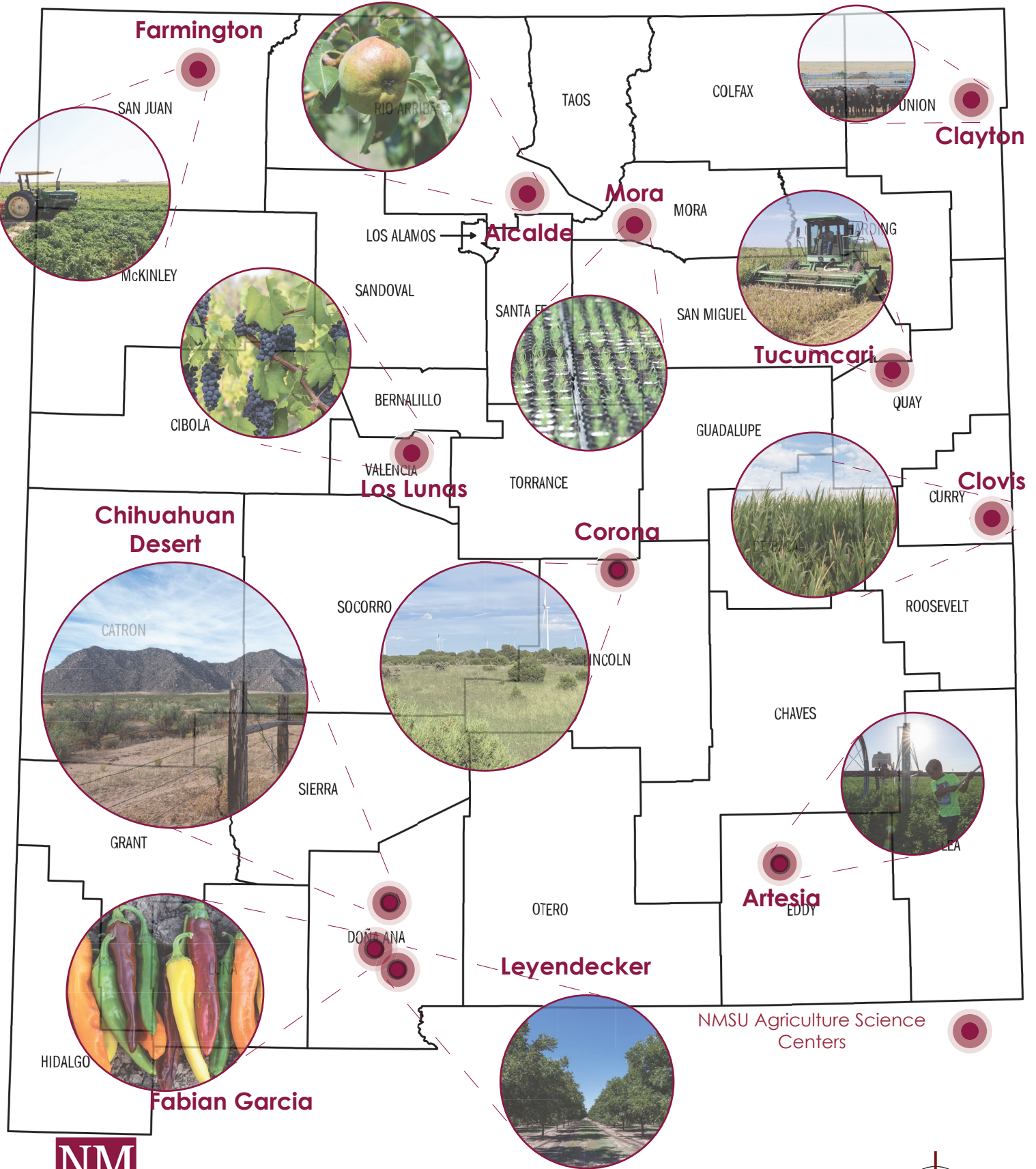


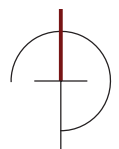
# New Mexico State University

College of Agricultural, Consumer, and Environmental Sciences



**BE BOLD.** Shape the Future.  
College of Agricultural,  
Consumer and Environmental  
Sciences.

Agricultural Science  
**Center at Farmington**



BOOK 8 OF 12

# TABLE OF CONTENTS

ACKNOWLEDGMENTS	3
EXECUTIVE SUMMARY	4
NMSU RESEARCH CENTER HISTORY AND ORGANIZATION	7
WAYFINDING STUDIES	9
AGRICULTURAL SCIENCE CENTER LOCATIONS	11
DEFICIENCIES LIST	14
BUILDING FLOOR PLANS	20
CANDIDATES FOR DEMOLITION	26
INVENTORY COMPARISON	28
UTILITY OVERVIEW	34
INFORMATION TECHNOLOGY	37
ENERGY REPORT	41

# ACKNOWLEDGMENTS

*Dr. Rolando A. Flores Dean & Chief Administrative Officer College of Agricultural,  
Consumer and Environmental Sciences*

*Dr. Leslie Edgar Associate Dean and Director of Agricultural Experiment Station  
Brooke Boren AES Director of Land and Assets  
Shad Cox AES Livestock Operations Director  
Dave Lowry AES Farm Operations Director*

*Heather Watenpaugh University Architect Facilities and Services  
Robert Herrera Executive Director Facilities and Services  
Jose Loera Assistant Director Facilities and Services  
Gary Martinez Project Manager Facilities and Services*

*Additional thanks to representatives of the research center:*

*Glenn D. Cuff- Clayton Livestock Research Center  
Shad Cox- Corona Range and Livestock Research Center  
Kevin Lombard, PhD- Farmington Agricultural Center  
Mark Marsalis- Los Lunas Agricultural Science Center  
Dave Lowry- Fabian Garcia Research Center  
Dave Lowry- Leyendecker Plant Science Research Center  
Andrew Cox- NMSU College Ranch  
Jason Box- R. E. Kirksey Agricultural Science Center at Tucumcari  
Dr. Robert Flynn- Artesia Science Center  
Dr. Owen Burney- J. T. Harrington Forestry Research Center at Mora  
Lara Pihodko- Alcalde Agricultural Science Center*

*Planning Consultant*

*Staff of NINE DEGREES ARCHITECTURE AND DESIGN, INC.  
NMSU- ACES IT DEPARTMENT- Information Technology*

# ***FACILITIES MASTER PLAN REPORT***

Executive Summary | July 2023

## ***OVERVIEW***

New Mexico State University Facilities Group (NMSU) commissioned Nine Degrees Architecture and Design, Inc. (NDA&D) in the Fall of 2021 to perform a facility assessment study and master plan of the institution's agricultural research centers that are located throughout the State of New Mexico. As identified in this report, this consortium of twelve agricultural research facility locations is an integral part of the College of Agricultural, Consumer, and Environmental Sciences (ACES) academic, research, and public service program for the New Mexico State University System. These assessment efforts required NDA&D to complete this evaluation plan under an open and transparent methodology to ensure a fair data-driven Facility Master Plan (FMP) effort. The Facilities Master Plan is intended to inform NMSU of the College of ACES agricultural research facilities building conditions for operations, use, and future capital investment decisions that may be needed for these agricultural centers' next five years of operations. Together with the College of ACES administration, NMSU Facilities and Services Department Staff, and ACES research centers' staff, our architectural staff members undertook an assessment effort and outreach process that included extensive field visits and data gathering at all twelve research center locations.

The Facilities Master Plan (FMP) findings that informed our team of the specific recommendations are summarized in this document, thus providing NMSU with an outsider's snapshot of the state of operations, facilities conditions, and functional suitability to maintain the center's successful operations. Our team's expectations are that, as this plan is implemented, it will assist the staff at NMSU College of ACES to continue its educational and research vision and mission by having their centers equipped and capable of meeting the needs of their academic endeavors for upcoming research grants and being able to achieve a balance of their existing needs. Through this balance ACES will be able to increase capacity utilization, and by being able to improve their research programs – both being crucial and beneficial issues to all New Mexico State University College of Agricultural Consumer Environmental Sciences students today and in the future.

## ***FINDINGS***

After a series of on-site visits and through visual assessment of each facility, the findings included in this Facility Master Plan (FMP) begin to illustrate that many of the College of ACES research center facilities appear to be in relatively poor condition and/or declining conditions. These conditions can be attributed to the historically low level of state funding for critical maintenance and capital investment for basic building maintenance, structural repairs, facility erosion control, mechanical systems repairs, and roof replacement. In addition, based on the data that was discovered during our assessment process, it appears that all research centers, in some form or another, have suffered from issues such as a shortage of maintenance personnel, staff attrition, and financial cutbacks, which have exacerbated their poor facilities' conditions. The annual maintenance and operation budget awarded to each of the agricultural centers has directly impacted the number of repair projects required to improve and maintain each of the centers to perform to their optimal capabilities.



After evaluating demographic information for the State of New Mexico from 1990 to 2020, as reported in the annual assessment by the State of New Mexico Economic Development Department, the state increased its population by an average of 240,000 citizens per decade since the 1990s. It leveled off in 2020 for a total of 2.1 million citizens. Over the past three years since, the population has continued to grow but at a slower and smaller pace. Current assessment predicts a smaller but steady increase in population, with a projected student enrollment for the next 2 to 3 years that will continue to remain relatively level with smaller incremental growth. Additionally, the assessment describes that there will be growth and/or decline in specific geographic areas as the state experiences regional population immigration or interstate migration.

<i><b>NMSU ACES</b></i>	
FACILITY DEFICIENCY COST - PRESENT	\$17,604,854.00
5-YEAR LIFE CYCLE FORECAST- ESCALATION	\$6,402,251.14
TOTAL 5-YEAR NEEDED - OVERALL BUDGET	\$24,007,105.46

This facilities assessment has identified the need for a minimum expenditure of around \$24,007,105.46 million in projected Operations & Maintenance funding for facility-related needs within the next five years (in 2022 dollars), comprised of \$13,843,194.00 million for the repair of current deficiencies, and additional \$3,761,660.00 million for instructional technology infrastructure improvements. Furthermore, an add is anticipated over the next five years for end of life-cycle repairs

of \$6,402,251.14 million premium to the O&M Budget. This budget does not include any additional funding that may be required to transition each center to a renewable energy system as currently being studied by NMSU Facilities Team. Each agricultural center's physical condition and functional adequacy were determined by thoroughly inventorying all buildings and accessory structures against their current scheduled use. By comparing the operational capacity of each center against current and projected enrollment predictions based on existing utilization capacity, utilization percentages were developed to inform our assessment team on how to develop individual strategies for facility repair and replacement efforts. These strategies created the best use and value for all college of ACES research facilities. It is certain that continued degradation of the research facilities will financially strain NMSU College of ACES's academic and research mission. The operational expenditures, such as utilities, annual maintenance, and growing extensive repairs caused by buildings and operational systems reaching the end of their life-cycle, will become overwhelming and create greater difficulty to repair the existing buildings.

## ***RECOMMENDATIONS***

To determine whether an asset is critical to the continuation of the mission of the University, a needs assessment must be scheduled and performed every five-years and, in some facilities, even sooner, when regulations, curriculum shift, or just a change in the facilities conditions, warrants a new assessment. Our recommendations are based on a mixture of both basic general building systems performance and institutional priorities. Institutional priorities are based on academic necessities as they are balanced against the maintenance and maintenance budgets provided within the annual system's expenditure strategy. Our observations of the buildings' performance were based on assessing the life expectancy of the building systems as they are collectively beginning to reach their end of the life-cycle or by analyzing the systems' age.

Based on the field conditions and facility historical data, Nine Degrees Architecture and Design, Inc., recommends to the NMSU College of Agricultural, Consumer, and Environmental Sciences and NMSU Facilities Planning Team to begin taking additional operational and capital funding steps that will provide opportunities for improving each Ag Center and create the possibility for a more balanced utilization program for each of their research centers.

These additional operational and capital actions are detailed below.

### **OPTION ONE: Divest Surplus Landholdings.**

Divesting surplus landholdings with strategic time-to-market transactions will replenish the NMSU College of Agricultural, Consumer, and Environmental Sciences funding budget and create additional resources for potential reinvestment into their current research center facilities. This recommendation directly aligns with research center staff recommendations towards enhancing the center's mission and vision.



### **OPTION TWO: Review Land Use for the Surplus Landholdings.**

Rethinking and reallocating surplus landholdings with strategic lease transactions to the private sector to create wind farms, grazing farms, solar farms, or any other public-minded use that will allow for a cash flow increase while still retaining land ownership that should replenish NMSU College of Agricultural, Consumer, and Environmental Sciences fund balance and create financial resources for additional reinvestment into each research center facility and infrastructure. This recommendation directly aligns with each research center's mission and vision.



### **OPTION THREE: Explore Public Bond Support.**

The evaluation team advises the institution to consider using non-state funding sources and develop a plan for a multi-million bond referendum to fund facility improvements at each of the twelve research centers. If approved by the voters, these funds would optimize the immediate safety concerns and modernization of the research centers while addressing top-priority facility repair and infrastructure needs in the near term. Consequently this would defer the remaining \$6,402,251.40 million in lower priorities for future implementation due to construction escalation over the next 5-year cycle. In an effort to assist the bond steering committee, the planning team defined a list of recommended high-importance/ high-impact enhancements for each research center focusing on critical facility replacements, repairs, and high technology needs.



### **OPTION FOUR: Explore Public-Private Partnership.**

The evaluation team also recommends that the NMSU College of Agricultural, Consumer, and Environmental Sciences team and the institution consider identifying and developing specific strategic public partnerships aligned with their 5-year cycle to secure targeted sponsorship and ventures with key industry leaders that each center serves. This proposed association can work with donors or sponsors with a vested interest in the success of the research agenda of each center. This option will require a more detailed analysis to engage the private sector in identifying suitable candidates for each research center.



## INTRODUCTION AND METHODOLOGY

In concurrence with the academic offering by New Mexico State University, the College of Agricultural, Consumer, and Environmental, the expected outcome for this assessment effort is to provide the New Mexico State University Planning and Design team with a snapshot assessment of the “present day” state of their existing facilities with the expectations of developing a sound strategy for the maintenance, upgrades, and/or replacement of their agricultural centers’ building facilities. This assessment also serves as an inventory of the building conditions of each center intended to inform the College of Agricultural, Consumer, and Environmental Science leadership as they continue to prioritize their needs for academic, research, and public service. In order for the system to help fulfill the NMSU College of ACES educational and research vision, the NMSU Board of Regents and Administration determined the necessity to develop the Facility Master Plan (FMP) and assessment that will inform and guide the potential of needed facility rehabilitation and capital investment decisions for the next 5-year cycle. Entrusted with first putting College of ACES research excellence in the forefront and then emphasizing the effective stewardship of the university’s assets, NDA&D engaged and undertook an exhaustive visual assessment of every research center facility, evaluated demographic studies, and facilitated a transparent assessment and planning process. This process included the participation of staff members from the NMSU team and administrative members of each agricultural center.

The Facility Master Plan findings and recommendations from our assessments and reviews are summarized within this document, providing the NMSU Board of Regents with an independent, unbiased snapshot and near-term forecast of all ACES facilities’ condition, suitability, and utilization. This document summarizes the results of a comprehensive assessment performed in the Fall of 2022 through the Summer of 2023, culminating in this Facility Master Plan with recommendations for NMSU College of ACES that identifies options for future investments in the enhancement and maintenance of its agricultural centers’. We have included a review of the entire facility portfolio, an educational/ research adequacy assessment, a facility condition assessment, a five (5) year life-cycle forecast, and a review of College of ACES’s current enrollment statistics.

## NMSU ACES RESEARCH AT EACH SITE

### AGRICULTURAL SCIENCE CENTER AT FARMINGTON

300 County Road 4063, Farmington, NM 87401

The research mission of the NMSU - ASC - Farmington is to conduct research, demonstration, and educational programs that will best fill the needs of the Agricultural community of San Juan County and the Navajo Nation in particular, and the State of New Mexico, Four Corners Region, and Nation in general.

**Future research efforts** – continuation of current research on horticultural (principally perennial cropping systems) and agronomic crop variety testing and post-harvest quality of crops, annual and perennial agronomic cropping systems, soil health measurements, Nutrient dynamics in cropping systems, Youth wellness through gardening, Certified organic cropping systems. Transformation Network (Agricultural needs assessment, controlled environment agriculture, Food Energy Water nexus), Carbon sequestration in soils. Projects are almost exclusively funded through external funding and projects vary over time and the effort of two faculty based at Farmington. A potential barrier will be student housing if we continue to grow our graduate and undergraduate student population here.

# Agricultural Science Center at Farmington - **WAYFINDING**





Agricultural Science Center at Farmington- WAYFINDING



Agricultural Science Center at Farmington



NINE DEGREES  
Architecture + Design, Inc.



# Agricultural Science **Center at Farmington -** **LOCATIONS**





## Agricultural Science Center at Farmington - PROPERTY BOUNDARY



Agricultural Science  
**Center at Farmington**



**NINE DEGREES**  
Architecture + Design, Inc.



## Agricultural Science Center at Farmington - LOCATIONS



### Agricultural Science Center at Farmington

1. Residence 406A (FCI Score 1.229)
2. Science Center, Student Trailer 406J (FCI Score 0.504)
3. Shop 406B (FCI Score 0.220)
4. Implement Storage 406I (FCI Score 1.756)
5. Seed/Fertilizer Storage 406E (FCI Score 0.032 )
6. Pesticide Storage 406G (FCI Score 0.347)
7. Filter House 406K (FCI Score 0.300)
8. Office & Lab 406C (FCI Score 0.608)
9. Greenhouse 406D (FCI Score 0.003)



**NINE DEGREES**  
Architecture + Design, Inc.



# Agricultural Science Center at Farmington - **DEFICIENCIES LIST**



# Agricultural Science Center at Farmington - Deficiencies LIST



## RESIDENCE 406A

Add a new sewer line and septic tank to house and connect all appliances to it including washer and dryer. The Southeast corner of the CMU garden wall needs all the missing courses to be repaired, and install a need gate at the backyard entrance and vehicle gates. Need a new man-gate to the back yard at Southwest CMU wall, and a need new gate at the Southwest corner of house / CMU wall needs to be installed as well. Need to install a new living room patio door and fix wall framing. The building needs a ADA ramp to front and rear door. The facility new kitchen cabinets and appliances, need new light fixtures throughout house and more lighting at kitchen. Replace carpet in living room and three bedrooms with vinyl plank flooring, and Add new base boards wood and paint. Both Restrooms needs new fixtures, wall tile, repaint all walls, exhaust fans, and repair water damage at hallway ceiling. Replace missing door trims at bedroom door, need propane tank for new H.V.A.C., replace two garage doors with new operators, replace metal fascia, stucco repairs and repaint, remove landscaping next to exterior house walls, repaint siding and soffit, replace rotted soffit, new roof and gutters and downleaders, replace all windows with vinyl double pane, concrete apron on all exterior walls, replace one wood post at entry porch and paint all porch area, repaint garage door jambs, repaint siding at West side and all window trims, new patio door from garage to exterior.



## SHOP 406B

Need new overhead doors with electric openers, replace damaged exterior metal wall panels, ADA access at man doors, need ADA parking, repaint exterior walls, new weatherstripping all doors, repair roof leaks, concrete apron with regrading (add dirt on W side), gutter and downleaders, need vehicle exhaust system and hose for fumes in shop side during winter, repair rusted wall panels, repaint all door jambs, replace all acrylic skylights, need shelving at shop side, need new lighting LED high bay throughout.



# Agricultural Science Center at Farmington - Deficiencies LIST



## OFFICE AND LAB 406C

Need yo add a French drain for headhouse floor sink. Existing roof leaks need to be repair includ- ing roof blisters. The building needs a new roof with gutters and downleaders especially along North side since downleaders at missing locations. The stucco soffit along North side of building has to be removed and rebuilt in its entirety as it is loose and sagging in various areas. A concrete apron is needed all around the building with a needed regrading for positive drainage away from building, and remove landscaping all around the building that is adjacent to the exterior walls. Repaint all exterior CMU walls, repair cracked all mortar joints and all exterior HM doors and frames. Need ADA access to building, replace all lights with LED, replace restrooms with ADA compliant room, and add ADA lockset all around. The facility needs a ADA parking and access at front and rear doors. Need to repaint old water tank.



## PESTICIDE STORAGE 406G

Repair existing roof leaks around swamp cooler, replace the heater since is not working, the hand wash sink need to be re-installed since it is loose, and entry door jambs needs to be re-installed since it is loose. Need to repaint the door and frames, and re-weatherstrip doors. Need to drop the inlet since it is clogged (gray water not emptying). Install gutters and downleaders, and repair corner of metal wall panels. Add a concrete apron at three sides and regrade around building to improve site drainage.

# Agricultural Science Center at Farmington - Deficiencies **LIST**



## **SEED/ FERTILIZER STORAGE 406E**

Repair damaged exterior wall panels, and repaint overhead doors and jambs and install new gaskets, . The building need gutter and downleaders on two sides, and the entire building needs to be repainted. Replaced the damaged double doors with hollow metal doors and add ADA hardware at the main door. The facility needs a concrete apron on 3 sides and regrade site away from building to improve site drainage.



## **IMPLEMENT STORAGE 406I**

Paint exposed steel structure, grade ground level (site) away from metal panels along sides, repair damaged center column, and add gutter and downleaders to the structure.



# Agricultural Science Center at Farmington - Deficiencies LIST



**SCIENCE CENTER/ STUDENT TRAILER 406J**

The building needs a ADA deck with fall protection and ramp installed, add need skirting along the four sides of the building and needs gutter and downleaders installed. Install a concrete apron around the building and regrade away from building at North, East, and West side of the building. On the South side the building needs retaining wall to infill are. The buildings needs to repaint door jambs, need to install ADA hardware at all doors, and a ADA restroom. The exterior needs a paint job, and reseal all exposed wood columns and beams in porch. Needs an ADA parking and accessible route.



**FILTER HOUSE 406K**

Need to repair damaged roof panel at SE corner of the structure, it needs gutters and downleaders installed, and regrade away from the building to provide positive storm drainage.

# Agricultural Science Center at Farmington - Deficiencies LIST



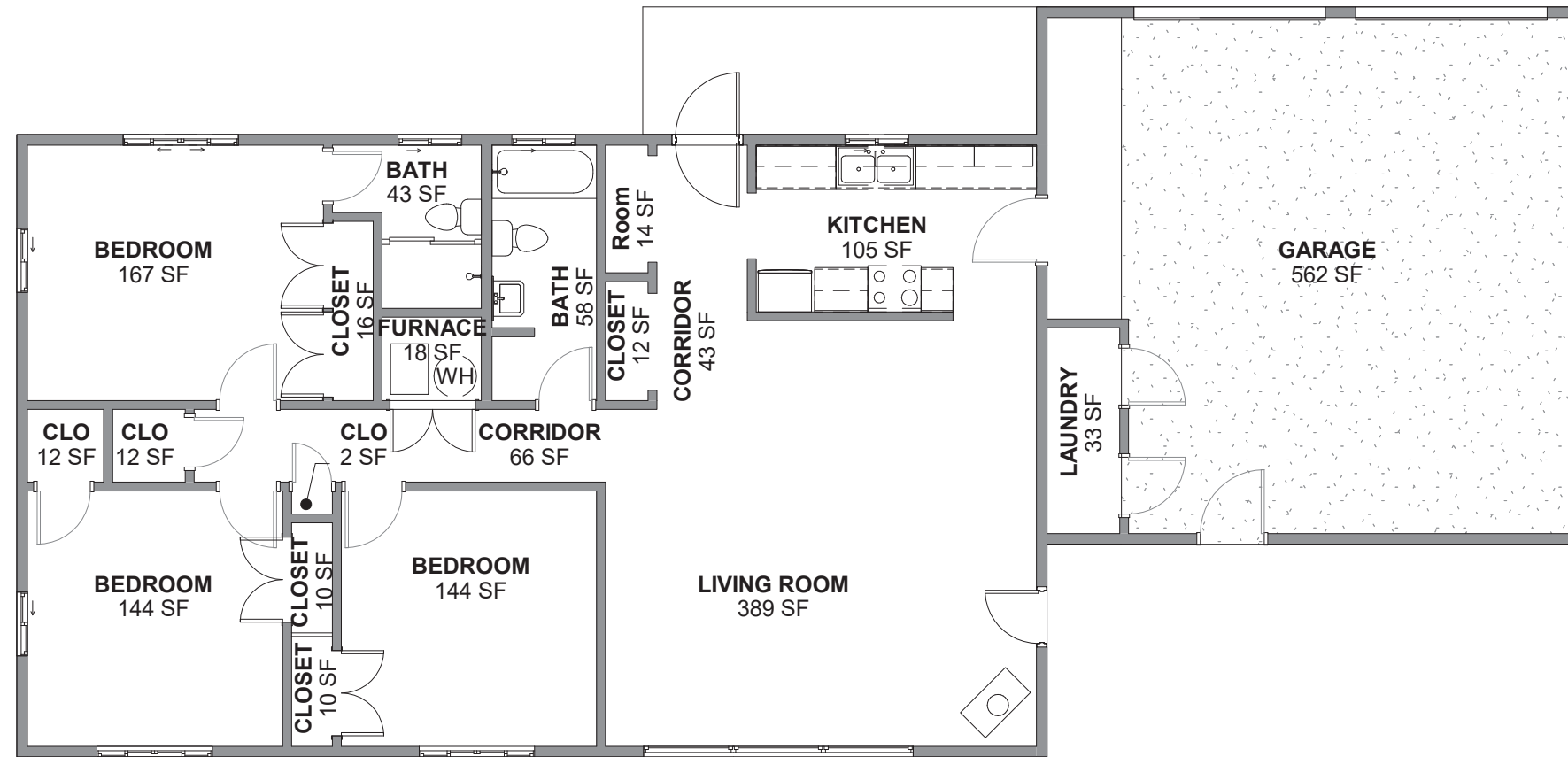
**GREENHOUSE 406D**

The greenhouse need one downleader installed and to prevent further erosion on the site along side-walk the area needs regrading.

# Agricultural Science Center at Farmington- **FLOOR PLANS**







# 406A RESIDENCE

SCALE 1/8" = 1'-0"



## Agricultural Science Center at Farmington

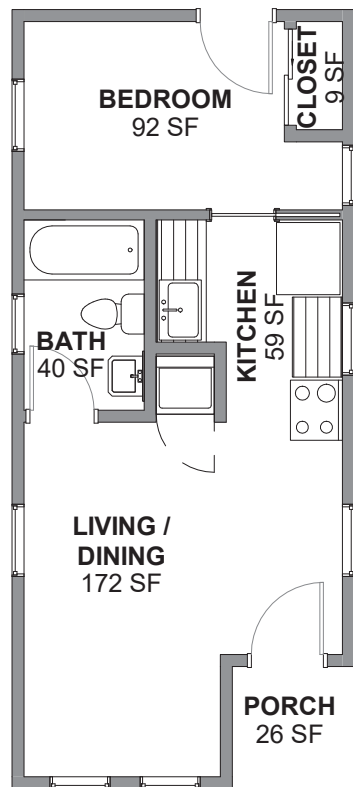
1- Residence 406A



Key Map

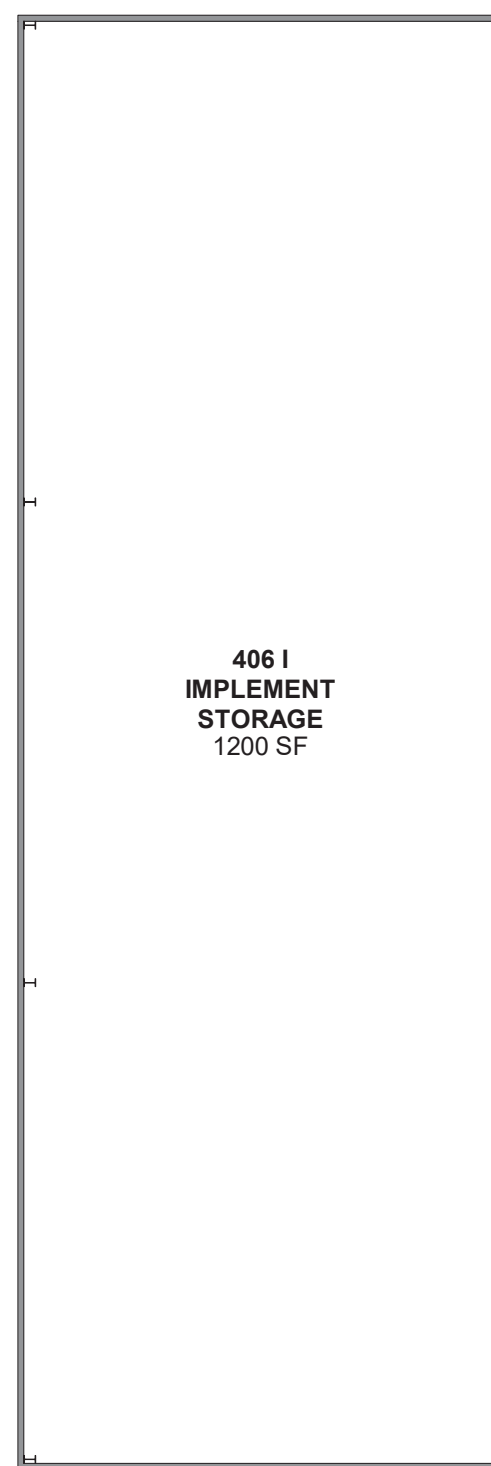


**NINE DEGREES**  
Architecture + Design, Inc.



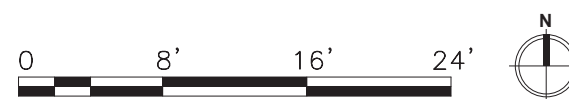
# 406J SCIENCE CENTER STUDENT TRAILER

SCALE 1/8" = 1'-0"



# 406 I IMPLEMENT STORAGE

SCALE 1/8" = 1'-0"

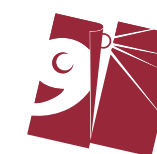


## Agricultural Science Center at Farmington

- 2- Science Center Student Trailer 406J
- 4- Implement Storage 406I



Key Map



**NINE DEGREES**  
Architecture + Design, Inc.

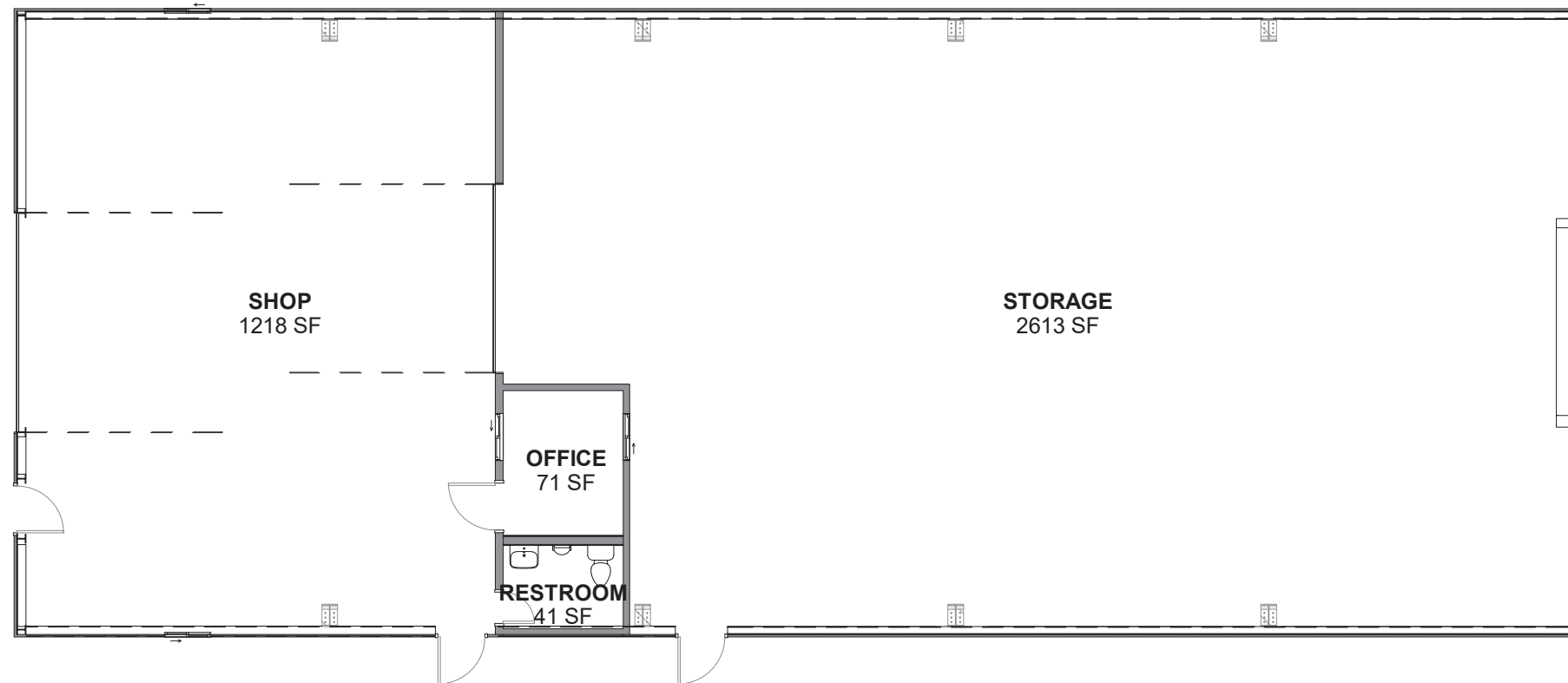


## Agricultural Science Center at Farmington

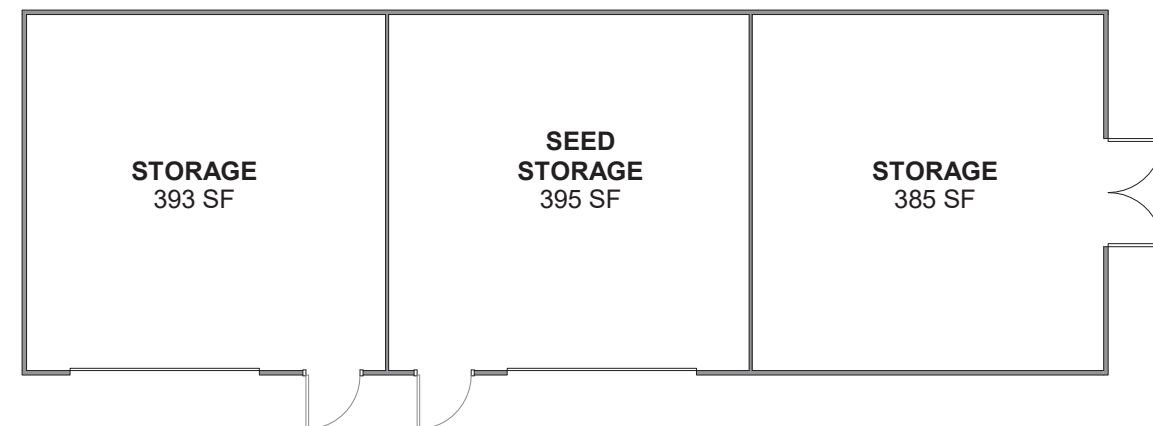
- 3- Shop 406B
- 5- Seed/Fertilizer Storage 406E
- 6- Pesticide Storage 406G



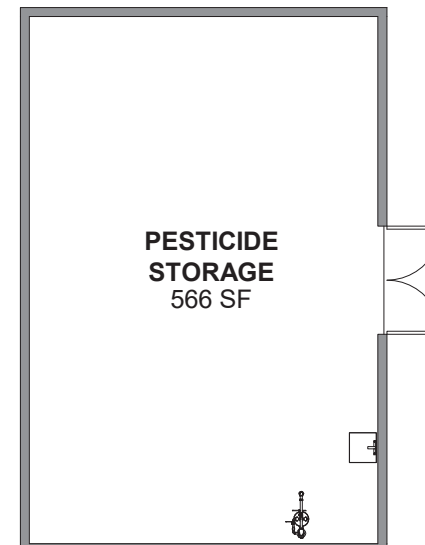
Key Map



**406B SHOP**  
SCALE 3/32" = 1'-0"

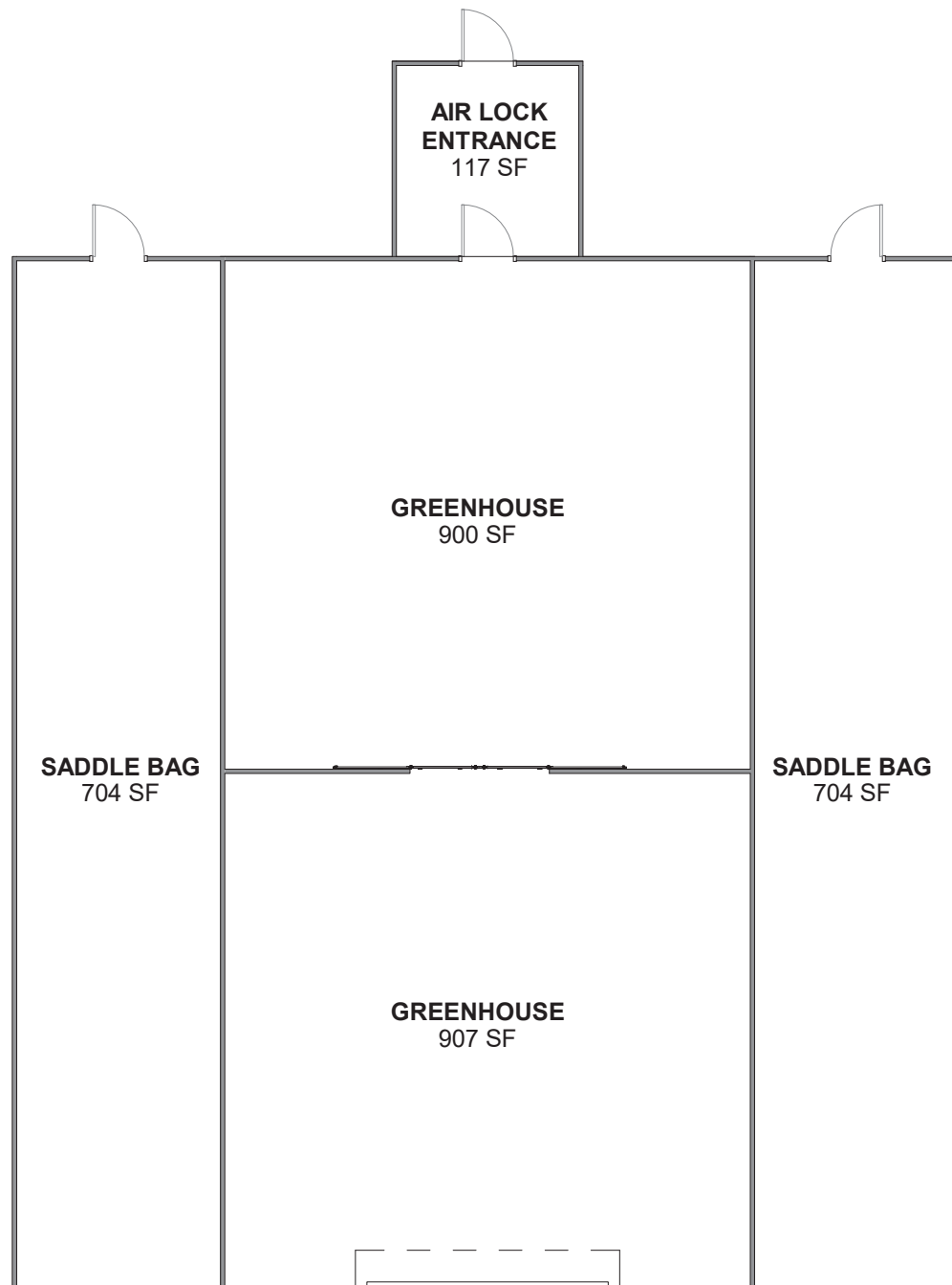


**403E SEED FERTILIZER STORAGE**  
SCALE 3/32" = 1'-0"

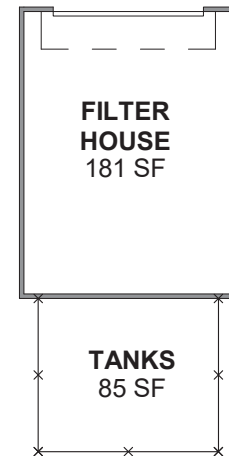
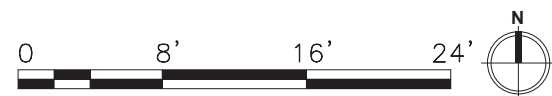


**406G PESTICIDE STORAGE**  
SCALE 3/32" = 1'-0"

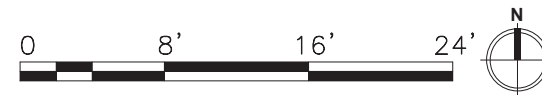




**406D GREENHOUSE**  
SCALE 3/32" = 1'-0"



**406K FILTER HOUSE**  
SCALE 3/32" = 1'-0"



**Agricultural Science  
Center at Farmington**

7- Filter House 406K

9- Greenhouse 406D



Key Map





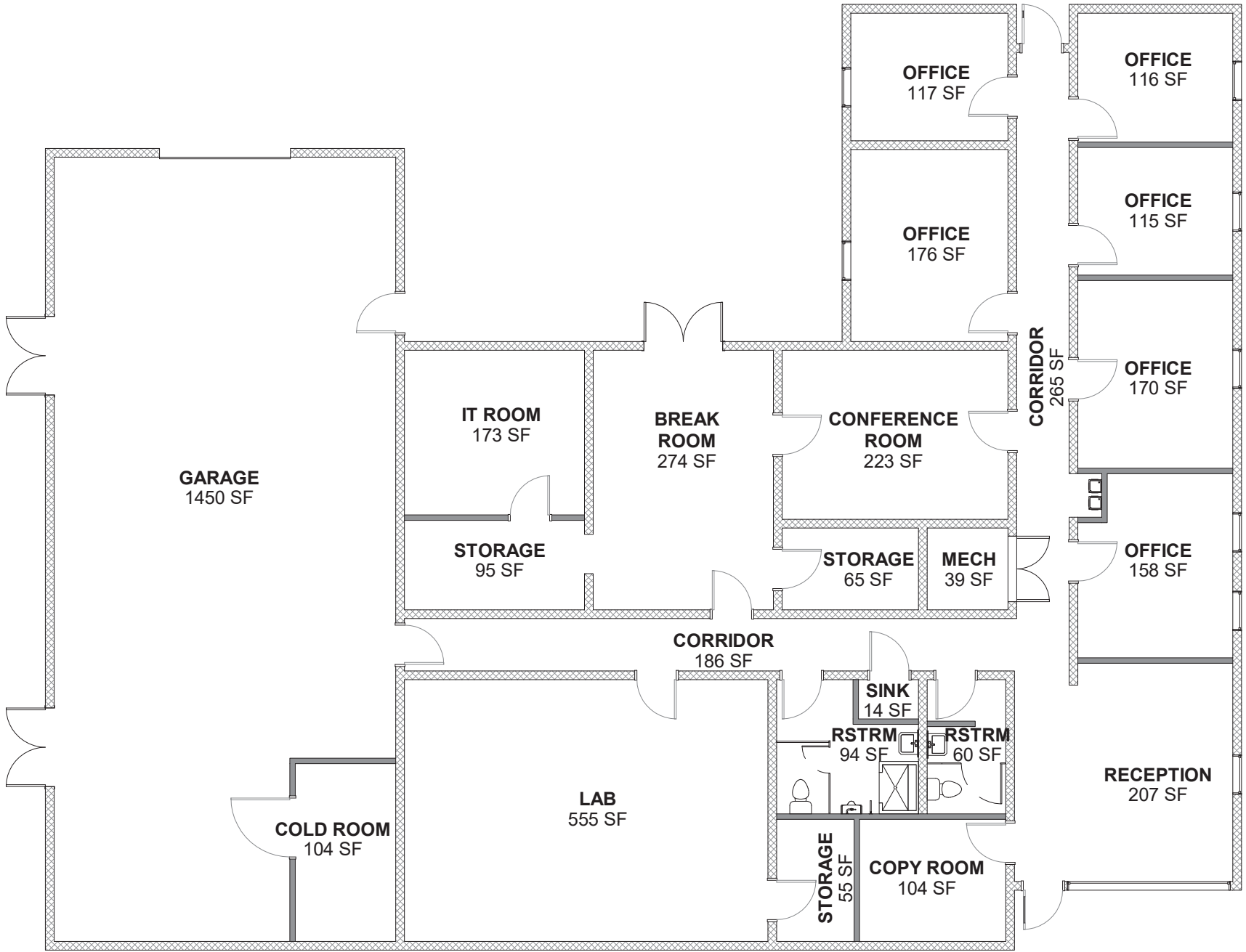


Agricultural Science  
Center at Farmington

8- Office and Land 406C



Key Map



**406C OFFICE AND LAB**  
SCALE 3/32" = 1'-0"



**NINE DEGREES**  
Architecture + Design, Inc.



# Agricultural Science Center at Farmington- **CANDIDATES FOR DEMOLITION**



# NO CANDIDATES FOR DEMOLITION

# Agricultural Science Center at Farmington - INVENTORY COMPARISON





## FARMINGTON

The following structures are not included in the current inventory for this site:



Boxcar tool storage:

Needs: repainting, concrete stoop at man door, ADA access hardware at man door.





**Implement storage A:**

Needs: Regrade back side, paint exposed steel joists, reseal wood columns, reattach loose wall panels along top edge, rain gutter and downleader.



**Implement storage B:**

Needs: Repair damaged center column, bollards at each front column, paint exposed steel structure, regrade 3 sides to provide positive drainage, rain gutter and downleader.





**Implement storage C:**

Needs: Remove trees along back, bollards at each front column, paint exposed steel structure, regrade 3 sides to provide positive drainage, rain gutter and downleader.



Vehicle storage:

Needs: Remove trees along back, bollards at front column, paint exposed steel structure, regrade back side to provide positive drainage, rain gutter and downleader.

**END OF LIST**



# Agricultural Science Center at Farmington- UTILITY OVERVIEW



# Agricultural Science Center at Farmington

*Address:* 300 County Road 4063, Farmington, New Mexico, 87401

*Contact:* Kevin Lombard, PhD, Superintendent – (505) 960-7757  
klombard@nmsu.edu



## *Description:*

As described by the NMSU System, the Farmington Center has had seven superintendents that have served at the NMSU San Juan Branch Experiment Station and, more recently, the Agricultural Science Center at Farmington: Dr. A. E. Stewart, Dr. E. J. Gregory, Dr. M. K. O'Neill, Mr. R.N. Arnold and Dr. K. A. Lombard (current), respectively. Numerous faculty members, staff, academic students, and seasonal assistants have dedicated their research and educational efforts to the mission of the Center. Interns serving at ASC Farmington have been funded through grants and by the Jose Fernandez Chair, National Indian Youth Council, and the Navajo Agricultural Products Industry (NAPI). The research and educational programs have been mainly conducted at the Center's 254-acre site under a 66-year lease since 1967 and are located on the Navajo Nation Reservation southwest of Farmington, New Mexico. Their mission is described as follows, the mission of the New Mexico State University Agricultural Science Center at Farmington is to conduct research, demonstration, and educational programs that will best fill the needs of the agricultural community of San Juan County and the Navajo Nation in particular, and the State of New Mexico, Four Corners Region, and the United States in general. -1968 Charter.

## *Findings*

### *Water System:*

Based on the information provided, the Farmington Facility is connected, and it receives its water from the Navajo Indian Irrigation Project (NIIP)/ Navajo Agricultural Products Industry (NAPI) for its irrigation needs and no cost. Their Potable water needs are being supplied through Navajo Tribal Utilities Authority (NTUA), again at no cost and without a meter. The campus is looking into putting its own meter on the potable water line for accounting and management of its needs. The facility currently has no wells and appears to have plans to drill one in the foreseeable future. Presently there are no plans to increase water needs, and it has yet to make plans to expand the existing facilities.

### *Electrical System:*

Based on the information provided, the Farmington Facility is connected to the Navajo Tribal Utility Authority (NTUA) grid through the existing overhead power grid for all their current needs. Two major repairs have occurred in the past five (5) years; in 2019, the facility installed a meter, which they use to pay for the use the buildings generate. In 2022 the Navajo Tribal Utility Authority installed a power service panel, and they pay for the meter on the panel. All of the overhead and power grid is under the oversight of the Navajo Tribal Utility Authority. Based on the information provided, the Farmington Facility would like to consider adding Solar Panels to the facility to manage their energy utilization.

### *Waste Water System:*

Based on the information provided, a septic tank system is providing the Farmington Facility with wastewater and sewer needs. The current septic tank is over 50 years old and may need to be further assessed and possibly upgraded or replaced. The state does not monitor their septic tank, and the facility has no plans for facilities expansion.

#### **Agricultural Science Center at Farmington**

**Domestic water is provided by the Navajo Indian Irrigation Project (NIIP)**

Well Number 1

Not Applicable



# Agricultural Science Center at Farmington - INFORMATION TECHNOLOGY



# Agricultural Science Center at Farmington

## Information Technology

### Network and Wireless LAN

Wireless Network Coverage	Main Building
Condition of Physical Cabling	Good Condition
Distribution Closet	Enclosed in Open Space
Central Tower	Yes
<b>Monthly Estimates</b>	
Registered Devices	77
Upload	1070 GB
Download	738.36 GB

Farmington pulls in wireless INTERNET from a local school nearby, so the DMARC and network equipment are in the center of the building in a shared room. The facility was recently renovated, so the wiring is in good condition and a new tower was placed on the property. Wireless access point cover most of the main office and a workshop.



### IT Spaces/Network Closets

Recommended:

Network space is needed at this ASC and needs to meet standards. It is our recommendation to build out an IT/network space for this ASC. If there is no room that can be modified into this space, it is our recommendation to build a separate IT/network space outside, close to the existing DMARC, that is cooled, isolated only for IT needs, has proper lighting, floor loading, power, network racks and equipment, airflow, and meets standards.

### UPS

Recommended:

Multiple, 2 minimum, network UPS's are needed for the network equipment at the Farmington ASC.

### Network Tower

Recommended:

70 - 80 ft network tower erected to provide broadband INTERNET to different parts of the center. This network tower would also need to be installed with power to provide power to the network devices on the tower.

# Agricultural Science Center at Farmington

## Information Technology

The location of the tower can be close to the main building on the site where the DMARC is to allow the easier network access to be broadcast. If that is not possible, another location can be determined by the availability of line of site from the main building to the tower.

### *POP/PtMP*

Recommended:

Farmington ASC needs one PtMP, point to multi point, and at the minimum five POPs, point of presence, to help saturate different parts of the center with wireless. The POPs are mobile and can be moved and adjusted as needed.

### *Cable Plan*

Recommended:

Existing cabling, jacks, ports, patch cables and patch panels be upgraded to Category 6, at minimum. Connectivity between buildings can be accomplished by trenching and laying conduit, or to create wireless bridges through line of sight wireless broadband devices.

### *VoIP*

Recommended:

It is recommend replacing antiquated phone systems and currently, the standard is VoIP. VoIP phones will tie into the network infrastructure and allow us to control the phones off of one system, and gives us the availability to manage the phone systems from each ASC remotely.

### *Conference Room/Collaboration Spaces*

Recommended:

Smart screens, interactive touch displays, conference room cameras, speakers and mics, etc. can all be implemented to help bring these conference room spaces into the modern era and allow them to be utilized on a moments notice.

This conference room should include one smart interactive display, either Dell or Samsung, laptop or mini computer to be mounted on the display, a wall mount or portable mount, at least one Stem wall speaker/mic and Stem Hub, one Huddly camera, a Logitech Swytch for BYOD (bring your own device), a PoE Ethernet switch, and an AV station/equipment rack.

### *Security & Surveillance Systems*

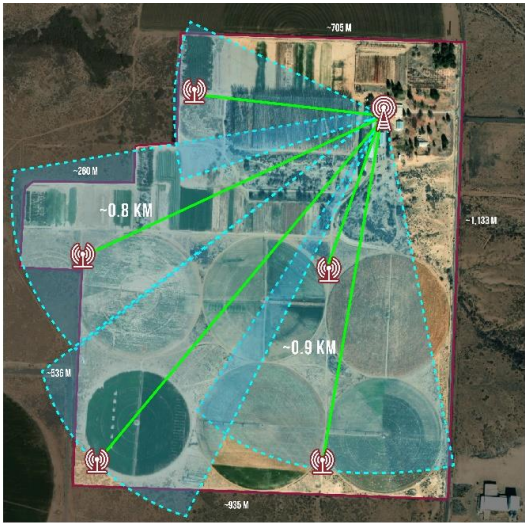
Recommended:

This ASC should have a minimum of two cameras, one showing the entrance/exit when vehicles arrive, and one on the main office building. This ASC would benefit from multiple cameras across the center to deter theft and increase visibility. Different locations at the center would allow for cameras to be installed and configured.



# Agricultural Science Center at Farmington

## Information Technology



**UBIQUITI ROCKET 5AC PtMP (2)**  
 INSTALLATION HEIGHT: 8 M (26 FT)  
 OUTPUT POWER: 28 dBm  
 CHANNEL WIDTH: 40 MHz  
 ANTENNA GAIN: 22 dBi



**UBIQUITI ISOSTATION 5AC**  
 INSTALLATION HEIGHT: 3 M (10 FT)  
 OUTPUT POWER: 25 dBm  
 CHANNEL WIDTH: 40 MHz  
 ANTENNA GAIN: 15.5 dBi



**UBIQUITI MESH PRO**  
 INSTALLATION HEIGHT: 2 M (6 FT)  
 MAXIMUM POWER: 20 dBm  
 POWER SUPPLY: 24 V, 0.5A  
 ANTENNAS: 2.4 GHz, 5 GHz



UBIQUITI ROCKET 5AC



- SPECS:
- 5GHz WIDE BAND OPERATING FREQUENCY
  - POINT-TO-MULTIPOINT LINKS (PTMP)
  - DEDICATED MANAGEMENT RADIO

UBIQUITI ISOSTATION 5AC



- SPECS:
- 45° ISOLATION ANTENNA
  - SUPERIOR THROUGHPUT UP TO 450 MBPS
  - HIGH CAPACITY AND SCALABILITY
  - CAPABLE OF HIGH-SPEEDS

UBIQUITI MESH PRO ACCESS POINT



- SPECS:
- OMNIDIRECTIONAL 360° COVERAGE
  - LONG RANGE SYMMETRICAL TRANSMISSION UP TO 183 METERS
  - 802.11AC WAVE 1 WIFI
  - 2.4 GHz (802.11N) BAND WITH A 450 MBPS THROUGHPUT RATE
  - 5 GHz (3X3 MIMO) BAND WITH A 1.3 GBPS THROUGHPUT RATE

# Agricultural Science Center at Farmington - Energy Report



# Agricultural Science Center at Farmington - Energy Report

## *Energy Audit:*

*For detail information regarding conservation strategies for the Farmington Agricultural Center please refer and review the AAE Energy Master Plan study.*