

FINAL SITE PLAN
SOMERSET PINES ESTATES
 PART OF THE S.W. 1/4 OF SECTION 32, T3N, R11E,
 CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

PARCEL DESCRIPTION

Lots 1 through 4, "Supervisor's Plat of Messmore Farms Subdivision of part of the Southwest 1/4 of Section 32, T3N, R11E, Avon Township (now City of Rochester Hills), Oakland County, Michigan, described as: Commencing at the South 1/4 corner of said Section 32; thence West 993.34 feet along the South line of said Section 32 and the centerline of South Boulevard (120.00 feet wide); thence North 60.00 feet to the Northerly right-of-way line of South Boulevard, the Southeast corner of Lot 4 and the Point of Beginning; thence West 658.68 feet along the Northerly right-of-way line of South Boulevard and the South line of Lots 1 through 4, inclusive; thence N08°13'44"W (recorded as N08°15'56"W) 1255.28 feet along the West line of "Supervisor's Plat of Messmore Farms Subdivision" to the Northwest corner of "Supervisor's Plat of Messmore Farms Subdivision"; thence N89°35'31"E 686.24 feet along the North line of "Supervisor's Plat of Messmore Farms Subdivision" to the Northeast corner of Lot 4; thence S06°57'14"E 1256.49 feet along the East line of Lot 4 to the Point of Beginning, containing 19.23 acres of land, more or less, subject to any easements and/or exceptions, recorded or otherwise.

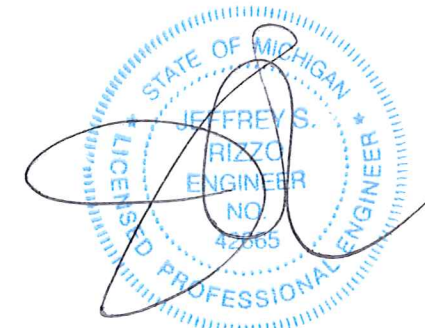


BENCHMARKS:
 BM#1 - 816.05 N.G.V.D. ARROW ON HYDRANT, NORTH SIDE OF SOUTH BOULEVARD, 168' EAST OF SOUTHWEST CORNER OF MESSMORE FARMS SUBDIVISION.
 BM#2 - 808.74 N.G.V.D. ARROW ON HYDRANT, NORTH SIDE OF SOUTH BOULEVARD, IN FRONT OF #2552 SOUTH BOULEVARD.
 BM#3 - 809.81 N.G.V.D. FOUND 60 PENNY NAIL, NORTH FACE OF UTILITY POLE, NORTH OF #2572 SOUTH BLVD.
 BM#4 - 812.47 N.G.V.D. SET PK NAIL, EAST FACE OF 20" BLACK CHERRY, TAG #256, 450' NORTH OF SOUTHWEST CORNER OF MESSMORE FARMS SUBDIVISION.

FENN & ASSOCIATES, INC. SITE PLAN SHEET INDEX:

- 1) COVER SHEET
- 2) SITE PLAN
- 3) TOPOGRAPHIC & WETLAND SURVEY
- 4) EXISTING DRAINAGE MAP
- 5) PRELIMINARY UTILITY, PAVING & GRADING PLAN
- 6) PRELIMINARY APPROACH PLAN
- 7) SOUTH BLVD. PROFILE & SITE LINES
- 8) PRELIMINARY DRAINAGE PLAN
- 9) PRELIMINARY DETENTION BASINS & CALCULATIONS
- 10) PRELIMINARY BASIN CROSS-SECTIONS

LANDSCAPE PLANS UNDER SEPARATE COVER



NOT TO BE USED AS CONSTRUCTION DRAWINGS

Fenn & Associates, Inc.
 Land Surveying and Civil Engineering
 14923 Commercial Drive, Shelby Township, MI 48315
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 SITE CONDOMINIUM
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DATE	REMARKS
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06/21/12	PER CITY
07/10/12	PER FIRE DEPT.
07/25/12	PER CITY
08/05/13	PER CLIENT

SEAL

CLIENT
 MV SOMERSET PROPERTIES, LLC
 850 W UNIVERSITY SUITE D
 ROCHESTER, MI 48307
 PHONE: 248-434-8233

PROJECT NAME
SOMERSET PINES ESTATES

PROJECT NUMBER
C12-012

SHEET NAME
COVER SHEET

DRAWING SCALE:	NTS
DATE:	05/11/12
PROJECT MANAGER:	J.S.R., P.E.
DESIGNED BY:	J.D.K.
DRAWN BY:	J.D.K./S.R.T.
FIELD BY:	T.D.
CHECKED BY:	J.S.R., P.E.

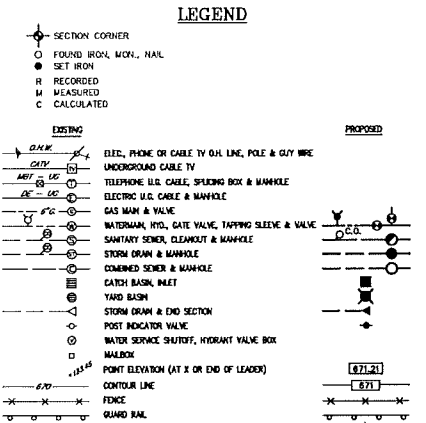
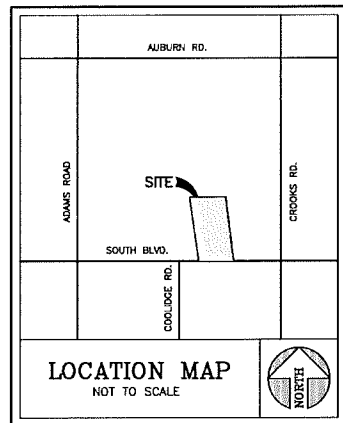
SHEET NUMBER
1 OF 10

PARCEL DESCRIPTION
 Lots 1 through 4, "Supervisor's Plat of Messmore Farms Subdivision" of part of the Southwest 1/4 of Section 32, T3N, R11E, Avon Township (now City of Rochester Hills), Oakland County, Michigan, as recorded in Liber 66 of Plats, Page 19, Oakland County Records, described as:
 Commencing at the South 1/4 corner of said Section 32,
 thence West 658.65 feet along the South line of said Section 32 and the centerline of South Boulevard (120.00 feet wide),
 thence North 60.00 feet to the Northern right-of-way line of South Boulevard, the Southeast corner of Lot 4 and the Point of Beginning,
 thence West 658.65 feet along the Northern right-of-way line of South Boulevard and the South line of Lots 1 through 4, inclusive,
 thence North 134.44 feet (recorded as N08°15'56"W) 1255.28 feet along the West line of "Supervisor's Plat of Messmore Farms Subdivision" to the Northwest corner of "Supervisor's Plat of Messmore Farms Subdivision",
 thence N89°35'31"E 666.24 feet along the North line of "Supervisor's Plat of Messmore Farms Subdivision" to the Northeast corner of Lot 4,
 thence S08°57'14"E 1296.49 feet along the East line of Lot 4 to the Point of Beginning, containing 19.23 acres of land, more or less, subject to any easements and/or exceptions, recorded or otherwise.

FIRE DEPARTMENT NOTES:
 1) CONSTRUCTION SITES SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC 2009 CHAPTER 14
 2) OPEN BURNING IS NOT PERMITTED INCLUDING THE BURNING OF TRASH, DEBRIS, OR LAND CLEARING MATERIALS.
 OPEN BURNING FOR WARMING OF SAND AND/OR WATER FOR THE PREPARATION OF MORTAR SHALL BE WITHIN THE CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES.
 FIRE PREVENTION ORDINANCE CHAPTER 58, SECTION 307.8.2 & 307.8.3
NOTE:
 THIS SITE WILL CONSIST OF APPROXIMATELY 2,500 SQ. FT. SINGLE FAMILY HOMES CONSTRUCTED OF MASONRY BRICK AND WOOD.

NOTE:
 PROPOSED 8 FEET WIDE ASPHALT BIKE PATH SHALL GENERALLY BE LOCATED 1 FOOT INSIDE THE RIGHT-OF-WAY, BUT THE PATH SHALL BE ROUTED AROUND OTHER OBSTACLES SUCH AS MANHOLES AND OTHER UTILITIES, AND AS FURTHER DIRECTED BY R.C.O.C.

PROPOSED RAIN GARDEN / INFILTRATION TRENCH FOR SURFACE DRAINAGE AND WATER QUALITY CONTROL.



EXISTING
 D.W.V. - DRAINAGE WATER VALVE
 GUY WIRE - GUY WIRE
 TELEPHONE U.S. CABLE & MANHOLE - TELEPHONE U.S. CABLE & MANHOLE
 ELECTRIC U.S. CABLE & MANHOLE - ELECTRIC U.S. CABLE & MANHOLE
 GAS MAIN & MANHOLE - GAS MAIN & MANHOLE
 WATER MAIN, W.D. GATE VALVE, TAPPING SLEEVE & VALVE - WATER MAIN, W.D. GATE VALVE, TAPPING SLEEVE & VALVE
 SANITARY SEWER, CLEANOUT & MANHOLE - SANITARY SEWER, CLEANOUT & MANHOLE
 STORM DRAIN & MANHOLE - STORM DRAIN & MANHOLE
 COMBINED SEWER & MANHOLE - COMBINED SEWER & MANHOLE
 CATCH BASIN, INLET - CATCH BASIN, INLET
 YARD BASH - YARD BASH
 STORM DRAIN & DIO SECTION - STORM DRAIN & DIO SECTION
 POST INDICATOR VALVE - POST INDICATOR VALVE
 WATER SERVICE SHUTOFF, HYDRANT VALVE BOX - WATER SERVICE SHUTOFF, HYDRANT VALVE BOX
 MANHOLE - MANHOLE
 POINT ELEVATION (AT X OR DIO OF LEADER) - POINT ELEVATION (AT X OR DIO OF LEADER)
 CONTOUR LINE - CONTOUR LINE
 FENCE - FENCE
 GUARD RAIL - GUARD RAIL
 STREET LIGHT - STREET LIGHT
 SIGN - SIGN
 TREE - TREE

PROPOSED
 STORM DRAIN STRUCTURE NUMBER - STORM DRAIN STRUCTURE NUMBER
 SANITARY SEWER MANHOLE NUMBER - SANITARY SEWER MANHOLE NUMBER
 WATER MAIN FIRE HYDRANT NUMBER - WATER MAIN FIRE HYDRANT NUMBER
 WATER MAIN VALVE NUMBER - WATER MAIN VALVE NUMBER

SITE DATA
 RESIDENTIAL SINGLE FAMILY EXISTING ZONING R-4
 ALL ADJACENT ZONING R-4 ACROSS SOUTH BLVD., CITY OF TROY R-1B
 GROSS SITE AREA 20.13 ACRES
 NET SITE AREA 19.23 ACRES (LESS R.O.W.)
 COMMON AREA 3.95 ACRES
 SETBACKS FRONT 25'
 REAR 35'
 SIDEYARD MINIMUM 10'
 REGULATED WETLAND BUFFER 25'
 AREA OF UNIT 800 SQ. FT.
 SIZE OF UNIT 80' (WIDTH) X 120' (DEPTH)
 AVERAGED UNIT SIZE 10% REDUCTION IN WIDTH AND AREA
 MINIMUM AREA OF UNIT 800 SQ. FT.
 MINIMUM SIZE OF UNIT 72' WIDE X 120' DEEP
 EFFECTIVE BUILDING ENVELOPE 52' WIDE X 60' DEEP
 MAXIMUM DENSITY ALLOWED 3.4 UNITS/ACRE
 MAXIMUM UNITS 18.23 x 3.4 = 65 UNITS
 PROPOSED 45 UNITS
 NET DENSITY 42/19.23 = 2.18 UNITS/ACRE
 MINIMUM FLOOR AREA 912 SQ. FT.
 MAXIMUM STORES 2
 MAXIMUM HEIGHT 35'
 MAXIMUM LOT AREA COVERAGE 30%

LOT AVERAGING:

UNIT	UNIT WIDTH	UNIT AREA	UNIT WIDTH	UNIT AREA	UNIT WIDTH	UNIT AREA	UNIT WIDTH	UNIT AREA
1	90	17200	11	74.33	10085	22	72	10385
2	72	25020	12	77	8845	23	72.02	10895
3	72	13650	13	72	9985	24	79.02	11840
4	72.62	9255	14	78.62	19370	25	72	18210
5	72	10230	15	72	27605	26	72	23145
6	72	11160	16	72.09	21650	27	90	15695
7	72	11945	17	72	13325	28	38	11250
8	72	12240	18	72	11820	29	78.88	10645
9	72	11990	19	72	10795	30	92.25	10715
10	72	11185	20	72	10225	31	92.32	10725
			21	72	10085	32	90	11110

TOTAL AREA OF UNITS: 530,975 SFT / 42 = 12,642 SFT AVERAGE > 9,600

GENERAL NOTES:
 1) SEE LANDSCAPING PLANS FOR PROPOSED LIGHTING & DETAILS. NO STREET LIGHTING PROPOSED.
 2) NO STRUCTURES REMAIN ON LOTS 1-4 OF MESSMORE FARMS SUBDIVISION.
 CURB CUTS MAY OR MAY NOT BE REMOVED, DEPENDING UPON DRAINAGE IMPROVEMENTS IN THE SOUTH BOULEVARD RIGHT-OF-WAY.
 3) UNIT AREAS SHOWN ARE ROUNDED TO 10 1/2 SF AND MAY CHANGE UPON FINAL APPROVAL.
 4) MINIMUM UNIT WIDTH DIMENSION IS MEASURED AT THE FRONT SETBACK LINE.
 5) MINIMUM LOT DEPTHS ARE MEASURED AT THE CENTERLINE OF THE UNIT.
 6) UNITS ADJACENT TO WETLANDS ARE DESCRIBED ALONG THE BOUNDARY AS DELINEATED BY KING & MACGREGOR ENVIRONMENTAL, INC.
 7) SMALL SIGNS TO BE INSTALLED TO DEMARCATATE WETLAND BOUNDARY LINES ON UNITS 14 & 15 TO PREVENT YARDS FROM ENCRDACHING INTO WETLAND AREA.
 8) LOTS 1-4, MESSMORE FARMS SUBDIVISION PLATTED IN 1962.
 PRIOR TO AUGUST 3, 1988, EXEMPT FROM TREE PRESERVATION ORDINANCE.
 9) ANY APPROVED AREAS OF TEMPORARY NATURAL FEATURES SETBACK IMPACTS MUST BE RESTORED TO ORIGINAL GRADE WITH ORIGINAL SOILS OR EQUIVALENT SOILS AND SEEDED WITH A CITY APPROVED SEED MIX, WHERE POSSIBLE.
 10) GRADES SHALL BE MATCHED FOR TRANSITION INTO EXISTING GRADE FOR DISCHARGE POINTS OF EACH RAIN GARDEN TO ALLOW FOR DESPATED FLOWS.
 11) SNOW FENCE SHALL BE PLACED ALONG THE NATURAL FEATURES SETBACKS TO INSURE NO ENCROACHMENTS INTO THESE AREAS OTHER THAN THOSE WHICH ARE APPROVED HEREIN.

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07/26/12	PER CITY
08/09/12	PER CLIENT

CLIENT
 MV SOMERSET PROPERTIES, LLC
 850 W UNIVERSITY SUITE D
 ROCHESTER, MI 48307
 PHONE 248-434-8233

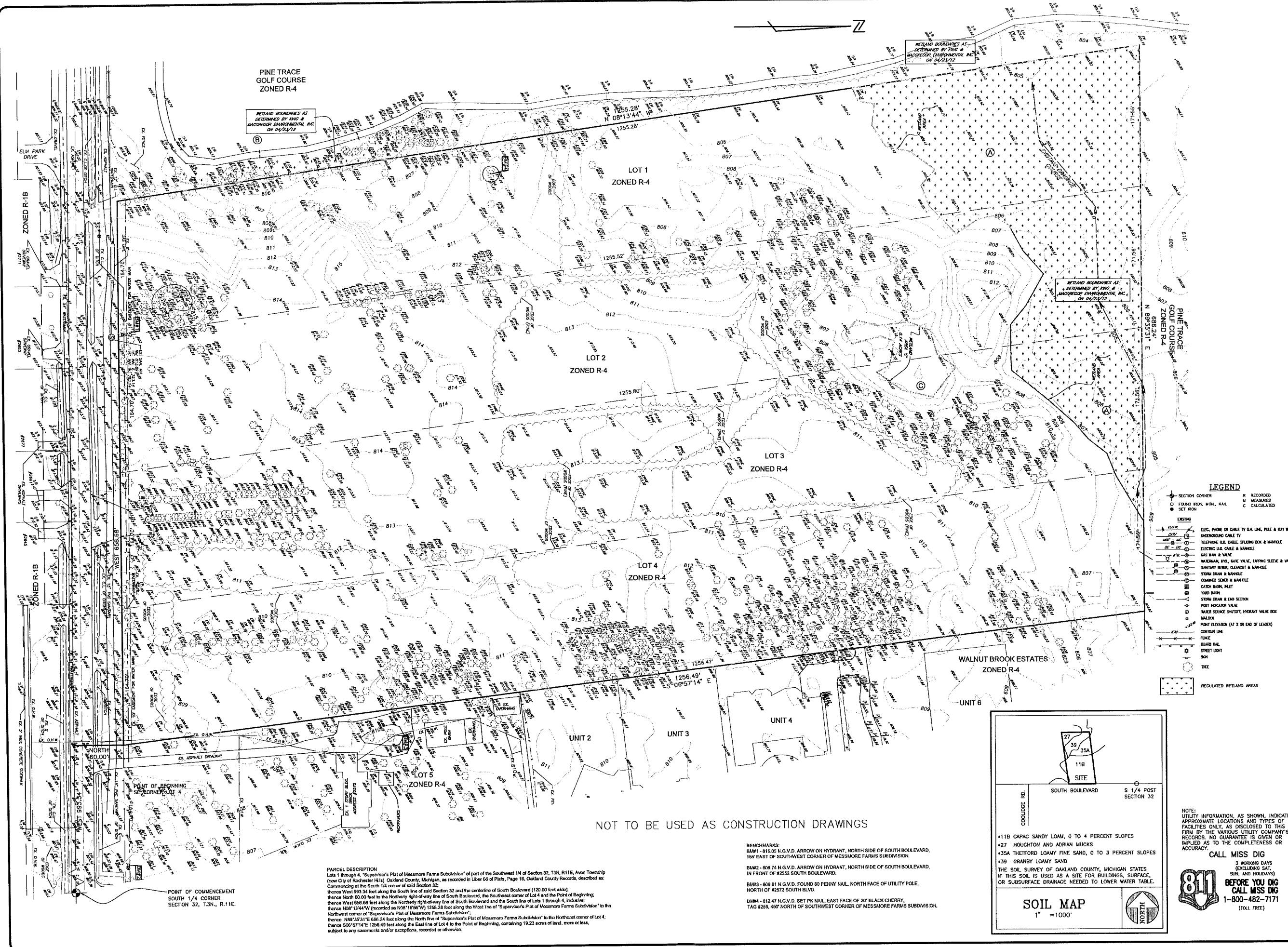
PROJECT NAME
 SOMERSET PINES ESTATES

PROJECT NUMBER
 C12-012

SHEET NAME
 SITE PLAN

DRAWING SCALE: 1"=60'
DATE: 05/11/12
PROJECT MANAGER: J.S.R., P.E.
DESIGNED BY: J.D.K.
DRAWN BY: J.D.K./S.R.T.
FIELD BY: T.D.
CHECKED BY: J.S.R., P.E.

SHEET NUMBER
 2 OF 10



PINE TRACE GOLF COURSE
ZONED R-4

WETLAND BOUNDARIES AS
DETERMINED BY F&A
ASSOCIATES, INC. ON 04/23/12

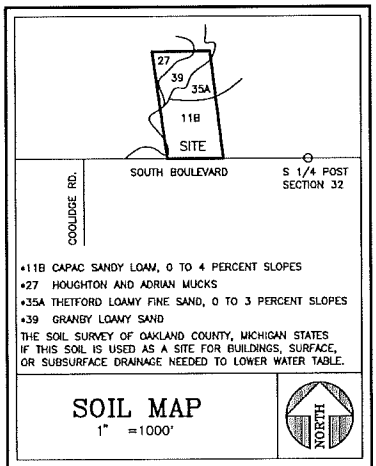
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thence West 933.34 feet along the South line of said Section 32 and the centerline of South Boulevard (120.00 feet wide);
thence North 60.00 feet to the Northern right-of-way line of South Boulevard, the Southeast corner of Lot 4 and the Point of Beginning;
thence West 600.00 feet along the Northern right-of-way line of South Boulevard and the South line of Lot 1 through 4, inclusive;
thence North 1314.77 feet (recorded as 1068'16.66"W) 1256.28 feet along the West line of 'Supervisor's Plat of Messmore Farms Subdivision' to the Northwest corner of 'Supervisor's Plat of Messmore Farms Subdivision';
thence N86°33'31"E 626.24 feet along the North line of 'Supervisor's Plat of Messmore Farms Subdivision' to the Northeast corner of Lot 4;
thence S00°21'41"E 1266.83 feet along the East line of Lot 4 to the Point of Beginning, containing 19.23 acres of land, more or less, subject to any easements and/or exceptions, recorded or otherwise.

NOT TO BE USED AS CONSTRUCTION DRAWINGS

- BENCHMARKS:
BM#1 - 816.05 N.G.V.D. ARROW ON HYDRANT, NORTH SIDE OF SOUTH BOULEVARD, 165' EAST OF SOUTHWEST CORNER OF MESSMORE FARMS SUBDIVISION.
BM#2 - 808.74 N.G.V.D. ARROW ON HYDRANT, NORTH SIDE OF SOUTH BOULEVARD, IN FRONT OF #2522 SOUTH BOULEVARD.
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 - FOUND BRK, MON, NAIL
 - SET IRON
 - EXISTING
 - ELC. PHONE OR CABLE TV ON LNE. POLE & GUY WRE
 - UNDERGROUND CABLE TV
 - TELEPHONE U.S. CABLE, SPIDING BOX & MANHOLE
 - ELECTRIC U.S. CABLE & MANHOLE
 - GAS MAIN & WALK
 - WATERMAIN, HD., GUYE, TAPPING SLIDE & WALK
 - SANITARY SEWER, CLEANOUT & MANHOLE
 - STORM DRAIN & MANHOLE
 - COMBINED SEWER & MANHOLE
 - CAST IRON VALET
 - YARD BAG
 - STORM DRAIN & DIG SECTION
 - POST SIGCORN VALVE
 - WEBB SERVICE SHUT-OUT, HIGGINS VALVE BOX
 - MANHOLE
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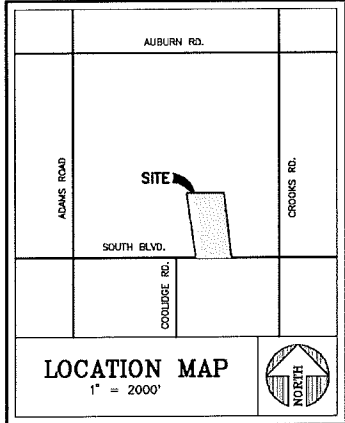
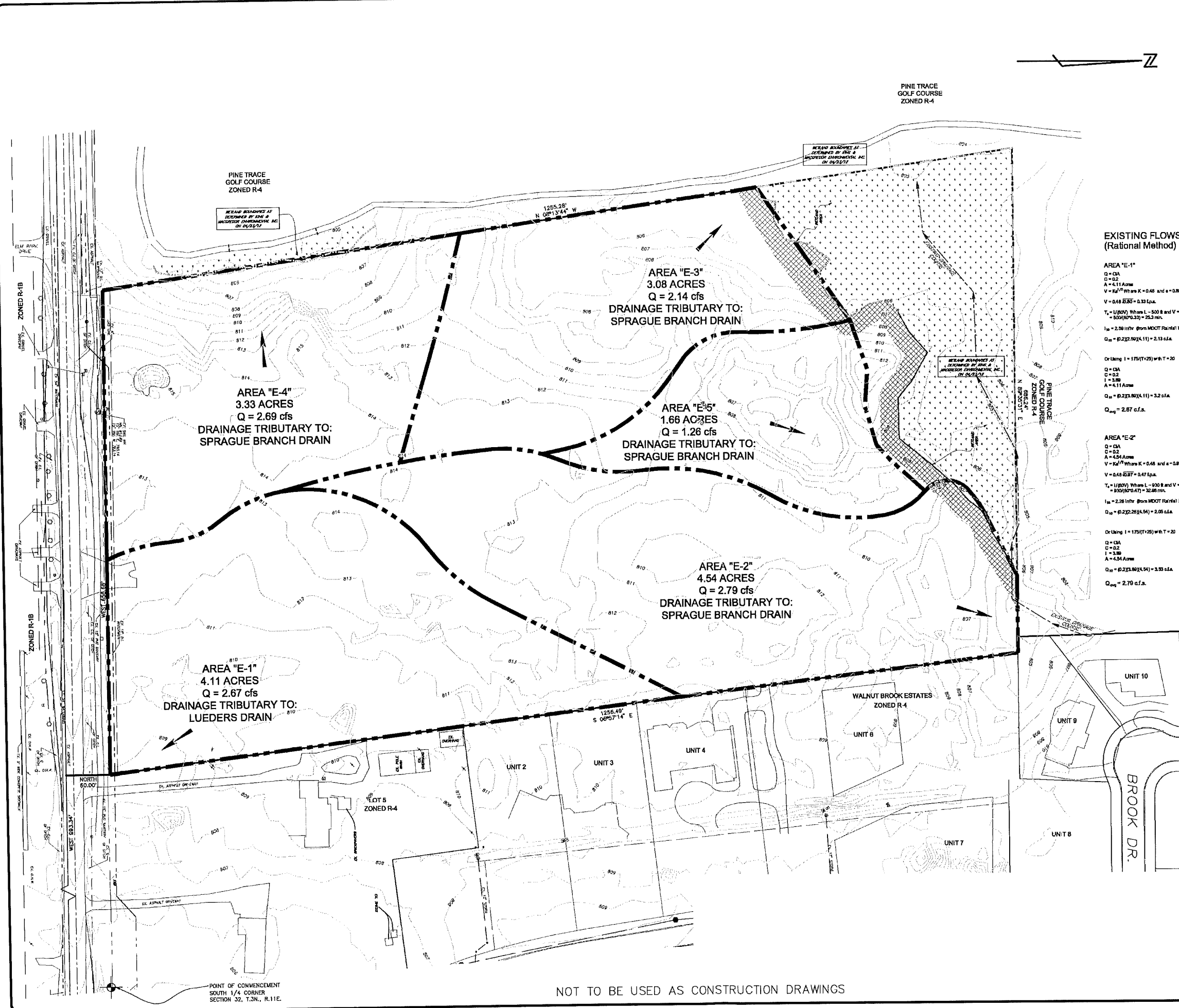
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CLIENT	
MV SOMERSET PROPERTIES, LLC 850 W UNIVERSITY SUITE D ROCHESTER, MI 48307 PHONE: 248-434-8233	

PROJECT NAME SOMERSET PINES ESTATES
PROJECT NUMBER C12-012
SHEET NAME TOPOGRAPHIC & WETLAND SURVEY
DRAWING SCALE: 1"=50'
DATE: 09/11/12
PROJECT MANAGER: J.S.R., P.E.
DESIGNED BY: J.D.K.
DRAWN BY: J.D.K.
FIELD BY: T.D.
CHECKED BY: J.S.R., P.E.
SHEET NUMBER 3 OF 10

12/07/12, Connected-12-012 - Somerset Pines, Rochester Hills\pinal\final\final SITE PLAN.dwg, 01/20/13 8:28:37 AM



**EXISTING FLOWS
(Rational Method)**

Area	Acres	Flow (cfs)	Notes
AREA "E-1"	4.11	2.67	DRAINAGE TRIBUTARY TO: LUEDERS DRAIN
AREA "E-2"	4.54	2.79	DRAINAGE TRIBUTARY TO: SPRAGUE BRANCH DRAIN
AREA "E-3"	3.08	2.14	DRAINAGE TRIBUTARY TO: SPRAGUE BRANCH DRAIN
AREA "E-4"	3.33	2.69	DRAINAGE TRIBUTARY TO: SPRAGUE BRANCH DRAIN
AREA "E-5"	1.66	1.26	DRAINAGE TRIBUTARY TO: SPRAGUE BRANCH DRAIN

****TOTAL Q (UNDEVELOPED) = 11.55 cfs****

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CLIENT
 MY SOMERSET PROPERTIES, LLC
 860 W UNIVERSITY SUITE D
 ROCHESTER, MI 48307
 PHONE: 248 434 8233

PROJECT NAME
 SOMERSET PINES ESTATES

PROJECT NUMBER
 C12-012

SHEET NAME
 EXISTING DRAINAGE MAP

DRAWING SCALE: 1"=80'

DATE: 08/11/12

PROJECT MANAGER: J.S.R., P.E.

DESIGNED BY: J.D.K.

DRAWN BY: J.D.K.

FIELD BY: T.D.

CHECKED BY: J.S.R., P.E.

SHEET NUMBER
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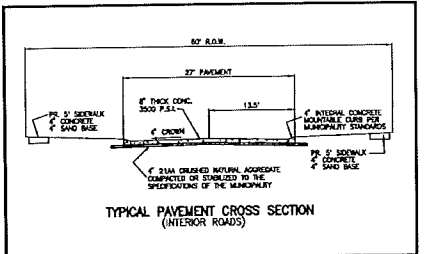
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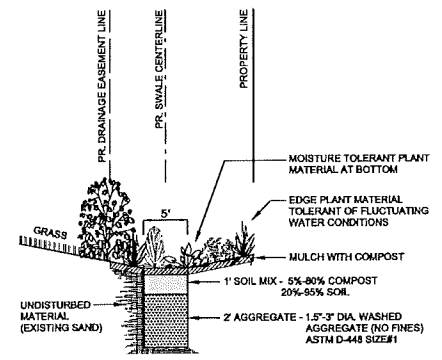
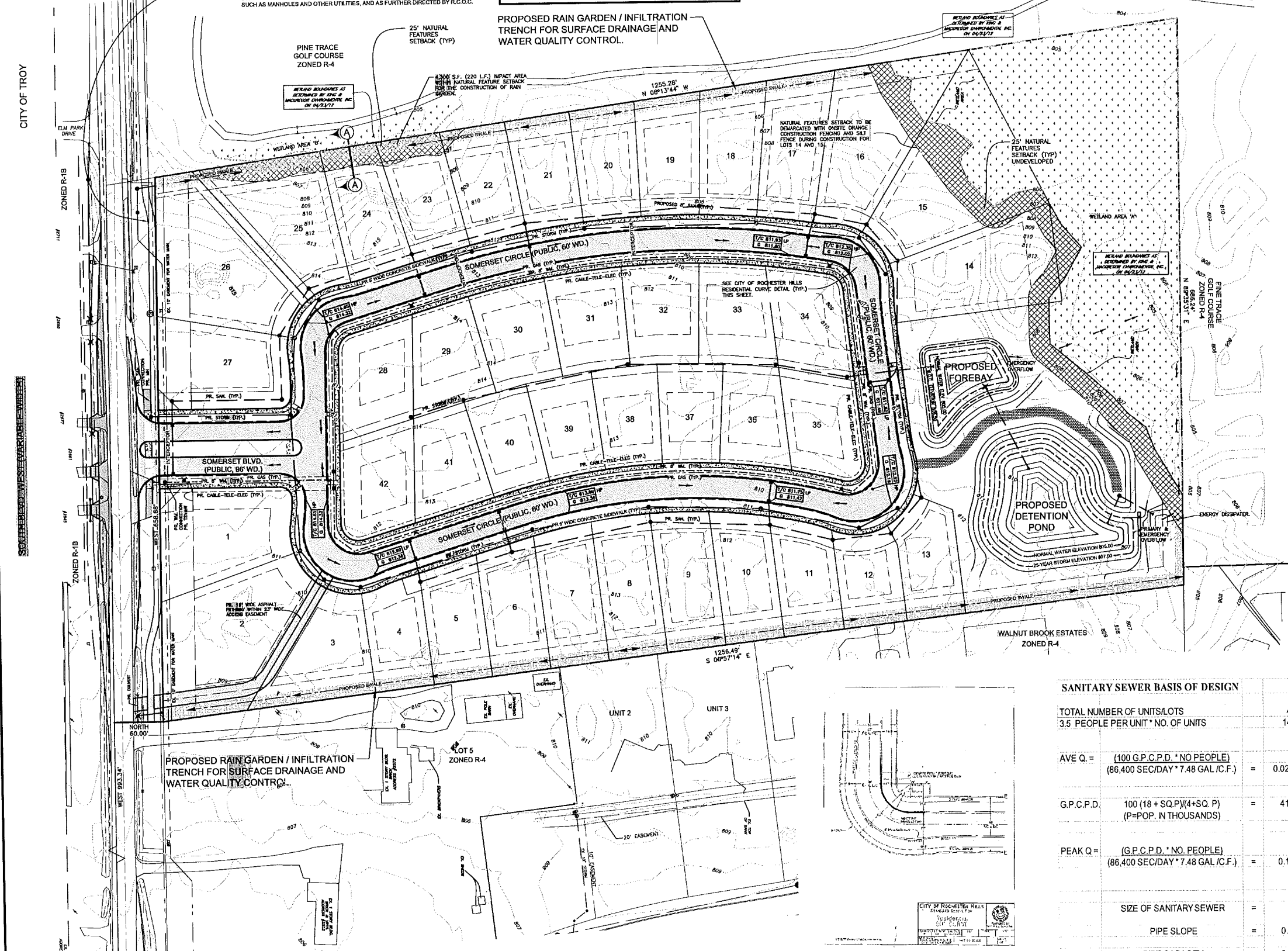
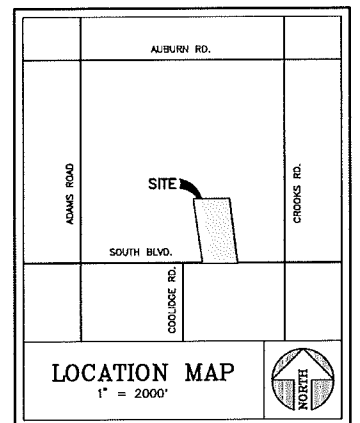
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NOTE: PROPOSED 8 FEET WIDE ASPHALT BIKE PATH SHALL GENERALLY BE LOCATED 1 FOOT INSIDE THE RIGHT-OF-WAY, BUT THE PATH SHALL BE ROUTED OUTSIDE THE DRAIN LINES OF EXISTING TREES FOR PRESERVATION, ROUTED AROUND OTHER OBSTACLES SUCH AS MANHOLES AND OTHER UTILITIES, AND AS FURTHER DIRECTED BY P.L.C.O.C.

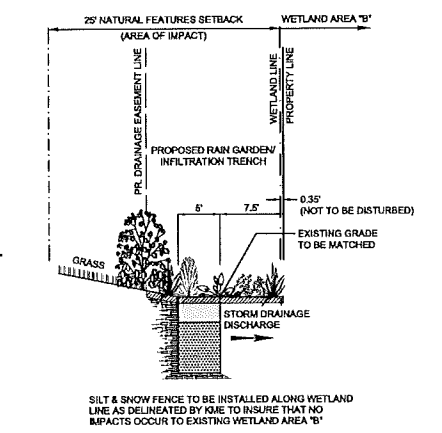


PARCEL DESCRIPTION
Lots 1 through 4, "Supervisor's Plat of Messmore Farms Subdivision" of part of the Southwest 1/4 of Section 32, T3N, R11E, Aven Township (now City of Rochester Hills), Oakland County, Michigan, as recorded in Liber 66 of Plats, Page 16, Oakland County Records, described as:
Commencing at the South 1/4 corner of said Section 32;
thence West 993.34 feet along the South line of said Section 32 and the centerline of South Boulevard (120.00 feet wide);
thence North 60.00 feet to the Northern right-of-way line of South Boulevard; the Southeast corner of Lot 4 and the Point of Beginning;
thence West 656.66 feet along the Northern right-of-way line of South Boulevard and the South line of Lots 1 through 4, inclusive;
thence North 113.44' (provided as N08°15'56"W) 1255.28 feet along the West line of "Supervisor's Plat of Messmore Farms Subdivision" to the Northwest corner of "Supervisor's Plat of Messmore Farms Subdivision";
thence N69°35'31"E 856.24 feet along the North line of "Supervisor's Plat of Messmore Farms Subdivision" to the Northeast corner of Lot 4;
thence S06°57'14"E 1256.49 feet along the East line of Lot 4 to the Point of Beginning, containing 19.23 acres of land, more or less, subject to any assessments and/or exceptions, recorded or otherwise.

PINE TRACE GOLF COURSE ZONED R-4



DEVELOPER TO PROVIDE PLANTING MIX WITHIN RAIN GARDEN/INFILTRATION TRENCH AS OUTLINED IN LANDSCAPE PLAN.
DEVELOPER TO PROVIDE THIS SYSTEM OR APPROVED EQUAL.
RAIN GARDEN/INFILTRATION TRENCH TYPICAL CROSS SECTION
NOT TO SCALE



NOTE: SILT & SNOW FENCE TO BE INSTALLED ALONG WETLAND LINE AS DELINEATED BY I&E TO INSURE THAT NO IMPACTS OCCUR TO EXISTING WETLAND AREA 'B'

SANITARY SEWER BASIS OF DESIGN

TOTAL NUMBER OF UNITS/LOTS	42 UNITS/LOTS
3.5 PEOPLE PER UNIT * NO. OF UNITS	147 PEOPLE
AVE Q = $\frac{(100 \text{ G.P.C.P.D.} * \text{NO. PEOPLE})}{(86,400 \text{ SEC/DAY} * 7.48 \text{ GAL./C.F.})}$	= 0.023 cfs.
G.P.C.P.D. $\frac{100 (18 + \text{SQ.P.})(4 + \text{SQ.P.})}{(P = \text{POP. IN THOUSANDS})}$	= 419
PEAK Q = $\frac{(G.P.C.P.D. * \text{NO. PEOPLE})}{(86,400 \text{ SEC/DAY} * 7.48 \text{ GAL./C.F.})}$	= 0.10 cfs.
SIZE OF SANITARY SEWER	= 8 inch
PIPE SLOPE	= 0.40 %
PIPE CAPACITY	= 0.77 cfs.

NOT TO BE USED AS CONSTRUCTION DRAWINGS

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FINAL SITE PLAN
SITE CONDOMINIUM
SOMERSET PINES ESTATES
PART OF THE S.W. 1/4 OF SECTION 32, T3N, R11E,
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

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07/10/12	PER FIRE DEPT.
07/25/12	PER CITY
08/05/12	PER CLIENT

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MV SOMERSET PROPERTIES, LLC
450 W UNIVERSITY SUITE D
ROCHESTER, MI 48307
PHONE: 248-434-8233

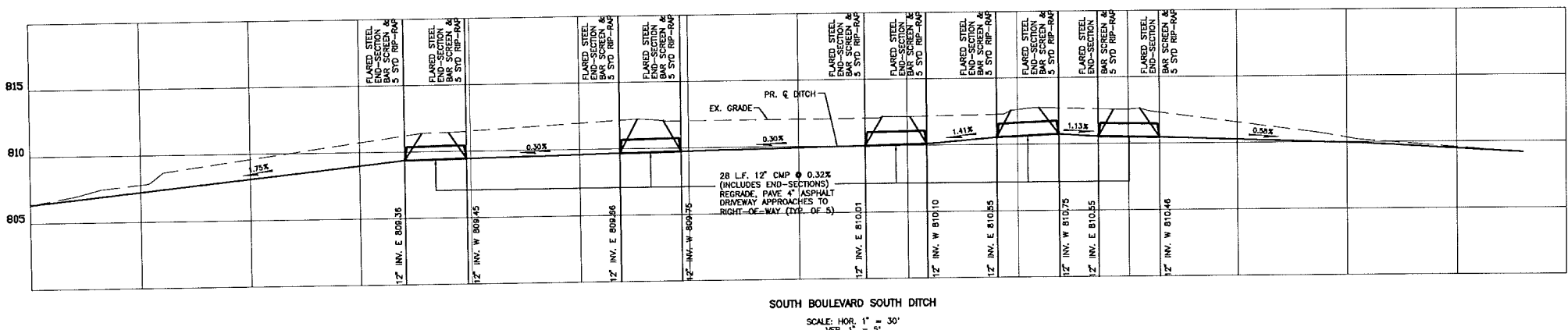
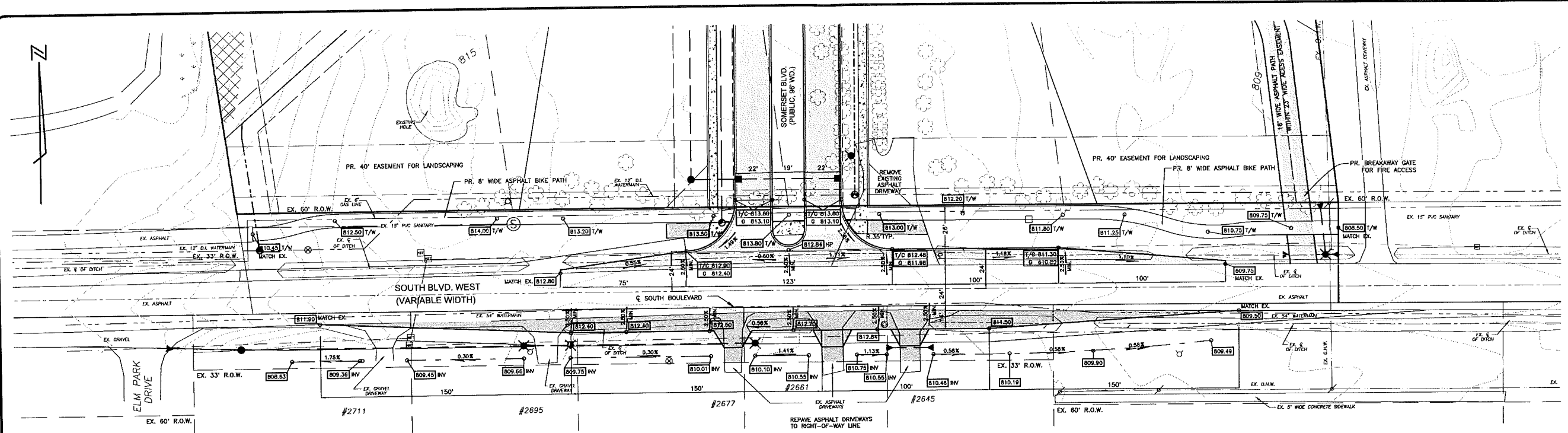
PROJECT NAME
SOMERSET PINES ESTATES

PROJECT NUMBER
C12-012

SHEET NAME
PRELIM UTILITY, PAVING & GRADING PLAN

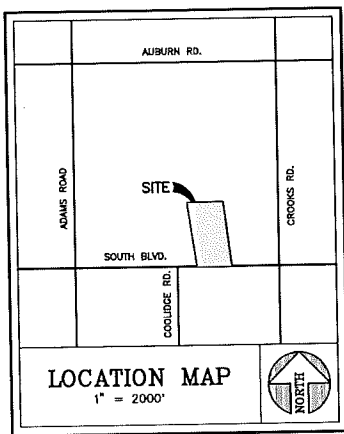
DRAWING SCALE: 1"=40'
DATE: 05/11/2012
PROJECT MANAGER: J.S.R., P.E.
DESIGNED BY: J.D.K.
DRAWN BY: J.D.K./S.R.T.
FIELD BY: T.D.
CHECKED BY: J.S.R., P.E.

SHEET NUMBER
5 OF 10



LEGEND

○ SECTION CORNER	○ FOUND IRON, MON., NAIL	○ SET IRON	○ RECORDED	○ MEASURED	○ CALCULATED
— EXISTING	— PROPOSED	— BLEC, PHONE OR CABLE TV DIAL LINE, POLE & GUY WIRE	— UNDERGROUND CABLE TV	— TELEPHONE ULS, CABLE, SPLITTING BOX & MANHOLE	— ELECTRIC ULS, CABLE & MANHOLE
— GAS MAIN & VALVE	— WATERMAIN, HYD. GATE VALVE, TAPPING SLEEVE & VALVE	— SANITARY SEWER, CLEANOUT & MANHOLE	— STORM DRAIN & MANHOLE	— COMBINED SEWER & MANHOLE	— CATCH BASIN, INLET
— TARD BASIN	— STORM BASIN & END SECTION	— POST INDICATOR VALVE	— WATER SERVICE SHUTOFF, HYDRANT VALVE BOX	— MANHOLE	— POINT ELEVATION (AT X OR END OF LEADER)
— CONTOUR LINE	— FENCE	— GUARD RAIL	— STREET LIGHT	— SIGN	— TREE
— STORM DRAIN STRUCTURE NUMBER	— SANITARY SEWER MANHOLE NUMBER	— WATER MAIN FIRE HYDRANT NUMBER	— WATER MAIN VALVE NUMBER		



PARCEL DESCRIPTION
 Lots 1 through 4, "Supervisor's Plat of Messmore Farms Subdivision" of part of the Southwest 1/4 of Section 32, T3N, R11E, Avon Township (now City of Rochester Hills), Oakland County, Michigan, as recorded in Liber 66 of Plats, Page 16, Oakland County Records, described as:
 Commencing at the South 1/4 corner of said Section 32;
 thence West 993.34 feet along the South line of said Section 32 and the centerline of South Boulevard (100.00 feet wide),
 thence North 60.00 feet to the Northern right-of-way line of South Boulevard, the Southeast corner of Lot 4 and the Point of Beginning;
 thence West 558.68 feet along the Northern right-of-way line of South Boulevard and the South line of Lots 1 through 4, Ind. Adv.;
 thence N06°13'44"W (recorded as N06°15'56"W) 1255.28 feet along the West line of "Supervisor's Plat of Messmore Farms Subdivision" to the Northwest corner of "Supervisor's Plat of Messmore Farms Subdivision";
 thence N85°35'51"E 886.24 feet along the North line of "Supervisor's Plat of Messmore Farms Subdivision" to the Northeast corner of Lot 4,
 thence S06°57'14"E 1298.49 feet along the East line of Lot 4 to the Point of Beginning, containing 19.23 acres of land, more or less,
 subject to any easements and/or exceptions, recorded or otherwise.

GENERAL NOTES:
 - A PERMIT MUST BE OBTAINED FROM THE R.C.O.C. PERMIT DIVISION PRIOR TO ANY WORK BEING DONE ALONG EXISTING COUNTY ROADS.
 - ALL TRENCHES WITHIN 1 ON 1 SLOPE FROM TOP OF CURBS SHALL BE BACKFILLED WITH GRANULAR MATERIAL CLASS II COMPACTED TO 95% OF MAXIMUM UNIT WEIGHT.
 - CONTRACTOR TO REPLACE ALL DISTURBED AREAS TO ORIGINAL OR BETTER CONDITION.
 - THROUGH TRAFFIC MUST BE MAINTAINED AT ALL TIMES AND TWO WAY TRAFFIC RESTORED PRIOR TO WORK END EACH DAY.
 - ADDITIONAL DITCHING MAY BE NECESSARY TO OBTAIN POSITIVE DRAINAGE AS DIRECTED BY R.C.O.C. DURING CONSTRUCTION.
 - ADDITIONAL TREE REMOVAL MAY BE NECESSARY TO OBTAIN THE REQUIRED SIGHT DISTANCE AS DIRECTED BY R.C.O.C. DURING CONSTRUCTION.
 - OVERHEAD LINES TO BE A MINIMUM 14" ABOVE PROPOSED TOP OF PAYMENT.
 - REMOVE ALL FENCE FROM PROPOSED RIGHT-OF-WAY.
 - PROPOSED 8 FEET WIDE ASPHALT BIKE PATH SHALL GENERALLY BE LOCATED 1 FOOT INSIDE THE RIGHT-OF-WAY, BUT THE PATH SHALL BE ROUTED OUTSIDE THE DRIP LINES OF EXISTING TREES FOR PRESERVATION, ROUTED AROUND OTHER OBSTACLES SUCH AS MANHOLES AND OTHER UTILITIES, AND AS FURTHER DIRECTED BY R.C.O.C.

BENCHMARKS:
 BM#1 - 818.05 N.G.V.D. ARROW ON HYDRANT, NORTH SIDE OF SOUTH BOULEVARD, 165' EAST OF SOUTHWEST CORNER OF MESSMORE FARMS SUBDIVISION.
 BM#2 - 808.74 N.G.V.D. ARROW ON HYDRANT, NORTH SIDE OF SOUTH BOULEVARD, IN FRONT OF 2652 SOUTH BOULEVARD.
 BM#3 - 809.81 N.G.V.D. FOUND 80 PENNY NAIL, NORTH FACE OF UTILITY POLE, NORTH OF #272 SOUTH BLVD.
 BM#4 - 812.47 N.G.V.D. SET PK NAIL, EAST FACE OF 20' BLACK CHERRY, TAG #259, 457' NORTH OF SOUTHWEST CORNER OF MESSMORE FARMS SUBDIVISION.

NOTE: UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF FACILITIES ONLY, AS DISCLOSED TO THIS FIRM BY THE VARIOUS UTILITY COMPANY'S RECORDS. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY.
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FINAL SITE PLAN
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SOMERSET PINES ESTATES
 PART OF THE S.W. 1/4 OF SECTION 32, T3N, R11E
 CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

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○	AS-BUILT
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DATE	REMARKS
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07/25/12	PER CITY
08/05/13	PER CLIENT

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CLIENT
 MV SOMERSET PROPERTIES, LLC
 850 W UNIVERSITY SUITE D
 ROCHESTER, MI 48307
 PHONE: 248-434-8233

PROJECT NAME
SOMERSET PINES ESTATES

PROJECT NUMBER
C12-012

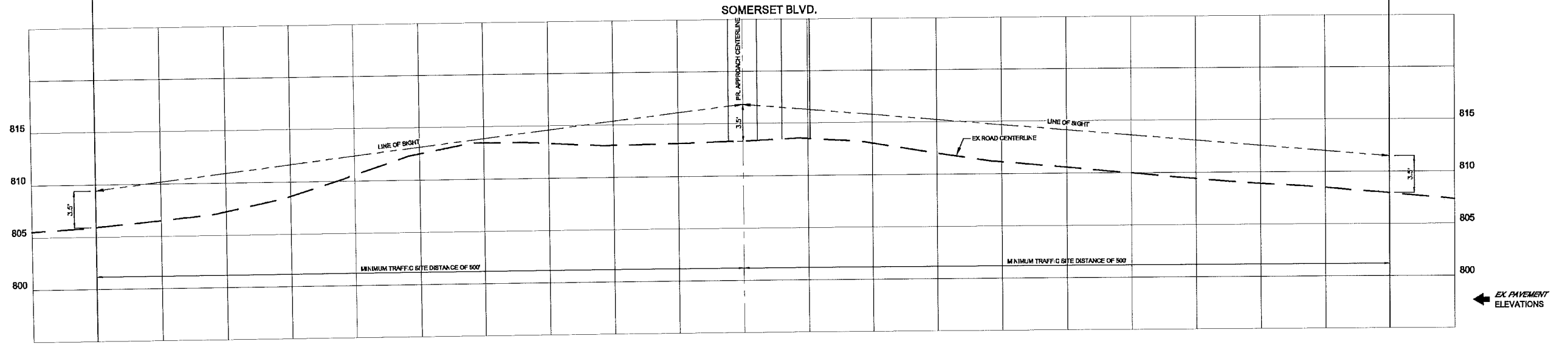
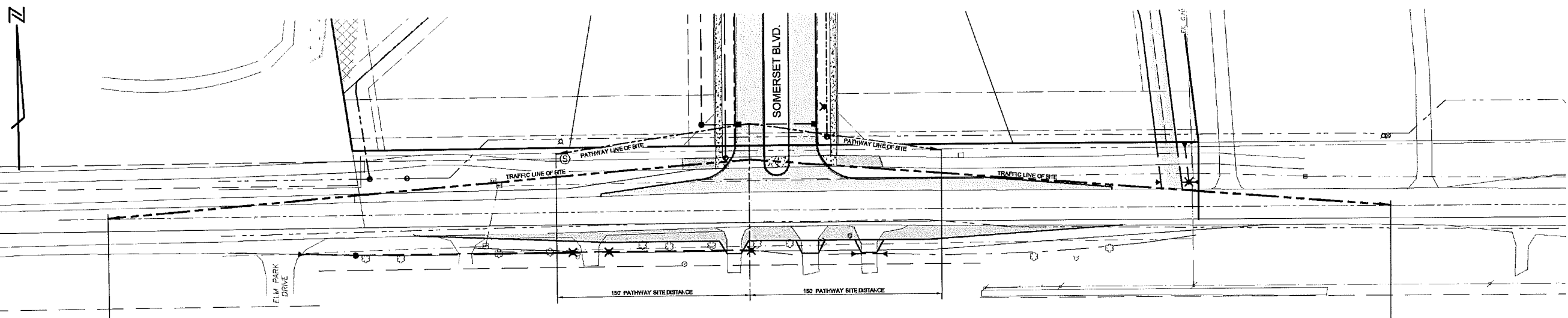
SHEET NAME
PRELIMINARY APPROACH PLAN

DRAWING SCALE: 1"=30'
 DATE: 05/11/12
 PROJECT MANAGER: J.S.R., P.E.
 DESIGNED BY: J.D.K.
 DRAWN BY: J.D.K./S.R.T.
 FIELD BY: T.D.
 CHECKED BY: J.S.R., P.E.

SHEET NUMBER
6 OF 10

CITY FILE #06-012.2

M:\2012\Commuter\12-012 - Somerset Hills\Preliminary\PRELIMINARY SITE PLAN (REV A-02-13).dwg, 8/20/13, 4:28:49 PM



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○	CONSTRUCTION
○	AS-BUILT

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DATE	REMARKS
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07/26/12	PER CITY
08/02/13	PER CLIENT

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CLIENT
MY SOMERSET
PROPERTIES, LLC
850 W LINCOLN ST SUITE D
ROCHESTER, MI 48307
PHONE: 248 434 8233

PROJECT NAME
**SOMERSET
PINES ESTATES**

PROJECT NUMBER
C12-012

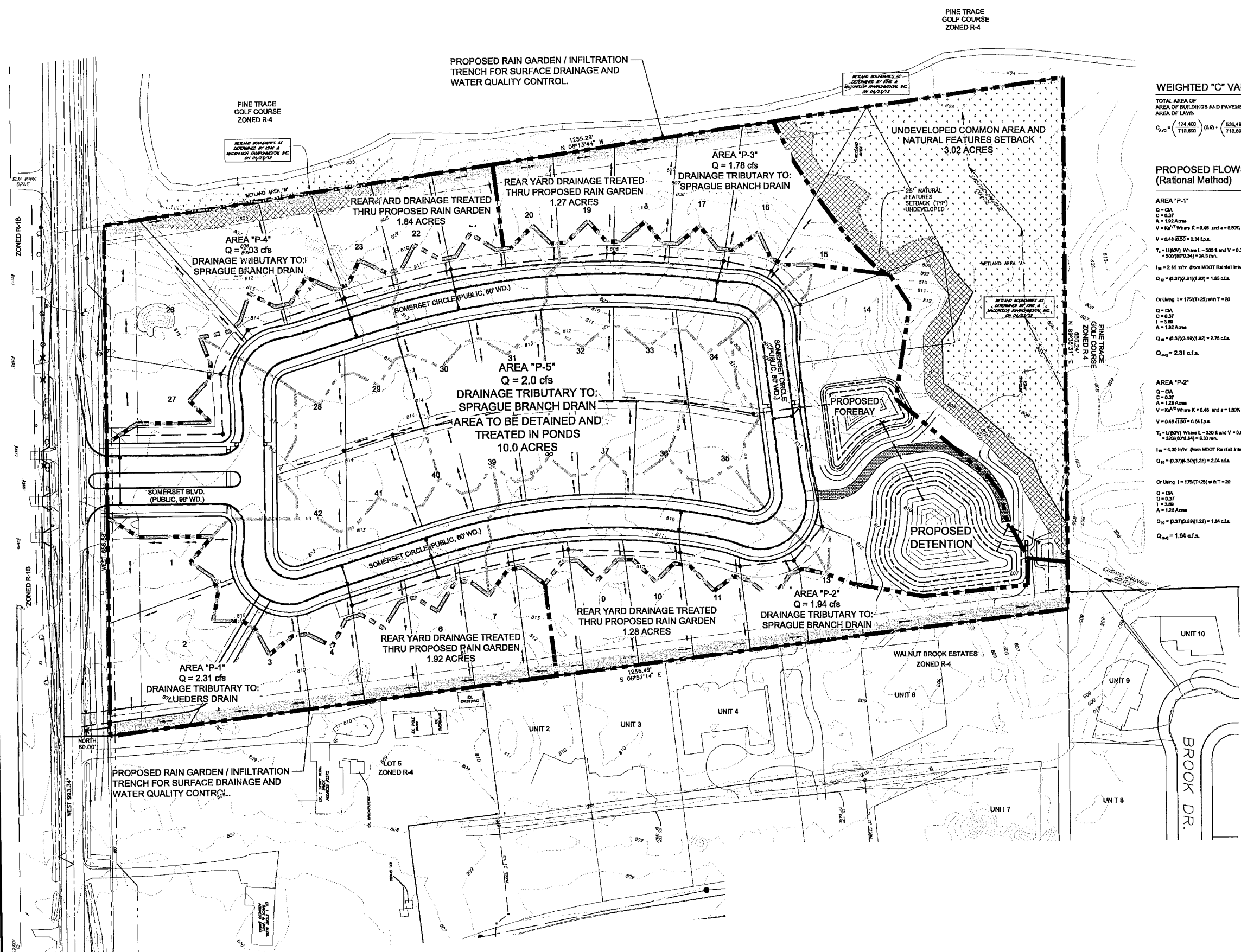
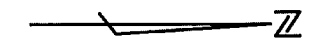
SHEET NAME
**SOUTH BLVD.
PROFILE &
SITE LINES**

DRAWING SCALE: 1"=30'
DATE: 05/11/12
PROJECT MANAGER: J.B.J., P.E.
DESIGNED BY: J.J.K.
DRAWN BY: J.J.K./B.R.T.
FIELD BY: T.D.
CHECKED BY: J.B.J., P.E.

SHEET NUMBER
7 OF 10

CITY FILE #06-012.2

M:\012 Contract\12-012 - Somerset Pines - Rochester Hills\Primarily\FINAL SITE PLAN.dwg, 05/20/12 03:02:01 AM



WEIGHTED "C" VALUE

TOTAL AREA OF AREA OF BUILDINGS AND PAVEMENT = 10,32 AC = 710,880 SF
 AREA OF LAWN = 174,400 SF C = 0.9
 AREA OF LAWN = 836,480 SF C = 0.2

$$C_{avg} = \left(\frac{174,400}{710,880} \right) (0.9) + \left(\frac{836,480}{710,880} \right) (0.2) = 0.2717$$

USE C = 0.27

PROPOSED FLOWS (Rational Method)

<p>AREA "P-1" Q = 0.24 C = 0.37 A = 1.92 Acres V = 1.27 ft/s $T_t = 1.1(80V)$ Where L = 320 ft and V = 0.54 ft/s $T_r = 500(80V)^{0.34} = 26.3$ min. $T_{10} = 2.81$ hr (from MDOT Rainfall Intensity-Duration Table) $Q_{10} = 0.37(1.27)(1.25) = 1.86$ c.f.s. $Q_{avg} = 1.86$ c.f.s.</p>	<p>AREA "P-2" Q = 0.24 C = 0.37 A = 1.24 Acres V = 1.27 ft/s $T_t = 1.1(80V)$ Where L = 320 ft and V = 0.54 ft/s $T_r = 500(80V)^{0.34} = 26.3$ min. $T_{10} = 2.81$ hr (from MDOT Rainfall Intensity-Duration Table) $Q_{10} = 0.37(1.27)(1.25) = 1.86$ c.f.s. $Q_{avg} = 1.86$ c.f.s.</p>	<p>AREA "P-3" Q = 0.24 C = 0.37 A = 1.27 Acres V = 1.27 ft/s $T_t = 1.1(80V)$ Where L = 420 ft and V = 0.51 ft/s $T_r = 500(80V)^{0.34} = 13.07$ min. $T_{10} = 3.67$ hr (from MDOT Rainfall Intensity-Duration Table) $Q_{10} = 0.37(1.27)(1.27) = 1.72$ c.f.s. $Q_{avg} = 1.72$ c.f.s.</p>	<p>AREA "P-4" Q = 0.24 C = 0.37 A = 1.27 Acres V = 1.27 ft/s $T_t = 1.1(80V)$ Where L = 240 ft and V = 0.68 ft/s $T_r = 500(80V)^{0.34} = 4.54$ min. $T_{10} = 5.0$ hr (from MDOT Rainfall Intensity-Duration Table) $Q_{10} = 0.37(1.27)(1.25) = 3.40$ c.f.s. $Q_{avg} = 3.40$ c.f.s.</p>
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AREA "P-5"
 DETAINED TO 0.2 CFS/ACRE
 A = 10.0
 Q = 0.2 CFS/ACRE = (10.0)(0.2)
 Q = 2.0 c.f.s.

****TOTAL Q (DEVELOPED) = 11.06 cfs****

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**FINAL SITE PLAN
 SITE CONDOMINIUM
 SOMERSET PINES ESTATES**
 PART OF THE S.W. 1/4 OF SECTION 32, T3N, R11E,
 CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

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CLIENT
 INV SOMERSET PROPERTIES, LLC
 850 W UNIVERSITY SUITE D
 ROCHESTER, MI 48307
 PHONE: 248 434 8233

PROJECT NAME
SOMERSET PINES ESTATES

PROJECT NUMBER
C12-012

SHEET NAME
PRELIMINARY DRAINAGE PLAN

DRAWING SCALE: 1"=80'

DATE: 06/11/12

PROJECT MANAGER: J.S.R., P.E.

DESIGNED BY: J.D.K.

DRAWN BY: J.D.K./S.R.T.

FIELD BY: T.D.

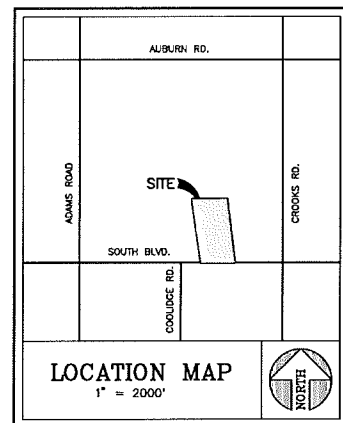
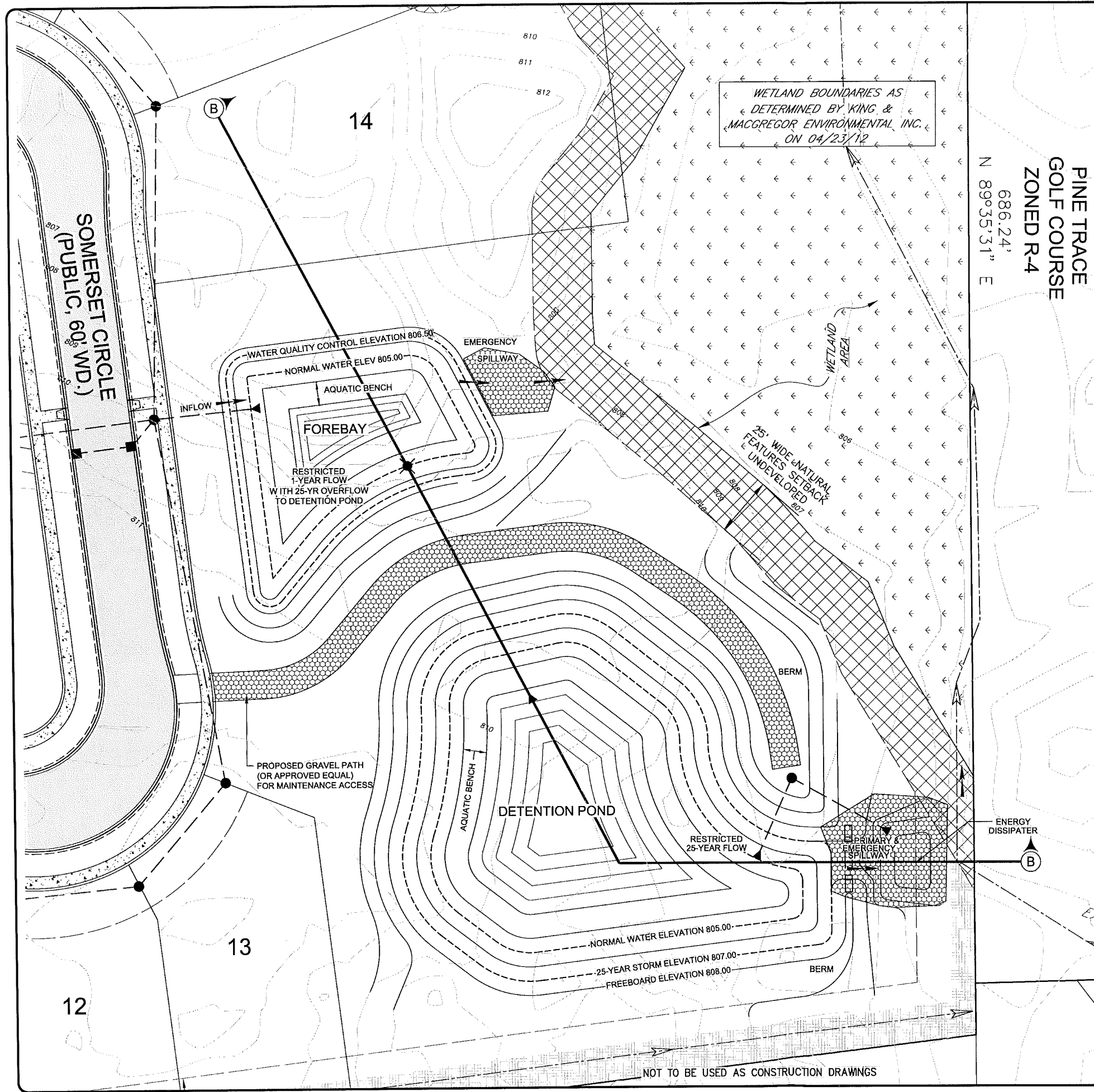
CHECKED BY: J.S.R., P.E.

SHEET NUMBER
8 OF 10

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WEIGHTED "C" VALUE

TOTAL AREA OF SITE = 16.32 AC = 710,899 SF
 AREA OF BUILDINGS AND PAVEMENT = 174,400 SF C = 0.95
 AREA OF LAWN = 536,499 SF C = 0.2

$$C_{avg} = \left(\frac{174,400}{710,899} \right) (0.95) + \left(\frac{536,499}{710,899} \right) (0.2) = 0.3839$$

USE C = 0.38

DETENTION CALCULATION 1 YEAR STORM PER OAKLAND COUNTY STANDARDS

ALLOWABLE DISCHARGE	C1 =	0.20 CFS/ACRE
TIME INTAL	T =	20.00 MINUTES
AREA	A =	10.00 ACRES
RUNOFF COEFF	C =	0.38
TOTAL ALLOWABLE DISCHARGE	QA = C1 x A =	2.00 CFS
ALLOWABLE OUTFLOW	Q0 = QA / (A x C) =	0.53 CFS/ACRE
PEAK STORAGE TIME	T = 25 + (SOR(2700/Q0)) =	46.62 MINUTES
MAX. STORAGE VOLUME/ACRE	VS = (4320 x T / (T + 25)) - (40 x Q0 x T) =	1830.57 CUFT/ACRE
TOTAL STORAGE REQUIRED	VT = VS x A x C =	6956.16 CUFT.
STORAGE HEIGHT PROVIDED	H =	1.50 FEET
TOP AREA OF BASIN	AREA OF CONTOUR 806.50	A1 = 7500.00 SQ.FT.
BOTTOM AREA OF BASIN	AREA OF CONTOUR 805.00	A2 = 4700.00 SQ.FT.
TOTAL STORAGE VOLUME PROVIDED	V = ((A1 + A2 + SQR(A1 x A2)) x H) / 3 =	9068.59 CUFT.

DETENTION CALCULATION 25 YEAR STORM PER OAKLAND COUNTY STANDARDS

ALLOWABLE DISCHARGE	C1 =	0.20 CFS/ACRE
TIME INTAL	T =	20.00 MINUTES
AREA	A =	10.00 ACRES
RUNOFF COEFF	C =	0.38
TOTAL ALLOWABLE DISCHARGE	QA = C1 x A =	2.00 CFS
ALLOWABLE OUTFLOW	Q0 = QA / (A x C) =	0.53 CFS/ACRE
PEAK STORAGE TIME	T = 25 + (SOR(805.5/Q0)) =	98.77 MINUTES
MAX. STORAGE VOLUME/ACRE	VS = (12900 x T / (T + 25)) - (40 x Q0 x T) =	8214.99 CUFT/ACRE
TOTAL STORAGE REQUIRED	VT = VS x A x C =	31216.97 CUFT.
STORAGE HEIGHT PROVIDED	H =	2.00 FEET
TOP AREA OF BASIN	AREA OF CONTOUR 807.00	A1 = 19700.00 SQ.FT.
BOTTOM AREA OF BASIN	AREA OF CONTOUR 805.00	A2 = 13500.00 SQ.FT.
TOTAL STORAGE VOLUME PROVIDED	V = ((A1 + A2 + SQR(A1 x A2)) x H) / 3 =	33035.32 CUFT.
AREA OF OFFICE	AR = C1 x A / (0.82 x SQR(2 x 32.2 x H)) =	0.28 SQ.FT.
DIAMETER OF OUTLET	D = 2 x SQR(144 x AR / P) =	7.22 INCHES

USE 8-INCH RESTRICTOR

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FINAL SITE PLAN
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 CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

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- CONSTRUCTION
- AS-BUILT

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06/21/12	PER CITY
07/10/12	PER FIRE DEPT.
07/25/12	PER CITY
08/02/13	PER CLIENT

SEAL

CLIENT
 MV SOMERSET PROPERTIES, LLC
 850 W UNIVERSITY SUITE D
 ROCHESTER, MI 48307
 PHONE: 248-434-8233

PROJECT NAME
 SOMERSET PINES ESTATES

PROJECT NUMBER
 C12-012

SHEET NAME
 PRELIMINARY DETENTION BASINS & CALC'S

DRAWING SCALE: 1"=20'
DATE: 05/11/12
PROJECT MANAGER: J.S.R., P.E.
DESIGNED BY: J.D.K.
DRAWN BY: J.D.K./S.R.T.
FIELD BY: T.D.
CHECKED BY: J.S.R., P.E.

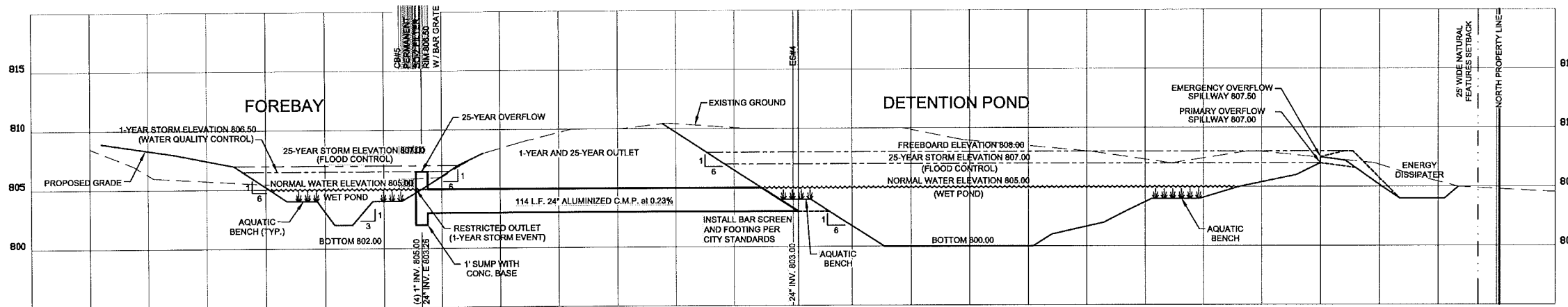
SHEET NUMBER
 9 OF 10

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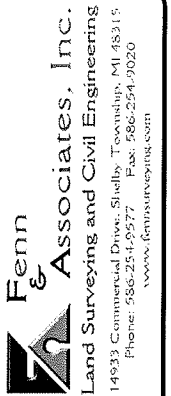


SECTION "B-B"
 HORIZ. SCALE: 1"=20' VERT. SCALE: 1"=5'

NOTE:
 UTILITY INFORMATION, AS SHOWN, INDICATES
 APPROXIMATE LOCATIONS AND TYPES OF
 FACILITIES ONLY, AS DISCLOSED TO THIS
 FIRM BY THE VARIOUS UTILITY COMPANY'S
 RECORDS. NO GUARANTEE IS GIVEN OR
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 SUN, AND HOLIDAYS)
811 BEFORE YOU DIG
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NOT TO BE USED AS CONSTRUCTION DRAWINGS



FINAL SITE PLAN
 SITE CONDOMINIUM
SOMERSET PINES ESTATES
 PART OF THE S.W. 1/4 OF SECTION 32, T3N, R11E,
 CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

DISTRIBUTION	
●	PRELIMINARY
○	APPROVAL
○	CONSTRUCTION
○	AS-BUILT
REVISIONS	
DATE	REMARKS
06/05/12	PER CITY
06/21/12	PER CITY
07/10/12	PER FIRE DEPT.
07/25/12	PER CITY
08/05/13	PER CLIENT

SEAL

CLIENT
 MV SOMERSET
 PROPERTIES, LLC
 850 W UNIVERSITY SUITE D
 ROCHESTER, MI 48307
 PHONE: 248-434-8233

PROJECT NAME
**SOMERSET
 PINES ESTATES**

PROJECT NUMBER
C12-012

SHEET NAME
**PRELIMINARY
 BASIN CROSS
 SECTIONS**

DRAWING SCALE:	AS SHOWN
DATE:	05/11/12
PROJECT MANAGER:	J.S.R., P.E.
DESIGNED BY:	J.D.K.
DRAWN BY:	J.D.K.
FIELD BY:	T.D.
CHECKED BY:	J.S.R., P.E.

SHEET NUMBER
10 OF 10