The agreement for S.P. 3116-142 (T.H. 169-Cross Range Expressway) includes final design plans for a 1.55 mile length of a 2 lane to 4 lane expansion project located 0.66 miles SW of C.S.A.H. 15 to 0.30 miles E of C.S.A.H. 7. The plan is an alternate bid project (bituminous/concrete) and includes grading, signing, Storm Water Pollution Prevention Plan (SWPPP), and culvert and storm water treatment work. Project includes realignment of approximately 1000 feet of C.S.A.H. 15 and 400 feet of C.S.A.H. 7, 200 feet of the Mesabi Bike Trail, and revisions of other entrances and road connections. Additional work includes guardrail, intersection lighting, rumble strips, and truck climbing lane. Contractor deliverables will include project management, utility coordination, detailed design plan (including traffic control, signing, and striping), permit applications, special provisions, and cost estimates.

Work Tasks:
Task 1.0 - Project Management - all work necessary for the effective communication and coordination of the project to ensure all the project tasks are completed on time, within budget, and in accordance with State and Federal laws, rules, and regulations. Coordination with the State’s consultant for wetland delineation and USCOE permit application, State Bridge Office for their box culvert/bridge design, and the State Bicycle and Pedestrian Unit will be required. This task will also include a kick off meeting and attendance at any Stakeholder Meetings for project design. Coordination with the Office of Freight and Commercial Vehicle Operations and CN Rail Road will be done by MnDOT Staff. Contractor may be required to attend up to one meeting to assist in this coordination, as requested by the State. Contractor coordination with Itasca County and the City of Taconite will also be required. The State will be developing a Cooperative Construction Agreement with Itasca County to include a box culvert and the City of Taconite to include city designed utilities into the project. See tasks 2.0 and 3.0 for additional meetings. Deliverables: Meeting minutes, correspondence, project schedule with periodic updates, progress reports.

Due Date: Ongoing

Task 2.0 - Utility Coordination - all tasks necessary to be in compliance with MnDOT’s 2013 Utilities Manual and all applicable State Statutes. This includes but is not limited to preparing and distributing letters and plans, meetings and individual utility contacts. Deliverables: Copies of letters to utilities, meeting minutes, phone log documentation, submittal of the Project Manager Utility Certification, and other tasks to coordinate utility relocation.

Due Date: Ongoing

Task 3.0 - Detail Design Plans – all tasks necessary to develop a State provided 30% plan and approved Geometric Layout into a final detailed design plan for the construction of a 2 to 4 lane expansion project. The State provided information will include a preliminary typical, horizontal alignments, vertical profiles, preliminary construction limits, and Corridor Modeling files used to generate preliminary cross sections.
The majority of the proposed northbound and southbound will be on a new horizontal alignment with these new alignments crossing the existing roadway several times over the length of the project. Contractor will develop a detailed construction staging plan to maintain traffic during construction.

Contractor will design a temporary bypass at the south end of the project to channelize the existing 4 lanes to 2 lanes. The bypass will be south of the project with the exact location to be determined by the Contractor. Design will include all quantities, including advanced signing, needed to construct the bypass.

Surfacing for the project will be an alternate bid. Contractor will develop separate typicals and quantities for bituminous and concrete design of the upper approximately 15” of the surface construction. The design and quantities below the upper 15” will be common to both the concrete and bituminous design.

The design will require realignment of 1000 feet of C.S.A.H 15, 400 feet of C.S.A.H 7, 200 feet of Holman Road connection, and 300 feet of the Schwartz Road connection. Horizontal and vertical alignments for these roadways will be supplied by the State. There will be crossovers and turn lanes at each of the two C.S.A.H locations.

A section of the Mesabi Bike Trail is located within the existing T.H. 169 corridor and approximately 200 feet of the trail will need to be relocated due to the new construction on C.S.A.H. 15 and T.H. 169. A portion of the trail will be located on the shoulder of the C.S.A.H. 15 and the Contractor will design ADA acceptable connections from the C.S.A.H. to the existing trail in two locations.

Contractor tasks will include culvert work, storm water treatment plan (recommendations provided by State), Storm Water Pollution Prevention Plan (SWPPP), design and plan of intersection lighting at two locations, truck climbing lane, rumble strips, and traffic barrier needs.

The final road plans will also be consistent with any findings and recommendations identified in the Project Documentation and in accordance with Federal and State laws, rules, and regulations.

The Construction Plan set will consist of, but is not limited to, the following sheets, and not necessarily in the order listed below:

a) Title Sheet
   Contains the location map, signature block, sheet index, project data, station equations, traffic data, and station-reference point comparison.

b) General Layout
   A layout of the project showing the plan sheet layout and sheet numbers for reference.

c) Statement of Estimated Quantities (SEQ)
   Tabulation showing MnDOT’s standard pay item numbers, item descriptions, and quantity of all materials needed to complete the project. Columns will exist for referencing the individual item’s tabulation. Notes will be included where necessary for clarification. The SEQ will require separation of quantities by funding source type. Contractor will ensure that all pay items are consistent with the State’s Trns*port pay item list.
d) Soils and Construction Notes and Standard Plates
Notes covering special requirements and critical information contained in the Materials Design Recommendation will be listed as well as any other special construction requirements and State provided notes that have been identified. MnDOT Standard Plates used on this project will also be listed on this sheet.

e) Typical Sections
Typical sectional views of the existing and proposed roadway will be shown for the length of the project. Sections will be shown for each alternate and will be consistent with the Materials Design Recommendation, EAW re-evaluation, Design Memorandum, and the Geometric Layout. Surface type, base materials, and subgrade work will be shown.

f) Quantity Tabulations
Detailed quantity breakdown by station or station range of most items contained in the Statement of Estimate Quantities (SEQ). Most quantities, including the earthwork, will be tabulated by Northbound and Southbound alignments and be reflective of staged construction. Special ditch grades will also be tabulated and shown in a chart. Earthwork will be tabulated using MnDOT 2106 specifications. Tabulations will separate or note different funding sources.

g) Public Utility Tabulations
Detailed breakdown of all existing utilities located within the project limits. This tabulation is required to have the following columns: Station, Location, Inplace Facility Description, Owner, Remarks, and Adjust, Relocate, or Leave As Is.

h) Miscellaneous Details
Any details necessary for the construction of unique or non-standard elements identified during detail design. Since the project will be constructed under traffic, details need to be developed showing temporary widening, temporary connections, pipe extensions, and other details required for staged construction. These details will be developed in conjunction with State personnel.

i) Standard Plan Sheets
MnDOT Standard Plan Sheets will be included as needed to supplement the construction details in the plan. State will provide electronic copies of any State Modified Standard Plan Sheets.

j) Traffic Control Plans and Tabulations
Detailed plans, notes, and tabulations will be prepared showing the location of signs, barriers, and striping necessary to accommodate the construction staging within the project area. Plans and notes will be consistent with the Minnesota Manual of Uniform Traffic Control Devices (MMUTCD), Manual for Temporary Traffic Control Zone Layouts, and MnDOT District One practices. The plan sheets will contain tabulations showing the description and estimated quantity of traffic control devices by stage.

k) Alignment Plan and Tabulations
Prepare alignment plans showing all proposed roadway centerlines, stationing, and identifying all alignment points with point numbers, curves with curve numbers, and all permanent horizontal control points. Also, the Contractor will prepare tabulation sheets showing all alignment and curve data (PC, PT, PI, POT, POC, PCC) for the alignment...
points shown on the alignment plan. Tabulated data will include station, delta, degree of
curve, radius, tangent, curve length, superelevation rate, and X-Y coordinates.

l) Inplace Topography, Utility, Right-of-Way, and Removals
From the survey base mapping provided by State, prepare plan sheets showing all the
inplace topographic features, and known private and public utilities within the project
limits. Show all existing centerlines and existing and proposed right-of-way lines.
Clearing and grubbing areas and other removals items will also be noted.

m) Construction Plan Sheets
Detailed plans of the project providing information on the location of items such as
roadways, shoulders, radii, turn lanes, acceleration lanes, driveways, curb and gutter,
accessible sidewalks and curb ramps, tapers, right-of-way, railroad property, easements,
obliterations, station equations, fencing, etc. as required in this plan.

n) Roadway Profile Sheets
Information shown on the profiles will include items such as vertical control, vertical
curve data, top of finished surface, top of grading grade, culverts, subgrade corrections,
removal of unsuitable material and utilities, along with appropriate stations and elevations.
Special ditch grades will also be shown.

o) Superelevation Plans
Prepare a detailed superelevation plan that patterns the superelevation transition, showing
cross-slopes where superelevation transition begins and ends and where the superelevation
is zero.

p) Road Connection and Entrance Details
Detailed plan layouts and charts showing grades, radii, widths, cross slope and
construction details.

q) Drainage Plans
Show proposed culverts, aprons, other drainage structures, riprap, and storm water
treatment, labeling size, material type, and structure number if applicable. Label direction
of surface flow and water flow in culverts.

r) Temporary Erosion/Sediment Control Plans and SWPPP Plan Sheet
The location and type of temporary erosion control devices, including Standard Plan
sheets that will be used to control project runoff and sediment during construction will be
shown. The Best Management Practices must be consistent with the EAW re-evaluation
and comply with Minnesota Pollution Control Agency (MPCA), Department of Natural
Resources (DNR), Corp of Engineers (COE) and National Pollution Discharge
Elimination System (NPDES) permit requirements. Erosion control will be developed in
conjunction with State personnel. Wetland impacts will need to be shown.

s) Turf Establishment and Permanent Erosion/Sediment Control Plans
Plan sheets showing the locations and types of permanent turf establishment in areas of
construction disturbance and permanent erosion control devices that comply with MPCA
Best Management Practices. Erosion control will be developed in conjunction with State
personnel.

t) Inplace Drainage Tabulation
A list of the type, size, location, and proposed construction impact of all inplace drainage
structures within the project limits shown on the existing topography and utility plan
sheets. Prepare tabulations that show the removal of pipes, culverts, drainage structures, etc.

u) Proposed Drainage Tabulation
A list of the location, type, size, length, inlet and outlet elevations, grade, class, alternative pipe types, erosion control, excavation, and bedding for each proposed pipe and structure. The tabulations will also include quantities associated with box culvert/bridge construction.

v) Lighting Plans
Design a standard rural intersection lighting plan at 2 locations (C.S.A.H. 7 and C.S.A.H. 15) with two lights at each location. Provide plan sheets detailing design and quantities. Quantities for removals of inplace light poles and salvage of existing cabinet will also be shown. State specific details for light service cabinet will be provided.

w) Striping Plan
Detailed plans, notes, and tabulations will be prepared showing the permanent pavement markings. The plan will include the applicable MnDOT Pavement Marking Typicals found on the MnDOT Traffic Engineering website and plan sheets showing permanent pavement markings on the roadway alignment. The roadway pavement marking sheets may be eliminated if the typicals adequately describe the permanent pavement markings. Plans and notes will be consistent with the Minnesota Manual on Uniform Traffic Control Devices, Chapter 7 of the MnDOT Traffic Engineering Manual, and MnDOT District One practices. The State will provide the recommendation for the pavement marking materials.

x) Signing Plan
Detailed plans, notes, and tabulations will be prepared showing the location of the inplace signs and the location of the permanent signs upon completion of the project. The plan will include all necessary typicals found on the MnDOT Traffic Engineering website to construct the permanent signing as shown on the plan sheets. The plan will also include sign designs for all new permanent signing. New signs must be designed according to the MnDOT Sign Design Manual and be completed using SignCAD software. Plans and notes will be consistent with the Minnesota Manual on Uniform Traffic Control Devices, Chapter 6 of the MnDOT Traffic Engineering Manual, the MnDOT Signing Plan Design Manual, and MnDOT District One practices.

y) Cross-Section Sheets
Prepare cross-sections at 50-foot intervals with intermediate sections in critical areas with unique physical features. Cross sections will include existing ground line, proposed roadway template, grading grade, existing and proposed utilities, existing and proposed culverts, existing and proposed right-of-way, temporary easements, entrance slopes, subgrade corrections, unsuitable soil removal, rock lines and topsoil placement. Special ditch grade stations and elevations will be shown. Earthwork station to station totals will be shown on the cross-sections with totals separated by Northbound and Southbound and by each of the excavation and embankment types.

Plan Format The format of the Road/Construction Plans shall comply with the State’s current design concepts and practices. All sheets contained in the Road/Construction Plans and cross-sections will be
submitted to MnDOT in MicroStation Version 8i or other version as approved by the State Project Manager. The Plan and cross-sections will be in compliance with the MnDOT CADD Standards Manual.

All electronic Project design information shall be in MicroStation and Geopak format. Upon completion of this Project or Termination of this contract, the electronic project files become the property of the State of Minnesota, Department of Transportation and will be submitted on a CD-ROM or portable USB device.

Plans submitted for reviews will be delivered on 11”x17” bond sheets. The final design plan shall be submitted on 11”x17” bond and only the title sheet* shall be on an 11” x 17” sheet of vellum. Plan review meetings will be held in Duluth at the 60% and 90% plan reviews.

Plan Review and Approval

The Road/Construction Plan will be submitted for review and approval at the following stages of development:

Final Construction Limit Submittal
Contractor will review the State provided preliminary construction limits for accuracy and then electronically submit a file showing final construction limits for State review and use in the right-of-way acquisition process. Changes to State provided preliminary construction limits will need to be reviewed for revisions to wetland impact areas. If any revisions to the wetland impact areas are determined, Contractor will submit sheets to the State detailing the changes.

Due Date: November 21, 2014

Intermediate Design (60% Complete)
Contractor will submit six (6) sets of prints showing existing topography and utility plans, roadway plan sheets, profiles, alignment plans, preliminary traffic control and construction staging, drainage plans, typical sections, signing, pavement striping, preliminary utility relocations, and cross-sections.

Due Date: July 1, 2015

Final Design (90% Complete)
Contractor will submit six (6) sets of prints of the proposed Final Design Plans for State’s Review and Comment. The 90% submittal by the Contractor is what the Contractor would consider final biddable plans.

Due Date: November 30, 2015

Corrected Final Design (95% Complete)
Upon making the revisions from the 90% State review, the Contractor will submit two signed and certified set of bond prints with two copies of the vellum title sheet.
Due Date: February 1, 2016

The original prints will be submitted by the District to MnDOT’s Central Office Project Design Services Unit for review and approval.

**Final Design (100% Complete)**

Upon making the revisions requested by MnDOT’s Central Office Design Liaison Unit, the Contractor will submit new signed and certified sheets, as necessary. An electronic copy of the project’s Geopak design files (.gpk) and each sheet in Microstation format will be submitted. One copy of the design computations and quantity calculations will also be submitted.

Due Date: to be determined following Central Office review in mid to late February 2016.

**Task 4.0 Permit Applications**

Contractor will apply for DNR permit using the MPARS on-line permitting system and complete the appropriate sections on the NPDES permit.

**Deliverables:** Copy of applications.

Due Date: TBD

**Task 5.0 Special Provisions**

Contractor will prepare a draft Division S special provisions package for State review and a final package for the submittal to the Central Office. Contractor will be responsible for producing the Special Provisions for all unique items in this project not covered in the MnDOT Standard Specifications for Construction. Each provision will contain a description, materials, construction requirements, method of measurement, and basis of payment for each item. Deletions from, and additions to, Standard Specifications will be written and included as necessary. State will provide Special Provision sections 1404 (Maintenance of Traffic and Traffic Control), 1803 (Prosecution of Work), 1806 (Determination and Extension of Contract Time), 1807 (Failure to Complete Work on Time) and any State-specific edits of the Boiler Plate Provisions. An electronic draft copy will be submitted to State for review along with the 90%, 95%, and 100% Final Design plans submittal.

**Deliverables:** Electronic files as specified.

Due Dates: See Task 3

**Task 6.0 Construction Cost Estimate**

Contractor will submit the Engineer’s Construction Cost Estimate for each Phase based on quantities with the Intermediate Design (60% Complete), 90% and 95% submittal. The cost estimates will use the latest cost data available. The estimates must be submitted electronically in an Excel format.
In addition to the required cost estimates in Excel format, the final design submittal (100%) will include an electronic file of estimated quantities and costs utilizing Geopak Quantities Manager (this uses Microsoft Access database). The 95% submittal will also include a separate file detailing costs of incidental and lump sum items. The electronic file will be submitted by the State directly to the Estimates Unit for loading into the Trns*port system.

**Deliverables:** Electronic files as specified.

**Due Dates:** See Task 3

The work will be charged to the following charge identifiers:

- Project Management (Task 1.0) - 1010
- Environmental Planning-Permit Application (Task 4.0) - 1071
- Utility Coordination (Task 2.0) - 1195
- Design Plans and Cost Estimate (Task 3.0, 6.0) - 1250
- Lighting Plan Design - 1252
- Traffic Control (Task 3.0) - 1254
- Signing and Striping (Task 3.0) - 1255
- Erosion Control (Task 3.0) - 1257
- Special Provisions (Task 5.0) - 1297
- Typical Section Plans (Task 3.0) - 3511
- Proposed Cross Sections Final (Task 3.0) - 3515
- Estimating Quantity, Calculations, and Tabulations (Task 3.0) - 3561

**State Deliverables:**
The following will be provided at the project kickoff meeting:

- Traffic Forecasts
- Control Surveys
- Final Design Surveys
- Preliminary Materials Design Recommendation Report (Scheduled for final completion-November 2014)
- Hydraulic Recommendations
- District-Specific Standard Plan Sheets
- Geometric Layouts including vertical and horizontal alignments
- Preliminary EAW re-evaluation (Scheduled for final completion-December 2014)
- Design Memorandum
- Wetland delineation
- Preliminary storm water treatment concept
- Sample sheets from District plans including an alternate bid project
- District generated Corridor Modeling files used for development of the 30% plan and preliminary construction limits
- Gopher State One-call ticket with utility owner information

State will also be responsible for the ongoing coordination and development of Railroad Agreements and Cooperative Construction Agreements with Itasca County and the City of Taconite.