



COMMUNITY DEVELOPMENT DEPARTMENT

45175 Ten Mile Road
Novi, MI 48375
(248) 347-0415 Phone
(248) 735-5600 Facsimile
www.cityofnovi.org

ZONING BOARD OF APPEALS STAFF REPORT

FOR: City of Novi Zoning Board of Appeals

ZONING BOARD APPEALS DATE: April 9, 2019

REGARDING: 48700 Grand River Ave, Parcels # 50-22-17-126-009 (PZ19-0013)

BY: Larry Butler, Deputy Director Community Development

I. GENERAL INFORMATION:

Applicant

Interior Environments Inc

Variance Type

Dimensional

Property Characteristics

Zoning District:	General Business
Location:	East of Wixom Road and North of Grand River Avenue
Parcel #:	50-22-17-126-009

Request

The applicant is requesting variances from the City of Novi Zoning Ordinance Section 3.1.23.D for parking setbacks of less than 20 feet on the Twelve Mile Road (zero feet requested) and Grand River Avenue (16 feet requested), and a variance from Zoning Ordinance Section 5.3.12 for an end island less than 3 feet shorter than the adjacent parking space. This property is zoned General Business (B-3).

II. STAFF COMMENTS:

III. RECOMMENDATION:

The Zoning Board of Appeals may take one of the following actions:

1. I move that we **grant** the variance in Case No. **PZ19-0013**, sought by _____, for _____ because Petitioner has shown practical difficulty requiring _____.
- (a) Without the variance Petitioner will be unreasonably prevented or limited with respect to use of the property because _____.
- (b) The property is unique because _____.
- (c) Petitioner did not create the condition because _____.

(d) The relief granted will not unreasonably interfere with adjacent or surrounding properties because _____
_____.

(e) The relief if consistent with the spirit and intent of the ordinance because _____
_____.

(f) The variance granted is subject to:

1. _____.

2. _____.

3. _____.

4. _____.

2. I move that we **deny** the variance in Case No. **PZ19-0013**, sought by _____
for _____ because Petitioner has not shown practical difficulty requiring _____.

(a) The circumstances and features of the property including _____ are not unique because they exist generally throughout the City.

(b) The circumstances and features of the property relating to the variance request are self-created because _____
_____.

(c) The failure to grant relief will result in mere inconvenience or inability to attain higher economic or financial return based on Petitioners statements that _____.

(d) The variance would result in interference with the adjacent and surrounding properties by _____.

(e) Granting the variance would be inconsistent with the spirit and intent of the ordinance to _____
_____.

Should you have any further questions with regards to the matter please feel free to contact me at (248) 347-0417.

Larry Butler
Deputy Director Community Development
City of Novi



PLAN REVIEW CENTER REPORT

January 25, 2019

Planning Review

Interior Environments Parking Expansion
JSP 18-51

PETITIONER

Interior Environments

REVIEW TYPE

Preliminary Site Plan

PROPERTY CHARACTERISTICS

- Site Location: Section 17; North of Grand River Avenue and East of Wixom Road
- Site School District: South Lyon Community School District
- Site Zoning: B-3: General Business District
- Adjoining Zoning: West B-3: General Business
East B-3: General Business
North is in Wixom, Classified as B-3: General Business
South I-1: Light Industrial
- Site Use(s): Interior Design Firm
- Adjoining Uses: West: Grand Diner; East: PNC Bank; North: Vehicle Dealership
South: Granite Creations
- Site Size: 1.36 acres
- Building Size: 9,810 sq. ft.
- Plan Date: 12-17-2018

PROJECT SUMMARY

The applicant is proposing to expand their parking lot from 39 spaces to 59 spaces and reconfigure the existing stormwater detention area.

RECOMMENDATION

Approval of the **Preliminary Site Plan is conditionally recommended. Engineering, Landscaping and Planning** recommendations are conditioned on the applicant receiving the necessary approvals and waivers from various authorities noted in the review letters. The plan mostly conforms to the requirements of the Zoning Ordinance, with some modifications that could be made by the applicant in a revised Preliminary Site Plan submittal. **Planning Commission approval of the Preliminary Site Plan, Wetland Permit and Storm Water Management Plan is required.**

After Planning Commission's approval, the plan would also require the applicant to seek certain deviations from the Zoning Board of Appeals.

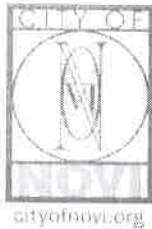
ORDINANCE REQUIREMENTS

This project was reviewed for conformance with the Zoning Ordinance with respect to Article 3 (Zoning Districts), Article 4 (Use Standards), Article 5 (Site Standards), and any other applicable provisions of the Zoning Ordinance. Please see the attached charts for information pertaining to ordinance requirements. Items in **bold** below must be addressed and incorporated as part of the Final Site Plan submittal.

1. Parking Setbacks (Sec 3.1.23.D): The expansion to the parking lot would encroach 15 feet into the right-of-way (ROW) for Twelve Mile Road on the north side of the property, resulting in zero setback from the property line, and one parking space in the ROW. The applicant has provided an email from the Road Commission of Oakland County (RCOC) indicating the 15-foot encroachment into the ROW is acceptable. Parking is also proposed within the required parking setback on the south side adjacent to Grand River Avenue. **The required parking setback of both frontages is 20 feet, so the applicant must request variances from the Zoning Board of Appeals. Staff recommends the applicant remove the one parking space that falls within the right-of-way.**
2. End Islands (Sec. 5.3.12): Parking islands abutting traffic circulation aisles are generally required to be 3 feet shorter than the adjacent parking space. The applicant has indicated one end island on the western side of the south entrance needs to be 18 feet long to accommodate an existing light pole. **The applicant should request a variance from the Zoning Board of Appeals for this deviation.**
3. Barrier Free Parking: Two barrier-free parking spaces are existing/proposed on the site. For a parking lot with 51-75 parking spaces provided, a total of 3 barrier free parking spaces are required. **One additional barrier free space should be allocated to meet requirements.**
4. Parking Bays: One bay of parking is 19 spaces long, which exceeds the maximum of 15 allowed by the ordinance. **A Planning Commission waiver would be required if the parking bay is to remain as proposed.**
5. Bicycle Parking Lot Layout (Sec. 5.16.5.A): **A detail of the bicycle parking layout should be provided to verify compliance with the Zoning Ordinance.**
6. Phasing Plan: Two phases are indicated on the site plan. Phase 1 includes the new parking area on the southwest corner of the site, while Phase 2 includes the northern parking area. If Phase 1 is completed before phase 2, the drive aisle on the western side of the building would be longer than 150 feet and would require a T-turnaround be constructed to allow fire apparatus to turn around. **If the applicant intends to construct each phase separately, this design is not supported by staff. The applicant should clarify and provide a justification for the need for a phased development.**
7. Lighting Plan (Sec. 5.7.2.A): **Provide a lighting and photometric plan at the time of Final Site Plan submittal to verify new parking areas meet lighting standards.**

Other Reviews

- Engineering Review: **Conditional approval is recommended pending an official letter of approval from RCOC regarding the use of their right-of-way.** Additional comments to be addressed in the Final Site Plan submittal.
- Landscape Review: **Approval is not recommended due to the large number of landscape waivers required.** See letter for further details.
- Wetland Review: Approval is recommended with additional comments to be addressed in the final site plan submittal. See letter for further details.
- Traffic Review: Approval is recommended provided variances are granted and additional comments are addressed at the time of final site plan submittal. See letter for details.
- Fire Review: Approval is recommended.



45175 Ten Mile Road
 Novi, MI 48375
 (248) 347-0415 Phone
 (248) 735-5600 Facsimile
 www.cityofnovi.org

ZONING BOARD OF APPEALS APPLICATION

RECEIVED

MAR 08 2019

CITY OF NOVI
COMMUNITY DEVELOPMENT

APPLICATION MUST BE FILLED OUT COMPLETELY

I. PROPERTY INFORMATION (Address of subject ZBA Case)			
PROJECT NAME / SUBDIVISION Interior Environments Parking Lot Expansion			
ADDRESS 48700 Grand River Avenue		LOT/SIUTE/SPACE #	
SIDWELL # 50-22-17 -126 -009		May be obtain from Assessing Department (248) 347-0485	
CROSS ROADS OF PROPERTY Grand River Avenue and Twelve Mile Road			
IS THE PROPERTY WITHIN A HOMEOWNER'S ASSOCIATION JURISDICTION? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		REQUEST IS FOR: <input type="checkbox"/> RESIDENTIAL <input checked="" type="checkbox"/> COMMERCIAL <input type="checkbox"/> VACANT PROPERTY <input type="checkbox"/> SIGNAGE	
DOES YOUR APPEAL RESULT FROM A NOTICE OF VIOLATION OR CITATION ISSUED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
II. APPLICANT INFORMATION			
A. APPLICANT		EMAIL ADDRESS kim@KTCAPELLOLAW.com	CELL PHONE NO. 248-761-3702
NAME Interior Environments, Inc.		TELEPHONE NO. 248-380-5122	
ORGANIZATION/COMPANY		FAX NO. 248-380-5175	
ADDRESS 48700 Grand River Avenue		CITY Novi	STATE MI
			ZIP CODE 48375
B. PROPERTY OWNER <input type="checkbox"/> CHECK HERE IF APPLICANT IS ALSO THE PROPERTY OWNER			
Identify the person or organization that owns the subject property:		EMAIL ADDRESS kim@KTCAPELLOLAW.com	CELL PHONE NO. 248-761-3702
NAME Balco Properties, LLC		TELEPHONE NO. 248-380-5122	
ORGANIZATION/COMPANY		FAX NO. 248-380-5175	
ADDRESS 48700 Grand River Avenue		CITY Novi	STATE MI
			ZIP CODE 48375
III. ZONING INFORMATION			
A. ZONING DISTRICT			
<input type="checkbox"/> R-A <input type="checkbox"/> R-1 <input type="checkbox"/> R-2 <input type="checkbox"/> R-3 <input type="checkbox"/> R-4 <input type="checkbox"/> RM-1 <input type="checkbox"/> RM-2 <input type="checkbox"/> MH			
<input type="checkbox"/> I-1 <input type="checkbox"/> I-2 <input type="checkbox"/> RC <input type="checkbox"/> TC <input type="checkbox"/> TC-1 <input type="checkbox"/> OTHER <u>B-3</u>			
B. VARIANCE REQUESTED			
INDICATE ORDINANCE SECTION (S) AND VARIANCE REQUESTED:			
1. Section <u>3.1.23.D</u> Variance requested		<u>Parking set back Grand River Avenue ROW</u>	
2. Section <u>3.1.23.D</u> Variance requested		<u>Parking set back Twelve Mile Road Row</u>	
3. Section <u>5.3.12</u> Variance requested		<u>Traffic Circulation aisle Grand River Ave</u>	
4. Section _____ Variance requested		_____	
IV. FEES AND DRAWINGS			
A. FEES			
<input type="checkbox"/> Single Family Residential (Existing) \$200 <input type="checkbox"/> (With Violation) \$250 <input type="checkbox"/> Single Family Residential (New) \$250			
<input checked="" type="checkbox"/> Multiple/Commercial/Industrial \$300 <input type="checkbox"/> (With Violation) \$400 <input type="checkbox"/> Signs \$300 <input type="checkbox"/> (With Violation) \$400			
<input type="checkbox"/> House Moves \$300 <input type="checkbox"/> Special Meetings (At discretion of Board) \$600			
B. DRAWINGS 1-COPY & 1 DIGITAL COPY SUBMITTED AS A PDF			
• Dimensioned Drawings and Plans		• Existing & proposed distance to adjacent property lines	
• Site/Plot Plan		• Location of existing & proposed signs, if applicable	
• Existing or proposed buildings or addition on the property		• Floor plans & elevations	
• Number & location of all on-site parking, if applicable		• Any other information relevant to the Variance application	

Application Fee: \$300.00
 Meeting Date: April 9, 2019
 ZBA Case #: PZ 19-0013 *(per planning)*



ZONING BOARD OF APPEALS APPLICATION

V. VARIANCE

A. VARIANCE (S) REQUESTED

DIMENSIONAL USE SIGN

There is a five-(5) hold period before work/action can be taken on variance approvals.

B. SIGN CASES (ONLY)

Your signature on this application indicates that you agree to install a **Mock-Up Sign ten-(10) days** before the schedule ZBA meeting. Failure to install a mock-up sign may result in your case not being heard by the Board, postponed to the next schedule ZBA meeting, or cancelled. A mock-up sign is **NOT** to be actual sign. Upon approval, the mock-up sign must be removed within five-(5) days of the meeting. If the case is denied, the applicant is responsible for all costs involved in the removal of the mock-up or actual sign (if erected under violation) within five-(5) days of the meeting.

C. ORDINANCE

City of Novi Ordinance, Section 3107 – Miscellaneous

No order of the Board permitting the erection of a building shall be valid for a period longer than one-(1) year, unless a building permit for such erection or alteration is obtained within such period and such erection or alteration is started and proceeds to completion in accordance with the terms of such permit.

No order of the Board permitting a use of a building or premises shall be valid for a period longer than one-hundred and eighty-(180) days unless such use is establish within such a period; provided, however, where such use permitted is dependent upon the erection or alteration or a building such order shall continue in force and effect if a building permit for such erection or alteration is obtained within one-(1) year and such erection or alteration is started and proceeds to completion in accordance with the terms of such permit.

D. APPEAL THE DETERMINATION OF THE BUILDING OFFICIAL

PLEASE TAKE NOTICE:

The undersigned hereby appeals the determination of the Building Official / Inspector or Ordinance made

CONSTRUCT NEW HOME/BUILDING ADDITION TO EXISTING HOME/BUILDING SIGNAGE

ACCESSORY BUILDING USE OTHER _____

VI. APPLICANT & PROPERTY SIGNATURES

A. APPLICANT

Ami Thomas Cepell
Applicant Signature

3-7-19
Date

B. PROPERTY OWNER

If the applicant is not the owner, the property owner must read and sign below:

The undersigned affirms and acknowledges that he, she or they are the owner(s) of the property described in this application, and is/are aware of the contents of this application and related enclosures.

Randolf J. Balconi
Property Owner Signature

3/6/2019
Date

VII. FOR OFFICIAL USE ONLY

DECISION ON APPEAL:

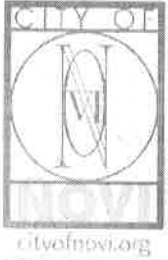
GRANTED

DENIED

The Building Inspector is hereby directed to issue a permit to the Applicant upon the following and conditions:

Chairperson, Zoning Board of Appeals

Date



Community Development Department

45175 Ten Mile Road
Novi, MI 48375
(248) 347-0415 Phone
(248) 735-5600 Facsimile
www.cityofnovi.org

**REVIEW STANDARDS
DIMENSIONAL VARIANCE**

The Zoning Board of Appeals (ZBA) will review the application package and determine if the proposed Dimensional Variance meets the required standards for approval. In the space below, and on additional paper if necessary, explain how the proposed project meets each of the following standards. (Increased costs associated with complying with the Zoning Ordinance will not be considered a basis for granting a Dimensional Variance.)

Standard #1. Circumstances or Physical Conditions.

Explain the circumstances or physical conditions that apply to the property that do not apply generally to other properties in the same zoning district or in the general vicinity. Circumstances or physical conditions may include:

- a. Shape of Lot.** Exceptional narrowness, shallowness or shape of a specific property in existence on the effective date of the Zoning Ordinance or amendment.

Not Applicable Applicable If applicable, describe below:

The lot is an odd shaped lot abutting both Grand River Avenue and Twelve Mile Road. The OCRC has no objection to the infringement into the County ROW.

and/or

- b. Environmental Conditions.** Exceptional topographic or environmental conditions or other extraordinary situations on the land, building or structure.

Not Applicable Applicable If applicable, describe below:

and/or

- c. Abutting Property.** The use or development of the property immediately adjacent to the subject property would prohibit the literal enforcement of the requirements of the Zoning Ordinance or would involve significant practical difficulties.

Not Applicable Applicable If applicable, describe below:

Standard #2. Not Self-Created.

Describe the immediate practical difficulty causing the need for the Dimensional Variance, that the need for the requested variance is not the result of actions of the property owner or previous property owners (i.e., is not self-created).

This was originally the Jimmy's Rustic Patio Furniture Store. Parking was adequate for the occupancy of warehousing and a showroom. Jimmy's went out of business leaving the site vacant for several years. Interior Environments purchased the building several years ago. Its business has expanded and the staff has tripled since its original occupancy. Based upon IE's business methods and practices, there is no need to expand the existing building, however, parking has become a problem. There is no room for off-site expansion as the property lies between Twelve Mile Road and Grand River and the two adjoining parcels are fully developed.

Standard #3. Strict Compliance.

Explain how the Dimensional Variance in strict compliance with regulations governing area, setback, frontage, height, bulk, density or other dimensional requirements will unreasonably prevent the property owner from using the property for a permitted purpose, or will render conformity with those regulations unnecessarily burdensome.

Since moving into its Novi location, IE's business has increased dramatically. IE's staff has tripled in size. It has opened branch offices, in Ann Arbor, Livonia, Detroit and Denver. IE maintains its world headquarters on Grand River Avenue in Novi. Based upon its business methods, IE does not need any additional floor space in the existing building, however, it does need additional parking. By granting the requested variances, IE will be able to keep its world headquarters here in Novi.

Standard #4. Minimum Variance Necessary.

Explain how the Dimensional Variance requested is the minimum variance necessary to do substantial justice to the applicant as well as to other property owners in the district.

The variances requested will not interfere, or affect, either of the adjoining properties. The variances are within the County ROW on Grand River Avenue and on Twelve Mile Road. If the variances are granted they will not have any impact on traffic on either road, and will actually maintain a safer parking area on the premises. The Parking Lot Expansion Plan is the very minimum that IE needs to meet its parking demands. Unfortunately, anything less than the requested number of spaces will result in continued parking problems.

Standard #5. Adverse Impact on Surrounding Area.

Explain how the Dimensional Variance will not cause an adverse impact on surrounding property, property values, or the use and enjoyment of property in the neighborhood or zoning district.

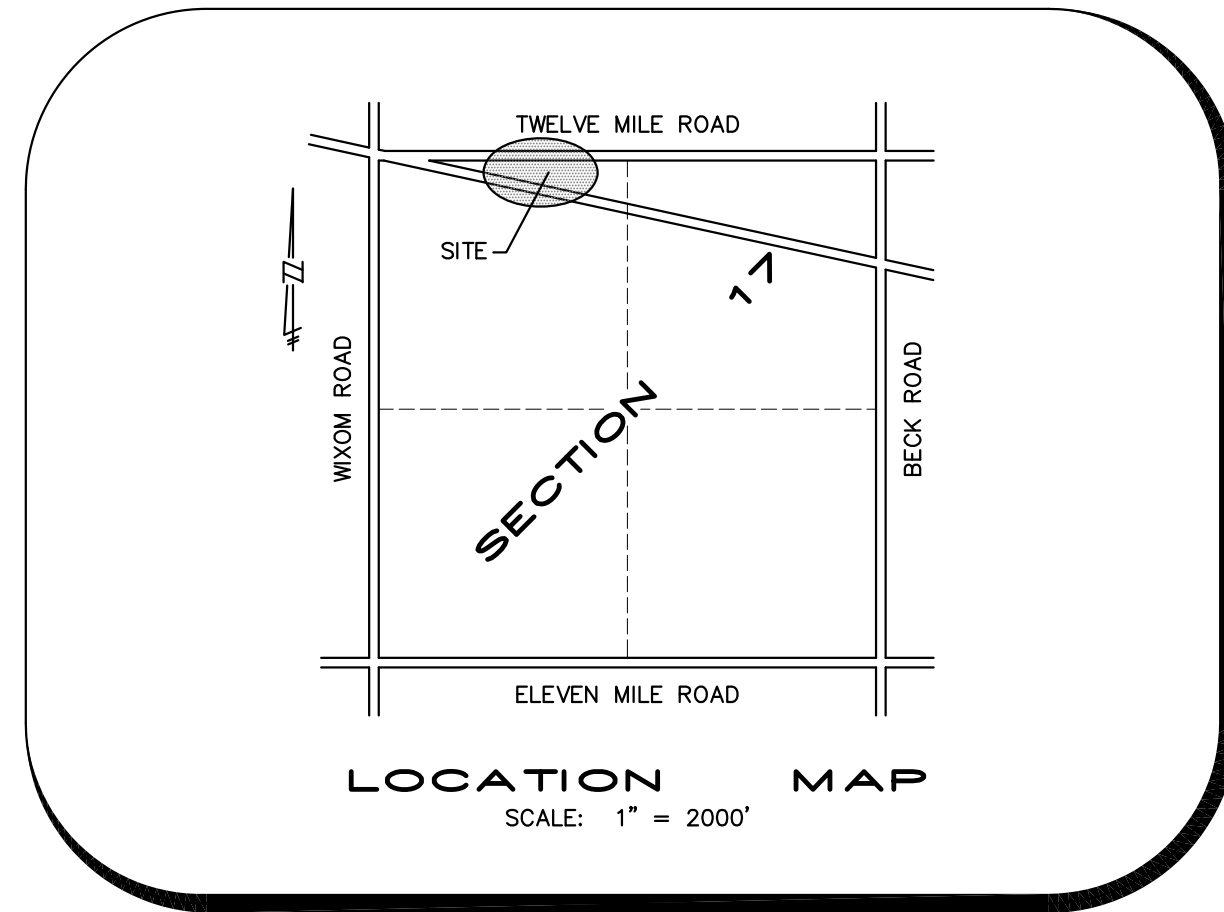
The variances requested will not affect either of the two adjoining properties. The requested variances are within the ROW's of Grand River Avenue and Twelve Mile Road.

SITE PLAN

INTERIOR ENVIRONMENTS PARKING ADDITION

PART OF THE NORTHWEST 1/4 SECTION 17, CITY OF NOVI
OAKLAND COUNTY, MICHIGAN

PREPARED FOR:
INTERIOR ENVIRONMENTS
48700 GRAND RIVER AVE.
NOVI, MI 48374
248.213.3010



LEGAL DESCRIPTION

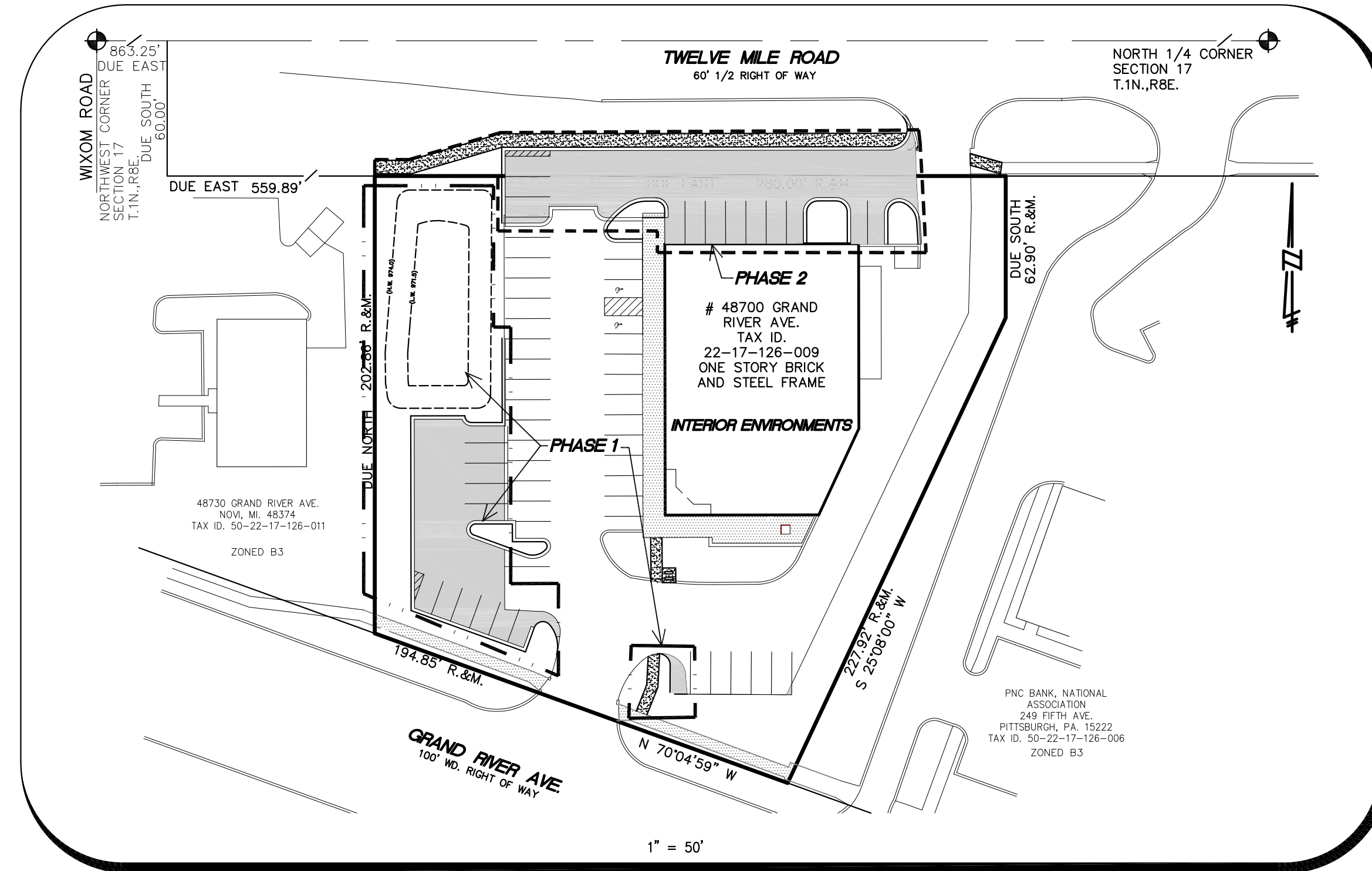
Legal Description:
Tax id. 50-22-17-126-009

A part of the Northwest 1/4 of Section 17, Town 1 North, Range 8 East, City of Novi, Oakland County, Michigan; being more particularly described as beginning a point distant East, 863.25 feet and South 60.00 feet and East, 559.89 feet from the Northwest Section Corner; thence East, 280.00 feet; thence South 62.90 feet; thence South 25°08'00" West, 227.92 feet; thence North 70°04'59" West, 194.85 feet; thence North 202.86 feet, to the Point of Beginning.

BENCH MARKS

Reference Bench Mark
(x) on North Rim of GV&W located 430' South and 50' East from the Northwest Corner of Section 17, Elevation 974.22 USGS Datum (from Ambit Surveyors Job No. 12-09-05, Varsity Lincoln)

Site Bench Mark
Traverse Point in Parking lot (PK Nail), located 19' S. and 16' W. of Catch Basin in parking lot of subject property. Elevation 976.13 USGS Datum



SHEET INDEX

ENGINEERING PLANS:

1. COVER SHEET
2. PRELIMINARY SITE PLAN
3. STORM WATER MANAGEMENT PLAN

LANDSCAPE PLAN & LANDSCAPE DETAILS:

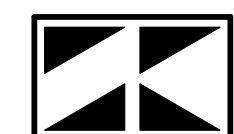
- L-1 LANDSCAPE PLAN
- L-2 LANDSCAPE DETAILS

NOTES

1. ALL WORK SHALL CONFORM TO THE CITY OF NOVI'S CURRENT STANDARDS AND SPECIFICATIONS.
2. THE CONTRACTOR MUST OBTAIN A PERMIT FROM THE CITY OF NOVI FOR ANY WORK WITHIN THE RIGHT-OF-WAY OF 12 MILE STREET.
3. ALL PAVEMENT MARKINGS, TRAFFIC CONTROL SIGNS, AND PARKING SIGNS SHALL COMPLY WITH THE DESIGN AND PLACEMENT REQUIREMENTS OF THE CURRENT MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

FIRE DEPARTMENT NOTES

1. ALL FIRE HYDRANTS AND WATER MAINS SHALL BE INSTALLED AND IN SERVICE PRIOR TO ABOVE FOUNDATION BUILDING CONSTRUCTION.
2. ALL WEATHER ACCESS ROADS CAPABLE OF SUPPORTING A MINIMUM LOAD OF 35 TONS SHALL BE INSTALLED TO PROVIDE ACCESS TO ALL FIRE HYDRANTS AND BUILDING PRIOR TO ABOVE FOUNDATION CONSTRUCTION.
3. BUILDING ADDRESSES SHALL BE POSTED FACING THE STREET DURING ALL PHASES OF CONSTRUCTION. ADDRESSES SHALL BE A MINIMUM OF THREE INCHES IN HEIGHT ON A CONTRASTING BACKGROUND.
4. PROVIDE 4-6" DIAMETER CONCRETE FILLED STEEL POST 48" ABOVE FINISH GRADE AT EACH HYDRANT AS REQUIRED.
5. FIRE LANES SHALL BE POSTED WITH "FIRE LANE - NO PARKING" SIGNS IN ACCORDANCE WITH ORDINANCE #85.99.02.



SEIBER, KEAST ENGINEERING, L.L.C.

CONSULTING ENGINEERS

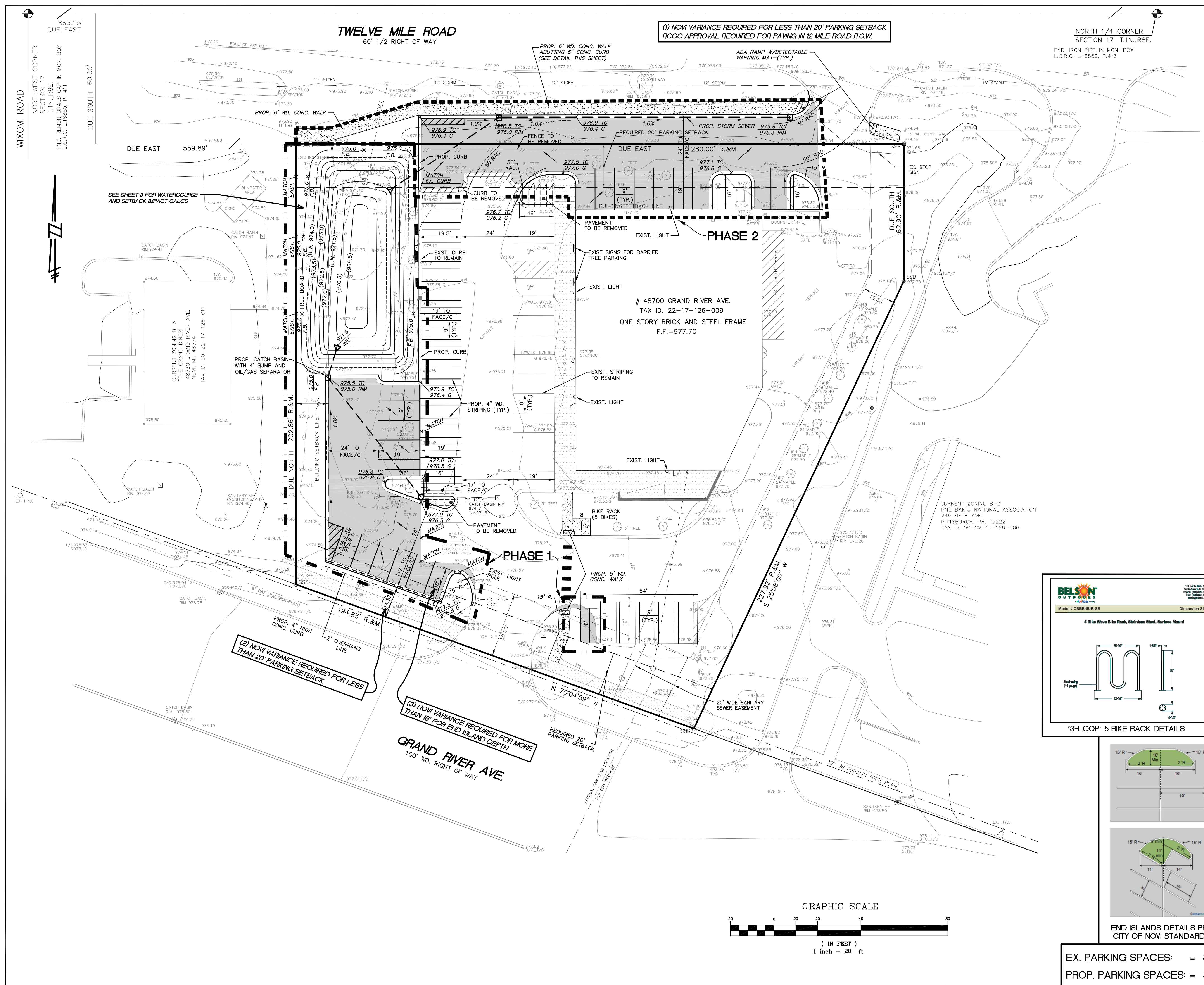
100 MAINCENTRE • SUITE 10 • NORTHVILLE MI • 48167
PHONE: 248.308.8331

SURVEY PROVIDED BY:
AMBIT LAND SURVEYORS, INC.
691 WING STREET
PLYMOUTH, MICHIGAN 48170
PHONE: 734.455.5501

LANDSCAPE PLANS PREPARED BY:
ALLEN DESIGN, LLC
557 CARPENTER
NORTHVILLE, MICHIGAN 48167
PHONE: 248.467.4668

REVISIONS			ENGINEER'S SEAL
NO.	ITEM	DATE	
1.	PER CITY CONSULTANTS	12-12-18	

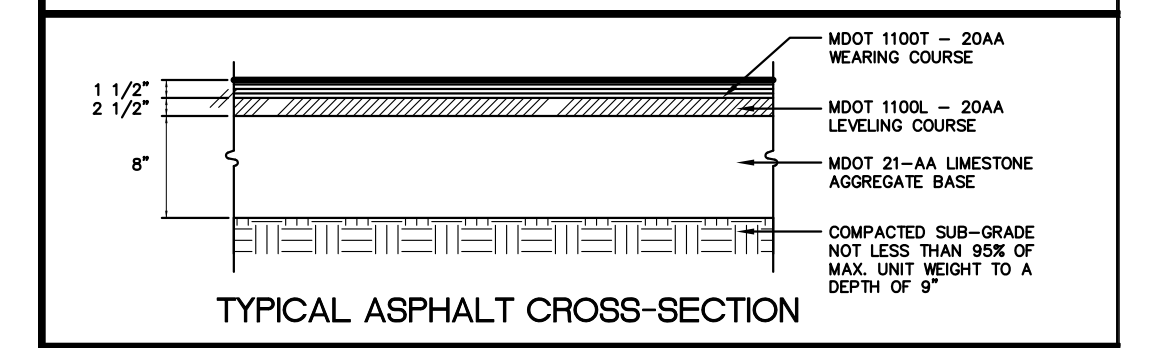
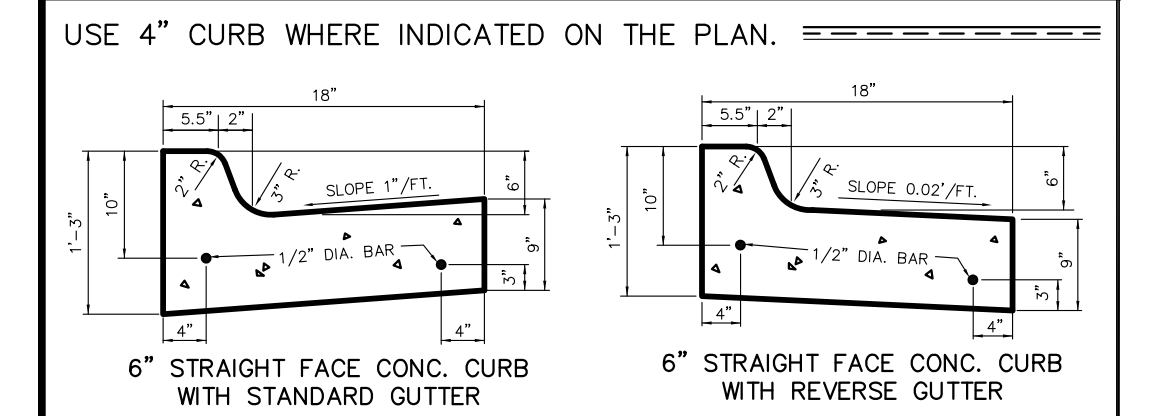
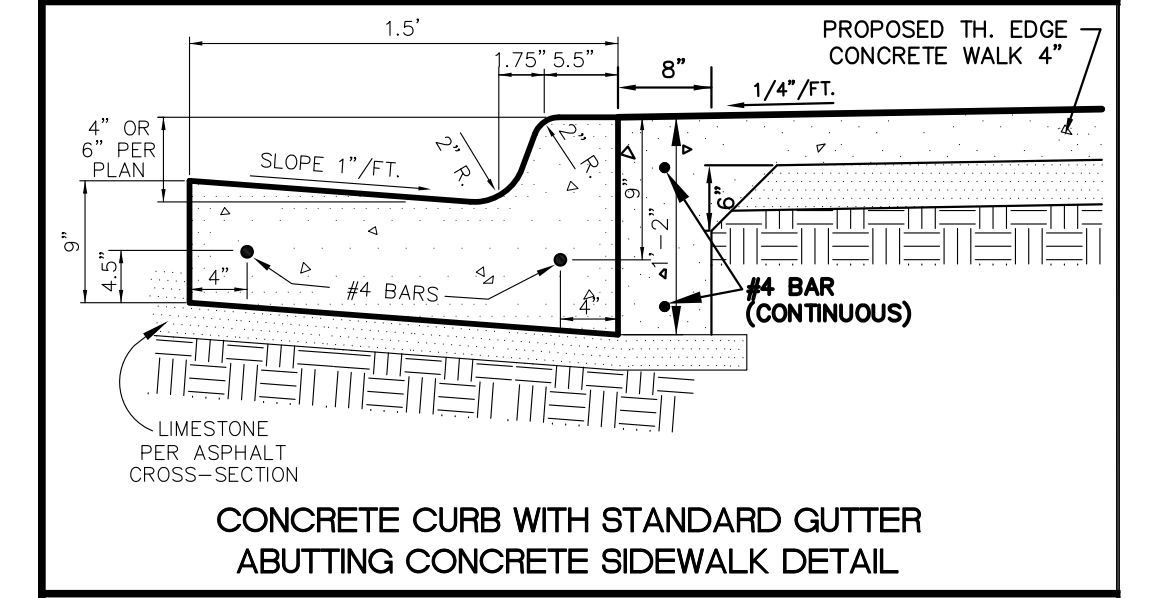
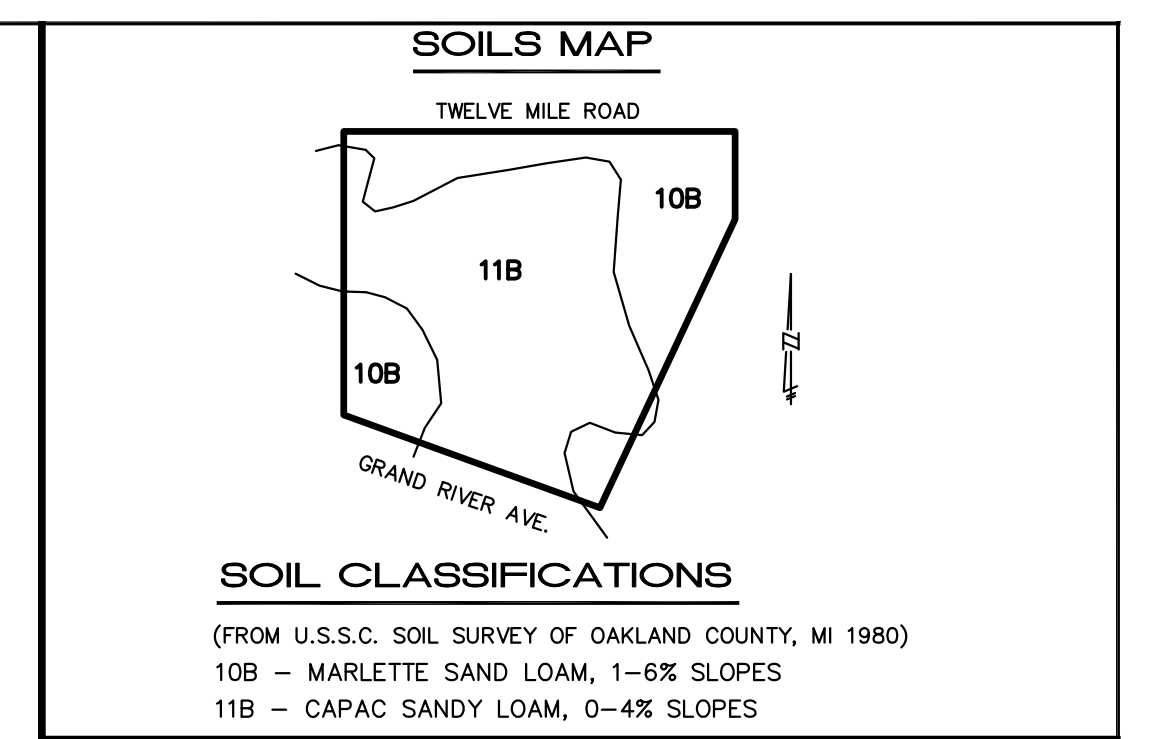
DATE: 08-13-18 DESIGNED BY: A.A. JOB NUMBER: 13-004
CHECKED BY: P.K. DRAWING FILE: 1-13004-CV-New.dwg



(1) NOW VARIANCE REQUIRED FOR LESS THAN 20' PARKING SETBACK
 RCOC APPROVAL REQUIRED FOR PAVING IN 12 MILE ROAD R.O.W.

(2) NOW VARIANCE REQUIRED FOR LESS THAN 20' PARKING SETBACK

(3) NOW VARIANCE REQUIRED FOR MORE THAN 16' FOR END ISLAND DEPTH



LEGEND	
	EXISTING PAVEMENT (ASPHALT)
	PROPOSED CONCRETE CURB (6")
	MDOT B2 CURB (STANDARD GUT.)
	MDOT B2 CURB (REVERSE GUT.)
	STORM SEWER
	SANITARY SEWER
	WATER MAIN
	MANHOLE
	CATCH BASIN W/ SEDIMENT FILTER
	END SECTION W/ CONC. RIP-RAP GATE VALVE
	HYDRANT
	WETLANDS
	WETLAND BUFFER
	CONTOURS
	SPOT ELEVATION
	TRAFFIC ARROWS
	SILT FENCE
	TREE FENCE
	STREET LIGHT
	GARBAGE RECEPTACLE

- PROPOSED VARIANCE**
- ZONING VARIANCE FOR PARKING SETBACK ALONG 12 MILE ROAD:
 REQUIRED= 20'
 PROPOSED= 0'
 - ZONING VARIANCE FOR PARKING SETBACK ALONG GRAND RIVER AVE.:
 REQUIRED= 20'
 PROPOSED= 14.5'
 - ZONING VARIANCE FOR END ISLAND DEPTH AS NOTED ON THE PLAN:
 REQUIRED= 16'
 PROPOSED= 17.5'

INTERIOR ENVIRONMENTS
 PART OF THE NORTHWEST 1/4 SECTION 17, TOWN 1 NORTH, RANGE 8 EAST CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

REVISIONS		UTILITY WARNING
NO.	ITEM	DATE
1.	PER PRE APP REVIEW	12-17-18

DATE: 8-13-18 DESIGNED BY: A.A. CHECKED BY: P.K.

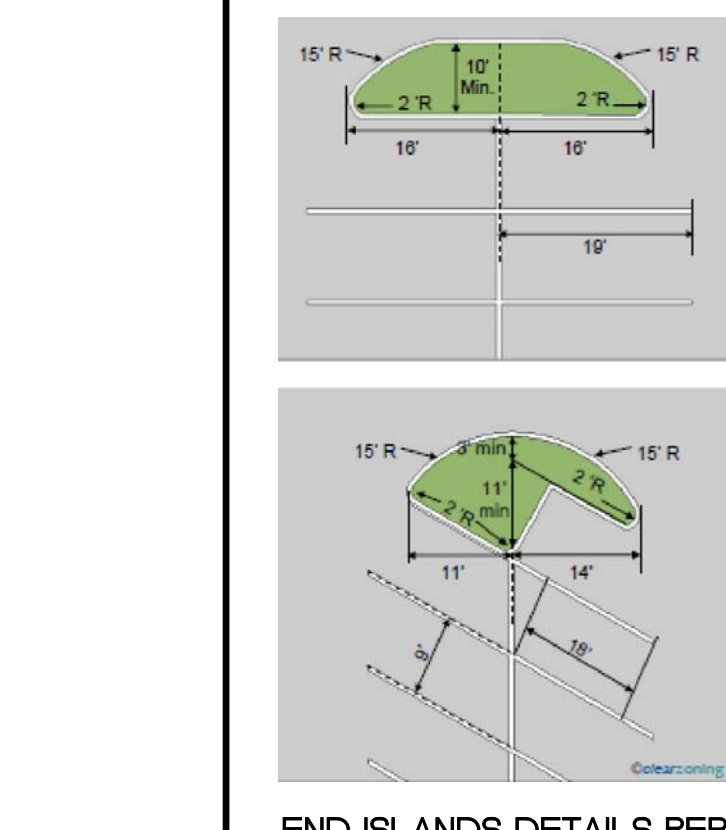
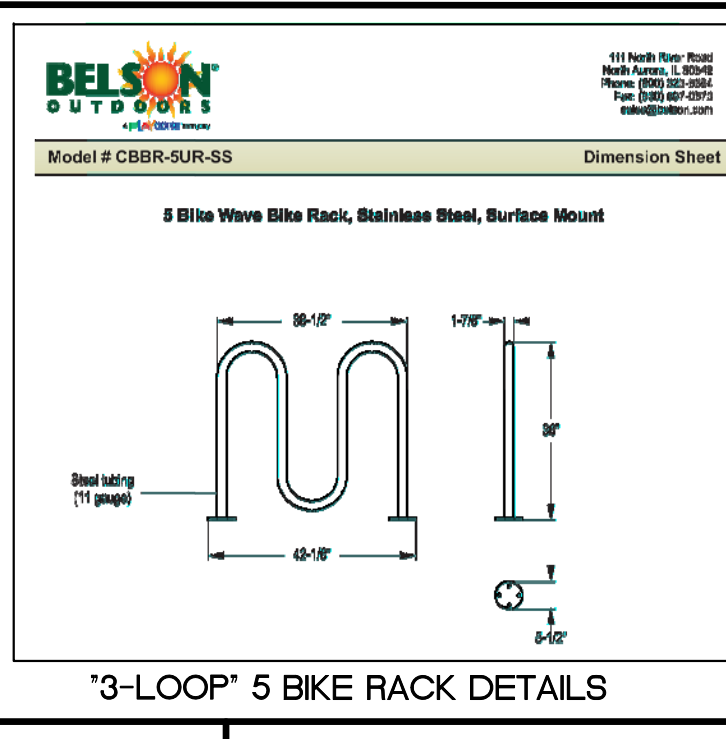
811 Know what's below. Call before you dig.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF AND/OR RELOCATION OF ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION.

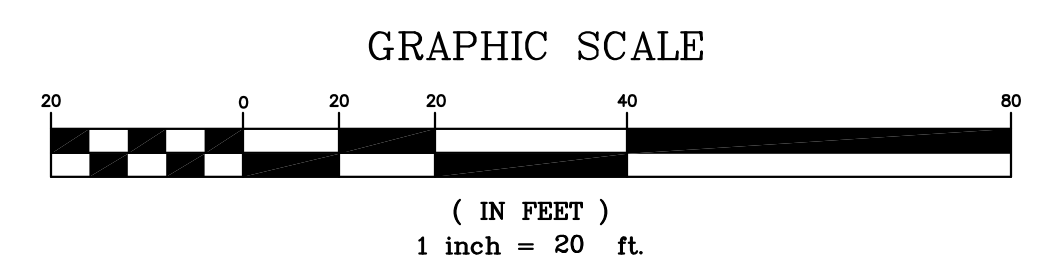
SITE PLAN

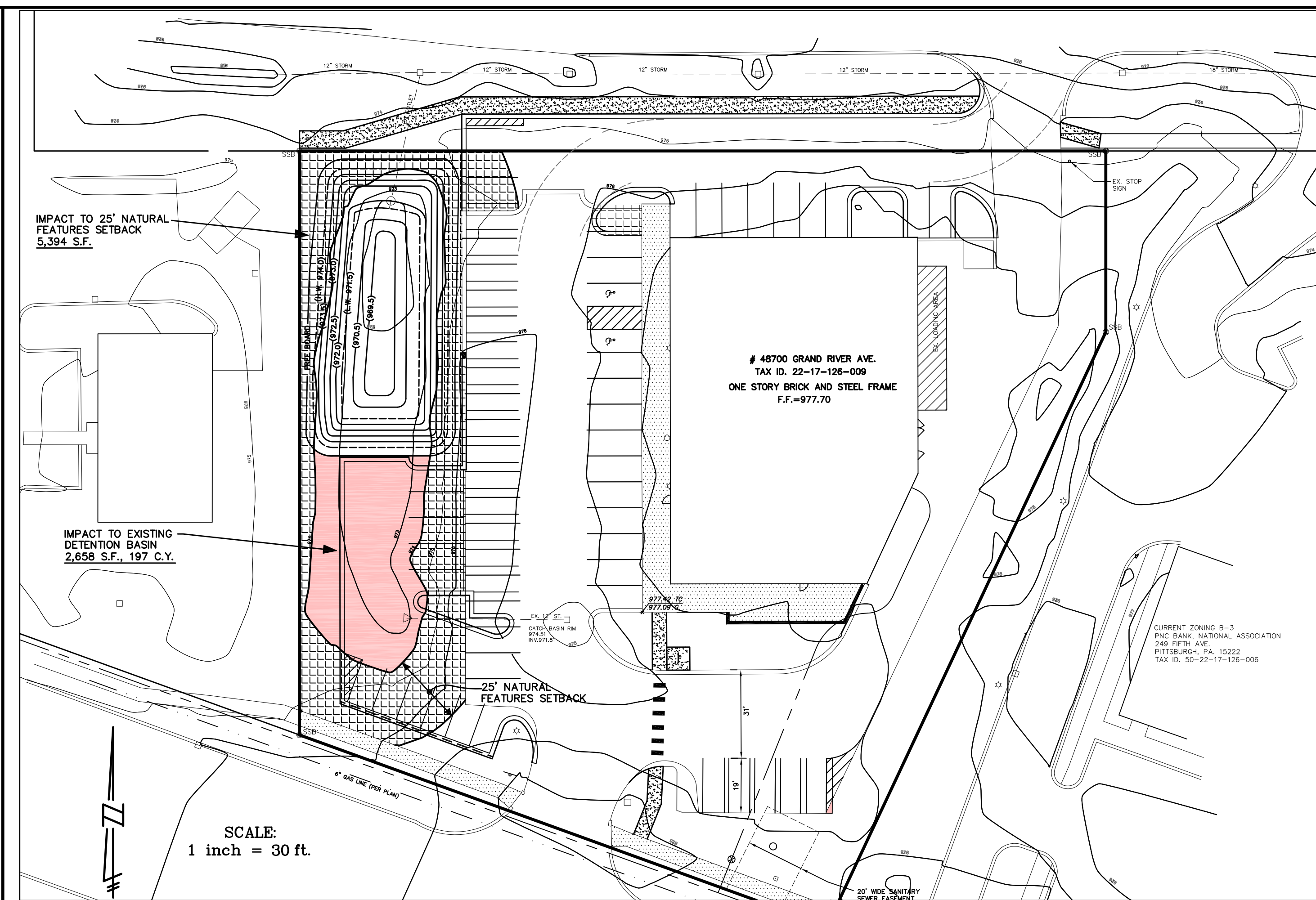
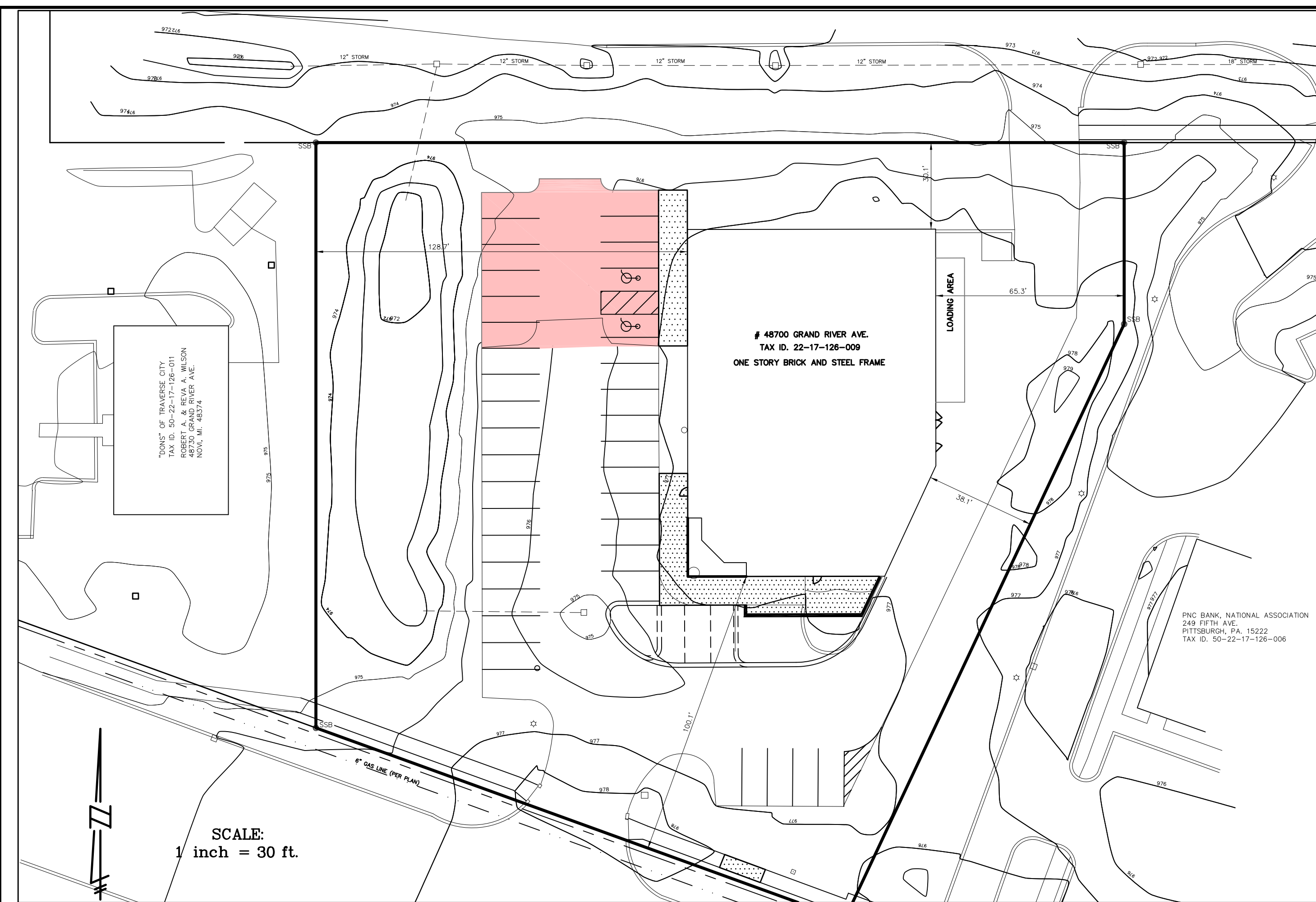
SEIBER, KEAST ENGINEERING, L.L.C.
 CONSULTING ENGINEERS
 100 MAINCENTRE • SUITE 10 • NORTHVILLE, MI • 48167
 PHONE: 248.308.8331

SHEET 2



EX. PARKING SPACES: = 39
 PROP. PARKING SPACES: = 59





STORM WATER CALCULATIONS

FROM CURRENT APPROVED SITE PLAN (Jimmie's Rustics)

Detention Basin Calculations: (Based on Ten Year Rainfall Event)

TRIBUTARY AREAS		
Pervious	2.06 acres	@ 0.2
Impervious	0.64 acres	@ 0.9
Total	2.7 acres	

"C" Factor $(0.64 \times 0.9) + (2.06 \times 0.2) = 0.37$

Qall = 0.54 cfs (0.2 cfs/AC.)

Qorifice = $0.6 (Ao) \times \text{sqrt}(64.4 \times h) = \text{Qall}$

where h (10yr) = 2 feet

Orifice Size = $Ao = 0.54 / (1.66 \sqrt{64.4 \times 2}) = 0.079 \text{ s.f.}$

Orifice Diameter = $Do = 12 \times \text{sqrt}(0.065 \times 3.1416) = 1.9 \text{ inches}$

$Qo = \text{Qall} / (AC \times C) = 0.54$

$T = -25 + \text{SQRT}(6562.5 / Qo) = 85.18 \text{ min.}$

$Vs = ((10500 \times T) / (T + 25)) - (40 \times Qo \times T) = 6276 \text{ C.F./Ac. imp.}$

$Vt = Vs \times AC \times C = 6270 \text{ C.F.}$

TOTAL DETENTION VOLUME REQUIRED = 6,270 C.F.

TOTAL DETENTION VOLUME PROVIDED = 12,030 C.F.

REVISED DETENTION BASIN VOLUME CALCULATIONS

- Since Jimmie's Rustics Site Plan was approved and built, the Don's of Traverse City Site was removed from the basin tributary area

- Based on new tributary area, and using original design criteria (remove 1.57 acres, revise pervious area to include new paving)

TRIBUTARY AREAS		
Pervious	0.4 acres	@ 0.2
Impervious	0.76 acres	@ 0.9
Total	1.16 acres	

Qall = 0.23 cfs (0.2 cfs/AC.)

AC = 1.16 (AREA TRIBUTARY TO THE DETENTION BASIN)

C = 0.66

$Qo = \text{Qall} / (AC \times C) = 0.30$

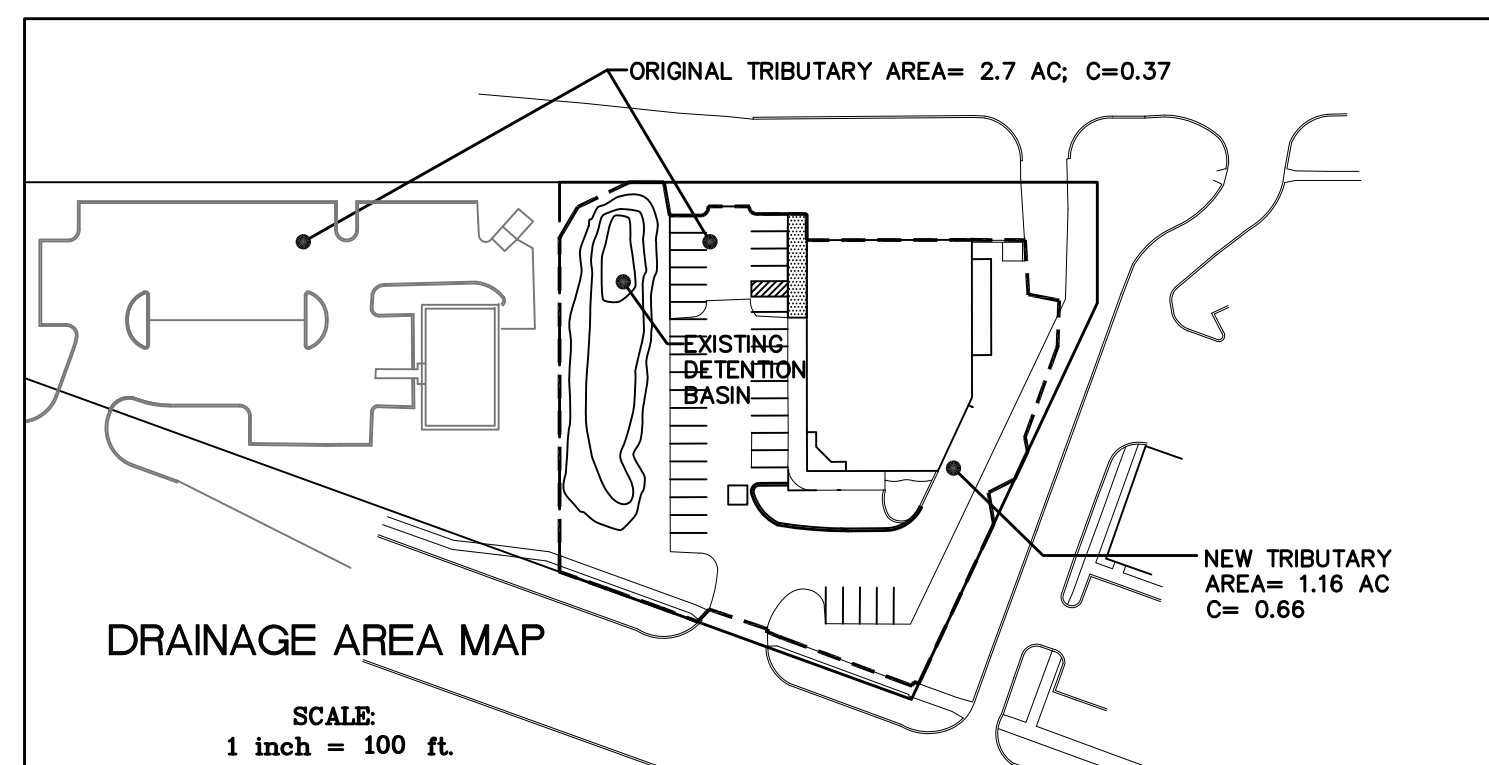
$T = -25 + \text{SQRT}(6562.5 / Qo) = 122.16 \text{ min.}$

$Vs = ((10500 \times T) / (T + 25)) - (40 \times Qo \times T) = 7235.50 \text{ C.F./Ac. imp.}$

$Vt = Vs \times AC \times C = 5539 \text{ C.F.}$

TOTAL DETENTION VOLUME REQUIRED = 5,539 C.F.

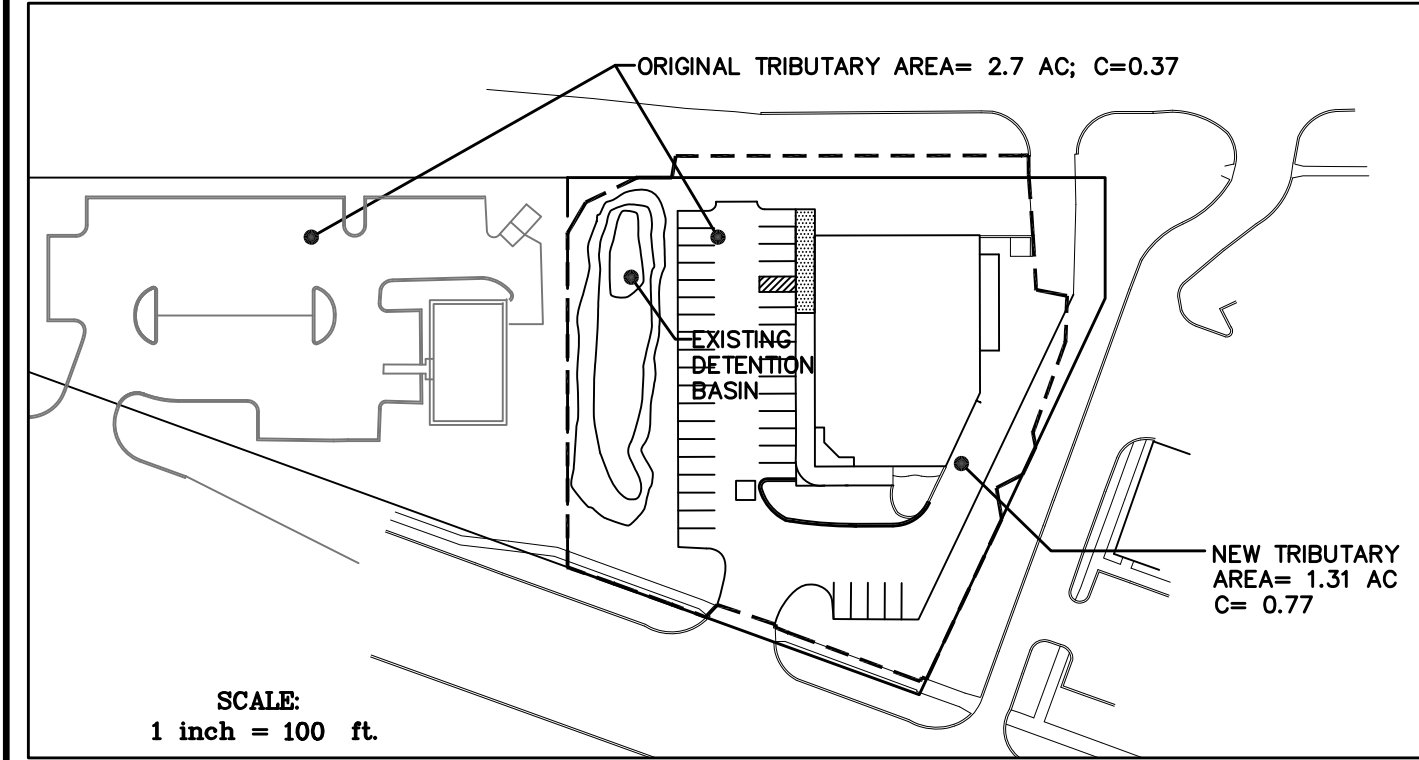
THEREFORE, VOLUME REQUIREMENT HAS BEEN REDUCED BY 731 C.F.



VOLUME PROVIDED

ELEVATION USGS	AREA sq.ft	VOLUME cu.ft.
971.5	111	4
972.0	631	189
972.5	2089	869
973.0	3547	2278
973.5	4988	4412
974.0	6428	7266
		5539=973.70

PREVIOUSLY APPROVED FINAL SITE PLAN



REVISED DETENTION BASIN VOLUME CALCULATIONS

- Since Jimmie's Rustics Site Plan was approved and built, the Don's of Traverse City Site was removed from the basin tributary area. Interior Environments storm management plan was approved in 2013.

- Based on new tributary area, and using original design criteria (10 year rainfall)

TRIBUTARY AREAS		
Pervious	0.4 acres	@ 0.35
Impervious	0.91 acres	@ 0.95
Total	1.31 acres	

"C" Factor $(0.91 \times 0.95) + (0.40 \times 0.35) = 0.77$

Qall = 0.26 cfs (0.2 cfs/AC.)

AC = 1.31 (AREA TRIBUTARY TO THE DETENTION BASIN)

C = 0.77

$Qo = \text{Qall} / (AC \times C) = 0.28$

$T = -25 + \text{SQRT}(6562.5 / Qo) = 133.95 \text{ min.}$

$Vs = ((10500 \times T) / (T + 25)) - (40 \times Qo \times T) = 7456.85 \text{ C.F./Ac. imp.}$

$Vt = Vs \times AC \times C = 7522 \text{ C.F.}$

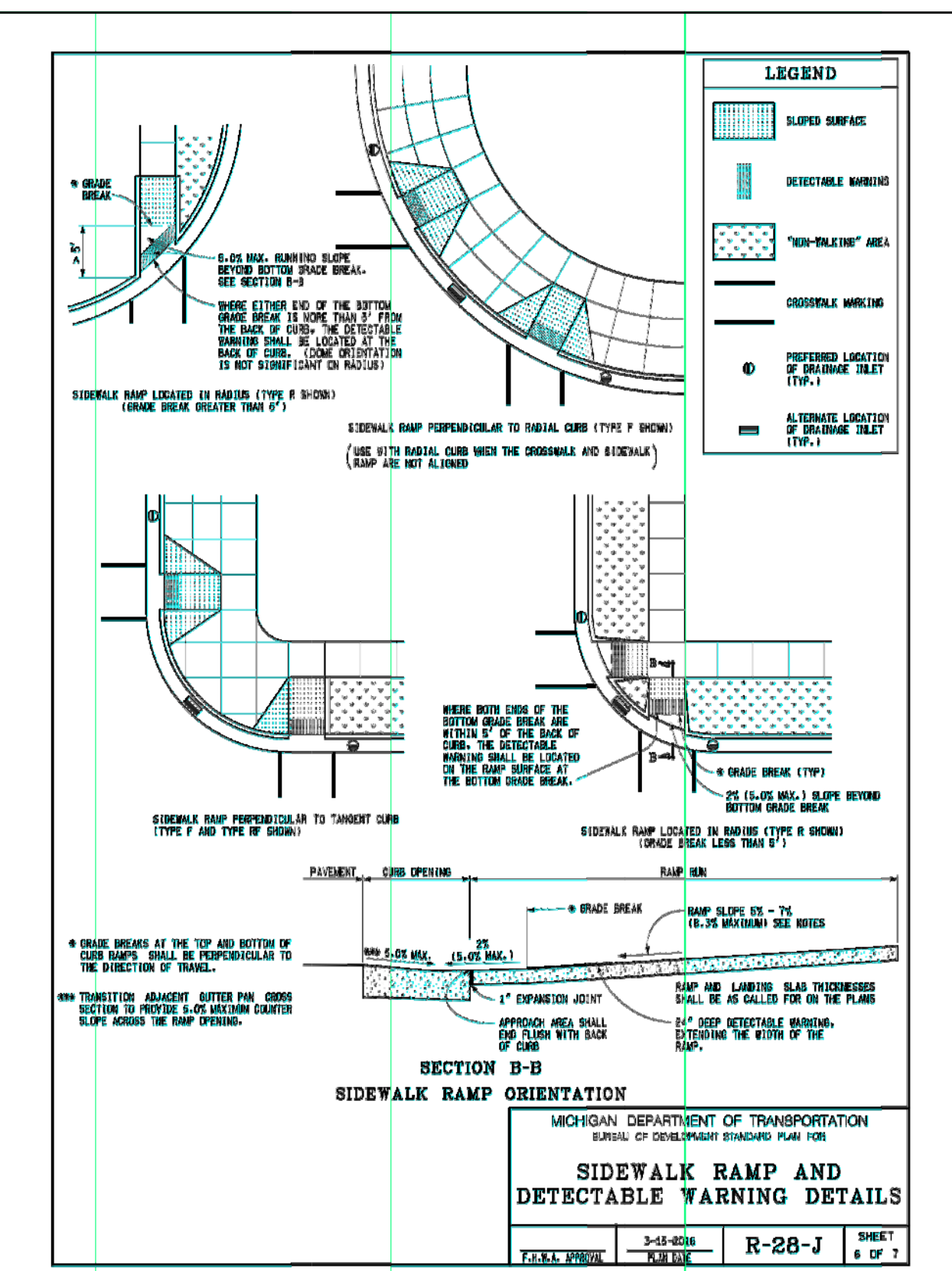
TOTAL DETENTION VOLUME REQUIRED = 7,522 C.F.

VOLUME PROVIDED

ELEVATION USGS	AREA sq.ft	VOLUME cu.ft.
971.5	1819	61
972.0	2223	1071
972.5	2783	2323
973.0	3266	3835
973.5	3776	5595
974.0	4312	7617
		7522

VOLUME PROVIDED AT 974 = 7617

PROPOSED PLAN



NOTE:
STORM WATER GENERATED ON SITE SHALL BE COLLECTED AND DELIVERED TO EXISTING DETENTION BASIN.

- ### MAINTENANCE SCHEDULE:
- PROPERTY OWNER IS RESPONSIBLE FOR THE MAINTENANCE OF THE DETENTION BASIN. MAINTENANCE SHOULD BE PERFORMED FOLLOWING ANY STORM AND SHOULD INCLUDE:
- CHECKING THE DEPTH OF SEDIMENT DEPOSIT TO ENSURE THE CAPACITY OF THE BASIN IS ADEQUATE FOR STORM WATER AND SEDIMENT DEPOSITION, AND FOR THE REMOVING OF SEDIMENT.
 - CHECKING THE BASIN FOR PIPING, SEEPAGE, OR OTHER MECHANICAL DAMAGE.
 - CHECKING FOR THE PRESENCE OF ANY SOIL CAKING, WHICH WOULD PREVENT PROPER DRAINAGE FROM THE BASIN.
 - CHECKING THE OUTFALL TO ENSURE DRAINAGE IS NOT CAUSING ANY ROVING VELOCITIES AND TO ENSURE THE OUTFALL IS NOT CLOGGED.
 - ANY PROBLEM DISCOVERED DURING THE MAINTENANCE CHECKS SHOULD BE ADDRESSED IMMEDIATELY.
 - SEDIMENT REMOVED DURING CLEANING SHOULD BE PLACED AT AN UPLAND AREA AND STABILIZED SO THAT IT DOES NOT RE-ENTER THE DRAINAGE COURSE.

INTERIOR ENVIRONMENTS
PART OF THE NORTHWEST 1/4 SECTION 17, TOWN 1 NORTH, RANGE 8 EAST CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

REVISIONS

NO.	ITEM	DATE
1.	PER PRE APP REVIEW	12-17-18

DATE: 8-13-18 DESIGNED BY: A.A. CHECKED BY: P.K. JOB NUMBER: 13-004

STORM WATER MANAGEMENT PLAN

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SHEET 3