NORTHFIELD TOWNSHIP PLANNING COMMISSION
NOTICE OF REGULAR MEETING
January 17, 2018 at 7:00 p.m.
Second Floor, Public Safety Building
8350 Main Street, Whitmore Lake, MI 48189

AGENDA

1. **CALL TO ORDER**
2. **PLEDGE OF ALLEGIANCE**
3. **ROLL CALL**
4. **ADOPTION OF AGENDA**
5. **CALL TO THE PUBLIC**
6. **CLARIFICATIONS FROM COMMISSION**
7. **CORRESPONDENCE**
8. **PUBLIC HEARINGS**
9. **REPORTS OF COMMITTEES**
   - **A. Board of Trustees**
   - **B. ZBA**
   - **C. Staff**
   - **D. Planning Consultant**
   - **E. Parks and Recreation**
   - **F. Downtown Planning Group**
10. **UNFINISHED BUSINESS**
    - A. Jomar Drive Private Road - North of E North Territorial Road & East of US 23
11. **NEW BUSINESS**
    - A. Election of Planning Commission Officers
    - B. Board of Trustees – Term Renewal 2020 Brad Cousino & John Zarzecki
    - C. Board of Trustees - Welcome New Member Eamonn Dwyer – Term 2019
    - D. Discussion on Proposed 2018 Community Development Work Plan
    - E. Adopt Planning Commission 2018 Calendar
    - F. Adopt Roberts Rules of Order – Simplified
    - G. Zoning Administrator Quarterly Report 10/1/17 – 12/31/17
12. **APPROVAL OF PRECEDING MINUTES:** Dec 6, 2017 Regular Meeting
13. **FINAL CALL TO THE PUBLIC**
14. **COMMENTS FROM THE COMMISSIONERS**
15. **ANNOUNCEMENT:** Next Regular Meeting – February 7, 2018
16. **ADJOURNMENT**

This notice is posted in compliance with PA 267 Of 1976 as amended (open meetings act) MCLA 41.7 2A (2) (3) and the Americans with Disabilities Act. (ADA) Individuals with disabilities requiring auxiliary aids or services should contact the Northfield Township Office, (734) 449-5000 seven days in advance.

MIDWESTERN CONSULTING
1967 – 2017 50 years

3815 Plaza Drive
Ann Arbor, Michigan 48108
734.995.0200

Land Development • Land Surveying • Municipal • Wireless Communications • Institutional • Transportation • Landfill Services

Date December 7, 2017

To Northfield Township
8350 Main Street, Suite A
Whitmore Lake, Michigan 48189

Attn: Mary Bird, Building and Zoning Department

Re: Jomar Park Phase 2 – Private Road
Private Road Review #1
Midwestern File No.: 16287

Dear Ms. Bird:

Midwestern Consulting has previously submitted site plans for review for the Jomar Park Phase 2 Private Road, and has received Planning comments from McKenna Associates and Engineering comments from OHM Advisors. We have revised the plans to incorporate the requested changes, and offer the following as a response to the comments and description of changes.

Planning – McKenna Associates – January 12, 2017

Natural Features Comments

1. **Wetlands.** Although Section 36-723(c) includes Township standards for wetlands preservation that may not apply to private road applications, regulations of the Michigan Department of Environmental Quality (MDEQ) will apply if the wetlands are regulated by the State of Michigan.

   Noted. A MDEQ Wetland Impact permit will be obtained.

2. **Landmark Trees.** For landmark trees that are removed as part of a site plan or plat application, Section 36-723(g) requires replanting of 100% of the original diameter at breast height (DBH) removed. While the requirements of Section 36-723 would only apply to the site plan or plat applications along Jomar Drive, we recommend that the tree inventory on Sheet 2 be made clearer to better show the locations of the 101 trees removed. If it is unnecessary to remove certain trees, we will recommend preserving them.

   The tree inventory on Sheet 2 has been updated to more clearly identify the landmark trees on the site.

Engineering – OHM Advisors – January 11, 2017

Grading & Drainage

1. General soils information shall be provided for the site. It is also recommended that a subsurface geotechnical investigation be conducted on the site to determine existing conditions. If a report has been created, please include a copy with the next submittal.

   General soils information has been provided on Sheet 2. The infiltration report has been provided.

2. A proposed drainage area map shall be provided.

   A proposed drainage area map has been provided on Sheet 5.

3. A full profile of the proposed storm sewer system shall be included on the plans.

   A profile of the wetland equalization pipes has been included on Sheet 5.

4. The proposed road crosses an existing stream at approximately Station 3+25. A drainage culvert shall be included to accommodate this existing drainage system. A culvert hydraulic analysis is required with the construction plans for this proposed crossing.

   The Wetland Determination & Delineation Report prepared by Environmental Consulting & Technology, Inc. indicates that no features meet the MDEQ definition of a regulated stream. A wetland equalization pipe has been provided to permit for flow through the wetland.

5. Storm water pre-treatment must be included with the storm water management system design.

   Storm water pre-treatment occurs in the bio-retention areas prior to infiltration.

6. The detention pond design shall follow the rules and guidelines of the Washtenaw County Water Resources Commissioner.

   Noted.

Should you have any further concerns or have further questions, please feel free to contact Robert Wagner by phone at (734) 995-0200, or email at rcw@midwesternconsulting.com . We look forward to your feedback.

Sincerely,
MIDWESTERN CONSULTING

Robert C. Wagner, PE
Project Manager

Testing Engineers & Consultants, Inc.
1343 Rochester Road • PO Box 249 • Troy, Michigan 48099-0249
(248) 588-6200 or (313) T-E-S-T-I-N-G • Fax (248) 588-6232
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TEC Report: 57970
Date Issued: August 1, 2017

Mr. James W. Kugler, President
Falls North Investments
4297 Muirfield Drive
Brighton, Michigan 48166

Re: Test Pit Observation & Soil Infiltration Testing
Proposed Storm Water Infiltration System For
Industrial Development, Jomar Drive North of E. North Territorial Drive
Northfield Township, Washtenaw County, Michigan

Dear Mr. Kugler:

This report documents the soil conditions encountered in the test pits at the proposed underground detention/infiltration system for the proposed industrial development at the cul-de-sac end of Jomar Drive in Northfield Township, Michigan.

Four test pits were excavated on June 22 and July 20, 2017 by Testing Engineers & Consultants, Inc. (TEC), subcontractor, Holsbeke Construction, utilizing both a backhoe and an excavator with a 24 inch wide bucket. Three of the test pits were rescheduled from June 22 to July 20, 2017 so a track mounted excavator could be utilized to access the heavily wooded areas. The test pits were excavated for soil infiltration tests. The test pits are identified as Test Pit Nos. 1 through 4. The test pits were excavated to depths ranging from 6 to 6 ½ feet or elevations 911.5 to 914.5 feet. The test pit locations were pre-selected by Midwestern Consulting and the excavation was observed by Mr. George Cardenas with WCWRC and Mr. Ken Majetic, Senior Environmental Scientist with TEC.

The ground surface was covered with topsoil and vegetation. The sandy clayey topsoil thickness was 12 inches.

The underlying native soils were brown sands, silty sands or sands and silts. The sand extended to depths ranging from 4 to 5 ½ feet below existing ground surface or elevations 912.5 to 915.5 feet. The sands were underlain by gray sand and gravel. Sieve analysis tests were performed on a selected sample of granular soils from each test pit. Results of the tests are attached.

Mr. James W. Kugler
Falls North Investments
August 1, 2017

TEC Report: 57970

Ground water was encountered in all four borings at depths ranging from 4 to 5 ½ feet below existing ground surface.

A double ring infiltrometer test was performed at the four test pits. The tests were performed by Ken Majetic. The double ring infiltrometer consists of two concentric rings which are driven into the ground and filled with water. The outer ring helps prevent divergent flow. The drop in the water level within the inner ring is determined and used to calculate the infiltration rate which is the drop in the water level per unit of time. The procedure outlined in the "Low Impact Design (LID) Manual for Michigan" was used. Soil infiltration testing guidelines prepared by the Washtenaw County Water Resources Commissioners were also followed.

The table below outlines the encountered depth and layer thickness of the sand, the depth at which the test was performed and the determined infiltration rate in inches per hour.

Test Pit I.D.	Soil Description	Sand Layer Depth (A)	Test Depth (A)	Measured Infiltration Rate, Inches Per Hour	Design Infiltration Rate, Inches Per Hour (B)
TP-1	Brown Gravelly Medium To Fine Sand With Trace Of Silt	1' – 5.5'	1.5' or Elev. 919.5'	39	19.5
TP-2	Brown Silty Medium To Fine Sand With Some Gravel	1' – 4'	1' or Elev. 917'	9.75	4.9
TP-3	Brown Fine Sand & Silt With Trace Of Gravel	1' – 5.5'	2.5' or Elev. 915.5'	6.75	3.4
TP-4	Brown Fine Sand With Some Silt & Trace Of Gravel	1' – 5'	2' or Elev. 917'	30	15

(A) Below existing ground surface.
(B) Based on a safety factor of 2.

A safety factor of 2 should be incorporated in the design of the infiltration by the designer. The pre-soak information and the individual water level drop readings with associated time interval are shown on the attached test forms.

Testing Engineers & Consultants, Inc.

Mr. James W. Kugler
Falls North Investments
August 1, 2017

TEC Report: 57970

We are pleased for the opportunity to provide our services. Should you have any questions or regard additional information, please feel free to contact our office.

Respectfully submitted,

TESTING ENGINEERS & CONSULTANTS, INC.

Gary E. Putt, P.E.
Senior Project Engineer

Carey J. Suhan, P.E.,
Vice President, Geotechnical
& Environmental Services

GEP/CJS/ln
Enclosure

JOMAR PARK PHASE 2 - PRIVATE ROAD
NORTHFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN
PRIVATE ROAD DESIGN
INFILTRATION TEST PIT ACCESS PLAN
2
16287
CLIENT
MIDWESTERN
LEGEND
SOILS DESCRIPTION
FoB
Sb
MdA
JOMAR DRIVE (66' WIDE)
SCALE 1" = 30'
TEST PIT LOCATION PLAN

Testing Engineers & Consultants, Inc.

1343 Rochester Road - PO Box 249 - Troy, Michigan - 48099-0249
(248) 588-6200 or (313) T-E-S-T-I-N-G
Fax (248) 588-6232

Test Pit No.: 1 **Job No.:** 57970

Client: Falls North Investments

Type of Rig: Backhoe

Drilling Method: Test Pit

Ground Surface Elevation: 921

Project: Industrial Development

Location: Northfield Township, Michigan

Logged By: K. Majetic

Started: 6/22/2017

Completed: 6/22/2017

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
			1	Moist Dark Brown Clayey Sandy TOPSOIL			
2.5				Moist Brown Gravelly Medium To Fine SAND With Trace Of Silt			
			4				
5.0			5.5	Moist Brown SAND			
			6.5	Wet Gray SAND & Gravel			
7.5				Bottom of Borehole at 6.5'			
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							

"N" - Standard Penetration Resistance
SS - 2") D Split Spoon Sample
LS - Sectional Liner Sample
ST - Shelby Tube Sample
AS - Auger Sample

w - H2O, % of dry weight
d - Bulk Density, pcf
qu - Unconfined Compression, tsf
DP - Direct Push
RC - Rock Core

Water Encountered: 5.5'

At Completion: 5.5'

Test Pit No. 1

Testing Engineers & Consultants, Inc.

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(248) 588-6200 or (313) T-E-S-T-I-N-G
Fax (248) 588-6232

Test Pit No.: 2 **Job No.:** 57970

Project: Industrial Development

Client: Falls North Investments

Location: Northfield Township, Michigan

Type of Rig: Tracked Excavator

Logged By: K. Majetic

Drilling Method: Test Pit

Started: 7/20/2017

Ground Surface Elevation: 918

Completed: 7/20/2017

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
			1	Moist Dark Brown Clayey Sandy TOPSOIL			
2.5				Moist Brown Silty Medium To Fine SAND With Some Gravel			
			4				
5.0				Wet Gray SAND & Gravel			
			6				
7.5				Bottom of Borehole at 6'			
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							

"N" - Standard Penetration Resistance
SS - 2") D. Split Spoon Sample
LS - Sectional Liner Sample
ST - Shelby Tube Sample
AS - Auger Sample

w - H2O, % of dry weight
d - Bulk Density, pcf
qu - Unconfined Compression, tsf
DP - Direct Push
RC - Rock Core

Water Encountered: 4'

At Completion: 3.5'

Test Pit No. 2

Testing Engineers & Consultants, Inc.

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(248) 588-6200 or (313) T-E-S-T-I-N-G
Fax (248) 588-6232

Test Pit No.: 3 **Job No.:** 57970

Client: Falls North Investments

Type of Rig: Tracked Excavator

Drilling Method: Test Pit

Ground Surface Elevation: 918

Project: Industrial Development

Location: Northfield Township, Michigan

Logged By: K. Majetic

Started: 7/20/2017

Completed: 7/20/2017

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
			1	Moist Dark Brown Clayey Sandy TOPSOIL			
2.5				Moist Brown Fine SAND & Silt With Trace Of Gravel			
			4				
5.0			5.5	Moist Gray SAND With Some Gravel			
			6.5	Wet Gray SAND & Gravel			
7.5				Bottom of Borehole at 6.5'			
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							

"N" - Standard Penetration Resistance
SS - 2") D Split Spoon Sample
LS - Sectional Liner Sample
ST - Shelby Tube Sample
AS - Auger Sample

w - H2O, % of dry weight
d - Bulk Density, pcf
qu - Unconfined Compression, tsf
DP - Direct Push
RC - Rock Core

Water Encountered: 5.5'

At Completion: 5'

Test Pit No. 3

Testing Engineers & Consultants, Inc.

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Fax (248) 588-6232

Test Pit No.: 4 **Job No.:** 57970

Client: Falls North Investments

Type of Rig: Tracked Excavator

Drilling Method: Test Pit

Ground Surface Elevation: 919

Project: Industrial Development

Location: Northfield Township, Michigan

Logged By: K. Majetic

Started: 7/20/2017

Completed: 7/20/2017

Depth (ft)	Sample Type	N	Strata Change	Soil Classification	w	d	qu
			1	Moist Dark Brown Clayey Sandy TOPSOIL			
2.5				Brown Fine SAND With Some Silt & Trace Of Gravel			
			4				
5.0			5	Moist Brown SAND			
			6	Wet Gray SAND & Gravel			
7.5				Bottom of Borehole at 6'			
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							

"N" - Standard Penetration Resistance
SS - 2") D. Split Spoon Sample
LS - Sectional Liner Sample
ST - Shelby Tube Sample
AS - Auger Sample

w - H2O, % of dry weight
d - Bulk Density, pcf
qu - Unconfined Compression, tsf
DP - Direct Push
RC - Rock Core

Water Encountered: 5'

At Completion: 5'

Test Pit No. 4

Testing Engineers and Consultants, Inc.

1343 Rochester Road PO Box 249 Troy, Michigan 48099-0249
248-588-6200 or 313 T-E-S-T-I-N-G
Fax 248-588-6232

MECHANICAL ANALYSIS TEST REPORT

PROJECT: Storm Water Infiltration System For Industrial Development
LOCATION: Northfield Township, Michigan
CLIENT: Falls North Investments

TEC REPORT NUMBER: 57970

DATE: Friday, June 23, 2017

Material Description: Brown Gravelly Medium to Fine Sand With Trace of Silt

Sample Source / Depth: TP-1 @ 1.5'

Sample Location:

Intended Use:

Date Sampled: 6/22/17

Sampled By: K. Majetic

TEC Lab Sample Number: 2440

Remarks:

AGGREGATE ANALYSIS

Sieve No.	Total Weight Retained	Total Percent Retained	Total Percent Passing	Specification Range
3"				
2-1/2"				
1-1/2"		0.0	100.0	
1"	32.3	3.4	96.6	
3/4"	108.4	11.5	88.5	
1/2"	187.5	19.9	80.1	
3/8"	226.3	24.0	76.0	
#4	298.0	31.6	68.4	
#10	355.6	37.7	62.3	
#20	421.8	44.8	55.2	
#30	467.7	49.6	50.4	
#40	576.5	61.2	38.8	
#100	820.7	87.1	12.9	
#200	875.1	92.9	7.1	
Total Sample	942.3	100.0	0.0	

SAMPLE DATA

Initial Sample Weight (g)	942.3
Weight After Wash (g)	875.1
Loss in Weight (g)	67.2
Loss by Wash (%)	7.1%

Tested By: Shreshth M.

Reviewed By: G. Putt

Test Method: ASTM C117/C136 _____ AASHTO T11/T27 _____ MTM 108/109 X

Remarks:

Respectfully Submitted:
Testing Engineers and Consultants, Inc.

Testing Engineers and Consultants, Inc.

1343 Rochester Road PO Box 249 Troy, Michigan 48099-0249
248-588-6200 or 313 T-E-S-T-I-N-G
Fax 248-588-6232

MECHANICAL ANALYSIS TEST REPORT

PROJECT: Storm Water Infiltration System For Industrial Development
LOCATION: Northfield Township, Michigan
CLIENT: Falls North Investments

TEC REPORT NUMBER: 57970

DATE: Tuesday, July 25, 2017

Material Description: Brown Silty Medium to Fine Sand With Some Gravel

Sample Source / Depth: TP-2 @ 1'

Sample Location:

Intended Use:

Date Sampled: 7/20/17

Sampled By: K. Majetic

TEC Lab Sample Number: 2545

Remarks:

AGGREGATE ANALYSIS

Sieve No.	Total Weight Retained	Total Percent Retained	Total Percent Passing	Specification Range
3"				
2-1/2"				
1-1/2"				
1"		0.0	100.0	
3/4"	17.2	3.7	96.3	
1/2"	31.1	6.6	93.4	
3/8"	48.7	10.4	89.6	
#4	82.1	17.5	82.5	
#10	126.5	27.0	73.0	
#20	172.5	36.8	63.2	
#30	190.7	40.6	59.4	
#40	217.6	46.4	53.6	
#100	293.8	62.6	37.4	
#200	346.9	73.9	26.1	
Total Sample	469.3	100.0	0.0	

SAMPLE DATA

Initial Sample Weight (g)	469.3
Weight After Wash (g)	346.9
Loss in Weight (g)	122.4
Loss by Wash (%)	26.1%

Tested By: M. Chalhoub
Reviewed By: G. Putt

Test Method: ASTM C117/C136 _____ AASHTO T11/T27 _____ MTM 108/109 X

Remarks:

Respectfully Submitted:
Testing Engineers and Consultants, Inc.

Testing Engineers and Consultants, Inc.

1343 Rochester Road PO Box 249 Troy, Michigan 48099-0249
248-588-6200 or 313 T-E-S-T-I-N-G
Fax 248-588-6232

MECHANICAL ANALYSIS TEST REPORT

PROJECT: Storm Water Infiltration System For Industrial Development
LOCATION: Northfield Township, Michigan
CLIENT: Falls North Investments

TEC REPORT NUMBER: 57970

DATE: Tuesday, July 25, 2017

Material Description: Brown Fine Sand & Silt With Trace of Gravel

Date Sampled: 7/20/17

Sample Source / Depth: TP-3 @ 2.5'

Sampled By: K. Majetic

Sample Location:

TEC Lab Sample Number: 2546

Intended Use:

Remarks:

AGGREGATE ANALYSIS

Sieve No.	Total Weight Retained	Total Percent Retained	Total Percent Passing	Specification Range
3"				
2-1/2"				
1-1/2"				
1"				
3/4"		0.0	100.0	
1/2"	8.7	1.8	98.2	
3/8"	17.0	3.5	96.5	
#4	33.6	6.8	93.2	
#10	54.7	11.1	88.9	
#20	78.8	16.1	83.9	
#30	97.6	19.9	80.1	
#40	117.7	24.0	76.0	
#100	212.1	43.2	56.8	
#200	307.3	62.6	37.4	
Total Sample	490.8	100.0	0.0	

SAMPLE DATA

Initial Sample Weight (g)	490.8
Weight After Wash (g)	307.3
Loss in Weight (g)	183.5
Loss by Wash (%)	37.4%

Tested By: M. Chalhoub
Reviewed By: G. Putt

Test Method: ASTM C117/C136 _____ AASHTO T11/T27 _____ MTM 108/109 X

Remarks:

Respectfully Submitted:
Testing Engineers and Consultants, Inc.

Testing Engineers and Consultants, Inc.

1343 Rochester Road PO Box 249 Troy, Michigan 48099-0249
248-588-6200 or 313 T-E-S-T-I-N-G
Fax 248-588-6232

MECHANICAL ANALYSIS TEST REPORT

PROJECT: Storm Water Infiltration System For Industrial Development
LOCATION: Northfield Township, Michigan
CLIENT: Falls North Investments

TEC REPORT NUMBER: 57970

DATE: Tuesday, July 25, 2017

Material Description: Brown Fine Sand With Some Silt & Trace of Gravel

Sample Source / Depth: TP-4 @ 2'

Sample Location:

Intended Use:

Date Sampled: 7/20/17

Sampled By: K. Majetic

TEC Lab Sample Number: 2547

Remarks:

AGGREGATE ANALYSIS

Sieve No.	Total Weight Retained	Total Percent Retained	Total Percent Passing	Specification Range
3"				
2-1/2"				
1-1/2"				
1"				
3/4"				
1/2"		0.0	100.0	
3/8"	9.4	1.9	98.1	
#4	31.6	6.5	93.5	
#10	69.3	14.2	85.8	
#20	109.1	22.4	77.6	
#30	132.2	27.1	72.9	
#40	179.1	36.7	63.3	
#100	331.1	67.9	32.1	
#200	412.6	84.6	15.4	
Total Sample	487.7	100.0	0.0	

SAMPLE DATA

Initial Sample Weight (g)	487.7
Weight After Wash (g)	412.6
Loss in Weight (g)	75.1
Loss by Wash (%)	15.4%

Tested By: M. Chalhoub
Reviewed By: G. Putt

Test Method: ASTM C117/C136 _____ AASHTO T11/T27 _____ MTM 108/109 X

Remarks:

Respectfully Submitted:
Testing Engineers and Consultants, Inc.

Testing Engineers Consultants, Inc.

DOUBLE RING INFILTROMETER TEST

TEC Project No.: 57970

Client: FALLS NORTH INVESTMENTS

Project PROPOSED INDUSTRIAL DEVELOPMENT

Test Location: TP-1

Date: JULY 20, 2017

Comments:

Test

Time Interval (min.)	Water level from top of ring (in.)
0	
10	6 5/8
20	6 1/2
30	6 3/8
40	6 1/4
50	6 1/2
60	
70	
80	
90	
100	
110	
120	

Procedure:

1.Presoak for one hour in two 30 minute intervals, refilling after each 30 minutes.

2. For last 30 minute interval:

If water drop is two inches or more use 10 minute intervals

If water level drop is less than two inches use 30 minute intervals.

3. Continue readings for a minimum of eight readings (re fill after each reading)
or
until there is 1/4 inch or less drop between the highest and lowest of four consecutive readings

Presoak

Time Interval (min.)	Water level from top of ring (in.)
30	11 1/2
60	11 1/2

Infiltation Rate (in/hr): .39

Testing Engineers Consultants, Inc.

DOUBLE RING INFILTROMETER TEST

TEC Project No.: 57970

Client: FALLS NORTH INVESTMENTS

Project PROPOSED INDUSTRIAL DEVELOPMENT

Test Location: TP-2

Date: JULY 20, 2017

Comments:

Test

Time Interval (min.)	Water level from top of ring (in.)
0	
10	1 7/8
20	1 5/4
30	1 5/8
40	1 5/8
50	
60	
70	
80	
90	
100	
110	
120	

Procedure:

1.Presoak for one hour in two 30 minute intervals, refilling after each 30 minutes.

2. For last 30 minute interval:

If water drop is two inches or more use 10 minute intervals

If water level drop is less than two inches use 30 minute intervals.

3. Continue readings for a minimum of eight readings (re fill after each reading)
or
until there is 1/4 inch or less drop between the highest and lowest of four consecutive readings

Presoak

Time Interval (min.)	Water level from top of ring (in.)
30	7
60	6 7/8

Infiltation Rate (in/hr): 9.75

Testing Engineers Consultants, Inc.

DOUBLE RING INFILTROMETER TEST

TEC Project No.: 57970

Client: FALLS NORTH INVESTMENTS

Project PROPOSED INDUSTRIAL DEVELOPMENT

Test Location: TP-3

Date: JULY 20, 2017

Comments:

Test

Time Interval (min.)	Water level from top of ring (in.)
0	
10	1 1/2
20	1 1/4
30	1 1/4
40	1 1/8
50	1 1/8
60	
70	
80	
90	
100	
110	
120	

Procedure:

1.Presoak for one hour in two 30 minute intervals, refilling after each 30 minutes.

2. For last 30 minute interval:

If water drop is two inches or more use 10 minute intervals

If water level drop is less than two inches use 30 minute intervals.

3. Continue readings for a minimum of eight readings (re fill after each reading)
or
until there is 1/4 inch or less drop between the highest and lowest of four consecutive readings

Presoak

Time Interval (min.)	Water level from top of ring (in.)
30	5 1/4
60	5 1/4

Infiltation Rate (in/hr): 6.75

Testing Engineers Consultants, Inc.

DOUBLE RING INFILTROMETER TEST

TEC Project No.: 57970

Client: FALL NORTH INVESTMENTS

Project PROPOSED INDUSTRIAL BUILDING

Test Location: TP-4

Date: JULY 20, 2017

Comments:

Test

Time Interval (min.)	Water level from top of ring (in.)
0	
10	5 1/8
20	5 1/8
30	5
40	5
50	
60	
70	
80	
90	
100	
110	
120	

Procedure:

1.Presoak for one hour in two 30 minute intervals, refilling after each 30 minutes.

2. For last 30 minute interval:

If water drop is two inches or more use 10 minute intervals

If water level drop is less than two inches use 30 minute intervals.

3. Continue readings for a minimum of eight readings (re fill after each reading)
or
until there is 1/4 inch or less drop between the highest and lowest of four consecutive readings

Presoak

Time Interval (min.)	Water level from top of ring (in.)
30	10
60	10

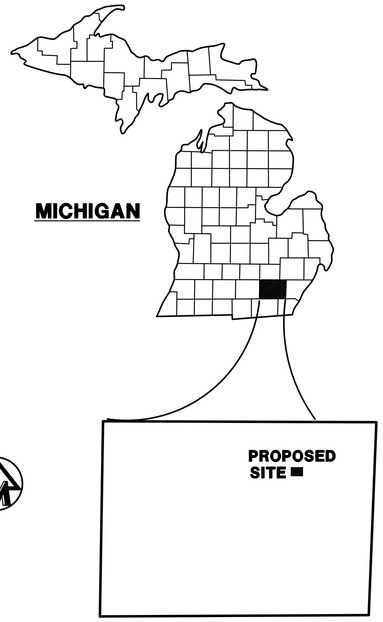
Infiltation Rate (in/hr): 30

JOMAR PARK PHASE 2 PROPERTY

CLASS A PRIVATE ROAD

NORTHFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN

SECTION 21, T1S, R6E



WASHTENAW COUNTY

VICINITY MAP

LEGAL DESCRIPTIONS

LEGAL DESCRIPTIONS (AS PROVIDED BY CLIENT) OF TWO PARCELS OF LAND LOCATED IN THE NORTHWEST 1/4 OF SECTION 21 AND THE NORTHEAST 1/4 OF SECTION 20, T1S, R6E, NORTHFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN.

A parcel of land (Parcel 1, Advantage Civil Engineering Job No. 98085, dated 4/27/98) located in the Northwest 1/4 of Section 21, T1S, R6E, Northfield Township, Washtenaw County, Michigan, described as beginning at the West 1/4 corner of said Section 21;
thence N01°57'07"E 1172.29 feet along the West line of said Section 21;
thence S89°45'29"E 1325.93 feet;
thence S00°54'29"W 1169.43 feet along the West line of the Ann Arbor Railroad right of way (66 feet wide);
thence N89°51'39"W 1347.32 feet along the East–West 1/4 line of said Section 21 to the POINT OF BEGINNING. Containing 35.92 acres of land, more or less. Being subject to any easements and restrictions of record, if any. Together with the following described parcel of land (Parcel C, Atwell–Hicks, Inc. Job No. 42036.03, dated 7/25/97):

Commencing at the East 1/4 corner of Section 20, T1S, R6E, Northfield Township, Washtenaw County, Michigan; thence N01°56'56"E 470.99 feet along the East line of said Section 20 for a PLACE OF BEGINNING; thence S69°02'45"W 708.91 feet; thence N00°09'01"W 794.82 feet; thence S88°03'04"E 682.13 feet; thence S01°56'56"W 518.40 feet to the Place of Beginning, being part of the Northeast 1/4 of said Section 20, containing 10.10 acres of land, more or less, being subject to and together with a 12 foot easement in favor of Detroit Edison Company, described as: Commencing at the East 1/4 corner of Section 20, T1S, R6E, Northfield Township, Washtenaw County, Michigan; thence S01°28'30"W 602.40 feet along the East line of said Section 20; thence N71°11'05"W 616.64 feet along the North proposed 60 foot right–of–way line of North Territorial Road (120 feet proposed) for a PLACE OF BEGINNING; thence N18°48'55"E 74.26 feet; thence N27°32'53"E 93.83 feet; thence 333.37 feet along the arc of a non–tangential circular curve to the left, radius 405.00 feet, chord bearing N11°27'05"W 324.04 feet; thence N35°01'57"W 76.52 feet; thence 452.05 feet along the arc of a non–tangential circular curve to the right, radius 87.00 feet, chord bearing N54°58'03"E 90.00 feet; thence S35°01'57"E 76.52 feet; thence 414.59 feet along the arc of a circular curve to the right, radius 495.00 feet, chord bearing S11°02'17"E 402.58 feet; thence S07°15'48"W 97.81 feet; thence S18°48'55"W 74.55 feet; thence N71°11'05"W 12.00 feet along the North proposed 60 foot right–of–way line of said North Territorial Road; thence N18°48'55"E 73.74 feet; thence N07°15'48"E 97.19 feet; thence 405.13 feet along the arc of a non–tangential circular curve to the left, radius 483.00 feet, chord bearing N11°00'11"W 393.36 feet; thence N35°01'57"W 83.63 feet; thence 402.90 feet along the arc of a non–tangential circular curve to the left, radius 75.00 feet, chord bearing S54°58'03"W 66.00 feet; thence S35°01'57"E 83.63 feet; thence 344.88 feet along the arc of a circular curve to the right, radius 417.00 feet, chord bearing S11°20'20"E 335.14 feet; thence S27°32'53"W 94.53 feet; thence S18°48'55"W 73.34 feet; thence N71°11'05"W 12.00 feet along the North proposed 60 foot right–of–way line of said North Territorial Road to the Place of Beginning, and being subject to and together with a variable width easement for ingress and egress, described as: Commencing at the East 1/4 corner of Section 20, T1S, R6E, Northfield Township, Washtenaw County, Michigan; thence S01°28'30"W 602.40 feet along the East line of said Section 20; thence N71°11'05"W 504.64 feet along the North proposed 60 foot right–of–way line of said North Territorial Road for a PLACE OF BEGINNING; thence continuing N71°11'05"W 100.00 feet; thence N18°48'55"E 73.34 feet; thence N27°32'53"E 94.53 feet; thence 344.88 feet along the arc of a non–tangential circular curve to the left, radius 417.00 feet, chord bearing N11°20'20"W 335.14 feet; thence N35°01'57"W 83.63 feet; thence 402.90 feet along the arc of a non–tangential circular curve to the right, radius 75.00 feet, chord bearing N54°58'03"E 66.00 feet; thence S35°01'57"E 83.63 feet; thence 405.13 feet along the arc of a non–tangential circular curve to the right, radius 483.00 feet, chord bearing S11°00'11"E 393.36 feet; thence S07°15'48"W 97.19 feet; thence S18°48'55"W 73.34 feet to the Place of Beginning, and being subject to other easements and restrictions of record, if any.

LEGAL DESCRIPTION OF A 66 FOOT WIDE PRIVATE ROAD (JOMAR DRIVE) LOCATED IN THE NORTHWEST 1/4 OF SECTION 21 AND THE NORTHEAST 1/4 OF SECTION 20, T1S, R6E, NORTHFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN.

Commencing at the West 1/4 corner of Section 21, T1S, R6E, Northfield Township, Washtenaw County, Michigan, thence N01°57'07"E 473.07 feet along the West line of said Section 21 to the POINT OF BEGINNING;

thence Northeasterly 44.91 feet along a circular curve to the right, radius 197.00 feet, central angle 13°03'42", long chord bearing N79°28'58"E 44.81 feet;
thence N86°00'49"E 613.87 feet;
thence Southeasterly 15.12 feet along a circular curve the right, radius 15.00 feet, central angle 57°46'08", long chord bearing S65°06'07"E 14.49 feet;
thence Northwesterly 386.86 feet along a circular curve to the left, radius 75.00 feet, central angle 295°32'18", long chord bearing N03°59'11"W 80.00 feet;
thence Southwesterly 15.12 feet along a circular curve to the right, radius 15.00 feet, central angle 57°46'08", long chord bearing S57°07'45"W 14.49 feet;
thence S86°00'49"W 613.87 feet;
thence Southwesterly 63.15 feet along a circular curve to the left, radius 263.00 feet, central angle 13°45'29", long chord bearing S79°08'04"W 63.00 feet;
thence S72°15'20"W 513.26 feet;
thence Southwesterly 133.98 feet along a circular curve to the left, radius 263.00 feet, central angle 29°11'20", long chord bearing S57°39'40"W 132.54 feet;
thence S43°04'00"W 25.38 feet;
thence Southeasterly 68.34 feet along a circular curve to the right, radius 75.00 feet, central angle 52°12'30", long chord bearing S47°11'48"E 66.00 feet;
thence N43°04'00"E 25.08 feet;
thence Northeasterly 100.36 feet along a circular curve to the right, radius 197.00 feet, central angle 29°11'20", long chord bearing N57°39'40"E 99.28 feet;
thence N72°15'20"E 513.26 feet;
thence Northeasterly 2.39 feet along a circular curve to the right, radius 197.00 feet, central angle 00°41'47", long chord bearing N72°36'13"E 2.39 feet to the POINT OF BEGINNING.

W12 - Natural Features Inventory

Existing Natural Resources	Mapped	Total Area (ac)	Protected Area (ac)
Water Bodies	No	0.00	0.00
Floodplains	No	0.00	0.00
Riparian Areas	No	0.00	0.00
Wetlands	Yes	16.32	16.09
Woodlands	Yes	20.40	18.70
Slopes (>33%)	No	0.00	0.00
Total Existing		**36.72**	**34.79**

Approval/Permit	Agency	Submitted	Plans Approved	Permit/Approval Issued	Comment
Fire Code Compliance	Northfield Fire Department William Wagner, Fire Chief (734) 449-2385 wagnerw@northfieldmi.gov 8350 Main Street Whitmore Lake, MI 48189			NO	
Soil Erosion Control	Washtenaw County Water Resources Commissioner Katie Lee, Soil Erosion Program Supervisor (734) 222-3978 leek@ewashtenaw.org 705 North Zeeb Road, P.O. Box 8645 Ann Arbor, MI 48107			NO	
MDEQ Wetland Impact	Michigan Department of Environmental Quality Luke Golden (517) 780-7690 goldenl3@michigan.gov 301 East Louis Glick Highway Jackson, MI 49201			NO	
Building	Northfield Township Building Department Mary Bird, Building Department Assistant (734) 449-5000 bird@northfieldmi.gov 8350 Main Street, Suite A Whitmore Lake, MI 48189			NO	
Private Road Permit	Washtenaw County Road Commission (734) 761-1500 permits@wcroads.org 555 North Zeeb Road Ann Arbor, MI 48103			NOT APPLICABLE	

OWNER/DEVELOPER

FALLS NORTH INVESTMENT CO.
4297 MUIRFIELD DRIVE
BRIGHTON, MI 48116
TEL: (734) 741–0500
CONTACT: JAMES KUGLER

ENGINEER

MIDWESTERN CONSULTING L.L.C.
3815 PLAZA DRIVE
ANN ARBOR, MI. 48108
TEL: (734) 995–0200
CONTACT: ROB WAGNER

SHEET INDEX

JOMAR PARK PHASE 2 - PRIVATE ROAD

JOB No. **16287**

REVISIONS:	REV. DATE
PER TOWNSHIP COMMENTS	12/7/17

DATE: 12/21/16
SHEET 1 OF 6
CADD: WAJ, RDW, TPH
ENG: RCW
PM: RCW
TECH: BAC
Site Plan\162587CV1.DWG
FB#305

1

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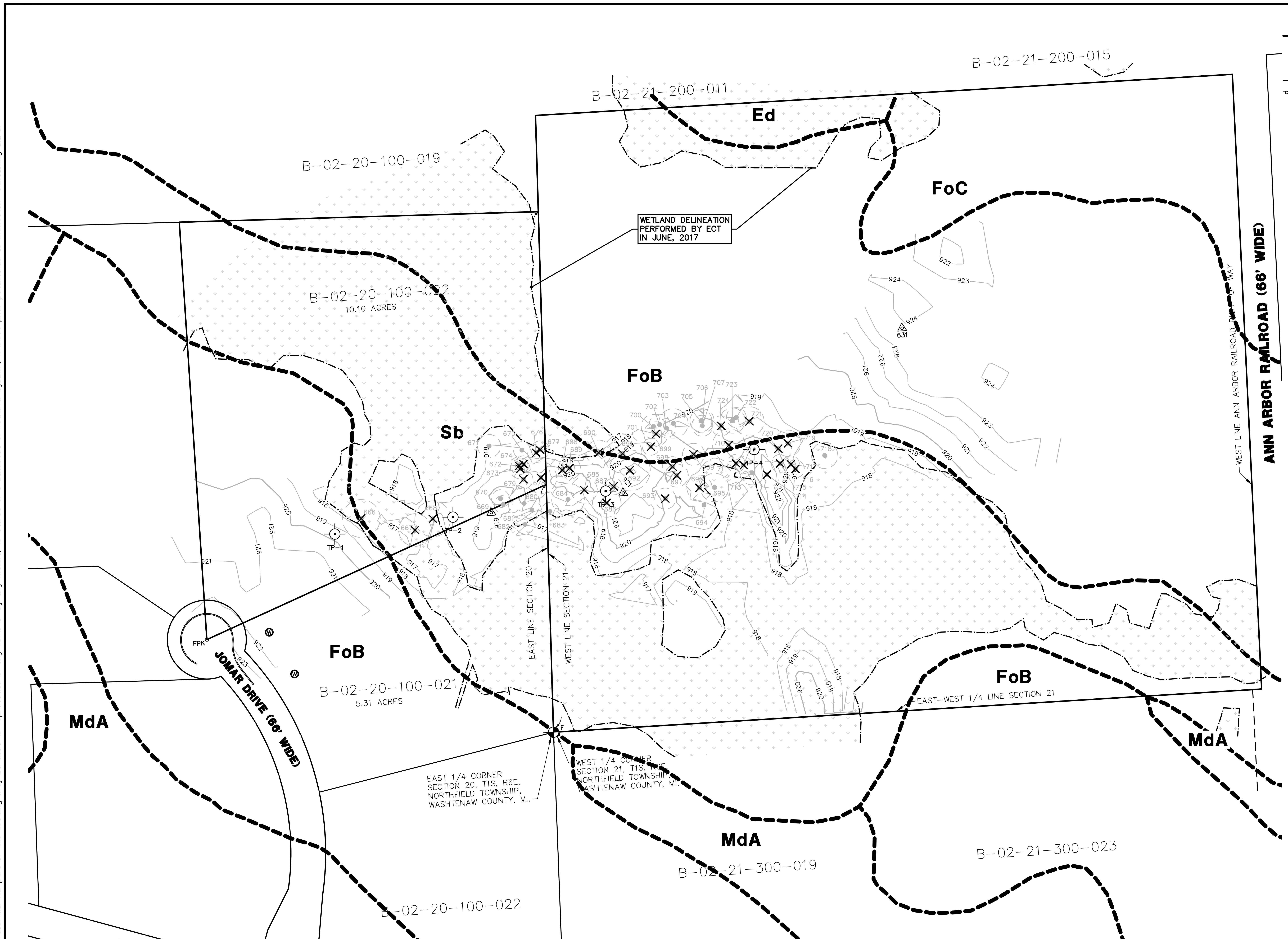
RELEASED FOR:	DATE

ROBERT C. WAGNER
P.E. # 42699



LEGEND

838	EXIST. CONTOUR
×836.2	EXIST. SPOT ELEVATION
	WELL
	FENCE
	GUARDRAIL
	SINGLE TREE
	TREE OR BRUSH LIMIT
	EXIST. BOULDER
	SECTION CORNER
TP-1	INFILTRATION TEST PIT LOCATION
S	SET IRON PIPE
F	FOUND IRON PIPE
S	SET MONUMENT
F	FOUND MONUMENT
spk	SET P.K.
FPK	FOUND P.K.
S	SET IRON ROD
FIR	FOUND IRON ROD
	CONTROL PT.

SCALE: 1" = 100'

0 100 200 300

TREE LEGEND

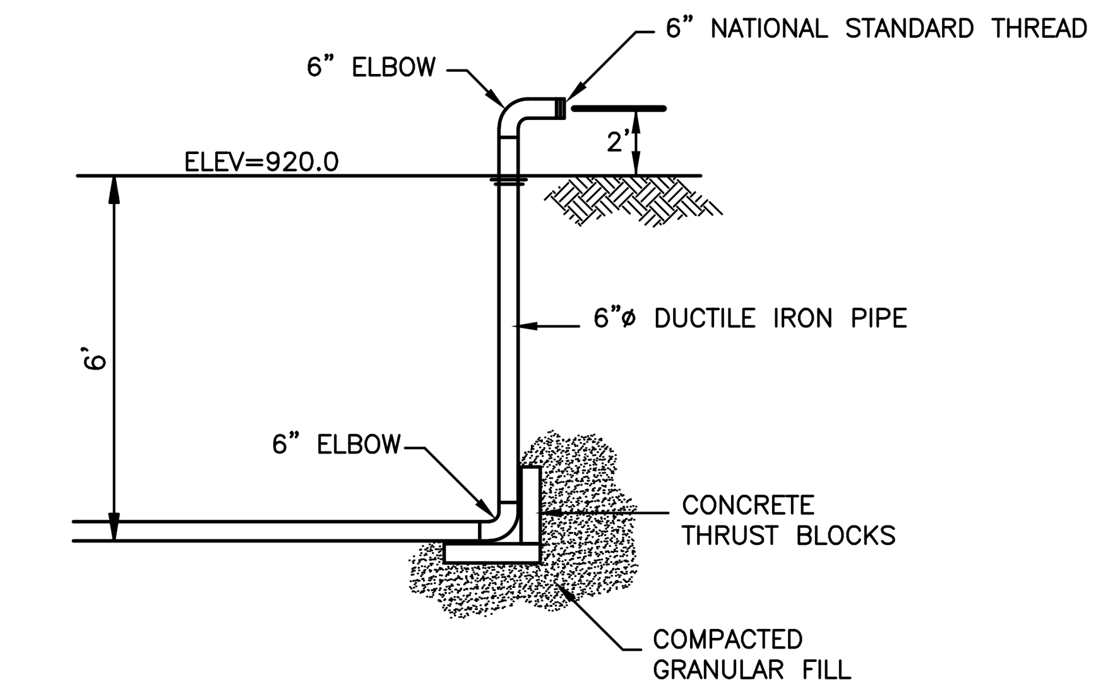
EXISTING LANDMARK TREE (SEE TABLE) SURVEYED 2017

EXISTING LANDMARK TREE TO BE REMOVED

LANDMARK TREES

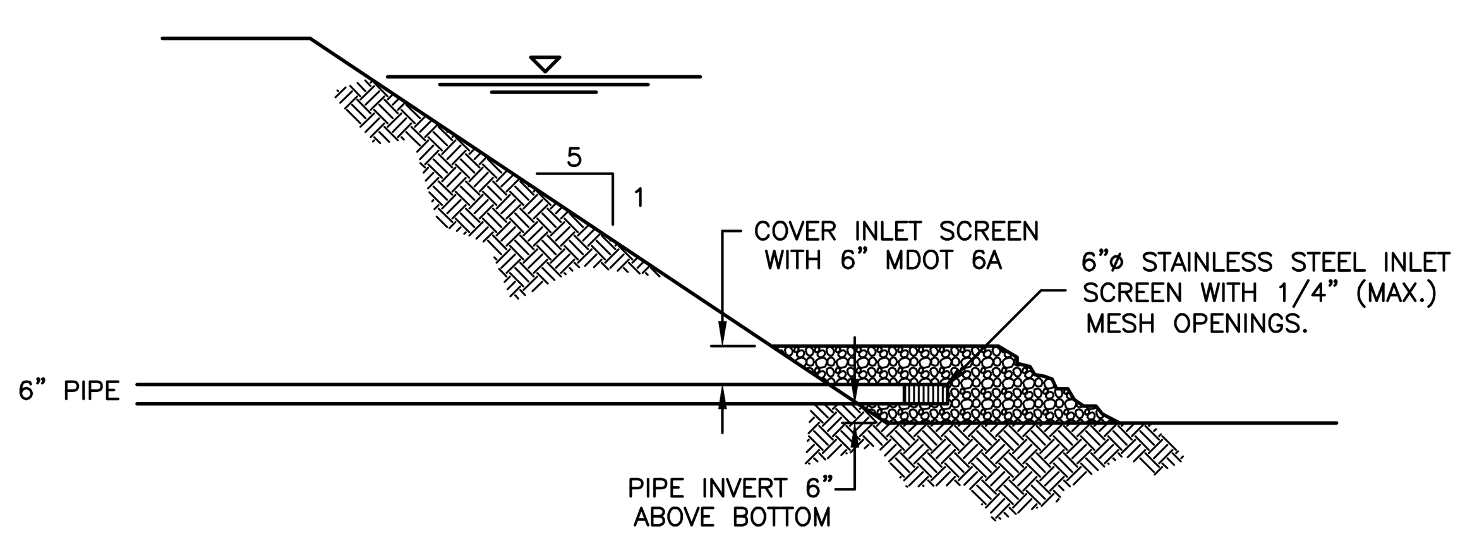
TAG#	DBH	COMMON NAME	GENUS/SPECIES	SCORE	LM	REG	NON-REG	EXEMPT	REMOVE	MITIGATION
666	36"	Cottonwood	Populus deltoides		X				X	36"
667	31"	Cottonwood	Populus deltoides		X				X	31"
668	34"	Silver Maple	Acer saccharinum		X				X	34"
669	17"	Red Oak	Quercus rubra		X					
670	17"	Red Oak	Quercus rubra		X					
671	22"	White Pine	Pinus strubus		X					
672	17"	Red Oak	Quercus rubra		X				X	17"
673	19"	Red Oak	Quercus rubra		X				X	19"
674	16"	Red Oak	Quercus rubra		X				X	16"
675	16"	Red Oak	Quercus rubra		X					
676	16"	White Oak	Quercus alba		X				X	16"
677	17"	White Oak	Quercus alba		X				X	17"
678	30"	Silver Maple	Acer saccharinum		X				X	30"
679	18"	Red Oak	Quercus rubra		X				X	18"
680	21"	Red Oak	Quercus rubra		X					
681	18"	Red Oak	Quercus rubra		X					
682	18"	Red Oak	Quercus rubra		X					
683	17"	Swamp White Oak	Quercus bicolor		X					
684	31"	White Oak	Quercus alba		X					
685	25"	White Oak	Quercus alba		X				X	25"
686	27"	White Oak	Quercus alba		X				X	27"
687	16"	White Oak	Quercus alba		X				X	16"
688	24"	Red Oak	Quercus rubra		X				X	24"
689	21"	White Oak	Quercus alba		X				X	21"
690	24"	Bur Oak	Quercus macrocarpa		X				X	24"
691	37"	Bur Oak	Quercus macrocarpa		X				X	37"
692	39"	White Oak	Quercus alba		X				X	39"
693	20"	Red Oak	Quercus rubra		X				X	20"
694	23"	Silver Maple	Acer saccharinum		X					
695	27"	Bur Oak	Quercus macrocarpa	40%	X					
696	24"	Bur Oak	Quercus macrocarpa		X				X	24"
697	22"	Black Cherry	Prunus serotina		X				X	22"
698	19"	Red Oak	Quercus rubra		X				X	19"
699	16"	Red Oak	Quercus rubra		X				X	16"
700	23"	White Pine	Pinus strobus		X					
701	23"	White Pine	Pinus strobus		X				X	23"
702	20"	White Pine	Pinus strobus		X					
703	18"	White Pine	Pinus strobus		X					
704	28"	White Pine	Pinus strobus		X					
705	21"	White Pine	Pinus strobus		X					
706	23"	White Pine	Pinus strobus		X					
707	20"	Black Cherry	Prunus serotina		X					
709	21"	Black Cherry	Prunus serotina		X				X	21"
710	31"	Red Oak	Quercus rubra		X				X	31"
711	17"	Red Oak	Quercus rubra		X				X	17"
712	16"	Red Oak	Quercus rubra		X				X	16"
713	23"	Red Oak	Quercus rubra		X				X	23"
714	25"	Red Oak	Quercus rubra		X				X	25"
715	17"	Red Oak	Quercus rubra		X				X	17"
716	17"	Red Oak	Quercus rubra		X				X	17"
717	16"	Red Oak	Quercus rubra		X				X	16"
718	25"	Silver Maple	Acer saccharinum		X					
719	25"	Red Oak	Quercus rubra		X				X	25"
720	25"	Red Oak	Quercus rubra		X				X	25"
721	28"	White Pine	Pinus strobus		X				X	28"
722	19"	White Pine	Pinus strobus		X					
723	24"	White Pine	Pinus strobus		X					
724	19"	White Pine	Pinus strobus		X				X	19"

NOTE: ALL PIPING TO BE DUCTILE IRON PIPE



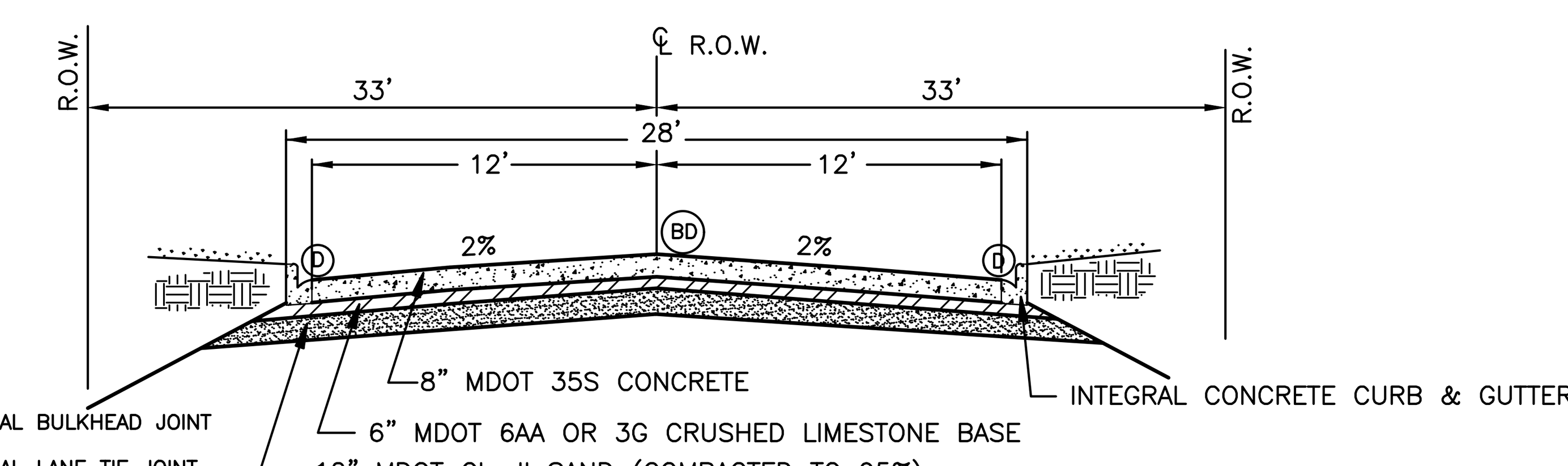
DRY HYDRANT DETAIL

NOT TO SCALE



FIRE SUPPLY INLET DETAIL

NOT TO SCALE



(B) LONGITUDINAL BULKHEAD JOINT

(D) LONGITUDINAL LANE TIE JOINT

(BD) OPTIONAL (B) OR (D) JOINT

JOMAR DRIVE EXISTING CROSS SECTION

NO SCALE

NOTE: ROAD DETAILS WERE DUPLICATED FROM EXISTING JOMAR DRIVE PLANS ATWELL-HICKS, INC. 10/18/96

SOILS DESCRIPTION

General Soils Description: USDA Custom Soil Resource Report for Washtenaw County, Michigan

Ed — Edwards muck, 0-2 percent slopes
Depressions on plains, depressions on moraines.
Very poorly drained; runoff class: very low.
Hydrologic soil group: C/D

FoB — Fox sandy loam, 2 to 6 percent slopes, till plain
Outwash plains, outwash terraces.
Well drained; runoff class: low.
Hydrologic soil group: B

FoC — Fox sandy loam, 6 to 12 percent slopes
Hills on terraces, hills on outwash plains.
Well drained; runoff class: medium.
Hydrologic soil group: B

MdA — Matherton sandy loam, 0 to 4 percent slopes
Drainageways on outwash plains, drainageways on terraces
Somewhat poorly drained; runoff class: low.
Hydrologic soil group: B/D

Sb — Sebewa loam, 0 to 2 percent slopes; disintegration moraine
Drainageways on stream terraces, drainageways
Poorly drained; runoff class: negligible.
Hydrologic soil group: B/D

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JOMAR PARK PHASE 2 - PRIVATE ROAD

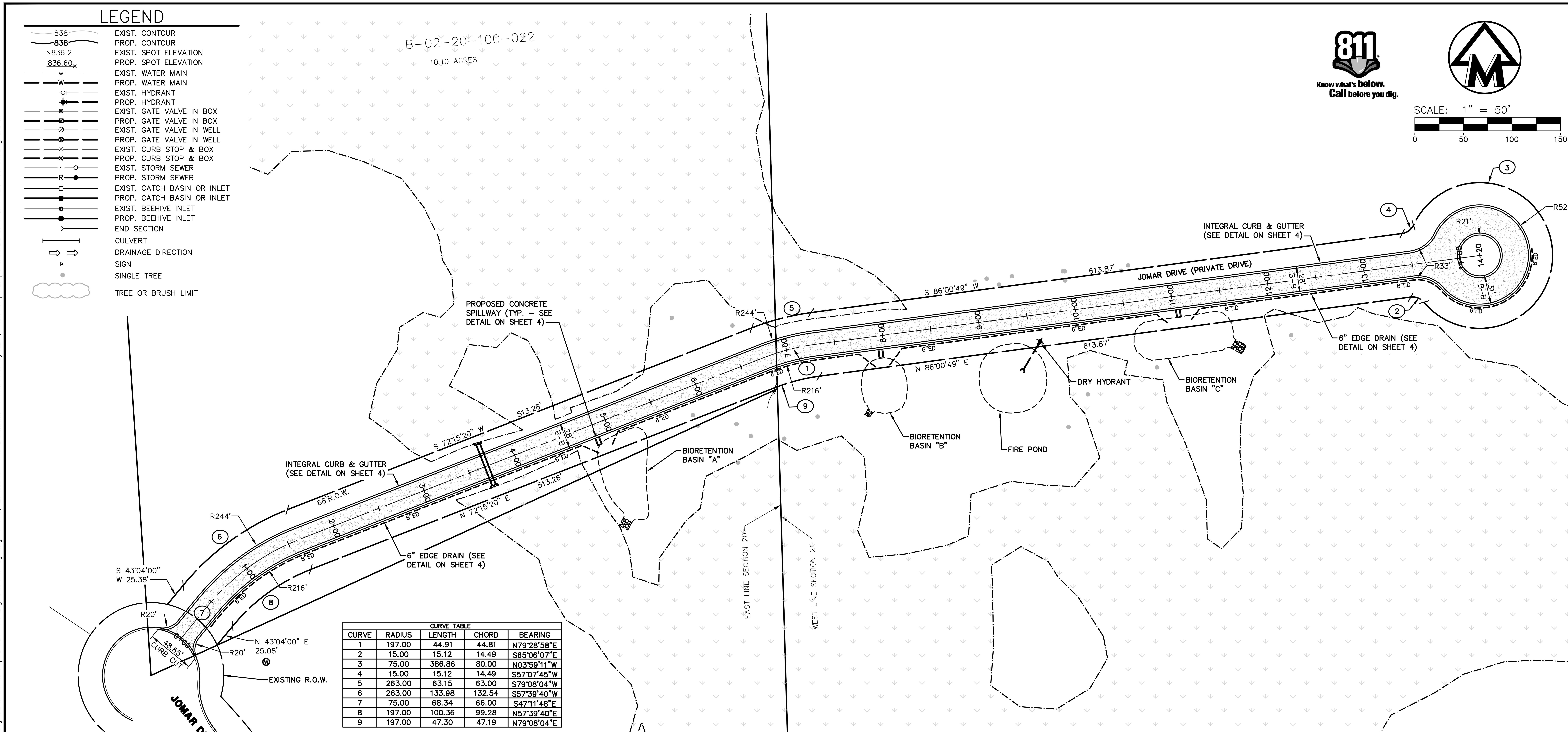
NORTHFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN
PRIVATE ROAD DESIGN
EXISTING CONDITIONS AND SURVEY PLAN

2

JOB No. 16287

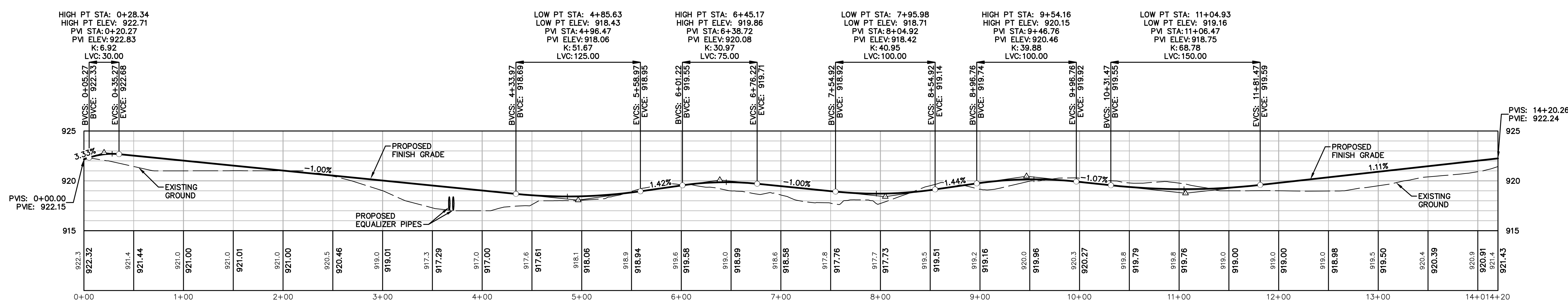
REVISIONS:	REV. DATE
PER TOWNSHIP COMMENTS	12/7/17

DATE: 12/21/16
SHEET 2 OF 6
CADD: WAJ, RDW, TPH
ENG: RCW
PM: RCW
TECH: BAC
Site Plan\16287EX1.dwg
FB#305, 313, 617A



LEGEND
EXIST. CONTOUR
PROP. CONTOUR
EXIST. SPOT ELEVATION
PROP. SPOT ELEVATION
EXIST. WATER MAIN
PROP. WATER MAIN
EXIST. HYDRANT
PROP. HYDRANT
EXIST. GATE VALVE IN BOX
PROP. GATE VALVE IN BOX
EXIST. GATE VALVE IN WELL
PROP. GATE VALVE IN WELL
EXIST. CURB STOP & BOX
PROP. CURB STOP & BOX
EXIST. STORM SEWER
PROP. STORM SEWER
EXIST. CATCH BASIN OR INLET
PROP. CATCH BASIN OR INLET
EXIST. BEEHIVE INLET
PROP. BEEHIVE INLET
END SECTION
CULVERT
DRAINAGE DIRECTION
SIGN
SINGLE TREE
TREE OR BRUSH LIMIT
B-02-20-100-022
10.10 ACRES
811 Know what's below. Call before you dig.
SCALE: 1" = 50'
JOMAR DRIVE (PRIVATE DRIVE)
INTEGRAL CURB & GUTTER (SEE DETAIL ON SHEET 4)
PROPOSED CONCRETE SPILLWAY (TYP. - SEE DETAIL ON SHEET 4)
6" EDGE DRAIN (SEE DETAIL ON SHEET 4)
BIORETENTION BASIN "A"
BIORETENTION BASIN "B"
BIORETENTION BASIN "C"
FIRE POND
DRY HYDRANT
EXISTING R.O.W.
EAST LINE SECTION 20
WEST LINE SECTION 21
S 86°00'49" W 613.87'
N 86°00'49" E 613.87'
S 72°15'20" W 513.26'
N 72°15'20" E 513.26'
S 43°04'00" W 25.38'
N 43°04'00" E 25.08'
66'R.O.W.
CURB CUT
JOMAR DR

CURVE TABLE				
CURVE	RADIUS	LENGTH	CHORD	BEARING
1	197.00	44.91	44.81	N79°28'58"E
2	15.00	15.12	14.49	S65°06'07"E
3	75.00	386.86	80.00	N03°59'11"W
4	15.00	15.12	14.49	S57°07'45"W
5	263.00	63.15	63.00	S79°08'04"W
6	263.00	133.98	132.54	S57°39'40"W
7	75.00	68.34	66.00	S47°11'48"E
8	197.00	100.36	99.28	N57°39'40"E
9	197.00	47.30	47.19	N79°08'04"E



HIGH PT STA: 0+28.34
HIGH PT ELEV: 922.71
PVI STA: 0+20.27
PVI ELEV: 922.83
K: 6.92
LVC: 30.00
LOW PT STA: 4+85.63
LOW PT ELEV: 918.43
PVI STA: 4+96.47
PVI ELEV: 918.06
K: 51.67
LVC: 125.00
HIGH PT STA: 6+45.17
HIGH PT ELEV: 919.86
PVI STA: 6+38.72
PVI ELEV: 920.08
K: 30.97
LVC: 75.00
LOW PT STA: 7+95.98
LOW PT ELEV: 918.71
PVI STA: 8+04.92
PVI ELEV: 918.42
K: 40.95
LVC: 100.00
HIGH PT STA: 9+54.16
HIGH PT ELEV: 920.15
PVI STA: 9+46.76
PVI ELEV: 920.46
K: 39.88
LVC: 100.00
LOW PT STA: 11+04.93
LOW PT ELEV: 919.16
PVI STA: 11+06.47
PVI ELEV: 918.75
K: 68.78
LVC: 150.00
PVIS: 0+00.00
PVIE: 922.15
PVIS: 14+20.26
PVIE: 922.24
PROPOSED FINISH GRADE
EXISTING GROUND
PROPOSED EQUALIZER PIPES
-1.00%
1.42%
-1.00%
1.44%
-1.07%
1.11%

The underground utilities shown have been located from field survey information and existing records. 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 the surveyor does certify that they are located as accurately as possible from the information available.

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JOMAR PARK PHASE 2 - PRIVATE ROAD

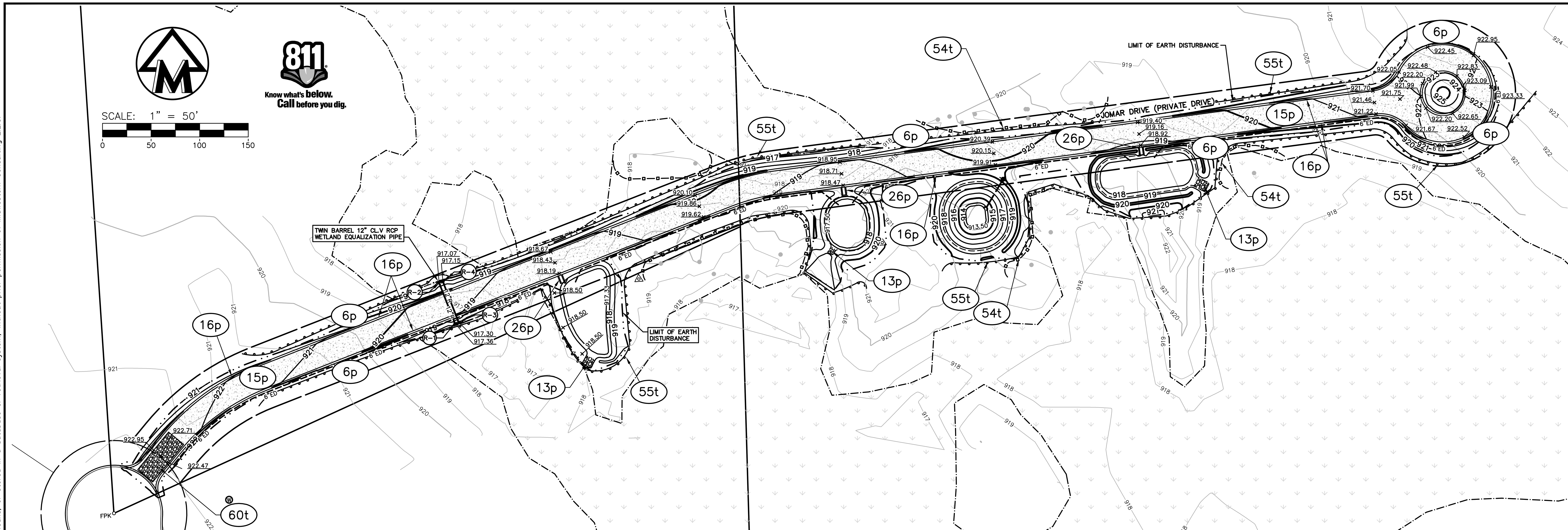
NORTHFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN
PRIVATE ROAD DESIGN
DIMENSIONAL ROAD PLAN & PROFILE

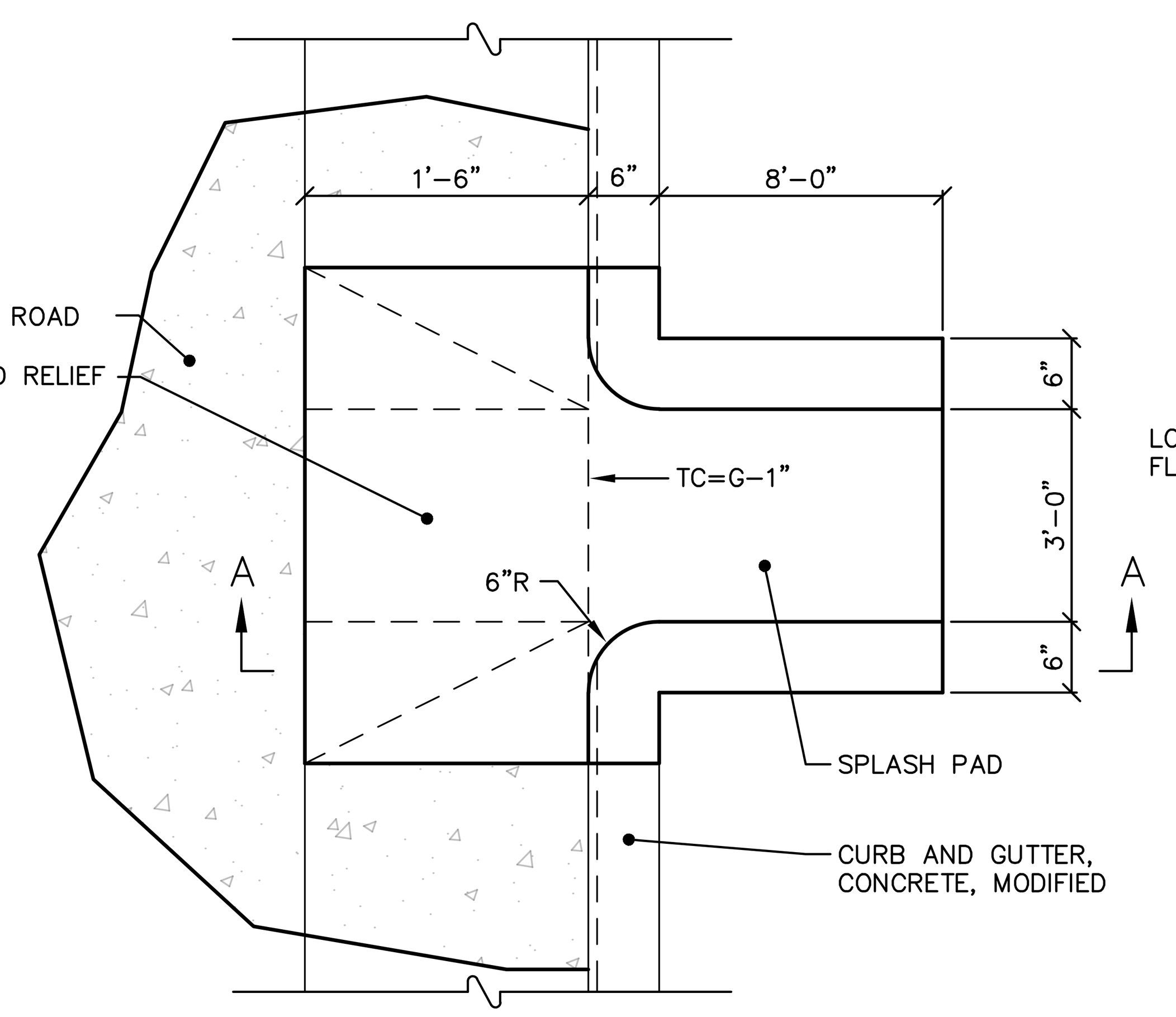
3

DATE: 10/05/2017
SHEET 3 OF 6
CADD: TPH
ENG: RCW
PM: RCW
TECH:
Site Plan\16287PR1.dwg
FB#205, 313, 617A

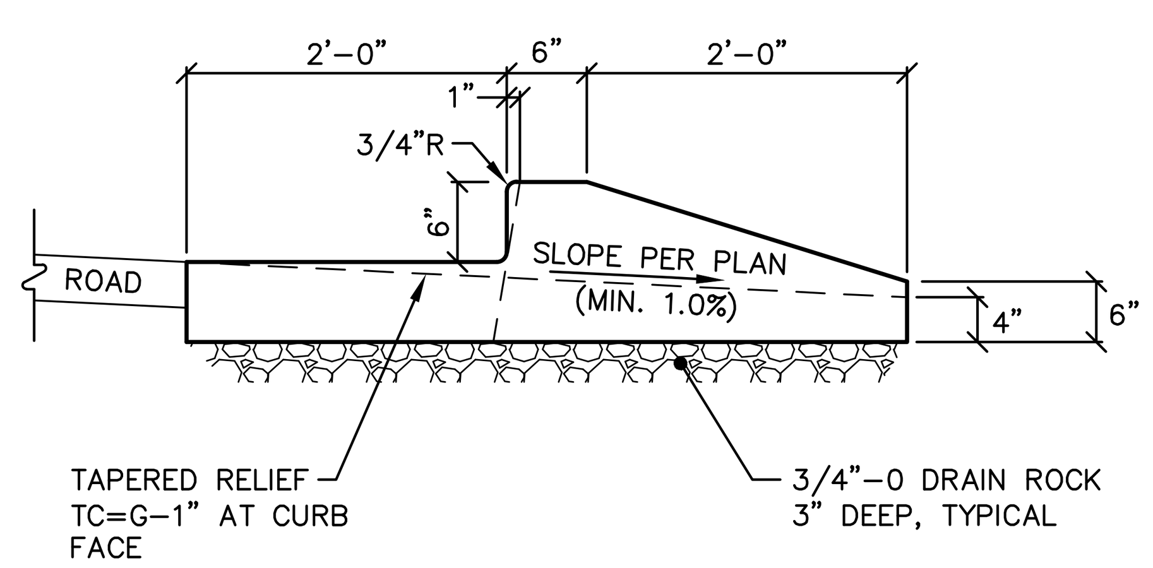
REVISIONS: REV. DATE
PER TOWNSHIP COMMENTS 12/7/17

JOB No. 16287





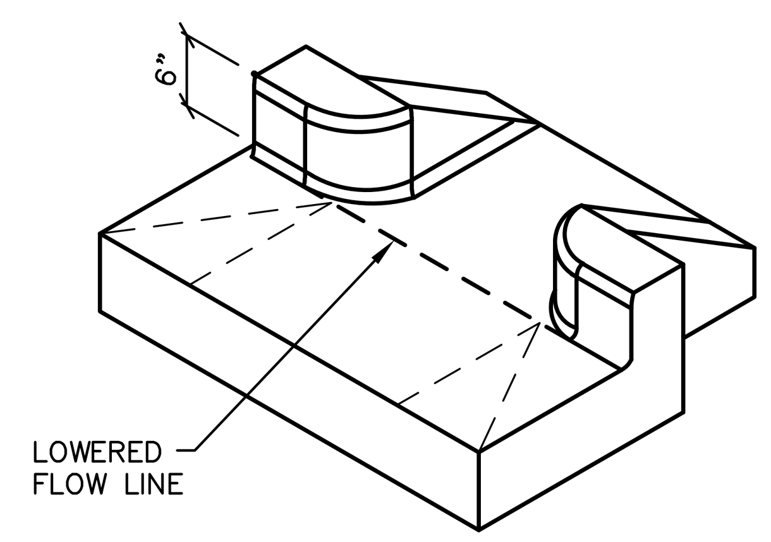
PLAN



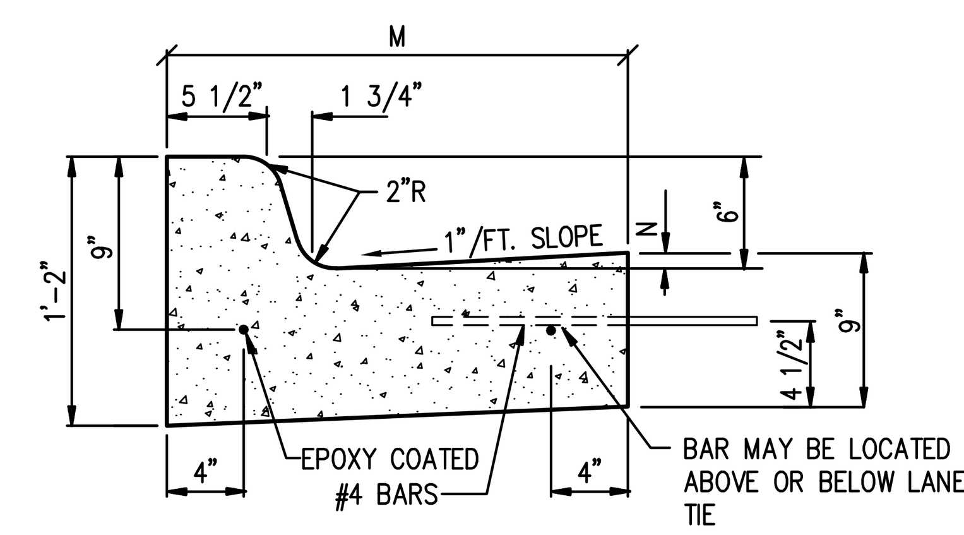
SECTION A–A

SPILLWAY, CONCRETE DETAIL

NOT TO SCALE



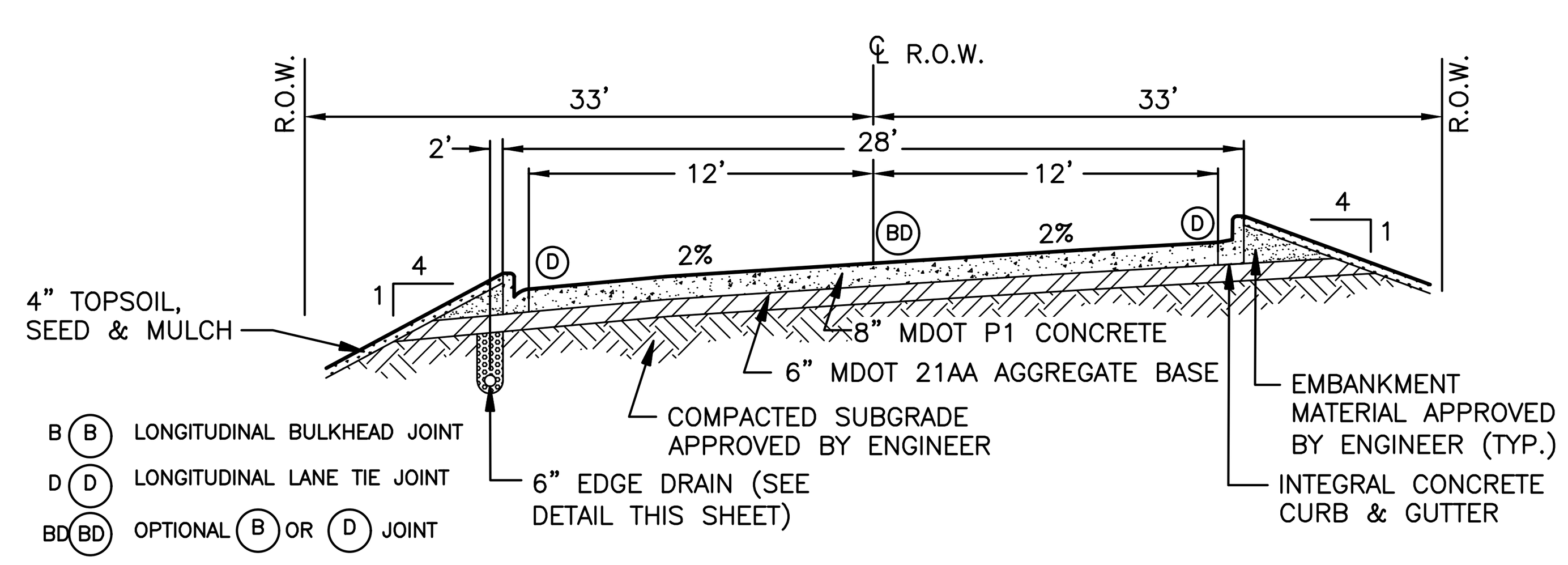
ISOMETRIC



DETAIL	DIMENSIONS M	DIMENSIONS N	LANE TIES	CONCRETE CU. YD./LIN. FT.
F1	1'-6"	7/8"	AS SHOWN	0.0484
F2	1'-6"	7/8"	OMITTED	0.0484
F3	2'-0"	1 3/8"	AS SHOWN	0.0610
F4	2'-0"	1 3/8"	OMITTED	0.0610
F5	2'-6"	1 7/8"	AS SHOWN	0.0737
F6	2'-6"	1 7/8"	OMITTED	0.0737

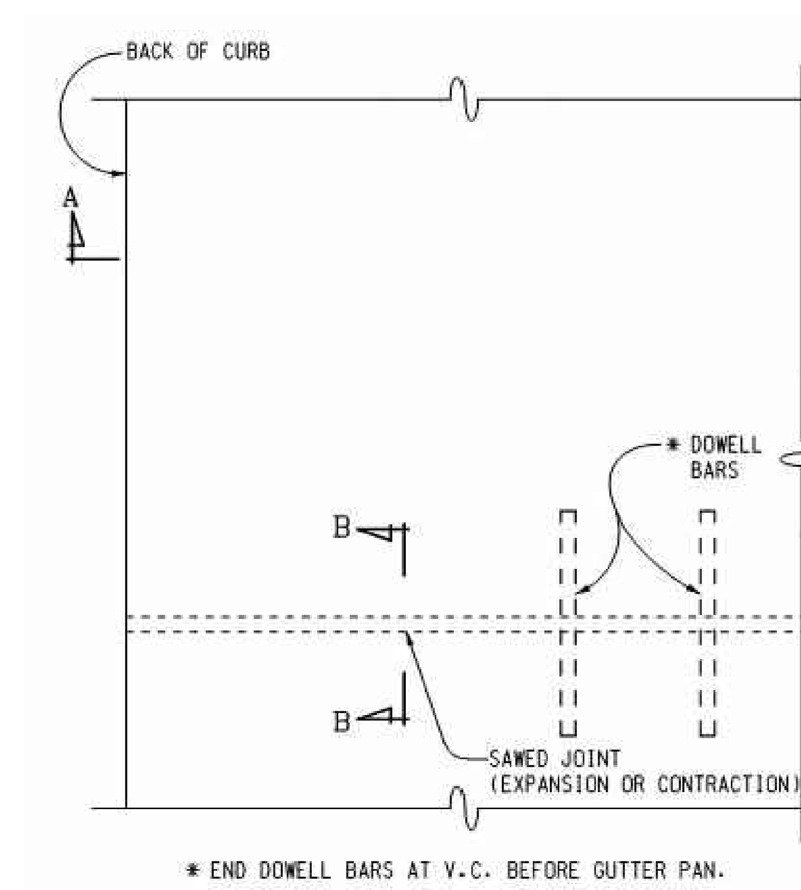
MDOT TYPE F CONCRETE CURB & GUTTER

NO SCALE

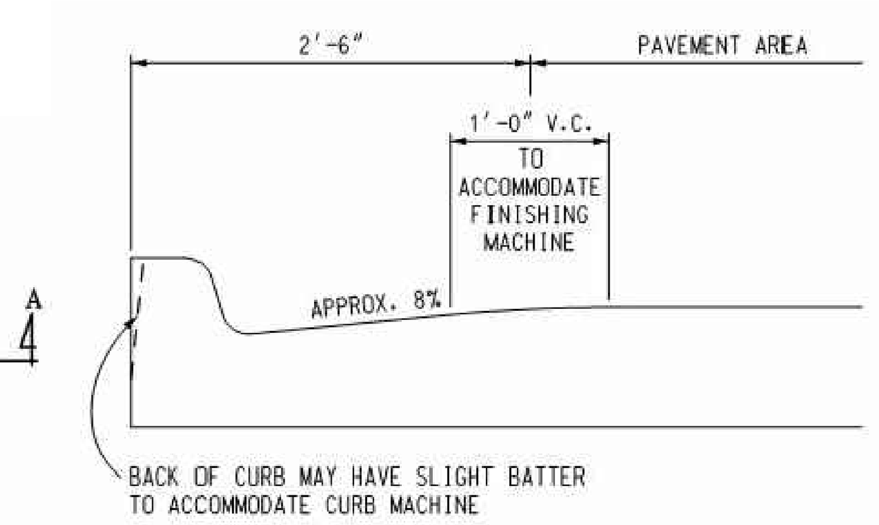


JOMAR DRIVE PROPOSED CROSS SECTION

NO SCALE

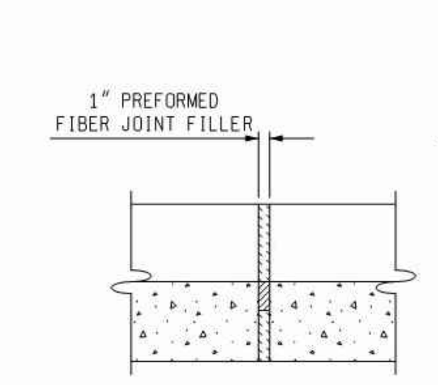


PLAN AT TRANSVERSE JOINT



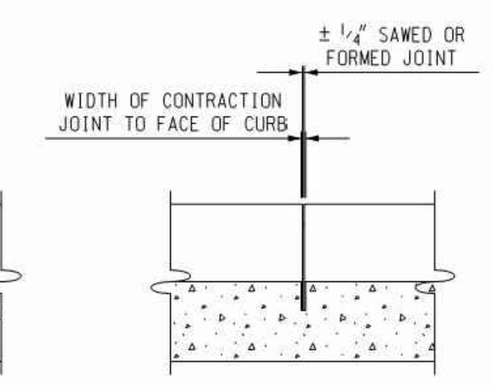
SECTION A - A

INTEGRAL CURB & GUTTER, DETAIL F



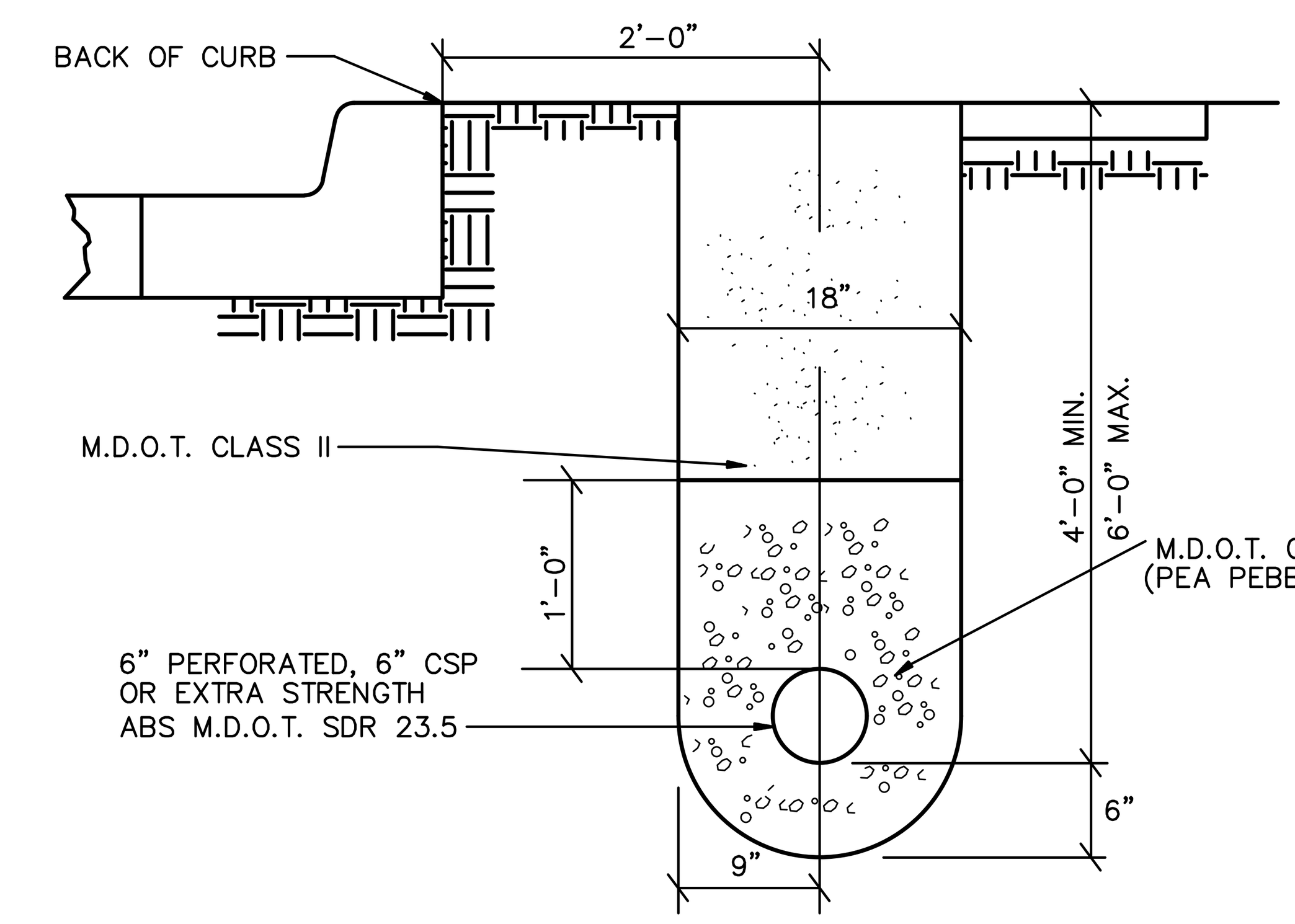
SECTION B - B

EXPANSION JOINT



SECTION B - B

CONTRACTION JOINT



EDGE DRAIN DETAIL

NO SCALE

LEGEND

838	EXIST. CONTOUR
838	PROP. CONTOUR
×836.2	EXIST. SPOT ELEVATION
36.60×	PROP. SPOT ELEVATION
	EXIST. WATER MAIN
	PROP. WATER MAIN
	EXIST. HYDRANT
	PROP. HYDRANT
	EXIST. GATE VALVE IN BOX
	PROP. GATE VALVE IN BOX
	EXIST. GATE VALVE IN WELL
	PROP. GATE VALVE IN WELL
	EXIST. CURB STOP & BOX
	PROP. CURB STOP & BOX
	EXIST. STORM SEWER
	PROP. STORM SEWER
	EXIST. CATCH BASIN OR INLET
	PROP. CATCH BASIN OR INLET
	EXIST. BEEHIVE INLET
	PROP. BEEHIVE INLET
	END SECTION
	CULVERT
	DRAINAGE DIRECTION
	SIGN
	SINGLE TREE
	TREE OR BRUSH LIMIT
	FENCE
	SILTFENCE
	LIMITS OF DISTURBANCE
	CONSTRUCTION FENCE

SOIL EROSION AND SEDIMENT CONTROL MEASURES

t – INDICATES TEMPORARY CONTROL MEASURE
p – INDICATES PERMANENT CONTROL MEASURE

6	SEEDING WITH MULCH AND/OR MATTING	26	SLOPE DRAIN (PAVED CHUTE)
13	RIPRAP, RUBBLE, GABIONS	54	CONSTRUCTION FENCE OR SNOW FENCE
15	PAVING	55	GEOTEXTILE SILT FENCE
16	CURB & GUTTER	60	MUD TRACKING MAT

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JOMAR PARK PHASE 2 - PRIVATE ROAD

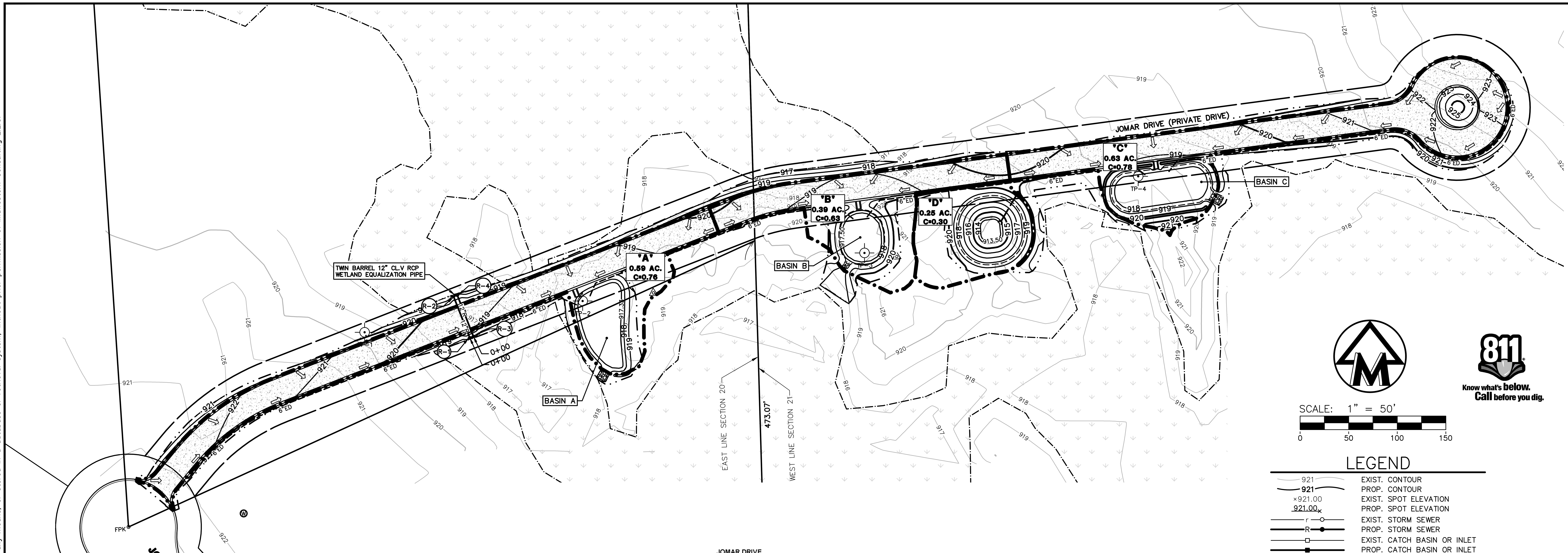
NORTHFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN
PRIVATE ROAD DESIGN
GRADING & SOIL EROSION CONTROL PLAN

4

JOB No. 16287

REVISIONS:	REV. DATE
PER TOWNSHIP COMMENTS	12/7/17

DATE: 12/21/16
SHEET 4 OF 6
CADD: WAJ, RDW, TPH
ENG: RCW
PM: RCW
TECH: BAC
Site Plan\16287GP1.dwg
FB#305, 313, 617A



SCALE: 1" = 50'
0 50 100 150

LEGEND

- 921 EXIST. CONTOUR
- 921 PROP. CONTOUR
- ×921.00 EXIST. SPOT ELEVATION
- 921.00× PROP. SPOT ELEVATION
- EXIST. STORM SEWER
- PROP. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- PROP. CATCH BASIN OR INLET
- EXIST. BEEHIVE INLET
- PROP. BEEHIVE INLET
- END SECTION
- CULVERT
- DRAINAGE DIRECTION
- SINGLE TREE
- TREE OR BRUSH LIMIT
- LIMITS OF DISTURBANCE
- PROPOSED DRAINAGE AREA LIMITS
- TP-1 TEST PIT LOCATION

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

JOMAR PARK PHASE 2 PROPERTY: CLASS A PRIVATE ROAD
Dry Hydrant Basin Calculations
Midwestern Consulting, LLC - Project 16287
16-Aug-17

Dry Hydrant Basin

Dry Hydrant Basin Storage Information

Elevation (ft)	Area (sft)	Volume (cft)	Cum. Volume (cft)
913.50	395	-	-
914.00	593	247	247
915.00	1,109	851	1,098
916.00	1,781	1,445	2,543
917.00	2,610	2,196	4,739
918.00	3,597	3,104	7,842
918.40	4,036	1,527	9,369
919.00	4,741	2,633	12,002
920.00	6,041	5,391	17,393

Total Volume = 17,393 cft
= 130,106 gal

Volume w/ 1.6' of ice = 9,369 cft
= 70,082 gal

FIRE PROTECTION OBJECTIVE

A DEPTH OF 6.5' IS PROVIDED FOR FIRE WATER. THIS PROVIDES 130,106 GALLONS OF WATER WHEN THERE IS NO ICE ON THE POND. WITH 1.6' OF ICE ON THE POND, THE FIRE WATER AVAILABLE IS 70,082 GALLONS. THE REQUIRED VOLUME OF WATER PER THE NORTHFIELD TWP FIRE DEPT. IS 40,000 GALLONS.

JOMAR DRIVE
16287
Midwestern Consulting
6/20/2017

Rational C Values:

Soil Type	Impervious	Pervious	Steep Pervious (>8%)	Water
A	0.95	0.20	0.25	1.00
B	0.95	0.30	0.35	1.00
C	0.95	0.35	0.40	1.00
D	0.95	0.50	0.55	1.00

Area ID	sft area	# house	# drive	Road/Swlk Pvmt (sft)	Roof Area (sft)	Driveway Area (sft)	Water (sft)	total imp. (sft)	Woods (sft)	Vegetated (sft)	Soil Type	Imp. C	Perv. C	CxA (sft)	CxA (ac)	Area (ac)	C Value	
A	25,818	0	0	18,187	0	0	0	18,187	0	7,631	B	0.95	0.30	19,567	0.449	0.593	0.76	Basin A
B	16,848	0	0	8,652	0	0	0	8,652	0	8,196	B	0.95	0.30	10,678	0.245	0.387	0.63	Basin B
C	27,366	0	0	20,235	0	0	0	20,235	0	7,131	B	0.95	0.30	21,363	0.490	0.628	0.78	Basin C
D	10,844	0	0	0	0	0	0	0	0	10,844	B	0.95	0.30	3,253	0.075	0.249	0.30	Free Release

TOTALS

Basin Tributary Areas	sft area	# house	# drive	Road/Swlk Pvmt (sft)	Roof Area (sft)	Driveway Area (sft)	Water (sft)	total imp. (sft)	Woods (sft)	Vegetated (sft)	Soil Type	Imp. C	Perv. C	CxA (sft)	CxA (ac)	Area (ac)	C Value
Basin A	25,818	0	0	18,187	0	0	0	18,187	0	7,631	B	0.95	0.30	19,567	0.45	0.59	0.76
Basin B	16,848	0	0	8,652	0	0	0	8,652	0	8,196	B	0.95	0.30	10,678	0.25	0.39	0.63
Basin C	27,366	0	0	20,235	0	0	0	20,235	0	7,131	B	0.95	0.30	21,363	0.49	0.63	0.78
Dry Hydrant Basin	10,844	0	0	0	0	0	0	0	0	10,844	B	0.95	0.30	3,253	0.07	0.25	0.30

Test Pit I.D.	Soil Description	Sand Layer Depth (A)	Test Depth (A)	Measured Infiltration Rate, Inches Per Hour	Design Infiltration Rate, Inches Per Hour (B)
TP-1	Brown Gravelly Medium To Fine Sand With Trace Of Silt	1' – 5.5'	1.5' or Elev. 919.5'	39	19.5
TP-2	Brown Silty Medium To Fine Sand With Some Gravel	1' – 4'	1' or Elev. 917'	9.75	4.9
TP-3	Brown Fine Sand & Silt With Trace Of Gravel	1' – 5.5'	2.5' or Elev. 915.5'	6.75	3.4
TP-4	Brown Fine Sand With Some Silt & Trace Of Gravel	1' – 5'	2' or Elev. 917'	30	15

(A) Below existing ground surface.
(B) Based on a safety factor of 2.

NOTE: TEST PIT ELEVATIONS STATED IN INFILTRATION REPORT (TEC, INC. – 08/01/2017) WERE ADJUSTED BASED ON LOCATIONS OF PITS RELATIVE TO AVAILABLE TOPOGRAPHIC INFORMATION. DESIGN PARAMETERS FOR BIORETENTION AREAS ARE AS FOLLOWS:

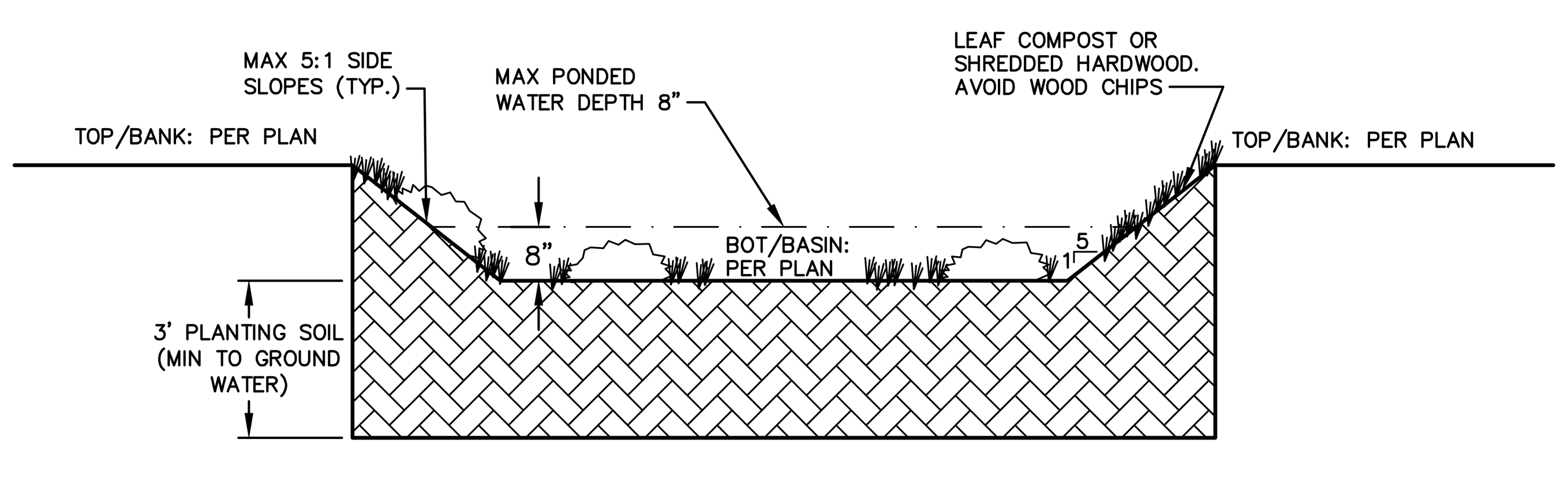
TP-1
TEST PIT EXISTING GROUND ELEVATION = 919.5 (REPORTED @ 921.0)
GROUND WATER @ 5.5' = 914.0 (REPORTED @ 915.5)
MIN. INFILTRATION LEVEL = 917.0
INFILTRATION TEST PERFORMED @ ELEVATION 918.0 (REPORTED @ 919.5)

TP-2
TEST PIT EXISTING GROUND ELEVATION = 918.0 (REPORTED @ 918.0)
GROUND WATER @ 4' = 914.0 (REPORTED @ 914.0)
MIN. INFILTRATION LEVEL = 917.0
INFILTRATION TEST PERFORMED @ ELEVATION 917.0 (REPORTED @ 917.0)

TP-3
TEST PIT EXISTING GROUND ELEVATION = 920.0 (REPORTED @ 918.0)
GROUND WATER @ 5.5' = 914.5 (REPORTED @ 912.5)
MIN. INFILTRATION LEVEL = 917.5
INFILTRATION TEST PERFORMED @ ELEVATION 917.5 (REPORTED @ 915.5)

TP-4
TEST PIT EXISTING GROUND ELEVATION = 920.0 (REPORTED @ 919.0)
GROUND WATER @ 5' = 915.0 (REPORTED @ 914.0)
MIN. INFILTRATION LEVEL = 918.0
INFILTRATION TEST PERFORMED @ ELEVATION 918.0 (REPORTED @ 917.0)

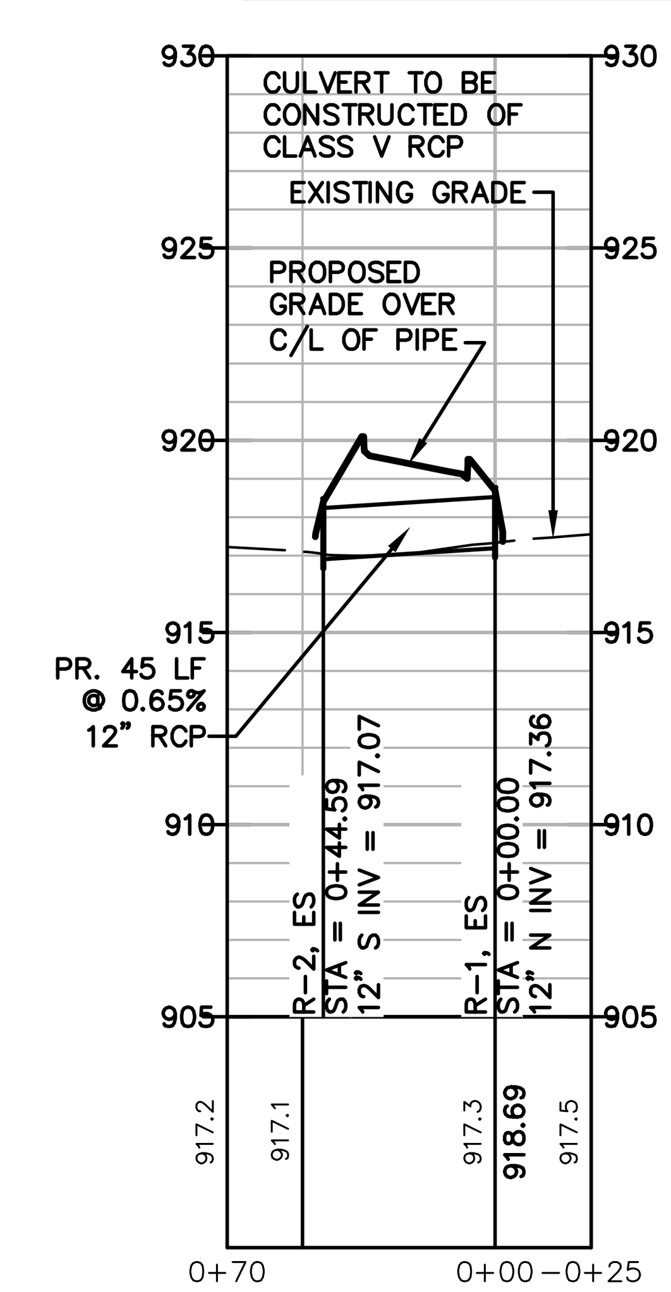
ALL PROPOSED INFILTRATION SURFACES ARE LOCATED A MINIMUM OF 3' ABOVE LEVEL OF GROUNDWATER.



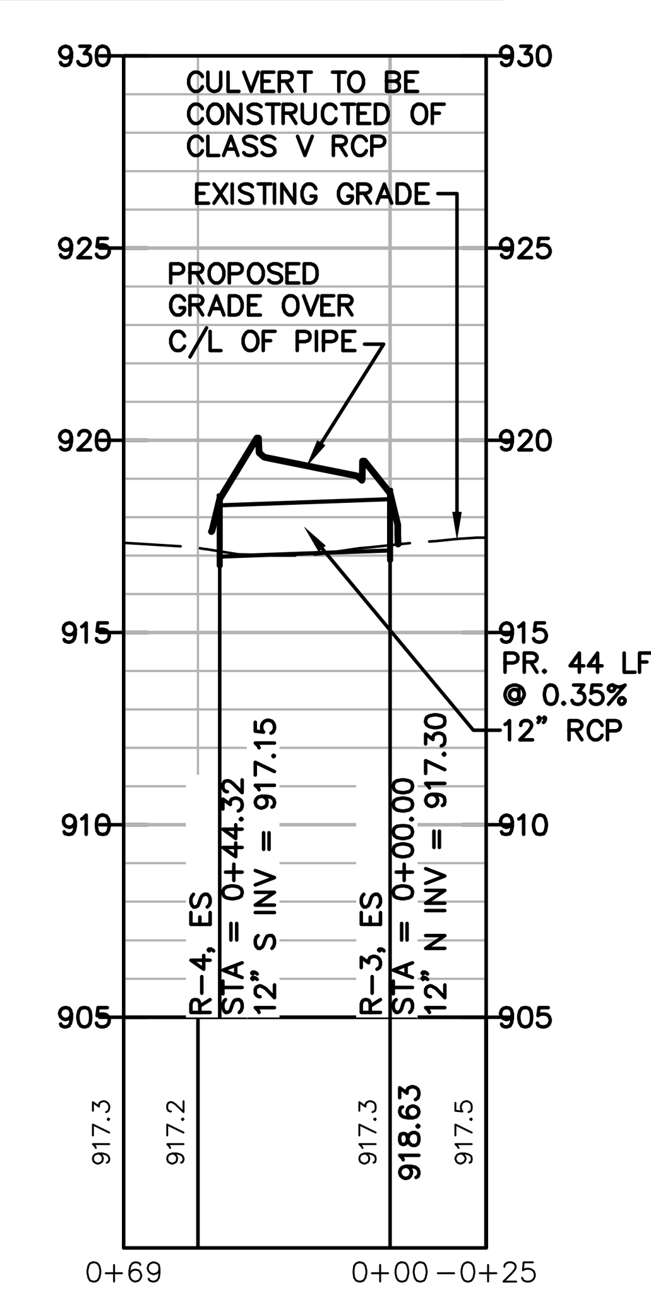
BIORETENTION AREA DETAIL

PER WCWRC RULES & GUIDELINES, REV. 10/17/16
NO SCALE

WETLAND EQUALIZATION PIPE PROFILES



EAST PIPE
HORIZONTAL SCALE 1" = 50'
VERTICAL SCALE 1" = 5'



WEST PIPE
HORIZONTAL SCALE 1" = 50'
VERTICAL SCALE 1" = 5'

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JOMAR PARK PHASE 2 - PRIVATE ROAD

NORTHFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN
PRIVATE ROAD DESIGN
DRAINAGE AREA PLAN

5

DATE: 10/5/17	SHEET 5 OF 6
REVISIONS: PER TOWNSHIP COMMENTS	REV. DATE 12/7/17
CADD:	
ENG: RCW	
PM: RCW	
TECH:	
Site Plan\16287DA1.dwg	
FB#305, 313, 617A	

JOB No. 16287

M:\Civil3d_Proj\16287\Site Plan\16287DA1.dwg, 12/7/2017 10:28 AM, Rachel D. Wandmacher, None

BIORETENTION BASIN A

JOMAR PARK PHASE 2 PROPERTY: CLASS A PRIVATE ROAD
Stormwater Basin Calculations
Midwestern Consulting, LLC - Project 16287
16-Aug-17

Bioretention Basin A
W1 - Determining Post-Development Cover Types, Areas, Curve Numbers, and Runoff Coefficients

Total Site Area (Property Limits) **35.92 ac**
Total Site Area (Bioretention Basin A Zone) **0.59 ac** * (the area draining to this basin)
Total Site Area Excluding "Self-Crediting" BMPs* (Basin A Zone) **0.59 ac**
*** Used for remainder of calculations below**

Rational Method Variables
(for first flush)

0.20 for pervious surfaces, Soil Type A
0.50 for pervious surfaces, Soil Type D
0.95 for house roofs, driveways, and roadways
1.00 for water surfaces (2-year pond elevation)

Cover Type	Soil Type	Area (sft)	Area (ac)	Runoff Coeff. (C)	(C) (Area)
House Roofs	NA	0	0.00	0.95	-
Driveways	NA	0	0.00	0.95	-
Roadways	NA	18,187	0.42	0.95	0.40
Landscaping	B	7,631	0.18	0.30	0.05
Water Surface	NA	0	0.00	1.00	-
Total		25,818	0.59	0.76	0.45

Total - Sum(C)(Area) 0.45 ac
Area Total 0.59 ac
Weighted C - (Sum(C)(Area))/(Area Total) 0.76

NRCS Variables
(for bankfull and 100-year calculations)

39 for Landscaping, Good Condition, Soil Type A
80 for Landscaping, Good Condition, Soil Type D

Pervious

Cover Type	Soil Type	Area (sft)	Area (ac)	Curve Number	(CN) (Area)
Landscaping	B	7,631	0.18	80	0.14
Total		7,631	0.18	80	0.14

Total - Sum(C)(Area) 0.14 ac
Area Total 0.18 ac
Weighted C - (Sum(C)(Area))/(Area Total) 80.0

NRCS Variables
(for bankfull and 100-year calculations)

98 for House Roofs
98 for Driveways and Roadways
98 for water surfaces (2-year pond elevation)

Impervious

Cover Type	Soil Type	Area (sft)	Area (ac)	Curve Number	(CN) (Area)
House Roofs	NA	0	0.00	98	-
Driveways	NA	0	0.00	98	0.00
Roadways	NA	18,187	0.42	98	0.41
Water Surface	NA	0	-	98	0.00
Total		18,187	0.42	98	0.41

Total - Sum(C)(Area) 0.41 ac
Area Total 0.42 ac
Weighted C - (Sum(C)(Area))/(Area Total) 98.0

W2 - First Flush Runoff Calculations (Vff)

A. Vff = 1" x 1'/12" x 43560 sft/ac x A x C 1,631 cft
0.04 ac-ft

Volume for Green Streets: Roadway Area Only 1,440 cft
0.03 ac-ft

W8 - Time of Concentration (Tc-hrs)

A. Assume 15-minute minimum time of concentration 0.25 hr

W9 - Runoff Summary & On-Site Infiltration Requirement

A. Summary from Previous Worksheets
First Flush Volume (Vff) **1,631 cft** **0.04 ac-ft**

W11 - Determine Applicable BMPs and Associated Volume Credits
One test pit with an infiltration test was performed in the location of the bioretention basin: The measured infiltration rate was 9.8 in/hr. Applying a safety factor of 2 results in a design infiltration rate of 4.9 in/hr.

		Storage Volume (cft)		Design Infilt.	Infilt. Volume in	*Max. Allowable*	Total Volume
Proposed BMP	Area (sft)	Surface	Soil	Rate (in/hr)	6-hour storm (cft)	*48-hour Drawdown*	Reduction (cft)
Bioretention Basin (Elev 917-917.67)	3,005	2,251	0	4.90	7,362	*58,898*	9,613

Max. Allowable 48-hour drawdown must be greater than storage volume used for infiltration credit reduction.

Total Area Loading Ratio	**8.6 :1**	(10:1 maximum)
Impervious Area Loading Ratio	**6.1 :1**	(8:1 maximum)

Total Volume Reduction Credit by Proposed Structural BMPs (cft) 9,613
Runoff Volume Infiltration Requirement (Vinf) from Worksheet 9 (cft) 1,631
Runoff Volume Credit (cft) 7,983

W12 - Natural Features Inventory

SEE COVER SHEET FOR NATURAL FEATURES INVENTORY

W14 - Storage-Elevation Data

Bioretention Basin Storage Information

	Elevation (ft)	Area (sft)	Volume (cft)	Cum. Volume (cft)	Cum. Volume (ac-ft)	Cum. Det'n Volume (cft)
	917	2,965	-	-	0.00	0
8" Ponding Elevation & Overflow Structure	917.67	3,755	2,251	2,251	0.05	0

BIORETENTION BASIN B

JOMAR PARK PHASE 2 PROPERTY: CLASS A PRIVATE ROAD
Stormwater Basin Calculations
Midwestern Consulting, LLC - Project 16287
16-Aug-17

Bioretention Basin B
W1 - Determining Post-Development Cover Types, Areas, Curve Numbers, and Runoff Coefficients

Total Site Area (Property Limits) **35.92 ac**
Total Site Area (Bioretention Basin B Zone) **0.39 ac** * (the area draining to this basin)
Total Site Area Excluding "Self-Crediting" BMPs* (Basin B Zone) **0.39 ac**
*** Used for remainder of calculations below**

Rational Method Variables
(for first flush)

0.20 for pervious surfaces, Soil Type A
0.50 for pervious surfaces, Soil Type D
0.95 for house roofs, driveways, and roadways
1.00 for water surfaces (2-year pond elevation)

Cover Type	Soil Type	Area (sft)	Area (ac)	Runoff Coeff. (C)	(C) (Area)
House Roofs	NA	0	0.00	0.95	-
Driveways	NA	0	0.00	0.95	-
Roadways	NA	8,652	0.20	0.95	0.19
Landscaping	B	8,196	0.19	0.30	0.06
Water Surface	NA	0	0.00	1.00	-
Total		16,848	0.39	0.63	0.25

Total - Sum(C)(Area) 0.25 ac
Area Total 0.39 ac
Weighted C - (Sum(C)(Area))/(Area Total) 0.63

NRCS Variables
(for bankfull and 100-year calculations)

39 for Landscaping, Good Condition, Soil Type A
80 for Landscaping, Good Condition, Soil Type D

Pervious

Cover Type	Soil Type	Area (sft)	Area (ac)	Curve Number	(CN) (Area)
Landscaping	B	8,196	0.19	80	0.15
Total		8,196	0.19	80	0.15

Total - Sum(C)(Area) 0.15 ac
Area Total 0.19 ac
Weighted C - (Sum(C)(Area))/(Area Total) 80.0

NRCS Variables
(for bankfull and 100-year calculations)

98 for House Roofs
98 for Driveways and Roadways
98 for water surfaces (2-year pond elevation)

Impervious

Cover Type	Soil Type	Area (sft)	Area (ac)	Curve Number	(CN) (Area)
House Roofs	NA	0	0.00	98	-
Driveways	NA	0	0.00	98	0.00
Roadways	NA	8,652	0.20	98	0.19
Water Surface	NA	0	-	98	0.00
Total		8,652	0.20	98	0.19

Total - Sum(C)(Area) 0.19 ac
Area Total 0.20 ac
Weighted C - (Sum(C)(Area))/(Area Total) 98.0

W2 - First Flush Runoff Calculations (Vff)

A. Vff = 1" x 1'/12" x 43560 sft/ac x A x C 890 cft
0.02 ac-ft

Volume for Green Streets: Roadway Area Only 685 cft
0.02 ac-ft

W8 - Time of Concentration (Tc-hrs)

A. Assume 15-minute minimum time of concentration 0.25 hr

W9 - Runoff Summary & On-Site Infiltration Requirement

A. Summary from Previous Worksheets
First Flush Volume (Vff) **890 cft** **0.02 ac-ft**

W11 - Determine Applicable BMPs and Associated Volume Credits
One test pit with an infiltration test was performed in the location of the bioretention basin: The measured infiltration rate was 6.8 in/hr. Applying a safety factor of 2 results in a design infiltration rate of 3.4 in/hr.

		Storage Volume (cft)		Design Infilt.	Infilt. Volume in	*Max. Allowable*	Total Volume
Proposed BMP	Area (sft)	Surface	Soil	Rate (in/hr)	6-hour storm (cft)	*48-hour Drawdown*	Reduction (cft)
Bioretention Basin (Elev 917-917.67)	1,680	1,821	0	3.40	2,856	*22,848*	4,677

Max. Allowable 48-hour drawdown must be greater than storage volume used for infiltration credit reduction.

Total Area Loading Ratio	**10.0 :1**	(10:1 maximum)
Impervious Area Loading Ratio	**5.2 :1**	(8:1 maximum)

Total Volume Reduction Credit by Proposed Structural BMPs (cft) 4,677
Runoff Volume Infiltration Requirement (Vinf) from Worksheet 9 (cft) 890
Runoff Volume Credit (cft) 3,787

W12 - Natural Features Inventory

SEE COVER SHEET FOR NATURAL FEATURES INVENTORY

W14 - Storage-Elevation Data

Bioretention Basin Storage Information

	Elevation (ft)	Area (sft)	Volume (cft)	Cum. Volume (cft)	Cum. Volume (ac-ft)	Cum. Det'n Volume (cft)
	917.50	1,680	-	-	0.00	0
8" Ponding Elevation & Overflow Structure	918.17	3,755	1,821	1,821	0.04	0

BIORETENTION BASIN C

JOMAR PARK PHASE 2 PROPERTY: CLASS A PRIVATE ROAD
Stormwater Basin Calculations
Midwestern Consulting, LLC - Project 16287
16-Aug-17

Bioretention Basin C
W1 - Determining Post-Development Cover Types, Areas, Curve Numbers, and Runoff Coefficients

Total Site Area (Property Limits) **35.92 ac**
Total Site Area (Bioretention Basin C Zone) **0.63 ac** * (the area draining to this basin)
Total Site Area Excluding "Self-Crediting" BMPs* (Basin C Zone) **0.63 ac**
*** Used for remainder of calculations below**

Rational Method Variables
(for first flush)

0.20 for pervious surfaces, Soil Type A
0.50 for pervious surfaces, Soil Type D
0.95 for house roofs, driveways, and roadways
1.00 for water surfaces (2-year pond elevation)

Cover Type	Soil Type	Area (sft)	Area (ac)	Runoff Coeff. (C)	(C) (Area)
House Roofs	NA	0	0.00	0.95	-
Driveways	NA	0	0.00	0.95	-
Roadways	NA	20,235	0.46	0.95	0.44
Landscaping	B	7,131	0.16	0.30	0.05
Water Surface	NA	0	0.00	1.00	-
Total		27,366	0.63	0.78	0.49

Total - Sum(C)(Area) 0.49 ac
Area Total 0.63 ac
Weighted C - (Sum(C)(Area))/(Area Total) 0.78

NRCS Variables
(for bankfull and 100-year calculations)

39 for Landscaping, Good Condition, Soil Type A
80 for Landscaping, Good Condition, Soil Type D

Pervious

Cover Type	Soil Type	Area (sft)	Area (ac)	Curve Number	(CN) (Area)
Landscaping	B	7,131	0.16	80	0.13
Total		7,131	0.16	80	0.13

Total - Sum(C)(Area) 0.13 ac
Area Total 0.16 ac
Weighted C - (Sum(C)(Area))/(Area Total) 80.0

NRCS Variables
(for bankfull and 100-year calculations)

98 for House Roofs
98 for Driveways and Roadways
98 for water surfaces (2-year pond elevation)

Impervious

Cover Type	Soil Type	Area (sft)	Area (ac)	Curve Number	(CN) (Area)
House Roofs	NA	0	0.00	98	-
Driveways	NA	0	0.00	98	0.00
Roadways	NA	20,235	0.46	98	0.46
Water Surface	NA	0	-	98	0.00
Total		20,235	0.46	98	0.46

Total - Sum(C)(Area) 0.46 ac
Area Total 0.46 ac
Weighted C - (Sum(C)(Area))/(Area Total) 98.0

W2 - First Flush Runoff Calculations (Vff)

A. Vff = 1" x 1'/12" x 43560 sft/ac x A x C 1,780 cft
0.04 ac-ft

Volume for Green Streets: Roadway Area Only 1,602 cft
0.04 ac-ft

W8 - Time of Concentration (Tc-hrs)

A. Assume 15-minute minimum time of concentration 0.25 hr

W9 - Runoff Summary & On-Site Infiltration Requirement

A. Summary from Previous Worksheets
First Flush Volume (Vff) **1,780 cft** **0.04 ac-ft**

W11 - Determine Applicable BMPs and Associated Volume Credits
One test pit with an infiltration test was performed in the location of the bioretention basin: The measured infiltration rate was 30.0 in/hr. Applying a safety factor of 2 results in a design infiltration rate of 15.0 in/hr.

		Storage Volume (cft)		Design Infilt.	Infilt. Volume in	*Max. Allowable*	Total Volume
Proposed BMP	Area (sft)	Surface	Soil	Rate (in/hr)	6-hour storm (cft)	*48-hour Drawdown*	Reduction (cft)
Bioretention Basin (Elev 917-917.67)	3,043	2,313	0	15.00	22,823	*182,580*	25,135

Max. Allowable 48-hour drawdown must be greater than storage volume used for infiltration credit reduction.

Total Area Loading Ratio	**9.0 :1**	(10:1 maximum)
Impervious Area Loading Ratio	**6.6 :1**	(8:1 maximum)

Total Volume Reduction Credit by Proposed Structural BMPs (cft) 25,135
Runoff Volume Infiltration Requirement (Vinf) from Worksheet 9 (cft) 1,780
Runoff Volume Credit (cft) 23,355

W12 - Natural Features Inventory

SEE COVER SHEET FOR NATURAL FEATURES INVENTORY

W14 - Storage-Elevation Data

Bioretention Basin Storage Information

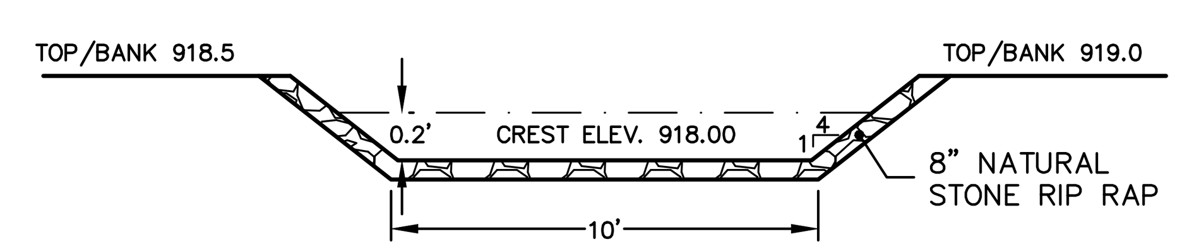
	Elevation (ft)	Area (sft)	Volume (cft)	Cum. Volume (cft)	Cum. Volume (ac-ft)	Cum. Det'n Volume (cft)
	918.00	3,043	-	-	0.00	0
8" Ponding Elevation & Overflow Structure	918.67	3,861	2,313	2,313	0.05	0

BROAD-CRESTED WEIR DISCHARGE FORMULA
(PER MDOT STORMWATER DRAINAGE MANUAL, CHAPTER 8)

$Q = CLH^{3/2}$
Q = DISCHARGE
C = BROAD-CRESTED WEIR COEFFICIENT (SEE TABLE 8-6)
L = BROAD CRESTED WEIR LENGTH
H = HEAD ABOVE WEIR CREST

Table 8-6 Broad-Crested Weir Coefficient C Values as a Function of Weir Crest Breadth and Head (feet)

Measured Head	Breadth of Crest of Weir (feet)										
H' (feet)	0.5	0.75	1.0	1.5	2.0	2.5	3.0	4.0	5.0	10.0	15.0
0.2	2.80	2.75	2.69	2.62	2.54	2.48	2.44	2.38	2.34	2.49	2.68
0.4	2.92	2.80	2.72	2.64	2.61	2.6	2.58	2.54	2.50	2.56	2.70
0.6	3.08	2.89	2.75	2.64	2.61	2.6	2.68	2.69	2.70	2.70	2.70
0.8	3.30	3.04	2.85	2.68	2.6	2.6	2.67	2.68	2.68	2.69	2.64
1.0	3.32	3.14	2.98	2.75	2.66	2.64	2.65	2.67	2.68	2.68	2.63
1.2	3.32	3.20	3.08	2.86	2.7	2.65	2.64	2.67	2.66	2.69	2.64
1.4	3.32	3.26	3.20	2.92	2.77	2.68	2.64	2.65	2.65	2.67	2.64
1.6	3.32	3.29	3.28	3.07	2.89	2.75	2.68	2.66	2.65	2.64	2.63
1.8	3.32	3.32	3.31	3.07	2.88	2.74	2.68	2.66	2.65	2.64	2.63
2.0	3.32	3.31	3.30	3.03	2.85	2.76	2.72	2.68	2.65	2.64	2.63
2.5	3.32	3.32	3.31	3.28	3.07	2.89	2.81	2.72	2.67	2.64	2.63
3.0	3.32	3.32	3.32	3.32	3.2	3.05	2.92	2.73	2.66	2.64	2.63
3.5	3.32	3.32	3.32	3.32	3.32	3.19	2.97	2.76	2.68	2.64	2.63
4.0	3.32	3.32	3.32	3.32	3.32	3.32	3.07	2.79	2.7	2.64	2.63
4.5	3.32	3.32	3.32	3.32	3.32	3.32	3.32	2.88	2.74	2.64	2.63
5.0	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.07	2.79	2.64	2.63
5.5	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	2.88	2.64	2.63

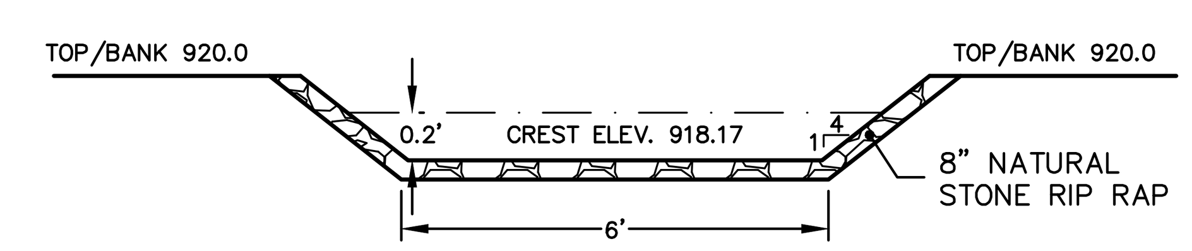


BASIN A

REQUIRED:
Q=CIA
=(0.76)(4.3)(0.59)
= 1.93 CFS

PROVIDED:
$Q=CLH^{3/2}$
$= (2.49)(10)(0.2)^{3/2}$
= 2.23 CFS

RIP-RAP OVERFLOW
NO SCALE

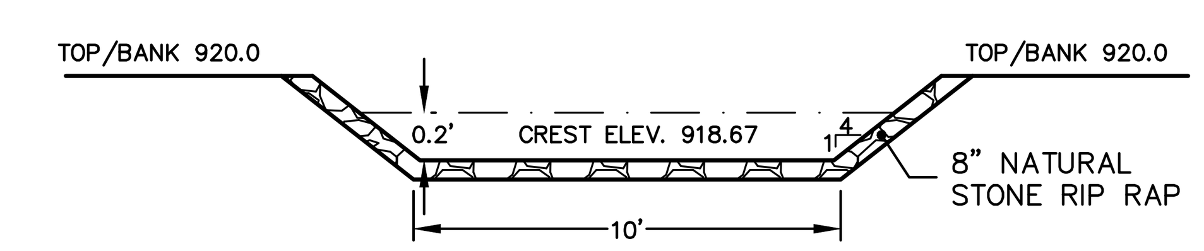


BASIN B

REQUIRED:
Q=CIA
=(0.63)(4.3)(0.39)
= 1.06 CFS

PROVIDED:
$Q=CLH^{3/2}$
$= (2.49)(6)(0.2)^{3/2}$
= 1.34 CFS

RIP-RAP OVERFLOW
NO SCALE



BASIN C

REQUIRED:
Q=CIA
=(0.78)(4.3)(0.63)
= 2.11 CFS

PROVIDED:
$Q=CLH^{3/2}$
$= (2.49)(10)(0.2)^{3/2}$
= 2.23 CFS

RIP-RAP OVERFLOW
NO SCALE

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4297 MUIRFIELD DRIVE
BRIGHTON, MI 48116
JAMES KUGLER
(734) 741-0500

JOMAR PARK PHASE 2 - PRIVATE ROAD
NORTHFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN
PRIVATE ROAD DESIGN
DRAINAGE CALCULATIONS

6

DATE: 10/5/17
SHEET 6 OF 6
CADD: RCW, TPH
ENG: RCW
PM: RCW
TECH:
Site Plan\16287DA1.dwg
FB#205, 313, 617A

REV. DATE 12/7/17
REVISIONS: PER TOWNSHIP COMMENTS

JOB No. **16287**

MCKENNA

January 9, 2018

Planning Commission
Northfield Township
8350 Main Street
Whitmore Lake, Michigan 48189

Subject: Jomar Drive – Private Road Application Review
Applicants: James W. Kugler (Owner: Falls North Investment)
Location: Jomar Drive, north of E North Territorial Road and east of US 23

Dear Planning Commissioners:

We have reviewed the private road application for Jomar Drive submitted by applicant James W. Kugler. This is the second application for Jomar Drive. Our first review is detailed in a letter to the Planning Commission dated January 12, 2017. The proposed private road is about 1,127 feet long, extending east from the cul-de-sac of the existing portion of Jomar Drive. The private road application was also reviewed by the Township Engineer. We have reviewed the private road against the standards of the Zoning Ordinance and offer the following comments:

Private Road Comments

Section 36-719(f) requires the Planning Commission to review and decide on all private road applications. The standards for private roads are listed in Section 36-719(g) (2) of the Zoning Ordinance as follows:

1. **The roadway surface and turnaround area shall be centered in the right-of-way.**
   The site plan shows that the road will be 28 feet wide and will be centered in the 66-foot right-of-way for the roadway. The entrance from the existing Jomar Drive will be a 48.65-foot curb cut. This standard is met by the proposed private road.

2. **The connection between the right-of-way and the public road shall conform to the standards and specifications of the county road commission. The applicant shall obtain a road permit issued by the road commission prior to approval of any right-of-way by the township planning commission.**
   The proposed private road is an extension of Jomar Drive, which already has a connection between the private road right-of-way and E North Territorial Road. We will defer to the Washtenaw County Road Commission regarding the issuance of its permit, if necessary.

3. **Underground crossroad drainage shall be provided where the proposed right-of-way crosses a stream or other drainage course. Necessary culverts and treatments shall be provided in accordance with the specifications of the county road commission.**
   We defer to the Township Engineer regarding any issues with drainage, which was addressed in a letter under separate cover.

4. **The right-of-way and roadway shall be adequately drained so as to prevent flooding or erosion of the roadway. Ditches shall be located within the right-of-way. Roadway drainage shall be constructed so that the runoff water shall be conveyed to existing watercourses or water bodies. The discharged water shall not be cast upon the land of another property owner unless the water**

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is following an established watercourse. Connection to county drains shall be approved by the county drain commissioner prior to the issuance of a permit. Connection to roadside ditches within public road right-of-way shall be approved by the county road commission prior to the issuance of a permit.
We defer to the Township Engineer regarding any issues with drainage, which was addressed in a letter under separate cover.

5. **Road signs shall be erected and maintained in accordance with the Michigan Manual of Uniform Traffic Control Devices (MMUTCD).**
No road signs are proposed on the site plan. This private road is an extension of Jomar Drive, which already has a stop sign at its intersection with E North Territorial Road. If any future signs are used on this road, they shall conform to the MMUTCD.

6. **The right-of-way shall provide for ingress, egress, drainage, and installation and maintenance of public and private utilities.**
We will defer to the Township Engineer regarding any specific engineering issues. However, there is nothing specific on the site plan indicating any difficulty in complying with this standard.

In addition, all minimum requirements of Section 36-719(g) (3) shall also be met. The proposed width of the right-of-way is 66 feet, which meets the minimum requirements. The proposed turnaround area at the end of the road is 75 feet for the right-of-way and 50 feet for the roadway surface, both of which meet the requirements. We defer to the Township Engineer on the remaining requirements of this section.

Natural Features Comments

Section 36-723 of the Zoning Ordinance includes provisions for the preservation of natural features, and Section 36-723(b) only applies the standards to "projects that require site plan review or plat approval." While review of the private road application does not qualify as site plan review or plat approval, we recommended the applicant address some information on wetlands and landmark trees in this application. Our comments are described by the following:

1. **Wetlands.** Although Section 36-723(c) includes Township standards for wetlands preservation that may not apply to private road applications, regulations of the Michigan Department of Environmental Quality (MDEQ) will apply if the wetlands are regulated by the State of Michigan. The applicant has stated that they will obtain a MDEQ Wetland Impact permit.

2. **Landmark Trees.** For landmark trees that are removed as part of a site plan or plat application, Section 36-723(g) requires replanting of 100% of the original diameter at breast height (DBH) removed. While the requirements of Section 36-723 would only apply to the site plan or plat applications along Jomar Drive, we recommended more clearly showing the locations of trees to be removed on Sheet 2 of the site plan. The previous site plan showed 101 trees to be removed. This plan shows a table with 58 total landmark trees with 37 to be removed.

This section of the Zoning Ordinance emphasizes that landmark trees shall generally be preserved, with high standards for their removal. Specifically, the removal of landmark trees will occur rarely and will be considered only after alternatives are studied and found to be not feasible. The site plan shows 37 total landmark trees to be removed, but it does not show any mitigation trees to be planted. We recommend providing mitigation trees according to Section 36-723(g), and submitting revised plans showing tree replacement species, location, and size for administrative approval. If possible, the trees should be placed along property lines to increase site screening and reduce the potential conflict with future site development.

Conclusion

Although the private road meets the zoning-related standards of Section 36-719(f), we defer to the Township Engineer on items with respect to drainage, grading, permits, and other engineering features. We recommend that the proposed private road be approved with the following condition:

1. Provide mitigation trees according to Section 36-723(g) and submit for administrative approval.
2. Conditions noted in the engineering review.
3. Receipt of all required permits.

If you have any questions about this report, please contact us.

Respectfully submitted,

MCKENNA

Paul Lippens, AICP
Director of Transportation and Urban Design

Stephen Hannon, AICP
Assistant Planner

cc: Steve Aynes, Township Manager
Marlene Chockley, Township Supervisor
Kathleen Manley, Township Clerk
Tim Hardesty, Township Wastewater Superintendent
William Wagner, Township Public Safety Director
Jacob Rushlow, P.E., Township Engineer, OHM
James Kugler, Falls North Investments

ARCHITECTS. ENGINEERS. PLANNERS.

OHM Advancing Communities

January 9, 2018

Northfield Township
8350 Main Street, Suite A
Whitmore Lake, Michigan 48189

Attention: **Mary Bird, Building and Zoning Department**

Regarding: **Jomar Park Phase 2 - Private Road**
Northwest ¼, Section 21, Northfield Township
Private Road Review #2
OHM Job Number 0151-17-1011

Dear Ms. Bird,

We have reviewed the plans, revision date December 7, 2017, for the Jomar Park Phase 2 Private Road according to Township guidelines and general engineering standards. A brief description of the project has been provided below, followed by our comments and recommendation.

The applicant proposes a Class A private road approximately 1,400-feet long. The proposed private road is located north of North Territorial Road on the west side of the Ann Arbor Railroad. The proposed road will connect to the existing private road Jomar Drive.

The plans are in compliance with the private road standards and requirements of section 36-719 of the Northfield Township Zoning Ordinance. The following are required prior to the start of construction.

1. Tree replacement plan that is acceptable to the Planning Consultant and the Planning Commission.
2. Planning Commission approval of the plan.
3. Receipt of outside agency permits and approvals. The required permits/approvals for this project are:
    a. MDEQ Part 303 Wetlands
    b. Northfield Township Fire Department approval of the road and dry hydrant location
    c. Northfield Township Building Department
    d. Washtenaw County Water Resources Commission for soil erosion and sedimentation control
    e. Washtenaw County Water Resources Commission for storm water management
4. Contractor's proof of general liability insurance naming Northfield Township and OHM Advisors as additionally insured. Policies are required to provide coverage up to $500,000 for each occurrence and $1,000,000 aggregate or as necessary according to Northfield Township standards.
5. Construction phase escrow in the amount of $4,500. The escrow will cover the costs associated with the pre-construction meeting, on-site inspections, field engineering (if necessary), final site inspection, and recommendation of final acceptance.
6. Submittal of six full size sets of plans for distribution. The plans shall incorporate any conditions of Planning Commission approval as well as outside permit agencies. The plans shall be dated with the final revision date.
7. A preconstruction meeting must be held. Contact OHM Advisors to schedule the meeting once the above items have been addressed.

Please feel free to contact me at (734) 466-4553 or marcus.mcnamara@ohm-advisors.com if you have any questions.

Sincerely,
OHM ADVISORS

Digitally signed by Marcus McNamara
Date: 2018.01.09 14:49:02-05'00'
Marcus J McNamara

cc: Marlene Chockley, Township Supervisor (via e-mail)
Kathleen Manley, Township Clerk (via e-mail)
Larry Roman, Township Planning Commission Chair (via e-mail)
William Wagner, Township Public Safety Director (via e-mail)
Paul Lippens, Township Planner, McKenna Associates (via e-mail)
Kurt Weiland, Township Building Official (via e-mail)
Katie Lee, WCWRC (via e-mail)
Theresa Marsik, WCWRC (via e-mail)
James Kugler, Falls North Investments (via e-mail)
Rob Wagner, Midwestern Consulting (via email)
File

P:\0126_0165\SITE_NorthfieldTwp\2017\0151171010_Jomar_Private_Road_MUNI\Jomar_Private_Rd_Rev2.docx

Memo

To: Northfield Township Board of Trustees

From: Marlene Chockley, Supervisor

RE: Appointments to Boards and Commissions

Date: December 7, 2017

Trustees,

We have announced the opportunity at two Board meetings to apply for positions on several boards where members' terms are expiring. We have also advertised that opportunity through our email list. Interested individuals were asked to submit their application by December 6, 2017 so appointments could be made at our December 12, 2017 meeting.

The following applications have been received:

Planning Commission – two regular members for terms ending December 2020 and one for a term ending December 2019

- Brad Cousino
- Eamonn Dwyer
- John Zarzecki

Zoning Board of Appeals – one regular member for a term ending December 2020 and an alternate for a term ending December 2020

- Amy Steffens

Board of Review – one alternate position for a term ending December 2018

- Christopher Salata

Respectfully submitted,

Marlene Chockley

Marlene Chockley

MCKENNA

January 10, 2018

Board of Trustees and Planning Commission
Northfield Township
8350 Main Street
P.O. Box 576
Whitmore Lake, Michigan 48189

Subject: Proposed 2018 Community Development Work Plan for Northfield Township

Dear members of the Board of Trustees and Planning Commission:

Throughout 2017, Northfield Township and McKenna have worked together on several different projects in order to advance planning goals of the Township. In 2017, we have served the Township Board of Trustees, Planning Commission, Zoning Board of Appeals, and DDA on the following:

- Completing the North Village Master Plan, including the public participation, design, and market analysis. This project was formerly known as the Northfield Community Park Master Plan.
- Completing the Whitmore Lake Downtown Strategic Action Plan and Design Framework, including public participation, design, and all analyses, to guide future development of the downtown area.
- Monthly advisory assistance to the Planning Commission including reviews for site plans, rezonings, and conditional land uses, and other assistance as needed.
- Zoning Administrator assistance, including permit reviews, phone calls with applicants, attendance at ZBA meetings, and preparing ZBA reviews, and other assistance as needed.

As 2018 begins, we would like to recommend the following projects to the Township based on feedback received from both the Downtown Development Authority (DDA) and Planning Commission, along with our analysis of the Master Plan and Zoning Ordinance.

1. **McKenna Attendance at DDA Meetings and Other Ongoing Assistance.** We proposed to work with the DDA to foster more activities and development in the downtown area by implementing the goals and objectives of the Whitmore Lake Downtown Strategic Action Plan and Design Framework. We are in the process of working with the Township to release an RFP for downtown design elements.

2. **Master Plan Update.** The current Northfield Township Master Plan was originally adopted in 2012. The Michigan Planning Enabling Act requires a municipality to review its master plan at least once every five years to determine if revisions are needed. The current Master Plan is strong and provides a clear vision for many of the community's goals with respect to future growth and preservation. However, some areas of the Master Plan would benefit from additional policies or further review, including:

    a. **Incorporation of Completed Plans into Master Plan.** We recommend officially incorporating the North Village Master Plan and Whitmore Lake Downtown Strategic Action Plan and Design Framework into the Northfield Township Master Plan.

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b. **Details of Non-motorized Transportation Plan.** With the recent adoption of Complete Streets legislation in Michigan, it is important for the Township to plan for appropriate interconnectivity of its current and future non-motorized and motorized transportation systems. Although the Master Plan supports a non-motorized (e.g., pedestrian and bicycle) transportation system and includes a map from the 2006 Non-Motorized Plan for Washtenaw County developed by the Washtenaw Area Transportation Study (WATS), the Master Plan should be updated with an inventory of the non-motorized facilities located in the Township, including sidewalks, and should include specific policies for how the non-motorized network will be developed in the near future. There are major considerations for a non-motorized system, which include the locations of high priority corridors and opportunities to link to existing systems in adjacent communities. McKenna has assisted in the development of their non-motorized systems in Hamburg Township and Lyon Township, and we are familiar with the local non-motorized transportation systems and plans. Specifically, the Township is located near two major regional trails in the Lakeland Trail and Washtenaw County Border-to-Border Trail, both of which are planned to connect to a statewide system of trails. The Township should explore ways to connect to these trail systems in the future.

c. **Agricultural Production and Preservation.** The Master Plan includes goals for preserving the farmland of the community, which include promoting agricultural tourism. While we recommend standards in the Zoning Ordinance to encourage agritourism (see below), the Master Plan should acknowledge the recent creation of the Farmland and Natural Areas Preservation Committee and include supporting language for its upcoming tasks. We anticipate that several of the policies of the Farmland and Natural Areas Preservation Committee will eventually be incorporated into the Master Plan and Zoning Ordinance, so we recommend establishing that link as soon as possible in the Master Plan.

d. **Future Land Use Map and Plan Review.** We recommend reviewing the Future Land Use Map in response to some changing conditions in the Township. Current economic trends around the country are showing a decrease in demand for retail space, as indicated by the closure of many "brick and mortar" stores. Also, Southeast Michigan has a strong industrial economy including a variety of traditional and high-tech manufacturing. Northfield Township has seen new industrial development in the past few years, especially along E. North Territorial Road. The Future Land Use Map may be updated to allow for more industrial uses instead of commercial uses, and may include some mixed areas to act as a buffer between the two and to allow both use types.

e. **Zoning Plan.** The Michigan Planning Enabling Act requires that a zoning plan be included in a master plan to explain how land use categories of the future land use map relate to the districts on the zoning map. The Master Plan currently has a Zoning Plan; however, we recommend an update to the Zoning Plan and the Future Land Use Map based on recent updates to the Zoning Ordinance, including the repeal of the Enterprise Service (ES) District and Highway Commercial (HC) District. At the same time, the Future Land Use Map should also be reviewed to ensure its consistency with the Zoning Plan, and incorporate the Whitmore Lake Overlay District.

f. **Public Participation.** The public participation input for the current Master Plan was obtained in 2010 (two Planning Fairs and one community survey). The public feedback recently received for the North Village Master Plan yielded excellent feedback and was a reflection of the community's excitement about planning the future of the community. If an update to the Master Plan is begun

in 2018 or 2019, it would provide an excellent opportunity to invite the public to provide feedback on the community's future land use policies. This can include online surveys, public workshops and charrettes, and stakeholder interviews.

3. **Zoning Ordinance Updates**

    a. **Amendments to encourage more development activity downtown.** The Whitmore Lake District (WLD) was adopted in 2013 to encourage development in downtown Whitmore Lake that was mixed use, human scale, and had good urban form. So far, the WLD does not appear to have had a major impact. One of the impediments that we've noticed in the Zoning Ordinance is that the WLD includes an inordinate number of Conditional Uses, which will discourage many types of business from starting because of the high barriers to entry. We recommend that the Township review the land uses of the WLD and try to include more uses as Permitted Uses. This will also encourage re-use of buildings – the re-use of a building is much easier if there are more Permitted Use options. Additionally, if the Township starts the Whitmore Lake Downtown Strategic Action Plan and Design Framework (described above), the design guidelines can be codified with accompanying graphics based on real-life scenarios in downtown Whitmore Lake.

    b. **Amendments to encourage more agricultural tourism uses.** The Zoning Ordinance allows for agricultural tourism uses as Conditional Uses in the AR district. The Michigan Right to Farm Act may require some of the uses listed to be permitted as part of a commercial agriculture operation, so we recommend reviewing these regulations to ensure they are consistent with the Right to Farm Act. The Township may want to obtain comment from the Farmland & Natural Areas Preservation Committee regarding any research it has done on agricultural tourism and how the Zoning Ordinance could be amended to encourage more agricultural tourism uses.

    c. **Land Use table to simplify uses and fix discrepancies between similar uses.** Several months ago, McKenna prepared a Non-Residential District Use Matrix (enclosed, dated June 29, 2016). We recommend adopting a similar table into the Zoning Ordinance that also includes the residential zoning districts. However, this table reveals areas where there are redundant uses that are difficult to interpret. This has made the Zoning Ordinance more difficult to administer and understand over time. Therefore, we recommend resolving these conflicts as part of the adoption process of the land use table.

4. **Parks & Recreation Master Plan Update.** The Parks & Recreation Master Plan was adopted in 2015, so it will not expire until 2020. However, in order to remain eligible for many state and federal grants, the Plan must stay up-to-date as grant opportunities arise. With the completion of the North Village Plan, we recommend incorporating it into the Parks & Recreation Master Plan so that the Township is able to take advantage of any grant opportunities for this park.

5. **Capital Improvement Program (CIP) Assistance.** The Michigan Planning Enabling Act requires that any community with water or sewer facilities shall annually approve a CIP. The CIP process allows for the Township and its departments to predictably budget for capital expenses in coming years, such as water and sewer improvements, park improvements, roads and non-motorized infrastructure, and other large capital expenses.

A proactive work program can help build a quality community, and we look forward to working with the Township as it actively seeks to preserve its rural character and sense of place.

Respectfully submitted,

MCKENNA

Paul Lippens, AICP
Director of Transportation and Urban Design

Stephen Hannon, AICP
Assistant Planner

Northfield Township Planning Commission Calendar

January	3	2018
January	17	2018
February	7	2018
February	21	2018
March	7	2018
March	21	2018
April	4	2018
April	18	2018
May	2	2018
May	16	2018
June	6	2018
June	20	2018
July	11	2018
July	18 /25	2018
August	1	2018
August	15	2018
September	5	2018
September	19	2018
October	3	2018
October	17	2018
November	7	2018
November	21	2018
December	5	2018
December	19	2018

Roberts Rules of Order – Simplified

Guiding Principle:

Everyone has the right to participate in discussion if they wish, before anyone may speak a second time.
Everyone has the right to know what is going on at all times.
Only urgent matters may interrupt a speaker.
Only one thing (motion) can be discussed at a time.

A **motion** is the topic under discussion (e.g., "I move that we add a coffee break to this meeting"). After being recognized by the president of the board, any member can introduce a motion when no other motion is on the table. A motion requires a second to be considered. Each motion must be disposed of (passed, defeated, tabled, referred to committee, or postponed indefinitely).

How to do things:

You want to bring up a new idea before the group.

After recognition by the president of the board, present your motion. A second is required for the motion to go to the floor for discussion, or consideration.

You want to change some of the wording in a motion under discussion.

After recognition by the president of the board, move to amend by

- adding words,
- striking words or
- striking and inserting words.

You like the idea of a motion being discussed, but you need to reword it beyond simple word changes.

Move to substitute your motion for the original motion. If it is seconded, discussion will continue on both motions and eventually the body will vote on which motion they prefer.

You want more study and/or investigation given to the idea being discussed.

Move to refer to a committee. Try to be specific as to the charge to the committee.

You want more time personally to study the proposal being discussed.

Move to postpone to a definite time or date.

You are tired of the current discussion.

Move to limit debate to a set period of time or to a set number of speakers. Requires a 2/3^{rds} vote.

You have heard enough discussion.

Move to close the debate. Requires a 2/3^{rds} vote. Or move to previous question. This cuts off discussion and brings the assembly to a vote on the pending question only. Requires a 2/3^{rds} vote.

You want to postpone a motion until some later time.

Move to table the motion. The motion may be taken from the table after 1 item of business has been conducted. If the motion is not taken from the table by the end of the next meeting, it is dead. To kill a motion at the time it is tabled requires a 2/3^{rds} vote. A majority is required to table a motion without killing it.

You believe the discussion has drifted away from the agenda and want to bring it back.
Call for orders of the day.

You want to take a short break.
Move to recess for a set period of time.

You want to end the meeting.
Move to adjourn.

You are unsure that the president of the board has announced the results of a vote correctly.
Without being recognized, call for a “division of the house." At this point a roll call vote will be taken.

You are confused about a procedure being used and want clarification.
Without recognition, call for "Point of Information" or "Point of Parliamentary Inquiry." The president of the board will ask you to state your question and will attempt to clarify the situation.

You have changed your mind about something that was voted on earlier in the meeting for which you were on the winning side.
Move to reconsider. If the majority agrees, the motion comes back on the floor as though the vote had not occurred.

You want to change an action voted on at an earlier meeting.
Move to rescind. If previous written notice is given, a simple majority is required. If no notice is given, a 2/3^{rds} vote is required.

You may INTERRUPT a speaker for these reasons only:

to get information about business – **point of information**
to get information about rules – **parliamentary inquiry**
if you can't hear, safety reasons, comfort, etc. – **question of privilege**
if you see a breach of the rules – **point of order**
if you disagree with the president of the board’s ruling – **appeal**

Quick Reference

	Must Be Seconded	Open for Discussion	Can be Amended	Vote Count Required to Pass	May Be Reconsidered or Rescinded
Main Motion	√	√	√	Majority	√
Amend Motion	√	√		Majority	√
Kill a Motion	√			Majority	√
Limit Debate	√		√	2/3^{rds}	√
Close Discussion	√			2/3^{rds}	√
Recess	√		√	Majority	
Adjourn (End meeting)	√			Majority	
Refer to Committee	√	√	√	Majority	√
Postpone to a later time	√	√	√	Majority	√
Table	√			Majority	
Postpone Indefinitely	√	√	√	Majority	√

MCKENNA

January 7, 2018

Township Board of Trustees and Planning Commission
Northfield Township
8350 Main Street
Whitmore Lake, MI 48189

Subject: **Zoning Administrator Quarterly Report 10/1/17 – 12/31/17**

Dear Trustees and Commissioners:

Section 36-971(6) of the Zoning Ordinance requires the Zoning Administrator to submit to the Township Board and Planning Commission, a quarterly report in which a summary of the activities of the office is presented. Following is a concise summary of the activities of note in the LAST quarter of 2017 (October 1 through December 31).

Zoning Compliance Applications: A total of 16 applications were APPROVED.

1. Approved four (4) new dwellings and additions to one (1) other existing dwelling.
2. Approved two (2) new accessory structures such sheds and pole barns.
3. Approved one (1) new deck.
4. Approved four (4) new fence permits.
5. Approved one (1) solar panel array installation.

Non-residential Uses:

1. Approved one (1) wireless equipment installation upgrade at 5449 Whitmore Lake Road on an existing tower.

2. ***Spiritus Sanctus/4225 E. Joy Road*** - Approved expansion of the use into existing structure on abutting property to accommodate administrative offices for the school. Public and private schools are permitted as conditional land uses in the AR district. The applicant's request was approved, subject to site plan approval from the Planning Commission and approval of the conditional use from the Township Board of Trustees.

3. ***Allison Duncan/102 Barker*** – Administrative site plan approval was granted to a proposed dog grooming business to be located site. The minimum requirements from the ordinance for improvements necessary to enhance the site and improve public safety and welfare were required.

Denied

One (1) application for a garage was denied. Subject property has one address and two (2) principal dwellings and accessory structures. Addition of one more garage would increase the non-conforming uses on the property which is a violation of the Zoning Ordinance.

Zoning Board of Appeals Cases:

1. **Hobbs/442 East Shore Drive** – Request for variance to build an accessory structure (garage) on a parcel with no principal dwelling on it – Scheduled for 1/22/18 ZBA meeting agenda.

Final Site Inspections: The Township has several sites that have been through site plan approval but have never been inspected for compliance to the approved plans which is very important to maintain the integrity of the Ordinance and ensure enforcement. The authority for such inspection lies with the Zoning Administrator per Sec. 36-87. Inspection of the Zoning Ordinance which states:

> *(a) All subgrade improvements, such as utilities subbase and base installations for drives and parking lots, and similar improvements, shall be inspected by the building inspector and approved prior to covering. The zoning administrator shall be responsible for the inspection of all improvements for conformance to the approved site plan. The zoning administrator is authorized to employ the township planner, township engineer, or other township departments or experts to assist in the inspection of all site improvements required by the approved site plan.*

1. **RheTech/1500 E. North territorial Road** – Resolved issue pertaining to shielding for wall mounted fixture son north façade which were not complaint with final approved site plan. Applicant agreed to replace/shield fixtures if 3 complaints were received about light spillage being a source of nuisance. Final site inspection approval granted.

2. **Arvin Sango/955 E. North territorial Road** – Resolved issue pertaining to parking placement and count. Final site inspection approval granted.

Zoning Administrator Office Hours:

Upon authorization from the Township Board, I started office hours at Township Hall every Wednesday from four (4) hours in the morning. I work with the Zoning Coordinator, Township Manager and Code Enforcement official to address and resolve issues by meeting with property owners and going on site inspections. I am also available to meet by appointment with any citizen who has any questions or concerns regarding zoning matters.

Meetings:

Made presentation to the Township Board, Planning Commission and Zoning Board of Appeals on 10/24/17, at a joint session, to provide information on roles and responsibilities of the Zoning Administrator, challenges faced and accomplishments thus far.

Other Issues:

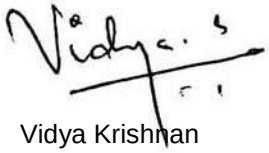
1. Discussed with Zoning Coordinator questions regarding zoning designation of some parcels, non-conforming structures, certificate of occupancies etc.
2. Prepare list of potential zoning text amendments for the Planner to bring to PC's attention; also suggest adoption of a simpler administrative site plan review requirement to enable smaller projects to go through process faster.

The last quarter of the year was a bit slower in terms of applications due to the holiday season. With the start of my office hours in the last one month, we have already made significant strides in establishing a better relationship with some property owners and in trying to find meaningful solutions to code compliance issues. I continue to work with the Zoning Coordinator, and try our best to help guide applicants.

The Zoning Ordinance is a legal binding document adopted under a State law. We do our best to abide by it and maintain consistent and fair application of the Ordinance. We hope with some amendments that the Planning Commission will undertake in the New Year, the process can be streamlined even more and some unsuitable regulations can be eliminated.

As the Zoning Administrator, I strive to be prompt and attentive to the needs of the applicants while ensuring that they understand the process and also comply with the rules and regulations set forth in the Zoning Ordinance.

Respectfully submitted,
McKenna Associates



Vidya Krishnan
Senior Planner

NORTHFIELD TOWNSHIP
PLANNING COMMISSION
Minutes of Regular Meeting
December 6, 2017

1. CALL TO ORDER

The meeting was called to order by Chair Roman at 7:00 P.M. at 8350 Main Street.

2. PLEDGE OF ALLEGIANCE

3. ROLL CALL AND DETERMINATION OF QUORUM

Roll call:

Janet Chick	Present
Brad Cousino	Absent with notice
Sam Iaquinto	Present
Cecilia Infante	Present
Larry Roman	Present
Amy Steffens	Present
John Zarzecki	Present

Also present:
Assessing & Building Assistant Mary Bird
Planning Consultant Paul Lippens, McKenna Associates
Township Manager Steven Aynes
Recording Secretary Lisa Lemble
Members of the Community

4. ADOPTION OF AGENDA

- **Motion:** Iaquinto moved, Roman supported, that the agenda be adopted as presented.
  Motion carried 6—0 on a voice vote.

5. FIRST CALL TO THE PUBLIC

No comments.

6. CLARIFICATIONS FROM THE COMMISSION

None.

7. CORRESPONDENCE

None.

8. PUBLIC HEARINGS

None.

9. REPORTS

9A. Board of Trustees
Chick reported that on November 28th the auditor presented the annual audit, the Board heard comments on allowing medical marijuana dispensaries in the Township, and the Board approved (a) the CUP for the Ann Arbor Dog Training Club, (b) regular office hours for the Zoning Administrator, and (c) the final draft and release of the RFP for North Village and the Downtown Strategic Action Plan recommendations.

9B. ZBA
Did not meet in November.

9C. Staff Report
Nothing to report.

9D. Planning Consultant
Nothing to report.

9E. Parks and Recreation
Did not meet in November. The next meetings will be December 21st and in February.

9F. Downtown Planning Group
Nothing to report.

10. UNFINISHED BUSINESS

None.

11. NEW BUSINESS

11A. Further Discussion on Township Procedures.
Lippens referred to a flow chart showing the approval process for various types of requests. Commissioners discussed in general how to improve the process of reviewing proposed projects for applicants, including how to limit fees charged for meetings with applicants, who should attend meetings with applicants, how Commissioners will be notified of such meetings, the idea of developing a brief written guide through the approval process, whether the expense of having an engineer at initial meetings is justified, and revising the ordinance to allow sketch plans in some instances. The newly established regular office hours being held by the Zoning Administrator was cited as a step toward keeping expenses down while improving services to the public.

11B. Further Discussion on Zoning Amendments. Lippens referred to his October 11th memo which reviewed ordinance amendment recommendations. He noted that since then the Board and Commission have met together, and this will be discussed by the Board at their next meeting. He said some amendments should be addressed soon, but others will also probably be needed after the Master Plan review is complete. Lippens made note of other suggestions for revising the ordinance and answered questions about revising non-conforming use and site standards.

11C. Further Discussion on Master Plan Process. Lippens referred to his memo of July 19th, and noted that planned updates to the Master Plan process are expected to include non-motorized plans, updating goals, looking at overlay districts, and incorporating the North Village and Downtown plan into the Master Plan.

11D. Further Discussion on Request for Proposals (RFP). Lippens reported that on November 28th the Board approved releasing the RFP for North Village. He said he hopes to release it next week and listed some of the ways this will be publicized. He said an information session is planned for January 17th and the submittal deadline has been revised to March 21st. Commissioners asked questions about possible phasing of proposed projects,

12. MINUTES

▶ **Motion:** Roman moved, Iaquinto supported, that the minutes of the November 15, 2017, regular meeting be approved as presented, and to dispense with the reading. **Motion carried 7—0 on a voice vote.**

13. SECOND CALL TO THE PUBLIC

No comments.

4. COMMENTS FROM THE COMMISSIONERS

Steffens noted this is her last Commission meeting and expressed appreciation for being able to serve the community.

Commissioners thanked Lippens and Bird for their preparation for the meeting, and said Steffens' time on the Commission has been greatly appreciated.

15. ANNOUNCEMENT OF NEXT MEETING

December 20, 2017, at 7:00 P.M. at the Public Safety Building was announced as the next regular Commission meeting time and location.

16. ADJOURNMENT

▶ **Motion:** Iaquinto moved, Roman supported, that the meeting be adjourned.
Motion carried 7—0 on a voice vote.

The meeting was adjourned at 8:25 P.M.

Prepared by Lisa Lemble.
Corrections to the originally issued minutes are indicated as follows:
Wording removed is ~~stricken through~~;
Wording added is underlined.

Adopted on _____, 2017.

_____ _____
Larry Roman, Chair John Zarzecki, Secretary

Official minutes of all meetings are available on the Township's website at
http://www.twp-northfield.org/government/