



UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.

NOTE: EXISTING UTILITIES AND SERVICE LINES IDENTIFIED AS "PLAN" WERE OBTAINED FROM AVAILABLE AS-BUILT RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH AND STATUS OF ALL UTILITIES AND SERVICE LINES PRIOR TO NEW CONNECTIONS.

TITLE INFORMATION

The Title Description and Schedule B items herein are from Campbell Title Agency of Michigan, LLC, File No. 18.0356, dated December 10, 2018.

TITLE DESCRIPTION

The land referred to in this Commitment is described as follows:

Land situated in the City of Rochester Hills, County of Oakland, State of Michigan, to wit:

Part of the Southeast 1/4 of Section 3, Town 3 North, Range 11 East, Avon Township (now City of Rochester Hills), Oakland County, Michigan, described as: Beginning at a point that is North 89 degrees 10 minutes 00 seconds West along the South line of said Section 3 and the centerline of Tiengen Road 1502.50 feet from the Southeast corner of said Section 3; thence North 89 degrees 10 minutes 00 seconds West 149.50 feet along the South line of Section 3; thence North 01 degrees 24 minutes 00 seconds East 524.22 feet; thence South 88 degrees 10 minutes 00 seconds East 149.49 feet; thence South 01 degrees 24 minutes 00 seconds West 521.61 feet to the point of Beginning and excepting the rights of the public over the Southerly 60.00 feet for Tiengen Road.

TOGETHER WITH AN UNDIVIDED ONE-HALF (1/2) INTEREST IN A ROADWAY 40.00 FEET IN WIDTH DESCRIBED AS FOLLOWS:

Part of the Southeast 1/4 of Section 3, Town 3 North, Range 11 East, Avon Township (now City of Rochester Hills), Oakland County, Michigan, described as: Beginning at a point that is North 89 degrees 10 minutes 00 seconds West along the South line of said Section 3 and the centerline of Tiengen Road 1462.50 feet from the Southeast corner of said Section 3; thence North 89 degrees 10 minutes 00 seconds West 40.00 feet along the South line of Section 3; thence North 01 degrees 24 minutes 00 seconds East 526.61 feet; thence South 88 degrees 10 minutes 00 seconds East 40.00 feet; thence South 01 degrees 24 minutes 00 seconds West 525.92 feet to the point of beginning, and excepting the rights of the public over the Southerly 60.00 feet for Tiengen Road, as recorded in Liber 8005, Page 694, Oakland County Records.

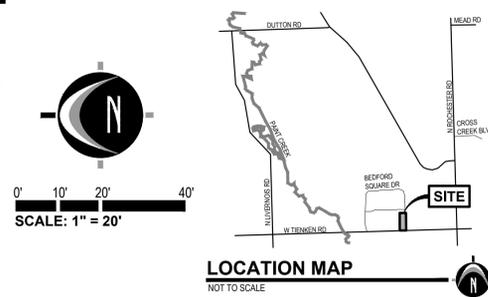
(copied Commitment 18.0356 Campbell Title, dated December 10, 2018)

SCHEDULE B - SECTION II NOTES

- 8 Declaration of Restrictions and Easements recorded in Liber 8005 on Page 694, Oakland County Records, but omitting any covenant or restriction based on race, color, religion, sex, handicap, familial status, or national origin. The easement described in this document is shown on this survey.
- 9 Grant of Easement for Utility Purposes recorded in Liber 4845 on Page 202, Oakland County Records. The easement described in this document is shown on this survey.
- 10 Area Maintenance Meter Agreement for water in favor of Charter Township of Avon recorded in Liber 8022 on Page 294, Oakland County Records. The easement described in this document is not shown on this survey. Location of easement is described as "Mechanical room on lower level".
- 11 Water Easement and Conveyance in favor of Charter Township of Avon recorded in Liber 8231 on Page 170, Oakland County Records. The easement described in this document is shown on this survey.
- 13 Roadway easements as disclosed in Warranty Deed recorded in Liber 7925 on Page 344, Oakland County Records. The easement described in this document is shown on this survey.

BENCHMARKS

- BENCHMARK #1** ELEV. = 814.80 (DATUM NAVD88)
Chiseled "X" on the sanitary manhole on the East side of Bedford Square Drive, 525'± North of Tiengen Road.
- BENCHMARK #2** ELEV. = 821.57 (DATUM NAVD88)
MAG nail in the West face of the utility pole on the East P.L., 80'± North of Tiengen Road.
- BENCHMARK #3** ELEV. = 819.45 (DATUM NAVD88)
Chiseled Square on the East face of the concrete light pole base on the West P.L., 30'± Northeast of the brick building, #330 Tiengen Road.



LEGEND

- AC Air Conditioner
- △ Benchmark
- ⊖ Catch Basin - Round
- ⊖ Catch Basin - Square
- Cleanout
- Gas Meter
- ⊖ Guy Anchor
- ⊖ Hydrant
- ⊖ Iron - Set
- Iron - Found
- ⊖ Light Pole
- ⊖ Section Corner
- ⊖ Sign
- ⊖ Sanitary Sewer Manhole
- ⊖ Stormwater Manhole
- ⊖ Transformer
- ⊖ Utility Pole
- ⊖ Water Valve
- G Gas
- OH Overhead Utility
- SS Sanitary
- ST Storm
- X-X- Fence
- Asphalt
- Concrete
- Existing Building

REMOVAL / DEMOLITION NOTES

- 1) THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES AT LEAST THREE WEEKS PRIOR TO THE BEGINNING OF CONSTRUCTION OPERATIONS. THERE ARE EXISTING UNDERGROUND UTILITIES WHICH CROSS THE PROPOSED REPAIRMENT WORK AREAS. ALTHOUGH THEIR EXACT LOCATION CANNOT BE DETERMINED, IT IS KNOWN THESE UTILITIES ARE LOCATED WHERE DIGGING IS REQUIRED. THE CONTRACTOR SHALL CONDUCT THE REQUIRED EXCAVATION IN THESE AREAS WITH EXTREME CAUTION.
- 2) ALL EXISTING UTILITY INFORMATION SHOWN IS TAKEN FROM EXISTING RECORDS, AND FIELD VERIFIED WHERE ACCESSIBLE ONLY. INFORMATION OBTAINED FROM EXISTING RECORDS MAY NOT BE COMPLETE OR ACCURATE. THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THIS PLAN HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. THE CONTRACTOR SHALL FIELD VERIFY FOR ACCURACY, LOCATION AND CONDITION.
- 3) BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE CITY AND BY THE OWNER, REPRESENTATIVES OF THE CITY, THE OWNER AND THE CONTRACTOR SHALL MAKE AN INSPECTION OF THE EXISTING SEWERS WITHIN THE WORK LIMITS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING UTILITIES AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS AND EXISTING VIDEO TAPES. RECORDS OF THE INSPECTIONS SHALL BE KEPT IN WRITING BY THE CONTRACTOR.
- 4) THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION WORK.
- 5) ALL EXISTING UTILITIES, SEWERS AND WATER LINES ARE TO REMAIN UNDISTURBED UNLESS OTHERWISE NOTED ON THE PLANS. THE CONTRACTOR SHALL CONTACT AND COORDINATE WITH ALL APPLICABLE UTILITY COMPANIES, MUNICIPALITIES AND AGENCIES BEFORE COMMENCING ANY WORK.
- 6) THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES REGARDING REMOVAL OF EXISTING POLES, OVERHEAD WIRES, UNDERGROUND UTILITIES, GUY WIRES, GAS LINES, ETC. ALL ADJUSTMENT OR RECONSTRUCTION WORK, EXCEPT FOR THOSE STRUCTURES OTHERWISE NOTED ON THE PLANS, SHALL BE PERFORMED BY THE CONTRACTOR. EXISTING APPURTENANCES SUCH AS UTILITY POLES AND VALVES BOX SHALL NOT BE DISTURBED BY THE CONTRACTOR DURING CONSTRUCTION.
- 7) THE CONTRACTOR SHALL MAINTAIN EXISTING UTILITY SERVICE TO ALL ADJOINING PROPERTIES.
- 8) ALL DEBRIS SHALL BE REMOVED FROM THE SITE, AND NO STOCKPILING ON SITE SHALL BE ALLOWED UNLESS APPROVED BY THE OWNER OR THEIR REPRESENTATIVES.
- 9) THE CONTRACTOR SHALL LIMIT SAWCUT AND PAVEMENT REMOVAL TO ONLY THOSE AREAS WHERE REQUIRED OR AS SHOWN. ALL PAVEMENTS TO BE REMOVED SHALL BE SAWCUT AND REMOVED TO FULL DEPTH AT ALL PAVEMENT LIMITS OR EXISTING JOINTS. IF ANY DAMAGE IS INCURRED TO ANY OF THE SURROUNDING PAVEMENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL AND REPAIR AT NO ADDITIONAL COST TO ANYONE ELSE, INCLUDING THE CITY OR OWNER. DETERMINING THE AMOUNT OF OFF-SET NECESSARY TO CONSTRUCT THE PROPOSED CURBS. ADDITIONAL CUTS MAY BE DESIRED TO FACILITATE THE REMOVAL OF THE EXISTING PAVEMENT, BUT THERE WILL BE NO EXTRA PAYMENT FOR ADDITIONAL CUTS. PAVEMENT SHALL BE REMOVED WITHOUT DAMAGING OR UNDERMINING THE REMAINING PAVEMENT. IF ADJACENT PAVEMENT IS DAMAGED, THE CONTRACTOR SHALL MAKE ADDITIONAL FULL DEPTH SAWCUTS AND REMOVE THE DAMAGE AREAS AS NECESSARY.
- 11) ALL PAVEMENT REMOVAL AREAS SHALL BE FULL PAVEMENT CROSS-SECTION REMOVAL DOWN TO NATIVE SOIL LAYER IN ACCORDANCE WITH THE GEOTECHNICAL REPORT DATED MONTH/DA/YEAR.
- 12) ALL VEGETATION WITHIN THE GRADING LIMITS SHALL BE REMOVED UNLESS OTHERWISE NOTED.
- 13) THERE ARE NO REGULATED TREES THAT WILL BE REMOVED AT THE SITE.

SURVEYOR'S NOTES

- 1) Flood Zone Classification: An examination of the National Flood Insurance Program's Flood Insurance Rate Map #260471, Panel Number 26125C0384F, with an Effective Date of September 29, 2006, shows this parcel to be located in Zone X. No field surveying was performed to determine this zone.
- 2) Source information from plans and markings has been combined with observed evidence of utilities to develop a view of the underground utilities. However, lacking excavation, the exact location of underground features cannot be accurately, completely, and reliably depicted. In addition, in some jurisdictions, 811 or other similar utility locate requests from surveyors may be ignored or result in an incomplete response. Where additional or more detailed information is required, the client is advised that excavation and/or a private utility locate request may be necessary. These locations should not be interpreted to be exact locations nor should it be assumed that they are the only utilities in this area.
- A) A gap exists between the South line of Bedford Square Apartments Phase I as described in Quit Claim Deed recorded in Liber 11045, Page 711, Oakland County Records and the North line of #310 Tiengen Road as described in commitment provided by Campbell Title Agency of Michigan, LLC, File No. 18.0356, dated December 10, 2018.
- B) 40' easement in commitment provided by Campbell Title Agency of Michigan, LLC, File No. 18.0356, dated December 10, 2018 described as "TOGETHER WITH AN UNDIVIDED ONE-HALF (1/2) INTEREST IN A ROADWAY 40.00 FEET IN WIDTH". It is unclear as to who owns the property under the roadway. Further deed research is recommended.
- 5) Basis of Bearing: South line of Section 3 as described in commitment provided by Campbell Title Agency of Michigan, LLC, File No. 18.0356, dated December 10, 2018
- 6) NOTE TO CONTRACTORS: 3 (THREE) WORKING DAYS BEFORE YOU DIG, CALL MISS DIG AT TOLL FREE 1-800-482-7171 FOR UTILITY LOCATIONS ON THE GROUND.

SOIL BORINGS

SOIL BORINGS COMPLETED BY G2 CONSULTING GROUP ON JULY 25, 2019			
8-1	0.0' - 0.4' HMA PAVEMENT (P)	8-4	0.0' - 0.1' HMA PAVEMENT (P)
0.0' - 0.4' HMA PAVEMENT (P)	0.0' - 0.1' MEDIUM COMPACT REDDISH BROWN SILTY SAND WITH TRACE OF GRAVEL	0.0' - 0.1' MEDIUM COMPACT REDDISH BROWN SILTY SAND WITH TRACE OF GRAVEL	0.0' - 0.1' MEDIUM COMPACT REDDISH BROWN SILTY SAND WITH TRACE OF GRAVEL
0.4' - 1.5' VERY LOOSE TO LOOSE BROWN SAND WITH TRACE SILT AND GRAVEL	3.0' - 5.0' VERY LOOSE BROWN SILTY SAND WITH TRACE GRAVEL	3.0' - 5.0' VERY LOOSE BROWN SILTY SAND WITH TRACE GRAVEL	3.0' - 5.0' VERY LOOSE BROWN SILTY SAND WITH TRACE GRAVEL
5.0' - 8.0' VERY LOOSE BROWN SILTY SAND	5.0' - 8.0' MEDIUM COMPACT BROWN SILTY SAND WITH TRACE GRAVEL	5.0' - 8.0' MEDIUM COMPACT BROWN SILTY SAND WITH TRACE GRAVEL	5.0' - 8.0' MEDIUM COMPACT BROWN SILTY SAND WITH TRACE GRAVEL
8.0' - 12.0' MEDIUM COMPACT BROWN SILTY SAND	8.0' - 10.0' MEDIUM COMPACT BROWN SILTY SAND WITH TRACE SILT	8.0' - 10.0' MEDIUM COMPACT BROWN SILTY SAND WITH TRACE SILT	8.0' - 10.0' MEDIUM COMPACT BROWN SILTY SAND WITH TRACE SILT
12.0' - 15.0' MEDIUM COMPACT BROWN SAND WITH TRACE SILT	15.0' - 17.0' LOOSE BROWN SAND WITH TRACE SILT AND GRAVEL	15.0' - 17.0' LOOSE BROWN SAND WITH TRACE SILT AND GRAVEL	15.0' - 17.0' LOOSE BROWN SAND WITH TRACE SILT AND GRAVEL
15.0' END OF BORING; NO WATER WAS ENCOUNTERED	11.0' - 15.0' MEDIUM COMPACT GRAVELLY SAND WITH TRACE SILT	11.0' - 15.0' MEDIUM COMPACT GRAVELLY SAND WITH TRACE SILT	11.0' - 15.0' MEDIUM COMPACT GRAVELLY SAND WITH TRACE SILT
8-2	0.0' - 0.7' HMA PAVEMENT (P)	0.0' - 0.7' HMA PAVEMENT (P)	0.0' - 0.7' HMA PAVEMENT (P)
0.0' - 0.7' HMA PAVEMENT (P)	0.0' - 0.7' LOOSE TO MEDIUM COMPACT REDDISH BROWN GRAVELLY SAND WITH LITTLE SILT	0.0' - 0.7' LOOSE TO MEDIUM COMPACT REDDISH BROWN GRAVELLY SAND WITH LITTLE SILT	0.0' - 0.7' LOOSE TO MEDIUM COMPACT REDDISH BROWN GRAVELLY SAND WITH LITTLE SILT
0.7' - 15.0' MEDIUM COMPACT BROWN SAND WITH TRACE SILT AND GRAVEL	0.0' - 10.1' HMA PAVEMENT (P)	0.0' - 10.1' HMA PAVEMENT (P)	0.0' - 10.1' HMA PAVEMENT (P)
15.0' END OF BORING; NO WATER WAS ENCOUNTERED	0.0' - 1.5' MEDIUM COMPACT BROWN SILTY SAND WITH TRACE GRAVEL	0.0' - 1.5' MEDIUM COMPACT BROWN SILTY SAND WITH TRACE GRAVEL	0.0' - 1.5' MEDIUM COMPACT BROWN SILTY SAND WITH TRACE GRAVEL
8-3	0.0' - 0.4' HMA PAVEMENT (P)	0.0' - 0.4' HMA PAVEMENT (P)	0.0' - 0.4' HMA PAVEMENT (P)
0.0' - 0.4' HMA PAVEMENT (P)	0.0' - 3.0' MEDIUM COMPACT BROWN SAND WITH TRACE SILT AND GRAVEL	0.0' - 3.0' MEDIUM COMPACT BROWN SAND WITH TRACE SILT AND GRAVEL	0.0' - 3.0' MEDIUM COMPACT BROWN SAND WITH TRACE SILT AND GRAVEL
3.0' - 5.0' VERY LOOSE BROWN SAND WITH TRACE SILT AND GRAVEL	5.0' - 8.0' MEDIUM COMPACT BROWN SAND WITH TRACE SILT AND GRAVEL	5.0' - 8.0' MEDIUM COMPACT BROWN SAND WITH TRACE SILT AND GRAVEL	5.0' - 8.0' MEDIUM COMPACT BROWN SAND WITH TRACE SILT AND GRAVEL
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15.0' END OF BORING; NO WATER WAS ENCOUNTERED	8-6	0.0' - 0.7' HMA PAVEMENT (P)	0.0' - 0.7' HMA PAVEMENT (P)
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0.7' - 15.0' MEDIUM COMPACT BROWN SAND WITH TRACE SILT AND GRAVEL, OCCASIONAL SILTY LAYERS	15.0' END OF BORING; NO WATER WAS ENCOUNTERED	15.0' END OF BORING; NO WATER WAS ENCOUNTERED	15.0' END OF BORING; NO WATER WAS ENCOUNTERED
15.0' END OF BORING; NO WATER WAS ENCOUNTERED	8-9	0.0' - 0.5' HMA PAVEMENT (P)	0.0' - 0.5' HMA PAVEMENT (P)
0.0' - 0.5' HMA PAVEMENT (P)	0.0' - 1.1' FILL AGGREGATE BASE (F)	0.0' - 1.1' FILL AGGREGATE BASE (F)	0.0' - 1.1' FILL AGGREGATE BASE (F)
1.1' - 3.0' MEDIUM COMPACT BROWN SILTY SAND WITH TRACE GRAVEL	3.0' - 6.0' LOOSE BROWN SILTY SAND WITH TRACE GRAVEL	3.0' - 6.0' LOOSE BROWN SILTY SAND WITH TRACE GRAVEL	3.0' - 6.0' LOOSE BROWN SILTY SAND WITH TRACE GRAVEL
6.0' - 12.0' LOOSE TO MEDIUM COMPACT BROWN GRAVELLY SAND WITH TRACE SILT	6.0' - 12.0' LOOSE TO MEDIUM COMPACT BROWN GRAVELLY SAND WITH TRACE SILT	6.0' - 12.0' LOOSE TO MEDIUM COMPACT BROWN GRAVELLY SAND WITH TRACE SILT	6.0' - 12.0' LOOSE TO MEDIUM COMPACT BROWN GRAVELLY SAND WITH TRACE SILT
12.0' - 15.0' MEDIUM COMPACT BROWN SAND WITH TRACE SILT AND GRAVEL	15.0' END OF BORING; NO WATER WAS ENCOUNTERED	15.0' END OF BORING; NO WATER WAS ENCOUNTERED	15.0' END OF BORING; NO WATER WAS ENCOUNTERED
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15.0' END OF BORING; NO WATER WAS ENCOUNTERED			

NEDERVELD
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ANN ARBOR
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ST. LOUIS

PREPARED FOR:
NEWCO Design Build, LLC
Attn: Chris VanDoesel
4131 Roger B Chaffee Memorial Blvd SE
Grand Rapids, MI 49548
(616) 493-9360

REVISIONS:

Title	Drawn: SW	Checked: SW	Date
Preliminary Site Plan			03/28/19
Site Plan			04/12/19
Site Plan Submittal			04/16/19
Minor Building Department Modifications			05/09/19
Site Plan Resubmittal			05/23/19
Landscaping/Clear Vision			05/31/19
City Comments from 05/14/19			06/18/19
City Comments from 07/09/19			07/12/19
Bid and Permit Set - 07/29/19			07/29/19
Addendum #1 - 08/01/19			08/01/19
Per Water Service			08/08/19
Per Planning Commission			08/28/19
Per Owner			09/10/19

Lake Michigan Credit Union
Existing Conditions and Demolition Plan
310 W. Tiengen Road, Rochester Hills, MI 48306
PART OF THE SOUTHEAST OF SECTION 3 T3N, R11E, CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN



PROJECT NO:
19500016

SHEET NO:
C-201
SHEET: 1 OF 7



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BENCHMARKS

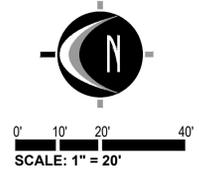
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Chiselled Square on the East face of the concrete light pole base on the West P.L., 30'± Northeast of the brick building, #330 Tienken Road.

SITE PLAN GENERAL NOTES

- ZONING OF SUBJECT PARCEL = O-1 WITH FB-1 OVERLAY
 - ZONING REQUIREMENTS:
 - MINIMUM LOT AREA - NOT APPLICABLE
 - MINIMUM LOT WIDTH - NOT APPLICABLE
 - MAXIMUM BUILDING HEIGHT = 2 STORIES / 30 FT (OVERLAY) (NORMALLY 3 STORIES / 42 FT)
 - MAXIMUM LOT COVERAGE (BUILDING) - NOT APPLICABLE
 - MINIMUM ALLOWED BUILDING SETBACKS:
 - FRONT YARD = 35 FT
 - SIDE YARD = 5 FT MINIMUM / 50 FT TOTAL BOTH SIDES
 - REAR YARD = 35 FT
 - SUMMARY OF LAND USE:
 - AREA OF SITE = APPROXIMATELY 69,193 SF (1.59 AC) EXCLUDING ROAD R.O.W.
 - AREA OF PROPOSED BUILDING = APPROXIMATELY 4,638 SF (PLUS TEMP. 924 SF OFFICE)
 - AREA OF PROPOSED PAVEMENT/CONCRETE = APPROX. 26,200 SF
 - HEIGHT OF PROPOSED BUILDING = APPROXIMATELY 25 FT
 - THE BUILDING CONSTRUCTION TYPE WILL BE V-8
 - THE TYPICAL BUSINESS HOURS ARE: MONDAY - THURSDAY : 9 AM - 5:30 PM
FRIDAY : 9 AM - 6:00 PM
SATURDAY : 9 AM - 1:00 PM
 - THERE WILL BE APPROXIMATELY 12 EMPLOYEES AT THE SITE.
 - ZONING OF PARCELS TO THE WEST = O-1
 - ZONING OF PARCELS TO THE EAST = B-2
 - ZONING OF PARCELS TO NORTH AND NORTHEAST = RM-1 (MULTIPLE FAMILY RESIDENTIAL)
 - ZONING OF PARCELS TO THE SOUTH = R4 (ONE FAMILY RESIDENTIAL)
- PARKING REQUIREMENTS:
 - MINIMUM / TYPICAL PARKING SPACE = 10' x 18' (24 FT MINIMUM TWO-WAY AISLES)
 - TYPICAL BARRIER FREE SPACE = 8' x 18' (WITH 6 FT WIDE VAN-ACCESSIBLE AISLES)
 - THE BARRIER FREE SPACES SHALL BE IDENTIFIED BY SIGNS PER ICC #117-1-2009, SECTION 502.7
 - PARKING SPACES REQUIRED PER THE ORDINANCE = 12 (BASED ON 1 PER 400 SF OF BUILDING)
 - PARKING SPACES PROVIDED = 23
 - MINIMUM REQUIRED PARKING SETBACKS: FRONT AND SIDE YARDS AND ABUTTING BUILDING = 10 FT
 - NO LARGE DELIVERIES ARE ANTICIPATED FOR THE SITEUSE.
 - THIS PROJECT IS NOT LOCATED WITHIN THE 100 YEAR FLOODPLAIN ACCORDING TO THE FEMA FLOODPLAIN MAPS.
 - BEST MANAGEMENT PRACTICES WILL BE UTILIZED DURING AND AFTER CONSTRUCTION OF THE PROJECT. MEASURES WILL INCLUDE THE USE OF SILT FENCING, SEEDING AND MULCHING AND COMPACTION.
 - ALL SIGNS MUST MEET THE STANDARDS AND SPECIFICATIONS OF CHAPTER 134 OF THE CITY CODE OF ORDINANCES AND BE APPROVED UNDER A SEPARATE PERMIT ISSUED BY THE BUILDING DEPARTMENT.
 - FREE STANDING SIGN: GROUND SIGN
MAXIMUM AREA = 48 SQ. FT (TOTAL MAXIMUM OF 100 SQ. FT. WITH NO SINGLE SIGN EXCEEDING 48 SQ. FT.)
(ONE PER VEHICLE ENTRANCE)
 - MAXIMUM HEIGHT = 7 FT
MINIMUM SETBACK = 10 FT
WALL SIGN: 30 SQ. FT. (20 SQ. FT. TIMES 1.5 FACTOR DUE TO THE BUILDING BEING 100' - 249 FT OFF ROAD R.O.W.)

LEGEND

- EXISTING BITUMINOUS
- EXISTING CONCRETE
- PROPOSED BITUMINOUS (STANDARD DUTY)
- PROPOSED BITUMINOUS (HEAVY DUTY)
- PROPOSED CONCRETE (STANDARD DUTY)
- PROPOSED CONCRETE (HEAVY DUTY)
- PROPOSED BUILDING

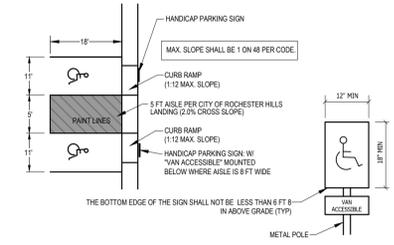
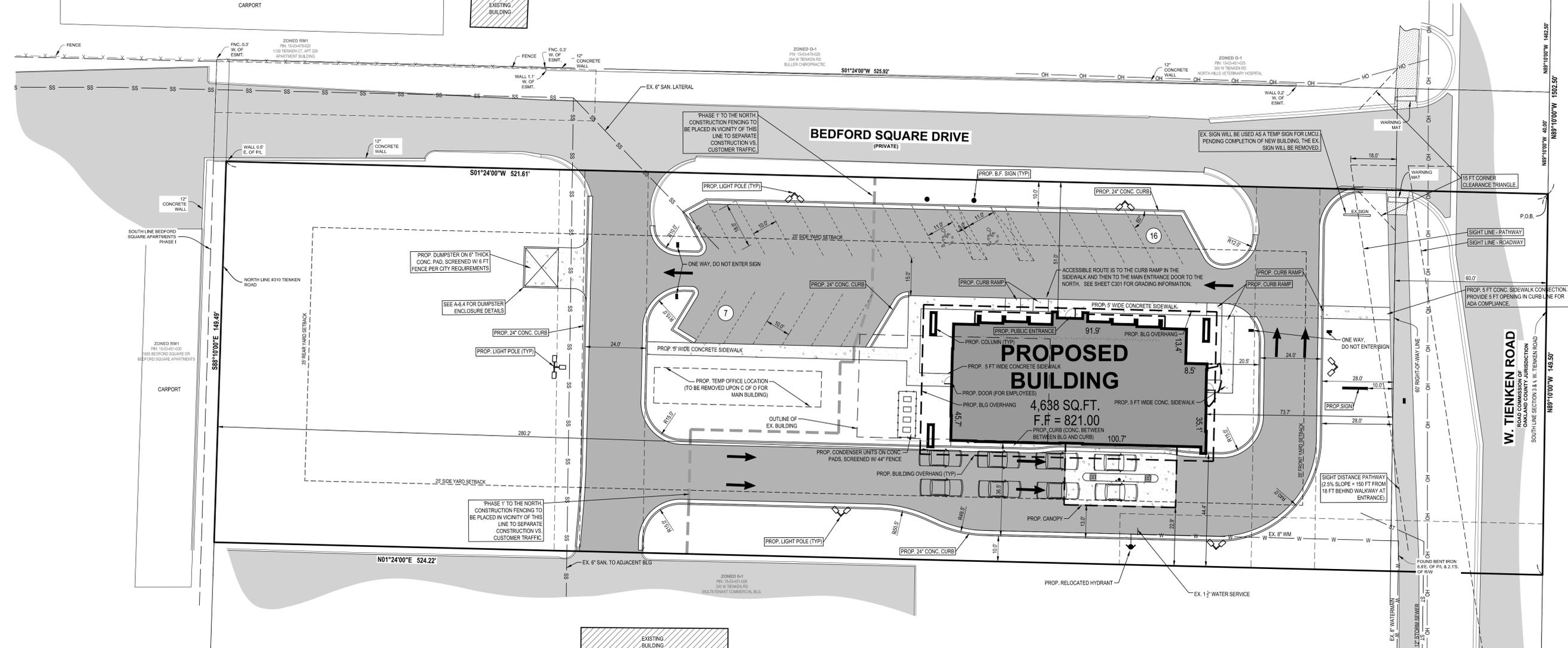


LOCATION MAP

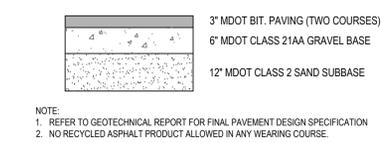
NOT TO SCALE

FIRE DEPARTMENT NOTES

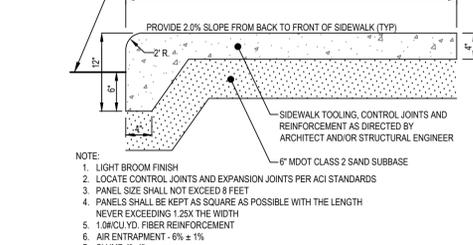
- THE BUILDING CONSTRUCTION TYPE WILL BE V-8.
- A KNOX KEY SYSTEM SHALL BE INSTALLED, IN A LOCATION APPROVED BY THE FIRE CODE OFFICIAL. ORDERING INFORMATION IS AVAILABLE FROM THE KNOX COMPANY AT KNOXBOX.COM. - IFC 2006 SEC. 506
- FIRE LINES SHALL BE DESIGNATED BY THE FIRE CODE OFFICIAL, AND SHALL BE CONSPICUOUSLY POSTED ON BOTH SIDES OF THE FIRE LANE, WITH FIRE LANE SIGNS, SPACED NOT MORE THAN 100 FEET APART. FIRE LANE SIGNS SHALL READ "NO STOPPING, STANDING, PARKING, FIRE LANE", AND SHALL CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. - FIRE PROTECTION ORDINANCE CHAPTER 58, SEC. 503
- CONSTRUCTION SITES SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC 2006 CHAPTER 14.
- 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 PROTECTION ORDINANCE CHAPTER 58, SEC. 307.6.2 & 307.6.2.3



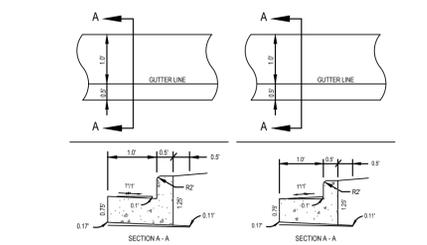
TYPICAL BARRIER FREE ACCESSIBLE PARKING SPACES
N.T.S.



STANDARD DUTY PAVEMENT CROSS SECTION
N.T.S.



INTEGRAL CURB AND WALK
N.T.S.



18\"/>

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ANN ARBOR
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HOLLAND
INDIANAPOLIS
ST. LOUIS

PREPARED FOR:
NEWCO Design Build, LLC
Attn: Chris VanDooeselaar

4131 Roger B Chaffee Memorial Blvd SE
Grand Rapids, MI 49548
(616) 493-9360

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Lake Michigan Credit Union
Site Layout Plan
310 W. Tienken Road, Rochester Hills, MI 48306
PART OF THE SOUTHEAST OF SECTION 3 T3N, R11E,
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

STAMP:

STATE OF MICHIGAN
STEVEN L. WITTE
ENGINEER
No. 48769
LICENSED PROFESSIONAL ENGINEER

PROJECT NO:
19500016

SHEET NO:
C-205

SHEET: 2 OF 7



UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.

NOTE: EXISTING UTILITIES AND SERVICE LINES IDENTIFIED AS "PLAN" WERE OBTAINED FROM AVAILABLE AS-BUILT RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH AND STATUS OF ALL UTILITIES AND SERVICE LINES PRIOR TO NEW CONNECTIONS.

BENCHMARKS

- BENCHMARK #1** ELEV. = 814.80 (DATUM NAVD83)
Chiseled "X" on the sanitary manhole on the East side of Bedford Square Drive, 525± North of Tienken Road.
- BENCHMARK #2** ELEV. = 821.57 (DATUM NAVD83)
MAG nail in the West face of the utility pole on the East P.L. 80± North of Tienken Road.
- BENCHMARK #3** ELEV. = 819.45 (DATUM NAVD83)
Chiseled Square on the East face of the concrete light pole base on the West P.L. 30± Northeast of the brick building, #330 Tienken Road.

CONSTRUCTION NOTES

- ALL CONSTRUCTION AND MATERIAL SPECIFICATIONS INCLUDED FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITIONS OF THE SPECIFICATIONS FOR STANDARD CONSTRUCTION AND MATERIALS LATEST EDITION AND THE ORDINANCES OF THE CITY, WHERE CONFLICTS OCCUR IN THE ABOVE, THE CITY SHALL BE THE GOVERNING AUTHORITY.
- SOIL BORINGS HAVE BEEN PERFORMED BY THE OWNER AND SHALL BE PROVIDED TO THE CONTRACTOR. VARIATION IN EXISTING SOIL CONDITIONS MAY IMPACT THE EARTHWORK QUANTITIES. UNDESIRABLE SOILS ARE ENCOUNTERED DURING CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO THE EXISTING WATER AND SEWERAGE SYSTEMS RESULTING FROM NON-COMFORMANCE WITH THE APPLICABLE STANDARDS OR THROUGH GENERAL NEGLIGENCE.
- ALL WORK INCLUDING INSPECTIONS AND TESTING COST REQUIRED FOR REMOVAL, RELOCATION OR NEW CONSTRUCTION FOR PRIVATE OR PUBLIC UTILITIES, WILL BE DONE BY AND AT THE EXPENSE OF THE CONTRACTOR AND INCLUDED IN THE BID PRICE FOR THE VARIOUS WORK ITEMS UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL NECESSARY PERMITS FROM THE CITY AND COUNTY AND ANY OTHER AGENCY FOR ALL WORK DONE BY THE CONTRACTOR.
- ANY DEFECTS IN THE CONSTRUCTION, INCLUDING MATERIALS OR WORKMANSHIP, SHALL BE REPAIRED OR CORRECTED BY REMOVAL AND REPLACEMENT OR OTHER APPROVED METHODS PRIOR TO ACCEPTANCE BY THE CITY OR OWNER WITHOUT ANY ADDITIONAL COST TO THE CITY OR OWNER.
- ALL LAWN AREAS REMOVED OR DISTURBED SHALL BE REPLACED WITH TOPSOIL AND SOIL WHERE NEEDED AND SHALL BE RESEED AND MAINTAINED IF SATISFACTORY RE-ESTABLISHMENT OF LAWN DOES NOT OCCUR.
- ALL PUNCH LIST AND DEFICIENCY WORK SHALL BE COMPLETED WITHIN 1 MONTH OF THE END OF CONSTRUCTION.
- THE CONTRACTOR SHALL OBTAIN A STREET OPENING PERMIT FROM THE CITY BEFORE BEGINNING WORK WITH ANY PUBLIC STREET RIGHT-OF-WAY.
- THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF CONSTRUCTION DRAWINGS ON SITE AT ALL TIMES.
- THESE PLANS HAVE BEEN DEVELOPED FOR ELECTRONIC FIELD LAYOUT. DIMENSIONS SHOWN ARE FOR GRADING PRESENTATION ONLY AND SHOULD NOT BE USED FOR LAYOUT. CONTACT THE ENGINEER IF ANY DISCREPANCIES BETWEEN THE PLAN AND ELECTRONIC DATA ARE DISCOVERED.
- THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LIGHTS, BARRICADES, FLAGMEN, ETC. AS REQUIRED TO PERFORM THE REQUIRED WORK. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES AS REQUIRED SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS. THE CONTRACTOR SHALL FURNISH, ERECT, MAINTAIN AND SUBSEQUENTLY REMOVE SUCH ADDITIONAL TRAFFIC CONTROL DEVICES LOCATED OUTSIDE THE LIMITS OF CONSTRUCTION AS ARE REQUIRED ON THOSE STREETS WHICH ARE USED AS DETOURS, INCLUDING ROAD CLOSED SIGNS AND BARRICADES AT THE POINT WHERE THE ROAD IS CLOSED TO THROUGH TRAFFIC.
- THE CONTRACTOR SHALL PROTECT LOCATION OF ALL PROPERTY PINS AND BENCHMARKS.
- ALL WORK CONTEMPLATED SHALL AT ALL TIMES BE SUBJECT TO THE DIRECT INSPECTION OF THE CITY, OWNER AND THEIR REPRESENTATIVES. THE CITY AND OWNER RESERVES THE RIGHT TO HALT ALL CONSTRUCTION ACTIVITY FOR NON-COMFORMANCE OF PLANS, SPECIFICATIONS AND OTHER APPLICABLE STANDARDS OR REGULATIONS.
- PRICES BID PER FOOT FOR ALL PIPES IS COMPACTED IN PLACE REGARDLESS OF SOIL OR ROCK CONDITIONS.
- CONTRACTOR IS RESPONSIBLE FOR ALL SIGNS, BARRICADES AND SAFETY FENCES TO DETER PEOPLE FROM ENTERING THE WORK AREA AND FOR MAINTAINING AND PROTECTING THE FLOW OF VEHICULAR AND PEDESTRIAN TRAFFIC AROUND THE JOB SITE. TRAFFIC CONTROLS SHALL BE COORDINATED WITH THE POLICE DEPARTMENT AND THE CITY.

STORM SEWER CHART

PROP. CB #1 4" DIA. CATCHBASIN W/ E.I.W. #7050 COVER AND FLOATABLE INLET TRAP RIM ELEV. = 819.30 6" INV. W. = 815.50 12" INV. N. = 815.30	PROP. CB #7 OUTLET CONTROL STRUCTURE SEE DETAIL THIS SHEET. TO BE PLACED ON EX. STORM OUTLET LINE NOTE: ALL CATCHBASINS SHALL HAVE 3 FT SUMPS (TYP) UNLESS OTHERWISE NOTED.	PIPE LENGTH X PLACE 53 L.F. OF 6" STM SEWER (PVC) ROOF DRAIN LEAD @ 1.00%.
PROP. CB #2 4" DIA. CATCHBASIN W/ E.I.W. #7050 COVER AND FLOATABLE INLET TRAP RIM ELEV. = 819.25 12" INV. S = 815.00 12" INV. N = 815.00	PIPE LENGTH A PLACE 53 L.F. OF 12" STM SEWER (PERF. SLOPP W/ SOCK) @ 0.32%	PIPE LENGTH Y PLACE 34 L.F. OF 6" STM SEWER (PVC) ROOF DRAIN LEAD @ 1.00%
PROP. CB #3 4" DIA. CATCHBASIN W/ E.I.W. #7050 COVER AND FLOATABLE INLET TRAP RIM ELEV. = 817.70 12" INV. W. = 814.25 12" INV. S = 814.25	PIPE LENGTH B PLACE 94 L.F. OF 12" STM SEWER (PERF. SLOPP W/ SOCK) @ 0.78%	PIPE LENGTH Z PLACE 57 L.F. OF 3" STM SEWER (PVC) ROOF DRAIN LEAD @ 2.00%
PROP. CB #4 4" DIA. CATCHBASIN W/ E.I.W. #7050 COVER AND FLOATABLE INLET TRAP RIM ELEV. = 816.90 12" INV. E = 813.91	PIPE LENGTH C PLACE 107 L.F. OF 12" STM SEWER (PERF. SLOPP W/ SOCK) @ 0.32%	STORMTECH CHAMBERS ALL CHAMBERS, END CAPS, AND INSPECTION PORTS SHALL BE PLACED PER MANUFACTURER'S STANDARDS AND SPECIFICATIONS.
PROP. CB #5 4" DIA. CATCHBASIN W/ E.I.W. #7050 COVER WITH FLOATABLE INLET TRAP RIM ELEV. = 815.15 3" INV. SE = 815.75 6" INV. E = 815.50 15" INV. S = 813.98 15" INV. N = 813.88	PIPE LENGTH D PLACE 148 L.F. OF 15" STM SEWER (PERF. SLOPP W/ SOCK) @ 0.20%	
PROP. CB #6 - STORM WATER QUALITY UNIT ADS BARRICADA 54 UNIT W/ E.I.W. #1060 TYPE M2 COVER RIM ELEV. = 816.50 15" INV. N = 813.14 24" INV. S = 813.14	PIPE LENGTH E PLACE 134 L.F. OF 15" STM SEWER (PERF. SLOPP W/ SOCK) @ 0.40%	
	PIPE LENGTH F PLACE 28 L.F. OF 24" STM SEWER (PERF. SLOPP W/ SOCK) @ 0.10%. PLACE 24" TEES AS NECESSARY FOR CHAMBER CONNECTIONS (TYP)	
	PIPE LENGTH G PLACE TWO ROWS OF 15 MC 3500 STORMWATER CHAMBERS (30 CHAMBERS TOTAL). PLACE 4 ADS MC 3500 ENDCAPS CONNECT WITH 24" STORM SEWER (PERF. SLOPP W/ SOCK) TO DOWNSTREAM 24" HEADER PIPE. SLOPE OF CHAMBERS AND PIPE = 0.10%.	

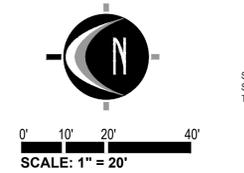
Experience... the Difference



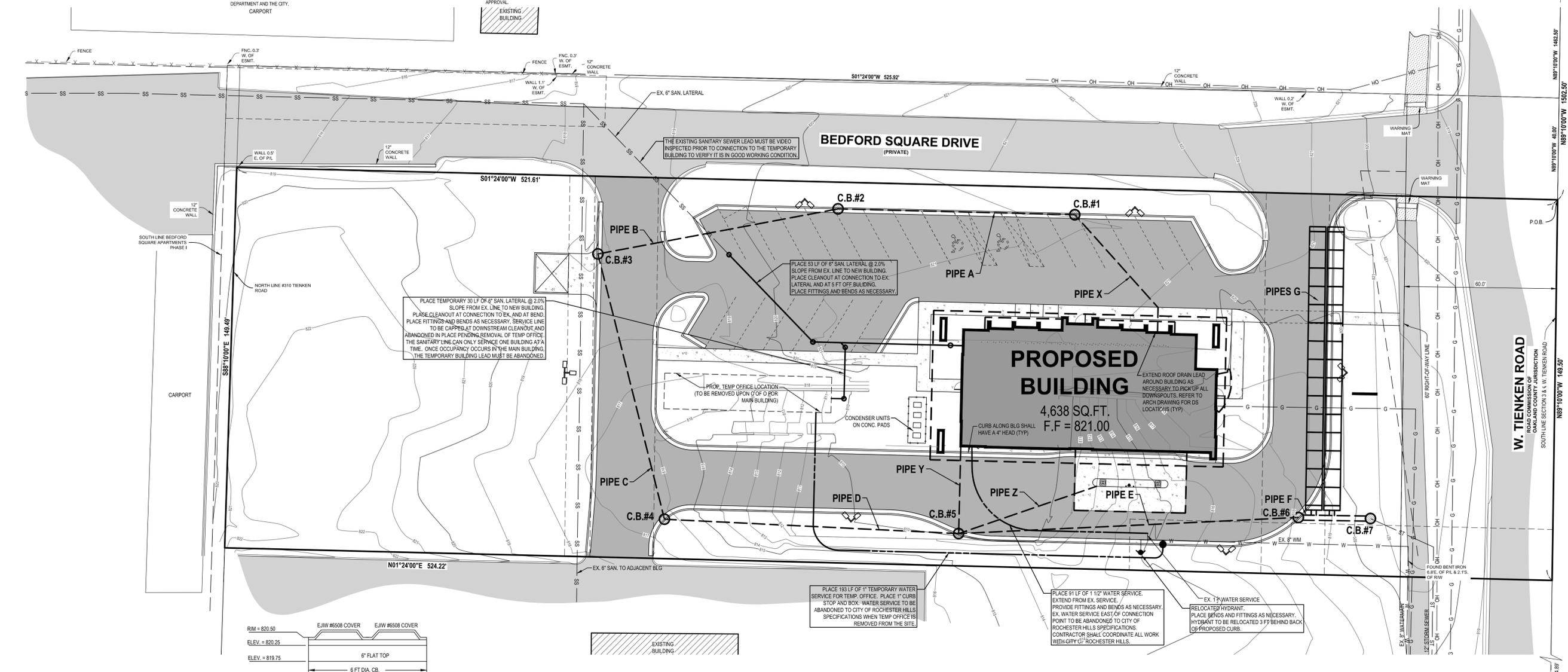
LOCATION MAP
NOT TO SCALE

LEGEND

[Symbol]	EXISTING BITUMINOUS
[Symbol]	EXISTING CONCRETE
[Symbol]	PROPOSED BITUMINOUS (STANDARD DUTY)
[Symbol]	PROPOSED CONCRETE (STANDARD DUTY)
[Symbol]	PROPOSED CONCRETE (HEAVY DUTY)
[Symbol]	PROPOSED BUILDING



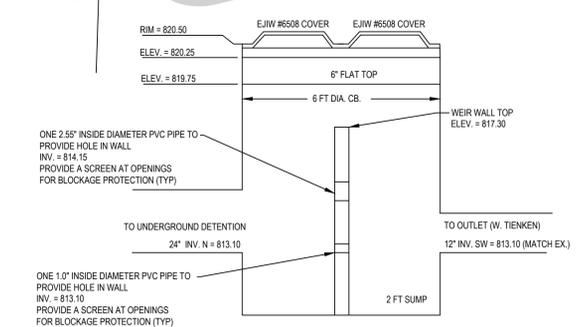
SCALE: 1" = 20'



SANITARY SEWER BASIS OF DESIGN

ROCHESTER HILLS BASIS OF DESIGN: 100 GPD/REU
OAKLAND COUNTY UNIT ASSIGNMENT FACTOR:
FINANCIAL INSTITUTION OFFICE: 0.40 REU PER 1,000 SF
(4,638 SF) (0.40 REU) = 1.86 REU
ROCHESTER HILLS PEAK FACTOR: 4.0
AVERAGE FLOW:
(100 GPD/REU) (1.86 REU) = 186 GPD (0.0003 CFS)
PEAK FLOW: AVERAGE FLOW * 4 =
(186 GPD) (4) = 744 GPD (0.0112 CFS)
6" LATERAL FLOW (1.00% SLOPE): 0.73 CFS
6" LATERAL VELOCITY (1.00% SLOPE): 3.72 FPS (WHEN FULL)

OUTLET CONTROL STRUCTURE CATCHBASIN #7



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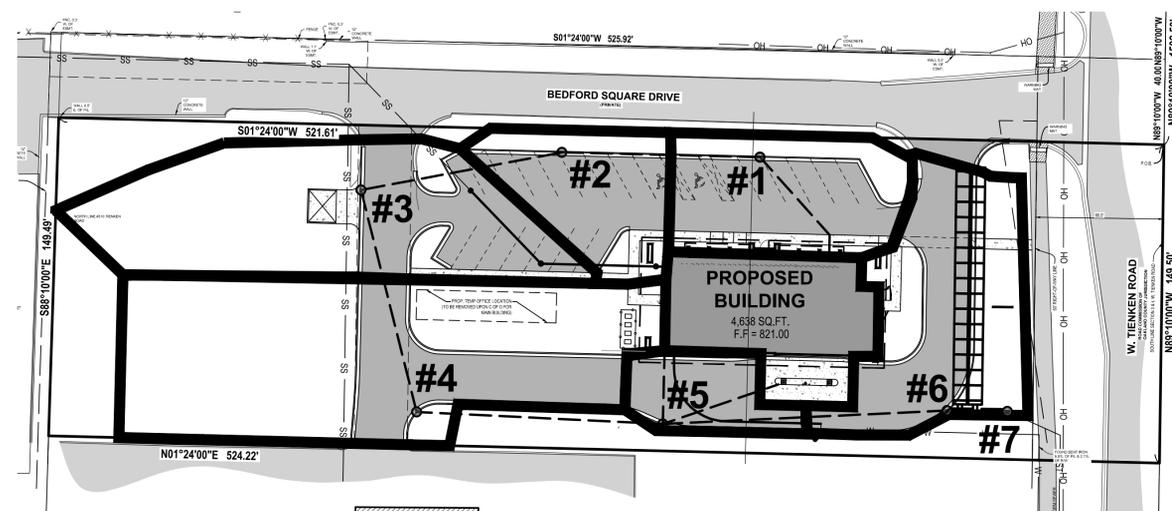
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Lake Michigan Credit Union
Utility Plan
310 W. Tienken Road, Rochester Hills, MI 48306
PART OF THE SOUTHEAST OF SECTION 3 T3N, R1E,
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

STAMP:
STATE OF MICHIGAN
STEVEN L. WITTE
ENGINEER
No. 48769
LICENSED PROFESSIONAL ENGINEER

PROJECT NO:
19500016
SHEET NO:
C-300
SHEET: 3 OF 7



DRAINAGE AREA MAP FOR STORM SIZING

Nederveld Associates, Inc.

Project: LMCU - Rochester
Project #: 19500016
Date: 9/10/2019

Storm Sewer Design
MODEL OF DEVELOPED AREAS

From	To	C**	Fractioned C Value	Time (min)**	Area Increment	Total Area (acres)	I (in/hr)**	Q (cfs)	L (ft)	Pipe Size (in)	Type of Pipe	Full Flow HGL (%)	Actual Pipe Grade (%)	Full Flow Velocity (ft/s)
E1/2 Bldg	1	0.95	0.95	10.0	0.053	0.053	5.00	0.25	59	6	P	0.15	1.00	1.29
1	2	0.75	0.80	15.0	0.141	0.194	4.38	0.64	93	12	P	0.02	0.32	0.81
2	3	0.79	0.80	15.0	0.111	0.305	4.38	1.06	96	12	P	0.06	0.78	1.35
3	4	0.55	0.68	15.0	0.290	0.595	4.38	1.42	107	12	P	0.11	0.32	1.81
4	5	0.49	0.60	15.0	0.403	0.998	4.38	2.14	116	15	P	0.08	0.20	1.74
W1/2 Bldg	5	0.95	0.95	10.0	0.053	0.053	5.00	0.25	34	6	P	0.15	1.00	1.29
Canopy	5	0.95	0.95	10.0	0.024	0.024	5.00	0.11	57	3	P	1.20	2.00	2.33
5	6	0.95	0.64	15.0	0.059	1.134	4.38	4.72	134	15	P	0.38	0.40	3.84
6	6	0.67	0.65	15.0	0.198	1.333	4.38	3.91	28	24	P	0.02	0.10	1.24

Formulas and Constants

Rational Equation
Q = CA, where

Q = Flow (cfs)
C = Rational Coefficient
i = Rainfall Intensity (in/hr)
A = Tributary Area (ac)

Mannings Equation
Q = (1.486/n) x (R^(2/3)) x S^(1/2) x A, where

Q = Flow (cfs)
n = Mannings Roughness Coef.
R = Hydraulic Radius
S = Slope of Pipe (ft/ft)
A = Area of Flow (sq. ft)

Manning Roughness Coefficients

Concrete	C	0.013
Cor. Metal	CM	0.024
Plastic	P	0.011

* A Time of Concentration was assumed to be 15 minutes for all sections of pipe.
** A Developed Runoff Coefficient was calculated for the individual drainage areas that had a combination of lawn and hard surface.
*** Intensity, I = 175 (T+25)



LOCATION MAP

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Nederveld Associates, Inc. Project: LMCU - Rochester Hills
Project #: 19500016
Date: 9/10/2019

Information For Determining Detention Requirements

C-DEVELOPED-ON SITE

A. Impervious Area (C=0.95)	Length (ft)	Width (ft)	Area (s.f.)	Quantity	Total Area (s.f.)	Area (Ac)
Asphalt/Concrete Area	1	1	26200	1	26200	0.60
Building Area	1	1	4638	1	4638	0.11
Total						0.71

B. 'Green' Area (C=0.30)

Total site area	69193 sf	1.59
Total impervious area		0.71
Change in impervious area		0.71
Total 'Green' area		0.88

C. Calculate C-dev = (95(area.95)+3(area.3))/total area
C-dev = 0.59

Nederveld Associates, Inc. Project: LMCU - Rochester Hills
Project #: 19500016
Date: 9/10/2019

Recharge and Infiltration Design

Volume of water to be captured and infiltrated: Rev = 1,815 (A)(C)

A = Area of Site = 1.59 acres
C = Weighted Runoff Coefficient = 0.59
0.5" rainfall converted to cf = 1815
Rev = 1,700 cubic feet

Total Storage in Chamber System = 8,682 cf
Depth of Chambers = 3.75 ft
Approximate Depth to provide Required Rev Volume = 0.73 ft = 8.81 inches

Nederveld Associates, Inc. Project: LMCU - Rochester Hills
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One Year Storm

Detention Basin Sizing Calculations

A. Calculate maximum outflow per acre Qo = Qa/(acreage* runoff coefficient)

Qa = 0.32 cfs (based on 0.20" acreage)
Acreage = 1.59 acres
Runoff Coeff. = 0.59
Qo = 0.339 cfs/acre

B. Calculate the storage time, T, in minutes, from the orifice outlet storage time equation.

T = -25 + (2700*Qo)^.5
T = 64.22 min.

C. Calculate the max. volume of storage per acre impervious

Vs = (4320*T*(T+25))-40QoT
Vs = 2,238 cf/acre impervious

D. Calculate the total volume of storage, Vt, required for the entire site.

Vt = Vs (# acres)(runoff coefficient)
Vt = 2097 cf

E. Select an outflow pipe from the orifice formula that will yield the allowable outflow operating under the actual head to drain water dry in 24 hours

Flow Rate Q to drain volume in 24 hours = 0.0243 cfs

Q = 0.62*a*(2*g*h)^.5
Area = Q/(.62*(2*g*h)^.5)

Q = 0.0243 cfs
g = 32.2 ft/sec^2
h = 1.04 ft
Area = 0.0047824 sf
Diameter of Pipe = 0.0780332 ft = 0.94 inches
USE 0.90" DIAMETER OPENING

Manufactured Treatment Device (SWQU) Sizing:
Flow to be treated = Q = C* I * A
C = 0.59
I = 2.16 in/hr (97/(T+30) where T is 15 minutes)
A = 1.59 acres
Q = 2.02 cfs

Nederveld Associates, Inc. Project: LMCU - Rochester Hills
Project #: 19500016
Date: 9/10/2019

Flood Control 25 Year Storm

Detention Basin Sizing Calculations

A. Calculate maximum outflow per acre Qo = Qa/(acreage* runoff coefficient)

Qa = 0.32 cfs (based on 0.20" acreage)
Acreage = 1.59 acres
Runoff Coeff. = 0.59
Qo = 0.339 cfs/acre

B. Calculate the storage time, T, in minutes, from the orifice outlet storage time equation.

T = -25 + (8062.5*Qo)^.5
T = 129.18 min.

C. Calculate the max. volume of storage per acre impervious

Vs = (12,900*T*(T+25))-40QoT
Vs = 9,056 cf/acre impervious

D. Calculate the total volume of storage, Vt, required for the entire site.

Vt = Vs (# acres)(runoff coefficient)
Vt = 8483 cf

E. Select an outflow pipe from the orifice formula that will yield the allowable outflow operating under the actual head.

Q = 0.62*a*(2*g*h)^.5
Area = Q/(.62*(2*g*h)^.5)

Q = 0.32 cfs
g = 32.2 ft/sec^2
h = 3.11 ft
Area = 0.0362067 sf
Diameter of Pipe = 0.2147089 ft = 2.58 inches
USE 2.55" DIAMETER OPENING

Nederveld Associates, Inc. Project: LMCU - Rochester Hills
Project #: 19500016
Date: 9/10/2019

Detention Storage Calculations

StormTech SC-740 Chamber System
Volume Per Chamber = 74.9 cf
Number of Chambers = 0 chambers
Volume Provided = 0 cf

StormTech MC3500 Chamber System
Volume Per Chamber = 178.9 cf
Number of Chambers = 30 chambers
Volume Per End Cap = 14.90 cf
Number of End Caps = 4 endcaps
Volume Provided = 5,427 cf

StormTech MC4500 Chamber System
Volume Per Chamber = 162.6 cf
Number of Chambers = 0 chambers

Volume in Storm Pipes:
Volume per Foot of 12" Storm Pipe = 0.79 cf per foot of pipe
Volume in stone void per ft of pipe = 3.29 cf (assumes 1 ft stone trench on top, bottom, and sides; 40% voids)
Total Volume per Foot of Pipe = 4.07 cf
Length of Pipe = 296 ft
Volume in Storm Pipes = 1,205 cf

Volume per Foot of 15" Storm Pipe = 1.23 cf per foot of pipe
Volume in stone void per ft of pipe = 3.73 cf (assumes 1 ft stone trench on top, bottom, and sides; 40% voids)
Total Volume per Foot of Pipe = 4.96 cf
Length of Pipe = 250 ft
Volume in Storm Pipes = 1,240 cf

Volume per Foot of 24" Storm Pipe = 3.14 cf per foot of pipe
Volume in stone void per ft of pipe = 5.14 cf (assumes 1 ft stone trench on top, bottom, and sides; 40% voids)
Total Volume per Foot of Pipe = 8.28 cf
Length of Pipe = 28 ft
Volume in Storm Pipes = 232 cf

Catchbasin Volumes
Number of catchbasins = 6
Vertical feet per catchbasin = 36 ft (assumes 6 ft per catchbasin)
Volume per Vertical Foot = 12.57 cf
Volume Provided in Catchbasins = 452 cf

TOTAL VOLUME PROVIDED = 8,556 cf
TOTAL VOLUME REQUIRED = 8,483 cf

Nederveld Associates, Inc. Project: LMCU - Rochester Hills
Project #: 19500016
Date: 9/10/2019

Information For Determining Storm Sewer Sizing

Drainage Area	Impervious area (C=0.95)	Grass area (C=0.30)	Drainage Area	C-Developed
Drainage Area 1	4260 sf = 0.10 acres	1890 sf = 0.04 acres	6150 sf = 0.14 acres	0.75
Drainage Area 2	3660 sf = 0.08 acres	1170 sf = 0.03 acres	4830 sf = 0.11 acres	0.79
Drainage Area 3	4800 sf = 0.11 acres	7820 sf = 0.18 acres	12620 sf = 0.29 acres	0.55
Drainage Area 4	5110 sf = 0.12 acres	12440 sf = 0.29 acres	17550 sf = 0.40 acres	0.49
Drainage Area 5	2580 sf = 0.06 acres	0 sf = 0.00 acres	2580 sf = 0.06 acres	0.95
Drainage Area 6	4920 sf = 0.11 acres	3710 sf = 0.09 acres	8630 sf = 0.20 acres	0.67

Nederveld Associates, Inc. Project: LMCU - Rochester Hills
Project #: 19500016
Date: 9/10/2019

Spillway Calculations

Emergency Spillway: I = 3.89 C(Dev) = 0.59 Tc (Dev) = 20.0 minutes Area = 1.59 acres

10-yr = C(Dev)I(10)A = 3.64 CFS

Weir Equat Q = CLH^{1.5}

C (weir coef) = 3.30
H (height over weir) = 0.33 ft

Minimum Spillway Dimension
Weir Base = 5.82 Ft.

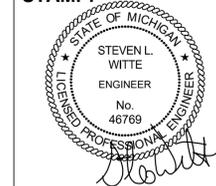
Spillway Design Flow = 3.75 cfs
Spillway Design Dimension
Weir Base = 6.00 Ft.

The water will be approximately 0.33 ft above the weir wall during an emergency situation.

1 Year Volume = 2097 cf
25 Year Volume = 8483 cf

The 1 year volume is approximately 25% of the total volume provided.
The storage profile is from between the outlet elevation (813.10) and the elevation of the emergency spillway (elevation 817.30), which is slightly higher than the top of the highest chamber. Therefore, place the first flush orifice at the outlet elevation (813.10). And place the second low flow orifice at elevation 814.15 (25% up the storage volume 'profile').

STAMP:



PROJECT NO:
19500016

SHEET NO:
C-400
SHEET: 5 OF 7



UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.

NOTE: EXISTING UTILITIES AND SERVICE LINES IDENTIFIED AS "PLANS" WERE OBTAINED FROM AVAILABLE "SUBJECT RECORD" DRAWINGS. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH AND STATUS OF ALL UTILITIES AND SERVICE LINES PRIOR TO NEW CONNECTIONS.

ADDITIONAL LANDSCAPING NOTES FROM THE CITY

PRIOR APPROVAL IS REQUIRED TO PLANT ANY TREE OR SHRUB ON THE PUBLIC RIGHT-OF-WAY. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10 FT FROM THE EDGE OF THE PUBLIC ROAD. (TREES MUST BE PLANTED AT LEAST 15 FT AWAY FROM CURB OR ROAD EDGE WHERE THE SPEED LIMIT IS MORE THAN 35 MPH). SHADE TREES AND SHRUBS MUST BE PLANTED AT LEAST 1 FT FROM THE EDGE OF THE PUBLIC WALKWAY. EVERGREEN AND ORNAMENTAL TREES MUST BE PLANTED AT LEAST 10 FT FROM THE EDGE OF THE PUBLIC WALKWAY. NO TREES OR SHRUBS MAY BE PLANTED WITHIN THE TRIANGULAR AREA FORMED AT THE INTERSECTION OF ANY STREET RIGHT-OF-WAY AT A DISTANCE ALONG EACH LINE OF 25 FT FROM THEIR POINT OF INTERSECTION. NO TREES OR SHRUBS MAY BE PLANTED IN THE TRIANGULAR AREA FORMED AT THE INTERSECTION OF ANY DRIVEWAY WITH A PUBLIC WALKWAY AT A DISTANCE ALONG EACH LINE OF 15 FT FROM THEIR POINT OF INTERSECTION. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10 FT FROM ANY FIRE HYDRANT. SHADE AND EVERGREEN TREES MUST BE AT LEAST 15 FT AWAY FROM THE NEAREST OVERHEAD WIRE. TREES MUST BE PLANTED A MINIMUM OF 5 FT FROM AN UNDERGROUND UTILITY. UNLESS THE CITY'S LANDSCAPE ARCHITECT REQUIRES A GREATER DISTANCE. PRIOR TO THE RELEASE OF THE PERFORMANCE BOND, THE CITY OF ROCHESTER HILLS FORESTRY UNIT NEEDS TO INSPECT ALL TREES, EXISTING OR PLANTED, TO IDENTIFY ANY THAT POSE A HAZARD TO THE SAFE USE OF THE PUBLIC RIGHT-OF-WAY. FORESTRY MAY REQUIRE THE DEVELOPER TO REMOVE, AND POSSIBLY REPLACE, ANY SUCH TREES. THE ABOVE REQUIREMENTS ARE INCORPORATED INTO THE PLAN.

LANDSCAPE CALCULATIONS

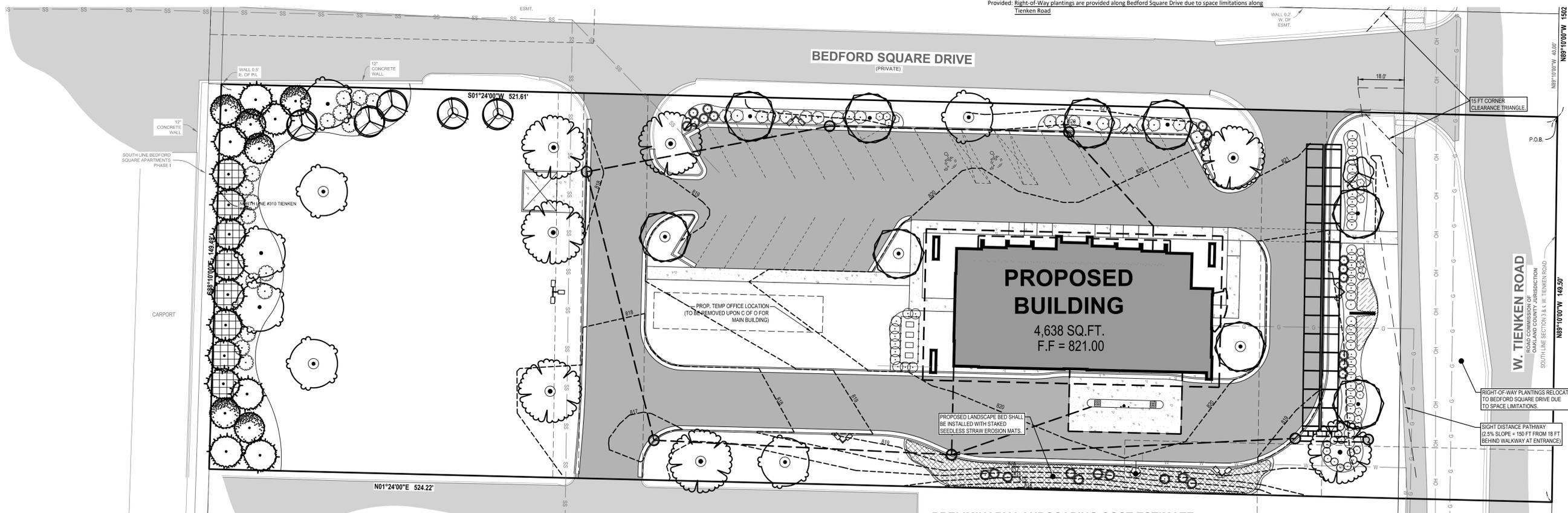
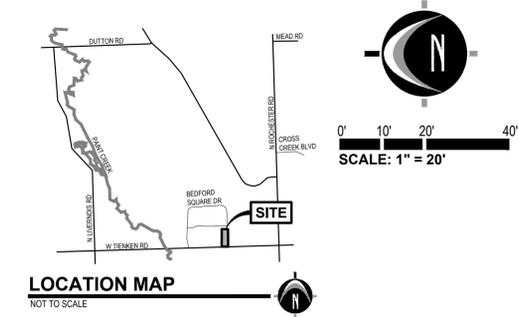
BUFFER LANDSCAPING:
Property adjoins RM-1 Zoning to the north and northeast property boundary requiring type C buffer.
Required: 275 lf / 100 lf = 2.75
2.75 x 2 Deciduous Trees = 6 Deciduous Trees
2.75 x 1.5 Ornamental Trees = 5 Ornamental Trees
2.75 x 4 Evergreen Trees = 11 Evergreen Trees + Solid Green Wall
2.75 x 6 Shrubs = 17 Shrubs
Provided: 6 Deciduous Trees, 5 Ornamental Trees, 20 Evergreen Trees (Solid Green Wall) and 28 Shrubs

INTERIOR LANDSCAPING:
Total Vehicle Use Area: 30,600 sf
Required: 5% Internal Landscape Beds = 1,530 sf
Provided: 3,285 sf
Interior Tree Requirement: 1 deciduous for every 150 sf of required interior landscape beds
Required: 1,530/150 = 10 Deciduous Trees
Provided: 10 Deciduous Trees

For interior parking medians, 1 deciduous tree for every 25 lf of median as well as a continuous shrub hedge.
Required: Continuous shrub hedge to be required in the north and south parking median.
Provided: Trees Provided and Hedge Provided along Bedford Square Drive (East property line)

PERIMETER LANDSCAPING:
Applies to all parking lots facing and within 100' of a public right-of-way.
Perimeter parking lots are required to include 1 deciduous tree for every 25 lf and 1 ornamental tree for every 35 lf. If the parking is within 30 feet of Right-of-Way, a continuous shrub hedge is required.
Required: 107 linear feet / 25 = 5 Deciduous Trees
107 linear feet / 35 = 3 Ornamental Trees
Continuous evergreen or deciduous shrub hedge
Provided: 3 Deciduous Trees, 1 Ornamental Tree and shrub hedge (Required plantings are not met due to sight distance requirements for pathways - noted on plan)

RIGHT-OF-WAY LANDSCAPING:
1 deciduous tree for every 35 linear feet.
Required: 150 lf / 35 = 5 Deciduous Trees
150 lf / 60 = 3 Ornamental Trees
Provided: Right-of-Way plantings are provided along Bedford Square Drive due to space limitations along Tiensen Road



PRELIMINARY LANDSCAPING COST ESTIMATE

IMPROVEMENT ITEMS	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1. Evergreen Tree	20	Each	\$ 200.00	\$ 4,000.00
2. Canopy Tree (3" caliper)	23	Each	\$ 200.00	\$ 4,600.00
3. Ornamental Tree (2" caliper)	6	Each	\$ 150.00	\$ 900.00
4. Shrub	111	Each	\$ 60.00	\$ 6,660.00
5. Grasses	29	Each	\$ 50.00	\$ 1,450.00
6. Annual Ground Cover	1	Each	Lump Sum	\$ 1,000.00
7. Edging	1	Each	Lump Sum	\$ 1,500.00
8. Mulch (and weed barrier)	1	Each	Lump Sum	\$ 1,000.00
9. Irrigation System	1	Each	Lump Sum	\$ 9,000.00
GRAND TOTAL				\$ 30,110.00

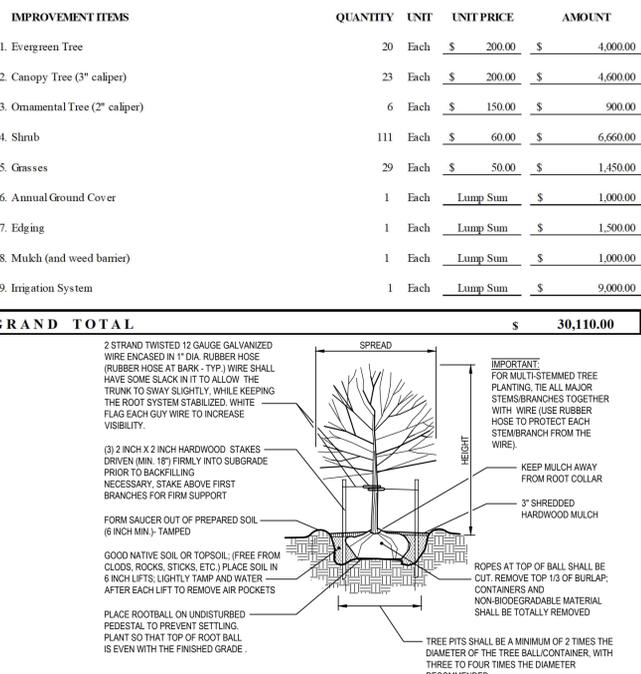
PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME	SIZE	QTY	
	Ac2	Abies concolor / White Fir	10' ht. avg.	6	
	AF	Aesculus x carnea 'Fort McNair' / Red Horsechestnut	3' cal. min.	7	
	Ga	Ginkgo biloba 'Autumn Gold' TM / Maidenhair Tree	3' cal. min.	9	
	Ms	Malus sargentii / Sargent Apple	2' cal. min.	5	
	Mp	Malus x 'Pink Princess' / Pink Princess Crabapple	2' cal. min.	1	
	Pg	Picea glauca / White Spruce B&B	10' ht. avg.	6	
	PF	Pinus strobus 'Fastigiata' / Pyramidal White Pine	10' ht. avg.	8	
	Tc	Tilia cordata / Littleleaf Linden B&B	3' cal. min.	7	
SHRUBS	CODE	BOTANICAL / COMMON NAME	SIZE	QTY	
	MS2	Dienella splendens 'El Madrigal' / Nightglow Dianella	#1	14	
	Mj	Miscanthus sinensis / Japanese Silver Grass	CON. 1	25	
	Pv	Panicum virgatum / Switch Grass	CON. 1	4	
	PF2	Potentilla fruticosa / Bush Cinquefoil	#1	13	
	Rc	Rhododendron catawbiense / Catawba Rhododendron	CON. 3	17	
	Sa	Spiraea x bumalda 'Anthony Waterer' / Anthony Waterer Spiraea Cont.	CON. 3	20	
	TT	Taxus x media 'Tauntoni' / Taunton Yew	CON. 3	47	
GROUND COVERS	CODE	BOTANICAL / COMMON NAME	CONT.	SPACING	QTY
	Lb	Leucanthemum x superbum 'Becky' / Shasta Daisy	Plug	18" o.c.	71
	Vc2	Vinca minor / Common Periwinkle	Plug	12" o.c.	1,169

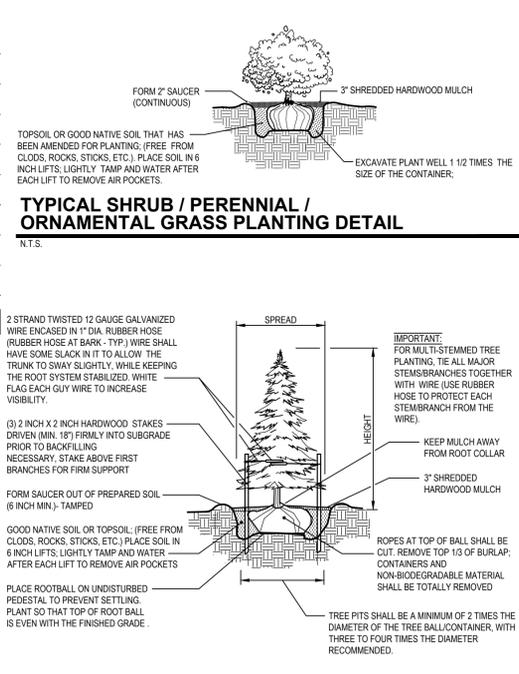
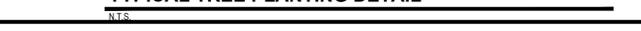
LANDSCAPE NOTES

- PLANTING NOTES:**
- ALL PLANT MATERIAL SHALL BE LOCALLY NURSERY GROWN NO. 1 GRADE AND INSTALLED ACCORDING TO ACCEPTED PLANTING PROCEDURES. ALL PLANT MATERIALS SHALL MEET CURRENT AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS. DO NOT PLANT MATERIALS UNTIL DIRECTED BY OWNER, LANDSCAPE ARCHITECT, AND/OR CONSTRUCTION MANAGER. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL, FOR ANY REASON BEFORE OR AFTER IT IS INSTALLED.
 - SIZES SPECIFIED ARE MINIMUM SIZES TO WHICH THE PLANTS ARE TO BE INSTALLED.
 - ANY PLANT SUBSTITUTIONS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT.
 - MAINTENANCE OF LANDSCAPING ITEMS, TREES, AND PLANTS SHALL BE PERFORMED BY THE PROPERTY OWNER OR A QUALIFIED PROFESSIONAL. ALL LANDSCAPING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH APPLICABLE MUNICIPAL STANDARDS AND IN ACCORDANCE WITH CURRENT INDUSTRY STANDARDS IN A NEAT, HEALTHY AND WEED FREE CONDITION. ANY DEAD, DISEASED OR DAMAGED PLANT MATERIALS ARE TO BE REPLACED IMMEDIATELY AFTER NOTIFIED TO DO SO.
 - PLANT TREES AND SHRUBS IN ACCORDANCE WITH PLANTING DETAILS. DIG TREE PITS PER DETAILS. PLANT TREES AND SHRUBS AT THE SAME GRADE LEVEL AT WHICH THEY WERE GROWN AT THE NURSERY. IF HEAVY CLAY SOILS ARE EVIDENT, PLANT TREES AND SHRUBS HIGHER, APPROX. 1/4 OF THE ROOT BALL ABOVE GRADE, AND BACKFILL TO TOP OF ROOT BALL.
 - REMOVE ALL TWINE, WIRE, NURSERY TREE GUARDS, TAGS AND INORGANIC MATERIAL FROM ROOT BALLS. REMOVE THE TOP 1/3 OF BURLAP FROM EARTH BALLS AND REMOVE BURLAP FROM AROUND TRUNK.
 - FINELY SHREDED HARDWOOD BARK MULCH, NATURAL COLOR (NON-COLORED), IS REQUIRED FOR ALL PLANTINGS AND PLANTING BEDS. MULCH PER PLANTING DETAILS. MULCH IN PLANT BEDS SHALL BE 3" THICK AT TIME OF INSPECTION AND AFTER COMPACTED BY RAIN OR IRRIGATION. ALL PLANTING BEDS SHALL BE EDGED WITH 6" X 12 GAUGE STEEL LANDSCAPE EDGING.
 - LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION OF ALL UNDERGROUND AND OVERHEAD UTILITIES. IF A CONFLICT WITH UTILITIES EXISTS, NOTIFY OWNER/CONSTRUCTION MANAGER PRIOR TO PLANTING.
 - PLANT MATERIAL SHALL BE GUARANTEED FOR ONE YEAR AFTER PLANTING AND ACCEPTANCE.
 - PRIOR TO THE RELEASE OF THE PERFORMANCE BOND, THE CITY OF ROCHESTER HILLS MUST INSPECT ALL LANDSCAPE PLANTINGS.

- TOPSOIL AND TURF NOTES:**
- WHEREVER GROUND IN ITS NATURAL STATE HAS BEEN DISTURBED, APPROVED LANDSCAPING OR GRASS SHALL BE FULLY INSTALLED, AND ESTABLISHED WITHIN A REASONABLE PERIOD OF TIME, BUT NO LONGER THAN ONE GROWING SEASON (UNLESS OTHERWISE NOTED AND APPROVED).
 - DURING EXCAVATION, GRADING, AND INSTALLATION OF REQUIRED LANDSCAPING, ALL SOIL EROSION AND SEDIMENTATION CONTROL REGULATIONS SHALL BE STRICTLY FOLLOWED AND COMPLIED WITH.
 - ALL LAWN AREAS SHALL RECEIVE SOD OR HYDROSEED. TURF SHALL BE INSTALLED ON TOPSOIL UNLESS APPROVED OTHERWISE. DO NOT PLANT UNTIL ACCEPTANCE OF FINISH GRADE.
 - SOD SHALL BE GROWN ON TOPSOIL UNLESS APPROVED OTHERWISE. SOD SHALL BE 2 YEARS OLD AND STRONGLY ROOTED. PLACE SOD TIGHTLY WITH NO GAPS AND WITH GRAIN IN SAME DIRECTION. SEAMS OF SOD SHALL BE STAGGERED IN A RUNNING BOND PATTERN. SOD SHALL BE WATERED IMMEDIATELY TO AVOID DRYING OUT. DO NOT INSTALL SOD UNTIL ACCEPTANCE OF FINISH GRADE AND IRRIGATION SYSTEM IS OPERATING PROPERLY, UNLESS DIRECTED IN WRITING TO DO OTHERWISE. FINISH ROLL SOD WITH A WATER FILLED LAWN ROLLER, ROLL PERPENDICULAR TO LENGTH OF SOD.
 - TURF SHALL BE INSTALLED ON A MIN. OF 3"-4" OF LIGHTLY COMPACTED APPROVED TOPSOIL. TOPSOIL SHALL BE FERTILE, SCREENED, FRIABLE TOPSOIL FREE OF STONES 1/2" IN DIA. AND LARGER, ROOTS, STICKS, OR OTHER EXTRANEOUS MATERIAL. INCLUDING NOXIOUS PLANTS. PH BETWEEN 6.0 AND 6.5, SALTS SOO PARTS PPM, ORGANIC CONTENT 3% MIN. DO NOT INSTALL TOPSOIL UNTIL APPROVED BY OWNER/C.M. TOPSOIL SHALL BE FINE GRADED TO A SMOOTH FINISH, FREE OF LUMPS AND DEPRESSIONS.
 - ALL LANDSCAPE ISLANDS WITHIN PARKING LOTS SHALL BE BACK FILLED WITH TOPSOIL TO A DEPTH OF 18" MIN.
- IRRIGATION NOTES:**
- ALL PLANTING AREAS, LAWN AREAS AND LANDSCAPE ISLANDS SHOWN ARE TO HAVE A COMPLETE IRRIGATION SYSTEM. THE G.C. SHALL BE RESPONSIBLE FOR RETAINING A QUALIFIED FIRM FOR THE DESIGN OF THE IRRIGATION SYSTEM. THE DESIGN MUST SHOW HOW THE SYSTEM TIES INTO THE BUILDING AND MUST SHOW ALL OF THE NECESSARY EQUIPMENT FOR A COMPLETE SYSTEM. THE G.C. SHALL SUBMIT THE IRRIGATION SYSTEM DESIGN TO THE ARCHITECT/OWNER FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK.
 - IRRIGATION SHALL ONLY OCCURE BETWEEN THE HOURS OF 12 AM AND 5 AM.
 - IRRIGATION OVERSPRAY SHALL NOT BROADCAST ONTO THE CITY PATHWAY.



TYPICAL EVERGREEN TREE PLANTING DETAIL



TYPICAL EVERGREEN TREE PLANTING DETAIL



NEDERVELD
www.nederveld.com
800.222.1868
GRAND RAPIDS
217 Grandville Ave., Suite 302
Grand Rapids, MI 49503
Phone: 616.575.5190

ANN ARBOR
CHICAGO
COLUMBUS
HOLLAND
INDIANAPOLIS
ST. LOUIS

PREPARED FOR:
NEWCO Design Build, LLC
Attn: Chris VanDoesel
4131 Roger B Chaffee Memorial Blvd SE
Grand Rapids, MI 49548
(616) 493-9360

REVISIONS:

Title	Drawn: SW	Checked: SW	Date
Preliminary Site Plan			03/26/19
Site Plan			04/12/19
Site Plan Submittal			04/16/19
Minor Building Department Modifications			05/09/19
Site Plan Resubmittal			05/23/19
Landscaping/Clear Vision			05/31/19
City Comments from 06/14/19			06/18/19
City Comments from 07/09/19			07/12/19
Bid and Permit Set - 07/29/19			07/29/19
Addendum #1 - 08/01/19			08/01/19
Per Water Service			08/08/19
Per Planning Commission			08/28/19
Per Owner			09/10/19

Lake Michigan Credit Union
Landscape Plan
310 W. Tiensen Road, Rochester Hills, MI 48306
PART OF THE SOUTHEAST OF SECTION 3 T3N, R1E, CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

STAMP:

STATE OF MICHIGAN
JAMES C. WALTER, JR.
LANDSCAPE ARCHITECT
No. 1588
RESIDENT LANDSCAPE ARCHITECT

PROJECT NO:
19500016

SHEET NO:
L-201

SHEET: 6 OF 7



UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.

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BENCHMARKS

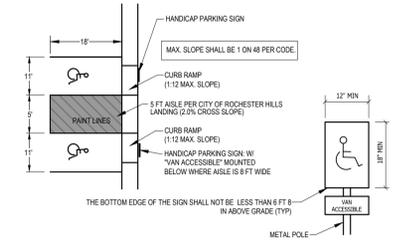
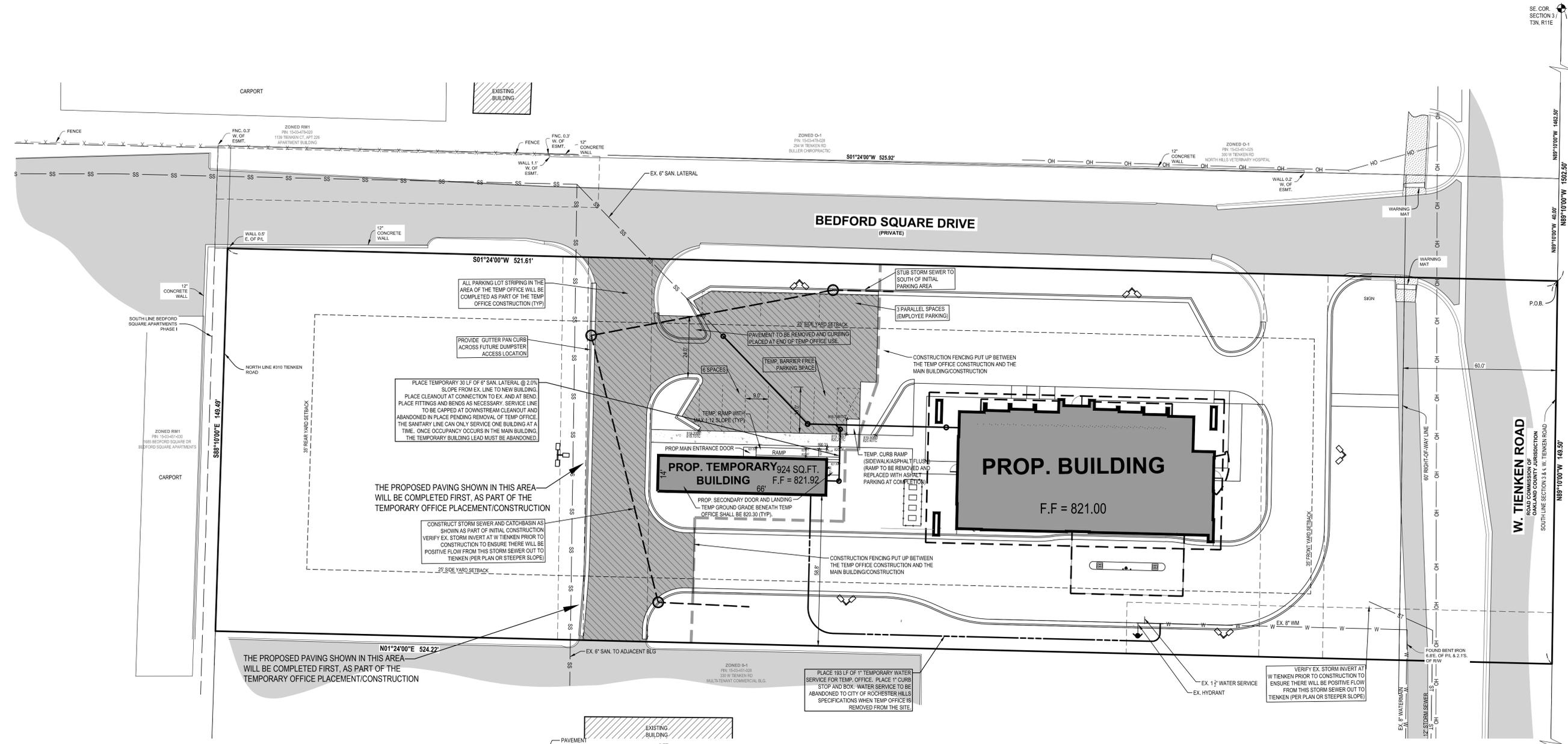
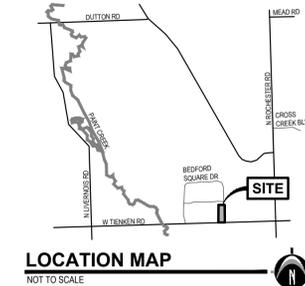
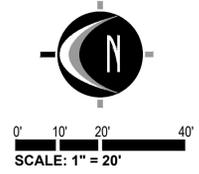
- BENCHMARK #1** ELEV. = 814.80 (DATUM NAVD88)
Chiseled "X" on the sanitary manhole on the East side of Bedford Square Drive, 525'± North of Tienken Road.
- BENCHMARK #2** ELEV. = 821.57 (DATUM NAVD88)
MAG nail in the West face of the utility pole on the East P.L., 80'± North of Tienken Road.
- BENCHMARK #3** ELEV. = 819.45 (DATUM NAVD88)
Chiseled Square on the East face of the concrete light pole base on the West P.L., 30'± Northeast of the brick building, #330 Tienken Road.

TEMPORARY OFFICE GENERAL NOTES

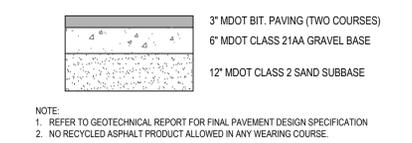
- 1) THE TEMPORARY OFFICE WILL BE USED TO SERVICE THE BANKING NEEDS OF LMCU MEMBERS WHILE THE SITE IS UNDER CONSTRUCTION.
- 2) THE TEMPORARY OFFICE WILL BE REMOVED FROM THE SITE PENDING THE OPENING OF THE NEW BUILDING. IT IS ANTICIPATED THAT THIS WILL BE WITHIN 12 MONTHS OF THE START OF CONSTRUCTION.
- 3) THE RAMP FOR THE TEMPORARY OFFICE SHALL MEET THE REQUIREMENTS OF ICC 117.1-2009, SECTION 405.
- 4) IT IS ANTICIPATED THAT THERE WILL BE APPROXIMATELY 4 EMPLOYEES WORKING OUT OF THE TEMPORARY OFFICE.
- 5) IT IS ANTICIPATED THAT A LIMITED AMOUNT OF MEMBERS WILL VISIT THE TEMPORARY OFFICE.
- 6) A TOTAL OF 9 PARKING SPACES ARE PROVIDED FOR THE TEMPORARY OFFICE.
- 7) CONSTRUCTION FENCING WILL BE CONSTRUCTED AND MAINTAINED BETWEEN THE TEMPORARY OFFICE AND THE MAIN CONSTRUCTION SITE.

LEGEND

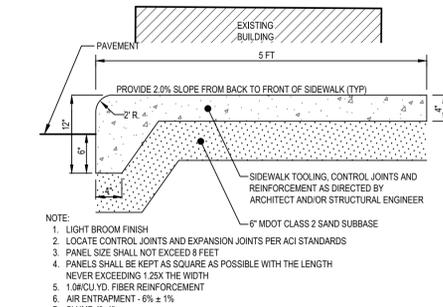
- EXISTING BITUMINOUS
- EXISTING CONCRETE
- PROPOSED BITUMINOUS (STANDARD DUTY)
- PROPOSED CONCRETE (STANDARD DUTY)
- PROPOSED CONCRETE (HEAVY DUTY)
- PROPOSED BUILDING



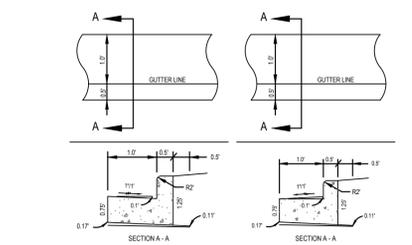
TYPICAL BARRIER FREE ACCESSIBLE PARKING SPACES
N.T.S.



STANDARD DUTY PAVEMENT CROSS SECTION
N.T.S.



INTEGRAL CURB AND WALK
N.T.S.



18\"/>



FLOW CURB AND SPILL CURB
N.T.S.

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800.222.1868
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Grand Rapids, MI 49503
Phone: 616.575.5190

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ST. LOUIS

PREPARED FOR:
NEWCO Design Build, LLC
Attn: Chris VanDoeselaar

4131 Roger B Chaffee Memorial Blvd SE
Grand Rapids, MI 49548
(616) 493-9360

REVISIONS:

Title	Drawn: SW	Checked: SW	Date
Title: Preliminary Site Plan			
Title: Site Plan			
Title: Site Plan Submittal			
Title: Minor Building Department Modifications			
Title: Site Plan Resubmittal			
Title: Landscaping/Clear Vision			
Title: City Comments from 06/14/19			
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Title: Bid and Permit Set - 07/29/19			
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Title: Per Owner			

Lake Michigan Credit Union
Temporary Office Plan
310 W. Tienken Road, Rochester Hills, MI 48306
PART OF THE SOUTHEAST OF SECTION 3 T3N, R1E,
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

STAMP:

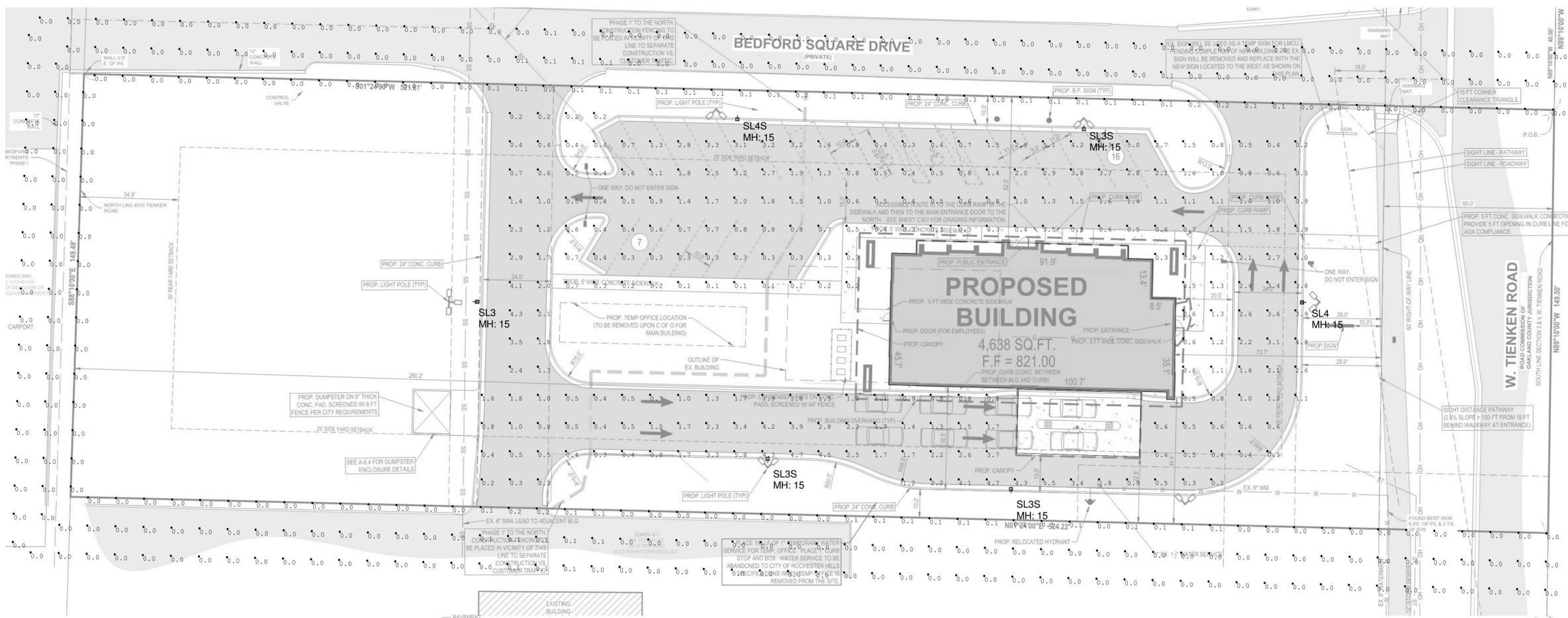
PROJECT NO:
19500016

SHEET NO:
C-500

SHEET: 7 OF 7

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
lot line	illuminance	Fc	0.02	0.2	0.0	N.A.	N.A.
Parking lot	illuminance	Fc	1.40	5.8	0.1	14.00	58.00

Symbol	Qty	Label	Arrangement	LLD	LDD	BF	[MANUFAC]	Description	Lum. Watts
□	3	SL3S	SINGLE	0.960	0.950	1.000	EATON - LUMARK (FORMER COOPER LIGHTING)	FPPRV-1-A25-T3-15-HSS	87
□	1	SL4S	SINGLE	0.960	0.950	1.000	EATON - LUMARK (FORMER COOPER LIGHTING)	FPPRV-1-A25-T4-15-HSS	87
□	1	SL3	SINGLE	0.960	0.950	1.000	EATON - LUMARK (FORMER COOPER LIGHTING)	FPPRV-1-A25-T3-20	87
□	1	SL4	SINGLE	0.960	0.950	1.000	EATON - LUMARK (FORMER COOPER LIGHTING)	FPPRV-1-A25-T4-20	87

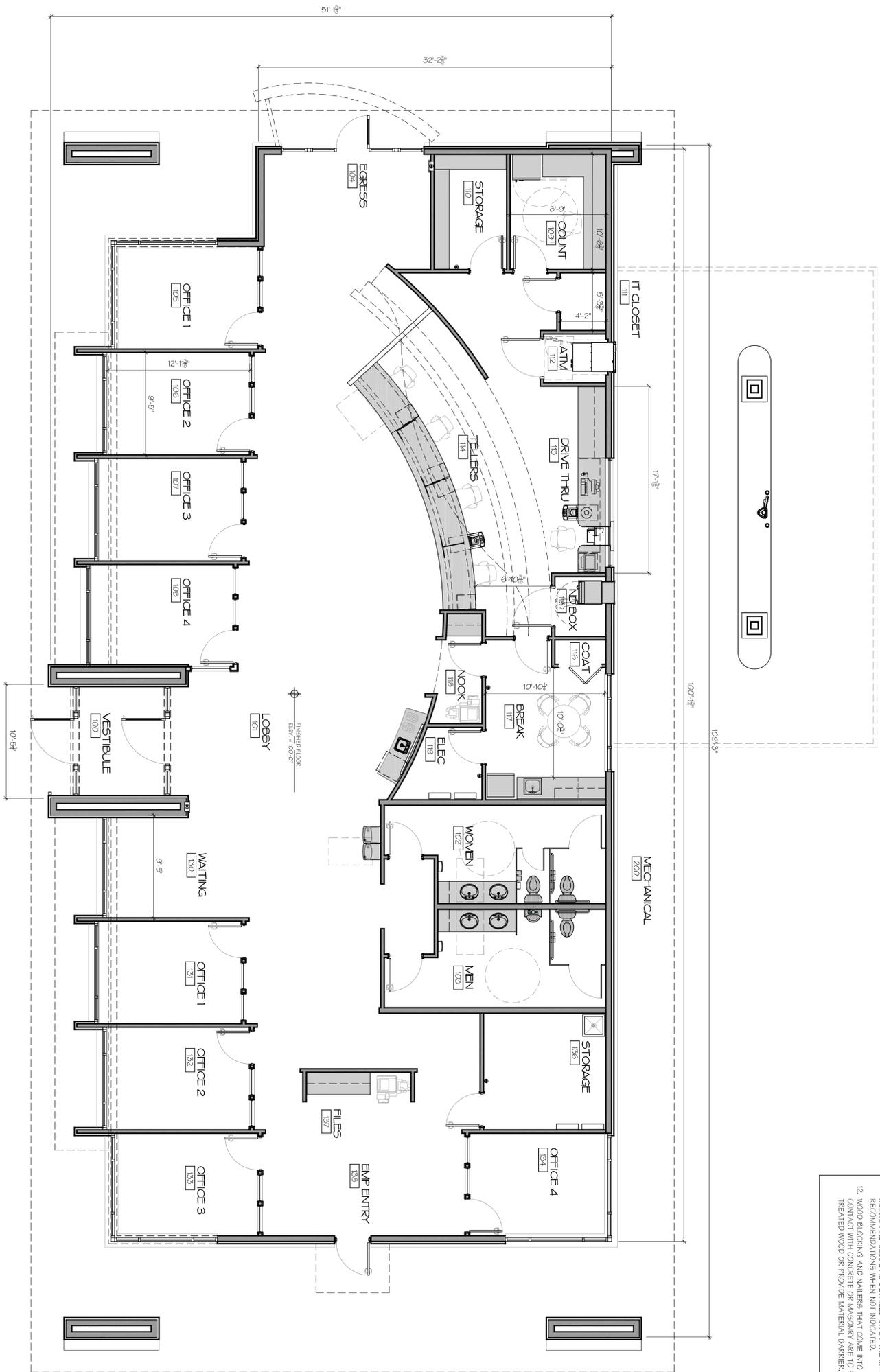


PHOTOMETRIC PLAN

1"=20'

DISCLAIMER
 Illumination results shown on this lighting design are based on project parameters provided to Crites, Tidey & Assoc. used in conjunction with luminaire test procedures conducted under laboratory conditions. Actual project conditions differing from these design parameters may affect field results. The customer is responsible for verifying compliance with applicable lighting or energy codes. Any changes to the room reflectance and/or obstructions not noted will alter the light levels. Please verify the design parameters and any other information on the drawings with the customer prior to construction. Footcandle levels are considered at the end of the life of the lamp and ballast.

Date	05.22.19
Revisions	06.18.19
Drawn by	Alan Searcy
Sales	
Sheet	



- ### Arch'i. Plan Notes:
1. FIELD MEASURE AND VERIFY OR REVISE DIMENSIONAL INFORMATION TO THE EXTENT REQUIRED TO EXECUTE WORK REQUIRED ON THE CONTRACT DOCUMENTS.
 2. COORDINATE TOLERANCES OF FRAMING AND SUBSTRATES TO FINISH MATERIAL REQUIREMENTS.
 3. MAIN FLOOR ELEVATIONS 100'-0" - SEE CIVIL DRAWINGS FOR ACTUAL ELEVATIONS.
 4. ALL DIMENSIONS INDICATED ON DRAWINGS SHALL BE VERIFIED PRIOR TO CONSTRUCTION.
 5. ACQUIRE AND MAINTAIN, ON SITE, MATERIAL MANUFACTURERS WRITTEN RECOMMENDATIONS, AND INSTRUCTIONS FOR INSULATION REQUIREMENTS.
 6. COMPLY WITH MANUFACTURERS WRITTEN INSTRUCTIONS FOR TEMPERATURE AND RELATIVE HUMIDITY FOR FLOOR INSULATION.
 7. EXTEND JAMB STUD FRAMING EACH SIDE OF DOOR ABOVE AND ATTACH SECURELY TO STRUCTURE ABOVE.
 8. UNLESS INDICATED OTHERWISE, INTERIOR WALLS SHALL EXTEND TO AND FASTEN TO BOTTOM OF STRUCTURE.
 9. BRACE ALL STUD WALLS THAT DO NOT GO TO STRUCTURE ABOVE WITH MIN. 4" NOMINAL STUDS AT 45 DEG. DIAGONAL AND SECURED TO STRUCTURE ABOVE AT 48" O.C. MAXIMUM. COORDINATE WITH MECHANICAL AND ELECTRICAL EQUIPMENT REQUIREMENTS BEFORE INSTALLATION.
 10. WHERE FINISHED WALLS DO NOT CONTINUE FULL HEIGHT, EXTEND STUDS AS READY TO SECURE TO STRUCTURE ABOVE AT 4" MIN. FIRST LAY IN ACoustICAL PANEL CEILING.
 11. DO NOT REMOVE BUILDING EXPANSION AND CONTRACTION JOINTS, INDEPENDENTLY FRAME BOTH SIDES OF JOINTS AND CLOSE AS DETAILLED OR BY THE MFRS. RECOMMENDATIONS WHEN NOT INDICATED.
 12. WOOD BLOCKING AND NAILERS THAT COME INTO CONTACT WITH CONCRETE OR MASONRY ARE TO BE TREATED WOOD OR PROVIDE MATERIAL BARRIER.
 13. PROVIDE ISOLATION STRIP FOR METAL STUD FRAMING AT EXTERIOR WALLS, MASONRY, AND DISSIMILAR METALS. USE WINDUPLY PER ASPHALT FELT OR ADHESIVE BACKED CLOSED CELL FOAM IN JOINTS TO STIFF STUDS.
 14. MAKE JOINTS UNIFORM IN WIDTH, WHERE JOINTS IN THE BEST VISUAL EFFECT, FIT EXPOSED CONNECTIONS TOGETHER TO FORM HARBORLINE JOINTS.
 15. WHERE SOUND ATTENUATION BATT INSULATION IS SCHEDULED, INSTALL 3 1/2" BATT IN CAVITIES TO MINIMUM 3" ABOVE CEILING AND ADDITIONAL 48" ONTO CEILING EACH SIDE. SEAL ALL AFFRIERANCE OPENINGS IN WALL AND OFFSET ONES INSTALLED BACK TO BACK BY ONE WALL AND AT TOP PLATES OF CEILING.
 16. REMOVE DEBRIS FROM CONCEALED SPACES BEFORE ENCLOSING.
 17. REPAIR OR REMOVE AND REPLACE PRECINCTIVE SURFACES THAT ARE EXPOSED TO VIEW WHEN SURFACES CANNOT BE CORRECTED WITHOUT VISIBLE EVIDENCE OF REPAIR.
 18. REFER TO FINISHES SHEET NOTES FOR ADDITIONAL REQUIREMENTS.
 19. COORDINATE LOCATIONS OF BELOW SLAB UTILITIES AND SLAB REINFORCING PRIOR TO CONCRETE POUR.
 20. INFORMATION SHOWN IS BASED ON EXISTING REFERENCE OBSERVATIONS, SOME CONDITIONS WHICH MAY AFFECT INVESTIGATIVE METHODS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACQUIRING OF ANY DISCREPANCIES.
 21. CONSTRUCTION SITE SAFETY IS TO BE MAINTAINED AT ALL TIMES. ALL SUBCONTRACTORS SHALL REVIEW AND FOLLOW ALL OSHA REGULATIONS, ITEMS OF PARTICULAR CONCERN INCLUDE, BUT ARE NOT LIMITED TO, FALL PREVENTION, LADDER SAFETY, SCAFFOLDING, ELECTRICAL HAZARDS, TRENCHING AND EXCAVATION, AND TRIP HAZARDS. ALL JOINTERS WILL REQUIRE COMPLIANCE WITH THE SULLA STANDARD, OSHA 1910.269 OR 1926.955.

First Floor Plan
 SCALE: 3/16" = 1'-0"
 4424 5307

PROJECT NAME:
LMCU ROCHESTER
 W. TIENKEN RD, ROCHESTER HILLS, MI

SHEET TITLE:
Main Floor Plan and Notes

CITY FILE #19-020
 SECTION #3

A-1.1

#	DATE	ISSUED FOR	#	DATE	ISSUED FOR
	07/24/19	REVISIONS			
	06/19/19	SITE PLAN RESUBMISSION			
	05/21/19	SITE PLAN RESUBMISSION			
	04/29/19	FLOOR PLAN SUBMISSION			
	04/16/19	SITE PLAN SUBMISSION			
	04/08/19	RAMP/STAIR DETAIL			
	03/14/19	REVISED PLAN LAYOUT		09/03/19	REVISED PLAN
	02/21/19	REVISED PLAN LAYOUT		08/13/19	ADDENDUM 1
	01/28/19	PRELIM SITE LAYOUT		07/29/19	BID AND PERMIT

ARCHITECT:
 BRADFORD W. POTTER

PROJECT MANAGER:
 CHRIS VAN DOESLAER

PROJECT No.:
10-01331

SEAL:

NEWCO
 Design Build LLC

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 Memorial Blvd. SE
 Grand Rapids, MI 49548

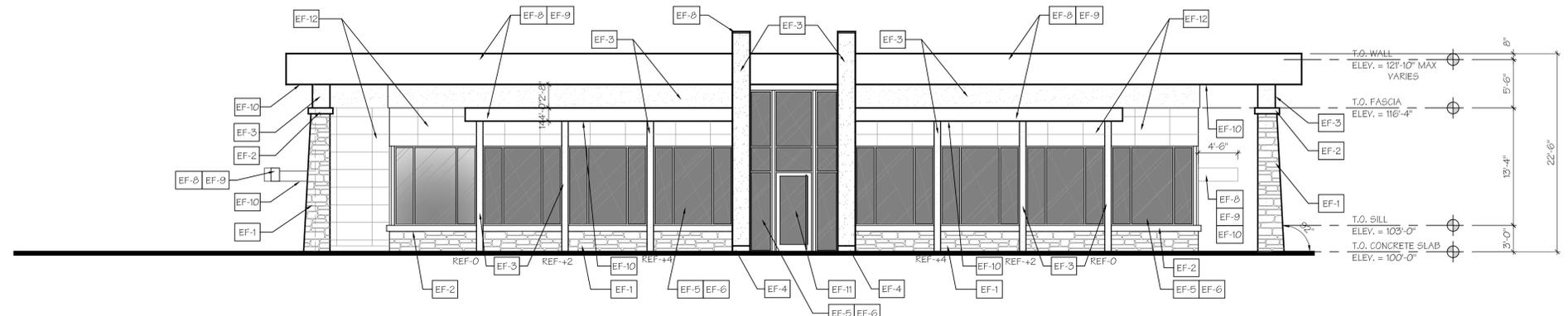
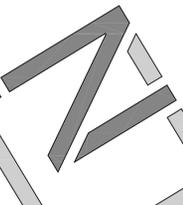
(616) 493-9360 tel.
 (616) 493-9364 fax

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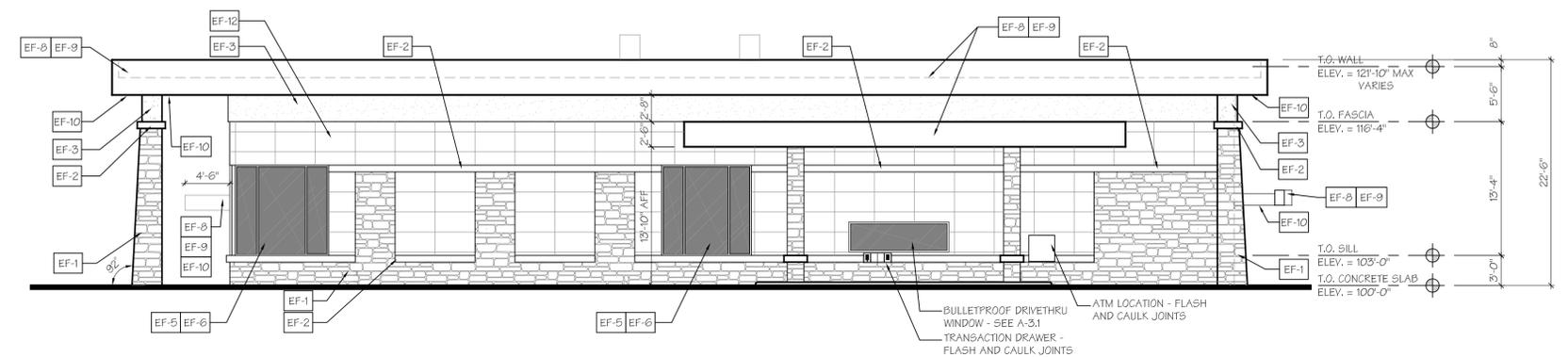
Exterior Elevation Notes:

1. MAIN FLOOR ELEVATIONS ARE 100'-0". REFER TO CIVIL DRAWINGS FOR CORRESPONDING ACTUAL ELEVATIONS.
2. REFER TO SHEET SERIES A-1 AND A-3 FOR DOOR AND WINDOW INFORMATION.
3. REFER TO ROOF PLAN AND BUILDING SECTIONS FOR EAVE DETAILS.
4. REFER TO PLUMBING, MECHANICAL AND ELECTRICAL SHEETS FOR EXTERIOR ITEMS.
5. CONSTRUCTION SITE SAFETY IS TO BE MAINTAINED AT ALL TIMES. ALL SUBCONTRACTORS SHALL REVIEW AND FOLLOW ALL OSHA REGULATIONS. ITEMS OF PARTICULAR CONCERN INCLUDE, BUT ARE NOT LIMITED TO; FALL PREVENTION, LADDER SAFETY, SCAFFOLDING, ELECTRICAL HAZARDS, TRENCHING AND EXCAVATION, AND TRIP HAZARDS. ALL JOBSITES WILL REQUIRE COMPLIANCE WITH THE SILICA STANDARD, OSHA 29 CFR 1926.1153.

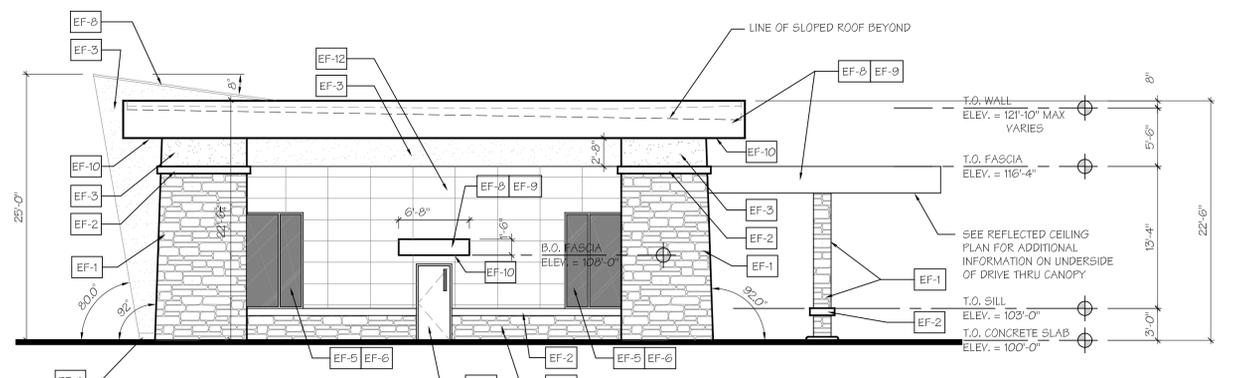
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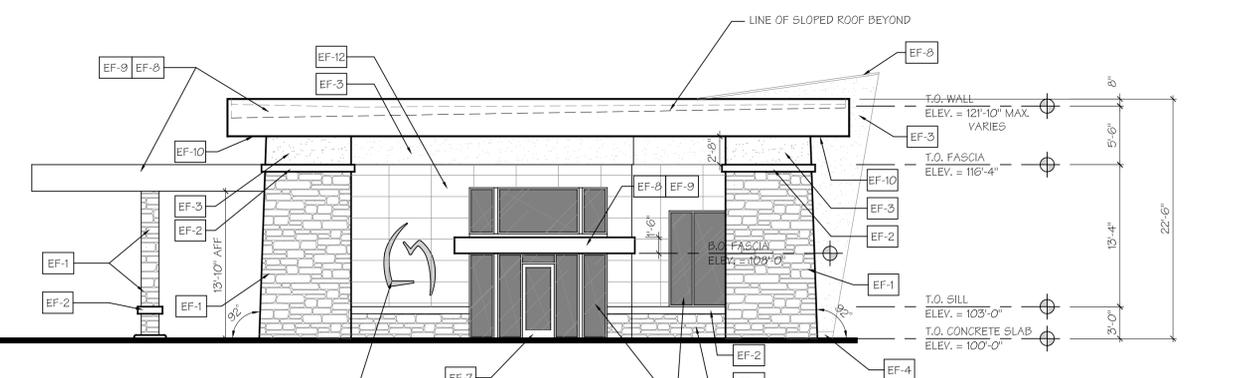
East Elevation
SCALE: 1/8" = 1'-0"



West Elevation
SCALE: 1/8" = 1'-0"



North Elevation
SCALE: 1/8" = 1'-0"



South Elevation
SCALE: 1/8" = 1'-0"

Partial Exterior Finish Schedule

Material	Finish
EF-1	STONE VENEER - BUECHEL - FOND DU LAC LEDGESTONE HERITAGE BLEND
EF-2	STONE SILLS - PRECAST SILL - SEE PROFILE ON DRAWINGS
EF-3	EIFS - 1 - STOTHERM CLASSIC NEXT - TEXTURE - FINE 1.0 COLOR - FRENCH VANILLA #10609
EF-4	STONE BASE - PRECAST BASE - SEE PROFILE ON DRAWINGS
EF-5	GLAZING - PPG SOLARBAN 60 (2) OPTIGRAY + CLEAR OR ARCHITECT APPROVED EQUAL MAX SHGC = 0.40
EF-6	STOREFRONT AND WINDOWS - TUBELITE 1400 I/O THERMALLY BROKEN FRAMES GLAZING SET TO EXTERIOR SIDE OF FRAME COLOR - CLEAR ANODIZED OR EQUAL BY CRL
EF-7	ENTRANCE DOORS - TUBELITE - 3'-0" x 7'-0" EXTRUDED ALUMINUM - CLEAR ANODIZED OR EQUAL BY CRL SEE DOOR SCHEDULE FOR HARDWARE
EF-8	METAL COPING AND FASCIA - CUSTOM FORMED 22 GA. GALVALUME PLUS SHEET METAL COLOR - GALVALUME
EF-9	EPDM ROOFING - WHITE EPDM MEMBRANE ROOFING - FIRESTONE 60 MIL RUBBERGARD ECO WHITE OR ARCHITECT APPROVED EQUAL
EF-10	LINEAR METAL SOFFIT - CHICAGO METALLIC MACRO PLUS OR ARCHITECT APPROVED EQUAL COLOR - WHITE
EF-11	ENTRANCE DOORS - TUBELITE - 4'-0" x 9'-0" EXTRUDED ALUMINUM - CLEAR ANODIZED OR EQUAL BY CRL SEE DOOR SCHEDULE FOR HARDWARE
EF-12	METAL PANEL RAIN SCREEN SYSTEM - ALUMINUM COMPOSITE METAL PANEL - RAINSCREEN METAL PANEL WITH SMOOTH SKIN - COLOR TO BE SELECTED
EF-13	INSULATED METAL DOOR AND FRAME - PAINT TO MATCH EF-5

SEAL:

ARCHITECT:
BRADFORD W. POTTER
PROJECT MANAGER:
CHRIS VAN DOEBELAAR
PROJECT No:
10-O-1331

REVISIONS	DATE	ISSUED FOR	#
07/24/19	REVISIONS		
06/19/19	SITE PLAN RESUBMISSION		
05/21/19	SITE PLAN RESUBMISSION		
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04/08/19	RAMP/STAIR DETAIL		
03/14/19	REVISED PLAN LAYOUT	REVISED PLAN	
02/21/19	REVISED PLAN LAYOUT	ADDENDUM	
01/28/19	PRELIM SITE LAYOUT	EPD AND PERMIT	
	DATE	ISSUED FOR	#

PROJECT NAME:
LMCO ROCHESTER
W. TIENKEN RD. ROCHESTER HILLS, MI
SHEET TITLE:
Building Elevations, Notes, and Details
SHEET No.:
A-2.1
CITY FILE #19-020
SECTION #3