

NDSU Extension

Responses to questions regarding HB1020

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#1 NDSU Extension funded initiatives update from 2021-2023 requests.

Three 2021-23 initiatives were partially or fully funded:

1) Livestock Initiative (4 FTEs requested, 2 FTEs funded)

- a. **Livestock Development Specialist** – Specialist hired on NDSU campus to lead Extension educational efforts to grow livestock gross agricultural receipts in ND. Growth in the livestock industry means additional market opportunities for commodity feed grains, coproducts and other ag commodities. This specialist recently completed a draft of the economic impact of large-scale confined swine finishing operations in ND. These operations have the potential to attract apx. \$400 million in new money annually for the next 20 years.
- b. **Forages Specialist** – Specialist hired at North Central Research Extension Center to provide expertise on testing and improving hay quality, extending the grazing season with corn stalks, how to best manage cattle during winter and post-blizzard livestock stress. Initiated research on oat/sudan grass mixtures and monocultures and warm season grasses as forage in ND.

2) Agricultural Health and Safety Initiative (3 FTEs requested, 1 FTE funded)

- a. **Farm and Ranch Safety Coordinator** – Specialist hired on NDSU campus to help families mitigate stress, injuries and fatalities so agricultural operations can continue successful production. Led 26 youth in camp setting to certify them to operate a tractor and ATV, enter the ag workforce, and use safety skills to prevent youth injuries and fatalities. Partnering with Sanford Health for research on farm machinery injuries by reviewing Level I trauma patients admitted at Sanford's Trauma Centers.

3) Big Data Initiative (1 FTE requested, 1 FTE funded)

- a. **Big Data Specialist** – Specialist hired on NDSU campus to interpret field data and develop applications and other systems to be used by producers in making informed decisions. Currently involved in reviewing and updating Nitrogen Calculator, Pest Management App, Sugarbeet Production Guide App, and Cow Herd Appraisal Performance Systems (CHAPS) app. Operational funding also supported web-based Variety Trial Selection Tool development.

#2 NDSU Extension FTE breakdown for 2023-2025 requests.

1. Cropping systems initiative		
FTE	Position	Purpose
1	Western Crop Production Specialist (located at WREC, DREC or NCREC)	<ul style="list-style-type: none"> Provide leadership for extension programs and education on new and emerging crops in the western ND growing regions. Focus on issues related to crop rotations, drought concerns, diseases, insects and weeds unique to the region
1	Soybean Pathologist (Main Campus)	<ul style="list-style-type: none"> Develop and deliver disease management information to growers and industry partners to help prevent or mitigate economic loss to ND soybean crop.
1	Weed Specialist (Main Campus)	<ul style="list-style-type: none"> Provide leadership for extension programs and educate on best management practices for difficult to control, herbicide resistant and noxious weeds to maximize crop yields.
1	Carbon Credit Specialist (Main Campus)	<ul style="list-style-type: none"> Provide education and assistance on research-based carbon capture practices so growers are fully informed before signing long-term contracts.
1	On-Farm Research Coordinator (located at an REC)	<ul style="list-style-type: none"> Provide leadership to an on-farm research and extension program and provide a bridge between field-scale problems and novel plot-sized concepts. Clubroot fungus is emerging as a significant disease across the canola growing region of ND.
	\$400,000 in operating support	<ul style="list-style-type: none"> Supports the baseline operations of each specialist (e.g., computer, office equipment, applied research equipment - \$40,000/ea/biennium = \$200,000). Support for on-farm research program operations (\$200,000/biennium)
5 FTEs total	\$1,400,000 total request	

2. Livestock Development Initiative		
FTE	Position	Purpose
1	Veterinary Epidemiologist	<ul style="list-style-type: none"> Provide educational programs and serve as key technical resource protecting the health of North Dakotans and their livestock through the monitoring of zoonotic diseases common to animals and people.

1	Swine Specialist	<ul style="list-style-type: none"> Provide leadership in swine development and best management practices, animal health and biosecurity around this species.
1	Off-campus Livestock Development Specialist (to be located at REC)	<ul style="list-style-type: none"> Develop and deliver Extension programs on the benefits of integrating livestock into cropping system for increased soil health and expanded market opportunities.
	\$120,000 Operating Expenses	<ul style="list-style-type: none"> Supports the baseline operations of each specialist (e.g., computer, office equipment, applied research equipment - \$40,000/ea/biennium = \$120,000).
3 FTEs total	\$770,000 total request	

3. Farm and Ranch Health and Safety Initiative		
FTE	Position	Purpose
	\$250,000 Operating Expenses	<ul style="list-style-type: none"> This initiative was partially funded last session with operating expenses and the Extension Farm and Ranch Safety Coordinator hire was authorized. Operating support requested in 2023-25 for additional farm and ranch safety and health resources.
	\$250,000 total request	

4. Program Support for 4-H		
FTE	Position	Purpose
1	4-H Entrepreneurship Specialist	<ul style="list-style-type: none"> Provide leadership for extension programs to build a strong and effective workforce in the state. Specific technical skills (STEM) combined with teamwork, decision-making, critical thinking and communication will be taught to students through 4-H programs.
	\$120,000 in operating support	<ul style="list-style-type: none"> Operating support assists with expenses associated with specialist including office, computers, and travel. Additional operating support requested for camping, clubs and after-school 4-H programs
1 FTE total	\$320,000 total request	

5. Extension Operating and State Soil Conservation Committee Operating		
FTE	Position	Purpose
	\$300,000 in operating support for NDSU Extension	<ul style="list-style-type: none"> Operating support allows Extension specialists to develop innovative programming in a timely fashion, reach audiences as the need arises or develop new methods to connect with local communities.
	\$300,000 in operating support for SSCC	<ul style="list-style-type: none"> Operating support allows the State Soil Conservation Committee provide an increase in direct assistance funding to local Soil Conservation districts for technical assistance and conservation planning support.
	\$600,000 total request	

6. Increased Food Security Initiative		
FTE	Position	Purpose
1	Urban Ag/Value Added Food Technologies Specialist	<ul style="list-style-type: none"> Develop and deliver education on the food supply chain, food processing efforts and activities and value-added food product opportunities to grow North Dakota agriculture and the economy.
	\$200,000 in operating support	<ul style="list-style-type: none"> Operating support assists with expenses associated with specialist including office, computers, and travel - \$40,000/biennium) Additional operating support requested to support two county-based horticulture agents in partnership with counties - \$160,000/biennium)
1 FTEs Total	\$400,000 total request	

#3 Re-directed FTEs – Extension

Extension Redirected Positions			
Unit	Position Type	Redirection	Original Position
WREC	Specialist	Extension Weed Specialist	Extension Agronomist
HDFS	Specialist	Extension Food Systems Specialist	Extension Family Financial Mgmt Spec
4-H	Specialist	4-H Camp & Activities Coordinator	4-H Youth Development Specialist
County	Agent	County Horticulture Agent	County FCW Agent
County	Agent	County Urban Leadership & Civic Engagement Agent	County Urban Food and Nutrition Agent
County	Agent	Logan and Kidder County FCW Agent (new county partnership)	Logan County FCW Agent

#4 Swine Production Opportunities in ND

From 2012 to 2021, the number pigs in North Dakota ranged from 142,000 to 148,000 with a pig crop (head) ranging from 802,000 to 825,000.

Year	Total pigs	Pigs per litter	Pig crop (head)	Gross income
2017	147,000	11.13	818,000	\$57.0 million
2018	145,000	11.12	817,000	\$56.8 million
2019	142,000	10.99	802,000	\$51.4 million
2020	143,000	11.18	805,000	\$46.9 million
2021	148,000	11.15	825,000	\$68.7 million

The gross income from the pig industry was \$68.7 million in 2021. The counties in North Dakota with the most reported pigs are Towner and Ramsey. In a recent study, Stanislawski et al (North Dakota Livestock Study, NDSGA/AURI No. FS22089, June 2022) recommended that greater diversification of livestock (swine as a priority) will provide additional value to North Dakota's agricultural economy and maximize investments. Soybean is now produced in all our counties and acreage has increased by 173% since 2002. Likewise, corn acreage has increased by 266% since 2002. The availability of corn and soybean as well as other locally produced feedstock including canola and sunflower meal and beet pulp (dry and wet) will greatly benefit an increase in swine production in North Dakota.

#5 Farm and Ranch Safety Updates

Youth ages 14-15 who wish to work on a farm or ranch, other than on their own family's farm, are required by law to attend a certification course. The Hazardous Occupation Order in Agriculture (HOOA) identifies the ag related tasks that are hazardous for youth to perform for hire. The NDSU Extension course provides instruction to youth on the operation of tractors over 20 horsepower and certain hazardous machinery. They must pass the written exam and driving exam in order for them to receive their permit.

Only Extension agents and ag education teachers are allowed to certify youth in this program. Extension's Farm Safety Coordinator works with agents across the state to offer regionally based "camps" where certification is provided to youth. There are currently only two curricula that agents and ag education teachers are allowed to use, and the Extension Farm Safety Coordinator is on a team with Purdue University that created the curriculum agents use. Currently, the ND camps are some of the best camps available across the national Extension system, as other states are not even close to offering the hands-on experience that we provide in our program. In 2022, two camps were held – one in Washburn and the other in Fargo. Plans are underway to host 3 camps in 2023 in Bismarck, Fargo and Williston.

#6 4-H Youth Development Updates

Youth can join 4-H as a Cloverbud at age 5 and will remain a Cloverbud until the age of 8. Cloverbuds get involved with 4-H activities but do not participate in anything competitively until the age of 8.

In addition, youth can be a 4-H member until the age of 18, unless they serve as a ND Ambassador, where the maximum age to participate is 22.

Costs of 4-H program – Expenses are incurred each year to manage the 4-H program, and Extension works to keep costs low for participants. Unfortunately, expenses continue to rise and new programs for youth are difficult to take on due to the current costs of the program. Over 6,300 youth are in traditional 4-H clubs and 4-H reaches over 20,000 youth in North Dakota annually through in and after school programs, camps, activities and events. Extension is requesting \$120,000 in operational assistance for 4-H programs (SBARE initiative #4) to help offset some of these rising costs.

Sample event charges for 4-H members include:

- 4-H camp - \$175 (Cloverbud camp) to \$375 (I Wish I Had a Horse Camp). Fees charged cover the cost of food, lodging, supplies, and specialized trainers (i.e., I Wish I Had a Horse Camp brings 20 horses, feed, saddles to camp location with their owner/trainer who provides expertise and coaching to youth). See camp brochure attachment for more information on specific camps.
- Extension Youth Conference - \$350. Fees charged cover the costs of food, 3 nights lodging, supplies, shirts, busing to service activities in the community.
- Project Guides – all 4-H projects (Electricity, Horsemanship, Livestock Showmanship, Rocketry, Foods, Welding, Woodworking, and much more) have a project guide available for purchase by the member/family. These guides are designed for beginner, intermediate and advanced members as well as a helper's guide for volunteers. Purchasing the guides are voluntary and costs range from free to \$16/each.
- Communication Arts Contests - \$0. Expenses include judges' travel, awards.
- Consumer Choices Contests - \$0. Expenses include judges' travel, awards.
- Shooting Sports Activities – \$15. Expenses include archery, shotgun, air rifle supplies, volunteer training, awards.
- Animal science/Livestock Showmanship Activities - \$12. Contests include Livestock Judging, Livestock Quiz Bowl, Horse Judging, Hippology, Equine Demonstration/Illustrated Talks, Equine Public Speaking and Equine Quiz Bowl. Expenses include meals, awards, judges' fees, scantrons.
- STEM/STEAM programs - \$15. This includes any science related positive youth development program including the Engineering and Design Contest, robotics, coding exploration, and more.
- Costs for 4-H activities vary from \$0 to \$350 depending on the activity.

#7 Master Gardener Updates

Master Gardeners are trained and certified by NDSU, and there are currently more than 200 Master Gardeners in 37 ND counties. Master gardeners volunteered 12,500 hours (valued at \$349,654.50), and grew and collected 132,318 servings of fruits and vegetables that were provided to food pantries. Master Gardeners teach adults and children, judge 4-H achievement days and fair projects, maintain 68 community gardens, design and build pollinator gardens, certify pollinator gardens, and help provide advice on gardening at county fairs and home garden shows. They publish educational articles, serve as first detectors when trapping invasive insects such as Japanese beetle, conduct vegetable cultivar trials, and monitor rainfall amounts during a drought to help the North Dakota Agriculture Network with information that may ultimately provide state and federal assistance for producers.

Training is done for Master Gardeners in-class from Fargo and/or online from January through late April. The course content includes basic entomology and integrated pest management, diagnosing plant problems, landscape design, fruit orchard IPM, pesticide safety, plant propagation, pollinator gardens,

trees for North Dakota, weed identification and management, and wildlife management. A score of 80% or higher is required to become a Master Gardener Intern for two years. Interns are required to provide 48 hours of volunteer service over two years and to build their gardening, teaching and communication skills. After the 48-hour service, the Intern becomes a Certified Master Gardener who then volunteers for at least 20 hours and attends 10 hours of continuing education credits annually. Total course fee: \$260 (\$225 course fee, \$35 mandatory background screening). Classes started on January 20, 2023 and the current session will conclude April 21, 2023.

#8 State Soil Conservation Committee/Soil Conservation Districts

- The State Soil Conservation Committee (SSCC) was created in 1937.
 - The duties and powers of the SSCC can be found in ND Century Code 4.1-20-05
- In 1997, the SSCC became a division of NDSU Extension and no longer a standalone agency. Extension began assisting the SSCC with education and administrative duties. Extension's role is to provide education for local SCD supervisors and employees and disburse Soil Conservation District (SCD) grant funds to local districts.
 - The duties of NDSU Extension as it relates to the SSCC can be found in ND Century Code 4.1-20-06.
 - State appropriations are given to NDSU Extension for the SSCC to distribute to local SCD's in the form of grants. All money given to Extension for the SSCC goes to the local SCDs in the state. Funds received by local SCD's range from \$4400 - \$36,430/year. Funds are used for local staff salaries.
 - Extension provides operating dollars for the SSCC and 1.4 FTE to support the work of the SSCC
 - 1.0 FTE is for a Program Director and Extension Specialist. Duties include soil and water leadership education (50%) and state and district soil conservation management (50%). Management includes assisting with budget planning, coordinating and scheduling committee meetings, completing sand and gravel report, assisting in development of policy guidelines for operating, providing oversight for recordkeeping and disbursement of funds, and oversight on SCD elections.
 - Offset 35% with grant funds
 - 0.4 FTE is for administrative assistant support for the Program Director to provide recordkeeping and disburse grant funds to local SCDs.
 - NDSU Extension has secured an NRCS grant to provide local soil conservation district supervisor training (\$269,542 – ends 8/31/23) and an ND EPA 319 grant to hire two SCD Area program coordinators to work with local SCDs (\$501,211 – ends 7/31/24). These grant funds are used specifically for educational programs.
- A Legislative Management Study was conducted in 2017 and recommended maintaining the State Soil Conservation Specialist position with NDSU Extension and felt Extension has the proper expertise to administer training to SCDs and to direct the District assistance grant program.
- Current appropriation for SCD grants is \$1,211,520 for the biennium, which are distributed amongst 54 SCDs.

North Dakota Agricultural Experiment Station

Responses to questions regarding HB1020

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#1 NDAES Report: funded initiative updates from 2021-2023 requests.

1) Big Data Initiative was the #1 NDAES priority and was partially funded for \$835,000:

- 3 FTEs were funded (6 FTEs were requested) and invested into:
 - Big Data Pipeline Unit
 - North Dakota Agricultural Weather Network (NDAWN)

Big Data Pipeline Unit:

- Current projects:
 - Developing the infrastructure needed to secure and store large amounts of agricultural data with the purpose of creating data-driven solutions.
 - Creating predictive and prescriptive software tools that analyze data for researchers at the agricultural experiment station. Data tools developed include 1) experimental and plant trial design, 2) analysis of plant breeding experiments, 3) experimental queries and reporting for decision-making, and 4) machine learning predictive models for UAV data.
 - Research Extension Center agronomist software training for data collection and analysis of breeding data.
- Future projects:
 - Data integration for precision livestock applications, UAS and autonomous systems data collection and storage, data integration across farms, and climate resiliency.

North Dakota Agricultural Weather Network:

- Current projects:
 - Upgrading data processing from the NDAWN stations to the website. This improves security, efficiencies (fewer outages) and builds a foundation for future upgrades to the website and applications. The progress has gone very well and is expected to be completed before the end of 2023.
 - Designing and creating a new NDAWN website. The current website is 20 years old and is not mobile compliant and runs under outdated and incompatible code.
- Future projects:
 - Upgrade the agricultural tools available on the websites, which requires rewriting code into modern programming languages.

#2 NDAES Report: FTE breakdown for 2023-2025 requests.

1. Plant production and protection initiative		
FTE	Position	Purpose
1	Western ND Agronomy - DREC research agronomist	<ul style="list-style-type: none"> • A research agronomist that focuses on issues related to crop rotations, drought concerns and other issues specific to southwest North Dakota. • Research numerous diseases, insects, and weeds that are unique to the region. • Developing and evaluating best management practices, so farmers do not have to test on their own farms.
2	Plant bacterial diseases - Main station scientist - Technician to assist scientist	<ul style="list-style-type: none"> • Researching on new/emerging bacterial plant diseases (e.g., Goss' wilt of corn, bacterial leaf streak of wheat and barley, and Dickeya soft rot of potatoes) • Researching longer-established bacterial diseases (e.g., common blight of dry bean, ring rot of potato) • Diseases can cause tens of millions in damage and limit seed production in ND.
2	Plant viral disease - Main station scientist - Technician to assist scientist	<ul style="list-style-type: none"> • Research into new virus diseases in the state (e.g., pea seedborne mosaic virus, new variants of existing viral diseases like potato virus Y) • These viral diseases emerged and hamper efforts to breed new crop varieties and reduce producer profitability.
1	Pulse breeding - Technician to assist main station pulse breeder	<ul style="list-style-type: none"> • Pulse crop breeding expertise is needed as pulses have become an increasingly important part of crop rotations throughout the state.
1	Clubroot fungus - Technician to assist LREC scientist	<ul style="list-style-type: none"> • Clubroot fungus is emerging as a significant disease across the canola growing region of ND. • There are over 3,000 canola growers in ND that produce 82 % of canola in the US. • New renewable diesel demands will double canola needs. • An NDAES technician is needed to address the research needs of the growing canola, the initiatives
	\$120,000 in operating support	<ul style="list-style-type: none"> • Supports the baseline operations of the researcher (e.g., computer, office equipment).
7 FTEs total	\$1,580,000 total request	

2. Operating support		
FTE	Position	Purpose
3	Grant coordinators	<ul style="list-style-type: none"> • Scientists depend on grants to fund the vast majority their agricultural research. • Grant and compliance processes are very time consuming and greatly reduce the effectiveness of the scientist and their funding success. • Grant coordinators provide administrative support for the grant development work.
	\$720,000 Graduate research assistantships	<ul style="list-style-type: none"> • Graduate students enhance research programs by providing key labor to complete research activities, collect field data and conduct various analyses associated with research projects. • Graduate students enhance collaborations between the main campus and the REC network by providing a vital link between scientists. • These funds would support approximately 18 graduate research assistantships annually.
	\$480,000 Main Station/REC operating	<ul style="list-style-type: none"> • Costs have greatly increased for maintaining research operations, which are necessary to ensure successful research programs at the main and branch stations.
	\$400,000 Oakes Irrigation Research site operating	<ul style="list-style-type: none"> • Operating support is requested for the Oakes Irrigation Research Site (OIRS), which provides important research on irrigation strategies, high-value crops, and farming practices in southeast North Dakota. • The additional operating support will ensure the OIRS maintains its critical research activities.
3 FTEs total	\$2,194,000 total request	

3. Big data initiative		
FTE	Position	Purpose
3	Data scientist/programmers - NDAWN - Big Data Pipeline Unit	<ul style="list-style-type: none"> This initiative was partially funded last session, and the remainder is being requested this session. Programmers for the ND Agricultural Weather Network. The investment of additional personnel into the NDAWN helps reduce risk for farmers/ranchers. Data scientist for the Big Data Pipeline group. The investment into the big data pipeline greatly accelerates varietal development for breeders, making resilient varieties available to our producers sooner.
	\$200,000 in operating support	<ul style="list-style-type: none"> Operating support assists with expenses associated with research, including office, computers, and travel. Funds hardware and software licenses required for data science and programming.
3 FTEs total	\$838,000 total request	

4. Climate smart agriculture		
FTE	Position	Purpose
2	Climate Smart agricultural science - Main station scientist - Technician to assist scientist	<ul style="list-style-type: none"> Researcher on climate smart agricultural practices (e.g., water- and soil-conservation practices, strip- or no-till, cover crops, rotation diversity, and livestock integration) provide land management strategies to help farmers and ranchers reduce their risks associated with extreme weather events (e.g., drought, flooding). Research can also provide science-based information that helps farmers and ranchers realize the benefits of climate smart practices and realize the potential economic benefits from carbon markets.
	\$40,000 in operating support	<ul style="list-style-type: none"> Operating support assists with expenses associated with research, including office, computers, and travel.
2 FTEs total	\$458,200 total request	

5. (Tie) Bee and apiary research		
FTE	Position	Purpose
2	Bee and apiary research - Hettinger REC scientist - Technician to assist scientist at HREC	<ul style="list-style-type: none"> • ND produces the most honey nationally, housing 495,000 colonies or 18% of all US colonies. • ND colonies contribute to 26% of all honey produced nationally and is valued at ~\$67 million. • ND has no state research to support this economically important beekeeping industry. • Research is needed to develop greater winter hardiness, mite resistance, and increased hygiene.
	\$40,000 in operating support	<ul style="list-style-type: none"> • Operating support assists with expenses associated with research, including office, computers, and travel.
2 FTEs Total	\$458,200 total request	

5. (Tie) Precision Agriculture		
FTE	Position	Purpose
	\$600,000 in operating support	<ul style="list-style-type: none"> • The need for intelligent systems, such as sensors, artificial intelligence, robotics, and automation, is greatly increasing across all aspects of agriculture, from farm to plate. • Funds will provide researchers with equipment and tools needed to build capacity and incorporate advanced agriculture applications for improving cropping systems and livestock farms and ranches.
0 FTEs Total	\$600,000 total request	

#3 NDAES Report: 2021-202 Agronomy Seed Farm seed sales income.

Seed sales make up the majority of the ASF income.

The ASF also produces market grain from "fill in" areas around plots or from rotational ground.

The ASF also sells all the cleanout when cleaning seed (~15% cleanout) as market grain.

ASF typically produce around 60,000+ bushels of seed per year.

For the past two years:

2021: Seed Sales: \$473,789

Market Grain: \$270,759

Total Income: \$744,548

2022: Seed Sales: \$440,428

Market Grain: \$346,260

Total Income: \$786,688

#4 NDAES Report: 2021-2023 Re-direction of FTEs in NDAES.

----- AES -----			
Unit	Position type	Redirection	Original position
Agricultural & Biosystems Engineering	Faculty	Grain handling/storage, agricultural biomaterials / co-products	Wastewater quality treatment
Agricultural & Biosystems Engineering	Faculty	Controlled environmental Ag systems, remote sensing, energy efficiency, air quality, cost benefits	Animal waste mgmt./environ.
Animal Sciences	Faculty	Processed food / Evaluation of foods/meats	Meat science beef production
Microbiological Sciences	Faculty	Agribiome/Microbiome - Pests	Food Safety
Plant Sciences	Faculty	Wheat multiomics – systems approach to combining multiple biological data to coherently match geno-, pheno-, and enviro-type relationship or association.	Wheat cytogenetics – traditional chromosomal genetics
Plant Sciences	Technician	Horticulture	Wheat cytogenetics
Plant Pathology	Faculty	Soybean pathology	Biochemistry
School of Natural Resource Sciences	Faculty	Climate smart approaches natural landscapes	Range science ecosystem
School of Natural Resource Sciences	Faculty	Climate smart approaches agriculture	Soil management

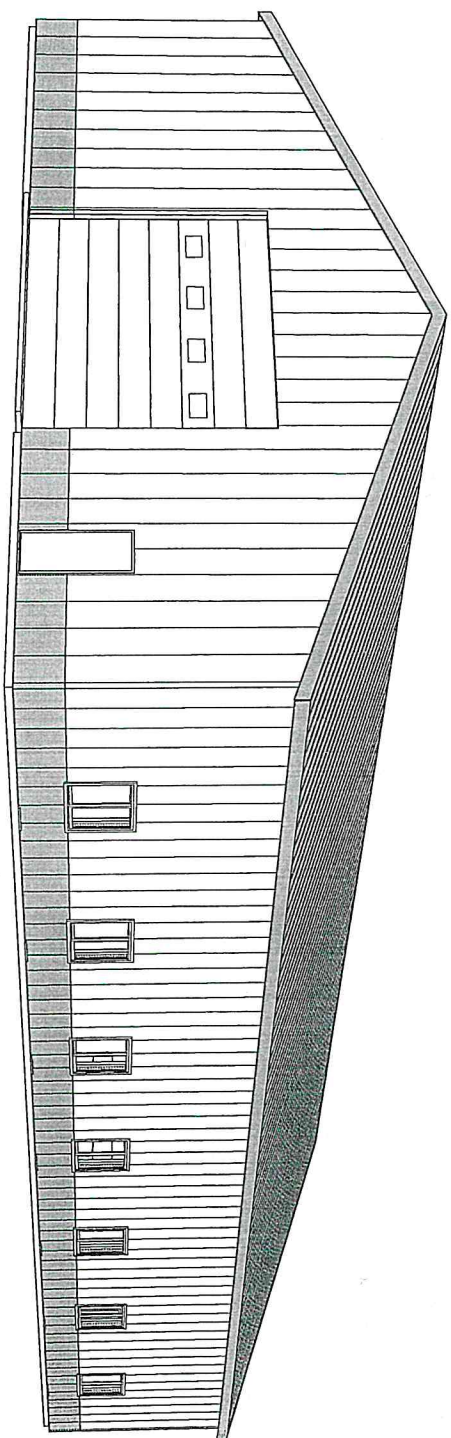
#5 NDAES Report: Central Grasslands Research Extension Center (CGREC) 2021-2023 funded capital projects.

Request the following:

- \$525,000 of strategic investment and improvements fund appropriated in 2021-2023 for capital projects at the CGREC be extended and remain available during the biennium beginning July 1, 2023 and ending June 30, 2025.
- Authorize the CGREC to use up to \$175,000 in special funds to pay for any additional costs related to the REC director's residence project funded in 2021-2023.

NDSU AG STORAGE BUILDING

CONSTRUCTION DOCUMENTS
1/24/2022



AG STORAGE

P.O. Box 1377
Hettinger, ND 58639
JOB NO. 21-063 | 01/24/22

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LIST OF ABBREVIATIONS	
1	ASPH/FLY
2	CONCRETE
3	GRAVEL
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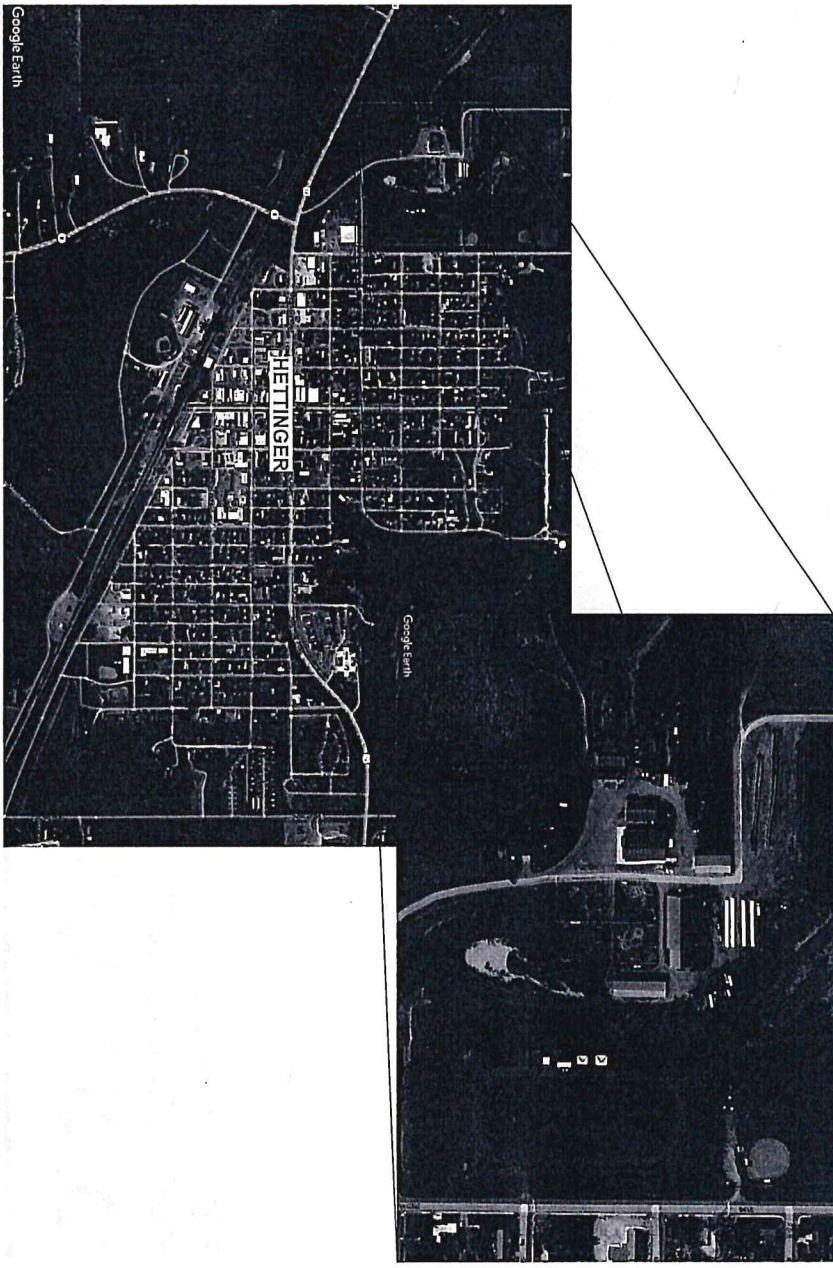
NOTES: 1. Construction shall be in accordance with the applicable building codes and specifications. 2. All materials shall be of the highest quality and shall be approved by the engineer. 3. The contractor shall be responsible for obtaining all necessary permits. 4. The contractor shall be responsible for the safety of the construction site. 5. The contractor shall be responsible for the protection of the existing structures and utilities. 6. The contractor shall be responsible for the cleanup of the construction site. 7. The contractor shall be responsible for the maintenance of the construction site. 8. The contractor shall be responsible for the completion of the construction project. 9. The contractor shall be responsible for the payment of all bills. 10. The contractor shall be responsible for the insurance of the construction project. 11. The contractor shall be responsible for the bonding of the construction project. 12. The contractor shall be responsible for the scheduling of the construction project. 13. The contractor shall be responsible for the coordination of the construction project. 14. The contractor shall be responsible for the communication of the construction project. 15. The contractor shall be responsible for the documentation of the construction project. 16. The contractor shall be responsible for the quality control of the construction project. 17. The contractor shall be responsible for the safety of the construction workers. 18. The contractor shall be responsible for the safety of the public. 19. The contractor shall be responsible for the safety of the environment. 20. The contractor shall be responsible for the safety of the construction site. 21. The contractor shall be responsible for the safety of the construction project. 22. The contractor shall be responsible for the safety of the construction site. 23. The contractor shall be responsible for the safety of the construction project. 24. The contractor shall be responsible for the safety of the construction site. 25. The contractor shall be responsible for the safety of the construction project.

GENERAL NOTES	
1	SEE DRAWING FOR ALL NOTES AND SPECIFICATIONS.
2	ALL MATERIALS SHALL BE OF THE HIGHEST QUALITY AND SHALL BE APPROVED BY THE ENGINEER.
3	THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS.
4	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE CONSTRUCTION SITE.
5	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING STRUCTURES AND UTILITIES.
6	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEANUP OF THE CONSTRUCTION SITE.
7	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE CONSTRUCTION SITE.
8	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETION OF THE CONSTRUCTION PROJECT.
9	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PAYMENT OF ALL BILLS.
10	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSURANCE OF THE CONSTRUCTION PROJECT.
11	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE BONDING OF THE CONSTRUCTION PROJECT.
12	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SCHEDULING OF THE CONSTRUCTION PROJECT.
13	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE CONSTRUCTION PROJECT.
14	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMMUNICATION OF THE CONSTRUCTION PROJECT.
15	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DOCUMENTATION OF THE CONSTRUCTION PROJECT.
16	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE QUALITY CONTROL OF THE CONSTRUCTION PROJECT.
17	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE CONSTRUCTION WORKERS.
18	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE PUBLIC.
19	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE ENVIRONMENT.
20	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE CONSTRUCTION SITE.
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SYMBOLS LEGEND	
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MATERIAL LEGEND	
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DRAWINGS INDEX	
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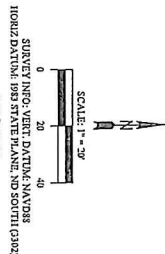
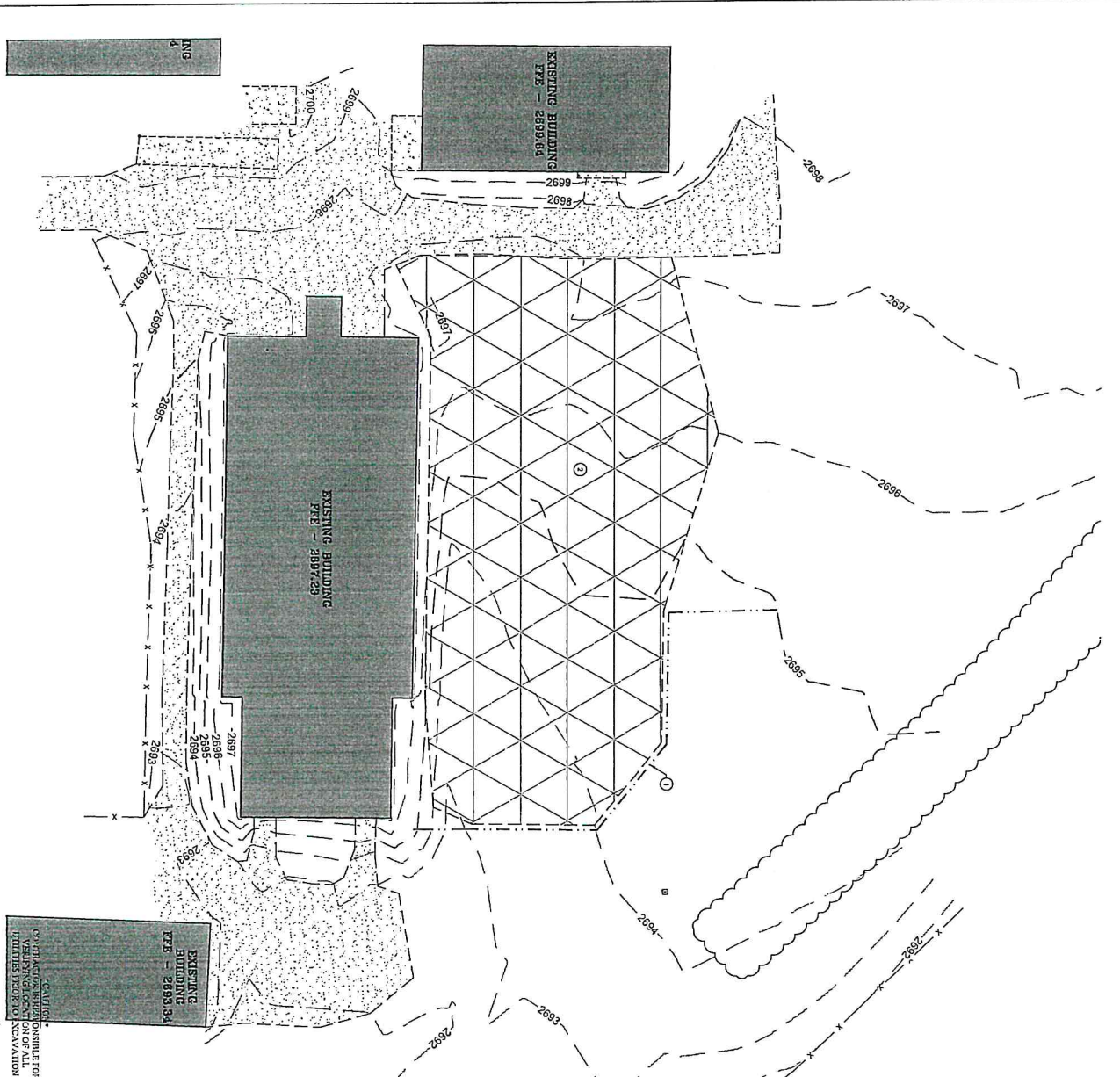


General Notes / Drawing Index

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LEGEND

- CABLE TELEPHONE REDBITAL
- 1750 — EXISTING CONTOUR
- X - EXISTING FENCE
- ▨ EXISTING GRAVEL
- ▩ EXISTING CONCRETE
- ~ EXISTING VEGETATION
- ▭ EXISTING BUILDING
- ▭ REPORT TOPSOIL
- ▭ PROPOSED EROSION CONTROL
- PROPOSED CONSTRUCTION LIMITS

1. INITIAL EROSION CONTROL MEASURES PRIOR TO CONSTRUCTION
2. INITIAL EROSION CONTROL MEASURES PRIOR TO CONSTRUCTION

GENERAL NOTES

1. INITIAL EROSION CONTROL MEASURES PRIOR TO CONSTRUCTION
 2. INITIAL EROSION CONTROL MEASURES PRIOR TO CONSTRUCTION

GENERAL NOTES: All work shall conform to the Project Manual and Specifications as supplemented by or modified by the following list of notes.

PERMITS: The Contractor is required to obtain all permits that may be required prior to construction. The Contractor will be responsible for the cost of all permits and for obtaining all necessary permits. The Contractor will be responsible for the cost of all permits and for obtaining all necessary permits.

CONTRACTOR'S RESPONSIBILITIES: The Contractor shall be responsible for all project expenses not shown on the plans. The Contractor shall be responsible for all project expenses not shown on the plans. The Contractor shall be responsible for all project expenses not shown on the plans.

EROSION CONTROL: The Contractor shall be responsible for all project expenses not shown on the plans. The Contractor shall be responsible for all project expenses not shown on the plans. The Contractor shall be responsible for all project expenses not shown on the plans.

PROTECTION OF EXISTING UTILITIES: The Contractor shall be responsible for all project expenses not shown on the plans. The Contractor shall be responsible for all project expenses not shown on the plans. The Contractor shall be responsible for all project expenses not shown on the plans.

TESTING: The Contractor shall be responsible for all project expenses not shown on the plans. The Contractor shall be responsible for all project expenses not shown on the plans. The Contractor shall be responsible for all project expenses not shown on the plans.

EROSION CONTROL: The Contractor shall be responsible for all project expenses not shown on the plans. The Contractor shall be responsible for all project expenses not shown on the plans. The Contractor shall be responsible for all project expenses not shown on the plans.

PRELIMINARY
 NOT FOR CONSTRUCTION

ICON ARCHITECTURAL GROUP 222 East Main Street Madison, ND 58054 Phone: (701) 542-1111 Fax: (701) 542-1112	ELECTRICAL Public Engineering 818 Broadway, Suite 202 Bismarck, ND 58102 (701) 542-4200 (701) 542-4201	102 US-12 Hettinger, ND 58639	Drawing History <table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No.	Description	Date										EXISTING CONDITIONS SHEET C100
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102 US-12 Hettinger, ND 58639																

SPECIAL INSPECTIONS AND TESTING:

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WOOD CONSTRUCTION (REF: IBC SECTION 1706.5)

ITEM	DESCRIPTION	TESTING METHOD	REFERENCE	STATUS	COMMENTS
1	Visual inspection of wood framing members for proper installation and alignment.	Visual Inspection	IBC 1706.5.1	✓	Compliance with IBC 1706.5.1
2	Visual inspection of wood framing members for proper installation and alignment.	Visual Inspection	IBC 1706.5.1	✓	Compliance with IBC 1706.5.1
3	Visual inspection of wood framing members for proper installation and alignment.	Visual Inspection	IBC 1706.5.1	✓	Compliance with IBC 1706.5.1
4	Visual inspection of wood framing members for proper installation and alignment.	Visual Inspection	IBC 1706.5.1	✓	Compliance with IBC 1706.5.1
5	Visual inspection of wood framing members for proper installation and alignment.	Visual Inspection	IBC 1706.5.1	✓	Compliance with IBC 1706.5.1
6	Visual inspection of wood framing members for proper installation and alignment.	Visual Inspection	IBC 1706.5.1	✓	Compliance with IBC 1706.5.1
7	Visual inspection of wood framing members for proper installation and alignment.	Visual Inspection	IBC 1706.5.1	✓	Compliance with IBC 1706.5.1
8	Visual inspection of wood framing members for proper installation and alignment.	Visual Inspection	IBC 1706.5.1	✓	Compliance with IBC 1706.5.1
9	Visual inspection of wood framing members for proper installation and alignment.	Visual Inspection	IBC 1706.5.1	✓	Compliance with IBC 1706.5.1
10	Visual inspection of wood framing members for proper installation and alignment.	Visual Inspection	IBC 1706.5.1	✓	Compliance with IBC 1706.5.1

SOILS (REF: IBC SECTION 1706.4, 1803)

ITEM	DESCRIPTION	TESTING METHOD	REFERENCE	STATUS	COMMENTS
1	Visual inspection of soil conditions for proper installation and alignment.	Visual Inspection	IBC 1706.4	✓	Compliance with IBC 1706.4
2	Visual inspection of soil conditions for proper installation and alignment.	Visual Inspection	IBC 1706.4	✓	Compliance with IBC 1706.4
3	Visual inspection of soil conditions for proper installation and alignment.	Visual Inspection	IBC 1706.4	✓	Compliance with IBC 1706.4
4	Visual inspection of soil conditions for proper installation and alignment.	Visual Inspection	IBC 1706.4	✓	Compliance with IBC 1706.4
5	Visual inspection of soil conditions for proper installation and alignment.	Visual Inspection	IBC 1706.4	✓	Compliance with IBC 1706.4
6	Visual inspection of soil conditions for proper installation and alignment.	Visual Inspection	IBC 1706.4	✓	Compliance with IBC 1706.4
7	Visual inspection of soil conditions for proper installation and alignment.	Visual Inspection	IBC 1706.4	✓	Compliance with IBC 1706.4
8	Visual inspection of soil conditions for proper installation and alignment.	Visual Inspection	IBC 1706.4	✓	Compliance with IBC 1706.4
9	Visual inspection of soil conditions for proper installation and alignment.	Visual Inspection	IBC 1706.4	✓	Compliance with IBC 1706.4
10	Visual inspection of soil conditions for proper installation and alignment.	Visual Inspection	IBC 1706.4	✓	Compliance with IBC 1706.4

CONCRETE CONSTRUCTION (REF: IBC SECTION 1706.3)

ITEM	DESCRIPTION	TESTING METHOD	REFERENCE	STATUS	COMMENTS
1	Visual inspection of concrete formwork for proper installation and alignment.	Visual Inspection	IBC 1706.3.1	✓	Compliance with IBC 1706.3.1
2	Visual inspection of concrete formwork for proper installation and alignment.	Visual Inspection	IBC 1706.3.1	✓	Compliance with IBC 1706.3.1
3	Visual inspection of concrete formwork for proper installation and alignment.	Visual Inspection	IBC 1706.3.1	✓	Compliance with IBC 1706.3.1
4	Visual inspection of concrete formwork for proper installation and alignment.	Visual Inspection	IBC 1706.3.1	✓	Compliance with IBC 1706.3.1
5	Visual inspection of concrete formwork for proper installation and alignment.	Visual Inspection	IBC 1706.3.1	✓	Compliance with IBC 1706.3.1
6	Visual inspection of concrete formwork for proper installation and alignment.	Visual Inspection	IBC 1706.3.1	✓	Compliance with IBC 1706.3.1
7	Visual inspection of concrete formwork for proper installation and alignment.	Visual Inspection	IBC 1706.3.1	✓	Compliance with IBC 1706.3.1
8	Visual inspection of concrete formwork for proper installation and alignment.	Visual Inspection	IBC 1706.3.1	✓	Compliance with IBC 1706.3.1
9	Visual inspection of concrete formwork for proper installation and alignment.	Visual Inspection	IBC 1706.3.1	✓	Compliance with IBC 1706.3.1
10	Visual inspection of concrete formwork for proper installation and alignment.	Visual Inspection	IBC 1706.3.1	✓	Compliance with IBC 1706.3.1

AG STORAGE
 NDSU Hettinger Research Extension
 Center
 P.O. Box 1377
 Hettinger, ND 58639

ICON
 222 S. Grand Street
 Mandan, ND 58554
 701.781.2121
 701.781.2122
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 701.781.2125
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ELECTRICAL
 P.H.A. Engineering
 609 Broadway St. Suite 225
 Mandan, ND 58554
 701.781.2121
 701.781.2122
 701.781.2123
 701.781.2124
 701.781.2125
 701.781.2126
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Mechanical, Load, Surveying & Eng.
 411 S. Grand Street
 Mandan, ND 58554
 701.781.2121
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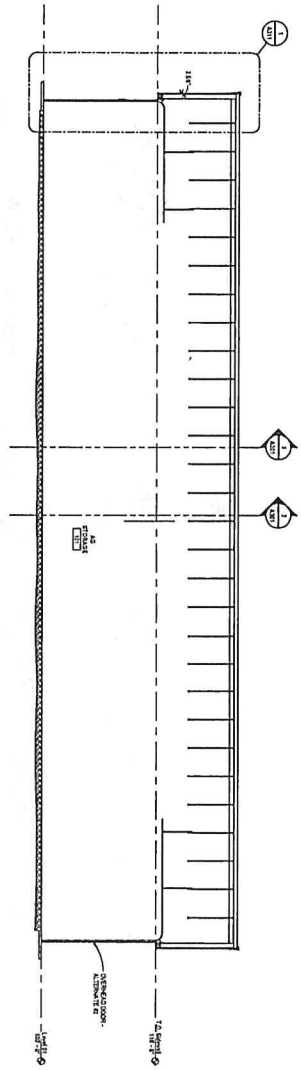
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 P.O. Box 1377
 Hettinger, ND 58639

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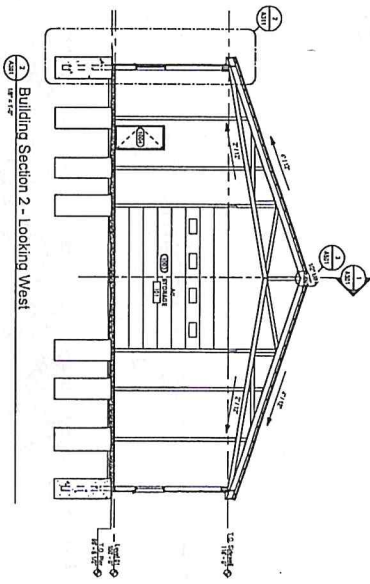
No.	Description	Date
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2	Pre-Design	10/25/2022
3	Schematic Design	10/25/2022
4	Design Development	10/25/2022
5	Construction Documents	10/25/2022

Special Inspections & Testing

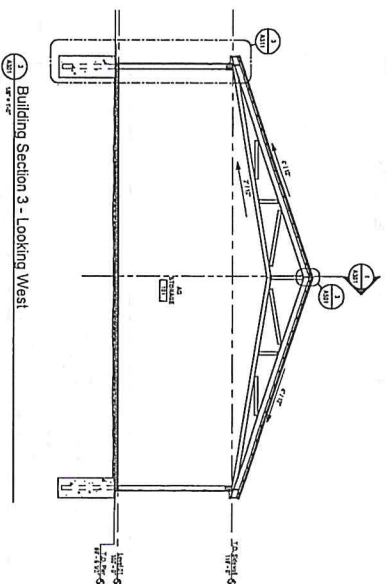
S002



1-1 Building Section 1 - Looking North



2-1 Building Section 2 - Looking West



3-1 Building Section 3 - Looking West

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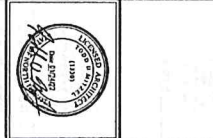
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AG STORAGE
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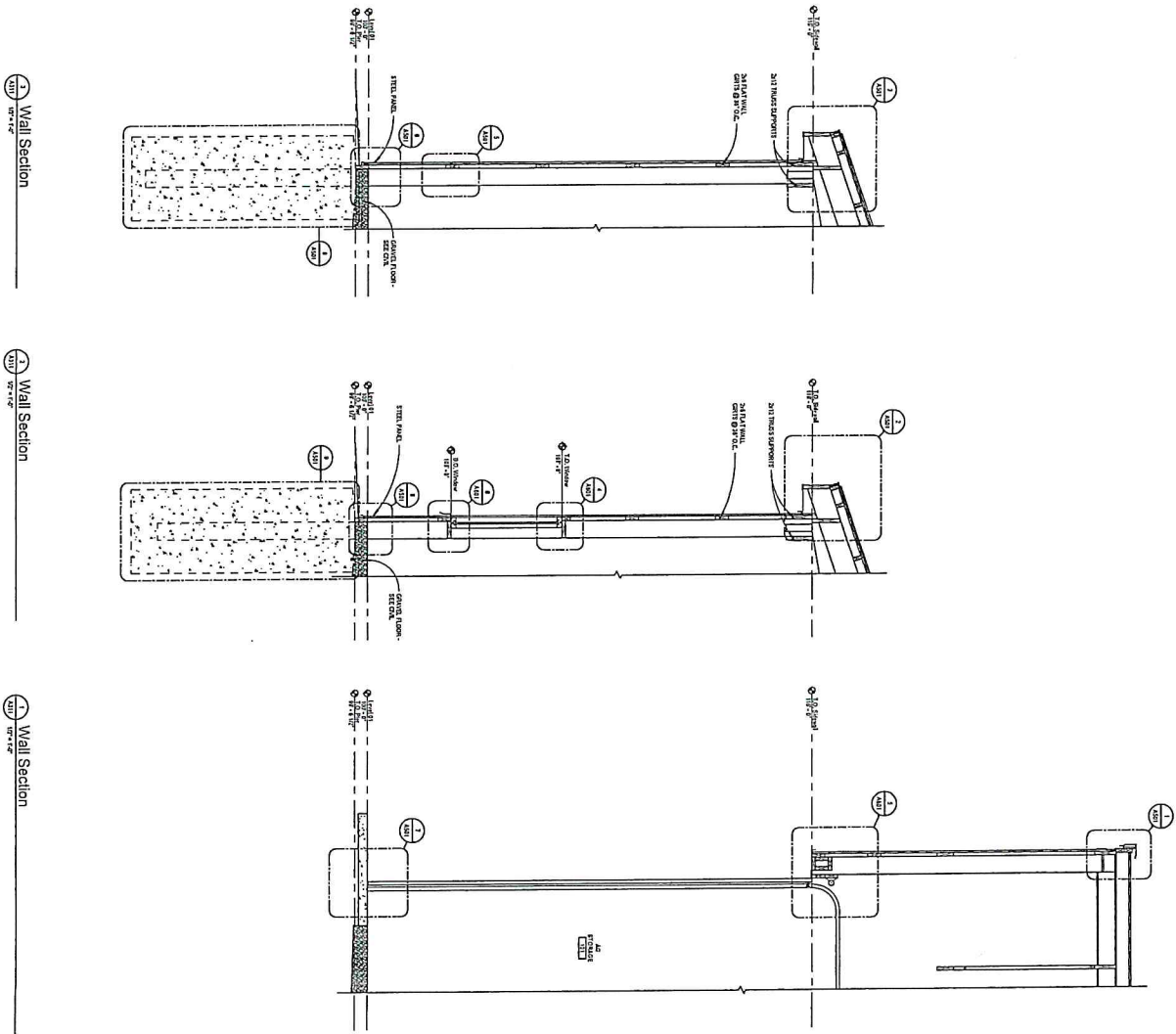
Drawing History

No.	Description	Date
1	Construction	12/20/11
2	Revised	1/25/12

DRAWN BY: ECU JN: JAC



Building Sections
SHEET
A301



A311 Wall Section

A312 Wall Section

A313 Wall Section

	AG STORAGE NDSU Hettinger Research Extension Center P.O. Box 1377 Hettinger, ND 58639	ICON ARCHITECTURAL GROUP 232 East Main Street Mandan, ND 58554 701.781.2000 www.iconarchitect.com	STRUCTURAL NDSU Agricultural Group 232 East Main Street Mandan, ND 58554 701.781.1878 REPAIRS	ELECTRICAL Prida Engineering 616 Broadway, Ste 205 Bismarck, ND 58504 701.223.8274 701.223.8275	Independent Land Surveying & Eng. 616 Broadway, Ste 205 Bismarck, ND 58504 701.223.8274															
	Drawing History <table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No.	Description	Date																DRAWN BY: J.S. GALT 2022-1-063
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