PLANNING COMMISSION
MEETING AGENDA
REGULAR MEETING

500 W. Big Beaver
Troy, MI 48084
(248) 524-3364
www.troymi.gov
planning@troymi.gov

Donald Edmunds, Chair, Tom Krent, Vice Chair
Ollie Apahidean, Karen Crusse, Carlton M. Faison, Michael W. Hutson
Padma Kuppa, Philip Sanzica and John J. Tagle

January 26, 2016 **7:00 P.M.** **Council Board Room**

1. ROLL CALL

2. APPROVAL OF AGENDA

3. MINUTES – January 12, 2016

4. PUBLIC COMMENT – For Items Not on the Agenda

5. ZONING BOARD OF APPEALS (ZBA) REPORT

6. DOWNTOWN DEVELOPMENT AUTHORITY (DDA) REPORT

7. PLANNING AND ZONING REPORT

SITE CONDOMINIUM DEVELOPMENT REVIEW

8. PRELIMINARY SITE PLAN REVIEW – Proposed Estates at Willowbrook, 28 units/lots, East side of John R, South of Wattles, Section 24, Currently Zoned R-1C (One Family Residential) District

ZONING ORDINANCE TEXT AMENDMENT

9. ZONING ORDINANCE TEXT AMENDMENT (File Number ZOTA 247) – Oil and Gas Extraction

OTHER BUSINESS

10. PLANNING COMMISSION 2015 ANNUAL REPORT

11. PUBLIC COMMENT – Items on Current Agenda

12. PLANNING COMMISSION COMMENT

ADJOURN

NOTICE: *People with disabilities needing accommodations for effective participation in this meeting should contact the City Clerk by e-mail at clerk@troymi.gov or by calling (248) 524-3317 at least two working days in advance of the meeting. An attempt will be made to make reasonable accommodations.*

Televised Live, Government Channel WTRY (10 WideOpenWest and 17 Comcast) Replayed Wednesdays 3:00 pm, 6:00 pm and 11:00 pm

Chair Edmunds called the Regular meeting of the Troy City Planning Commission to order at 7:00 p.m. on January 12, 2016 in the Council Board Room of the Troy City Hall.

1. ROLL CALL

Present:
Ollie Apahidean
Karen Crusse
Donald Edmunds
Carlton M. Faison
Michael W. Hutson
Tom Krent
Philip Sanzica
John J. Tagle

Absent:
Padma Kuppa

Also Present:
R. Brent Savidant, Planning Director
Ben Carlisle, Carlisle/Wortman Associates, Inc.
Allan Motzny, Assistant City Attorney
Kathy L. Czarnecki, Recording Secretary

2. APPROVAL OF AGENDA

Resolution # PC-2016-01-001
Moved by: Krent
Seconded by: Sanzica

RESOLVED, To approve the Agenda as prepared.

Yes: All present (8)
Absent: Kuppa

MOTION CARRIED

3. APPROVAL OF MINUTES

Resolution # PC-2016-01-002
Moved by: Apahidean
Seconded by: Tagle

RESOLVED, To approve the minutes of the December 22, 2015 Regular meeting as published.

Yes: All present (8)
Absent: Kuppa

MOTION CARRIED

4. PUBLIC COMMENT – Items not on the Agenda

There was no one present who wished to speak.

PRELIMINARY SITE PLAN REVIEW

5. PRELIMINARY SITE PLAN REVIEW (File Number SP 1010) – Proposed Bradley Square Condominiums, East side of Rochester between Bradley and Shallowdale, Section 14, Currently Zoned RT (One-Family Attached Residential) and R-1C (One Family Residential) Districts

Mr. Carlisle reviewed items discussed at the December 8, 2015 meeting relating to the width of parking spaces adjacent to the stormwater detention, screening along Rochester, stormwater management and proposed elevations. Mr. Carlisle noted the applicant met with and is addressing concerns expressed by an adjacent neighbor to the east by providing additional evergreen trees along the shared eastern property line. In summary, Mr. Carlisle said the site plan meets all requirements of the Zoning Ordinance. He recommended a dialogue between Board members and the applicant on the revised elevations.

Tim Loughrin and Jim Clark of Robertson Brothers, 6905 Telegraph, Bloomfield Hills, were present. They addressed in detail:

- Landscape plan; along Rochester and the eastern property line.
- Elevations – handouts distributed and material samples/colors displayed.
  - Patios, balconies, rooflines.
  - Windows, shutters, vertical boards.
  - Urban look/style.
  - Condominium association bylaws; management.
- Stormwater management from architectural and engineering standpoints.

There was discussion on:

- Height of evergreen trees.
- Architectural design of rear elevation of building located on the north end of development (units 1-4) because of its visibility from Rochester.

Resolution # PC-2016-01-003
Moved by: Sanzica
Seconded by: Krent

RESOLVED, That Preliminary Site Plan Approval, pursuant to Article 8 of the Zoning Ordinance, as requested for the proposed Bradley Square Condominiums, including thirty-one (31) units, located on the east side of Rochester between Bradley and Shallowdale, Section 14, within the RT (One-Family Attached Residential) and R-1C (One Family Residential) Districts, be granted, subject to the following conditions:

1. Pines being revised to 8 foot minimum height.
2. Developer working with the staff regarding the gable roof and shake shingles on the proposed building on the north (Units 1 through 4) and shake shingles be included where there are no shutters proposed.

Yes: All present (8)
Absent: Kuppa

MOTION CARRIED

PLANNED UNIT DEVELOPMENT

6. PLANNED UNIT DEVELOPMENT APPLICATION (PUD 014-A) – Proposed Revised Elevations Stonecrest Assisted Living Planned Unit Development, East side of Livernois between Big Beaver and Wattles, Section 22, Currently Zoned PUD 14

Mr. Savidant addressed the flexibility within the Stonecrest Assisted Living PUD Development Agreement that allows the Planning Commission to review and approve any significant changes to the building elevation of the development that was granted preliminary approval by City Council in November 2015.

Mark Pomerenke, NorthPoint Development, 5015 NW Canal Street, Riverside, Missouri, presented a revised elevation to incorporate what is now considered their “signature” style to which gives the facility a more residential feel. He addressed construction materials and colors and architectural features such as rooflines, windows, shaker siding, chimneys, etc.

Mr. Pomerenke addressed their timelines for occupancy and grand opening.

Board members expressed favorable comments.

Resolution # PC-2016-01-004
Moved by: Crusse
Seconded by: Tagle

RESOLVED, That Preliminary Site Plan Approval, pursuant to Article 8 of the Zoning Ordinance, as requested for the proposed revised building elevations for Stonecrest Assisted Living facility, located on the east side of Livernois between Big Beaver and Wattles, Section 22, within PUD 14 zoning district, be granted.

Yes: All present (8)
Absent: Kuppa

MOTION CARRIED

OTHER BUSINESS

7. ELECTION OF OFFICERS

Chair Edmunds opened the floor for nominations of Chair, Vice Chair and Zoning Board of Appeals Representative.

Mr. Tagle nominated and recommends to City Council that Philip Sanzica continue his capacity as Zoning Board of Appeals Representative. Ms. Crusse supported the nomination. There were no further nominations placed on the floor.

Roll Call vote on the nomination on the floor.

Yes: All present (8)
Absent: Kuppa

MOTION CARRIED

Chair Edmunds respectfully asked the Board's support to continue his capacity as Chair. He further asked for the Board's consideration to nominate Tom Krent as Vice Chair.

Mr. Sanzica nominated and recommends to City Council that Donald Edmunds continue his capacity as Chair and Tom Krent as Vice Chair. Ms. Crusse supported the nomination. There were no further nominations placed on the floor.

Roll Call vote on the nominations on the floor.

Yes: All present (8)
Absent: Kuppa

MOTION CARRIED

8. PUBLIC COMMENT – Items on Current Agenda

There was no one present who wished to speak.

9. PLANNING COMMISSION COMMENT

There were general Planning Commission comments.

Mr. Savidant identified two Public Hearing items scheduled on the February 8, 2016 City Council meeting agenda.

The Regular meeting of the Planning Commission adjourned at 8:10 p.m.

Respectfully submitted,

_____
Donald Edmunds, Chair

_____
Kathy L. Czarnecki, Recording Secretary

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DATE: January 22, 2016

TO: Planning Commission

FROM: R. Brent Savidant, Planning Director

SUBJECT: PRELIMINARY SITE PLAN REVIEW – Proposed Estates at Willowbrook, 28 units/lots, East side of John R, South of Wattles, Section 24, Currently Zoned R-1C (One Family Residential) District

The petitioner Langham Investments LLC submitted the above referenced Preliminary Site Plan Approval application for a 28-unit site condominium. The property is currently zoned R-1C (One Family Residential) District. The Planning Commission is responsible for granting Preliminary Site Plan Approval for site condominium applications.

The attached report prepared by Carlisle/Wortman Associates, Inc. (CWA), the City's Planning Consultant, summarizes the project. CWA prepared the report with input from various City departments including Planning, Engineering, Public Works and Fire. City Management supports the findings of fact contained in the report and recommends approval of the project, as noted.

Attachments:

1. Maps
2. Report prepared by Carlisle/Wortman Associates, Inc.

cc: Applicant
File/ Estates at Willowbrook Site Condominium

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PROPOSED RESOLUTION

PRELIMINARY SITE PLAN REVIEW – Proposed Estates at Willowbrook, 28 units/lots, East side of John R, South of Wattles, Section 24, Currently Zoned R-1C (One Family Residential) District

Resolution # PC-2016-01-
Moved by:
Seconded by:

RESOLVED, That Preliminary Site Condominium Approval, pursuant to Article 8 and Section 10.02 of the Zoning Ordinance, as requested for Estates at Willowbrook Site Condominium, 28 units/lots, East side of John R, South of Wattles, Section 24, Currently Zoned R-1C (One Family Residential) District, be granted, subject to the following:

1. Clarify maintenance responsibility for outlot prior to Final Site Plan Approval.
2. Provide temporary turnaround at end of Sandpiper Drive and Macaw Drive.
3. Widen John R. sidewalk to 8 feet.
4. Provide greater tree species variety.
5. Resubmit floor plans for final site plan.

_____) or

(denied, for the following reasons: _____) or

(postponed, for the following reasons:_____)

Yes:
No:
Absent:

MOTION CARRIED / FAILED

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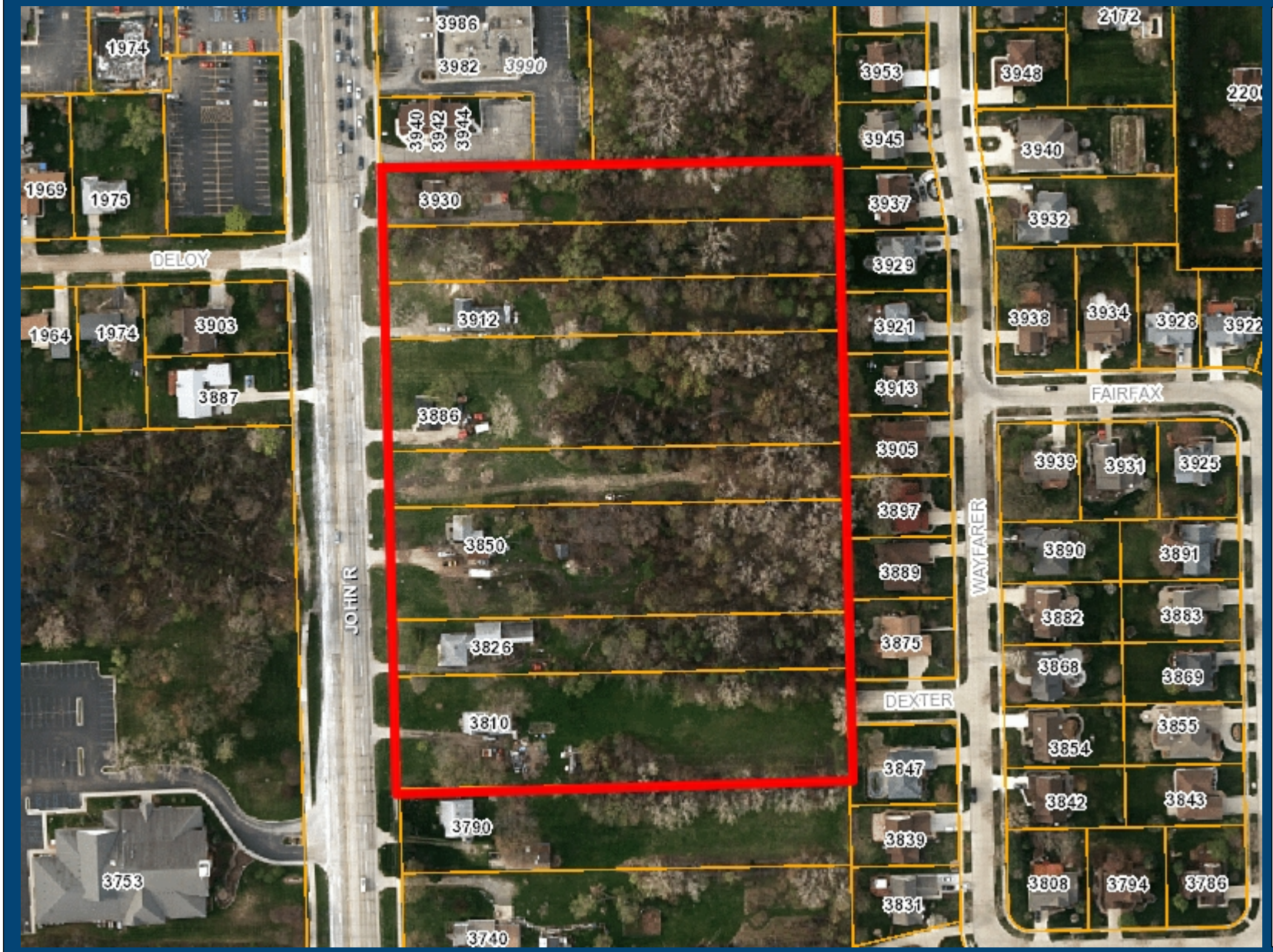
Estates at Willowbrook S.C.

City of Troy Planning Department



Legend:

Aerial

- Red: Band_1
- Green: Band_2
- Blue: Band_3

500 0 250 500 Feet

Scale 1: 3,000

Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.

Printed: 11/25/2015

Estates at Willowbrook S.C.

City of Troy Planning Department

Legend:

Form Based Zoning 2

- (PUD) Planned Unit Development
- (CF) Community Facilities District
- (EP) Environmental Protection District
- (BB) Big Beaver Road
- (MR) Maple Road
- (NN) Neighborhood Nodes (A-U)
- (CB) Community Business
- (GB) General Business
- (IB) Integrated Industrial Business District
- (O) Office Building District
- (OM) Office Mixed Use
- (P) Vehicular Parking District
- (R-1A) One Family Residential District
- (R-1B) One Family Residential District
- (R-1C) One Family Residential District
- (R-1D) One Family Residential District
- (R-1E) One Family Residential District
- (RT) One Family Attached Residential Distric
- (MF) Multi-Family Residential
- (MHP) Manufactured Housing
- (UR) Urban Residential
- (RC) Research Center District
- (PV) Planned Vehicle Sales

Aerial

- Red: Band_1
- Green: Band_2
- Blue: Band_3

533 0 267 533 Feet

Scale 1: 3,200

Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.

Printed: 11/25/2015

CARLISLE | WORTMAN associates, inc.
605 S. Main Street, Ste. 1
Ann Arbor, MI 48104
(734) 662-2200
(734) 662-1935 Fax

Date: January 20, 2016

Site Condominium Plan
For
City of Troy, Michigan

Applicant:	Mondrian Properties
Project Name:	Estates at Willowbrook
Plan Date:	January 14, 2016
Location:	East side John R Road, south of Wattles.
Zoning:	R1-C, One-Family Residential District
Action Requested:	Preliminary Site Condominium Approval
Required Information:	Noted

PROJECT AND SITE DESCRIPTION

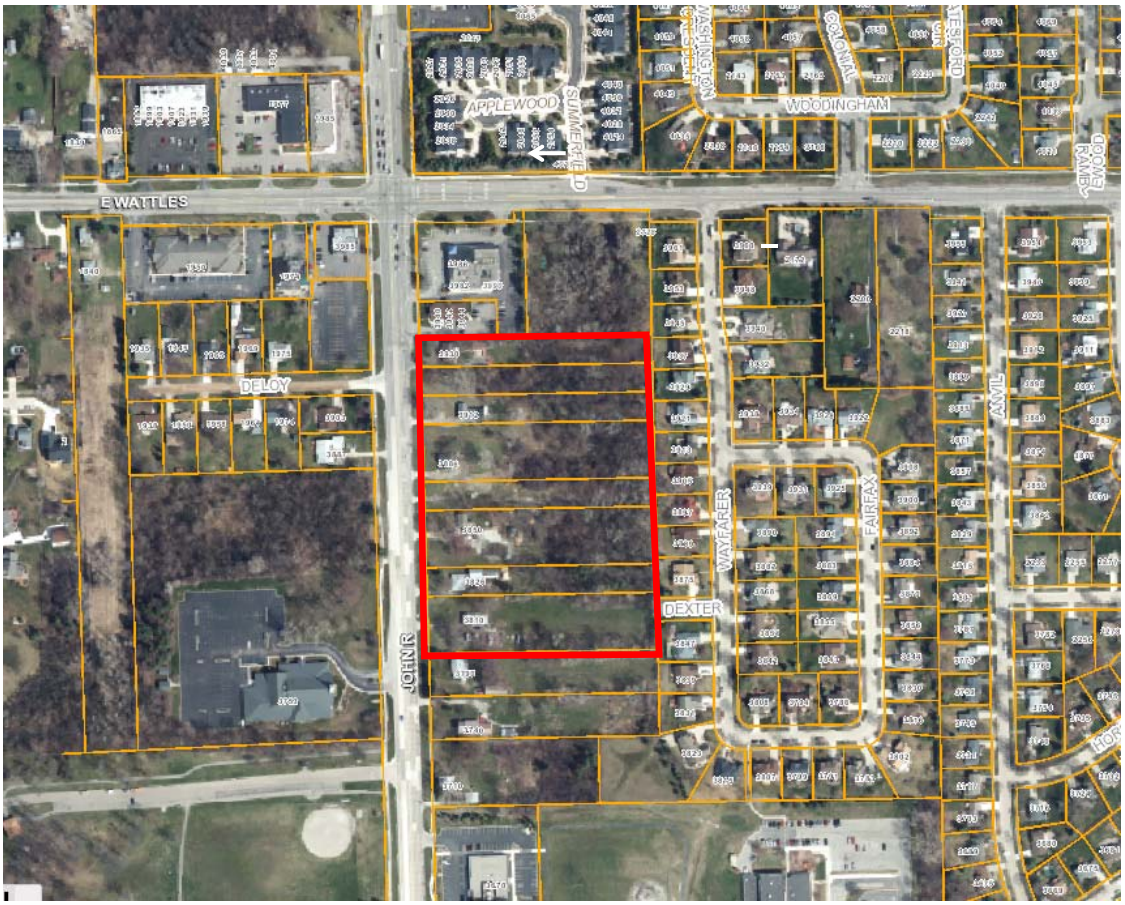
We are in receipt of a site condominium application that includes a preliminary site plan, topographic survey, grading plan, utility plan, tree preservation plan and tree inventory, elevations and floor plans. The applicant proposes to combine eight (8) existing R1-C parcels to create a twenty-eight (28) lot site condominium project. Six (6) of the current R1-C parcels are improved with a home. Two (2) current parcels are vacant. The total site area is 10.01 acres.

The development will be served with new public roads off of John R Road. The development will connect to the east with the adjacent Wattles Square subdivision via Dexter Drive. Dexter Drive is currently stubbed with a barricade. Wattles Square subdivision was approved in 1987 with Dexter Drive stubbed in order to provide a future road connection should the parcel(s) in question be developed.

The applicant has shown a 69' x 108' outlot, located in the southeast corner of the development. The applicant has noted that this is an "outlot to be reserved for possible future development." The 7,512 sq.ft lot is undersized to the minimum lot area (10,500 sq/ft) and lot width (85') for the district. Unless the applicant were able to add additional area from an adjacent property this lot is undevelopable. While undeveloped, the applicant is responsible to maintain this lot. If sold, the future owner would be responsible to maintain lot. Responsibility of the outlot shall only fall upon the Homeowners Association if such lot can be used as a neighborhood park or the like. The applicant should clarify the use of this lot until they are able to obtain additional area or if the lot should remain unbuildable?

The site has significant tree cover and wetland area. The wetland area is not regulated by the DNR. The site is zoned R-1C and the proposed site condominium use is permitted by-right.

Location of subject site:



Size of subject property:
10.01 acres in area.

Current use of subject property:
The subject property has six (6) existing single-family homes.

Proposed use of subject site:
The proposed use is single-family residential site condominium.

Current Zoning:
The property is currently zoned R-1C, One Family Residential District.

Surrounding Property Details:

Direction	Zoning	Use
North	Neighborhood Node	Office, and Vacant
South	R-1C, One-family Residential District	Single-family homes
East	R-1C, One-family Residential District	Single-family homes
West	R-1C, One-family Residential District	Single-family homes, Open space

NATURAL RESOURCES

Topography - The grading plan shows gentle slopes. The detention basin is located in the northwest corner of the site.

Woodlands – The site has significant tree cover. The applicant has tagged approximately 400 trees on the site, of which approximately half are prohibited species including Box Elder, Poplar, and Elm. Most of non-prohibited species are Maple. The applicant is preserving a number of trees along the northern and eastern property line to serve as a buffer for adjacent single-family properties.

For Informational Purposes Only: based on the draft Woodland Protection Ordinance, the applicant would have to replace as follows:

	Number of tree removed	Number of inches removed	Number of trees preserved	Number of Inches Preserved	Mitigation Required
Woodland Trees to be Removed	137	1,038	15	108	(1,038 inches / 2) + (108 inches x 2) = 303 inches required.
Landmark Trees to be removed	0	0	0	0	0

Based on the proposed tree protection ordinance the applicant would be required 303 inches in mitigation. 303 inches equals approximately fifty-one (51) six-inch trees.

Wetlands/Flood Plain - There is a non-regulated wetland located in the rear (eastern) portion of the existing site. The wetland will not be preserved.

Items to be Addressed: *None*

SITE ARRANGEMENT, ACCESS, AND CIRCULATION

The applicant is applying the lot size averaging option, permitted and regulated by Section 10.01. The lot range in size between 9,467 to 15,969 square feet and the average lot size is 10,501 square feet. The proposed lots are regular in shape, allow for adequate setbacks, and permit sufficient space for the homes and ingress and egress for each unit.

The development will be served with new public roads off of John R. The development will connect to the east with the adjacent Wattles Square subdivision via Dexter Drive. Dexter Drive is currently stubbed with a barricade. Wattles Square subdivision was approved in 1987 with Dexter Drive stubbed in order to provide a future road connection should the parcel(s) in question be developed.

The Engineering Department has reviewed the proposed road layout and notes that the applicant is required to provide a temporary turnaround at the end of Sandpiper Drive and Macaw Drive.

The applicant has provided interior sidewalks. The sidewalk along John R. will need to be widened to 8-feet.

Items to be Addressed: *1). Provide temporary turnaround at end of Sandpiper Drive and Macaw Drive; and 2). Widen John R. sidewalk to 8 feet.*

AREA, WIDTH, HEIGHT, SETBACKS

Required and Provided Dimensions:

Table 4.06.C establishes the requirements for the R-1C District. The requirement and the proposed dimensions are as follows:

	Required	**Provided**	**Compliance**
Minimum Lot Area*	10,500 sq ft	10,501 (Avg) 9,467 sq ft (Min)	Complies
Minimum Lot Width	85 ft	76.5 ft (min), Avg exceeds 85 ft	Complies
Setbacks			
Front	30 ft	30 ft	Complies
Side (Least)	10 ft	10 ft	Complies
Side (Total)	20 ft	20 ft	Complies
Rear	40 ft	40 ft	Complies
Maximum Building Height	30 ft, 2.5 story	30 ft, 2 story	Complies
Minimum Floor Area per Unit	1,200 sq ft	1,200 sq.ft	Complies
Maximum Lot Coverage	30%	+/- 22%	Complies

*The lot size average option has been applied and Section 10.01 standards have been met.

The applicant has meet all R-1C bulk requirements.

Items to be Addressed: *None*

LANDSCAPING

The Landscape Plan includes a mixture of evergreen and deciduous trees. All proposed species fall within Troy regulations and are not prohibited. Site condominium and subdivision landscaping are regulated by Section 13.02.F.2.

	Required	**Provided**	**Compliance**
John R Road Screening Alt 2	1 tree per 10 lineal feet (710 lf =30 tree)	71 trees	Complies
Osprey Drive Internal Street	1 tree per 50 lineal feet (739 lf = 15 trees)	16 trees	Complies
Sandpiper Internal Street	1 tree per 50 lineal feet (897 lf = 18 trees)	18 trees	Complies
Macaw Internal Street	1 tree per 50 lineal feet (1,420 lf = 29 trees)	30 trees	Complies
Dexter Drive Internal Street	1 tree per 50 lineal feet (218 lf = 5 trees)	6 trees	Complies
Stormwater	Landscape	Trees, with seed mix	Complies

The applicant is providing one (1) variety of evergreen along John R and one (1) variety of deciduous as an internal street tree. The applicant should provide greater tree species variety.

Items to be Addressed: *Provide greater tree species variety.*

ENGINEERING

The Engineering Department has reviewed the preliminary plans and notes that the detention pond has been sized for 100-year storm to meet County requirements and the grading plan generally conforms to the surrounding area.

Items to be Addressed: *None*

FLOOR PLANS AND ELEVATIONS

The applicant has submitted sample floor plans and elevations. The Building Official notes that the sample floor plan will not fit into lots 7-13, 14-20, 24-26 as the 2nd floor cantilever & 1st floor bays will encroach into required setbacks.

Items to be Addressed: *Resubmit floor plans for final site plan.*

SUBMITTAL REQUIREMENTS

Section 10.02 sets forth the intent and standards for site condominium projects.

1. Intent: The intent of this Section is to regulate site condominium projects to ensure compliance with this Ordinance and other applicable standards of the City, to provide procedures and standards for review and approval or disapproval of such developments, and to insure that each project will be consistent and compatible with other developments in the community.

The proposed site condominium project is consistent and compatible with other developments in the community, and more importantly adjacent properties. The proposed development meets the intent of the Site Condominium section of the ordinance.

Section 10.02.E. regulates physical improvements associated with condominium projects. It requires the following:

1. Principal access and circulation through a site condominium shall be provided by public streets constructed to City standards, within sixty (60) foot wide rights-of-way. Secondary access and circulation through such developments, on which some of the residential parcels may have their sole frontage, may be provided by twenty-eight (28) foot wide streets constructed to City public street standards, within forty (40) foot private easements for public access. **The applicant has provided a 60-foot wide public right-of-way. All lots front on the 60-foot right-of-way.**

2. Principal access to site condominium of five (5) acres or less in area may be provided by way of twenty-eight (28) foot wide streets constructed to City public street standards, within forty (40) foot private easements for public access, when in the opinion of the City Council the property configuration is such that the provision of conforming dwelling unit parcels is impractical. **Not applicable.**

3. All entrances to major or secondary thoroughfares shall include deceleration, acceleration and passing lanes as required by Engineering Standards of the City of Troy. **The applicant has provided deceleration and acceleration lanes at the entrance to the proposed Osprey Drive along John R Road.**

4. Sidewalks shall be constructed, in accordance with City Standards, across the frontage of all dwelling unit parcels. Utilities shall be placed within street rights-of-way, or within easements approved as to size and location by the City Engineer. **Expand John R. sidewalk to eight (8) feet. All internal sidewalks meet requirements.**

5. All shall be served by public water, sanitary sewer, storm sewer and detention/retention systems constructed to City standards, at the expense of the developer. Easements over these systems shall be conveyed and recorded before occupancy permits are issued for dwelling units. **The applicant has proposed full utilities, but all proposed configurations and easements are subject to approval by the City engineering department.**

As noted above, all condominium projects are subject to Section 8.05.A.7, which establishes the requirements for a preliminary site plan submittal. Three additional requirements are specifically identified for residential projects. The three additional requirements, identified in *8.05.A.7.o, include:*

i. Calculation of the dwelling unit density allowable and a statement of the number of dwelling units, by type, to be provided. **The dwelling calculation is compliant with R1-C regulations.**

ii. Topography on site and fifty (50) feet beyond, drawn at two (2) foot contour intervals, with existing drainage courses, flood plains, wetlands, and tree stands indicated. **Satisfied.**

iii. The typical floor plans and elevations of the proposed buildings, with building height(s). **Satisfied.**

Items to be Addressed: *Noted above.*

RECOMMENDATIONS

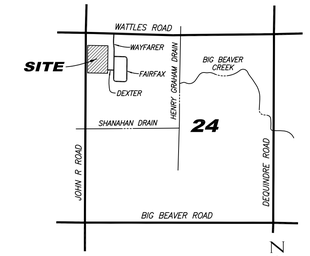
We recommend preliminary Site Plan approval of the Estates at Willowbrook site condominium development given the following conditions:

1. Applicant is responsible for maintenance of the outlot. If lot is sold, future owner is responsible for maintenance of the outlot. Responsibility of the outlot shall only fall upon the Homeowners Association if such lot can be used as a neighborhood park or the like.
2. Provide temporary turnaround at end of Sandpiper Drive and Macaw Drive.
3. Widen John R. sidewalk to 8 feet.
4. Provide greater tree species variety.
5. Resubmit floor plans for final site plan.

CARLISLE/WORTMAN ASSOC., INC.
Benjamin R. Carlisle, LEED AP, AICP

LEGEND

- EXISTING ASPHALT PAVEMENT TO REMAIN
- EXISTING CONCRETE PAVEMENT TO REMAIN
- EXISTING GRAVEL TO REMAIN
- PROPOSED CONCRETE OR ASPHALT STREET PAVEMENTS
- PROPOSED CONCRETE SIDEWALKS



LOCATION MAP

SCALE: 1"=2000'

PROPERTY DESCRIPTION

LOTS 4, 5, 6, 7, 8, AND THE NORTH 1/2 OF LOT 9, EXCEPT FOR THE WEST 27 FEET OF EACH LOT TAKEN FOR ROAD WIDENING, OF "SUPERVISOR'S PLAT NO. 19", PART OF THE NORTHWEST 1/4 OF SECTION 24, TOWN 2 NORTH, RANGE 11 EAST, TROY TOWNSHIP (NOW CITY OF TROY), OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS, PAGE 49 OF OAKLAND COUNTY RECORDS.

SITE CRITERIA

- PARCEL SUMMARY:
  - ADDRESS: #3810, #3826, #3850, #3868, #3886, #3912, VACANT, & #3930 JOHN R ROAD.
  - PARCEL ID NO.: 20-24-100-005 THRU -012
  - EXISTING ZONING: R-1C (SINGLE FAMILY RESIDENTIAL); O (OFFICE)
  - ADJACENT ZONINGS: R-1C AND NN (NODE F)
  - TOTAL GROSS AND SITE AREA: 435,667 S.F. (10.001 ACRES)
- USE SUMMARY:
  - EXISTING USE: SINGLE FAMILY RESIDENTIAL ACREAGE PARCELS.
  - PROPOSED USE: SINGLE FAMILY RESIDENTIAL SITE CONDOMINIUM W/ LOT AVERAGING OPTION.
  - ALLOWABLE DENSITY: 3.1 UNITS PER ACRE.
  - PROPOSED DENSITY: 28 UNITS (2.8 UNITS PER ACRE)
- UNIT SUMMARY:
  - AVERAGE UNIT AREA REQUIRED: 10,500 S.F.
  - AVERAGE UNIT AREA PROVIDED: 10,501 S.F.
  - LOT AVERAGING OPTION ALLOWS FOR 10% REDUCTION IN MIN. UNIT AREA:
    - MINIMUM UNIT AREA REQUIRED: 9,450 S.F.
    - MINIMUM UNIT AREA PROVIDED: 9,467 S.F.
  - LOT AVERAGING OPTION ALLOWS FOR 10% REDUCTION IN MIN. UNIT WIDTH:
    - MINIMUM UNIT WIDTH REQUIRED: 85' x 90% = 76.5'
    - MINIMUM LOT WIDTH PROVIDED: 76.5'
- BUILDING SETBACK SUMMARY:
  - FRONT: 30' MIN.
  - REAR: 40' MIN.
  - SIDE: 10' MIN. ONE SIDE; 20' MIN. TOTAL
  - JOHN R ROAD: 50'
- BUILDING CONSTRUCTION SUMMARY:
  - MAXIMUM ALLOWABLE BUILDING HEIGHT: 30' (2.5 STORY)
  - PROPOSED BUILDING HEIGHT: 24' TO 27' ± (NOT TO EXCEED 30')
  - MAXIMUM ALLOWABLE LOT COVERAGE: 30%
  - PROPOSED MAX. LOT COVERAGE: 22% ± (NOT TO EXCEED 30%)
  - MINIMUM REQUIRED FLOOR AREA PER UNIT: 1,200 S.F.
  - PROPOSED FLOOR AREA PER UNIT: 2,590 TO 3,250 S.F. ±

NOTES

1. CONDOMINIUM LAYOUT AND DIMENSIONS ARE TENTATIVE AND ARE SUBJECT TO MODIFICATION UPON FINAL ENGINEERING APPROVAL AND COMPUTATION OF THE MASTER DEED EXHIBIT "B".
2. THE DEVELOPER SHALL COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES OF THE CITY OF TROY, THE COUNTY OF OAKLAND, AND THE STATE OF MICHIGAN.
3. REFER TO PRELIMINARY GRADING & UTILITY PLAN FOR UTILITIES TO SERVE THE PROPOSED UNITS.
4. NO SIGNAGE IS PROPOSED AS A PART OF THIS DEVELOPMENT. "NO PARKING-FIRE LANE" SIGNS SHALL BE INSTALLED AS DIRECTED BY THE CITY FIRE DEPARTMENT IF AND AS REQUIRED.
5. NO SITE LIGHTING IS PROPOSED AS A PART OF THIS DEVELOPMENT.
6. ALL WORK WITHIN ANY PUBLIC EASEMENT AND/OR RIGHT-OF-WAY SHALL REQUIRE PERMITS FROM THE CITY OF TROY AND ROAD COMMISSION FOR OAKLAND COUNTY (JOHN R ROAD).

BENCHMARKS

SITE BENCHMARK #1
ELEVATION = 649.44 (NAVD 88 DATUM)
CITY OF TROY BENCHMARK #1067
ARROW ON TOP OF HYDRANT #23-17 ON W. SIDE OF JOHN R ACROSS FROM PARCEL NO. 20-24-100-008.

SITE BENCHMARK #2
ELEVATION = 650.74 (NAVD 88 DATUM)
CITY OF TROY BENCHMARK #1069
ARROW ON TOP OF HYDRANT #23-113 ON W. SIDE OF JOHN R, 150 FEET SOUTH OF WATTLES.

SHEET INDEX

1. SITE PLAN.
2. PRELIMINARY GRADING & UTILITY PLAN.
3. TREE PRESERVATION PLAN.
4. TREE INVENTORY.
5. LANDSCAPE PLAN.

SUPPLEMENTALS:
- BOUNDARY & TOPOGRAPHICAL SURVEY.
- TYPICAL HOUSE FLOOR PLANS & ELEVATIONS.

CONTRACTOR'S NOTE

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3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 (TOLL FREE) for the location of underground utilities

The contractor shall be responsible for adhering to all applicable local, state, and federal standards, specifications, and guidelines for construction.

REVISIONS:
1-4-16 REVISED PER PLANNING DEPARTMENT

CLIENT:
MR. JOSEPH MANAGI
MONORIAN PROPERTIES
30625 SCHOENHERR RD.
WARREN, MI 48088
(586) 726-7340

JOB NO: 15-073
DATE: 11-13-15
DRAWN BY: N.P.R.

SEAL:

HORIZON ENGINEERING LLC
CIVIL ENGINEERING, SITE PLANNING & LAND DEVELOPMENT CONSULTING
P.O. Box 182158, Shelby Township, Michigan 48318
Phone 586.453.8097 Fax 586.380.0053

PROJECT:
Proposed "Estates at Willowbrook" Site Condominium
PART OF THE NORTHWEST 1/4 OF SECTION 24, T.2N., R.11E., CITY OF TROY, OAKLAND COUNTY, MICHIGAN

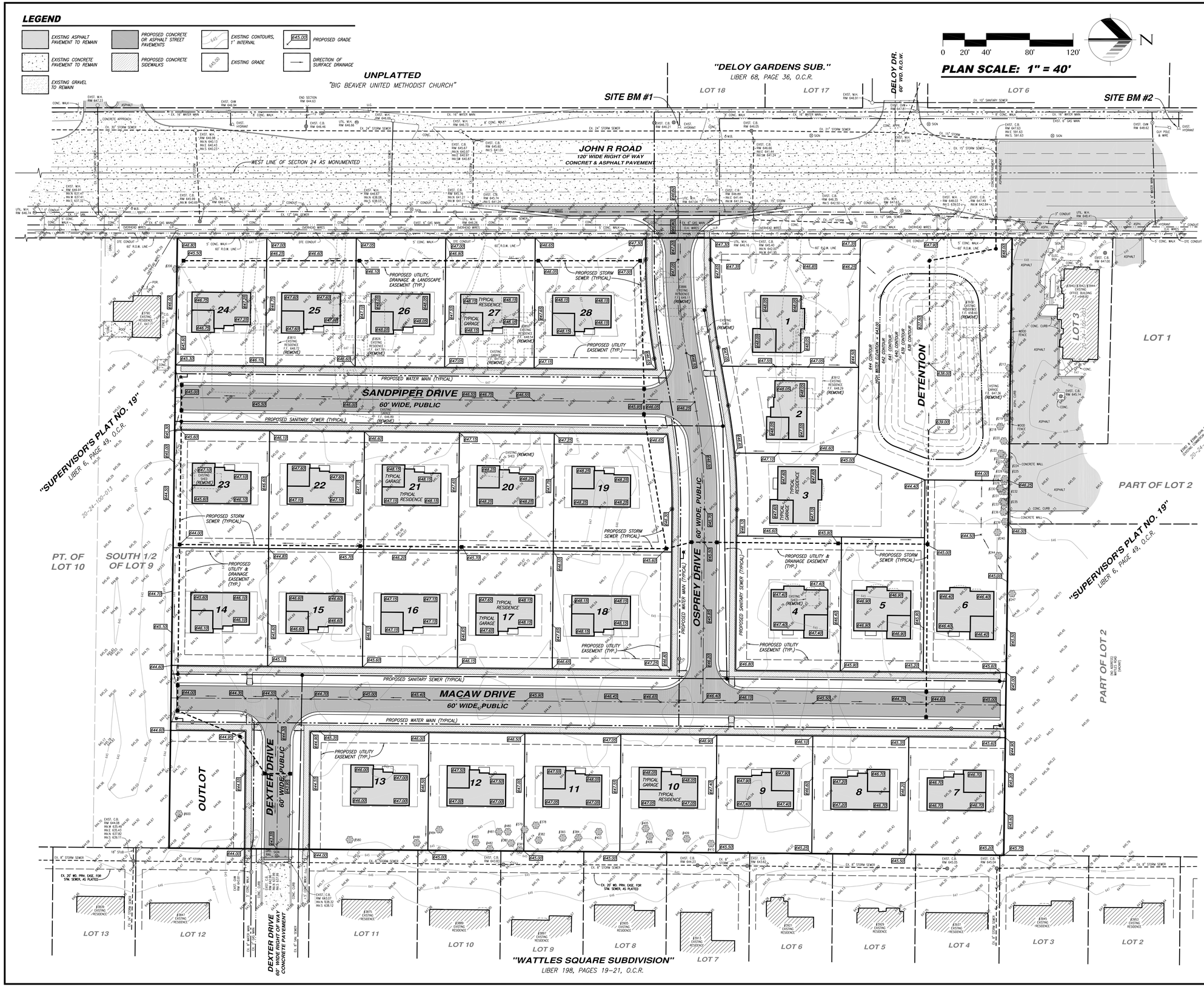
PLAN:
Site Plan

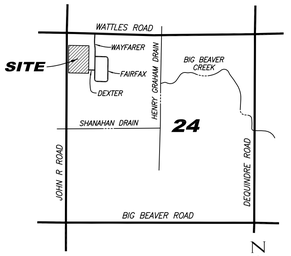
SHEET: 1 OF: 5

MUNICIPAL REVIEW NUMBERS:

LEGEND

- EXISTING ASPHALT PAVEMENT TO REMAIN
- EXISTING CONCRETE PAVEMENT TO REMAIN
- EXISTING GRAVEL TO REMAIN
- PROPOSED CONCRETE OR ASPHALT STREET PAVEMENTS
- PROPOSED CONCRETE SIDEWALKS
- EXISTING CONTOURS, 1' INTERVAL
- EXISTING GRADE
- PROPOSED GRADE
- DIRECTION OF SURFACE DRAINAGE





LOCATION MAP

SCALE: 1"=2000'

PROPERTY DESCRIPTION

LOTS 4, 5, 6, 7, 8, AND THE NORTH 1/2 OF LOT 9, EXCEPT FOR THE WEST 27 FEET OF EACH LOT TAKEN FOR ROAD WIDENING, OF "SUPERVISOR'S PLAT NO. 19", PART OF THE NORTHWEST 1/4 OF SECTION 24, TOWN 2 NORTH, RANGE 11 EAST, TROY TOWNSHIP (NOW CITY OF TROY), OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS, PAGE 49 OF OAKLAND COUNTY RECORDS.

SITE CRITERIA

- UTILITY SUMMARY:
  - SANITARY SEWER:
    PUBLIC SANITARY SEWER SHALL BE EXTENDED ON SITE FROM THE EXISTING SEWER LOCATED IN DEXTER DRIVE RIGHT-OF-WAY.
  - STORM SEWER:
    ENCLOSED STORM SEWERS WITH ON-SITE STORM WATER DETENTION BASIN AND RESTRICTED AND PUMPED OUTLET TO THE EXISTING STORM SEWER IN JOHN R ROAD RIGHT-OF-WAY.
  - WATER MAIN:
    PUBLIC WATER MAIN SHALL BE EXTENDED ON SITE FROM THE EXISTING WATER MAIN LOCATED IN DEXTER DRIVE AND JOHN R ROAD RIGHT-OF-WAY.
- NATURAL FEATURES SUMMARY:
  - FLOOD PLAIN:
    SUBJECT PARCEL LIES WITHIN ZONE X; AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOOD, AS SHOWN ON FLOOD INSURANCE RATE MAP NO. 26125C0053D, DATED JANUARY 16, 2009, AS PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.
  - WETLANDS:
    NO REGULATED WETLANDS EXIST ON SITE, PER MDEQ LETTER DATED AUGUST 12, 2015, WETLAND IDENTIFICATION FILE NUMBER 15-63-0002-WA.

STORM WATER DETENTION

TRIBUTARY AREA, A = 10.001 ACRES
RUNOFF COEFFICIENT (OVERALL), C = 0.32
ALLOWABLE DISCHARGE = 0.20 CFS/ACRE

OUTLET IS THE EXISTING STORM SEWER IN JOHN R ROAD RIGHT-OF-WAY.

DETENTION VOLUME REQUIRED, 100-YEAR STORM, V = 34,251 C.F.
DETENTION VOLUME PROVIDED, V = 43,547 C.F.

FREEBOARD = 12" ABOVE HIGH WATER ELEVATION
SIDE SLOPES = 6:1 (POND SHALL BE UNFENCED)

NOTES

1. UTILITY AND GRADING DESIGN ARE TENTATIVE AND ARE SUBJECT TO MODIFICATION UPON FINAL ENGINEERING APPROVAL.
2. THE DEVELOPER SHALL COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES OF THE CITY OF TROY, THE COUNTY OF OAKLAND, AND THE STATE OF MICHIGAN.
3. ALL WORK WITHIN ANY PUBLIC EASEMENT AND/OR RIGHT-OF-WAY SHALL REQUIRE PERMITS FROM THE CITY OF TROY AND ROAD COMMISSION FOR OAKLAND COUNTY.
4. UTILITY EASEMENTS SHALL BE PROVIDED TO THE SATISFACTION OF THE CITY OF TROY ENGINEERING DEPARTMENT.
5. REFER TO THE TREE PRESERVATION & LANDSCAPE PLAN FOR TREE REMOVALS.
6. ALL PERMITS REQUIRED BY THE CITY OF TROY ENGINEERING DEPARTMENT SHALL BE OBTAINED PRIOR TO THE START OF CONSTRUCTION.
7. DRIVEWAY WIDTH AT THE PROPERTY LINE SHALL NOT EXCEED 40% OF THE LOT WIDTH.
8. ALL EXISTING BUILDING STRUCTURES ON SITE ARE TO BE REMOVED.

BENCHMARKS

SITE BENCHMARK #1
ELEVATION = 649.44 (NAVD 88 DATUM)
CITY OF TROY BENCHMARK #1067
ARROW ON TOP OF HYDRANT #23-17 ON W. SIDE OF JOHN R ACROSS FROM PARCEL NO. 20-24-100-008.

SITE BENCHMARK #2
ELEVATION = 650.74 (NAVD 88 DATUM)
CITY OF TROY BENCHMARK #1069
ARROW ON TOP OF HYDRANT #23-113 ON W. SIDE OF JOHN R, 150 FEET SOUTH OF WATTLES.

SOILS (FROM COUNTY SOILS SURVEY)

11B CAPAC SANDY LOAM (0 TO 4% SLOPES). 0"-8" VERY DARK GRAYISH-BROWN SANDY LOAM, 8"-20" BROWN CLAY LOAM, 20"-32" GRAYISH-BROWN CLAY LOAM, 32"-60" PALE BROWN LOAM. MODERATELY SLOW PERMEABILITY, SLOW RUNOFF.

12 BROOKSTON & COLWOOD LOAMS. 0"-8" DARK GRAYISH-BROWN SANDY LOAM, 8"-12" BROWN SANDY LOAM, 12"-18" YELLOWISH-BROWN SANDY CLAY LOAM, 18"-34" DARK YELLOWISH-BROWN SANDY CLAY LOAM, 34"-46" YELLOWISH-BROWN SANDY CLAY LOAM, 46"-60" BROWN SANDY LOAM. MODERATE PERMEABILITY, SLOW RUNOFF.

52A SELFRIDGE LOAMY SAND (0% TO 3% SLOPES). 0"-9" VERY DARK GRAYISH BROWN LOAMY SAND; 9"-32" BROWN AND LIGHT YELLOWISH BROWN MOTTLED SAND; 32"-41" BROWN MOTTLED LOAM; 41"-60" GRAYISH BROWN MOTTLED LOAM. LOW SURFACE RUNOFF, SOMEWHAT POORLY DRAINED, MODERATELY SLOW PERMEABILITY.

CONTRACTOR'S NOTE

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BEFORE YOU DIG CALL MISS DIG
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(TOLL FREE) for the location of underground utilities

REVISIONS:
1-4-16 REVISED PER PLANNING DEPARTMENT

CLIENT:
MR. JOSEPH MANAGI
MONORIAN PROPERTIES
30215 SCHOOLCRAFT RD.
LIVONIA, MICHIGAN 48152
(586) 726-7340

JOB NO: 15-073
DATE: 11-13-15
DRAWN BY: N.P.R.

SEAL:

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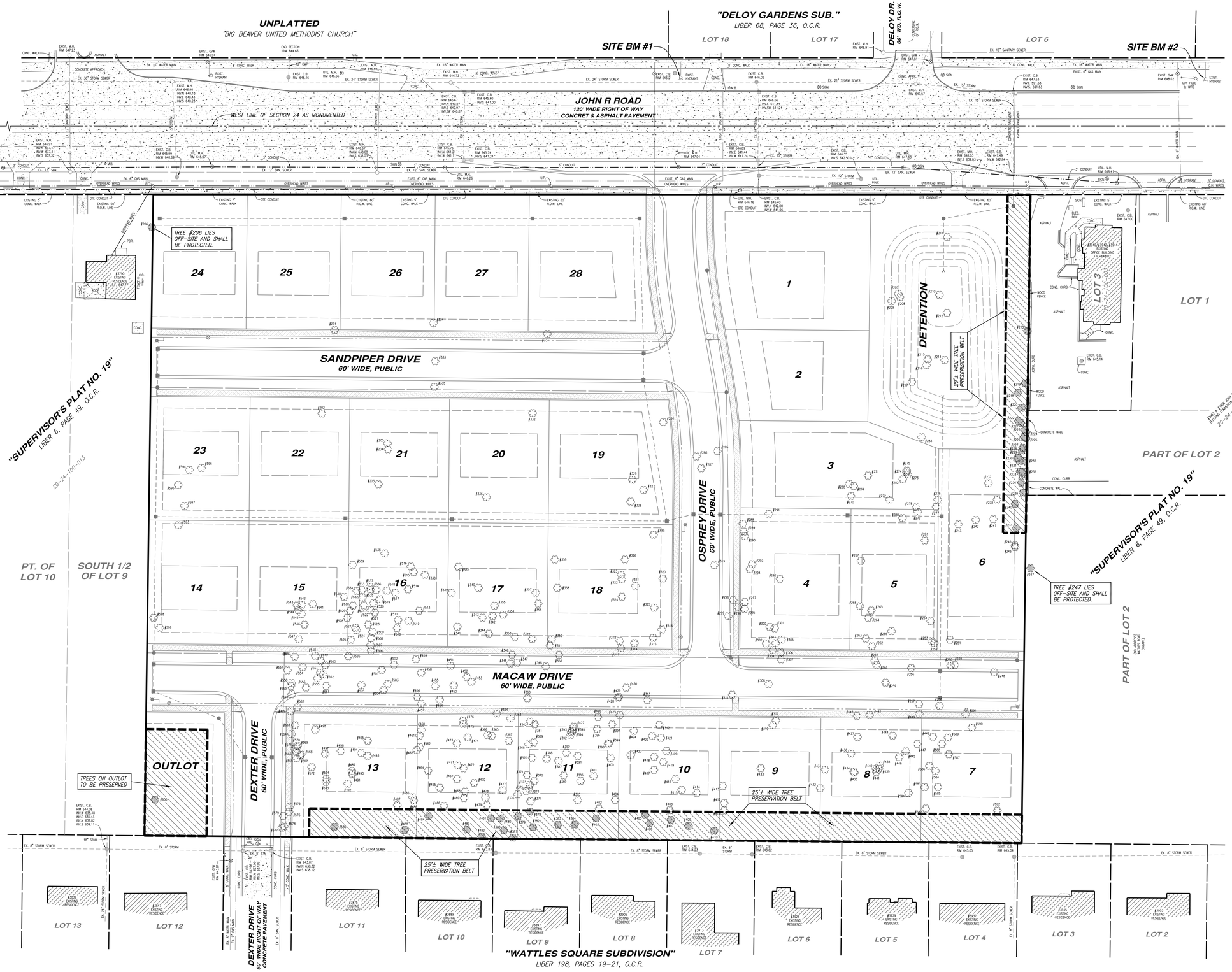
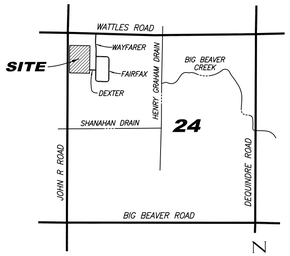
PROJECT:
Proposed "Estates at Willowbrook" Site Condominium
PART OF THE NORTHWEST 1/4 OF SECTION 24, T.2N., R.11E., CITY OF TROY, OAKLAND COUNTY, MICHIGAN

PLAN:
Preliminary Utility & Grading Plan

SHEET: 2 OF: 5

MUNICIPAL REVIEW NUMBERS:





LOCATION MAP

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0 20' 40' 80' 120'

PLAN SCALE: 1" = 40'

LEGEND

- EXISTING TREE & TAG NUMBER TO BE REMOVED
- EXISTING TREE & TAG NUMBER TO BE SAVED
- TREE PRESERVATION AREAS

NOTES

1. ALL TREES ON-SITE THAT FALL WITHIN AREAS OF EARTH DISTURBANCE FOR CONSTRUCTION AND DEVELOPMENT PURPOSES ARE TO BE REMOVED. TREE TO BE PRESERVED ARE AS INDICATED ON THE PLAN. THE DEVELOPER RESERVES THE RIGHT TO REVIEW TREES WITHIN ANY DESIGNATED TREE PRESERVATION AREA AND SELECTIVELY REMOVE THOSE TREES WHOSE CONDITION IS QUESTIONABLE, HAZARDOUS TREES, DEAD TREES, AND SCRUB BRUSH.
2. FOR EXISTING TREE PROTECTION, A 4-FOOT HIGH ORANGE SNOW FENCE SHALL BE ERECTED AROUND TREE DRIP LINES PRIOR TO LAND CLEARING AND SITE CONSTRUCTION AND MAINTAINED THROUGHOUT SITE DEVELOPMENT PERIOD. NO CUTTING, FILLING OR TRESPASSING SHALL OCCUR INSIDE FENCED AREAS WITHOUT PRIOR CITY APPROVAL.

NOTE

REFER TO SHEET 4 FOR THE TREE INVENTORY.

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PART OF THE NORTHWEST 1/4 OF SECTION 24, T.2N., R.11E.,
CITY OF TROY, OAKLAND COUNTY, MICHIGAN

PLAN:
Tree Preservation Plan

SHEET: 3 OF: 5

MUNICIPAL REVIEW NUMBERS:

Tag No.	Common Name	Botanical Name	DBH	Condition	Remove?
201	MAPLE SP.	ACER SP.	9	GOOD	YES
202	PINE	PINUS SP.	10	GOOD	YES
203	BASSWOOD	TILIA SP.	10	GOOD	YES
204	BOX ELDER	ACER NEGUNDO	8	GOOD	YES
205	MAPLE SP.	ACER SP.	7	GOOD	YES
206	PINE	PINUS SP.	8	GOOD	NO
207	POPLAR	POPULUS SP.	10	GOOD	YES
208	POPLAR	POPULUS SP.	10	GOOD	YES
209	POPLAR	POPULUS SP.	10	POOR	YES
210	BOX ELDER	ACER NEGUNDO	4	GOOD	YES
211	BOX ELDER	ACER NEGUNDO	4	GOOD	YES
212	ELM	ULMUS SP.	5	GOOD	YES
213	PINE	PINUS SP.	7	GOOD	NO
214	BOX ELDER	ACER NEGUNDO	5	GOOD	YES
215	BOX ELDER	ACER NEGUNDO	7	GOOD	YES
216	BOX ELDER	ACER NEGUNDO	6	POOR	YES
217	BOX ELDER	ACER NEGUNDO	8	GOOD	YES
218	BOX ELDER	ACER NEGUNDO	6	GOOD	NO
219	MAPLE SP.	ACER SP.	10	GOOD	NO
220	MULBERRY	MORUS SP.	6	GOOD	NO
221	BOX ELDER	ACER NEGUNDO	8x3	GOOD	NO
222	BOX ELDER	ACER NEGUNDO	5	GOOD	NO
223	BOX ELDER	ACER NEGUNDO	4	GOOD	NO
224	BOX ELDER	ACER NEGUNDO	5	GOOD	NO
225	ELM	ULMUS SP.	7	GOOD	NO
226	ELM	ULMUS SP.	10	GOOD	NO
227	BOX ELDER	ACER NEGUNDO	7	GOOD	NO
228	BOX ELDER	ACER NEGUNDO	6	GOOD	NO
229	BOX ELDER	ACER NEGUNDO	7x2	GOOD	NO
230	BOX ELDER	ACER NEGUNDO	4	GOOD	NO
231	BOX ELDER	ACER NEGUNDO	5x2	GOOD	NO
232	BOX ELDER	ACER NEGUNDO	10	GOOD	NO
233	BOX ELDER	ACER NEGUNDO	6	GOOD	NO
234	BOX ELDER	ACER NEGUNDO	9	GOOD	NO
235	BOX ELDER	ACER NEGUNDO	6x2	GOOD	NO
236	BOX ELDER	ACER NEGUNDO	6	GOOD	NO
237	APPLE	MALUS SP.	7	GOOD	YES
238	APPLE	MALUS SP.	5x2	GOOD	YES
239	BOX ELDER	ACER NEGUNDO	6	GOOD	NO
240	APPLE	MALUS SP.	6	GOOD	NO
241	ASH	FRAXINUS SP.	4	POOR	YES
242	APPLE	MALUS SP.	6	GOOD	YES
243	APPLE	MALUS SP.	5x3	GOOD	YES
244	HAWTHORN	CRATAGEUS SP.	8	GOOD	NO
245	MULBERRY	MORUS SP.	6	GOOD	YES
246	APPLE	MALUS SP.	6	GOOD	YES
247	BOX ELDER	ACER NEGUNDO	6	GOOD	NO
248	PEAR	PYRUS SP.	5	GOOD	YES
249	MAPLE SP.	ACER SP.	5	GOOD	YES
250	BOX ELDER	ACER NEGUNDO	7	GOOD	YES
251	MAPLE SP.	ACER SP.	5	GOOD	YES
252	ELM	ULMUS SP.	6	GOOD	YES
253	MAPLE SP.	ACER SP.	6	GOOD	YES
254	MAPLE SP.	ACER SP.	6	GOOD	YES
255	MAPLE SP.	ACER SP.	6	GOOD	YES
256	ELM	ULMUS SP.	6	GOOD	YES
257	ELM	ULMUS SP.	6	GOOD	YES
258	ELM	ULMUS SP.	5	POOR	YES
259	ELM	ULMUS SP.	5	GOOD	YES
260	ELM	ULMUS SP.	6	GOOD	YES
261	ELM	ULMUS SP.	5	GOOD	YES
262	MAPLE SP.	ACER SP.	9	GOOD	YES
263	MAPLE SP.	ACER SP.	10	GOOD	YES
264	MAPLE SP.	ACER SP.	7	GOOD	YES
265	MAPLE SP.	ACER SP.	5	GOOD	YES
266	MAPLE SP.	ACER SP.	10	GOOD	YES
267	MAPLE SP.	ACER SP.	9x2	GOOD	YES
268	BOX ELDER	ACER NEGUNDO	10	GOOD	YES
269	BOX ELDER	ACER NEGUNDO	4	GOOD	YES
270	BOX ELDER	ACER NEGUNDO	7	GOOD	YES
271	BOX ELDER	ACER NEGUNDO	5	GOOD	YES
272	ELM	ULMUS SP.	6	GOOD	YES
273	BOX ELDER	ACER NEGUNDO	8	GOOD	YES
274	BOX ELDER	ACER NEGUNDO	10	GOOD	YES
275	BOX ELDER	ACER NEGUNDO	6	GOOD	YES
276	BOX ELDER	ACER NEGUNDO	6	GOOD	YES
277	BOX ELDER	ACER NEGUNDO	8	GOOD	YES
278	ASH	FRAXINUS SP.	4	POOR	YES
279	BOX ELDER	ACER NEGUNDO	8	GOOD	YES
280	BOX ELDER	ACER NEGUNDO	7	GOOD	YES
281	HAWTHORN	CRATAGEUS SP.	6	GOOD	YES
282	BOX ELDER	ACER NEGUNDO	10X2	GOOD	YES
283	BOX ELDER	ACER NEGUNDO	4	GOOD	YES
284	WALNUT	JUGLANS SP.	10	GOOD	YES
285	ELM	ULMUS SP.	8	GOOD	YES
286	BOX ELDER	ACER NEGUNDO	8	GOOD	YES
287	BOX ELDER	ACER NEGUNDO	7	GOOD	YES
288	CRABAPPLE	MALUS SP.	6	GOOD	YES
289	CRABAPPLE	MALUS SP.	6	GOOD	YES
290	CRABAPPLE	MALUS SP.	4	GOOD	YES
291	CRABAPPLE	MALUS SP.	4x3	GOOD	YES
292	BOX ELDER	ACER NEGUNDO	7	GOOD	YES
293	OAK SP.	QUERCUS SP.	7	GOOD	YES
294	CRABAPPLE	MALUS SP.	5	GOOD	YES
295	MAPLE SP.	ACER SP.	5	GOOD	YES
296	CRABAPPLE	MALUS SP.	5	GOOD	YES
297	MAPLE SP.	ACER SP.	8	GOOD	YES
298	MAPLE SP.	ACER SP.	9	GOOD	YES
299	MAPLE SP.	ACER SP.	10	GOOD	YES
300	MAPLE SP.	ACER SP.	7	GOOD	YES
301	MAPLE SP.	ACER SP.	4	GOOD	YES
302	MAPLE SP.	ACER SP.	9x2	GOOD	YES
303	MAPLE SP.	ACER SP.	10	GOOD	YES
304	MAPLE SP.	ACER SP.	6x2	GOOD	YES
305	MAPLE SP.	ACER SP.	10	GOOD	YES
306	MAPLE SP.	ACER SP.	8	GOOD	YES
307	MAPLE SP.	ACER SP.	7	GOOD	YES
308	MAPLE SP.	ACER SP.	7	GOOD	YES
309	MAPLE SP.	ACER SP.	8	GOOD	YES
310	MAPLE SP.	ACER SP.	4	GOOD	YES

Tag No.	Common Name	Botanical Name	DBH	Condition	Remove?
311	ELM	ULMUS SP.	9	GOOD	YES
312	MAPLE SP.	ACER SP.	10	GOOD	YES
313	ELM	ULMUS SP.	4	GOOD	YES
314	ELM	ULMUS SP.	5	GOOD	YES
315	ELM	ULMUS SP.	6	GOOD	YES
316	OAK SP.	QUERCUS SP.	7	GOOD	YES
317	MAPLE SP.	ACER SP.	6	GOOD	YES
318	ELM	ULMUS SP.	4	GOOD	YES
319	CRABAPPLE	MALUS SP.	5x3	GOOD	YES
320	ELM	ULMUS SP.	10	GOOD	YES
321	ELM	ULMUS SP.	7	GOOD	YES
322	ELM	ULMUS SP.	5	GOOD	YES
323	ELM	ULMUS SP.	6	GOOD	YES
324	ELM	ULMUS SP.	8	GOOD	YES
325	ELM	ULMUS SP.	8	GOOD	YES
326	ELM	ULMUS SP.	4	GOOD	YES
327	WALNUT	JUGLANS SP.	6	GOOD	YES
328	MAPLE SP.	ACER SP.	6x2	GOOD	YES
329	ELM	ULMUS SP.	5	POOR	YES
330	ELM	ULMUS SP.	5	GOOD	YES
331	WALNUT	JUGLANS SP.	4	GOOD	YES
332	WALNUT	JUGLANS SP.	8	GOOD	YES
333	WALNUT	JUGLANS SP.	10	GOOD	YES
334	MULBERRY	MORUS SP.	6x2	GOOD	YES
335	BOX ELDER	ACER NEGUNDO	5	POOR	YES
336	ELM	ULMUS SP.	6	GOOD	YES
337	CRABAPPLE	MALUS SP.	5x2	GOOD	YES
338	ELM	ULMUS SP.	4	GOOD	YES
339	WALNUT	JUGLANS SP.	10	POOR	YES
340	ELM	ULMUS SP.	5	GOOD	YES
341	MAPLE SP.	ACER SP.	6	GOOD	YES
342	MULBERRY	MORUS SP.	7	GOOD	YES
343	MULBERRY	MORUS SP.	5	GOOD	YES
344	ELM	ULMUS SP.	8	GOOD	YES
345	ELM	ULMUS SP.	6	GOOD	YES
346	MAPLE SP.	ACER SP.	4	GOOD	YES
347	ELM	ULMUS SP.	4	GOOD	YES
348	ELM	ULMUS SP.	7	GOOD	YES
349	MAPLE SP.	ACER SP.	5	GOOD	YES
350	MAPLE SP.	ACER SP.	10	GOOD	YES
351	MAPLE SP.	ACER SP.	5	GOOD	YES
352	MAPLE SP.	ACER SP.	4	GOOD	YES
353	MAPLE SP.	ACER SP.	8	GOOD	YES
354	MAPLE SP.	ACER SP.	5	GOOD	YES
355	MAPLE SP.	ACER SP.	6	GOOD	YES
356	MAPLE SP.	ACER SP.	4	GOOD	YES
357	MAPLE SP.	ACER SP.	5	GOOD	YES
358	CRABAPPLE	MALUS SP.	5x2	GOOD	YES
359	ELM	ULMUS SP.	7	GOOD	YES
360	ELM	ULMUS SP.	6	GOOD	YES
361	ELM	ULMUS SP.	7	GOOD	YES
362	ELM	ULMUS SP.	5	GOOD	YES
363	ELM	ULMUS SP.	4	GOOD	YES
364	ELM	ULMUS SP.	6	GOOD	YES
365	ELM	ULMUS SP.	4	GOOD	YES
366	ELM	ULMUS SP.	6	GOOD	YES
367	ELM	ULMUS SP.	5	GOOD	YES
368	MAPLE SP.	ACER SP.	10	GOOD	YES
369	ELM	ULMUS SP.	8	GOOD	YES
370	MAPLE SP.	ACER SP.	10	GOOD	YES
371	ELM	ULMUS SP.	5	GOOD	YES
372	MAPLE SP.	ACER SP.	5	GOOD	YES
373	MAPLE SP.	ACER SP.	8	GOOD	YES
374	POPLAR	POPULUS SP.	9	GOOD	YES
375	ELM	ULMUS SP.	4	GOOD	YES
376	MAPLE SP.	ACER SP.	10	GOOD	YES
377	ELM	ULMUS SP.	5	GOOD	YES
378	ELM	ULMUS SP.	6	GOOD	NO
379	ELM	ULMUS SP.	7	GOOD	NO
380	ELM	ULMUS SP.	8	POOR	NO
381	MAPLE SP.	ACER SP.	8	GOOD	NO
382	ELM	ULMUS SP.	6	GOOD	NO
383	ELM	ULMUS SP.	7	GOOD	NO
384	MAPLE SP.	ACER SP.	5	GOOD	NO
385	MAPLE SP.	ACER SP.	7	GOOD	YES
386	MAPLE SP.	ACER SP.	4	GOOD	YES
387	MAPLE SP.	ACER SP.	5	GOOD	YES
388	MAPLE SP.	ACER SP.	4	GOOD	YES
389	ELM	ULMUS SP.	10	GOOD	YES
390	MAPLE SP.	ACER SP.	6	GOOD	YES
391	MAPLE SP.	ACER SP.	6	GOOD	YES
392	MAPLE SP.	ACER SP.	4	GOOD	YES
393	MAPLE SP.	ACER SP.	8	GOOD	YES
394	MAPLE SP.	ACER SP.	5	GOOD	YES
395	MAPLE SP.	ACER SP.	6	GOOD	YES
396	MAPLE SP.	ACER SP.	6	GOOD	YES
397	MAPLE SP.	ACER SP.	4	GOOD	YES
398	MAPLE SP.	ACER SP.	6	GOOD	YES
399	MAPLE SP.	ACER SP.	4	GOOD	YES
400	MAPLE SP.	ACER SP.	6	GOOD	YES
401	MAPLE SP.	ACER SP.	6	GOOD	YES
402	MAPLE SP.	ACER SP.	4	GOOD	YES
403	MAPLE SP.	ACER SP.	9	GOOD	NO
404	MAPLE SP.	ACER SP.	6	GOOD	YES
405	MAPLE SP.	ACER SP.	8	GOOD	NO
406	ELM	ULMUS SP.	10	GOOD	NO
407	MAPLE SP.	ACER SP.	6	GOOD	NO
408	ELM	ULMUS SP.	9	GOOD	YES
409	ELM	ULMUS SP.	6	GOOD	NO
410	MAPLE SP.	ACER SP.	10	GOOD	NO
411	ELM	ULMUS SP.	6	GOOD	YES

Tag No.	Common Name	Botanical Name	DBH	Condition	Remove?
412	ELM	ULMUS SP.	5	GOOD	YES
413	ELM	ULMUS SP.	4	GOOD	YES
414	MAPLE SP.	ACER SP.	5	GOOD	YES
415	MAPLE SP.	ACER SP.	7	GOOD	YES
416	MAPLE SP.	ACER SP.	7x3	GOOD	YES
417	MAPLE SP.	ACER SP.	4	GOOD	YES
418	ELM	ULMUS SP.	8	GOOD	YES
419	MAPLE SP.	ACER SP.	10	GOOD	YES
420	MAPLE SP.	ACER SP.	5	GOOD	YES
421	MAPLE SP.	ACER SP.	10	GOOD	YES
422	ELM	ULMUS SP.	4	GOOD	YES
423	ELM	ULMUS SP.	8	GOOD	YES
424	ELM	ULMUS SP.	9	GOOD	YES
425	MAPLE SP.	ACER SP.	9	GOOD	YES
426	MAPLE SP.	ACER SP.	10	GOOD	YES
427	MAPLE SP.	ACER SP.	10	GOOD	YES
428	MAPLE SP.	ACER SP.	4	GOOD	YES
429	ELM	ULMUS SP.	8	GOOD	YES
430	ELM	ULMUS SP.	10	GOOD	YES
431	CRABAPPLE	MALUS SP.	9	GOOD	YES
432	PEAR	PYRUS SP.	10	GOOD	YES
433	ELM	ULMUS SP.	5	GOOD	YES
434	ELM	ULMUS SP.	7	GOOD	YES
435	BOX ELDER	ACER NEGUNDO	6	GOOD	YES
436	BOX ELDER	ACER NEGUNDO	4	GOOD	YES
437	MAPLE SP.	ACER SP.	8	GOOD	YES
438	HAWTHORN	CRATAGEUS SP.	6	GOOD	YES
439	HAWTHORN	CRATAGEUS SP.	6	GOOD	YES
440	HAWTHORN	CRATAGEUS SP.	4x2	GOOD	YES
441	HAWTHORN	CRATAGEUS SP.	4x2	GOOD	YES
442	ELM	ULMUS SP.	4	GOOD	YES
443	MAPLE SP.	ACER SP.	8x2	GOOD	YES
444	ELM	ULMUS SP.	9	GOOD	YES
445	ELM	ULMUS SP.	10	GOOD	YES
446	ELM	ULMUS SP.	4	GOOD	YES
447	ELM	ULMUS SP.	5	GOOD	YES
448	MAPLE SP.	ACER SP.	10	GOOD	YES
449	MAPLE SP.	ACER SP.	8	GOOD	YES
450	MAPLE SP.	ACER SP.	8	GOOD	YES
451	MAPLE SP.	ACER SP.	10	GOOD	YES
452	ELM	ULMUS SP.	4	GOOD	YES
453	MAPLE SP.	ACER SP.	8x2	GOOD	YES
454	MAPLE SP.	ACER SP.	6	GOOD	YES
455	MAPLE SP.	ACER SP.	8	GOOD	YES
456	MAPLE SP.	ACER SP.	8	GOOD	YES
457	ELM	ULMUS SP.	4	GOOD	YES
458	MAPLE SP.	ACER SP.	8x2	GOOD	YES
459	MAPLE SP.	ACER SP.	6x2	GOOD	YES
460	ELM	ULMUS SP.	5	GOOD	YES
461	ELM	ULMUS SP.	5	GOOD	YES
462	MAPLE SP.	ACER SP.	7	GOOD	YES
463	MAPLE SP.	ACER SP.	4	GOOD	YES
464	MAPLE SP.	ACER SP.	6	GOOD	YES
465	ELM	ULMUS SP.	5	GOOD	YES
466	ELM	ULMUS SP.	5	GOOD	YES
467	ELM	ULMUS SP.	10	GOOD	YES
468	ELM	ULMUS SP.	4	GOOD	YES
469	ELM	ULMUS SP.	5	GOOD	YES
470	MAPLE SP.	ACER SP.	7	GOOD	YES
471	ELM	ULMUS SP.	8	GOOD	YES
472	ELM	ULMUS SP.	4	GOOD	YES
473	POPLAR	POPULUS SP.	10	GOOD	YES
474	MAPLE SP.	ACER SP.	7	GOOD	YES
475	ELM	ULMUS SP.	9	GOOD	YES
476	ELM	ULMUS SP.	5	GOOD	YES
477	ELM	ULMUS SP.	5	GOOD	YES
478	ELM	ULMUS SP.	4	GOOD	YES
479	MAPLE SP.	ACER SP.	7	GOOD	YES
480	MAPLE SP.	ACER SP.	8	GOOD	NO
481	ELM	ULMUS SP.	5	GOOD	NO
482	ELM	ULMUS SP.	8	GOOD	NO
483	BOX ELDER	ACER NEGUNDO	9	GOOD	NO
484	MAPLE SP.	ACER SP.	5	GOOD	NO
485	ELM	ULMUS SP.	4	GOOD	YES
486	ELM	ULMUS SP.	5	GOOD	YES
487	ELM	ULMUS SP.	5	GOOD	YES
488	HAWTHORN	CRATAGEUS SP.	5	GOOD	NO
489	ELM	ULMUS SP.	7	GOOD	YES
490	MAPLE SP.	ACER SP.	4	GOOD	YES
491	ELM	ULMUS SP.	5	GOOD	YES
492	ELM	ULMUS SP.	7	GOOD	YES
493	PINE	PINUS SP.	10	GOOD	YES
494	PINE	PINUS SP.	9	GOOD	YES
495	HAWTHORN	CRATAGEUS SP.	6	POOR	YES
496	MAPLE SP.	ACER SP.	9	GOOD	YES
497	PINE	PINUS SP.	10	GOOD	YES
498	PINE	PINUS SP.	10	GOOD	YES
499	MAPLE SP.	ACER SP.	9	GOOD	YES
500	(TAG NOT USED)				YES
501	MAPLE SP.	ACER SP.	8	GOOD	YES
502	MAPLE SP.	ACER SP.	6x2	GOOD	YES
503	MAPLE SP.	ACER SP.	4	GOOD	YES
504	MAPLE SP.	ACER SP.	8x2	GOOD	YES
505	ELM	ULMUS SP.	9	GOOD	YES
506	PINE	PINUS SP.	10	GOOD	YES
507	PINE	PINUS SP.	10	GOOD	YES
508	PINE	PINUS SP.	10	GOOD	YES
509	PINE	PINUS SP.	4	GOOD	YES
510	MAPLE SP.	ACER SP.	8	GOOD	YES
511	MAPLE SP.	ACER SP.	4	GOOD	YES
512	WALNUT	JUGLANS SP.	4	GOOD	YES
513	ELM	ULMUS SP.	8	GOOD	YES

Tag No.	Common Name	Botanical Name	DBH	Condition	Remove?
514	MAPLE SP.	ACER SP.	7	GOOD	YES
515	BOX ELDER	ACER NEGUNDO	7	GOOD	YES
516	BOX ELDER	ACER NEGUNDO	5	GOOD	YES
517	MAPLE SP.	ACER SP.	8	GOOD	YES
518	MAPLE SP.	ACER SP.	7	GOOD	YES
519	BOX ELDER	ACER NEGUNDO	6	GOOD	YES
520	PINE	PINUS SP.	7	GOOD	YES
521	MAPLE SP.	ACER SP.	4	GOOD	YES
522	BOX ELDER	ACER NEGUNDO	5	GOOD	YES
523	BOX ELDER	ACER NEGUNDO	4	GOOD	YES
524	PINE	PINUS SP.	7	GOOD	YES
525	MULBERRY	MORUS SP.	7	GOOD	YES
526	BOX ELDER	ACER NEGUNDO	4	GOOD	YES
527	BOX ELDER	ACER NEGUNDO	4	GOOD	YES
528	BOX ELDER	ACER NEGUNDO	4	GOOD	YES
529	PINE	PINUS SP.	7	GOOD	YES
530	PINE	PINUS SP.	10	GOOD	YES
531	PINE	PINUS SP.	8	GOOD	YES
532	PINE	PINUS SP.	8	GOOD	YES
533	PINE	PINUS SP.	10	GOOD	YES
534	PINE	PINUS SP.	10	GOOD	YES
535	PINE	PINUS SP.	9	GOOD	YES
536	PINE	PINUS SP.	5	GOOD	YES
537	BOX ELDER	ACER NEGUNDO	5	GOOD	YES
538	BOX ELDER	ACER NEGUNDO	5	GOOD	YES
539	WALNUT	JUGLANS SP.	5	GOOD	YES
540	BOX ELDER	ACER NEGUNDO	4x2	GOOD	YES
541	WALNUT	JUGLANS SP.	5	GOOD	YES
542	BOX ELDER	ACER NEGUNDO	6	GOOD	YES
543	MAPLE SP.	ACER SP.	10	GOOD	YES
544	MAPLE SP.	ACER SP.	7	GOOD	YES
545	BOX ELDER	ACER NEGUNDO	9	GOOD	YES
546	MAPLE SP.	ACER SP.	4	GOOD	YES
547	MAPLE SP.	ACER SP.	6	GOOD	YES
548	ELM	ULMUS SP.	6	GOOD	YES
549	BOX ELDER	ACER NEGUNDO	6	GOOD	YES
550	PINE	PINUS SP.	9	GOOD	YES
551	MAPLE SP.	ACER SP.	4	GOOD	YES
552	PINE	PINUS SP.	10	GOOD	YES
553	MAPLE SP.	ACER SP.	10	GOOD	YES
554	BOX ELDER	ACER NEGUNDO	5	GOOD	YES
555	PINE	PINUS SP.	9	GOOD	YES
556	BOX ELDER	ACER NEGUNDO	7	GOOD	YES
557	MAPLE SP.	ACER SP.	6	GOOD	YES
558	MAPLE SP.	ACER SP.	7	GOOD	YES
559	MAPLE SP.	ACER SP.	6	GOOD	YES
560	MAPLE SP.	ACER SP.	4	GOOD	YES
561	MAPLE SP.	ACER SP.	8	GOOD	YES
562	MAPLE SP.	ACER SP.	8	GOOD	YES
563	BASSWOOD	TILIA SP.	8	GOOD	YES
564	MAPLE SP.	ACER SP.	6	GOOD	YES
565	MAPLE SP.	ACER SP.	7	GOOD	YES
566	MAPLE SP.	ACER SP.	10	GOOD	YES
567	POPLAR	POPULUS SP.	7	GOOD	YES
568	MAPLE SP.	ACER SP.	10	GOOD	YES
569	POPLAR	POPULUS SP.	10	GOOD	YES
570	POPLAR	POPULUS SP.	7	GOOD	YES
571	MAPLE SP.	ACER SP.	4	GOOD	YES
572	HICKORY	CARYA SP.	5	GOOD	YES
573	ELM	ULMUS SP.	4	GOOD	YES
574	MAPLE SP.	ACER SP.	10	GOOD	YES
575	ELM	ULMUS SP.	7	GOOD	YES
576	ELM	ULMUS SP.	7	GOOD	YES
577	POPLAR	POPULUS SP.	6	GOOD	YES
578	POPLAR	POPULUS SP.	10	GOOD	YES
579	ELM	ULMUS SP.	4	GOOD	YES
580	HAWTHORN	CRATAGEUS SP.	7	POOR	NO
581	ELM	ULMUS SP.	6	GOOD	YES
582	MAPLE SP.	ACER SP.	10	GOOD	YES
583	MAPLE SP.	ACER SP.	4	GOOD	YES
584	ELM	ULMUS SP.	6	GOOD	YES
585	BOX ELDER	ACER NEGUNDO	8	GOOD	YES
586	MAPLE SP.	ACER SP.	10	GOOD	YES
587	MAPLE SP.	ACER SP.	5	GOOD	YES
588	ELM	ULMUS SP.	6	GOOD	YES
589	BOX ELDER	ACER NEGUNDO	6	GOOD	YES
590	WALNUT	JUGLANS SP.	5	GOOD	YES
591	WALNUT	JUGLANS SP.	5	GOOD	YES
592	ELM	ULMUS SP.	5	GOOD	YES
593	BASSWOOD	TILIA SP.	6x2	GOOD	YES
594	MAPLE SP.	ACER SP.	8	GOOD	YES
595	BOX ELDER	ACER NEGUNDO	9	GOOD	YES
596	BOX ELDER	ACER NEGUNDO	8x2	GOOD	YES
597	MAPLE SP.	ACER SP.	4	GOOD	YES
598	MAPLE SP.	ACER SP.	10x3	GOOD	YES
599	MAPLE SP.	ACER SP.	4	GOOD	YES
600	MAPLE SP.	ACER SP.	10	GOOD	NO

TOTAL NUMBER OF TREES
TAGGED AND SURVEYED = 462

REVISIONS:
1-14-16 REVISED PER PLANNING DEPARTMENT

CLIENT:
MR. JOSEPH MANIACI
MONDRIAN PROPERTIES
50215 SCHOENHERR RD.
SHELBY TWP., MI 48315
(586) 726-7340

JOB NO: 15-073
DATE: 11-13-15
DRAWN BY: N.P.R.

SEAL:

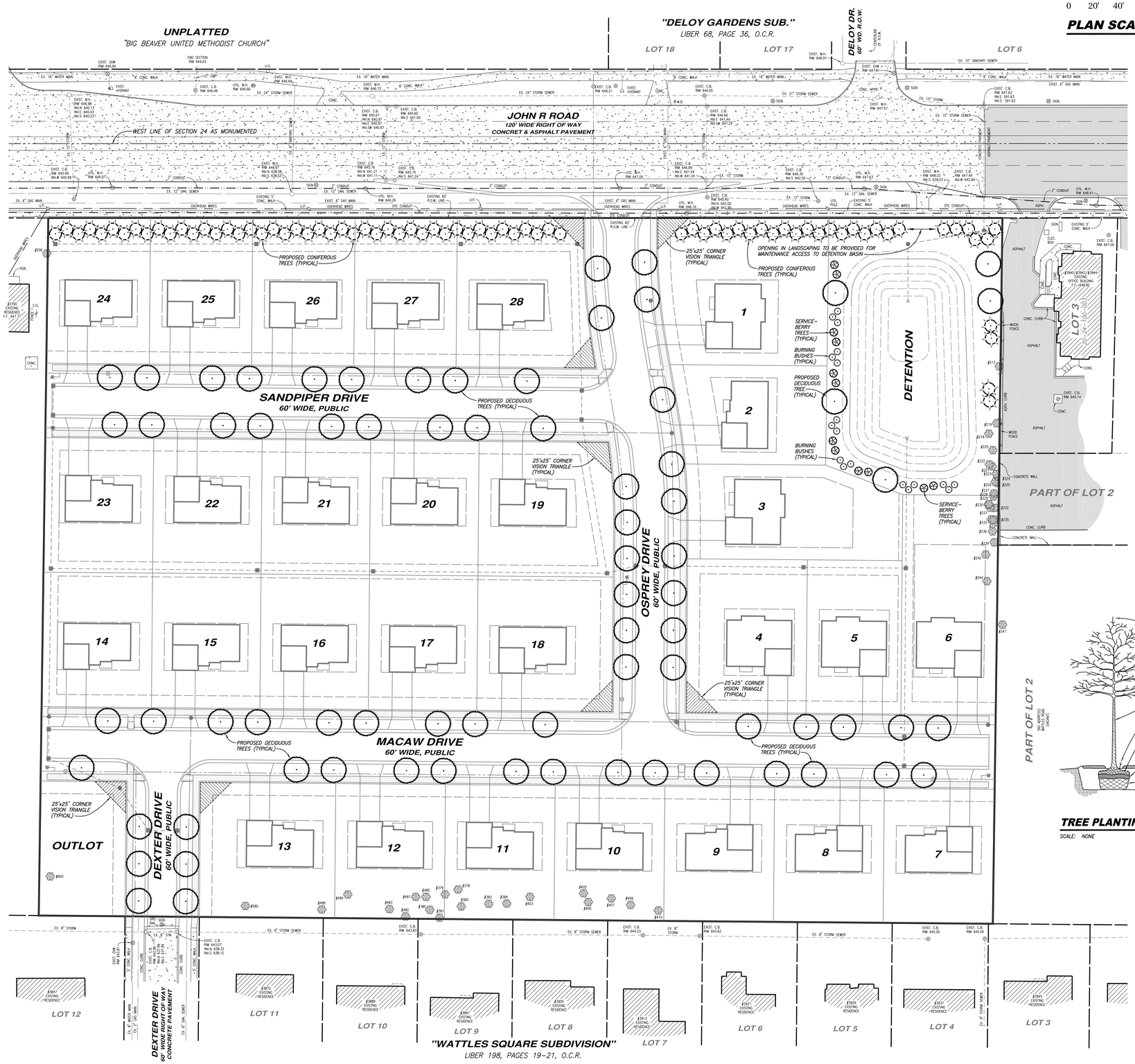
HORIZON
ENGINEERING LLC
CIVIL ENGINEERING, SITE PLANNING & LAND DEVELOPMENT CONSULTING
P.O. Box 182158, Shelby Township, Michigan 48318
Phone 586.453.8097 Fax 586.580.0053

PROJECT:
Proposed
"Estates at Willowbrook"
Site Condominium
PART OF THE NORTHWEST 1/4 OF SECTION 24, T.2N., R.11E.,
CITY OF TROY, OAKLAND COUNTY, MICHIGAN

PLAN:
Tree Inventory

SHEET:
4 OF: **5**

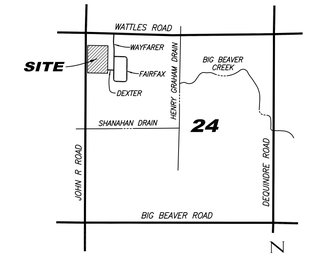
MUNICIPAL REVIEW NUMBERS:



0 20' 40' 80' 120'

PLAN SCALE: 1" = 40'

N



LOCATION MAP

SCALE: 1"=2000'

NOTES

1. THE DEVELOPER SHALL COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES OF THE CITY OF TROY, THE COUNTY OF OAKLAND, AND THE STATE OF MICHIGAN.
2. DETENTION BASIN AREA SHALL BE SEEDED TO ACHIEVE VIGOROUS GROWTH OF GRASS 90% WEED FREE IN ACCORDANCE WITH CITY OF TROY SPECIFICATIONS CONSISTING OF:

   FULL SUN MIX: 30% KENTUCKY BLUEGRASS, 30% PERENNIAL RYEGRASS, AND 40% CREEPING RED FESCUE.

   A SEPARATE APPLICATION OF ANNUAL RYEGRASS IS RECOMMENDED FOR RAPID STABILIZATION.

PLANTING NOTES

1. ALL CONSTRUCTION AND PLANT MATERIAL LOCATIONS TO BE ADJUSTED ON SITE IF NECESSARY TO AVOID UTILITIES, STRUCTURES, DRIVEWAYS, ETC.
2. ANY SUBSTITUTIONS OF PLANT MATERIAL OR ALTERATION IN PLANT SIZES OR SPECIFICATIONS SHALL BE IN ACCORDANCE WITH CITY OF TROY ORDINANCE STANDARDS. ALL STREET TREES SHALL MEET THE MINIMUM SIZE, SPACING AND SPECIES REQUIREMENTS AS SET FORTH IN THE CITY OF TROY'S ZONING ORDINANCE, SECTION 13.02.H. "MINIMUM SIZE AND SPACING REQUIREMENTS" AND SECTION 13.02.I. "PROHIBITED SPECIES".
3. ALL LARGE TREES AND EVERGREENS TO BE STAKED, GUYED, AND WRAPPED.
4. PLANT BEDS TO BE MULCHED AND DRESSED WITH 4" OF SHREDDED HARD BARK.
5. DIG SHRUB PITS 1' LARGER THAN SHRUB ROOT BALLS AND TREE PITS 2' LARGER THAN ROOT BALLS. BACKFILL WITH ONE PART TOP SOIL FROM EXCAVATED PLANTING HOLE.
6. REMOVE ALL TWINE, WIRE, AND BURLAP FROM THE TREE AND SHRUB EARTH BALLS AND FROM TREE TRUNKS.
7. LAWN TREES TO BE MULCHED WITH A 2' WIDE MINIMUM OF 6" DEEP SHREDDED BARK RING OR APPROVED ALTERNATE DESIGN FOR TRUNK PROTECTION.
8. PROVIDE HYDRO-SEEDING AND/OR SOD FOR ALL NEW LAWN AREAS.
9. INSTALLATION OF PLANT MATERIAL SHALL BE IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF NURSERYMEN LANDSCAPE STANDARDS.
10. PLANT MATERIAL, ESPECIALLY EVERGREENS, TO BE PLANTED HIGHER THAN NORMAL WHEN HEAVY SOIL CONDITIONS (CLAY, ETC.) PREVAIL.
11. ALL PLANTING AREAS TO BE PREPARED WITH APPROPRIATE SOIL MIXTURES AND FERTILIZER BEFORE PLANT INSTALLATION.
12. PLANT TREES AND SHRUBS GENERALLY NO CLOSER THAN THE FOLLOWING DISTANCES FROM SIDEWALKS, CURBS, AND PARKING STALLS:
    a). SHADE TREES.....5 FT.
    b). ORNAMENTAL AND EVERGREEN TREES.....10 FT. (CRAB, PINE, SPRUCE, ETC.)
    c). SHRUBS THAT ARE LESS THAN 1 FOOT TALL AND WIDE AT MATURITY.....2 FT.
13. NO TREES OR EVERGREENS TO BE INSTALLED OVER ANY PROPOSED OR EXISTING UTILITY LINES AS SHOWN ON THE OVERALL LANDSCAPE PLAN. REFER TO ENGINEERING PLANS FOR EXACT LOCATIONS OF UTILITY LINES.
14. FOR EXISTING TREE PROTECTION, A 4'-FOOT HIGH ORANGE SNOW FENCE SHALL BE ERECTED AROUND TREE DRIP LINES PRIOR TO LAND CLEARING AND SITE CONSTRUCTION AND MAINTAINED THROUGHOUT SITE DEVELOPMENT PERIOD. NO CUTTING, FILLING OR TRESPASSING SHALL OCCUR INSIDE FENCED AREAS WITHOUT PRIOR CITY APPROVAL.

SITE CRITERIA

- LANDSCAPING SUMMARY:

ON-SITE STREET TREES REQUIRED:

ONE LARGE DECIDUOUS TREE EVERY 50 FEET OF PUBLIC ROAD FRONTAGE ON SITE.

OSPREY DRIVE (NORTH SIDE):
REQUIRED = 400'/50' = 8 TREES.
PROVIDED = 9 TREES.

OSPREY DRIVE (SOUTH SIDE):
REQUIRED = 339'/50' = 7 TREES.
PROVIDED = 8 TREES.

SANDPIPER DRIVE (WEST SIDE):
REQUIRED = 443'/50' = 9 TREES.
PROVIDED = 9 TREES.

SANDPIPER DRIVE (EAST SIDE):
REQUIRED = 454'/50' = 9 TREES.
PROVIDED = 9 TREES.

MACAW DRIVE:
REQUIRED = 710'/50' = 15 TREES EACH SIDE = 30 TOTAL.
PROVIDED = 28 TREES TOTAL.

DEXTER DRIVE:
REQUIRED = 109'/50' = 3 TREES EACH SIDE = 6 TOTAL.
PROVIDED = 6 TREES TOTAL.

TOTAL STREET TREES REQUIRED = 69 TREES.
TOTAL STREET TREES PROVIDED = 69 TREES.

JOHN R ROAD STREET TREES REQUIRED:

ONE LARGE CONIFEROUS TREE EVERY 10 FEET OF PUBLIC ROAD FRONTAGE ALONG JOHN R ROAD.

REQUIRED = 710'/10' = 71 TREES.
PROVIDED = 71 TREES.

ADDITIONAL TREES:

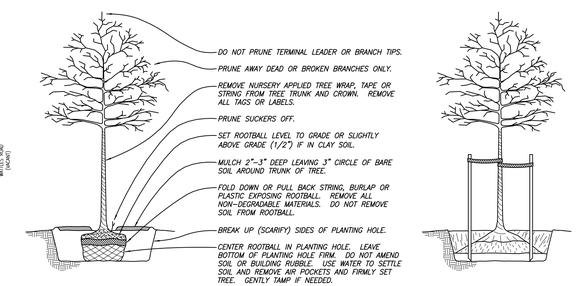
DETENTION BASIN:
4 CONIFEROUS TREES & 5 DECIDUOUS TREES.
12 SERVICEBERRY TREES & 18 BURNING BUSH SHRUBS.

CONTRACTOR'S NOTE

The locations of existing underground utilities are shown in an approximate way only. The contractor shall determine the exact location of all existing utilities before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
(TOLL FREE) for the location of underground utilities

The contractor shall be responsible for adhering to all applicable local, state, and federal standards, specifications, and guidelines for construction.



TREE PLANTING DETAIL

SCALE: NONE

PLANT SCHEDULE & COST ESTIMATE

LARGE DECIDUOUS TREES:

QUANTITY:	SYMBOL:	BOTANICAL NAME:	COMMON NAME:	SIZE:	UNIT PRICE:	INSTALLATION COST:	UNIT TOTAL:
74 EACH		TILIA TOMENTOSA	STERLING LINDEN	2.5" CAL.	@ $300.00	@ $25.00	$24,050.00

SMALL DECIDUOUS TREES:

QUANTITY:	SYMBOL:	BOTANICAL NAME:	COMMON NAME:	SIZE:	UNIT PRICE:	INSTALLATION COST:	UNIT TOTAL:
12 EACH		AMELANCHIER SP.	SERVICEBERRY	5'-6' HT.	@ $150.00	@ $25.00	$2,100.00

LARGE DECIDUOUS SHRUBS:

QUANTITY:	SYMBOL:	BOTANICAL NAME:	COMMON NAME:	SIZE:	UNIT PRICE:	INSTALLATION COST:	UNIT TOTAL:
18 EACH		EUONYMOUS ALATUS	BURNING BUSH	2'-3' HT.	@ $75.00	@ $25.00	$1,800.00

CONIFEROUS TREES:

QUANTITY:	SYMBOL:	BOTANICAL NAME:	COMMON NAME:	SIZE:	UNIT PRICE:	INSTALLATION COST:	UNIT TOTAL:
75 EACH		PINUS RESINOSA	NORWAY (RED) PINE	5' HT.	@ $300.00	@ $25.00	$24,375.00

TOTAL TREES:	161
TOTAL SHRUBS:	18

SUBTOTAL COST:	$52,325
5% CONTINGENCY:	$2,620
TOTAL ESTIMATE:	$54,945

REVISIONS:
1-14-16 REVISED PER PLANNING DEPARTMENT

CLIENT:
MR. JOSEPH MANAGI
MONORIAN PROPERTIES
30215 SOUTHFIELD RD.
BIRMINGHAM, MI 48025
(586) 726-7340

JOB NO: 15-073
DATE: 11-13-15
DRAWN BY: N.P.R.

SEAL:

HORIZON ENGINEERING LLC
CIVIL ENGINEERING, SITE PLANNING & LAND DEVELOPMENT CONSULTING
P.O. Box 182158, Shelby Township, Michigan 48318
Phone 586.453.8097 Fax 586.380.0053

PROJECT:
Proposed "Estates at Willowbrook" Site Condominium
PART OF THE NORTHWEST 1/4 OF SECTION 24, T.2N., R.11E., CITY OF TROY, OAKLAND COUNTY, MICHIGAN

PLAN:
Landscape Plan

SHEET: **5** OF: **5**

MUNICIPAL REVIEW NUMBERS:

TOPOGRAPHIC SURVEY

CERTIFIED TO: MONDRIAN PROPERTIES LLC

SCALE: 1"=40'

NORTH

CONTRACTOR'S NOTE

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The contractor shall be responsible for adhering to all applicable local, state, and federal standards, specifications, and guidelines for construction.

3 WORKING DAYS
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(TOLL FREE) for the location of underground utilities

SITE BENCHMARK #1
ELEVATION = 649.44 (NAVD 88 DATUM)
ARROW ON TOP OF HYDRANT #23-17 ON W. SIDE OF JOHN R ACROSS FROM PARCEL NO. 20-24-100-008.

SITE BENCHMARK #2
ELEVATION = 650.74 (NAVD 88 DATUM)
ARROW ON TOP OF HYDRANT #23-113 ON W. SIDE OF JOHN R, 150 FEET SOUTH OF WATTLES.

WEST 1/4 CORNER OF SECTION 24, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MI. FOUND REMONUMENTATION CAP. #17623 IN MONUMENT BOX AS RECORDED IN LIBER 17055, PAGE 755 OF OAKLAND COUNTY RECORDS.

NORTHWEST CORNER OF SECTION 24, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MI. FOUND REMONUMENTATION CAP. #17623 IN MONUMENT BOX AS RECORDED IN LIBER 17055, PAGE 749 OF OAKLAND COUNTY RECORDS.

UNPLATTED
"BIG BEAVER UNITED METHODIST CHURCH"

"DELOY GARDENS SUB."
LIBER 68, PAGE 36, O.C.R.

LOT 18 | LOT 17 | LOT 6

DELOY DR.
60' WD. R.O.W.

UNPLATTED
"GATHERING PLACE"

JOHN R ROAD
120' WIDE RIGHT OF WAY
CONCRET & ASPHALT PAVEMENT

NORTH(R&M) 2638.42'(M)

WEST LINE OF SECTION 24 AS MONUMENTED

343.40'(R) 343.64'(M)

760.08'(R) 760.14'(M)

FOUND 1/2" REBAR WITH CAP, #30085

770.00'(R)
769.76'(M)
NORTH (R&M)

92.74'(R)
92.88'(M)

FOUND 1/2" REBAR

27' EXCEPTION

LOT 1

LOT 3
20-24-100-003

NOTE
REFER TO SHEET 2 FOR ADDITIONAL INFORMATION.

"SUPERVISOR'S PLAT NO. 19"
LIBER 6, PAGE 49, O.C.R.

20-24-100-013

N89°13'00"W(R&M)
562.70'(R&M)

PT. OF LOT 10

SOUTH 1/2 OF LOT 9

NORTH 1/2 OF LOT 9 AND SOUTH 1/2 OF LOT 8
20-24-100-012

NORTH 1/2 OF LOT 8
20-24-100-011

LOT 7
20-24-100-010

SOUTH 1/2 OF LOT 6
20-24-100-009

NORTH 1/2 OF LOT 6 AND SOUTH 1/2 OF LOT 5
20-24-100-008

NORTH 1/2 OF LOT 5
20-24-100-007

SOUTH 1/2 OF LOT 4
20-24-100-006

NORTH 1/2 OF LOT 4
20-24-100-005

FOUND 1/2" REBAR

PART OF LOT 2

EXEMPT & PARK PARK & PUBLIC EASEMENT DRAINAGE EASEMENT
20-24-100-038

WATTLES ROAD
120' WIDE RIGHT OF WAY
ASPHALT PAVEMENT

632.26'(R) 632.38'(M)

S89°13'00"E(R&M)
569.30'(R) 569.36'(M)

"SUPERVISOR'S PLAT NO. 19"
LIBER 6, PAGE 49, O.C.R.

PART OF LOT 2

NORTH LINE OF SECTION 24 AS MONUMENTED

S88°16'00"E(R) S88°47'14"E(M) 2645.46'(M)

FOUND CONCRETE MONUMENT 0.24' EAST

FOUND CONCRETE MONUMENT

S00°29'00"W(R) S00°29'44"W(M)
770.00'(R) 769.70'(M)

FOUND 1/2" REBAR

FOUND 1/2" REBAR

EX. 20' WD. PRIV. EASE. FOR STM. SEWER, AS PLATTED

LOT 13 | LOT 12 | LOT 11 | LOT 10 | LOT 9 | LOT 8 | LOT 7 | LOT 6 | LOT 5 | LOT 4 | LOT 3 | LOT 2 | LOT 1

DEXTER DRIVE
60' WIDE RIGHT OF WAY
CONCRETE PAVEMENT

"WATTLES SQUARE SUBDIVISION"
LIBER 198, PAGES 19-21, O.C.R.

NORTH 1/4 COR. OF SECTION 24, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MI. FOUND OAKLAND COUNTY REMONUMENTATION CAP #17623 IN MONUMENT BOX AS RECORDED IN LIBER 17055, PAGE 751, OF OAKLAND COUNTY RECORDS.

LEGEND

- FOUND MONUMENT AS NOTED
- SET 1/2" REBAR WITH CAP. #46724
- UTILITY POLE
- GUY WIRE ANCHOR
- UNDERGROUND MARKER
- UTILITY MANHOLE
- GAS METER
- MANHOLE (AS NOTED)
- CLEANOUT
- ROUND CATCH BASIN
- SQUARE CATCH BASIN
- END SECTION
- GATEWELL/SHUT-OFF VALVE
- FIRE HYDRANT
- MAILBOX
- SIGN
- GUARD RAIL
- 000.00 EXISTING GRADE ELEVATION
- #0000 EXISTING TREE & TAG NUMBER
- PARCEL BOUNDARY
- ADJACENT PARCEL
- EXISTING BUILDING
- EXISTING PAVEMENT AS NOTED
- EASEMENT LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER MAIN
- EXISTING GAS MAIN
- OVERHEAD LINES
- EXISTING UNDERGROUND CONDUIT
- EXISTING GRADE CONTOUR
- EXISTING WALL
- EXISTING FENCES
- EXISTING BRICK PAVERS
- PAVEMENT LANE STRIPING

AZTEC
LAND SURVEYORS INC.
PHONE:586-306-1253
P.O. BOX 353
HOLLY, MI 48442

PROJECT:
TOPOGRAPHIC SURVEY
PART OF THE NORTHWEST 1/4 OF SECTION 24, CITY OF TROY, OAKLAND COUNTY, MI

CLIENT:
MR. JOSEPH MANDICI
MONDRIAN PROPERTIES
5700 CROSS POINTE BLVD
SHELBY TOWNSHIP, MI 48315
586-726-7340

JOB NO: 15-116
DATE: 10/28/15
DRAWN BY: SA
CHECKED BY: SA

REVISIONS:

SEAL:

SHEET 1 OF 2

MUNICIPAL REVIEW NUMBERS:

TOPOGRAPHIC SURVEY

CERTIFIED TO: MONDRIAN PROPERTIES LLC

TREE INVENTORY

Tag No.	Common Name	Botanical Name	DBH	Condition
201	MAPLE SP.	ACER SP.	9	GOOD
202	PINE	PINUS SP.	10	GOOD
203	BASSWOOD	TILIA SP.	10	GOOD
204	BOX ELDER	ACER NEGUNDO	8	GOOD
205	MAPLE SP.	ACER SP.	7	GOOD
206	PINE	PINUS SP.	8	GOOD
207	POPLAR	POPULUS SP.	10	GOOD
208	POPLAR	POPULUS SP.	10	GOOD
209	POPLAR	POPULUS SP.	10	POOR
210	BOX ELDER	ACER NEGUNDO	4	GOOD
211	BOX ELDER	ACER NEGUNDO	4	GOOD
212	ELM	ULMUS SP.	5	GOOD
213	PINE	PINUS SP.	7	GOOD
214	BOX ELDER	ACER NEGUNDO	5	GOOD
215	BOX ELDER	ACER NEGUNDO	7	GOOD
216	BOX ELDER	ACER NEGUNDO	6	POOR
217	BOX ELDER	ACER NEGUNDO	8	GOOD
218	BOX ELDER	ACER NEGUNDO	6	GOOD
219	MAPLE SP.	ACER SP.	10	GOOD
220	MULBERRY	MORUS SP.	6	GOOD
221	BOX ELDER	ACER NEGUNDO	8x3	GOOD
222	BOX ELDER	ACER NEGUNDO	5	GOOD
223	BOX ELDER	ACER NEGUNDO	4	GOOD
224	BOX ELDER	ACER NEGUNDO	5	GOOD
225	ELM	ULMUS SP.	7	GOOD
226	ELM	ULMUS SP.	10	GOOD
227	BOX ELDER	ACER NEGUNDO	7	GOOD
228	BOX ELDER	ACER NEGUNDO	6	GOOD
229	BOX ELDER	ACER NEGUNDO	7x2	GOOD
230	BOX ELDER	ACER NEGUNDO	4	GOOD
231	BOX ELDER	ACER NEGUNDO	5x2	GOOD
232	BOX ELDER	ACER NEGUNDO	10	GOOD
233	BOX ELDER	ACER NEGUNDO	6	GOOD
234	BOX ELDER	ACER NEGUNDO	9	GOOD
235	BOX ELDER	ACER NEGUNDO	6x2	GOOD
236	BOX ELDER	ACER NEGUNDO	6	GOOD
237	APPLE	MALUS SP.	7	GOOD
238	APPLE	MALUS SP.	5x2	GOOD
239	BOX ELDER	ACER NEGUNDO	6	GOOD
240	APPLE	MALUS SP.	6	GOOD
241	ASH	FRAXINUS SP.	4	POOR
242	APPLE	MALUS SP.	6	GOOD
243	APPLE	MALUS SP.	5x3	GOOD
244	HAWTHORN	CRATAGEUS SP.	8	GOOD
245	MULBERRY	MORUS SP.	6	GOOD
246	APPLE	MALUS SP.	6	GOOD
247	BOX ELDER	ACER NEGUNDO	6	GOOD
248	PEAR	PYRUS SP.	5	GOOD
249	MAPLE SP.	ACER SP.	5	GOOD
250	BOX ELDER	ACER NEGUNDO	7	GOOD
251	MAPLE SP.	ACER SP.	5	GOOD
252	ELM	ULMUS SP.	6	GOOD
253	MAPLE SP.	ACER SP.	6	GOOD
254	MAPLE SP.	ACER SP.	6	GOOD
255	MAPLE SP.	ACER SP.	6	GOOD
256	ELM	ULMUS SP.	6	GOOD
257	ELM	ULMUS SP.	6	GOOD
258	ELM	ULMUS SP.	5	POOR
259	ELM	ULMUS SP.	5	GOOD
260	ELM	ULMUS SP.	6	GOOD
261	ELM	ULMUS SP.	5	GOOD
262	MAPLE SP.	ACER SP.	9	GOOD
263	MAPLE SP.	ACER SP.	10	GOOD
264	MAPLE SP.	ACER SP.	7	GOOD
265	MAPLE SP.	ACER SP.	5	GOOD
266	MAPLE SP.	ACER SP.	10	GOOD
267	MAPLE SP.	ACER SP.	9x2	GOOD
268	BOX ELDER	ACER NEGUNDO	10	GOOD
269	BOX ELDER	ACER NEGUNDO	4	GOOD
270	BOX ELDER	ACER NEGUNDO	7	GOOD
271	BOX ELDER	ACER NEGUNDO	5	GOOD
272	ELM	ULMUS SP.	6	GOOD
273	BOX ELDER	ACER NEGUNDO	8	GOOD
274	BOX ELDER	ACER NEGUNDO	10	GOOD
275	BOX ELDER	ACER NEGUNDO	6	GOOD
276	BOX ELDER	ACER NEGUNDO	6	GOOD
277	BOX ELDER	ACER NEGUNDO	8	GOOD
278	ASH	FRAXINUS SP.	4	POOR
279	BOX ELDER	ACER NEGUNDO	8	GOOD
280	BOX ELDER	ACER NEGUNDO	7	GOOD
281	HAWTHORN	CRATAGEUS SP.	6	GOOD
282	BOX ELDER	ACER NEGUNDO	10X2	GOOD
283	BOX ELDER	ACER NEGUNDO	4	GOOD
284	WALNUT	JUGLANS SP.	10	GOOD
285	ELM	ULMUS SP.	8	GOOD
286	BOX ELDER	ACER NEGUNDO	8	GOOD
287	BOX ELDER	ACER NEGUNDO	7	GOOD
288	CRABAPPLE	MALUS SP.	6	GOOD
289	CRABAPPLE	MALUS SP.	6	GOOD
290	CRABAPPLE	MALUS SP.	4	GOOD
291	CRABAPPLE	MALUS SP.	4x3	GOOD
292	BOX ELDER	ACER NEGUNDO	7	GOOD
293	OAK SP.	QUERCUS SP.	7	GOOD
294	CRABAPPLE	MALUS SP.	5	GOOD
295	MAPLE SP.	ACER SP.	5	GOOD
296	CRABAPPLE	MALUS SP.	5	GOOD
297	MAPLE SP.	ACER SP.	8	GOOD
298	MAPLE SP.	ACER SP.	9	GOOD
299	MAPLE SP.	ACER SP.	10	GOOD
300	MAPLE SP.	ACER SP.	7	GOOD
301	MAPLE SP.	ACER SP.	4	GOOD
302	MAPLE SP.	ACER SP.	9x2	GOOD
303	MAPLE SP.	ACER SP.	10	GOOD
304	MAPLE SP.	ACER SP.	6x2	GOOD
305	MAPLE SP.	ACER SP.	10	GOOD
306	MAPLE SP.	ACER SP.	8	GOOD
307	MAPLE SP.	ACER SP.	7	GOOD
308	MAPLE SP.	ACER SP.	7	GOOD
309	MAPLE SP.	ACER SP.	8	GOOD
310	MAPLE SP.	ACER SP.	4	GOOD

Tag No.	Common Name	Botanical Name	DBH	Condition
311	ELM	ULMUS SP.	9	GOOD
312	MAPLE SP.	ACER SP.	10	GOOD
313	ELM	ULMUS SP.	4	GOOD
314	ELM	ULMUS SP.	5	GOOD
315	ELM	ULMUS SP.	6	GOOD
316	OAK SP.	QUERCUS SP.	7	GOOD
317	MAPLE SP.	ACER SP.	6	GOOD
318	ELM	ULMUS SP.	4	GOOD
319	CRABAPPLE	MALUS SP.	5x3	GOOD
320	ELM	ULMUS SP.	10	GOOD
321	ELM	ULMUS SP.	7	GOOD
322	ELM	ULMUS SP.	5	GOOD
323	ELM	ULMUS SP.	6	GOOD
324	ELM	ULMUS SP.	8	GOOD
325	ELM	ULMUS SP.	8	GOOD
326	ELM	ULMUS SP.	4	GOOD
327	WALNUT	JUGLANS SP.	6	GOOD
328	MAPLE SP.	ACER SP.	6x2	GOOD
329	ELM	ULMUS SP.	5	POOR
330	ELM	ULMUS SP.	5	GOOD
331	WALNUT	JUGLANS SP.	4	GOOD
332	WALNUT	JUGLANS SP.	8	GOOD
333	WALNUT	JUGLANS SP.	10	GOOD
334	MULBERRY	MORUS SP.	6x2	GOOD
335	BOX ELDER	ACER NEGUNDO	5	POOR
336	ELM	ULMUS SP.	6	GOOD
337	CRABAPPLE	MALUS SP.	5x2	GOOD
338	ELM	ULMUS SP.	4	GOOD
339	WALNUT	JUGLANS SP.	10	POOR
340	ELM	ULMUS SP.	5	GOOD
341	MAPLE SP.	ACER SP.	6	GOOD
342	MULBERRY	MORUS SP.	7	GOOD
343	MULBERRY	MORUS SP.	5	GOOD
344	ELM	ULMUS SP.	8	GOOD
345	ELM	ULMUS SP.	6	GOOD
346	MAPLE SP.	ACER SP.	4	GOOD
347	ELM	ULMUS SP.	4	GOOD
348	ELM	ULMUS SP.	7	GOOD
349	MAPLE SP.	ACER SP.	5	GOOD
350	MAPLE SP.	ACER SP.	10	GOOD
351	MAPLE SP.	ACER SP.	5	GOOD
352	MAPLE SP.	ACER SP.	4	GOOD
353	MAPLE SP.	ACER SP.	8	GOOD
354	MAPLE SP.	ACER SP.	5	GOOD
355	MAPLE SP.	ACER SP.	6	GOOD
356	MAPLE SP.	ACER SP.	4	GOOD
357	MAPLE SP.	ACER SP.	5	GOOD
358	CRABAPPLE	MALUS SP.	5x2	GOOD
359	ELM	ULMUS SP.	7	GOOD
360	ELM	ULMUS SP.	6	GOOD
361	ELM	ULMUS SP.	7	GOOD
362	ELM	ULMUS SP.	5	GOOD
363	ELM	ULMUS SP.	4	GOOD
364	ELM	ULMUS SP.	6	GOOD
365	ELM	ULMUS SP.	4	GOOD
366	ELM	ULMUS SP.	6	GOOD
367	ELM	ULMUS SP.	5	GOOD
368	MAPLE SP.	ACER SP.	10	GOOD
369	ELM	ULMUS SP.	8	GOOD
370	MAPLE SP.	ACER SP.	10	GOOD
371	ELM	ULMUS SP.	5	GOOD
372	MAPLE SP.	ACER SP.	5	GOOD
373	MAPLE SP.	ACER SP.	8	GOOD
374	POPLAR	POPULUS SP.	9	GOOD
375	ELM	ULMUS SP.	4	GOOD
376	MAPLE SP.	ACER SP.	10	GOOD
377	ELM	ULMUS SP.	5	GOOD
378	ELM	ULMUS SP.	6	GOOD
379	ELM	ULMUS SP.	7	GOOD
380	ELM	ULMUS SP.	8	POOR
381	MAPLE SP.	ACER SP.	8	GOOD
382	ELM	ULMUS SP.	6	GOOD
383	ELM	ULMUS SP.	7	GOOD
384	MAPLE SP.	ACER SP.	5	GOOD
385	MAPLE SP.	ACER SP.	7	GOOD
386	MAPLE SP.	ACER SP.	4	GOOD
387	MAPLE SP.	ACER SP.	5	GOOD
388	MAPLE SP.	ACER SP.	4	GOOD
389	ELM	ULMUS SP.	10	GOOD
390	MAPLE SP.	ACER SP.	6	GOOD
391	MAPLE SP.	ACER SP.	6	GOOD
392	MAPLE SP.	ACER SP.	4	GOOD
393	MAPLE SP.	ACER SP.	8	GOOD
394	MAPLE SP.	ACER SP.	5	GOOD
395	MAPLE SP.	ACER SP.	6	GOOD
396	MAPLE SP.	ACER SP.	6	GOOD
397	MAPLE SP.	ACER SP.	4	GOOD
398	MAPLE SP.	ACER SP.	6	GOOD
399	MAPLE SP.	ACER SP.	4	GOOD
400	MAPLE SP.	ACER SP.	6	GOOD
401	MAPLE SP.	ACER SP.	6	GOOD
402	MAPLE SP.	ACER SP.	4	GOOD
403	MAPLE SP.	ACER SP.	9	GOOD
404	MAPLE SP.	ACER SP.	6	GOOD
405	MAPLE SP.	ACER SP.	8	GOOD
406	ELM	ULMUS SP.	10	GOOD
407	MAPLE SP.	ACER SP.	6	GOOD
408	ELM	ULMUS SP.	9	GOOD
409	ELM	ULMUS SP.	6	GOOD
410	MAPLE SP.	ACER SP.	10	GOOD
411	ELM	ULMUS SP.	6	GOOD

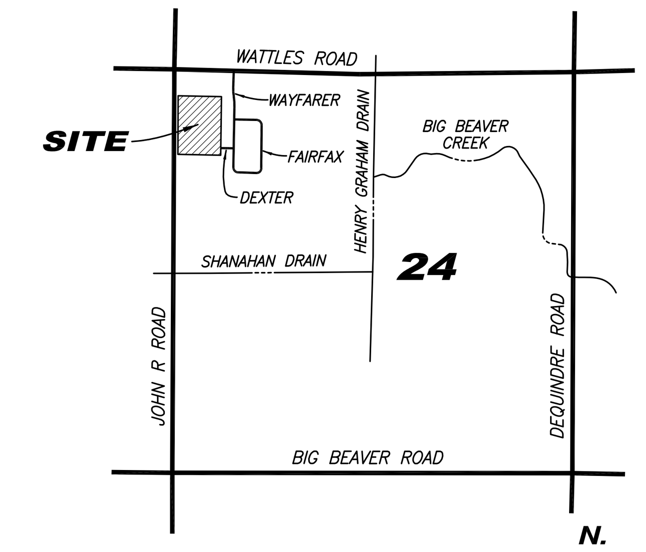
Tag No.	Common Name	Botanical Name	DBH	Condition
412	ELM	ULMUS SP.	5	GOOD
413	ELM	ULMUS SP.	4	GOOD
414	MAPLE SP.	ACER SP.	5	GOOD
415	MAPLE SP.	ACER SP.	7	GOOD
416	MAPLE SP.	ACER SP.	7x3	GOOD
417	MAPLE SP.	ACER SP.	4	GOOD
418	ELM	ULMUS SP.	8	GOOD
419	MAPLE SP.	ACER SP.	10	GOOD
420	MAPLE SP.	ACER SP.	5	GOOD
421	MAPLE SP.	ACER SP.	10	GOOD
422	ELM	ULMUS SP.	4	GOOD
423	ELM	ULMUS SP.	8	GOOD
424	ELM	ULMUS SP.	9	GOOD
425	MAPLE SP.	ACER SP.	9	GOOD
426	MAPLE SP.	ACER SP.	10	GOOD
427	MAPLE SP.	ACER SP.	10	GOOD
428	MAPLE SP.	ACER SP.	4	GOOD
429	ELM	ULMUS SP.	8	GOOD
430	ELM	ULMUS SP.	10	GOOD
431	CRABAPPLE	MALUS SP.	9	GOOD
432	PEAR	PYRUS SP.	10	GOOD
433	ELM	ULMUS SP.	5	GOOD
434	ELM	ULMUS SP.	7	GOOD
435	BOX ELDER	ACER NEGUNDO	6	GOOD
436	BOX ELDER	ACER NEGUNDO	4	GOOD
437	MAPLE SP.	ACER SP.	8	GOOD
438	HAWTHORN	CRATAGEUS SP.	6	GOOD
439	HAWTHORN	CRATAGEUS SP.	6	GOOD
440	HAWTHORN	CRATAGEUS SP.	4x2	GOOD
441	HAWTHORN	CRATAGEUS SP.	4x2	GOOD
442	ELM	ULMUS SP.	4	GOOD
443	MAPLE SP.	ACER SP.	8x2	GOOD
444	ELM	ULMUS SP.	9	GOOD
445	ELM	ULMUS SP.	10	GOOD
446	ELM	ULMUS SP.	4	GOOD
447	ELM	ULMUS SP.	5	GOOD
448	MAPLE SP.	ACER SP.	10	GOOD
449	MAPLE SP.	ACER SP.	8	GOOD
450	MAPLE SP.	ACER SP.	8	GOOD
451	MAPLE SP.	ACER SP.	10	GOOD
452	ELM	ULMUS SP.	4	GOOD
453	MAPLE SP.	ACER SP.	8x2	GOOD
454	MAPLE SP.	ACER SP.	6	GOOD
455	MAPLE SP.	ACER SP.	8	GOOD
456	MAPLE SP.	ACER SP.	8	GOOD
457	ELM	ULMUS SP.	4	GOOD
458	MAPLE SP.	ACER SP.	8x2	GOOD
459	MAPLE SP.	ACER SP.	6x2	GOOD
460	ELM	ULMUS SP.	5	GOOD
461	ELM	ULMUS SP.	5	GOOD
462	MAPLE SP.	ACER SP.	7	GOOD
463	MAPLE SP.	ACER SP.	4	GOOD
464	MAPLE SP.	ACER SP.	6	GOOD
465	ELM	ULMUS SP.	5	GOOD
466	ELM	ULMUS SP.	5	GOOD
467	ELM	ULMUS SP.	10	GOOD
468	ELM	ULMUS SP.	4	GOOD
469	ELM	ULMUS SP.	5	GOOD
470	MAPLE SP.	ACER SP.	7	GOOD
471	ELM	ULMUS SP.	8	GOOD
472	ELM	ULMUS SP.	4	GOOD
473	POPLAR	POPULUS SP.	10	GOOD
474	MAPLE SP.	ACER SP.	7	GOOD
475	ELM	ULMUS SP.	9	GOOD
476	ELM	ULMUS SP.	5	GOOD
477	ELM	ULMUS SP.	5	GOOD
478	ELM	ULMUS SP.	4	GOOD
479	MAPLE SP.	ACER SP.	7	GOOD
480	MAPLE SP.	ACER SP.	8	GOOD
481	ELM	ULMUS SP.	5	GOOD
482	ELM	ULMUS SP.	8	GOOD
483	BOX ELDER	ACER NEGUNDO	9	GOOD
484	MAPLE SP.	ACER SP.	5	GOOD
485	ELM	ULMUS SP.	4	GOOD
486	ELM	ULMUS SP.	5	GOOD
487	ELM	ULMUS SP.	5	GOOD
488	HAWTHORN	CRATAGEUS SP.	5	GOOD
489	ELM	ULMUS SP.	7	GOOD
490	MAPLE SP.	ACER SP.	4	GOOD
491	ELM	ULMUS SP.	5	GOOD
492	ELM	ULMUS SP.	7	GOOD
493	PINE	PINUS SP.	10	GOOD
494	PINE	PINUS SP.	9	GOOD
495	HAWTHORN	CRATAGEUS SP.	6	POOR
496	MAPLE SP.	ACER SP.	9	GOOD
497	PINE	PINUS SP.	10	GOOD
498	PINE	PINUS SP.	10	GOOD
499	MAPLE SP.	ACER SP.	9	GOOD
500	(TAG NOT USED)			
501	MAPLE SP.	ACER SP.	8	GOOD
502	MAPLE SP.	ACER SP.	6x2	GOOD
503	MAPLE SP.	ACER SP.	4	GOOD
504	MAPLE SP.	ACER SP.	8x2	GOOD
505	ELM	ULMUS SP.	9	GOOD
506	PINE	PINUS SP.	10	GOOD
507	PINE	PINUS SP.	10	GOOD
508	PINE	PINUS SP.	10	GOOD
509	PINE	PINUS SP.	4	GOOD
510	MAPLE SP.	ACER SP.	8	GOOD
511	MAPLE SP.	ACER SP.	4	GOOD
512	WALNUT	JUGLANS SP.	4	GOOD
513	ELM	ULMUS SP.	8	GOOD

Tag No.	Common Name	Botanical Name	DBH	Condition
514	MAPLE SP.	ACER SP.	7	GOOD
515	BOX ELDER	ACER NEGUNDO	7	GOOD
516	BOX ELDER	ACER NEGUNDO	5	GOOD
517	MAPLE SP.	ACER SP.	8	GOOD
518	MAPLE SP.	ACER SP.	7	GOOD
519	BOX ELDER	ACER NEGUNDO	6	GOOD
520	PINE	PINUS SP.	7	GOOD
521	MAPLE SP.	ACER SP.	4	GOOD
522	BOX ELDER	ACER NEGUNDO	5	GOOD
523	BOX ELDER	ACER NEGUNDO	4	GOOD
524	PINE	PINUS SP.	7	GOOD
525	MULBERRY	MORUS SP.	7	GOOD
526	BOX ELDER	ACER NEGUNDO	4	GOOD
527	BOX ELDER	ACER NEGUNDO	4	GOOD
528	BOX ELDER	ACER NEGUNDO	4	GOOD
529	PINE	PINUS SP.	7	GOOD
530	PINE	PINUS SP.	10	GOOD
531	PINE	PINUS SP.	8	GOOD
532	PINE	PINUS SP.	8	GOOD
533	PINE	PINUS SP.	10	GOOD
534	PINE	PINUS SP.	10	GOOD
535	PINE	PINUS SP.	9	GOOD
536	PINE	PINUS SP.	5	GOOD
537	BOX ELDER	ACER NEGUNDO	5	GOOD
538	BOX ELDER	ACER NEGUNDO	5	GOOD
539	WALNUT	JUGLANS SP.	5	GOOD
540	BOX ELDER	ACER NEGUNDO	4x2	GOOD
541	WALNUT	JUGLANS SP.	5	GOOD
542	BOX ELDER	ACER NEGUNDO	6	GOOD
543	MAPLE SP.	ACER SP.	10	GOOD
544	MAPLE SP.	ACER SP.	7	GOOD
545	BOX ELDER	ACER NEGUNDO	9	GOOD
546	MAPLE SP.	ACER SP.	4	GOOD
547	MAPLE SP.	ACER SP.	6	GOOD
548	ELM	ULMUS SP.	6	GOOD
549	BOX ELDER	ACER NEGUNDO	6	GOOD
550	PINE	PINUS SP.	9	GOOD
551	MAPLE SP.	ACER SP.	4	GOOD
552	PINE	PINUS SP.	10	GOOD
553	MAPLE SP.	ACER SP.	10	GOOD
554	BOX ELDER	ACER NEGUNDO	5	GOOD
555	PINE	PINUS SP.	9	GOOD
556	BOX ELDER	ACER NEGUNDO	7	GOOD
557	MAPLE SP.	ACER SP.	6	GOOD
558	MAPLE SP.	ACER SP.	7	GOOD
559	MAPLE SP.	ACER SP.	6	GOOD
560	MAPLE SP.	ACER SP.	4	GOOD
561	MAPLE SP.	ACER SP.	8	GOOD
562	MAPLE SP.	ACER SP.	8	GOOD
563	BASSWOOD	TILIA SP.	8	GOOD
564	MAPLE SP.	ACER SP.	6	GOOD
565	MAPLE SP.	ACER SP.	7	GOOD
566	MAPLE SP.	ACER SP.	10	GOOD
567	POPLAR	POPULUS SP.	7	GOOD
568	MAPLE SP.	ACER SP.	10	GOOD
569	POPLAR	POPULUS SP.	10	GOOD
570	POPLAR	POPULUS SP.	7	GOOD
571	MAPLE SP.	ACER SP.	4	GOOD
572	HICKORY	CARYA SP.	5	GOOD
573	ELM	ULMUS SP.	4	GOOD
574	MAPLE SP.	ACER SP.	10	GOOD
575	ELM	ULMUS SP.	7	GOOD
576	ELM	ULMUS SP.	7	GOOD
577	POPLAR	POPULUS SP.	6	GOOD
578	POPLAR	POPULUS SP.	10	GOOD
579	ELM	ULMUS SP.	4	GOOD
580	HAWTHORN	CRATAGEUS SP.	7	POOR
581	ELM	ULMUS SP.	6	GOOD
582	MAPLE SP.	ACER SP.	10	GOOD
583	MAPLE SP.	ACER SP.	4	GOOD
584	ELM	ULMUS SP.	6	GOOD
585	BOX ELDER	ACER NEGUNDO	8	GOOD
586	MAPLE SP.	ACER SP.	10	GOOD
587	MAPLE SP.	ACER SP.	5	GOOD
588	ELM	ULMUS SP.	6	GOOD
589	BOX ELDER	ACER NEGUNDO	6	GOOD
590	WALNUT	JUGLANS SP.	5	GOOD
591	WALNUT	JUGLANS SP.	5	GOOD
592	ELM	ULMUS SP.	5	GOOD
593	BASSWOOD	TILIA SP.	6x2	GOOD
594	MAPLE SP.	ACER SP.	8	GOOD
595	BOX ELDER	ACER NEGUNDO	9	GOOD
596	BOX ELDER	ACER NEGUNDO	8x2	GOOD
597	MAPLE SP.	ACER SP.	4	GOOD
598	MAPLE SP.	ACER SP.	10x3	GOOD
599	MAPLE SP.	ACER SP.	4	GOOD
600	MAPLE SP.	ACER SP.	10	GOOD

TOTAL NUMBER OF TREES
TAGGED AND SURVEYED = 399

SURVEYOR'S NOTES

1. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES OTHER THAN THE STRUCTURE INVENTORY SHOWN HEREON.
2. A CURRENT TITLE POLICY HAS NOT BEEN FURNISHED AT TIME OF SURVEY, THEREFORE EASEMENTS AND/OR ENCUMBRANCES AFFECTING SUBJECT PARCEL MAY NOT BE SHOWN.
3. ALL PROPERTY SPLITS OR COMBINATIONS REQUIRE PRIOR CITY, TOWNSHIP, COUNTY, AND/OR STATE APPROVAL.



LOCATION MAP

SCALE: 1" = 2000'

PROPERTY DESCRIPTIONS: (AS FURNISHED BY CLIENT)

PARCEL NO. 20-24-100-005
THE NORTH 1/2 OF LOT 4, EXCEPT FOR THE WEST 27 FEET TAKEN FOR ROAD WIDENING, "SUPERVISOR'S PLAT NO.19", PART OF THE NORTHWEST 1/4 OF SECTION 24, TOWN 2 NORTH, RANGE 11 EAST, TROY TOWNSHIP (NOW CITY OF TROY), OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS, PAGE 49 OF OAKLAND COUNTY RECORDS.

PARCEL NO. 20-24-100-006
THE SOUTH 1/2 OF LOT 4, EXCEPT FOR THE WEST 27 FEET TAKEN FOR ROAD WIDENING, "SUPERVISOR'S PLAT NO.19", PART OF THE NORTHWEST 1/4 OF SECTION 24, TOWN 2 NORTH, RANGE 11 EAST, TROY TOWNSHIP (NOW CITY OF TROY), OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS, PAGE 49 OF OAKLAND COUNTY RECORDS.

PARCEL NO. 20-24-100-007
THE NORTH 1/2 OF LOT 5, EXCEPT FOR THE WEST 27 FEET TAKEN FOR ROAD WIDENING, "SUPERVISOR'S PLAT NO.19", PART OF THE NORTHWEST 1/4 OF SECTION 24, TOWN 2 NORTH, RANGE 11 EAST, TROY TOWNSHIP (NOW CITY OF TROY), OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS, PAGE 49 OF OAKLAND COUNTY RECORDS.

PARCEL NO. 20-24-100-008
THE SOUTH 1/2 OF LOT 5 AND THE NORTH 1/2 OF LOT 6, EXCEPT FOR THE WEST 27 FEET TAKEN FOR ROAD WIDENING, "SUPERVISOR'S PLAT NO.19", PART OF THE NORTHWEST 1/4 OF SECTION 24, TOWN 2 NORTH, RANGE 11 EAST, TROY TOWNSHIP (NOW CITY OF TROY), OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS, PAGE 49 OF OAKLAND COUNTY RECORDS.

PARCEL NO. 20-24-100-009
THE SOUTH 1/2 OF LOT 6, EXCEPT FOR THE WEST 27 FEET TAKEN FOR ROAD WIDENING, "SUPERVISOR'S PLAT NO.19", PART OF THE NORTHWEST 1/4 OF SECTION 24, TOWN 2 NORTH, RANGE 11 EAST, TROY TOWNSHIP (NOW CITY OF TROY), OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS, PAGE 49 OF OAKLAND COUNTY RECORDS.

PARCEL NO. 20-24-100-010
LOT 7, EXCEPT FOR THE WEST 27 FEET TAKEN FOR ROAD WIDENING, "SUPERVISOR'S PLAT NO.19", PART OF THE NORTHWEST 1/4 OF SECTION 24, TOWN 2 NORTH, RANGE 11 EAST, TROY TOWNSHIP (NOW CITY OF TROY), OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS, PAGE 49 OF OAKLAND COUNTY RECORDS.

PARCEL NO. 20-24-100-011
THE NORTH 1/2 OF LOT 8, EXCEPT FOR THE WEST 27 FEET TAKEN FOR ROAD WIDENING, "SUPERVISOR'S PLAT NO.19", PART OF THE NORTHWEST 1/4 OF SECTION 24, TOWN 2 NORTH, RANGE 11 EAST, TROY TOWNSHIP (NOW CITY OF TROY), OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS, PAGE 49 OF OAKLAND COUNTY RECORDS.

PARCEL NO. 20-24-100-012
THE SOUTH 1/2 OF LOT 8 AND THE NORTH 1/2 OF LOT 9, EXCEPT FOR THE WEST 27 FEET TAKEN FOR ROAD WIDENING, "SUPERVISOR'S PLAT NO.19", PART OF THE NORTHWEST 1/4 OF SECTION 24, TOWN 2 NORTH, RANGE 11 EAST, TROY TOWNSHIP (NOW CITY OF TROY), OAKLAND COUNTY, MICHIGAN AS RECORDED IN LIBER 6 OF PLATS, PAGE 49 OF OAKLAND COUNTY RECORDS.

PARCEL AREA

AS SURVEYED: (ALL PARCELS COMBINED)
TOTAL = 435,667.25 SQUARE FEET = 10.001 ACRES

BASIS OF BEARING

DUE NORTH, BEING WEST LINE OF SECTION 24 AS PLATTED AND AS MONUMENTED IN FIELD.

FLOOD NOTE

SUBJECT PARCEL LIES WITHIN ZONE X: AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOOD, AS SHOWN ON FLOOD INSURANCE RATE MAP NO. 26125C0553G, DATED JANUARY 16, 2009, AS PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

BENCHMARKS

SITE BENCHMARK #1
ELEVATION = 649.44 (NAVD 88 DATUM)
CITY OF TROY BENCHMARK #1067
ARROW ON TOP OF HYDRANT #23-17 ON W. SIDE OF JOHN R ACROSS FROM PARCEL NO. 20-24-100-008.

SITE BENCHMARK #2
ELEVATION = 650.74 (NAVD 88 DATUM)
CITY OF TROY BENCHMARK #1069
ARROW ON TOP OF HYDRANT #23-113 ON W. SIDE OF JOHN R, 150 FEET SOUTH OF WATTLES.

SURVEYOR'S CERTIFICATION

I HEREBY CERTIFY THAT I HAVE SURVEYED THE PROPERTY HEREIN DESCRIBED. THE ELEVATIONS SHOWN HEREON ARE BASED ON A FIELD SURVEY AND THE DRAWING HEREON DELINEATED IS A CORRECT REPRESENTATION OF THE SAME.

SHANE P. AZBELL, P.S.
PROFESSIONAL SURVEYOR
MICHIGAN LICENSE NO. 46724

AZTEC
LAND SURVEYORS INC.
P.O. BOX 353
HOLLY, MI 48442
PHONE:586-306-1253

PROJECT:
TOPOGRAPHIC SURVEY
PART OF THE NORTHWEST 1/4 OF SECTION 24,
CITY OF TROY, OAKLAND COUNTY, MI

CLIENT:
MR. JOSEPH MANIACI
MONDRIAN PROPERTIES
50215 SCHOENHERR ROAD
SHELBY TOWNSHIP, MI 48315
586-726-7340

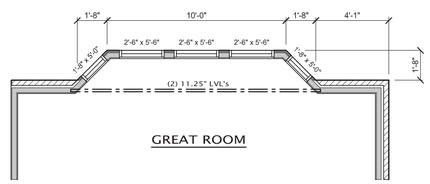
JOB NO: 15-116
DATE: 10/18/15
DRAWN BY: S.A.
CHECKED BY: S.A.

REVISIONS:

SEAL:

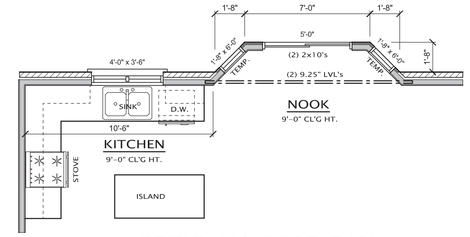
SHEET 2 OF 2

MUNICIPAL REVIEW NUMBERS:



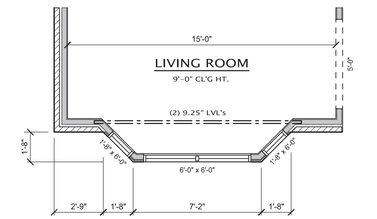
OPTIONAL GREAT ROOM BAY

SCALE 1/4" = 1'-0"



OPTIONAL REAR BAY

SCALE 1/4" = 1'-0"



OPTIONAL FRONT BAY

SCALE 1/4" = 1'-0"

SMOKE DETECTORS & CARBON MONOXIDE DETECTOR

SMOKE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS:
- IN EACH SLEEPING ROOM
- OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS
- ON EACH ADDITIONAL STORY OF THE DWELLING, INCLUDING BASEMENTS BUT NOT INCLUDING CRAWL SPACES OR UNINHABITABLE ATTICS

ALL SMOKE DETECTORS SHALL BE INTERCONNECTED AN HAVE A BATTERY BACKUP.

CARBON MONOXIDE DETECTORS SHALL BE LOCATED IN THE NEAR VICINITY OF EACH BEDROOM AND IN BASEMENT NEAR STAIRS. HARD WIRED AND BATTERY BACK-UP. BACK UP

OPERABLE WINDOW NOTE:
ALL WINDOWS THAT ARE OPERABLE AND THE BOTTOM OF THE WINDOW IS 72" OR MORE ABOVE GRADE, SHALL BE 24" ABOVE FINISH FLOOR TO THE BOTTOM OF THE WINDOW.

ALL BEARING WALLS SHALL HAVE FLOOR JOIST UNDER EACH BEARING STUD. TYP. ALL BEARING WALLS

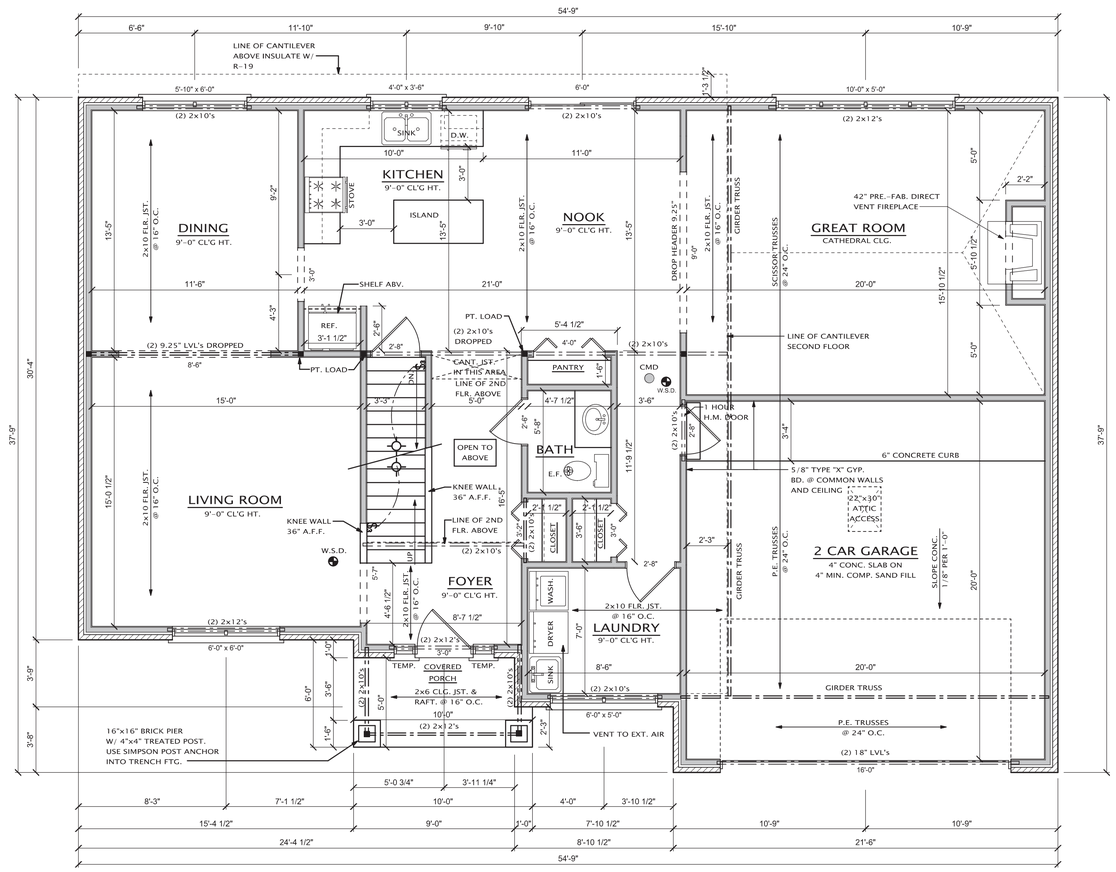
PROVIDE ALL ATTIC ACCESS W/ WEATHER STRIPPING

CIRCULATING HOT WATER SYSTEMS:

ALL CIRCULATING SERVICE HOT WATER PIPING SHALL INCLUDE AN AUTOMATIC OR READILY ACCESSIBLE MANUAL SWITCH THAT CAN TURN OFF THE HOT WATER CIRCULATING PUMP WHEN THE SYSTEM IS NOT IN USE.

HEATING & COOLING PIPING INSULATION:

MECHANICAL SYSTEM PIPING CAPABLE OF CARRYING FLUIDS ABOVE 105F OR BELOW 55F SHALL BE INSULATED TO A MIN. OF R-3.



FIRST FLOOR PLAN

SCALE 1/4" = 1'-0"

1429 SQ. FT.

JMP
Design + Build, Inc.
59231 VANDYKE AVE
WASHINGTON TWP., MI 48094
TEL 586.781.0100
FAX 586.884.0568
JPROSKO@HOTMAIL.COM

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THE DEVONSHIRE

BUILDER

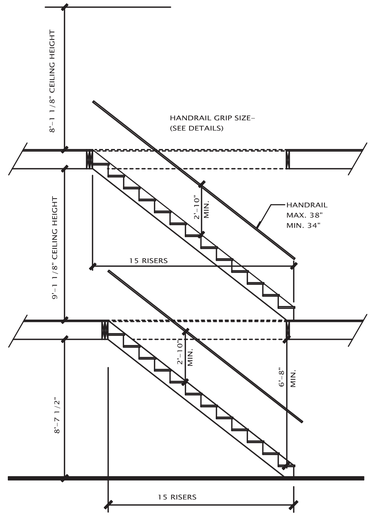
MONDRIAN PROPERTIES

50215 Schoenherr Rd.
Shelby Twp, MI 48315

SHEET TITLE:

FIRST FLOOR PLAN

DATE:	DRAWN BY:
01-04-13 02-20-13 05-28-13	J.M.P.
	CHECKED BY: J.M.P.
	JOB NUMBER: 13 - 105
	SHEET NUMBER: A-2



TYPICAL STAIR SECTION

N.T.S.

R311.5.6 HANDRAIL DETAILS: HANDRAIL–GRIPPING SURFACES SHALL BE CONTINUOUS, WITHOUT INTERRUPTION BY NEWEL POST, OTHER STRUCTURE ELEMENTS OR OBSTRUCTIONS. A HANDRAIL AND ANY WALL OR OTHER SURFACE ADJACENT TO THE HANDRAIL SHALL BE FREE OF ANY SHARP OR ABRASIVE ELEMENTS. THE CLEAR SPACE BETWEEN THE HANDRAIL AND THE ADJACENT WALL SURFACE SHALL NOT BE LESS THAN 1–1/2 INCHES (38mm).

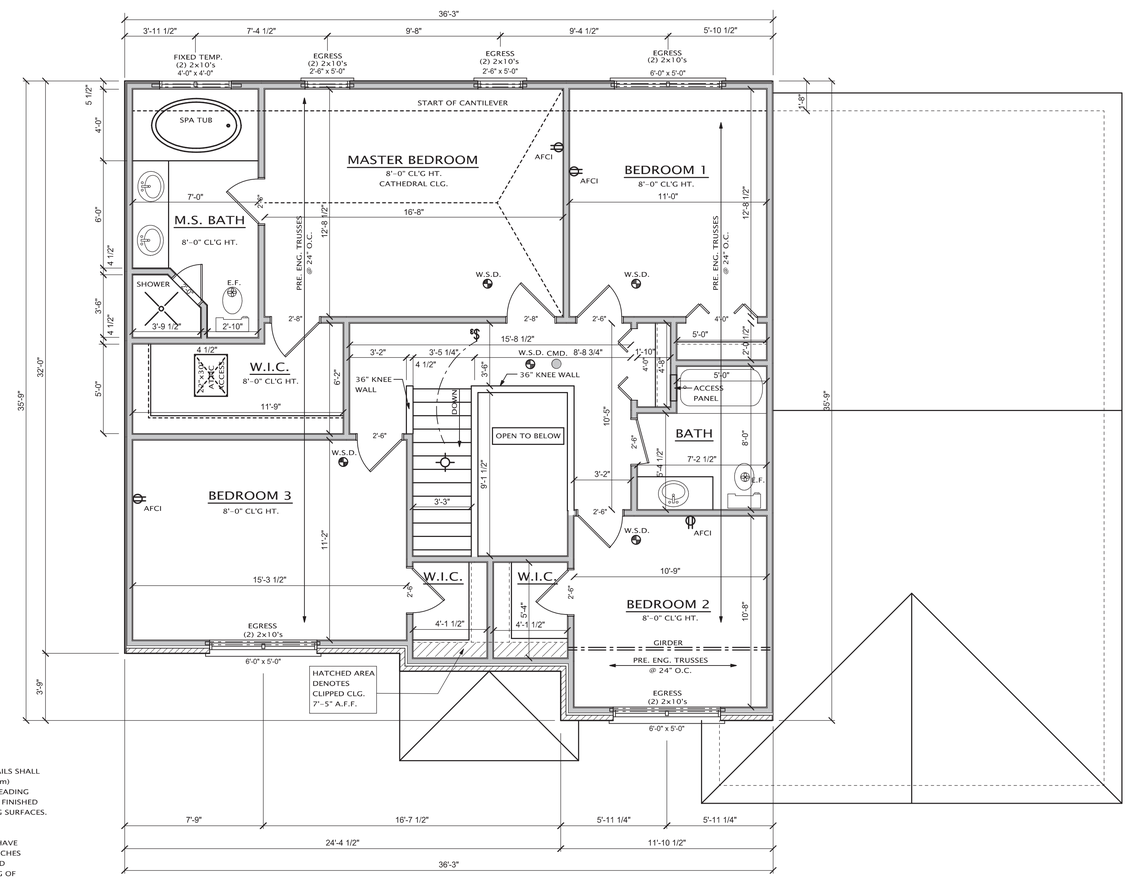
R311.5.2 HEADROOM: THE MINIMUM HEADROOM IN ALL PARTS OF A STAIRWAY SHALL NOT BE LESS THAN 80 INCHES (3032mm) MEASURED VERTICALLY FROM THE TREAD NOSING OR FROM THE FLOOR SURFACE OF THE LANDING OR PLATFORM.

R311.5.3 TREADS AND RISERS: MAXIMUM RISER HEIGHT SHALL BE 8 1/4 INCHES (210mm). MINIMUM TREAD DEPTH SHALL BE 9 INCHES (229mm) MEASURED HORIZONTALLY BETWEEN THE VERTICAL PLANES OF THE FOREMOST PROJECTION OF ADJACENT TREADS AND AT THE RIGHT ANGLE TO THE TREAD'S LEADING EDGE.

DIMENSIONAL UNIFORMITY: THERE SHALL NO BE VARIATION EXCEEDING 3/8 INCH (10mm) IN THE DEPTH OF ADJACENT TREADS OF IN THE HEIGHT OF ADJACENT RISERS. THE TOLERANCE BETWEEN THE LARGEST AND THE SMALLEST RISER OR BETWEEN THE LARGEST AND SMALLEST TREAD SHALL NOT EXCEED 3/8 INCH (10mm) IN A FLIGHT OF STAIRS.

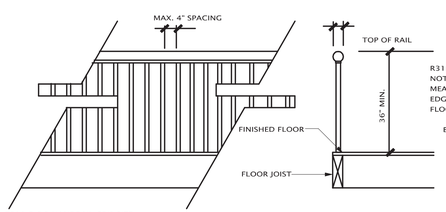
ARCH FAULT CIRCUIT INTERRUPTER

ALL BRANCH CIRCUITS THAT SUPPLY 125 VOLT SINGLE PHASE 15 & 20 AMP. OUTLETS INSTALLED IN DWELLING UNIT BEDRM. SHALL BE PROTECTED BY ARC–FAULT CIRCUIT INTERRUPTER LISTED TO PROVIDE PROTECTION IN THE ENTIRE CIRCUIT E3802.11.



SECOND FLOOR PLAN

SCALE 1/4" = 1'–0" 1121 SQ. FT.



R311.5.6.1 HEIGHT: GUARD HANDRAILS SHALL NOT BE LESS THAN 36 INCHES (914mm) MEASURED VERTICALLY ABOVE THE LEADING EDGE OF THE TREADS OR ABOVE THE FINISHED FLOOR OF THE LANDING OR WALKING SURFACES.

EXCEPTIONS:
OPEN SIDES OF STAIRS SHALL HAVE GUARDS NOT LESS THAN 34 INCHES (854mm) IN HEIGHT, MEASURED VERTICALLY FROM THE NOSING OF THE TREADS.

R311.5.6.3 HANDRAIL GRIP SIZE:
TYPE I:
ALL STAIRS SHALL HAVE A CIRCULAR CROSS SECTION WITH AN OUTSIDE DIAMETER OF 1–1/4 INCHES (32mm) AND NOT GREATER THAN 2 INCHES (51mm).

ANY OTHER SHAPE WITH A PERIMETER OF AT LEAST 4 INCHES (100mm), BUT NOT GREATER THAN 6–1/4 INCHES (158mm) WITH THE LARGEST CROSS–SECTIONAL DIMENSION NOT EXCEEDING 2–1/4 INCHES (57mm).

TYPE II:
HANDRAILS WITH A PERIMETER GREATER THAN 6–1/4 INCHES (160mm) SHALL PROVIDE A GRASPABLE FINGER RECESS AREA ON BOTH SIDES OF THE PROFILE. THE FINGER RECESS SHALL BEGIN WITHIN A DISTANCE OF 3/4 INCH (19mm) MEASURED VERTICALLY FROM THE TALLEST PORTION OF THE PORFILE, AND ACHIEVE A DEPTH OF AT LEAST 5/16 INCH (8mm) WITHIN 7/8 INCH (22mm) BELOW THE WIDEST PORTION OF THE PROFILE.

TYPICAL RAILING DETAIL

N.T.S.

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Design + Build, Inc.
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JPIROSKO@HOTMAIL.COM

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THE DEVONSHIRE

BUILDER

MONDRIAN PROPERTIES

50215 Schoenherr Rd.
Shelby Twp, MI 48315

SHEET TITLE:
SECOND FLOOR PLAN

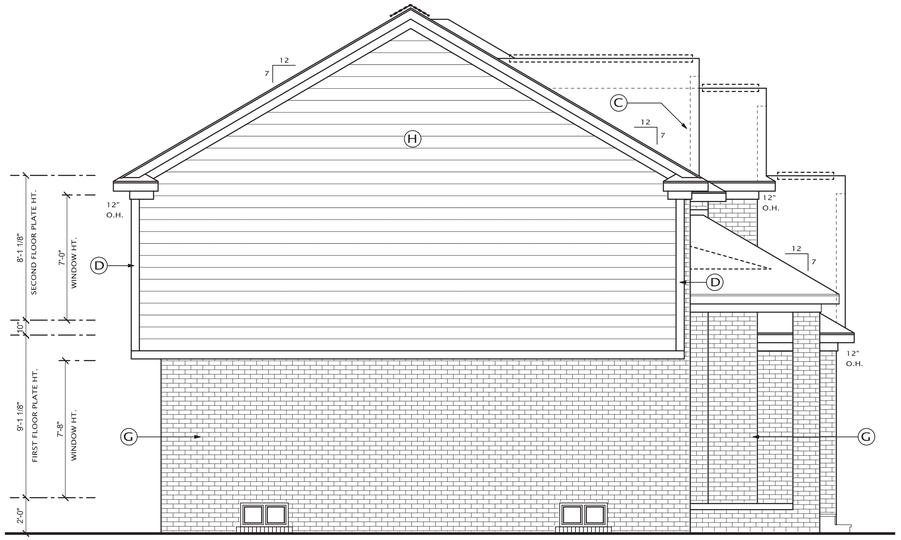
DATE:
01–04–13
02–20–13
05–28–13

DRAWN BY:
J.M.P.

CHECKED BY:
J.M.P.

JOB NUMBER:
13 – 105

SHEET NUMBER:
A–3

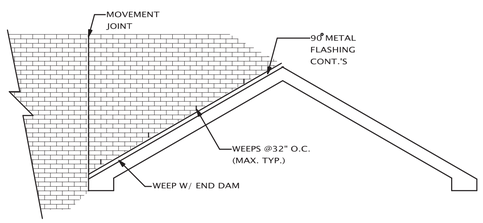


LEFT ELEVATION

SCALE: 1/4"= 1'-0"

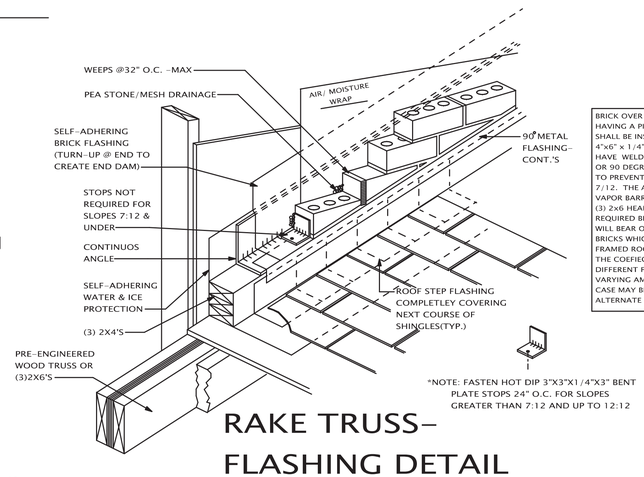
FRONT ELEVATION (B)

SCALE: 1/4"= 1'-0"



BRICK RAKE

(BRICK VENEER OVER SLOPED ROOF)
SCALE: N.T.S.



*NOTE: FASTEN HOT DIP 3"X3"X1/4"X3" BENT PLATE STOPS 24" O.C. FOR SLOPES GREATER THAN 7:12 AND UP TO 12:12

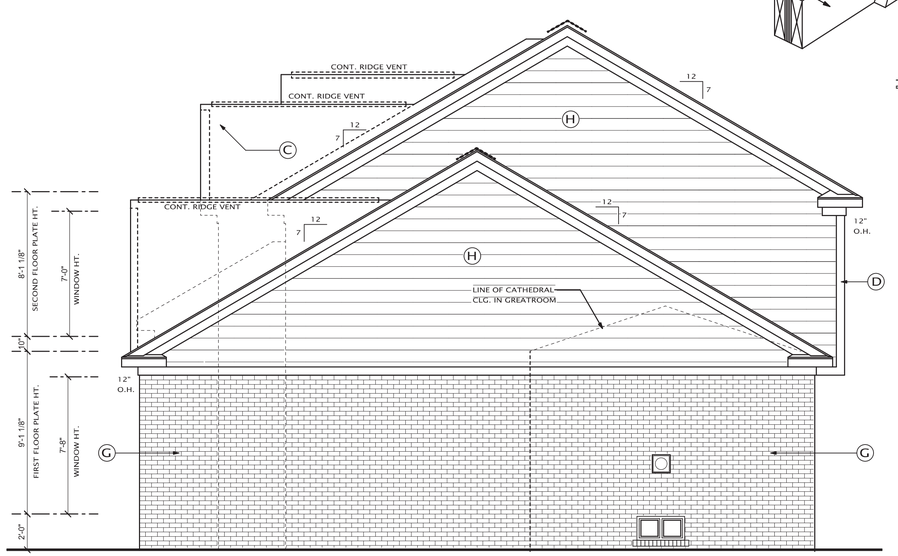
RAKE TRUSS-FLASHING DETAIL

SCALE: N.T.S.

BRICK OVER WOOD FRAMED ROOFS HAVING A PITCH GREATER THAT 7 1/2" SHALL BE INSTALLED OVER A STEEL 4"x6" x 1/4" ANGLE. THE ANGLE SHALL HAVE WELDED 3/4" HIGH STUDS, BOLTS, OR 90 DEGREE STEEL SHOES, @ 12" O.C. TO PREVENT SLIPAGE AT PITCHES OVER 7/12. THE ANGLE SHALL BE SET ON A VAPOR BARRIER AND BEAR ON A MIN. (3) 2x6 HEADER. a MOVEMENT JOINT IS REQUIRED BETWEEN THE BRICK WHICH WILL BEAR ON FOUNDATION AND THOSE BRICKS WHICH WILL BEAR ON WOOD FRAMED ROOF. THIS IS NECCESSARY AS THE COEFIECIENT OF EXPANSION IS DIFFERENT FOR EACH MATERIAL CAUSING VARYING AMOUNTS OF SHRINKAGE. EACH CASE MAY BE ANALYZED INDIVIDUALLY FOR ALTERNATE SOLUTIONS.

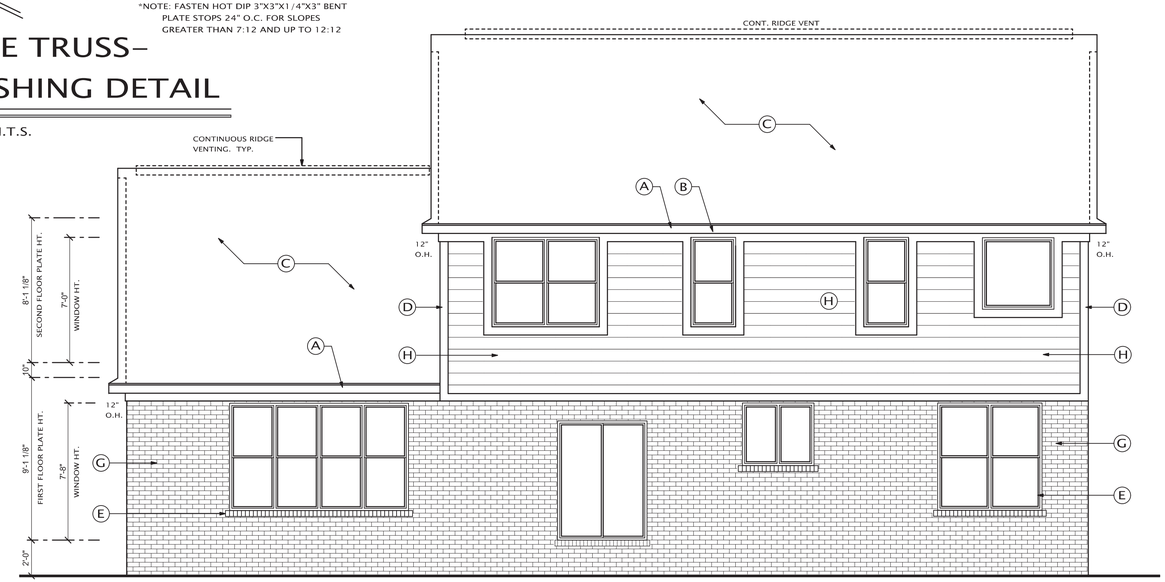
EXTERIOR MATERIAL SCHEDULE

KEY	MATERIAL ITEM	BRAND	DESCRIPTION	COLOR
A	2x6 WOOD FASCIA WRAPPED W/ALUMINUM	N/A	VERIFY w/ OWNER	VERIFY w/ OWNER
B	1 x 6 W.D FRIEZE BD. WRAPPED W/ALUMINUM	N/A	VERIFY w/ OWNER	VERIFY w/ OWNER
C	DIMENSIONAL SHINGLES	N/A	DIMENSIONAL #240 ASPHALT ON #15 FELT PAPER	VERIFY w/ OWNER
D	1x6 COMPOSITE TRIM	N/A	VERIFY w/ OWNER	VERIFY w/ OWNER
E	4" BRICK SILL	N/A	VERIFY w/ OWNER	VERIFY w/ OWNER
F	8" BRICK SOLDIER COURSE	N/A	VERIFY w/ OWNER	VERIFY w/ OWNER
G	BRICK VENEER	N/A	VERIFY w/ OWNER	VERIFY w/ OWNER
H	VINYL SIDING	N/A	VERIFY w/ OWNER	VERIFY w/ OWNER



RIGHT ELEVATION

SCALE: 1/4"= 1'-0"



REAR ELEVATION

SCALE: 1/4"= 1'-0"

JMP
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JPROSKO@HOTMAIL.COM

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THE DEVONSHIRE

BUILDER
MONDRIAN PROPERTIES
50215 Schoenherr Rd.
Shelby Twp, MI 48315

SHEET TITLE:
ELEVATIONS

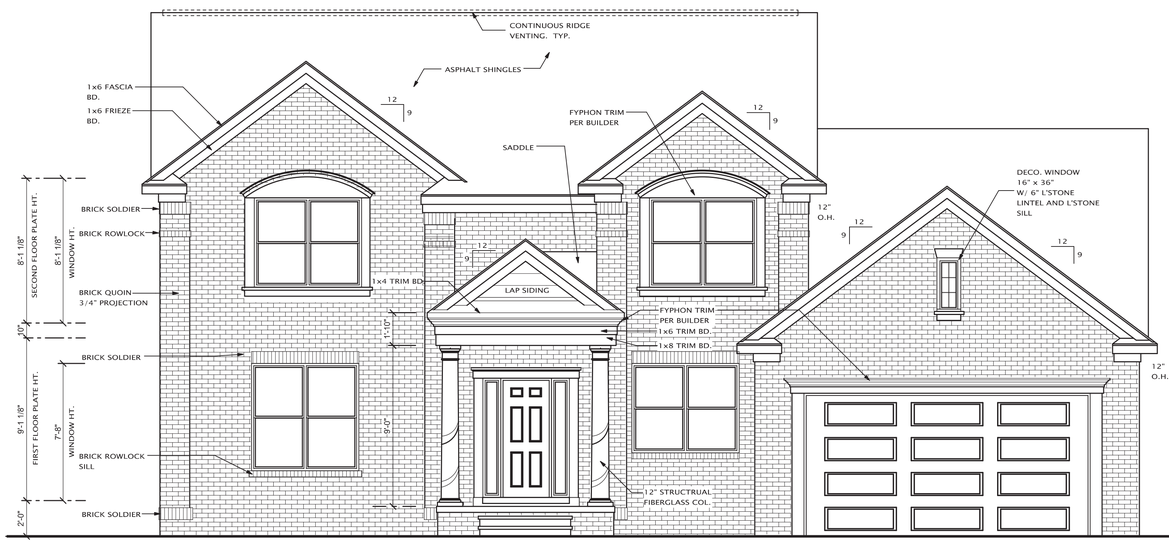
DATE:
01-04-13
02-20-13
05-28-13

DRAWN BY:
J.M.P.

CHECKED BY:
J.M.P.

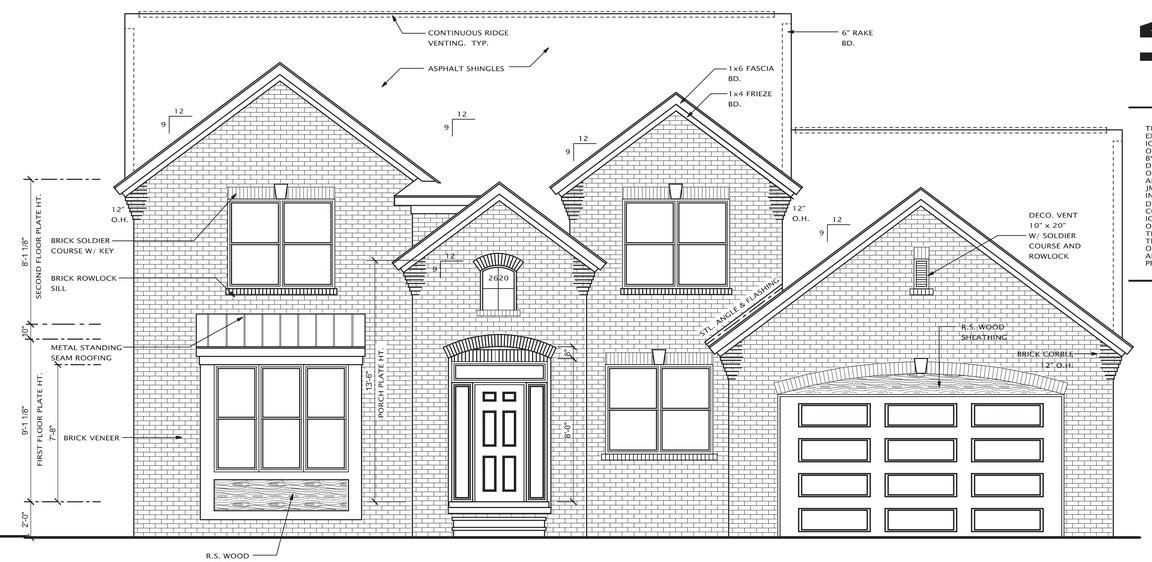
JOB NUMBER:
13 - 105

SHEET NUMBER:
A-4



FRONT ELEVATION (A)

SCALE: 1/4"= 1'-0"



FRONT ELEVATION (D)

SCALE: 1/4"= 1'-0"

JMP
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WASHINGTON TWP., MI 48094
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FAX 586.884.0568
JPROSKOPHOTMAIL.COM

THE IDEAS AND DESIGN CONCEPTS EXPRESSED HEREIN AND THE GRAPHICALLY DISPLAYED ARRANGEMENT OF THEIR COMPONENTS REPRESENTED BY THIS DRAWING HAVE BEEN DEVELOPED FOR THE EXCLUSIVE USE OF THE SPECIFIED PROJECT AND ARE THE SOLE PROPERTY OF JMP Design & Build, Inc. INCORPORATED. A CONVEYANCE OR DISCLOSURE OF THE IDEAS DESIGN CONCEPTS OR USE OF ANY GRAPHICALLY DISPLAYED ARRANGEMENTS OF THE COMPONENTS SHALL BE AT THE DISCRETION AND ONLY THROUGH THE EXPRESSED WRITTEN CONSENT OF JMP Design & Build, Inc. ALL MATERIALS HEREIN ARE PROPRIETARY AND COPYWRITTEN

THE DEVONSHIRE

FLASHING NOTE

(AS PER SECTION R703.8, 1-7 MBC)

PROVIDE HEAD AND SILL FLASHING AT ALL WINDOWS/ DOORS

PROVIDE WEEP HOLES @ 32" (MAX.) SPACING @ 2nd COURSE OF PERIMETER AND ABOVE ALL OPENINGS W/ BRICK ABOVE

PROVIDE PRE-FIN. WALL FLASHING AS REQUIRED-
18" UP WALL BEHIND SIDING
8" UP WALL AT BRICK

ROOF VENTING NOTE

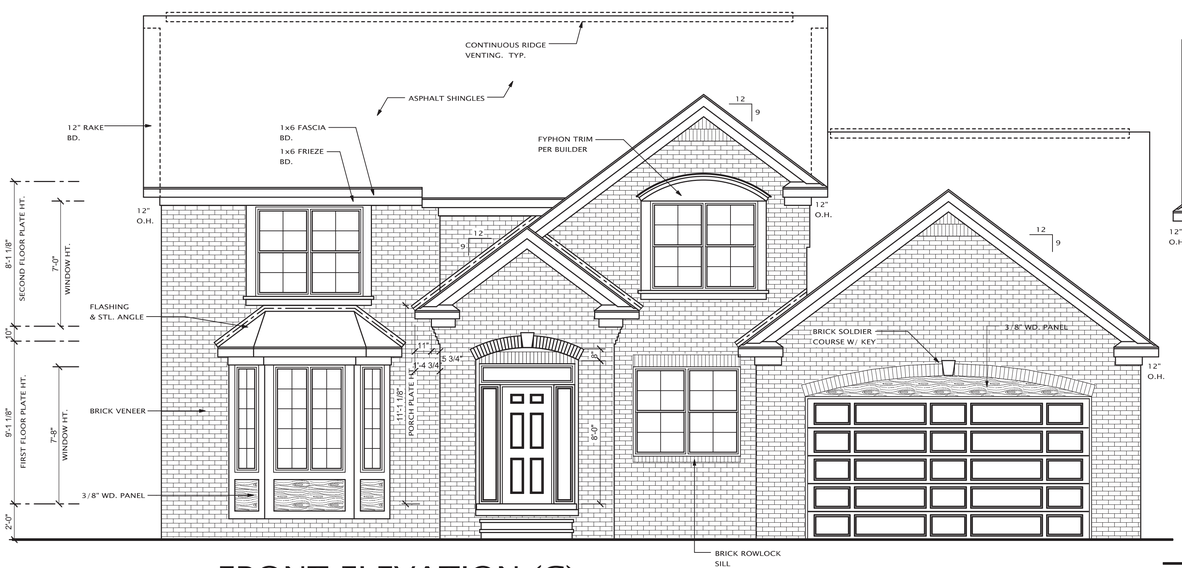
(AS PER SECTION R806 MBC)

THE TOTAL NET FREE VENTILATING AREA SHALL NOT BE LESS THAN 1/150 OF THE AREA OF THE SPACE VENTILATED, EXCEPT THAT THE TOTAL AREA IS PERMITTED TO BE REDUCED TO 1/300, PROVIDED AT LEAST 50 PERCENT AND NOT MORE THAN 80 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE SPACE TO BE VENTILATED AT LEAST 3 FEET ABOVE EAVE OR CORNICE VENTS WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. AS AN ALTERNATIVE, THE NET FRESS CROSS-VENTILATION AREA MAY BE REDUCED TO 1/300 WHEN AQ VAPOR BARRIER HAVING A TRANSMISSION RATE NOT EXCEEDING 1 PERM IS INSTALLED ON THE WARM SIDE OF THE CEILING.

BUILDER

MONDRIAN PROPERTIES

50215 Schoenherr Rd.
Shelby Twp, MI 48315



FRONT ELEVATION (C)

SCALE: 1/4"= 1'-0"

OPTIONAL FRONT BAY

SCALE: 1/4"= 1'-0"

OPTIONAL REAR BAY

SCALE: 1/4"= 1'-0"

OPTIONAL REAR BAY

SCALE: 1/4"= 1'-0"

SHEET TITLE:

OPTIONAL ELEVATIONS

DATE:	DRAWN BY:
01-04-13 02-20-13 05-28-13	J.M.P.
	CHECKED BY: J.M.P.
	JOB NUMBER: 13 - 105
	SHEET NUMBER: A-5

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

August 12, 2015

Mr. Joe Maniaci
Mondrian Properties
50215 Schoenherr Road
Shelby Township, Michigan 48315

Dear Mr. Maniaci:

SUBJECT: Wetland Identification Report
Wetland Identification File Number: 15-63-0002-WA

The Department of Environmental Quality (DEQ) conducted a Level 3 Wetland Identification Review of approximately 9 acres on property located in Town 02N, Range 11E, Section 24, city of Troy, Oakland County on August 6, 2015. The wetland review was conducted in accordance with Part 303, Wetlands Protection of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); and Rule 4 (1), Wetland Identification and Assessment (R 281.924) of the Administrative Rules for Part 303. This is a report of our findings in response to your Wetland Identification Application.

Based on our on-site investigation which included a review of plants, hydrology, and soils, the DEQ confirms, in part, the wetland boundary lines flagged by your consultant. The DEQ also reviewed other pertinent information such as aerial imagery, soils survey data, topographic mapping data, and surface hydrology data. Staff noted a few areas of disagreement associated with your consultant's wetland boundary lines. The DEQ extended the consultant's wetland boundary flags B8 and B9 westward approximately 50 feet and extended B18 northward approximately 15 feet to encompass additional wetland area. The wetland areas showed evidence of sustained surface (or near-surface) hydrology occurring during the growing season, were dominated by hydrophytic plant species, and was associated with hydric soil.

Modified boundaries were flagged with DEQ-labeled, pink flagging tape and modifications were documented on the enclosed site map (Figure 2). The site map of the review area was created by combining information from your consultant and the DEQ. The new map identifies areas containing unregulated wetland and non-wetland (upland). None of the wetland within the review area is regulated by DEQ.

For those areas identified as unregulated wetland or non-wetland (upland) on the site map, the DEQ lacks jurisdiction under Part 303 for activities occurring in those areas. The unregulated wetlands are not regulated by DEQ because they are not contiguous to the Great Lakes, an inland lake or pond, or a river or stream; and are 5 acres or less in size.

This Wetland Identification Report is limited to findings pursuant to Part 303 and does not constitute a determination of jurisdiction under other DEQ administered programs. Any land use activities undertaken within the review area may be subject to regulation pursuant to the NREPA under Part 91, Soil Erosion and Sedimentation Control.

Please be aware that this wetland identification report does not constitute a determination of the jurisdiction under local ordinances or federal law. The U.S. Army Corps of Engineers (USACE) retains regulatory authority over certain wetlands pursuant to Section 404 of the Clean Water Act (CWA), and specifically those wetlands associated with traditionally navigable waters of the state. Navigable waters are generally the Great Lakes, their connecting waters, and river systems and lakes connected to these waters. In other areas of the state, the DEQ is responsible for identification of wetland boundaries for purposes of compliance with the CWA under an agreement with the U.S. Environmental Protection Agency. Your review area does not appear to be within those areas also regulated by the USACE. Additional information may be obtained by contacting the USACE at 313-226-2218.

You may request the DEQ reassess the wetland boundaries and regulatory status of wetlands within any portion of the review area, should you disagree with the findings, within 60 days of the date of this report. A written request to reassess the Wetland Identification review area must be accompanied by supporting evidence with regard to wetland vegetation, soils or hydrology different from, or in addition to, the information relied upon by DEQ staff in preparing this report. The request should be submitted to:

Wetland Identification Program
Department of Environmental Quality
Water Resources Division
P.O. Box 30458
Lansing, Michigan 48909-7958

The findings contained in this report do not convey, provide, or otherwise imply approval of any governing act, ordinance, or regulation, nor does it waive the obligation to acquire any applicable federal, state, county, or local approvals. This Wetland Identification Report is not a permit for any activity that requires a permit from the DEQ.

The findings contained in this report are binding on the DEQ until August 12, 2018, a period of three years from the date of this Wetland Identification Report unless a reassessment has been conducted. Please contact me at 517-284-5534; gyekisk@michigan.gov; or DEQ, P.O. Box 30458, Lansing, Michigan 48909-7958, if you have any questions regarding this report.

Sincerely,

Keto Gyekis
Wetland Identification Program Coordinator
Water Resources Division

Enclosures
cc: Oakland County Soil Erosion Enforcement Agent (CEA)
Oakland County Health Department
City of Troy Clerk
Mr. Dave Pert, Mondrian Properties
Mr. Andy Hartz, DEQ
Ms. Sue Tepatti, DEQ

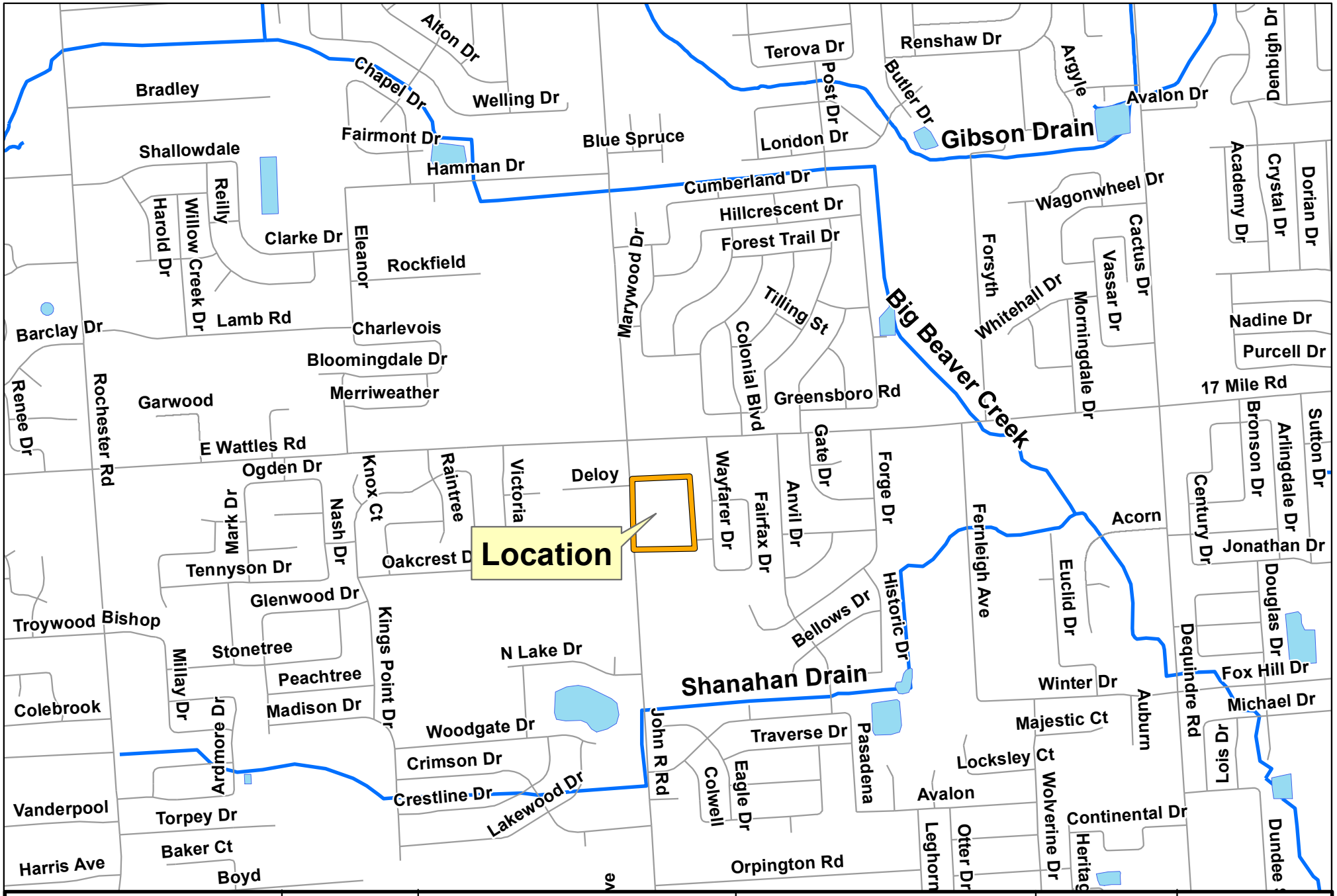
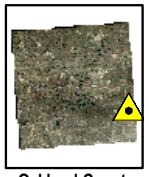


Figure 1.
Wetland Assessment Location
DEQ WIP File 15-63-0002-WA



N W E S

0 312.5 625 1,250 1,875 2,500 Feet

Review Area
Lake / Pond
Stream / Drain

This drawing showing those areas containing wetland and not containing wetland is an approximation of the boundaries flagged on-site.

This drawing does not authorize or permit activities requiring a permit in accordance with Part 303 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

STATE OF MICHIGAN
DEQ
DEPARTMENT OF ENVIRONMENTAL QUALITY

Map created: August 2015
K. Gyekis,
Wetlands, Lakes,
and Streams Unit, DEQ WRD

Figure 2.
Wetland Assessment Detail
DEQ WIP File 15-63-0002-WA

Oakland County

N
W E
S

0 37.5 75 150 225 300 Feet

Review Area

Unregulated Wetland

This drawing showing those areas containing wetland and not containing wetland is an approximation of the boundaries flagged on-site.

This drawing does not authorize or permit activities requiring a permit in accordance with Part 303 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

STATE OF MICHIGAN
DEQ
DEPARTMENT OF ENVIRONMENTAL QUALITY

Map created: August 2015
K. Gyekis,
Wetlands, Lakes,
and Streams Unit, DEQ WRD

DATE: January 21, 2016

TO: Planning Commission

FROM: R. Brent Savidant, Planning Director

SUBJECT: ZONING ORDINANCE TEXT AMENDMENT (File Number ZOTA 247) – Oil and Gas Extraction

This item was initiated by the Planning Commission, based on a recognition that the Zoning Ordinance is presently silent on the issue of oil and gas extraction.

The provisions were discussed by the Planning Commission at previous meetings. The proposed provisions would regulate oil and gas extraction in Troy, including fracking. These operations would be permitted subject to special use approval in the IB (Integrated Industrial and Business) zoning district only, on parcels that are at least 5 acres in size or greater.

This item was discussed at a joint meeting with City Council on September 14, 2015 Three experts were brought in to share their expertise with the boards. The experts were provided time to respond in writing to all questions raised during the meeting (see attached). At the end of the joint meeting the consensus was that the item needed to go back to the Planning Commission for further discussion and review.

Please be prepared to discuss this item at the January 26, 2016 Planning Commission meeting.

Attachments:

1. Public Hearing Draft ZOTA
2. Map of potential oil and gas sites (based on draft ZOTA).
3. Minutes from September 14, 2015 joint Planning Commission/City Council meeting
4. Responses from experts participating in September 14, 2015 Joint Meeting.
5. Public input.

G:\ZOTAs\ZOTA 247 Oil and Gas Extraction\PC Memo 01 26 2016.doc

CITY OF TROY

AN ORDINANCE TO AMEND
CHAPTER 39 OF THE CODE
OF THE CITY OF TROY
CITY COUNCIL PUBLIC HEARING DRAFT

The City of Troy ordains:

Section 1. Short Title

This Ordinance shall be known and may be cited as an amendment to Chapter 39, Zoning Ordinance, of the Code of the City of Troy.

Section 2. Amendment

Chapter 39 of the Code of the City of Troy is amended as follows:

Add the following definitions in Section 2.02 to read as follows:

DERRICK – Any portable framework, tower mast and/or structure which is required or used in connection with drilling or re-working a well for the production of oil or gas.

DRILLING PAD-- The area of surface operations surrounding the surface location of a well or wells. Such area shall not include an access road to the drilling pad.

HYDRAULIC FRACTURING OR FRACKING– The process of injecting water, customized fluids, sand, steam, or gas into a gas well under pressure to improve gas recovery.

HORIZONTAL DRILLING- The drilling of an oil or natural gas well at an angle so that the well runs parallel to the formation containing the oil or gas.

OIL AND GAS -- Crude oil, natural gas, methane gas, coal bed methane gas, propane, butane and/or any other products or similar substances that are produced by drilling an oil or gas well.

OIL AND GAS DEVELOPMENT -- The well site preparation, construction, drilling, redrilling, hydraulic fracturing, and/or site restoration associated with an oil or gas well of any depth; water and other fluid storage, impoundment and transportation used for such activities; and the installation and use of all associated equipment, including tanks, meters, and other equipment and structures whether permanent or temporary; and the site preparation, construction, installation, maintenance and repair of oil and gas pipelines and associated equipment and other equipment and activities associated with the exploration for, production and transportation of oil and gas. The definition does not include natural gas compressor stations and natural gas processing plants or facilities performing the equivalent functions.

OIL OR GAS WELL--A pierced or bored hole drilled or being drilled in the ground for the purpose of, or to be used for, producing, extracting or injecting gas, oil, petroleum or another liquid related to oil or gas production or storage, including brine disposal.

OIL OR GAS WELL SITE -- The location of facilities, structures, materials and equipment (whether temporary or permanent), that are necessary for or incidental to the preparation, construction, drilling, production or operation of an oil or gas well. This definition also includes exploratory wells.

NATURAL GAS COMPRESSOR STATION -- A facility designed and constructed to compress natural gas that originates from a gas well or collection of such wells operating as a midstream facility for delivery of gas to a transmission pipeline, distribution pipeline, natural gas processing plant or underground storage field, including one or more natural gas compressors, associated buildings, pipes, valves, tanks and other equipment.

NATURAL GAS PROCESSING PLANT -- A facility designed and constructed to remove materials such as ethane, propane, butane, and other constituents or similar substances from natural gas to allow such natural gas to be of such quality as is required or appropriate for transmission or distribution to commercial markets but not including facilities or equipment that is designed and constructed primarily to remove water, water vapor, oil or naturally occurring liquids from the natural gas.

STORAGE WELL-- A well used for and in connection with the underground storage of natural gas, including injection into or withdrawal from an underground storage reservoir for monitoring or observation of reservoir pressure.

Revise the following table in Section 4.21 to read as follows:

	R1A-R1E	RT	MF	UR	MHP	CF	EP	CB	GB	IB	O	OM	RC	PV	P
Oil and Gas Well or Development	NP	NP	NP	NP	NP	NP	NP	NP	NP	S	NP	NP	NP	NP	NP

Add Section 6.33 to read as follows:

Section 6.33: Oil and Gas Well/Development Standards for Special Use Approval:

The purpose of this section is to provide for the reasonable development of land for oil and gas drilling while providing adequate health, safety and general welfare protections of the residents of Troy. It is necessary and appropriate to adopt reasonable requirements for oil and gas resource development so that these resources can be obtained in a manner that protects the environment, protects residential properties and residential property values, and mitigates negative impacts.

The following requirements shall apply to the location, installation, drilling and operation of any well for the commercial extraction of oil, gas or other hydrocarbons in the City:

A. Spacing and Well Setbacks. In addition to the spacing and setback requirements of the State of Michigan and the regulations of its Supervisor of Wells, the drilling, completion, or operation of oil or gas wells or well site shall not be located within 300 feet from any road right-of-way, 500 feet of a residentially zoned or used property or any property used for a religious facility, public or private school, or hospital, and 100 feet from any other property line. The setbacks in this section also apply to the area underground, and

preclude any horizontal drilling within the setback unless the applicant demonstrates to the City's satisfaction a legal entitlement to drill on adjacent properties through mineral rights acquisition or other means.

The measurement of the setback shall be made from the edge of the well site (in a straight line, without regard to intervening structures or objects), to the closest exterior point of the adjacent parcel.

B. Height. The completed wellhead structure shall not exceed twenty-two (22) feet in height. The temporary drilling derrick/rig shall not exceed one-hundred and ten (110) feet in height.

C. Minimum Lot Size. The minimum lot size shall be 5 acres.

D. Fencing, Landscaping, and Lighting.
   1. An oil or gas well site shall be completely enclosed within a 6-foot high fence.
   2. Staggered ten (10) foot tall evergreen trees shall be placed around the perimeter of the fence with a minimum landscape greenbelt buffer of twenty-five (25) feet in depth. This landscaping buffer shall be in place within thirty (30) days of the removal of the temporary drilling derrick/rig. The landscape buffer and trees shall be regularly irrigated and maintained.
   3. Exterior lighting shall comply with Section 13.05 of the Zoning Ordinance.

E. Nuisance Mitigation. The drilling, completion, or operation of oil or gas wells or other wells drilled for oil or gas exploration purposes shall comply with Section 12.06, Environmental Performance Standards. Those standards address potential nuisances such as noise, smoke, dust, open storage, fire and explosive hazards, odors, wastes, and vibration. Due to the unique nature of this type of operation, additional information and standards may be required.

F. Dust, Noise, Vibration, and Odors. All operations shall be conducted in such a manner as to minimize, so far as practicable, dust, noise, vibration, or noxious odors, and shall be in accordance with the best accepted practices defined by the Michigan Department of Environmental Quality (MDEQ) for the production of oil, gas and other hydrocarbon substances in urban areas. All equipment used shall be constructed and operated so that vibrations, dust, odor or other harmful or annoying substances or effects will be minimized by the operations carried on at any drilling or production site or from anything incidental thereto, and to minimize the annoyance of persons living or working in the vicinity. Additionally, the site or structures on the property shall not be permitted to become dilapidated, unsightly, or unsafe. The City may impose additional reasonable restrictions upon such operations to reduce adverse impacts upon adjacent properties.

G. Oil and Gas Processing Facilities. Associated processing facilities that separate oil, gas, and brine and hold said products for transport off-site for further refinement and processing are not permitted.

H. Compliance with Laws and Permit Issuance. The drilling, completion, or operation of oil or gas wells or other wells drilled for the purpose of oil or gas exploration shall be done in conformity with all State and Federal laws, statutes, rules, and regulations pertaining thereto and particularly with the State of Michigan and the regulations of its Supervisor of Wells. This shall include obtaining the required permit from the Supervisor of Wells,

which permit shall be provided to the City before the City can grant special use approval under this section. This requirement also applies to, but is not limited to the plugging of wells, the exploring for, producing, marketing, and transporting of petroleum products, and the disposition and removal of any byproducts utilized and associated with said activities.

I. Associated Permits and Approvals. Special use approval for the drilling, completion, or operation of oil or gas wells or other wells drilled for oil or gas exploration purposes is in addition to and are not in lieu of any permit or plan which may be required by any other provision of the City of Troy Zoning Ordinance, Building and Fire Codes, or by any other governmental agency, unless expressly outlined.

J. Operations

1. Permitted Construction Activity Hours. Site preparation and construction of well sites are limited to the hours of 7 am to 8 pm. Construction activities associated with establishing of the well sites may be eligible for an exception by the Building Department in accordance with the City's Special Hours Work Permit if such activities are in compliance with applicable laws and permits.

2. The movement of drilling rigs, tanker trucks or heavy equipment used in connection with the drilling or operation of oil or gas wells over public roads and streets, shall be consistent with the City's Traffic Engineer's approval, which shall be obtained in advance. The City's Traffic Engineer shall identify the streets which may be used and any conditions that may apply.

3. All brine, mud, slush, saltwater, chemicals, wastewater, chemical, fluids or waste produced or used in the drilling or production of oil or gas shall be safely, lawfully and properly disposed of to prevent infiltration of or damage to any fresh water well, groundwater, watercourse, pond, lake or wetland.

4. The oil or gas well site shall be kept in a clean and orderly condition, free of trash and debris, with weeds cut. Machinery and equipment not being used in the operation of the well shall not be stored or kept at the well site.

5. An oil or gas well shall include measures or controls satisfactory to the City Engineer to prevent migration, run-off or discharge of any hazardous materials, including but not limited to any chemicals, oil or gas produced or used in the drilling or production of oil or gas, to adjoining property or to the City of Troy sanitary sewer system, stormwater system or any natural or artificial watercourse, pond, lake or wetland. There shall be no off-site discharge of storm water except to an approved drainage system in accordance with the City's engineering requirements.

K. Inspection. The Building Official, and any other designee of the City Manager, shall have the right and privilege at any time during the construction phase and any drilling operation to enter upon the premises covered by the special use approval for the purpose of making inspections to determine if the requirements of this section are complied with or the requirements of any other code or ordinance of the City are met.

L. Injection wells. Injection wells used for brine disposal or other chemicals from production wells or from other sources shall be expressly prohibited within the City.

M. Pipelines. No operator shall excavate or construct any lines for the conveyance of fuel, water, oil, gas or petroleum liquids on, under, or through the streets, alleys or other properties owned by the City without an easement or right-of-way license from the City.

N. Submittal Requirements. In addition to submittal requirements for a Site Plan as set forth in Article 8 and Special Use as set forth in Article 9, the following information shall be submitted as part of the application:

1. Environmental Impact Statement. Applicant shall submit an Environmental Impact Statement filed with the Michigan Department of Environmental Quality in connection with a well permit under Part 615 of the Natural Resources and Environmental Protection Act, MCL 524.61501, et seq, and the administrative rules promulgated under Part 615, as amended.

2. Hydrogeological analysis.

3. Emergency Response Plan. Pursuant to State and Federal law, the operator shall provide any information necessary to assist the City Emergency Services Department with an emergency response plan and hazardous materials survey establishing written procedures to minimize any hazard resulting from the operation. The Emergency Response Plan should include emergency contact information.

4. Reclamation Plan. A written statement that describes how the land will be returned to a stable and productive condition post drilling operations.

5. Operations Plan to include:
   i. Site ingress/egress
   ii. Haul Route Map. Vehicle Routes for Truck Traffic. Construction vehicles and commercial trucks, associated with drilling and/or production operations shall be restricted to roads designated by the City Engineer.
   iii. Hours of Operation. State listed hours of operation.
   iv. Soil Erosion, Mud and Dust Control Plan.
   v. Noise Control Plan. Prior to the granting of special use approval and the commencement of operations, the petitioner shall submit a noise management plan, detailing how the equipment used in the drilling, completion, transportation, or production of a well complies with the maximum permissible noise levels of the Zoning Ordinance. If Special Use Approval is granted, the Petitioner shall be responsible for verifying compliance with this section and the noise management plan after the installation of the equipment. The noise management plan shall:
      i. Identify operational noise impacts
      ii. Provide documentation establishing the ambient noise level prior to construction.
      iii. Detail how the impacts will be mitigated. In determining noise mitigation, specific site characteristics shall be considered, including but not limited to the following:
         1. Nature and proximity of adjacent development, location, and type
         2. Seasonal and prevailing weather patterns, including wind directions
         3. Vegetative cover on or adjacent to the site

4. Topography

vi. Odor and Fume Control Plan

vii. Pollution Prevention Plan

viii. Impact Mitigation Plan

ix. Monitoring controls.

Section 3. Savings

All proceedings pending, and all rights and liabilities existing, acquired or incurred, at the time this Ordinance takes effect, are hereby saved. Such proceedings may be consummated under and according to the ordinance in force at the time such proceedings were commenced. This ordinance shall not be construed to alter, affect, or abate any pending prosecution, or prevent prosecution hereafter instituted under any ordinance specifically or impliedly repealed or amended by this ordinance adopting this penal regulation, for offenses committed prior to the effective date of this ordinance; and new prosecutions may be instituted and all prosecutions pending at the effective date of this ordinance may be continued, for offenses committed prior to the effective date of this ordinance, under and in accordance with the provisions of any ordinance in force at the time of the commission of such offense.

Section 4. Severability Clause

Should any word, phrase, sentence, paragraph or section of this Ordinance be held invalid or unconstitutional, the remaining provision of this ordinance shall remain in full force and effect.

Section 5. Effective Date

This amendment to the Zoning Ordinance shall take effect seven (7) days after publication, which shall be published within 15 days of adoption, as required the Michigan Zoning Enabling Act (Act 110 of 2006).

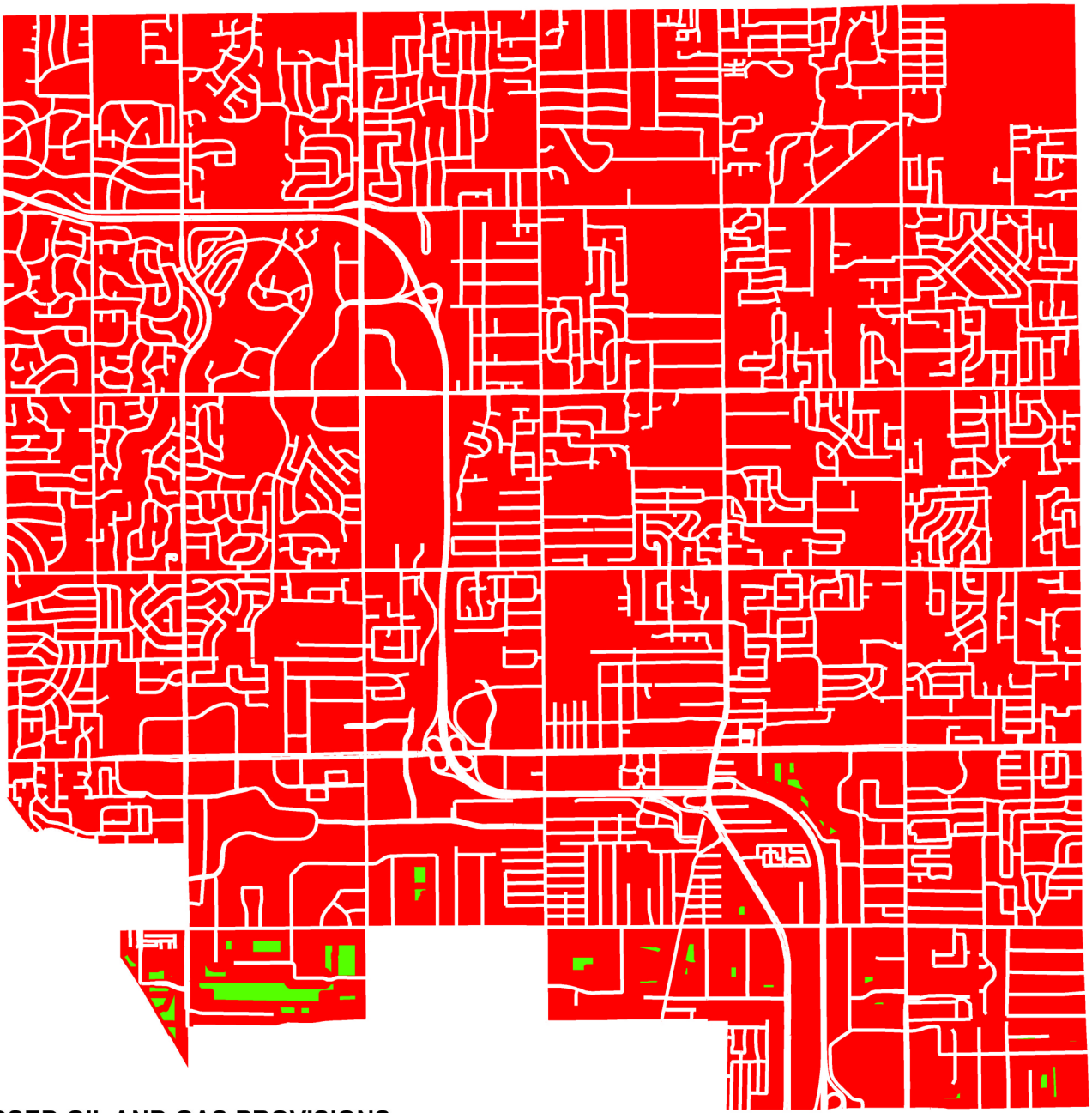
This Ordinance is enacted by the Council of the City of Troy, Oakland County, Michigan, at a regular meeting of the City Council held at City Hall, 500 W. Big Beaver, Troy, MI, on the _____ day of _____, 2015.

_____

Dane Slater, Mayor

_____

Aileen Bittner, City Clerk



PROPOSED OIL AND GAS PROVISIONS

Areas meeting criteria for Oil and Gas Facilities (as per proposed text amendment)

7/15/2015

A. CALL TO ORDER:

A Special Joint Meeting of the Troy City Council and Planning Commission was held on Monday, September 14, 2015, at City Hall, 500 W. Big Beaver Rd. Mayor Slater called the meeting to order at 6:01 PM.

B. ROLL CALL:

a)

City Council Members	Planning Commission Members
Mayor Dane Slater	Chairman Donald Edmunds
Jim Campbell	Ollie Apahidean
Steve Gottlieb	Karen Crusse
Dave Henderson	Carlton Faison
Ellen Hodorek	Michael W. Hutson
Ed Pennington – Arrived at 6:22 PM	Tom Krent
Doug Tietz	Padma Kuppa
	Philip Sanzica
	John Tagle

C. DISCUSSION ITEMS:

C-1 Master Plan Update - Carlisle/Wortman Associates, Inc.

Mr. Brian Kischnick, City Manager, introduced Mr. Dick Carlisle, Carlisle/Wortman Associates, Inc., who discussed the Master Plan Community Engagement and remaining tasks involved in updating the Master Plan.

C-2 Why We Are Here/Framing the Issues - City Manager Brian Kischnick

Mr. Kischnick introduced Mr. Brent Savidant, Planning Director, who provided a brief introduction to the topic of the proposed amendment to the City of Troy Zoning Ordinance in order to regulate oil and gas extraction facilities.

C-3 Presentation by Hal Fitch, Director, Office of Oil, Gas and Minerals, MDEQ

Mr. Kischnick introduced Mr. Hal Fitch, Director of Oil, Gas and Minerals, MDEQ. Mr. Fitch provided an introduction to the functions and rules of the Office of Oil, Gas and Minerals of the Michigan Department of Environmental Quality. He stated that his office seeks to strike a balance between the rights of mineral owners, surface property owners and environmental protection. Mr. Fitch explained the latest security controls on wells in regards to environmental impact. He provided a brief summary of the restrictions in place regarding wells and extraction facilities. Mr. Fitch commented that the proposed ordinance looks promising but he pointed out a couple areas that he thinks could be problematic. He said the proposed setback distance, restricting drilling to a smattering of locations in one corner of the City, and limiting drilling to a vertical hole versus a horizontal track are problematic amendments that could be liabilities.

C-4 Presentation by Jim Nash, Oakland County Water Resources Commissioner

Mr. Kischnick introduced Mr. Jim Nash, Oakland County Water Resources Commissioner, who discussed his perspective on the proposed amendment to the City of Troy Zoning Ordinance on extraction facilities. He provided a recommendation that the City contact an organization called Flow for Water. He commented that the proposed ordinance is a good idea, and limiting exposure of the residents to the environmental effects of drilling sites such as air quality. He recommended frequent testing of the ground water and wildlife in the area around the drilling site. He said the City has a lot of power in controlling the regulations of tank farms and other aspects of facilities. Mr. Nash summarized that water quality and air quality are his biggest concerns with these facilities.

C-5 Presentation by John Griffin, Executive Director, Associated Petroleum Industries of Michigan

Mr. Kischnick introduced Mr. John Griffin, Executive Director, Associated Petroleum Industries of Michigan, who discussed a handout he provided from the Energy Information Administration to the City Council and Planning Commission. Mr. Griffin explained that many communities are examining the issues of oil and gas extraction facilities. He said that national organizations are approaching individual communities in order to encourage communities to adopt restrictive ordinances and if enough communities adopt restrictions, there could be a de facto ban on extraction facilities. He said that everyone uses energy resources and products every day, and wells are necessary to provide those resources. He commented that the City of Troy proposed Zoning Ordinance Amendment seems very restrictive. Mr. Griffin said that the State restrictions are sufficient and consistent, and local restrictions will end up hurting consumers.

C-6 Questions/Discussion

Chairman Edmunds asked about the presenters' assessments of ordinances enacted in nearby cities. Mr. Fitch answered that some he has seen are pretty restrictive, and Troy's proposed ordinance prohibits development in too large of areas. Mr. Nash commented that there is always a risk of a law suit for having too restrictive an ordinance. He said Flow for Water has a lot of useful information on their website. Mr. Fitch commented that some of the suggestions from Flow for Water are questionable.

Mayor Pro Tem Campbell asked what takes precedence: mineral rights or property rights. Mr. Fitch answered that mineral rights are dominant over the surface property rights.

Ms. Kuppa asked Mr. Savidant if he compared Troy's proposed ordinance to Rochester Hills ordinance and if Troy's proposed ordinance is defensible. Mr. Allan Motzny, Assistant City Attorney, said that Troy's proposed ordinance is defensible and does not prohibit drilling beyond the subsurface property lines as long as the drilling company has documentation that they have the right to do so. Mr. Nash said that the City has the right to regulate where pipes are placed, and pipes have the potential to leak more than trucks.

Council Member Tietz asked if the City Council passed an ordinance, and it was challenged, would the City be sued and have damages assessed to the City. Mrs. Bluhm answered that there is a risk of being sued if the City passes an ordinance that is more restrictive than the State regulations.

Mrs. Crusse asked for confirmation regarding the statement that the area of Troy does not lend itself to what hydraulic fracturing companies are looking for. Mr. Fitch answered that the land

and reservoirs in this area does not lend itself to hydraulic fracturing. Mrs. Crusse asked Mr. Fitch to confirm that hydraulic fracturing in the State of Michigan have been safe so far. He commented that there has not been an incident of environmental contamination from a hydraulic fracturing operation itself in the State of Michigan. Mrs. Crusse asked Mr. Griffin about his statement that when cities and townships create ordinances to control hydraulic fracturing, that he was of the opinion that it was better to regulate in the big picture instead of each municipality adopting individual regulations. Mr. Griffin answered that statewide regulations are best. Mr. Nash commented that most wells in Michigan were never tested, so there is no way to know if there were leaks or contamination. He said that citizen complaints need to be addressed. Mr. Griffin commented that a former EPA Administrator testified before Congress that there had been no accidents with hydraulic fracturing. He also said that new rules passed last March require baseline water testing. Mr. Nash commented that those rules are for large-scale fracking, not small-scale fracking.

Council Member Henderson asked what is meant by the phrase 40 acres under lease and 3 acres to drill. Mr. Fitch answered that a square 40 acres is the size of the tract that is needed to form one well, and leases on the land in those 40 acres are needed in order to drill.

Mr. Krent asked if the property owner owns the mineral rights or how property owners can find out if they own mineral rights on their land and how to get them if they don't own them. Mr. Fitch answered that residents can look at the Register of Deeds to see if the mineral rights have been sold at some point.

Mr. Apahidean asked Mr. Fitch knows how many wells in Michigan are horizontal wells and what percentage are in urban areas. Mr. Fitch answered that over 1,800 wells have been drilled within cities and villages. He said that horizontal drilling started around 1980, and is more the exception than the rule, so there aren't many horizontal wells.

Mr. Tagle asked how the City can know where the drilling companies may want to drill, so as to try to avoid limiting property rights. Mr. Fitch answered that you don't know until the drilling company conducts surveys and testing.

Council Member Gottlieb asked if there has been one incident of hydraulic fracking in Oakland County. Mr. Fitch answered that he is not aware of one. Mr. Griffin commented that permit applications can be found on the MDEQ website, listed by county. Mr. Fitch commented that when the MDEQ receives an application, they contact the local governing body and will attend public meetings if the local body requests their presence. Mr. Nash asked if drilling operations are exempt from FOIA. Mr. Fitch answered that the drilling sites and locations are not confidential, but the formation and character of the formation can be held confidential.

Mr. Hutson commented that if the land in Troy is no conducive to fracking, then there will be no harm in enacting the proposed ordinance. He said the State statute is general, and the proposed ordinance fills in gaps that are in the State statute. Mr. Hutson agreed with Mr. Nash that safety is most important.

Council Member Pennington asked if there's a case in Michigan where they've been doing horizontal fracturing. Mr. Fitch answered that horizontal drilling doesn't always mean horizontal fracturing takes place. He said that there have been about 80 high-volume hydraulic fracturing operations in Michigan. He said there have been about 15 large-scale horizontal wells.

Mr. Faison asked about the settlement amounts in the lawsuits and the difference in scenarios of the cases. Mr. Fitch answered that the Ludington area lawsuit was higher because of the prospective value of the operation. He said that in the Farmington Hills case, the damages to the operator were less because the value of the potential reserves was lower. Mr. Faison asked if Troy lends itself to large-scale development in terms of opportunity. Mr. Fitch answered that one of the wells in the formation in this part of the state produces about $8000 in revenue per day.

C-7 Wrap Up/Next Steps

Mayor Slater thanked the speakers for their information. He said that he believes there needs to be more discussion, and that the ordinance amendment needs to go back to the Planning Commission for further discussion and review. Mr. Edmunds requested that the questions asked tonight be provided to the speakers for their consideration and answers. He said that perhaps this amendment could be postponed until November or December. Mrs. Crusse commented that this topic arose so that the City of Troy would not be taken by surprise by a drilling company wishing to drill in Troy. Mr. Edmunds asked if Shelby Township was notified when the exploratory drill was proposed. Mr. Fitch answered that Shelby Township was notified. Council Member Tietz asked the Planning Commission to pay attention to the fact that there were concerns tonight about the ordinance amendment being too restrictive.

D. PUBLIC COMMENT:

Janet Moore – Troy resident, is concerned about fracking in Troy.
David Riley – Engineer, is concerned about property values near extraction sites.
Marla Wills – is concerned about the hazards of extraction facilities and the surrounding area.

E. ADJOURNMENT:

The Meeting **ADJOURNED** at 7:13 PM.

Mayor Dane Slater

M. Aileen Dickson, CMC
City Clerk

Hal Fitch
Chief, Office of Oil, Gas, and Minerals
Michigan Department of Environmental Quality

John Griffin, Executive Director
Associated Petroleum Industries of MI

Jim Nash
Oakland County Water Resources Commissioner

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1. <u>What are the presenters' assessments of ordinances enacted in nearby cities?</u>

   Fitch: *I have not reviewed ordinances in nearby cities.*

   Griffin: *API believes local ordinances are unnecessary and create a patchwork of regulations which have the impact of deterring production of minerals. Statewide regulation and oversight is best. We suggest that a particular industry should not be singled out for regulation if other industries or organizations operate in a similar fashion. (Restrictions on transportation, noise etc.)*

   Nash: *Not being an attorney, I can't comment on other ordinances. I would suggest talking to FLOW for Water, at (231) 944-1568, for their opinion.*

2. <u>What takes precedence: mineral rights or property rights?</u>

   Fitch: *First, let me clarify that mineral rights <u>are</u> property rights. The courts have found that the owner of the surface (if separate from the mineral owner) cannot prevent the owner of mineral rights (including oil and gas rights) from using the surface in a reasonable manner to extract his or her minerals.*

   Griffin: *This issue is discussed in the attached legal memo.*

   Nash: *In law, mineral rights are property rights. Most people would consider the right not to be polluted on their land as a property right. The balance of benefitting from your mineral rights and the effect on surrounding properties is what local communities must consider.*

3. <u>If one were to compare Troy's proposed ordinance to Rochester Hills' ordinance, is Troy's proposed ordinance defensible?</u>

   Fitch: *I have not reviewed Rochester Hills' ordinance. I would advise caution in comparing ordinances as to what is "defensible," because the legal defensibility of any given ordinance may only be determined if it is challenged, and then it may depend on the specifics of the case.*

   Griffin: *This question is for your attorneys to answer. The attached legal memo should be helpful in their research.*

   Nash: *Again, talk to Flow for Water for legal advice on ordinances.*

4. <u>If the City Council passed an ordinance, and it was challenged, would the City be sued and have damages assessed to the City?</u>

   Fitch: *This question calls for a legal conclusion and may depend on the details; however, another city in southeast Michigan—Farmington Hills—was sued because their ordinance was alleged to be unduly prohibitive, and the city settled for a substantial sum (see below).*

   Griffin: *I again refer you to the legal memo for guidance, but we cannot speculate or give you legal advice. Answering such a hypothetical question would be difficult for anyone to answer without specifics.*

   Nash: *The city could be sued over any ordinance, including this. I can't speak to the legal specifics.*

5. <u>Could the presenters confirm the statement that the area of Troy does not lend itself for what hydraulic fracturing companies are looking?</u>

   Fitch: *The formations of interest for oil and gas development in the Troy area are not typically candidates for hydraulic fracturing.*

   Griffin: *I will defer to Hal Fitch, the state geologist, who has made such a statement in the Oakland Press. A copy of the article is attached.*

   Nash: *I can only repeat the claim that the formations aren't compatible with fracking. Future technologies may change that.*

6. <u>When cities and townships create ordinances to control hydraulic fracturing, is it better to regulate in the big picture instead of each municipality adopting individual regulations?</u>

   Fitch: *First of all, it should be noted that hydraulic fracturing is just one aspect of the development of some oil and gas wells, and the practice of hydraulic fracturing itself has never caused environmental contamination in Michigan. We believe oil and gas development is most effectively regulated at the state level. The Michigan Department of Environmental Quality regulates essentially all aspects of oil and gas drilling and production intensively and comprehensively, and has the necessary technical and legal resources to do so. We have an excellent history of protecting the environment and public health and safety from damage by oil and gas development.*

   Griffin: *Yes, assuming you mean statewide from a qualified regulating agency. A state's constitutional provisions relating to property rights needs to be recognized as well.*

   Nash: *The companies would prefer only one set of rules for the state. Of course, all companies would prefer their industry not being regulated locally, but most don't have that option. Oil/gas extraction has many important pollution issues specific to the industry. While the basic rules are state-wide, local governments know better what their people want and need. Local health and welfare control over what can be done in their communities is important to government and people, so I believe it is our responsibility to protect our citizens as best we can locally.*

   As I said when we met, the claim that "the practice of hydraulic fracturing itself has never caused environmental contamination in Michigan," is simply not accurate. Of the thousands of fracked wells in Michigan in 50+ years, almost none were ever tested before or after drilling to see if there was contamination. Lack of data is NOT proof of lack of a problem. Pre and post drill testing is important for long term public safety. And not all pollution comes from actual drilling; spills at sites, leaking

gas lines and air quality issues aren't directly related to drilling, but only happen at drilling sites and supply chain.

7. <u>What is meant by the phrase "40 acres under lease and 3 acres to drill"?</u>

   Fitch: *The DEQ establishes "drilling units," defined as a designated tract of land that can be efficiently and effectively developed by one well. The size and orientation depends on the characteristics of the target formation. For the formation of current interest in southeast Michigan (the "Trenton-Black River Formation"), 40-acre drilling units have been established. The units must be approximately square and based on government land survey lines. The oil and gas developer must have leases or other legal arrangements on all parcels within the unit giving the developer the right to drill and extract oil and gas from the unit, and each mineral owner shares in the proceeds of any production. About three acres is the minimum area needed for a drilling operation, consisting of a drill rig, pumps, fluid handling and storage, and truck loading area.*

   Griffin: *I will defer to Hal Fitch to answer.*

   Nash: *This is well explained by Mr. Fitch's answer.*

8. <u>Do property owners own their mineral rights and how can property owners find out if they own mineral rights on their land and how to get them if they don't own them?</u>

   Fitch: *Mineral rights in a parcel may be owned by the owner of the surface or they may be owned separately by another person. A surface property owner can usually determine whether they own the mineral rights by searching the county records. Mineral rights, like other rights in a parcel, can be bought and sold, and a surface owner may negotiate with the mineral owner to purchase the mineral rights.*

   Griffin: *It depends if the mineral and surface rights are unified or severed. That information can be found at the register of deeds office. For a surface owner to obtain mineral rights they do not own, they must acquire them from the mineral owner.*

   Nash: *Mineral rights can go with the land, or they can be sold separately. Any particular property's mineral rights can be determined by checking the county Clerk/Register of Deeds.*

9. <u>How many wells in Michigan are horizontal wells and what percentage are in urban areas?</u>

   Fitch: *About 1350 horizontal oil and gas wells have been drilled in Michigan out of a total of about 60,000 wells. There have been more than 1800 wells drilled in cities and villages in Michigan. We can confirm 17 of those to be horizontal wells; there are probably more in that category but it would require a detailed review of the records of each well to determine an exact number.*

   Griffin: *The DEQ Oil Gas and Minerals Section compile those statistics. They can be found on their website at http://www.michigan.gov/deq/0,4561,7-135-3306_57064---,00.html*

   Nash: *There are relatively few in urban areas, and most of those are in industrial areas. Until recently wells in highly populated areas were rare, and few state properties sold their mineral rights. Horizontal, fracked or conventional drilling all have issues that need to be addressed.*

10. How does one know where the drilling companies may want to drill, so as to try to avoid limiting property rights?

    Fitch: *Only the oil and gas company knows where they may want to drill, and they do not generally disclose that information until they are close to making a decision. One can sometimes surmise where there is interest in drilling by learning where companies are leasing mineral rights.*

    Griffin: *Companies will conduct seismic testing in areas where they believe recoverable oil and gas deposits could potentially be present. A company may then proceed to leasing mineral rights. Then is some cases an exploratory well is drilled. If the production company then believes sufficient deposits can be produced economically, a production well can be drilled. I will leave it to Hal Fitch to outline the public notice requirements under law and rule.*

    Nash: *For many of the early operations that decide where to drill there is no way to know their plans. Some of their state filings are exempt from FOIA until actual operations begin. In Southfield last year the signs of development were sounding trucks driving on local roads, thumping the ground for seismic testing. The state lists all leases on the DEQ web site.*

11. Has there been one incident of hydraulic fracking in Oakland County?

    Fitch: *I am quite sure hydraulic fracturing has never been used in Oakland County; however, it would require a detailed review of each well record to confirm that. I can say with certainty there has never been a high-volume hydraulic fracturing operation (one using more than 100,000 gallons of fracturing fluid) in the county.*

    Griffin: *Hal Fitch is the best to answer this.*

    Nash: *Not that I am aware of. I am aware of a horizontal fracking operation in Livingston County and one was proposed in Washtenaw County, but I'm not sure it is operational.*

12. Has there been a case in Michigan where horizontal fracturing has been undertaken?

    Fitch: *Hydraulic fracturing has been used in conjunction with horizontal drilling in about 40 oil and gas wells in Michigan.*

    Griffin: *Yes. See the DEQ website for a list.*

    Nash: *There have been some, but the industry is in its infancy in Michigan. One well in Northern Michigan used (and destroyed) 22 million gallons of water, and many communities are concerned about impacts of this technique.*

13. A statement was made about settlements in two different lawsuits, please explain the difference in scenarios of the cases.

    Fitch: *In the first case, Miller Brothers v. Department of Natural Resources, the DNR refused to issue permits for oil and gas development within the Nordhouse Dunes Wilderness Area. The surface was owned by the United States and managed by the Forest Service, and the mineral rights were owned primarily by private parties and leased to Miller Brothers. There were multiple potential oil and gas reservoirs identified by Miller Brothers under the Wilderness Area, with a postulated very high value. The court ruled that the State had unlawfully deprived Miller Brothers and the mineral owners of their property rights. The State settled the case for more than $90 million. In the*

second case, West Bay Exploration Co v. City of Farmington Hills, the city denied permission for West Bay Exploration to drill a well from a requested surface location to a one-well target identified under the city. The city settled the case for a substantial sum ($800,000, according to third party sources) and West Bay eventually drilled the well (a successful oil producer) from another surface location. It should be noted that every case may differ in detail, and may have to be weighed according to its merits and the degree of harm incurred.

Griffin: *See the legal memo for information on the cases.*

Nash: *Mr. Fitch made a fair statement of the cases in his statement. I would again suggest you contact Flow for Water for better legal advice on this issue.*

14. Does Troy lend itself to large-scale development in terms of opportunity?

Fitch: *The potential scale of oil and gas development can only be determined by drilling.*

Griffin: *One can never know what the future holds. There has been limited development to date when compared to other areas. See the DEQ OGM website for a map of all wells drilled in the state. Note: The map has more than oil and gas wells so look at the legend.*

Nash: *This is only determined by the oil/gas extraction companies themselves, as determined by the testing they do themselves. The DEQ only regulates the actual drilling and ancillary issues once the permitting process actually begins.*

15. Was Shelby Township notified when the exploratory drill was proposed?

Fitch: *Yes. The DEQ notified the Shelby Township Supervisor, Richard Stathakis, twice – once when the first application for a permit to drill was received, and again when an amended application was filed.*

Griffin: *Hal Fitch can answer.*

Nash: *DEQ followed normal policy of notice. Again, only once actual drilling is decided on and the process officially begins do public notices begin, until then no one outside the company knows their plans.*

Mika Meyers PLC

Memorandum

To: The Honorable Arlan B. Meekhof, State Senator
The Honorable Kevin Cotter, State Representative

From: William A. Horn

Date: October 14, 2015

Subject: Analysis of Constitutional Protections for Property Rights, Including Oil and Gas Interests

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Introduction

This paper examines the protections afforded to owners and lessees of oil and gas interests by the United States Constitution and the Michigan Constitution of 1963. The protections afforded those interests accrue because oil and gas interests are real property interests. There also are state constitutional protections that flow from the fact that oil and gas in place is a natural resource.

Executive Summary

A. Property Interests Enjoy Special Protections Under the State and Federal Constitutions

Both the federal and the state constitutions provide special protections for property. Both constitutions prohibit the taking of private property for public use "without just compensation." *See* United States Constitution, Amendment V ("[N]or shall private property be taken for public use, without just compensation.")' Michigan Constitution of 1963, Article X §2 ("Private property shall not be taken for public use without just compensation. . . ."). Both constitutions also preclude state or local governments from depriving a person of property without due process of law. See United States Constitution, Amendment XIV ("[N]or shall any State deprive any person of life, liberty, or property, without due process of law. . . .")' Michigan Constitution of 1963, Article I § 17 ("No person shall . . . be deprived of life, liberty or property, without due process of law.").

B. Oil and Gas Interests are Property Interests Protected by These Constitutional Provisions

Whether or not a particular interest is "property" and, thus, protected under the constitutions is an issue resolved by reference to state property law. See *Board of Regents of State Colleges v Roth*, 408 US 504, 577 (1972) ("Property interests, of course, are not created by

the Constitution. Rather they are created and their dimensions are defined by existing rules or understandings that stem from an independent source such as state law-rules."). There can be no question that oil and gas interests are property in Michigan:

> We have held that oil and gas are a part of the realty until severed therefrom. *Eadus v. Hunter*, 249 Mich. 190, 228 N.W. 782; *Attorney General v. Pere Marquette Ry. Co.*, 263 Mich. 431, 248 N.W. 860, 94 A.L.R. 520. And it follows that a transfer of title or of a right in the unsevered oil and gas, together with the right to go upon the land for the purpose of taking the oil and gas therefrom, involves a granting of rights in real estate . . . .

Jaenicke v Davidson, 290 Mich 248, 303 (1939).

Further, "[o]il, gas, and leasehold interests such as those held by the plaintiff in the instant case are viable property interests with a value derived from the ability to produce the oil and gas." *West Bay Exploration Co v City of Farmington Hills*, unpublished opinion per curiam of the Court of Appeals, issued June 19, 2001 (Docket No. 217590), p. 5. *See also Bass Enterprises Production Co v United States*, 381 F3d 1360 (Fed Cir 2004).

Discussion

A. Neither the State of Michigan Nor Its Political Subdivisions May Take Oil and Gas Interests Without Just Compensation

1. Regulatory Taking

The United States Supreme Court has long recognized that the government effectively takes a person's property by overburdening the property with regulations. *Pennsylvania Coal Co v Mahon*, 260 US 393, 415 (1922) ("The general rule, at least, is that, while property may be regulated to a certain extent, if regulation goes too far, it will be recognized as a taking."). "The rub, of course, has been-and remains-how to discern how far is 'too far.'" *Lingle v Chevron USA Inc*, 544 US 528, 538 (2005).

The Supreme Court has split its discernment of what is "too far" into three categories (or, more accurately, two categories and one set of standards):

> Our precedents stake out two categories of regulatory action that generally will be deemed *per se* takings for Fifth Amendment purposes. ***First, where government requires an owner to suffer a permanent physical invasion of her property-however minor-it must provide just compensation.*** See *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 102 S.Ct. 3164, 73 L.Ed.2d 868 (1982) (state law requiring landlords to permit cable companies to install cable facilities in apartment buildings effected a taking). ***A second categorical rule applies to regulations that completely deprive an owner of "all economically beneficial us[e]" of her property.*** *Lucas*, 505 U.S., at 1019, 112 S.Ct. 2886 (emphasis in original). . . . ***Outside these two relatively narrow categories*** (and the special context of land-use exactions discussed below, see infra, at 2086-2087), ***regulatory takings challenges are governed by the standards set forth in Penn***

> ***Central Transp. Co. v. New York City***, 438 U.S. 104, 98 S.Ct. 2646, 57 L.Ed.2d 631 (1978). The Court in *Penn Central* acknowledged that it had hitherto been "unable to develop any 'set formula'" for evaluating regulatory takings claims, but identified "several factors that have particular significance." *Id*., at 124, 98 S.Ct. 2646. Primary among those factors are "[t]he economic impact of the regulation on the claimant and, particularly, the extent to which the regulation has interfered with distinct investment-backed expectations." *Ibid*. In addition, the "character of the governmental action" - for instance whether it amounts to a physical invasion or instead merely affects property interests through "some public program adjusting the benefits and burdens of economic life to promote the common good" - may be relevant in discerning whether a taking has occurred. *Ibid*. The *Penn Central* factors-though each has given rise to vexing subsidiary questions-have served as the principal guidelines for resolving regulatory takings claims that do not fall within the physical takings or *Lucas* rules.

Lingle, 544 US at 538-539 (emphasis added). The Michigan Supreme Court has recognized all of the types of claims described in *Lingle*. *K & K Construction Inc v Department of Natural Resources*, 456 Mich 570, 576-577 (1998). So too has the Sixth Circuit Court of Appeals. *Tennessee Scrap Recyclers Association v Bredson*, 556 F3d 412 (CA 6, 2009).

a. Categorical Takings

A regulation resulting in a deprivation of all economically beneficial use is a taking for which compensation is due. Although several earlier Supreme Court cases acknowledged the "category," *Lucas v South Carolina Coastal Council*, 505 US 1003 (1992) provides the most complete rationale for the rule:

> We have never set forth the justification for this rule. Perhaps it is simply, as Justice Brennan suggested, that total deprivation of beneficial use is, from the landowner's point of view, the equivalent of a physical appropriation. *See San Diego Gas & Electric Co. v. San Diego*, 450 U. S., at 652 (dissenting opinion). "[F]or what is the land but the profits thereof[?]" 1 E. Coke, Institutes, ch. 1, § 1 (1st Am. ed. 1812). Surely, at least, in the extraordinary circumstance when no productive or economically beneficial use of land is permitted, it is less realistic to indulge our usual assumption that the legislature is simply "adjusting the benefits and burdens of economic life," *Penn Central Transportation Co.*, 438 U. S., at 124, in a manner that secures an "average reciprocity of advantage" to everyone concerned, *Pennsylvania Coal Co. v. Mahon*, 260 U. S., at 415. And the functional basis for permitting the government, by regulation, to affect property values without compensation—that "Government hardly could go on if to some extent values incident to property could not be diminished without paying for every such change in the general law," *id*., at 413—does not apply to the relatively rare situations where the government has deprived a landowner of all economically beneficial uses.
>
> * * *

> We think, in short, that there are good reasons for our frequently expressed belief that when the owner of real property has been called upon to sacrifice all economically beneficial uses in the name of the common good, that is, to leave his property economically idle, he has suffered a taking.

Lucas, 505 US at 1017-1019 (footnotes omitted).

b. *Penn Central* Balancing

Even if the regulation does not rise to the level of a categorical taking (for example by reducing but not eliminating all beneficial economic use), it may still require compensation if it is deemed a taking under the balancing test of *Penn Central*. The Michigan Supreme Court described application of the balancing test as follows:

> In the . . . balancing test, a reviewing court must engage in an "ad hoc, factual inquir[y]," centering on three factors: (1) the character of the government's action, (2) the economic effect of the regulation on the property, and (3) the extent by which the regulation has interfered with distinct, investment-backed expectations.

K & K Construction, 456 Mich at 577.

c. Denial of Oil and Gas Drilling Permits Has Been Found to Result in an Unconstitutional Taking

The Michigan Court of Appeals has decided takings claims involving owners and developers of oil and gas interests, finding that refusal to issue drilling permits deprived the owners and developers of all economically viable use of the property. In 1994, the court reasoned:

> Plaintiffs' mineral interests in the Nordhouse Dunes Area had one, and only one, economically viable use: the extraction of any oil or gas that might be found under the land. To extract oil and gas from the land, a well is needed. To be able to drill a well, a permit issued by the Supervisor of Wells is required. M.C.L. § 319.23; M.S.A. § 13.139(23). The director of the DNR is the Supervisor of Wells. M.C.L. § 319.3(1); M.S.A. § 13.139(3)(1). The director's administrative action made it clear that no permits would be issued for drilling in the protected area. The director's action prevents plaintiffs from extracting any oil or gas from the land. Consequently, by the exercise of its regulatory power, the government had so restricted the use of plaintiffs' property rights that plaintiffs had been deprived of all economically viable use.

Miller Brothers v Department of Natural Resources, 203 Mich App 674, 679-680 (1994).[1]

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[1] The *Pennsylvania Coal* case that serves as the foundation of all regulatory takings cases was also about severed mineral rights:

In 2001, the Court of Appeals stated: "Oil, gas, and leasehold interests such as those held by plaintiff in the instant case are viable property interests with a value derived from the ability to produce the oil and gas. Denial of permits to drill for and produce oil and gas consequently cause actual and concrete injury to the holder of such interests, so much so that such denials have been held to be unconstitutional takings of property" *West Bay Exploration Co v City of Farmington Hills*, unpublished opinion per curiam of the Court of Appeals, issued June 19, 2001 (Docket No. 217590), pp. 5-6.

Where the legislation or regulation does not preclude all economically beneficial use there is no categorical taking even where the property at issue is an oil and gas interest. *Schmude Oil Inc v Department of Environmental Quality*, 306 Mich App 35 (2014) (Where oil and gas could be accessed through directional drilling, albeit at higher cost, economically beneficial use remained.). The *Penn Central* balancing test is then used to assess whether a taking has occurred based upon the unique facts of each case. While one can disagree with the factual findings and whether the proper balance was struck by the court in *Schmude Oil*, the correct legal principles were applied.

In summary, an otherwise valid regulation of oil and gas development can, and has been found in several cases to, constitute a taking of the oil and gas interest. The takings clauses of the federal and state constitutions do not invalidate such a regulation, or preclude its application; rather, they can require that just compensation be paid for the value of the oil and gas interest.

B. Neither the State of Michigan Nor Its Political Subdivisions May Deprive a Person of Oil and Gas Interests Without Due Process of Law

Although one might expect "due process" protections to be limited to the fairness of government procedures, it encompasses more. "[T]he United States Supreme Court has interpreted [the due process] clause to 'guarantee [ ] more than fair process,' [citation omitted] and to cover a substantive sphere as well, 'barring certain government actions regardless of the fairness of the procedures used to implement them' [citations omitted]." *Mettler Walloon LLC v Melrose Township*, 281 Mich App 184, 197 (2008).

"The essence of a claim of a violation of substantive due process is that the government may not deprive a person of liberty or property by an *arbitrary* exercise of power." *Landon Holdings Inc v Grattan Township*, 257 Mich App 154, 173 (2003). In evaluating the due process propriety of zoning ordinances which limit or exclude certain land uses, the Michigan courts have stated:

> To show a violation of substantive due process, "a plaintiff must prove (1) that there is no reasonable governmental interest being advanced by the present zoning

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> "For practical purposes, the right to coal consists in the right to mine it." *Commonwealth v. Clearview Coal Co*., 256 Pa.St. 328, 331. What makes the right to mine coal valuable is that it can be exercised with profit. To make it commercially impracticable to mine certain coal has very nearly the same effect for constitutional purposes as appropriating or destroying it.

Pennsylvania Coal Co., 260 US at 414.

> classification, or (2) that the ordinance is unreasonable because of the purely arbitrary, capricious and unfounded exclusion of other types of legitimate land use from the area under consideration."

Grand/Sakwa of Northfield LLC v Northfield Township, 304 Mich App 137, 153 (2014) citing *A & B Enterprises v Madison Township*, 197 Mich App 160, 162 (1992); see also *Landon Holdings*, 257 Mich App at 173-174. Reasonableness, in turn, depends on the facts in each case. *Korby v Redford Township*, 348 Mich 193, 197-198 (1957).

Therefore, state or local regulation of the development of oil and gas interests must comply with the due process provisions in the federal and state constitutions. Arbitrary, capricious, or unfounded exclusion or restriction of oil and gas development is constitutionally invalid.

C. Oil and Gas Interest Owners are Entitled to Equal Protection

The equal protection clauses in the federal and state constitutions also offer constitutional protections. "The Michigan and United States Constitutions provide coextensive provisions on equal protection. Both guarantee equal protection of the law." *Maple BPA Inc v Bloomfield Charter Twp*, 302 Mich App 505, 519 (2013) (footnotes omitted).

The equal protection clauses apply to land use decisions made by governmental entities: "On its face, an ordinance which totally excludes from a municipality a use recognized by the constitution or other laws of this state as legitimate also carries with it a strong taint of unlawful discrimination and a denial of equal protection of the law as to the excluded use." *Kropf v Sterling Heights*, 391 Mich 139, 155-156; 215 NW2d 179 (1974).

As is discussed in the next section, development of natural resources, including oil and gas, is deemed to be of paramount public concern by the Michigan Constitution. Thus, regulations prohibiting or excluding oil and gas development are subject to an equal protection challenge.

D. The Development of Natural Resources Such as Oil and Gas is of Constitutional Significance

Article IV of the Michigan Constitution of 1963 provides:

> § 52 Natural resources; conservation, pollution, impairment, destruction.
>
> The conservation and development of the natural resources of the state are hereby declared to be of paramount public concern in the interest of the health, safety and general welfare of the people. The legislature shall provide for the protection of the air, water and other natural resources of the state from pollution, impairment and destruction.

Oil and gas are natural resources. *Northern Michigan Exploration Co v Michigan Public Service Commission*, 153 Mich App 635, 638 (1986); *Addison Township v Gout*, 432 Mich 627, 636 (1989) opinion vacated 433 Mich 1201 (1989) reasoning readopted 435 Mich 809 (1990).

Thus, the Michigan Constitution declares that the development of oil and gas is of paramount public concern. The scope and extent to which this clause acts as a constitutional limitation on state and local regulation of oil and gas rights has not been definitively addressed by the courts. However, as a constitutional provision, it is at a minimum, a background principle which warrants consideration when the state or local government seeks to regulate the development of oil and gas, or other natural resources.[2]

Conclusion

The federal and state constitutions contain coextensive protections that preclude the taking of property, including oil and gas interests, either directly or by way of burdensome regulation, without compensation. Both constitutions likewise preclude the government from depriving a person of property such as oil and gas interests without due process.

Both constitutions prohibit the government from adopting laws or regulations that treat oil and gas interest owners differently from other land users unless that differentiation is rationally related to a legitimate government interest. Finally, the Michigan Constitution of 1963 declares that development of Michigan's natural resources such as oil and gas is of paramount public concern.

Takings, due process, and equal protection claims have been frequently litigated in the federal and Michigan courts. The tests and factors to be considered are well-developed, but fact intensive and complicated to apply, whether by a court, or by a state or local unit of government considering regulation of oil and gas development. Judicial applications of the natural resource development provision in §52 of the Michigan Constitution of 1963 are rare; however, being part of the constitution, it should not be ignored by government decision-makers contemplating regulation of oil and gas development.

Mika Meyers PLC

By: _____

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[2] Perhaps in recognition of this background constitutional principle, the Legislature has restricted local units of government in the use of their zoning authority to limit development of natural resources, "An ordinance shall not prevent the extraction, by mining, by valuable natural resources from any property unless very serious consequences would result from the extraction of those natural resources." MCL 125.3205(3).

Kathy Czarnecki

From: Brent Savidant
Sent: Friday, August 14, 2015 4:18 PM
To: Planning
Subject: FW: Please read:

From: Theresa Lukacs [mailto:tlukacs@msn.com]
Sent: Friday, August 14, 2015 4:01 PM
To: Brent Savidant <SavidantB@troymi.gov>
Subject: Please read:

As a citizen of the City of Troy, I write to you to express my opposition to gas and oil drilling, and fracking in this largely residential area (Troy, MI). Our citizens health and welfare should not be for sale.

Sincerely,

Theresa Hoogerwerf

http://www.newsweek.com/2014/05/30/utah-boom-town-spike-infant-deaths-raises-questions-251605.html

http://www.theecologist.org/News/news_round_up/2677207/miscarriage_and_stillbirth_linked_to_fracking_chemical_exposure.html

http://www.rollingstone.com/culture/features/fracking-whats-killing-the-babies-of-vernal-utah-20150622

Sent from my iPhone

PLANNING COMMISSION
2015 ANNUAL REPORT

The Michigan Planning Enabling Act requires that municipal planning commissions prepare an annual written report to the legislative body concerning operations and the status of planning activities undertaken during the calendar year. In accordance, the following information has been compiled:

PLANNING COMMISSION

In 2015 the Planning Commission consisted of Donald Edmunds (Chair), Philip Sanzica (Vice Chair), Karen Crusse, Ollie Apahedian (appointed January 26, 2015), Padma Kuppa (appointed January 26, 2015), Michael Hutson, Tom Krent, John Tagle and Carlton Faison (appointed August 10, 2015, replacing Thomas Strat who resigned). The Student Representative was Frank Boudon.

Philip Sanzica was Zoning Board of Appeals (ZBA) Representative.

The Planning Commission held twenty-three (23) meetings during the year. There were three (3) joint Planning Commission/City Council meetings held on September 14, October 12 and November 23.

Thomas Strat and Michael Hutson served on the Sustainable Design Review Committee. Donald Edmunds replaced Thomas Strat in August.

Planning Commission Training

The newest Planning Commission member Carleton Faison attended training sessions at the Michigan Association of Planning (MAP) Annual Conference.

MASTER PLAN UPDATE

The process for updating the Master Plan was ongoing in 2015. The Student Forum was held on January 19, 2015. The Neighborhood Association Forum was held on February 16, 2015. The Boomers and Shakers Forum was held on August 17, 2015. The Planning Commission recommended that City Council distribute the draft Master Plan for public review on December 22, 2015.

PLANNING COMMISSION
2015 ANNUAL REPORT

SITE PLAN REVIEWS

The Planning Commission considered the following applications in 2015:

Project	Description	PC Action
SP-1001	Multi-Tenant Development, Northeast corner of Big Beaver & Talbot (335 E Big Beaver), Section 22, Zoned BB	Granted Preliminary Site Plan Approval on 1/13/15; Revised elevations approved 6/9/2015
SP-1002	The Mark of Troy, Southeast corner of Maple and Axtell (2785 W Maple), Section 32, Zoned IB	Granted Preliminary Site Plan Approval on 3/24/15
Pinery Woods Site Condominium	26 unit site condominium, North side of Wattles between Greensboro & Forsyth, Section 13, Zoned R-1C	Granted Preliminary Site Plan Approval on 4/24/15
Hunters Park 2 Site Condominium	25 unit site condominium, East side of John R between Tucker & Mayflower, Section 12, Zoned R-1C	Granted Preliminary Site Plan Approval on 3/24/15
SP-998	Murray Plaza Retail Center, West side of Rochester between Vanderpool & Trombley (3385 Rochester), Section 22, Zoned GB	Granted Preliminary Site Plan Approval on 6/23/15
SP-1006	Maple Veterinary Hospital Addition, South of Maple, West of Dequindre, Section 36, Zoned NN "B"	Granted Preliminary Site Plan Approval on 6/9/15
SP-1007	Evangel Baptist Church Auditorium, South of Maple, West of Dequindre, Section 36, Zoned RT and IB	Granted Preliminary Site Plan Approval on 7/14/15
SP-853-A	Sandalwood South, West side of Rochester, North of Long Lake, Section 10, Zoned R-1C (Consent Judgment)	Granted Preliminary Site Plan Approval on 5/12/15
SU-414	Speedway Service Station, Southeast Corner of Big Beaver & John R, Section 25, Zoned GB (Consent Judgment)	Granted Special Use and Preliminary Site Plan Approval on 7/14/15
SP-1008	Virginia Tile Showroom, East side of Crooks, North of Maple, Section 28, Zoned MR	Granted Preliminary Site Plan Approval on 7/28/15
SP-1009	Sedona Taphouse Restaurant, South side of Big Beaver, East of Livernois, Section 27, Zoned BB	Granted Preliminary Site Plan Approval on 8/11/15
Casca Villa Site Condominium	4 unit site condominium, North side of Andrew Drive between Crooks & Granger, Section 4, Zoned R-1B District	Granted Preliminary Site Plan Approval on 9/22/15
SP-1003	DTE Ariel Substation, South of Maple, East of Doyle, Section 31, Zoned IB	Granted Preliminary Site Plan Approval on 12/8/15

SP-1011	SRB Medical Dental Building, East side of Crooks, South of Wattles, Section 21, Zoned NN "I"	Granted Preliminary Site Plan Approval on 11/10/15
SP-1010	Bradley Square Condominiums (31 units), East side of Rochester between Bradley & Shallowdale, Section 14, Zoned RT and R-1C	Postponed item to future meeting

ZONING ORDINANCE AMENDMENTS

The Planning Commission considered the following amendment applications in 2015:

Amendment	Description	PC Action
ZOTA 247	Zoning Ordinance Text Amendment - Oil and Gas Extraction	Held public hearing and recommended approval on 6/23/15. Discussed at joint meeting on 9/14/15
Z 746	Rezoning – Troy Fire Station No. 4, North side of Maple, East of John R, Section 25, From R-1E to NN 'C'	Held public hearing and recommended approval on 6/23/15
CR 013	Conditional Rezoning - Amber Studios and Lofts, East side of Livernois between Vermont & Birchwood, Section 21, From O to MR	Held public hearing and recommended approval on 7/28/15
ZOTA 248	Zoning Ordinance Text - Woodland Protection	Held public hearing and recommended approval on 12/22/15
PUD 014	Stonecrest Planned Unit Development, East side of Livernois between Big Beaver & Wattles, Section 22, From R-1E to PUD 014	Held public hearing and recommended approval on 9/22/15

OTHER ITEMS

The Planning Commission considered the following items in 2015:

Project	Description	PC Action
Street Barricade	Tucker Street Barricade	Discussed and made recommendation on 8/11/15
SV 190	Street Vacation – Alley between Vermont & Birchwood, Section 27	Held public hearing and recommended approval on 9/22/15
SV 191	Street Vacation – 10 Foot of Alley east of John R between Gabriel & Vermont, Section 25	Held public hearing and recommended approval on 12/22/15