



CITY of NOVI CITY COUNCIL

Agenda Item 6
January 21, 2014

SUBJECT: Consideration of the request of Toll Brothers, Inc. for The Preserve at Island Lake JSP13-69, for approval of the proposed Seventh Amendment to the Residential Unit Development (RUD) Agreement and Plan. The subject property to be included as part of the amendment is 48.95 acres of land located at the northeast corner of Ten Mile Road and Napier Road. The applicant is proposing a 45-unit single family development that would be Phase 8 of the existing Island Lake of Novi development.

SUBMITTING DEPARTMENT: Community Development Department - Planning *Barb*

CITY MANAGER APPROVAL: 

BACKGROUND INFORMATION:

Toll Brothers is proposing to add a 48.95 acre parcel at the northeast corner of Ten Mile and Napier Road to the existing Island Lake RUD. The proposed development will result in 45 single-family detached homes that would connect to the existing Orchards phase of Island Lake through Kennebee Drive to the east and Nepavine Drive to the north, extending the road south to Ten Mile Road. The applicant has proposed over 20 acres, or roughly 45% of the site, as open space. The applicant has also offered to construct a new kiddie pool and bike racks at the Island Lake Clubhouse.

In order to allow for this development the RUD Agreement must be amended to modify the number of units permitted from 884 to 903. A total of 858 dwelling units have been approved for construction for the development through existing site plan approvals. The applicant is seeking to add 45 units in this phase, which would bring the total number of units to 903 and would **decrease** the permitted density from 0.92 units per acre to 0.90 units per acre for the entire Island Lake of Novi development as illustrated in the table below.

Proposed Density Unit by Type Island Lake of Novi				
Unit Type	Approved in RUD Agreement	Approved To Date ¹	Currently Proposed ²	Total
Single-Family Attached Cluster	219	Combined 294	0	Combined 294
Waterfront/ Woodland Attached Cluster	158			
Single-Family Detached	464	518	45	563
Single-Family Detached Waterfront (1 Acre+)	35-51	46	0	46
TOTAL DWELLING UNITS	884	858	45	903

¹ Approved To Date includes:

- Vineyards (Phase 2a)
- Arbors, Arbors East, North Woods, Shores North, & Vineyards (Phase 2b)
- Vineyards (Phase 3a, B & C)
- South Harbor (Phase 3d)
- Shores South (Phase 4a)
- Orchards (Phase 4b-1 & 2)
- Shores South (Phase 5a)
- Orchards (Phase 5b & C)
- North Bay (Phase 6)
- The Meadows (Phase 7a, B & C)

² Currently Proposed includes the 45 lots proposed as The Preserve at Island Lake (Phase 8)

As discussed in the administrative off-week packet to City Council on January 9, a meandering 6 ft. sidewalk is proposed along Ten Mile Road and an 8 ft. pathway is proposed along Napier Road. Pathways and sidewalks are required to be located within 1 foot of the future right-of-way, unless the City Council grants variances to deviate from this requirement. Through the review process, two alternatives for the pathway along the southern portion of Napier Road have emerged as the result of two important yet sometimes competing interests to preserve natural features and to provide a comprehensive and efficient non-motorized pathway system in the City. The applicant has depicted both options on the proposed plans, and the Planning Commission



supported the staff's recommendation to approve the suggested walk alignment (Option A) that most closely matches the ordinance standards and provides a more direct connection the intersection of Napier and Ten Mile Roads. At the Planning Commission meeting the applicant indicated that either option was acceptable to them.

Intent of the Residential Unit Development (RUD) Option

As an optional form of development, the RUD allows development flexibility of various types of residential dwelling units (one-family, attached one-family cluster). It is also the intent of the RUD option to permit permanent preservation of valuable open land, fragile natural resources and rural community character that would be lost under conventional development. This is accomplished by permitting flexible lot sizes in accordance with open land preservation credits when the residential developments are located in a substantial open land setting, and through the consideration of relaxation of area, bulk, yard, dimensional and other zoning ordinance standards in order to accomplish specific planning objectives.

This flexibility is intended to reduce the visual intensity of development; provide privacy; protect natural resources from intrusion, pollution, or impairment; protect locally important animal and plant habitats; preserve lands of unique scenic, historic, or geologic value; provide private neighborhood recreation; and protect the public health, safety and welfare.

Such flexibility will also provide for:

- The use of land in accordance with its character and adaptability;
- The construction and maintenance of streets, utilities and public services in a more economical and efficient manner;
- The compatible design and use of neighboring properties; and
- The reduction of development sprawl, so as to preserve open space as undeveloped land.

Amendments and revisions to an approved RUD plan shall require all procedures and conditions that are required for original submittal and review for amendments that are

considered "major changes". The addition of land area is considered a "major change", so full review of the ordinance standards is necessary at this time.

Lot Sizes

The applicant has requested a modification of the lot size and width requirements as follows:

- A reduction in the RA minimum lot size from 43,560 square feet to a minimum of 14,440 square feet.
- A reduction in the RA minimum lot width from 150 feet to 91.22 feet.

The City Council may modify lot size and width requirements where such modification will result in the preservation of open space for those purposes set forth in Section 2402.3B of the Zoning Ordinance and where the RUD will provide a genuine variety of lot sizes. The plans indicate that a total of 45% of the area in this phase will be maintained as open space. The applicant has provided a summary of lot sizes throughout the entire development. In the proposed phase, lots range from approximately 14,440 square feet to 30,920 square feet, allowing for some variation in lot size. This is consistent with other phases of Island Lake of Novi, which has a variety of lot sizes throughout the development.

The submitted RUD plan shows 20.38 acres of open space being preserved, which amounts to 45.3 percent of the site. Of that area, 5.71 acres is wetland, and another 1.69 acres is taken up with the stormwater detention facility. The remaining 12.98 acres of upland open space is proposed to be preserved under the proposed RUD plan (28.8 percent of the site).

If the property were developed with a conventional plan under the current R-A zoning, there would be fewer units on this parcel but also likely less preserved open space. The Planning Division calculates that about 31 homes could be developed (45 net acres, less 7 acres of wetlands, and less roughly 7 acres for roads, landscaping, detention = 31 acres). With each lot required to be a minimum of 1 acre in size, and with no requirement for additional open space preservation required under conventional development, it is likely that the additional 13 acres +/- that is proposed to be preserved through the submitted RUD plan, would be used for home sites to the extent possible, and would not be incorporated as open space. Planning staff believes that this preservation of additional open space is a valuable benefit in the use of the Residential Unit Development ordinance.

Submittal History

Late last year, the applicant submitted an RUD Plan, RUD Amendment and Preliminary Site Plan showing 45 single-family residential units. The Planning Commission held a public hearing on December 11, 2013 for the submitted RUD Plan and recommended approval of the revised RUD plan. Relevant meeting minutes are attached.

RECOMMENDED ACTION:

The following **two motions** are recommended.

1. To grant approval of the **Amended Residential Unit Development Plan for the Preserve at Island Lake of Novi to be added to the Island Lake of Novi RUD (Amended RUD Plan)**, with the total number of units permitted in the Island Lake of Novi RUD, including the added 48.95 acre parcel, not to exceed 903 units. This motion is based on the following findings, lot size modifications, street width reduction and sidewalk/pathway location variances and conditions:

Determinations (Zoning Ordinance Section 2402.8.A):

- a. The site is zoned for and appropriate for the proposed single-family residential use;
- b. Council is satisfied that with the proposed road connections, pathway and sidewalk network, added open space, and contributions to the existing Island Lake of Novi amenities, the development will not have detrimental effects on adjacent properties and the community, particularly given the fact that a significant portion of the area affected is a part of the Island lake community;
- c. Council is satisfied with the applicant's commitment and desire to proceed with construction of 45 new homes as demonstrating a need for the proposed use;
- d. Care has been taken to maintain the naturalness of the site and to blend the use within the site and its surroundings through the preservation of over 65% of the regulated trees and 96% of the regulated wetlands, and 20.4 acres (or 45.3%) of the proposed development area as open space;
- e. Council is satisfied that the applicant has provided clear, explicit, substantial and ascertainable benefits to the City as a result of the Amended RUD, including but not limited to improvement of traffic circulation, inclusion in the existing storm water treatment system, orderly and efficient layout and construction of water and sanitary sewer utilities, and pedestrian safety improvements;
- f. Factors evaluated (Zoning Ordinance Section 2402.8.B):
 1. Subject to the lot size modifications, street width reduction and sidewalk/pathway location variances also being approved by this motion, all applicable provisions of the Zoning Ordinance, including those in Section 2402 and for special land uses, and other ordinances, codes, regulations and laws have been or will be met;
 2. Council is satisfied with the adequacy of the areas that have been set aside in the existing and proposed addition to the Island Lake RUD development area for walkways, playgrounds, parks, recreation areas, parking areas and other open spaces and areas for use by residents of the development;
 3. Based on and subject to the recommendations in the December 2, 2013 City traffic consultant's review letter, and the placement of the pathway along Napier Road as depicted in the suggested walk alignment, Council is satisfied that the traffic circulation, sidewalk and crosswalk features and improvements for within the site have been designed to assure the safety and convenience of both vehicular and pedestrian traffic both within the site and in relation to access streets;
 4. Based on and subject to the recommendations in the December 2, 2013 City traffic consultant's review letter, Council is satisfied that the proposed use will not cause any detrimental impact in existing thoroughfares in terms of overall volumes, capacity, safety, travel times and thoroughfare level of service;
 5. The plan provides adequate means of disposing of sanitary sewage, disposing of stormwater drainage, and supplying the development with water;
 6. The Amended RUD will provide for the preservation and creation of approximately 45.3% of the site as open space and result in minimal impacts to provided open space and the most significant natural features;
 7. The Amended RUD will be compatible with adjacent and neighboring land uses for the reasons already stated;
 8. The desirability of conventional residential development on this site in strict conformity with the otherwise applicable minimum lot sizes and widths being modified by this motion is outweighed by benefits occurring from the

preservation and creation of the open space and establishment of the park facility that will result from the Amended RUD;

9. Any detrimental impact from the Amended RUD resulting from an increase in total dwelling units over that which would occur with conventional residential development is outweighed by benefits occurring from the preservation and creation of open space and the establishment of the park facility that will result from the Amended RUD;
 10. Council is satisfied that the proposed reductions in lot sizes are the minimum necessary to preserve and create open space, to provide for the park site, and to ensure compatibility with adjacent and neighboring land uses, primarily the existing Island Lake of Novi RUD development of which this site will become a part;
 11. The Amended RUD will not have a detrimental impact on the City's ability to deliver and provide public infrastructure and public services at a reasonable cost;
 12. Council is satisfied that the applicant has made or will make satisfactory provisions for the financing of the installation of all streets, necessary utilities and other proposed improvements;
 13. Council is satisfied that the applicant has made or will make satisfactory provisions for future ownership and maintenance of all common areas within the proposed development; and
 14. Proposed deviations from the area, bulk, yard, and other dimensional requirements of the Zoning Ordinance applicable to the property enhance the development, are in the public interest, are consistent with the surrounding area, and are not injurious to the natural features and resources of the property and surrounding area.
- g. Modification of proposed lot sizes to a minimum of 14,440 square feet and modification of proposed lot widths to a minimum of 91.22 feet is hereby approved with this approval based on and limited to the lot configuration shown on the preliminary plan as last revised, as the requested modification will result in the preservation of open space for those purposes noted in Section 2402.3.B of the Zoning Ordinance and the Amended RUD will provide a genuine variety of lot sizes;
 - h. Variance from Section 11 Table 8-A of the City's Code of Ordinance to permit a local street reduction from 28 feet in width to 20 feet in width for traffic calming chokers as depicted in the proposed plans is hereby approved;
 - i. Variance from Section 11.278 (b)(5) of the City's Code of Ordinance to permit a sidewalk along Ten Mile Road to vary more than 1 foot from the right-of-way in order to protect natural resources while still maintaining a comprehensive non-motorized transportation system as depicted in the proposed plans is hereby approved;
 - j. Variance from Section 11.258 (d) of the City's Code of Ordinance to permit a bicycle path along the northern portion of Napier Road only to vary more than 1 foot from the right-of-way in order to protect natural resources while still maintaining a comprehensive non-motorized transportation system as depicted as Option A in the proposed plans is hereby approved; and
 - k. This preliminary approval is subject to all plans and activities related to it being in compliance with all applicable provisions of the Zoning Ordinance, including Articles 3, 24 and 25, and all applicable City Zoning Ordinance approvals, decisions, conditions and permits.

2. To grant approval of the **Amended Residential Unit Development Agreement for the Preserve at Island Lake of Novi to be added to the Island Lake of Novi RUD**, with the total

number of units permitted in the Island Lake of Novi RUD including the added 48.95 acre parcel, not to exceed 903 units as depicted in the Amended RUD Plan for the Preserve at Island Lake of Novi with any changes and/or conditions as discussed at the City Council meeting, and any final minor alterations required in the determination of the City Manager and City Attorney to be incorporated by the City Attorney's office prior to the execution of the final agreement.

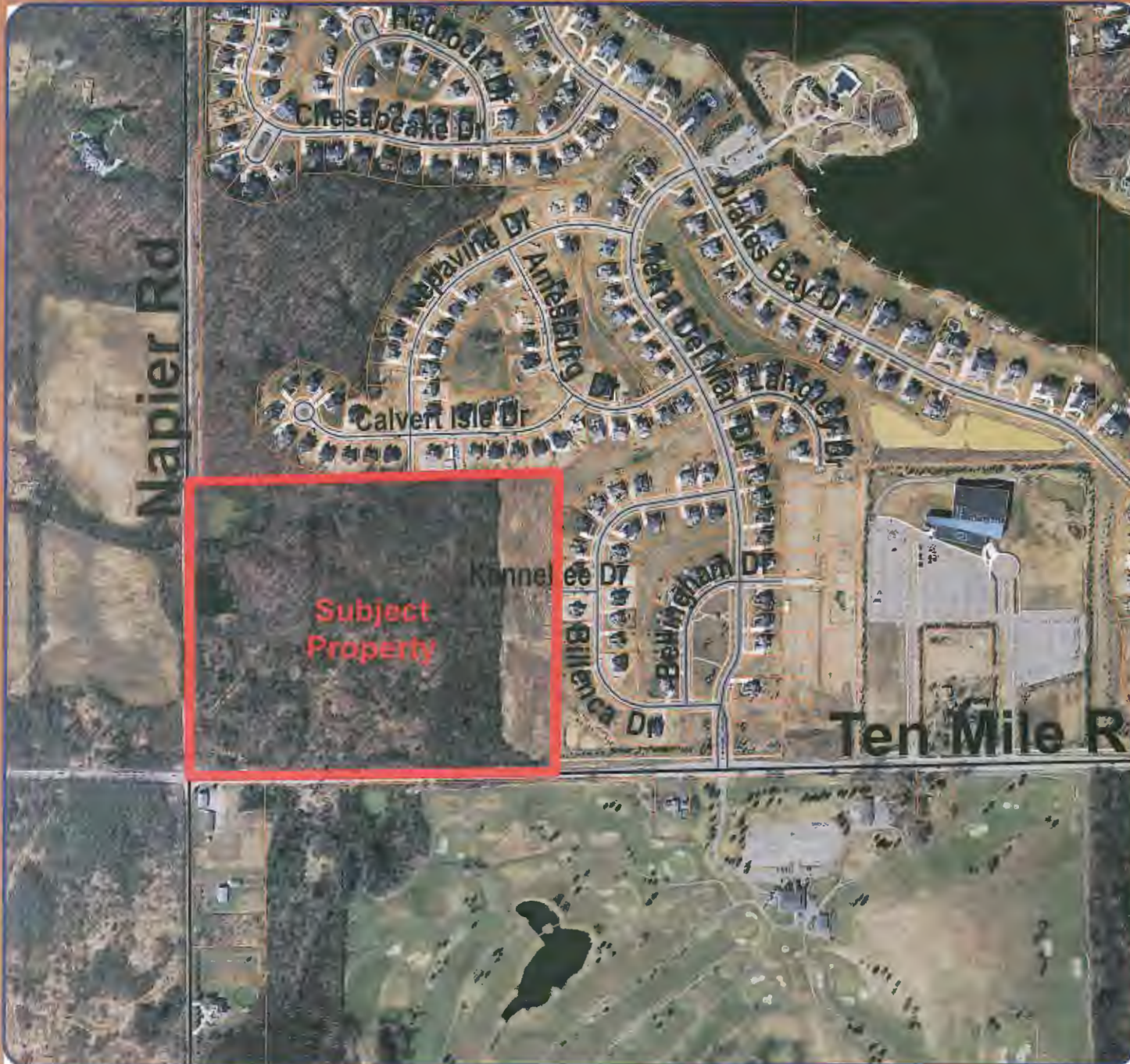
	1	2	Y	N
Mayor Gatt				
Mayor Pro Tem Staudt				
Council Member Casey				
Council Member Fischer				

	1	2	Y	N
Council Member Markham				
Council Member Mutch				
Council Member Wrobel				

MAPS
Location
Zoning
Future Land Use
Natural Features

JSP13-69 Preserve at Island Lake (Phase 8)

Location



Map Legend

 Subject Property

0 170 340 680 1,020
Feet
1 inch = 630 feet



City of Novi

Planning Division
Community Development Dept.
45175 W Ten Mile Rd
Novi, MI 48375
cityofnovi.org

Map Author: Sara Roediger
Date: 12-02-13

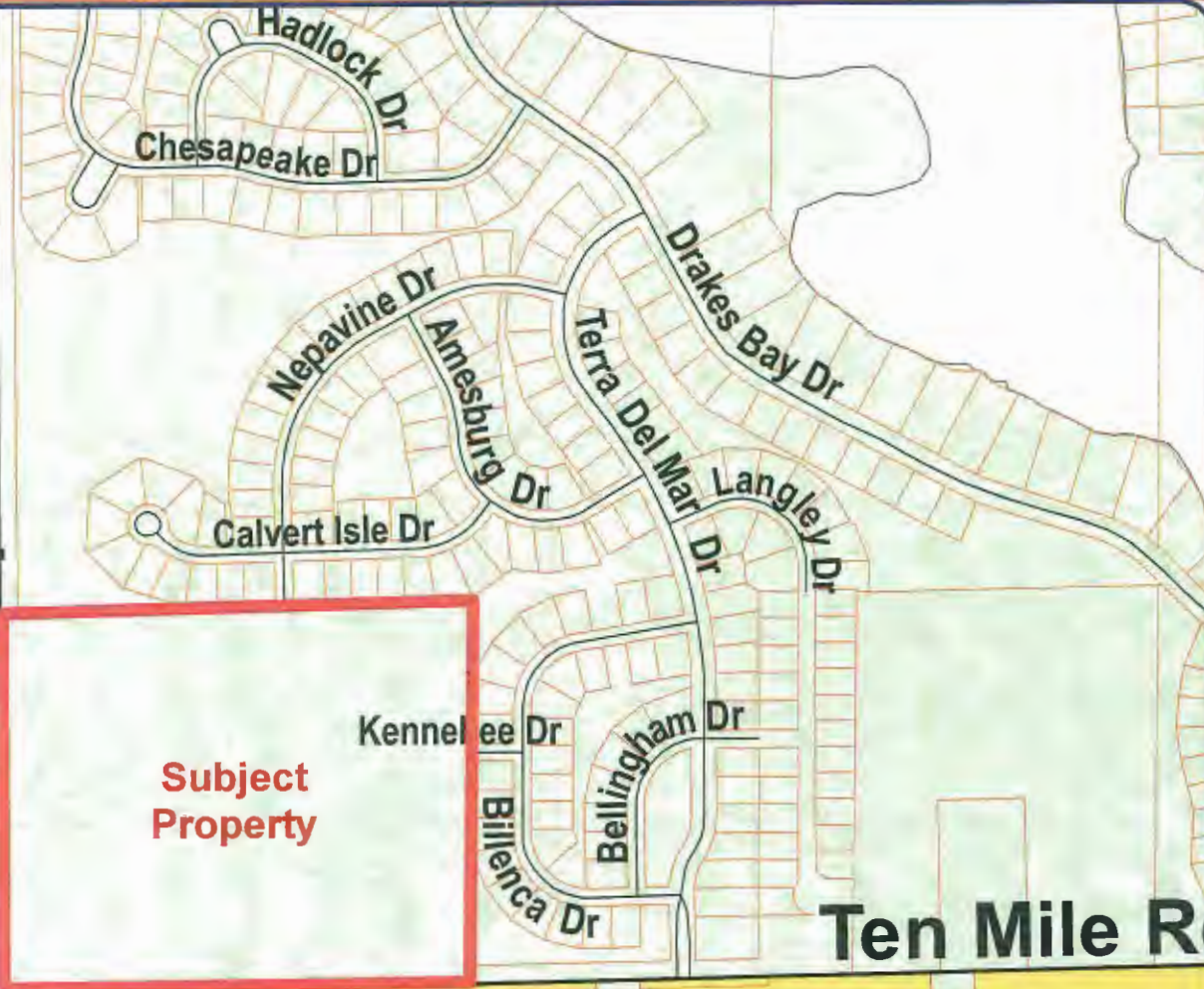
MAP INTERPRETATION NOTICE

Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent, accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Please contact the City GIS Manager to confirm source and accuracy information related to this map.

JSP13-69 Preserve at Island Lake (Phase 8)

Zoning

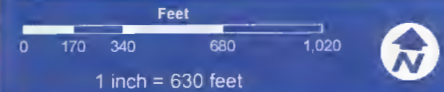
Napier Rd



Ten Mile Rd

Map Legend

- Subject Property
- R-A: Residential Acreage
- R-1: One-Family Residential



City of Novi
Planning Division
Community Development Dept.
45175 W Ten Mile Rd
Novi, MI 48375
cityofnovi.org

Map Author: Sara Roediger
Date: 12-02-13

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JSP13-69 Preserve at Island Lake (Phase 8)

Future Land Use

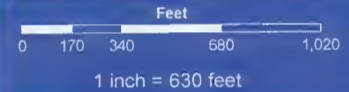
Napier Rd



Subject Property

Map Legend

-  Subject Property
-  Single Family
-  Private Park



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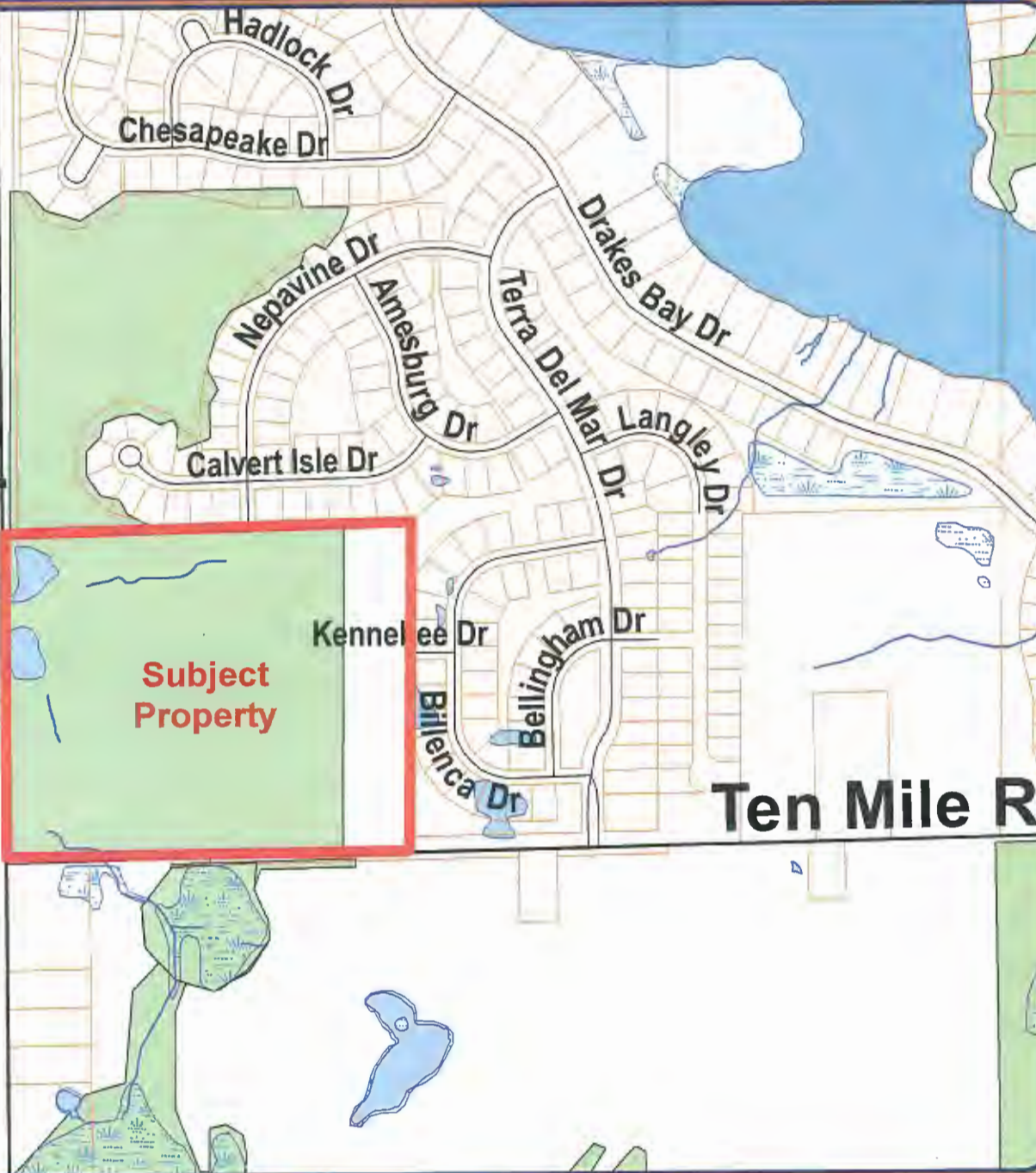
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JSP13-69 Preserve at Island Lake (Phase 8)

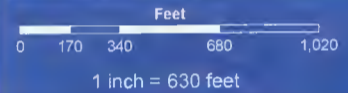
Natural Features

Napier Rd



Map Legend

-  Subject Property
-  Waterways
-  Lake
-  Pond
-  Wetlands
-  Woodlands



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Planning Division
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SITE PLAN



ALLEN DESIGN
 LAND PLANNING / LANDSCAPE ARCHITECTURE
 557 CARPENTER • NORTHVILLE, MI 48167
 248.447.4448 • Fax 248.349.5559
 Email: jad@alldesign.com



Seal: _____

Title:
Site Plan

Project:
**Island Lake Phase 8
 Novl, Michigan**

Prepared for:
 Toll Brothers
 39505 Williams K. Smith Dr., Suite B
 New Hudson, Michigan 48165

Revision:	Issued:
Pre-Application	September 23, 2013
Revised	October 11, 2013
Revised	November 22, 2013

Job Number:
 13-022

Drawn By: Checked By:
 jca jca



Sheet No.

7th AMENDMENT TO RUD AGREEMENT WITH EXHIBITS

Exhibit A Parcel Descriptions

Exhibit B Subject Property Description

Exhibit C Area Plan



JOHNSON ROSATI SCHULTZ JOPPICH PC

34405 W. Twelve Mile Road, Suite 200 ~ Farmington Hills, Michigan 48331-5627
Phone: 248.489.4100 | Fax: 248.489.1726

Elizabeth Kudla Saarela
esaarela@jrsjlaw.com

www.johnsonrosati.com

December 20, 2013

Barb McBeth
Deputy Community Development Director
City of Novi
45175 Ten Mile Road
Novi, MI 48375-3024

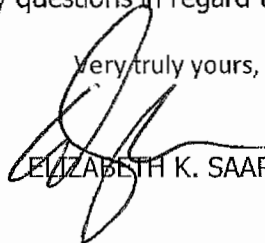
**Re: Island Lake of Novi – Seventh Amendment to Residential Unit
Development**

Dear Ms. McBeth:

We have received and review a revised draft Seventh Amendment to Residential Unit Development Agreement prepared by Toll Brothers, a copy of which is enclosed. All issues set forth in our December 18, 2013 review report have been satisfactorily addressed.

Please feel free to contact me with any questions in regard to this matter.

Very truly yours,



ELIZABETH K. SAARELA

EMK

cc: Maryanne Cornelius, Clerk
Charles Boulard, Community Development Director
Sarah Marchioni, Building Permit Coordinator
Sue Troutman, City Clerk's Office
Sara Roediger, Planner
Mike Noles, Toll Brothers
A'Jene Maxwell, Esq.
Thomas R. Schultz, Esq.

**SEVENTH AMENDMENT TO
RESIDENTIAL UNIT DEVELOPMENT AGREEMENT**

ISLAND LAKE OF NOVI (FORMERLY KNOWN AS "HARVEST LAKE OF NOVI")

This Seventh Amendment to Residential Unit Development Agreement (this "Seventh Amendment") is made and entered into as of this _____ day of _____, 2014, by and between the CITY OF NOVI, a Michigan municipal corporation (the "City"), whose address is 45175 W. Ten Mile Road, Novi, Michigan 48375, and TOLL MI II LIMITED PARTNERSHIP, a Michigan limited partnership ("Toll"), whose address is 29655 William K. Smith Dr., Suite B, New Hudson, Michigan 48165.

R E C I T A L S :

A. On or about February 9, 1998, the City entered into a certain Residential Unit Development Agreement (the "Original RUD Agreement") with Harvest Land Company, L.L.C., a Michigan limited liability company ("Harvest Land"), with respect to a certain development established and approved as a residential unit development pursuant to Section 2404 of the City of Novi Zoning Ordinance under the name "Harvest Lake of Novi". The Original RUD Agreement was recorded on March 31, 1998 at Liber 18279, Pages 716 through 855, both inclusive, Oakland County Records. The land included in the Harvest Lake of Novi Residential Unit Development (now known as the "Island Lake of Novi Residential Unit Development" and hereinafter referred to as the "RUD") is legally described in the attached Exhibit "A".

B. On or about July 22, 1999, the City entered into a certain First Amendment of Residential Unit Development Agreement (the "First Amendment") with Harvest Land pursuant to Section 2404.17 of the City of Novi Zoning Ordinance to amend certain aspects of the area plan for the RUD. The First Amendment was recorded at Liber 20818, Pages 15 through 40, both inclusive, Oakland County Records.

C. On or about November 1, 1999, Toll acquired the land then included in the RUD, except for approximately 104.2 acres located east of Wixom Road acquired by the City and the Novi Community School District for development as a city park and as elementary and middle schools. Toll also accepted all of the rights, interests and obligations granted and imposed on the owners of land in the RUD with the execution of the Original RUD Agreement and the First Amendment by Harvest Land.

D. After acquiring title to the residential development portions of the RUD and the rights of the property owners under the Original RUD Agreement, as amended, Toll secured the City's approval of a change in the name of the RUD to "Island Lake of Novi" as permitted by paragraph 2 of the aforesaid First Amendment.

E. On or about April 7, 2003, the City and Toll entered into a certain Second Amendment to the Residential Unit Development Agreement (the "Second Amendment") to reflect the addition of certain land to the RUD and certain other aspects of the RUD related to the configuration of the roads and walkways and related improvements. The Second Amendment was recorded at Liber 29801, Pages 7 through 23, both inclusive, Oakland County Records. The land added to the RUD pursuant to the Second Amendment is also legally described in the attached Exhibit "A".

F. On or about July 21, 2003, the City and Toll entered into a certain Third Amendment to the Residential Unit Development Agreement (the "Third Amendment") to reflect the amendment to the Phasing Plan set forth in the Original RUD Agreement. The Third Amendment was recorded at Liber 30402, Pages 1 through 15, both inclusive, Oakland County Records.

G. On or about February 11, 2005, the City and Toll entered into a certain Fourth Amendment to the Residential Unit Development Agreement (the "Fourth Amendment") to provide for the removal, reconstruction and rehabilitation of an existing 1860's era barn from its original site within the open park area located near the southwest corner of the lake known as "Island Lake" to a new site within Maybury State Park in Northville Township or to another site acceptable to both the City and Toll.

H. On or about March 5, 2005, the City and Toll entered into a certain Fifth Amendment to the Residential Unit Development Agreement (the "Fifth Amendment") to reflect the addition of certain land, approximately ten (10) acres in area located on Ten Mile Road and immediately adjacent to a portion of Phase 4 of the RUD, to the RUD and certain other aspects of the RUD related to the configuration of the roads and walkways and related improvements. The Fifth Amendment was recorded at Liber 35126, Pages 773 through 794, both inclusive, Oakland County Records.

I. On or about April 16, 2013, the City and Toll entered into a certain Sixth Amendment to the Residential Unit Development Agreement (the "Sixth Amendment") to reflect the addition of certain land, approximately forty (40) acres in area located north of Ten Mile Road and east of Wixom Rd. and immediately adjacent to Phase 3C of the RUD, to the RUD and certain other aspects of the RUD related to the configuration of the roads and walkways and related improvements. The Sixth Amendment was recorded at Liber 45833, Pages 95 in the Oakland County Records.

J. Since undertaking the development of the RUD, Toll has acquired a parcel of land measuring approximately forty-nine (49) acres in area located north of Ten Mile Road and east of Napier Rd. and immediately adjacent to Phases 4B-1 and 5B of the RUD. The portion of Phases 4B-1 and 5B located adjacent to the forty-nine (49) acre parcel (referred to herein as the "Additional Parcel") has been developed as site condominium units and related open space as part of an established condominium project known as "Island Lake Orchards" and identified as Oakland County Condominium Subdivision Plan 1552. The Additional Parcel is legally described in the attached Exhibit "B".

K. Upon determining that including the Additional Parcel in the RUD would further the objectives of the RUD, Toll applied for and obtained the approval of the Novi City Council for the addition of the Additional Parcel to the RUD as documented by the minutes of the January 21, 2014 meeting of the Novi City Council.

L. Toll and the City now wish to further amend the Original RUD Agreement to include the Additional Parcel in the Original RUD Agreement, as amended, consistent with the revised RUD and to document the terms and conditions applicable to the revised RUD.

NOW, THEREFORE, in consideration for the mutual covenants provided herein, the parties agree as follows:

NOW, THEREFORE, IT IS AGREED AS FOLLOWS.

1. Inclusion of the Additional Parcel in the RUD. The Additional Parcel described in Exhibit "B" attached hereto is hereby added to the RUD and the legal description of the RUD set forth in Exhibit "A" is hereby revised to include the Additional Parcel. The location of the Additional Parcel in relation to the original RUD is depicted on the attached Exhibit "C".

2. Development of the Additional Parcel. The Additional Parcel shall be developed as the site of up to forty-five (45) site condominium units, each of which shall comprise the site of a single family home, consistent with the approved final site plan.

3. In requesting the revised RUD plan, Toll has expressed its intent to develop the Additional Parcel in conformance with the following variances and/or waivers by Toll:

- a. Except as expressly set forth herein, Toll shall develop the Additional Parcel in accordance with all applicable ordinances and regulations. More specifically, except for the following deviations, no deviations from the provisions of the City's ordinances are contemplated;
 - i. The minimum lot size for the Additional Parcel shall be 14,400 sq. feet;
 - ii. The minimum lot width for the Additional Parcel shall be 91.22 feet;
 - iii. Building setbacks shall be consistent with the approved minimum lot sizes, as follows:
 - Front: 30 feet
 - Rear: 35 feet
 - Side: 10 feet
 - iv. Toll shall be permitted to discontinue the installation of required berms in the locations of existing vegetation and wetlands with the exception of lots 1, 2 and 45.
 - v. Toll has received approvals allowing it to construct required pathways in accordance with variances granted by City Council on January 21, 2014, as set forth by Resolution of City Council.
 - vi. Toll shall be permitted to vary the local street road width from 28 feet to 20 feet in order to install traffic calming measures at the connections to the existing stub roads, as shown on the approved

site plan. A 'choker' type calming measure shall be allowed where the road width is reduced for a short distance to encourage drivers to reduce speeds to negotiate the narrower roadway.

Toll's right to develop the Additional Parcel shall be subject to and in accordance with all applications, reviews, approvals, permits, and requirements under applicable laws, ordinances, and regulations, including but not limited to, site plan approval, storm water management plan approval, woodland and wetland permit requirements, landscape plan approval, and engineering plan approval.

- b. The following conditions and undertakings shall be completed by Toll:
 - i. Toll shall set aside 45.3% (a minimum of 20.4 acres) of the Additional Parcel for the creation of open space, a portion of which shall be comprised of a passive recreation area, as shown in the approved landscape plan and final site plan for the Additional Parcel. Furthermore, Toll shall provide an appropriate easement or mechanism for ensuring the perpetual preservation and maintenance of the open space and recreation areas within the Master Deed for the Additional Parcel;
 - ii. Toll shall contribute to the amenities of Island Lake of Novi by constructing a new children's swimming pool and bike rack at the Island Lake of Novi clubhouse;
 - iii. Toll shall construct a sidewalk connection to the proposed Nepavine Drive Sidewalk and Kennebee Drive Sidewalk as shown in the approved final site plan; and
 - iv. Toll shall construct an extension to the existing pathway system through the internal open space parks as shown in the approved final site plan.

4. Continuing Effect of Original RUD, as Amended. Except for the revisions described herein, the Original RUD Agreement, as amended by the First Amendment, Second Amendment, Third Amendment, Fourth Amendment, Fifth Amendment and Sixth Amendment thereto, shall remain in full force and effect.

[END OF DOCUMENT, SIGNATURES FOLLOW]

IN WITNESS WHEREOF, the parties hereto have executed this Seventh Amendment on the date first written above.

WITNESSES:

"CITY"

CITY OF NOVI, a Michigan municipal corporation

By: _____
Robert J. Gatt, Mayor

By: _____
Maryanne Cornelius, Clerk

STATE OF MICHIGAN)
) ss.
COUNTY OF OAKLAND)

The foregoing instrument was acknowledged before me this _____ day of _____, 2014 by Robert J. Gatt, the Mayor, and Maryanne Cornelius, the Clerk, of the City of Novi, a Michigan municipal corporation, on behalf of the municipal corporation.

NOTARY PUBLIC
County of _____, State of Michigan
My Commission Expires:
Acting in _____ County

[signature continue on next page]

"TOLL"

TOLL MI II LIMITED PARTNERSHIP, a Michigan limited partnership

By: Toll MI GP Corp., a Michigan corporation, General Partner

By: _____

Name: _____

Its: _____

STATE OF MICHIGAN)
) ss.
COUNTY OF OAKLAND)

The foregoing instrument was acknowledged before me this _____ day of _____, 2014, _____ of Toll MI GP Corp., a Michigan corporation, General Partner of Toll MI II Limited Partnership, a Michigan limited partnership, on behalf of the limited partnership.

NOTARY PUBLIC
County of _____, State of Michigan
My Commission Expires:
Acting in _____ County

THIS INSTRUMENT DRAFTED BY:

WHEN RECORDED RETURN TO:

Maryanne Cornelius, Clerk
City of Novi
45175 Ten Mile
Novi, MI 48375

EXHIBIT "A"

**LAND INCLUDED IN THE ISLAND LAKE OF NOVI
RESIDENTIAL UNIT DEVELOPMENT (FORMERLY KNOWN AS
THE HARVEST LAKE OF NOVI RESIDENTIAL UNIT DEVELOPMENT)**

LAND LOCATED IN SECTIONS 17, 18, 19 AND 20, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN AND COMPRISED OF TEN (10) PARCELS IDENTIFIED AS PARCELS "A" THROUGH "J", BOTH INCLUSIVE, AND LEGALLY DESCRIBED BY DESCRIPTIONS SET FORTH ON THE FOLLOWING FIVE (5) PAGES.

PARCEL "A"

A PARCEL OF LAND LOCATED IN PART OF THE N.E. 1/4 OF SECTION 18, T. 1 N., R. 8 E., CITY OF NOVI, OAKLAND COUNTY, MICHIGAN DESCRIBED AS BEGINNING AT A POINT DISTANT N. 89°23'05" W. 990.00 FEET ALONG THE EAST AND WEST 1/4 LINE OF SECTION 18 FROM THE EAST 1/4 CORNER OF SECTION 18; THENCE FROM SAID POINT OF BEGINNING AND CONTINUING ALONG SAID EAST AND WEST 1/4 LINE OF SECTION 18 N. 89°23'05" W. 1,658.14 FEET TO THE CENTER OF SECTION 18; THENCE N. 00°22'24" W. 312.35 FEET ALONG THE NORTH AND SOUTH 1/4 LINE OF SECTION 18; THENCE S. 89°23'05" E. 2,646.45 FEET; THENCE ALONG THE EAST LINE OF SECTION 18 AND CENTERLINE OF WIXOM ROAD (66 FEET WIDE) S. 00°41'00" E. 180.35 FEET; THENCE N. 89°23'05" W. 990.00 FEET; THENCE S. 00°41'00" E. 132.03 FEET TO THE POINT OF BEGINNING CONTAINING 15.98 ACRES OF LAND BEING SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD AND THE RIGHTS OF THE PUBLIC OR ANY GOVERNMENTAL AGENCY OVER WIXOM ROAD.

PARCEL "B"

A PARCEL OF LAND LOCATED IN PART OF THE S.W. 1/4 OF SECTION 17, T. 1 N., R. 8 E., CITY OF NOVI, OAKLAND COUNTY, MICHIGAN DESCRIBED AS BEGINNING AT THE SOUTHWEST CORNER OF 17 AND PROCEEDING ALONG THE WEST LINE OF SECTION 17 AND CENTERLINE OF WIXOM ROAD (66 FEET WIDE) N. 00°40'10" W. (500.00 FEET RECORD), 500.10 FEET MEASURED; THENCE N. 89°59'55" E. 800.00 FEET; THENCE N. 00°40'10" W. 610.00 FEET; THENCE S. 89°59'55" W. 800.00 FEET; THENCE ALONG SAID WEST LINE OF SECTION 17 AND WIXOM ROAD CENTERLINE N. 00°40'10" W. 899.93 FEET; THENCE S. 89°57'24" E. 2,422.42 FEET; THENCE S. 00°29'32" W. 1,330.22 FEET; THENCE N. 89°57'12" W. 422.53 FEET; THENCE S. 00°13'05" W. 678.19 FEET; THENCE ALONG THE SOUTH LINE OF SECTION 17 AND CENTERLINE OF ELEVEN MILE ROAD (66 FEET WIDE) S. 89°59'55" W. 1,962.40 FEET TO THE POINT OF BEGINNING CONTAINING 93.03 ACRES OF LAND BEING SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD AND THE RIGHTS OF THE PUBLIC OR ANY GOVERNMENTAL AGENCY OVER WIXOM AND ELEVEN MILE ROADS.

PARCEL "C"

A PARCEL OF LAND LOCATED IN PART OF THE S. 1/2 OF SECTION 18, T. 1 N., R. 8 E., CITY OF NOVI, OAKLAND COUNTY, MICHIGAN DESCRIBED AS BEGINNING AT THE SOUTHWEST 1/4 CORNER OF SAID SECTION 18 AND PROCEEDING ALONG THE WEST LINE OF SECTION 18 AND CENTERLINE OF NAPIER ROAD (33 FEET WIDE, 1/2 WIDTH), N. 00°20'46" E. 726.63 FEET; THENCE S. 89°48'18" E. 2,670.92 FEET; THENCE ALONG THE NORTH AND SOUTH 1/4 LINE OF SECTION 18 (AS DESCRIBED), N. 00°53'02" W. 1,977.53 FEET TO THE CENTER OF SECTION 18; THENCE ALONG THE EAST AND WEST 1/4 LINE OF SECTION 18 S. 89°23'05" E. 2,648.14 FEET TO THE EAST 1/4 CORNER OF SECTION 18; THENCE ALONG THE EAST LINE OF SECTION 18 AND CENTERLINE OF WIXOM ROAD (66 FEET WIDE) S. 00°40'10" E. 2,638.71 FEET TO THE SOUTHEAST CORNER OF SECTION 18; THENCE ALONG THE SOUTH LINE OF SECTION 18 S. 88°58'37" W. 2,637.37 FEET TO THE SOUTH 1/4 CORNER OF SECTION 18; THENCE CONTINUING ALONG SAID SOUTH LINE OF SECTION 18 N. 89°35'23" W. 2,686.73 FEET TO THE SOUTHWEST CORNER OF SECTION 18 AND THE POINT OF BEGINNING CONTAINING 207.35 ACRES OF LAND BEING SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD AND THE RIGHTS OF THE PUBLIC OR ANY GOVERNMENTAL AGENCY OVER WIXOM AND NAPIER ROADS.

PARCEL "D"

A PARCEL OF LAND LOCATED IN PART OF THE N. 1/2 OF SECTION 19, T. 1 N., R. 8 E., CITY OF NOVI, OAKLAND COUNTY, MICHIGAN DESCRIBED AS BEGINNING AT THE WEST 1/4 CORNER OF SAID SECTION 19 AND PROCEEDING ALONG THE WEST LINE OF SECTION 19 AND CENTERLINE OF NAPIER ROAD (33 FEET WIDE, 1/2 WIDTH), N. 00°24'29" E. 2,631.46 FEET TO THE NORTHWEST CORNER OF SECTION 19; THENCE ALONG THE NORTH LINE OF SAID SECTION 19 S. 89°35'23" E. 2,686.73 FEET TO THE NORTH 1/4 CORNER OF SECTION 19; THENCE N. 88°58'37" E. 2,637.37 FEET TO THE NORTHEAST CORNER OF SECTION 19; THENCE ALONG THE EAST LINE OF SECTION 19 AND CENTERLINE OF WIXOM ROAD (66 FEET WIDE) S. 00°17'45" W. 2,310.99 FEET; THENCE S. 89°48'12" W. 1,347.14 FEET; THENCE S. 01°01'19" E. 330.03 FEET; THENCE ALONG THE EAST AND WEST 1/4 LINE OF SECTION 19 S. 89°48'12" W. 3,989.19 FEET TO THE WEST 1/4 CORNER OF SECTION 19 AND POINT OF BEGINNING CONTAINING 310.11 ACRES OF LAND BEING SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD AND THE RIGHTS OF THE PUBLIC OR ANY GOVERNMENTAL AGENCY OVER WIXOM AND NAPIER ROADS.

PARCEL "E"
LESS 2.93 ACRE PARCEL

A PARCEL OF LAND LOCATED IN PART OF THE S. 1/2 OF SECTION 19, T. 1 N., R. 8 E., CITY OF NOVI, OAKLAND COUNTY, MICHIGAN DESCRIBED AS BEGINNING AT A POINT DISTANT S. 89°50'26" W. 230.64 FEET ALONG THE SOUTH LINE OF SAID SECTION 19 AND CENTERLINE OF 10 MILE ROAD FROM THE SOUTHEAST CORNER OF SECTION 19; THENCE FROM SAID POINT OF BEGINNING AND CONTINUING ALONG SAID SOUTH LINE OF SECTION 19 AND 10 MILE ROAD CENTERLINE S. 89°50'26" W. 1,088.56 FEET; THENCE N. 01°16'58" E. 1,317.25 FEET; THENCE N. 89°36'35" W. 1,038.10 FEET; THENCE S. 89°52'13" W. 334.24 FEET; THENCE S. 00°58'36" W. (1,326.96 FEET) RECORD, 1,327.27 FEET MEASURED; THENCE ALONG SAID SOUTH LINE OF SECTION 19 AND TEN MILE ROAD CENTERLINE S. 89°46'54" W. 985.50 FEET; THENCE N. 00°58'36" E. 1,326.96 FEET; THENCE S. 89°29'07" W. 1,615.78 FEET; THENCE ALONG THE WEST LINE OF SECTION 19 AND CENTERLINE OF NAPIER ROAD (33 FEET WIDE) N. 00°36'10" E. 1,315.36 FEET TO THE WEST 1/4 CORNER OF SECTION 19; THENCE ALONG THE EAST AND WEST 1/4 LINE OF SECTION 19 N. 89°48'12" E. 5,285.72 FEET TO THE WEST RIGHT-OF-WAY LINE OF WIXOM ROAD (86 FEET WIDE); THENCE THE FOLLOWING FIVE (5) COURSES AND DISTANCES ALONG SAID WEST LINE OF WIXOM ROAD S. 01°43'29" W. 1,545.25 FEET, 74.16 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 607.00 FEET, A CENTRAL ANGLE OF 06°59'59", A CHORD LENGTH OF 74.11 FEET AND A CHORD BEARING OF S. 05°13'21" W., S. 08°43'28" W. 273.33 FEET, 84.66 FEET ALONG THE ARC OF A CURVE TO THE LEFT, SAID CURVE HAVING A RADIUS OF 693.00 FEET, A CENTRAL ANGLE OF 06°59'59", A CHORD LENGTH OF 84.61 FEET AND A CHORD BEARING OF S. 05°13'45" W. AND S. 01°43'29" W. 112.17 FEET; THENCE N. 88°16'27" W. 17.00 FEET; THENCE S. 62°28'04" W. 345.32 FEET; THENCE S. 22°30'38" E. 423.30 FEET TO THE POINT OF BEGINNING CONTAINING 223.67 ACRES OF LAND BEING SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD AND THE RIGHTS OF THE PUBLIC OF ANY GOVERNMENTAL AGENCY OVER 10 MILE ROAD AND NAPIER ROADS.

PARCEL "F"

A PARCEL OF LAND LOCATED IN PART OF THE N.W. 1/4 OF SECTION 20, T. 1 N., R. 8 E., CITY OF NOVI, OAKLAND COUNTY, MICHIGAN DESCRIBED AS BEGINNING AT THE NORTHWEST CORNER OF SAID SECTION 20 AND PROCEEDING ALONG THE NORTH LINE OF SECTION 20 AND CENTERLINE OF ELEVEN MILE ROAD (66 FEET WIDE) N. 89°59'55" E. 233.00 FEET; THENCE S. 00°00'05" E. 233.00 FEET; THENCE N. 89°59'55" E. 100.00 FEET; THENCE S. 00°00'05" E. 133.00 FEET; THENCE N. 89°59'55" E. 357.00 FEET; THENCE N. 01°06'10" E. 366.07 FEET; THENCE ALONG SAID NORTH LINE OF SECTION 20 AND ELEVEN MILE ROAD CENTERLINE N. 89°59'55" E. 49.60 FEET; THENCE S. 00°58'40" W. 1,323.61 FEET; THENCE N. 89°47'42" W. 730.90 FEET ALONG THE NORTH LINE "BIRCHWOODS SUBDIVISION" RECORDED IN LIBER 166, PAGE 16, OAKLAND COUNTY RECORDS; THENCE ALONG THE CENTERLINE OF WIXOM ROAD (66 FEET WIDE) N. 00°17'45" E. 1,320.80 FEET TO THE POINT OF BEGINNING CONTAINING 18.86 ACRES BEING SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD AND THE RIGHTS OF THE PUBLIC OR ANY GOVERNMENTAL AGENCY OVER WIXOM ROAD.

PARCEL "G"

A PARCEL OF LAND LOCATED IN PART OF THE S.W. 1/4 OF SECTION 20, T. 1 N., R. 8 E., CITY OF NOVI, OAKLAND COUNTY, MICHIGAN DESCRIBED AS BEGINNING AT A POINT DISTANT S. 89°34'55" E. 43.01 FEET ALONG THE EAST AND WEST 1/4 LINE OF SAID SECTION 20 AND CENTERLINE OF OLD WIXOM ROAD (86 FEET WIDE) FROM THE WEST 1/4 CORNER OF SECTION 20; THENCE FROM SAID POINT OF BEGINNING AND CONTINUING ALONG SAID EAST AND WEST 1/4 LINE AND OLD WIXOM ROAD CENTERLINE S. 89°34'55" E. 814.97 FEET; THENCE S. 00°45'16" W. 1,002.50 FEET; THENCE N. 89°26'50" W. 831.91 FEET; THENCE ALONG THE EAST RIGHT-OF-WAY LINE OF WIXOM ROAD N. 01°43'29" E. 1,000.79 FEET TO THE POINT OF BEGINNING CONTAINING 18.93 ACRES AND BEING SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD AND THE RIGHTS OF THE PUBLIC OR ANY GOVERNMENTAL AGENCY OVER OLD WIXOM ROAD.

PARCEL "H"

A PARCEL OF LAND LOCATED IN PART OF THE S.W. 1/4 OF SECTION 17, T. 1 N., R. 8 E., CITY OF NOVI, OAKLAND COUNTY, MICHIGAN DESCRIBED AS BEGINNING AT A POINT DISTANT N 00°40'10" W. (500.00 FEET RECORD), 500.10 FEET MEASURED ALONG THE WEST LINE OF SECTION 17 AND CENTERLINE OF WIXOM ROAD (66 FEET WIDE) FROM THE SOUTHWEST CORNER OF SECTION 17; THENCE FROM SAID POINT OF BEGINNING AND CONTINUING ALONG SAID WEST LINE OF SECTION 17 AND WIXOM ROAD CENTERLINE N. 00°40'10" W. 610.00 FEET; THENCE N. 89°59'55" E. 800.00 FEET; THENCE S. 00°40'10" E. 610.00 FEET; THENCE S. 89°59'55" W. 800.00 FEET TO THE POINT OF BEGINNING CONTAINING 11.20 ACRES OF LAND BEING SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD AND THE RIGHTS OF THE PUBLIC OR ANY GOVERNMENTAL AGENCY OVER WIXOM ROAD.

PARCEL "I"

A PARCEL OF LAND LOCATED IN THE CITY OF NOVI, OAKLAND COUNTY, MICHIGAN AND LEGALLY DESCRIBED AS FOLLOWS:

A PART OF NORTHEAST 1/4 OF SECTION 19, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS COMMENCING AT THE EAST 1/4 CORNER OF SAID SECTION 19, FOR A POINT OF BEGINNING, THENCE SOUTH 86°22'40" WEST, 1338.16 FEET, ALONG THE EAST AND WEST 1/4 LINE OF SAID SECTION 19; THENCE NORTH 02°42'01" WEST, 164.88 FEET; THENCE NORTH 86°22'40" EAST, 1336.91 FEET, TO THE EAST LINE OF SAID SECTION 19 AND THE CENTERLINE OF WIXOM ROAD; THENCE SOUTH 03°08'01" EAST, 164.87 FEET, ALONG THE EAST LINE OF SAID SECTION 19 AND THE CENTERLINE OF SAID WIXOM ROAD, TO THE POINT OF BEGINNING. ALL OF THE ABOVE CONTAINING 5.062 ACRES. ALL OF THE ABOVE BEING SUBJECT EASEMENTS, RESTRICTIONS AND RIGHT-OF-WAYS OF RECORD. ALL OF THE ABOVE BEING SUBJECT TO THE RIGHTS OF THE PUBLIC IN WIXOM ROAD.

PARCEL "J" (SOMETIMES REFERRED TO AS ISLAND LAKE PHASE 5C)

A PART OF THE SOUTHEAST 1/4 AND THE SOUTHWEST 1/4 OF SECTION 19, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN; BEING MORE PARTICULARLY DESCRIBED AS COMMENCING AT THE SOUTH 1/4 CORNER OF SAID SECTION 19 FOR A POINT OF BEGINNING; THENCE SOUTH 86°21'12" WEST 38.00 FEET (PREVIOUSLY DESCRIBED AS SOUTH 89°18'00" WEST), ALONG THE SOUTH LINE OF SAID SECTION 19 AND THE CENTERLINE OF TEN MILE ROAD, TO THE SOUTHEAST CORNER OF "ISLAND LAKE ORCHARDS", OAKLAND COUNTY CONDOMINIUM PLAN NO. 1552, AS RECORDED IN LIBER 30468, PAGE 611 THROUGH 689, AS AMENDED, (SAID POINT BEING NORTH 86°21'12" EAST, 2592.36 FEET, FROM THE SOUTHWEST CORNER OF SAID SECTION 19); THENCE NORTH 02°20'47" WEST, 1326.96 FEET, ALONG THE EASTERLY LINE OF SAID "ISLAND LAKE ORCHARDS", (PREVIOUSLY DESCRIBED AS NORTH 00°33'20" EAST); THENCE NORTH 86°21'12" EAST, 38.00 FEET, ALONG THE SOUTHERLY LINE OF SAID "ISLAND LAKE ORCHARDS", (PREVIOUSLY DESCRIBED AS NORTH 89°18'00" EAST), TO A POINT ON THE NORTH AND SOUTH 1/4 LINE OF SAID SECTION 19, (SAID POINT BEING SOUTH 02°20'47" EAST, 1306.18 FEET, FROM THE CENTER OF SAID SECTION 19); THENCE NORTH 86°25'23" EAST, 297.38 FEET, ALONG THE SOUTHERLY LINE OF SAID "ISLAND LAKE ORCHARDS", (PREVIOUSLY DESCRIBED AS NORTH 89°24'00" EAST, 296.21 FEET); THENCE SOUTH 01°52'19" EAST, 1327.19 FEET, ALONG THE SOUTHERLY LINE OF SAID "ISLAND LAKE ORCHARDS" AND AN EXTENSION THEREOF, (PREVIOUSLY DESCRIBED AS SOUTH 00°58'48" WEST), TO A POINT ON THE SOUTH LINE OF SAID SECTION 19, (SAID POINT BEING SOUTH 86°24'49" WEST, 2360.31 FEET, FROM THE SOUTHEAST CORNER OF SAID SECTION 19); THENCE SOUTH 86°24'49" WEST, 286.39 FEET, (PREVIOUSLY DESCRIBED AS SOUTH 89°24'00" WEST), ALONG THE SOUTH LINE OF SAID SECTION 19 AND THE CENTERLINE OF SAID TEN MILE ROAD, TO THE POINT OF BEGINNING. ALL OF THE ABOVE CONTAINING 10.047 ACRES. ALL OF THE ABOVE BEING SUBJECT TO THE RIGHT OF THE PUBLIC IN TEN MILE ROAD. ALL OF THE ABOVE BEING SUBJECT TO EASEMENTS, RESTRICTIONS AND RIGHT-OF WAYS OF RECORDS.

PARCEL "K" (SOMETIMES REFERRED TO AS THE RESERVE OF ISLAND LAKE)

A PART OF THE SOUTHWEST 1/4 OF SECTION 20, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN; BEING MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 20; THENCE N01°42'13"W 658.30 FEET ALONG THE WEST LINE OF SAID SECTION 20 AND THE EAST RIGHT OF WAY LINE OF WIXOM ROAD TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID EAST RIGHT OF WAY LINE THE FOLLOWING FIVE COURSES: (1) N01°42'13"W 1.68 FEET; (2) 74.16 FEET ALONG THE ARC OF A 607.00 FOOT RADIUS CURVE TO THE RIGHT, CHORD BEARING N01°47'47"E 74.11 FEET; (3) N05°17'47"E 273.33 FEET; (4) 84.67 FEET ALONG THE ARC OF A 693.00 FOOT RADIUS CURVE TO THE LEFT, CHORD BEARING N01°47'47"E 84.61 FEET AND (5) N01°42'13"W 546.24 FEET TO THE SOUTHWEST CORNER OF ISLAND LAKE VINEYARDS, OAKLAND COUNTY CONDOMINIUM PLAN NO. 1271 AS RECORDED IN LIBER 37695, PAGE 523, OAKLAND COUNTY RECORDS; THENCE N87°07'28"E (RECORDED AS N87°07'49"E) 955.70 FEET ALONG THE SOUTH LINE OF SAID ISLAND LAKE VINEYARDS CONDOMINIUM; THENCE S02°34'33"E 471.53 FEET PARALLEL TO THE CENTERLINE OF DINSER ROAD; THENCE N86°56'30"E 323.41 FEET; THENCE S02°34'33"E 1151.04 FEET ALONG SAID CENTERLINE OF DINSER ROAD; THENCE S86°33'46"W 1018.99 FEET ALONG THE SOUTH LINE OF SAID SECTION 20 AND THE CENTERLINE OF 10 MILE ROAD; THENCE N01°42'13"W 657.15 FEET PARALLEL TO THE WEST LINE OF SAID SECTION 20; THENCE S86°45'47"W 328.12 FEET TO THE POINT OF BEGINNING. ALL OF THE ABOVE CONTAINING 40.677 ACRES. ALL OF THE ABOVE BEING SUBJECT TO THE RIGHTS OF THE PUBLIC OVER THE SOUTH 60 FEET THEREOF FOR TEN MILE ROAD AND THE EAST 33 FEET THEREOF FOR DINSER ROAD. ALL OF THE ABOVE BEING SUBJECT TO EASEMENTS, RESTRICTIONS AND RIGHT-OF-WAYS OF RECORD.






EXHIBIT "B"

**The "Additional Parcel" (Now Part of the Land Included in
the Island Lake of Novi Residential Unit Development)**

A PART OF THE SOUTHWEST ¼ OF SECTION 19, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN; BEING MORE PARTICULARLY DESCRIBED AS COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 19, FOR A POINT OF BEGINNING; THENCE NORTH 02°49'46" WEST, 1318.44 FEET, (SAID POINT BEING SOUTH 02°49'46" WEST, 1315.42 FEET FROM THE WEST 1/4 CORNER OF SAID SECTION 19), ALONG THE WEST LINE OF SAID SECTION 19 AND THE CENTERLINE OF NAPIER ROAD, TO THE SOUTHWEST CORNER OF "ISLAND LAKE ORCHARDS", OAKLAND COUNTY CONDOMINIUM PLAN NO. 1552, MASTER DEED RECORDED IN LIBER 30468, PAGES 611 THROUGH 689, OAKLAND COUNTY RECORDS, AS AMENDED; THENCE NORTH 86°03'33" EAST, 1618.18 FEET, ALONG A SOUTHERLY LINE OF SAID "ISLAND LAKE ORCHARDS"; THENCE SOUTH 02°20'47" EAST, 1326.96 FEET, ALONG A WESTERLY LINE OF SAID "ISLAND LAKE ORCHARDS", TO THE SOUTH LINE OF SAID SECTION 19 AND THE CENTERLINE OF TEN MILE ROAD, (SAID POINT BEING SOUTH 86°21'12" WEST, 1023.50 FEET FROM THE SOUTH ¼ CORNER OF SAID SECTION 19); THENCE SOUTH 86°21'12" WEST, 1606.86 FEET, ALONG THE SOUTH LINE OF SAID SECTION 19 AND THE CENTERLINE OF SAID TEN MILE ROAD, TO THE POINT OF BEGINNING. ALL OF THE ABOVE CONTAINING 48.953 ACRES. ALL OF THE ABOVE BEING SUBJECT TO THE RIGHTS OF THE PUBLIC IN NAPIER ROAD AND TEN MILE ROAD. ALL OF THE ABOVE BEING SUBJECT TO EASEMENTS RESTRICTIONS AND RIGHT-OF-WAYS OF RECORD.



Lot Size Comparison

	Lots 12,000 s.f. - 14,999 s.f.	187 Lots
	Lots 15,000 s.f. - 21,779 s.f.	335 Lots
	Lots 21,800 s.f. - 43,559 s.f.	41 Lots
	Lots 1 Acre or Larger	46 Lots
	Attached Units	294 Units

"Exhibit C"
Island Lake of Novi
 Novi Michigan



**PLANNING COMMISSION
MEETING MINUTES - EXCERPT
DECEMBER 11, 2013**

THE PRESERVE AT ISLAND LAKE (PHASE 8) JSP13-69

Public hearing at the request of Toll Brothers, Inc. for recommendation to City Council for approval to include the subject property in the existing Island Lake of Novi by amending the Residential Unit Development (RUD) Plan and for Preliminary Site Plan, Woodland Permit and Stormwater Management Plan approval. The subject property is 48.95 acres in Section 19 of the City of Novi and located at the northeast corner of Ten Mile Road and Napier Road. The applicant is proposing a 45 unit development that would be Phase 8 of the existing Island Lake of Novi development. The applicant has also proposed to modify the number of units permitted in the RUD Agreement from 884 to 903 in order to allow for this development.

Planner Sara Roediger said the applicant is proposing to add a 48.95 acre parcel to the existing Island Lake of Novi Residential Unit Development (RUD) in order to construct 45 single-family detached homes. The subject property is located at the northeast corner of Napier and Ten Mile Roads. The subject property is zoned RA, Residential Acreage and is surrounded by RA zoning to the north and east, with R-1 One-Family Residential zoning to the south. To the west is land zoned Agricultural Residential in Lyon Township. The Future Land Use map indicates single-family uses for the subject property with single-family and park uses planned for the surrounding properties. There are regulated woodlands on the vast majority of the property and seven wetland areas that are not shown on the natural features map but have been identified in the field and are shown on the site plan. Many of these features are located on the western portion of the site and over 65% of the regulated trees and 96% of the regulated wetlands are being preserved. The proposed development will result in 45 single-family detached homes that would connect to the existing Orchards phase of Island Lake through Kennebee Drive to the east and Nepavine Drive to the north, extending the road south to Ten Mile Road. The applicant has proposed over 20 acres, or roughly 45% of the site, as open space. The applicant has also offered to construct a new kiddie pool and bike racks at the Island Lake Clubhouse. The planning review recommends approval of the proposed RUD Plan amendment and preliminary site plan to allow development of the subject property. As a discretionary review, the Planning Commission should consider the various standards from Section 2402 outlined and listed in the planning review letter. In response to some of the concerns from the public that have been received, staff has worked with the applicant to increase landscaping along the northern property line to better buffer existing homes.

Planner Roediger continued saying that the applicant has requested a City Council modification of lot size and width consistent with the other phases of Island Lake and a City Council variance for the local street width standard to be reduced for the purposes of a traffic calming device. The applicant has also requested City Council variances for the location of the pathway along Napier Road and the sidewalk along Ten Mile Road to deviate from the one foot from the right-of-way requirement to protect natural features. Staff supports this deviation, with the exception of the south portion of Napier Road as depicted in Option A. The applicant maintains their preference to continue this deviation south to Ten Mile Road as depicted as Option B. All reviews are recommending approval of the proposed plan with items to be addressed on the final site plan. There is a landscape waiver required for the discontinuation of the berms in the location of existing vegetation and wetlands, with the exception of lots 1, 2 and 45 which is supported by staff. The Planning Commission is asked to hold a public hearing and make a recommendation to City Council for approval to include the subject property in the existing Island Lake of Novi and to modify the number of units permitted from 884 to 903 by amending the RUD Plan. The Planning Commission is also asked to approve the Preliminary Site Plan, Wetland Permit, Woodland Permit and Stormwater Management Plan, subject to the RUD amendment being approved by the City Council.

Mike Noles, of Toll Brothers said, said it's a pleasure to be back with you again today with an

exciting new property to be incorporated into an exciting old property. Last time I was in front of you, we were here proposing the Dinser property, which became the Reserve at Island Lake. We have now developed Phase 7A and 7B of that property. It's looking fantastic and we're very pleased with the way that turned out. This piece of property, I think, is even better. Last time I was here, you recommended that we not come back next time with a plan with less than 20% open space. This plan has 45% open space. This plan is very dynamic. It respects the natural features, we've got some fantastic woodlands and wetlands and we think they're going to be dynamic sites to be incorporated into Island Lake. We held a public meeting with the existing residents of Island Lake at the boathouse. We wanted to make sure that we didn't repeat any of the mistakes of the past where there were some surprises and misconceptions about what we were proposing. As you know, in the motion that you are considering before you tonight, it talks a little bit about varying lot sizes and making them smaller and that created confusion last time, that the lots were going to be smaller than the existing lots in Island Lake of Novi. That was not the case then and that's not the case now. These lots are the same as our executive product line within Island Lake which is directly adjacent to this section. When we met with the residents, we had a site plan that did not have an entrance out to Ten Mile Road. Overwhelmingly, they asked that we include an entrance out to Ten Mile Road. The site distance and engineering criteria for that connection are there so we agreed to do that. I think that biggest concern was without adding the entrance out to Ten Mile; we would create a lot of traffic into the existing neighborhood. The second major thing that the residents were interested in was increasing the capacity of the pool. We took a look at that and one of the most efficient and effective ways to do that was the build a kiddie pool to move the different age groups apart from one another. We already committed to building some additional pool decking with the Dinser proposal and we're doing additional decking plus paying for and constructing the kiddie pool and that was very well received. One of the variances that was mentioned talked about a traffic calming device. There were some residents that said if you introduce an entrance out to Ten Mile Road, there is a possibility that people could come off of Ten Mile Road and cut through the neighborhood. So we wanted to try to dissuade people from making that choice. So one of the things we did was narrow down the road at the tie in streets. The concept is that you narrow it down and so as you approach the connection road, the road becomes narrower and slows down traffic speed and it's a traffic calming mechanism. So we agreed to incorporate those and that should help slow traffic, should anybody want to go back through the neighborhood to cut through. Plus, the city looks at the traffic study and it found that there would be no detrimental effect as a result of the traffic. The last major thing to consider this evening is the path issue. One of the things we looked at with the path was adding some interest to the path. So we wanted it to meander through some of the preserved areas that we're keeping. It makes sense that if you're going to preserve that much acreage, you want to try to enjoy it in some way or another. The path is a low impact improvement so that people can enjoy walking through the woods and around the wetlands. Normally, it's required to be right along the road right-of-way. As you can see, that would go through several wetlands. The problem with going through wetlands is then you need a boardwalk. Staff pointed out some very good considerations. Their concerns were about clearing the paths so the more twist and turns you put into the path, the more difficult it becomes with the snow clearing equipment. So that was one of the major concerns about adding too much undulation within the path. So we think we struck a happy medium. There was just one spot in the very corner where we add the little stub that go directly to the corner, but it was unclear about whether or not that would create confusion if people would end up going to the corner and then having to come back if they wanted to go north rather than just turning directly north from the corner and continue on their way. The issue is one of are people going to be able to figure out the layout of the path or are they going to be able to get to where they're trying to go. The applicant, Toll Brothers, has no objection to either option. I personally prefer the meandering path through the woods without the boardwalk, but it's not a deal breaker for us. Whatever you guys recommend, we're happy to go with that

option. We just thought we'd lay both proposals out there for you and let you decide what you want us to do. That's all I have and I'm available for questions if you have any. I also have our civil engineer Tom Gazoni here tonight, if you have any technical questions. In addition, Jason Minack who is our Assistant Vice President of Operations and he's been a long time member of the Island Lake team.

Rob David, Island Lake Resident, said thanks for taking the time to address this. It's a very important addition to a wonderful development. That's why I moved there a few months ago which is very hard to do. It's very hard to find properties there because everybody wants to live there. It's good to hear from a developer that they've addressed an issue of amenities. Obviously, the amenities were designed for the original 884 lots that were planned and they're asking for additional lots above that. It also brings about additional traffic, and I'm glad they addressed it in the comments that they made about the Ten Mile additional access point. I do drive Napier and Ten Mile often and don't enjoy it. I did talk to the Oakland County Road Commission last week to find out what the plans were for that intersection. I understand that intersection is the most challenging, dangerous and accident prone within the community. There's another development going on in South Lyon at the same intersection so there will be an abundance of new homeowners and new drivers that will come into that area. I know it might not be in your power to address that this evening, but I wonder if there's any thought to that to make it safer because more traffic on Ten Mile is going to make it more of a challenge with people trying to get out onto Ten Mile. The county road commission did say that they are planning on paving that Nine Mile to Ten Mile Napier stretch in 2016 but there are no plans at this point to do any a traffic light at Napier and Ten Mile. I'm just concerned that more traffic at the intersection with more neighbors will cause more trouble and that needs to be addressed in some way. Thank you.

Member Lynch said I need to make a disclosure that I am a property owner in Island Lake. I have no financial interest in this property and I believe that I can judge the project totally on its merits and I can be objective. Now, with respect to the correspondence, we have one from Ken Riley, Island Lake resident, who supports the project. He says that he feels Toll Brothers will do an excellent job with this phase of Island Lake. We have another from Siddharth Sirsikar of Island Lake who objects the plan as the proposed location is right behind his home. The woods behind his house are peaceful and tranquil. This is the primary reason for buying this residence. It defeats their entire concept of a home. Plus construction would be a major nuisance. Finally, they'd lose privacy with having extra neighbors. We have another objection from Hyeong Shim of Island Lake to protect the natural environments. Novi should protect wetlands in every way possible and per that map there is a wetland area behind their house. Next, we have a letter from Glenn and Lauren Sawyer objecting the plan. They are complaining about a buffer and a screen at the rear of their property from lot 31 to Nepavine Road. They feel they are the most impacted of all the Island Lake residents. The corner lot is the most exposed and impacted by additional traffic. They respectfully request that the Planning Commission consider requiring a site plan change for the above reasons. I have a follow up email from Glenn Sawyer, which states that he had a conversation with Jason from Island Lake and he's willing to work with them. Then, we have an email from Ben Abler of Island Lake with three concerns. First, there are over 25 children living on Nepavine Road and with increased traffic it would be unsafe for the children. Second, all residents who use the pool are concerned with the capacity and would like to see a pool expansion not just a deck expansion. Thirdly, unrelated to the expansion, there a concern about Napier and Ten Mile with increased traffic. Finally, we received an objection from Ashok Reddy of Island who is afraid this will take away from the natural open setting and increased traffic on Nepavine.

Member Barrata said I'm also a resident of Island Lake of Novi. And there's nothing that I'm

involved with or have any financial interest that I would be unable to judge this project fairly. After saying that, I think that there are really only a couple of concerns that I have. The first question is the sidewalk out at Ten Mile. I'm not aware of any sidewalks that we have that meander through the woods, they're pretty straight. I guess I don't have an issue with the one that goes north, but the one off of Ten Mile, it would seem just for consistency purpose that if it were a straight sidewalk that would make a little more sense in my mind, particularly for those folks that ride bikes. I guess on the sidewalk, I would like to see that be a little more straightened out. So I can concur with the city staff about that. The one going north, I think it's fine, I love the pathways that you have within the neighborhood and I love the neighborhood. The other question that I have, on the street where you're going to reduce the width of the street, is there going to be parking on both sides of that street?

Mr. Noles said parking is allowed on one side of that street and it will be posted.

Member Lynch said I looked at the project and I have no issue with it. I appreciate you speaking with the homeowners and resolving the issues before you got here. I think the plan is great. This is a lot less dense than what I initially expected. One question that I have, isn't that a woodchip path?

Mr. Noles said no it's not, that would be a paved pathway.

Member Lynch said so you're going to have a paved path going through the woods?

Mr. Noles said yes sir. The paths on the north side of that lake through the big wooded section, those are woodchip paths. But there's what they call a safety path, which is along the frontage. You can see the one that we installed over at Dinser, the Catholic Central Runners are using it already at our crosswalk down at Ten Mile, so that worked out very nicely. It's to allow for pedestrian circulation. It's currently an eight foot concrete path, as required. So that would be a hard surface path. Like I said before, if you prefer the straighter path, it's not a great expanse of the board walk, there's not a lot of trees adjacent, it'll be fine anyway that we work it out there.

Member Lynch said my preference is the path that meanders through, but I just thought it was a woodchip path and when they mentioned snow removal I thought it was a woodchip path. So this whole network that you show is all going to be the new surface. I don't particularly care for the boardwalk. I wouldn't mind it being a little more on Ten Mile. I think it's probably a good idea to have a little straighter shot. The second thing is, I appreciate you adding the traffic calming mechanisms since there were so many concerns about that. Some of the other comments had to deal with a common use of the pool and I think you've addressed that. Overall, it's well within the Zoning Ordinance. It's certainly the best proposal that I've seen for that area and I'm going to vote for approval.

Member Greco said I have just a couple of comments. With respect to the objections that we received, with regard to the traffic, construction and the building on open spaces and wood spaces, unfortunately those things do change and they are nuisance, but with respect to this plan I think it's a good use of the property. It looks very nice. It's consistent with the property and the overall plan. I'm so glad to hear that you guys were proactive about going to the residents and seeing what they need, addressing their concerns and even with one of the objections we had it looks like you guys are addressing the concerns very adequately. With regard to the path, I don't have any strong feelings about the Ten Mile one and I guess what we're being asked to do tonight is determine the A or B Option; along Napier road or going into the woods. I guess I don't have strong feelings either way other than perhaps being disoriented a little bit, obviously. Otherwise, I think I'm going to be voting for approval and I guess I'm going to wait for additional

comments regarding other commissioners' strong feelings, perhaps, on the paths.

Member Giacometti said I would also like to congratulate you. This is a beautiful plan. I do have a few questions about the path though. I do feel strongly about the straight option as opposed to the meandering one. My question is, is the path that goes through the woods lit?

Mr. Noles said it is not.

Member Giacometti said my philosophy on walkability for the community is that it's not just for recreation, it should be for function. While this is a great asset for recreational transportation, its functionality is lacking for someone interested in non-motorized transportation up and down Napier Road. So I do feel pretty strongly about this one. I would love to see both because I think it is a very attractive idea, but I will support the staff's recommendation for the straight path.

Member Anthony said it's been said unanimously that the applicant has done a good job in working with the community. When you first came up, I was going to look for what you were doing with the pool and recreational area because last time that was the big issue. More homes means more congestion. So I hope the kiddie pool is enough. The questions that I have though with the sidewalk is not as much as to the direction of rather it meanders or not, but does it meet city requirements? In the event where this sidewalk meanders through the woods but also serves as part of our non-motorized plan within the city, the specifications for the construction of this path, do they still comply with our sidewalk specifications with load bearing capacity, soil, substraight, width, and pavement? That's my bigger concern, so that it makes it a sustainable, longer lasting path.

Planner Roediger said I'll defer to our engineer, but a short answer yes. The only deviation from our ordinance was the one foot off of the right-of-way, but everything else should be fine.

Engineer Adam Wayne said to reiterate what Sara said, yeah. This pathway would be conveyed to the city through a public easement. So after acceptance and the infrastructure, specifically the boardwalk, is decided over to the city, we would be responsible for maintaining that infrastructure.

Member Anthony said so that brings me to my next question. So the city is responsible for the maintenance of the sidewalk through the wooded area.

Engineer Wayne said yes sir. We would be responsible for abating any ADA trip hazards, winter maintenance, etc.

Member Anthony said so based on our experience in wooded areas where trees get bigger and routes get bigger, what do our maintenance costs and ability look like in a path that meanders through the woods versus one that along the street.

Engineer Wayne said with any pathway, you of course have a finite life span. With something that may meander through natural features, you may have down trees over paved areas whereas boardwalks through open areas, you may be more susceptible to environmental degradation just because it's exposed to the elements. Either way, there's going to be increased maintenance costs.

Member Anthony said so if I hear you correctly, it's six of one and half dozen of the other?

Engineer Wayne said yes to a certain extent.

Member Anthony said you get one path you get a completely new set of maintenance in one area, you do the other one you get a different kind of maintenance.

Engineer Wayne said to a certain extent, the boardwalks do cost more to maintain but you also get the visibility from Napier Road and the accessibility and conveyance versus the area meandering more into the woods.

Member Anthony said so if I had to pick one, I'm leaning more towards the straight as well. My last question also has to do with one of the neighbors' concerns up near lot 30 and 34. Can you describe to me in more detail about the buffer that the drawing has depicted.

Mr. Noles said we specified of our own accord a fifty foot minimum buffer from the existing property line. That is not a City of Novi specification, it's something less than that, but we wanted to ensure that we had an adequate buffer between the existing residents and the new residents. The area just north of lot 31 and runs along lot 34 and lot 30 as well, is a fifty foot wide existing wooded area. The area on the east side of the property, which would be lots 36 through 45, is a field. So on our landscape plan, you'll see that we made it full of new plantings. Right next to lot 31, behind the Sawyers' property, there really aren't any tagged trees. There's not really any regulated, tagged trees back there. So there's a lot of smaller and regenerative growth right behind their property so there's plenty of opportunities to clear out some scruffy, small unregulated trees in that area and add some additional conifers that'll provide a little bit better screening quality for those residents. And that's what we talked about today. Jason spoke with the Mr. Sawyer a couple times today and agreed to plant some additional pine trees through there to bluster the screening. It will require a little bit of clearing in that fifty foot buffer that we're talking about.

Member Anthony said so in that fifty foot buffer, is the rendering realistic with the density of plantings that you're showing there?

Mr. Noles said well it is extremely thick. With any rendering, there's a little bit of art and science involved with that. It's hard to tell the difference between new plantings and existing plantings although they don't look much different in a rendering. I wouldn't say it's a woodlands map, but we do have one of those and we do have a detailed landscape plan. Also, we meet all the requirements of the woodland ordinance and the buffering required. I think there are a couple hundred trees that we're going to plant on this property. We're always willing to plant a couple of more to keep people happy. It's a relatively inexpensive improvement to do. A lot of the work that I do is underground and nobody can really enjoy or appreciate the value of a new sanitary sewer or city water or something like that. So yeah, we agreed to plant a couple of additional trees over there and everybody wins.

Chair Pehrson said I appreciate you listening to the residents and bringing forward what I think it is a great plan. In looking at the rendering, I think I would rather see the straight boardwalk, configuration A, for this plan. I think it's just because people are creatures of habit and like to come to a corner and make 90 degree turns. But overall, it looks like a wonderful plan. So I'd be in support of somebody making a motion.

Moved by Member Anthony and seconded by Member Greco:

**ROLL CALL VOTE ON THE AMENDED RESIDENTIAL UNIT DEVELOPMENT PLAN APPROVAL MOTION
MADE BY MEMBER ANTHONY AND SECONDED BY MEMBER GRECO:**

In the matter of The Preserve at Island Lake (Phase 8), JSP13-69, motion to recommend approval of the Amended Residential Unit Development (RUD) Plan subject to and based on the following findings:

- a. The site is appropriate for the proposed use;
- b. The development will not have detrimental effects on adjacent properties and the community;
- c. The applicant has clearly demonstrated a need for the proposed use;
- d. Care has been taken to maintain the naturalness of the site and to blend the use within the site and its surroundings;
- e. The applicant has provided clear, explicit, substantial and ascertainable benefits to the City as a result of the Amended RUD.
- f. Relative to other feasible uses of the site:
 1. All applicable provisions of Section 2402 of the Zoning Ordinance, other applicable requirements of the Zoning Ordinance, including those applicable to special land uses, and all applicable ordinances, codes, regulations and laws have been met;
 2. Adequate areas have been set aside for walkways, playgrounds, parks, recreation areas, parking areas and other open spaces and areas to be used by residents of the development;
 3. Traffic circulation features within the site and the location of parking areas have been designed to assure the safety and convenience of both vehicular and pedestrian traffic both within the site and in relation to access streets;
 4. The proposed use will not cause any detrimental impact in existing thoroughfares in terms of overall volumes, capacity, safety, travel times and thoroughfare level of service;
 5. The plan provides adequate means of disposing of sanitary sewage, disposing of stormwater drainage, and supplying the development with water;
 6. The Amended RUD will provide for the preservation and creation of open space and result in minimal impacts to provided open space and natural features;
 7. The Amended RUD will be compatible with adjacent and neighboring land uses;
 8. The desirability of conventional residential development within the City is outweighed by benefits occurring from the preservation and creation of open space and the establishment of park facilities that will result from the Amended RUD;
 9. Any detrimental impact from the Amended RUD resulting from an increase in total dwelling units over that which would occur with conventional residential development is outweighed by benefits occurring from the preservation and creation of open space and the establishment of park facilities that will result from the Amended RUD;
 10. The proposed reductions in lot sizes are the minimum necessary to preserve and create open space, to provide for park sites, and to ensure compatibility with adjacent and neighboring land uses;
 11. The Amended RUD will not have a detrimental impact on the City's ability to deliver and provide public infrastructure and public services at a reasonable cost;
 12. the applicant has made satisfactory provisions for the financing of the installation of all streets, necessary utilities and other proposed improvements;
 13. The applicant has made satisfactory provisions for future ownership and maintenance of all common areas within the proposed development; and
 14. Proposed deviations from the area, bulk, yard, and other dimensional requirements of the Zoning Ordinance applicable to the property enhance the development, are in the public interest, are consistent with the surrounding area, and are not injurious to the natural features and resources of the property and surrounding area.
- g. City Council modification of proposed lot sizes to a minimum of 14,440 square feet and modification of proposed lot widths to a minimum of 91.22 feet as the requested

modification will result in the preservation of open space for those purposes noted in Section 2402.3.B of the Zoning Ordinance and the Amended RUD will provide a genuine variety of lot sizes;

- h. City Council variance from Section 11 Table 8-A of the City's Code of Ordinance to permit a local street reduction from 28 feet in width to 20 feet in width for traffic calming chokers as depicted in the proposed plans.
- i. City Council variance from Section 11.278 (b)(5) of the City's Code of Ordinance to permit a sidewalk along Ten Mile Road to vary more than 1 foot from the right-of-way in order to protect natural resources while still maintaining a comprehensive non-motorized transportation system as depicted in the proposed plans.
- j. City Council variance from Section 11.258 (d) of the City's Code of Ordinance to permit a bicycle path along the northern portion of Napier Road only to vary more than 1 foot from the right-of-way in order to protect natural resources while still maintaining a comprehensive non-motorized transportation system as depicted as Option A in the proposed plans.

This motion is made because the plan is otherwise in compliance with Article 3, Article 24 and Article 25 of the Zoning Ordinance and all other applicable provisions of the Ordinance.

Moved by Member Anthony and seconded by Member Lynch:

ROLL CALL VOTE ON THE PRELIMINARY SITE PLAN APPROVAL MOTION MADE BY MEMBER ANTHONY AND SECONDED BY MEMBER LYNCH:

In the matter of The Preserve at Island Lake (Phase 8), JSP13-69, motion to approve the Preliminary Site Plan based on and subject to approval by City Council of the amended RUD Agreement and Plan and the following:

- a. Planning Commission waiver of the required berms in the locations of existing vegetation and wetlands with the exception of lots 1, 2 and 45; which is hereby granted; and
- b. The conditions and items listed in the staff and consultant review letters being addressed on the Final Site Plan.

This motion is made because the plan is otherwise in compliance with the approved 6th Amendment to the RUD, Article 3, Article 24 and Article 25 of the Zoning Ordinance and all other applicable provisions of the Ordinance.

Moved by Member Anthony and seconded by Member Lynch:

ROLL CALL VOTE ON THE WETLAND PERMIT APPROVAL MOTION MADE BY MEMBER ANTHONY AND SECONDED BY MEMBER LYNCH:

In the matter of The Preserve at Island Lake (Phase 8), JSP13-69, motion to approve the Wetland Permit based on and subject to approval by City Council of the amended RUD Agreement and Plan and the findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan. This motion is made because the plan is otherwise in compliance with Chapter 12, Article V of the Code of Ordinances and all other applicable provisions of the Ordinance.

Moved by Member Anthony and seconded by Member Lynch:

ROLL CALL VOTE ON THE WOODLAND PERMIT APPROVAL MOTION MADE BY MEMBER ANTHONY AND SECONDED BY MEMBER LYNCH:

In the matter of The Preserve at Island Lake (Phase 8), JSP13-69, motion to approve the Woodland Permit based on and subject to approval by City Council of the amended RUD Agreement and Plan and the conditions and items listed in the staff and consultant review letters being addressed on the Final Site Plan. This motion is made because the plan is otherwise in compliance with the approved 6th Amendment to the RUD, Chapter 37 of the Code of Ordinances and all other applicable provisions of the Ordinance.

Moved by Member Anthony and seconded by Member Lynch:

ROLL CALL VOTE ON THE STORMWATER MANAGEMENT PLAN APPROVAL MOTION MADE BY MEMBER ANTHONY AND SECONDED BY MEMBER LYNCH:

In the matter of The Preserve at Island Lake (Phase 8), JSP13-69, motion to approve the Stormwater Management Plan, based on and subject to approval by City Council of the amended RUD Agreement and Plan and the conditions and items listed in the staff and consultant review letters being addressed on the Final Site Plan. *This motion is made because it otherwise in compliance with the approved 6th Amendment to the RUD, Chapter 11 of the Code of Ordinances and all other applicable provisions of the Ordinance*

PLANNING REVIEW



PLAN REVIEW CENTER REPORT

December 2, 2013

Planning Review

The Preserve at Island Lake (Phase 8)

JSP13-69

Petitioner

Toll Brothers, Inc.

Review Type

RUD Plan and Agreement Amendment and Revised Preliminary Site Plan

Property Characteristics

- Site Location: Northeast corner of Ten Mile Road and Napier Roads (Section 19)
- Site Zoning: RA, Residential Acreage
- Adjoining Zoning: North and East: RA with RUD; South: RA and R-1; West: Lyon Township R-2.5 Agricultural Residential
- Current Site Use: Vacant
- Adjoining Uses: North and East: Single-family residential/Existing RUD; South: Links of Novi golf course and church; West: Lyon Township Agricultural
- School District: South Lyon Community Schools
- Site Size: 48.95 acres
- Plan Date: 11-21-13

Project Summary

The applicant is proposing to add a 48.95 acre parcel at the northeast corner of Ten Mile and Napier Roads to the existing Island Lake of Novi Residential Unit Development (RUD) Agreement in order to construct 45 single-family residential units. The existing agreement provides review standards for the development of the property where the terms of the development differ from the underlying ordinance standards.

There are currently 858 units constructed or approved in the existing Island Lake development. The addition of 45 units would bring the total number of units to 903 units, which is more than the amount permitted in the existing RUD Agreement (884 units). The applicant therefore needs to amend the current Island Lake RUD Agreement to reflect the additional units and acreage.

The ordinance states that an RUD shall include detached one-family dwelling units, as is proposed in this phase. The applicant has not proposed any attached units, clubhouses, churches, schools or other uses that may be permitted as a part of the proposed development phase. While a variety of housing types is expected in an RUD, the overall density generally shall not exceed the density permitted in the underlying zoning district. The applicant has provided a statement that the proposed density will decrease from 0.92 units/acre to 0.90 units/acre if the RUD Amendment is approved. The Island Lake Development is a combination of R-1, One Family Residential, and RA, Residential Acreage zoning.

Recommendation

Staff **recommends approval of the Amended RUD Plan and Agreement and of the Preliminary Site Plan** to allow for The Preserve of Island Lake (Phase 8) to be added to the Island Lake of Novi development provided that the Planning Commission recommends and the City Council finds that the proposed plan meets the Zoning Ordinance standards for a major change to an approved RUD, as outlined in this letter.

RUD Standards

Any amendment or revision constituting a major change in the approved RUD plan shall be reviewed as if it were a new RUD plan. An increase in the number of dwelling units is considered a major change. The Planning Commission and City Council should consider the following when evaluating the proposed RUD amendment. Staff comments are underlined and bracketed.

- a) The appropriateness of the site for the proposed use;
- b) The effects of the proposed use upon adjacent properties and the community;
[Uses permitted in the single-family zoning districts are proposed or existing on the surrounding parcels.]
- c) The demonstrable need for the proposed use;
- d) The care taken to maintain the naturalness of the site and to blend the use within the site and its surroundings;
[The site contains several wetlands and woodlands, and care has been taken to avoid impacts to these features when possible.]
- e) The existence of clear, explicit, substantial and ascertainable benefits to the City from the RUD.
[The applicant has provided a narrative (attached) describing the benefits of the RUD.]

The Planning Commission and City Council shall consider the following factors noted in Section 2402.8 as part of their evaluation of the RUD Amendment. Staff comments are italicized and bracketed.

- a) Whether all applicable provisions of this Section [2402 of the Zoning Ordinance], other applicable requirements of this Ordinance, including those applicable to special land uses, and all applicable ordinances, codes, regulations and laws have been met.
[The applicant has submitted the required application information.]
- b) Whether adequate areas have been set aside for all schools, walkways, playgrounds, parks, recreation areas, parking areas and other open spaces and areas to be used by residents of the development. The applicant shall make provisions to assure that such areas have been or will be committed for those purposes.
[The applicant has set aside 20.4 acres or 45.3% of the proposed development area as open space, of which 12.98 acres are upland useable acres. Also proposed is walking path that connects the neighborhood to Napier and Ten Mile Roads. In addition, the applicant has offered to construct a new kiddie pool at the Island Lake Clubhouse. Staff recommends the addition of a bike rack at the Island Lake Clubhouse in keeping with the spirit of the newly adopted bicycle parking ordinance to improve access to this shared facility.]
- c) Whether traffic circulation features within the site and the location of parking areas are designed to assure safety and convenience of both vehicular and pedestrian traffic both within the site and in relation to access streets.
[The applicant has provided for safe traffic flow as indicated in the traffic review letter.]
- d) Whether, relative to conventional one-family development of the site, the proposed use will not cause any detrimental impact in existing thoroughfares in terms of overall volumes, capacity, safety, travel times and thoroughfare level of service, or, in the alternative, the development will provide onsite and offsite improvements to alleviate such impacts.
[The development will not have a detrimental impact on existing thoroughfares over and above development under the existing zoning as indicated in the traffic review letter.]
- e) Whether there are or will be, at the time of development, adequate means of disposing of sanitary sewage, disposing of stormwater drainage, and supplying the development with water.
[The applicant has provided for adequate stormwater management and utilities.]

- f) Whether, and the extent to which, the RUD will provide for the preservation and creation of open space. Open space includes the preservation of significant natural assets, including, but not limited to, woodlands, topographic features, significant views, natural drainage ways, water bodies, floodplains, wetlands, significant plant and animal habitats and other natural features. Specific consideration shall be given to whether the proposed development will minimize disruption to such resources. Open space also includes the creation of active and passive recreational areas, such as parks, golf courses, soccer fields, ball fields, bike paths, walkways and nature trails.
[The applicant has set aside 20.4 acres or 45.3% of the proposed development area as open space, of which 12.98 acres are upland useable acres. Also proposed is walking path that connects the neighborhood to Napier and Ten Mile Roads. In addition, the applicant has offered to construct a new kiddie pool at the Island Lake Clubhouse. Staff recommends the addition of a bike rack at the Island Lake Clubhouse in keeping with the spirit of the newly adopted bicycle parking ordinance to improve access to this shared facility.]
- g) Whether the RUD will be compatible with adjacent and neighboring land uses, existing and master planned.
[Uses permitted in the single-family zoning districts are proposed or existing on the surrounding parcels.]
- h) Whether the desirability of conventional residential development within the City is outweighed by benefits occurring from the preservation and creation of open space and the establishment of school and park facilities that will result from the RUD.
[Additional open space and a connected walking path is proposed with this phase. In addition, the applicant has offered to construct a new kiddie pool at the Island Lake Clubhouse. Residents of this phase would have access to the parks and open space created in earlier phases of the Island Lake Development.]
- i) Whether any detrimental impact from the RUD resulting from an increase in total dwelling units over that which would occur with conventional residential development is outweighed by benefits occurring from the preservation and creation of open space and the establishment of school and park facilities that will result from the RUD.
- j) Whether the proposed reductions in lot sizes and setback areas are the minimum necessary to preserve and create open space, to provide for school and park sites, and to ensure compatibility with adjacent and neighboring land uses.
[A reduction in lot sizes below the Zoning Ordinance standards is proposed, however it is consistent with earlier phases of the Island Lake Development.]
- k) Evaluation of the impact of RUD development on the City's ability to deliver and provide public infrastructure and public services at a reasonable cost and with regard to the planned and expected contribution of the property to tax base and other fiscal considerations.
- l) Whether the applicant has made satisfactory provisions for the financing of the installation of all streets, necessary utilities and other proposed improvements.
- m) Whether the applicant has made satisfactory provisions for future ownership and maintenance of all common areas within the proposed development.
[The new development area would be included in the amended Master Deed and By-laws for the Island Lake of Novi development.]

- n) Whether any proposed deviations from the area, bulk, yard, and other dimensional requirements of the zoning ordinance applicable to the property enhance the development, are in the public interest, are consistent with the surrounding area, and are not injurious to the natural features and resources of the property and surrounding area.

Ordinance Requirements

This project was reviewed for conformance with the standards of the RUD Agreement. Where the agreement fails to address an item of review, the underlying ordinance standards govern the review of the site including standards in Article 3 (RA Residential Acreage District), Article 24 (Schedule of Regulations), Article 25 (General Provisions) and any other applicable provisions of the Zoning Ordinance. Items in **bold** below must be addressed by the applicant and or Planning Commission/City Council.

1. **RUD Intent:** As an optional form of development, the RUD allows development flexibility of various types of residential dwelling units (one-family, attached one-family cluster). It is also the intent of the RUD option to permit permanent preservation of valuable open land, fragile natural resources and rural community character that would be lost under conventional development. This is accomplished by permitting flexible lot sizes in accordance with open land preservation credits when the residential developments are located in a substantial open land setting, and through the consideration of relaxation of area, bulk, yard, dimensional and other zoning ordinance standards in order to accomplish specific planning objectives.

This flexibility is intended to reduce the visual intensity of development; provide privacy; protect natural resources from intrusion, pollution, or impairment; protect locally important animal and plant habitats; preserve lands of unique scenic, historic, or geologic value; provide private neighborhood recreation; and protect the public health, safety and welfare.

Such flexibility will also provide for:

- The use of land in accordance with its character and adaptability;
- The construction and maintenance of streets, utilities and public services in a more economical and efficient manner;
- The compatible design and use of neighboring properties; and
- The reduction of development sprawl, so as to preserve open space as undeveloped land.

Amendments and Revisions to an approved RUD plan shall require all procedures and conditions that are required for original submittal and review for amendments that are considered "major changes". The addition of land area and increase in the number of dwelling units are both considered "major changes", so full review of the ordinance standards is necessary at this time.

2. **Density:** The currently approved RUD Agreement allows up to 884 dwelling units. A total of 858 dwelling units have been approved for the development through existing site plan approvals. The applicant is seeking to add 45 units in this phase which would bring the total number of units to 903 and would decrease the permitted density from 0.92 units per acre to 0.90 units per acre for the entire Island Lake of Novi development as illustrated in the table on the following page.

Density Unit by Type Island Lake of Novi			
Unit Type	Approved in RUD Agreement	Approved to Date ¹	Currently Proposed ²
Single-Family Attached Cluster	219	Combined 294	Combined 294
Waterfront/ Woodland Attached Cluster	158		
Single-Family Detached	464	518	563
Single-Family Detached Waterfront (1 acre+)	35-51	46	46
TOTAL DWELLING UNITS	884	858	903

¹ Approved to Date includes:

- Vineyards (Phase 2A)
- Arbors, Arbors East, North Woods, Shores North, & Vineyards (Phase 2B)
- Vineyards (Phase 3A, B & C)
- South Harbor (Phase 3D)
- Shores South (Phase 4A)
- Orchards (Phase 4B-1 & 2)
- Shores South (Phase 5A)
- Orchards (Phase 5B & C)
- North Bay (Phase 6)
- The Meadows (Phase 7A, B & C)

² Currently Proposed includes the 45 lots proposed as the Preserve at Island Lake (Phase 8)

3. Lot Size and Area: One-family detached dwellings are subject to the minimum lot area and size requirements of the underlying district. RA zoning requires 43,560 sq. ft. lots that are a minimum of 150 ft. wide. The applicant has proposed a minimum size of 14,440 sq. ft. and a minimum width of 91.22 ft., consistent with the currently approved RUD Agreement standards. **The City Council may modify lot size and width requirements where such modification will result in the preservation of open space for those purposes set forth in Section 2402.3B of the Zoning Ordinance and where the RUD will provide a genuine variety of lot sizes. The plans indicate that a total of 20.4 acres of open space will be maintained in this phase of development, which is approximately 45% of the area in this phase. The applicant has provided a summary of lot sizes throughout the entire development. Taken as a whole, there are a variety of lot sizes throughout Island Lake of Novi. In the proposed phase, lots range from 14,440 sq. ft. to 30,920 sq. ft., allowing for some variation in lot size. This is consistent with other phases of Island Lake of Novi.**
4. Private Parks and Recreation Areas: As part of this phase, the applicant is proposing to construct a new children’s swimming pool at the Island Lake Clubhouse, which is the result of feedback gathered at a town hall meeting held with residents to discuss this project. In addition, the applicant has agreed to install a bike rack at the Island Lake Clubhouse in keeping with the spirit of the newly adopted bicycle parking ordinance.
5. Sidewalks/Pathways. Sidewalks proposed along all internal roads and a meandering 6 ft. sidewalk is proposed along Ten Mile Road and an 8 ft. pathway is proposed along Napier Road. Pathways and sidewalks are required to be located within 1 foot of the future right-of-way, unless otherwise directed by the City Engineer, for the enhancement of natural resources. **The City Council may grant variances to construct the path as proposed.** The Engineering Department is maintaining their recommendation to have a more direct path along the southern portion of Napier Road as depicted in Option A; however the applicant has indicated their preference to construct the path as illustrated in Option B.
6. Special Land Use: The Planning Commission shall also consider the standards for Special Land Use approval as a part of its review of the proposed RUD modification, per Section 2402.8.B.
7. Master Deed and By-laws: The amended Master Deed and By-laws must be submitted for review with the Final Site Plan submittal.
8. Signage: Exterior Signage is not regulated by the Planning Division or Planning Commission. Please contact Jeannie Niland (248.347.0438 or jniland@cityofnovi.org) for information regarding sign permits.

Planning Review

The Preserve at Island Lake (Phase 8)
JSP13-69

December 2, 2013

Page 6 of 6

Street and Project Name

The proposed project and street names have been reviewed by the Street and Project Naming Committee. The names were approved as requested, with the exception of Napavine Court which was renamed to Denali Court. Please see the attached letter or contact Richelle Leskun (248.347.0579 or rleskun@cityofnovi.org) in the Community Development Department for additional information.

Site Addressing

The applicant should contact the Building Division for an address prior to applying for a building permit. Building permit applications cannot be processed without a correct address. The address application can be found on the City's website at www.cityofnovi.org under the forms page of the Community Development Department.

Please contact Jeannie Niland (248.347.0438 or jniland@cityofnovi.org) in the Community Development Department with any specific questions regarding addressing of sites.

Pre-Construction Meeting

Prior to the start of any work on the site, Pre-Construction (Pre-Con) meetings must be held with the applicant's contractor and the City's consulting engineer. Pre-Con meetings are generally held after Stamping Sets have been issued and prior to the start of any work on the site. There are a variety of requirements, fees and permits that must be issued before a Pre-Con can be scheduled. If you have questions regarding the checklist or the Pre-Con itself, please contact Sarah Marchioni (248.347.0430 or smarchioni@cityofnovi.org) in the Community Development Department.

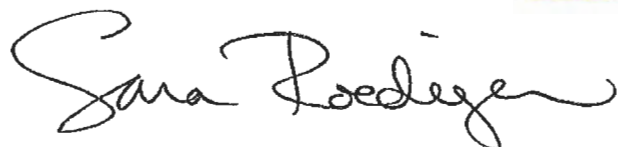
Chapter 26.5

Chapter 26.5 of the City of Novi Code of Ordinances generally requires all projects be completed within two years of the issuance of any starting permit. Please contact Sarah Marchioni (248.347.0430 or smarchioni@cityofnovi.org) for additional information on starting permits. The applicant should review and be aware of the requirements of Chapter 26.5 before starting construction.

Response Letter

A letter from either the applicant or the applicant's representative addressing comments in this and other review letters is required prior to consideration by the Planning Commission.

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.735.5607 or sroediger@cityofnovi.org.



Sara Roediger, AICP – Planner

Attachments: Planning Review Chart

Planning Review Summary Chart

JSP13-69 The Preserve at Island Lake (Phase 8)
 Revised Preliminary Site Plan and RUD Amendment
 Plan Date: 11-21-13

Item	Proposed	Meet Requirements?	Comments
Property is master planned for single family residential use	No change	Yes	
Zoning is currently RA, Residential Acreage	Inclusion in the Island Lake of Novi RUD	Yes	
Use (Sec. 2402) single family detached homes, etc.	45 single-family, detached homes proposed	Yes	
Density (RUD term) 884 dwelling units permitted under current RUD agreement Island Lake has 858 dwelling units under currently approved site plans	The applicant has proposed to add 45 units to the RUD, bringing the total number of units that could be constructed up to 903 units		The applicant has indicated the total density of the Island Lake of Novi development will be 0.90 units per acre, below the approved density of 0.92 units per acre An amendment to the Island Lake RUD Agreement must be submitted reflecting the additional units to the number of dwelling units permitted in the current RUD
RUD Ordinance Standards (Sec. 2402)			
Required property size – 20 acres	48.95 acres	Yes	
Detached one-family dwellings permitted	Detached one-family dwellings	Yes	
Minimum Lot Size (Sec. 2402.4 & RUD term) One-family detached dwellings are subject to the min. lot area requirements of the RA zoning district: 43,560 sq. ft. lots Non-waterfront lots in the RUD are required to be a min. of 12,000 sq. ft.	Range from min. lot size of 14,440 sq. ft. to a max. of 30,920 sq. ft.	Does not meet ord. requirements but meets previous RUD Agreement terms	The City Council may modify such lot area requirements where such modification will result in the preservation of open space for those purposes set forth in subpart 2402.3B and where the RUD will provide a genuine variety of lot sizes
Minimum Lot Width (Sec. 2402.4 & RUD term) One-family detached dwellings are subject to the min. lot width requirements of the RA zoning district: 150 ft. lot widths Non waterfront lots in the RUD are required to be a min. of 90 ft. wide	Range from min. lot width of 91.22 ft. to a max. of 138.31 ft.	Does not meet ord. requirements but meets previous RUD Agreement terms	The City Council may modify such lot width requirements where such modification will result in the preservation of open space for those purposes set forth in subpart 2402.3B and where the RUD will provide a genuine variety of lot sizes

Item	Proposed	Meet Requirements?	Comments
<p>Building Setbacks (Sec. 2402.5 & RUD term) One-family detached dwellings shall be subject to the min. requirements of the RA zoning district: Front: 45 ft. Rear: 50 ft. Side: 20 ft. Side Combined: 50 ft.</p> <p>If lot sizes are reduced in accord. with Sec. 2402.4 yard requirements shall be governed by that zoning district which has min. lot area & width standards that correspond to the dimensions of the particular lot, for 90 ft. wide lots: Front: 30 ft. Rear: 35 ft. Side: 10 ft. Side Combined: 30 ft.</p>	<p>Front: Min. 30 ft. Rear: 35 ft. Side: 10 ft. Side Combined: 30 ft.</p> <p>Entire building envelope shown on plans</p>	<p>Yes</p>	
<p>Minimum Floor Area (Sec. 2400) Units must be greater than 1,000 sq. ft.</p>	<p>Min. unit size not shown or required at this point</p>	<p>N/A</p>	<p>Building size reviewed at plot plan phase</p>
<p>Building Height (Sec. 2400) Buildings shall not exceed 2 ½ stories or 35 feet</p>	<p>No elevations provided at this time</p>	<p>N/A</p>	<p>Building height reviewed at plot plan phase</p>
<p>Sidewalks/Pathways (RUD term, Sec. 11.258 (d) & Sec. 11.278 (b)(5)) A pedestrian network plan was approved as part of the RUD which requires sidewalks along all internal roads</p> <p>8 ft. pathway required along Napier Rd. & a 6 ft. sidewalk required along Ten Mile Rd.</p>	<p>Sidewalks proposed along all internal roads</p> <p>Meandering 6 ft. sidewalk is proposed along Ten Mile Rd. & 8 ft. pathway along Napier Rd.</p>	<p>Yes/No</p>	<p>Pathways & sidewalks are required to be located within 1 ft. of future ROW, unless otherwise directed by the City Engineer, for the enhancement of natural resources. The City Council may grant variances to construct the path as proposed</p> <p>The Engineering Department is maintaining their recommendation to have a more direct path along the southern portion of Napier Road as indicated as Option A; however the applicant has indicated their preference to construct the path as illustrated in Option B</p>

Item	Proposed	Meet Requirements?	Comments
Open Space (RUD term) The RUD includes an open space plan, indicating certain areas to be set aside as community open space	The current plan does not encroach into those areas designated for open space	Yes	20.4 acres or 45.3% of the site has been preserved as open space, of which 12.98 acres are upland useable acres
Bicycle Parking (Sec. 2526)	A bike rack at the Island Lake clubhouse	Yes	While no bicycle parking spaces are required, the applicant has agreed to install a bike rack at the Island Lake Clubhouse in keeping with the spirit of the newly adopted bicycle parking ordinance
Lighting (Sec. 2511)	One 12 ft. tall street light in the Nepavine Dr. island at Ten Mile Rd.	Yes	

Prepared by Sara Roediger, AICP 248.735.5607 or sroediger@cityofnovi.org

Density Unit by Type Island Lake of Novi			
Unit Type	Approved in RUD Agreement	Approved to Date ¹	Proposed to Date ²
Single-Family Attached Cluster	219	Combined 294	Combined 294
Waterfront/ Woodland Attached Cluster	158		
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TOTAL DWELLING UNITS	884	858	903

¹ Approved to date includes:

- | | | |
|--|-------------------------------|---------------------------------|
| ▪ Vineyards (Phase 2A) | ▪ Vineyards (Phase 3A, B & C) | ▪ Shores South (Phase 5A) |
| ▪ Arbors, Arbors East, North Woods, Shores North, & Vineyards (Phase 2B) | ▪ South Harbor (Phase 3D) | ▪ Orchards (Phase 5B & C) |
| | ▪ Shores South (Phase 4A) | ▪ North Bay (Phase 6) |
| | ▪ Orchards (Phase 4B-1 & 2) | ▪ The Meadows (Phase 7A, B & C) |

² Proposed to date includes the 45 lots proposed as the Preserve at Island Lake (Phase 8)

MEMORANDUM



TO: PLANNING COMMISSION
FROM: SARA ROEDIGER, AICP, PLANNER
THROUGH: BARBARA MCBETH, AICP, DEPUTY DIRECTOR
OF COMMUNITY DEVELOPMENT
SUBJECT: THE PRESERVE AT ISLAND LAKE (PHASE 8), JSP13-69
PATHWAY ALIGNMENT ON NAPIER ROAD
DATE: DECEMBER 5, 2013

Discussion Item: Pathway Alignment on Napier Road

As discussed in the planning, engineering and wetland reviews, a meandering 6 ft. sidewalk is proposed along Ten Mile Road and an 8 ft. pathway is proposed along Napier Road. Pathways and sidewalks are required to be located within 1 foot of the future right-of-way, unless otherwise directed by the City Engineer, for the enhancement of natural resources. The City Council may grant variances to deviate from this requirement.

Through the review process, two alternatives for the pathway along the southern portion of Napier Road have emerged as the result of two important yet sometimes competing interests to preserve natural features and to provide a comprehensive and efficient non-motorized pathway system in the City. A comparison of the pros and cons for each option is provided in the table below.

Option A (Suggested Walk Alignment)	Option B (Applicant Preferred Walk Alignment)
Minimize the amount of deviation requested from City Ordinances	Require a deviation of up to 200 ft. at the furthest point (which is consistent to the deviation being considered along the northern portion of Napier Road due to wetlands)
Direct connection to the intersection of Napier Rd. and Ten Mile Rd.	People traveling north/south on Napier Rd. would need to travel 200 ft. out of their way, may result in people traveling in the Napier Rd. right-of-way
Require construction of a 260 ft.+ boardwalk that would result in greater wetland impact and greater maintenance costs	Require construction of a 40 ft.+ boardwalk that would result in less wetland impact due to a shorter wetland crossing and less maintenance costs
May require additional tree removals	Minimize the amount of tree removal
Design is a linear path that abuts the street	Design may result in a more interesting path that may be more enjoyable to traverse

Recommendation

Staff can see the merits of each of the options and suggest the Planning Commission review this matter and provide a recommendation to the City Council. Both options will result in a connected pathway system that respects the natural landscape, and as result staff continues to recommend Option A along the Napier Rd. frontage since this option most closely matches the ordinance standards.



Napier

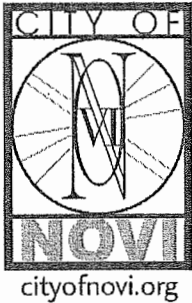
Option A
Suggested Walk Alignment

Option B
Preferred Walk Alignment
to Minimize Wetland
Impact



Know what's below.
Call before you dig.

ENGINEERING REVIEW



PLAN REVIEW CENTER REPORT

December 2, 2013

Engineering Review

Island Lake Phase 8

JSP13-0069

Petitioner

Toll Bros. Inc., applicant

Review Type

Revised Preliminary Site Plan

Property Characteristics

- Site Location: N. of Ten Mile Rd. and E. of Napier Rd.
- Site Size: 48.95 acres
- Plan Date: November 21, 2013

Project Summary

- Construction of a 45 unit single family subdivision on approximately 48.95 acres. Site access would be provided by Ten Mile Rd, Nepavine Dr and Kennebe Dr.
- Water service would be provided by the existing 12-inch water mains on Ten Mile Rd that would be extended through the proposed development as an 8-inch public water main. This main connects to the existing 8-inch stubs at Nepavine Dr and Kennebe Dr, providing a looped system.
- Sanitary sewer service for units 25 through 39 would be provided by an 8-inch sewer extension from the existing 8-inch sanitary sewer stub at Nepavine Dr. Sanitary sewer service for units 1 through 24 and 40 through 45 is provided by an 8-inch sewer which discharges into the proposed sanitary pump station on Ten Mile Rd, west of the proposed extension of Nepavine Dr. The force main from the pump station discharges into the 8-inch sewer extension from Nepavine Dr.
- Storm water would be collected by a single storm sewer collection system and discharged into the wetland at the western development boundary, ultimately flowing into a series of culverts underneath Napier Rd.

Recommendation

Approval of the Preliminary Site Plan and Preliminary Storm Water Management Plan is recommended.

Comments:

The Preliminary Site Plan meets the general requirements of Chapter 11, the Storm Water Management Ordinance and the Engineering Design Manual with the following items to be addressed at the time of Final Site Plan submittal (further engineering detail will be required at the time of the final site plan submittal):

General

1. The City standard detail sheets are not required for the Final Site Plan submittal. They will be required with the Stamping Set submittal.
2. Revise the plan set to clearly describe the public easement extents and widths for all sidewalks and pedestrian pathways outside of the right-of-way.
3. Note that all power and communication facilities shall be located in the rear yard of the proposed lots or approval by the Director of Public Services is needed for a variance from Appendix C – Subdivision Ordinance Article IV Section 4.06 – E.1 for the placement of franchise utilities outside of rear lot lines.
4. All requested variances from the Novi City Code must be clearly and specifically shown on the plan set. Blanket requests sought by using general language on the plan set for variances from the City Code are not permitted.

Water Main

5. Provide a profile for all proposed water main with a note stating that a minimum cover of five and one-half (5½) feet shall be maintained at all times, with a cover of six (6) feet maintained at all water main crossings under paved streets or other traveled areas.
6. Revise the note on sheet 12 to state that hydrants must be spaced at intervals no greater than 500 feet versus 'generally at 500' intervals' as provided.
7. Three (3) sealed sets of revised utility plans along with the MDEQ permit application (1/07 rev.) for water main construction and the Streamlined Water Main Permit Checklist should be submitted to the Engineering Department for review, assuming no further design changes are anticipated. Utility plan sets shall include only the cover sheet, any applicable utility sheets and the standard detail sheets.

Sanitary Sewer

8. The Water and Sewer Division has completed a flow analysis, which indicates that the Drakes Bay PS capacity needs to be upgraded to 1.38 cfs (620 gpm) to accommodate the flows from the proposed development. The "Drakes Bay System Capacity Analysis" tech memo is attached as reference.
9. The design engineer should demonstrate that an invert of 969.00 at the proposed pump station is sufficiently deep to provide sanitary sewer service to the 150 acre area south of 10 Mile Road.
10. Provide a profile for all proposed sanitary sewer with a note stating that a minimum cover of four (4) feet shall be maintained at all times for gravity sewers and five (5) feet for force mains. A minimum cover of eight (8) feet is required below finished road surface grades.
11. Provide a cross-section detail for the access drive servicing the proposed pump station off of Ten Mile Rd.

12. Seven (7) sealed sets of revised utility plans along with the MDEQ permit application (11/07 rev.) for sanitary sewer should be submitted to the Engineering Department for review, assuming no further design changes are anticipated. Utility plan sets shall include only the cover sheet, any applicable utility sheets and the standard detail sheets. The submitted application must meet all requirements listed in Wayne County's Sanitary Sewer Approval Checklist (8/28/2013) and is subject to any applicable review fees by the Wayne County Department of Public Services. For information regarding an expedited review by the MDEQ, please contact their office directly.

Storm Sewer

13. Provide a profile of the proposed storm sewer showing a minimum cover of 3 feet and all catch basin sumps. Any areas lacking sufficient cover must be identified for City review and will require a **Design and Construction Standards variance from Section 11-94(c)** for less than three (3) feet of cover to top of pipe.

Storm Water Management Plan

14. The Storm Water Management Plan for this development shall be designed in accordance with the Storm Water Ordinance and Chapter 5 of the new Engineering Design Manual.
15. Provide the detailed engineering for the "Typical Basin Outlet Control Structure" as shown on the plan set.
16. Revise the plan set to provide an access drive all structures associated with the basin equalization pipe. All maintenance access drives must be a minimum of fifteen (15) feet wide.
17. Consider revising the detention basin access drive from 21AA aggregate to a geosynthetic reinforced system.

Paving & Grading

18. Provide a **Design and Construction Standards Variance from Table VIII-A** of the Novi City Code for the reduced pavement width of 20 feet at the traffic calming device versus the standard 28 foot pavement width.
19. Provide a **Design and Construction Standards variance from Section 11-258(d) and Section 11-278(b)** for the segments of bicycle pathway on Napier Rd. and pedestrian safety path on Ten Mile Rd. located outside of right-of-way.
20. Revise note 8 on sheet to indicate a **maximum cross-slope** of 2% and a **maximum running slope** of 5%. Any running slope greater than 5% is considered a ramp and shall be treated as such.

The following must be submitted at the time of Final Site Plan submittal:

21. A letter from either the applicant or the applicant's engineer must be submitted with the Final Site Plan highlighting the changes made to the plans addressing each of the comments listed above and indicating the revised sheets involved.
22. An itemized construction cost estimate must be submitted to the Community Development Department at the time of Final Site Plan submittal for the determination of plan review and construction inspection fees. This estimate should only include the civil site work and not any costs associated with construction of the building or any demolition work. **The cost estimate must be itemized** for each utility (water, sanitary, storm sewer), on-site paving, right-of-way paving (including proposed right-of-way), grading, and the storm water basin (basin construction, control structure, pretreatment structure and restoration).

The following must be submitted at the time of Stamping Set submittal:

23. A draft copy of the maintenance agreement for the storm water facilities, as outlined in the Storm Water Management Ordinance, must be submitted to the Community Development Department with the Final Site Plan. Once the form of the agreement is approved, this agreement must be approved by City Council and shall be recorded in the office of the Oakland County Register of Deeds.
24. A draft copy of the 20-foot wide easement for the water main to be constructed outside of the right-of-way on the site must be submitted to the Community Development Department.
25. A draft copy of the 20-foot wide easement for the sanitary sewer to be constructed outside of the right-of-way on the site must be submitted to the Community Development Department.
26. A draft copy of the pathway and sidewalk easement for the facilities to be constructed outside of the right-of-way on the site must be submitted to the Community Development Department.
27. A 20-foot wide easement where storm sewer or surface drainage crosses lot boundaries must be shown on the Exhibit B drawings of the Master Deed.

The following must be addressed prior to construction:

28. A pre-construction meeting shall be required prior to any site work being started. Please contact Sarah Marchioni in the Community Development Department to setup a meeting (248-347-0430).
29. A City of Novi Grading Permit will be required prior to any grading on the site. This permit will be issued at the pre-construction meeting. Once determined, a grading permit fee must be paid to the City Treasurer's Office.
30. An NPDES permit must be obtained from the MDEQ because the site is over 5 acres in size. The MDEQ requires an approved plan to be submitted with the Notice of Coverage.

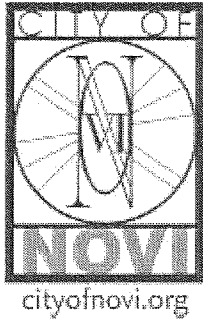
31. A Soil Erosion Control Permit must be obtained from the City of Novi. Contact Sarah Marchioni in the Community Development Department (248-347-0430) for forms and information.
32. A permit for work within the right-of-way of Ten Mile Rd. and Napier Rd. must be obtained from the City of Novi. The application is available from the City Engineering Department and should be filed at the time of Final Site Plan submittal. Please contact the Engineering Department at 248-347-0454 for further information.
33. A permit for work within the right-of-way of Ten Mile Rd. and Napier Rd. must be obtained from the Road Commission for Oakland County. Please contact the RCOC (248-858-4835) directly with any questions. The applicant must forward a copy of this permit to the City. Provide a note on the plans indicating all work within the right-of-way will be constructed in accordance with the Road Commission for Oakland County standards.
34. A permit for water main construction must be obtained from the MDEQ. This permit application must be submitted through the City Engineer after the water main plans have been approved.
35. A permit for sanitary sewer construction must be obtained from the MDEQ. This permit application must be submitted through the City Engineer after the sanitary sewer plans have been approved.
36. Construction Inspection Fees to be determined once the construction cost estimate is submitted must be paid prior to the pre-construction meeting.
37. A storm water performance guarantee, equal to 1.5 times the amount required to complete storm water management and facilities as specified in the Storm Water Management Ordinance, must be posted at the Treasurer's Office.
38. An incomplete site work performance guarantee, equal to 1.5 times the amount required to complete the site improvements (excluding the storm water detention facilities) as specified in the Performance Guarantee Ordinance, must be posted at the Treasurer's Office.
39. A street sign financial guarantee in an amount to be determined (\$400 per traffic control sign proposed) must be posted at the Treasurer's Office.

Please contact Adam Wayne at (248) 735-5648 with any questions.



cc: Matt Preisz, Engineering
Brian Coburn, Engineering
Time Kuhns, Water & Sewer
Sara Roediger, Community Development Department
Michael Andrews, Water & Sewer Dept.

MEMORANDUM

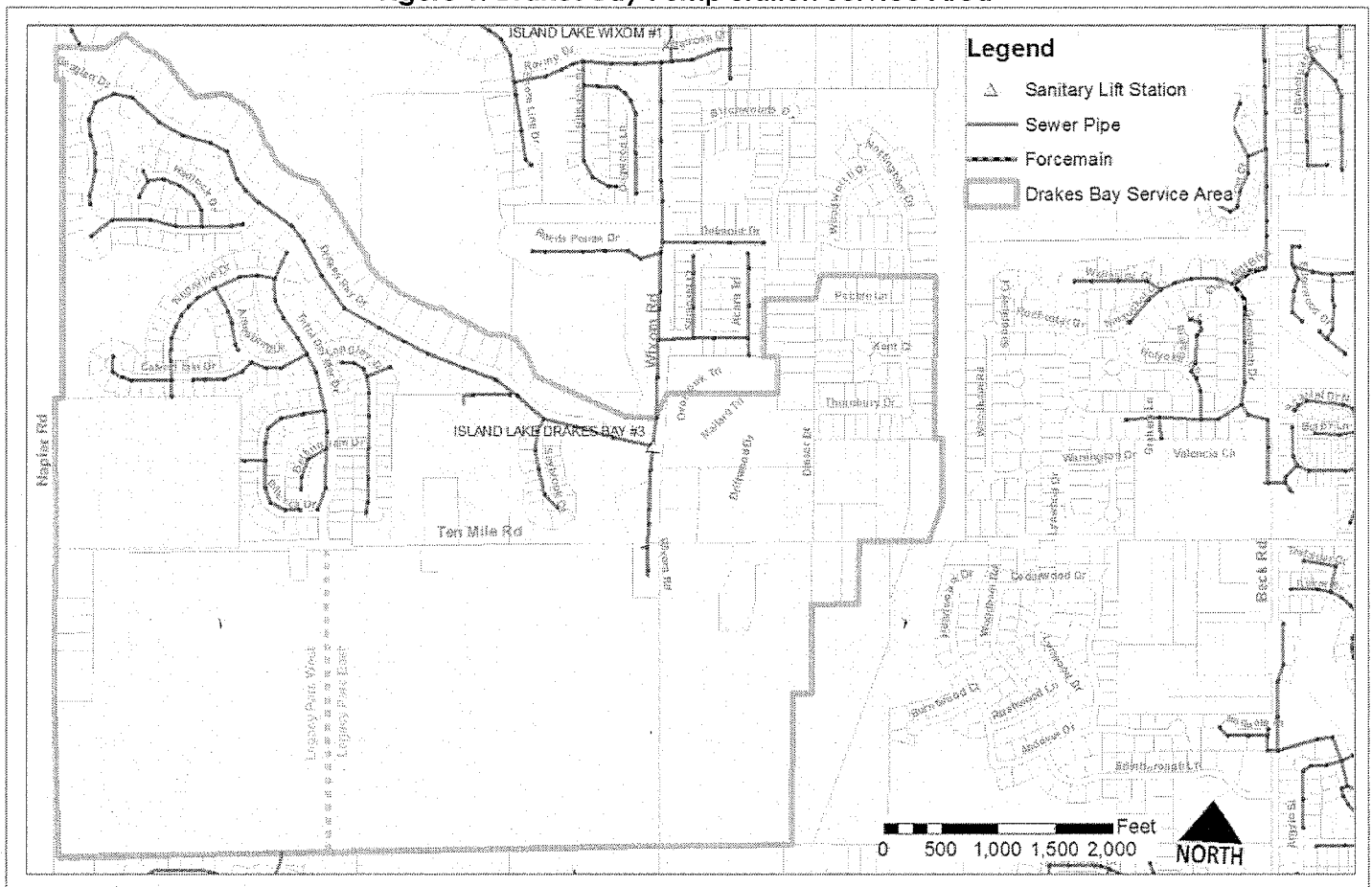


TO: ROB HAYES, DIRECTOR OF PUBLIC SERVICES/CITY ENGINEER
FROM: TIM KUHNS, SENIOR WATER AND SEWER ENGINEER
SUBJECT: DRAKES BAY SYSTEM CAPACITY ANALYSIS
DATE: NOVEMBER 7, 2013

Introduction

The City of Novi recognizes the importance of better managing its sanitary collection system in order to meet regulatory and customer expectations, including ensuring that adequate capacity is available for existing customers and new development. With this objective in mind, the Water and Sewer Division has performed an evaluation of the Drakes Bay pump station tributary area to evaluate the pump station performance for peak flow conditions during existing and future development scenarios. Figure 1 shows the location and layout of the Drakes Bay pump station study area.

Figure 1: Drakes Bay Pump Station Service Area



Methodology

The evaluation of peak design flows for the study area used the following methodology:

1. Perform Infiltration and Inflow (I/I) Analysis of System

An analysis of the I/I levels within the system was performed to demonstrate how antecedent moisture (i.e., the level of soil saturation before a storm event) and rainfall conditions impact peak flows and hydrograph volumes.

2. Evaluation of Existing Flows (Hydrologic Model Development)

A hydrologic model was calibrated using rainfall, temperature, and flow measurements from the Drakes Bay pump station tributary area using the i3D antecedent moisture model during the monitoring period from 2009 to present to characterize the existing system flows during wet weather conditions. The hydrologic model calibration results are contained in the Appendix. Once the hydrologic model is calibrated such that it provides a good representation of system flows, the model is used to develop a long term simulation of flows to estimate the peak design flows to the station as defined by the Michigan Department of Environmental Quality (MDEQ).

3. Evaluation of Future System Flows

To evaluate future system flows, site plans were compiled from recent development site plan submittals to estimate additional planned development flows. For remaining vacant parcels, a development density was assumed based on land use master planning to estimate additional future development flows. The estimated flows based on these planned and future developments were then added to the existing flows to establish a future design flow condition.

4. Recommended Upgrades for Existing and Future Design Flow Conditions

Once the peak design flows were estimated as part of the frequency analysis, the pump station performance could be evaluated for existing and future flow conditions. System upgrades would be identified to accommodate design flows.

I/I Analysis

An analysis of I/I levels within the system was performed at the Drakes Bay pump station to demonstrate how antecedent moisture and rainfall conditions impact peak flows. I/I levels were quantified by computing capture coefficients for several key storm events during the flow monitoring period from 2009 to present. The capture coefficient represents the percent of the total rainfall volume over the service area that enters the sanitary collection system. A summary of the I/I analysis for the Drakes Bay pump station is provided in Table 1.

Table 1: I/I Analysis of the Drakes Bay Pump Station

Storm	Rain (in)	RDII Volume (Mcf)	Capture %
8/8/2009	3.84	2	0.02%
6/4/2010	5.18	6.5	0.06%
4/27/2011	1.21	18.8	0.70%
5/15/2011	0.59	5.2	0.39%
5/24/2011	3.01	13.5	0.20%
7/27/2011	1.72	1.5	0.04%
3/2/2012	0.75	5.1	0.31%
7/27/2012	0.44	1.6	0.16%
4/11/2013	0.95	9	0.42%
4/17/2013	1.25	12.8	0.46%
4/23/2013	0.27	3.3	0.54%
	Highest C%		0.70%
	Lowest C%		0.02%
	AM Variability		3500.0%

Notes

1. RDII = Rainfall Dependent Inflow and Infiltration
2. Total Service Area = 612 acres.
3. Mcf = Thousands of cubic feet
4. RDII Volumes do not contain base groundwater flows

The I/I analysis indicates that the capture coefficients can vary by as much as 3,500% for different storm events. The analysis also shows that (per inch of rain) the capture coefficients are typically higher during the wet spring months and lower during the dry summer. These findings indicate that antecedent moisture conditions vary significantly between events and that a hydrologic model that takes into account varying antecedent moisture conditions is needed to analyze the system.

Evaluation of Existing Flows (Hydrologic Model Development)

The i3D Antecedent Moisture (AM) Model was calibrated and validated using hydrologic measurements for the Drakes Bay tributary area from 2009 to present to characterize the system flows during wet weather conditions. The i3D model uses rainfall and air temperature to continuously determine the surface and sub-surface soil moisture conditions and adjusts the hydrologic model to account for these varying antecedent moisture conditions. The calibration results for the Drakes Bay pump station are presented in Table 2.

Table 2: Summary of Calibration Results

Storm	Rain (in)	Observed Peak (cfs)	Model Peak (cfs)	Peak Flow Error (%)	Observed Vol (1000's cf)	Model Vol (1000's cf)	Volume Error (%)
08/08/09	3.84	0.14	0.16	19.2%	5	7	46.7%
06/04/10	5.18	0.22	0.25	14.4%	12	12	-2.6%
05/14/11	0.59	0.20	0.14	-31.2%	8	7	-10.7%
04/26/11	1.21	0.51	0.49	-3.1%	25	22	-10.5%
05/24/11	3.01	0.46	0.35	-22.2%	21	21	1.1%
06/17/12	0.44	0.06	0.05	-22.3%	1	1	-19.5%
02/28/12	0.75	0.18	0.20	11.7%	16	15	-3.5%
04/17/13	1.25	0.32	0.38	17.9%	20	21	7.4%
04/10/13	0.95	0.40	0.45	11.9%	18	19	3.7%
04/28/13	0.27	0.10	0.08	-27.6%	8	7	-18.7%
Net Average Error				-3.1%			-0.7%
Total Average Error				18.2%			12.4%

Both net error and total error were calculated in Table 2. Net error is the average of all the errors and allows positive and negative values to offset each other. The net error is a measure of the model bias and should be as close to zero as possible. Total error is the average of the absolute value of the errors and is a measure of the model's ability to predict volumes and flows for individual storm events. The detailed calibration and validation results are provided in the Appendix of this memo. A review of the net and total errors shown in Table 2 shows that the calibrated model has a net peak error of -3.1% and a net volume error of -0.7% indicating that the model has little or no bias. The net and total errors are considered excellent for a single, continuous model that simulates capture coefficients that can vary by as much as 3500% from wet and dry conditions, as tabulated in the I/I analysis. These findings indicate that the model is suitable for use in estimating design flow conditions.

The MDEQ policy statement on Sanitary Sewer Overflows (SSOs) provides guidance for estimating design flow conditions. The policy states that it does not authorize the discharge of raw or partially treated SSOs; however, enforcement discretion will be considered for collection systems that have capacity to handle the 25-year, 24-hour remedial design storm during growth season and normal soil moisture conditions. The MDEQ SSO policy indicates that systems that have capacity to handle the 25-year, 24-

hour remedial design condition will have on average less than one overflow per ten years. In effect, the policy allows for continuous simulation and frequency analysis to estimate the 10-year frequency design flow condition (less than one overflow per ten years).

In order to perform a frequency analysis of flows to estimate design flow conditions, the calibrated hydrologic model was used to simulate a long-term record of flow for the study area using rainfall and temperature measurements from Detroit City Airport (DCA) from 1949 to 2000 as inputs to the model. The simulated record of flows represents the predicted flows for the Drakes Bay pump station study area assuming that the DCA rainfall pattern (from 1949 to 2000) fell over the study area. The predicted flows should provide a good representation of study area flows as the model had good calibration results. The DCA gage was used as it was the nearest gage with long-term and reliable rainfall data for the purposes of a long-term simulation. The location of the rain gage is not as important as having a rain gage that provides a good representation of the regional long-term climate patterns of the study area. Examination of the intensity, duration and frequency (IDF) characteristics published in the Rainfall Frequency Atlas of the Midwest (Huff & Angel, 1992) shows very little difference in the IDF characteristics between the DCA gauge and the study area.

The top fifty-two (52) peak flow rates from the long-term flow simulation were summarized as a partial duration series and this series was used to perform a frequency analysis to estimate the 10-year frequency design flow condition. Figure 2 depicts the frequency analysis for the Drakes Bay pump station.

As the final check in the calibration process, a macro-level comparison was also performed with the frequency analysis by plotting the actual yearly maximum flow rates measured at the pump station from 2009 to 2013. The blue triangle data points represent the actual measured flows and show concurrence with the modeled data points indicating an overall good model fit.

Figure 2: Drakes Bay Pump Station Frequency Analysis

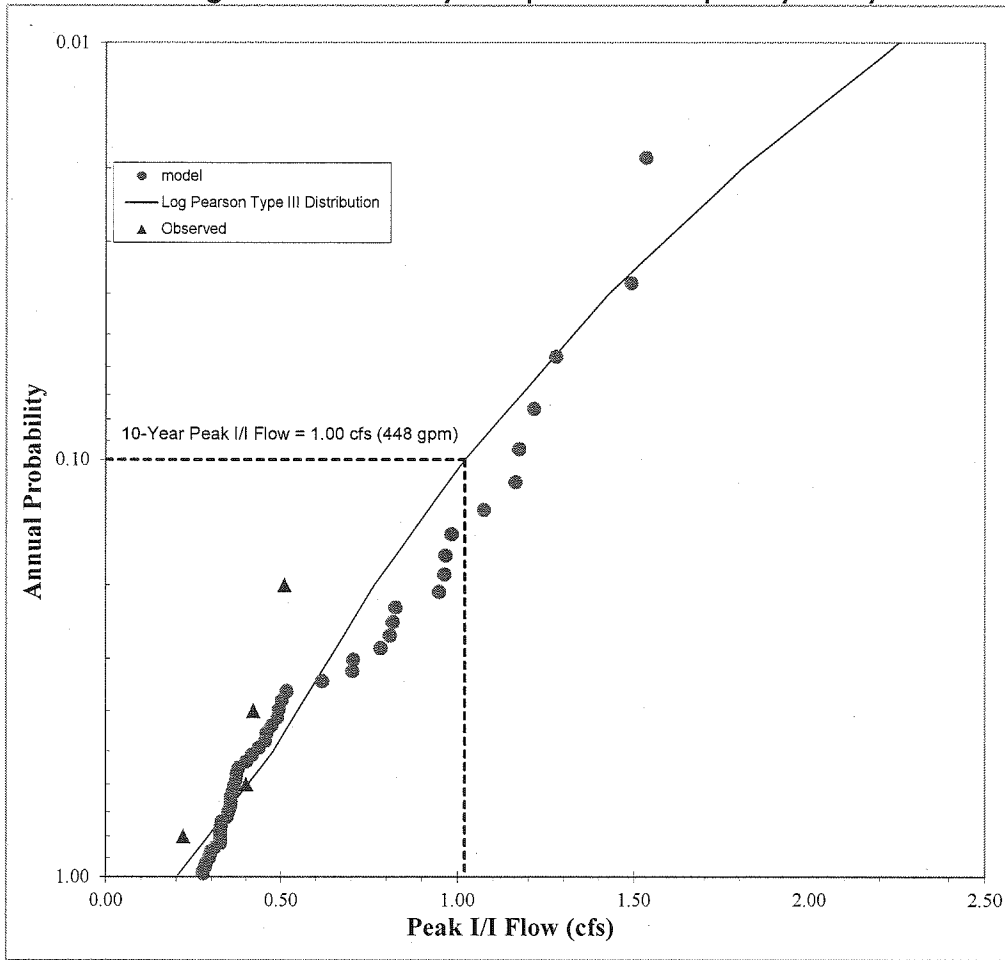


Table 3 summarizes the existing design flows to the Drakes Bay pump station. The evaluation of existing flows indicates that the current design flows to the pump station are close to exceeding of the pump station capacity.

Table 3: Existing Design Flows to Pump Station

Existing Base Flow	0.04	cfs	metered
Projected Design Wet Weather Flow	1.00	cfs	From Statistics
Existing Design Peak Flow	1.04	cfs	A + B
Current PS Capacity	1.11	cfs	From Pump Curves

Evaluation of Future System Flows

To evaluate future system flows, plans were compiled from recent development site plan submittals to estimate additional planned development flows. For remaining vacant parcels, a development density was assumed based on land use master

planning to estimate additional future development flows. Figure 3 provides a map depiction of the future users and associated residential equivalent units (REUs) for the Drakes Bay pump station district.

Figure 3: Future Users and REUs

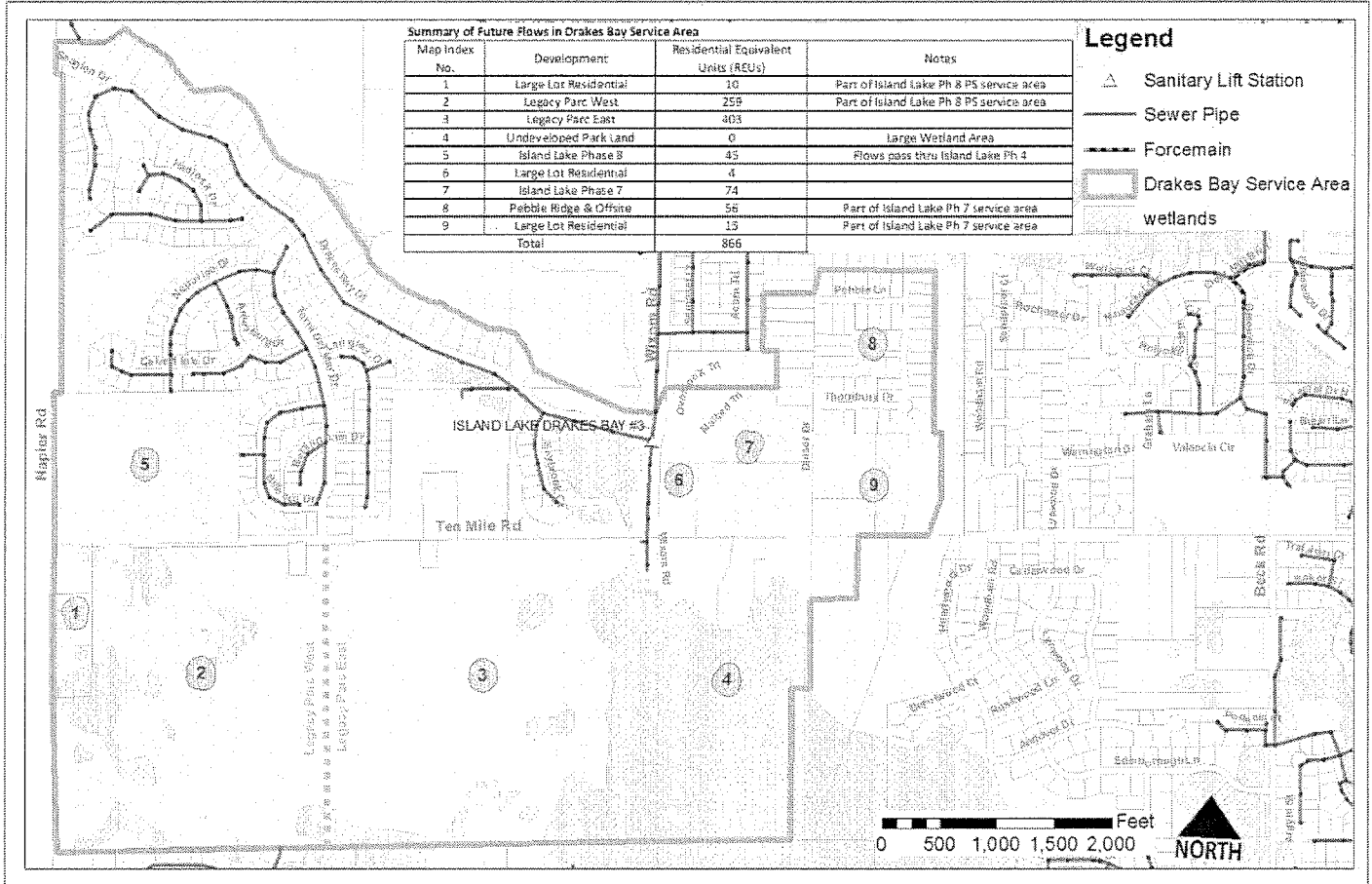


Table 4 provides a summary of the planned developments, which have pending site plan submittals or special assessment district (SAD) petitions that are likely to connect to the pump station within the next five years.

Table 4: Planned Connections within the Drakes Bay Service Area

Island Lake Phase 8	45	REU
Island Lake Phase 7	74	REU
Pebble Ridge & Offsite	56	REU
Additional Short-Term Development	175	REU
Estimated Short Term Population Growth	560	persons
Additional Short-Term Dry Weather Flows	0.09	cfs
Additional Short-Term Peak Flows	0.34	cfs

Notes

1. 3.2 persons per REU assumed
2. 100 gallons per person per day assumed
3. 10 States Peaking Factor Equation Used: $(18+(P/1000)^{0.5})/(4+(P/1000)^{0.5})$

The analysis of planned connections indicates short-term capacity upgrades are needed to the Drakes Bay Pump Station to increase the station's capacity to 1.38 cfs to accommodate the existing (1.04 cfs) and planned (0.34 cfs) flows to the station.

Table 5 provides a summary of all future developments that would connect to the system based on full build-out.

Table 5: Future System Flows

Future Connections	866	REU
Estimated Population Growth for Pump Station	2771	Persons
Additional Average Dry Weather Flow at 100 gpcd	0.43	cfs
Additional Future Peak Flow	1.49	cfs

Notes

1. 3.2 persons per REU assumed
2. 100 gallons per person per day assumed
3. 10 States Peaking Factor Equation Used: $(18+(P/1000)^{0.5})/(4+(P/1000)^{0.5})$

In Table 5, the future additional flows were computed based on the estimated number of additional users as presented in Figure 3. To evaluate the total future flows to the Drakes Bay pump station, the existing flows were added to the future additional flows. A summary of the total future flows is contained in Table 6.

Table 6: Summary of Future Total Flows

Existing Design Peak Flow	1.04	cfs
Additional Future Peak Flow	1.49	cfs
Total Future Design Peak Flow	2.53	cfs

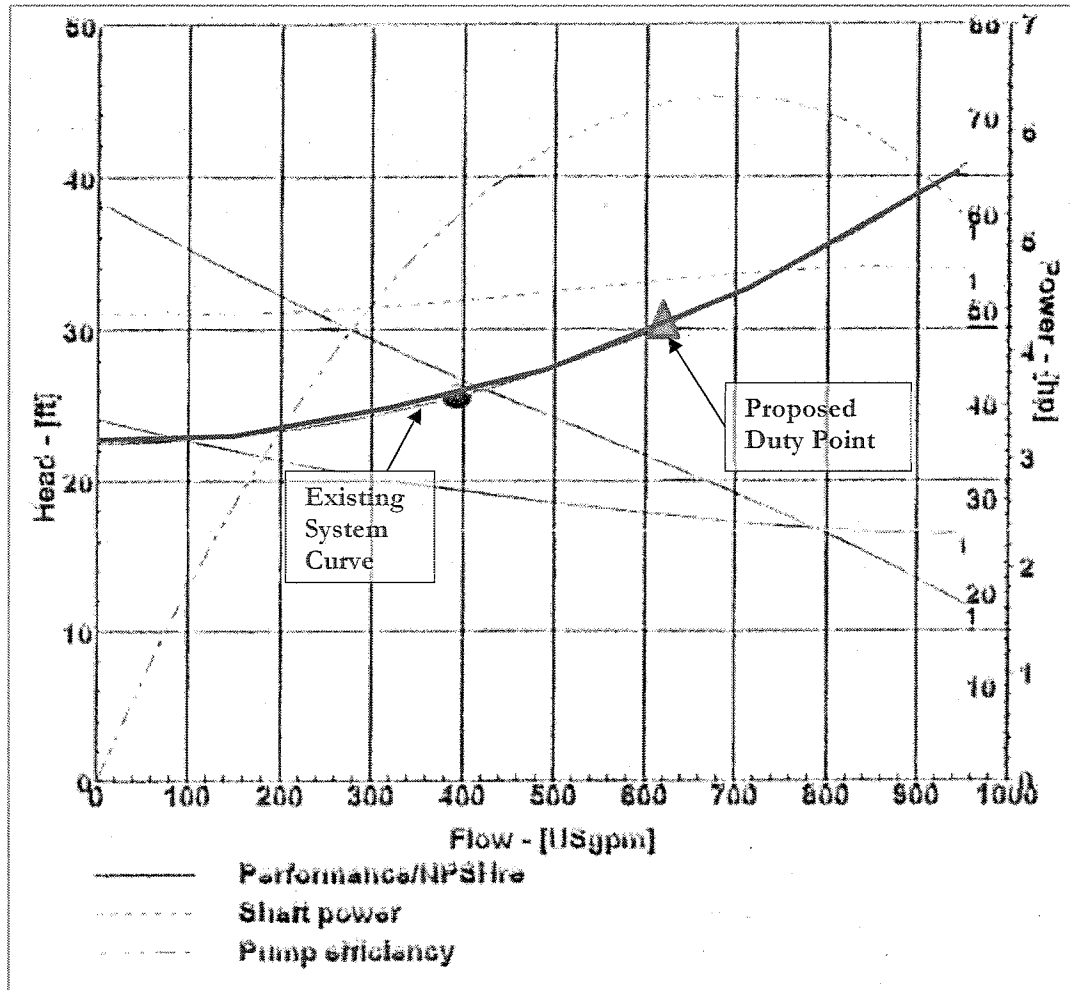
The existing capacity of the Drakes Bay Pump Station is 1.11 cfs, which will be exceeded during short-term (1.38 cfs) and full build-out (2.53 cfs) design flow conditions. Therefore, upgrades are required at the pump station to convey short-term and full build-out design flows.

Recommended Upgrades for Existing and Full Build-Out Flow Conditions

Based on the flow analysis, short-term and full build-out design flow conditions required upgrades to the Drakes Bay Pump Station as follows:

1. Short-Term Upgrades are needed to the Station to increase the capacity to 1.38 cfs (620 gpm). The existing system curve for the Station is presented in Figure 4.

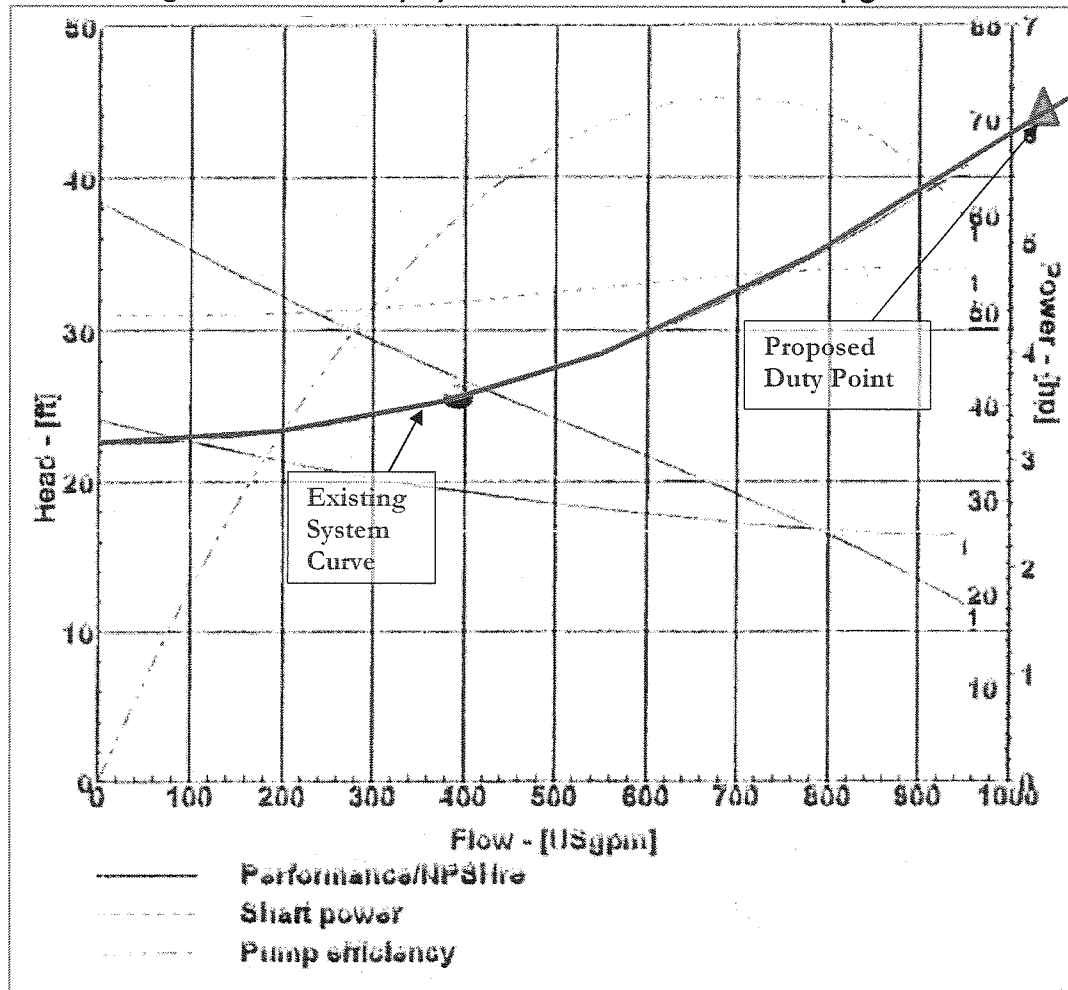
Figure 4: Drakes Bay System Curve – Short-Term Upgrades



The system curve calculations should be verified, but assuming that the original system curve was computed correctly, the proposed duty point for the upgrades is 1.38 cfs (620 gpm) @ 31 ft. TDH. It will be necessary to evaluate whether the existing pumps can be fit with a larger impeller, or if larger pumps are necessary to accommodate the new duty point. If larger pumps are needed, it will also be necessary to verify that the existing wet-well (6 ft. diameter) and electrical systems (including generator) are large enough to accommodate larger pumps.

2. Full Build-Out Upgrades are needed to the Station to increase the capacity to 2.53 cfs (1,135 gpm). The existing system curve for the Station is presented in Figure 5.

Figure 5: Drakes Bay System Curve – Full Build-Out Upgrades



Assuming that the original system curve was computed correctly, the proposed duty point for the upgrades is approximately 2.53 cfs (1,135 gpm) @ 45 ft. TDH. Larger pumps will be necessary to accommodate the full build-out duty point. It will be necessary to verify that the existing wet-well (6 ft. diameter) and electrical systems (including generator) are large enough to accommodate larger pumps. For future build-out conditions, a capacity analysis of the receiving sewer downstream of the Drakes Bay Pump Station should be performed to evaluate if upgrades are needed to this sewer. The existing 12-inch receiving sewer has a nominal capacity of 1.95 cfs and the future build-out design flow from the Drakes Bay Pump Station is 2.53 cfs. This finding indicates upgrades are needed to this portion of the collection system. The capacity analysis for this portion of the system will be summarized in a separate "Wixom Road System Capacity Analysis" technical memo.

Cc: Brian Coburn, Engineering Manager
Adam Wayne, Staff Engineer
Scott Roselle, Water and Sewer Asset Manager

Appendix

Model Calibration Results

Drakes Bay Pump Station
 Model Parameters
 Model version : i3dLab v. 2.8 r.30

BD Lab: Model Portal

New Model Duplicate Model Delete Model Feedback

Model: DrakesBay No 4 Primary

Base Flow Constant 0.02

Inflow

Shape Factor 1

Response Factor 0.068

Response Time 0

Delay 2

Antecedent Moisture

AM Retention 0.988

Temp Memory 240

show	temp	factor
low	30	2
high	70	0.0240
alt	30	0.7957

Alt Date October 01

Infiltration

Shape Factor 5

Response Factor 0.004

Response Time 0

Delay 0

Antecedent Moisture

AM Retention 0.9

Temp Memory 240

show	temp	factor
low	30	2
high	70	1
alt	30	2

Alt Date October 01

Base Flow

Shape Factor 8

Response Factor 0.001

Response Time 0

Delay 0

Antecedent Moisture

Temp Memory 240

show	temp	factor
low	30	0.0100
high	70	1.0000...
alt	30	0.0100

Alt Date October 01

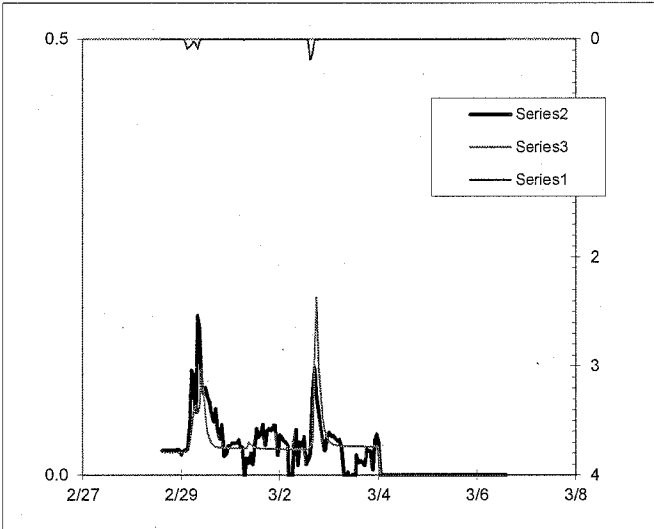
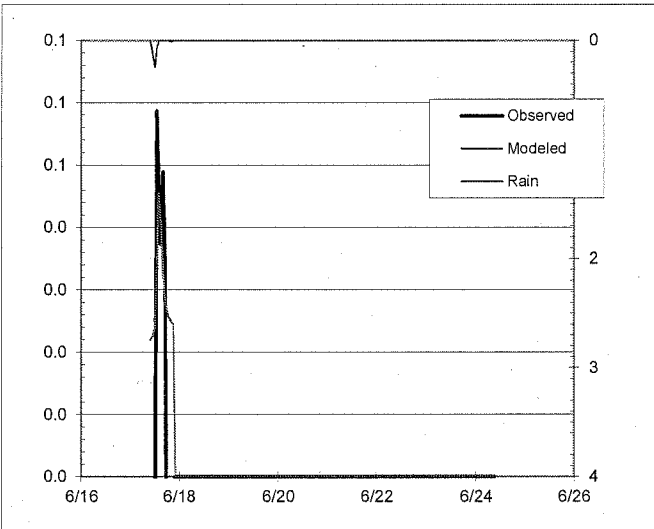
Drakes Bay PS - Antecedent Moisture Model - Accuracy of Fit Analysis Calibration Events - 2008

Storm	Rain (in)	Observed Peak (cfs)	Model Peak (cfs)	Peak Flow Error (%)	Observed Vol (1000's cf)	Model Vol (1000's cf)	Volume Error (%)	Notes
06/17/12	0.44	0.1	0.0	-22.3%	1	1	-19.5%	
02/28/12	0.75	0.2	0.2	11.7%	16	15	-3.5%	

Net Average Error	-5.3%
Total Average Error	17.0%

-11.5%
11.5%

Flow (cfs) on primary Y axis, Rain (in) on secondary Y axis



TRAFFIC REVIEW

December 2, 2013

Barbara McBeth, AICP
Deputy Director of Community Development
City of Novi
45175 W. Ten Mile Rd.
Novi, MI 48375

**SUBJECT: Island Lake Phase 8, JSP13-0069,
Traffic Review of Revised Preliminary Site Plan, PSP13-0182**

Dear Ms. McBeth:

At your request, we have reviewed the above and offer the following recommendation and supporting comments.

Recommendation

We recommend approval, subject to the items shown below in **bold** being satisfactorily addressed by the final site plan.

Site Description

What is the applicant proposing, and what are the surrounding land uses and road network?

1. The applicant is proposing a 45-home expansion of the Island Lake RUD. This phase will provide a new access point on Ten Mile as well as have street connections to Phase 5B to the north and Phase 5C to the east. There is a large wetland between the proposed new home sites and Napier Road to the west.
2. Ten Mile Road is a 50-mph two-lane arterial under the jurisdiction of the Road Commission for Oakland County. Based on 2011 traffic counts, this section of Ten Mile is now carrying at least 10,000 vehicles per day.

Traffic Study and Trip Generation

Was a traffic study submitted and was it acceptable? How much new traffic would be generated?

3. Forty-five single-family homes can be expected to generate 504 daily one-way trips, 41 in the AM peak hour (10 entering and 31 exiting) and 51 in the PM peak hour (32 entering and 19 exiting). Given the proposed connection to Island Lake Phase 5B, additional traffic from/to that phase can be expected to use the new access point on Ten Mile Road (e.g., traffic generated by 65 Phase 5B homes going to and from points west).
4. A traffic study for Phase 8 is unwarranted. As noted in our pre-application comments, however, our analysis shows that a left-turn lane will be required to safely serve left turns into the development. In response, the applicant now proposes such a road improvement.

Vehicular Access Locations

Do the proposed "driveway" locations meet City spacing standards?

5. Yes. The nearest existing driveway of any significance is Terra Del Mar Drive, approximately 1,050 ft to the east.

Vehicular Access Improvements

Will there be any improvements to the abutting road(s) at the proposed access point(s)?

6. A 50-ft-long westbound right-turn lane has been proposed. This length appears appropriate given the speed limit and moderate volume of entering right-turn traffic in the PM peak hour.
7. **The proposed widening of Ten Mile for the required eastbound center left-turn lane is still designed incorrectly. As pointed out in our review letter of November 6, the new street's effective centerline is the east curb of the boulevard island. The center lane should run from 150 ft west of that reference to 35 ft east (the revised plan under review references the island's west curb rather than its east curb).**
8. **The final site plan should include a separate sheet showing MMUTCD-compliant pavement markings associated with the proposed widening of Ten Mile along the site frontage. RCOC should be consulted to see whether or not it wants any special treatment between the center-lane taper striping (e.g., crosshatching or a corrugated divider).**

Access Drive Design and Control

Are the proposed design, pavement markings, and signage satisfactory?

9. The proposed boulevard island would be 100 ft long, the City-maximum length. The back-to-back island width would be 16 ft, more than the City standard of 10 ft but within the allowable range of 8-24 ft. **Per DCS Figure IX.3, the applicant must show cause for proposing an island width different than the City standard.**
10. **The final site plan should specify the striping of the proposed crosswalk at Ten Mile Road (assuming City Engineering approves its use at this location). The final site plan should also propose minimal signing – a STOP sign 4 ft in advance of the crosswalk and a diagrammatic Keep Right sign at each end of the boulevard island – and include such signing in the overall Signing Quantities Table (which will also include other signing internal to the site).**

Pedestrian Access

Are pedestrians safely and reasonably accommodated?

11. The proposed sidewalk stubs on both sides of the internal intersections are consistent with the "Complete Streets" philosophy and commendable. However, **ramps need to be shown in all sidewalk stubs as well as at the crosswalk at Ten Mile.**

Circulation and Parking

Can vehicles safely and conveniently maneuver through the site?

12. Overlook Court would be 1,000 ft long, the longest cul-de-sac allowed in a R-A zoning district having a zoning option decreasing lot size below the R-A minimum (e.g., within Island Lake).
13. It appears that all necessary plan-view dimensions related to the proposed street system (road widths, street centerline radii, and curb return radii) are included and meet City standards, with the exception of the two 20-ft-wide traffic calming chokers. **A City Council variance of the local-street width standard (28 ft) will be required for the chokers.**
14. **The final site plan will need to propose City-standard street-name signing at each intersection; a YIELD (R1-2) sign on each minor approach; City-standard Keep Right and No Parking signing on the cul-de-sac turnaround islands; and a 25-mph speed limit (R2-1(25)) sign on the property line between lots 44 and 45. All signing needs should be summarized in a Signing Quantities Table.**

Sincerely,
CLEARZONING, INC.

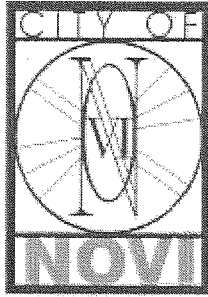


Rodney L. Arroyo, AICP
President



William A. Stimpson, P.E.
Director of Traffic Engineering

LANDSCAPE REVIEW



PLAN REVIEW CENTER REPORT
November 25, 2013
Revised Preliminary Landscape Review
Island Lake Phase 8 - JSP13-69

Petitioner

Toll Brothers, Inc.

Review Type

RUD Amendment and Revised Preliminary Site Plan

Property Characteristics

Site Location: Northeast corner of Ten Mile Road and Napier Roads (Section 19)
Site Zoning: RA, Residential Acreage
Adjoining Zoning: North and East: RA with RUD; South: RA and R-1; West: Lyon Township R-2.5 Agricultural Residential
Current Site Use: Vacant
Adjoining Uses: North and East: Single-family residential/Existing RUD; South: Links of Novi golf course and church; West: Lyon Township Agricultural
School District: South Lyon Community Schools
Site Size: 48.95 acres
Plan Date: 11-22-2013

Recommendation

Approval of the RUD Plan and Preliminary Site Plan for Island Lake Phase 8 - JSP#13-69 is recommended.

Please address the concerns noted below upon subsequent submittal. Please respond in writing to document any site plan revisions made in regard to the concerns listed below.

Ordinance Considerations

Adjacent to Residential – Buffer (Sec. 2509.3.a.)

1. The property is adjacent to residential properties on all sides. No buffer is required.

Adjacent to Public Rights-of-Way – Berm (Wall) & Buffer (Sec. 2509.3.b.)

1. A 3' tall landscape buffer berm is required along the Ten Mile and Napier Road frontages. However, due to the existing vegetation, wetlands and distance of the proposed lots from the roads, this may not be prudent for the entire frontages. Staff recommends that a landscaped berm only be provided along the Ten Mile frontage of lots 1, 2, and 45. **The Planning Commission may grant a waiver for the remainder of the frontages. Staff would support the waiver.**
2. One canopy tree per 35 l.f. is required along the berm area. This requirement has been met.

3. One subcanopy tree per 20 l.f. is required along the berm area. This requirement has been met.

Street Tree Requirements (Sec. 2509.3.b.)

1. One street tree is required per 35 l.f. of road frontage. This requirement has been met for the interior roadway. Vegetation along the exterior main roads will be maintained.

Parking Landscape (Sec. 2509.3.c.)

1. No parking areas are proposed.

Building Foundation Landscape (Sec. 2509.3.d.)

1. Only single family residences are proposed. No foundation landscape is required under the ordinance.

Plant List (LDM)

1. The Plant List meets the requirements of the Ordinance and Landscape Design Manual.

Planting Details & Notations (LDM)

1. Planting Details and Notations meet the requirements of the Ordinance and Landscape Design Manual.

Storm Basin Landscape (Sec. 2509.3.e.(4)) & LDM

1. A total of 70% to 75% of storm basin rims are required to be planted with large shrubs. While the Applicant has placed trees around the basins, they must add groupings of shrubs to meet the requirement.

Irrigation (Sec. 2509 3.f.(6)(b))

1. All landscape areas are required to be irrigated.

General

1. Please see woodland and wetland reviews for additional comments.

Please follow guidelines of the Zoning Ordinance and Landscape Design Guidelines. This review is a summary and not intended to substitute for any Ordinance. For the landscape requirements, see the Zoning Ordinance landscape section on 2509, Landscape Design Manual and the appropriate items in the applicable zoning classification. Also see the Woodland and Wetland review comments.

Reviewed by: David R. Beschke, RLA

Financial Requirements Review

To be completed at time of Final Site Plan Review.

Item	Amount	Verified	Adjustment	Comments
Full Landscape Cost Estimate	\$ 130,884			Includes street trees. Does not include irrigation costs.
Final Landscape Review Fee	\$ 1,963.26			1.5% of full cost estimate Any adjustments to the fee must be paid in full prior to stamping set submittal.

Financial Requirements (Bonds & Inspections)

Item	Required	Amount	Verified	Comments
Landscape Cost Estimate	YES	\$ 69,684		Does not include street trees. Includes irrigation.
Landscape Financial Guaranty	YES	\$ 104,526		This financial guarantee is based upon 150% of the verified cost estimate. For Commercial, this letter of credit is due prior to the issuance of a Temporary Certificate of Occupancy. For Residential this is letter of credit is due prior to pre-construction meeting.
Landscape Inspection Fee (Development Review Fee Schedule 3/15/99)	YES	\$ 4,181.04		For projects up to \$250,000, this fee is \$500 or 6 % of the amount of the Landscape cost estimate, whichever is greater. This cash or check is due prior to the Pre-Construction meeting.
Landscape Administration Fee (Development Review Fee Schedule 3/15/99)	YES	\$ 627.15		This fee is 15% of the Landscape Inspection Fee. This cash or check is due prior to the Pre-Construction meeting.
Transformer Financial Guarantee	NO	\$ 0		\$500 per transformer if not included above. For Commercial this letter of credit is due prior to the issuance of a Temporary Certificate of Occupancy. For Residential this is letter of credit is due prior to pre-construction meeting.
Street Tree Financial Guaranty	YES	\$ 61,200		\$400 per tree.
Street Tree Inspection Fee	YES	\$ 3,672		6% of the Street Tree Bond as listed above.
Street tree Maintenance Fee	YES	\$ 3,825		\$25 per tree.
Landscape Maintenance Bond	YES	\$ 6,968.40		10% of verified cost estimate due prior to release of Financial Guaranty.

WOODLAND REVIEW



Environmental Consulting & Technology, Inc.

November 27, 2013

Ms. Barbara McBeth
Deputy Director of Community Development
City of Novi
45175 West Ten Mile Road
Novi, MI 48375

Re: Island Lake Phase 8 (JSP13-0069)
The Preserve at Island Lake
Woodland Review of the Revised Preliminary Site Plan (PSP13-0182)

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) has reviewed the Revised Preliminary Site Plan (Plan) for the proposed *The Preserve at Island Lake - Phase 8* project prepared by Alpine Engineering, Inc. dated November 21, 2013 and stamped "Received" by the City of Novi on November 22, 2013. The Plan was reviewed for conformance with the City of Novi Woodland Protection Ordinance Chapter 37.

The proposed development is located northeast of the intersection of Ten Mile Road and Napier Road in Section 19. The proposed project involves the construction of a 45-unit site condominium development, associated roads and utilities and storm water detention basin.

What follows is a summary of our findings regarding on-site woodlands associated with the proposed project.

Onsite Woodland Evaluation

ECT has reviewed the City of Novi Official Woodlands Map and completed an onsite woodland evaluation on Wednesday, October 23, 2013.

The entire site is approximately 49 acres with regulated woodland mapped across the majority of the property (see Figure 1). The site contains sections of old field as well as relatively immature forest and forested wetlands on the west side of the site (along Napier Road). On-site woodland is dominated by black cherry, American basswood, silver maple, box elder, American elm and several other species.

The surveyed trees have been marked with either metal tags hung on fishing line, or with spray paint, allowing ECT to compare the tree diameters reported on the *Tree List* to the existing tree diameters in the field. ECT took numerous diameter-at-breast-height (d.b.h.) measurements and found that some of the data provided in the *Tree Lists* was at times inconsistent with the field measurements.

2200 Commonwealth
Blvd., Suite 300
Ann Arbor, MI
48105

(734)
769-3004

FAX (734)
769-3164

A number of inconsistencies that were indicated in our Woodland Review of the Preliminary Site Plan dated November 13, 2013 have now been corrected by the Applicant's Landscape Consultant.

Proposed Woodland Impacts

Per the *Woodland Summary* calculations on Sheet L-6 the Plan proposes the removal of **235** regulated trees with d.b.h. greater than or equal to 8 inches, requiring a total of **343** replacement credits.

Discrepancies appear to exist between the information provided in the summary tables and that shown in the *Tree List* information provided on Sheets L-5 and L-6.

Assessment of the *Tree List* information by ECT indicates that a total of 328 Woodland Replacements are required (*i.e., this quantity has been calculated by ECT*). This result appears to be in conflict with the quantities provided by the Applicant in the summary tables. **ECT encourages the Applicant to provide a column on the *Tree List* (Sheets L-5 and L-6) that provides the Woodland Replacements Required for each proposed tree removal. ECT suggests that the Applicant review and revise the Woodland Replacement requirements as necessary. It should be noted that any individual stems of multi-stemmed trees that are less than 8 inches d.b.h. are not included in the calculation of required Woodland Replacements. This is likely leading to the discrepancy in the required Woodland Replacement quantity.**

Please note that the City of Novi requires replacements according to the following Table:

Replacement Tree Requirements Table

Removed Tree D.B.H. (In Inches)	Ratio Replacement/ Removed Tree
$\geq 8 \leq 11$	1
$> 11 \leq 20$	2
$> 20 \leq 29$	3
≥ 30	4

As noted in our previous woodland review letter, for multi-stemmed trees, Woodland Replacements required are calculated by summing the d.b.h. of each stem greater than or equal

to 8 inches and dividing the total by 8. All fractional Woodland Replacements required are rounded up to the nearest whole tree replacement. Again, stems less than 8-inches d.b.h. are not included.

Woodland Impact Review

Per summary calculations in the *Woodland Summary* (Sheet L-6), the Plan proposes the removal of **235** regulated trees with d.b.h. greater than or equal to 8 inches, requiring a total of **343** replacement credits.

After review of the *Tree List* (Sheets L-5 and L-6) as well as a spreadsheet provided by the Applicant's Landscape Consultant, ECT concurs with the total of 235 regulated trees to be removed. However, as noted above, ECT tallied a total of **328** Woodland Replacement Trees required. This number is not consistent with the number of Woodland Replacements required as indicated on the Plan.

Comments

1. A Woodland Permit from the City of Novi would be required for proposed impacts to any trees 8-inch d.b.h. or greater. Such trees shall be relocated or replaced by the permit grantee. All replacement trees shall be two and one-half (2 ½) inches caliper or greater.
2. There appear to be several items on the *Landscape Plan* (Sheet L-1) that appear to require revision:
 - a. The *Plant List – Woodland Replacement Trees* indicates a total of 392 Woodland Replacement Trees provided (98 evergreen trees and 294 deciduous trees). A tally of the deciduous trees in list appears to result in 293 deciduous trees. Please review and revise as necessary.

Island Lake Phase 8 (JSP13-0069)
The Preserve at Island Lake
Woodland Review of the Revised Preliminary Site Plan (PSP13-0182)
November 27, 2013
Page 4 of 5

Recommendation

ECT recommends conditional approval of the Revised Preliminary Site Plan with the condition that the Applicant address the items noted above under "Comments" in subsequent site plan submittals.

If you have any questions regarding the contents of this letter, please contact us.

Respectfully submitted,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.



Pete Hill, P.E.
Senior Associate Engineer

cc: David Beschke, City of Novi, Licensed Landscape Architect
Kristen Kapelanski, AICP, City of Novi Planner
Angela Pawlowski, City of Novi, Senior Customer Service
Sara Roediger, City of Novi Planner

Figure 1. City of Novi Regulated Woodlands Map (Accessed October 31, 2013).
Regulated Woodland areas shown in light green and approximate property boundary shown in red.



WETLAND REVIEW



Environmental Consulting & Technology, Inc.

November 27, 2013

Ms. Barbara McBeth
Deputy Director of Community Development
City of Novi
45175 W. Ten Mile Road
Novi, Michigan 48375

Re: Island Lake Phase 8 (JSP13-0069)
The Preserve at Island Lake
Wetland Review of the Revised Preliminary Site Plan (PSP13-0182)

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) has reviewed the Revised Preliminary Site Plan (Plan) for the proposed *The Preserve at Island Lake - Phase 8* project prepared by Alpine Engineering, Inc. dated November 21, 2013 and stamped "Received" by the City of Novi on November 22, 2013. The Plan was reviewed for conformance with the City of Novi Wetland and Watercourse Protection Ordinance and the natural features setback provisions in the Zoning Ordinance. ECT previously visited the site on Tuesday, July 16, 2013 with the Applicant's wetland consultant (King & MacGregor Environmental) for the purpose of a Wetland Boundary Delineation.

The proposed development is located northeast of the intersection of Ten Mile Road and Napier Road in Section 19. The proposed project involves the construction of a 45-unit site condominium development, associated roads and utilities and storm water detention basin.

During the Wetland Boundary Delineation, seven areas of on-site wetland were delineated and flagged. The wetlands include:

- Wetland "C" – (Flags C1 through C5);
- Wetland "D" – (Flags D1 through D5);
- Wetland "E" – (Flags E1 through E6);
- Wetland "F" – (Flags F1 through F10);
- Wetland "G" – (Flags G1 through G13);
- Wetland "H" – (Flags H1 through H152, with upland inclusion J-1 through J-30);
- Wetland "I" – (Flags I1 through I145).

The wetlands were clearly marked with survey tape flags at the time of our inspection. Wetlands C, D, E, F and G are emergent wetlands and Wetlands H and I are forested and scrub/shrub wetlands.

The wetland boundaries appear to be accurately depicted on the Plan.

2200 Commonwealth
Blvd., Suite 300
Ann Arbor, MI
48105

(734)
769-3004

FAX (734)
769-3164

An Equal Opportunity/Affirmative Action Employer
www.ectinc.com

What follows is a summary of our findings regarding on-site wetlands associated with the proposed project.

Wetland Impact Review

As previously noted, seven (7) areas of wetland exist on this parcel totaling 7.21 acres of wetland (wetland locations are shown in Figure 1, attached). The following table summarizes the existing wetlands and the proposed wetland impacts as listed on the *Preliminary Site Plan Overall Grading Plan* (Sheet 9):

Table 1. Proposed Wetland Impacts

Wetland Area	Wetland Area (acres)	City Regulated?	MDEQ Regulated?	Impact Area (acre)	Estimated Impact Volume (cubic yards)
C	0.01	Yes City Regulated /Essential	No	0.01	60
D	0.02	Yes City Regulated /Essential	No	0.02	100
E	0.02	Yes City Regulated /Essential	No	0.02	110
F	0.04	Yes City Regulated /Essential	No	0.04	210
G	0.06	Yes City Regulated /Essential	No	0.06	290
H	6.48	Yes City Regulated /Essential	Yes	0.01	60
I	0.58	Yes City Regulated /Essential	Yes	0.14	690
TOTAL	7.21	--	--	0.30	1,520

The impacts to Wetlands C, D, E, F, and G are proposed for the purpose of constructing Lots and sections of proposed Nepavine Drive. The impacts to Wetland I are located within the Ten Mile Road right-of-way and are for the purpose of entrance drive/approach construction. The proposed impacts to Wetland H appear to be temporary and are for the purpose of boardwalk crossings.

Impacts to Wetland I have increased slightly from the previous plan submittal. The proposed area of impact has increased from 0.09-acre to 0.14-acre. The proposed fill volume has increased from 440 cubic yards to 690 cubic yards. The Applicant states that the impact values

were adjusted to account for road shoulder and backslope that may be required per the Road Commission of Oakland County (RCOC). It is also stated that the intent of the final impact will be to minimize impacts to wetland, subject to RCOC and City of Novi requirements for proposed lane widening along the entrance at 10 Mile Road.

It should also be noted that the Plan specifies temporary wetland Impacts for construction of water main along Ten Mile Road as well as two different proposed boardwalk/path options along the southwestern section of the site. Proposed Path Option A includes a 260+ foot wetland boardwalk along the Napier Road Right-of-Way through Wetland H. Proposed Path Option B includes a wetland boardwalk that is approximately 40 lineal feet long within Wetland H. From the standpoint of minimizing proposed (temporary) impacts to wetland, Proposed Path Option B would involve less wetland impact (i.e., shorter wetland crossing). In addition, due to the longer wetland span length, Proposed Wetland Path A may require additional tree removals within Wetland H.

In addition to wetland impacts, the Plan also specifies impacts to the 25-foot natural features setbacks. The following table summarizes the existing wetland setbacks and the proposed wetland setback impacts as listed on the *Preliminary Site Plan Overall Grading Plan* (Sheet 9):

Table 1. Proposed Wetland Buffer Impacts

Wetland Setback/Buffer Area	Wetland Buffer Area (acres)	Impact Area (acre)	Estimated Impact Volume (cubic yards)
C	0.11	0.11	350
D	0.12	0.12	390
E	0.12	0.12	400
F	0.16	0.16	510
G	0.18	0.18	600
H	2.89	0.13	150
I	0.76	0.45	1,270
TOTAL	4.34	1.27	3,670

Comments

Please consider the following comments when preparing the Final Site Plan:

1. Section 12-173 (*Review of applications*) of the Wetlands and Watercourse Protection Ordinance (Chapter 12 – *Drainage and Flood Damage Prevention*) states:

When an activity results in the impairment or destruction of wetland areas of one-quarter acre or greater that are determined to be: (1) essential under subsection 12-174(b); (2) two (2) acres in size or greater; or (3) contiguous to a lake, pond, river or stream, mitigation shall be required, in accordance with section 12-176. Where an activity results in the impairment or destruction of wetland areas of less than one-quarter acre that are determined to be essential under subsection 12-174(b), are two (2) acres in size or greater or are contiguous to a lake, pond, river or stream, additional planting or other environmental enhancement shall be required onsite within the wetlands or wetland and watercourse setback where the same can be done within the wetland and without disturbing further areas of the site.

Because the current Plan includes 0.30-acre of wetland impacts, wetland mitigation will likely be a requirement of the City of Novi Wetland and Watercourse Permit. The Applicant should prepare to address this requirement in future site plan submittals. The requirements for mitigation are outlined in Section 12-176 (*Mitigation*) of the Wetlands and Watercourse Protection Ordinance (Chapter 12 – *Drainage and Flood Damage Prevention*). Permanent impacts to emergent wetland and scrub/shrub wetlands shall be mitigated at a 1.5:1 ratio and impacts to forested wetlands shall be mitigated at a 2:1 ratio.

The Applicant states that wetland mitigation requirements will be determined during Final Site Plan. The location of mitigation areas, if required, are proposed to be located adjacent to Wetland H and may consist of several areas or one large area, subject to final alignment of walking path and available space for mitigation.

2. It should be noted that it is the Applicant's responsibility to confirm the need for a Permit from the MDEQ for any proposed wetland impact. Final determination as to the regulatory status of each of the on-site wetlands shall be made by MDEQ.

The Applicant should provide a copy of the MDEQ Wetland Use Permit application to the City (and our office) for review and a copy of the approved permit upon issuance. A City of Novi Wetland Permit cannot be issued prior to receiving this information. Based on a search of the MDEQ's Coastal and Inland Waters Permit Information System (CIWPIS), there does not appear to be an active file associated with this project location.

Permits & Regulatory Status

All of the wetlands appear to be considered essential wetlands and regulated by the City of Novi. Wetlands H and I appear to be MDEQ regulated as well. Wetland H appears to be regulated due to its size (greater than 5 acres) and both Wetland H and Wetland I appear to be within 500 lineal feet of an unnamed stream or drain that is located in the southwest portion of the site.

Island Lake Phase 8 (JSP13-0069)
The Preserve at Island Lake
Wetland Review of the Revised Preliminary Site Plan (PSP13-0182)
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Page 5 of 6

All of the wetlands appear to be considered essential by the City as they appear to meet one or more of the essentiality criteria set forth in the City's Wetland and Watercourse Protection Ordinance (i.e., storm water storage/flood control, wildlife habitat, etc.). This information has been noted in the *Proposed Wetland Impacts* table, above.

The project as proposed will require a City of Novi *Wetland Non-Minor Use Permit* as well as an *Authorization to Encroach the 25-Foot Natural Features Setback*. This permit and authorization are required for the proposed impacts to wetlands and regulated wetland setbacks.

It appears that a MDEQ Wetland Permit is required for the proposed impacts to Wetland I along the Ten Mile Road entrance approach as well as for the proposed installation of boardwalks within Wetland H. In addition, the discharge of storm water to Wetland H may require a permit as well. Impacts to Wetland I have been revised

Recommendation

ECT recommends conditional approval of the Revised Preliminary Site Plan with the condition that the Applicant address the items noted above under "Comments" in subsequent site plan submittals.

If you have any questions regarding the contents of this letter, please contact us.

Respectfully submitted,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

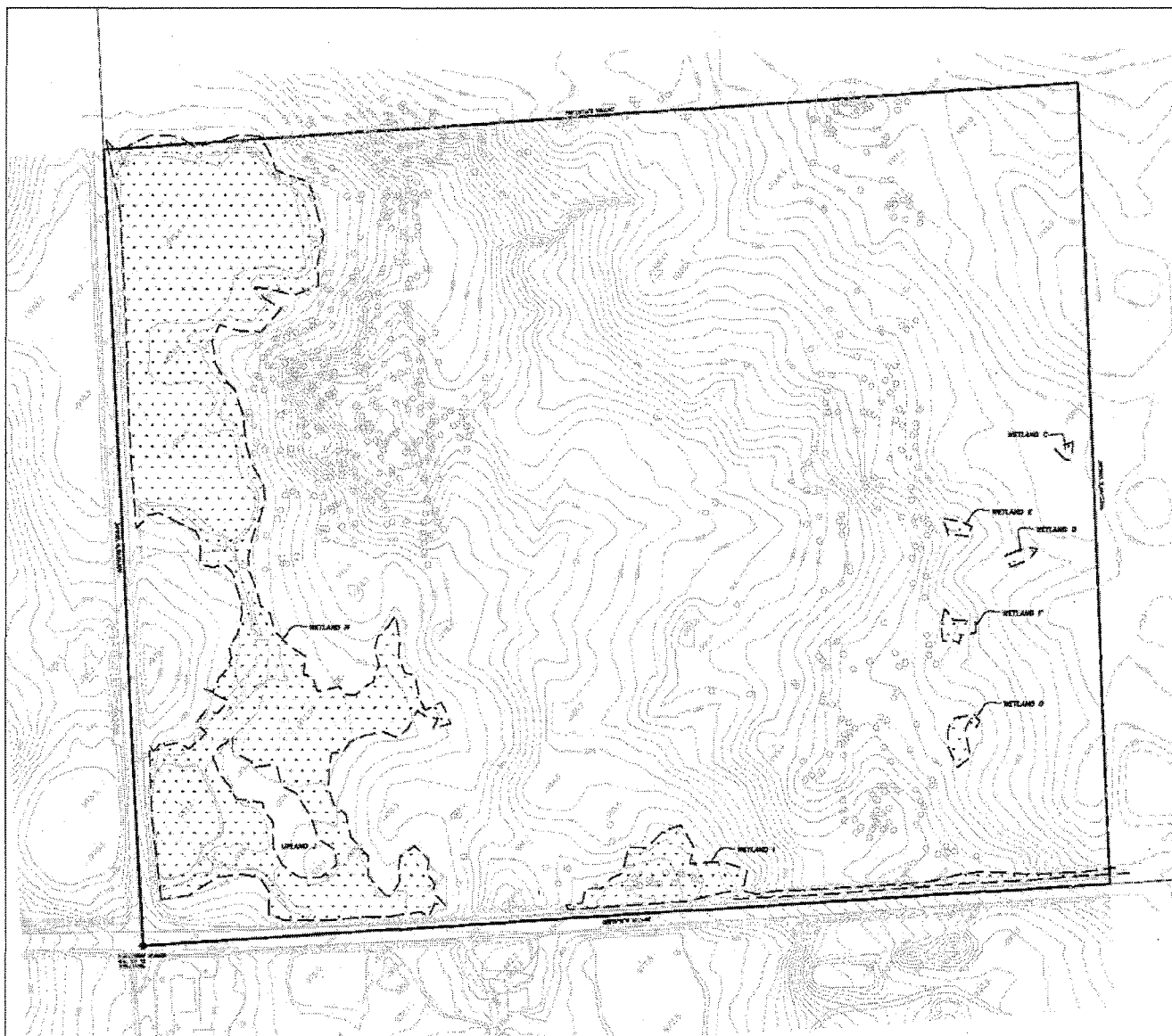


Pete Hill, P.E.
Senior Associate Engineer

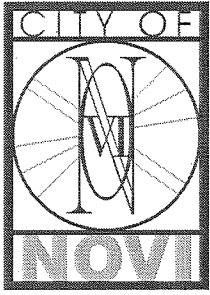
cc: David Beschke, City of Novi, Licensed Landscape Architect
Kristen Kapelanski, AICP, City of Novi Planner
Angela Pawlowski, City of Novi, Senior Customer Service
Sara Roediger, City of Novi Planner

Attachments: Figure 1

Figure 1. Approximate wetland locations (portion of Overall Topographic Survey, prepared by Alpine Engineering and dated September 23, 2013).



FIRE REVIEW



October 28, 2013

December 2, 2013

TO: Barbara McBeth, Deputy Director of Community Development
Kristen Kapelanski- Plan Review Center
Sara Roediger- Plan Review Center

RE: The Preserves at Island Lake (Phase 8)

PSP#: 13-0172

PSP#: 13-0182

CITY COUNCIL

Mayor
Bob Gatt

Mayor Pro Tem
Dave Staudt

Terry K. Margolis

Andrew Mutch

Justin Fischer

Wayne Wrobel

Laura Marie Casey

City Manager
Clay J. Pearson

**Director of Public Safety
Chief of Police**
David E. Molloy

Director of EMS/Fire Operations
Jeffery R. Johnson

Assistant Chief of Police
Victor C.M. Lauria

Assistant Chief of Police
Jerrod S. Hart

Project Description:

Phase 8 at Island Lake consisting of 45 single family homes.

Comments:

Site plan consistent with FD standards

Recommendation:

Recommended for Approval.

Sincerely,

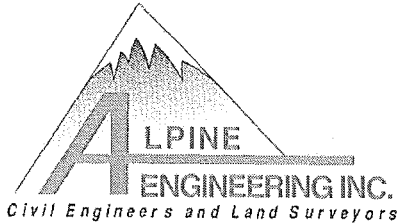
Joseph Shelton- Fire Marshal
City of Novi – Fire Dept.

cc: file

Novi Public Safety Administration
45125 W. Ten Mile Road
Novi, Michigan 48375
248.348.7100
248.347.0590 fax

cityofnovi.org

APPLICANT RESPONSE LETTER



46892 West Road, Suite 109
Novi, Michigan 48377
Phone: 248-926-3701
Fax: 248-926-3765

December 3, 2013

Sara Roediger, AICP
City of Novi Community Development Department
45175 West 10 Mile Road
Novi, Michigan 48375

Re: **Island Lake RUD Expansion "The Preserve at Island Lake"**
Response to Preliminary Site Plan Comments
City of Novi, Oakland County
(AEI Project #13-260; Novi Project #JSP13-69)

Dear Sara:

We offer the below comments, on behalf of our client, to several key topics with regards to the Novi review package dated December 2, 2013. Additional plan revisions will be made to satisfy City Departments at a later date during the Final Site Plan process as indicated in the review package.

Planning Review (December 2, 2013)

Review recommends approval of the Amended RUD Plan and Agreement and of the Preliminary Site Plan. Items listed in the review letter will be addressed at Final Site Plan.

1. Page 5, Item #5: A City Council variance is respectfully requested for public pathways proposed outside of the Ten Mile Road and Napier Road right-of-way due to the significant amount of wetland impacts that would result from construction of a pathway within the right-of-way. In addition to the City engineering department requested alignment (parallel to Napier Road, shown as Option 'A'), a second alignment is shown for City consideration (Option 'B') that requires less wetland impacts and boardwalk construction.

Engineering Review (December 2, 2013)

Review recommends approval of the Preliminary Site Plan and Preliminary Storm Water Management Plan. Items listed in the review letter will be addressed at Final Site Plan.

2. Page 2, Item #3: A variance is requested to locate power and communication facilities in front yards to preserve rear yard woodlands and or wetlands. Proposed power and communication facility easements will be shown on the Final Site Plan for review and consideration.
3. Page 3, Item #13: Storm sewer profiles will be provided on the Final Site Plan. If there are areas where 3 feet of minimum cover to the top of pipe cannot be obtained, they will be identified for City review.
4. Page 3, Item #18: Variance request for reduced pavement width of 20 feet at the traffic calming device versus standard 28 foot pavement width is listed in the RUD Agreement and on page 3, Preliminary Site Plan. Additional information will be provided at Final Site Plan stage as requested in the City Engineering review letter.
5. Page 3, Item #19: Variance request for public pathways proposed outside of the Ten Mile Road and Napier Road right-of-way due to the significant amount of wetland

impacts that would result from construction of a pathway within the right-of-way are listed in the RUD Agreement and on page 3, Preliminary Site Plan. Additional information will be provided at Final Site Plan stage as requested in the City Engineering review letter.

Memorandum – Drake's Bay System Capacity Analysis (Nov. 7, 2013)

6. It is noted that per the Drake's Bay System Capacity Analysis, improvements to the pumps at Drake's Bay are required to accommodate the proposed development to which extent will be determined during the Final Site Planning process.

ClearZoning Review (December 2, 2013)

Review recommends approval of the Preliminary Site Plan, subject to several items being addressed at the time of Final Site Plan. Items listed in the review letter will be addressed at Final Site Plan.

Preliminary Landscape Review (November 25, 2013)

Review recommends approval of the RUD Plan and Preliminary Site Plan. Items listed in the review letter will be addressed at Final Site Plan.

Planning Commission waiver is requested that a landscape berm only be provided along the Ten Mile frontage of lots 1, 2, and 45.

Wetlands Review (ECT; November 27, 2013)

Review recommends approval of the Preliminary Site Plan. Items listed in the review letter will be addressed at Final Site Plan.

Woodlands Review (ECT; November 27, 2013)

Review recommends approval of the Preliminary Site Plan. Items listed in the review letter will be addressed at Final Site Plan.

Fire Marshal Review (December 2, 2013)

Review recommends approval of the Preliminary Site Plan.

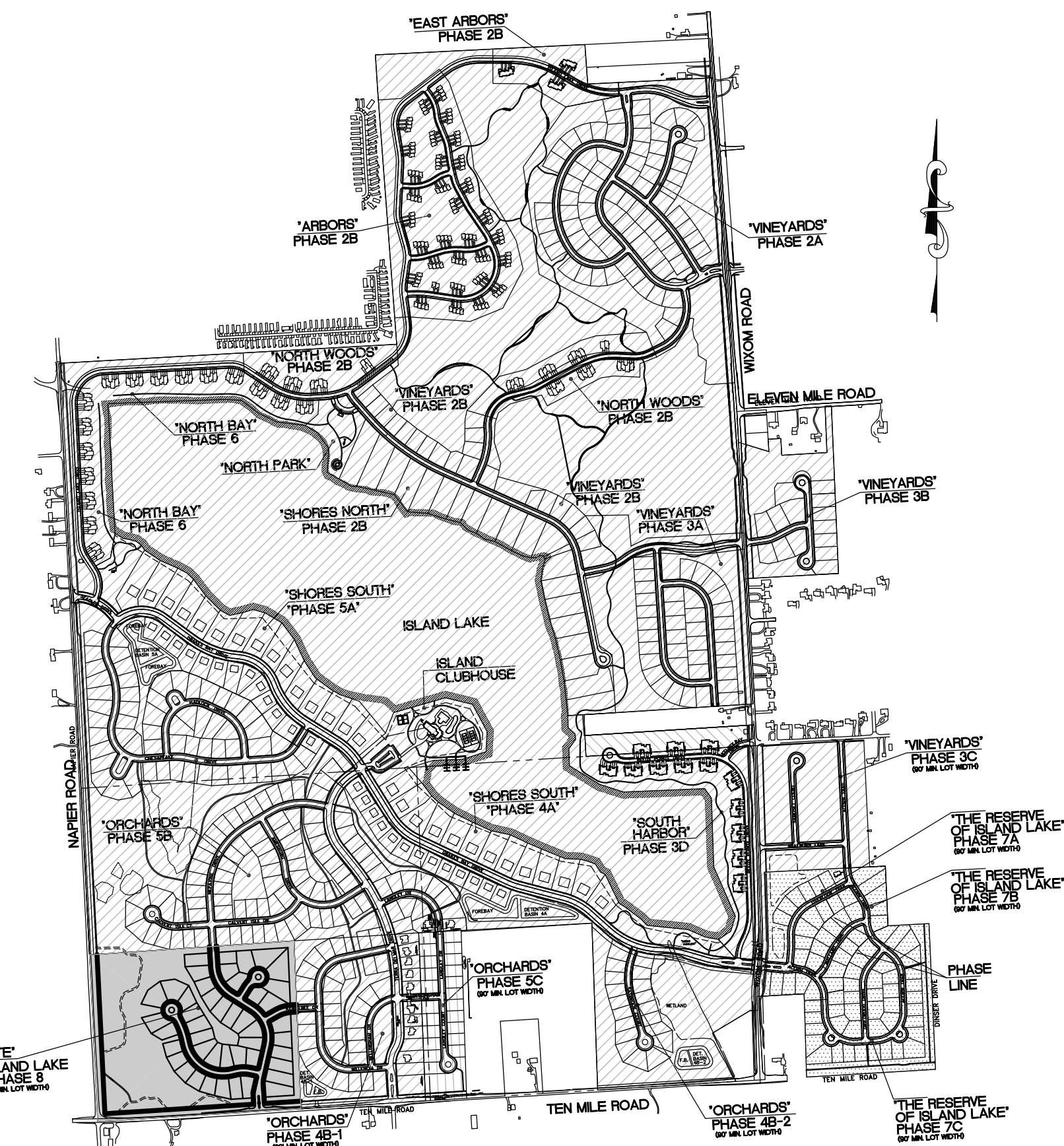
If you have any questions please feel free to call our office at (248) 926-3701.

Regards,
Alpine Engineering, Inc.


Tom Gizoni, PE

Enclosures:

cc: Mike Noles, Toll Bros., Inc.
Jason Minock, Toll Bros., Inc.



SCALE: 1"=1000'

PARCEL	SIZE	RUD ACTUAL UNITS	RUD ALLOWABLE UNITS
ORIGINAL PARCEL	901 ACRES	750	876
DEATON PARCEL	5 ACRES	12	
PHASE 5C	10 ACRES	22	8 (ADDITIONAL)
THE RESERVE	40.7 ACRES	74	
PHASE 8	49.0 ACRES	45	19 (ADDITIONAL)

TOTAL ACTUAL UNITS - 903
 TOTAL ALLOWABLE UNITS - 903
 TOTAL AREA - 1005.7 ACRES

*BLENDED DENSITY CHART BASED ON UNDERLYING ZONING OF R-1 AND RA

ZONING	AREA	DENSITY PERMITTED	UNITS
R-1	226 AC.	1.65 DU/AC	372.9 DU
RA	779.7 AC.	0.8 DU/AC	623.8 DU
TOTAL	1005.7 AC.	0.99 DU/AC	997 DU

*BASED UPON A REVIEW OF THE CITY OF NOVI ZONING MAP, THE NORTHERN PORTION OF THE ISLAND RUD AREA IS R-1 ZONING. WE ESTIMATE THE AREA AS APPROXIMATELY 226 ACRES. THE REMAINING ISLAND LAKE RUD AREA IS ZONED RA AND WE ESTIMATE THE AREA AS 779.7 ACRES.

NOTICE:

CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

NOTE:

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.



SCALE: 1"= 400'

LOCATION SYMBOL	LOT SIZE SUMMARY MIX	
*	TOTAL NUMBER OF LOTS=	903
*	NUMBER OF LOTS 1 ACRE OR LARGER=	46
⊗	NUMBER OF LOTS 21,780 S.F. TO 43,559 S.F.=	41
●	NUMBER OF LOTS 15,000 S.F. TO 21,779 S.F.=	335
⊖	NUMBER OF LOTS 12,000 S.F. TO 14,999 S.F.=	187
⊕	WATERFRONT/WOODLAND ATTACHED CLUSTER UNITS=	156
○	SINGLE-FAMILY ATTACHED CLUSTER UNITS=	138

ALPINE ENGINEERING, INC.
 CIVIL ENGINEERS & LAND SURVEYORS

COMMERCIAL
 SITE PLANNING
 SITE ENGINEERING
 INDUSTRIAL & MULTI-UNIT
 LAND SURVEYING
 CONSTRUCTION LAYOUT

SURVEYING
 ALTA SURVEYS
 BOUNDARY SURVEYS
 TOPOGRAPHIC SURVEYS
 PARCEL SPLITS
 CONSTRUCTION LAYOUT

RESIDENTIAL
 SUBDIVISIONS
 SITE CONDOMINIUM
 MULTI-FAMILY
 PLOT PLANS
 CONSTRUCTION LAYOUT

46892 WEST ROAD
 SUITE 109
 NOVI, MICHIGAN 48377

(248) 928-3701 (BUS)
 (248) 928-3765 (FAX)
 WWW.ALPINE-INC.NET

811
 Know what's below
 Call before you dig.

TOLL BROTHERS INC.
**PRELIMINARY SITE PLAN
 OVERALL SITE PLAN**

THE PRESERVE AT ISLAND LAKE - PHASE 8
 RANGE: 8 E.
 TOWNSHIP: 1 N.
 CITY OF NOVI
 OAKLAND COUNTY
 MICHIGAN

SECTION: 19

CLIENT:

REVISED
 10-17-2013 PRELIM. SITE PLAN
 11-21-2013 PER CITY REVIEW

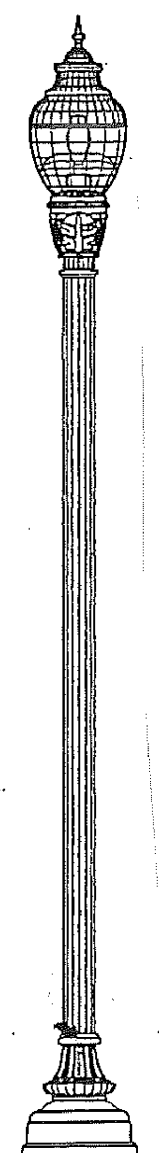
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 CHECKED BY: CAK/TAG

AS NOTED

FBK:
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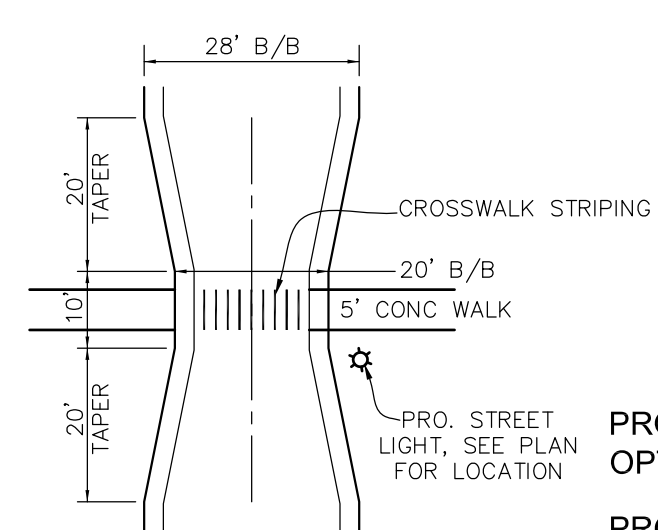
SCALE: HOR 1"= -- FT.
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2
 13-260



12' 5" DIA. HAZEL PARK WADSWORTH POST & WASHINGTON POST LIGHT

STREET LIGHT DETAIL
SEE PLAN FOR (3) PROPOSED STREET LIGHT LOCATIONS:
(1) NEPAVINE DRIVE BOULEVARD ISLAND AT TEN MILE ROAD
(1) KENNEBEE DRIVE TRAFFIC CHOKER
(1) NEPAVINE DRIVE TRAFFIC CHOKER



TRAFFIC CALMING 'CHOKER' DETAIL
TWO (2) TRAFFIC CALMING CHOKERS ARE PROPOSED, ONE ON NEPAVINE DRIVE AT NORTH TIE-IN POINT AND ONE ON KENNEBEE DRIVE AT EAST TIE-IN POINT.

PRO. WALK EXTENSION FOR FUTURE CONNECTION

LYON TWP. ZONED R-1.0 RESIDENTIAL-AGRICULTURAL

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

NOTE:
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.

STATEMENT REGARDING THE PROPOSED MECHANISM TO ASSURE THE PERMANENT PRESERVATION AND MAINTENANCE OF OPEN SPACE AREAS, RUD AMENITIES AND COMMON AREAS.
CONSERVATION EASEMENTS ARE IN PLACE TO PROTECT THE NATURAL FEATURES AND ALL COMMON AREAS HAVE BEEN CONVEYED TO THE VARIOUS HOMEOWNERS ASSOCIATIONS WITHIN THE RUD AS PERMANENT OPEN SPACES PER THE REQUIREMENTS OF THE RUD APPROVED IN 1998. NEW COMMON AREAS BEING PROPOSED WILL LIKEWISE BE CONVEYED. THERE IS NO MECHANISM IN PLACE THAT WOULD ALLOW THESE WELL ESTABLISHED COMMON AREAS TO BE CONVERTED TO DEVELOPMENT AREAS AT ANY FUTURE TIME. THEIR STATUS AS COMMON ELEMENTS IS WELL ESTABLISHED IN THE MASTER DEED AND BYLAWS. NO CHANGES TO THESE MECHANISMS ARE BEING PROPOSED.

STATEMENT REGARDING THE EXPECTED POPULATION FOR THE AMENDED RUD:
THE CITY OF NOVI MASTER PLAN FOR LAND USE SHOWS 2.52 PERSONS PER HOUSEHOLD. THE EXPECTED POPULATION AT THIS TIME IS:
903 UNITS x 2.52 PERSONS = 2,276 PERSONS (INCLUSIVE OF THIS PROPOSAL)

OPEN SPACE HATCH LEGEND



OPEN SPACE CALCULATIONS

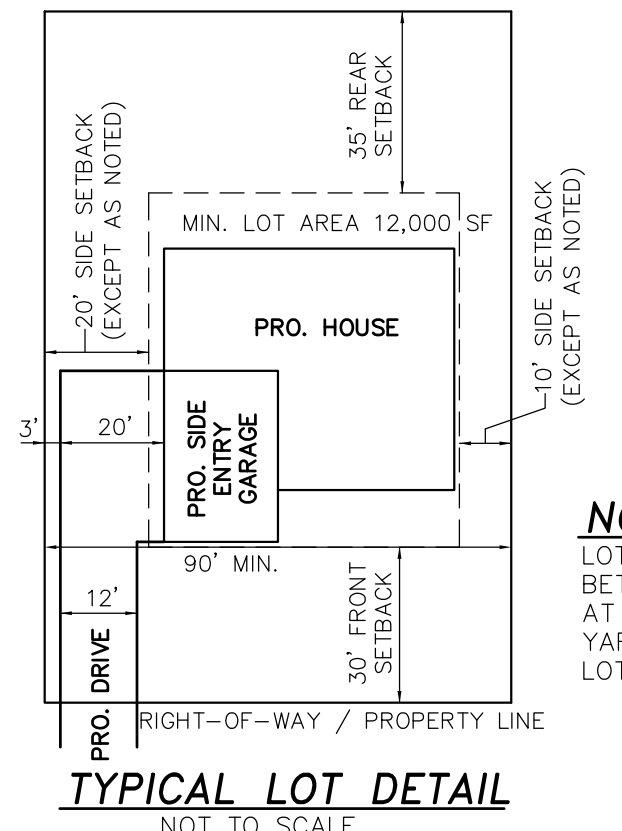
UPLAND: ±12.98 ACRES (28.84% OF NET PARCEL AREA)
WETLAND: ±5.71 ACRES (12.69% OF NET PARCEL AREA)
STORM WATER DETENTION: ±1.69 ACRES (3.75% OF NET PARCEL AREA)
TOTAL OPEN SPACE: ±20.38 ACRES (45.3% OF NET PARCEL AREA)



PROPRIETOR:
TOLL BROTHERS INC.
29665 WILLIAM K. SMITH DRIVE, SUITE B
NEW HUDSON, MI 48165
PHONE: 248-446-5104

SITE DATA:
EXISTING ZONING: RA - RESIDENTIAL ACREAGE
PROPOSED ZONING: RUD
ISLAND LAKE RUD SITE AREA (TOTAL): 1005.7 ACRES
PROPOSED ADDITIONAL LAND AREA (SITE): 48.95 ACRES GROSS, 45.01 ACRES NET
LOTS SHOWN: 45 LOTS (903 ENTIRE RUD)
DENSITY SHOWN: 0.90 LOTS PER ACRE (903 UNITS / 1005.7 ACRES)
RUD LOTS APPROVED: 884 LOTS
ADDITIONAL RUD LOTS PROPOSED: 19
TOTAL RUD LOTS: 903 LOTS
FOR SINGLE FAMILY DETACHED NON WATERFRONT HOMES:
LOT WIDTH FRONT YARD SETBACK REAR YARD SETBACK MINIMUM/COMBINED SIDE YARD SETBACK
150 FEET & GREATER 45 FT. 50 FT. 20 FT. / 50 FT.
120 FEET & GREATER 30 FT. 35 FT. 15 FT. / 40 FT.
110 FEET & GREATER 30 FT. 35 FT. 15 FT. / 40 FT.
90 FEET & GREATER 30 FT. 35 FT. 10 FT. / 30 FT.
LOTS SHALL HAVE A MINIMUM AREA OF 12,000 SQUARE FEET AND A MINIMUM WIDTH OF 90 FEET.

LOT NUMBER	LOT AREA (SF)	LOT WIDTH AT 30 FT FRONT SETBACK (FT)	REQUIRED FRONT YARD SETBACK (FT)	REQUIRED REAR YARD SETBACK (FT)	MINIMUM SIDE YARD SETBACK (FT)	COMBINED SIDE YARD SETBACK (FT)
1	18,881	119.92	30	35	15	40
2	17,558	96.00	30	35	10	30
3	17,504	95.00	30	35	10	30
4	15,723	95.00	30	35	10	30
5	15,723	95.00	30	35	10	30
6	15,723	95.00	30	35	10	30
7	15,723	95.00	30	35	10	30
8	15,094	96.00	30	35	10	30
9	17,170	105.95	30	35	10	30
10	21,957	117.48	30	35	15	40
11	26,987	95.00	30	35	10	30
12	25,582	95.00	30	35	10	30
13	16,375	94.44	30	35	10	30
14	17,058	97.17	30	35	10	30
15	19,528	96.00	30	35	10	30
16	18,251	96.00	30	35	10	30
17	19,212	133.00	30	35	15	40
18	19,212	133.33	30	35	15	40
19	16,905	109.00	30	35	10	30
20	18,596	96.00	30	35	10	30
21	16,412	106.00	30	35	10	30
22	17,663	103.40	30	35	10	30
23	19,039	138.31	30	35	15	40
24	21,258	129.51	30	35	15	40
25	19,200	96.00	30	35	10	30
26	19,447	96.00	30	35	10	30
27	17,595	96.00	30	35	10	30
28	15,962	96.00	30	35	10	30
29	18,783	95.96	30	35	10	30
30	19,116	96.00	30	35	10	30
31	14,440	96.00	30	35	10	30
32	17,416	137.32	30	35	15	40
33	19,232	131.85	30	35	15	40
34	22,676	100.28	30	35	10	30
35	28,949	100.28	30	35	10	30
36	30,920	91.22	30	35	10	30
37	26,704	93.96	30	35	10	30
38	17,460	118.30	30	35	15	40
39	22,558	106.00	30	35	10	30
40	21,238	107.01	30	35	10	30
41	17,397	97.00	30	35	10	30
42	17,715	97.00	30	35	10	30
43	19,912	97.00	30	35	10	30
44	22,451	97.00	30	35	10	30
45	23,342	118.07	30	35	15	40



NOTE:
LOT WIDTH IS THE STRAIGHT LINE DISTANCE BETWEEN THE SIDE LOT LINES, MEASURED AT THE TWO POINTS WHERE THE MINIMUM YARD SETBACK LINE INTERSECTS THE SIDE LOT LINES.

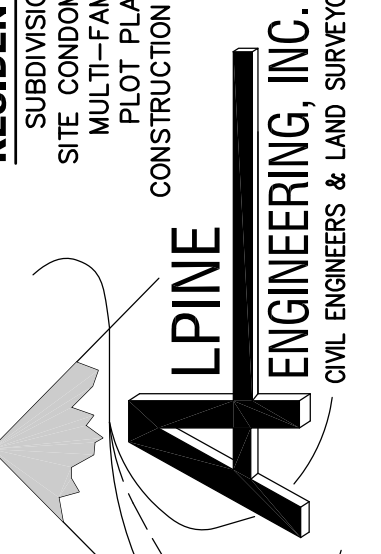
SUMMARY OF PROPOSED IMPROVEMENTS:

- MUNICIPAL SEWER TO BE PROVIDED BY CONNECTING TO EXISTING SANITARY SEWER AT NEPAVINE DRIVE. A PORTION OF THE SITE WILL BE SERVED BY A PROPOSED SANITARY PUMP STATION WHICH WILL DISCHARGE TO A GRAVITY MANHOLE THAT WILL ULTIMATELY CONNECT TO THE EXISTING SANITARY SEWER IN NEPAVINE DRIVE.
- MUNICIPAL WATER TO BE PROVIDED BY CONNECTING TO EXISTING 8" WATER MAIN STUBS LOCATED WITHIN NEPAVINE DRIVE AND KENNEBEE DRIVE AND TO THE EXISTING 12" WATER MAIN STUB ALONG TEN MILE ROAD.
- STORM WATER DETENTION SHALL BE PROVIDED PER CITY OF NOVI REQUIREMENTS.
- 5' WIDE CONCRETE SIDEWALKS SHALL BE CONSTRUCTED ON BOTH SIDES OF ALL INTERIOR ROADS.
- ALL ROADWAYS TO BE PUBLIC UNLESS OTHERWISE NOTED.
- DECORATIVE STREET SIGNS ARE NOT ALLOWED WITHOUT A LICENSE AGREEMENT WITH THE CITY OF NOVI.
- ROC PERMIT REQUIRED FOR WORK WITHIN TEN MILE ROAD AND NAPIER ROAD RIGHT-OF-WAY.
- CITY OF NOVI RIGHT-OF-WAY PERMIT REQUIRED FOR WORK WITHIN NEPAVINE DRIVE AND KENNEBEE DRIVE.
- PROJECT IS PROPOSED TO BE DEVELOPED AS A SINGLE PHASE.
- PROPOSED PATH WIDTH ALONG NORTH-SOUTH ALIGNMENT (NAPIER ROAD) IS 8-FEET WIDE. PROPOSED PATH WIDTH ALONG EAST-WEST ALIGNMENT (TEN MILE ROAD) IS 6-FEET WIDE. TWO OPTIONS FOR THE SOUTHERLY PORTION OF THE NAPIER ROAD PATH ARE PROPOSED - OPTION 'A' WILL REQUIRE MORE BOARDWALK CONSTRUCTION IN WETLANDS AND THEREFORE FUTURE MAINTENANCE EFFORT. OPTION 'B' REQUIRES LESS WETLAND IMPACT AND FUTURE MAINTENANCE EFFORT. WHERE THE PATH IS LOCATED OUTSIDE NAPIER ROAD AND TEN MILE ROAD RIGHT-OF-WAY, IT SHALL BE LOCATED WITHIN A 12-FOOT WIDE PUBLIC EASEMENT. EITHER OPTION 'A' OR OPTION 'B' WILL BE PROVIDED, AT THE DIRECTION OF THE CITY OF NOVI. ALIGNMENT MAY BE ADJUSTED WHERE NECESSARY TO AVOID NATURAL FEATURES IMPACTS, SUBJECT TO CITY APPROVAL.
- THE PROPOSED 12" WATER MAIN EXTENSION ALONG TEN MILE IS PROPOSED TO THE INTERSECTION AT NAPIER ROAD FOR FUTURE CONNECTION.
- POWER AND COMMUNICATION FACILITIES SHALL GENERALLY BE LOCATED IN THE REAR YARD OF THE PROPOSED LOTS EXCEPT WHERE NECESSARY TO PRESERVE NATURAL FEATURES (SUCH AS TREES AND/OR WETLANDS), IN WHICH CASE THESE FACILITIES WILL BE LOCATED ACROSS THE LOT FRONTAGE AND WILL REQUIRE A VARIANCE FROM THE CITY OF NOVI.
- BERMS ARE NOT PROPOSED IN THOSE LOCATIONS THAT INCLUDE EXISTING MATURE VEGETATION, PROTECTED TREES AND WETLANDS.
- A VARIANCE MAY BE REQUIRED FOR STORM SEWER INSTALLED WITH LESS THAN THREE FEET OF COVER.
- A VARIANCE TO THE STANDARD ROAD WIDTH DIMENSION IS REQUESTED IN ORDER TO INSTALL TRAFFIC CALMING MEASURES AT THE CONNECTIONS TO THE EXISTING STUB ROADS. A 'CHOKER' TYPE CALMING MEASURE IS PROPOSED WHERE THE ROAD WIDTH IS REDUCED FOR A SHORT DISTANCE TO ENCOURAGE DRIVERS TO REDUCE SPEEDS TO NEGOTIATE THE NARROWER ROADWAY.
- PER THE CITY DESIGN AND CONSTRUCTION STANDARDS, AN ACCESS POINT FOR EVERY 1,300 FEET OF PERIMETER IS REQUIRED. THE PRESENCE OF A SIGNIFICANT WETLAND BODY LIMITS ROAD ACCESS FROM NAPIER ROAD.

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TOPOGRAPHIC SURVEYS
PARCEL SPLIT
CONSTRUCTION LAYOUT

RESIDENTIAL
SUBDIVISIONS
SITE CONDOMINIUM
MULTI-FAMILY
PLOT PLANS
CONSTRUCTION LAYOUT



PRELIMINARY SITE PLAN
THE PRESERVE AT ISLAND LAKE - PHASE 8
SECTION: 19
TOWNSHIP: 1 N
CITY OF NOVI
OAKLAND COUNTY
MICHIGAN

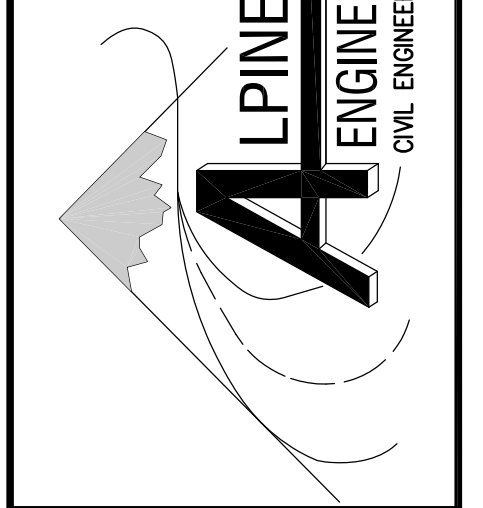
CLIENT:	TOLL BROTHERS INC.
REVISION:	REVISED
DATE:	10-17-2013
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CHECKED BY:	CAK/TAG
FBK:	
CHF:	
SCALE:	HOR 1"=100 FT. VER 1"=-- FT.
	3
	13-260



COMMERCIAL
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 SITE ENGINEERING
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 LAND SURVEYING
 CONSTRUCTION LAYOUT

SURVEYING
 ALTA SURVEYS
 BOUNDARY SURVEYS
 TOPOGRAPHIC SURVEYS
 PARCEL SPLITS

RESIDENTIAL
 SUBDIVISIONS
 SITE CONDOMINIUM
 MULTI-FAMILY
 PLOT PLANS
 CONSTRUCTION LAYOUT



CLIENT: TOLL BROTHERS INC.
PRELIMINARY SITE PLAN EAST
 THE PRESERVE AT ISLAND LAKE - PHASE 8
 SECTION: 19
 TOWNSHIP: 1 N.
 CITY OF NOV
 OAKLAND COUNTY
 MICHIGAN

REVISED
 10-17-2013 PRELIM. SITE PLAN
 11-21-2013 PER CITY REVIEW

DATE: 10-17-2013
 DRAWN BY: CAK/TAG
 CHECKED BY: CAK/TAG

FBK:
 CHF:
 SCALE: HOR 1"=50 FT.
 VER 1"=5 FT.

4
 13-260

CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

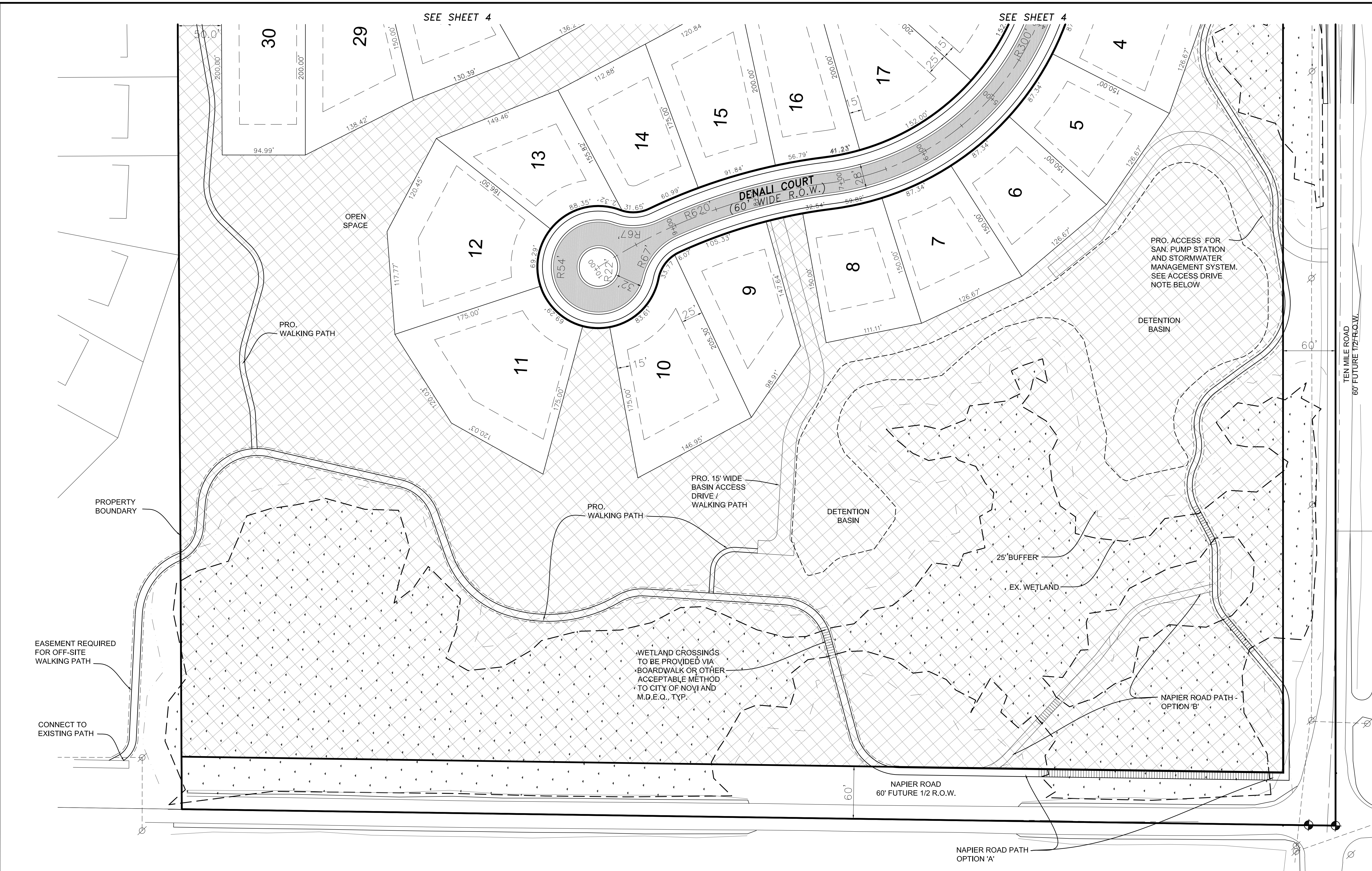
NOTE:
 THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.

ENTRANCE NOTE:
 PROPOSED WORK WITHIN TEN MILE ROAD RIGHT-OF-WAY SHALL BE SUBJECT TO REVIEW AND APPROVAL BY THE ROAD COMMISSION FOR OAKLAND COUNTY (R.C.O.C.). SEE SHEET 15 FOR DETAILS.

SEE SHEET 5

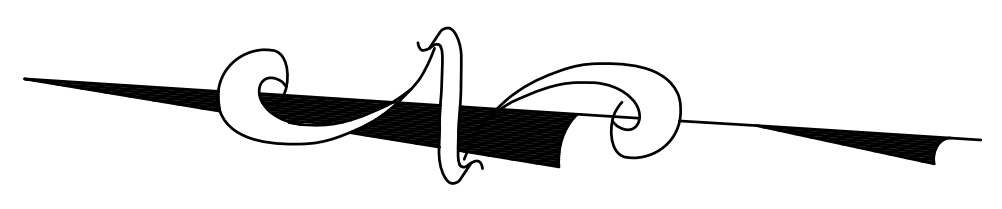
SEE ENTRANCE NOTE BELOW

TEN MILE ROAD
 60' FUTURE 1/2 R.O.W.



CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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ACCESS DRIVE NOTE:
 PROPOSED ACCESS DRIVE ENTRANCE SHALL BE SUBJECT TO REVIEW AND APPROVAL BY THE ROAD COMMISSION FOR OAKLAND COUNTY (R.C.O.C.).

ACCESS DRIVE WIDTH AND SURFACING SHALL BE PROVIDED TO THE SATISFACTION OF THE CITY OF NOVI FOR MAINTENANCE USAGE.

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PRELIMINARY SITE PLAN WEST

THE PRESERVE AT ISLAND LAKE - PHASE 8
 SECTION: 19
 TOWNSHIP: 1 N.
 CITY OF NOVI
 OAKLAND COUNTY
 MICHIGAN

RANGE: 8 E.

REVISED

10-17-2013 PRELIM. SITE PLAN
 11-21-2013 PER CITY REVIEW

DATE: 10-17-2013

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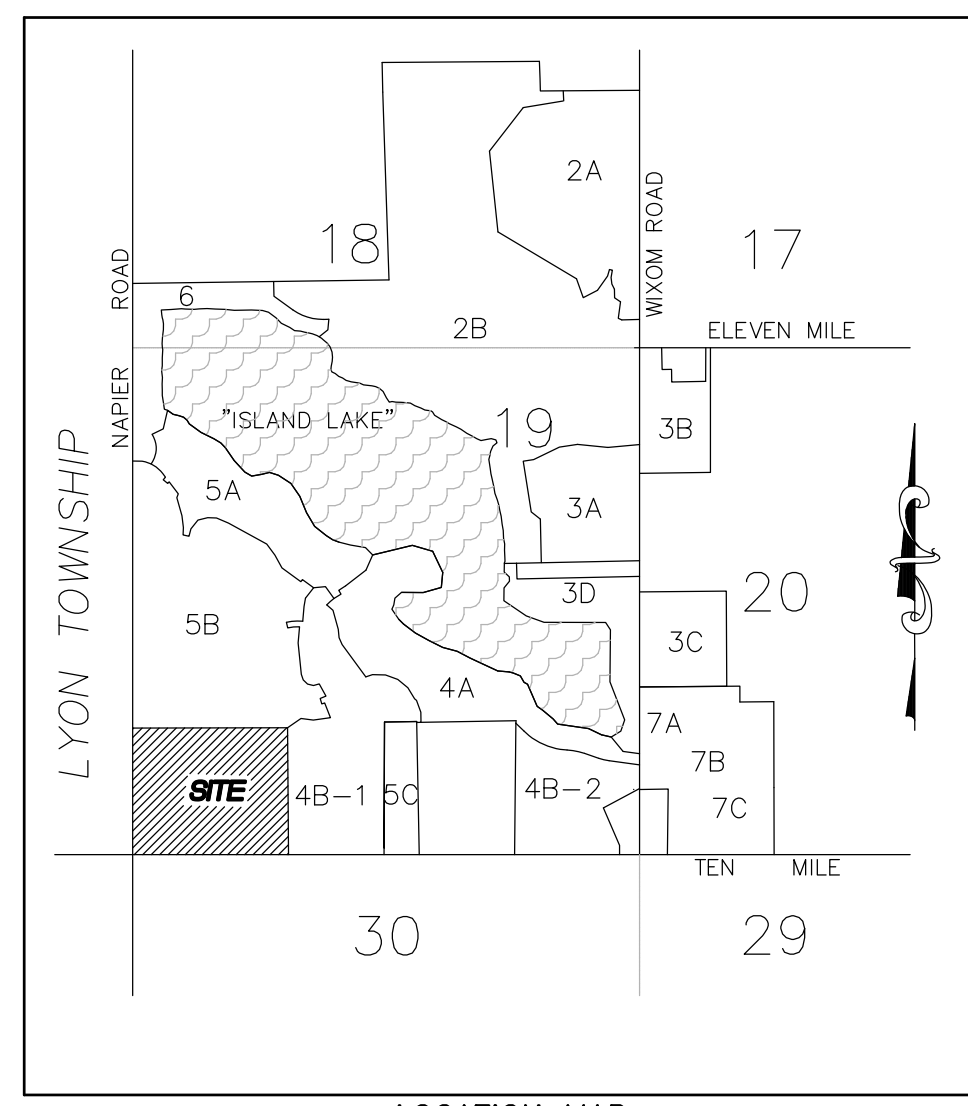
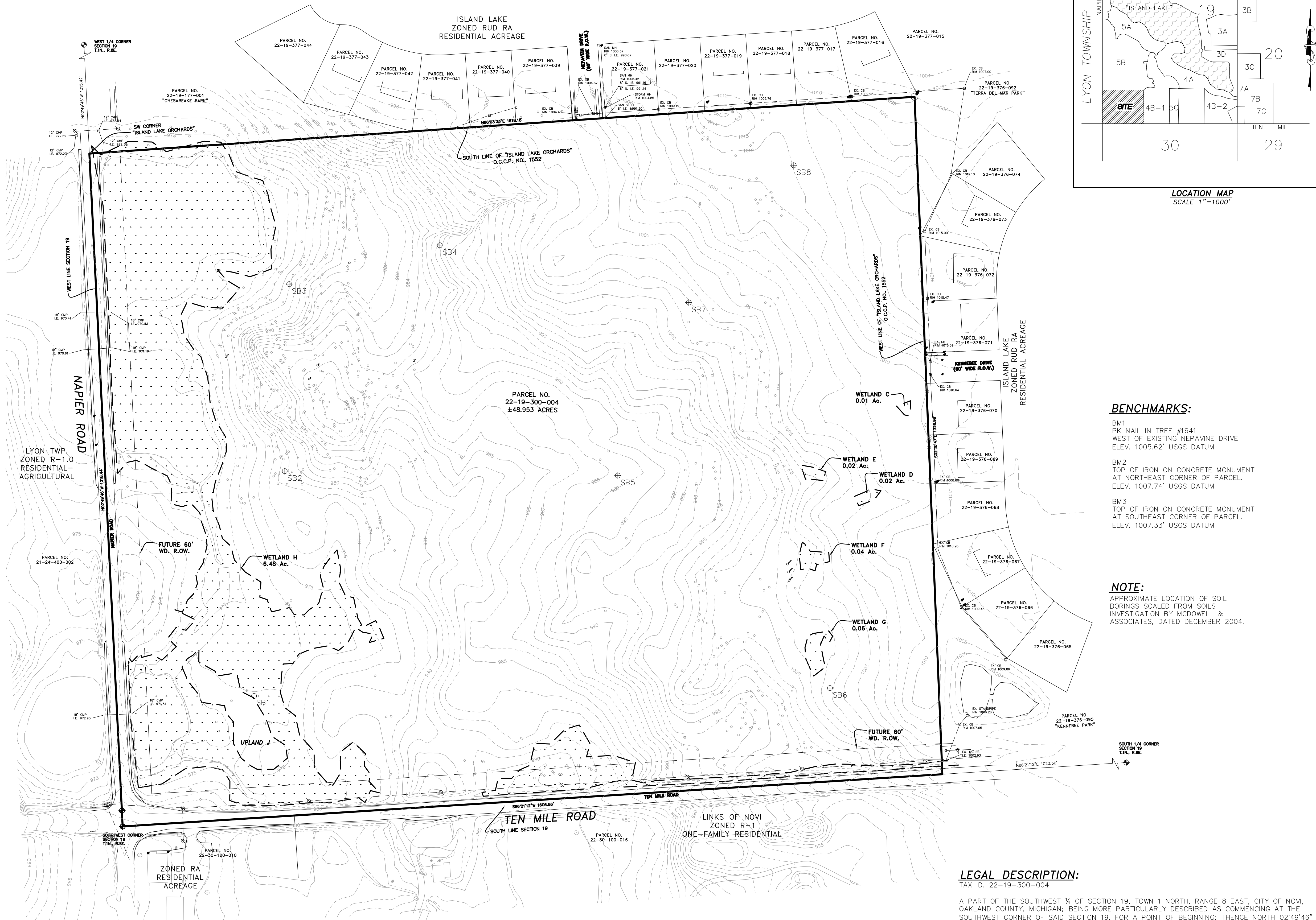
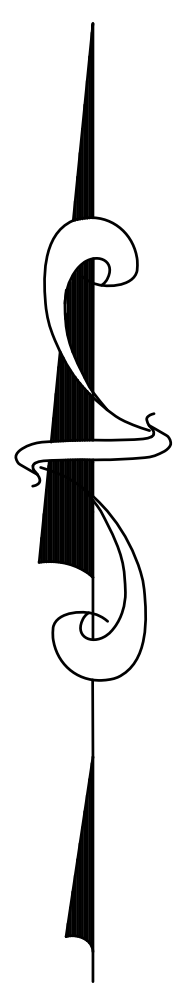
FBK:

CHF:

SCALE: HOR 1"=50 FT.
 VER 1"=5 FT.

5

13-260



LEGEND

	EX. TREE TAG NO.
	EX. DECIDUOUS TREE
	EX. CONIFEROUS TREE
	EX. TREE LINE
	EX. FENCE LINE
	APPROX. UNDERGROUND ELECTRIC
	APPROX. UNDERGROUND GAS MAIN
	APPROX. UTILITY LINES
	APPROX. SANITARY SEWER
	APPROX. STORM SEWER
	APPROX. WATER MAIN
	FOUND CAPPED IRON BAR
	FOUND IRON BAR
	FOUND MONUMENT
	EX. POST
	EX. SIGN
	EX. PEDESTAL
	EX. LIGHT POLE
	EX. TRANSFORMER
	EX. UTILITY POLE
	EX. GAS FLAG
	EX. GAS MARKER
	EX. MANHOLE
	EX. END SECTION
	EX. CATCH BASIN
	EX. GATE VALVE
	EX. HYDRANT
	EX. WATER SHUT-OFF
	EX. WELL

BENCHMARKS:

- BM1
PK NAIL IN TREE #1641
WEST OF EXISTING NEPAVINE DRIVE
ELEV. 1005.62' USGS DATUM
- BM2
TOP OF IRON ON CONCRETE MONUMENT
AT NORTHEAST CORNER OF PARCEL.
ELEV. 1007.74' USGS DATUM
- BM3
TOP OF IRON ON CONCRETE MONUMENT
AT SOUTHEAST CORNER OF PARCEL.
ELEV. 1007.33' USGS DATUM

NOTE:

APPROXIMATE LOCATION OF SOIL BORINGS SCALED FROM SOILS INVESTIGATION BY MCDOWELL & ASSOCIATES, DATED DECEMBER 2004.

NOTICE:

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NOTE:

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LEGAL DESCRIPTION:

TAX ID. 22-19-300-004

A PART OF THE SOUTHWEST 1/4 OF SECTION 19, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN; BEING MORE PARTICULARLY DESCRIBED AS COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 19, FOR A POINT OF BEGINNING; THENCE NORTH 02°49'46" WEST, 1318.44 FEET, (SAID POINT BEING SOUTH 02°49'46" EAST, 1315.42 FEET FROM THE WEST 1/4 CORNER OF SAID SECTION 19), ALONG THE WEST LINE OF SAID SECTION 19 AND THE CENTERLINE OF NAPIER ROAD, TO THE SOUTHWEST CORNER OF "ISLAND LAKE ORCHARDS", OAKLAND COUNTY CONDOMINIUM PLAN NO. 1552, MASTER DEED RECORDED IN LIBER 30468, PAGES 611 THROUGH 689, OAKLAND COUNTY RECORDS, AS AMENDED; THENCE NORTH 86°03'33" EAST, 1618.18 FEET, ALONG A SOUTHERLY LINE OF SAID "ISLAND LAKE ORCHARDS"; THENCE SOUTH 02°20'47" EAST, 1326.96 FEET, ALONG A WESTERLY LINE OF SAID "ISLAND LAKE ORCHARDS", TO THE SOUTH LINE OF SAID SECTION 19 AND THE CENTERLINE OF TEN MILE ROAD, (SAID POINT BEING SOUTH 86°21'12" WEST, 1023.50 FEET FROM THE SOUTH 1/4 CORNER OF SAID SECTION 19); THENCE SOUTH 86°21'12" WEST, 1606.86 FEET, ALONG THE SOUTH LINE OF SAID SECTION 19 AND THE CENTERLINE OF SAID TEN MILE ROAD, TO THE POINT OF BEGINNING. ALL OF THE ABOVE CONTAINING 48.953 ACRES. ALL OF THE ABOVE BEING SUBJECT TO THE RIGHTS OF THE PUBLIC IN NAPIER ROAD AND TEN MILE ROAD. ALL OF THE ABOVE BEING SUBJECT TO EASEMENTS RESTRICTIONS AND RIGHT-OF-WAYS OF RECORD.

ALPINE ENGINEERING, INC.
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**PRELIMINARY SITE PLAN
OVERALL TOPOGRAPHIC SURVEY**

THE PRESERVE AT ISLAND LAKE - PHASE 8
SECTION: 19 TOWNSHIP: 1 N RANGE: 8 E
CITY OF NOVI OAKLAND COUNTY MICHIGAN

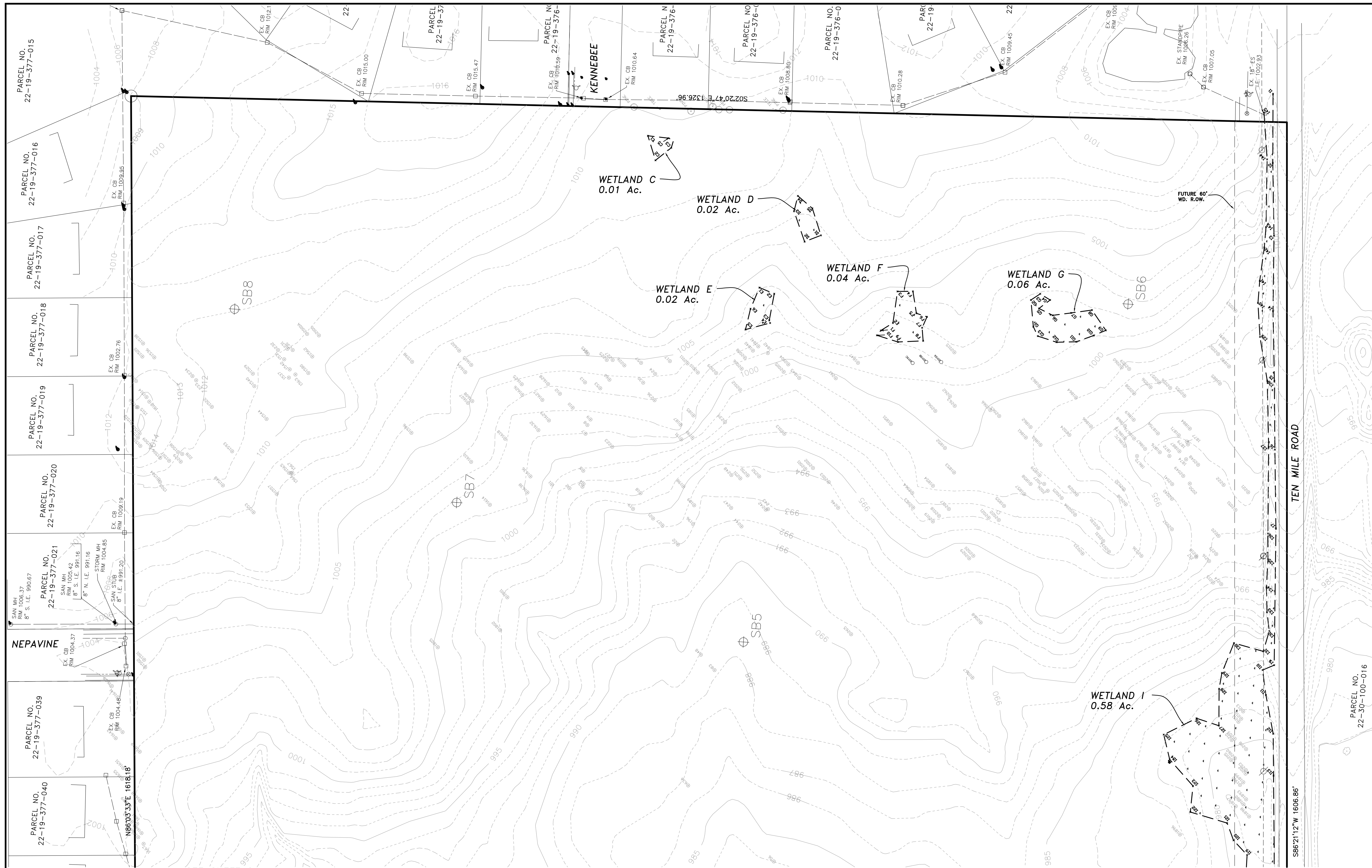
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FBK:
CHF:

SCALE: HOR 1"=100 FT.
VER 1"= -- FT.

6
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PARCEL NO. 22-19-377-015
 PARCEL NO. 22-19-377-016
 PARCEL NO. 22-19-377-017
 PARCEL NO. 22-19-377-018
 PARCEL NO. 22-19-377-019
 PARCEL NO. 22-19-377-020
 PARCEL NO. 22-19-377-021
 PARCEL NO. 22-19-377-039
 PARCEL NO. 22-19-377-040

PARCEL NO. 22-30-100-016
 SB6
 SB7
 SB5
 SB8
 KENNEBEE
 TEN MILE ROAD
 SB621'12" W 1606.86'

NOTICE:
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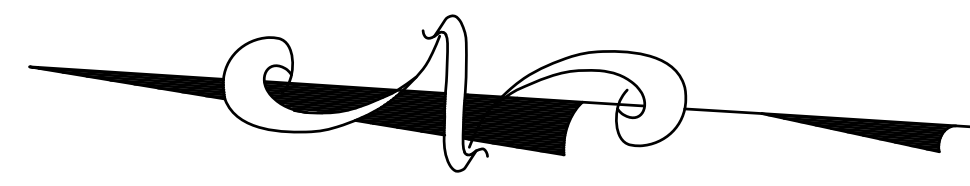
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LEGEND

	EX. TREE TAG NO.		EX. POST
	EX. DECIDUOUS TREE		EX. PEDESTAL
	EX. CONIFEROUS TREE		EX. LIGHT POLE
	EX. TREE LINE		EX. TRANSFORMER
	EX. FENCE LINE		EX. UTILITY POLE
	APPROX. UNDERGROUND ELECTRIC		EX. GAS FLAG
	EX. CULVERT WIRE		EX. GAS MARKER
	EX. UTILITY LINES		EX. MANHOLE
	APPROX. UNDERGROUND GAS MAIN		EX. END SECTION
	EX. SANITARY SEWER		EX. CATCH BASIN
	EX. STORM SEWER		EX. GATE VALVE
	APPROX. WATER MAIN		EX. HYDRANT
	FOUND CAPPED IRON BAR		EX. WATER SHUT-OFF
	FOUND IRON BAR		EX. WELL
	FOUND MONUMENT		

BENCHMARKS:
 SEE SHEET 6

NOTE:
 APPROXIMATE LOCATION OF SOIL BORINGS SCALED FROM SOILS INVESTIGATION BY MCCOWELL & ASSOCIATES, DATED AUGUST 31, 2012.



SEE SHEET 8

SEE SHEET 8

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SURVEYING
 ALTA SURVEYS
 BOUNDARY SURVEYS
 TOPOGRAPHIC SURVEYS
 PARCEL SPLITS

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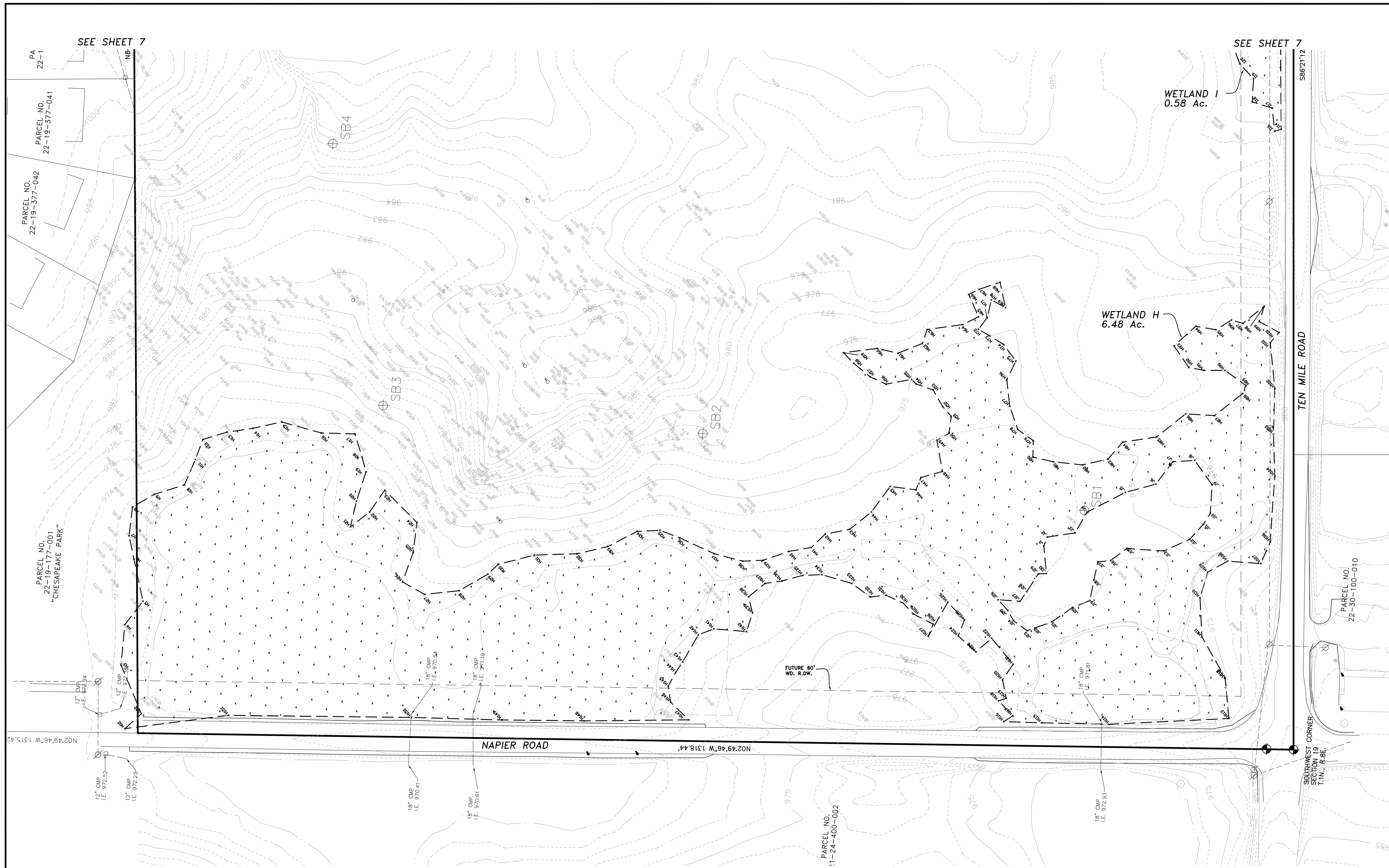
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**PRELIMINARY SITE PLAN
 TOPOGRAPHIC SURVEY EAST**
 THE PRESERVE AT ISLAND LAKE - PHASE 8
 SECTION: 19 TOWNSHIP: 1 N RANGE: 8 E
 CITY OF NOVI OAKLAND COUNTY MICHIGAN

REVISED	
10-17-2013 PRELIM SITE PLAN	
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CHF:	
SCALE: HOR 1"=50 FT. VER 1"=5 FT.	13-260



SEE SHEET 7

SEE SHEET 7

PA 22-1

PARCEL NO. 22-19-377-041

PARCEL NO. 22-19-377-042

PARCEL NO. 22-19-177-001 "CHESAPEAKE PARK"

S862112

TEN MILE ROAD

PARCEL NO. 22-30-100-010

SOUTHWEST CORNER SECTION 19 T1N, R8E.

NOTICE:
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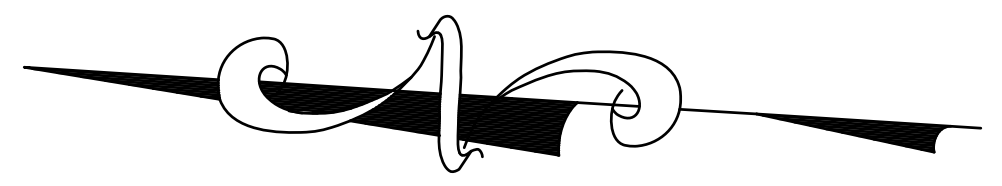
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LEGEND

	EX. TREE TAG NO.		EX. POST
	EX. DECIDUOUS TREE		EX. SIGN
	EX. CONIFEROUS TREE		EX. PEDESTAL
	EX. TREE LINE		EX. LIGHT POLE
	EX. FENCE LINE		EX. TRANSFORMER
	APPROX. UNDERGROUND ELECTRIC		EX. UTILITY POLE
	EX. GUY WIRE		EX. GAS FLAG
	EX. UTILITY LINES		EX. GAS MARKER
	APPROX. UNDERGROUND GAS MAIN		EX. MANHOLE
	EX. SANITARY SEWER		EX. END SECTION
	EX. STORM SEWER		EX. CATCH BASIN
	APPROX. WATER MAIN		EX. GATE VALVE
	FOUND CAPPED IRON BAR		EX. HYDRANT
	FOUND IRON BAR		EX. WATER SHUT-OFF
	FOUND MONUMENT		EX. WELL

BENCHMARKS:
SEE SHEET 6

NOTE:
APPROXIMATE LOCATION OF SOIL BORINGS SCALED FROM SOILS INVESTIGATION BY MCDOWELL & ASSOCIATES, DATED AUGUST 31, 2012.



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SITE ENGINEERING
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CONSTRUCTION LAYOUT

SURVEYING
ALTA SURVEYS
BOUNDARY SURVEYS
TOPOGRAPHIC SURVEYS
PARCEL SPLITS

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**PRELIMINARY SITE PLAN
TOPOGRAPHIC SURVEY WEST**

THE PRESERVE AT ISLAND LAKE - PHASE 8
SECTION: 19 TOWNSHIP: 1 N. RANGE: 8 E.
CITY OF NOVI
OAKLAND COUNTY
MICHIGAN

REVISED

10-17-2013 PRELIM. SITE PLAN
11-21-2013 PER CITY REVIEW

DATE: 10-17-2013
DRAWN BY: CAK/TAG
CHECKED BY: CAK/TAG

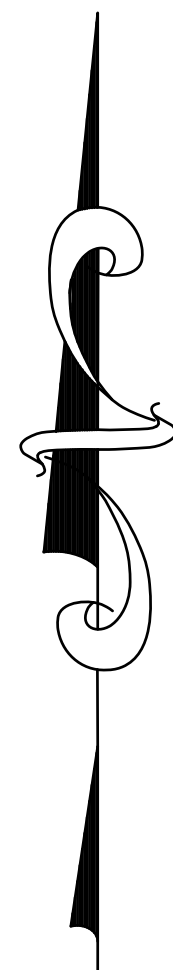
FBK: **8**
CHF: **8**

SCALE: HOR 1"=50 FT.
VER 1"=10 FT.

13-260

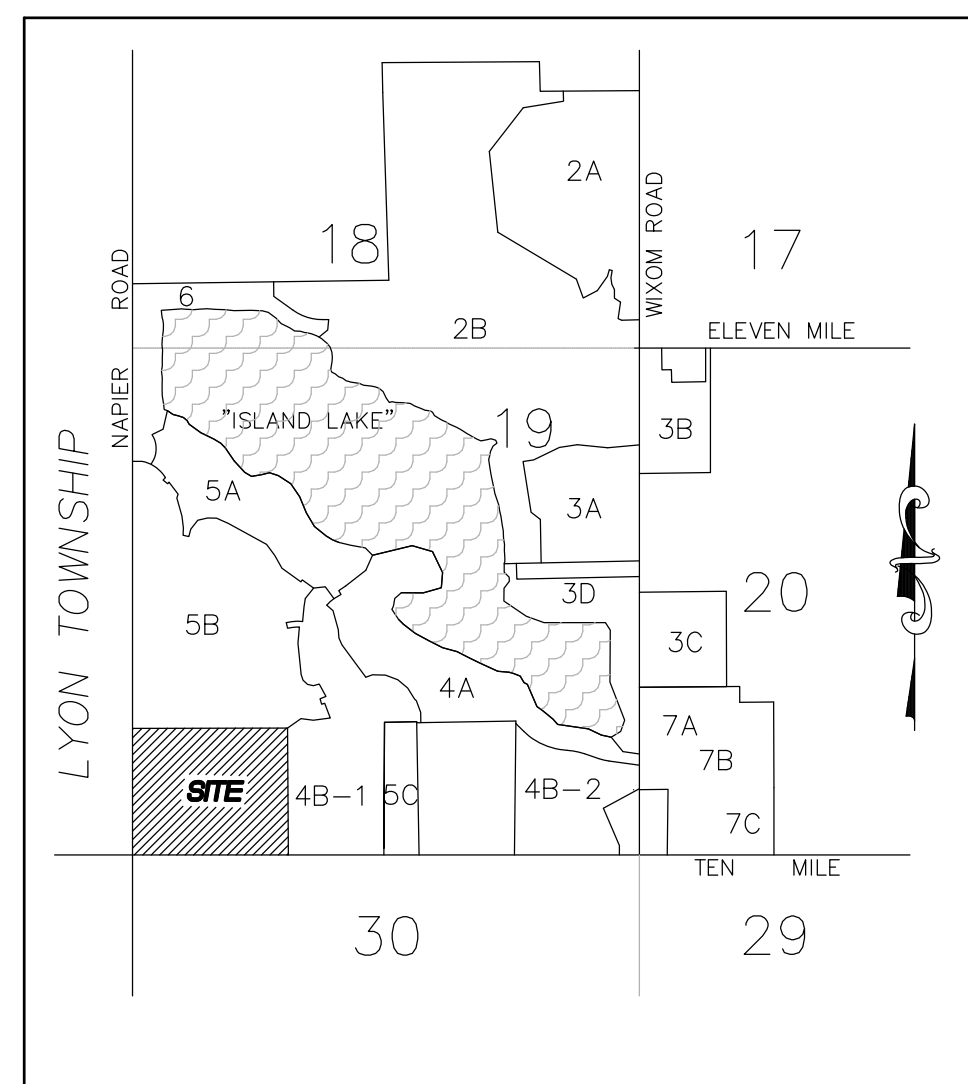
BENCHMARKS:

- BM1
PK NAIL IN TREE #1641
WEST OF EXISTING NEPAVINE DRIVE
ELEV. 1005.62' USGS DATUM
- BM2
TOP OF IRON ON CONCRETE MONUMENT
AT NORTHEAST CORNER OF PARCEL.
ELEV. 1007.74' USGS DATUM
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TOP OF IRON ON CONCRETE MONUMENT
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ELEV. 1007.33' USGS DATUM



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- EX. WELL
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- WALK OUT
- DROP BRICK LEDGE
- PROP. DRAINAGE ARROW
- PROP. MATCH EX. ELEV.
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- PROP. HYDRANT
- PROP. SAN. STR. NUMBER
- PROP. STM. STR. NUMBER
- PROP. GATE VALVE NUMBER
- PROP. HYDRANT NUMBER



GRADING & DRAINAGE NOTES:

1. ALL WORK SHALL CONFORM TO THE CURRENT CITY OF NOVI STANDARDS AND SPECIFICATIONS.
2. UNIT FOOTPRINTS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY.
3. PROPOSED GRADES AS SHOWN ON THESE PLANS REPRESENT RECOMMENDED GRADE. ACTUAL GRADES MAY VARY TO REFLECT THE UNIT FOOTPRINT.
4. RUNOFF FROM IMPERVIOUS SURFACES (PAVING, ROOFS) SHALL BE DIRECTED INTO PROPOSED STORMWATER DETENTION SYSTEM VIA STORM SEWER (SHEET FLOW MAY BE PERMITTED WHERE LOT IS ADJACENT TO DETENTION BASIN).
5. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE PERMITTED PLAN PRIOR TO CONSTRUCTION.
6. WALKING PATH TO BE GENERALLY CONSTRUCTED AT GRADE WITH 2% CROSS-SLOPE TOWARDS LOW SIDE OF EXISTING GRADE, MAX 12.5% LONGITUDINAL SLOPE AND LOCATED TO AVOID TREES AND WETLAND/BUFFER IMPACTS WHERE FEASIBLE.
7. APPROXIMATE LOCATION OF SOIL BORINGS SCALED FROM SOILS INVESTIGATION BY MCDOWELL & ASSOCIATES, DATED DECEMBER 2004.

WETLAND NOTES:

1. Areas A and B were determined to be non-wetland areas by the City of Novi wetland consultant on 7/16/2013.
2. Wetland H areas on this table account for the Upland Area J delineated within Area H.
3. All permanent Wetland I impacts are within Ten Mile Road right-of-way for entrance construction. Impact values adjusted to account for shoulder and backslope that may be required per RCOC. Intent of final impact will be to minimize impacts to wetland, subject to RCOC and Novi requirements for proposed land widening.
4. Wetland buffer impacts for the westerly portion of Area I are necessary for routing the Ten Mile sidewalk rather than creating direct wetland impacts.
5. Impact volumes are based on estimated fill depths, subject to change based on detailed grading design.
6. Temporary impact areas shown are for construction of water main and pathway crossings.
7. Wetland mitigation requirements will be determined during Final Site Plan. Location of mitigation areas, if required, are proposed to be located adjacent to Wetland complex 'H' and may consist of several areas or one large area, subject to final alignment of walking path and available space for mitigation.

PRELIMINARY WETLAND SUMMARY:

Line Designation	A	B	C	D	E	F	G	H	I	TOTAL
Wetland Ac.	-	-	0.01	0.02	0.02	0.04	0.06	6.48	0.58	7.21
Impact Ac.	-	-	0.01	0.02	0.02	0.04	0.06	0.01	0.14	0.30
Impact %	-	-	100%	100%	100%	100%	100%	0.01%	24%	4%
Est. Fill Depth, ft.	-	-	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Impact Volume, CY	-	-	60	100	110	210	290	60	690	
Buffer Ac.	-	-	0.11	0.12	0.12	0.16	0.18	2.89	0.76	4.34
Impact Ac.	-	-	0.11	0.12	0.12	0.16	0.18	0.13	0.45	1.27
Impact %	-	-	100%	100%	100%	100%	100%	4%	51%	29%
Est. Fill Depth, ft.	-	-	2.0	2.0	2.0	2.0	2.0	1.0	2.0	
Impact Volume, CY	-	-	350	390	400	510	600	150	1270	
Temporary Impacts For Construction										
Impact Ac. (Path Option A, water main)										0.23
Impact Ac. (Path Option B, water main)										0.17

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**PRELIMINARY SITE PLAN
OVERALL GRADING PLAN**

THE PRESERVE AT ISLAND LAKE - PHASE 8 E.
SECTION: 19 TOWNSHIP: 1 N. RANGE: 8 E.
CITY OF NOVI
OAKLAND COUNTY
MICHIGAN

REVISED

10-17-2013 PRELIM. SITE PLAN
11-21-2013 PER CITY REVIEW

DATE: 10-17-2013

DRAWN BY: CAK/TAG

CHECKED BY: CAK/TAG

FBK:

CHF:

SCALE: HOR 1"=100 FT.
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13-260



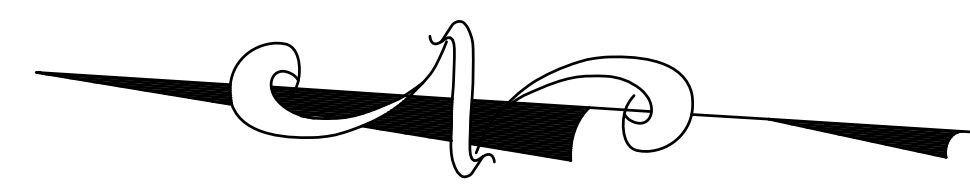
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BENCHMARKS:
SEE SHEET 9



SEE SHEET 9 FOR GRADING & DRAINAGE NOTES

SIDEWALK CONSTRUCTION NOTE:
1. SIDEWALKS IN COMMON AREAS MUST BE BUILT WITH THE SITE PLAN CONSTRUCTION.

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**PRELIMINARY SITE PLAN
GRADING PLAN EAST**

THE PRESERVE AT ISLAND LAKE - PHASE 8
SECTION: 19
TOWNSHIP: 1 N.
CITY OF NOVI
OAKLAND COUNTY
MICHIGAN

REVISED	10-17-2013 PRELIM. SITE PLAN
	11-21-2013 PER CITY REVIEW
DATE:	10-17-2013
DRAWN BY:	CAK/TAG
CHECKED BY:	CAK/TAG
FBK:	
CHF:	
SCALE	HOR 1"=50 FT. VER 1"=5 FT.

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13-260

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- EX. MANHOLE
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- EX. CATCH BASIN
- EX. GATE VALVE
- EX. HYDRANT
- EX. WATER SHUT-OFF
- EX. WELL
- FINISH GRADE
- WALK OUT
- DROP BRICK LEDGE
- SAN. FLOW DIRECTION
- PROP. MATCH EX. ELEV.
- PROP. TOP OF CURB ELEV.
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BENCHMARKS:

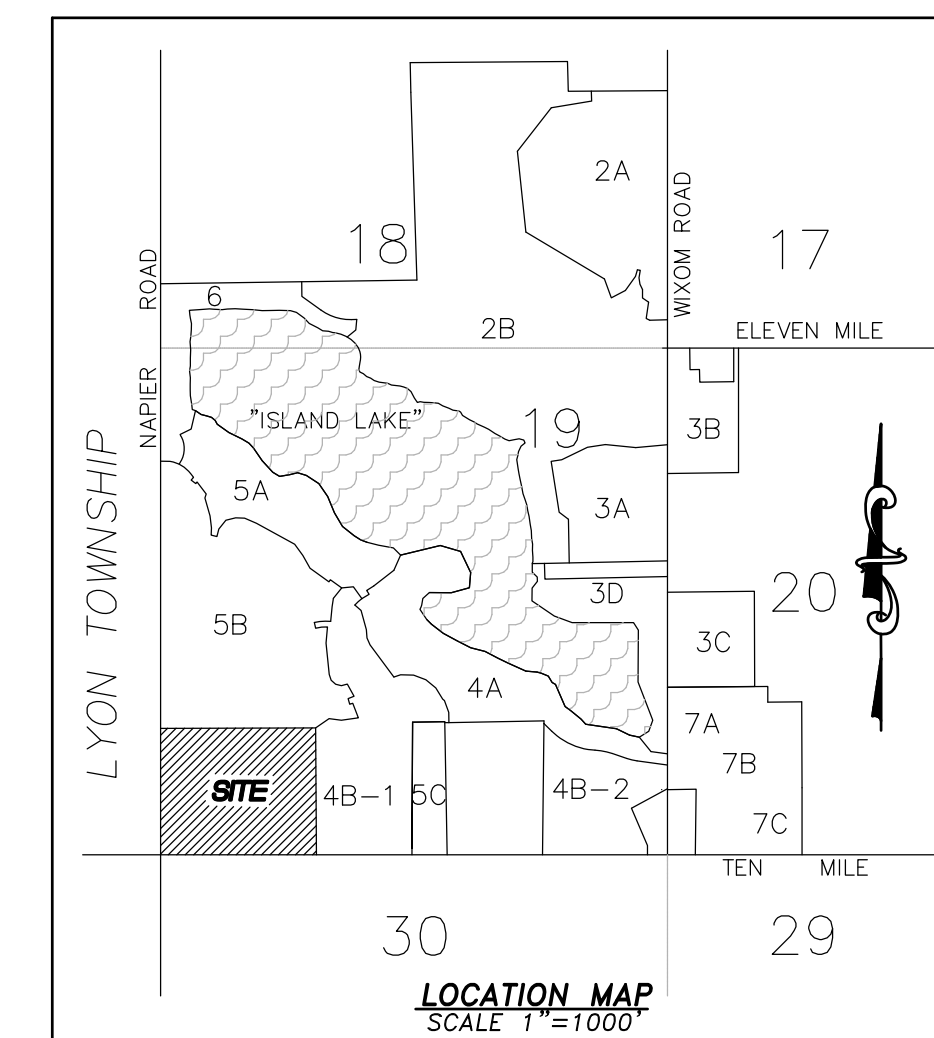
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UTILITY NOTES:

1. ALL WORK SHALL CONFORM TO THE CURRENT CITY OF NOVI STANDARDS AND SPECIFICATIONS.
2. PROPOSED WATER MAIN IS 8-INCH AND 12-INCH DIAMETER WITH A MINIMUM OF 6 FEET OF COVER.
3. 18" MINIMUM VERTICAL CLEARANCE SHALL BE PROVIDED AT ALL UTILITY CROSSINGS. DIP WATER MAIN PER THE CITY OF NOVI STANDARDS AND SPECIFICATIONS, AS NECESSARY.
4. A MINIMUM COVER OF FOUR (4) FEET SHALL BE MAINTAINED AT ALL TIMES FOR ALL PROPOSED SANITARY SEWER.
5. 6-INCH SANITARY LEADS SHALL BE A MINIMUM PVC SDR 23.5, AND MAINS SHALL BE 8" PVC SDR 26.
6. STORM SEWERS SHALL HAVE 20-FOOT WIDE MINIMUM EASEMENT.
7. PUBLIC SANITARY SEWERS SHALL HAVE 20-FOOT WIDE MINIMUM EASEMENT.
8. PUBLIC WATER MAINS SHALL HAVE 20-FOOT WIDE MINIMUM EASEMENT.
9. PROPOSED SANITARY PUMP STATION SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH CITY OF NOVI STANDARDS AND SPECIFICATIONS. DESIGN OF WET WELL SHALL ACCOUNT FOR FUTURE SEWAGE FLOWS FROM FUTURE DEVELOPMENT PER 'ISLAND LAKE OF NOVI - SANITARY SEWER MASTER PLAN' BY SEIBER, KEAST & ASSOCIATES.
10. PER THE DRAKE'S BAY SYSTEM CAPACITY ANALYSIS, IMPROVEMENTS TO THE PUMPS AT DRAKE'S BAY ARE REQUIRED TO ACCOMMODATE THE PROPOSED DEVELOPMENT, TO WHICH EXTENT WILL BE DETERMINED DURING THE FINAL SITE PLANNING PROCESS.
11. COMPACTED SAND BACKFILL SHALL BE PROVIDED FOR ALL UTILITIES WITHIN THE INFLUENCE OF PAVED AREAS.
12. FRANCHISE UTILITIES SHALL GENERALLY BE LOCATED IN REAR YARDS EXCEPT WHEN IMPACTS TO NATURAL FEATURES SUCH AS TREES AND WETLANDS ARE TO BE AVOIDED. A VARIANCE FROM THE CITY OF NOVI WILL BE REQUIRED FOR PLACEMENT OF FRANCHISE UTILITIES ALONG THE LOT FRONTAGE. A 10' WIDE EASEMENT WILL BE PROVIDED FOR FRANCHISE UTILITIES.
13. A VARIANCE WILL BE REQUIRED FOR STORM SEWER WITH COVER LESS THAN THREE FEET.
14. PROVIDE CITY OF NOVI COMPLIANT SEDIMENT CONTROL DEVICE PRIOR TO DISCHARGE INTO BASIN.

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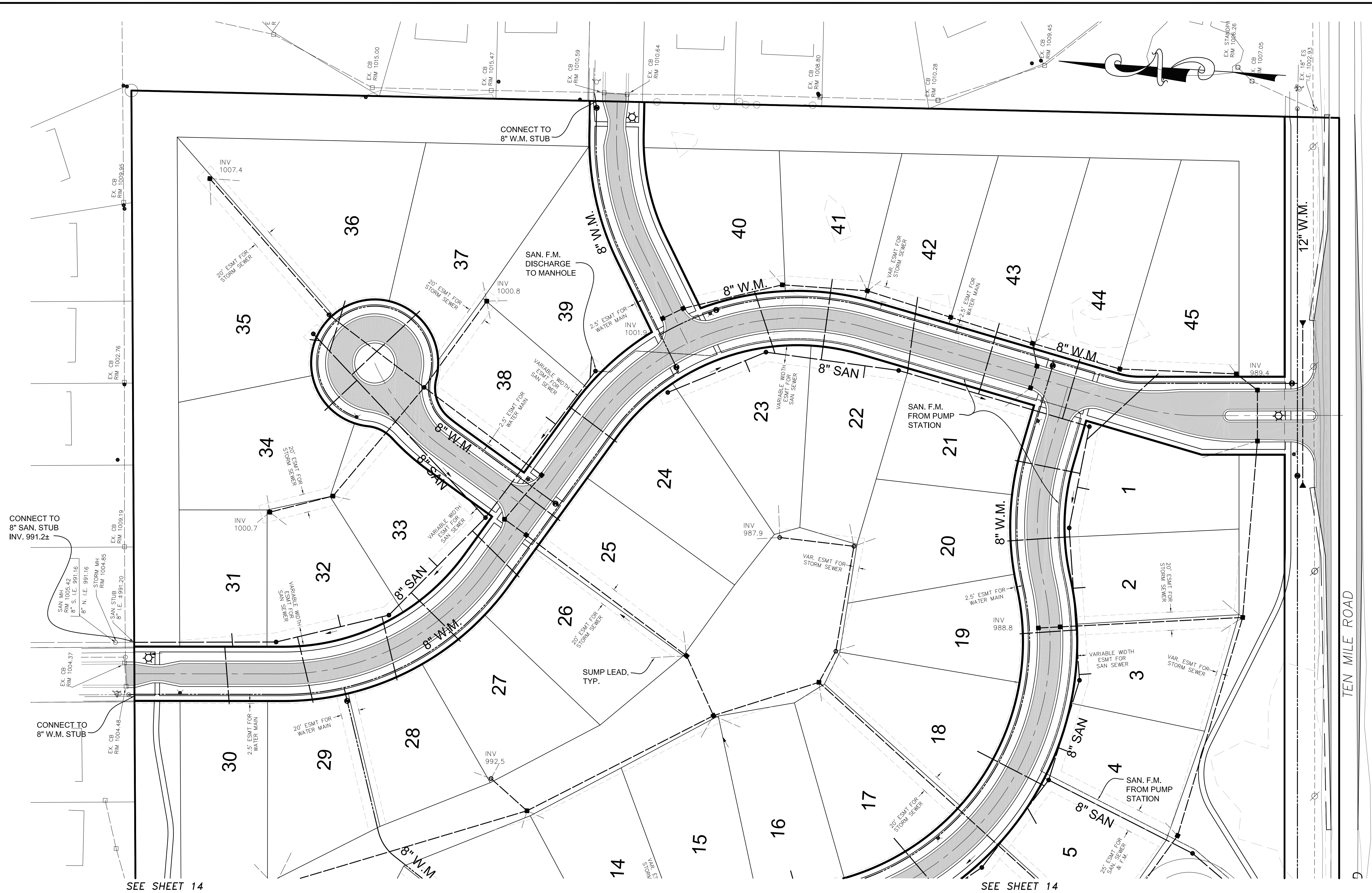
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FBK:
CHF:

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SEE SHEET 14

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DBL	DROP BRICK LEDGE
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GU 60.00	PROP. MATCH EX. ELEV.
TP 60.00	PROP. TOP OF CURB ELEV.
TW 60.00	PROP. GUTTER ELEV.
90.00	PROP. TOP OF PAVEMENT ELEV.
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	PROP. STM. STR. NUMBER
	PROP. GATE VALVE NUMBER
	PROP. HYDRANT NUMBER

UTILITY NOTES
1. SEE SHEET 12 FOR OVERALL GENERAL UTILITY NOTES.

BENCHMARKS:
SEE SHEET 12

THE ENTIRE OPEN SPACE (GENERAL COMMON ELEMENT AREA) IS SUBJECT TO A SURFACE DRAINAGE EASEMENT, DETENTION EASEMENT, PUBLIC AND PRIVATE UTILITY EASEMENTS. THE INSTALLATION AND MAINTENANCE OF PUBLIC AND PRIVATE UTILITIES SUBJECT TO THE CONDITIONS DESCRIBED IN THE CONDOMINIUM MASTER DEED.

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**PRELIMINARY SITE PLAN
UTILITY PLAN EAST**

THE PRESERVE AT ISLAND LAKE - PHASE 8
SECTION: 19
TOWNSHIP: 1 N.
CITY OF NOVI
OAKLAND COUNTY
MICHIGAN

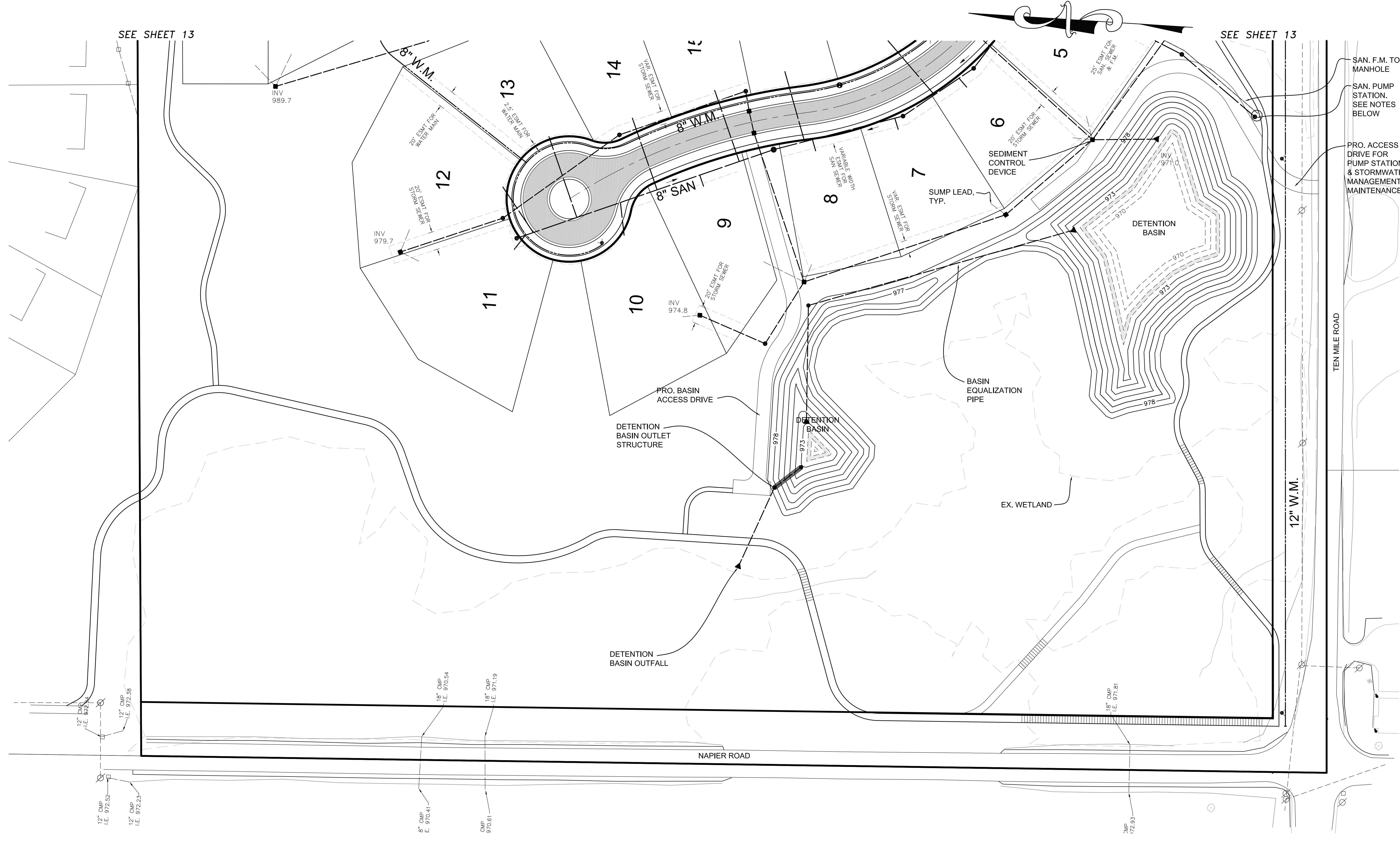
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10-17-2013 PRELIM. SITE PLAN
11-21-2013 PER CITY REVIEW

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CHF:

SCALE: HOR 1"=50 FT.
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13-260



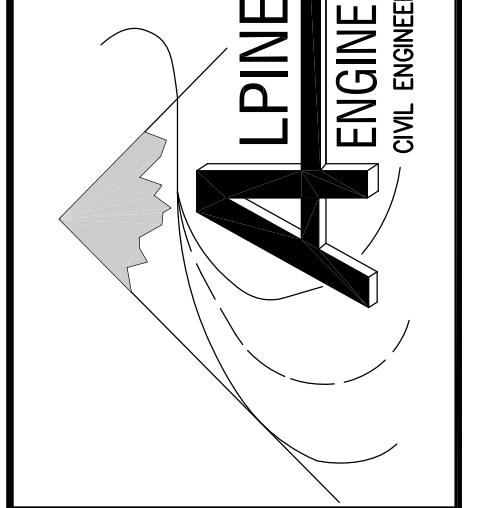
SEE SHEET 13

SEE SHEET 13

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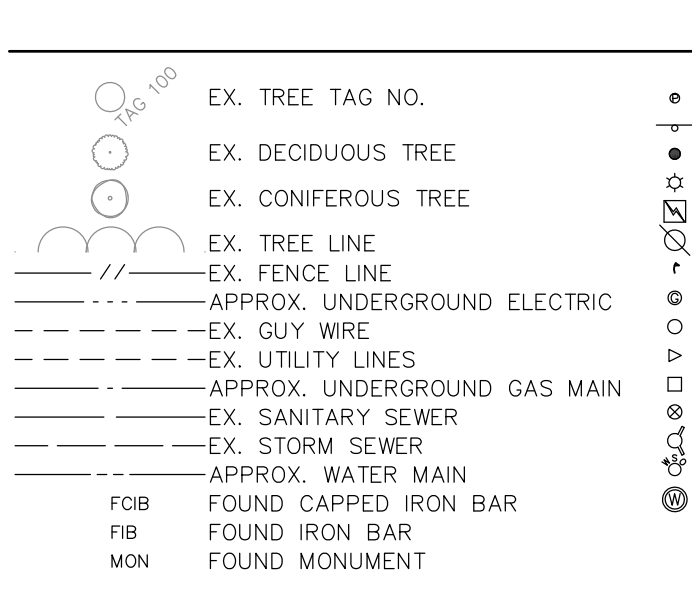
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**PRELIMINARY SITE PLAN
 UTILITY PLAN WEST**
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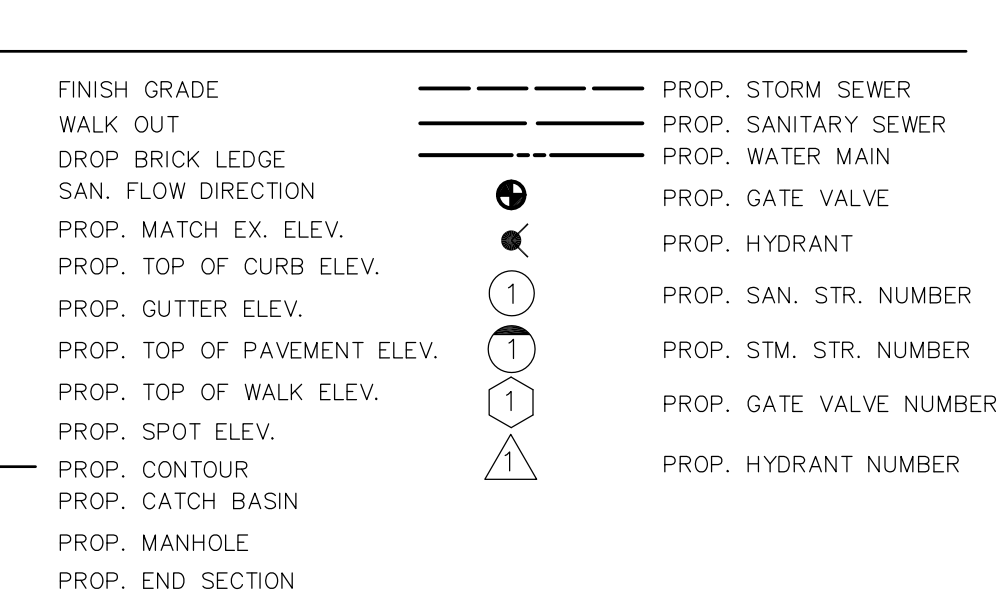
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BENCHMARKS:
 SEE SHEET 12



LEGEND

EX. POST	EX. SIGN	EX. PEDESTAL	EX. LIGHT POLE	EX. TRANSFORMER	EX. UTILITY POLE	EX. GAS FLAG	EX. GAS MARKER	EX. MANHOLE	EX. END SECTION	EX. CATCH BASIN	EX. GATE VALVE	EX. HYDRANT	EX. WATER SHUT-OFF	EX. WELL
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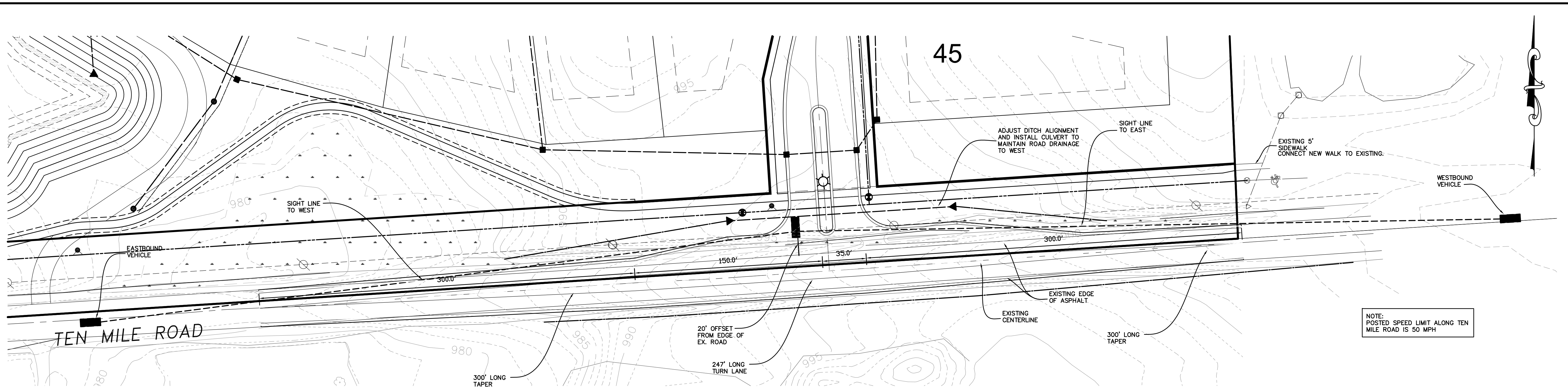
UTILITY NOTES

1. SEE SHEET 12 FOR OVERALL GENERAL UTILITY NOTES.

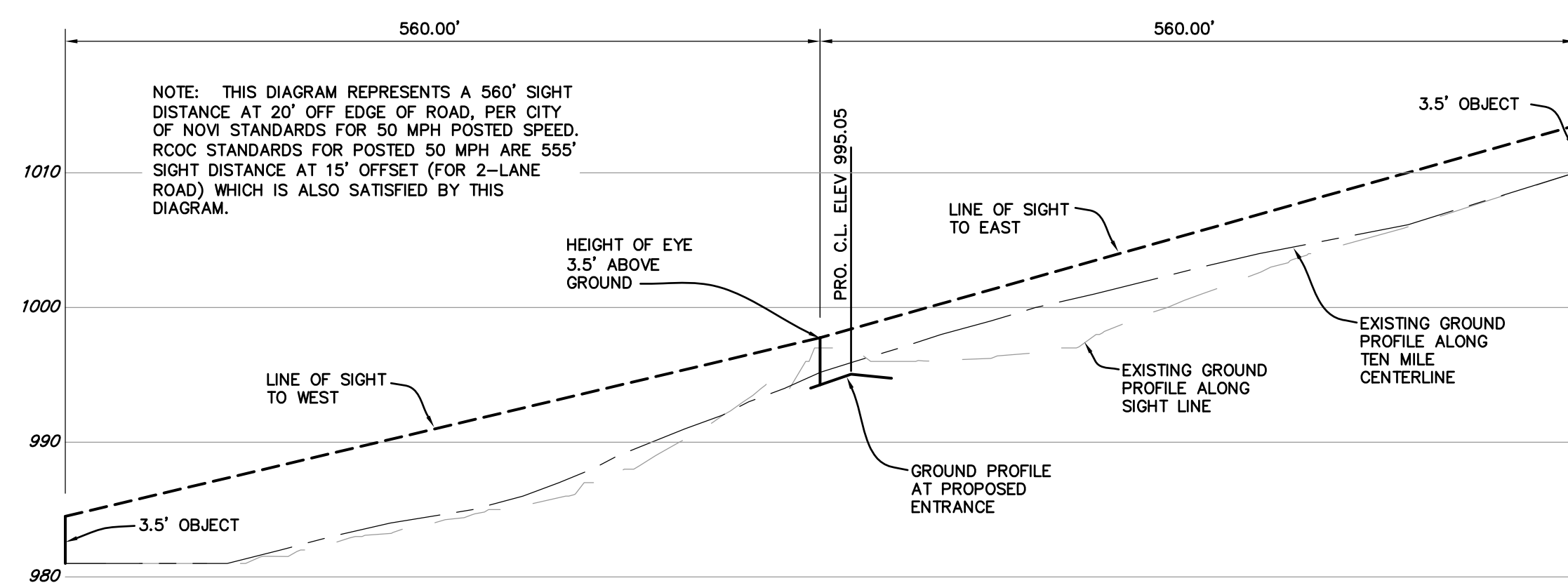
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SANITARY PUMP STATION NOTES:

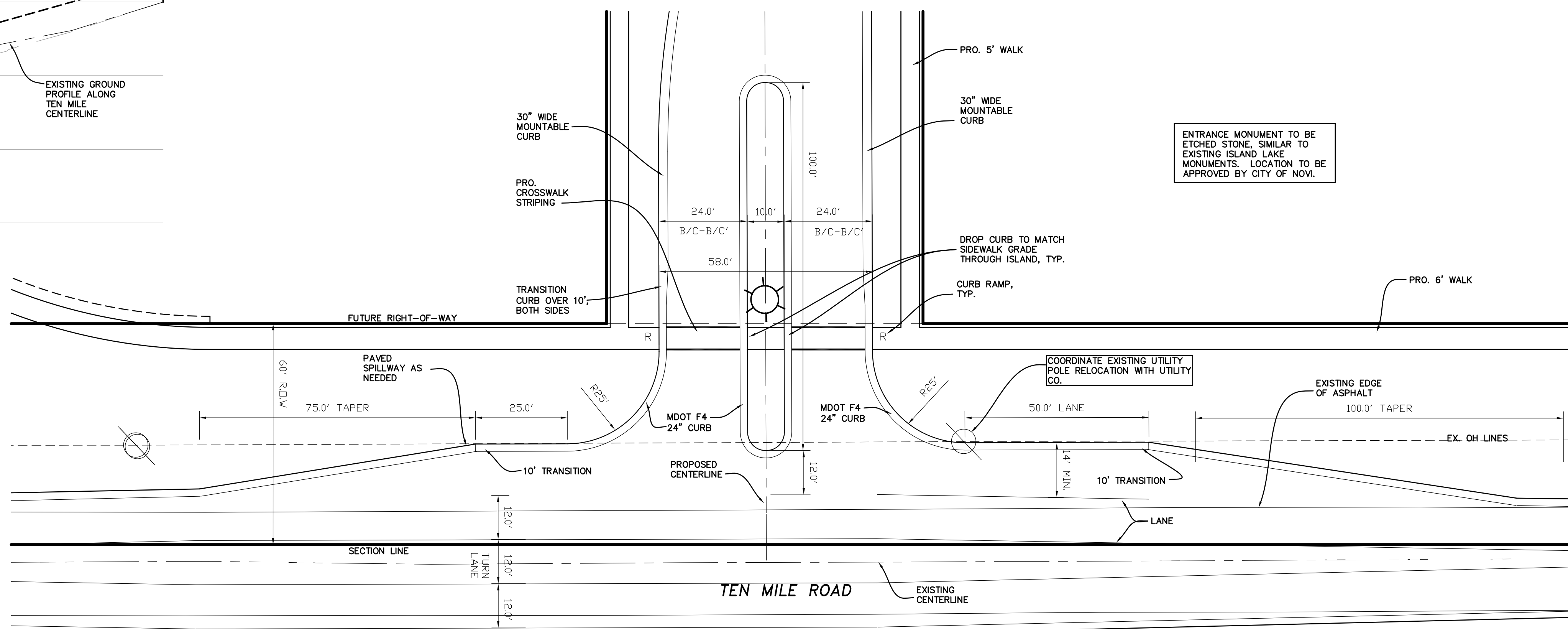
1. PROPOSED SANITARY PUMP STATION SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH CITY OF NOVI STANDARDS AND SPECIFICATIONS. DESIGN OF WELL WILL ACCOUNT FOR FUTURE SEWER FLOWS FROM FUTURE DEVELOPMENT PER 'ISLAND LAKE OF NOVI - SANITARY SEWER MASTER PLAN' BY SEIBER, KEAST & ASSOCIATES.
2. A STUB SHALL BE PROVIDED TO THE SOUTH FOR FUTURE CONNECTION FROM ADJACENT DEVELOPMENT, PER 'ISLAND LAKE OF NOVI - SANITARY SEWER MASTER PLAN'.
3. WIDTH AND SURFACING OF ACCESS DRIVE FOR MAINTENANCE OF PUMP STATION AND SEDIMENT CONTROL DEVICE SHALL BE PROVIDED TO THE SATISFACTION OF THE CITY OF NOVI.



OVERALL FRONTAGE DETAIL, SCALE 1"=40'



SIGHT DISTANCE PROFILE, SCALE 1"=100' H, 1"=10' V



ENTRANCE GEOMETRICS DETAIL, SCALE 1"=20'

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LEGEND	
	EX. TREE TAG NO.
	EX. DECIDUOUS TREE
	EX. CONIFEROUS TREE
	EX. TREE LINE
	EX. FENCE LINE
	APPROX. UNDERGROUND ELECTRIC
	EX. GUY WIRE
	EX. UTILITY LINES
	APPROX. UNDERGROUND GAS MAIN
	EX. SANITARY SEWER
	EX. STORM SEWER
	APPROX. WATER MAIN
	FOUND CAPPED IRON BAR
	FOUND IRON BAR
	FOUND MONUMENT
	EX. POST
	EX. SIGN
	EX. PEDESTAL
	EX. LIGHT POLE
	EX. TRANSFORMER
	EX. UTILITY POLE
	EX. GAS FLAG
	EX. GAS MARKER
	EX. MANHOLE
	EX. END SECTION
	EX. CATCH BASIN
	EX. GATE VALVE
	EX. HYDRANT
	EX. WATER SHUT-OFF
	EX. WELL
	FINISH GRADE
	WALK OUT
	DROP BRICK LEDGE
	PROP. DRAINAGE ARROW
	PROP. MATCH EX. ELEV.
	PROP. TOP OF CURB ELEV.
	PROP. GUTTER ELEV.
	PROP. TOP OF PAVEMENT ELEV.
	PROP. TOP OF WALK ELEV.
	PROP. SPOT ELEV.
	PROP. CONTOUR
	PROP. CATCH BASIN
	PROP. MANHOLE
	PROP. END SECTION
	PROP. STORM SEWER
	PROP. SANITARY SEWER
	PROP. WATER MAIN
	PROP. GATE VALVE
	PROP. HYDRANT
	PROP. SAN. STR. NUMBER
	PROP. STM. STR. NUMBER
	PROP. GATE VALVE NUMBER
	PROP. HYDRANT NUMBER

BENCHMARKS:

BM1
RAILROAD SPIKE IN EAST FACE OF UTILITY POLE ON WEST SIDE OF DINSER ROAD AT INTERSECTION OF DINSER ROAD AND THORNBURY DRIVE. ELEVATION=960.53 N.A.V.D. 88 DATUM

NOTES:

- ALL WORK WITHIN TEN MILE ROAD AND NAPIER ROAD RIGHT-OF-WAY SHALL CONFORM TO THE CURRENT ROAD COMMISSION FOR OAKLAND COUNTY (R.C.O.C.) STANDARDS AND SPECIFICATIONS. WORK OUTSIDE R.C.O.C. JURISDICTION SHALL CONFORM TO THE CURRENT CITY OF NOVI STANDARDS AND SPECIFICATIONS.
- CONSTRUCT WALKS PER BARRIER FREE/ADA REQUIREMENTS. NO MORE THAN 1/4" VERTICAL OBSTACLE SHALL BE ALLOWED AT EACH TRANSITION BETWEEN THE PATHWAY AND THE DRIVE APPROACH.
- BARRIER FREE DETECTABLE WARNING STRIPS ARE PROPOSED AT RAMP/CURB DROPS WITHIN TEN MILE ROAD RIGHT-OF-WAY ONLY.

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TEN MILE ROAD ENTRANCE

THE PRESEVE AT ISLAND LAKE - PHASE 8
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OAKLAND COUNTY
MICHIGAN
SECTION: 19

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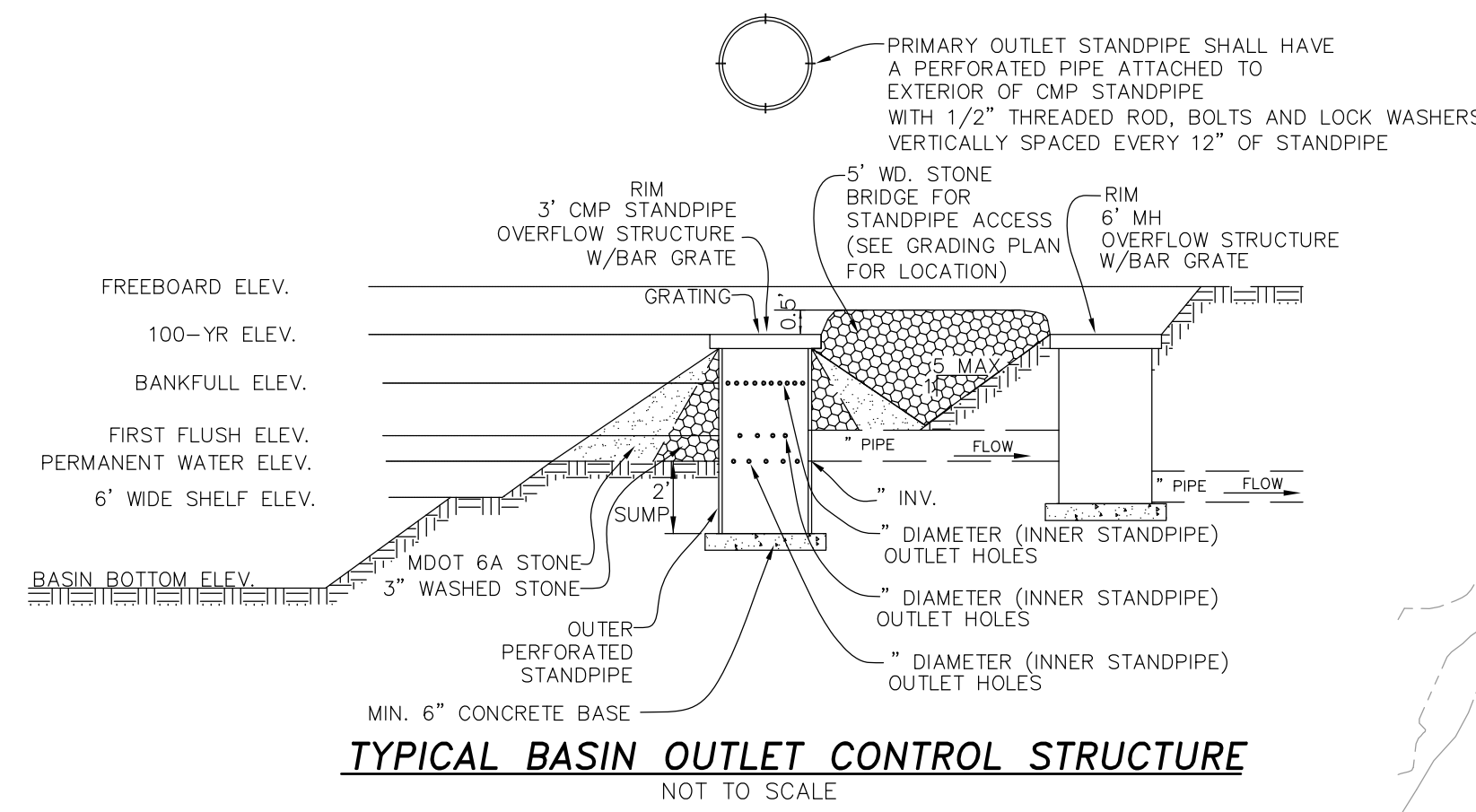
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CHF:

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VER 1"=--- FT.

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PRELIMINARY 100-YEAR DETENTION DESIGN

DESIGN STORM EVENT: 100 YEAR STORM
ALLOWABLE OUTFLOW: 0.15 CFS/AC.

DRAINAGE AREAS	AREA (ac.)	C'	AC-IMP.
IMPERVIOUS (PAVED, ROOFTOPS)	7.25	0.95	6.89
LAWN	22.95	0.35	7.82
OPEN WATER (DETENTION BASIN)	1.00	1.00	1.00
C COMPOUND C:	0.52		
AREA TOTAL DRAINAGE AREA:	31.2	AC	

POND CALCS
Q₀ = OUTFLOW (15 CFS/AC) = 4.68 CFS
Q₀ = Q₀ / (AREA x C) = 0.288 CFS/ACRE IMPERVIOUS

STORAGE TIME
T = 25 + sqrt(10.3125/Q₀) = 164.23 MIN

VOLUME OF STORAGE PER ACRE IMPERVIOUS
V_s = 18,500/T - 40*Q₀*T = 12.428 CF/ACRE IMPERVIOUS

TOTAL VOLUME OF DETENTION STORAGE REQUIRED
V_d = V_s x AREA x C = 201,635 CF

TOTAL VOLUME OF FIRST FLUSH STORAGE REQUIRED
V_{ff} = 1850 x AREA x C = 30,014 CF

TOTAL VOLUME OF BANK FULL STORAGE REQUIRED
V_b = 5160 x AREA x C = 83,716 CF

PERMANENT POOL VOLUME SUMMARY

Elevation	Area (sf)	Vol. (cf)	Sum. (cf)
973	20,596	18,566	18,566
972	16,575	0	18,566
971	14,244	0	18,566
970	11,124	12,664	31,250
969	8,412	9,766	41,108

Permanent Pool Volume Provided = 41,108 CF > 30,014 CF

DETECTION VOLUME SUMMARY Contour Interpolation Calc.

Elevation	Area (sf)	Vol. (cf)	Q Vol. (cf)	100-Yr	Bank Full
973	21,779	24,580	201,635	83,716	-
974	27,381	30,531	55,111	-	-
975	33,980	37,154	92,265	-	-
976	40,628	45,339	137,603	-	-
977	47,324	55,892	193,495	978.12	-
978	54,068	67,731	261,226	-	-
979	60,858	73,726	-	-	-

PREDEVELOPMENT SITE RUNOFF

Pre-Development Runoff to Existing Wetlands

Using the Rational Method, determine peak runoff draining from Site to wetland and culverts at Napier Road

Q100 = C x I (100) x A
= 0.30 x 1.15 in/hr x 48.6 = 16.8 cfs

A On-site area draining to wetland: 48.6 Acres

C Compound Coefficient	C	Acres	CxA	33%
Soil Group B, 0-4% Slopes	0.25	16.1	4,025	20%
Soil Group B, 4-8% Slopes	0.30	12.7	3,81	20%
Soil Group B, >8% Slopes	0.35	3.2	1.12	7%
Soil Group C, 0-4% Slopes	0.30	7.3	2.19	15%
Soil Group C, 4-8% Slopes	0.35	4.8	1.68	10%
Soil Group C, >8% Slopes	0.40	1.9	0.76	4%
Soil Group D, 0-4% Slopes	0.45	1.9	0.855	4%
Soil Group D, 4-8% Slopes	0.50	0.5	0.25	1%
Soil Group D, >8% Slopes	0.55	0.2	0.11	0%
Sum:		48.6	14.8	

C = Sum (CxA) / Sum (A) = 0.30

I 100-year Intensity: I100 = 275/(1+25) = 1.15 in/hr

Flow Types	Length	U/S El.	D/S El.	Slope %	t
Sheet Flow	300	1016	1008.5	2.50	51
Waterway Flow	1480	1008.5	972	2.50	101
Small Trib Flow	550	972	970.5	0.3	62

Where t (sheet) = L / 0.48sqrt(S x 60)
t (waterway) = L / 1.2sqrt(S x 60)
t (small trib) = L / 2.1sqrt(S x 60)

RUNOFF COMPARISON SUMMARY

IN THE PRE-DEVELOPMENT CONDITION, THE ABOVE ANALYSIS INDICATES A 100-YEAR PEAK RUNOFF RATE OF 16.8 CFS FROM THE UNDEVELOPED SITE. IN THE POST-DEVELOPMENT CONDITION THE DETENTION BASIN OUTLET WILL DISCHARGE A PEAK 4.68 CFS IN THE 100-YEAR EVENT. IN ADDITION TO THE DETENTION BASIN OUTLET, A PORTION OF THE SITE WILL CONTINUE TO DRAIN DIRECTLY TO THE WETLAND AREA. USING THE RATIONAL METHOD, THIS ADDITIONAL PEAK RUNOFF IS CONSERVATIVELY ESTIMATED AS:

Q = C x I x A = 11.4 CFS (AT BASIN STORAGE TIME)
C = 0.45 (HYD GROUP D, 0-4%)
I = 275/(1+25) = 275/(164+25) = 1.46; USING (T=164 MIN) AT BASIN STORAGE TIME
A = 48.6 - 31.2 = 17.4

11.4 CFS + 4.68 CFS = 16.08 CFS < 16.8 CFS PER ANALYSIS THEREFORE THE PEAK DISCHARGE FROM THE DEVELOPED SITE WILL BE LESS THAN THE PEAK RUNOFF IN THE EXISTING CONDITION DUE TO ATTENUATION OF RUNOFF IN THE BASIN.

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CONSTRUCTION MAINTENANCE TASKS AND SCHEDULE

Tasks	Storm Sewer System	Catch Basin Sumps	Catch Basin Inlet Casings	Channels & Swales	Outflow Control Structures	Detention Basin	Schedule
Inspect for sediment accumulation	X	X	X	X	X	X	As needed & prior to turnover
Inspect for floatables and debris	X	X	X	X	X	X	Quarterly
Cleaning of floatables and debris	X	X	X	X	X	X	Quarterly & as turnover
Inspection for erosion				X	X	X	Weekly
Re-establish permanent vegetation on eroded slopes				X	X	X	As needed & prior to turnover
Replacement of stone				X	X	X	As needed
Use weather inspection of structural elements, including inspection for settlement accumulation in detention basins with access plans in hand. These should be carried out by a professional engineer	X			X	X	X	As needed & as turnover
Make adjustments or replacements as determined by wet weather inspection	X			X	X	X	As needed
Street Sweeping							As needed

PERMANENT MAINTENANCE TASKS AND SCHEDULE

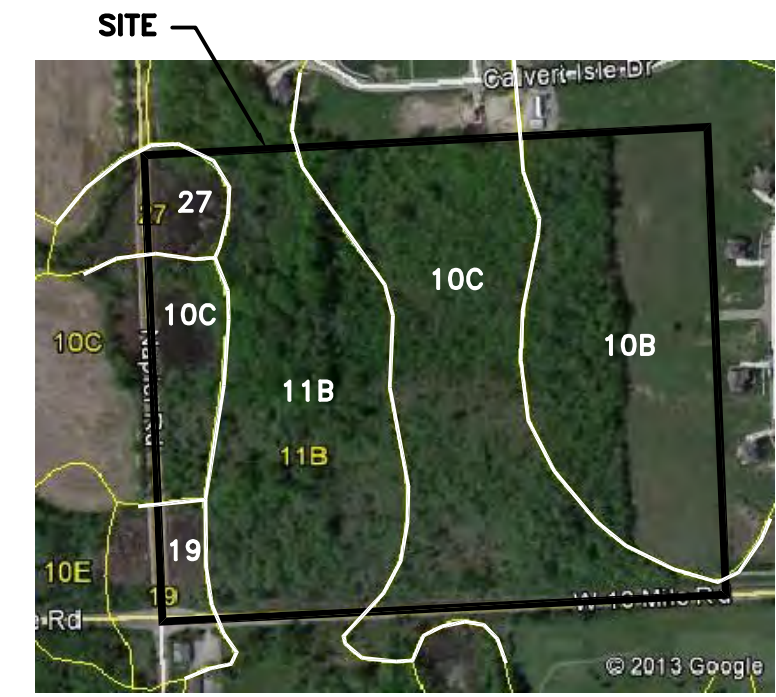
Tasks	Storm Sewer System	Catch Basin Sumps	Catch Basin Inlet Casings	Channels & Swales	Outflow Control Structures	Detention Basin	Schedule
Inspect for sediment accumulation	X	X	X	X	X	X	Annually
Removal of sediment accumulation	X	X	X	X	X	X	Every 2 years as needed
Inspect for floatables and debris	X	X	X	X	X	X	Annually
Cleaning of floatables and debris	X	X	X	X	X	X	Annually
Inspection for erosion				X	X	X	Annually
Re-establish permanent vegetation on eroded slopes				X	X	X	As needed
Replacement of stone				X	X	X	As needed
Use weather inspection of structural elements, including inspection for settlement accumulation in detention basins with access plans in hand. These should be carried out by a professional engineer	X			X	X	X	Annually
Make adjustments or replacements as determined by wet weather inspection	X			X	X	X	As needed
Keep records of all inspections and maintenance activities						X	Annually
Keep records of all costs for inspections, maintenance, and repairs						X	Annually

* NOTE: DETENTION BASIN IS SIZED TO ACCOMMODATE RUNOFF FROM ENTIRE AREA AS SHOWN WITHIN DEPICTED LIMITS. HOWEVER DUE TO SITE TOPOGRAPHY AND THE DESIRE TO MINIMIZE IMPACTS TO NATURAL FEATURES, THERE MAY BE PORTIONS OF UNIMPERVIOUS SURFACE AREAS THAT MAINTAIN EXISTING DRAINAGE PATTERNS AND NOT ROUTED INTO THE BASIN. ALL PROPOSED IMPERVIOUS AREA ON-SITE SHALL BE DIRECTED INTO THE DETENTION BASIN.

NOTE: WATER QUALITY STRUCTURE TO BE PROVIDED UPSTREAM OF STORM SEWER DISCHARGE INTO DETENTION BASIN, PER CITY OF NOVI REQUIREMENTS.

PREDEVELOPMENT TRIBUTARY AREA = 48.6 ACRES (EXCLUDES SMALL PORTION IN N.E. CORNER THAT DRAINS AWAY FROM WETLAND).

PORTION OF SITE TO MAINTAIN EXISTING DRAINAGE PATTERN OFFSITE. LOT RUNOFF TO BE ROUTED TO DETENTION BASIN VIA STORM SEWER. BASIN SIZED TO INCLUDE THIS AREA.



BEGIN TIME OF CONC SHEET FLOW
EL. 1016
300 LF (MAX PER MDEQ)

WATERWAY
EL. 1008.5
1480 LF

LEGEND



EXISTING DETENTION BASIN FOR ADJACENT DEVELOPMENT

SHIFT DITCH AND PROVIDE CULVERT TO MAINTAIN TEN MILE ROAD DRAINAGE WESTWARD.

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STORM WATER MANAGEMENT PLAN**

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THE PRESERVE AT ISLAND LAKE - PHASE 8
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CITY OF NOVI
OAKLAND COUNTY
MICHIGAN
SECTION: 19 RANGE: 8 E.

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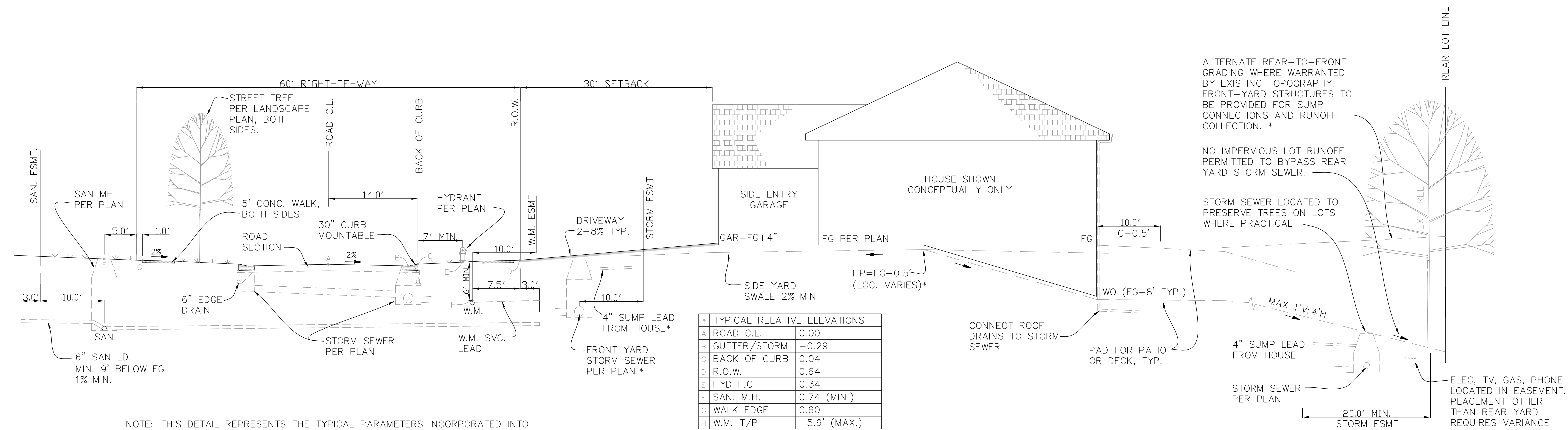
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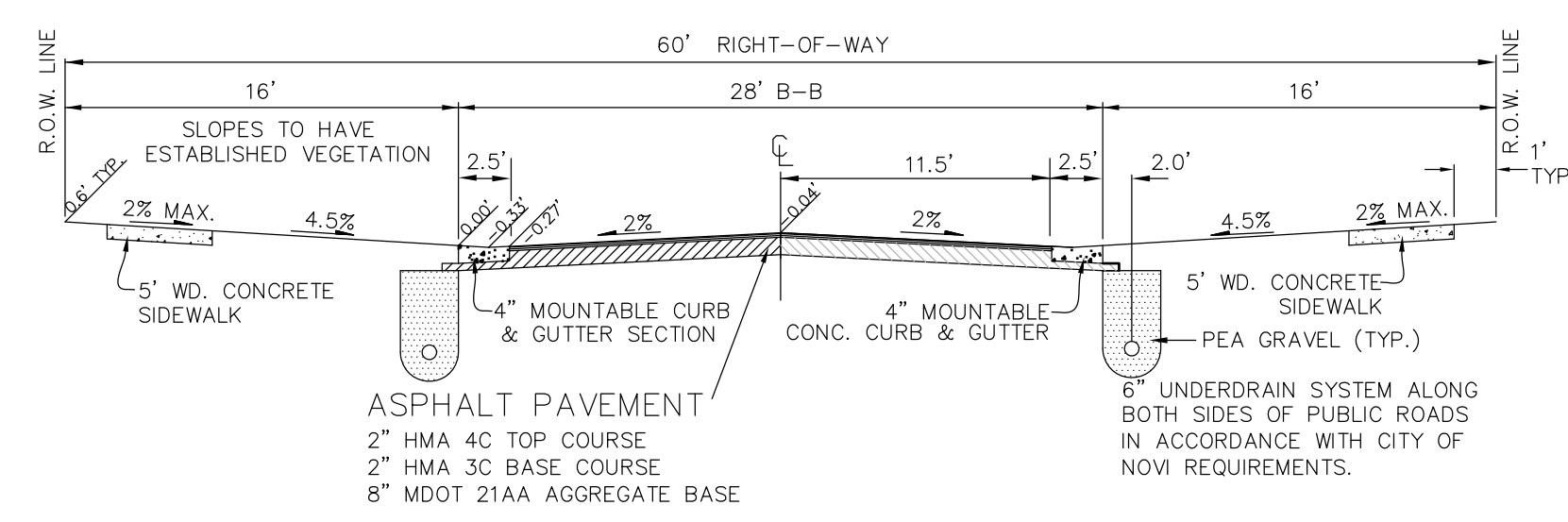
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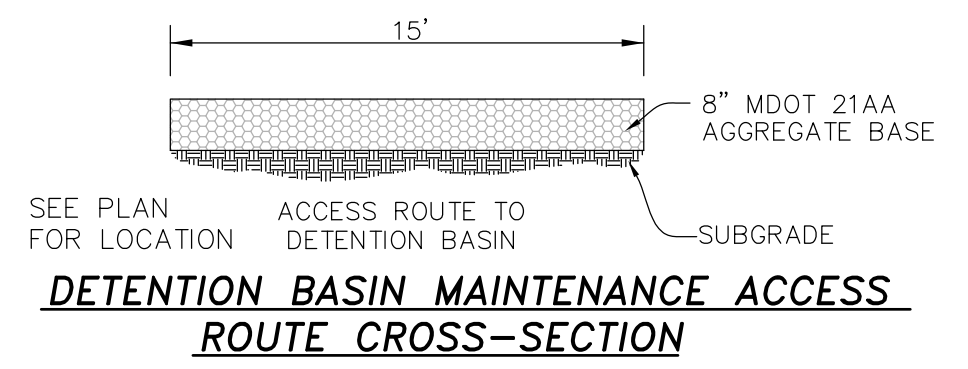
NOTE: THIS DETAIL REPRESENTS THE TYPICAL PARAMETERS INCORPORATED INTO THE SITE DESIGN. IT IS LIKELY THAT SITE-SPECIFIC VARIABLES WILL BE ENCOUNTERED THAT WILL REQUIRE MINOR DEVIATIONS FROM THIS DETAIL IN ISOLATED LOCATIONS, AND SHALL BE SUBJECT TO REVIEW AND APPROVAL BY THE AUTHORITIES HAVING JURISDICTION.

- * REAR-TO-FRONT LOT NOTES:
 1. PROVIDE SUMP LEAD FOR HOUSE CONNECTION AT FRONT YARD STORM SEWER.
 2. NO REAR YARD DRAINAGE STRUCTURE IS NECESSARY.
 3. HIGH POINT TO BE LOCATED AT REAR OF HOUSE, NOT IN SIDE YARD.

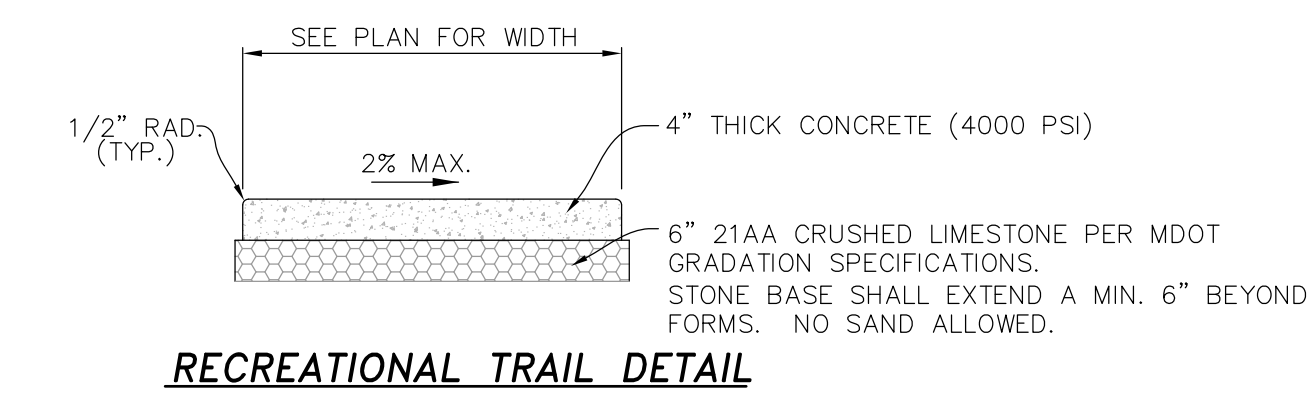
TYPICAL DEVELOPMENT DETAIL



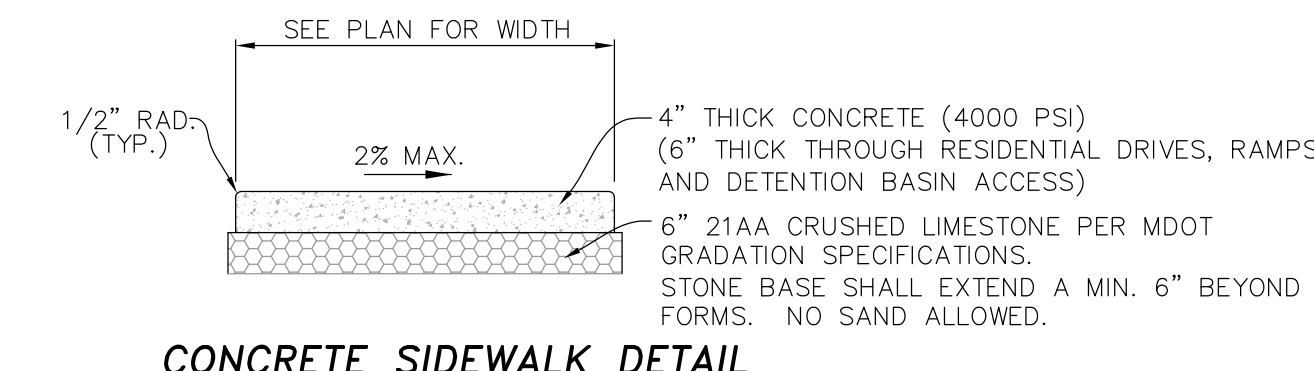
ROAD CROSS-SECTION



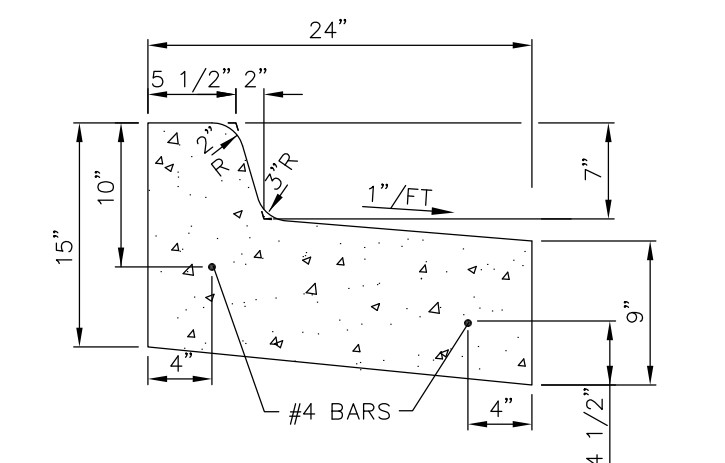
DETENTION BASIN MAINTENANCE ACCESS ROUTE CROSS-SECTION



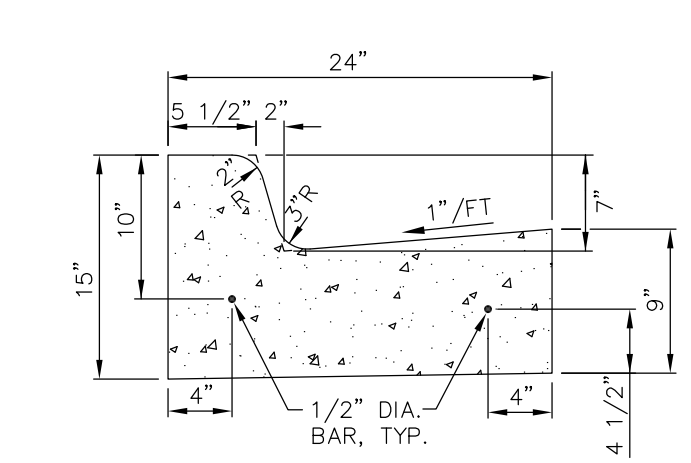
RECREATIONAL TRAIL DETAIL



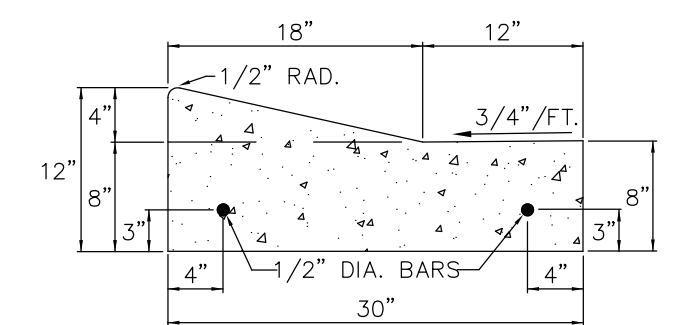
CONCRETE SIDEWALK DETAIL



M.D.O.T. C-4 24" STRAIGHT FACE CONCRETE CURB W/PITCH OUT GUTTER



M.D.O.T. C-4 24" STRAIGHT FACE CONCRETE CURB W/PITCH IN GUTTER



MOUNTABLE CONCRETE CURB W/STANDARD GUTTER DETAIL

NOTICE:
 CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OR OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

NOTE:
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COMMERCIAL
 SITE PLANNING
 SITE ENGINEERING
 INDUSTRIAL & MULTI-UNIT
 LAND SURVEYING
 CONSTRUCTION LAYOUT

SURVEYING
 ALTA SURVEYS
 BOUNDARY SURVEYS
 TOPOGRAPHIC SURVEYS
 PARCEL SPLITS

RESIDENTIAL
 SUBDIVISIONS
 SITE CONDOMINIUM
 MULTI-FAMILY
 PLOT PLANS
 CONSTRUCTION LAYOUT

ALPINE ENGINEERING, INC.
 CIVIL ENGINEERS & LAND SURVEYORS

46892 WEST ROAD
 SUITE 109
 NOVI, MICHIGAN 48377

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 (248) 926-3765 (FAX)
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 Know what's below
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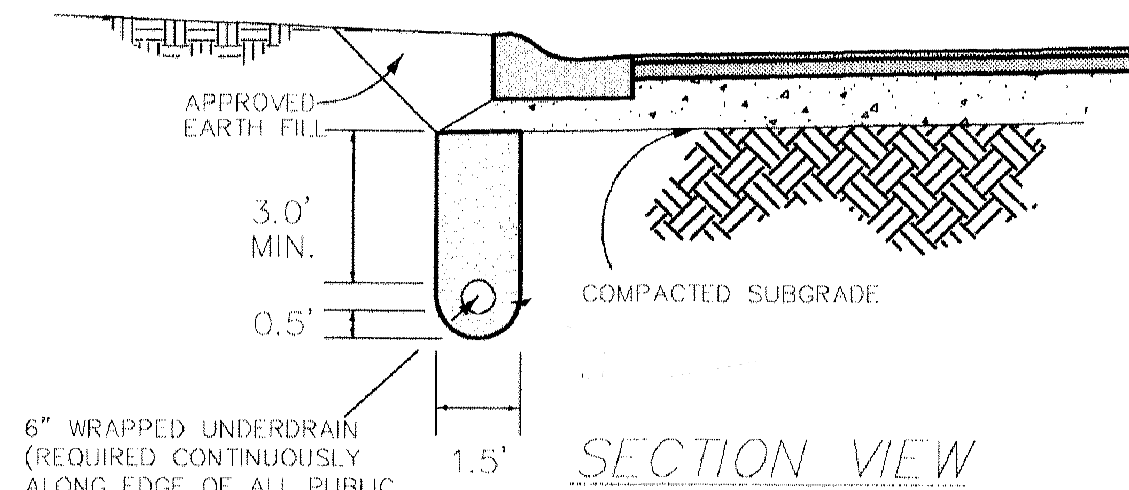
CLIENT: TOLL BROTHERS INC.
**PRELIMINARY SITE PLAN
 DETAIL SHEET**
 THE PRESERVE AT ISLAND LAKE - PHASE 8
 SECTION: 19
 TOWNSHIP: 1 N
 CITY OF NOVI
 OAKLAND COUNTY
 MICHIGAN
 RANGE: 8 E.

REVISED
 10-17-2013 PRELIM SITE PLAN
 11-21-2013 PER CITY REVIEW

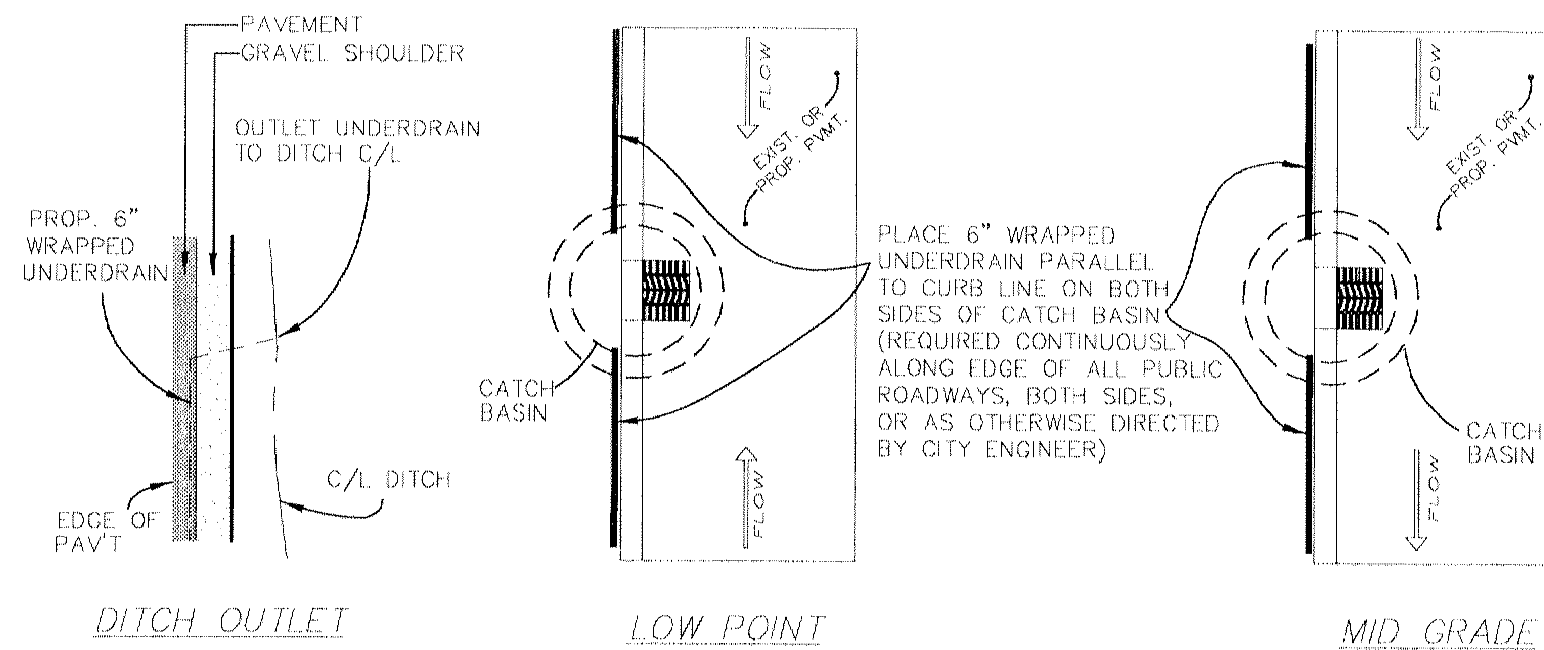
DATE: 10-17-2013
 DRAWN BY: CAK/TAG
 CHECKED BY: CAK/TAG

FBK:
 CHF:
 SCALE HOR 1" = 40' FT.
 VER 1" = 4' FT.

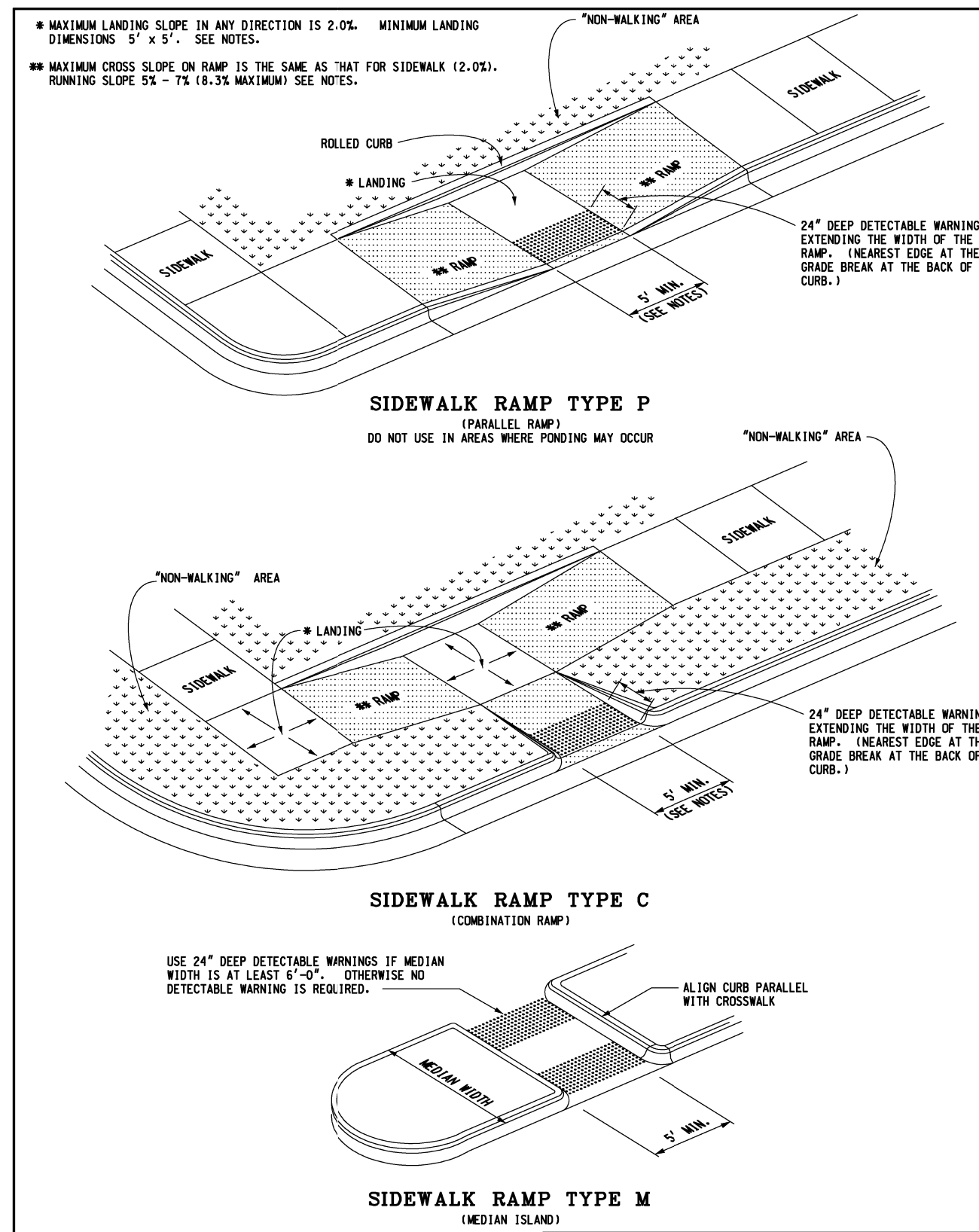
17
 13-260



- NOTES:
- 1) POLYETHYLENE PIPE SHALL CONFORM TO AASHTO #M-252. POLYVINYL CHLORIDE (PVC) PIPE SHALL CONFORM TO ASTM #800. ALL CONNECTIONS, END CAPS, TEES AND FITTINGS SHALL BE SIMILAR PIPE MATERIAL. 6" DIAMETER PIPE REQUIRED. THE GEOTEXTILE WRAP SHALL CONFORM TO AASHTO #M-288.
 - 2) IF CONCRETE PAVEMENT ON GRAY GRADE IS PROPOSED, THE MDOT GRANULAR MATERIAL SHALL BE CONTINUED TO THE BOTTOM OF THE PAVEMENT OR CURB.
 - 3) IF SHOULDER IS PROPOSED, THE UNDERDRAIN SHALL BE PLACED DIRECTLY UNDER THE EDGE OF PAVEMENT.

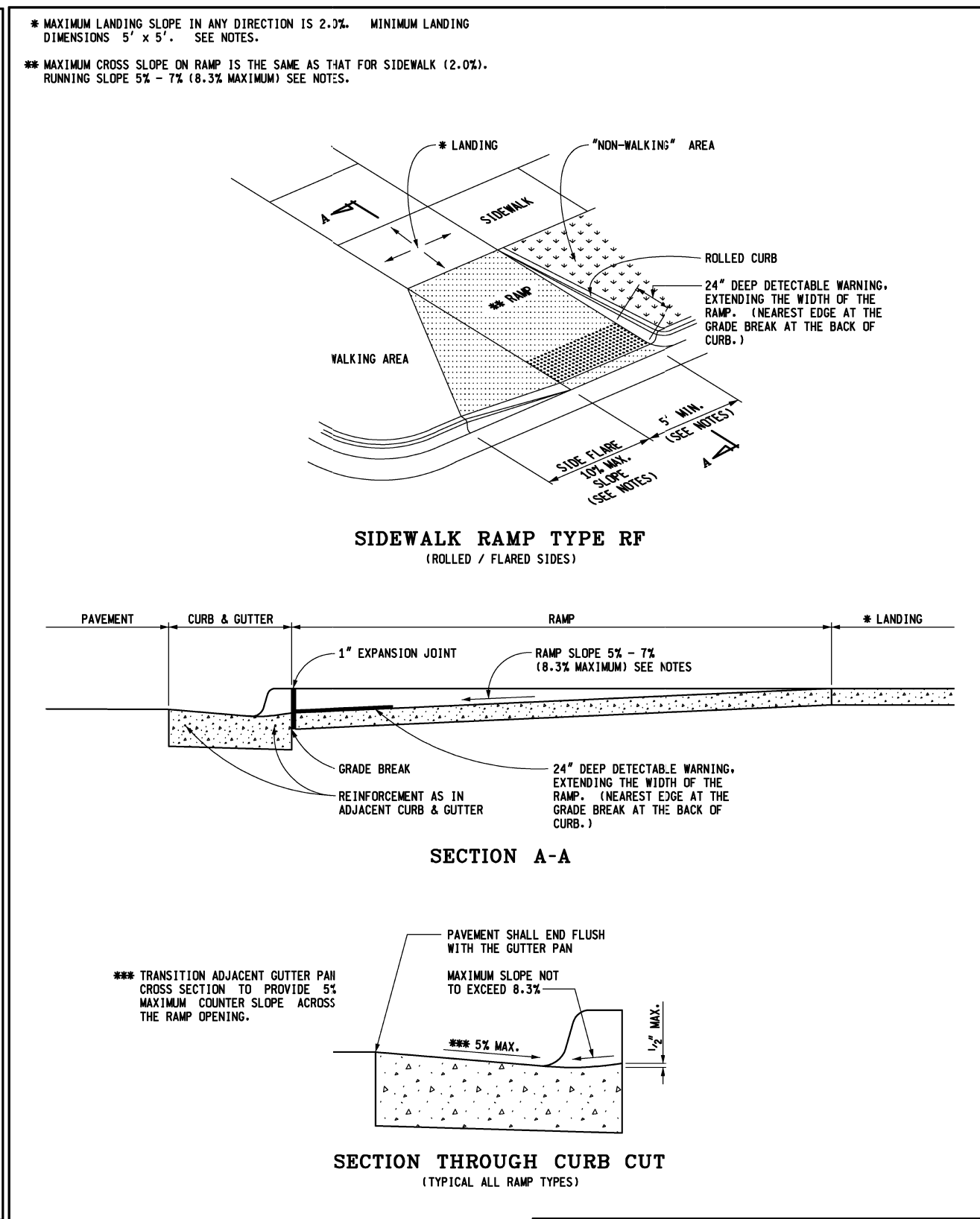


UNDERDRAIN DETAILS
NO SCALE



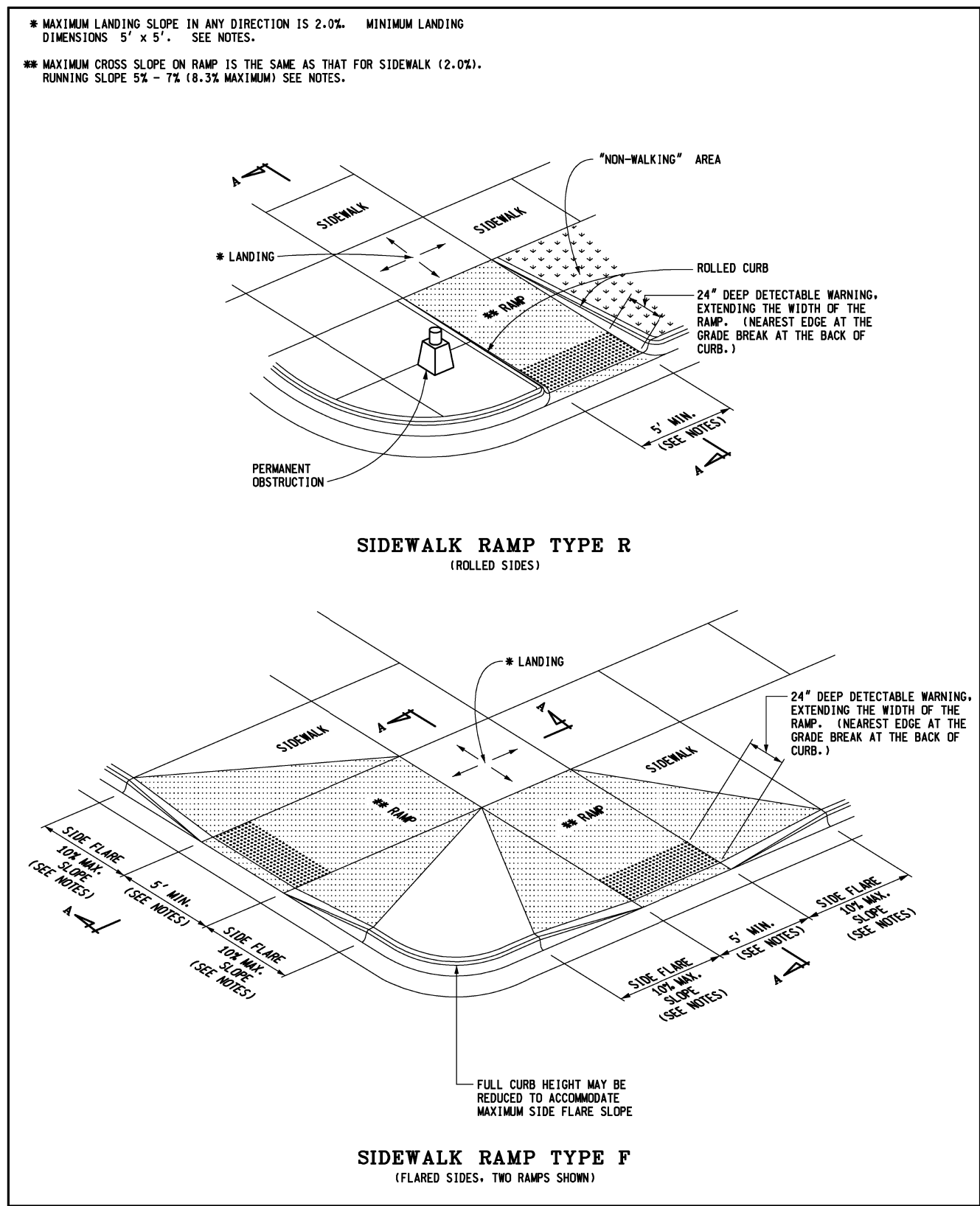
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BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR
SIDEWALK RAMP AND DETECTABLE WARNING DETAILS

9-10-2010 T.H.K.A. APPROVAL	7-26-2010 PLAN DATE	R-28-G	SHEET 3 OF 7
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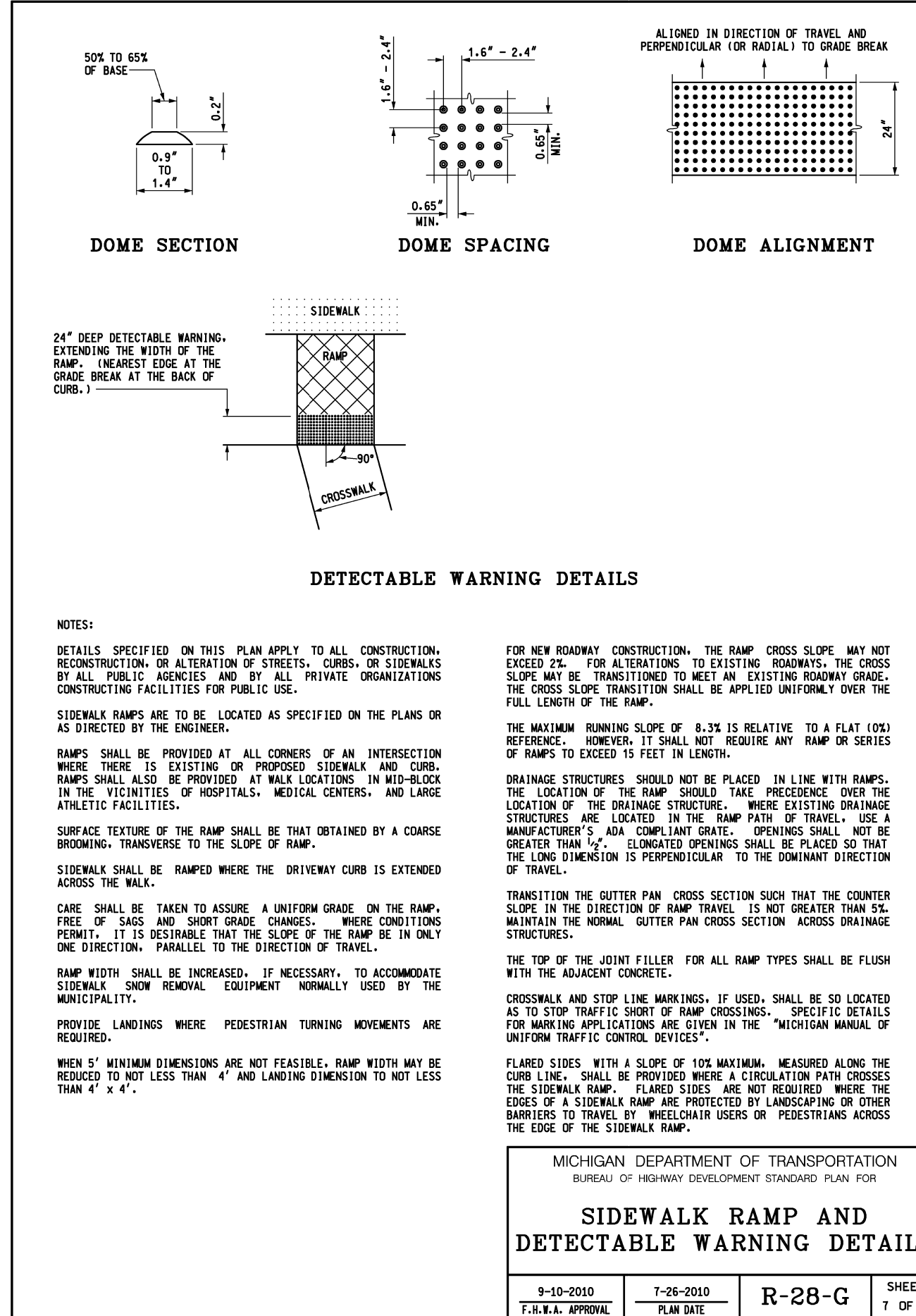
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BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR
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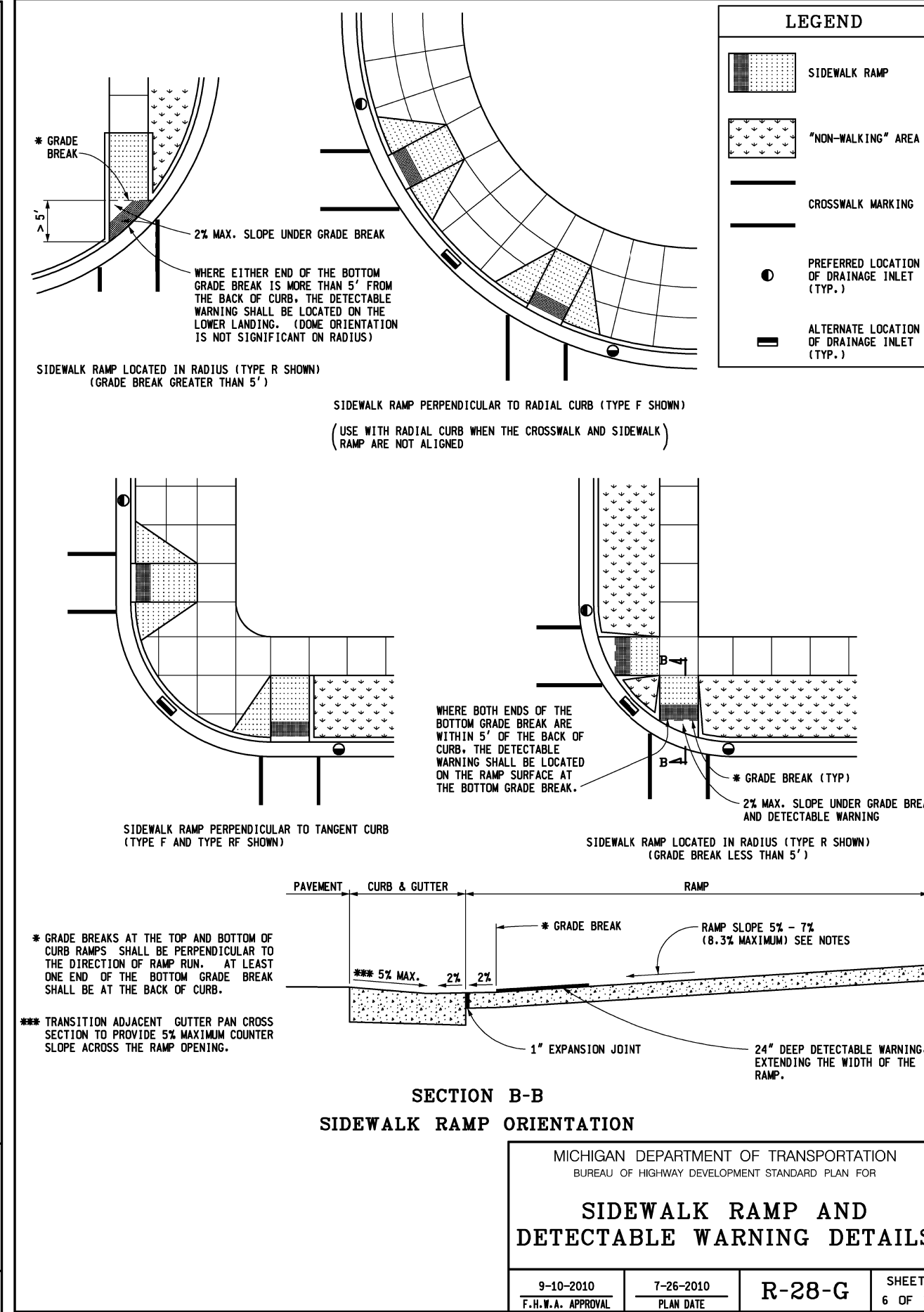
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR
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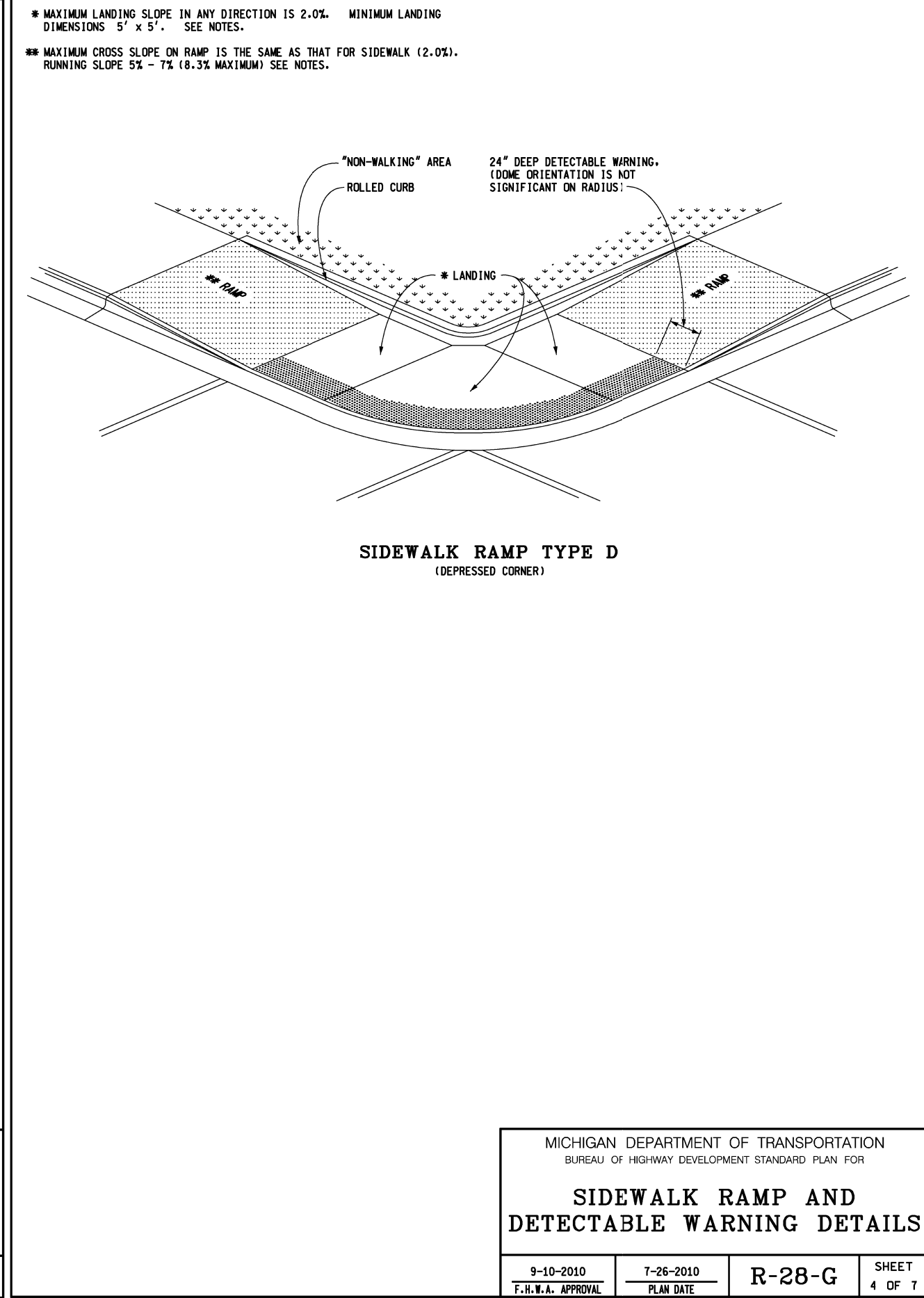
MICHIGAN DEPARTMENT OF TRANSPORTATION
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9-10-2010 T.H.K.A. APPROVAL	7-26-2010 PLAN DATE	R-28-G	SHEET 7 OF 7
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MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR
SIDEWALK RAMP AND DETECTABLE WARNING DETAILS

9-10-2010 T.H.K.A. APPROVAL	7-26-2010 PLAN DATE	R-28-G	SHEET 6 OF 7
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MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR
SIDEWALK RAMP AND DETECTABLE WARNING DETAILS

9-10-2010 T.H.K.A. APPROVAL	7-26-2010 PLAN DATE	R-28-G	SHEET 4 OF 7
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ALPINE ENGINEERING, INC.
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COMMERCIAL
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CLIENT: TOLL BROTHERS INC.

**PRELIMINARY SITE PLAN
DETAIL SHEET**

THE PRESERVE AT ISLAND LAKE - PHASE 8
TOWNSHIP: 1 N.
CITY OF NOVI
OAKLAND COUNTY
MICHIGAN

SECTION: 19
RANGE: 8 E.

REVISED

10-17-2013 PRELIM SITE PLAN
11-21-2013 PER CITY REVIEW

DATE: 10-17-2013

DRAWN BY: CAK/TAG

CHECKED BY: CAK/TAG

FBK:

CHF:

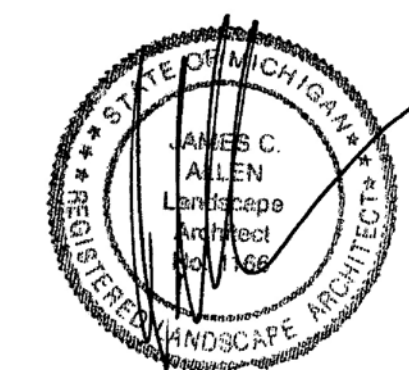
SCALE: HOR 1" = 40' FT.
VER 1" = 4' FT.

18

13-260



Seal:



Title:

Landscape Plan

Project:

**Island Lake Phase 8
 Novi, Michigan**

Prepared for:

Toll Brothers
 39665 William K. Smith Dr., Suite B
 New Hudson, Michigan 48165

Revision:

Pre-Application September 13, 2013
 Revised October 17, 2013
 Revised November 22, 2013

Issued:

Job Number:

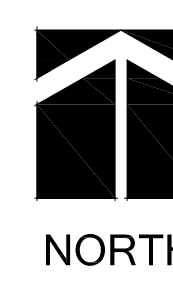
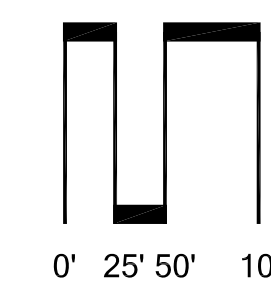
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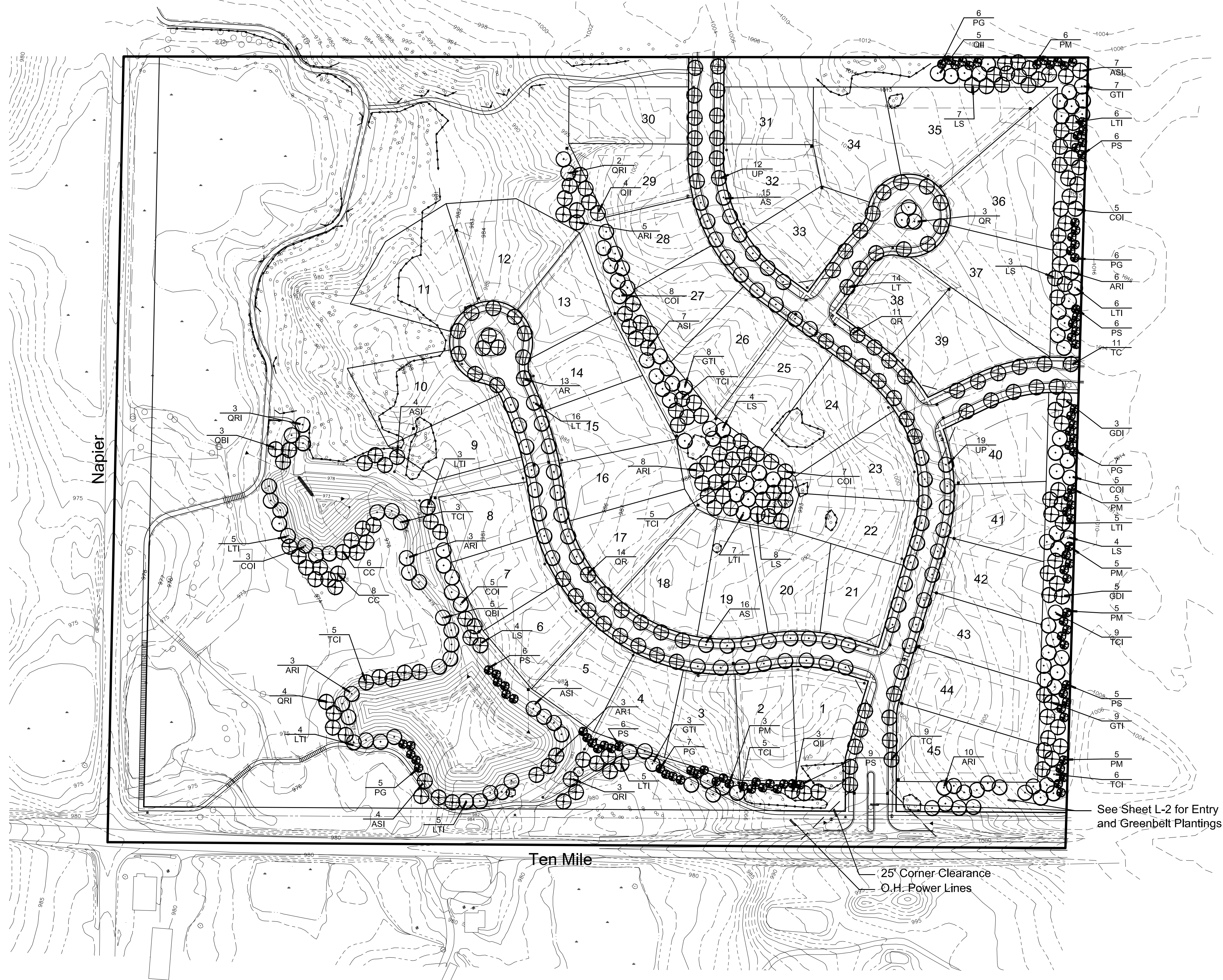
jca

Checked By:

jca



Sheet No.



Street Tree Summary

Street Trees	45 Lots
Total Lots 70'-105'	6 Lots
Corner Lots	153 Trees ((45+6) x 3 Trees)
Trees Required	153 Trees
Trees Provided	153 Trees

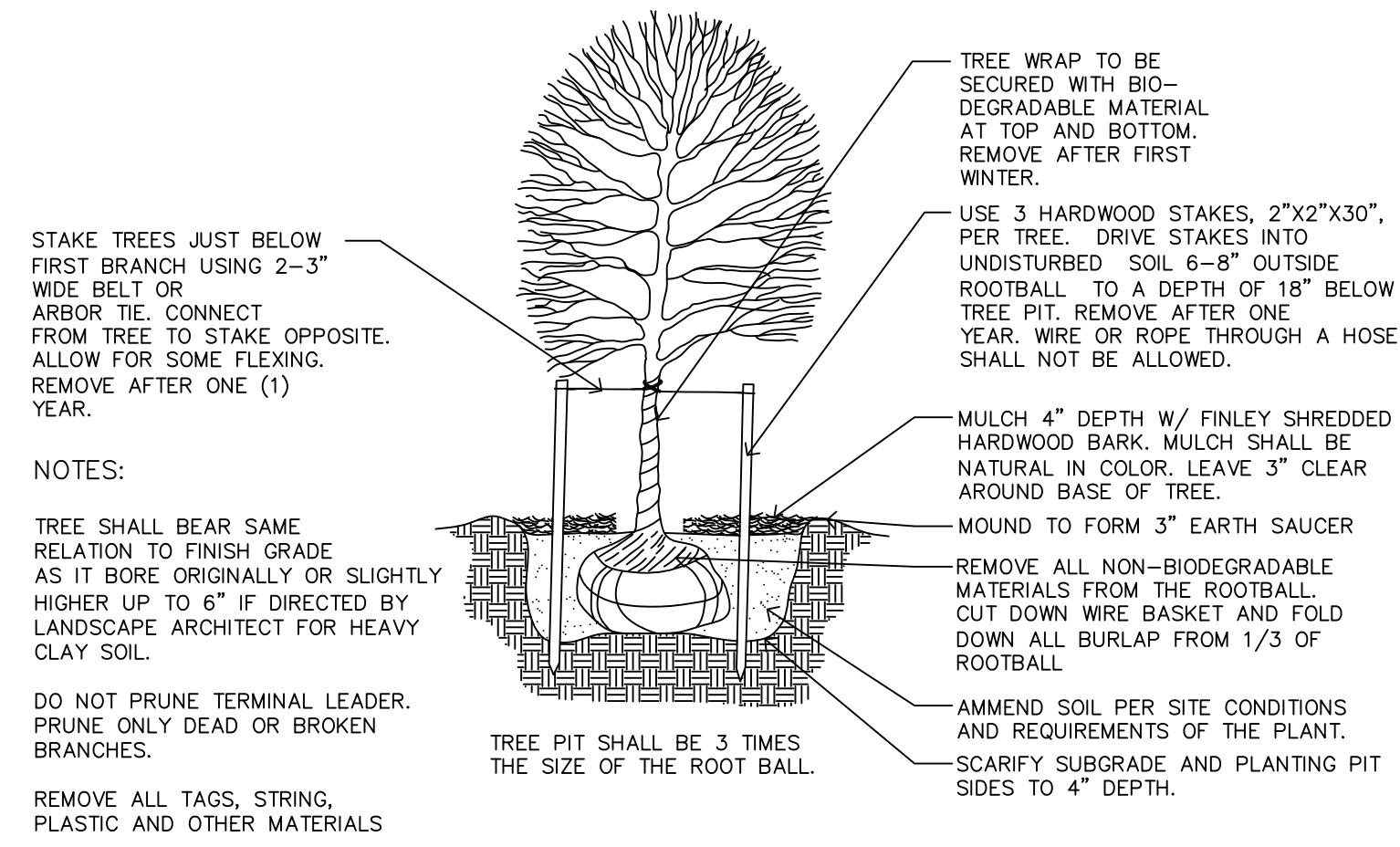
Plant List - Replacement and Street Trees

sym.	qty.	botanical name	common name	caliper	spacing	root	height	price	total
Woodland Replacement									
ARI	38	Acer rubrum	Red Maple	3.0"	as shown	B&B		\$ 400.00	\$ 15,200.00
ASI	26	Acer saccharum	Sugar Maple	2.5"	as shown	B&B		\$ 325.00	\$ 8,450.00
CC	14	Carpinus caroliniana	American Hornbeam	2.5"	as shown	B&B		\$ 325.00	\$ 4,550.00
COI	33	Celtis occidentalis	Northern Hackberry	2.5"	as shown	B&B		\$ 325.00	\$ 10,725.00
GDI	8	Gymnocladus dioica	Kentucky Coffee Tree	2.5"	as shown	B&B		\$ 325.00	\$ 2,600.00
GTI	27	Gleditsia triacanthos var. Inermis	Honeylocust	2.5"	as shown	B&B		\$ 325.00	\$ 8,775.00
LS	30	Liquidambar styraciflua	American Sweetgum	2.5"	as shown	B&B		\$ 325.00	\$ 9,750.00
LTI	46	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B		\$ 325.00	\$ 14,950.00
PG	31	Picea glauca	White Spruce	as shown	as shown	B&B	8'	\$ 300.00	\$ 9,300.00
PM	29	Picea mariana	Black Spruce	as shown	as shown	B&B	8'	\$ 300.00	\$ 8,700.00
PS	38	Pinus strobus	White Pine	as shown	as shown	B&B	8'	\$ 300.00	\$ 11,400.00
QII	12	Quercus imbricaria	Shingle Oak	2.5"	as shown	B&B		\$ 325.00	\$ 3,900.00
QBI	8	Quercus bicolor	Swamp White Oak	2.5"	as shown	B&B		\$ 325.00	\$ 2,600.00
QRI	12	Quercus rubra	Red Oak	2.5"	as shown	B&B		\$ 325.00	\$ 3,900.00
TCI	39	Tilia cordata 'Chancole'	Chancellor Linden	2.5"	as shown	B&B		\$ 325.00	\$ 12,675.00
392		Trees Provided, 98 Evergreen and 294 Deciduous Equals 343 Replacement Trees							\$ 99,600.00
Street Trees									
AR	13	Acer rubrum	Red Maple	3.0"	as shown	B&B		\$ 400.00	\$ 5,200.00
AS	31	Acer saccharum	Sugar Maple	3.0"	as shown	B&B		\$ 400.00	\$ 12,400.00
LT	30	Liriodendron tulipifera	Tulip Tree	3.0"	as shown	B&B		\$ 400.00	\$ 12,000.00
QR	28	Quercus rubra	Red Oak	3.0"	as shown	B&B		\$ 400.00	\$ 11,200.00
TC	20	Tilia cordata 'Chancole'	Chancellor Linden	3.0"	as shown	B&B		\$ 400.00	\$ 8,000.00
UP	31	Ulmus x 'Pioneer'	Pioneer Elm	3.0"	as shown	B&B		\$ 400.00	\$ 12,400.00
153		Trees Provided							
Mulch									
	97	s.y.	4" Deep Shredded Hardwood Bark Mulch					\$40/s.y.	\$ 3,880.00
Total									\$ 65,080.00

See Sheet L-2 for Greenbelt Plantings

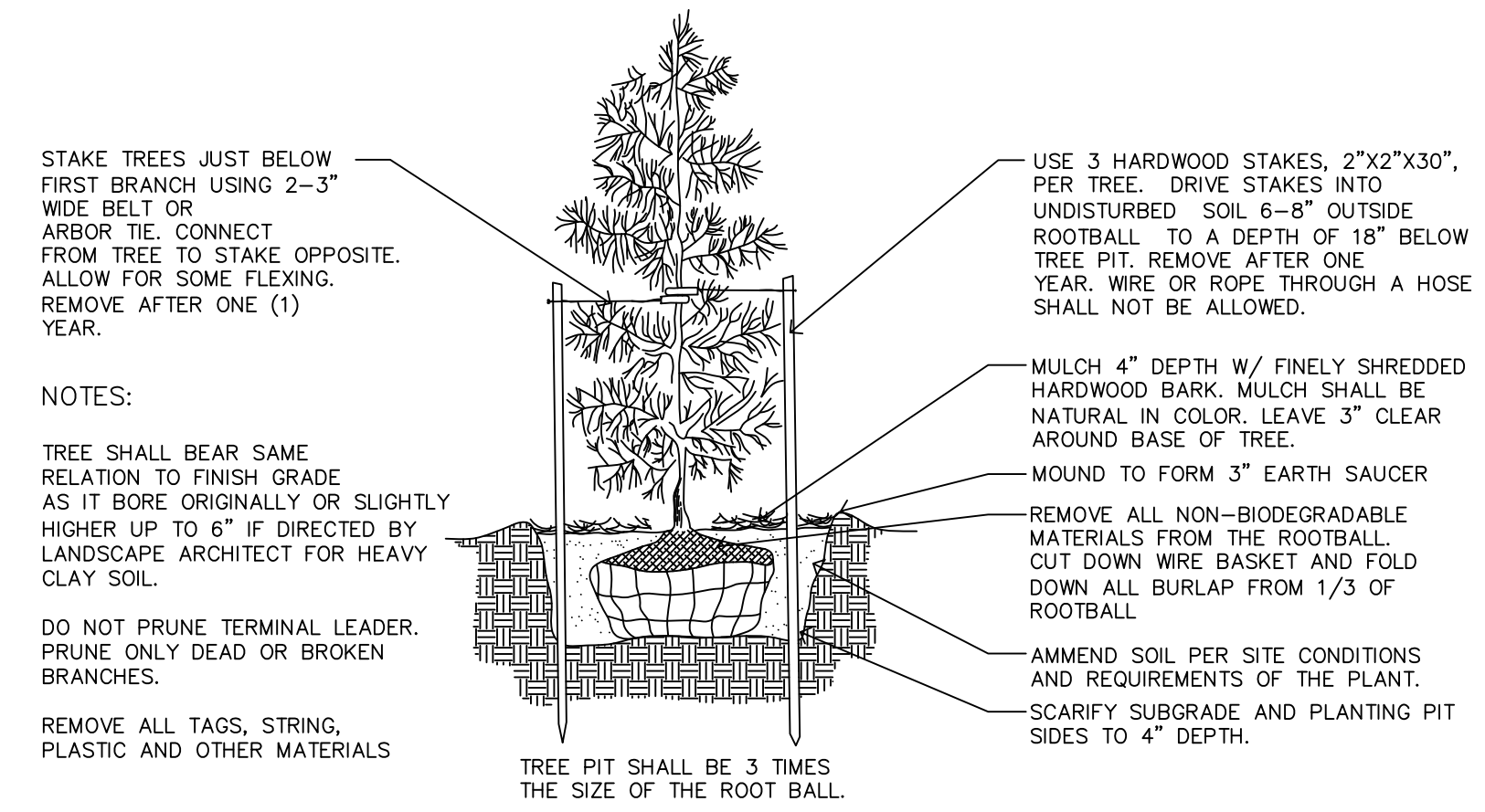
See Sheet L-2 for Entry and Greenbelt Plantings





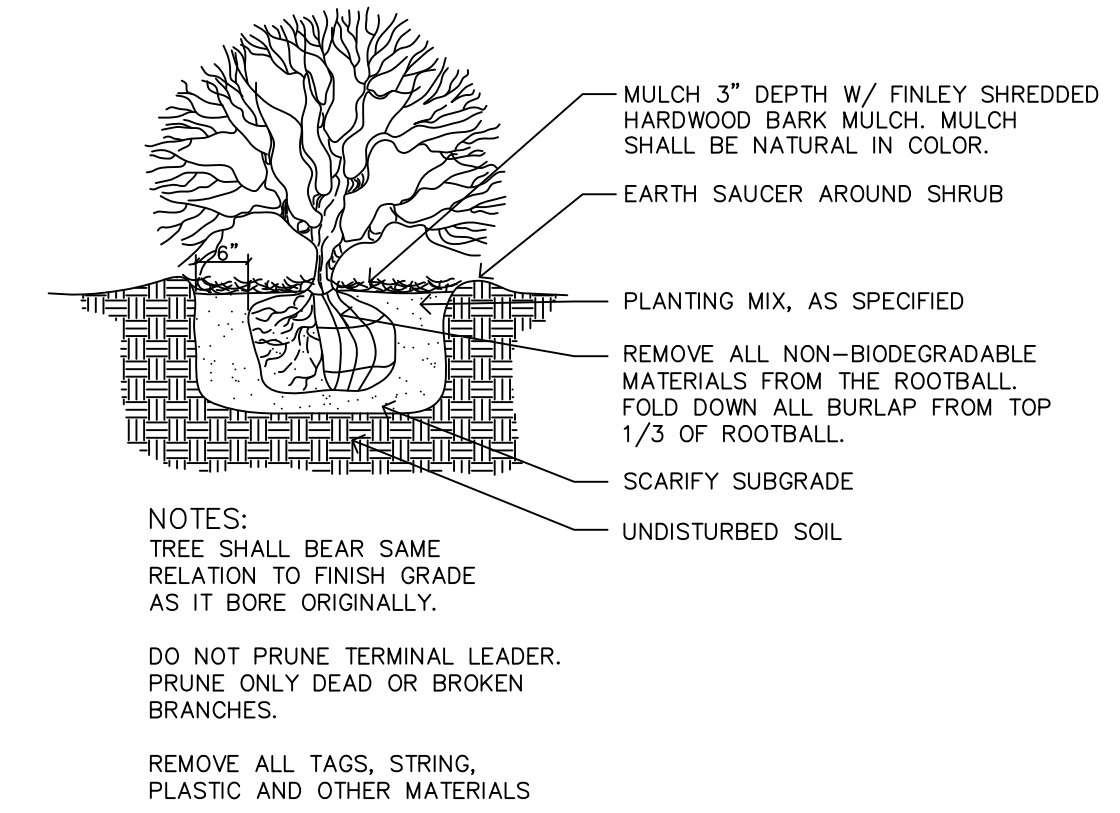
DECIDUOUS TREE PLANTING DETAIL

NTS



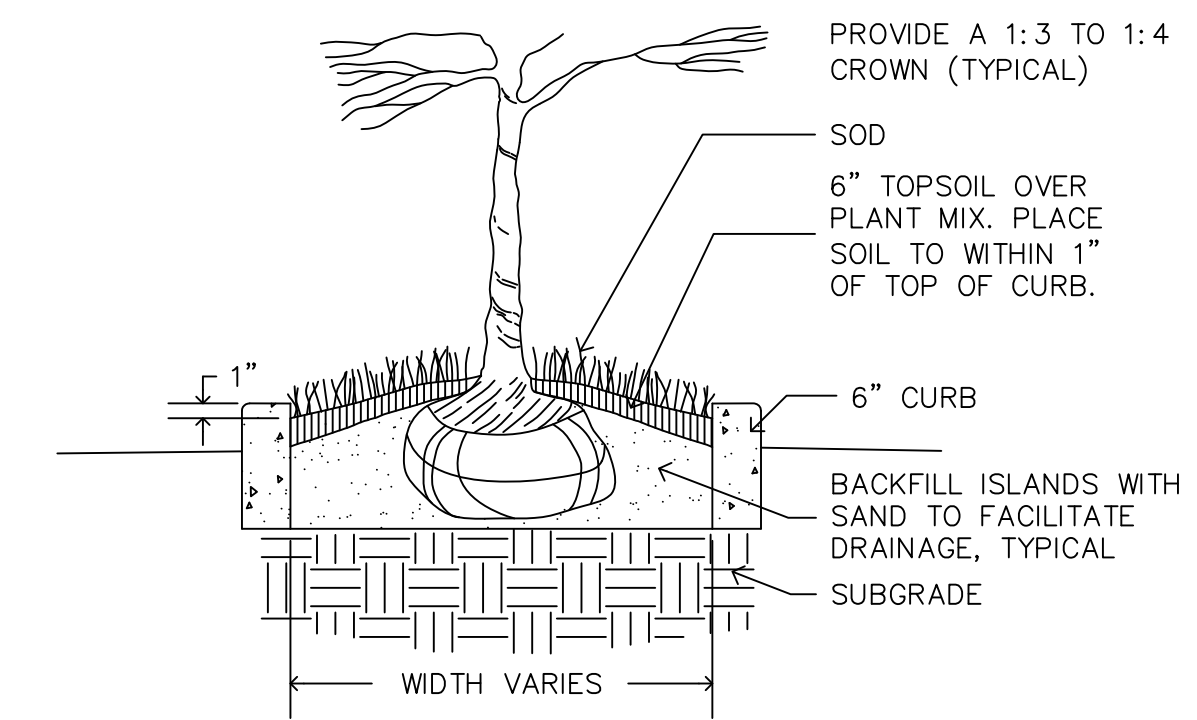
EVERGREEN TREE PLANTING DETAIL

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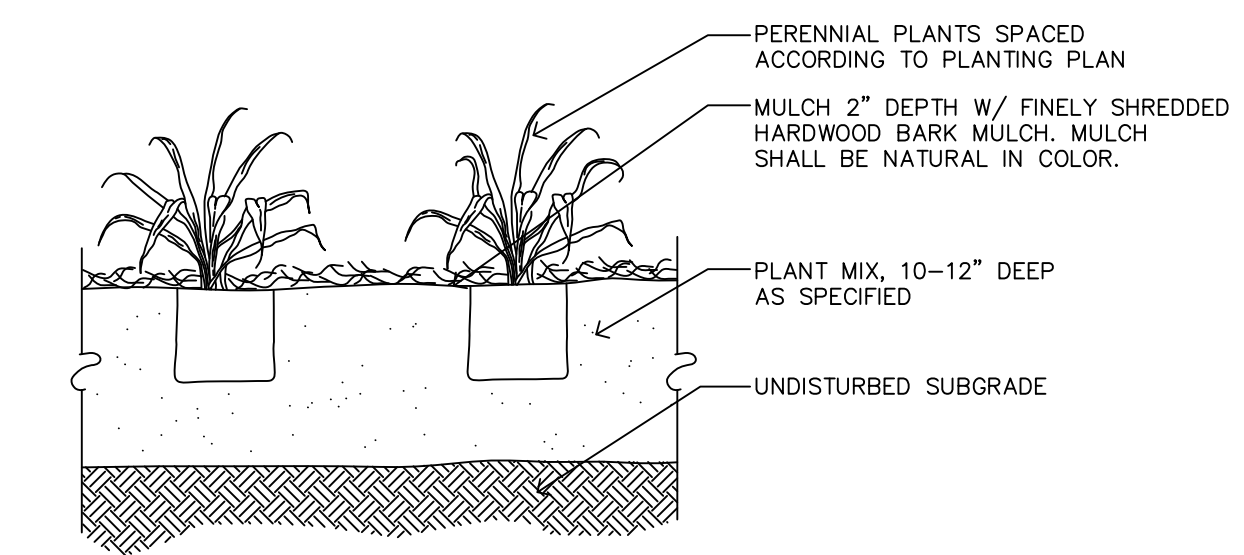
SHRUB PLANTING DETAIL

NTS



CURBED ISLAND DETAIL

NTS



NOTE:
PERENNIALS TO BE PLANTED UP TO SAUCER AROUND TREE OR SHRUB IN THE AREA.

PERENNIAL PLANTING DETAIL

NTS

LANDSCAPE NOTES

- All plants shall be north Midwest American region grown, No. 1 grade plant materials, and shall be true to name, free from physical damage and wind burn.
- Plants shall be full, well-branched, and in healthy vigorous growing condition.
- Plants shall be watered before and after planting is complete.
- All trees must be staked, fertilized and mulched and shall be guaranteed to exhibit a normal growth cycle for at least two (2) full years following City approval.
- All material shall conform to the guidelines established in the most recent edition of the American Standard for Nursery Stock.
- Provide clean backfill soil, using material stockpiled on site. Soil shall be screened and free of any debris, foreign material, and stone.
- "Agriform" tabs or similar slow-release fertilizer shall be added to the planting pits before being backfilled.
- Amended planting mix shall consist of 1/3 screened topsoil, 1/3 sand and 1/3 peat, mixed well and spread to the depth as indicated in planting details.
- All plantings shall be mulched per planting details located on this sheet.
- The Landscape Contractor shall be responsible for all work shown on the landscape drawings and specifications.
- No substitutions or changes of location, or plant types shall be made without the approval of the Landscape Architect.
- The City of Novi's Landscape Architect shall be notified of any discrepancies between the plans and field conditions prior to installation.
- The Landscape Contractor shall be responsible for maintaining all plant material in a vertical condition throughout the guaranteed period.
- The Landscape Architect shall have the right, at any stage of the installation, to reject any work or material that does not meet the requirements of the plans and specifications, if requested by owner.
- Contractor shall be responsible for checking plant quantities to ensure quantities on drawings and plant list are the same. In the event of a discrepancy, the quantities on the plans shall prevail.
- The Landscape Contractor shall seed and mulch or sod (as indicated on plans) all areas disturbed during construction, throughout the contract limits.
- A pre-emergent weed control agent, "Preem" or equal, shall be applied uniformly on top of all mulching in all planting beds.
- All landscape areas shall be provided with an underground automatic sprinkler system.
- Sod shall be two year old "Baron/Cheriadelpi" Kentucky Blue Grass grown in a sod nursery on loam soil.

CITY OF NOVI NOTES

- All landscape islands shall be backfilled with a sand mixture to facilitate drainage.
- All proposed landscape islands shall be curbed.
- All landscape areas shall be irrigated.
- Overhead utility lines and poles to be relocated as directed by utility company of record.
- Evergreen and canopy trees shall be planted a minimum of 10' from a fire hydrant, and manhole, 15' from overhead wires.
- All plant material shall be guaranteed for two (2) years after City Approval and shall be installed and maintained according to City of Novi standards. Replace Falling Material During the Next Appropriate Planting Period.
- All proposed street trees shall be planted a minimum of 4' from both the back of curb and proposed walks.
- All tree and shrub planting beds shall be mulched with shredded hardwood bark, spread to minimum depth of 4". All lawn area trees shall have a 4' diameter circle of shredded hardwood mulch 3" away from trunk. All perennial, annual and ground cover beds shall receive 2" of dark colored bark mulch as indicated on the plant list. Mulch is to be free from debris and foreign material, and shall contain no pieces of inconsistent size.
- All Substitutions or Deviations from the Landscape Plan Must be Approved by the City of Novi Prior to their Installation.

NOTES:
THE APPROXIMATE DATE OF INSTALLATION FOR THE PROPOSED LANDSCAPE WILL BE SPRING 2014.
THE SITE WILL BE MAINTAINED BY THE DEVELOPER IN ACCORDANCE WITH THE STANDARDS SET FORTH IN THE CITY OF NOVI ZONING ORDINANCE. THIS INCLUDES WEEDING AND WATERING AS REQUIRED BY NORMAL MAINTENANCE PRACTICES.

DEVELOPER SHALL BE RESPONSIBLE FOR REPLACING ANY TREES WITHIN UTILITY EASEMENTS THAT ARE DAMAGED THROUGH NORMAL MAINTENANCE OR REPAIRS.

PLANT MATERIALS SHALL BE GUARANTEED FOR 2 YEARS AND SHALL BE MAINTAINED IN ACCORDANCE WITH CITY ORDINANCES. WARRANTY PERIOD BEGINS AT THE TIME OF CITY APPROVAL. WATERING AS NECESSARY SHALL OCCUR DURING THIS WARRANTY PERIOD.

UP LIGHTING

D-Series Size 1 LED Flood Luminaire

Introduction
The D-Series Size 1 Flood feature precision optics to beautifully illuminate a variety of applications while its sleek, compact styling blends seamlessly with the environment.

Specifications
Diameter: 24" (610mm)
Depth: 3.5" (89mm)
Weight: 2.2 lbs (1.0kg)

Accessories
Check Part Number: DSH1L1-1-01, DSH1L1-1-02, DSH1L1-1-03, DSH1L1-1-04, DSH1L1-1-05, DSH1L1-1-06, DSH1L1-1-07, DSH1L1-1-08, DSH1L1-1-09, DSH1L1-1-10, DSH1L1-1-11, DSH1L1-1-12, DSH1L1-1-13, DSH1L1-1-14, DSH1L1-1-15, DSH1L1-1-16, DSH1L1-1-17, DSH1L1-1-18, DSH1L1-1-19, DSH1L1-1-20, DSH1L1-1-21, DSH1L1-1-22, DSH1L1-1-23, DSH1L1-1-24, DSH1L1-1-25, DSH1L1-1-26, DSH1L1-1-27, DSH1L1-1-28, DSH1L1-1-29, DSH1L1-1-30, DSH1L1-1-31, DSH1L1-1-32, DSH1L1-1-33, DSH1L1-1-34, DSH1L1-1-35, DSH1L1-1-36, DSH1L1-1-37, DSH1L1-1-38, DSH1L1-1-39, DSH1L1-1-40, DSH1L1-1-41, DSH1L1-1-42, DSH1L1-1-43, DSH1L1-1-44, DSH1L1-1-45, DSH1L1-1-46, DSH1L1-1-47, DSH1L1-1-48, DSH1L1-1-49, DSH1L1-1-50, DSH1L1-1-51, DSH1L1-1-52, DSH1L1-1-53, DSH1L1-1-54, DSH1L1-1-55, DSH1L1-1-56, DSH1L1-1-57, DSH1L1-1-58, DSH1L1-1-59, DSH1L1-1-60, DSH1L1-1-61, DSH1L1-1-62, DSH1L1-1-63, DSH1L1-1-64, DSH1L1-1-65, DSH1L1-1-66, DSH1L1-1-67, DSH1L1-1-68, DSH1L1-1-69, DSH1L1-1-70, DSH1L1-1-71, DSH1L1-1-72, DSH1L1-1-73, DSH1L1-1-74, DSH1L1-1-75, DSH1L1-1-76, DSH1L1-1-77, DSH1L1-1-78, DSH1L1-1-79, DSH1L1-1-80, DSH1L1-1-81, DSH1L1-1-82, DSH1L1-1-83, DSH1L1-1-84, DSH1L1-1-85, DSH1L1-1-86, DSH1L1-1-87, DSH1L1-1-88, DSH1L1-1-89, DSH1L1-1-90, DSH1L1-1-91, DSH1L1-1-92, DSH1L1-1-93, DSH1L1-1-94, DSH1L1-1-95, DSH1L1-1-96, DSH1L1-1-97, DSH1L1-1-98, DSH1L1-1-99, DSH1L1-1-100.



Seal:



Title:

Landscape Details

Project:

Island Lake Phase 8
Novi, Michigan

Prepared for:

Toll Brothers
39665 William K. Smith Dr., Suite B
New Hudson, Michigan 48165

Revision:

Issued:

Pre-Application	September 23, 2013
Revised	October 17, 2013
Revised	November 22, 2013

Job Number:

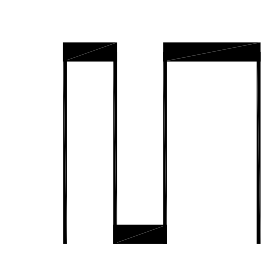
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Drawn By:

jca

Checked By:

jca



NORTH

Sheet No.



Seal:



Title:
Woodland Plan

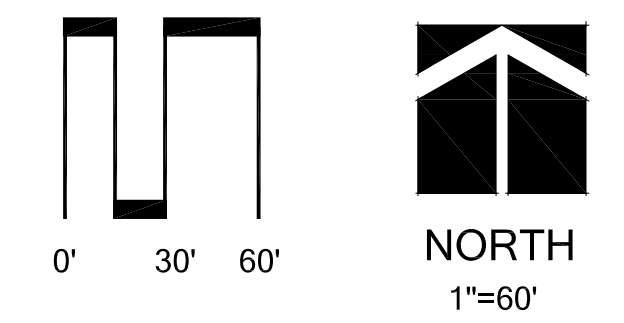
Project:
**Island Lake Phase 8
 Novi, Michigan**

Prepared for:
 Toll Brothers
 39665 William K. Smith Dr., Suite B
 New Hudson, Michigan 48165

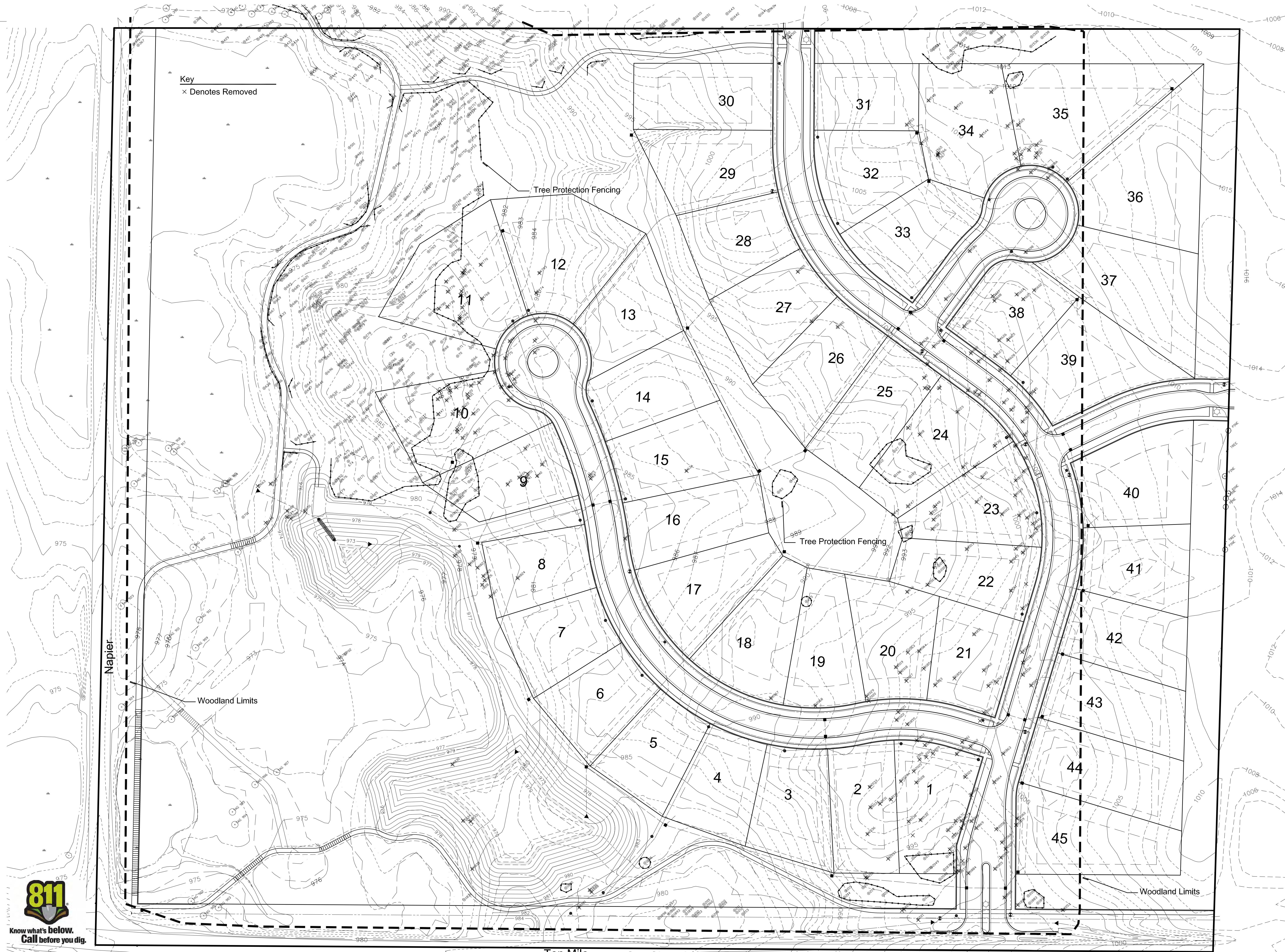
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Revised	November 22, 2013

Job Number:
 13-022

Drawn By: jca Checked By: jca



Sheet No.



Key
 x Denotes Removed



Tree List

Tag #	DBH	Common Name	Botanical Name	Condition	Status
1	8	Black Cherry	Prunus serotina	Good	Remove
2	13	Sweet Cherry	Prunus avium	Good	Remove
3	18	Sweet Cherry	Prunus avium	Good	Remove
4	10,13	American Elm	Ulmus americana	Good	Remove
5	9	Sweet Cherry	Prunus avium	Good	Remove
7	10	Quaking Aspen	Populus tremuloides	Good	Remove
8	8	Quaking Aspen	Populus tremuloides	Good	Remove
9	8	Quaking Aspen	Populus tremuloides	Good	Remove
10	14	Box Elder	Acer negundo	Good	Remove
12	13	Quaking Aspen	Populus tremuloides	Good	Remove
13	14	Black Cherry	Prunus serotina	Good	Remove
14	12	Black Cherry	Prunus serotina	Good	Save
15	24	American Elm	Ulmus americana	Good	Save
17	6,6,11	Black Cherry	Prunus serotina	Good	Remove
18	7,9	American Elm	Ulmus americana	Good	Remove
19	10	Black Cherry	Prunus serotina	Good	Remove
21	16	Black Walnut	Juglans nigra	Good	Save
22	11	Burr Oak	Quercus macrocarpa	Good	Save
24	16	American Elm	Ulmus americana	Good	Remove
25	9	Shagbark Hickory	Carya ovata	Good	Remove
26	9	Yellow Birch	Betula alleghaniensis	Good	Save
27	14	Black Walnut	Juglans nigra	Good	Save
28	9	Sugar Maple	Acer saccharum	Good	Save
29	10	Box Elder	Acer negundo	Good	Save
30	8	American Elm	Ulmus americana	Good	Remove
32	11	Quaking Aspen	Populus tremuloides	Good	Save
34	8	Green Ash	Fraxinus pennsylvanica	Poor	Remove
35	10	Quaking Aspen	Populus tremuloides	Good	Remove
36	10	Quaking Aspen	Populus tremuloides	Good	Remove
38	5, 17	Basswood	Tilia americana	Good	Remove
40	8	Shagbark Hickory	Carya ovata	Good	Remove
41	11	Basswood	Tilia americana	Good	Remove
42	15	Basswood	Tilia americana	Good	Remove
42A	5,5,9,11,15	Basswood	Tilia americana	Good	Remove
45	9	Yellow Birch	Betula alleghaniensis	Good	Save
46	12	Quaking Aspen	Populus tremuloides	Good	Save
48	18	Black Walnut	Juglans nigra	Good	Save
51	9	Shagbark Hickory	Carya ovata	Good	Remove
53	15	Red Maple	Acer rubrum	Good	Remove
54	11	Basswood	Tilia americana	Good	Remove
56	8	American Elm	Ulmus americana	Good	Remove
57	18	Black Cherry	Prunus serotina	Good	Remove
60	11	Black Cherry	Prunus serotina	Good	Remove
61	8	Quaking Aspen	Populus tremuloides	Good	Remove
61	11	American Elm	Ulmus americana	Good	Remove
63A	9, 10	Red Oak	Quercus rubra	Good	Remove
65	8	Quaking Aspen	Populus tremuloides	Good	Save
66	8	Quaking Aspen	Populus tremuloides	Good	Save
67	16	Shagbark Hickory	Carya ovata	Good	Save
68	28	Black Cherry	Prunus serotina	Good	Save
69	11	Quaking Aspen	Populus tremuloides	Good	Remove
70	9	American Elm	Ulmus americana	Good	Save
71	10	American Elm	Ulmus americana	Good	Save
72	9	Eastern Hornbeam	Ostrya virginiana	Good	Save
74	10	Yellow Birch	Betula alleghaniensis	Good	Save
76	8	Sugar Maple	Acer saccharum	Good	Remove
78	8	Sugar Maple	Acer saccharum	Good	Save
79	9	Shagbark Hickory	Carya ovata	Good	Remove
80	9	Yellow Birch	Betula alleghaniensis	Good	Save
81	10	Sugar Maple	Acer saccharum	Good	Save
84	9	Quaking Aspen	Populus tremuloides	Good	Remove
85	10	Quaking Aspen	Populus tremuloides	Good	Save
86	4,8	Eastern Hornbeam	Ostrya virginiana	Good	Save
89	8	Sugar Maple	Acer saccharum	Good	Remove
89	11	American Basswood	Tilia americana	Good	Save
92	9	Eastern Hornbeam	Ostrya virginiana	Good	Save
94	11	Quaking Aspen	Populus tremuloides	Good	Save
95	10	Eastern Hornbeam	Ostrya virginiana	Good	Save
97	9	Quaking Aspen	Populus tremuloides	Good	Remove
98	8	Quaking Aspen	Populus tremuloides	Good	Remove
99	10	Quaking Aspen	Populus tremuloides	Good	Save
100	9	Red Oak	Quercus rubra	Good	Save
101	10	Yellow Birch	Betula alleghaniensis	Good	Save
102	16	Yellow Birch	Betula alleghaniensis	Good	Save
103	12	Yellow Birch	Betula alleghaniensis	Good	Save
105	8	Eastern Hornbeam	Ostrya virginiana	Good	Save
106	10	Shagbark Hickory	Carya ovata	Good	Save
108	10	Shagbark Hickory	Carya ovata	Good	Save
109	9	Sugar Maple	Acer saccharum	Good	Save
110	8	Sugar Maple	Acer saccharum	Good	Save
111	8	Sugar Maple	Acer saccharum	Good	Save
112	8	Sugar Maple	Acer saccharum	Good	Save
113	20	Black Cherry	Prunus serotina	Good	Remove
114	15	Shagbark Hickory	Carya ovata	Good	Remove
115	9	Yellow Birch	Betula alleghaniensis	Good	Remove
116	16	Shagbark Hickory	Carya ovata	Good	Remove
119	12	Quaking Aspen	Populus tremuloides	Good	Save
120	13	Quaking Aspen	Populus tremuloides	Good	Remove
121	11	Quaking Aspen	Populus tremuloides	Good	Remove
122	10	Quaking Aspen	Populus tremuloides	Good	Remove
124	14	Quaking Aspen	Populus tremuloides	Good	Remove
125	8	Sugar Maple	Acer saccharum	Good	Remove
127	8	Shagbark Hickory	Carya ovata	Good	Remove
128	8	Quaking Aspen	Populus tremuloides	Good	Remove
129	8	Quaking Aspen	Populus tremuloides	Good	Remove
132	10	Quaking Aspen	Populus tremuloides	Good	Remove
135	12	American Basswood	Tilia americana	Good	Save
136	16	Black Walnut	Juglans nigra	Good	Save
137	11	American Basswood	Tilia americana	Good	Save
138	15	Red Oak	Quercus rubra	Good	Save
140	9	Yellow Birch	Betula alleghaniensis	Good	Save
141	8	American Basswood	Tilia americana	Good	Save
142	9	American Basswood	Tilia americana	Good	Save

Tag #	DBH	Common Name	Botanical Name	Condition	Status
143	9	Box Elder	Acer negundo	Good	Save
144	8	American Basswood	Tilia americana	Good	Save
145	11,23	Box Elder	Acer negundo	Good	Remove
146	8	Eastern Hornbeam	Ostrya virginiana	Good	Save
147	8	Sugar Maple	Acer saccharum	Good	Remove
148	14	Black Cherry	Prunus serotina	Good	Remove
149	8	Sugar Maple	Acer saccharum	Good	Remove
150	10	Sugar Maple	Acer saccharum	Good	Remove
152	11	Quaking Aspen	Populus tremuloides	Good	Remove
153	8	Red Oak	Quercus rubra	Good	Save
154	13	Red Oak	Quercus rubra	Good	Save
155	10	Sugar Maple	Acer saccharum	Good	Save
156	8	Sugar Maple	Acer saccharum	Good	Save
157	11	Sugar Maple	Acer saccharum	Good	Save
159	13	Black Cherry	Prunus serotina	Good	Save
161	22	Sugar Maple	Acer saccharum	Good	Save
162	34	Sugar Maple	Acer saccharum	Good	Save
163	11	Red Oak	Quercus rubra	Good	Save
164	8	Black Cherry	Prunus serotina	Good	Save
165	10	Bitternut Hickory	Carya cordiformis	Good	Save
166	12	Red Oak	Quercus rubra	Good	Save
167	9	Eastern Hornbeam	Ostrya virginiana	Good	Save
169	11	Shagbark Hickory	Carya ovata	Good	Save
170	15	White Oak	Quercus alba	Good	Save
171	16	Black Cherry	Prunus serotina	Good	Save
172	10	American Basswood	Tilia americana	Good	Save
173	9	Eastern Hornbeam	Ostrya virginiana	Good	Save
174	9	Eastern Hornbeam	Ostrya virginiana	Good	Save
175	13	Eastern Hornbeam	Ostrya virginiana	Good	Save
176	9	Eastern Hornbeam	Ostrya virginiana	Good	Save
177	8	Eastern Hornbeam	Ostrya virginiana	Good	Save
179	11	Red Oak	Quercus rubra	Good	Save
180	9	Black Cherry	Prunus serotina	Good	Save
185	10	Black Cherry	Prunus serotina	Good	Remove
187	9	Black Cherry	Prunus serotina	Good	Remove
190	11	Black Cherry	Prunus serotina	Good	Remove
191	10	Black Cherry	Prunus serotina	Good	Remove
192	10	Black Cherry	Prunus serotina	Good	Save
196	6,8	Black Cherry	Prunus serotina	Good	Save
198	8	Box Elder	Acer negundo	Good	Save
202	15	Silver Maple	Acer saccharinum	Good	Save
203	7,8,8,10	Silver Maple	Acer saccharinum	Good	Save
205	8	Silver Maple	Acer saccharinum	Good	Save
206	13	Silver Maple	Acer saccharinum	Good	Save
208	11	Silver Maple	Acer saccharinum	Good	Save
209	8	Slippery Elm	Ulmus rubra	Good	Save
210	9	Slippery Elm	Ulmus rubra	Good	Save
211	8,9	Silver Maple	Acer saccharinum	Good	Save
212	8	Slippery Elm	Ulmus rubra	Good	Save
213	13	Silver Maple	Acer saccharinum	Good	Save
223	8	Black Cherry	Prunus serotina	Good	Remove
225	9	Common Apple	Malus spp.	Good	Remove
226	10	Black Cherry	Prunus serotina	Good	Remove
227	11	Black Cherry	Prunus serotina	Good	Remove
228	10	American Basswood	Tilia americana	Good	Save
229	10	Black Walnut	Juglans nigra	Good	Save
230	6,6,6,8,8,8	American Basswood	Tilia americana	Good	Remove
231	4,6,11	American Basswood	Tilia americana	Good	Remove
232	12	American Basswood	Tilia americana	Good	Remove
233	8	American Basswood	Tilia americana	Good	Save
234	9	American Elm	Ulmus americana	Good	Save
235	8	Black Cherry	Prunus serotina	Good	Remove
236	13	Burr Oak	Quercus macrocarpa	Good	Remove
242	12	Black Willow	Salix nigra	Good	Save
243	14	Black Willow	Salix nigra	Good	Save
244	9	American Elm	Ulmus americana	Good	Remove
246	8	American Elm	Ulmus americana	Good	Remove
247	11	American Elm	Ulmus americana	Good	Remove
248	11	American Elm	Ulmus americana	Good	Remove
250	8	Box Elder	Acer negundo	Good	Remove
251	10	Box Elder	Acer negundo	Good	Remove
252	11	Green Ash	Fraxinus pennsylvanica	Good	Remove
261	14	American Elm	Ulmus americana	Good	Remove
262	9	Green Ash	Fraxinus pennsylvanica	Poor	Remove
263	9	American Elm	Ulmus americana	Good	Remove
265	8	Green Ash	Fraxinus pennsylvanica	Good	Save
266	10	Black Willow	Salix nigra	Good	Save
267	14	Box Elder	Acer negundo	Fair	Save
268	16	Box Elder	Acer negundo	Good	Save
269	7,9	Box Elder	Acer negundo	Good	Save
270	14	Box Elder	Acer negundo	Good	Save
271	14	Box Elder	Acer negundo	Good	Save
274	18	Box Elder	Acer negundo	Good	Save
276	16	Sugar Maple	Acer saccharum	Good	Save
278	10	Eastern Hornbeam	Ostrya virginiana	Good	Save
279	11	Box Elder	Acer negundo	Good	Save
280	13,16	Sugar Maple	Acer saccharum	Good	Save
281	5,10	Box Elder	Acer negundo	Good	Save
283	11	Box Elder	Acer negundo	Good	Save
284	8	Eastern Hornbeam	Ostrya virginiana	Good	Save
286	8	Eastern Hornbeam	Ostrya virginiana	Good	Save
287	9	Eastern Hornbeam	Ostrya virginiana	Good	Save
288	10	Box Elder	Acer negundo	Good	Save
289	10	Box Elder	Acer negundo	Good	Save
291	10	Box Elder	Acer negundo	Good	Save
292	8	Eastern Hornbeam	Ostrya virginiana	Good	Save
293	10	Black Cherry	Prunus serotina	Good	Save
295	9	Eastern Hornbeam	Ostrya virginiana	Good	Save
296	14	Box Elder	Acer negundo	Good	Save
297	8	Eastern Hornbeam	Ostrya virginiana	Good	Save
299	8	Eastern Hornbeam	Ostrya virginiana	Good	Save
303	10	Sugar Maple	Acer saccharum	Good	Save
304	9	American Basswood	Tilia americana	Good	Save
305	12	Red Oak	Quercus rubra	Good	Save

Tag #	DBH	Common Name	Botanical Name	Condition	Status
306	10	Red Oak	Quercus rubra	Good	Save
307	10	Red Oak	Quercus rubra	Good	Save
308	8	Red Oak	Quercus rubra	Good	Save
309	8	American Basswood	Tilia americana	Good	Save
310	8	American Basswood	Tilia americana	Good	Save
311	10	Sugar Maple	Acer saccharum	Good	Save
355	12	Red Oak	Quercus rubra	Good	Save
358	10	Eastern Hornbeam	Ostrya virginiana	Good	Save
362	9	Black Walnut	Juglans nigra	Good	Save
364	8	Bitternut Hickory	Carya cordiformis	Good	Save
365	7	Red Oak	Quercus rubra	Good	Save
367	8	Black Willow	Salix nigra	Good	Save
368	8	Red Oak	Quercus rubra	Good	Save
370	9	Black Willow	Salix nigra	Good	Save
371	6,8	Red Oak	Quercus rubra	Good	Save
372	8	Red Oak	Quercus rubra	Good	Save
390	8	Red Oak	Quercus rubra	Good	Save
377	9	American Basswood	Tilia americana	Good	Save
378	9	Red Oak	Quercus rubra	Good	Save
381	12	Pin Oak	Quercus palustris	Good	Save
383	10	American Basswood	Tilia americana	Good	Save
384	9	Red Oak	Quercus rubra	Good	Save
385	14	American Basswood	Tilia americana	Good	Save
386	12	Red Oak	Quercus rubra	Good	Save
388	9	Silver Maple	Acer saccharinum	Good	Save
390	8	Red Oak	Quercus rubra	Good	Save
391	10	Red Oak	Quercus rubra	Good	Save
392	13,14	Bitternut Hickory	Carya cordiformis	Good	Save
394	10	Shagbark Hickory	Carya ovata	Good	Save
396	8	Black Walnut	Juglans nigra	Good	Save
397	10	Sugar Maple	Acer saccharum	Good	Save
398	9	Black Walnut	Juglans nigra	Good	Save
399	8	Black Walnut	Juglans nigra	Good	Save
400	10	Red Oak	Quercus rubra	Good	Save
402	10	American Basswood	Tilia americana	Good	Save
403	11,18	American Basswood	Tilia americana	Good	Save
404	14	American Basswood	Tilia americana	Good	Save
406	14	American Basswood	Tilia americana	Good	Save
407	8	Sugar Maple	Acer saccharum	Good	Save
408	11	Red Oak	Quercus rubra	Good	Save
409	13	Red Oak	Quercus rubra	Good	Save
410	6,11				

Tree List

Tag #	DBH	Common Name	Botanical Name	Condition	Status
668	8	American Basswood	Tilia americana	Good	Remove
669	14	Red Oak	Quercus rubra	Good	Save
670	15	American Basswood	Tilia americana	Good	Save
671	15	Box Elder	Acer negundo	Good	Save
672	11	Shagbark Hickory	Carya ovata	Good	Save
673	8	Sugar Maple	Acer saccharum	Good	Save
674	9	Red Oak	Quercus rubra	Good	Save
675	9	American Basswood	Tilia americana	Good	Save
676	20	Sugar Maple	Acer saccharum	Good	Save
679	8	American Basswood	Tilia americana	Good	Save
680	10	American Basswood	Tilia americana	Good	Save
681	12	American Basswood	Tilia americana	Good	Save
683	16	Red Oak	Quercus rubra	Good	Save
684	11	Eastern Hornbeam	Ostrya virginiana	Good	Save
685	13	Red Oak	Quercus rubra	Good	Save
686	12	Eastern Hornbeam	Ostrya virginiana	Good	Save
687	8	American Basswood	Tilia americana	Good	Save
688	10	American Basswood	Tilia americana	Good	Remove
689	8	Yellow Birch	Betula alleghaniensis	Good	Save
690	9	Eastern Hornbeam	Ostrya virginiana	Good	Save
691	10	Quaking Aspen	Populus tremuloides	Good	Save
692	12	American Basswood	Tilia americana	Good	Save
693	10	American Basswood	Tilia americana	Good	Save
694	11	American Basswood	Tilia americana	Good	Save
696	8	Box Elder	Acer negundo	Good	Save
697	13	Red Oak	Quercus rubra	Good	Save
698	8	American Basswood	Tilia americana	Good	Save
699	4,6,11	Eastern Hornbeam	Ostrya virginiana	Good	Save
701	8	American Basswood	Tilia americana	Good	Save
702	11	Slippery Elm	Ulmus rubra	Good	Save
703	15	Slippery Elm	Ulmus rubra	Good	Save
901	6,8	Common Apple	Malus spp.	Good	Save
902	12	Slippery Elm	Ulmus rubra	Good	Save
903	10	American Elm	Ulmus americana	Good	Save
904	8	Silver Maple	Acer saccharinum	Good	Save
905	9	Silver Maple	Acer saccharinum	Good	Save
906	9	Red Maple	Acer rubrum	Good	Save
907	8	Silver Maple	Acer saccharinum	Good	Save
908	11	Red Maple	Acer rubrum	Good	Save
909	3,12	Scotch Pine	Pinus sylvestris	Good	Save
910	8	Black Cherry	Prunus serotina	Good	Save
911	9	Eastern Red Cedar	Juniperus virginiana	Good	Save
912	8	Scotch Pine	Pinus sylvestris	Good	Save
913	12	Slippery Elm	Ulmus rubra	Good	Save
914	26	Black Willow	Salix nigra	Good	Save
915	11	Black Willow	Salix nigra	Good	Save
916	12	Basswood	Tilia americana	Good	Save
917	22	Black Willow	Salix nigra	Good	Save
918	8,21	Black Willow	Salix nigra	Good	Save
919	14	Black Willow	Salix nigra	Good	Save
920	14	Black Willow	Salix nigra	Good	Save
921	14	Black Willow	Salix nigra	Good	Save
922	11	Black Cherry	Prunus serotina	Good	Save
923	8	Red Oak	Quercus macrocarpa	Good	Save
924	13	Eastern Cottonwood	Populus deltoides	Good	Save
1501	8	American Basswood	Tilia americana	Good	Remove
1502	8	American Basswood	Tilia americana	Good	Remove
1503	8	American Basswood	Tilia americana	Good	Save
1504	8	American Basswood	Tilia americana	Good	Save
1506	10	Black Walnut	Juglans nigra	Good	Save
1507	14	Black Walnut	Juglans nigra	Good	Save
1508	12	Black Walnut	Juglans nigra	Good	Save
1509	12	Black Walnut	Juglans nigra	Good	Save
1510	10	American Basswood	Tilia americana	Good	Save
1511	12	American Basswood	Tilia americana	Good	Save
1512	10	American Basswood	Tilia americana	Good	Save
1513	10	American Basswood	Tilia americana	Good	Save
1514	13	American Basswood	Tilia americana	Good	Save
1515	8	American Basswood	Tilia americana	Good	Save
1516	8	American Basswood	Tilia americana	Good	Save
1517	12	American Basswood	Tilia americana	Good	Save
1518	8	Black Walnut	Juglans nigra	Good	Save
1520	6,10,10	American Basswood	Tilia americana	Good	Save
1522	8	American Elm	Ulmus americana	Good	Remove
1529	12	American Basswood	Tilia americana	Good	Remove
1531	9	American Basswood	Tilia americana	Good	Remove
1536	8,9,11,12	American Basswood	Tilia americana	Good	Save
1537	12	American Elm	Ulmus americana	Good	Remove
1538	9	American Elm	Ulmus americana	Good	Save
1539	9	American Basswood	Tilia americana	Good	Save
1540	12	American Basswood	Tilia americana	Good	Remove
1542	8	American Basswood	Tilia americana	Good	Remove
1544	8	American Elm	Ulmus americana	Good	Remove
1548	9	American Basswood	Tilia americana	Good	Remove
1553	8	American Elm	Ulmus americana	Good	Remove
1557	9,13	American Basswood	Tilia americana	Good	Remove
1562	9	American Basswood	Tilia americana	Good	Remove
1563	7,9	American Basswood	Tilia americana	Good	Remove
1565	14	American Basswood	Tilia americana	Good	Remove
1566	9	American Basswood	Tilia americana	Good	Remove
1567	10	American Basswood	Tilia americana	Good	Remove
1580	8	American Basswood	Tilia americana	Good	Remove
1596	5,7	American Elm	Ulmus americana	Good	Remove
1598	9	American Elm	Ulmus americana	Good	Remove
1602	3,7,9	Hawthorn	Crataegus spp.	Good	Remove
1604	10	Green Ash	Fraxinus pennsylvanica	Good	Remove
1605	7,10	American Elm	Ulmus americana	Good	Remove
1607	11	American Elm	Ulmus americana	Good	Remove
1608	13	Red Maple	Acer rubrum	Good	Remove
1610	2,6,10	Red Maple	Acer rubrum	Good	Remove
1613	12	Red Maple	Acer rubrum	Good	Remove
1614	8	Black Cherry	Prunus serotina	Good	Remove
1618	10	Sugar Maple	Acer saccharum	Good	Remove
1625	12	American Elm	Ulmus americana	Good	Remove

Tag #	DBH	Common Name	Botanical Name	Condition	Status
1626	10,12	American Basswood	Tilia americana	Good	Remove
1627	9	Quaking Aspen	Populus tremuloides	Good	Remove
1628	9	Black Cherry	Prunus serotina	Good	Remove
1629	11	Box Elder	Acer negundo	Good	Remove
1632	9	Common Apple	Malus spp.	Good	Remove
1636	9	Black Cherry	Prunus serotina	Good	Remove
1638	8	Green Ash	Fraxinus pennsylvanica	Good	Remove
1639	8	Sweet Cherry	Prunus avium	Good	Save
1641	40	Red Oak	Quercus rubra	Good	Save
1642	8	Red Oak	Quercus rubra	Good	Save
1643	11	Red Oak	Quercus rubra	Good	Save
1649	11	American Basswood	Tilia americana	Poor	Save
1651	12	Sweet Cherry	Prunus avium	Good	Save
1655	8	American Basswood	Tilia americana	Good	Save
1658	8	American Basswood	Tilia americana	Good	Save
1659	9	American Basswood	Tilia americana	Good	Save
1660	9	Red Oak	Quercus rubra	Good	Save
1661	6,15	American Basswood	Tilia americana	Good	Save
1665	14	Black Cherry	Prunus serotina	Good	Save
1666	38	White Oak	Quercus alba	Good	Save
1667	8	American Basswood	Tilia americana	Good	Save
1668	10	Red Oak	Quercus rubra	Good	Save
1676	8	Sugar Maple	Acer saccharum	Good	Save
1678	9	Sugar Maple	Acer saccharum	Good	Save
1679	9	Sugar Maple	Acer saccharum	Good	Save
1681	9	American Elm	Ulmus americana	Good	Save
1682	8	Common Apple	Malus spp.	Good	Save
1683	16	Red Oak	Quercus rubra	poor	Save
1684	8	Sugar Maple	Acer saccharum	Good	Save
1687	9	Sugar Maple	Acer saccharum	Good	Save
1690	9	Sugar Maple	Acer saccharum	Good	Save
1693	18	Black Cherry	Prunus serotina	Good	Save
1694	10	Black Cherry	Prunus serotina	Good	Save
1695	8	Black Cherry	Prunus serotina	Good	Save
1696	16	Black Cherry	Prunus serotina	Good	Save
1697	10	Red Oak	Quercus rubra	Good	Save
1698	10	Red Oak	Quercus rubra	Good	Save
1700	14	Red Oak	Quercus rubra	Good	Save
1701	12	Red Oak	Quercus rubra	Good	Save
1702	16	Red Oak	Quercus rubra	Good	Save
1703	8	Red Oak	Quercus rubra	Good	Save
1704	11	Red Oak	Quercus rubra	Good	Save
1706	16	Sugar Maple	Acer saccharum	Good	Save
1708	8	American Basswood	Tilia americana	Good	Save
1709	10	American Elm	Ulmus americana	Good	Save
1711	18	Red Oak	Quercus rubra	Good	Save
1712	18	Red Oak	Quercus rubra	Good	Save
1713	9,19	American Basswood	Tilia americana	Good	Save
1714	22	Red Oak	Quercus rubra	Good	Save
1715	13	Sugar Maple	Acer saccharum	Good	Save
1716	9	American Basswood	Tilia americana	Good	Save
1717	8,13	American Basswood	Tilia americana	Good	Save
1718	15	Black Walnut	Juglans nigra	Good	Save
1719	8	American Basswood	Tilia americana	Good	Save
1741	8	American Basswood	Tilia americana	Good	Save
1746	10	American Elm	Ulmus americana	Good	Save
1747	5,9	American Basswood	Tilia americana	Good	Save
1748	40	Red Oak	Quercus rubra	Good	Save
1750	8	American Basswood	Tilia americana	Good	Save
1751	9	American Basswood	Tilia americana	Good	Save
1752	22	American Basswood	Tilia americana	Good	Save
1753	8	Sweet Cherry	Prunus avium	Good	Save
1754	18	Red Oak	Quercus rubra	Good	Save
1755	7,10,11	American Basswood	Tilia americana	Good	Save
1756	15	American Basswood	Tilia americana	Good	Save
1757	18	Red Oak	Quercus rubra	Good	Save
1758	9	Sugar Maple	Acer saccharum	Good	Save
1759	13	Shagbark Hickory	Carya ovata	Good	Save
1763	18	White Oak	Quercus alba	Good	Save
1764	10	Black Cherry	Prunus serotina	Good	Save
1765	8	Red Oak	Quercus rubra	Good	Save
1766	8	Eastern Hornbeam	Ostrya virginiana	Good	Save
1767	32	Red Oak	Quercus rubra	Good	Remove
1768	9	American Basswood	Tilia americana	Good	Save
1769	20	Sugar Maple	Acer saccharum	Hollow	Remove
1770	12	Red Oak	Quercus rubra	Good	Remove
1771	16	Red Oak	Quercus rubra	Good	Save
1772	32	Red Oak	Quercus rubra	Good	Remove
1773	11	Sweet Cherry	Prunus avium	Good	Remove
1775	8	Quaking Aspen	Populus tremuloides	Good	Remove
1776	18	Bitternut Hickory	Carya cordiformis	Good	Remove
1777	12,12	American Basswood	Tilia americana	Good	Remove
1778	9,11	Sugar Maple	Acer saccharum	Good	Remove
1779	15	Red Oak	Quercus rubra	Good	Remove
1780	8	Eastern Hornbeam	Ostrya virginiana	Good	Save
1782	10	American Basswood	Tilia americana	Good	Remove
1784	8	Sweet Cherry	Prunus avium	Good	Remove
1786	10	Black Cherry	Prunus serotina	Good	Save
1787	8	Eastern Hornbeam	Ostrya virginiana	Good	Remove
1788	15	Red Oak	Quercus rubra	Good	Remove
1789	14	Red Oak	Quercus rubra	Good	Remove
1790	8	Red Oak	Quercus rubra	Good	Remove
1791	7,16	Red Oak	Quercus rubra	Good	Save
1792	6,10,26	Sugar Maple	Acer saccharum	Good	Save
1794	9	Eastern Hornbeam	Ostrya virginiana	Good	Save
1798	24	Red Oak	Quercus rubra	Good	Save
1799	9	Eastern Hornbeam	Ostrya virginiana	Good	Save
1800	13	White Oak	Quercus alba	Good	Remove
1801	10	American Elm	Ulmus americana	Good	Remove
1802	9	American Elm	Ulmus americana	Good	Save
1803	12	Red Oak	Quercus rubra	Good	Save
1812	8	Black Cherry	Prunus serotina	Good	Save
1813	6,8	Sugar Maple	Acer saccharum	Good	Save
1816	8	Black Cherry	Prunus serotina	Good	Save

Tag #	DBH	Common Name	Botanical Name	Condition	Status
1817	10	Black Cherry	Prunus serotina	Good	Save
1818	8,10	Sugar Maple	Acer saccharum	Good	Save
1819	4,11	Sugar Maple	Acer saccharum	Good	Remove
1820	6,9	Box Elder	Acer negundo	Good	Save
1832	6,15,16,19	Silver Maple	Acer saccharinum	Good	Remove
1833	9	Common Apple	Malus spp.	Good	Remove
1834	9	Common Apple	Malus spp.	Good	Remove
1835	9	Common Apple	Malus spp.	Good	Remove
1836	10	Ulmus American Elm	Ulmus americana	Good	Remove
1840	9	Box Elder	Acer negundo	Good	Remove
1841	9	Box Elder	Acer negundo	Good	Remove
1842	15	Mulberry	Morus alba	Good	Remove
1845	10,11	Common Pear	Pyrus communis	Good	Remove
1847	8	Common Apple	Malus spp.	Good	Remove
1851	9	Sugar Maple	Acer saccharum	Good	Remove
1852	8,9	Black Cherry	Prunus serotina	Good	Remove
1853	9	Black Cherry	Prunus serotina	Good	Remove
1854	8	Black Cherry	Prunus serotina	Good	Remove
1855	9	Black Cherry	Prunus serotina	Good	Remove
1857	8	Black Cherry	Prunus serotina	Good	Remove
1858	11	Black Cherry	Prunus serotina	Good	Remove
1859	9	Black Cherry	Prunus serotina	Good	Remove
1860	6,8,8	Red Maple	Acer rubrum	Good	Remove
1861	10	Green Ash	Fraxinus pennsylvanica	Poor	Remove
1862	8	Green Ash	Fraxinus pennsylvanica	Good	Remove
1863	9	Buckhorn	Rhamnus cathartica	Good	Remove
1864	21	Burr Oak	Quercus macrocarpa	Good	Remove
1866	8	American Elm	Ulmus americana	Good	Remove
1867	11	American Elm	Ulmus americana	Good	Remove
1867A	20	Box Elder	Acer negundo	Poor	Remove
1867B	16	Black Cherry	Prunus serotina	Good	Remove
1867C	9	Common Apple	Malus spp.	Good	Remove
1867D	13	Box Elder	Acer negundo	Good	Remove
1868	9	Box Elder	Acer negundo	Good	Remove
1869	8	Box Elder	Acer negundo	Good	Remove
1870A	8	Box Elder	Acer negundo	Good	Remove
1871	8	Box Elder	Acer negundo	Good	Save
1872	9	Box			