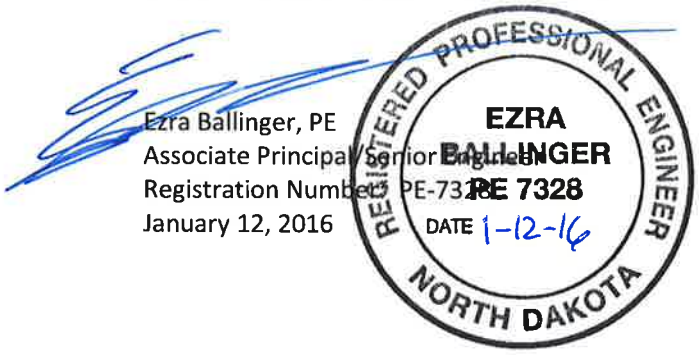
Geotechnical Evaluation Report

US Highway 85 Business Route Major Rehabilitation
Watford City, North Dakota
NH-7-085(079)950, PCN 19972

Prepared for

KLJ, Inc.

Professional Certification:
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 laws of the State of North Dakota.



Ezra Ballinger, PE
Associate Principal/Senior Engineer
Registration Number PE-7328
January 12, 2016

Project BM-12-05662

Braun Intertec Corporation

BRAUN INTERTEC
The Science You Build On.

Braun Intertec Corporation
526 10th Street NE, Suite 300
P.O. Box 485
West Fargo, ND 58078

Phone: 701.232.8701
Fax: 701.232.7817
Web: braunintertec.com

January 12, 2016

Project BM-12-05662

Mr. Travis Wieber
KLJ, Inc.
3203 32nd Avenue South, Suite 201
Fargo, ND 58106

Re: Geotechnical Evaluation Report
US Highway 85 Business Route Major Rehabilitation
Watford City, North Dakota
NH-7-085(079)138, PCN 19972

Dear Mr. Wieber:

We are pleased to present this Geotechnical Evaluation Report for the proposed US Highway 85 Business Route major rehabilitation from the south side of Watford City through town and to the west side. The portion of Highway 85 is the in-town portion now that the mainline of Highway 85 is passing around the southwest side of town. This project was completed in accordance with our proposal dated September 26, 2012.

In the Appendix of this report we present the Linear Soils Report which summarizes the results of laboratory testing in borings along the existing roadway. The Appendix also contains the Boring Logs, Grain Size Accumulation Curves and Proctors. This information is being provided to KLJ, Inc. (KLJ) and the North Dakota Department of Transportation's (NDDOT) Construction Division, Materials and Research Division and the Williston District to assist in the roadway design and determination of quantities.

Thank you for making Braun Intertec your geotechnical consultant for this project. If you have questions about this report, or if there are other services that we can provide in support of our work to date, please contact Ezra Ballinger by phone at 701.492.5872 or by email at eballinger@braunintertec.com.

Sincerely,

BRAUN INTERTEC CORPORATION

Ezra Ballinger, PE
Associate Principal/Senior Engineer

Steven P. Nagle, PE
Vice President/Principal Engineer

AA/EOE

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Appendix

A. Introduction

A.1. Project Description

The North Dakota Department of Transportation (NDDOT) is planning a major rehabilitation of approximately 5.1 miles of US Highway 85 Business Route through the town of Watford City, North Dakota. The project area will extend from where the North Dakota Highway 23 Bypass crosses the alignment south of Watford City, north and west to where the Business Route ties back into Highway 85. One portion of the project just south of where the existing alignment turns to the west is under consideration for a brand new alignment through undeveloped land (3rd Avenue Alternatives). The project involves reconstructing the roadway pavements with an urban section, adding a sidewalk to one side of the roadway, addition of some turning lanes, and construction of ditches. A new pavement section will be designed for the project by the NDDOT.

A.2. Purpose

The purpose of this geotechnical evaluation is to assist KLJ and the NDDOT with the design of the project.

A.3. Scope of Services

We submitted a proposal to Mr. Travis Wieber of KLJ on September 26, 2012. Our scope of services in the proposal consisted of the following tasks and subtasks:

- Engineering and Project Management
  - Develop project scope
  - Site reconnaissance
  - Prepare drilling instructions/call in utility locates
  - Drilling oversight
  - Traffic control
  - Oversee laboratory testing
  - Prepare boring logs
  - Roadway design with regard to the encountered soils
  - Attend design meetings/conference calls
  - Prepare a draft geotechnical report
  - Prepare final geotechnical report
  - Overall project management of drilling, laboratory testing, and engineering

- Drilling
  - Drill two (2) standard penetration test borings to an average depth of 100 feet to develop the foundation recommendations for the planned bridge over Cherry Creek
  - Drill 47 flight auger borings to an average depth of 5 feet at approximately 1,000 feet spacings along the roadway (including 5 to account for heavy maintenance areas)
  - Drill 20 flight auger borings to an average depth of 20 feet for borrow areas, and
  - Stake boring locations and coordinate with utility companies to locate buried utilities

- Laboratory Testing
  - Conduct an average of 34 moisture contents, 3 unconfined compressive strength tests, 3 Atterberg limit tests, and 3 grain size analysis tests for each of the structure borings
  - Conduct an average of 4 moisture contents, 1 modified Proctor, 1 Atterberg limits, and 1 grain size analysis test for each of the roadway borings
  - Perform an average of 20 moisture contents, 1 modified Proctor, 1 Atterberg limits and 1 grain size analysis test per borrow area boring

Our scope of work was modified as the project progressed:

- Only 37 borings were performed for the linear soil survey as the project length was shortened due to including a portion of it with the project realigning Highway 85 west of the Watford City.
- Since the time of our proposal, the NDDOT has elected not to replace the bridge over Cherry Creek and those structure borings were not performed.
- The 3rd Avenue Alternatives south of the current junction of the north-south and east-west sections of the existing alignment were added to the project in early 2015 and borings, laboratory testing, and engineering were performed for this alignment.
- As of the time of this report the borrow sites have not been identified or drilled. The results of that evaluation will be presented under separate cover at a later date if required.

B. Results

B.1. Borings

Log of Boring sheets for our test borings are included in the Appendix. The logs identify and describe the geologic materials that were penetrated, laboratory tests performed on samples retrieved from them, and groundwater measurements. The borings were performed using a truck-mounted or all-terrain drilling rig equipped with power flight auger. The linear soils survey borings are labeled LSS-04 through LSS-74 (even numbers) and LSS-77, sequentially proceeding northward and then westward. The numbering reflects the boring locations were originally staked at 500 foot intervals, however, they only needed to be drilled at 1000 foot spacing's. Borings LSS-01 to LSS-03 were part of the Highway 85 realignment project and were not drilled as part of the Business Route project. The linear soils survey borings for the 3rd Avenue Alternatives were denoted as Borings LSS-A1 to LSS-A12. Of the original 12 borings planned as part of the alternatives, Borings LSS-A2, LSS-A3, LSS-A7, LSS-A9 and LSS-A10 were not able to be performed due to wetlands and standing water in their planned locations throughout the year.

Strata boundaries were inferred from changes in the auger cuttings. The boundary depths likely vary away from the boring locations, and the boundaries themselves may also occur as gradual rather than abrupt transitions.

The coordinates of the boring locations were provided by KLJ.

B.2. Geology

A review of geologic information in the vicinity of the site indicates that the soils are alluvial deposits, glacial till, or weathered bedrock. Specifically, "Plate 1. Geology of McKenzie County" (North Dakota Geological Survey and North Dakota State Water Commission, Bulletin 80, Plate 1, undated) indicates the soils consist primarily of recent alluvial floodplain deposits (Qaf) along Cherry Creek as well as a north-south drainage just west of Highway 85. Between the alluvial floodplain deposits at Cherry Creek and the north-south drainage, the weathered bedrock associated with the Paleocene Era Sentinel Butte Formation (Tsb) underlies the surficial soils at relatively shallow depths. On the far west edge of the project glacial till (Qct) deposits are mapped.

For the project, the predominant soil types encountered were A-6 soils.

B.3. Site Reconnaissance

We have visited the site on multiple occasions in 2013 and 2014 to note the site terrain and evaluate potential drilling issues on the project. The topography along the alignment is gently rolling hills. The roadway is heavily trafficked as the realignment of Highway 85 is still under construction. The south and west edges of the project are under construction as part of the proposed realignment. The roadway is closely bordered by businesses along the entire route, with them being a little farther apart on the western end of the project.

In the area of the 3rd Avenue Alternatives, the proposed alignment will cross land the currently exists as swamp ground and a couple of residences just to the north of the swamp area.

B.4. Maintenance Review

As part of our scope of work we were asked to identify and drill any locations noted by the NDDOT as continual maintenance areas. During the field review meeting and in subsequent conversations with the project design team over the past two years no maintenance areas were identified and consequently no special drilling was performed.

B.5. Summary of Findings

B.5.a. Soil Classification and Comments

For the linear soils survey we collected a total of 48 bulk samples and 353 moisture content samples from the flight auger. All of the borings were extended to depths of 5 to 7 feet except for the 3rd Avenue Alternatives borings which were extended to 20 feet, as indicated on the attached boring logs.

The results of our laboratory testing are shown in Tables 1 and 2 below and on the boring logs, laboratory results sheets, and Linear Soils Report which are provided in the Appendix.

Table 1. Summary of Classification, Moisture Content, and Maximum Dry Unit Weight Testing for Roadway Borings

AASHTO Classifications	Quantity	In Place Moisture Range (%)		In Place Moisture Average (%)	AASHTO T-180 Optimum Moisture Average (%)	AASHTO T-180 Maximum Dry Unit Weight Average (pcf)
		Min	Max			
A-2-4	11	4	41	18.6	9.8	126.6
A-2-6	5	7	19	13.4	7.8	130.4
A-4	2	6	24	11.5	9.5	126.0
A-6	27	7	36	16.8	9.3	127.2
A-7-6	3	12	38	24.7	10.7	123.7

Table 2. Summary of Atterberg Limits Testing

AASHTO Classifications	Quantity	Liquid Limit Range (%)		Liquid Limit Average (%)	Plastic Limit Range (%)		Plastic Limit Average (%)	Plastic Index Range		Plastic Index Average
		Min	Max		Min	Max		Min	Max	
A-2-4[1]	11	21	27	24	13	17	15	6	10	9
A-2-6	5	26	29	28	14	16	15	11	14	12
A-4[2]	2	24	24	24	16	16	16	8	8	8
A-6	27	24	38	30	13	19	15	11	24	16
A-7-6	3	41	64	50	14	17	16	27	47	35

1. Seven samples were Non Plastic (NP) and are not included in analysis except for quantities.

2. One sample was Non Plastic and is not included in analysis except for quantities.

As can be seen in Table 1, the majority of the soils encountered in the borings were generally 5 to 10 percent wet of their optimum moisture contents on the average as determined by AASHTO T-180. The moisture content of the soils will most likely vary over the year as the seasons change and may be different at the time of construction than was encountered in our borings.

The soils encountered in the borings are considered moderately to highly frost-susceptible. Soils classified as A-6 and A-7-6 soils are generally considered fair to poor subgrade materials. The Atterberg limits testing results provided in Table 2 are used to determine the group index of the soils. A group index of 20 or greater indicates very poor subgrade materials. All but one of the A-6 soils tested had a group index of 10 or lower (average of 3.8). The three soils that were classified as A-7-6 materials had group indices of 15, 29, and 49.

B.5.b. Groundwater

Groundwater was not encountered in any of our borings along the existing alignment at the time of drilling. Groundwater was encountered in all of our borings along the 3rd Avenue Alternatives at depths of 6 10 18 feet. The observation periods were relatively short for all of the borings and we anticipate that water may be encountered in some areas at the time of construction. Seasonal and annual

fluctuations in groundwater levels should be also anticipated. Elevated water levels should particularly be anticipated following spring thaw and periods of heavy precipitation.

C. Analysis and Recommendations

C.1. Proposed Construction

We understand this project involves a major rehabilitation of the existing roadway through town and new construction if any of the 3rd Avenue Alternatives are performed. It is our understanding that portions of the project through town will include adding a curb and gutter to either side of the roadway as well as a multi-use path on the west and north sides of the roadway. Little to no widening is planned along the majority of the project, however, at isolated locations turning lanes may be added.

We have reviewed the preliminary plan and profile of the main route on plan sheets 1 through 48 of Section No. 60, which were printed on August 21, 2014 as well as the 3rd Avenue Alternative 1 and 2 plan sheets printed on April 17, 2015. Our review of the plans indicate that the horizontal alignment along the mainline of the roadway will not be altered more than necessary to accommodate the new pavement section. The vertical alignment along the mainline will also be within 1 foot of the existing grades along the majority of the profile with a few changes planned at the following locations:

- Station 50207+20 to 50219+00 (raise grades up to 2 feet)
- Station 50265+00 to 50301+30 (lower grades up to 2 ½ feet)
- Station 50301+30 to 50303+20 (raise grades up to 2 feet)
- Station 50310+60 to 50329+40 (lower grades up to 4 feet)

Along the 3rd Avenue Alternatives, the grades will be raised significantly from the existing grades as listed below:

- Alternative 1: Station 200+40 to 207+80 (raise grades 8 to 10 feet)
- Alternative 1: Station 207+80 to 212+40 (raise grades 3 to 5 feet)
- Alternative 2: Station 200+40 to 209+80 (raise grades 8 to 10 feet)
- Alternative 2: Station 209+80 to 218+00 (raise grades 10 to 15 feet)
- Alternative 2: Station 218+00 to 218+60 (raise grades 5 to 10 feet)
- Alternative 2: Station 218+60 to 219+60 (raise grades 3 to 5 feet)

The pavement section for the new roadway will be developed by the NDDOT. We understand that all work on the site will be performed in accordance with NDDOT Standard Specifications.

C.2. Treatment of Organic Soils

Organic soils are anticipated to be present in the ditches along the alignment where curb and gutter, turning lanes, and shoulder widening may occur and along the entire 3rd Avenue Alternatives alignment. In these areas, we recommend that all vegetation, root zones and organic topsoils be removed prior to subgrade preparation and placement of new fill for embankments in these areas. After the removal of organics, the subgrade should be prepared as indicated in Section C.3. Organic soils that are removed should not be reused as embankment fill; however they could be stockpiled and may be used as dressing on the new embankment slopes.

C.3. Subgrade Preparation

Based on a review of the cross sections, along the majority of the project the existing in-slopes of the roadway will receive minimal fill to support curb and gutter, widened lanes and/or shoulders. In the 3rd Avenue Alternatives area the entire roadway section will require preparation.

We recommend 12 inches of subgrade preparation beneath the roadway in cut areas, and in fill areas where less than 18 inches of fill will be placed. In fill areas where greater than 18 inches of fill will be placed, it is not necessary to perform subgrade preparation beyond topsoil stripping. Subgrade preparation should comply with NDDOT Specification 230.02 B.2 (Type A).

Compaction control for subgrade preparation should be in accordance with AASHTO T-180 and NDDOT Specification 203.02G (Type A).

If unstable soils are present below the topsoil, scarification and drying or overexcavation and replacement of the unsuitable soils could be considered.

C.4. Subgrade Remediation

Based on the conditions encountered in our borings, we do not anticipate that any remediation will be necessary in the ditches along the majority of the project to support the widening. Localized subgrade soils with higher liquid limits (69 and 46 percent, respectively) and AASHTO group indices (49 and 29, respectively) were encountered at Borings LSS-30 and LSS-32, respectively. Based on our experience,

soils with these liquid limits are very susceptible to strength loss due to high moisture contents during or after construction and may require subgrade remediation depending on the conditions at the time of construction. These borings are located just to the south of the intersection with the existing Highway 23 bypass.

We recommend that the contractor anticipate 1500 lineal feet of discretionary subgrade remediation to 1 ½ vertical feet below the top of subgrade elevation. We anticipate that this will be used at the discretion of the NDDOT Project Engineer during construction where localized soft spots are encountered during subgrade preparation.

Subgrade remediation should be performed with a backhoe using a smooth cutting edge to minimize disturbance of the underlying soils. A 20H:1V transition shall be constructed prior to entering and exiting subcut excavations. No construction equipment traffic should be allowed to operate on the exposed subgrades. We anticipate that the majority of the subgrade remediation can be performed by removing the existing soft soil and replacing it with embankment fills. Where very soft subgrades are encountered and this approach will not work, then subcutting (removal and backfill with imported aggregate) should be performed in accordance with NDDOT Specification 203.02C.

C.5. Subgrade Drainage

Due to variable clayey and sandy soils, we recommend that drainage be provided for aggregate base placed over the on-site soils or similar soils used to construct new embankments. Where there are ditches planned, drainage should be provided by sloping the subgrade and daylighting the aggregate base to the shoulders. Loosely placed topsoil over the aggregate slough generally will not impede the flow of water out of the aggregate base layer provided the subgrade is sloped to drain to the ditches. Water should not be allowed to infiltrate the subgrade but instead flow down the in-slopes and be collected and routed through the ditches and culverts on either side of the road.

In the urban sections, we recommend that the subgrades be sloped to the roadway edges and an underdrain be constructed in accordance with Section 714.03C.

C.6. Unsuitable Materials

Based on the soils encountered in our borings, we anticipate that the soils encountered in excavations for the project will be suitable for construction of the roadway embankment. As discussed in Section C.2, organic soil deposits should not be used as embankment fill. We recommend that imported soils used as borrow be similar to the existing subgrade soils in the area. Any soils encountered or imported that

cannot be moisture conditioned and compacted according to the recommendations of this report should not be used.

C.7. Settlement

As discussed above, the new fills for the existing alignment of the project will generally be less than about 1 foot with a few areas being raised up to 2 feet. Based on these conditions and assuming that the construction is in accordance with the recommendations of this report, we anticipate the settlement in these areas due to new soil load will occur during construction.

Along the 3rd Avenue Alternatives, where a significant amount of embankment construction is planned, settlement will occur due to compression of the soils underlying the new roadway embankments (the foundation soils), as well as settlement of the embankment fill itself. There is the potential for settlements to be substantial due to the relatively high new embankments planned in some areas.

C.7.a. Foundation Soils

We have reviewed the cross sections for the 3rd Avenue Alternatives that were developed by KLJ in April 2015. The soils encountered in our borings in these areas are generally a mix of clays and sands that are anticipated to have moderate to high compressibility's. It is not possible to perform settlement analyses based on the results of the linear soils survey exploration that was requested and performed. In general, based on similar soils and analyses performed for the Watford City East Bypass project in 2013 (NDDOT Project SOIA-7-085(072)142; PCN 19845) we would anticipate that fills of 10 to 15 may experience up to about ½ foot of settlement. Reduced fill thickness would likely undergo smaller settlement amounts. If these two alternatives are carried forward, we recommend that additional borings and laboratory testing be performed using Standard Penetration Test methods and settlement analyses be performed with the results.

The soils encountered across the project site are a mix of sands and clays. Settlements in sands typically occur relatively quickly, while clays can take significantly longer. In our experience in the Watford City area, the clays there often experience much of the predicted settlements within about 6 months to a year. The most cost effective solution for mitigating the anticipated settlement would be to construct the deep fill areas as early as possible and allow them to sit while the remainder of the project is constructed. The utilities and culvert crossings under the roadway in the fill areas would need to be designed to experience the potential settlements or be installed after the fills have been in place for 6 months to a year.

C.7.b. Settlement of Embankment Fill

When fill is placed, it will compress under its own weight, resulting in settlement. In clean sand soils, this settlement occurs rapidly (typically during construction), however, with clayey soils, this settlement may occur over many years. We anticipate that the majority of the soils used as embankment fill for this project may be clayey. Compacted clay embankments will generally experience secondary consolidation (post-construction settlements) on the order of 0.2 to 0.4 percent of the total backfill thickness per logarithmic cycle of time. Based on this relationship the anticipated embankment fill settlements are as follows:

- 10 feet of embankment fill may experience ¼- to ½-inch of settlement
- 15 feet of embankment fill may experience ½- to ¾-inch of settlement
- 20 feet of embankment fill may experience ½- to 1-inch of settlement

The reported settlements are per logarithmic cycle of time, i.e. they are anticipated to occur from 10 to 100 days following fill placement, again from 100 to 1000 days following fill placement, an again from 1000 to 10000 days following fill placement, etc. Poor or reduced compaction of the clayey backfills will exacerbate the settlement. This settlement is in addition to the settlements due to the foundation soils.

C.7.c. Settlement Monitoring

We recommend the monitoring of settlements using settlement plates for all embankments that are over 15 feet high. The settlement plates should be installed at the native grades at 200 foot intervals under the centerline of the new embankments.

The settlement plates should consist of steel or wooden plates with a dimension of 2 feet square, fitted with a floor flange able to fit a ¾-inch diameter steel pit. Once set over a level spot, the top of the plate should be staked into the ground and surveyed. Riser pipe in 3- to 6-foot section lengths should be fitted to the settlement plate, with additional sections added with subsequent lifts of fill. A 2-inch diameter PVC pipe should be placed around the riser pipe to protect the pipe and reduce friction along the sides of the pipe. We recommend the PVC pipe extend a minimum of 3 vertical feet above grades at all times and be painted and flagged to notify equipment operators of their presence. Survey measurements must be taken of the steel riser upon attaching each lead section in order to back-calculate the corresponding top of plate elevation.

The settlement plates should be surveyed according to the following schedule:

- At installation and with each additional section of steel riser
- Immediately after the embankment has been constructed to finished grade
- 2, 4, 7, 14 and 21 days after construction and bi-weekly to follow
- At monthly intervals with the direction of the Geotechnical Engineer

C.8. Backslopes

The design cross sections include cutting the existing soil back to a 4H:1V (Horizontal:Vertical) slope outside of the ditches where required (predominantly on the west end of the project). We understand that the NDDOT would prefer to use 4:1 backslopes wherever possible. If cases exist where it is not possible to use a 4:1, a 3:1 back-slope may be adequate from a stability standpoint, however, site specific evaluations should also be performed at those locations under consideration for steepening beyond a 4:1.

Benching of the backslopes is not required for 4:1 slopes. For slopes as steep as 3:1, if any, we recommend benching for any backslopes that are greater than 20 feet tall. Benches about 10 feet wide should be constructed no more than 20 vertical feet apart to reduce the potential for erosion due to water flowing down the slope face. We also recommend that the back-slopes be planted with native grasses/shrubs, where possible, as a further protection against erosion. We anticipate that excavation can be performed with typical excavation equipment.

D. Construction

D.1. Excavation

Bedrock that impeded our drilling equipment was not encountered in our borings; therefore it is our opinion that the soils in the borings can be excavated with standard equipment such as scrapers, earth movers and backhoes. Depending on the time of construction, the subgrades may be excessively wet. It may be necessary to limit the activities of rubber-tired equipment directly on the embankment until the soils are dried.

D.2. Testing

We recommend density testing of backfill and fill placed for the roadway. As indicated above, we recommend the use of AASHTO T180 as per NDDOT supplemental specifications. The testing frequency should follow NDDOT requirements.

E. Procedures

E.1. Borings

The borings were drilled with a truck-mounted core and auger drill equipped with power auger. The borings were performed by advancing the auger at 1 or 2 foot intervals and "dead-pulling" the auger to collect moisture content samples off of the auger at 1-foot spacings. A bulk sample of the soil encountered between the bottom of the aggregate base and the bottom of the hole (or soil type) was collected from the auger after moisture content samples were collected. Sample intervals and corresponding depths are shown on the boring logs.

E.2. Material Classification and Testing

E.2.a. Visual and Manual Classification

The geologic materials encountered were visually and manually classified in accordance with ASTM Standard Practice D 2488. A chart explaining the classification system is attached. Samples were placed in jars or bags and returned to our facility for review and storage.

E.2.b. Laboratory Testing

The results of the laboratory tests performed on geologic material samples are noted on or follow the appropriate attached exploration logs. The tests were performed in accordance with AASHTO procedures.

E.3. Groundwater Measurements

The drillers checked for groundwater as the borings were advanced, and again after auger withdrawal. The boreholes were then backfilled.

F. Qualifications

F.1. Variations in Subsurface Conditions

F.1.a. Material Strata

Our evaluation, analyses and recommendations were developed from a limited amount of site and subsurface information. It is not standard engineering practice to retrieve material samples from

exploration locations continuously with depth, and therefore strata boundaries and thicknesses must be inferred to some extent. Strata boundaries may also be gradual transitions, and can be expected to vary in depth, elevation and thickness away from the exploration locations.

Variations in subsurface conditions present between exploration locations may not be revealed until additional exploration work is completed, or construction commences. If any such variations are revealed, our recommendations should be re-evaluated. Such variations could increase construction costs, and a contingency should be provided to accommodate them.

F.1.b. Groundwater Levels

Groundwater measurements were made under the conditions reported herein, shown on the exploration logs, and discussed in Section B.6.b of this report. It should be noted that the observation periods were relatively short, and groundwater can be expected to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications and other seasonal and annual factors.

F.2. Continuity of Professional Responsibility

F.2.a. Plan Review

This report is based on a limited amount of information, and a number of assumptions were necessary to help us develop our recommendations. It is recommended that our firm review the geotechnical aspects of the designs and specifications, and evaluate whether the design is as expected, if any design changes have affected the validity of our recommendations, and if our recommendations have been correctly interpreted and implemented in the designs and specifications.

F.2.b. Construction Observations and Testing

It is recommended that we be retained to perform observations and tests during construction. This will allow correlation of the subsurface conditions encountered during construction with those encountered by the borings, and provide continuity of professional responsibility.

F.3. Use of Report

This report is for the exclusive use of the parties to which it has been addressed. Without written approval, we assume no responsibility to other parties regarding this report. Our evaluation, analyses and recommendations may not be appropriate for other parties or projects.

F.4. Standard of Care

In performing its services, Braun Intertec Corporation used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

Appendix

DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

250' 0 500'

SCALE: 1"= 500'

BRAUN INTERTEC
11001 Hampshire Avenue So.
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

Base Dwg Provided By:

SOIL BORING LOCATION SKETCH
GEOTECHNICAL EVALUATION
US HIGHWAY 85 BUSINESS ROUTE MAJOR REHABILIUTATION
WATFORD CITY, NORTH DAKOTA

Project No:	BM1205662
Drawing No:	BM1205662
Scale:	1"= 500'
Drawn By:	JAG
Date Drawn:	10/14/14
Checked By:	EB
Last Modified:	1/7/16
Sheet:	1 of 5
Fig:	1

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DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

250' 0 500'

SCALE: 1"= 500'

BRAUN INTERTEC
11001 Hampshire Avenue So.
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

Base Dwg Provided By:

SOIL BORING LOCATION SKETCH

GEOTECHNICAL EVALUATION
US HIGHWAY 85 BUSINESS ROUTE MAJOR REHABILIUTATION
WATFORD CITY, NORTH DAKOTA

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Sheet:	2 of 5
Fig:	2

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DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

250' 0 500'

SCALE: 1"= 500'

BRAUN INTERTEC

11001 Hampshire Avenue So.
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

Base Dwg Provided By:

SOIL BORING LOCATION SKETCH

GEOTECHNICAL EVALUATION
US HIGHWAY 85 BUSINESS ROUTE MAJOR REHABILIUTATION
WATFORD CITY, NORTH DAKOTA

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Date Drawn:	10/14/14
Checked By:	EB
Last Modified:	1/7/16
Sheet:	3 of 5
Fig:	3

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DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

250' 0 500'

SCALE: 1"= 500'

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11001 Hampshire Avenue So.
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

Base Dwg Provided By:

SOIL BORING LOCATION SKETCH
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Drawn By:	JAG
Date Drawn:	10/14/14
Checked By:	EB
Last Modified:	1/7/16
Sheet:	4 of 5
Fig:	4

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DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

250' 0 500'

SCALE: 1"= 500'

BRAUN INTERTEC
11001 Hampshire Avenue So.
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

Base Dwg Provided By:

SOIL BORING LOCATION SKETCH
GEOTECHNICAL EVALUATION
US HIGHWAY 85 BUSINESS ROUTE MAJOR REHABILIUTATION
WATFORD CITY, NORTH DAKOTA

Project No:	BM1205662
Drawing No:	BM1205662
Scale:	1"= 500'
Drawn By:	JAG
Date Drawn:	10/14/14
Checked By:	EB
Last Modified:	1/7/16
Sheet:	5 of 5
Fig:	5

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Linear Report of Tests on Soil Samples

PROJECT NO.: BM-12-05662
PROJECT: US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

Braun Intertec Corporation
PO Box 485, West Fargo, ND
Phone: (701) 232-8701

BRAUN INTERTEC

Boring Number	LSS-04	LSS-06	LSS-08	LSS-10	LSS-12
Northing	288836.5114	289835.8473	290835.1712	291834.4908	292833.8104
Easting	1284286.6816	1284323.1213	1284359.8858	1284396.7683	1284433.6509
Sample Depth	1.4' - 5.0'	1.4' - 5.0'	3.0' - 5.0'	1.6' - 5.0'	1.5' - 5.0'
% Passing 3/8" Sieve	98	98	94	99	94
% Passing No. 4 Sieve	95	95	82	93	86
% Passing No. 10 Sieve	88	86	76	81	77
% Coarse Sand (-No. 10, +No. 40)	16	15	27	25	18
% Fine Sand (-No. 40, +No. 200)	36	36	22	27	30
% Silt (0.075 - 0.002 mm)	23	22	18	20	21
% Clay (<0.002 mm)	13	14	9	8	9
% Finer than 0.02 mm	24	24	19	18	20
Frost Group	F3	F3	F3	F3	F3
Liquid Limit (-No. 40)	30	29	26	29	27
Plastic Limit (-No. 40)	14	15	15	16	17
Plasticity Index (-No. 40)	16	14	11	13	10
Soil Color	Brown	Brown	Brown	Brown	Brown
USCS Classification	SC	SC	SC	SC	SC
Soil Classification (AASHTO M-15)	A-6 (1)	A-2-6 (1)	A-2-6 (0)	A-2-6 (0)	A-2-4 (0)
Optimum Moisture (%)	8.0	8.0	6.0	9.0	8.0
Maximum Dry Density (pcf)	130.0	126.0	135.0	125.0	133.0

Depth (ft)	Moisture (%)									
		2.0	14	2.0	16	3.0	14	2.0	13	1.5	12
		3.0	16	3.0	15	4.0	10	3.0	15	2.0	12
		4.0	18	4.0	14			4.0	15	3.0	12
										4.0	11
Avg. Moisture of Sample Depth		16		15		12		14		12	

Linear Report of Tests on Soil Samples

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Boring Number	LSS-14	LSS-16	LSS-18	LSS-20	LSS-22
Northing	293833.1300	294832.4496	295796.7693	296801.0892	297830.4091
Easting	1284470.5334	1284507.4159	1284544.2954	1284581.1711	1284618.0469
Sample Depth	1.6' - 4.0'	1.5' - 5.0'	1.8' - 5.0'	2.5' - 5.0'	2.0' - 5.0'
% Passing 3/8" Sieve	96	98	84	95	91
% Passing No. 4 Sieve	92	92	70	88	84
% Passing No. 10 Sieve	83	84	60	81	79
% Coarse Sand (-No. 10, +No. 40)	20	16	9	7	4
% Fine Sand (-No. 40, +No. 200)	30	34	29	28	35
% Silt (0.075 - 0.002 mm)	21	23	15	27	25
% Clay (<0.002 mm)	12	11	7	19	15
% Finer than 0.02 mm	25	23	14	34	27
Frost Group	F3	F3	F2	F3	F3
Liquid Limit (-No. 40)	26	28	21	31	26
Plastic Limit (-No. 40)	14	16	15	13	14
Plasticity Index (-No. 40)	12	12	6	18	12
Soil Color	Brown	Brown and Gray	Brown	Brown and Gray	Brown
USCS Classification	SC	SC	SC-SM	SC	SC
Soil Classification (AASHTO M-15)	A-2-6 (0)	A-2-6 (0)	A-2-4 (0)	A-6 (4)	A-6 (1)
Optimum Moisture (%)	8.0	8.0	7.0	8.0	8.0
Maximum Dry Density (pcf)	135.0	131.0	135.0	130.0	132.0

Depth (ft)	Moisture (%)									
		1.6	9	2.0	16	2.0	17	2.5	18	2.0	19
		2.0	7	3.0	19	3.0	10	3.0	21	3.0	24
		3.0	13	4.0	12	4.0	12	4.0	25	4.0	24
Avg. Moisture of Sample Depth		10		16		13		21		22	

Linear Report of Tests on Soil Samples

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Boring Number	LSS-24	LSS-26	LSS-28	LSS-30	LSS-32
Northing	298829.7306	299829.0526	300828.3719	301827.6792	302726.9866
Easting	1284654.8763	1284701.6954	1284738.5843	1284775.7986	1284813.0129
Sample Depth	2.5' - 5.0'	1.5' - 5.0'	2.0' - 4.0'	1.6' - 7.0'	1.7' - 7.0'
% Passing 3/8" Sieve	98	93	89	100	100
% Passing No. 4 Sieve	93	82	74	100	100
% Passing No. 10 Sieve	86	71	61	100	100
% Coarse Sand (-No. 10, +No. 40)	5	12	11	1	0
% Fine Sand (-No. 40, +No. 200)	35	22	27	5	9
% Silt (0.075 - 0.002 mm)	25	25	15	50	53
% Clay (<0.002 mm)	21	13	8	45	38
% Finer than 0.02 mm	35	27	17	83	69
Frost Group	F3	F3	F3	F3	F3
Liquid Limit (-No. 40)	29	24	21	64	46
Plastic Limit (-No. 40)	14	13	13	17	16
Plasticity Index (-No. 40)	15	11	8	47	30
Soil Color	Gray	Brown	Brown	Gray	Brown and Gray
USCS Classification	SC	SC	SC	CH	CL
Soil Classification (AASHTO M-15)	A-6 (3)	A-6 (0)	A-2-4 (0)	A-7-6 (49)	A-7-6 (29)
Optimum Moisture (%)	9.0	9.0	8.0	11.0	11.0
Maximum Dry Density (pcf)	127.0	131.0	135.0	122.0	124.0

Depth (ft)	Moisture (%)									
2.5	18	2.0	16	2.0	17	2.0	16	2.0	12
3.0	22	3.0	20	3.0	15	3.0	20	3.0	18
4.0	22	4.0	24			4.0	24	4.0	18
						5.0	26	5.0	19
						6.0	21	6.0	20
Avg. Moisture of Sample Depth		21		20		16		21		17

Linear Report of Tests on Soil Samples

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Boring Number	LSS-34	LSS-36	LSS-38	LSS-40	LSS-42
Northing	303776.3121	304014.5047	304037.2227	303909.6760	303776.7691
Easting	1284839.7306	1284510.4604	1283550.9918	1282518.2347	1281527.1062
Sample Depth	1.1' - 7.0'	1.5' - 5.0'	2.3' - 7.0'	1.7' - 7.0'	2.0' - 7.0'
% Passing 3/8" Sieve	100	100	99	97	100
% Passing No. 4 Sieve	99	95	98	94	97
% Passing No. 10 Sieve	96	87	94	88	91
% Coarse Sand (-No. 10, +No. 40)	5	12	6	12	14
% Fine Sand (-No. 40, +No. 200)	52	35	47	29	36
% Silt (0.075 - 0.002 mm)	24	23	25	29	21
% Clay (<0.002 mm)	16	17	15	19	20
% Finer than 0.02 mm	29	30	29	33	36
Frost Group	F3	F3	F3	F3	F3
Liquid Limit (-No. 40)	27	33	28	29	32
Plastic Limit (-No. 40)	16	15	16	13	13
Plasticity Index (-No. 40)	11	18	12	16	19
Soil Color	Brown	Brown	Brown	Brown	Brown
USCS Classification	SC	SC	SC	SC	SC
Soil Classification (AASHTO M-15)	A-6 (1)	A-6 (3)	A-6 (1)	A-6 (4)	A-6 (4)
Optimum Moisture (%)	9.0	12.0	10.0	8.0	8.0
Maximum Dry Density (pcf)	125.0	119.0	125.0	129.0	127.0

Depth (ft)	Moisture (%)									
1.1	13	1.5	17	2.3	17	2.0	14	2.0	13
2.0	12	2.0	19	3.0	27	3.0	15	3.0	13
3.0	15	3.0	14	4.0	27	4.0	11	4.0	14
4.0	13	4.0	13	5.0	14	5.0	12	5.0	14
5.0	12			6.0	17	6.0	11	6.0	14
6.0	12								
Avg. Moisture of Sample Depth		13		16		20		13		14

Linear Report of Tests on Soil Samples

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Boring Number	LSS-44	LSS-46	LSS-48	LSS-50	LSS-52
Northing	303657.1908	303633.8725	303804.1689	304060.7186	304339.0349
Easting	1280535.5660	1279536.9235	1278551.1400	1277587.3305	1276623.9996
Sample Depth	1.3' - 5.0'	1.3' - 7.0'	2.0' - 5.0'	2.0' - 7.0'	2.2' - 4.0'
% Passing 3/8" Sieve	97	99	98	100	97
% Passing No. 4 Sieve	93	97	95	99	94
% Passing No. 10 Sieve	89	93	91	96	90
% Coarse Sand (-No. 10, +No. 40)	10	8	10	6	6
% Fine Sand (-No. 40, +No. 200)	38	25	33	39	47
% Silt (0.075 - 0.002 mm)	24	33	28	32	24
% Clay (<0.002 mm)	17	27	19	19	14
% Finer than 0.02 mm	31	45	35	37	30
Frost Group	F3	F3	F3	F3	F3
Liquid Limit (-No. 40)	28	37	30	29	24
Plastic Limit (-No. 40)	15	14	14	15	16
Plasticity Index (-No. 40)	13	23	16	14	8
Soil Color	Brown	Brown	Brown	Brown	Brown and Gray
USCS Classification	SC	CL	SC	CL	SC
Soil Classification (AASHTO M-15)	A-6 (2)	A-6 (10)	A-6 (4)	A-6 (4)	A-4 (0)
Optimum Moisture (%)	9.0	9.0	10.0	9.0	10.0
Maximum Dry Density (pcf)	126.0	129.0	128.0	128.0	123.0

Depth (ft)	Moisture (%)									
2.0	18	2.0	19	2.0	14	2.0	12	2.0	11
3.0	16	3.0	20	3.0	12	3.0	20	3.0	11
4.0	20	4.0	17	4.0	14	4.0	11		
		5.0	18			5.0	14		
		6.0	18			6.0	14		
Avg. Moisture of Sample Depth		18		18		13		14		11

Linear Report of Tests on Soil Samples

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Boring Number	LSS-54	LSS-56	LSS-58	LSS-60	LSS-62
Northing	304597.3512	304865.6675	305133.9838	305402.3001	305670.6164
Easting	1275660.6688	1274697.3379	1273734.0070	1272770.6762	1271807.3453
Sample Depth	2.0' - 7.0'	2.8' - 7.0'	2.0' - 7.0'	2.0' - 7.0'	2.2' - 6.0'
% Passing 3/8" Sieve	98	95	98	95	96
% Passing No. 4 Sieve	96	92	98	91	94
% Passing No. 10 Sieve	93	88	96	87	91
% Coarse Sand (-No. 10, +No. 40)	6	9	5	7	7
% Fine Sand (-No. 40, +No. 200)	41	44	49	39	40
% Silt (0.075 - 0.002 mm)	28	22	24	25	26
% Clay (<0.002 mm)	20	13	18	17	18
% Finer than 0.02 mm	36	25	33	31	33
Frost Group	F3	F3	F3	F3	F3
Liquid Limit (-No. 40)	28	25	27	28	30
Plastic Limit (-No. 40)	13	15	14	15	15
Plasticity Index (-No. 40)	15	10	13	13	15
Soil Color	Brown	Brown	Brown	Brown and Gray	Brown
USCS Classification	SC	SC	SC	SC	SC
Soil Classification (AASHTO M-15)	A-6 (3)	A-2-4 (0)	A-6 (2)	A-6 (2)	A-6 (3)
Optimum Moisture (%)	9.0	8.0	10.0	8.0	10.0
Maximum Dry Density (pcf)	131.0	131.0	127.0	130.0	126.0

Depth (ft)	Moisture (%)									
2.0	13	3.0	14	2.0	13	2.0	18	2.0	14
3.0	10	4.0	11	3.0	13	3.0	19	3.0	15
4.0	11	5.0	15	4.0	19	4.0	15	4.0	16
5.0	15	6.0	16	5.0	13	5.0	13	5.0	14
6.0	14			6.0	12	6.0	16		

Avg. Moisture of Sample Depth	13	14	14	16	15

Linear Report of Tests on Soil Samples

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Boring Number	LSS-64	LSS-66	LSS-68	LSS-70	LSS-72
Northing	305938.9327	306207.2490	306471.9615	306577.3337	306616.7158
Easting	1270844.0144	1269880.6835	1268913.8941	1267921.7976	1266922.5734
Sample Depth	2.0' - 7.0'	2.0' - 7.0'	2.0' - 7.0'	2.0' - 7.0'	1.8' - 7.0'
% Passing 3/8" Sieve	95	96	100	98	98
% Passing No. 4 Sieve	88	94	97	96	97
% Passing No. 10 Sieve	81	89	90	92	94
% Coarse Sand (-No. 10, +No. 40)	12	9	10	8	7
% Fine Sand (-No. 40, +No. 200)	34	31	24	25	46
% Silt (0.075 - 0.002 mm)	22	29	31	33	25
% Clay (<0.002 mm)	13	20	25	27	16
% Finer than 0.02 mm	25	37	42	45	29
Frost Group	F3	F3	F3	F3	F3
Liquid Limit (-No. 40)	28	30	38	36	27
Plastic Limit (-No. 40)	15	13	14	15	16
Plasticity Index (-No. 40)	13	17	24	21	11
Soil Color	Brown	Brown	Brown	Brown	Brown
USCS Classification	SC	SC	CL	CL	SC
Soil Classification (AASHTO M-15)	A-6 (1)	A-6 (4)	A-6 (10)	A-6 (9)	A-6 (1)
Optimum Moisture (%)	10.0	9.0	9.0	11.0	10.0
Maximum Dry Density (pcf)	128.0	128.0	123.0	123.0	125.0

Depth (ft)	Moisture (%)									
2.0	14	2.0	17	2.0	16	2.0	16	2.0	9
3.0	12	3.0	19	3.0	16	3.0	16	3.0	13
4.0	12	4.0	7	4.0	17	4.0	14	4.0	11
5.0	15	5.0	7	5.0	17	5.0	16	5.0	8
6.0	13	6.0	10	6.0	13	6.0	16	6.0	10
Avg. Moisture of Sample Depth	13	12		16		16		10	

Linear Report of Tests on Soil Samples

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Boring Number	LSS-74	LSS-77	LSS-A1	LSS-A4	LSS-A5
Northing	306665.6572	306713.4650	302824.4779	303047.4857	303245.6937
Easting	1265923.3320	1264424.4463	1284732.2790	1284118.0160	1284088.2940
Sample Depth	1.5' - 7.0'	2.5' - 7.0'	1.0' - 20.0'	1.5' - 20.0'	1.0' - 10.0'
% Passing 3/8" Sieve	97	97	100	100	100
% Passing No. 4 Sieve	96	96	100	100	100
% Passing No. 10 Sieve	92	94	100	100	100
% Coarse Sand (-No. 10, +No. 40)	6	5	1	0	0
% Fine Sand (-No. 40, +No. 200)	37	32	33	75	74
% Silt (0.075 - 0.002 mm)	29	34	49	12	14
% Clay (<0.002 mm)	21	23	18	11	10
% Finer than 0.02 mm	37	40	37	19	18
Frost Group	F3	F3	F3	F3	F3
Liquid Limit (-No. 40)	32	33	41	NP	NP
Plastic Limit (-No. 40)	15	14	14	NP	NP
Plasticity Index (-No. 40)	17	19	27	NP	NP
Soil Color	Brown	Brown and Gray	Brown	Brown	Brown
USCS Classification	SC	CL	CL	SM	SM
Soil Classification (AASHTO M-15)	A-6 (5)	A-6 (8)	A-7-6 (15)	A-2-4 (0)	A-2-4 (0)
Optimum Moisture (%)	10.0	9.0	10.0	11.0	11.0
Maximum Dry Density (pcf)	125.0	127.0	125.0	124.0	123.0

Depth (ft)	Moisture (%)									
2.0	21	3.0	29	1.0	24	2.0	19	1.0	5
3.0	13	4.0	15	2.0	26	3.0	20	2.0	4
4.0	11	5.0	14	3.0	24	4.0	17	3.0	5
5.0	15	6.0	17	4.0	25	5.0	25	4.0	18
6.0	16			5.0	29	6.0	22	5.0	13
				6.0	31	7.0	23	6.0	18
				7.0	38	8.0	27	7.0	19
				8.0	28	9.0	24	8.0	22
Avg. Moisture of Sample Depth	15	19	27	23	14				

Linear Report of Tests on Soil Samples

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Boring Number	LSS-A5	LSS-A6	LSS-A6	LSS-A8	LSS-A11
Northing	303245.6937	303520.8204	303520.8204	302852.6562	303104.6794
Easting	1284088.2940	1284051.5200	1284051.5200	1284054.3880	1283345.2520
Sample Depth	10.0' - 20.0'	1.5' - 6.0'	6.0' - 20.0'	1.0' - 20.0'	1.5' - 11.0'
% Passing 3/8" Sieve	100	100	100	100	100
% Passing No. 4 Sieve	100	100	100	100	100
% Passing No. 10 Sieve	100	99	100	100	100
% Coarse Sand (-No. 10, +No. 40)	1	2	1	0	0
% Fine Sand (-No. 40, +No. 200)	74	55	63	29	73
% Silt (0.075 - 0.002 mm)	14	23	17	52	19
% Clay (<0.002 mm)	10	16	14	15	8
% Finer than 0.02 mm	15	27	24	31	13
Frost Group	F2	F3	F3	F3	F2
Liquid Limit (-No. 40)	NP	29	NP	37	NP
Plastic Limit (-No. 40)	NP	17	NP	19	NP
Plasticity Index (-No. 40)	NP	12	NP	18	NP
Soil Color	Brown	Brown	Brown	Brown	Brown
USCS Classification	SM	SC	SM	CL	SM
Soil Classification (AASHTO M-15)	A-2-4 (0)	A-6 (2)	A-4 (0)	A-6 (11)	A-2-4 (0)
Optimum Moisture (%)	11.0	11.0	9.0	10.0	11.0
Maximum Dry Density (pcf)	121.0	125.0	129.0	122.0	122.0

Depth (ft)	Moisture (%)									
		10.0	22	1.0	10	6.0	9	1.0	21	2.0	28
		11.0	21	2.0	11	7.0	7	2.0	20	3.0	14
		12.0	24	3.0	15	8.0	8	3.0	20	4.0	28
		13.0	22	4.0	11	9.0	6	4.0	25	5.0	21
		14.0	26	5.0	10	10.0	8	5.0	30	6.0	26
		15.0	25			11.0	13	6.0	26	7.0	22
		16.0	24			12.0	8	7.0	27	8.0	23
		17.0	24			13.0	6	8.0	27	9.0	22
Avg. Moisture of Sample Depth		24		11		12		26		25	

Linear Report of Tests on Soil Samples

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Boring Number	LSS-A11	LSS-A12	LSS-A12
Northing	303104.6794	303336.2355	303336.2355
Easting	1283345.2520	1283301.9880	1283301.9880
Sample Depth	12.0' - 20.0'	0.5' - 13.0'	13.0' - 20.0'
% Passing 3/8" Sieve	100	100	100
% Passing No. 4 Sieve	100	100	100
% Passing No. 10 Sieve	100	100	99
% Coarse Sand (-No. 10, +No. 40)	0	1	1
% Fine Sand (-No. 40, +No. 200)	72	70	66
% Silt (0.075 - 0.002 mm)	19	22	20
% Clay (<0.002 mm)	9	8	13
% Finer than 0.02 mm	15	16	20
Frost Group	F2	F3	F3
Liquid Limit (-No. 40)	NP	NP	NP
Plastic Limit (-No. 40)	NP	NP	NP
Plasticity Index (-No. 40)	NP	NP	NP
Soil Color	Brown	Brown	Brown
USCS Classification	SM	SM	SM
Soil Classification (AASHTO M-15)	A-2-4 (0)	A-2-4 (0)	A-2-4 (0)
Optimum Moisture (%)	11.0	12.0	10.0
Maximum Dry Density (pcf)	123.0	120.0	126.0

Depth (ft)	Moisture (%)					
12.0	32	1.0	5	13.0	21	
13.0	28	2.0	4	14.0	6	
14.0	24	3.0	4	15.0	30	
15.0	29	4.0	5	16.0	21	
16.0	25	5.0	5	17.0	23	
17.0	20	6.0	7	18.0	34	
18.0	24	7.0	5	19.0	26	
19.0	21	8.0	6			

Avg. Moisture of Sample Depth	25	5	23

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-04**

LOCATION: N288836.5114, E1284286.6816; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/26/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.5	BIT	6" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (11")			3	
1.4					8	
	SC	CLAYEY SAND, fine- to coarse-grained, trace Gravel, brown, moist. A-6 (1) MDD = 130.0 pcf; OMC = 8.0%.			14	LL=30, PL=14, PI=16; P200=36%
					16	
					18	
5.0		END OF BORING.				
		Bag sample collected from 1.4 to 5 feet.				
		Water not observed with 5 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:39

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-06**

LOCATION: N289835.8473, E1284323.1213; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/26/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.6	BIT	7" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (10")			3	
1.4					14	
	SC	CLAYEY SAND, fine- to coarse-grained, trace Gravel, brown, moist. A-2-6 (1) MDD = 126.0 pcf; OMC = 8.0%.				LL=29, PL=15, PI=14; P200=35%
					16	
					15	
					14	
5.0						
		END OF BORING.				
		Bag sample collected from 1.4 to 5 feet.				
		Water not observed with 5 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:39

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-08**

LOCATION: N290835.1712, E1284359.8858; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/26/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	BIT	6" Bituminous surfacing.				
0.5	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (30")			2	
					5	
					7	
3.0	SC	CLAYEY SAND with GRAVEL, fine- to coarse-grained, brown, moist. A-2-6 (0) MDD = 135.0 pcf; OMC = 6.0%.			14	LL=26, PL=15, PI=11; P200=27%
					10	
5.0		END OF BORING. Bag sample collected from 3 to 5 feet. Water not observed with 5 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:39

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-10**

LOCATION: N291834.4908, E1284396.7683; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/26/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.5	BIT	6" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (14")			2	
1.6					8	
	SC	CLAYEY SAND, fine- to coarse-grained, a little Gravel, brown, moist. A-2-6 (0) MDD = 125.0 pcf; OMC = 9.0%.			13	LL=29, PL=16, PI=13; P200=28%
					15	
					15	
5.0		END OF BORING.				
		Bag sample collected from 1.6 to 5 feet.				
		Water not observed with 5 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:39

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-12**

LOCATION: N292833.8104, E1284433.6509; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/26/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	BIT	7" Bituminous surfacing.				
0.6	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (11")			6	
1.5	SC	CLAYEY SAND, fine- to coarse-grained, a little Gravel, brown, moist. A-2-4 (0) MDD = 133.0 pcf; OMC = 8.0%.			12 12 12 11	LL=27, PL=17, PI=10; P200=29%
5.0		END OF BORING. Bag sample collected from 1.5 to 5 feet. Water not observed with 5 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:39

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-14**

LOCATION: N293833.1300, E1284470.5334; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/26/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.6	BIT	7" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (12")			2	
1.6						
	SC	CLAYEY SAND, fine- to coarse-grained, a little Gravel, brown, moist. A-2-6 (0) MDD = 135.0 pcf; OMC = 8.0%.			9 7 13	LL=26, PL=14, PI=12; P200=33%
4.0						
	CL	LEAN CLAY with SAND, brown and gray, moist.			20	
5.0						
		END OF BORING. Bag sample collected from 1.6 to 4 feet. Water not observed with 5 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:39

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-16**

LOCATION: N294832.4496, E1284507.4159; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/26/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.6	BIT	7" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (11")			5	
1.5					11	
	SC	CLAYEY SAND, fine- to coarse-grained, a little Gravel, brown and gray, moist. A-2-6 (0) MDD = 131.0 pcf; OMC = 8.0%.			16	LL=28, PL=16, PI=12; P200=34%
					19	
					12	
5.0		END OF BORING. Bag sample collected from 1.5 to 5 feet. Water not observed with 5 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-18**

LOCATION: N295796.7693, E1284544.2954; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/26/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.6	BIT	7" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (15")			2	
					12	
1.8						
	SC-SM	SILTY, CLAYEY SAND with GRAVEL, fine- to coarse-grained, brown, moist. A-2-4 (0) MDD = 135.0 pcf; OMC = 7.0%.			17	LL=21, PL=15, PI=6; P200=22%
					10	
					12	
5.0						
		END OF BORING.				
		Bag sample collected from 1.8 to 5 feet.				
		Water not observed with 5 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-20**

LOCATION: N296801.0892, E1284581.1711; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/26/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	BIT	9" Bituminous surfacing.				
0.8	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (21")			4	
					4	
2.5	SC	CLAYEY SAND, fine- to coarse-grained, a little Gravel, brown and gray, wet. A-6 (4) MDD = 130.0 pcf; OMC = 8.0%.			18	LL=31, PL=13, PI=18; P200=46%
					21	
					25	
5.0		END OF BORING. Bag sample collected from 2.5 to 5 feet. Water not observed with 5 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-22**

LOCATION: N297830.4091, E1284618.0469; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/26/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	BIT	9" Bituminous surfacing.				
0.8	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (15")			3	
					3	
2.0	SC	CLAYEY SAND with GRAVEL, fine-grained, brown, wet. A-6 (1) MDD = 132.0 pcf; OMC = 8.0%.			19	LL=26, PL=14, PI=12; P200=41%
					24	
					24	
5.0		END OF BORING.				
		Bag sample collected from 2 to 5 feet.				
		Water not observed with 5 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-24**

LOCATION: N298829.7306, E1284654.8763; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/26/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	BIT	8" Bituminous surfacing.				
0.7	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (22")			2	
					3	
2.5	SC	CLAYEY SAND, fine-grained, a little Gravel, gray, wet. A-6 (3) MDD = 127.0 pcf; OMC = 9.0%.			18	LL=29, PL=14, PI=15; P200=46%
					22	
					22	
5.0		END OF BORING. Bag sample collected from 2.5 to 5 feet. Water not observed with 5 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-26**

LOCATION: N299829.0526, E1284701.6954; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (18") [drilled in roadway shoulder]			11	
1.5					6	
	SC	CLAYEY SAND with GRAVEL, fine- to coarse-grained, brown, moist to wet. A-6 (0) MDD = 131.0 pcf; OMC = 9.0%.			16	LL=24, PL=13, PI=11; P200=37%
					20	
					24	
5.0		END OF BORING. Bag sample collected from 1.5 to 5 feet. Water not observed with 5 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-28**

LOCATION: N300828.3719, E1284738.5843; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (24") [drilled in roadway shoulder]			4	
					13	
2.0	SC	CLAYEY SAND with GRAVEL, fine- to coarse-grained, brown, moist. A-2-4 (0) MDD = 135.0 pcf; OMC = 8.0%.			17	LL=21, PL=13, PI=8; P200=24%
					15	
4.0	CH	FAT CLAY, brown and gray, moist.			21	
5.0		END OF BORING.				
		Bag sample collected from 2 to 4 feet.				
		Water not observed with 5 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-30**

LOCATION: N301827.6792, E1284775.7986; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (19") [drilled in roadway shoulder]			7	
1.6					5	
	CH	FAT CLAY, a little Sand, gray, moist. A-7-6 (49) MDD = 122.0 pcf; OMC = 11.0%.			16	LL=64, PL=17, PI=47; P200=95%
					20	
					24	
					26	
7.0					21	
		END OF BORING.				
		Bag sample collected from 1.6 to 7 feet.				
		Water not observed with 7 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-32**

LOCATION: N302726.9866, E1284813.0129; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (20") [drilled in roadway shoulder]			5	
					7	
1.7	CL	LEAN CLAY, a little Sand, brown and gray, moist. A-7-6 (29) MDD = 124.0 pcf; OMC = 11.0%.			12	LL=46, PL=16, PI=30; P200=92%
					18	
					18	
					19	
7.0					20	
		END OF BORING.				
		Bag sample collected from 1.7 to 7 feet.				
		Water not observed with 7 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-34**

LOCATION: N303776.3121, E1284839.7306; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.5	BIT	6" Bituminous surfacing.				
1.1	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (7")			16	
	SC	CLAYEY SAND, fine-grained, trace Gravel, brown, moist. A-6 (1) MDD = 125.0 pcf; OMC = 9.0%.			13	LL=27, PL=16, PI=11; P200=39%
					12	
					15	
					13	
					12	
					12	
7.0						
		END OF BORING. Bag sample collected from 1.1 to 7 feet. Water not observed with 7 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-36**

LOCATION: N304014.5047, E1284510.4604; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (18") [drilled in roadway shoulder].			9	
1.5	SC	CLAYEY SAND, fine- to coarse-grained, trace Gravel, brown, moist. A-6 (3) MDD = 119.0 pcf; OMC = 12.0%.			17	LL=33, PL=15, PI=18; P200=40%
					19	
					14	
5.0					13	
	CH	FAT CLAY, brown and gray, moist.			26	
6.0	ML	SILT, gray and dark brown, wet.			37	
7.0		END OF BORING. Bag sample collected from 1.5 to 5 feet. Water not observed with 7 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-38**

LOCATION: N304037.2227, E1283550.9918; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.5	BIT	6" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (22")			4	
					6	
2.3						
	SC	CLAYEY SAND, fine-grained, trace Gravel, brown, moist. A-6 (1) MDD = 125.0 pcf; OMC = 10.0%. -with Fat Clay lenses at 3 to 5 feet.			17	LL=28, PL=16, PI=12; P200=40%
					27	
					27	
					14	
					17	
7.0						
		END OF BORING. Bag sample collected from 2.3 to 7 feet. Water not observed with 7 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-40**

LOCATION: N303909.6760, E1282518.2347; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.5	BIT	6" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (14")			7	
					6	
1.7	SC	CLAYEY SAND, fine- to coarse-grained, trace Gravel, brown, moist. A-6 (4) MDD = 129.0 pcf; OMC = 8.0%.			14	LL=29, PL=13, PI=16; P200=48%
					15	
					11	
					12	
7.0					11	
		END OF BORING.				
		Bag sample collected from 1.7 to 7 feet.				
		Water not observed with 7 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-42**

LOCATION: N303776.7691, E1281527.1062; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.5	BIT	6" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (18")			5	
					7	
2.0	SC	CLAYEY SAND, fine- to coarse-grained, trace Gravel, brown, moist. A-6 (4) MDD = 127.0 pcf; OMC = 8.0%.			13	LL=32, PL=13, PI=19; P200=42%
					13	
					14	
					14	
7.0					14	
		END OF BORING.				
		Bag sample collected from 2 to 7 feet.				
		Water not observed with 7 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-44**

LOCATION: N303657.1908, E1280535.5660; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (16") [drilled in roadway shoulder]			16	
1.3	SC	CLAYEY SAND, fine- to coarse-grained, a little Gravel, brown, moist. A-6 (2) MDD = 126.0 pcf; OMC = 9.0%.			15	LL=28, PL=15, PI=13; P200=41%
					18	
					16	
5.0					20	
	SM	SILTY SAND, fine-grained, trace Gravel, brown, moist.			10	
7.0					10	
		END OF BORING.				
		Bag sample collected from 1.3 to 5 feet.				
		Water not observed with 7 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-46**

LOCATION: N303633.8725, E1279536.9235; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
	BIT	7" Bituminous surfacing.				
0.6						
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (9")			5	
1.3					8	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (10) MDD = 129.0 pcf; OMC = 9.0%.				LL=37, PL=14, PI=23; P200=60%
					19	
					20	
					17	
					18	
					18	
7.0						
		END OF BORING.				
		Bag sample collected from 1.3 to 7 feet.				
		Water not observed with 7 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-48**

LOCATION: N303804.1689, E1278551.1400; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (24") [drilled in roadway shoulder]			8	
					7	
2.0	SC	CLAYEY SAND, fine- to coarse-grained, trace Gravel, brown, moist. A-6 (4) MDD = 128.0 pcf; OMC = 10.0%.			14	LL=30, PL=14, PI=16; P200=47%
					12	
					14	
5.0	CL	SANDY LEAN CLAY, trace Gravel, dark brown, moist.			20	
					20	
7.0		END OF BORING.				
		Bag sample collected from 2 to 5 feet.				
		Water not observed with 7 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-50**

LOCATION: N304060.7186, E1277587.3305; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.5	BIT	6" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (18")			4	
					5	
2.0						
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (4) MDD = 128.0 pcf; OMC = 9.0%.			12	LL=29, PL=15, PI=14; P200=51%
					20	
					11	
					14	
					14	
7.0						
		END OF BORING.				
		Bag sample collected from 2 to 7 feet.				
		Water not observed with 7 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-52**

LOCATION: N304339.0349, E1276623.9996; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (26") [drilled in roadway shoulder]			8	
					9	
2.2					11	
	SC	CLAYEY SAND, fine-grained, trace Gravel, brown and gray, moist. A-4 (0) MDD = 123.0 pcf; OMC = 10.0%.				LL=24, PL=16, PI=8; P200=38%
					11	
4.0	CH	FAT CLAY, a little Sand, gray, moist.			33	
					31	
					23	
7.0		END OF BORING.				
		Bag sample collected from 2.2 to 4 feet.				
		Water not observed with 7 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:40

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-54**

LOCATION: N304597.3512, E1275660.6688; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.6	BIT	7" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (17")			4	
					5	
2.0						
	SC	CLAYEY SAND, fine-grained, trace Gravel, brown, moist. A-6 (3) MDD = 131.0 pcf; OMC = 9.0%.			13	LL=28, PL=13, PI=15; P200=47%
					10	
					11	
					15	
					14	
7.0						
		END OF BORING.				
		Bag sample collected from 2 to 7 feet.				
		Water not observed with 7 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:41

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-56**

LOCATION: N304865.6675, E1274697.3379; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	BIT	6" Bituminous surfacing.				
0.5	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (28")			4	
					5	
					7	
2.8	SC	CLAYEY SAND, fine-grained, a little Gravel, brown, moist. A-2-4 (0) MDD = 131.0 pcf; OMC = 8.0%.			14	LL=25, PL=15, PI=10; P200=35%
					11	
					15	
7.0					16	
		END OF BORING. Bag sample collected from 2.8 to 7 feet. Water not observed with 7 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:41

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-58**

LOCATION: N305133.9838, E1273734.0070; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.5	BIT	6" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (18")			5	
					7	
2.0	SC	CLAYEY SAND, fine-grained, trace Gravel, brown, moist. A-6 (2) MDD = 127.0 pcf; OMC = 10.0%.			13	LL=27, PL=14, PI=13; P200=42%
					13	
		-lenses of Lean Clay at 4 feet.			19	
					13	
7.0					12	
		END OF BORING. Bag sample collected from 2 to 7 feet. Water not observed with 7 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:41

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-60**

LOCATION: N305402.3001, E1272770.6762; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.6	BIT	7" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (17")			5	
					6	
2.0						
	SC	CLAYEY SAND, fine grained, a little Gravel, brown and gray, moist. A-6 (2) MDD = 130.0 pcf; OMC = 8.0%.			18	LL=28, PL=15, PI=13; P200=42%
					19	
					15	
					13	
					16	
7.0						
		END OF BORING. Bag sample collected from 2 to 7 feet. Water not observed with 7 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:41

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-62**

LOCATION: N305670.6164, E1271807.3453; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.6	BIT	7" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (19")			5	
					7	
2.2						
	SC	CLAYEY SAND, fine- to coarse-grained, a little Gravel, brown, moist. A-6 (3) MDD = 126.0 pcf; OMC = 10.0%.			14	LL=30, PL=15, PI=15; P200=44%
					15	
					16	
					14	
6.0						
	CL	LEAN CLAY, trace Sand, brown and gray, wet.			20	
7.0						
		END OF BORING. Bag sample collected from 2.2 to 6 feet. Water not observed with 7 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:41

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-64**

LOCATION: N305938.9327, E1270844.0144; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.2	BIT	2" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (22")			5	
					10	
2.0						
	SC	CLAYEY SAND, fine- to coarse-grained, a little Gravel, brown, moist. A-6 (1) MDD = 128.0 pcf; OMC = 10.0%.			14	LL=28, PL=15, PI=13; P200=36%
					12	
					12	
					15	
					13	
7.0						
		END OF BORING. Bag sample collected from 2 to 7 feet. Water not observed with 7 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:41

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-66**

LOCATION: N306207.2490, E1269880.6835; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.5	BIT	6" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (18")			5	
					8	
2.0						
	SC	CLAYEY SAND, fine- to coarse-grained, a little Gravel, brown, damp to moist. A-6 (4) MDD = 128.0 pcf; OMC = 9.0%.			17	LL=30, PL=13, PI=17; P200=49%
					19	
					7	
					7	
					10	
7.0						
		END OF BORING. Bag sample collected from 2 to 7 feet. Water not observed with 7 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:41

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-68**

LOCATION: N306471.9615, E1268913.8941; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/27/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (24") [drilled in roadway shoulder]			4	
					8	
2.0	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (10) MDD = 123.0 pcf; OMC = 9.0%.			16	LL=38, PL=14, PI=24; P200=56%
					16	
					17	
					17	
7.0					13	
		END OF BORING.				
		Bag sample collected from 2 to 7 feet.				
		Water not observed with 7 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:41

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-70**

LOCATION: N306577.3337, E1267921.7976; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/28/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.3	BIT	4" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (20")			6	
					8	
2.0						
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (9) MDD = 123.0 pcf; OMC = 11.0%.			16	LL=36, PL=15, PI=21; P200=59%
					16	
					14	
					16	
					16	
7.0						
		END OF BORING.				
		Bag sample collected from 2 to 7 feet.				
		Water not observed with 7 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:41

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-72**

LOCATION: N306616.7158, E1266922.5734; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/28/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.3	BIT	3" Bituminous surfacing.				
	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (18")			6	
					12	
1.8	SC	CLAYEY SAND, fine-grained, trace Gravel, brown, moist. A-6 (1) MDD = 125.0 pcf; OMC = 10.0%.			9	LL=27, PL=16, PI=11; P200=41%
					13	
					11	
					8	
					10	
7.0		END OF BORING. Bag sample collected from 1.8 to 7 feet. Water not observed with 7 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:41

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-74**

LOCATION: N306665.6572, E1265923.3320; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/28/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (18") [drilled in roadway shoulder]			7	
1.5	SC	CLAYEY SAND, fine- to coarse-grained, trace Gravel, brown, moist. A-6 (5) MDD = 125.0 pcf; OMC = 10.0%.			7 21 13 11 15 16	LL=32, PL=15, PI=17; P200=50%
7.0		END OF BORING. Bag sample collected from 1 1/2 to 7 feet. Water not observed with 7 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:41

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-77**

LOCATION: N306713.4650, E1264424.4463; See Sketch.

DRILLER: S. Wenko | METHOD: Power Auger | DATE: **3/28/13** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	BIT	6" Bituminous surfacing.				
0.5	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (24")			4	
					5	
2.5					11	
	CL	SANDY LEAN CLAY, trace Gravel, brown and gray, moist. A-6 (8) MDD = 127.0 pcf; OMC = 9.0%. -wet at 3 feet.				LL=33, PL=14, PI=19; P200=58%
					29	
					15	
					14	
					17	
7.0		END OF BORING. Bag sample collected from 2 1/2 to 7 feet. Water not observed with 7 feet of power auger in the ground. Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 10/9/14 07:41

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-A1**

LOCATION: N302824.4779, E1284732.2790 See Sketch.

DRILLER: G. Bevre | METHOD: Power Auger | DATE: **4/14/15** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	CL	LEAN CLAY with SAND, trace roots and Scoria, brown, moist.			23	
1.0	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (15) MDD = 125.0 pcf; OMC = 10.0%.			24	LL=41, PL=14, PI=27
					26	
					24	
					25	
					29	
				▽	31	
		-LEAN CLAY layer from 7 to 9 feet.			38	
					28	
					32	
					27	
					27	
					28	
					29	
					23	
					25	

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 1/8/16 14:04

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-A1 (cont.)**

LOCATION: N302824.4779, E1284732.2790 See Sketch.

DRILLER: G. Bevre | METHOD: Power Auger | DATE: **4/14/15** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
16.0		SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (15) MDD = 125.0 pcf; OMC = 10.0%. *(continued)*			28	
		-brown and gray below 17 feet.			26	
					24	
					28	
20.0		END OF BORING.				
		Bag sample collected from 1 to 20 feet.				
		Water observed at a depth of 6 feet with 8 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 1/8/16 14:04

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-A4**

LOCATION: N303047.4857, E1284118.0160 See Sketch.

DRILLER: S. Echevarria | METHOD: Power Auger | DATE: **3/13/15** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	CL	LEAN CLAY with SAND, a little roots and organics, brown, moist.			14	
					15	
1.5	SM	SILTY SAND, fine-grained, brown, moist to wet. A-2-4 (0) MDD = 124.0 pcf; OMC = 11.0%.				LL=NP, PL=NP, PI=NP
					19	
					20	
					17	
					25	
		-wet below 6 feet.		▽	22	
					23	
					27	
					24	
					31	
					22	
					25	
					23	
					28	
					23	

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 1/8/16 14:04

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-A4 (cont.)**

LOCATION: N303047.4857, E1284118.0160 See Sketch.

DRILLER: S. Echevarria | METHOD: Power Auger | DATE: **3/13/15** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
16.0		SILTY SAND, fine-grained, brown, moist to wet. A-2-4 (0) MDD = 124.0 pcf; OMC = 11.0%. *(continued)*			25	
					20	
					23	
					22	
20.0		END OF BORING.				
		Bag sample collected from 1 1/2 to 20 feet.				
		Water observed at a depth of 13 feet with 20 feet of power auger in the ground.				
		Water observed at a depth of 12 after last sample collected.				
		Water observed at a depth of 6 feet after auger pulled.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 1/8/16 14:04

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-A5**

LOCATION: N303245.6937. E1284088.2940 See Sketch.

DRILLER: S. Echevarria | METHOD: Power Auger | DATE: **3/13/15** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	CL	LEAN CLAY with SAND, with roots and organics, brown, moist.			17	
1.0	SM	SILTY SAND, fine-grained, brown, moist to wet. A-2-4 (0) MDD = 123.0 pcf; OMC = 11.0%.			5	LL=NP, PL=NP, PI=NP
					4	
					5	
		-wet below 4 feet.			18	
					13	
					18	
					19	
					22	
				▽	23	
10.0	SM	SILTY SAND, fine-grained, brown, wet. A-2-4 (0) MDD = 121.0 pcf; OMC = 11.0%.			22	LL=NP, PL=NP, PI=NP
					21	
					24	
					22	
					26	
					25	

(See Descriptive Terminology sheet for explanation of abbreviations)

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BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-A5 (cont.)**

LOCATION: N303245.6937. E1284088.2940 See Sketch.

DRILLER: S. Echevarria | METHOD: Power Auger | DATE: **3/13/15** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
16.0		SILTY SAND, fine-grained, brown, wet. A-2-4 (0) MDD = 121.0 pcf; OMC = 11.0%. *(continued)*			24	
					24	
					27	
					27	
20.0		END OF BORING.				
		Bag samples collected from 1 to 10 feet and 10 to 20 feet.				
		Water observed at a depth of 9 feet with 20 feet of power auger in the ground.				
		Water observed at a depth of 9 feet after last sample collected.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

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BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-A6**

LOCATION: N303520.8204, E1284051.52 See Sketch.

DRILLER: S. Echevarria | METHOD: Power Auger | DATE: **3/13/15** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.3	BIT	4" of Bituminous Surfacing.			10	
0.5	FILL	FILL: Poorly Graded Sand with Silt, brown, moist.				LL=29, PL=17, PI=12
	SC	CLAYEY SAND, fine-grained, trace Gravel, brown, moist. A-6 (2) MDD = 125.0 pcf; OMC = 11.0%.			10	
					11	
					15	
		-with organics and black at 3 feet.			11	
					10	
6.0						
	SM	SILTY SAND, fine-grained, trace Gravel, brown, moist. A-4 (0) MDD = 129.0 pcf; OMC = 9.0%.			9	LL=NP, PL=NP, PI=NP
					7	
					8	
					6	
					8	
					13	
					8	
					6	
					10	
					7	

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 1/8/16 14:04

BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-A6 (cont.)**

LOCATION: N303520.8204, E1284051.52 See Sketch.

DRILLER: S. Echevarria | METHOD: Power Auger | DATE: **3/13/15** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
16.0		SILTY SAND, fine-grained, trace Gravel, brown, moist. A-4 (0) MDD = 129.0 pcf; OMC = 9.0%. *(continued)*			14	
					21	
				▽	21	
					24	
20.0		END OF BORING.				
		Bag samples collected from 1/2 to 6 feet and 6 to 20 feet.				
		Water observed at a depth of 18 feet with 20 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

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BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-A8**

LOCATION: N302852.6562, E1284054.3880 See Sketch.

DRILLER: G. Bevre | METHOD: Power Auger | DATE: **4/15/15** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	CL	LEAN CLAY with SAND, with roots and organics, brown, moist.			20	
1.0	CL	LEAN CLAY with SAND, brown, moist to wet. A-6 (11) MDD = 122.0 pcf; OMC = 10.0%.			21	LL=37, PL=19, PI=18
					20	
					20	
					25	
					30	
					26	
					27	
					27	
		-Sand lenses at 9 feet.		▽	27	
					28	
					27	
					22	
					26	
		-brown and gray below 14 feet.			27	
					23	

(See Descriptive Terminology sheet for explanation of abbreviations)

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BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-A8 (cont.)**

LOCATION: N302852.6562, E1284054.3880 See Sketch.

DRILLER: G. Bevre | METHOD: Power Auger | DATE: **4/15/15** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
16.0		LEAN CLAY with SAND, brown, moist to wet. A-6 (11) MDD = 122.0 pcf; OMC = 10.0%. *(continued)*			26	
					27	
		-Sand lenses at 18 feet.			36	
					29	
20.0		END OF BORING.				
		Bag sample collected from 1 to 20 feet.				
		Water observed at a depth of 9 feet with 10 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

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BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-A11**

LOCATION: N303104.6794, E1283345.2520 See Sketch.

DRILLER: S. Echevarria | METHOD: Power Auger | DATE: **3/13/15** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	CL	LEAN CLAY with SAND, with roots and organics, black, wet.			27	
1.5					26	
	SM	SILTY SAND, fine-grained, trace Gravel, brown, wet. A-2-4 (0) MDD = 122.0 pcf; OMC = 11.0%.				LL=NP, PL=NP, PI=NP
					28	
					14	
					28	
					21	
					26	
				▽	22	
					23	
					22	
					41	
11.0						
	CL	SANDY LEAN CLAY, trace Gravel, brown, wet.			36	
12.0						
	SM	SILTY SAND, fine-grained, trace Gravel, brown, wet. A-2-4 (0) MDD = 123.0 pcf; OMC = 11.0%.			32	LL=NP, PL=NP, PI=NP
					28	
					24	
					29	

(See Descriptive Terminology sheet for explanation of abbreviations)

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BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-A11 (cont.)**

LOCATION: N303104.6794, E1283345.2520 See Sketch.

DRILLER: S. Echevarria | METHOD: Power Auger | DATE: **3/13/15** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
16.0		SILTY SAND, fine-grained, trace Gravel, brown, wet. A-2-4 (0) MDD = 123.0 pcf; OMC = 11.0%. *(continued)*			25	
					20	
					24	
					21	
20.0		END OF BORING.				
		Bag samples collected from 1 1/2 to 11 feet and from 12 to 20 feet.				
		Water observed at a depth of 8 feet with 20 feet of power auger in the ground.				
		Water observed at a depth of 6 feet after the auger was pulled.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

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BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-A12**

LOCATION: N303336.2355, E1283301.9880 See Sketch.

DRILLER: S. Echevarria | METHOD: Power Auger | DATE: **3/12/15** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0	CL	LEAN CLAY with SAND, trace roots, black, moist.			14	
0.5	SM	SILTY SAND, fine-grained, trace Gravel, brown, moist. A-2-4 (0) MDD = 120.0 pcf; OMC = 12.0%.				LL=NP, PL=NP, PI=NP
					5	
					4	
					4	
					5	
					5	
					7	
					5	
					6	
					4	
					5	
					6	
					7	
13.0	SM	SILTY SAND, fine-grained, trace Gravel, brown, moist to wet. A-2-4 (0) MDD = 126.0 pcf; OMC = 10.0%.			21	LL=NP, PL=NP, PI=NP
					6	
		-wet below 15 feet.		▽	30	

(See Descriptive Terminology sheet for explanation of abbreviations)

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BRAUN INTERTEC

LOG OF BORING

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: **LSS-A12 (cont.)**

LOCATION: N303336.2355, E1283301.9880 See Sketch.

DRILLER: S. Echevarria | METHOD: Power Auger | DATE: **3/12/15** | SCALE: **1" = 2'**

Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
16.0		SILTY SAND, fine-grained, trace Gravel, brown, moist to wet. A-2-4 (0) MDD = 126.0 pcf; OMC = 10.0%. *(continued)*			21	
					23	
					34	
					26	
20.0		END OF BORING.				
		Bag samples collected from 1/2 to 13 feet and from 13 to 20 feet.				
		Water observed at a depth of 15 feet with 20 feet of power auger in the ground.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05662.GPJ BRAUN.GDT 1/8/16 14:04

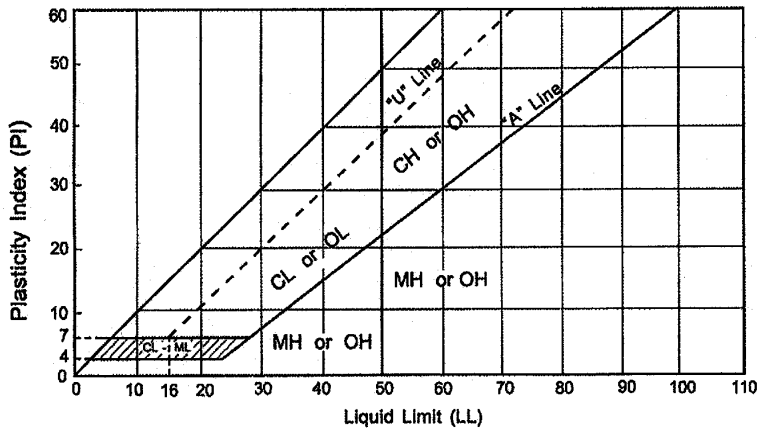
BRAUN INTERTEC

Descriptive Terminology of Soil

Standard D 2487 – 11
Classification of Soils for Engineering Purposes
(Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [a]				Soils Classification	
				Group Symbol	Group Name [b]
Coarse-grained Soils more than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines [e]	$C_u \geq 4$ and $1 \leq C_c \leq 3$ [c]	GW	Well-graded gravel [d]
			$C_u < 4$ and/or $1 > C_c > 3$ [c]	GP	Poorly graded gravel [d]
		Gravels with Fines More than 12% fines [e]	Fines classify as ML or MH	GM	Silty gravel [d f g]
			Fines classify as CL or CH	GC	Clayey gravel [d f g]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines [i]	$C_u \geq 6$ and $1 \leq C_c \leq 3$ [c]	SW	Well-graded sand [h]
			$C_u < 6$ and/or $1 > C_c > 3$ [c]	SP	Poorly graded sand [h]
		Sands with Fines More than 12% [i]	Fines classify as ML or MH	SM	Silty sand [f g h]
			Fines classify as CL or CH	SC	Clayey sand [f g h]
Fine-grained Soils 50% or more passed the No. 200 sieve	Silts and Clays Liquid limit less than 50	Inorganic	PI > 7 and plots on or above "A" line [j]	CL	Lean clay [k l m]
			PI < 4 or plots below "A" line [j]	ML	Silt [k l m]
		Organic	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OL	Organic clay [k l m n]
				OL	Organic silt [k l m o]
	Silts and clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	CH	Fat clay [k l m]
			PI plots below "A" line	MH	Elastic silt [k l m]
		Organic	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OH	Organic clay [k l m p]
				OH	Organic silt [k l m q]
Highly Organic Soils	Primarily organic matter, dark in color and organic odor			PT	Peat

a. Based on the material passing the 3-inch (75mm) sieve.
b. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders or both" to group name.
c. $C_u = D_{60}/D_{10}$ $C_c = \frac{(D30)^2}{D_{10} \times D_{60}}$
d. If soil contains ≥15% sand, add "with sand" to group name.
e. Gravels with 5 to 12% fines require dual symbols:
   GW-GM well-graded gravel with silt
   GW-GC well-graded gravel with clay
   GP-GM poorly graded gravel with silt
   GP-GC poorly graded gravel with clay
f. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
g. If fines are organic, add "with organic fines: to group name.
h. If soil contains ≥15% gravel, add "with gravel" to group name.
i. Sand with 5 to 12% fines require dual symbols:
   SW-SM well-graded sand with silt
   SW-SC well-graded sand with clay
   SP-SM poorly graded sand with silt
   SP-SC poorly graded sand with clay
j. If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.
k. If soil contains 10 to 29% plus No. 200, add "with sand" or "with gravel" whichever is predominant.
l. If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.
m. If soil contains ≥ 30% plus No. 200 predominantly grave, add "gravelly" to group name.
n. PI ≥ 4 and plots on or above "A" line.
o. PI < 4 or plots below "A" line.
p. PI plots on or above "A" lines.
q. PI plots below "A" line.



Laboratory Tests

DD	Dry density, pcf	**OC**	Organic content, %
WD	Wet density, pcg	**S**	Percent of saturation, %
MC	Natural moisture content, %	**SG**	Specific gravity
LL	Liquid limit, %	**C**	Cohesion, psf
PL	Plastic limits, %	**Ø**	Angle of internal friction
PI	Plasticity index, %	**qu**	Unconfined compressive strength, psf
P200	% passing 200 sieve	**qp**	Pocket penetrometer strength, tsf

Particle Size Identification

Boulders..... over 12"
Cobbles ..... 3" to 12"
Gravel
  Coarse ..... 3/4" to 3"
  Fine..... No. 4 to 3/4"
Sand
  Coarse ..... No. 4 to No. 10
  Medium..... No. 10 to No. 40
  Fine..... No. 40 to No. 200
Silt ..... <No. 200, PI< 4 or below "A" line
Clay ..... <No. 200, PI ≥ 4 and on or about "A" line

Relative Density of Cohesionless Soils

Very Loose..... 0 to 4 BPF
Loose..... 5 to 10 BPF
Medium dense ..... 11 to 30 PPF
Dense ..... 31 to 50 BPF
Very dense..... over 50 BPF

Consistency of Cohesive Soils

Very soft..... 0 to 1 BPF
Soft ..... 2 to 3 BPF
Rather soft ..... 4 to 5 BPF
Medium..... 6 to 8 BPF
Rather stiff ..... 9 to 12 BPF
Stiff ..... 13 to 16 BPF
Very stiff..... 17 to 30 BPF
Hard..... over 30 BPF

Drilling Notes

Standard penetration test borings were advanced by 3 1/4" or 6 1/4" ID hollow-stem augers, unless noted otherwise. Jetting water was used to clean out auger prior to sampling only where indicated on logs. All samples were taken with the standard 2" OD split-tube samples, except where noted.

Power auger borings were advanced by 4" or 6" diameter continuous flight, solid-stern augers. Soil classifications and strata depths were inferred from disturbed samples augered to the surface, and are therefore, somewhat approximate.

Hand auger borings were advanced manually with a 1 1/2" or 3 1/4" diameter auger and were limited to the depth from which the auger could be manually withdrawn.

BPF: Numbers indicate blows per foot recorded in standard penetration test, also known as "N" value. The sampler was set 6" into undisturbed soil below the hollow-stem auger. Driving resistances were then counted for second and third 6" increments, and added to get BPF. Where they differed significantly, they are reported in the following form: 2/12 for the second and third 6" increments, respectively.

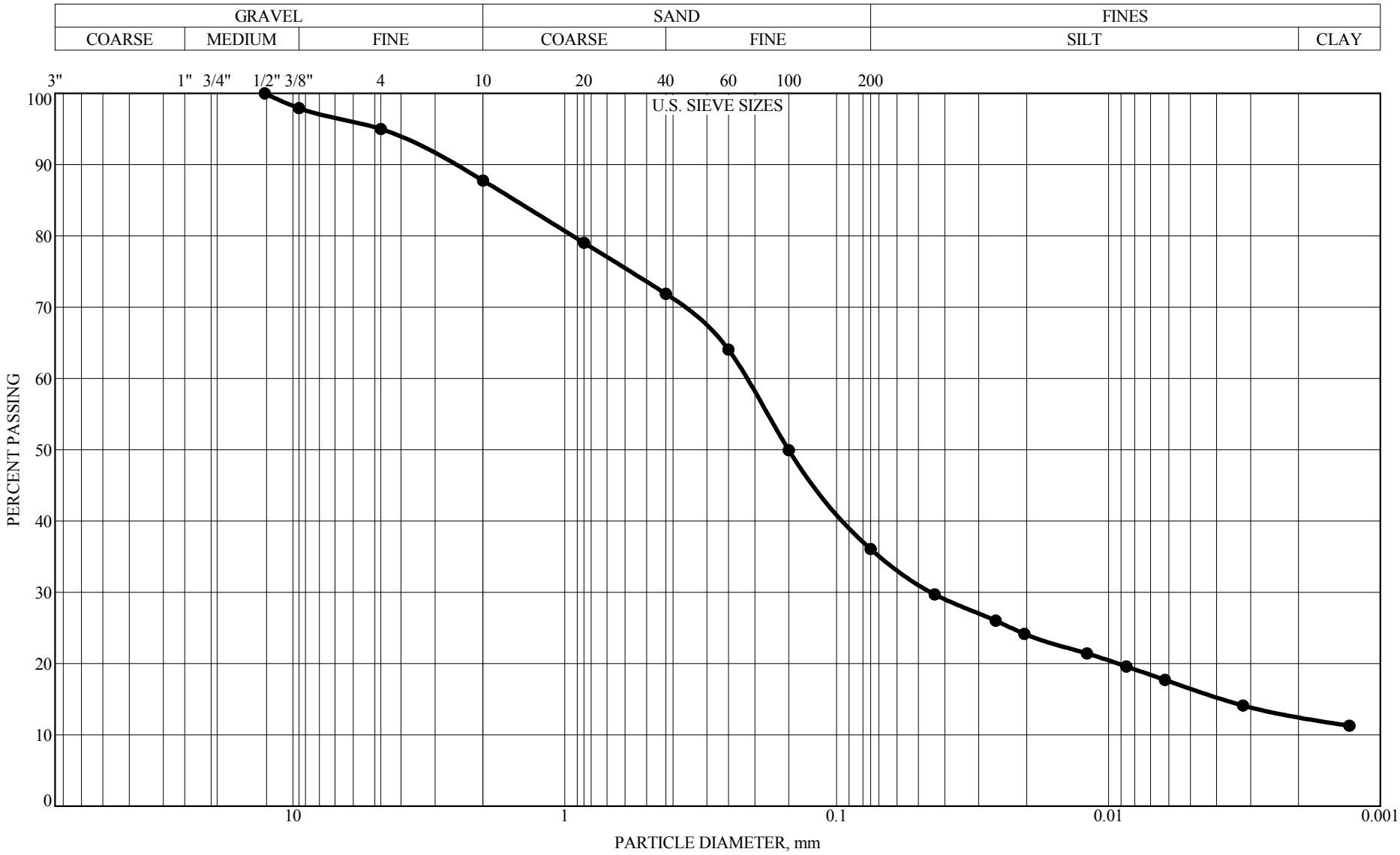
WH: WH indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

WR: WR indicates the sampler penetrated soil under weight of rods alone; hammer weight, and driving not required.

TW: TW indicates thin-walled (undisturbed) tube sample.

Note: All tests were run in general accordance with applicable ASTM standards.

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-04 DEPTH: 1.4'-5.0'

GRAVEL	12.2%
SAND	51.7%
SILT	23.4%
CLAY	12.6%

CLASSIFICATION:
A-6 (1), Brown
CLAYEY SAND(SC)

LL=30, PL=14, PI=16; P200=36%

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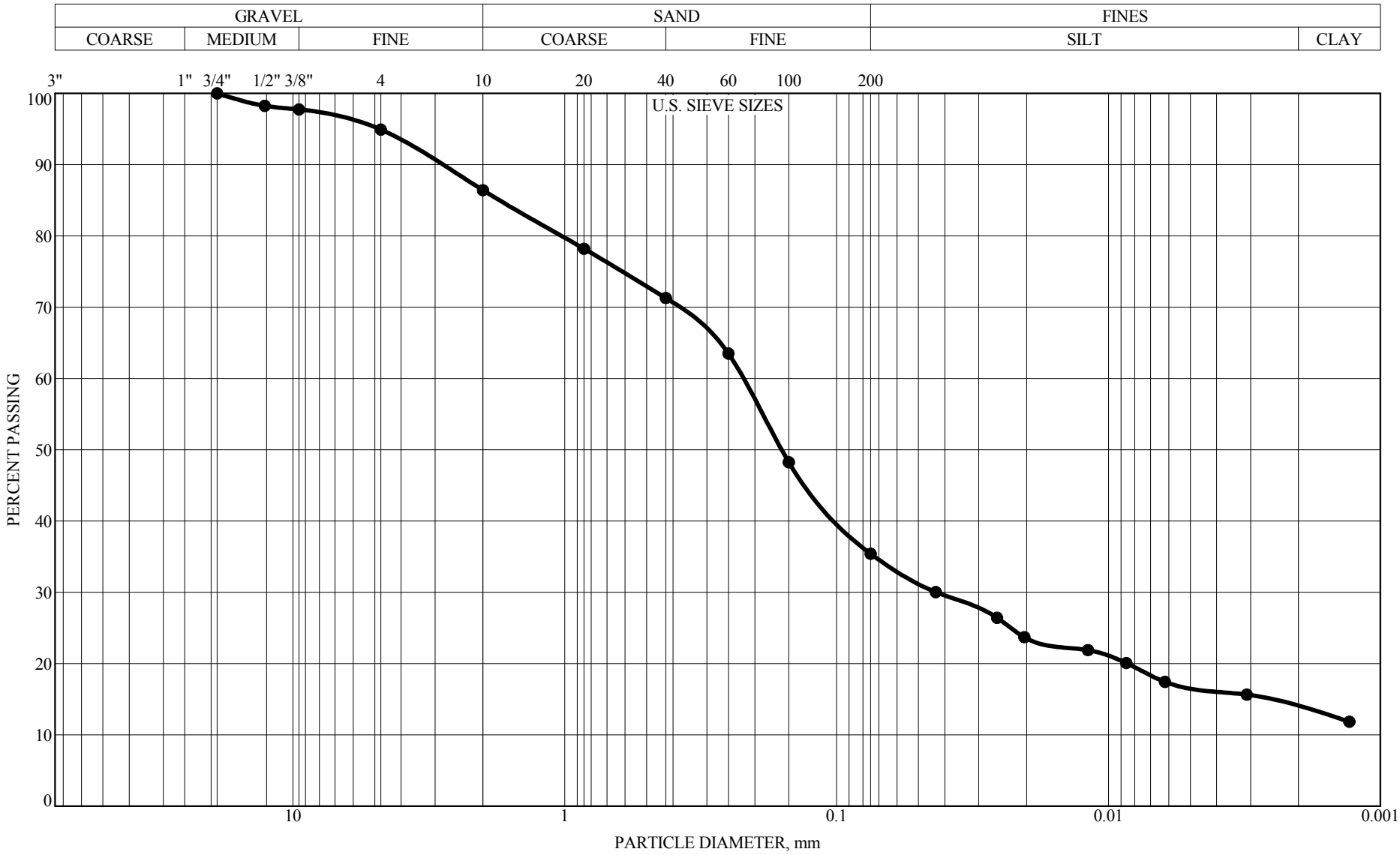
GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-06 DEPTH: 1.4'-5.0'

GRAVEL	13.6%
SAND	51.0%
SILT	21.7%
CLAY	13.7%

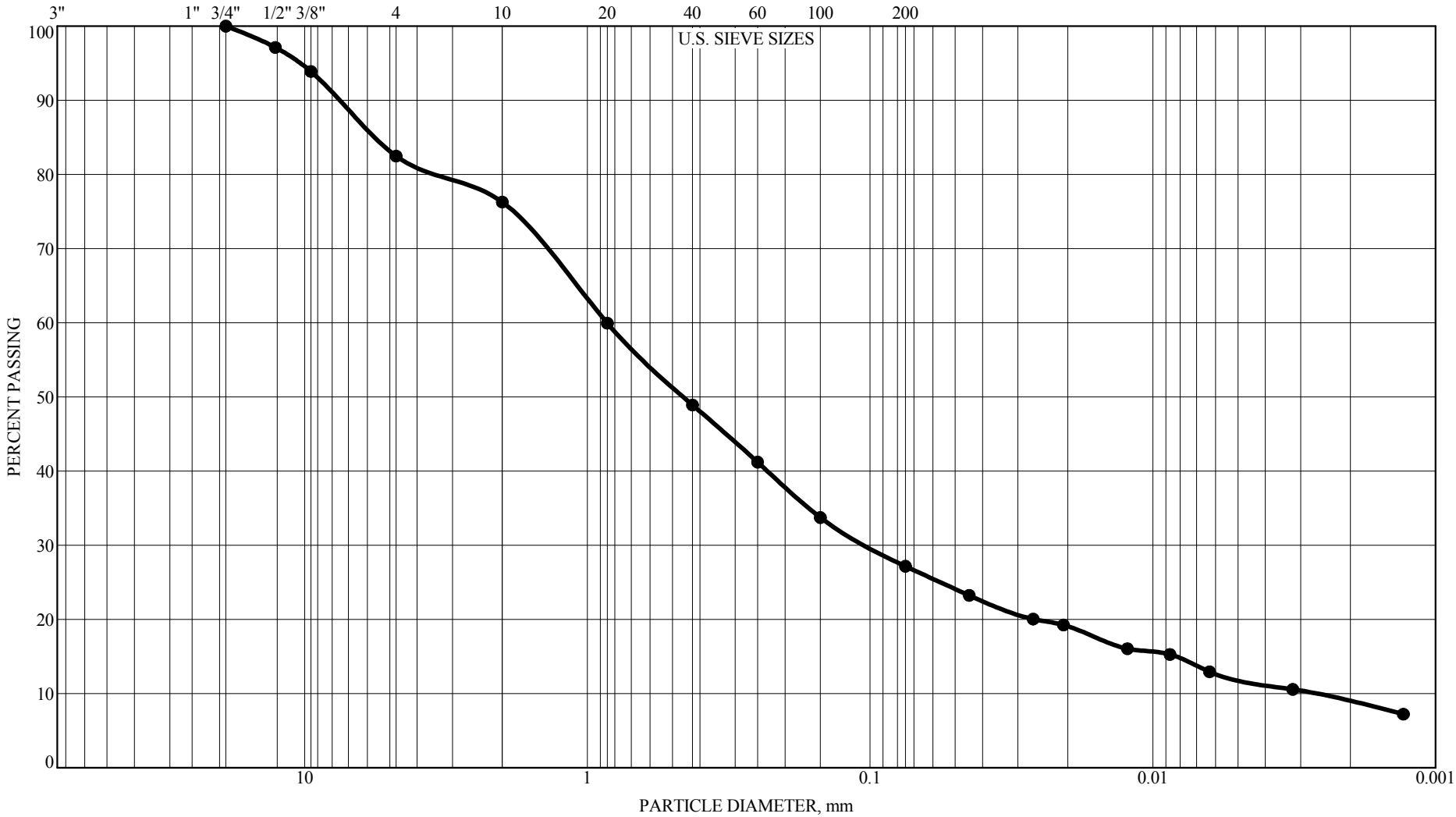
CLASSIFICATION:
A-2-6 (1), Brown
CLAYEY SAND(SC)

LL=29, PL=15, PI=14; P200=35%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:41

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-08 DEPTH: 3.0'-5.0'

GRAVEL	23.7%
SAND	49.1%
SILT	18.3%
CLAY	8.8%

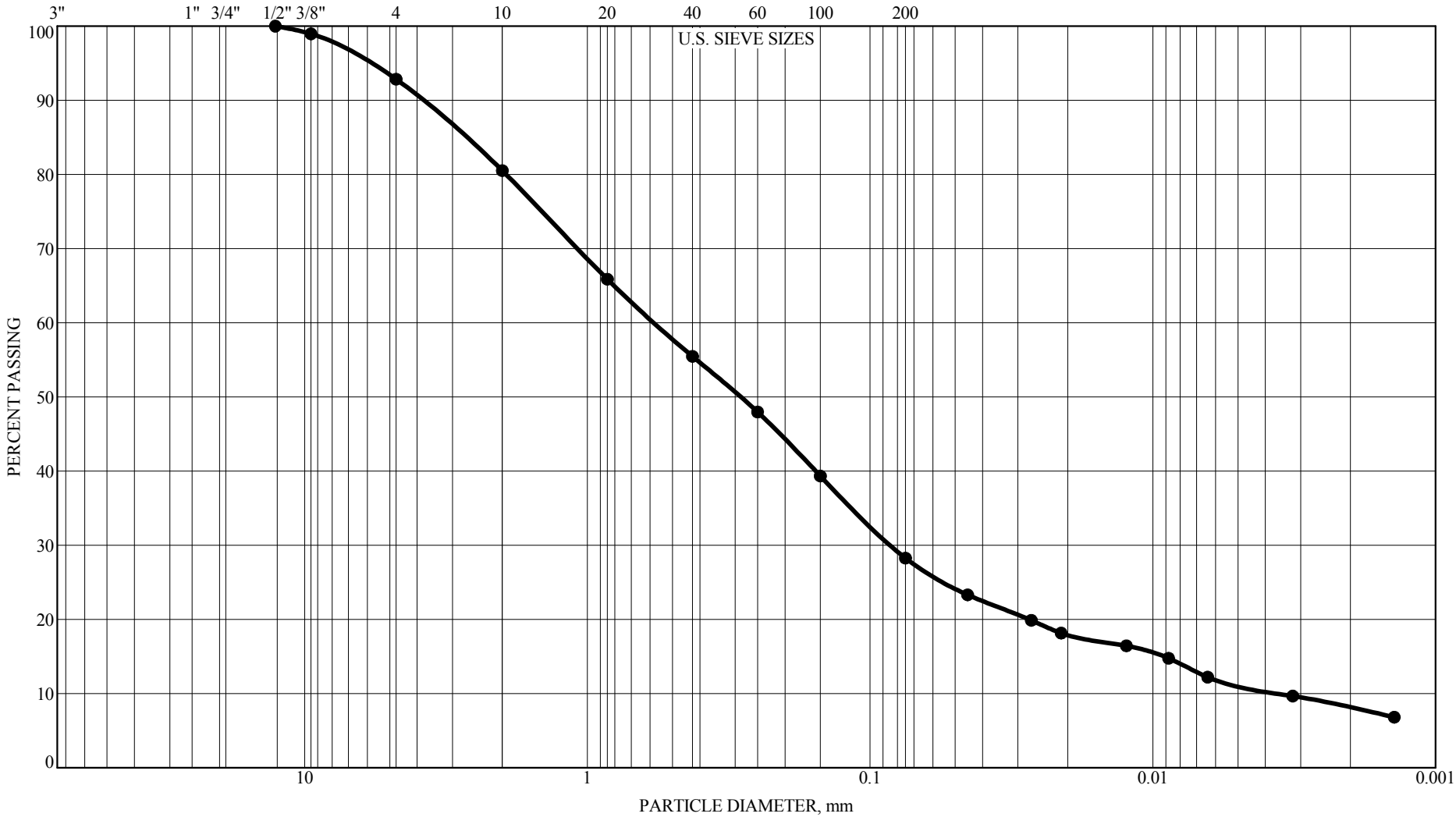
CLASSIFICATION:
A-2-6 (0), Brown
CLAYEY SAND with GRAVEL(SC)

LL=26, PL=15, PI=11; P200=27%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:41

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-10 DEPTH: 1.6'-5.0'

GRAVEL	19.5%
SAND	52.2%
SILT	20.2%
CLAY	8.0%

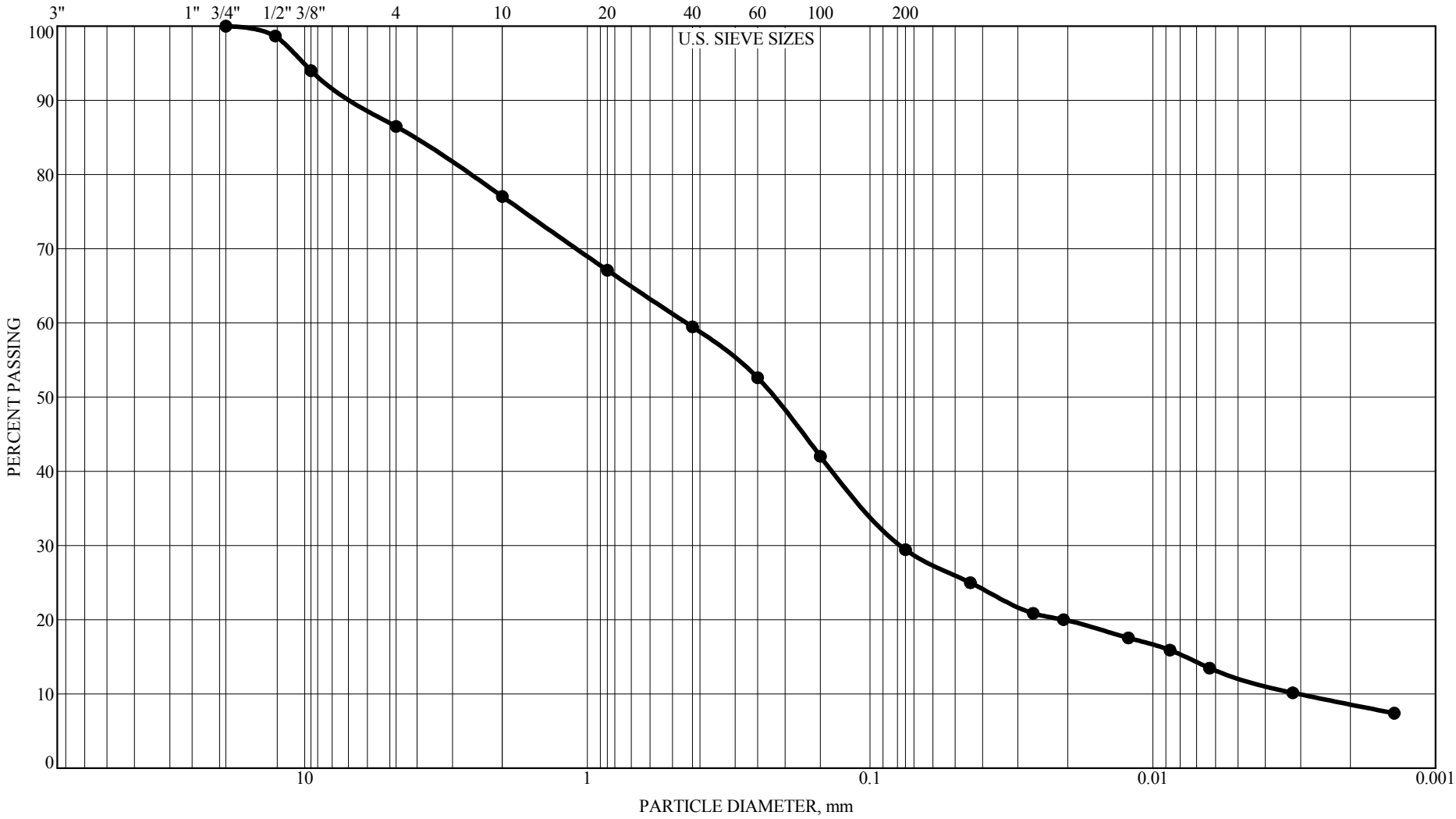
CLASSIFICATION:
A-2-6 (0), Brown
CLAYEY SAND(SC)

LL=29, PL=16, PI=13; P200=28%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:41

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-12 DEPTH: 1.5'-5.0'

GRAVEL	23.0%
SAND	47.6%
SILT	20.8%
CLAY	8.6%

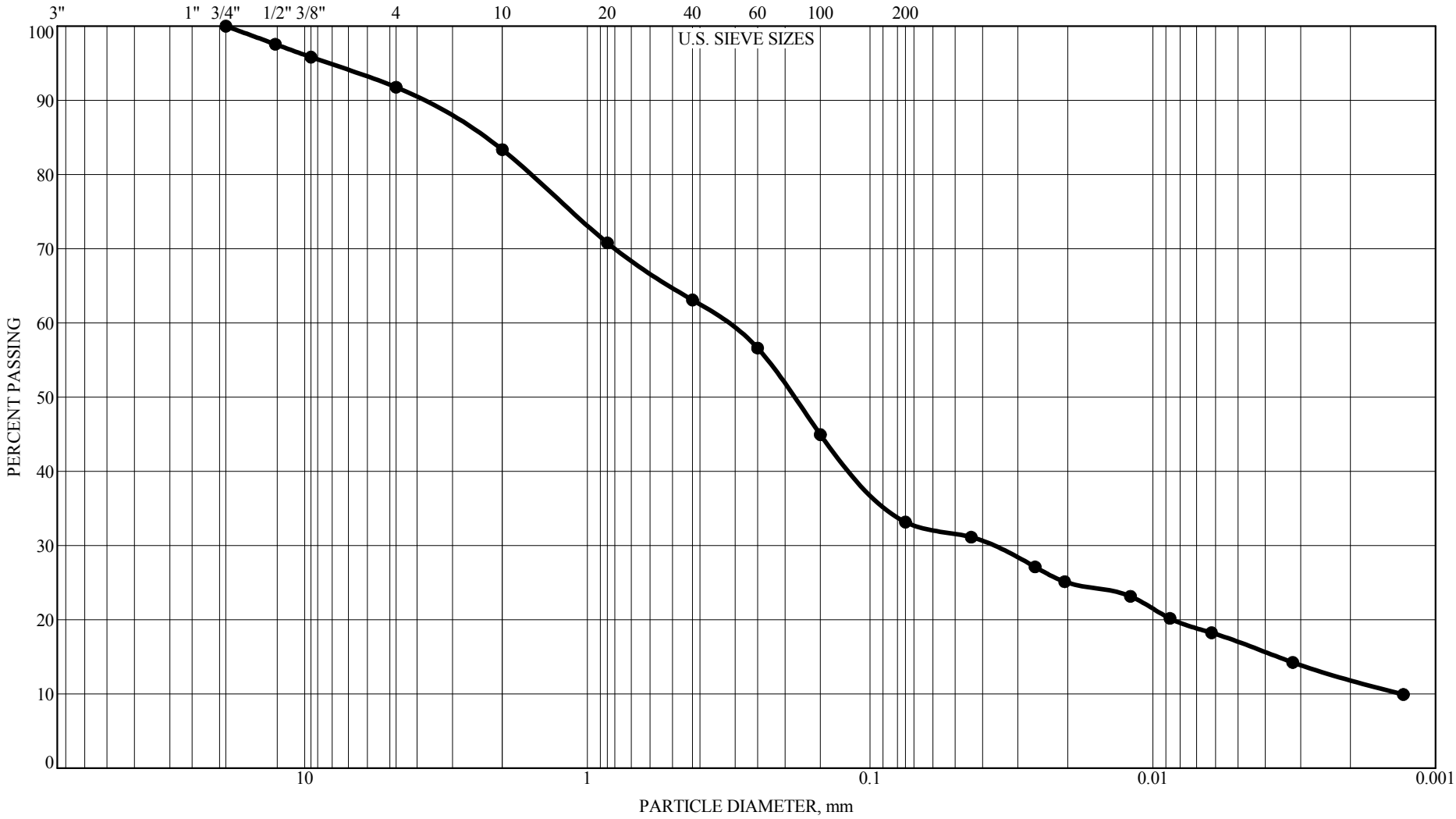
CLASSIFICATION:
A-2-4 (0), Brown
CLAYEY SAND(SC)

LL=27, PL=17, PI=10; P200=29%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:41

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-14 DEPTH: 1.6'-4.0'

GRAVEL	16.6%
SAND	50.2%
SILT	21.2%
CLAY	12.0%

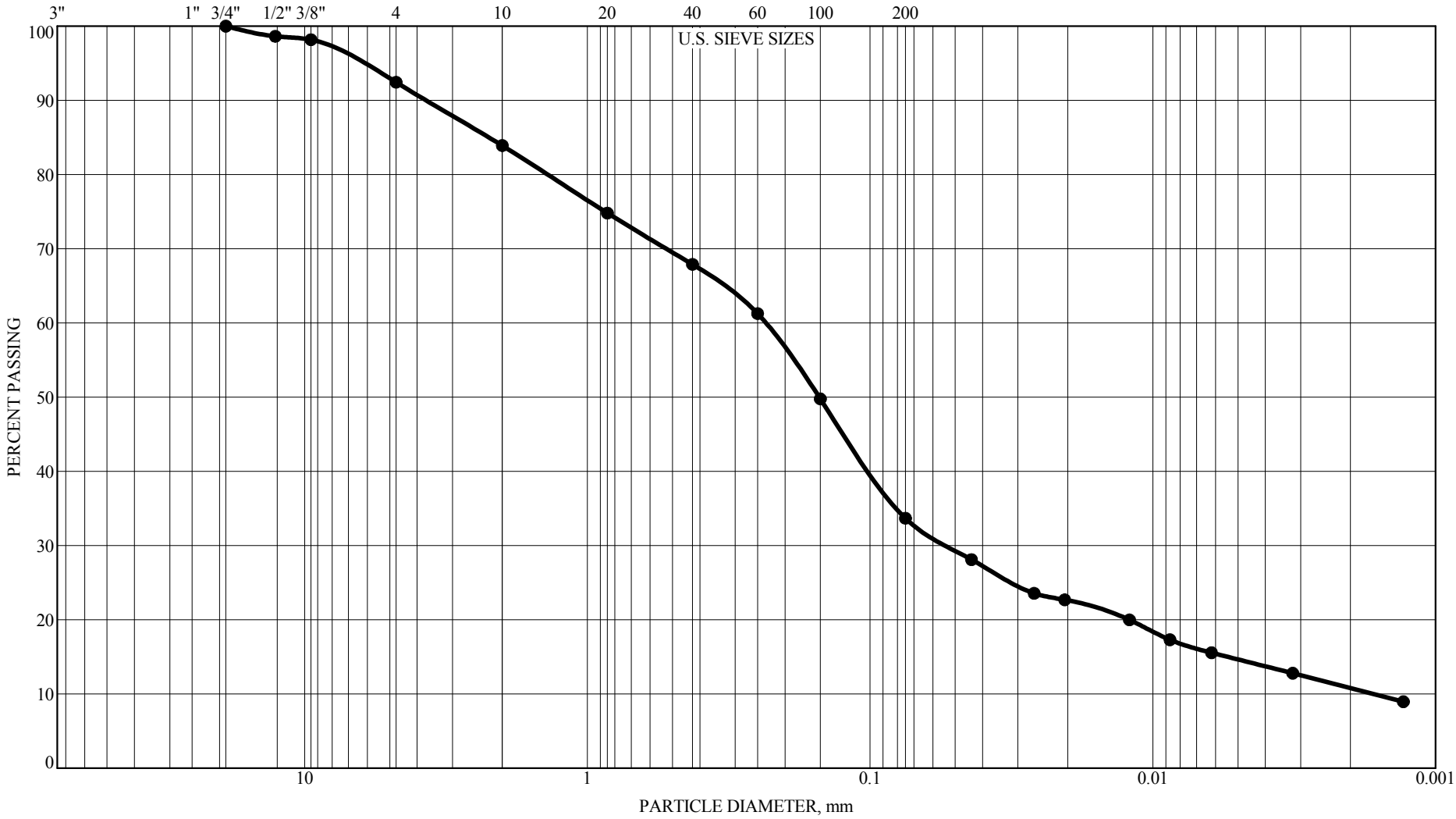
CLASSIFICATION:
A-2-6 (0), Brown
CLAYEY SAND(SC)

LL=26, PL=14, PI=12; P200=33%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:41

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-16 DEPTH: 1.5'-5.0'

GRAVEL	16.1%
SAND	50.2%
SILT	22.9%
CLAY	10.8%

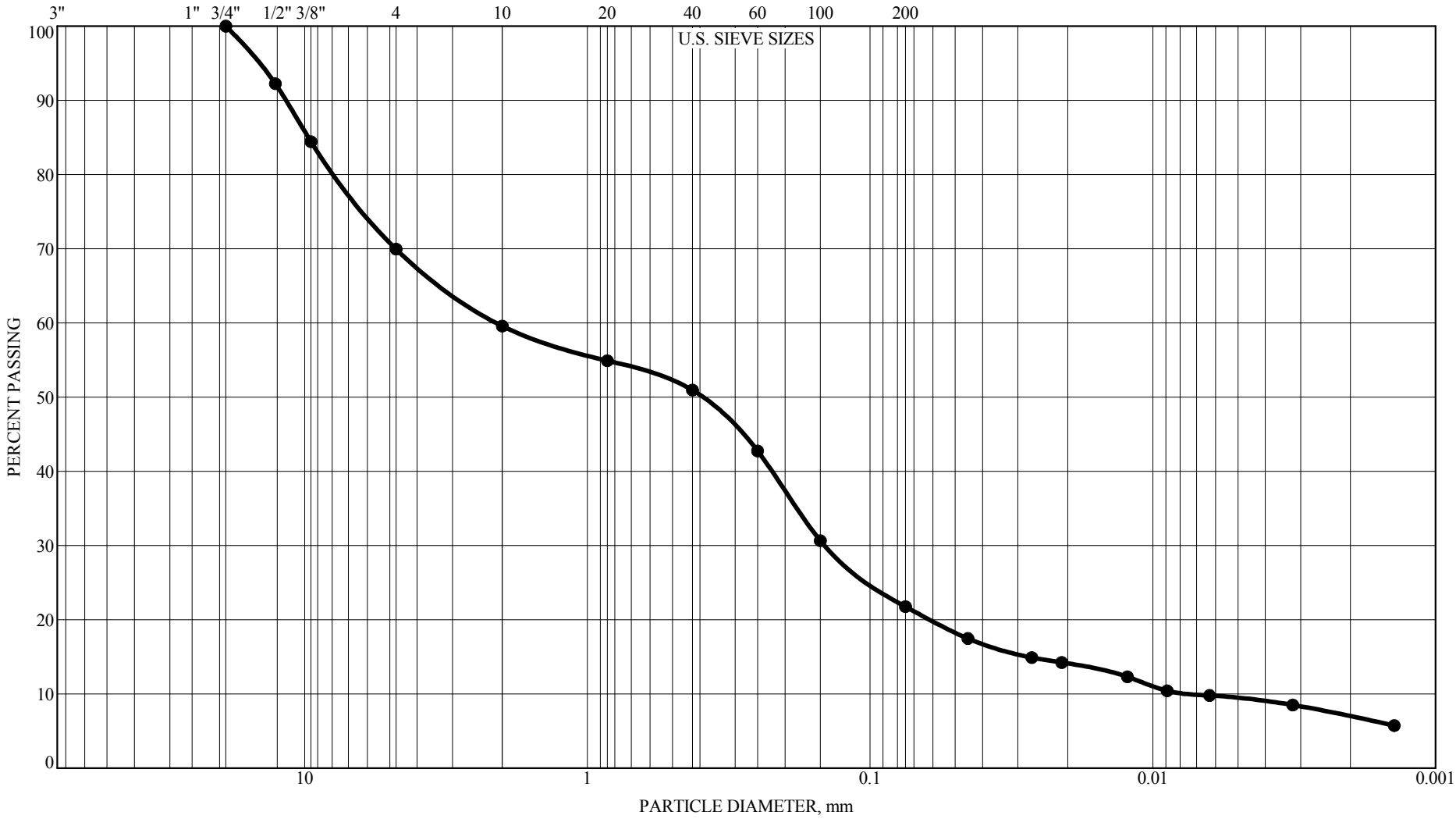
CLASSIFICATION:
A-2-6 (0), Brown and Gray CLAYEY SAND(SC)

LL=28, PL=16, PI=12; P200=34%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-18 DEPTH: 1.8'-5.0'

GRAVEL	40.4%
SAND	37.8%
SILT	14.8%
CLAY	6.9%

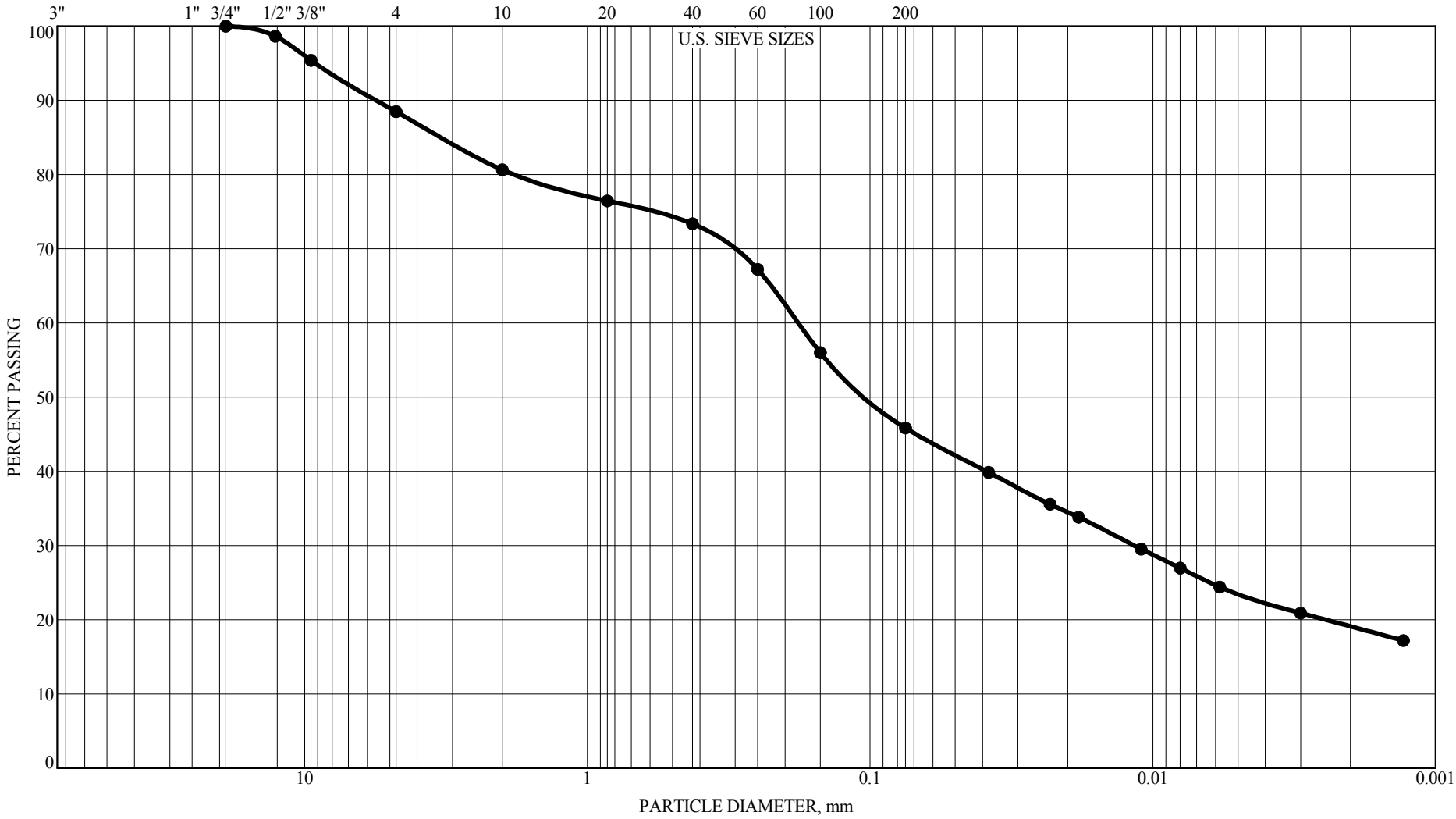
CLASSIFICATION:
A-2-4 (0), Brown
SILTY, CLAYEY SAND with GRAVEL(SC-SM)

LL=21, PL=15, PI=6; P200=22%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-20 DEPTH: 2.5'-5.0'

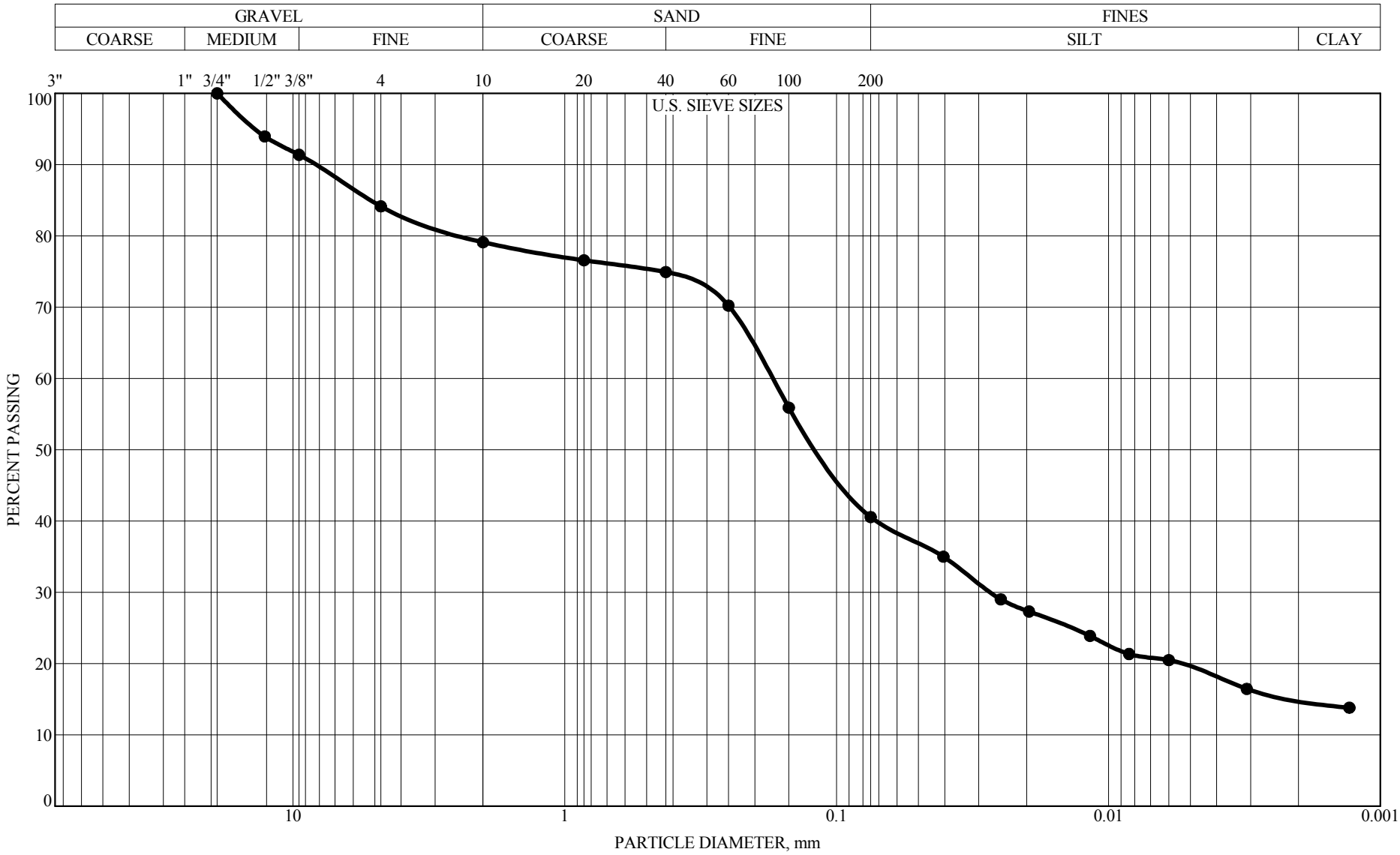
GRAVEL	19.4%
SAND	34.8%
SILT	26.7%
CLAY	19.1%

CLASSIFICATION:
A-6 (4), Brown and Gray
CLAYEY SAND(SC)

LL=31, PL=13, PI=18; P200=46%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-22 DEPTH: 2.0'-5.0'

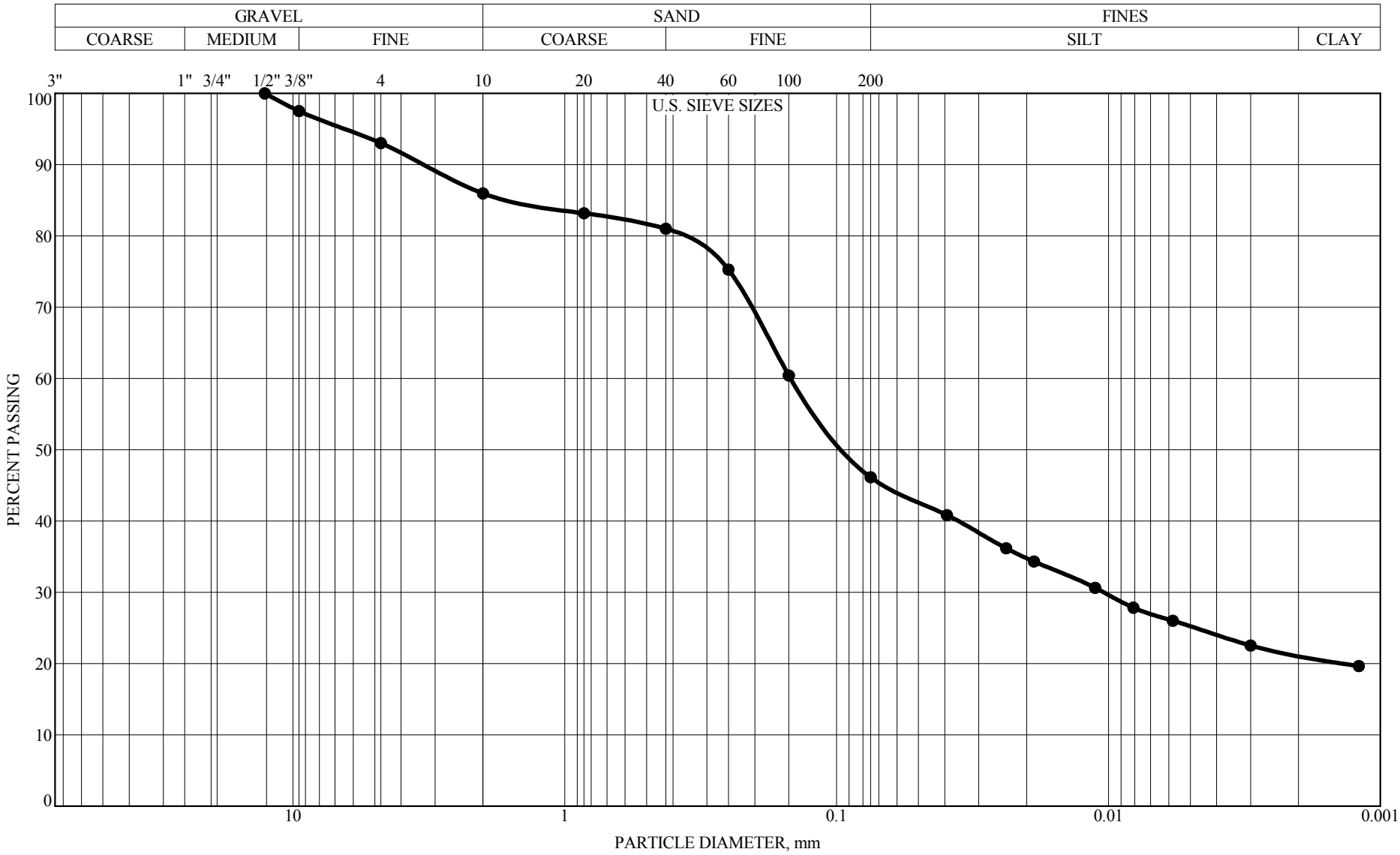
GRAVEL	20.9%
SAND	38.5%
SILT	25.4%
CLAY	15.1%

CLASSIFICATION:
A-6 (1), Brown
CLAYEY SAND with GRAVEL(SC)

LL=26, PL=14, PI=12; P200=41%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-24 DEPTH: 2.5'-5.0'

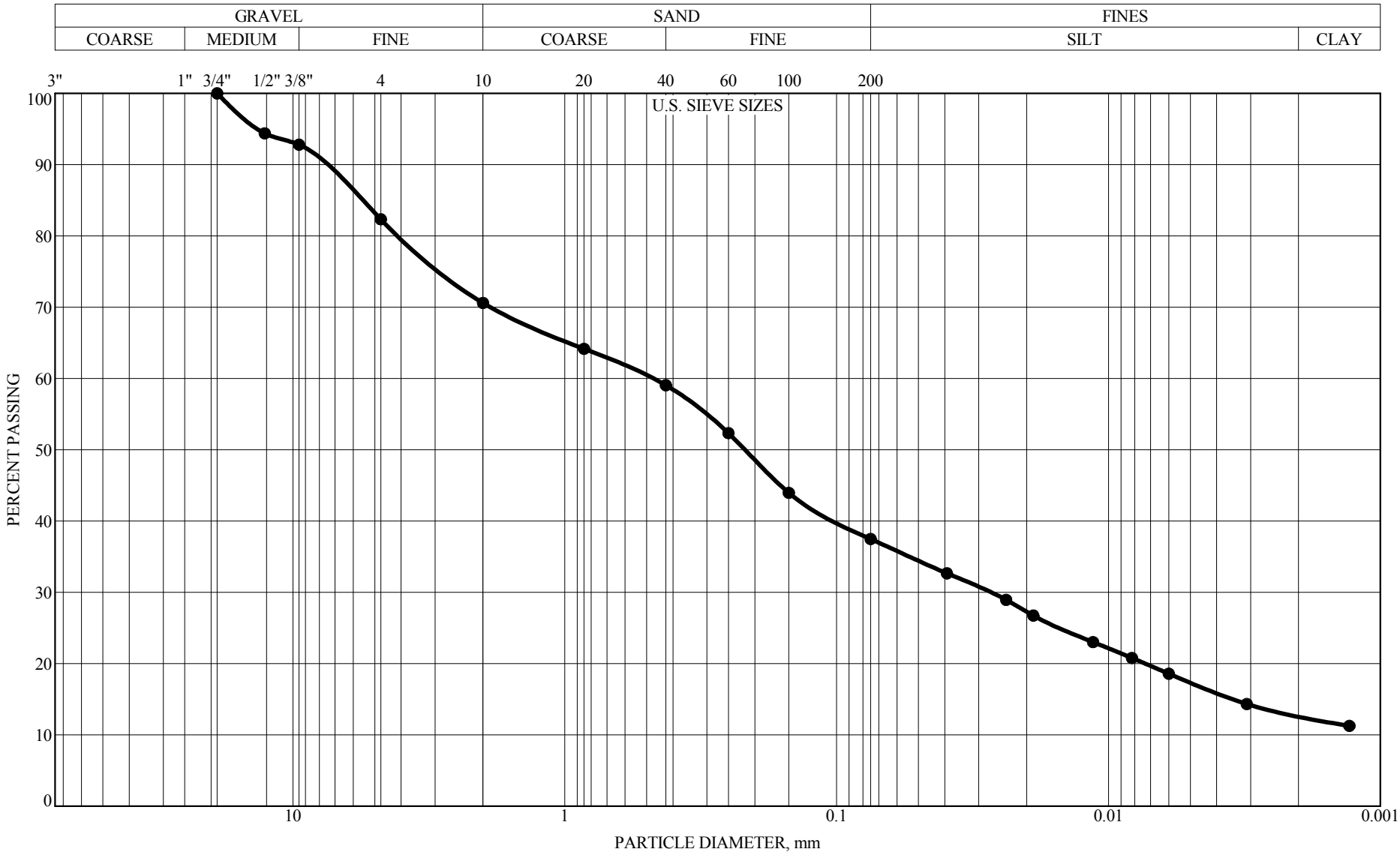
GRAVEL	14.0%
SAND	39.8%
SILT	24.9%
CLAY	21.3%

CLASSIFICATION:
A-6 (3), Gray
CLAYEY SAND(SC)

LL=29, PL=14, PI=15; P200=46%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-26 DEPTH: 1.5'-5.0'

GRAVEL	29.4%
SAND	33.1%
SILT	24.7%
CLAY	12.8%

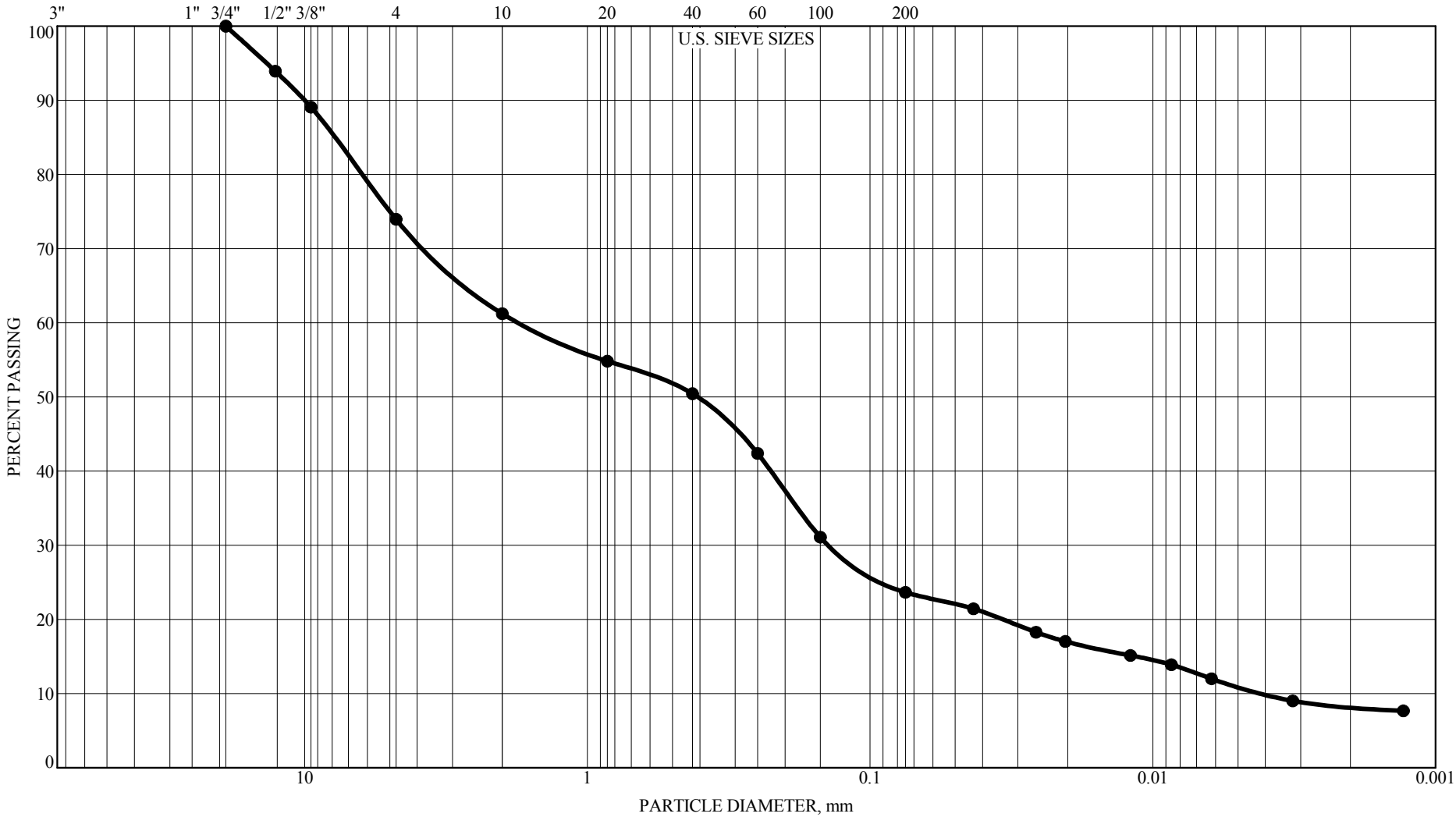
CLASSIFICATION:
A-6 (0), Brown
CLAYEY SAND with GRAVEL(SC)

LL=24, PL=13, PI=11; P200=37%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-28 DEPTH: 2.0'-4.0'

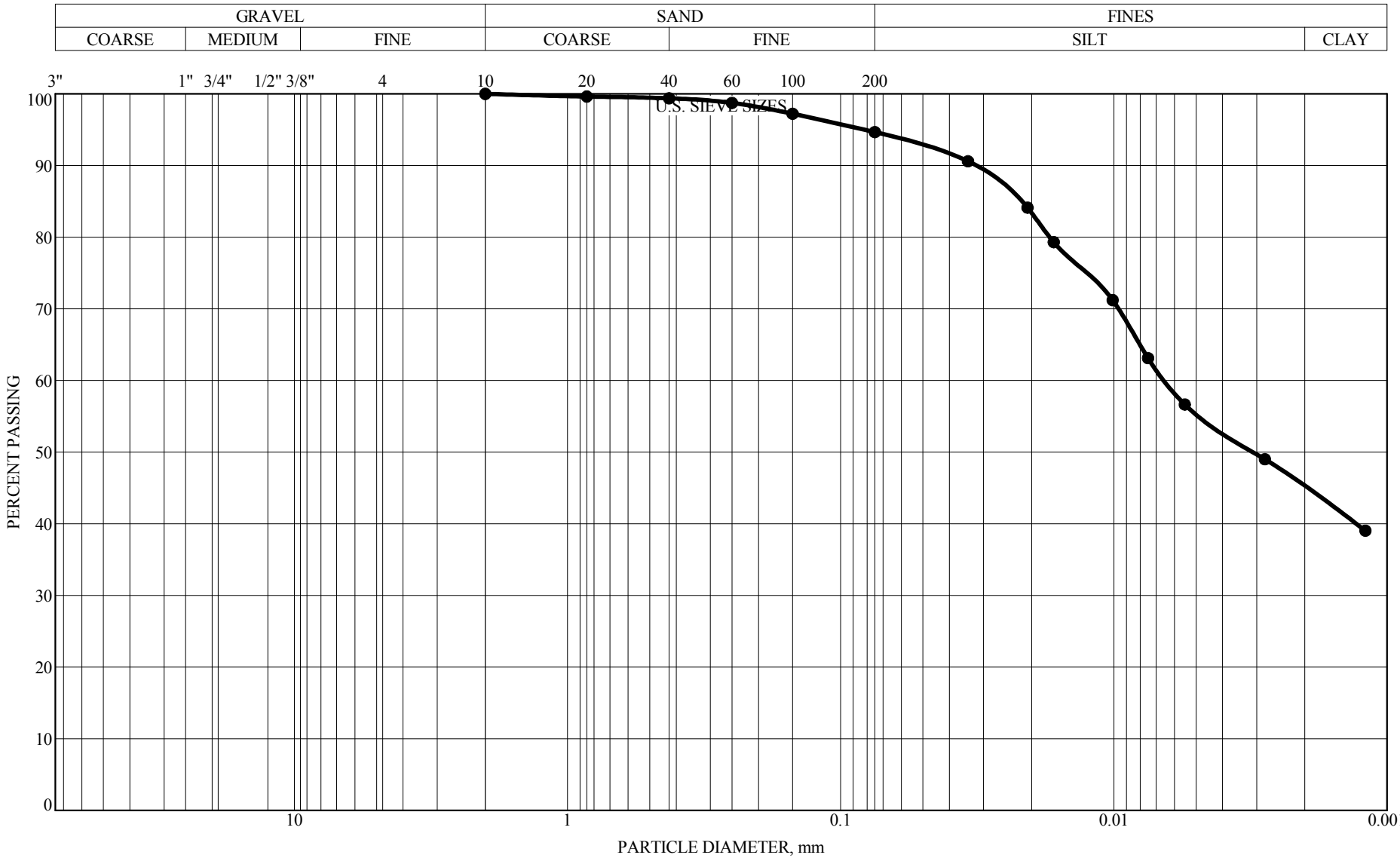
GRAVEL	38.8%
SAND	37.6%
SILT	15.3%
CLAY	8.3%

CLASSIFICATION:
A-2-4 (0), Brown
CLAYEY SAND with GRAVEL(SC)

LL=21, PL=13, PI=8; P200=24%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-30 DEPTH: 1.6'-7.0'

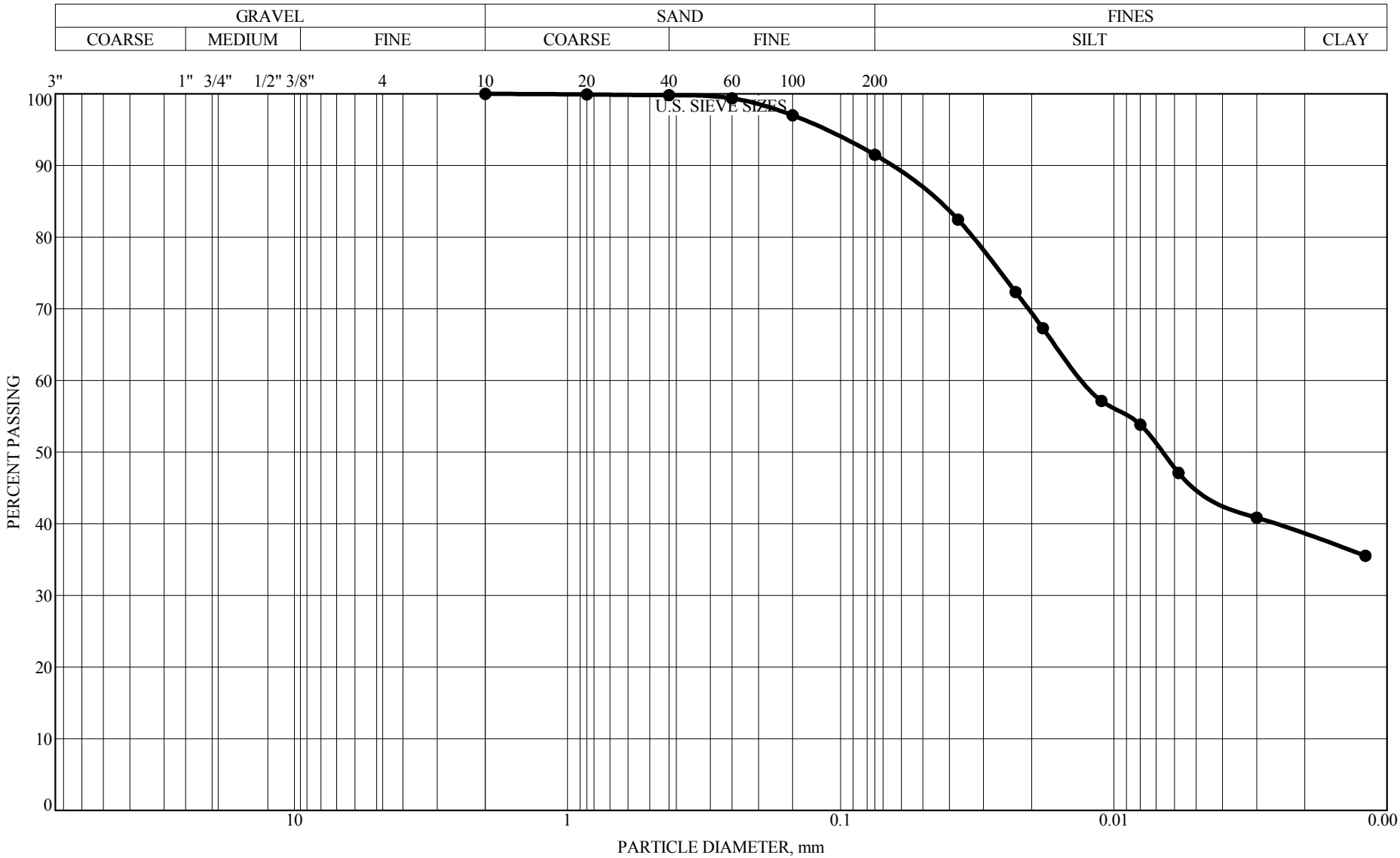
GRAVEL	0.0%
SAND	5.3%
SILT	49.6%
CLAY	45.0%

CLASSIFICATION:
A-7-6 (49), Gray
FAT CLAY(CH)

LL=64, PL=17, PI=47; P200=95%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-32 DEPTH: 1.7'-7.0'

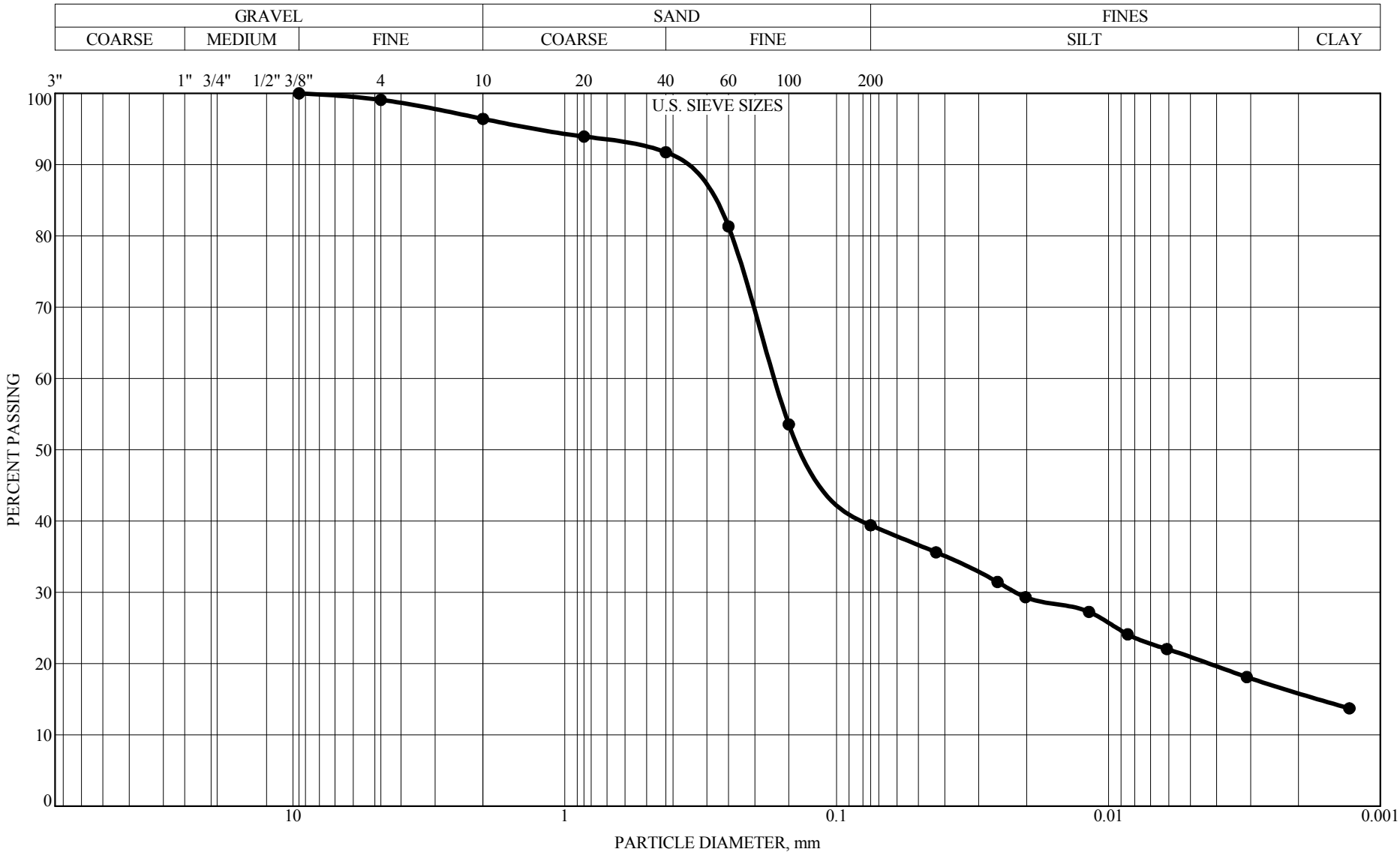
GRAVEL	0.0%
SAND	8.5%
SILT	53.0%
CLAY	38.5%

CLASSIFICATION:
A-7-6 (29), Brown and Gray
LEAN CLAY(CL)

LL=46, PL=16, PI=30; P200=92%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-34 DEPTH: 1.1'-7.0'

GRAVEL	3.6%
SAND	57.0%
SILT	23.5%
CLAY	15.9%

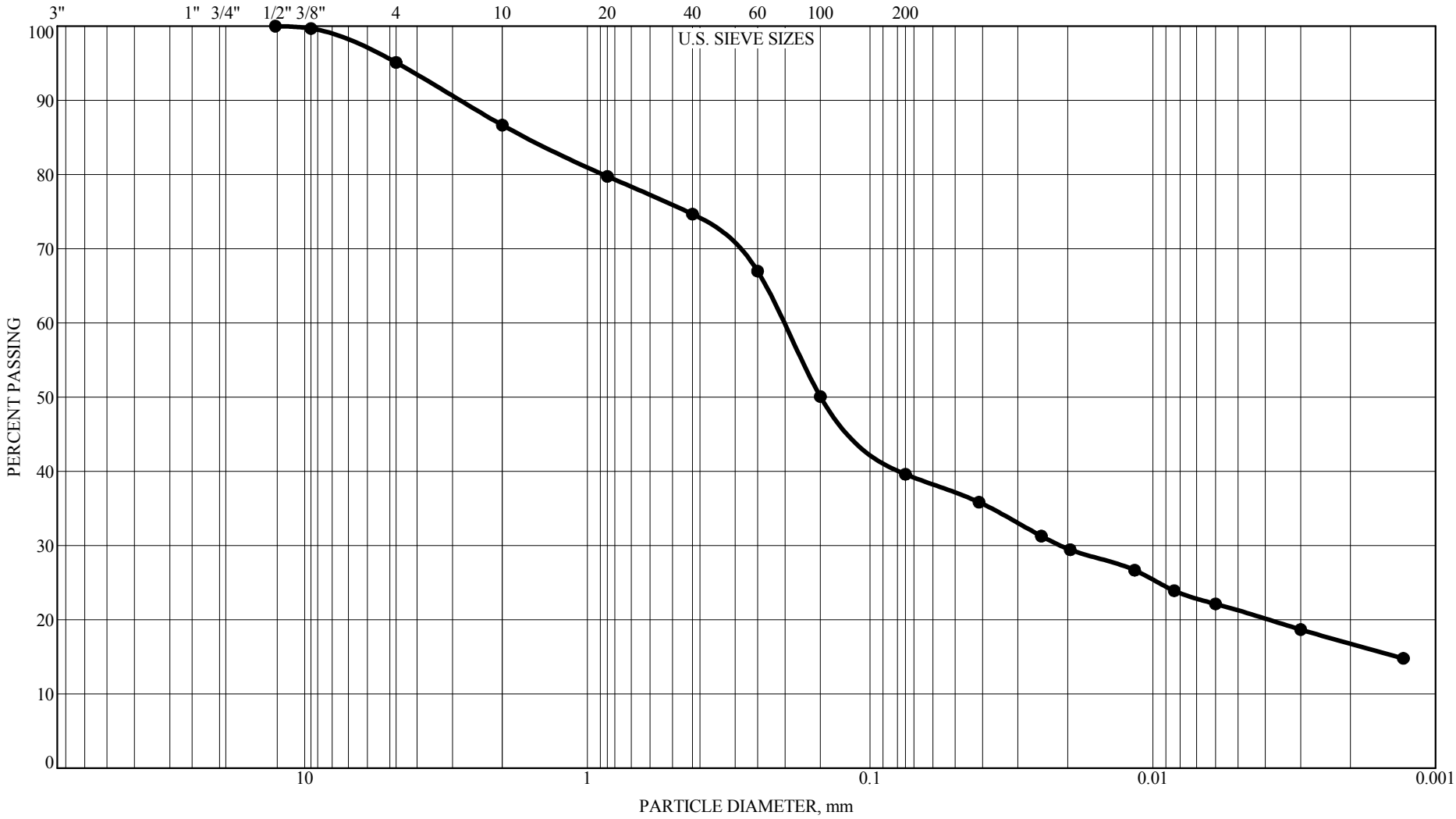
CLASSIFICATION:
A-6 (1), Brown
CLAYEY SAND(SC)

LL=27, PL=16, PI=11; P200=39%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-36 DEPTH: 1.5'-5.0'

GRAVEL	13.3%
SAND	47.1%
SILT	22.8%
CLAY	16.8%

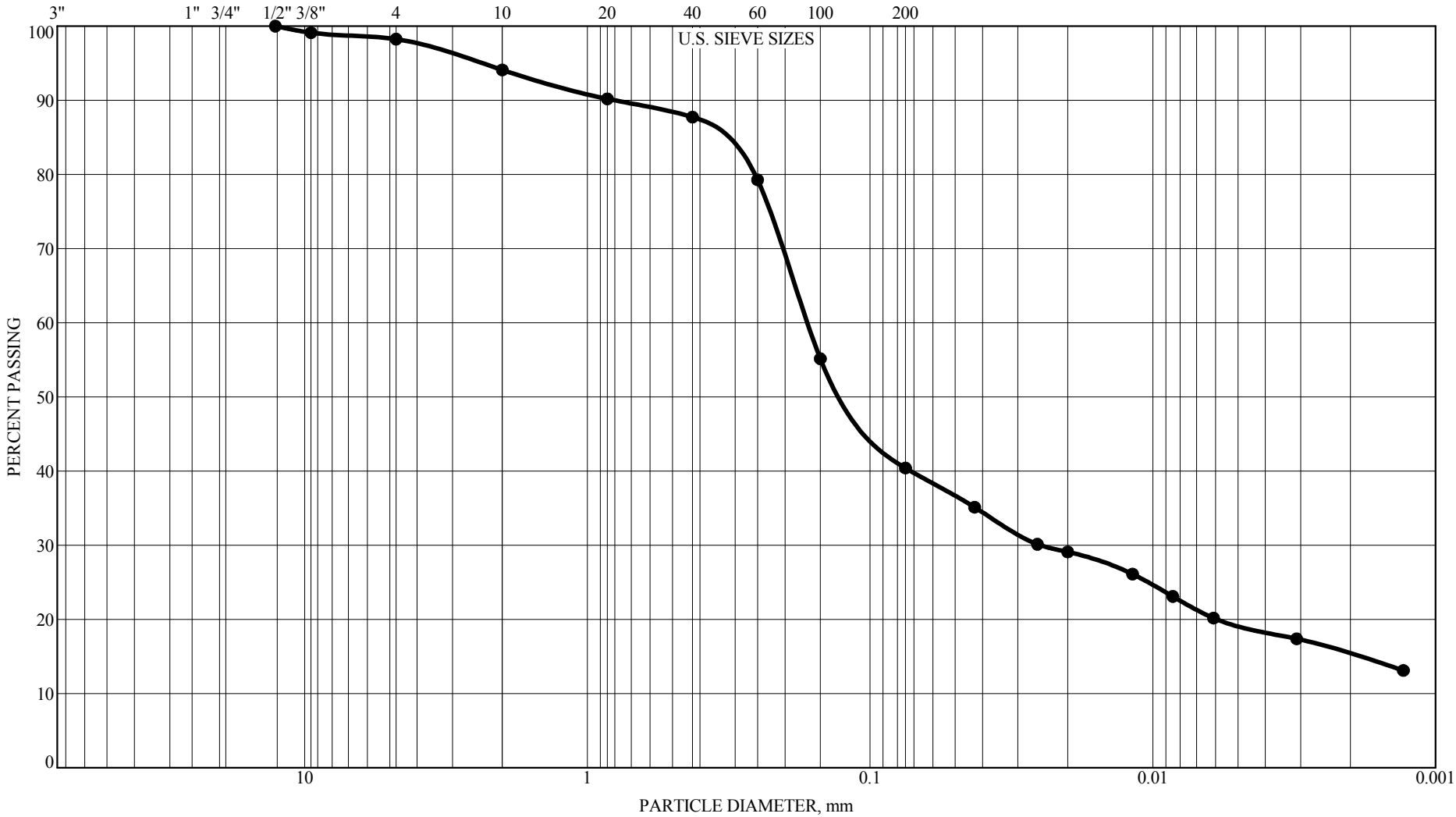
CLASSIFICATION:
A-6 (3), Brown
CLAYEY SAND(SC)

LL=33, PL=15, PI=18; P200=40%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-38 DEPTH: 2.3'-7.0'

GRAVEL	5.9%
SAND	53.7%
SILT	25.2%
CLAY	15.2%

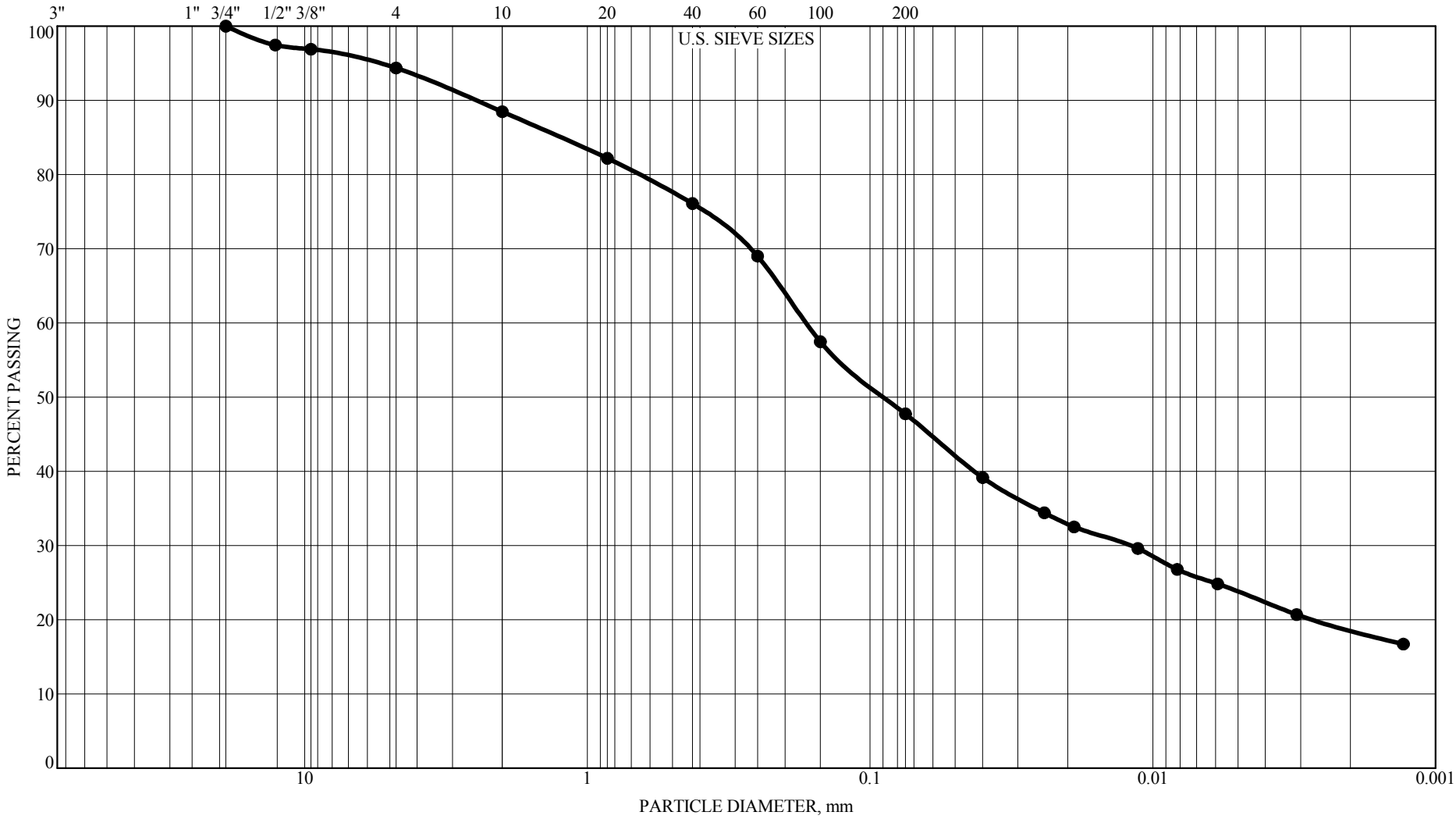
CLASSIFICATION:
A-6 (1), Brown
CLAYEY SAND(SC)

LL=28, PL=16, PI=12; P200=40%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-40 DEPTH: 1.7'-7.0'

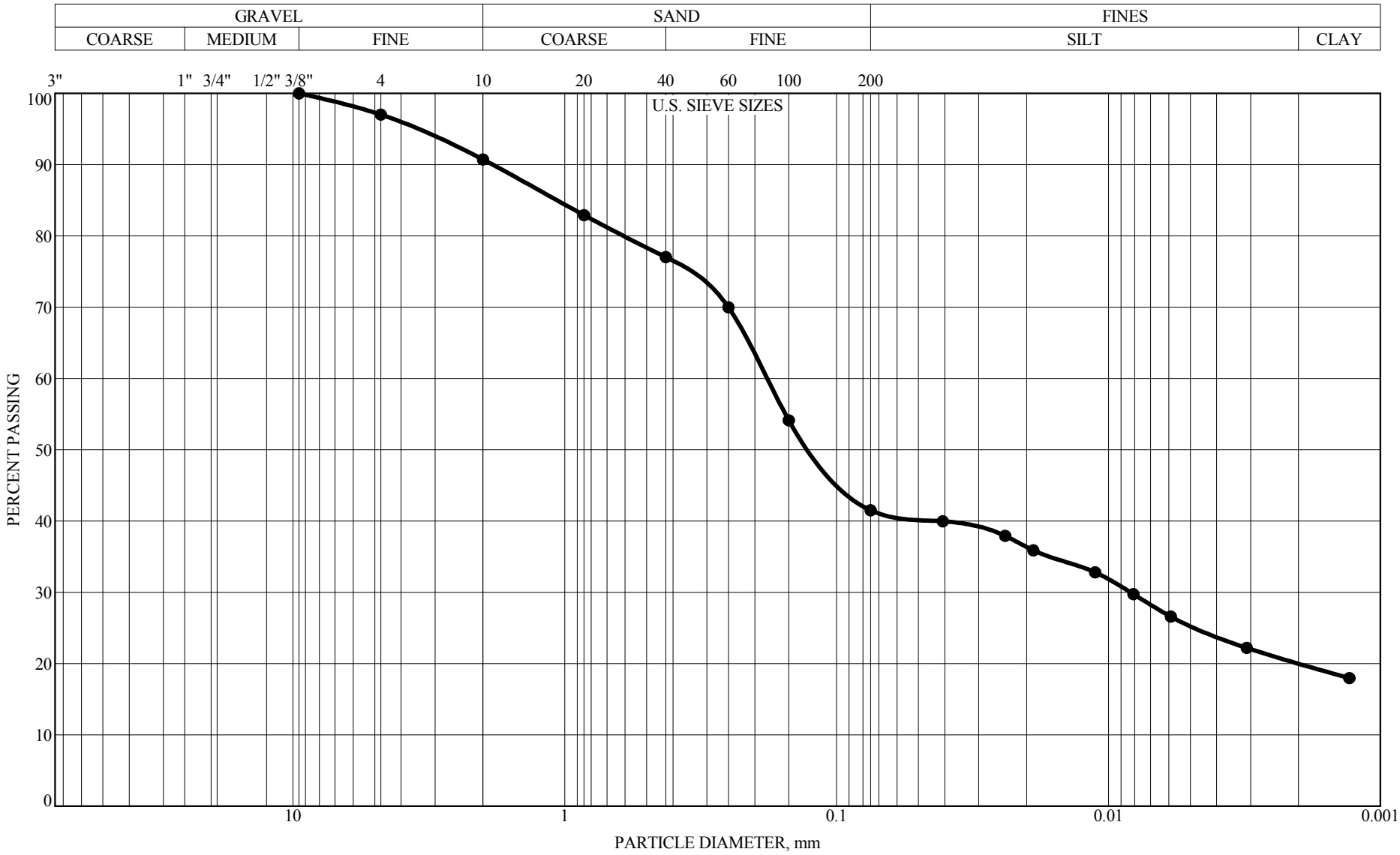
GRAVEL	11.5%
SAND	40.7%
SILT	29.1%
CLAY	18.7%

CLASSIFICATION:
A-6 (4), Brown
CLAYEY SAND(SC)

LL=29, PL=13, PI=16; P200=48%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-42 DEPTH: 2.0'-7.0'

GRAVEL	9.3%
SAND	49.2%
SILT	21.4%
CLAY	20.1%

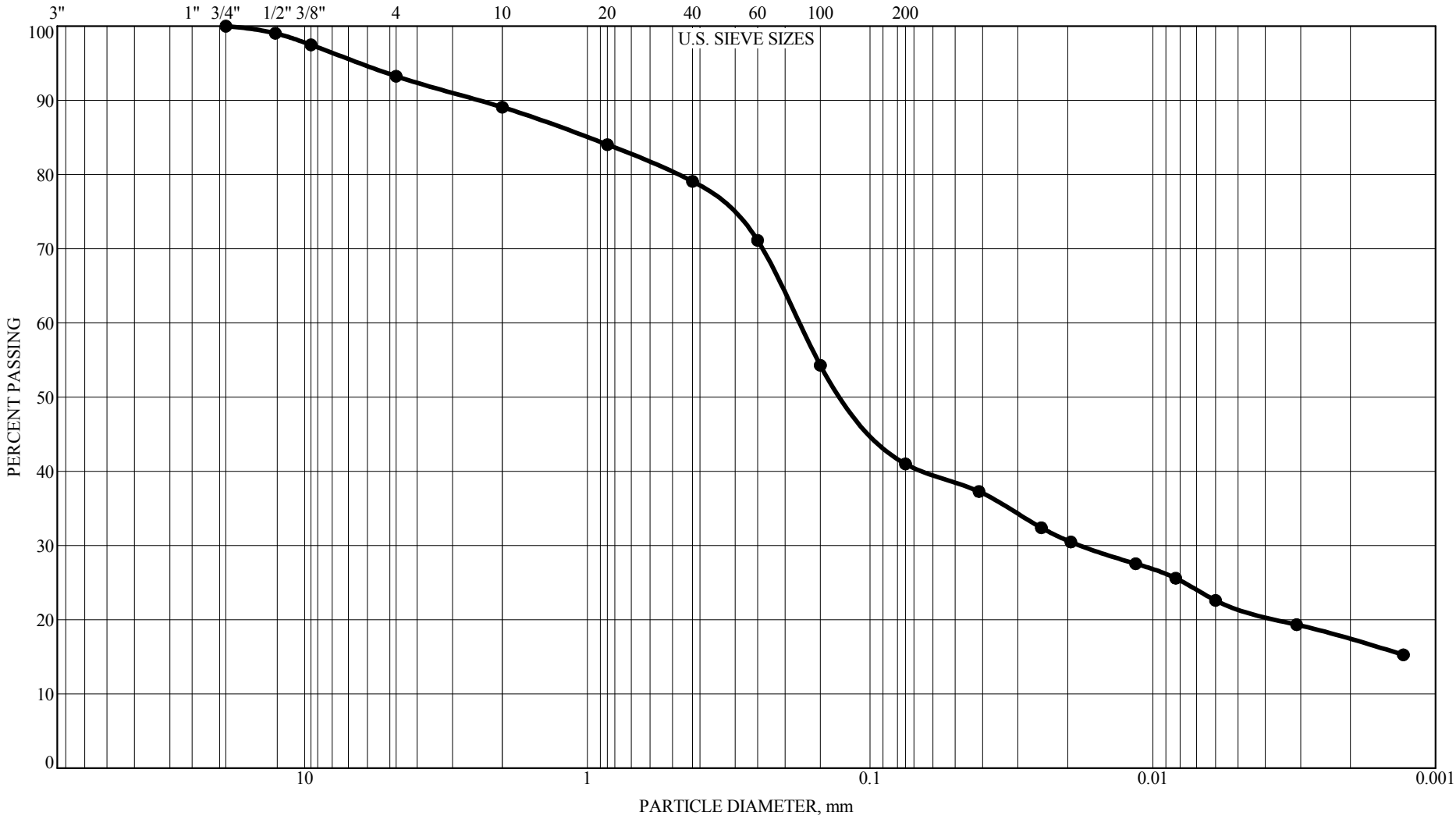
CLASSIFICATION:
A-6 (4), Brown
CLAYEY SAND(SC)

LL=32, PL=13, PI=19; P200=42%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-44 DEPTH: 1.3'-5.0'

GRAVEL	10.9%
SAND	48.1%
SILT	23.7%
CLAY	17.3%

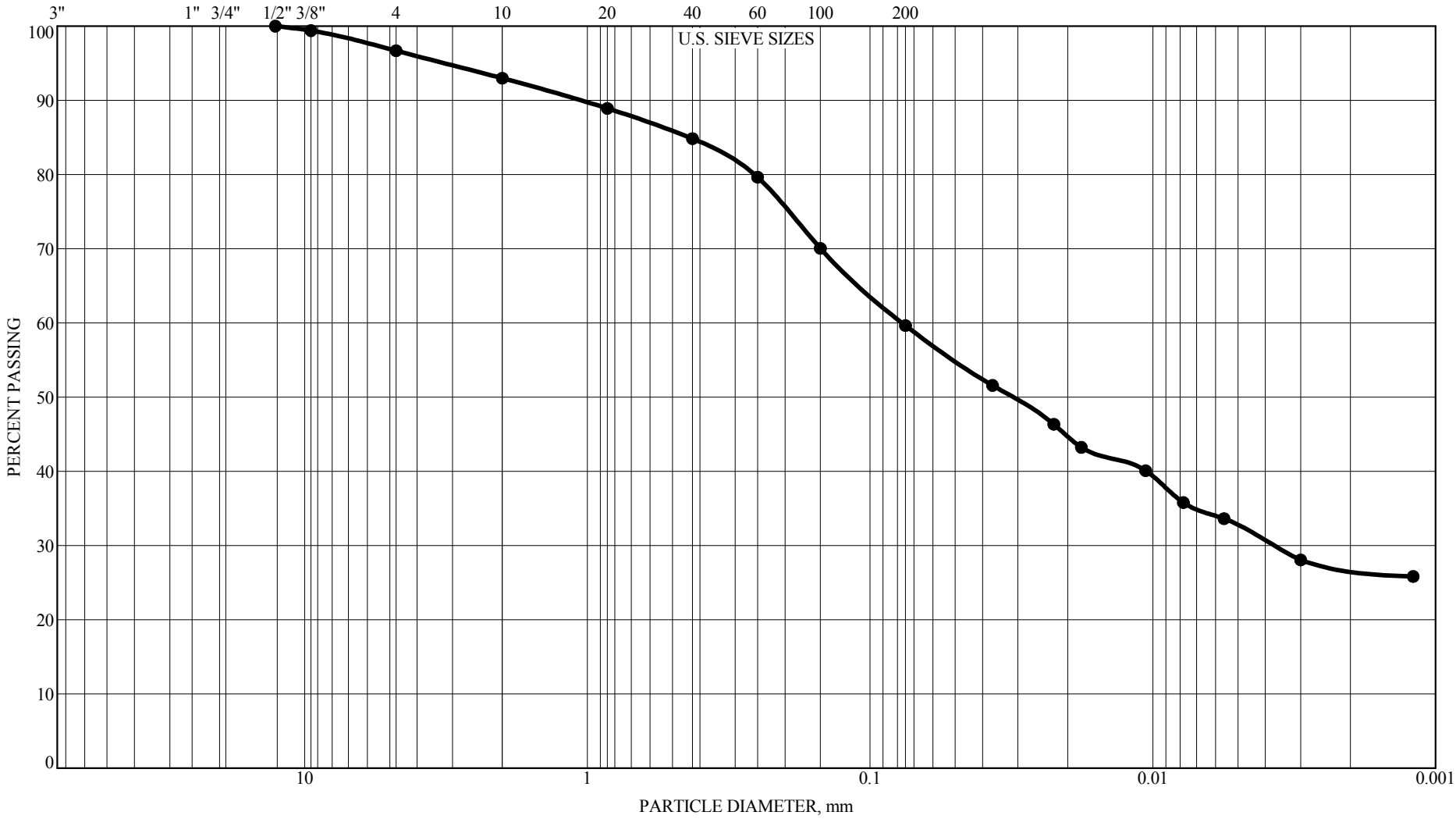
CLASSIFICATION:
A-6 (2), Brown
CLAYEY SAND(SC)

LL=28, PL=15, PI=13; P200=41%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:42

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-46 DEPTH: 1.3'-7.0'

GRAVEL	7.0%
SAND	33.3%
SILT	32.6%
CLAY	27.1%

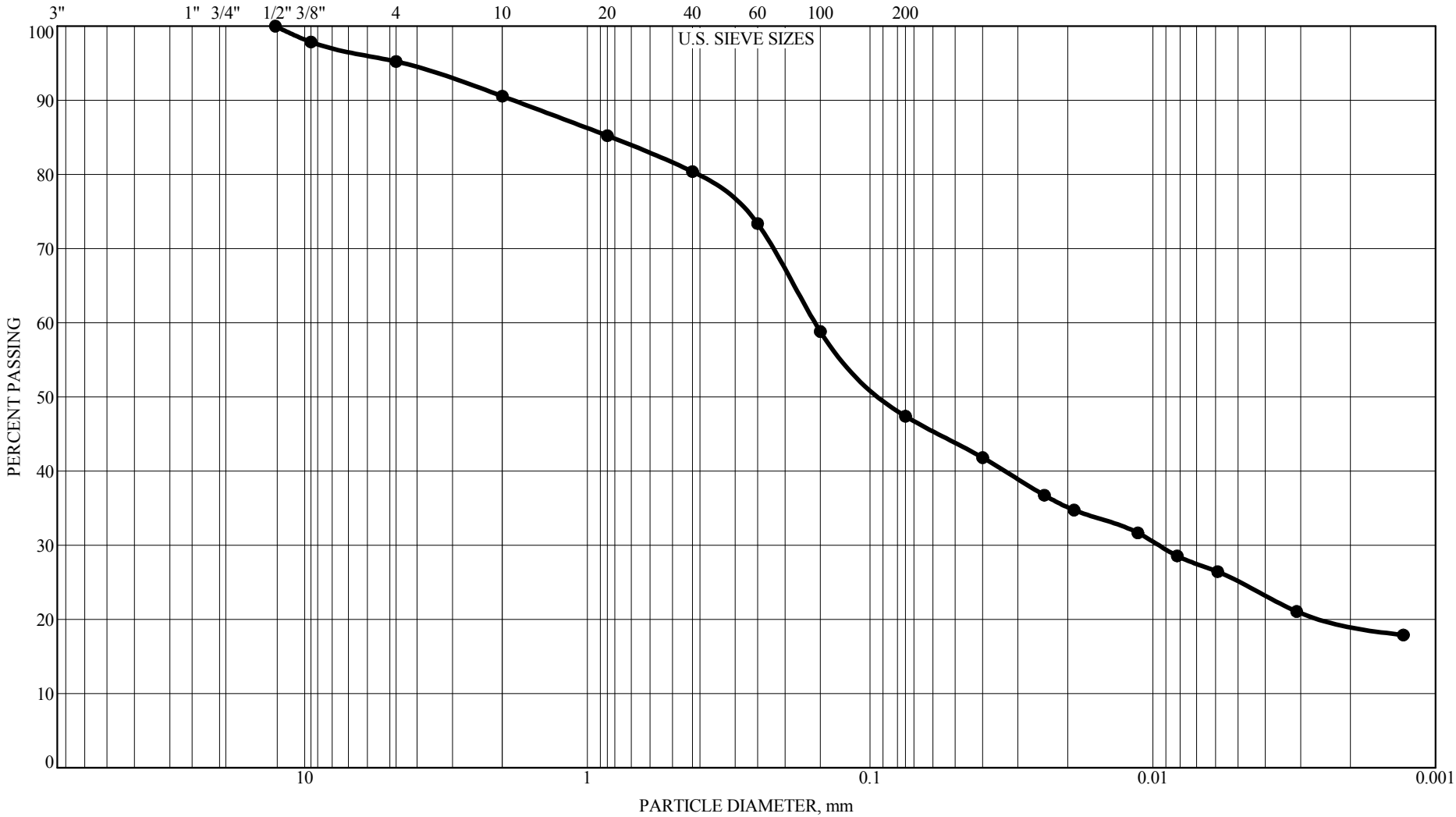
CLASSIFICATION:
A-6 (10), Brown
SANDY LEAN CLAY(CL)

LL=37, PL=14, PI=23; P200=60%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:43

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-48 DEPTH: 2.0'-5.0'

GRAVEL	9.4%
SAND	43.2%
SILT	27.9%
CLAY	19.5%

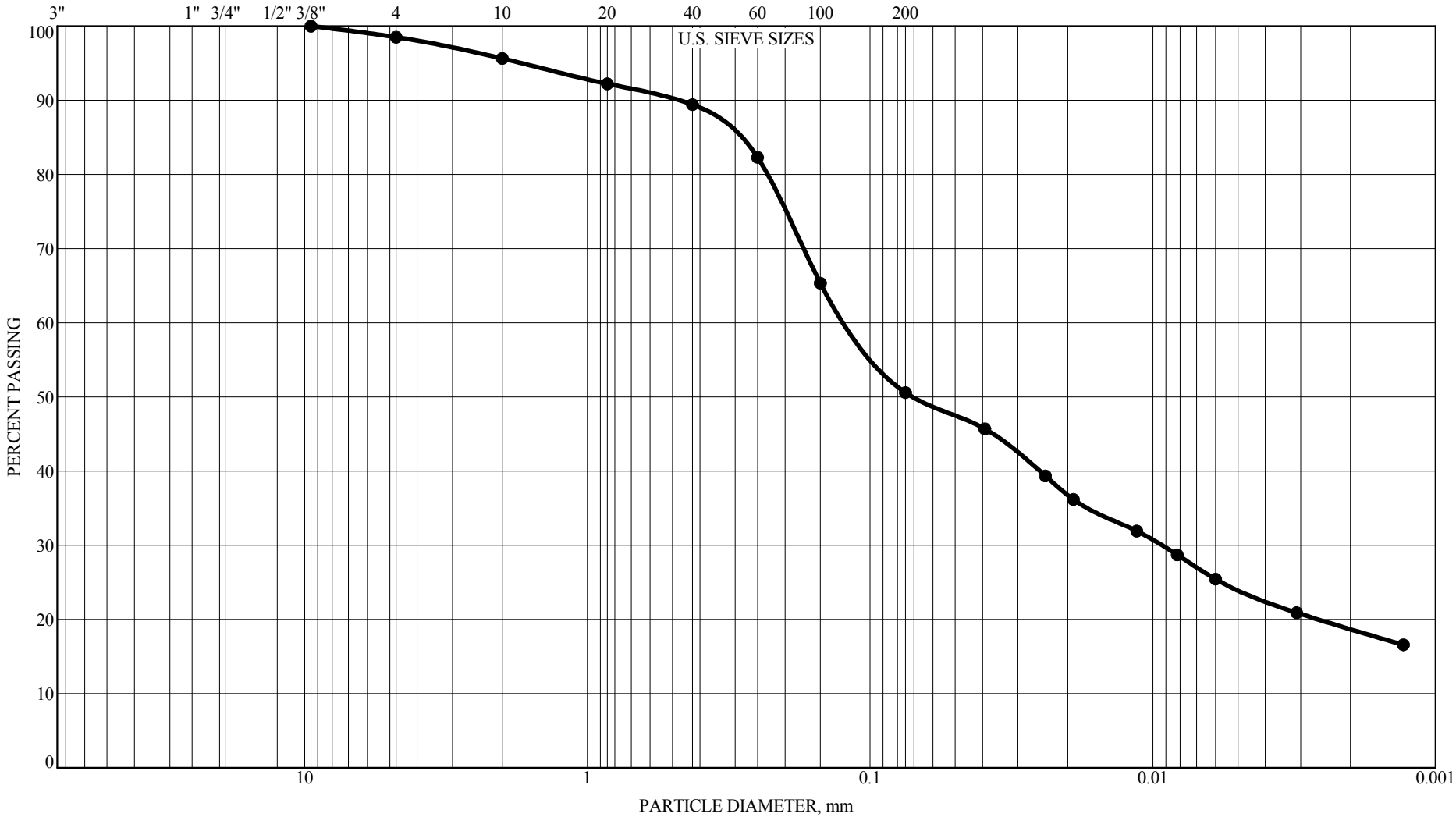
CLASSIFICATION:
A-6 (4), Brown
CLAYEY SAND(SC)

LL=30, PL=14, PI=16; P200=47%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:43

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-50 DEPTH: 2.0'-7.0'

GRAVEL	4.4%
SAND	45.1%
SILT	31.9%
CLAY	18.7%

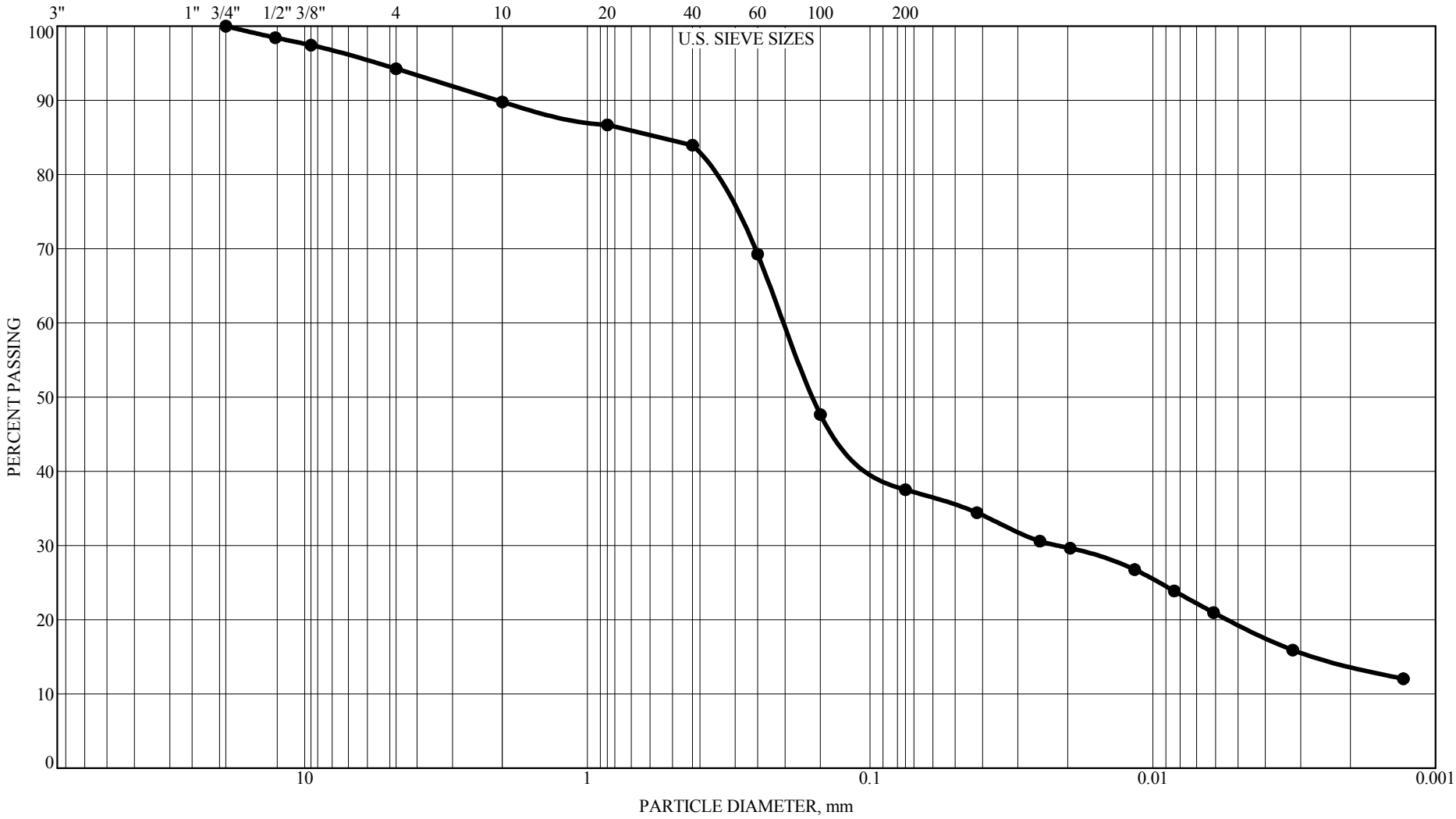
CLASSIFICATION:
A-6 (4), Brown
SANDY LEAN CLAY(CL)

LL=29, PL=15, PI=14; P200=51%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:43

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-52 DEPTH: 2.2'-4.0'

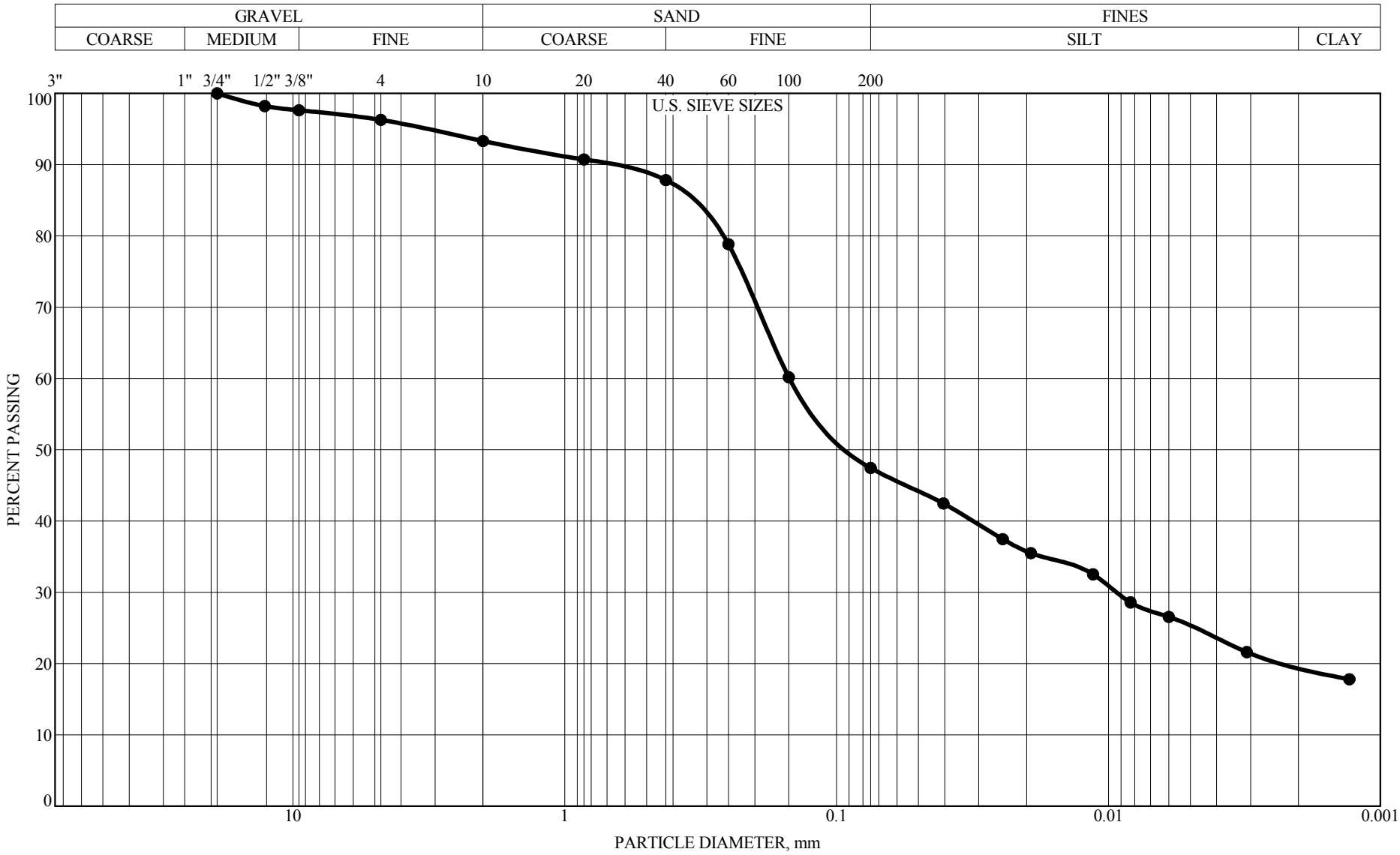
GRAVEL	10.2%
SAND	52.3%
SILT	23.6%
CLAY	13.9%

CLASSIFICATION:
A-4 (0), Brown and Gray
CLAYEY SAND(SC)

LL=24, PL=16, PI=8; P200=38%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:43

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-54 DEPTH: 2.0'-7.0'

GRAVEL	6.7%
SAND	45.9%
SILT	27.7%
CLAY	19.7%

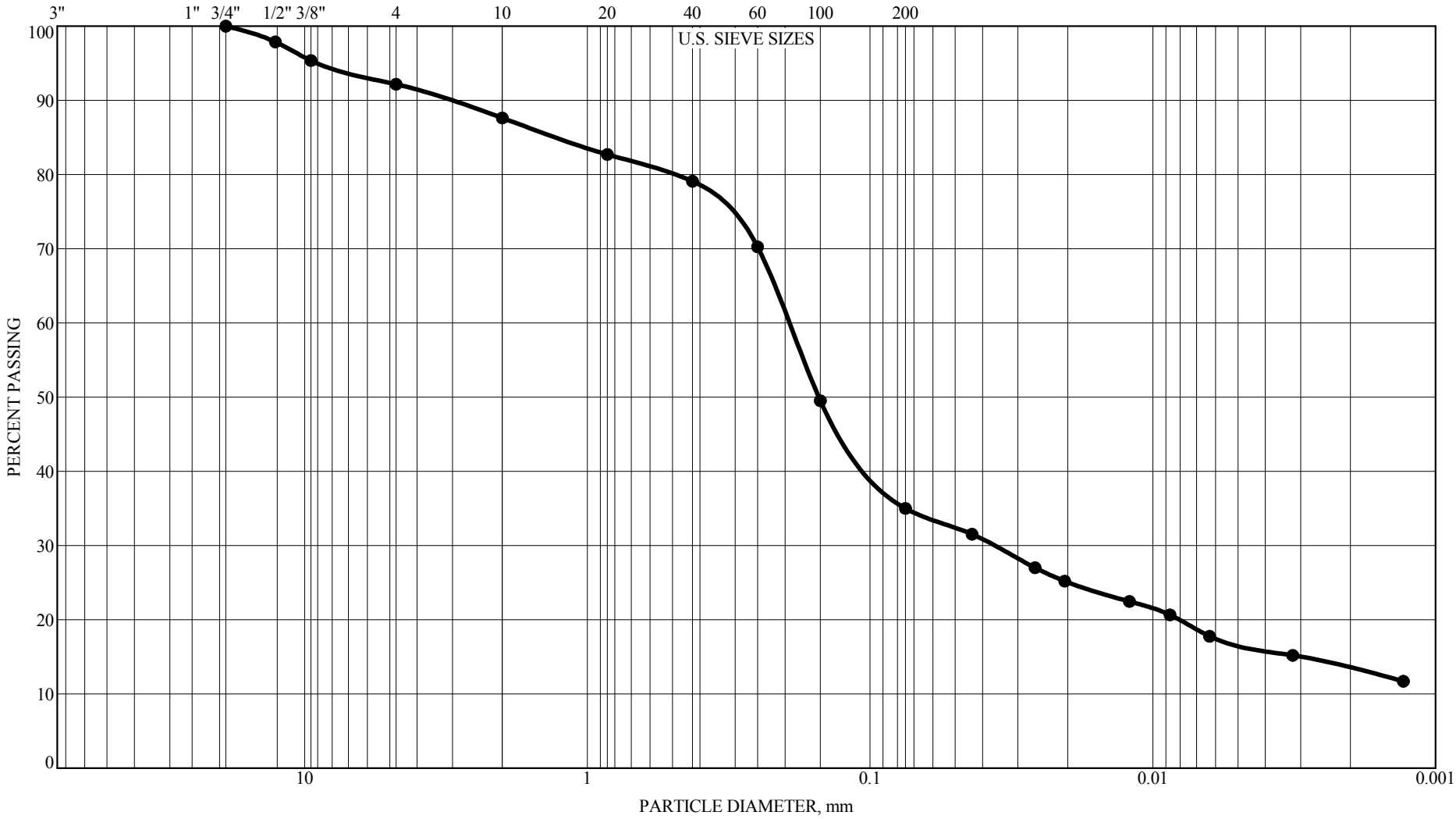
CLASSIFICATION:
A-6 (3), Brown
CLAYEY SAND(SC)

LL=28, PL=13, PI=15; P200=47%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:43

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-56 DEPTH: 2.8'-7.0'

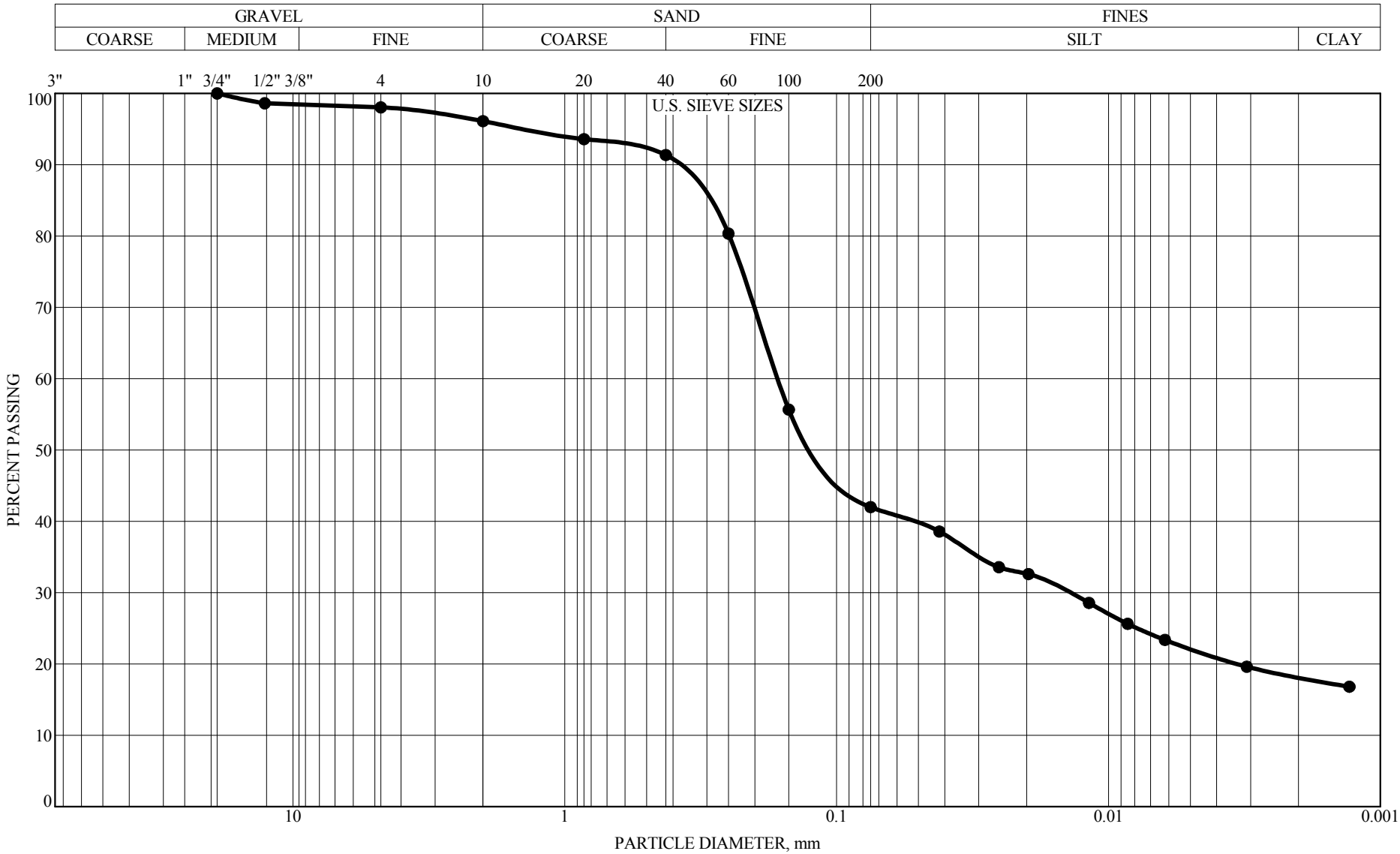
GRAVEL	12.4%
SAND	52.6%
SILT	21.6%
CLAY	13.4%

CLASSIFICATION:
A-2-4 (0), Brown
CLAYEY SAND(SC)

LL=25, PL=15, PI=10; P200=35%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:43

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-58 DEPTH: 2.0'-7.0'

GRAVEL	3.9%
SAND	54.1%
SILT	23.8%
CLAY	18.2%

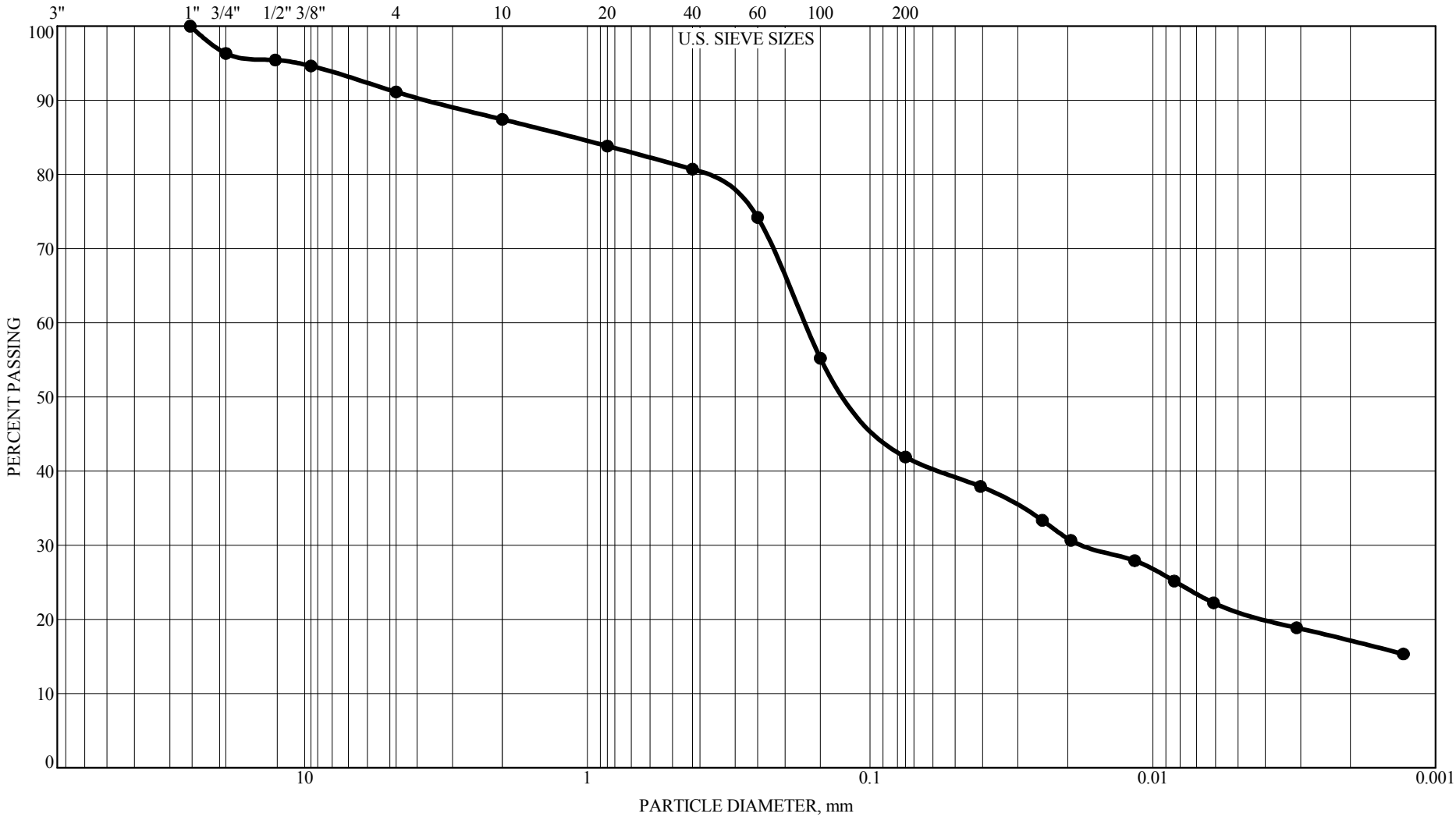
CLASSIFICATION:
A-6 (2), Brown
CLAYEY SAND(SC)

LL=27, PL=14, PI=13; P200=42%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:43

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-60 DEPTH: 2.0'-7.0'

GRAVEL	12.6%
SAND	45.5%
SILT	24.8%
CLAY	17.1%

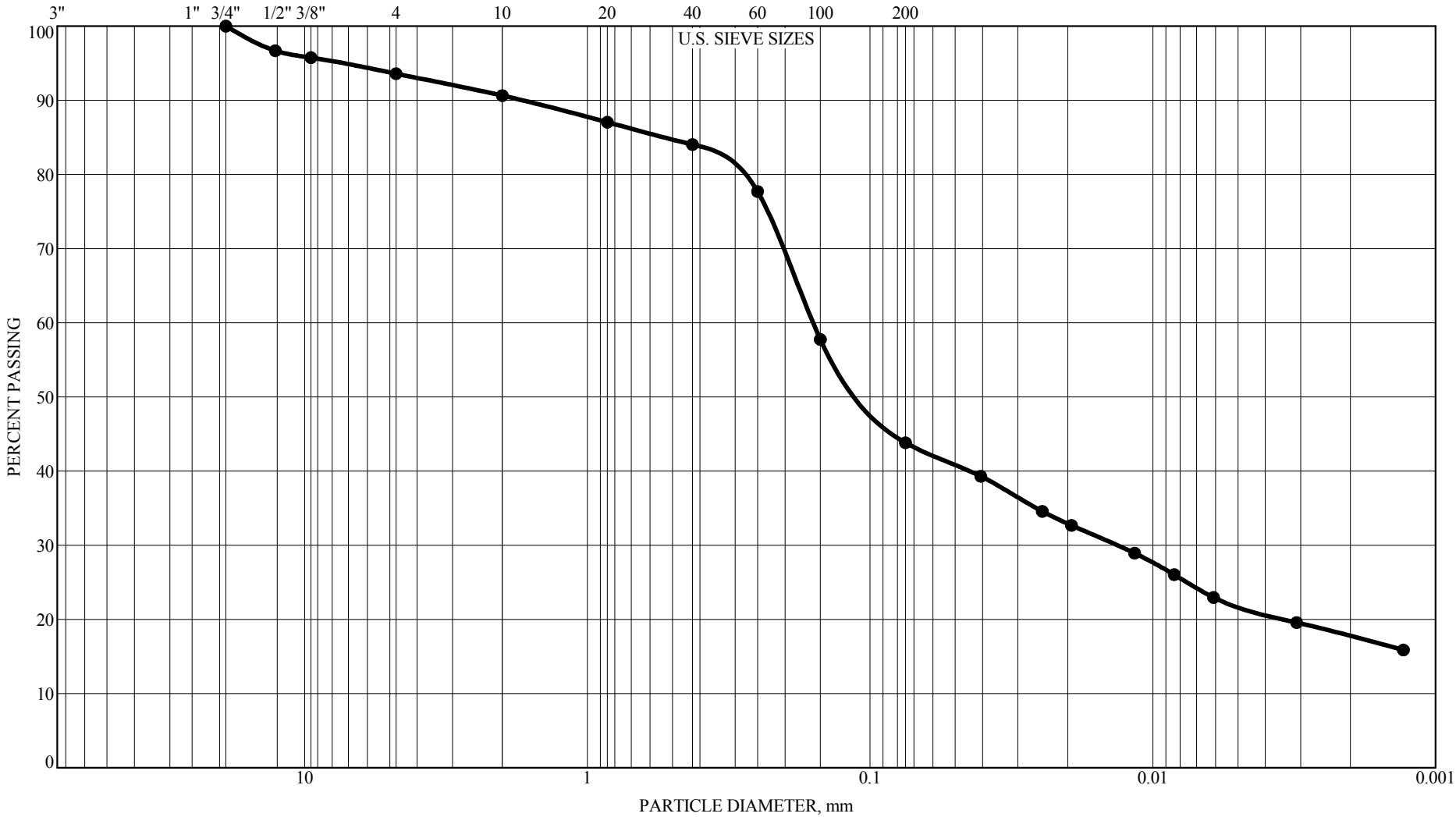
CLASSIFICATION:
A-6 (2), Brown and Gray
CLAYEY SAND(SC)

LL=28, PL=15, PI=13; P200=42%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:43

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-62 DEPTH: 2.2'-6.0'

GRAVEL	9.4%
SAND	46.8%
SILT	26.1%
CLAY	17.7%

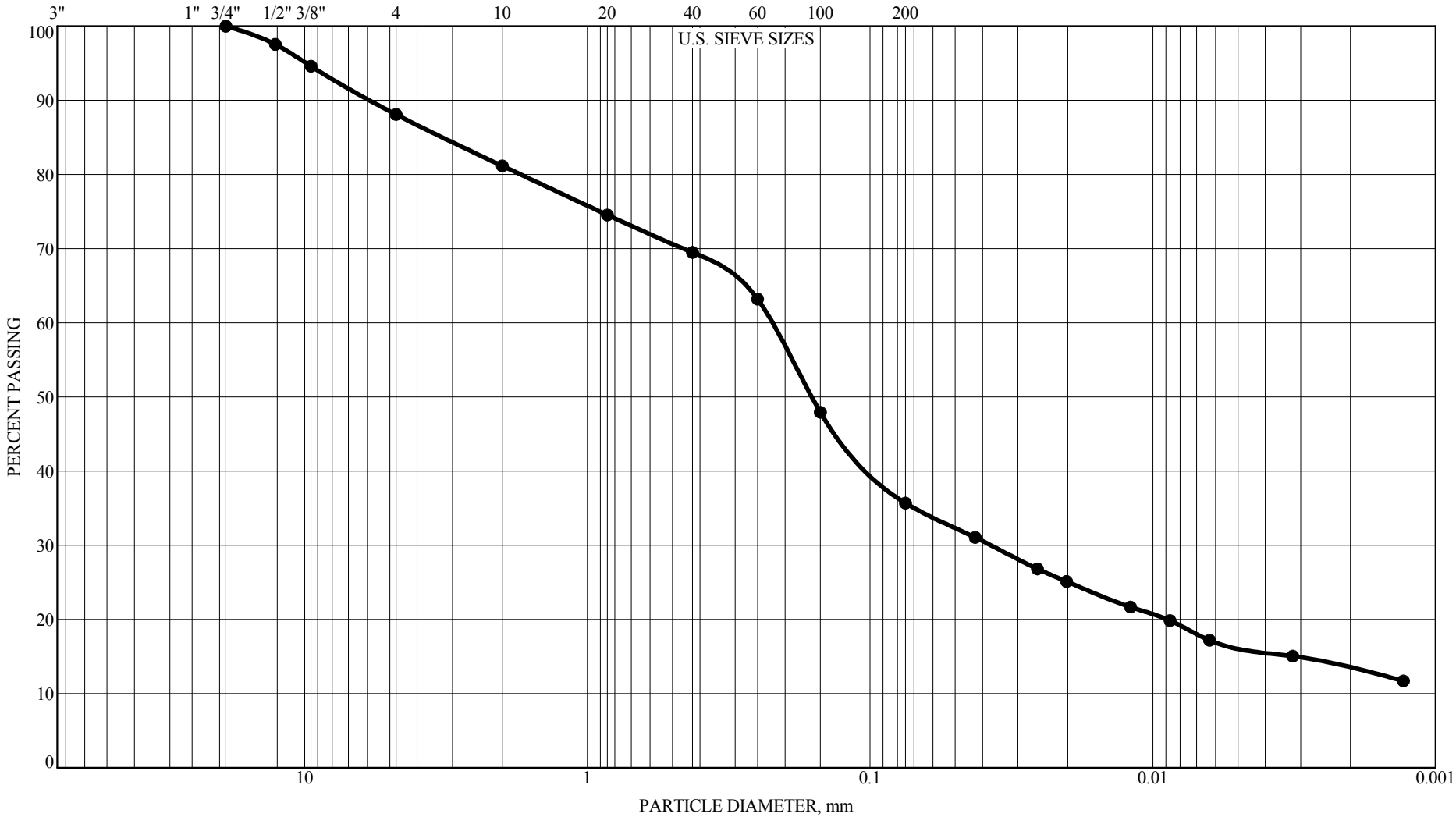
CLASSIFICATION:
A-6 (3), Brown
CLAYEY SAND(SC)

LL=30, PL=15, PI=15; P200=44%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:43

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-64 DEPTH: 2.0'-7.0'

GRAVEL	18.8%
SAND	45.5%
SILT	22.4%
CLAY	13.3%

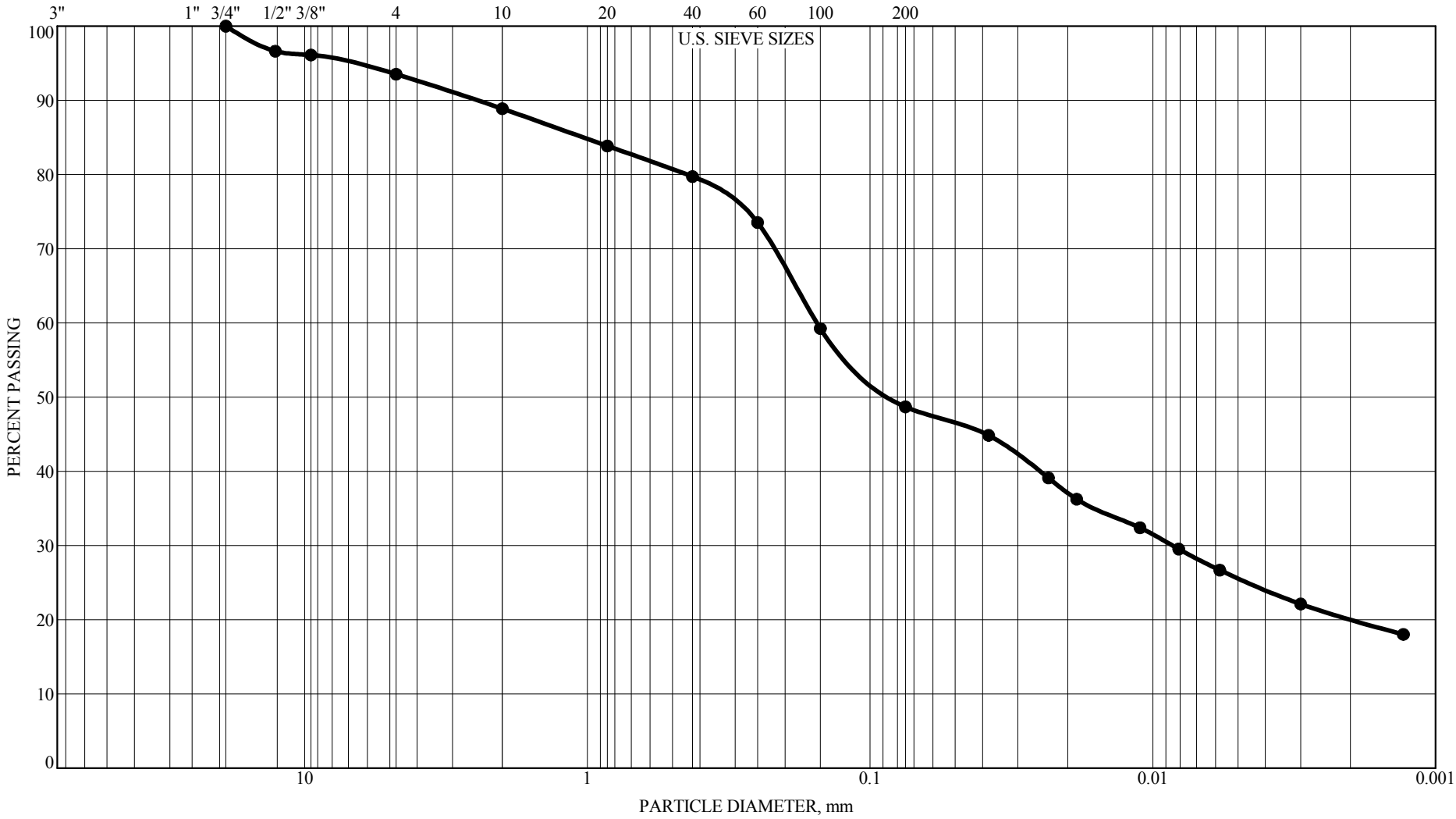
CLASSIFICATION:
A-6 (1), Brown
CLAYEY SAND(SC)

LL=28, PL=15, PI=13; P200=36%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:43

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-66 DEPTH: 2.0'-7.0'

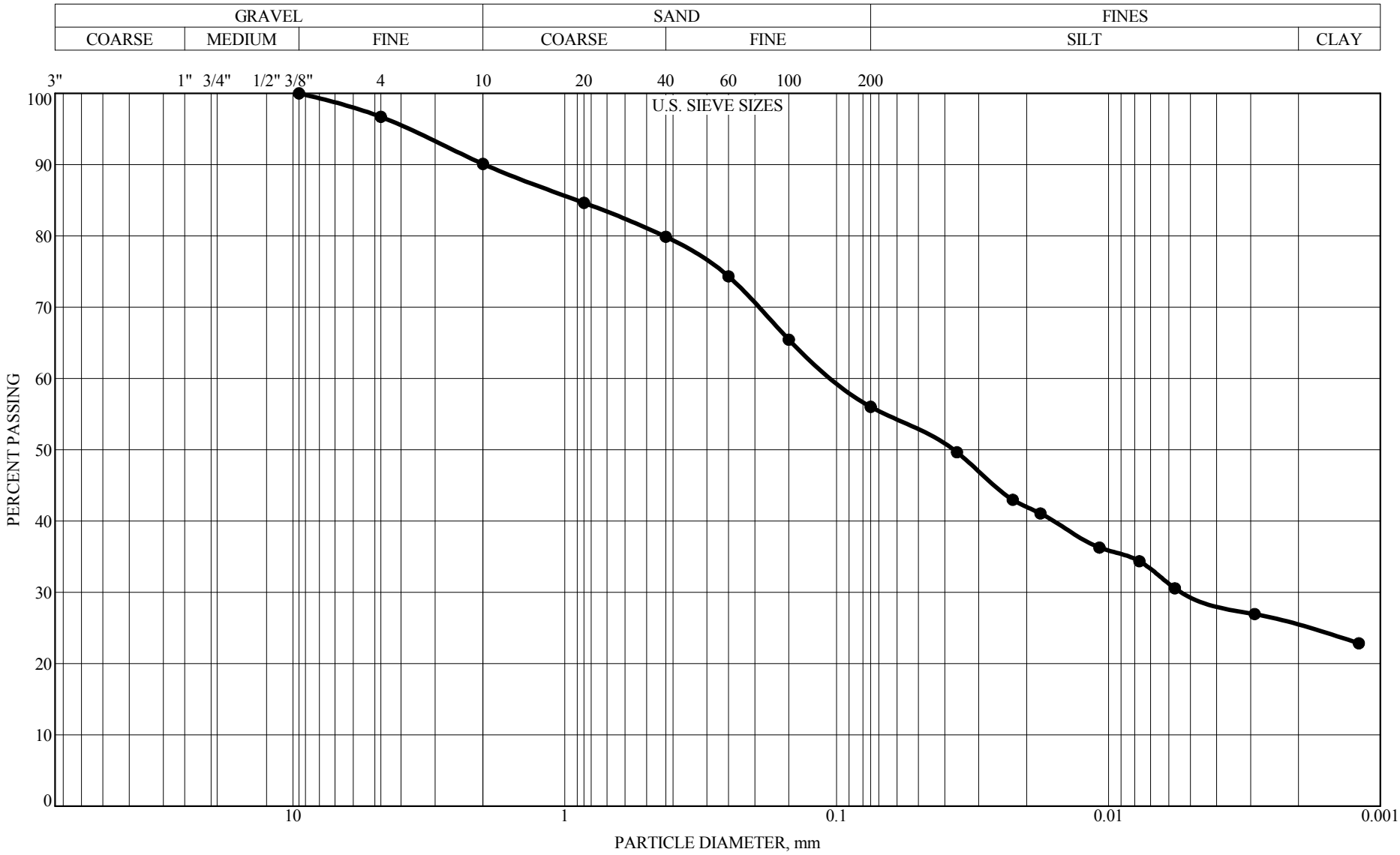
GRAVEL	11.1%
SAND	40.2%
SILT	28.6%
CLAY	20.1%

CLASSIFICATION:
A-6 (4), Brown
CLAYEY SAND(SC)

LL=30, PL=13, PI=17; P200=49%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:43

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-68 DEPTH: 2.0'-7.0'

GRAVEL	9.9%
SAND	34.1%
SILT	30.8%
CLAY	25.2%

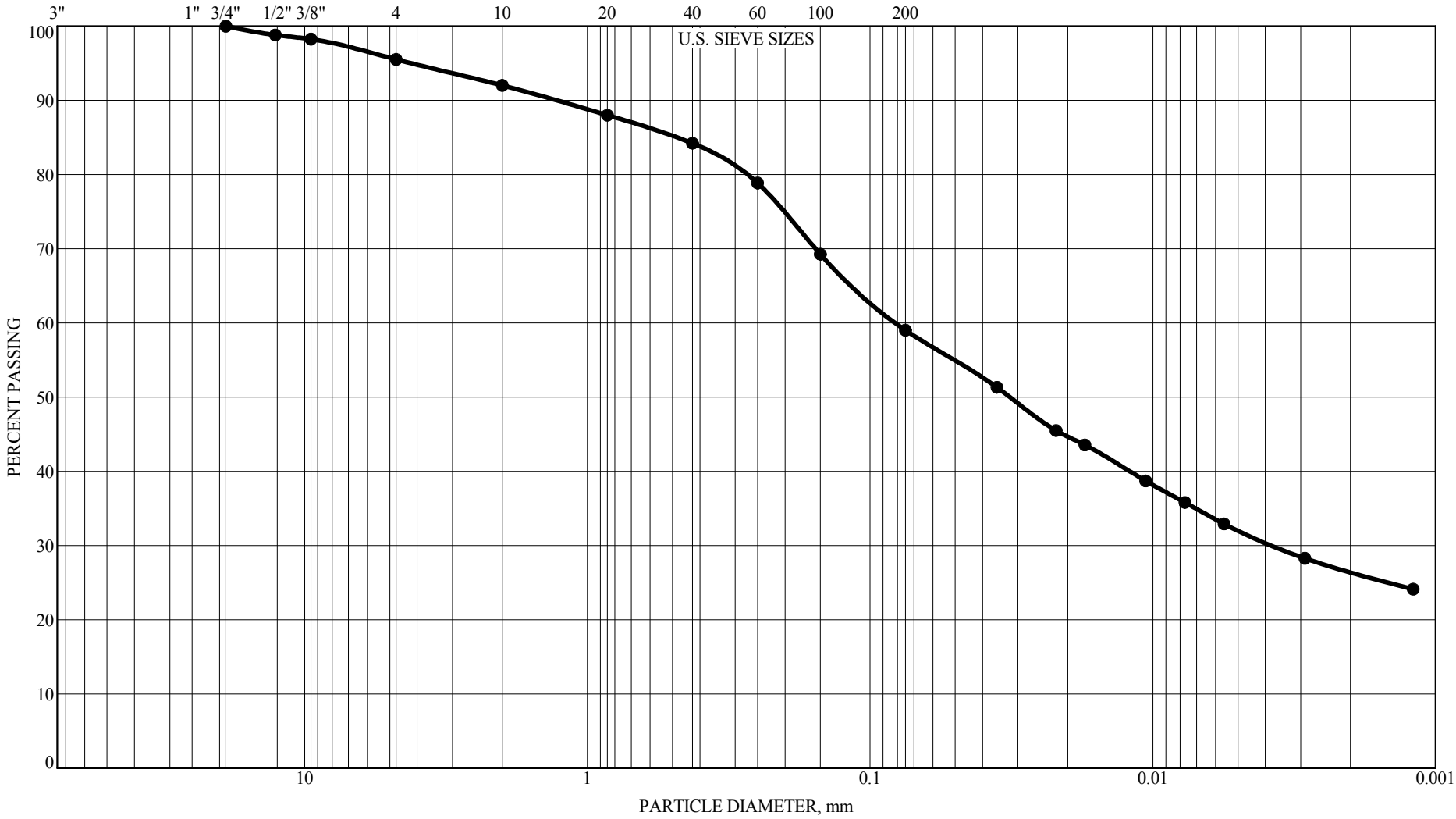
CLASSIFICATION:
A-6 (10), Brown
SANDY LEAN CLAY(CL)

LL=38, PL=14, PI=24; P200=56%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:43

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-70 DEPTH: 2.0'-7.0'

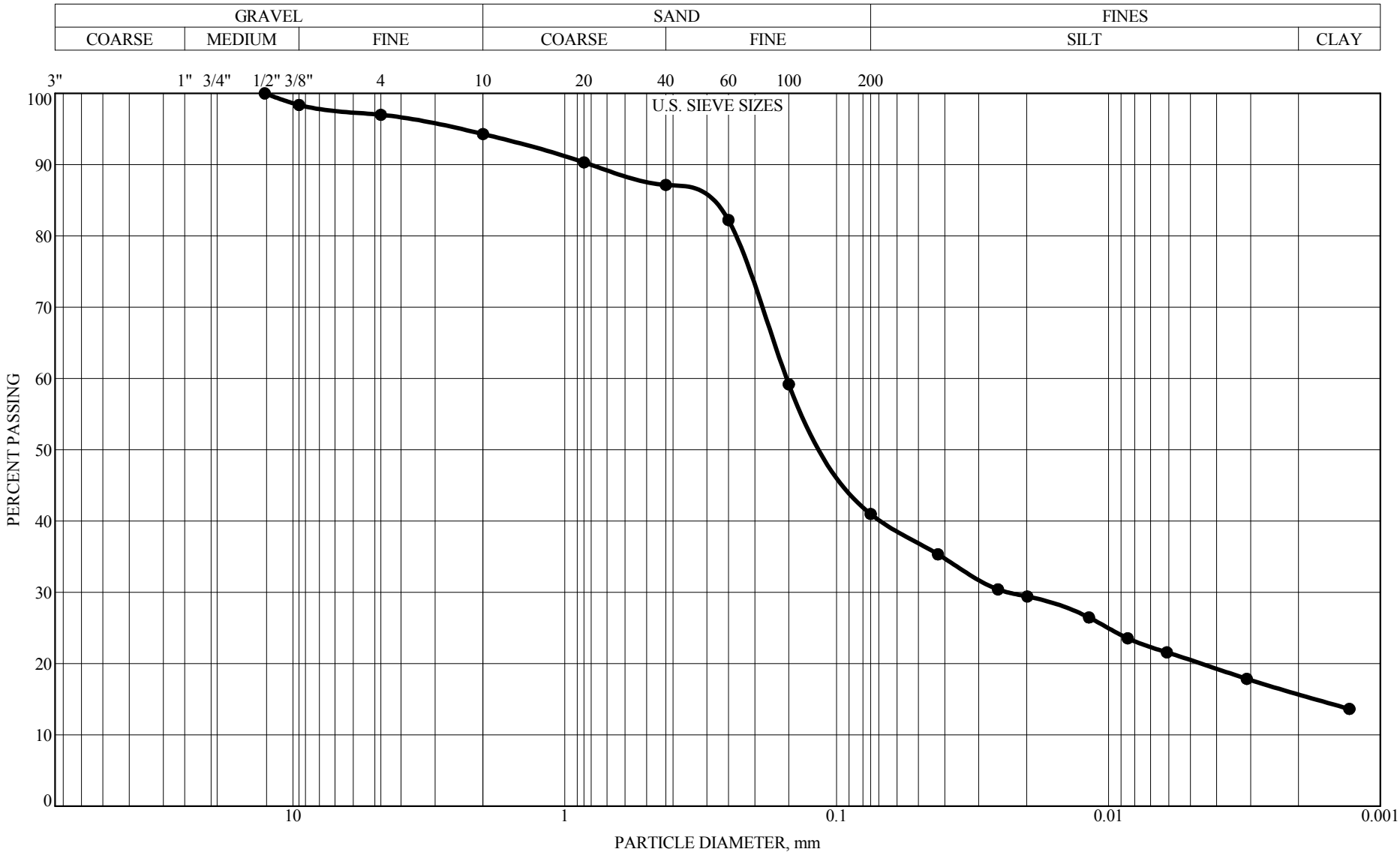
GRAVEL	8.0%
SAND	33.0%
SILT	32.5%
CLAY	26.5%

CLASSIFICATION:
A-6 (9), Brown
SANDY LEAN CLAY(CL)

LL=36, PL=15, PI=21; P200=59%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:43

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-72 DEPTH: 1.8'-7.0'

GRAVEL	5.7%
SAND	53.3%
SILT	25.3%
CLAY	15.7%

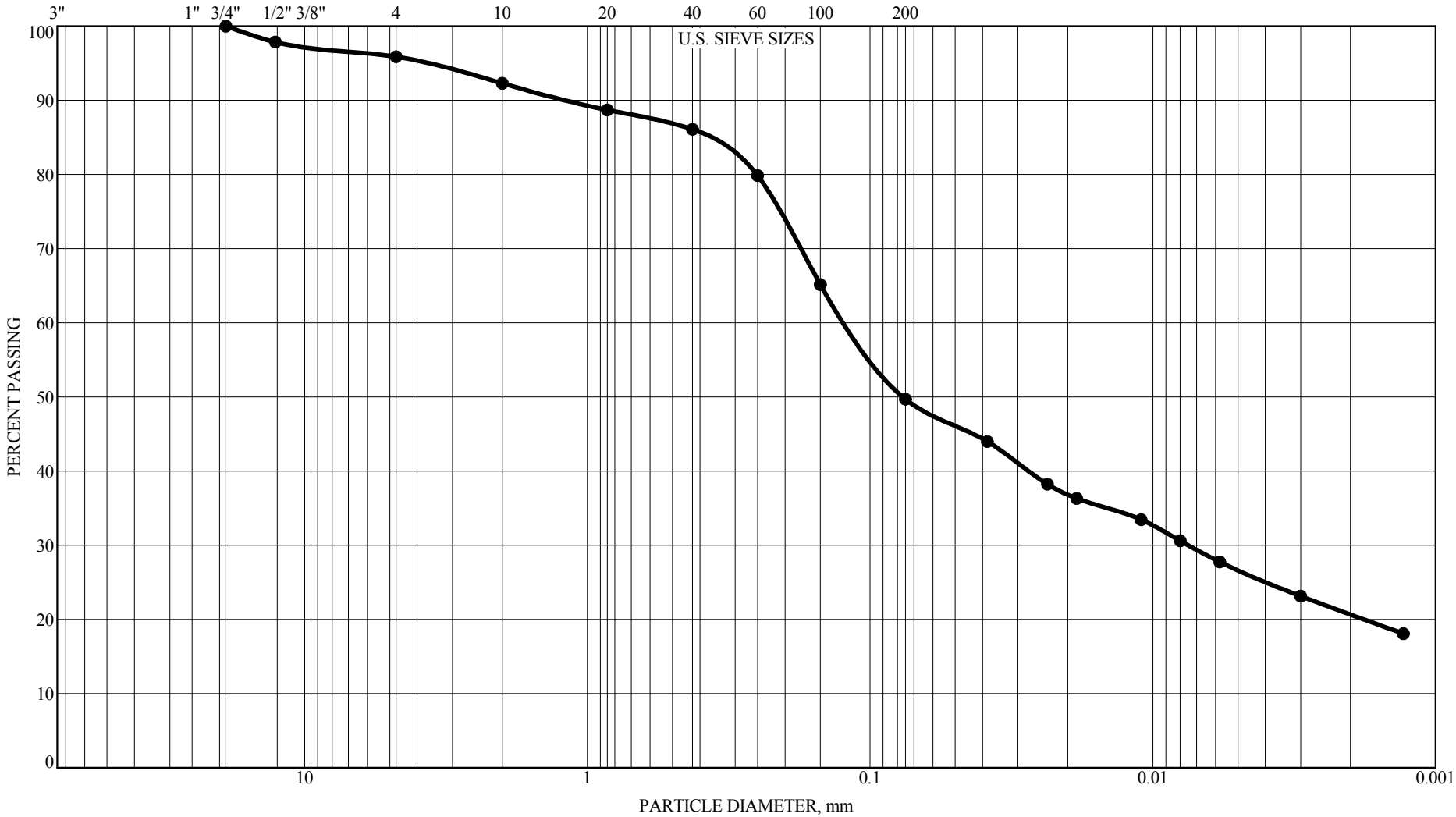
CLASSIFICATION:
A-6 (1), Brown
CLAYEY SAND(SC)

LL=27, PL=16, PI=11; P200=41%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:43

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-74 DEPTH: 1.5'-7.0'

GRAVEL	7.7%
SAND	42.6%
SILT	29.0%
CLAY	20.7%

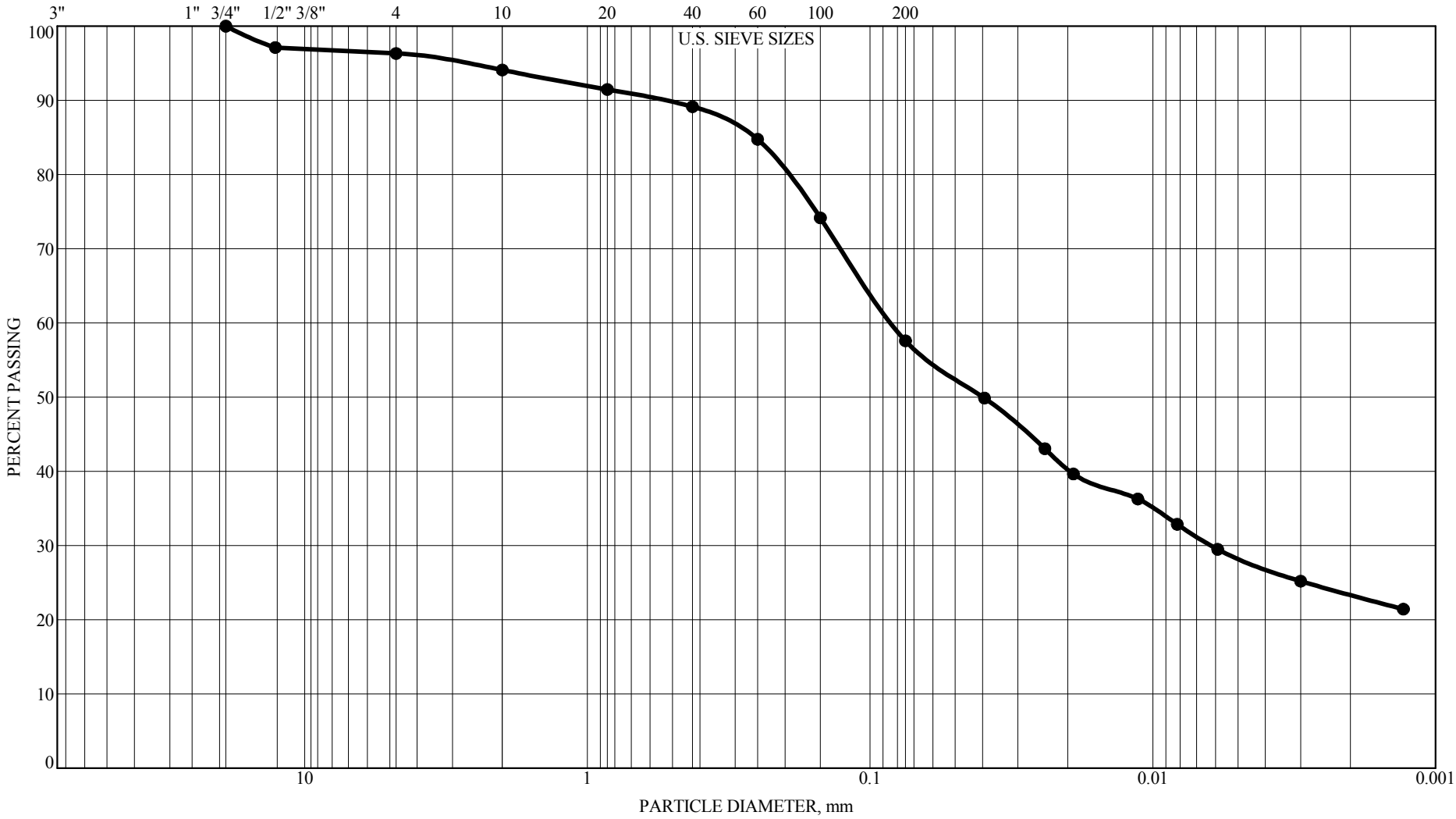
CLASSIFICATION:
A-6 (5), Brown
CLAYEY SAND(SC)

LL=32, PL=15, PI=17; P200=50%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:44

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

GRAVEL			SAND		FINES	
COARSE	MEDIUM	FINE	COARSE	FINE	SILT	CLAY



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-77 DEPTH: 2.5'-7.0'

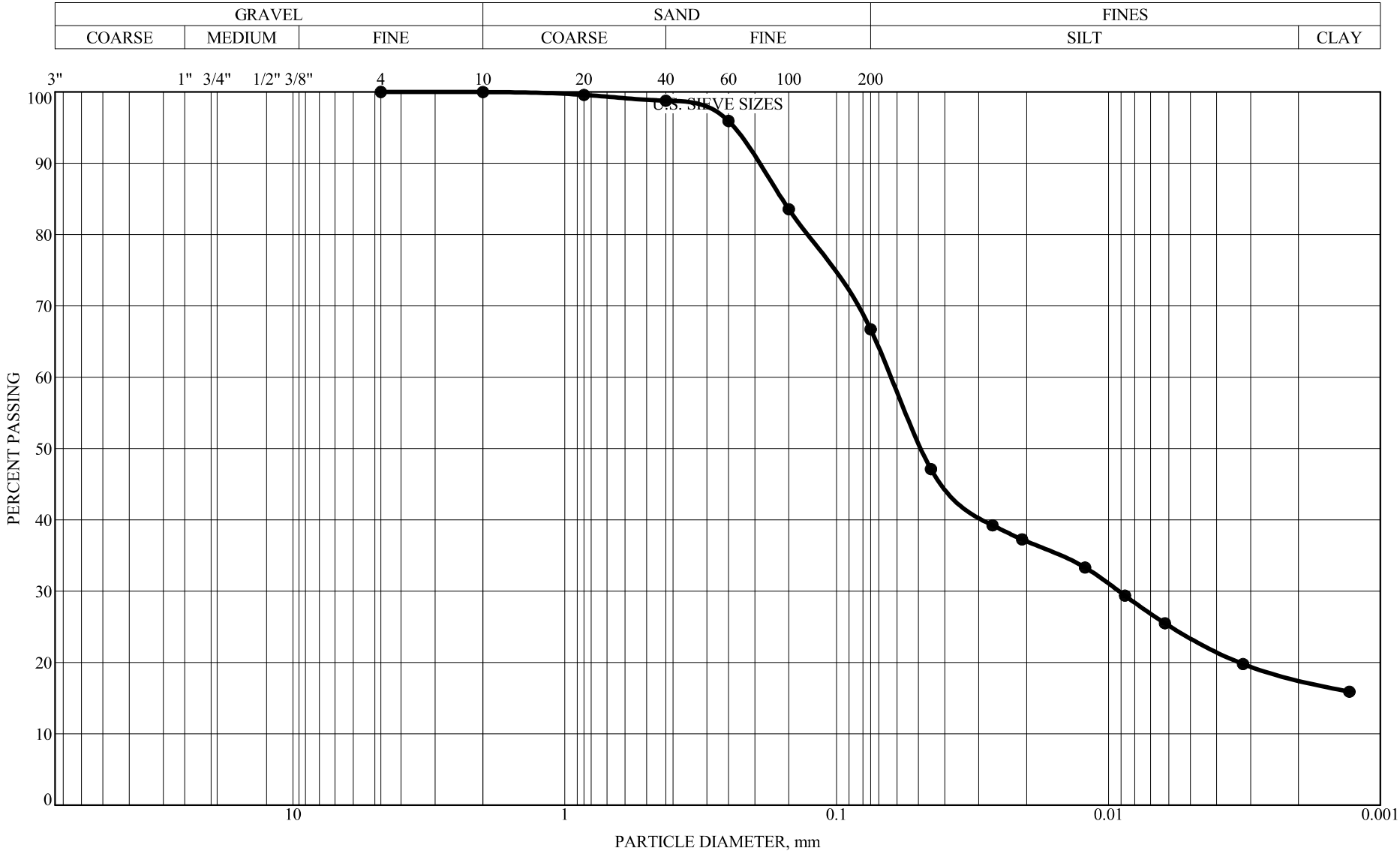
GRAVEL	5.9%
SAND	36.5%
SILT	34.2%
CLAY	23.4%

CLASSIFICATION:
A-6 (8), Brown and Gray
SANDY LEAN CLAY(CL)

LL=33, PL=14, PI=19; P200=58%

GS AASHTO 05662.GPJ BRAUN.GDT 10/8/14 06:44

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-A1 DEPTH: 1.0'-20.0'

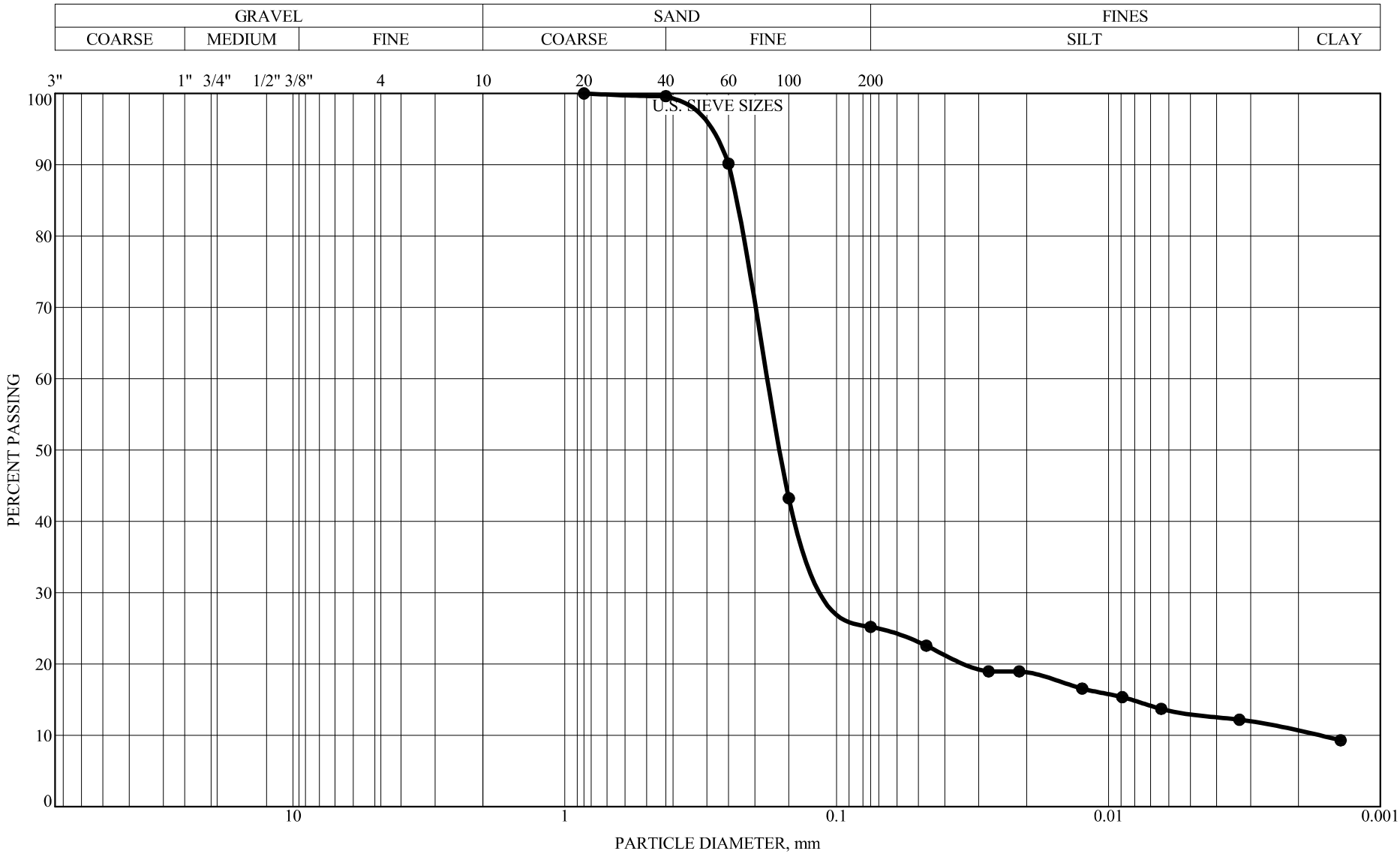
GRAVEL	0.0%
SAND	33.3%
SILT	49.0%
CLAY	17.8%

CLASSIFICATION:
A-7-6 (15), Brown
SANDY LEAN CLAY(CL)

LL=41, PL=14, PI=27

GS AASHTO 05662.GPJ BRAUN.GDT 1/11/16 10:28

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-A4 DEPTH: 1.5'-20.0'

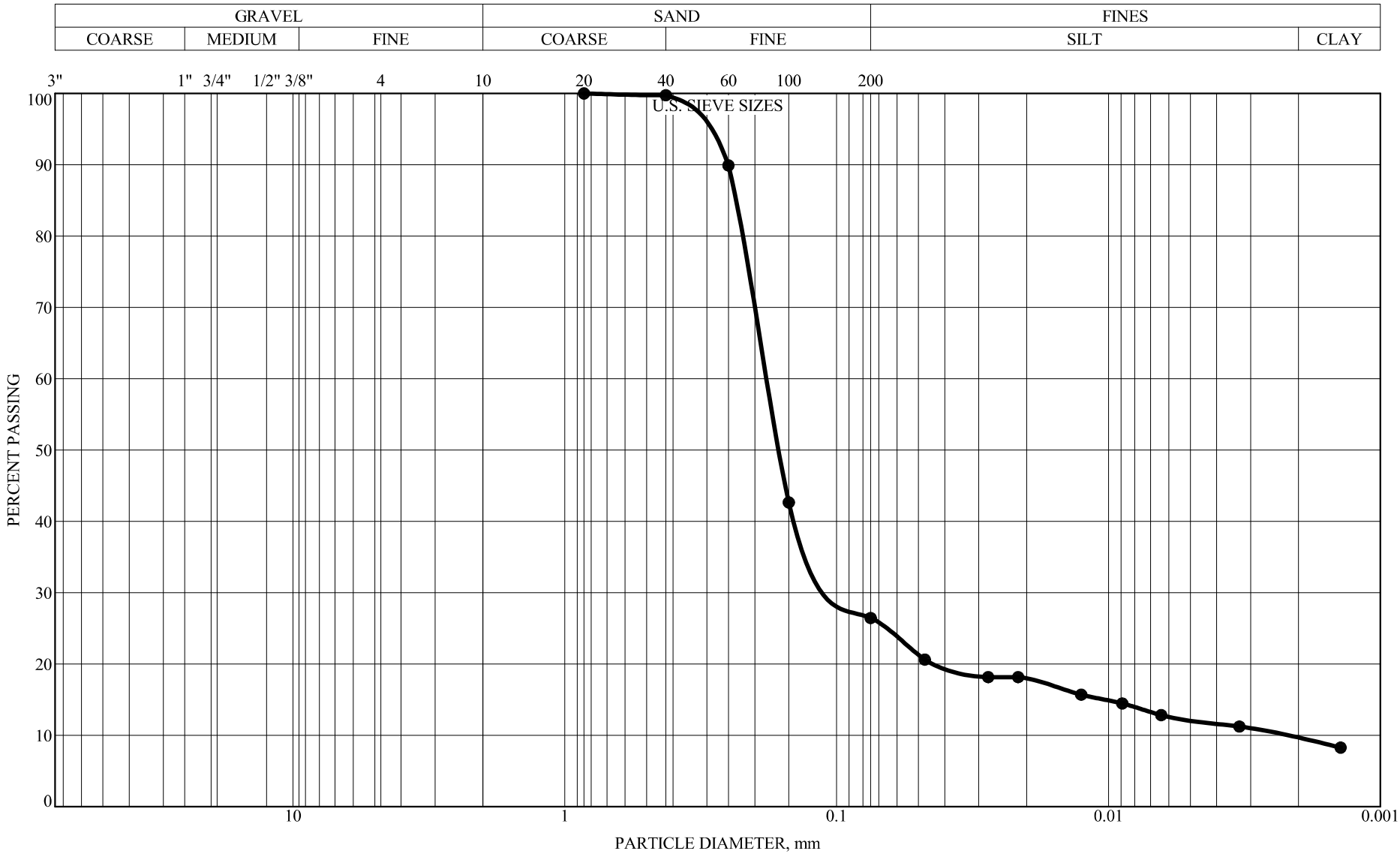
GRAVEL	0.0%
SAND	74.8%
SILT	14.7%
CLAY	10.5%

CLASSIFICATION:
A-2-4 (0), Brown
SILTY SAND(SM)

LL=NP, PL=NP, PI=NP

GS AASHTO 05662.GPJ BRAUN.GDT 1/11/16 10:28

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-A5 DEPTH: 1.0'-10.0'

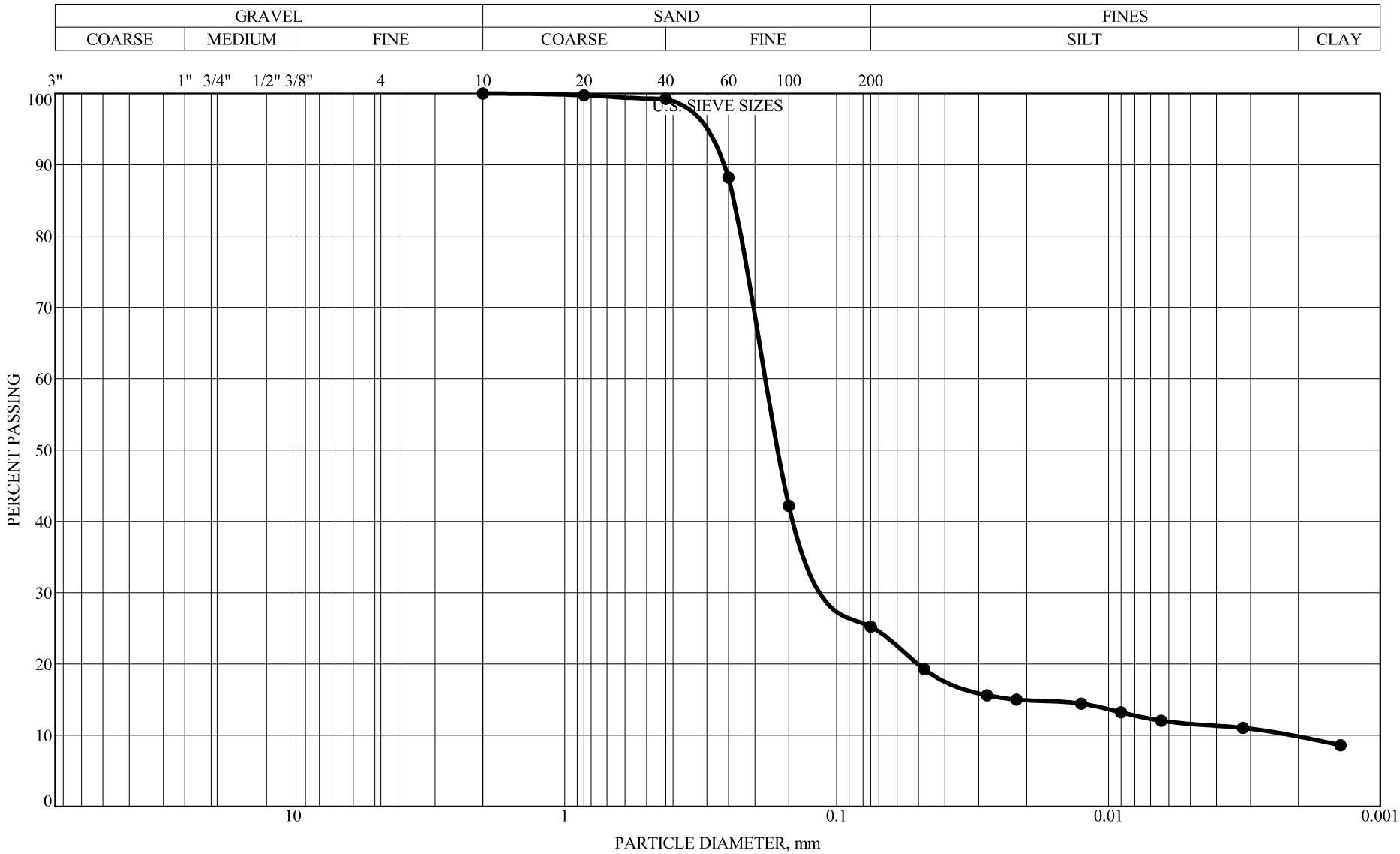
GRAVEL	0.0%
SAND	73.6%
SILT	16.9%
CLAY	9.5%

CLASSIFICATION:
A-2-4 (0), Brown
SILTY SAND(SM)

LL=NP, PL=NP, PI=NP

GS AASHTO 05662.GPJ BRAUN.GDT 1/11/16 10:28

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-A5 DEPTH: 10.0'-20.0'

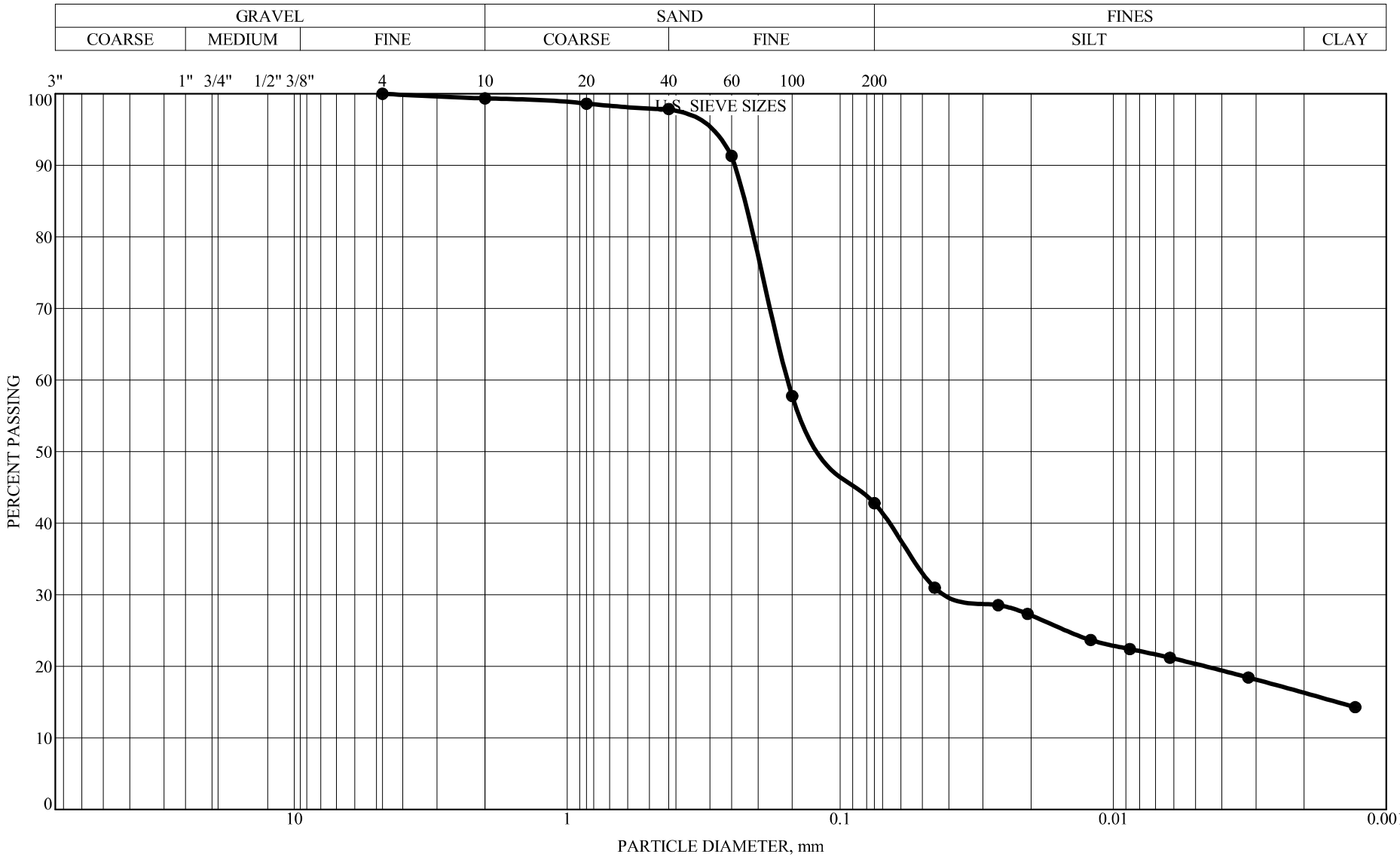
GRAVEL	0.0%
SAND	74.8%
SILT	15.6%
CLAY	9.6%

CLASSIFICATION:
A-2-4 (0), Brown
SILTY SAND(SM)

LL=NP, PL=NP, PI=NP

GS AASHTO 05662.GPJ BRAUN.GDT 1/11/16 10:28

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-A6 DEPTH: 0.5'-6.0'

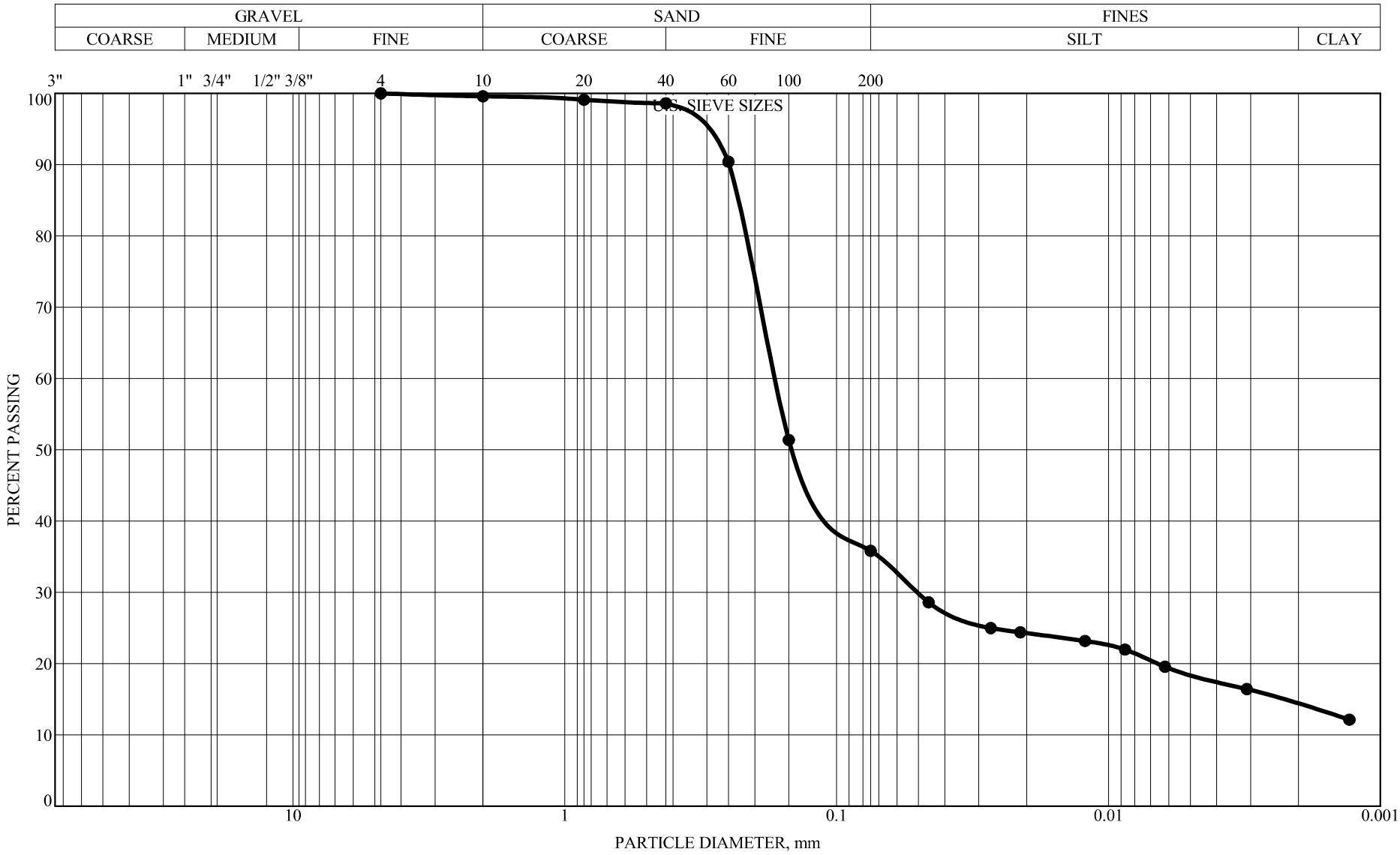
GRAVEL	0.6%
SAND	56.6%
SILT	26.5%
CLAY	16.3%

CLASSIFICATION:
A-6 (2), Brown
CLAYEY SAND(SC)

LL=29, PL=17, PI=12

GS AASHTO 05662.GPJ BRAUN.GDT 1/11/16 10:28

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-A6 DEPTH: 6.0'-20.0'

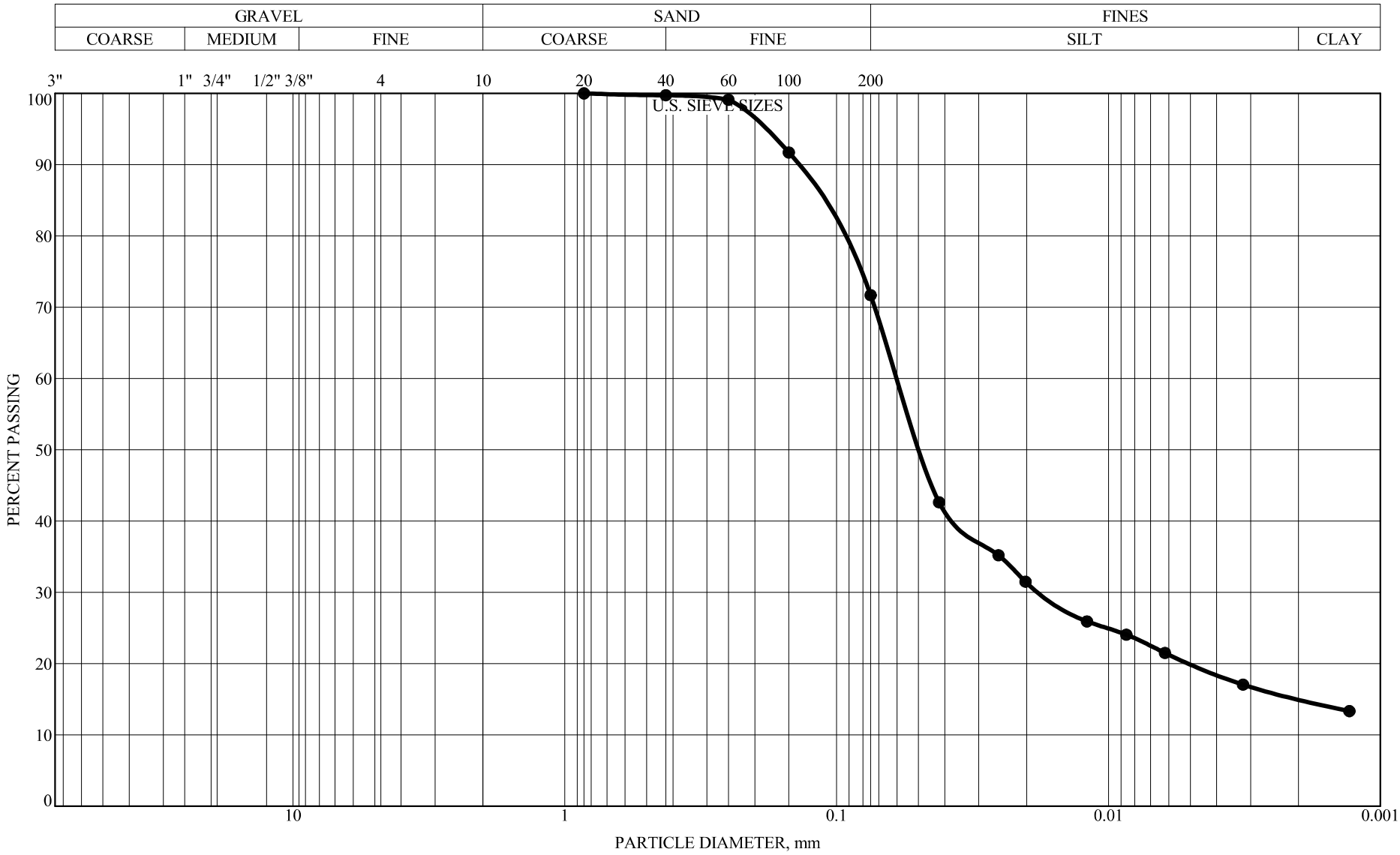
GRAVEL	0.4%
SAND	63.8%
SILT	21.6%
CLAY	14.3%

CLASSIFICATION:
A-4 (0), Brown
SILTY SAND(SM)

LL=NP, PL=NP, PI=NP

GS AASHTO 05662.GPJ BRAUN.GDT 1/11/16 10:28

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-A8 DEPTH: 1.0'-20.0'

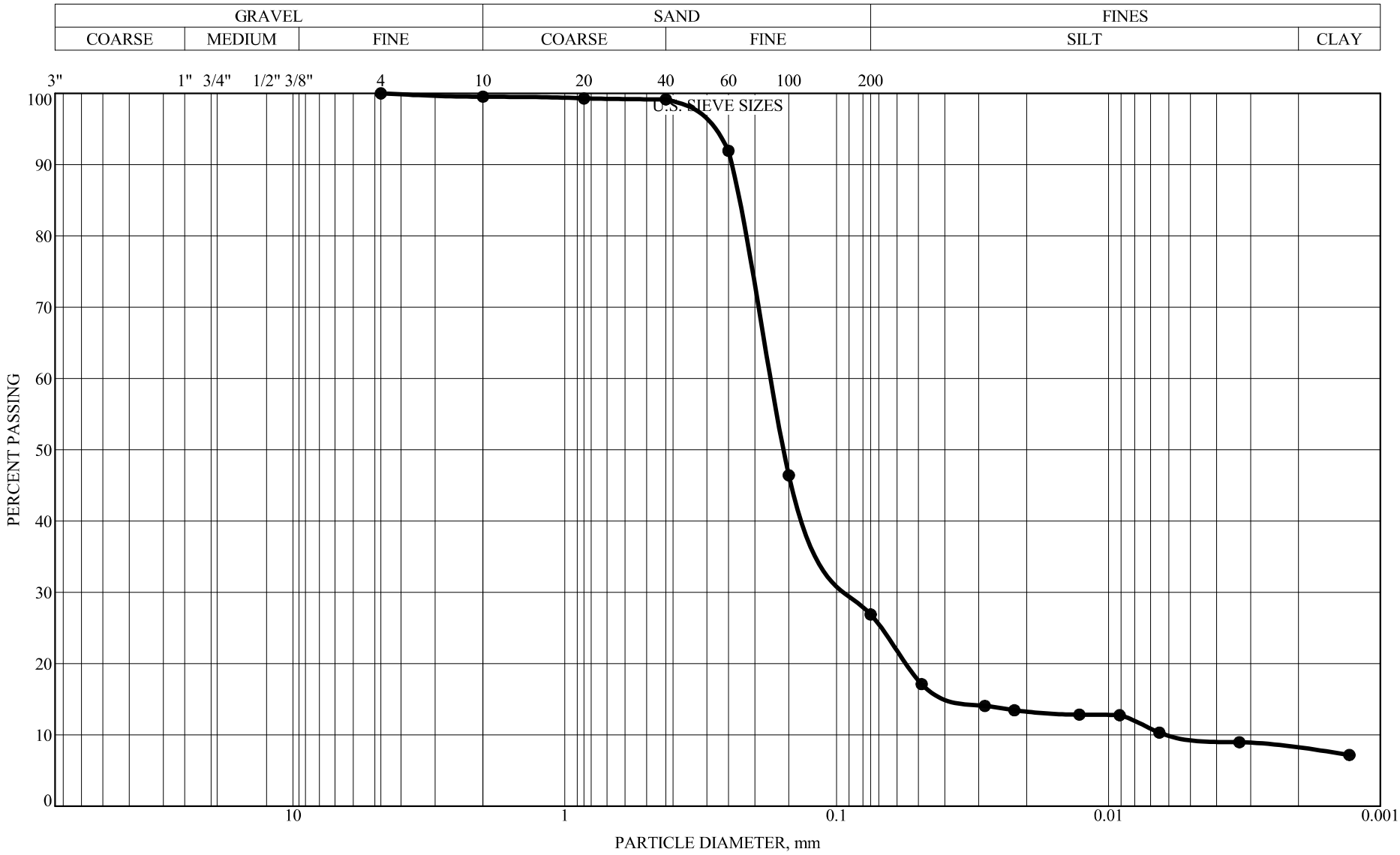
GRAVEL	0.0%
SAND	28.3%
SILT	56.6%
CLAY	15.1%

CLASSIFICATION:
A-6 (11), Brown
LEAN CLAY with SAND(CL)

LL=37, PL=19, PI=18

GS AASHTO 05662.GPJ BRAUN.GDT 1/11/16 10:28

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-A11 DEPTH: 1.5'-11.0'

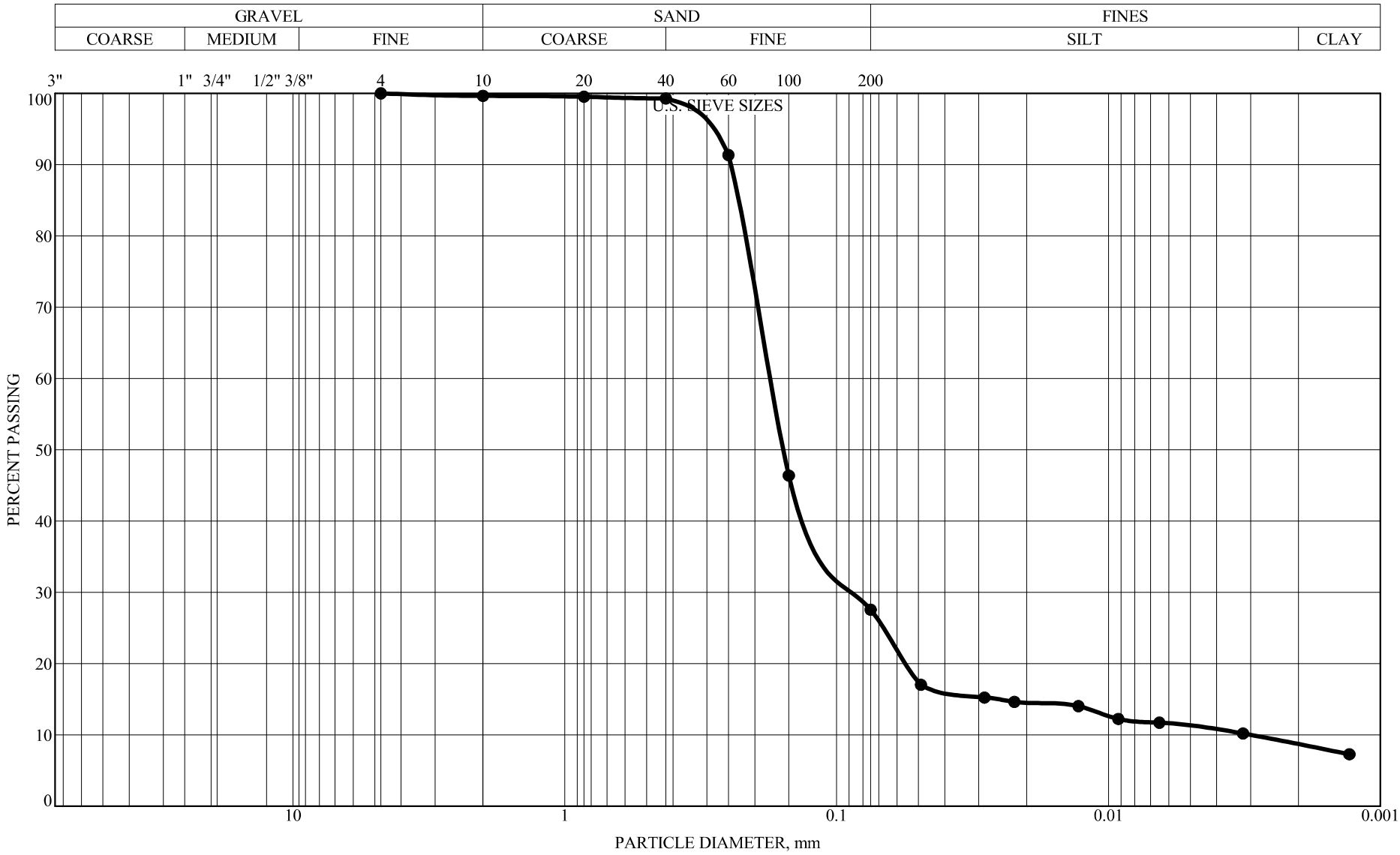
GRAVEL	0.5%
SAND	72.6%
SILT	18.9%
CLAY	8.0%

CLASSIFICATION:
A-2-4 (0), Brown
SILTY SAND(SM)

LL=NP, PL=NP, PI=NP

GS AASHTO 05662.GPJ BRAUN.GDT 1/11/16 10:29

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-A11 DEPTH: 11.0'-20.0'

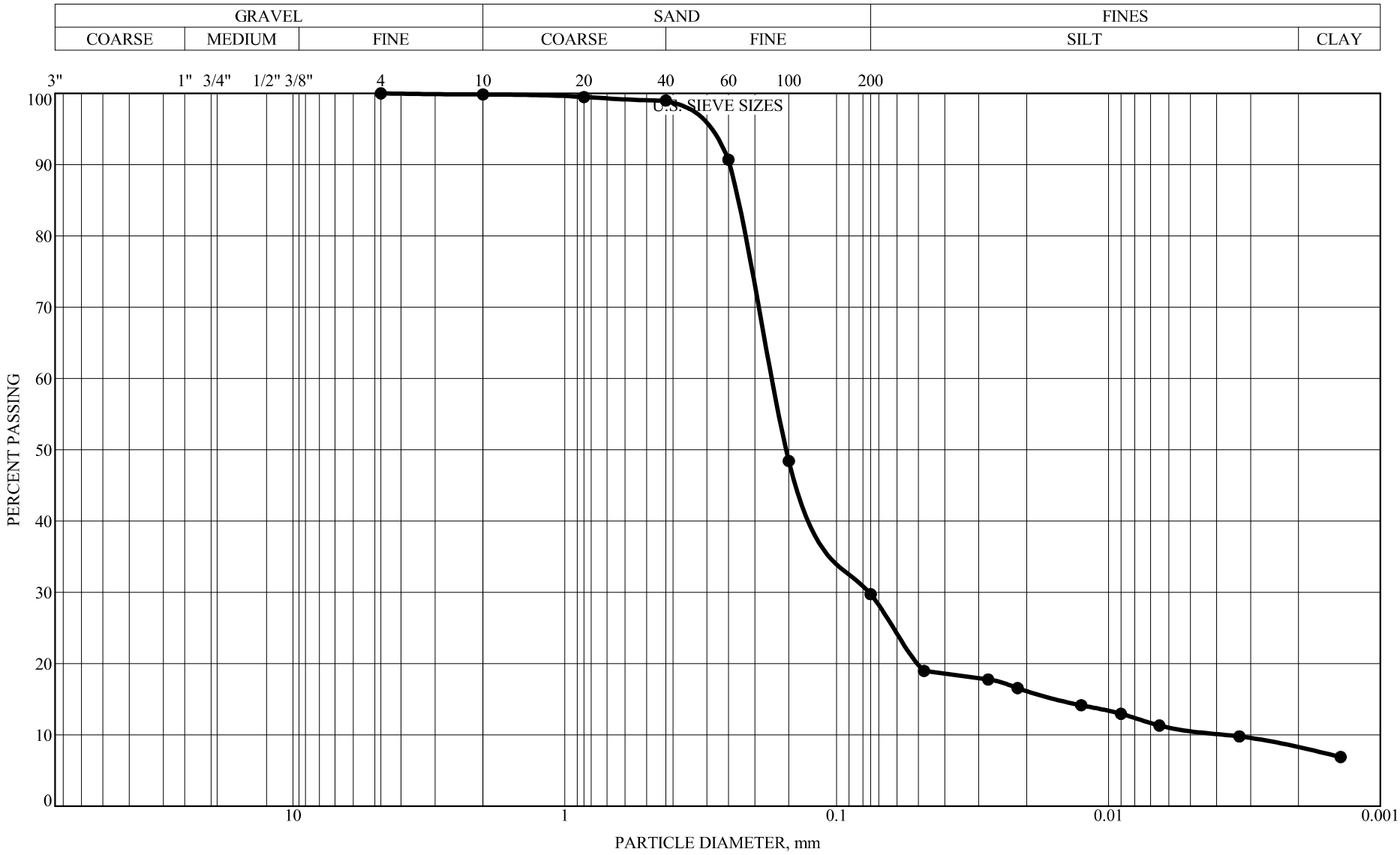
GRAVEL	0.3%
SAND	72.1%
SILT	18.9%
CLAY	8.7%

CLASSIFICATION:
A-2-4 (0), Brown
SILTY SAND(SM)

LL=NP, PL=NP, PI=NP

GS AASHTO 05662.GPJ BRAUN.GDT 1/11/16 10:29

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-A12 DEPTH: 0.5'-13.0'

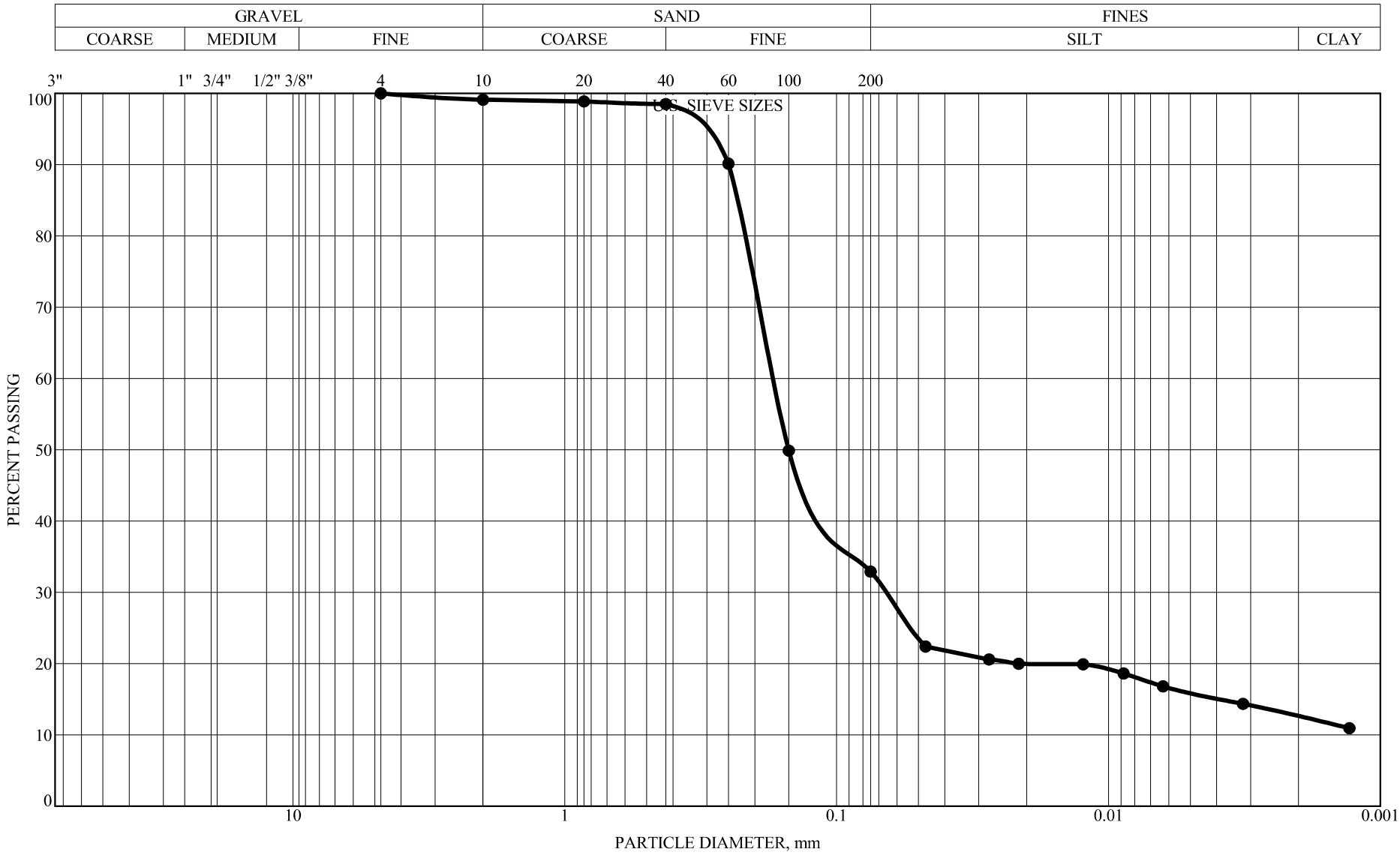
GRAVEL	0.1%
SAND	70.1%
SILT	21.6%
CLAY	8.1%

CLASSIFICATION:
A-2-4 (0), Brown
SILTY SAND(SM)

LL=NP, PL=NP, PI=NP

GS AASHTO 05662.GPJ BRAUN.GDT 1/11/16 10:29

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUN INTERTEC

Braun Project BM-12-05662
Geotechnical Evaluation
US Highway 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, North Dakota

BORING: LSS-A12 DEPTH: 13.0'-20.0'

GRAVEL	0.9%
SAND	66.2%
SILT	20.3%
CLAY	12.6%

CLASSIFICATION:
A-2-4 (0), Brown
SILTY SAND(SM)

LL=NP, PL=NP, PI=NP

GS AASHTO 05662.GPJ BRAUN.GDT 1/11/16 10:29

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S4
Issue No: 1

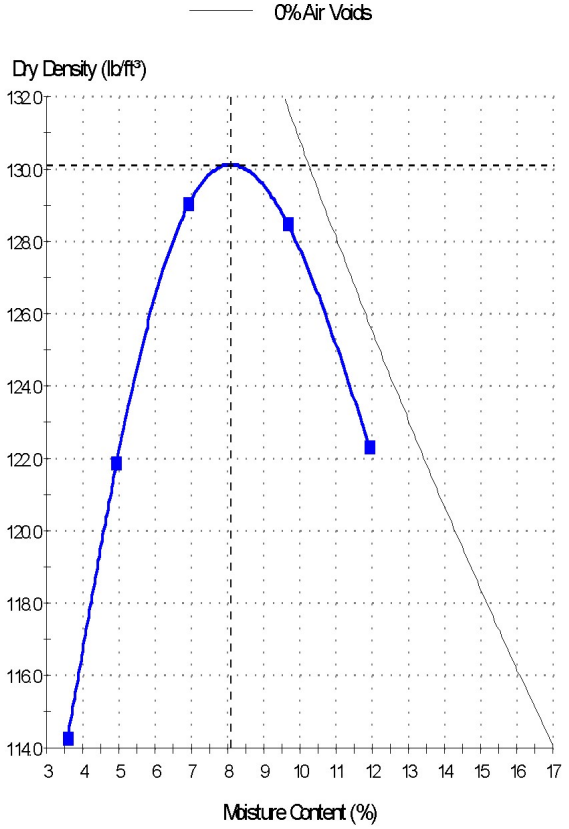
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/13/2013

Sample Details

Sample ID:	W13-000676-S4	**Alternate Sample ID:**	LSS-04; 1.4'-5'
Date Sampled:	3/26/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (1)		
Specification:	For Informational Purposes Only		
Location:	LSS-04; 1.4'-5'		
Tested By:	Kevin Ficek	**Date Tested:**	4/11/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**130**
Corrected Maximum Dry Density (lb/ft³):	**130**
Optimum Moisture Content (%):	**8**
Corrected Optimum Moisture Content (%):	**8**
Method:	D
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = 30; PI = 16
Percent Retained on #4 Sieve = 5.1%; Percent Passing #200 Sieve = 36.1%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S6
Issue No: 1

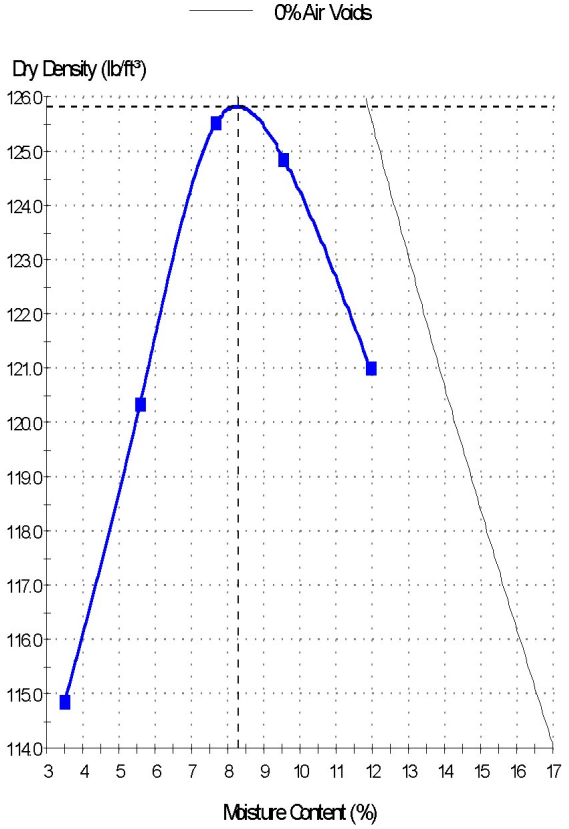
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/13/2013

Sample Details

Sample ID:	W13-000676-S6	**Alternate Sample ID:**	LSS-06; 1.4'-5'
Date Sampled:	3/26/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-2-6 (1)		
Specification:	For Informational Purposes Only		
Location:	LSS-06; 1.4'-5'		
Tested By:	Kurt Kuechle	**Date Tested:**	4/11/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**126**
Corrected Maximum Dry Density (lb/ft³):	**126**
Optimum Moisture Content (%):	**8**
Corrected Optimum Moisture Content (%):	**8**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = 29; PI = 14
Percent Retained on #4 Sieve = 5.0%; Percent Passing #200 Sieve = 35.4%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S8
Issue No: 1

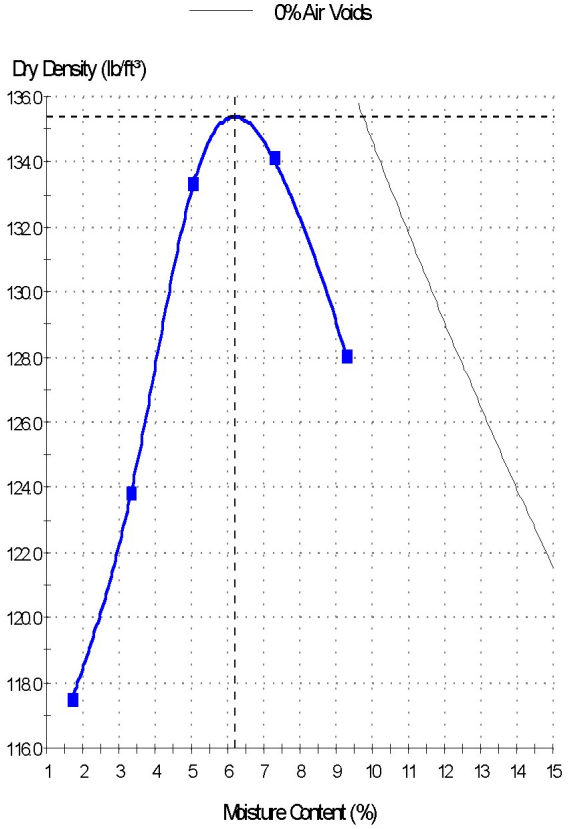
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/13/2013

Sample Details

Sample ID:	W13-000676-S8	**Alternate Sample ID:**	LSS-08; 3'-5'
Date Sampled:	3/26/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand with Gravel (SC); A-2-6 (0)		
Specification:	For Informational Purposes Only		
Location:	LSS-08; 3'-5'		
Tested By:	Kurt Kuechle	**Date Tested:**	4/18/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**135**
Corrected Maximum Dry Density (lb/ft³):	**135**
Optimum Moisture Content (%):	**6**
Corrected Optimum Moisture Content (%):	**6**
Method:	D
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 26; PI = 11
Percent Retained on #4 Sieve = 17.5%; Percent Passing #200 Sieve = 27.2%

Braun Intertec Corporation
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Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S10
Issue No: 1

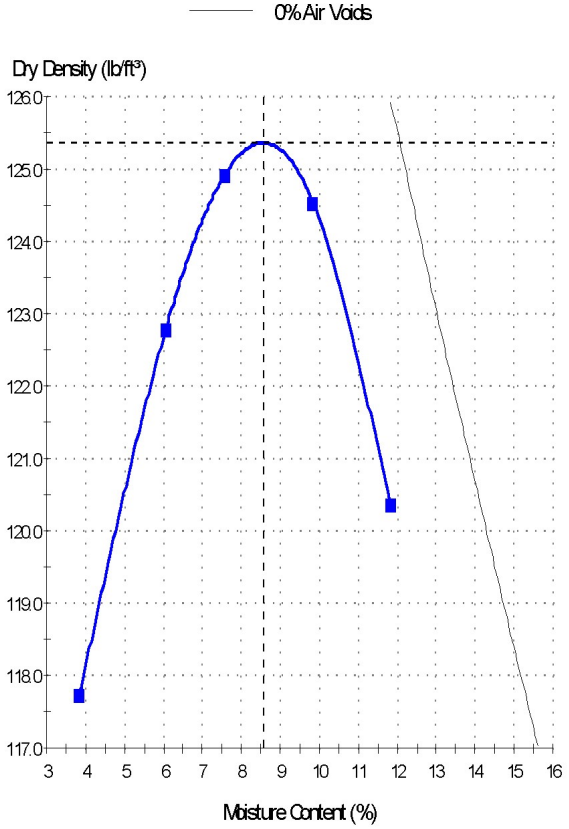
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/13/2013

Sample Details

Sample ID:	W13-000676-S10	**Alternate Sample ID:**	LSS-10; 1.6'-5'
Date Sampled:	3/26/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-2-6 (0)		
Specification:	For Informational Purposes Only		
Location:	LSS-10; 1.6'-5'		
Tested By:	Kurt Kuechle	**Date Tested:**	4/12/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**125**
Corrected Maximum Dry Density (lb/ft³):	**125**
Optimum Moisture Content (%):	**9**
Corrected Optimum Moisture Content (%):	**9**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = 29; PI = 13
Percent Retained on #4 Sieve = 4.9%; Percent Passing #200 Sieve = 28.3%

Braun Intertec Corporation
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Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S12
Issue No: 1

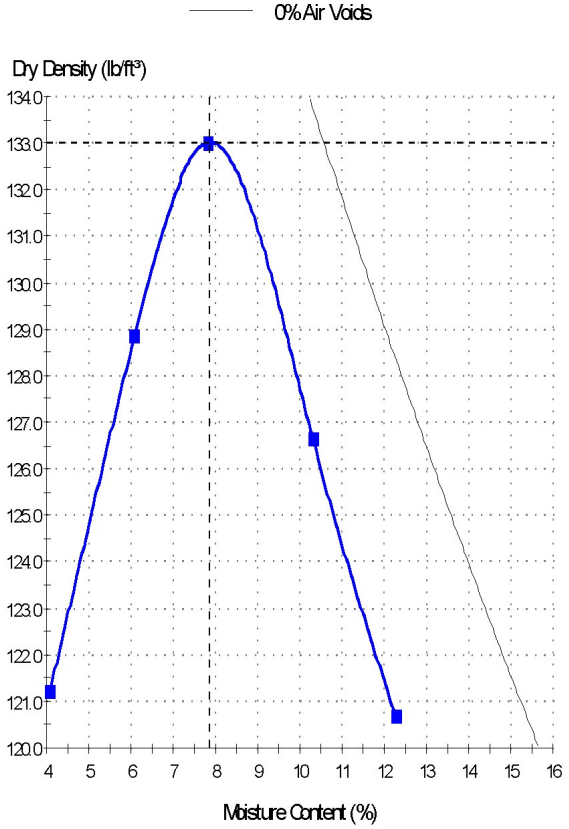
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/13/2013

Sample Details

Sample ID:	W13-000676-S12	**Alternate Sample ID:**	LSS-12; 1.5'-5'
Date Sampled:	3/26/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-2-4 (0)		
Specification:	For Informational Purposes Only		
Location:	LSS-12; 1.5'-5'		
Tested By:	Kevin Ficek	**Date Tested:**	4/15/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**133**
Corrected Maximum Dry Density (lb/ft³):	**133**
Optimum Moisture Content (%):	**8**
Corrected Optimum Moisture Content (%):	**8**
Method:	D
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 27; PI = 10
Percent Retained on #4 Sieve = 13.5%; Percent Passing #200 Sieve = 29.4%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S14
Issue No: 1

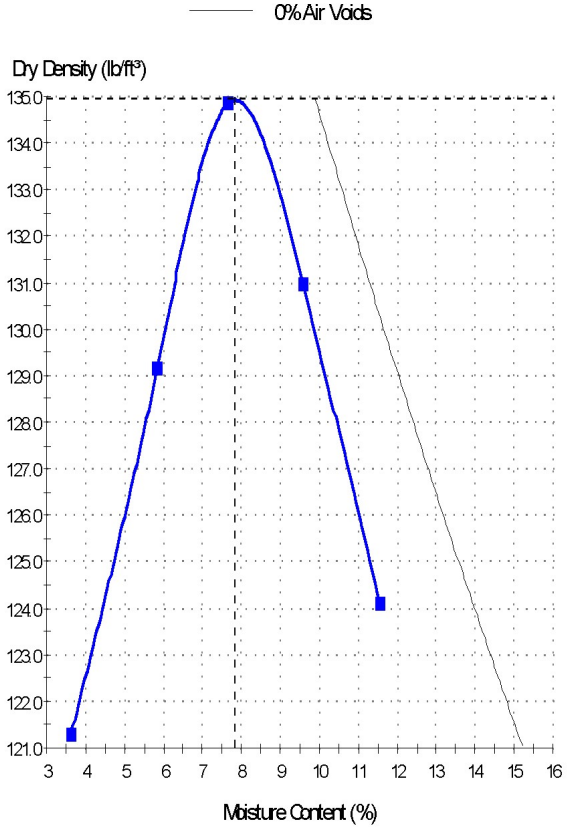
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/13/2013

Sample Details

Sample ID:	W13-000676-S14	**Alternate Sample ID:**	LSS-14; 1.6'-4'
Date Sampled:	3/26/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-2-6 (0)		
Specification:	For Informational Purposes Only		
Location:	LSS-14; 1.6'-4'		
Tested By:	Thomas Wagner	**Date Tested:**	4/18/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**135**
Corrected Maximum Dry Density (lb/ft³):	**135**
Optimum Moisture Content (%):	**8**
Corrected Optimum Moisture Content (%):	**8**
Method:	D
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 26; PI = 12
Percent Retained on #4 Sieve = 8.2%; Percent Passing #200 Sieve = 33.2%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S16
Issue No: 1

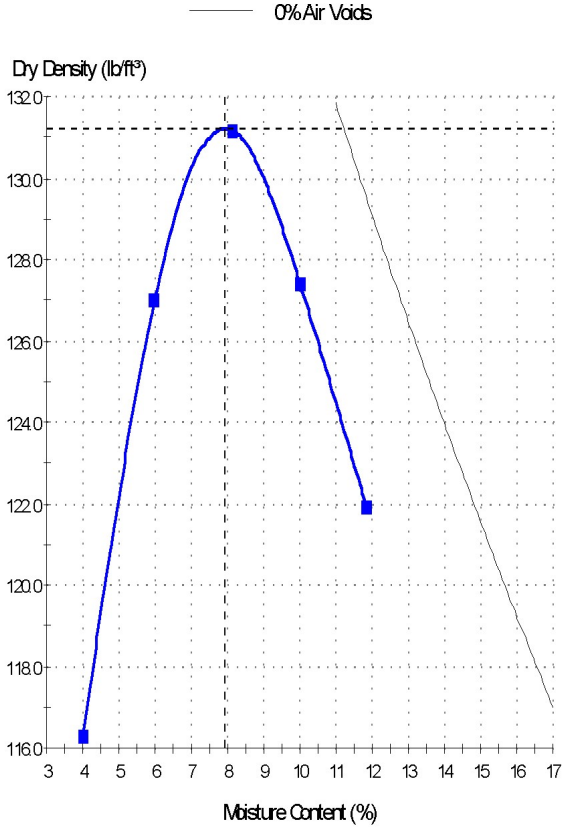
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/13/2013

Sample Details

Sample ID:	W13-000676-S16	**Alternate Sample ID:**	LSS-16; 1.5'-5'
Date Sampled:	3/26/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-2-6 (0)		
Specification:	For Informational Purposes Only		
Location:	LSS-16; 1.5'-5'		
Tested By:	Shane Falwey	**Date Tested:**	5/2/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**131**
Corrected Maximum Dry Density (lb/ft³):	**131**
Optimum Moisture Content (%):	**8**
Corrected Optimum Moisture Content (%):	**8**
Method:	D
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown and Gray

Comments

Assumed Specific Gravity = 2.75
LL = 28; PI = 12
Percent Retained on #4 Sieve = 7.6%; Percent Passing #200 Sieve = 33.7%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S18
Issue No: 1

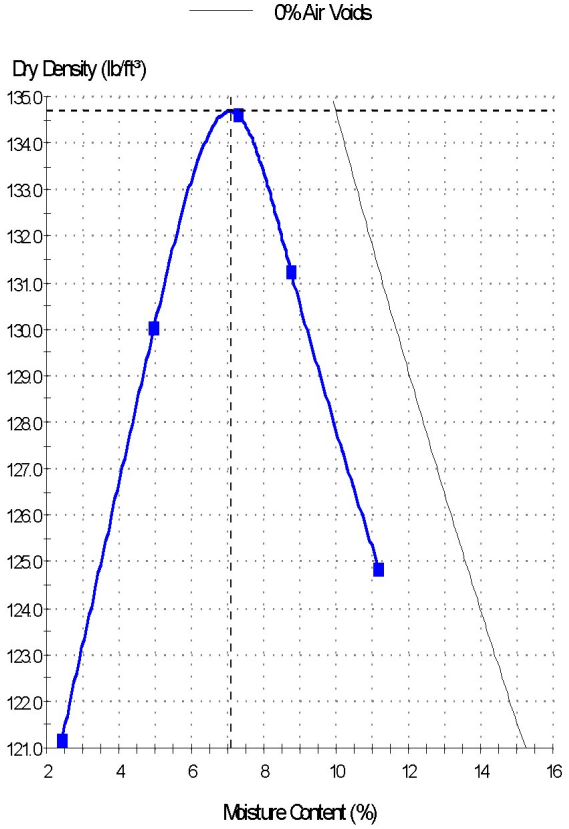
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/13/2013

Sample Details

Sample ID:	W13-000676-S18	**Alternate Sample ID:**	LSS-18; 1.8'-5'
Date Sampled:	3/26/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Silty, Clayey Sand with Gravel (SC-SM); A-2-4 (0)		
Specification:	For Informational Purposes Only		
Location:	LSS-18; 1.8'-5'		
Tested By:	Shane Falwey	**Date Tested:**	5/2/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**135**
Corrected Maximum Dry Density (lb/ft³):	**135**
Optimum Moisture Content (%):	**7**
Corrected Optimum Moisture Content (%):	**7**
Method:	D
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 21; PI = 6
Percent Retained on #4 Sieve = 30.1%; Percent Passing #200 Sieve = 21.8%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S20
Issue No: 1

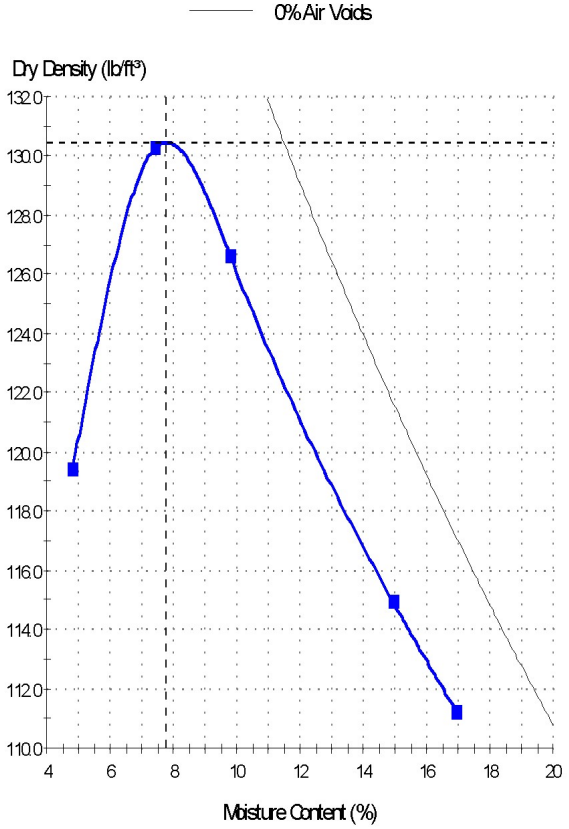
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S20	**Alternate Sample ID:**	LSS-20; 2.5'-5'
Date Sampled:	3/26/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (4)		
Specification:	For Informational Purposes Only		
Location:	LSS-20; 2.5'-5'		
Tested By:	Robert Lee	**Date Tested:**	5/13/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**130**
Corrected Maximum Dry Density (lb/ft³):	**130**
Optimum Moisture Content (%):	**8**
Corrected Optimum Moisture Content (%):	**8**
Method:	D
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown and Gray

Comments

Assumed Specific Gravity = 2.75
LL = 31; PI = 18
Percent Retained on #4 Sieve = 11.5%; Percent Passing #200 Sieve = 45.8%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S22
Issue No: 1

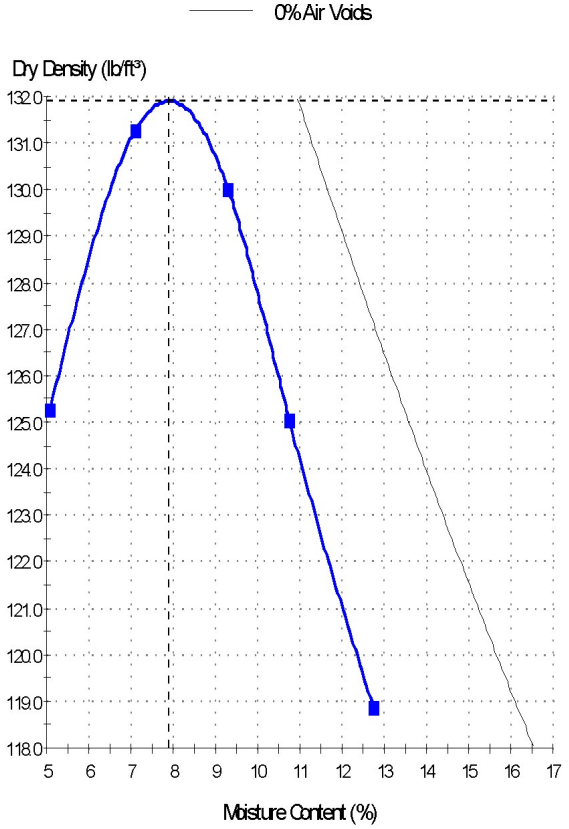
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S22	**Alternate Sample ID:**	LSS-22; 2'-5'
Date Sampled:	3/26/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand with Gravel (SC); A-6 (1)		
Specification:	For Informational Purposes Only		
Location:	LSS-22; 2'-5'		
Tested By:	Chris Swenson	**Date Tested:**	4/18/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**132**
Corrected Maximum Dry Density (lb/ft³):	**132**
Optimum Moisture Content (%):	**8**
Corrected Optimum Moisture Content (%):	**8**
Method:	D
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 26; PI = 12
Percent Retained on #4 Sieve = 15.9%; Percent Passing #200 Sieve = 40.6%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S24
Issue No: 1

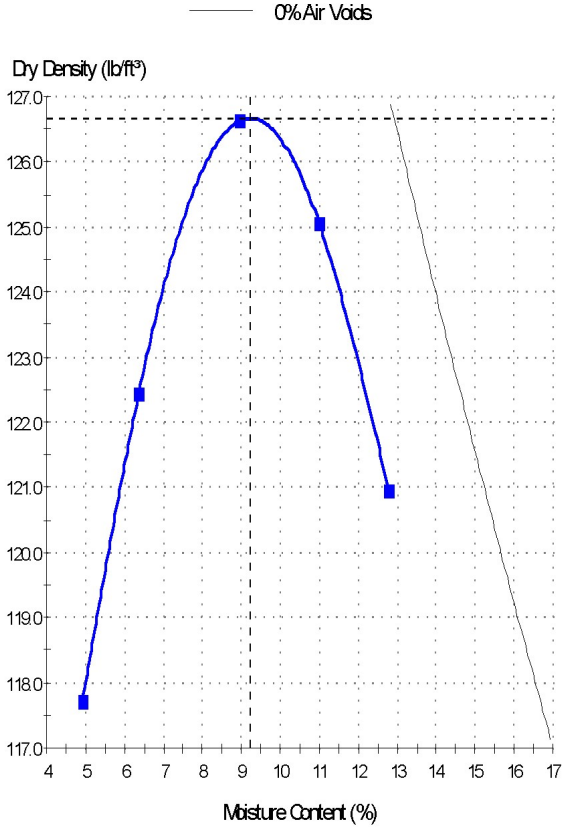
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S24	**Alternate Sample ID:**	LSS-24; 2.5'-5'
Date Sampled:	3/26/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (3)		
Specification:	For Informational Purposes Only		
Location:	LSS-24; 2.5'-5'		
Tested By:	Chris Swenson	**Date Tested:**	5/2/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**127**
Corrected Maximum Dry Density (lb/ft³):	**127**
Optimum Moisture Content (%):	**9**
Corrected Optimum Moisture Content (%):	**9**
Method:	D
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Gray

Comments

Assumed Specific Gravity = 2.75
LL = 29; PI = 15
Percent Retained on #4 Sieve = 7.0%; Percent Passing #200 Sieve = 46.1%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S26
Issue No: 1

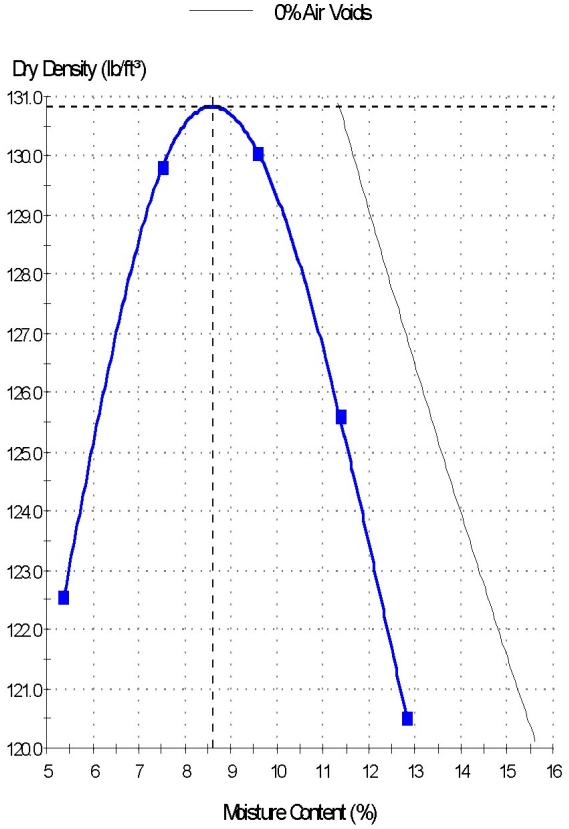
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S26	**Alternate Sample ID:**	LSS-26; 1.5'-5'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand with Gravel (SC); A-6 (0)		
Specification:	For Informational Purposes Only		
Location:	LSS-26; 1.5'-5'		
Tested By:	Kevin Ficek	**Date Tested:**	5/2/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**131**
Corrected Maximum Dry Density (lb/ft³):	**131**
Optimum Moisture Content (%):	**9**
Corrected Optimum Moisture Content (%):	**9**
Method:	D
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 24; PI = 11
Percent Retained on #4 Sieve = 17.7%; Percent Passing #200 Sieve = 37.5%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S28
Issue No: 1

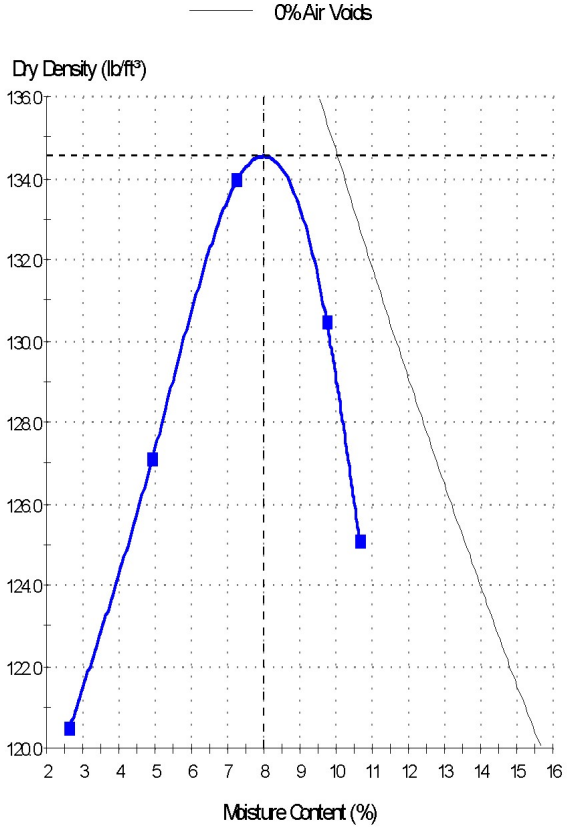
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S28	**Alternate Sample ID:**	LSS-28; 2'-4'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand with Gravel (SC); A-2-4 (0)		
Specification:	For Informational Purposes Only		
Location:	LSS-28; 2'-4'		
Tested By:	Kevin Ficek	**Date Tested:**	5/8/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**135**
Corrected Maximum Dry Density (lb/ft³):	**135**
Optimum Moisture Content (%):	**8**
Corrected Optimum Moisture Content (%):	**8**
Method:	D
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 21; PI = 8
Percent Retained on #4 Sieve =26.0%; Percent Passing #200 Sieve = 23.6%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S30
Issue No: 1

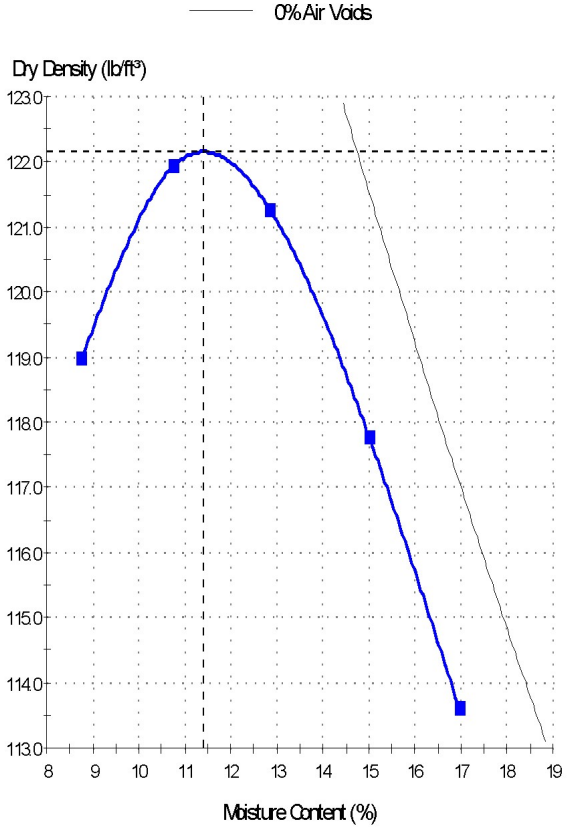
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S30	**Alternate Sample ID:**	LSS-30; 1.6'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Fat Clay (CH); A-7-6 (49)		
Specification:	For Informational Purposes Only		
Location:	LSS-30; 1.6'-7'		
Tested By:	Chris Swenson	**Date Tested:**	5/2/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**122**
Corrected Maximum Dry Density (lb/ft³):	**122**
Optimum Moisture Content (%):	**11**
Corrected Optimum Moisture Content (%):	**11**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Gray

Comments

Assumed Specific Gravity = 2.75
LL = 64; PI = 47
Percent Retained on #4 Sieve = 0%; Percent Passing #200 Sieve = 94.7%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S32
Issue No: 1

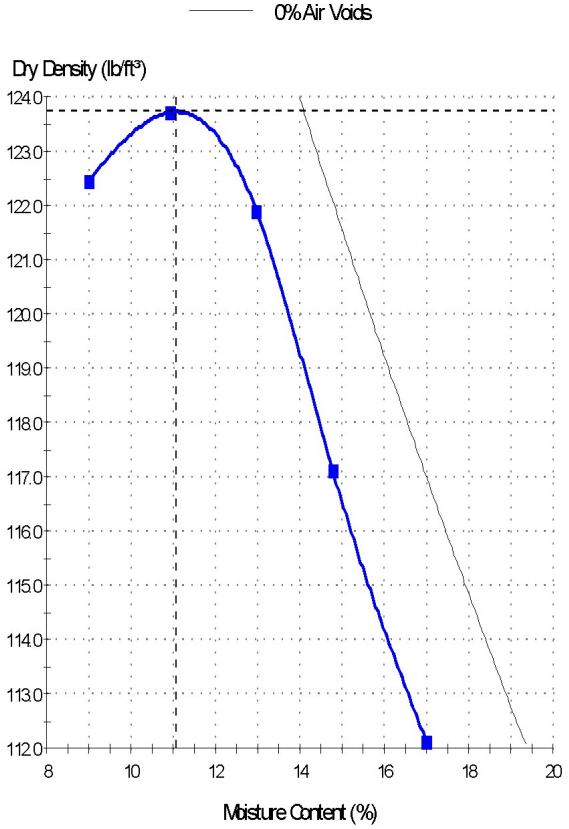
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S32	**Alternate Sample ID:**	LSS-32; 1.7'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Lean Clay (CL); A-7-6 (29)		
Specification:	For Informational Purposes Only		
Location:	LSS-32; 1.7'-7'		
Tested By:	Myron M Colton	**Date Tested:**	5/2/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**124**
Corrected Maximum Dry Density (lb/ft³):	**124**
Optimum Moisture Content (%):	**11**
Corrected Optimum Moisture Content (%):	**11**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown and Gray

Comments

Assumed Specific Gravity = 2.75
LL = 46; PI = 30
Percent Retained on #4 Sieve = 0%; Percent Passing #200 Sieve = 91.5%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S34
Issue No: 1

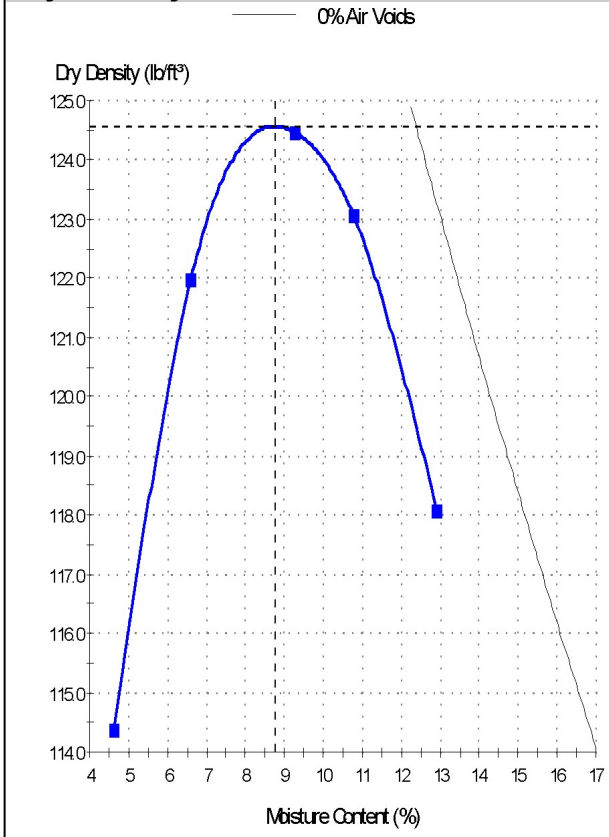
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S34	**Alternate Sample ID:**	LSS-34; 1.1'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (1)		
Specification:	For Informational Purposes Only		
Location:	LSS-34; 1.1'-7'		
Tested By:	Kurt Kuechle	**Date Tested:**	4/19/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**125**
Corrected Maximum Dry Density (lb/ft³):	**125**
Optimum Moisture Content (%):	**9**
Corrected Optimum Moisture Content (%):	**9**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = 27; PI = 11
Percent Retained on #4 Sieve = 0.9%; Percent Passing #200 Sieve = 39.4%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S36
Issue No: 1

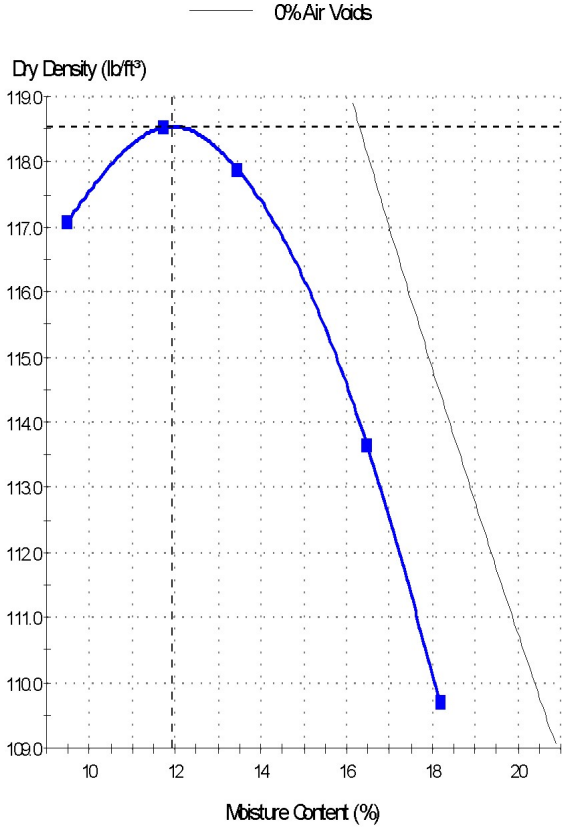
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S36	**Alternate Sample ID:**	LSS-36; 1.5'-5'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (3)		
Specification:	For Informational Purposes Only		
Location:	LSS-36; 1.5'-5'		
Tested By:	Chris Swenson	**Date Tested:**	4/24/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**119**
Corrected Maximum Dry Density (lb/ft³):	**119**
Optimum Moisture Content (%):	**12**
Corrected Optimum Moisture Content (%):	**12**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 33; PI = 18
Percent Retained on #4 Sieve = 4.9%; Percent Passing #200 Sieve = 39.6%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S38
Issue No: 1

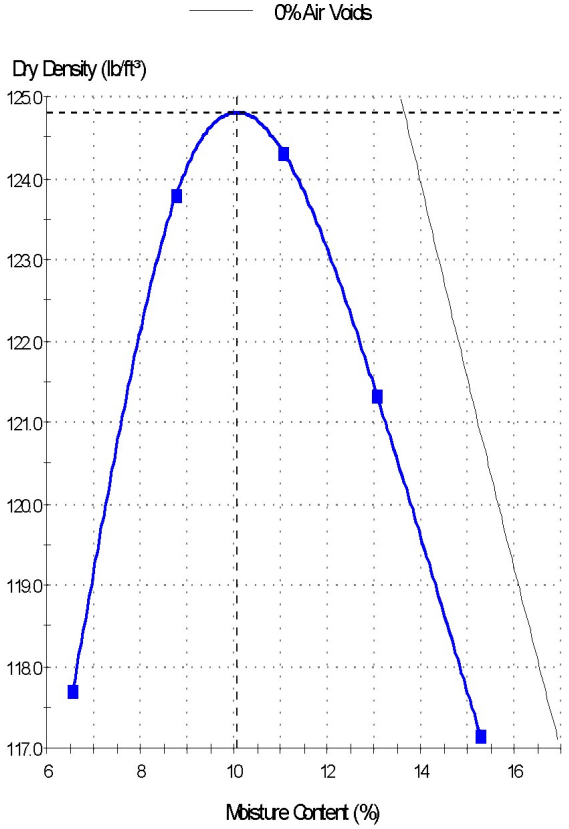
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S38	**Alternate Sample ID:**	LSS-38; 2.3'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (1)		
Specification:	For Informational Purposes Only		
Location:	LSS-38; 2.3'-7'		
Tested By:	Patrick Farrington	**Date Tested:**	5/2/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**125**
Corrected Maximum Dry Density (lb/ft³):	**125**
Optimum Moisture Content (%):	**10**
Corrected Optimum Moisture Content (%):	**10**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 28; PI = 12
Percent Retained on #4 Sieve = 1.8%; Percent Passing #200 Sieve = 40.4%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S40
Issue No: 1

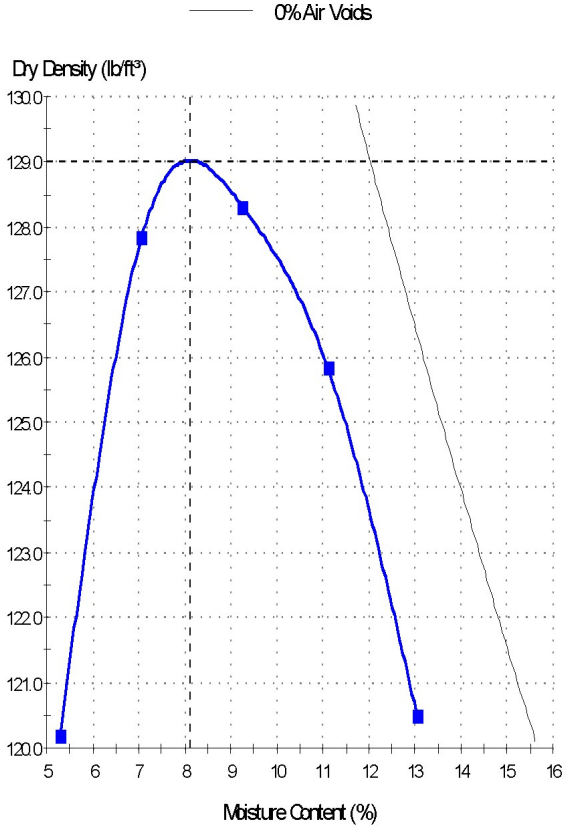
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S40	**Alternate Sample ID:**	LSS-40; 1.7'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (4)		
Specification:	For Informational Purposes Only		
Location:	LSS-40; 1.7'-7'		
Tested By:	Josh Beringer	**Date Tested:**	4/17/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**129**
Corrected Maximum Dry Density (lb/ft³):	**129**
Optimum Moisture Content (%):	**8**
Corrected Optimum Moisture Content (%):	**8**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 29; PI = 16
Percent Retained on #4 Sieve = 2.2%, Percent Passing #200 Sieve = 47.7%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S42
Issue No: 1

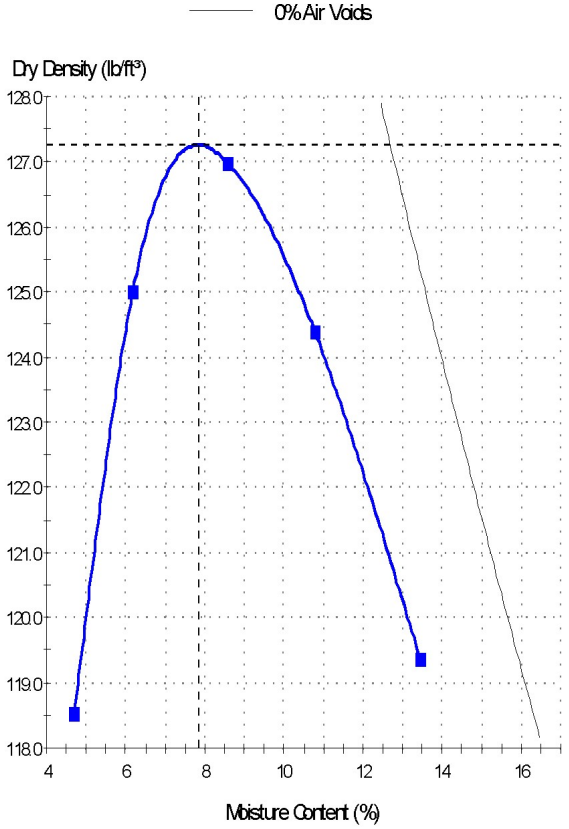
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S42	**Alternate Sample ID:**	LSS-42; 2'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (4)		
Specification:	For Informational Purposes Only		
Location:	LSS-42; 2'-7'		
Tested By:	Ron Simison	**Date Tested:**	4/19/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**127**
Corrected Maximum Dry Density (lb/ft³):	**127**
Optimum Moisture Content (%):	**8**
Corrected Optimum Moisture Content (%):	**8**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 32; PI = 19
Percent Retained on #4 Sieve = 3.0%; Percent Passing #200 Sieve = 41.5%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S44
Issue No: 1

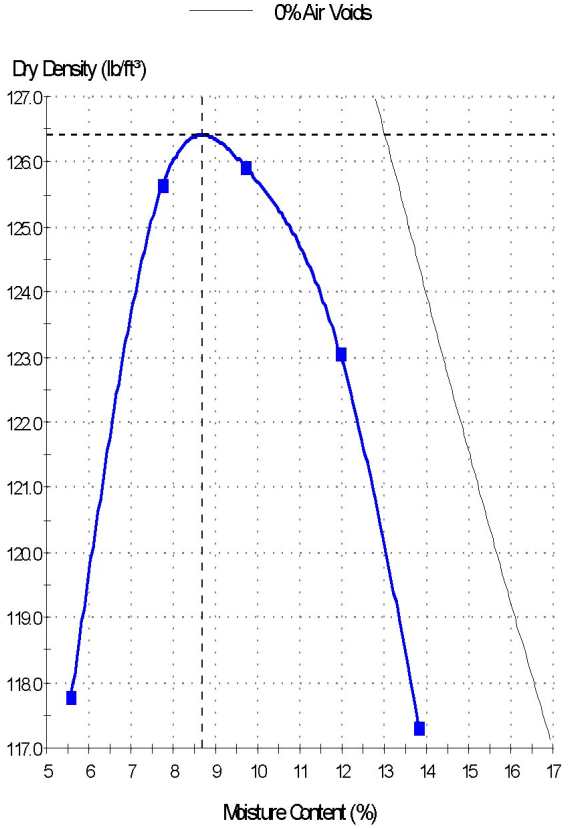
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S44	**Alternate Sample ID:**	LSS-44; 1.3'-5'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (2)		
Specification:	For Informational Purposes Only		
Location:	LSS-44; 1.3'-5'		
Tested By:	Josh Beringer	**Date Tested:**	4/16/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**126**
Corrected Maximum Dry Density (lb/ft³):	**126**
Optimum Moisture Content (%):	**9**
Corrected Optimum Moisture Content (%):	**9**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 28; PI = 13
Percent Retained on #4 Sieve = 4.9%, Percent Passing #200 Sieve = 41.0%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S46
Issue No: 1

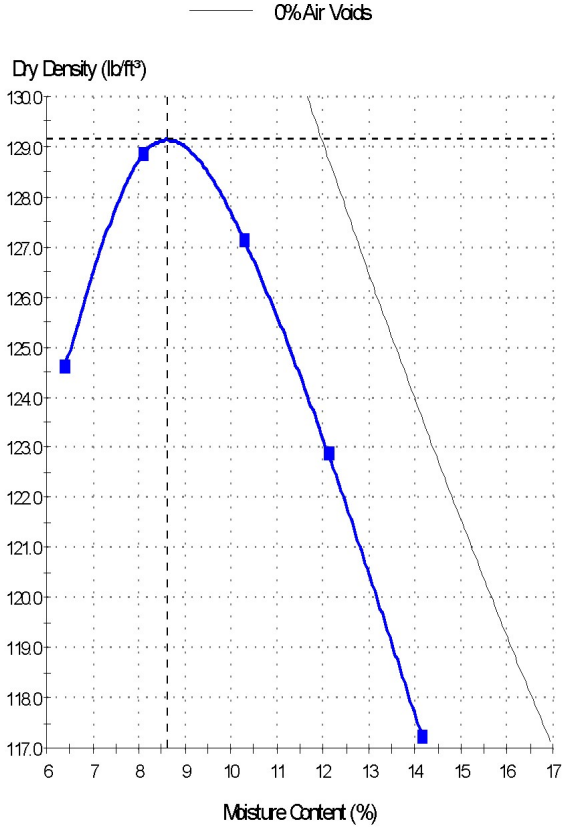
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S46	**Alternate Sample ID:**	LSS-46; 1.3'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Sandy Lean Clay (CL); A-6 (10)		
Specification:	For Informational Purposes Only		
Location:	LSS-46; 1.3'-7'		
Tested By:	Josh Beringer	**Date Tested:**	4/22/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**129**
Corrected Maximum Dry Density (lb/ft³):	**129**
Optimum Moisture Content (%):	**9**
Corrected Optimum Moisture Content (%):	**9**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 37; PI = 23
Percent Retained on #4 Sieve = 3.3%; Percent Passing #200 Sieve = 59.6%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S48
Issue No: 1

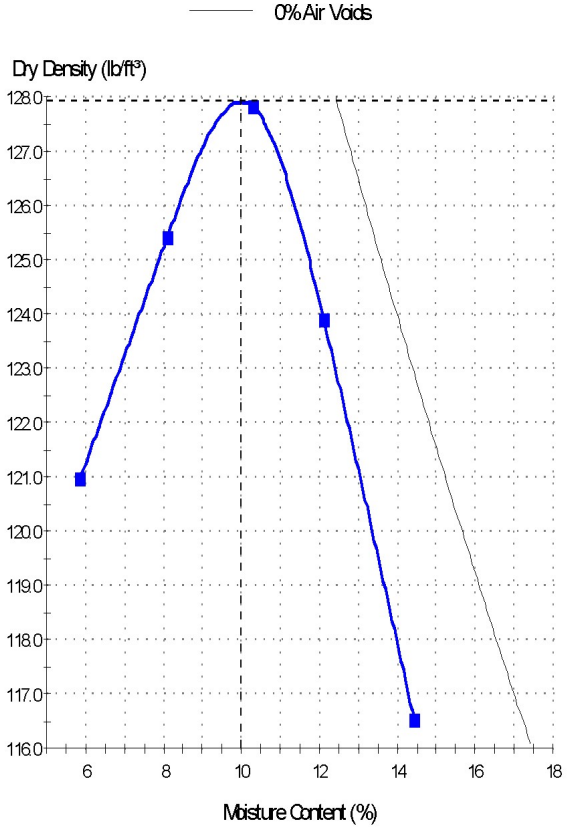
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S48	**Alternate Sample ID:**	LSS-48; 2'-5'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (4)		
Specification:	For Informational Purposes Only		
Location:	LSS-48; 2'-5'		
Tested By:	Patrick Farrington	**Date Tested:**	4/23/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**128**
Corrected Maximum Dry Density (lb/ft³):	**128**
Optimum Moisture Content (%):	**10**
Corrected Optimum Moisture Content (%):	**10**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 30; PI = 16
Percent Retained on #4 Sieve = 4.8%; Percent Passing #200 Sieve = 47.4%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S50
Issue No: 1

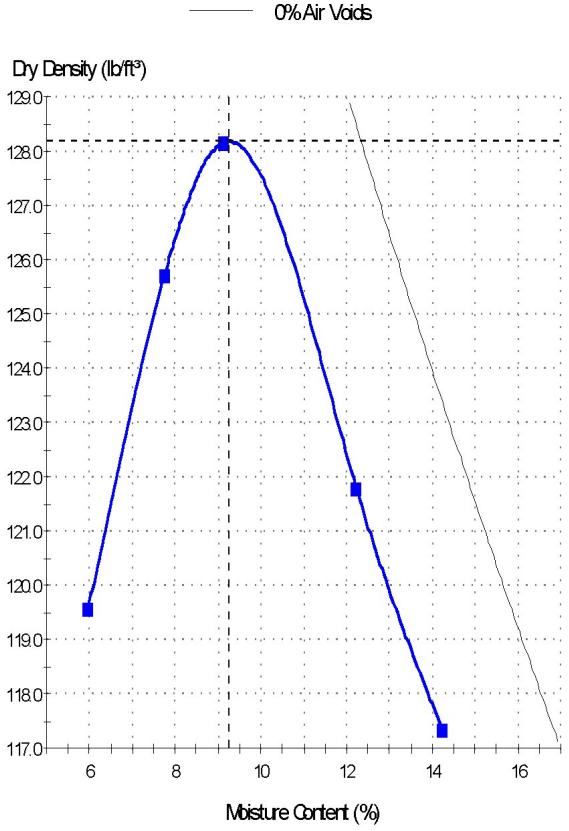
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S50	**Alternate Sample ID:**	LSS-50; 2'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Sandy Lean Clay (CL); A-6 (4)		
Specification:	For Informational Purposes Only		
Location:	LSS-50; 2'-7'		
Tested By:	Josh Beringer	**Date Tested:**	4/16/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**128**
Corrected Maximum Dry Density (lb/ft³):	**128**
Optimum Moisture Content (%):	**9**
Corrected Optimum Moisture Content (%):	**9**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 29; PI = 14
Percent Retained on #4 Sieve = 1.5%; Percent Passing #200 Sieve = 50.6%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S52
Issue No: 1

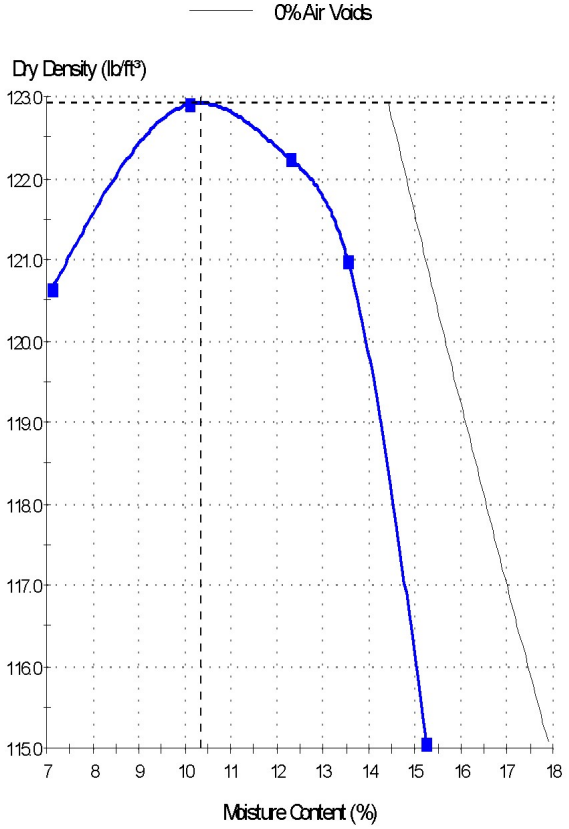
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S52	**Alternate Sample ID:**	LSS-52; 2.2'-4'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-4 (0)		
Specification:	For Informational Purposes Only		
Location:	LSS-52; 2.2'-4'		
Tested By:	Josh Beringer	**Date Tested:**	4/15/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**123**
Corrected Maximum Dry Density (lb/ft³):	**123**
Optimum Moisture Content (%):	**10**
Corrected Optimum Moisture Content (%):	**10**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown and Gray

Comments

Assumed Specific Gravity = 2.75
LL = 24; PI = 8
Percent Retained on #4 Sieve = 4.9%; Percent Passing #200 Sieve = 37.5%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S54
Issue No: 1

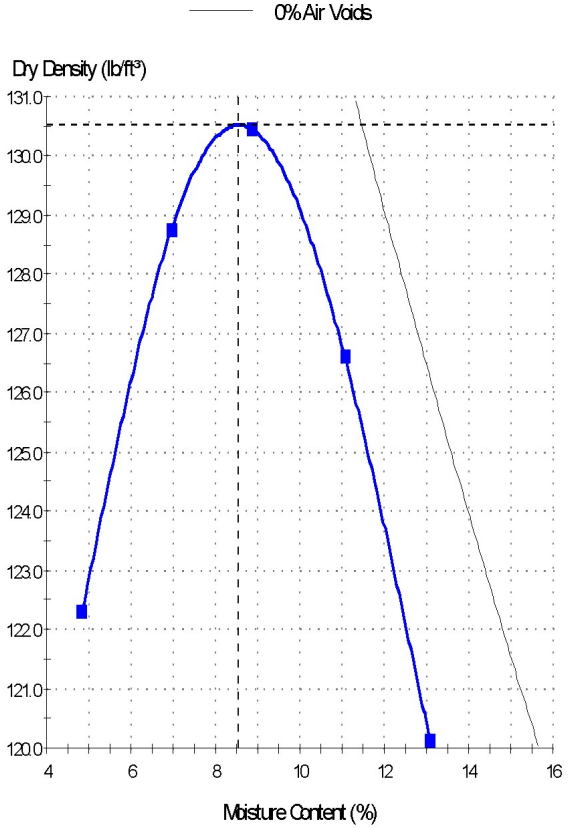
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S54	**Alternate Sample ID:**	LSS-54; 2'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (3)		
Specification:	For Informational Purposes Only		
Location:	LSS-54; 2'-7'		
Tested By:	Patrick Farrington	**Date Tested:**	4/22/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**131**
Corrected Maximum Dry Density (lb/ft³):	**131**
Optimum Moisture Content (%):	**9**
Corrected Optimum Moisture Content (%):	**9**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 28; PI = 15
Percent Retained on #4 Sieve = 3.7%; Percent Passing #200 Sieve = 47.4%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S56
Issue No: 1

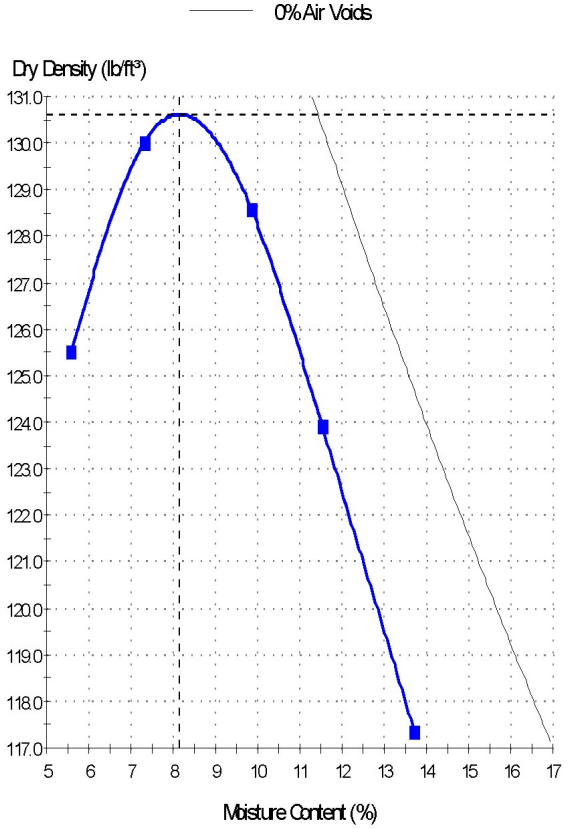
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S56	**Alternate Sample ID:**	LSS-56; 2.8'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-2-4 (0)		
Specification:	For Informational Purposes Only		
Location:	LSS-56; 2.8'-7'		
Tested By:	Josh Beringer	**Date Tested:**	4/16/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**131**
Corrected Maximum Dry Density (lb/ft³):	**131**
Optimum Moisture Content (%):	**8**
Corrected Optimum Moisture Content (%):	**8**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 25; PI = 10
Percent Retained on #4 Sieve = 4.8%; Percent Passing #200 Sieve = 35.0%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S58
Issue No: 1

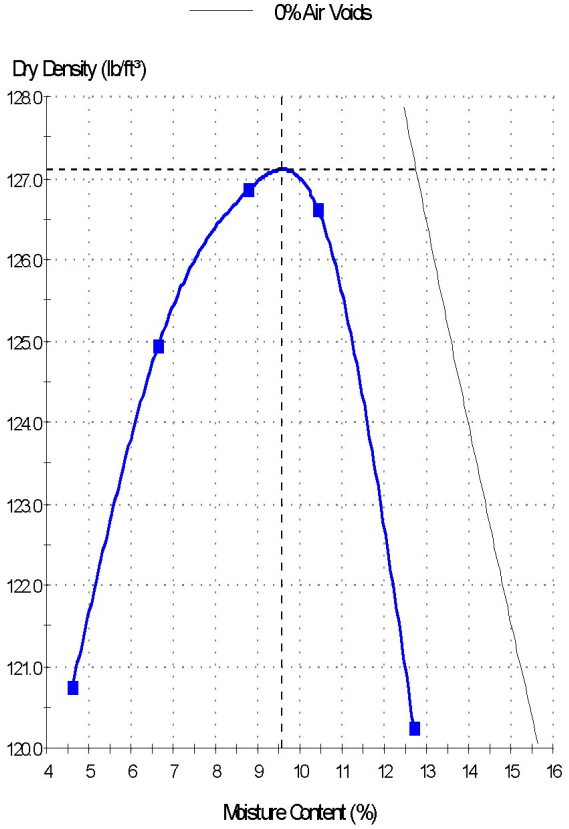
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S58	**Alternate Sample ID:**	LSS-58; 2'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (2)		
Specification:	For Informational Purposes Only		
Location:	LSS-58; 2'-7'		
Tested By:	Josh Beringer	**Date Tested:**	4/8/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**127**
Corrected Maximum Dry Density (lb/ft³):	**127**
Optimum Moisture Content (%):	**10**
Corrected Optimum Moisture Content (%):	**10**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 27; PI = 13
Percent Retained on #4 Sieve = 2.0%; Percent Passing #200 Sieve = 42.0%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S60
Issue No: 1

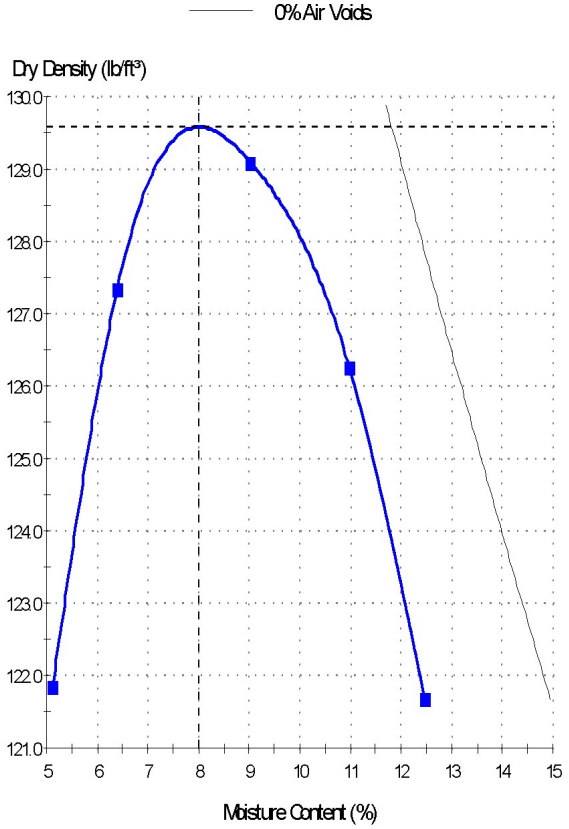
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S60	**Alternate Sample ID:**	LSS-60; 2'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (2)		
Specification:	For Informational Purposes Only		
Location:	LSS-60; 2'-7'		
Tested By:	Josh Beringer	**Date Tested:**	4/11/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**130**
Corrected Maximum Dry Density (lb/ft³):	**130**
Optimum Moisture Content (%):	**8**
Corrected Optimum Moisture Content (%):	**8**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown and Gray

Comments

Assumed Specific Gravity = 2.75
LL = 28; PI = 13
Percent Retained on #4 Sieve = 4.9%; Percent Passing #200 Sieve = 41.9%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S62
Issue No: 1

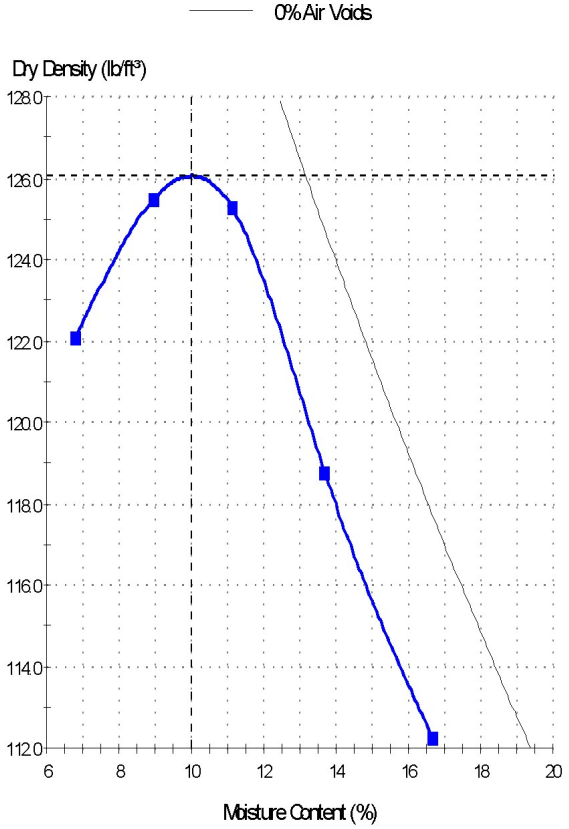
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S62	**Alternate Sample ID:**	LSS-62; 2.2'-6'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (3)		
Specification:	For Informational Purposes Only		
Location:	LSS-62; 2.2'-6'		
Tested By:	Josh Beringer	**Date Tested:**	4/9/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**126**
Corrected Maximum Dry Density (lb/ft³):	**126**
Optimum Moisture Content (%):	**10**
Corrected Optimum Moisture Content (%):	**10**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 30; PI = 15
Percent Retained on #4 Sieve = 4.3%; Percent Passing #200 Sieve = 43.8%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S64
Issue No: 1

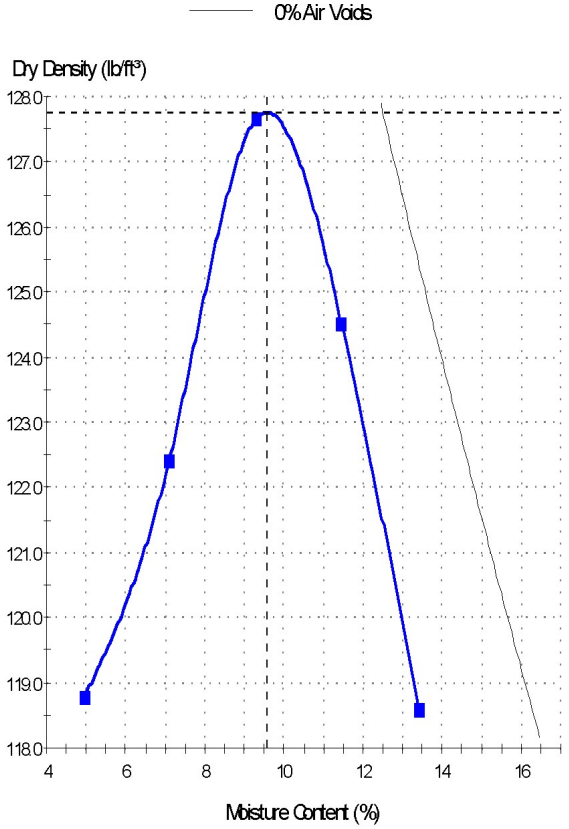
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S64	**Alternate Sample ID:**	LSS-64; 2'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (1)		
Specification:	For Informational Purposes Only		
Location:	LSS-64; 2'-7'		
Tested By:	Josh Beringer	**Date Tested:**	4/16/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**128**
Corrected Maximum Dry Density (lb/ft³):	**128**
Optimum Moisture Content (%):	**10**
Corrected Optimum Moisture Content (%):	**10**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 28; PI = 13
Percent Retained on #4 Sieve = 4.8%; Percent Passing #200 Sieve = 35.7%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S66
Issue No: 1

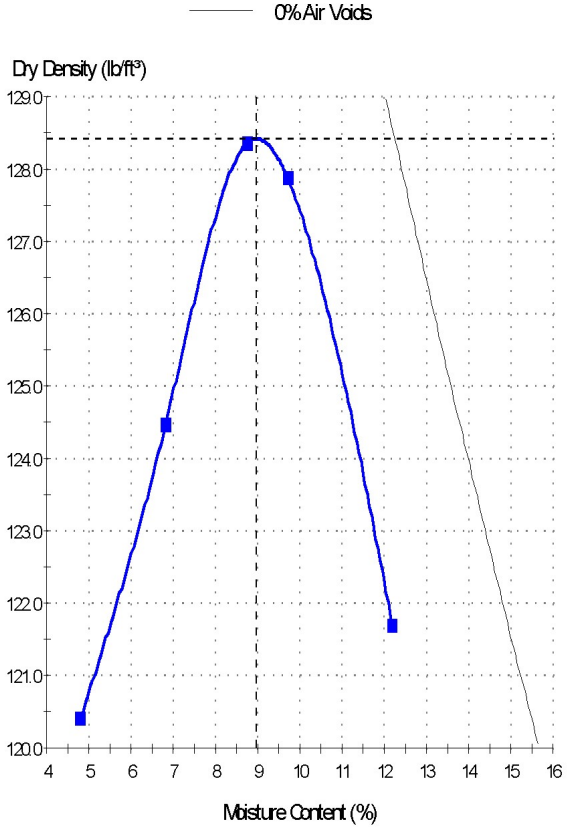
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S66	**Alternate Sample ID:**	LSS-66; 2'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (4)		
Specification:	For Informational Purposes Only		
Location:	LSS-66; 2'-7'		
Tested By:	Josh Beringer	**Date Tested:**	4/10/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**128**
Corrected Maximum Dry Density (lb/ft³):	**128**
Optimum Moisture Content (%):	**9**
Corrected Optimum Moisture Content (%):	**9**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 30; PI = 17
Percent Retained on #4 Sieve = 4.7%; Percent Passing #200 Sieve = 48.7%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S68
Issue No: 1

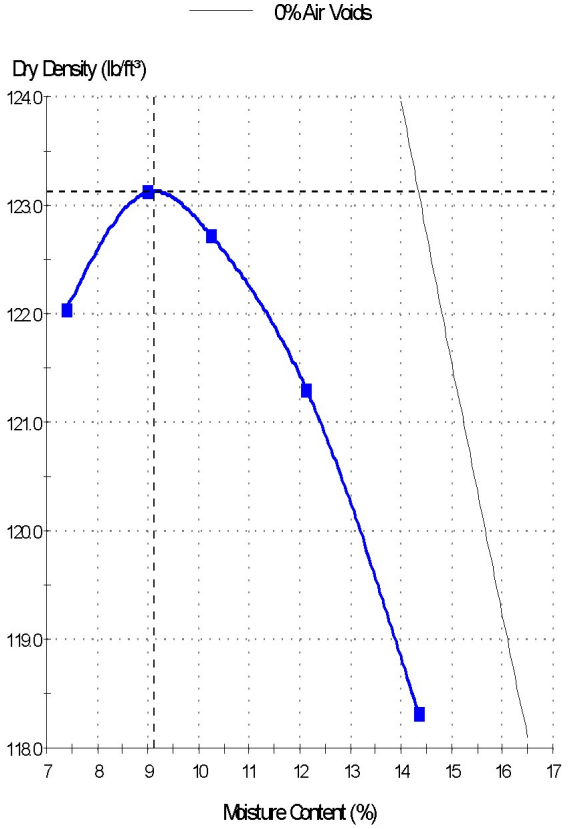
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S68	**Alternate Sample ID:**	LSS-68; 2'-7'
Date Sampled:	3/27/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Sandy Lean Clay (CL); A-6 (10)		
Specification:	For Informational Purposes Only		
Location:	LSS-68; 2'-7'		
Tested By:	Josh Beringer	**Date Tested:**	4/10/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**123**
Corrected Maximum Dry Density (lb/ft³):	**123**
Optimum Moisture Content (%):	**9**
Corrected Optimum Moisture Content (%):	**9**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 38; PI = 24
Percent Retained on #4 Sieve = 3.3%; Percent Passing #200 Sieve = 56.0%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S70
Issue No: 1

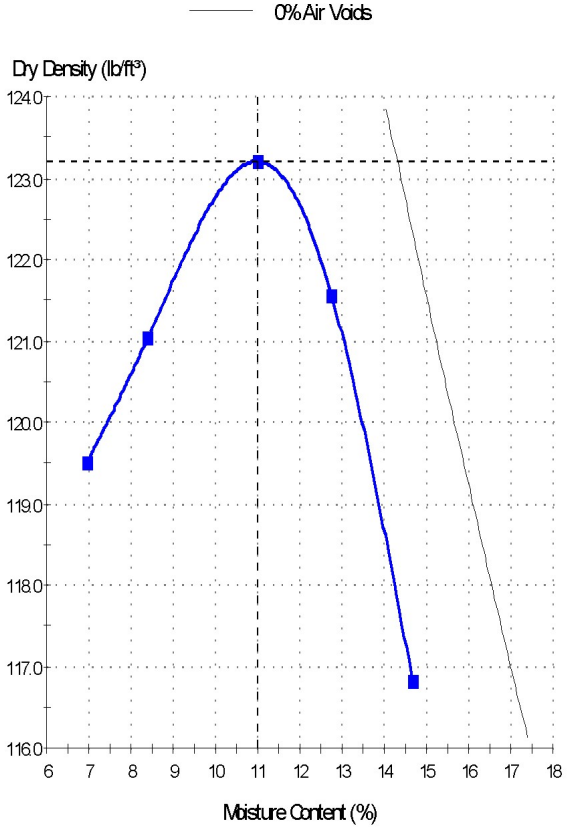
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S70	**Alternate Sample ID:**	LSS-70; 2'-7'
Date Sampled:	3/28/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Sandy Lean Clay (CL); A-6 (9)		
Specification:	For Informational Purposes Only		
Location:	LSS-70; 2'-7'		
Tested By:	Josh Beringer	**Date Tested:**	4/9/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**123**
Corrected Maximum Dry Density (lb/ft³):	**123**
Optimum Moisture Content (%):	**11**
Corrected Optimum Moisture Content (%):	**11**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 36; PI = 21
Percent Retained on #4 Sieve = 4.5%; Percent Passing #200 Sieve = 59.2%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S72
Issue No: 1

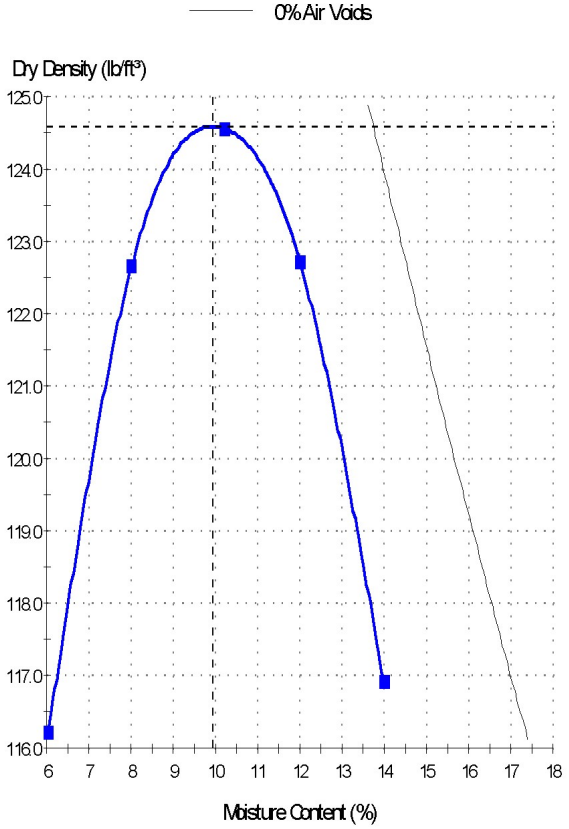
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S72	**Alternate Sample ID:**	LSS-72; 1.8'-7'
Date Sampled:	3/28/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (1)		
Specification:	For Informational Purposes Only		
Location:	LSS-72; 1.8'-7'		
Tested By:	Josh Beringer	**Date Tested:**	4/8/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**125**
Corrected Maximum Dry Density (lb/ft³):	**125**
Optimum Moisture Content (%):	**10**
Corrected Optimum Moisture Content (%):	**10**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 27; PI = 11
Percent Retained on #4 Sieve = 3.0%; Percent Passing #200 Sieve = 41.0%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S74
Issue No: 1

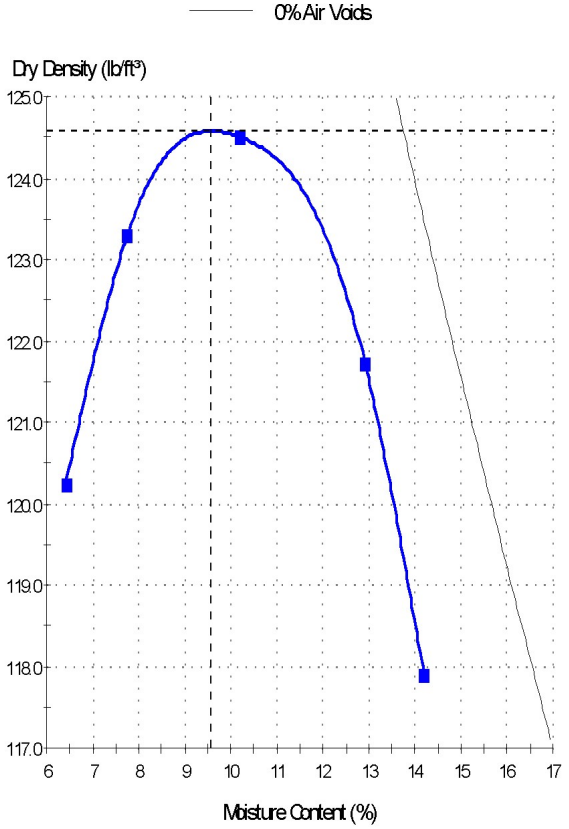
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S74	**Alternate Sample ID:**	LSS-74; 1.5'-7'
Date Sampled:	3/28/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Clayey Sand (SC); A-6 (5)		
Specification:	For Informational Purposes Only		
Location:	LSS-74; 1.5'-7'		
Tested By:	Josh Beringer	**Date Tested:**	4/8/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**125**
Corrected Maximum Dry Density (lb/ft³):	**125**
Optimum Moisture Content (%):	**10**
Corrected Optimum Moisture Content (%):	**10**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.75
LL = 32; PI = 17
Percent Retained on #4 Sieve = 4.1%; Percent Passing #200 Sieve = 49.7%

Braun Intertec Corporation
1341 South 20th Street, Suite 5, P.O. Box 1836
Bismarck, ND 58504
Phone: 701.255.7180

Proctor Report

Report No: PTR:W13-000676-S77
Issue No: 1

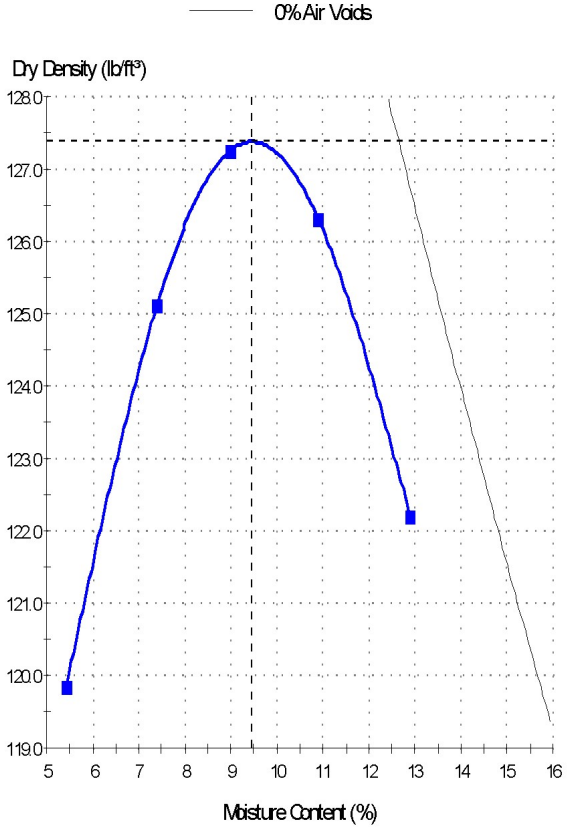
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
PM: Ezra Ballinger, eballinger@BraunIntertec.com

Brianne Nauman
EIT
Date of Issue: 6/17/2013

Sample Details

Sample ID:	W13-000676-S77	**Alternate Sample ID:**	LSS-77; 2.5'-7'
Date Sampled:	3/28/2013	**Date Submitted:**	3/28/2013
Sampled By:	Steve Wenko	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Subgrade		
Material:	Sandy Lean Clay (CL); A-6 (8)		
Specification:	For Informational Purposes Only		
Location:	LSS-77; 2.5'-7'		
Tested By:	Josh Beringer	**Date Tested:**	4/15/2013

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**127**
Corrected Maximum Dry Density (lb/ft³):	**127**
Optimum Moisture Content (%):	**9**
Corrected Optimum Moisture Content (%):	**9**
Method:	A
Material on 19.0mm Sieve:	Removed
Rammer Type:	Hand round
Visual Description:	Brown and Gray

Comments

Assumed Specific Gravity = 2.75
LL = 33; PI = 19
Percent Retained on #4 Sieve = 3.7%; Percent Passing #200 Sieve = 57.6%

Braun Intertec Corporation
526 10th Street NE, Suite 300
West Fargo, ND 58078
Phone: 701.232.8701

Proctor Report

Report No: PTR:W15-001984-S6
Issue No: 1

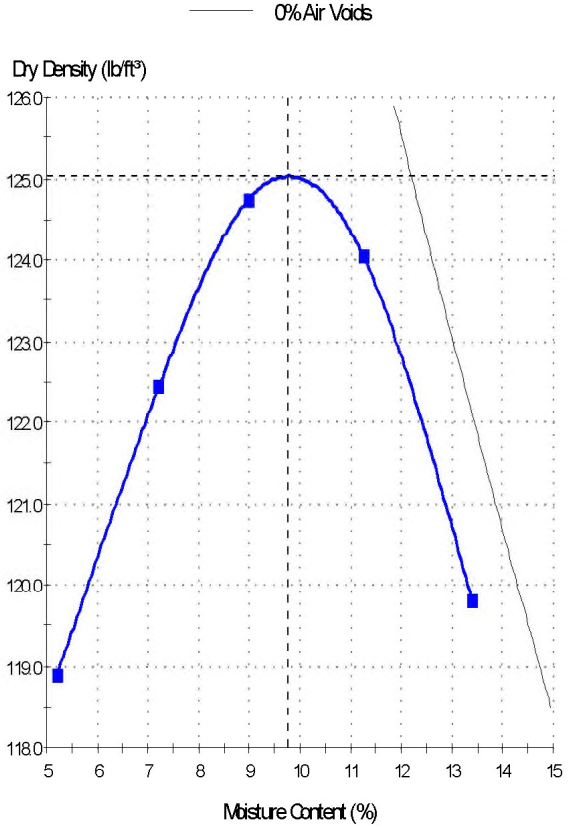
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
TR: Ezra Ballinger, eballinger@BraunIntertec.com

Cody Mathiason
Engineer in Training
Date of Issue: 1/11/2016

Sample Details

Sample ID:	W15-001984-S6	**Alternate Sample ID:**	LSS-A1; 1' - 20'
Date Sampled:	4/14/2015	**Date Submitted:**	4/16/2015
Sampled By:	Gabriel Bevre	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Realignment Subgrade		
Material:	Sandy Lean Clay (CL); A-7-6(15)		
Specification:	For Informational Purposes Only		
Location:	LSS-A1; 1' - 20'		
Date Tested:	5/12/2015		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**125**
Corrected Maximum Dry Density (lb/ft³):	**125**
Optimum Moisture Content (%):	**10**
Corrected Optimum Moisture Content (%):	**10**
Method:	A
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = 41; PI = 27
Percent Retained on #4 Sieve = 0%; Percent Passing #200 Sieve = 66.7%

Braun Intertec Corporation
526 10th Street NE, Suite 300
West Fargo, ND 58078
Phone: 701.232.8701

Proctor Report

Report No: PTR:W15-001984-S2
Issue No: 1

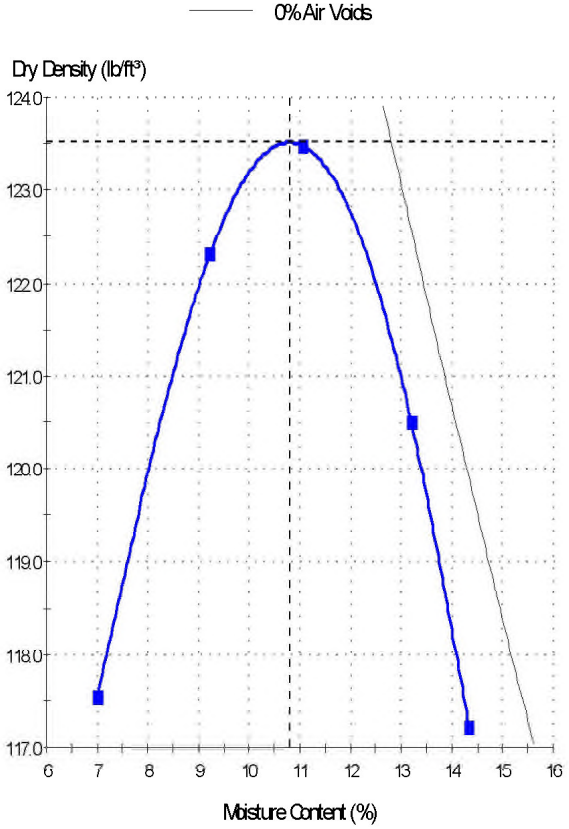
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
TR: Ezra Ballinger, eballinger@BraunIntertec.com

Cody Mathiason
Engineer in Training
Date of Issue: 1/8/2016

Sample Details

Sample ID:	W15-001984-S2	**Alternate Sample ID:**	LSS-A4; 1 1/2' - 20'
Date Sampled:	3/13/2015	**Date Submitted:**	4/16/2015
Sampled By:	Shawn Echevarria	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Realignment Subgrade		
Material:	Silty Sand (SM); A-2-4(0)		
Specification:	For Informational Purposes Only		
Location:	LSS-A4; 1 1/2' - 20'		
Date Tested:	5/12/2015		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**124**
Corrected Maximum Dry Density (lb/ft³):	**124**
Optimum Moisture Content (%):	**11**
Corrected Optimum Moisture Content (%):	**11**
Method:	A
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = NP; PI = NP
Percent Retained on #4 Sieve = 0%; Percent Passing #200 Sieve = 25.2%

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526 10th Street NE, Suite 300
West Fargo, ND 58078
Phone: 701.232.8701

Proctor Report

Report No: PTR:W15-001984-S10
Issue No: 1

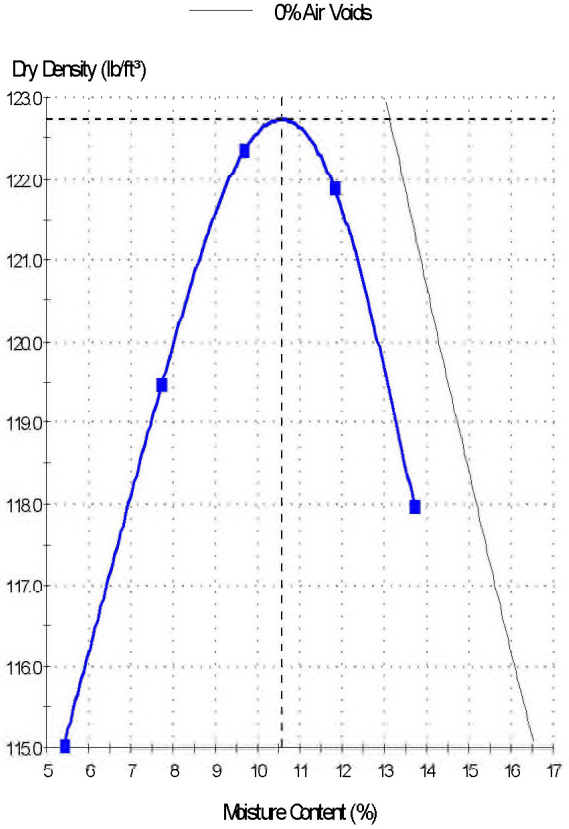
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
TR: Ezra Ballinger, eballinger@BraunIntertec.com

Cody Mathiason
Engineer in Training
Date of Issue: 1/8/2016

Sample Details

Sample ID:	W15-001984-S10	**Alternate Sample ID:**	LSS-A5; 1' - 10'
Date Sampled:	3/13/2015	**Date Submitted:**	4/16/2015
Sampled By:	Shawn Echevarria	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Realignment Subgrade		
Material:	Silty Sand (SM); A-2-4(0)		
Specification:	For Informational Purposes Only		
Location:	LSS-A5; 1' - 10'		
Date Tested:	5/13/2015		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**123**
Corrected Maximum Dry Density (lb/ft³):	**123**
Optimum Moisture Content (%):	**11**
Corrected Optimum Moisture Content (%):	**11**
Method:	A
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = NP; PI = NP
Percent Retained on #4 Sieve = 0%; Percent Passing #200 Sieve = 26.4%

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526 10th Street NE, Suite 300
West Fargo, ND 58078
Phone: 701.232.8701

Proctor Report

Report No: PTR:W15-001984-S4
Issue No: 1

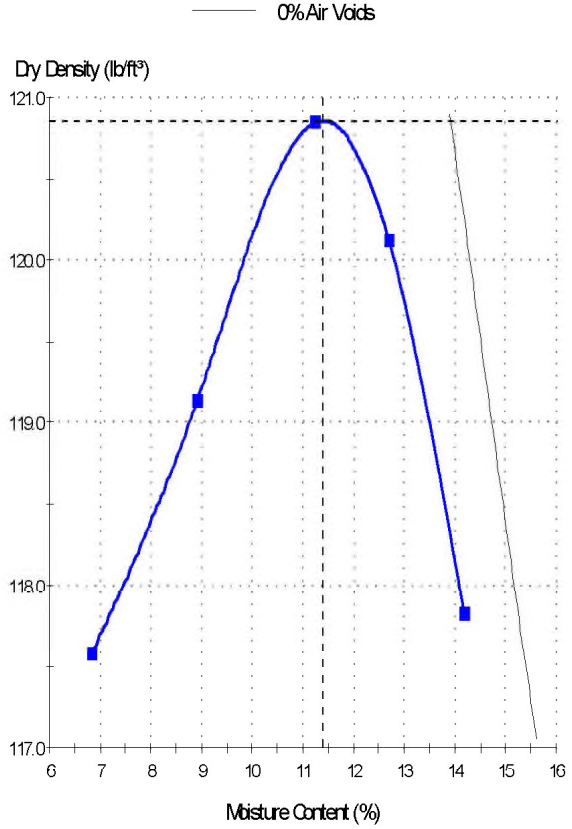
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
TR: Ezra Ballinger, eballinger@BraunIntertec.com

Cody Mathiason
Engineer in Training
Date of Issue: 1/8/2016

Sample Details

Sample ID:	W15-001984-S4	**Alternate Sample ID:**	LSS-A5; 10' - 20'
Date Sampled:	3/13/2015	**Date Submitted:**	4/16/2015
Sampled By:	Shawn Echevarria	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Realignment Subgrade		
Material:	Silty Sand (SM); A-2-4(0)		
Specification:	For Informational Purposes Only		
Location:	LSS-A5; 10' - 20'		
Date Tested:	5/12/2015		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**121**
Corrected Maximum Dry Density (lb/ft³):	**121**
Optimum Moisture Content (%):	**11**
Corrected Optimum Moisture Content (%):	**11**
Method:	A
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = NP; PI = NP
Percent Retained on #4 Sieve = 0%; Percent Passing #200 Sieve = 25.2%

Braun Intertec Corporation
526 10th Street NE, Suite 300
West Fargo, ND 58078
Phone: 701.232.8701

Proctor Report

Report No: PTR:W15-001984-S11
Issue No: 1

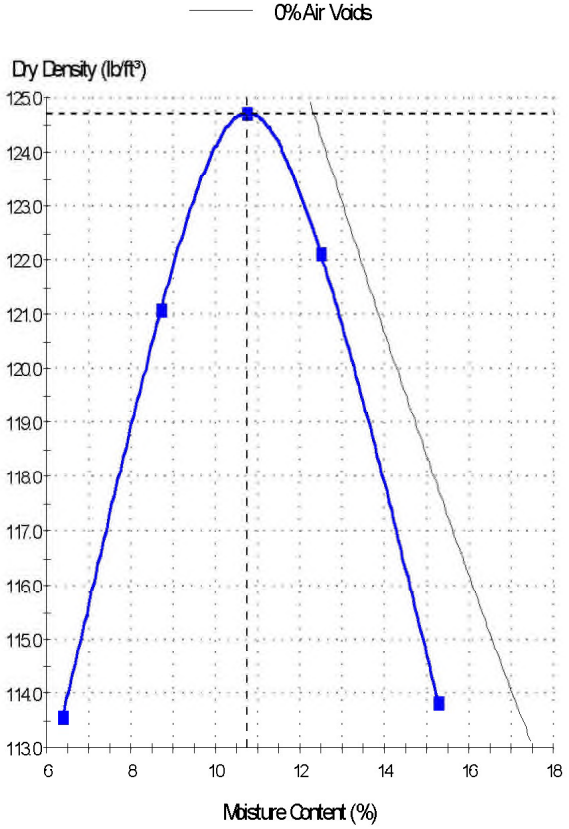
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
TR: Ezra Ballinger, eballinger@BraunIntertec.com

Cody Mathiason
Engineer in Training
Date of Issue: 1/8/2016

Sample Details

Sample ID:	W15-001984-S11	**Alternate Sample ID:**	LSS-A6; 1/2' - 6'
Date Sampled:	3/13/2015	**Date Submitted:**	4/16/2015
Sampled By:	Shawn Echevarria	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Realignment Subgrade		
Material:	Clayey Sand (SC); A-6(2)		
Specification:	For Informational Purposes Only		
Location:	LSS-A6; 1/2' - 6'		
Date Tested:	5/13/2015		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**125**
Corrected Maximum Dry Density (lb/ft³):	**125**
Optimum Moisture Content (%):	**11**
Corrected Optimum Moisture Content (%):	**11**
Method:	A
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = 29; PI = 12
Percent Retained on #4 Sieve = 0%; Percent Passing #200 Sieve = 42.8%

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526 10th Street NE, Suite 300
West Fargo, ND 58078
Phone: 701.232.8701

Proctor Report

Report No: PTR:W15-001984-S3
Issue No: 1

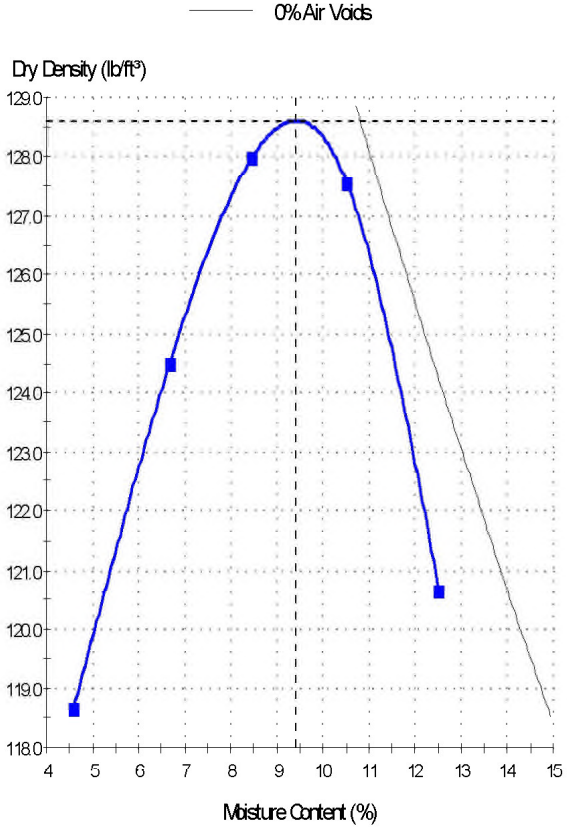
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
TR: Ezra Ballinger, eballinger@BraunIntertec.com

Cody Mathiason
Engineer in Training
Date of Issue: 1/8/2016

Sample Details

Sample ID:	W15-001984-S3	**Alternate Sample ID:**	LSS-A6; 6' - 20'
Date Sampled:	3/13/2015	**Date Submitted:**	4/16/2015
Sampled By:	Shawn Echevarria	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Realignment Subgrade		
Material:	Silty Sand (SM); A-4(0)		
Specification:	For Informational Purposes Only		
Location:	LSS-A6; 6' - 20'		
Date Tested:	5/12/2015		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**129**
Corrected Maximum Dry Density (lb/ft³):	**129**
Optimum Moisture Content (%):	**9**
Corrected Optimum Moisture Content (%):	**9**
Method:	A
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = NP; PI = NP
Percent Retained on #4 Sieve = 0%; Percent Passing #200 Sieve = 35.8%

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West Fargo, ND 58078
Phone: 701.232.8701

Proctor Report

Report No: PTR:W15-001984-S1
Issue No: 1

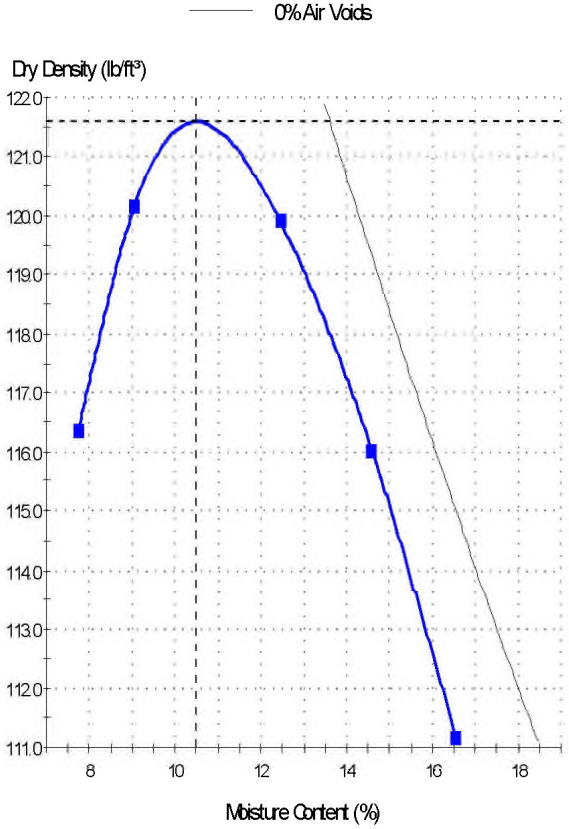
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
TR: Ezra Ballinger, eballinger@BraunIntertec.com

Cody Mathiason
Engineer in Training
Date of Issue: 1/8/2016

Sample Details

Sample ID:	W15-001984-S1	**Alternate Sample ID:**	LSS-A8; 1' - 20'
Date Sampled:	4/15/2015	**Date Submitted:**	4/16/2015
Sampled By:	Gabriel Bevre	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Realignment Subgrade		
Material:	Lean Clay with Sand (CL); A-6(11)		
Specification:	For Informational Purposes Only		
Location:	LSS-A8; 1' - 20'		
Date Tested:	5/11/2015		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**122**
Corrected Maximum Dry Density (lb/ft³):	**122**
Optimum Moisture Content (%):	**10**
Corrected Optimum Moisture Content (%):	**10**
Method:	A
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = 37; PI = 18
Percent Retained on #4 Sieve = 0%; Percent Passing #200 Sieve = 71.1%

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526 10th Street NE, Suite 300
West Fargo, ND 58078
Phone: 701.232.8701

Proctor Report

Report No: PTR:W15-001984-S5
Issue No: 1

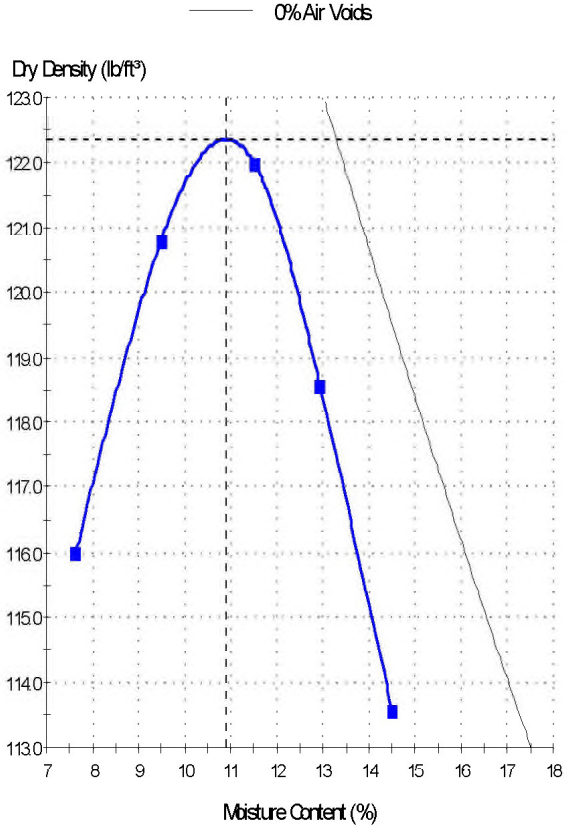
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
TR: Ezra Ballinger, eballinger@BraunIntertec.com

Cody Mathiason
Engineer in Training
Date of Issue: 1/8/2016

Sample Details

Sample ID:	W15-001984-S5	**Alternate Sample ID:**	LSS-A11; 1 1/2' - 11'
Date Sampled:	3/13/2015	**Date Submitted:**	4/16/2015
Sampled By:	Shawn Echevarria	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Realignment Subgrade		
Material:	Silty Sand (SM); A-2-4(0)		
Specification:	For Informational Purposes Only		
Location:	LSS-A11; 1 1/2' - 11'		
Date Tested:	5/12/2015		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**122**
Corrected Maximum Dry Density (lb/ft³):	**122**
Optimum Moisture Content (%):	**11**
Corrected Optimum Moisture Content (%):	**11**
Method:	A
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = NP; PI = NP
Percent Retained on #4 Sieve = 0%; Percent Passing #200 Sieve = 26.9%

Braun Intertec Corporation
526 10th Street NE, Suite 300
West Fargo, ND 58078
Phone: 701.232.8701

Proctor Report

Report No: PTR:W15-001984-S9
Issue No: 1

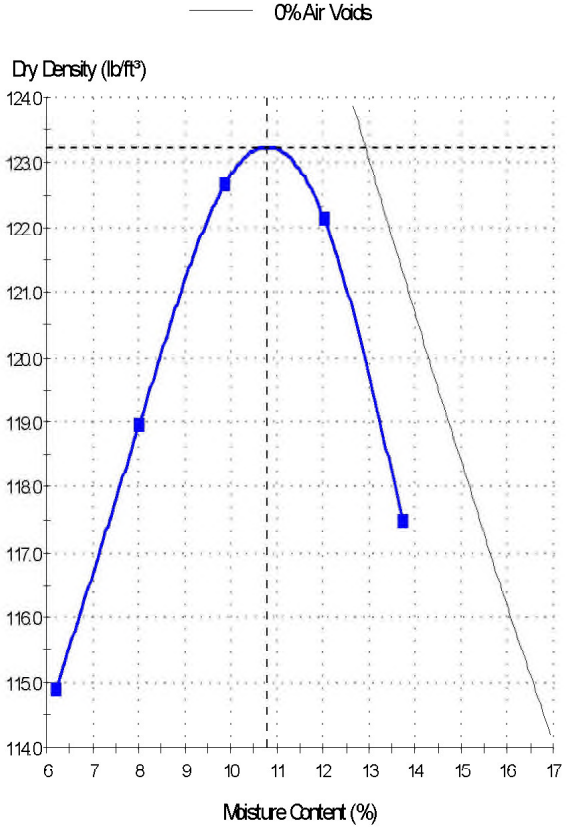
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
TR: Ezra Ballinger, eballinger@BraunIntertec.com

Cody Mathiason
Engineer in Training
Date of Issue: 1/8/2016

Sample Details

Sample ID:	W15-001984-S9	**Alternate Sample ID:**	LSS-A11; 12' - 20'
Date Sampled:	3/13/2015	**Date Submitted:**	4/16/2015
Sampled By:	Shawn Echevarria	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Realignment Subgrade		
Material:	Silty Sand (SM); A-2-4(0)		
Specification:	For Informational Purposes Only		
Location:	LSS-A11; 12' - 20'		
Date Tested:	5/11/2015		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**123**
Corrected Maximum Dry Density (lb/ft³):	**123**
Optimum Moisture Content (%):	**11**
Corrected Optimum Moisture Content (%):	**11**
Method:	A
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = NP; PI = NP
Percent Retained on #4 Sieve = 0%; Percent Passing #200 Sieve = 27.6%

Braun Intertec Corporation
526 10th Street NE, Suite 300
West Fargo, ND 58078
Phone: 701.232.8701

Proctor Report

Report No: PTR:W15-001984-S7
Issue No: 1

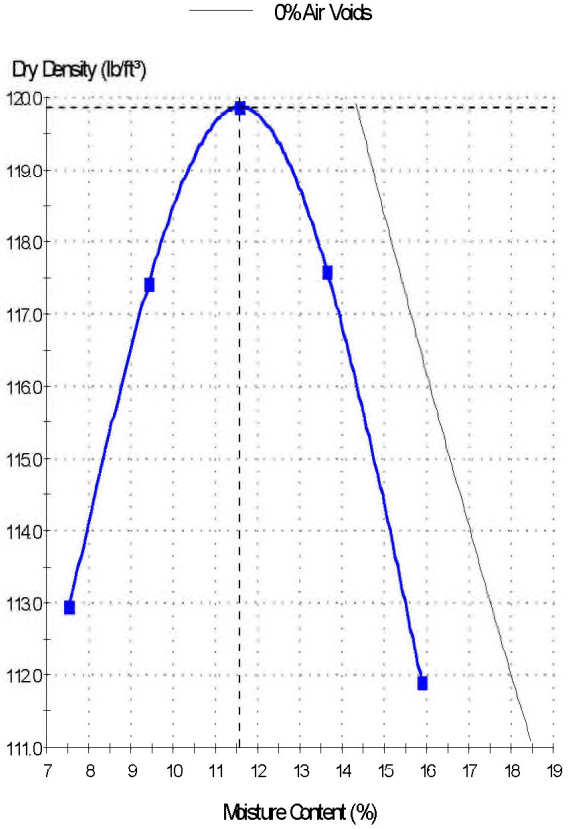
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
TR: Ezra Ballinger, eballinger@BraunIntertec.com

Cody Mathiason
Engineer in Training
Date of Issue: 1/8/2016

Sample Details

Sample ID:	W15-001984-S7	**Alternate Sample ID:**	LSS-A12; 1/2' - 13'
Date Sampled:	3/12/2015	**Date Submitted:**	4/16/2015
Sampled By:	Shawn Echevarria	**Sampling Method:**	Soil Boring Auger
Source:	Highway 85 Realignment Subgrade		
Material:	Silty Sand (SM); A-2-4(0)		
Specification:	For Informational Purposes Only		
Location:	LSS-A12; 1/2' - 13'		
Date Tested:	5/11/2015		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**120**
Corrected Maximum Dry Density (lb/ft³):	**120**
Optimum Moisture Content (%):	**12**
Corrected Optimum Moisture Content (%):	**12**
Method:	A
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = NP; PI = NP
Percent Retained on #4 Sieve = 0%; Percent Passing #200 Sieve = 29.7%

Braun Intertec Corporation
526 10th Street NE, Suite 300
West Fargo, ND 58078
Phone: 701.232.8701

Proctor Report

Report No: PTR:W15-001984-S8
Issue No: 1

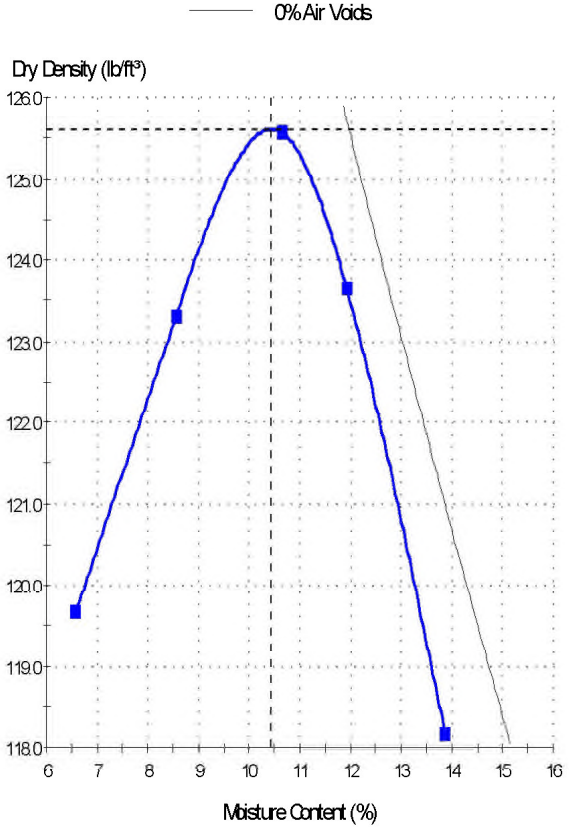
Client: Travis Wieber
Kadrmas, Lee & Jackson
3203 32nd Ave. South, Suite 201
Fargo, ND, 58106
Project: BM-12-05662
US 85 Major Rehabilitation
Hwy 85/Main Street
Watford City, ND, 58854
TR: Ezra Ballinger, eballinger@BraunIntertec.com

Cody Mathiason
Engineer in Training
Date of Issue: 1/8/2016

Sample Details

Sample ID:	W15-001984-S8	**Alternate Sample ID:**	LSS-A12; 13' - 20'
Date Sampled:	3/12/2015	**Date Submitted:**	4/16/2015
Sampled By:	Shawn Echevarria	**Sampling Method:**	Auger Cuttings
Source:	Highway 85 Realignment Subgrade		
Material:	Silty Sand (SM); A-2-4(0)		
Specification:	For Informational Purposes Only		
Location:	LSS-A12; 13' - 20'		
Date Tested:	5/11/2015		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	**126**
Corrected Maximum Dry Density (lb/ft³):	**126**
Optimum Moisture Content (%):	**10**
Corrected Optimum Moisture Content (%):	**10**
Method:	A
Visual Description:	Brown

Comments

Assumed Specific Gravity = 2.65
LL = NP; PI = NP
Percent Retained on #4 Sieve = 0%; Percent Passing #200 Sieve = 32.9%