

BARRINGTON PARK

PLANNED UNIT DEVELOPMENT

ROCHESTER HILLS, MICHIGAN



DEVELOPER:
IAC BARCLAY, LLC
C/O THE IVANHOE COMPANIES
6689 ORCHARD LAKE ROAD
SUITE 314
WEST BLOOMFIELD, MI 48322
(248) 626-6114
GARY SHAPIRO

CIVIL ENGINEER/LAND SURVEYOR:
ZEIMET-WOZNAK & ASSOCIATES, INC.
55800 GRAND RIVER
SUITE 100
NEW HUDSON, MI 48165
(248) 437-5099
ANDY WOZNAK

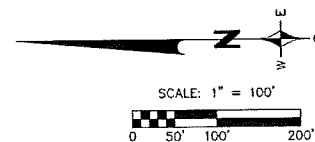
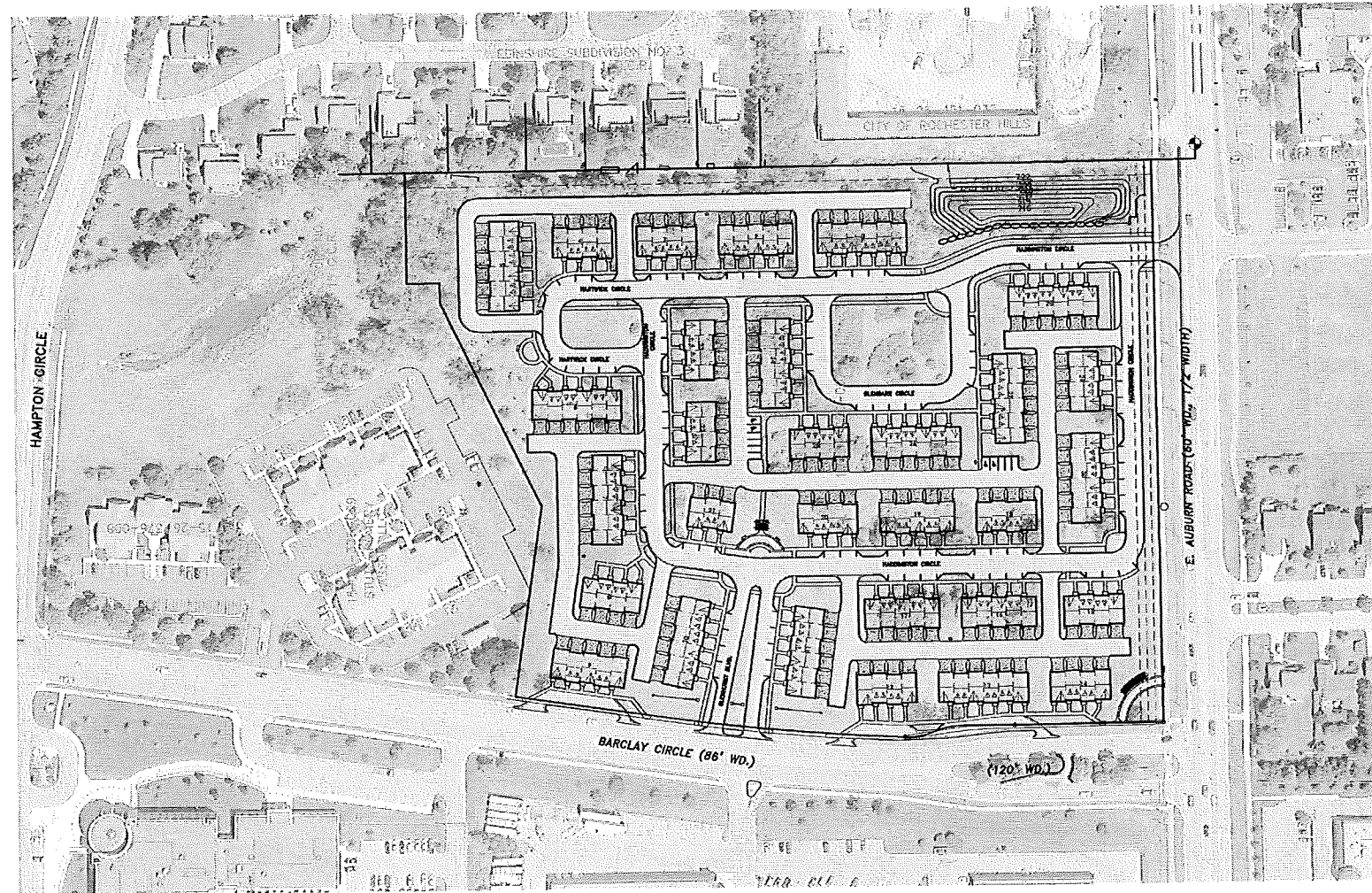
PLANNING CONSULTANT:
LSL PLANNING
306 S. WASHINGTON STREET
SUITE 400
ROYAL OAK, MI 48067
(248) 586-0505
BRAD STRADER

LANDSCAPE ARCHITECT:
FELINO A. PASCUAL & ASSOCIATES
24333 ORCHARD LAKE ROAD
SUITE G
FARMINGTON HILLS, MI 48336
(248) 557-5588
FELINO PASCUAL

ARCHITECT:
TR DESIGN GROUP, LLC
6001 NORTH ADAMS ROAD
SUITE 202
BLOOMFIELD HILLS, MI 48304
(248) 792-3256
JASON RUTHIG

GENERAL SITE PLAN NOTES:

- ALL EXTERIOR LIGHTING SHALL BE SHIELDED AND DIRECTED AWAY FROM ADJACENT PROPERTIES.
- TRANSFORMERS SHALL BE LOCATED BEHIND THE BUILDING AS INDICATED ON THE SITE PLAN AND SHALL BE SCREENED USING LANDSCAPING. THE SCREENING SHALL MEET ALL CRIMINANCE REQUIREMENTS.
- ASPHALT SURFACING SHALL BE USED FOR ALL PARKING AREAS AND DRIVEWAYS, AND SHALL MEET ALL ORDINANCE REQUIREMENTS.
- ALL BUILDING AND SITE SIGNAGE SHALL BE SUBMITTED FOR REVIEW AT A LATER DATE AND WILL BE IN CONFORMANCE WITH THE CITY OF ROCHESTER HILLS REQUIREMENTS AND A SEPARATE SIGN PERMIT WILL BE OBTAINED FROM THE BUILDING DEPARTMENT.
- BARRIER FREE RAMPS WILL BE PROVIDED AT ALL SIDEWALK APPROACHES AND SHALL HAVE A MAXIMUM 1:12 SLOPE AND MUST BE CONSTRUCTED PER ADA AND MICHIGAN BARRIER FREE STANDARDS.
- TYPICAL PARKING SPACE SIZE IS 10'x16', WITH A MINIMUM 24' WIDE AISLE PARALLEL PARKING SPACE SIZE IS 8.5'x22' WITH A 12' AISLE.
- THE SITE PLAN SHALL BE SUBJECT TO WRITTEN APPROVAL BY THE CITY'S FIRE MARSHALL.
- THE SITE PLAN SHALL BE SUBJECT TO WRITTEN APPROVAL BY THE CITY'S ENGINEER.
- FIRE LANES SHALL BE DESIGNATED BY THE FIRE CODE OFFICIAL, AND SHALL BE CONSPICUOUSLY POSTED ON BOTH SIDES OF THE FIRE LANE WITH FIRE LANE SIGNS, SPACED NOT MORE THAN 100' APART (NO STOPPING, STANDING, PARKING, FIRE-LANE) AND IN CONFORMANCE WITH THE "MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES". (FIRE PREVENTION ORDINANCE CHAPTER 58, SECTION 506)
- ALL PORTIONS OF A BUILDING SHALL BE WITHIN 150' OF AN APPROVED FIRE DEPARTMENT ACCESS ROAD.
- FIRE DEPARTMENT ACCESS ROADS SHALL BE A MINIMUM 20' WIDE AND PAVED. FDC'S SHALL NOT BE OBSCURED OR OBSTRUCTED BY LANDSCAPING, PARKING, OR BY ANY OTHER PERMANENT OR TEMPORARY MATERIALS OR DEVICE. THEY SHALL BE LOCATED ON THE STREET FRONT OF THE BUILDING AND WITHIN 100' OF A FIRE HYDRANT AND WITHIN 50' OF AN APPROVED FIRE ACCESS ROAD. (FIRE PREVENTION ORDINANCE CHAPTER 58, SECTION 912.7 AND SECTION 58-90).
- EXIT DOORS SHALL REMAIN FREE OF OBSTRUCTIONS AT ALL TIMES. PROVIDE GUARD POSTS OR OTHER ACCEPTABLE MEANS OF PROTECTING EXIT DOORS ONTO DRIVES AND PARKING AREAS. (IFC 2006 SECTION 1028.2).
- 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 PREPARATION OF MORTAR SHALL BE WITHIN THE CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES. (FIRE PREVENTION ORDINANCE CHAPTER 58, SECTIONS 307.6.2 AND 307.6.2.3).
- CONSTRUCTION SITE SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC 2006 CHAPTER 14. THIS INCLUDES MAINTAINING FIRE DEPARTMENT ACCESS ROADS AND FIRE HYDRANTS OPERATIONAL PRIOR TO BUILDING CONSTRUCTION. ALL FIRE HYDRANTS WILL BE OPERATIONAL PRIOR TO BUILDING CONSTRUCTION BASED ON THE IFC 2006.
- FIRE HYDRANT REQUIREMENTS WILL BE BASED ON CONSTRUCTION TYPE AND SQUARE FOOTAGE OF THE BUILDING.
- DIMENSIONS FOR PARKING SPACES AND MANEUVERING LANES ARE MEASURED FROM THE BACK OF CURB.
- THERE WILL BE NO INDUSTRIAL WASTE OR PROPANE TANKS LOCATED ON-SITE.
- ACCESS TO PROPOSED CONSTRUCTION SITE SHALL BE PROVIDED AND MAINTAINED FROM AUBURN ROAD.
- THE PROPOSED PRIVATE ROADS ARE NOT BEING CONSTRUCTED TO THE CITY'S PUBLIC ROAD STANDARDS, AND THEREFORE, CANNOT BE TRANSFERRED AS PUBLIC ROADS IN THE FUTURE.



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- CE-2 EXISTING CONDITIONS
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- CE-4 SITE PLAN
- CE-5 OVERALL PAVING PLAN
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- CE-7 40 SCALE GRADING AND DRAINAGE PLAN
- CE-8 40 SCALE GRADING AND DRAINAGE PLAN
- CE-9 SIDEWALK RAMP DETAILS
- CE-10 AUBURN ROAD ENTRANCE DETAILS
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- CITY SANITARY SEWER STANDARD DETAILS 1/2
- CITY SANITARY SEWER STANDARD DETAILS 2/2
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- LS-3 PLANTING DETAILS
- LS-4 PLANTING DETAILS
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- A-6 SCHEMATIC FLOOR PLANS
- A-6a SCHEMATIC FLOOR PLANS

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REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER CITY REVIEW	10/16/14	SRB									
PER CITY REVIEW	10/27/14	SRB									
FINAL PUD REVIEW	12/15/14	SRB									
FINAL PUD REVIEW #1	1/26/15	SRB									

ZEIMET WOZNAK
A S V S O C I A T E S
Civil Engineers & Land Surveyors
55800 GRAND RIVER AVE., SUITE 100
NEW HUDSON, MICHIGAN 48165
P: (248) 437-5099 F: (248) 437-5232 www.zeimetwoznak.com

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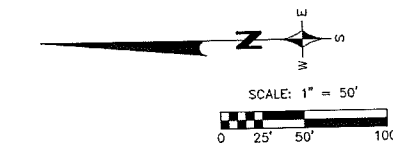
CLIENT: IAC BARCLAY, L.L.C.
C/O THE IVANHOE COMPANIES
6689 ORCHARD LAKE ROAD, STE. 314
WEST BLOOMFIELD, MI 48322 (248) 626-6114

COVER SHEET
BARRINGTON PARK
ROCHESTER HILLS, MICHIGAN

CITY FILE 14-012, SECTION 23 NOT FOR CONSTRUCTION	
DATE 12/15/14	SCALE HOR: 1" = 100' VER: 1" = N/A
DESIGNED BY SRB	JOB NO. 13178
ERASED BY SRB	SHEET CE-1

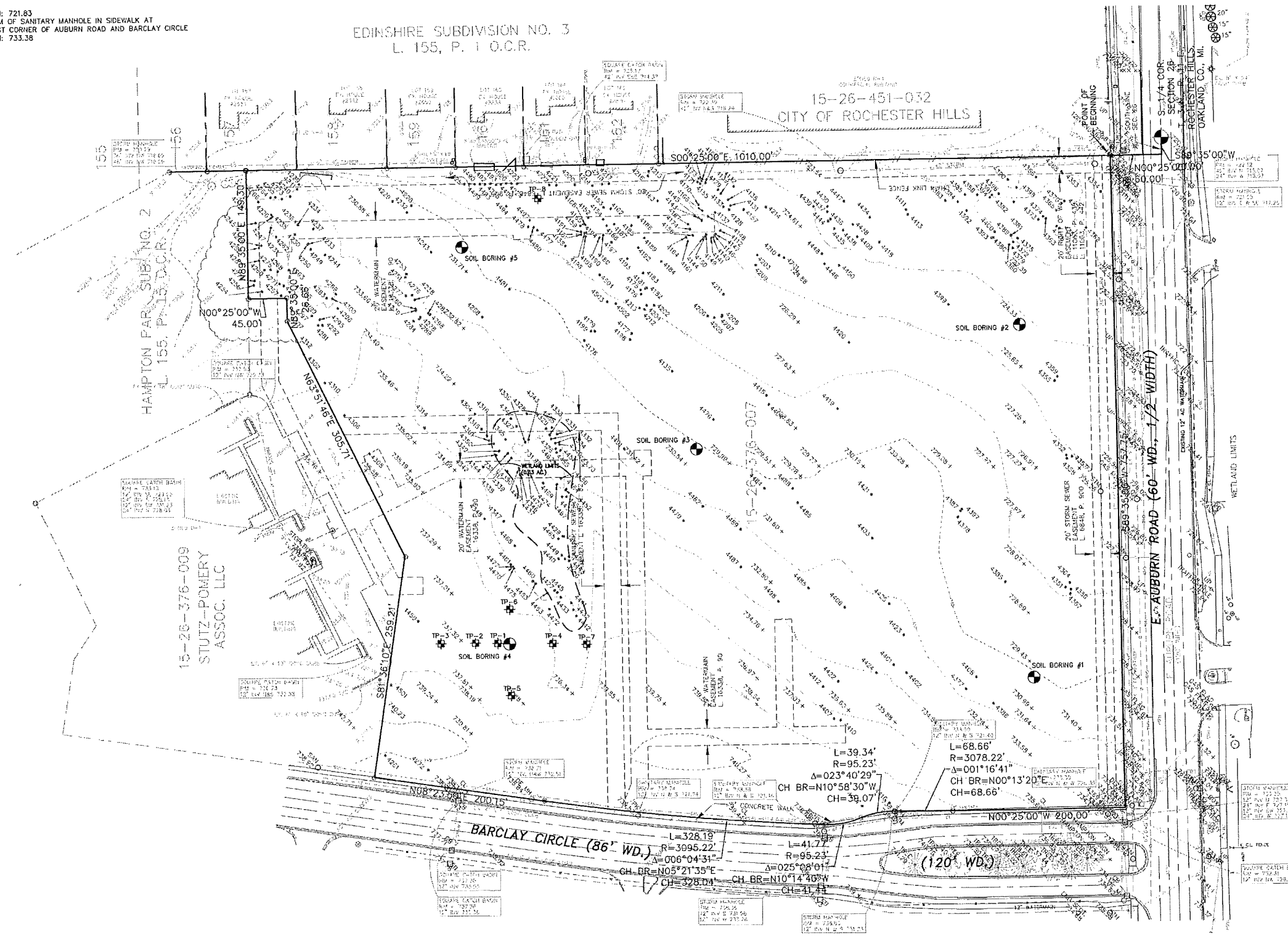
EX-10/20/15

- BENCHMARKS:**
- HYDRANT ARROW 375± NORTH OF AUBURN ROAD AND 40± WEST OF BARCLAY CIRCLE
ELEVATION: 741.35
 - HYDRANT ARROW IN PARKING LOT ISLAND NORTH OF SITE
ELEVATION: 740.38
 - NAIL IN WEST SIDE OF GUY POLE AT SOUTHEAST CORNER OF SITE
ELEVATION: 721.83
 - NORTH RIM OF SANITARY MANHOLE IN SIDEWALK AT NORTHEAST CORNER OF AUBURN ROAD AND BARCLAY CIRCLE
ELEVATION: 733.38



EDINSHIRE SUBDIVISION NO. 3
L. 155, P. 1 O.C.R.

15-26-451-032
CITY OF ROCHESTER HILLS



- EXISTING LEGEND**
- MANHOLE
 - CATCH BASIN
 - ⊖ INLET
 - ⊕ CLEANOUT
 - ⊖ END SECTION
 - ⊖ ROOF DRAIN
 - ⊖ GATE VALVE
 - ⊖ HYDRANT
 - ⊖ WATER SHUT-OFF
 - ⊖ UTILITY POLE
 - ⊖ GUY ANCHOR
 - ⊖ LIGHT POLE
 - ⊖ SIGN
 - ⊖ TREE
 - TREE LINE
 - FENCE
 - SANITARY SEWER
 - STORM SEWER
 - WATER MAIN
 - GAS MAIN
 - ELECTRIC CABLE
 - CONTOUR MAJOR
 - CONTOUR MINOR
 - T/P TOP OF PAVEMENT
 - T/C TOP OF CURB
 - B/C BOTTOM OF CURB
 - +100.00 SPOT ELEVATION
 - ⊕ TEST PIT
 - ⊖ SOIL BORING
 - ⊖ TREE & TAG NO.

LEGAL DESCRIPTION:

THE LAND REFERRED TO IN THIS COMMITMENT IS DESCRIBED AS FOLLOWS:
CITY OF ROCHESTER HILLS, COUNTY OF OAKLAND, STATE OF MICHIGAN

PART OF THE SOUTHWEST 1/4 SECTION 25, TOWN 3 NORTH, RANGE 11 EAST, CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN, BEGINNING AT POINT DISTANT SOUTH 89 DEGREES 35 MINUTES 00 SECONDS WEST 20 FEET AND NORTH 00 DEGREES 25 MINUTES 00 SECONDS WEST 60 FEET FROM SOUTH 1/4 CORNER; THENCE SOUTH 89 DEGREES 35 MINUTES 00 SECONDS WEST 757.75 FEET; THENCE NORTH 00 DEGREES 25 MINUTES 00 SECONDS WEST 200 FEET; THENCE ALONG CURVE CONCAVE EASTERLY, RADIUS 3078.22 FEET, CHORD BEARS NORTH 00 DEGREES 13 MINUTES 20 SECONDS EAST 68.66 FEET, DISTANCE OF 68.66 FEET; THENCE ALONG CURVE CONCAVE WESTERLY, RADIUS 95.23 FEET, CHORD BEARS NORTH 10 DEGREES 14 MINUTES 40 SECONDS WEST 41.44 FEET, DISTANCE OF 41.77 FEET; THENCE ALONG CURVE CONCAVE EASTERLY, RADIUS 3095.22 FEET, CHORD BEARS NORTH 05 DEGREES 21 MINUTES 35 SECONDS EAST 308.04 FEET, DISTANCE OF 328.19 FEET; THENCE NORTH 08 DEGREES 23 MINUTES 50 SECONDS EAST 200.15 FEET; THENCE SOUTH 81 DEGREES 36 MINUTES 10 SECONDS EAST, 259.21 FEET; THENCE NORTH 63 DEGREES 51 MINUTES 00 SECONDS EAST 305.71 FEET; THENCE NORTH 89 DEGREES 35 MINUTES 00 SECONDS EAST 26.66 FEET; THENCE NORTH 00 DEGREES 25 MINUTES 00 SECONDS WEST 45 FEET; THENCE NORTH 89 DEGREES 35 MINUTES 00 SECONDS EAST 149.30 FEET; THENCE SOUTH 00 DEGREES 25 MINUTES 00 SECONDS EAST 1010 FEET TO BEGINNING.

TAX PARCEL NO. 15-26-376-007

WETLAND NOTE:

THE WETLAND LIMITS WERE FLAGGED BY KING AND McGREGOR ENVIRONMENTAL, INC. ON 8/14/14.

TOPOGRAPHIC SURVEY NOTES:

TOPOGRAPHIC SURVEY, INCLUDING EXISTING UTILITIES, SITE TOPOGRAPHY WITH SPOT ELEVATIONS, OUTSTANDING PHYSICAL FEATURES AND EXISTING STRUCTURE LOCATIONS WAS PROVIDED FROM RECORD PLANS FOR THIS SITE PREPARED BY:

SPALDING DeDECKER ASSOCIATES, INC.
905 SOUTH BOULEVARD
ROCHESTER HILLS, MI 48307

ZEIMET-WOZNIAK & ASSOCIATES, INC. WILL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OF THE SURVEY OR FOR DESIGN OMISSIONS RESULTING FROM SURVEY INACCURACIES.

TOPOGRAPHIC SURVEY AND RIGHT-OF-WAY TOPOGRAPHY SUPPLEMENTED BY ZWA OCTOBER 2014.

EASEMENT NOTE:

THE EXISTING ON-SITE WATERMAIN AND SANITARY SEWER EASEMENTS SHALL BE VACATED.

NOTE:

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

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
FINAL PUD REVIEW	12/15/14	SRB						
FINAL PUD REVIEW #1	1/26/15	SRB						

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Civil Engineers & Land Surveyors
5550 GRAND RIVER AVE. SUITE 100
NEW HURON, MICHIGAN 48863
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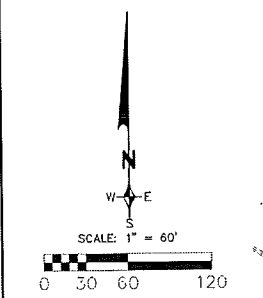
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PROJECT SPONSOR:
C/O THE IVANHOE COMPANIES
6689 ORCHARD LAKE ROAD, STE. 314
WEST BLOOMFIELD, MI 48322 (248) 626-6114

EXISTING CONDITIONS
BARRINGTON PARK
ROCHESTER HILLS, MICHIGAN

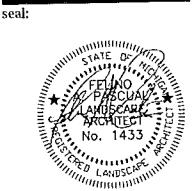
DATE: 12/15/14	SCALE: HOR: 1" = 50'	VER: 1" = 10'
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DRAWN BY: SRB	SHEET CE-2	

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Tag Number	Scientific Name	Common Name	DBH 1	DBH 2	DBH 3	Condition
4138	Populus deltoides	Cottonwood	13.8			Fair
4139	Populus deltoides	Cottonwood	8.7			Fair
4140	Populus deltoides	Cottonwood	11.3			Fair
4141	Populus deltoides	Cottonwood	14.0	10.1		Fair
4142	Populus deltoides	Cottonwood	12.5			Fair
4143	Acer pennsylvanicum	Silver Maple	10.0			Fair
4144	Populus deltoides	Cottonwood	14.3			Poor
4145	Populus deltoides	Cottonwood	12.5			Fair
4146	Populus deltoides	Cottonwood	12.5			Fair
4147	Populus deltoides	Cottonwood	11.5			Fair
4148	Populus deltoides	Cottonwood	8.5			Fair
4149	Populus deltoides	Cottonwood	9.2			Fair
4150	Populus deltoides	Cottonwood	6.0			Fair
4151	Salix fragilis	Crack Willow	7.8			Fair
4152	Salix fragilis	Crack Willow	10.0			Fair
4153	Salix fragilis	Crack Willow	11.2			Fair
4154	Salix fragilis	Crack Willow	20.1			Fair
4155	Populus deltoides	Cottonwood	14.2			Fair
4156	Populus deltoides	Cottonwood	13.0			Fair
4157	Populus deltoides	Cottonwood	14.0			Fair
4158	Populus deltoides	Cottonwood	21.9			Fair
4159	Populus deltoides	Cottonwood	7.2			Fair
4160	Populus deltoides	Cottonwood	15.6			Fair
4161	Populus deltoides	Cottonwood	13.3			Fair
4162	Acer platanoides	Norway Maple	7.5			Fair
4163	Populus deltoides	Cottonwood	10.0			Fair
4164	Populus deltoides	Cottonwood	11.0			Fair
4165	Populus deltoides	Cottonwood	11.0			Fair
4166	Populus deltoides	Cottonwood	13.4			Fair
4167	Populus deltoides	Cottonwood	14.7			Fair
4168	Populus deltoides	Cottonwood	8.2			Fair
4169	Populus deltoides	Cottonwood	15.1			Fair
4170	Populus deltoides	Cottonwood	15.1			Fair
4171	Populus deltoides	Cottonwood	13.0	11.0	8.0	Fair
4172	Populus deltoides	Cottonwood	7.0			Fair
4173	Populus deltoides	Cottonwood	12.1			Fair
4174	Populus deltoides	Cottonwood	12.3			Fair
4175	Populus deltoides	Cottonwood	9.5			Fair
4176	Populus deltoides	Cottonwood	7.4			Fair
4177	Salix fragilis	Crack Willow	15.1	17.0		Fair
4178	Populus deltoides	Cottonwood	20.9			Fair
4179	Populus deltoides	Cottonwood	11.8			Fair
4180	Populus deltoides	Cottonwood	7.2			Fair
4181	Populus deltoides	Cottonwood	17.2			Fair
4182	Populus deltoides	Cottonwood	19.2			Fair
4183	Populus deltoides	Cottonwood	7.8			Fair
4184	Ulmus americana	American Elm	8.2	7.0		Fair
4185	Populus deltoides	Cottonwood	13.1			Fair
4186	Populus deltoides	Cottonwood	20.5			Fair
4187	Salix fragilis	Crack Willow	11.9	17.0	10.0	Fair
4188	Salix fragilis	Crack Willow	16.8			Fair
4189	Populus deltoides	Cottonwood	15.4			Fair
4190	Populus deltoides	Cottonwood	13.1			Fair
4191	Populus deltoides	Cottonwood	12.8			Fair
4192	Populus deltoides	Cottonwood	10.4			Fair
4193	Populus deltoides	Cottonwood	5.9			Fair
4194	Populus deltoides	Cottonwood	12.0			Fair
4195	Populus deltoides	Cottonwood	8.0			Fair
4196	Populus deltoides	Cottonwood	11.8			Fair
4197	Salix fragilis	Crack Willow	13.7			Fair
4198	Acer negundo	Box Elder	7.0			Fair
4199	Populus deltoides	Cottonwood	11.7			Fair
4200	Populus deltoides	Cottonwood	11.4			Fair
4201	Populus deltoides	Cottonwood	23.8			Fair
4202	Populus deltoides	Cottonwood	16.4			Fair
4203	Populus deltoides	Cottonwood	29.0			Fair
4204	Populus deltoides	Cottonwood	14.4			Fair
4205	Ulmus americana	American Elm	11.4			Fair
4206	Salix fragilis	Crack Willow	8.8			Fair
4207	Salix sp.	Willow	7.1	7.5		Fair
4208	Populus deltoides	Cottonwood	12.9	7.7		Fair
4209	Populus deltoides	Cottonwood	17.8	18.0	18.2	Fair
4210	Populus deltoides	Cottonwood	12.5			Fair
4211	Populus deltoides	Cottonwood	22.3			Fair
4212	Salix fragilis	Crack Willow	11.3			Fair
4213	Pinus strobus	White Pine	22.4			Fair
4214	Pinus strobus	White Pine	22.4			Fair
4215	Pinus strobus	White Pine	6.9			Fair
4216	Pinus strobus	White Pine	8.5			Fair
4217	Pinus strobus	White Pine	9.2			Fair
4218	Pinus strobus	White Pine	8.1			Fair
4219	Pinus strobus	White Pine	11.1			Fair
4220	Acer platanoides	Norway Maple	8.1			Fair
4221	Pinus strobus	Black Pine	7.3			Fair
4222	Pinus strobus	Black Pine	12.1			Fair
4223	Pinus strobus	Black Pine	10.7			Fair
4224	Pinus strobus	Black Pine	10.7			Fair
4225	Pinus strobus	Black Pine	10.7			Fair
4226	Pinus strobus	Black Pine	7.3			Fair
4227	Ulmus americana	American Elm	20.3			Fair
4228	Ulmus americana	American Elm	16.2			Fair
4229	Ulmus americana	American Elm	6.9			Fair
4230	Ulmus americana	American Elm	18.3			Fair
4231	Ulmus americana	American Elm	24.0			Fair
4232	Ulmus americana	American Elm	8.7			Fair
4233	Ulmus americana	American Elm	7.6			Fair
4234	Ulmus americana	American Elm	8.4			Fair
4235	Ulmus americana	American Elm	9.5			Fair
4236	Ulmus americana	American Elm	9.5			Fair
4237	Ulmus americana	American Elm	7.9			Fair
4238	Ulmus americana	American Elm	6.2			Fair
4239	Ulmus americana	American Elm	6.6			Fair
4240	Ulmus americana	American Elm	15.6	15.1		Fair
4241	Ulmus americana	American Elm	11.9			Fair
4242	Ulmus americana	American Elm	11.9			Fair
4243	Ulmus americana	American Elm	6.6			Fair
4244	Ulmus americana	American Elm	11.9			Fair
4245	Ulmus americana	American Elm	7.8			Fair
4246	Ulmus americana	American Elm	10.6			Fair
4247	Ulmus americana	American Elm	11.9	11.9	9.9	Fair
4248	Ulmus americana	American Elm	9.8			Fair
4249	Ulmus americana	American Elm	12.0			Fair
4250	Ulmus americana	American Elm	12.0			Fair
4251	Ulmus americana	American Elm	12.0			Fair
4252	Ulmus americana	American Elm	12.0			Fair
4253	Ulmus americana	American Elm	12.0			Fair
4254	Ulmus americana	American Elm	12.0			Fair
4255	Ulmus americana	American Elm	10.9			Fair
4256	Ulmus americana	American Elm	17.1			Fair
4257	Ulmus americana	American Elm	11.5			Fair
4258	Ulmus americana	American Elm	11.5			Fair
4259	Ulmus americana	American Elm	7.2			Fair
4260	Ulmus americana	American Elm	11.2			Fair

Tag Number	Scientific Name	Common Name	DBH 1	DBH 2	DBH 3	Condition
4261	Pinus strobus	Black Pine	12.9			Fair
4262	Ulmus americana	American Elm	10.3			Fair
4263	Ulmus americana	American Elm	6.1			Fair
4264	Ulmus americana	American Elm	12.7			Fair
4265	Ulmus americana	American Elm	11.9			Fair
4266	Ulmus americana	American Elm	9.9			Fair
4267	Ulmus americana	American Elm	8.3			Fair
4268	Ulmus americana	American Elm	6.6			Fair
4269	Ulmus americana	American Elm	1.4			Fair
4270	Ulmus americana	American Elm	2.6			Fair
4271	Ulmus americana	American Elm	23.0			Fair
4272	Acer saccharinum	Sugar Maple	11.3	11.6		Fair
4273	Ulmus americana	American Elm	11.3			Fair
4274	Ulmus americana	American Elm	12.1			Fair
4275	Ulmus americana	American Elm	8.6			Fair
4276	Ulmus americana	American Elm	10.6			Fair
4277	Ulmus americana	American Elm	11.6			Fair
4278	Ulmus americana	American Elm	11.3			Fair
4279	Ulmus americana	American Elm	10.9			Fair
4280	Ulmus americana	American Elm	12.4			Fair
4281	Ulmus americana	American Elm	10.6			Fair
4282	Ulmus americana	American Elm	18.1			Fair
4283	Ulmus americana	American Elm	20.2			Fair
4284	Ulmus americana	American Elm	20.2			Fair
4285	Ulmus americana	American Elm	11.9			Fair
4286	Ulmus americana	American Elm	7.2	17.4	10.3	Fair
4287	Ulmus americana	American Elm	9.9			Fair
4288	Ulmus americana	American Elm	9.3	9.3		Fair
4289	Ulmus americana	American Elm	14.7			Fair
4290	Ulmus americana	American Elm	0.9			Fair
4291	Ulmus americana	American Elm	9.5			Fair
4292	Ulmus americana	American Elm	8.7			Fair
4293	Ulmus americana	American Elm	21.6			Fair
4294	Ulmus americana	American Elm	6.0			Fair
4295	Ulmus americana	American Elm	7.5			Fair
4296	Ulmus americana	American Elm	14.7			Fair
4297	Ulmus americana	American Elm	7.7			Fair
4298	Ulmus americana	American Elm	7.7			Fair
4299	Ulmus americana	American Elm	12.0			Fair
4300	Ulmus americana	American Elm	6.6			Fair
4301	Ulmus americana	American Elm	6.6			Fair
4302	Ulmus americana	American Elm	9.8			Fair
4303	Ulmus americana	American Elm	8.6			Fair
4304	Ulmus americana	American Elm	8.6			Fair
4305	Ulmus americana	American Elm	8.6			Fair
4306	Ulmus americana	American Elm	8.6			Fair
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4308	Ulmus americana	American Elm	8.6			Fair
4309	Ulmus americana	American Elm	8.6			Fair
4310	Ulmus americana	American Elm	8.6			Fair
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4312	Ulmus americana	American Elm	8.6			Fair
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4314	Ulmus americana	American Elm	8.6			Fair
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4353	Ulmus americana	American Elm	8.6			Fair
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4358	Ulmus americana	American Elm	8.6			Fair
4359	Ulmus americana	American Elm	8.6			Fair
4360	Ulmus americana	American Elm	8.6			Fair
4361	Ulmus americana	American Elm	8.6			Fair
4362	Ulmus americana	American Elm	8.6			Fair



client:
IAC Barclay, LLC
 C/O The Ivanhoe Companies
 6689 Orchard Lake Road,
 Suite 314
 West Bloomfield, Michigan
 48322
 ph. (248) 626-6114

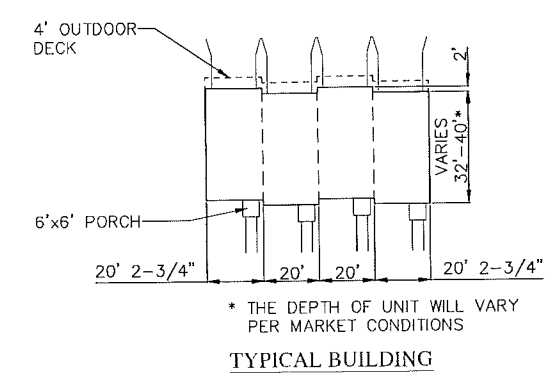
project:
Barrington Park
 project location:
 City of Rochester Hills,
 Michigan
 Auburn Road & Barclay
 Circle

sheet title:
Site Plan

Job no./issue/revision date:

LP14.006.01	01-14-2014
LP14.006.02	2-24-2014
LP14.006.09	9-15-2014
LP14.006.09	9-22-2014
LP14.006.10	10-10-2014
LP14.006.10	10-27-2014
LP14.006.12	12-15-2014
LP15.003.01	1-26-2015

drawn by:
JP, CZ, DH
 checked by:
FP
 date:
1-5-2015
 notice:
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 dimensions only
 project no:
LP15.003.01
 sheet no:
CE-4

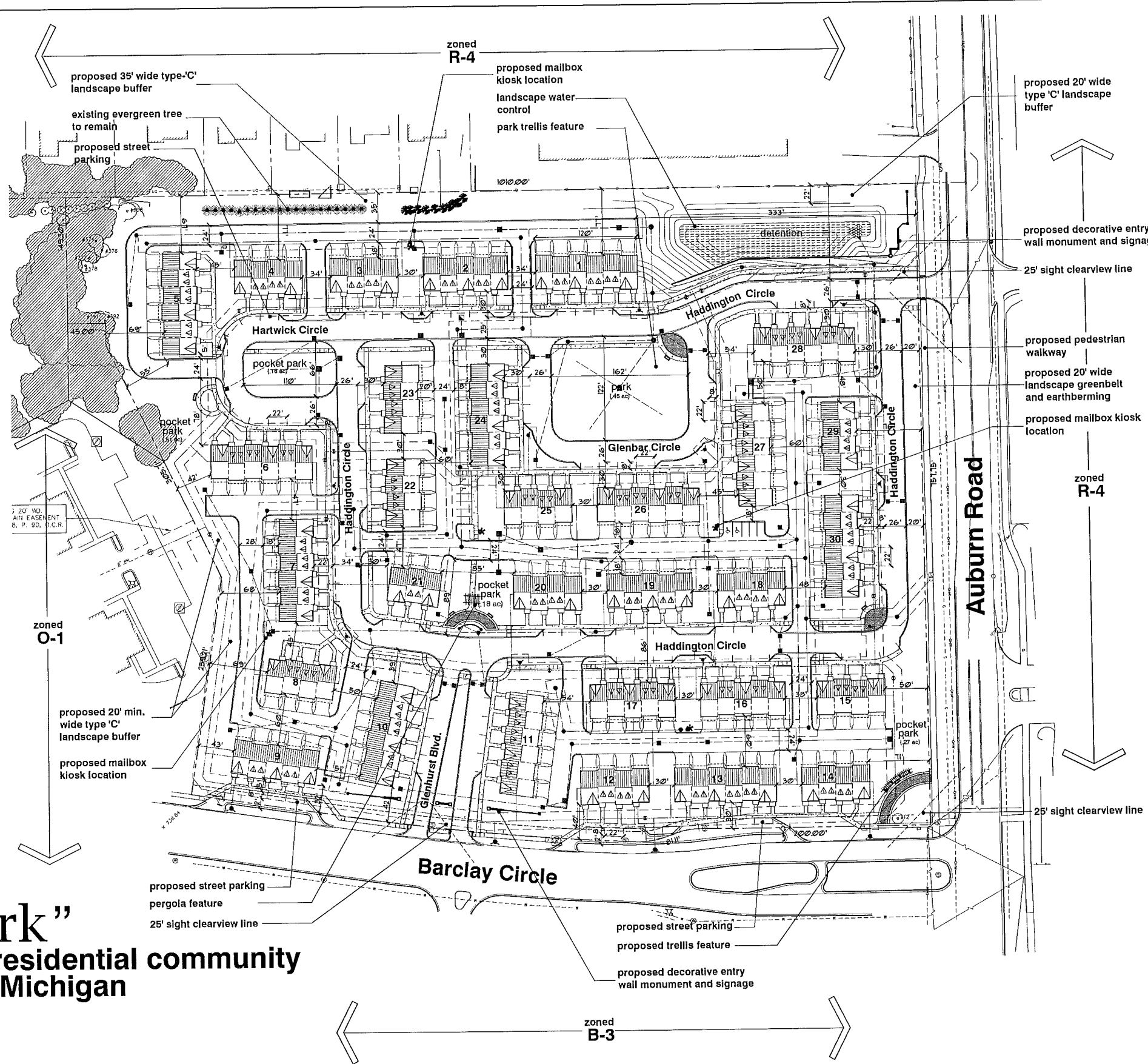


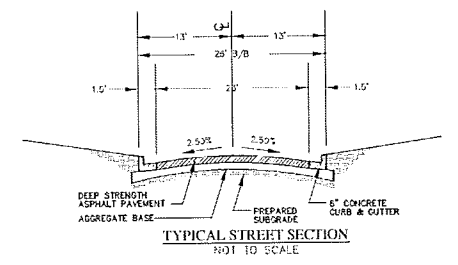
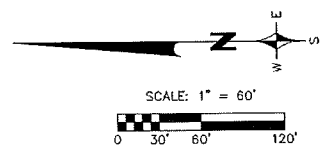
program (existing O-1 zoning to PUD option)

TOTAL ACRES OF SITE GROSS	15.2 ±
TOTAL NO. OF RESIDENTIAL UNIT	148
NO. OF 2-BEDROOM UNITS	0
NO. OF 3-BEDROOM UNIT UNITS	148
MIN. BUILDING SETBACKS	
FRONT TO FRONT	84'
SIDE TO SIDE	30'
SIDE TO REAR	41'
REAR TO REAR	60'
FRONT YARD SETBACK	30'
FRONT TO SIDE	45'
TOTAL NO. OF PARKING PROVIDED	626
GARAGE PARKING	296
GARAGE APPROACH	296
GUEST/PARALLEL PARKING	94
TOTAL NO. OF PARKING REQUIRED	333
3-BEDRM. UNIT PARKING	296
(7 SPACES PER UNIT = 148 UNITS X 2 SPACES)	
GUEST/PARALLEL PARKING	37
(25 VISITOR SPACES PER UNIT = 148 UNITS X 25 VISIT. SPACES)	
HANDICAPP. PARKING PROVIDED	4
ACRES OF PARK/OPEN SPACE REQUIRED	1.8
(5% OF 12.6 ACRES = 1.8 ACRE)	
ACRES OF PARK/OPEN SPACE PROVIDED	1.97 ±
DENSITY PER ACRE PROVIDED	9.48

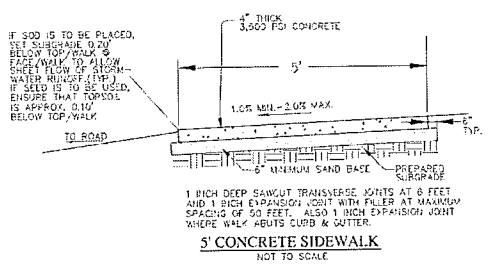
site plan for:
“Barrington Park”
 a planned attached residential community
 City of Rochester Hills, Michigan

note:
 preliminary residential plan for inspection purposes only
 and in no way official or approved for record purposes.
NOT FOR CONSTRUCTION

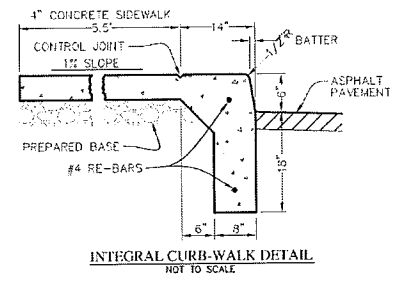




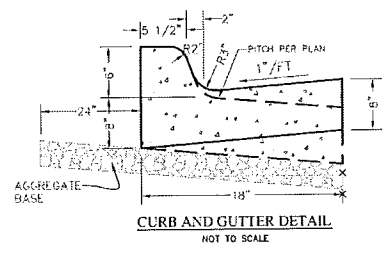
TYPICAL STREET SECTION
NOT TO SCALE



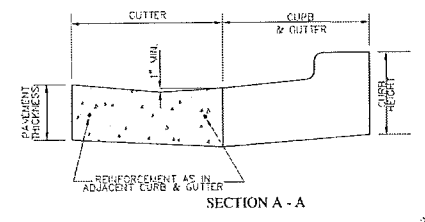
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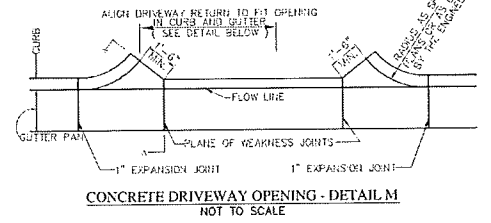
INTEGRAL CURB-WALK DETAIL
NOT TO SCALE



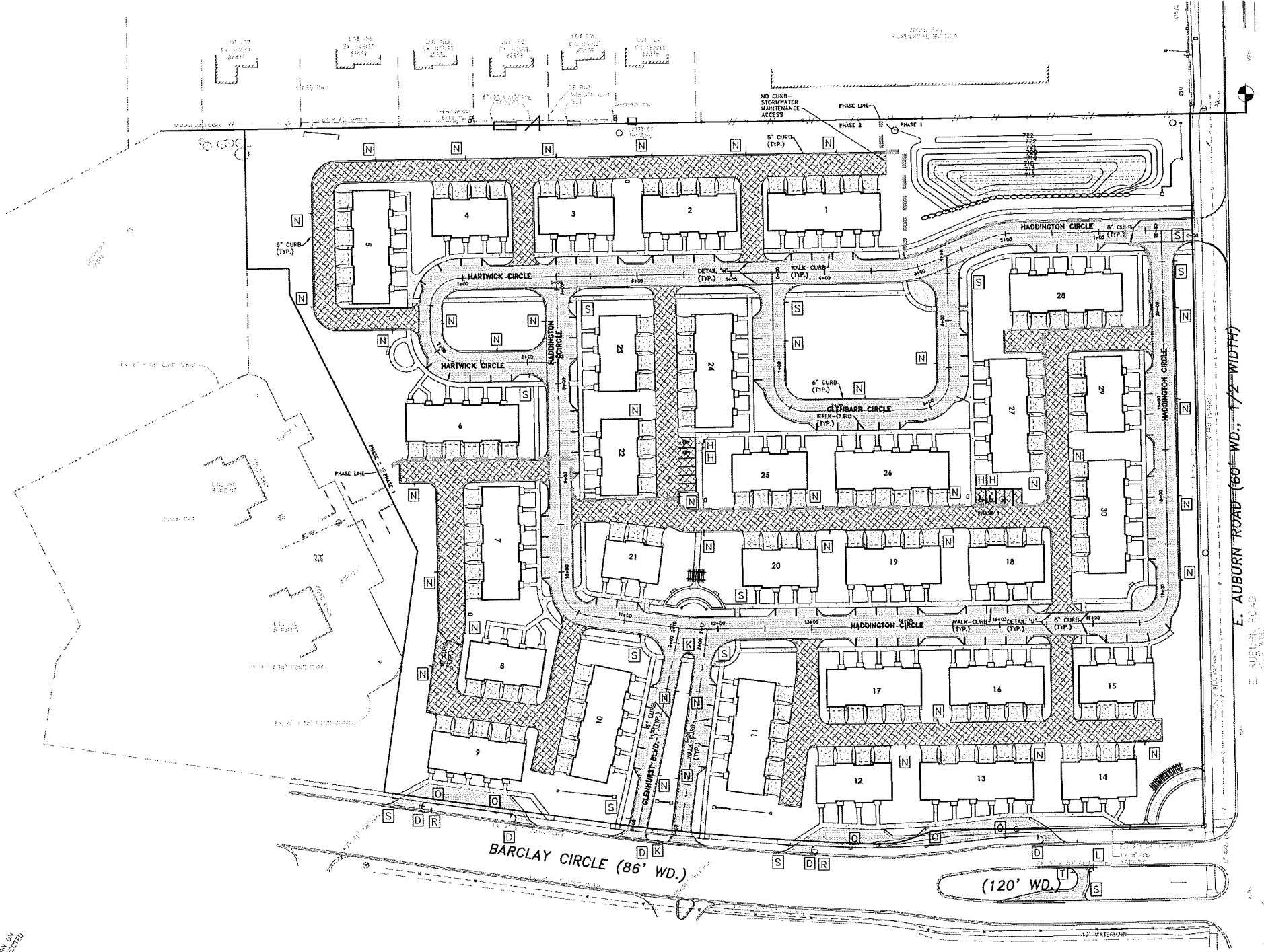
CURB AND GUTTER DETAIL
NOT TO SCALE



SECTION A - A



CONCRETE DRIVEWAY OPENING - DETAIL M
NOT TO SCALE



- PAVEMENT LEGEND:**
- CONCRETE DRIVEWAYS
6.0" UNIFORM PC CONCRETE (3500 PSI)
4.0" MDOT 21AA AGGREGATE BASE
 - CONCRETE SIDEWALKS
4.0" UNIFORM PC CONCRETE (3500 PSI)
6.0" MDOT CLASS II SAND
+ 6.0" THROUGH DRIVEWAYS
 - STREETS
2.0" MDO1 HMA 1.5A WEARING COURSE
2.0" MDOT HMA 3C LEVELING COURSE
5.0" MDOT HMA 2C BASE COURSE
(IN 2 LIFTS)
6.0" MDOT 21AA AGGREGATE BASE*
* AGGREGATE BASE TO EXTEND 2'
BEYOND BACK OF CURB
 - ALLEYS/REAR DRIVES
2.0" MDOT HMA 4C WEARING COURSE
2.0" MDOT HMA 3C LEVELING COURSE
6.0" MDOT 21AA AGGREGATE BASE
- NOTE: AGGREGATE BASE MATERIAL TO BE COMPACTED TO 98% MAX. UNIT DENSITY
- NOTE: SIDEWALK AND PATHWAY RAMPS AND LANDINGS WITHIN THE PUBLIC ROAD RIGHT-OF-WAY SHALL BE 6" THICK.

UNDERDRAIN NOTES:
EDGE DRAINS SHALL BE PLACED ONE FOOT (1') OFFSET FROM THE BACK OF CURB AND PLACED WITH THREE AND A HALF FEET (3.5') OF COVER (FROM TOP OF CURB) FOR THE FULL LENGTH OF THE CURB. EDGE DRAIN, SIX INCHES (6") IN DIAMETER, PERFORATED OR SLOTTED, SHALL BE CONSTRUCTED IN THE BACK OF CURB LINE FOR THE FULL LENGTH OF CURB, BACKFILLED WITH EITHER 2NS SAND OR PEA STONE. PERFORATED PIPE SHALL BE SMOOTH-WALL PVC PLASTIC EDGE DRAIN WITH 3/16 INCH TO 3/8 INCH PERFORATIONS. SLOTTED PIPE SHALL BE A-2000 (CONTECH OR EQUIVALENT APPROVED BY THE CITY ENGINEER) SEWER PIPE, WITH SLOTTED PERFORATIONS OF 1.90 IN²/FT OF PIPE LENGTH. THE PIPE SHALL BE INSTALLED WITH THE PROTECTIVE GEOTEXTILE SOCK WRAP.

- SIGN LEGEND:**
- 30"x30" STOP SIGN (R1-1)-30 EACH
 - 24"x30" KEEP RIGHT SIGN (R4-7)-2 EACH
 - 12"x18" NO PARKING FIRE LANE SIGN (R7-1)-40 EACH
 - 30"x30" DO NOT ENTER SIGN (RS-1)-5 EACH
 - 36"x12" ONE WAY SIGN (R6-1)-5 EACH
 - 24"x24" RIGHT TURN PROHIBITED SIGN (R3-1)-2 EACH
 - 24"x24" LEFT TURN PROHIBITED SIGN (R3-1)-1 EACH
 - 24"x30" TURN LEFT ONLY SIGN (R3-31A)-1 EACH
 - 12"x18" RESERVED PARKING-HANDICAP SIGN (R7-8)-4 EACH



CITY FILE 14-012, SECTION 26
NOT FOR CONSTRUCTION

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER CITY REVIEW	10/10/14	SRB						
PER CITY REVIEW	10/21/14	SRB						
FINAL PUD REVIEW	12/15/14	SRB						
FINAL PUD REVIEW #1	1/28/15	SRB						

ZEIMET WOZNAK ASSOCIATES
Civil Engineers & Land Surveyors
5500 GRAND RIVER AVE, SUITE 100
NEW HAVEN, MICHIGAN 48845
P: (248) 437-8999 F: (248) 437-5222 www.zeimetwozniak.com

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C/O THE IVANHOE COMPANIES
6689 ORCHARD LAKE ROAD, STE. 314
WEST BLOOMFIELD, MI 48322 (248) 626-6114

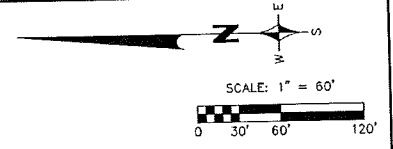
**OVERALL PAVING PLAN
BARRINGTON PARK**
ROCHESTER HILLS, MICHIGAN

DATE 12/15/14	SCALE 1" = 60'	HOR. VER. 1" = N/A
DESIGNED BY SRB	JOB NO. 13178	
DRAWN BY SRB	SHEET CE-5	

Z:\projects\14782\DWG\13178_PUD_Overall_Paving_Plan_12062015_10:32:24_AM.dwg

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

PROPOSED SEDIMENTATION BASIN
 FREEBOARD ELEV. = 722.0
 EMERGENCY OVERFLOW ELEV. = 721.5
 PRIMARY OVERFLOW ELEV. = 721.0
 STORAGE ELEV. = 721.0
 WATER ELEV. = 718.0
 BOTTOM ELEV. = 716.0



- BENCHMARKS:**
- HYDRANT ARROW 375'± NORTH OF AUBURN ROAD AND 40'± WEST OF BARCLAY CIRCLE
ELEVATION: 741.35
 - HYDRANT ARROW IN PARKING LOT ISLAND NORTH OF SITE
ELEVATION: 740.38
 - NAIL IN WEST SIDE OF GUY POLE AT SOUTHEAST CORNER OF SITE
ELEVATION: 721.83
 - NORTH RIM OF SANITARY MANHOLE IN SIDEWALK AT NORTHEAST CORNER OF AUBURN ROAD AND BARCLAY CIRCLE
ELEVATION: 733.38

LEGEND

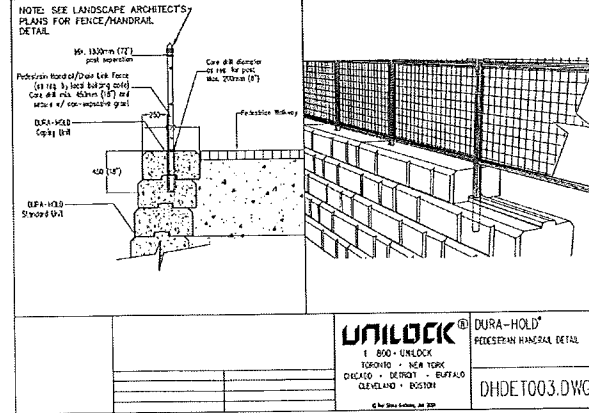
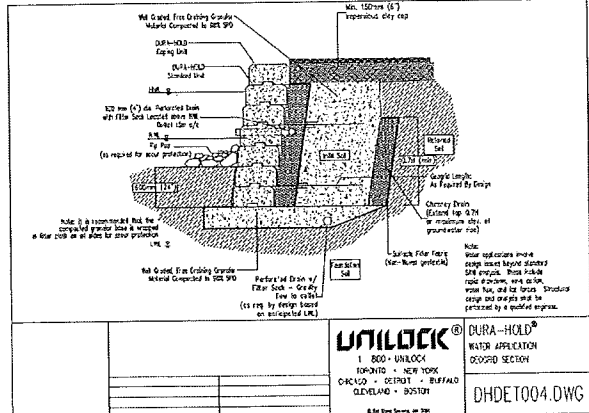
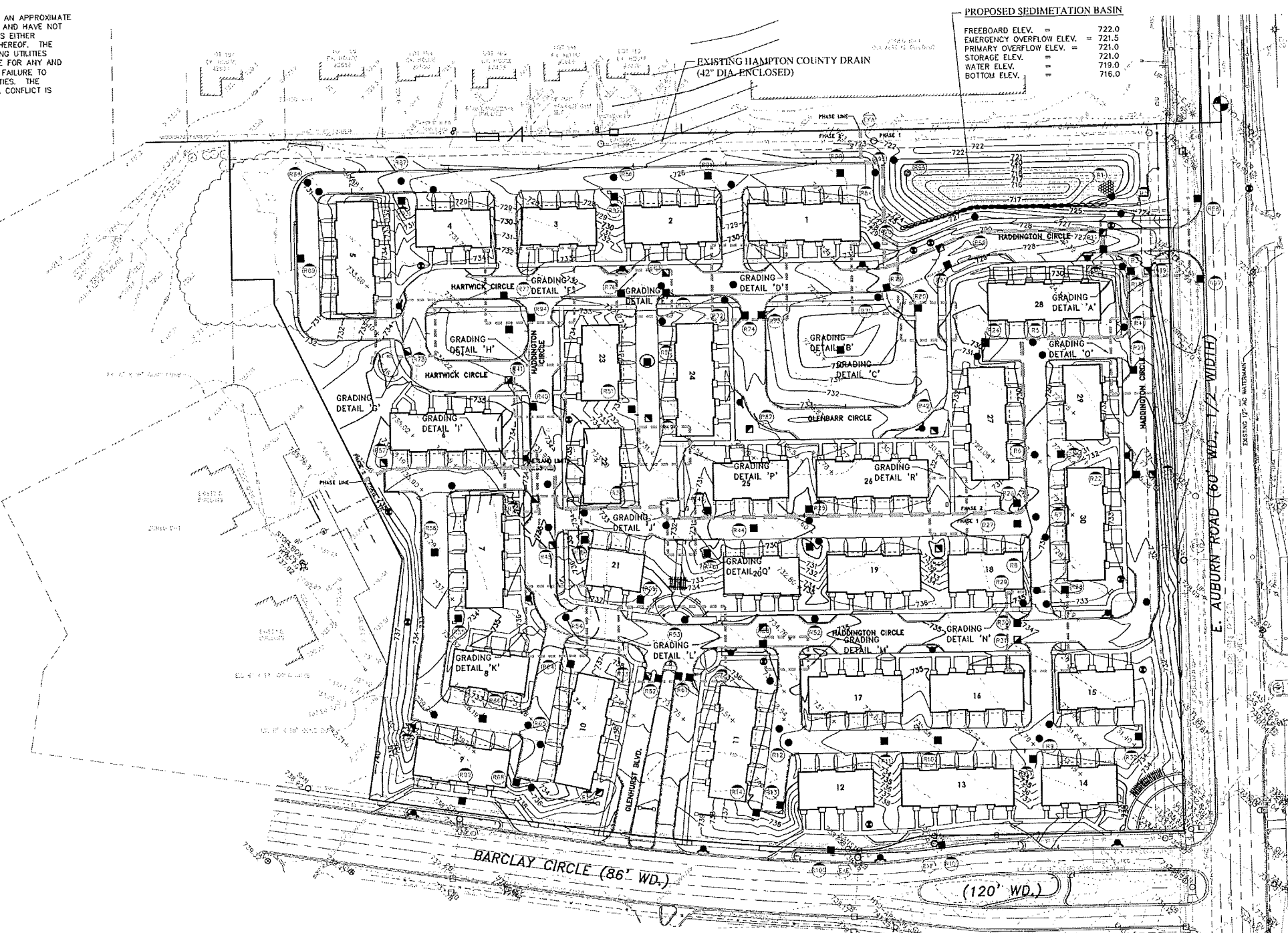
EXISTING

- MANHOLE
- CATCH BASIN
- ⊖ INLET
- ⊕ CLEANOUT
- ⊕ END SECTION
- ⊕ ROOF DRAIN
- ⊕ GATE VALVE
- ⊕ HYDRANT
- ⊕ WATER SHUT-OFF
- ⊕ UTILITY POLE
- ⊕ GUY ANCHOR
- ⊕ LIGHT POLE
- ⊕ SIGN
- ⊕ TREE
- TREE LINE
- SANITARY SEWER
- STORM SEWER
- WATER MAIN
- GAS MAIN
- ELECTRIC CABLE
- CONTOUR MAJOR
- CONTOUR MINOR
- SPOT ELEVATION

PROPOSED

- MANHOLE
- CATCH BASIN
- ⊖ INLET
- ⊕ CLEANOUT
- ⊕ END SECTION
- ⊕ ROOF DRAIN
- ⊕ GATE VALVE
- ⊕ HYDRANT
- ⊕ WATER SHUT-OFF
- ⊕ TREE REMOVAL
- SANITARY SEWER
- STORM SEWER
- WATER MAIN
- DITCH
- CONTOUR MAJOR
- CONTOUR MINOR
- PROPOSED GRADE

TC = TOP OF CURB
 TW = TOP OF WALK
 TP = TOP OF PAVEMENT
 TB = TOP OF BANK
 G = GROUND
 D = DITCH
 GU = GUTTER
 FG = FINISH GRADE
 FF = FINISH FLOOR
 BF = BASEMENT FLOOR
 BL = BRICK LEDGE
 BR = RISERS REQUIRED
 → EMERGENCY OVERFLOW ROUTE



UNILOCK DURA-HOLD[®] WATER APPLICATION OCCASION SECTION
 1 800-UNILOCK
 CINCINNATI • NEW YORK
 CLEVELAND • BUFFALO

UNILOCK DURA-HOLD[®] PEDESTRIAN HANDRAIL DETAIL
 1 800-UNILOCK
 CINCINNATI • NEW YORK
 CLEVELAND • BUFFALO

- GRADING NOTES:**
- SEED AND MULCH ALL AREAS DISTURBED DUE TO GRADING ACTIVITY.
 - PEAT, OR ANY OTHER UNSUITABLE MATERIALS ENCOUNTERED IN CONSTRUCTION AREAS SHALL BE REMOVED AND BACKFILLED WITH COMPACTED SUITABLE MATERIAL TO 95% DENSITY.
 - ALL ON-SITE WORK SHALL CONFORM AT A MINIMUM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF ROCHESTER HILLS.
 - ALL PROPOSED GRADES IN PAVED AREAS ARE TOP OF PAVEMENT (T/P) UNLESS SPECIFIED OTHERWISE.
 - ADD 700.00 TO ALL PROPOSED ELEVATIONS TO OBTAIN SITE DATUM ELEVATION.



REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER CITY REVIEW	10/10/14	SRB						
PER CITY REVIEW	10/27/14	SRB						
FINAL PUD REVIEW	12/15/14	SRB						
FINAL PUD REVIEW #1	1/26/15	SRB						

ZEMET WOZNAK & ASSOCIATES
 Civil Engineers & Land Surveyors
 550 GRAND RIVER AVE., SUITE 100
 NEW HAVEN, CONNECTICUT 06511
 P: (203) 437-5999 F: (203) 437-5232 www.zemetwoznak.com

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 1-800-452-7171

CLIENT: IAC BARCLAY, L.L.C.
 C/O THE IVANHOE COMPANIES
 6689 ORCHARD LAKE ROAD, STE. 314
 WEST BLOOMFIELD, MI 48322 (248) 626-6114

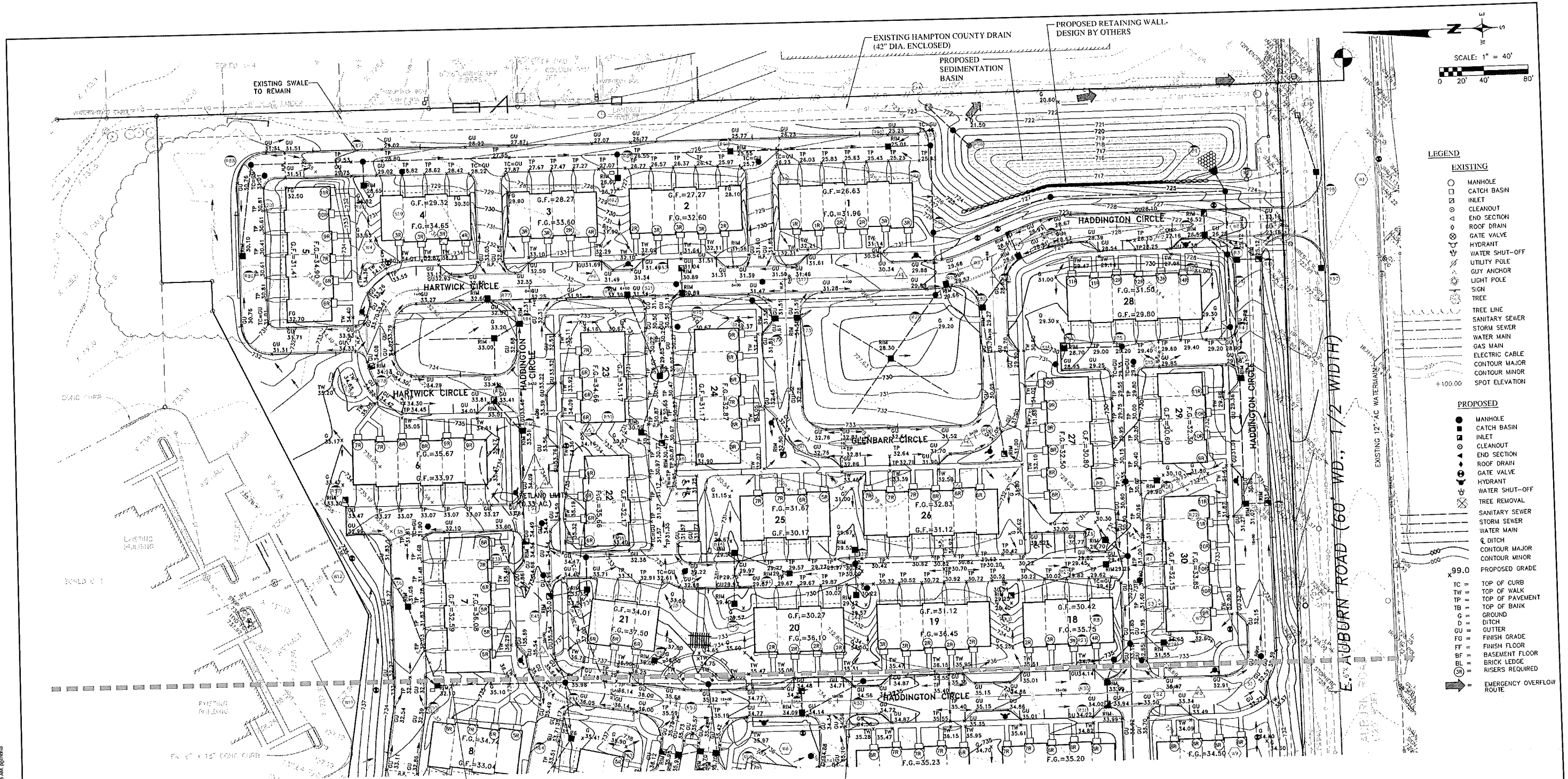
OVERALL GRADING AND DRAINAGE PLAN
BARRINGTON PARK
 ROCHESTER HILLS, MICHIGAN

DATE: 12/15/14
 SCALE: HOR: 1" = 60'
 VER: 1" = N/A

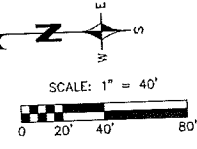
DESIGNED BY: SRB
 JOB NO.: 13178

DRAWN BY: SRB
 SHEET: CE-6

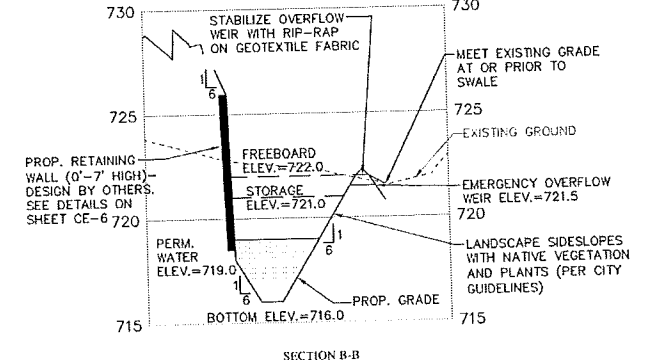
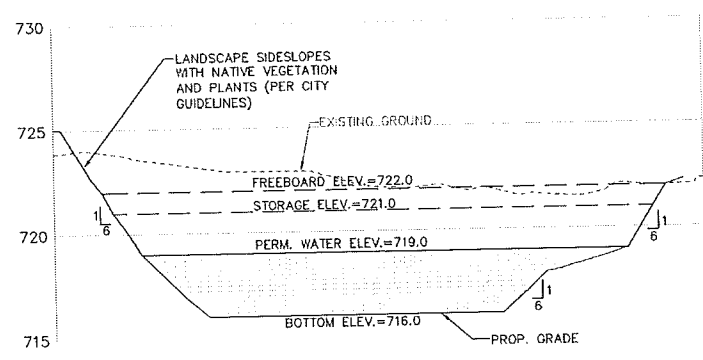
CITY FILE 14-012, SECTION 26
 NOT FOR CONSTRUCTION



- LEGEND**
- EXISTING**
- MANHOLE
 - CATCH BASIN
 - INLET
 - CLEANOUT
 - END SECTION
 - ROOF DRAIN
 - GATE VALVE
 - HYDRANT
 - WATER SHUT-OFF
 - UTILITY POLE
 - GUY ANCHOR
 - LIGHT POLE
 - SIGN
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 FF = FINISH FLOOR
 BF = BASEMENT FLOOR
 BL = BRICK LEDGE
 SR = RISERS REQUIRED
 → EMERGENCY OVERFLOW ROUTE



SEE SHEET CE-8



- BENCHMARKS:**
- HYDRANT ARROW 375'± NORTH OF AUBURN ROAD AND 40'± WEST OF BARCLAY CIRCLE
ELEVATION: 741.35
 - HYDRANT ARROW IN PARKING LOT ISLAND NORTH OF SITE
ELEVATION: 740.38
 - NAIL IN WEST SIDE OF GUY POLE AT SOUTHEAST CORNER OF SITE
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FINAL PUD REVIEW #1	1/25/15	SRB									

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THREE YEAR WORKING DATES
 EXPIRES 12/31/17
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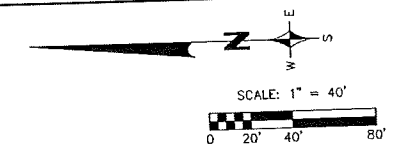
40 SCALE GRADING AND DRAINAGE PLAN
BARRINGTON PARK
 ROCHESTER HILLS, MICHIGAN

CITY FILE 14-012, SECTION 26
 NOT FOR CONSTRUCTION

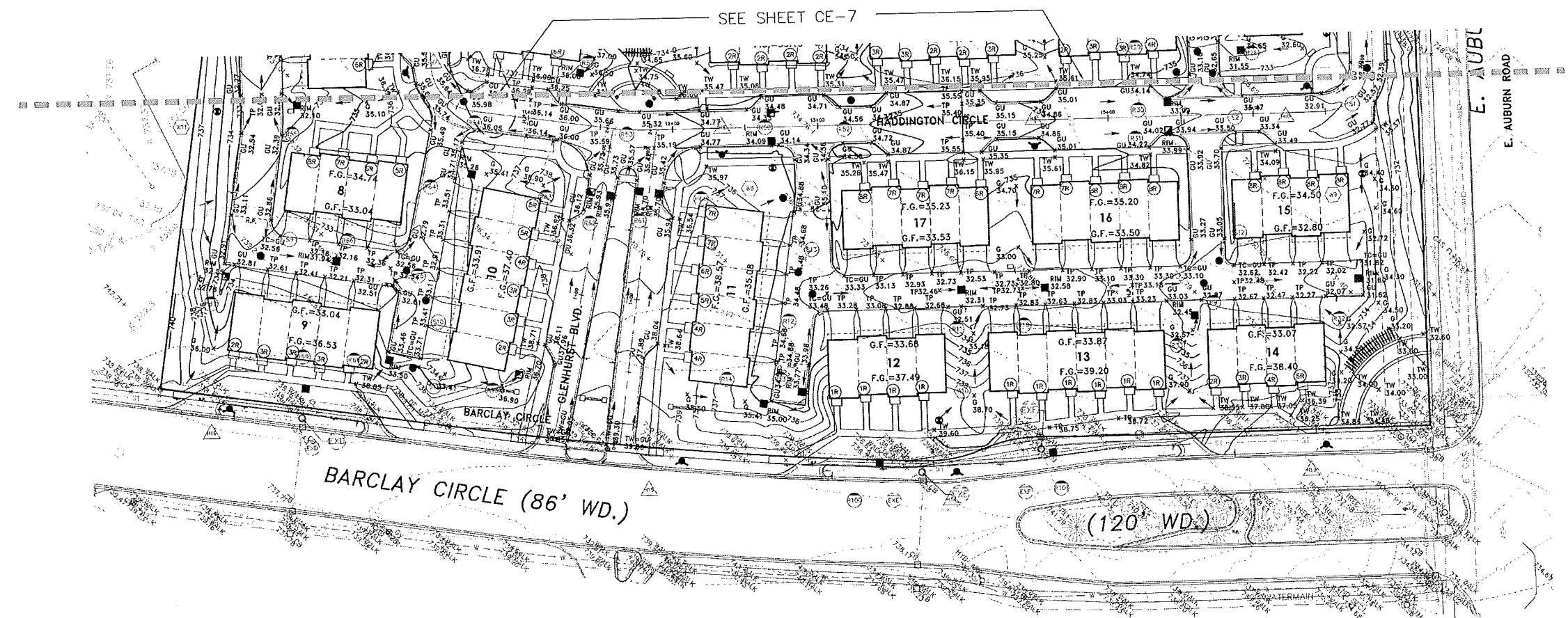
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- BENCHMARKS:**
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 - HYDRANT ARROW IN PARKING LOT ISLAND NORTH OF SITE
ELEVATION: 740.38
 - NAIL IN WEST SIDE OF GUY POLE AT SOUTHEAST CORNER OF SITE
ELEVATION: 721.83
 - NORTH RIM OF SANITARY MANHOLE IN SIDEWALK AT NORTHEAST CORNER OF AUBURN ROAD AND BARCLAY CIRCLE
ELEVATION: 733.36



- LEGEND**
- EXISTING**
- MANHOLE
 - CATCH BASIN
 - ⊕ INLET
 - ⊖ CLEANOUT
 - ⊙ END SECTION
 - ⊕ ROOF DRAIN
 - ⊕ GATE VALVE
 - ⊕ HYDRANT
 - ⊕ WATER SHUT-OFF
 - ⊕ UTILITY POLE
 - ⊕ GUY ANCHOR
 - ⊕ LIGHT POLE
 - ⊕ SIGN
 - ⊕ TREE
 - TREE LINE
 - SANITARY SEWER
 - STORM SEWER
 - WATER MAIN
 - GAS MAIN
 - ELECTRIC CABLE
 - CONTOUR MAJOR
 - CONTOUR MINOR
 - SPOT ELEVATION
- PROPOSED**
- MANHOLE
 - CATCH BASIN
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 - ⊖ CLEANOUT
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 - ⊕ GATE VALVE
 - ⊕ HYDRANT
 - ⊕ WATER SHUT-OFF
 - ⊕ TREE REMOVAL
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 - WATER MAIN
 - DITCH
 - CONTOUR MAJOR
 - CONTOUR MINOR
 - PROPOSED GRADE
- x TC = TOP OF CURB
 TW = TOP OF WALK
 TP = TOP OF PAVEMENT
 TB = TOP OF BANK
 G = GROUND
 D = DITCH
 GU = GUTTER
 FG = FINISH GRADE
 FF = FINISH FLOOR
 BF = BASEMENT FLOOR
 BL = BRICK LEDGE
 SR = RISERS REQUIRED
 → EMERGENCY OVERFLOW ROUTE

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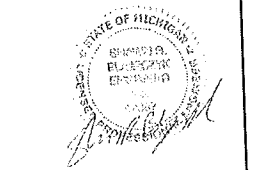
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PER CITY REVIEW	10/27/14	SRB						
FINAL PUD REVIEW	12/15/14	SRB						
FINAL PUD REVIEW #1	1/26/15	SRB						

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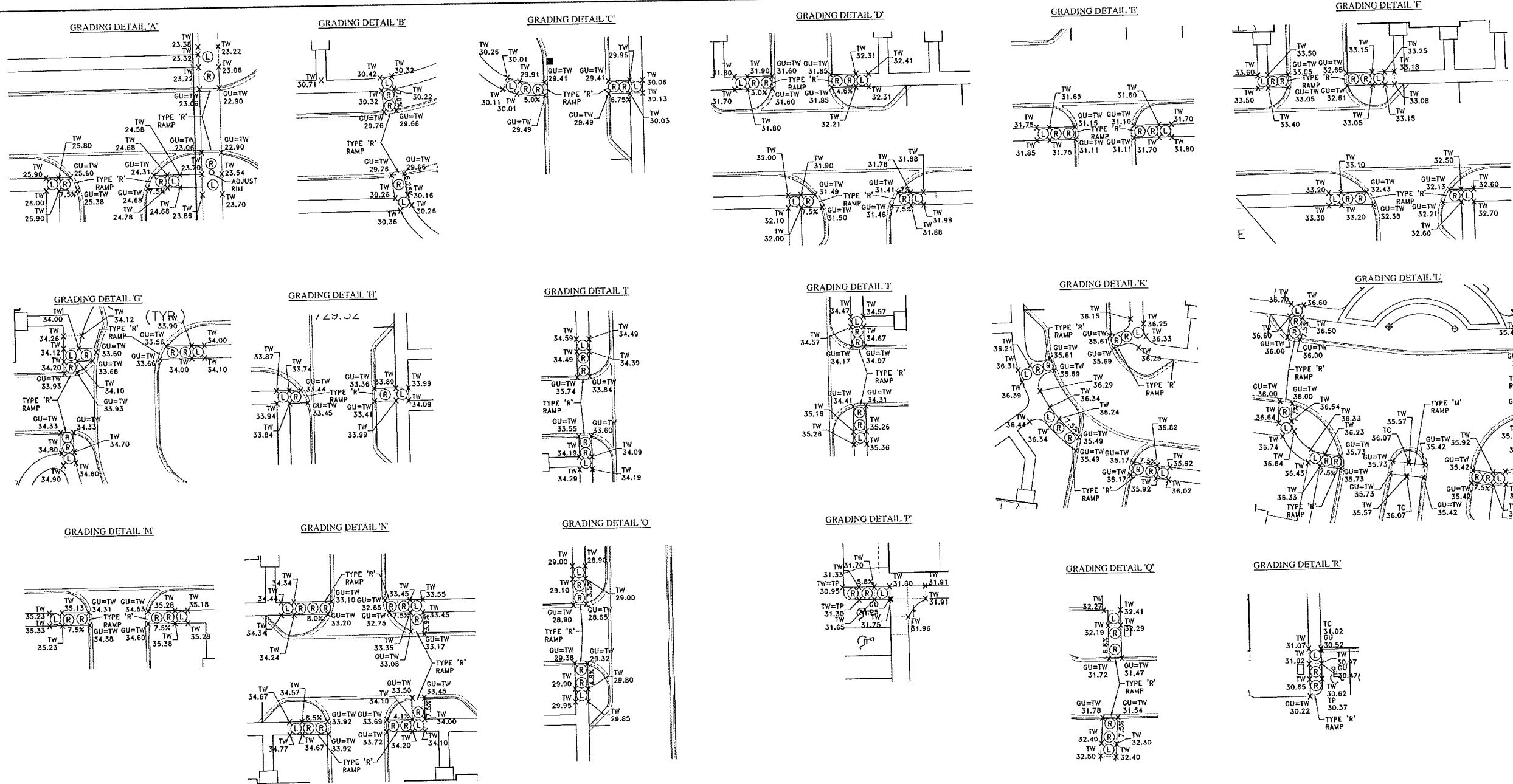
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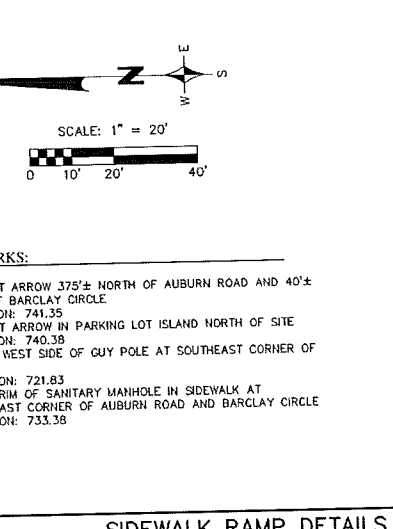
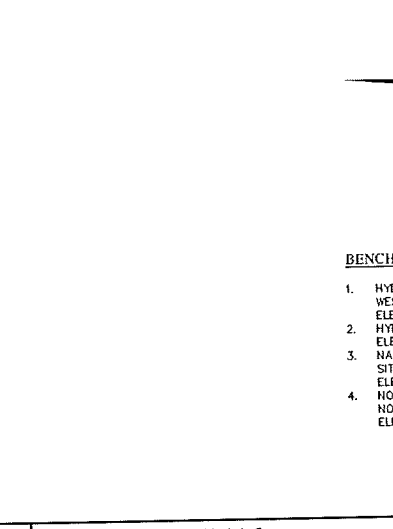
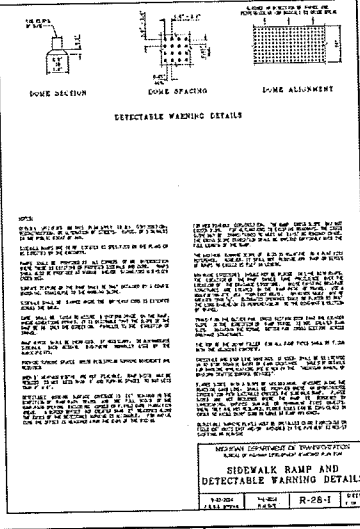
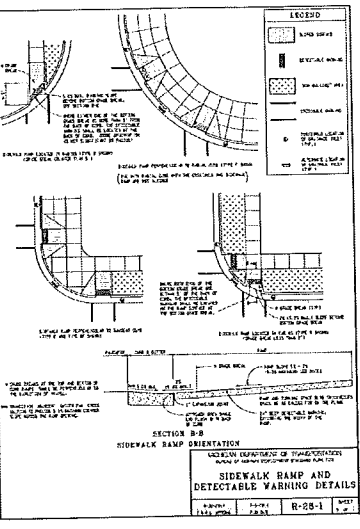
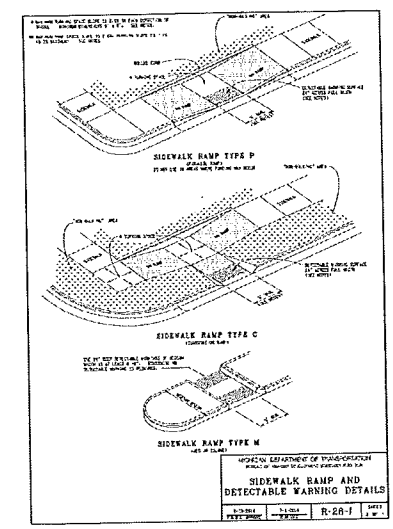
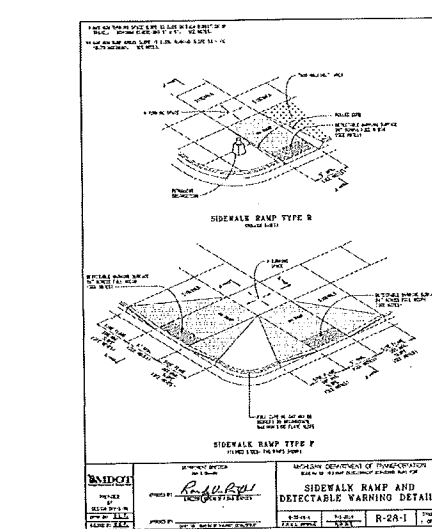
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(R) = RAMP
 (L) = LANDING



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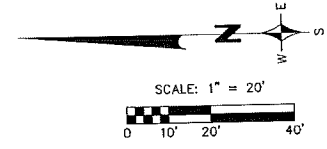
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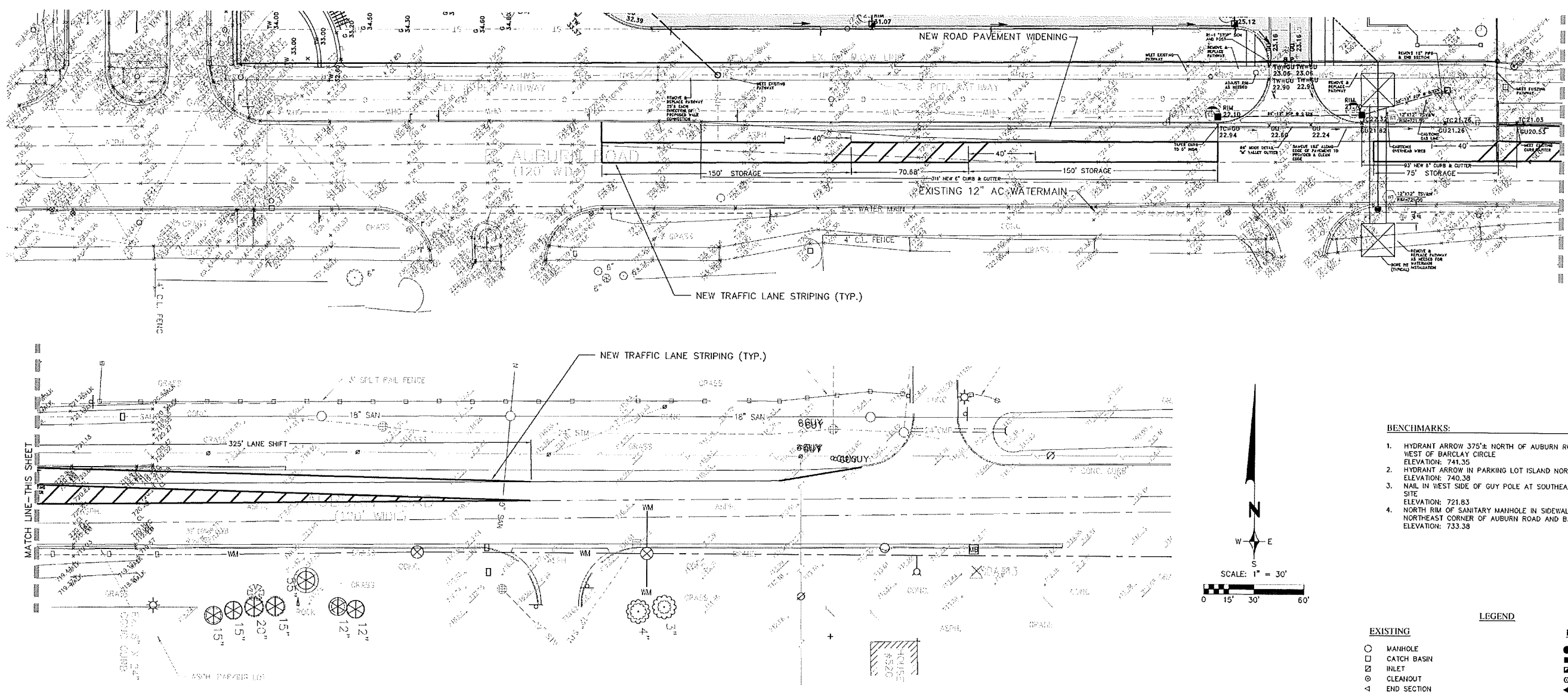
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SIDEWALK RAMP DETAILS
BARRINGTON PARK
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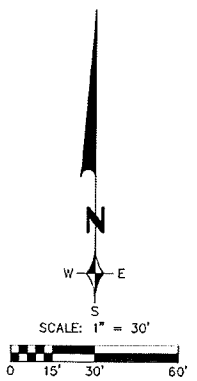
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- MDOT NOTES:**
1. THE CONTRACTOR SHALL HAVE A MDOT APPROVED PLAN AND PERMIT ON SITE AT ALL TIMES.
 2. THE CONTRACTOR SHALL ELECTRONICALLY SUBMIT ADVANCE NOTICE TO MDOT A MINIMUM OF FIVE (5) DAYS PRIOR TO THE START OF CONSTRUCTION. WORK SHALL NOT COMMENCE UNTIL THE ADVANCE NOTICE HAS BEEN REVIEWED AND APPROVED.
 3. SAW CUT THE EXISTING CURB AND GUTTER FULL DEPTH AND REMOVE PRIOR TO PLACING THE DRIVE APPROACH.
 4. PLACE CONCRETE CURB AND GUTTER TO CLOSE ANY REMAINING CURB DROPS, PER MDOT STANDARD R-30-E, DETAIL F & R-31-F.
 5. TAPER THE CURB TO ZERO HEIGHT AT THE SIDEWALK OR RAMP THE SIDEWALK TO MEET THE DRIVEWAY GRADES, PER MDOT STANDARD R-29-H.
 6. ALL UTILITIES INCLUDING DRAINAGE FACILITIES SHALL BE LOCATED PRIOR TO EXCAVATION IN THE MDOT ROW. MDOT FACILITIES ARE NOT LOCATED THROUGH THE MISS DIG SYSTEM.
 7. NO PARKING OR STORAGE OF MATERIAL OR EQUIPMENT WILL BE ALLOWED WITHIN THE MDOT ROW.
 8. ANY DAMAGED SIDEWALK SHALL BE REPLACED PER MDOT STANDARD R-29-H AND R-28-G AND BE ADA COMPLIANT.
 9. THE CONTRACTOR SHALL BE IN ACCORDANCE WITH THE MDOT VISIBILITY POLICY IN REGARDS TO HIGH VISIBILITY CLOTHING WORN BY ALL WORKERS IN THE MDOT ROW.

- MDOT PAVING NOTES:**
1. ALL AREAS AND DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR HIS OWN MEASUREMENTS AND VERIFICATION OF ALL CONDITIONS SHOWN.
 2. UNLESS OTHERWISE NOTED IN THE PROJECT SPECIFICATIONS, ALL PAVEMENT REPAIR OPERATIONS ARE TO BE CONDUCTED AND PERFORMED IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT)-2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION.
 3. AFTER ROUGH GRADE HAS BEEN ESTABLISHED, VISUALLY CHECK THE SURFACE OF THE EXPOSED BASE MATERIAL. ANY AREAS WHICH ARE UNSTABLE SHOULD BE UNDERCUT AND BACKFILLED WITH COARSE (1"-3") CRUSHED AGGREGATE.
 4. THE CONTRACTOR SHALL RESTORE THE AREAS OF HIS OPERATIONS IMMEDIATELY UPON COMPLETION OF CONSTRUCTION, TO AT LEAST AS REASONABLE A CONDITION AS EXISTED PRIOR TO COMMENCEMENT OF WORK. WHERE LAWNS WERE DESTROYED, THEY SHALL BE REPLACED WITH SOD. DAMAGED TREES SHALL BE TRIMMED, REPAIRED OR REPLACED AS NECESSARY.
 5. ALL DIRT TRACKED ONTO AUBURN ROAD SHALL BE REMOVED IMMEDIATELY.
 6. DITCHES, LAINS, CULVERTS, DRAINAGE STRUCTURES, FENCES, BOLLARDS, STREET, INFORMATION, AND TRAFFIC CONTROL SIGNS, TREES, LIGHTS, ETC., DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED/REPLACED BY THE CONTRACTOR.
 7. OWNER/CONTRACTOR TO VERIFY ADA COMPLIANCE FOR SIDEWALKS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY REMEDIAL CHANGES TO BE MADE TO THE SIDEWALKS.
 8. ANY DAMAGE TO THE EXISTING CATCH BASINS SHALL BE REPAIRED IN ACCORDANCE WITH MDOT STANDARDS.
 9. ONE LANE OF TRAFFIC IN THE WB DIRECTION OF AUBURN ROAD MAY BE CLOSED FROM 9:00AM TO 3:00PM MONDAY THROUGH FRIDAY, ANYTIME DURING DAYLIGHT HOURS SATURDAY AND SUNDAY IN ACCORDANCE WITH MDOT TRAFFIC TYPICALS M0020, M0050, AND M0240. ACCESS TO ALL NEIGHBORING BUSINESSES SHALL BE MAINTAINED AT ALL TIMES. ACCESS TO FIRE HYDRANTS SHALL BE MAINTAINED AT ALL TIMES.
 10. ALL TRAFFIC CONTROL DEVICES SHALL MEET THE REQUIREMENTS OF THE MOST RECENT EDITIONS OF THE MUTCOD AND ATSSA, INCLUDING SIGNS, BARRICADES, VERTICAL PANELS, DRUMS, WARNING LIGHTS, ARROW BOARDS, CHANGEABLE MESSAGE SIGNS, CONES, TUBULAR MARKERS, PAVEMENT TAPE, PAINT, AND PAVEMENT MARKERS.
 11. ALL TRAFFIC CONTROL DEVICES INCLUDING SIGNS AND PAVEMENT MARKINGS (REMOVAL AND INSTALLATION) SHALL BE MAINTAINED AND/OR INSTALLED IN ACCORDANCE WITH CURRENT MDOT STANDARDS AND SPECIFICATIONS. CHARGES SHALL BE THE SOLE RESPONSIBILITY OF THE PERMIT APPLICANT.
 12. APPLICABLE WARNING, REGULATORY, AND GUIDE SIGNS SHALL NOT BE REMOVED BUT SHALL BE RETAINED DURING THE PROGRESS OF THE WORK IN THEIR EXISTING LOCATION UNLESS OTHERWISE DIRECTED BY THE MDOT INSPECTOR. ALL MDOT SIGNS REQUIRING RELOCATION DUE TO THE APPLICANTS OPERATIONS SHALL BE SALVAGED, AS PER CURRENT VERSION OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND RE-INSTALLED BY THE APPLICANT AT THE ORIGINAL LOCATION UNLESS OTHERWISE DIRECTED BY MDOT. SALVAGED SIGNS SHALL BE RE-INSTALLED NO LATER THAN ONE (1) DAY AFTER COMPLETION OF THE WORK OR THIRTY (30) DAYS AFTER THEIR REMOVAL, WHICHEVER IS FIRST.
 13. NO ADVERTISING SIGNS ALLOWED IN THE MDOT ROW.



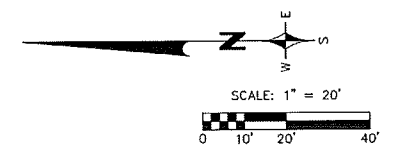
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LEGEND

EXISTING	PROPOSED
○ MANHOLE	● MANHOLE
□ CATCH BASIN	■ CATCH BASIN
⊕ INLET	⊕ INLET
⊙ CLEANOUT	⊙ CLEANOUT
⊖ END SECTION	⊖ END SECTION
⊕ ROOF DRAIN	⊕ ROOF DRAIN
⊕ GATE VALVE	⊕ GATE VALVE
⊕ HYDRANT	⊕ HYDRANT
⊕ WATER SHUT-OFF	⊕ WATER SHUT-OFF
⊕ UTILITY POLE	⊕ UTILITY POLE
⊕ GUY ANCHOR	⊕ GUY ANCHOR
⊕ LIGHT POLE	⊕ LIGHT POLE
⊕ SIGN	⊕ SIGN
⊕ TREE	⊕ TREE
— TREE LINE	— TREE LINE
— SANITARY SEWER	— SANITARY SEWER
— STORM SEWER	— STORM SEWER
— WATER MAIN	— WATER MAIN
— GAS MAIN	— GAS MAIN
— ELECTRIC CABLE	— ELECTRIC CABLE
— CONTOUR MAJOR	— CONTOUR MAJOR
— CONTOUR MINOR	— CONTOUR MINOR
— SPOT ELEVATION	— SPOT ELEVATION
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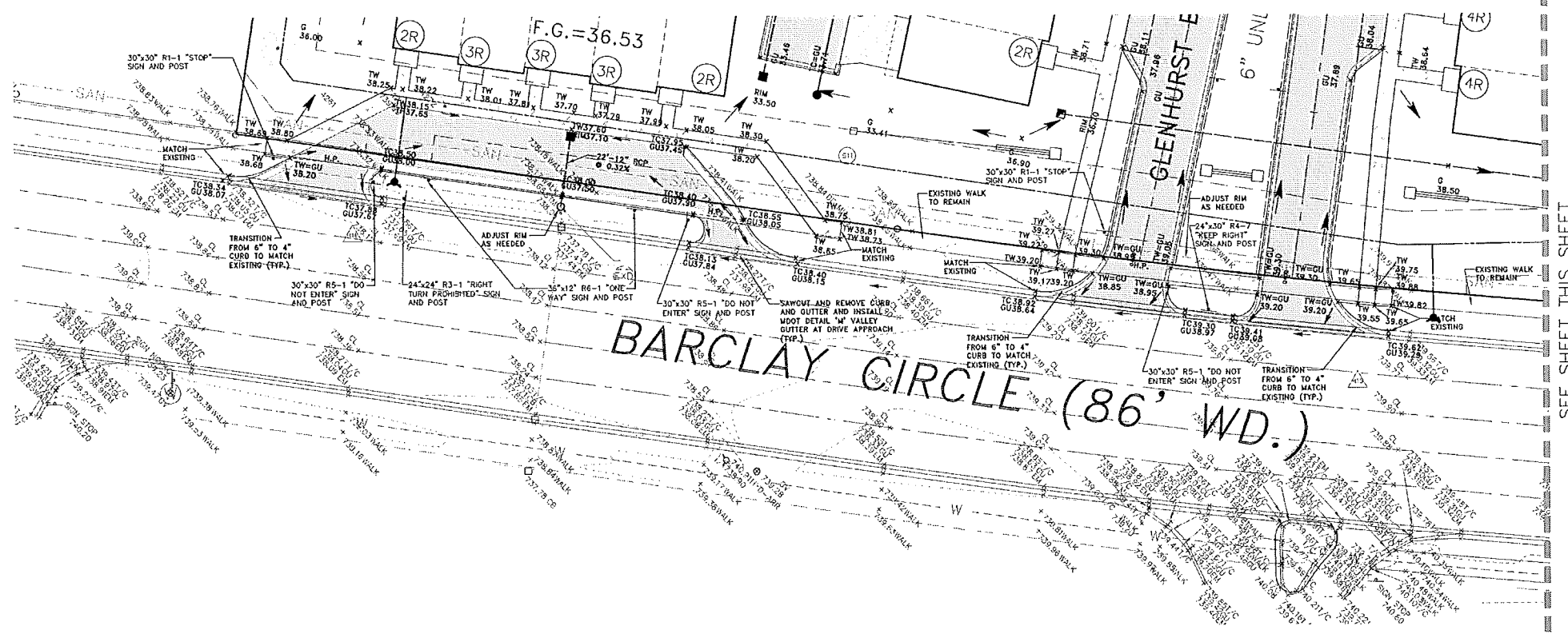


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<p>ZEIMET WOZNIAK & ASSOCIATES Civil Engineers & Land Surveyors 5500 GRAND BERRY AVE., SUITE 100 NEW HULLSON, MICHIGAN 48161 P: (248) 437-5999 F: (248) 437-5222 www.zeimetwozniak.com</p>				<p>MISS DIG SYSTEM, INC. THREE YEAR WORKING RIGHTS 101100 NEW HULLSON, MICHIGAN 48161 1-800-382-7171</p>				<p>CLIENT: IAC BARCLAY, L.L.C. C/O THE IVANHOE COMPANIES 6689 ORCHARD LAKE ROAD, STE. 314 WEST BLOOMFIELD, MI 48322 (248) 626-6114</p>				<p>AUBURN ROAD ENTRANCE DETAILS BARRINGTON PARK ROCHESTER HILLS, MICHIGAN</p>				<p>DATE: 12/15/14 SCALE: HOR: 1" = 30' VER: 1" = N/A DESIGNED BY: SRB JOB NO.: 13178 DRAWN BY: SRB SHEET: CE-10</p>																																

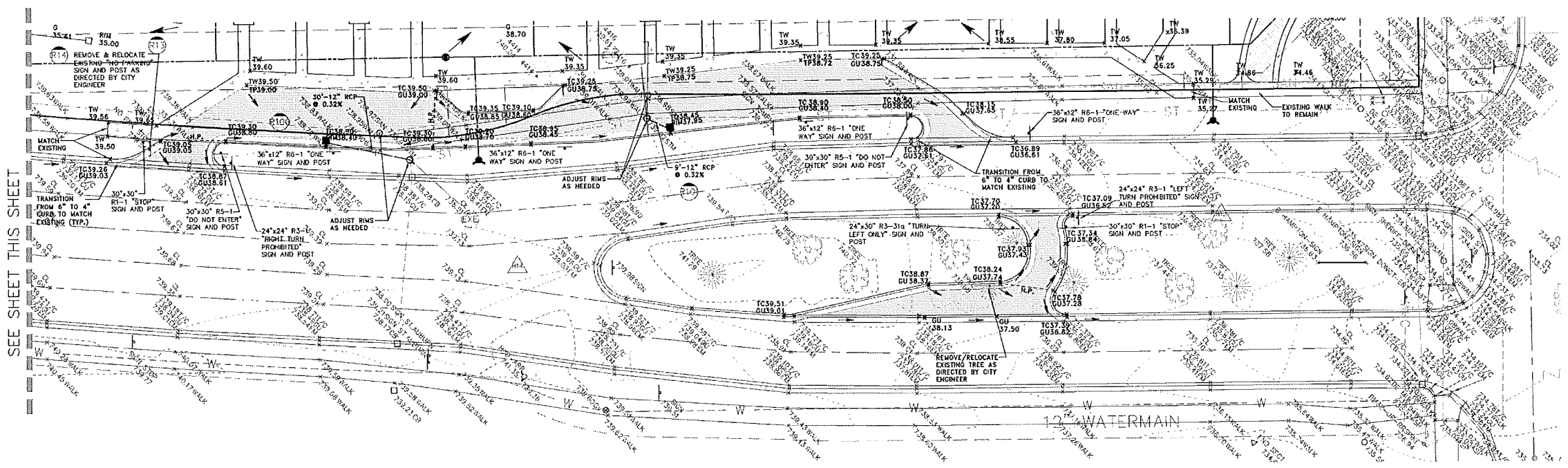


- BENCHMARKS:**
1. HYDRANT ARROW 375± NORTH OF AUBURN ROAD AND 40± WEST OF BARCLAY CIRCLE
ELEVATION: 741.35
 2. HYDRANT ARROW IN PARKING LOT ISLAND NORTH OF SITE
ELEVATION: 740.38
 3. NAIL IN WEST SIDE OF GUY POLE AT SOUTHEAST CORNER OF SITE
ELEVATION: 721.83
 4. NORTH RIM OF SANITARY MANHOLE IN SIDEWALK AT NORTHEAST CORNER OF AUBURN ROAD AND BARCLAY CIRCLE
ELEVATION: 733.38

- LEGEND**
- EXISTING**
- MANHOLE
 - CATCH BASIN
 - ⊕ INLET
 - ⊖ CLEANOUT
 - ⊔ END SECTION
 - ⊕ ROOF DRAIN
 - ⊕ GATE VALVE
 - ⊕ HYDRANT
 - ⊕ WATER SHUT-OFF
 - ⊕ UTILITY POLE
 - ⊕ GUY ANCHOR
 - ⊕ LIGHT POLE
 - ⊕ SIGN
 - ⊕ TREE
 - TREE LINE
 - SANITARY SEWER
 - STORM SEWER
 - WATER MAIN
 - GAS MAIN
 - ELECTRIC CABLE
 - CONTOUR MAJOR
 - CONTOUR MINOR
 - +100.00 SPOT ELEVATION
- PROPOSED**
- MANHOLE
 - CATCH BASIN
 - ⊕ INLET
 - ⊖ CLEANOUT
 - ⊔ END SECTION
 - ⊕ ROOF DRAIN
 - ⊕ GATE VALVE
 - ⊕ HYDRANT
 - ⊕ WATER SHUT-OFF
 - ⊕ TREE REMOVAL
 - SANITARY SEWER
 - STORM SEWER
 - WATER MAIN
 - DITCH
 - CONTOUR MAJOR
 - CONTOUR MINOR
 - 99.0 PROPOSED GRADE
 - TC = TOP OF CURB
 - TW = TOP OF WALK
 - TP = TOP OF PAVEMENT
 - TB = TOP OF BANK
 - G = GROUND
 - D = DITCH
 - GU = GUTTER
 - FG = FINISH GRADE
 - FF = FINISH FLOOR
 - BF = BASEMENT FLOOR
 - BL = BRICK LEDGE
 - RS = RISERS REQUIRED
 - EMERGENCY OVERFLOW ROUTE



SEE SHEET THIS SHEET



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



CITY FILE 14-012, SECTION 26
NOT FOR CONSTRUCTION

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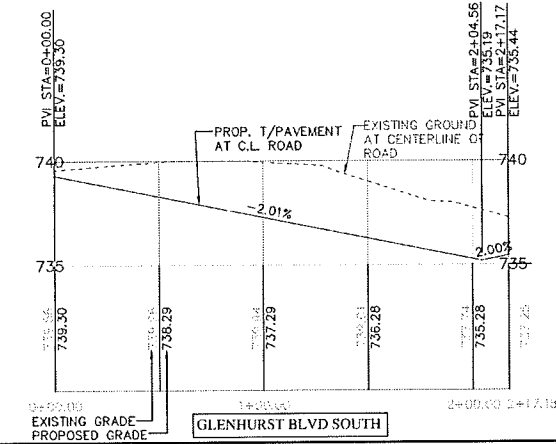
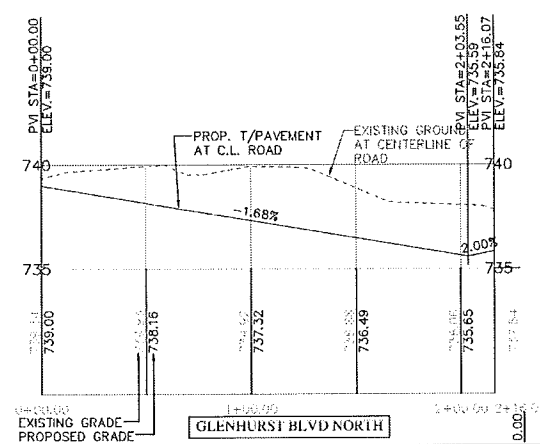
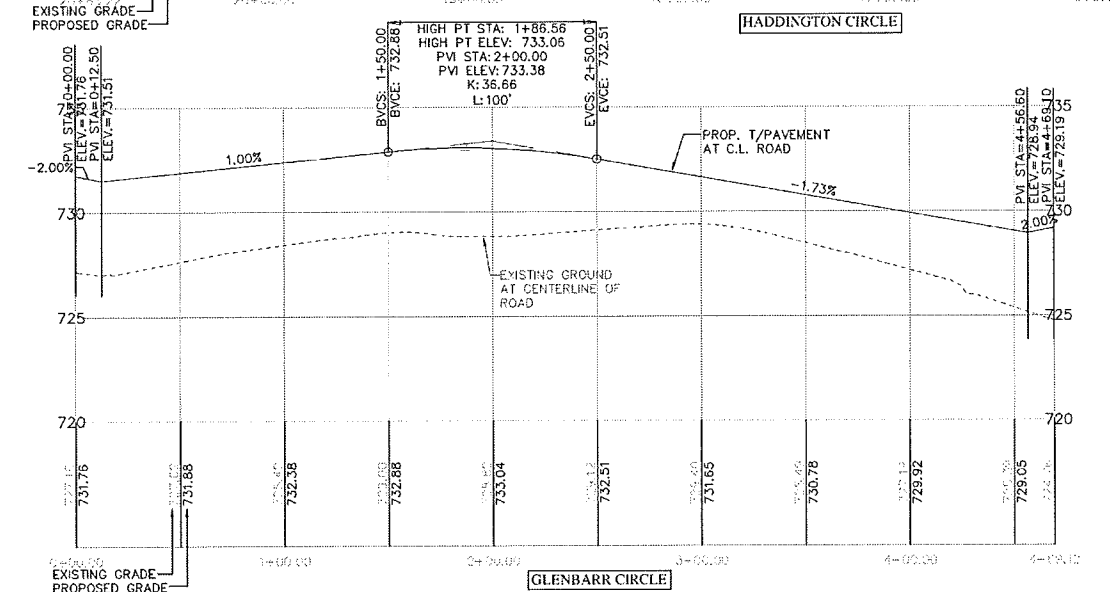
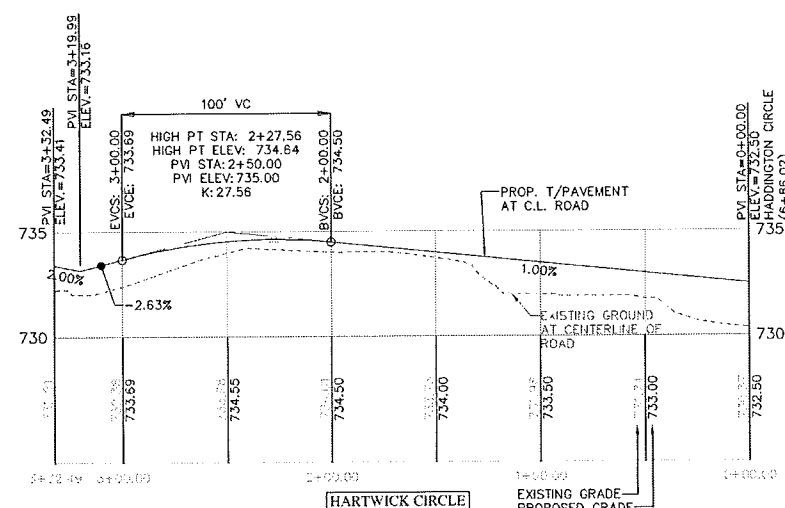
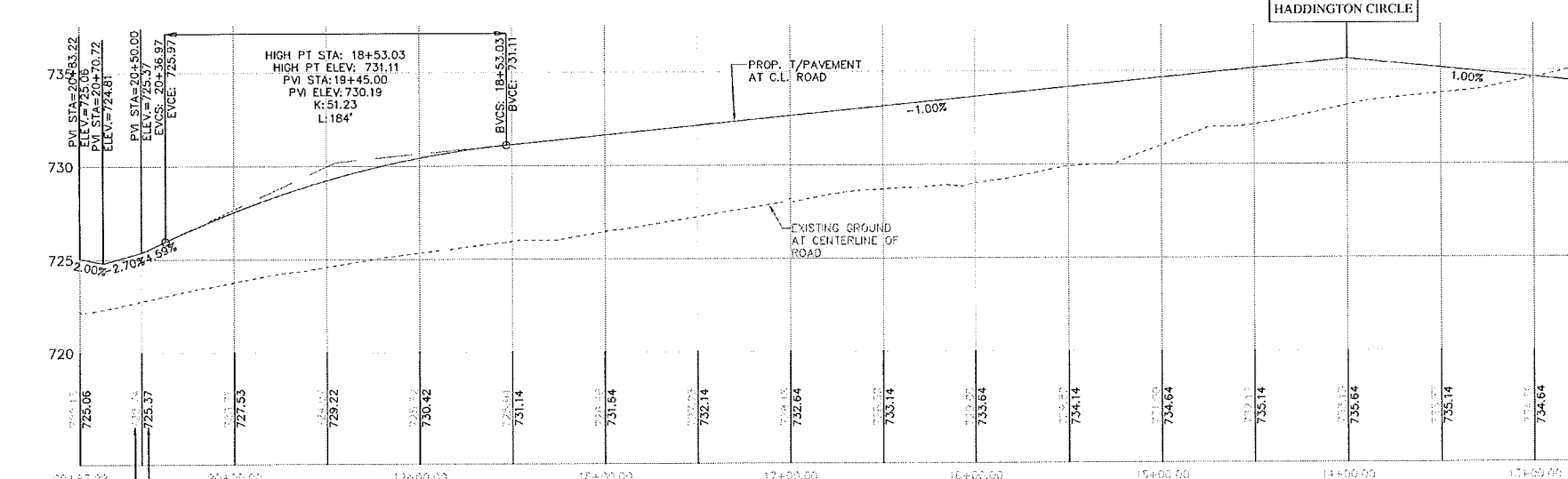
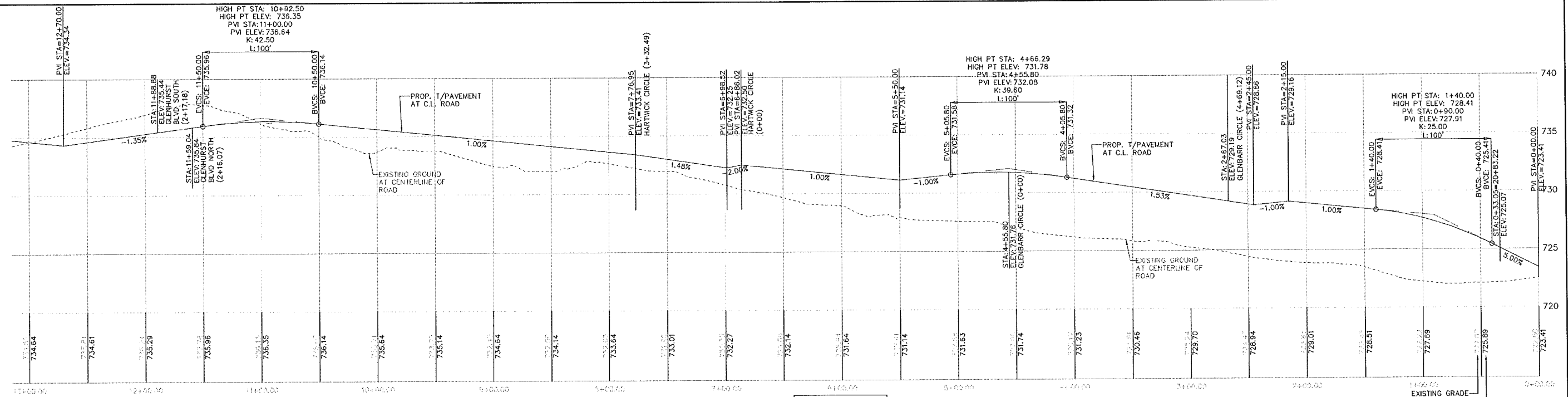
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BARCLAY CIRCLE ENTRANCE DETAILS
BARRINGTON PARK
ROCHESTER HILLS, MICHIGAN

DATE	12/15/14	SCALE	HOR: 1" = 20'
DESIGNED BY	SRB	VER:	1" = N/A
JOB NO.	13178		
DRAWN BY	SRB	SHEET	CE-11

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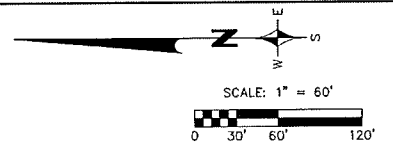
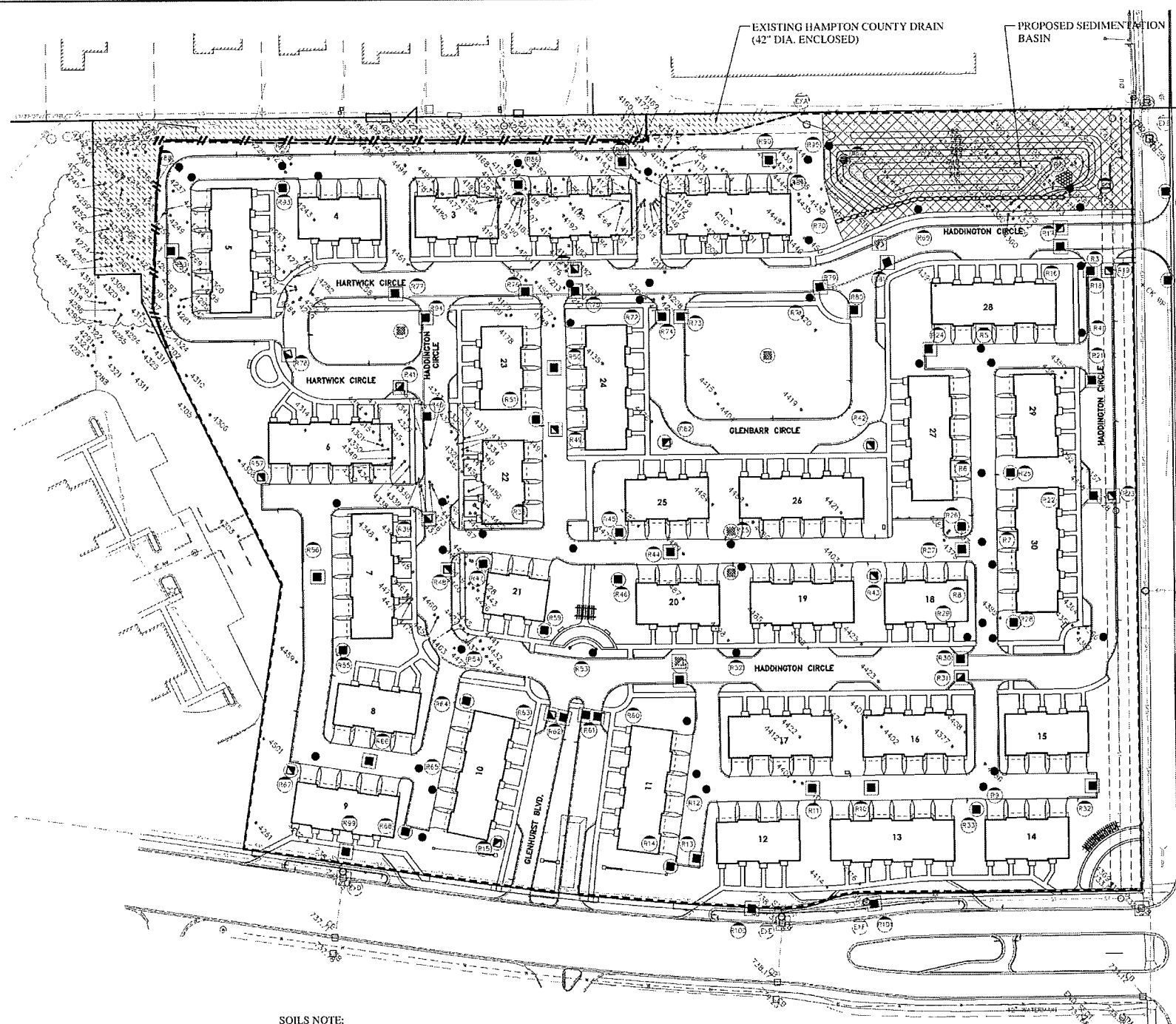
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ROAD PROFILES
BARRINGTON PARK
 ROCHESTER HILLS, MICHIGAN

DATE	12/15/14	SCALE	HOR: 1" = 40'
DESIGNED BY	SRB	JOB NO.	13178
DRAWN BY	SRB	SHEET	CE-12



CITY FILE 14-012, SECTION 26
 NOT FOR CONSTRUCTION



- EROSION CONTROL LEGEND**
- GEOTEXTILE SILT FENCE
 - ORANGE TREE FENCE
 - GRAVEL MUD TRACKING MAT
 - PAVEMENT INLET FILTER
 - REAR YARD INLET FILTER
 - SEDIMENT BASIN OUTLET FILTER
 - RIP-RAP
 - SEED AND MULCH BLANKET
 - UNDISTURBED AREA

- CONSTRUCTION AND SOIL EROSION CONTROL SEQUENCE:**
1. INSTALL GRAVEL MUD TRACKING MAT AT ENTRANCE TO SITE AS INDICATED ON PLAN.
 - A. CRUSHED CONCRETE SHALL BE USED AND PLACED ON GEOTEXTILE FILTER CLOTH.
 - B. AS CRUSHED CONCRETE BECOMES COMPACTED, NEW LAYERS SHALL BE ADDED.
 - C. IF RUTS OF POOLING WATER APPEAR, CONTRACTOR SHALL IMMEDIATELY REMEDY THE SITUATION.
 2. INSTALL SILT FENCE AS INDICATED ON PLANS. ADDITIONAL AREAS MAY BE REQUIRED.
 - A. SILT FENCE SHOULD BE INSTALLED PER CURRENT CITY AND COUNTY DETAILS.
 - B. REMOVE BUILT-UP SEDIMENT WHEN IT ACCUMULATES TO 1/3 TO 1/2 OF THE HEIGHT OF THE SILT FENCE AND AFTER STORM EVENTS.
 - C. IF THE SILT FENCE FABRIC DECOMPOSES OR BECOMES INEFFECTIVE PRIOR TO THE END OF THE EXPECTED LIFE SPAN, AND IT IS STILL REQUIRED TO BE IN PLACE, THE FABRIC SHALL BE REPLACED IMMEDIATELY.
 - D. INSPECTIONS OF SILT FENCE SHALL BE MADE WEEKLY UNDER NORMAL CONDITIONS, WITHIN 24 HOURS OF RAINFALL AND DAILY DURING PROLONGED RAIN. ANY MAINTENANCE SHALL BE DONE IMMEDIATELY.
 3. INSTALL TREE PROTECTION FENCE AS INDICATED ON PLANS. ADDITIONAL AREAS MAY BE REQUIRED.
 4. CLEAR AND GRUB SITE FOR MASS GRADING. STRIP TOPSOIL AND REMOVE IT FROM THE SITE.
 5. MASS GRADE SITE. IMMEDIATELY INSTALL SILT FENCE AS SHOWN.
 6. INSTALL UNDERGROUND UTILITIES (SANITARY, STORM AND WATERMAIN).
 7. INSTALL INLET FILTERS ON ALL PAVEMENT CATCH BASINS PER CURRENT DETAILS.
 - A. INLET FILTERS SHALL BE INSPECTED WEEKLY UNDER NORMAL CONDITIONS, WITHIN 24 HOURS OF RAINFALL, AND DAILY DURING PROLONG RAINFALL.
 - B. PROMPTLY REMOVE SEDIMENT AND DEBRIS FROM INLET FILTERS.
 - C. IF THE FILTER FABRIC DECOMPOSES OR BECOMES INEFFECTIVE PRIOR TO ITS EXPECTED LIFE, REPLACE FABRIC PROMPTLY.
 7. INSTALL REAR YARD CATCH BASIN SILT FENCE FILTER PER DETAIL.
 - A. INSPECTION OF REAR YARD FILTER SHALL BE MADE WEEKLY UNDER NORMAL CONDITIONS, WITHIN 24 HOURS OF A STORM EVENT AND DAILY DURING PROLONGED RAINFALL.
 - B. REMOVE BUILT-UP SEDIMENT WHEN IT ACCUMULATES TO 1/3 TO 1/2 OF THE HEIGHT OF THE SILT FENCE AND AFTER EACH STORM EVENT.
 - C. IF THE FILTER FABRIC DECOMPOSES OR BECOMES INEFFECTIVE PRIOR TO ITS EXPECTED LIFE, REPLACE FABRIC PROMPTLY.
 8. INSTALL PAVEMENT COMPLETE, INCLUDING CURB AND GUTTER. RE-INSTALL ANY PAVEMENT FILTERS THAT WERE DISTURBED DURING INSTALLATION.
 9. FINE GRADE SITE. ESTABLISH VEGETATION AND/OR LANDSCAPE ALL DISTURBED AREAS NOT BUILT UPON OR PAVED WITH A MINIMUM 3" TOPSOIL, SEED AND MULCH WITHIN 5 DAYS OF FINAL GRADE.
 10. REMOVE ALL TEMPORARY SOIL EROSION CONTROL MEASURES AFTER PERMANENT STABILIZATION IS ACHIEVED.
 11. DURING DRY PERIODS ALL DISTURBED AREAS SHALL BE WATERED FOR DUST CONTROL.
 12. ALL DIRT AND MUD TRACKED ONTO ROADWAYS SHALL BE REMOVED IMMEDIATELY.
 13. ALL SOIL EROSION CONTROL MEASURES SHALL CONFORM TO THE LATEST CITY OF ROCHESTER HILLS AND OAKLAND COUNTY WATER RESOURCE COMMISSIONER'S STANDARDS.
 14. IT IS THE DEVELOPER'S RESPONSIBILITY TO ENSURE ALL SOIL EROSION CONTROL MEASURES ARE MAINTAINED AND IN PLACE UNTIL SITE IS COMPLETELY STABILIZED.
 15. DISTURBED AREA = 15.6 ACRES.
 16. PARCEL IDENTIFICATION NUMBER: 15-26-376-007
 17. THERE ARE NO REGULATED WETLANDS PRESENT ON THIS SITE.
 18. THE ULTIMATE OUTLET FOR THIS PROJECT'S STORM DRAINAGE DISCHARGE IS THE HAMPTON COUNTY DRAIN (ON-SITE).
 19. UPON COMPLETION OF THE BUILDING CONSTRUCTION, CLEAN STORM SEWERS OF ANY ACCUMULATED SEDIMENT AND DEBRIS.
 20. NO STOCKPILING OF MATERIAL IS PERMITTED.
 21. THIS PLAN DESCRIBES THE MINIMUM EROSION CONTROL MEASURES NEEDED TO PREVENT SILT AND SEDIMENT FROM LEAVING THE SITE. ADDITIONAL SESG MEASURES MAY BE REQUIRED AS CONDITIONS IN THE FIELD WARRANT.
 22. IF DEWATERING IS ANTICIPATED OR ENCOUNTERED DURING CONSTRUCTION, A DEWATERING PLAN MUST BE SUBMITTED TO THE CITY'S ENGINEERING DIVISION FOR REVIEW.

SOILS NOTE:
 ACCORDING TO SHEET NUMBER 81 OF THE SOIL SURVEY FOR OAKLAND COUNTY, MICHIGAN ISSUED SEPTEMBER, 1997 BY THE U.S.D.A. SUB CONSERVATION SERVICE, THE SOILS FOR THIS SITE ARE CLASSIFIED AS "11B-CAPAC SANDY LOAM (0-4% SLOPES)" AND "13B-OSHTEMO/BOYER LOAMY SANDS (0-6% SLOPES)".

THE GEOTECHNICAL REPORT BY MCDOWELL & ASSOCIATES (JOB NO. 04-544 DATED DECEMBER 28, 2004) INDICATES LARGE AMOUNTS OF FILL SOILS.

SEED AND MULCH NOTES:
 ALL DISTURBED AREAS WILL BE RESTORED AS FOLLOWS:

- FINE GRADE
- PLACE 4" THICKNESS OF "SCREENED" TOPSOIL
- APPLY SEED AND FERTILIZER AS FOLLOWS:

TEMPORARY SEEDING REQUIREMENTS	FERTILIZER REQUIREMENT
M.D.O.T. "ROADSIDE" MIX (50% BUCKWHEAT PERENNIAL RYE, 20% KENTUCKY BLUE, 30% CREEPING RED FESCUE) APPLIED AT 6 LBS/1000 SF	600LBS/ACRE OF 10-6-6

- APPLY UNWEATHERED STRAW MULCH AT THE RATE OF 2-3 BALES/1000 SQUARE FEET.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSURING THE GROWTH OF ALL SEEDED AREAS, AND SHALL RE-SEED AS NECESSARY TO ACCOMPLISH THIS.

MAINTENANCE PROGRAM FOR PERMANENT SOIL EROSION CONTROLS:
 THE PROPRIETOR WILL PERFORM THE FOLLOWING MAINTENANCE TO ASSURE PROPER OPERATION OF PERMANENT SOIL EROSION CONTROL MEASURES.

ONCE PER YEAR THE PROJECT SPONSOR WILL INSPECT THE FOLLOWING, AND CLEAN/REPAIR IF REQUIRED:

ITEM	FREQUENCY OF INSPECTION
1. INSPECT SWIRL CHAMBER FOR FLOATABLES AND DEBRIS AND REMOVE AS NECESSARY	ANNUALLY
2. RE-SEED LAWN NEAR INLET/OUTLET - STABILIZE ERODED AREAS AS NECESSARY.	ANNUALLY
3. INSPECT STORM STRUCTURES & STORM SEWER PIPES - CLEAN WHEN NECESSARY (CLEAN STRUCTURES WHEN SEDIMENT ACCUMULATION IN HUMPS REACHES ONE FOOT).	ANNUALLY

STREET CLEANING SCHEDULE

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
SCRAPE STREETS		X	X	X	X	X	X
SWEEP STREETS				X			

NOTE:
 THIS PROJECT SHALL BE CONSTRUCTED IN COMPLIANCE WITH PART 91 OF ACT 451, OF 1994 AS AMENDED, THE SOIL EROSION AND SEDIMENT CONTROL ACT.

NOTE:
 THIS PLAN ILLUSTRATES THE MINIMUM EROSION CONTROLS NEEDED TO PREVENT SILTS FROM LEAVING THE SITE AND IS SUBJECT TO CHANGE AS CONDITIONS IN THE FIELD WARRANT.



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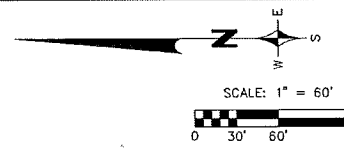
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SOIL EROSION CONTROL PLAN
BARRINGTON PARK
 ROCHESTER HILLS, MICHIGAN

DATE: 12/15/14	SCALE: HOR: 1" = 60'	VER: 1" = N/A
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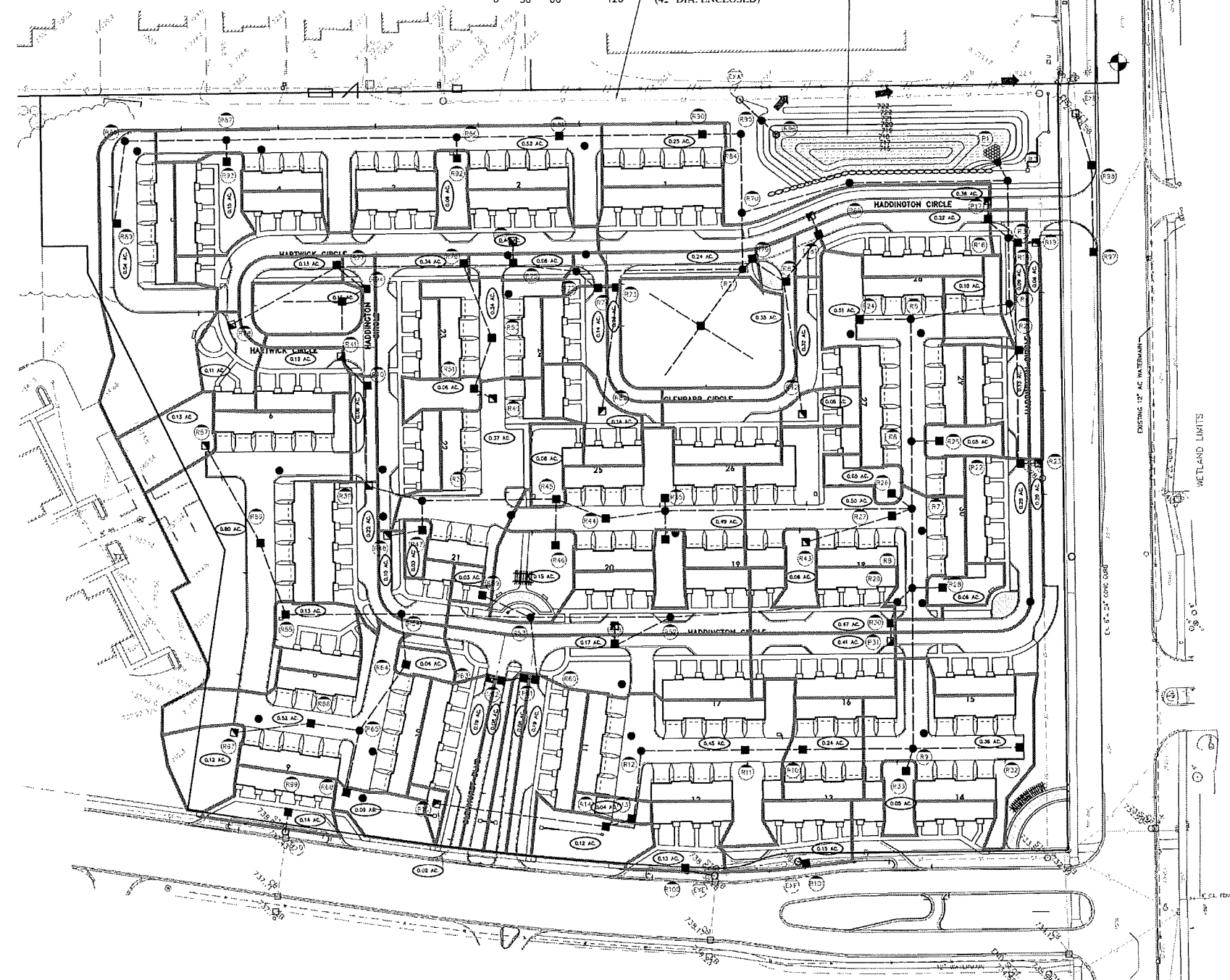
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PROPOSED SEDIMENTATION BASIN

FREEBOARD ELEV. =	722.0
EMERGENCY OVERFLOW ELEV. =	721.5
PRIMARY OVERFLOW ELEV. =	721.0
TOP/STORAGE ELEV. =	721.0
T/WATER ELEV. =	719.0
BOTTOM/BASIN ELEV. =	716.0

EXISTING HAMPTON COUNTY DRAIN
(42" DIA. ENCLOSED)



STORMWATER MANAGEMENT:

THE HAMPTON COUNTY DRAIN EXTENDS ALONG THE SOUTH AND EAST PROPERTY LINES OF THE SITE AS AN ENCLOSED 42" DIA. PIPE WITHIN A 20' WIDE EASEMENT. THE DRAIN IS UNDER THE JURISDICTION OF THE OAKLAND COUNTY WATER RESOURCE COMMISSIONER AND HAS BEEN SIZED TO ACCOMMODATE RUNOFF FROM THIS SITE AT C=0.70. THE PROPOSED RUNOFF FROM THIS SITE IS CALCULATED AS:

BUILDING	2.72 ACRES @ 0.95 =	2.58
PAVEMENT	6.47 ACRES @ 0.95 =	6.15 (INCLUDES WALKS AND PATIOS)
WATER	0.20 ACRES @ 1.00 =	0.20
LAWN	6.21 ACRES @ 0.25 =	1.55
		10.48

$C = 10.48/15.6 = 0.67 < 0.70$ ALLOWABLE

SINCE THE PROPOSED RUNOFF IS LESS THAN THE DESIGN 'C' FOR THE DRAIN, NO ADDITIONAL DETENTION IS REQUIRED. PRE-TREATMENT OF THE FIRST FLUSH RUNOFF IS PROVIDED IN THE PROPOSED SEDIMENTATION BASIN.

SEDIMENTATION BASIN:

A NEW SEDIMENTATION BASIN SHALL BE PROVIDED TO STORE AND TREAT THE FIRST 1/2" OF RUNOFF.

$V = 1,815 \times A \times C = 1,815 \times 15.6 \times 0.67 = 18,970$ CF

VOLUME AVAILABLE:

	AREA (SF)	AVG. AREA (SF)	DEPTH (FT)	VOLUME (CF)
719	0,486			
		9,644	1	9,644
720	10,802			
		12,043	1	12,043
721	13,285			
				21,687

THE ADDITIONAL VOLUME IS PROVIDED TO ALLOW FOR CONSTRUCTION TOLERANCES.

OUTLET CONTROL STRUCTURE AND PIPE SIZING

THE SEDIMENT BASIN OUTLET SHALL CONSIST OF A TEMPORARY OUTLET CONTROL STRUCTURE (SO-2 FILTER) THAT SHALL BE REMOVED UPON STABILIZATION OF THE SITE AND APPROVAL FROM OAKLAND COUNTY WATER RESOURCE COMMISSIONER'S OFFICE. A RESTRICTED PIPE SIZED TO SLOWLY RELEASE THE RUNOFF WITHIN 48 HOURS SHALL CONNECT TO AN OVERFLOW STRUCTURE. THE OVERFLOW STRUCTURE SHALL HAVE A DISCHARGE PIPE SIZED FOR THE 10-YEAR FLOW FROM THE SITE AND CONNECT TO THE EXISTING HAMPTON COUNTY DRAIN (42").

SIZE RESTRICTOR:

$A = 0.3989 \times V/172,800 = 0.3989 \times 18,970/172,800 = 0.0438$ SF
THIS EQUATES TO A 2.83" DIAMETER ORIFICE. THE MINIMUM ALLOWABLE ORIFICE IS 4". THEREFORE, USE A 4" DIAMETER ORIFICE.

$A(4") = 0.0873$ SF
 $A(1") = 0.0055$ SF
NUMBER OF 1" HOLES IN STANDPIPE = $0.0873/0.0055 = 15.9$

USE 16 (1") DIAMETER HOLES IN 2 ROWS. SET LOWEST ROW AT ELEVATION 719.0.

SIZE OUTLET PIPE:

FROM THE STORM SEWER DESIGN CALCULATIONS THE 10-YEAR FLOW ENTERING THE BASIN FROM THE SITE IS 34.67 CFS.
FROM MANNING'S TABLE, A 42" DIAMETER PIPE AT 0.12% HAS A CAPACITY OF 35.0 CFS.

NOTE:
THIS IS A DRAINAGE DISTRIBUTION PLAN.
IT IS FOR REVIEW PURPOSES ONLY. IT
SHALL NOT BE USED FOR CONSTRUCTION
OR FIELD WORK.



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STORMWATER MANAGEMENT PLAN
BARRINGTON PARK
ROCHESTER HILLS, MICHIGAN

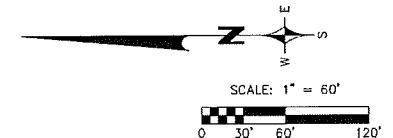
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DESIGNED BY	SRB	JOB NO.	13178
DRAWN BY	SRB	SHEET	CE-14

CITY FILE 14-012, SECTION 26
NOT FOR CONSTRUCTION

Z:\projects\13178\DWG\13178_SWD_Bldg_Grading.dwg, CE-14 STORMWATER MANAGEMENT PLAN, 12/20/14, 10:40:39 AM, jgmm

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

- BENCHMARKS:**
1. HYDRANT ARROW 375'± NORTH OF AUBURN ROAD AND 40'± WEST OF BARCLAY CIRCLE
ELEVATION: 741.35
 2. HYDRANT ARROW IN PARKING LOT ISLAND NORTH OF SITE
ELEVATION: 740.38
 3. NAIL IN WEST SIDE OF GUY POLE AT SOUTHEAST CORNER OF SITE
ELEVATION: 721.83
 4. NORTH RIM OF SANITARY MANHOLE IN SIDEWALK AT NORTHEAST CORNER OF AUBURN ROAD AND BARCLAY CIRCLE
ELEVATION: 733.38



SANITARY SEWER BASIS OF DESIGN:
(USING THE OCVRC SCHEDULE OF UNIT ASSIGNMENT FACTORS)

NO. OF UNITS = 148 UNITS
 NO. OF REU'S = 0.60 REU/UNIT x 148 UNITS = 88.8 REU
 NO. OF PEOPLE = 3.5 PEOPLE/REU x 88.8 REU = 310.8 PEOPLE
 AVG. DAILY FLOW RATE = 100 GPCPD x 310.8 PEOPLE = 31,080 GPD (7.5 x 24 x 3600) = 0.048 CFS
 PEAKING FACTOR = 4.0
 PEAK DAILY FLOW RATE = 4.0 x 100 GPCPD x 310.8 PEOPLE = 124,320 GPD (7.5 x 24 x 3600) = 0.19 CFS

A NEW ON-SITE 8" DIA. SEWER AT 0.40% (MIN.) SLOPE HAS A CAPACITY OF 0.76 CFS.
 THE EXISTING 15" DIA. SEWER AT 1.80% IN AUBURN ROAD HAS A CAPACITY OF 9 CFS.

FIRE DEPARTMENT NOTES:

1. FIRE LANES SHALL BE CONSPICUOUSLY POSTED ON BOTH SIDES OF THE FIRE LANE, WITH FIRE LANE SIGNS SPACED NOT MORE THAN 100 FEET APART. FIRE LANE SIGNS SHALL READ "NO STOPPING, STANDING, PARKING, FIRE LANE" AND IN CONFORMANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
2. A 3-FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND FIRE HYDRANTS.
3. CONSTRUCTION SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC CHAPTER 14.
4. OPEN BURNING IS NOT PERMITTED, INCLUDING THE BURNING OF TRASH, DEBRIS, OR LAND CLEARING MATERIALS. OPEN BURNING FOR WARMING OF SANITARY AND/OR WATER FOR PREPARATION OF MORTAR SHALL BE WITHIN CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES. CONTACT ROCHESTER HILLS FIRE DEPARTMENT FOR PERMIT INFORMATION.
5. THE PROPOSED BUILDING WILL NOT HAVE AUTOMATIC SPRINKLER SYSTEMS.
6. PROPOSED BUILDING CONSTRUCTION SHALL BE V-B WITH THE FOLLOWING FIRE FLOWS REQUIRED:
 - 4-PLEX: 9600 SF (3 FLOORS), 2750 GPM WITH 3 HYDRANTS, AVERAGE SPACING 400', MAX. DISTANCE TO HYDRANT 225'.
 - 5-PLEX: 12,000 SF (3 FLOORS), 3000 GPM WITH 3 HYDRANTS, AVERAGE SPACING 400', MAX. DISTANCE TO HYDRANT 225'.
 - 6-PLEX: 14,400 SF (3 FLOORS), 3250 GPM WITH 3 HYDRANTS, AVERAGE SPACING 350', MAX. DISTANCE TO HYDRANT 210'.

WATERMAIN NOTES:

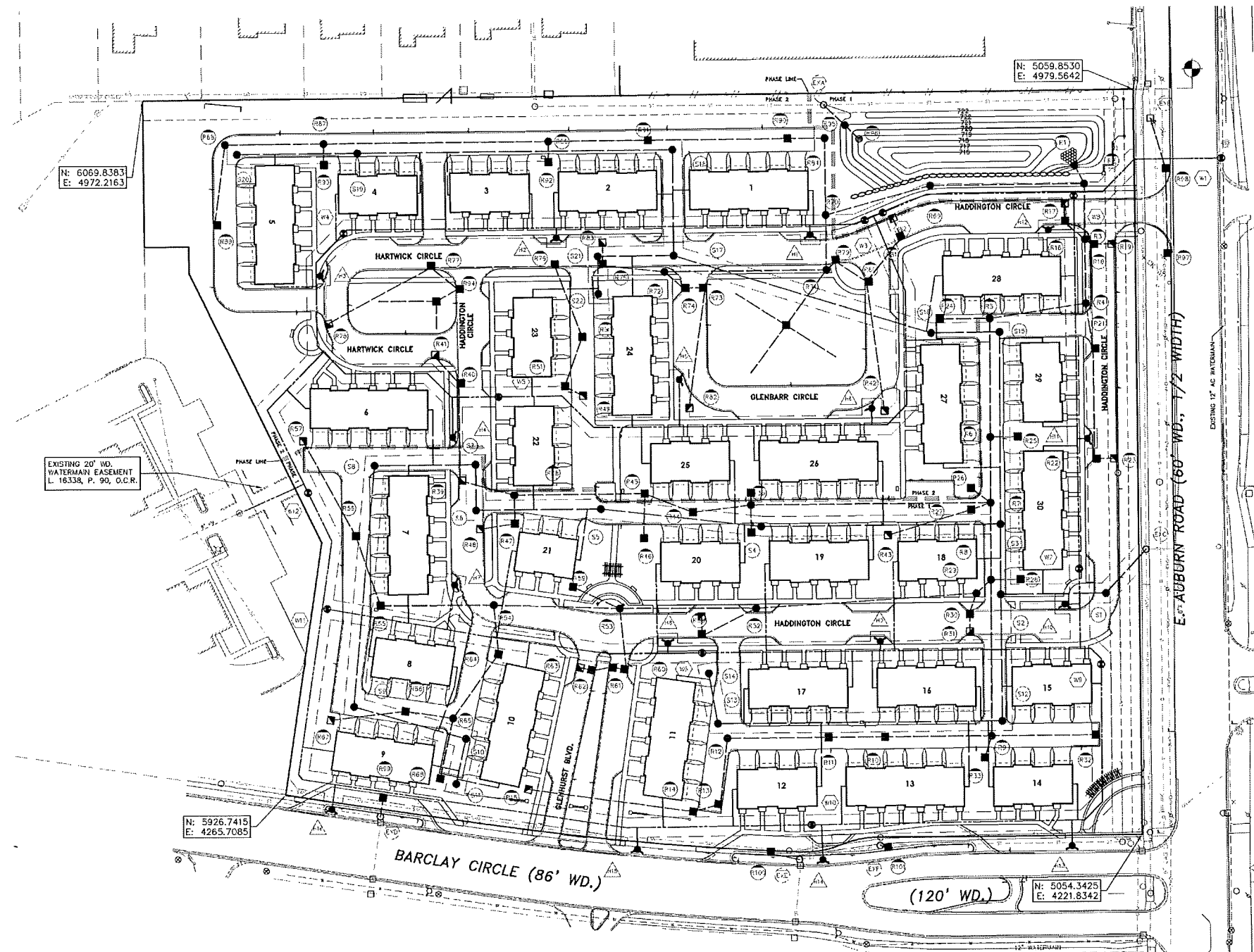
1. ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE AGENCY HAVING JURISDICTION OVER THAT WORK.
2. ALL HYDRANTS, INCLUDING NOZZLES AND PROJECTIONS SHALL BE 3' MINIMUM FROM EDGE OF SIDEWALK, OR 6' MINIMUM FROM BACK OF CURB.
3. THE WATERMAIN WILL HAVE A MINIMUM OF 6 FEET OF COVER.
4. THE CONTRACTOR SHALL DETERMINE DEGREE OF BEND FOR THE WATERMAIN FITTINGS. PIPE DEFLECTIONS SHALL NOT EXCEED 75% OF THE MANUFACTURER'S MAXIMUM ALLOWABLE DEFLECTION.
5. ALL WATERMAIN SHALL BE 8" (MIN.) CEMENT-LINED (DOUBLE THICKNESS), DUCTILE IRON PIPE, CLASS 54 POLYWRAPPED PER CURRENT CITY STANDARD DETAILS CENTERED IN A 20' WIDE EASEMENT.
6. A VERTICAL SEPARATION OF 18 INCHES MUST BE MAINTAINED BETWEEN THE WATERMAIN AND SANITARY SEWERS, STORM SEWERS, OR OTHER PROPOSED UTILITIES.
7. ALL GATE VALVES SHALL BE RESILIENT WEDGE OR SEATED TYPE GATE VALVE (C.I.W. OR U.S. PIPE).
8. RESTRAINED RODDED JOINTS SHALL BE USED AT ALL VERTICAL BENDS. THE NUMBER OF RESTRAINED RODDED JOINTS REQUIRED SHALL BE DETERMINED BY THE MANUFACTURER, SUBJECT TO APPROVAL BY THE CITY ENGINEER.
9. USE HYDRANT CONNECTION DETAILS PER CURRENT CITY STANDARD DETAIL SHEET.
10. WATER SERVICES SHALL BE 2" SDR-9 POLY PIPE OR TYPE 'K' COPPER.

SANITARY SEWER NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE AGENCY HAVING JURISDICTION OVER THAT WORK.
2. ALL SANITARY SEWER BUILDING LEADS WILL BE SOLID WALL PVC SDR 23.5 PIPE.
3. ALL SANITARY SEWER MAINS SHALL BE PUBLIC AND 8" PVC TRUSS PIPE CENTERED IN A 20' WIDE EASEMENT.
4. SANITARY SEWER DROP CONNECTIONS MUST BE EXTERNAL TYPE.
5. THE MINIMUM SLOPE FOR 6" SANITARY BUILDING LEADS IS 1.00%.
6. ALL PROPOSED SEWERS SHALL HAVE CHEMICALLY WELDED JOINTS.
7. THE CONTRACTOR SHALL HAVE A TELEVISION INSPECTION OF THE EXISTING SANITARY LEAD PERFORMED PRIOR TO CONSTRUCTION TO VERIFY THE CONDITION OF THE EXISTING PIPE. THE CITY INSPECTOR SHALL WITNESS THE SCOPE AND A VIDEO COPY SHALL BE PROVIDED TO THE CITY.

STORM SEWER NOTES:

1. PROPOSED STRUCTURE COVERS/GRATES SHALL BE PROVIDED AS REQUIRED ON THE CITY OF ROCHESTER HILLS STANDARD DETAIL SHEETS.
2. EDGE DRAIN TO BE 20" IN EACH DIRECTION AT 90° ANGLES FROM INLET STRUCTURES LOCATED IN PAVED AREAS.
3. STRUCTURAL CALCULATIONS AND SHOP DRAWINGS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER (REGISTERED IN THE STATE OF MICHIGAN) SHALL BE SUBMITTED TO THE CITY FOR REVIEW PRIOR TO CONSTRUCTION OF ALL STORM SEWER STRUCTURES GREATER THAN 6 FEET IN DIAMETER.
4. PROPOSED ROOF DRAINS SHALL BE SCHEDULE 40 PVC PIPE WITH CHEMICALLY WELDED JOINTS.
5. PROPOSED STORM SEWER PIPE SHALL BE MIN. 12" REINFORCED CONCRETE CLASS IV WITH RUBBER GASKETS AND CLASS B BEDDING.
6. A STORMWATER MAINTENANCE AGREEMENT AND EXHIBIT IS REQUIRED TO BE RECORDED PRIOR TO FINAL APPROVAL OF CONSTRUCTION DOCUMENTS.



- UTILITY LEGEND**
- EXISTING**
- MANHOLE
 - CATCH BASIN
 - ▢ INLET
 - CLEANOUT
 - END SECTION
 - ROOF DRAIN
 - GATE VALVE
 - HYDRANT
 - WATER SHUT-OFF
 - UTILITY POLE
 - GUY ANCHOR
 - LIGHT POLE
 - SIGN
 - TREE
 - TREE LINE
 - SANITARY SEWER
 - STORM SEWER
 - WATER MAIN
 - GAS MAIN
 - ELECTRIC CABLE
- PROPOSED**
- MANHOLE
 - CATCH BASIN
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 - CLEANOUT
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 - ROOF DRAIN
 - GATE VALVE
 - HYDRANT
 - WATER SHUT-OFF
 - TREE REMOVAL
 - SANITARY SEWER
 - STORM SEWER
 - WATER MAIN
 - DITCH

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REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER CITY REVIEW	10/10/14	SRB						
PER CITY REVIEW	10/27/14	SRB						
FINAL PUD REVIEW	12/15/14	SRB						
FINAL PUD REVIEW #1	1/26/15	SRB						

ZEIMET WOZNAK
 Civil Engineers & Land Surveyors
 5500 GRAND RIVER AVE., SUITE 100
 NEW HUDSON, MICHIGAN 48165
 P (248) 437-5098 F (248) 437-5212 www.zeimetwoznak.com

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CLIENT: IAC BARCLAY, L.L.C.
 C/O THE IVANHOE COMPANIES
 6689 ORCHARD LAKE ROAD, STE. 314
 WEST BLOOMFIELD, MI 48322 (248) 626-6114

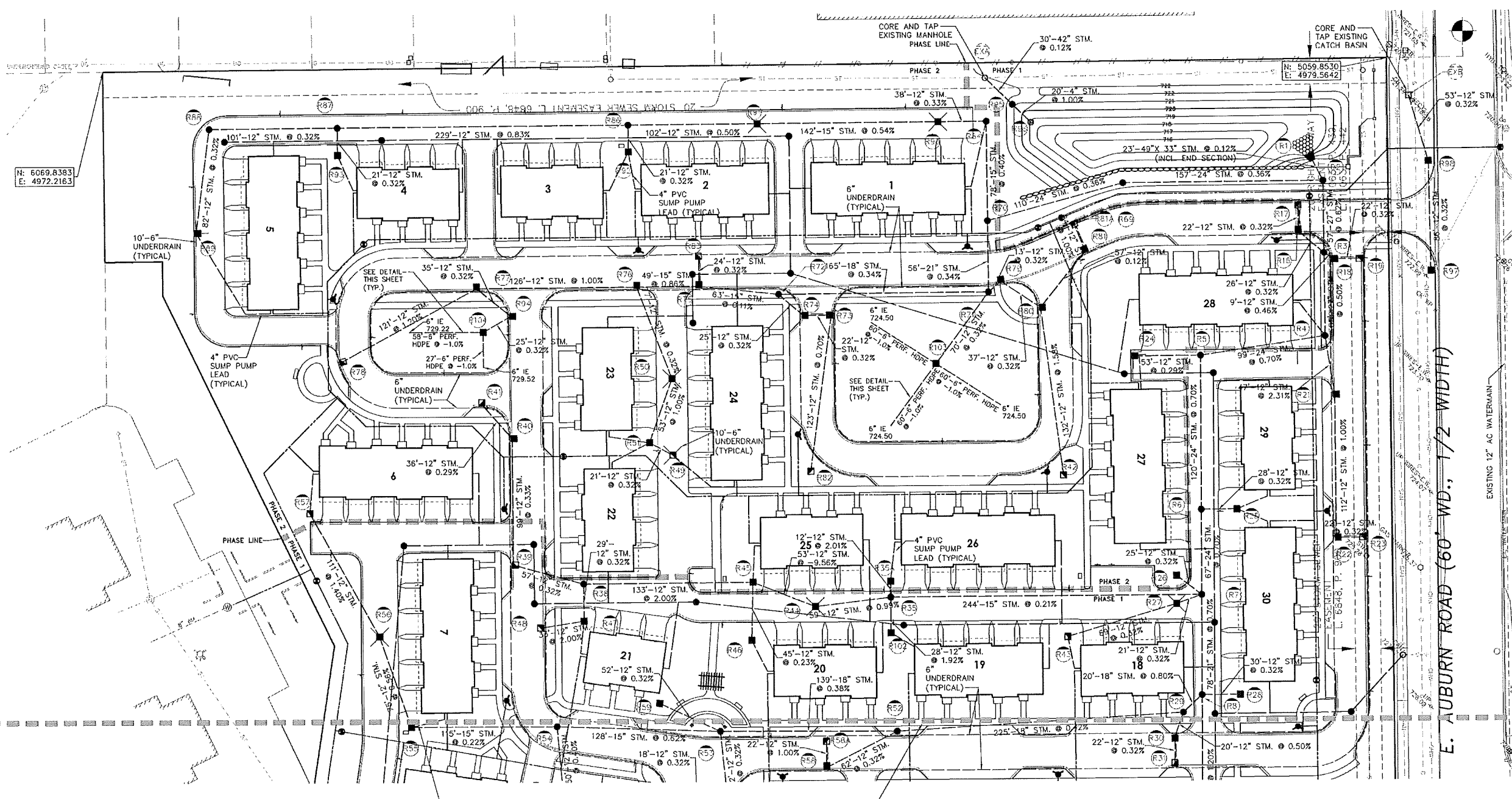
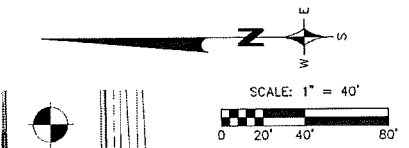
OVERALL UTILITY PLAN
BARRINGTON PARK
 ROCHESTER HILLS, MICHIGAN

CITY FILE 14-012, SECTION 26
 NOT FOR CONSTRUCTION

DATE: 12/15/14
 SCALE: HOR: 1" = 60'
 VER: 1" = N/A

DESIGNED BY: SRB
 CHECKED BY: SRB
 DRAWN BY: SRB

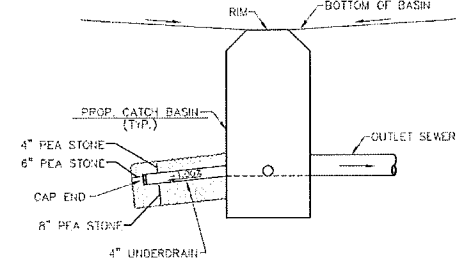
JOB NO. 13178
 SHEET CE-15



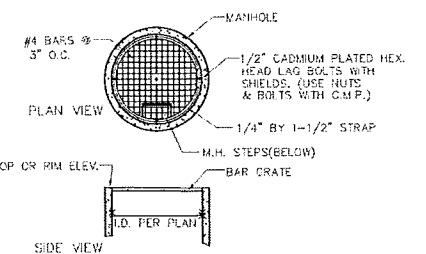
- UTILITY LEGEND**
- EXISTING**
- MANHOLE
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 - TREE REMOVAL
 - SANITARY SEWER
 - STORM SEWER
 - WATER MAIN
 - DITCH

SEE SHEET CE-17

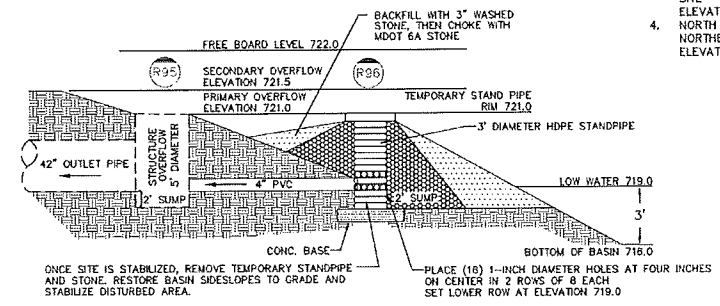
UNDERDRAIN PIPE TO BE 4" PERFORATED HDPE PIPE WITH GEOTEXTILE WRAP LAID AT -1.00% SLOPE WITH DOWNSTREAM END PLUGGED. PEA STONE SHALL EXTEND FROM 8" BELOW UNDERDRAIN TO 4" ABOVE THE UNDERDRAIN.



TYPICAL UNDERDRAIN DETAIL
NO SCALE



OVERFLOW STRUCTURE DETAIL
NOT TO SCALE



SEDIMENT BASIN OUTLET-R96-R95
NOT TO SCALE

- BENCHMARKS:**
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ELEVATION: 741.35
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NOTE:
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ZEIMET W. ZNIAK
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C/O THE IVANHOE COMPANIES
6689 ORCHARD LAKE ROAD, STE. 314
WEST BLOOMFIELD, MI 48322 (248) 626-6114

40 SCALE STORM SEWER PLAN
BARRINGTON PARK
ROCHESTER HILLS, MICHIGAN

CITY FILE 14-012, SECTION 28
NOT FOR CONSTRUCTION

DATE: 12/15/14
SCALE: HOR: 1" = 40'
VER: 1" = N/A

DESIGNED BY: SRB
JOB NO.: 13178

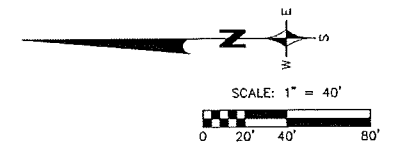
DRAWN BY: SRB
SHEET: CE-16



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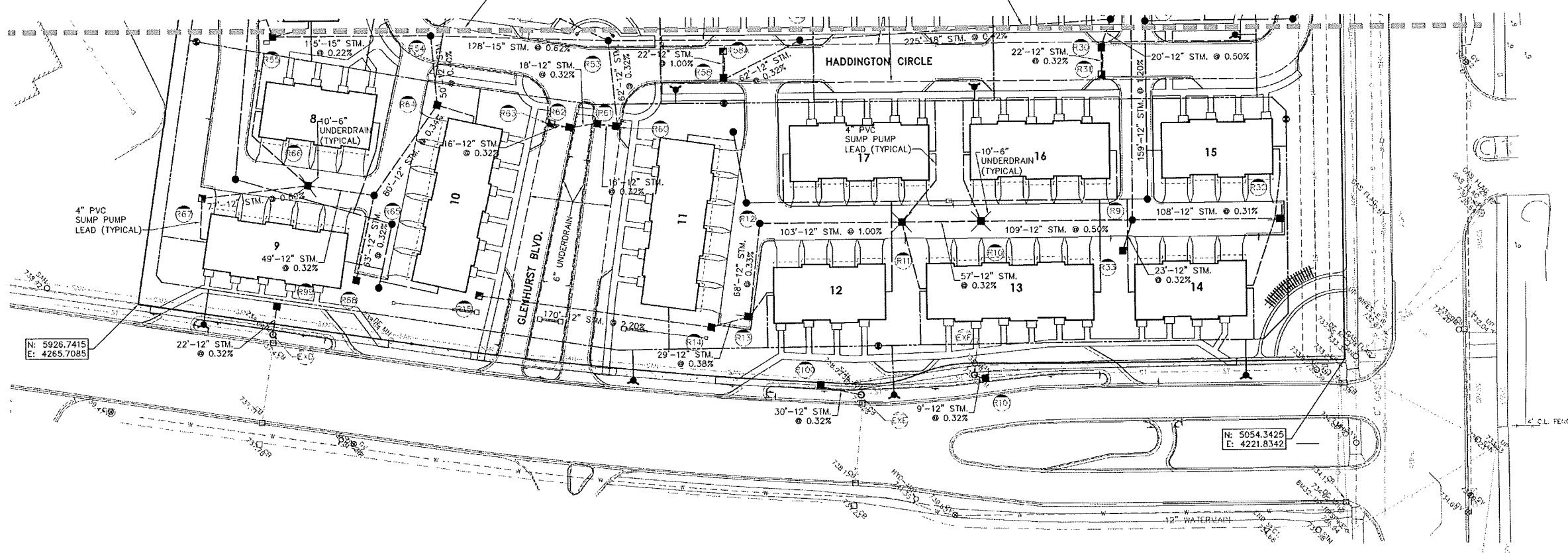
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ELEVATION: 733.38



SEE SHEET CE-16

- UTILITY LEGEND**
- EXISTING**
- MANHOLE
 - CATCH BASIN
 - INLET
 - CLEANOUT
 - END SECTION
 - ROOF DRAIN
 - GATE VALVE
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 - STORM SEWER
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 - DITCH



STORM SEWER TABLE:							
NO.	DESCRIPTION	RIM	PIPE	DIRECTION	INVERT	NORTHING	EASTING
EKA	EXISTING MANHOLE	722.39	42"	SW	715.90 715.29	5375.32	4955.42
EDB	EXISTING CATCH BASIN	721.29	12"	W	717.35 717.25	5042.56	4950.05
EDD	EXISTING MANHOLE	736.68	12"	E	732.83 733.00	5829.47	4243.52
EDC	EXISTING MANHOLE	738.93	12"	N	734.10 731.96	5403.78	4198.20
EDF	EXISTING MANHOLE	739.02	12"	N	731.23 733.72 731.23	6321.58	4212.20
R1	49" X 33" CIP END SECTION	722.90	49"X33"	SW	718.99	5121.07	4904.55
R2	10' MANHOLE	725.60	24"	N	719.02 719.29 719.02	5110.16	4853.82
R3	6" MANHOLE	725.15	24"	W	719.74 719.64 720.33 720.60	5109.75	4827.07
R4	6" MANHOLE	727.16	24"	N	720.27 722.07 720.07	5109.27	4762.06
R5	6" MANHOLE	727.00	24"	N	722.10 721.16 720.99	5207.21	4747.24
R6	5" MANHOLE	728.40	24"	S	723.61 722.00 722.00	5207.21	4628.75
R7	4" MANHOLE	728.50	15"	N	723.79 723.13 722.77 722.47 723.23	5207.21	4500.17
R8	5" MANHOLE	730.10	12"	S	725.40 725.36 723.42 723.32	5207.21	4481.75
R9	4" MANHOLE	733.04	12"	E	727.27 728.80 727.47 726.08	5207.21	4323.16
R10	4" CATCH BASIN	733.00	12"	S	728.62 728.72	5316.29	4322.68
R11	4" CATCH BASIN	733.20	12"	S	728.90 729.00	5373.61	4322.43

STORM SEWER TABLE:							
NO.	DESCRIPTION	RIM	PIPE	DIRECTION	INVERT	NORTHING	EASTING
R12	4" MANHOLE	734.40	12"	W	730.23 730.03	5478.18	4321.97
R13	4" CATCH BASIN	734.85	12"	N	730.55 730.45	5478.03	4254.03
R14	4" CATCH BASIN	735.00	12"	N	730.76 730.66	5511.31	4247.44
R15	2" INLET	738.70	12"	S	734.50	5679.57	4270.77
R16	4" CATCH BASIN	725.05	12"	SW	720.68 720.78	5129.87	4843.85
R17	2" INLET	725.05	12"	W	720.85	5130.04	4865.97
R18	4" CATCH BASIN	724.80	12"	S	720.53 720.43	5102.73	4817.11
R19	2" INLET	724.80	12"	N	730.60	5080.61	4817.29
R20	4" CATCH BASIN	728.50	12"	SE	722.17 722.28	5131.18	4749.96
R21	4" CATCH BASIN	727.70	12"	NE	723.35 723.45	5102.00	4716.10
R22	4" CATCH BASIN	729.04	12"	S	724.77 724.57	5101.18	4604.09
R23	2" INLET	729.04	12"	N	724.84	5078.06	4504.25
R24	4" CATCH BASIN	726.45	12"	S	722.25	5255.22	4746.88
R25	4" CATCH BASIN	727.90	12"	N	723.70	5178.29	4626.85
R26	4" CATCH BASIN	728.00	12"	SW	723.31	5227.04	4575.08
R27	4" CATCH BASIN	727.50	12"	S	723.20 723.30	5226.94	4553.08
R28	4" CATCH BASIN	729.50	12"	N	725.50	5177.21	4481.99
R29	5" MANHOLE	732.15	18"	SE	723.98 727.53 723.78	5222.01	4468.10
R30	4" CATCH BASIN	732.00	12"	E	727.73 727.63	5228.77	4446.13
R31	2" INLET	732.00	12"	E	727.80	5228.81	4427.01
R32	4" CATCH BASIN	730.00	12"	N	727.80	5104.11	4332.62
R33	4" CATCH BASIN	733.10	12"	E	728.87	5214.12	4301.13
R35	5" MANHOLE	728.82	12"	NW	724.36 724.30	5403.34	4559.30

STORM SEWER TABLE:							
NO.	DESCRIPTION	RIM	PIPE	DIRECTION	INVERT	NORTHING	EASTING
R36	4" MANHOLE	730.40	12"	E	725.29 725.69 725.09	5559.34	4558.61
R38	4" MANHOLE	733.60	12"	N	728.30 728.20 728.50	5692.69	4570.03
R39	4" CATCH BASIN	734.54	12"	S	728.68 728.48	5747.54	4588.04
R40	4" CATCH BASIN	733.51	12"	NE	728.21 729.01	5748.33	4683.98
R41	2" INLET	733.51	12"	SW	729.31	5772.29	4710.72
R42	2" INLET	729.45	12"	E	725.25	5315.12	4654.08
R43	2" INLET	728.02	12"	S	723.59	5312.28	4527.70
R44	4" CATCH BASIN	728.60	12"	SE	724.40	5412.07	4552.26
R45	4" CATCH BASIN	728.95	12"	N	725.33 725.63	5559.40	4571.03
R46	4" CATCH BASIN	730.00	12"	E	725.80	5560.48	4525.60
R47	2" INLET	733.35	12"	N	728.79 728.69	5602.37	4541.03
R48	2" INLET	735.01	12"	S	729.45	5728.01	4535.78
R49	2" INLET	730.45	12"	NE	726.25	5622.11	4670.60
R50	4" CATCH BASIN	729.85	12"	E	725.65	5622.60	4730.55
R51	4" CATCH BASIN	730.50	12"	SW	726.08 726.18	5640.32	4660.41
R52	5" MANHOLE	734.71	18"	NW	724.84 724.73 730.30	5446.47	4454.11
R53	5" MANHOLE	735.71	12"	NE	725.59 731.63 731.15 725.37	5585.40	4454.46
R54	4" MANHOLE	736.09	15"	S	726.38 728.70 728.48	5713.67	4458.49
R55	4" CATCH BASIN	732.90	12"	S	726.83 726.73	5828.63	4458.22
R56	4" CATCH BASIN	731.65	12"	W	727.35 727.45	5863.48	4529.04
R57	2" INLET	733.20	12"	SW	729.00	5907.83	4625.68
R58	4" CATCH BASIN	734.73	12"	SE	730.50	5501.80	4425.81

STORM SEWER TABLE:							
NO.	DESCRIPTION	RIM	PIPE	DIRECTION	INVERT	NORTHING	EASTING
R59	4" CATCH BASIN	735.00	12"	SW	731.60	5633.02	4476.52
R60	4" CATCH BASIN	735.90	12"	N	731.55 731.35	5578.96	4392.54
R61	4" CATCH BASIN	735.90	12"	N	731.30 731.60	5594.93	4394.76
R62	4" CATCH BASIN	736.21	12"	N	731.68 731.76	5612.51	4391.63
R63	2" INLET	736.21	12"	S	731.91	5628.27	4395.04
R64	4" CATCH BASIN	735.26	12"	E	728.90 729.00	5709.18	4408.54
R65	4" MANHOLE	734.56	12"	W	729.47 729.47 729.63	5705.47	4343.47
R66	4" CATCH BASIN	733.04	12"	S	729.73 729.63	5803.68	4350.71
R67	2" INLET	734.55	12"	S	730.35	5800.20	4341.84
R68	4" CATCH BASIN	735.00	12"	E	729.67	5768.69	4282.26
R69	5" MANHOLE	727.77	24"	N	719.59 719.59	5287.39	4802.63
R70	5" MANHOLE	729.20	24"	E	719.69 720.19 719.99	5372.92	4853.37
R71	5" MANHOLE	729.10	18"	N	723.65 723.38 722.49	5373.48	4797.54
R72	5" MANHOLE	730.73	15"	NE	724.41 724.21	5538.15	4786.24
R73	4" CATCH BASIN	730.01	12"	N	725.60 725.60	5496.85	4779.82
R74	4" CATCH BASIN	730.01	12"	S	725.63 725.43	5518.97	4779.85
R75	5" CATCH BASIN	730.37	12"	E	726.08 724.48 724.38	5546.10	4803.12
R76	5" CATCH BASIN	731.39	12"	N	727.04 726.90 725.20	5650.09	4802.30
R77	5" CATCH BASIN	732.60	12"	SW	728.42 728.30 728.40	5776.21	4601.30
R78	2" INLET	734.13	12"	SE	729.85	5802.94	4744.01

STORM SEWER TABLE:							
NO.	DESCRIPTION	RIM	PIPE	DIRECTION	INVERT	NORTHING	EASTING
R79	4" CATCH BASIN	728.52	12"	SW	722.63 722.53	5363.57	4805.80
R80	4" CATCH BASIN	727.34	12"	S	722.85 722.75	5332.63	4784.92
R81	4" CATCH BASIN	727.34	12"	N	723.92 723.15	5310.51	4785.08
R82	2" INLET	731.00	12"	E	726.66	5513.40	4657.77
R83	2" INLET	730.34	12"	W	726.14	5554.41	4625.17
R84	5" MANHOLE	724.70	15"	N	720.50 720.19 720.00	6374.54	4931.40
R85	5" MANHOLE	726.00	12"	N	721.66 721.27 721.47	5554.61	4930.08
R86	4" MANHOLE	728.75	12"	N	722.27 724.17 722.17	5656.46	4929.33
R87	4" MANHOLE	729.40	12"	N	725.12 724.17 724.37	5885.41	4927.66
R88	4" MANHOLE	731.05	12"	S	725.44 725.44	5986.24	4926.92
R89	4" CATCH BASIN	730.10	12"	E	725.90	5996.68	4845.37
R90	4" CATCH BASIN	724.52	12"	S	720.32	5412.60	4640.31
R91	4" CATCH BASIN	725.72	12"	SW	721.52	5566.60	4639.09
R92	4" CATCH BASIN	728.60	12"	E	723.10	5656.29	4906.38
R93	4" CATCH BASIN	728.65	12"	E	724.44	5885.24	4906.21
R94	2" INLET	732.28	12"	NE	728.53	5749.09	4779.58
R95	5" OVERFLOW MANHOLE	721.00	42"	SW	715.54 715.54	5353.65	4944.49
R96	3" HOPE STANDPIPE	720.50	4"	NE	715.74	5339.53	4930.53
R97	4" CATCH BASIN	722.10	12"	E	719.90	5025.81	4612.58
R98	4" CATCH BASIN	721.70	12"	W	712.82 715.52	5027.39	4898.77
R99	4" CATCH BASIN	737.10	12"	W	732.90	5826.20	4265.24
R100	4" CATCH BASIN	738.40	12"	S	734.20	5432.93	4204.15
R101	4" CATCH BASIN	737.95	12"	NE	733.75	5313.45	4208.36

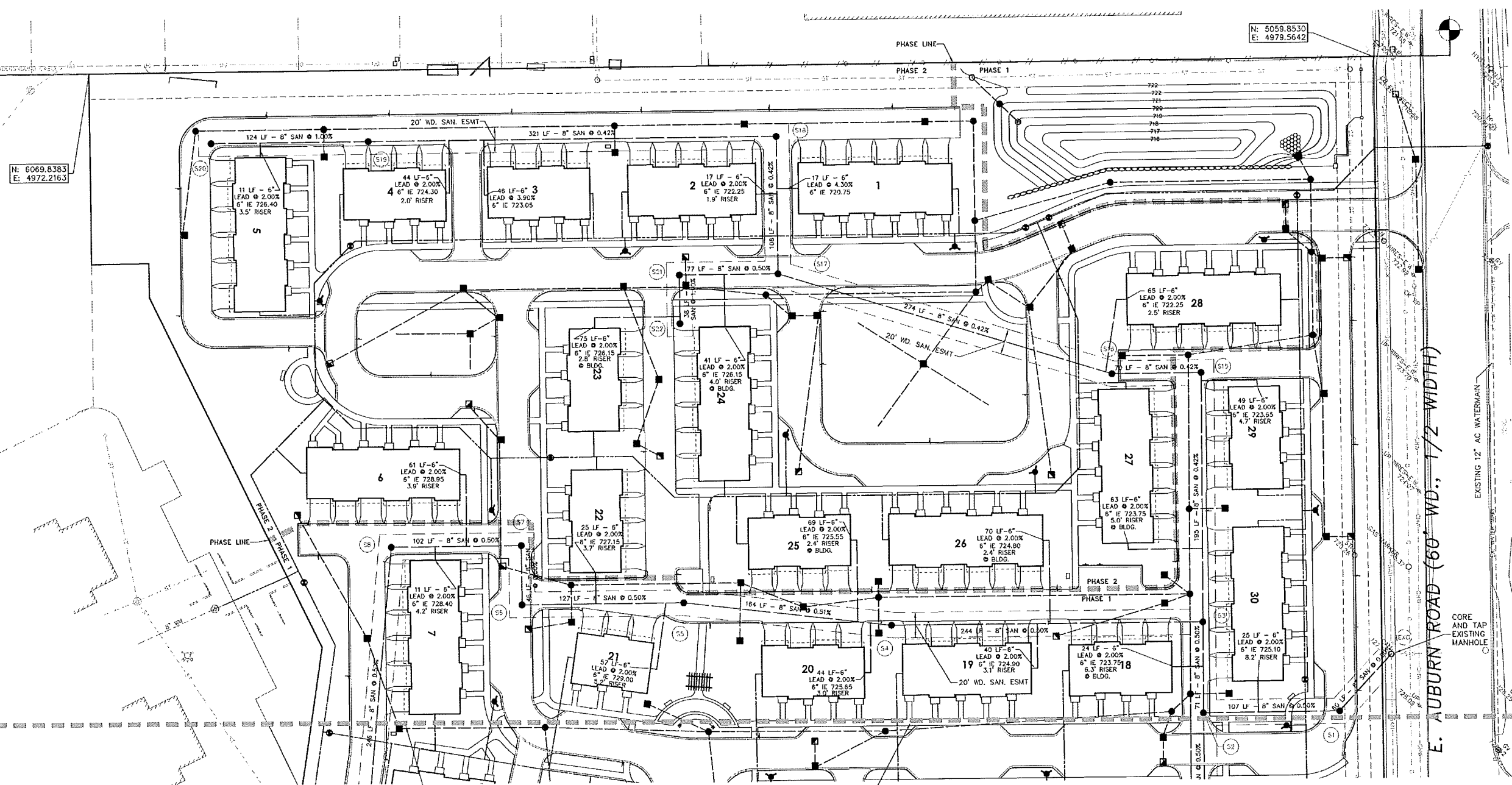
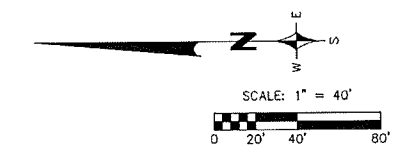


CITY FILE 14-012, SECTION 26
NOT FOR CONSTRUCTION

REVISIONS	DATE	BY	REVISIONS	DATE	BY
FINAL PUD REVIEW	12/15/14	SRB			
FINAL PUD REVIEW #1	1/25/15	SRB			

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

- BENCHMARKS:**
1. HYDRANT ARROW 375'± NORTH OF AUBURN ROAD AND 40'± WEST OF BARCLAY CIRCLE
ELEVATION: 741.35
 2. HYDRANT ARROW IN PARKING LOT ISLAND NORTH OF SITE
ELEVATION: 740.38
 3. NAIL IN WEST SIDE OF GUY POLE AT SOUTHEAST CORNER OF SITE
ELEVATION: 721.83
 4. NORTH RIM OF SANITARY MANHOLE IN SIDEWALK AT NORTHEAST CORNER OF AUBURN ROAD AND BARCLAY CIRCLE
ELEVATION: 733.38



N: 6069.8383
 E: 4972.2163

N: 5059.8530
 E: 4979.5642

- UTILITY LEGEND**
- EXISTING**
- MANHOLE
 - CATCH BASIN
 - INLET
 - CLEANOUT
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 - DITCH

SEE SHEET CE-19



CITY FILE 14-012, SECTION 26
 NOT FOR CONSTRUCTION

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PER CITY REVIEW	10/08/14	SRB									
PER CITY REVIEW	10/27/14	SRB									
FINAL PUD REVIEW	12/15/14	SRB									
FINAL PUD REVIEW #1	1/26/15	SRB									

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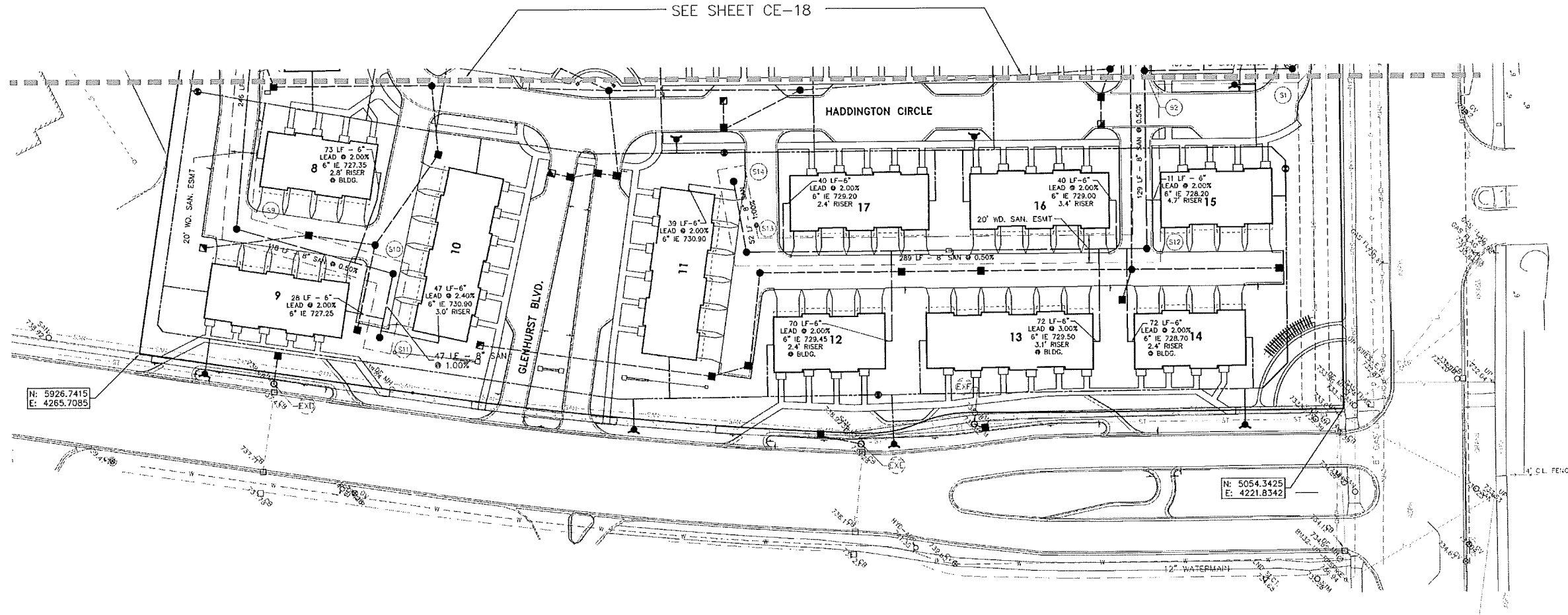
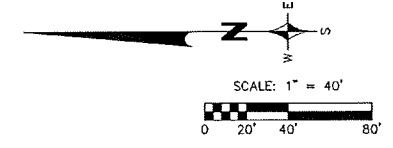
40 SCALE SANITARY SEWER PLAN
BARRINGTON PARK
 ROCHESTER HILLS, MICHIGAN

DATE 12/15/14	SCALE HOR: 1" = 40'	JOB NO. 13178
DESIGNED BY SRB	VER: 1" = N/A	SHEET CE-18
DRAWN BY SRB		

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 - STORM SEWER
 - WATER MAIN
 - ⊠ DITCH

SANITARY SEWER TABLE:

NO.	DESCRIPTION	RIM	PIPE	DIRECTION	INVERT	NORTHING	EASTING
EXC	W/ DROP CONNECTION	727.22	15"	W/E	716.67	5049.18	4511.81
S1	4" MANHOLE	732.67	8"	N/E	716.07	5090.13	4467.80
S2	5" MANHOLE W/ DROP CONNECTION	732.72	8"	E/S	716.71	5197.21	4466.82
S3	5" MANHOLE W/ DROP CONNECTION	731.06	8"	E/W	720.30	5197.21	4528.21
S4	4" MANHOLE	730.37	8"	N/W	721.81	5441.09	4537.14
S5	4" MANHOLE	732.34	8"	N/S	722.54	5804.23	4555.89
S6	4" MANHOLE	734.98	8"	E/S	723.28	5731.23	4554.74
S7	4" MANHOLE	734.52	8"	N/W	723.01	5731.60	4601.17
S8	4" MANHOLE	732.27	8"	E/S	724.22	5834.10	4600.35
S9	4" MANHOLE	732.68	8"	E/S	725.45	5855.90	4355.50
S10	4" MANHOLE	733.45	8"	N/W	726.24	5742.57	4322.86
S11	4" MANHOLE	735.36	8"	E	726.71	5752.49	4276.72

SANITARY SEWER TABLE:

NO.	DESCRIPTION	RIM	PIPE	DIRECTION	INVERT	NORTHING	EASTING
S12	4" MANHOLE	732.81	8"	N/E	724.63	5196.23	4338.22
S13	5" MANHOLE W/ DROP CONNECTION	734.43	8"	E	726.13	5485.72	4336.94
S14	4" MANHOLE	735.51	8"	W	730.15	5494.83	4368.13
S15	4" MANHOLE	729.54	8"	W	717.89	5197.21	4733.40
S16	4" MANHOLE	730.31	8"	N/S	718.38	5287.05	4732.85
S17	4" MANHOLE	731.71	8"	E	719.73	5328.67	4812.73
S18	4" MANHOLE	725.91	8"	N	720.28	5529.45	4920.27
S19	4" MANHOLE	728.78	8"	N/S	721.73	5850.44	4917.91
S20	4" MANHOLE	731.13	8"	S	722.97	5974.17	4917.01
S21	4" MANHOLE	731.16	8"	S	721.48	5806.16	4812.17
S22	4" MANHOLE	730.62	8"	E	721.85	5605.87	4774.07

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REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
FINAL PUD REVIEW	12/15/14	SRB									
FINAL PUD REVIEW #1	1/26/15	SRB									

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 NEW HAVEN, CONNECTICUT 06474
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 C/O THE IVANHOE COMPANIES
 6689 ORCHARD LAKE ROAD, STE. 314
 WEST BLOOMFIELD, MI 48322 (248) 626-6114

40 SCALE SANITARY SEWER PLAN
BARRINGTON PARK
 ROCHESTER HILLS, MICHIGAN

CITY FILE 14-012, SECTION 26
 NOT FOR CONSTRUCTION

DATE: 12/15/14
 SCALE: HOR: 1" = 40'
 VER: 1" = N/A

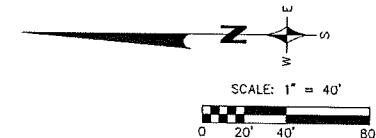
DESIGNED BY: SRB
 JOB NO.: 13178

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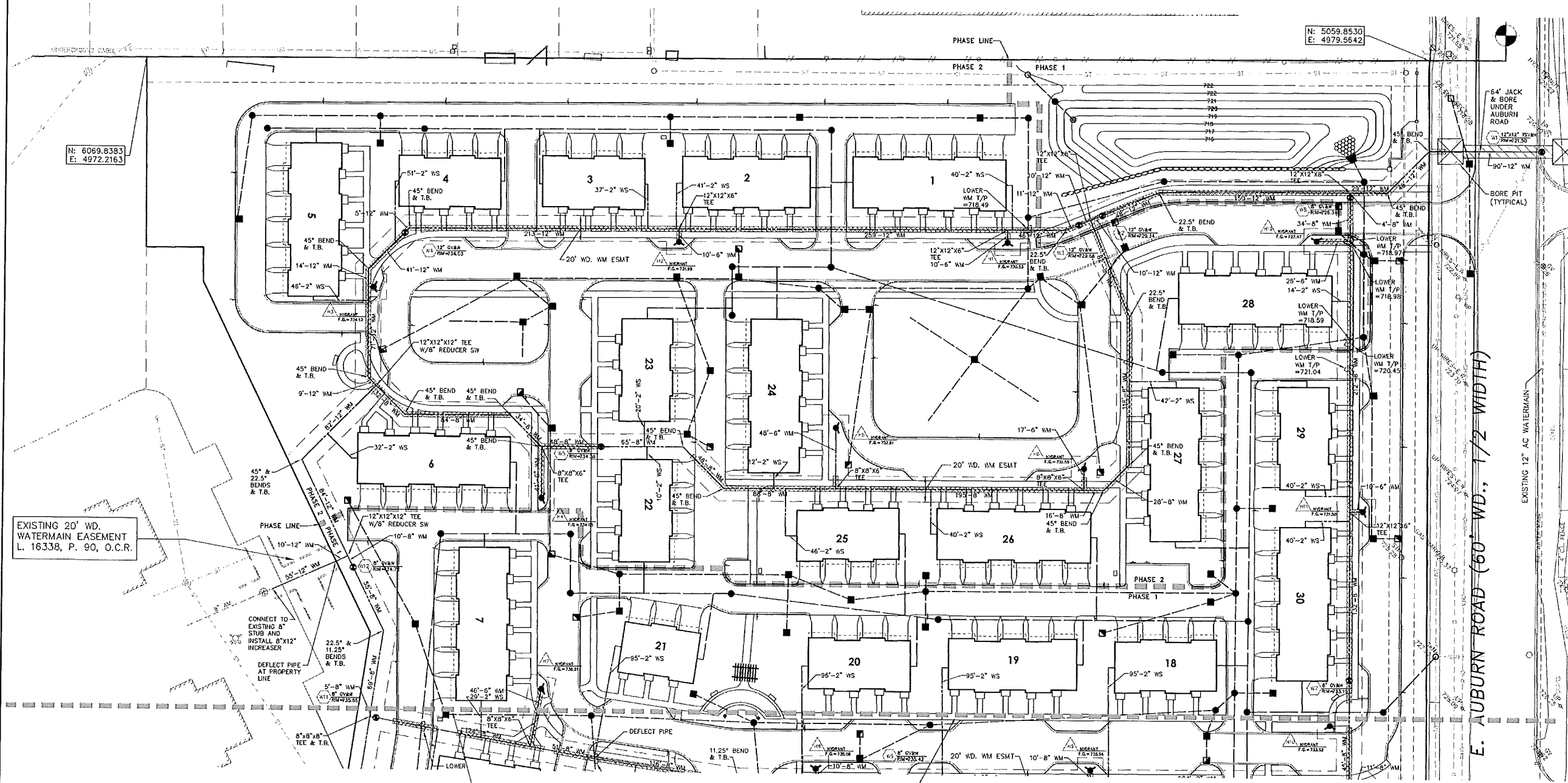


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 - ⊕ COMPACTED SAND BACKFILL (C.S.B.)



N: 6069.8383
E: 4972.2163

N: 5059.8530
E: 4979.9642

EXISTING 20' WD. WATERMAIN EASEMENT L. 16338, P. 90, O.C.R.

CONNECT TO EXISTING 8" STUB AND INSTALL 6" X 12" INCREASER
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PER CITY REVIEW	10/10/14	SRB									
PER CITY REVIEW	10/27/14	SRB									
FINAL PUD REVIEW	12/15/14	SRB									
FINAL PUD REVIEW #1	1/26/15	SRB									

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40 SCALE WATERMAIN PLAN
BARRINGTON PARK
 ROCHESTER HILLS, MICHIGAN

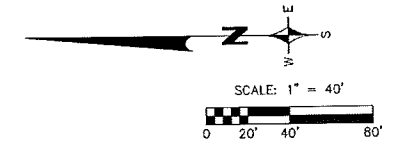
CITY FILE 14-012, SECTION 26
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DATE	12/15/14	SCALE	HOR: 1" = 40' VER: 1" = N/A
DESIGNED BY	SRB	JOB NO.	13178
DRAWN BY	SRB	SHEET	CE-20

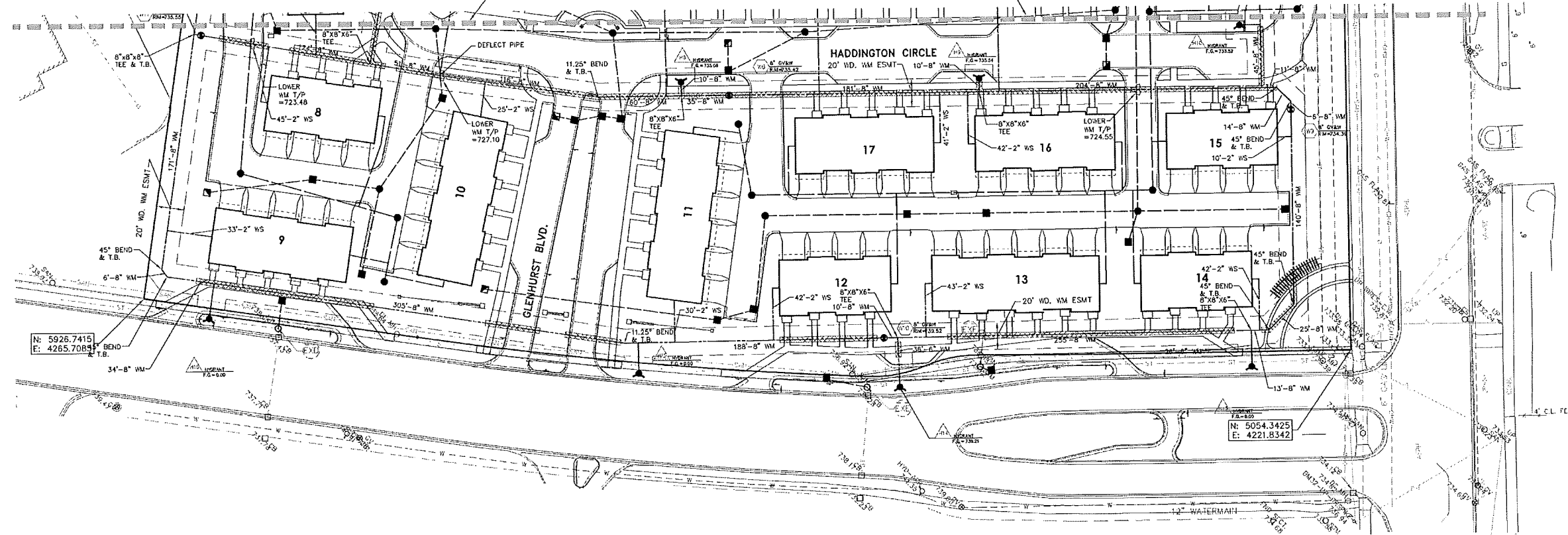
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ELEVATION: 733.38



SEE SHEET CE-20



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 - WATER MAIN
 - ⊘ DITCH
 - ⊞ COMPACTED SAND
 - ⊠ BACKFILL (C.S.B.)

WATER MAIN TABLE:

NO	DESCRIPTION	RIM/E.G.	NORTHING	EASTING
H1	HYDRANT	730.53	5389.89	4833.41
H2	HYDRANT	731.98	5648.60	4831.37
H3	HYDRANT	734.13	5889.26	4793.47
H4	HYDRANT	734.65	5754.83	4628.99
H5	HYDRANT	732.81	5523.54	4686.69
H6	HYDRANT	731.55	5328.14	4656.54
H7	HYDRANT	736.21	5753.41	4479.07
H8	HYDRANT	735.06	5536.41	4418.71
H9	HYDRANT	735.54	5320.57	4419.67
H10	HYDRANT	733.52	5132.04	4456.50
H11	HYDRANT	731.50	5108.28	4624.60
H12	HYDRANT	727.47	5146.98	4836.78
H13	HYDRANT	0.00	5125.69	4210.76
H14	HYDRANT	739.21	5379.90	4198.07
H15	HYDRANT	0.00	5568.50	4209.35
H16	HYDRANT	0.00	5879.43	4251.16

WATER MAIN TABLE:

NO	DESCRIPTION	RIM/E.G.	NORTHING	EASTING
W1	12"x12" TSV&H	721.50	4970.72	4908.78
W2	12" GV&W	729.34	5315.75	4855.34
W3	12" GV&W	729.66	5334.22	4847.65
W4	12" GV&W	734.03	5864.93	4836.39
W5	8" GV&W	734.39	5708.15	4669.90
W6	8" GV&W	735.42	5501.52	4408.94
W7	8" GV&W	733.15	5117.28	4492.40
W8	8" GV&W	726.34	5120.91	4871.48
W9	8" GV&W	734.39	5095.49	4395.27
W10	8" GV&W	739.52	5391.22	4233.52
W11	8" GV&W	735.55	5883.62	4455.09
W12	8" GV&W	734.72	5902.62	4573.23

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
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40 SCALE WATERMAIN PLAN
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DATE: 12/15/14	SCALE: HOR: 1" = 40'
DESIGNED BY: SRB	VER: 1" = N/A
DRAWN BY: SRB	JOB NO: 13178
	SHEET CE-21



CITY FILE 14-012, SECTION 26
 NOT FOR CONSTRUCTION

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