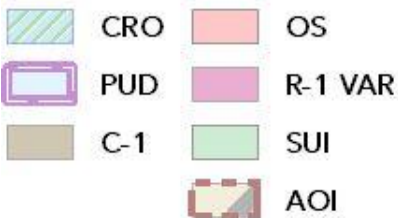
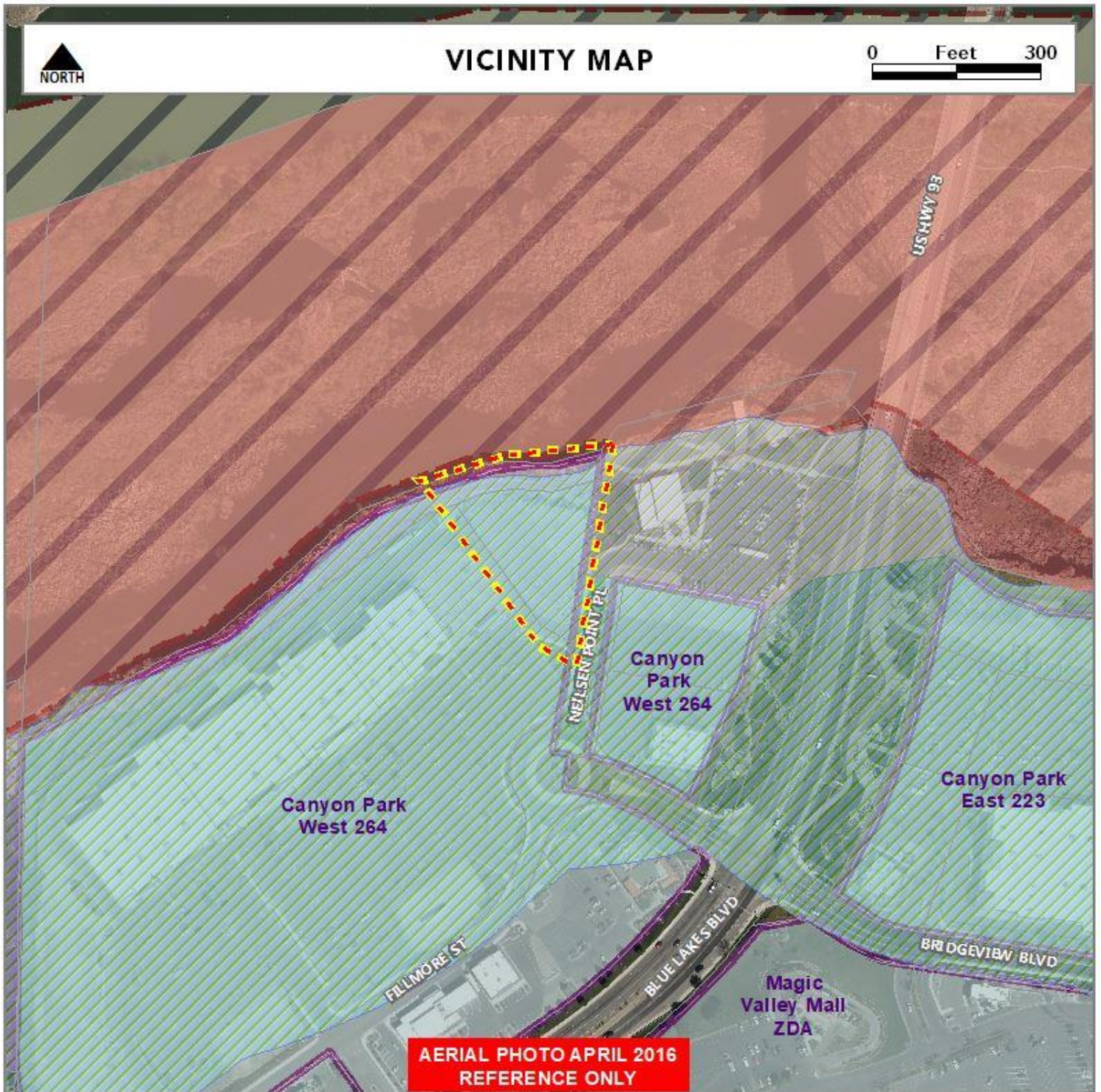
Attachments

1. Vicinity Map
2. Narrative
3. Draft PUD Amendment
4. Site Plan
5. Building Renderings
6. Elevation Exhibit
7. Excerpts from Canyon Park West Design Standards
8. Photos
9. Citizen Emails



VICINITY MAP

0 Feet 300



Current Zoning: C-1 PUD CRO

Existing Land Use: Commercial and Vacant

Comprehensive Plan: Mixed Use

Proposed Land Use: Hotel

Surrounding Zoning Designations & Land Use(s)

North: OS AOI (Snake River Canyon); Parks

East: OS CRO; Civic

South: C-1 PUD CRO; Commercial

West: C-1 PUD CRO; Commercial

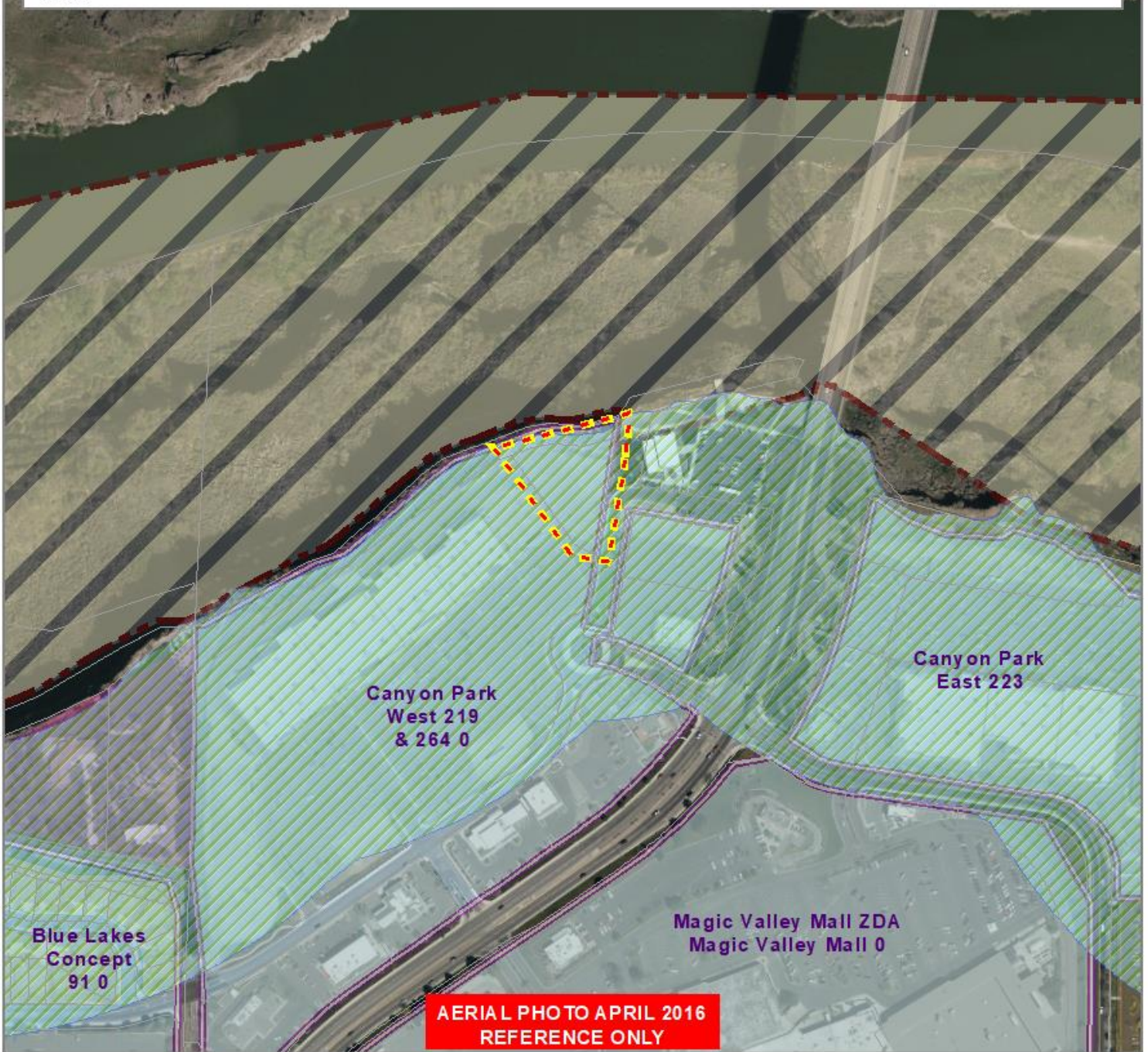
Applicable Regulations

10-1-4, 10-1-5, 10-4-8, 10-7-12, 10-10-11, 10-11-1 thru 8, 10-13



VICINITY MAP

0 Feet 430



	CRO		R-1 VAR
	PUD		R-4
	C-1		SUI
	AOI		

Current Zoning: C-1 PUD CRO
Future Land Use: Mixed Use

Existing Land Use: Vacant
Proposed Land Use: Hotel

Surrounding Zoning Designations & Land Use(s)

North: OS AOI; Snake River Canyon

East: OS CRO; Visitors Center

South: C-1 PUD CRO; Commercial

West: C-1 PUD CRO; Commercial

Applicable Regulations

10-4-8, 10-4-19, 10-6-1, Canyon West PUDs #219 & #264

Supplemental Information to Accompany a PUD Amendment Request

This application for amendment of the Canyon Park West PUD has been prepared to permit the use of a multi-story hotel and the necessary height allowances to construct the Hotel at the Canyon Park West site. The specific details for the request are attached hereto. Effectively, the request will permit the use of hotel within the project which is consistent with the underlying C-1 zoning use restrictions. Additional height for the hotel will be required and is detailed in the language of the PUD Amendment.

The proposed change will likely compliment the surrounding area which has been developed into retail shopping centers, restaurants, and individual banks or credit unions. The project location is important as well. This site captures unique views of the Snake River Canyon lands and is at the forefront of Twin Falls. The Perrine Bridge Entry into the City of Twin Falls is very near the project site.

The history of the Canyon Park West PUD included the hotel use planned for an eight to ten story hotel in its original form. As the project developed and individual site users were identified, the PUD was amended to exclude the hotel use and add more restaurant and service uses. However, some of those individual users have backed away from the project and new users have been identified. Home2Suites is interested and pursuing purchase of the property for the purpose of constructing one of their hotels thereon. This amendment is the first step in that process to permit the use and the necessary height. The hours of operation are compatible with the surrounding retail shopping and restaurant users. There exists cross-use access and parking agreements to provide for the proper flow of traffic and to provide adequate parking.

The changes to the area are not expected to be detrimental, rather the completion of the development of this area is expected to compliment the surrounding area and provide a service which is needed within the City of Twin Falls. Landscaping, trail access, and utility service to the surrounding area is expected to be compatible with what has already been established and the design team consists of many of the same partners which originally developed the property.

FIRST AMENDMENT
CANYON PARK WEST (AMENDED)
C-1 PLANNED UNIT DEVELOPMENT AGREEMENT

THIS FIRST AMENDMENT ("**First Amendment**") is made and entered into this ____ day of _____, 2019, by and between the CITY OF TWIN FALLS, a municipal corporation, State of Idaho ("**City**"), Geronimo L.L.C. , a Utah limited liability company whose address is 2733 East Parleys Way, Suite 300, Salt Lake City, Utah 84109 ("**Geronimo**"), Base Jumper L.L.C., a Utah limited liability company, whose address is 2733 East Parleys Way, Suite 300, Salt Lake City Utah 84109 ("**Base Jumper**"), Base Jumper Two L.L.C., a Utah limited liability company, whose address is 2733 East Parleys Way, Suite 300, Salt Lake City Utah 84109 ("**Base Jumper Two**"), and Idaho Central Credit Union, an Idaho nonprofit corporation whose address is P.O. Box 2469, Pocatello, ID 83206 ("**Idaho Central**").

WHEREAS, the City, Canyon Park I, LLC ("**CP I**"), and Canyon Park Development, LLC, an Idaho limited liability company ("**CP Development**") entered into that certain CANYON PARK WEST (AMENDED), C-1 PLANNED UNIT DEVELOPMENT AGREEMENT dated August 20, 2012 and filed of record in Twin Falls County and recorded for City of Twin Falls under Instrument No. 2012-016013 (26 pages) with the County Clerk ("**PUD**"); and

WHEREAS, pursuant to that certain Grant Deed dated November 1, 2012 and filed of record in Twin Falls County and recorded for Alliance Title under Instrument No. 2012-021238 (3 pages) with the County Clerk, CP Development transferred to **Base Jumper Two** all right, title and interest in Lot 5 in Block 1 of Canyon Park North Subdivision according to the official plat thereof, filed in Book 17 of Plats at Page(s) 29, records of Twin Falls County, Idaho (LOT 11 OF THE PUD); and

WHEREAS, pursuant to that certain Grant Deed dated November 1, 2012 and filed of record in Twin Falls County and recorded for Alliance Title under Instrument No. 2012-021239 (3 pages) with the County Clerk, CP I transferred to **Base Jumper** all right, title and interest in Lots 2 and 3 in Block 1 of Canyon Park East Subdivision (less and except a portion of said Lot 3 as described therein) according to the official plat thereof, filed in Book 17 of Plats at Page(s) 40, records of Twin Falls County, Idaho, and Lot 4 in Block 2 of Canyon Park West No 1 Subdivision according to the official plat thereof, filed in Book 16 of Plats at Page(s) 20, records of Twin Falls County, Idaho, and Lot 6 in Block 1 of Canyon Park North Subdivision according to the official plat thereof, filed in Book 17 of Plats at Page(s) 29, records of Twin Falls County, Idaho (LOT 1 AND 12 OF THE PUD); and

WHEREAS, pursuant to that certain Special Warranty Deed dated January 31, 2014 and filed of record in Twin Falls County and recorded for Alliance Title- Twin Falls under Instrument No. 2014-001951 (3 pages) with the County Clerk, CP Development transferred to **Idaho Central** all right, title and interest in Lot 3 in Block 1 of Canyon Park Amended Subdivision, a Planned Unit Development, a resubdivision and renumbering of a portion of Canyon Park North Subdivision and a portion of Canyon Park West No. I Subdivision, according to the official plat thereof, filed in Book 24 of Plats at Page(s) 27, records of Twin Falls County, Idaho under recorder's Instrument No. 2013-025885 (LOT 3 OF THE PUD); and

WHEREAS, pursuant to that certain Grant Deed dated April 3, 2014 and filed of record in Twin Falls County and recorded for Alliance Title- Twin Falls under Instrument No. 2014-005426 (3 pages) with the County Clerk, CP Development transferred to **Geronimo** all right, title and interest in Tract A, Tract B, Lot 2, Lot 4, Lot 5 and Lot 6 all in Block 1 of Canyon Park Amended Subdivision, a Planned Unit Development, a resubdivision and renumbering of a portion of Canyon Park North Subdivision and a portion of Canyon Park West No. I Subdivision, according to the official plat thereof, filed in Book 24 of Plats at Page(s) 27, records of Twin Falls County, Idaho under recorder's Instrument No. 2013-025885 (Tract A, and LOTS 2, 4, 5, 6, 7, 8, 9, AND 10 OF THE PUD); and

WHEREAS, all terms used but not defined herein shall have the meanings attributed thereto in the PUD; and

WHEREAS, Geronimo has agreed to sell a portion of the Property owned by Geronimo more particularly described as that certain tract of land located in the City of Twin Falls, County of Twin Falls, State of Idaho, known as Lot 6 of Canyon Park Amended Subdivision, recorded as Entry No. 2013-025885 in the Twin Falls County recorder's office (hereafter the "Hotel Property"); and

WHEREAS, the purchaser of the Hotel Property intends to use the Hotel Property as a hotel and has requested certain amendments to the PUD; and

WHEREAS, the parties hereto, as the successor-in-interest to CP Development and CP I have the power to amend the PUD without the joinder of any other person other than the City; and

WHEREAS, City, by and through its City Council, has agreed to the amendments to the PUD as provided herein.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, City, Geronimo, Base Jumper Two, Base Jumper, and Idaho Central agree as follows:

- A. INCORPORATION OF RECITALS. The foregoing recitals are incorporated herein by reference.
- B. NATURE OF DEVELOPMENT- USES. Section 2 B. of the PUD is hereby amended to add "hotel" as an outright permitted use for the Hotel Property.
- C. INDIVIDUAL PARCEL DEVELOPMENT CRITERIA-BUILDING SETBACKS: Section 5 B. of the PUD is hereby amended to provide that Buildings on the Hotel Property shall be set back not less than fifty (50) feet from the Snake River Canyon.
- D. INDIVIDUAL PARCEL DEVELOPMENT CRITERIA-BUILDING STANDARDS: Section 5 G.3. g. of the PUD is hereby amended as follows: Buildings on the Hotel Property may extend up to sixty (60) feet above the top of the existing retaining wall as depicted on Exhibit A attached hereto.

- E. WAIVER OF CITIZEN'S REVIEW COMMITTEE: Any requirement for a citizens' design review committee whether contained in the Canyon Rim Overlay City Code 10-4-19.4(C) 4.b.(2) or elsewhere are waived for the Hotel Property such that the design and materials used for the proposed building on the Hotel Property are not required to be reviewed by any committee.
- F. INDIVIDUAL PARCEL DEVELOPMENT CRITERIA-COMPLIANCE WITH CANYON RIM ORDINANCES: Section 5 G.3. i. of the PUD, and all laws, rules and regulations in each of the City Code of the City of Twin Falls, the Canyon Rim Overlay District, the Canyon Rim Ordinances, and any and all other laws, rules or regulations affecting the Hotel Property are hereby amended as follows: To the extent of any conflicts with the provisions of this First Amendment to the Canyon Park West (Amended) C-1 Planned Unit Development Agreement, the provisions of this First Amendment shall supersede all such conflicting provisions.
- G. COUNTERPARTS: This agreement may be executed in as many counterparts as may be deemed necessary and convenient, and by the different parties hereto on separate counterparts, each of which, when so executed, shall be deemed an original, but all such counterparts shall constitute one and the same instrument.

SIGNATURES COMMENCE
ON FOLLOWING PAGE

IN WITNESS WHEREOF, the City has affixed its seal and caused these presents to be executed by its Mayor as of the date above written.

City:

CITY OF TWIN FALLS

BY: _____
Shawn Barigar, Mayor

ACKNOWLEDGEMENTS

STATE OF IDAHO)
)ss.
County of Twin Falls)

On this __ day of _____, 2019, before me, the undersigned, a Notary Public for Idaho, personally appeared, Shawn Barigar, known to me to be the Mayor of the City of Twin Falls, the municipal corporation that executed the within and foregoing instrument, and acknowledged to me that such municipal corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year first above written.

Notary Public for Idaho
Residing at _____, Idaho
My Commission Expires _____

SIGNATURES CONTINUE
ON FOLLOWING PAGE

IN WITNESS WHEREOF, Geronimo has affixed its seal and caused these presents to be executed by its duly authorized representatives as of the date above written.

Geronimo:

GERONIMO L.L.C., a Utah limited liability company

By: WOODBURY STRATEGIC PARTNERS FUND, L.P.,
a Delaware limited partnership, Its Manager
By: WSP TRUFFLES L.L.C., a Delaware limited liability company,
Its General Partner
By: WOODBURY STRATEGIC PARTNERS MANAGEMENT
L.L.C., a Utah limited liability company, Its Manager
By: WOODBURY CORPORATION, a Utah corporation,
Its Authorized Representative

By: _____
O. Randall Woodbury, President

By: _____
_____, _____

ACKNOWLEDGMENTS ON FOLLOWING PAGE

STATE OF UTAH)
 : ss.
COUNTY OF SALT LAKE)

On the _____ day of _____ 2019, before me personally appeared O. Randall Woodbury, to me personally known, who being by me duly sworn did say that he is the President of WOODBURY CORPORATION, a Utah corporation, known to be the Authorized Representative of WOODBURY STRATEGIC PARTNERS MANAGEMENT L.L.C., a Utah limited liability company, known to be the Manager of WSP TRUFLES L.L.C., a Delaware limited liability company, known to be the general Partners of WOODBURY STRATEGIC PARTNERS FUND, L.P. a Delaware limited partnership, Manager of GERONIMO L.L.C., a Utah limited liability company, the company that executed the within instrument, known to me to be the person who executed the within instrument on behalf of said company therein named, and acknowledged to me that such company executed the within instrument pursuant to its Operating Agreement.

Notary Public for _____
Residing at _____
My Commission Expires _____

STATE OF UTAH)
 : ss.
COUNTY OF SALT LAKE)

On the _____ day of _____ 2019, before me personally appeared _____, to me personally known, who being by me duly sworn did say that he is the _____ of WOODBURY CORPORATION, a Utah corporation, known to be the Authorized Representative of WOODBURY STRATEGIC PARTNERS MANAGEMENT L.L.C., a Utah limited liability company, known to be the Manager of WSP TRUFLES L.L.C., a Delaware limited liability company, known to be the general Partners of WOODBURY STRATEGIC PARTNERS FUND, L.P. a Delaware limited partnership, Manager of GERONIMO L.L.C., a Utah limited liability company, the company that executed the within instrument, known to me to be the person who executed the within instrument on behalf of said company therein named, and acknowledged to me that such company executed the within instrument pursuant to its Operating Agreement.

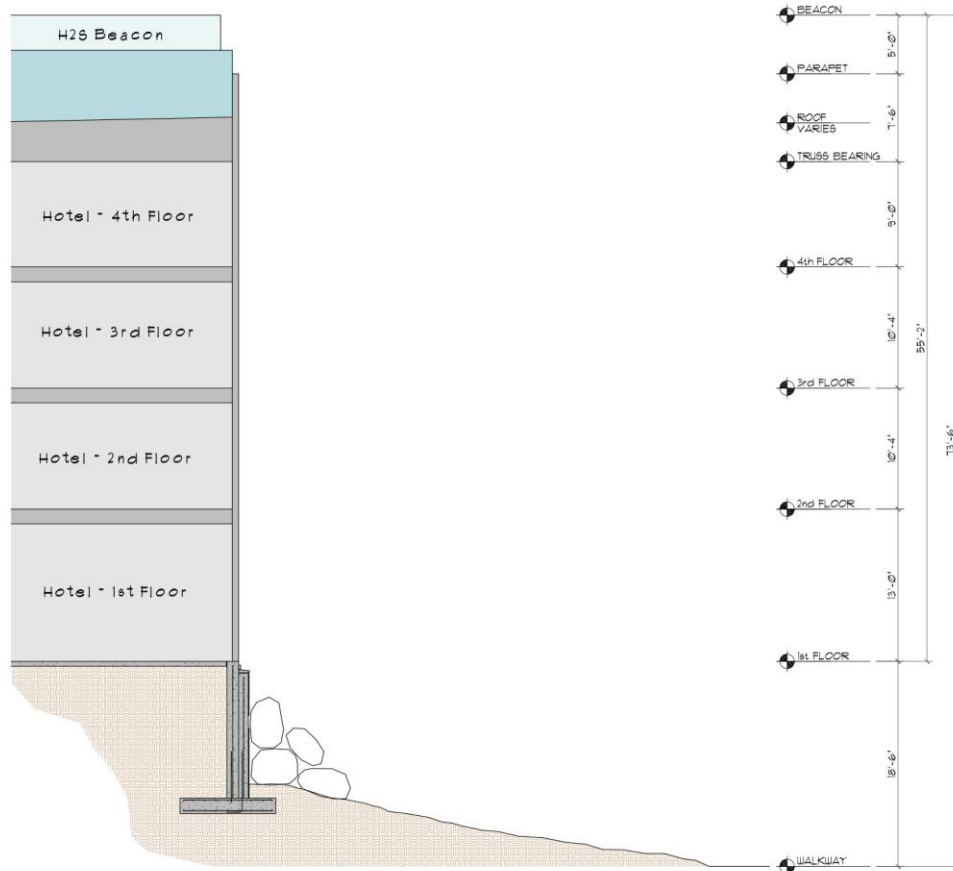
Notary Public for _____
Residing at _____
My Commission Expires _____

SIGNATURES CONTINUE
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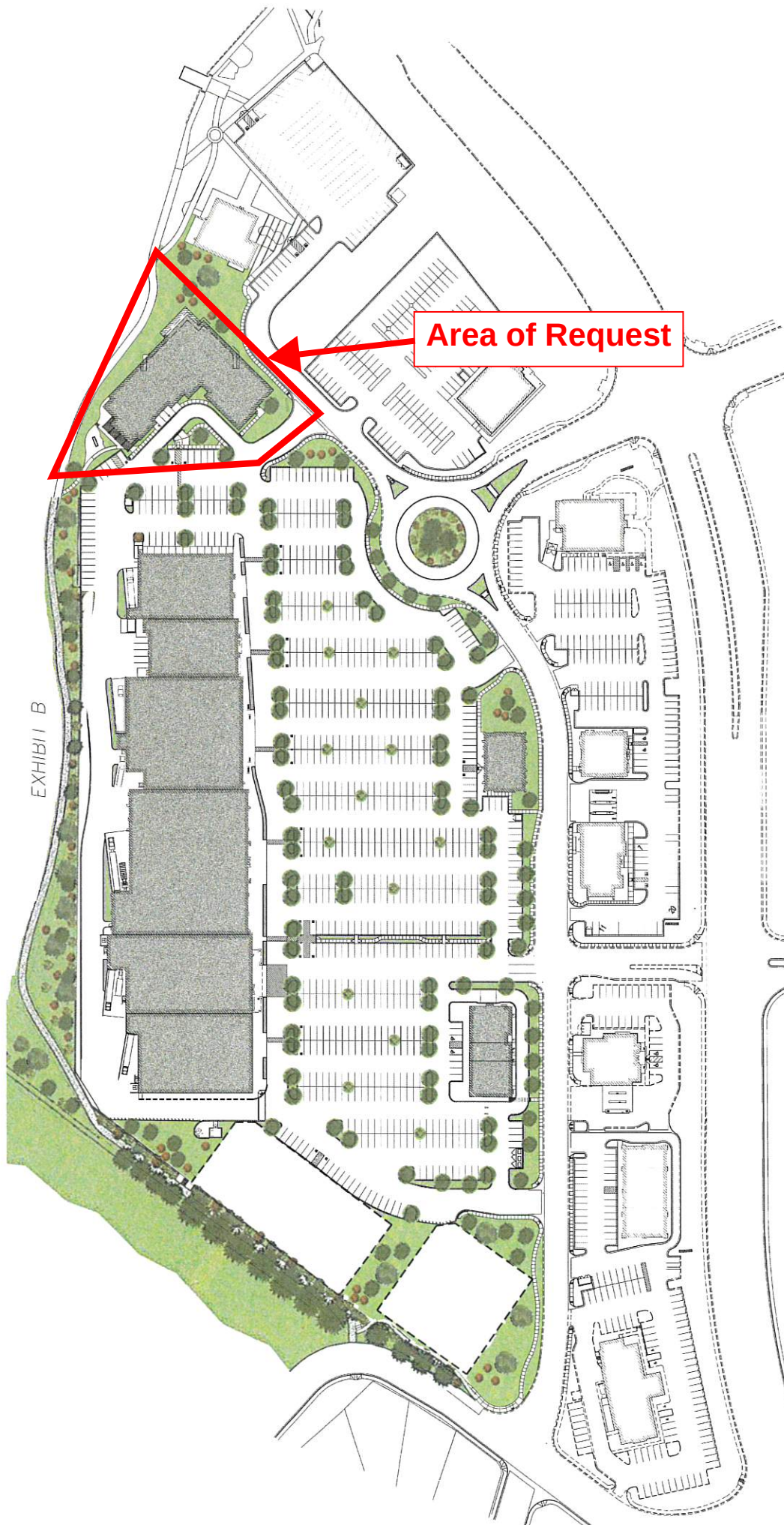
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FIRST AMENDMENT
CANYON PARK WEST (AMENDED)
C-1 PLANNED UNIT DEVELOPMENT AGREEMENT
Exhibit A



BUILDING HEIGHT SECTION



Area of Request

EXHIBIT B



① WEST GROUND VIEW



② WEST GROUND VIEW



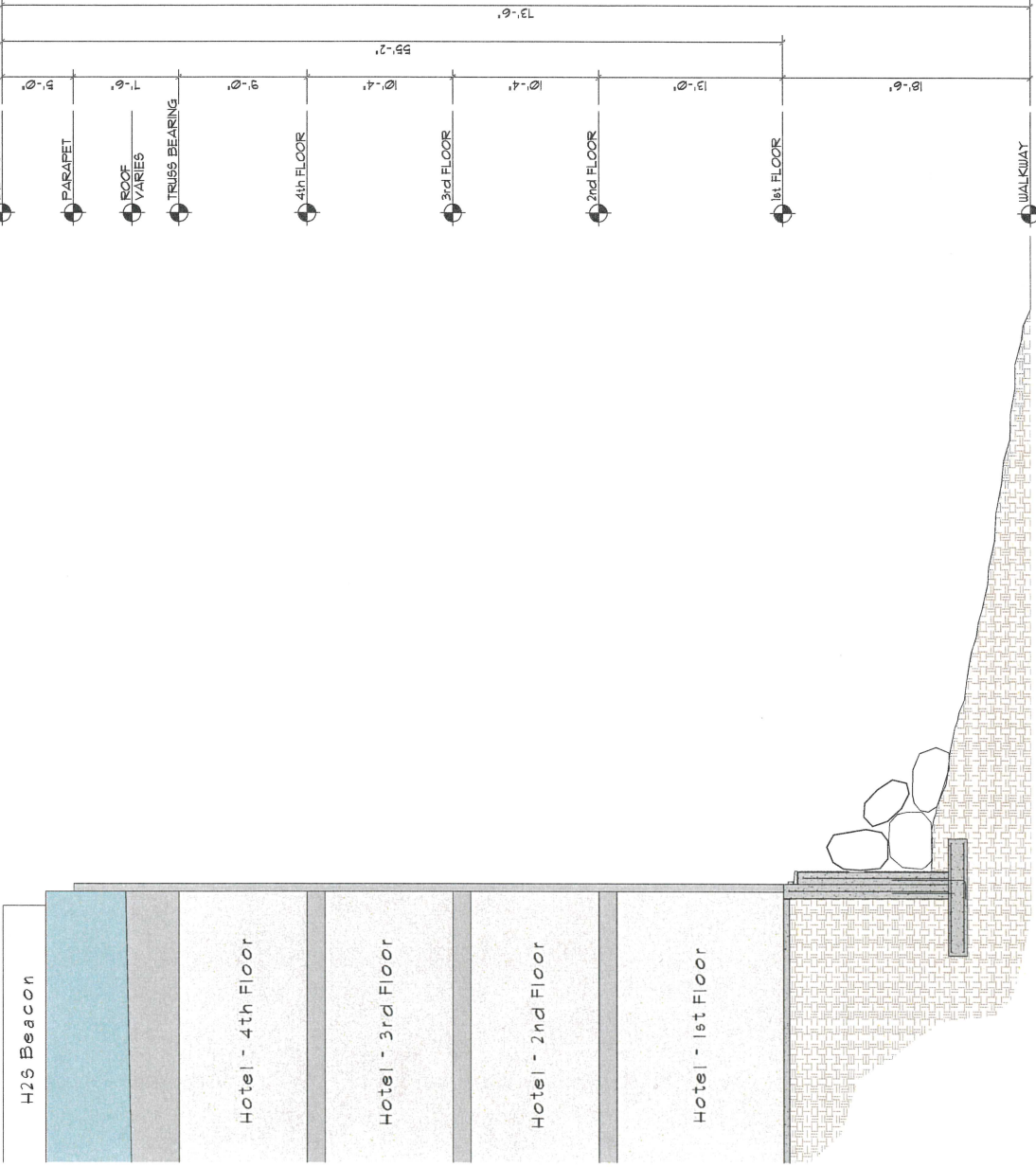
③ NORTHEAST GROUND VIEW



④ EAST GROUND VIEW



⑤ SOUTH GROUND VIEW



CANYON PARK TWIN FALLS, ID

BUILDING HEIGHT SECTION SCALE: 1/8" = 1'-0"



McNeill
hotel company

Design Guidelines CANYON PARK WEST, TWIN FALLS, IDAHO



INDEX

Pg.	Title
1	Cover
2	Aerial View
3	Local Inspirations
4	Design Features/Materials
7	Site Plan
8	Landscape Guidelines
9	Landscape Design Features & Inspiration
10	Site Amenities
11	Site Lighting
12	Site Signage

BUILDING DESIGN

- Utilize a consistent palette of building materials.
- Allow for variety of EIFS colors within same color families.
- Allow major anchor prototype designs with adaptations to shopping center concepts.
- Provide distinct identity for each major anchor.
- Provide variety and texture on elevations facing canyon.
- Maximum building height not to exceed 35-ft.
- Allow architectural embellishments and features to exceed 35'; ~~but in no case more than 10% of the length of the facade~~ at entrance of major tenants.
- Brick used on primary façade.
- Incorporate raised elements and extended canopies for large format tenants reflective of their prototypical design within the context of the project's material and color palette.
- Backside of project shall incorporate landscape elements and trees that screen service yards. **Major HVAC units shall be screened from view of canyon rim. Screens shall be architecturally appealing.** Building walls to incorporate a variety of patterns, texture, and color as an extension of the Canyon's edge.
- Paint electrical equipment to match primary facade color or as selected by Development Design Review Committee (D.D.R.C.).
- At key corners, utilize tower forms with a two story appearance and upper level illumination behind iron formwork silhouettes. **Towers may exceed 35' in height.**
- Interrupt long expanses of façades for lower profile tenants with columnar elements highlighted with wall sconces.
- ~~Allow individual identity through a variety of canopy configurations, colored awnings, and signage facades.~~
- Horizontal coursing can be used to provide variety in texture and increased articulation. Banding colors shall be in earth tones. Accent colors, defined as non-earth tones, may be used if they do not create continuous bands and will not cover more than 10% of the exterior wall surface. Non-earth tone accent or band colors are subject to approval by D.D.R.C..
- All elevations are subject to D.D.R.C..

Motif inspired by
Perrine bridge

~~Asymmetrical facades
but consistent materials~~

Landscape features based on the natural
elements found on the canyon

Corten Steel
inspired by
Perrine Bridge

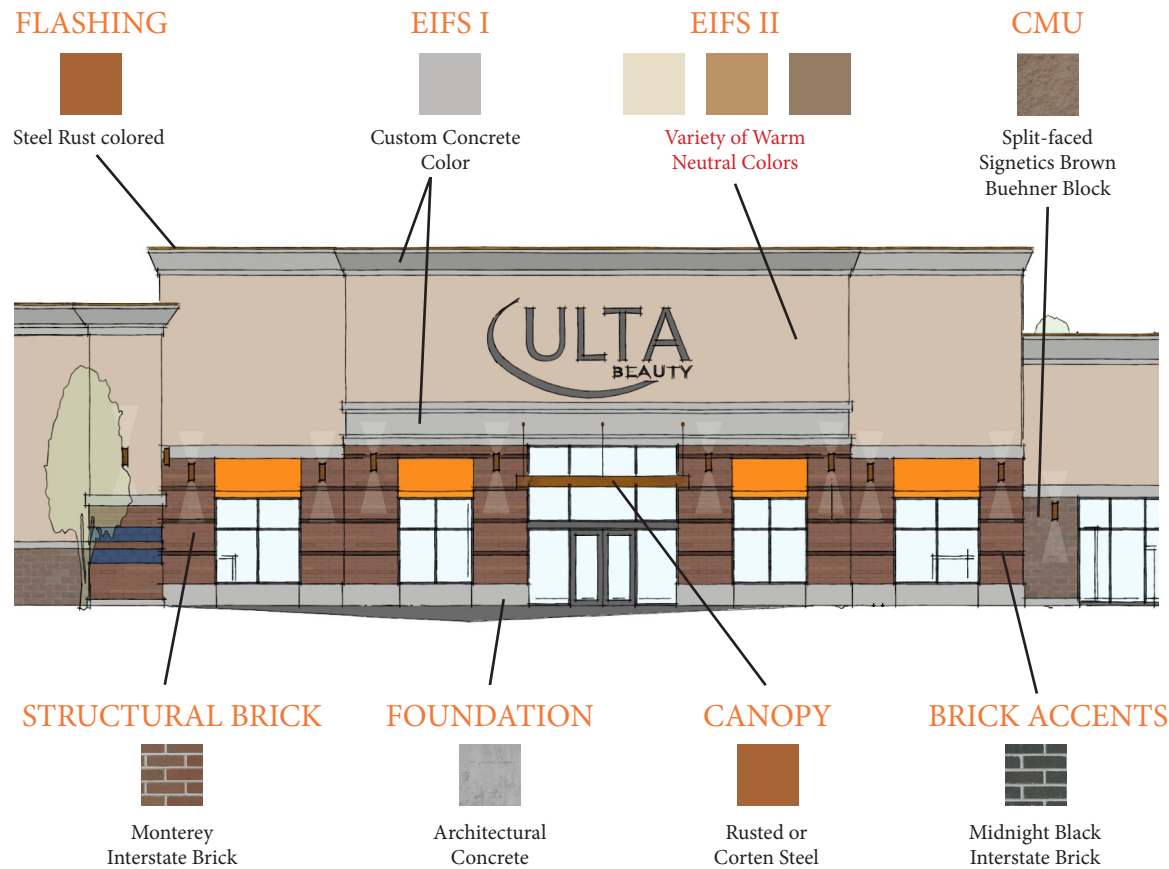
Lights have a
Corten Steel
Finish



SAMPLE ELEVATION

FRONT FACADE EXAMPLE

Materials and colors provides as examples. Similar materials/colors may be acceptable.



The materials used are inspired by the different elements found in Twin Falls. The red structural brick is the material used on historical buildings located downtown Twin Falls.

The color palette is reflective of the canyon walls and natural elements in the area.



BACK FACADE EXAMPLE

Colors and Materials provided as examples.
Similar materials/colors may be acceptable

STRUCTURAL BRICK



Monterey
Interstate Brick

BRICK ACCENTS

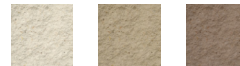


Midnight Black
Interstate Brick

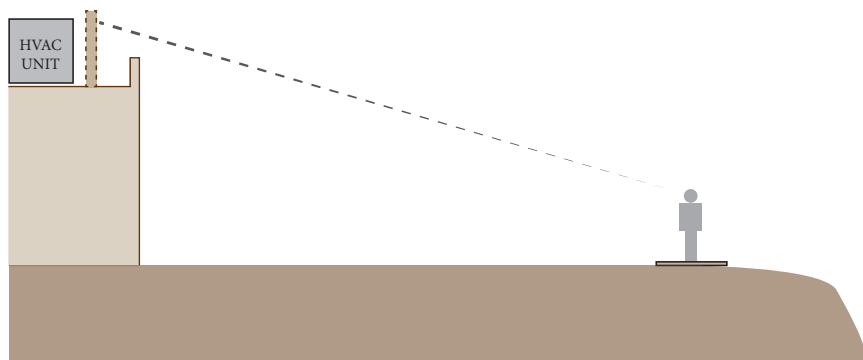
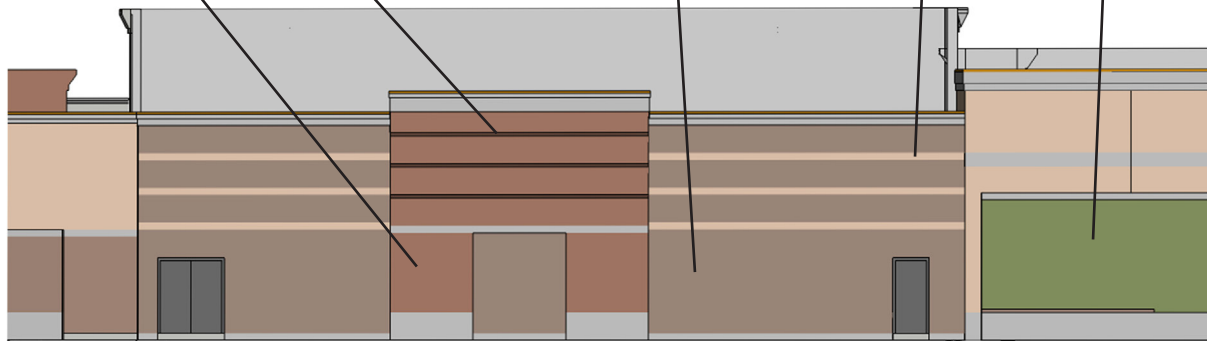
CMU



Earth Tones
Non-Earth Tones as
accepted by D.D.R.C

PLANTS &
LANDSCAPINGCMU ACCENTS
BAND

Earth Tones



ROOFTOP HVAC SCREENING



The main objectives of back elevation design:

- Be sensitive to exposure from bridge, canyon and trail.
- Screen loading and trash areas with walls and landscape
- Use variation in height, plan and materials to break up facades.
- Use trees, shrubs, vines, green walls, rocks and other landscape features to screen buildings, service areas and provide a "park" or "natural" feel to the project.
- Where possible, enclose trash receptacles, equipment and other desirable elements within walls or screened areas.
- Use similar materials as the front elevation.



Existing Structure/Wall



Brick Pavers

Decorative Panel

Pedestrian Parkway, Trail, and Visitors Center

A canyon view path runs around the project, along the canyon rim, and extends to the Twin Falls Community Visitor's Center and canyon view lookout point. Low stacked boulder walls, using natural basalt/lava rock, will add a structural accent along the canyon view path. Landscaping, including elements of the surrounding desert and agrarian plants, will screen the parkway/canyon view path from the back of the development. Interpretive signs and rest areas with Canyon Bridge motif benches will be provided creating areas for viewing, contemplation, or congregation. Rusty steel features and amenities will further reflect influences from the bridge and community. Pedestrian scale lighting will be added to provide both low levels of illumination and interesting shadowing effects at night.

Snake River Canyon

The inclusion of rock and landscape elements will be indicative of the high desert and the rugged Snake River Canyon terrain. Canyon colored boulders will be included throughout the project. Mulches in planting and landscaped areas will be primarily earth toned inorganic materials to contrast with the dark boulders. The mature landscape will appear lush with 75% of the rock mulch covered at plant maturity. Mosaic patterns using different sizes and colors of mulch will add interest and break up landscaped areas creating a visual texture in otherwise uniform areas.











RECEIVED

MAR 07 2019

CITY OF TWIN FALLS
PLANNING & ZONING

March 1, 2019

Twin Falls City Council
City of Twin Falls
203 Main Ave. E.
Twin Falls, ID 83301

Dear Members of the Twin Falls City Council:

Please accept these written comments in support of the proposed amendments to PUD #264 as presented by Geronimo, LLC, in application PZ18-0099.

The Twin Falls Area Chamber of Commerce represents more than 810 businesses and organizations in the Twin Falls area with a mission to provide a voice, vision, and focused leadership to enhance the economic vitality and quality of place in our community. The Chamber Board has reviewed the proposed hotel development project and has voted to support the changes being requested.

The Chamber's office and Twin Falls Visitor Center are located next to the proposed development. Our operation is easily the closest to the property and stands to see the greatest impact from it. We see the opportunity for significant positive impact on the Twin Falls community from the development.

First, a hotel meets the continued upward demand for hospitality services. Visitors come to Twin Falls for both business and leisure, supporting the businesses that are already here as they use goods and services from them. A hotel development brings an increase to the property value and subsequently the tax base to support public services in the area. And a hotel is consistent with the neighboring commercial operations east and west along the Snake River Canyon and continuing south into the primary commercial corridors of Twin Falls.

Second, the quality design of the building and surrounding landscape will further enhance this gateway entrance to Twin Falls. The partners in this development have deep roots in Twin Falls and have demonstrated their commitment to the community over the years with other well-designed and executed projects from Canyon Park East and West to the Magic Valley Mall to the Hilton Garden Inn. They've been good neighbors to the Chamber Office and Visitor Center and significant supporters of our organization and operation.

Third, development along the canyon rim has been ongoing for decades. Original proposals for this particular piece of property date back nearly 20 years. More than 12 years ago, a proposal for a 10-story hotel (more than double the height currently being requested) was

Twin Falls City Council
Page 2
March 1, 2019

approved after significant community input and consideration. Since this time, we've also seen other facilities developed along the canyon rim that were granted additional height, specifically the building which houses the Magic Valley Arts Council and Elevation 486, elevated 66 feet above the adjacent Canyon Rim Trail. This proposed hotel would be similar in height and offer the same public accessibility to the developed amenity of the trail and publicly-accessible services within the hotel and included lounge/restaurant facilities which are proposed.

In conclusion, the proposal from Geronimo, LLC and their requested amendments to PUD #264 are reasonable and support a balance between acceptable development uses, protection of private property rights, and public accessibility to the natural setting of the Snake River Canyon and their development is consistent with decades of commercial development in the area. The Chamber offers its support for this development and encourages you to vote in favor of the amendments to allow progress on this project.

Thank you for your service to the community and your consideration of this issue.

Sincerely,

A handwritten signature in blue ink, reading "Shawn Barigar". The signature is fluid and cursive, with the first name "Shawn" and last name "Barigar" clearly distinguishable.

Shawn Barigar
President / CEO

RECEIVED

Re: Home2Suites Canyon Rim

MAR 05 2019

March.1, 2019

CITY OF TWIN FALLS
PLANNING & ZONING

Dear City Council,

I love the progression that Twin Falls has had since I have moved to the area in 2011. Change will always happen even though human nature is a bit resistant to change.

I also applaud the council for making an effort to get in front of this ground swell and hear the people around this proposed hotel on the canyon rim.

This new hotel project on the Canyon Rim between Petco and the Visitors Center needs more due diligence.

NEED:

Do we need another hotel in Twin Falls? Maybe, we have added 563 new rooms the past 10 years .We had 650 rooms at the larger hotels prior to that growth and this doesn't include the older independents or the hotels across the canyon .Do we really need a new 125 room hotel for that one weekend for a soccer tournament or that few days for the FFA high school kids? Maybe but I am not sure this hotel is targeting that audience. If you were to add a hotel, why not downtown. The company I work for uses about over 1200 room nights per year and we are located downtown.

ESTHETICS:

Is a 50 plus foot hotel what we want our visitors and citizens to see as they cross the bridge into Twin Falls? My guess if you really asked the citizens they would be opposed. I get the marketing aspects of being first sight from a business standpoint position but at what expense. I just do not even see that being an enjoyable view for inbound drivers or people using the canyon rim. I cannot say I am supportive.

COMMUNITY

The building that houses the Arts council and Elevation 486 is probably too close to the canyon rim as well but it is open for the citizens of the Magic Valley to use anytime. This proposed hotel would service 15,000 annually and that is if there were no repeat stays with average stay for 3 days (mentioned at Open house at Chamber). This isn't a community touch point, it is a business and does little to add to the Magic Valley community

GEOLOGICAL ASPECTS:

Has there been any further/updated structural aspects with regards to building that close to the canyon? I would be curious about expert opinions with no business ties around the soundness of building too close to the canyon.

I do appreciate the council reviewing this situation. After living in large cities, I have seen other cities act and then ten years regret the decisions (highways along waterfront, building on pristine coveted geographies).

I feel as a council you have to look at these projects ten years out and think about the citizens of the Magic Valley.

In my opinion this is an opportunistic, short sighted, grow fast and everything will be OK approach by area business people.

As the saying goes "measure twice, cut once". Please think about the people you serve.

Regards



Wilf Costello

208-308-9959

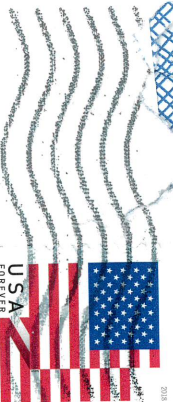
glanbia
nutritional



Glanbia Foods, Inc.
121 4th Ave. S.
Twin Falls, ID 83301-6223

BOISE ID 837

02 MAR 2019 PM 1 T



AAA City of Twin Falls

CITY COUNCIL

(For meeting March 18th
as I will be out of town.)

203 Main Ave. E
Twin Falls, ID 83301



Kelli Ebersole

From: Jonathan Spendlove
Sent: Wednesday, January 30, 2019 10:40 AM
To: Steve O'Connor
Subject: FW: About the new hotel

From: William Grice <1mickbill1@gmail.com>
Sent: Tuesday, January 29, 2019 5:35 PM
To: Jonathan Spendlove <JSpendlove@tfid.org>
Subject: About the new hotel

I would like to object to the new hotel planned for the canyon rim by the visitors center. The building would change the whole aspect of the entry into town and over shadow the new visitors center. Let's have a little decorum and keep the development further in town and let the canyon be. Thank you, Wm Grice

Kelli Ebersole

From: Mitch Humble
Sent: Wednesday, February 27, 2019 5:17 PM
To: Kelli Ebersole; Jonathan Spendlove
Subject: FW: Canyon Rim Hotel

Below is some written input on the upcoming hearing. Please include this with the rest.

Mitchel B. Humble, CM
Deputy City Manager
Community Services and Development
City of Twin Falls
P.O. Box 1907
Twin Falls, ID 83303
(208) 735-7342
mhumble@tfid.org

From: Shawn Barigar
Sent: Wednesday, February 27, 2019 3:19 PM
To: Travis Rothweiler <trothweiler@tfid.org>; Mitch Humble <Mhumble@tfid.org>; Brian Pike <Bpike@tfid.org>
Subject: Fw: Canyon Rim Hotel

FYI....as input to the upcoming hearing (if you haven't already had it forwarded from others)

Shawn Barigar
Mayor ~ City of Twin Falls
P.O. Box 1907
Twin Falls, ID 83303-1907
www.tfid.org

From: Elaine Wright <felainewright@gmail.com>
Sent: Wednesday, February 27, 2019 12:29 PM
To: Shawn Barigar; Nikki Boyd; Greg Lanting; Suzanne Hawkins; Chris Talkington; Christopher Reid; Ruth Pierce
Subject: Canyon Rim Hotel

Twin Falls City Council Members:

I would like to express my opinion regarding the proposed hotel along the canyon rim near the visitors center as a long time resident and taxpayer.

In my opinion this is not a suitable place for something that large in such a small area. It would take away from the aesthetic beauty of the canyon and adjacent visitors center as well. The area surrounding the visitors center is a very welcoming place as it is now.

Then there is the traffic issue. The roundabout and adjacent roads are somewhat of a hazard to navigate for the locals to say nothing of hotel guests trying to find their way. Where are the guests going to park? There are plenty of open spaces to the East and West with more room and easier access along the canyon rim..

I would like the council to listen to those whom they have been elected to represent in matters such as this for the betterment of the majority.

Thank you for your time and consideration, I appreciate it.

Elaine Wright

300 Morrison #638

Twin Falls, ID 83301

Kelli Ebersole

From: Jonathan Spendlove
Sent: Monday, January 28, 2019 7:59 AM
To: Steve O'Connor
Subject: FW: CANYON RIM HOTEL REQUEST

This will need to be shown on the screen at the conclusion of the public comment.

-----Original Message-----

From: KEVIN DEBORAH DANE <ddane3@msn.com>
Sent: Sunday, January 27, 2019 10:29 AM
To: Jonathan Spendlove <JSpendlove@tfid.org>
Subject: CANYON RIM HOTEL REQUEST

Dear Jonathan

I cannot attend the scheduled hearing concerning the applicants request to exceed the height limit

Can you please read the statement from me at the hearing?

My name is Kevin Dane and I am against the proposal requested to exceed the height restrictions for the proposed hotel directly behind the Twin Falls Chamber of Commerce building

I was involved on the current Canyon Rim Ordinance/Overlay District with testimony and as a volunteer. The restrictions in these documents protect the canyon from radical commercial development. The height, setback and other details were discussed in detail, approved and our part of the current code

The applicants request obliterates the current 35' foot restriction and probably other items in the code

I am sure the developer has the the imagination and expertise to come up with a plan to meet their needs and comply with the current code

If their request is granted you have given them a VARIANCE and this request does not meet the guidelines under current code for a variance. With approval you would also set a precedent for any future requests on the same topic which could result in litigation against the city

Please send them back to the drawing board for a plan that meets guidelines

Respectfully Kevin C Dane

Sent from my iPad

Kelli Ebersole

From: Jonathan Spendlove
Sent: Wednesday, January 30, 2019 10:39 AM
To: Steve O'Connor
Subject: FW: Hotel

From: Mickie A Goodro <MGOODRO@csi.edu>
Sent: Tuesday, January 29, 2019 5:24 PM
To: Jonathan Spendlove <JSpendlove@tfid.org>
Subject: Hotel

I really think the proposed location of the new hotel is a very, very bad idea. When people drive into Twin Falls, they are welcomed by a very attractive and unexpected entrance. Don't let anything be built that would block the view coming or going. Please vote against any change to the current plan for that area.

Thank you for your attention

Mickie Goodro
CSI Adjunct Mathematics Professor

Kelli Ebersole

From: Jonathan Spendlove
Sent: Tuesday, January 15, 2019 7:57 AM
To: Steve O'Connor
Subject: FW: Planned Hotel

Follow Up Flag: Follow up
Flag Status: Flagged

From: Cassie Hulme <cassiesmoorman@hotmail.com>
Sent: Tuesday, January 15, 2019 7:56 AM
To: Jonathan Spendlove <JSpendlove@tfid.org>
Subject: Planned Hotel

I am writing this letter in regards to the proposed project of a hotel on the canyon edge. In the last two years I have seen more development of office buildings and housing going up everywhere. I have lived in Twin Falls Idaho my whole life and have loved what Idaho has always been and not what it is becoming now. I loved seeing the open land and space of farms and ranches. But now all you see is houses and buildings going up and eventually all that open space of farms and ranches will be gone. I truly oppose this hotel on the canyon rim that is not what Idaho is. You do not take a beautiful canyon and turn into a glass hotel for nothing more than a profit for developers. We need to stop all this development and selling off farm land for big corporations and housing and preserve what Twin Falls Idaho is and was about.

Cassie Hulme

305 Lucille Street
Kimberly ID 83341

Sent from [Mail](#) for Windows 10

Kelli Ebersole

From: Jonathan Spendlove
Sent: Monday, January 14, 2019 1:51 PM
To: Steve O'Connor
Subject: FW: Proposal for Hotel on Canyon Rim

From: Silversurfer <linmic17@gmail.com>
Sent: Monday, January 14, 2019 11:02 AM
To: Jonathan Spendlove <JSpendlove@tfid.org>
Subject: Proposal for Hotel on Canyon Rim

Dear Mr. Spendlove:

Having just read that a corporation is planning to build a several story hotel next to the Visitors Center, I am submitting comments prior to the council meeting scheduled for January 29.

Please cancel plans for such construction. This would absolutely create a blight on our beautiful canyon rim trail and overshadow the architectural designs of both the Perrine Bridge and Visitors Center. A hotel at this location is a bad idea no matter how many stories high.

In my opinion I recommend that particular spot beside the Visitors Center would be better served by a one story restaurant-cafe with additional outside seating overlooking the canyon trail, similar to the Council Crest restaurant and Elevation designs. Their landscaping and barrier rock walls are in good taste and blend in well. The restaurant-cafe style of Panera Bakery is one the city business planner should solicit. I know Panera well - and it has a very popular and tasteful design beyond any coffeehouse or bakery-restaurant in Twin Falls in addition to an excellent varied menu. If you can't solicit Panera to join our community, please look for a similar type of business. Please avoid the fast food chains that now line up on Blue Lakes blvd and Pole Line.

Please do NOT allow the esthetics of the canyon rim trail to be ruined with oversized buildings that would detract from the well laid out design that now exists. Don't turn Twin Falls into just another strip mall of concrete buildings.

Thank you for considering my comments.

Linda Michaels
2140 Elizabeth blvd
Twin Falls, ID
208.358.1025

Steve O'Connor

From: Travis Rothweiler
Sent: Monday, March 4, 2019 9:23 AM
To: Jonathan Spendlove; Mitch Humble; Brock Cherry; Steve O'Connor
Subject: FW: Hotel

FYI - For the file.
Travis

-----Original Message-----

From: Suzanne Hawkins <suzanne@computerconnectiontf.com>
Sent: Monday, March 4, 2019 9:20 AM
To: Travis Rothweiler <trothweiler@tfid.org>
Subject: FW: Hotel

Good Morning,

This came to my personal email. I noticed all of the addresses are incorrect.
I'm not sure who has seen this, or if we should?

So I am passing it along to you.
Happy Monday,
Suzanne

-----Original Message-----

From: Kathy Crow [mailto:kdtc@cableone.net]
Sent: Sunday, March 03, 2019 2:34 PM
To: Shawnbarigar@tfid.org; Nikkiboyd@tfid.org; Greglating@tfid.org; Suzannehawkins@tfid.org; Christalkington@tfid.org; Chrisreid@tfid.org; Ruthpierce@tfid.org
Subject: Hotel

Council Members,

I have been a citizen of Twin Falls for 58 years and am writing to express my opposition to the construction of a hotel on the canyon rim by the Visitor's Center. I have visited the proposed construction site and definitely think the building they have in mind is much too large for that area. It would dwarf our lovely Visitor's Center and be an eyesore to those entering the city or traversing the Canyon Rim Trail.

From what I have read, it might also present a hazard to the stability of the canyon rim. Please use the power our citizens have given you to protect us from this poorly designed and possibly hazardous project.

Respectfully,
Kathy Crow

Sent from my iPad

Jonathan Spendlove

From: GLEN and LOIS SHAW <glenandlois@msn.com>
Sent: Friday, January 25, 2019 10:15 AM
To: Jonathan Spendlove
Subject: New Hotel

My wife and I are FULLY against the building of a new hotel on the canyon rim.

Glen & Lois Shaw
1090 Terra Ave.
Twin Falls, ID 83301
(253) 905-5072 (cell)

Kelli Ebersole

From: Jonathan Spendlove
Sent: Tuesday, January 29, 2019 3:22 PM
To: Barbara Ames
Cc: Steve O'Connor
Subject: RE: P&Z Planning Meeting

Ms. Ames,

Thank you for corresponding your concerns about this project. I want you to be aware your written comments will not be made part of the Public Hearing tonight due to limitations listed in our application due process laws. However, I can include them in the presentation to the City Council that will take place in early March.

If you have any questions please contact myself or Steve O'Connor (cc'd on this email.)

Respectfully,



Jonathan Spendlove, AICP
Planning and Zoning Director
Planning & Zoning Department
203 Main Ave. E., Twin Falls, ID 83301
208.735.7276
jspendlove@tfid.org

From: Barbara Ames <idlibrarylady@gmail.com>
Sent: Tuesday, January 29, 2019 2:48 PM
To: Jonathan Spendlove <JSpendlove@tfid.org>
Subject: P&Z Planning Meeting

Dear Mr. Spendlove,

I will not be able to attend the P&Z Planning meeting this evening and want to voice my concerns about the proposed placement of a hotel along the canyon rim.

The Canyon West Mall was approved after agreeing to several criteria, including building height and distance from the canyon rim. The proposed hotel definitely does not meet the height criteria! And being so close to the rim, and being so large, would not be smart because of the geological implications

I am pleased that Mr. Willsley will be speaking to the geologic implications.

I hope the Commission members will seriously consider denying this request as being inappropriate and dangerous.

Thank you for reading about my concerns.

Barbara Ames

Sent from [Mail](#) for Windows

Steve O'Connor

From: Jonathan Spendlove
Sent: Wednesday, January 30, 2019 10:47 AM
To: Char Sinclair
Cc: Steve O'Connor
Subject: RE: Hotel on Canyon Rim

Char,

Thank you for corresponding your concerns about this project. We will be including this email in the presentation to the City Council that will take place in early March.

If you have any questions please contact myself or Steve O'Connor (cc'd on this email.)

Respectfully,



Jonathan Spendlove, AICP
Planning and Zoning Director
Planning & Zoning Department
203 Main Ave. E., Twin Falls, ID 83301
208.735.7276
jspendlove@tfid.org

From: Char Sinclair <charzidahome@gmail.com>
Sent: Wednesday, January 30, 2019 10:33 AM
To: Jonathan Spendlove <JSpendlove@tfid.org>
Subject: Hotel on Canyon Rim

Mr. Spendlove: I am very pleased with the decision of the P & Z to turn down the hotel development project on the canyon rim. For several reasons. One being the safety of the rim itself. We already have large developments built much too close to the rim as it is. Some should have never been allowed, geologically speaking. Not to mention aesthetically unappealing....Old Navy, Best Buy, etc. Those buildings are forever what residents and visitors see when they enter TWF on the bridge and I think what it tells our visitors AND residents is that we didn't respect our canyon, our most valuable asset. The parking lot is the most incredible view of our canyon. How we let that happen is a travesty. I was on the committee to stop the development of the Canyon Park West Mall. I knew we would fail in our endeavors so I recommended that we ask for better architecture, walking paths, set backs. We got that. That was a compromise. I was also appointed to the Canyon Rim Advisory Committee 2 decades ago, determining and recommending to the City setbacks etc. We put many many hours and thought into that committee and I believe we did good work. I also served on the County Planning and Zoning. I haven't been just an arm chair participant with opinions. I got involved. I was not known to be a rubber stamp participant. I attended all meetings and personally observed each zoning request and performed my research.

I have spent the last 20 years mostly in Southern Ca. but am back full time now. I am a Filer native. I am a Realtor with Berkshire Hathaway. I love the canyon and believe it to be a beautiful aspect of our city and should be shared....carefully and with forethought of the dangers of erosion but also offering visual appeal and access. One has only to look at the road leading into the Canyon to know it's a movable land structure. I do not think there is a geo tech engineer alive who can predict what this canyon wall will do in the years to come but one has only to look at the angle of repose to know the debris used to be in a different location.

I also understand the need for growth in our valley and am certainly pro growth. National Surveys indicate Idaho to be the fastest growing state in our nation. With this distinction comes responsibility. There are properties available that could accommodate a large hotel that are not sitting on the canyon rim. Visitors can enjoy the canyon from bike paths, hiking, Centennial Park, kayaking, golf. Sitting in a hotel room admiring the canyon should not be one of them.

I encourage you to followup on this when the City makes their decision. Please forward this email to the appropriate person(s).

Thanks for your time and consideration.

Char Alexander (Sinclair)
Realtor
Berkshire Hathaway HomeServices
208-731-2490

February 21, 2019

City Council Members,

My name is Steve Woods. I live at 3210 Longbow Drive in the Area of Impact. I present to you for your deliberation and consideration a packet that includes excerpts from the City Code and the Comprehensive Plan that are relative to the issue of permitting a 4 story, 60 foot high hotel to be built on the canyon rim within the Canyon Rim Overlay district. I believe such a request is stark contrast to the wishes of the citizens of this community as they are reflected in the Comp Plan. I also believe that the requirements of the City Code have been circumvented regarding this issue.

I have included some non-professional photo's depicting what such a structure would look like when coming into Twin Falls over the Perrine Bridge. The scale is close as I measured the height of the northeast end of the PetCo building at 26 feet and the proposed hotel extends to 60 feet. I inserted a block in each photo indicating the likely visual impact.

Thank you,

Steve Woods
3210 Longbow Drive
208-404-1604
pandswoods@msn.com

10-4-19: CRO, CANYON RIMS OVERLAY DISTRICT:



10-4-19.1: PURPOSES:



The purposes of the canyon rims overlay district are as follows:

(A) To protect the public and private property owners from the natural hazards of rock fall and slope failure along the Snake River Canyon and Rock Creek Canyon.

(B) To protect views and create a unique visual environment along the canyon rims.

(C) To preserve and improve the aesthetic appearance of the canyon rims for the enhancement of the quality of life in the community.

(D) To provide development standards that enhance the value of canyon rim areas to the developer and the community.

Special Uses: A special use may be granted for a permanent use that is not in conflict with the comprehensive plan and that is not permitted outright because it may conflict with other uses in the district unless special provisions are taken. Special use permits may be granted for the following uses:

Residential: Any use permitted by special use in the zoning district upon which the overlay is placed.

Commercial: Any of the following commercial uses may be permitted by special use permit if permitted outright or by special use in the zoning district upon which the overlay is placed.

1. Communications And Utilities:

- a. Utility owned buildings and structures more than twenty five (25) square feet in area or more than three feet (3') aboveground.

2. Miscellaneous:

- a. Any facility with drive-through service in the canyon rim overlay zoning district adjacent to Rock Creek Canyon.

3. Parks:

- a. Park concessions.

4. Public Assembly:

- a. Auditoriums.
b. Exhibition halls.

5. Residential:

- a. Motels and transient hotels.
b. Residence halls, residence hotels, rooming houses.

) Building Height: No building shall exceed thirty five feet (35') in height or the maximum building height limitation set forth below, whichever is less. All heights are to be measured from the existing canyon rim elevation or the existing ground level elevation at the building site, whichever is greater.

1. Rock Creek Canyon: Twenty five feet (25') above the canyon rim at fifty feet (50') from the canyon rim and rising evenly to thirty five feet (35') at one hundred feet (100') from the rim.
2. Snake River Canyon from Rock Creek to the centerline of 3300 East, extended: Twenty five feet (25') above the canyon rim at fifty feet (50') from the canyon rim and rising evenly to thirty five feet (35') at one hundred feet (100') from the rim.
3. Snake River Canyon east of the centerline of 3300 East, extended: Twenty five feet (25') above the canyon rim at one hundred feet (100') from the canyon rim and rising evenly to thirty five feet (35') at two hundred feet (200') from the rim. (Ord. 2851, 3-6-2006)
4. Building height exception: Notwithstanding the foregoing:
- a. Additional building height beyond one hundred feet (100') from the canyon rim may be allowed for hotel/convention centers, through the ZDA process, in the canyon rims overlay zone within one thousand feet (1,000') of state administered highways serving as gateway arterials, as defined in section _____ of this title. For purposes of this section, the term "hotel/convention center" shall be defined as a full service hotel with a convention center designed to accommodate a minimum of five hundred (500) convention attendees. A citizens' design review committee, appointed by the mayor, shall make recommendations to the planning and zoning commission for any building higher than thirty five feet (35').
- b. Additional building height beyond fifty feet (50') from the canyon rim may be allowed in that portion of the canyon rims overlay district located between Washington Street North and Blue Lakes Boulevard North through the ZDA process, in a ZDA that consists of more than ten (10) acres and that constitutes a private/public mixed use development. The term

10 acres = 435,600 S.F. ~ 660' x 660' or 2 football fields square



"private/public mixed use development" is defined as a development which promotes a mixture of cultural and commercial activities in the ZDA through:

- (1) A combination of multiple buildings and public access across open space to the canyon rim trail system; and
- (2) Promotion of community interaction among members of the public, through a combination of required ZDA property uses; open spaces and canyon rim trail system access. Permitted uses in such ZDA shall include commercial, professional, residential and cultural activities. A citizens' design review committee, appointed by the mayor, shall make recommendations to the planning and zoning commission for any building higher than twenty five feet (25'). (Ord. 3082, 12-8-2014)

(D) Building Setbacks:

1. Yards: Same as that of the basic zoning district upon which the overlay is placed.
2. Geological Report: The minimum canyon rim setback in the CRO district shall be one hundred feet (100') without a geological report meeting the following requirements:
 - a. The name, address, and telephone number of the responsible Idaho licensed geological engineer;
 - b. The qualifications of the Idaho licensed geological engineer, including a list of similar studies and references;
 - c. A certificate of professional liability insurance for the individual or firm preparing the report;
 - d. A location map, showing the relation of the site studied to the surrounding area, including the topography and drainage pattern of that area, and the location of any off site observations (wells, soil observation pits, etc.) used in preparing the findings of the report;
 - e. A parcel map, showing the parcel boundaries, the proposed canyon rim setback, building envelope, or building location, the proposed location of any on site sewage disposal facilities, any watercourses or drainageways across or adjacent to the parcel, and the location of any soil observation pits, wells, or other observations used in preparing the findings of the report;
 - f. A description of the geologic setting of the parcel;
 - g. A description of the methods used to arrive at the findings, including the sampling procedure used to determine the sites used for observations; and
 - h. A clear statement that buildings behind the proposed canyon rim setback, within the proposed envelope, or at the proposed building location are not subject to significant hazard from slope movements and that construction on the site will not present a significant hazard to people or properties.

- i. The findings shall be qualified, as necessary, with recommendations for site stabilization, drainage, and building construction techniques or specifications that will minimize any potential hazard.
- j. The information used as a basis for the findings may be integrated with the findings or presented separately.

3. Canyon Rim Setback: The minimum canyon rim setback in the CRO district with a geological report meeting the requirements set forth above shall be either the minimum setback recommended in the geological report or the minimum setback set out below, whichever is greater:

- a. Rock Creek Canyon: Fifty feet (50').
- b. Snake River Canyon from Rock Creek Canyon to the centerline of 3300 East, extended: Fifty feet (50').
- c. Snake River Canyon east of the centerline of 3300 East, extended: One hundred feet (100')

(G) Additional Development Standards:

1. Form: Buildings that have a footprint of more than three thousand (3,000) square feet shall be designed to reduce their apparent mass using one or more of the following techniques:

- a. Varying Height: Buildings may be "stepped back" in height from the setback line to reduce their apparent mass and visual competition with the canyon wall.
- b. Varying Setback: The building line facing the canyon rim may be varied (i.e., different portions of the building would be different distances from the setback line).
- c. Landscaping: Mass plantings and earthworks can be designed and sited to effectively break the apparent mass of a building.

2. Outdoor Sales And Storage: There shall be no outdoor sales or display areas in the canyon rims overlay district. All outdoor storage, including solid waste containers, shall be fully screened from public view by some combination of location on the site, fences or walls, and landscaped buffers.

3. Fences: Fences in the yard created by the setback from the canyon rim shall be limited in height by a line extended from the building roofline or the maximum legal building roofline, whichever is lower, to the canyon rim. Fences in the canyon rims overlay district shall be subject to subsection .4(G)1 of this section. (Ord. 2526, 5-20-1996)

From Comprehensive Plan

... that retains the friendly, safe, family-oriented, and small-town community feel; protects and preserves the canyon rim environment and their vistas; and promotes the high quality of life and outdoor activities.

... that reestablishes and revitalizes Downtown as the heart of the community and drives proactive engagement and support of businesses that are compatible with community values, while working with private partners to build a place that attracts and keeps talent.

EXISTING CONDITIONS OVERVIEW

The main natural features shaping Twin Falls are the Snake River and Rock Creek Canyons. As scenic and distinctive local features, they provide two recognizable boundaries, along with the expanse of agricultural land at the City edge.

Seven key concepts for improving community design and enhancing Twin Falls' sense of place were identified in the 2009 Comprehensive Plan:

- Protect and Preserve the Canyon Rim Experience
- Improve the Sense of Arrival into the Community
- Improve the Circulation Experience along Primary Roads
- Enhance and Strengthen the "Sense of Place" within Individual Neighborhoods
- Protect and Preserve the Traditional Landscape at Rural Fringes
- Link the Canyon Rim and Downtown via Blue Lakes Boulevard
- Enhance the "Sense of Increasing Density" from Rural Fringe to Downtown



Twin Falls setting provides opportunities for spectacular views of the Canyon, Shoshone Falls, Dierkes Lake, and the expansive agriculture land located on the edges of the community. Residents feel an important aspect of creating a sense of place includes maintaining the sense of arrival at gateways and preserving the open view corridors at key points within the City. Residents reported not wanting development to be obtrusive or to unduly compromise these views. Gateway areas can also buffer the transition of land uses from agricultural land to more urban development areas.

A major contributor to the character of Twin Falls is the Canyon Rim. Development along the Canyon Rim is a key issue mentioned by the public in relation to Community Character. Development near the Canyon Rim should be carefully considered, helping to ensure the preservation of unique resources provided by the unique and iconic landscape. Retail development along the Canyon Rim threatens the appeal and natural quality of the Rim. The Canyon Rim is an important natural feature and viewpoint, a striking visual landscape, and a coveted recreational site. In order to ensure that the integrity of the Canyon Rim is preserved, a balance between acceptable developmental uses and necessary preservation should prevail.





Received 13:20 1-29-2019
JS

January 29, 2019

To be included on council Item.

Twin Falls Planning & Zoning

We are opposed to having a hotel right on our beautiful canyon rim. It is the wrong location for a hotel and it is also too tall. The location of the hotel would be a detriment to our community and would do nothing to add to the north entrance of our city. Planning and Zoning and the City council have already dealt with this issue in the past and denied other developers from doing similar projects. We feel that it is clear that the community does not want high rise buildings on the canyon and this issue should not have to be addressed again.

Kate Coiner Tim Coiner

Tim and Kate Coiner

1120 Southview Dr.

Twin Falls, ID 83301

208-420-1219

Geotechnical Engineering and Geological Report

Proposed Canyon Park Hotel
Twin Falls, Idaho

For

EHM Engineering

March 14, 2019



GEOENGINEERS 
Earth Science + Technology

Geotechnical Engineering and Geological Report

Proposed Canyon Park Hotel
Twin Falls, Idaho

for

EHM Engineers, Inc.

March 14, 2019



3501 West Elder Street, Suite 300
Boise, Idaho 83705
208.433.8098

Geotechnical Engineering and Geological Report

Proposed Canyon Park Hotel Twin Falls, Idaho

File No. 23823-001-00

March 14, 2019

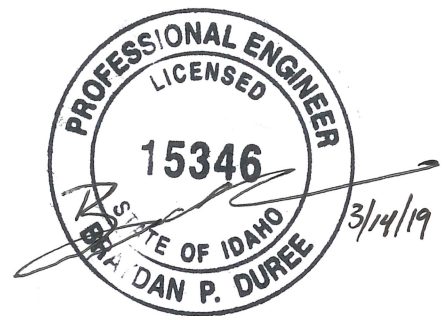
Prepared for:

EHM Engineering
621 North College Road, Suite 100
Twin Falls, Idaho 83301

Attention: David Thibault, PE

Prepared by:

GeoEngineers, Inc.
3501 West Elder Street, Suite 300
Boise, Idaho 83705
208.433.8098





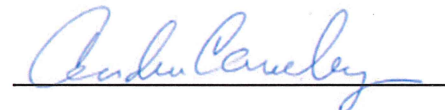
Rachel M. Hunt, PG
Geologist



Braydan P. DuRee, PE
Senior Engineer



J. Robert Gordon, PE
Principal



Andy Canaday, LEG (Washington)
Associate

RMH:BPD:JRG:mls

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Figure 1. Vicinity Map

Figure 2. Site Plan

APPENDICES

Appendix A. Qualifications and Insurance

Appendix B. Field Explorations and Laboratory Testing

Figure B-1—Key to Exploration Logs

Figures B-2 through B-4—Logs of Test Pits

Figures B-5 and B-6—Sieve Analysis Results

Figure B-7—Atterberg Limits Determination

Appendix C. Site Photographs

Figures C-1 through C-7—Site Photographs

Appendix D. Historical Aerial Photographs

Appendix E. Report Limitations and Guidelines for Use

INTRODUCTION

This report presents the results of GeoEngineers, Inc. (GeoEngineers) geotechnical and geologic evaluation of the proposed Canyon Park Hotel site located at 2005 Nielsen Point Place in Twin Falls, Idaho. The subject property and surrounding physical features are shown in Figure 1, Vicinity Map and Figure 2, Site Plan.

We understand the project includes constructing a four-story hotel building on the site. The building will be constructed as an at-grade wood frame building. We anticipate sidewalk, parking lot and access drives will also be constructed as part of the project. The project site sits approximately 50 feet from the edge of the Snake River canyon rim and is located within the City of Twin Falls' Canyon Rims Overlay District since the site is within 200 feet of the Snake River Canyon rim.

Purpose and Scope of Services

The purpose of our services is to provide geotechnical engineering and geological support for development of the proposed project. Our services have been completed in general accordance with the scope presented in our proposal dated February 12, 2019 and executed on February 14, 2019. Our scope of services included:

- Reviewing existing data
- Completing test pit excavations
- Visual geologic assessment of adjacent exposed canyon rim rock outcrop
- Laboratory testing
- Engineering analysis
- Preparing this report

Qualifications and Insurance

Resumes for the responsible geologists and engineers who prepared this report and certificates of professional liability insurance for our firm are included in Appendix A, as required by City of Twin Falls Code Chapter 4 Section 10-4-19.4.

FIELD EXPLORATIONS AND LABORATORY TESTING

General

Our field exploration consisted of completing test pit excavations below the proposed building footprint and completing a visual geologic reconnaissance of accessible portions of the exposed basalt rock along the adjacent Snake River canyon.

Test Pit Excavations

We evaluated the subsurface conditions below the proposed hotel building by observing three test pit excavations (TP-1, TP-2 and TP-3) which were excavated to depths of 18 to 23 feet below existing site grade. Test pits TP-1, TP-2 and TP-3 were completed at locations requested by EHM Engineering. The test pits were backfilled with the excavated soils and tamped in place with the excavator bucket. The approximate

locations of the test pits are shown in Figure 2. Details of the field exploration program and the test pit log are presented in Appendix B, Field Explorations.

Laboratory Testing

Soil samples obtained from the test pit excavations were taken to our laboratory for further evaluation. Selected samples were tested for moisture content, grain size distribution, and Atterberg limit determinations. A description of the laboratory testing and the test results are presented in Appendix B.

Geologic Reconnaissance

We completed a geologic reconnaissance of accessible portions of the exposed basalt bedrock near the adjacent Snake River Canyon rim. Our reconnaissance was completed by an Idaho registered geologist and a licensed engineering geologist with over 20 years of experience from our Seattle, Washington office. Our reconnaissance included observations of the basalt rock from the adjacent Twin Falls Visitor Center overlook and US-93 bridge structures and by accessing the bottom of the cliff from the talus slope. Our reconnaissance included observing the orientation and condition of discontinuities in the bedrock that were safely accessible by foot; identifying evidence of previous slope failures; recording measurements of slope angles; and heights of the basalt exposures, and classification of bedrock. Site photographs from our geologic reconnaissance are presented in Appendix C.

SITE CONDITIONS

Geology

The project site is located in central portion of the Snake River Plain of the Columbia Plateau Province. The central portion of the Snake River Plain is within a northwest-trending structural basin bounded by high angle faults and resulted from the passage of the North American Plate over a stationary mantle plume (hotspot) that is currently located beneath Yellowstone National Park. The basin separates the mountains of the Idaho Batholith to the northwest and the Owyhee Range to the southwest. Sedimentary deposits of stream and lake depositional environments shed from adjacent uplands, as well as basaltic and rhyolitic flows and ash deposits associated with hotspot and regional volcanic activity, fill the basin to depths exceeding 4,000 feet (Othberg, 1994).

During the last Ice Age approximately 14,500 years ago, glacial Lake Bonneville covered most of northern Utah and portions of Nevada and Southern Idaho. A breach in the northern rim allowed the glacial lake to drain rapidly into southeastern Idaho, now known as the Bonneville Flood (IGS, 1994). The Bonneville Flood followed the course of the Portneuf River into the Snake River, then down the Snake River past Twin Falls, eventually making its way to the Pacific Ocean. The flood lasted weeks to months and had a flow rate of up to 33 million cubic feet per second. The Rupert channel was a channel that had been diverted from the Snake River up-stream, flowed across the lava plain to the north, and rejoined the main Snake River channel near Twin Falls. The water from the Rupert channel poured over the north canyon rim near Twin Falls and eroded the rim back, leaving a series of rapids and waterfalls in the main channel. This caused the Snake River to drop about 530 feet in the 10½-mile stretch from above Twin Falls to the mouth of Rock Creek, creating the Snake River Canyon that is adjacent to the north of the project site.

The project site is located on the south rim of the Snake River Canyon where the canyon is 485 feet deep and nearly 1,500 feet across. The project site is mapped as basalt flows from Hansen Butte, located 13 miles east-southeast of Twin Falls city, and older volcanic sources. These basalt flows are described as

fine to coarse grained, with a few small phenocrysts of plagioclase and oxidized olivine. These basalt flows are typically unaltered to altered, undivided basalt flows that are Pliocene to Miocene in age (5.33 to 2.58 million years before present). The basalt flows are underlain by Miocene (23.03 to 5.33 million years before present) Rhyolite of Shoshone Falls, which is described as a light gray and pinkish gray porphyritic rhyolite with a block porphyritic vitrophyre that is 10 to 15 feet thick at the top. The basalt flows are mantled with 5 to 50 feet of wind-blown fine-grained sediments, known as loess. The conditions observed during excavation and geologic reconnaissance were fill materials over loess. The test pits did not extend deep enough to encounter the basalt. The exposed basalt rock along the canyon rim was observed to be consistent with the mapped geology.

Surface Conditions

Site Conditions

The property is currently relatively flat and undeveloped with the exception of two concrete islands with street lights in the center of the site and cast-in-place concrete retaining walls located on the northeast side of the site. Basalt boulders have been placed in front of the concrete walls. Developed properties are located on either side of the site. The site is largely surfaced with sand and gravel. A commercial building and a gravel lot is adjacent to the west property line and the Twin Falls Visitor Center and the Perrine Memorial Bridge are located east of the site. A paved walking trail and the Snake River Canyon are adjacent to the north property line. Vegetation on the site is limited to sparse grass and weeds in limited areas around gravel surfacing. A photograph showing the typical site conditions is presented below.



Photo 1. Typical site conditions looking northeast across the site towards the Twin Falls Visitor Center.

Snake River Canyon

The Snake River Canyon rim is located about 55 feet north of the project site. The Snake River Canyon rim is near vertical and is composed of several interbedded vesicular basalt flows that are slightly weathered. The upper 20 to 25 feet of the canyon consists of moderately close to widely spaced (1 to 5 feet), vertical discontinuities that create distinct columns in the basalt. Below the columns, the basalt is blocky in texture, with close to moderately close discontinuities that form rock blocks roughly 1 to 2 feet in diameter. The more highly-fractured basalt extends approximately 20 to 30 feet down the canyon wall to a 20-foot-wide bench covered in talus and brushy vegetation. A second basalt cliff, approximately 50 to 60 feet high, is located below the bench. The second cliff ends at a much larger terrace covered with talus from previous rock fall failures. The talus was covered with moss and there were areas of thick vegetation within the talus slopes that included sagebrush, grasses, shrubs, and sparse pine trees.

Discontinuous tension cracks running parallel to the canyon rim, measuring up to 2 feet wide, were observed approximately 5 to 20 feet back from the canyon rim adjacent to the project site. The cliff surface and talus below was covered with moss and in some areas the talus was covered with thick vegetation. We did not observe wide, continuous discontinuities, such as faults or intraflow soils, in the exposed cliff faces. Photos of current site conditions observed along the canyon rim north of the site are presented in Appendix C.

Drainage runoff was observed on the property east of the project site, north of the Twin Falls Visitor center, where water was actively draining off the canyon rim. EHM Engineering informed us that drainage from the project site is captured by an engineered storm drain system. No seepage or springs were observed within the canyon wall north of the project site.

We also reviewed aerial photos of the canyon rim from 1946, 1953, 1976, 1978, 1984, 1974, 1992, 1998, 2006, 2009, 2013, and 2017 and available historic Google Earth imagery from 1992, 1993, 2003, 2004, 2005, 2006, 2009, 2011, 2013, and 2016. There appears to be little to no change in the canyon rim location since as far back as 1946. These historical aerial photographs are presented in Appendix D.

Subsurface Soil Conditions

Test pits TP-1, TP-2 and TP-3 were completed at locations shown on Figure 2. We observed a granular surfacing layer, fill soils, and native soil deposits. Basalt rock was not encountered in the test pit excavations. A description of each of these soil units is presented below and the depth at which these soil units were encountered is presented in Table 1.

- **Surfacing Layer.** We observed approximately 1 to 2 inches of silty sand with gravel (SM) surfacing at the test pit locations. The surfacing was observed to be saturated due to recent rain and snowfall. We observed minor rutting (less than 1 inch) of the surfacing layer under pickup truck wheel loads. We probed the surfacing with a ½-inch diameter steel probe rod and observed probe depths typically ranging between 1 and 3 inches.
- **Fill.** We observed fill consisting of medium dense silty sand with occasional gravel and cobbles and stiff to very stiff sandy silt with occasional gravel and cobbles. An isolated 3-foot-thick layer of very stiff lean clay with occasional gravel (CL) fill was encountered at a depth of 11½ feet in test pit TP-2. The fill extended approximately 10½ to 14½ feet below existing site grade. We observed trace amounts of

metal, rope, plastic and organics in the fill. We probed the fill with a ½-inch diameter steel probe rod and observed probe depths consistently ranging from 2 to 6 inches.

- **Native Soil.** We observed native loess deposits below the fill. These deposits were distinguished from the fill by having a lighter brown color and consisted of very stiff sandy silt that was slightly to moderately cemented with calcium carbonate (caliche).

While basalt rock was not observed in the test pits, we anticipate it is present below the native soil unit at an unknown depth. Basalt rock outcroppings are present along the adjacent Snake River Canyon rim. Additionally, the Idaho Department of Water Resource (IDWR) online well log database includes the log of one groundwater well located at the adjacent Twin Falls Visitor Center. The well log indicates basalt rock was encountered at a depth of 4 feet at that location and indicated basalt rock extended to the maximum depth drilled of 220 feet below the ground surface.

TABLE 1. SUMMARY OF OBSERVED SOIL CONDITIONS

Test Pit ID	Soil Unit Depth		
	Surfacing Layer	Fill	Native Soil
TP-1	1 to 2 inches	Surface to 12 feet	12 feet to bottom of test pit (23 feet below grade)
TP-2	1 to 2 inches	Surface to 14½ feet	14½ feet to bottom of test pit (20 feet below grade)
TP-3	1 to 2 inches	Surface to 10½ feet	10½ feet to bottom of test pit (18 feet below grade)

Groundwater Conditions

Groundwater was not encountered within the test pit excavations. The IDWR online well log database includes the log of one groundwater well located at the adjacent Twin Falls Visitor Center. The well log indicated a static groundwater level at a depth of 102 feet below the ground surface. The Snake River located at the bottom of the adjacent Snake River canyon is approximately 450 feet below the grade of the site based on USGS topographic maps. No seepage or springs were observed within the canyon wall north of the project site. The groundwater levels should be considered approximate and should be expected to fluctuate with the weather, seasons and water levels of the Snake River.

CONCLUSIONS AND RECOMMENDATIONS

A summary of our conclusions and primary geotechnical considerations is provided below. The summary is presented for introductory purposes only and should be used in conjunction with the complete recommendations presented in this report.

- Our recommendations are based on the City of Twin Falls Code, 2018 International Building Code (IBC) as amended by the City of Twin Falls and the 2017 Edition of the Idaho Standard for Public Works Construction (ISPMC) manual.
- The site is located within the City's Canyon Rims Overlay District since the site is within 200 feet of the Snake River Canyon rim. Chapter 4, Section 10-4-19.4 of the City Code requires buildings to have a 100-foot setback from the Snake River Canyon rim if a geological report is not completed. Based on our observations and conclusions presented below in this report, it is our opinion that the proposed building setback can be reduced to 50 feet as shown in Figure 2. In our opinion, the site and building

location as currently planned is not subject to significant geologic hazard from slope movements and will not present a significant hazard to people or properties located beyond the 50-foot setback.

- The site is designated as Soil Profile Type D per the 2018 IBC.
- The site has a low potential for liquefaction, lateral spreading, and ground surface rupture.
- The site is surfaced with up to 14½ feet of previously placed fill materials. We are not aware of where the fill originated from or how it was placed or compacted. We recommend the owner attempt to find documentation of how the fill soils were placed and compacted. Based on observations within the test pit excavations including probe depths and moisture content tests, it appears the fill materials are generally consistent at each test pit location and the fill appears to have been placed in a controlled, compacted manner. We did not complete density testing in the test pit excavations to estimate percent compaction as related to the maximum dry density.
- Based on our observations of the test pits, it is feasible to support the building on shallow foundations bearing on the previously placed fill soils. However, there are risks of settlement when constructing buildings over undocumented fill soils. This risk can be better understood by finding documentation of the fill placement and compaction from previous property owners. If documentation cannot be obtained and the risk of potential settlement is not acceptable, we recommend either overexcavating the fill and replacing it with compacted fill, supporting the building on shallow foundations bearing on aggregate piers or supporting the building on deep foundations extending through the fill. A summary of each of these recommendations is provided below. Specific recommendations are provided in the following sections of this report.
 1. The proposed building may be supported on shallow spread footings with an allowable bearing pressure of 3,000 pounds per square foot (psf) for foundations supported on at least 2 feet of imported structural fill placed and compacted over the previously placed fill. The previous fill should be compacted, and a subgrade separation geotextile should be placed prior to placement of structural fill.
 2. If the fill is entirely removed and replaced with imported structural fill, the bearing pressure can be increased to 3,500 psf. This will require excavations on the order of 10 to 15 feet below existing grade and is likely not cost effective.
 3. Alternatively, the building can be supported on ground improvement consisting of aggregate piers. Foundations supported on aggregate piers can be designed using allowable bearing pressures of about 4,000 to 5,000 psf.
 4. The building may be supported on deep foundations, such as driven piles or drilled shafts. Additional subsurface data is necessary in order to design deep foundations. This mitigation strategy is typically significantly more expensive than the ground improvement strategy and is not discussed further in this report.
- Slab-on-grade floors may be supported on at least 6 inches of crushed gravel.
- Site drainage should be considered in the design. Stormwater should be directed away from the building and away from the adjacent Snake River Canyon rim.
- The on-site soils may be reused as structural fill depending on the time of year, provided it can be moisture conditioned to within 3 percent of the optimum moisture content and compacted to the minimum requirements. It should be noted that the on-site soils contain an appreciable amount of fines

(silt) and can be difficult to moisture condition and compact. Specific recommendations for reuse of fill and other on-site soil and rock are contained in the following sections of this report.

Our specific geotechnical recommendations are presented in the following sections of this report.

Earthquake Engineering

General

We evaluated the site for seismic hazards including liquefaction, lateral spreading, ground surface rupture, and ground shaking. A summary of the evaluation for each hazard is presented below.

Ground Shaking

The building should be designed for seismic conditions as required by the IBC. We recommend soil Site Class D since we encountered up to 23 feet of soil and the depth of rock is unknown below the building. The mapped IBC seismic parameters for the project site assuming soil Site Class D are presented in Table 2.

TABLE 2. IBC SEISMIC DESIGN PARAMETERS

IBC Parameter	Recommended Value
Site Class	D
Seismic Design Category	B
Site Modified Peak Ground Acceleration, PGA_M	0.121
Short Period Spectral Response Acceleration, S_s (percent g)	0.202
1-Second Period Spectral Response Acceleration, S_1 (percent g)	0.079
Seismic Coefficient, F_A	1.6
Seismic Coefficient, F_v	2.4

Note:

Latitude 42.59824° and Longitude -114.456807°

Liquefaction

Liquefaction refers to the condition by which vibration or shaking of the ground, usually from earthquake forces, results in the development of excess pore pressures in saturated soils with subsequent loss of strength. Ground settlement, lateral spreading and/or sand boils may result from soil liquefaction. Structures supported on liquefiable soils could suffer foundation settlement or lateral movement during ground shaking that could be severely damaging to structures. In general, soils that are susceptible to liquefaction include very loose to medium dense, clean to silty sands that are below the water table. These soil and groundwater conditions were not observed in our test pits completed at the site. It is our opinion the risk of liquefaction at the site is very low and does not warrant further design consideration.

Ground Surface Rupture

To evaluate potential surface fault rupture, we reviewed the United States Geological Survey (USGS, 2014) online earthquake database, the Idaho Geological Survey (IGS) Idaho-Miocene-Quaternary Fault Map, and published maps available from the IGS relative to seismic history and faulting in the project vicinity. A summary of faults mapped within about 20 miles of the project site are summarized in Table 3.

TABLE 3. FAULTS MAPPED NEAR THE SITE

Fault ID	Age	Fault Distance (miles)	Reference
Unknown Fault	Lesser Tertiary <16 million years	11.9	IGS, Geologic Map of Twin Falls 30x60 Quad
Unknown Fault	Lesser Tertiary <16 million years	13.2	IGS, Geologic Map of Twin Falls 30x60 Quad
Hollister Fault	Lesser Tertiary <16 million years	13.2	IGS Miocene-Quaternary Fault Map
Supah Springs Fault	Lesser Tertiary <16 million years	14.2	IGS Miocene-Quaternary Fault Map
Rock Creek Fault System	Lesser Tertiary <16 million years	15.6	IGS Miocene-Quaternary Fault Map
Rock Creek Fault System	Lesser Tertiary <16 million years	14.8	IGS Miocene-Quaternary Fault Map
Rock Creek Fault System	Lesser Tertiary <16 million years	18.3	IGS Miocene-Quaternary Fault Map
Rock Creek Fault System	Lesser Tertiary <16 million years	17.3	IGS Miocene-Quaternary Fault Map
West Oakley Fault	Lesser Tertiary <16 million years	20.2	IGS Miocene-Quaternary Fault Map

We did not observe evidence of faults based on our review of aerial imagery, surficial geologic reconnaissance and observations of the test pit excavations. Based on our observations and the site location with respect to the nearest known faults, it is our opinion the probability of damaging fault rupture on the site is low and does not warrant fault trenching, specific design considerations, or setbacks.

Lateral Spreading

Lateral spreading can occur where liquefiable soils are present on sloping ground. Due to the mapped seismic information and the site conditions, the risk of adverse impacts resulting from seismically induced lateral spreading is considered to be low and does not warrant further design considerations.

Slope Stability and Building Setback

We performed a geologic reconnaissance and reviewed historic aerial photos to observe slope stability conditions of the Snake Canyon rim located 55 feet north of the project site. Observations of the canyon rim are described above in the Surface Conditions section.

The tension cracks located parallel to the canyon rim appear to be associated with rotation (or toppling) of the large basalt columns that make up the canyon rim. Toppling of the upper columns is likely associated with differential weathering of the more highly fractured basalt below which is more susceptible to freeze-thaw processes. Rockfall occurs when the lower, highly fractured basalt erodes and undermines the overlying columns. Once a column is sufficiently undermined, it begins to rotate away from the cliff before breaking free and rolling to the talus slope below. During our site visit, we did not observe evidence of recent rockfall which suggests that the undermining process is occurring at a very slow rate. We did not observe wide, continuous discontinuities, such as faults or intraflow soils, that could form large, kinematically-admissible failures back into the slope.

Based on evidence from historic aerial photos showing that the canyon rim has remained relatively unchanged since 1946; observation of moss-covered talus with areas of thick vegetation suggesting rock fall has not occurred recently; and that the majority of rockfall from the canyon wall was likely a result of erosion of the Bonneville floods and not from conditions that exist in present day.

In our opinion, the risk of catastrophic slope failure from the canyon rim back to the proposed hotel footprint with a 50-foot setback is considered to be low. It is our opinion that the proposed building setback can be reduced to 50 feet as shown in Figure 2. In our opinion, the site and building location as currently planned is not subject to significant geologic hazard from slope movements and will not present a significant hazard to people or properties located beyond the 50-foot setback.

Foundations

General

Based on our observations of the test pits, it is feasible to support the building on shallow foundations bearing on the previously placed fill soils. However, there are risks of settlement when constructing buildings over undocumented fill soils because of potential non-uniform conditions and/or deleterious materials. The risk can be better understood by finding documentation of the fill placement and compaction from previous property owners to confirm the fill was properly compacted and placed as an engineered fill. If this risk is not acceptable and previous documentation cannot be found, we recommend either overexcavating the fill and replacing it with compacted fill, or supporting the building on shallow foundations bearing on aggregate piers. We have provided recommendations for these options.

Shallow Foundations

Bearing Capacity

The proposed building may be supported on shallow spread footings with an allowable bearing pressure of 3,000 psf for foundations supported on at least 2 feet of imported structural fill placed and compacted over the previously placed fill. The previous fill should be compacted at a depth of 2 feet below grade, and a subgrade separation geotextile should be placed prior to placement of structural fill if grading occurs during wet weather. Provided that the fill is consistent with observations in our test pits and the new structural fill placed properly, the conditions will adequately support the structure.

The previous fill can be entirely removed and replaced with imported structural fill to reduce the risk of unknown performance related to the depth of uncontrolled fill. It might be possible to overexcavate and reuse the excavated soils as backfill if the soils can be moisture conditioned and compacted to 95 percent of the maximum dry density (MDD) per ASTM D 1557. This will require excavations on the order of 10 to 15 feet below existing grade and is likely not cost effective. If on-site soils are recompacted below the building, we recommend at least the upper 2 feet below the building foundations consist of compacted imported structural fill. In this case, the allowable bearing pressure can be increased to 3,500 psf.

Alternatively, the building can be supported on ground improvement consisting of aggregate piers. Foundations supported on aggregate piers can be designed using allowable bearing pressures of about 4,000 to 5,000 psf. A description of aggregate pier ground improvement is provided below.

All structural fill placed below foundations should extend horizontally beyond the edge of the foundation by a distance equal to half the thickness of the fill or 2 feet minimum, whichever is greater.

These allowable soil bearing pressures apply to the total of dead and long-term live loads and may be increased by up to one-third for wind or seismic loads. The allowable bearing pressures are net values.

We recommend that foundation subgrade preparation, foundation excavations and structural fill placement be observed by a representative from our firm to verify that the procedures comply with the intent of our recommendations and the project plans and specifications.

Aggregate Pier Ground Improvement

The foundations may be supported on ground improvement consisting of aggregate piers through the uncontrolled fill and into the native soils to reduce the risk of unknown performance related to the uncontrolled fill. Typical design includes aggregate piers that extend to within 1 to 2 feet of the bottom of the foundations and the floor slabs, if they are also supported in this manner.

Installation of the aggregate piers typically includes constructing 2- to 3-foot-diameter piers of crushed aggregate. Crushed aggregate is placed in lifts and compacted using a densification system (ram or probe) to create a column (pier) of crushed aggregate. The aggregate pier would support moderate foundation loads and reduce post construction settlement.

Aggregate piers are typically designed by the specialty subcontractor who installs these systems. If they are used for this project, we recommend they be contractor designed. Based on our experience, we anticipate that the system will likely include the following elements for support of the design loads:

- Aggregate piers 18 to 24 inches in diameter.
- Depending on the actual building loads, column footings for this type of structure are typically supported on four to five aggregate piers spaced in both directions.
- Perimeter footings supported on aggregate piers placed at a spacing of about 6 to 8 feet, center-to-center.
- The risk of settlement of the floor slab supported on previous fill is expected to be lower than the risk of foundation settlement due to the lower applied loads. Floor slabs could be designed as described later in this report over the previously placed fill. If the risk of settlement is considered to be too high, the floor slabs could be designed with some reinforcement, or as a structural slab or aggregate piers could be placed below the floor slab. Aggregate piers supporting a slab-on-grade are typically spaced about 7- to 8-foot, center-to-center in both directions. Up to 2 feet of crushed gravel is placed over the top of the piers and under the floor slab. The crushed gravel layer could be incorporated into the recommended Capillary Break layer.
- The required diameter, depth and spacing of aggregate pier ground improvement is dependent on the foundation loads. For these soil conditions, we anticipate the aggregate piers could be designed using an allowable bearing pressure of 4,000 to 5,000 psf.

Foundation Geometry

We recommend minimum footing widths of 24 inches for continuous wall footings and 36 inches for isolated column footings.

Foundations which are susceptible to frost/thaw movements should extend below the frost depth, which is estimated to be 24 inches in Twin Falls, Idaho; therefore, we recommend the exterior footings be founded

at least 24 inches below finished grade and interior footings (in heated building areas) be founded at least 12 inches below bottom of slab or adjacent finished grade. Interior foundations poured monolithically with the floor slab should be founded at least 8 inches below the top of the slab.

Settlement

Provided the foundations are supported properly as recommended above, we estimate the total settlement of shallow foundations will be about 1 inch or less. This assumes the previously placed fill soils are consistent with our observations in the test pits and that pockets of unsuitable fill are not present below the building. Additional settlement may occur if the previously placed fill soils are left in place if looser/softer soils are present within the fill soils. These types of soils were not observed in the three test pits completed at the site.

We anticipate ground settlement will occur rapidly, essentially as the loads are applied. Differential settlements between footings or along a 50-foot-long section of continuous footing could be half the total settlement. Note that less settlement will result from lower applied loads, which could result in increased differential settlement between variable foundation loads.

Lateral Resistance

Lateral foundation loads may be resisted by passive resistance on the sides of footings and by friction on the base of the footings. Frictional resistance may be calculated using an allowable coefficient of friction of 0.35 applied to vertical dead-load forces.

The allowable passive resistance may be computed using an equivalent fluid density of 300 pcf. Caution should be taken if excavations can be made adjacent to foundations supporting lateral loads. We recommend passive resistance be neglected where potential future excavations could occur along foundations. These values are appropriate for foundation elements that are poured directly against undisturbed native sand deposits or surrounded by properly placed and compacted structural fill.

The above coefficient of friction and passive equivalent fluid density values incorporate a factor of safety of about 1.5.

Footing Drains

Footing drains are often not installed around at-grade buildings in Southern Idaho. The site soils contain an appreciable amount of silt and are anticipated to have a relatively slow infiltration rate. While not necessary, it is our opinion that perimeter footing drains will reduce the risk of moisture through the floor slab due to the low permeable soils at the site.

If used, the drains should consist of 4-inch-diameter perforated collector pipe enveloped within a minimum thickness of 6 inches of gravel as described in the “Structural Fill” section of this report. The gravel backfill should be wrapped with a non-woven geotextile meeting the requirements for Type II Drainage Geotextile of Section 2050 of the ISPMC.

We recommend using either heavy-wall solid pipe (SDR-35 polyvinyl chloride [PVC]) or rigid corrugated polyethylene pipe (ADS N-12 or equivalent) for the collector pipe. We recommend against using flexible tubing for footing drainpipe.

The pipes should be laid with a minimum slope of ½ percent and discharge into an appropriate outfall. The pipe installations should include a cleanout riser with cover located at the upper end of each pipe run. We recommend that the cleanouts be covered and be placed in flush-mounted utility boxes or monuments. The foundation drainpipes should be located near the base of perimeter strip footings.

Permanent drainage systems should intercept surface water runoff at the top and/or bottom of cut and fill slopes to prevent runoff from flowing in an uncontrolled manner across the site. The finished ground surface adjacent to new and existing buildings should be sloped so that surface water runoff flows away from the structures and the nearby slopes. Roof drains should be tightlined to an appropriate discharge point and should not be connected to the footing drains.

Construction Considerations

All soft or loose soil, frozen soil, standing water, debris and other unsuitable soil should be removed from the foundation excavations prior to placing backfill, and reinforcement steel and concrete. Following over-excavation of unsuitable soil, the resulting void should be backfilled with compacted structural fill, as specified in the Earthwork section of this report. Unsuitable material not removed from foundation subgrade areas can result in increased foundation settlement.

Slab-on-Grade Floors

Subgrade Preparation

We recommend slab-on-grade floors be supported on at least 6 inches of crushed gravel (capillary break material) overlaying compacted structural fill. If the existing fill soils exposed at the subgrade can be compacted to a firm, non-yielding condition with a minimum 92 percent of the MDD, the capillary break may be placed over the on-site fill soils. However, if the subgrade is wet or cannot meet these conditions, then we recommend that 12 inches of the existing fill soils be removed and replaced with import structural fill as described in a following section. If aggregate pier ground improvement is used, the floor slab should be supported on at least 2 feet of crushed gravel between the floor slab and the top of the aggregate piers.

Design Considerations

We recommend conventional slab-on-grade floors be supported on 6 inches of capillary break material. Capillary break should consist of 2-inch (Type II) crushed aggregate per ISPWC, Section 802. A vapor barrier should be included in design. The slab will be supported by fill soils, which could have variable characteristics. Including one layer of reinforcement steel would help bridge any softer areas and prevent vertical displacements should cracking occur. A two-way slab would provide more resistance to displacements and cracking.

Retaining Walls

Retaining walls used to achieve grade transitions or for landscaping, can be constructed using traditional structural systems such as reinforced concrete and concrete masonry unit (CMU) blocks, or mechanically stabilized earth (MSE) walls with wire or block facing units. Non-structural systems such as rockeries may also be used to achieve grade transitions.

The following recommendations should be used for the design of retaining walls that are used to achieve grade changes. These recommendations are for walls shorter than about 10 feet in height. Our

recommendations should be updated if walls taller than 10 feet are planned. We can provide additional design recommendations for retaining structures, if requested.

Design Parameters

Lateral earth pressures for design of retaining structures should be evaluated using an equivalent fluid density of 35 pcf provided that the walls will not be restrained against rotation when backfill is placed. If the walls will be restrained from rotation, we recommend using an equivalent fluid density of 55 pcf. Walls are assumed to be restrained if top movement during backfilling is less than $H/1000$, where H is the wall height. These lateral soil pressures assume that the ground surface behind the wall is horizontal. For unrestrained walls with backfill sloping up at 2H:1V (horizontal:vertical), the design lateral earth pressure should be increased to 55 pcf, while restrained walls with a 2H:1V sloping backfill should be designed using an equivalent fluid density of 75 pcf. These lateral soil pressures do not include the effects of surcharges such as foundation/floor loads, traffic loads or other surface loading.

If vehicles can approach the tops of retaining walls to within one-half the height of the wall, a traffic surcharge should be added to the wall pressure. For car parking areas, the traffic surcharge can be approximated by the equivalent weight of an additional 1 foot of soil backfill (125 psf) behind the wall. For delivery truck parking areas and access driveway areas, the traffic surcharge can be approximated by the equivalent weight of an additional 2 feet (250 psf) of soil backfill behind the wall.

These recommendations are based on the assumption that adequate drainage will be provided behind below-grade walls and retaining structures as discussed below. The values for soil bearing, frictional resistance, and passive resistance presented above for foundation design are applicable to retaining wall design. Walls located in level ground areas should be founded at a depth of 24 inches below the adjacent grade.

Wall Drainage

Positive drainage should be provided behind retaining walls by placing a minimum 2-foot-wide zone of drain rock directly behind the wall. The drain rock should extend from the base of the wall to within 2 feet of the finished ground surface. In unpaved areas, the top 2 feet of fill should consist of relatively impermeable soil, such as on-site silty soils or topsoil, to prevent infiltration of surface water into the wall drainage zone.

A 4-inch-diameter perforated drainpipe should be installed within the free-draining material at the base of each wall. We recommend against using flexible tubing for the wall drainpipe.

The pipes should be laid with minimum slopes of one-half percent and discharge into the stormwater collection system to convey the water off-site. The pipe installations should include a cleanout riser with cover located at the upper end of each pipe run. The cleanouts could be placed in flush-mounted access boxes. Collected downspout water should be routed to appropriate discharge points in separate pipe systems.

Pavement

General

Specific traffic loading information for pavement design was not provided. Our standard pavement recommendations for flexible HMA and Portland cement concrete (PCC) sections are provided in the

sections below. Our recommendations are based on assumed typical loading conditions for the anticipated development. A specific pavement design can be provided by GeoEngineers, upon request.

Subgrade Preparation

We recommend subgrade soils in new pavement areas be adequately prepared prior to placement of base course. We recommend that the existing fill soils exposed at the subgrade be compacted to a firm, non-yielding condition with a minimum 95 percent of the MDD. If the subgrade does not meet these criteria, we recommend that 12 inches of imported structural fill as described in a following section be placed below the crushed aggregate base course. Evaluation of subgrade conditions should be accomplished through visual observations of proof-rolling and/or probing.

Hot Mix Asphalt Pavement

We recommend flexible HMA pavement consist of at least 3 inches of HMA placed over 6 inches crushed aggregate base course. Asphalt should meet the requirements of ISPWC, Section 810 Class III plant mix and be placed in accordance with ISPWC standard specifications.

PCC Pavement

PCC pavement may be utilized for areas of concentrated, repetitive loading conditions, such as loading docks, dumpster pad areas and for ingress/egress aprons. Dumpster pads should be large enough to support the container and tipping axle of the dumpster truck. We recommend these pavements consist of at least 6 inches of PCC over 6 inches of crushed aggregate base course. If the concrete section will have doweled joints, we recommend the concrete thickness be increased by an amount equal to the diameter of the dowels.

Earthwork

Excavation Considerations

Based on the subsurface soil conditions encountered in the test pits, we expect soil at the site may be excavated using conventional construction equipment. The test pits were backfilled with the excavated soils and tamped in place with the excavator bucket. No measurable compactive effort was completed in the test pit backfill and the Contractor should make provisions to over excavate and compact those areas.

Basalt boulders were observed on the ground surface near the perimeter of the site. The Contractor should be prepared to encounter basalt cobbles and boulders in site excavations.

Ideally, earthwork should be undertaken during extended periods of dry weather when the surficial soils will be less susceptible to disturbance and provide better support for construction equipment. Dry weather construction will help reduce earthwork costs. If earthwork will occur from October through May, we suggest that a contingency be included in the project schedule and budget to account for increased earthwork difficulties.

Trafficability on the site is not expected to be difficult during dry weather conditions, provided surface water is adequately controlled from entering the site and if groundwater is controlled in excavations. However, the native soils will be susceptible to disturbance from construction equipment during wet weather conditions or if water is not controlled adequately. Even in the summer months pumping and rutting of the exposed native soils under equipment loads will occur.

Clearing and Site Preparation

Areas to be developed or graded should be cleared of surface and subsurface deleterious matter including any vegetation and debris.

Subgrade Preparation

The exposed subgrade in structure and hardscape areas should be prepared as described in the Foundation, Slab-on-Grade Floors, and Pavement sections above. We should evaluate the prepared subgrade after site excavation is complete. Disturbed areas below slabs should be recompacted, if possible, or removed and replaced with structural fill.

Excavation Considerations

The stability of open-cut slopes is a function of soil type, groundwater seepage, slope inclination, slope height and nearby surface loads. The use of inadequately designed open cuts could impact the stability of adjacent work areas, adjacent properties, existing utilities and could endanger personnel.

The contractor performing the work has the primary responsibility for protection of workers and adjacent improvements. In our opinion, the contractor will be in the best position to observe subsurface conditions continuously throughout the construction process and to respond to variable soil and groundwater conditions. Therefore, the contractor should have the primary responsibility for deciding whether to use open-cut slopes rather than some form of temporary excavation support, and for establishing the safe inclination of the cut slope. Acceptable slope inclinations for utilities and ancillary excavations should be determined during construction. Because of the diversity of construction techniques and available shoring systems, the design of temporary cut slopes is most appropriately left to the contractor proposing to complete the installation. Temporary excavations should be sloped or shored in accordance with local, state and federal regulations, including current OSHA excavation and trench safety standards.

Based on our observations in the test pits we recommend a maximum temporary cut slope inclination of 1.5H:1V be used for planning purposes during design. For open cuts at the site, we recommend that:

- No traffic, construction equipment, stockpiles or building supplies be allowed at the top of the cut slopes within a distance of at least 5 feet from the top of the cut;
- The cut slopes should be planned such that they do not encroach on a 1H:1V influence line projected down from the edges of nearby or planned foundation elements;
- Exposed soil and rock along the slope be protected from surface erosion by using waterproof tarps or plastic sheeting;
- Construction activities be scheduled so that the length of time the temporary cut is left open is reduced to the extent practicable;
- Erosion control measures be implemented as appropriate such that runoff from the site is reduced to the extent practicable;
- Surface water be diverted away from the slope; and
- The general condition of the slopes be observed immediately after excavation and periodically by the geotechnical engineer to confirm adequate stability.

Water that enters the excavation must be collected and routed away from prepared subgrade areas. Some sloughing and raveling of the cut slopes should be expected. Temporary covering, such as heavy plastic sheeting with appropriate ballast, should be used to protect these slopes during periods of wet weather. Surface water runoff from above cut slopes should be prevented from flowing over the slope face by using berms, drainage ditches, swales or other appropriate methods.

Imported Fill Materials

Imported fill materials should be specified as described below:

- Structural Fill used below foundations, floor slabs and pavement areas should consist of 6-inch-minus aggregate meeting the requirements of ISPWC Section 801.
- Capillary break material below floor slabs should consist of 2-inch (Type II) Crushed Aggregate meeting the requirements of ISPWC Section 802.
- Structural fill placed as crushed surfacing base course below pavements and sidewalks should meet the requirements of ¾-inch (Type 1) Crushed Aggregate meeting the requirements of ISPWC Section 802.
- Drainage material should consist of Drain Rock meeting the requirements of ISPWC Section 801.

Reuse of On-site Soils and Rock

The on-site soil can be reused as structural fill, provided the soil can be adequately compacted. The on-site soils contain an appreciable amount of fines and might be difficult to achieve the required compaction. We anticipate the on-site soils will likely require moisture-conditioning to within 3 percent of the optimum moisture content in order to meet the required compaction criteria. We anticipate the onsite soils will not be suitable for reuse during the wet season.

Fill Placement and Compaction Criteria

Structural fill should be mechanically compacted to a firm, non-yielding condition. Structural fill should be placed in loose lifts not exceeding 12 inches in thickness, except as specified below. Each lift should be conditioned to the proper moisture content and compacted to the specified density before placing subsequent lifts. Structural fill should be compacted to the following criteria:

- Structural fill placed in building areas (supporting foundations or slab-on-grade floors) and in pavement and sidewalk areas (including utility trench backfill) should be compacted to at least 95 percent of the MDD as determined by ASTM D 1557.
- Structural fill placed in utility trenches should be compacted to 90 percent MDD (ASTM D 1557), except for the upper 2 feet of the trench under pavements and sidewalks, which should be compacted to 95 percent of the MDD.
- Structural fill placed more than 2 feet below finished subgrade in pavement and hardscape areas should be compacted to at least 90 percent of MDD (ASTM D 1557). Structural fill placed within the upper 2 feet below finished subgrade in pavement and hardscape areas should be compacted to at least 95 percent of MDD.

- Non-structural fill, such as fill placed in landscaped areas, should be compacted to at least 85 percent of the MDD. In areas intended for future development, a higher degree of compaction should be considered to reduce the settlement potential of the fill soil.

We recommend that GeoEngineers be present to evaluate subgrade soil conditions in building and pavement areas, and during placement of structural fill. We will evaluate the adequacy of the subgrade soils and identify areas needing further work, perform in-place moisture-density tests in the fill to verify compliance with the compaction specifications, and advise on any modifications to the procedures that may be appropriate for the site conditions.

Utility Trenches

Trench excavation, pipe bedding, and trench backfilling should be completed using the general procedures required by the City of Twin Falls or other suitable procedures specified by the project Civil Engineer.

Utility trench backfill should consist of Structural Fill and should be placed in lifts of 12 inches or less (loose thickness) such that adequate compaction can be achieved throughout the lift. Each lift must be compacted prior to placing the subsequent lift. Prior to compaction, the backfill should be moisture conditioned to within 3 percent of the optimum moisture content, if necessary. The backfill should be compacted in accordance with the criteria discussed above.

Erosion and Sediment Control

In our opinion, the erosion potential of the on-site soils is low to moderate. Construction activities including stripping and grading will expose soils to the erosional effects of wind and water. The amount and potential impacts of erosion are partly related to the time of year that construction actually occurs. Wet weather construction will increase the amount and extent of erosion and potential sedimentation.

Erosion and sedimentation control measures may be implemented by using a combination of interceptor swales, straw bale barriers, silt fences and straw mulch for temporary erosion protection of exposed soils. All disturbed areas should be finish graded and seeded as soon as practicable to reduce the risk of erosion. Erosion and sedimentation control measures should be installed and maintained in accordance with the state and local requirements.

Weather Considerations

Soils exposed during construction will be susceptible to rutting and pumping under construction traffic when wet. Soils that rut, pump or are otherwise disturbed are not suitable for support of foundations, floor slabs, or pavements and should be removed and replaced with Structural Fill. Measures that could help reduce disturbance of exposed soils include performing earthwork during warm, dry weather, the use of light track-mounted equipment, and avoidance of heavy repeated traffic over a given area. We recommend that:

- The ground surface in and around the work area should be sloped so that surface water is directed away from the work area. The ground surface should be graded such that areas of ponded water do not develop. The contractor should take measures to prevent surface water from collecting in excavations and trenches. Measures should be implemented to remove surface water from the work area.

- Slopes with exposed soils should be covered with plastic sheeting or similar means.
- The site soils should not be left uncompacted and exposed to moisture. Sealing the surficial soils by rolling with a smooth-drum roller prior to periods of precipitation will reduce the extent to which these soils become wet or unstable.
- Construction traffic should be restricted to specific areas of the site, preferably areas that are surfaced with materials not susceptible to wet weather disturbance.
- Construction activities should be scheduled so the length of time that soils are left exposed to moisture is reduced to the extent practicable.
- Fill should not be placed on frozen subgrade soils, nor should frozen soils be placed and compacted at the site.

Recommended Additional Geotechnical Services

GeoEngineers authorized scope of services includes reviewing the project plans and specifications when complete to confirm that our design recommendations have been implemented as intended.

During construction, GeoEngineers should be contracted to evaluate the suitability of the foundation subgrades, observe installation of subsurface drainage measures, evaluate backfill placement and compaction, observe the condition of temporary cut slopes, and provide a summary letter of our construction observation services. The purposes of GeoEngineers construction phase services are to confirm that the subsurface conditions are consistent with those observed in the explorations and other reasons described in Appendix E, Report Limitations and Guidelines for Use.

LIMITATIONS

We have prepared this report for EHM Engineering who may distribute copies of this report to authorized agents and regulatory agencies as may be required for the project.

Our services were provided to assist in the design of foundations for a planned structure to be located on sloping property. Our recommendations are intended to improve the overall stability of the site and to reduce the potential for future property damage related to earth movements, drainage or erosion. Qualified engineering and construction practices can help mitigate the risks inherent in construction on slopes, although those risks cannot be eliminated completely. Favorable performance of structures in the near term is useful information for anticipating future performance, but it cannot predict or imply a certainty of long-term performance, especially under conditions of adverse weather or seismic activity.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. The conclusions, recommendations, and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile or hard copy of the original document (email, text, table and/or figure), if provided, and any attachments should be considered a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to Appendix E for additional information pertaining to use of this report.

REFERENCES

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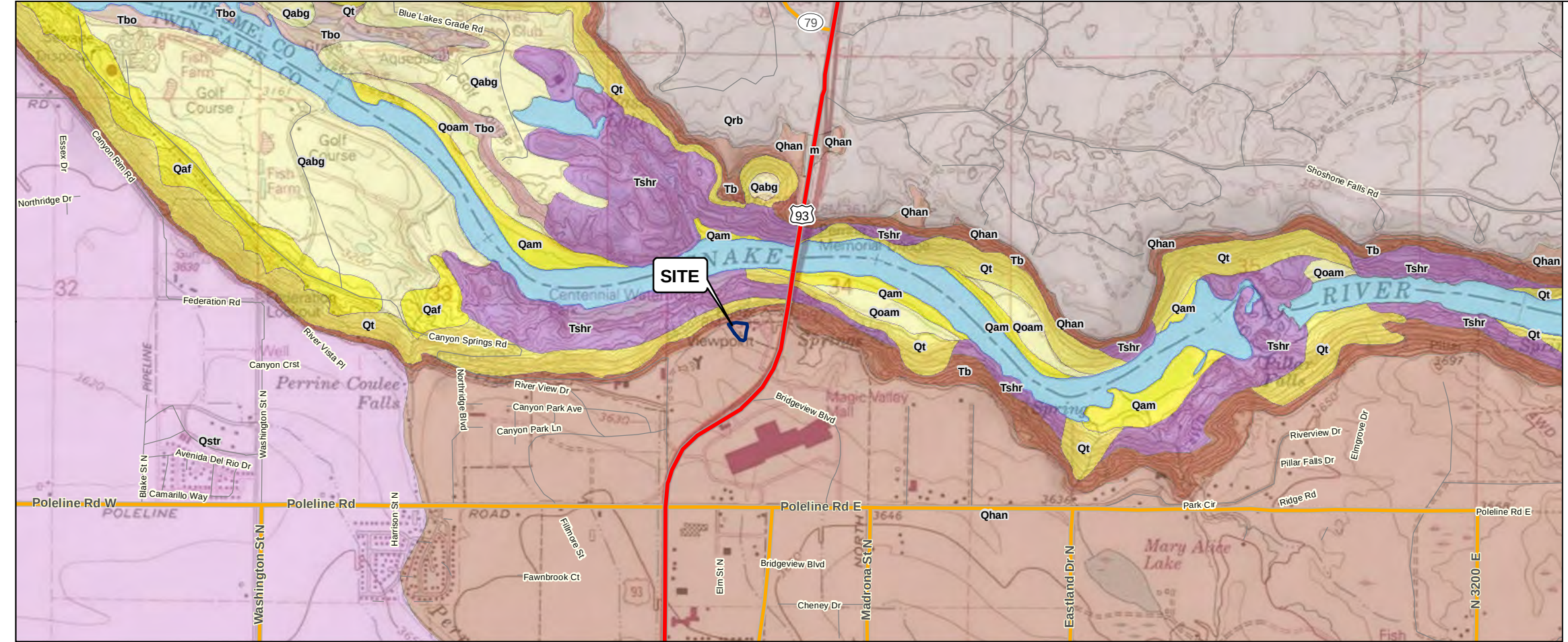
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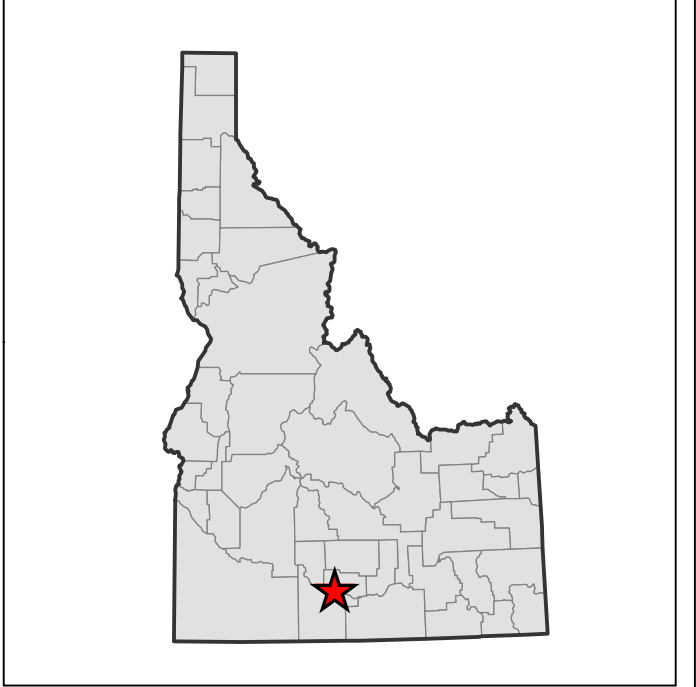


Legend

- ITD Milepost
- Proposed Canyon Park Hotel Project Area

Geology Map Units

- Qagb: Sand and gravel in giant flood bars
- Qaf: Alluvial-fan deposits
- Qam: Alluvium of mainstreams
- Qhan: Basalt of Hansen Butte
- Qoam: Older alluvium of mainstreams
- Qrb: Basalt of Rocky Butte
- Qstr: Basalt of Stricker Butte
- Qt: Talus
- Tb: Basalt flows, undivided
- Tbo: Older basalt flows, undivided, upstream from Thousand Springs
- Tshr: Rhyolite of Shoshone Falls
- m: Made ground
- Snake River



Data Source: Geologic Map of the Twin Falls 30 x 60 Minute Quadrangle, Idaho, IGS GM-49, <http://www.idahogeology.org>. ESRI Data Online.

Vicinity and Geology Map	
Proposed Canyon Park Hotel Twin Falls, Idaho	
	Figure 1

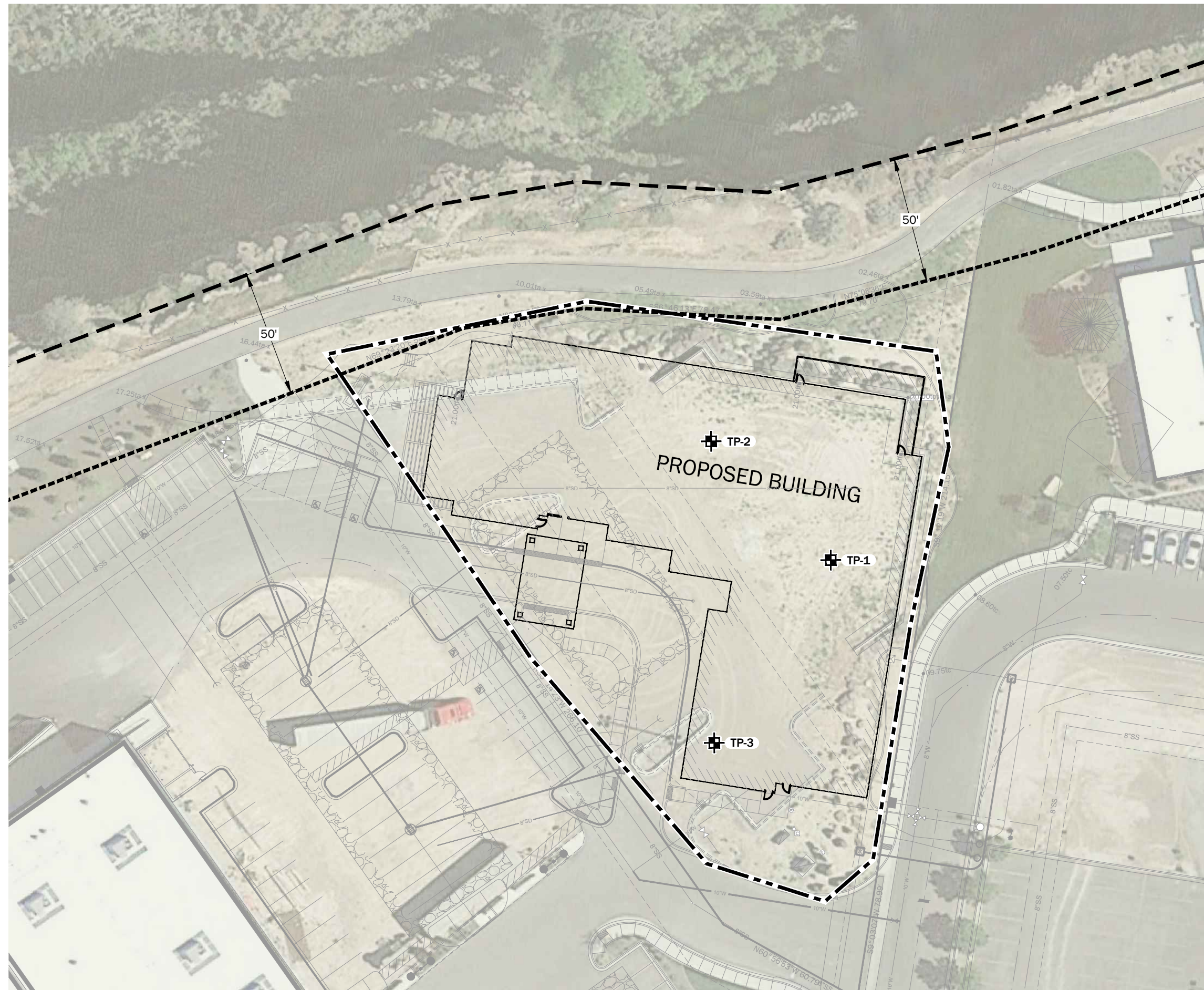


Figure 2

APPENDIX A

Qualifications

APPENDIX A QUALIFICATIONS

Rachel Hunt, PG, Geologist

Education

M.S., Geology, Central Washington University

B.S., Geology, University of Hawaii

Registrations

Professional Geologist: ID

Experience

Rachel is a geologist with five years of experience providing field and project support to geological, geotechnical, and environmental projects. She has experience conducting geohazard and geotechnical field programs; analyzing and managing data; performing geologic research; conducting geologic field reconnaissance and mapping; logging geotechnical explorations; classifying soil and rock; preparing proposals and technical reports for clients; managing project tasks and budgets; and coordinating subcontractors and field staff. Her experience also includes conducting field programs for geological reconnaissance, groundwater monitoring and soil and rock exploration projects. A sampling of her recent relevant projects include:

- Cadman, High Rock Quarry Landslide Evaluation, Monroe, WA
- HCA, Proposed FSED Buildings, Geologic Hazard Assessment for multiple sites in California, Utah and Nevada
- Idaho Power, Snake River Road Stabilizations (4 sites), Baker County, OR
- Idaho Power, Hells Canyon Dam Access Road Rock Slope Evaluation, Wallowa County, OR
- Idaho Transportation Department (ITD) District 1, US 95 MP 518.4 Slide Repair, Bonners Ferry, ID
- Idaho Transportation Department (ITD) District 3, I-84 Karcher Interchange to Franklin Boulevard, Nampa, ID
- Idaho Transportation Department (ITD) District 5, I-15 UPRR Inkom Overpass Rock Fall Evaluation, Bannock County, ID
- Lucky Peak Power Plant/Seattle City Light, Lucky Peak Dam Intake Bridge Rock Slope Protection, Boise, ID
- Midas Gold Idaho, Inc., Stibnite Gold Mine Access Road, Geological reconnaissance for 30-mile access road, Yellow Pine, ID
- Private Developer, Bogus Basin Road Development Rock Cut Evaluation, Boise, ID
- Puget Sound Energy, Energize Eastside Critical Areas Evaluation, Bellevue, Renton, and New Castle, WA
- U.S. Navy, Manchester Tank Farm, Phase I Fault Trench Study, Manchester, WA
- Utah Department of Transportation (UDOT), I-15 Technology Corridor Project, Lehi, UT

Andy Caneday, LG, LEG, Associate Engineering Geologist

Education

B.A. Geology, Whitman College

Registrations & Certifications

Licensed Geologist and Engineering Geologist: WA

Washington State Department of Natural Resources “Qualified Expert” Forested Slope Stability

Experience

Andy has over 20 years of experience as an engineering geologist, characterizing surface and subsurface conditions for a variety of geotechnical, geological, and environmental projects including timber harvest units, watershed analysis, road construction, quarries, and landslides. He specializes in field reconnaissance and detailed engineering geological mapping, aerial photo interpretation, subsurface explorations to evaluate geotechnical conditions, and soil and rock slope stability. He has conducted these studies throughout Western Washington and Northern California and is qualified by WADNR to perform forest slope stability evaluations. A sampling of his experience at or prior to GeoEngineers includes:

- BNSF Railway, Katka Siding Rock Slope Stabilization Project, Bonners Ferry, ID
- Bonneville Power Administration, Kangley to Echo Lake Transmission Line Project, Geotechnical Evaluation of Potential Impacts to Slope Stability, King County, WA
- City and Borough of Sitka Public Works, South Kramer Avenue Landslide: Jacobs Circle to Emmons Street, Debris Flow Risk Assessment, Sitka, AK
- City of Bellingham, Debris Flow Mitigation Recommendations, Middle Fork Nooksack River Diversion Project, Whatcom County, WA
- North Coast Railroad Authority, Restoration of the Northwestern Pacific (NWP) Railroad, Mapping of 290 Rockfalls, Landslides and Erosion Sites, Northern CA
- Puget Sound Energy, Lower Baker Dam Abutment Stability Analysis, Concrete, WA
- Puget Sound Energy, Snoqualmie Falls Hydroelectric Rock Slope Stabilization Project, Snoqualmie, WA
- Rayonier, Inc., Weyerhaeuser Company, Longview Timber, Sierra Pacific Industries, Campbell Global, Pacific Lumber Company, Simpson Timber Company, Timber Harvest and Forest Road Evaluations, Landslide Sites Identification, Slope Stability Mitigation Recommendations, CA and WA
- Seattle Public Utilities, Seattle Landslide Study Update, Seattle, WA
- Snohomish County, Geotechnical Study for Index Galena Road Milepost 6.4 to 6.9 Flood Repairs Project, Near Index, WA
- Union Pacific Railroad Coast Line, California Coastal Landslides, near Santa Barbara, CA
- Union Pacific Railroad, Eastport Siding Extension, Rock Slope Design and Rockfall Mitigation, Eastport, ID

Braydan DuRee, PE, Senior Geotechnical Engineer

Education

B.S., Civil Engineering, Utah State University
M.E., Geotechnical Engineering, Utah State University

Registrations

Professional Engineer: ID, UT, WA, OR, CO, MO, WY

Experience

Braydan is a senior geotechnical engineer with more than 12 years of experience and has managed hundreds of projects for GeoEngineers. Braydan has been the geotechnical lead on more than 50 projects with local agency and state transportation departments. His expertise includes geotechnical design and engineering for roadway and bridges, retaining walls, temporary and permanent shoring, seismic designs, pavement and gravel road surfacing, slope stability and landslide mitigation designs. He brings extensive experience completing project coordination, engineering analyses, geotechnical reports, field investigations, and ground improvement and shoring design drawings and specifications. He also brings experience reviewing contractor submittals for owners and monitoring projects during construction. His experience includes:

- City of Wenatchee, SR 285 Confluence Parkway, Wenatchee, WA
- Idaho Power Company, Snake River Road Stabilizations (4 sites), Baker County, OR
- Idaho Transportation Department (ITD) District 4, On-47s Borrow Source, Oneida County, ID
- ITD District 3, I-84 Karcher Interchange to Franklin Boulevard, Nampa, ID
- ITD District 3, I-84 Meridian Interchange, Ada County, ID
- ITD District 3, I-84, SH-44 to Sand Hollow, Canyon County, ID
- ITD District 4, I-84 Snake River Twin Bridges, near Declo, ID
- ITD District 4, SH24, B-2 Canal to Minidoka, Minidoka County, ID
- ITD District 4, US-20 Willow Creek Bridge Replacement, Camas County, ID
- ITD District 5, I-15 UPRR Inkom Overpass, Bannock County, ID
- Lane County, Territorial Highway Landslide Stabilization, Lane County, OR
- Lucky Peak Power Plant/Seattle City Light, Lucky Peak Dam Intake Bridge Rock Slope Protection, Boise, ID
- Missouri Department of Transportation, Route 109 Landslide Remediation, St. Louis County, MO
- Montana Department of Transportation S-238 Landslide Repair, Lewistown, MT
- NW Natural LS-11 Landslide Repair, Columbia County, OR
- Midas Gold Idaho, Inc., Stibnite Gold Mine Access Road, Geological reconnaissance for 30-mile access road, Yellow Pine, ID
- Washington State Department of Transportation, SR 530 Emergency Reconstruction After Oso Landslide, Oso, WA

J. ROBERT GORDON, PE, SENIOR PRINCIPAL

Education

B.S., Civil Engineering, University of Colorado, Boulder

Registrations

Professional Engineer: ID, WA, OR, AK, BC

Experience

J. has been providing geotechnical and environmental consulting services in the western United States since 1980 and with GeoEngineers since 1987. He has specialized in evaluation of soil and rock stability and slope protection, stabilization of rock slopes and landslides. He is very familiar with FHWA, DOT, AASHTO and LRFD design procedures, preparation of PS&E, bidding conditions and contract administration. He has provided full range of services related to landslides, including immediate emergency response, life-safety assessment, slope stability analysis, and repair including complete design packages and construction support. As one of the most senior Principal Geotechnical Engineers at GeoEngineers, he now supports many of our GeoEngineers offices, including Spokane and Boise. The range of project experience includes peer reviews; geotechnical studies for buildings, roads, bridges, utility installations; feasibility studies with alternatives analysis; legal support; slope stability analyses, landslide analysis and repair; geohazard assessments and mitigation strategies; groundwater assessments; and drainage/culvert design. J.'s broad range of experience has allowed him to bring unique and cost-effective solutions to clients. A small sampling of J.'s recent project examples include:

- Bonner County, Talache Road Landslide Evaluation and Repair, PS&E, MSE Wall Repair, Bonner County, ID
- Colville Confederated Tribes, Omak Lake Road Landslide Evaluation and Repair, Omak, WA
- Idaho Power Company, Snake River Road Stabilizations (4 sites), Baker County, OR
- Idaho Transportation Department (ITD) District 1, US 95 MP 518.4 Slide Repair, Bonners Ferry, ID
- Island County Public Works, Ledgewood Landslide Evaluation, Legal Representation, Roadway Reconstruction including PS&E, Coupeville, WA
- Island County Public Works, Numerous Landslide Evaluations and Repairs, Whidbey and Camano Islands, WA
- Midas Gold Idaho, Inc., Stibnite Gold Mine Access Road, Geological reconnaissance for 30-mile access road, Yellow Pine, ID
- Rural Resources Community Action, Landslide Evaluation and Repair, Hunters, WA
- City of Bellingham, Chuckanut Road (SR11) Rockfall Evaluation and Stabilization, Bellingham, WA
- Rock Ridge, LLC, Geohazard Assessment, Rock Blasting and Plat Development, Rock Slope Drapery Design, Anacortes, WA

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INSURER C : National Fire Insurance Co. of Hartford	20478														
INSURER D : Valley Forge Insurance Company	20508														
INSURER E :															
INSURER F :															

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C	AUTOMOBILE LIABILITY ☒ ANY AUTO OWNED AUTOS ONLY ☒ HIRED AUTOS ONLY ☐ SCHEDULED AUTOS NON-OWNED AUTOS ONLY	X	X	6023117823	03/31/2018	03/31/2019	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
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D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☒ Y / N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		X	6045839429	03/31/2018	03/31/2019	☒ PER STATUTE ☐ OTH-ER
C			X	ID LA MO NC	NY OR UT	USL&H/MEL	E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000
			X	6045838328	03/31/2018	03/31/2019	
				CA incl USL&H/MEL			

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

File #23823-001-00, Canyon Park Hotel, Twin Falls, Idaho.

CERTIFICATE HOLDER

CANCELLATION

EHM Engineers, Inc. 621 N College Rd, Ste 100 Twin Falls, ID 83301	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE 
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Dave Thibault
321 N College Rd. Suite 100
Twin Falls, ID 83301

This certifies that the "claims made" insurance policy (described below by policy number) written on forms in use by the Company has been issued. This certificate is not a policy or a binder of insurance and is issued as a matter of information only, and confers no rights upon the certificate holder. This certificate does not alter, amend or extend the coverage afforded by this policy.

The policy of insurance listed below has been issued to the insured named above for the policy period indicated. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policy described herein is subject to all the terms, exclusions and conditions of such policy. Aggregate limits shown may have been reduced by paid claims.

TYPE OF INSURANCE Professional Liability

POLICY NUMBER
219019

EFFECTIVE DATE
01/01/19

EXPIRATION DATE
12/31/19

LIMITS OF LIABILITY \$1,000,000 EACH CLAIM
\$1,000,000 ANNUAL AGGREGATE

PROJECT DESCRIPTION

File No. 23823-001-00
Canyon Park Hotel

CANCELLATION: If the described policy is cancelled by the Company before its expiration date, the Company will mail written notice to the certificate holder thirty (30) days in advance, or ten (10) days in advance for non-payment of premium. If the described policy is cancelled by the insured before its expiration date, the Company will mail written notice to the certificate holder within thirty (30) days of the notice to the Company from the insured.

NAME AND ADDRESS OF INSURED

GeoEngineers, Inc.
3501 West Elder Street, Suite 300
Boise, ID 83705

ISSUING COMPANY:

TERRA INSURANCE COMPANY
(A Risk Retention Group)

President

APPENDIX B

Field Explorations and Laboratory Testing

APPENDIX B

FIELD EXPLORATIONS AND LABORATORY TESTING

Test Pits

Subsurface conditions were explored at the site by excavating three test pits (TP-1 through TP-3) on February 25, 2019. EHM Engineers provided a Komatsu PC 200 excavator and operator to complete the excavations.

The locations of the test pits were estimated by using tablet and smart phone applications with a reported accuracy of ± 16 feet (the highest published resolution for the software). The location was then adjusted based on field measurements to existing features on the site plan. Exploration locations should be considered accurate to the degree implied by the method used. The approximate exploration locations are shown in Figure 2, Site Plan.

The test pits were continuously monitored by a representative from our firm who examined and classified the soils encountered, obtained representative soil samples, observed groundwater conditions and prepared a detailed log of each test pit.

The soil encountered in the test pits were selectively sampled from the excavations to obtain representative samples for laboratory testing. Grab Samples were collected and stored in containers to preserve natural moisture content for laboratory testing. The disturbed samples were obtained with a hand trowel or shovel.

Soils encountered in the test pits were visually classified in general accordance with the classification system described in, Key to Exploration Logs, Figure B-1. A key to the test pit log symbols is also presented in Figure B-1. The logs of the test pits are presented in Figures B-2 through B-4. The test pit logs are based on our interpretation of the field and laboratory data and indicate the various types of soil and groundwater conditions encountered. The logs also indicate the depths at which the soil or their characteristics change. The densities noted on the test logs are based on the observations in the test pits and judgment based on the conditions encountered.

Observations of groundwater conditions were made during excavation by observing moisture content of the samples and noting any groundwater seepage into the test pits. Groundwater was not encountered during excavations of the test pits. Groundwater conditions observed during excavation represent a short-term condition and may or may not be representative of the long-term groundwater conditions at the site. Groundwater conditions observed during excavating should be considered approximate.

The test pits were backfilled with the excavated soils and tamped in place with the excavator bucket. No measurable compactive effort was completed in the test pit backfill and the Contractor should make provisions to over excavate and compact those areas during project construction.

Laboratory Testing

General

Soil samples obtained from the test pits were transported to GeoEngineers' laboratory and evaluated to confirm or modify field classifications, as well as to evaluate engineering properties of the soil samples. We completed laboratory testing on selected representative soil samples to determine the moisture content,

grain size distribution testing, and Atterberg limit determinations. The tests were performed in general accordance with test methods of ASTM International (ASTM) or other applicable procedures.

Moisture Content

Moisture content tests were completed in general accordance with ASTM D 2216 for representative samples obtained from the test pits. The results of these tests are presented on the test pit logs in Figures B-3 through B-5, at the respective sample depths.

Grain Size Distribution

Selected representative soil samples obtained from the test pits were tested in general accordance with ASTM D 422 to evaluate the grain size distribution. The results of the grain size analyses were plotted and classified in general accordance with USCS and are presented in Figure B-6. The fines content from the test (percent passing the No. 200 sieve) is presented on the test pit logs in Figures B-3 through B-5, at the respective sample depths.

Atterberg Limits

Atterberg limit tests were completed for one native soil sample. The tests were used to classify the soil as well as to aid in evaluating index properties and consolidation characteristics of the fine-grained soil deposits. The liquid limit and the plastic limit were obtained in general accordance with ASTM D 4318. The results of the Atterberg limits are summarized in Figure B-7.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES	
		(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES	
		GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES	
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES	
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS
			(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND
		MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES
			(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY	
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
					CH	INORGANIC CLAYS OF HIGH PLASTICITY
					OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
	HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

Sampler Symbol Descriptions

	2.4-inch I.D. split barrel
	Standard Penetration Test (SPT)
	Shelby tube
	Piston
	Direct-Push
	Bulk or grab
	Continuous Coring

Blow count is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS		TYPICAL DESCRIPTIONS
GRAPH	LETTER	
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact



Measured groundwater level in exploration, well, or piezometer



Measured free product in well or piezometer

Graphic Log Contact



Distinct contact between soil strata



Approximate contact between soil strata

Material Description Contact



Contact between geologic units



Contact between soil of the same geologic unit

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

Key to Exploration Logs



Figure B-1

Date:3/11/19 Path:w:\PROJECTS\23\23823001\GINT\2382300100.GPJ DBLibrary\Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEI8_TESTPIT_1P_GEOTEC_%F

Notes: See Figure B-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on hand-held GPS. Vertical approximated based on undetermined.

GEOENGINEERS

Figure B-2
Sheet 1 of 1

Date Excavated	2/25/2019	Total Depth (ft)	20	Logged By	CW	Excavator		Groundwater not observed
				Checked By	RH	Equipment	Komatsu PC 200 Excavator	Caving not observed
Surface Elevation (ft)	Undetermined			Latitude	42.598293		Coordinate System	Decimal Degrees
Vertical Datum				Longitude	-114.456528		Horizontal Datum	WGS84

Elevation (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	Depth (feet)	Sample Name Testing						
1	1	1 MC		SM	1 to 2 inches brown silty fine to medium sand with gravel	15		
2	2	2 SA		SM	Brown silty fine to coarse sand with occasional gravel and cobbles (medium dense, moist) (fill)	12	40	
3	3	3 MC				13		Man-made material present (pipe)
4	4	4 MC				14		
5	5							
6	6							
7	7	7 MC				13		
8	8							
9	9	9 MC				17		Rope observed at 9 feet
10	10	10 MC				15		
11	11							
12	12			CL	Dark brown clay with sand and occasional gravel (very stiff, moist) (fill)			
13	13	13 AL				17		AL (LL = 31, PI = 9) Plastic bag observed at 13 feet
14	14							
15	15			ML	Brown and light brown silt with sand, slightly cemented (very stiff, moist) (native)			
16	16							
17	17							
18	18	18 g						
19	19							
20	20							

Notes: See Figure B-1 for explanation of symbols.

The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on hand-held GPS. Vertical approximated based on undetermined.

Log of Test Pit TP-2



Project: Proposed Canyon Park Hotel
Project Location: Twin Falls, Idaho
Project Number: 23823-001-00

Figure B-3
Sheet 1 of 1

Date: 3/11/19 Path: W:\PROJECTS\23\23823001\GINT\2382300100.GPJ DBL\Library\Library\GEOENGINEERS_DP_STD_US_JUNE_2017\GLB\GERB_TESTPIT_1P_GEOLOG_16F

Date Excavated	2/25/2019	Total Depth (ft)	18	Logged By	CW	Excavator		Groundwater not observed
				Checked By	RH	Equipment	Komatsu PC 200 Excavator	Caving not observed
Surface Elevation (ft)	Undetermined			Latitude	42.597964		Coordinate System	Decimal Degrees
Vertical Datum				Longitude	-114.456521		Horizontal Datum	WGS84

Elevation (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	Depth (feet)	Testing Sample Name						
1				SM	1 to 2 inches brown silty fine to medium sand with gravel			
2		1 MC		SM	Brown silty fine to coarse sand with gravel (medium dense, moist) (fill)	24		
3		2						
4		3				14	21	
5		4						
6								
7		5		SM	Dark brown silty fine to medium sand with occasional gravel and trace organic matter (hay and grass) (medium dense, moist) (fill)	17	41	
8								
9								
10								
11		6 MC		ML	Brown and light brown silt with sand, slightly cemented (very stiff, moist) (native)	29		
12								
13								
14								
15								
16								
17								
18		8 MC				29		

Notes: See Figure B-1 for explanation of symbols.

The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on hand-held GPS. Vertical approximated based on undetermined.

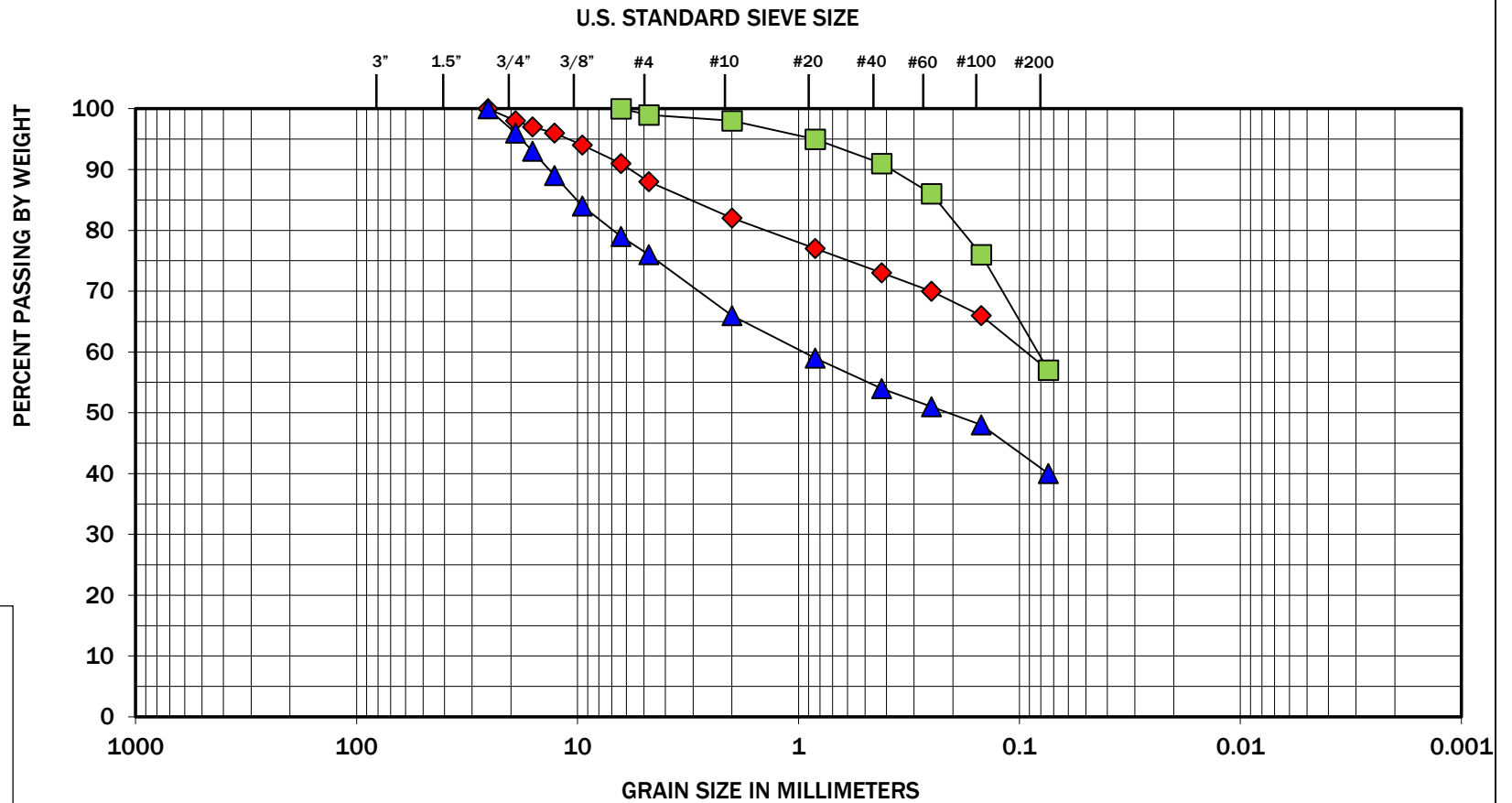
Log of Test Pit TP-3



Project: Proposed Canyon Park Hotel
Project Location: Twin Falls, Idaho
Project Number: 23823-001-00

Figure B-4
Sheet 1 of 1

Date: 3/11/19 Path: W:\PROJECTS\23\23823001\GINT\2382300100.GPJ DBLlibrary\Library\GEOENGINEERS_DP_STD_US_JUNE_2017.GLB\GEIR_TESTPIT_1P_GEOLOG_1P.GPJ

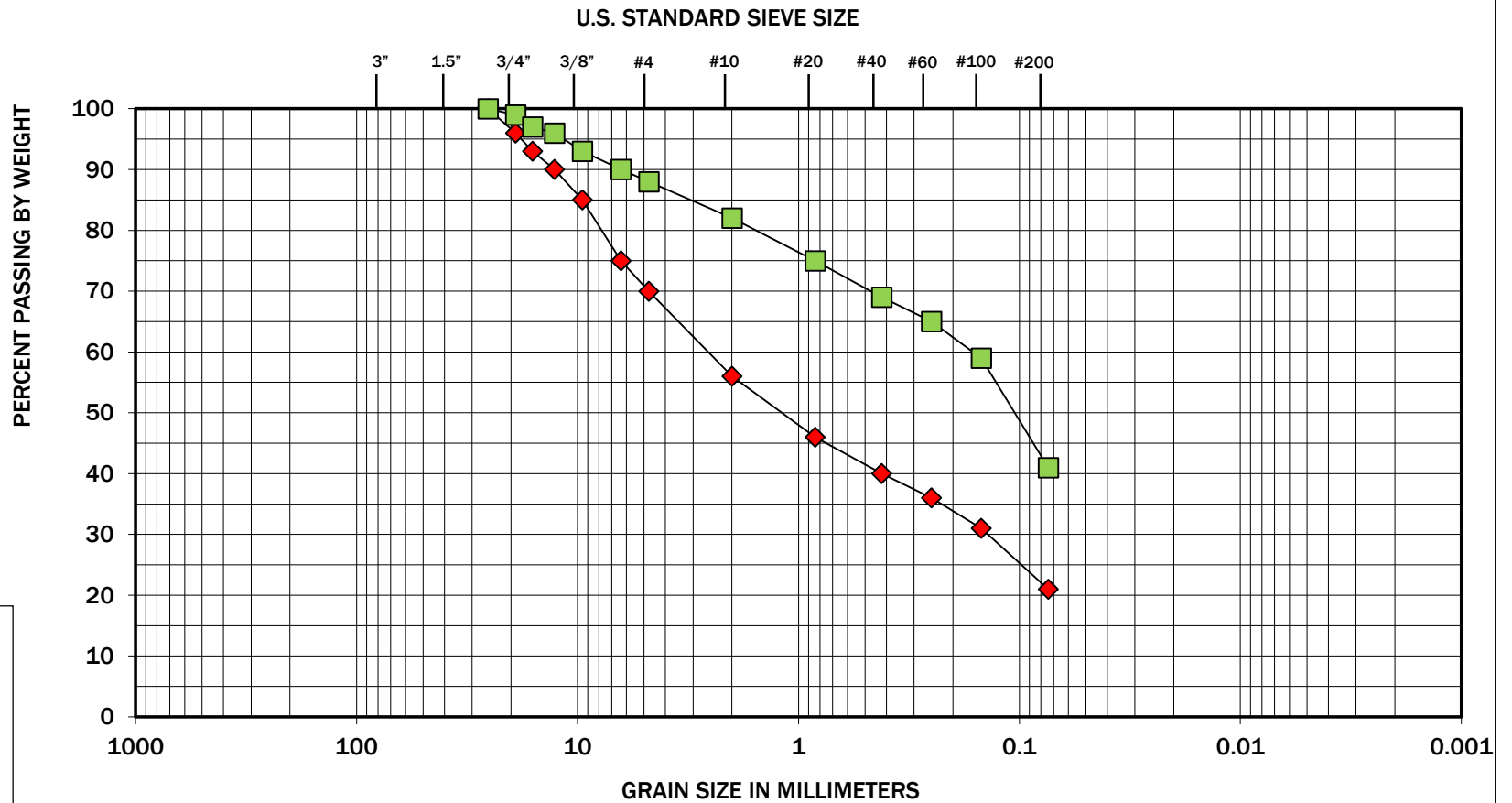


COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Soil Description
◆	TP-1	1 - 1½	18	Sandy silt with occasional gravel (ML)
■	TP-1	15 - 15½	31	Sandy silt (ML)
▲	TP-2	2 - 2½	12	Silty fine to coarse sand with occasional gravel (SM)

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The grain size analysis results were obtained in general accordance with ASTM D 6913.



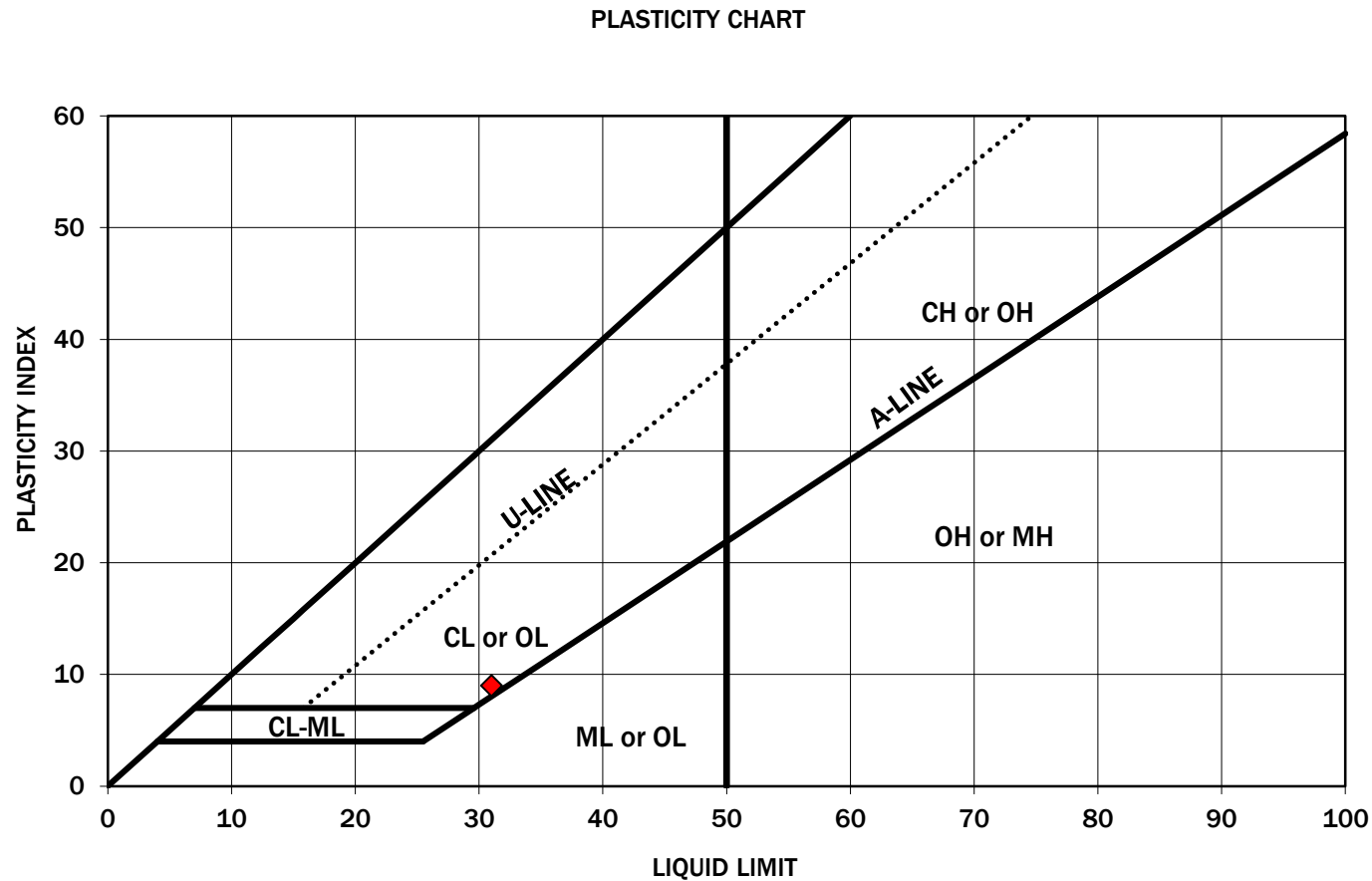
COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Soil Description
◆	TP-3	2 - 2½	12	Silty fine to coarse sand with gravel (SM)
■	TP-3	7 - 7½	17	Silty fine to mediums sand with occasional gravel (SM)

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The grain size analysis results were obtained in general accordance with ASTM D 6913.





Symbol	Boring Number	Depth (feet)	Moisture Content (%)	Liquid Limit (%)	Plasticity Index (%)	Soil Description
◆	TP-2	13 - 13½	17	31	9	Lean clay with sand and occasional find gravel (CL)

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The liquid limit and plasticity index were obtained in general accordance with ASTM D 4318.

Atterberg Limits Test Results

Proposed Canyon Park Hotel
Twin Falls, Idaho



Figure B-7

APPENDIX C

Site Photographs



Photograph 1. Site condition, looking west from the northeast corner of the project site.



Photograph 2. Site condition, looking west at the canyon rim from the lookout at the Twin Falls Visitor Center.

Site Photographs	
Proposed Canyon Park Hotel Twin Falls, Idaho	
	Figure C-1



Photograph 3. Site conditions, looking west at the discontinuities in the basalt at the canyon rim north of the project site. Spacing of discontinuities is approximately 24 inches wide in photograph.



Photograph 4. Site conditions, looking north at the canyon rim, north of the project site. Discontinuity spacing in photograph is approximately 24 inches.

Site Photographs	
Proposed Canyon Park Hotel Twin Falls, Idaho	
	Figure C-2



Photograph 5. Site conditions, looking at 1/4 inch tension crack , north of the project site, between side walk and canyon rim.



Photograph 6. Site conditions, looking at 2-inch wide discontinuity north of the project site. The geologist in the background of photo marks the northern extent of this discontinuity.

Site Photographs	
Proposed Canyon Park Hotel Twin Falls, Idaho	
	Figure C-3



Photograph 7. Site conditions, looking south at canyon rim, north of the project site. Vegetation obscures tension cracks upslope of the canyon rim. Geologist in background represents the southern extent of the tension crack.



Photograph 8. Site conditions, looking west from Twin Falls Visitor Center Over look at drainage water runoff and 2-foot-wide tension crack. The red circle indicates outlet of drainage water runoff that was actively draining at time of geology reconnaissance.

Site Photographs	
Proposed Canyon Park Hotel Twin Falls, Idaho	
	Figure C-4



Photograph 9. Site conditions, looking north along paved walking path north of project site at pavement conditions. Pavement appears to be in good condition with no cracking observed.



Photograph 10. Site conditions, looking north along paved walking path north of Twin Falls Visitor Center. Arcuate cracking ¼-inch wide and running parallel to canyon rim observed on path, possible evidence of ground settlement.

Site Photographs	
Proposed Canyon Park Hotel Twin Falls, Idaho	
	Figure C-5



Photograph 11. Site conditions, looking south from canyon floor at the canyon wall located north of the project site. Note moss covered talus and sagebrush vegetation at the top of the talus deposit. The red line marks the boundary between the upper columnar basalt and the lower more highly fractured basalt.



Photograph 12. Site conditions, looking northeast at the project site from the western boundary.

Site Photographs	
Proposed Canyon Park Hotel Twin Falls, Idaho	
	Figure C-6



Photograph 13. Site conditions, excavation of TP-1.



Photograph 14. Site conditions, excavation of TP-2.



Photograph 15. Site conditions, excavation of TP-3.

Site Photographs

Proposed Canyon Park Hotel
Twin Falls, Idaho



Figure C-7

APPENDIX D

Historical Photographs

Geronimo

Filmore Street

Twin Falls, ID 83301

Inquiry Number: 5577226.1

March 01, 2019

The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th floor
Shelton, CT 06484
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EDR Aerial Photo Decade Package

03/01/19

Site Name:

Geronimo
Filmore Street
Twin Falls, ID 83301
EDR Inquiry # 5577226.1

Client Name:

Geo Engineers Inc.
3501 West Elder Street Suite 300
Boise, ID 83705
Contact: Andrew Provnat



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Search Results:

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
2017	1"=500'	Flight Year: 2017	USDA/NAIP
2013	1"=500'	Flight Year: 2013	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1998	1"=750'	Flight Date: June 01, 1998	USGS
1992	1"=500'	Acquisition Date: July 16, 1992	USGS/DOQQ
1987	1"=750'	Flight Date: June 22, 1987	USGS
1984	1"=500'	Flight Date: August 29, 1984	USDA
1978	1"=500'	Flight Date: August 18, 1978	USGS
1976	1"=1000'	Flight Date: August 20, 1976	USGS
1953	1"=500'	Flight Date: August 03, 1953	USGS
1946	1"=500'	Flight Date: June 07, 1946	USGS

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INQUIRY #: 5577226.1

YEAR: 2017

— = 500'





INQUIRY #: 5577226.1

YEAR: 2013

— = 500'





INQUIRY #: 5577226.1

YEAR: 2009

— = 500'





INQUIRY #: 5577226.1

YEAR: 2006

— = 500'





INQUIRY #: 5577226.1

YEAR: 1998

1" = 750'



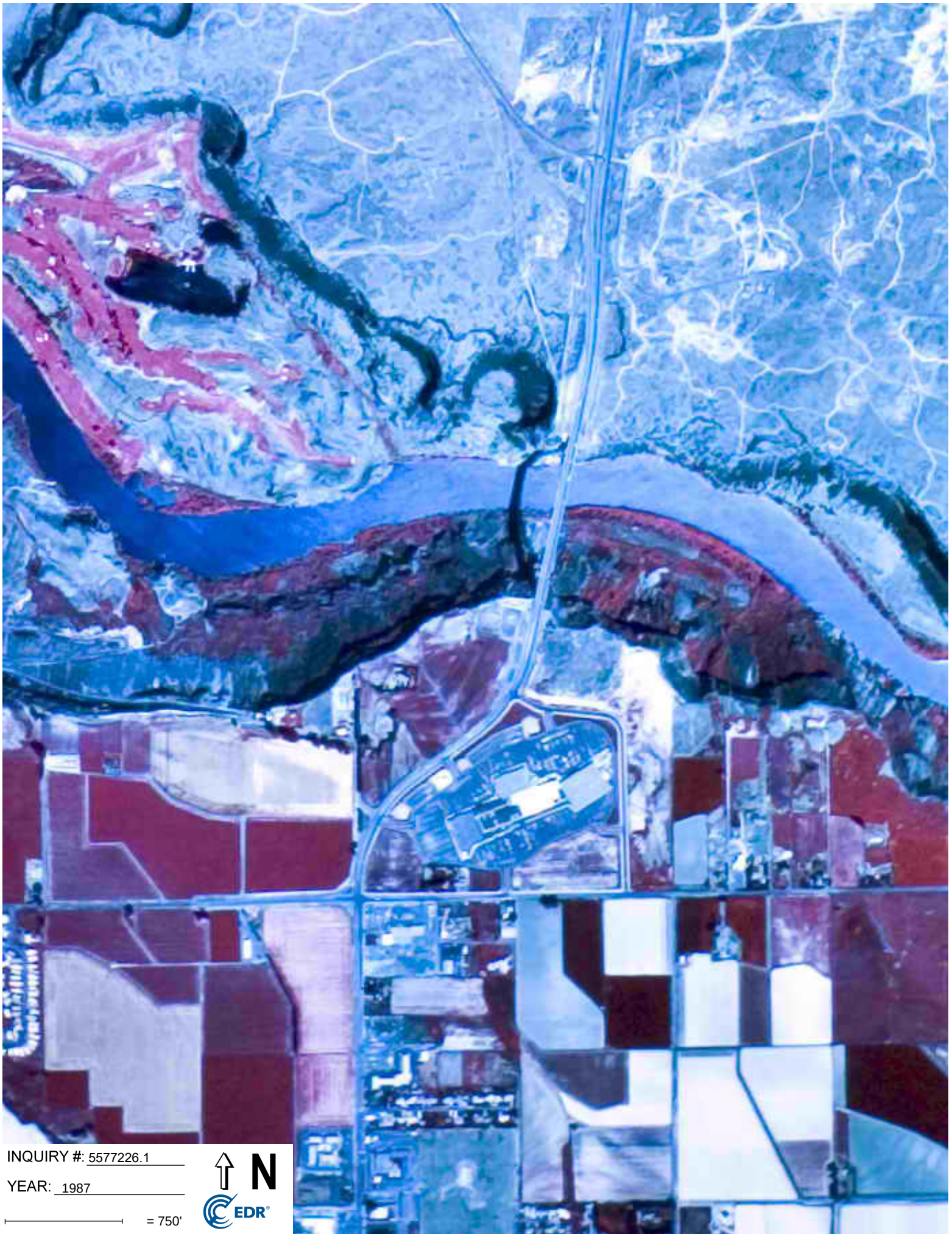


INQUIRY #: 5577226.1

YEAR: 1992

— = 500'





INQUIRY #: 5577226.1

YEAR: 1987

— = 750'





INQUIRY #: 5577226.1

YEAR: 1984

— = 500'





INQUIRY #: 5577226.1

YEAR: 1978

— = 500'





INQUIRY #: 5577226.1

YEAR: 1976

— = 1000'





INQUIRY #: 5577226.1

YEAR: 1953

— = 500'





INQUIRY #: 5577226.1

YEAR: 1946

— = 500'



APPENDIX E

Report Limitations and Guidelines for Use

APPENDIX E

REPORT LIMITATIONS AND GUIDELINES FOR USE¹

This appendix provides information to help you manage your risks with respect to the use of this report.

Read These Provisions Closely

It is important to recognize that the geoscience practices (geotechnical engineering, geology and environmental science) rely on professional judgment and opinion to a greater extent than other engineering and natural science disciplines, where more precise and/or readily observable data may exist. To help clients better understand how this difference pertains to our services, GeoEngineers includes the following explanatory “limitations” provisions in its reports. Please confer with GeoEngineers if you need to know more how these “Report Limitations and Guidelines for Use” apply to your project or site.

Geotechnical Services are Performed for Specific Purposes, Persons and Projects

This report has been prepared for EHM Engineering and for the proposed Canyon Park Hotel project located at 2005 Nielsen Point Place in Twin Falls, Idaho. The information contained herein is not applicable to other sites or projects.

GeoEngineers structures its services to meet the specific needs of its clients. No party other than the party to whom this report is addressed may rely on the product of our services unless we agree to such reliance in advance and in writing. Within the limitations of the agreed scope of services for the Project, and its schedule and budget, our services have been executed in accordance with our Agreement with EHM Engineers dated February 12, 2019 and executed on February 14, 2019 and generally accepted geotechnical practices in this area at the time this report was prepared. We do not authorize, and will not be responsible for, the use of this report for any purposes or projects other than those identified in the report.

A Geotechnical Engineering or Geologic Report is based on a Unique Set of Project-Specific Factors

This report has been prepared for proposed Canyon Park Hotel project located at 2005 Nielsen Point Place in Twin Falls, Idaho. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, it is important not to rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

For example, changes that can affect the applicability of this report include those that affect:

- the function of the proposed structure;

¹ Developed based on material provided by GBA, GeoProfessional Business Association; www.geoprofessional.org

- elevation, configuration, location, orientation or weight of the proposed structure;
- composition of the design team; or
- project ownership.

If changes occur after the date of this report, GeoEngineers cannot be responsible for any consequences of such changes in relation to this report unless we have been given the opportunity to review our interpretations and recommendations. Based on that review, we can provide written modifications or confirmation, as appropriate.

Environmental Concerns are Not Covered

Unless environmental services were specifically included in our scope of services, this report does not provide any environmental findings, conclusions, or recommendations, including but not limited to, the likelihood of encountering underground storage tanks or regulated contaminants.

Subsurface Conditions Can Change

This geotechnical or geologic report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by man-made events such as construction on or adjacent to the site, new information or technology that becomes available subsequent to the report date, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. If more than a few months have passed since issuance of our report or work product, or if any of the described events may have occurred, please contact GeoEngineers before applying this report for its intended purpose so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Geotechnical and Geologic Findings are Professional Opinions

Our interpretations of subsurface conditions are based on field observations from widely spaced sampling locations at the site. Site exploration identifies the specific subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied its professional judgment to render an informed opinion about subsurface conditions at other locations. Actual subsurface conditions may differ, sometimes significantly, from the opinions presented in this report. Our report, conclusions and interpretations are not a warranty of the actual subsurface conditions.

Geotechnical Engineering Report Recommendations are Not Final

We have developed the following recommendations based on data gathered from subsurface investigation(s). These investigations sample just a small percentage of a site to create a snapshot of the subsurface conditions elsewhere on the site. Such sampling on its own cannot provide a complete and accurate view of subsurface conditions for the entire site. Therefore, the recommendations included in this report are preliminary and should not be considered final. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers cannot assume responsibility or liability for the recommendations in this report if we do not perform construction observation.

We recommend that you allow sufficient monitoring, testing and consultation during construction by GeoEngineers to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes if the conditions revealed during the work differ from those anticipated, and to evaluate whether earthwork activities are completed in accordance with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective means of managing the risks associated with unanticipated conditions. If another party performs field observation and confirms our expectations, the other party must take full responsibility for both the observations and recommendations. Please note, however, that another party would lack our project-specific knowledge and resources.

A Geotechnical Engineering or Geologic Report Could Be Subject to Misinterpretation

Misinterpretation of this report by members of the design team or by contractors can result in costly problems. GeoEngineers can help reduce the risks of misinterpretation by conferring with appropriate members of the design team after submitting the report, reviewing pertinent elements of the design team's plans and specifications, participating in pre-bid and preconstruction conferences, and providing construction observation.

Do Not Redraw the Exploration Logs

Geotechnical engineers and geologists prepare final exploration and testing logs based upon their interpretation of field logs and laboratory data. The logs included in a geotechnical engineering or geologic report should never be redrawn for inclusion in architectural or other design drawings. Photographic or electronic reproduction is acceptable, but separating logs from the report can create a risk of misinterpretation.

Give Contractors a Complete Report and Guidance

To help reduce the risk of problems associated with unanticipated subsurface conditions, GeoEngineers recommends giving contractors the complete geotechnical engineering or geologic report, including these "Report Limitations and Guidelines for Use." When providing the report, you should preface it with a clearly written letter of transmittal that:

- advises contractors that the report was not prepared for purposes of bid development and that its accuracy is limited; and
- encourages contractors to conduct additional study to obtain the specific types of information they need or prefer.

Contractors are Responsible for Site Safety on Their Own Construction Projects

Our geotechnical recommendations are not intended to direct the contractor's procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and adjacent properties.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as

they may relate to this project. The term “Biological Pollutants” includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.

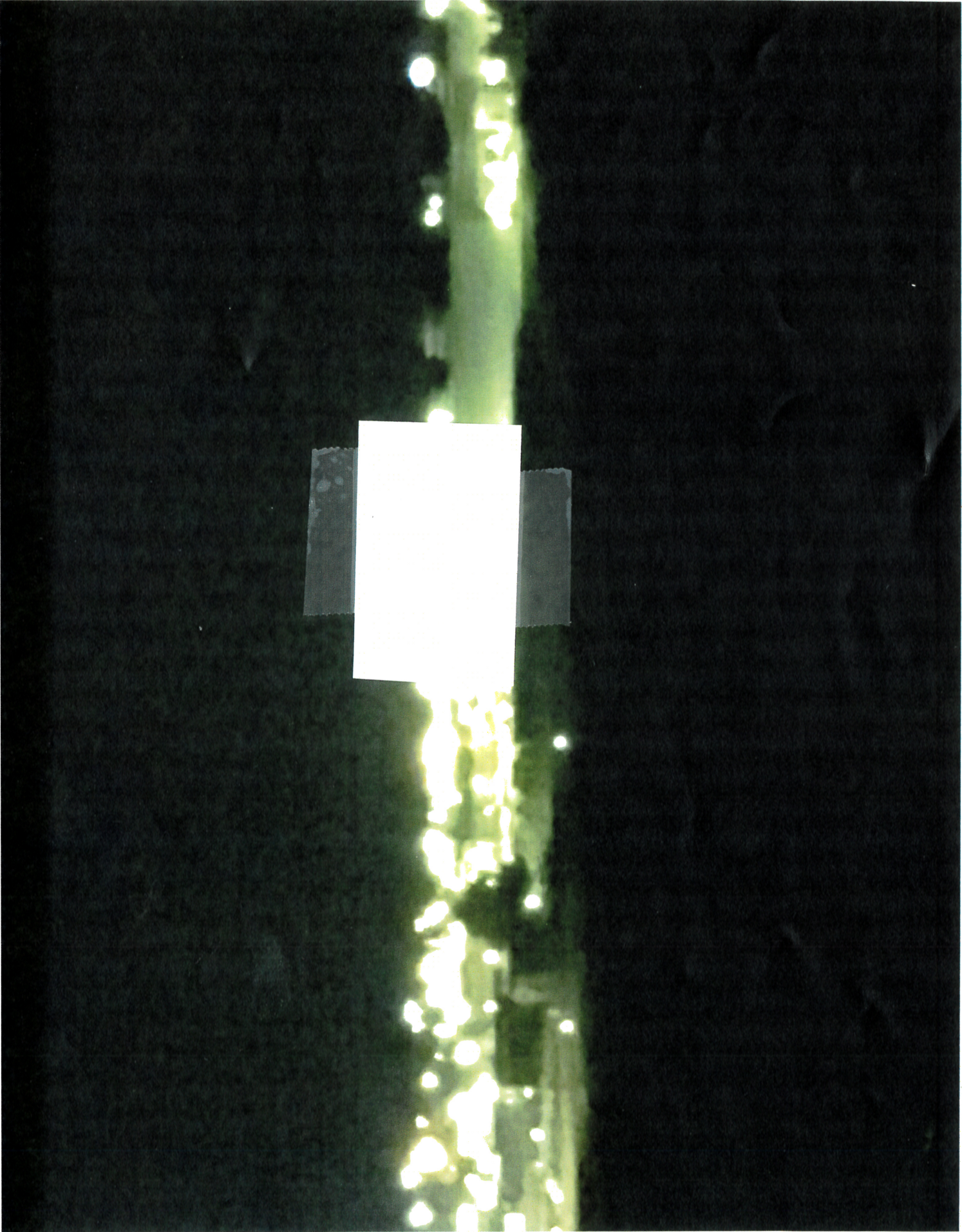
Information Provided by Others

GeoEngineers has relied upon certain data or information provided or compiled by others in the performance of our services. Although we use sources that we reasonably believe to be trustworthy, GeoEngineers cannot warrant or guarantee the accuracy or completeness of information provided or compiled by others.

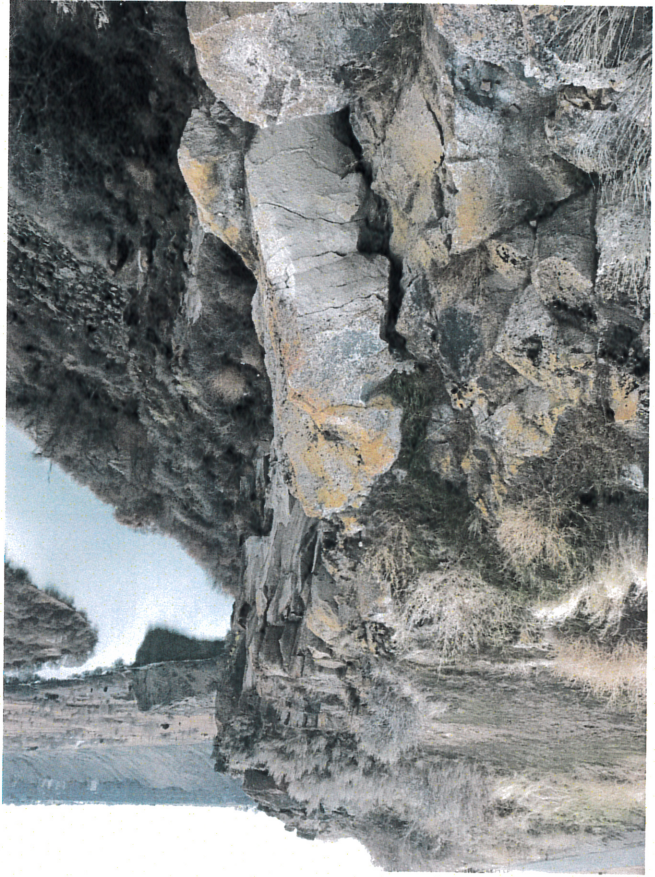
→



Steve Woods Photo 1



STEVE WOODS PHOTO 2



Left photo: view to west of canyon rim. Trail is visible in upper left corner. Note large fractures and displaced rocks.
 Right photo: view of canyon rim adjacent to proposed hotel. Note large open fractures along rim.
 Shoe for scale.
 Photos by Shawn Willsey

Attached Photos



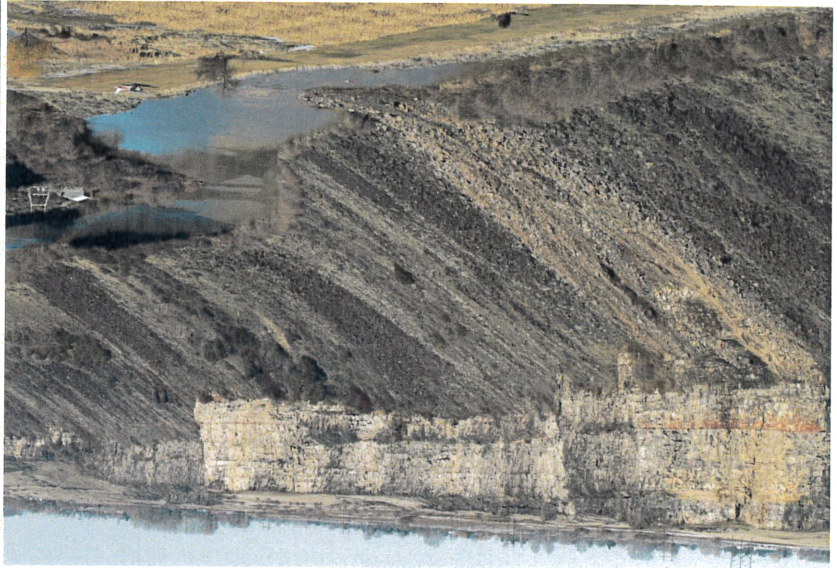
June 2006. Left photo: excavator removing loose rock following rockfall on Canyon Springs Road. Right photo: cleared rockfall on road and large fractures in tan rock above. Photo by Times News. Right photo: Photo by Shawn Willsey



August 2014. Left and middle photo: damage to canyon rim trail near Canyon Crest due to rockfall. Right photo: rockfall onto Canyon Springs Road. Photos by Drew Nash, Times News.

https://magicvalley.com/news/local/update-rain-soaks-region-flood-warning-extended/article_f83410d2-1d74-11e4-8bc9-001a4bcf887a.html

Shawn
Willsey
Photo 2



February 2017. Left photo: collapse section of north canyon wall into Snake River. Right photo: fractures above cliff prior to wall collapse. Photos by Drew Nash, Times News.

https://magicvalley.com/news/local/letting-nature-take-its-course-canyon-wall-still-stands/article_947dae5b-d287-5305-95c7-965d983cdf5a.html



January 2018: Rockfall onto Canyon Springs Road. Photos by Pat Sutphin, Times News.

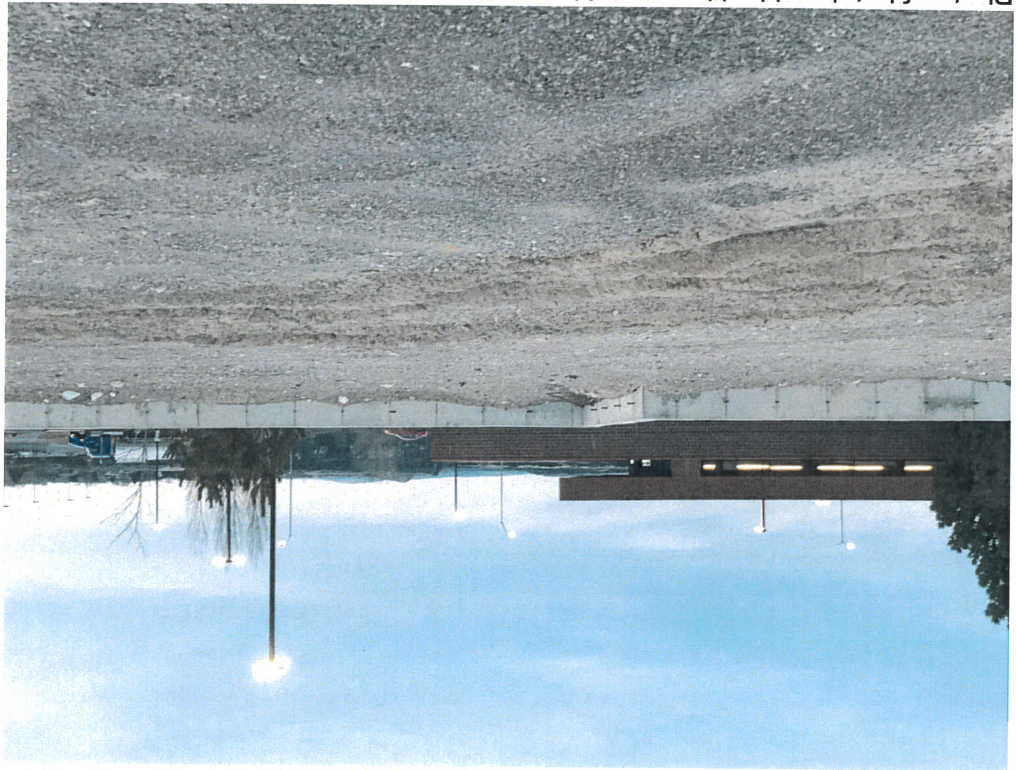
https://magicvalley.com/news/local/falling-rock-canyon-springs-road-remains-unsafe-for-pedestrians/article_c70635be-1722-579d-9ae3-ff09acc1c907.html
https://magicvalley.com/news/local/city-considers-purchase-of-property-for-trail-extension/article_2f389661-f4d8-5afd-ac9c-4d3d714342e3.html

Shawn Willsey
photo 4

Photo looking south with Visitor Center on left and top of retaining wall on right. Note nearly equal elevation of hotel base and roof of Visitor Center.



Photo of hotel pad looking east. Note top of retaining wall is nearly level with top of Visitor Center.



I hereby authorize Shawn Willsey to serve as my spokesperson at the Twin Falls Planning and Zoning meeting on January 29, 2019.

1. Krista 1-28-19

Kristina K. Hill

2. Zoya Hill 1-28-19

Zoya Hill

3. Tessa 1/28/19

Donna C. Hill, Sr.

4. Dana Johnson

5. Megan Greenwood

I authorize Shawn Willsey to serve as my spokesperson @ the P & Z meeting on Jan. 29th 2019

James Grover


I authorize Shawn Willsey to serve as my spokesperson @ the P & Z meeting on Jan 29th 2019.

Alisa Grover


7.