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HENDRICK
SINCE 1876
GENERAL CONTRACTORS
CONSTRUCTION MANAGERS

ADDENDUM #2

Essexville-Hampton Public Schools
New Innovation Center Project
September 2, 2026

1. Attached is the soil evaluation report, which is included as part of the bid documents for this project.

   Attachment:
   Soil Evaluation Report *(18 Pages)*

END OF ADDENDUM #2

SOIL EVALUATION
FOR
PROPOSED STEM BUILDING ADDITION
CRAMER JUNIOR HIGH SCHOOL
HAMPTON TOWNSHIP, BAY COUNTY, MICHIGAN

January 21, 2026

Prepared For:

RC Hendrick & Sons, Inc.
2885 South Graham Road
Saginaw, Michigan 48609

Prepared By:

Snyder & Staley Engineering, PLC
824 Tittabawassee Road
Saginaw, Michigan 48604

Project Number 25-234-260

TABLE OF CONTENTS

I. INTRODUCTION

We have completed the requested soil evaluation for the proposed STEM Building near the Cramer Junior High School located in Essexville, Michigan. This report presents the results of our evaluation, our interpretation of the soil and groundwater conditions at the soil boring locations, and our geotechnical recommendations for design and construction of the proposed development. Our evaluation was performed under the direction of a registered Professional Engineer in the State of Michigan.

A. Site and Project Description

The existing Cramer Junior High School is located at 313 Pine Street in Essexville, Michigan. The site consists of the existing Cramer Junior High School building, a parking lot to the east and an administration building to the south. The proposed building will be located near the footprint of a now demolished building to the south of Cramer Junior High School and to the north of the existing administration building. There are two access drives leading to the site from Pine Street. There will be a new concrete drive leading to the building from the existing school parking lot to the east. We understand the proposed building will consist of a single story structure with a concrete slab on grade, with unknown construction type. It is assumed that the finish floor elevation will be at or slightly above the existing adjacent building and asphalt pavements.

B. General

The recommendations submitted in this report have been based on the available soil boring information and the preliminary design details furnished for the proposed development. Any revisions in the noted location or design details for the proposed structures should be brought to our immediate attention so we may evaluate the extent to which our recommendations may be impacted by the changes. When final plans and specifications are available, we should be given the opportunity to review them to verify our understanding of the anticipated project and to verify our recommendations have been properly interpreted. The conclusions, recommendations and considerations presented herein have been based on the information obtained from the soil borings performed at this site. This report does not reflect changes in subsurface conditions that may occur between these soil boring locations. If significant variations from our reported subsurface conditions are noted during construction, we should be notified immediately to determine if modifications to our recommendations are needed. We have strived to conduct this soil evaluation in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the locality of this project. No other warranties, implied or expressed, are made. The recommendations presented herein are intended solely for the use of RC Hendrick & Sons Inc. and their design consultants in evaluating this site for the specific development being proposed.

II. DESCRIPTION OF INVESTIGATION PROCEDURES

A. Field Operations

As requested, we drilled two soil borings, labeled as Boring B1 and B2, to depths of about 15 feet below the existing ground surface in the general vicinity of the proposed building footprint. The approximate soil boring locations are shown on the appended diagram. Snyder & Staley Engineering, PLC personnel staked the soil borings in the field using normal taping procedures and existing landmarks as reference points.

The soil borings were performed by AFT Drilling of Standish, Michigan with a trailer-mounted rotary drill rig in general accordance with the American Society of Testing and Materials (ASTM) Standard D-1586 (Penetration Test and Split-Barrel Sampling of Soils) using hollow-stem, continuous flight augers to advance the holes. The sampling intervals, standard penetration test results (N-values), groundwater observations and other pertinent field information are shown on the Soil Boring Logs included in the Appendix of this report. The symbols and notations used on the boring logs are defined on the General Notes, also appended to this report.

B. Laboratory Testing

The soil samples were sealed in labeled glass jars in the field and returned to the laboratory where they were visually classified by soils engineer in general accordance with the Unified Soil Classification System (USCS) (ASTM Standard D-2487). These descriptions appear on the appended Soil Boring Logs. A chart that describes the USCS group symbols, which appear in parenthesis after the soil descriptions, is also included in the Appendix of this report.

Additionally, selected representative portions of the cohesive soil samples were subjected to moisture content, calibrated hand penetrometer tests and Torvane shear tests. The moisture content of a soil sample is the ratio of the weight of water in the sample to the oven-dried weight of the soil, as determined by ASTM Standard D-2216, expressed as a percentage. In the hand penetrometer test, the unconfined compressive strength of a soil sample is estimated by measuring the resistance of the soil to penetration of a calibrated spring-loaded cylinder. The capacity of the hand penetrometer is 4½ tons per square foot (tsf). Results of these laboratory tests are shown on the appended Soil Boring Logs.

III. DESCRIPTION OF SUBSURFACE CONDITIONS

The soil profile description and groundwater observations discussed herein are intended to provide a brief and general summary of the typical subsurface conditions encountered at this site. For a more detailed description of the soil and groundwater conditions encountered at the respective boring locations, please refer to the attached Soil Boring Logs and Soil Boring Location Diagram. The stratification lines of the boring logs are intended to indicate a general transition between soil types and the actual transition may vary between boring locations.

A. Soil Conditions

A relatively uniform soil profile was encountered in each of the soil borings performed for this evaluation. Each major component of the generalized soil profile observed at this site, beginning from the ground surface, is described below:

<u>Soil Group 1 – Surficial Materials</u>

At the surface of both borings, the driller reported up to 1'-3" of sandy topsoil material.

<u>Soil Group 2 – Fine Sand Fill (SP-FILL)</u>

Beneath these surficial materials, deposits of natural, fine sand fills were observed to depths of about 2 feet below the existing ground surface. Standard penetration (N-values) results in the granular deposits ranged between 6 and 7 blows per linear foot, which indicates these materials are loose in relative density.

<u>Soil Group 3 – Sandy Clay (CL) and Silty Clay (CL)</u>

Beneath these fill deposits at both boring locations, natural, sandy/silty clay layers were observed to explored depths of all the soil borings. Hand penetrometer unconfined compressive strengths in these clays ranged between approximately 2 tsf to in excess of 4½ tsf. Corresponding natural moisture contents in these cohesive soils varied between 9 and 13 percent.

B. Groundwater Observations

No groundwater seepage was observed during the drilling and/or sampling operations. Upon completion of the drilling operations and removal of the augers from the ground, there was no observed visible signs of groundwater seepage in any of the boreholes. All boreholes were backfilled with natural soils upon their completion.

In granular (sandy) soils, a relatively short amount of time is usually required for the water level in an open bore hole to stabilize with the prevailing hydrostatic groundwater level. Due to the inherent low permeability of cohesive (clayey) soils, however, a long time may be required for the water level in an open bore hole to stabilize with the long-term hydrostatic groundwater level. Where granular soil layers overlie cohesive soils, as was generally the case at this site, a complicated subsurface hydraulic condition, possibly involving perched groundwater accumulations, multiple aquifers, or artesian flow may arise. For this reason, the short-term groundwater level measurements recorded in our borings, as noted above, may not accurately depict the true position of the hydrostatic groundwater level at this site. To do so, in our opinion, would require installation and monitoring of several piezometers.

In our experience, however, the depth at which the soil color changes from brown to gray often marks the approximate position of the hydrostatic groundwater level in cohesive soils. This color change, which results from the lack of soil oxidization below the hydrostatic groundwater level, was not observed in our soil borings. On this basis, and from our experience in this area, the long-term hydrostatic groundwater level is below the explored depth of our borings.

Normal variations in the depth of the prevailing groundwater level should be expected due to its undulating surface. The long-term hydrostatic groundwater level at this site should be expected to fluctuate with variations in precipitation, evaporation and surface runoff. The groundwater levels indicated on the soil borings and discussed above represent the conditions at the time the measurements were taken.

IV. CONCLUSIONS AND RECOMMENDATIONS

The recommendations submitted herein have been based upon available soil boring and site plan information and the preliminary design details for the proposed development. If our understanding of the project, as previously described, is inaccurate or if any revisions in the plans are made, they should be brought to our attention so we may determine if changes to our recommendations are required. Likewise, if significant variations in the reported subsurface conditions are encountered during construction, we should be notified immediately.

A. Building Floor Slab and Pavement Subgrade Preparation

All existing surficial topsoil and fill deposits shall be removed in the development areas. After the stripping of the surficial materials, we anticipate the exposed subgrade soils will consist of natural, very stiff to hard, sandy/silty clays as encountered in our soil borings. We believe these cohesive soils will be suitable for support of engineered fill, pavements and/or the proposed slab-on-grade following proper subgrade preparation activities as described herein.

It will be necessary for these exposed cohesive subgrade materials to be thoroughly proof rolled under the observation of a qualified soils engineer. The proof rolling should be performed with a fully loaded dump truck or other heavily loaded pneumatic tired vehicle making continuous side-by-side passes across the entire floor slab area. The purpose of this procedure is to uniformly compact the surface and locate any soft areas that may require stabilization. Subgrade areas that deflect excessively or 'pump' during proof rolling should be excavated and backfilled with acceptable engineered fill.

After the exposed subgrade materials have been properly prepared, as described above, engineered fill can be placed to the planned final subgrade elevation. Refer to section below for material and placement requirements.

B. Engineered Fill Requirements

All engineered fill for this project, including foundation wall and utility trench backfill, should be an approved, granular material free of frozen chunks, organics, debris or other deleterious material. The fill should be spread in level layers not exceeding 12 inches in loose thickness, with each layer being compacted to at least 95 percent of the maximum dry density value determined by ASTM Standard D-1557 (Modified Proctor). A sufficient number of field density tests should be performed during placement to verify proper compaction is achieved. Fill material should never be placed on frozen or muddy ground.

To facilitate compaction, we recommend any granular fill materials be placed within +/- 4 percent of the optimum moisture content determined by ASTM Standard D-1557 (Modified Proctor). If necessary to achieve this condition, appropriate moisture reconditioning should be performed at the time of placement. If it is necessary to add moisture, we recommend it be done be disking and harrowing the soil, as the water is added by spraying, to provide a relatively uniform moisture content throughout the soil mass. Alternately, if the soil is too wet at the time of placement, we recommend it be disked and aerated to allow it to dry to the desired moisture content prior to compaction, weather conditions permitting. In open areas, granular fill materials should be compacted using heavy vibratory smooth drummed rollers, however in confined or limited access areas, vibratory plate compactors are recommended.

C. Foundations

We recommend the proposed structures at this site be supported on spread type foundations. A maximum net allowable design soil pressure of 5,000 pounds per square foot (psf) may be used to proportion the footings where they are placed on the very stiff to hard, sandy/silty clays encountered in our soil borings. If higher bearing pressures are desirable, please contact our office. Suitable bearing materials at this site for the recommended design bearing pressure are anticipated to be present at nominal frost depths and extending to greater depths.

For bearing capacity and settlement considerations, we recommend all individual columns footings have a minimum lateral dimension (or a minimum diameter) of 30 inches and all continuous wall footings be at least 16 inches wide. To provide protection against the effects of frost heave during normal winters, we recommend all foundations be embedded a minimum of 42 inches below the final exterior site grade along the outside perimeter walls or in areas that will not be permanently heated.

With regard to settlement, we estimate total post-construction settlement for building foundations designed and constructed in accordance with the recommendations presented in this report will be on the order of 1/2 inch or less for any of the design alternatives given. This estimate is based on the anticipated loading conditions and our experience with similar soils.

D. Pavement Design Recommendations

As stated above, we anticipate the exposed subgrade materials will generally consist of silty clays as encountered in the borings. In general, these subgrade materials are presumed to be characteristic of soils having fair to poor pavement support characteristics. On this basis and from our experience with similar soils, we have assumed an effective roadbed subgrade resilient modulus (M_R) of 2,500 pounds per square inch (psi) in our pavement analysis.

We are anticipating the design criteria to be for light duty and heavy duty pavement areas, 18-kip Equivalent Axle Loads over the 20 year design life. In our pavement design, we utilized an initial serviceability, p_o, of 4.5, a terminal serviceability, p_t, of 2.5 (therefore our design serviceability loss index (ΔPSI) is 2.0), a reliability (R) value of 95 percent, an overall standard deviation (S_o) value of 0.49 and drainage has been determined to be good with the percent of time pavement structure is exposed to moisture levels approaching saturation to 5% to 25%, thus a drainage coefficient, m_i, of 1.00 was determined.

The contractor shall be required to submit a job mix formula for each specified bituminous material, which has been approved by MDOT or has accompanying test results verifying the job mix formula is within MDOT requirements for the specified material. We recommend an asphalt grade of PG 58-22 be used in the production of all bituminous paving mixtures. Aggregates, mineral filler (if required), and asphalt binder shall be combined as necessary to produce a mixture proportioned within the uniformity tolerances listed in MDOT's Special Provision Document 03SP502(O), Acceptance of HMA Mixture on Local Agency Projects. The master gradation range is to be used for establishing mix design only. Topsoil, clay, or loam shall not be added to aggregates that are to be used in plant mixed HMA mixtures. The bituminous wearing and leveling courses should be compacted to a minimum of 95 percent of the theoretical maximum density determined by job mix formula. Additional material and testing requirements can be found in MDOT's Special Provision Document 03SP502(O), Acceptance of HMA Mixture on Local Agency Projects.

The foregoing recommendations are predicated on the assumption that heavy truck and trash removal vehicular traffic will be restricted from using the designated automobile parking areas. If segregation of the traffic types cannot be maintained, consideration should be given to using the heavier pavement section throughout the entire pavement area. The recommended light-duty and heavy-duty pavement sections have different aggregate base course and total asphalt thickness. Where these two types of pavement sections adjoin, we recommend a gradual transition be provided in the subgrade grading and paving plans. In the subgrade transition, we recommend a minimum a 12-inch horizontal strip be provided for each one-inch difference in the aggregate base course thickness between adjacent sections (i.e., a gradual 6-foot-wide transition from 6 to 12 inches in aggregate base course thickness between adjacent pavement sections). The transition in asphalt course thickness should also be gradual over the same distance as the aggregate base course transition. To provide positive surface drainage of the pavements at all times, we recommend a minimum surface slope of 1 percent be provided throughout.

Based on the anticipated environmental load and the foregoing AASHTO design parameters for a 20-year service life, we recommend the following flexible and rigid pavement sections presented below. If any of our stated assumptions are grossly in error, we should be contacted so we may re-evaluate our pavement design recommendations in light of any additional information.

Table 1
Recommended Flexible Pavement Sections

Layer	Specified Material*	Recommended Minimum Thickness	
		Light-Duty (Parking)	Heavy-Duty (Drives)
Bituminous Wearing Course	36A or LVSP	1-1/2 in.	2 in.
Bituminous Leveling Course	13A or LVSP	1-1/2 in.	2 in.
Aggregate Base Course	21AA or 22A	6 in.	8 in.
Sand Subbase	Class IIA	12 in.	12 in.

* Note: Material designations refer to Michigan D.O.T. "Standard Specifications for Construction" and all supplemental specifications. Construction of the pavement and the related earthwork should also be performed in accordance with M.D.O.T. 2003 Specifications unless otherwise noted herein

V. CONSTRUCTION CONSIDERATIONS

We do not anticipate any significant geotechnical problems associated with constructing shallow spread footing foundations for the proposed building as described herein. Considering the apparent position of the long-term hydrostatic groundwater level relative to the anticipated depth of excavation, we do not believe groundwater seepage into conventional spread footing type foundation excavations will be a serious concern during construction. During construction, foundation excavations must be maintained in a dry condition until they are completely backfilled. Some seepage from surface runoff may occur, but should be manageable with standard sump pits and pumps. During the site grading operations, the subgrade should always be graded to provide positive surface drainage and to prevent water from ponding on the site.

The foundation excavation bottoms may also become disturbed due to groundwater accumulations and/or construction operations. All loose or disturbed materials must be completely removed from the excavations bottoms or re-compacted prior to placing any foundation concrete. This is especially important where a toothed backhoe bucket is used to excavate the footings. If disturbance of the bearing soils persists, we recommend a layer of clean, well-graded, crushed aggregate should be placed along the undisturbed foundation excavation bottoms to minimize further disturbance of the bearing soils. Lean concrete would also be suitable for this purpose. To further minimize the risk of disturbance, the footing concrete should be placed as soon as possible after the excavations have been dug and the design soil pressure has been verified.

All excavations must be properly braced or sloped to comply with MI-OSHA Regulations – Part 9 (Excavation, Trenching and Shoring) and to provide a safe work place for construction personnel. The practice of stockpiling excavated soils adjacent to the footing excavation is not recommended as this surcharge loading may cause sudden collapse of the excavation sidewalls. If material and/or equipment is to be stored or operated near an excavation, additional bracing or shoring must be provided to resist these heavier surcharge loadings.

VI. GENERAL COMMMENTS

Samples taken in the field will be retained in our laboratory for a period of sixty days from the date of this report and will then be disposed of, unless otherwise requested. Samples stored over an extended time period, even in sealed jars, are subject to moisture loss and are then no longer representative of the in-situ condition in which they were sampled.

During the course of the soil evaluation, procedures were followed which represent accepted practices in the field of geotechnical engineering. Therefore, discrepancies may exist between the driller's field logs and the final Soil Boring Logs submitted operations and describe field occurrences, sampling locations and other relevant information. The engineer preparing the report reviews the field logs as well as the laboratory soil classifications and laboratory test data. The final Soil Boring Logs are then promulgated based on all the information available from the field and laboratory operations.

The services of a qualified, independent construction testing firm should be engaged during construction to monitor the earthwork and foundation activities and to verify the use of proper materials, equipment and procedures. An appropriate number of field density tests should be preformed during the earthwork operations to verify proper compaction is achieved where engineered fill is used. Foundation bearing surfaces should also be tested and observed to verify conditions are similar to those anticipated at the time our recommendations were formulated.

APPENDIX

GENERAL NOTES
SOIL BORING LOCATION DIAGRAM
SOIL BORING LOGS (B1 and B2)
UNIFIED SOIL CLASSIFICATION SYSTEM

GENERAL NOTES

Drilling and Sampling Symbols

SS – Split-spoon Sample – 1 1/2" I.D., 2" O.D. except where noted.
ST – Shelby Tube Sample – 3" O.D. except where noted.
AS – Auger Sample
BS – Bag Sample
WS – Wash Sample
RC – Rock Core with Diamond Bit-NX Size except where noted.
NR – No Recovery
PS – Probe Sample
DR – Drove Rock
DS – Disturbed Sample

Water Level Measurement Symbols

WL – Water Level
WD – While Drilling
AB – After Boring
WC – Wet Cave-In
DC – Dry Cave-In
WS – While Sampling

NOTE:
Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. With impervious Soils, short term observations of water level may not be an accurate indication of the long term ground water level. These levels may also fluctuate throughout the year with variations in precipitation, evaporation, and runoff.

Soil Property Symbols

N – Standard Penetration Resistance (ASTM D-1586. Blows of a 140 lb hammer falling 30 inches req'd to drive a 2 inch O.D. split-spoon sampler (except where otherwise noted) 1 ft into the soil).
qp – Calibrated hand penetrometer unconfined compressive strength, tsf.
qu – Controlled strain unconfined compressive strength, tsf (ASTM D-2166)
cs – Calibrated Torvane shear strength, tsf.
w – Water content, % (ASTM D-2216)
γ – Natural unit weight, pcf.
LL – Liquid Limit, % (ASTM D-4318)
PL – Plastic Limit, % (ASTM D-4318)
PI – Plasticity Index, % (ASTM D-4318)

Sample Classification

All Samples are visually classified in general accordance with ASTM Standard D-2487 (Unified Soil Classification System), unless otherwise noted.

PARTICLE SIZE

Boulders: .... Greater than 12" (305mm)
Cobbles: .... 3" to 12" (76mm to 305mm)
Coarse Gravel: .. 3/4" to 3" (19mm to 76mm)
Fine Gravel: .... #4 to 3/4" (4.75mm to 19mm)
Coarse Sand: .... #10 to #4 (2.00mm to 4.75mm)
Medium Sand: .... #40 to #10 (0.425mm to 2.00mm)
Fine Sand: ...... #200 to #40 (0.074mm to 0.425mm)
Silt: .... 0.005mm to 0.074mm
Clay: .... Less than 0.005mm

CONSTITUENT TERMS

Few/Trace: .... Less than 10%
Occasional/Trace to Some: .. 10% to 20%
Frequent/Some: .... 20% to 35%
And: .... 35% for each type of soil identified.

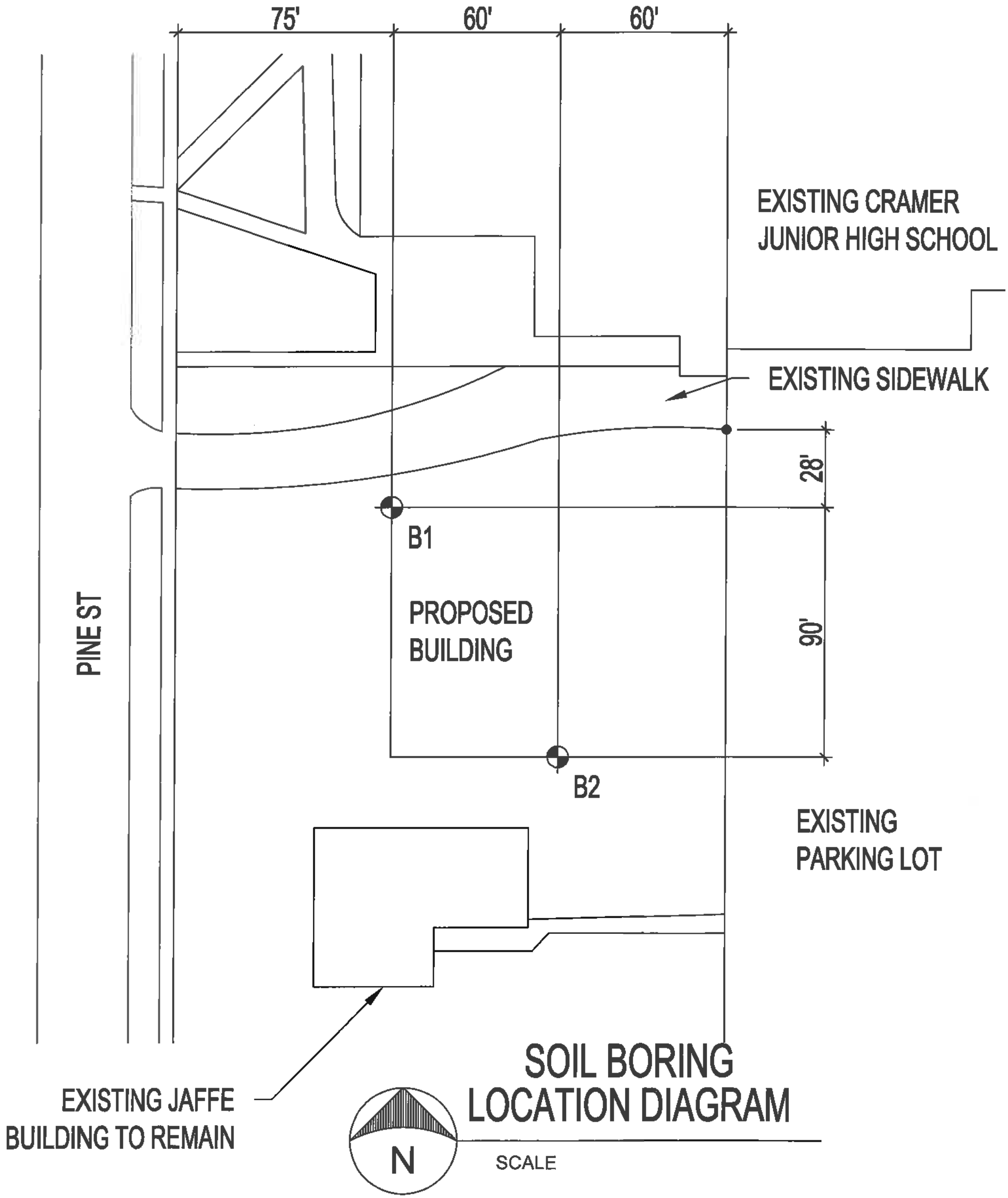
NOTE:
Soil constiutents area based on visually estimated quantities.

RELATIVE DENSITY OF GRANULAR SOILS

	STANDARD PENETRATION (N) VALUE, BLOWS / FOOT
Very Loose	Less than 4
Loose	4 – 9
Medium Dense	10 – 29
Dense	30 – 49
Very Dense	50 – 80
Extremely Dense	Greater than 80

CONSISTENCY OF COHESIVE SOILS

	UNCONFINED COMPRESSIVE STRENGTH (qu or qp), tsf
Very Soft	Less than 0.25
Soft	0.25 – 0.49
Firm	0.50 – 0.99
Stiff	1.00 – 1.99
Very Stiff	2.00 – 3.99
Hard	Greater than 4.00



PROJECT NUMBER: 25-260-234	DATE: 01/12/2026	PROJECT TITLE: PROPOSED STEM BUILDING ESSEXVILLE, MI	SNYDER & STALEY ENGINEERING, P.L.C.
SHEET NUMBER: SK1	DRAWN BY: EK	SHEET TITLE: SOIL BORING LOCATION DIAGRAM	CONSULTING ENGINEERS 824 TITTABAWASSEE ROAD SAGINAW, MI 48604 PH: (989) 797-1710
SHT 1 OF 1	CHK'D BY: MDS		

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B1

Project: STEM Building Addition – Cramer JR Highschool Project No: 25-234-260

Location: 313 Pine Street Essexville, MI 48732 Client: RC Hendrick & Son Inc.

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 1'–3" of Sandy TOPSOIL; trace root structures, silt and gravel – dark brown										
Fine sand FILL; trace topsoil, silt and gravel – brown – moist – loose (SP–FILL)			S1	SS	7	2			13	
Sandy CLAY; trace sand and gravel – mottled; brown and gray – very stiff (CL)										
Silty CLAY; trace sand and gravel – mottled; brown and gray – hard (CL)	5		S2	SS	26	4 ½+			9	
			S3	SS	33	4 ½+			9	
	10		S4	SS	50	4 ½+			10	
	15		S5	SS	47	4 ½			11	
Boring Terminated at 15 feet										

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

WATER LEVEL OBSERVATIONS

NONE While Sampling or Drilling

NONE Immediately After Completion

. @ . After Completion

BORING

Rig: AFT DRILLING Foreman: B. BELLOWS

Started: 01/17/2026 Drawn By: E. KLENOW

Completed: 01/17/2026 Approved: M. STALEY

SNYDER & STALEY ENGINEERING, P.L.C.

SOIL BORING LOG

Boring No: B2

Project: STEM Building Addition – Cramer JR Highschool   Project No: 25-234-260

Location: 313 Pine Street Essexville, MI 48732   Client: RC Hendrick & Son Inc.

Description of Material	DEPTH (ft)	Sample Length	Sample I.D.	Sample Type	Standard Penetration 'N' Blows Per Ft.	Hand Penetrometer qp (tsf)	Unconfined compression qu (tsf)	Torvane Shear cs (tsf)	Moisture Content w (%)	Natural Unit Weight γ (pcf)
Driller reported 1'–0" of Sandy TOPSOIL; trace root structures, silt and gravel – dark brown										
Fine sand FILL; trace topsoil, silt and gravel – brown – moist – loose (SP–FILL)			S1	SS	6	2			13	
Sandy CLAY; trace sand and gravel – mottled; brown and gray – very stiff (CL)										
Silty CLAY; trace sand and gravel – mottled; brown and gray – hard (CL)	5		S2	SS	25	4 ½+			12	
			S3	SS	27	4 ½+			13	
	10		S4	SS	48	4 ½+			12	
	15		S5	SS	31	4			12	
Boring Terminated at 15 feet										

NOTE: Changes in soil stratification indicated by lines are approximate. In situ, the transition between materials maybe gradual unless otherwise noted. The bored hole was backfilled with natural soil.

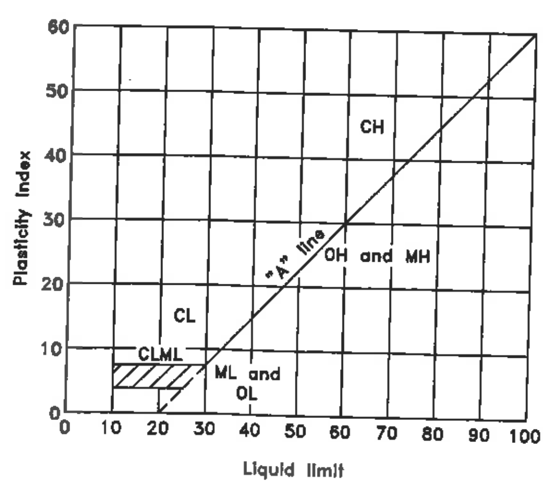
WATER LEVEL OBSERVATIONS	BORING		SHEET
NONE While Sampling or Drilling	Rig: AFT DRILLING	Foreman: B. BELLOWS	2 of 2
NONE Immediately After Completion	Started: 01/17/2026	Drawn By: E. KLENOW	
. @ . After Completion	Completed: 01/17/2026	Approved: M. STALEY	

SNYDER & STALEY ENGINEERING, P.L.C.

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D-2487)

Major Divisions			Group Symbols		Typical Names	Laboratory Classification Criteria		
Coarse-grained soils (More than half of material is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW		Well graded gravels, gravel-sand mixtures, little or no fines.	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse grained soils are classified as follows: Less than 5 per cent: GW, GP, SW, SP; More than 12 per cent: GM, GC, SM, SC; 5 to 12 per cent: Borderline cases requiring dual symbols[b]	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			GP		Poorly graded gravels, gravel-sand mixtures, little or no fines.		Not meeting all gradation requirements for GW.	
		Gravels with fines (Appreciable amount of fines)	GM[a]	d	Silty gravels, gravel-sand-silt mixtures.		Atterberg limits below "A" line or P.I. less than 4.	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
				u				
			GC		Clayey gravels, gravel-sand-clay mixtures.		Atterberg limits below "A" line with P.I. greater than 7.	
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW		Well graded sands, gravelly sands, little or no fines.		$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			SP		Poorly graded sands, gravelly sands little or no fines.		Not meeting all gradation requirements for SW.	
		Sands with fines (Appreciable amount of fines)	SM[a]	d	Silty sands, sand-silt mixtures.		Atterberg limits above "A" line or P.I. less than 4.	Limits plotting in hatched zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
				u				
			SC		Clayey sands, sand-clay mixtures.		Atterberg limits above "A" line with P.I. greater than 7.	
Fine grained soils (more than half material is smaller than No. 200 sieve)	Silts and clays (Liquid limit less than 50)		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.			
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.			
			OL		Organic silts and organic silty clays of low plasticity.			
	Silts and clays (Liquid limit greater than 50)		MH		Inorgainc silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.			
			CH		Inorganic clays of high plasticity, fat clays.			
			OH		Organic clays of medium to high plasticity, organic silts.			
	Highly organic soils		Pt		Peat and other highly organic soils.			

Plasticity Chart



[a] Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 28 or less and the P.I. is 6 or less; the suffix u used when L.L. is greater than 28.

[b] Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC, well graded gravel sand mixture with clay binder.