1. City Council Special Meeting Agenda

    Documents:

        2-25-14 SPECIAL MEETING AGENDA.PDF

2. City Council Special Meeting Packet

    Documents:

        2-25-14 COUNCIL PACKET.PDF

3. Water Street Flats Work Session Presentation

    Documents:

        WATER STREET FLATS WORK SESSION PRESENTATION.PDF

CITY OF YPSILANTI
SPECIAL COUNCIL MEETING AGENDA
CITY COUNCIL CHAMBERS – ONE SOUTH HURON ST.
YPSILANTI, MI 48197

TUESDAY, FEBRUARY 25, 2014
7:00 P.M.

I. CALL TO ORDER –

II. ROLL CALL –

Council Member Jefferson	P A	Council Member Robb	P A
Council Member Moeller	P A	Council Member Vogt	P A
Council Member Murdock	P A	Mayor Schreiber	P A
Mayor Pro-Tem Richardson	P A		

III. INVOCATION –

IV. PLEDGE OF ALLEGIANCE –

"I pledge allegiance to the flag, of the United States of America, and to the Republic for which it stands, one nation, under God, indivisible, with liberty and justice for all."

V. INTRODUCTIONS –

VI. AUDIENCE PARTICIPATION-

VII. REMARKS BY THE MAYOR –

IX. RESOLUTIONS/MOTIONS/DISCUSSIONS

Workshop for Water Street Flats Proposal.

X. AUDIENCE PARTICIPATION -

XI. REMARKS BY THE MAYOR –

XI. ADJOURNMENT –

Resolution No. 2013-057, adjourning the Special Council Meeting.

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XI. ADJOURNMENT –

Resolution No. 2013-057, adjourning the Special Council Meeting.

February 21, 2014

Community and Economic Development Department

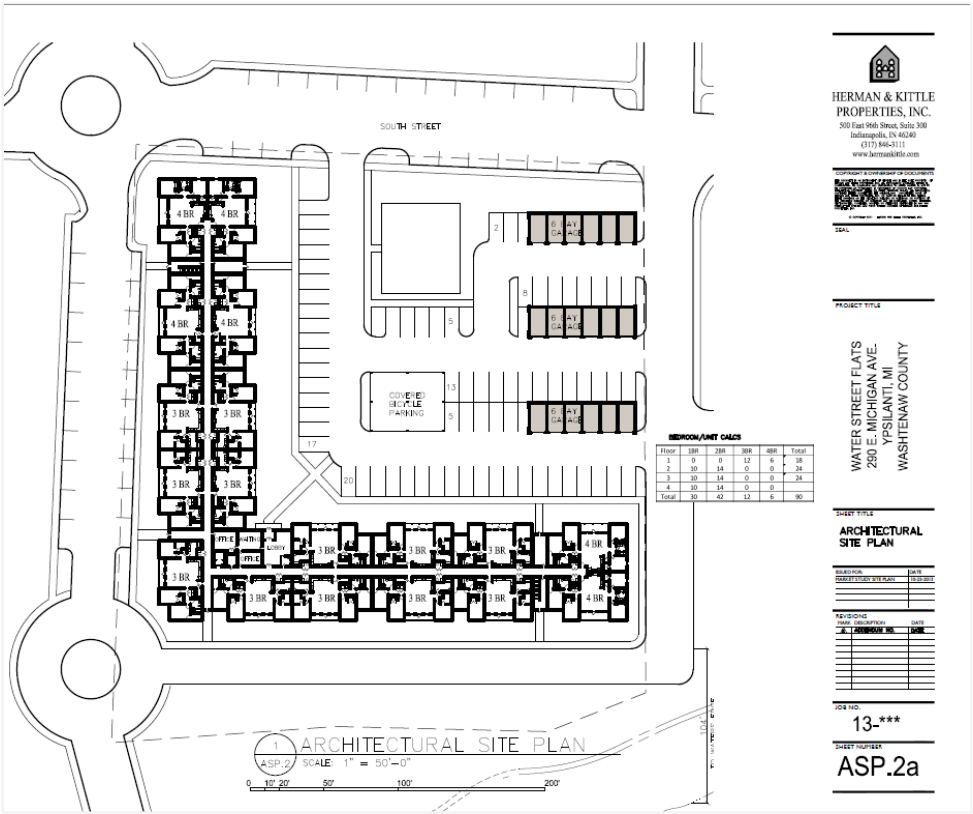
To: City Council
From: Teresa Gillotti, Director of Community and Economic Development

Subject: Water Street Flats proposal updates and upcoming work session

City Council approved a non-binding letter of intent at its January 21, 2014. At that time there were several council requests for additional information, changes with the project based on proposed MSHDA financing, and feedback from council and staff after visiting existing properties developed and managed by Herman Kittle Properties (HKP) in other communities.

Proposal changes

As part of the financing for the proposed Water Street Flats, HKP has been working with MSHDA on approval of the product. MSHDA requested that the larger units be placed on the ground floor or be stacked on top of like units to prevent larger units (3 or 4 bedrooms) be located over smaller units (1-2 bedrooms). To accommodate this request, HKP is proposing to increase the number of units from 76 to 90 to allow a better balance to the unit mix and location within the building. All 3 and 4 bedroom units will now be located on the first floor. This request does alter the proposed site plan, but in a way that is still in compliance with the city's zoning guidelines. The change will provide a more sold edge to the future corner of River and South Streets, still forming an L at the southwest corner of the proposed property (see below). Revised elevations showing facades are expected in time for the work session, but are not available at this time.



The proposed buildable area remains unchanged at 3.14 acres. The related infrastructure to be added includes River Street extended south to the ring road, the ring road between River and Lincoln, Lincoln between the ring road and South Street, and South Street from River to Park Streets. All related water, sewer and storm sewer will be oversized and pulled into the site from Michigan Avenue to service this and future adjacent developments. Due to financing requirements, HKP is requesting to purchase the parcel plus the related street right-of-way. Once built, those right-of-ways will be dedicated back to the City. The purchase agreements will reflect this, and will require the post-construction deeding of right-of-way.

Unit mix and rents

The 90 units will vary between 1 and 4 bedroom units with the majority falling in the 1-2 bedroom range with 10%, or 9 barrier-free units.

Floor	1BR	2BR	3BR	4BR	Total
1			12	6	18
2	10	14			24
3	10	14			24
4	10	14			24
Total	**30**	**42**	**12**	**6**	**90**

Five units (6%) would have income restrictions of 50% of the Washtenaw County Area Median income. The remaining 85 units would be restricted to 60 % of the Washtenaw County Area Median Income. Staff will provide more information about affordability in context with the City as a whole and in context with the county starting during the working session.

Parcel subsurface investigation
As has been previously discussed, the location in question is primarily fill soil. HKP hired an engineering firm to conduct and analyze soil borings to determine the extent of the fill to answer the question as to whether a standard foundation would support the proposed development, or if an engineered pier system would be required. Deleterious fill was found at various levels including 16 feet below surface, and would not adequately support the proposed structures. Final recommendations are for a rammed aggregate pier system to be utilized. The estimated cost for the piers is $200,000.

Green Standards
Several councilmembers and staff have noted that one of the HKP properties in Indianapolis is Silver LEED certified. As a reminder, the City's approved Climate Action Plan notes the need for energy efficient buildings, but notes that the expense related to obtaining LEED certification (processing, not energy-efficient improvements themselves) is often cost-prohibitive. The Climate Action Plan recommends alternative certifications such as Green Globes. HKP is investigating other certifications, but is subject to the MSHDA green certification which requires Energy Star appliances, low-flow faucets, toilets and shower heads, daylight sensors on outdoor lighting, etc. Details on the MSHDA requirements can be found here:
http://www.michigan.gov/documents/mshda/mshda_li_ca_22_tab_m_green_amenities_24058

Safety Standards
HKP has budgeted for security cameras and if approved, will work with the Ypsilanti police department in determining appropriate and effective locations for installations.

Investment, Financing, and Timeline
The total project investment is estimated at $12.5 million with a shift of the developer fee going down to but other costs increasing including additional units as well construction of the ring road. The amount estimated for infrastructure and site preparation will be updated later this month. It was originally estimated at 1.7 million. Investment estimates will be refined by the end of the month.

The project would be financed with several different mechanisms including Rental Housing Tax credits (RHTC) from MSHDA, Tax Exempt Bond financing, HOME funds and developer contribution. The estimated $745,000 in infrastructure costs would also include oversized utilities that would run from Michigan Avenue south under River Street to serve the site as well as future development. These costs would be reimbursable through the Brownfield Tax Increment Financing.

Proposed project financing:
- $3,400,000 in Rental Housing Tax Credits (RHTCs) from MSHDA
- $4,800,000 in Tax Exempt Bond Financing (MSHDA mortgage)
- $2,900,000 in HOME Funds
- $725,000 in deferred developer contribution

The project timeline as discussed with the major financer, MSHDA, has changed. The financing timeline previously discussed was for rehab projects, not new construction. Below is a more realistic timeline of when the project would be approved, funded, closed on and followed with construction.

Project Timeline

- December, 2013: Preliminary Application due to MSHDA
- March 4, 2014: purchase agreement with City of Ypsilanti and Herman Kittle Properties
- April, 2014: Full Application due to MSHDA
- July, 2014: Allocation Announced
- March 2015: Closed on Financing and Start of Construction
- November, 2015: Leasing Begins
- March, 2016: Construction Complete

Work Session:

Several of the above items will be reviewed at the work session. In addition there will be a discussion of affordable housing more broadly, review of the site visits of the HKP developed and managed properties in Indianapolis and a review of potential infrastructure and finanacial impacts of the development.

If council members would like specific information presented, please contact Teresa Gillotti at tgillotti@cityofypsilanti.com or 734-483-9646.

ATTACHMENTS:

- Geotechnical report

TERRA
SITE DEVELOPMENT, INC.

DEVELOPMENT & ENGINEERING CONSULTANTS www.TERRAsitedev.com

Water Street Flats Apartments

Near River and South Streets
Ypsilanti, Michigan

Prepared for:

Herman & Kittle Properties, Inc.
500 E 96th Street, Suite 300
Indianapolis, Indiana 46240

GEOTECHNICAL ENGINEERING REPORT

TERRA # 131105-1.001
FEBRUARY 7, 2014

p | 317.399.1216 f | 317.663.3049
e | info@TERRAsitedev.com w | http:// www.TERRAsitedev.com
MAIN OFFICE: 1307 W 161ST STREET, WESTFIELD, IN 46074

TERRA
SITE DEVELOPMENT, INC.

DEVELOPMENT & ENGINEERING CONSULTANTS

ENVIRONMENTAL DUE DILLIGENCE
GEOTECHNICAL INVESTIGATION & DESIGN
BROWNFIELDS REDEVELOPMENT
SITE DESIGN CONSULTING
CONSTRUCTION MATERIALS TESTING
OWNER'S CONSTRUCTION REPRESENTATIVE

February 7, 2014

Mr. Michael Rodriguez
Herman & Kittle Properties, Inc.
500 E 96th Street, Suite 300
Indianapolis, IN 46240

RE: Geotechnical Engineering Study
Water Street Flats Apartments
Ypsilanti, Michigan
TERRA Project No. 131105-1.001

Dear Mr. Rodriguez:

Enclosed is TERRA Site Development's (TERRA's) draft of our Geotechnical engineering investigation report for the above referenced project. This report was completed in general accordance with *TERRA's* proposal.

This report presents the results of TERRA's field and laboratory testing program, an engineering interpretation of this data with respect to the available project characteristics, and preliminary recommendations to aid in the design and construction of the foundations and other earthwork related phases of this project.

We recommend that TERRA be retained to provide construction observation services during the earthwork and foundation construction phases of the project. This will allow us to verify that the construction proceeds in compliance with the design concepts, specifications and recommendations. Also this will allow design changes to be made in the event that subsurface conditions differ from those anticipated.

TERRA appreciates having the opportunity to perform this Geotechnical Engineering Report for Herman & Kittle Properties. If you have any questions regarding this report, or if we may be of any additional assistance regarding any geotechnical aspect of the project, please do not hesitate to contact our office.

Sincerely,

Mark Behrens
Director - Geotechnical Engineering

EXECUTIVE SUMMARY

□ TERRA Site Development, Inc. (*TERRA*) was commissioned by Herman and Kittle Properties, Inc. to perform a geotechnical engineering study for the proposed Water Street Flats apartment development. The property currently has no street frontage but is located in the southeast corner of the future extensions of River and South Streets. The site is one (1) block south of the 200 block of East Michigan Avenue in Ypsilanti, Washtenaw County, Michigan. The size of the site to be developed is approximately 3.75 acres. The following summary highlights the findings of *TERRA*'s geotechnical investigation. Please refer to the body of this report for more specific conclusions and recommendations.

□ The topography at the site can be characterized as sloping from north to south toward the Huron River which is located at the southern boundary of the site. Aerial photographs show an industrial building on the site which has been demolished. The asphalt parking lot remains. Most of the site is overgrown with weeds and briars. A portion of the site is being used as a tree nursery. Many of the boring locations had to be moved in the field because of difficult site conditions that limited access for the drill rig.

□ Five (5) soil borings were drilled across the site to depths from 10 to 30 feet, and two (2) pavement borings were drilled to a depth of 5 feet. The borings revealed the following generalized subsurface profile. Please refer to Section 4.0, *Subsurface Conditions*, for more specific information regarding the subsurface profile.

- The depth of soils containing organic materials and root fibers, typically referred to as topsoil, ranged from 5 to 7 inches. Some organic material was also found at greater depths in soil borings SB-1, SB-2, SB-3 and SB-5, and in pavement boring PB-3.
- All of the borings encountered some deleterious materials such as glass, brick, cinders, and/or rubber at varying depths ranging up to 16 feet below the surface.
- Below the topsoil, soil boring SB-1 encountered BROWN-BLACK, moist, loose, silty SAND and GRAVEL (1") with cinders and organics to a depth of 3 feet, underlain with BROWN,, moist, very stiff, silty CLAY with traces of sand and gravel to 6 feet below the surface. From 6 to 11 feet, was a TAN, wet, loose to very loose, silty, fine to medium SAND with gravel and cinders underlain with BROWN, wet, loose, silty GRAVEL with some sand and cinders to 16 feet. From 16 feet to the termination depth at 30 feet was a GRAY, moist, hard CLAY-SILT with traces of sand.
- Soil boring SB-2 encountered BROWN, moist, very loose, silty, fine to medium SAND with traces of gravel and organics from below the topsoil to a depth of 3 feet. From 3 to 5.5 feet, was BROWN, moist, very loose, fine to coarse, silty SAND, underlain with GRAY, wet, loose, clayey GRAVEL with some sand to a depth of 8 feet and GRAY, dry, hard, CLAY-SILT with traces of sand to the termination depth of 30 feet.
- Soil boring SB-3 encountered BLACK-BROWN, moist, dense, silty SAND and CINDERS with traces of organics to a depth of three (3) feet. BROWN or BLACK-BROWN, moist, very loose to medium dense, silty SAND continued to a depth of eight (8) feet, and was underlain with BLACK-BROWN, wet, soft, silty CLAY with traces of gravel and organics to 13 feet below the surface. From 13 to 23 feet, SB-3 encountered GRAY, moist to wet, very loose to dense, clayey SAND with some silt or silt and gravel and from 23 feet to the termination depth at 30 feet was GRAY, dry, hard, sandy SILT with traces of clay and gravel.
- Soil borings SB-4 and SB-5 encountered BROWN or BLACK-BROWN, moist, loose to medium dense,

fine to coarse SAND with some gravel and/or traces of gravel, organics, cinders, glass and rubber to the termination depth of 10 feet in SB-5 and to 8 feet in SB-4. In SB-4, these layers of sand and deleterious material were underlain with RED, moist, loose, fine, FOUNDARY SAND and cinders to the termination depth of 10 feet.

- Pavement boring PB-1 encountered BLACK-BROWN, moist, loose, silty, fine to medium SAND with some cinders and traces of gravel and glass from below the topsoil to 3.5 feet and BLACK, moist, loose, silty, fine to medium SAND with some cinders, glass and brick to the termination depth of 5 feet.
- Pavement boring PB-3 encountered BROWN, dry, hard, sandy CLAY with traces of gravel and cinders from below the topsoil to 3.5 feet below the surface and BROWN-BLACK, moist, loose, silty, fine to medium SAND with traces of gravel, cinders, glass and organics to the termination depth of 5 feet.
- Standard Penetration Test (N-value or blow-count) results varied greatly from location to location and at different depths at the same locations. For example, boring SB-3 returned N values of 37 and above to a depth of 6 feet from the surface. From 6 feet to 17 feet, the N values were 2; and below 17 feet, N values were at 35+.
- At the time of this investigation, free groundwater was encountered at depths ranging from 4 feet to 18 feet below the surface during drilling operations and from 5 to 19 feet after the completion of drilling. Note that relatively short term ground water level readings are not necessarily a reliable indication of the ground water level.

□ In our opinion, the proposed structures **cannot** be supported on shallow/extended spread foundations. Deleterious materials were encountered from near the surface to depths of up to 16 feet making removal and replacement with engineered fill impractical. Deep foundation options must be considered for this site. Rammed Aggregate Pier (RAP) elements will most likely be the most cost effective deep foundation system. Please refer to Section 5.0, *Engineering Recommendations,* for more specific information regarding foundation design recommendations.

□ The foundations should bear at a depth of at least 42 **inches** below the finished exterior grades for frost protection.

Structural fill should be placed and compacted in accordance with the recommendations of Section 6.3, *Structural Fill* and Section 6.4*, Fill Placement Control.* All structural fill supporting foundations and pavements should be compacted to **at least 95 percent** of the soil's maximum Modified Proctor dry density (ASTM D-1557).

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

1.1 Purpose and Scope

The purpose of this study was to determine the general near surface and subsurface conditions within the project area and to develop the geotechnical engineering recommendations necessary for design and construction of the foundations and pavements for the proposed Water Street Flats Apartments. This was achieved by drilling test borings at seven (7) locations across the site to depths ranging from 5 to 30 feet below the existing ground surface.

Laboratory testing was also conducted on soil samples collected from the test borings. This report contains the results of our findings, an engineering interpretation of these results with respect to the available project characteristics and recommendations to aid in design and construction of the proposed facility. The investigation was carried out in general accordance with *TERRA*'s proposal.

2.0 PROJECT CHARACTERISTICS

2.1 Site Location and Description

The proposed Water Street Flats Apartments is to be located at the southeast corner of the future extensions of River and South Streets, one (1) block south of the 200 block of East Michigan Avenue in Ypsilanti, Washtenaw County, Michigan. The size of the site to be developed is approximate 3.75 acres. The following summary highlights the findings of *TERRA*'s geotechnical investigation. Please refer to the following sections of this report for more specific conclusions and recommendations.

The topography at the site can be characterized as flat and sloped toward the Huron River at the southern property boundary. An industrial building which occupied the site has been demolished; however, the asphalt parking lot remains. Portions of the site are being used as a tree nursery, while other areas are overgrown with brush and weeds.

2.2 Proposed Construction

The proposed development is planned to be 4-story apartment structures with some detached garages and a surface parking lot. The site plan shows 77 apartment units, 18 bays of detached garages and 122 surface parking spaces. The buildings are assumed to be wood-framed, slab-on-grade construction and will not have basements.

For the purposes of this report we have assumed the following loads:

- Maximum continuous wall loads of 3 to 5 kip per lineal foot.
- Maximum column loads of up to 150 kip.
- The maximum floor loads are assumed to be 150 psf or less.

3.0 INVESTIGATIONAL PROCEDURES

3.1 Field Work

A total of seven (7) soil borings were drilled across the site to depths of 5 to 30 feet. All depths are given as feet below existing grade. Please refer to Figure No. 2, Soil Boring Location Plan in Appendix A for approximate soil boring locations.

The borings were advanced using 3.25-inch O.D. hollow-stem augers. Samples were recovered in the undisturbed material below the bottom of the augers using the standard drive sample technique in accordance with ASTM D 1586-74. A 2-inch O.D. by 1-3/8 inch I.D. split-spoon sampler was driven a total of 18 inches with the number of blows of a 140-pound hammer falling 30 inches recorded for each 6 inches of penetration. The sum of blows for the last 12 inches of penetration (or the last two reported on boring logs) is the Standard Penetration Test result commonly referred to as the N-value (or blow-count).

Split-spoon samples were recovered at 2.5 foot intervals, beginning at an approximate depth of 1-foot below the existing grade and extending to the termination depth at each boring. Water levels were monitored at each boring location during and upon completion of drilling.

3.2 Laboratory Testing

Upon completion of the boring program, all samples recovered were returned to *TERRA's* soils and materials testing laboratory where they were visually examined and placed in groups of like materials. A laboratory log of each boring was prepared based upon the driller's field log, laboratory test results, and visual classification. Test boring logs are included in Appendix A of this report. Indicated on each log is the primary strata encountered, the depth of each stratum change and depth of sample, Standard Penetration Test results, groundwater conditions, and selected laboratory test data. The laboratory logs were prepared for each boring giving the appropriate sample data and the textural description and classification.

Representative soil samples recovered in the borings were selected for testing in the laboratory to evaluate their physical properties and engineering characteristics. The results of all field and laboratory tests are summarized on the boring logs. The appropriate laboratory analysis performed on selected samples is as follows:

- Natural moisture content of cohesive soil samples
- Estimation of the unconfined compressive strength (Qp) of cohesive soil samples using a calibrated hand penetrometer.

4.0 SUBSURFACE CONDITIONS

4.1 Subsurface Soil Conditions

Our interpretation of the subsurface conditions is based on a review of available published literature and the seven (7) soil borings, drilled at the approximate locations shown on Figure No. 2 Soil Boring Location Plan in Appendix A. The following is a generalized discussion of our findings for the borings drilled for this study. For more specific information, please refer to Figure No. 2, Soil Boring Location Plan and test boring logs presented in Appendix A.

Soils at the surface, containing organic materials and root fibers typically referred to as topsoil, ranged from 5 to 7 inches in thickness. Some organic material was also found at greater depths in soil borings SB-1, SB-2, SB-3 and SB-5, and in pavement boring PB-3. All of the borings encountered some deleterious materials such as glass, brick, cinders, and/or rubber at varying depths ranging up to 16 feet below the surface.

Below the topsoil, soil boring SB-1 encountered BROWN-BLACK, moist, loose, silty SAND and GRAVEL (1") with cinders and organics to a depth of 3 feet, underlain with BROWN,, moist, very stiff, silty CLAY with traces of sand and gravel to 6 feet below the surface. From 6 to 11 feet, was a TAN, wet, loose to very loose, silty, fine to medium SAND with gravel and cinders underlain with BROWN, wet, loose, silty GRAVEL with some sand and cinders to 16 feet. From 16 feet to the termination depth at 30 feet was a GRAY, moist, hard CLAY-SILT with traces of sand.

Soil boring SB-2 encountered BROWN, moist, very loose, silty, fine to medium SAND with traces of gravel and organics from below the topsoil to a depth of 3 feet. From 3 to 5.5 feet, was BROWN, moist, very loose, fine to coarse, silty SAND, underlain with GRAY, wet, loose, clayey GRAVEL with some sand to a depth of 8 feet and GRAY, dry, hard, CLAY-SILT with traces of sand to the termination depth of 30 feet.

Soil boring SB-3 encountered BLACK-BROWN, moist, dense, silty SAND and CINDERS with traces of organics to a depth of three (3) feet. BROWN or BLACK-BROWN, moist, very loose to medium dense, silty SAND continued to a depth of eight (8) feet, and was underlain with BLACK-BROWN, wet, soft, silty CLAY with traces of gravel and organics to 13 feet below the surface. From 13 to 23 feet, SB-3 encountered GRAY, moist to wet, very loose to dense, clayey SAND with some silt or silt and gravel and from 23 feet to the termination depth at 30 feet was GRAY, dry, hard, sandy SILT with traces of clay and gravel.

Soil borings SB-4 and SB-5 encountered BROWN or BLACK-BROWN, moist, loose to medium dense, fine to coarse SAND with some gravel and/or traces of gravel, organics, cinders, glass and rubber to the termination depth of 10 feet in SB-5 and to 8 feet in SB-4. In SB-4, these layers of sand and deleterious material were underlain with RED, moist, loose, fine, FOUNDARY SAND and cinders to the termination depth of 10 feet.

Pavement boring PB-1 encountered BLACK-BROWN, moist, loose, silty, fine to medium SAND with some cinders and traces of gravel and glass from below the topsoil to 3.5 feet and BLACK, moist, loose, silty, fine to medium SAND with some cinders, glass and brick to the termination depth of 5 feet.

Pavement boring PB-2 was not drilled. The conditions at the site made it infeasible for the drill rig to access the area where PB-2 was planned.

Pavement boring PB-3 encountered BROWN, dry, hard, sandy CLAY with traces of gravel and cinders from below the topsoil to 3.5 feet below the surface and BROWN-BLACK, moist, loose, silty, fine to medium SAND with traces of gravel, cinders, glass and organics to the termination depth of 5 feet.

The cohesive soils encountered during this investigation were minimal, so the Unconfined Compressive Strength (Q_P) measurements of the cohesive soil samples were also minimal. Measurements taken from the borings produced readings of from 0.5 to 4.5 tons/sf indicating soil consistencies of soft to hard.
Please refer to the soil boring logs in the Appendix for more specific description for subgrade conditions. The depths were measured from the existing grade and should be assumed to be approximate.

4.2 Groundwater Conditions

The term groundwater, for the purpose of this report, pertains to any water that percolates through the naturally occurring materials found on site. This includes any overland flow that permeates through a given depth of soil, perched water, and water that occurs below the "water table", a zone that remains saturated and water-bearing year round.

At the time of this investigation, free groundwater was encountered in borings SB-1, SB-2 and SB-3 at depths ranging from 4 feet to 18 feet during drilling and from 5 to 19 feet after the completion of drilling. Note that relatively short term ground water level readings are not necessarily a reliable indication of the ground water level. Fluctuations in the groundwater level should be expected to occur due to variations in rainfall and other environmental or physical factors at the time measurements are made. The true static groundwater level can only be determined through observations made in cased holes over a long period of time, the installation of which was beyond the scope of this investigation. The following table shows the depths at which ground water was encountered.

Boring No.	Approximate depth of water observed on tools (ft.)	Approximate depth of water observed upon completion of drilling (ft.)
SB-1	6.0	5.0
SB-2	4.0	6.0
SB-3	18.0	19.0
SB-4	Dry	Dry
SB-5	Dry	Dry
PB-1	Dry	Dry
PB-2	NA	NA
PB-3	Dry	Dry

5.0 ENGINEERING RECOMMENDATIONS

5.1 Basis

Our recommendations are based on data presented in this report, which includes seven (7) soil borings at widely spaced locations and existing aerial photographs and soils survey data. Subsurface variations are evident on this site, so variations or unexpected conditions should be anticipated during construction. Refer to Appendix B for additional qualifications of this geotechnical engineering study and construction contract considerations. The borings were generally positioned in areas that could be accessed by the drilling equipment. Consequently, the subsurface conditions encountered at the boring locations may not be representative of the subsurface conditions within the footprint of the new structures. For this reason please recognize that some unsatisfactory soil conditions may exist that will limit the application of the following recommendations. TERRA recommends that additional test borings or test pits be performed prior to construction to further delineate the soils containing deleterious materials.

5.2 Foundations

In our opinion, the proposed building **cannot** be supported on a conventional spread foundation system. Deep foundation options must be considered. Rammed Aggregate Pier (RAP) elements will likely be the most cost effective deep foundation system.

The proposed structure can be supported by strip and spread footings resting on existing soil reinforced by Rammed Aggregate Pier elements. The piers are constructed by augering 24- to 36-inch diameter holes to depths of about 8 to 25 feet below the base of the footings and backfilling the holes with thin lifts of compacted aggregate. Alternatively, a displacement approach may be used by driving a hollow mandrel into the ground to depths of up to 40 feet, feeding aggregate through the mandrel and compacting in thin lifts. In each case, compaction is achieved using high frequency impact hammers that deliver vertical ramming energy that densifies the aggregate and increases lateral stress in the soil matrix. The system serves to reduce settlement by replacing the random fill (compressible) soils below the footing with a stiffer composite soil matrix.

The final design should be engineered by a specialty contractor installing the aggregate pier systems. Higher bearing capacities can be recommended based on aggregate pier element spacing and length. Aggregate pier elements can be installed with a spacing of approximately 6 feet center to center. TERRA recommends that RAPs be installed for the entire footprint of the building including the floor slab. The length and spacing of aggregate pier elements will depend on the foundation loads and settlement tolerance.

Rammed Aggregate Pier® Installation Recommendations

If a rammed aggregate pier-enhanced foundation system is selected, we recommend that the following issues be considered prior to construction.

- Specifications for Rammed Aggregate Pier foundation systems should be prepared by a specialty foundation company.
- One RAP demonstration pier should be installed using the contractor's standard procedures and then load-tested to determine the pier stiffness. The load testing setup and procedures should be selected by the RAP contractor and submitted for review to the project geotechnical engineers. The demonstration pier should be installed at the foundation grade level.
- All of the RAP element installations should be conducted under the observation of the geotechnical engineer's representative to verify proper installation procedures and to document any changes in the explored soil conditions.

After the foundation soils have been reinforced with RAP elements, adequate protection of the reinforced ground is required. This includes proper drainage to eliminate ponding water and maintaining excavation distance from the installed piers. Prior to foundation installations, the reinforced ground surface should be cleared and cleaned to the satisfaction of the geotechnical engineer, and shallow foundations installed at grade.

Allowable Bearing Pressure

Preliminary recommendations indicate that footings that are supported by the Rammed Aggregate Pier system may be designed for a net allowable bearing pressure not to exceed **7,000 psf**. This preliminary recommendation may be adjusted by the specialty contractor.

Settlement

Based on preliminary estimates, settlements of the aggregate-pier supported footings are estimated to be on the order of **1 inch**. This preliminary estimate may be adjusted by the specialty contractor.

A friction coefficient of 0.5 between the concrete footings and underlying aggregate pier-enhanced soil can be used in combination with passive earth pressures to resist lateral loads. The coefficient of friction should be applied to dead normal loads only. If this foundation system is considered, it is recommended that the specific design and placement of the elements be determined by a representative of the specialty foundation company.

5.3 Seismic Considerations

Based on the results of the test borings, conditions described herein, and in accordance with section 1615.1.1 of the 2006 International Building Code (IBC), the soil site classification is based on the soil profile in the top 100 feet. Although site specific information to this depth is not available, based on the subsurface conditions observed during our geotechnical exploration we recommend that the soil profile at the site be classified as a **Site Class D,** which is described as a Stiff Soil Profile.

5.4 Slabs-on-Grade

Because of the random materials found at this site, all structural elements, including floor slabs will need to be supported on a deep foundation system to minimize the risk of settlement. The building floor slabs should be supported on a minimum 6-inch thick, compacted granular base course, bearing on a suitably prepared subgrade (see Section 6.0, *Construction Considerations*, for more information). The granular base course is expected to help distribute loads and equalize moisture conditions beneath the slab. All slabs should be designed to be liberally jointed and designed with the appropriate reinforcement for the anticipated loading conditions. If the recommended 6-inch thick, compacted granular layer for the floor slab is selected then a modulus of subgrade reaction value of 150 pci may be used for slab design purposes.

A vapor barrier shall be provided under the concrete floor to prevent floor dampness and adequate mesh reinforcement shall be placed to compensate for temperature differentials and design loads over the depth of the slab. All slabs should be designed to be liberally jointed and designed with the appropriate reinforcement for the anticipated loading conditions.

5.5 Pavements

The near surface soils at this site may become loose or soft when exposed to prolonged wet periods. The contractor will need to exercise care during the grading and fill placement activities in order to achieve the necessary subgrade soil support for the pavement system. (See Section 6.0, *Construction Considerations*, for specific construction recommendations.) The subgrade soil for the pavement section will need to be firm and dry. Providing for good base drainage is important.

TERRA also recommends a subgrade drainage system be incorporated to remove water collected in the granular base course below pavements. Furthermore, all stormwater inlets within the pavement sections should include a perforated tile subgrade drainage system connected to the storm sewer inlets. The drains should extend out from the inlets in orthogonal directions, a minimum distance equal to approximately one-half (½) the length to the perimeter of each drainage basin.

Our recommendations are based on the assumption the paved areas will be constructed on proof-rolled subgrade soils. Serviceable pavements can be achieved by different combinations of material and depths, varied to provide roughly equivalent strengths. In addition, local practice for pavement construction should be reviewed for other blends, or combinations of materials that have been found satisfactory, and for applicable minimum standards. Based upon our experience, we have found that proper construction

techniques, quality of drainage, pavement maintenance, and actual traffic loads are the major factors in determining pavement life and performance.

Based upon the near surface soils, we recommend using a CBR value of three (3) for pavement design purposes. The following typical pavement design sections have been developed from the results of our soil exploration and utilizing the applicable quality control standards of the Michigan Department of Transportation (MDOT), the American Association of State Highway Transportation Officials (AASHTO) and the American Concrete Institute (ACI).

5.5.1 Flexible Pavement Design

We recommend the aggregate subbase course for the flexible pavement areas consist of a dense-graded, crushed aggregate material, approved by the Michigan Department of Transportation.

Standard-Duty Flexible Pavement (passenger vehicles - parking bays)

1.5 inches	HMA (9.5 mm) Surface Course
2.5 inches	HMA (19.0 mm) Base Course
6.0 inches	MDOT 22AA Crushed Limestone Aggregate Base
Subgrade	Well-compacted, natural subgrade that passes a proofroll or new, compacted, structural fill.

Heavy-Duty Flexible Pavement (access drives & drive lanes)

1.5 inches	HMA (9.5 mm) Surface Course
3.0 inches	HMA (19.0 mm) Intermediate Course
6.0 inches	MDOT 22AA Crushed Limestone Aggregate Base
Subgrade	Well-compacted, natural subgrade that passes a proofroll or new, compacted, structural fill.

5.5.2 Rigid Pavement Design

Although the ACI guidelines do not require the use of an aggregate subbase material for design, we recommend that a drainage aggregate subbase course approved by the Michigan Department of Transportation be included to provide a more uniform support surface and to improve drainage conditions beneath the pavement. The concrete materials should conform to MDOT Specifications for pavement construction. The concrete mix should have a minimum compressive strength of 4,000 psi and a minimum tensile strength of 600 psi at 28 days and the pavement section's joint pattern should not exceed 12 feet by 12 feet. TERRA recommends including synthetic fiber reinforcing for temperature reinforcing.

Standard Duty Rigid Pavement (passenger vehicles - parking bays)

5.0 inches	Portland Cement Concrete
6.0 inches	MDOT 22AA Crushed Limestone Aggregate Base
Subgrade	Well-compacted natural subgrade that passes a proofroll or new, compacted, structural fill

Heavy Duty Rigid Pavement (access roads, drive lanes and dumpster pads)

6.0 inches	Portland Cement Concrete
6.0 inches	MDOT 22AA Crushed Limestone Aggregate Base
Subgrade	Well-compacted natural subgrade that passes a proofroll, or new compacted structural fill / lime stabilization.

5.5.3 Trash Receptacles

Due to the high concentrated loads on the front axle of a garbage truck during the emptying of the dumpster, TERRA recommends a "Heavy-Duty Rigid Pavement Section" be constructed beneath and in front of the dumpster to an extent which will intercept and distribute concentrated wheel loads.

6.0 CONSTRUCTION CONSIDERATIONS

6.1 Site Preparation

All areas that will support foundations, floors, pavements or newly placed engineered fill must be properly prepared. All loose surface soil or "topsoil" and other unsuitable materials must be removed. Unsuitable materials include: undocumented old fill, frozen soil, relatively soft material, relatively wet soils, deleterious material (i.e., rubble, debris, asphalt pavement, buried foundations etc. from previous demolition), or soils that exhibit a high organic content. Any soil with an organic content in excess of 4 percent will have to be removed and replaced with well compacted engineered fill where necessary.

If unsuitable materials are encountered, *TERRA's* geotechnical engineer should be contacted immediately in order to assess and possibly modify recommendations provided in *TERRA's* geotechnical report. The assessment may include additional test pits to determine the extent of unsuitable material that may not have been encountered during the soil boring program. In all cases, the earthwork operations should be performed in a manner consistent with good erosion and sedimentation control practices.

6.1.1 Stripping

Stripping of topsoil, vegetation and roots will be required. The soil borings indicate that a stripping depth of approximately six (6) inches should be expected, however deeper stripping should be expected to remove vegetation/roots from some areas of this site. Additional stripping may be necessary in areas that encountered subgrade soils with an organic content above 4 percent or if buried topsoil is encountered as a result of prior activity.

Additional stripping and/or scarification and re-compaction may be required during construction to achieve suitable subgrade support. In our opinion, the best practice to achieve a stable subgrade would be to compact the exposed cohesive subgrade soils with a sheep's-foot roller compactor and sandy soils with a smooth drum compactor prior to the placement of new engineered fill.

6.1.2 Subgrade Preparation and Proof-rolling

The subgrade soils encountered at shallow depths within the proposed project area are predominantly non-cohesive, silty SANDS.

Prior to construction or the placement of new engineered fill, the *TERRA* project geotechnical engineer or his representative should evaluate the exposed subgrade. The evaluation should include proof-rolling of the subgrade. If unsuitable materials are encountered, an appropriate remedial measure would be removal of the unsuitable materials, and replacement in accordance with this Section 6.0, *Construction Considerations*.

Proof rolling should consist of repeated and overlapping passes of a loaded, pneumatic-tired vehicle such as a tandem-axle dump-truck or scraper. *TERRA's* geotechnical engineer or his representative should observe the proofrolling operations, and the proofrolling vehicle should be loaded as directed by the engineer or his representative.

Any area judged by the engineer to be unstable (i.e., rutting, pumping, or deflecting) during the proof-rolling should be aerated to reduce the moisture content and re-compacted. Aerating may entail using a chisel plow to depths of at least 12 inches below grade and disking the material with a disc plow. This procedure is weather dependant and may need to be repeated several times in order to achieve the optimum moisture content in order to achieve the required compaction of the in-place material. However, if construction takes place during the fall, winter or early spring, reducing the moisture content may be difficult, if not impossible, to achieve.

If the subgrade soils cannot be suitably dried because of weather conditions or scheduling, *TERRA's* geotechnical engineer should be contacted for recommendations. Recommendations could include stabilizing the subgrade by; 1) undercutting soft areas and replacing with coarse aggregate, or 2) using a combination of additional aggregate with Geogrid.

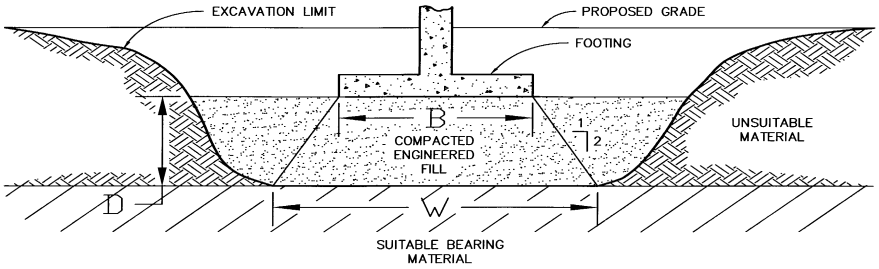
Please note that the subgrade, each layer of structural fill, and the pavement aggregate base should be proof-rolled upon completion of compaction testing in accordance to Section 6.4, *Fill Placement Control*. The proof-roll is only valid if new structural fill or asphalt is placed above the proof-rolled section on the day of testing. If rain / inclement weather conditions are encountered after the proof-roll, then the section would need to be re-tested prior to proceeding with structural fill or pavement construction. Construction traffic should be re-routed away from all proof-rolled areas.

6.2 Foundation Excavations

The foundation excavations should proceed downward until the proposed foundation bearing elevation is reached. Thereafter, *TERRA's* geotechnical engineer or his representative should inspect the exposed soil subgrade to confirm that soils of adequate strength have been reached. This inspection of the subgrade soils should include probing with a Dynamic Cone Penetrometer (DCP), or similar testing device to a minimum depth of at least three (3) feet below the foundation. Some undercutting or extended foundations may be necessary in areas that encountered soft / loose or unsuitable soils.

The DCP testing should be performed at a minimum of 15-foot intervals along wall spread foundation excavations and at each isolated column foundation excavation. Any localized soft soil zones encountered at the bearing elevations should be further excavated to adequate support soils, and the cavity backfilled with structural fill as defined below, or the footing can be poured at the excavated depth. The necessary depth of undercutting and/or excavation will be established during the actual inspection. Our opinion is that construction traffic on the exposed surface of the bearing soils will potentially cause some disturbance of the subgrade and consequently loss of bearing capacity. However, we feel the degree of disturbance can be minimized by proper protection of the exposed surface.

If necessary to support spread footings on structural fill, the fill pad must extend laterally a minimum distance beyond the edge of the footing. The minimum structural pad width would correspond with a point at which an imaginary line extending downward from the outside edge of the footing at a 1H:2V slope intersects the surface of the natural soils. For example, if the depth to the bottom of the excavation is 4 feet below the bottom of the foundation, the excavation would need to extend laterally beyond the edge of the footing at least 2 feet. Please refer to the *Undercut Diagram* below (Figure No. A), for more details. *If lean concrete is chosen as a structural fill material, the excavation would need to be only as wide as the proposed foundation member.*



THE WIDTH OF THE EXCAVATION SHOULD EQUAL THE WIDTH OF THE FOOTING PLUS THE DEPTH OF THE UNDERCUT (W = B + D).

Figure A: Foundation Under-cut Diagram

Excavation slopes should be maintained within OSHA requirements. In addition, we recommend any surcharge fill or heavy equipment be kept at least 5 feet away from the edge of the excavation. In addition, excavations occurring near existing in-use foundations should be performed carefully making a conscious effort not to undermine the support of the in-use foundations. If necessary to excavate soils adjacent to, and below the bearing elevation of any in-use foundations, *TERRA* should be contacted to make further recommendations regarding these excavations.

6.3 Structural Fill

Structural fill, defined as any fill which will support structural loads, should be clean and well graded from coarse to fine. The fill should be free of organic material, debris, deleterious materials and frozen soils. In order to minimize the potential formation of sumps in the subgrade, *TERRA* recommends any fill used to repair undercut areas, exhibit properties similar to the surrounding materials. In addition, the material should exhibit a maximum dry density ($\gamma_{D\,MAX}$) of at least 105 pcf, and have a liquid limit less than 50 and a plasticity index of less than 25.

Sands which have less than 15% fines passing a #200 sieve will be acceptable provided the moisture content is controlled to insure the material can be compacted to the required density. Furthermore, samples of the proposed fill materials should be tested prior to initiating the earthwork and backfilling operations to determine the classification, the natural and optimum moisture contents and maximum dry density and overall suitability as a structural fill.

6.4 Fill Placement Control

All engineered fill supporting footings, floor slabs and pavement should be compacted to at least **95 percent** of the soils maximum Modified Proctor dry density (ASTM D-1557) value, provided they are designed as outlined in Section 5, *Engineering Recommendations*. This minimum compaction requirement may be decreased to **85 percent** of the maximum Modified Proctor dry density for subgrade soils within landscaped areas.

To achieve the recommended compaction of structural fill, we suggest the fill be placed and compacted in layers **not exceeding (8) inches in loose thickness** and at a moisture content within 2 percent of the soils optimum moisture content. Furthermore, each compacted layer should be proof-rolled upon completion of compaction testing to verify that compaction was achieved.

6.5 Groundwater Concerns

Measurements performed during and after the completion of the drilling operations encountered groundwater at depths as shallow as 4 feet below the surface. The groundwater elevation on a site in close proximity to a river can be expected to rise as the river elevation rises. Depending on seasonal conditions, localized and sporadic groundwater infiltration should be anticipated within the building foundations, especially if permeable sand seams are intercepted. For groundwater to have minimal effects on the construction, foundation excavations should be planned and poured in the same day, if possible.

Conventional methods of dewatering such as gravity drainage and/or pumping from sumps should be capable of controlling groundwater, during the drier periods of the year, if encountered. If significant seepage is encountered during the wetter periods of the year, then more aggressive de-watering techniques should be applied. If granular materials are encountered at the base of the excavation pumping directly from the base will not be possible without causing deterioration of the base of the excavation. In this case, pumping from a sump adjacent to the excavation or use wells or well points will be necessary. The best method and dewatering system will need to be determined at the time of construction.

Caution should be exercised for deep excavations (i.e., utility excavations) in non-cohesive, sandy, soils where trench bank slope instability can create dangerous working conditions if proper bank support is not provided as required by OSHA.

7.0 GENERAL COMMENTS

TERRA 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. TERRA should also be retained to provide observation and construction material testing (CMT) services during grading, excavation, foundation construction and other earth related construction phases of the project.

The analysis and recommendations presented in this report were developed from the information and data obtained from the test borings, which depict subsurface conditions only at specific locations. Subsurface conditions at other locations may differ from those occurring at the specific drill sites. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of weather. The nature and extent of variations between borings may only become evident during the course of construction. If variations become evident, **we should be notified immediately** because re-evaluation the recommendations of this report may be necessary so that further evaluation and supplemental recommendations can be provided.

The scope of *TERRA's* services did not include either specifically or by implication any environmental or biological (e.g., mold, fungi, and bacteria) assessment of the site, or investigation for the presence of wetlands, or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report or on the test boring logs regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our client and the owner. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our professional services and this report has been prepared for the exclusive use of our client for specific application to the project discussed in accordance with generally accepted geotechnical engineering practices. No warranties, either expressed or implied, are intended or made. TERRA is not responsible for the independent conclusions, opinions, or recommendations made by others based on the field and laboratory data presented in this report. 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 the report are planned, the conclusions and recommendations contained in the is report shall not be considered valid unless TERRA reviews the changes and either verifies or modifies the conclusions of this report in writing.

APPENDIX A

Figure No. 1: Site Vicinity Map

Figure No. 2: Soil Boring Location Plan

Log of Test Boring – General Notes

Unified Soil Classification System

Soil Boring Logs

Laboratory Test Results

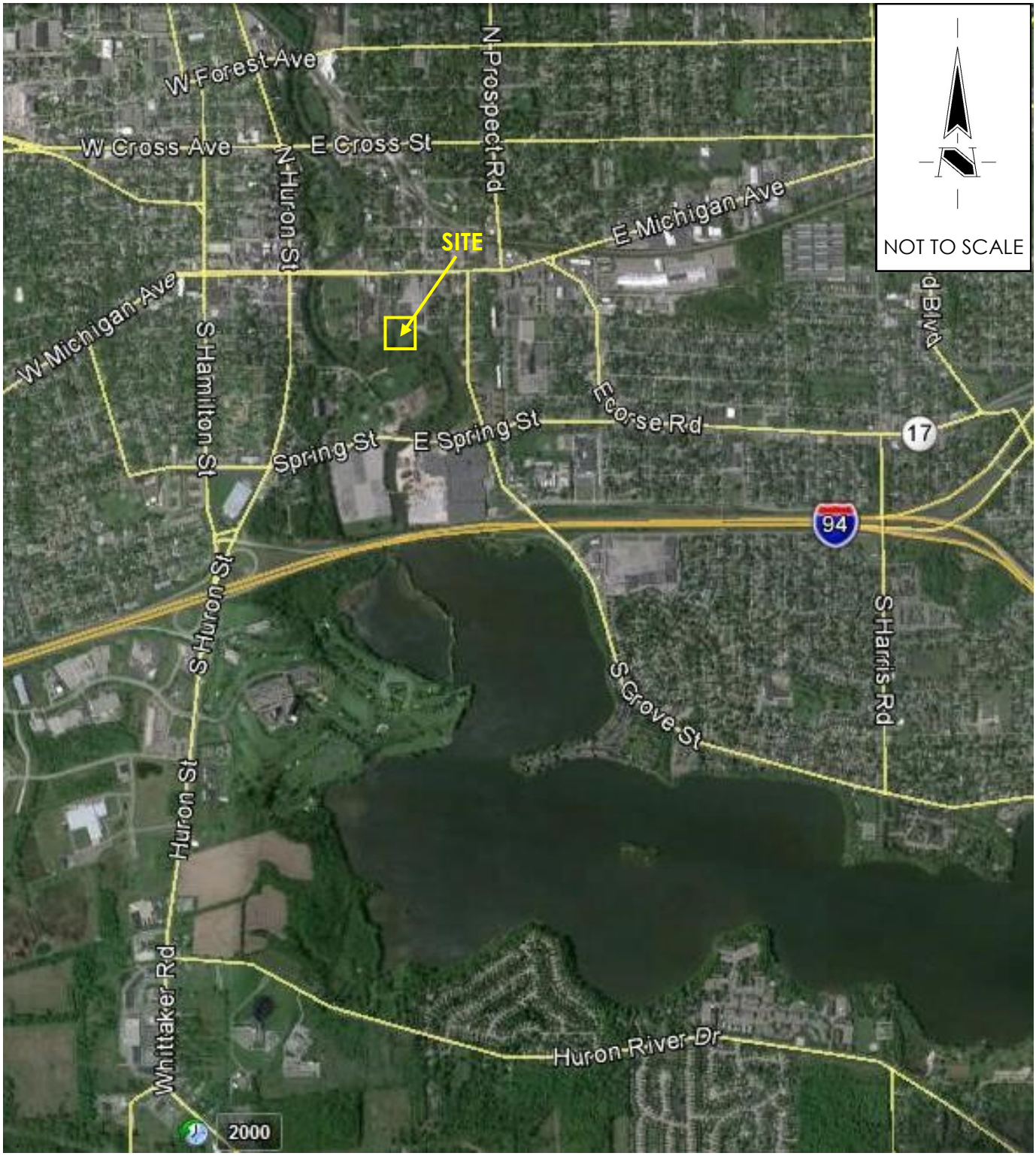


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FIGURE No. 1
SITE VICINITY MAP
WATER STREET FLATS APARTMENTS
YPSILANTI, MICHIGAN

TERRA Project #: 131105-1.001

TERRA Site Development, Inc. p | 317.399.1216 f | 317.663.3049 e | contact@TERRAsitedev.com
NORTH 1307 W. 161st STREET WESTFIELD, IN 46074 SOUTH 5225 Exploration Drive, Suite 1123, Indianapolis, IN 46241

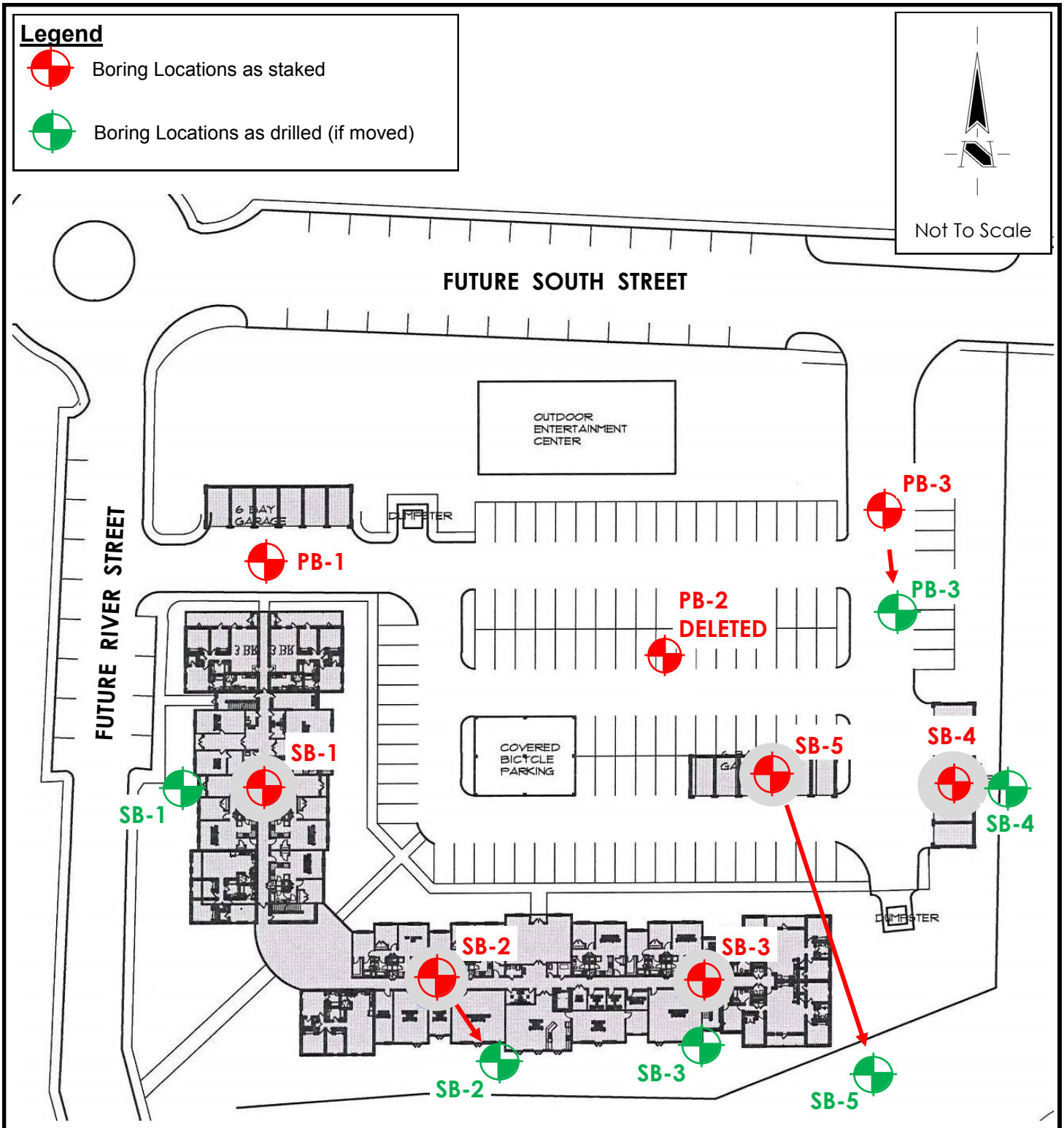

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FIGURE No. 2

SOIL BORING LOCATION PLAN
WATER STREET FLATS APARTMENTS
YPSILANTI, MICHIGAN

TERRA Project #: 131105-1.001

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NORTH 1307 W. 161st STREET WESTFIELD, IN 46074 SOUTH 5225 Exploration Drive, Suite 1123, Indianapolis, IN 46241

LOG OF TEST BORING
GENERAL NOTES

Typical Order of Soil Descriptions:

Color, Moisture, Soil Density/Consistency, Secondary Soil Type, PRIMARY SOIL TYPE, Descriptive Terms

Non-Cohesive Soils:
(Silt, Sand, Gravel and Combinations)

Term Relative **Density**	**"N" Value**
Very Loose	5 blows/ft (blows/ft
Loose	6 to 10 blows/ft.
Medium Dense	11 to 30 blows/ft.
Dense	31 to 50 blows/ft.
Very Dense	51 blows/ft. or more

Relative Proportions

Descriptive Term	Permit
Trace	1-10
Little	11-20
Some	21-35
And	46-50

Particle Size Identification

Boulders	8 inch diameter or more
Cobles	3 to 8 inch diameter
Gravel	Coarse: 1 to 3 inch Medium: ½ to 1 inch Fine: ¼ to ½ inch
Sand:	Coarse: 6mm to ¼ inch (dia. of pencil led) Fine: 0.05mm to 0.2mm (dia. of human hair)
Fines	Silt: 0.06 to 0.002mm (cannot see particle)

Cohesive Soils
(Clay, Silt and Combinations)
Particle Size less than 0.06 mm

Consistency	" N" value (blows/ft)	**Unconfined Compressive Strength (tons/sq.ft.)**
Very soft	0-3	Less than 0.25
Soft	4-5	Less than 0.5
Medium Stiff	6-10	0.5-1.0
Stiff	11-15	1.0-2.0
Very Stiff	16-30	2.0-4.0
Hard	31+	Over 4.0

Plasticity

Term	Plastic Index (PI)
None to Slight	0-4
Slight	5-7
Medium	8-22
High/Very High	22+

Relative Portions

trace	1-10%
Little	11-20%
Some	21-35%
And	26-50%

Other Notes

Classification – on logs is made by visual inspection.

Standard Penetration Test – Driving a 2.0" O.D., 1 3/8" I.D., sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30 inches. It is customary for Schneider's drillers to drive the spoon a few inches to seat into undisturbed soil, then perform the test. Upon seating the spoon, the number of hammer blows for each 6 inches of penetration are recorded on the drill log (Example – 6/8/9). The Standard Penetration Test results (N-value) can be obtained by adding the last two figures (i.e. 8+9 = 17 blows/ft.) (Compliant with ASTMD-1586)

Strata Changes – In the column "Soil Descriptions" on the drill log the horizontal lines represent strata changes. A solid line (_____) represents an actually observed change, a dashed line (- - - - -) represents an estimated change.

Ground Water – Observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc., may cause changes in the water levels indicated on the logs.

Groundwater Symbols:

Observed groundwater elevation, encountered during drilling

Observed groundwater elevation several hours upon completion of boring

SYMBOLS

Drilling and Sampling

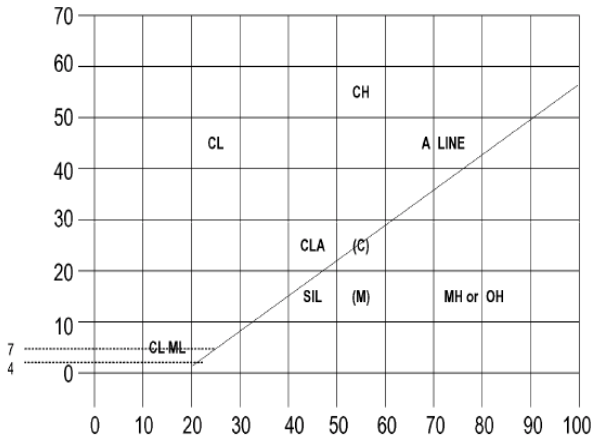
AS	Auger sample
BS	Bag Sample
C	Casing: Size 64 mm, NW; 100 mm,
COA	HW
CS	Continuous Sampling
CW	Clear Water
DC	Driven Casing
DM	Drilling Mud
FA	Flight Auger
FT	Fish Tail
HA	Hand Auger
HSA	Hollow Stem Auger
NR	Hollow Stem Auger
PMT	No Recovery
PT	Borehole Pressure meter Test
PTS	75 mm OD Piston Tube Sample
RB	Peat Sample
RC	Rock Bit
REC	Rock Coring
RQD	Recovery
RS	Rock Quality Designation
S	Rock Sounding
SS	Soil Sounding
2ST	50 mm OD Split-Barrel Sample
3ST	50 mm OD Thin-Walled Tube Sample
VS	75 mm OD Thin-Walled Tube Sample
WPT	Vane Shear Test
	Water Pressure Test

Laboratory Tests

Qp	Penetrometer Reading, kPa
Qu	Unconfined Strength, KpA
W	Moisture Content, %
LL	Liquid Limit, %
PL	Plastic Limit, %
PI	Plasticity Index
SL	Shrinkage Limit, %
LIO	Loss on Ignition, %
	Dry Unit Weight, kg/m3
pH	Measure of Soil Alkalinity/Acidity

Unified Soil Classification System

Major Divisions			Group Symbol	Typical Names	Laboratory Classification Criteria	
COARSE GRAINED SOILS (More than half of the material is larger than No.200 sieve)	Gravels (more than half of coarse fraction is larger than No.4 sieve)	Clean Gravels	GW	Well graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain size curve depending on percentages of fines (fraction smaller than NO.200 sieve size), coarse grained soils are classified as follows: Less than 5% GW, GP, SW, SP; More than 12% GM, GC, SM, SC; 5 to 12% Borderline cases requiring dual symbols	$C_U = \frac{D_{60}}{D_{10}} > 4$: 1 < $C_C = \frac{(D_{30})^2}{D_{10} X D_{60}} < 3$
			GP	Poorly Graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW
		Gravel with Fines	GM	Silty Gravels, Gravel-sand-silt mixtures	Atterberg Limits below A-LINE or PT less than 4	Above A-LINE with PT between 4 and 7 are borderline cases requiring the use of dual symbols
			GC	Clayey gravels, gravel-sand-clay mixtures	Atterberg Limits above A-LINE or PT greater than 7	
	Sands (more than half of coarse fraction is smaller than NO.4 sieve)	Clean Sands	SW	Well graded sands, gravelly sands, little or no fines	$C_U = \frac{D_{60}}{D_{10}} > 6$: 1 < $C_C = \frac{(D_{30})^2}{D_{10} X D_{60}} < 3$	
			SP	Poorly graded sands, gravelly sands, little or no lines		Not meeting all gradation requirements for SW
		Sands with fines	SM	Silty sands, sand-silt mixtures	Atterberg Limits below A-LINE or PT less than 4	Limits plotting in hatched zone with PT between 4 and 7 are borderline cases requiring the use of dual symbols
			SC	Clayey sands, sand-clay mixtures	Atterberg Limits above A-LINE or PT greater than 7	
FINE GRAINED SOILS (More than half of the material is smaller than No.200 sieve)	Silts and clays (LL less than 50)		ML	Inorganic silts, very fine sands, or clayey silts with slight plasticity	1. Plot intersection of PI and LL as determined from Atterberg Limits tests. 2. Points plotted above A-LINE indicate clay soils, those below the A-LINE indicate silt	
			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 (LL greater than 50)		MH	Inorganic silts, micoceous or diatomaceous fin sandy or silty soils, elastic silts		
			CH	Inorganic clays of high plasticity, fat clays		
			OH	Organic clays of medium to high plasticity		
	Highly organic soils		PT	Peat and other highly organic soils		



Unified Soil Classification System

ASTM Designation D-2487

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LOG OF BORING No. SB-1

PROJECT: Water Street Flats **PROJECT NO.:** 131105-1.001
CLIENT: Herman & Kittle Properties
PROJECT LOCATION: River and South Streets
LOCATION: Ypsilanti, Michigan **ELEVATION:**
DRILLER: American Drilling and Testing **LOGGED BY:** H. Pace
DRILLING METHOD: ASTM-1586 (ID SS 1.4") **DATE:** 12/18/13
DEPTH TO - WATER> INITIAL: ▽ 6.0 ft **AFTER 24 HOURS:** ▽ 5.0 ft. **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200
0					
	Topsoil = 6 inches				
	0.5				
	BROWN-BLACK, moist, loose, silty SAND and GRAVEL (1 inch) with cinders and organics. Qp = NA		1	7 8 9	
	3.0				
5	BROWN, moist, very stiff, silty CLAY with traces of sand and gravel. Qp = 3.0 tons/sf		2	4 5 6	
	6.0				
	TAN, wet, very loose, silty, fine to medium SAND with traces of gravel and cinders. Qp = NA		3	1 1 5	
	8.0				
10	TAN, wet, loose, silty, fine to medium SAND with some gravel (1 inch) and cinders. Qp = NA		4	8 11 10	
	11.0				
	BROWN, wet, loose, silty GRAVEL with some sand and cinders. Qp = NA		5	5 7 8	
15					
	16.0				
	GRAY, moist, hard CLAY-SILT with traces of sand. Qp = 4.5 tons/sf		6	8 10 21	
20					
	Qp = 4.5 tons/sf		7	6 12 14	
25					
	Qp = 4.0 tons/sf		8	14 14 21	
30					
	Boring terminated at 30 ft.				
35					

TEST RESULTS
Plastic Limit ⊢—⊣ Liquid Limit
Water Content - ●
Penetration - ▨
10 20 30 40 50

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

TERRA
SITE DEVELOPMENT, INC.

LOG OF BORING No. SB-2

PROJECT: Water Street Flats **PROJECT NO.:** 131105-1.001
CLIENT: Herman & Kittle Properties
PROJECT LOCATION: River and South Streets
LOCATION: Ypsilanti, Michigan **ELEVATION:**
DRILLER: American Drilling and Testing **LOGGED BY:** H. Pace
DRILLING METHOD: ASTM-1586 (ID SS 1.4") **DATE:** 12/18/13
DEPTH TO - WATER> INITIAL: ▽ 4 ft. **AFTER 24 HOURS:** ▽ 6.0 ft. **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200
0					
	Topsoil = 7 inches				
	0.58				
	BROWN, moist, very loose, silty, fine to medium SAND with traces of gravel and organics. Qp = NA		1	1 2 2	
	3.0				
5	BROWN, moist, very loose, silty, fine to coarse SAND. Qp = NA		2	1 1 1	
	5.5				
	GRAY, wet, loose, clayey GRAVEL with some sand. Qp = NA		3	5 8 14	
	8.0				
	GRAY, dry, hard, CLAY-SILT with traces of sand. Qp = 4.5 tons/sf		4	5 12 25	
10					
	Qp = 4.5 tons/sf		5	9 9 15	
15					
	Qp = 4.5 tons/sf		6	6 12 18	
20					
	Qp = 4.5 tons/sf		7	8 14 14	
25					
	Qp = 4.5 tons/sf		8	6 18 18	
30					
	Boring terminated at 30 ft.				
35					

TEST RESULTS
Plastic Limit ⊢ ⊣ Liquid Limit
Water Content - ●
Penetration - ▨
10 20 30 40 50

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

Figure

TERRA
SITE DEVELOPMENT, INC.

LOG OF BORING No. SB-3

PROJECT: Water Street Flats **PROJECT NO.:** 131105-1.001
CLIENT: Herman & Kittle Properties
PROJECT LOCATION: River and South Streets
LOCATION: Ypsilanti, Michigan **ELEVATION:**
DRILLER: American Drilling and Testing **LOGGED BY:** H. Pace
DRILLING METHOD: ASTM-1586 (ID SS 1.4") **DATE:** 12/18/13
DEPTH TO - WATER> INITIAL: ▽ 18 ft. **AFTER 24 HOURS:** ▼ 19 ft. **CAVING>** ℄ 25.0 ft.

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200
0					
	Topsoil = 6 inches				
	0.50				
	BLACK-BROWN, moist, dense, silty SAND & CINDERS with traces of organics. Qp = NA		1	9 50/5	
	3.0				
5	BROWN, moist, medium dense, silty, fine SAND with some gravel and traces of cinders. Qp = NA		2	11 22 15	
	6.0				
	BLACK-BROWN, moist, very loose, silty, fine to medium SAND with traces of gravel and cinders. Qp = NA		3	1 1 1	
	8.0				
10	BLACK-BROWN, wet, soft, silty CLAY with traces of gravel and organics. Qp = 0.5 tons/sf		4	1 1 1	
	13.0				
	GRAY, wet, very loose, clayey, fine SAND with some silt. Qp = NA		5	1 1 1	
15					
	17.0				
	GRAY, moist, dense, clayey, medium to coarse SAND with some gravel and silt. Qp = NA		6	35 50/5	
20					
	23.0				
	GRAY, dry, hard, sandy SILT with traces of clay and gravel. Qp = 4.5 tons/sf		7	16 25 35	
25 ℄					
	Qp = 4.5 tons/sf		8	16 17 40	
30					
	Boring terminated at 30 ft.				
35					

TEST RESULTS
Plastic Limit ⊢ Liquid Limit
Water Content - ●
Penetration - ▨
10 20 30 40 50

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

TERRA
SITE DEVELOPMENT, INC.

LOG OF BORING No. SB-4

PROJECT: Water Street Flats **PROJECT NO.:** 131105-1.001
CLIENT: Herman & Kittle Properties
PROJECT LOCATION: River and South Streets
LOCATION: Ypsilanti, Michigan **ELEVATION:**
DRILLER: American Drilling and Testing **LOGGED BY:** H. Pace
DRILLING METHOD: ASTM-1586 (ID SS 1.4") **DATE:** 12/17/13
DEPTH TO - WATER> INITIAL: ▽ Dry **AFTER 24 HOURS:** ▽ Dry **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200
0					
	Topsoil = 6 inches				
	0.50				
	BROWN, moist, medium dense, silty, medium to coarse SAND with some gravel. Qp = NA		1	23 31 50/3	
	3.0				
5	BLACK-BROWN, moist, loose, silty, fine to medium SAND with some gravel and traces of cinders and glass. Qp = NA		2	11 4 8	
	6.0				
	BROWN, moist, loose, silty, fine to medium SAND with traces of gravel, cinders and glass. Qp = NA		3	1 4 5	
	8.0				
10	RED, moist, loose, fine, foundary SAND and cinders. Qp = NA		4	1 2 8	
	Boring terminated at 10 ft.				
15					
20					
25					
30					
35					

TEST RESULTS
Plastic Limit ⊢—⊣ Liquid Limit
Water Content - ●
Penetration - ▨
10 20 30 40 50
8.1+ →

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

TERRA
SITE DEVELOPMENT, INC.

LOG OF BORING No. SB-5

PROJECT: Water Street Flats **PROJECT NO.:** 131105-1.001
CLIENT: Herman & Kittle Properties
PROJECT LOCATION: River and South Streets
LOCATION: Ypsilanti, Michigan **ELEVATION:**
DRILLER: American Drilling and Testing **LOGGED BY:** H. Pace
DRILLING METHOD: ASTM-1586 (ID SS 1.4") **DATE:** 12/17/13
DEPTH TO - WATER> INITIAL: Dry **AFTER 24 HOURS:** Dry **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200
0					
	Topsoil = 6 inches				
	0.50				
	BLACK-BROWN, moist, loose, silty, fine to medium SAND with traces of gravel & cinders.		1	8 12 40	
	Qp = NA				
	3.0				
5	BROWN, moist, loose, silty, fine to medium SAND with traces of gravel, cinders, glass and rubber.		2	7 12 10	
	Qp = NA				
	6.0		3	4 7 8	
	BROWN, moist, loose, silty, fine to medium SAND and CINDERS with traces of organics.				
	Qp = NA				
10	Qp = NA		4	1 2 4	
	Boring terminated at 10 ft.				
15					
20					
25					
30					
35					

TEST RESULTS
Plastic Limit — Liquid Limit
Water Content - ●
Penetration - ▨
10 20 30 40 50

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

TERRA
SITE DEVELOPMENT, INC.

LOG OF BORING No. PB-1

PROJECT: Water Street Flats **PROJECT NO.:** 131105-1.001
CLIENT: Herman & Kittle Properties
PROJECT LOCATION: River and South Streets
LOCATION: Ypsilanti, Michigan **ELEVATION:**
DRILLER: American Drilling and Testing **LOGGED BY:** H. Pace
DRILLING METHOD: ASTM-1586 (ID SS 1.4") **DATE:** 12/18/13
DEPTH TO - WATER> INITIAL: ▽ Dry **AFTER 24 HOURS:** ▽ Dry **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200
0	Topsoil = 5 inches				
	0.42				
	BLACK-BROWN, moist, loose, silty, fine to medium SAND with some cinders and traces of gravel & glass. Qp = NA		1	5 6 6	
	3.5				
5	BLACK, moist, loose, silty, fine to medium SAND with some cinders, glass and brick. Qp = NA		2	4 7 9	
	Boring terminated at 5 ft.				
10					
15					
20					
25					
30					
35					

TEST RESULTS
Plastic Limit ⊢—⊣ Liquid Limit
Water Content - ●
Penetration - ▨
10 20 30 40 50

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

TERRA
SITE DEVELOPMENT, INC.

LOG OF BORING No. PB-3

PROJECT: Water Street Flats **PROJECT NO.:** 131105-1.001
CLIENT: Herman & Kittle Properties
PROJECT LOCATION: River and South Streets
LOCATION: Ypsilanti, Michigan **ELEVATION:**
DRILLER: American Drilling and Testing **LOGGED BY:** H. Pace
DRILLING METHOD: ASTM-1586 (ID SS 1.4") **DATE:** 12/17/13
DEPTH TO - WATER> INITIAL: ▽ Dry **AFTER 24 HOURS:** ▽ Dry **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200
0					
	Topsoil = 6 inches				
	0.5				
	BROWN, dry, hard, sandy CLAY with traces of gravel & cinders. Qp = 4.5 tons/sf		1	7 12 13	
	3.5				
5	BROWN-BLACK, moist, loose, silty, fine to medium SAND with traces of gravel, cinders, glass and organics. Qp = NA		2	12 16 14	
	Boring terminated at 5 ft.				
10					
15					
20					
25					
30					
35					

TEST RESULTS
Plastic Limit ⊢——⊣ Liquid Limit
Water Content - ●
Penetration - ▨
10 20 30 40 50

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

Figure

REPORT OF LABORATORY TESTING

Project: Water Street Flats Apartments
Location: Ypsilanti, Michigan
Client: Herman & Kittle Properties, Inc.
TERRA Project No: 131105-1.001

Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)	Organic Content (%)	Atterberg Limits		
					LL	PL	PI
SB-1	1	1.0 - 2.5	12.2	**6.7**			
SB-1	2	3.5 - 5.0	16.1				
SB-1	3	6.0 - 7.5	32.6				
SB-1	4	8.5 - 10.0	9.7				
SB-1	5	13.5 - 15.0	14.5				
SB-1	6	18.5 - 20.0	17.1				
SB-1	7	23.5 - 25.0	14.5				
SB-1	8	28.5 - 30.0	19.8				
SB-2	1	1.0 - 2.5	28.2				
SB-2	2	3.5 - 5.0	40.2				
SB-2	3	6.0 - 7.5	14.0	**3.0**			
SB-2	4	8.5 - 10.0	21.0				
SB-2	5	13.5 - 15.0	18.4				
SB-2	6	18.5 - 20.0	17.4				
SB-2	7	23.5 - 25.0	19.1				
SB-2	8	28.5 - 30.0	17.0				
SB-3	1	1.0 - 2.5	11.8				
SB-3	2	3.5 - 5.0	8.9				
SB-3	3	6.0 - 7.5	15.3				
SB-3	4	8.5 - 10.0	24.9	**15.4**			
SB-3	5	13.5 - 15.0	29.6				
SB-3	6	18.5 - 20.0	7.5				
SB-3	7	23.5 - 25.0	9.1				
SB-3	8	28.5 - 30.0	11.2				
SB-4	1	1.0 - 2.5	6.2				
SB-4	2	3.5 - 5.0	24.1				
SB-4	3	6.0 - 7.5	23.8				
SB-4	4	8.5 - 10.0	14.1				
SB-5	1	1.0 - 2.5	13.0				
SB-5	2	3.5 - 5.0	9.4				
SB-5	3	6.0 - 7.5	21.3	**5.7**			
SB-5	4	8.5 - 10.0	9.3				
PB-1	1	1.0 - 2.5	10.5				
PB-1	2	3.5 - 5.0	18.8				

Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)	Organic Content (%)	Atterberg Limits		
					LL	PL	PI
PB-3	1	1.0 - 2.5	11.3				
PB-3	2	3.5 - 5.0	17.6				

APPENDIX B

Qualifications of this Geotechnical Engineering Study

GENERAL QUALIFICATIONS of *TERRA Site Development , Inc.* Report

This report has been prepared at the request of our client for their use on this project. The work, including the field work, laboratory testing, and engineering analysis, was performed in accordance with generally accepted soil and foundation engineering practices. This warranty is in lieu of all other warranties either expressed or implied.

This report may not contain sufficient information for purposes of other parties or other uses. Should there be any sufficient differences in structural arrangement, loading or location of the structure, our analysis should be reviewed.

The analysis, conclusions, and recommendations contained in our report are based on site conditions as they existed at the time of our exploration and further assume that the borings are representative of the subsurface conditions throughout the site.

If during construction, different subsurface conditions from those encountered during our explorations are observed or appear to be present beneath excavations, we must be advised promptly so that we can review these conditions and reconsider our recommendations where necessary.

If there is a substantial lapse of time between the submission of our report and the start of work at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, we urge that our report be reviewed to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse.

We urge that we be retained to review those portions of the plans and specifications that pertain to earthwork and foundations to determine whether they are consistent with our recommendations. In addition, we are available to observe construction, particularly the compaction of structural backfill and preparation of the foundations, and such other field observations as may be necessary.

In order to fairly consider changed or unexpected conditions that might arise during construction, we recommend the following verbiage (Standard Clause for Unanticipated Subsurface Conditions) be included in the project contract.

STANDARD CLAUSE FOR UNANTICIPATED SUBSURFACE CONDITIONS

"The owner has had a subsurface exploration performed by a soils consultant, the results of which are contained in the consultant's report. The consultant's report represents their conclusions on the subsurface conditions based on their interpretations of the data obtained in the exploration. The contractor acknowledges that they have reviewed the consultant's report and any addenda thereto, and that their bid for earthwork operations is based on the subsurface conditions as described in that report. It is recognized that a subsurface exploration may not disclose all conditions as they actually exist and further, conditions may change, particularly groundwater conditions, between the time of a subsurface exploration and the time of earthwork operations. In recognition of these facts, this clause is entered in the contract to provide a means of equitable additional compensation for the contractor if adverse unanticipated conditions are encountered and to provide a means of rebate to the owner if the conditions are more favorable than anticipated.

At anytime during construction operations that the contractor encounters conditions that are different than those anticipated by the soils consultant's report, they shall immediately (within 24 hours) bring this fact to the owner's attention. If the owner's representative on the construction site observes subsurface conditions which are different than those anticipated by the consultant's report, they shall immediately (within 24 hours) bring this fact to the contractor's attention. Once a fact of unanticipated conditions has been brought to the attention of either the owner or the contractor, and the consultant has concurred, immediate negotiations will be undertaken between the owner and the contractor, to arrive at a change in contract price for additional work or reduction in work because of the unanticipated conditions. The contractor agrees that the following unit prices would apply for additional or reduced work under the contract. For changed conditions for which unit prices are not provided, the additional work shall be paid for on a time and materials basis."

Another example of a changed conditions clause can be found in paper No. 4035 by Robert F. Borg, published in ASCE Construction Division Journal, No. CO2, September 1964, page 37.

Resolution No. 2014-057
February 25, 2014

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

That the City Council Meeting be adjourned, on call, by the Mayor or two (2) members of Council.

OFFERED BY: _____

SUPPORTED BY: _____

YES: NO: ABSENT: VOTE:

WATER STREET LOFTS WORK SESSION

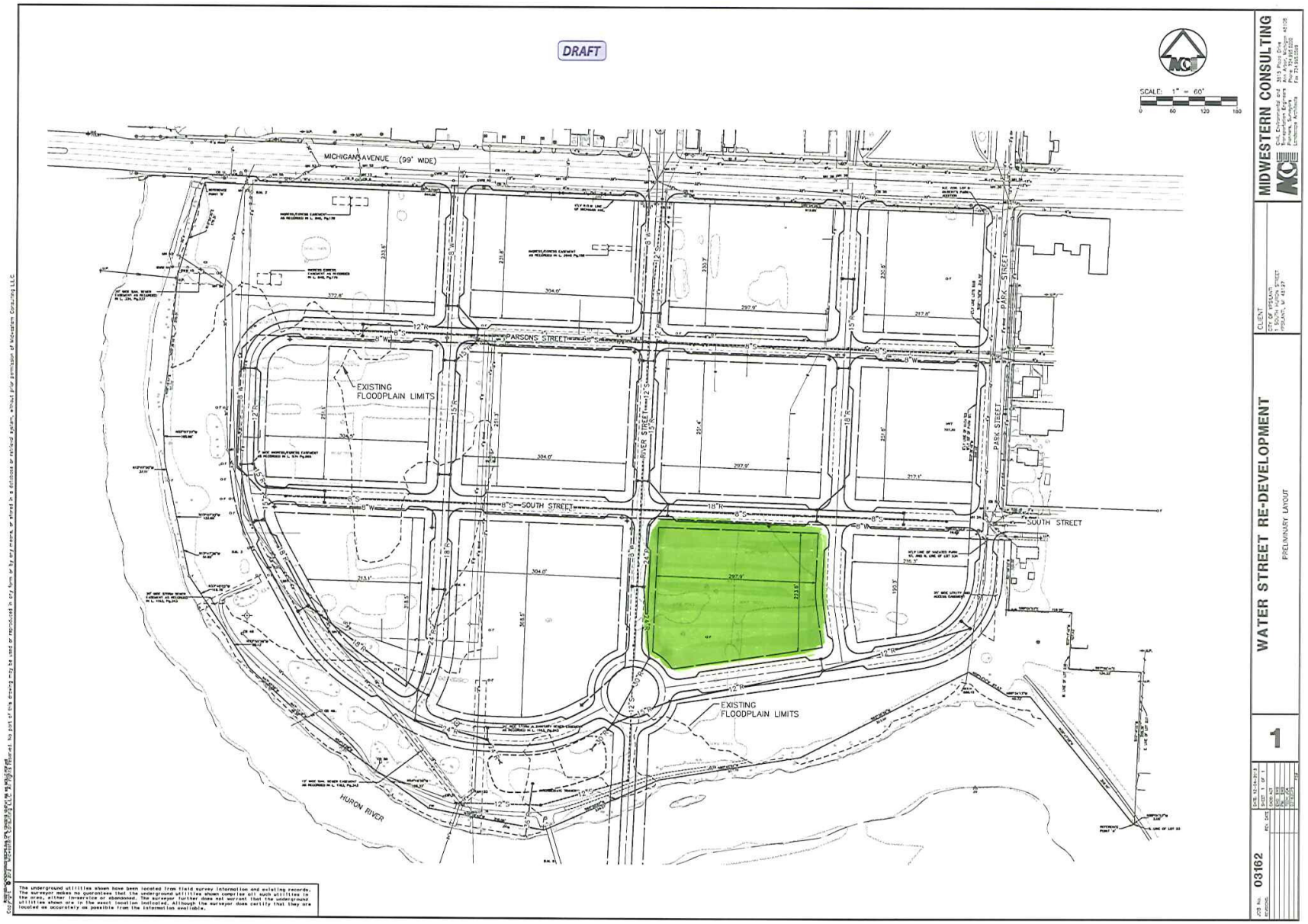
Ypsilanti City Council – February 25, 2014

Tonight's presentation

- Revised Proposal
- Site Visit reports
- Layout, infrastructure and design
- Affordable Housing discussion
- Expected benefit to taxes
- Timeline for development
- Next steps for approval
- Comments & questions

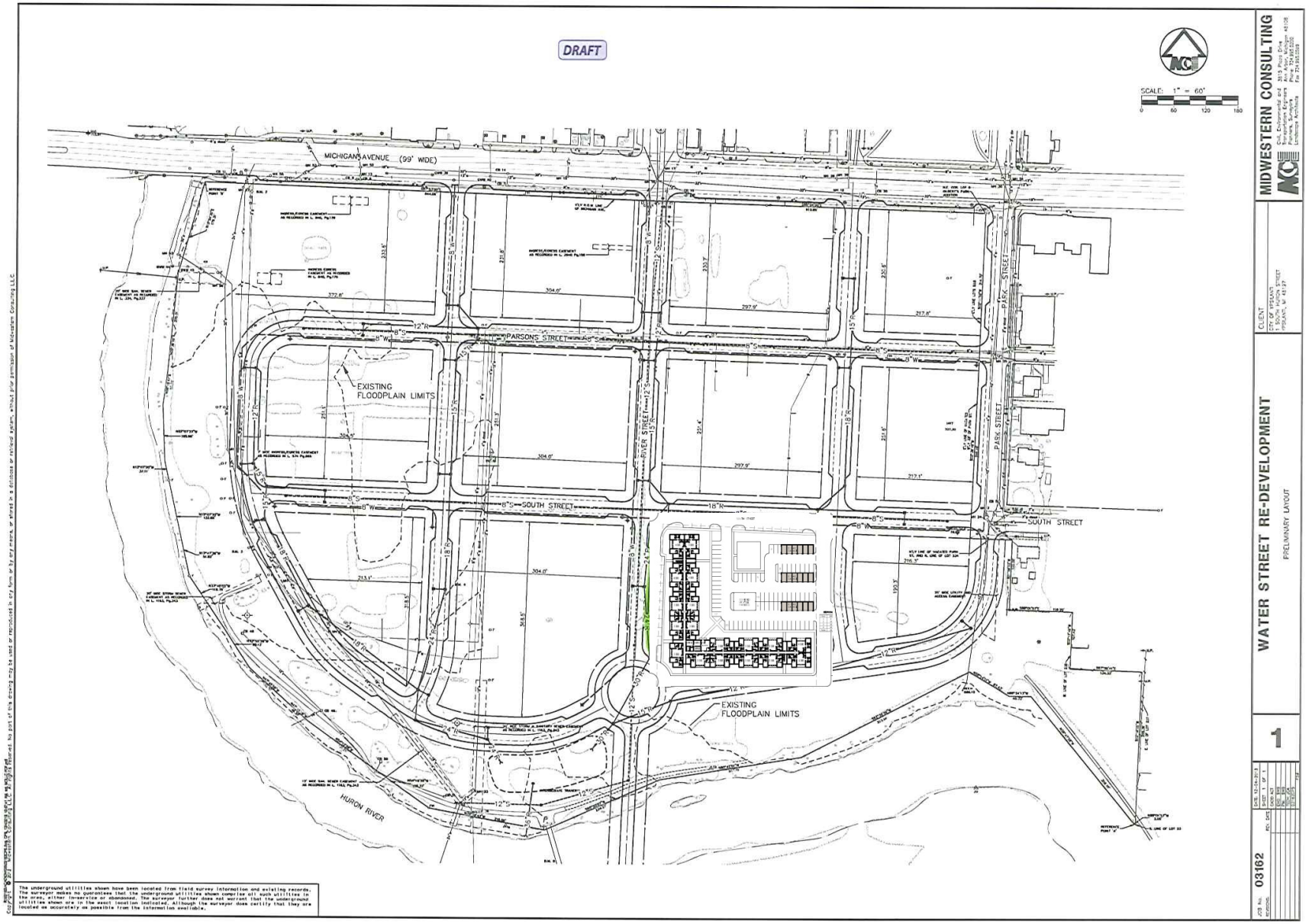
REVISED PROPOSAL

Water Street Lofts Proposal

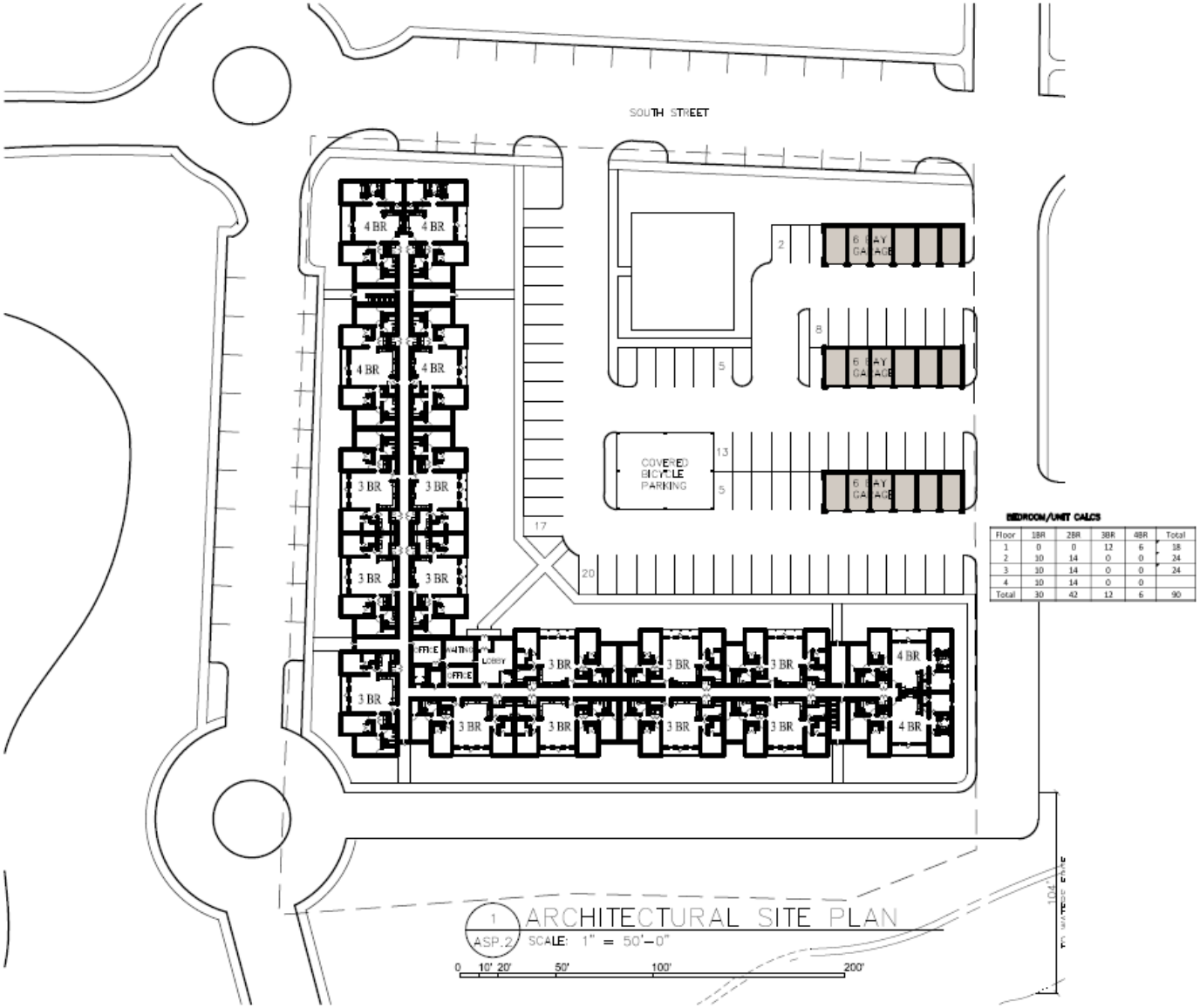


Infrastructure investment – estimated at $745,000

Water Street Lofts Proposal



Conceptual site plan



BEDROOM/UNIT CALCS

Floor	1BR	2BR	3BR	4BR	Total
1	0	0	12	6	18
2	10	14	0	0	24
3	10	14	0	0	24
4	10	14	0	0	
Total	30	42	12	6	90

HERMAN & KITTLE PROPERTIES, INC.
500 East 96th Street, Suite 300
Indianapolis, IN 46240
(317) 846-3111
www.hermankittle.com

SEAL

PROJECT TITLE

WATER STREET FLATS
290 E. MICHIGAN AVE.
YPSILANTI, MI
WASHTENAW COUNTY

SHEET TITLE

ARCHITECTURAL SITE PLAN

ISSUED FOR:	DATE
MARKET STUDY SITE PLAN	10-23-2013

REVISIONS

NUM	DESCRIPTION	DATE
#	ADDENDUM NO.	DATE

JOB NO.
13-***

SHEET NUMBER
ASP.2a

Letter of Intent Summary

Unchanged

Parcel Size:	3.14 acres
Location:	SE block of proposed River and South Street
Use:	Multi-family apartment units ranging from 1-4 bedrooms
Purchase Price	$50,000 per acre or $157,000, reduced in lieu of significant infrastructure contribution.
Taxes:	This is a taxable property.
Orientation:	Building is oriented to front on River Street and the Huron River
Access:	From proposed River and South Streets, with portions of Lincoln and ring road to be built by Developer to City
Utilities:	Oversized water and sewer lines expected to pull from Michigan Ave. to the interior, built by Developer.

Changes

Unit count:	Increased from 76 units to 90 units
Building Size	**I**ncreased from 105,882 square feet to approx 130,212 sf
Façade:	Brick facade on Huron River and River Streets – design more in line with residential building than commercial first floor.
Parking:	Accommodating majority of required spaces on site, with 26 to be accommodated with nearby on-street parking
Investment:	Increase to $12.5 million – final budget estimates will be available Feb. 28. Vertical improvements estimated at $10 million

Unit mix

Floor	1BR	2BR	3BR	4BR	Total
1			12	6	18
2	10	14			24
3	10	14			24
4	10	14			24
Total	30	42	12	6	90

SITE VISITS

Herman and Kittle Properties – Indianapolis, IN

Lafayette Landing – A 72-unit apartment building is a senior property with 56 one-bedroom and 16 two-bedroom units. The income levels range from 30% to 60% AMI. The building is Silver LEED certified and comprised of 50% brick exterior. It is four stories.

Layfayette Landing

Herman and Kittle Properties – Indianapolis, IN

Lynhurst Park – A 218 unit property with incomes ranging from 30% AMI to market rate, this is the older two-story design identical to the property developed and managed in Jackson, MI. Built in 2006, this was part of the visits to see look at longer-term management of the property.

Herman and Kittle Properties – Indianapolis, IN

34 North – Opened in 2011, this was an infill project for 2/3 of the units, with the remainder being in a rehabbed building adjacent. A total of 71 units – this building is a four story design but was built in partnership with a non-profit in Indianapolis to provide transitional housing and features different amenities. It was visited to see an example of infill development

Building details and amenities

MSHDA Green Certification

- 50% of landscaping in native or adaptive species
- Water conservation – low-flow toilets, showerheads, and faucets
- Energy Star appliances for energy efficiency
- Energy Star interior lighting
- Daylight sensors on outdoor lighting
- Energy Star water heater
- Recycling

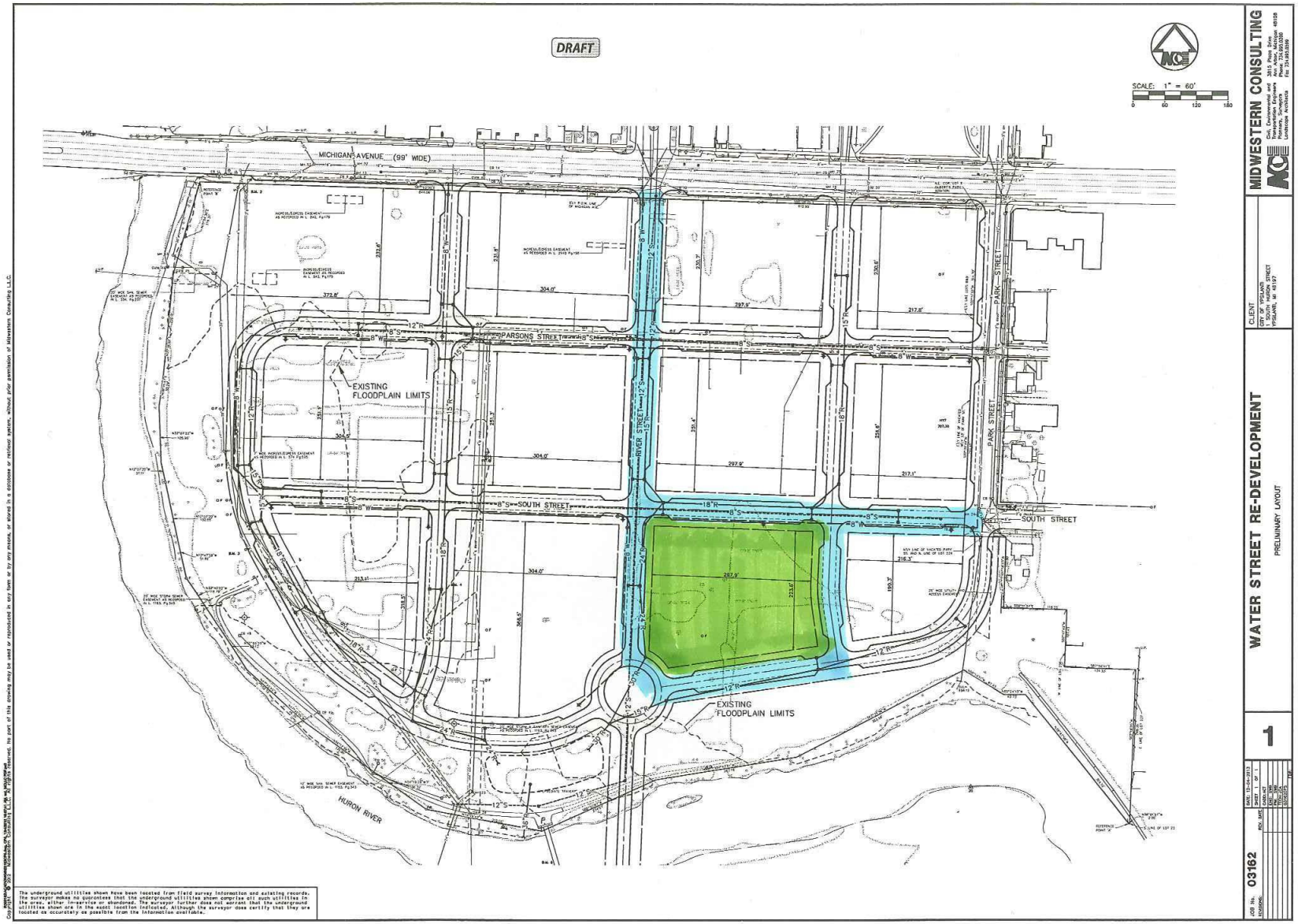
Building materials

- Brick on facades facing the river and River Street
- Hardy plank on sides facing parking lot
- Windows – Silverline 2900 Series (Andersen) (update from Jackson property)

LAYOUT, INFRASTRUCTURE AND DESIGN

Existing Site conditions - soils

Infrastructure investment – estimated at $745,000



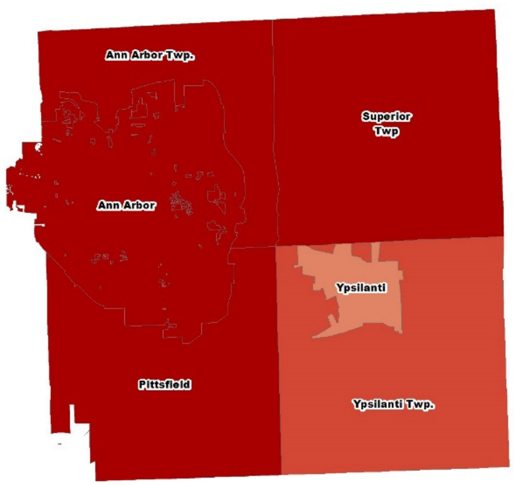
AFFORDABLE HOUSING

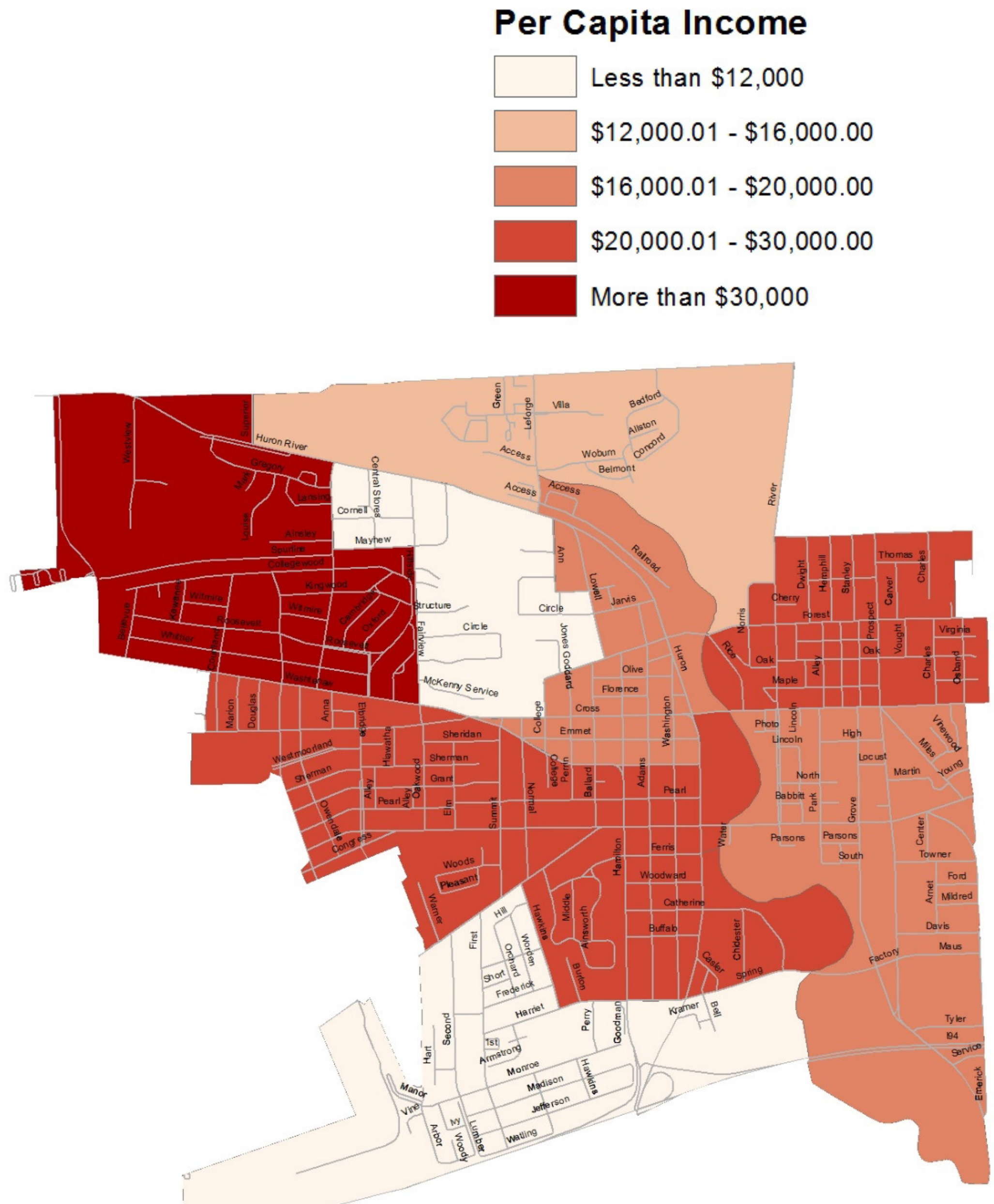
What is Affordable Housing?

The generally accepted definition of affordability is for a household to pay no more than **30 percent** of its annual income on housing.

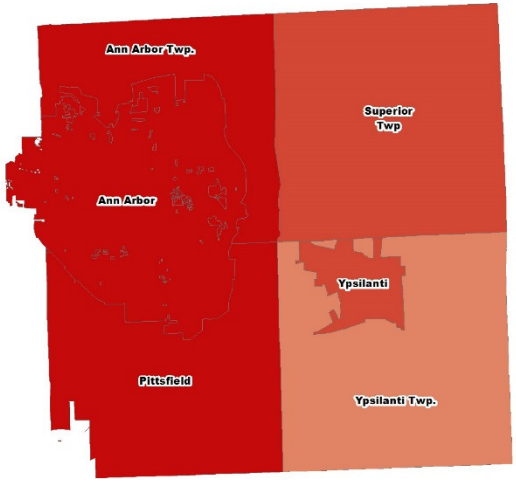
Families who pay more than 30 percent of their income for housing are considered cost burdened and may have difficulty affording necessities such as food, clothing, transportation and medical care.

What kind of incomes in Ypsilanti?



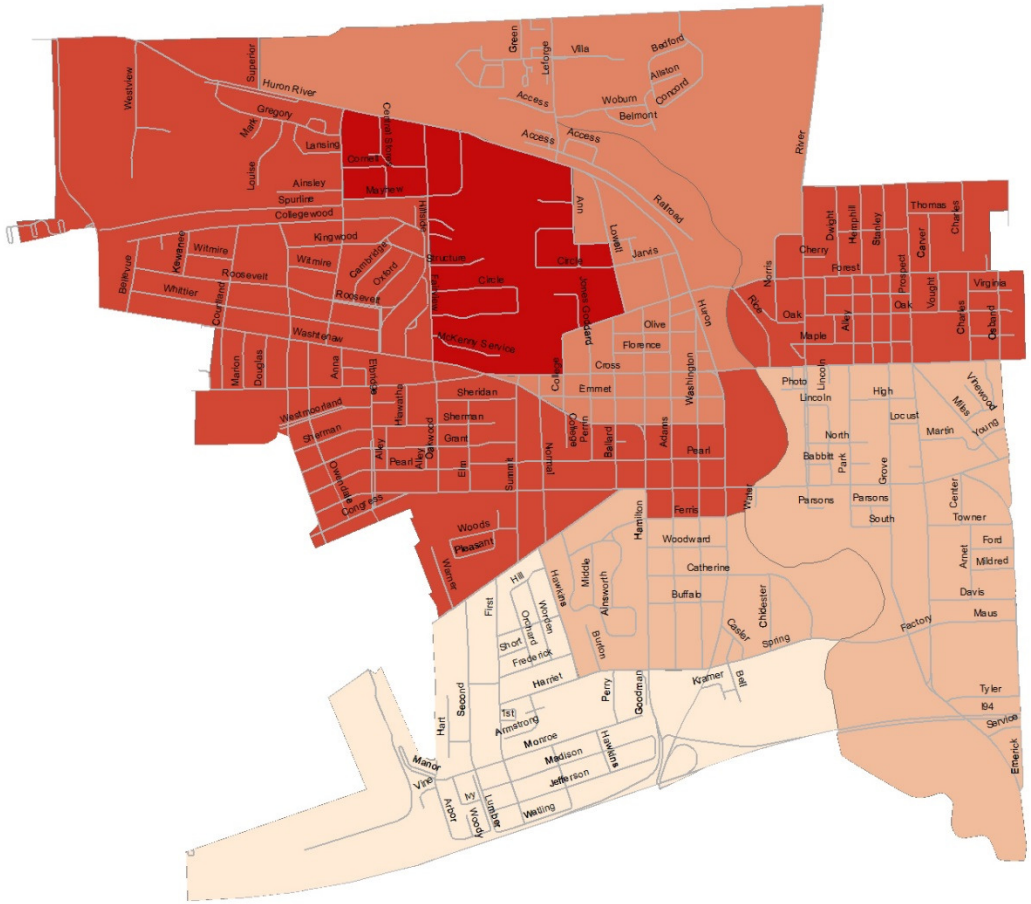


What kind of education levels in Ypsilanti?

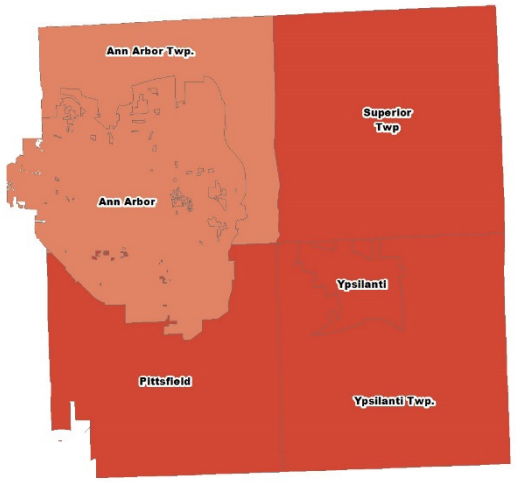


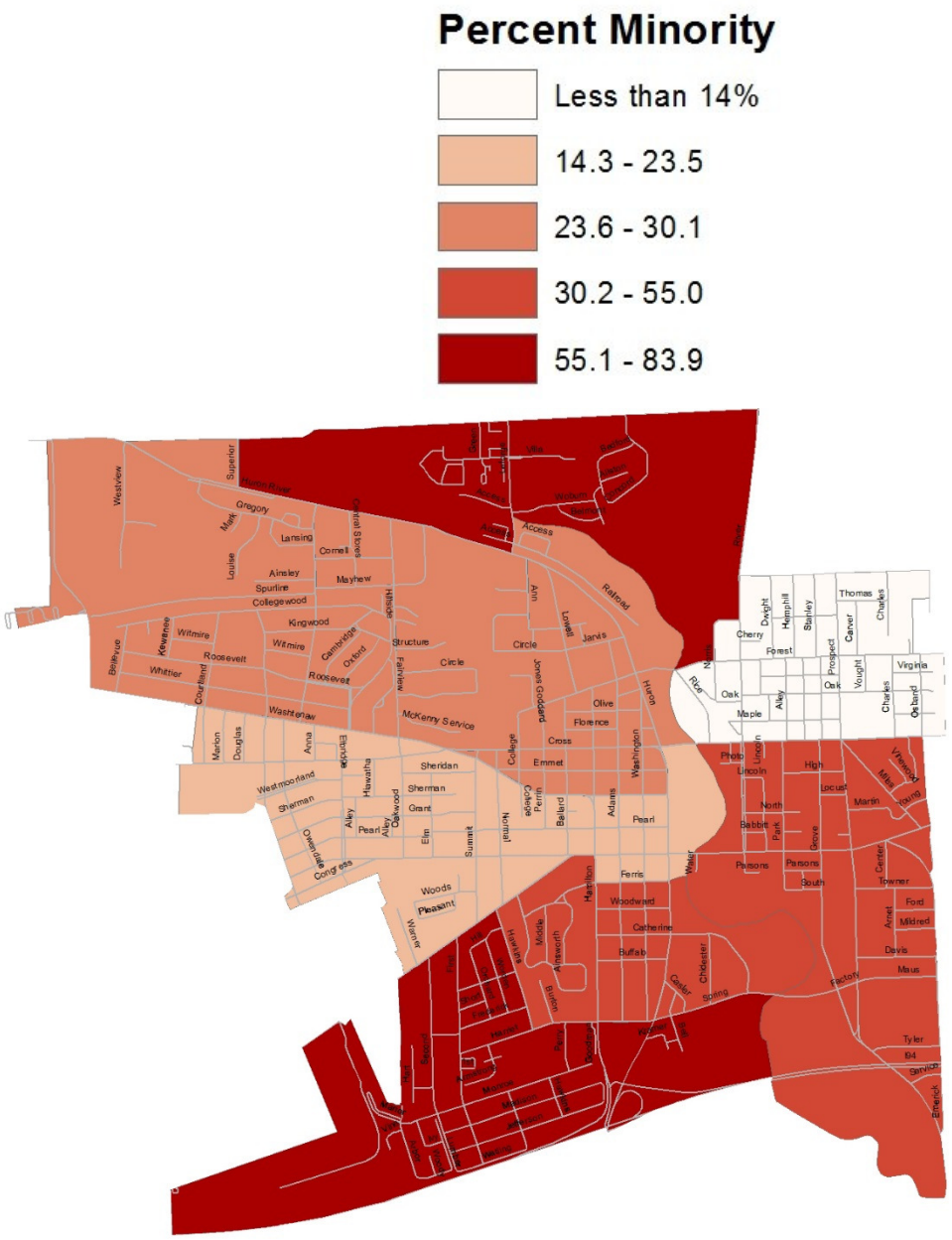
Percent With 4-Year Degree

- 2.8% - 3%
- 3.1% - 21%
- 21.1% - 31.5%
- 31.6% - 52%
- More than 52%



What kind of demographics differences?





What is Affordable Housing?

What does that look like in Ypsilanti?
According American Community Survey (2008-2012), the median household income in the City of Ypsilanti is $32,996.

$32,996 x 30% = $9899 for rent a year or $825/month – regardless of household size

That number is a midpoint, with half of Ypsilanti's population below it and half above it.

Unit	Income	Rents
1BR	50% AMI	$631
1BR	60% AMI	$816
2BR	50% AMI	$765
2BR	60% AMI	$810
3BR	50% AMI	$900
3BR	60% AMI	$975
4BR	50% AMI	$996
4BR	60% AMI	$1,050

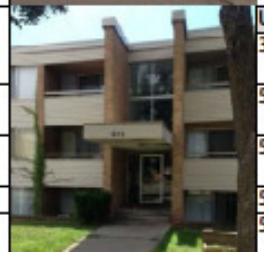
Comparable multi-family in the area - $825/month (undefined household size)

Map No.	Property Photo	Property/Address	Year Built	# of Units	# Stories	Estimated Occupancy	Unit Breakdown	Unit SF	Monthly Rent
1		Eastern Lofts							
		1266 Leforge Road	1970	130	3	85%	2 BR/1.5 BA	950 - 1,175	$720 - $780
2		The Covington Apartments							
		1926 Washtenaw Road	1965	86	3	99%	1 BR/1 BA	500	$510
							2 BR/1.5 BA	1,200	$725
							3 BR/1.5 BA	1,300	$875
3		Peninsular Place							
		1000 N. Huron River Drive	2005	184	3	95%	1 BR/1 BA	575	$709
							2 BR/2 BA	930	$1,108
							3 BR/3 BA	1,200	$1,317 - $1,407
							4 BR/4 BA	1,350	$1,756 - $1,876
4		Fairway Trails							
		214 S. Hewitt Road	1972	231	3	95%	1 BR/1 BA	660	$804
							2BR/1 BA	825	$834 - $884
5		University Green							
		799 Green Road	1969	468	3	93%	1 BR/1 BA	575 - 657	$605 - $685
							1 BR/1 BA (TH)	645	$635
							2 BR/1BA	865 - 960	$669 - $696
							2 BR/1 BA (TH)	870	$745
							2 BR/1.5 BA	1,000	$749
							3 BR/1 BA	965	$975
							3 BR/1 BA (TH)	1,070	$1,000
6		RiverRain Apartments							
		1130 Huron River Drive	1990	120	3	100%	2 BR/2BA	1,150 - 1,200	$799 - $855
7		Huron View Apartments							
		855 Green Road	1967	168	3	95%	2 BR/1.5 BA	850 - 1,030	$619 - $659
							3 BR/1.5 BA	1,120	$819 - $824
8		The Pines of Cloverlane							
		4907 Cloverlane	1976	582	3	95%	1 BR/1 BA	651 - 806	$821 - $850
							2 BR/1 BA	856	$960
							2 BR/1.5 BA	986	$970

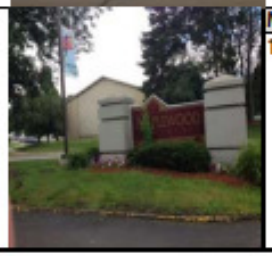
Comparable multi-family in the area - $825/month (undefined household size)

Map No.	Property Photo	Property/Address	Year Built	# of Units	# Stories	Estimated Occupancy	Unit Breakdown	Unit SF	Monthly Rent
9		Country Meadows							
		212 Stevens Drive	1971	267	3	90%	1 BR/1 BA	650	$650 - $670
							2 BR/1BA	800	$725
10		Flor-Mar							
		119 - 125 Perrin	1966	23	3	100%	1 BR/1 BA	600	$675
11		Hamilton Crossing							
		596 S. Hamilton	1975 (est)	144	3	100%	1 BR/1BA	609	$643
							2 BR/1 BA (TH)	780	$784
							3 BR/1.5 BA (TH)	953	$1,002
12		Schooner Cove							
		5050 Schooner Cove Blvd	1973	408	3	95%	1 BR/1 BA	600 - 850	$639 - $679
							2 BR/1 BA	950	$719 - $799
13		River Drive Apartments							
		1420 Gregory	1968	277	2	99%	2 BR/2 BA	875 - 992	$700 - $819
14		Ford Lake Landing							
		5753 Spinnaker Way	1996	184	2	95%	1 BR/1 BA	792	$679
							2 BR/2 BA	1,049	$901
							3 BR/2 BA	1,187	$1,149
15		Huron Heights							
		669 Woburn Drive	1999	263	2	98%	1 BR/1 BA	729	$349
							2 BR/2 BA	1,093	$596 - $798
							3 BR/2 BA	1,309	$860 - $870
16		University Management							
		311 Jarvis	1970	40	3	95%	1 BR/1 BA	765 - 855	$580 - $620
							2 BR/1 BA	1,008 - 1,087	$650 - $675
17		504 St. John Street	1965 (est)	20	3	100%	1BR/1 BA	664	$550 - $600
							2BR/1 BA	922	$625 - $675
18		514 Emmet	1967	23	3	95%	1 BR/1 BA	650	$525 - $575
							2 BR/1 BA	940	$625 - $675
19		509 Washtenaw	1964	14	3	95%	1 BR/1 BA	625	$525 - $575
20		510 Congress	1965 (est)	17	3	100%	1 BR/1 BA	625	$500 - $550
							2 BR/1 BA	900	$600 - $650

Comparable multi-family in the area - $825/month (undefined household size)

		212 Stevens Drive	1971	267	3	90%	1 BR/1 BA	650	$650 - $670
							2 BR/1BA	800	$725
10		Flor-Mar							
		119 - 125 Perrin	1966	23	3	100%	1 BR/1 BA	600	$675
11		Hamilton Crossing							
		596 S. Hamilton	1975 (est)	144	3	100%	1 BR/1BA	609	$643
							2 BR/1 BA (TH)	780	$784
							3 BR/1.5 BA (TH)	953	$1,002
12		Schooner Cove							
		5050 Schooner Cove Blvd	1973	408	3	95%	1 BR/1 BA	600 - 850	$639 - $679
							2 BR/1 BA	950	$719 - $799
13		River Drive Apartments							
		1420 Gregory	1968	277	2	99%	2 BR/2 BA	875 - 992	$700 - $819
14		Ford Lake Landing							
		5753 Spinnaker Way	1996	184	2	95%	1 BR/1 BA	792	$679
							2 BR/2 BA	1,049	$901
							3 BR/2 BA	1,187	$1,149
15		Huron Heights							
		669 Woburn Drive	1999	263	2	98%	1 BR/1 BA	729	$349
							2 BR/2 BA	1,093	$596 - $798
							3 BR/2 BA	1,309	$860 - $870
16		University Management							
		311 Jarvis	1970	40	3	95%	1 BR/1 BA	765 - 855	$580 - $620
							2 BR/1 BA	1,008 - 1,087	$650 - $675
17		504 St. John Street	1965 (est)	20	3	100%	1BR/1 BA	664	$550 - $600
							2BR/1 BA	922	$625 - $675
18		514 Emmet	1967	23	3	95%	1 BR/1 BA	650	$525 - $575
							2 BR/1 BA	940	$625 - $675
19		509 Washtenaw	1964	14	3	95%	1 BR/1 BA	625	$525 - $575
20		510 Congress	1965 (est)	17	3	100%	1 BR/1 BA	625	$500 - $550

Comparable multi-family in the area - $825/month (undefined household size)

Map No.	Property Photo	Property/Address	Year Built	# of Units	# Stories	Estimated Occupancy	Unit Breakdown	Unit SF	Monthly Rent
21		Riverside Manor							
		159 S Grove	1951	154	3	95%	Studio	584	$300 - $360
							1 BR/1BA	619 - 847	$505 - $665
							2 BR/1 BA	786 - 930	$560 - $720
22		Eastwood Terrace							
		2973 W. Clark Road	1986	84	3	98%	1 BR/1 BA	720	$650 - $680
							2 BR/2 BA	960	$850 - $880
23		Brickhaven							
		207 Ballard	1968	18	3	98%	2 BR/1.5 BA	1,000	$750
24		Maplewood Apartments							
		1450 Chestnut Drive	1978	283	2	98%	1 BR/1 BA	714	$540 - $629
							2 BR/1 BA	875	$596 - $694
							2 BR/1.5 BA	1,000	$706 - $823
							3 BR/1.5 BA	1,050	$767 - $894
		Total Units/Weighted Average Occupancy		4,188		95%			

Income caps

MSHDA's affordable housing programs guarantee rents, but what's to keep them from being snatched up with households with higher incomes?

Income caps – based on 50% or 60% of the Washtenaw County Area Median Income

Household Size AMI	One Person	Two Person	Three Person	Four Person	Five Person	Six Person
50%	$ 30,600	$ 35,000	$ 39,350	$ 43,700	$ 47,200	$ 50,700
60%	$ 36,720	$ 42,000	$ 47,220	$ 52,440	$ 56,640	$ 60,840

**Income limits updated annually*

Based on census data (ACS family income with household size)
– 63% of Ypsi families would qualify for one of these units based on family size.

If “market rate” is considered affordable – then why build affordable?

Market rate rents can fluctuate and change quickly. Programs like MSHDA”s Low-income Housing Tax credit programs require that properties maintain affordability over long terms, usually between 15-30 years..

Existing Ypsilanti affordable housing with guaranteed affordability period and income restrictions:

Name/Location	Unit Count	Restrictions
112 S. Adams	3	40% AMI
330 Chidester	151	15-60% AMI – senior & disabled
Cross Street Village	99	30-60% AMI – seniors
Hamilton Crossing I	70	Project-based vouchers
Hamilton Crossing II	74	45-60 % AMI
Towne Center	170	Income restrictions – senior & disabled
184-190 N. Washington	8	50% AMI
Forest Knoll	231	Income restrictions
Arbor Manor	80	Income restrictions
Ypsilanti Housing Commission	192	Public housing

Affordable units in the County

- There are large segments of Washtenaw County where finding affordable housing is difficult, in particular in the Ann Arbor market.

- 2007 Washtenaw County Affordable Housing study

- Update scheduled for this year
  - Inventory of existing properties, rates and time frames
  - Analysis based on geography, demographics, work centers, transportation, etc.
  - Looking at where affordable housing is missing
  - Looking at policy changes to address any geographic mismatches

A3

Slide 31

A3 confirm if age or disability requirements for chidester
Author, 2/23/2014

Other affordability measures

MSHDA's funding does not allow property owners to reject a Section 8 applicant if they meet tenant selection criteria

What is Section 8?

There are two types of Section 8 vouchers:

Project Based - These are associated with the property and it stays with the property. Project based vouches are not proposed for Water Street Flats.

Tenant Based – These vouchers move with the tenant from property to property. They are administered through various Housing Commissions (Canton, Westland, Ann Arbor, etc.) and the State of Michigan. Each has varying criteria for approval.

Landlords choose whether or not to choose Section 8 vouchers. This is based on the owner/property manager and is subject to change. Each landlord/property manager also sets screening criteria for the property. This varies greatly.

How many vouchers at other HKP properties?

	Year Built	Units	Vouchers	Percentage
Lafayette Land	2012	72	13	18%
Danville	2012	80	3	4%
Nine North	2011	58	3	5%
Lebanon	2005	166	12	7%
Mann Road #1	2004	156	32	21%
CH Franklin	2000	110	16	15%
Batesville	2000	64	6	9%
Logansport	1995	48	5	10%

Tenant Selection Criteria for HKP

TENANT SELECTION CRITERIA

To qualify to live in these apartment homes, tenants must meet the resident selection criteria. Some of these include:

- Credit and criminal reports will be obtained for all applicants age 18 and over.
- All applicants will be screened through a multi-state sex offender database. Any applicant that is listed on the sex offender database is automatically denied.
- All applicants must have a SSN or provide an ITIN and must be eligible to reside in the United States for the next 12 months.
- Any felony charge committed within the last 7 years will be grounds for denial.
- Any convicted felony or misdemeanor charge related to battery, theft, drug possession, or molestation will be grounds for denial.
- All combined rent to income ratio must not exceed 40%
- All applicants age 18 and over will have their credit pulled, reviewed and scored using a credit screening company.
- Applicants with prior unpaid rental debt or eviction within 3 years will be denied.

FINANCIAL IMPACT

Comparable Development

The City's assessor has provided a conservative estimate for the taxable value of the property at stabilization based on changes in rents and units.

The estimate is $1.675 million in taxable value.
The developer's estimate is $2 million in taxable value

City taxes would be estimated at about $61,000/year broken down below:

Millage (non-homestead)	City of Ypsilanti		
	- General operating	19.0211	$31,873.66
	- Fire & Police Pension	8.9229	$14,952.10
	- Public transit	0.9789	$1640.34
	- City Sanitation	2.7814	$4,660.79
	- Street Improvements 01	2.4368	$4,083.35
	- Street Improvements 02	2.3536	$3,943.93
	Total:	36.4947	$61,154.17

Tax Increment Financing (TIF) proposed capture

	DDA Water Street Development & TIF Plan (2001)	Water Street Redevelopment Area Brownfield Plan (2006)
District		
Base Value (taxable value)	$3,125, 806 – currently includes Honda dealership, KFC, two houses and vacant land.	$0 – capture will begin as soon as there is vertical improvements
Reimbursable costs:	Water Street bonds (first priority), demolition, remediation, infrastructure, linear park, streetscape, pedestrian connection to Riverside Park, etc.	Demolition, due care, remediation, infrastructure, additional environmental testing, site preparation, urban storm water, parking garages, etc.
Current Value	Approx. $775,000 Base value plus Family Dollar and Water Street Flats is expected to reach base value.	$0

Tax Increment Financing (TIF) proposed capture

			DDA	Brownfield Plan
Millage (non-homestead)	State Education Tax:		n/a	3
	School Operating Tax		n/a	18
	WISD		n/a	3.9745
	City of Ypsilanti - Operating - City Sanitation - Fire & Police Pension - Public transit	 19.021 2.7814 8.9229 0.9789	31.7043	31.7043
	Washtenaw County		5.7654	5.7654
	WCC		3.4576	3.4576
	Ypsilanti District Library		2.8102	2.8102
	Total:		43.738	68.712

Other Water Street Obligations and relief

The City acquired a grant/loan from the state in 2004.

The amount of the loan, due to be repaid in 2017 is $2,750,350.

One element of the loan is that a portion of the principal can be forgiven at this rate:

> $100,000 for every $5,000,000 of private investment, including soft and hard costs paid by the developer.

Family Dollar and Water Street Flats will represent approx. $13,5 million in development, and will reduce the principal debt to $2,550,350 providing long term savings on the debt repayment.

Project Investment and Timeline

Proposed project financing (updated)
$3,400,000 in Rental Housing Tax Credits (RHTCs) from MSHDA
$4,800,000 in Tax Exempt Bond Financing (MSHDA mortgage)
$2,900,000 in HOME Funds
$725,000 in deferred developer contribution

Project Timeline (updated)
December, 2013: Preliminary Application due to MSHDA
March 4, 2014: purchase agreement with City of Ypsilanti and Herman Kittle Properties
April, 2014: Full Application due to MSHDA
July, 2014: Allocation Announced

Revised dates
March 2015: Closed on Financing and Start of Construction
November, 2015: Leasing Begins
March, 2016: Construction Complete

QUESTIONS AND COMMENTS