DESIGN-BUILD SERVICES-CARNEGIE LIBRARY ADDITION & REHABILITATION

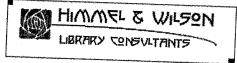
- 1. Himmel & Wilson Mount Carroll Township Library, Mount Carroll, IL-ASummary Building Program Summary
- 2. Buesing Associates Inc. Site Survey
- 3. FEH Associates, Inc. Original Schematic Designs Based on Public Charette
- 4. Illinois Historic Preservation Agency Letter: June 30, 2014
- 5. Secretary of Interior's Standards for Rehabilitation
- 6. FEH Associates, Inc. Schematic Design Change Sketches per IHPA Review
- 7. TerraCon Geotech Report
- 8. Haasco Ltd. Asbestos Inspection Report
- 9. Public Bidding Policy
- 10. Design/Build Team Evaluation Matrix

Mount Carroll Township Library

Mount Carroll, IL

A Summary Building Program Summary

Himmel & Wilson, Library Consultants Milton, WI April, 2014



INTRODUCTION

A space needs analysis/summary building program was developed for the Mount Carroll Township Library by Himmel & Wilson, Library Consultants as part of the FEH Associates architecture team early February 2014. The building program was developed to ensure that professional standards as well as contemporary trends and emerging technologies were reflected in the program used for design development.

Three key elements drove the building program development. They were:

- Accessibility
- Functionality
- User-friendliness

The new program also introduces a variety of emerging trends. Examples include the ongoing reduction in the size of print reference collections, the trend of using shorter shelving units to enhance the accessibility of collections as well as the quality of the user experience, the provision of larger dedicated space for teens and the inclusion of a "Maker Space."

The Himmel & Wilson/FEH Associates analysis and design yield a facility that totals 4,129 Assignable Square Feet.

EXISTING CONDITIONS

The deficiencies of the existing Mount Carroll Public Library facility are well documented. Accessibility for individuals with handicapping conditions is poor. Even if an individual in a wheelchair manages to get into the main floor of the building, aisle spaces are narrow, no elevator access is provided to two additional levels. Restroom facilities are not accessible.

Virtually every functional area of the existing Library is crowded. Staff spaces are poorly designed and waste valuable staff time; a major issue with a staff compliment of only two. Electrical service is inadequate and the location of electrical service dictates the placement of computers and other equipment. Parking is limited and is not dedicated to Library use. User seating is totally inadequate. The single meeting space (simply a table and chairs in what was designed as a reading room) is difficult to access (on the second floor with no elevator access) and is open to other public areas of the library providing a distraction both for meeting attendees and for other library users. The list goes on and on.

The Mount Carroll Township Library is a well-preserved example of a three-story Carnegie building. It is quite unusual in that it has three levels. Very few Carnegie's under 10,000 Square Feet in size were constructed using this configuration. While this makes the building an architectural gem well worth preserving, it obviously adds to challenges regarding accessibility.

It is to the great credit of the Mt. Carroll Township Library staff both past and present that the Library has continued to offer a commendable level of service from such a challenging building. In recent months and years, the Library has actively pursued the introduction of new services designed to engage the community to a greater extent. In particular, program offerings have increased substantially. This has only served to accentuate the building's shortcomings.

As has already been stated, the existing building is both historically significant and well preserved. Some notable efforts have already been undertaken to recapture the original charm of the structure by undoing some unfortunate, albeit minor, negative modifications that have been made through the years. Achieving the three goals of accessibility, functionality and user-friendliness appears to be impossible within the current footprint of the building. A small, historically-sensitive addition is seen as the best course for providing accessibility in addition to allowing for the use of the lower level and providing the flexibility necessary to introduce 21st century services to the Mt. Carroll community.

SPACE NEEDS ASSESSMENT SUMMARY

The population of Mount Carroll Township, Illinois is not growing. However, the City's population is not shrinking rapidly either. The 2010 U.S. Census reported the community's population as 2,279. Although Mt. Carroll's population declined between the 2000 and 2010 U.S. Censuses, many signs indicate that the population has stabilized. The City of Mt. Carroll, where the Library is located, is the County set and has an active shopping district that serves residents from surrounding communities as well as a tourist population attracted by the community's history, architecture, natural beauty and small-town charm.

A design population of approximately 3,000 people is reasonable and was used to determine the Library's space needs. The summary program that follows examined collection size and seating in depth using the guidelines established in *Serving Our Public: Standards for Illinois Public Libraries*. The size of the Mount Carroll Township Library's collection has been, and to some degree still is, oversized. The collection contains many older, underutilized volumes. The staff has been actively engaged in weeding the collection and, in discussion with the staff and Library Board, a determination was made to pursue a target collection size of approximately 15,000 volumes (which is sustainable and matches the *Serving Our Public* "Established" criteria 5 volumes per capita).

A detailed analysis of collection size was conducted that examined each sub-collection (e.g., adult fiction, children's picture books, DVDs, etc.). Careful attention was given to providing the space needed to house each collection in shelving appropriate in height and quantity to achieve a high level of efficiency as well as a high degree of user-friendliness. (lower shelving heights, shelf-loading at the 75% level or below, etc.)

User seating is another significant factor in the program. The existing Mt. Carroll facility falls below the *Serving Our Public* standard of 30 user seats for a community of 3,000. In addition, much of the existing seating is inappropriate for the size of building. (Twelve of the seats are at two large (six-eight top) study tables. Casual seating is at a premium and seating for teens and children is virtually non-existent.

The number of public access computers offered by the Library is only marginally adequate. All public computers are often simultaneously in use and furniture to house the computers is crowded and somewhat inappropriate for the purpose. The contemporary practice of providing larger computer workstations that allow for collaborative use is impractical in the existing design.

The Library's desire to engage the community through programming and innovative services is severely limited due to existing facility conditions. Additional space and greater accessibility are key factors in bringing the Mt. Carroll Township Library into the 21st century.

COLLECTIONS

Because housing library collections accounts for the largest percentage of space in public library buildings, an in-depth analysis of current and anticipated collection sizes was conducted. The consultants started with collection counts reflected in the integrated library system (ILS). The accuracy of these counts was verified by means of actual shelf counts by material types. Percentages were applied to each of the materials types to reflect likely increases or decreases, (e.g., Adult Reference -20%, Children's Board Books +25%, etc.), and adjustments to these numbers were made based on the percentage of a given type of item that is in typically in circulation. This process yielded the collection sizes to be housed.

Shelf loading, shelving type and shelving height were then determined for each collection. The building program reflects shelf loading designed to optimize staff efficiency (typically each shelf loaded at 70% or less) and shelf height designed to maximize customer experience and access (most adult collections housed on shelving 66" in height and most children's collections housed on shelving between 42" and 66" in height). In all instances, calculated aisle widths exceed Americans with Disabilities Act Guidelines.

The following chart identifies future adjusted collection sizes <u>to be housed</u>: (Note that total collection size will be approximately 15,000 volumes. The lower total reflects items likely to be in circulation at any given time.)

Collection	Number of Volumes
Adult Reference	25
Adult New Materials	200
Adult Fiction	3,000
Adult Genre Fiction	200
Adult Non-Fiction	2,500
Adult Oversized	150
Adult Current Periodicals	18
Adult and Children's Videos	750
Adult Audiobooks	150

Collection	Number of Volumes
Children's Reference	25
Children's Board Books	200
Children's Picture Books	1,200
Children's Readers	500
Children's Fiction	1,200
Children's Non-Fiction	1,200
Young Adult	350
TOTAL VOLUMES	11,668

Following is a summary of the amount of space dedicated to housing collections:

Adult Collections	666 Net Assignable Square Feet
Children's Collections	389 Net Assignable Square Feet
Young Adult Collections	22 Net Assignable Square Feet
Total Net Square Feet - Collections	1,077 Net Assignable Square Feet

If a net assignable square feet to gross square feet factor of 25% is applied, collections account for approximately 1,346 GSF.

SEATING

As has been the case for most public libraries, though the 1980s, 90s and the first decade of the new century, the Mt. Carroll Township Library allocated more and more of its existing space to computers and new formats of materials. The reallocation of this space was largely at the expense of user seating. Study and casual seating were removed to make way for computer workstations and storage units for growing media collections.

The updated program addresses this dearth of public seating and creates an environment that encourages library users to spend time in the Library reading, studying and interacting with their neighbors. In addition to significantly increasing the quantity of user seating, the updated program also expands the types of seating provided. In addition to casual seating and traditional study table and study carrel seating, small group study and tutoring rooms are included in the seating mix. Oversized "read-to-me" seating is provided in the children's area to encourage parents/caregivers and children to read together.

Space for public computer use is also increased significantly. A total of 8 computer workstations are included in the program. Of these six (6) are general adult workstations and two (2) are in the children's section of the Library and 4 are provided in the young adult area. Some of the workstations are oversized and are intended for two users.

Seating (not including computer or meeting room seating) increases from a meager 17 seats to 34 seats of various types. This exceeds the *Serving Our Public* standard of 30 seats for a service population of 3,000. Public computer workstations increase from 4 workstations to 8, which represents an increase of 100%!

The 34 seats does not include an additional 6 group study/tutoring seats, 8 seats in a "makerspace" area and 24 seats in a meeting area.

An accounting of the number and types of seating follows:

ADULT AREAS

Adult Total	24
General Study Seating	8
Casual Seating	14

YOUNG ADULT AREA **Casual Seating** 2 Young Adult Total* 2 **CHILDREN'S AREA Casual Seating** 2 **General Study Seating** 4 Read-to-Me seating 2 Children's Total* 8 **COMPUTER SEATING** Adult General 6 Children's 2 **Computer Total**

If general adult, teen and children's seating and computer seating is included and a net assignable square feet to gross square feet factor of 25% is applied, seating accounts for approximately 1,765 GSF.

8

MEETING SPACES

The existing Mount Carroll Township Library has one meeting room area. The area is an open space on the second floor and can be accessed only by stairway. The building program calls for an accessible meeting room for up to 24 people. A Teen/Makerspace with highly flexible seating to allow for group study, tutoring and a host of creative, project-oriented activities is also included.

If a net assignable square feet to gross square feet factor of 25% is applied, the meeting room and makerspace accounts for approximately 938 GSF.

STAFF WORK SPACES AND STORAGE SPACES

Currently, staff workspace is virtually non-existent. There is no non-public staff workspace and the central circulation desk is squeezed into a very public space that is cluttered and inefficient.

The revised building program provides a centrally located circulation desk with a nearby enclosed office staff office. Vastly improved workflows should enable the staff to deal with the increased usage of the new Library that is anticipated as well as affording them the opportunity to supervise a larger portion of the overall library space.

OTHER SPACES

The balance of the space falls into a variety of different categories. Entry vestibules, queueing space at the circulation desk and storage space are included. A children's "Discovery Area," is also provided.

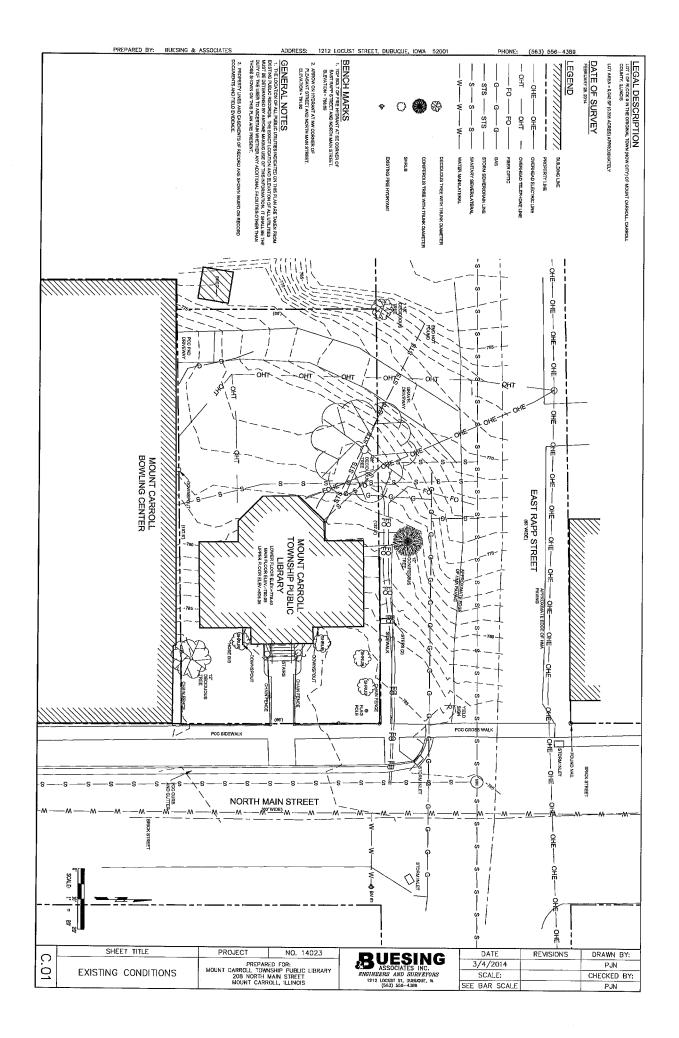
Accessible restrooms, space for the elevator and space for building mechanicals are included in the 25% net to gross calculations.

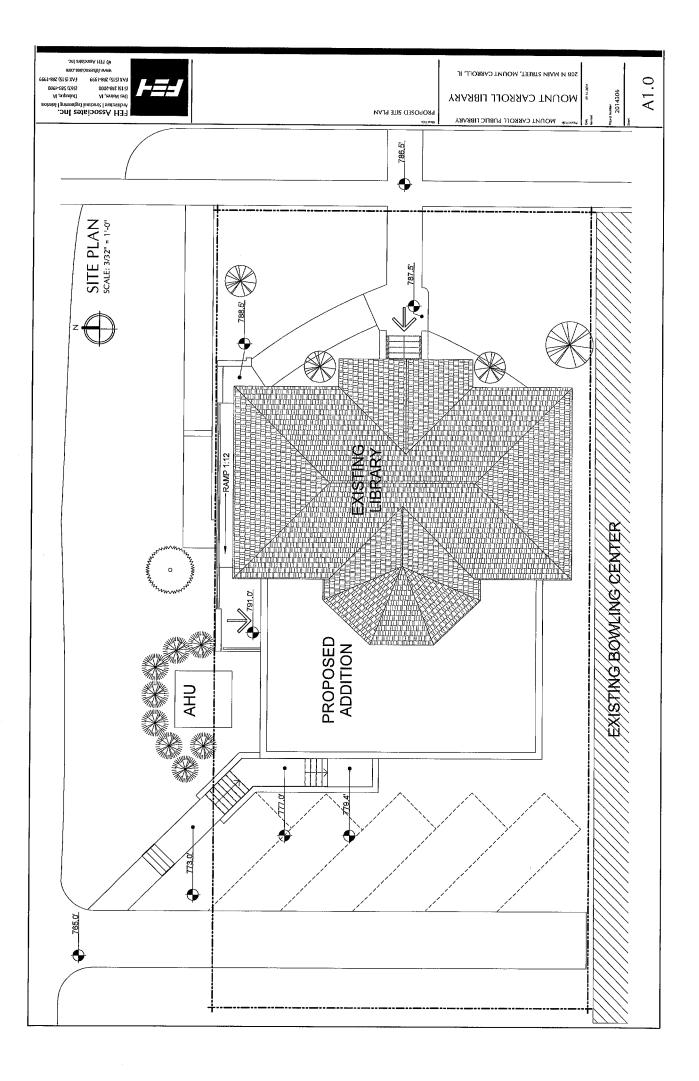
SUMMARY OF SPACES IN THE REVISED PROGRAM

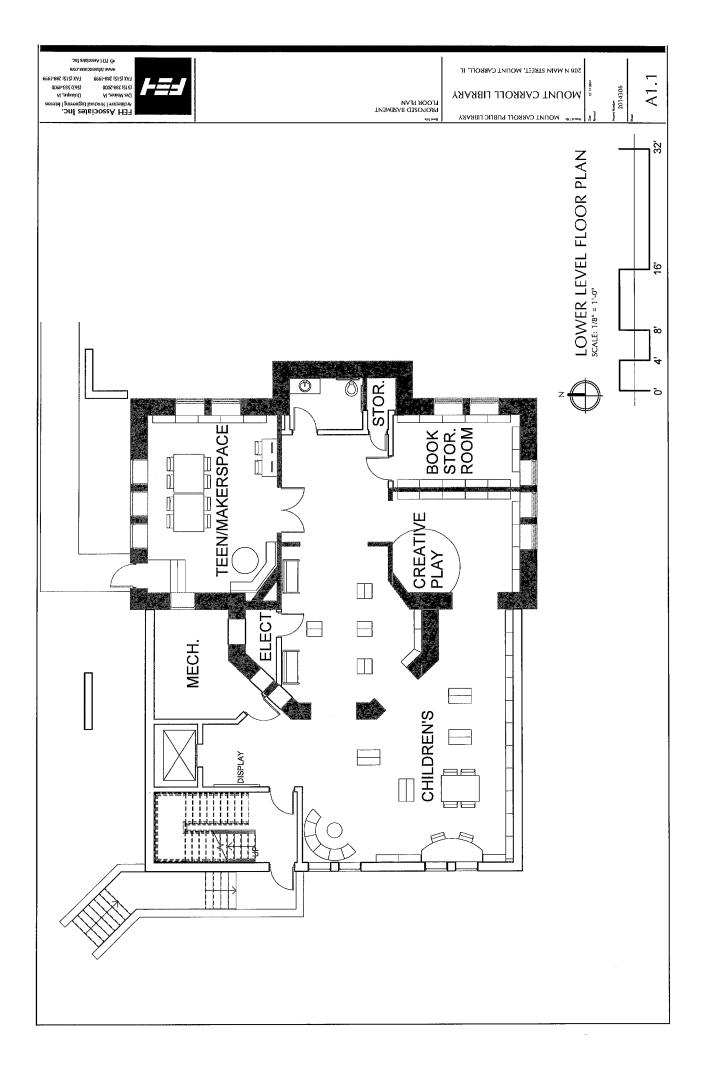
Following is a summary of spaces in the updated building program broken down into major categories.

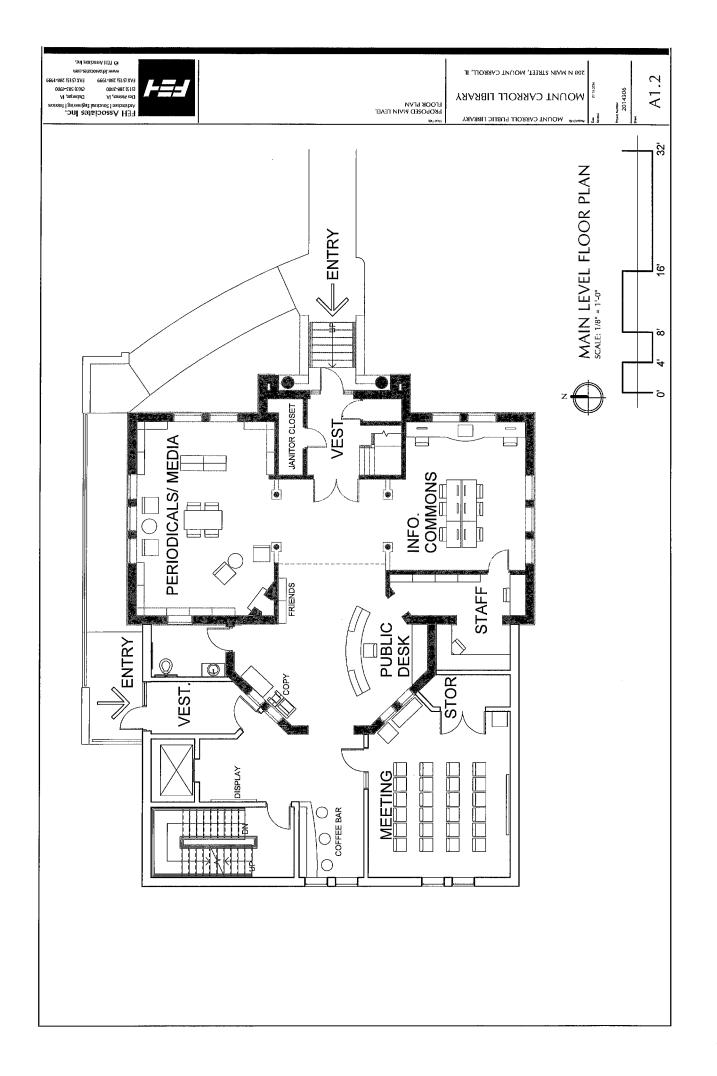
Children's Services	735 NSF
Young Adult/Teen Services (Including makerspace)	222 NSF
Adult Services	1,796 NSF
Meeting Spaces	550 NSF
Staff Spaces	205 NSF
Other	621 NSF
TOTAL	4,129 NSF

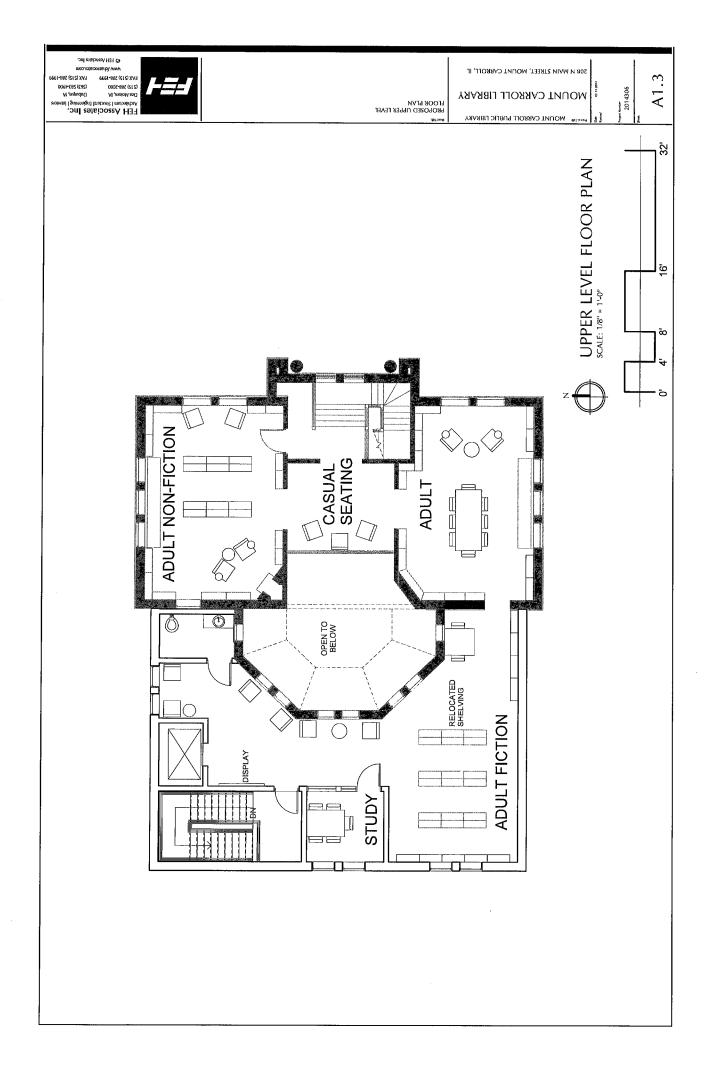
If a 25% net to gross calculation is applied, the total gross square footage is 5,162 GSF.

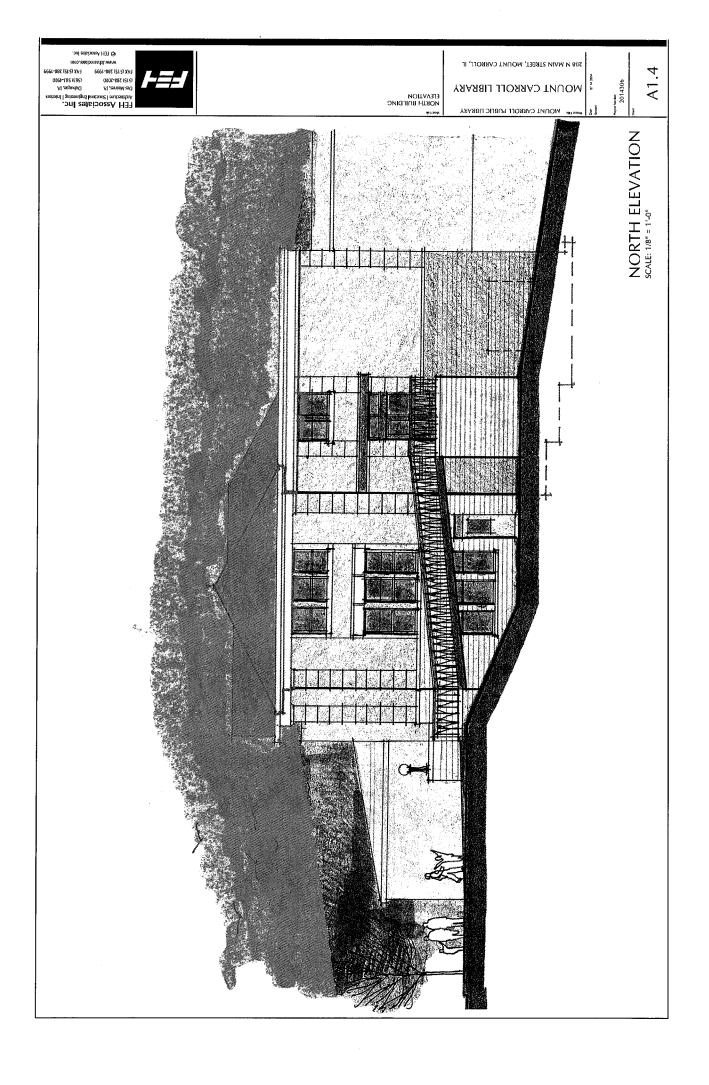


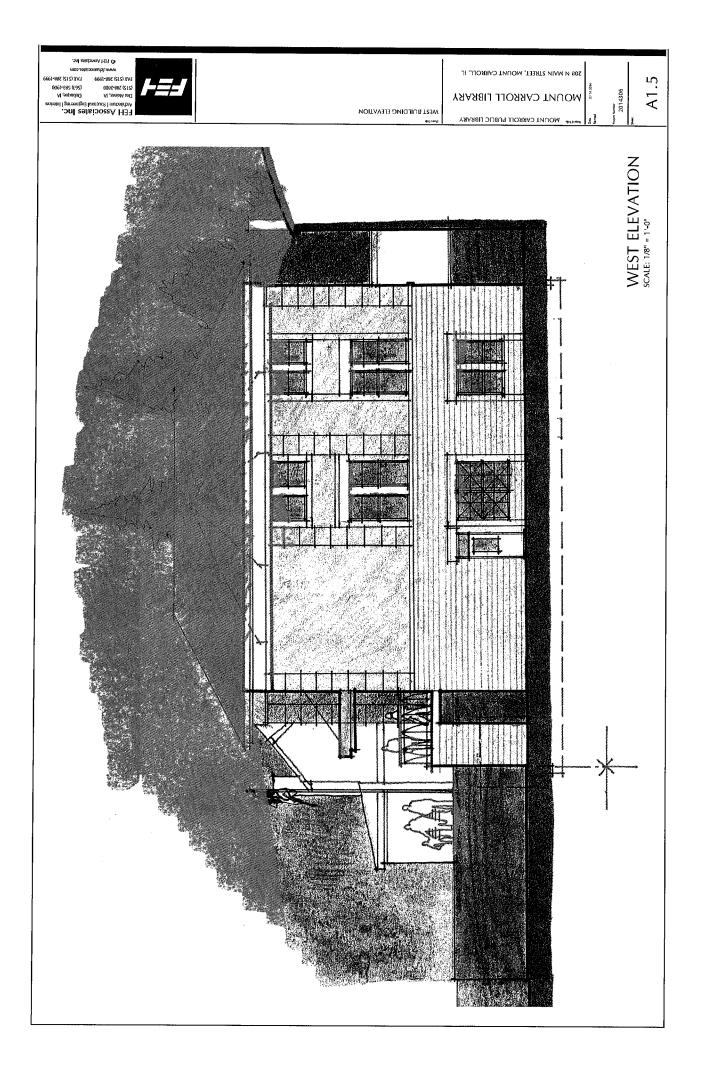














1 Old State Capitol Plaza, Springfield, IL 62701-1512

FAX (217) 524-7525 www.illinoishistory.gov

Carroll County Mt. Carroll

Public Library Construction Grant, New Addition and ADA Modifications 208 N. Main St. IHPA Log #010031414

June 30, 2014

Gregory Baum FEH Associates Inc. W316 S525 Christopher Way Delafield, WI 53018

Dear Mr. Baum:

We have reviewed the additional information provided for the above referenced project. This property is located within the Mt. Carroll Historic District, which was listed on the National Register of Historic Places on November 26, 1980.

In our opinion the project meets the Secretary of the Interior's "Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings" provided that the following conditions are met:

- 1. The northeast corner of the addition must be set back from the northwest corner of the historic building to allow the northwest wall of the main building and the adjacent north wall of the octagonal bay to remain fully visible and unenclosed over the entire height of the building.
- 2. Drawings and specifications for the addition are submitted to our office for review and approval as they are developed.

Revising the project to meet these conditions and carrying out the project as revised evidences compliance with the Illinois State Agency Historic Resources Preservation Act.

If you have any questions, please contact me at 217/785-5027.

Sincerely,

Anne E. Haaker

Deputy State Historic

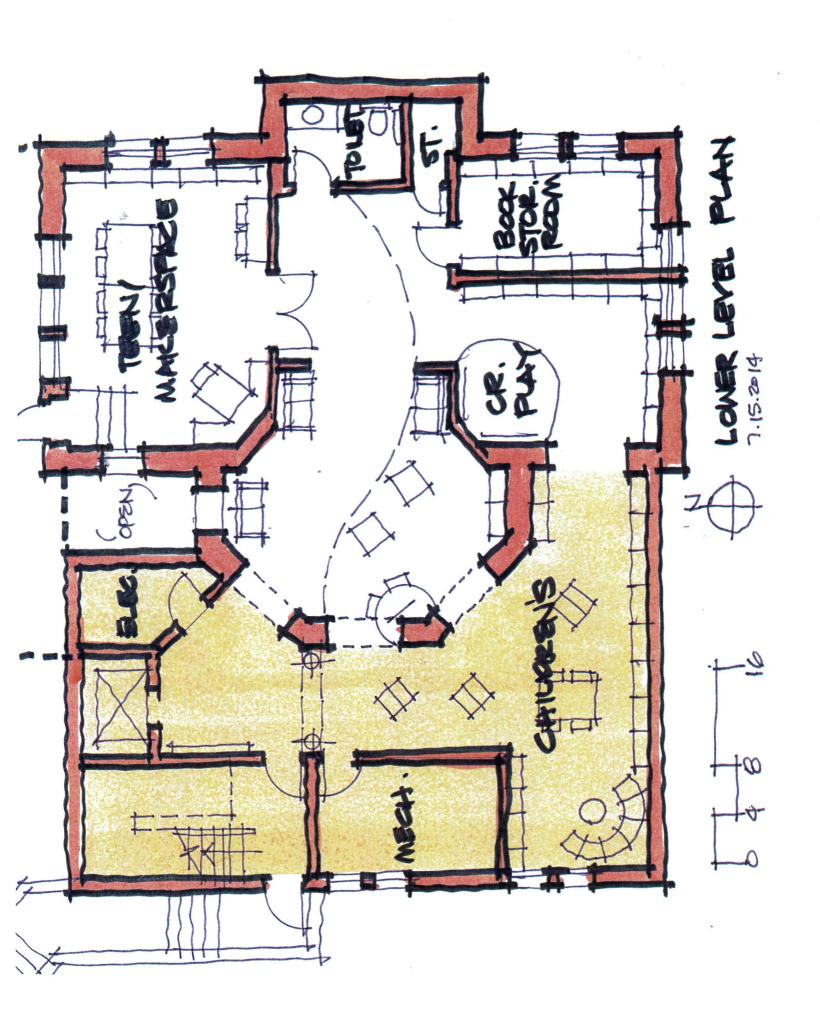
Preservation Officer

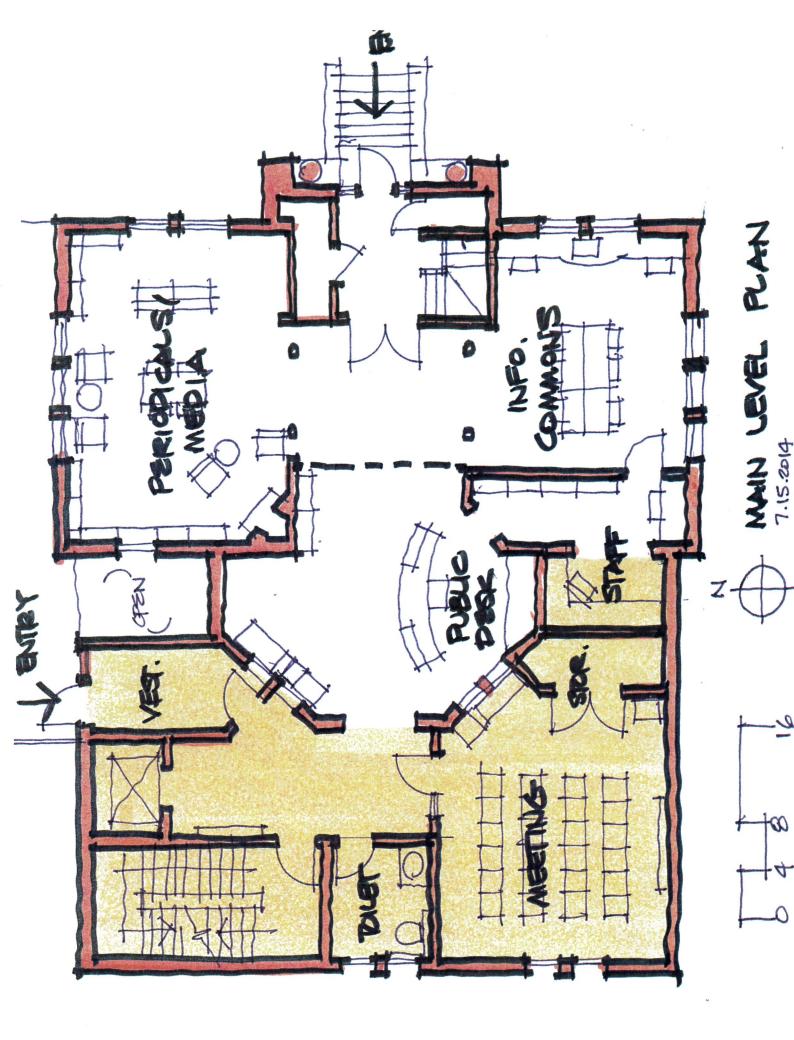
c: Mark Shaffer, Illinois State Library

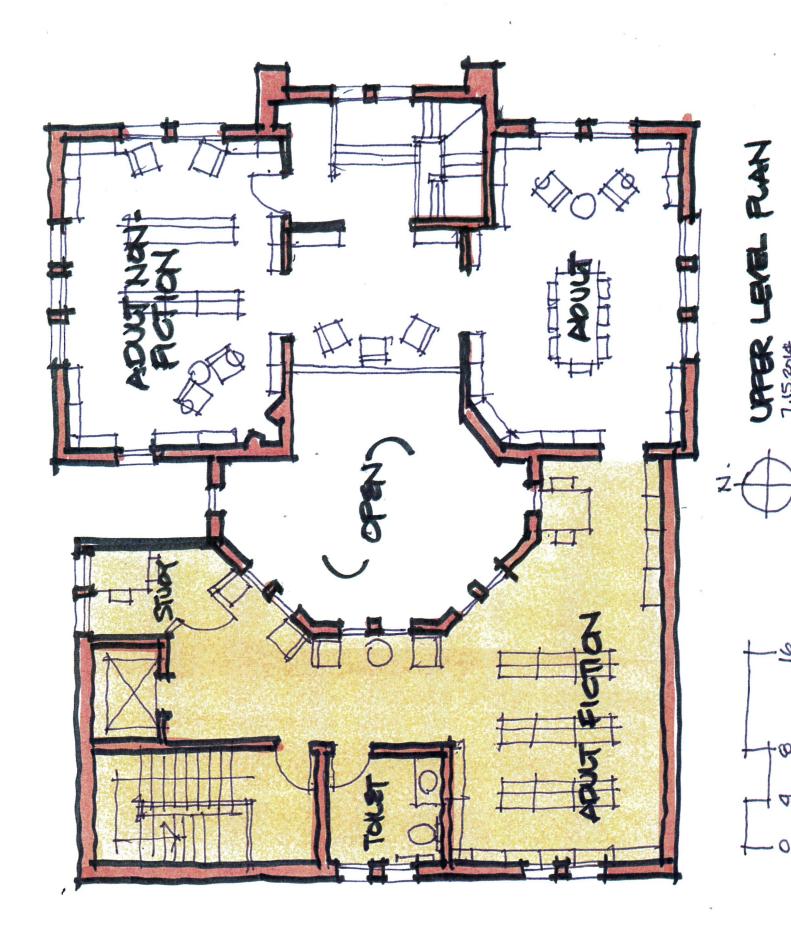
For TTY communication, dial 888-440-9009. It is not a voice or fax line.

Secretary of the Interior's Standards for Rehabilitation

- A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
- 2 The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
- 3 Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
- 4 Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
- Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
- Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, when possible, materials. Replacement of missing features shall be sustained by documentary, physical, or pictorial evidence.
- 7 Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
- 8 Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
- 9 New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing size, scale, and architectural features to protect the historic integrity of the property and its environment.
- New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.









Mount Carroll Public Library 208 North Main Street Mount Carroll, Illinois 61053

Attention:

Mr. Tom Sorg

Library Board President

Re:

Geotechnical Engineering Report

Proposed Mount Carroll Public Library Addition

Mount Carroll, Illinois

Terracon Project No. 07145024R1

Dear Mr. Sorg:

Terracon Consultants, Inc. (Terracon) has completed the subsurface exploration for the proposed addition planned for the Mount Carroll Public Library located at 208 North Main Street in Mount Carroll, Illinois. These services were performed in general accordance with our Agreement for Services with the Mount Carroll Public Library (MCPL) and our proposal dated March 24, 2014 (Terracon Proposal No. P07140083).

1.0 INTRODUCTION

Two (2) borings extending to depths of about 15 feet below existing grades were performed at the locations requested by FEH Associates, Inc. (FEH) and as shown on Boring Location Plan (Exhibit A-2) in Appendix A. Boring logs (Exhibits A-3 and A-4) are also in Appendix A. The purposes of this report are to describe the subsurface conditions encountered at the boring locations, present the test data, and provide recommendations regarding the following:

- site preparation and earthwork
- foundation design and construction
- floor slab subgrade preparation
- lateral earth pressures for below grade walls
- seismic site class

2.0 PROJECT INFORMATION

The following information was provided by FEH/MCPL. If any of the referenced information changes or does not accurately describe the proposed construction, Terracon should be contacted to review, and as necessary, revise the recommendations provided in this report.

2.1 Project Description

ITEM	DESCRIPTION
Structure	three-story addition with a slab-on grade the floor slab will supported up to about 3 feet above existing grade
	plan dimensions of the addition will be about 33 feet by 50 feet

Terracon Consultants, Inc., 870 40th Avenue, Bettendorf, Iowa 52722 P [563] 355-0702 F [563] 355-4789

Proposed Mount Carroll Public Library Addition Mount Carroll, Illinois April 9, 2014 Terracon Project No. 07145024R1



ITEM	DESCRIPTION	
Building construction	masonry walls above grade and reinforced concrete foundation walls	
	the maximum column, wall and floor slab loads were not provided by FEH, but the following values were used in our analysis:	
Maximum loads	columns:150 kips	
	walls:6 kips per linear foot	
	slab:200 psf	
Finished floor elevation	779.4, 790.95 and 806.06 feet for the lower, main and upper floors, respectively	
Grading	grade changes will primarily consist of placing fill for support of the floor slab and around the perimeter of the addition	

2.2 Site Location

ITEM	DESCRIPTION	
Location	west side of the existing library at 208 North Main Street, Mount Carroll, Illinois	
Existing improvements	none	
Current ground cover	sparse grass with a tree	
Existing topography	slopes downward from east to west with an elevation difference on the order of 9 feet across the site	

3.0 SUBSURFACE CONDITIONS

3.1 Typical Profile

Subsurface conditions at each boring location are described on the individual boring logs (Exhibits A-3 and A-4) in Appendix A. The stratification boundaries shown on the boring logs represent the approximate depths where changes in soil types occur. In-situ, the transition between native materials is usually gradual. Based on the conditions observed at the boring locations, the stratigraphy can generally be described as follows. Please refer to the boring logs in Appendix A for further information.

Stratum	Approximate Depth to Bottom of Stratum	Material Description	Consistency/
surface	3 inches	root zone	NA ¹
1 (fill)	3 to 7½ feet	sand, ash, with trace crushed limestone, concrete, clay and coal	NA ¹
2 ² (native)	not determined	clayey silt, lean clay and lean to fat clay with varying amounts of sand (ML/CL, CL, CL/CH)	medium stiff to very stiff
(nauve)		clayey sand (SC)	very dense

not applicable

2. extended to the bottom of the borings at a depth of approximately 15 feet

Proposed Mount Carroll Public Library Addition • Mount Carroll, Illinois April 9, 2014 • Terracon Project No. 07145024R1



3.2 Water Level Observations

The borings were observed during and after the completion of drilling for the presence and level of water. At these times, subsurface water levels were not observed at the boring locations. The absence of water does not necessarily mean the borings terminated above the water table. Longer term readings in cased holes or piezometers would be required to better define the subsurface water levels at the site.

Water levels may fluctuate due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed. Since water levels were not observed during drilling, it should be understood that subsurface water could be present during construction or at other times in the future. Water level fluctuations should be considered when developing design and construction plans and specifications for the project.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

Existing fill was encountered at Borings 1 and 2 to depths of about 3 and $7\frac{1}{2}$ feet below existing grades, respectively; however, the existing fill could extend to greater depths in areas not explored. It is understood that the existing library was constructed in about 1916. Information regarding placement and compaction of the fill and/or the construction of the existing library was not available to Terracon for our review.

Based on the information obtained from the borings, in our opinion, the fill does not appear to have been controlled during placement or uniformly compacted to a high degree. Since the condition and extent of the existing fill beneath the site cannot be entirely evaluated based on the boring information alone, there is a risk that foundations supported over the existing fill may not perform predictably and could experience larger than normal settlements. To provide positive support of the proposed floor slab and foundations, it is our opinion that the existing fill should be removed and replaced with engineered fill placed and compacted as recommended in this report. Further exploration with test pits is recommended to better evaluate the lateral extent and depth of the fill prior to construction. Terracon should be retained to observe the subsurface conditions at the test pit locations.

Care must be taken when removing the existing fill to avoid undermining the existing building and any utilities in the area. The depth of existing foundations should be determined prior to construction. If excavations need to extend below the top of existing foundations/utilities, excavation bracing and/or shoring may be needed to reduce the risk of undermining existing structures. Even with excavation bracing and shoring, it should be understood that some movement could occur. The scope of services for this report does not include design or recommendations for excavation bracing/shoring or underpinning of existing foundations/utilities.

Proposed Mount Carroll Public Library Addition • Mount Carroll, Illinois April 9, 2014 • Terracon Project No. 07145024R1



As an alternative to removal and replacement of the existing fill, ground improvement methods such as Geopiers[®] or Vibro Piers[™] could be considered for use with shallow foundations and to reduce the risk of larger than normal settlements of the floor slab. Ground improvement methods are generally proprietary, with design and installation performed by a specialty contractor. Terracon can provide contact information for specialty design-build contractors if this option is considered. Due to the proprietary nature of these ground improvement procedures, we recommend that a performance specification be used.

New footings should bear at or near the bearing elevation of the adjacent existing foundations. Depending upon their locations, the loads applied to new footings could cause settlement of the existing adjacent building. If possible, clear distances at least equal to the new footing widths should be maintained between the new footings and footings supporting the existing building.

Differential settlements will occur between the existing building and proposed addition. Expansion joints should be provided where necessary to accommodate differential movement between the structures. Underground piping between the structures should be designed with flexible couplings and utility knockouts in foundation walls should be oversized to allow deviations in alignment without breakage or distress.

Support of the addition on existing foundations is not expected, but if increasing the loads on existing foundations is considered, then additional building settlements could occur. The structural capacity of the existing foundations should be evaluated by the project structural engineer where any increase in loading is planned. During construction, Terracon should also observe and test the bearing conditions beneath existing footings where increased loading is planned.

4.2 Earthwork

The following presents recommendations for site preparation, excavation, and placement of engineered fill for the project.

4.2.1 Site Preparation

Existing vegetation, trees, roots larger than ½-inch in diameter, existing fill, near surface organic materials, and any loose, soft or otherwise unsuitable materials should be removed from the proposed addition's area. Based on the information obtained at the boring locations, excavation depths on the order of 3 to 7½ feet could be required to remove the existing fill from beneath the addition; however, the fill could extend to greater depths in areas not explored. Organic and other unsuitable soils removed during site preparation could be utilized as fill for landscaped areas, but should not be used beneath the proposed addition.

After removing the existing fill and any other unsuitable materials as recommended, but before placing engineered fill, the exposed soils should be observed and tested by Terracon. Where recommended by Terracon and where space permits, the subgrade soils should be scarified to

Proposed Mount Carroll Public Library Addition Mount Carroll, Illinois April 9, 2014 Terracon Project No. 07145024R1



a depth of about 9 inches and be compacted as recommended in this report. Scarification and compaction of subgrades will help provide a firmer base for the compaction of new fill sections and help delineate soft or disturbed materials that may exist at shallow depths below grade. If unsuitable materials are observed that cannot be satisfactorily compacted in place, they should be removed and replaced with engineered fill as discussed in the **Earthwork Construction Considerations** section (Section 4.2.4) of this report.

4.2.2 Engineered Fill Material Requirements

Further evaluation will be needed to determine if the existing fill can be used as engineered fill for the project. Sorting of the existing fill to remove unsuitable materials could be required prior to using the existing fill as engineered fill for the project. Engineered fill meeting the following material property requirements can be used below the addition. Materials that are unsuitable for use beneath the addition can be used in non-structural locations.

Fill Type ¹ USCS Classification		Fill Type ¹ USCS Classification Acceptable		Acceptable Location for Placement
Cohesive	CL, CL/ML, ML, ML/CL (LL ≤ 45 and PI ≤ 20)	all locations		
Granular	GW, GP, GM, GC, SW, SP, SM, SC	all locations		
Unsuitable ²	CL/CH, CH, MH, OL, OH, PT	non-structural locations		

- 1. Engineered fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to Terracon for evaluation prior to use on this site.
- 2. Any organic materials, rock fragments larger than 3 inches, and other unsuitable materials within the fill should be removed prior to use of the existing fill materials as engineered fill.

4.2.3 Fill Placement and Compaction Requirements

Item	Description
Fill lift thickness	9 inches or less in loose thickness; thinner lifts will be required when using hand equipment (e.g., jumping jack, vibratory plate compactor, etc.)
Compaction of granular material and cohesive soil ^{1, 2}	At least 95% of the material's standard Proctor maximum dry density (ASTM D 698).
	The compaction effort should extend at least 8 inches laterally from each edge of the footing for every foot of fill placed beneath the footing bearing elevation.
Moisture content of cohesive soil	Within 2% below to 3% above the material's standard Proctor optimum moisture content at the time of placement and compaction.
Moisture content of granular material ³	Workable moisture levels.

We recommend that each lift of fill be tested by Terracon for moisture content and compaction prior
to placing additional fill or concrete. If the results of the in-place density tests indicate the specified
moisture or compaction requirements have not been met, the area represented by the test should be
reworked and retested as required until the specified moisture and compaction requirements are
achieved.

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- 2. If the granular material is coarse sand, gravel or crushed limestone and is of a uniform size, or has a low fines content, compaction comparison to relative density (ASTM D 4253/4254) may be more appropriate.
- The gradation of a granular material affects its stability and the moisture content required for proper compaction. Moisture levels should be maintained to achieve compaction without bulking during placement or pumping when proofrolled.

4.2.4 Earthwork Construction Considerations

Terracon should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during site preparation, earthwork, foundation construction and backfilling of excavations.

The water contents of the on-site soils may be outside the recommended range for compaction in accordance with the standard Proctor test method. For this reason, adjustments to the on-site soils' water contents should be expected to obtain the degree of compaction recommended in this report.

Where the grade is steeper than 5 horizontal to 1 vertical, new fill should be benched into undisturbed native soils. Benching of the slope provides interlocking between the new fill and existing soils and facilitates compaction of the fill. The benches should have a maximum vertical face height of about 18 inches and should be cut wide enough to accommodate the compaction equipment.

Final slopes should be constructed as flat as practical and vegetated as soon as possible to reduce surface erosion, and to increase stability of the slopes. Erosion control measures should be provided for exposed slopes. Our scope of services did not include an evaluation of the global stability of the final slopes. Upon request, we are available to provide these services for an additional fee.

Care should be taken to avoid disturbance of prepared subgrade soils. The native soils and new engineered fill soils can be disturbed, especially by construction traffic. Construction traffic should not operate directly on saturated or low strength soils. If the subgrade becomes saturated, desiccated, or disturbed, the affected materials should either be scarified and compacted or be removed and replaced as previously discussed. Subgrades should be observed and tested by Terracon prior to construction.

If it becomes necessary to improve in-place subgrade soils for support of construction equipment required to construct the project and/or to place and compact new engineered fill, subgrade support can be improved by overexcavating and backfilling with a crushed limestone aggregate containing less than 6% passing the No. 200 sieve. The required crushed limestone layer thickness will depend upon the time of year subgrade improvement is needed and the intended use of the subgrade after construction. A geosynthetic could also be used beneath the crushed limestone aggregate to assist in improving subgrade strength, but should only be placed after below grade construction is completed to avoid damaging the geosynthetic.

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Although subsurface water was not observed in the boreholes during or after drilling, seepage could be encountered during construction. In our opinion, subsurface water should be kept at least 2 feet below the excavation bottom at all times during construction. Any water that collects in excavations should be removed prior to placement of foundation concrete or engineered fill. Although the contractor is responsible for the means and methods to dewater excavations, in our opinion, water that accumulates in excavations due to precipitation and runoff could possibly be removed using sump pits and pumps.

Care should be exercised when dewatering excavations to avoid inducing settlement of nearby existing foundations. The existing building should be observed during dewatering for any indication of movement. If movement is observed, dewatering should cease, and Terracon should be contacted.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, as well as other applicable codes, and in accordance with any applicable local, state, and federal safety regulations. The contractor should be aware that slope height, slope inclination, and excavation depth should in no instance exceed those specified by these safety regulations. Flatter slopes than those dictated by these regulations may be required depending upon the soil conditions encountered and other external factors. These regulations are strictly enforced and if they are not followed, the owner, contractor, and/or earthwork and utility subcontractor could be liable and subject to substantial penalties. Under no circumstances should the information provided in this report be interpreted to mean that Terracon is responsible for construction site safety or the contractor's activities. Construction site safety is the sole responsibility of the contractor who shall also be solely responsible for the means, methods, and sequencing of the construction operations.

4.2.5 Surface Drainage

During construction, grades should be developed to direct surface water flow away from or around the site. Exposed subgrades should be sloped to provide positive drainage so saturation of subgrades is avoided. Surface water should not be permitted to accumulate on the site.

Final grades should slope away from the addition to promote rapid surface drainage. Accumulation of water adjacent to the addition could contribute to significant moisture increases in the subgrade soils and subsequent softening/settlement. Roof drains should discharge at least 10 feet away from the addition.

4.3 Foundations

In our opinion, the proposed addition can be supported using conventional spread footing foundations supported on approved native soils or engineered fill extending to approved native soils. Footings should be designed as discussed in the following sections of this report.

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4.3.1 Shallow Foundation Design Recommendations

DESCRIPTION	VALUE			
Maximum net allowable bearing pressure ¹	1,500 psf			
Minimum embedment below finished grade for frost protection ²	3½ feet			
Approximate total settlements ³	1 inch			
Approximate differential settlement ⁴	1/2 to 2/3 of the total settlement			
Minimum footing widths	isolated footings: 30 inches continuous footings: 16 inches			

- 1. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. Footings should be located at least two (2) footing widths away from the crest of a slope or a reduction in the bearing pressure may be required.
- 2. For perimeter footings of heated areas. It should be noted that the maximum frost penetration in unheated areas can extend to depths on the order of about 4½ feet below grade. If it is desired to reduce the potential for frost heave, foundations below unheated areas or that will be exposed to freezing conditions during construction should extend to at least this depth. These minimum distances are also required from the bottom of the footing to the top of the slope grade where footings are located adjacent to a slope.
- 3. Foundation settlements will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of engineered fill, and the quality of the earthwork operations and footing construction. Frequent control joints should be provided for walls.
- 4. Differential settlement between the new addition and existing library could approach the total settlement of 1-inch.

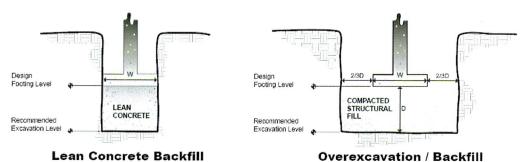
4.3.2 Construction Considerations

The soils at the base of each footing excavation should be observed and tested by Terracon. The excavation should be probed or otherwise sampled at each isolated spread footing and at regular intervals along continuous footings.

Where unsuitable native soils are present within the zone of influence as determined by Terracon, the footing excavations should be deepened to suitable native bearing materials. Footings could be supported at the lower elevation on suitable native soil or at the original design elevation on engineered fill or lean concrete that extends to suitable native bearing materials. For placement of engineered fill beneath footings, the footing excavations should extend laterally at least 8 inches beyond the edges of the footing for each foot of overexcavation depth below the footing base elevation. In some cases, widening of the excavation may not be required if lean concrete is used. The overexcavated depth should then be backfilled up to the foundation base elevation with lean concrete or crushed limestone placed in lifts and compacted to at least 98% of the material's standard Proctor maximum dry density or at least 60% of the material's maximum relative density (ASTM D 4253/4254). Each lift of new engineered fill should be observed and tested by Terracon. The overexcavation and backfill procedure is illustrated in the following figure.

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NOTE: Excavations in sketches shown vertical for convenience. Excavations should be sloped as necessary for safety.

The base of foundation excavations should be free of water and loose soil prior to placement of concrete or reinforcing steel. The soils encountered at the site and engineered fill can be subjected to disturbance by construction activity and water seepage. Care should be taken during foundation construction to avoid disturbance of the bearing soils. Should bearing soils become disturbed, excessively dry, or saturated, the affected soil should be removed and replaced with engineered fill. A lean concrete or crushed limestone aggregate working mat may be needed to reduce disturbance of the bearing soils. Only minimal foot traffic should be permitted on the bearing soils.

4.4 Floor Slab

The floor slab subgrades should be prepared as discussed in the **Geotechnical Considerations** and **Earthwork** sections (Sections 4.1 and 4.2) of this report.

4.4.1 Floor Slab Design Recommendations

ITEM	DESCRIPTION			
Floor slab support	Approved low plasticity native soils or new engineered fill placed and compacted in accordance with Section 4.2			
Granular leveling course	6 inches of well-graded granular material			

- Loads on foundations which support structural walls and column loads will be generally greater than floor slab loads. Consequently, footings should be expected to settle more and at different rates than the adjacent floor slab. Differential movement between foundations and grade-supported floors should be considered by the structural engineer.
- 2. The floor slab should be placed on a leveling course comprised of well-graded granular material compacted to at least 95% of the material's standard Proctor maximum dry density (ASTM D 698)
- 3. Joints should be constructed at regular intervals as recommended by the American Concrete Institute (ACI) to help control the location of cracking.

If moisture vapor transmission through the concrete slab is a concern, a vapor retarder should be used. The need for, and placement of, the vapor retarder should be determined by FEH or the slab designer based on the proposed floor covering treatment, building function, concrete properties, placement techniques, and construction schedule. For further guidance concerning the use of a vapor retarder system, refer to Sections 302 and 360 of the American Concrete Institute (ACI) Manual of Concrete Practice.

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4.4.2 Floor Slab Construction Considerations

On most project sites, site grading is generally accomplished early in the construction phase. As construction proceeds, the subgrade may be disturbed due to utility excavations, construction traffic, desiccation, rainfall, etc. As a result, corrective action may be required prior to placement of the granular leveling course and concrete.

Terracon should review the condition of the floor slab subgrade immediately prior to slab construction. Particular attention should be given to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by scarification/compaction or by removing the affected material and replacing it with engineered fill.

4.5 Seismic Considerations

Code Used	Site Classification
2009 International Building Code (IBC) 1	D ²

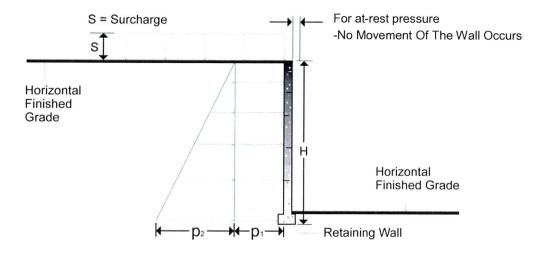
- 1. In general accordance with the 2009 International Building Code, Table 1613.5.2.
- 2. The 2009 International Building Code requires a site soil profile determination extending a depth of 100 feet for seismic site classification. The current scope requested did not include the required 100 foot soil profile determination. IBC Section 1613.5.2 states that "When the soil properties are not known in sufficient detail to determine the site class, Site Class D shall be used unless the building official or geotechnical data determines that Site Class E or F soil is likely to be present at the site." Deeper borings and/or a site-specific seismic evaluation would be required to provide additional information on seismic site class and to evaluate liquefaction.

4.6 Lateral Earth Pressures

The addition's perimeter walls could have unbalanced backfill levels on opposite sides. Walls with unbalanced backfill levels should be designed for earth pressures at least equal to those indicated in the following table. Structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained will influence earth pressures. The "at-rest" condition is based on no wall rotation and should be used for lower level walls. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls.

Backfill placed against walls should consist of granular or cohesive engineered fill. For the granular values to be valid, the granular backfill must extend out from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the at-rest and passive cases, respectively. To calculate the resistance to sliding, a value of 0.35 should be used as the ultimate coefficient of friction between the bottom of footings and the underlying engineered fill or native soils.





Lateral Earth Pressures								
Pressure Conditions	Coefficient For Backfill Type	Equivalent Fluid Unit Weight (pcf)	Surcharge Pressure, P ₁ (psf)	Earth Pressure, P ₂ (psf)				
At-Rest (Ko)	Granular - 0.5	60	(0.50)S	(60)H				
	Cohesive - 0.58	70	(0.58)S	(70)H				
Passive (Kp)	Granular – 3.0	360						
	Cohesive – 2.4	290						

Applicable conditions to the above include:

- For passive earth pressure, wall must move horizontally to mobilize resistance.
- Uniform surcharge, where S is surcharge pressure.
- In-situ soil backfill weight a maximum of 120 pcf.
- Horizontal backfill, compacted to at least 95% of standard Proctor (ASTM D-698) maximum dry density.
- Loading from heavy compaction equipment not included.
- No groundwater acting on wall.
- No safety factor included.

5.0 GENERAL COMMENTS

Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during excavation, foundation construction and other earth-related construction phases of the project.

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The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the sites, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If MCPL is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

We appreciate the opportunity to be of service to you on this project and look forward to providing the recommended testing and observation services during construction. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,

Terracon Consultants, Inc.

W. Ken Beck, P.E.

Illinois No. 062-042712

O62-042712
LICENSED
PROFESSIONAL **
ENGINEER
OF

Kole C. Berg, P.E.

Illinois No. 062-060554

WKB/KCB/N:\Projects\2014\07145024/07145024R1 Report.doc

Attachments

cc: Mr. Bryan Blair, SE - FEH Associates, Inc.

APPENDIX A FIELD EXPLORATION

Proposed Mount Carroll Public Library Addition Mount Carroll, Illinois April 9, 2014 Terracon Project No. 07145024

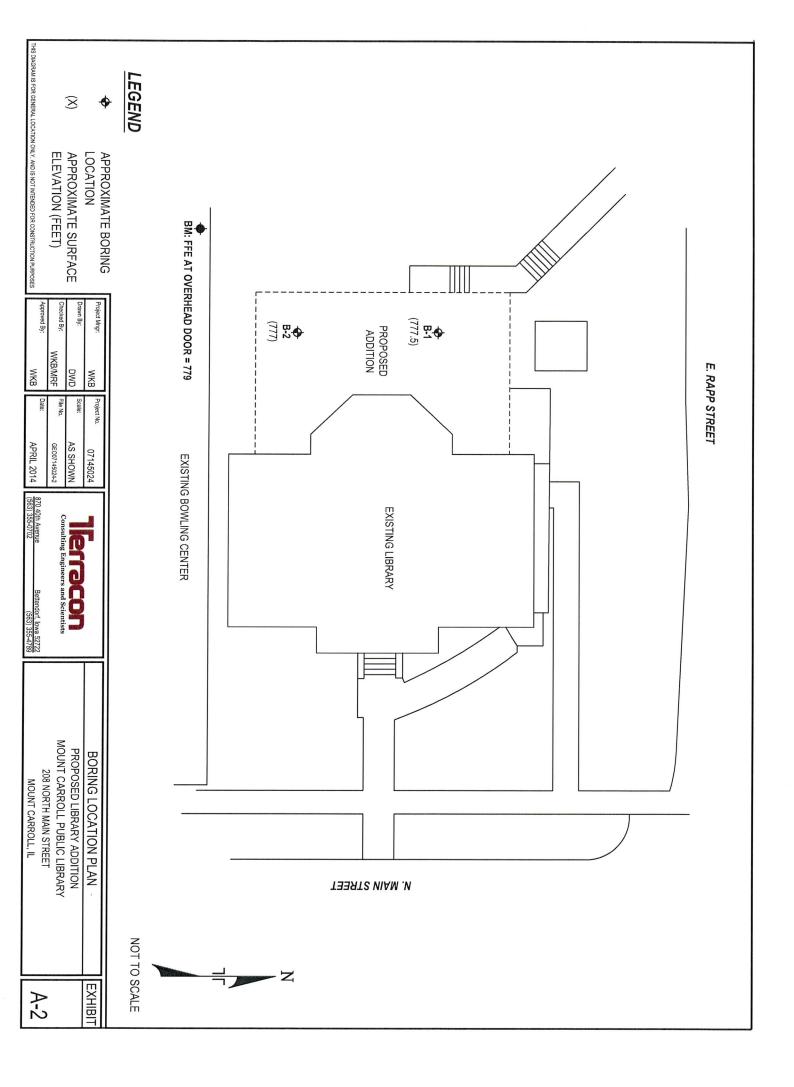


Field Exploration Description

The borings were performed near the locations requested by FEH as shown on the Boring Location Plan (Exhibit A-2) in this appendix. Horizontal distances from the existing library to the boring locations were obtained by our drill crew using a cloth measuring tape; right angles were estimated. Surface elevations at the boring locations (rounded to the nearest ½-foot) were obtained by the drill crew using a surveyor's level and rod. The elevations were referenced to the floor slab of the existing Mount Carroll Bowling Center at the driveway door, and an elevation of 779 feet was assigned by Terracon to this reference datum. The locations and elevations of the borings should be considered accurate only to the degree implied by the means and methods used to define them.

The borings were performed with an ATV mounted, rotary drill rig using continuous flight augers to advance the boreholes. Soil samples were obtained using both thin-walled tube and split-barrel sampling procedures. In the thin-walled tube sampling procedure, a thin-walled, seamless steel tube with a sharp cutting edge is hydraulically pushed into the ground to obtain samples of cohesive and moderately cohesive soils. In the split-barrel sampling procedure, a standard 2-inch (outside diameter) split-barrel sampling spoon is driven into the ground with a 140-pound Central Mine Equipment (CME) automatic SPT hammer falling a distance of 30 inches. Greater energy efficiency is typically obtained using an automatic SPT hammer as compared to the safety hammer operated with a cathead and rope. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value and are provided on the boring logs at their depths of occurrence. The blow counts, also referred to as SPT N-values, are used to help estimate the relative density of granular soils and the consistency of cohesive soils. The samples were transported to our laboratory for testing and classification.

The drill crew prepared a field log of each boring. These logs included visual classifications of the materials encountered during drilling as well as the driller's interpretation of the subsurface conditions between samples. The boring logs included with this report represent an interpretation of the field logs and include modifications based on laboratory observation and testing of the samples.



<u></u>	BORING								Page	1 of	1
Pĸ	ROJECT: Proposed Library Addition	CLIE	NT: N	√lou	ınt C	arro	ll Public Libr	ary			_
SIT	TE: 208 North Main Street Mount Carroll, Illinois	ARC	HITEC	CT:	FEH	l Ass	sociates, Inc.				
GRAPHIC LOG	DEDTU	ev.: 777.5 (Ft.) EVATION (Ft.)		WATER LEVEL	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE NUMBER	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRYUNIT
	FILL, SAND AND ASH, TRACE CRUSHED LIMESTONE, CONCRETE, gray		-	-		2	1-1-0	1		16	-
			-	1	$\backslash \backslash$		N=1	1		16	
\bigotimes			5-		X	2	0-1-1 N=2	2		10	
\bigotimes			-	-	X	3	1-1-1 N=2	3		10	
***	7.5 CLAYEY SILT (ML/CL), brown, very stiff	770	-	-							
		ļ	10-	-	X	5	4-7-9 N=16	4		9	H
	12.0 SANDY LEAN TO FAT CLAY (CL/CH), brown, very stiff	765.5	-								
			-			8	5-7-8 N=15	5		12	-
210	15.0 Boring Terminated at 15 Feet	762.5	15				IN-10				-
	Stratification lines are approximate. In-situ, the transition may be gradual.				Ha	mer]	Гуре: Automatic				_
	*Pocket Penetrometer				,		ype. Automatic				
Contin	nuous Flight Auger See Exhibit A- For de procedures See Appendix B for de procedures and additi	description of la itional data (if ar	laboratory any).	.	Note	∋s:					J
	nment Method: r Cuttings See Appendix C for e abbreviations.	xplanation of s	ymbols a	and							
	WATER LEVEL OBSERVATIONS None while drilling				Boring	g Starte	ed: 4/2/2014	Boring Cor	npleted: 4	/2/2014	4
	TVOITO 74TII CITCI CITIIIII I	rac(Drill F	Rig: 35E	Ē	Driller: RP			•
		40th Avenue endorf, Iowa		ſ	Proied	ct No : (07145024	Exhibit:	A-3	-	

	BORING L	_OG	NC). 2	1	-			Page	e 1 of	<u> 1</u>
PR	ROJECT: Proposed Library Addition	CLIE	NT: N	l lou	nt C	arrc	oll Public Libra	ary			
SI7	Wount Carroll, Illinois	ARCI	HITEC	CT:	FEI	l As	sociates, Inc.	,			
GRAPHIC LOG	LOCATION Exhibit A-2 Surface Elev.: 7 DEPTH ELEVATION 0.3 AROOT ZONE, approx. 3"	ION (Ft.)		WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	SAMPLE	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)
	FILL, SAND, TRACE CLAY AND COAL, dark brown	<u></u>	-	-	X	2	1-1-2	1		34	_
	3.0 LEAN CLAY (CL), brown, medium stiff	774	+ - -	-	\land		N=3	1		34	
	5.0	772	- 2 5 -		X	14	1-2-4 N=6	2	*2000	22	
	LEAN TO FAT CLAY WITH SAND (CL/CH), brown, stiff		_]		16		3	2470	22	102
	8.0 SANDY LEAN TO FAT CLAY (CL/CH), brown, stiff	769	-	1							
			10-	-	X	18	4-5-5 N=10	4	*3000	22	
			_								
	13.0 CLAYEY SAND (SC), brown, very dense	764	_	-			2 22 22				
//	15.0 Boring Terminated at 15 Feet	762	15-		X	10	3-38-23 N=61	5		22	
	Stratification lines are approximate. In-situ, the transition may be gradual. *Pocket Penetrometer				Har	mmer [*]	Type: Automatic				-
Contin	ement Method: inuous Flight Auger See Exhibit A-1 for descrip procedures See Appendix B for descrip procedures and additional of the procedures are procedured and the procedures are procedured and the procedure and the procedur	iption of la I data (if ar	aboratory any).		Note	es:		Management Address			
	WATER LEVEL OBSERVATIONS			-	Borin	a Star	ted: 4/2/2014	Roring Co	loted	1/2/20:	• 4
	None while drilling None 1 hr after drilling							Boring Cor Driller: RP		1/2/201-	4
	None 1 nr after drilling 870 40th As Bettendorf,	venue		-	Drill Rig: 35E Driller: RP Project No.: 07145024 Exhibit: A-4						

APPENDIX B LABORATORY TESTS

Proposed Mount Carroll Public Library Addition Mount Carroll, Illinois April 9, 2014 Terracon Project No. 07145024



Laboratory Tests

The samples obtained from the borings were tested in our laboratory to determine their water contents. The dry density and unconfined compressive strength of the only tube sample obtained were also obtained. A pocket penetrometer was also used to help estimate the approximate unconfined compressive strength of other cohesive samples. The pocket penetrometer provides a better estimate of soil consistency than visual examination alone. The test results are provided on the boring logs (Exhibits A-3 and A-4) in Appendix A.

The soil samples were classified in the laboratory based on visual observation, texture and plasticity. The soil descriptions and estimated group symbols (for native soils) presented on the boring logs for native soils are in general accordance with the Unified Soil Classification System (USCS) and the General Notes in Appendix C (Exhibit C-1). A summary of the USCS is also included in Appendix C (Exhibit C-2).

APPENDIX C SUPPORTING DOCUMENTS

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

		\boxtimes		_ <u></u> Water Initially Encountered		(HP)	Hand Penetrometer
	Auger	Split Spoon		Water Level After a Specified Period of Time		(T)	Torvane
LING	Shelby Tube	Macro Core	LEVEL	Water Level After a Specified Period of Time	STS	(b/f)	Standard Penetration Test (blows per foot)
MPL			2	Water levels indicated on the soil boring logs are the levels measured in the	D TE	(PID)	Photo-Ionization Detector
SAMP	Ring Sampler	Rock Core	WATE	borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils,	FIEL	(OVA)	Organic Vapor Analyzer
	m		_	accurate determination of groundwater levels is not possible with short term water level observations.			
	Grab Sample	No Recovery		water level observations.			

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

	(More that Density determin Inclu	NSITY OF COARSE-GRA n 50% retained on No. 200 ned by Standard Penetration des gravels, sands and sil	sieve.) on Resistance ts.	CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance						
ERMS	Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength, Qu, psf	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.			
H	Very Loose	0 - 3	0 - 6	Very Soft	less than 500	0 - 1	< 3			
NGT	Loose	4 - 9	7 - 18	Soft	500 to 1,000	2 - 4	3 - 4			
TRE	Medium Dense	10 - 29	19 - 58	Medium-Stiff	1,000 to 2,000	4 - 8	5 - 9			
S	Dense	30 - 50	59 - 98	Stiff	2,000 to 4,000	8 - 15	10 - 18			
	Very Dense	> 50	≥ 99	Very Stiff	4,000 to 8,000	15 - 30	19 - 42			
				Hard	> 8,000	> 30	> 42			

RELATIVE PROPORTIONS OF SAND AND GRAVEL

<u>Descriptive Term(s)</u> <u>of other constituents</u>	Percent of Dry Weight	<u>Major Component</u> <u>of Sample</u>	Particle Size
Trace With Modifier	< 15 15 - 29 > 30	Boulders Cobbles Gravel Sand Silt or Clay	Over 12 in. (300 mm) 12 in. to 3 in. (300mm to 75mm) 3 in. to #4 sieve (75mm to 4.75 mm) #4 to #200 sieve (4.75mm to 0.075mm Passing #200 sieve (0.075mm)
RELATIVE PROPORTIONS	OF FINES	PLASTICI	TY DESCRIPTION
Descriptive Term(s) of other constituents	Percent of Dry Weight	<u>Term</u>	Plasticity Index
Trace With Modifier	< 5 5 - 12 > 12	Non-plastic Low Medium High	0 1 - 10 11 - 30 > 30

GRAIN SIZE TERMINOLOGY



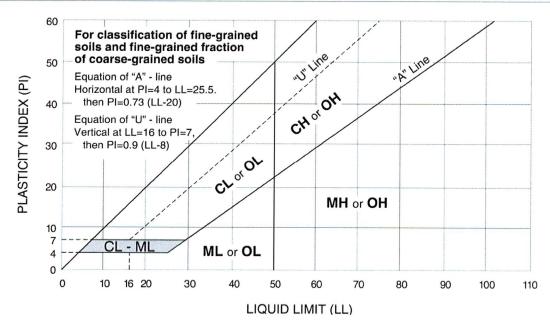
UNIFIED SOIL CLASSIFICATION SYSTEM

					Soil Classification
Criteria for Assig	ning Group Symbols	and Group Names	s Using Laboratory Tests ^A	Group Symbol	Group Name ^B
	Gravels:	Clean Gravels:	Cu ≥ 4 and 1 ≤ Cc ≤ 3 ^E	GW	Well-graded gravel F
	More than 50% of	Less than 5% fines ^c	Cu < 4 and/or 1 > Cc > 3 ^E	GP	Poorly graded gravel f
0	coarse fraction retained	Gravels with Fines:	Fines classify as ML or MH	GM	Silty gravel F,G,H
Coarse Grained Soils: More than 50% retained	on No. 4 sieve	More than 12% fines ^c	Fines classify as CL or CH	GC	Clayey gravel F,G,H
on No. 200 sieve	Sands:	Clean Sands:	Cu ≥ 6 and 1 ≤ Cc ≤ 3 ^E	SW	Well-graded sand I
	50% or more of coarse	Less than 5% fines D	Cu < 6 and/or 1 > Cc > 3 ^E	SP	Poorly graded sand
	fraction passes No. 4	Sands with Fines:	Fines classify as ML or MH	SM	Silty sand G,H,I
	sieve	More than 12% fines D	Fines classify as CL or CH	SC	Clayey sand G,H,I
		Inorganic:	PI > 7 and plots on or above "A" line J	CL	Lean clay K,L,M
	Silts and Clays:	morganic.	PI < 4 or plots below "A" line J	ML	Silt K,L,M
Fi 01 10-11	Liquid limit less than 50	Organic:	Liquid limit - oven dried	OL	Organic clay K,L,M,N
Fine-Grained Soils: 50% or more passes the		Organic.	Liquid limit - not dried < 0.75	OL	Organic silt K,L,M,O
No. 200 sieve		Inorganic:	PI plots on or above "A" line	СН	Fat clay K,L,M
	Silts and Clays:	morganic.	PI plots below "A" line	MH	Elastic Silt K,L,M
	Liquid limit 50 or more	Organic:	Liquid limit - oven dried < 0.75	ОН	Organic clay K,L,M,P
	Organic.		Liquid limit - not dried	OH	Organic silt K,L,M,Q
Highly organic soils:	Primarily	organic matter, dark in c	color, and organic odor	PT	Peat

^A Based on the material passing the 3-inch (75-mm) sieve

^E Cu =
$$D_{60}/D_{10}$$
 Cc = $\frac{(D_{30})^2}{D_{10} \times D_{60}}$

^Q PI plots below "A" line.





^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^c 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.

Sands 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

^F If soil contains ≥ 15% sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

If soil contains ≥ 15% gravel, add "with gravel" to group name.

J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

 $^{^{}L}\,$ If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.

M If soil contains ≥ 30% plus No. 200, predominantly gravel, 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" line.

Attachment 8



P.O. Box 156

Dyersville, Iowa 52040

Phone 563-875-8300

Fax 563-875-7115

Mount Carroll Township Public Library

208 North Main Street

Mount Carroll, Illinois

Enclosed is an asbestos inspection of the Mount Carroll Township Public Library. The purpose of the survey was to identify asbestos containing materials prior to renovation of the library and adding a new addition. The roof, the attic nor the old decorative windows were tested. The library was inspected while occupied which may result in some concealed materials not being tested. The inspector attempted to get access to all suspect materials. Carpets were cut and peeled back to locate flooring under them. In most areas, the flooring was the same under carpets on the upper level and the first floor. The fiberboard panels on the walls had no adhesive behind them. The ceiling tiles are the same, but no tiles were removed from the ceiling. If adhesive is located behind the ceiling tiles, please notify the inspector, so we can test it.

A total of 79 layers of materials were analyzed for asbestos. Of these samples only the following sample contains asbestos:

Haasco, Ltd.'s sample 4A- Pipe wrap located in the boiler room, the adjacent old coal room, and a few vertical risers on the first floor. There is approximately 160 linear feet.

Haasco, Ltd.'s sample 5A- Mudded joints (approximately 35) on the same pipes and locations as listed in 4A above.

Haasco, Ltd.'s sample 6- Gray packing around the chimney hole on the brick chimney in the boiler room where the exhaust pipe goes into the chimney. There is approximately 2 sq. ft.

Haasco, Ltd.'s sample 10- Tar (approximately 1 sq. ft.) on sewer pipe located in the lower level restroom where newer pipe attached to old pipe.

The inspector attempted to identify all suspect materials. If any additional materials are discovered during the renovation, they shall be treated as asbestos containing until tested. This asbestos inspection is limited to the samples listed in the attached report. A copy of this report should be given to all contractors who work on this project.

For additional information, please call Haasco, Ltd. at 563-920-0471.

Attachment 9

Public Bidding Policy

1.1: ADVERTISEMENTS FOR BIDS

Pursuant to 75 ILCS 16/40-45, projects involving expenditures of over \$20,000 the project shall be advertised in a local English language newspaper of general circulation published in the Library District, 30 days in advance of the date announced for the receiving of bids, in an attempt to obtain competitive bids. The advertisement for bids shall be posted in a readily accessible place in the Library.

For projects involving expenditures of \$20,000 or less, the Library Director shall negotiate the best price possible and, whenever reasonably possible, obtain 3 quotes on the project.

Advertisements for bids shall describe the character of the proposed contract or agreement in sufficient detail to enable the bidders thereon to know what their obligations will be, either in the advertisement itself, or by reference to detailed plans and specifications on file at the time of the publication of the announcement. Such advertisement shall also state the date, time, and place assigned for the opening of bids, and no bids shall be received at any time subsequent to the time indicated in the announcement.

1.2: EXEMPTIONS FROM BIDDING

Bidding is not required in the following cases, as defined in 30 ILCS 105/20, 500/1-1, 525/0-01, and related statutes, unless otherwise required by 75 ILCS 16/40-45:

- 1. Where the goods or services to be procured are economically procurable from only one source, such as contracts for telephone service, electrical energy, and other public utility services, books, pamphlets and periodicals, and specially designed business and research equipment and related supplies.
- 2. Where the services required are for professional or artistic skills pursuant to a written contract. Where applicable, compliance shall be made with Local Government Professional Services Selection Act,

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50 ILCS 510/0.01 et.seq.

- 3. In emergencies involving public health, public safety, or where immediate expenditure is necessary for repairs to Library property in order to protect against further loss of, or damage to, Library property, to prevent or minimize serious disruption in Library services or to insure the integrity of Library records. However, if said emergency expenditure of funds exceeds \$20,000 the person authorizing the expenditure must file an affidavit with the Board Secretary within 10 days after the purchase or commitment stating the amount expended, the name of the contractor, and the conditions and circumstances requiring the emergency purchase. Where only an estimate of the cost is available within 10 days after the purchase or contract, the actual cost must be reported immediately after it is determined.
- 4. Contracts for repairs, maintenance, remodeling, renovation, or construction of a single project involving expenditure not to exceed \$20,000 and not involving a change or increase in the size, type or extent of an existing facility.
- 5. Contracts for repairs, maintenance, or any other services not specifically exempt from bidding where expenditures for such services do not exceed \$20,000 for the same type of service at the same location during any fiscal year.
- 6. Purchases of commodities and equipment where individual orders do not exceed \$20,000.
- 7. Contracts for the maintenance or servicing of, or provision of repair parts for equipment which are made with the manufacturer or authorized service agent of that equipment where the provision of parts, maintenance or servicing can best be performed by the manufacturer or authorized service agent or such a contract would be otherwise advantageous to the Library.
- 8. Where the goods or services are procured from another governmental agency.
- 9. Purchases and contracts for the use, purchase, delivery, movement or installation of data processing equipment, software or services and telecommunications and inter-connect equipment, software and services.

10. Purchases of, and contracts for, office equipment and associated supplies when such contracts provide for prices that are equal to or lower than Federal General services administration contracts and when such contracts or pricing result in economical advantage to the Library.

1.3: OPENING OF BIDS

All sealed bids shall be publicly opened by a Trustee or authorized employee of the Library, and all such bids shall be open to public inspection in the Library business office for a period of at least 48 hours before award is made.

An extension of time may be granted for the opening of bids upon publication in a local English language newspaper of general circulation, of the date to which the bid opening has been extended. The time of the bid extension opening shall not be less than 5 days after the publication thereof, Sundays and legal holidays excluded.

1.4: REJECTION OF BIDS/READVERTISEMENT

Any and all bids may be rejected by the Board if the bidder is not deemed responsible, or the character or quality of the services, supplies, materials, equipment or labor does not conform to requirements or if the public interest may otherwise be served thereby.

When all bids are rejected, a re-advertisement for bids thereof shall be published in the same manner as the original advertisement. Proposals shall be publicly opened at the day, hour, and place specified in the solicitation for bids, or any extension thereof in accordance with this policy.

1.5: AWARDING OF CONTRACTS

All purchases, contracts, and expenditures shall be awarded by the Board to the lowest responsible bidder.

In determining the lowest responsible bidder, in addition to price, the Board shall consider:

- A. The ability, capacity and skill of the bidder to perform the contract or provide the service required;
- B. Whether the bidder can perform the contract or provide the service promptly, or within the time specified, without delay or interference;
- C. The character, integrity, reputation, judgment, experience and efficiency of the bidder;

- D. The quality of performance of previous contracts or services;
- E. The previous and existing compliance by the bidder with the laws and ordinances relating to the contract or service;
- F. The sufficiency of the financial resources and ability of the bidder to perform the contract or provide the service;
- G. The quality, availability and adaptability of the supplies, or contractual services to the particular use required;
- H. The ability of the bidder to provide future maintenance and service for the use of the subject of the contract;
- I. The number and scope of conditions attached to the bid;
- J. Such other factors as the Board shall deem appropriate.

Contracts must be awarded only on the basis of criteria which are publicly disseminated. The Library will not respond to requests to bidders or communicate with them in any way other than through the invitation to bid, written specifications, and pre-bid conference, the date and time of which must be advertised in the invitation to bid.

Tie bids.

- A. **Local Vendors**. If all bids received are for the same total amount or unit price, quality and service being equal, the contract shall be awarded to a local bidder.
- B. **Outside Vendors**. Where subsection A is not in effect, the Board shall award the contract to one of the tie bidders by drawing lots in public.

1.6: CONTRACTS

General conditions of the contract for construction, etc., and detailed procedures will be according to the recommendation and advice of the Library's attorney and consulting architect or engineer.

1.7: SPECIFICATIONS

In case of contracts for the construction of buildings, or for other construction work in or about buildings and grounds, where the entire estimated cost of such work exceeds \$100,000 prospective bidders, as well as architects and engineers employed in connection with such project, must be pre-

qualified to determine their responsibility. Separate specifications must be prepared for all equipment, labor and materials in connection with the following 5 subdivisions of the work to be performed:

- 1. Plumbing
- 2. Heating, piping, refrigeration and automatic temperature control systems, including the testing and balancing of such systems.
- 3. Ventilating and distribution systems for conditioned air, including the testing and balancing of such systems.
- 4. Electric wiring.
- 5. General contract work.

Such specifications shall be so drawn as to permit separate and independent bidding upon each of the above 5 subdivisions of work; provided, however, if the total estimated cost of all such work is less than \$100,000, such separate and independent specifications and bidding shall not be required. All contracts awarded for any part thereof shall award the 5 subdivisions of such work separately to responsible and reliable persons, firms, or corporations engaged in these classes of work. Such contracts, at the discretion of the Library Board, may be assigned to the successful bidder on the general contract work, or to the successful bidder on the subdivision of work designated by the Library Board prior to bidding as the prime subdivision of work; provided that all payments will be made directly to the contractors for the 5 subdivisions of such work upon compliance with the conditions of the contract. A contract may be let for one or more buildings in any project to the same contractor. The specifications shall require, however, that unless the buildings are identical, a separate price shall be submitted for each building. The contract may be awarded to the lowest responsible bidder for each or all of the buildings included in the specifications.

1.8: ARCHITECTS/CERTIFICATES OF PAYMENT

Any contract entered into or expenditure of funds by the Library for the remodeling, renovation or construction, involving an expenditure in excess of \$20,000, shall be subject to the supervision of a licensed architect, engineer, or qualified inspector and no payment shall be paid for such remodeling, renovation or construction unless the vouchers or invoice for such work is accompanied by a written certificate of such licensed architect, engineer, or qualified inspector that the payment represents work satisfactorily completed; labor; or materials incorporated in or stored at the site of such work; provided, periodic payments can be made during the course of such work upon a certificate of such licensed architect or engineer and indicating the proportionate amount of the total work satisfactorily completed.

1.9: REQUIREMENTS OF BIDDERS

1.9.1: SWORN STATEMENTS

Each bidder shall accompany his bid with a sworn statement, or otherwise swear or affirm, that he has not been a party to collusion among bidders, in the form prescribed by 65 ILCS 5/8-10-8.

Every bid submitted to and contract executed by the Library shall contain a certification (a "no violation" certificate) by the contractor that the contractor is not barred from bidding on the contract as a result of a violation of either Section 33E-3 or 33E-4 of 720 ILCS 5133 E. The Library shall provide a form for such certification.

1.9.2 : BID BONDS

Cash, cashier's check, a certified check, or a bid bond, in a reasonable amount, but not in excess of 10% of the contract amount, may be required of each bidder by the Library on all bids involving amounts in excess of \$20,000 and, if so required, the advertisement for bids shall so specify.

1.9.3 : PERFORMANCE/PAYMENT BONDS

Every contractor engaged by the Library for contracts exceeding \$20,000 shall be required to furnish,

supply and deliver a bond to the Library. Performance and payment bonds will be required each in the amount of 100% of the contract price, or as fixed by the Library Board. Such bond, among other conditions, shall be conditioned for the completion of the contract, for the payment of material used in such work, and for all labor performed in such work, whether by subcontractor or otherwise. Each bond will contain the following provisions, in substance:

"The principal and sureties on this bond agree that all the undertakings, covenants, terms, conditions, and agreements of the contract or contracts entered into between the principal and the Library will be performed and fulfilled and to pay all persons, firms, and corporations having contracts with the principal or with subcontractors, all just claims due them under the provisions of such contracts for labor performed or materials furnished in the performance of the contract on account of which this bond is given, after final settlement between the Library

The bond may be acquired from the company, agent, or broker of the contractor's choice. The bond and sureties shall be subject to the right of reasonable approval or disapproval, including suspension, by the Library. (Public Construction Bond Act, 30 ILCS 550/0.01 et seq.).

Whenever any contract entered into by the Library for the repair, remodeling, renovation, or construction of a building or structure, provides for retention of a percentage of the contract price until final completion and acceptance of the work, upon the request of the contractor and with the approval of the Library Board the amount so retained may be deposited under a trust agreement with an Illinois bank of the contractor's choice and subject to the approval of the Library. The contractor shall receive any interest thereon. Upon application of the contractor, the trust agreement must contain, as a minimum, the following provisions:

- 1. The amount to be deposited subject to the trust;
- 2. The terms and conditions of payment in case of default of the contractor;
- 3 . The termination of the trust agreement upon completion of the contract;
- 4. The contractor shall be responsible for obtaining the written consent of the bank trustee, and any costs or service fees shall be borne by the contractor.

The trust agreement may, at the discretion of the Library and upon request of the contractor, become operative at the time of the first partial payment.

1.10: PREVAILING WAGES

In accordance with 820 ILCS 130/1 et. seq., contractors engaged by the Library must pay their laborers, mechanics, and other workers the prevailing wage. The prevailing rate of wages means the hourly cash wages paid generally in Carroll County to employees engaged in work of a similar character on public works.

The requirement to pay prevailing wages does not apply to maintenance work. "Maintenance work" means the repair of existing facilities when the size, type, or extent of such existing facilities is not changed or increased. EXCEPTIONS: Contracts for janitorial cleaning services, window washing, and security services must be paid prevailing wages.

The Library will list the most current prevailing wage rates available in each bid specification pursuant to The Illinois Department of Labor rates as supplied to each County Clerk at the first of each month as required by law.

1.11: CERTIFICATES OF INSURANCE

A certificate of insurance shall be required of every bidder and every contractor. Contractors shall be insured for the following minimum amounts by insurance companies with a minimum Best's rating of A

Worker's compensation: \$100,000 each occurrence, \$100,000 each employee; \$500,000 policy limit General Liability: \$1,000,000 each occurrence; \$2,000,000 aggregate; Automobile Liability: \$500,000 each accident; \$1,000,000 combined

1.12: CHANGE ORDERS

Change orders which authorize or necessitate an increase or decrease in either the cost of a contract by \$20,000 or more, or the time of completion by 30 days or more, shall not be authorized without the Library Board or its designee making a determination in writing that the circumstances requiring the change order: (1) were not reasonably foreseeable when the contract was signed; or (2) were not

contemplated by the contract as signed; or (3) are in the best interests of the Library District. Change order determinations shall be kept in a permanent contract file open to the public, and shall otherwise meet the requirements of 720 ILCS 5/33 E-9 et. seq.

1.13: AUTHORIZED EXPENDITURES BY LIBRARY DIRECTOR

No commitment for expenditures of Library District monies, except from the petty cash fund, shall be made without authorization or a purchase order issued according to the following conditions:

1. \$20,000 or more:

All expenditures of \$20,000 or more shall be made only with prior Board approval in the manner prescribed by State law and Board policy.

2. Less than \$20,000 - More than \$1,000:

All expenditures of less than \$20,000 but more than \$1,000 shall be made only with prior Board approval (approval includes budgeted items approved by the Board). Staff shall obtain at least three documented quotations.

3. Less than \$1,000:

Expenditures of less than \$1,000 for approved budget items or budget contingency items may be made at the discretion of the Director without bids or quotations.

4. Emergency Expenditures:

Emergency (unbudgeted) expenditures over \$1,000 can be made only by the Director upon approval of the Board President and approved by ¾ majority of the Board. The initial Board inquiry may be by phone, which is then to be ratified at the next Board meeting.

Emergency (unbudgeted) expenditures under \$1,000 may be made by the Director in consultation with the Board President and shall be reported at the next Board meeting.

1:14 DISPOSAL OF SURPLUS LIBRARY PROPERTY

Real or personal Library property which in the judgment of the Library Director is no longer useful or necessary for Library purposes may be disposed of in the following manner:

- Books and other library materials from the Library's collection, or gift materials, may be discarded, sold, or given to another local government or not-for-profit organization.
- 2. Personal property of any value may be donated or sold to any other tax-supported library or to any library system operating under the provisions of the Illinois Library System Act under terms or conditions determined by the Board.
- 3. Personal property having a current unit value of up to \$1,000, may, at the discretion of the Director, be discarded, turned in on new equipment, or made available for sale.
- 4. Personal property having a unit value of more than \$1,000 but less than \$2,500 may be displayed at the library and a public notice of its availability, the date, and the terms of the

proposed sale shall be posted. In all other cases, the Board shall dispose of real and personal property in accordance with the Illinois District Library Act (75 ILCS 16.30-55.40).

1:15 MISCELLANEOUS

- 1. The Library Board of Trustees reserves the right at any time to modify or waive compliance with the terms of this Public Bidding Policy.
- 2. In the event of any conflict between the terms of the Public Bidding Policy and applicable statutes, the statutes control.

Attachment 10

Attachment 10

Decision Matrix - Design-Build Services: Library	Renovation	Values	Team
1. Primary Qualifications (Maximum 40 points)			
a. Project management lead	Experience/ability of project manager to manage scope/budget/schedule/quality	0 - 10	
b. Project design lead (may be same)	Experience/creativity of project designer to meet project requirements	0 - 10	
c. Construction lead (may be same)	Experience/ability of construction team to meet project requirements	0 - 10	
d. Support firms/contractors	Experience/ability of support team to meet project requirements	0 - 10	
2. Overall Team Qualifications (Maximum 10 points	3)		
	Reference Project #1	0 - 2	
a. Significance of past work to the current project	Reference Project #2	0 - 2	
	Reference Project #3	0 - 2	
b. Team organization & structure	Clarity of responsibilities demonstrated within the proposed team	0 - 4	
3. Overall Team Experience (Maximum 20 points)			
a. Previous team performance	Past performance as indicated by contacted reference owners	0 - 5	
b. Experience with similar project delivery methods	As indicated by reference projects	0 - 5	
c. Budget and schedule management	Performance in completing projects within original construction budget and schedule	0 - 5	
d. Previous municipal experience	Experience with government contracts	0 - 5	
4. Project Specific Qualifications (Maximum 20 poi	nts)	-	
a. Historic preservation	Experience in performing/coordination with the Illinois Historic Preservation Officer on historic building renovations	0 - 10	
b. Innovative design related to challenging site	Experience in design related to site challenges (addition and accessible entrance located on hill)	0 - 10	
5. Response to Project Location & Mobilization (Ma	aximum 10 points)		
a. Accessibility of design team to project site	Ability of designer to coordinate design management, site meetings, & respond to emergencies	0 - 5	
b. Accessibility of build team to project site	Ability of builder to coordinate construction management, site meetings, & respond to emergencies	0 - 5	
		Total	

Comments: (As this is not a formal bid process	, please list below any factors not
addressed above which you believe to be releva-	ant to the selection)

Evaluator Sign-off:	
Signature	Date