

AIRPORT CONSTRUCTION PLAN FOR RUNWAY 11/29 & PARALLEL TAXIWAY CONSTRUCTION

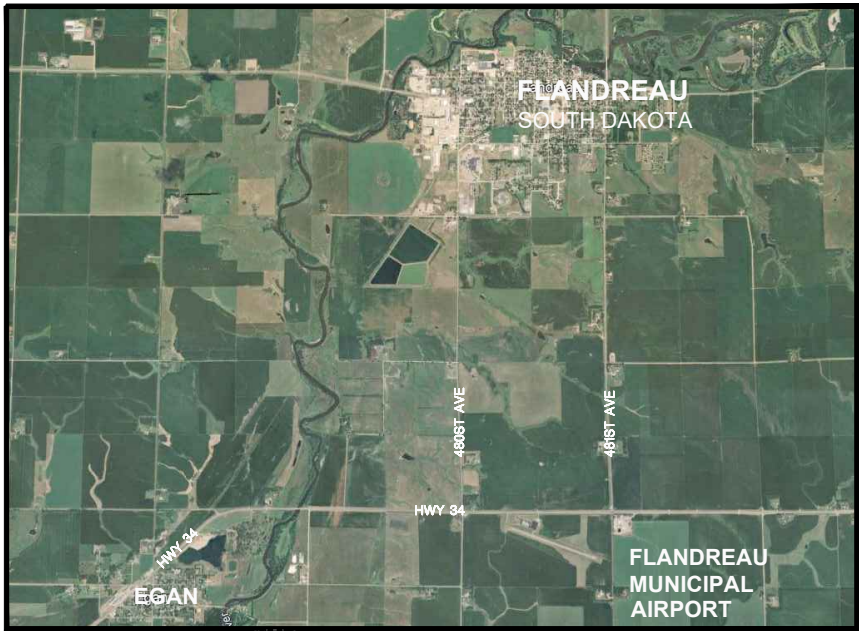
FLANDREAU MUNICIPAL AIRPORT

FLANDREAU, SOUTH DAKOTA

AIP 3-46-0077-018-2026

DESCRIPTION OF WORK

The project shall consist of the reconfiguration of the runway and taxiways at the Flandreau Municipal Airport. A new 75' x 3600' asphalt runway, and 1,887' of new 35' wide connector and partial parallel taxiways will be constructed with the project. Additionally, the airports existing runway will be repurposed as a parallel taxiway and will have its asphalt surfacing rehabilitated (mill & overlay). The major areas of work shall consist of: site clearing, excavation, grading, asphalt paving, storm sewer and underdrain pipe installation, site restoration, runway and taxiway electrical and lighting, and various other items of related construction.



MAYOR AND CITY COUNCIL

Mayor	Daniel Sutton
Council Member	Mark Ekern
Council Member	Mike Fargen
Council Member	Curt Ahlers
Council Member	Brad Bjerke
Council Member	Karen Tufty
Council Member	Tim Yeaton
Finance Officer	Lori Kneebone
City Administrator/Airport Manager	Cohl Turnquist

INDEX OF SHEETS

Civil

1.

Cover Sheet
2.

Project Layout Plan
- 3-4.

Construction Safety Phasing Plan
- 5-8.

Construction Safety Phasing Plan Notes
9.

General Plan Notes
10.

Plan Quantities
11.

Existing Pavement Typical Sections
- 12-13.

Typical Sections
- 14-24.

Runway 11/29 Plan and Profile
- 25-33.

Parallel Taxiway Plan and Profile
34.

Apron Taxiway Plan and Profile
35.

Mid Point Taxiway Plan and Profile
36.

Turf Runway Tie-In Plan and Profile
- 37-38.

Marking Plan
39.

Fencing Plan
- 40-41.

Details
- 42-47.

Storm Water Pollution Prevention Plan
- 48-81.

Cross Sections

Electrical

- E1.

Legend, Notes & Index of Sheets Abbreviations
- E2.

Sheet Layout - Lighting Removals
- E3.E4-E10.

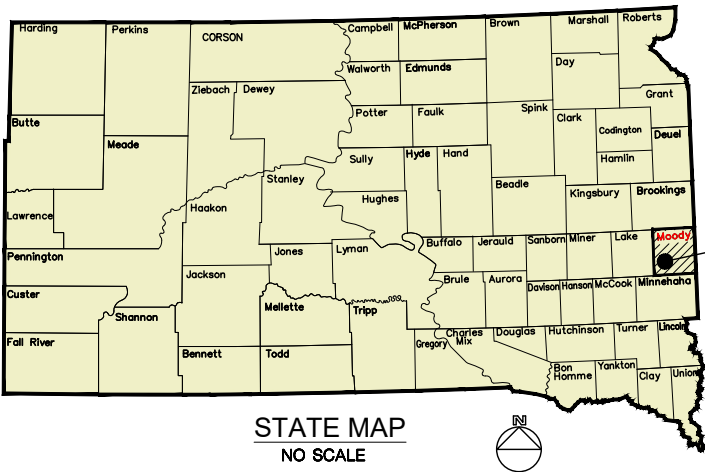
Lighting Removals
- E11.

Sheet Layout - Lighting Plan
- E12-E31.

Lighting Plan
- E201-E13.

Lighting Details
- V1-V9.

Vault Plan



FLANDREAU
SOUTH DAKOTA

PROFESSIONAL ENGINEER REG. NO. 13637 BROOKE B. EDGAR SOUTH DAKOTA 8/18/2026 I HEREBY CERTIFY THAT TO THE BEST OF MY PROFESSIONAL ABILITY THESE PLANS AND SPECIFICATIONS WERE DEVELOPED UNDER MY DIRECT SUPERVISION AND IN ACCORDANCE WITH ALL APPLICABLE FEDERAL STANDARDS AND REQUIREMENTS. NO DEVIATIONS FROM OR MODIFICATIONS TO STANDARDS SET FORTH IN THE FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULARS WILL BE NECESSARY OTHER THAN THOSE PREVIOUSLY APPROVED BY THE F.A.A. EXCEPT FOR THOSE LISTED ABOVE. Brooke B. Edgar, P.E. SD REG. NO. 13637	PROFESSIONAL ENGINEER REG. NO. 7286 BRIAN D. MEYER SOUTH DAKOTA 8/18/2026 I HEREBY CERTIFY THAT TO THE BEST OF MY PROFESSIONAL ABILITY THESE PLANS AND SPECIFICATIONS WERE DEVELOPED UNDER MY DIRECT SUPERVISION AND IN ACCORDANCE WITH ALL APPLICABLE FEDERAL STANDARDS AND REQUIREMENTS. NO DEVIATIONS FROM OR MODIFICATIONS TO STANDARDS SET FORTH IN THE FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULARS WILL BE NECESSARY OTHER THAN THOSE PREVIOUSLY APPROVED BY THE F.A.A. EXCEPT FOR THOSE LISTED ABOVE. Brian D. Meyer, P.E. SD REG. NO. 7286	SPONSOR APPROVAL OWNER: CITY OF FLANDREAU I HEREBY APPROVE THESE PROJECT PLANS AND SPECIFICATIONS, CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER THAT THEY HAVE BEEN DEVELOPED TO THE BEST OF HIS PROFESSIONAL ABILITY IN ACCORDANCE WITH FEDERAL STANDARDS. NO DEVIATIONS FROM OR MODIFICATIONS TO STANDARDS AS SET FORTH IN FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULARS WILL BE NECESSARY OTHER THAN THOSE PREVIOUSLY APPROVED BY THE F.A.A. EXCEPT FOR THOSE LISTED ABOVE. MAYOR	CONSTRUCTION PLAN APPROVALS SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION OFFICE OF AIR, RAIL, & TRANSIT JACK DOKKEN, AIR, RAIL, & TRANSIT PROGRAM MANAGER	COVER SHEET RUNWAY 11/29 & TAXIWAY CONSTRUCTION FLANDREAU MUNICIPAL AIRPORT FLANDREAU, SOUTH DAKOTA SPN Helms CIVIL ENGINEERS & LAND SURVEYORS 416 Production St. N. Aberdeen, S.D. 57402 Phone: 605.225.1212 Fax: 605.225.3189 Email: bobb@helmsengineering.com Drawn By: TMO Chk' By: BBE Proj. No: A-9873 Date: 8/11/26 Dwg. No: 9873-02 1 OF 81
--	--	---	---	---

DESCRIPTION OF WORK

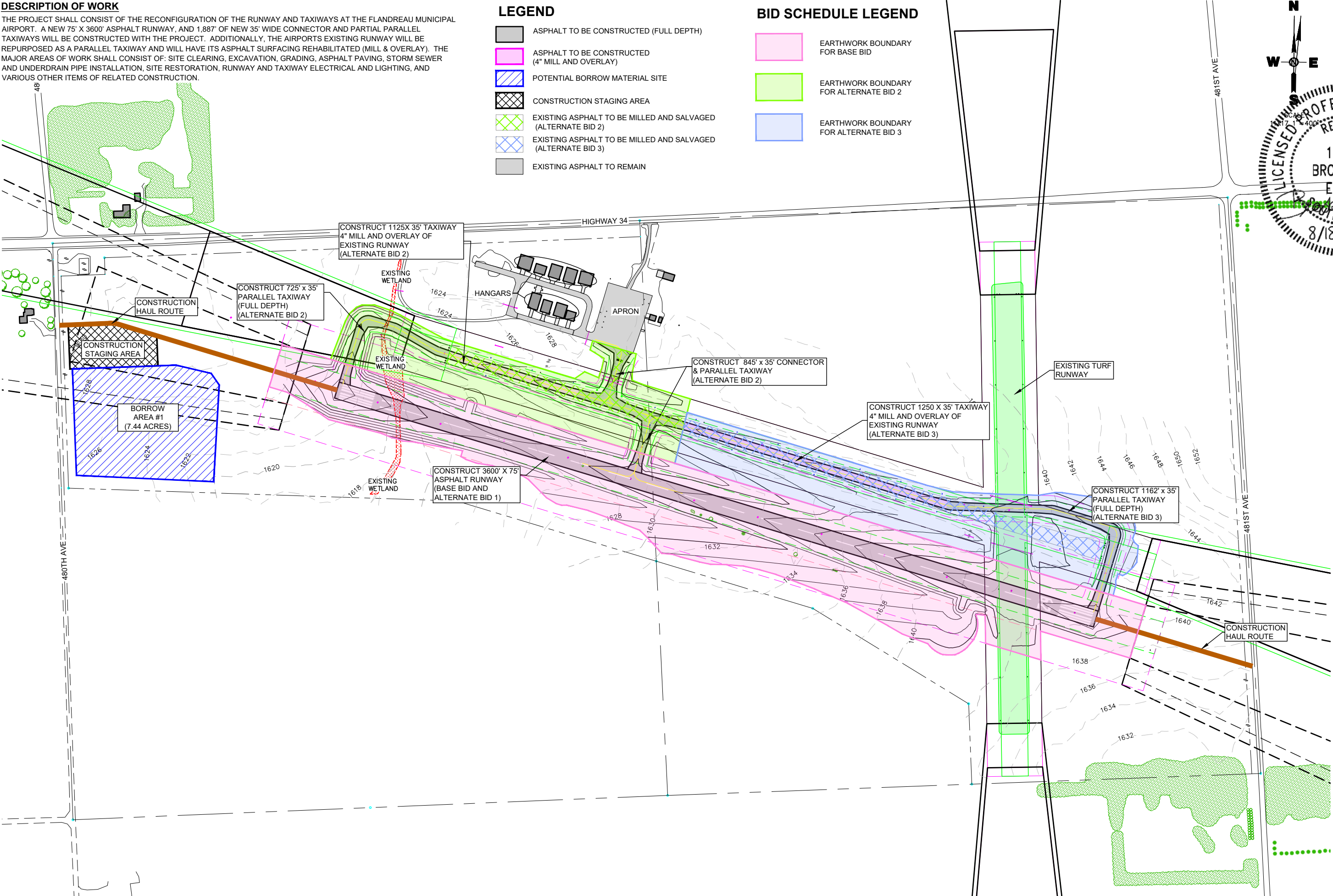
THE PROJECT SHALL CONSIST OF THE RECONFIGURATION OF THE RUNWAY AND TAXIWAYS AT THE FLANDREAU MUNICIPAL AIRPORT. A NEW 75' X 3600' ASPHALT RUNWAY, AND 1,887' OF NEW 35' WIDE CONNECTOR AND PARTIAL PARALLEL TAXIWAYS WILL BE CONSTRUCTED WITH THE PROJECT. ADDITIONALLY, THE AIRPORTS EXISTING RUNWAY WILL BE REPURPOSED AS A PARALLEL TAXIWAY AND WILL HAVE ITS ASPHALT SURFACING REHABILITATED (MILL & OVERLAY). THE MAJOR AREAS OF WORK SHALL CONSIST OF: SITE CLEARING, EXCAVATION, GRADING, ASPHALT PAVING, STORM SEWER AND UNDERDRAIN PIPE INSTALLATION, SITE RESTORATION, RUNWAY AND TAXIWAY ELECTRICAL AND LIGHTING, AND VARIOUS OTHER ITEMS OF RELATED CONSTRUCTION.

LEGEND

- ASPHALT TO BE CONSTRUCTED (FULL DEPTH)
- ASPHALT TO BE CONSTRUCTED (4" MILL AND OVERLAY)
- POTENTIAL BORROW MATERIAL SITE
- CONSTRUCTION STAGING AREA
- EXISTING ASPHALT TO BE MILLED AND SALVAGED (ALTERNATE BID 2)
- EXISTING ASPHALT TO BE MILLED AND SALVAGED (ALTERNATE BID 3)
- EXISTING ASPHALT TO REMAIN

BID SCHEDULE LEGEND

- EARTHWORK BOUNDARY FOR BASE BID
- EARTHWORK BOUNDARY FOR ALTERNATE BID 2
- EARTHWORK BOUNDARY FOR ALTERNATE BID 3



416 Production STN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



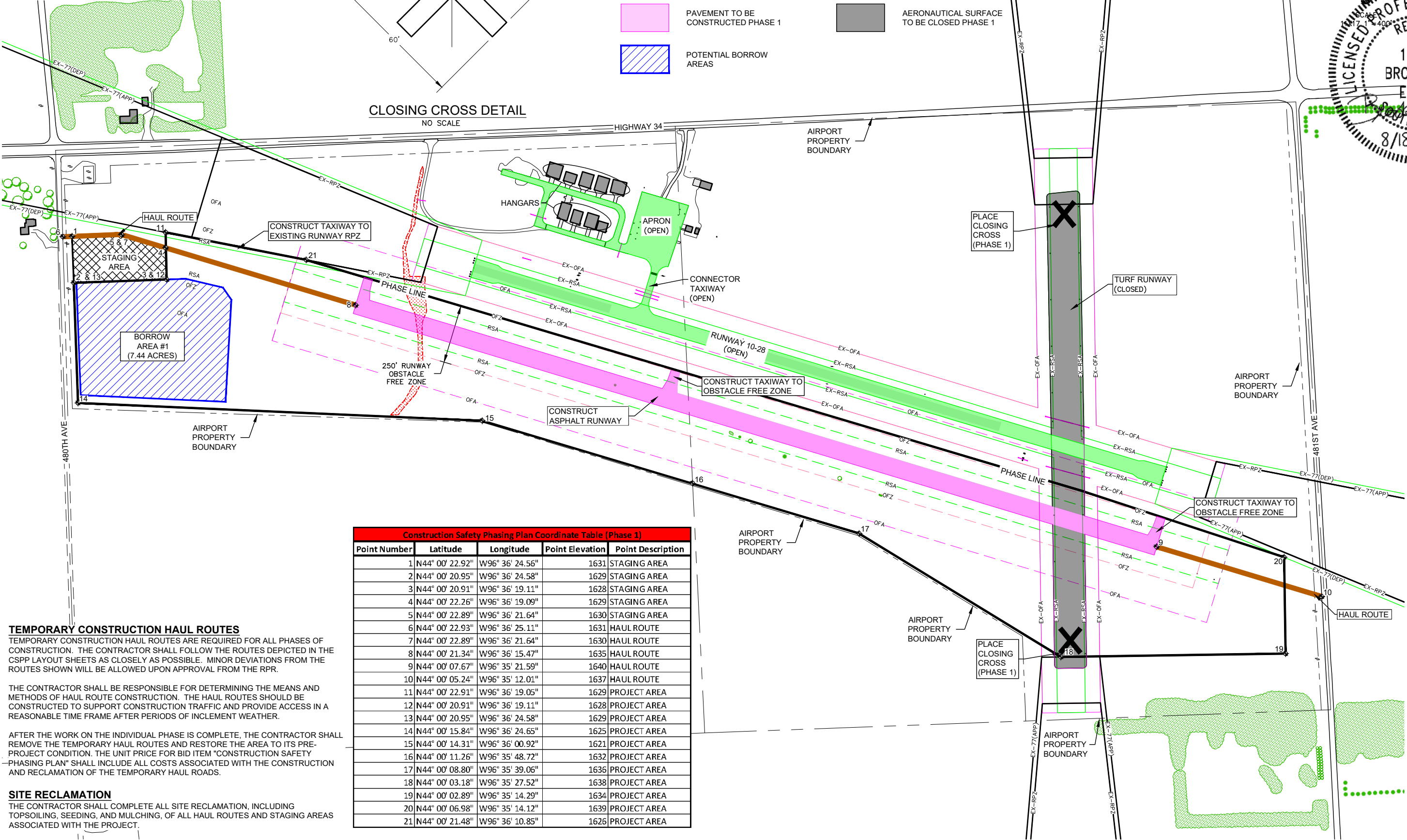
PLAN LAYOUT

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-02
VP. No: PLAN-OA
Date: 8/18/26

DESCRIPTION OF WORK

THE PROJECT SHALL CONSIST OF THE RECONFIGURATION OF THE RUNWAY AND TAXIWAYS AT THE FLANDREAU MUNICIPAL AIRPORT. A NEW 75' X 3600' ASPHALT RUNWAY, AND 1,887' OF NEW 35' WIDE CONNECTOR AND PARTIAL PARALLEL TAXIWAYS WILL BE CONSTRUCTED WITH THE PROJECT. ADDITIONALLY, THE AIRPORTS EXISTING RUNWAY WILL BE REPURPOSED AS A PARALLEL TAXIWAY AND WILL HAVE ITS ASPHALT SURFACING REHABILITATED (MILL & OVERLAY). THE MAJOR AREAS OF WORK SHALL CONSIST OF: SITE CLEARING, EXCAVATION, GRADING, ASPHALT PAVING, STORM SEWER AND UNDERDRAIN PIPE INSTALLATION, SITE RESTORATION, RUNWAY AND TAXIWAY ELECTRICAL AND LIGHTING, AND VARIOUS OTHER ITEMS OF RELATED CONSTRUCTION.



TEMPORARY CONSTRUCTION HAUL ROUTES

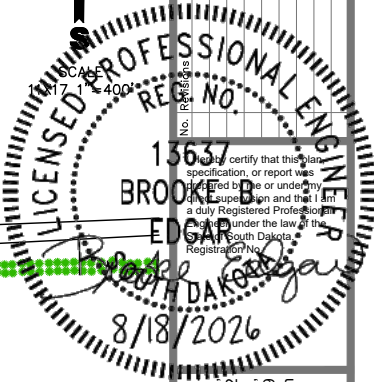
TEMPORARY CONSTRUCTION HAUL ROUTES ARE REQUIRED FOR ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL FOLLOW THE ROUTES DEPICTED IN THE CSPP LAYOUT SHEETS AS CLOSELY AS POSSIBLE. MINOR DEVIATIONS FROM THE ROUTES SHOWN WILL BE ALLOWED UPON APPROVAL FROM THE RPR.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE MEANS AND METHODS OF HAUL ROUTE CONSTRUCTION. THE HAUL ROUTES SHOULD BE CONSTRUCTED TO SUPPORT CONSTRUCTION TRAFFIC AND PROVIDE ACCESS IN A REASONABLE TIME FRAME AFTER PERIODS OF INCLEMENT WEATHER.

AFTER THE WORK ON THE INDIVIDUAL PHASE IS COMPLETE, THE CONTRACTOR SHALL REMOVE THE TEMPORARY HAUL ROUTES AND RESTORE THE AREA TO ITS PRE-PROJECT CONDITION. THE UNIT PRICE FOR BID ITEM "CONSTRUCTION SAFETY PHASING PLAN" SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE CONSTRUCTION AND RECLAMATION OF THE TEMPORARY HAUL ROADS.

SITE RECLAMATION

THE CONTRACTOR SHALL COMPLETE ALL SITE RECLAMATION, INCLUDING TOPSOILING, SEEDING, AND MULCHING, OF ALL HAUL ROUTES AND STAGING AREAS ASSOCIATED WITH THE PROJECT.



416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

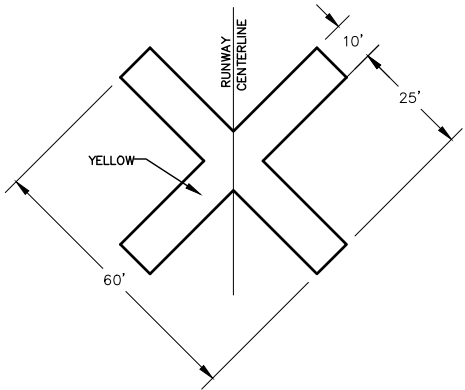


PHASE 1, CONSTRUCTION SAFETY PHASING PLAN
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-02
VP. No: SAFE(1)
Date: 8/18/26

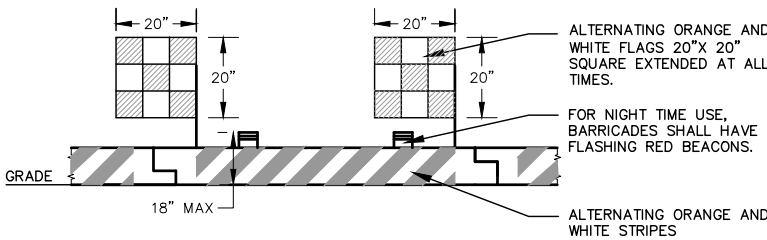
DESCRIPTION OF WORK

THE PROJECT SHALL CONSIST OF THE RECONFIGURATION OF THE RUNWAY AND TAXIWAYS AT THE FLANDREAU MUNICIPAL AIRPORT. A NEW 75' X 3600' ASPHALT RUNWAY, AND 1,887' OF NEW 35' WIDE CONNECTOR AND PARTIAL PARALLEL TAXIWAYS WILL BE CONSTRUCTED WITH THE PROJECT. ADDITIONALLY, THE AIRPORTS EXISTING RUNWAY WILL BE REPURPOSED AS A PARALLEL TAXIWAY AND WILL HAVE ITS ASPHALT SURFACING REHABILITATED (MILL & OVERLAY). THE MAJOR AREAS OF WORK SHALL CONSIST OF: SITE CLEARING, EXCAVATION, GRADING, ASPHALT PAVING, STORM SEWER AND UNDERDRAIN PIPE INSTALLATION, SITE RESTORATION, RUNWAY AND TAXIWAY ELECTRICAL AND LIGHTING, AND VARIOUS OTHER ITEMS OF RELATED CONSTRUCTION.

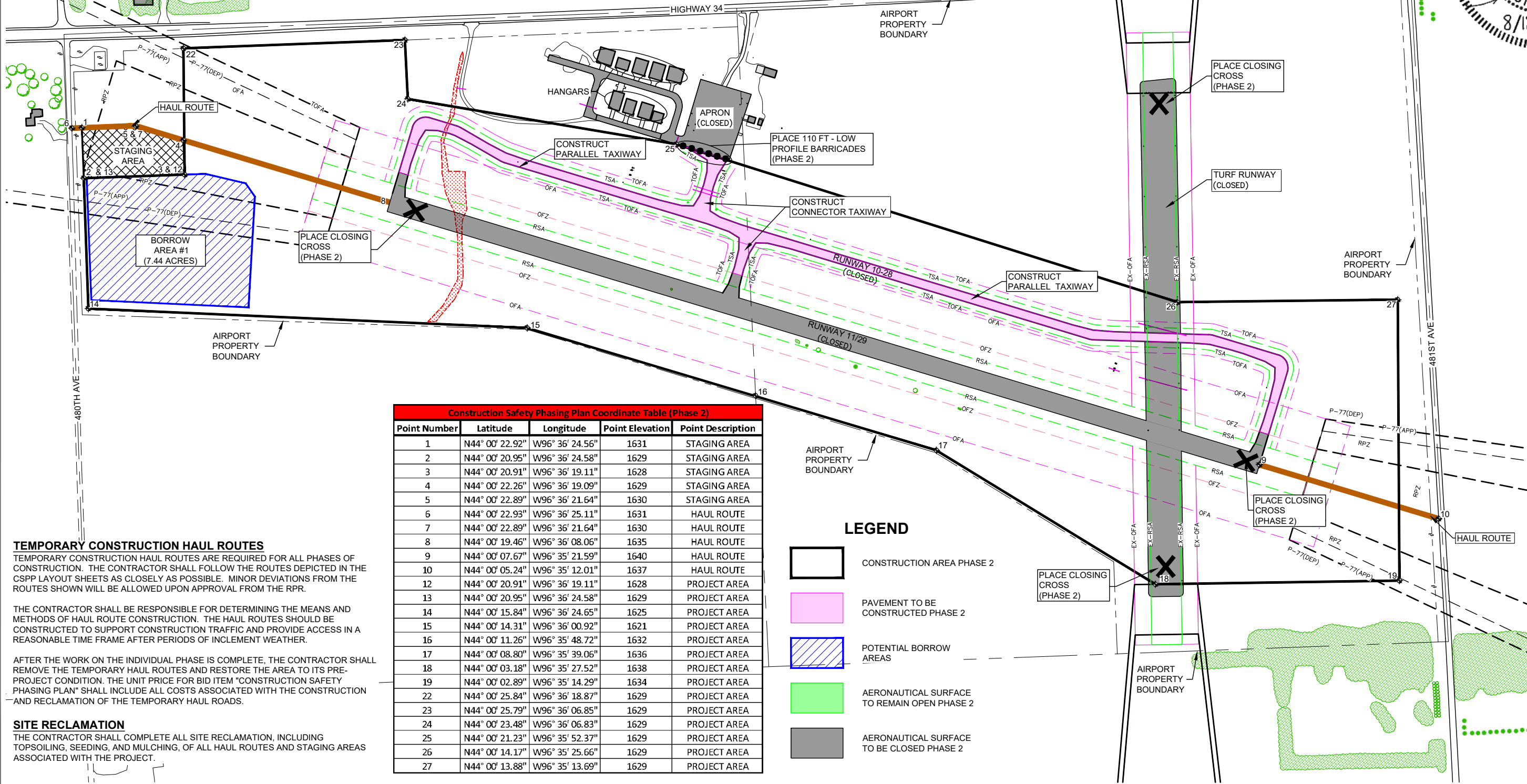


CLOSING CROSS DETAIL

PHASE 2
AIRPORT TO BE CLOSED IN THIS PHASE



LOW PROFILE BARRICADE DETAIL
NO SCALE



Construction Safety Phasing Plan Coordinate Table (Phase 2)				
Point Number	Latitude	Longitude	Point Elevation	Point Description
1	N44° 00' 22.92"	W96° 36' 24.56"	1631	STAGING AREA
2	N44° 00' 20.95"	W96° 36' 24.58"	1629	STAGING AREA
3	N44° 00' 20.91"	W96° 36' 19.11"	1628	STAGING AREA
4	N44° 00' 22.26"	W96° 36' 19.09"	1629	STAGING AREA
5	N44° 00' 22.89"	W96° 36' 21.64"	1630	STAGING AREA
6	N44° 00' 22.93"	W96° 36' 25.11"	1631	HAUL ROUTE
7	N44° 00' 22.89"	W96° 36' 21.64"	1630	HAUL ROUTE
8	N44° 00' 19.46"	W96° 36' 08.06"	1635	HAUL ROUTE
9	N44° 00' 07.67"	W96° 35' 21.59"	1640	HAUL ROUTE
10	N44° 00' 05.24"	W96° 35' 12.01"	1637	HAUL ROUTE
12	N44° 00' 20.91"	W96° 36' 19.11"	1628	PROJECT AREA
13	N44° 00' 20.95"	W96° 36' 24.58"	1629	PROJECT AREA
14	N44° 00' 15.84"	W96° 36' 24.65"	1625	PROJECT AREA
15	N44° 00' 14.31"	W96° 36' 00.92"	1621	PROJECT AREA
16	N44° 00' 11.26"	W96° 35' 48.72"	1632	PROJECT AREA
17	N44° 00' 08.80"	W96° 35' 39.06"	1636	PROJECT AREA
18	N44° 00' 03.18"	W96° 35' 27.52"	1638	PROJECT AREA
19	N44° 00' 02.89"	W96° 35' 14.29"	1634	PROJECT AREA
22	N44° 00' 25.84"	W96° 36' 18.87"	1629	PROJECT AREA
23	N44° 00' 25.79"	W96° 36' 06.85"	1629	PROJECT AREA
24	N44° 00' 23.48"	W96° 36' 06.83"	1629	PROJECT AREA
25	N44° 00' 21.23"	W96° 35' 52.37"	1629	PROJECT AREA
26	N44° 00' 14.17"	W96° 35' 25.66"	1629	PROJECT AREA
27	N44° 00' 13.88"	W96° 35' 13.69"	1629	PROJECT AREA

LEGEND

- CONSTRUCTION AREA PHASE 2
- PAVEMENT TO BE CONSTRUCTED PHASE 2
- POTENTIAL BORROW AREAS
- AERONAUTICAL SURFACE TO REMAIN OPEN PHASE 2
- AERONAUTICAL SURFACE TO BE CLOSED PHASE 2

TEMPORARY CONSTRUCTION HAUL ROUTES

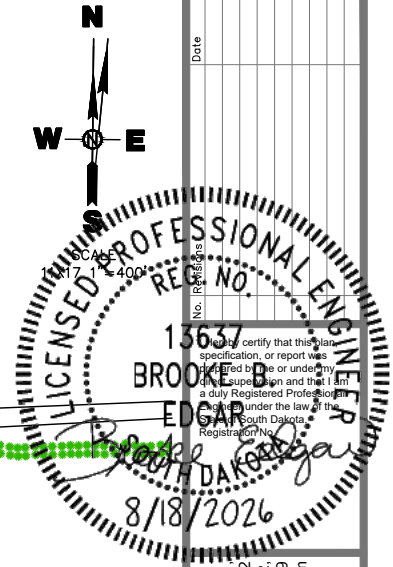
TEMPORARY CONSTRUCTION HAUL ROUTES ARE REQUIRED FOR ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL FOLLOW THE ROUTES DEPICTED IN THE CSPP LAYOUT SHEETS AS CLOSELY AS POSSIBLE. MINOR DEVIATIONS FROM THE ROUTES SHOWN WILL BE ALLOWED UPON APPROVAL FROM THE RPR.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE MEANS AND METHODS OF HAUL ROUTE CONSTRUCTION. THE HAUL ROUTES SHOULD BE CONSTRUCTED TO SUPPORT CONSTRUCTION TRAFFIC AND PROVIDE ACCESS IN A REASONABLE TIME FRAME AFTER PERIODS OF INCLEMENT WEATHER.

AFTER THE WORK ON THE INDIVIDUAL PHASE IS COMPLETE, THE CONTRACTOR SHALL REMOVE THE TEMPORARY HAUL ROUTES AND RESTORE THE AREA TO ITS PRE-PROJECT CONDITION. THE UNIT PRICE FOR BID ITEM "CONSTRUCTION SAFETY PHASING PLAN" SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE CONSTRUCTION AND RECLAMATION OF THE TEMPORARY HAUL ROADS.

SITE RECLAMATION

THE CONTRACTOR SHALL COMPLETE ALL SITE RECLAMATION, INCLUDING TOPSOILING, SEEDING, AND MULCHING, OF ALL HAUL ROUTES AND STAGING AREAS ASSOCIATED WITH THE PROJECT.



416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



PHASE 2, CONSTRUCTION
SAFETY PHASING PLAN

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-02
VP. No: SAFE(2)
Date: 8/18/26

Description of Work

The project shall consist of the reconfiguration of the runway and taxiways at the Flandreau Municipal Airport. A new 75' x 3600' asphalt runway, and 1,887' of new 35' wide connector and partial parallel taxiways will be constructed with the project. Additionally, the airports existing runway will be repurposed as a parallel taxiway and will have its asphalt surfacing rehabilitated (mill & overlay). The major areas of work shall consist of: site clearing, excavation, grading, asphalt paving, storm sewer and underdrain pipe installation, site restoration, runway and taxiway electrical and lighting, and various other items of related construction.

Coordination

This Construction Safety Phasing Plan (CSPP) shall be discussed, at the Pre-Bid Conference (if applicable), Pre-Construction Conference and Construction Progress Meetings. A schedule for Construction Progress Meetings shall be developed by the Engineer, Sponsor, and Contractor at the Pre-Construction Conference.

Any changes to the CSPP shall not be implemented until approved, in writing, by the Sponsor and the FAA.

At least seventy two (72) hours prior to the Pre-Construction Conference and/or start of construction, the Sponsor shall notify the local Tech Operations (Tech Ops) SSC Manager (contact information can be obtained from the MOCC at 800-322-8879). The Sponsor should request to have a Tech Ops representative attend the Pre-Construction Conference for the purpose of identifying all FAA facilities, their associated critical areas, their associated cables (power and control) and schedule shutdown of these facilities, if necessary. The local FAA Tech Ops office shall be coordinated with and invited to all meetings pertaining to the above proposal and any/all concerns must be addressed/resolved prior to the start of construction. The Contractor shall be responsible for locating utility lines and hand digging to locate FAA cabling and shall provide adequate provisions to protect all FAA cables exposed during the proposed work. The Sponsor/Contractor shall be responsible for notifying the Tech Ops District Office representative at the project Pre-Construction Conference should cable relocation be necessary. Any damage to FAA cables, access roads, or FAA facilities during the construction will require the Contractor to replace any damaged cables, perform access road repairs, or replace FAA facilities to the Tech Ops District Office's requirements, at the Contractor's expense. If any FAA cables are damaged, the Contractor shall replace the cables in their entirety. The splicing of cables is not an acceptable form of repair.

Phasing

Phase 1: Runway 11/29 Excavation and Grading (Base Bid)

- Excavation and grading for Runway 11/29 construction.
- Excavation and grading for connector taxiway construction (outside of existing Runway OFZ).
- Installation of minor airfield electrical conduit.
- The contractor is responsible for scheduling, coordinating, and completing the excavation, grading, and asphalt paving work by the dates specified in the Special Conditions of the project specifications. Failure to complete the any of the required work by the specified dates may result in Liquidated Damages being assessed at the rates set forth the Special Conditions of the specifications.
- The airport's existing runway will remain open during work in Phase 1. At no time prior to the beginning of Phase 2, shall any contractor

- personnel, vehicle, or equipment enter into the OFZ of the existing runway.
- See CSPP Layout Sheet(s) for details.

Phase 2: Runway 11/29 Asphalt Paving, Parallel and Connector Taxiway Construction and Airfield Electrical (Alternate Bids 2 & 3)

- Full depth reclamation of existing runway and connector taxiway surfacing.
- Excavation and grading for parallel and connector taxiway construction.
- Asphalt Paving
- Pavement Markings
- Installation of MIRL, PAPI, REIL MITL, signage, and other airfield electrical components.
- The contractor shall notify the Engineer and Sponsor a minimum of 15 days prior to beginning work on Phase 2. During work on Phase 2, the airport will be closed to all air traffic.
- Work on Phase 1 and Phase 2 can be completed concurrently.
- The contractor is responsible for scheduling, coordination, and completing the excavation, grading, and asphalt paving work by the dates specified in the Special Conditions of the project specifications. Failure to complete the any of the required work by the specified dates may result in Liquidated Damages being assessed at the rates set forth the Special Conditions of the specifications.
- See CSPP Layout Sheet(s) for details.

Areas and Operations Affected by Construction Activity

The following Airport Facilities shall remain Open to Air Traffic:

Phase 1: Runway 11/29 Construction

- Runway 10/28
- Connector Taxiway
- G.A. Apron
- Hangar Taxilanes

Phase 2: Parallel and Connector Taxiway Construction

- None (The Flandreau Municipal Airport shall be closed for the duration of this phase of construction)

The following Airport Facilities shall remain closed to Air Traffic:

Phase 1: Runway 11/29 Construction

- None (All existing airside facilities at the Flandreau Municipal Airport will remain open during this phase of construction).

Phase 2: Parallel and Connector Taxiway Construction

- Runway 10/28
- Connector Taxiway
- G.A. Apron
- Hangar Taxilanes

Navigation Aid (NAVAID) Protection

Airport Owned NAVAIDs

The Airport Manager shall shut down all Airport owned NAVAIDs that are

associated with closed and/or displaced runways and issue the proper Notice to Airmen (NOTAM). The Contractor shall take precaution as to not damage existing facilities or underground cabling. In the event Airport owned NAVAIDs or the cabling is damaged by the Contractor, the Contractor shall repair or replace the affected facilities at the direction of the Engineer, and at the Contractor's expense. The following Airport owned NAVAIDs shall be shut down:

Phase 1: Runway 11/29 Construction

- None (No Airport Owned NAVAIDs will be impacted during this phase of construction)

Phase 2: Parallel and Connector Taxiway Construction

- Runway 10/28 MIRL
- Runway 10/28 PAPI-2L
- Connector Taxiway MITL
- Airport Rotating Beacon

FAA Owned NAVAIDs

In the event FAA owned NAVAIDs are affected and will need to be shutdown, the Contractor shall notify the Airport Manager 15 days in advance of when the affected facility will need to be shut down. FAA personnel shall shut down all affected FAA NAVAIDs and issue the proper NOTAMs. The Contractor shall take precaution as to not damage existing facilities or underground cabling. In the event FAA owned NAVAIDs or the cabling is damaged by the Contractor, the Contractor shall repair or replace the affected facilities at the direction of the FAA, at the Contractor's expense. Unless specifically shown in the Plans, the Contractor shall not have personnel or equipment located in the Critical Areas of FAA NAVAIDs (see CSPP Layout Sheet(s) for Critical Area locations, if applicable). The following FAA owned NAVAIDs shall be shut down:

Phase 1: Runway 11/29 Construction

- None (No FAA owned NAVAIDS will be impacted during the phase)

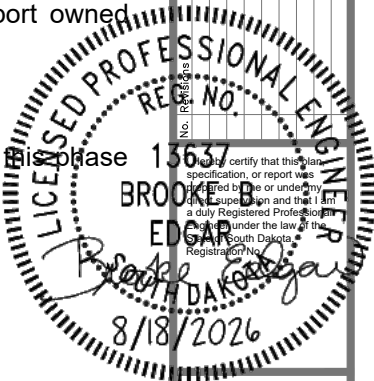
Phase 2: Parallel and Connector Taxiway Construction

- None (No FAA owned NAVAIDs will be impacted during the phase)

Contractor Access

Stockpiled Construction Materials

Stockpiled materials and equipment storage are not permitted within the Runway/Taxiway Safety Area (RSA/TSA), Obstacle Free Zone (OFZ), or the Runway/Taxiway Object Free Area (ROFA/TOFA) of an operational runway/taxiway. Stockpiled construction materials shall be stockpiled, if necessary, in the Construction Staging Area as shown on the CSPP Layout Sheet(s). No marking or lighting is required; however, the Contractor shall ensure that the materials do not become wildlife attractants and take measures to ensure they do not become Foreign Object Debris (FOD) hazards.



416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



CONSTRUCTION SAFETY
PHASING PLAN NOTES
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-02
VP. No:	SAFEN(1)
Date:	8/18/26

Vehicle and Pedestrian Operations

Vehicle and pedestrian access routes must be controlled to prevent inadvertent or unauthorized entry of persons, vehicles, or animals onto the Area of Operations (AOA). The Contractor shall access the Airport as shown on the CSPP Layout Sheet(s). No other access shall be allowed. When the construction access gate is not in use for hauling or construction access, the Contractor shall close and lock the gate. When the gate is unlocked or open, the Contractor shall monitor the construction access gate to prevent any unauthorized access. The Contractor shall provide a padlock and place this lock through the Airport's lock and chain. Prior to entering and leaving the Airport each day, the Contractor shall notify Airport Operations.

The Construction Staging Area, as shown on the CSPP Layout Sheet(s), shall be used for parking the Contractor's equipment and vehicles (including personal vehicles). All equipment shall be parked in the Construction Staging Area when not in use. The Contractor shall be required to strip and stockpile a minimum of 6" of topsoil from the site. Upon completion of the construction, the Contractor shall be required to place the salvaged topsoil, grade to drain, and seed and fertilize the disturbed area. This work shall be considered incidental to the Construction Safety Phasing Plan item with no additional compensation being made. The requirements of this paragraph shall also pertain to haul/access routes on-site from the Construction Staging Area to the work area.

The Contractor shall utilize the haul/access routes shown on the CSPP Layout Sheet(s) unless authorized, in writing, by the Sponsor. Maintenance and upkeep of the haul roads are the responsibility of the contractor. Haul roads in any airport traffic areas must be especially monitored for dust and debris to prevent any potential FOD situations. A mechanical sweeper shall be used to remove FOD and contaminants from paved haul routes. Application of water on dirt or gravel haul routes must be provided as often as necessary to control dust. The contractor is responsible for any damage caused by construction traffic on the haul roads, regardless of whether in an approved or un-approved traffic area. Special attention shall be given to ensure that if construction traffic is to share or cross any ARFF routes (if applicable) that ARFF right of way is not impeded at any time, and that construction traffic on haul roads does not interfere with NAVAIDs or approach surfaces of operational runways. Following construction completion, the contractor shall grade, reseed, clean or otherwise restore the haul route areas to their original conditions prior to construction activities. Work necessary in maintaining the haul roads and compliance with safety and security shall be considered incidental to the Construction Safety Phasing Plan item with no additional compensation being made.

All vehicles and/or equipment shall be provided with either a 3-foot by 3-foot square flag having a checkered pattern of international orange and white squares at least 1 foot on each side that is on a staff attached to the vehicle so that the flag will be readily visible or a yellow flashing light that is mounted on the uppermost part of the vehicle structure.

At no time shall equipment or personnel enter portions of the active AOA outside the contract area unless permitted and accompanied by an airport approved escort.

The Contractor may monitor air traffic on CTAF 122.9.

Wildlife Management

The Flandreau Municipal Airport does not implement a Wildlife Hazard Management Plan (WHMP) and does not have a Wildlife/Security Fence around the perimeter of the airport property to minimize the risk of wildlife strikes, particularly with large wildlife. In order to minimize increasing the Wildlife Attractants on the airport, the Contractor shall clean up trash, food scraps, and waste from the construction site daily. All existing fencing, regardless of type, shall remain undisturbed unless the Plans specifically require any alterations and all gates shall remain closed when not in use. Any temporary grading shall be performed in a manner as to not result in having standing water and shall be re-seeded with the short grass seed mix provided in the specifications or otherwise approved by the Engineer.

The Contractor shall notify the Airport Manager immediately if deer or other large animals are sighted on the airport.

Foreign Object Debris (FOD) Management

Waste and loose materials, commonly referred to as FOD, are capable of causing damage to aircraft landing gears, propellers, and jet engines. Construction contractors must not leave or place FOD on or near active aircraft movement areas. Materials capable of creating FOD must be continuously removed during the construction project. Fencing (other than security fencing) may be necessary to contain material that can be carried by wind into areas where aircraft operate.

The Contractor shall sweep and/or pick up any and all debris that is either dropped, tracked, or blown onto or into an active aircraft movement area daily or as required by the Engineer.

Hazardous Materials (HAZMAT) Management

The Contractor shall not be allowed to perform any major mechanical/maintenance work in the Construction Staging Area. Any spills shall be contained, cleaned up, and disposed of expeditiously at the Contractor's expense. See Storm Water Pollution Prevention Plan (SWPPP) for more details.

Notification of Construction Activities

Responsible Representatives

Persons who have questions concerning policies, procedures, or requirements of the Construction Safety Phasing Plan, should contact the Airport Manager or Engineer. Persons who observe a security violation, suspicious act or any serious act that may endanger persons or property, should immediately contact the Airport Manager.

- Airport Sponsor (City of Flandreau)
 - Airport Manager (Cohl Turnquist)
 - Engineer (Helms and Associates)
 - FAA ADO (David Ferrell)
 - SD-DOT Construction Engineer (Brock Antijunti)

Contact Information for Contractor(s) and Subcontractor(s) will be provided at the Pre-Construction Conference
- (605) 997-2492

(605) 997-2492

(605) 225-1212

(701) 323-7353

(605) 773-5591

NOTAMS

Only the airport operator may initiate or cancel NOTAMs on airport conditions, and is the only entity that can close or open a runway. The airport operator must coordinate the issuance, maintenance, and cancellation of NOTAMs about airport conditions resulting from construction activities with tenants and the local air traffic users, and must provide information on closed or hazardous conditions on airport movement areas to

the FAA Flight Service Station (FSS) so it can issue a NOTAM. The airport operator must file and maintain a list of authorized representatives with the FSS. Only the FAA may issue or cancel NOTAMs on shutdown or irregular operation of FAA owned facilities. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify the airport operator.

Contractor shall coordinate with the Airport Manager for the issuance of all NOTAMs related to the project construction. The Airport Manager and the FAA shall generate and issue NOTAMs based on the Contractor's construction schedule and facility impacts.

Emergency Notification Procedure and Coordination with ARFF

In the case of a life threatening situation, including situations that require the Airport Rescue and Fire Fighting (ARFF) unit, dial 911 and contact the Airport Manager immediately thereafter. The Airport Manager will coordinate any emergency response. Any other coordination and/or communication required with the ARFF, if applicable, shall be channeled through the Airport Manager.

Notification to the FAA

Any person proposing construction or alteration of objects that affect navigable airspace, as defined in Part 77, must notify the FAA. This includes construction equipment and proposed parking areas for this equipment (i.e. cranes, graders, other equipment) on airports. FAA Form 7460-1, Notice of Proposed Construction or Alteration, can be used for this purpose and submitted to the appropriate FAA Airports Regional or District Office. Further guidance is available on the FAA web site at <https://oeaaa.faa.gov>.

The Contractor shall submit a 7460-1 to the FAA for airspace analysis for any and all structures, equipment, stockpiles, batch plants, etc., that will exceed 16' above ground level (AGL). Prior to placing any of these items, the Contractor shall obtain a "Determination of No Hazard to Air Navigation" and provide the Sponsor and Engineer copies.

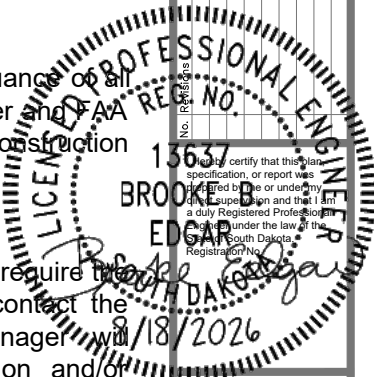
If FAA NAVAIDs are shut down for any phase of the project, FAA Tech Ops shall be notified. The Airport Manager shall coordinate with Tech Ops a minimum of 7 days prior to the actual shutdown of the facilities.

Inspection Requirements

The Engineer, Airport Manager, and Contractor shall conduct periodic inspections of the construction site to ensure that areas surrounding the sites are safe for aircraft operations. Airport Operations personnel will note any discrepancies on the daily inspection checklist.

The Airport Manager shall coordinate with the FAA airport safety certification inspector for final inspections prior to opening areas for aircraft operations.

Frequent inspections will be made by the Airport Manager and the Engineer to ensure that the Contractor is following the recommended safety procedures. Any deficiencies noted by these inspections shall be corrected by the Contractor and verified by the Engineer immediately prior to commencing any additional work.



416 Production St N
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



CONSTRUCTION SAFETY PHASING PLAN NOTES

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-02
VP. No:	SAFEN(2)
Date:	8/18/26

Underground Utilities

The Contractor shall be responsible for locating and preserving all existing utilities in their present condition. Existing utilities shown on the plans are for general information only and shall be located by the Contractor via SD One Call (800) 781-7474 prior to the start of construction. The **Flandreau Municipal Airport (605) 997-2492** shall be contacted for locating all airport owned utilities. Existing utilities included but not limited to:

- Underground and Overhead Electrical
- Underground Electrical Duct
- Duct Markers
- Underground and Overhead Telephone
- Airport Lighting and Underground Cable
- Culverts and Drainage Structures

See “Coordination” regarding FAA utilities.

Penalties

If at any point a safety violation is noted, all construction activities in the area of the violation will be immediately terminated. Before construction can resume, the Contractor shall provide a written statement demonstrating to the Sponsor that construction can once again occur without violations to the safety procedures. The Contractor is not eligible for additional compensation for the down-time damages or any other claims when construction is terminated or progress is slowed due to a safety violation.

If multiple safety violations occur, the person or persons responsible will not be allowed on the airfield for the remainder of the project. The Contractor is not eligible for additional compensation for the down-time damages or any other claims when construction is terminated or progress is slowed due to a safety violation.

The duty of the Engineer or Sponsor to conduct construction review of the Contractors performance is not intended to include review of the adequacy of the Contractor's safety measures, in or near the construction site. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and will not be limited to normal working hours.

Special Conditions

In the event of an aircraft emergency, severe weather conditions, or any issue that may affect aircraft operations, the Contractor's personnel and/or equipment may be required to immediately vacate the area. The Contractor will receive notification from the Airport Manager and/or the Engineer when special conditions require the construction site to be vacated.

Runway and Taxiway Visual Aids

Areas where aircraft will be operating shall be clearly and visibly separated from construction areas, including closed runways. Throughout the duration of the construction project, the Contractor shall verify that these areas remain clearly marked and visible at all times and that marking, lighting, signs, and visual NAVAIDs remain in place and operational. See details for Runway and Taxiway Visual Aids in the CSPP Layout Sheet(s).

General

Airport markings, lighting, signs, and visual NAVAIDs must be clearly visible to pilots, not misleading, confusing, or deceptive. All must be secured in

place to prevent movement by prop wash, jet blast, wing vortices, or other wind currents and constructed of materials that would minimize damage to an aircraft in the event of inadvertent contact (frangible couplings). Items used to secure such markings must be of a color similar to the marking.

Markings

Markings must be in compliance with the standards of AC 150/5340-1, Standards for Airport Markings. Runways and runway exit taxiways closed to aircraft operations are marked with a yellow X.

Temporarily Closed Runways. For runways that have been temporarily closed, place an X at each end of the runway directly on or as near as practicable to the runway designation numbers.

Displaced Thresholds. Pavement markings for a displaced threshold consist of a runway threshold bar and white arrowheads with and without arrow shafts. These markings are required to identify the portion of the runway before the displaced threshold to provide centerline guidance for pilots during approaches, takeoffs, and landing rollouts from the opposite direction. See AC 150/5340-1.

Permanently Closed Taxiways. AC 150/5300-13 notes that it is preferable to remove the pavement, but for pavement that is to remain, place an X at the entrance to both ends of the closed section. Obliterate taxiway centerline markings, including runway leadoff lines, leading to the closed taxiway.

Temporarily Closed Taxiways. Place barricades outside the safety area of intersecting taxiways. For runway/taxiway intersections, place an X at the entrance to the closed taxiway from the runway. If the taxiway will be closed for an extended period, obliterate taxiway centerline markings, including runway leadoff lines, leading to the closed section. If the centerline markings will be reused upon reopening the taxiway, it is preferable to paint over the marking. This will result in less damage to the pavement when the upper layer of paint is ultimately removed.

If unable to paint temporary markings on the pavement, construct them from any of the following materials: fabric, colored plastic, painted sheets of plywood, or similar materials. They must be properly configured and appropriately secured to prevent movement by prop wash, jet blast, or other wind currents.

Lighting and Visual NAVAIDs

When disconnecting runway and taxiway lighting fixtures, disconnect the associated isolation transformers. Alternately, cover the light fixture in such a way as to prevent light leakage. Avoid removing the lamp from energized fixtures because an excessive number of isolation transformers with open secondaries may damage the regulators and/or increase the current above its normal value. Secure, identify, and place any above ground temporary wiring in conduit to prevent electrocution and fire ignition sources.

Temporarily Closed Runways. For runways that have been temporarily closed, but for an extended period, and for those with pilot controlled lighting, disconnect the lighting circuits or secure switches to prevent inadvertent activation.

Displaced Thresholds. Edge lighting in the area of the displacement emits red light in the direction of approach and yellow light in the opposite direction. See AC 150/5340-30 for details on lighting displaced thresholds.

Temporary runway thresholds and runway ends must be lighted if the runway is lighted and it is the intended threshold for night landings or instrument meteorological conditions.

Temporary threshold lights and end lights and related visual NAVAIDs are installed outboard of the edges of the full-strength pavement only when they cannot be installed on the pavement. They are installed with bases at grade level or as low as possible, but not more than 3 in (7.6 cm) above ground. When any portion of a base is above grade, place properly compacted fill around the base to minimize the rate of gradient change so aircraft can, in an emergency, cross at normal landing or takeoff speeds without incurring significant damage. See AC 150/5370-10.

Issue a NOTAM to inform pilots of temporary lighting conditions.

Temporarily Closed Taxiways. If possible, deactivate the taxiway lighting circuits. When deactivation is not possible (for example other taxiways on the same circuit are to remain open), cover the light fixture in such a way as to prevent light leakage (**This shall be the responsibility of the Contractor**).

Signs

To the extent possible, signs must be in conformance with AC 150/5345-44, Specification for Runway and Taxiway Signs and AC 150/5340-18, Standard for Airport Sign Systems. Any time a sign does not serve its normal function; it must be covered or removed to prevent misdirecting pilots (**This shall be the responsibility of the Contractor**). Note that information signs identifying a crossing taxiway continue to perform their normal function even if the crossing taxiway is closed.

Marking and Signs for Access Routes

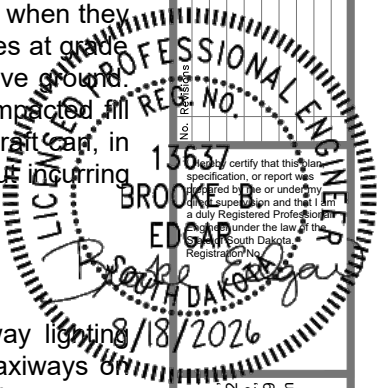
All exits and entrances to Federal, County, State, and Local roads shall be signed in accordance with the Manual on Uniform Traffic Control Devices (MUTCD). This includes all pit and airport entrances as required. This work shall be considered incidental to the Construction Safety Phasing Plan item with no additional compensation being made.

Signs adjacent to areas used by aircraft must comply with the frangibility requirements of AC 150/5220-23, Frangible Connections, which may require modification to size and height guidance in the MUTCD.

Orange Construction Signs, if applicable, comprise a message in black on an orange background. Temporary signs must meet the standards for such signs in Engineering Brief 93, Guidance for the Assembly and Installation of Temporary Orange Construction Signs.

Hazard Marking, Lighting, and Signing

The Contractor shall install Hazard Marking, Lighting and Signing as detailed in the CSPP Layout Sheet(s).



416 Production St N
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



CONSTRUCTION SAFETY
PHASING PLAN NOTES

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-02
VP. No:	SAFEN(3)
Date:	8/18/26

Equipment

Barricades, including traffic cones, (weighted or sturdily attached to the surface) are acceptable methods used to identify and define the limits of construction and hazardous areas on airports. Careful consideration must be given to selecting equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast. The spacing of barricades must be such that a breach is physically prevented barring a deliberate act. If barricades are intended to exclude vehicles, gaps between barricades must be smaller than the width of the excluded vehicles, generally 4 ft. If barricades are intended to exclude pedestrians, they must be continuously linked. Continuous linking may be accomplished through the use of ropes, securely attached to prevent FOD.

Lights must be red, either steady burning or flashing, and must meet the luminance requirements of the State Highway Department. Batteries powering lights will last longer if lights flash. Lights must be mounted on barricades and spaced at no more than 10 ft. Lights must be operated between sunset and sunrise and during periods of low visibility whenever the airport is open for operations. They may be operated by photocell, but this may require that the contractor turn them on manually during periods of low visibility during daytime hours.

Barricades are not permitted in any active safety area. Within a runway or taxiway object free area, and on aprons, use flashing or steady burning red lights as noted above, collapsible barricades marked with diagonal, alternating orange and white stripes; to separate all construction/maintenance areas from the movement area. Barricades may be supplemented with alternating orange and white flags at least 20 by 20 in (50 by 50 cm) square and securely fastened to eliminate FOD. All barricades adjacent to any open runway or taxiway / taxilane safety area, or apron must be as low as possible to the ground, and no more than 18 in high, exclusive of supplementary lights and flags. Barricades must be of low mass; easily collapsible upon contact with an aircraft or any of its components; and weighted or sturdily attached to the surface to prevent displacement from prop wash, jet blast, wing vortex, or other surface wind currents. If affixed to the surface, they must be frangible at grade level or as low as possible, but not to exceed 3 in (7.6 cm) above the ground.

The Contractor shall have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The contractor must file the contact person's information with the airport operator. Lighting should be checked for proper operation at least once per day, preferably at dusk.

Protection of Runway and Taxiway Safety Areas

See CSPP Layout Sheet(s) for dimensions and details.

Runway Safety Area (RSA)

A runway safety area is the defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway (see AC 150/5300-13). Construction activities within the existing RSA are subject to the following conditions:

- 1. No construction may occur within the existing RSA while the runway is open for aircraft operations.
- 2. Open trenches or excavations are not permitted within the RSA while the runway is open. If possible, backfill trenches before the runway is opened. If the runway must be opened before excavations are backfilled, cover the excavations appropriately. Covering for open

trenches must be designed to allow the safe operation of the heaviest aircraft operating on the runway across the trench without damage to the aircraft. The Contractor shall mark open trenches and excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

- 3. Erosion Control. Soil erosion must be controlled to maintain RSA standards, that is, the RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

Runway Object Free Area (ROFA)

Construction, including excavations, may be permitted in the ROFA. However, equipment must be removed from the ROFA when not in use, and material should not be stockpiled in the ROFA if not necessary. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval.

Taxiway Safety Area (TSA)

A taxiway safety area is a defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway. (See AC 150/5300-13.) Construction activities within the TSA are subject to the following conditions:

- 1. No construction may occur within the TSA while the taxiway is open for aircraft operations.
- 2. Open trenches or excavations are not permitted within the TSA while the taxiway is open. If possible, backfill trenches before the taxiway is opened. If the taxiway must be opened before excavations are backfilled, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the taxiway across the trench without damage to the aircraft.
- 3. Erosion Control. Soil erosion must be controlled to maintain TSA standards, that is, the TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

Taxiway Object Free Area (TOFA)

Unlike the Runway Object Free Area, aircraft wings regularly penetrate the taxiway object free area during normal operations. Thus the restrictions are more stringent. No construction may occur within the taxiway object free area while the taxiway is open for aircraft operations.

Obstacle Free Zone (OFZ)

In general, personnel, material, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations.

Runway Approach/Departure Areas and Clearways

Construction equipment that is being utilized for work in an active runway's approach and/or departure area shall not exceed 16' AGL. Any equipment exceeding these requirements shall not be used unless an FAA Form 7460-1 is filed with the FAA (See Notification to the FAA) and a copy of the "Determination of No Hazard to Air Navigation" has been provided to the Engineer and Airport Sponsor by the Contractor.

Other Limitations on Construction

- 1. No use of tall equipment (cranes, concrete pumps, and so on) unless a 7460-1 determination letter is issued for such equipment.
- 2. No use of open flame welding or torches unless the safety precautions are provided and the airport operator has approved their use.
- 3. No use of electrical blasting caps on or within 1,000 feet (300 meters) of the airport property.
- 4. Construction activities shall be limited to daylight hours.

Safety Plan Compliance Document (SPCD)

Prior to the Pre-Construction Conference and issuance of a Notice to Proceed, the Contractor shall submit, in writing, to the Airport Sponsor a Safety Plan Compliance Document in accordance with AC 150/5370-2.



416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.5121
Fax: 605.225.3189
Email: bobb@helmsengineering.com



CONSTRUCTION SAFETY
PHASING PLAN NOTES
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-02
VP. No:	SAFEN(4)
Date:	8/18/26

DESCRIPTION OF WORK

The project shall consist of the reconfiguration of the runway and taxiways at the Flandreau Municipal Airport. A new 75' x 4,172' asphalt runway, and 2,890' of new 35' wide connector and partial parallel taxiways will be constructed with the project. Additionally, the airports existing runway will be repurposed as a parallel taxiway and will have its asphalt surfacing rehabilitated (mill & overlay). The major areas of work shall consist of: site clearing, excavation, grading, asphalt paving, storm sewer and underdrain pipe installation, site restoration, runway and taxiway electrical and lighting, and various other items of related construction.

GENERAL NOTES

The Contractor shall take all precautions necessary to avoid property damage to adjacent properties during construction of this project. The Contractor shall be held solely responsible for any damages to the adjacent properties occurring during the construction of this project.

NOTE REGARDING EXISTING UTILITIES

The contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans are based on records of the various utility companies and, where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor shall call the appropriate utility companies at least 48 hours before any excavation to request exact field location of utilities.

It is the responsibility of the contractor to relocate all utilities requiring relocation. It is the responsibility of the contractor to verify in the field, the locations of existing water mains, water services, sewer mains and sewer services. The contractor shall be responsible for locating and preserving all existing utilities in their present condition. Existing utilities shown on the plans are for general information only and are to be located by the contractor prior to the start of construction.

Existing utilities included but not limited to:
Underground and overhead electrical
Underground and overhead cable television
Underground water system
Underground sewer system
Underground and overhead telephone
Underground natural gas
One - Call

PROJECT CLEANUP AND SAFETY

The prime contractor shall take all precautions necessary to avoid property damage to adjacent properties during the construction of this project. The contractor will be held solely responsible for any damages to the adjacent properties occurring during the construction of this project.

The designs represented in these plans are in accordance with established practices of civil engineering for the design functions and uses intended by the owner. However, neither Helms and Associates, nor its personnel can or do warranty these designs or plans as constructed except in the specific cases where Helms and Associates personnel observe and control the physical construction on a contemporary basis at the site.

In accordance with generally accepted construction practices, the contractor is solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work this requirement applies continuously and is not limited to normal working hours.

The duty of the engineer or owner to conduct construction review of the contractor's performance is not intended to include review of the adequacy of the contractor's safety measures, in, on, or near the construction site. The contractor shall clean the entire site on a daily basis and should not restrict local traffic over night. All roads leading to the site shall be cleaned as needed as specified by the owners representative.

COORDINATION OF WORK

The City of Flandreau reserves the right to award contracts for other work at the Airport. The contractor shall coordinate his/her work with other contractors to insure the timely completion of all work as bid.

WASTE DISPOSAL SITE

The Contractor shall be required to furnish a site satisfactory to the Engineer for the disposal of broken concrete, rock, non-salvageable asphalt surfacing and other construction/demolition debris generated by this project. The waste disposal site may not be in a stream, stream bank, lake, lake shore or wetland, unless the Contractor has obtained a "404" permit from the U.S. Army Corps of Engineers. No waste including plant foundations shall be burned on site

EXISTING WETLANDS

The project will impact an existing wetland area off of the west end of Runway 10 (See Sheet 43). A portion of this wetland area will be filled during construction. These impacts will be mitigated with the purchasing of credits from a nearby, off-site wetland bank. The contractor shall use caution to avoid disturbing any additional wetland areas other than the those that are intended.

A wetland is defined as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally included swamps, marshes, bogs, and similar areas.

CONSTRUCTION EQUIPMENT

The Contractor shall utilize construction and compaction equipment of appropriate size and weight to accomplish the required results without jeopardizing the stability of the subgrade.

SITE RESTORATION

All disturbed areas shall be topsoiled and seeded/fertilized per the Technical Specifications.

STAGING AREA AND TEMPORARY HAUL ROUTES

The Contractor shall be responsible for returning the staging areas and temporary haul routes to their original conditions, The Contractor shall scarify and loosen compacted soils, replace topsoil, and seed the areas upon completion of the work. No additional compensation shall be allowed for staging area or haul route restoration, and should be considered as incidental work.

HAUL ROADS

Contractor shall obtain written permission from the proper state, county, and municipal authorities for use of local roads as haul roads. A copy shall be sent to the Owner and Engineer prior to construction. The Contractor shall obtain a written release from all cities, counties, and townships owning or maintaining the haul roads used by the Contractor upon completion of the construction. The Contractor shall not traffic loaded trucks on any of the existing asphalt pavement that is to receive an overlay. Additional compensation for maintaining and for final haul road restoration will not be considered.

ITEMS TO BE REMOVED AND SALVAGED

When items are to be removed and salvaged as shown on the plans a site will be designated by the Owner where items are to be stockpiled on airport property.

ENVIRONMENTAL COMMITMENTS

The contractor is responsible for obtaining material source (aggregate, offsite borrow, etc.) clearance for material quality, cultural resources, and threatened or endangered species before taking materials from offsite.

If any construction activity results in discovery of cultural resources, work shall cease until the FAA Airports District Office (ADO) in Bismarck is notified per the Discovery Plan for General Aviation (GA) Projects in the Dakotas. The Contractor would be required to protect the material until cultural resource concerns have been addressed.

CONTAMINATED MATERIAL

The Contractor shall give notice to the Owner if contaminated soil is encountered on the project. The Owner will contact the Department of Agriculture and Natural Resources (DANR) and consultant to inspect and monitor removal of any contaminated soil.

Contaminated soil may be disposed of at the Brookings Regional Landfill, Brookings Landfill phone (605) 693-3667

Piping located in areas of contamination shall require the installation of ductile iron pipe with nitrile butadiene gaskets. Backfill material for trenches located in contaminated soil areas shall be as paid for as Excess Unclassified Excavation.

FIELD LABORATORY

Per the Technical Specifications, the Field Laboratory is for the structure and other incidentals to bring in and setup the laboratory. At the Owner's request, this item may be eliminated from the Contract if Quality Assurance (QA) testing will be performed in the QA testing firm's own laboratory.

If eliminated, there will be no additional compensation to the Contractor for the Field Laboratory. The decision to eliminate this item will be discussed at the Pre-Construction Conference and will be finalized prior to the Contractor installing the Field Laboratory on-site.

WATERING

This item shall consist of furnishing and applying water required in the compaction of embankments, subgrades, subbases, base courses, and for other purposes in accordance with the requirements of these specifications or as directed by the Engineer.

Water, when requested, shall be applied at the locations, in the amounts, and during the hours, including nights, as directed by the Engineer. An adequate water supply shall be provided by the Contractor. The equipment used for watering shall be of ample capacity and of such design as to assure uniform application of water in the amounts directed by the Engineer. When the Bid Schedule does not contain an estimated quantity for watering, the performance of this work including providing and maintaining water plant(s), shall not be paid for directly but shall be considered as a subsidiary obligation of the Contractor covered under other contract items.

EROSION CONTROL MATERIALS

Materials used for High Flow Silt Fence shall be listed on the South Dakota Department of Transportation's Approved Products List.

STORM DRAINAGE PROVISIONS

Since the proposed construction activities involves the disturbance of more than 1-acre, an EPA National Pollutant Discharge Elimination Systems (NPDES) storm water general permit for South Dakota construction activities is required. The City will file a Notice of Intent with the NPDES department prior to start of construction activities. The Contractor will be required to sign the Owner's Storm Water Pollution Prevention Plan as provided in the plan sheets and in Section 01560 of the project specifications. A copy of this plan will be required to be on-site during construction activities. The Contractor may contact the SD Department of Agricultural and Natural Resources at 605-773-3351 or 1-800-SDSTORM for more information concerning this program.

The Contractor shall provide for and maintain drainage of storm waters away from existing buildings, homes, and exposed surfaces or provide immediate pumping of ponded areas on the work site. No compensation will be made for damage resulting from improper drainage during construction.

REMOVE AND DISPOSE EXISTING CULVERT

The contractor shall be responsible for removing and disposing existing corrugated metal culverts (including Flared Ends) ranging in size from 18" to 24", at the locations designated in the plans. The method of culvert removal will be determined by the contractor but shall cleanly and efficiently remove the existing culvert without excessive ground disturbance. The work will be measured and paid for by the linear footage of culvert removed. Separate payments will not be made for culverts of different sizes. The contractor's unit price for "Remove and Dispose Existing Culvert" shall include all costs necessary to remove the existing culverts and flared ends and dispose of them off of airport property. Additional work resulting from differences in culvert sizes from those called out in the plans will be considered incidental, and no additional payment will be made.

SUBBASE COURSE (FURNISHED)

The contractor shall furnish a material meeting the requirements provided in Section "P-154 Subbase Course" of the project specifications for use as the furnished subbase material. The contractor's unit price for "Subbase Course (Furnished)" shall include all costs associated with the furnishing, placing, and compacting of the subbase material. Compensation for the material will be paid for on a per cubic yard basis per Section P-154 of the specifications. Additionally, due to construction sequencing, all pavements to be constructed in Phase 1 shall utilize the furnished material for the entirety of the subbase course.

SUBBASE COURSE (RECYCLED)

Pavements constructed during Phase 2 shall utilize recycled material for use as a portion of the subbase course. The existing runway includes a nominal pavement section depth of 15". This material shall be recycled for reuse as subbase course. The contractor is responsible for developing a method of removing, processing, and recycling the existing asphalt and base material in order to produce a subbase material meeting the requirements of Section "P-154 Subbase Course" of the project specifications. The contractor's price for "Subbase Course (Recycled)" shall include all costs and work required to process, place, and compact the recycled material to the requirements specified in Section P-154. Compensation for the material will be paid for on a per cubic yard basis per Section P-154 of the specifications.

ON-SITE BORROW MATERIAL AREAS

The project shall require the placement of subgrade material obtained from borrow areas located within existing airport property. These areas are designated in the plans and will be utilized by the contractor to obtain the additional fill material needed to construct the various project components to the established lines and grades shown on the project plans. Prior to removing any material from these areas, the contractor shall strip and stockpile all topsoil and organic material. After the borrow area has been excavated to the extents determined by the engineer, the stripped topsoil shall be replaced to a uniform depth (minimum of 6") across the previously stripped areas. The stripping, stockpiling and replacement of topsoil shall be considered incidental to the item "On-Site Borrow Material". The quantity of topsoil stripped will not be measured and no additional compensation will be made.

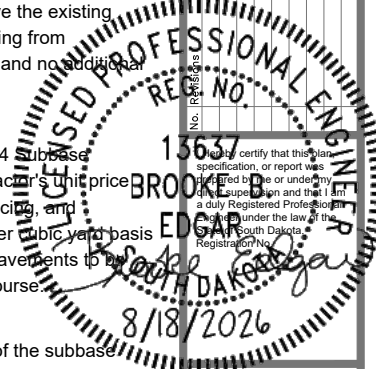
Digital grading surfaces have been developed for the borrow area shown in these plans. Prior to beginning earthmoving operations, the contractor shall download these surface files and ensure that their borrow operations do not exceed the grades/lines provided.

REMOVE AND DISPOSE EXISTING BARB WIRE FENCE

The contractor shall remove the existing perimeter barbed wire fencing prior to beginning earth moving operations. This work shall include the removal of all fence posts, wire, ties and any other misc. materials associated with the existing barbed wire fence. The fence removal will be measured and paid for on a linear foot basis. The contractors unit price shall include all costs necessary to complete the work as described above.

GATE INSTALLATION LOCATIONS

The locations of the new gates to be installed in the new perimeter fencing will be determined by the owner prior to installation. The location of the gates will be clearly marked by the RPR prior to the contractor beginning fence installation operations.



416 Production SIN
P.O. Box 111,
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

PLAN NOTES

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-02
VP. No:	NOTES
Date:	8/18/26

RUNWAY 11/29 & PARALLEL TAXIWAY CONSTRUCTION FLANDREAU MUNICIPAL AIRPORT FLANDREAU, SOUTH DAKOTA HELMS A-9873 ESTIMATE OF QUANTITIES				
Base Bid - Runway 11/29 Grading and Aggregates				
Item No.	Spec No.	Item Description	Quantity	Unit
1	C-105	Mobilization	1.0	L.S.
2	C-100	Contractor Quality Control Program	1.0	L.S.
3	S-100	Construction Safety Phasing Plan	1.0	L.S.
4	P-152	Unclassified Excavation	121,004	CuYd
5	P-152	On-Site Borrow Material	43,268	CuYd
6	P-154	Subbase Course (Furnished)	20,681	CuYd
7	P-154	Geotextile Separator Fabric	33,842	SqYd
8	P-154	Geogrid	1,500	SqYd
9	P-208	Aggregate Base Course	5,362	CuYd
10	F-161	Furnish and Install Barbed Wire Fence	6,630	Ft
11	F-161	Furnish and Install 20' Tubular Swing Gate	3	Each
12	D-701	48" RCP	280	Ft
13	D-701	48" RCP Flared End	2	Each
14	D-701	24" RCP	114	Ft
15	D-701	24" RCP Flared End	2	Each
16	D-705	4" Perforated Underdrain Pipe	7,642	Ft
17	D-705	4" Solid Wall Underdrain Pipe	131	Ft
18	D-705	Underdrain Cleanout	20	Each
19	D-705	Underdrain Tee	1	Each
20	D-705	Underdrain Cross	1	Each
21	D-705	Connect Underdrain to RCP Storm Sewer	2	Each
22	T-901	Seeding and Fertilizing	35.0	Acre
23	T-905	Topsoil (Removed from Stockpile)	18,420	CuYd
24	T-908	Mulching	169,400	SqYd
25	Plans	Remove and Dispose Existing Barb Wire Fence	3,920	Ft
26	Plans	Underdrain Outlet Structure	1	Each
27	Plans	Culvert Protection	6	Each
28	Plans	Erosion Control Wattle	20	Each
29	Plans	High Flow Silt Fence	590	Ft
30	L-110	Sand-Encased, Electrical Conduit, (2) 2-Inch, Type III, Sch. 80 PVC in Trench	190	Ft
31	L-110	Sand-Encased, Electrical Conduit, (3) 2-Inch, Type III, Sch. 80 PVC in Trench	120	Ft

Alternate Bid 1 - Runway 11/29 Asphalt Surfacing				
Item No.	Spec No.	Item Description	Quantity	Unit
1-1	C-105	Mobilization	1.0	L.S.
1-2	C-100	Contractor Quality Control Program	1.0	L.S.
1-3	P-401	Asphalt Base/Surface Course	7,730.8	Ton
1-4	P-401	Asphalt Binder (PG 64-34)	541.2	Ton
1-5	P-602	Emulsified Asphalt Prime Coat	41.5	Ton
1-6	P-603	Emulsified Asphalt Tack Coat	13.5	Ton
1-7	P-620	Runway and Taxiway Pavement Markings (White)	15,020	SqFt
1-8	P-620	Runway and Taxiway Pavement Markings (Yellow)	563	SqFt
1-9	P-620	Runway and Taxiway Pavement Markings (Black)	363	SqFt
1-10	P-620	Temporary Runway and Taxiway Pavement Markings (White)	15,020	SqFt
1-11	P-620	Temporary Runway and Taxiway Pavement Markings (Yellow)	563	SqFt
1-12	P-620	Temporary Runway and Taxiway Pavement Markings (Black)	363	SqFt

Alternate Bid 2 - Parallel (Sta 801+75 to 819+75) and Connector Taxiways and Lighting				
Item No.	Spec No.	Item Description	Quantity	Unit
2-1	C-105	Mobilization	1.0	L.S.
2-2	C-100	Contractor Quality Control Program	1.0	L.S.
2-3	S-100	Construction Safety Phasing Plan	1.0	L.S.
2-4	P-101	Asphalt Cold Milling (2.5" Nominal Depth)	2,532	SqYd
2-5	P-101	Asphalt Pavement/Base Removal (10" Nominal Depth)	6,259	SqYd
2-6	P-152	Unclassified Excavation	23,449	CuYd
2-7	P-152	Disposal of Excess Material	1,121	CuYd
2-8	P-154	Subbase Course (Furnished)	3,116	CuYd
2-9	P-154	Subbase Course (Recycled)	2,022	CuYd
2-10	P-154	Geotextile Separator Fabric	8,407	SqYd
2-11	P-154	Geogrid	1,500	SqYd
2-12	P-208	Aggregate Base Course	1,352	CuYd
2-13	P-208	Reshape and Recompact Base Prior to Overlay	2,532	SqYd
2-14	P-401	Asphalt Base/Surface Course	2,412.9	Ton
2-15	P-401	Asphalt Binder (PG 64-34)	168.9	Ton
2-16	P-602	Emulsified Asphalt Prime Coat	13.0	Ton
2-17	P-603	Emulsified Asphalt Tack Coat	3.2	Ton
2-18	P-620	Taxiway Pavement Markings (Yellow)	1,238	SqFt
2-19	P-620	Temporary Taxiway Pavement Markings (Yellow)	1,238	SqFt
2-20	D-701	24" RCP	292	Ft
2-21	D-701	24" RCP Flared End	4	Each
2-22	D-705	4" Perforated Underdrain Pipe	3,124	Ft
2-23	D-705	Underdrain Cleanout	11	Each
2-24	D-705	Connect Underdrain to RCP Storm Sewer	11	Each
2-25	D-705	Underdrain Tee	2	Each
2-26	D-705	Underdrain Bend	2	Each
2-27	T-901	Seeding and Fertilizing	13.0	Acre
2-28	T-905	Topsoil (Removed from Stockpile)	5,344	CuYd
2-29	T-908	Mulching	62,920	SqYd
2-30	Plans	Remove and Dispose Existing Culvert	200	Ft
2-31	Plans	Culvert Protection	6	Each
2-32	Plans	High Flow Silt Fence	370	Ft
2-33	01 51 26	Temporary Phasing Work, Electrical	1.0	L.S.
2-34	L-107	Remove & Salvage Existing Primary Wind Cone; Remove & Dispose of Concrete Footing & Junction Box	1	Each
2-35	L-107	L-807, LED, Style 1B (Internally Lit), Size 2 (12 Feet), Primary Wind Cone w/ Single L-810 LED Steady Burn Red Obstruction Light, Including Concrete Footing, Concrete Site Pad, & Electrical Equipment Rack	1	Each
2-36	L-108	1/C No. 8 AWG, 5 kV, XLPE, L-824, Type C Cable, Installed in Conduit	10,000	Ft
2-37	L-108	1/C No. 4 AWG, Cu, 600 V, THWN-2, Installed in Conduit	2,820	Ft

Item No.	Spec No.	Item Description	Quantity	Unit
2-38	L-108	1/C No. 8 AWG, Cu, 600 V (GND), THWN-2, Installed in Conduit	1,410	Ft
2-39	L-108	1/C No. 6 AWG, Solid, Bare Copper Counterpoise Wire, Including Trenching or Plowing, Including Ground Rods, Exothermic Welded Bonds, & Terminations	8,688	Ft
2-40	34 43 26.13	L-821, Airport Lighting Control Panel, Type I (Conventional), Class W (Wall-Mounted), Style 1 (Unlighted), Mode 1 (Generic)	1	Each
2-41	34 43 26.16	L-854, Type I, Air-to-Ground, Radio Control Equipment w/ Heavy Duty Antenna & Mounting Brackets	1	Each
2-42	34 43 26.19	L-829 Constant Current Regulator (CCR) w/ Monitoring Options, Class 1 (6.6 A), Style 1 (3-Step), Size 7.5 kW, Including Spare Parts	1	Each
2-43	L-109	Electrical Vault Work, Complete	1.0	L.S.
2-44	L-109	10' x 12' Pre-Fabricated, Airfield Electrical, Lighting, & Control Vault Building, Including Footings, Floor, Site Preparation, & Restoration	1	Each
2-45	L-110	Abandon Existing DEB Cable	1	L.S.
2-46	L-110	Abandon Existing DEB Counterpoise	1	L.S.
2-47	L-110	Trenching & Backfilling or Plowing for Conduit	9,505	Ft
2-48	L-110	Non-Encased, Electrical Conduit, (1) 2-Inch, Type I, Sch. 40 PVC in Trench or SDR 13 HDPE Plowed	10,790	Ft
2-49	L-110	Sand-Encased, Electrical Conduit, (2) 2-Inch, Type III, Sch. 80 PVC in Trench	130	Ft
2-50	L-110	Cable Markers	12	Each
2-51	L-115	L-867B (12"), Class 1A, Junction Box w/ Flat Etched Steel Cover	9	Each
2-52	L-115	L-867E (24"), Class 1A, Junction Box w/ Flat Etched Steel Cover	1	Each
2-53	L-125	Remove & Salvage Existing Runway Stake-Mounted Threshold Lights; Abandon Existing Transformers	12	Each
2-54	L-125	Remove & Salvage Existing Runway Stake-Mounted Edge Lights; Abandon Existing Transformers	27	Each
2-55	L-125	Remove & Salvage Existing Taxiway Stake-Mounted Edge Lights; Abandon Existing Transformers	4	Each
2-56	L-125	Remove & Salvage Existing Precision Approach Path Indicators (PAPI), Power Control Units, & Transformers; Remove & Dispose of Concrete Footings and Site Pads (2 per SET)	2	Set
2-57	L-125	Remove & Salvage Existing Sign; Remove & Dispose of Concrete Sign Pad	1	Each
2-58	L-125	L-853, Retroreflective Marker, Type II (Elevated), Style I (Plowable), Soil Anchored	88	Each
2-59	L-125	L-861, 30-Inch Elevated, Mode 1, LED, Medium Intensity Runway Light (MIRL), White/Yellow, Including Base Can & Concrete	34	Each
2-60	L-125	L-861T, 30-Inch Elevated, Mode 1, LED, Medium Intensity Taxiway Light (MITL), Blue, Including Light Base Can & Concrete	20	Each
2-61	L-125	L-858R, Mandatory, Airfield Sign, Size 1, Style 4 (Unlighted), Mode 1, 2-Module Including Concrete Sign Pad	4	Each
2-62	L-125	L-858R/L, Mandatory/Location, Airfield Sign, Size 1, Style 4 (Unlighted), Mode 1, 2-Module Including Concrete Sign Pad	2	Each
2-63	L-125	L-858R/L, Mandatory/Location, Airfield Sign, Size 1, Style 4 (Unlighted), Mode 1, 3-Module Including Concrete Sign Pad	1	Each
2-64	L-125	L-881, Abbreviated Precision Approach Path Indicator (PAPI), Style B (Current), Class 2, LED w/ Baffles, Including Concrete Footings, Junction Boxes, & Concrete Site Pads	2	Set
2-65	L-125	Lighting & Signage Spare Parts	1.0	L.S.

Alternate Bid 3 - Parallel and Connector Taxiway (Sta 819+75 to 842+50)				
Item No.	Spec No.	Item Description	Quantity	Unit
3-1	C-105	Mobilization	1	L.S.
3-2	C-100	Contractor Quality Control Program	1	L.S.
3-3	S-100	Construction Safety Phasing Plan	1	L.S.
3-4	P-101	Asphalt Cold Milling (2.5" Nominal Depth)	5,148	SqYd
3-5	P-101	Asphalt Pavement/Base Removal (10" Nominal Depth)	8,402	SqYd
3-6	P-152	Unclassified Excavation	28,773	CuYd
3-7	P-152	Disposal of Excess Material	13,942	CuYd
3-8	P-154	Subbase Course (Furnished)	797	CuYd
3-9	P-154	Subbase Course (Recycled)	2,329	CuYd
3-10	P-154	Geotextile Separator Fabric	5,116	SqYd
3-11	P-154	Geogrid	1,500	SqYd
3-12	P-208	Aggregate Base Course	915	CuYd
3-13	P-208	Reshape and Recompact Base Prior to Overlay	5,042	SqYd
3-14	P-401	Asphalt Base/Surface Course	2,293.4	Ton
3-15	P-401	Asphalt Binder (PG 64-34)	160.5	Ton
3-16	P-602	Emulsified Asphalt Prime Coat	12.3	Ton
3-17	P-603	Emulsified Asphalt Tack Coat	4.0	Ton
3-18	P-620	Runway and Taxiway Pavement Markings (Yellow)	1,153	SqFt
3-19	P-620	Temporary Runway and Taxiway Pavement Markings (Yellow)	1,153	SqFt
3-20	D-702	18" RCP	175	Ft
3-21	D-703	18" RCP Flared End	2	Each
3-22	D-705	4" Perforated Underdrain Pipe	2,107	Ft
3-23	D-705	4" Solid Wall Underdrain Pipe	108	Ft
3-24	D-705	Underdrain Cleanout	5	Each
3-25	D-705	Connect Underdrain to RCP Storm Sewer	2	Each
3-26	D-705	Underdrain Tee	2	Each
3-27	T-901	Seeding and Fertilizing	18.0	Acre
3-28	T-905	Topsoil (Removed from Stockpile)	9,233	CuYd
3-29	T-908	Mulching	87,120	SqYd
3-30	Plans	Underdrain Outlet Structure	1	Each
3-31	Plans	Remove and Dispose Existing Culvert	250	Ft
3-32	Plans	Culvert Protection	6	Each
3-33	L-125	L-853, Retroreflective Marker, Type II (Elevated), Style I (Plowable), Soil Anchored	57	Each
3-34	L-125	L-858R/L, Mandatory/Location, Airfield Sign, Size 1, Style 4 (Unlighted), Mode 1, 3-Module Including Concrete Sign Pad	1	Each
3-35	L-125	L-858R/L, Mandatory/Location, Airfield Sign, Size 1, Style 4 (Unlighted), Mode 1, 4-Module Including Concrete Sign Pad	1	Each

Earthwork Table (Base Bid)		
Description	Cut (CuYd)	Fill (CuYd)
Strip and Stockpile 6" Topsoil	23,658	—
Pavement Area Grading	42,958	64,868
Scarify & Recompact	11,120	11,120
Subtotal	77,736	75,988
35% Shrinkage	—	26,596
Topsoil (Removed from Stockpile)		18,420
On-Site Borrow Material	43,268	—
Balance	121,004	121,004

Earthwork Table (Alternate Bid 2)		
Description	Cut (CuYd)	Fill (CuYd)
Strip and Stockpile 6" Topsoil	5,495	—
Grading	15,183	9,810
Scarify & Recompact	2,771	2,771
Subtotal	23,449	12,581
35% Shrinkage	—	4,403
Topsoil (Removed from Stockpile)		5,344
Disposal of Excess Material	—	1,121
Balance	23,449	23,449

Earthwork Table (Alternate Bid 3)		
Description	Cut (CuYd)	Fill (CuYd)
Strip and Stockpile 6" Topsoil	8,740	—
Grading	18,391	2,505
Scarify & Recompact	1,642	1,642
Subtotal	28,773	4,147
35% Shrinkage	—	1,451
Topsoil (Removed from Stockpile)		9,233
Disposal of Excess Material	—	13,942
Balance	28,773	28,773

NOTE: EXCESS MATERIAL GENERATED FROM PHASE 2 SHALL BE DISPOSED OF IN AN PHASE 1 ON—AIRPORT BORROW AREA. THE PLACEMENT OF THIS UNCLASSIFIED EXCAVATION SHALL BE CONSIDERED AS "UNCLASSIFIED EXCAVATION".

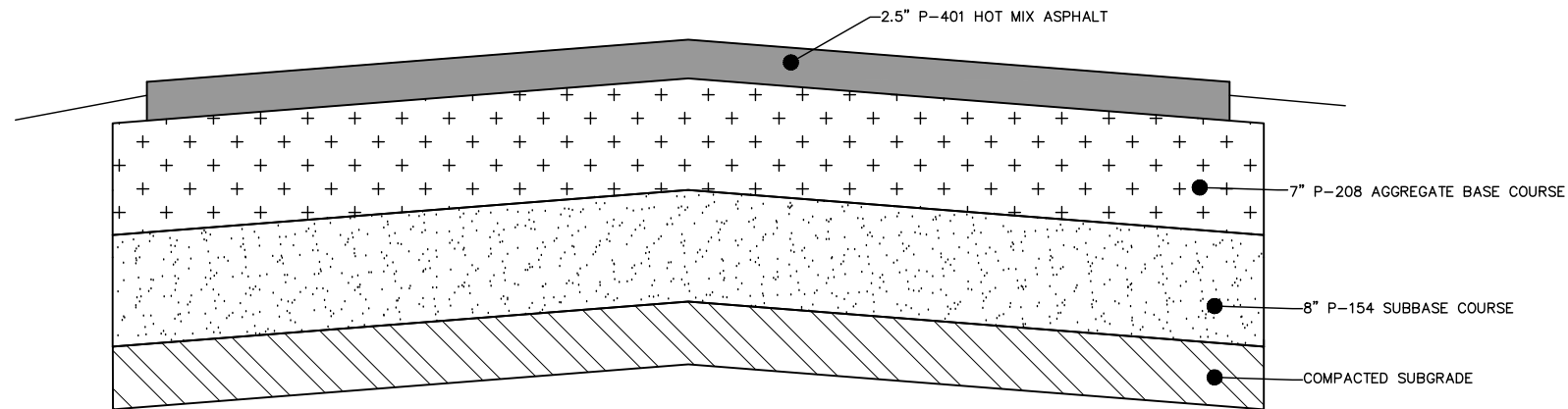


416 Production St. N.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



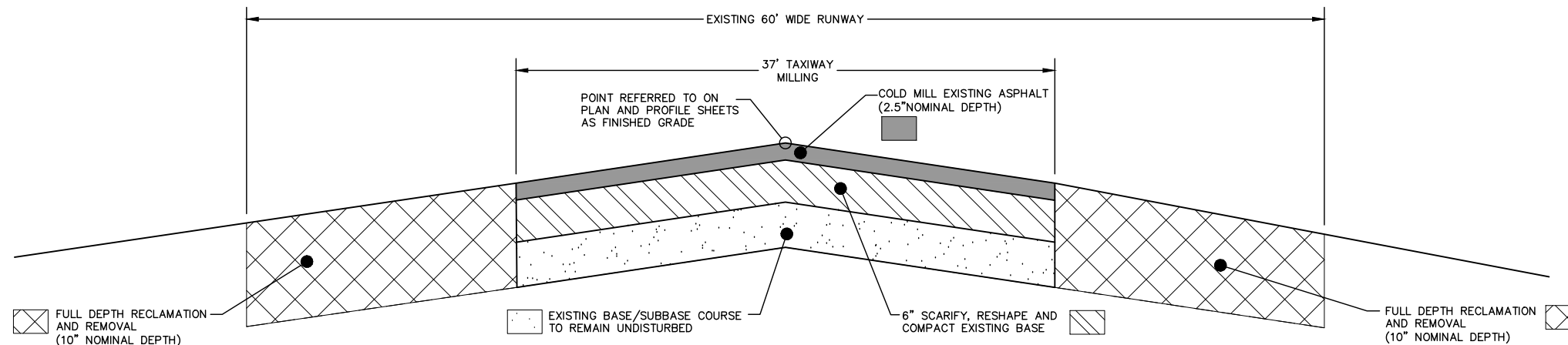
ESTIMATE OF QUANTITIES

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-02
VP. No: QTY
Date: 8/18/26

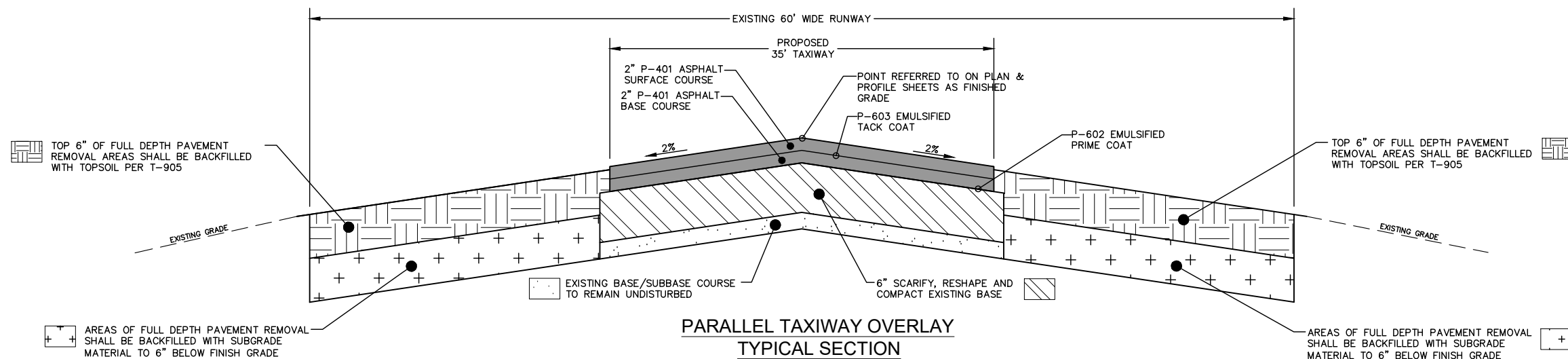


EXISTING RUNWAY 10-28 /
CONNECTOR TAXIWAY SECTION
NO SCALE

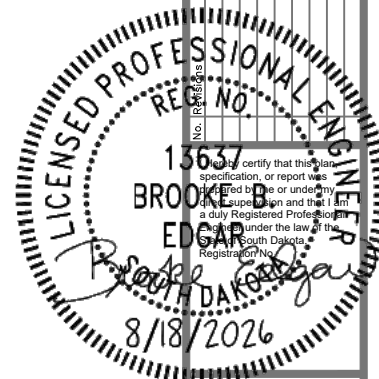
NOTE: EXISTING PAVEMENT SECTION WAS DEVELOPED FROM AIRPORT RECORDS. ACTUAL MAKEUP AND DEPTH OF THE EXISTING PAVEMENT SECTION MAY DIFFER THAN WHAT IS SHOWN.



EXISTING RUNWAY MILLING
TYPICAL SECTION
NO SCALE



PARALLEL TAXIWAY OVERLAY
TYPICAL SECTION
NO SCALE

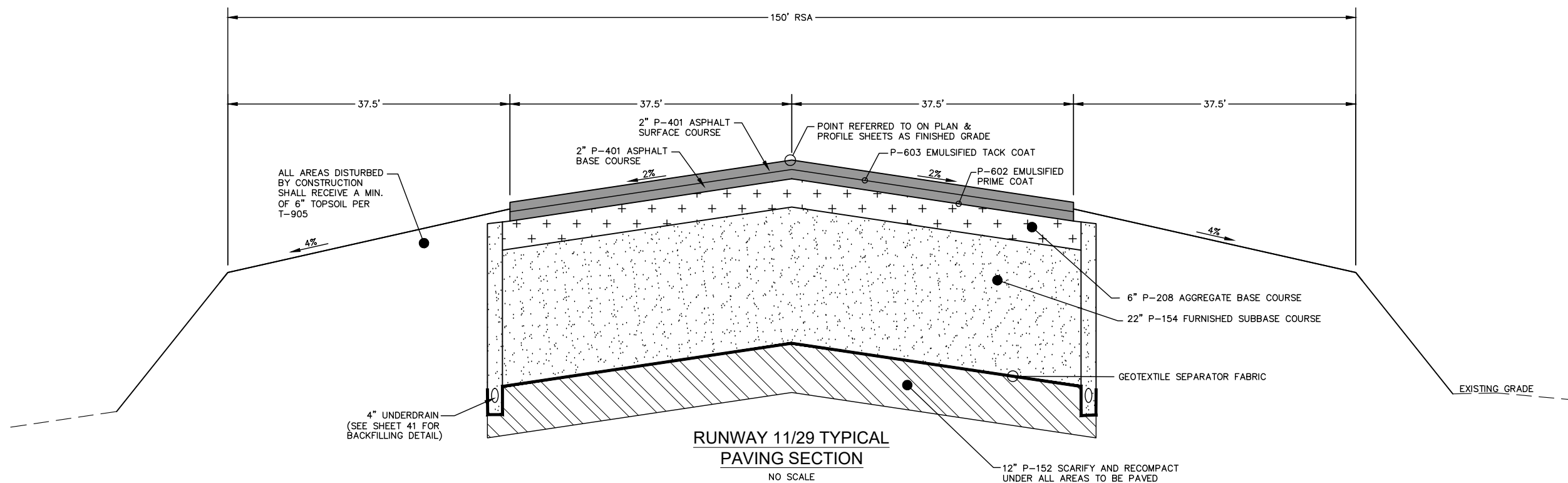
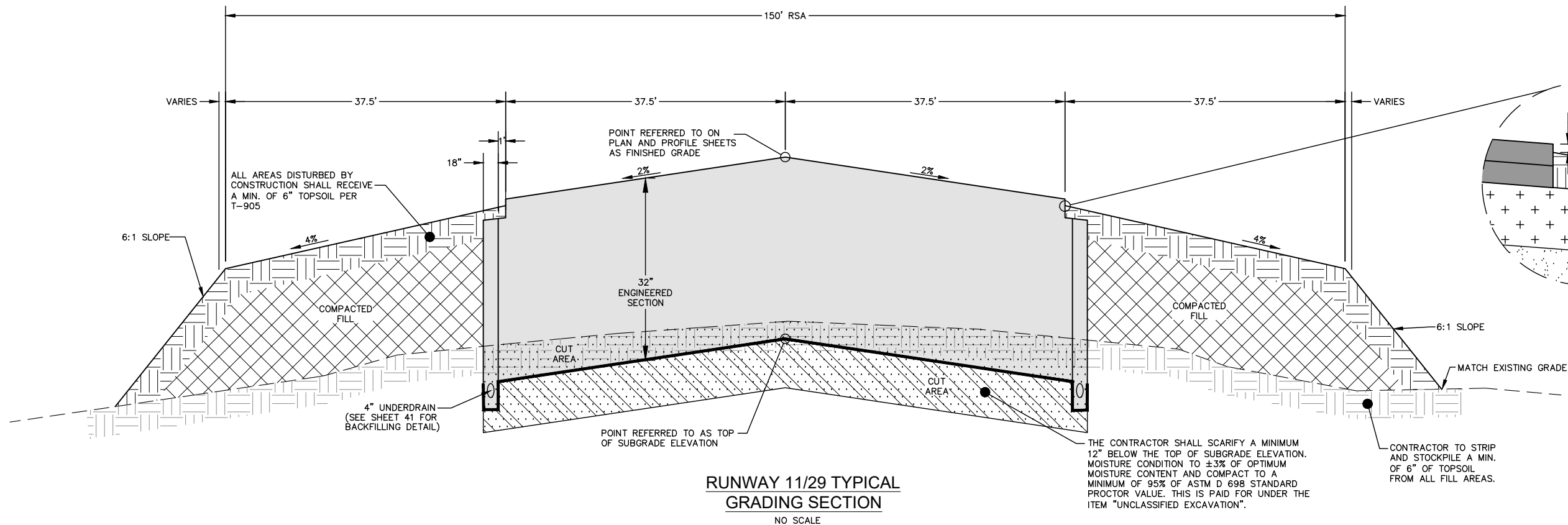


416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobbb@helmsengineering.com



EXISTING SECTION/
MILL AND OVERLAY SECTION
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-02
VP. No: EX-TYP
Date: 8/18/26



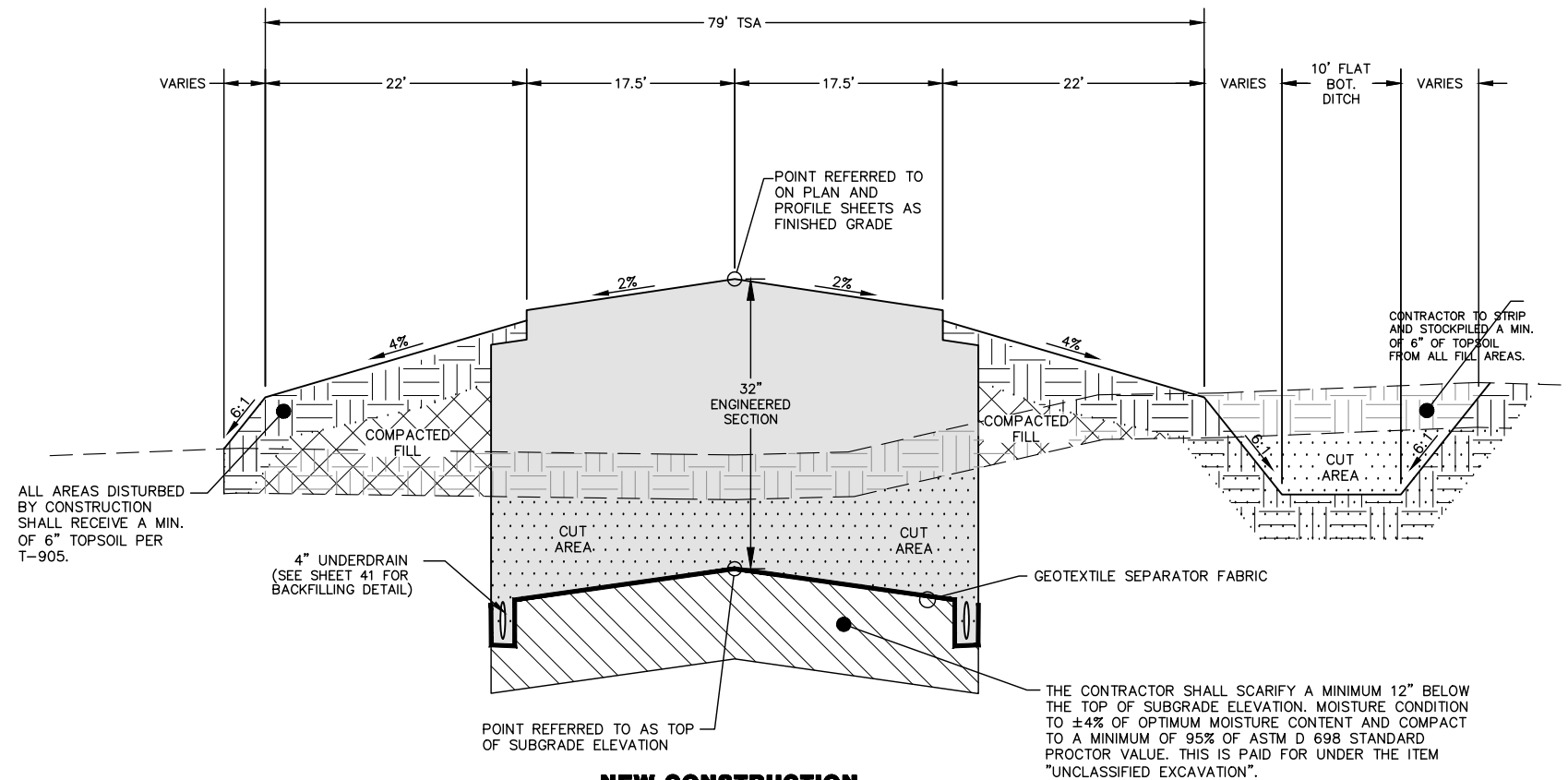
416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



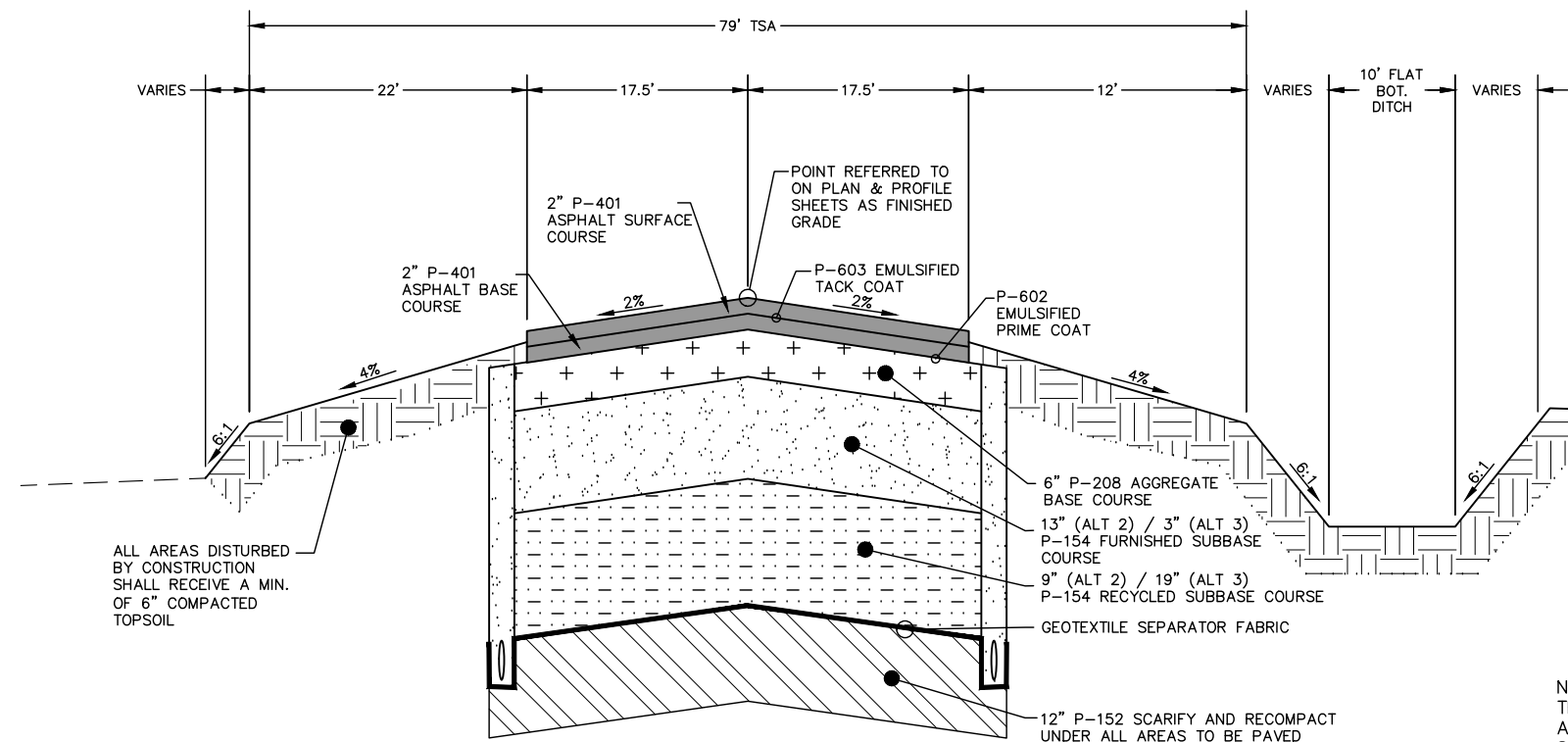
TYPICAL RUNWAY SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-02
VP. No: TYP(1)
Date: 8/18/26



**NEW CONSTRUCTION
TAXIWAY GRADING SECTION**
NO SCALE



**NEW CONSTRUCTION
CONNECTOR / PARALLEL TAXIWAY
PAVING SECTION**
NO SCALE

NOTE: WHEN UTILIZING BOTH RECYCLED AND FURNISHED SUBBASE COURSE, THE CONTRACTOR SHALL ENSURE A UNIFORM DEPTH OF EACH MATERIAL ACROSS THE ENTIRE PAVEMENT SECTION. THE SUBBASE MATERIAL DEPTHS SHOWN MAY CHANGE BASED AMOUNT OF RECYCLED MATERIAL GENERATED DURING CONSTRUCTION. RECYCLED SUBBASE MATERIAL GENERATED FROM PHASE 2 REMOVALS MUST BE FULLY UTILIZED IN PHASE 2 CONSTRUCTION

ALTERNATIVELY, PRIOR TO PLACEMENT THE CONTRACTOR SHALL HAVE THE OPTION TO BLEND THE RECYCLED AND FURNISHED MATERIAL INTO A SINGLE UNIFORM SUBBASE MATERIAL.



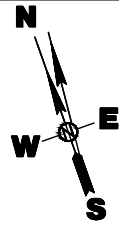
416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



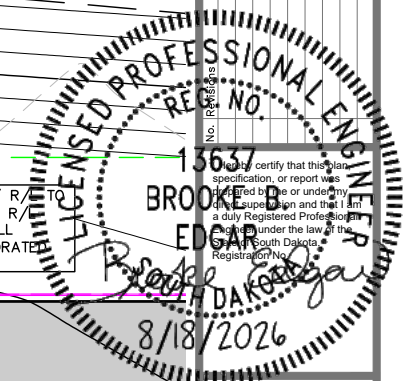
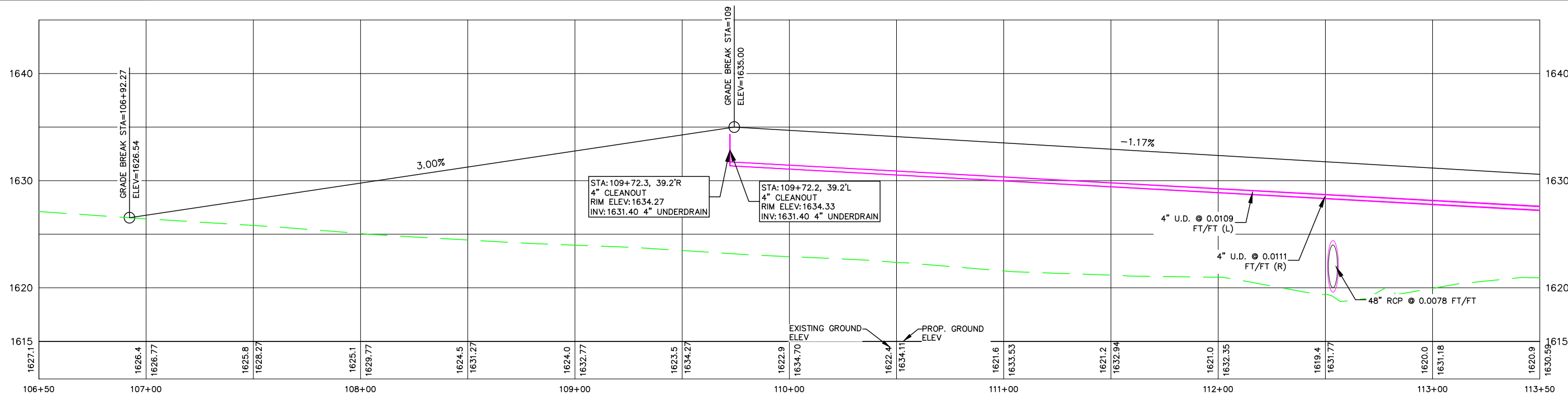
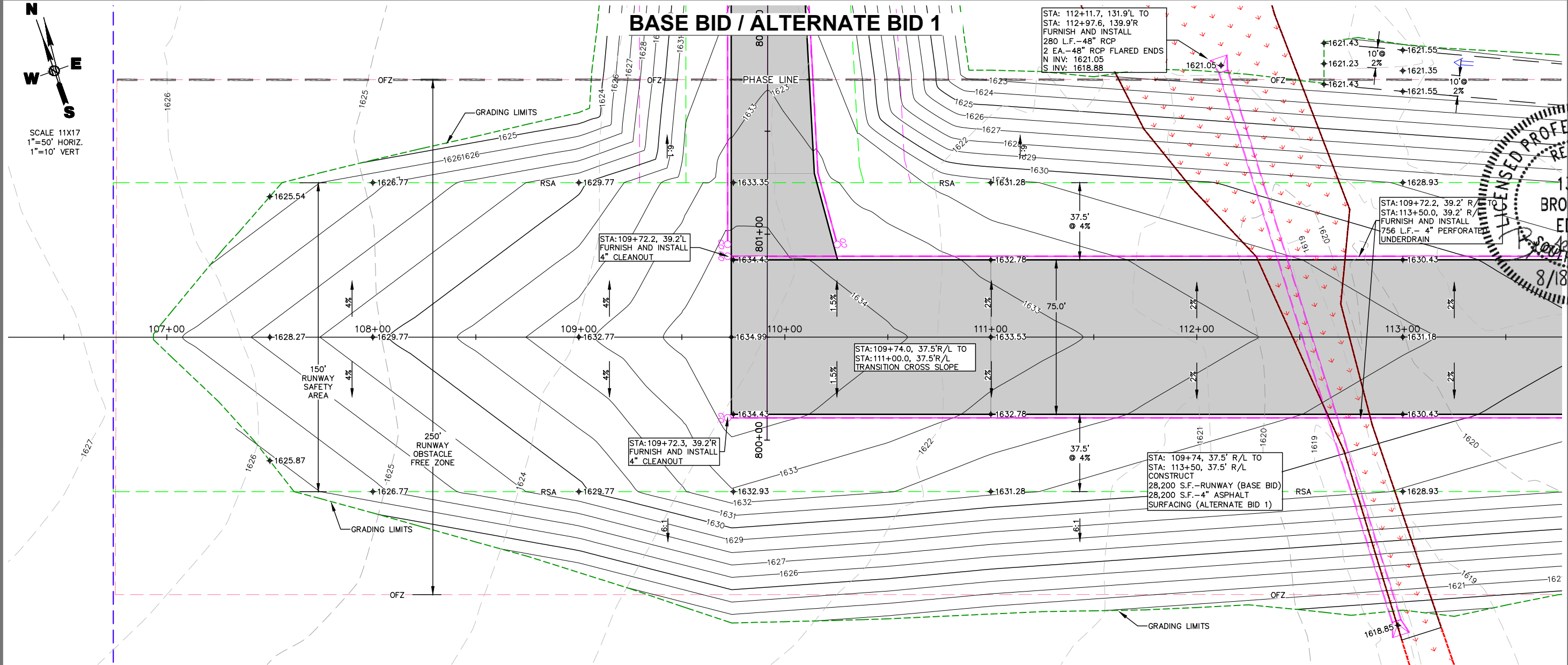
TYPICAL TAXIWAY SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-02
VP. No: TYP(2)
Date: 8/18/26



SCALE 11X17
1"=50' HORIZ.
1"=10' VERT



416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

SPN Helms
CIVIL ENGINEERS & LAND SURVEYORS

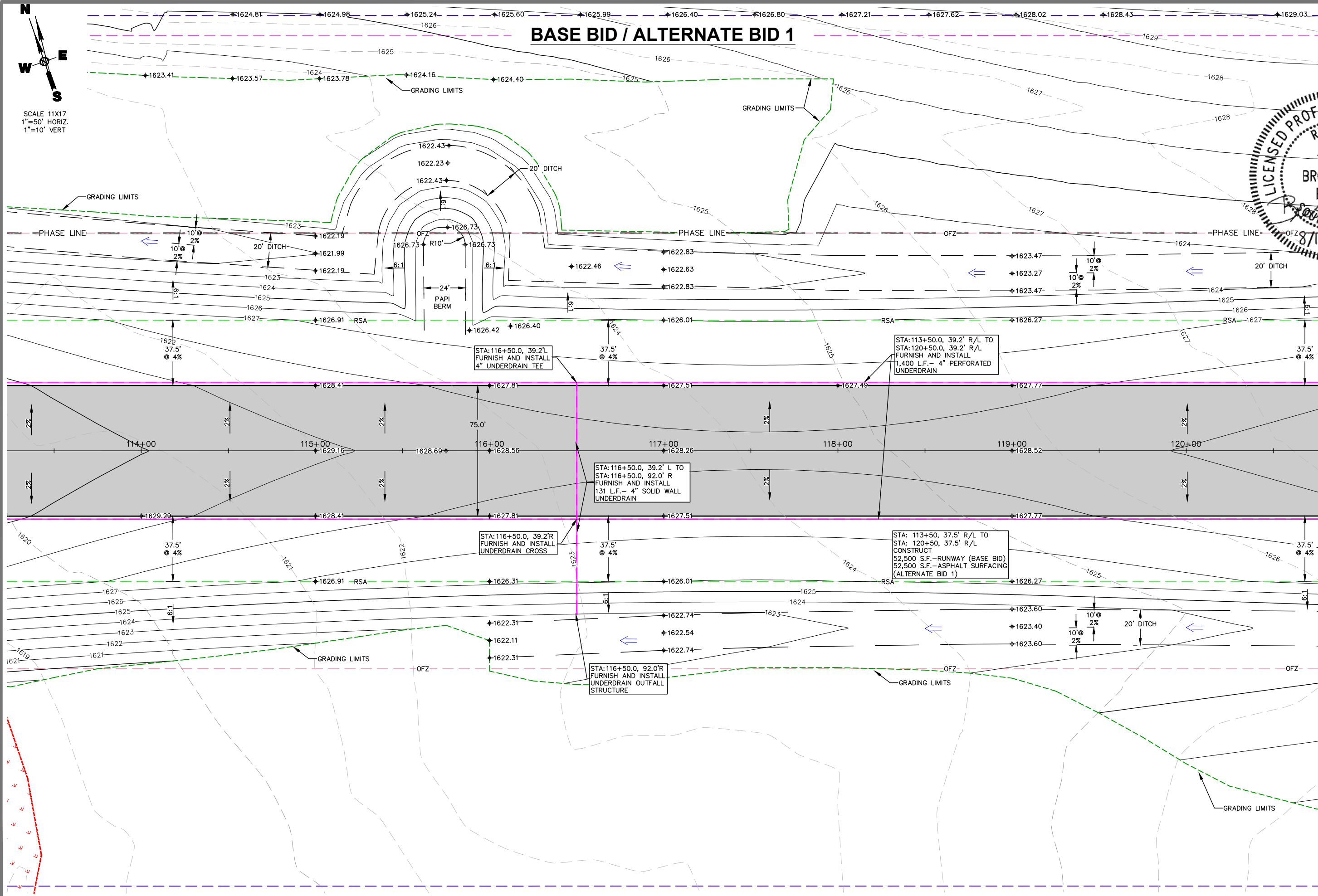
RUNWAY PLAN AND PROFILE
STA: 106+50-113+50
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-01
VP. No: 50RW-PP(2)
Date: 8/18/26

BASE BID / ALTERNATE BID 1



SCALE 11X17
1"=50' HORIZ.
1"=10' VERT

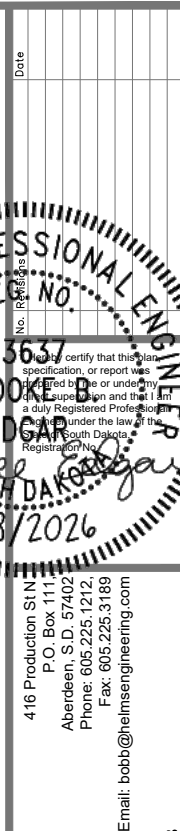
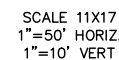


416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bob@helmsengineering.com



RUNWAY PLAN AND PROFILE
STA: 113+50-120+50
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

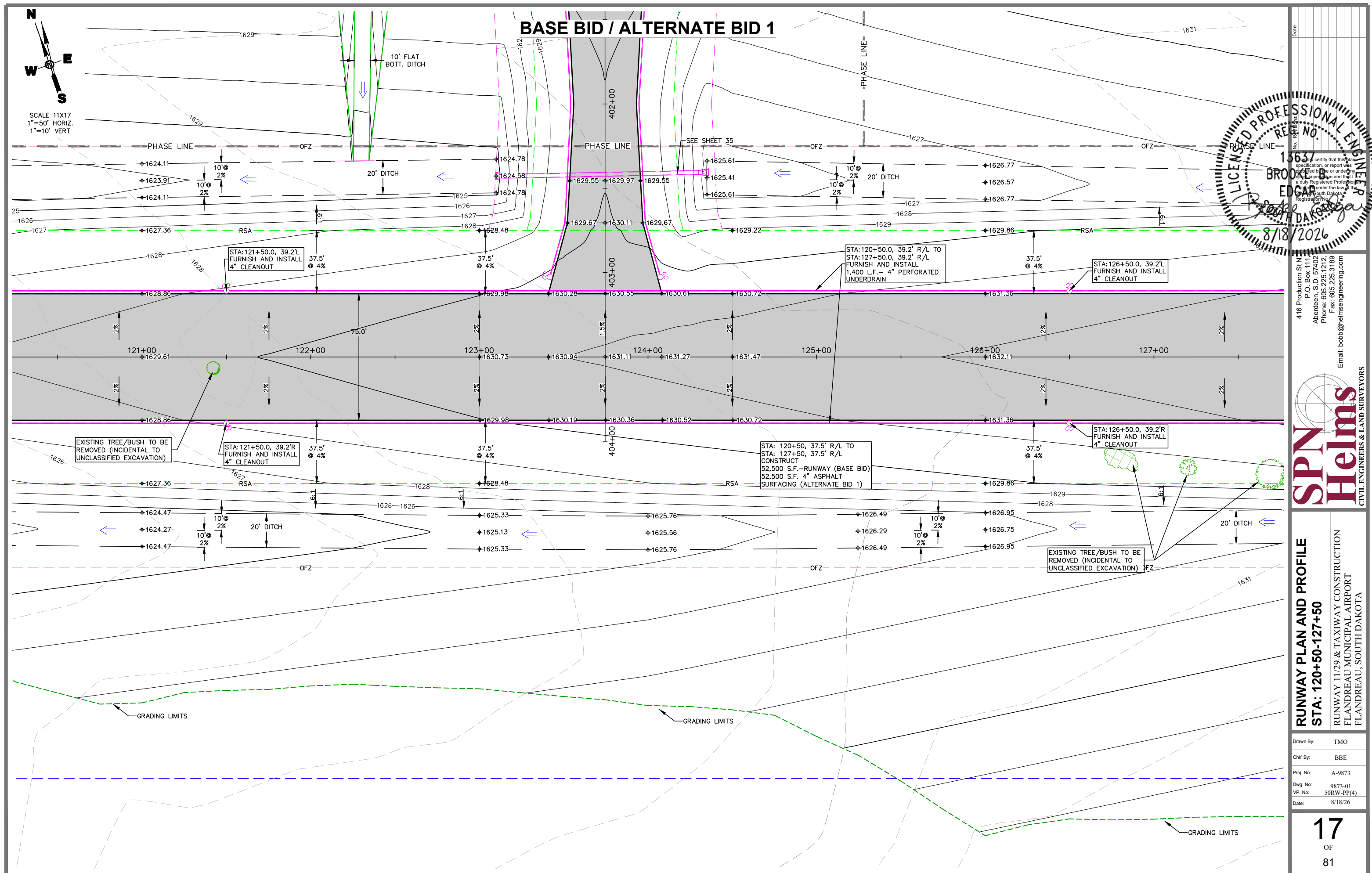
Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-01
VP. No: 50RW-PP(3)
Date: 8/18/26



SPN Helms
CIVIL ENGINEERS & LAND SURVEYORS

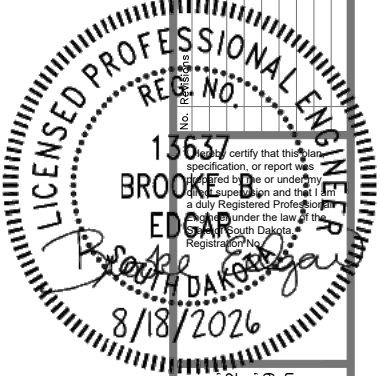
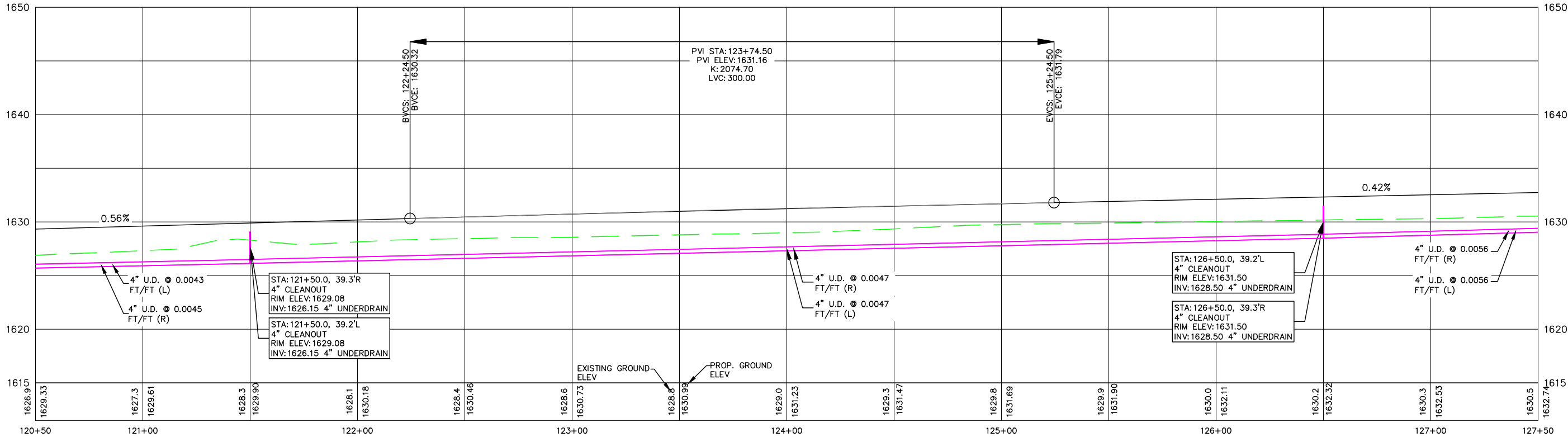
RUNWAY PLAN AND PROFILE
STA: 113+50-120+50

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-01
VP. No:	50RW-PP(3B)
Date:	8/18/26





SCALE 11X17
1"=50' HORIZ.
1"=10' VERT



416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

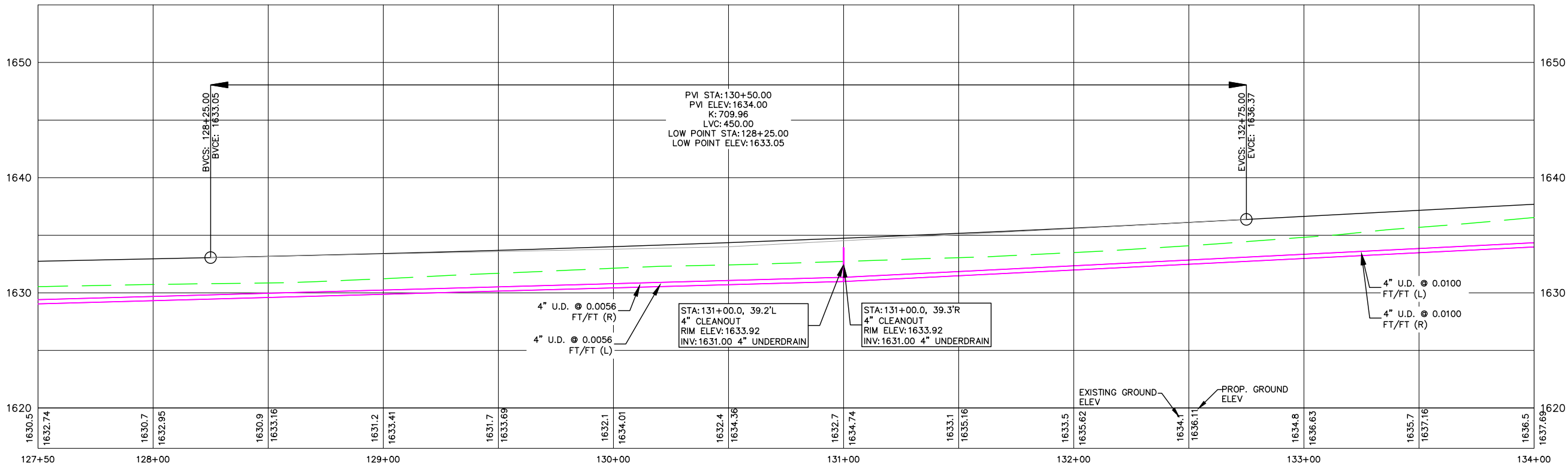


RUNWAY PLAN AND PROFILE
STA: 120+50-127+50
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-01
VP. No: 50RW-PP(4B)
Date: 8/18/26



SCALE 11X17
1"=50' HORIZ.
1"=10' VERT



416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



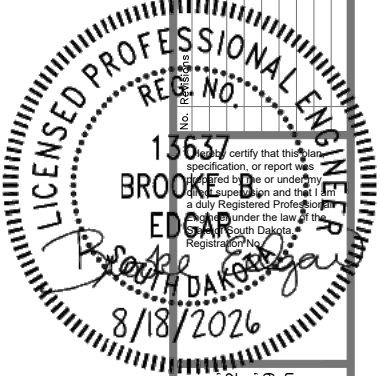
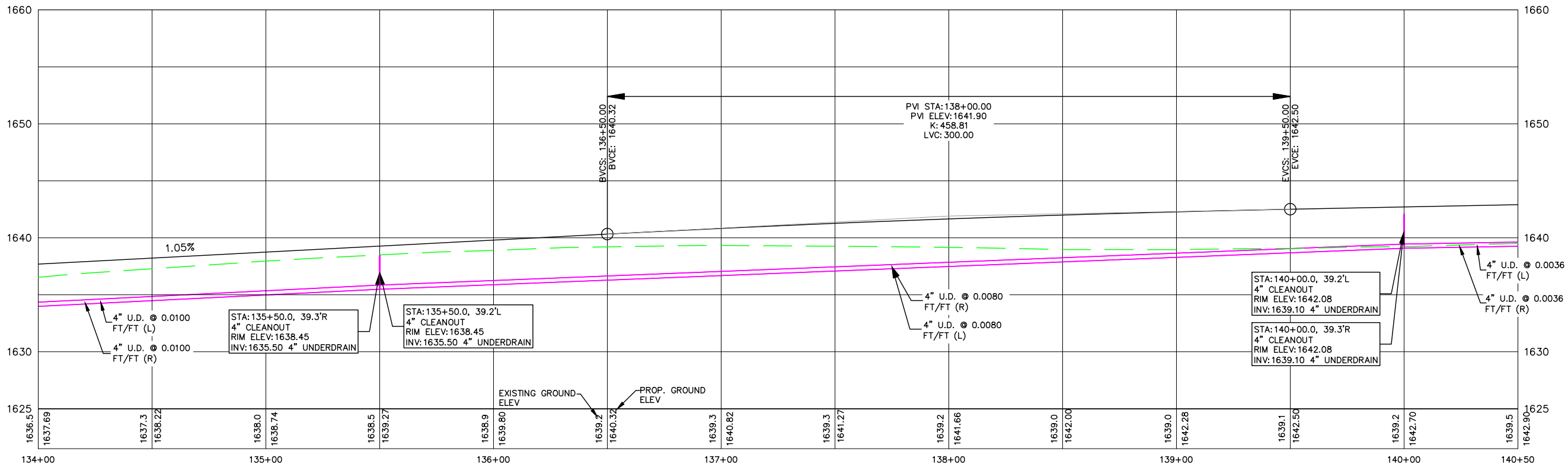
RUNWAY PLAN AND PROFILE
STA: 127+50-134+00

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-01
VP. No: 50RW-PP(SB)
Date: 8/18/26



SCALE 11X17
1"=50' HORIZ.
1"=10' VERT

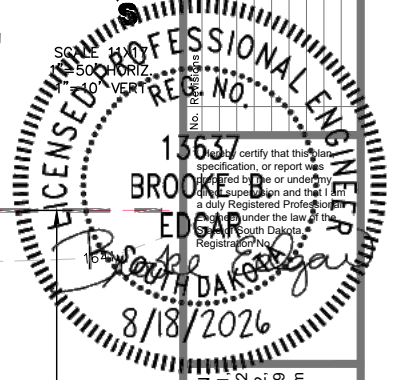
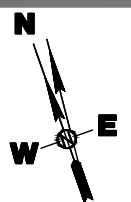
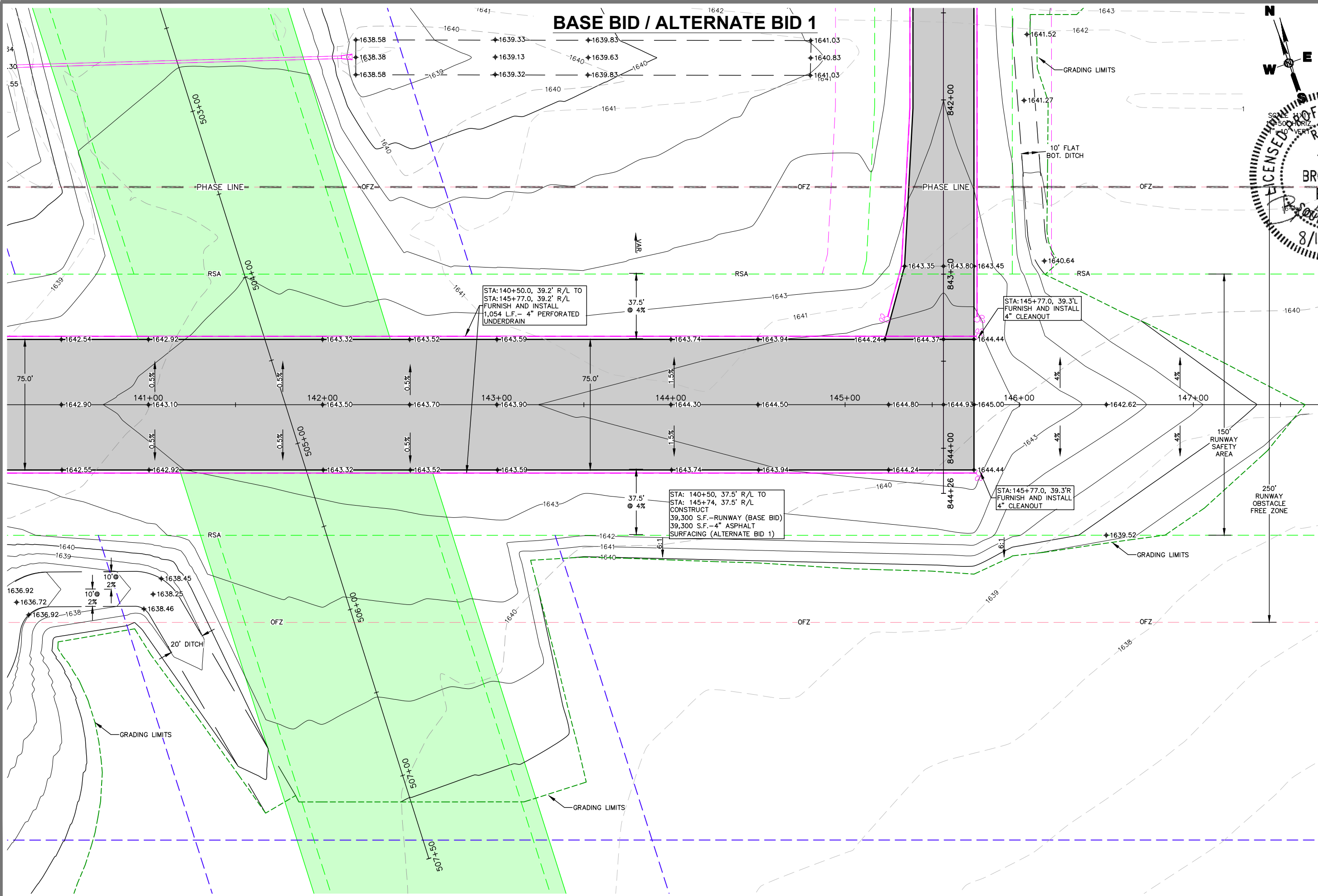


416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



RUNWAY PLAN AND PROFILE
STA: 134+00-140+50
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-01
VP. No: 50RW-PP(6B)
Date: 8/18/26



416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bob@helmsengineering.com

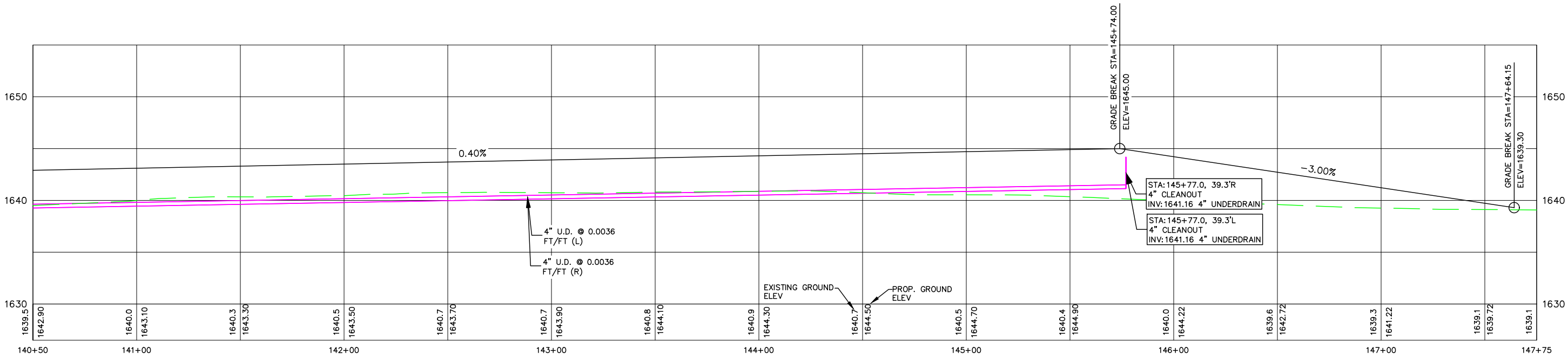


RUNWAY PLAN AND PROFILE
STA: 140+50-147+50
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-01
VP. No: 50RW-PP(7)
Date: 8/18/26



SCALE 11X17
1"=50' HORIZ.
1"=10' VERT



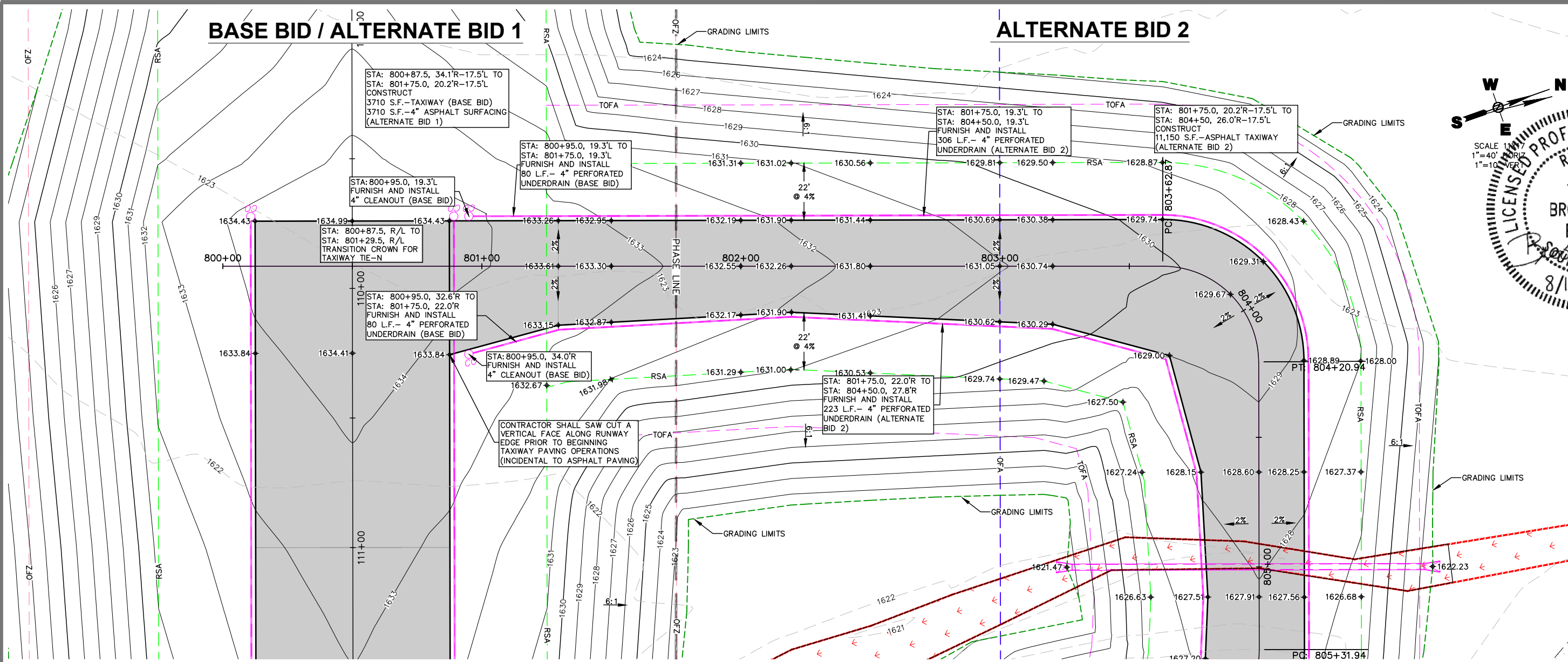
416 Production SIN
P.O. Box 111,
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



RUNWAY PLAN AND PROFILE
STA: 140+50-147+50

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-01
VP. No: 50RW-PP(7B)
Date: 8/18/26

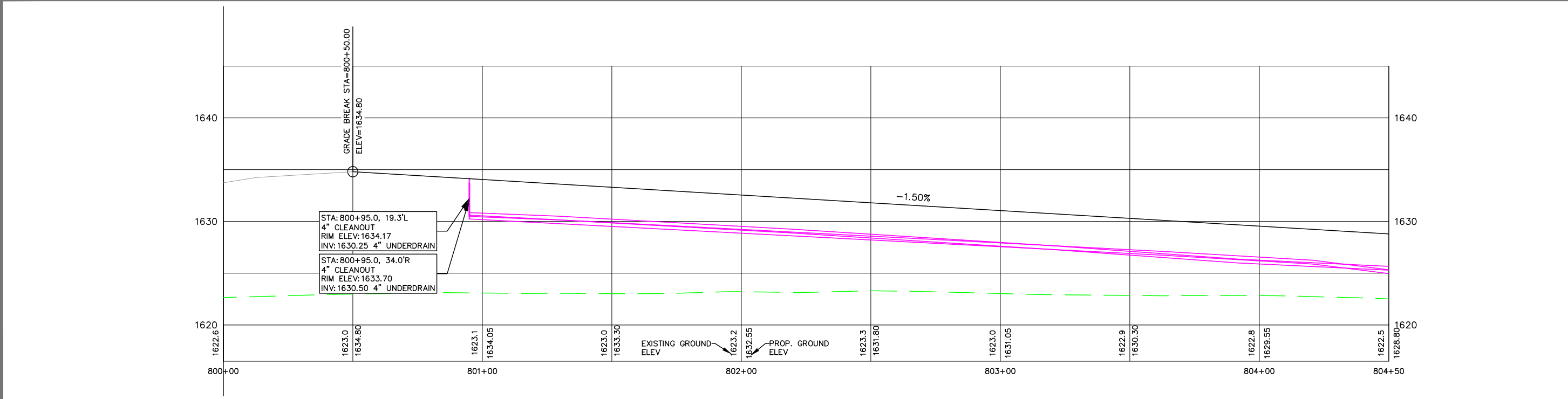


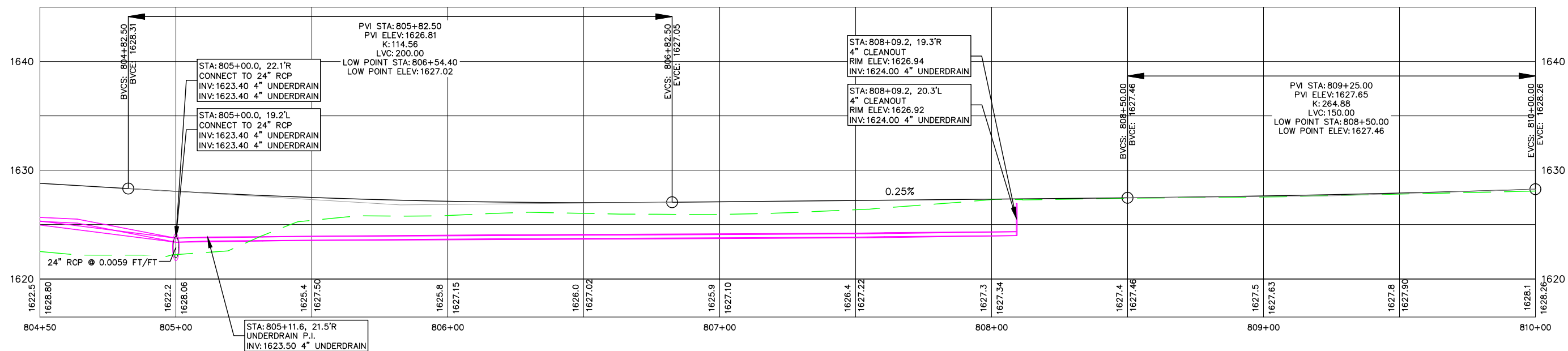
416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bob@helmsengineering.com



PARALLEL TAXIWAY P & P
STA: 800+00-804+50
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-01
VP. No: PTW-PP(1)
Date: 8/18/26





A circular professional engineer seal for the State of South Dakota. The outer ring contains the text "SOUTH DAKOTA" at the top and "REGISTERED PROFESSIONAL ENGINEER" around the bottom. In the center, there is a grid for personal information: "SCA. NO." followed by "17608", "EXPIR. DATE" followed by "12/31/2024", and "HOURS" followed by "1620.25". Below this grid, it says "VERIFIED BY:" followed by a blank space. To the right of the grid, there are two fields: "No. RENEWALS" and "No. REINSTATEMENTS", both followed by blank spaces. At the bottom of the seal, the name "EDGAR" is printed. A large handwritten signature "Bret J. Edgar" is written across the bottom half of the seal. Overlaid on the entire seal is a date stamp "8/18/2026" in a stylized font.

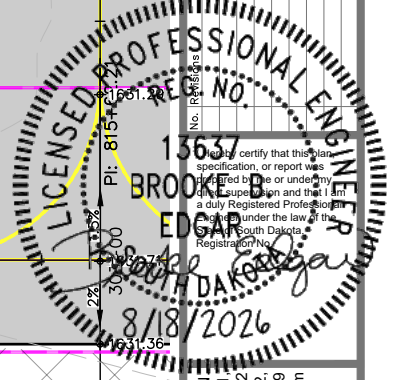
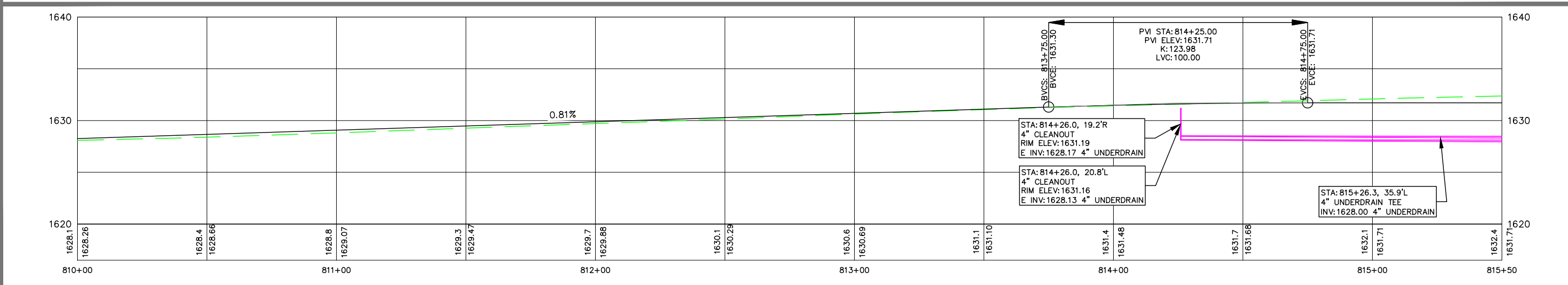
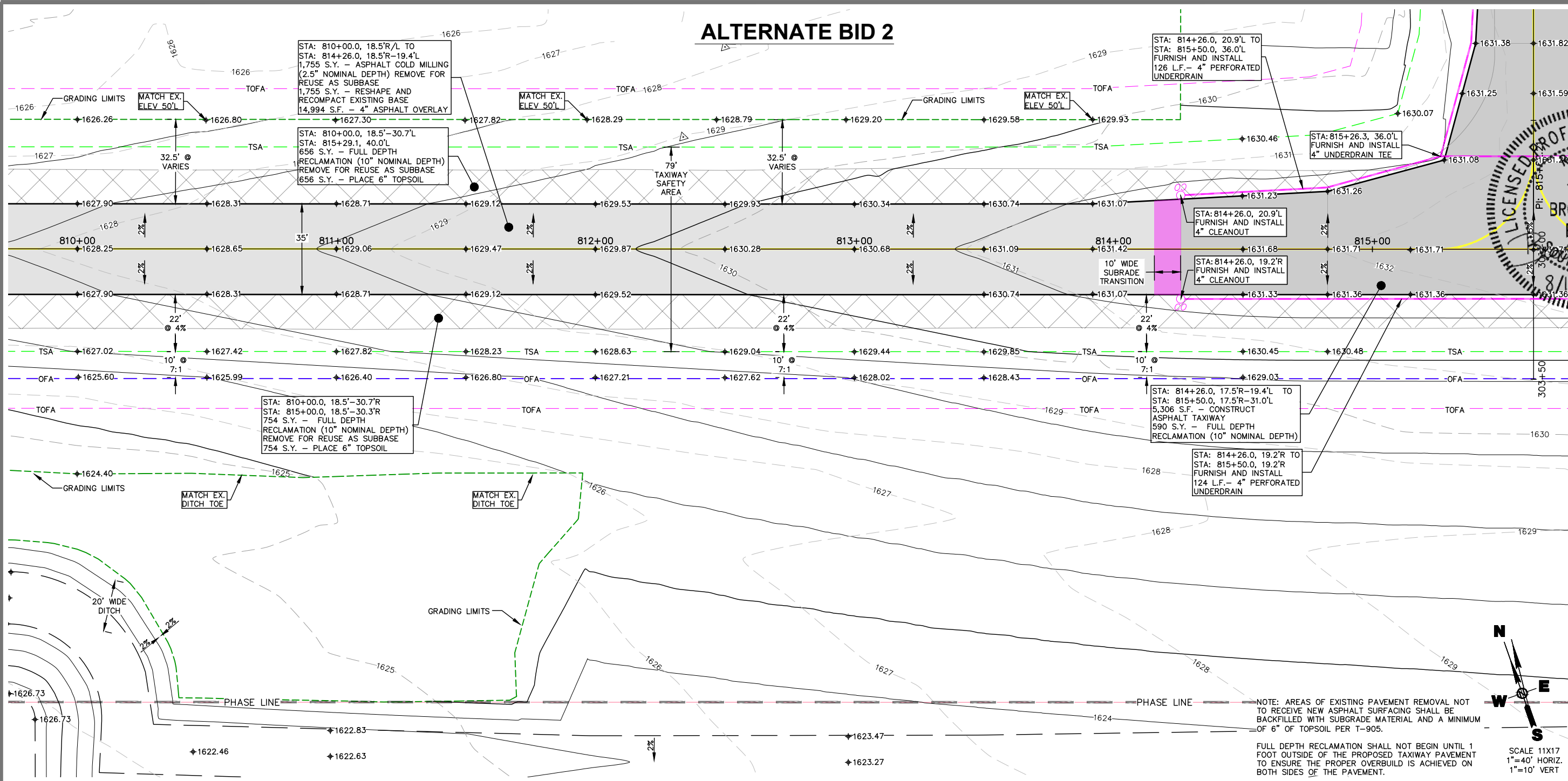
416 Production St N
P.O. Box 111,
Aberdeen, S.D. 57402
Phone: 605.225.1212,
Fax: 605.225.3189
Email: bobb@helmsengineering.com



SPN Helms
CIVIL ENGINEERS & LAND SURVEYOR

PARALLEL TAXIWAY P & P
STA: 804+50-810+00

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Wdg. No:	9873-01
W.P. No:	PTW-PP(3)
Date:	8/18/26

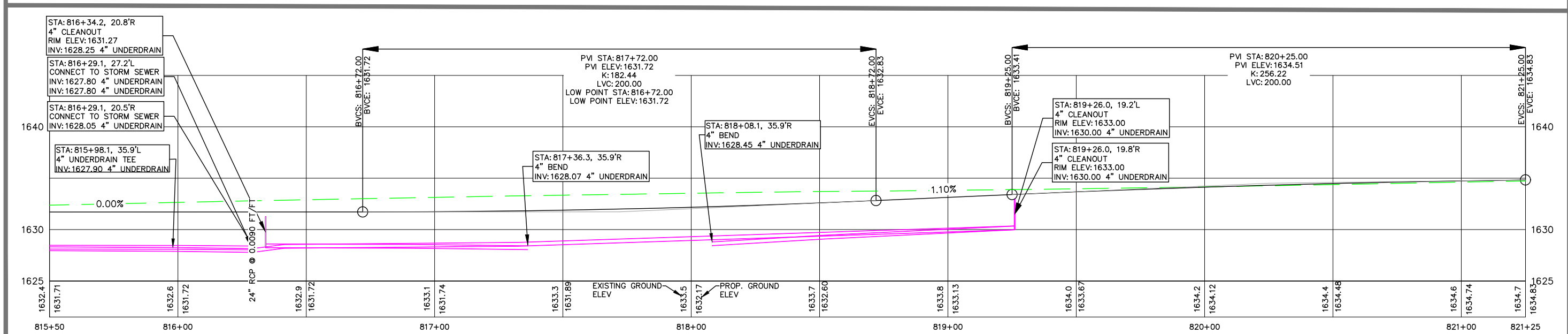
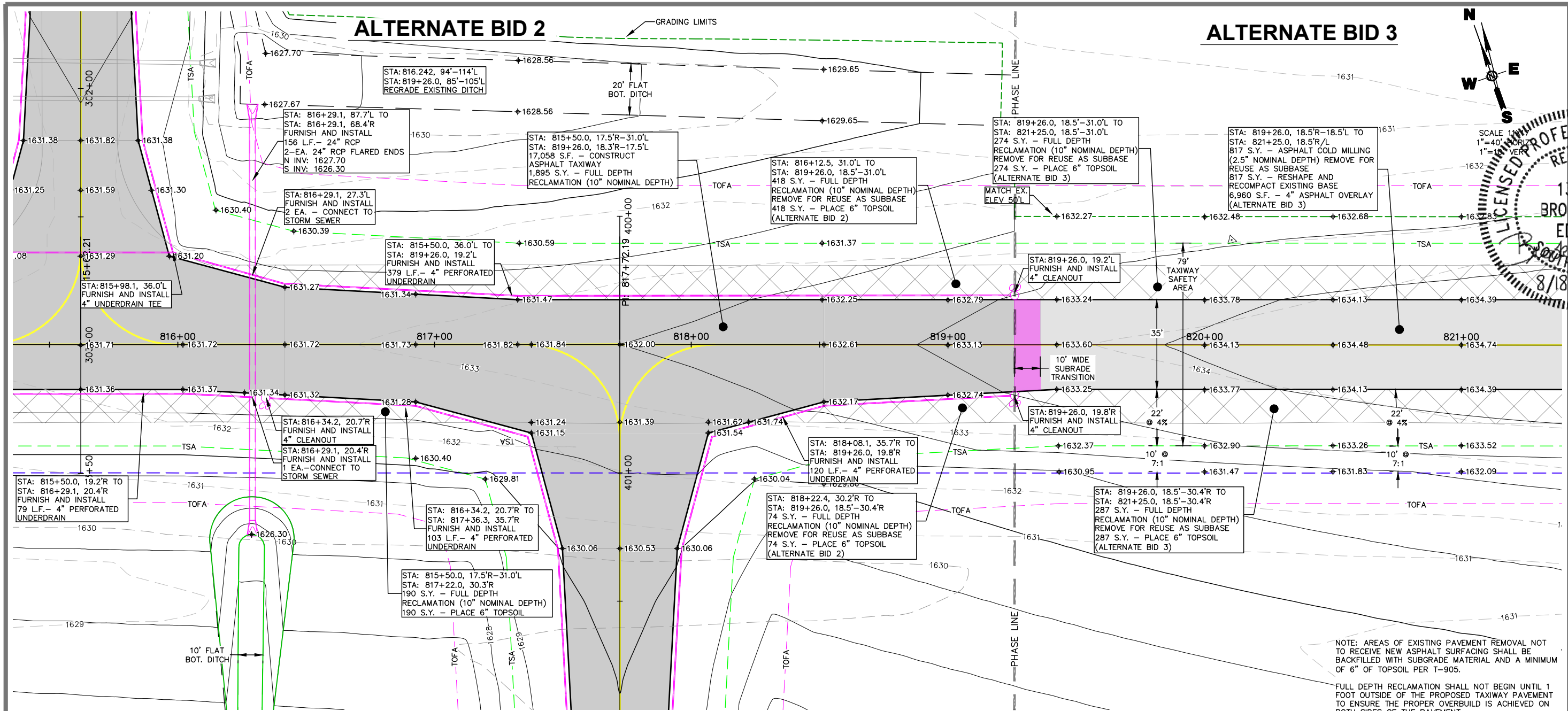


416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



PARALLEL TAXIWAY P & P
STA: 810+00-815+50
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-01
VP. No: PTW-PP(5)
Date: 8/18/26

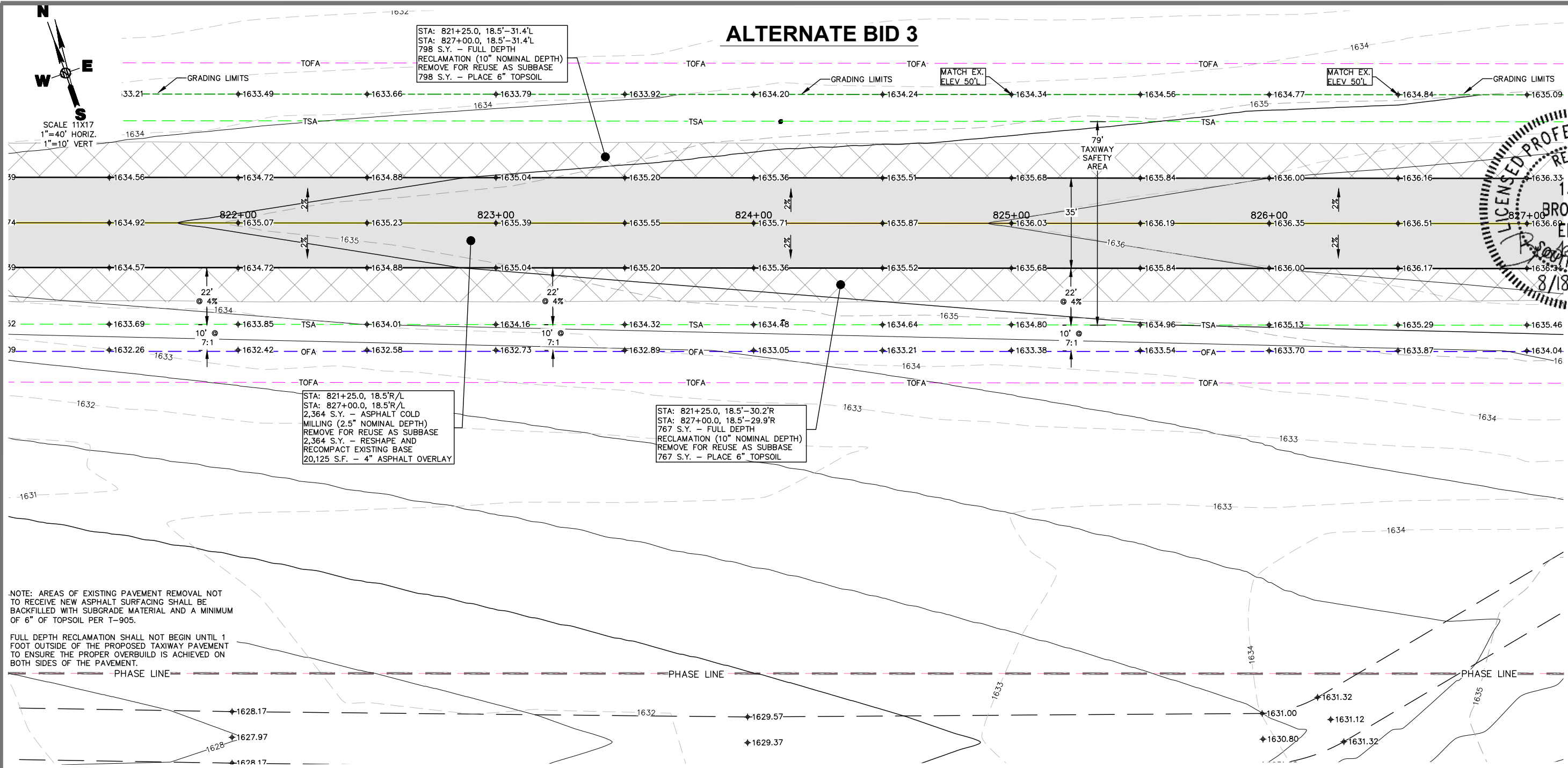


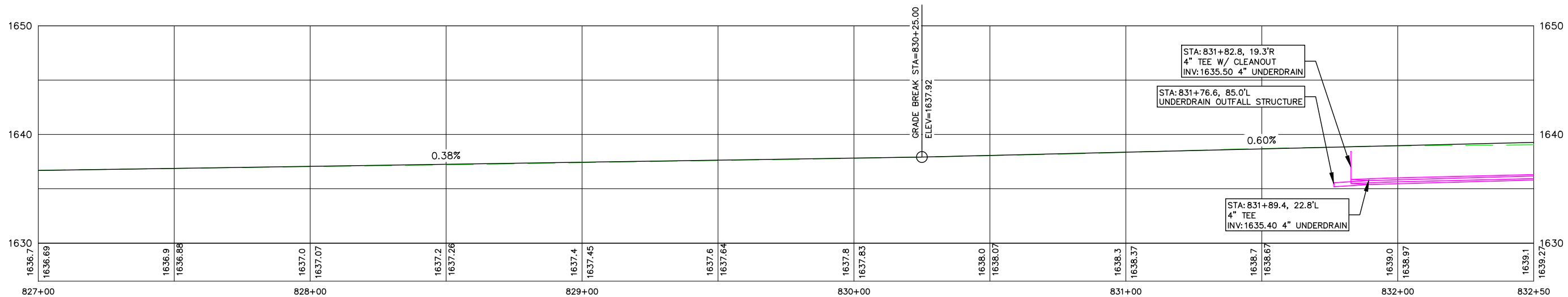
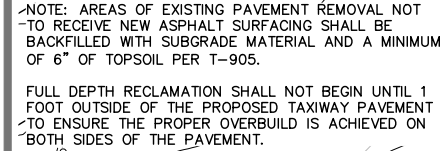
416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

SPN Helms
CIVIL ENGINEERS & LAND SURVEYORS

PARALLEL TAXIWAY P & P
STA: 815+50-821+25
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-01
VP. No: PTW-PP(6)
Date: 8/18/26





Date _____

No. _____

PROFESSIONAL ENGINEER
NO. _____
STATE OF SOUTH DAKOTA
7/2026

I hereby certify that the plan specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the law of the State of South Dakota.
Registration No. _____
[Signature]

416 Production SINCE
P.O. Box 1113
Aberdeen, S.D. 57402
Phone: 605.225.1212,
Fax: 605.225.3189
Email: bobb@helmsengineering.com

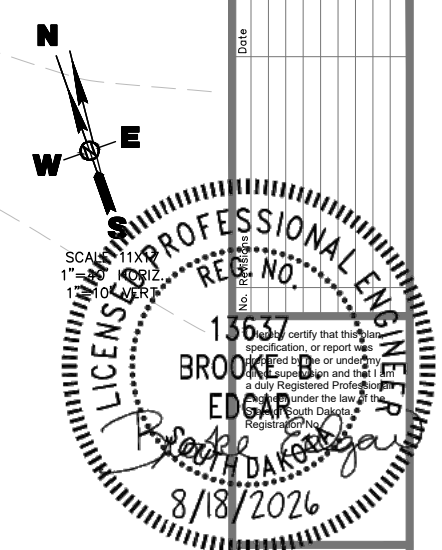
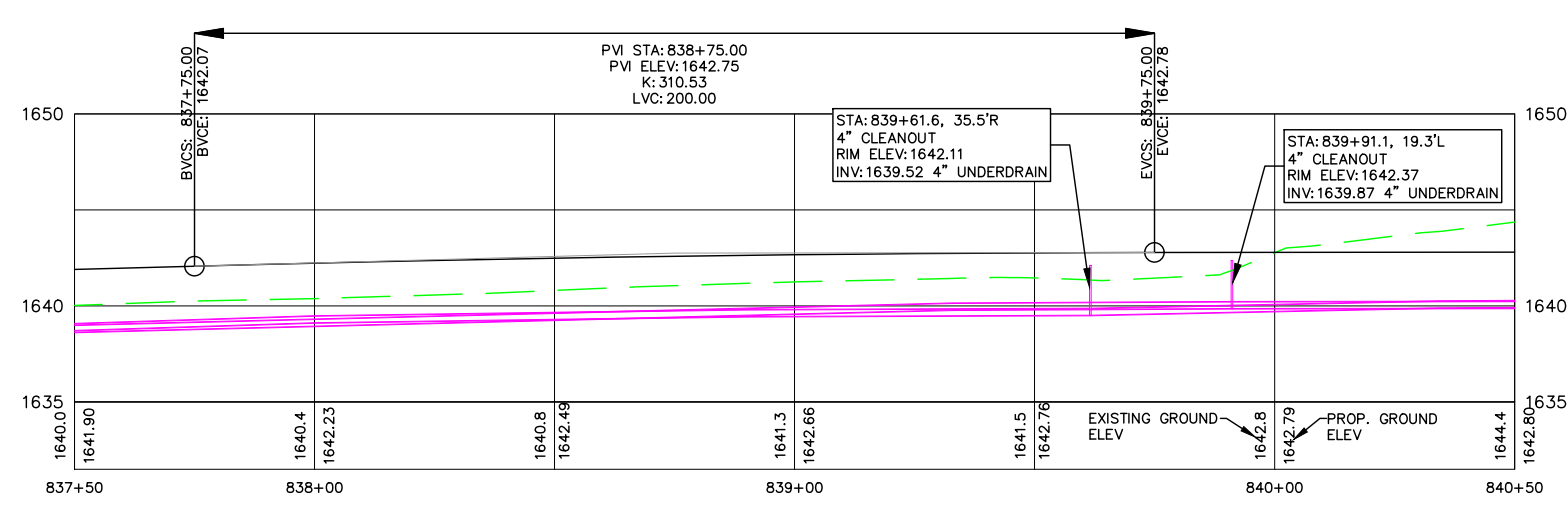
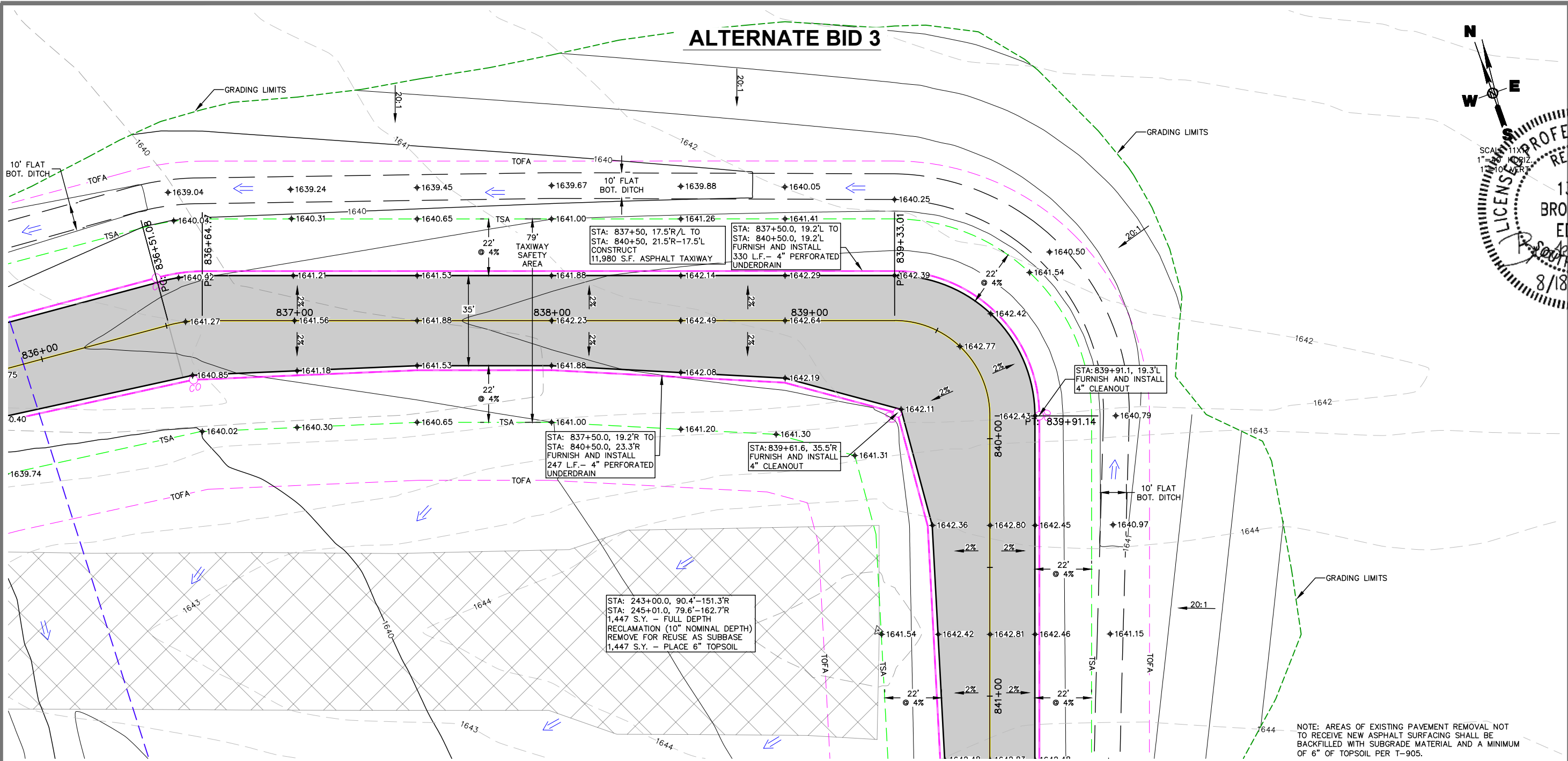


SPN Helms
CIVIL ENGINEERS & LAND SURVEYORS

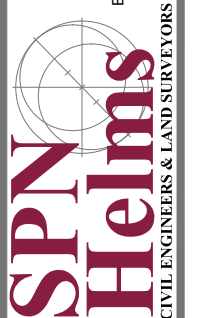
**PARALLEL TAXIWAY P & P
STA: 233+00-238+00**
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-01
VP. No:	PTW-PP(8)
Date:	8/18/26

30
OF
81

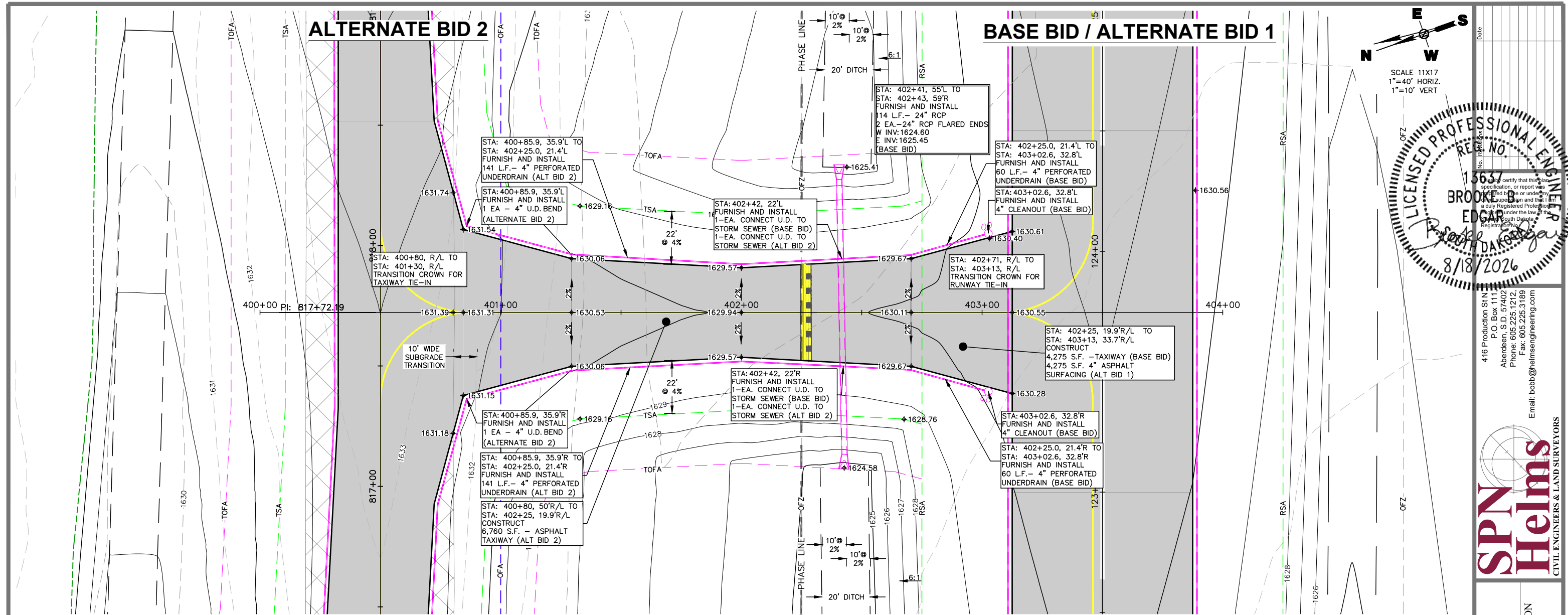


416 Production S/N
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bob@helmsengineering.com



PARALLEL TAXIWAY P & P
STA: 837+50-840+50
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-01
VP. No: PTW-PP(10)
Date: 8/18/26

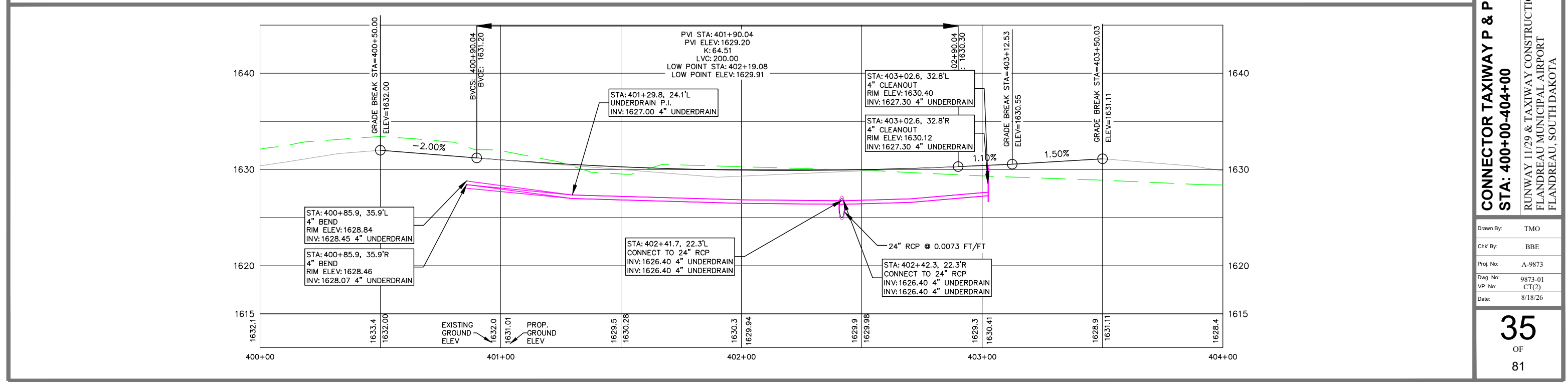


SCALE 11x17
1"=40' HORIZ.
1"=10' VERT

LICENSED PROFESSIONAL ENGINEER
REG. NO. 13637
BROOKS EDGAR
SOUTH DAKOTA
8/18/2026

Date: _____
No. of Sheets: _____
Sheet No. _____

416 Production S/N _____
P.O. Box 111,
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bob@helmsengineering.com

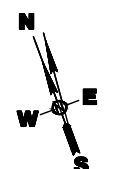
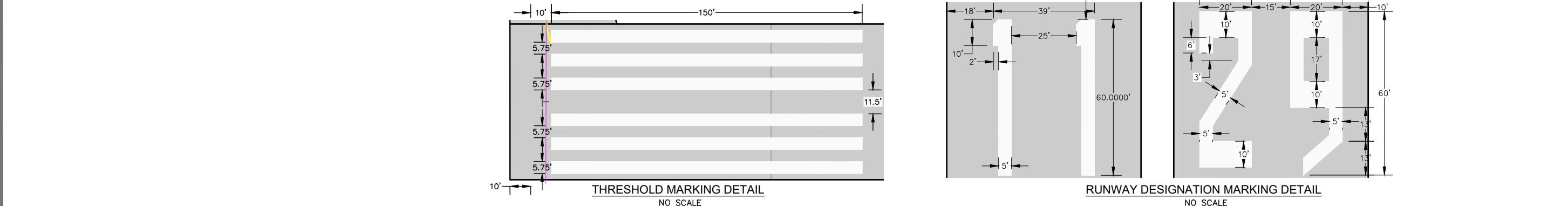
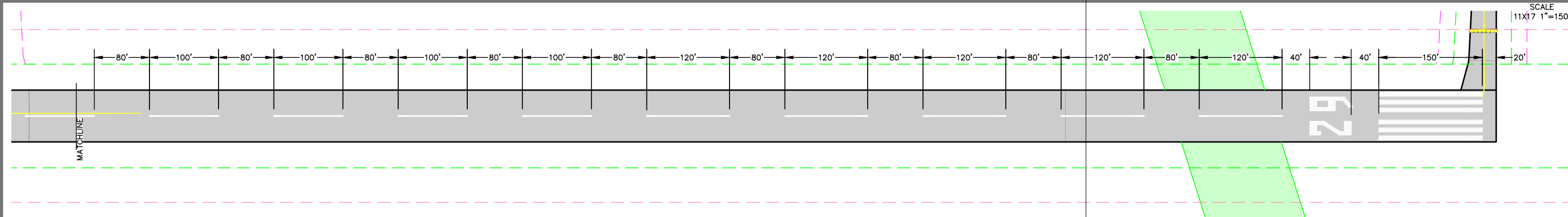
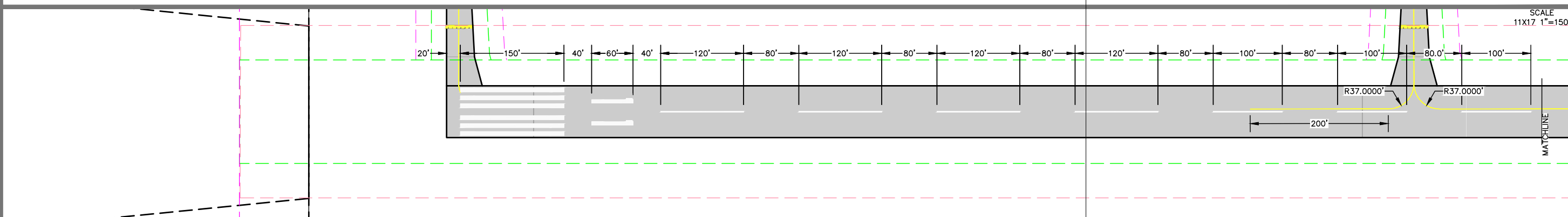
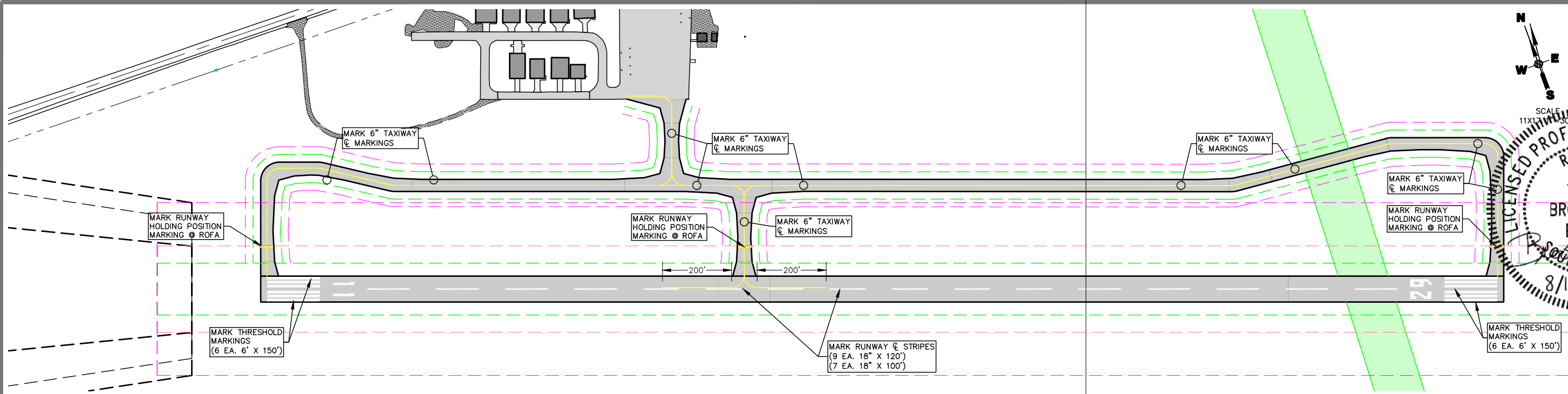


CONNECTOR TAXIWAY P & P
STA: 400+00-404+00

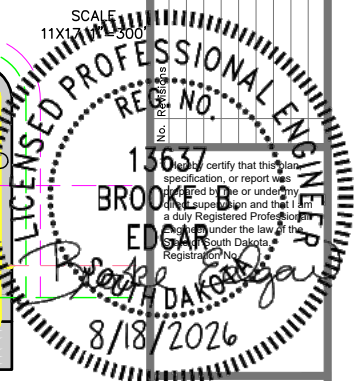
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-01
VP. No: CT(2)
Date: 8/18/26

35
OF
81



SCALE 11X17 1"=150'



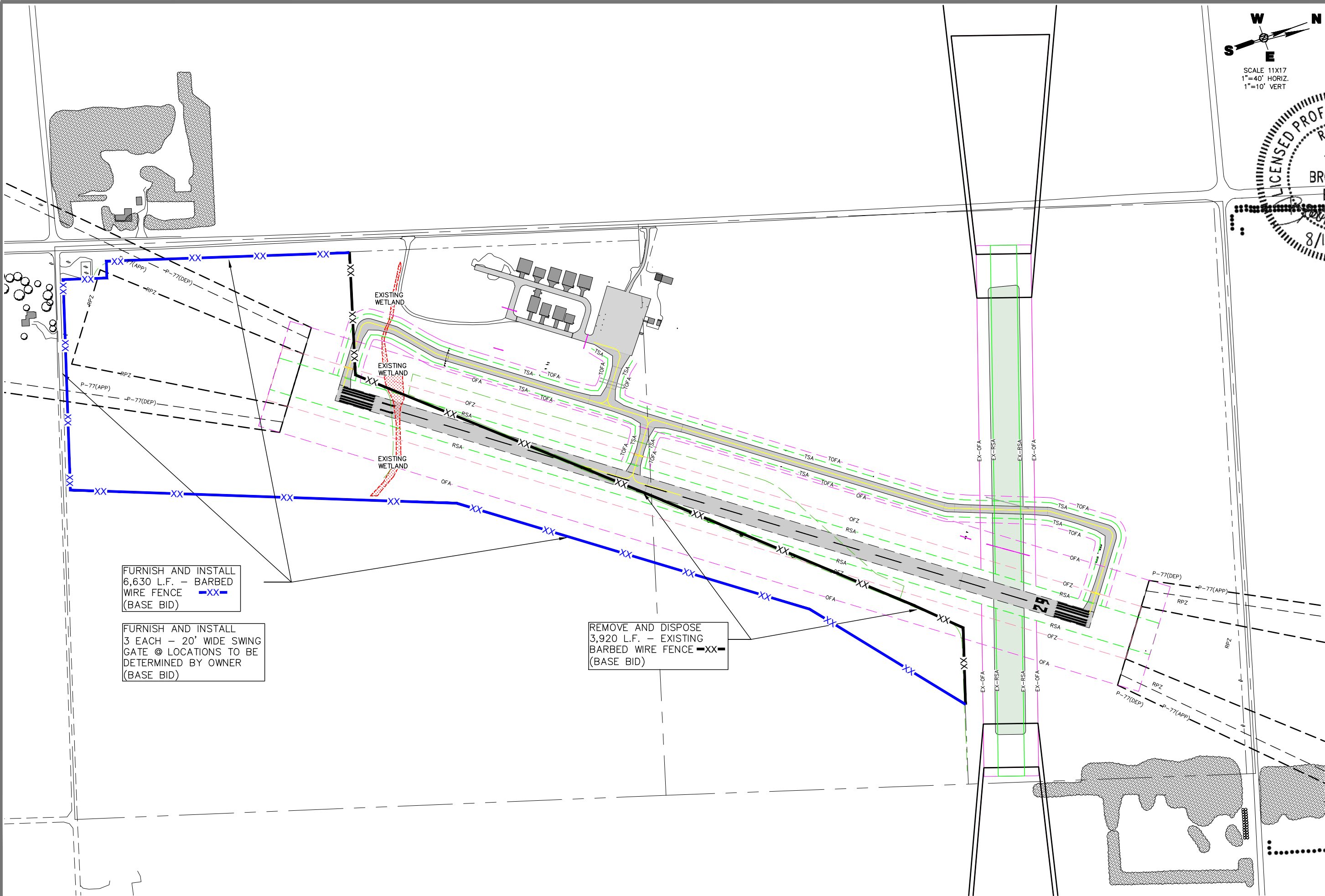
416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



MARKING PLAN

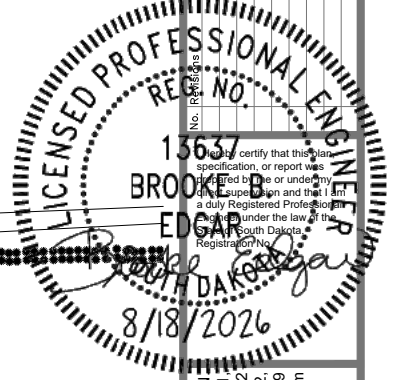
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MARK
VP. No: MARK(1)
Date: 8/18/26



W
N
S
E

SCALE 11X17
1"=40' HORIZ.
1"=10' VERT



416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bob@helmsengineering.com



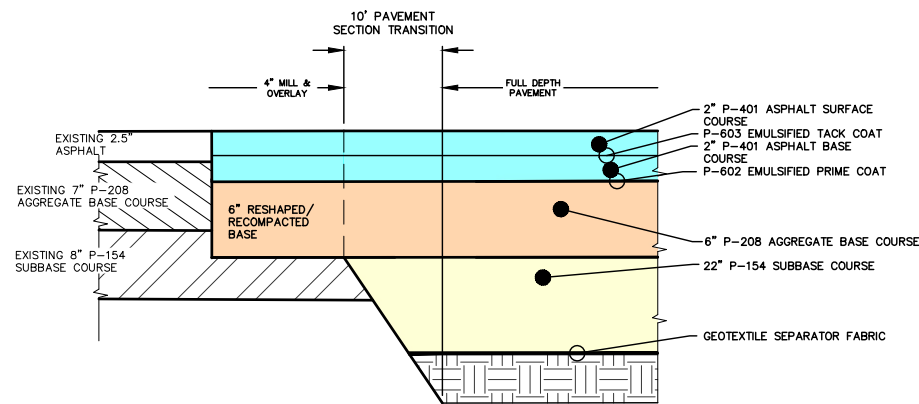
**FENCING REMOVAL AND
INSTALLATION PLAN**
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-SWPPP
VP. No: FENCING PLAN
Date: 8/18/26

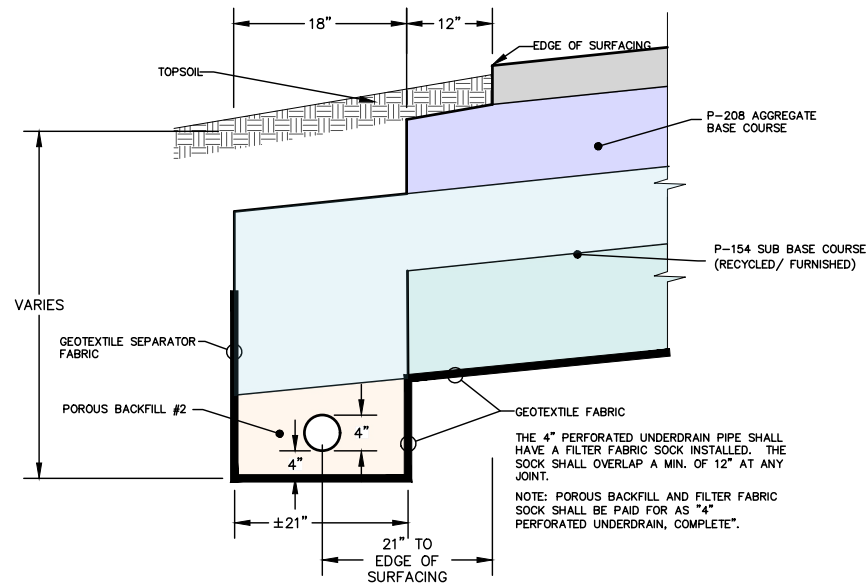
FURNISH AND INSTALL
6,630 L.F. - BARBED
WIRE FENCE -XX-
(BASE BID)

FURNISH AND INSTALL
3 EACH - 20' WIDE SWING
GATE @ LOCATIONS TO BE
DETERMINED BY OWNER
(BASE BID)

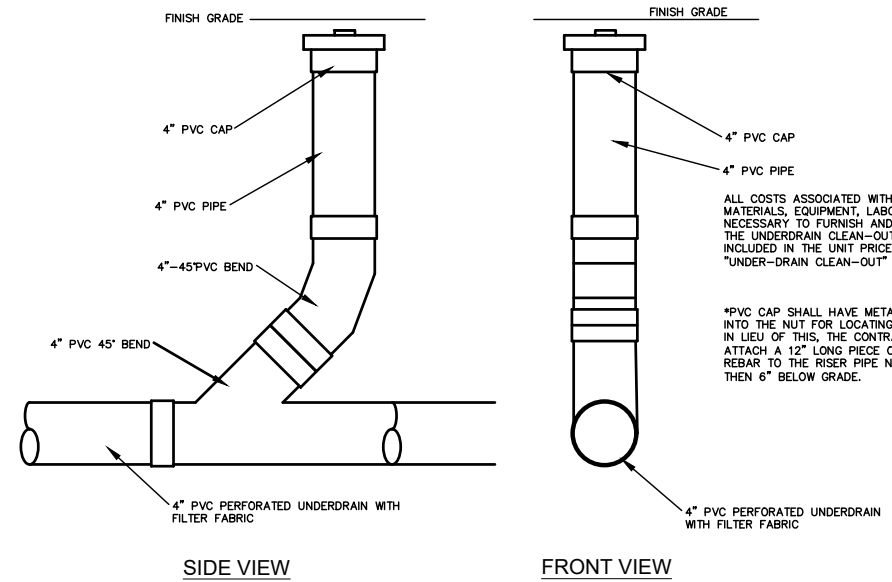
REMOVE AND DISPOSE
3,920 L.F. - EXISTING
BARBED WIRE FENCE -XX-
(BASE BID)



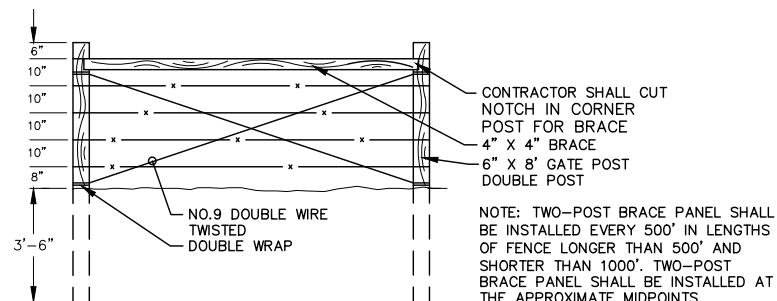
SUBGRADE TRANSITION SECTION
NO SCALE



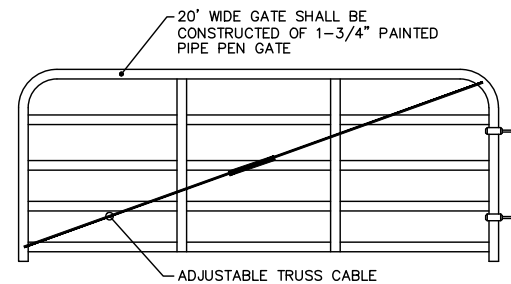
UNDERDRAIN DETAIL
NO SCALE



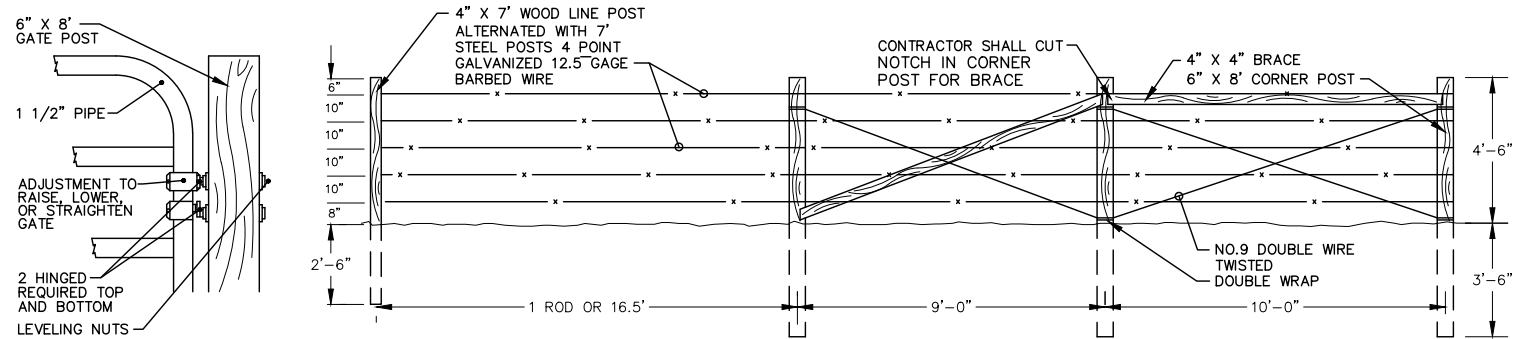
UNDERDRAIN CLEANOUT
NO SCALE



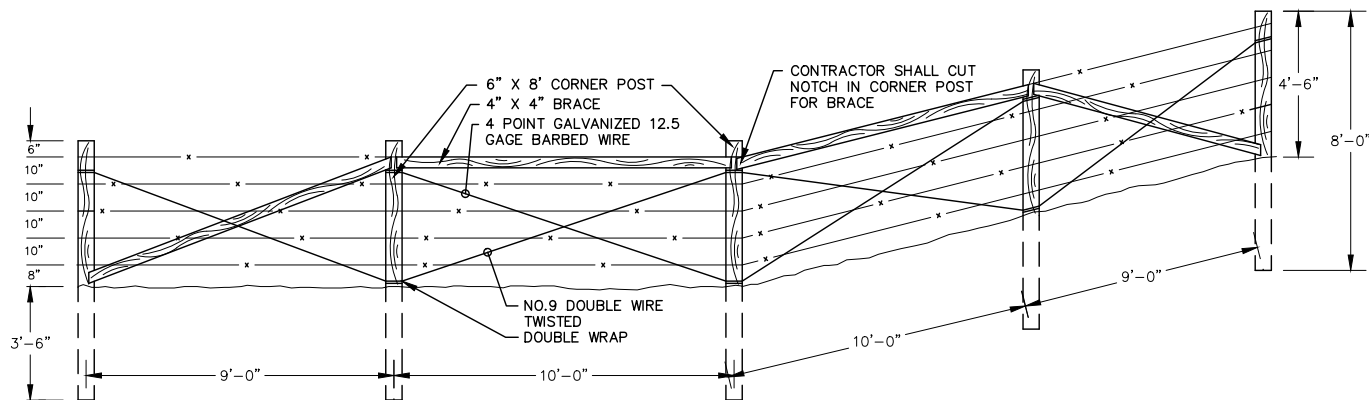
BARBED WIRE TWO POST BRACE PANEL & GATE BRACE PANEL DETAIL
NO SCALE



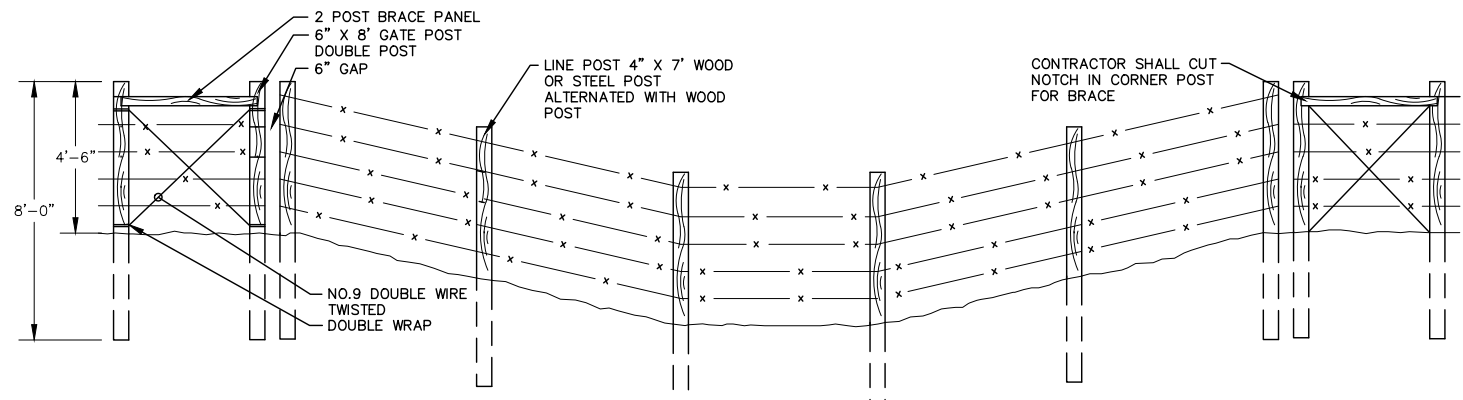
SWING GATE DETAIL
NO SCALE



BARBED WIRE FENCING DETAIL (5-WIRE)
NO SCALE



BARBED WIRE CORNER PANEL DETAIL
NO SCALE



BARBED WIRE FOR WIDE DEPRESSION DETAIL
NO SCALE



416 Production SIN
P.O. Box 111,
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

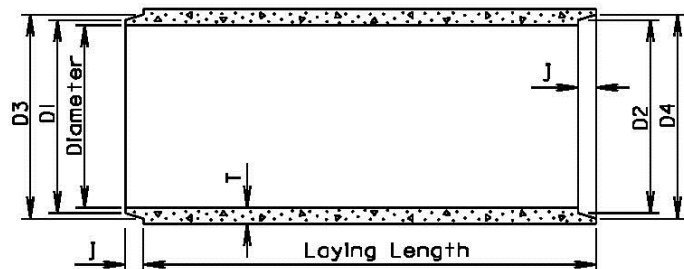
SPN Helms
CIVIL ENGINEERS & LAND SURVEYORS

DETAILS
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

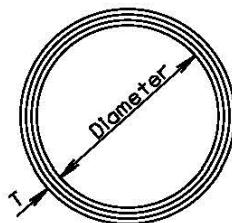
Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-02
VP. No: DET(1)
Date: 8/18/26

TOLERANCES IN DIMENSIONS

Diameter: $\pm 1.5\%$ for 24" Dia. or less and $\pm 1\%$ or $\frac{3}{16}"$ whichever is more for 27" Dia. or greater.
Diameters at joints: $\pm \frac{3}{16}"$ for 30" Dia. or less and $\pm \frac{1}{4}"$ for 36" or greater.
Length of joint (J): $\pm \frac{1}{4}"$.
Wall thickness (T): not less than design T by more than 5% or $\frac{3}{16}"$, whichever is greater.
Laying length: shall not underrun by more than $\frac{1}{2}"$.



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

Construction of R. C. P. shall conform to the requirements of Section 990 of the Specifications.

Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

Diam. (In.)	Approx. Wt. /Ft. (lb.)	T (In.)	J (In.)	D1 (In.)	D2 (In.)	D3 (In.)	D4 (In.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 5/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	3 1/4	3	29 1/4	29 5/8	30 1/4	30 5/8
30	384	3 1/2	3 1/4	32 3/8	32 3/4	33 1/2	33 5/8
36	524	4	3 3/4	38 3/4	39 1/4	40	40 1/2
42	685	4 1/2	4	45 5/8	45 5/8	46 1/2	47
48	867	5	4 1/2	51 1/2	52	53	53 1/2
54	1070	5 1/2	4 1/2	57 7/8	58 3/8	59 3/8	59 5/8
60	1296	6	5	64 1/4	64 3/4	66	66 1/2
66	1542	6 1/2	5 1/2	70 5/8	71 1/8	72 1/2	73
72	1810	7	6	77	77 1/2	79	79 1/2
78	2098	7 1/2	6 1/2	83 3/8	83 3/8	85 5/8	86 5/8
84	2410	8	7	89 3/4	90 1/4	92 1/8	92 5/8
90	2740	8 1/2	7	95 3/4	96 1/4	98 1/8	98 5/8
96	2950	9	7	102 1/8	102 5/8	104 1/2	105
102	3075	9 1/2	7 1/2	109	109 1/2	111 1/2	112
108	3870	10	7 1/2	115 1/2	116	118	118 1/2

June 26, 2015

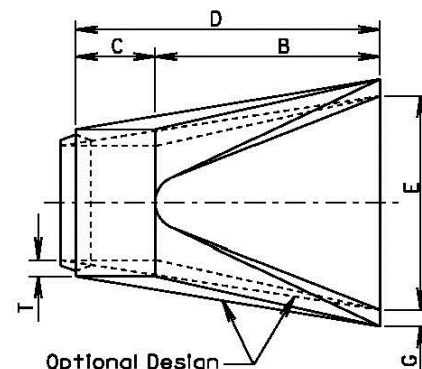
S
D
D
T

REINFORCED CONCRETE PIPE

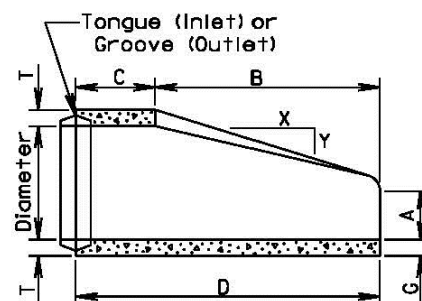
PLATE NUMBER
450.01

Sheet 1 of 1

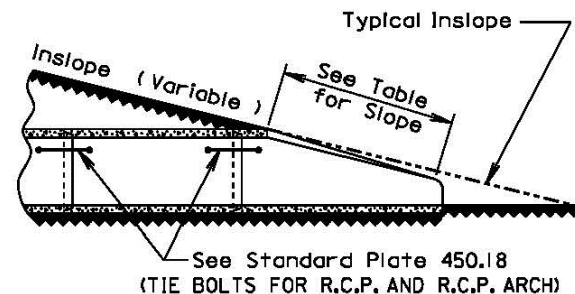
Published Date: 2026



TOP VIEW



LONGITUDINAL SECTION

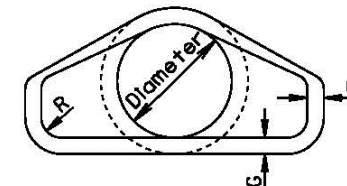


SLOPE DETAIL

GENERAL NOTES:

Lengths of concrete pipe shown on plan sheets are between flared ends only.

Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Specifications.



END VIEW

Dia. (In.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (In.)	A (In.)	B (In.)	C (In.)	D (In.)	E (In.)	G (In.)	R (In.)
12	530	2.4: 1	2	4	24	48 7/8	72 7/8	24	2	1 1/2
15	740	2.4: 1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3: 1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4: 1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	1 1/2
24	1520	2.5: 1	3	9 1/2	43 1/2	30	73 1/2	48	3	1 1/2
27	1930	2.5: 1	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	1 1/2
30	2190	2.5: 1	3 1/2	12	54	19 3/4	73 3/4	60	3 1/2	1 1/2
36	4100	2.5: 1	4	15	63	34 3/4	97 3/4	72	4	1 1/2
42	5380	2.5: 1	4 1/2	21	63	35	98	78	4 1/2	1 1/2
48	6550	2.5: 1	5	24	72	26	98	84	5	1 1/2
54	8240	2: 1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	1 1/2
60	8730	1.9: 1	6	35	60	39	99	96	5	1 1/2
66	10710	1.7: 1	6 1/2	30	72	27	99	102	5 1/2	1 1/2
72	12520	1.8: 1	7	36	78	21	99	108	6	1 1/2
78	14770	1.8: 1	7 1/2	36	90	21	111	114	6 1/2	1 1/2
84	18160	1.6: 1	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2
90	20900	1.5: 1	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	6

June 26, 2015

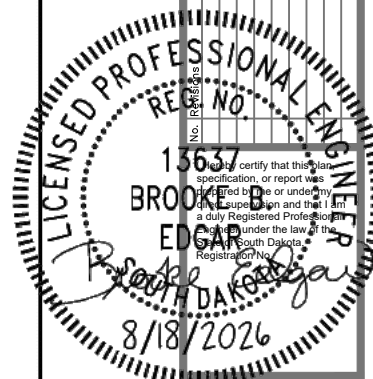
S
D
D
T

R. C. P. FLARED ENDS

PLATE NUMBER
450.10

Sheet 1 of 1

Published Date: 2026



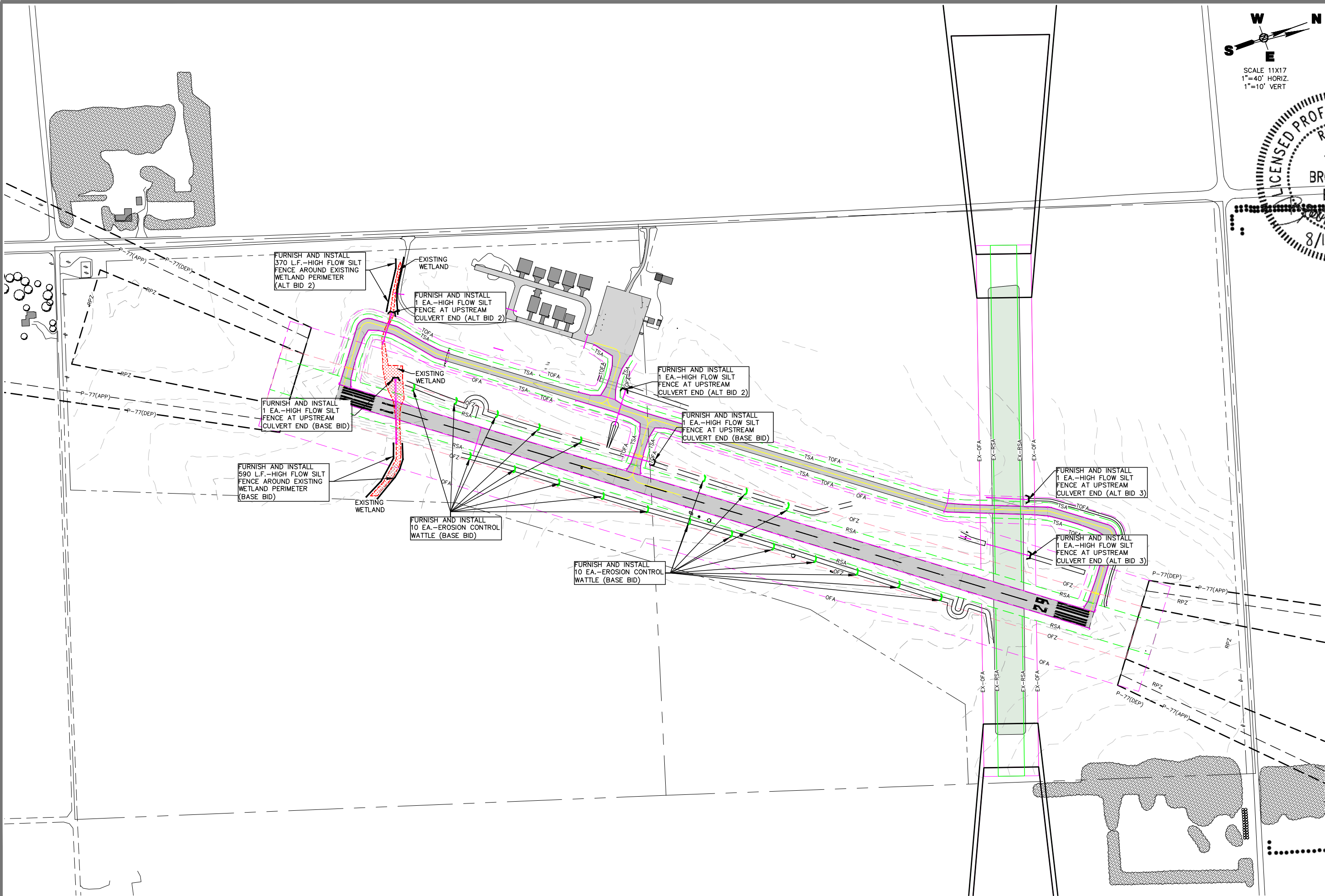
416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bob@helmsengineering.com

SPN Helms
CIVIL ENGINEERS & LAND SURVEYORS

DETAILS

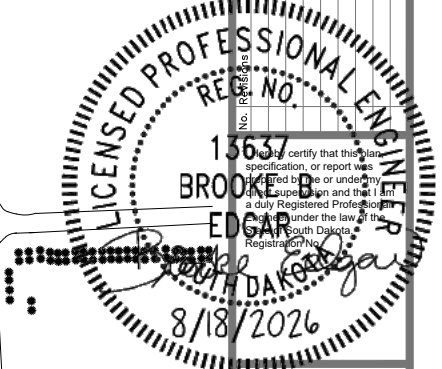
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-02
VP. No: DET(2)
Date: 8/18/26



W
N
S
E

SCALE 11X17
1"=40' HORIZ.
1"=10' VERT



416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bob@helmsengineering.com



**STORM WATER POLLUTION
PREVENTION PLAN**

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-SWPPP
VP. No: SWPPP
Date: 8/18/26

STORMWATER POLLUTION PREVENTION PLAN CHECKLIST

General Permit Authorizing Stormwater Discharges Associated with Construction Activities Under the South Dakota Surface Water Discharge System

In compliance with the provisions of the South Dakota Water Pollution Control Act and the Administrative Rules of South Dakota (ARSD), Article 74:52., owners and operators of stormwater discharges from construction activities, located in the state of South Dakota must be authorized to discharge in accordance with the conditions and requirements set forth in the General Permit.

The owner must obtain coverage under the general permit and all operators at the site must comply with the permit conditions.

(The numbers left of the title headings are reference numbers to the GENERAL PERMIT AUTHORIZING STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES (General Stormwater Permit))

5.3 (2): STAFF TRAINING/SWPPP IMPLEMENTATION

To promote stormwater management awareness specific for this project, the Contractor's Erosion Control Supervisor should provide correspondence of how the SWPPP will be implemented. The Contractor's Erosion Control Supervisor is responsible for providing this information at the preconstruction meeting, and subsequently completing an attendance log, which should identify site-specific implementation of the SWPPP and the names of the personnel who attended the preconstruction meeting. Documentation of the preconstruction meeting will be filed with the SWPPP documents.

5.3 (3): DESCRIPTION OF CONSTRUCTION ACTIVITIES

- 5.3 (3a): Project Limits (See Title Sheet)
- 5.3 (3b): Project Description (See Title Sheet)
- 5.3 (3c): Site Map(s) (See Title Sheet and Plans)
- 5.3 (3d): Major Soil Disturbing Activities (check all that apply)

X

Clearing and grubbing

X

Excavation/ Borrow

X

Filling

Other (describe):

- 5.3 (3e): Total Project Area: 28 acres
- 5.3 (3f): Total Area to be Disturbed: 8.5 acres
- 5.3 (3g): Maximum Area to be Disturbed at One Time: 8.5 acres
- 5.3 (3h): Existing Vegetative Cover (%): 100%
- 5.3 (3i): Description of Vegetative Cover: Row Crops.
- 5.3 (3j): Soil Properties: AASHTO Soil Classification A-6 and A-7
- 5.3 (3k): Name of Receiving Water Body/Bodies: Roscoe Lake
- 5.3 (3l): Location of Construction Support Activity Areas: See CSPP Project Layout Sheet

5.3 (4): ORDER OF CONSTRUCTION ACTIVITIES

The Contractor will enter the Estimated Start Date.

- Install perimeter protection where runoff may exit site.

Install perimeter protection around stockpiles.

Remove soil and topsoil.

Grade Proposed Wetland.

Install utilities and storm sewers.

Final grading and topsoil replacement.

Removal of protection devices.

Reseed all areas disturbed by removal activities.

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report. Include the technical reasoning

for selecting each control. (check all that apply)

- Perimeter Controls (See Detail Plan Sheets)
- Natural Buffers (within 50 ft of Waters of State)
- X

Silt Fence
- Erosion Control Wattles
- Temporary Berm / Windrow
- Stabilized Construction Entrances
- Entrance/Exit Equipment Tire Wash
- Other:

- Structural Erosion and Sediment Controls
- X

Silt Fence
- Temporary Berm / Windrow
- Erosion Control Wattles
- Temporary Sediment Barriers
- Erosion Bales
- Temporary Slope Drain
- Turf Reinforcement Mat
- Riprap
- Gabions
- Rock Check Dams
- Sediment Traps/Basins
- Culvert Inlet Protection
- Transition Mats
- Median/ Area Drain Inlet Protection
- Curb Inlet Protection
- Interceptor Ditch
- Concrete Washout Facility
- Work Platform
- Temporary Water Barrier
- Temporary Water Crossing
- Permanent Stormwater Ponds
- Permanent Open Vegetated Swales
- Natural Depressions to allow for Infiltration
- Sequential Systems that combine several practices
- Other:

- Dust Controls
- Tarps & Wind Impervious Fabrics
- X

Watering
- X

Stockpile location/ orientation
- Dust Control Chlorides
- Other:

- Dewatering BMPs
- Sediment Basins
- Dewatering bags
- Weir Tanks
- Temporary Diversion Channel
- Other:

Stabilization Practices (See Detail Plan Sheets)

Stabilization measures shall begin the following work day whenever earth disturbing activity on any portion of the site has temporarily or permanently ceased. Temporary stabilization shall be completed as soon as practicable but no later than 14 days after initiating soil stabilization activities (3.18).

- Vegetation Buffer Strips
- Temporary Seeding (Cover Crop Seeding)
- X

Permanent Seeding
- Sodding
- Planting (Woody Vegetation for Soil Stabilization)
- X

Mulching (Grass Hay or Straw)
- X

Fiber Mulching (Wood Fiber Mulch)
- Soil Stabilizer
- X

Bonded Fiber Matrix
- Fiber Reinforced Matrix
- Erosion Control Blankets
- Surface Roughening (e.g. tracking)
- Other:

Wetland Avoidance

Will construction and/or erosion and sediment controls impinge on regulated wetland? Yes ___ No X If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404-permit process with the USACE.

5.3 (6): PROCEDURES FOR INSPECTIONS

- Inspections will be conducted at least once every 7 days.

All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.

Silt fence will be inspected for depth of sediment and for tears to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches ⅓ of the height of the silt fence.

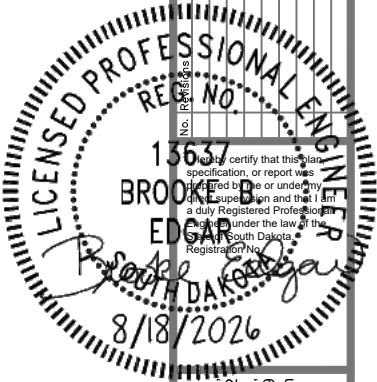
Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, at the conclusion of the construction.

Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ the height of the dam.

All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.

Inspection and maintenance reports will be included with the weekly progress report for each site inspection, this report will also be used to document changes to SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.

The Resident Project Representative and the Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance and repair activities are the responsibility of the Contractor. The Resident Project Representative will complete and provide a copy of the inspection and maintenance reports to the Project Engineer.



416 Production St.
P.O. Box 111,
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



STORM WATER POLLUTION PREVENTION PLAN NOTES

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-SWPPP
VP. No:	SWPPPN (1)
Date:	8/18/26

5.3 (7): POST-CONSTRUCTION STORMWATER MANAGEMENT

Stormwater management will be handled by temporary controls outlined in “DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES” above, and any permanent controls needed to meet permanent stormwater management needs in the post construction period will be shown in the plans and noted as permanent.

5.3 (8): POLLUTION PREVENTION PROCEDURES

5.3 (8A): Spill Prevention and Response Procedures
Material Management

House Keeping

- Only needed products will be stored on-site by the Contractor.
- Except for bulk materials the contractor will store all materials under cover and/or in appropriate containers.
- Products must be stored in original containers and labeled.
- Material mixing will be conducted in accordance with the manufacturer's recommendations.
- When possible, all products will be completely used before properly disposing of the container off-site.
- The manufacturer's directions for disposal of materials and containers will be followed.
- The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
- Dust generated will be controlled in an environmentally safe manner.

Hazardous Materials

- Products will be kept in original containers unless the container is not resealable and provide secondary containment as applicable.
- Original labels and material safety data sheets will be retained in a safe place to relay important product information.
- In surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any stormwater system or stormwater treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of stormwater runoff.

Spill Control Practices

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill cleanup will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the Contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for cleanup purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well-ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the

cleanup measured taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurrences.

- The Contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator.

Spill Response

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into stormwater runoff and conveyance systems. If the release has impacted on-site stormwater, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens stormwater or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The Contractor's site superintendent will be notified immediately when a spill or threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the Contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DANR
- Personnel with primary responsibility for spill response and cleanup will receive training by the Contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities

5.3 (8b): WASTE MANGAGEMENT PROCEDURES

Waste Disposal

All liquid waste materials will be collected and stored in approved sealed containers. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal and notices stating proper practices will be posted. The Contractor is responsible for ensuring waste disposal procedures are followed.

Hazardous Waste

All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the Contractor will be responsible for seeing that these practices are followed.

Sanitary Waste

Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units which must be secured to prevent tipping and serviced in a timely manner by a licensed waste management Contractor or as required by any local regulations.

5.3 (9): CONSTRUCTION SITE POLLUTANTS

The following materials or substances are expected to present on the site during the construction period. These materials will be handled as noted under the heading “POLLUTION PREVENTION PROCEDURES” (check all that apply)

- ☒ Concrete and Portland Cement
- ☐ Detergents
- ☒ Paints
- ☒ Metals
- ☒ Bituminous Materials
- ☒ Petroleum Based Products
- ☒ Diesel Exhaust Fluid
- ☐ Cleaning Solvents
- ☒ Wood
- ☒ Cure
- ☐ Texture
- ☒ Chemical Fertilizers
- ☐ Other:

Product Specific Practices

Petroleum Products

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

Fertilizers

Fertilizers will be applied only in the amounts specified by the Engineer. Once applied, fertilizers will be worked into the soil to limit the exposure to stormwater. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

Paints

All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.

Concrete Trucks

Contractors will provide designated truck washout facilities on the site. These areas must be self-contained and not connected to any stormwater outlet of the site. Upon completion of construction, the area at the washout facility will be properly stabilized.

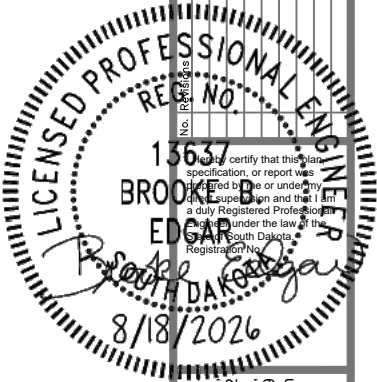
5.3 (10): NON-STORMWATER DISCHARGES

The following non-stormwater discharges are anticipated during the course of this project (check all that apply).

- ☐ Discharge from water line flushing
- ☐ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- ☒ Uncontaminated ground water associated with dewatering activities.

5.3 (11): INFEASIBILITY DOCUMENTATION

If it is determined to be infeasible to comply with any of the requirements of the Stormwater Permit, the infeasibility determination must be thoroughly documented in the SWPPP.



416 Production St N
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



STORM WATER POLLUTION
PREVENTION PLAN NOTES
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-SWPPP
VP. No:	SWPPPN (2)
Date:	8/18/26

5.4: SWPPP CERTIFICATIONS

Certification of Compliance with Federal, State, and Local Regulations

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for the sediment and erosion control plans, permits, notices or documentation as appropriate.

Flandreau Municipal Airport

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assume that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment knowing violations.

Authorized Signature (See the General Permit, Section 7.4 (1))

Prime Contractor

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature

CONTACT INFORMATION

The following personnel are duly authorized representatives and have signatory authority for modifications made to the SWPPP:

Contractor Information:

Prime Contractor Name:

Contractor Contact Name:

Address:

City: State: Zip:

Office Phone: Field:

Cell Phone: Fax:

Erosion Control Supervisor

Name:

Address:

City: State: Zip:

Office Phone: Field:

Cell Phone: Fax:

Project Engineer

Name: Brooke Edgar, P.E.

Business Address: 416 Production St. N

Job Office Location: Aberdeen, SD

City: Aberdeen State: SD Zip: 57402

Office Phone: (605) 225-1212 Field:

Cell Phone: Fax: (605) 225-3189

SD DANR Contact Spill Report

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

SD DANR Contact for Hazardous Materials

- (605) 773-3153

National Response Center Hotline

- (800) 424-8802

SD DANR Stormwater Contact Information

- SD DANR Stormwater (800) 737-8676
- Surface Water Quality Program (605) 773-3351

5.1: REQUIRED SWPPP MODIFICATIONS

5.5 (1): Conditions Requiring SWPPP Modification

The SWPPP must be modified, including the site map(s), in response to any of the following conditions:

- When a new operator responsible for implementation of any part of the SWPPP begins to work on the site.
- When Changes to construction plans, sediment and erosion control measures, or any best management practices on site that are no longer accurately reflected in the SWPPP. This included changes made in response to corrective actions triggered by inspections.
- To reflect areas on the site map where operations control has been transferred (including the date of the transfer) or has been covered under a new permit since initiating coverage under this general permit.
- If inspections by site staff, local officials, SD DANR, or U.S. EPA determine that SWPPP modifications are necessary for compliance with Stormwater Permit.
- To reflect any revisions to applicable federal, state, or local requirements that affect the control measures implemented at the site.

- If approved by the Secretary, to reflect any changes in chemical water treatment systems or controls, including the use of a different water treatment chemical, age rates, different areas, or methods of applications.

5.5 (2): Deadlines for SWPPP Modification

Any required revisions to the SWPPP must be completed within 7 calendar days following any of the items listed above.

5.5 (3): Documentation of Modifications to the Plan

All SWPPP modification records are required to be maintained showing the dates of when the modification occurred. The records must include the name of the person authorizing each change and a brief summary of all changes.

5.5 (4): Required Notice to Other Operators

All modification made to you SWPPP must be signed and certified as required in the General Stormwater Permit Section 7.4.

5.5 (5): Required Notice to Other Operators

If there are multiple operators at the site, the Contractor's Erosion Control Supervisor must notify each operator that may be impacted by the change to the SWPPP within 24 hours.

When modifications as described above occur, the SWPPP will be modified to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The Project Engineer will modify the SWPPP and drawings on the plans will be modified to reflect the needed changes. Copies of the SWPPP modifications will be given to the Contractor Erosion Control Supervisor and a copy will be emailed Owner.

6.1 SPECIAL CONDITIONS - NOT APPLICABLE

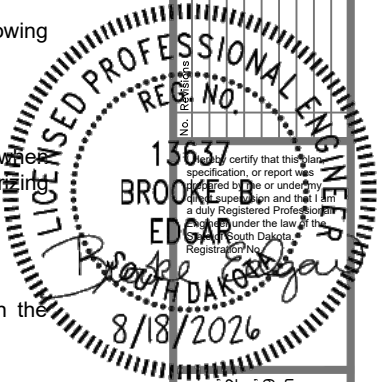
7.1 EMERGENCY SPILL NOTIFICATION

In the event of a spill, the Contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

A release or spill of regulated substance (includes petroleum and petroleum products) must be reported to SD DANR immediately if any one of the following conditions exists:

- The release or spill threatens or is able to threaten waters of the state (surface water or ground water)
- The release or spill causes an immediate danger to human health or safety
- The release or spill exceeds 25 gallons
- The release or spill causes a sheen on surface water
- The release or spill of any substance that exceeds the ground water quality standards of ARSD Chapter 74:54:01
- The release or spill of any substance that exceeds the surface water quality standards of ARSD Chapter 74:54:01
- The release or spill of any substance that harms or threatens to harm wildlife or aquatic life.
- The release or spill of crude oil in field activities under SDCL 45-9 is greater than 1 barrel (42 gallons); or
- The release or spill is required to be reported according to Superfund Amendments and Reauthorization Act (SARA) Title III List of Lists, Consolidated List of Chemicals Subject to Reporting under the Emergency Planning and Community Right to Know Act, US Environmental Protection Agency.

To report a release or spill, call SD DANR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central Standard Time). To report the release after hours, on weekends or holidays, call South Dakota Emergency Management at 605-773-3231. Reporting the release to SDDANR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, you must also contact local authorities to determine the local reporting requirements for release. A written report of the unauthorized release of any regulated substance, including quantity discharged, and the location of the discharge shall be sent to the SD DANR within 14 days of the discharge.



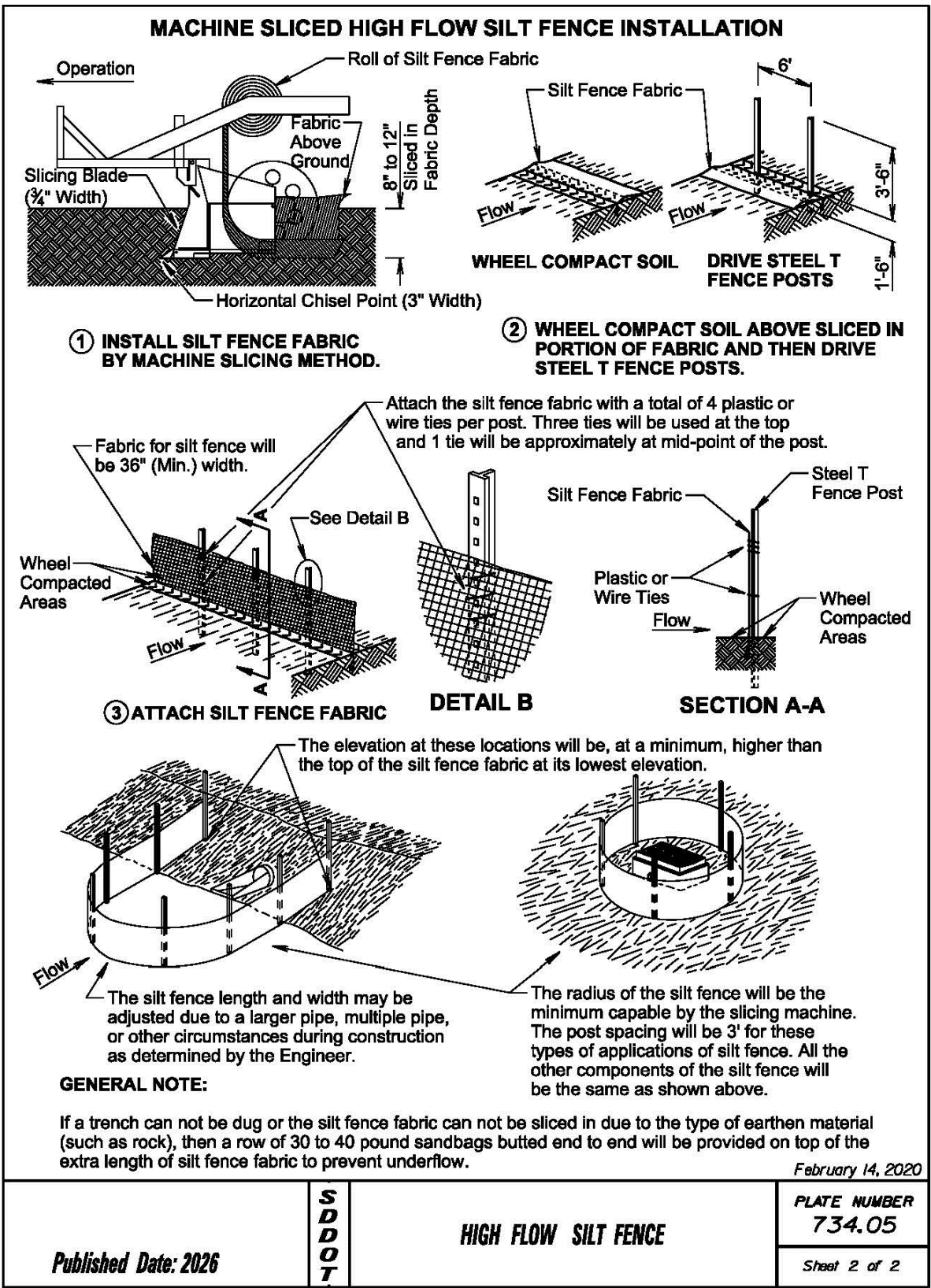
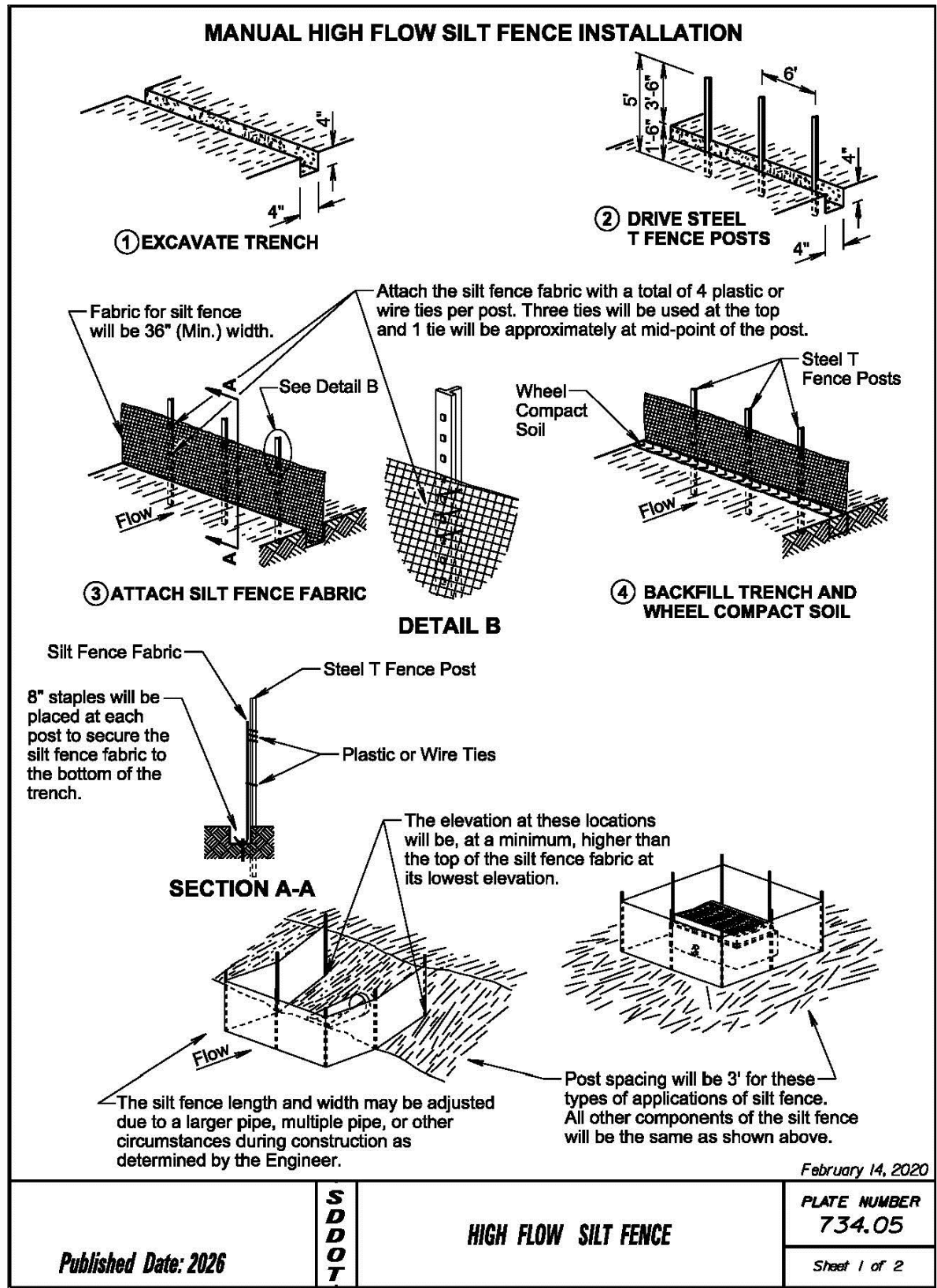
416 Production St. N.
P.O. Box 111,
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bob@helmsengineering.com



STORM WATER POLLUTION PREVENTION PLAN NOTES

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-SWPPP
VP. No: SWPPPN (3)
Date: 8/18/26



416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

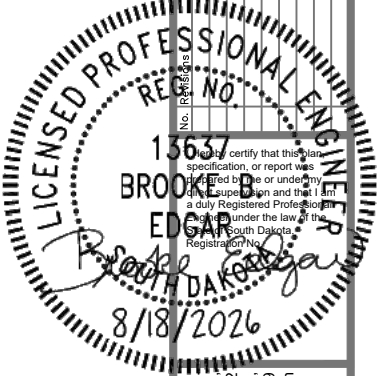
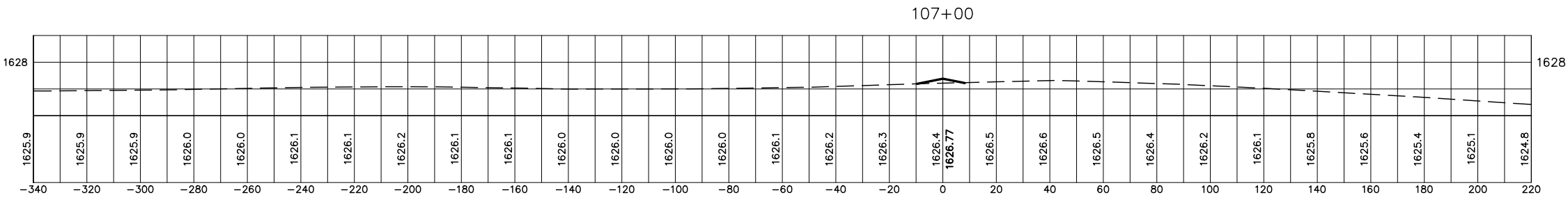
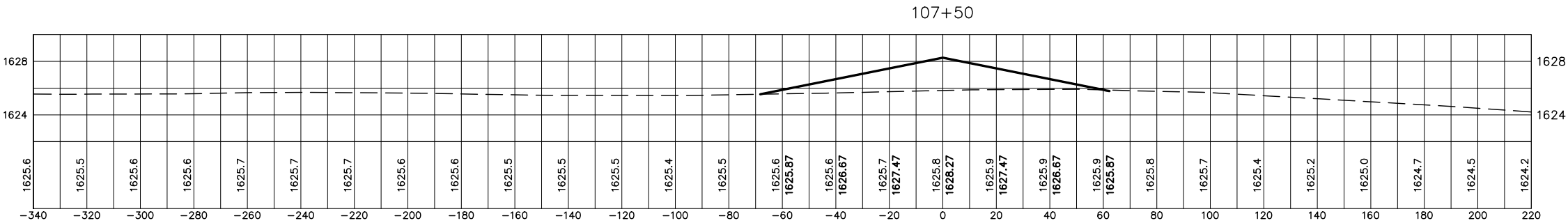
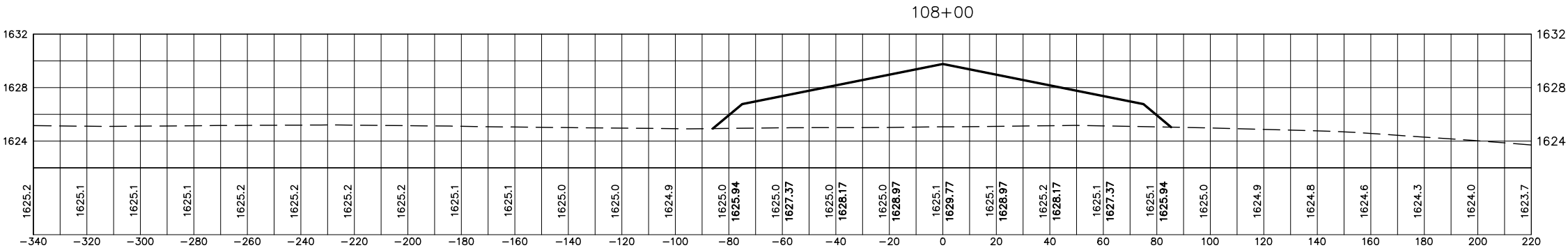
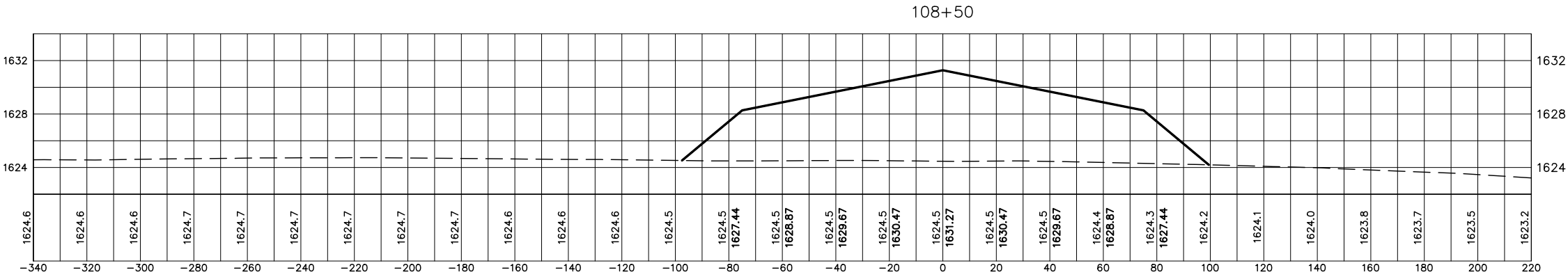
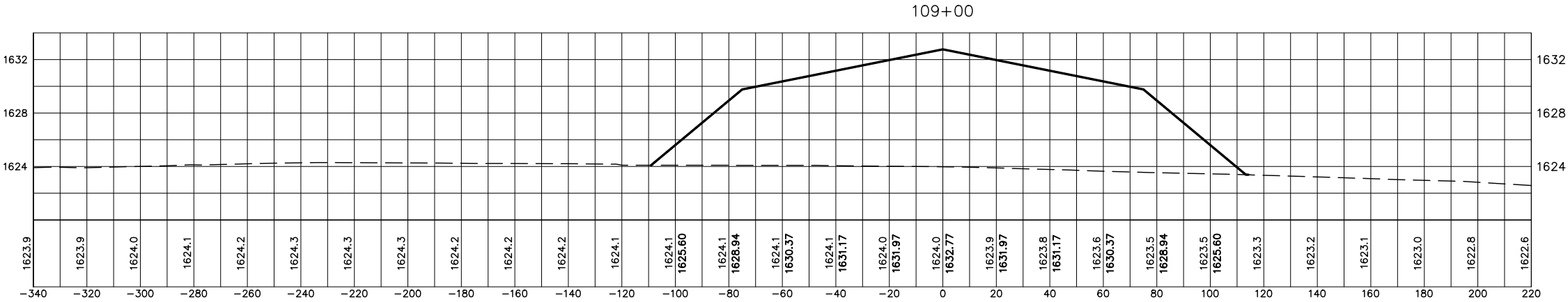


STORM WATER POLLUTION PREVENTION PLAN DETAILS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-SWPPP
VP. No: SWPPPD (1)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



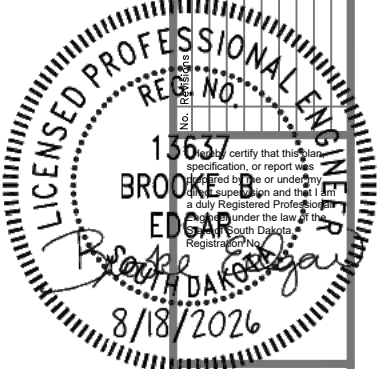
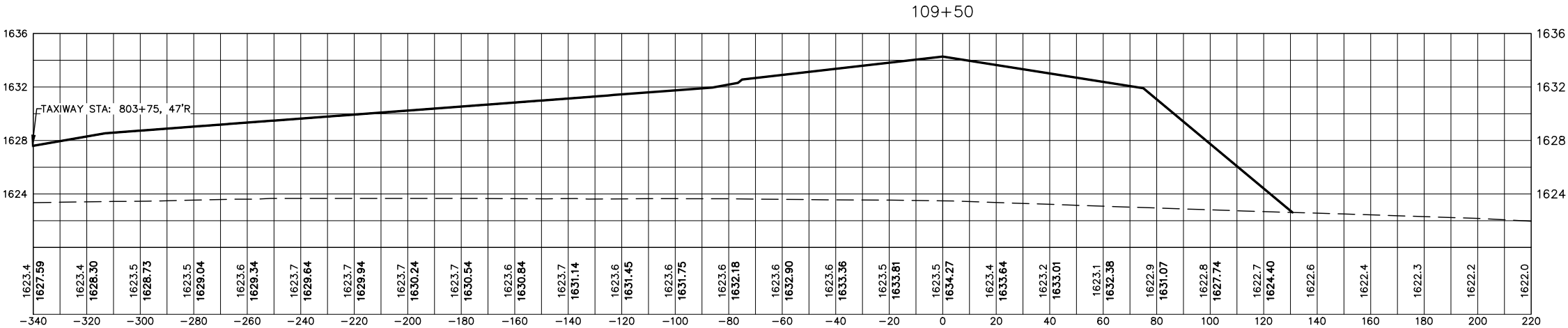
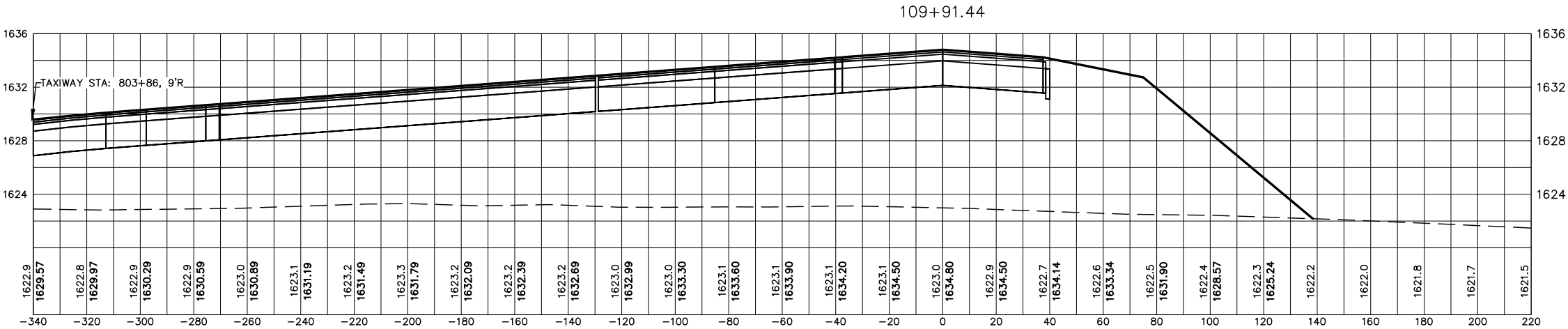
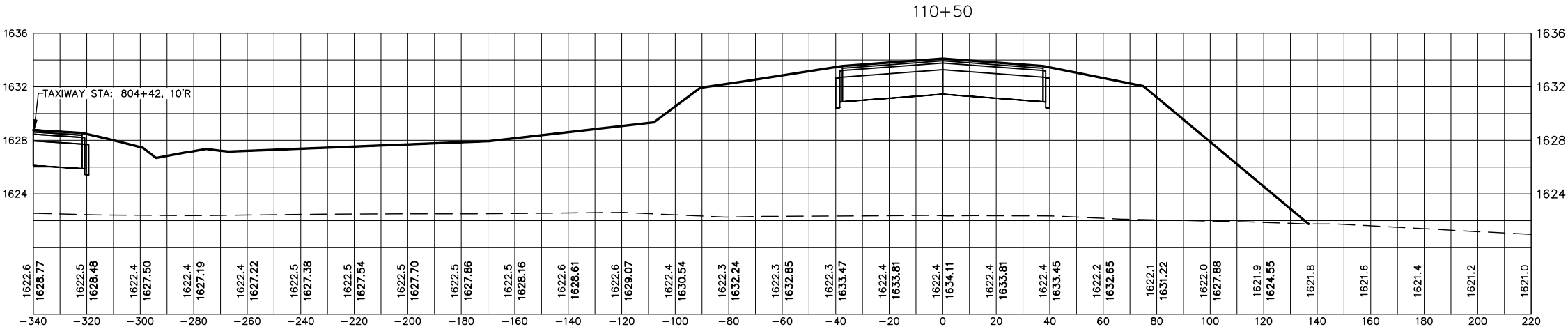
416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bob@helmsengineering.com



11-29 CROSS SECTIONS
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(4)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

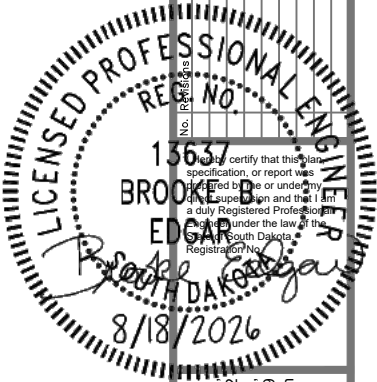
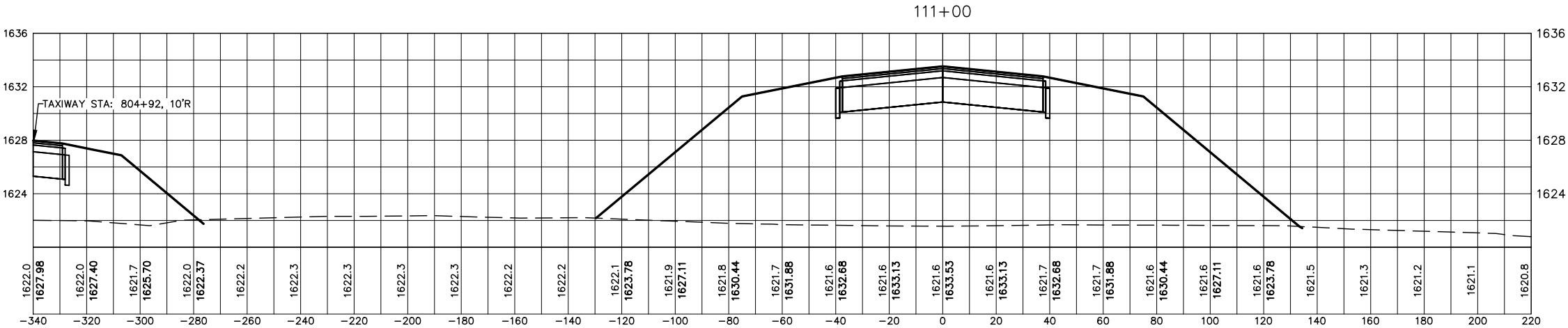
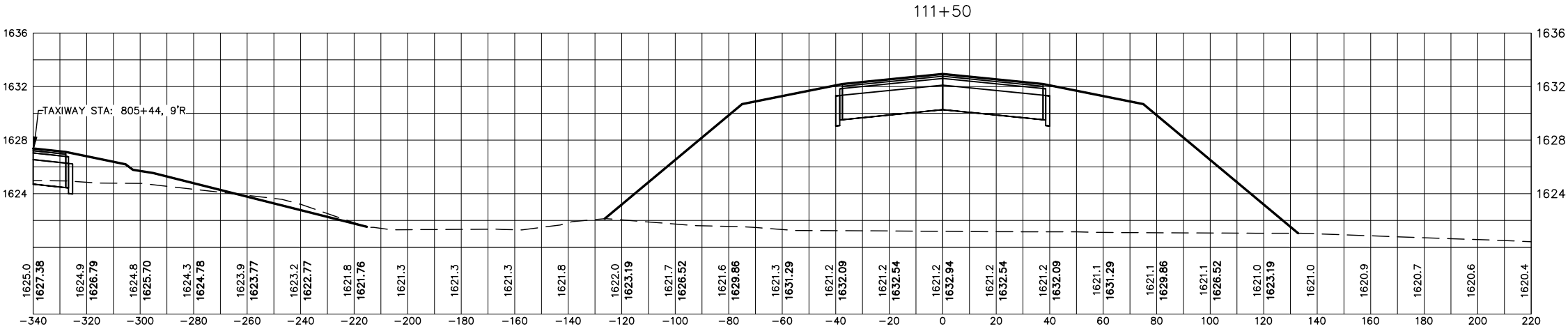
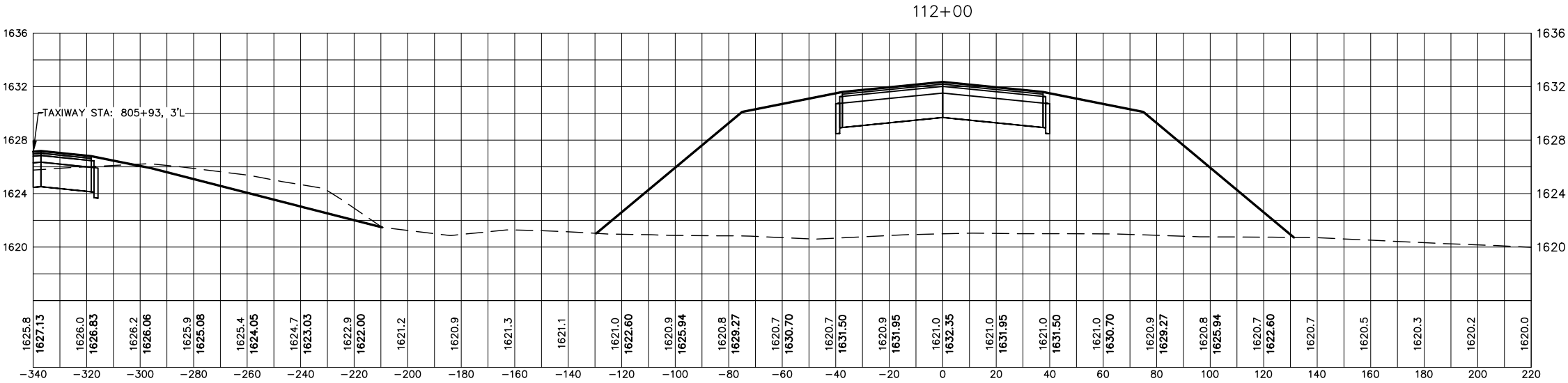


11-29 CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(5)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

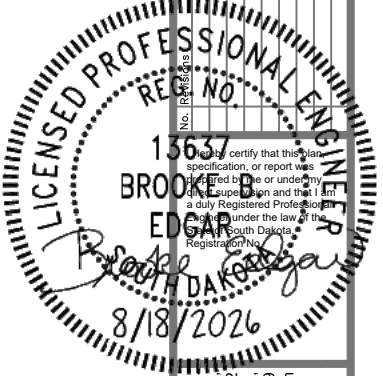
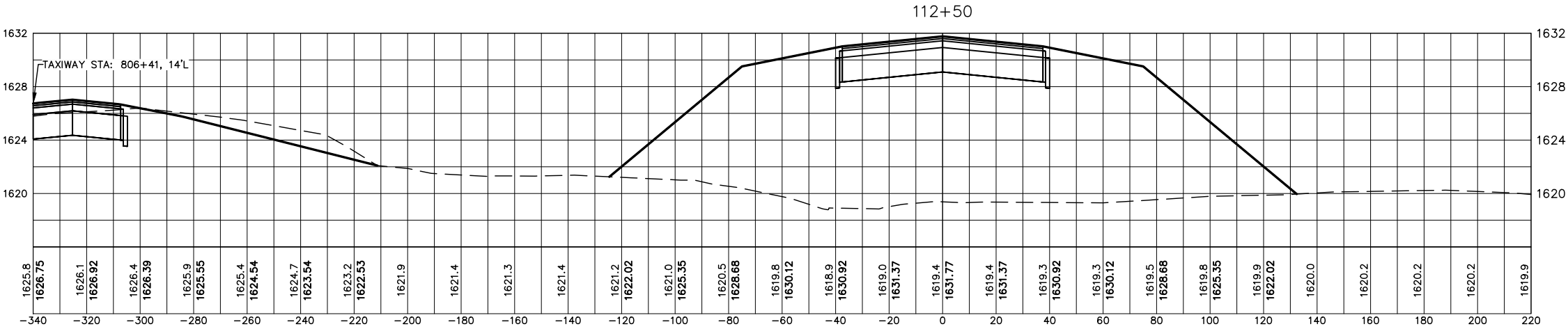
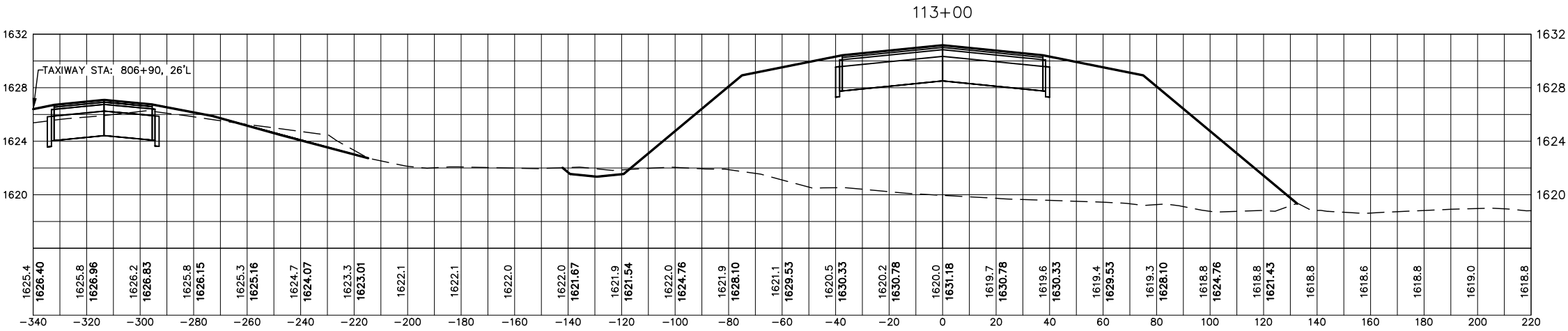
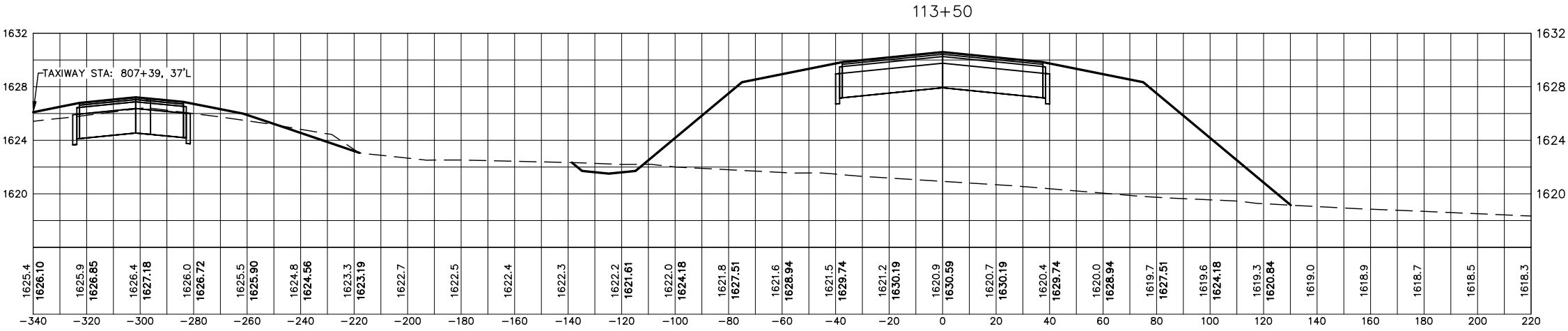


11-29 CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(6)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

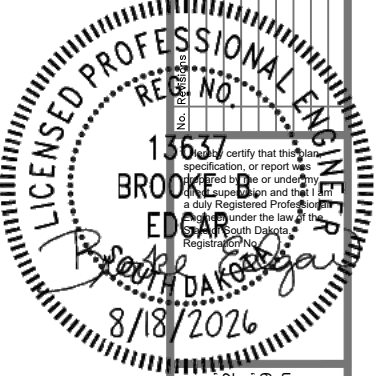
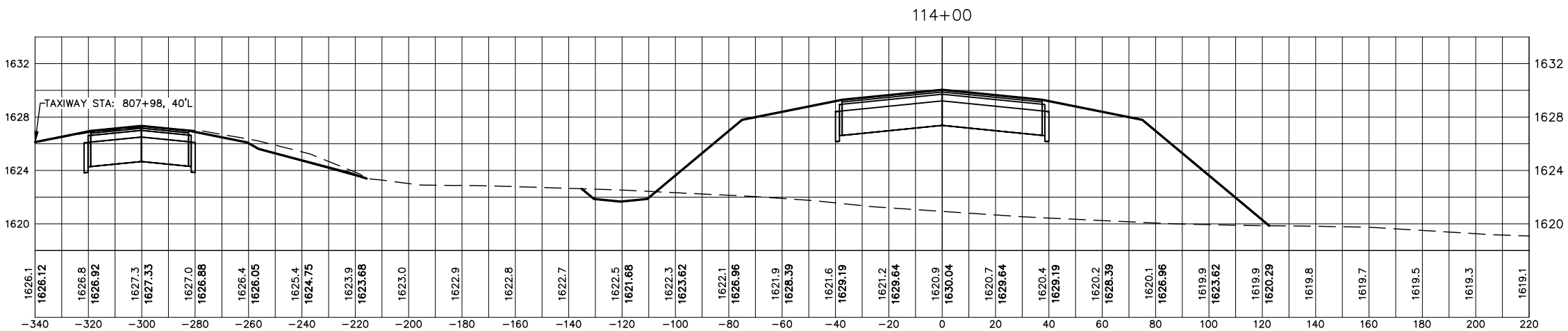
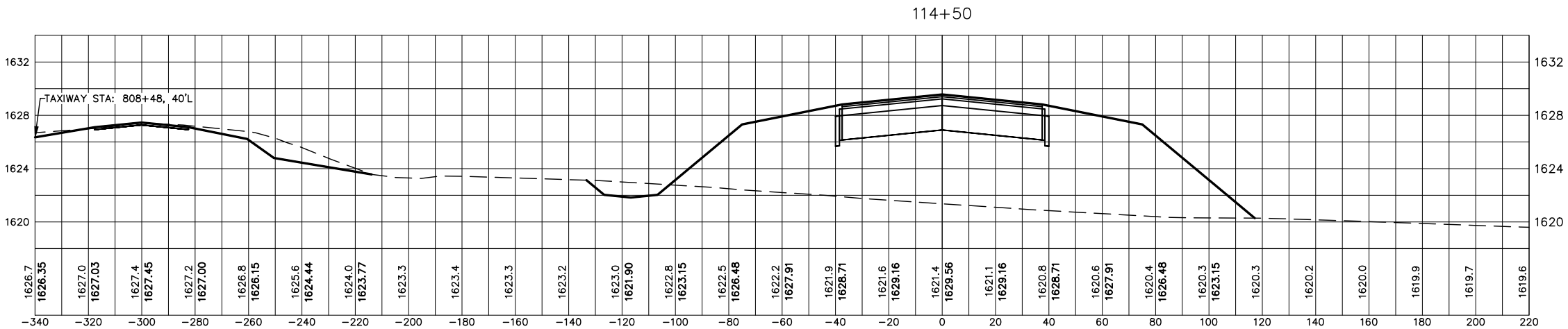
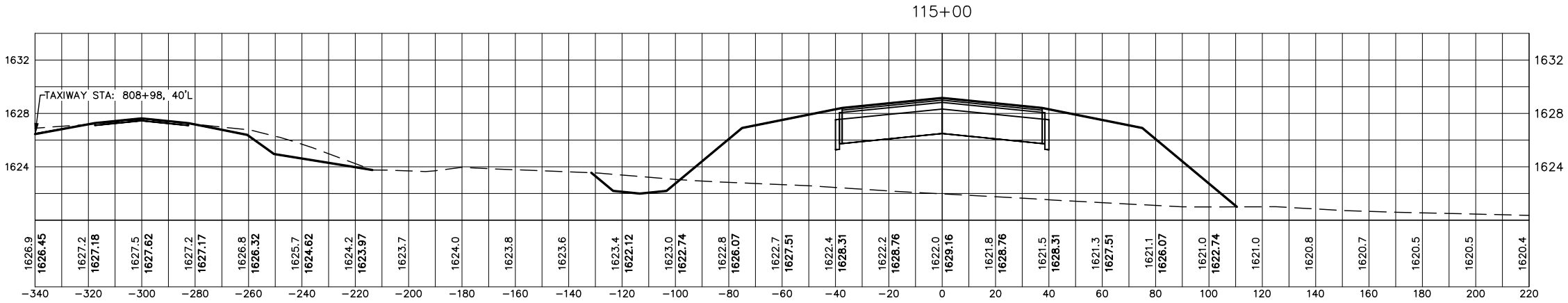
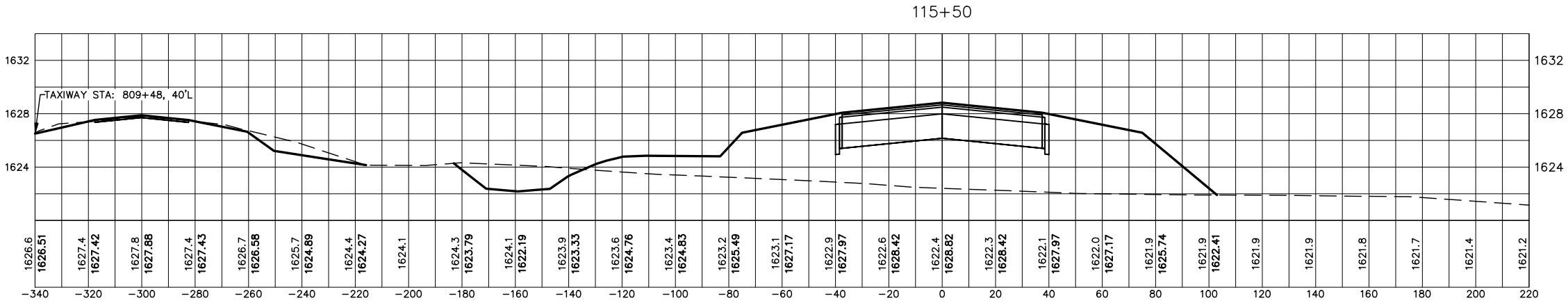


11-29 CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(7)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



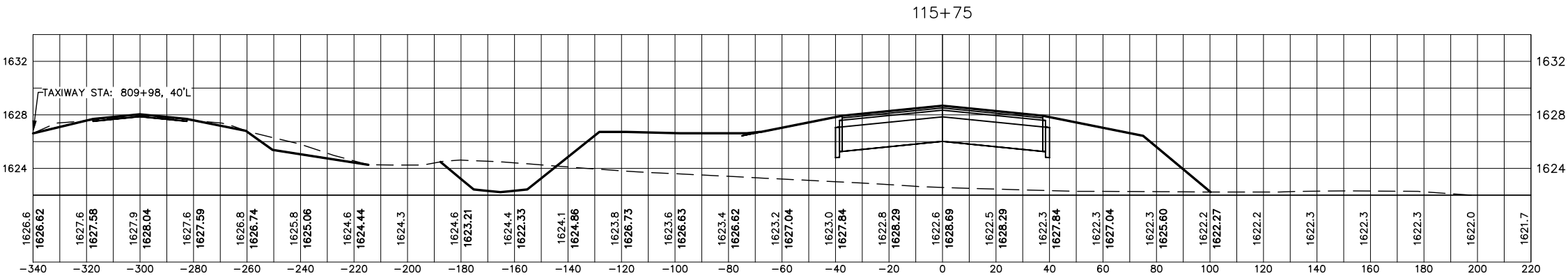
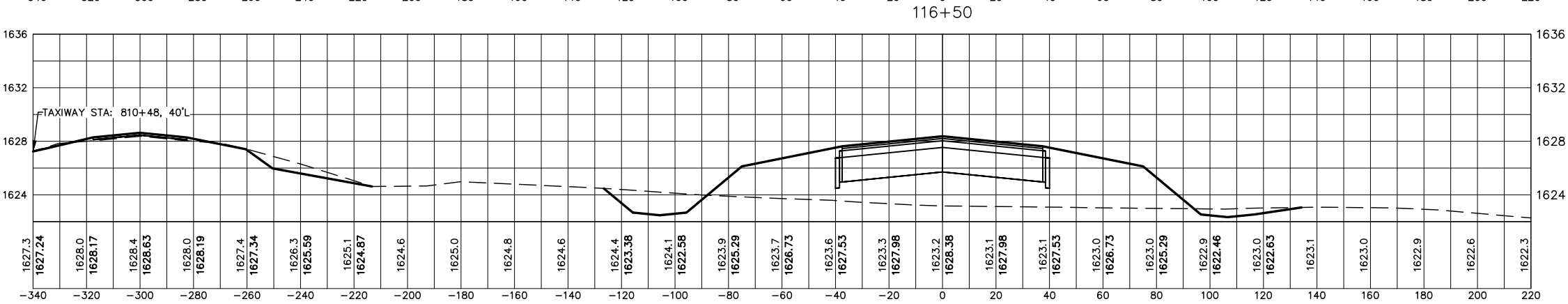
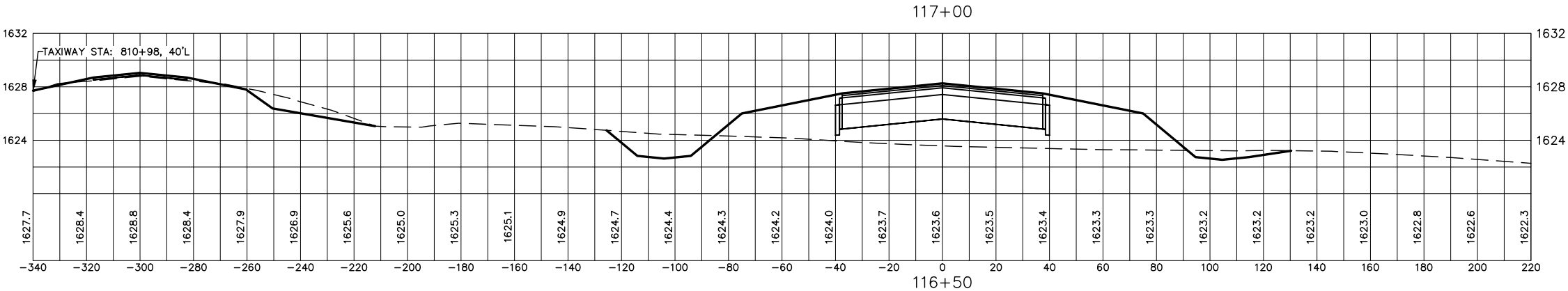
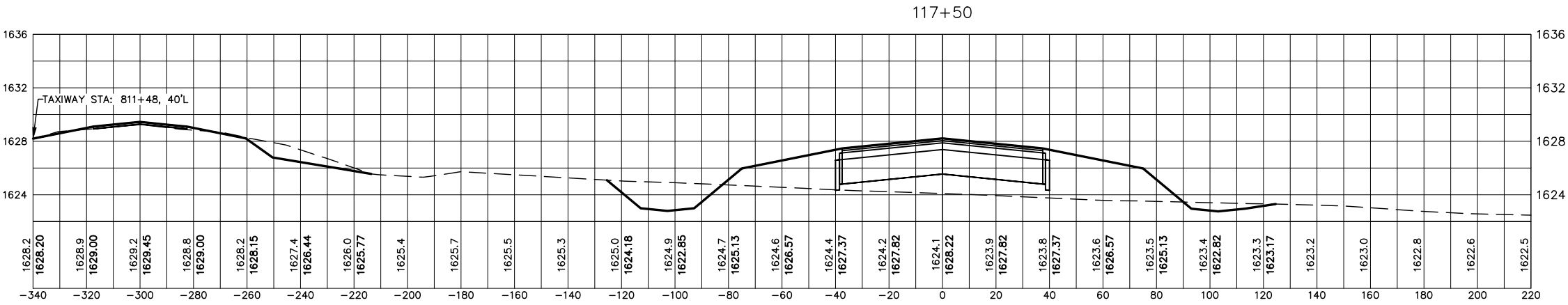
416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



11-29 CROSS SECTIONS
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(8)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



416 Production STN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

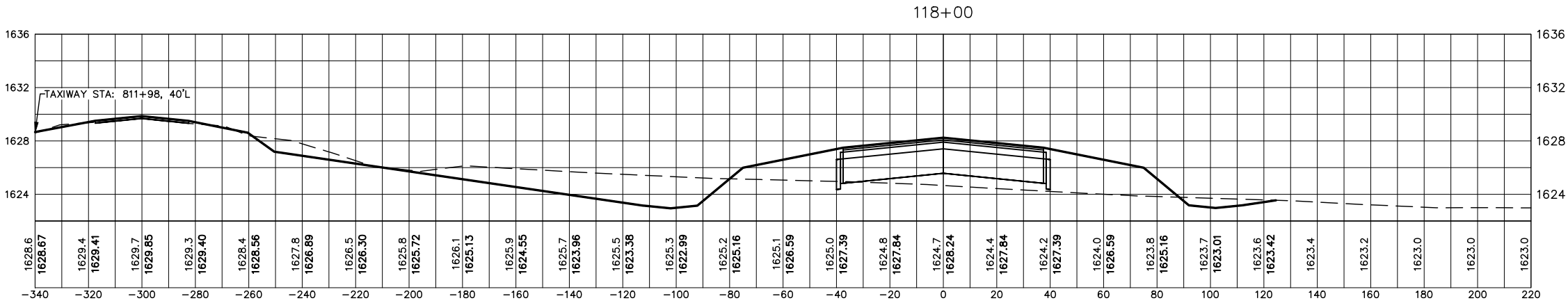
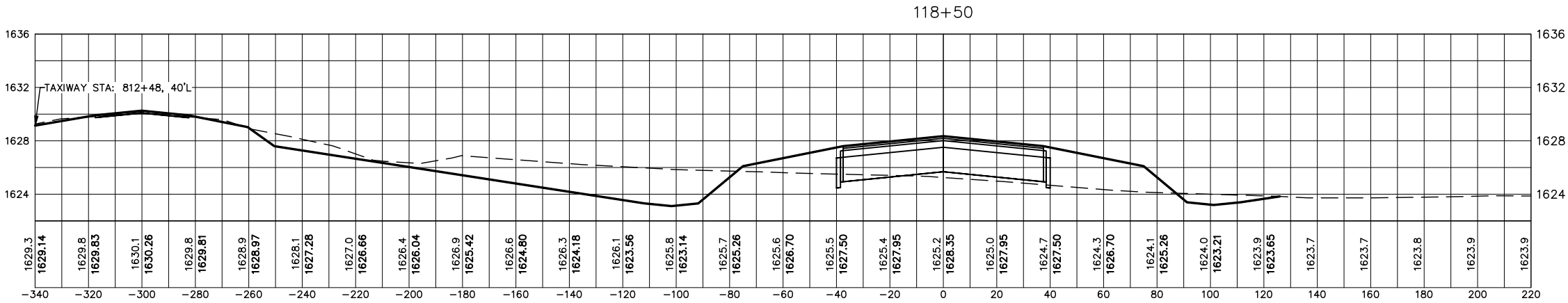
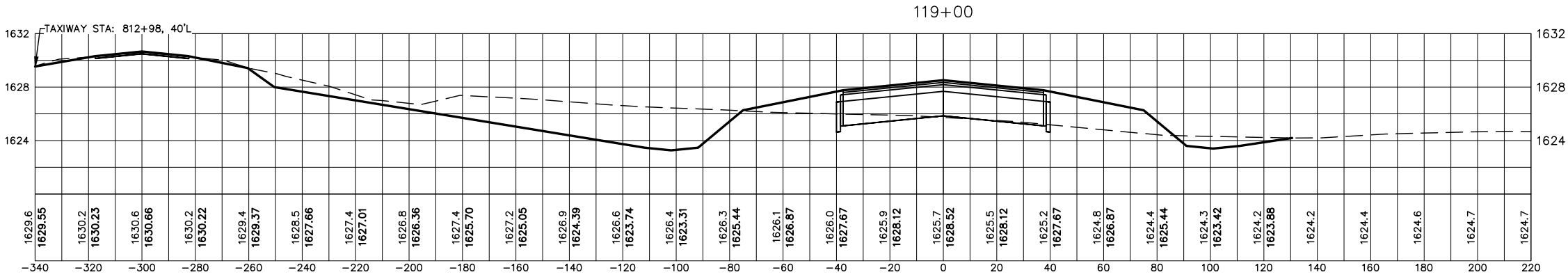
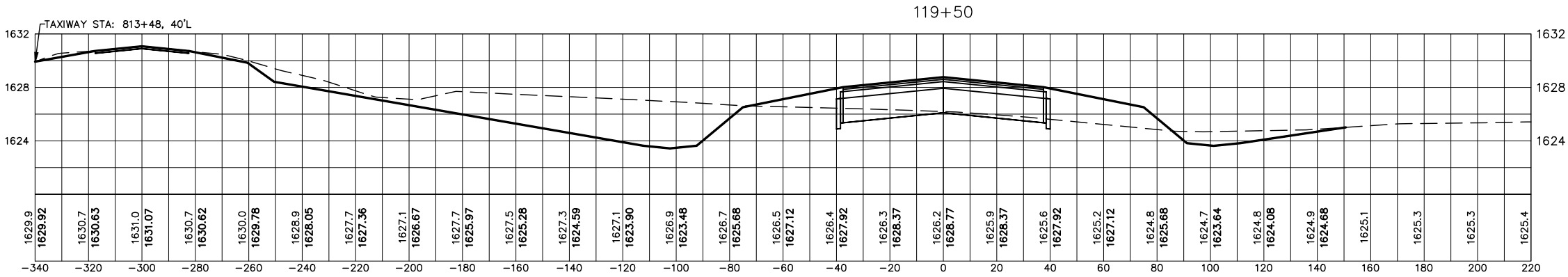


11-29 CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(9)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

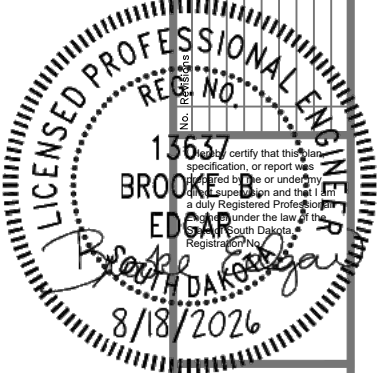
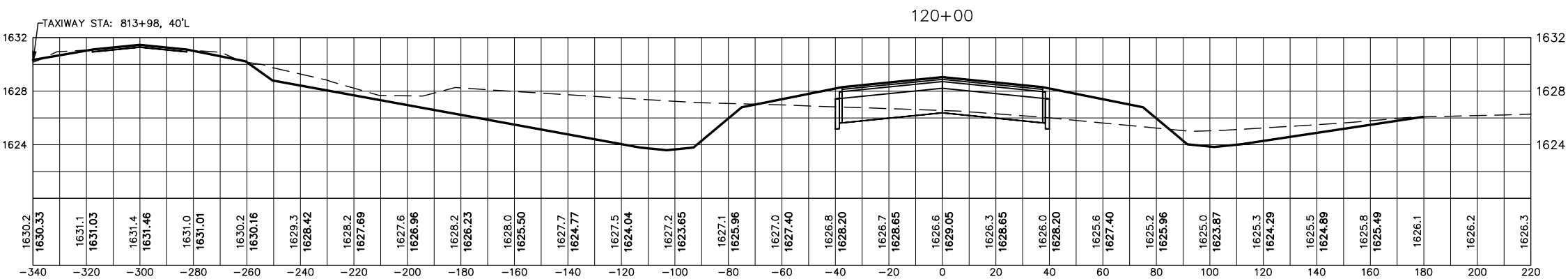
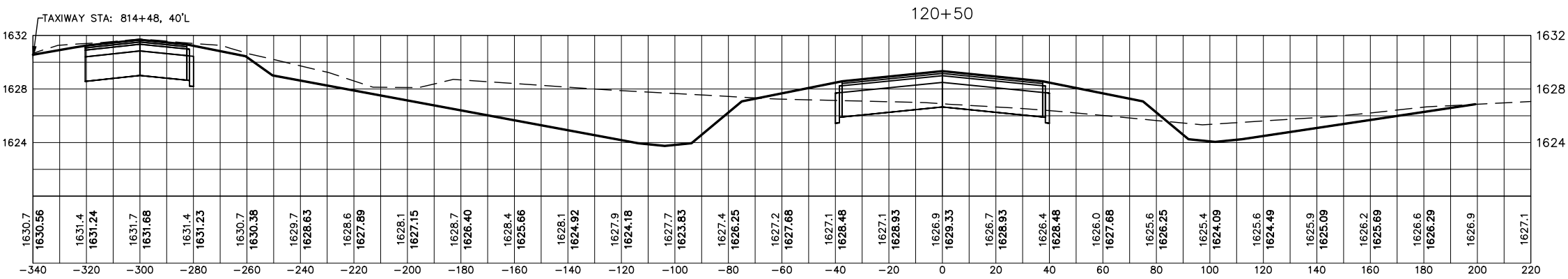
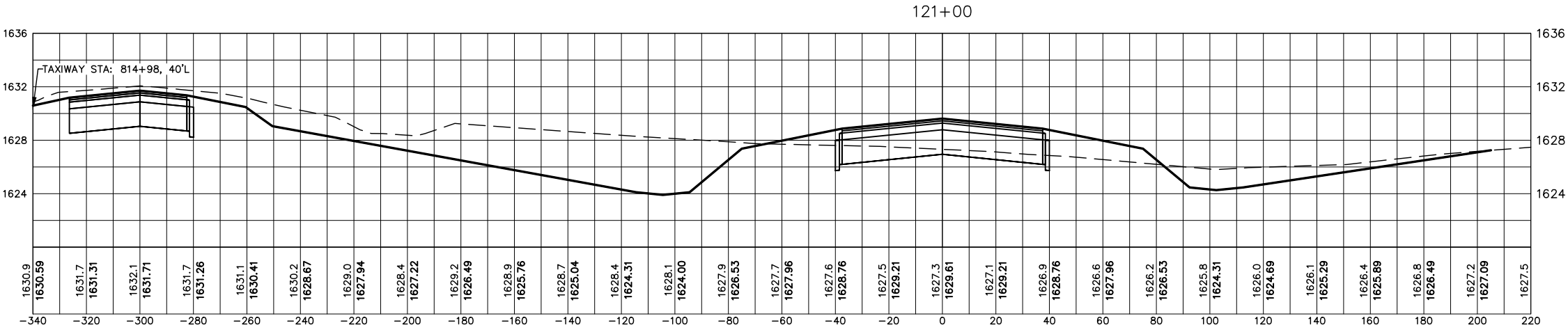
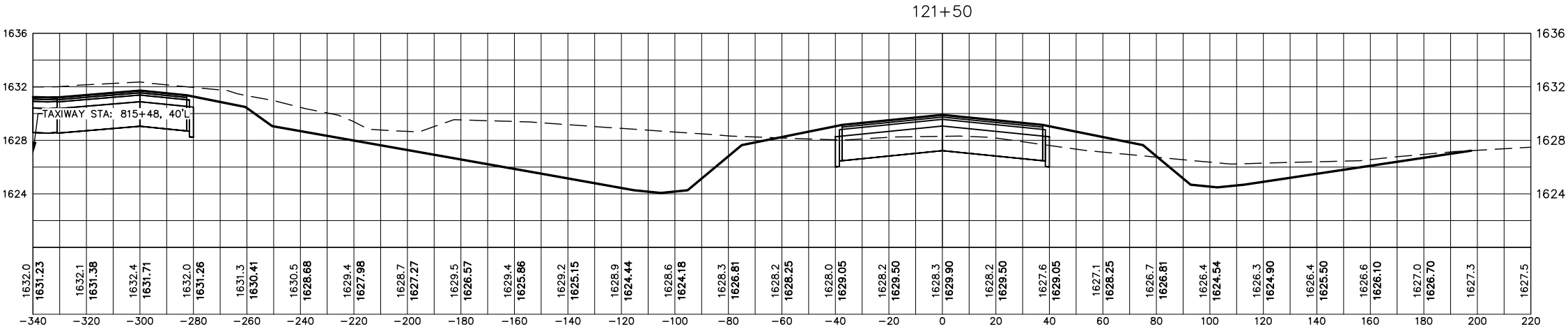


11-29 CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(10)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

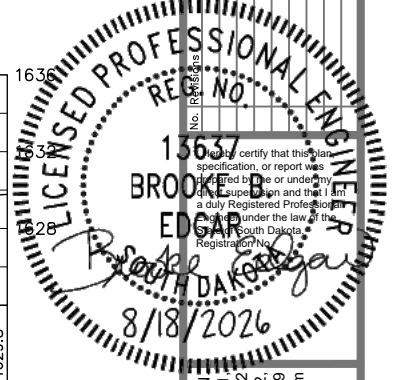
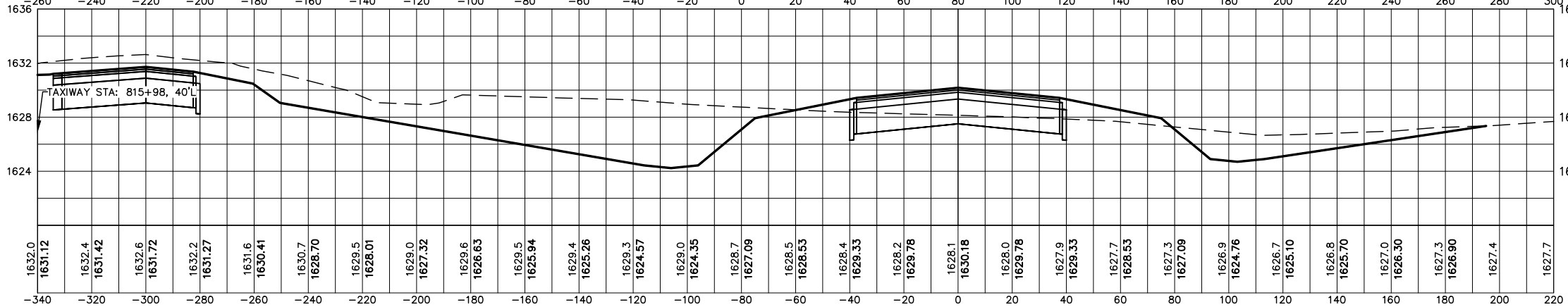
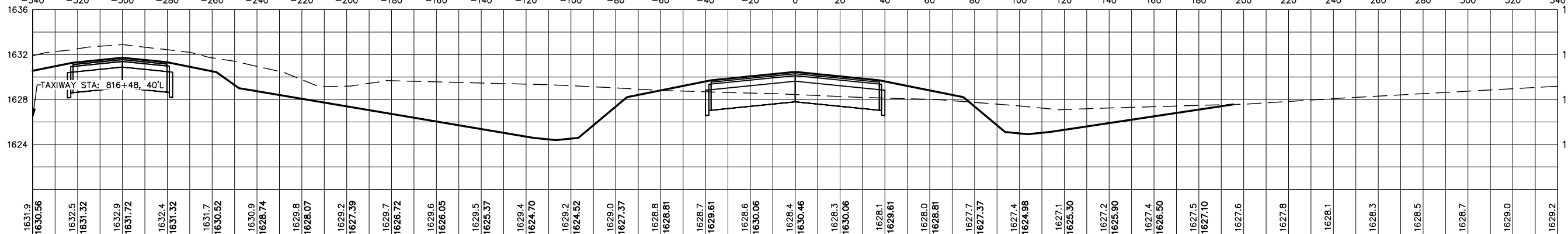
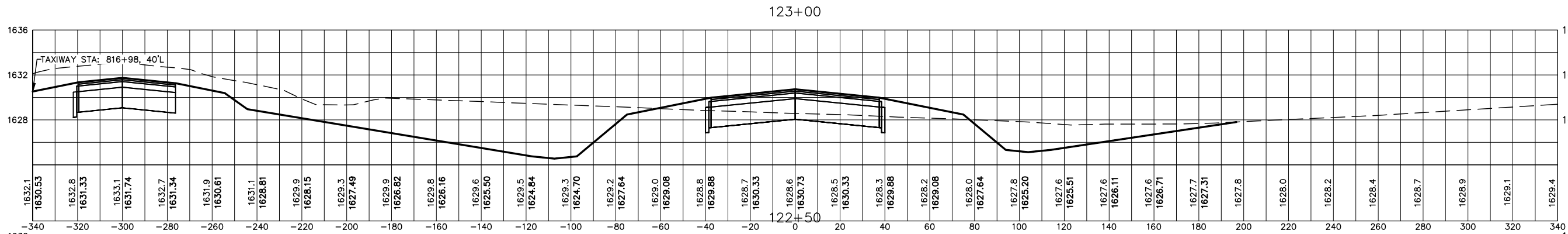
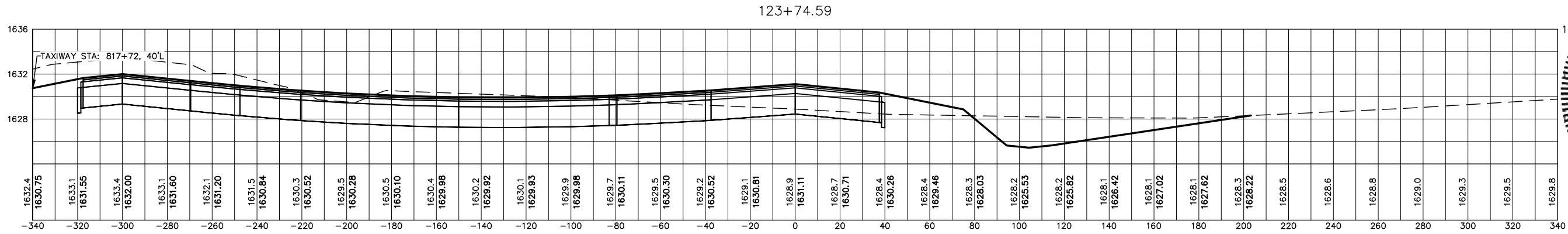


11-29 CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(11)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



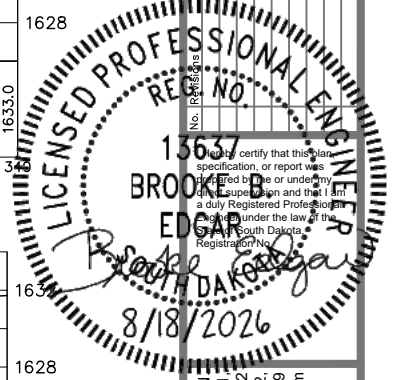
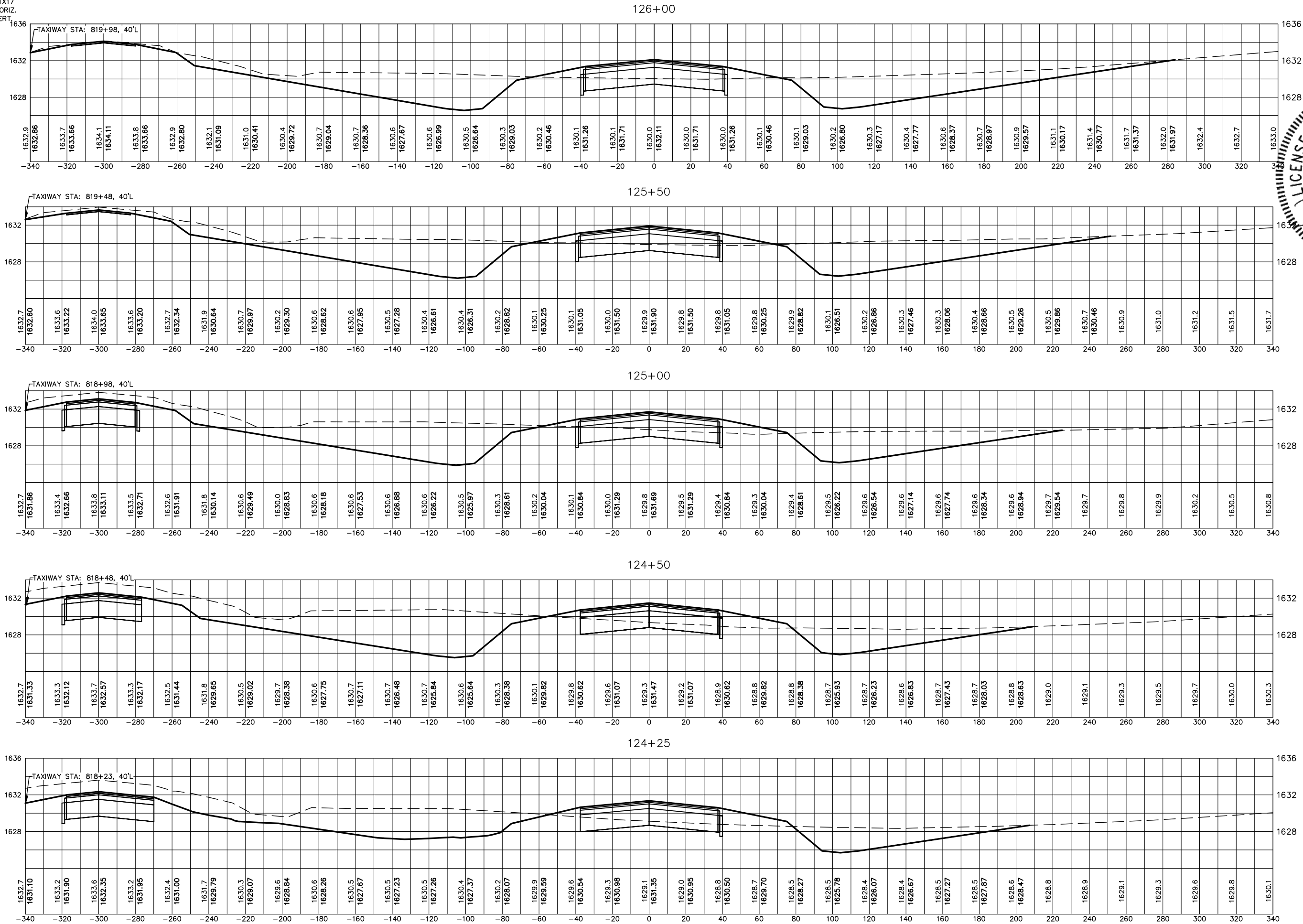
416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bob@helmsengineering.com



11-29 CROSS SECTIONS
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(12)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bob@helmsengineering.com

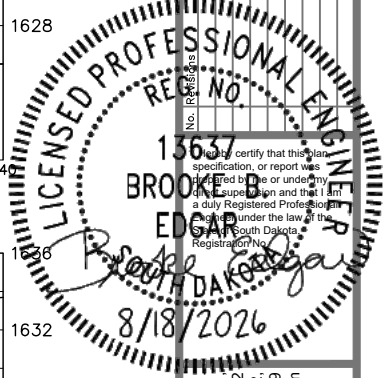
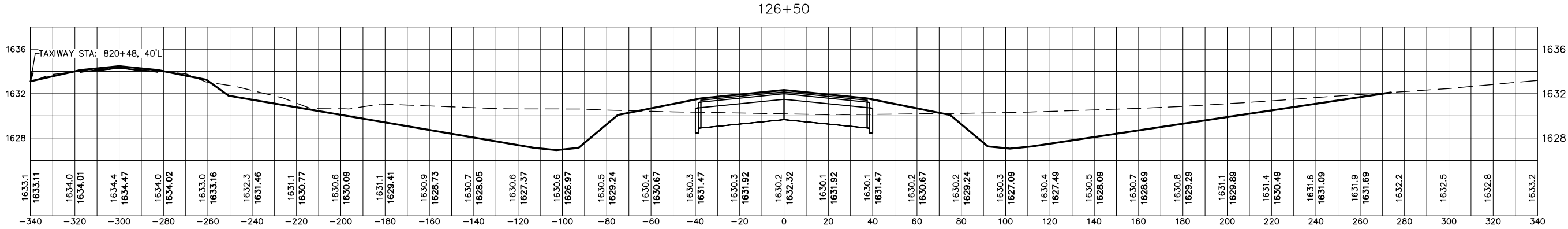
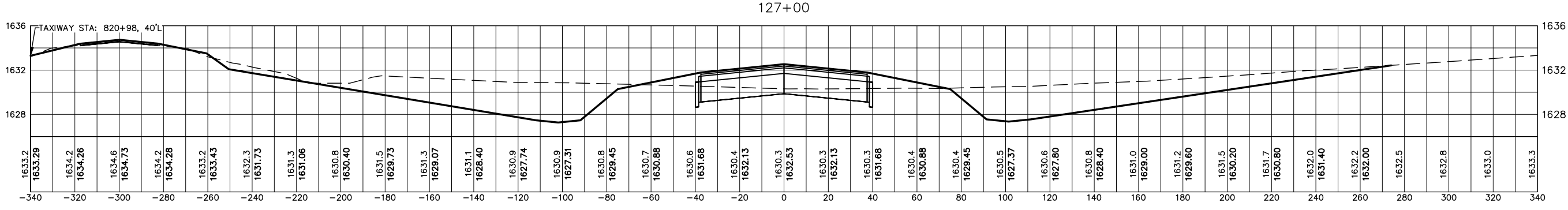
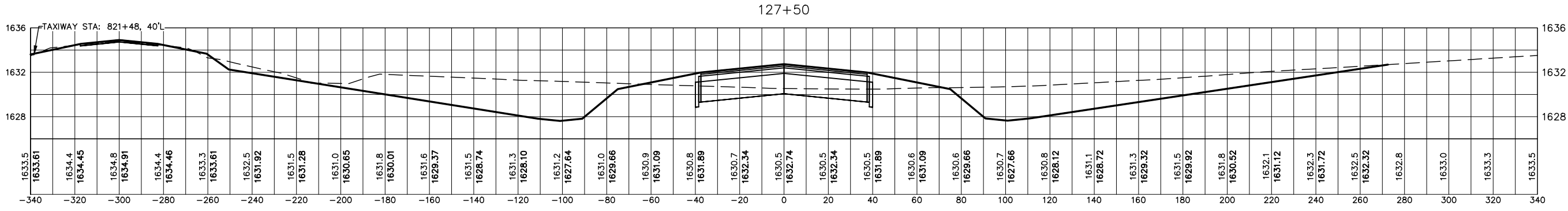
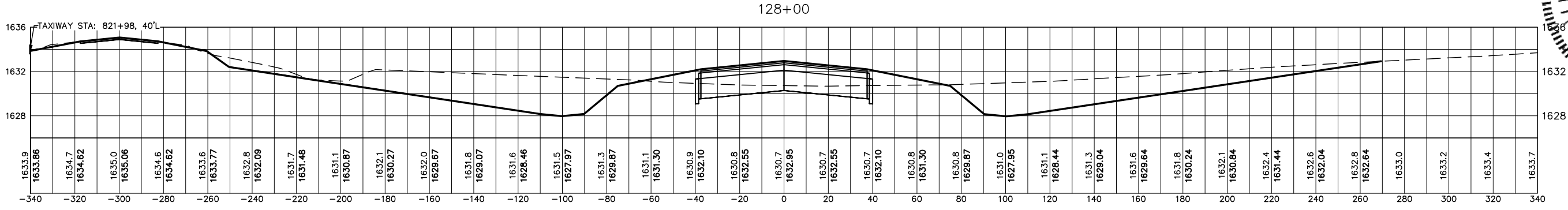
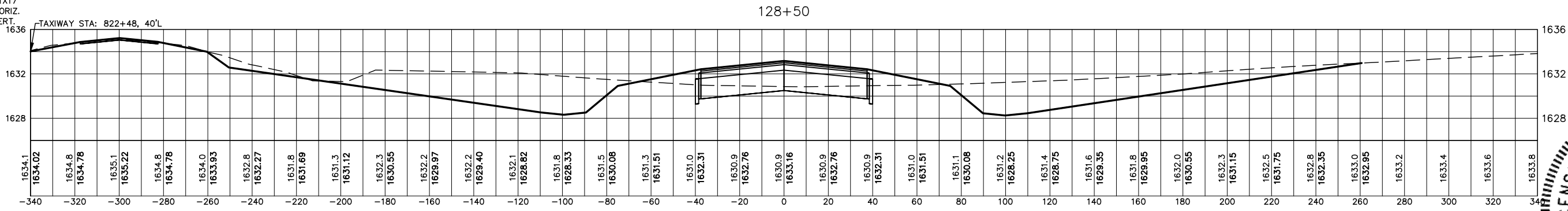


11-29 CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(13)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



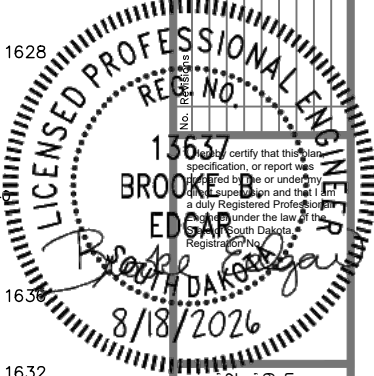
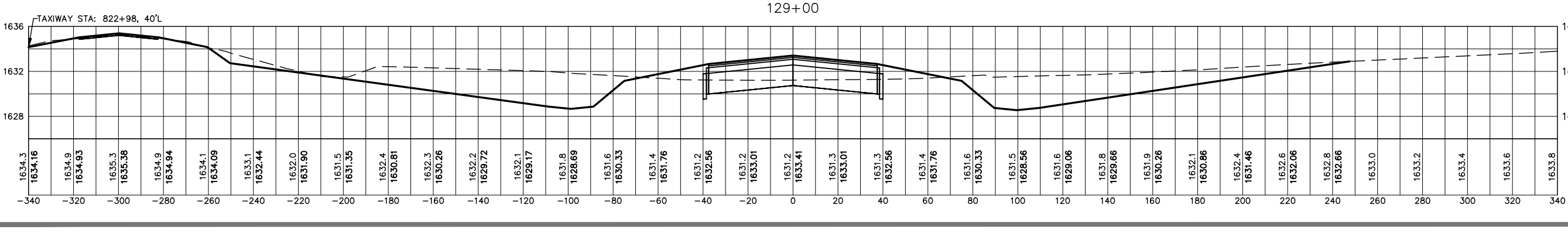
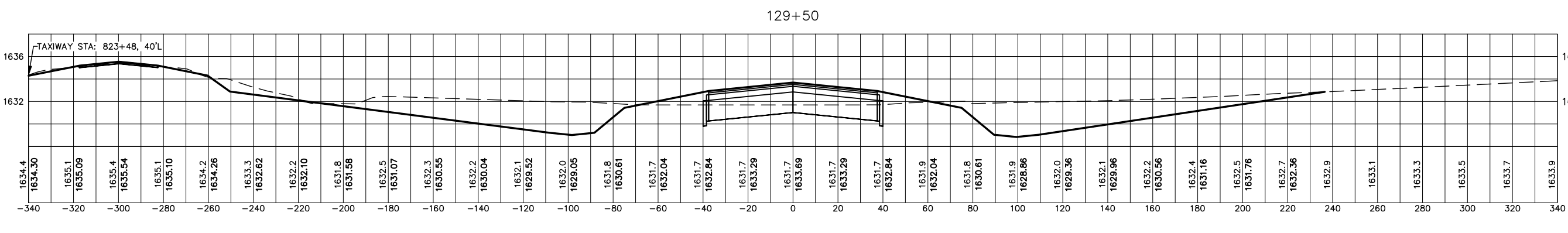
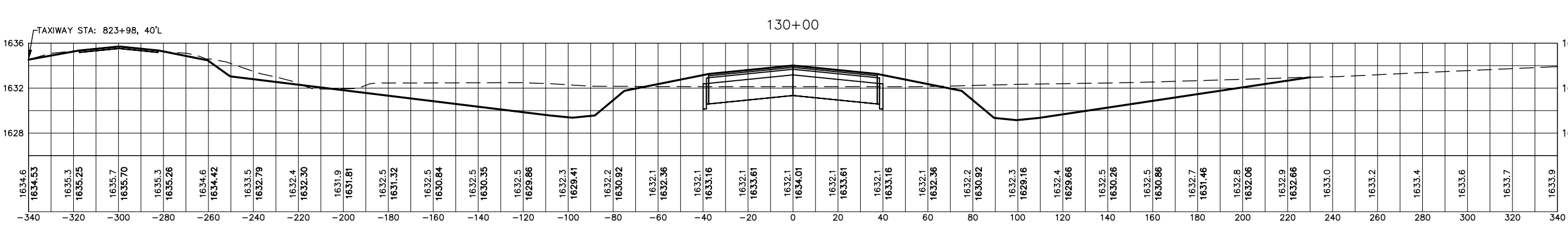
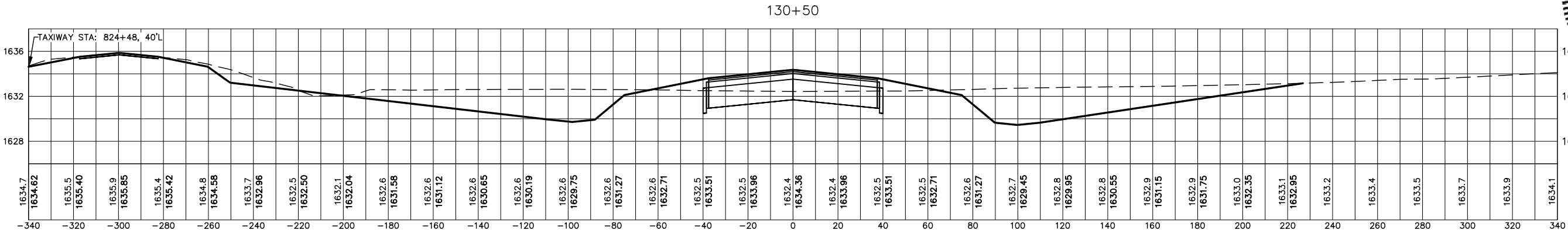
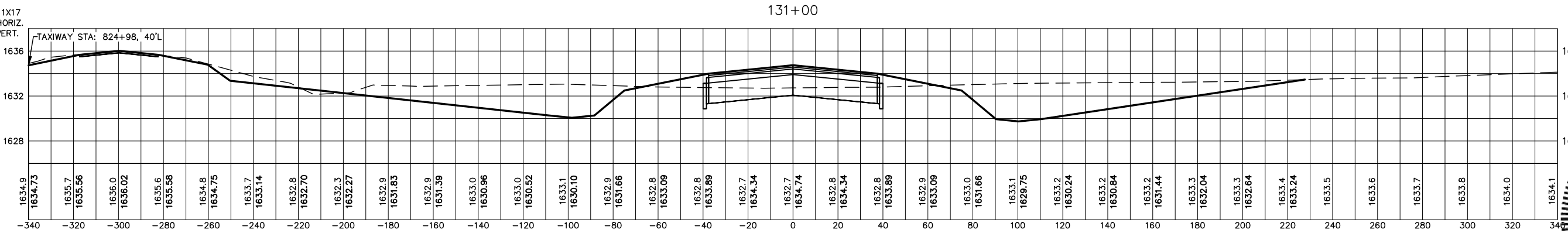
416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bob@helmsengineering.com



11-29 CROSS SECTIONS
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(14)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

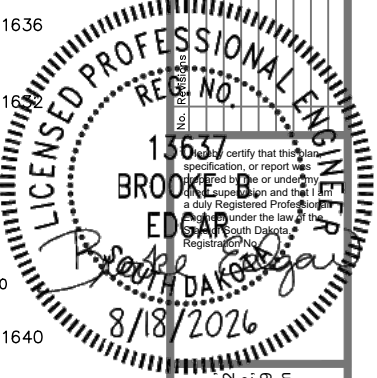
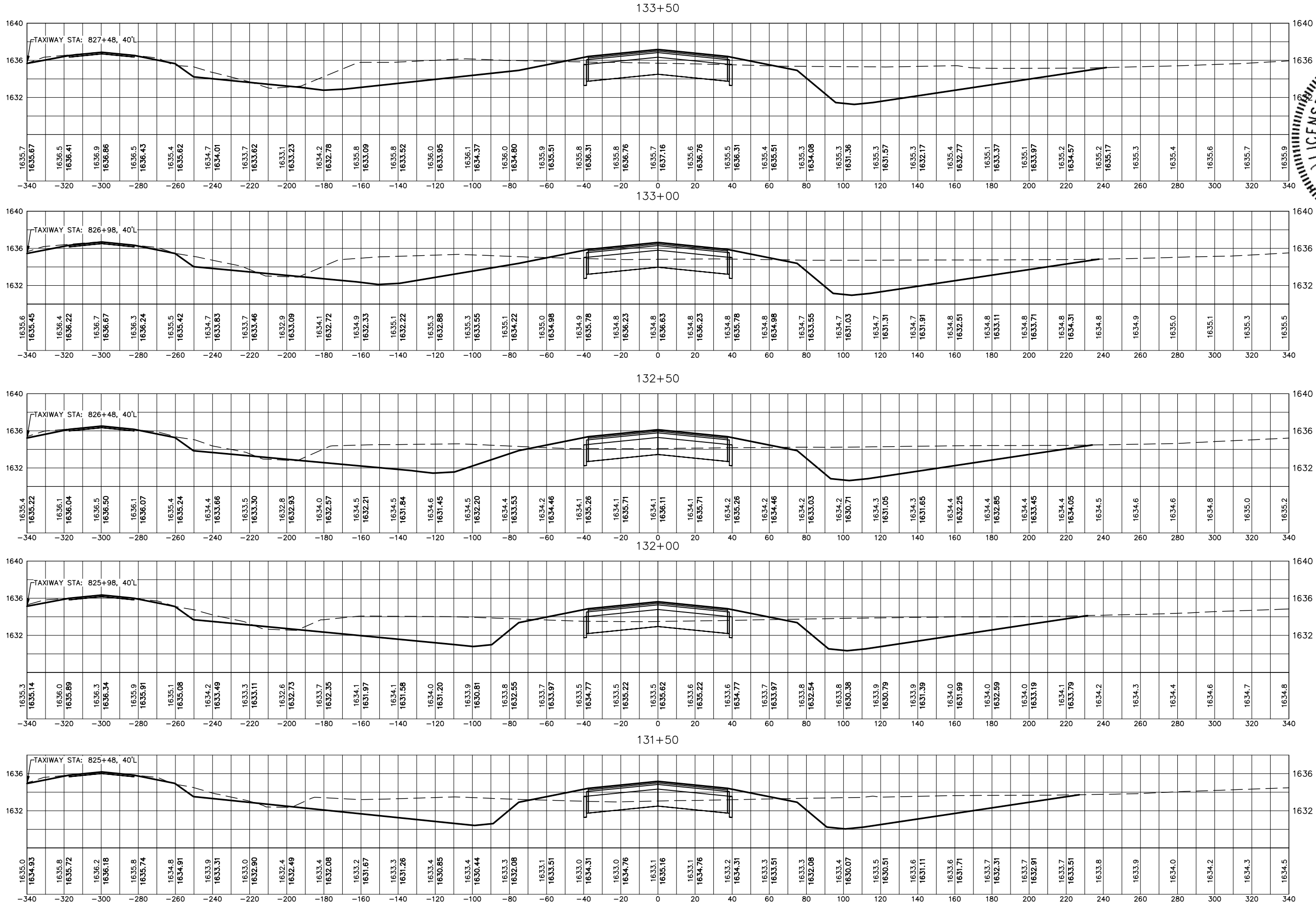


11-29 CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(15)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bob@helmsengineering.com



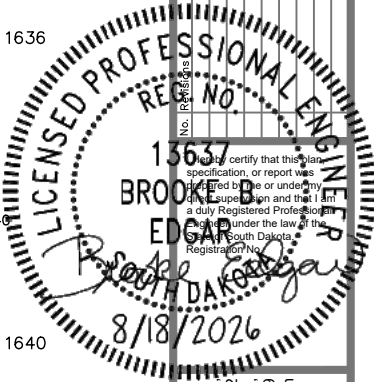
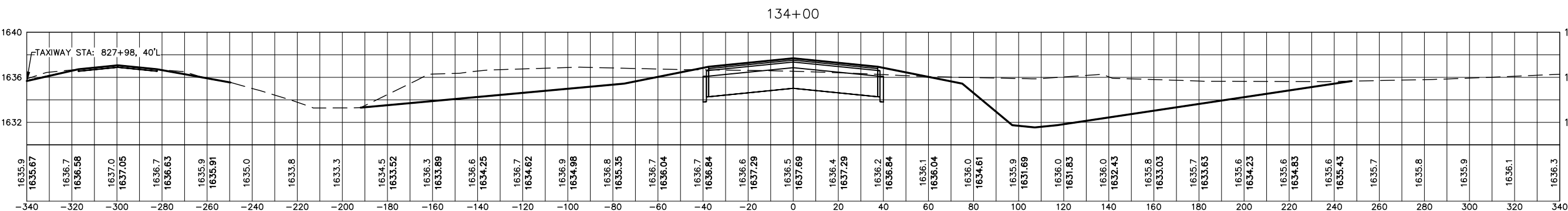
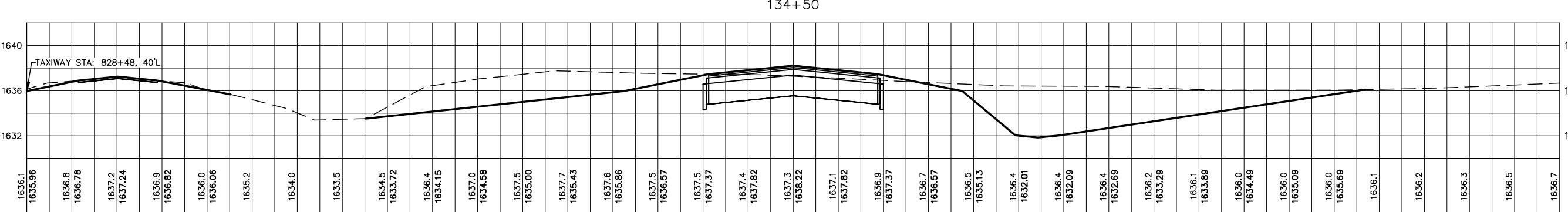
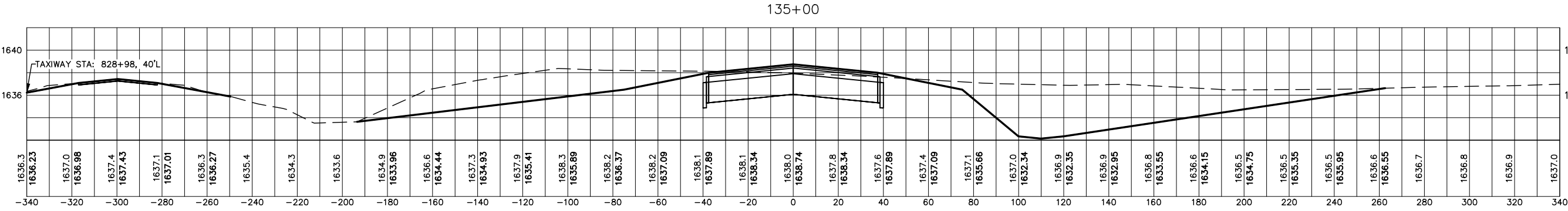
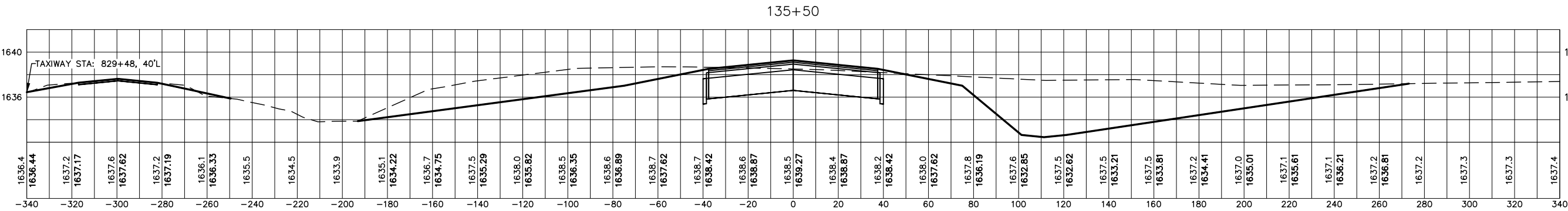
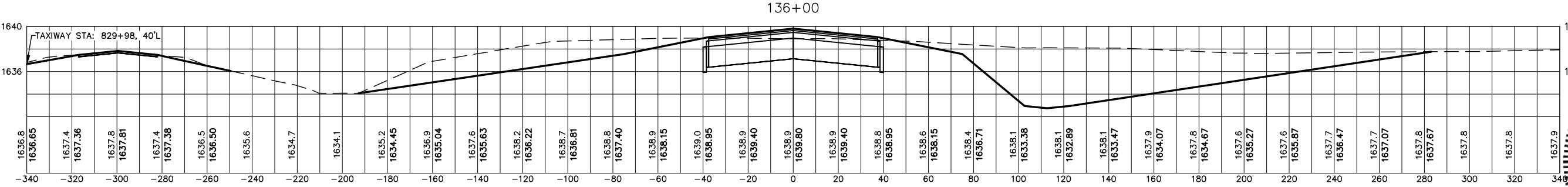
11-29 CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(16)
Date: 8/18/26

60
OF
81

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



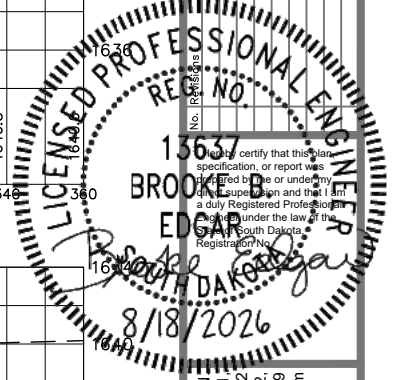
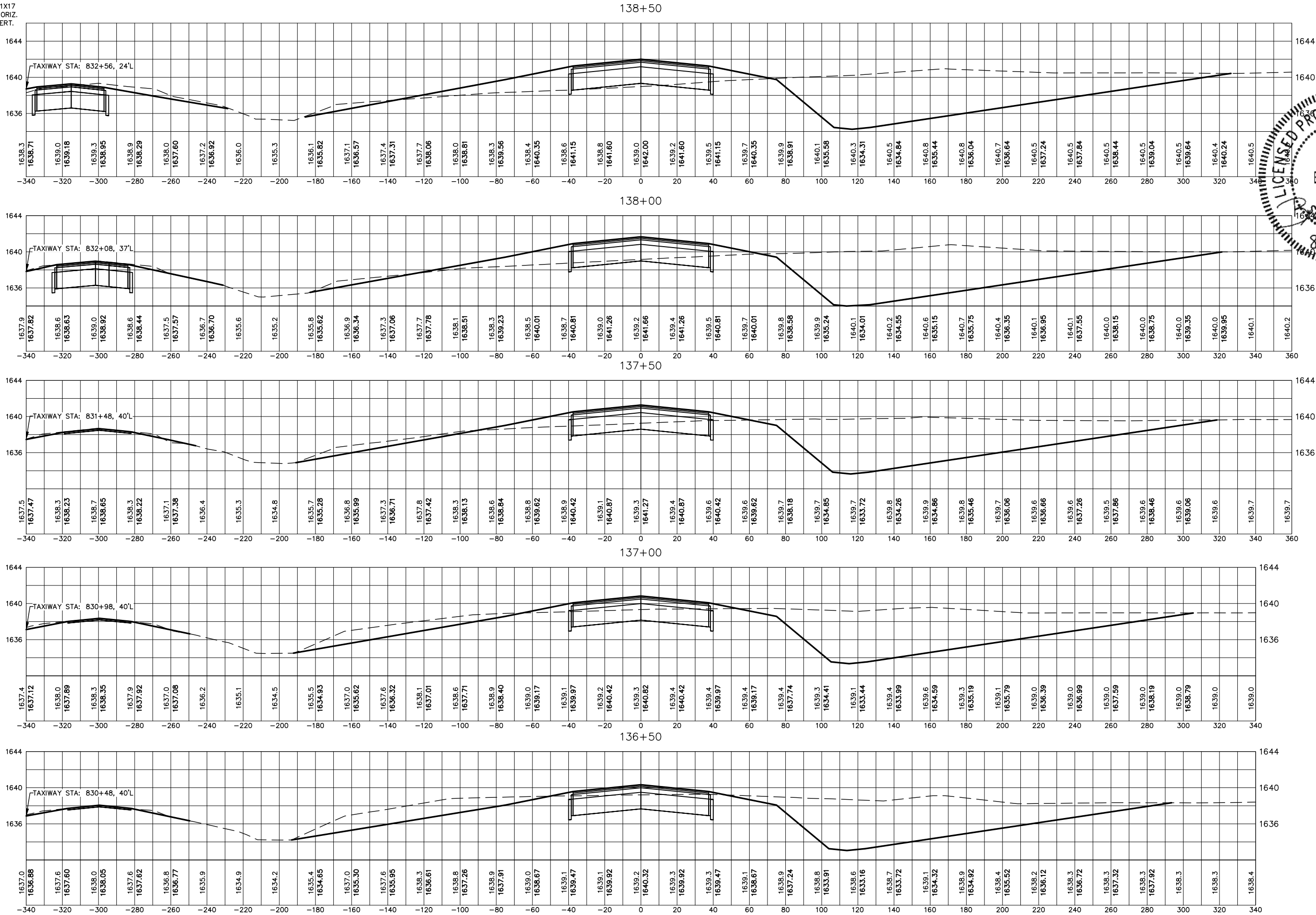
416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



11-29 CROSS SECTIONS
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(17)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

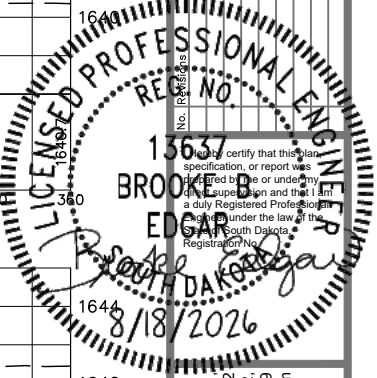
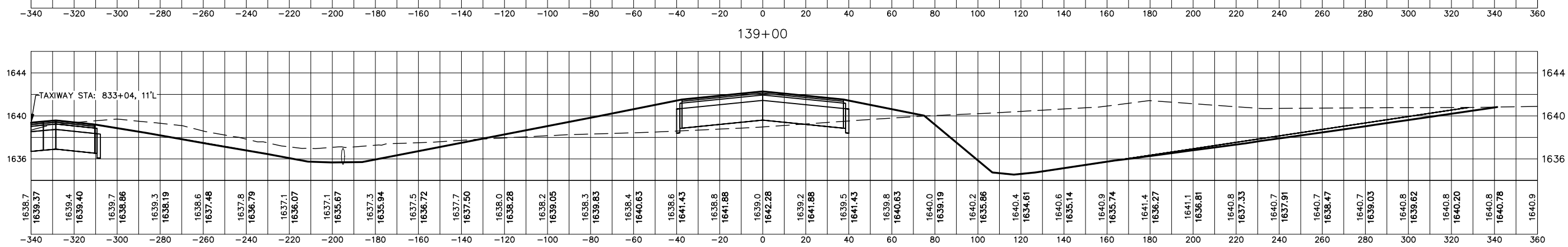
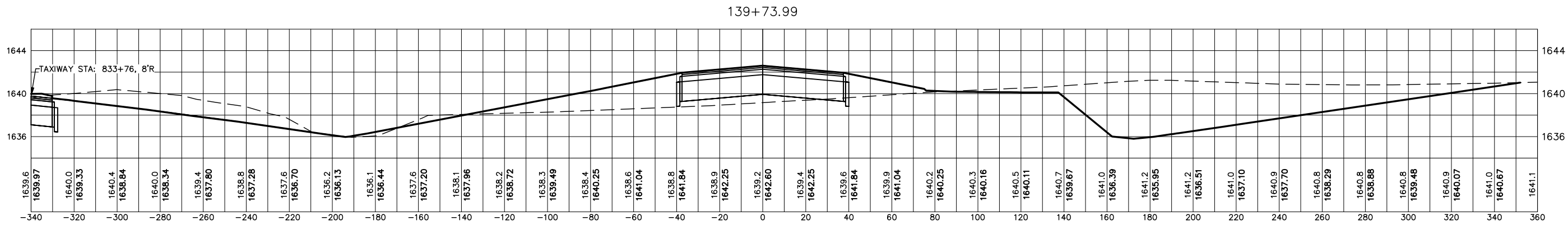
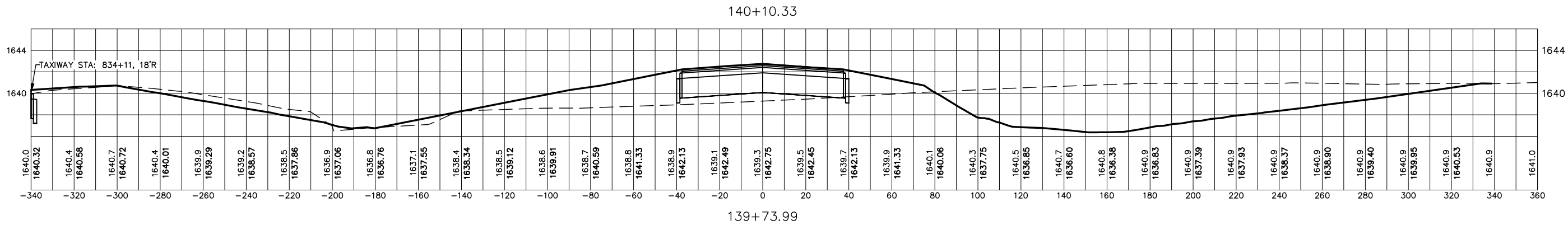
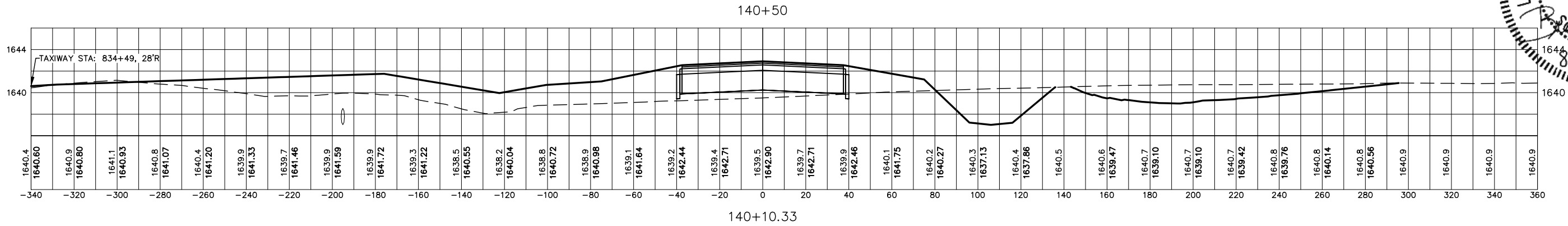
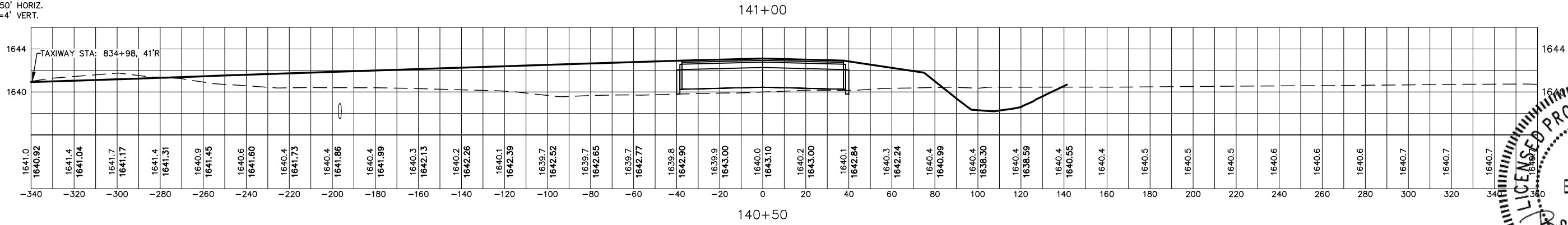


11-29 CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(18)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



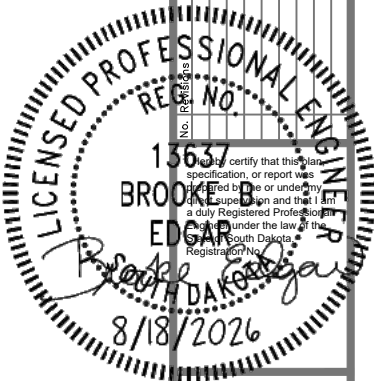
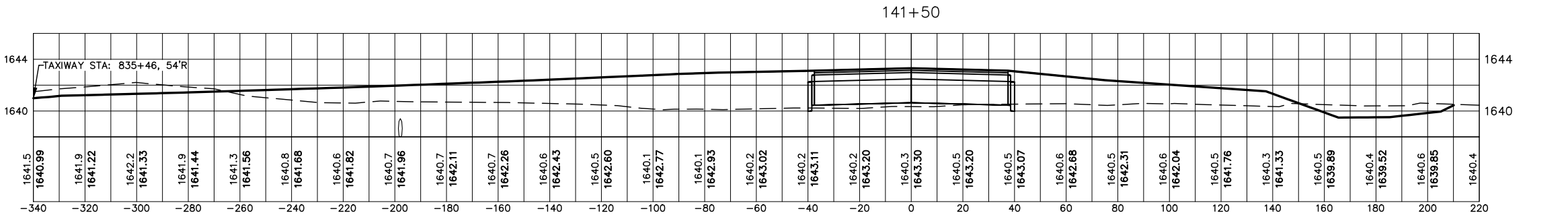
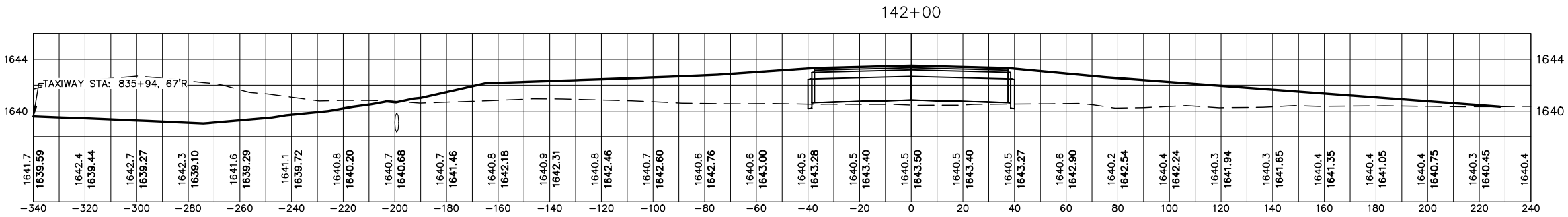
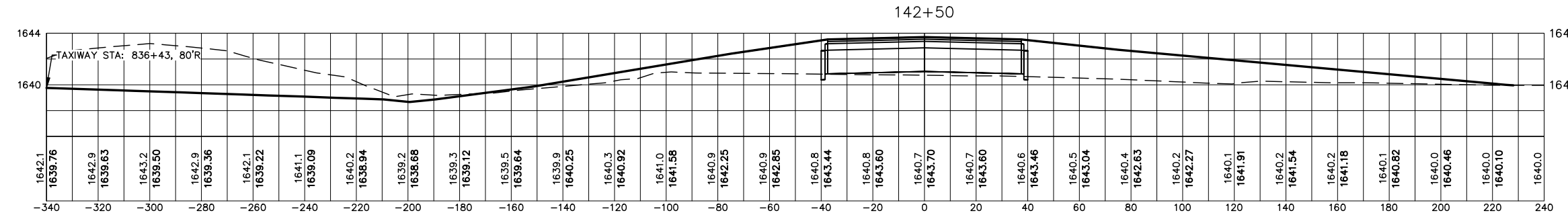
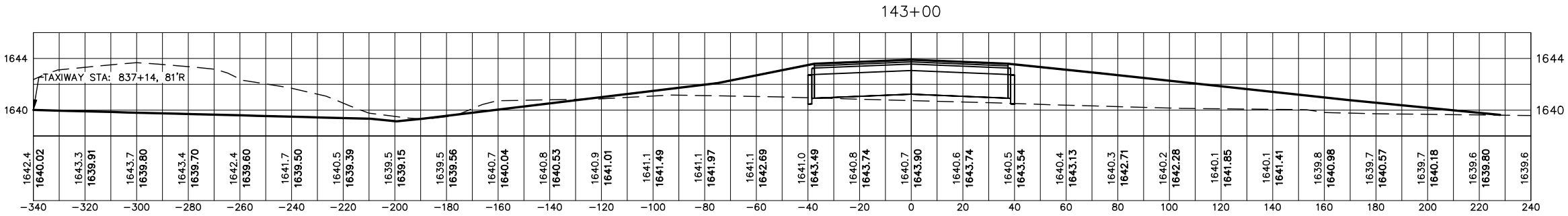
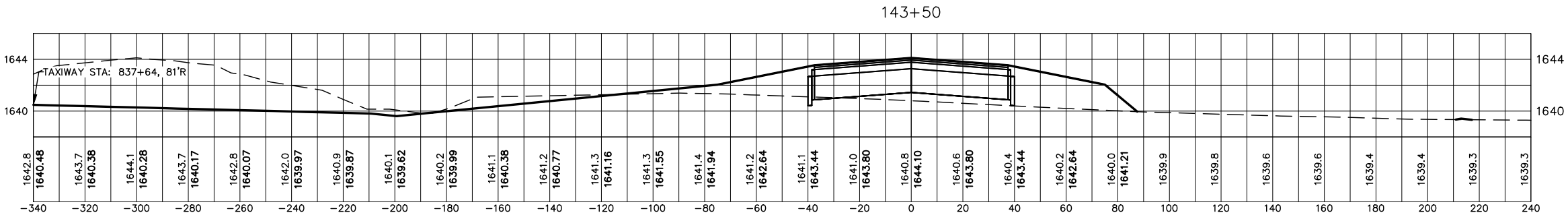
416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



11-29 CROSS SECTIONS
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(20)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



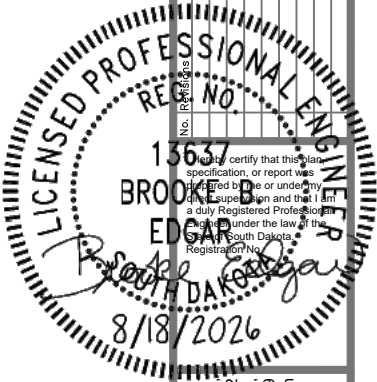
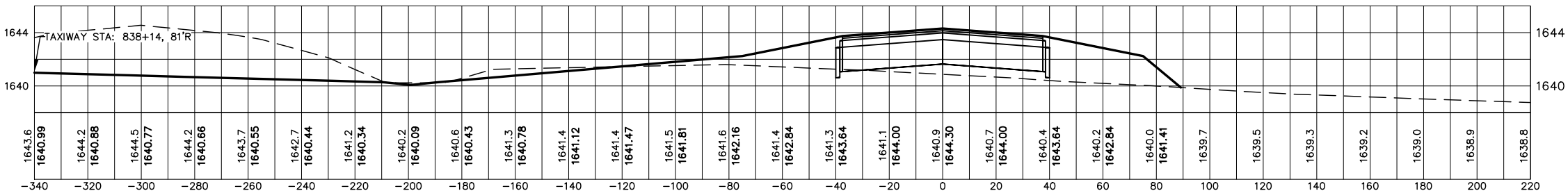
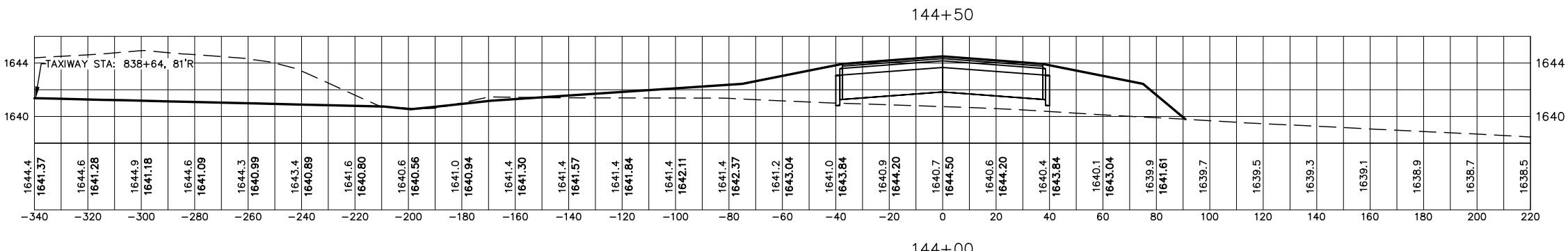
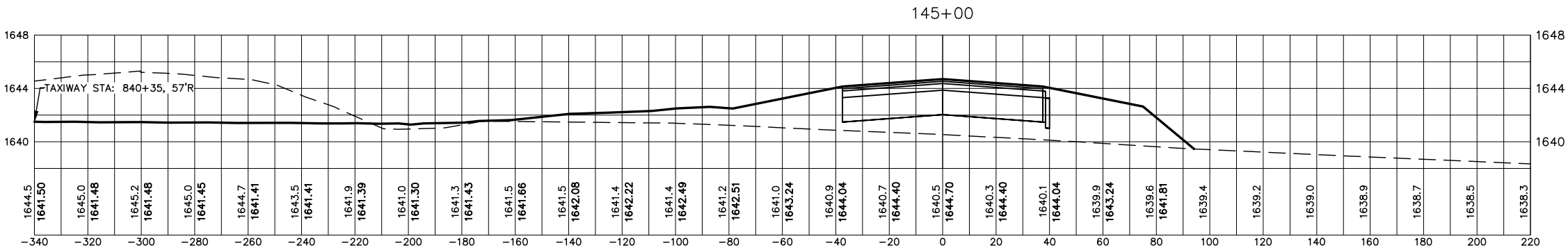
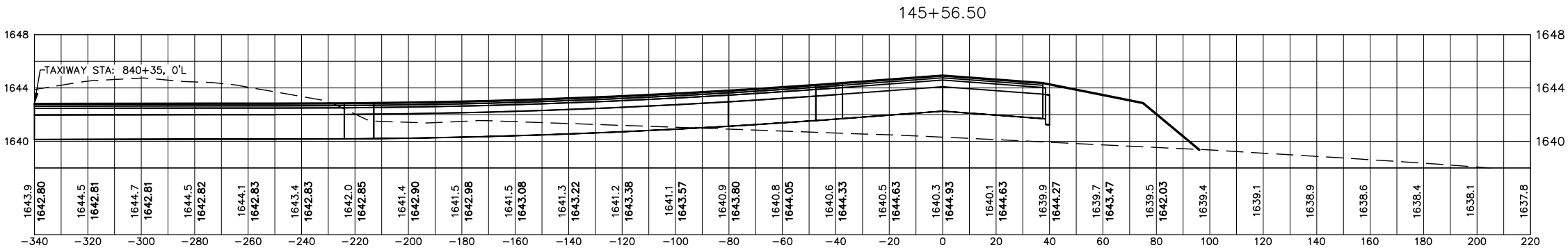
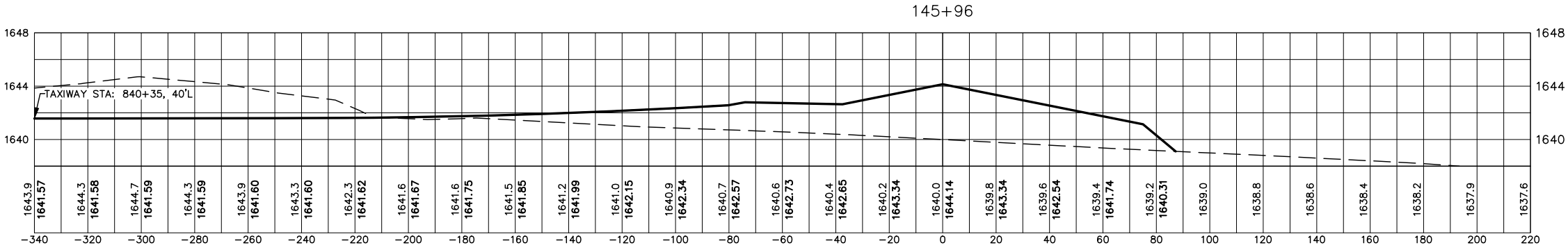
416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



11-29 CROSS SECTIONS
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(21)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

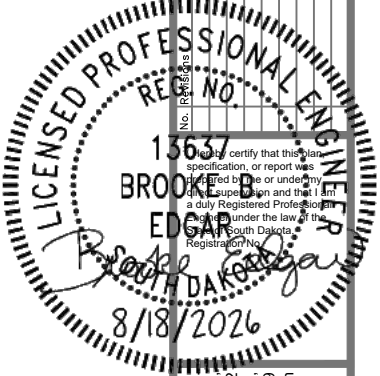
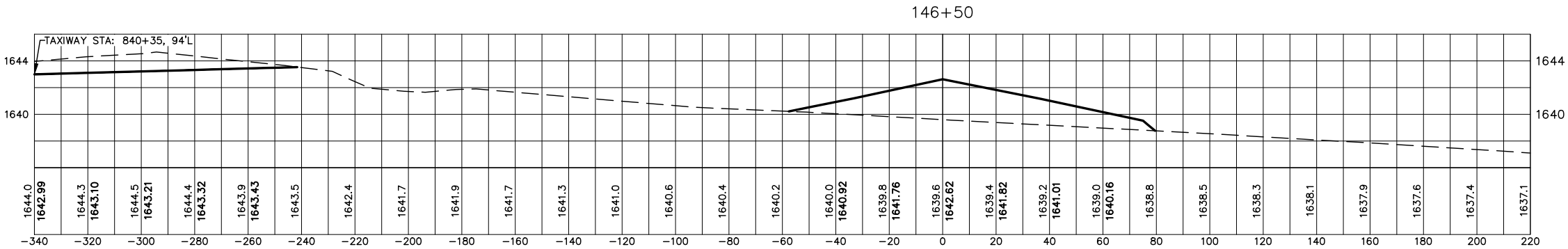
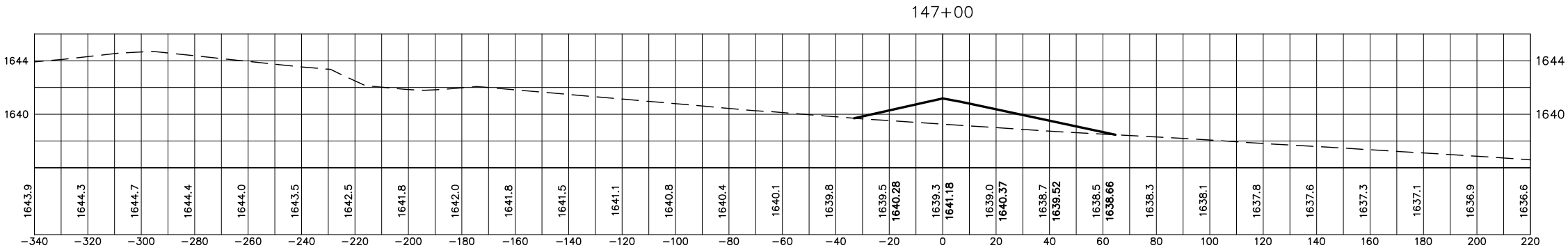
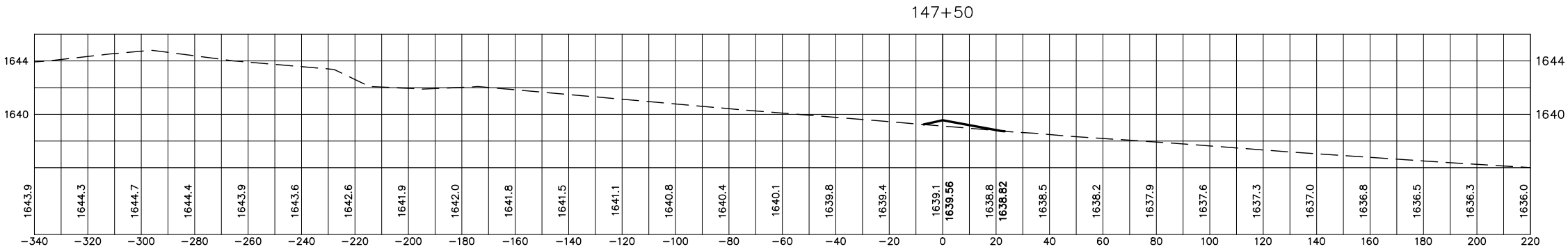
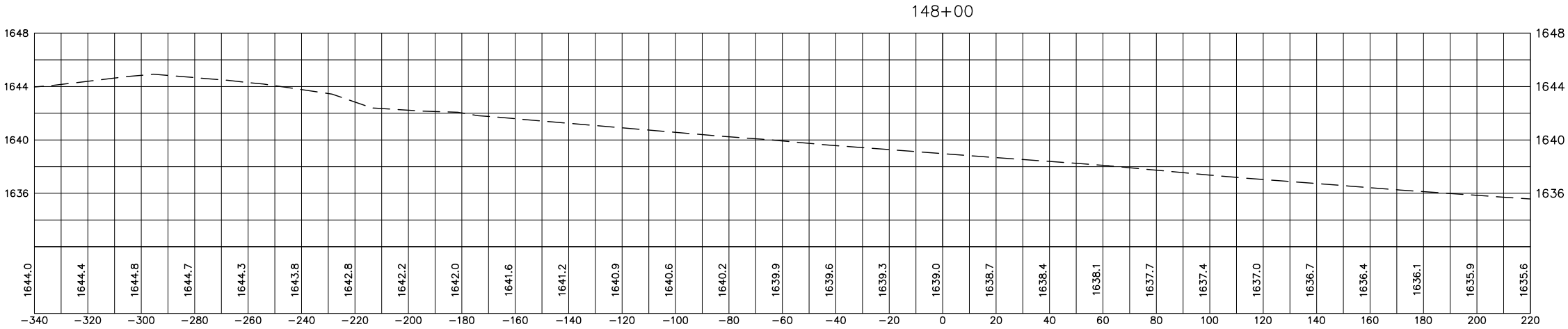


11-29 CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(22)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



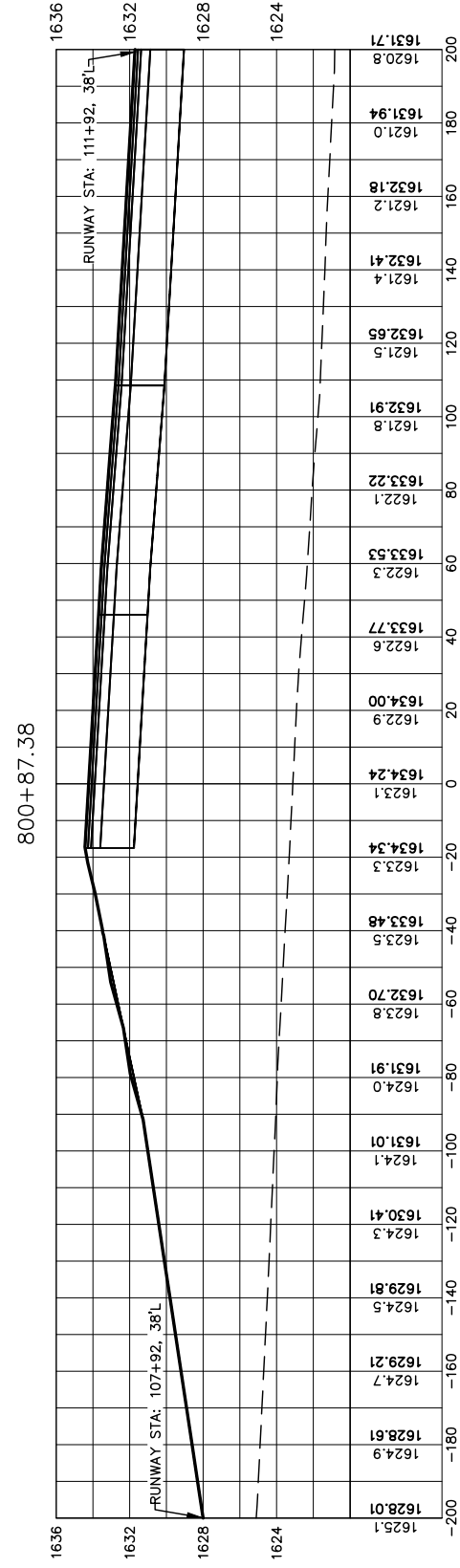
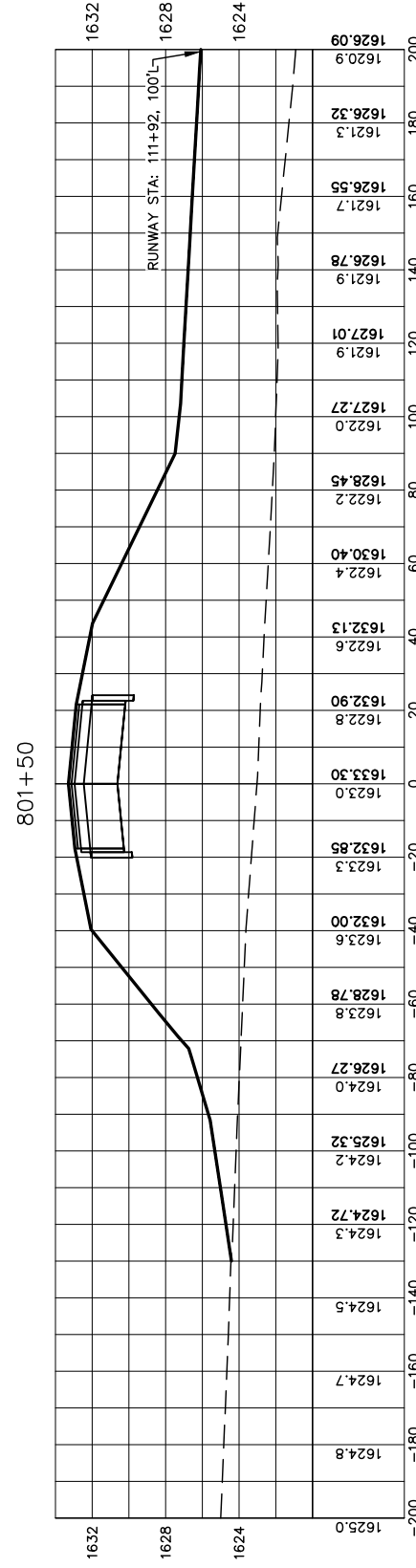
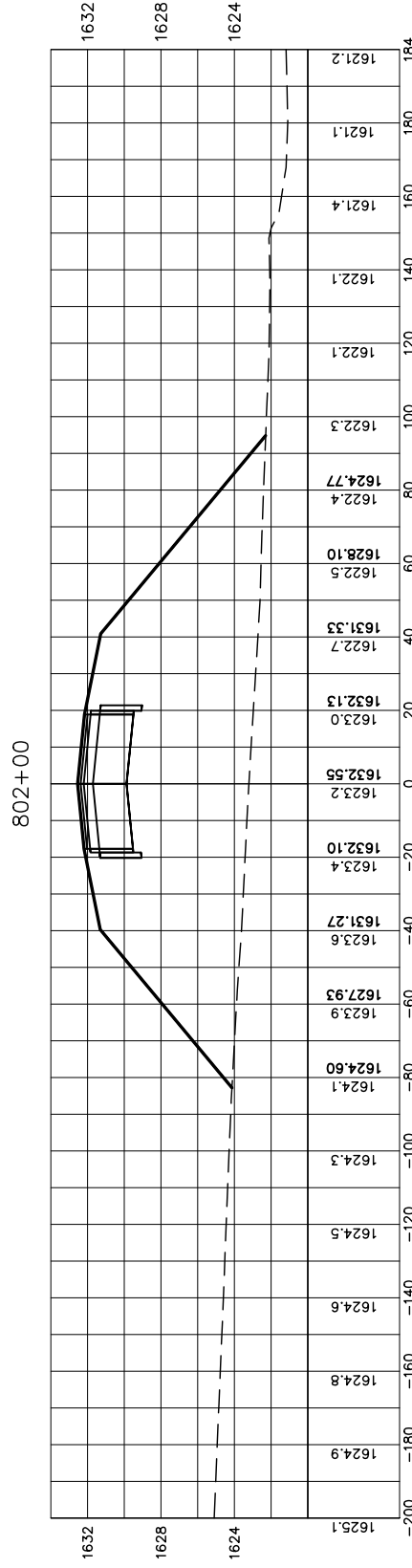
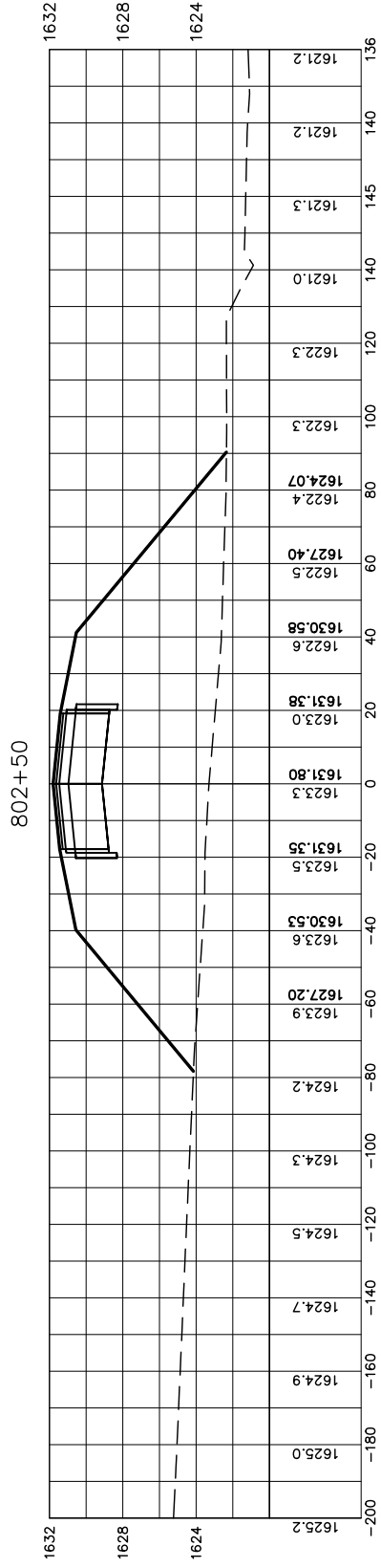
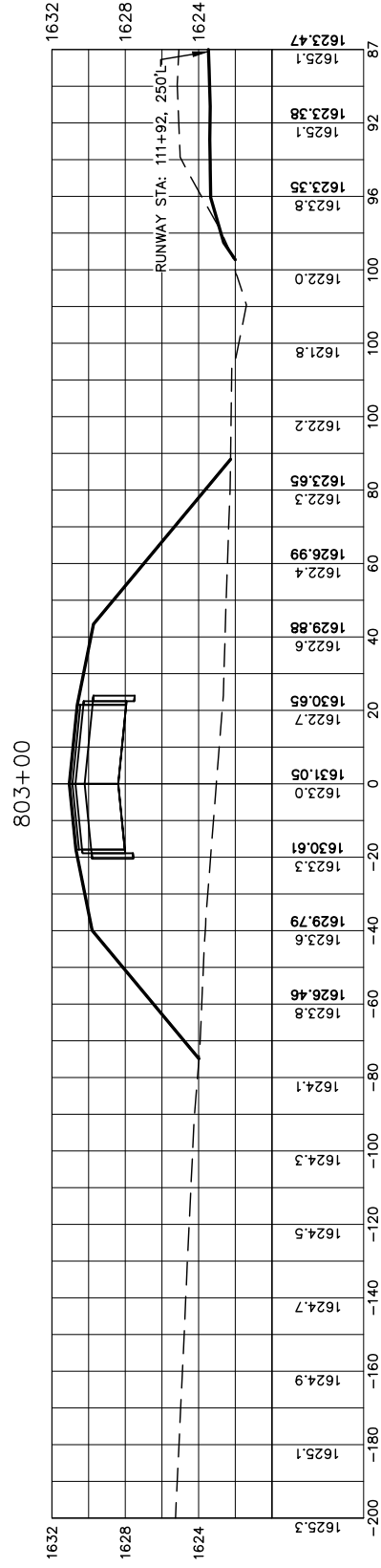
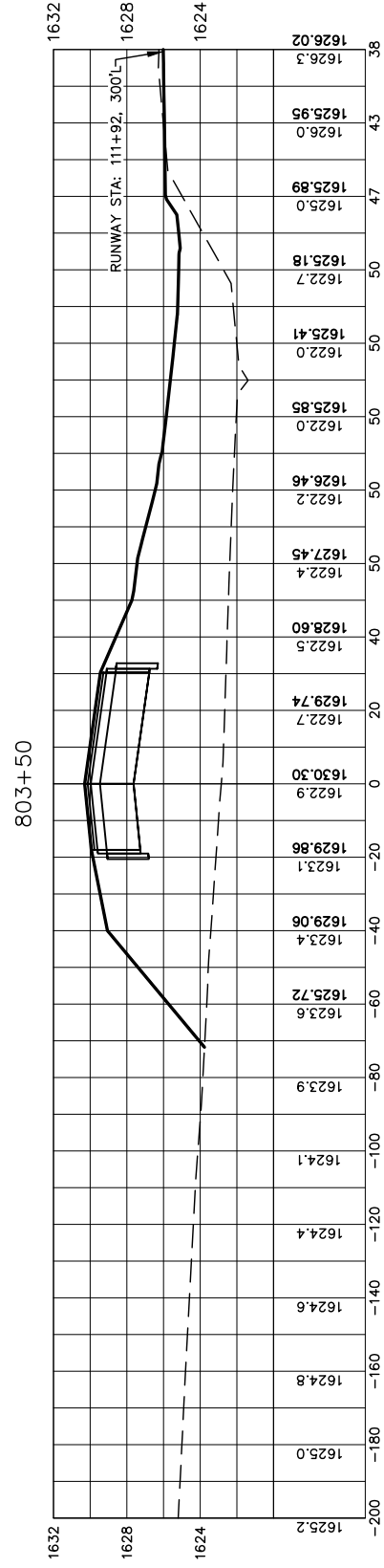
416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



11-29 CROSS SECTIONS
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: XS(23)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



A circular professional engineer seal for the State of South Dakota. The outer ring contains the text "LICENSED PROFESSIONAL ENGINEER" at the top and "STATE OF SOUTH DAKOTA" at the bottom. In the center, it reads "RENEWED NO. 13637 BROOK E ADAMS". Below this, there is a signature "Brook Adams" and the expiration date "8/18/2026". A small rectangular stamp is overlaid on the right side of the seal, containing the text: "I hereby certify that the license specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the law of the State of South Dakota Registration No. _____".

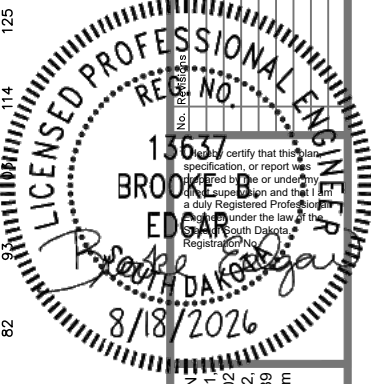
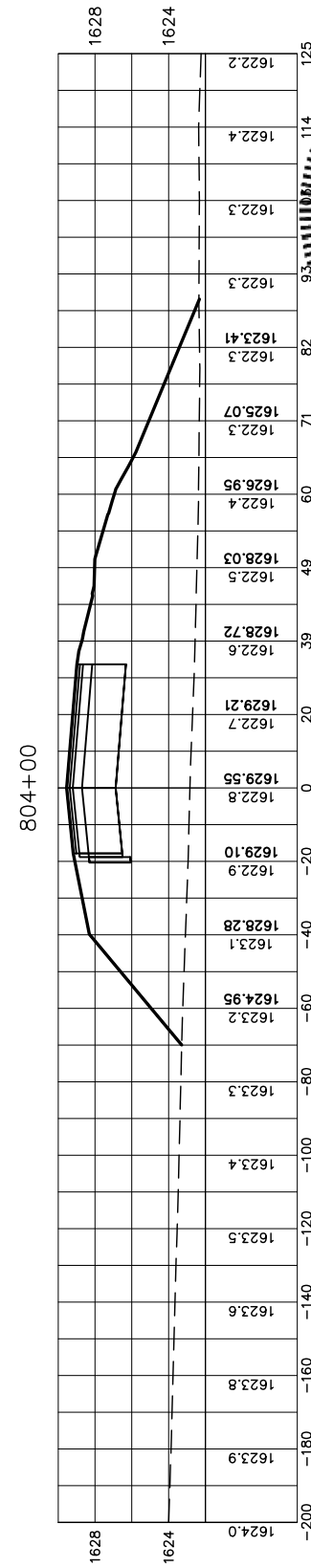
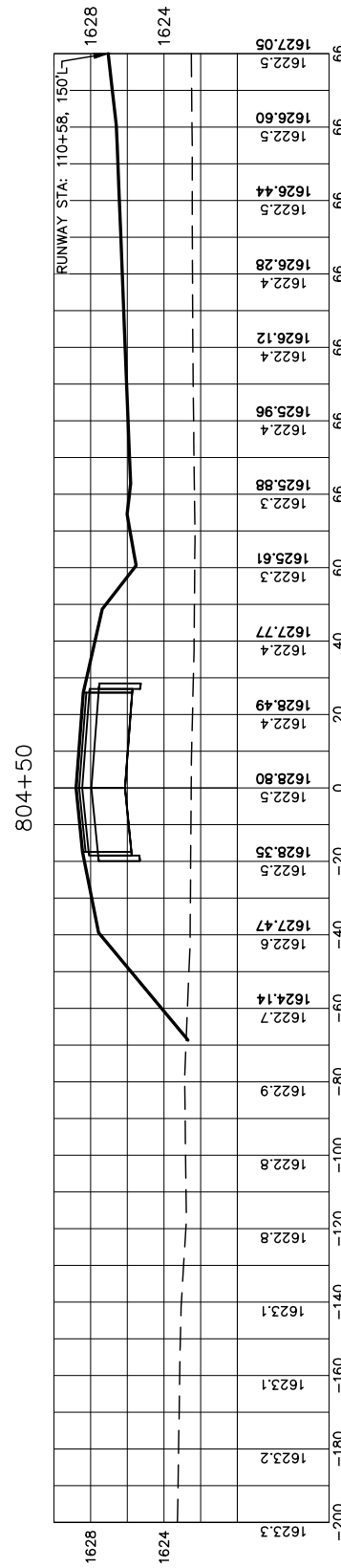
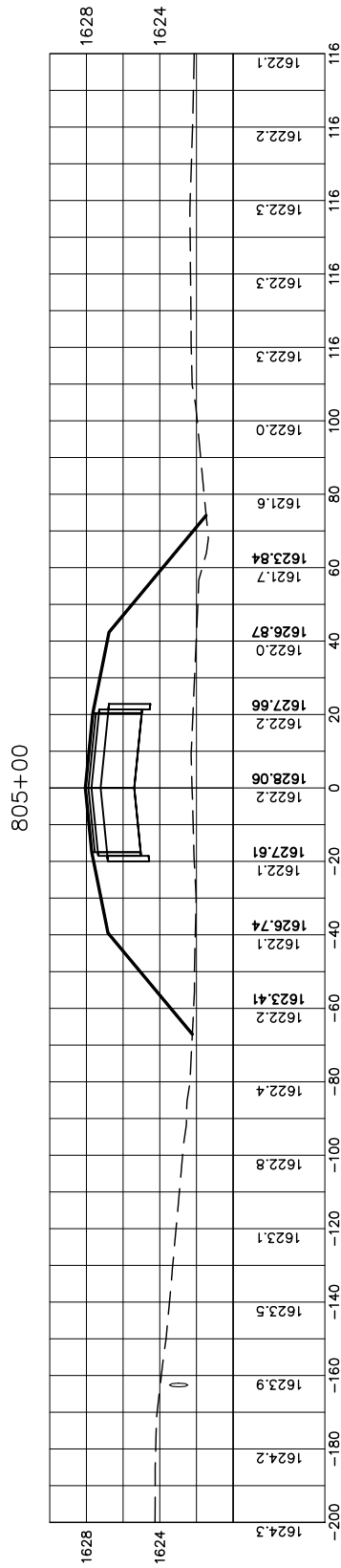
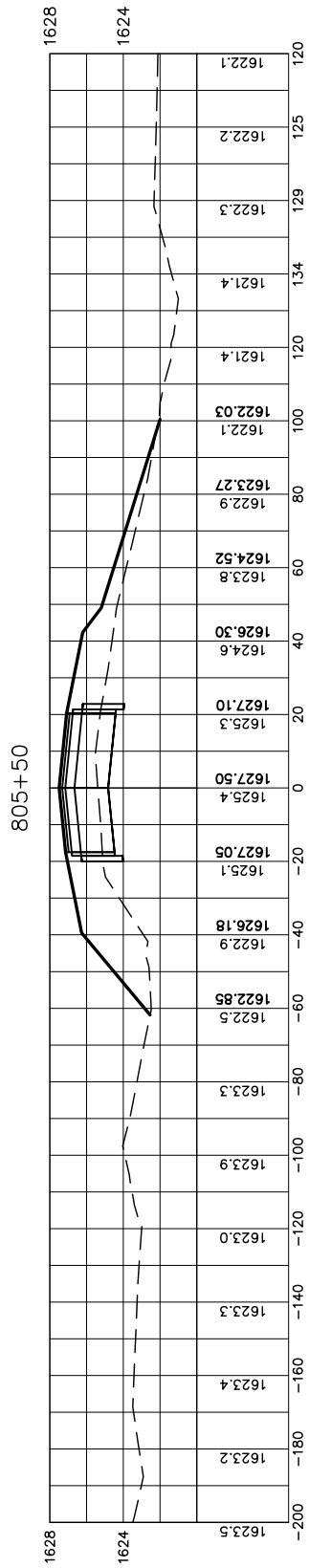
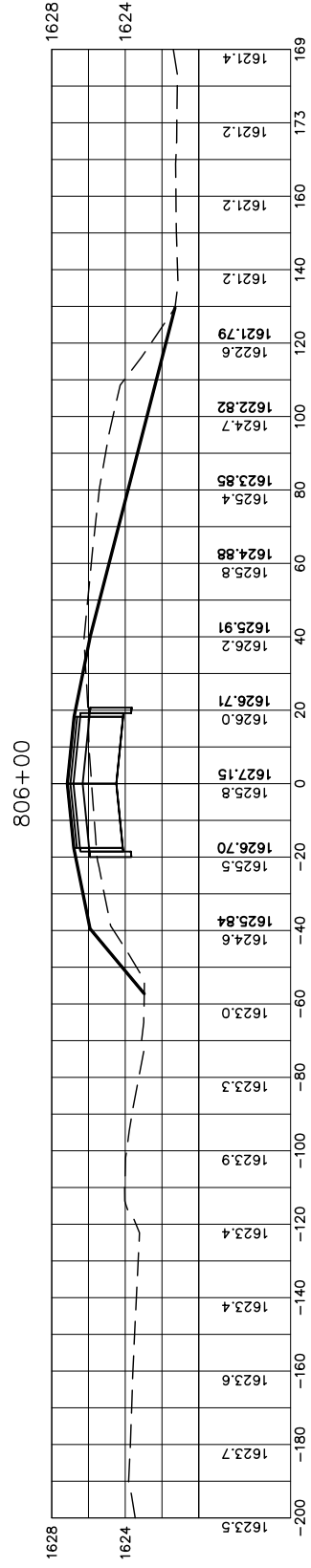
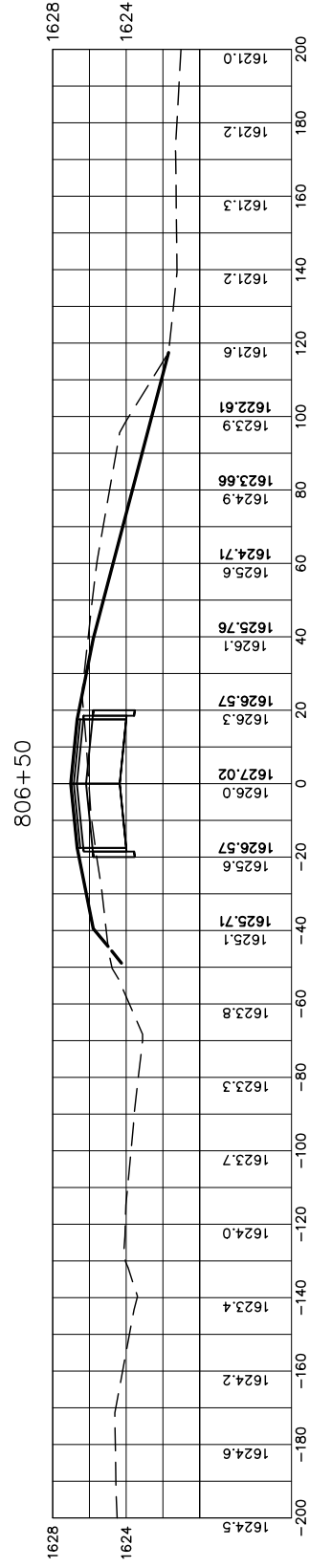
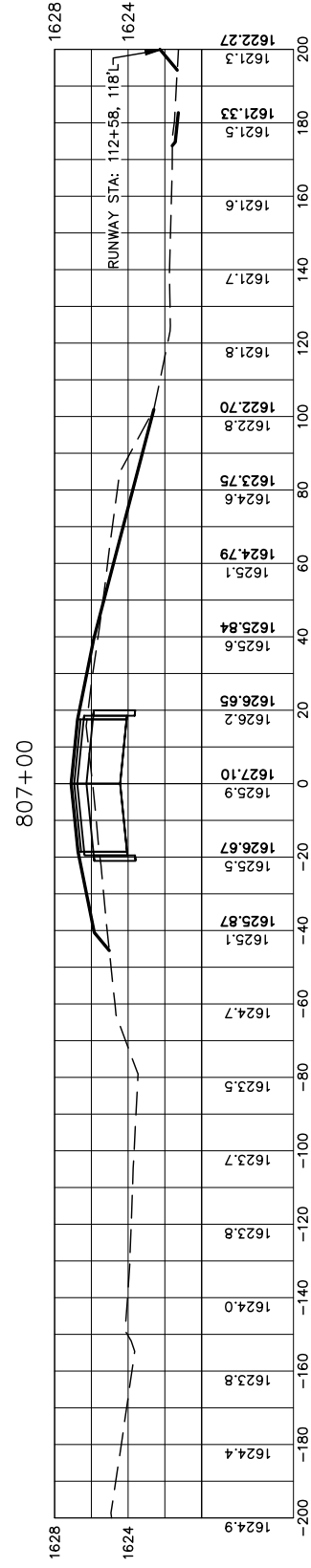
416 Production St N
P.O. Box 111
Aberdeen, S.D. 57401
Phone: 605.225.1212
Fax: 605.225.3181
Email: bobb@helmsengineering.com



**PARALLEL TAXIWAY
CROSS SECTIONS**

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-MODEL
VP. No:	TW-XS(0)
Date:	8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



416 Production St N
P.O. Box 111,
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

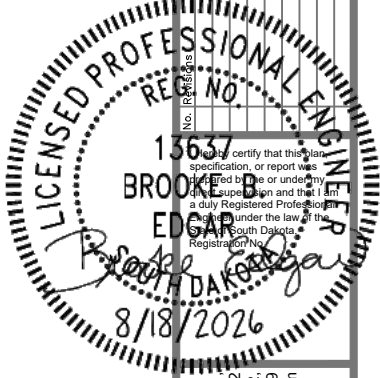
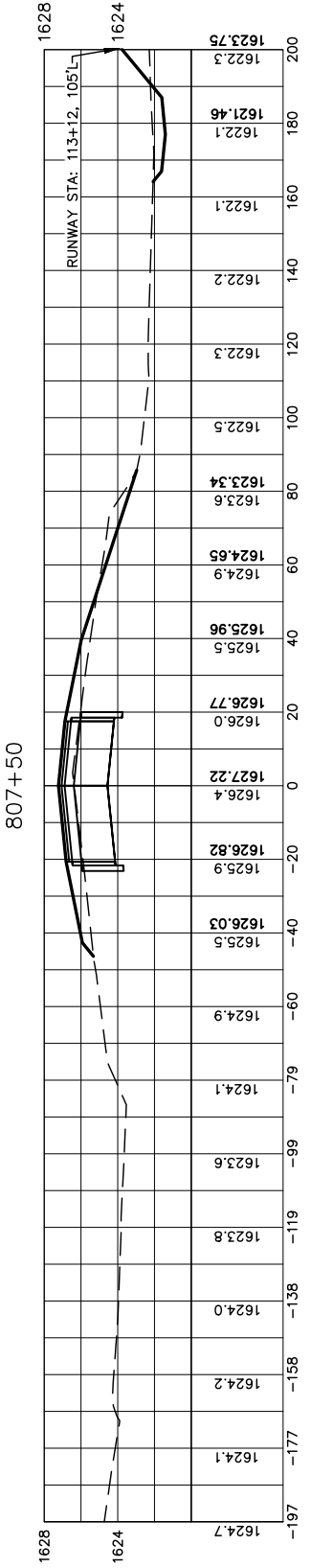
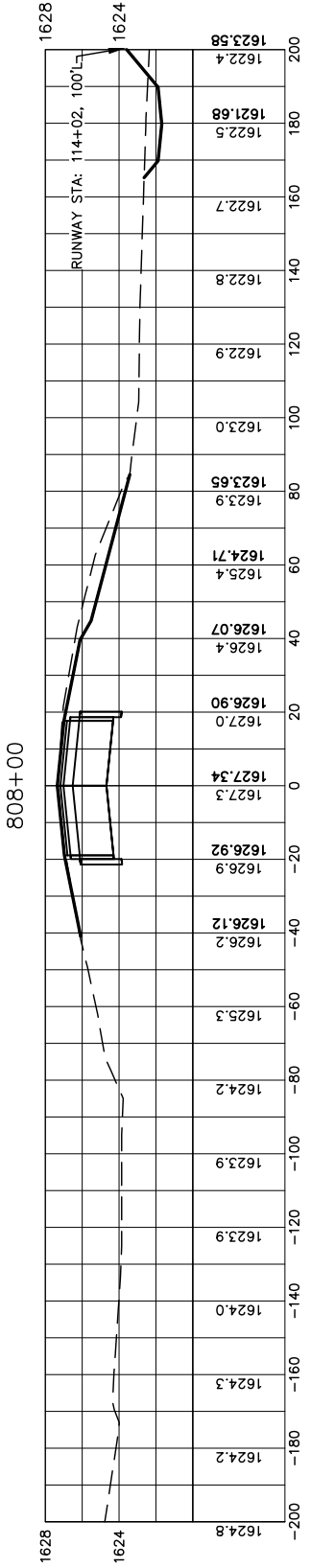
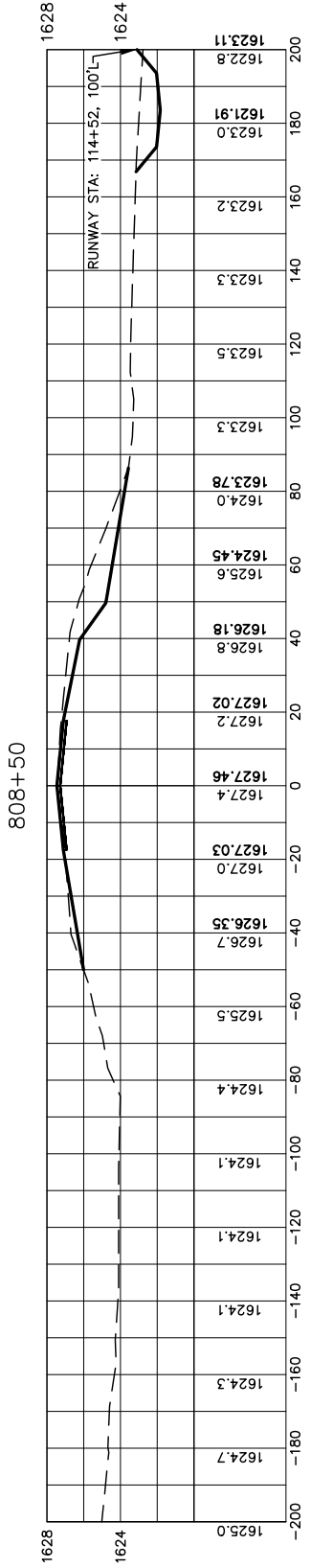
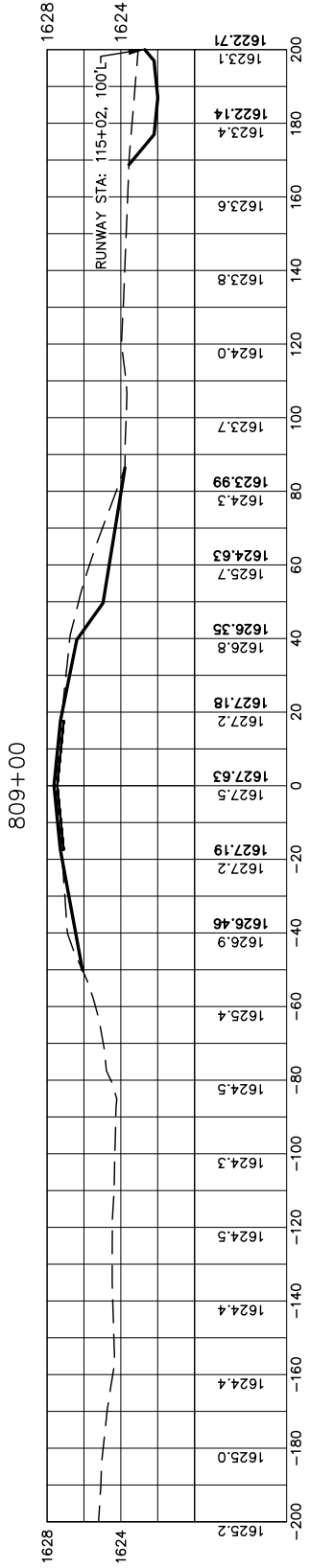
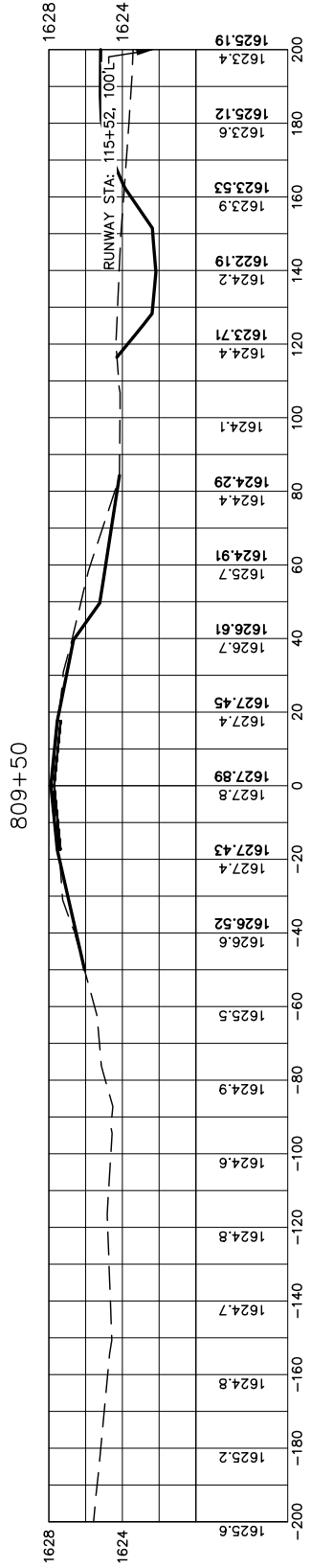
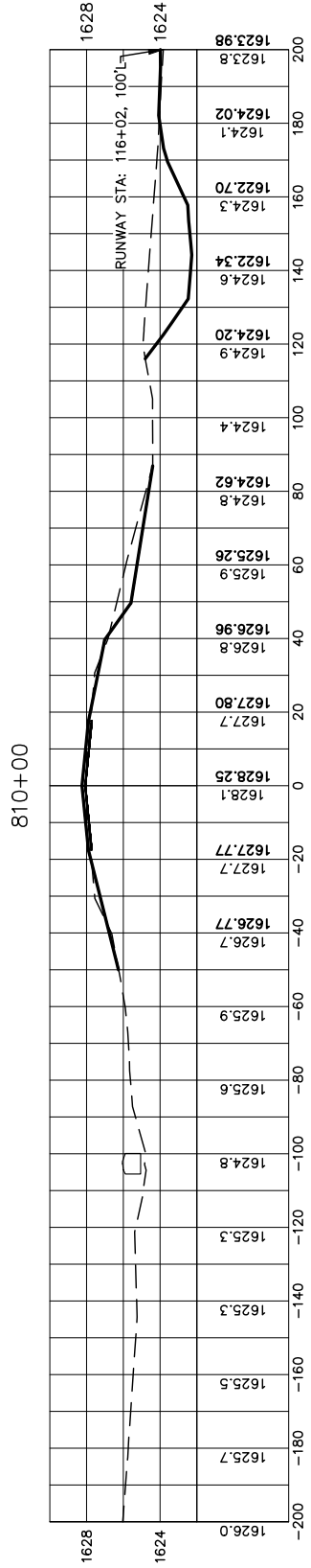
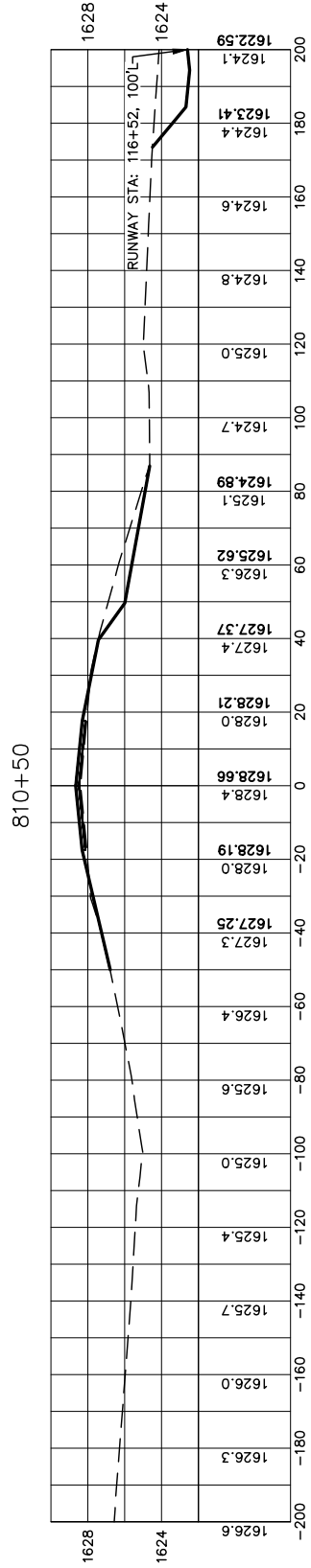


PARALLEL TAXIWAY CROSS SECTIONS

**RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA**

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-MOD
VP. No:	TW-XS(
Date:	8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



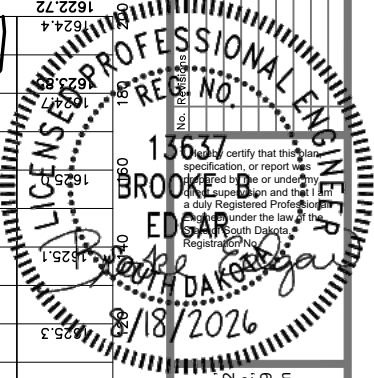
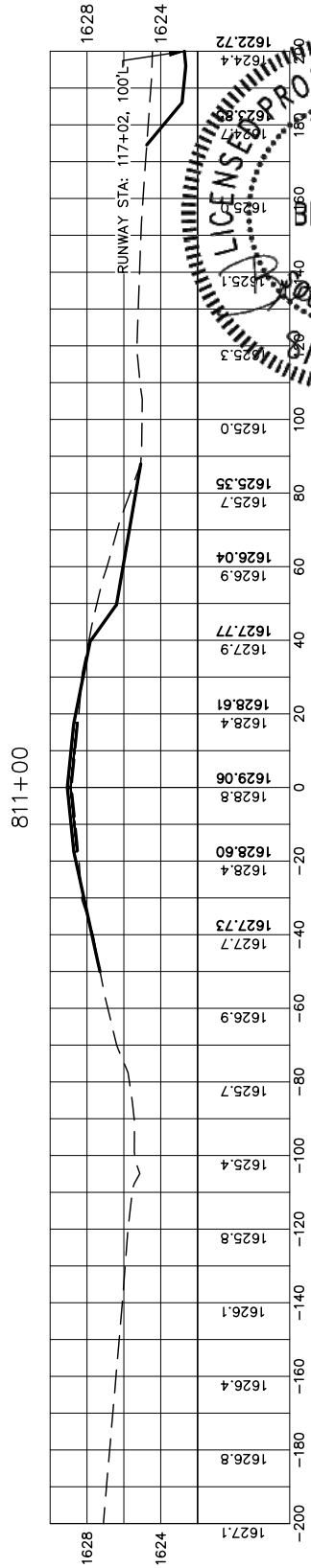
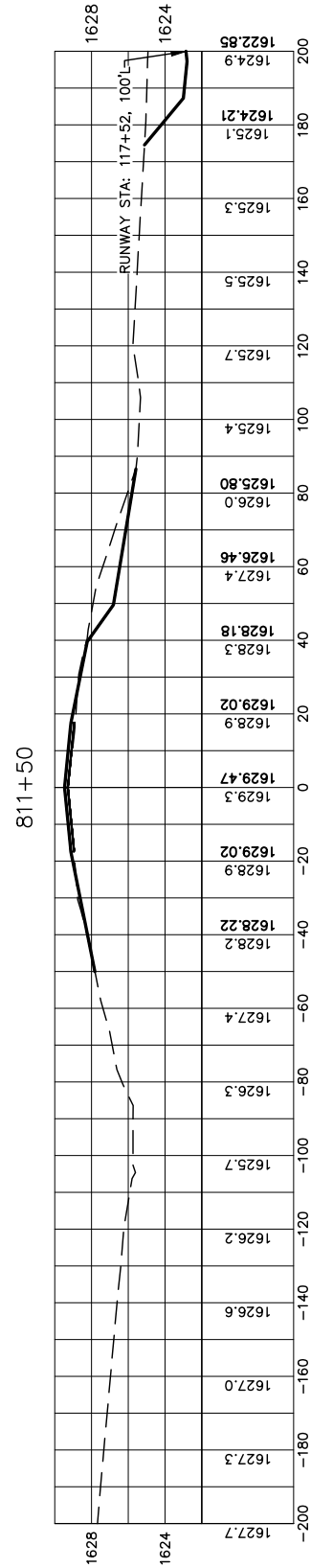
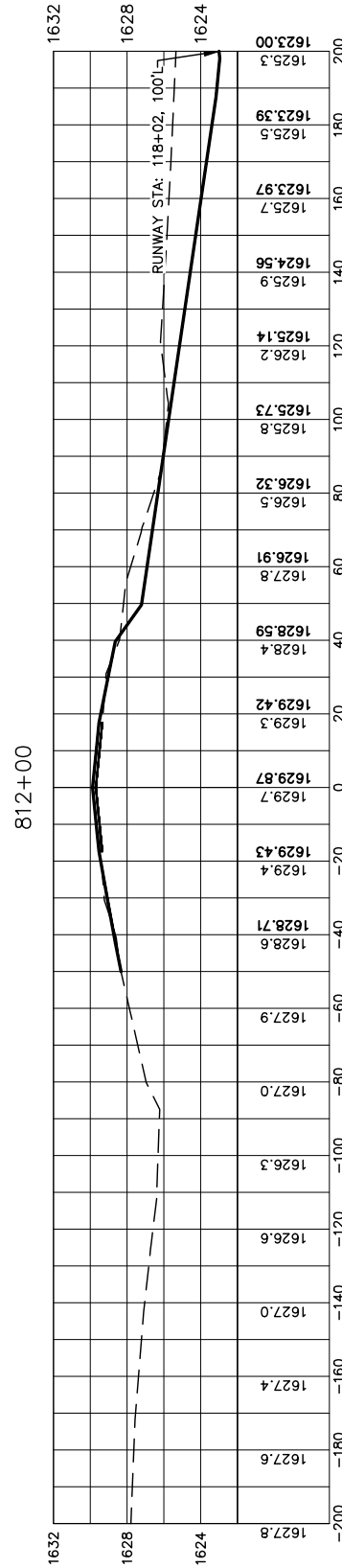
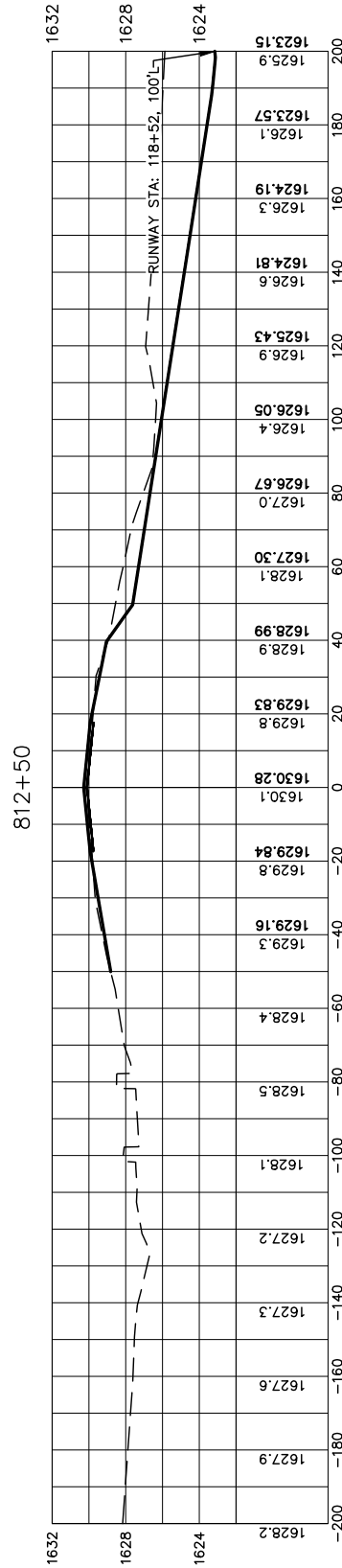
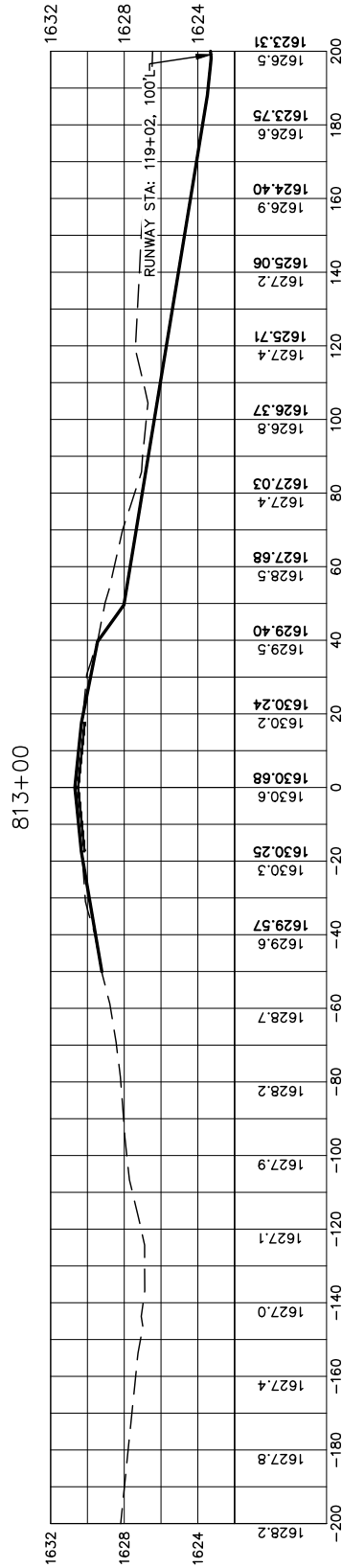
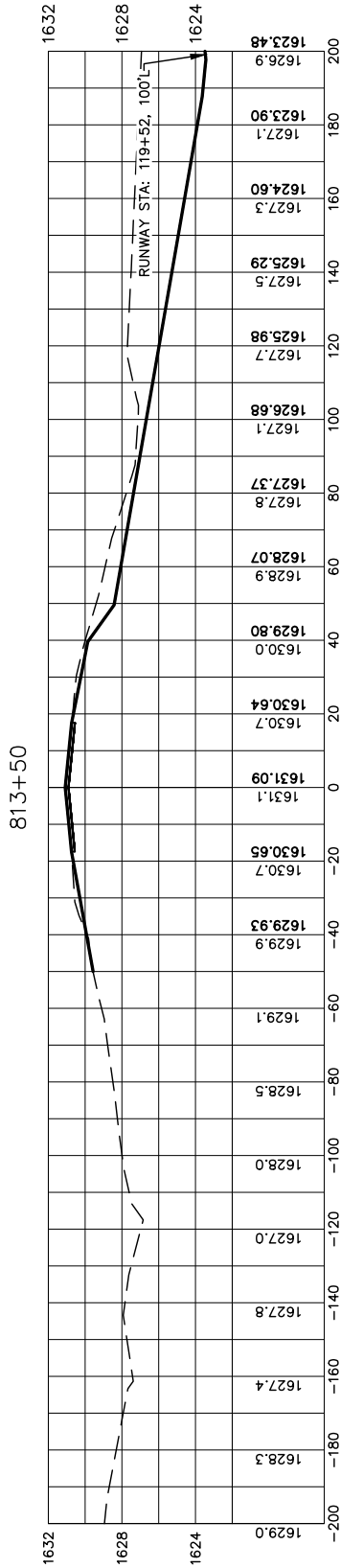
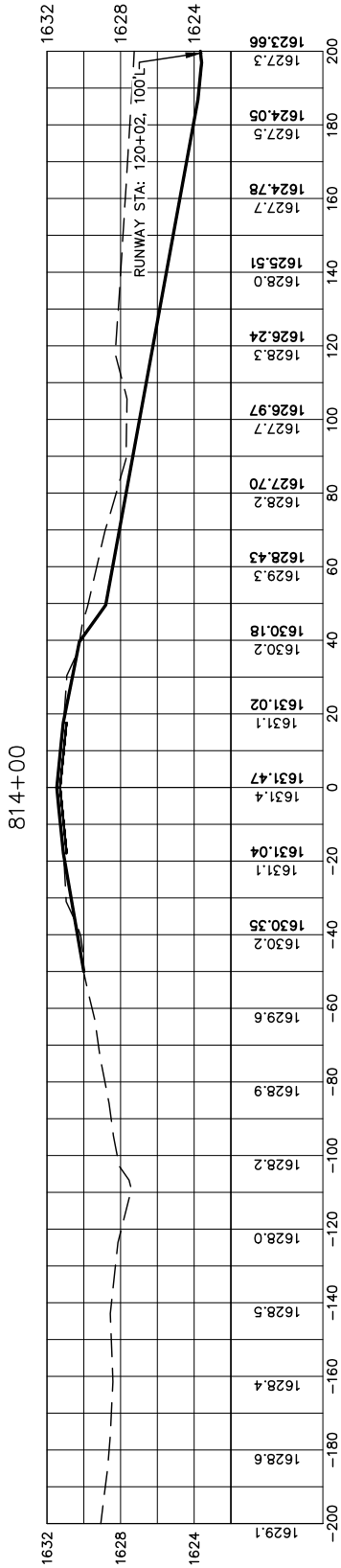
416 Production St.
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



**PARALLEL TAXIWAY
CROSS SECTIONS**
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: TW-XS(2)
Date: 8/18/20

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



PARALLEL TAXIWAY
CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: TW-XS(3)
Date: 8/18/24

416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



CIVIL ENGINEERS & LAND SURVEYORS

Date: _____
No. _____
Reg. No. _____

I hereby certify that this plan
specification, or report was
prepared by me or under my
direct supervision and that I am
a duly Registered Professional
Engineer under the law of the
State of South Dakota
Registration No. _____

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

BROOKS

EDCAR

Helm

South Dakota

8/18/2024

13637

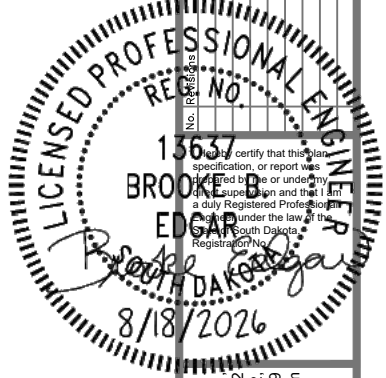
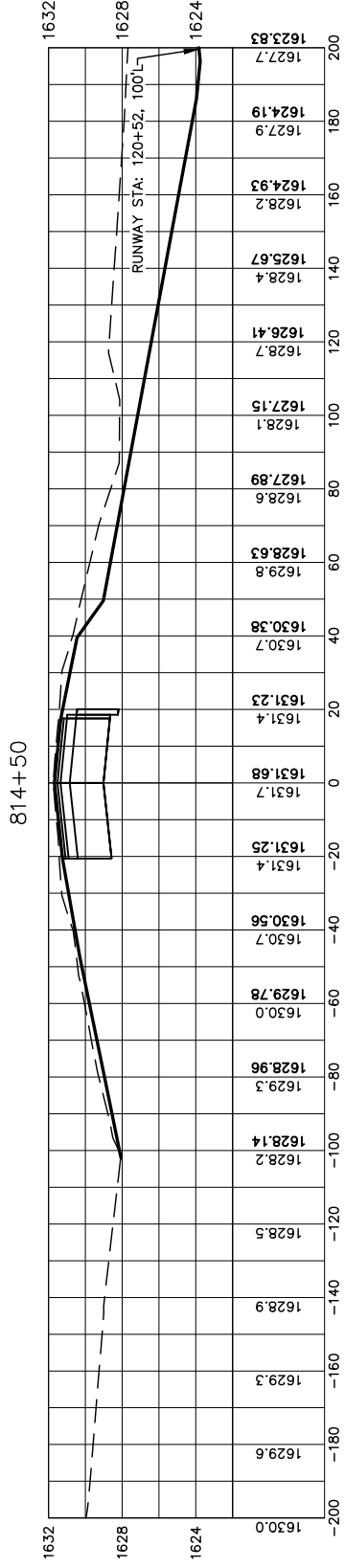
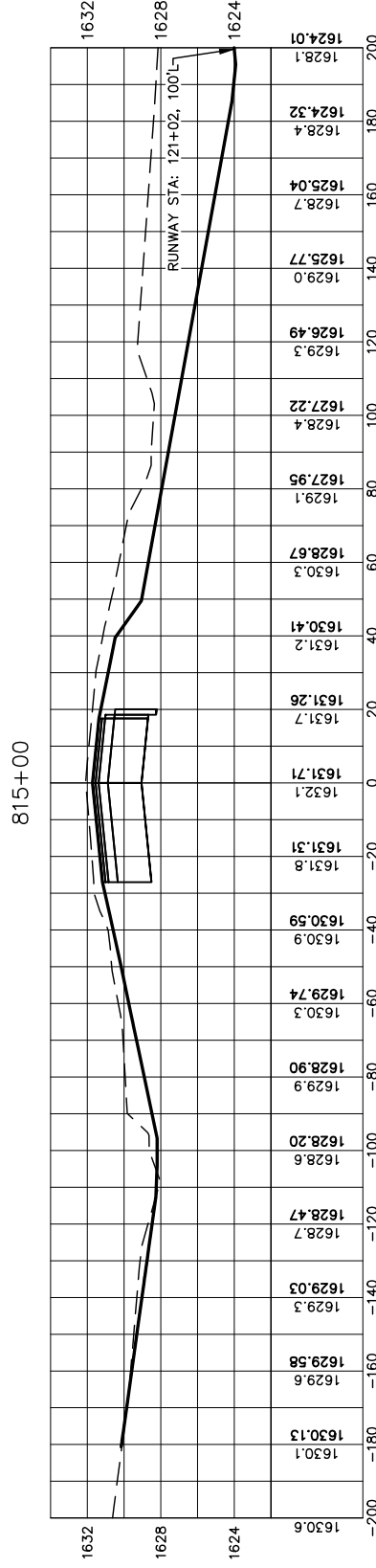
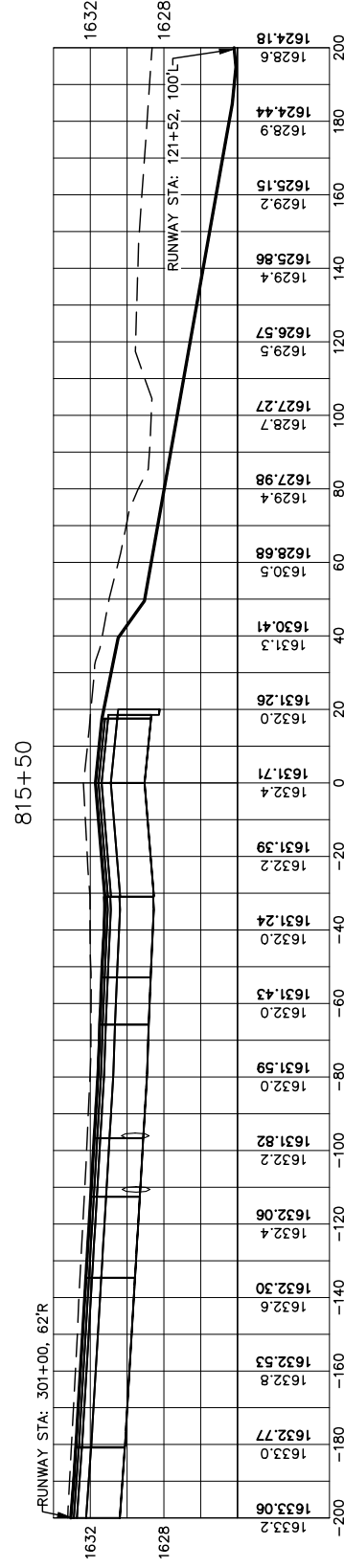
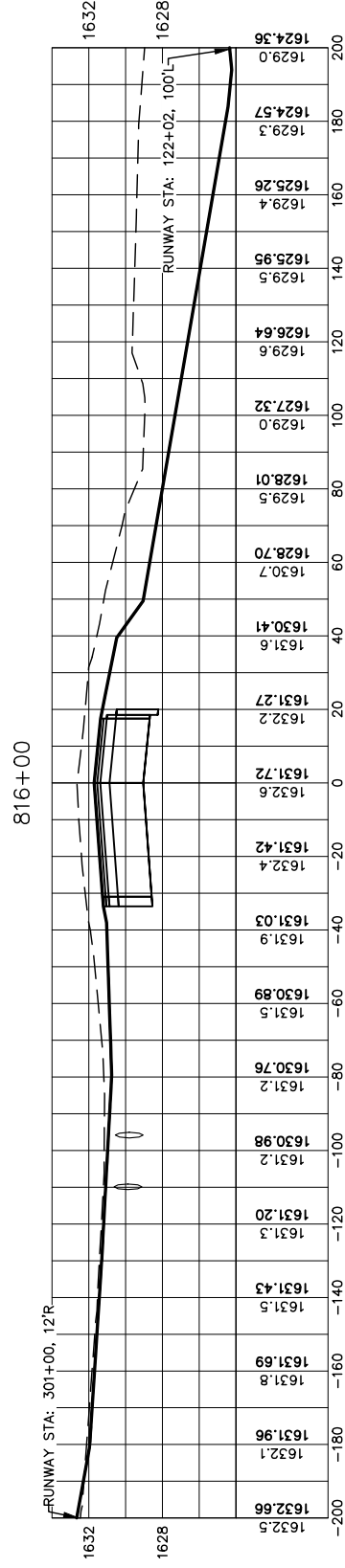
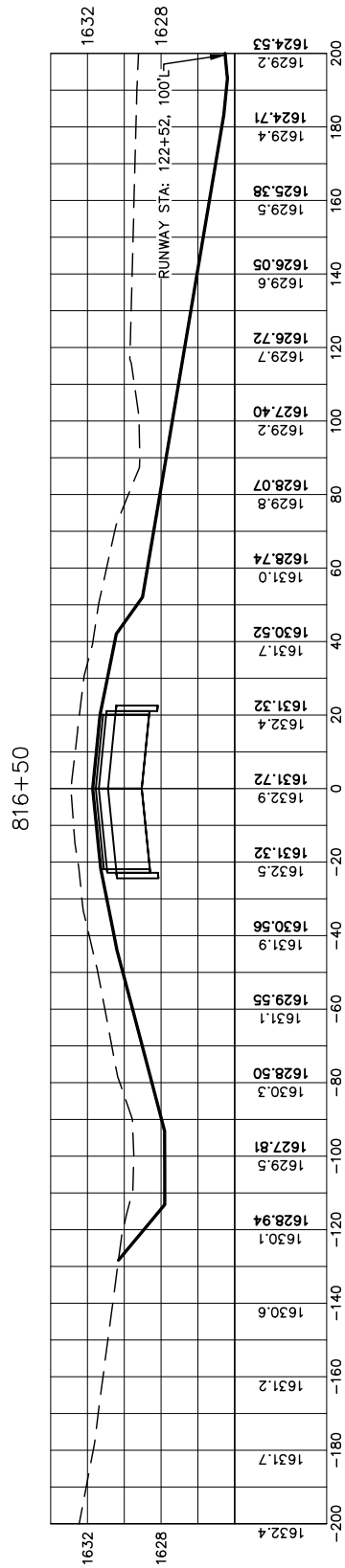
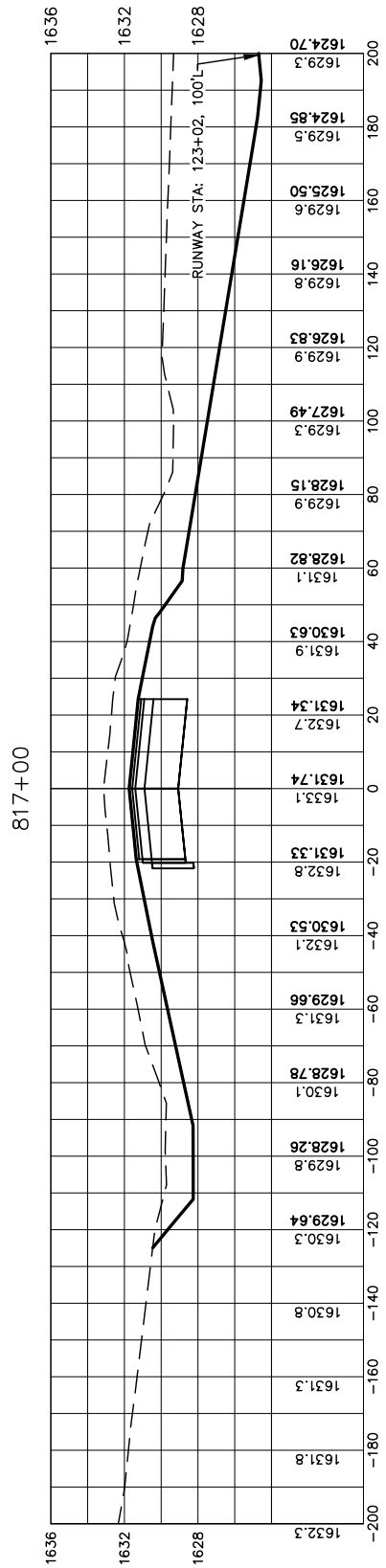
BROOKS

EDCAR

Helm

South Dakota

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



PARALLEL TAXIWAY
CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

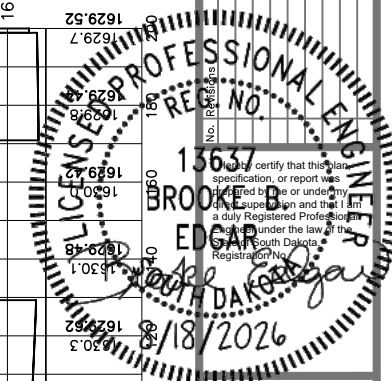
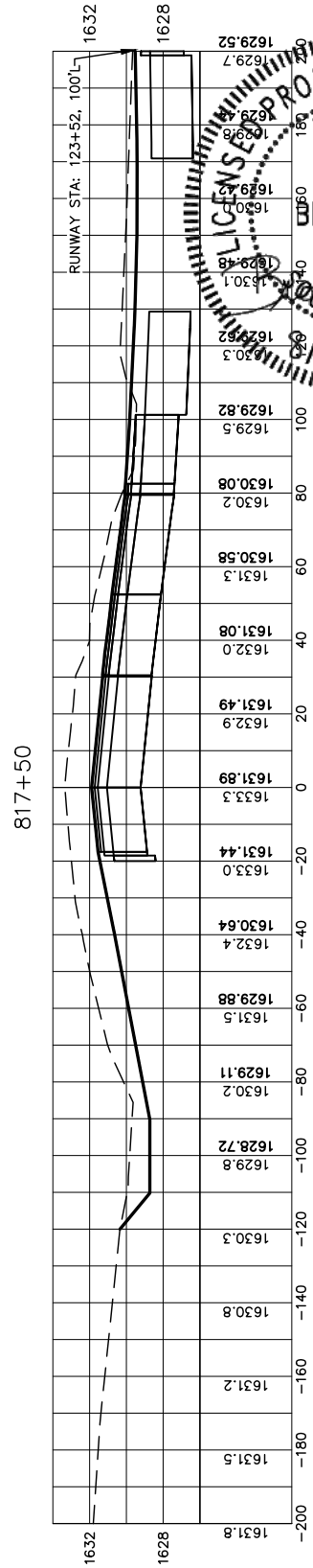
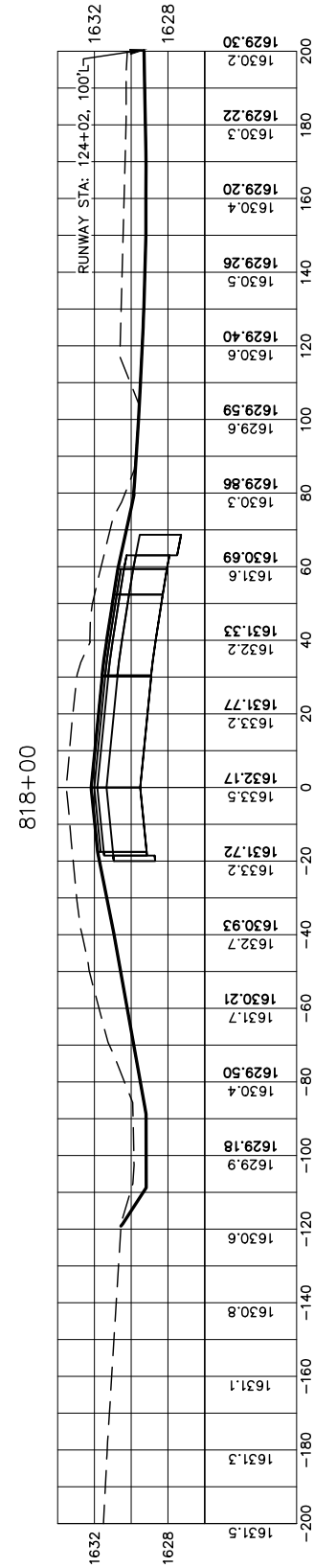
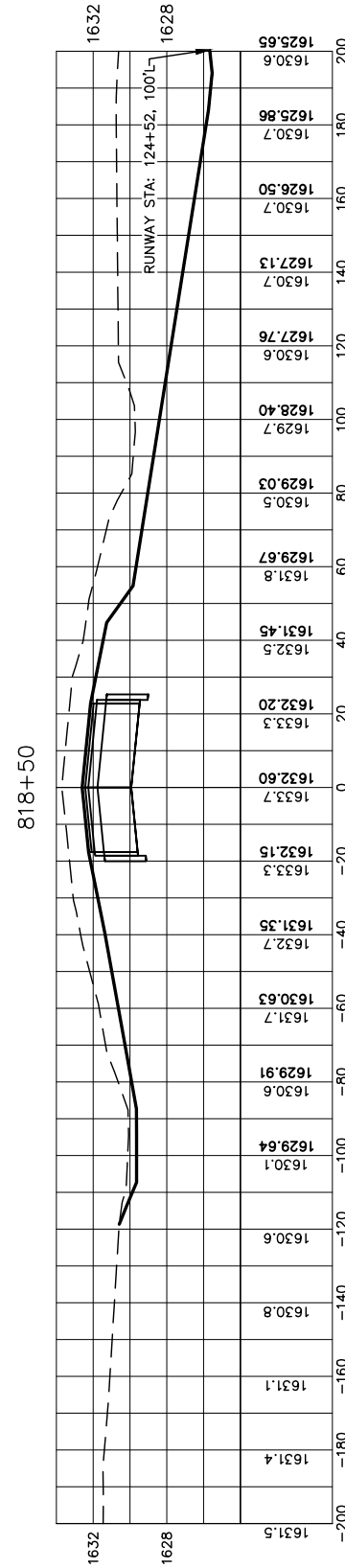
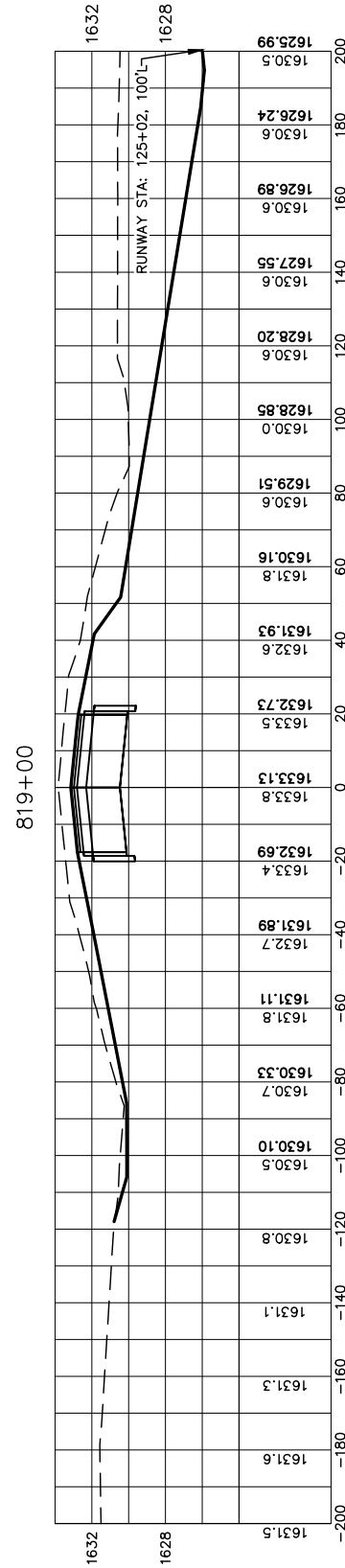
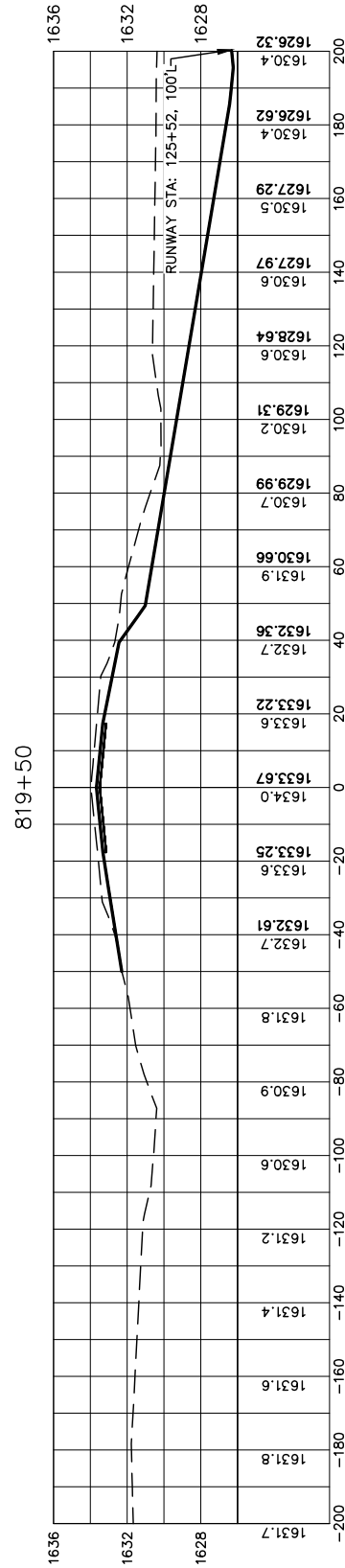
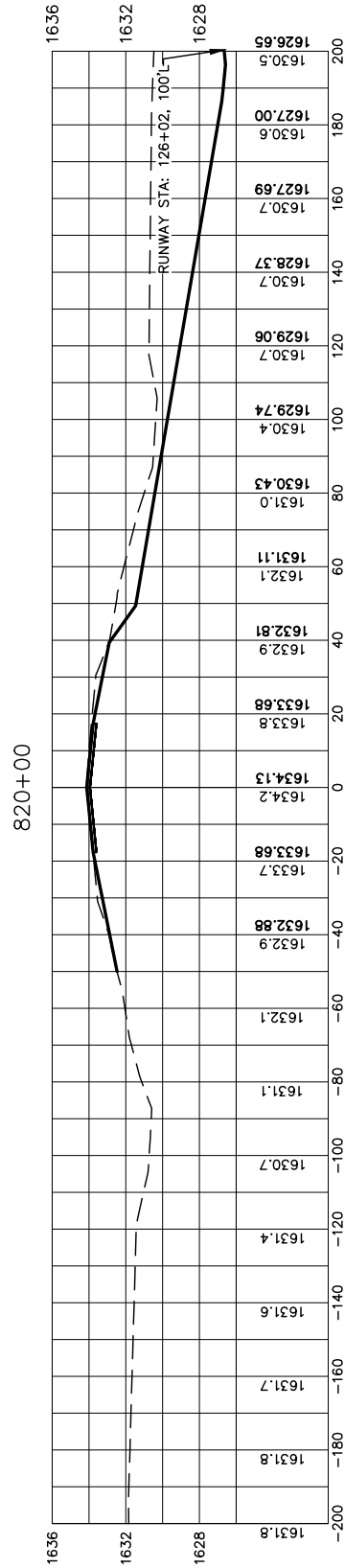
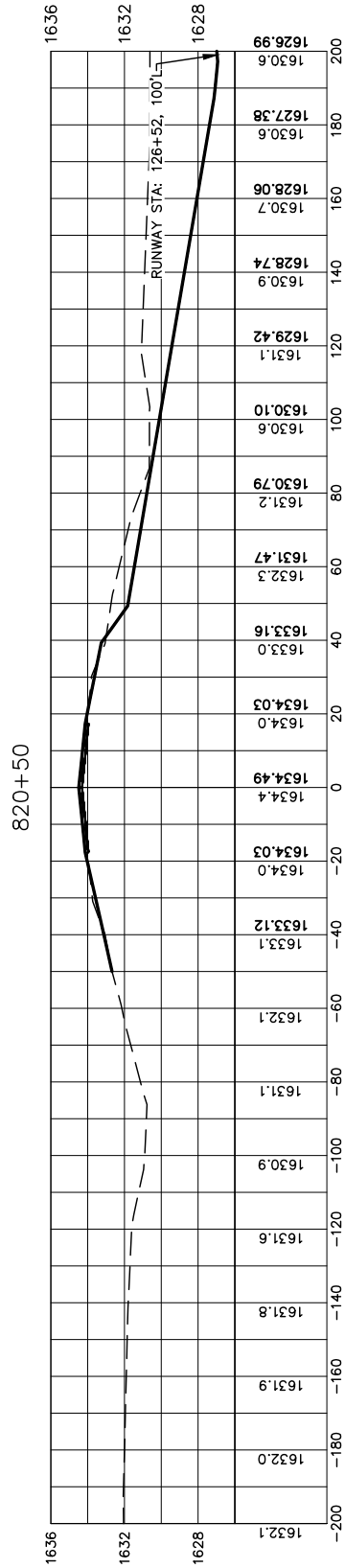
Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: TW-XS(4)
Date: 8/18/26

416 Production STN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



CIVIL ENGINEERS & LAND SURVEYORS

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



PARALLEL TAXIWAY
CROSS SECTIONS

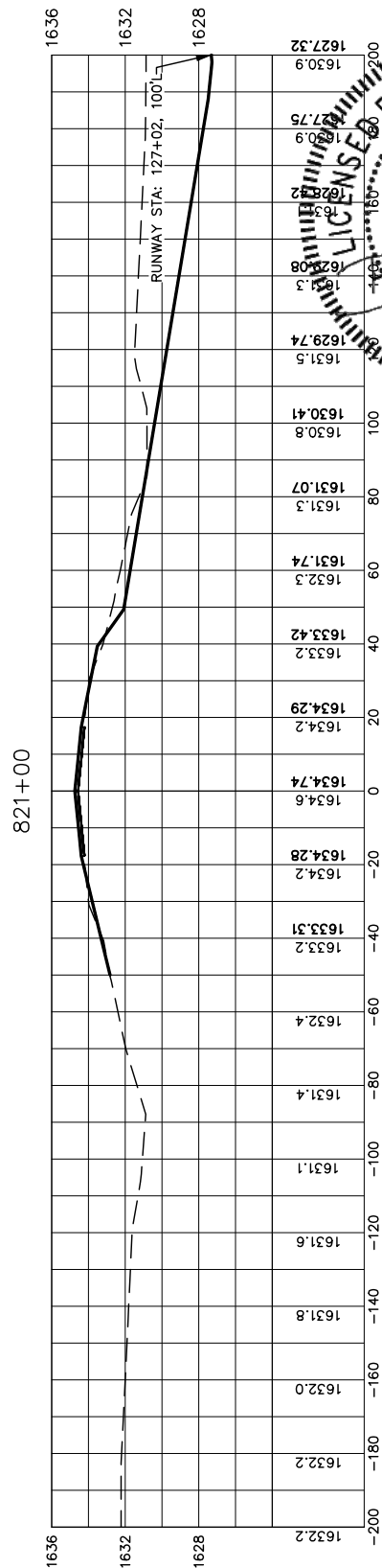
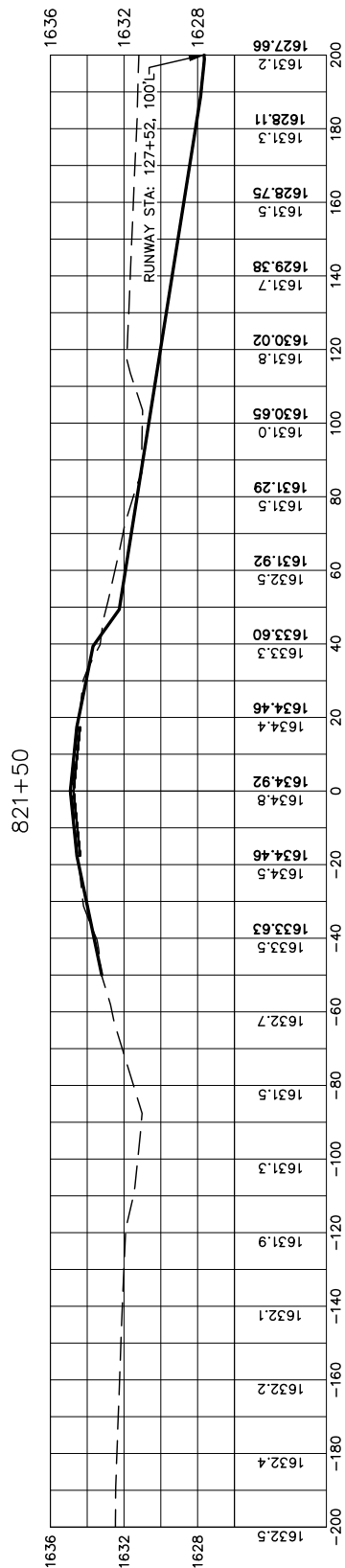
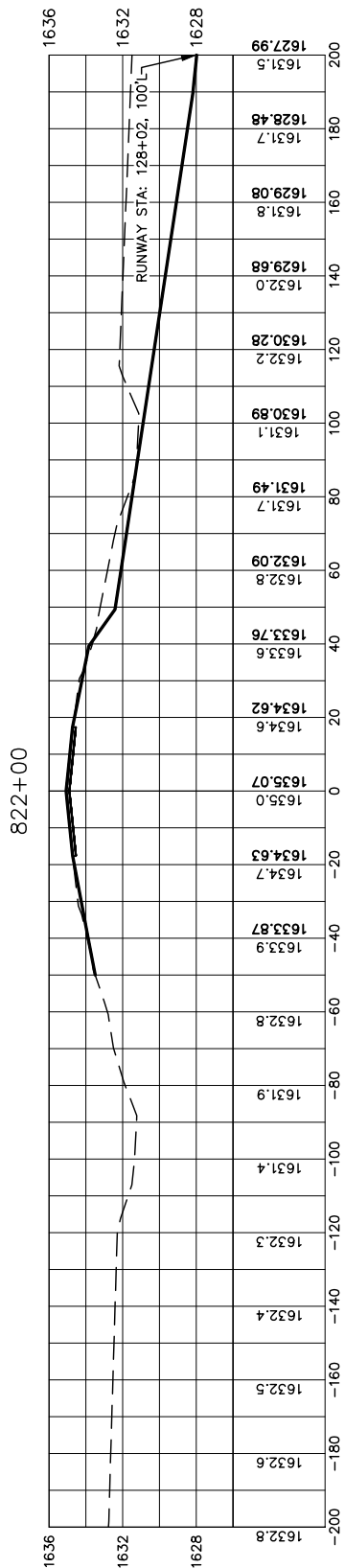
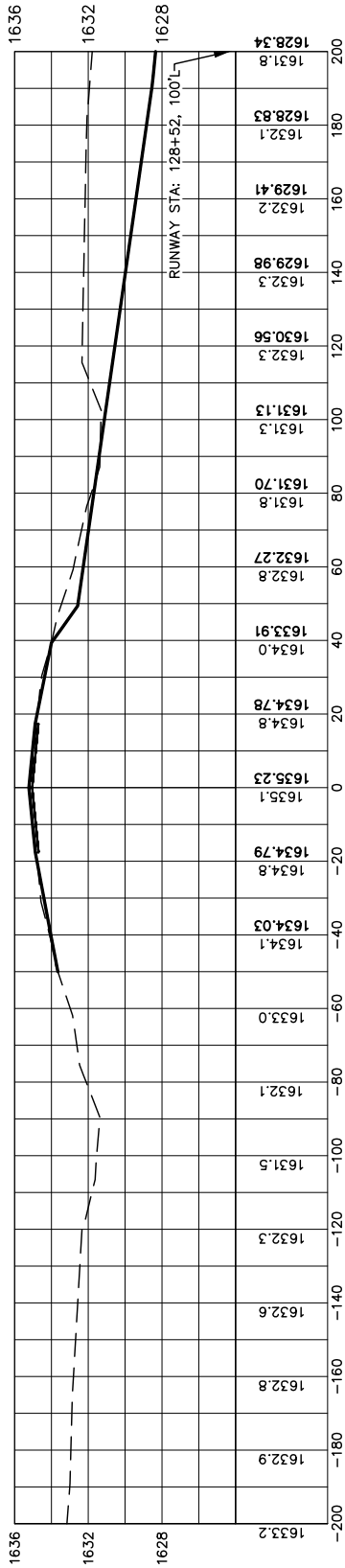
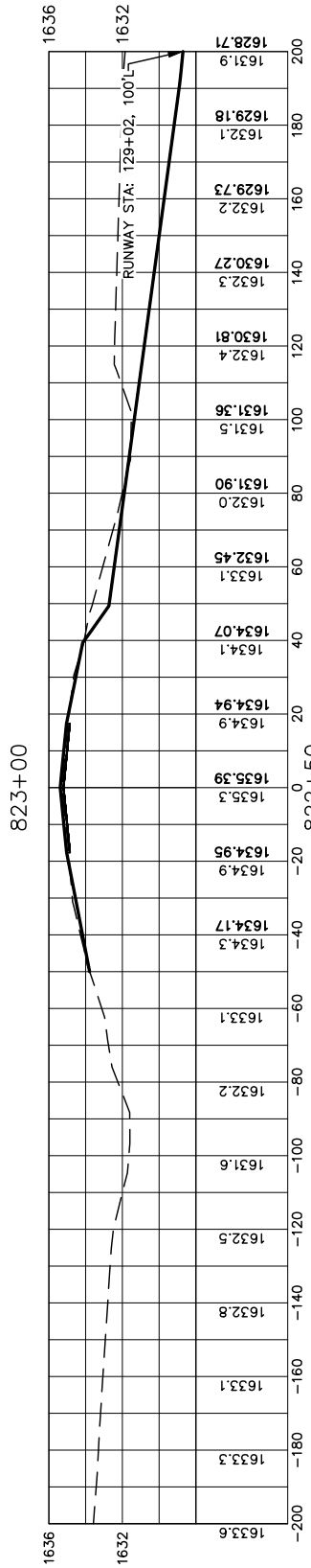
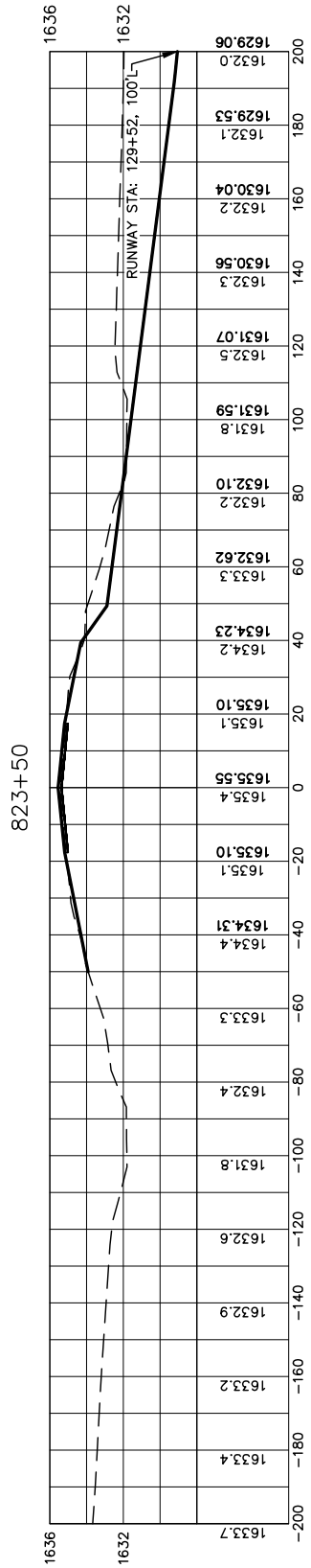
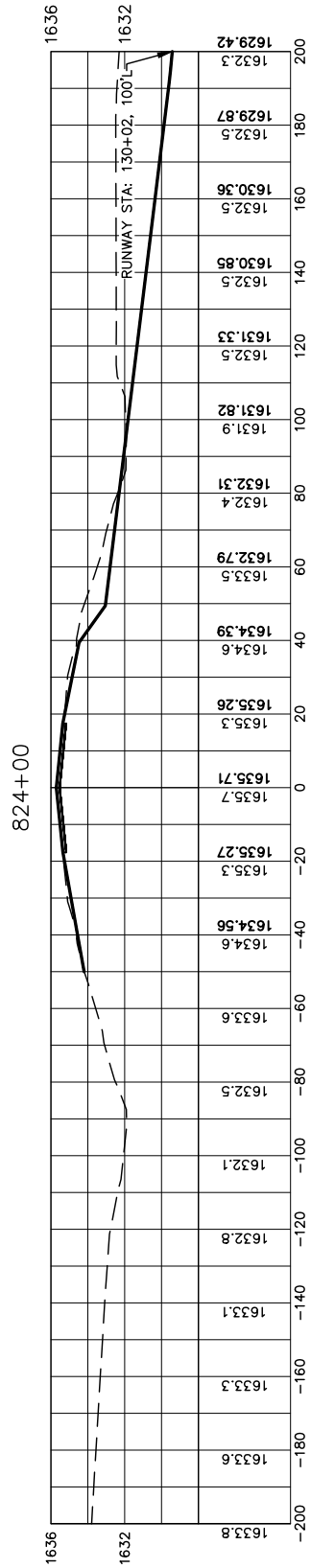
RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: TW-XS(5)
Date: 8/18/26

416 Production SIN
P.O. Box 111,
Aberdeen, S.D. 57402
Phone: 605.225.1212,
Fax: 605.225.3189
Email: bobb@helmsengineering.com



SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



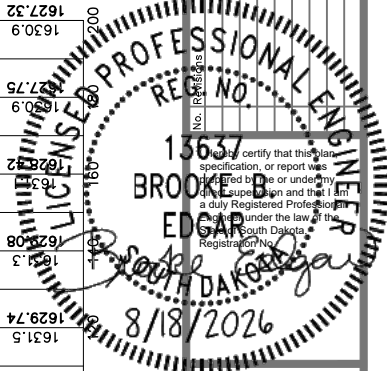
PARALLEL TAXIWAY
CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: TW-XS(6)
Date: 8/18/26

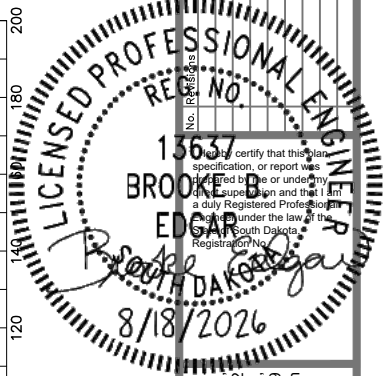
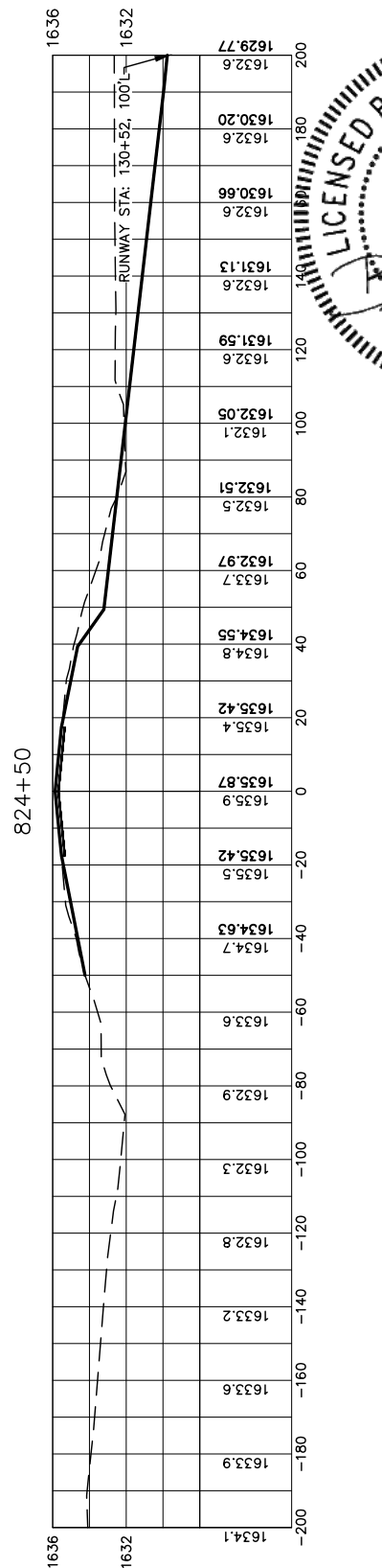
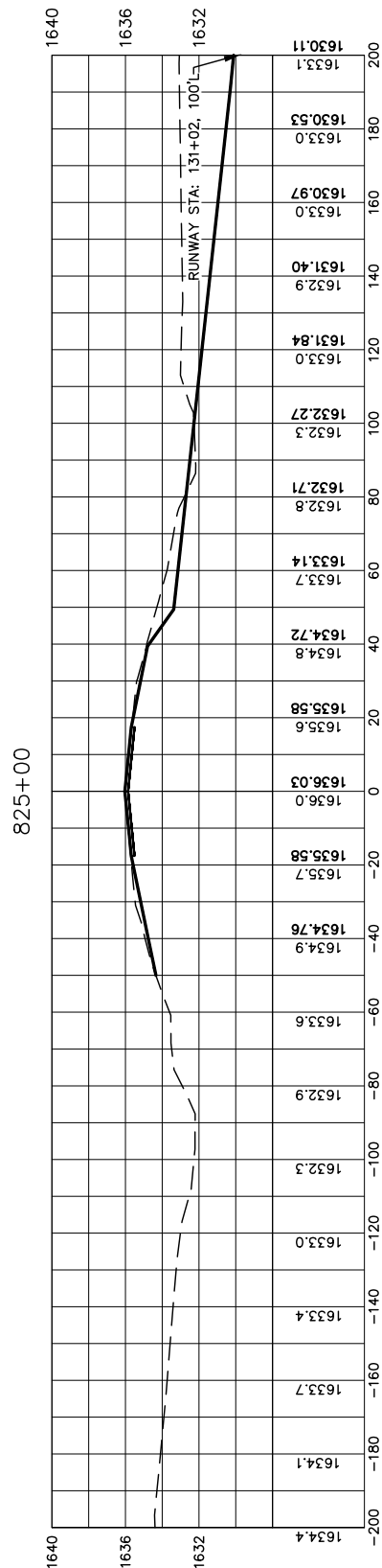
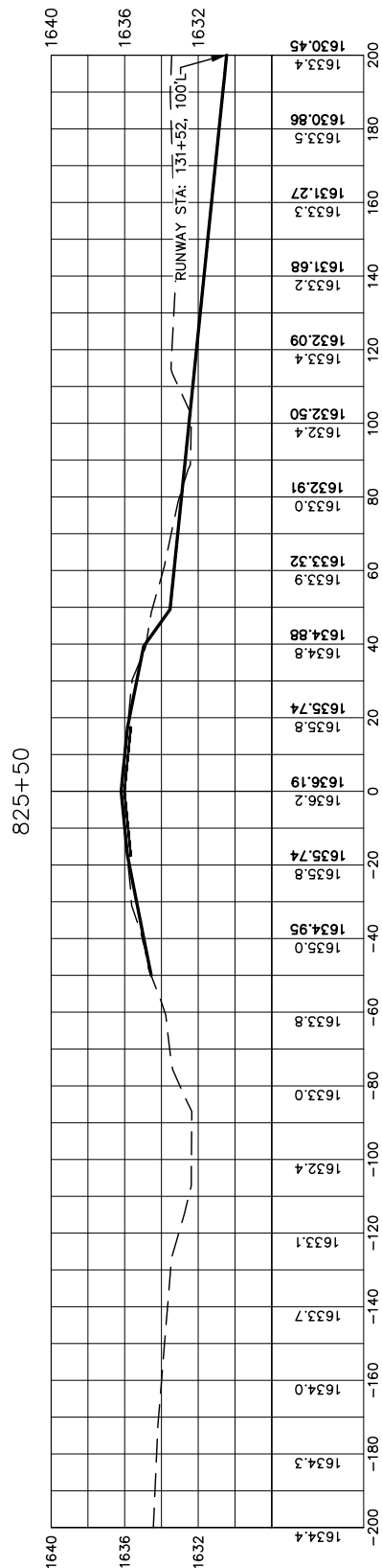
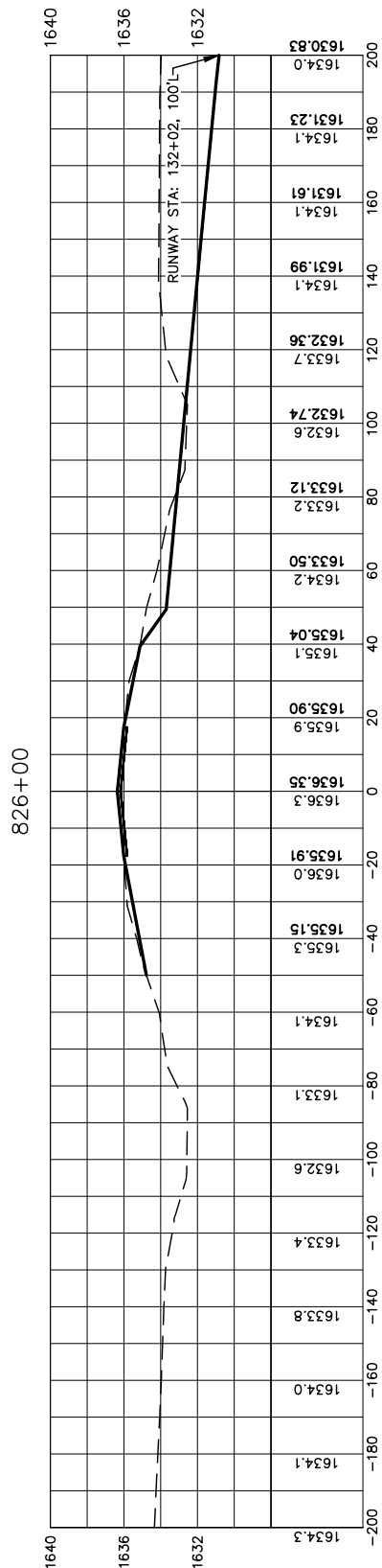
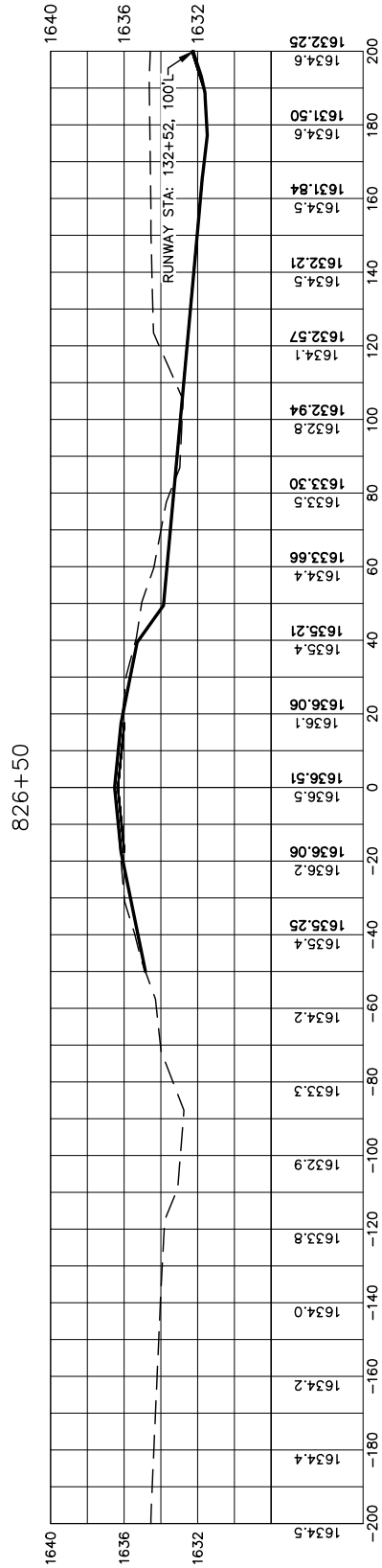
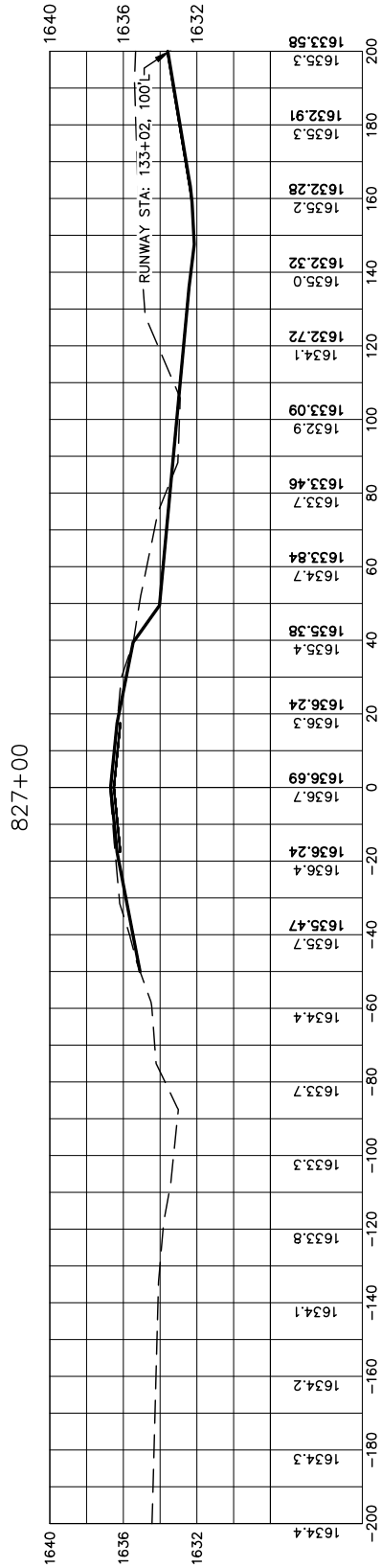


416 Production STN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



Date

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.

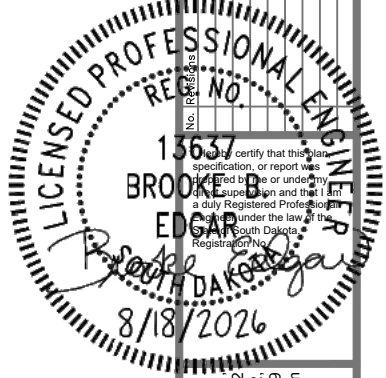
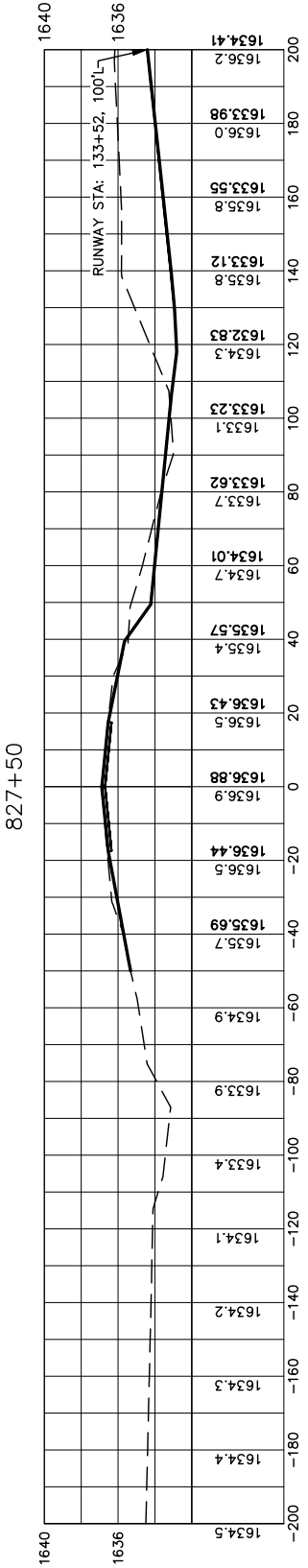
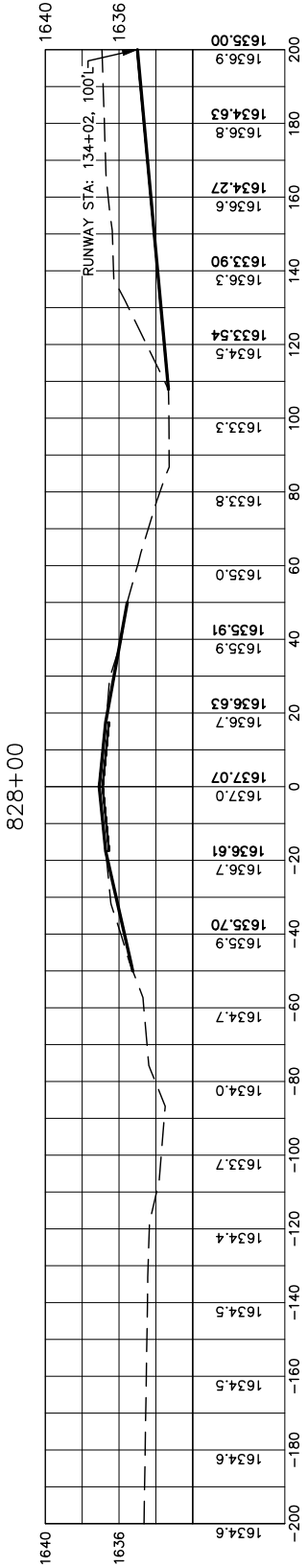
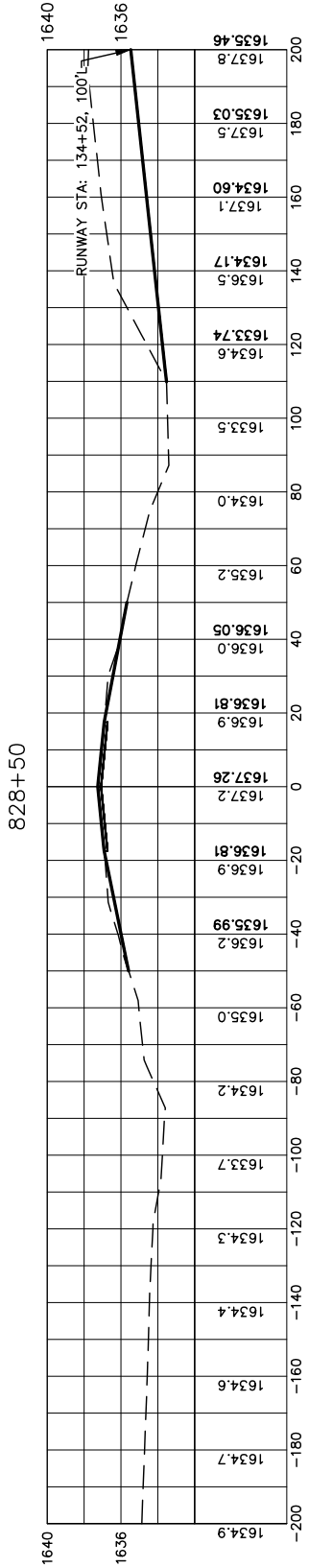
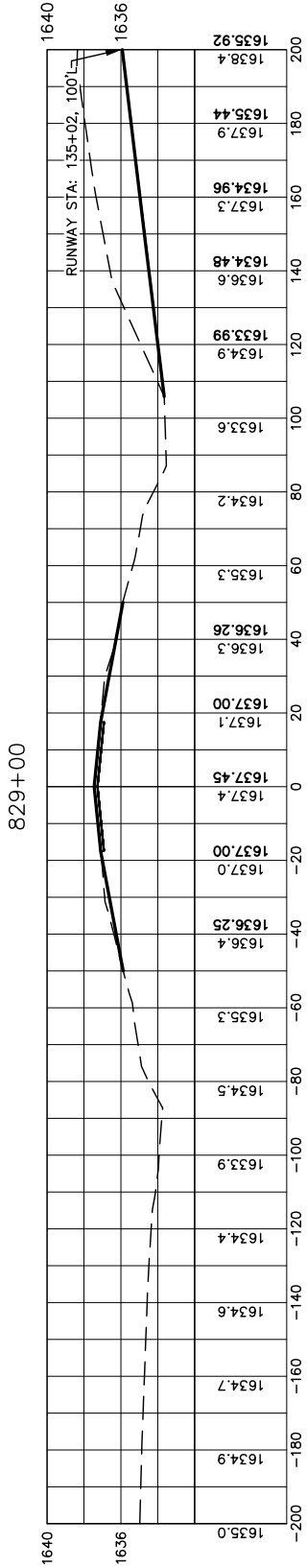
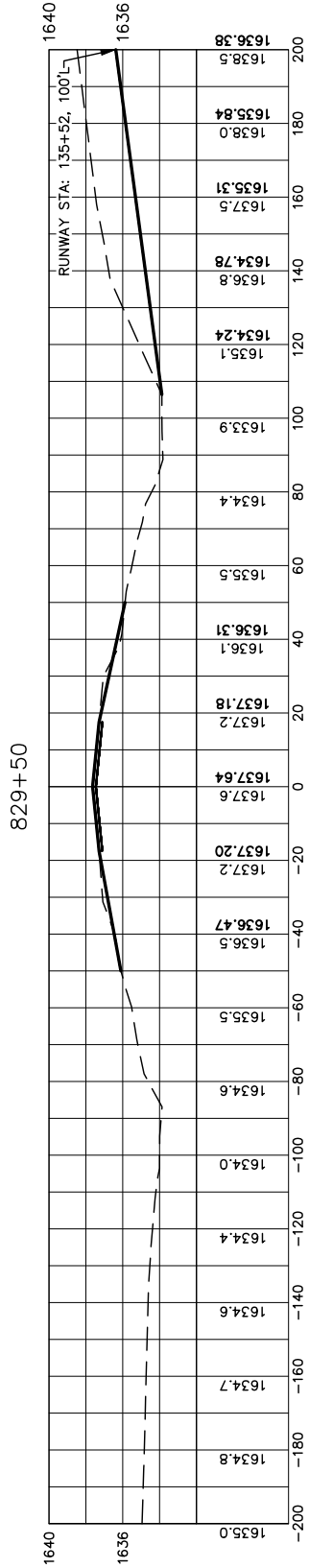
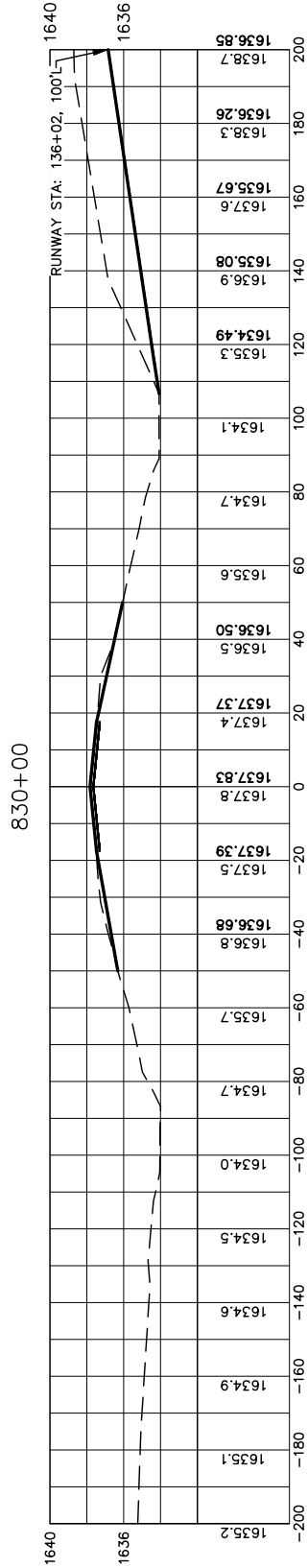
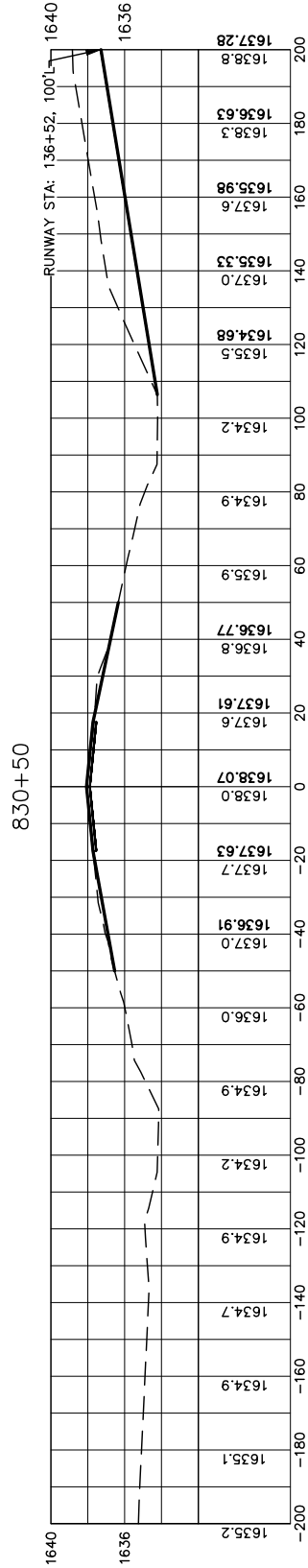


PARALLEL TAXIWAY
CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: TW-XS(7)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



416 Production STN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com

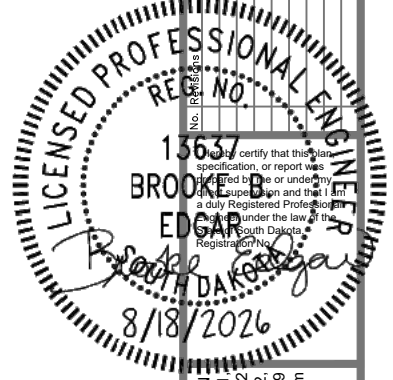
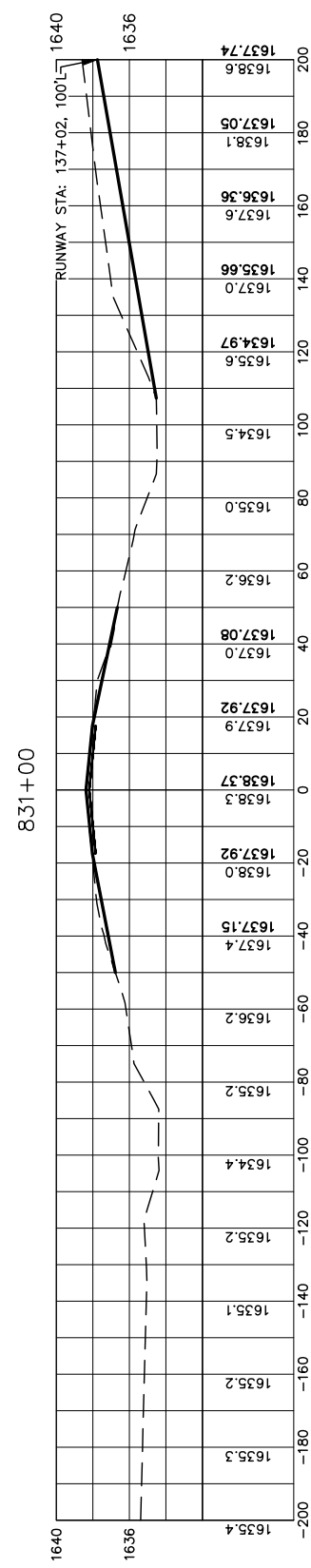
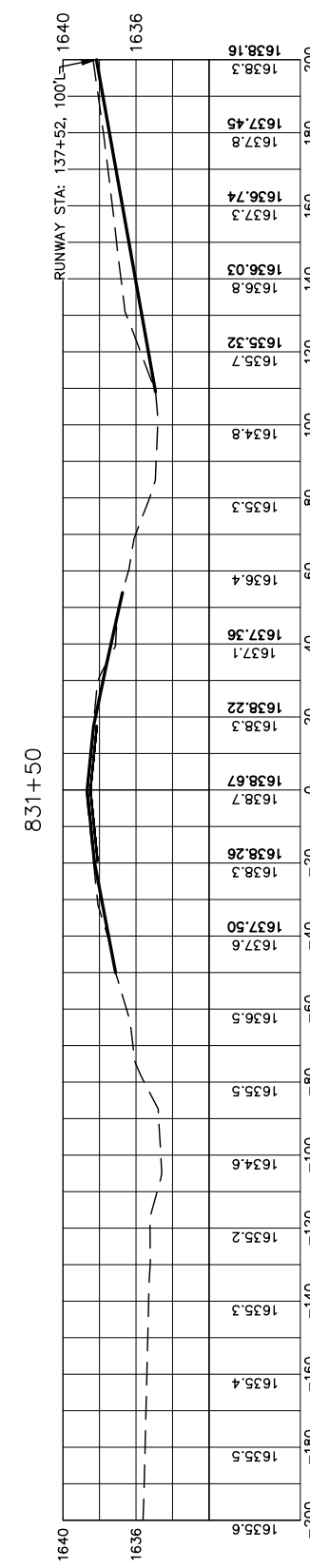
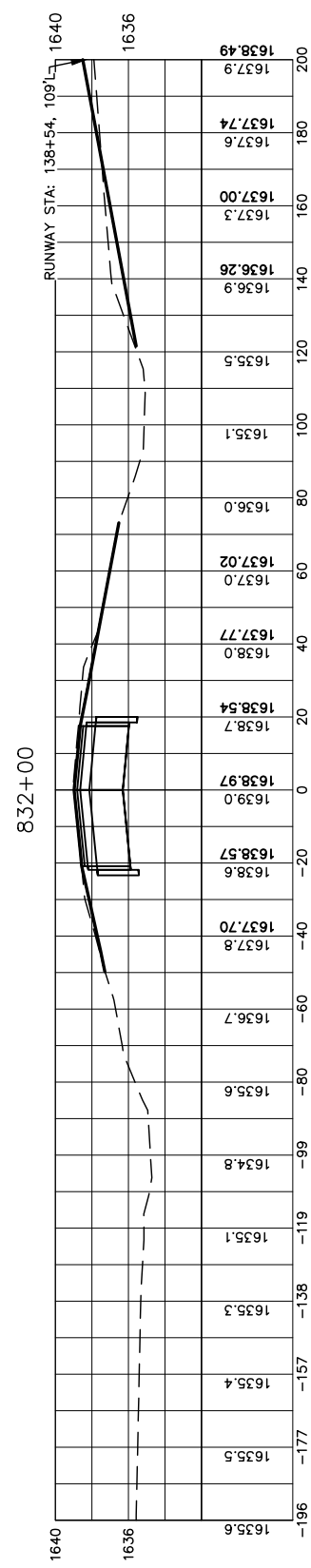
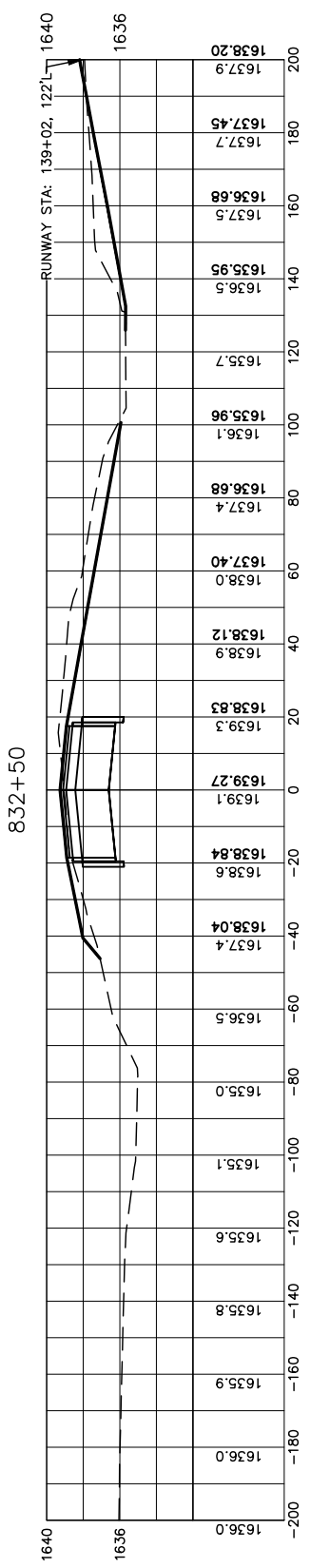
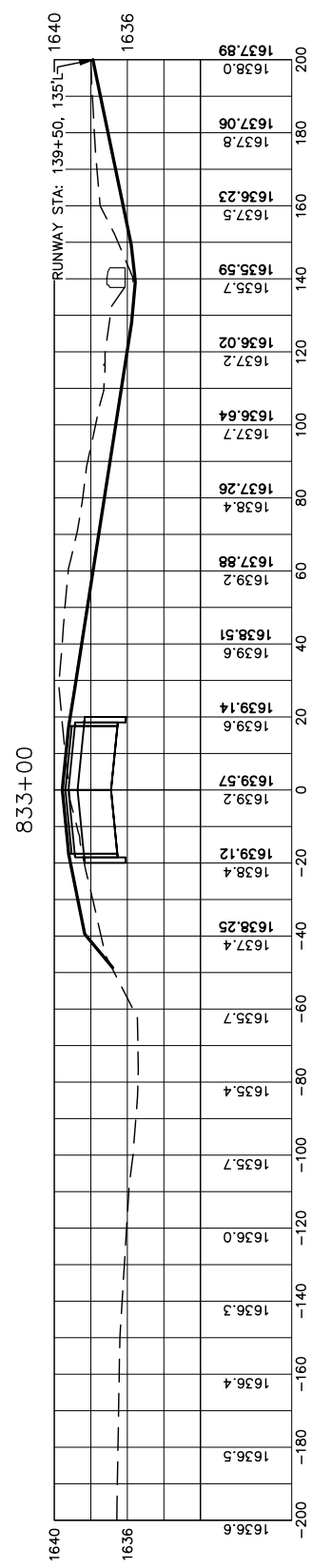
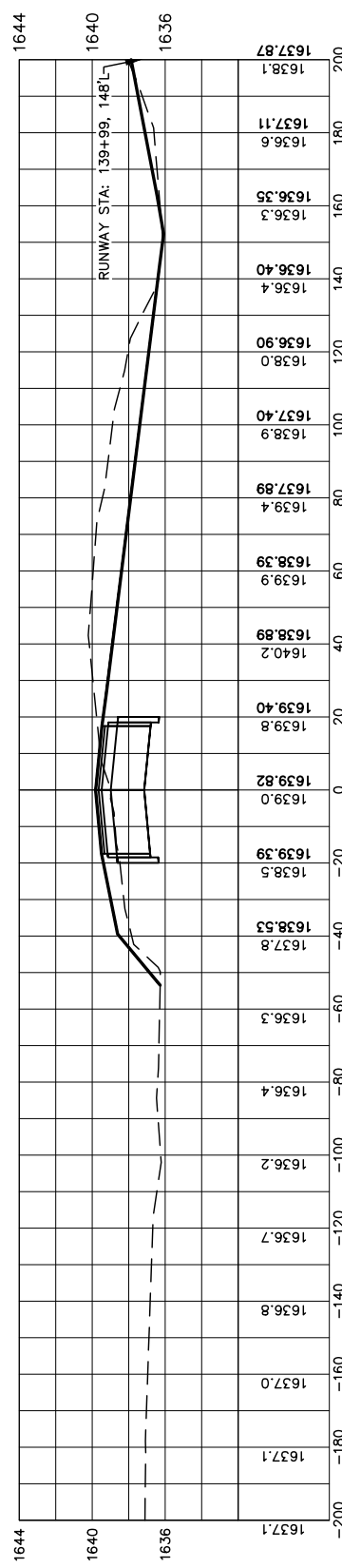
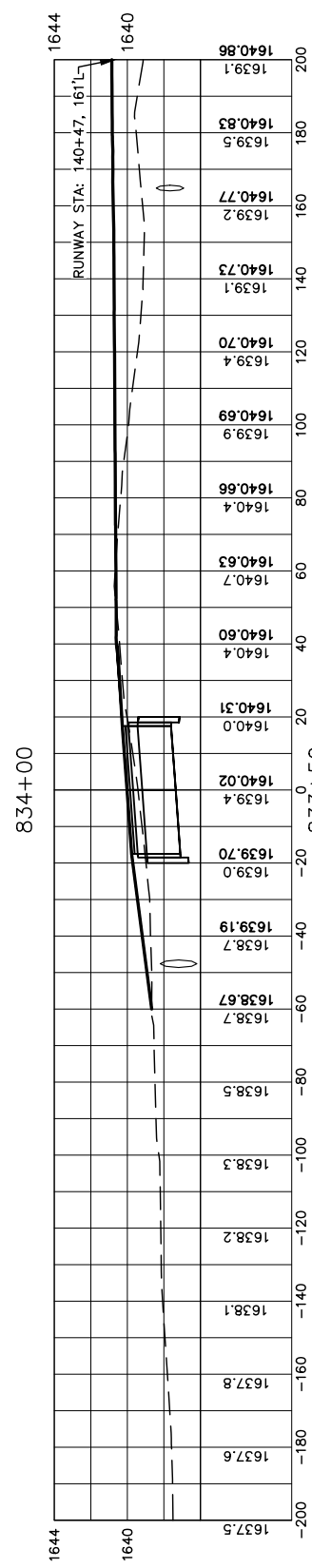


**PARALLEL TAXIWAY
CROSS SECTIONS**

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: TW-XS(6)
Date: 8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



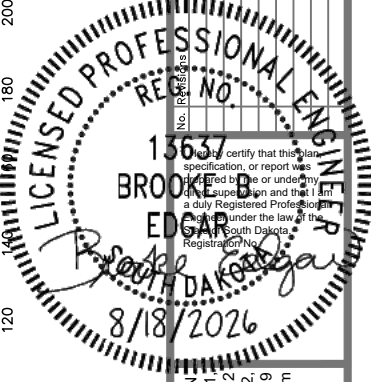
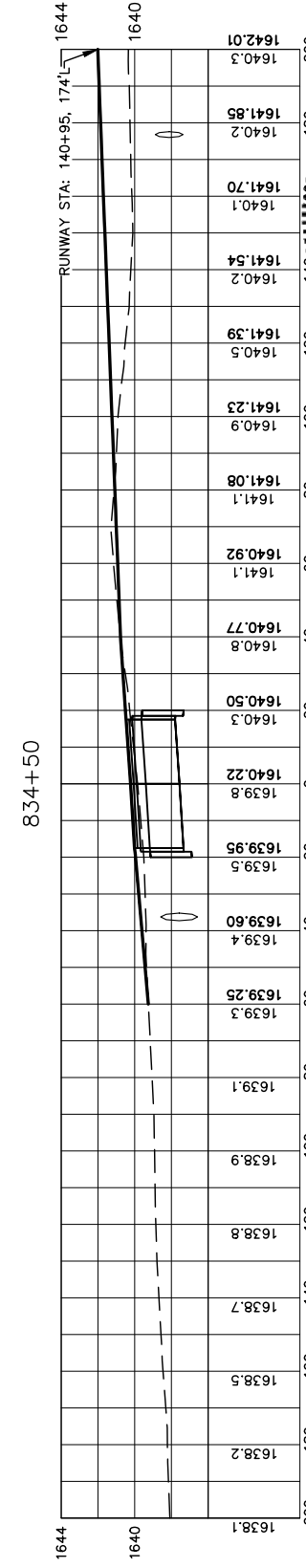
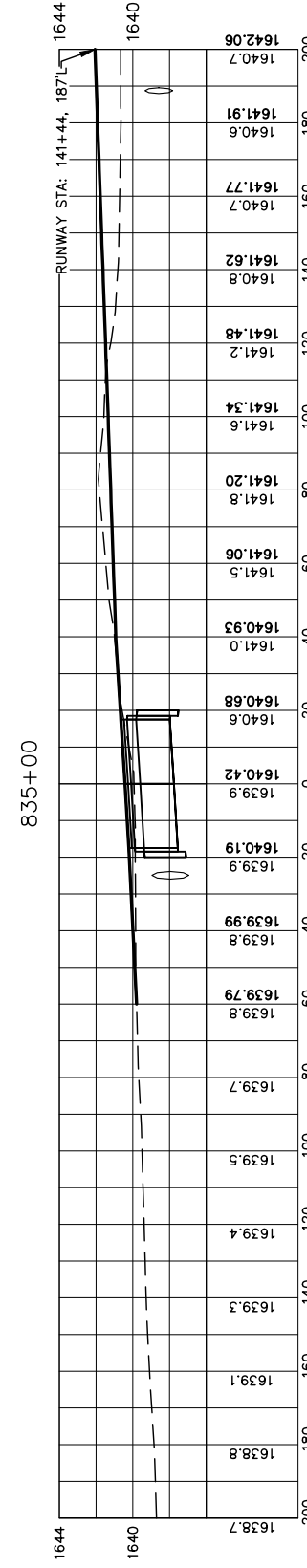
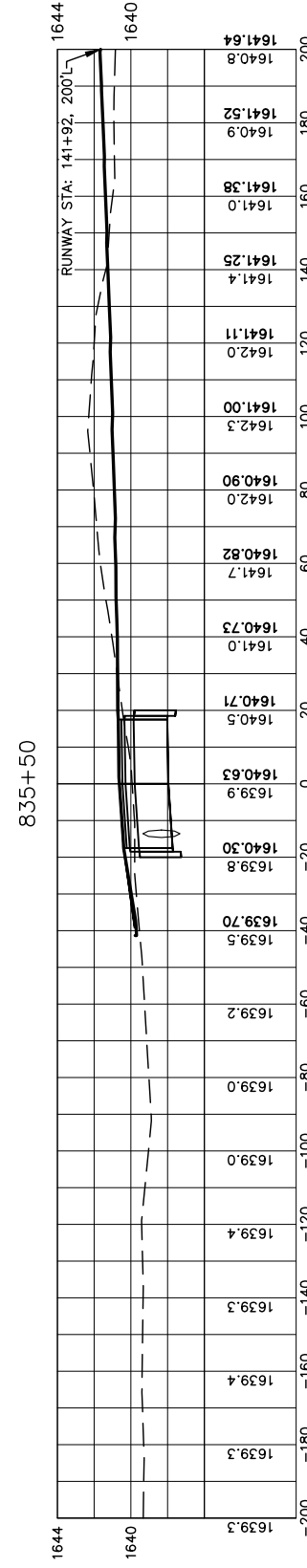
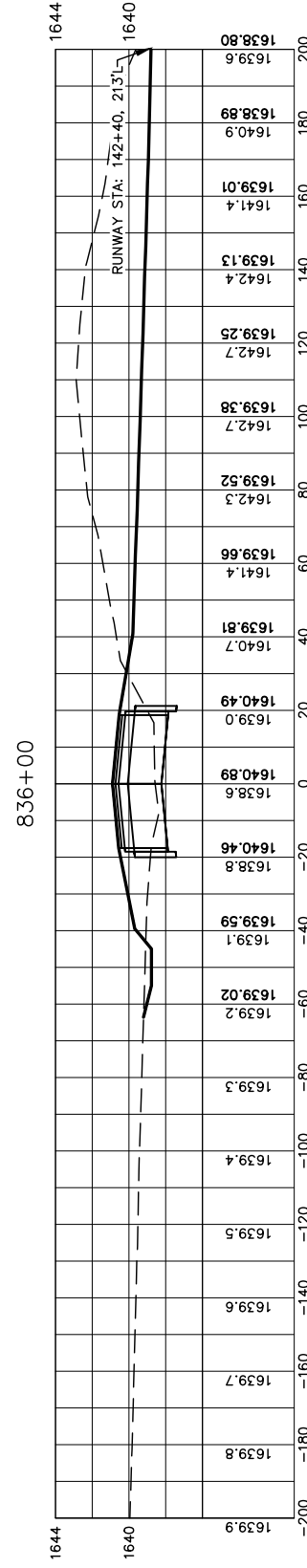
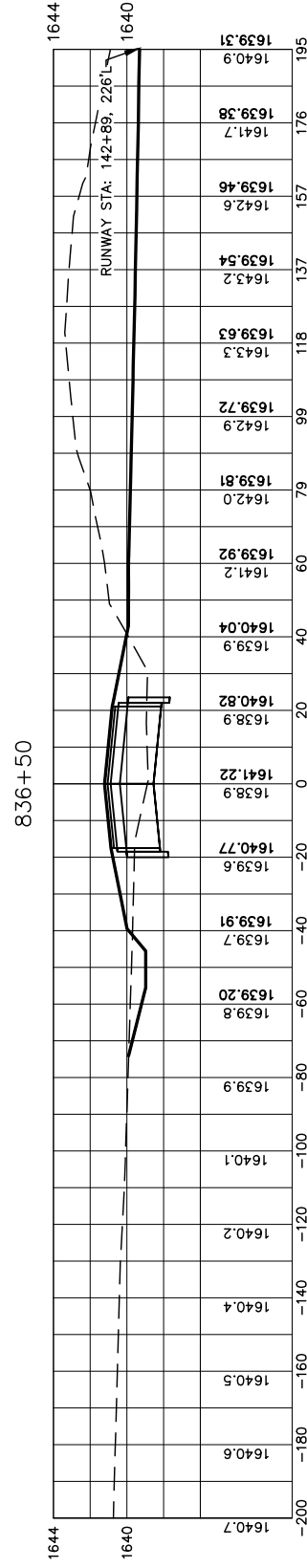
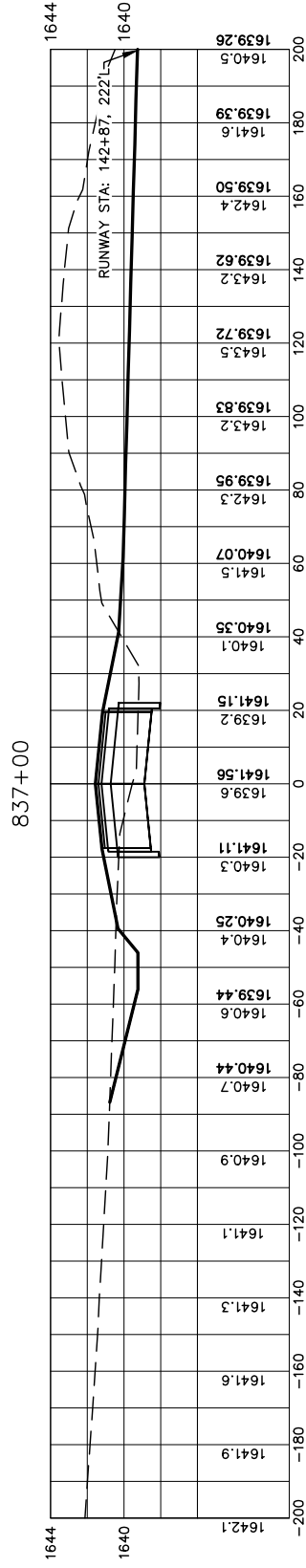
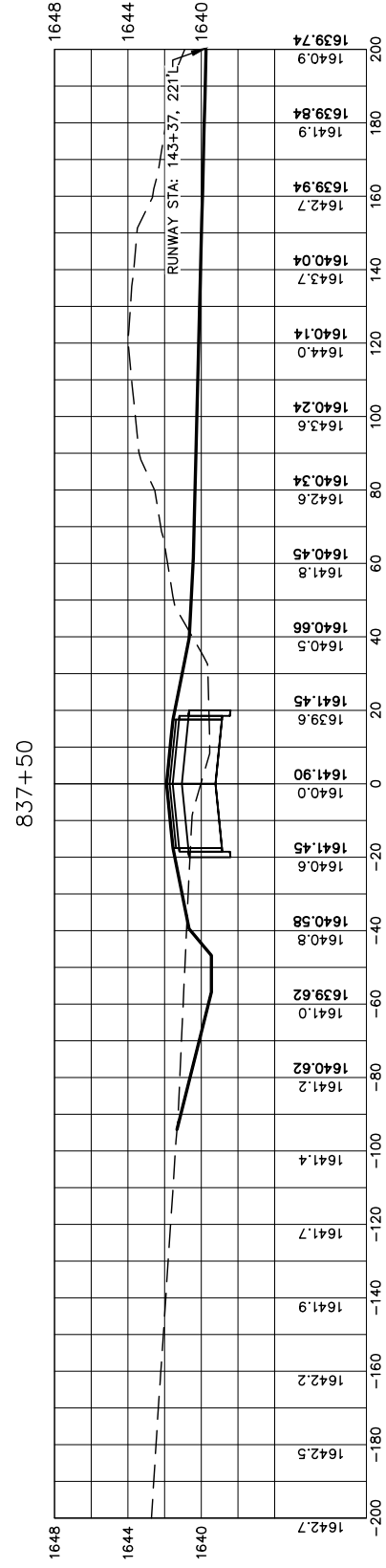
416 Production St N
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212,
Fax: 605.225.3189
Email: bobb@helmsengineering.com



**PARALLEL TAXIWAY
CROSS SECTIONS**

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-MODEL
VP. No:	TW-XS(9)
Date:	8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



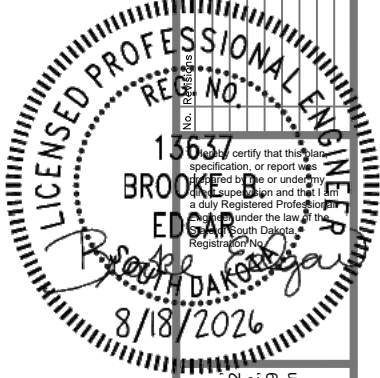
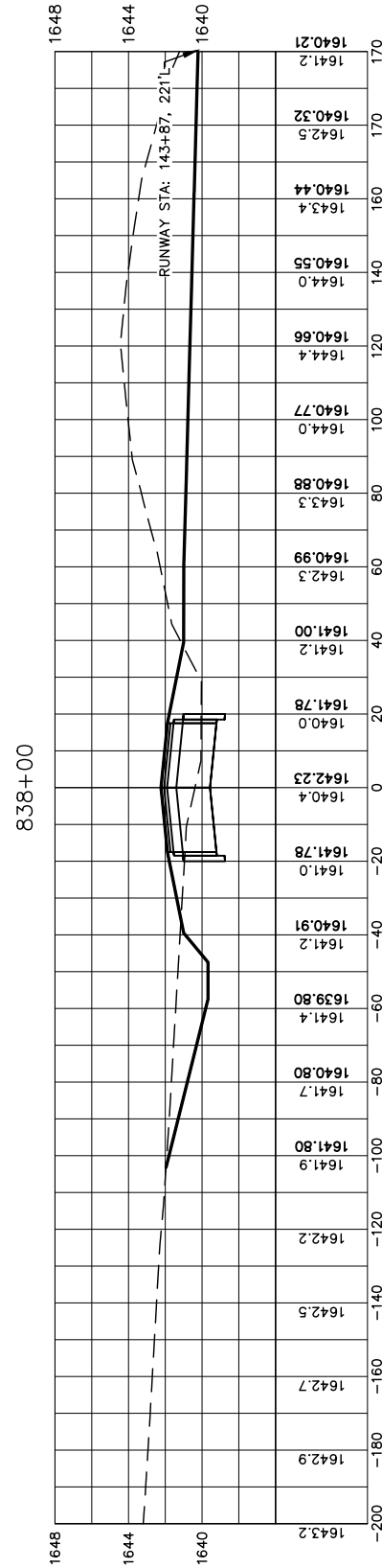
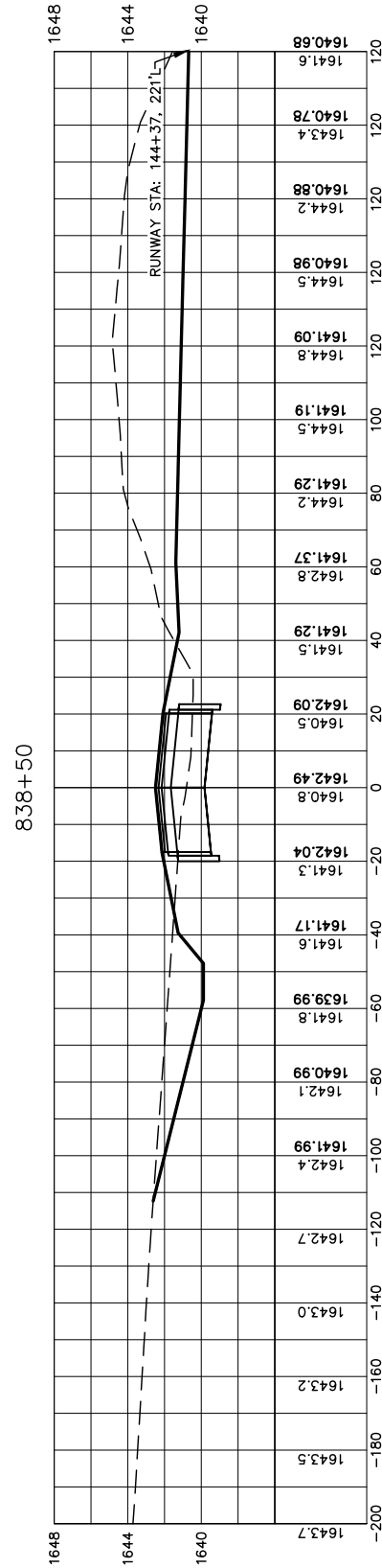
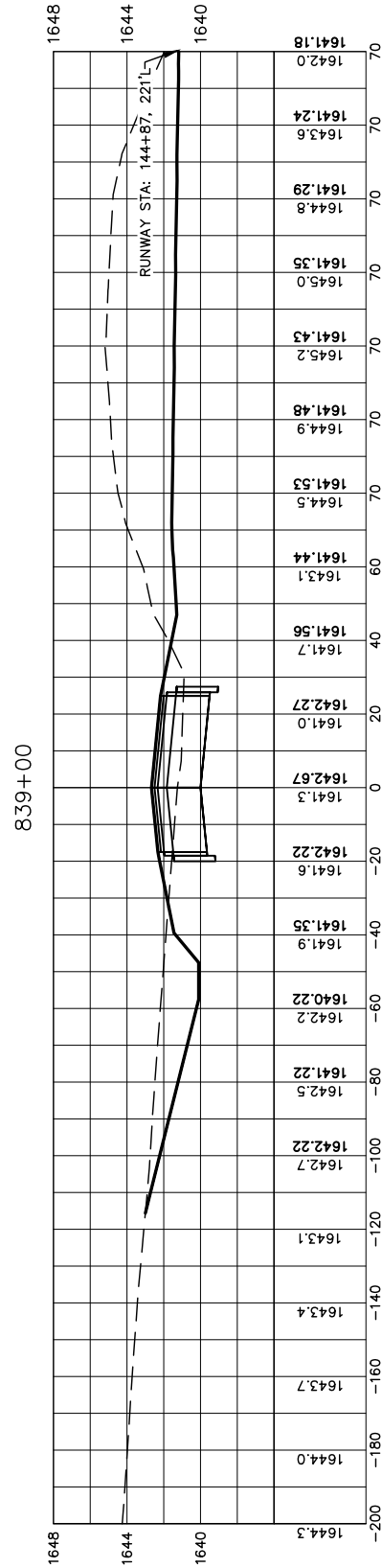
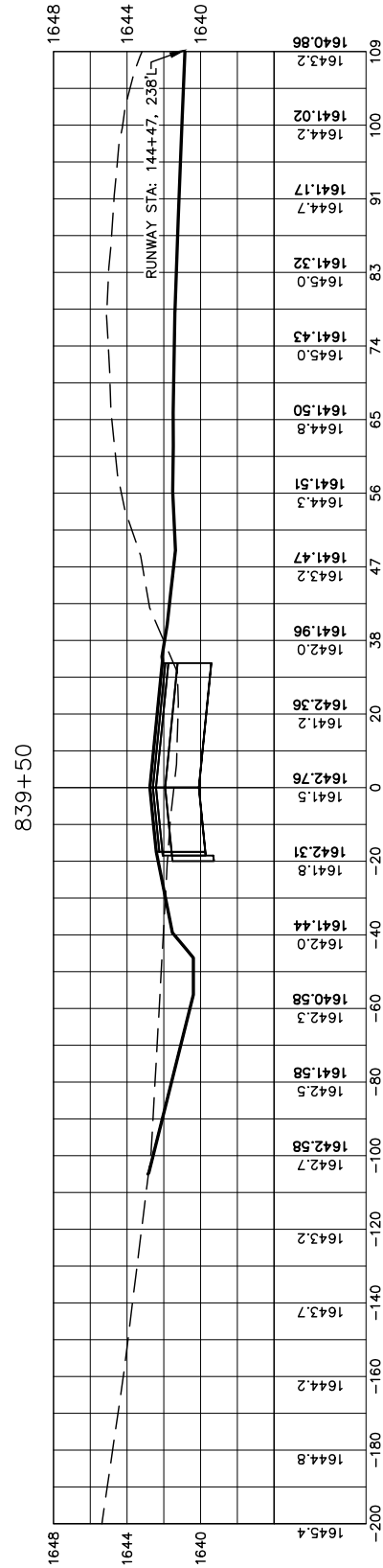
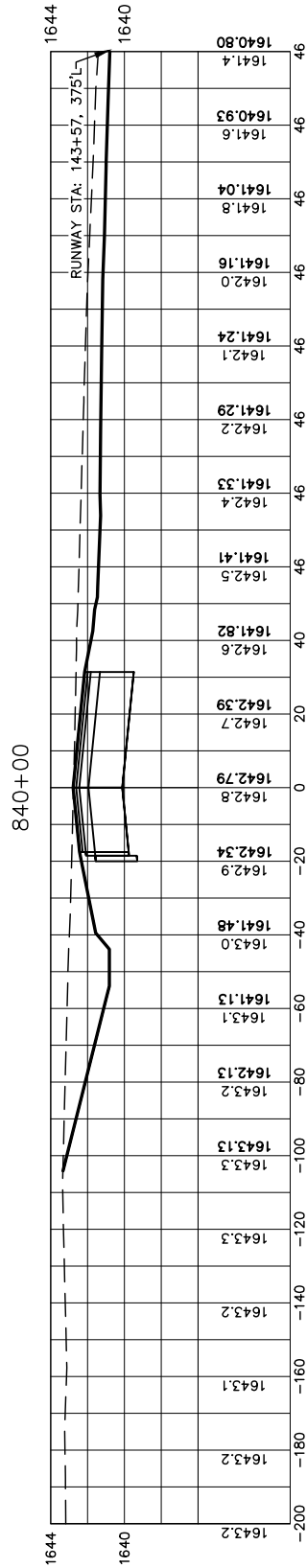
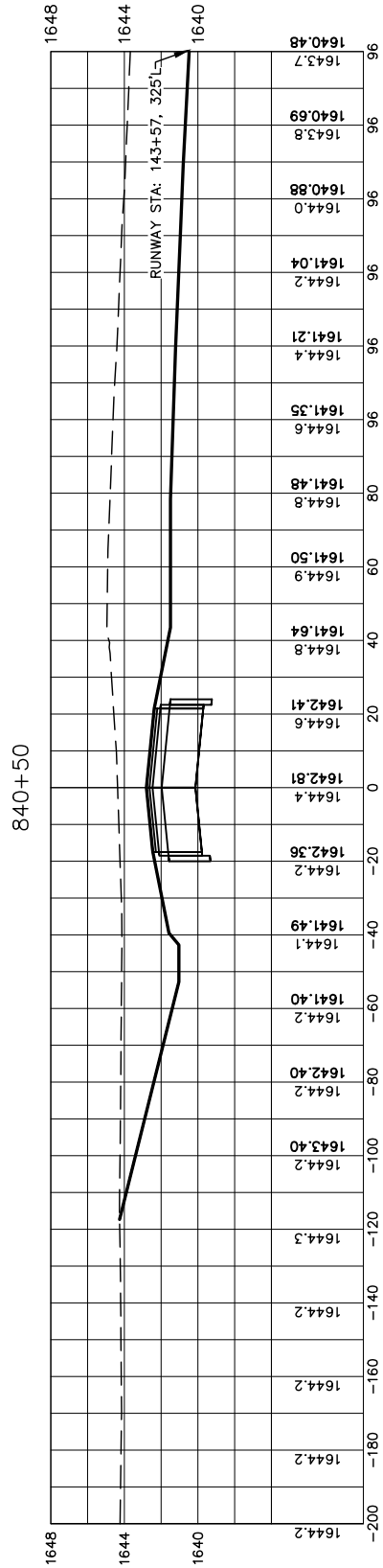
416 Production St N
P.O. Box 111,
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



**PARALLEL TAXIWAY
CROSS SECTIONS**

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-MOD
VP. No:	TW-XS(1
Date:	8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



PARALLEL TAXIWAY
CROSS SECTIONS

RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

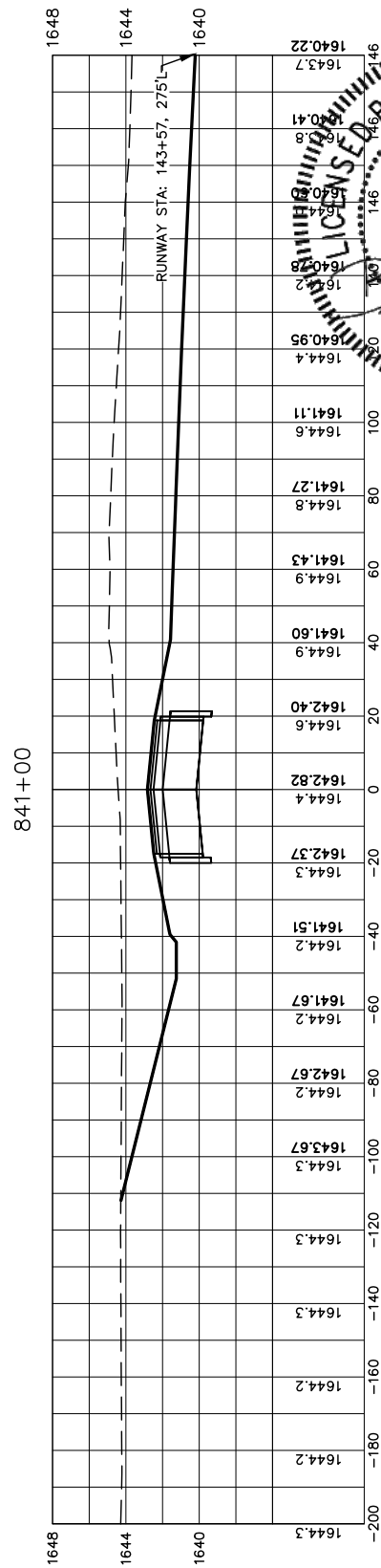
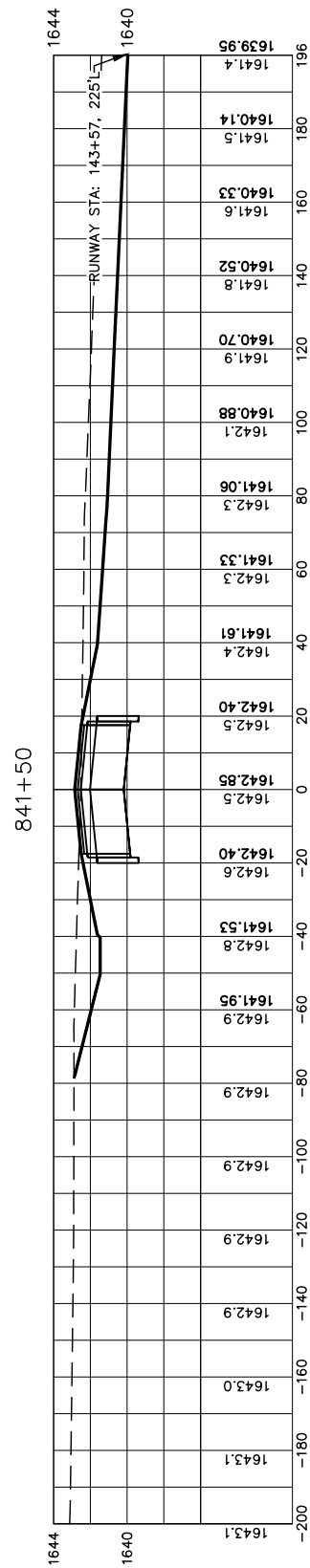
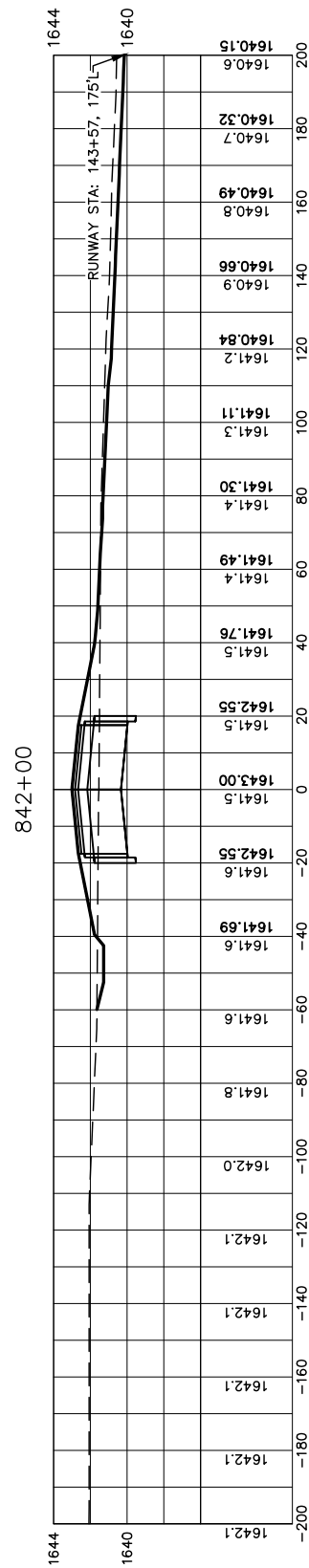
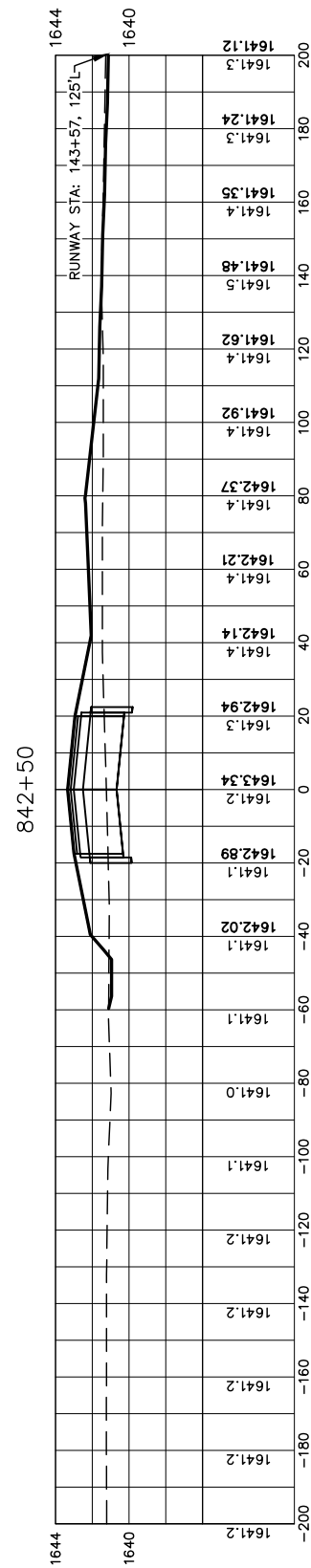
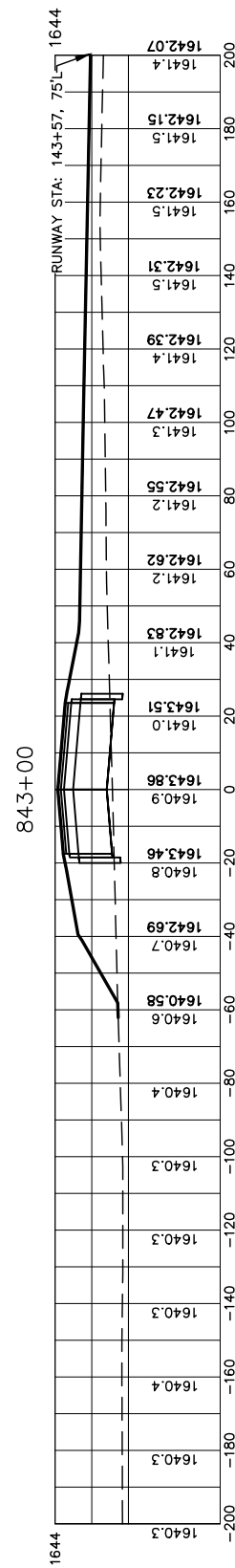
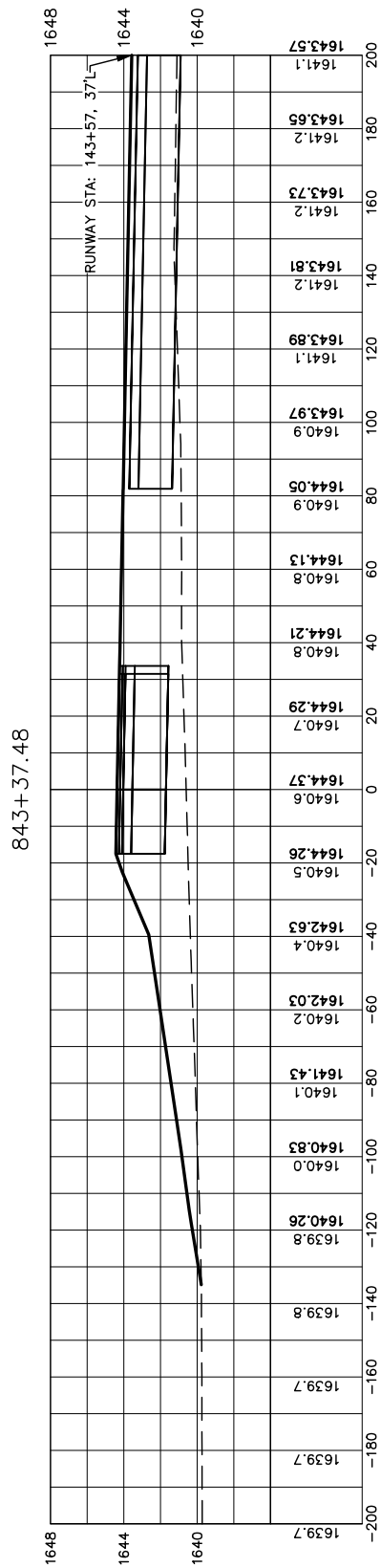
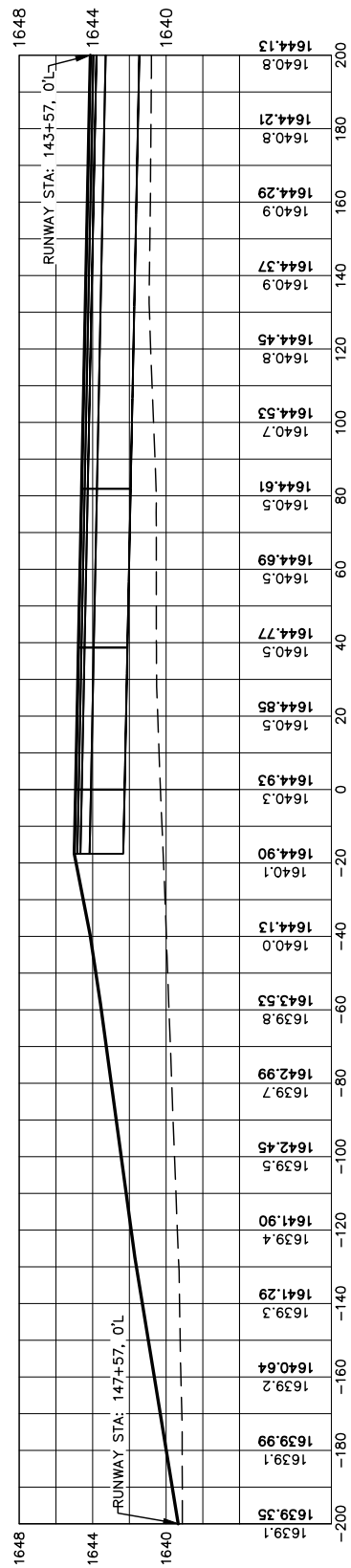
Drawn By: TMO
Chk' By: BBE
Proj. No: A-9873
Dwg. No: 9873-MODEL
VP. No: TW-XS(11)
Date: 8/18/26

416 Production SIN
P.O. Box 111
Aberdeen, S.D. 57402
Phone: 605.225.1212
Fax: 605.225.3189
Email: bobb@helmsengineering.com



Date	
No. Registered	
Registration No.	
State	
City	
County	
Zip	
Phone	
Fax	
Email	

843+74.98

[illegible]

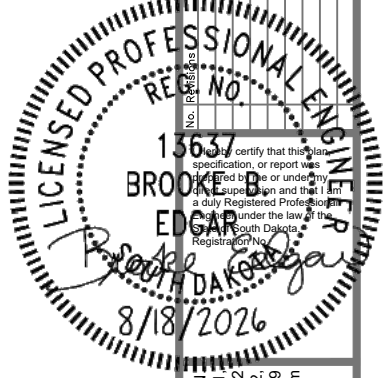
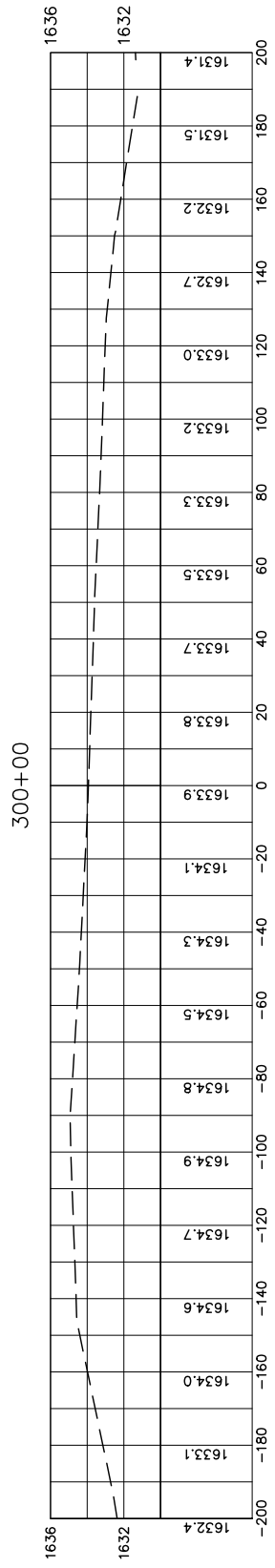
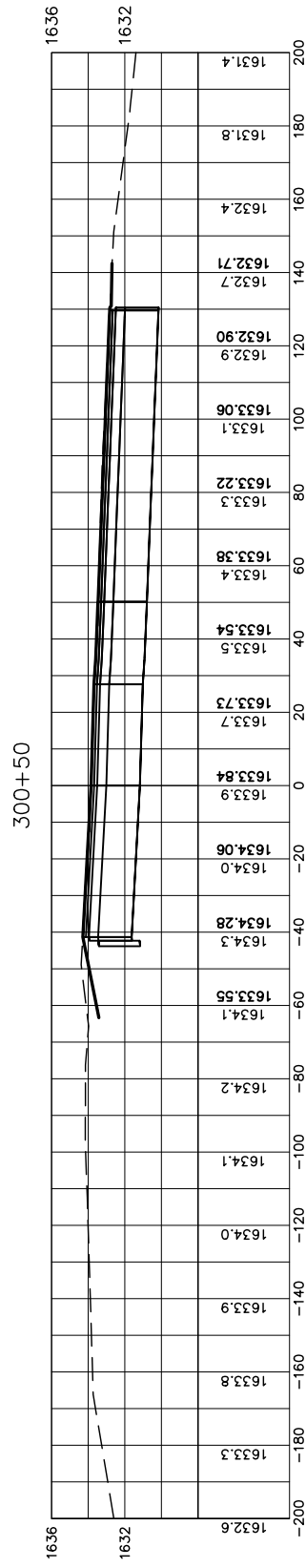
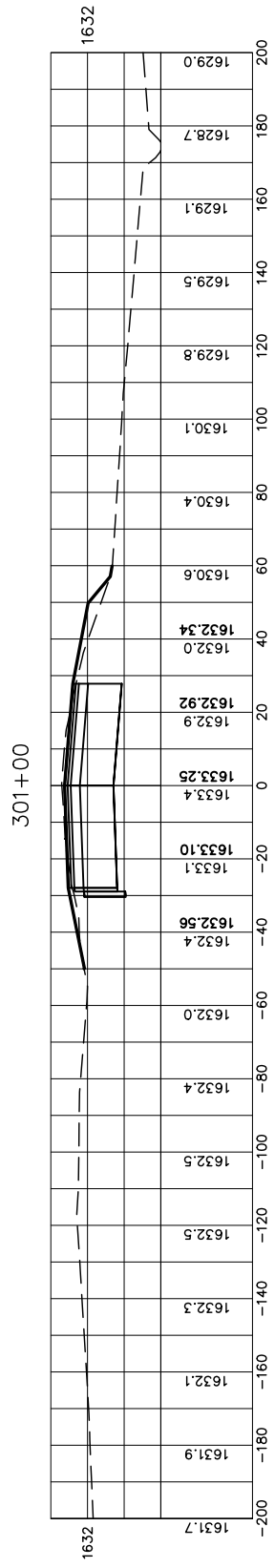
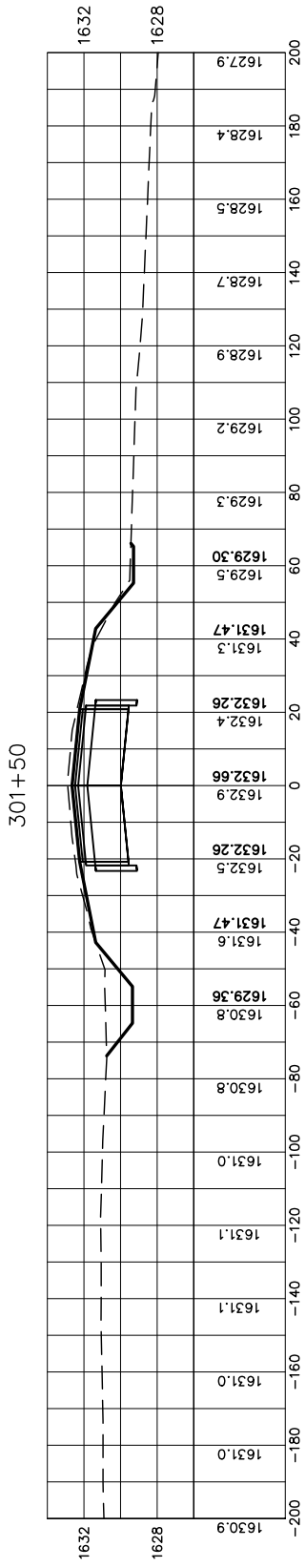
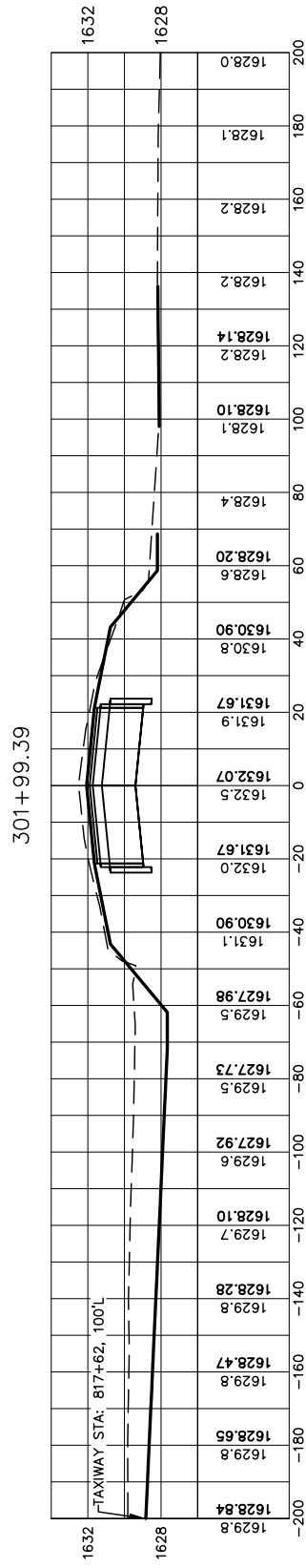
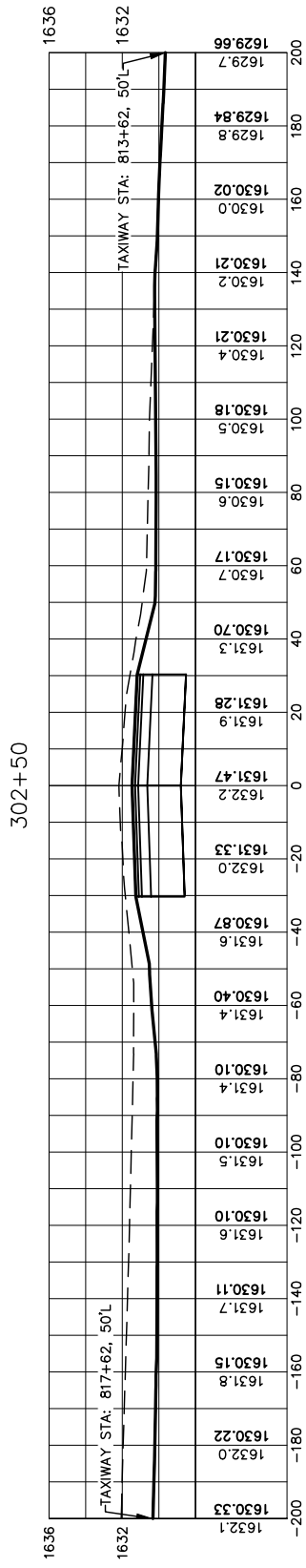
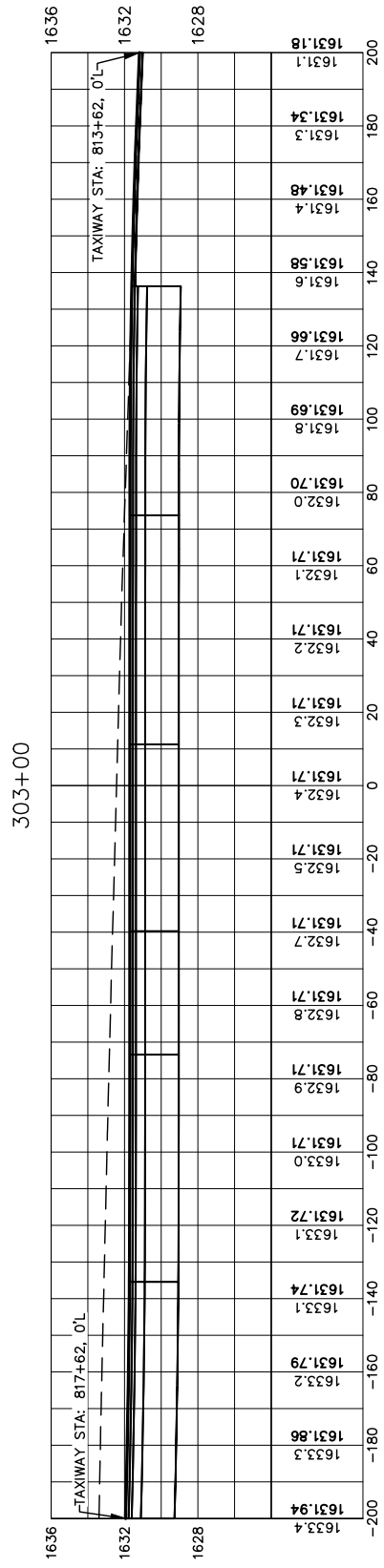
416 Production St N
P.O. Box 111,
Aberdeen, S.D. 57402
Phone: 605.225.1212,
Fax: 605.225.3189
Email: bobb@helmsengineering.com



**PARALLEL TAXIWAY
CROSS SECTIONS**

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-MODEL
VP. No:	TW-XS(12)
Date:	8/18/26

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



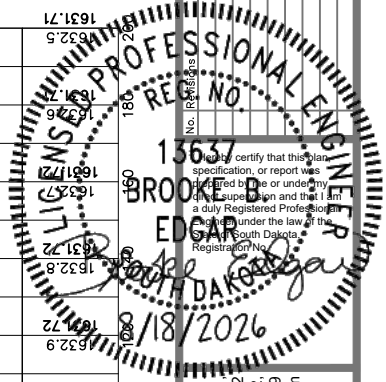
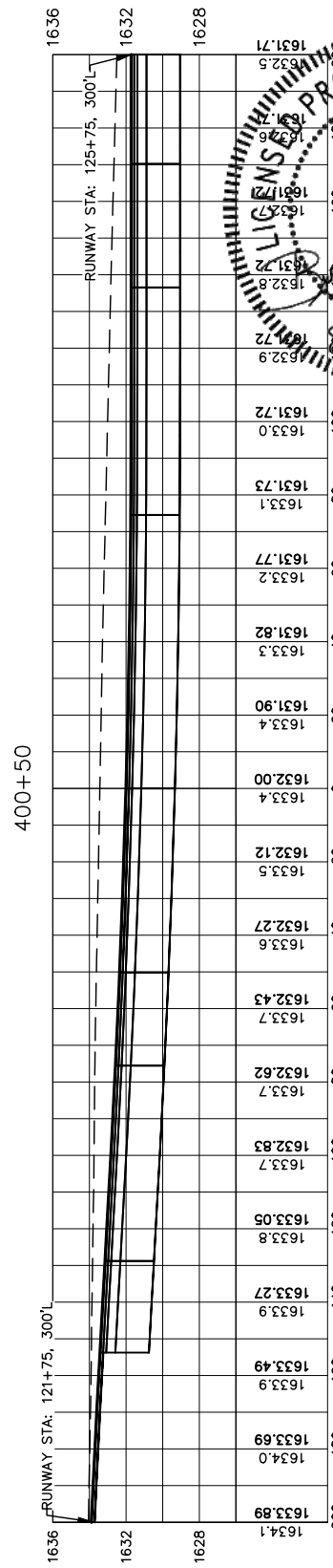
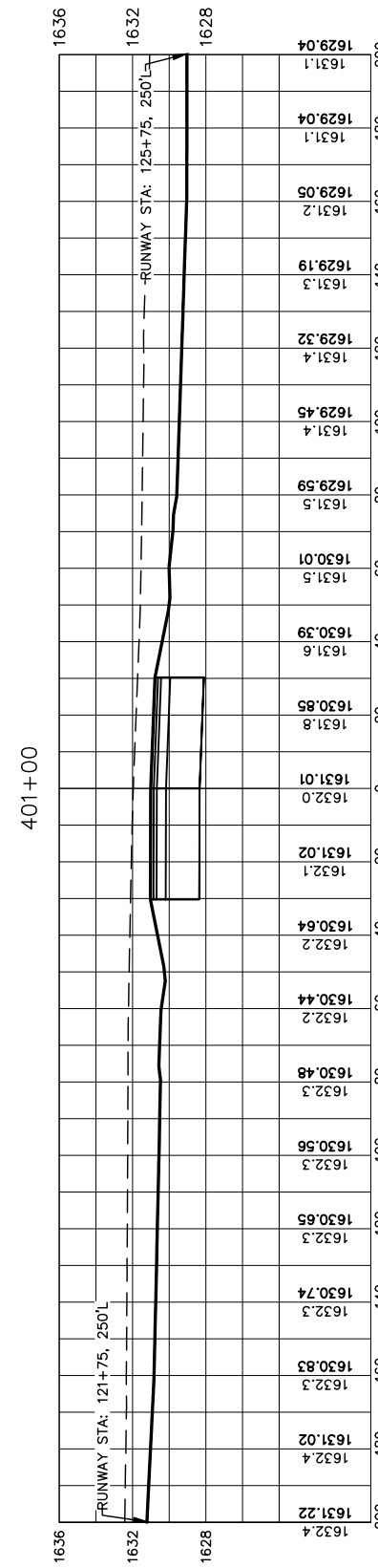
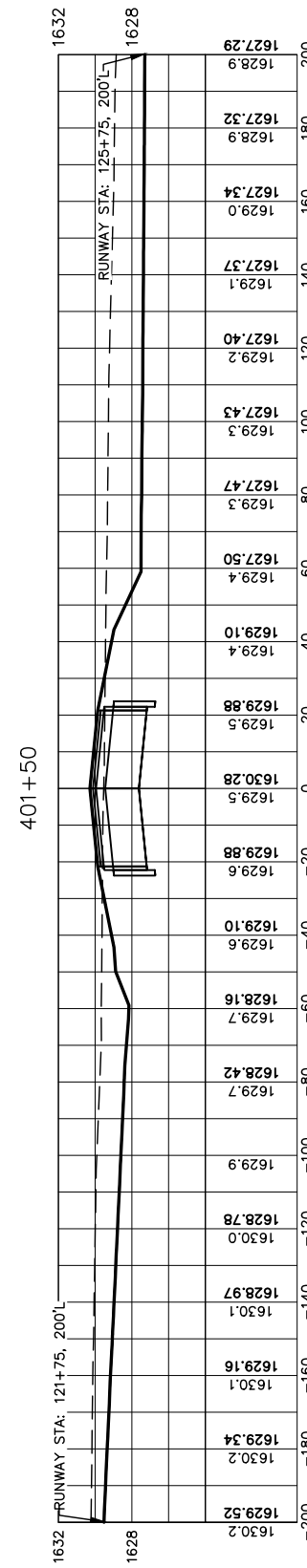
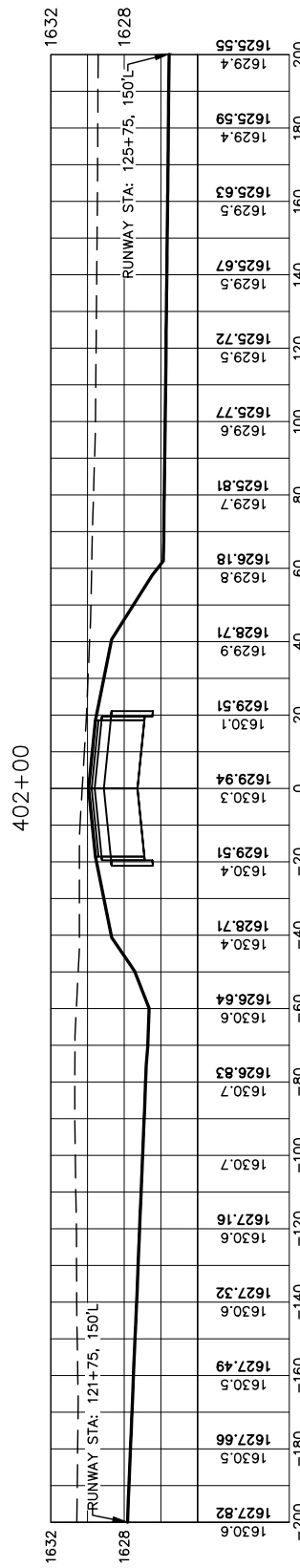
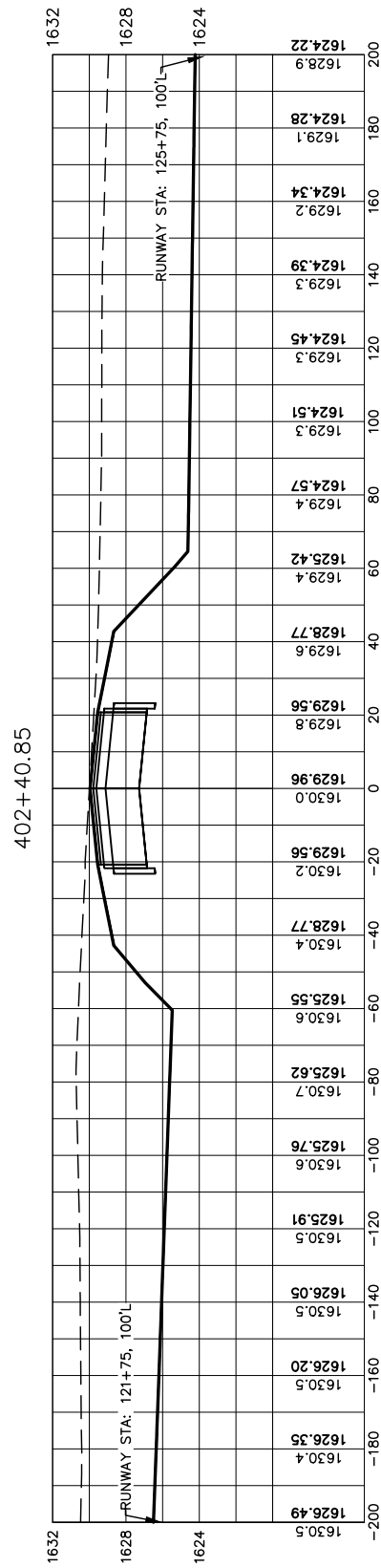
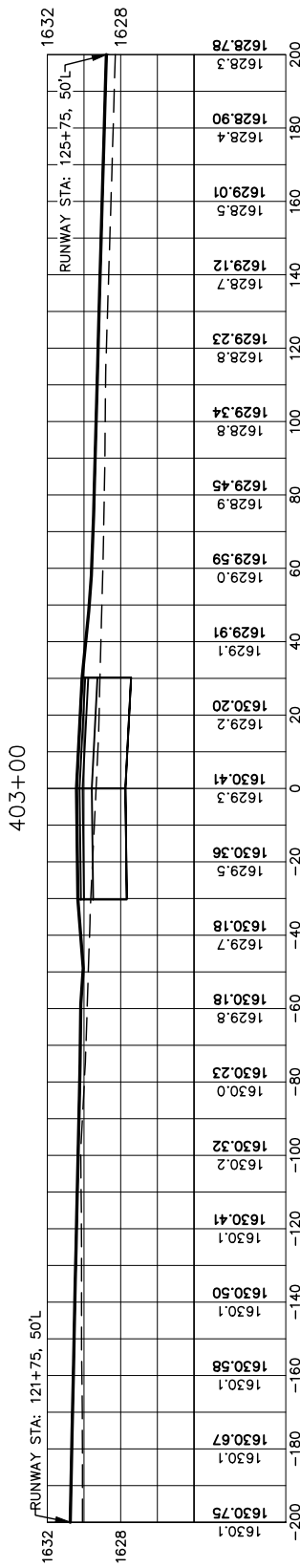
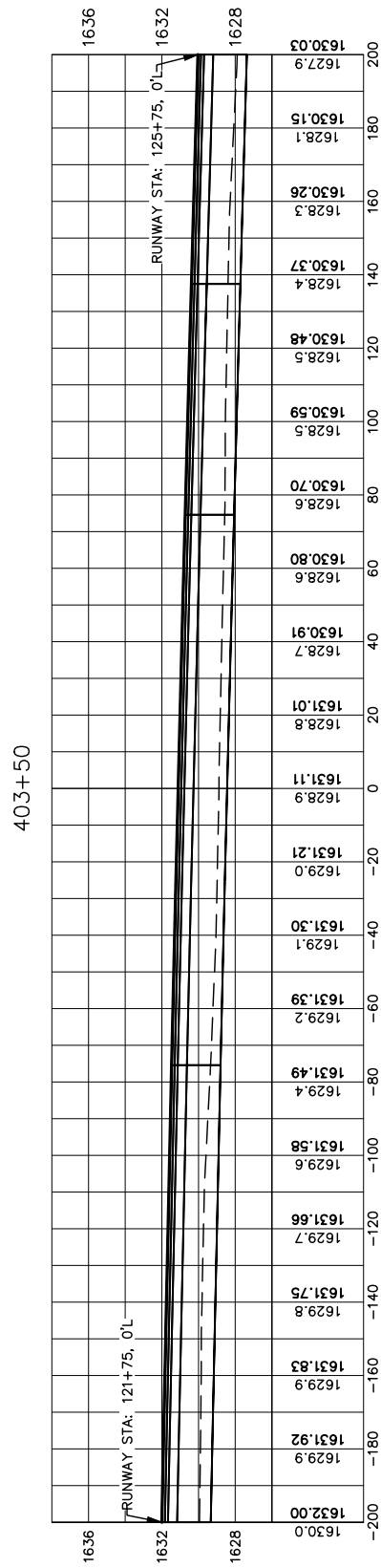
416 Production St N
P.O. Box 111,
Aberdeen, S.D. 57402
Phone: 605.225.1212,
Fax: 605.225.3189
Email: bobb@helmsengineering.com



**APRON TAXIWAY
CROSS SECTIONS**

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-987
Dwg. No:	9873-MC
VP. No:	AT-XS
Date:	8/18/2

SCALE 11X17
1"=50' HORIZ.
1"=4' VERT.



416 Production St N
P.O. Box 111
Aberdeen, S.D. 57401
Phone: 605.225.1212
Fax: 605.225.3188
Email: bobb@helmsengineering.com



CIVIL ENGINEERS & LAND SURVEYORS

CENTER TAXIWAY CROSS SECTIONS

**RUNWAY 11/29 & TAXIWAY CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA**

Drawn By:	TMO
Chk' By:	BBE
Proj. No:	A-9873
Dwg. No:	9873-MODEL
VP. No:	CT-XS(2)
Date:	8/18/26

GENERAL NOTES

- COORDINATE CONSTRUCTION ACTIVITIES WITH THE PLANS AND THE CSPP.
- COORDINATE VAULT ACTIVITIES WITH OWNER TO TO DE-ENERGIZE PANELS AND/OR CIRCUITS AS NECESSARY TO PERFORM THE WORK SAFELY.
- COORDINATE REMOVAL & SALVAGING OF ITEMS WITH THE ENGINEER & OWNER.
- SEE CIVIL PLANS FOR ADDITIONAL REMOVALS & INSTALLATION.
- COORDINATE THE INSTALLATION OF ALL BELOW-GRADE AND CAST-IN-PLACE CIRCUITRY WITH OTHER TRADES.
- CONTRACTOR SHALL RETURN ALL DISTURBED SURFACES AND SOILS TO ORIGINAL OR PRE-CONSTRUCTION CONDITION UNLESS SPECIFICALLY INDICATED OTHERWISE.
- CONTRACTOR SHALL LOCATE OR SHALL HAVE THE SERVING UTILITIES LOCATE ALL UNDERGROUND CABLE, CONDUITS, PIPING, UTILITIES, ETC., PRIOR TO COMMENCING CONSTRUCTION (UNDERGROUND EXCAVATION). CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGES DUE TO CONSTRUCTION ACTIVITIES.
- EXISTING AND/OR NEW UNDERGROUND CONDUITS, DUCT BANK, AND OTHER CIRCUITRY SHOWN ON THE PLANS ARE INTENDED TO BE DIAGRAMMATIC IN NATURE. CONTRACTOR IS RESPONSIBLE FOR FIELD CONFIRMING ALL CIRCUITRY AND ROUTING.
- COORDINATE ELECTRICAL WORK WITH OTHER TRADES.
- PROVIDE PANEL SCHEDULES FOR ALL NEW AND/OR MODIFIED PANELS. SCHEDULES SHALL BE TYPED.
- FINAL CONNECTIONS TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS, AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
- ALL EMPTY RACEWAY SYSTEMS SHALL HAVE A PULLWIRE OR EQUAL AND SHALL BE IDENTIFIED AT ALL JUNCTION, PULL, AND TERMINATION POINTS, USING PERMANENT METALLIC TAGS. TAG SHALL INDICATE INTENDED USE OF CONDUIT, ORIGINATION, AND TERMINATION POINTS OF EACH INDIVIDUAL CONDUIT.
- WORK, MATERIALS, AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE, AND NATIONAL CODES AND ORDINANCES.
- VERIFY THAT EXACT LOCATION OF EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
- SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. IF TESTS SHOW THAT WORK IS DEFECTIVE, CONTRACTOR SHALL MAKE CORRECTIONS NECESSARY AT NO COST TO OWNER
- SYSTEMS SHALL BE COMPLETE, OPERABLE, AND READY FOR CONTINUOUS OPERATION. LIGHTS, SWITCHES, RECEPTACLES, MOTORS, PUMPS, METERS, ETC. SHALL BE CONNECTED AND OPERABLE.
- SCHEMATICS ARE DIAGRAMMATIC AND INTENDED TO CONVEY THE ENGINEER'S DESIGN PHILOSOPHY. CONTRACTOR SHALL PROVIDE COMPLETE DESIGN OF THE INDICATED EQUIPMENT AND SUBMIT TO THE ENGINEER FOR REVIEW.
- MECHANICAL WORK SHALL BE PERFORMED ONLY BY INDIVIDUALS LICENSED AND TRAINED TO DO THE TYPE OF WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL APPLICABLE PERMITS AND FEES. ANY PROBLEMS OR ISSUES ARISING FROM CONTRACTOR'S FAILURE TO OBTAIN PERMITS AND/OR FEES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO RESOLVE.
- EQUIPMENT, WHICH IS REQUIRED BY CODE OR IS SPECIFIED TO HAVE SIMILAR LISTING, SHALL BE INSTALLED AS REQUIRED TO MEET THAT LISTING.
- FINAL LOCATIONS OF EQUIPMENT MAY DIFFER SLIGHTLY FROM THOSE SHOWN ON THE PLANS. COORDINATE EXACT LOCATION OF EQUIPMENT WITH EQUIPMENT SUPPLIER, STRUCTURAL MEMBERS, AND OTHER TRADES BEFORE ROUGH IN AND ADJUST ACCORDINGLY.
- THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR COORDINATING THE WORK WITH OTHER TRADES TO AVOID CONFLICTS IN SPACE REQUIREMENTS, CLEARANCE, ETC. PROBLEMS ARISING DUE TO LACK OF COORDINATION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RESOLVE
- COORDINATE UTILITY WORK WITH LOCAL UTILITY, OWNER, AND OTHER CONTRACTORS TO MINIMIZE DISRUPTION AND DOWNTIME. ANY AND ALL CHARGES ASSESSED BY THE UTILITY TO ACCOMMODATE THE REQUIREMENTS OF THIS PROJECT ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. VERIFY ALL CHARGES WITH UTILITY BEFORE SUBMITTING BID.
- PROVIDE LABELING OF ALL ITEMS (I.E. HVAC UNITS, FANS, ETC.) TO IDENTIFY THEM BY NAME AND/OR FUNCTION. THESE LABELS SHALL BE ENGRAVED, PLASTIC-LAMINATED LABELS AS FOLLOW: ENGRAVING STOCK, MELAMINE PLASTIC LAMINATE 1/16" MINIMUM THICKNESS. ENGRAVED LEGEND IN BLACK LETTERS ON WHITE FACE. LABELS SHALL BE PROPERLY SECURED TO ENCLOSURES UTILIZING GLUE OR SCREWS.
- MANUFACTURERS WHOSE PRODUCT IS NOT SPECIFIED OR SPECIFICALLY LISTED ON THE PLANS OR IN THE SPECIFICATIONS ARE ALLOWED TO SUBMIT INFORMATION ON A PRODUCT THAT THEY WOULD LIKE TO BE CONSIDERED AS AN EQUAL TO THOSE SPECIFIED OR LISTED. BY SUBMITTING THIS INFORMATION FOR CONSIDERATION, THE PRODUCT REPRESENTATIVE IS INDICATING THAT THE PRODUCT BEING PRESENTED FOR CONSIDERATION EQUALS OR EXCEEDS THE SPECIFIED PRODUCT IN QUALITY PERFORMANCE AND OPERATING PARAMETERS. THE PROCEDURE FOR THIS SUBMITTAL IS LISTED BELOW.
- MARKUP PROCEDURE: DURING CONSTRUCTION, MAINTAIN A SET OF RED LINED PRINTS OF CONTRACT DRAWINGS AND SHOP DRAWINGS FOR PROJECT RECORD DOCUMENT PURPOSES. MARK THESE DRAWINGS TO SHOW THE ACTUAL INSTALLATION WHERE THE INSTALLATION VARIES FROM THE INSTALLATION SHOWN ORIGINALLY. GIVE PARTICULAR ATTENTION TO INFORMATION ON CONCEALED ELEMENTS THAT WOULD BE DIFFICULT TO IDENTIFY OR MEASURE AND RECORD LATER.
- AT COMPLETION OF PROJECT, PROVIDE TWO (2) OPERATION AND MAINTENANCE MANUALS. EACH MANUAL SHALL CONSIST OF ONE (1) 3-RING BINDER & ONE (1) USB DRIVE IN PDF FORMAT WITH COPIES OF CUT SHEETS OF ALL EQUIPMENT INSTALLED AS PART OF THIS PROJECT. PROVIDE A TYPED LABEL ON FRONT OF MANUAL IDENTIFYING PROJECT NAME, DATE OF PROJECT, ENGINEER'S NAME, CONTRACTOR'S NAME, PHONE NUMBER AND ADDRESS. PROVIDE AN INDEX SHEET AT FRONT OF MANUAL AND INDEX TABS.
- ALL WORK SHALL BE TESTED, AS REQUIRED, BY CODE.
- THE CONTRACTOR SHALL PERFORM ALL WORK AND FURNISH ALL MATERIALS AS INDICATED IN THE MECHANICAL PLANS AND SPECIFICATIONS AS NECESSARY FOR THE SUCCESSFUL COMPLETION OF THIS PROJECT.

INSTALLATION NOTES

- FIELD VERIFY CIRCUIT LOCATIONS & EXISTING STRUCTURES.
- REFER TO ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION.
- LOW VOLTAGE CABLES SHALL NOT BE INSTALLED IN HIGH VOLTAGE MHs, CANS, JUNCTION BOXES, CONDUITS, ETC.
- ALL CONDUIT UNDER PAVEMENT SHALL BE SCH. 80 PVC OR SDR 11 HDPE.
- ALL SPLICES SHALL BE LOCATED IN A JUNCTION STRUCTURE, EXCEPT COUNTERPOISE.
- ALL SPLICES & CONDUIT CONNECTIONS & FITTINGS SHALL BE CONSIDERED INCIDENTAL TO CORRESPONDING EQUIPMENT.
- PROVIDE MINIMUM 3 FEET OF CABLE SLACK IN EACH JUNCTION STRUCTURE. SLACK SHALL BE INCIDENTAL TO ITS RESPECTIVE WIRE BID ITEM.
- MARK PROPOSED CONDUIT & CABLE WITH CABLE MARKERS.
- ALL CONCRETE ASSOCIATED WITH LIGHTING AND ELECTRICAL WORK SHALL BE SDDOT 462 CLASS M.

REMOVE & SALVAGE

- ITEMS IDENTIFIED SHALL BE REMOVED & SALVAGED TO THE OWNER IN AN ORGANIZED & CLEAN MANNER. THE CONTRACTOR SHALL PLACE THE MATERIALS ON AIRPORT PROPERTY AT A LOCATION DETERMINED BY THE OWNER.

CONTRACTOR SAFETY REQUIREMENTS

- THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING ALL LOCAL, STATE, AND FEDERAL RULES AND REGULATIONS REGARDING SITE SAFETY. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SITE SAFETY FROM THE ISSUANCE FOR THE NOTICE TO PROCEED UNTIL FINAL ACCEPTANCE. THE AIRPORT SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO FOLLOW ALL APPLICABLE RULES AND REGULATIONS.

CONSTRUCTION METHODS

- ALL CONSTRUCTION METHODS, PROCEDURES, AND MATERIALS PROPOSED FOR THE PROJECT SHALL COMPLY WITH THE PLANS AND SPECIFICATIONS. THE ENGINEER, PRIOR TO CONSTRUCTION, SHALL APPROVE ANY ALTERNATE CONSTRUCTION METHOD PROPOSED BY THE CONTRACTOR.

AIRFIELD LIGHTING & CONTROL VAULT

- EMT CONDUIT & STAMPED STEEL CONDUITS MAY BE USED IN VAULT INTERIOR. ALL EXTERIOR ABOVE GROUND CONDUITS SHALL BE RIGID METALLIC CONDUIT, GALVANIZED WITH CAST BOXES & LONG BENDS (LB).
- CONDUIT ENTRIES THRU FOOTING, WALLS, & FLOORS INSIDE OF THE VAULT BUILDING, TERMINATE IN NEMA ENCLOSURES, IN PULLBOXES OR WIREWAYS. SIZE PER PLAN.
- ALL INSTALLED EQUIPMENT SHALL BE CLEARLY MARKED & LABELED ON THE OUTSIDE OF THE CASINGS.
- ITEMS IDENTIFIED AS "FUTURE CCTs" SHALL BE PROVIDED WITH THE APPROPRIATE SIZE CONDUIT/STUBOUT THROUGH THE VAULT WALL & CONNECTED TO THE WIREWAY ON THE INTERIOR OF THE VAULT. ALL CONDUIT/STUBOUTS IDENTIFIED AS "FUTURE CCTs" SHALL BE TERMINATED, CAPPED & WATERTIGHT SEALED ON THE EXTERIOR OF THE VAULT TO ACCOMMODATE FUTURE CONDUIT CONNECTIONS. ALL STUBOUTS SHALL EXTEND A MINIMUM OF 3 FEET BEYOND THE VAULT BUILDING GROUNDING WIRE (COUNTERPOISE) OR 5 FEET BEYOND THE BUILDING FOOTPRINT, WHICHEVER IS GREATER.
- ALL CONDUITS SHALL BE INSTALL TO 18" BELOW FINISHED GRADE & CAPPED (DON'T GLUE).
- ALL EQUIPMENT SHALL BE INSTALLED PER NEC & NFPA REQUIREMENTS.
- LAYOUT IS DIAGRAMMATIC IN NATURE & DOES NOT SHOW ALL ITEMS REQUIRED.
- PROVIDE SEPARATE WIREWAY FOR LOW VOLTAGE, HIGH VOLTAGE, CONDUCTORS & COMMUNICATIONS.

BUY AMERICAN BUILD AMERICAN ACT (BABA) NOTE

- MAKE AND MODELS OF EQUIPMENT, PARTS, SUPPLIES, MATERIALS, ETC. INDICATED ON THE PLANS AND SPECIFICATIONS ARE TO SOLELY INDICATE PERFORMANCE REQUIREMENTS AND NOT ALL HAVE BEEN INVESTIGATED TO MEET THE BUY AMERICAN/BABA REQUIREMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MEET BUY AMERICAN/BABA REQUIREMENTS AS INDICATED IN THE BIDDING AND CONTRACT DOCUMENTS.
- THE PLANS AND SPECIFICATION CALL FOR EQUIPMENT MODELS IN SEVERAL PLACES, BUT THEY ARE CONSIDERED AS A "PERFORMANCE STANDARD", ALTHOUGH IT IS NOT BABA/BUY AMERICAN COMPLIANT. IF THE BIDDER CANNOT FIND A BABA/BUY AMERICAN COMPLIANT SUBSTITUTE, THE BIDDER CAN CHECK THE "THE BIDDER OR OFFEROR HEREBY CERTIFIES IT CANNOT COMPLY WITH THE 100 PERCENT BUY AMERICAN PREFERENCES OF 49 U.S.C § 50101(A) BUT MAY QUALIFY FOR A TYPE 3 WAIVER UNDER 49 U.S.C § 50101(B)" BOX ON THE BUY AMERICAN FORMS AND SUBMIT A WAIVER REQUEST.

INDEX OF SHEETS

SECTION E		
E1	NOTES, PROJECT DESCRIPTION & INDEX OF SHEETS	
E2	LEGEND & ABBREVIATIONS*	
E3	SHEET LAYOUT-LIGHTING REMOVALS	
E4-E10	LIGHTING REMOVALS*	
E11	SHEET LAYOUT-LIGHTING PLAN*	
E12-E27	LIGHTING PLAN*	
E201-E213	LIGHTING DETAILS	
SECTION V		
V1-V9	VAULT PLAN*	
* COLOR PLAN SHEETS		

PROJECT DESCRIPTIONS

• BASE BID

LIGHTING AND ELECTRICAL WORK TO INCLUDE PROVIDING CONDUIT DUCT BANK CROSSINGS TO FACILITATE FUTURE AIRPORT DEVELOPMENT AND CONSTRUCTION PHASES OF WORK. PROJECT AREA IS AS IDENTIFIED IN THE CIVIL PLANS.

• BID ALTERNATE 1

THERE IS NO LIGHTING AND ELECTRICAL WORK ANTICIPATED.

• BID ALTERNATE 2

LIGHTING AND ELECTRICAL WORK TO INCLUDE AIRFIELD ELECTRICAL, LIGHTING, AND CONTROL SYSTEMS REMOVAL AND PROVIDING RUNWAY, TAXIWAY, AND NAVIGATIONAL AID CIRCUITRY AND RACEWAY SYSTEMS, COUNTERPOISE LIGHTNING SYSTEMS, RUNWAY AND TAXIWAY EDGE LIGHTING AND RETROREFLECTIVE MARKERS, UNLIGHTED SIGNS, ABBREVIATED PRECISION APPROACH PATH INDICATORS (PAPI), JUNCTION STRUCTURES, PRIMARY WINDCONE, ELECTRICAL EQUIPMENT RACK(S), AIRFIELD ELECTRICAL, LIGHTING, AND CONTROL VAULT BUILDING INCLUDING ELECTRICAL, LIGHTING, CONTROL, AND HVAC EQUIPMENT, SITE PREPARATION AND RESTORATION, ELECTRICAL SERVICE, FAA FLIGHT CHECK/INSPECTION COORDINATION, AND OTHER RELATED WORK. PROJECT AREA IS IDENTIFIED IN THE CIVIL PLANS.

• BID ALTERNATE 3

LIGHTING AND ELECTRICAL WORK TO INCLUDE PROVIDING TAXIWAY CIRCUITRY AND RACEWAY SYSTEMS, COUNTERPOISE LIGHTING SYSTEMS, TAXIWAY EDGE LIGHTING AND RETROREFLECTIVE MARKERS, UNLIGHTED SIGNS, JUNCTION STRUCTURES, AND OTHER RELATED WORK. PROJECT AREA IS AS IDENTIFIED IN THE CIVIL PLANS.



RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

NOTES, PROJECT DESCRIPTION, &
INDEX OF SHEETS



Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



Sheet

E1

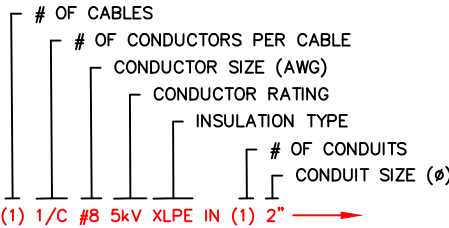
ABBREVIATIONS

AAA	AIRPORT AIRSPACE ANALYSIS	HH	HANDHOLE
AAC	AIRCRAFT APPROACH CATEGORY	HIRL	HIGH INTENSITY RUNWAY LIGHTS
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	HOT	HAND-ON TRAINING
ABND	ABANDON	HV	HIGH VOLTAGE
AC	ADVISORY CIRCULAR	IAP	INSTRUMENT APPROACH PROCEDURES
ADG	AIRPLANE DESIGN GROUP	IATA	INTERNATIONAL AIR TRANSPORT ASSOCIATION
ADO	AIRPORTS DISTRICT OFFICE	ID	INSIDE DIAMETER
AG	AGRICULTURAL	IES	ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA
AGL	ABOVE GROUND LEVEL	IFR	INSTRUMENT FLIGHTS RULES
AHJ	AUTHORITY HAVING JURISDICTION	ILS	INSTRUMENT LANDING SYSTEM
AIP	AIRPORT IMPROVEMENT PROGRAM	IM	INNER MARKER
AL	ALIGNED ACROSS	IMC	INTERMEDIATE METAL CONDUIT
ALP	AIRPORT LAYOUT PLAN	JB	JUNCTION BOX OR JUNCTION CAN
ALS	APPROACH LIGHTING SYSTEM	KV	KILOVOLT
ALSF	APPROACH LIGHTING SYSTEM WITH SEQUENCED FLASHING LIGHTS	L OR LT	LEFT
ALSF-1	ALS WITH SEQUENCED FLASHERS I	LDIN	LEAD-IN LIGHTING SYSTEM
ALSF-2	ALS WITH SEQUENCED FLASHERS II	LF	LINEAR FOOT
AOA	AIRCRAFT OPERATIONS AREA	LFMC	LIQUID TIGHT FLEXIBLE CONDUIT
APRC	APPROACH REFERENCE CODE	LIR	LOW IMPACT RESISTANT
APV	APPROACH PROCEDURE WITH VERTICAL GUIDANCE	LIRL	LOW INTENSITY RUNWAY LIGHTS
ARC	AIRPORT REFERENCE CODE	LNAV	LATERAL NAVIGATION
ARFF	AIRCRAFT RESCUE AND FIRE FIGHTING	LOC	LOCALIZER
ARP	AIRPORT REFERENCE POINT	LOM	COMPASS LOCATOR AT OUTER MARK
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	LOS	LINE OF SIGHT
ASOS	AUTOMATED SURFACE OBSERVING SYSTEM	LP	LOCALIZER PERFORMANCE OR LIGHT POLE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIAL	LPV	LOCALIZER PERFORMANCE WITH VERTICAL GUIDANCE
ATC	AIR TRAFFIC CONTROL	LSUM	LUMP SUM
ATC-F	AIR TRAFFIC CONTROL FACILITIES	LV	LOW VOLTAGE
ATCT	AIRPORT TRAFFIC CONTROL TOWER	MALS	MEDIUM INTENSITY APPROACH LIGHTING SYSTEM
ATO	AIR TRAFFIC ORGANIZATION	MALSF	MALS WITH SEQUENCED FLASHERS
AWG	AMERICAN WIRE GAUGE	MALSR	MALS WITH RUNWAY ALIGNMENT INDICATOR LIGHTS
AWOS	AUTOMATED WEATHER OBSERVING SYSTEMS	MAX	MAXIMUM
AWSS	AUTOMATED WEATHER SENSOR SYSTEM	M&F	MALE & FEMALE
BBE	BEVEL BOTH ENDS	MGW	MAIN GEAR WIDTH
BLE	BEVEL LARGE END	MH	MANHOLE
BM	BENCH MARK	MIN	MINIMUM
BMP	BEST MANAGEMENT PRACTICE	MIRL	MEDIUM INTENSITY RUNWAY LIGHTS
BC	BOLT CIRCLE	MITL	MEDIUM INTENSITY TAXIWAY LIGHTS
BOE	BEVEL ONE END	MN	MAGNETIC NORTH
BRL	BUILDING RESTRICTION LINE	MP	MID POINT
BSE	BEVEL SMALL END	MPH	MILES PER HOUR
BW	BEVELLED END OR BUTTWELD END	MSL	MEAN SEA LEVEL
CAD	COMPUTER AIDED DESIGN	MTOW	MAXIMUM TAKEOFF WEIGHT
CAT	CATEGORY	N	NORTHING OR NORTH
CCT	CIRCUIT	NAS	NATIONAL AIRSPACE SYSTEM
CDP	CENTRAL DATA PLATFORM	NAVAID	NAVIGATION AID
CFR	CODE OF FEDERAL REGULATIONS	NDB	NON-DIRECTIONAL BEACON
CL	CENTERLINE	NEMA	NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION
CMG	COCKPIT TO MAIN GEAR DISTANCE	NEPA	NATIONAL ENVIRONMENTAL POLICY ACT
CO	CLEANOUT	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
COMM	COMMUNICATIONS	NGS	NATIONAL GEODETIC SURVEY
CSPP	CONSTRUCTION SAFETY & PHASING PLAN	NO. OR #	NUMBER
CU	COPPER	NOM	NOMINAL
CWY	CLEARWAY	NPA	NON-PRECISION APPROACH
DA	DECISION ALTITUDE	NPDES	NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM
DCP	DATA COLLECTION PLATFORM	NPIAS	NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS
DEB	DIRECT EARTH BURIED	NPS	NOMINAL PIPE SIZE
DEF	DIESEL EXHAUST FLUID	NPT	NATIONAL PIPE THREAD
DER	DEPARTURE END OF RUNWAY	NTS	NOT TO SCALE
DIA OR Ø	DIAMETER	NWS	NATIONAL WEATHER SERVICE
DME	DISTANCE MEASURING EQUIPMENT	OC	ON CENTER
DNR	DEPARTMENT OF NATURAL RESOURCES	OCS	OBSTACLE CLEARANCE SURFACE
DOT	DEPARTMENT OF TRANSPORTATION	OD	OUTSIDE DIAMETER
E	EASTING OR EAST	ODALS	OMNIDIRECTIONAL AIRPORT LIGHTING SYSTEM
EL OR ELEV	ELEVATION	OE/AAA	OBSTRUCTION EVALUATION/AIRPORT AIRSPACE ANALYSIS
EFSSO	EMERGENCY FUEL SHUTOFF	OFA	OBJECT FREE AREA
EMT	ELECTRICAL METALLIC TUBING	OFZ	OBSTACLE FREE ZONE
EQ	EQUAL	OM	OUTER MARKER
EX OR EXIST	EXISTING	PA	PRECISION APPROACH
FAA	FEDERAL AVIATION ADMINISTRATION	PAPI	PRECISION APPROACH PATH INDICATOR
FAR	FEDERAL AVIATION REGULATIONS	PAR	PRECISION APPROACH RADAR
FBO	FIXED BASE OPERATOR	PBE	PLAIN BOTH ENDS
FCC	FEDERAL COMMUNICATIONS COMMISSION	PCC	PORTLAND CEMENT CONCRETE
FF	FLAT FACE	PCN	PAVEMENT CONDITION NUMBER
FOD	FOREIGN OBJECT DEBRIS	PE	POLYETHYLENE OR PLAIN END
FL	FLANGE	PFC	PASSENGER FACILITY CHARGE
FMC	FLEXIBLE METAL CONDUIT	PIR	PRECISION INSTRUMENT RUNWAYS
FNPT	FINE NATIONAL PIPE THREAD	PNL	PANEL
FSII	FUEL SYSTEM ICING INHIBITOR	POE	PLAN ONE END
GA	GENERAL AVIATION	POFZ	PRECISION OBSTACLE FREE ZONE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	PPE	PERSONAL PROTECTIVE EQUIPMENT
GIS	GEOGRAPHIC INFORMATION SYSTEM	PROP	PROPOSED
GND	GROUND	PSI	POUNDS PER SQUARE INCH
GNSS	GLOBAL NAVIGATION SATELLITE SYSTEM	PVC	POLYVINYL CHLORIDE
GPA	GLIDE PATH ANGLE	PVI	POINT OF VERTICAL INTERSECTION
GPS	GLOBAL POSITIONING SYSTEM	PWR	POWER
GS	GLIDESLOPE	QTY	QUANTITY
HDPE	HIGH DENSITY POLYETHYLENE		

R OR RT	RIGHT
RAIL	RUNWAY ALIGNMENT INDICATOR LIGHTS
RCO	REMOTE COMMUNICATIONS OUTLET
RDC	RUNWAY DESIGN CODE
REIL	RUNWAY END IDENTIFIER LIGHTING
REQD	REQUIRED
RF	RAISED FACE
RNAV	AREA NAVIGATION
ROFA	RUNWAY OBJECT FREE AREA
ROFZ	RUNWAY OBSTACLE FREE ZONE
RPR	RESIDENT PROJECT REPRESENTATIVE
RPZ	RUNWAY PROTECTION ZONE
RSA	RUNWAY SAFETY AREA
RTJ	RING JOINT FACE
RTR	REMOTE TRANSMITTER/RECEIVER
RVR	RUNWAY VISUAL RANGE
RWSL	RUNWAY STATUS LIGHTS
RWY	RUNWAY
S	SOUTH
SAE	SOCIETY OF AUTOMOTIVE ENGINEERS
SCH	SCHEDULE
SDANR	SOUTH DAKOTA DEPARTMENT OF AGRICULTURE & NATURAL RESOURCES
SDDOT	SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION
SOP	STANDARD OPERATING PROCEDURES
SPCD	SAFETY PLAN COMPLIANCE DOCUMENT
SPEC	SPECIFICATION
SRE	SNOW REMOVAL EQUIPMENT
SRM	SAFETY RISK MANAGEMENT
SSALR	SIMPLIFIED SHORT APPROACH LIGHT SYSTEM WITH RUNWAY ALIGNMENT
SSALS	SIMPLIFIED SHORT APPROACH LIGHT SYSTEM
SSALF	SIMPLIFIED SHORT APPROACH LIGHT SYSTEM WITH SEQUENCED FLASHING LIGHTS
STA	STATION
STD	STANDARD
SWPPP	STORM WATER POLLUTION PREVENTION PLAN
TBE	THREAD BOTH ENDS
TCH	THRESHOLD CROSSING HEIGHT
TDG	TAXIWAY DESIGN GROUP
T&G	TONGUE & GROOVE
THHN	THERMOPLASTIC HIGH HEAT-RESISTANT NYLON-COATED
THWN	THERMOPLASTIC HEAT & WATER-RESISTANT NYLON-COATED
TE	THREADED END
TEMP	TEMPORARY
TERPS	TERMINAL INSTRUMENT PROCEDURES
TESM	TAXIWAY EDGE SAFETY MARGIN
TH	THRESHOLD
TLE	THREAD LARGE END
TI	TAPER INTERSECTION
TOE	THREAD ONE END
TSE	THREAD SMALL END
TXLN	TAXILANE
TODA	TAKEOFF DISTANCE AVAILABLE
TOFA	TAXIWAY AND TAXILANE OBJECT FREE AREA
TORA	TAKEOFF RUN AVAILABLE
TP	TAPER POINT
TSA	TAXIWAY/TAXILANE SAFETY AREA
TSR	TRANSPORTATION SECURITY REGULATION
TSS	THRESHOLD SITING SURFACE
TXY	TAXIWAY
TYP	TYPICAL
UAC	USE AS CONSTRUCTED
UAS	UNMANNED AIRCRAFT SYSTEMS
UF	UNDERGROUND FEEDER
UFC	UNIFIED FACILITIES CRITERIA
UHF	ULTRA-HIGH FREQUENCY
UL	UNDERWRITERS LABORATORIES
ULT	ULTIMATE
UNO	UNLESS NOTED OTHERWISE
USDA	UNITED STATES DEPARTMENT OF AGRICULTURE
USGS	U.S. GEOLOGICAL SURVEY
V	VISUAL
VA	VOLTAMPS
VASI	VISUAL APPROACH SLOPE INDICATOR
VFR	VISUAL FLIGHT RULES
VGS	VERTICALLY GUIDED SURVEY
VGSI	VISUAL GLIDE SLOPE INDICATOR
VHF	VERY HIGH FREQUENCY
VNAV	VERTICAL NAVIGATION
VOR	VHF OMNI-DIRECTIONAL RANGE
VORTAC	VHF OMNI-DIRECTIONAL COLLOCATED TACTICAL AIR
VOT	VHF OMNI-DIRECTIONAL RANGE TEST FACILITY
W	WEST OR WATER
WAAS	WIDE AREA AUGMENTATION SYSTEM
WME	WIND MEASURING EQUIPMENT
WRS	WAAS REFERENCE SYSTEM
WWF	WELDED WIRE FABRIC OR WELDED WIRE MESH
XFMR	TRANSFORMER
XLPE	CROSS-LINKED POLYETHYLENE

EXISTING	PROPOSED LINETYPE LEGEND
SCH 40 SCH 80	SCH 40 SCH 80 — HIGH VOLTAGE (HV)
SCH 40 SCH 80	SCH 40 SCH 80 — LOW VOLTAGE (LV)
	— — — — — — DUCT BANK
	— — — — — — COUNTERPOISE
	— — — — — — ABANDON EXIST DEB
— RSA ———— RSA —	— RSA ———— RSA — — RUNWAY SAFETY AREA
— ROFA ———— ROFA —	— ROFA ———— ROFA — — RUNWAY OBJECT FREE AREA
— TSA ———— TSA —	— TSA ———— TSA — — TAXIWAY SAFETY AREA
— TOFA ———— TOFA —	— TOFA ———— TOFA — — TAXIWAY OBJECT FREE AREA

CIRCUIT LEGEND



EXISTING	PROPOSED LIGHTING LEGEND
— EDGE LIGHT ● ●	● — TXY BLUE
	★ — RETROREFLECTIVE MARKER
	● — RWY YELLOW/WHITE
	— — RWY RED/GREEN
	⬇ — JUNCTION CAN
	CM — CABLE MARKER
	⊗ — ROTATING BEACON
	☐ — PAPI
	☐ — AIRFIELD SIGN
	⬆ — WINDCONE
	⊗ — REMOVE & SALVAGE



RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LEGEND & ABBREVIATIONS

REVISIONS

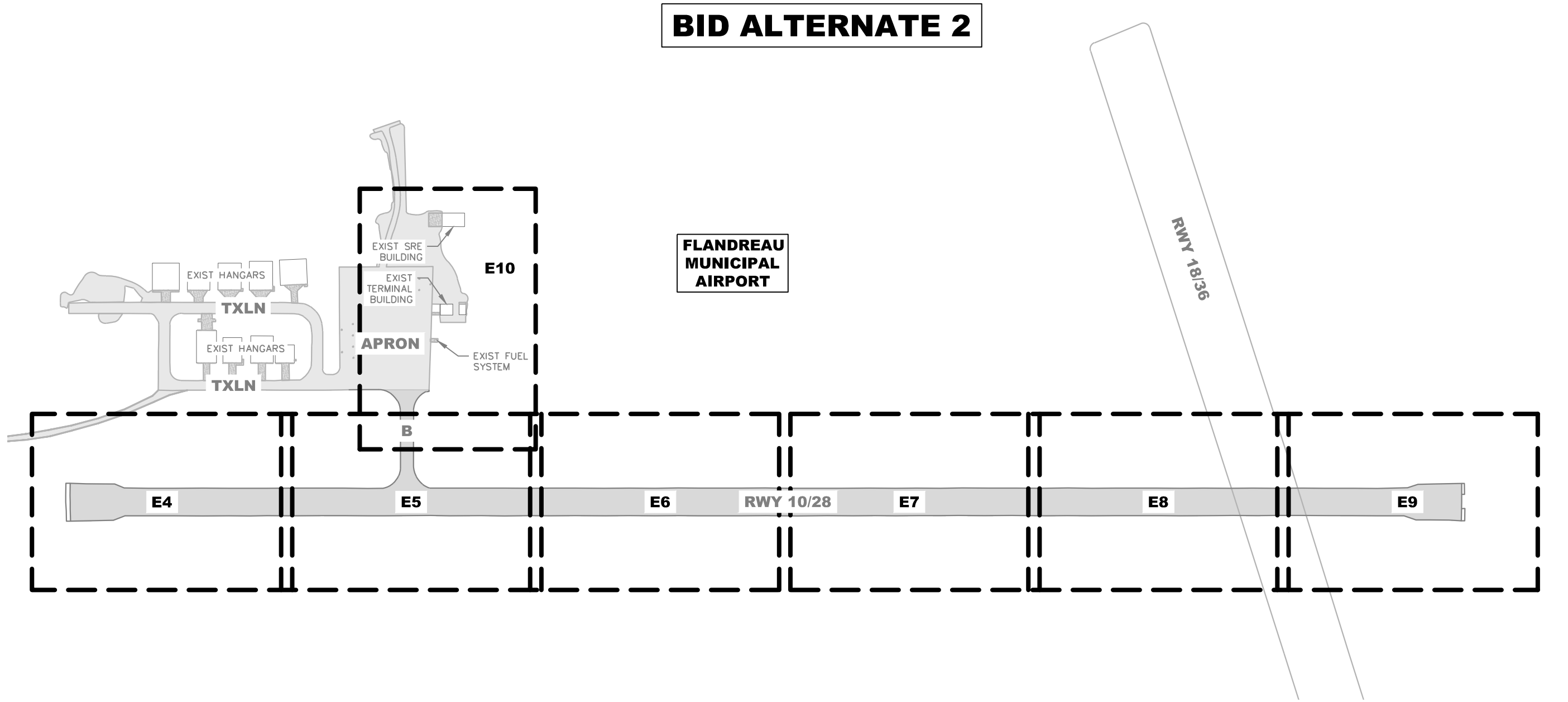


Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



Sheet

E2



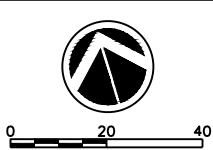
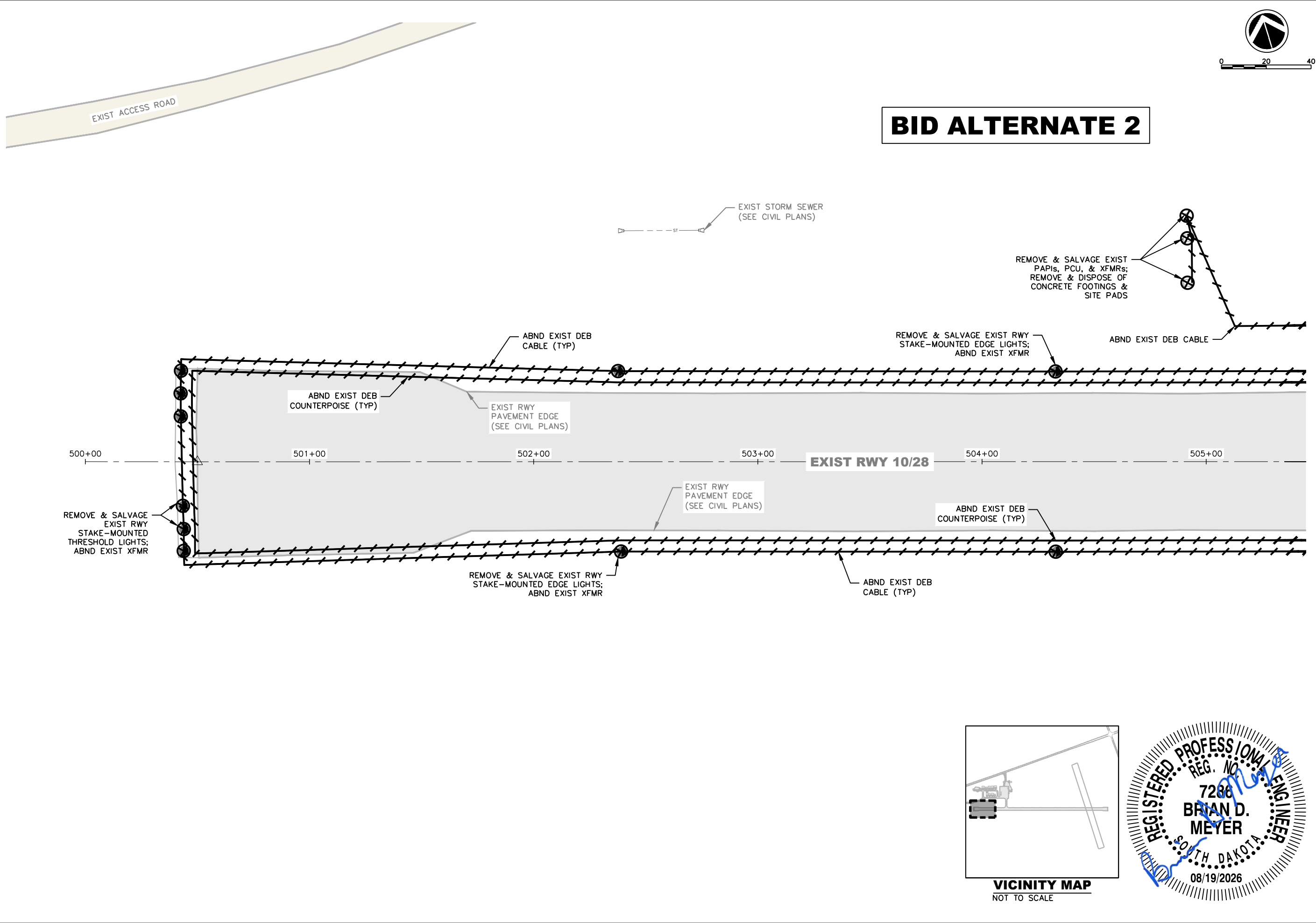
BID ALTERNATE 2

**FLANDREAU
MUNICIPAL
AIRPORT**

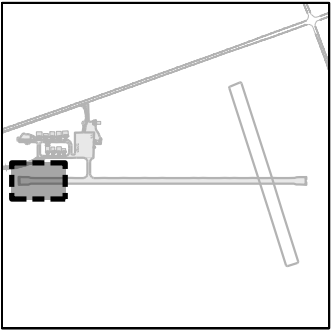


Plot Date: 8/12/2026 4:59:54 PM

P:\07300 SOUTH DAKOTA\343 FLANDREAU (4P3)\74301 AIRFIELD LIGHTING IMP-5 DRAWINGS\PLANS\74301 - LIGHTING REMOVALS.DWG



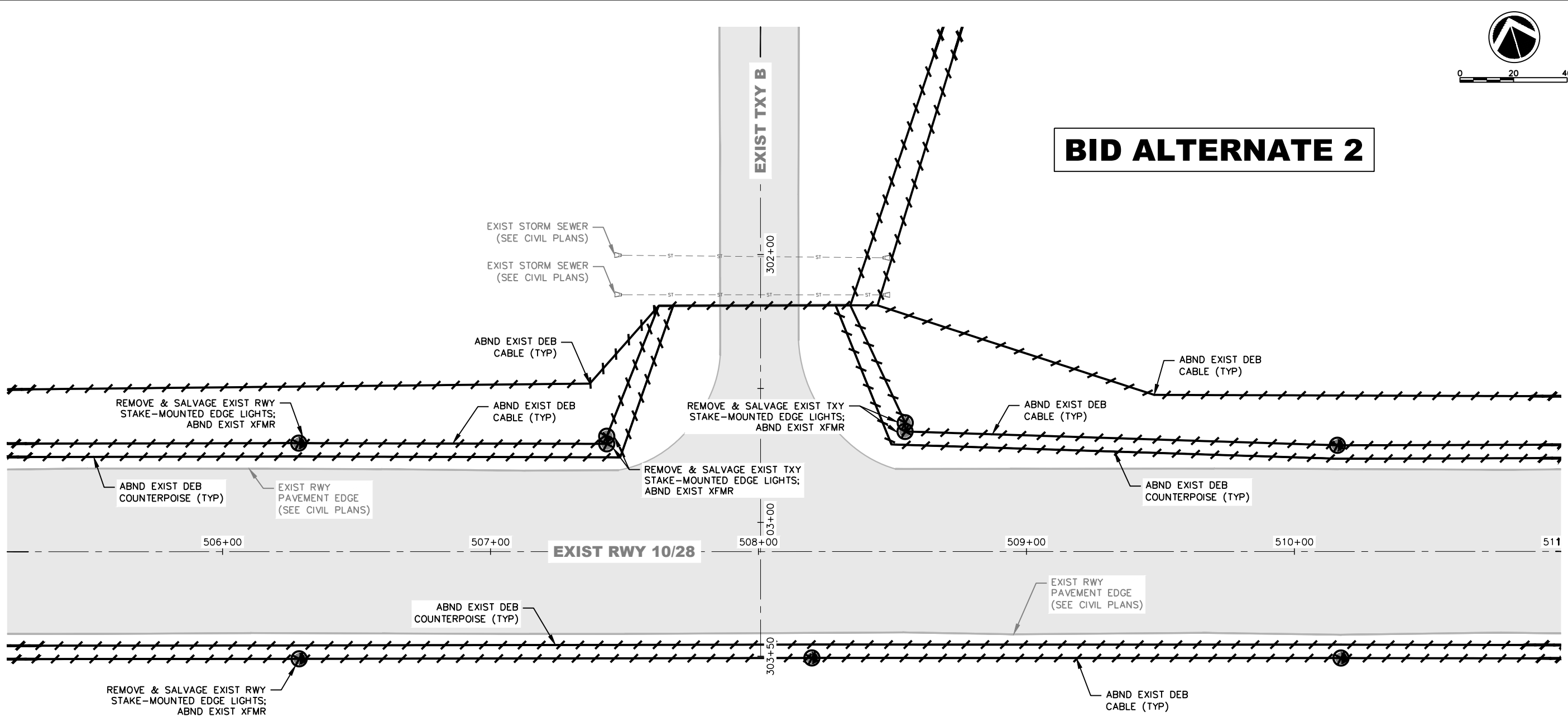
BID ALTERNATE 2



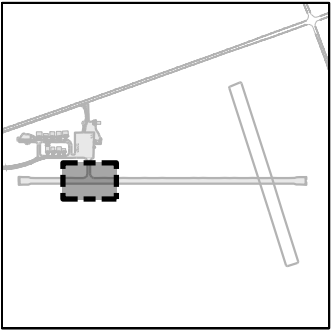
VICINITY MAP
NOT TO SCALE



RUNWAY 11/29 CONSTRUCTION FLANDREAU MUNICIPAL AIRPORT FLANDREAU, SOUTH DAKOTA	
LIGHTING REMOVALS	REVISIONS
	
Project Manager: BDM Designer: BGS Project Number: 734301 Phone: (605) 339-4157	
	
Sheet E4	



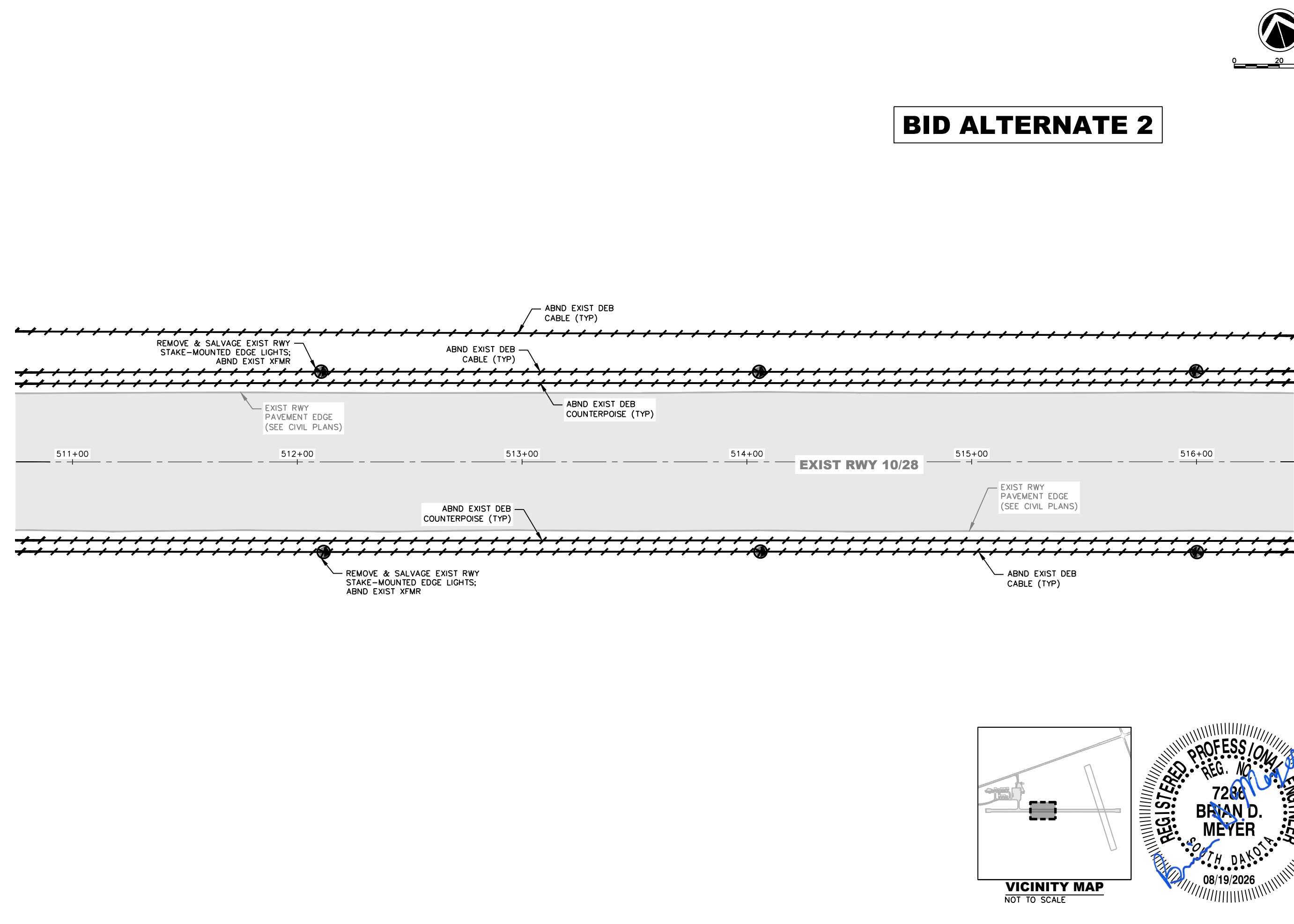
BID ALTERNATE 2



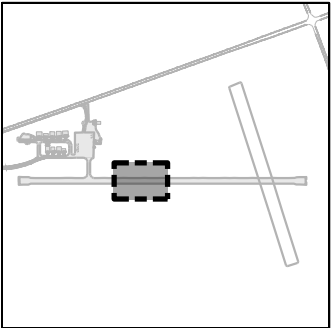
VICINITY MAP
NOT TO SCALE



RUNWAY 11/29 CONSTRUCTION FLANDREAU MUNICIPAL AIRPORT FLANDREAU, SOUTH DAKOTA	
LIGHTING REMOVALS	REVISIONS
Project Manager: BDM	Designer: BGS
Project Number: 734301	
Phone: (605) 339-4157	
Sheet E5	



BID ALTERNATE 2



VICINITY MAP
NOT TO SCALE



RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LIGHTING REMOVALS

REVISIONS

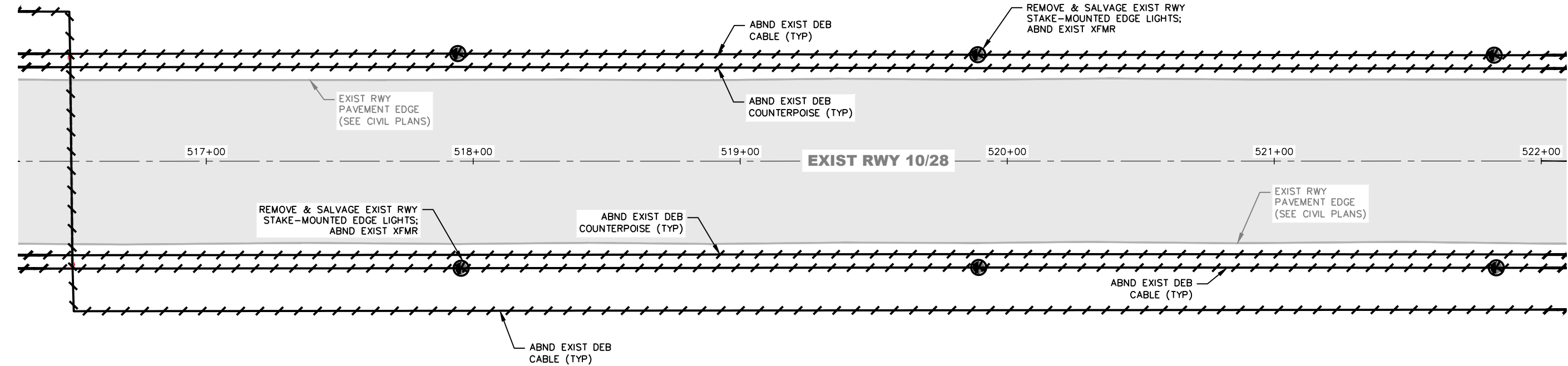


Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157

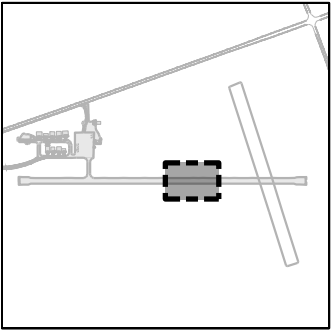


Sheet

E6



BID ALTERNATE 2



VICINITY MAP
NOT TO SCALE



RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LIGHTING REMOVALS

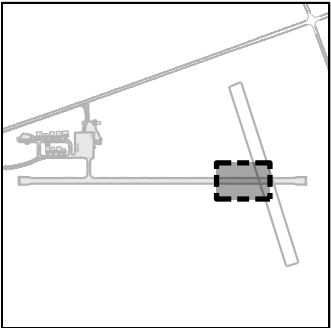
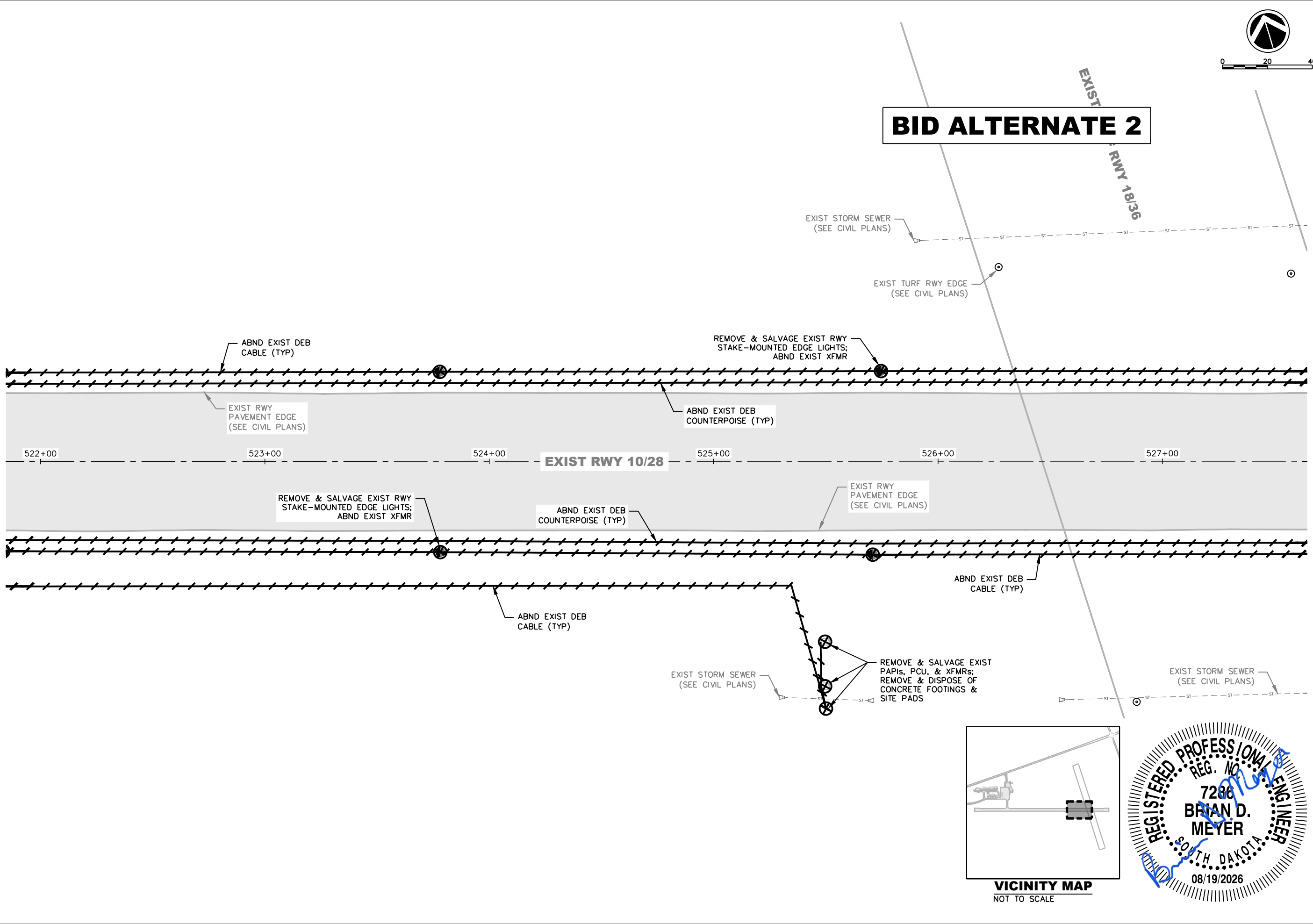
REVISIONS



Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



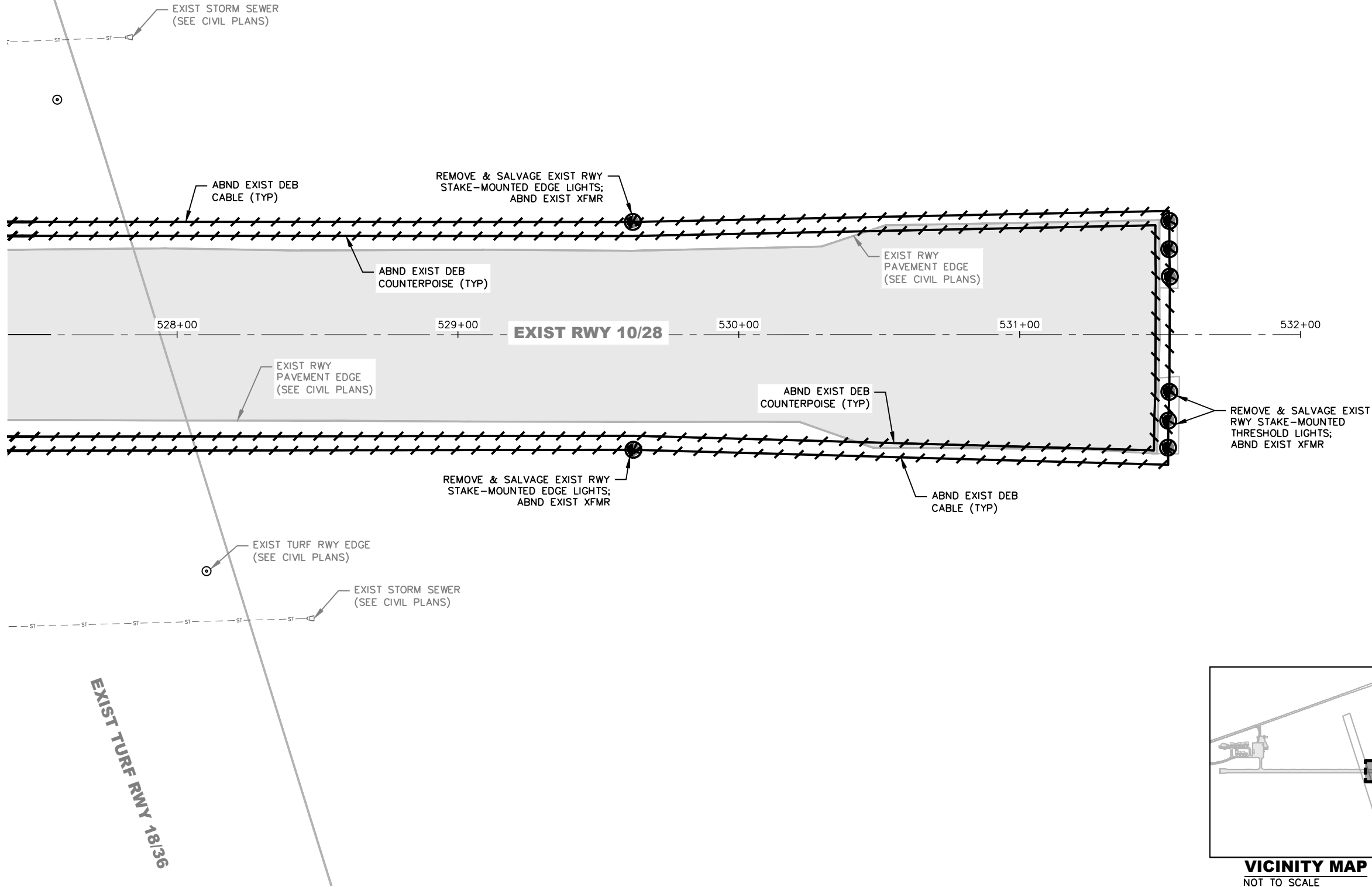
Sheet
E7



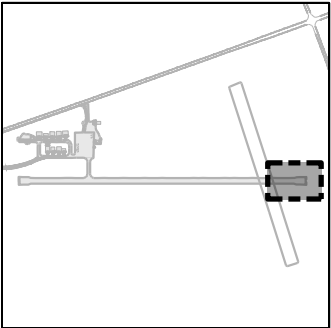
VICINITY MAP
NOT TO SCALE



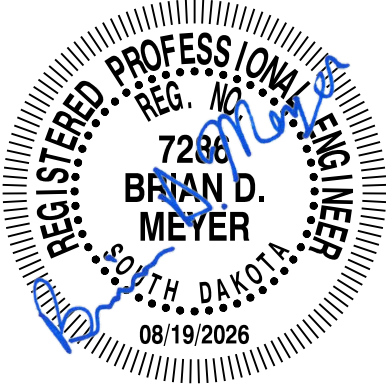
RUNWAY 11/29 CONSTRUCTION FLANDREAU MUNICIPAL AIRPORT FLANDREAU, SOUTH DAKOTA	
LIGHTING REMOVALS	REVISIONS
Project Manager: BDM	Designer: BGS
Project Number: 734301	
Phone: (605) 339-4157	
Sheet	E8



BID ALTERNATE 2



VICINITY MAP
NOT TO SCALE



RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

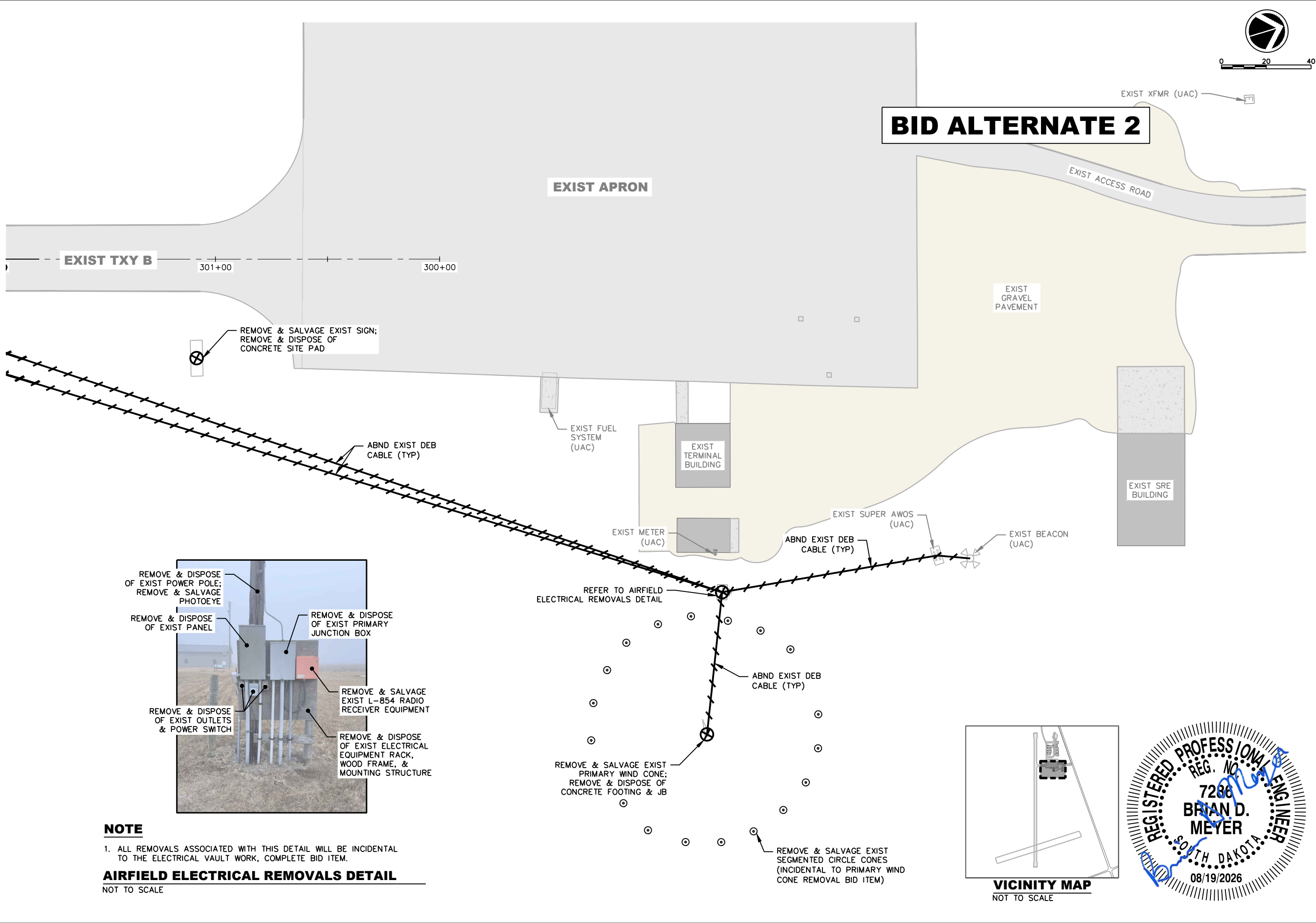
LIGHTING REMOVALS



Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



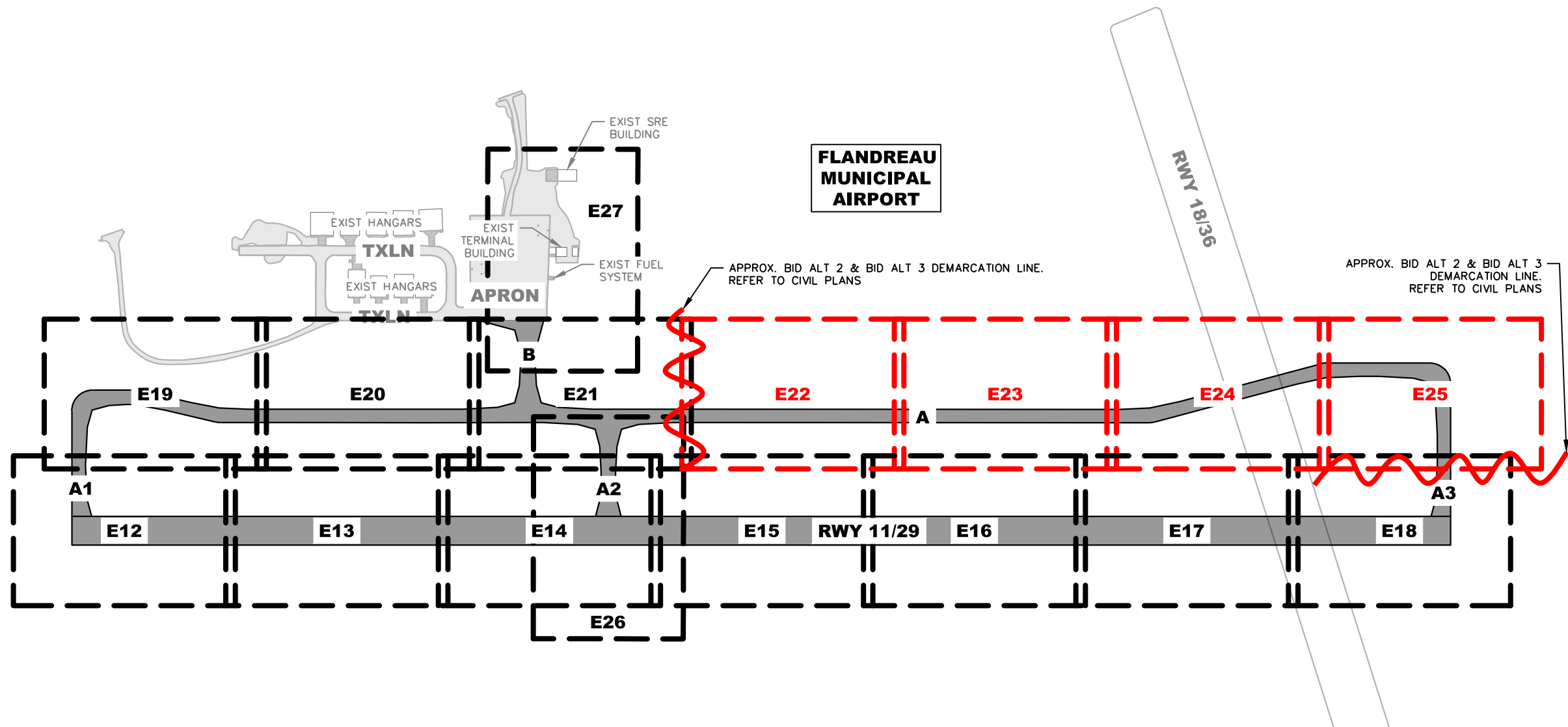
Sheet
E9



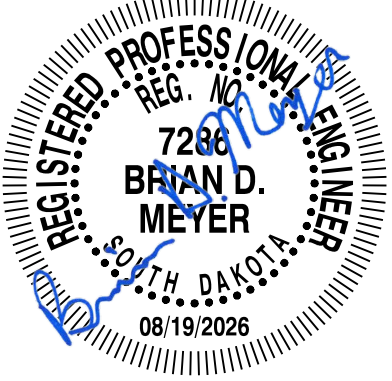
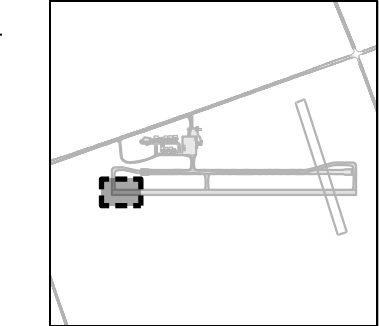
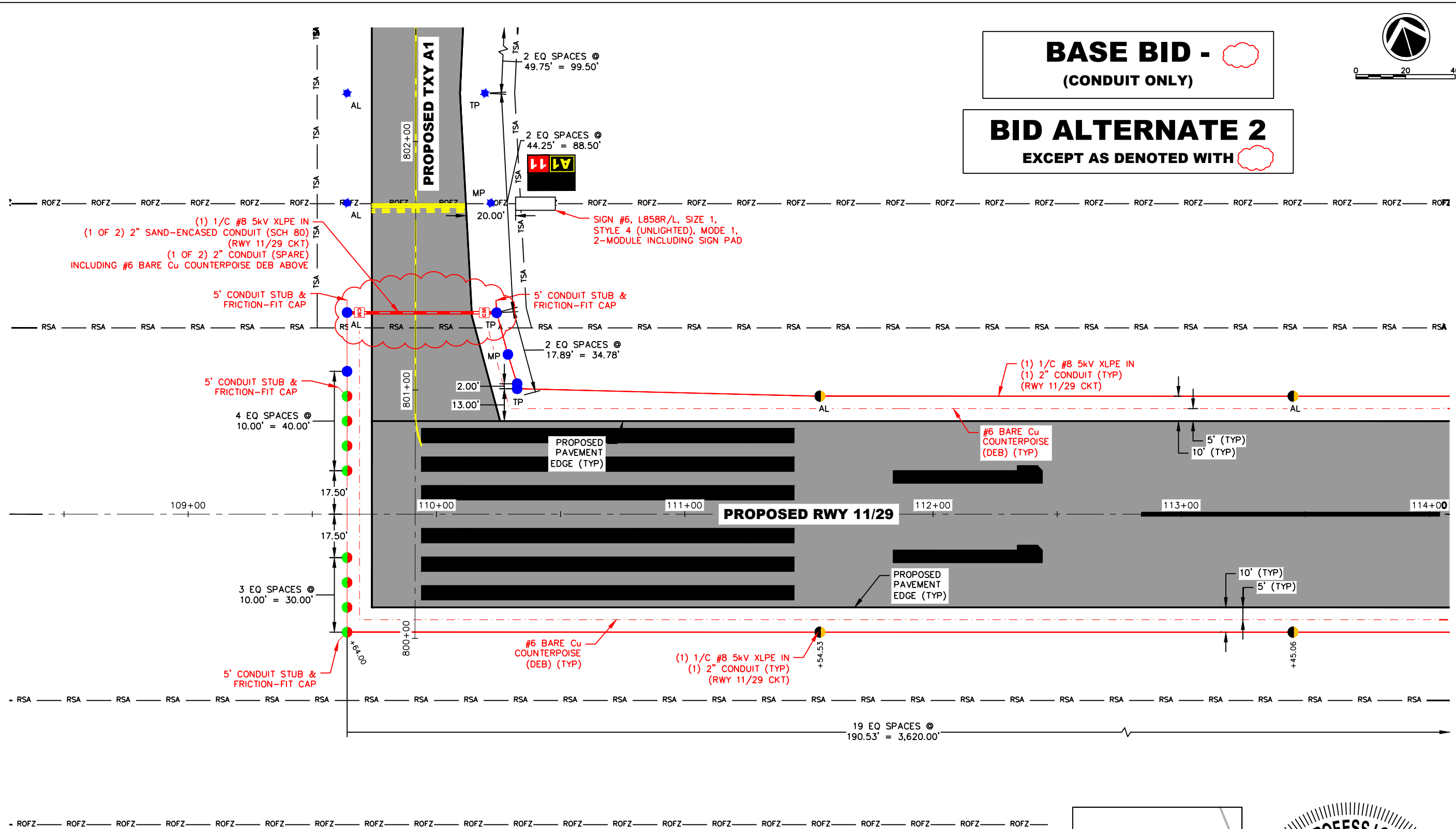
RUNWAY 11/29 CONSTRUCTION FLANDREAU MUNICIPAL AIRPORT FLANDREAU, SOUTH DAKOTA	
LIGHTING REMOVALS	REVISIONS
Project Manager: BDM Designer: BGS Project Number: 734301 Phone: (605) 339-4157	
Sheet E10	



BASE BID, BID ALTERNATE 2, & BID ALTERNATE 3



RUNWAY 11/29 CONSTRUCTION FLANDREAU MUNICIPAL AIRPORT FLANDREAU, SOUTH DAKOTA	
SHEET LAYOUT - LIGHTING PLAN	REVISIONS
Project Manager: BDM	Designer: BGS
Project Number: 734301	
Phone: (605) 339-4157	
Sheet	E11



BASE BID -
(CONDUIT ONLY)

BID ALTERNATE 2
EXCEPT AS DENOTED WITH



RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LIGHTING PLAN

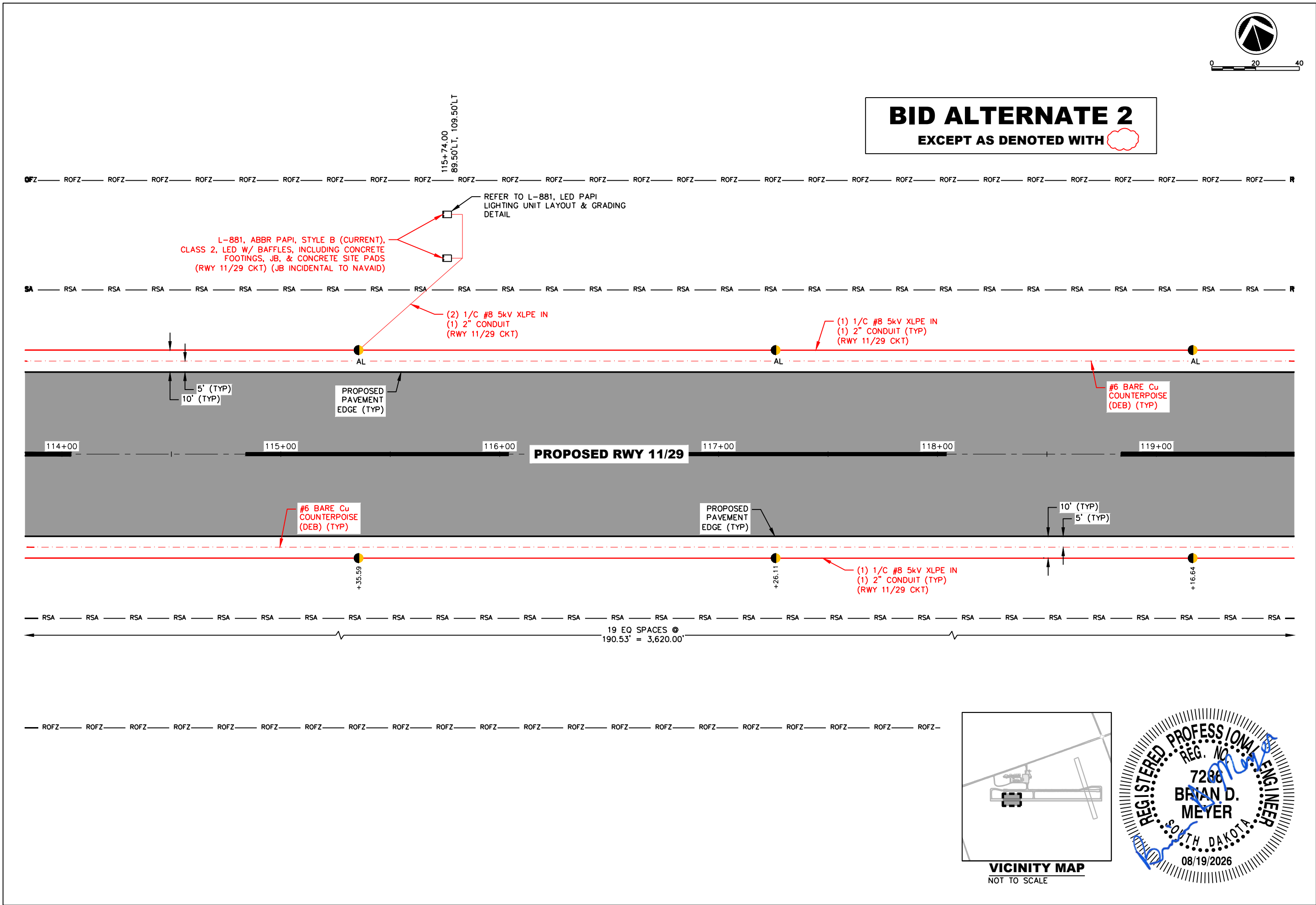
REVISIONS



Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



Sheet
E12



RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LIGHTING PLAN

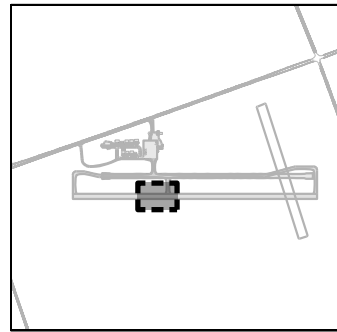
REVISIONS


CIVIL ENGINEERS & LAND SURVEYORS

Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157


ENGINEERING

Sheet
E13



VICINITY MAP
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER

REG. NO. 7286

BRIAN D. MEYER

SOUTH DAKOTA

08/19/2026

RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LIGHTING PLAN

REVISIONS

Helms
& ASSOCIATES
CIVIL ENGINEERS & LAND SURVEYORS

Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



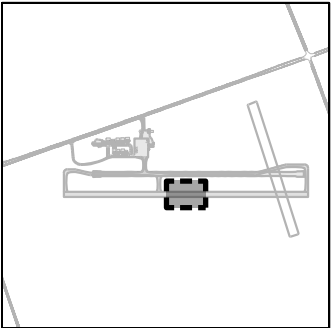
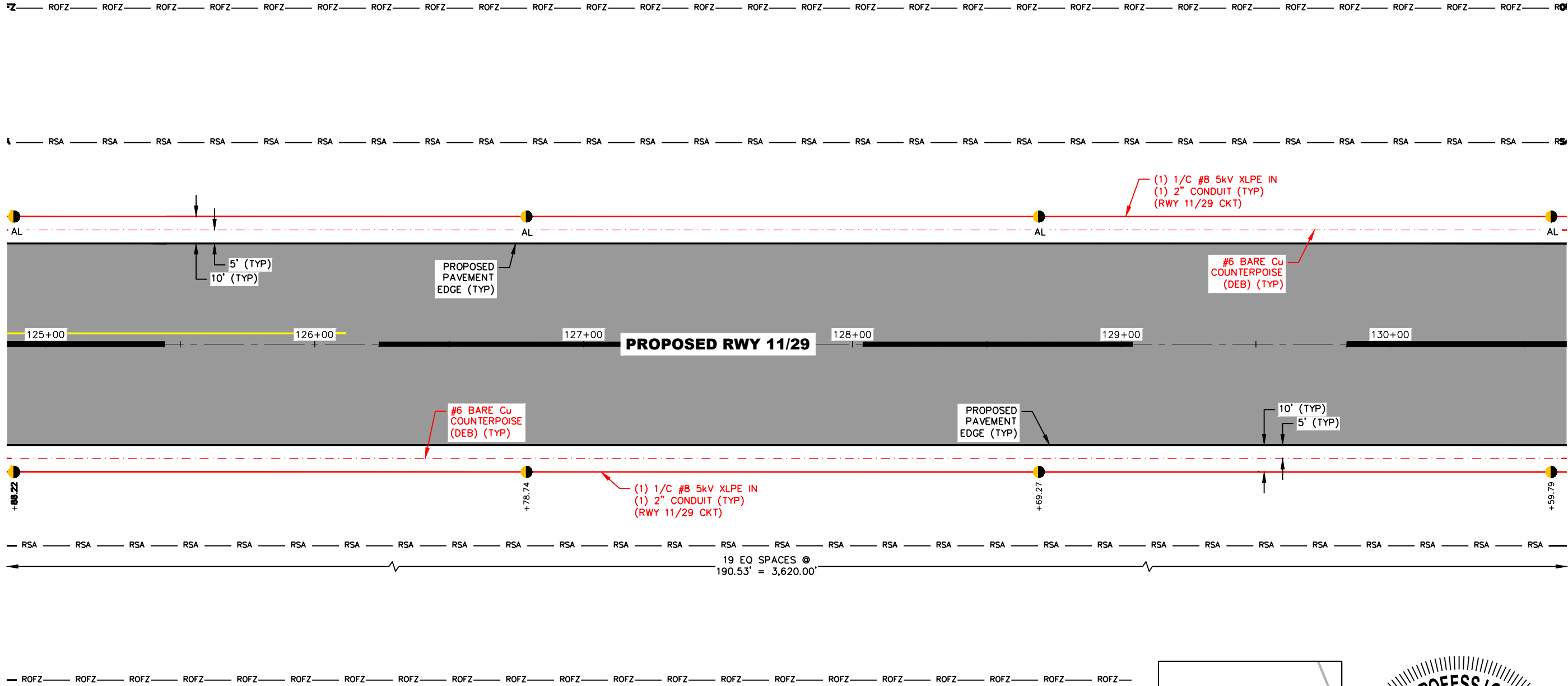
DGR
ENGINEERING

Sheet

E14



BID ALTERNATE 2
EXCEPT AS DENOTED WITH



VICINITY MAP
NOT TO SCALE



RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LIGHTING PLAN

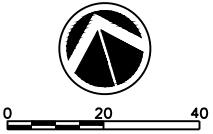
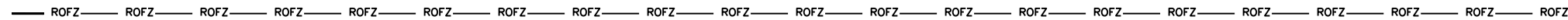
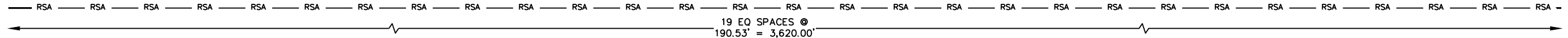
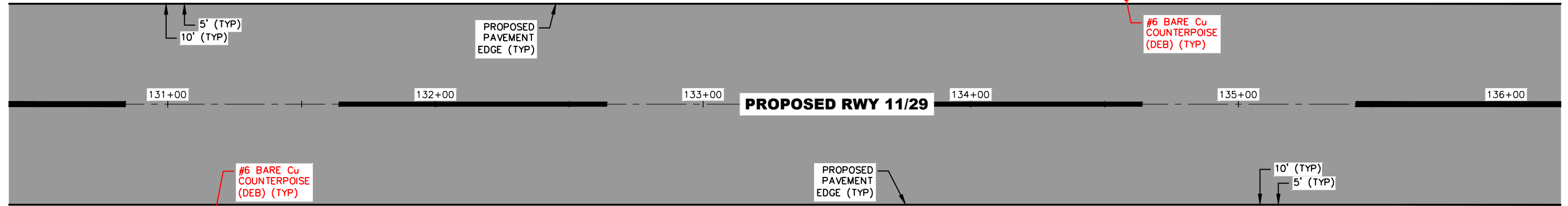
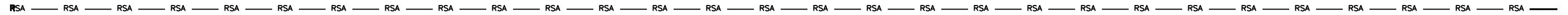
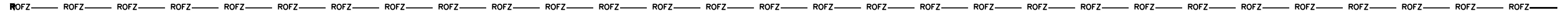
REVISIONS



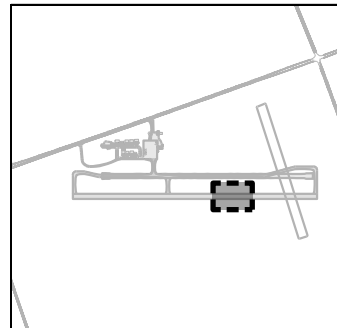
Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



Sheet
E15



BID ALTERNATE 2
EXCEPT AS DENOTED WITH



RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LIGHTING PLAN

REVISIONS

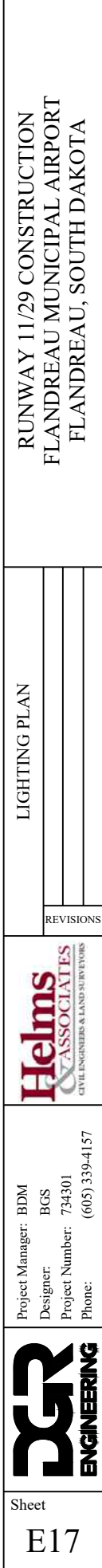


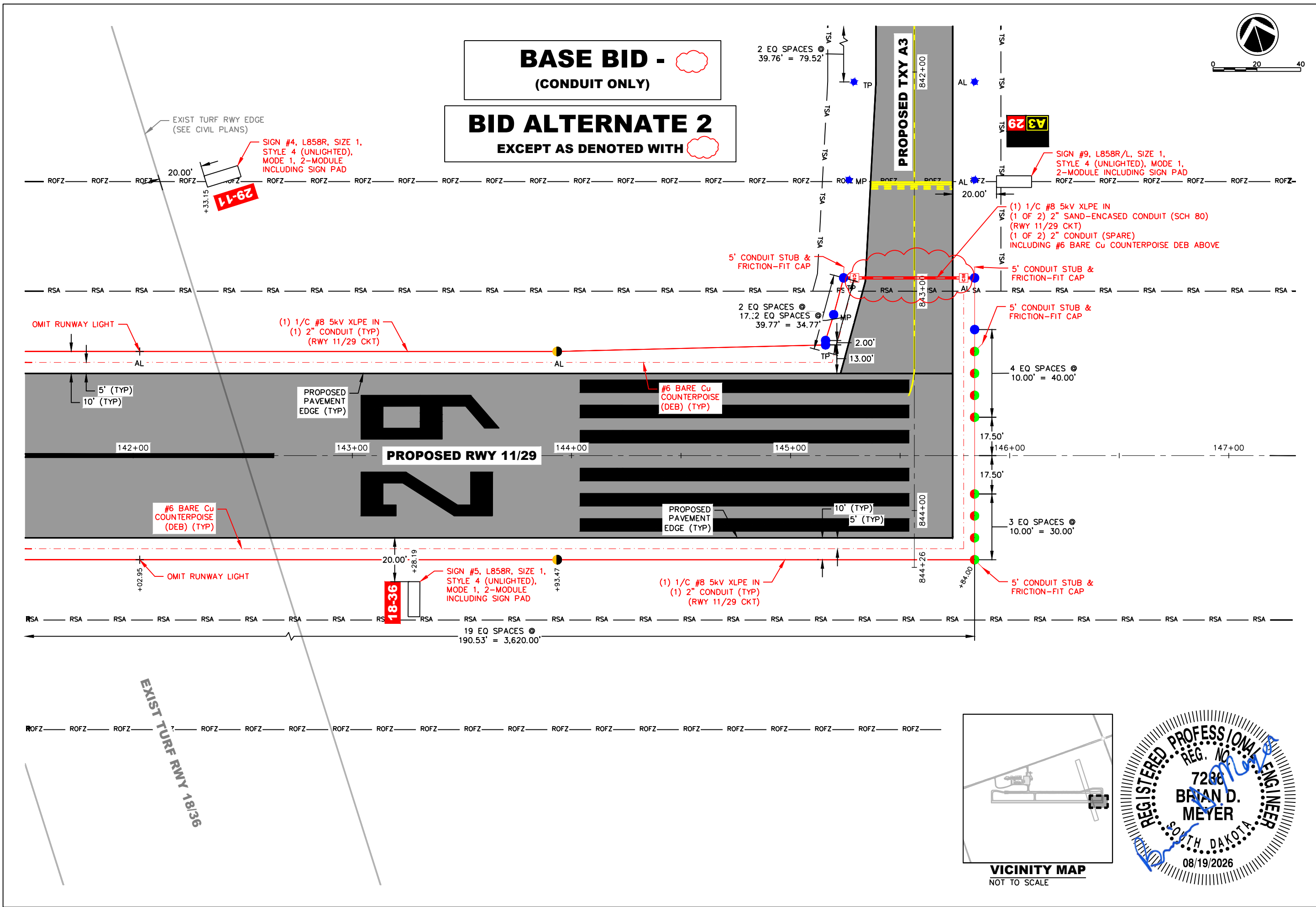
Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



Sheet

E16





RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LIGHTING PLAN

REVISIONS

CIVIL ENGINEERS & LAND SURVEYORS

Project Manager: BDM

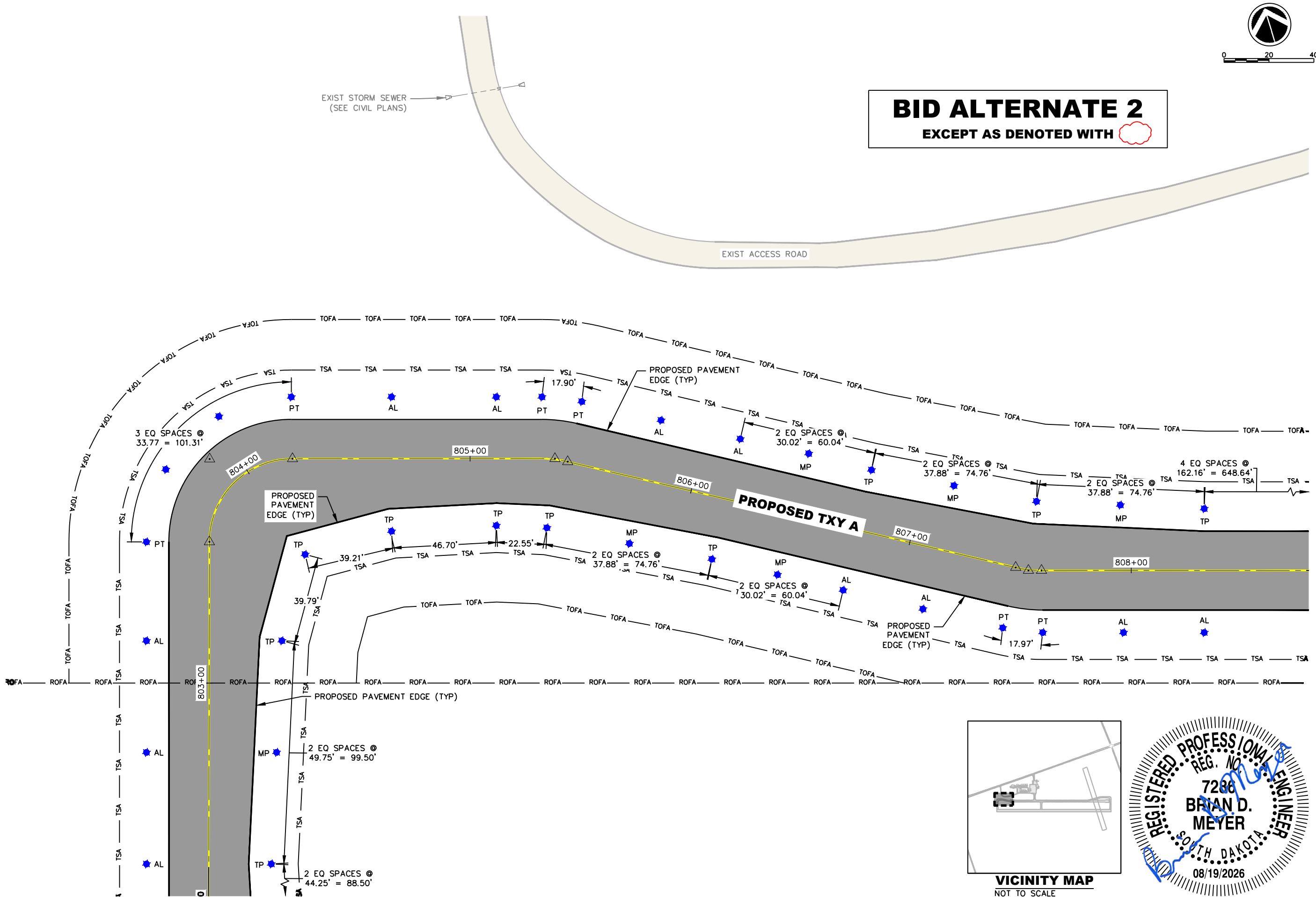
Designer: BGS

Project Number: 734301

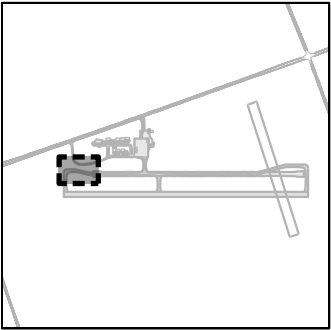
Phone: (605) 339-4157

ENGINEERING

Sheet
E18



BID ALTERNATE 2
EXCEPT AS DENOTED WITH



RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LIGHTING PLAN

REVISIONS



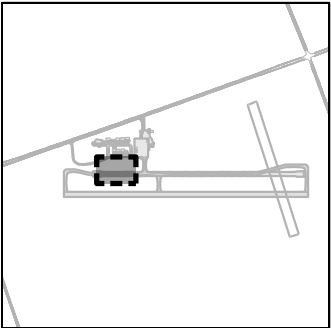
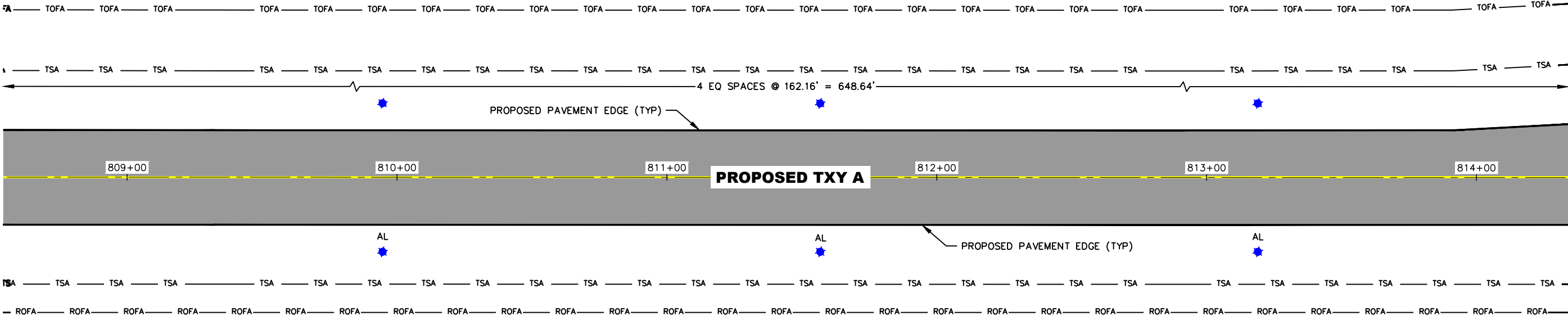
Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



Sheet
E19



BID ALTERNATE 2
EXCEPT AS DENOTED WITH



RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LIGHTING PLAN

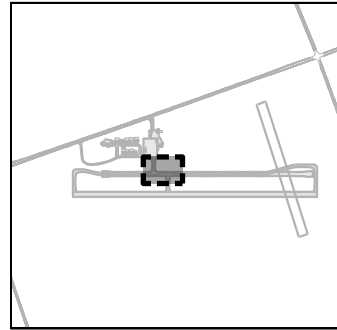
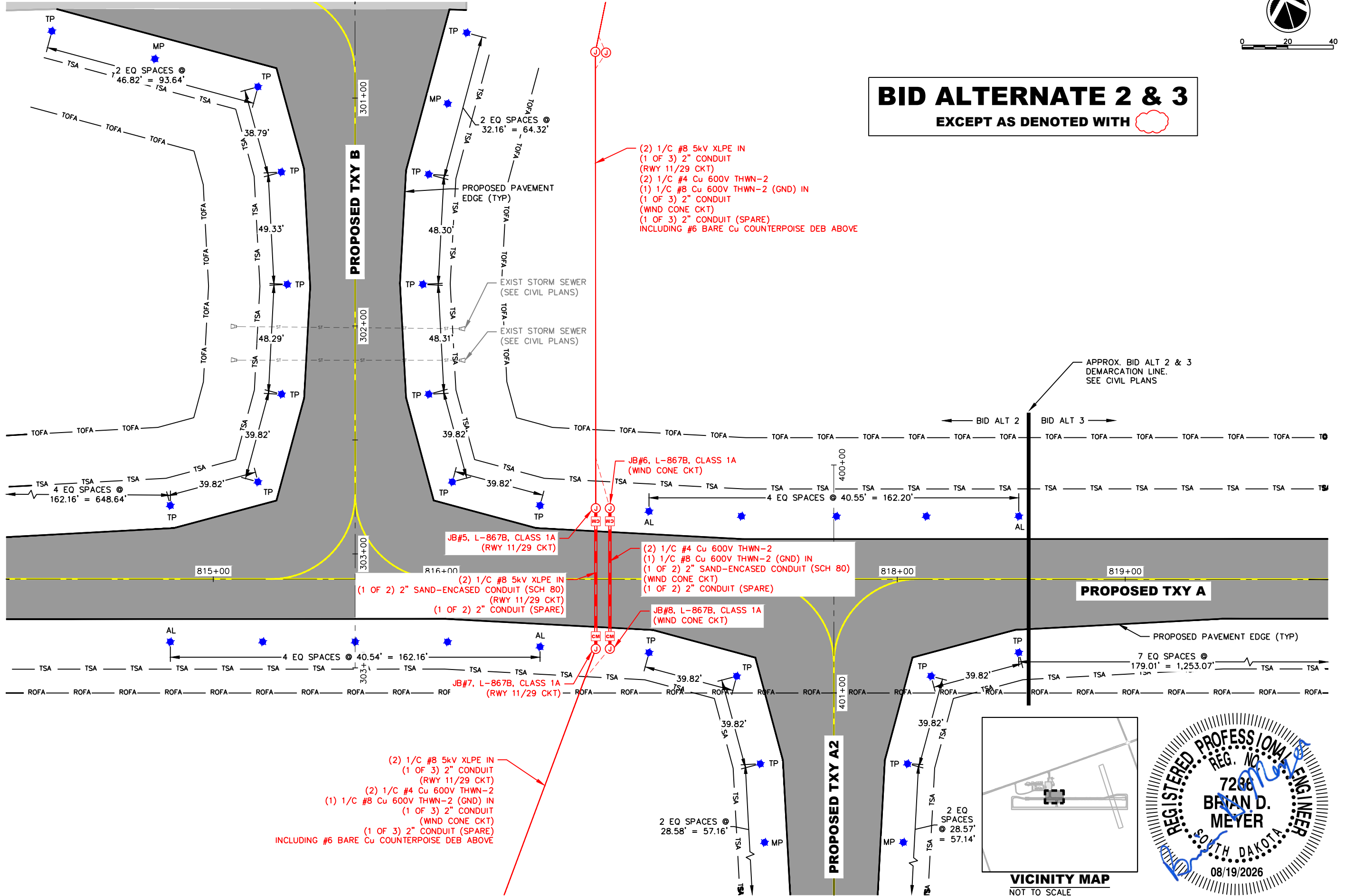
REVISIONS

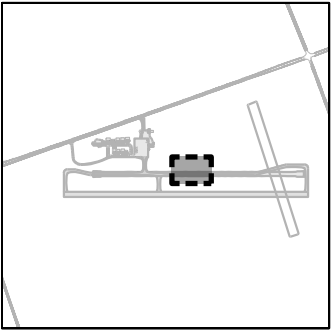


Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



Sheet
E20





VICINITY MAP

NOT TO SCALE



BID ALTERNATE 3

EXCEPT AS DENOTED WITH 



**RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA**

LIGHTING PLAN

REVISIONS

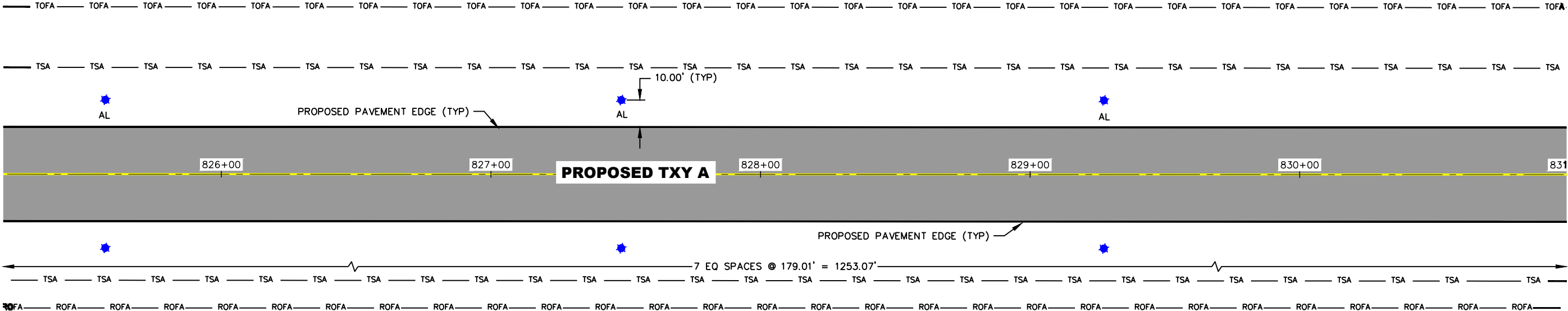


Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157

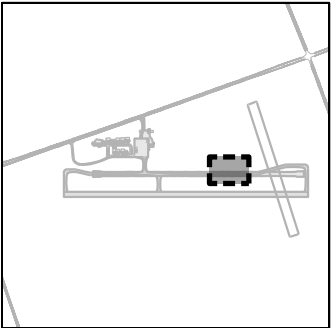


Sheet

E22



BID ALTERNATE 3
EXCEPT AS DENOTED WITH



LIGHTING PLAN	
REVISIONS	

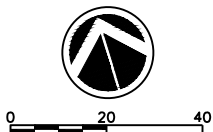


Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



Sheet
E23

RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA



BID ALTERNATE 3
EXCEPT AS DENOTED WITH 

**RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA**

LIGHTING PLAN

HEINIS & ASSOCIATES
CIVIL ENGINEERS & LAND SURVEYORS

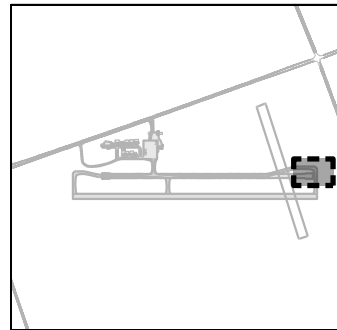
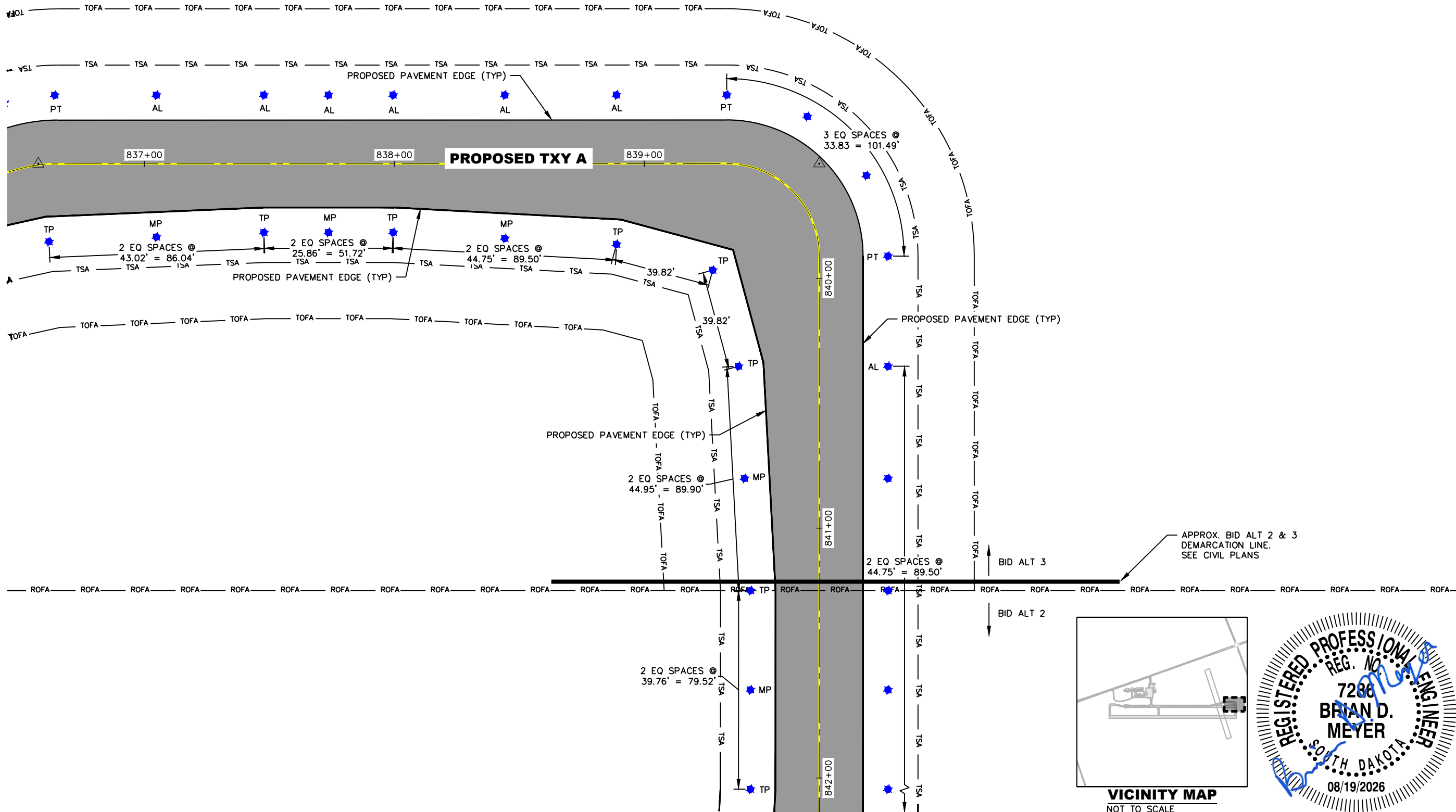
Project Manager: BDM
 Designer: BGS
 Project Number: 734301
 Phone: (605) 339-4157



DGR
ENGINEERING

Sheet
E24

BID ALTERNATE 2 & 3
EXCEPT AS DENOTED WITH



VICINITY MAP
NOT TO SCALE



RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LIGHTING PLAN

REVISIONS

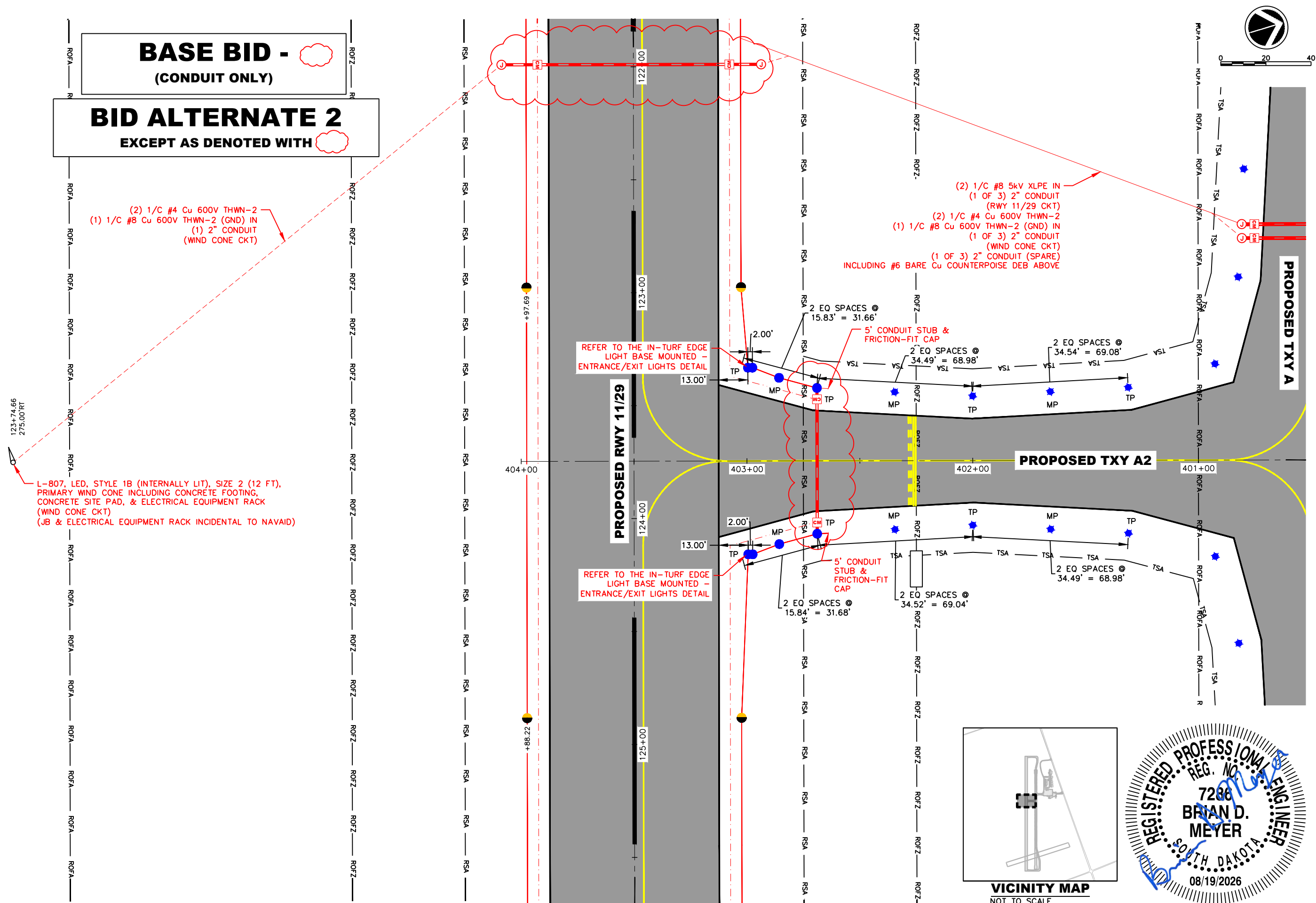


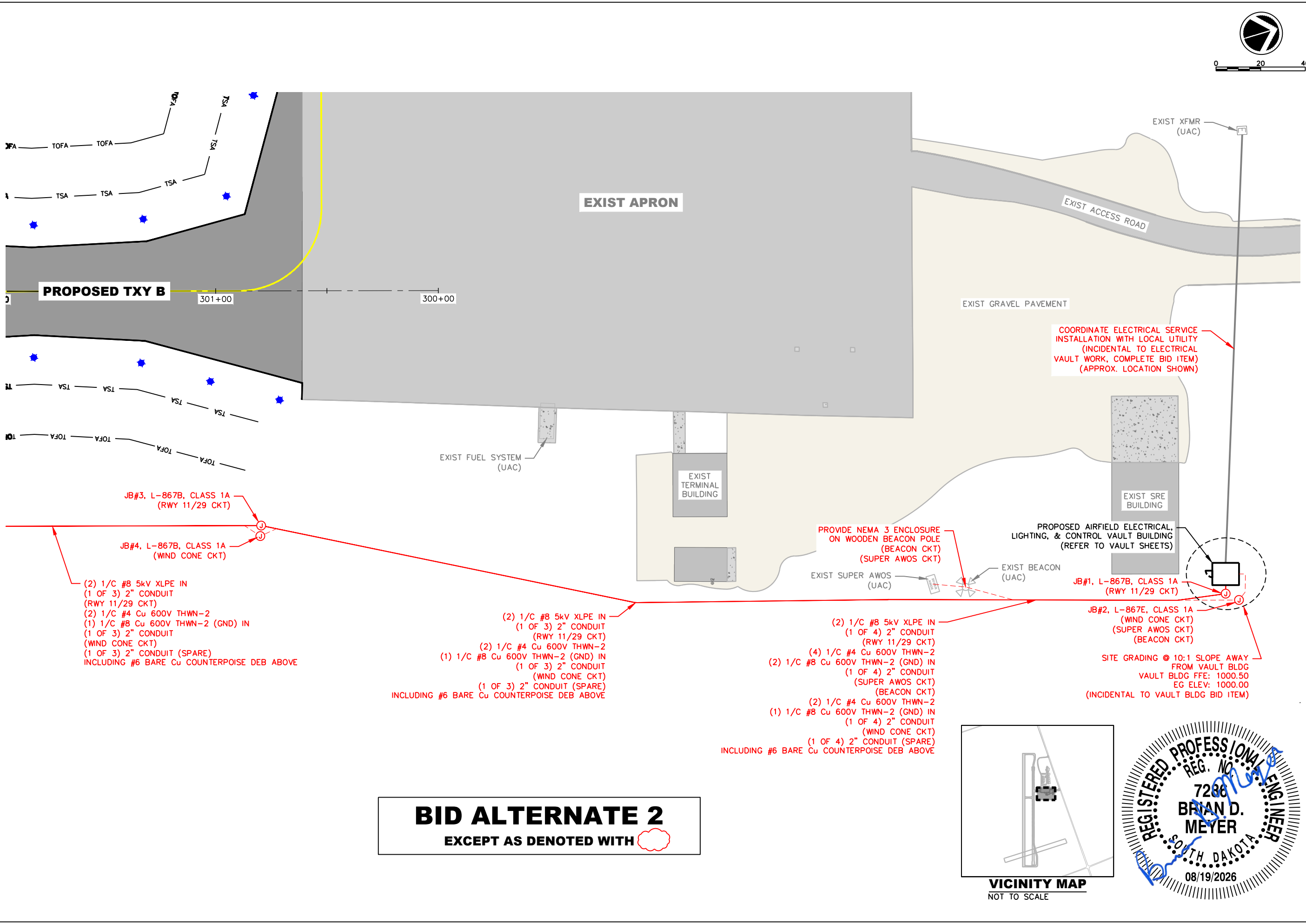
Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



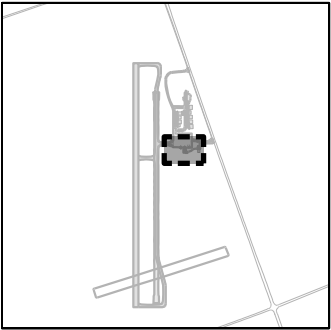
Sheet

E25





BID ALTERNATE 2
EXCEPT AS DENOTED WITH



VICINITY MAP
NOT TO SCALE



Runway 11/29 Construction

Flandreau Municipal Airport

Flandreau, South Dakota

Lighting Plan

Revisions

Civil Engineers & Land Surveyors

Project Manager: BDM

Designer: BGS

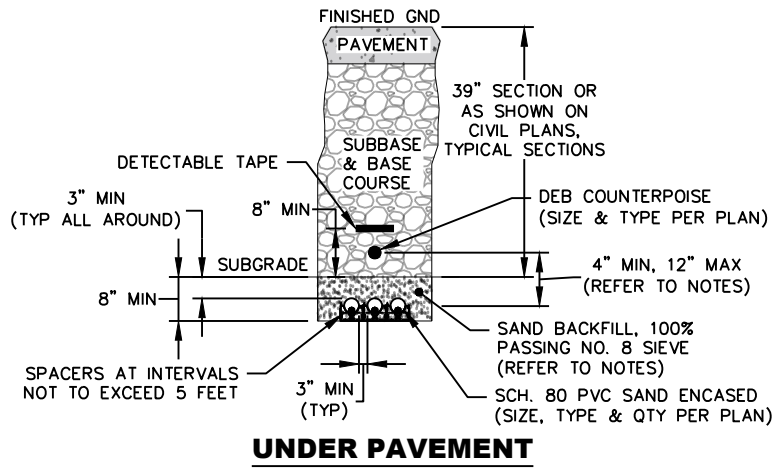
Project Number: 734301

Phone: (605) 339-4157

DGR ENGINEERING

Sheet

E27

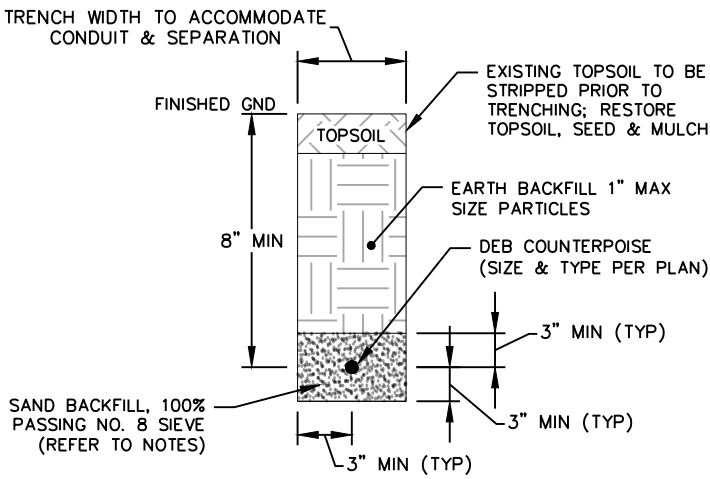


NOTES

1. CONDUIT/DUCK BANK SHALL BE INSTALLED IN THE TOP 12" OF SUBGRADE. CONDUIT FITTINGS & BENDS ONLY. HEATING & BENDING OF THE CONDUIT NOT PERMITTED.
2. EXTEND ALL DUCT BANKS A MINIMUM OF 10' BEYOND THE EDGE OF PAVEMENT & 13' BEYOND THE EDGE OF PAVEMENT WHEN CROSSING ADJACENT CKTs.
3. SAND BACKFILL NOT WAIVED FOR THIS APPLICATION.

L-110 SAND ENCASED CONDUIT/DUCT BANK IN TRENCH

NOT TO SCALE



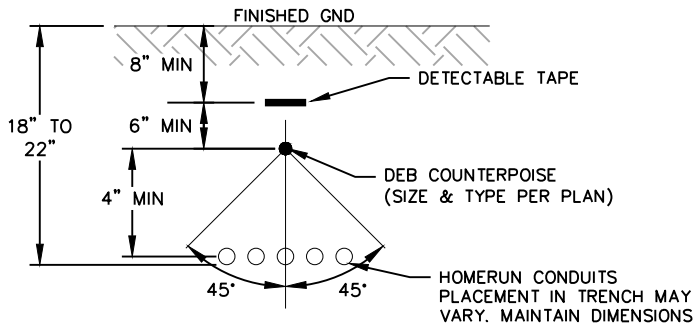
UNDER TURF (COUNTERPOISE ONLY)

NOTES

1. DEPTH OF TRENCHES AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. SAND BACKFILL MAY BE WAIVED BY THE ENGINEER IF THE EXISTING SOIL MEETS THE BACKFILL REQUIREMENTS. PRIOR APPROVAL FROM ENGINEER REQUIRED.
3. RESTORE ALL DISTURBED SURFACES TO THEIR ORIGINAL CONDITION, OR AS SHOWN ON THE CIVIL PLANS.

L-108 COUNTERPOISE IN TRENCH

NOT TO SCALE

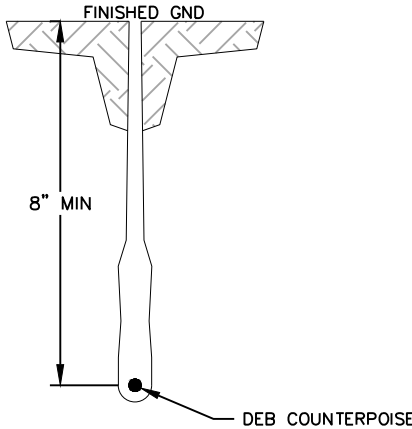


NOTES

1. MULTIPLE COUNTERPOISE CABLES MAY BE REQUIRED TO OBTAIN THE REQUIRED DIMENSIONS SHOWN. ADDITIONAL COUNTERPOISE SHALL BE CONSIDERED INCIDENTAL.

L-108 COUNTERPOISE ABOVE CONDUIT (HOMERUN) OR WHEN UNDER PAVEMENT

NOT TO SCALE

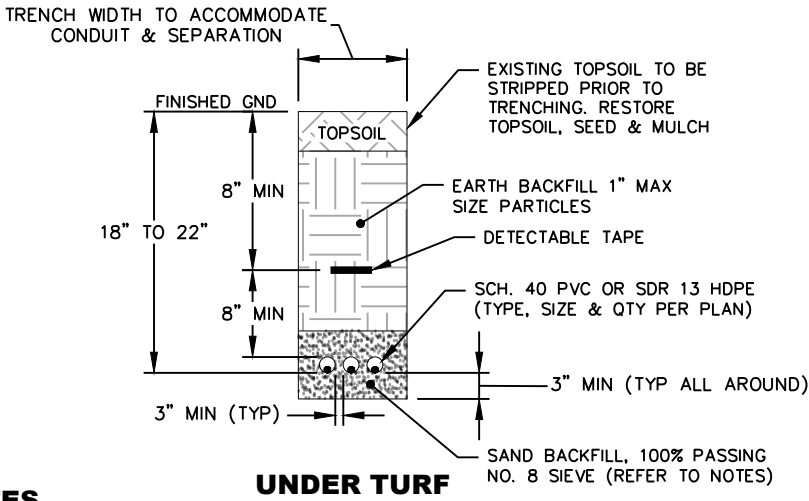


NOTES

1. COUNTERPOISE PLOWING IS ALLOWED WHERE SUITABLE SOIL CONDITIONS EXIST AS DIRECTED & APPROVED BY THE RPR & ENGINEER.
2. REMOVE ROCK & STONES AS INDICATED IN SPECIFICATION L-110.

L-108 PLOWED COUNTERPOISE

NOT TO SCALE

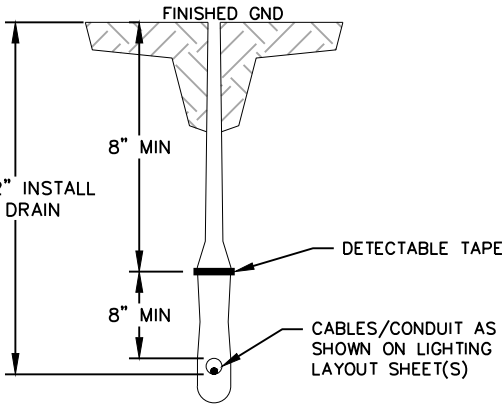


NOTES

1. INCREASE TRENCHES W/ MORE THAN 4 CABLES 3" IN WIDTH FOR EACH ADDITIONAL CABLE. IF SPECIFIED ON PLANS, TWO PARALLEL TRENCHES MAY BE CONSTRUCTED.
2. DEPTH OF TRENCHES AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. SAND BACKFILL MAY BE WAIVED BY THE ENGINEER IF THE EXISTING SOIL MEETS THE BACKFILL REQUIREMENTS. PRIOR APPROVAL FROM ENGINEER REQUIRED.
4. RESTORE ALL DISTURBED SURFACES TO THEIR ORIGINAL CONDITION, OR AS SHOWN ON THE CIVIL PLANS.
5. WHEN 5kV AND 600V CABLES ARE PRESENT IN SAME TRENCH, PROVIDE MIN 12" HORIZONTAL SEPARATION.
6. ALL SPARE & EMPTY CONDUIT SHALL BE PROVIDED W/ A 200 LB. TEST POLYPROPYLENE PULL ROPE.

L-110 CONDUIT IN TRENCH

NOT TO SCALE



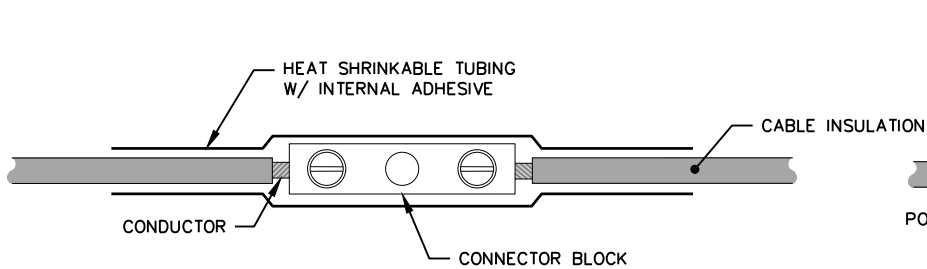
NOTES

1. CONDUIT PLOWING IS ALLOWED WHERE SUITABLE SOIL CONDITIONS EXIST AS DIRECTED & APPROVED BY THE RPR & ENGINEER.
2. REMOVE ROCK & STONES AS INDICATED IN SPECIFICATION L-110.
3. WHEN PLOWING MULTIPLE CONDUIT/CABLES, MAINTAIN DIMENSIONS AS SHOWN IN THE TYPICAL CONDUIT IN TRENCH DETAILS.

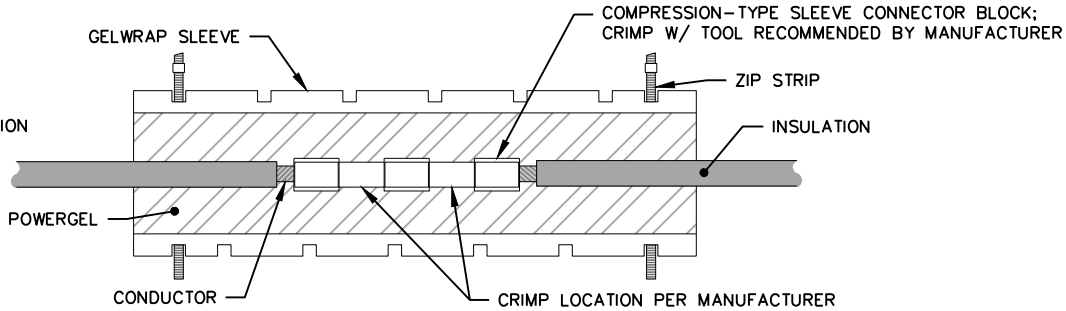
L-110 PLOWED PVC OR HDPE CONDUIT

NOT TO SCALE





MECHANICAL



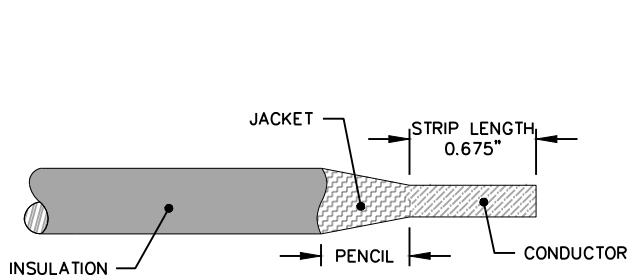
COMPRESSION

SPLICING NOTES

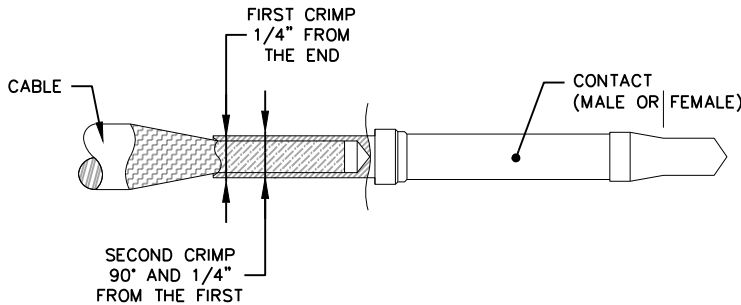
1. PROPERLY MATCH THE INSIDE DIAMETER OF CONNECTOR TO THE OUTSIDE DIAMETER OF CABLE.
2. COMPRESSION CONNECTIONS OF CONDUCTORS MUST BE MADE BY USING CRIMP CONNECTORS AND A CRIMPING TOOL APPROVED BY THE COMPRESSION-TYPE SLEEVE CONNECTOR BLOCK MANUFACTURER. THE TOOL MUST PRODUCE A COMPLETE CRIMP BEFORE IT CAN BE REMOVED. THE CRIMPING TOOL USED MUST BE LISTED BY THE L-823 KIT MANUFACTURER. MAKE THE NUMBER AND TYPE OF CRIMPS PER THE KIT MANUFACTURER'S INSTRUCTIONS.
3. ALL SPLICES SHALL BE INCIDENTAL TO THE ASSOCIATED WIRE.
4. ALL SPLICES, EXCEPT COUNTERPOISE, SHALL BE LOCATED IN A JUNCTION STRUCTURE.
5. VINYL TAPE NOT PERMITTED FOR USE.
6. HEAT SHRINK REQUIRED AT CABLE & CONNECTOR JOINT. TAPE & HEAT SHRINK NOT REQUIRED OVER GELWRAP SLEEVE.
7. USE OF INSULATION PENCILING TOOL REQUIRED WHEN APPLICABLE TO WIRE BEING USED.

L-108 FIELD-ATTACHED 600V WIRE SPlice CONNECTION

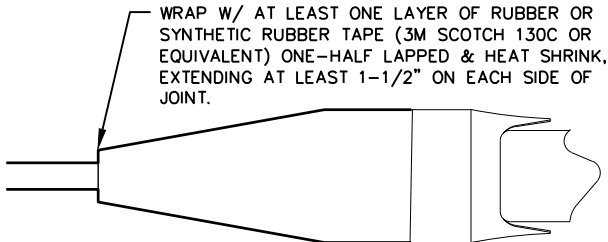
NOT TO SCALE



STEP 1

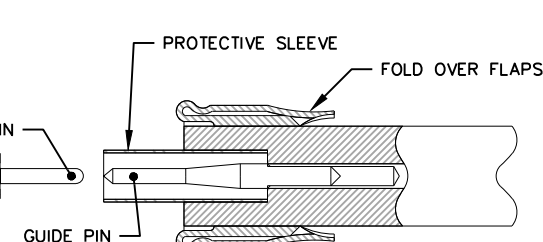


STEP 2



MALE HOUSING

NOT TO SCALE



FEMALE HOUSING

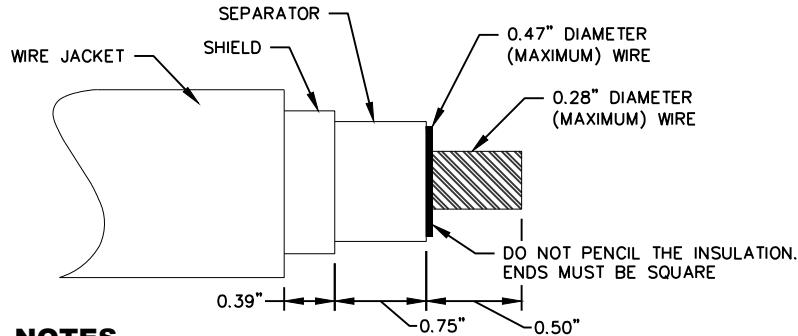
NOT TO SCALE

SPLICING NOTES

1. PROPERLY MATCH THE INSIDE DIAMETER OF CONNECTOR TO THE OUTSIDE DIAMETER OF CABLE.
2. CONNECTION OF CONDUCTORS MUST BE MADE BY USING CRIMP CONNECTORS AND A CRIMPING TOOL APPROVED BY THE CONNECTOR MANUFACTURER. THE TOOL MUST PRODUCE A COMPLETE CRIMP BEFORE IT CAN BE REMOVED. THE CRIMPING TOOL USED MUST BE LISTED BY THE L-823 KIT MANUFACTURER. MAKE THE NUMBER AND TYPE OF CRIMPS PER THE KIT MANUFACTURER'S INSTRUCTIONS.
3. ALL SPLICES SHALL BE INCIDENTAL TO THE ASSOCIATED WIRE.
4. ALL SPLICES, EXCEPT COUNTERPOISE, SHALL BE LOCATED IN A JUNCTION STRUCTURE.
5. VINYL TAPE NOT PERMITTED FOR USE.
6. HEAT SHRINK REQUIRED AT CABLE & CONNECTOR JOINT. TAPE & HEAT SHRINK NOT REQUIRED OVER ROLL OVER FLAP.
7. USE OF INSULATION PENCILING TOOL REQUIRED.

L-108 FIELD-ATTACHED PLUG-IN SPlice

NOT TO SCALE



NOTES

1. IF USING SHIELDED L-824 WIRE TO CONNECT OUTPUT WIRES FROM THE SCO CUTOUT, PERFORMING THE FOLLOWING PROCEDURE:
2. STRIP THE INPUT AND OUTPUT CABLE WIRES TO 1/2" FROM THE END OF THE WIRE. MAKE SURE THAT ANY PLASTIC COATING ON THE WIRE IS CUT OFF.

L-108 STRIPPING SHIELDED L-824 WIRE - SERIES CUTOUT (SCO)

NOT TO SCALE



LIGHTING DETAILS

REVISIONS

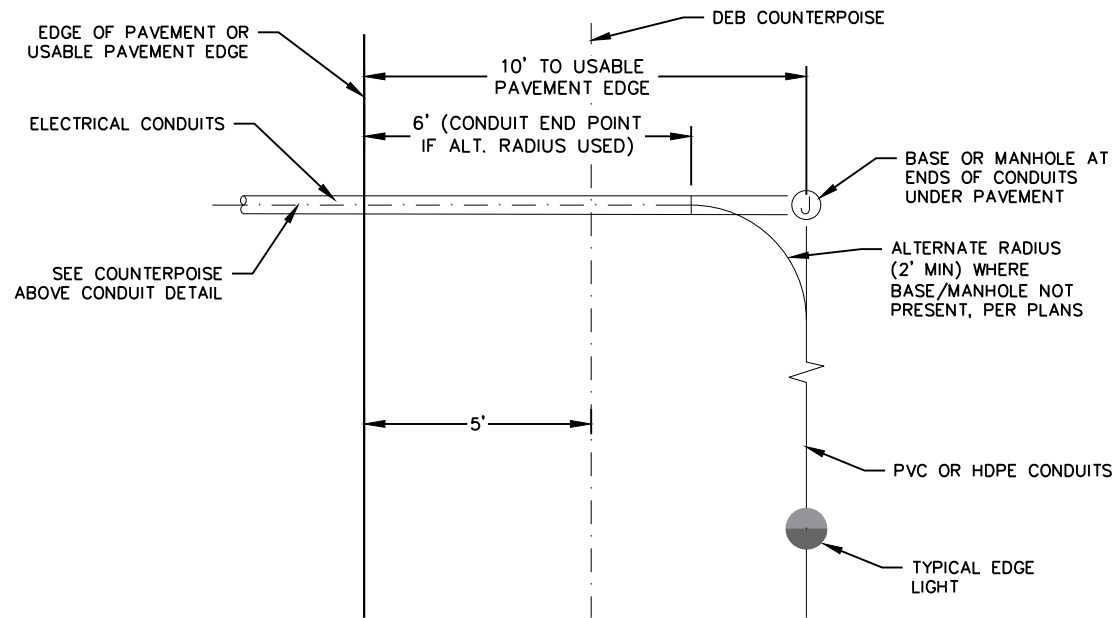


Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



Sheet
E202

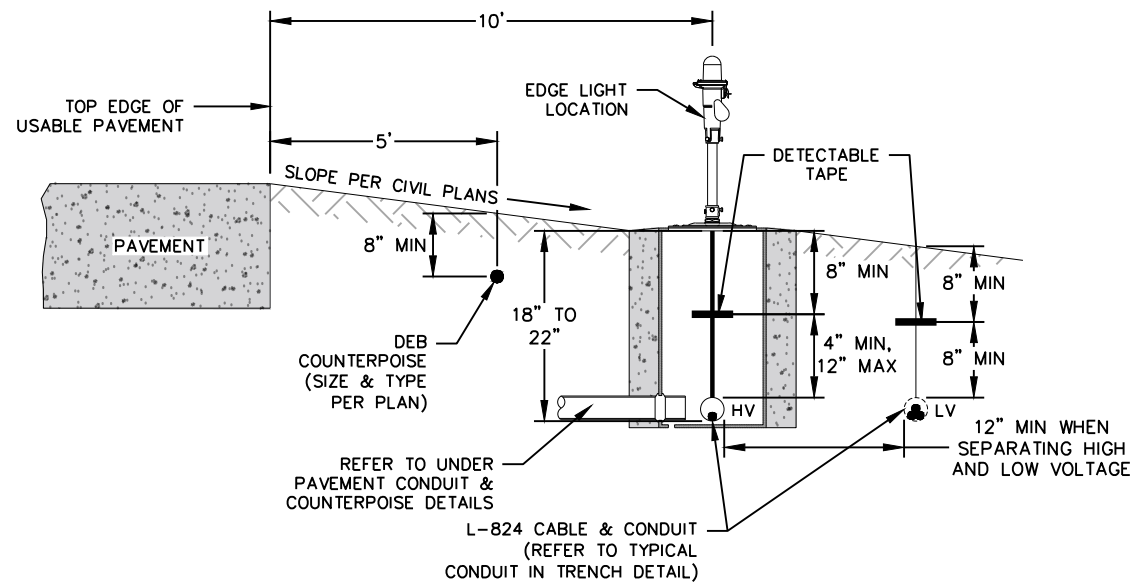
RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA



NOTES

1. GND RODS AT 500 FOOT MAX SPACING (INCIDENTAL).
2. TERMINATE, SPLICE OR CONNECT COUNTERPOISE W/ EXOTHERMIC WELD TO GND ROD.

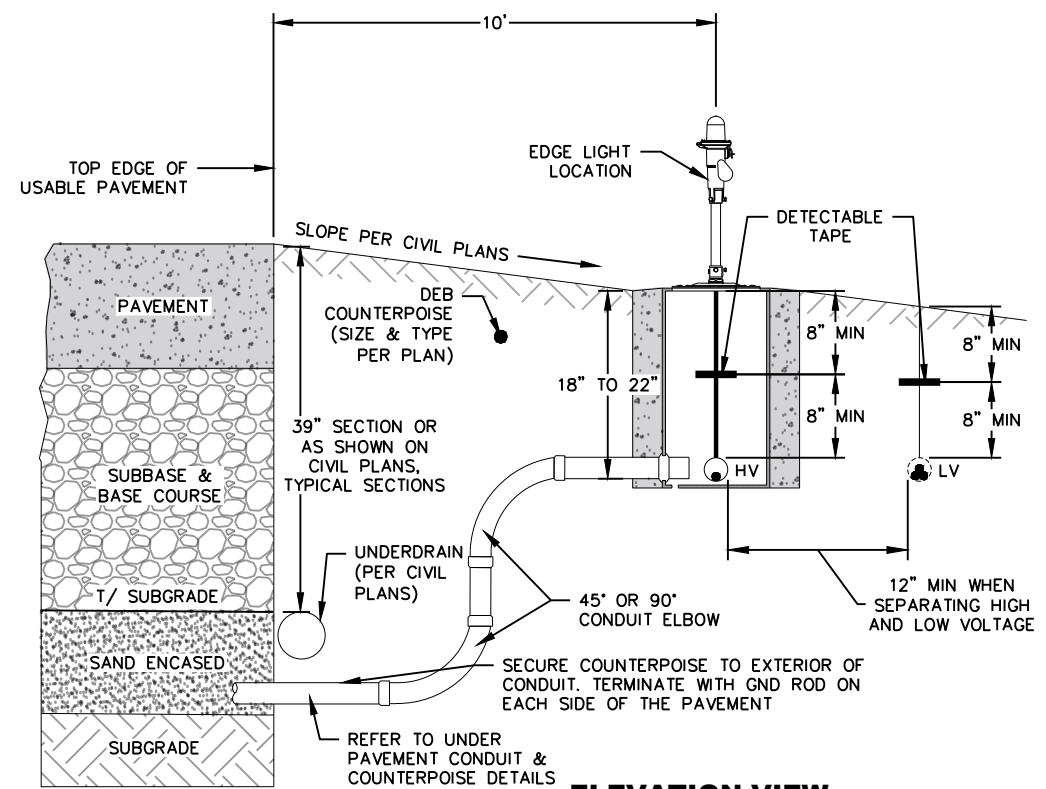
PLAN VIEW



ELEVATION VIEW

L-108 EDGE LIGHT CABLE/COUNTERPOISE - ELEVATION VIEW

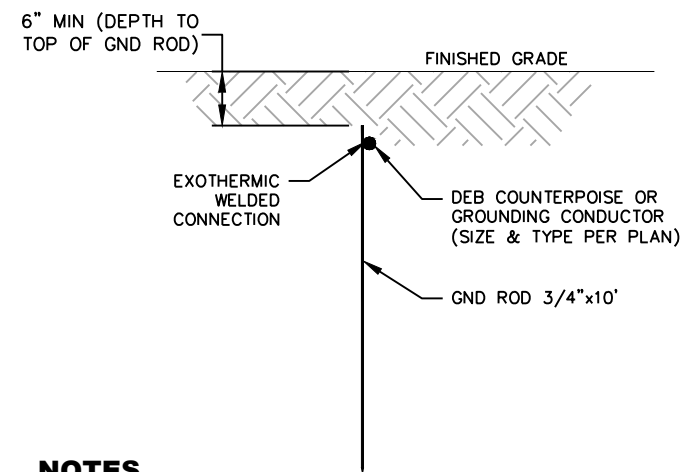
NOT TO SCALE



ELEVATION VIEW

L-110 CONDUIT CROSSING

NOT TO SCALE



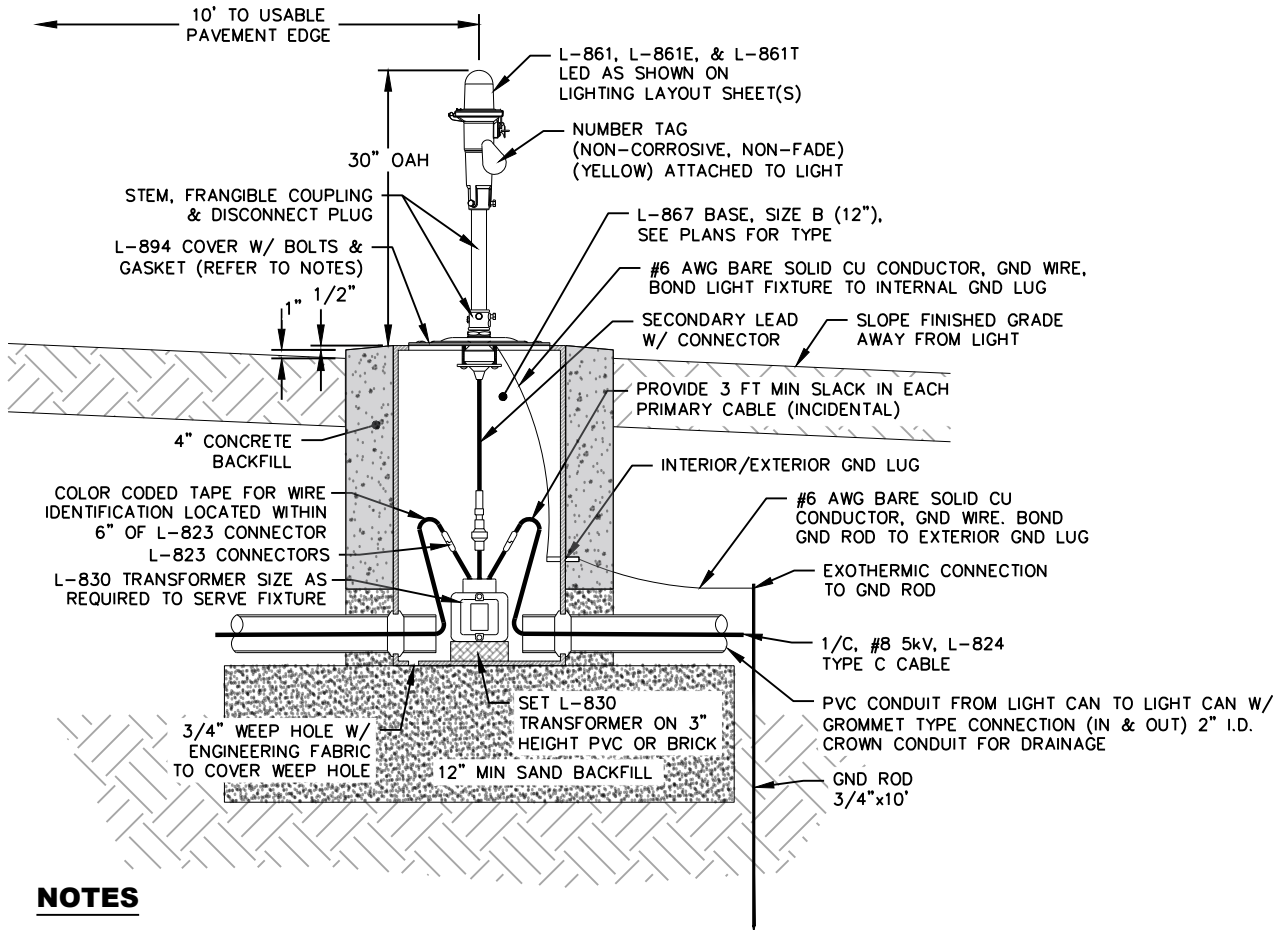
NOTES

1. DETAIL REFLECTS ALL GND ROD INSTALLATIONS, GND ROD CONNECTIONS & COUNTERPOISE CONNECTIONS.
2. INSTALL GND ROD AT MAXIMUM 500 FOOT SPACING CONNECTED TO COUNTERPOISE. USE GND ROD TO TERMINATE THE COUNTERPOISE AT BOTH ENDS OF CONDUIT.
3. COST OF GND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.
4. THE NUMBER OF GND RODS IS SITE SPECIFIC AND MAY DEPEND ON SOIL RESISTIVITY.

L-108 GROUND ROD & COUNTERPOISE

NOT TO SCALE



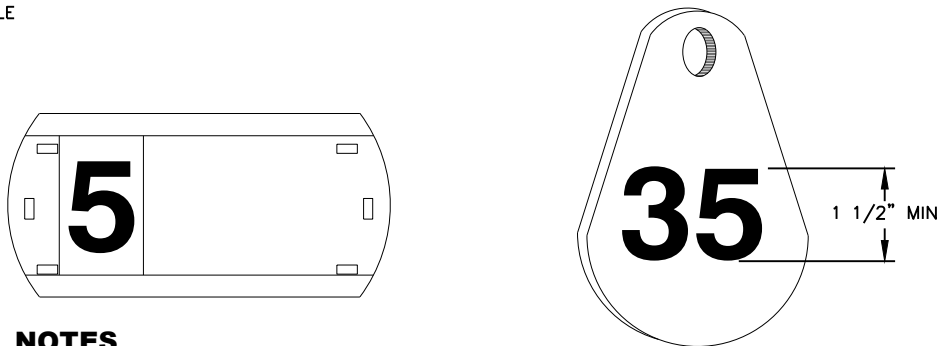


NOTES

1. AC 150/5340-30J, CHAPTER 10 & 11, INSTALLATION DETAILS OF IN-PAVEMENT LIGHT CANS IN NEW AND EXISTING PAVEMENTS EXPLAIN THE INSTALLATION DETAILS, REQUIREMENTS AND SPECIFICATIONS FOR THIS TYPE OF INSTALLATION AND SHALL BE UTILIZED BY THE CONTRACTOR DURING INSTALLATION. OTHER OPTIONS OF INSTALLATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
2. MIN 1/2" BOLT PROTRUSION, BOLTS SHALL HAVE SUFFICIENT THREAD LENGTH SO BOLTS DO NOT SHOULDER OUT BEFORE THE FIXTURE IS SECURELY TIGHTENED.
3. APPLY A CORROSION INHIBITING, "NEVER-SEIZE" COMPOUND TO ALL SCREWS, NUTS, & FRANGIBLE COUPLING THREADS. IF COATED BOLTS ARE USED PER EB #83A, DO NOT APPLY "NEVER-SEIZE" COMPOUND.
4. COLOR CODED WIRE IDENTIFICATION TAPE AS FOLLOWS: WHEN FACING LIGHT W/ BACK TO PAVEMENT, CABLE TO LEFT IS CODED RED AND CABLE TO THE RIGHT IS CODED BLUE.
5. 4" CONCRETE BACKFILL SHALL BE FORMED VIA SONOTUBE OR APPROVED EQUIVALENT. EARTH FORMING NOT PERMITTED.
6. 4" CONCRETE BACKFILL SHALL BE SDDOT 462 CLASS M CONCRETE & SHALL BE FORMED VIA SONOTUBE OR APPROVED EQUIVALENT. EARTH FORMING NOT PERMITTED.

L-125 IN-TURF (ELEVATED) EDGE LIGHT (LED) BASE MOUNTED

NOT TO SCALE

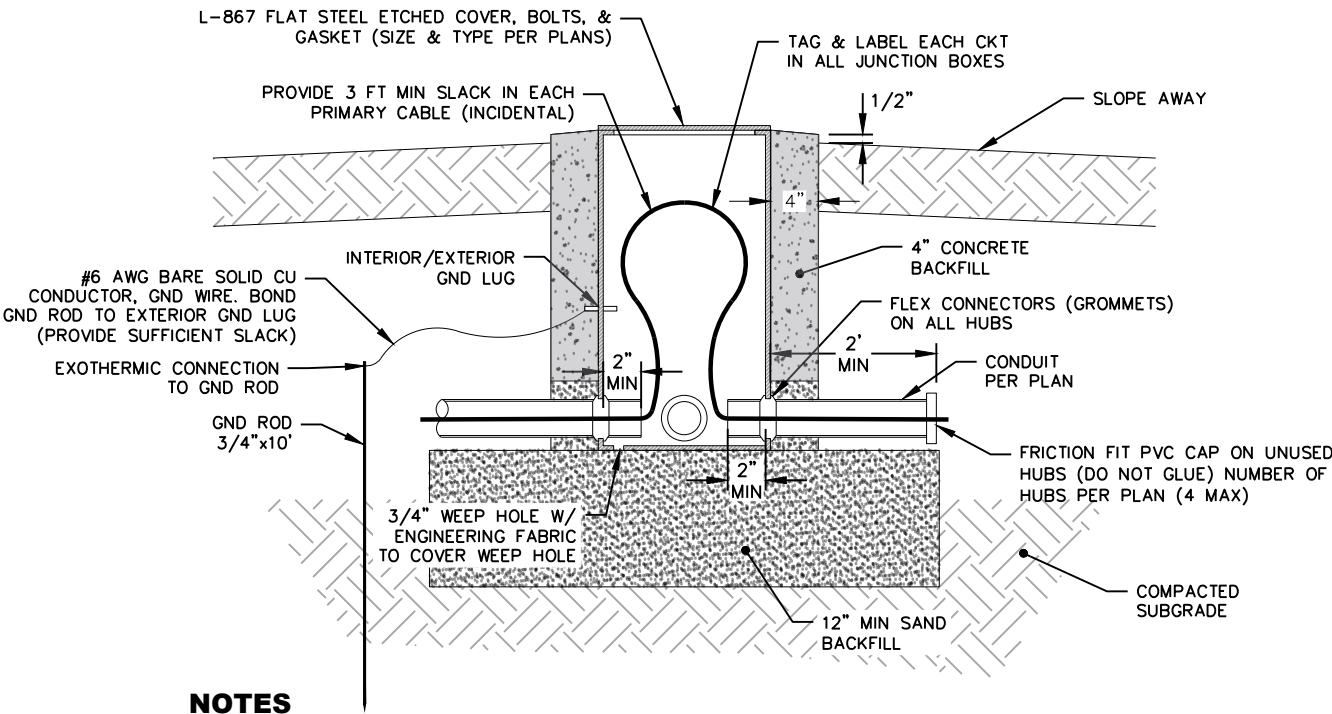


NOTES

1. AFFIX NON-CORROSIVE TAG TO FIXTURE FACING RUNWAY W/ SET SCREW, WIRE TIE OR METAL BAND. NUMERALS SHALL BE ENGRAVED FOR PERMANENT READABILITY.
2. COLORED TAGS MAY BE USED TO REDUCE NUMBER/LETTER COMBINATIONS.
3. INCIDENTAL TO FIXTURE.
4. NUMBERING SYSTEM & DESIGNATION PER OWNER.

L-125 IDENTIFICATION TAG DETAIL

NOT TO SCALE

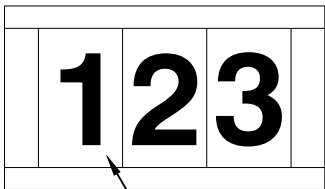


NOTES

1. AC 150/5340-30J, CHAPTER 10 & 11, INSTALLATION DETAILS OF IN-PAVEMENT LIGHT CANS IN NEW AND EXISTING PAVEMENTS EXPLAIN THE INSTALLATION DETAILS, REQUIREMENTS AND SPECIFICATIONS FOR THIS TYPE OF INSTALLATION AND SHALL BE UTILIZED BY THE CONTRACTOR DURING INSTALLATION. OTHER OPTIONS OF INSTALLATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
2. MIN 1/2" BOLT PROTRUSION, BOLTS SHALL HAVE SUFFICIENT THREAD LENGTH SO BOLTS DO NOT SHOULDER OUT BEFORE THE FIXTURE IS SECURELY TIGHTENED.
3. APPLY A CORROSION INHIBITING, "NEVER-SEIZE" COMPOUND TO ALL SCREWS, NUTS, & FRANGIBLE COUPLING THREADS. IF COATED BOLTS ARE USED PER EB #83A, DO NOT APPLY "NEVER-SEIZE" COMPOUND.
4. COLOR CODED WIRE IDENTIFICATION TAPE AS FOLLOWS: WHEN FACING LIGHT W/ BACK TO PAVEMENT, CABLE TO LEFT IS CODED RED AND CABLE TO THE RIGHT IS CODED BLUE.
5. 4" CONCRETE BACKFILL SHALL BE SDDOT 462 CLASS M CONCRETE & SHALL BE FORMED VIA SONOTUBE OR APPROVED EQUIVALENT. EARTH FORMING NOT PERMITTED.

L-115 IN-TURF ELECTRICAL JUNCTION BOX

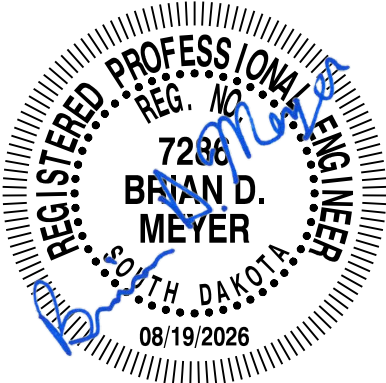
NOT TO SCALE



HIGH VISIBLE SIGN ID W/ 1" BLACK LETTERING ON YELLOW BACKGROUND, MOUNTED TO SIDE END PANEL OF SIGN. ID NUMBERING PER PLANS.

L-125 SIGN IDENTIFICATION TAG DETAIL

NOT TO SCALE



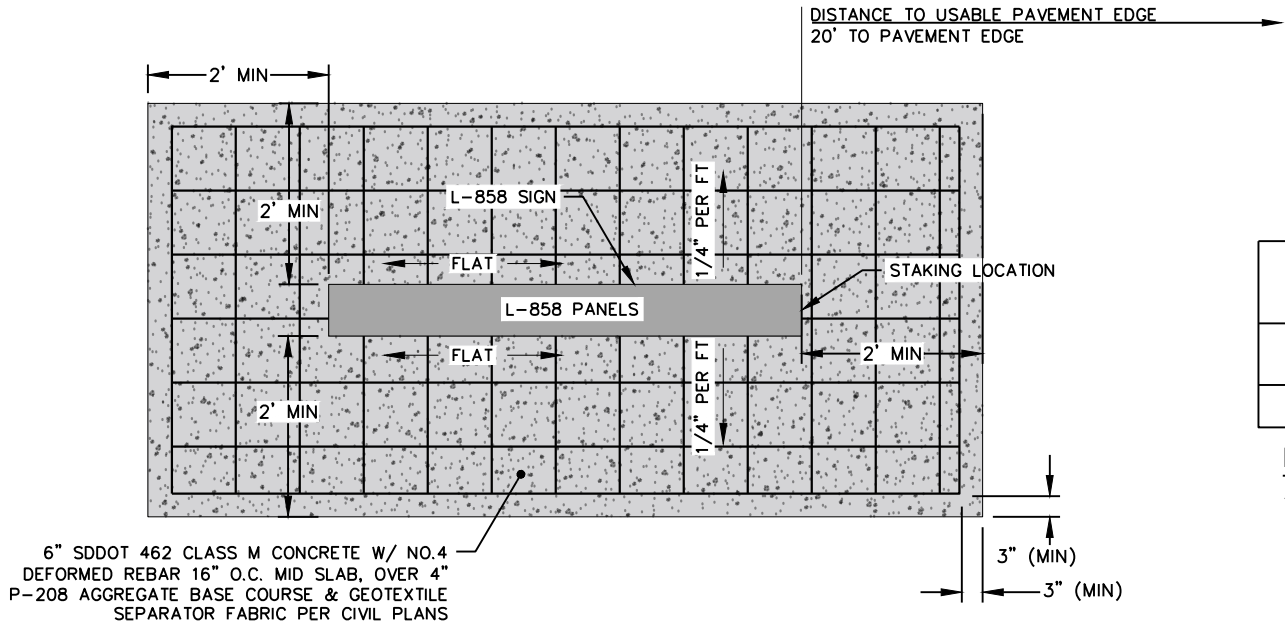


1. AC 150/5340-30J, CHAPTER 10 & 11, INSTALLATION DETAILS OF IN-PAVEMENT LIGHT CANS IN NEW AND EXISTING PAVEMENTS EXPLAIN THE INSTALLATION DETAILS, REQUIREMENTS AND SPECIFICATIONS FOR THIS TYPE OF INSTALLATION AND SHALL BE UTILIZED BY THE CONTRACTOR DURING INSTALLATION. OTHER OPTIONS OF INSTALLATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
2. MIN 1/2" BOLT PROTRUSION, BOLTS SHALL HAVE SUFFICIENT THREAD LENGTH SO BOLTS DO NOT SHOULDER OUT BEFORE THE FIXTURE IS SECURELY TIGHTENED.
3. APPLY A CORROSION INHIBITING, "NEVER-SEIZE" COMPOUND TO ALL SCREWS, NUTS & FRANGIBLE COUPLING THREADS. IF COATED BOLTS ARE USED PER EB #B3A, DO NOT APPLY "NEVER-SEIZE" COMPOUND.
4. COLOR-CODED WIRE IDENTIFICATION TAPE AS FOLLOWS: WHEN FACING LIGHT W/ BACK TO PAVEMENT, CABLE TO LEFT IS CODED RED AND CABLE TO THE RIGHT IS CODED BLUE.
5. 4" CONCRETE BACKFILL SHALL BE SDDOT 462 CLASS M CONCRETE & SHALL BE FORMED VIA SONOTUBE OR APPROVED EQUIVALENT. EARTH FORMING NOT PERMITTED.

L-125 IN-TURF (ELEVATED) EDGE LIGHT (LED) BASE MOUNTED - ENTRANCE/EXIT LIGHTS

NOT TO SCALE



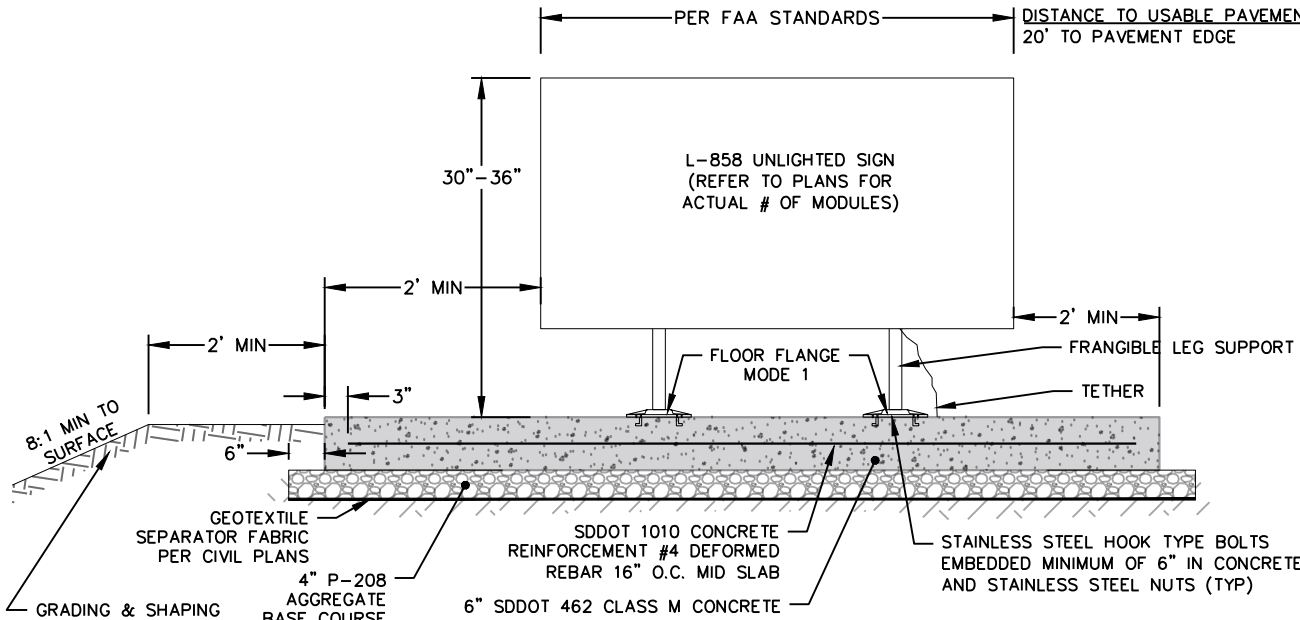


PLAN VIEW

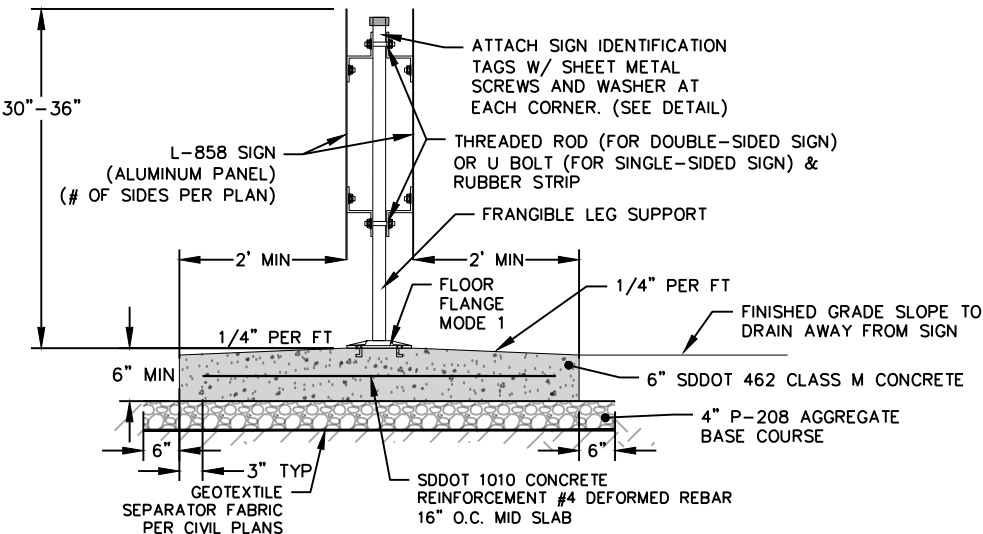
SIGN HEIGHTS & LOCATION DISTANCE FROM USABLE PAVEMENT EDGE (PER AC 150/5345-44 & AC 150/5340-18)		
SIGN SIZE	INSTALLED MAX HEIGHT* (INCHES)	PERPENDICULAR DISTANCE TO USABLE PAVEMENT EDGE (INCHES)
1	30-36"	TOLERANCE 10-20'

NOTES

1. DISTANCE FROM TOP OF THE SIGN TO GRADE MEASURED AT THE SIDE OF THE SIGN THAT IS NEAREST TO THE APPLICABLE RUNWAY, TAXIWAY OR APRON. THIS HEIGHT SHOULD BE REDUCED, IF NECESSARY, TO PROVIDE THE REQUIRED 12-INCH CLEARANCE BETWEEN THE TOP OF THE SIGN & THE CRITICAL AIRCRAFT.



ELEVATION VIEW



SIDE VIEW

NOTES

1. NUMBER AND SPACING OF LEGS AS PER MANUFACTURER REQUIREMENTS.
2. CONTRACTOR'S ALTERNATE TO INSTALL FAA CERTIFIED METAL FRAME/MODULE SIGN. ALL UNLIGHTED SIGNS SHALL BE THE SAME.

L-858 AIRFIELD UNLIGHTED SIGN

NOT TO SCALE

RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

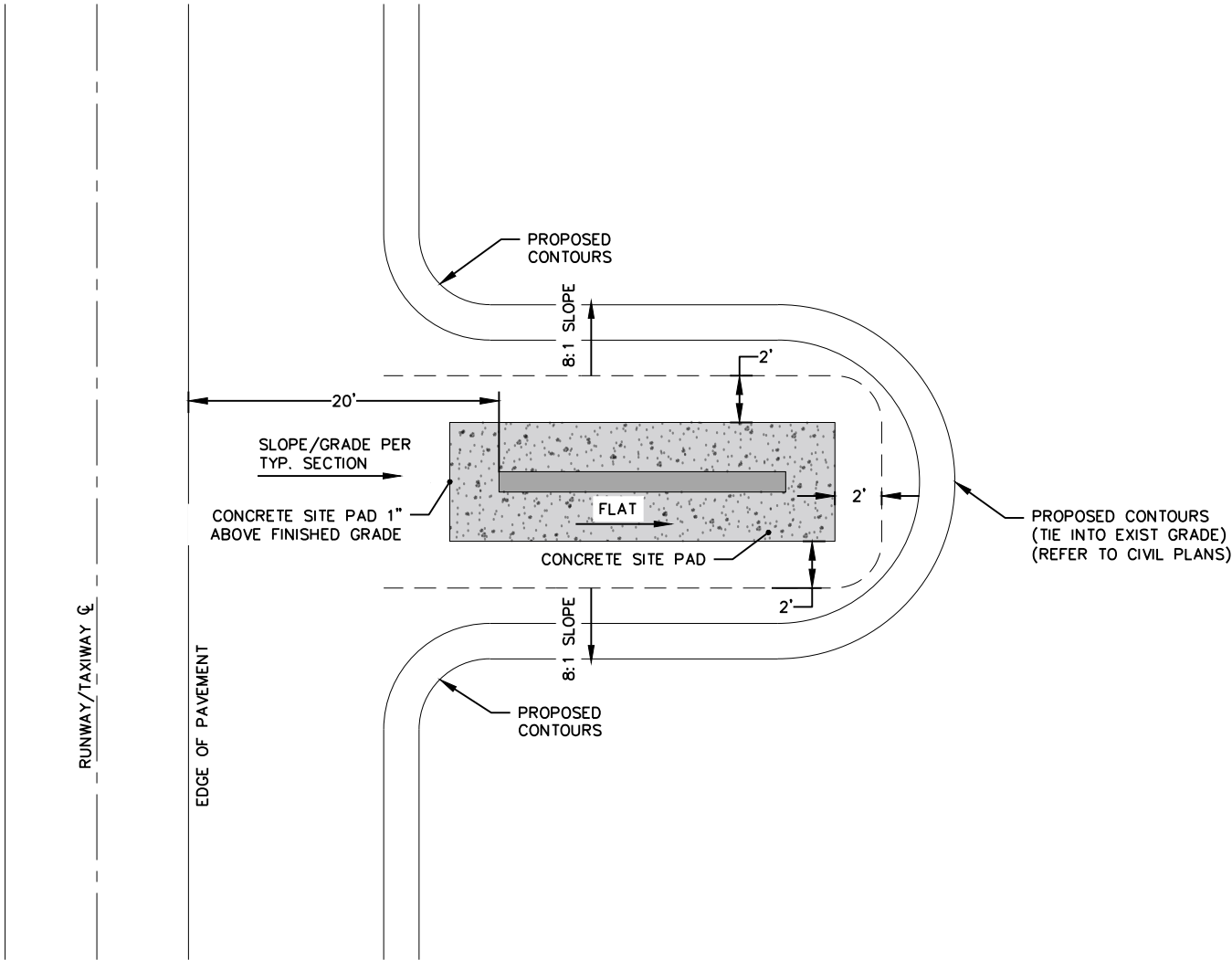
LIGHTING DETAILS

REVISIONS

Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157

REGISTERED PROFESSIONAL ENGINEER
BRIAN D. MEYER
SOUTH DAKOTA
08/19/2026

Sheet
E206



NOTES

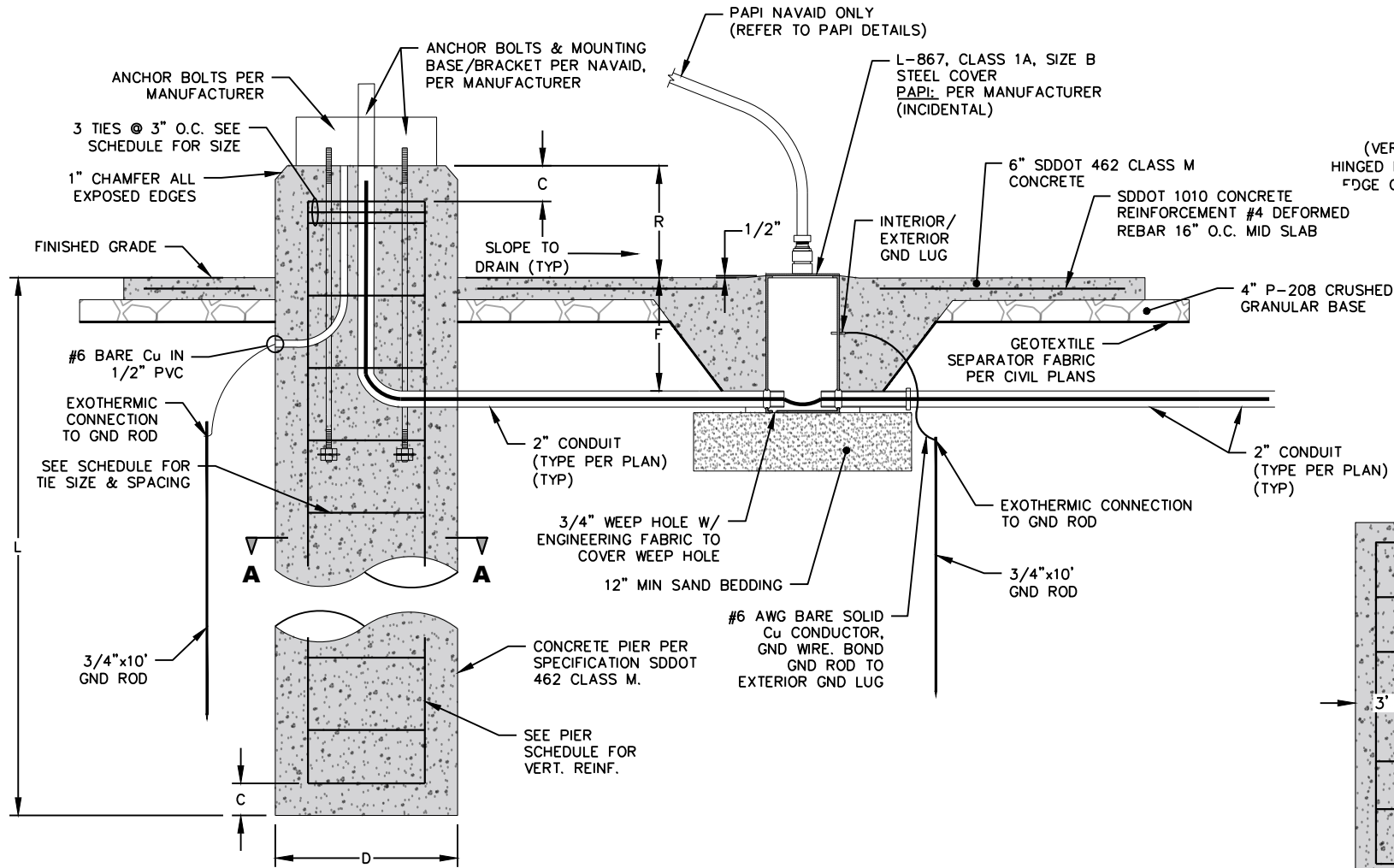
1. EARTHWORK SHALL BE CONSIDERED INCIDENTAL TO THE SIGN BID ITEM AND SEPARATE MEASUREMENT AND PAYMENT SHALL NOT BE MADE. EARTHWORK SHALL BE PER P-152 REQUIREMENTS.
2. COORDINATE SIGN GRADING W/ P-152 OPERATIONS.

L-858 AIRFIELD UNLIGHTED SIGN LAYOUT & GRADING

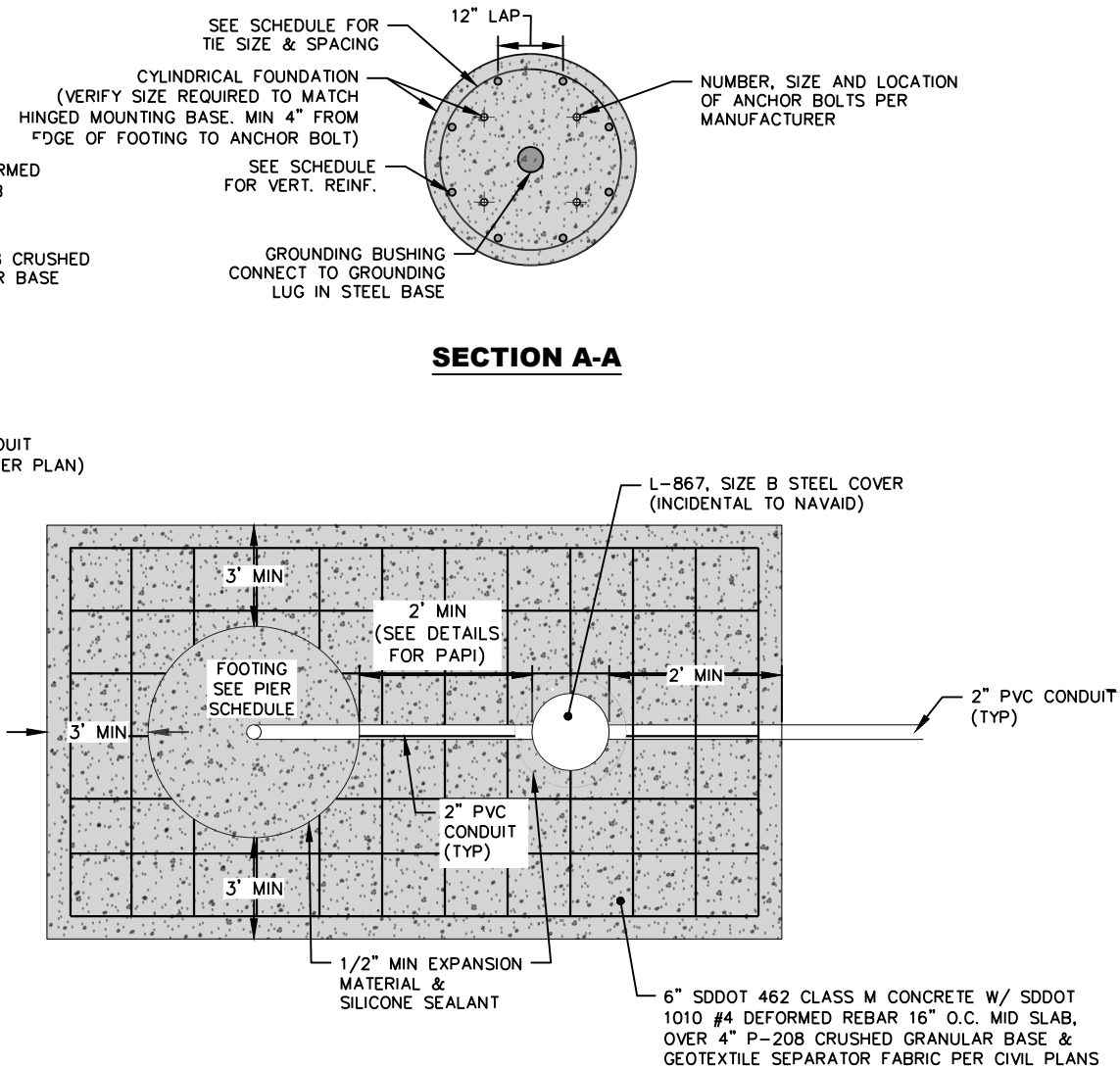
NOT TO SCALE



LIGHTING DETAILS	RUNWAY 11/29 CONSTRUCTION	
	FLANDREAU MUNICIPAL AIRPORT	
	FLANDREAU, SOUTH DAKOTA	
REVISIONS		
Project Manager: BDM Designer: BGS Project Number: 734301 Phone: (605) 339-4157		
	Sheet	
	E207	



SECTION A-A



NOTES

1. CONCRETE SHALL CONFORM TO SDDOT 462 CLASS M CONCRETE.
2. COORDINATE ANCHOR BOLT SIZE, QUANTITY & PATTERN W/ MANUFACTURER/SUPPLIER.
3. WHERE GRADE IS NOT LEVEL @ PIER, PLACE 6" REVEAL ON THE HIGH SIDE OF THE PIER.
4. L-867 JUNCTION CAN, CONCRETE, AGGREGATE BASE, ENGINEERING FABRIC AND ACCESSORIES FOR A COMPLETE INSTALLATION SHALL BE INCIDENTAL.

CONCRETE FOOTING

NOT TO SCALE

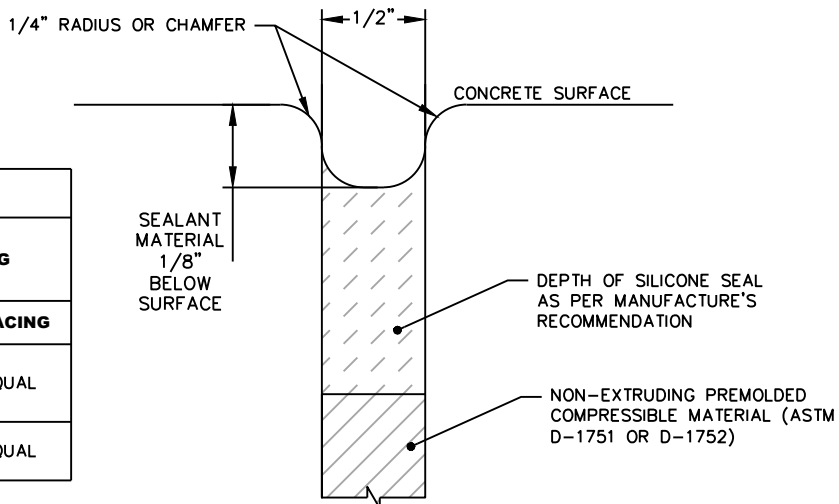
PIER SCHEDULE

STRUCTURE	PIER DIAMETER (D) (MIN)	PIER EMBEDMENT (L) (MIN)	PIER REVEAL (R)	FORM DEPTH (F)	CLEAR DISTANCE (C)	VERTICAL REINFORCING		HORIZONTAL REINFORCING		
						SIZE	QTY	SIZE	QTY	SPACING
PRIMARY WIND CONE	* 2'-0" MIN **	* 7'-0"	1'-6"	2'-0" MIN	0'-3"	#6	8	#3	10	EQUAL
PAPI	* 4'-0" MIN **	* 7'-0"	0'-0"	2'-0" MIN	0'-3"	#4	12	#3	10	EQUAL

- * PER MANUFACTURER RECOMMENDATIONS
** ANCHOR BOLTS SHALL BE MINIMUM 4" FROM ANY CONCRETE EDGE

CONCRETE SITE PAD

NOT TO SCALE



SILICONE SEAL

NOT TO SCALE



LIGHTING DETAILS

REVISIONS

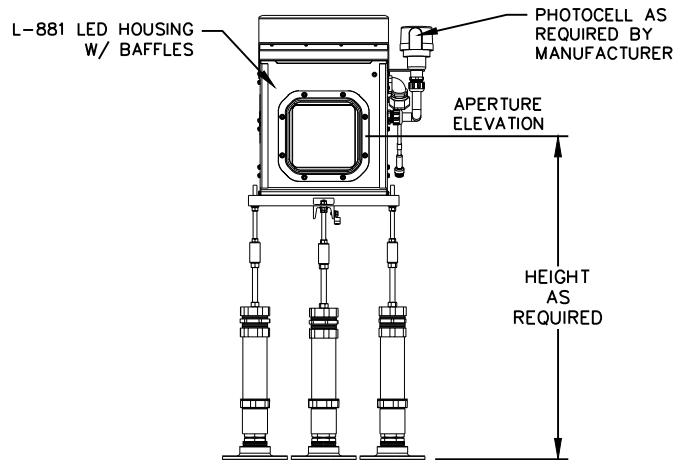


Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157

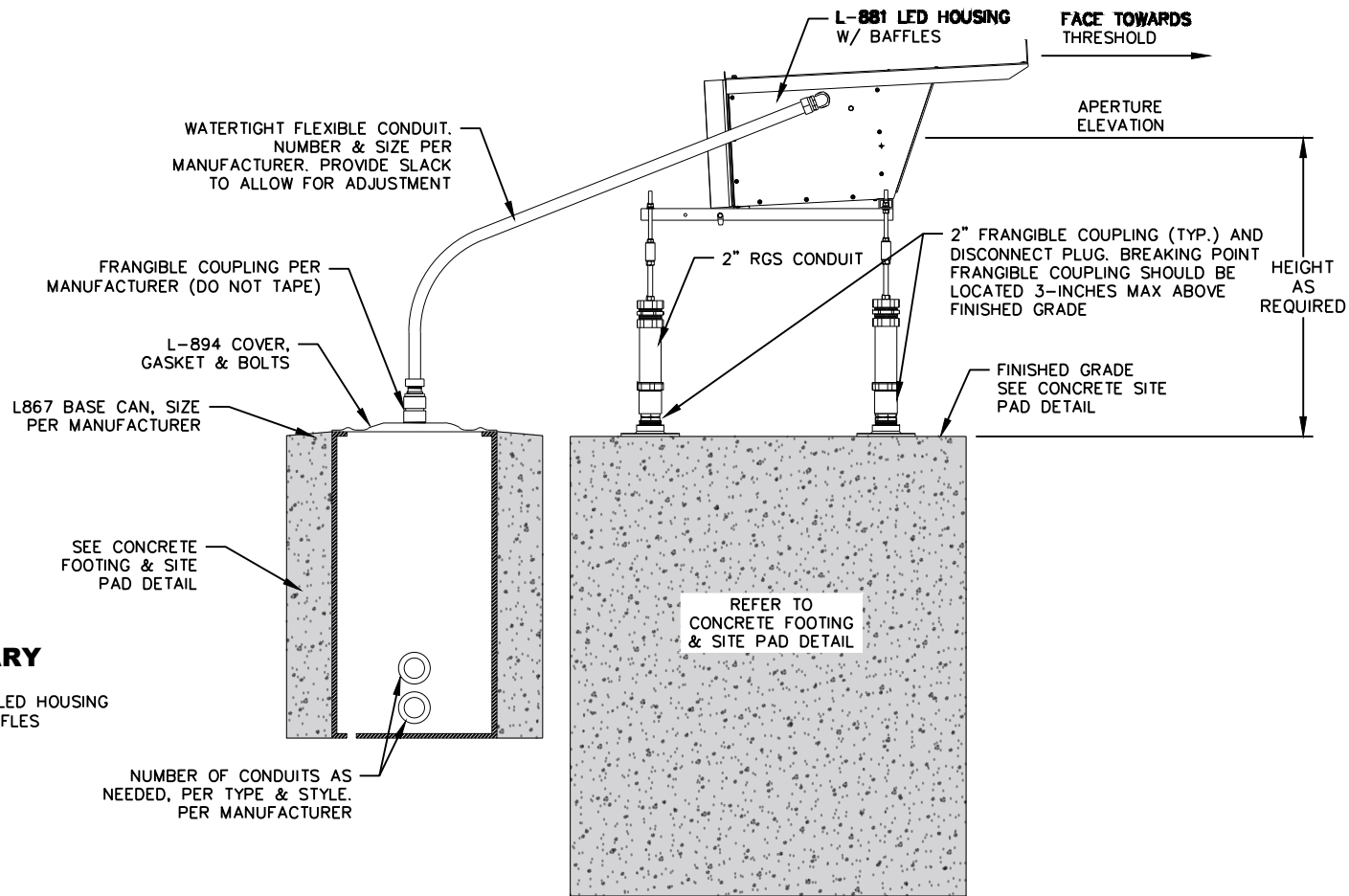


Sheet
E208

RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

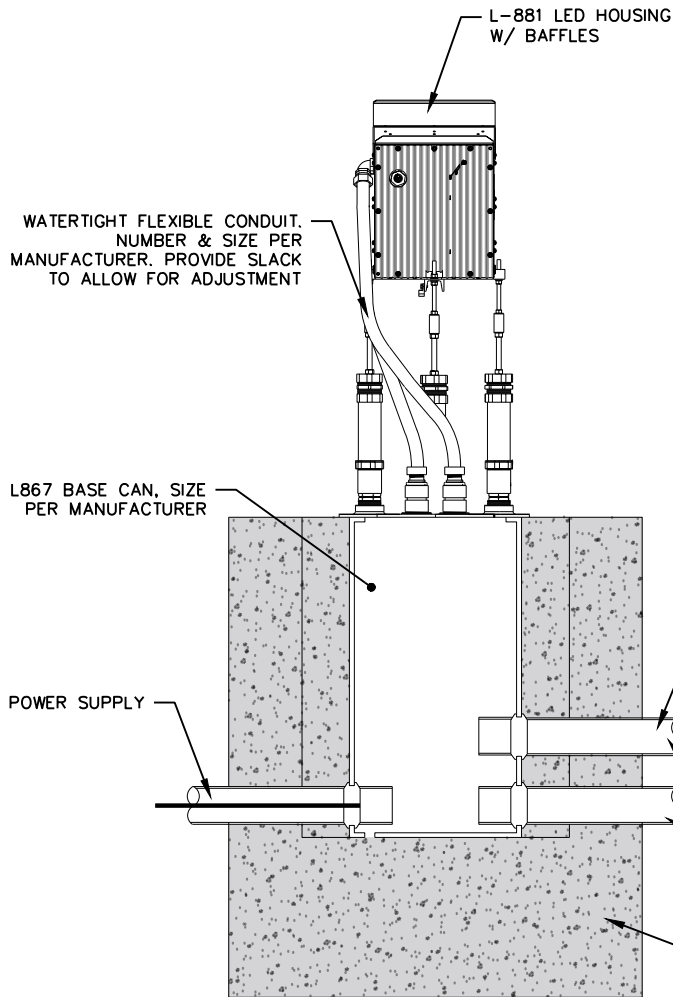


FRONT ELEVATION



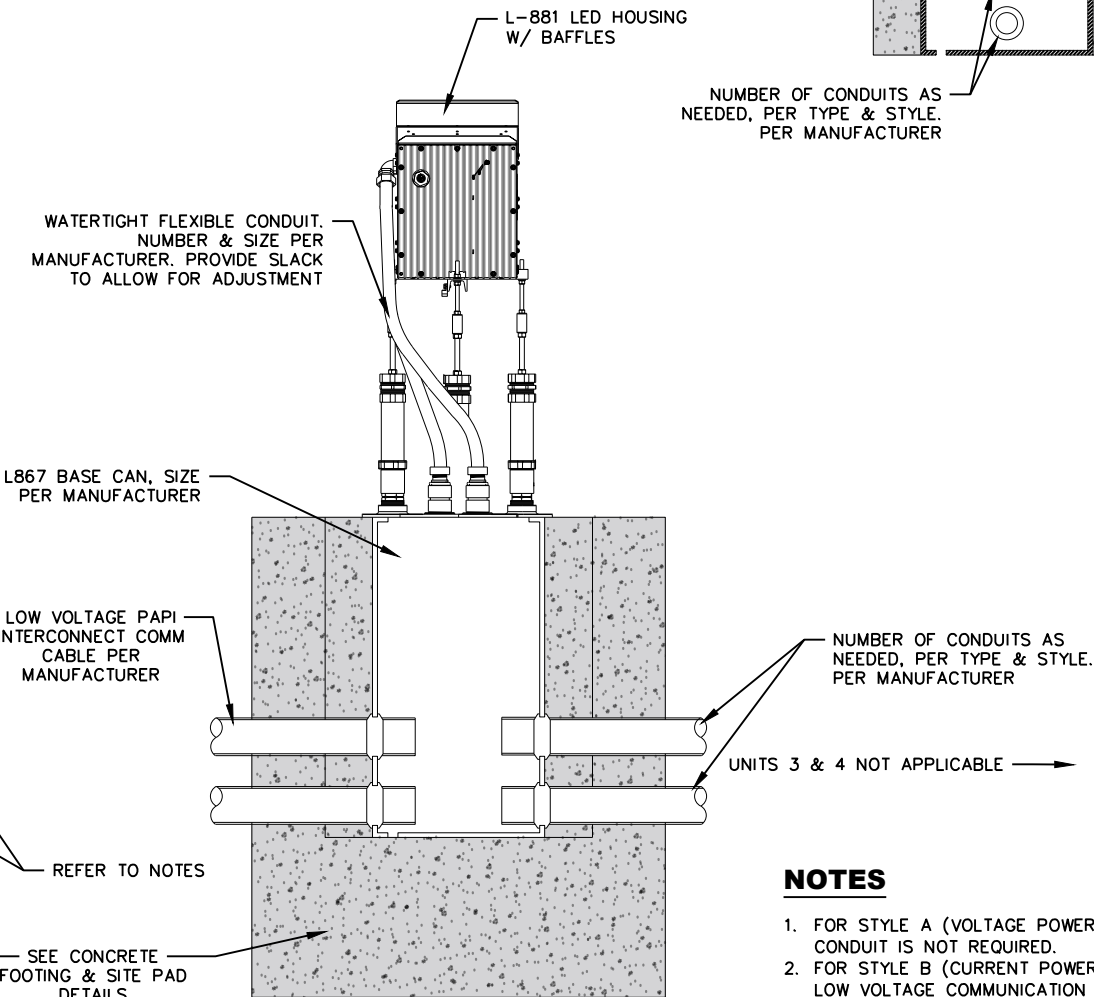
SIDE ELEVATION

UNIT 1 - PRIMARY



PAPI DETAIL - BACK ELEVATION

UNIT 2 - SECONDARY



NOTES

1. FOR STYLE A (VOLTAGE POWERED) SYSTEMS, A SEPARATE HIGH VOLTAGE CONDUIT IS NOT REQUIRED.
2. FOR STYLE B (CURRENT POWERED) SYSTEMS, HIGH VOLTAGE CABLES & LOW VOLTAGE COMMUNICATION CABLES MUST HAVE SEPARATE CONDUITS.
3. THREE MOUNTING/SUPPORT LEGS REQUIRED.
4. CURRENT SENSING OPTION: PROVIDE ONE ADDITIONAL L-867B JUNCTION BOX TO HOUSE TRANSFORMER.

L-881 LED PAPI LIGHTING UNITS

NOT TO SCALE

RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LIGHTING DETAILS

REVISIONS

Helms & Associates
CIVIL ENGINEERS & LAND SURVEYORS

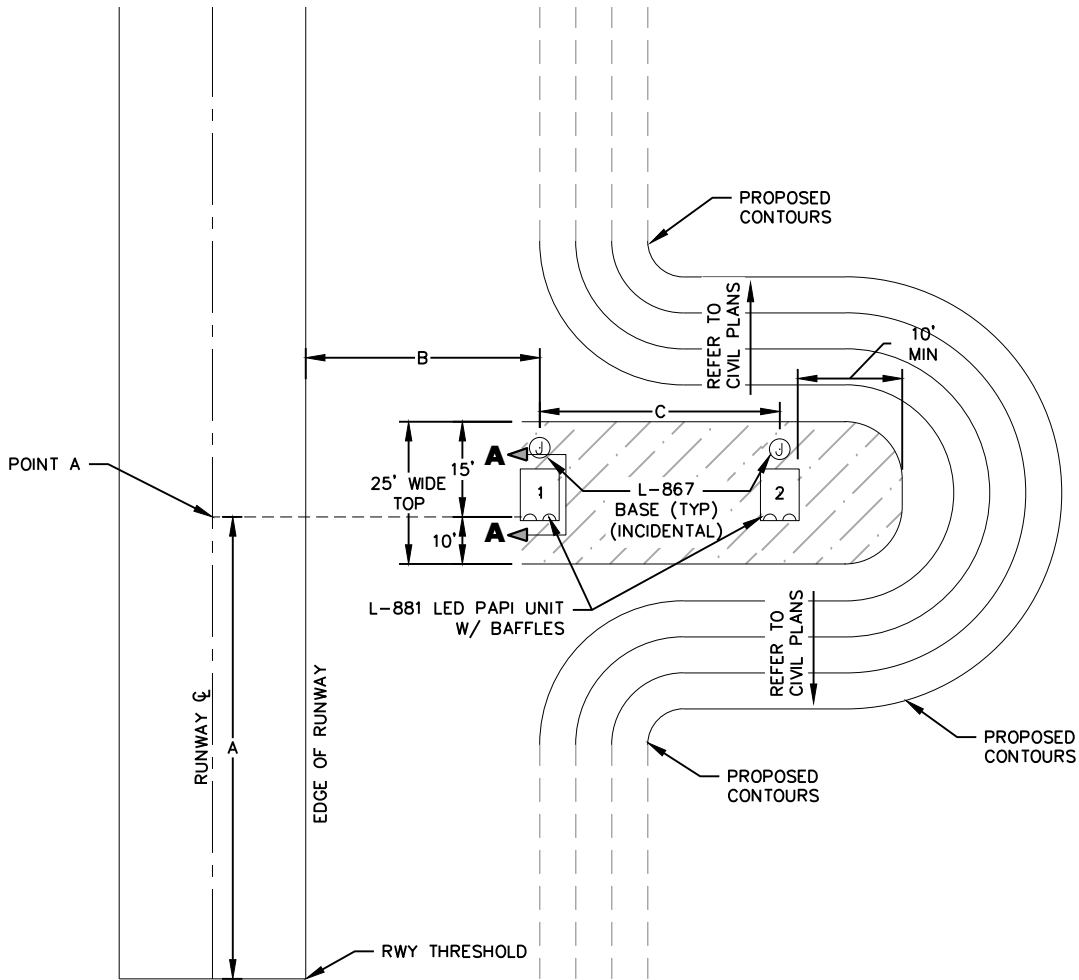
Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157

BGR
ENGINEERING

Sheet

E209





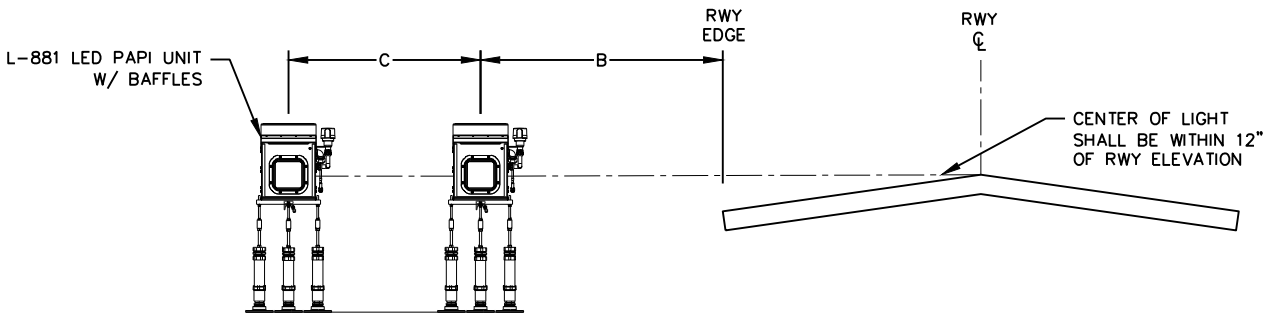
PAPI LIGHT UNIT LOCATIONS (PER TABLE 1)

NOTES

1. APPLY A CORROSION INHIBITING, "NEVER-SEIZE" COMPOUND TO ALL SCREWS, NUTS & FRANGIBLE COUPLING THREADS. IF COATED BOLTS ARE USED PER EB #83A, DO NOT APPLY "NEVER-SEIZE" COMPOUND.
2. AZIMUTHAL AIMING, EACH LIGHT UNIT SHALL BE AIMED OUTWARD INTO APPROACH ZONE ON A LINE PARALLEL TO THE RUNWAY CENTERLINE WITHIN A TOLERANCE OF $\pm 1/2$ DEGREE.
3. MOUNTING HEIGHT TOLERANCES, THE BEAM CENTERS OF ALL LIGHT UNITS SHALL BE WITHIN 1 INCH OF A HORIZONTAL PLANE, THIS HORIZONTAL PLANE SHALL BE WITHIN ± 1 FOOT OF THE ELEVATION OF THE RUNWAY CENTERLINE AT THE INTERCEPT POINT OF THE VISUAL GLIDE PATH W/ THE RUNWAY EXCEPT AT LOCATIONS WHERE THE LIGHT UNITS ARE RAISED TO CLEAR SNOW.
4. TOLERANCE ALONG LINE PERPENDICULAR TO THE RUNWAY, THE FRONT FACE OF EACH LIGHT UNIT IN A BAR SHALL BE LOCATED ON A LINE PERPENDICULAR TO THE RUNWAY CENTERLINE WITH ± 6 INCHES.
5. RUNWAY EDGE TO NEAREST EDGE OF PAPI LIGHT HOUSING MUST BE 52'.

LED PAPI LIGHTING UNIT LAYOUT & GRADING DETAIL

NOT TO SCALE



1. SEE TABLE FOR DIMENSION

PAPI POSITIONING GUIDANCE

NOT TO SCALE



RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LIGHTING DETAILS

Helms & Associates
CIVIL ENGINEERS & LAND SURVEYORS

Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157

BGR
ENGINEERING

Sheet

E210

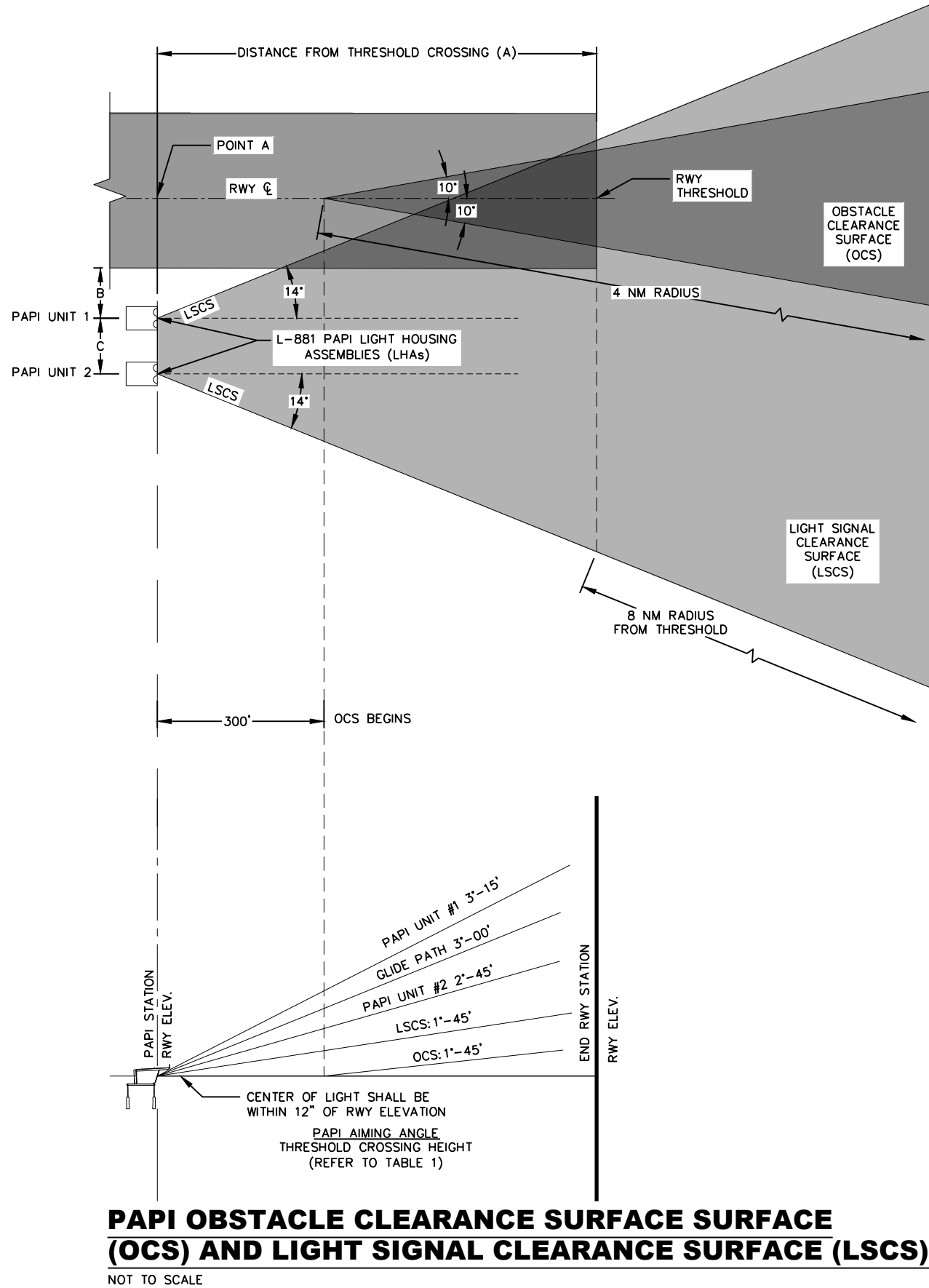
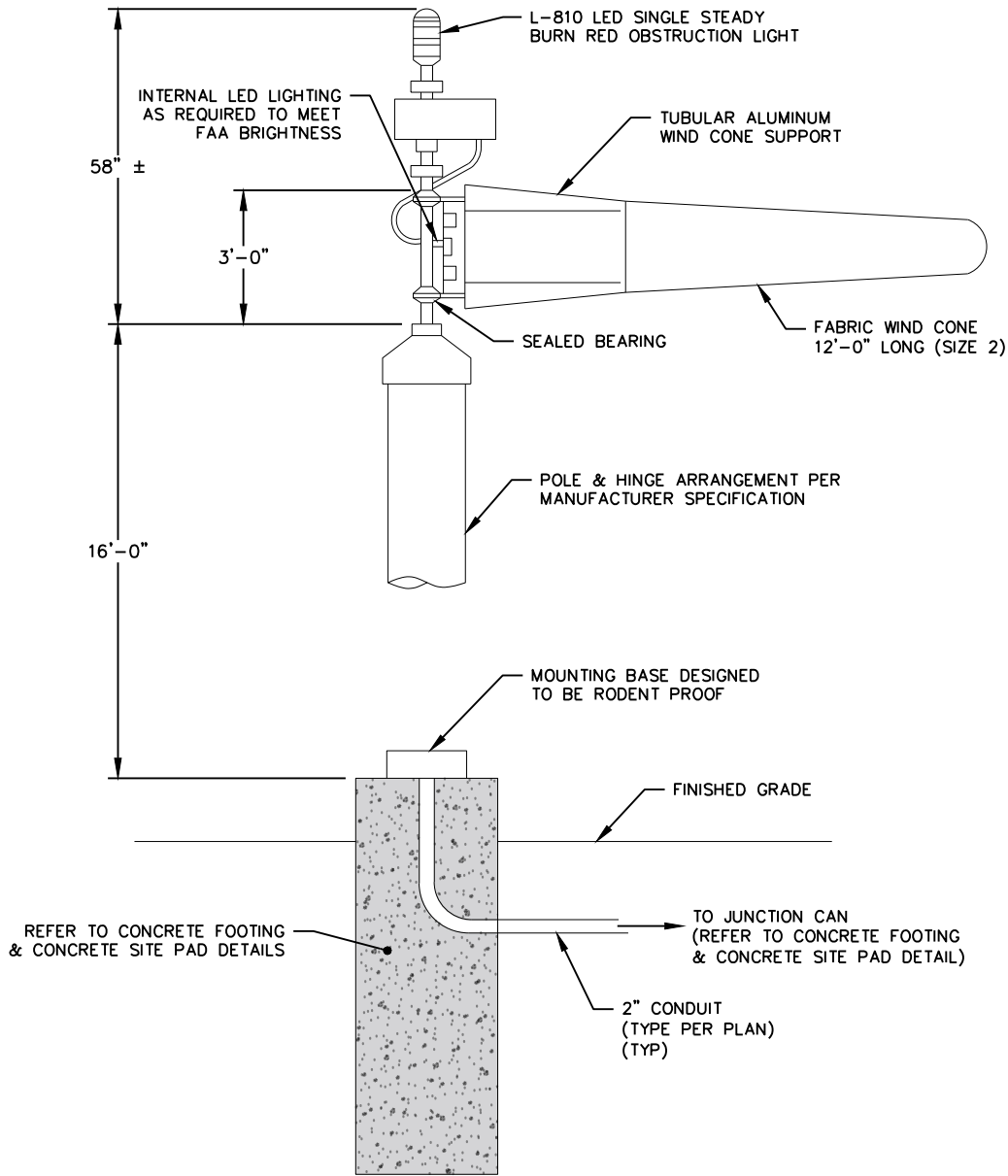


TABLE 1		
DESCRIPTION	RUNWAY 11	RUNWAY 29
TYPE	L-881 LED	L-881 LED
STYLE	B (CURRENT)	B (CURRENT)
CLASS	II	II
DIMENSION A	600'	600'
DIMENSION B	52'	52'
DIMENSION C	20'	20'
DIMENSION D	N/A	N/A
GRADE ELEV. UNIT #1	1626.70	1640.20
GRADE ELEV. UNIT #2	1626.70	1640.10
RWY THRESHOLD ELEVATION	1634.99	1645.00
THRESHOLD CROSSING HEIGHT	25.2'	29.04'
RUNWAY STA. @ POINT A	115+74.00	139+74.00
RUNWAY CL ELEV. @ POINT A	1628.70	1642.60
APERTURE ELEV. UNIT #1	1628.70	1642.60
APERTURE ELEV. UNIT #2	1628.70	1642.60
VISUAL GLIDE PATH ANGLE	3'	3'
AIMING ANGLE UNIT #1	3°15'	3°15'
AIMING ANGLE UNIT #2	2°45'	2°45'





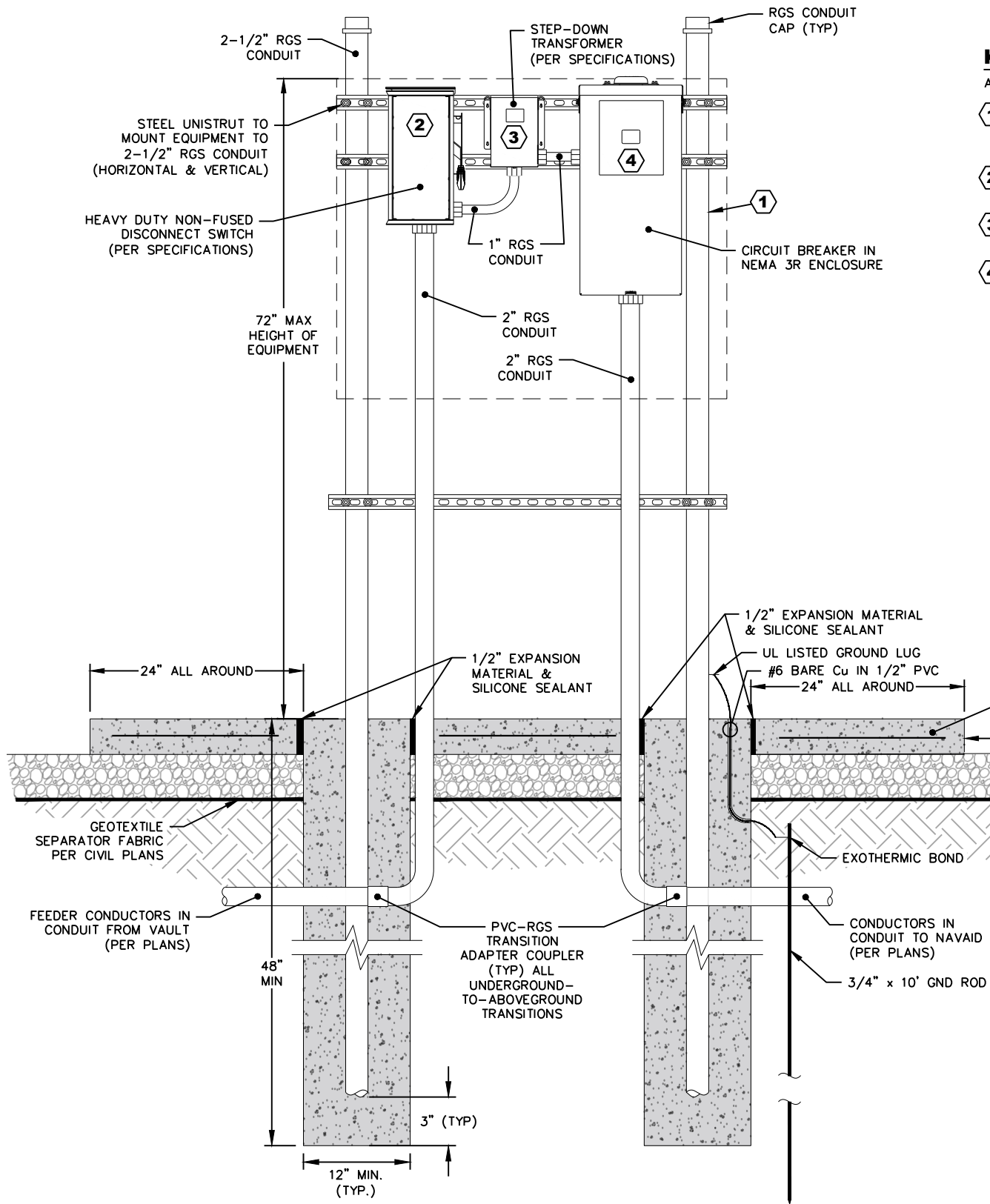
NOTE

1. ENCLOSE ALL POWER CABLES IN CONDUIT.

**L-807 LED PRIMARY WIND CONE (SIZE 2, 12 FOOT CONE)
INTERNALLY LIT (STYLE 1B)**

NOT TO SCALE





KEYNOTES

ALL ITEMS SHOWN ON THIS SHEET SHALL BE CONSIDERED INCIDENTAL TO RESPECTIVE NAVAID BID ITEM.

- 1 CONSTRUCT METAL H-FRAME ON WHICH TO MOUNT EQUIPMENT WITH UNISTRUT CROSS MEMBERS (ALUMINUM SHEETING IS ACCEPTABLE ALTERNATIVE) USING 2-1/2" RGS CONDUIT EMBEDDED IN 48" x 12"Ø CONCRETE FOOTING.
- 2 PROVIDE NEMA 3R 30A, 3-POLE NON-FUSED DISCONNECT. REFER TO SPECIFICATION SECTION 26 18 00, FUSED & NON-FUSED DISCONNECTS.
- 3 PROVIDE 1.5 kVA, 480-120/240V NEMA 3R STEP-DOWN DRY TYPE TRANSFORMER. REFER TO SPECIFICATION SECTION 26 12 16, DRY-TYPE, LOW VOLTAGE TRANSFORMER.
- 4 PROVIDE 15A, 1-POLE CIRCUIT BREAKER, SQUARE D MODEL BDL16015 OR EQUAL IN NEMA 3R CIRCUIT BREAKER ENCLOSURE, SQUARE D B125RB OR EQUAL.

NOTES

1. EQUIPMENT RACK TO BE INSTALLED OUTDOORS.
2. OUTDOOR EQUIPMENT & ENCLOSURES SHALL BE RATED NEMA 3R AT A MINIMUM.
3. ALL BOLTS, WASHERS, NUTS, FASTENERS, & RELATED HARDWARE SHALL BE 304 STAINLESS STEEL.
4. CONDUIT SHALL COMPLY WITH THE REQUIREMENTS OF THE UNDERWRITER'S LABORATORIES & SHALL BEAR THE MANUFACTURER'S TRADEMARK & U.L. LABEL.
5. FLEXIBLE CONDUIT SHALL BE FLEXIBLE, STEEL, GALVANIZED, SPIRAL STRIP WITH OUTER LIQUID-TIGHT, NON-METALLIC, SUNLIGHT RESISTANT JACKET. PROVIDE GROUNDING CONDUCTOR.
6. PVC CONDUIT SHALL BE SCH. 40 OR 80, U.L. LISTED, SUNLIGHT RESISTANT, RATED FOR 90°C CONDUCTORS.
7. CONDUIT INSTALLATIONS:
 - A. UNDERGROUND: SCH. 40 OR SCH. 80 PVC FOR ALL HORIZONTAL CONDUIT INSTALLATIONS.
 - B. UNDERGROUND TO ABOVE GROUND CONNECTIONS SHALL BE MADE WITH A PVC-TO-RGS ADAPTER BELOW GRADE AND PRIOR TO ELBOW.
 - C. EXPOSED OUTDOOR: RGS CONDUIT OR LFMC (WHERE APPLICABLE). LFMC SHALL BE THE SEALTITE-TYPE W/ LIQUID-TIGHT CONNECTORS.
 - D. EXPOSED OUTDOOR: SHALL BE VERTICALLY PLUMB WITH GROUND AND RESPECTIVE TERMINATION POINT ABOVE GROUND. RIGID GALVANIZED STEEL OR PVC CONDUIT SHALL NOT TRAVERSE AWOS SITE AT OR ABOVE GROUND LEVEL EXCEPT WHERE SHOWN.
8. PROVIDE LIQUID-TIGHT & CONCRETE-TIGHT COMPRESSION FITTINGS AT CONDUIT & ENCLOSURE CONNECTIONS.
9. GROUND RODS SHALL BE 3/4" x 10', ONE PIECE, POINTED, Cu BONDED WITH MINIMUM 10 MIL PLATED THICKNESS.
10. GROUNDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO GROUND RODS. CLAMPS NOT PERMITTED.

ELECTRICAL H-FRAME EQUIPMENT RACK (WIND CONE)

NOT TO SCALE



RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA

LIGHTING DETAILS

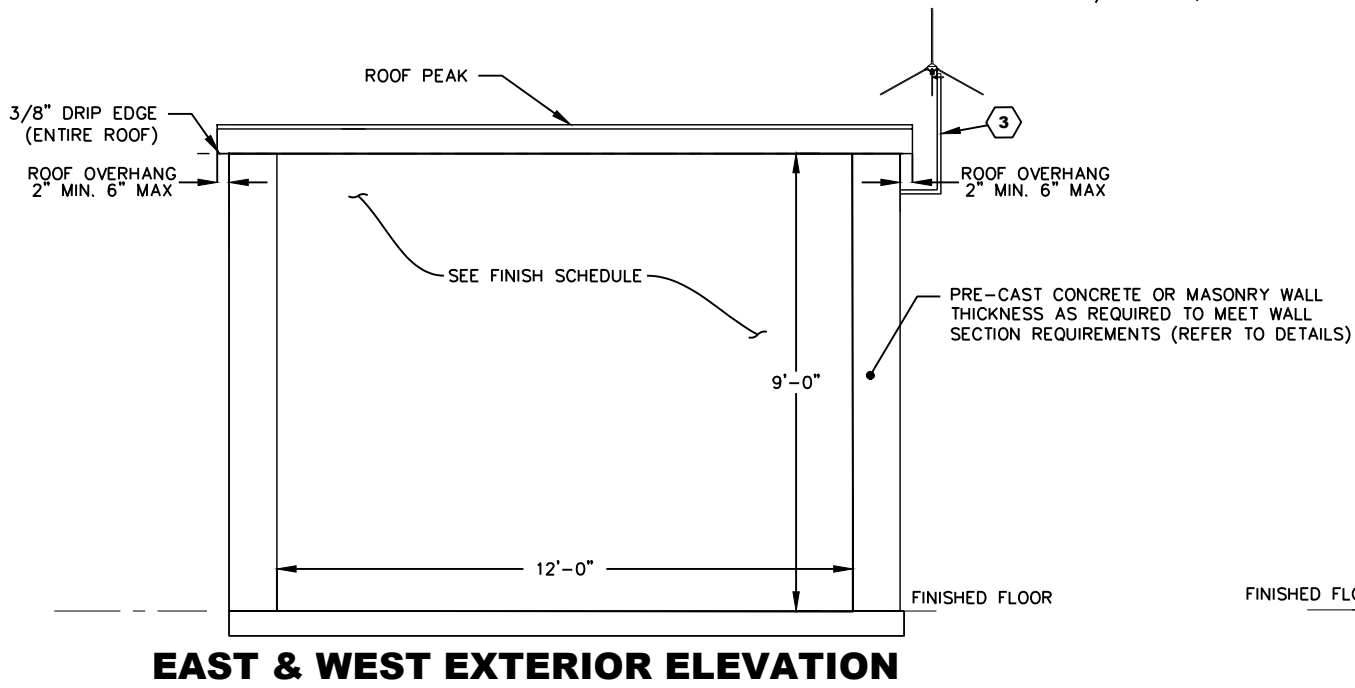
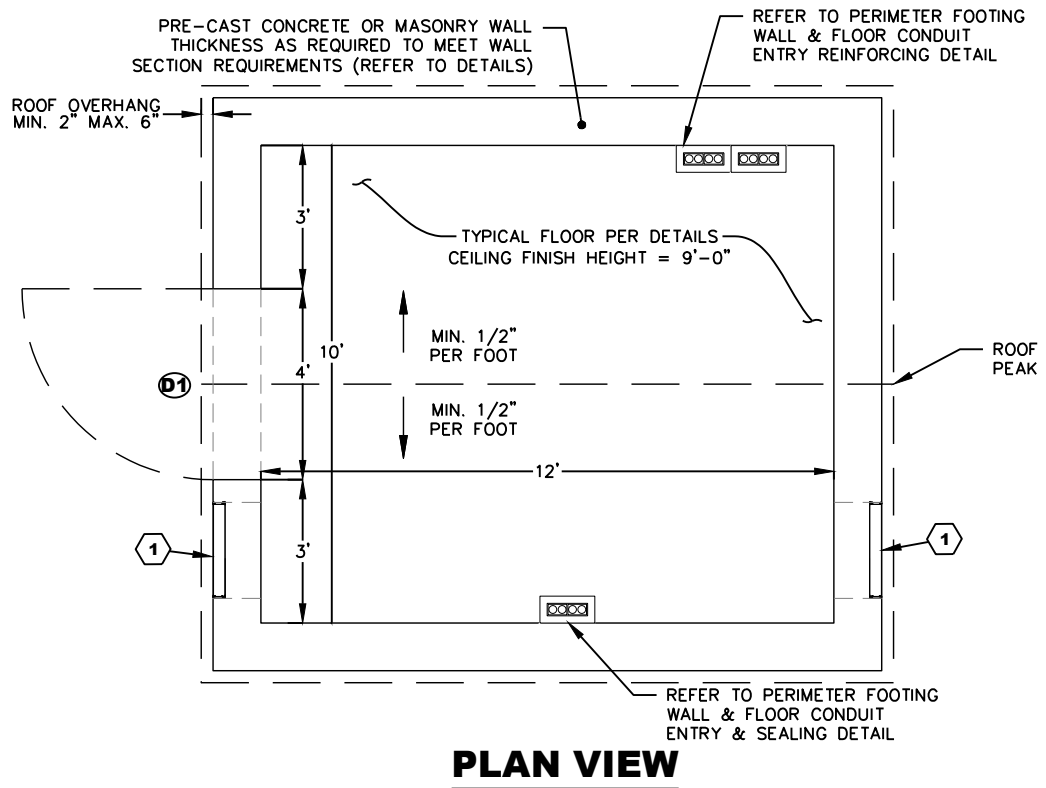
REVISIONS



Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



Sheet
E213

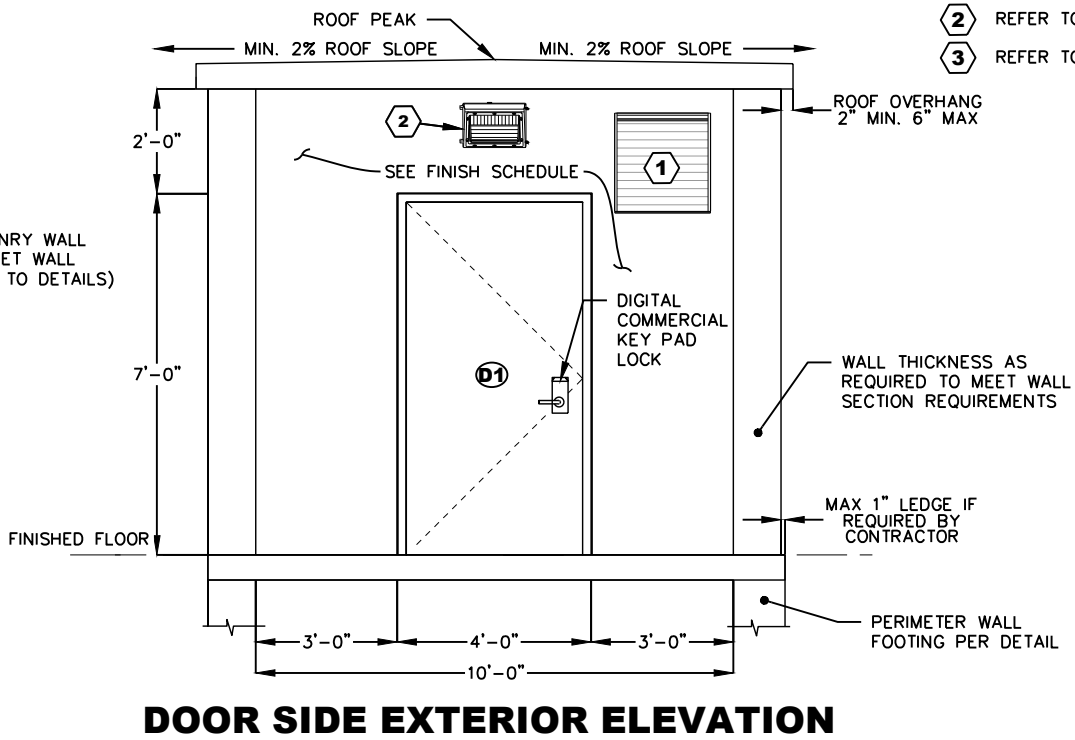
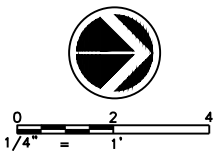


PRE-CAST CONCRETE STRUCTURE BLOCK FINISH SCHEDULE				
CALL OUT	FINISH/FORM LINER	PAINT/SEALER TYPE	COLOR	COMMENTS
INTERIOR WALLS & CEILING	NUDO FIBERLITE WHITE EMBOSSED CLASSIC	N/A	WHITE	INTERIOR BUILD-OUT AS REQUIRED BY CONTRACTOR
LOWER EXTERIOR	ROCK FACE BLOCK OR SAND BLAST MEDIUM	SATIN ACRYLIC	TBD	
LOWER EXTERIOR COLUMN	ROCK FACE BLOCK OR SAND BLAST MEDIUM	SATIN ACRYLIC	TBD	
UPPER EXTERIOR	ROCK FACE BLOCK OR SAND BLAST MEDIUM	SATIN ACRYLIC	TBD	
UPPER EXTERIOR COLUM CORNER	ROCK FACE BLOCK OR SAND BLAST MEDIUM	SATIN ACRYLIC	TBD	
ROOF	SMOOTH TROWEL	SATIN ACRYLIC	TBD	
FLOOR	FORM FINISH	TK-290		CONCRETE SEALER

CONTRACTOR TO PROVIDE COLOR OPTIONS FOR OWNER SELECTION

DOOR SCHEDULE									
CALL OUT/MARK	SWING	SIZE		DOOR		FRAME			COLOR
		WIDTH	HEIGHT	MAT.	LOUV.	MAT.	CORE	THICK	
D1	* RHR	4'-0"	7'-0"	STEEL	NO	STEEL	** E.D./C	TBD	TBD BY OWNER

- * (RHR) RIGHT HAND REVERSE DOOR SWING
- ** MINERAL FIBERBOARD. UTILIZED STEEL GRID./ POLYSTERENE



GENERAL NOTES

- REFER TO SPECIFICATION L-109 FOR ADDITIONAL INFORMATION.
- FLOOR TO CEILING SHALL BE MINIMUM 9'-0"
- MIN. INTERIOR DIMENSIONS AFTER ALL BUILD OUTS SHALL BE 10'-0" X 12'-0".
- PRECAST CONCRETE VAULT BUILDING
 - 4.A. ACCEPTABLE MANUFACTURERS ARE HUFFCUTT CONCRETE, EASI-SET, THERMO BOND BUILDINGS, OR ENGINEERED APPROVED EQUAL.

DOOR & HARDWARE

- UL 752 BULLET RESISTANT LEVEL 4, 3-HR FIRE RATED DOOR W/ FRAME, COMPONENTS, & ACCESSORIES FOR A COMPLETE INSTALLATION. ALLEGION REPUBLIC, MESKER OR APPROVED EQUAL.
- PROVIDE COMPLETE STANDARD DOOR ACCESSORIES & HARDWARE FOR A COMPLETE DOOR SYSTEM, TO ALSO INCLUDE CLOSER DEVICE AND DOOR STOP.
- ENTRY SHALL BE VIA ALARM LOCK TRILOGY OR EQUAL. ALARM LOCK TRILOGY T2 DL2700 ELECTRONIC KEYLESS ACCESS LOCK W/ KEY BYPASS, GRADE 1 DURABILITY, LEVER TRIM, EXTERIOR/WEATHERPROOF, SATIN CHROME FINISH. CONTRACTOR TO PROVIDE BATTERY.
- EXIT SHALL BE VIA TOUCH BAR EXIT DEVICE, INGERSOLL RAND OR EQUAL, FALCON SERIES 24 OR 25.



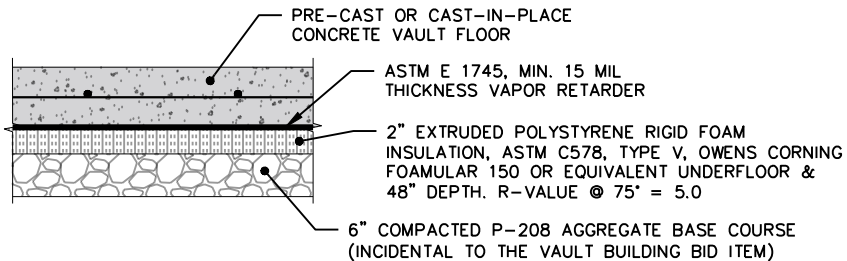
NOTES

- SIGNAGE SHOWN FOR REFERENCE ONLY. SIGNAGE AS REQUIRED PER NATIONAL ELECTRIC CODE
- FASTEN "DANGER - HIGH VOLTAGE" SIGN ON EXTERIOR OF DOOR PER NEC CODE.

KEYNOTES

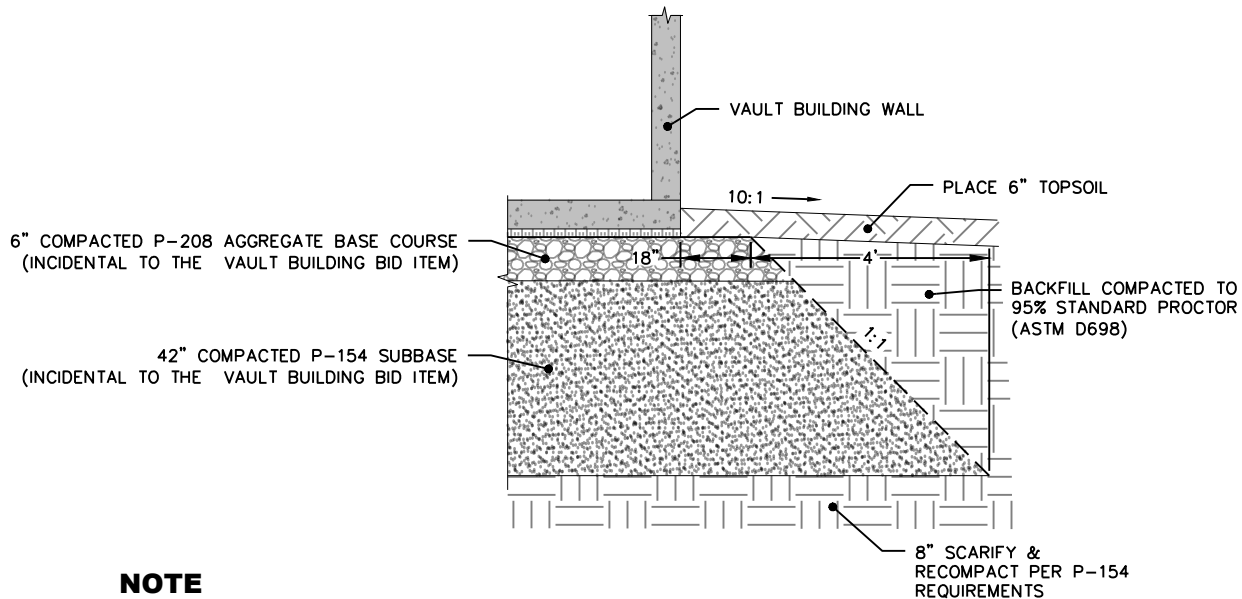
- 1 REFER TO SHEET V6 FOR VENTILATION DETAILS.
- 2 REFER TO SHEET V3 FOR POWER & LIGHTING DETAILS.
- 3 REFER TO SHEET V5 FOR EQUIPMENT DETAILS.





REINFORCED CONCRETE VAULT FLOOR

NOT TO SCALE

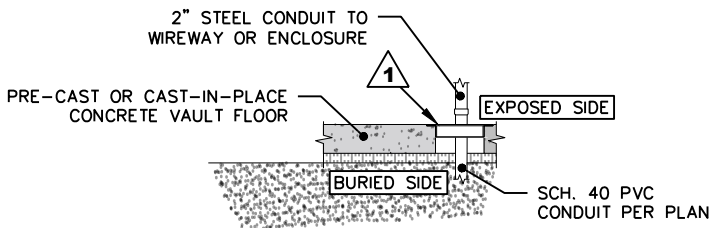


NOTE

1. SITE PREPARATION, EXCAVATION, DEWATERING, BACKFILLING, RESTORATION, TOPSOILING, AND RELATED WORK SHALL BE CONSIDERED INCIDENTAL TO THE PRE-FABRICATED VAULT BUILDING BID ITEM.

ELECTRICAL VAULT BUILDING FOUNDATION

NOT TO SCALE



ELEVATION VIEW

NOTES

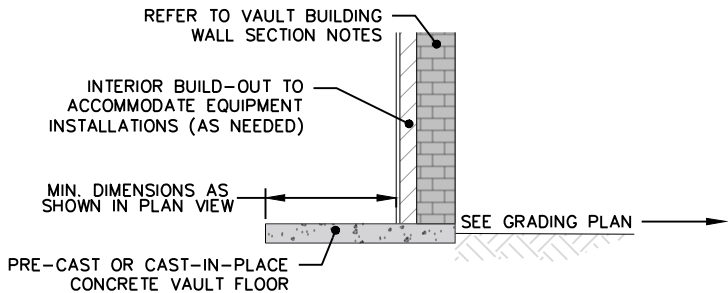
1. ROXTEC OR EQUIVALENT FITTINGS TO BE RATED IP 68. CONTRACTOR MAY USE A SQUARE/RECTANGULAR FRAME IN LIEU OF ROUND.
2. DUPLICATE KNOCK-OUT SLEEVES & CONDUIT SEALS TO EACH ENCLOSURE & HIGH & LOW VOLTAGE JUNCTION STRUCTURES/WIREWAYS PER PLAN.

KEYNOTES

1. FLUSH W/ FLOOR. ROXTEC GH FL100 FRAME KIT (SINGLE, +SINGLE, COMBINATION, +COMBINATION), ROXTEC KNOCK-OUT FRAME TRANSIT (KOF). ROXTEC KNOCK-OUT-SLEEVE (KOS) OR RS SEALS ARE AN ACCEPTABLE ALTERNATIVE, OR EQUAL. PROVIDE ROXTEC GE EXTENSION FRAME AS NEEDED TO ACCOMMODATE THICK WALLS AND/OR FLOORS. CONTRACTOR TO SIZE TO ACCOMMODATE QUANTITY OF CONDUITS SHOWN ON THE PLANS. ROXTEC RM MODULES OR EQUAL.
2. ROXTEC GH FL100 FRAME KIT (SINGLE, +SINGLE, COMBINATION, +COMBINATION), ROXTEC KNOCK-OUT FRAME TRANSIT (KOF). ROXTEC KNOCK-OUT SLEEVE (KOS) OR RS SEALS ARE AN ACCEPTABLE ALTERNATIVE, OR EQUAL. PROVIDE ROXTEC GE EXTENSION FRAME AS NEEDED TO ACCOMMODATE THICK WALLS AND/OR FLOORS. CONTRACTOR TO SIZE TO ACCOMMODATE QUANTITY OF CONDUITS SHOWN ON THE PLANS. ROXTEC RM MODULES OR EQUAL.

FLOOR CONDUIT ENTRY & SEALING

NOT TO SCALE

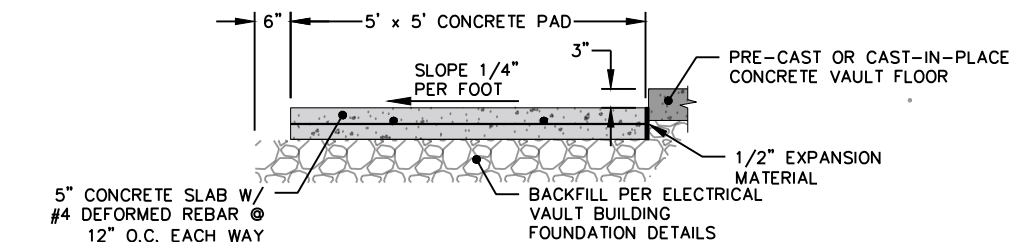


VAULT BUILDING WALL SECTION NOTES

1. MINIMUM FIRE RATING OF THREE HOURS. CONTRACTOR SHALL VERIFY W/ AHJ.
2. BULLET RESISTANT TO MINIMUM UL 752: LEVEL 4, ARMOR CORE PANELS ACCEPTABLE ALTERNATE, BUT NOT TO REPLACE INTERIOR FINISH.
3. MINIMUM INSULATION THERMAL RESISTIVITY (R-VALUE) OF R-19.
 - 3.1. WALLS R-11
 - 3.2. CEILINGS R-19
4. INTERIOR FINISH COLOR PER FINISH SCHEDULE.

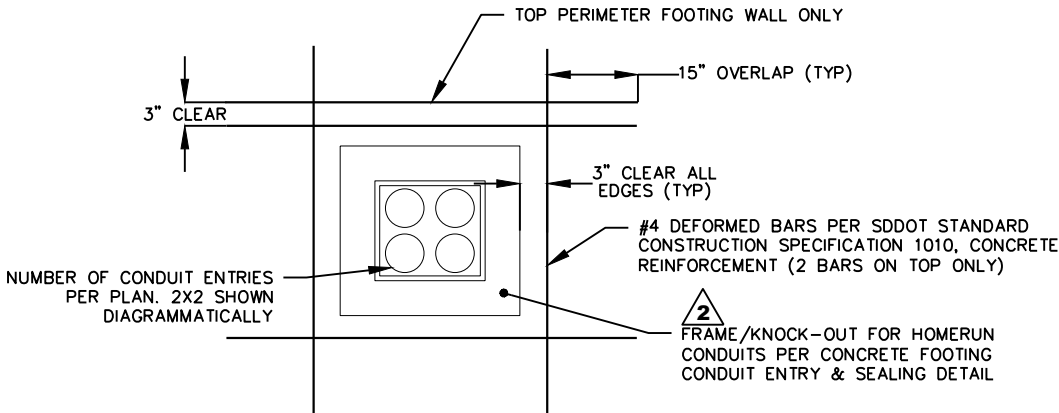
WALL SECTION @ ELECTRICAL VAULT BUILDING

NOT TO SCALE



VAULT EXTERIOR CONCRETE PAD

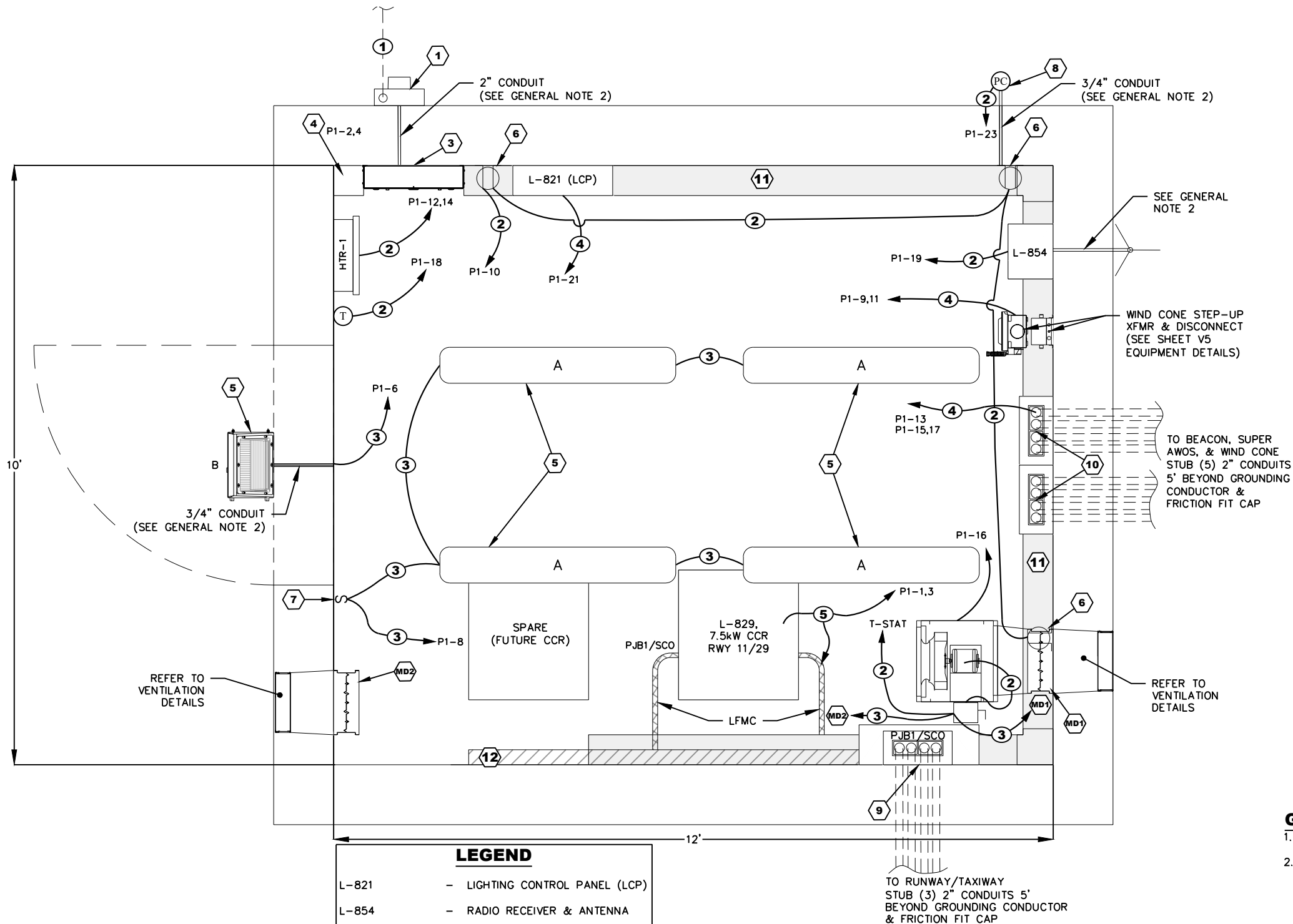
NOT TO SCALE



PERIMETER FOOTING WALL & FLOOR CONDUIT ENTRY REINFORCING

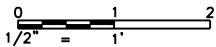
NOT TO SCALE





LEGEND

L-821	- LIGHTING CONTROL PANEL (LCP)
L-854	- RADIO RECEIVER & ANTENNA
L-829	- CONSTANT CURRENT REGULATOR
HTR-1	- WALL HEATER
PC	- PHOTOCELL
T	- THERMOMETER
P#	- MAIN PANEL (PRIMARY)
PJB#	- POWER JUNCTION BOX
SCO	- SERIES CIRCUIT CUTOUT
MD	- MOTORIZED DAMPER
S	- CIRCUIT SWITCH
⊕	- CONVENIENCE RECEPTACLE



CONDUCTOR/CABLE KEYNOTES/SCHEDULE

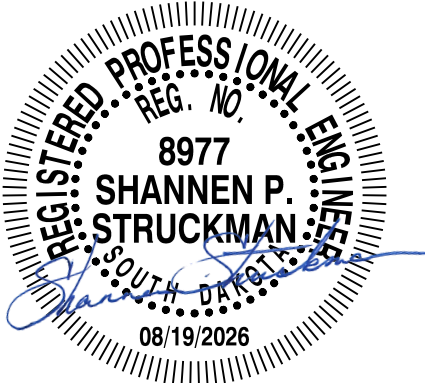
- ELECTRICAL SERVICE ENTRANCE CONDUCTORS. BY LOCAL UTILITY COMPANY SIOUX VALLEY ENERGY. COORDINATE TERMINATIONS & SERVICE APPLICATION.
- 2-#12, #12G IN 1/2" EMT
- 2-#14, #14G IN 1/2" EMT
- 2-#10, #10G IN 1/2" EMT
- 2-#6, #10G IN 1/2" LFMC

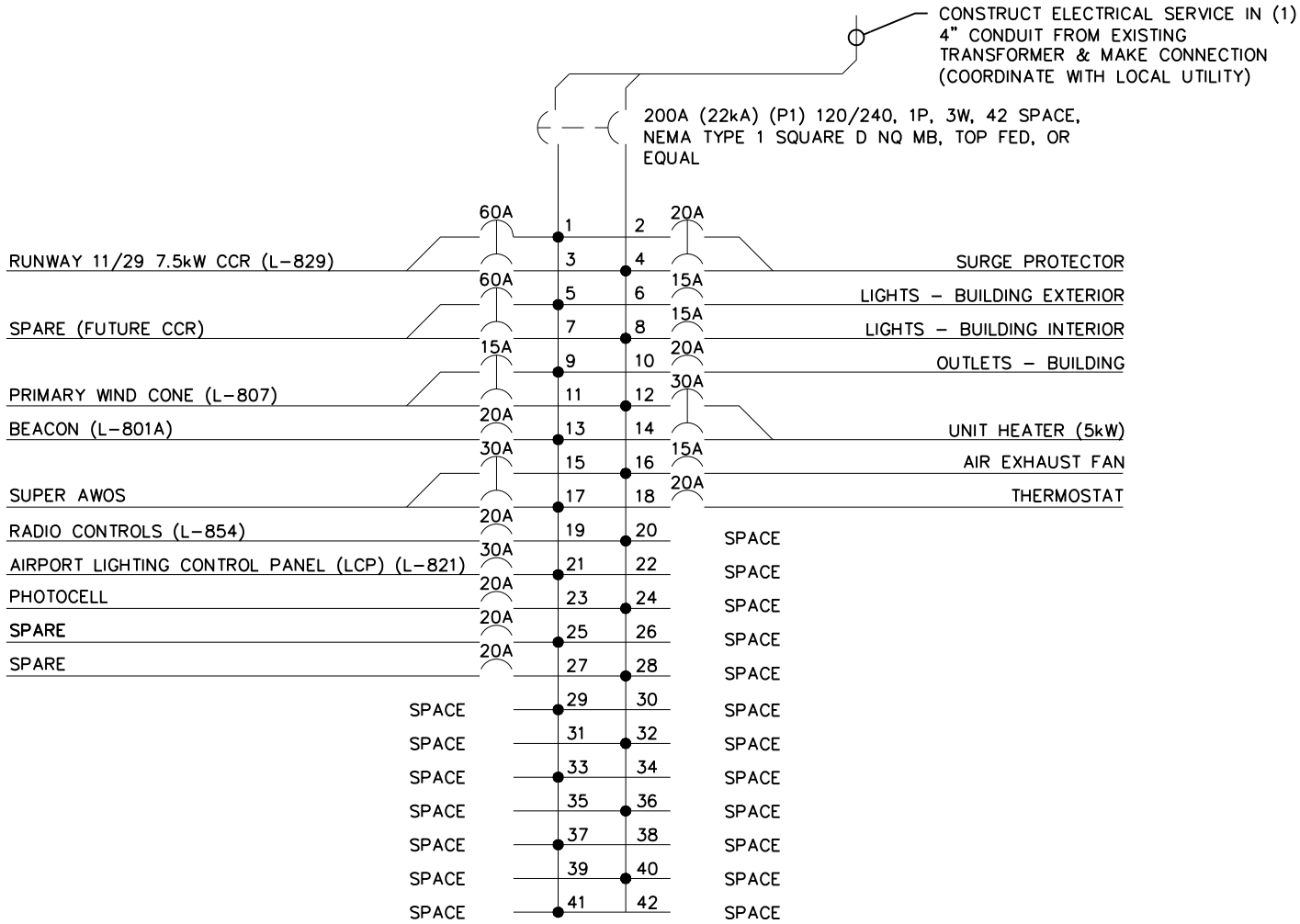
KEYNOTES

- PROVIDE 200A, 240V, SINGLE PHASE, 3 WIRE METER SOCKET. PER 26 27 13.
- RESERVED FOR SERVICE ENTRANCE SAFETY DISCONNECT SWITCH. NOT USED ON THIS PROJECT.
- PROVIDE SINGLE PHASE, 240V, 200A, 42-SPACE, NEMA 1 MAIN BREAKER PANEL BOARD WITH BREAKERS AS INDICATED IN SCHEDULE ON SHEET V4. BREAKERS SHALL HAVE A MINIMUM INTERRUPTING RATING OF 22KA. PANEL SHALL BE SQUARE D MODEL NQ MB, TOP FED OR EQUAL. PER 26 24 16.
- PROVIDE NIPPLE-MOUNTED 200KA, 120/240V, SINGLE PHASE, 3-WIRE, TYPE 1, MIN. NEMA 4X ENCLOSURE, SURGE PROTECTION DEVICE (SPD) SQUARE D MODEL EMB12 OR EQUAL. PER 26 43 13.
- PROVIDE TYPE "A" LIGHT FIXTURE SHALL BE SLG LIGHTING VTS-4-4000-G1-X-FSK4000 WHITE OR MODEL VTS4LS1G1FSK OR EQUAL, VAPOR-PROOF TYPE MOUNTED ON CEILING, TYPE "B" LIGHT FIXTURE SHALL BE RAB MODEL WP2XFU60 OR RAB MODEL WP2XFU60 WHITE OR EQUAL, WITH SELECTABLE PHOTOCELL.
- PROVIDE INDUSTRIAL GRADE DUPLEX CONVENIENCE RECEPTACLES, 20A, 125V, WHITE, HUBBELL MODEL #5252, OR EQUAL. PER 26 27 26.
- PROVIDE INDUSTRIAL GRADE 20A, 277V SWITCH, HUBBELL 1221, OR EQUAL. PER 26 27 26.
- PROVIDE PHOTOCELL WITH NORMALLY OPEN CONTACTS RATED FOR 120/277V. INTERMATIC EK4336S, OR EQUAL. PER 26 09 23.
- PROVIDE (4) 2" FLOOR CONDUIT ENTRIES FOR HIGH VOLTAGE CIRCUITS, REFER TO FLOOR CONDUIT ENTRY & SEALING DETAILS.
- PROVIDE (8) 2" FLOOR CONDUIT ENTRIES FOR LOW VOLTAGE CIRCUITS, REFER TO FLOOR CONDUIT ENTRY & SEALING DETAILS.
- PROVIDE 6" x 6" METAL FRONT COVER BOTTOM HINGED NEMA 1 WIREWAY FOR LOW VOLTAGE (600V) WIEGMANN/HUBBELL HS SERIES, AMERICAN MIDWEST POWER, INC, OR EQUAL.
- PROVIDE 4" x 4" METAL FRONT COVER BOTTOM HINGED NEMA 1 WIREWAY FOR HIGH VOLTAGE (5kV), FRONT COVER BOTTOM HINGED WIEGMANN/HUBBELL HS SERIES, AMERICAN MIDWEST POWER, INC, OR EQUAL.

GENERAL NOTES

- UNO, ALL CONDUCTORS SHALL BE RATED FOR 600V, STRANDED COPPER, SIZED PER PLANS OR AS REQUIRED BY NEC.
- PROVIDE ROXTEC RS SEALS, RM MODULES, OR EQUAL.





PROPOSED MAIN BREAKER PANEL (P1) DETAILS - 120/240 V

NOT TO SCALE

GENERAL NOTES

- PANEL LAYOUT IS TYPICAL. MODIFY AS REQUIRED TO SUPPLY ALL EQUIPMENT.
- SIZE BREAKER & CIRCUIT PER SUPPLIED EQUIPMENT.
- CONTRACTOR TO PROVIDE & INSTALL TO ACCOMODATE FUTURE USE.
- CONTRACTOR SHALL COORDINATE ELECTRICAL SERVICE FROM SECONDARY SIDE OF TRANSFORMER TO THE VAULT.
- THE CONTRACTOR SHALL COORDINATE ELECTRICAL SERVICE WORK WITH OTTER TAIL POWER COMPANY.



AIRFIELD VAULT - PANEL P1 DETAILS

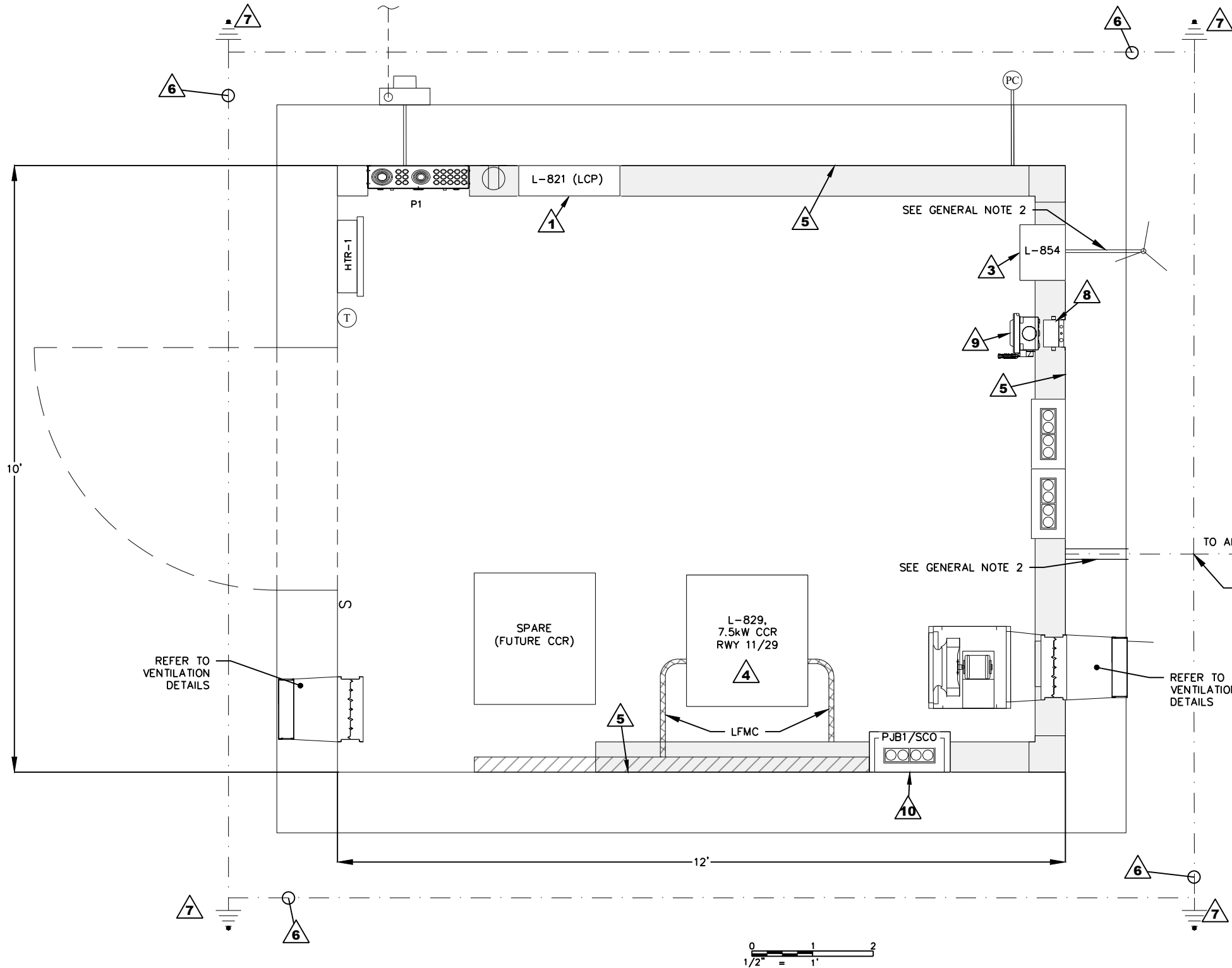


Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



Sheet
V4

RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA



GENERAL NOTES

1. UNO, ALL CONDUCTORS SHALL BE RATED FOR 600V, STRANDED COPPER, SIZED PER PLANS OR AS REQUIRED BY NEC.
2. PROVIDE ROXTEC RS SEALS, RM MODULES, OR EQUAL.

KEYNOTES

- 1 PROVIDE L-821, AIRPORT LIGHTING CONTROL PANEL (LCP). PER 34 43 26.13
- 2 RESERVED FOR L-841. NOT USED ON THIS PROJECT
- 3 PROVIDE L-854, RADIO CONTROL EQUIPMENT PER 34 43 26.16.
- 4 PROVIDE L-829, CONSTANT CURRENT REGULATOR (CCR) PER 34 43 26.19.
- 5 PROVIDE WALL-MOUNTED PERIMETER 1/4" x 2" COPPER GROUNDING BUSBAR FOR WALLS AND CORNERS, nVENT MODEL EPGC142120 AND EPGC1426X6 OR EQUAL WITH BUSBAR MOUNTING KITS, nVENT MODEL B548A41 OR EQUAL. MOUNT ON THREE WALLS. BOND #2/0 BARE STRANDED COPPER WIRE AND ALL EQUIPMENT PER L-108.
- 6 PROVIDE #2/0 BARE STRANDED COPPER WIRE. EXOTHERMICALLY BONDED TO GROUND RODS. BOND TO INTERIOR GROUND BUS PER L-108.
- 7 PROVIDE 3/4" x 10' SOLID COPPER, POINTED GROUND ROD W/ MIN. 10 MIL PLATED THICKNESS PER L-108.
- 8 PROVIDE 1.5kVA, 120/240V - 480V NEMA 3R DRY-TYPE LOW VOLTAGE, STEP-UP TRANSFORMER. PER 26 12 16.
- 9 PROVIDE NEMA 12, 3-POLE, FUSED DISCONNECT. PER 26 18 00.
- 10 PROVIDE ONE (1) EACH CCR SERIES CIRCUIT CUTOUPS (SCO) MOUNTED IN ONE (1) EACH NEMA 4X ENCLOSURE (PJB1/SCO), WIEGMANN MODEL HW-J181608CHOR OR EQUAL WITH CONTINUOUS HINGE QUICK RELEASE PADLOCKABLE FIBERGLASS CONSTRUCTION.

LEGEND

L-821	- LIGHTING CONTROL PANEL (LCP)
L-854	- RADIO RECEIVER & ANTENNA
L-829	- CONSTANT CURRENT REGULATOR
HTR-1	- WALL HEATER
(PC)	- PHOTOCELL
(T)	- THERMOMETER
P#	- MAIN PANEL (PRIMARY)
PJB#	- POWER JUNCTION BOX
SCO	- SERIES CIRCUIT CUTOUT
MD	- MOTORIZED DAMPER
S	- CIRCUIT SWITCH
(R)	- CONVENIENCE RECEPTACLE



AIRFIELD VAULT - EQUIPMENT DETAILS

REVISIONS



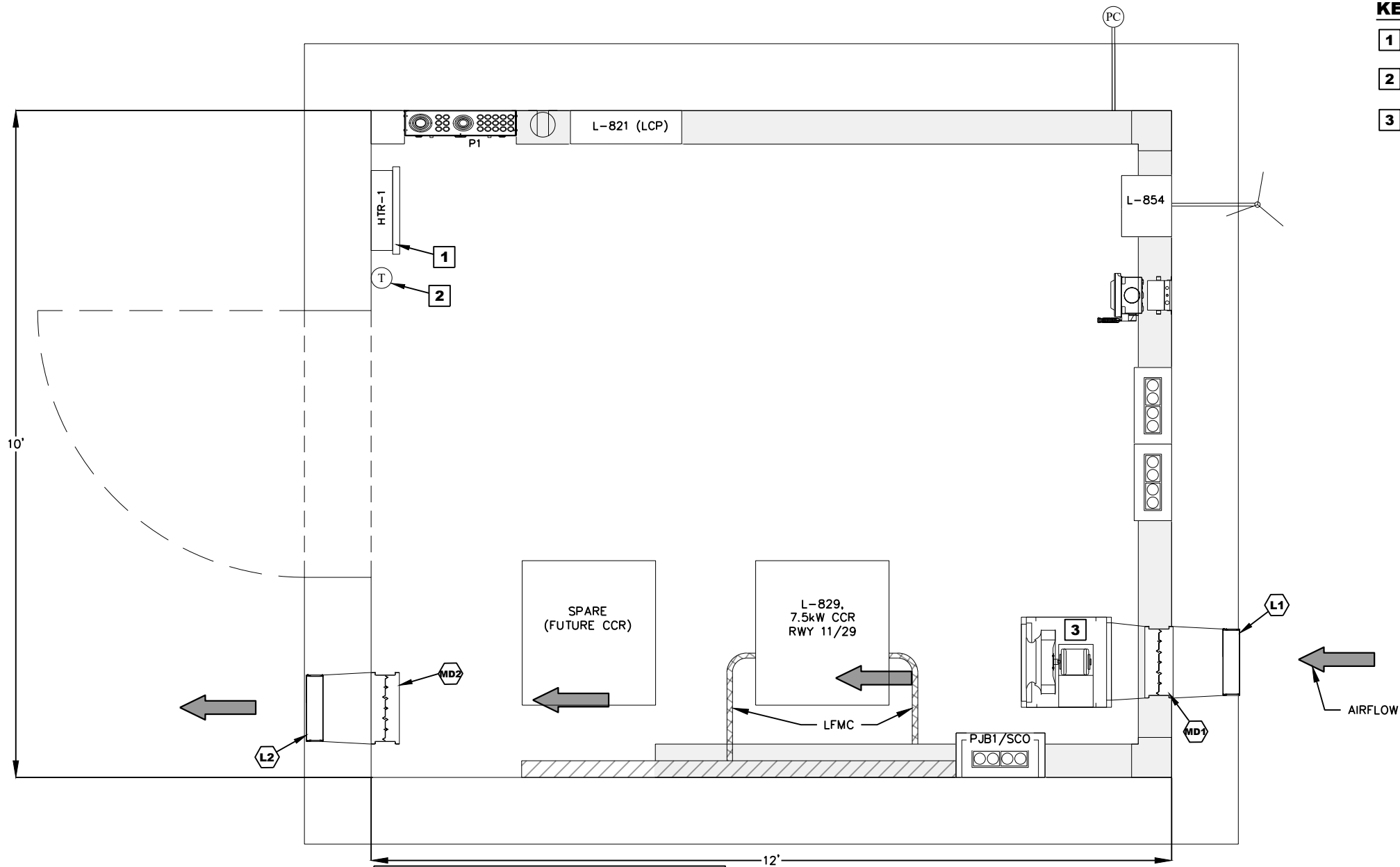
Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



Sheet

V5

RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA



KEYNOTES

- 1
- PROVIDE SURFACE MOUNTED HEATER, QMARK AWH4504F, 240V, 4800W, 20A OR EQUAL WALL MOUNTED WITH INTEGRAL T-STAT.
- 2
- PROVIDE DAYTON LINE VOLT MECHANICAL T-STAT:HEAT OR COOL, PLASTIC 30"-110°F, 120V TO 240V AC OR EQUAL.
- 3
- INLINE CENTRIFUGAL DUCT EXHAUST FAN & MOTOR, 50-200 CFM, 120V, GREENHECK SQ-90-VG OR EQUAL. PROVIDE MOUNTING SUPPORTS, ISOLATION/VIBRATION KITS, & NECESSARY DUCT WORK FOR A COMPLETE HVAC SYSTEM.

BASIS OF DESIGN

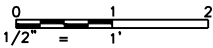
1.
- THE SYSTEM SHOWN IS CONCEPTUAL. IT IS THE INTENT THAT THE CONTRACTOR PROVIDE THEIR OWN HVAC DESIGN TO THE OWNER & ENGINEER FOR REVIEW INCLUDING CUT SHEETS OF EQUIPMENT THAT ACCOMPLISHES, 3-5 AIR CHANGES PER HOUR (ACH) PER ASHRAE.
2.
- DESIGN ASSUMPTIONS INCLUDE A MAXIMUM STATIC PRESSURE OF 2 (IN. WG), 50-200 CFM. PRODUCTS SHALL MEET AMCA RATINGS. STANDARDS SHALL MEET ASHRAE.

GENERAL NOTES

1.
- UNO, ALL CONDUCTORS SHALL BE RATED FOR 600V, STRANDED COPPER, SIZED PER PLANS OR AS REQUIRED BY NEC.
2.
- PROVIDE ROXTEC RS SEALS, RM MODULES, OR EQUAL.

LEGEND

- L-821
-
- LIGHTING CONTROL PANEL (LCP)
- L-854
-
- RADIO RECEIVER & ANTENNA
- L-829
-
- CONSTANT CURRENT REGULATOR
- HTR-1
-
- WALL HEATER
- PC
-
- PHOTOCELL
- T
-
- THERMOMETER
- P#
-
- MAIN PANEL (PRIMARY)
- PJB#
-
- POWER JUNCTION BOX
- SCO
-
- SERIES CIRCUIT CUTOUT
- MD
-
- MOTORIZED DAMPER
- S
-
- CIRCUIT SWITCH
-
-
- CONVENIENCE RECEPTACLE



DAMPER SCHEDULE

TAG	QTY	W (in.)	H (in.)	APPLICATION	VOLUME (CFM)	
MD1	1	12	12	INTAKE	200	W/ INSECT SCREEN
MD2	1	12	12	EXHAUST	200	W/ INSECT SCREEN

LOUVER SCHEDULE

TAG	QTY	W (in.)	H (in.)	APPLICATION	VOLUME (CFM)	ACCESSORIES
L1	1	12	12	INTAKE	200	W/ INSECT SCREEN
L2	1	12	12	EXHAUST	200	W/ INSECT SCREEN



AIRFIELD VAULT - VENTILATION DETAILS

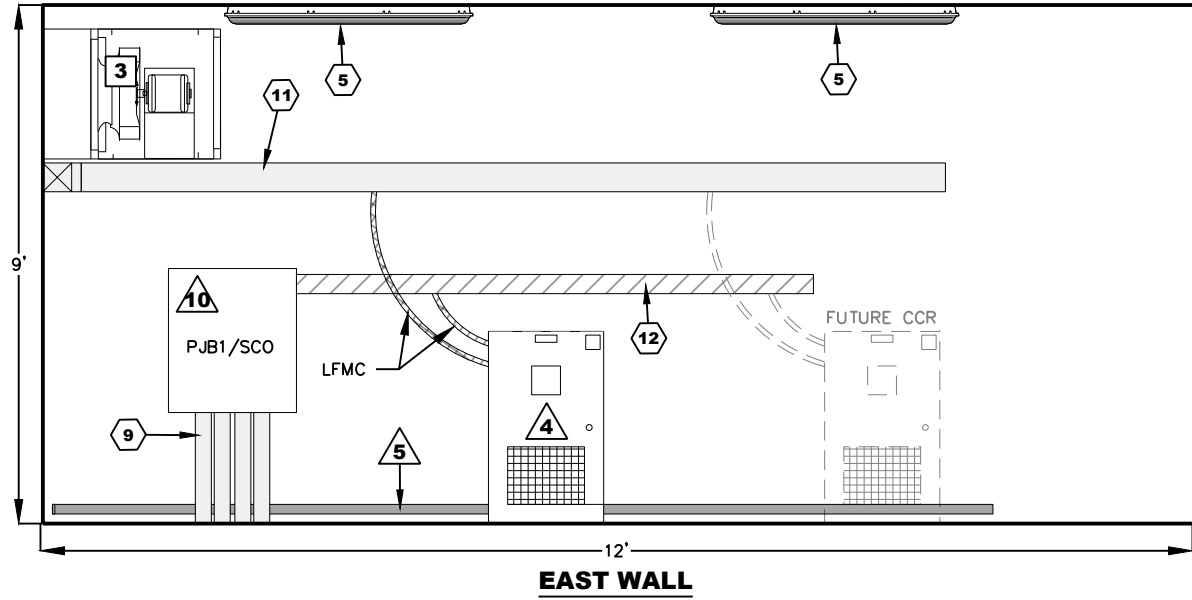
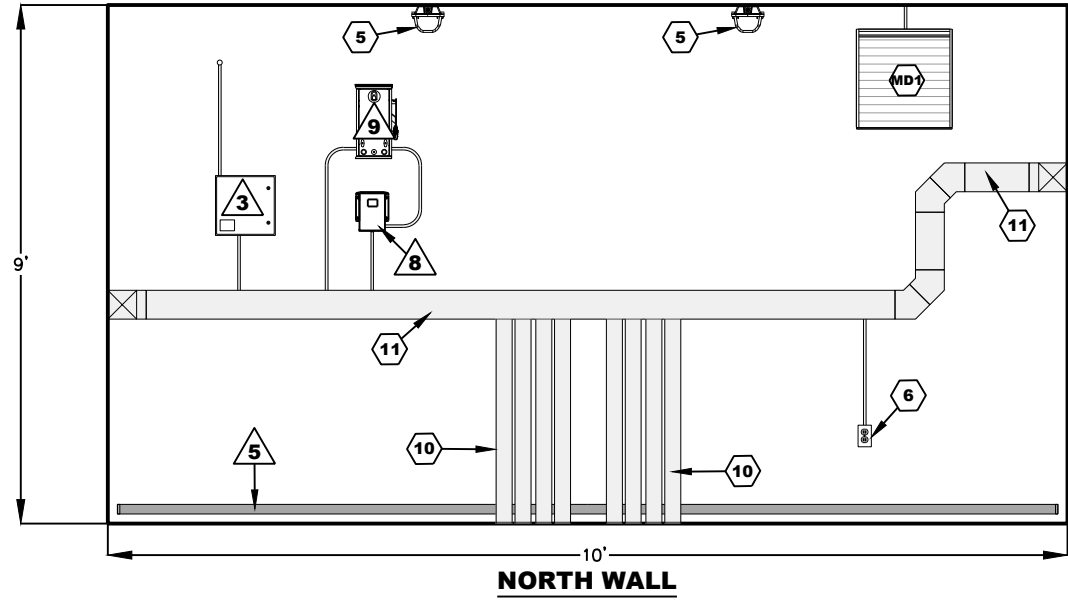
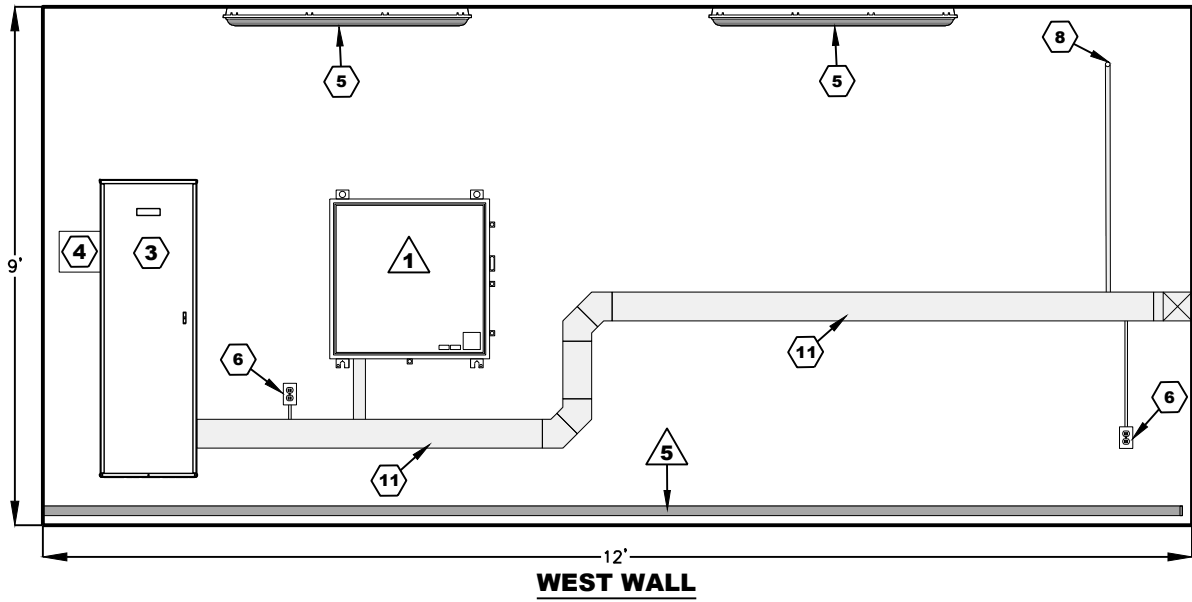
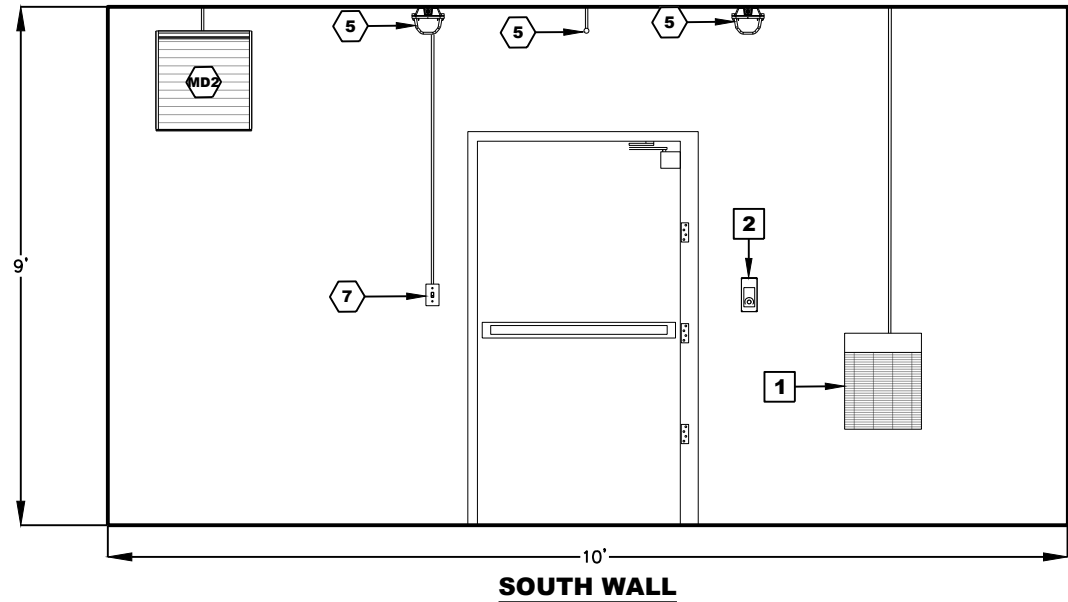
RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA



Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



Sheet
V6



GENERAL NOTES
1. UNO, ALL CONDUCTORS SHALL BE RATED FOR 600V, STRANDED COPPER, SIZED PER PLANS OR AS REQUIRED BY NEC.
2. PROVIDE ROXTEC RS SEALS, RM MODULES, OR EQUAL.



- # - REFER TO SHEET V3 FOR POWER & LIGHTING DETAILS
- # - REFER TO SHEET V5 FOR EQUIPMENT DETAILS
- # - REFER TO SHEET V6 FOR VENTILATION DETAILS



AIRFIELD VAULT - WALL ELEVATIONS

REVISIONS

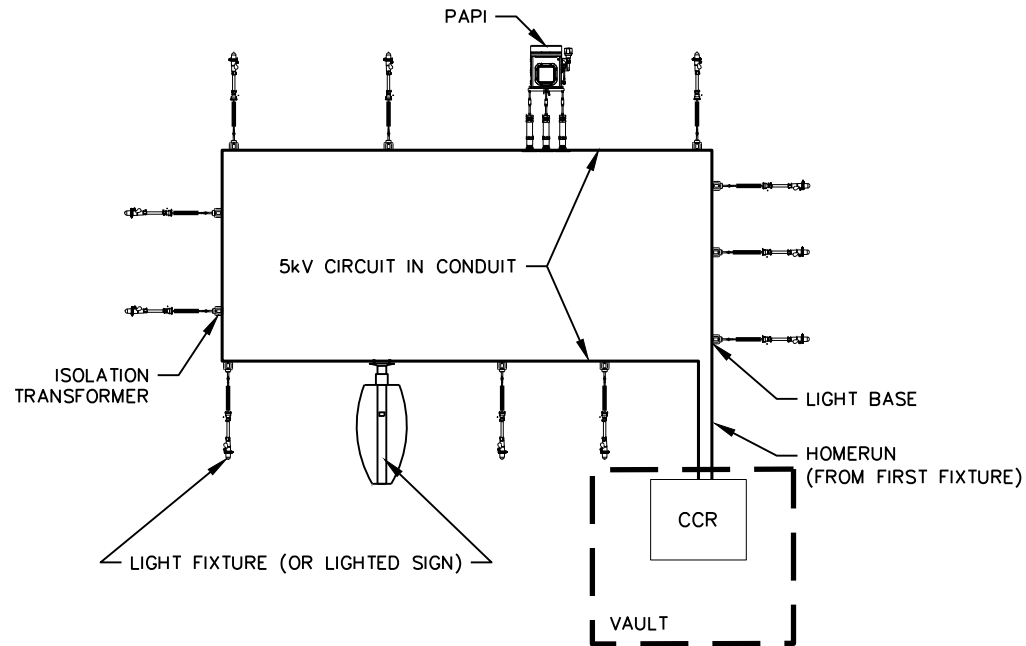


Project Manager: BDM
Designer: BGS
Project Number: 734301
Phone: (605) 339-4157



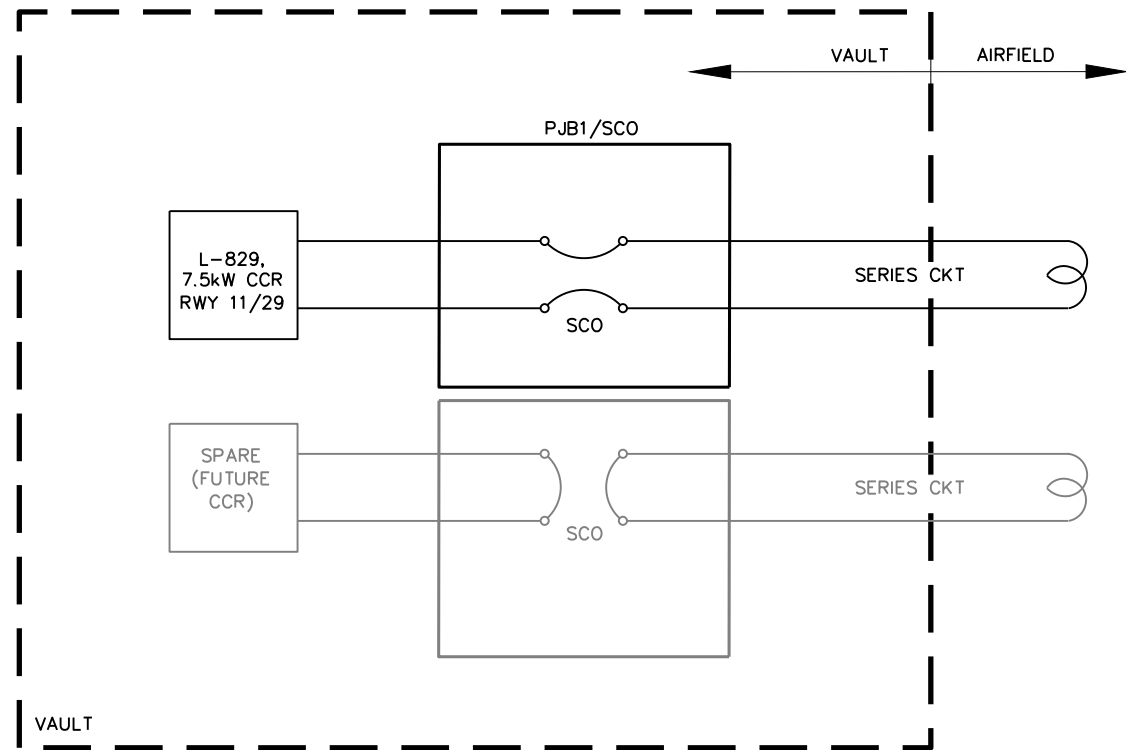
Sheet
V7

RUNWAY 11/29 CONSTRUCTION
FLANDREAU MUNICIPAL AIRPORT
FLANDREAU, SOUTH DAKOTA



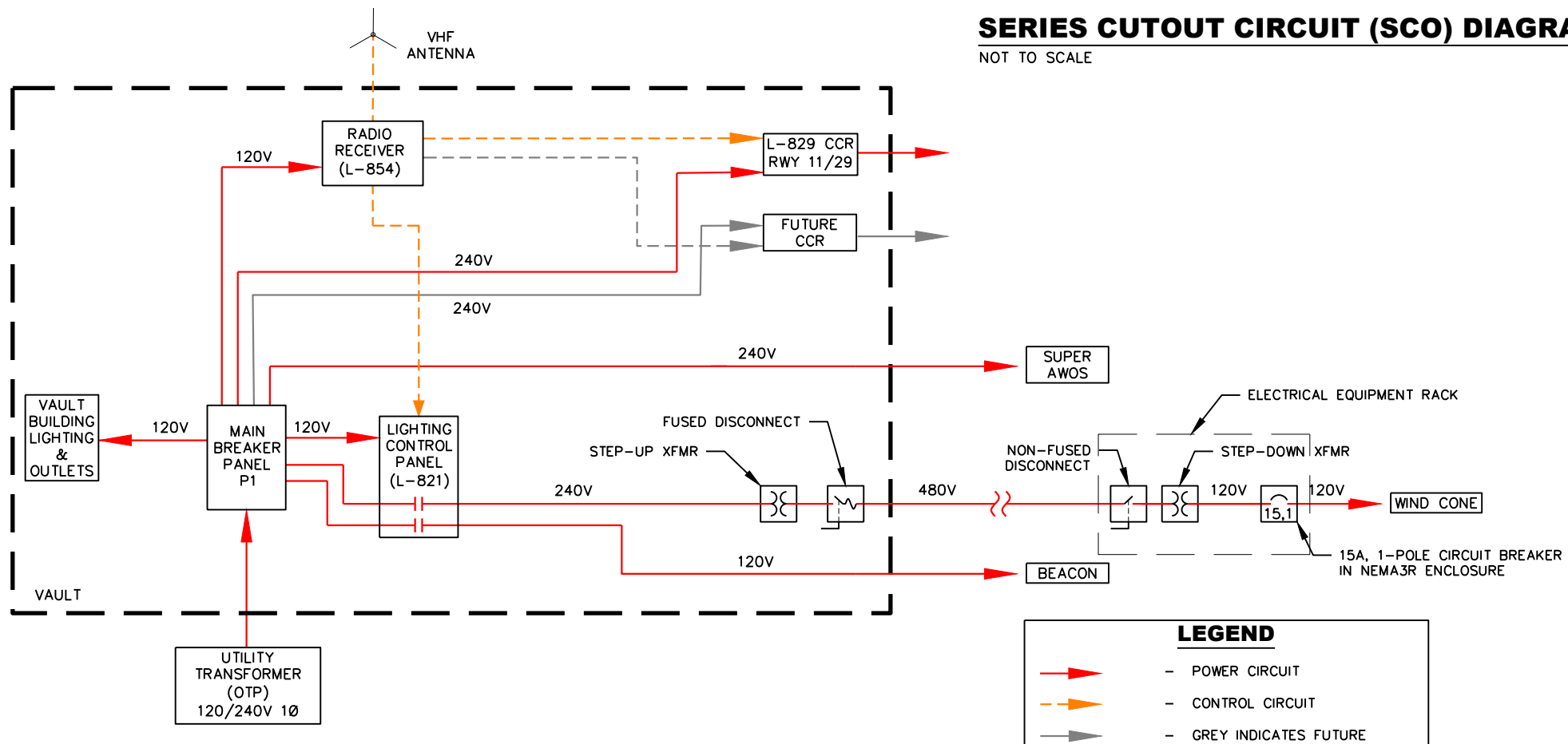
AIRPORT GROUND LIGHTING SERIES CIRCUIT

NOT TO SCALE



SERIES CUTOUT CIRCUIT (SCO) DIAGRAM

NOT TO SCALE



AIRFIELD LIGHTING AND ELECTRICAL VAULT BLOCK DIAGRAM

NOT TO SCALE





1. CONTRACTOR SHALL MOUNT L-821 PANEL TO THE WALL IN THE VAULT. DESIGN ASSUMES A 24" x 24" x 8" NEMA 4 ENCLOSURE.
2. THE L-821 CONTROL PANEL SHALL BE WIRED TO TERMINAL BLOCKS AND THEN TO THE DEVICE.
3. L-854 RADIO RECEIVER SHALL BE SET TO 122.9 MHz.
4. PROVIDE CONTROL SCHEMATIC BASED ON CONTROL PANEL GENERAL NOTES.

LEGEND

PC = PHOTOCELL (N/O DAWN TO DUSK; N/C DUSK TO DAWN)
RC = RADIO CONTROL
N/O = NORMALLY OPEN
N/C = NORMALLY CLOSED

CHART OF OPERATION (122.9 MHz)								
SYSTEM	DAYTIME (DAWN TO DUSK)				NIGHTTIME (DUSK TO DAWN)			
	PHOTO CELL	3 CLICKS	5 CLICKS	7 CLICKS	PHOTO CELL	3 CLICKS	5 CLICKS	7 CLICKS
MIRL RWY 11/29	OFF	LOW	MED	HIGH	LOW	LOW	MED	HIGH
WIND CONE	OFF	ON	ON	ON	ON	ON	ON	ON
BEACON	OFF	ON	ON	ON	ON	ON	ON	ON
PAPI 11 (1)	OFF	HIGH	HIGH	HIGH	LOW	LOW	LOW	LOW
PAP 29 (1)	OFF	HIGH	HIGH	HIGH	LOW	LOW	LOW	LOW
FUTURE REIL 11 (2)	OFF	OFF	OFF	HIGH	OFF	OFF	OFF	HIGH
FUTURE REIL 29 (2)	OFF	OFF	OFF	HIGH	OFF	OFF	OFF	HIGH

- (1) PAPIs ARE ENERGIZED FROM THE RWY 11/29 CCR. PHOTOCELL ON PAPI PRIMARY UNIT CONTROLS DAY/NIGHT BRIGHTNESS, NOT THE CCR STEP (CLICKS).
- (2) FUTURE REILs WILL BE ENERGIZED FROM THE RWY 11/29 CCR/CKT.

