

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
BRIDGE IMPROVEMENT GRANT AGREEMENT
FOR PRESERVATION – STATE ADMINISTRATION

This Agreement is made and entered into by and between the State of South Dakota, acting by and through its Department of Transportation, referred to in this Agreement as the "STATE," and Brookings County, South Dakota, referred to in this Agreement as the "COUNTY."

BACKGROUND:

1. The STATE has funding available for preservation, rehabilitation, or replacement of eligible local public agency bridges. The funding is only available for bridges located on local public roads.
2. The COUNTY has applied for and the STATE has awarded to the COUNTY a Bridge Improvement Grant ("BIG") for preservation of structure number 06-143-080, project number BRF 6030(00)16-5 PCN 05QR, referred to in this Agreement as the "PROJECT."

THE STATE AND THE COUNTY MUTUALLY AGREE AS FOLLOWS:

1. The COUNTY applied for and was awarded a BIG for preservation for the PROJECT. The BIG award amount is eighty-five thousand, three hundred and twelve dollars (\$85,312), plus eighty percent (80%) of the actual costs of reasonable and necessary construction engineering for the PROJECT.
2. The STATE issued a letter on April 28, 2016 notifying the COUNTY of the award of the BIG. The letter of award is attached to and incorporated in this Agreement as **Exhibit A**.
3. This Agreement is effective on the date of the letter of award attached as **Exhibit A**. The preservation work contemplated by this Agreement will be completed no later than four years from the date of the letter of award. No reimbursements will be processed by the STATE for work performed after the date of April 28, 2020.
4. The COUNTY will select a professional engineering firm from the STATE'S current consultant retainer list for the bridge design category of work.
5. The STATE will hire the professional engineering firm selected by the COUNTY to perform the design engineering for the PROJECT. The scope of the design engineering services to be performed is identified in the attached **Exhibit B**.
6. The parties recognize that unanticipated and time-sensitive work may be needed for completion of the PROJECT and that delays in completing such work could jeopardize the PROJECT schedule. The COUNTY authorizes the STATE to write work orders and hire consultants for the PROJECT for unanticipated and time-sensitive work that must be completed promptly in order to avoid PROJECT delays and increased PROJECT costs. The COUNTY'S signature will not be required for these work orders or consultant agreements, and the COUNTY agrees to pay for the cost of this additional work in accordance with the provisions of this Agreement. The STATE will notify the COUNTY of the purpose and need of any such work orders or consultant agreements prior to the STATE issuing a Notice to Proceed for the additional work. The STATE will provide the COUNTY with a fully executed copy of any work order or consultant agreement executed by the STATE pursuant to this section of the Agreement.
7. The COUNTY will review the final plans for the PROJECT and will issue written authorization for the PROJECT bid-letting on a letting authorization form provided by the STATE.

8. After receipt of the authorization for bid-letting, the STATE will advertise the PROJECT for bids and be the contracting party.
9. The STATE will enter into a construction contract with the lowest responsible bidder.
10. The STATE will issue a notice to proceed to the lowest responsible bidder.
11. The STATE will provide all construction engineering services for the PROJECT. At the STATE'S option, the construction engineering services may be performed by STATE employees or by a consultant hired by the STATE. Construction engineering will include inspection services.
12. The STATE will directly pay engineering and construction contractors for PROJECT costs.
13. The STATE will be responsible for eighty percent (80%) of the actual cost of construction engineering services for the PROJECT. For all other PROJECT work, the STATE will be responsible for eighty percent (80%) of eligible costs, not to exceed the BIG award amount of eighty-five thousand, three hundred and twelve dollars (\$85,312). The COUNTY will reimburse the STATE for all remaining PROJECT costs. The COUNTY will make reimbursements within thirty (30) days of receipt of a billing from the STATE.
14. As part of the PROJECT, one or more signs will be erected to indicate the PROJECT was built with a BIG. The COUNTY will be responsible for maintaining these signs for the life of the bridge.
15. The STATE will notify the COUNTY upon completion of the preservation work under this Agreement.
16. The STATE will obtain all necessary PROJECT environmental clearances and permits as required for the PROJECT. If any part of the PROJECT affects the Federal Emergency Management Agency's (FEMA) flood plain insurance maps, the COUNTY will be responsible for all map revisions and obtaining FEMA approval or a Conditional Letter of Map Revision (CLOMR).
17. The COUNTY will obtain all necessary right-of-way for the PROJECT according to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended in 1987. The COUNTY will use unaltered STATE forms in obtaining right-of-way.
18. The COUNTY will arrange for all needed utility adjustments as part of the PROJECT and certify prior to advertisement or letting that all right-of-way and utility adjustments or agreements are in place.
19. The COUNTY certifies the COUNTY has a conflict of interest policy and enforces said policy.
20. The COUNTY certifies the COUNTY has filed an Internal Revenue Services (IRS) Form 990 in compliance with federal law, if applicable. The COUNTY will display the filed IRS Form 990 on the COUNTY'S website immediately upon filing.
21. The COUNTY certifies the COUNTY employs an effective internal control system.
22. The COUNTY certifies the COUNTY is in compliance with the federal Single Audit Act and the requirements of SDCL § 4-11-2.1, if applicable. The COUNTY further certifies audits are displayed on the COUNTY'S website.
23. The COUNTY will include provisions in the COUNTY'S contracts and subcontracts, if any, requiring the COUNTY'S contractors and subcontractors to comply with the applicable provisions of this Agreement, to indemnify the STATE, and to provide insurance coverage for the benefit of the STATE, all in a manner consistent with this Agreement. The COUNTY will cause the COUNTY'S contractors, subcontractors, agents, and employees to comply with applicable federal, state, and local laws, regulations, ordinances, guidelines, permits, and requirements and will adopt such review and inspection procedures as are necessary to assure such compliance.

24. The COUNTY will indemnify the STATE, its officers, agents, and employees against any and all actions, suits, damages, liability, or other proceedings that may arise as the result of the COUNTY'S performance under this Agreement. This section does not require the COUNTY to be responsible for or defend against claims or damages arising from errors or omissions of the STATE, its officers, agents, or employees.
25. All PROJECT charges will be subject to audit by the STATE. The COUNTY and the COUNTY'S contractors and subcontractors will keep accounting records clearly identified with this Agreement, and will support all PROJECT charges by documents which evidence, in detail, the nature and propriety of those charges.
26. Upon reasonable notice, the COUNTY and the COUNTY'S contractors and subcontractors will allow the STATE, through any authorized representative, to have access to and the right to examine and copy all records, books, papers, or documents related to services rendered under this Agreement. The COUNTY will keep these records clearly identified and readily accessible for a period of three (3) years after the date of final payment under this Agreement.
27. The COUNTY will abide by the requirements of Title VI of the Civil Rights Act of 1964, incorporated in and attached to this Agreement as **Exhibit C**.
28. The COUNTY will perform under this Agreement in compliance with the Americans with Disabilities Act of 1990 and any amendments.
29. This Agreement may not be amended, except in writing, which writing will be expressly identified as a part of this Agreement, and be signed by an authorized representative of each of the parties.
30. This Agreement depends upon the continued availability of appropriated funds and expenditure authority from the Legislature for this purpose. If for any reason the Legislature fails to appropriate funds or grant expenditure authority, or funds become unavailable by operation of law or federal funds reductions, the STATE may terminate this Agreement. Termination for any of these reasons is not a default by the STATE nor does it give rise to a claim against the STATE.
31. The parties may terminate this Agreement by mutual written agreement. The STATE may also terminate this Agreement if the COUNTY breaches any terms of this Agreement. If the STATE terminates this Agreement due to the COUNTY'S breach, then any payments owed to the COUNTY at the time of termination may be adjusted to cover any additional costs to the STATE because of the COUNTY'S breach. The adjustment of payments will be in addition to any other remedies the STATE may pursue as a result of COUNTY'S breach, and the STATE does not waive these other remedies by making a payment adjustment. If termination is not due to a breach by the COUNTY, then the COUNTY will be paid for eligible PROJECT costs incurred up to the date of termination, subject to the maximum limiting amount of the BIG.
32. The COUNTY must comply with all federal, state, and local laws, together with all ordinances and regulations applicable to the work and will be solely responsible for obtaining current information on such requirements. The COUNTY must procure all licenses, permits, or other rights necessary for the fulfillment of its obligations under this Agreement.
33. This Agreement will be governed by and construed in accordance with the laws of the State of South Dakota. Any lawsuit pertaining to or affecting this Agreement will be venued in Circuit Court, Sixth Judicial Circuit, Hughes County, South Dakota.
34. If any court of competent jurisdiction holds any provision of this Agreement unenforceable or invalid, such holding will not invalidate or render unenforceable any other provision of this Agreement.

- 35. All other prior discussions, communications, and representations concerning the subject matter of this Agreement are superseded by the terms of this Agreement, and, except as specifically provided in this Agreement, this Agreement constitutes the entire agreement with respect to its subject matter.
- 36. The COUNTY has designated its County Commission Chairperson as the COUNTY'S authorized representative and has empowered the Chairperson with the authority to sign this Agreement on behalf of the COUNTY. A copy of the COUNTY'S Commission minutes or resolution authorizing the execution of this Agreement by the Chairperson as the COUNTY'S authorized representative is attached to this Agreement as **Exhibit D**.

This Agreement is binding upon the signatories not as individuals but solely in their capacities as officials of their respective organizations and acknowledges proper action of the STATE and the COUNTY to enter into the same.

Brookings County, South Dakota

State of South Dakota
Department of Transportation

By: _____

By: _____

Its: County Commission Chairperson

Its: Program Manager,
Administration Program

Date: _____

Date: _____

Attest:

County Auditor/Clerk

(COUNTY SEAL)



Department of Transportation

Office of the Secretary

700 E Broadway Avenue

Pierre, South Dakota 57501-2586

PHONE: 605/773-3265 FAX: 605/773-3921

April 28, 2016

County Commissioners
Brookings County

NOTICE OF AWARD

2016 Preservation Bridge Improvement Grant

Structure Number 06-143-080

Project Number BRF 6030(00)16-5, PCN 05QR

Grant Amount = \$85,312.00(80%)

I am pleased to inform you that the South Dakota Transportation Commission approved a Local Bridge Improvement Grant (BIG) in the amount shown above for the noted structure during their April 28, 2016 commission meeting. A funding agreement and specific information and documents for this grant will be sent to you at a later date. A completed copy of your application is attached.

If you have questions please feel free to contact Laurie Schultz at 605-773-8149 or Doug Kinniburgh at 605-773-4284.

Sincerely,

A handwritten signature in blue ink, appearing to read "D. Bergquist", is written over the word "Sincerely,".

Darin P. Bergquist
Secretary

Attachment

cc: County Highway Superintendent
File

Bridge Improvement Grant Work Order Requirements for Structure Preservations

Note: Not all preservation work will require hydraulic analysis or foundation investigation. For this reason, several of the related items below have been marked "**if needed.**" If the Subject project does not require hydraulic analysis and/or foundation investigation, simply do not include these items in the breakdown of estimated costs.

SCOPE OF SERVICES – Structure Preservation

1. **Field survey for completion of the Drainage Data Sheet and Contour Map.** The information required for placement on these sheets is listed below. An example is attached containing the required information.
 - Stationing from south to north or west to east.
 - Beginning and ending stations of the current structure.
 - Proposed and in-place gradelines.
 - Stream profile. (Including a table of stations and elevations for each shot taken.)
 - Sea level datum is required. Stations, elevations, and offsets from and descriptions of permanent objects will be required for project benchmarks. (The High Accuracy Reference Network (HARN) map and the County Bench Mark map for the State of South Dakota can be found at the following web site – www.state.sd.us/dot/pe/roaddesign/survey.htm)
 - Include an electronic file containing the plan/profile of the in-place gradeline at the structure.
 - Landowners with their addresses, phone numbers, and location of property.
 - Utilities with their addresses, phone numbers, and locations along the project.

2. **Field survey as necessary for preparation of construction plans.** Required information is listed below.
 - Establishment of transit points, land ties and benchmarks as well as cross sections and topography. (Stations, elevations, and offsets from permanent objects will be required for project benchmarks.)
 - Project limits as established by consultation with the County Highway Superintendent.
 - Additional legal survey as required for preparation of right-of-way plats.
 - The geometrics of horizontal and vertical alignment in accordance with the Local Roads Plan design standards.
 - Survey notes are to be retained on file with the Consultant for subsequent use in the preparation of construction plans and are to be available to the County upon request.

3. **(If needed.) Preliminary Hydraulic Data Sheet, Plan/Profile Sketches (Preliminary Hydraulic Layouts) and gradelines, Electronic Copy of HEC-RAS File, Final Drainage Memo/Letter in accordance with the newest version of the South Dakota Drainage Manual, and cost estimates for existing and all proposed structure alternatives. (More than one feasible alternative is required. This includes options on different alignments if applicable.)** The newest version of the South Dakota Drainage Manual is available at the following location: <http://www.sddot.com/business/design/forms/drainage/>. Guidance and an example Final Drainage Memo/Letter can be found in Chapter 6 of the manual. The current preliminary hydraulic data sheet to be used can be found at the following internet location: <ftp://ftp.state.sd.us> Folder Path – DOT/LGA/Forms/Hydraulic Data Sheet – Current.doc. Directions for filling out the form can be found at the same location. All items will be submitted to the Local Government Assistance Office for distribution to SDDOT personnel for review for compliance with minimum required State and Federal standards. Necessary revisions shall be provided in writing by the SDDOT and shall be forwarded to the Consultant by the Local Government Assistance Office. The Consultant is wholly responsible for the accuracy of the design calculations and the independent check design calculations.

4. **Conduct TS&L inspection, assistance in the selection of the type of rehabilitation, and preparation of TS&L summary letter.** The county or city (owner) shall be in attendance and if time allows, a member of the Local Government Assistance office.

5. **(If needed.) Report of Foundation Investigation.** Conduct field investigation and provide design recommendations according to AASHTO LRFD Bridge Design Specifications Section 10. Report shall include

boring information, lab results, and design recommendations. See **Examples #1 and #2, following the attachments**, for reports that are typically developed by SDDOT Geotechnical Engineering Activity.

6. **(If needed.) Final Hydraulic Design Report and Final Hydraulic Data Sheet (use the current data sheet found at the following internet location: <ftp://ftp.state.sd.us> Folder Path – DOT/LGA/Forms/Hydraulic Data Sheet – Current.doc.)** These items will be considered draft if subsurface investigation will be conducted during the design phase.
7. **Survey and plans for the above referenced project as described in the TS&L letter and Final Hydraulics Data Sheet, design calculations, independent design check, and load ratings.** Review plans (100% complete) are to be submitted in PDF format. Specifications shall follow the most current edition of the Standard Specification for Roads and Bridges. South Dakota Department of Transportation Bid Items, Standard plates and plan notes, from the SDDOT website, must be used in development of the **11" x 17" Non Section Method** plan set.

If applicable to the type of rehabilitation, the consultant shall provide design calculations, independent check, and load ratings for the structure as set forth in the Master Retainer Contract. In addition, load ratings for the Special Hauling Vehicles specified in **Attachment #2** shall also be submitted. The Consultant is wholly responsible for the accuracy and safe keeping of the design calculations and the independent design check.
8. **Incorporation into the plans of any changes that may be requested in the SDDOT plan review comments or provide written explanation for items not changes.**
9. **Review of shop fabrication drawings as may be required and submittal of the approved shop drawings to the Consultant.** This item is to be completed within two (2) weeks of receipt of shop or fabrication drawings from the contractor and shall be noted accordingly in the plans.

Please refer to the checklist in **Attachment #1** for the TS&L Packet of items that shall be submitted to the Local Government Assistance Office.

Attachment #3 contains applicable excerpts from the Current SDDOT Consultant Retainer, DOT-900 AGREEMENT FOR PROFESSIONAL ENGINEERING SERVICES.

Attachment #1
Bridge Improvement Grant
Checklist for Structure Preservation Work Order

These items must be submitted to DOT/Local Government Assistance.
If any of these items are missing, the full packet will be returned for completion and resubmission to this office.

Project Number _____ County _____ PCN _____

CROSS OFF ANY NON-APPLICABLE ITEMS

Survey Sheets and Contour Map including the following information:

Stationing from south to north or west to east

Beginning and ending stations of the existing structure

Beginning and ending stations of proposed structures

Proposed and existing gradelines

Stream profile and cross sections (Downstream to upstream direction including a table showing stations and elevations for each shot taken)

Elevation and location of buildings and other structures

Survey information using sea level datum and showing station, elevation, offset, and physical description of each project benchmark

Landowner names, addresses, phone numbers, and legal descriptions of their property

Utility names, addresses, phone numbers, and locations along the project

Preliminary Hydraulic Data Sheet (use current data sheet found at: <ftp://ftp.state.sd.us> Folder Path – DOT/LGA/Forms/Hydraulic Data Sheet – Current.doc) including the following information:

Calculated flows

Inplace conditions (Ordinary High Water Elevation, HW₁₀₀, Vmax, OTfr)

Proposed conditions for each option (HW₂, HW₂₃, HW₁₀₀, Vmax Qot, OTfr, ELovertop)

Ordinary High Water Elevation Shown on Cross-Sections (vegetation elevation on stream banks – approx. 2-year flow)

Observed High Water Elevation (identifiable high water mark)

Electronic copy of HEC-RAS model of existing and proposed conditions

Final Drainage Memo/Letter (example and directions can be found in Chapter 6 of the SD Drainage Manual located at: <http://www.sddot.com/business/design/forms/drainage/>)

Plan and profile sketches (preliminary hydraulic layout sheets) for the existing structure and proposed gradelines for each option (More than one feasible alternative is required. This includes options on different alignments if applicable.)

Cost Estimates (including design and construction engineering and construction costs for each option.)

TS&L Summary Letter

Final Hydraulic Data Sheet with Scour Recommendations

- Use current data sheet found at: <ftp://ftp.state.sd.us> Folder Path – DOT/LGA/Forms/Hydraulic Data Sheet – Current.doc
- Scour memo, scour calculations, and berm slope protection recommendations (Bridges Only)

Final Hydraulic Design Report

Report of Investigation (Bridges) or Undercut Recommendation (Boxes/Pipe)

Review Plans (100% complete & ready for review) in PDF Format

Design calculations, independent design check, and load ratings

To be submitted after plan review is complete

Memo Addressing Plan Review Comments

Final Plans – Electronic PDF file of the engineered, stamped set of plans

Attachment #2
Bridge Improvement Grant
Load Rating Requirements for the Special Hauling Vehicles



U.S. Department
of Transportation
Federal Highway
Administration

Memorandum

Subject: **ACTION:** Load Rating of Specialized Hauling
Vehicles

Date: November 15, 2013

/s/ Original Signed by

From: Joseph S. Krolak
Acting Director, Office of Bridge Technology

In Reply Refer To:
HIBT-10

To: Federal Lands Highway Division Engineers
Division Administrators

The purpose of this memorandum is to clarify FHWA's position on the analysis of *Specialized Hauling Vehicles* (SHVs) as defined in the AASHTO Manual for Bridge Evaluation (MBE) during bridge load rating and posting to comply with the requirements of the *National Bridge Inspection Standards* (NBIS). The intent of the load rating and posting provisions of the NBIS is to insure that all bridges are appropriately evaluated to determine their safe live load carrying capacity considering all unrestricted legal loads, including State routine permits, and that bridges are appropriately posted if required, in accordance with the MBE.

The SHVs are closely-spaced multi-axle single unit trucks introduced by the trucking industry in the last decade. Examples include dump trucks, construction vehicles, solid waste trucks and other hauling trucks. SHVs generally comply with Bridge Formula B and are for this reason considered legal in all States, if a States' laws do not explicitly exclude the use of such vehicles.

NCHRP Project 12-63 (Report 575, 2007) studied the developments in truck configurations and State legal loads and found that AASHTO Type 3, 3-S2 and 3-3 legal vehicles are not representative of all legal loads, specifically SHVs. As a result, legal load models for SHVs were developed and adopted by AASHTO in 2005, recognizing that there is an immediate need to incorporate SHVs into a State's load rating process, if SHVs operate within a State. The SHV load models in the MBE include SU4, SU5, SU6 and SU7 representing four- to seven-axle SHVs respectively, and a Notional Rating Load (NRL) model that envelopes the four single unit load models and serves as a screening load. If the load rating factor for the NRL model is 1.0 or greater, then there is no need to rate for the single-unit SU4, SU5, SU6 and SU7 loads. However, if the load rating factor for the NRL is less than 1.0, then the single-unit SU4, SU5, SU6 and SU7 loads need to be considered during load rating and posting.

The SHVs create higher force effects, and thus result in lower load ratings for certain bridges, especially those with a shorter span or shorter loading length such as transverse floor beams, when compared to AASHTO Type 3, 3-S2 and 3-3 legal loads and HS20 design load. Therefore, SHVs, i.e., SU4, SU5, SU6 and SU7 or NRL, are to be included in rating and posting analyses in accordance with Article 6A.2.3 and Article 6B.9.2 of the 1st Edition of the MBE (Article 6B.7.2 of the 2nd Edition of the MBE), unless one of the following two conditions is met:

Condition A: The State verifies that State laws preclude SHV use; or

Condition B: The State has its own rating vehicle models for legal loads and verifies that the State legal load models envelope the *applicable* AASHTO SHV loading models specified in Appendix D6A and Figure 6B.9.2-2 of the 1st Edition of the MBE (Figure 6B.7.2-2 of the 2nd Edition of the MBE), and the State legal load models have been included in rating/posting analyses of all bridges. The SHV types, e.g. six- or seven-axle SHVs, precluded by State laws need not be considered.

The SHV load models apply to Allowable Stress Rating, Load Factor Rating, and Load and Resistance Factor Rating in accordance with Section 6A and 6B of the MBE.

The FHWA recognizes that there are bridges in the inventory that have not been rated for SHVs and that it is not feasible to include SHVs in the ratings for the entire inventory at once. FHWA is establishing the following timelines for rating bridges for SHVs, if neither Condition A or B is met:

Group 1: Bridges with the shortest span not greater than 200 feet should be re-rated after their next NBIS inspection, but no later than December 31, 2017, that were last rated by:

- a) either Allowable Stress Rating (ASR) or Load Factor Rating (LFR) method and have an operating rating for the AASHTO Routine Commercial Vehicle either Type 3, Type 3S2, or Type 3-3 less than 33 tons (English), 47 tons (English), or 52 tons (English) respectively; or
- b) Load and Resistance Factor Rating (LRFR) method and have a legal load rating factor for the AASHTO Routine Commercial Vehicle, either Type 3, Type 3S2 or Type 3-3, less than 1.3.

Group 2: Rate those bridges not in Group 1 no later than December 31, 2022.

For either group, if a re-rating is warranted due to changes of structural condition, loadings, or configuration, or other requirements, the re-rating should include SHVs.

The selection of load rating method should comply with FHWA's Policy Memorandum *Bridge Load Ratings for the National Bridge Inventory*, dated October 30, 2006.

A State may utilize an alternative approach in lieu of the above to address the load rating for SHVs for bridges in their inventory; however, the approach must be reviewed and formally accepted by FHWA.

The timeline presented above will be incorporated into the review of Metric 13 under the National Bridge Inspection Program (NBIP); specifically, it is expected that all bridges meeting Group 1 criteria be load rated for SHVs by the end of 2017. Please work with your State to assist them in developing appropriate actions to meet those timelines. If your State is currently developing or implementing a Plan of Corrective Actions (PCA) for load rating bridges, the PCA should be reviewed and modified as necessary to take into account the rating of SHVs for those bridges and these timelines.

We request that you share this memorandum with your State or Federal agency partner. All questions that cannot be resolved at the Division Office level should be directed to Lubin Gao at lubin.gao@dot.gov or at 202-366-4604.

Attachment #3
Bridge Improvement Grant
Excerpts from Current DOT-900 (09/2014) AGREEMENT FOR
PROFESSIONAL ENGINEERING SERVICES (SDDOT
Consultant Retainer)

FURNISHING OF DOCUMENTS (DOT-900, 09/2014, Section 3.)

Except where otherwise specifically provided, the CONSULTANT will furnish to the DEPARTMENT all documents, exhibits, electronic files, and other presentations for all phases of the work performed under the terms of this Agreement.

The CONSULTANT will furnish to the DEPARTMENT all design and check design computations. All documents furnished, including all original drawings, software generated electronic files, design computations, and check design computations, will become and remain the property of the DEPARTMENT and may be used by the DEPARTMENT without restriction for any public purpose.

The CONSULTANT will provide survey documents for bench levels and for the checking of bench levels on standard loose-leaf transit field book sheets. The CONSULTANT will provide all other data collected in an electronic format and will include the following files: FWD file, DGN file, DTM file, ALG file, and the RAW data file. The FWD file, DGN file, DTM file, and ALG file, will be compatible with the DEPARTMENT'S current version of InRoads. The RAW data file will be in ASCII format and will include the following information: point number, northing, easting, description, and any pertinent notes corresponding to a particular point.

The CONSULTANT, as requested by the DEPARTMENT, will submit construction documents, either electronic or paper format, and said documents will become and remain the DEPARTMENT'S property.

The CONSULTANT will return all data furnished to the CONSULTANT by the DEPARTMENT to the DEPARTMENT.

Compliance with all of the foregoing will be considered to be within the purview of this Agreement and will not constitute a basis for additional or extra compensation.

GENERAL REQUIREMENTS (DOT-900, 09/2014, Section 19.C.)

2. Survey for roadway and hydraulic design will be in accordance with the edition of the Department of Transportation Survey Manual currently in place at the time of execution of the Work Order.
3. Wetland delineation will be in conformance with the US Army Corps of Engineers Wetland Delineation Manual and Regional Supplements. Wetland mitigation plans will include construction plans, performance criteria, and a five (5) year monitoring plan.
4. Hydrologic/Hydraulic design will be in accordance with the edition of the South Dakota Drainage Manual (and its revisions) currently in place at the time of execution of the Work Order.

ROADWAY DESIGN (DOT-900, 09/2014, Section 19.D.)

Unless otherwise modified by the Work Order, the CONSULTANT will meet the following requirements:

1. Roadway design will be in accordance with the edition of the Department of Transportation Roadway Design Manual (and its revisions) currently in place at the time of execution of the Work Order and the American Association of State Highway and Transportation Officials (AASHTO) Specifications, "A Policy on Geometric Design of Highways and Streets" (2011 or the version in place at the time of execution of the Work Order), and Interims, or the Local Roads Plan.
2. The CONSULTANT will complete and furnish to the DEPARTMENT, at the time the plans are delivered to the DEPARTMENT, a DEPARTMENT provided checklist. This checklist will provide certification that a separate check has been performed, all review revisions have been made, and the plans are correct and complete.
3. The CONSULTANT will furnish basic design criteria in the Scope Summary Report and in the Scope of Services.
4. The CONSULTANT may obtain standard drawings of roadway appurtenances from the DEPARTMENT'S Office of Roadway Design.
5. The CONSULTANT will contact the DEPARTMENT'S Office of Bridge Design, if a DEPARTMENT structure's drainage area is greater than 1,000 acres. For these structures, the DEPARTMENT'S Office of Bridge Design will make a hydraulics recommendation, or will concur on the hydraulics requirement if hydraulics is part of the work order scope.
6. The DEPARTMENT will furnish basic surfacing design criteria, such as type, thickness, and width of pavement.
7. The DEPARTMENT will furnish material recommendations.

STRUCTURE DESIGN (DOT-900, 09/2014, Section 19.E.)

Unless otherwise modified by the Work Order, the CONSULTANT will meet the following requirements:

1. Prior to initiating design, the CONSULTANT will be required to submit the QC/QA plan/procedure to be followed for structure design to the DEPARTMENT for approval. The CONSULTANT may not begin structure design work until the QC/QA plan/procedure is approved and documented. If the CONSULTANT has a prior approved structure design QC/QA plan/procedure document on file with the OBD, and no changes to that document are anticipated for the current contract, the CONSULTANT will not need to resubmit a structure design QC/QA plan/procedure document.
2. The CONSULTANT will design bridges, box culverts, and miscellaneous highway structures in accordance with the edition of the "AASHTO LRFD Bridge Design Specifications," currently in place at the time of execution of the Work Order except as modified by the DEPARTMENT'S design practices. Prior to beginning design work, the DEPARTMENT will supply the CONSULTANT with a copy of design practices along with examples of standard detailing procedures and typical plans.
3. The CONSULTANT will design highway structures for a vehicular live loading of HL-93. Additional design criteria may be included in the Scope of Work.
4. The CONSULTANT will load rate each structure, including culverts that are bridge length, in accordance with the edition of the AASHTO "Manual for Bridge Evaluation" with latest Interim Revisions using the LRFR method currently in place at the time of execution of the Work Order. The CONSULTANT will perform an HL-93 Design Load Rating for each structure. The CONSULTANT will analyze the AASHTO HS20 vehicle for Inventory and Operating

Ratings. The CONSULTANT will also perform a Legal Load Rating for South Dakota legal trucks, the notional rating load, and the four specialized hauling vehicles. The CONSULTANT will submit a copy of the rating analyses to the DEPARTMENT along with the Final Plans for bid letting purposes. The Bridge Management Engineer from the DEPARTMENT'S Office of Bridge Design will review load ratings. Load ratings must be above the Legal Loads. The CONSULTANT will provide a separate summary table of all load ratings to be included in the Bridge Inspection file.

5. The CONSULTANT will provide the DEPARTMENT a hard copy of design computations, independent check design computations, and load ratings, including computer output if applicable, with the final review set of drawings.
6. The CONSULTANT will review shop plans for fabricated items, and will forward marked-up shop plans to the DEPARTMENT. The DEPARTMENT must authorize any fabrication.

PLANS, SPECIFICATIONS, AND ESTIMATES, GENERAL (DOT-900, 09/2014, Section 19.H.)

Unless otherwise modified by the Work Order, the CONSULTANT will meet the following requirements:

1. When complete plans, supplemental specifications, or special provisions are prepared, these will become the property of the DEPARTMENT, County, or City.
2. The CONSULTANT will furnish and deliver to the DEPARTMENT original drawings of all sheets comprising the set of plans, together with all reports, drawings, computer files, studies, memoranda, and other data pertaining thereto.
3. The CONSULTANT will furnish to the DEPARTMENT an electronic MS Word file of all special specifications.
4. The CONSULTANT will prepare plans in conformance with the DEPARTMENT'S customary practices. The CONSULTANT will use standard format for notes, tables, and rates of materials.
5. The CONSULTANT will prepare plans on sheets 11" x 17" or 8 1/2" x 11" in size, under the guidance of the Road Design Manual's Chapter 18 – Plans Assembly: www.sddot.com/business/design/forms/roaddesign/Default.aspx or as directed by the DEPARTMENT. The CONSULTANT will follow the specific section of the Road Design Manual's Chapter 18 as it relates to plans produced by consultants in order to provide accurate electronic plans and bid items for the DEPARTMENT'S electronic bidding system. The CONSULTANT will utilize the DEPARTMENT'S web site: <http://www.sddot.com/business/design/Default.aspx> for Plan Preparation (i.e. Road Design Manual, CADD Procedure Manual, and User Guide for Electronic Plan Review), Downloadable Files (i.e. Form Letters, Microstation and InRoad files, and Plan Notes) and other information as necessary to design and prepare plans. The CONSULTANT will follow the properties and procedures set up for the DEPARTMENT'S electronic plans as set forth in document located at the following web site address: <http://www.sddot.com/business/design/docs/cadd/ElectronicPlans.pdf>. Electronic plans will be used for bidding purposes and must contain a watermark on each sheet stating "For Bidding Purposes Only." Refer to Paragraph 12 below for details on the set of plans to be used for construction.
6. The CONSULTANT will prepare plans with sufficient precision to permit the convenient layout in the field for construction and for other purposes. The plans will also provide for the

production of an accurate estimate of quantities for the work to be performed in the construction of the project.

7. The CONSULTANT will furnish such other pertinent information and data with respect to the plans and designs as the DEPARTMENT may request.
8. The DEPARTMENT will require all persons designing, detailing, and checking structure plans to legibly place their names or initials on each plan sheet in the spaces provided for this purpose.
9. The DEPARTMENT will designate the basic premises and criteria for the design. The CONSULTANT will develop plans in accordance with the DEPARTMENT'S standard specifications for roadway and bridge construction.
10. As part of the work embraced in the preparation of plans, the CONSULTANT will prepare and furnish to the DEPARTMENT special provisions in standard DEPARTMENT format, for items of work included in the plans which are not covered by the standard specifications, plan notes, or DEPARTMENT-approved special provisions.
11. The CONSULTANT will ensure scales, lettering, and the general delineation of the plans mirror the DEPARTMENT format and provide readily legible reproductions.
12. The CONSULTANT will ensure each plan sheet bears the South Dakota registered professional seal and endorsement of the CONSULTANT as per the requirements of the South Dakota Board of Technical Professions.
13. The CONSULTANT will use software acceptable to the DEPARTMENT as agreed to in the Work Order.

Note: The DEPARTMENT'S standard software programs are the Bentley Civil Products (InRoads Suite), MicroStation, AASHTOWare products, Adobe Acrobat, and the Microsoft Office Suite. The DEPARTMENT may require other software on Work Orders.

CONSTRUCTION ENGINEERING TECHNICAL REQUIREMENTS (DOT-900, 09/2014, Section 20.)

- A. CONSULTANT'S RESPONSIBILITIES.** The CONSULTANT will be responsible to the DEPARTMENT, and will complete all work to the DEPARTMENT'S satisfaction.

Subject to availability, the CONSULTANT will provide personnel for the areas of expertise necessary to satisfactorily complete the work specified in the Work Order and this Agreement. The DEPARTMENT will notify the CONSULTANT as to the proper medium that will be used for recording purposes of field data. The CONSULTANT will submit reports in a timely manner as directed by the DEPARTMENT'S Office issuing the Work Order. The responsibilities for these areas are described in **Exhibit 4, CONSTRUCTION ENGINEERING CONSULTANT RESPONSIBILITIES.**

EXHIBIT 4 (DOT-900, 09/2014)

CONSULTANT RESPONSIBILITIES

GENERAL

The CONSULTANT will:

1. Be knowledgeable of the requirements of the project plans and specifications, the DEPARTMENT'S Survey Manual, Road Design Manual, South Dakota Drainage Manual, and CADD Procedures Manual.

2. Assure project personnel are knowledgeable of their duties and responsibilities.
3. Assure project personnel are knowledgeable of the DEPARTMENT'S Materials Manual.
4. Oversee day to day activities to ensure the project is constructed in accordance with plans and specifications.
5. Ensure all documentation and reports are accurate and kept current.
6. Prepare and electronically submit Biweekly Progress Reports, Construction Change Orders, Progress Pay Estimates, Final Pay Estimate, and Final Construction Change Order, all on the current version of the DEPARTMENT'S Construction Management System. The CONSULTANT will submit these reports in a timely manner as directed by the DEPARTMENT'S Office issuing the Work Order.
7. Require all individuals providing acceptance testing and independent assurance testing of construction materials or acceptance inspection to record all data/results electronically on the current version of the DEPARTMENT'S Construction Management System, or as instructed by the DEPARTMENT.
8. Require all individuals providing acceptance testing and independent assurance testing of materials or acceptance inspection to meet the requirements of the DEPARTMENT'S Materials Testing and Inspection Certification Program Manual.
9. Ensure testing equipment identified in the DEPARTMENT'S Materials Testing and Inspection Certification Program Manual be calibrated and documented according to the designated frequencies and procedures designated in the Manual.
10. Perform other duties assigned by the DEPARTMENT as defined in this Agreement.

The CONSULTANT'S PROJECT ENGINEER will:

1. Assist with conducting the pre-construction meeting.
2. Prepare Biweekly Progress Reports, Construction Change Orders, Progress Pay Estimates, Final Estimate, and Final Construction Change Order electronically on the current version of the DEPARTMENT'S Construction Management System.
3. Handle EEO and Labor Compliance activities.
4. Ensure that subcontractors working on the project are approved by the DEPARTMENT.

The CONSULTANT'S INSPECTOR will:

1. Assure the asphalt or concrete plant is properly calibrated.
2. Perform scale accuracy checks.
3. Ensure construction activities remain inside the acquired right-of-way or easement as specified on the plans unless approved by the DEPARTMENT.

The CONSULTANT'S SURVEY PARTY CHIEF will:

1. Record field notes for slope stakes, blue tops, paving grades, pipe, structure layout, and other items of the same sort in electronic format, FWD files, DGN files, DTM files, ALG files, and RAW files compatible to the current version of InRoads being used by the DEPARTMENT.
2. Set centerline, offset lines, bluetops, slope stakes, pipe stakes, structure stakes, and other items of the same sort by electronic or manual means.
3. Run bench levels within acceptable tolerances of the DEPARTMENT'S Survey Manual and maintain field notes on standard loose-leaf transit field book sheets.
4. Obtain necessary topographic data within acceptable tolerances of the DEPARTMENT'S Survey Manual.
5. Supervise and assure the survey crew is knowledgeable as to its duties and responsibilities.

The CONSULTANT'S TEST PERSON AND EQUIPMENT will:

1. Be knowledgeable of the requirements of the project plans and specifications.
2. Sample and test materials for acceptance as specified by the DEPARTMENT'S Materials Manual. Perform material tests for QC/QA projects in accordance with QC/QA manual and have the proper QC/QA certification.
3. Recognize and have the ability to take corrective action for calibration of testing equipment.

EXAMPLE #1
REPORT OF FOUNDATION INVESTIGATION

PROJECT: BRO 8048(03) Mellette County PCN 02DY

LOCATION: Structure No. 48-102-010, 18.9 miles North & 0.8 miles West of Cedar Butte over the White River.

METHOD OF INVESTIGATION:

All soundings are made according to the Standard South Dakota Subsurface Investigation Techniques and AASHTO Specifications. Auger holes are drilled with a 4-1/2 inch continuous flight auger. Penetration and Push Test holes are drilled with a 6-5/8 inch continuous hollow stem auger. Push core samples are obtained by hydraulically ramming a 2 foot long lined split spoon sampler into the soil to obtain 2 inch nominal diameter soil samples. Penetration tests are conducted by dropping a 140 pound hammer 30 inches to obtain 2 inch nominal diameter samples and to measure the resistance to penetration of the soil. Corings with the SDDOT drive rig are performed by using a California retractable plug sampler, which is driven with a 490 pound hammer. The drill stem is P.K. rod, which is 2-7/8 inch O.D., and 2 inch nominal diameter cores are obtained. All laboratory tests are performed in accordance with standard AASHTO or SDDOT laboratory procedures.

RECOMMENDATIONS:

Abutments:

I. Steel HP10 X 42 Piling

A. A LRFD maximum factored pile bearing resistance of 77 tons can be used for design.

B. The anticipated tip elevations are:

<u>Station</u>	<u>Elevation</u>
22+06	1910
25+27	1892

C. The nominal pile bearing resistance shall be 192 tons verified by the SDDOT's Modified ENR formula.

Bents:

I. Drilled Shafts

A. A LRFD maximum factored resistance value of 2,800 psf can be used for design below elevation 1912 ft. or maximum scour whichever is lower.

B. Permanent casings will be required to elevation 1915 ft.

C. The point of fixity within the bedrock can be assumed to be the elevation 1912 ft.

DISCUSSION:

The proposed structure location is underlain by brown sand-silt (alluvium) overlying brown silt-sand with gravel (alluvium). The alluvial sediments rest upon gray silt-clay (Pierre Shale). The D50 of the brown sand-silt, brown silt-sand with gravel, and gray silt-clay (Pierre Shale) can be assumed to be 0.06 mm, 1.0 mm, and 0.004 mm. The D95 of the brown sand-silt, brown silt-sand with gravel, and gray silt-clay (Pierre Shale) can be assumed to be 1.0 mm, 6.0 mm, and 0.06 mm.

Steel HP10X42 piling along with the anticipated tip elevations, are listed in the recommendations for use in the abutments. Drilled Shafts are listed in the recommendations for use at the bents.

The piling were evaluated for drivability and group effects at the LRFD Strength Limit State. Settlement of the substructure units and horizontal movement of the abutment piling were evaluated at the LRFD Service Limit State.

Drivability –

A drivability analysis was performed for the steel HP10X42 piling using the wave equation analysis program (GRLWEAP). A group of pile hammers that were evaluated and found to produce acceptable driving stresses is listed later in this report for inclusion in the plans.

Pile Group Effects:

Axial Loading – Abutments

For a single row of piling, AASHTO requires the center-to-center pile spacing to be at least 30" or 2.5 times the width of the pile, whichever is greater. Therefore, for the steel HP10x42 piling at the abutment the center-to-center spacing shall be at least 30".

Settlement –

The steel pile tips will be founded in the Pierre Shale. Unconfined compression test results of the Pierre Shale exceed the proposed bridge loadings. Past experience for piling driven into hard shale soil bedrocks has shown little, if any, settlement has occurred. Therefore, 1/4 inch or less of total settlement can be used to design the substructure units.

Horizontal Movement –

AASHTO states that if the center-to-center spacing of the piling in the substructure unit is greater than 5 times the width of the pile then group effects can be ignored. Therefore, if the designed spacing is greater than 5 times the pile width a group efficiency factor of 1.0 can be used with no reduction in pile loading required. If this minimum pile spacing is not met a reduction factor will need to be calculated according to the AASHTO code.

Horizontal movement at the substructure units can be calculated using the following soil parameters:

Sand-silt (alluvium); phi angle = 24 degrees, cohesion = 50 psf, wet unit weight = 118 pcf
Silt-sand with gravel (alluvium); phi angle = 32 degrees, cohesion = 0 psf, wet unit weight = 130 pcf
Silt-clay (Pierre Shale); phi angle = 18 degrees, cohesion = 1,000 psf, wet unit weight = 130 pcf

For the drilled shafts, a LRFD maximum factored resistance value (skin friction) of 2,800 psf is recommended below elevation 1912 for the bents or maximum scour whichever is lower. The point of fixity within the bedrock can be assumed to be 1912 for the bents.

Each drilled shaft shall have a minimum of 3 access tubes for a shaft diameter of 3.0' and less. The number of access tubes needed shall be increased by 1 for each foot increase in shaft diameter above the 3.0'. The access tubes shall be furnished and installed according to the South Dakota Department of Transportation's 2004 Standard Specifications for Roads and Bridges. These access tubes shall be equally spaced in the shaft reinforcement prior to placing the reinforcement cage.

A representative of the **CONSULTING FIRM (NAME AND NUMBER)** shall be present during drilling operations to confirm the elevations provided in this report and to observe the placement of the drilled shafts. In addition to the notes below, contact the **CONSULTANT REPRESENTATIVE** for the most current drilled shaft construction notes to be included in the plans.

The following notes shall be placed in the plans:

A drivability analysis was performed using the wave equation analysis program (GRLWEAP). The pile hammers listed below were evaluated and found to produce acceptable driving stresses. Pile hammers not listed will require evaluation and approval prior to use from the **CONSULTANT REPRESENTATIVE NAME AND PHONE NUMBER**.

Hammers need to be sized according to site specific soil parameters and structure design requirements. The following list of hammers is owned and readily available by contractors that do work in SD. Select and specify in the report which hammers are acceptable for use on individual projects.

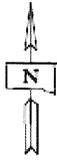
ICE 180
Delmag D19-42
Delmag D25-32

Delmag D12-42
MVE M-19
Delmag D30-32

FEC 1500
ICE 42S
SPI D30

Delmag D16-32
MKT DE 42/35
Delmag D46-32

Delmag D19-32
APE D19-42



Bole Number T2 Station 21995 Depth 3.3 ft Soil Color Brown Classification Sand-Clay Strength (QU) 85.5 psf Dry Density 93.5 pcf Wet Density 99.5 pcf Moisture 14.8 % Pass No. 10 86.4 % Pass No. 40 76.7 % Pass No. 200 51.9 % Sand Content 22.5 % Silt Content 29.2 % Clay Content 38.3 %	Bole Number T3 Station 25427 Depth 31.7 ft Soil Color Brown Classification Silt Strength (QU) 51.9 psf Dry Density 91.7 pcf Wet Density 91.8 pcf Moisture 12.5 % Pass No. 10 99.9 % Pass No. 40 97.1 % Pass No. 200 93.7 % Sand Content 44.8 % Silt Content 49.1 % Clay Content 15.3 %	Bole Number T4 Station 25423 Depth 11.0 ft Soil Color Brown Classification Sand Strength (QU) 104.0 psf Dry Density 91.8 pcf Wet Density 104.0 pcf Moisture 9.1 % Pass No. 10 96.7 % Pass No. 40 74.5 % Pass No. 200 5.9 % Sand Content 86.7 % Silt Content 9.6 % Clay Content 0.0 %	Bole Number T11 Station 24441 Depth 25.8 ft Soil Color Gray Classification Clay Strength (QU) 35,490 psf Dry Density 116.9 pcf Wet Density 116.9 pcf Moisture 16.5 % Pass No. 10 99.6 % Pass No. 40 98.7 % Pass No. 200 96.9 % Sand Content 7.8 % Silt Content 41.1 % Clay Content 95.9 %	Bole Number T12 Station 24489 Depth 21.8 ft Soil Color Gray Classification Clay Strength (QU) 45,340 psf Dry Density 113.3 pcf Wet Density 113.3 pcf Moisture 18.5 % Pass No. 10 99.8 % Pass No. 40 99.8 % Pass No. 200 99.3 % Sand Content 0.1 % Silt Content 18.6 % Clay Content 59.9 %
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Pierre Shale is a marine shale with a textural classification that varies from silt-clay to clay-silt. Color varies from buff gray to black. The formation may contain concretion zones that are normally thin but occasionally are massive. These zones may be considered hard and dense. Thin zones may be present that are cemented resulting in claystone or siltstone seams. Bentonite zones may be encountered but are normally less than one half inch thick. Nonweathered Pierre Shale is considered to be "Soft Rock".

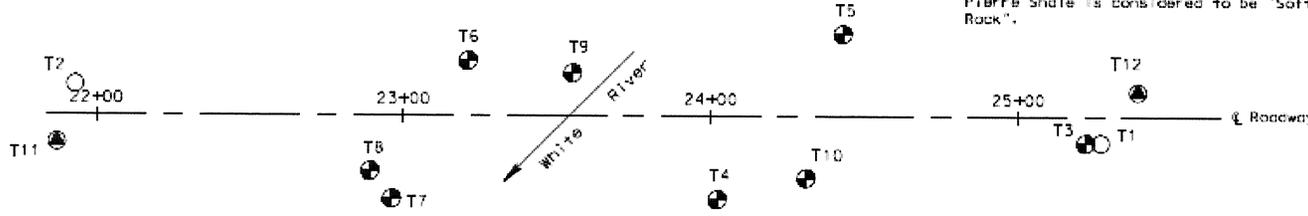
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.			

Projecting Date: 03/28/2012

The Geotechnical Engineering Activity has on file all of the boring logs for this project. These logs and additional results of laboratory test, if any, are available for review at the Central Office in Pierre.

LEGEND

- Auger Test
- ⊕ Drive Test
- ⊕ Water
- ⊖ Caved
- Penetration Test
- ▬ Sample Zone



* Values represent uncorrected "N" values from Penetration Test.

Sample Zone 48 Blows Per Foot

Bore holes on profile are moved slightly for clarity

Penetration tests are conducted by dropping a 140 pound hammer 30 inches to obtain 2 inch nominal diameter samples and to measure the resistance to penetration of the soil.

Drive test are conducted by dropping a 490 pound hammer 30 inches to drive a 2 3/8 inch drill stem with attached retractable plug sampler for taking samples and to measure the resistance to penetration of the soil.

Auger holes are drilled with a 4 1/2 inch diameter continuous flight auger. Penetration and Push Test holes are drilled with a 6 3/8 inch diameter hollow stem auger. Push core samples are obtained by hydraulically ramming a 2 foot long lined split spoon sampler into the soil to obtain 2 inch nominal diameter soil samples.

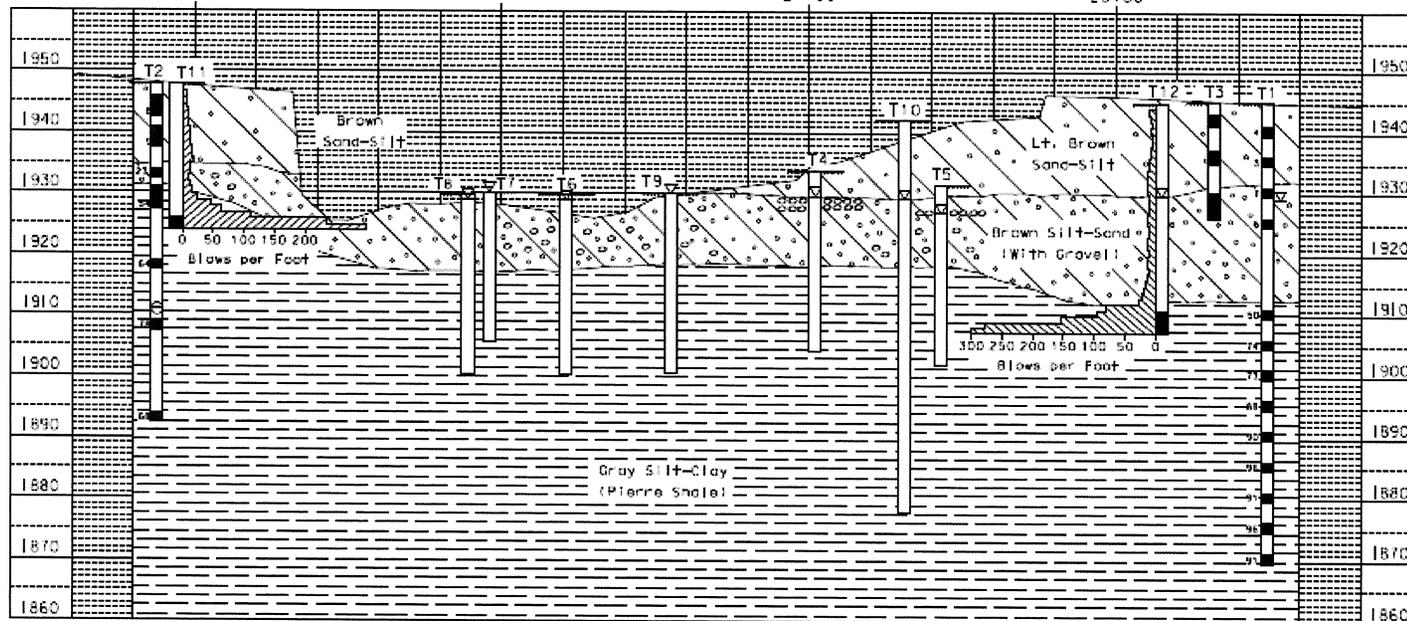
GROUND WATER ELEVATIONS

as of December 2012

T1	(Caved)	1931.3
T2	(Caved)	1910.9
T3	Dry	
T4		1929.7
T5		1926.9
T6		1928.9
T7		1930.2
T8		1929.1
T9		1930.0
T10		1929.3
T11	Dry	
T12		1929.8

MEASURED SKIN FRICTION

	Elev	psf
T11	1924.0	2,193
T12	1907.3	1,214



BRD 80481031 WELLETTE COUNTY PCN 02DY
18.9 MILES N. AND 0.6 MILES W. OF CEDAR BUTTE
SECTION 28 TOWNSHIP 45 N. RANGE 31 W.
OVER WHITE RIVER
STR. NO. 48-102-010

SITE PLAN & SUBSURFACE PROFILE

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	NN	JW	

**EXAMPLE #2
RECOMMENDATIONS**

Re: BRO 8027(29), Gregory County, PCN 00QR
Str. No. 27-030-081, located 2.0 West & 0.1 South of the Jct of SD44/SD47
RCBC Undercut Recommendation

Soils maps of the area indicate the soils at the location of the proposed structure have the following characteristics.

Station 16+86 (Str. No. 27-030-081)

CLASSIFICATION: A-7
Clay & Silty Clay
AVERAGE LIQUID LIMIT: 66
SHRINK-SWELL POTENTIAL: High to Very High
FROST ACTION POTENTIAL: Low
CORROSIVITY: High for steel, Low to Moderate for concrete

RECOMMENDATIONS:

Provide 24 inches of undercut and backfill.

DISCUSSION:

The project consists of replacing an existing single span 22' steel stringer bridge with a 2 barrel 13' x 6' cast-in-place RCBC. The proposed box culvert will be in the same location as the existing bridge location. The existing surfacing on the road is gravel and will be resurfaced with gravel upon completion. Minimal grading at the proposed box culvert location is anticipated, therefore, the material shall be compacted using the Ordinary Compaction Method.

A subsurface investigation was conducted for the proposed RCBC. The subsurface investigation consisted of placing a boring near both the proposed inlet and outlet ends of the structure and logging the material to 3 feet below the flow line. Samples were collected from below the flow line for soils classification. A dynamic cone penetrometer was used at both the inlet and outlet ends to identify the change in relative density of the subsurface material below flow line.

Subsurface soils at the proposed site consist of brown silt-clay to 3' below the existing flow line.

The 2' undercut depth is recommended to remove the low strength soils with high shrink-swell potential from below the box culvert.

The following paragraphs shall be placed in the plans:

Compaction of earth embankment and box culvert backfill material shall be governed by the Ordinary Compaction Method.

Any questions about the recommendations or the subsurface conditions can be directed to the **CONSULTANT CONTACT NAME AND PHONE NUMBER**.

**STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
STANDARD TITLE VI / NONDISCRIMINATION ASSURANCES
APPENDIX A & E
MARCH 1, 2016**

During the performance of this Agreement, the COUNTY, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the Federal Highway Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - a. withholding payments to the contractor under the contract until the contractor complies; and/or
 - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

During the performance of this Agreement, the COUNTY, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).
