Cedar Valley Building B

1413 S. Rochester Rd

Building B, Rochester Hills, MI

PID # 15-23-152-022

DESIGNHAUS ARCHITECTURE EST 1998

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STATEMENT OF SELECTED DESIGN PROFESSIONAL

THESE CONSTRUCTION DOCUMENTS WERE PREPARED FOR COMPLIANCE WITH THE MICHIGAN CONSTRUCTION CODES IN EFFECT AT THE TIME OF PERMIT SUBMITTAL. ALL ENGINEERS, CONTRACTORS AND SUPPLIERS INVOLVED WITH THIS PROJECT SHALL COMPLY WITH THE SAME CODES ISSUED AND APPROVED CODE MODIFICATIONS AND/OR MUNICIPAL CONSTRUCTION BOARDS OF APPEALS RULINGS AND WHENEVER REQUIRED SHALL PROVIDE SHOP DRAWINGS AND SUBMITTALS CLEARLY DESCRIBING COMPLIANCE TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE FOR REVIEW AND APPROVAL.

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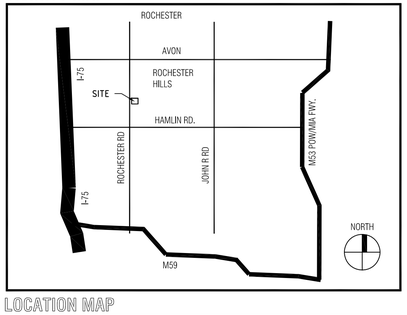
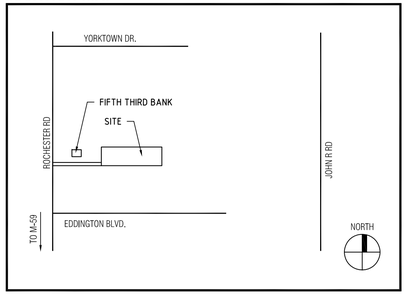
CONTACT:

VICINITY MAP



LOCATION MAP



INDEX OF DRAWINGS

☐ SHEET ISSUED
⚠ REVISED
■ SHEET REISSUED

SHEET NO:	DRAWING NAME	Discussion Meeting/ 8.23.17	Site Plan Approval/ 12.14.16	Site Plan Approval Revision #1/ 1.20.17	Final SPA/ 3.3.17	Building Permit Review/ 4.19.17	Final SPA #2/ 4.19.17	Amendment to Approved Site Plan/ 8.23.17
GENERAL								
G001	Title Sheet and Index		☐	☐	☐	☐	☐	
G002	Reference & Code Information			☐	☐	☐		
G003	Accessibility Standards					☐		
SURVEY								
	ALTA SURVEY		☐					
CIVIL								
T1	Boundary/Topographic Survey		☐	☐	☐		☐	☐
T2	Tree Survey		☐	☐	☐			☐
C1	Overall Site Plan							☐
C2	Demolition Plan		☐	☐	☐		☐	☐
C3	Paving & Grading Plan		☐	☐	☐		☐	☐
C4	Detail Grading Area Plan		☐	☐	☐		☐	☐
C5	Utility Plan		☐	☐	☐		☐	☐
C6A	Storm Water Management Plan (1 of 2)		☐	☐	☐		☐	☐
C6B	Storm Water Management Plan (2 of 2)		☐	☐	☐		☐	☐
C7	Storm Sewer Profiles					SUBMITTED UNDER DIFFERENT COVER		
C8	SESC-Drainage Area Plan							
C9	Notes & Details							
L1 (TP-1)	Tree Preservation Plan			☐	☐		☐	☐
IR-1	Irrigation Plan				☐		☐	☐
ARCHITECTURAL SITE AND LANDSCAPE								
S100	Architectural Site Plan	☐	☐	☐	☐		☐	☐
S101	Site and Landscape Details			☐	☐		☐	☐
S200	Preliminary Lighting Plan		☐					
L100	Landscape Plan		☐	☐	☐		☐	☐
1 of 1	Lighting Plan			☐	☐		☐	☐
STRUCTURAL								
S001	Structural Code Review & General Notes					☐		
S002	Structural Code Review & General Notes					☐		
S101	Basement Slab On Grade & Foundation Plan					☐		
S102	Ground Floor Slab On Grade, Foundation & Ground Floor Framing Plan					☐		
S103	Second Floor Framing Plan					☐		
S104	Roof Framing Plan					☐		
S201	Masonry Lintel Details, Et Al					☐		
S202	Typical Wall Details					☐		
S203	Typical Wall Details					☐		
S204	Typical Wall Details					☐		
S205	Typical Wall Details					☐		
S206	Typical Wall Details					☐		
S207	Typical Wall Details					☐		
S208	Typical Wall Details					☐		
S209	Typical Wall Details					☐		
S210	Typical Wall Details					☐		
S211	Typical Wall Details					☐		
S301	Sections and Details					☐		
S302	Sections and Details					☐		
S303	Sections and Details					☐		
S304	Sections and Details					☐		
S305	Sections and Details					☐		
S306	Sections and Details					☐		
S307	Sections and Details					☐		
S311	Sections and Details					☐		
S321	Sections and Details					☐		
S401	Sections and Details					☐		
S402	Sections and Details					☐		
S403	Sections and Details					☐		
S404	Sections and Details					☐		
S405	Sections and Details					☐		

		Discussion Meeting/ 8.23.17	Site Plan Approval/ 12.14.16	Site Plan Approval Revision #1/ 1.20.17	Final SPA/ 3.3.17	Building Permit Review/ 4.19.17	Final SPA #2/ 4.19.17	Amendment to Approved Site Plan/ 8.23.17
ARCHITECTURAL								
A100	Garden Level Floor Plan					☐		
A101	First Floor Plan					☐		
A102	Second Floor Plan					☐		
A103	Unit AA Plan		☐	☐	☐	☐		
A104	Unit BB Plan		☐	☐	☐	☐		
A105	Unit CC Plan		☐	☐	☐	☐	☐	
A106	Unit DD Plan					☐	☐	
A107	Unit EE Plan					☐		
A109	Unit GG Plan					☐		
A108	Unit FF Plan					☐		
A110	Unit HH Plan					☐		
A111	Unit LL Plan					☐		
A112	Unit JJ Plan					☐		
A113	Roof Plan					☐		
A114	Reflected Ceilling Plan-Corridor					☐		
A200	Elevations					☐		☐
A201	Elevations					☐		☐
A300	Building Sections		☐	☐	☐	☐	☐	
A302	Wall Sections		☐	☐		☐	☐	
A303	Wall Sections					☐		
A304	Stair Sections					☐		
A500	Details					☐		
A501	Details					☐		
A600	Partition Details					☐		
A601	Door Schedule & Details					☐		
A604	Interior Finish Schedule					☐		
A700	Composite Garden Level Floor Plan					☐		
A701	Composite First Floor Plan					☐		
A702	Composite Second Floor Plan							
A703	Interior Elevations							
A704	Interior Elevations							
A705	Interior Elevations							
A706	Interior Elevations							
A707	Interior Elevations							
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M100	Overall Garden Level Floor HVAC Plans					☐		
M110	Overall 1st Floor HVAC Plans					☐		
M120	Overall 2nd Floor HVAC Plans					☐		
M130	HVAC Roof Plan					☐		
M210	Enlarged HVAC Plans - Units AA, BB, CC, JJ					☐		
M211	Enlarged HVAC Plans - Units DD, EE-1, EE-2, FF, GG					☐		
M212	Enlarged HVAC Plans - Units HH and LL					☐		
M400	HVAC Schedules					☐		
PLUMBING								
P000	Plumbing Symbol List, Notes and Specifications					☐		
P010	Overall Foundation Plumbing Plan					☐		
P100	Overall Garden Level Plumbing Plan					☐		
P110	Overall First Floor Plumbing Plan					☐		
P120	Overall Second Floor Plumbing Plan					☐		
P210	Enlarged Unit Plumbing Plans					☐		
P211	Enlarged Unit Plumbing Plans					☐		
P212	Enlarged Unit Plumbing Plans					☐		
P300	Typical Fixture Group Sanitary Piping Diagrams					☐		
P301	Sanitary Main Piping Diagrams					☐		
P500	Plumbing Schedules & Details					☐		
P510	Plumbing Details					☐		
P511	Gas Piping Diagrams					☐		
ELECTRICAL								
E000	Electrical Symbols List & General Notes					☐		
E010	Electrical Site Plan					☐		
E100	Electrical Garden Level Power Plan					☐		
E101	Electrical 1st Floor Power Plan					☐		
E102	Electrical 2nd Floor Power Plan					☐		
E104	Electrical Unit Plans AAa, ABb, BBb					☐		
E105	Electrical Unit Plans CCb, DDb, EEb					☐		
E106	Electrical Unit Plans FFa, FFb, HHb					☐		
E107	Electrical Unit Plans JJa, LLb					☐		
E200	Electrical Garden Level Lighting Plan					☐		
E201	Electrical 1st Floor Lighting Plan					☐		
E202	Electrical 2nd Floor Lighting Plan					☐		
E300	Electrical One-Line Diagram & Panel Schedule					☐		
E301	Electrical Unit Load Tabulations					☐		

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No.	Revision/Issue	Date
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	Amendment to Approved Site Plan	8.23.17

Cedar Valley Building B
1413 S. Rochester Rd
Rochester Hills, MI

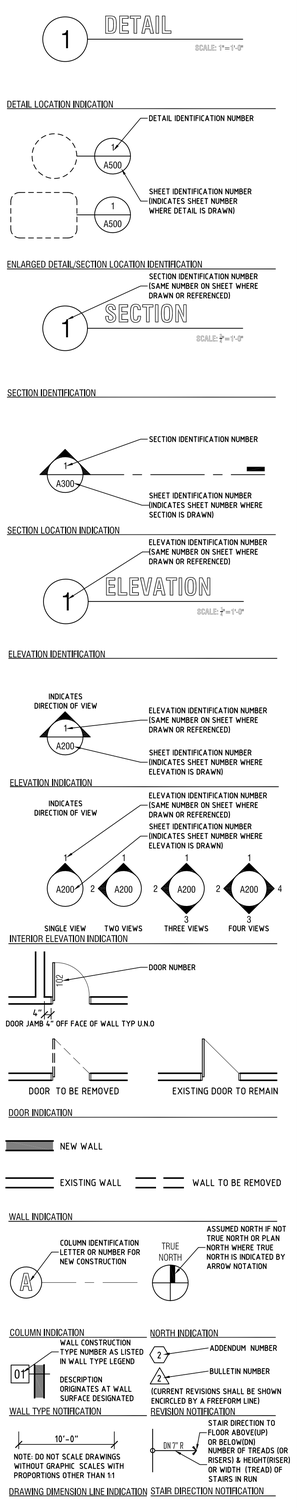
Title Sheet and Index

G001 | #16-018 | 017137

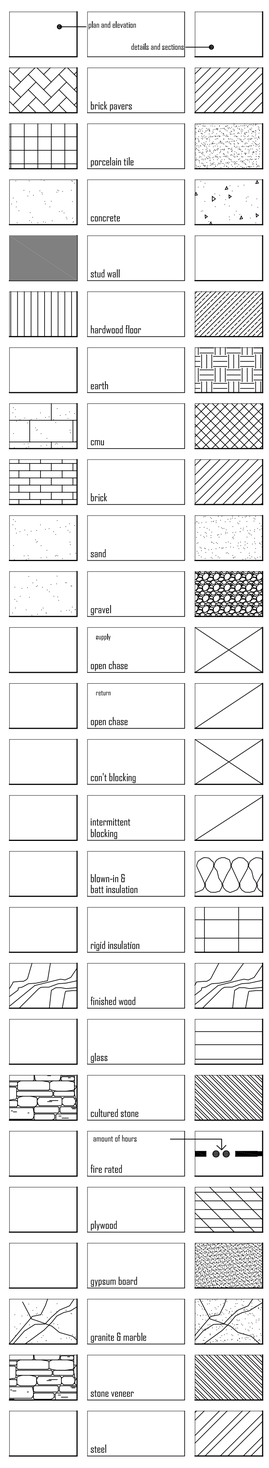
ABREVIATIONS

A	
AC	ACOUSTICAL
ACT	ACOUSTICAL TILE (OR ACTIVE)
ADD	ADDENDUM OR ADDITIONAL
ADJ	ADJACENT
AGG	AGGREGATE
A/C	AIR CONDITIONING
ALT	ALTERNATE OR ALTERNATIVE
AL,ALUM	ALUMINUM
ANCH	ANCHOR, ANCHORAGE
AB	ANCHOR BOLT
ANOD	ANODIZED
ARCH	ARCHITECT(URAL)
ASPH	ASPHALT
AUTO	AUTOMATIC
B	
B.F.	BARRIER FREE
BP	BASE PLATE OR BEARING PLATE
BRG	BEARING
BM	BENCH MARK OR BEAM
BETW	BETWEEN
BIT	BITUMINOUS
BLKG	BLOCKING
BD	BOARD
BS	BOTH SIDES
BOT	BOTTOM
BC	BOTTOM OF CURB
BLDG	BUILDING
BL	BUILDING LINE
B.O.	BY OTHERS
C	
CABT	CABINET
CR	CARD READER
CPT	CARPET(ED)
CES	CARPET EDGE STRIP
CI	CAST IRON
CIP	CAST-IN-PLACE
CB	CATCH BASIN
CLG	CEILING
CEM	CEMENT
C TO C	CENTER TO CENTER
CM	CENTIMETER(S)
C*	DEGREES CENTIGRADE
CER	CERAMIC
CT	CERAMIC TILE
CHDK PL	CHECKERED PLATE
CLR	CLEARANCE)
CLOS	CLOSET
CO	CLEAN OUT
CHK	COAT HOOK
CW	COLD WATER
COL	COLUMN
COMB	COMBINATION
COMP	COMPRESS(ED),(ION),(IBLE)
CNCLD	CONCEALED
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT (CONCRETE BLOCK)
CONN	CONNECTION
CONST	CONSTRUCTION
CONST JT	CONSTRUCTION JOINT
CONT	CONTINUOUS OR CONTINUE
CONTR	CONTRACT(OR)
CJ	CONTROL JOINT
CORR	CORRUGATED OR CORRIDOR
CTR	CENTER
CTSK	COUNTERSUNK
CF	CUBIC FOOT
CY	CUBIC YARD
CYL	CYLINDER
D	
DPR	DAMPER
DP	DAMPROOFING
DL	DEAD LOAD
DET	DETAIL
DIAG	DIAGONAL
ø	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
D/W	DISHWASHER
DO	DOOR OPENING
DN	DOWN
DT	DRAIN TILE
DWG	DRAWING
DF	DRINKING FOUNTAIN
E	
ELEC	ELECTRIC(AL)
EWC	ELECTRIC WATER COOLER
EL	ELEVATION
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOS(E), (URE)
EQ	EQUAL
EQUIP	EQUIPMENT
ESC	ESCALATOR
EXH	EXHAUST
EB	EXPANSION BOLT
EJ	EXPANSION JOINT
EXPCONST	EXPOSED CONSTRUCTION
EXT	EXTERIOR
F	
FOC	FACE OF CONCRETE
FF	FACTORY FINISH
F*	DEGREES FAHRENHEIT
FT	FEET/FOOT
FIN	FINISHED)
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FLD	FIELD
FHS	FIRE HOSE STATION
FPR	FIRE PROOFING
FL	FLOORING)
FD	FLOOR DRAIN
FLUOR	FLOURESCENT
FTG	FOOTING
FDN	FOUNDATION
FA	FRESH AIR
FS	FAR SIDE
FURR	FURRED, (ING)
FVC	FIRE VALVE CABINET
G	
GA	GAGE, GAUGE
GAL	GALLON
GALV	GALVANIZED
GL	GLASS, GLAZING
GR	GRADE, GRADING
g	GRAM
GRD	GROUND
GYP	GYPSUM
GYP L	GYPSUM LATH
GP	GYPSUM PLASTER
GWB	GYPSUM WALL BOARD
H	
HDCP	HANDICAP(PED)
HDBD	HARDBOARD
HDWE	HARDWARE
HWD	HARDWOOD
HTG	HEATING
H&V	HEATING & VENTILATING
HVAC	HEATING/VENTILATION/ AIR CONDITIONING
HT	HEIGHT
H	HIGH
HP	HIGH POINT
HS	HIGH STRENGTH
HC	HOLLOW CORE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HORSE POWER
HB	HOSE BIBB
HW	HOT WATER
HWH	HOT WATER HEATER
HR	HOUR
I	
IN(")	INCH(ES)
INCL	INCLUDE(D), (ING)
INFO	INFORMATION
id	INSIDE DIMENSION
INSL	INSULATE(D), (ION)
ICA	INTEGRAL COLOR ANODIZED
INT	INTERIOR/INTERNAL
INTERM	INTERMEDIATE
INV	INVERT
IRR	IRRIGATION
K	
kg	KILOGRAMS
KV	KILOVOLT
KVA	KILOVOLT/AMPERE
KW	KILOWATT(S)
KWh	KILOWATT-HOUR
kg/m³	KILOGRAM PER METER
kg/cm²	KILOGRAM PER SQUARE CENTIMETER
K	KIPS
KSI	KIPS PER SQUARE INCH
KIT	KITCHEN
KO	KNOCKOUT
L	
LAB	LABORATORY
LAM	LAMINATE(D)
LAV	LAVATORY
LCC	LEAD COATED COPPER
LH	LEFT HAND
LHR	LEFT HAND REVERSE
L	LENGTH
LT	LIGHT
LTG	LIGHTING
LP	LIGHTING PANEL
LIN	LINEAR, LINEAL
LL	LIVE LOAD
LG	LONG
LLBB	LONG LEGS BACK TO BACK
LLH	LONG LEG HORIZONTAL
LLO	LONG LEG OUTSTANDING
LLV	LONG LEG VERTICAL
LOC	LOCATE/LOCATION
L.P.	LOW POINT
LV	LOW VOLTAGE
M	
MAG	MAGNETIC
MH	MANHOLE
MFR	MANUFACTRUE(R)
MAR	MARBLE
MAR THR	MARBLE THRESHOLD
MB	MARKER BOARD
MAS	MASONRY
MO	MASONRY OPENING
MAT	MATERIAL(S)
MAX	MAXIMUM
MECH	MECHANICAL
MC	MEDICINE CABINET
MED	MEDIUM
MBR	MEMBER
MET	METAL
MDS	METAL DIVIDER STRIP
ML	METAL LATH
MET THR	METAL THRESHOLD
M	MONITOR(ED)
MEZZ	MEZZANINE
mm	MILLIMETER(S)
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MI	MISCELLANEOUS IRON
MCC	MOTOR CONTROL CENTER
MTD	MOUNT(ED), (ING)
MULL	MULLION
N	
NAT	NATURAL
NCA	NATURAL COLOR ANODIZED
NEG	NEGATIVE
NRC	NOISE REDUCTION COEFFICIENT
NOM	NOMINAL
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NO (#)	NUMBER
O	
OFF	OFFICE
OC	ON CENTER(S)
OPG	OPENING
OPP	OPPOSITE
OPP HD	OPPOSITE HAND
ORIG	ORIGINAL
OZ	OUNCE
OS	OUTSIDE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
OH	OVERHEAD
P	
PTD	PAPER TOWEL DISPENSER
PTD/R	PAPER TOWEL DISPENSER & RECETACLE COMBINATION
PKG	PARKING
PBD	PARTICLE BOARD
PARTN	PARTITION
PE	PASSENGER ELEVATOR
PERM	PERMANENT
PLAS	PLASTER
PLAM	PLASTIC LAMINATE
ℙ	PLATE
PLBG	PLUMBING
PLWD	PLYWOOD
PT	POINT
POL	POLISHED
PVC	POLYVINYL CHLORIDE
lb/#	POUND(S)
PCF	POUNDS PER CUBIC FOOT
PPF	POUNDS PER FOOT
PLF	POUNDS PER LINERAL FOOT
PSF	POUNDS PER SQUARE FOOT
PC	PRECAST CONCRETE
PRE-FAB	PREFABRICATE(D)
PL	PROPERTY LINE
Q	
QT	QUARRY TILE
QTR	QUARTER
R	
RAD	RADIUS, RADIATOR, RADIATION
RC	RAINWATER CONDUCTOR
RECVG	RECEIVING
REC	RECESS(ED)
REF	REFERENCE
REFL	REFLECT(ED), (IVE), (OR)
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCE(D), (ING)
REQD	REQUIRED
RESIL	RESILIENT
RT	RESILIENT TILE
RA	RETURN AIR
REV	REVISION(S), REVISED
RH	RIGHT HAND
RHR	RIGHT HAND REVERSE
ROW	RIGHT OF WAY
R	RISER
Rd	ROAD
RD	ROOF DRAIN
RS	ROOF SUMP
RFG	ROOFING
RM	ROOM
RO	ROUGH OPENING
RUB	RUBBER
S	
SAN	SANITARY
SND	SANITARY NAPKIN DISPENSER
SNWR	SANITARY NAPKIN WASTE RECEPTACLE
SCH	SCHEDULE
SJ	SCORED JOINT
SL	SEALER
SECT	SECTION
SS	SOLID SURFACE
SHT	SHEET
SLO	SHORT LEG OUTSTANDING
SIM	SIMILAR
SK	SINK
SB	SOIL BORING
STC	SOUND TRANSMISSION CLASS
S	SOUTH
SPC	SPACER, SPACING
SPK	SPEAKER
SPEC(S)	SPECIFICATION'S)
SQ	SQUARE
cm²	SQUARE CENTIMETER
SF	SQUARE FOOT
STAG	STAGGERED
STL	STAINLESS STEEL
STD	STANDARD
STA	STATION
STN	STONE
STOR	STORAGE
SD	STORM DRAIN
ST	STREET
STRUCT	STRUCTURAL
SV	SUPPLY AIR
SUPP	SUPPORTS
SUSP	SUSPENDED
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRY(CAL)
T	
TEMP	TEMPERATURE, TEMPERED
TERR	TERRAZZO
THERM	THERMOSTAT
THK	THICKNESS)
THR	THRESHOLD
THRU	THROUGH/THOUGHOUT
TL	TOILET
TPH	TOILET PAPER HOLDER
TOL	TOLERANCE
T&G	TONGUE AND GROOVE
T&B	TOP & BOTTOM
TE	TOP ELEVATION
TOC	TOP OF CONCRETE
TO	TOP OF LURB
TOS	TOP OF STEEL
TWC	TOWEL & WASTE CABINET
TRAN	TRANSFORMER
T	TREAD
TYP	TYPICAL
U	
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UR	NOTED URINAL
V	
VA	VALVE
VB	VAPOR BARRIER
VAR	VARNISH
VERT	VERTICAL
VEST	VESTIBULE
VIN	VINYL
VCT	VINYL COMPOSITION TILE
VWC	VINYL WALL COVERING
VIT	VITREOUS
VRS	VINYL RESILIANT STRIP
W	
WSCT	WAINSCOT
WHYD	WALL HYDRANT
WH	WATER HEATER
WC	WATER CLOSET
WM	WATER MAIN
WP	WATERPROOFING
WR	WATER RESISTANT
WS	WATERSTOP
WT	WEIGHT
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH
W	WIDTH, WIDE, WEST
W/	WITH
W/O	WITHOUT
WD	WOOD
Y	
YD	YARD

SYMBOL LEGEND



GRAPHICS LEGEND



GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH APPLICABLE CODES, REGULATIONS AND REQUIREMENTS

2. DO NOT SCALE DRAWINGS. FIELD VERIFY ALL DIMENSIONS AND JOB CONDITIONS

3. SHOULD ANY CONDITION ARISE WHERE THE INTENT OF THE DRAWINGS IS IN DOUBT, OR WHERE THERE APPEARS TO BE AN ERROR ON THE DRAWINGS OR A DISCREPANCY BETWEEN THE DRAWINGS AND THE FILED CONDITIONS, THE ARCHITECT SHALL BE NOTIFIED AS SOON AS POSSIBLE. IF THE CONTRACTOR PROCEEDS WITH THE WORK SO AFFECTED WITHOUT INSTRUCTION FROM THE ARCHITECT, THE CONTRACTOR SHALL MAKE GOOD ANY RESULTING DAMAGE OR DEFECTS, THIS INCLUDES ERRORS IN THE SPECIFICATIONS AND NOTATIONAL ERRORS ON THE DRAWINGS WHERE DOUBTFUL OF INTERPRETATION.

4. IN THE CASE WHERE TWO OR MORE DETAILS APPLYING TO THE SAME PART OF THE WORK ARE IN CONFLICT, THE MOST RESTRICTIVE SHALL GOVERN UNLESS CLARIFIED OR OTHERWISE APPROVED BY THE ARCHITECT.

5. THE CONTRACTOR AND EACH SUBCONTRACTOR SHALL CAREFULLY EXAMINE THE CONDITIONS AFFECTING HIS WORK BEFORE PROCEEDING, AND SHALL REPORT TO THE ARCHITECT ANY CONDITION WHICH WOULD PREVENT THE PROPER AND LEGAL COMPLETION OF HIS WORK, NOT REPORTING ANY SUCH UNSUITABLE CONDITION WILL CONSTITUTE ACCEPTANCE OF ALL CONDITIONS BY THE CONTRACTOR AND/OR SUBCONTRACTOR.

6. APPROVAL OF SHOP DRAWINGS MEANS APPROVAL OF THE GENERAL METHOD OF FABRICATION ONLY. DIMENSIONS AND QUANTITIES MAY NOT BE CHECKED, AND APPROVAL OF SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS UNLESS SPECIFICALLY INDICATED IN THE APPROVAL.

7. IF SPECIFICATIONS ARE PROVIDED. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. WHERE DRAWINGS AND SPECIFICATIONS CONFLICT, THE MOST RESTRICTIVE SHALL APPLY.

8. NOT USED

9. PROVIDE 2A, 10BC MINIMUM RATED FIRE EXTINGUISHER TO BE LOCATED WITHIN 75 FEET OF TRAVEL DISTANCE FROM ALL AREAS. PROVIDE ONE EXTINGUISHER FOR EACH 75 FEET OF TRAVEL.

10. PLANS OF SPRINKLER SYSTEM SHALL BE APPROVED BY THE FIRE DEPARTMENT PRIOR TO INSTALLATION OF SYSTEM.

11. PLANS FOR ALL FIXED FIRE PROTECTION EQUIPMENT SUCH AS STANDPIPES, SPRINKLER SYSTEMS AND FIRE ALARM SYSTEMS, ETC. MUST BE SUBMITTED TO, AND APPROVED BY, THE FIRE PREVENTION BUREAU BEFORE THE EQUIPMENT IS INSTALLED.

12. 1 "THIS DOOR TO REMAIN UNLOCKED DURING BUSINESS HOURS" SIGN, WITH MINIMUM ONE (1) INCH HIGH LETTERS SHALL BE PROVIDED ADJACENT TO FRONT EXIT DOOR. PROVIDE INDICATING TYPE LOCKS ON DOORS.

13. NO HAZARDOUS MATERIALS, LIQUIDS OR CHEMICALS SHALL BE STORED OR USED WITHIN THE SUBJECT BUILDING AS TO REQUIRE A HAZARDOUS CLASSIFICATION PER APPLICABLE UNIFORM BUILDING CODE.

14. ALL INTERIOR WALLS AND PARTITIONS SHALL BE DESIGNED AND CONSTRUCTED TO RESIST ALL LOADS TO WHICH THEY ARE SUBJECTED BUT NOT LESS THAN A FORCE OF 5 POUNDS PER SQUARE FOOT APPLIED PERPENDICULAR TO WALLS.

15. ALL EGRESS EXITS SHALL BE OPENED FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.

16. LIGHT, VENTILATION AND SANITATION SHALL COMPLY WITH SECTIONS OF APPLICABLE BUILDING CODES.

17. EGRESS DOORS SHALL HAVE A CLEAR OPENING OF NO LESS THAN 32" WHEN OPEN AND BE OPERABLE BY A SINGLE EFFORT.

18. THE FLOOR INSIDE OR OUTSIDE OF A DOORWAY SHALL BE LEVEL FOR A DISTANCE OF 5'-0" FROM THE DOOR, IN THE DIRECTION OF THE DOOR SWING, AND SHALL EXTEND 18" BEYOND THE LATCH SIDE FOR THE INTERIOR DOORS AND 24" BEYOND THE LATCH SIDE FOR EXTERIOR DOORS.

19. SWITCHES AND CONTROLS FOR LIGHTS, VENTILATION, FIRE ALARMS, ETC. MUST BE PLACED NO MORE THAN 48" FROM THE FLOOR.

20. A 7'-0" MINIMUM VERTICAL CLEARANCE IN REQUIRED FROM THE FLOOR TO CEILINGS OR PROTRUDING WALL FIXTURES IN PATH OF EGRESS.

21. PROVIDE FIRE STOPPING AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES.

22. DRAFTSTOPS MUST BE INSTALLED SO THAT THE LONGEST HORIZONTAL DIMENSION DOES NOT EXCEED 100 FEET.

PROJECT INFORMATION

BUILDING AREA

BASEMENT:	16,550 SQ.FT.
FIRST FLOOR:	22,760 SQ.FT.
SECOND FLOOR:	22,760 SQ.FT.
TOTAL:	62,070 SQ.FT.

UNIT INFORMATION

Size	Basement	1st Floor	2nd Floor	Total
Studio	-	4	4	8
1 Bed	1	5	5	11
2 Bed	10	11	11	32
3 Bed	2	2	2	6

PROJECT INFORMATION

APPLICABLE CONSTRUCTION CODES AND STANDARDS:

BUILDING CODE:	Department of Energy, Labor and Economic Growth Michigan Building Code 2015 Michigan Barrier Free ICC/ANSI 117.1-2009
MECHANICAL :	Michigan Mechanical Code 2015 (MMC-2015)
PLUMBING:	Michigan Plumbing Code 2015- (MPC-2015)
ELECTRICAL :	State of Michigan Electric Code (National Electric Code-2015) (NEC-2015)
FIRE :	International Fire Code 2015 (IFC - 2015)
ENERGY CODE:	Michigan Uniform Energy Code 2009 (MUEC)
JURISSDICTION:	City of Rochester Hills

CHAPTER 3 - USE AND OCCUPANCY CLASSIFICATION

SECTIONS 302.1, 310.4 — BUILDING USE GROUP: R-2 Residential

CHAPTER 4 - SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

SECTIONS 420.2, 420.3

Dwelling unit separation wall shall be 1/2 hour rated fire partition per section 708.3.2 (building is equipped with NFPA13 Sprinkler System)

Horizontal separation between dwelling units and other occupancies shall be 1/2 hour fire resistant rating per section 711.2.4.3 exception (building is quipped with NFPA13 Sprinkler System)

CHAPTER 5 - GENERAL BUILDING HEIGHTS & AREA

SECTIONS 503, 506
Construction Type V-B
Use Group: R-2 Residential

Allowable Stories: 3 stories - 60'
Proposed Stories: 3 stories - 41'-6"
Allowable Area: 110,250 sq.ft per total
38,750 sq.ft. per story

Allowable Area = (Allowable Area 503R from 506.2 + (Allowable Area NS from 506.2 x (frontage Increase)) x Actual number of building stories

Frontage Increase = (Building Perimeter that fronts a public way or open space/Perimeter of entire building - 25) width of public way/30

Frontage increase = (666'/666'-25)30 = .75

Area Increase = (21,000+(21,000x.75) x3 = 110,250 sq.ft.
Individual Story = (21,000+(21,000x.75)x1 = 36,750 sq.ft

Proposed Area 22,760 sq.ft (largest individual story)
62,070 sq.ft. total
Proposed Height: 37'-9" to Roof Deck
31'-6" to Top of Parapet

CHAPTER 6 - TYPES OF CONSTRUCTION

SECTION 602, 602.5
TABLE 601

TYPE V-B PROTECTED SPRINKLERED
Structural Frame = 0
Bearing Walls (Ext) = 0
Nonbearing Walls Exterior = 0
Nonbearing Walls Interior = 0
Floor Construction = 0
Roof Construction = 0

CHAPTER 7 - FIRE AND SMOKE PROTECTION FEATURES

TYPE V-B

SECTION 713
SHAFT ENCLOSURES
713.4 — 1 hour Fire-Resistance Rating Required where < 4 Stories
1 hour Fire-Resistance Rating Provided

SECTION 716
OPENING PROTECTIVES

ASSEMBLY RATING	DOOR RATING	VISION PANEL SIZE	GLAZING RATING
2 HOUR WALL	½ HOUR	100 SQ.IN.	2 HOUR (W-120)
1 HOUR WALL	1 HOUR	100 SQ.IN.	1 HOUR (W-60)

IN ACCORDANCE W/ ASTM E 119 OR UL 263.

SECTION 720
Thermal & Sound Insulating Materials
To meet ASTM E84 or UL 723
FS<25
SD<450

CHAPTER 8 - INTERIOR FINISHES

TABLE 803.9

Group: R - 2 Residential
Exit enclosures and exit passage ways — Class B
Corridors — Class B
Rooms and enclosed spaces — Class C
Class A FS 0-25 SD 0-450
Class B FS 26-75 SD 0-450
Class C FS 76 - 200 SD 0-450

CHAPTER9 - FIRE PROTECTION SYSTEM

SECTION 903 — NFPA13 Automatic sprinkler system proposed

CHAPTER 10 - MEANS OF EGRESS

SECTION 1004

OCCUPANT LOAD:

FLOOR	USE	AREA	LOAD FACTOR SQ.FT. / PER	SUB TOTAL	
BASEMENT	RESIDENTIAL	16,550 SQ.FT.	200 SQ.FT. GROSS/ PERSON	83	TOTAL
1st	RESIDENTIAL	22,760 SQ.FT.	200 SQ.FT. GROSS/ PERSON	114	
2nd	RESIDENTIAL	22,760 SQ.FT.	200 SQ.FT. GROSS/ PERSON	114	
				TOTAL	311

SECTION 1005
EGRESS WIDTH — USE GROUP R - 2 Residential
EGRESS WIDTH (PER 1005.1) .3 X 311= 93.3"
108" PROVIDED

SECTION 1014
EXIT ACCESS — 3 EXITS PROVIDED

SECTION 1016
EXIT TRAVEL DISTANCE — 250 FT. ALLOWED
165 FT. PROVIDED

SECTION 1018
CORRIDORS — 38" MIN REQUIRED
60" PROVIDED
1018.1

CODRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCC. LOAD SERVED BY CODRIDOR	REQ'D FIRE-RESISTANCE RATING (HOURS) W/O SPRINKLER SYSTEM	W/ SPRINKLER SYSTEM
R	GREATER THAN 10	NOT PERMITTED	1

Coridor Fire-Resistance Rating of 1 Hour Provided

MICHIGAN PLUMBING CODE - 2012

OCCUPANT LOAD - 311
MALE - 156
FEMALE - 156

REQUIRED	W.C.	LAV	BATHTUBS/SHOWERS	OTHER
PER DWELLING UNIT	1	1	1	1 Kitchen sink / 1 washer per 20 dwelling units

PROVIDED	W.C.	LAV	BATHTUBS/SHOWERS	OTHER
PER DWELLING UNIT 1 BED	1	1	1	1 KITCHEN SINK/ 1 WASHER/DRYER
PER DWELLING UNIT 2 BED	2	2	2	1 KITCHEN SINK/ 1 WASHER/DRYER

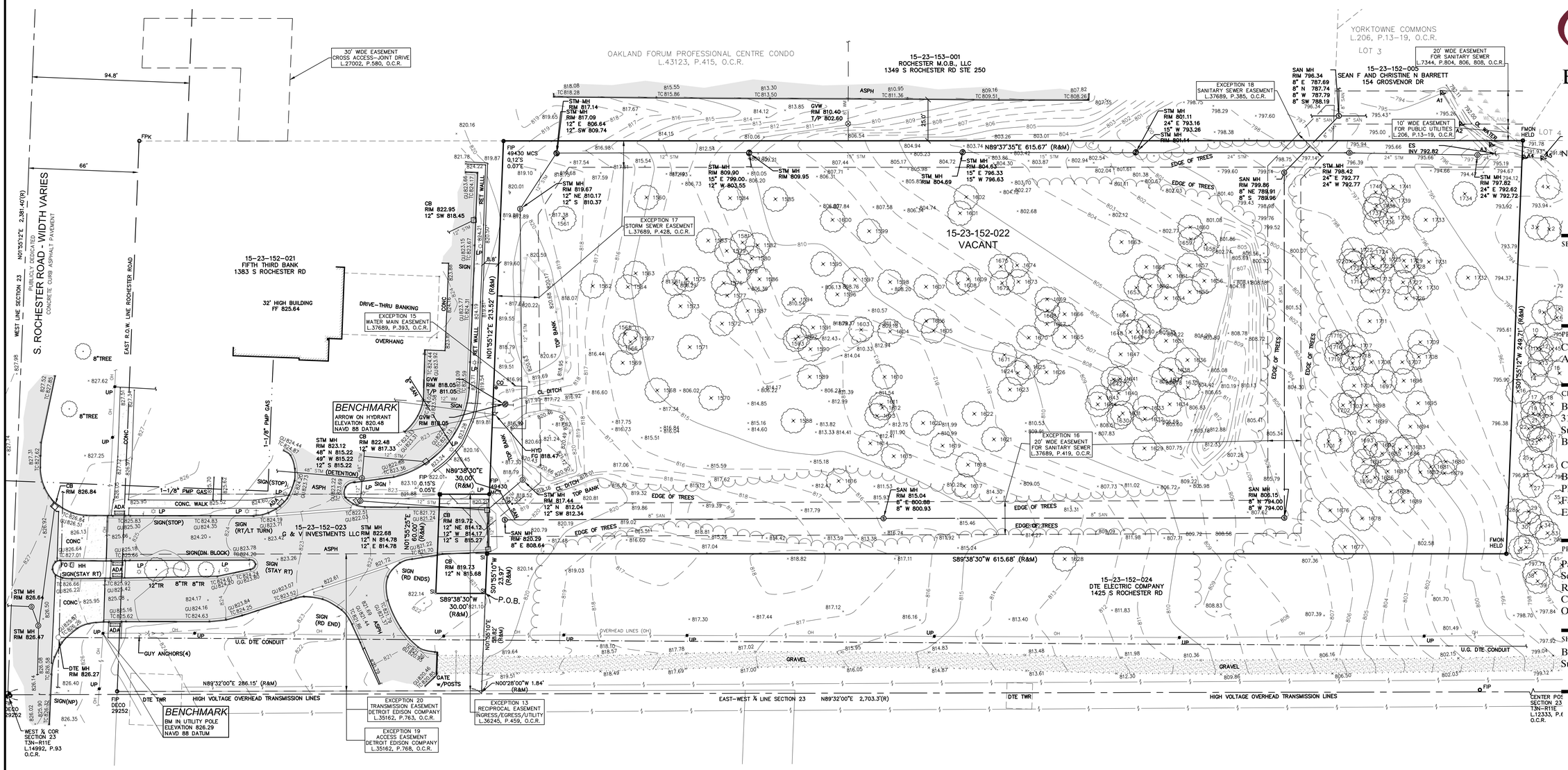
DESIGNHAUS ARCHITECTURE EST 1998
301 WALNUT BOULEVARD
ROCHESTER, MI 48307
T:248.601.4422 F:248.453.5854
WWW.DESIGNHAUS.COM
INFO@DESIGNHAUS.COM

No.	Revision/Issue	Date
	----	----
	----	----
	----	----
	----	----
	----	----
	Amendment to Approved Site Plan	8.23.17

Cedar Valley Building B
1413 S. Rochester Rd
Rochester Hills, MI

Reference & Code Information

G002 | #16-018 | 017137



NF ENGINEERS

CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL

STATE OF MICHIGAN
KEVIN NAVAROLI
PROFESSIONAL SURVEYOR
NO. 53503
LICENSED PROFESSIONAL SURVEYOR

PROJECT
Cedar Valley Luxury Apartments

CLIENT
Bret Russell, Inc.
31000 Telegraph Road
Suite 145
Bingham Farms, MI 48025

Contact:
Bret Russell/Matt Johnson
Phone: (248) 792-5164
Fax: (248) 792-5165
Email: mjohnson@russellbuild.com

PROJECT LOCATION
Part of the Northwest ¼ of Section 23, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan

SHEET
Boundary / Topographic Survey

811
Know what's below
Call before you dig.

REVISIONS
12-14-16 Site Plan Approval
01-20-17 SPA Revision #1
03-03-17 Final SPA
03-27-17 Engineering Review / Permits
04-19-17 Final SPA #2
05-26-17 Revised per City
08-23-17 Amendment to Approved Site Plan

DRAWN BY:
J. Nelson

DESIGNED BY:

APPROVED BY:
K. N. (PS) / B. B.(PM)

DATE:
11-30-16

SCALE: 1" = 40'
40 20 0 20 40 60

NFE JOB NO. **J401**
SHEET NO. **T1**

SITE DATA

PARCEL	15-23-152-022
GROSS LAND AREA	155,364 SQUARE FEET OR 3.567 ACRES

NOTE:
ZONING CLASSIFICATION, BUILDING HEIGHT AND FLOOR SPACE AREA RESTRICTIONS, SETBACK AND PARKING REQUIREMENTS CAN ONLY BE SHOWN ONCE THE CLIENT PROVIDES A ZONING REPORT OR LETTER PURSUANT TO 2016 ALTA/NSPS LAND TITLE SURVEY REQUIREMENTS.

FLOOD HAZARD NOTE

THIS PROPERTY IS NOT LOCATED WITHIN THE FLOOD HAZARD AREA INDICATED BY FLOOD INSURANCE RATE MAP (FIRM) NO. 26125C0392F, EFFECTIVE DATE: SEPTEMBER 29, 2006.

TOPOGRAPHIC SURVEY NOTES

ALL ELEVATIONS ARE EXISTING ELEVATIONS, UNLESS OTHERWISE NOTED.

UTILITY LOCATIONS WERE OBTAINED FROM MUNICIPAL OFFICIALS AND RECORDS OF UTILITY COMPANIES, AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, OR EXACTNESS OF LOCATION.

WETLAND FLAGS WERE DELINEATED BY ASTI ENVIROMENTAL ON SEPTEMBER 16, 2016, FILE No. 9675-11 AND SAID FLAGS WERE LOCATED BY NOWAK AND FRAUS ENGINEERS ON SEPTEMBER 20, 2016. SAID FLAGS ARE SHOWN HEREON.

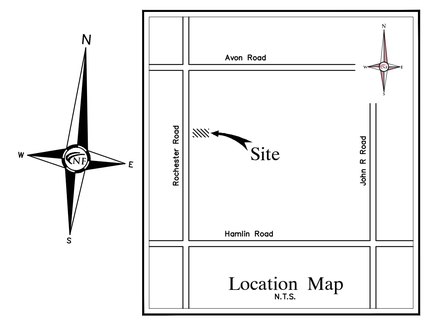
THIS DRAWING PREPARED FROM ALTA/NSPS SURVEY DRAWING PREPARED BY NFE, LAST REVISED 10/6/16.

LEGAL DESCRIPTION

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

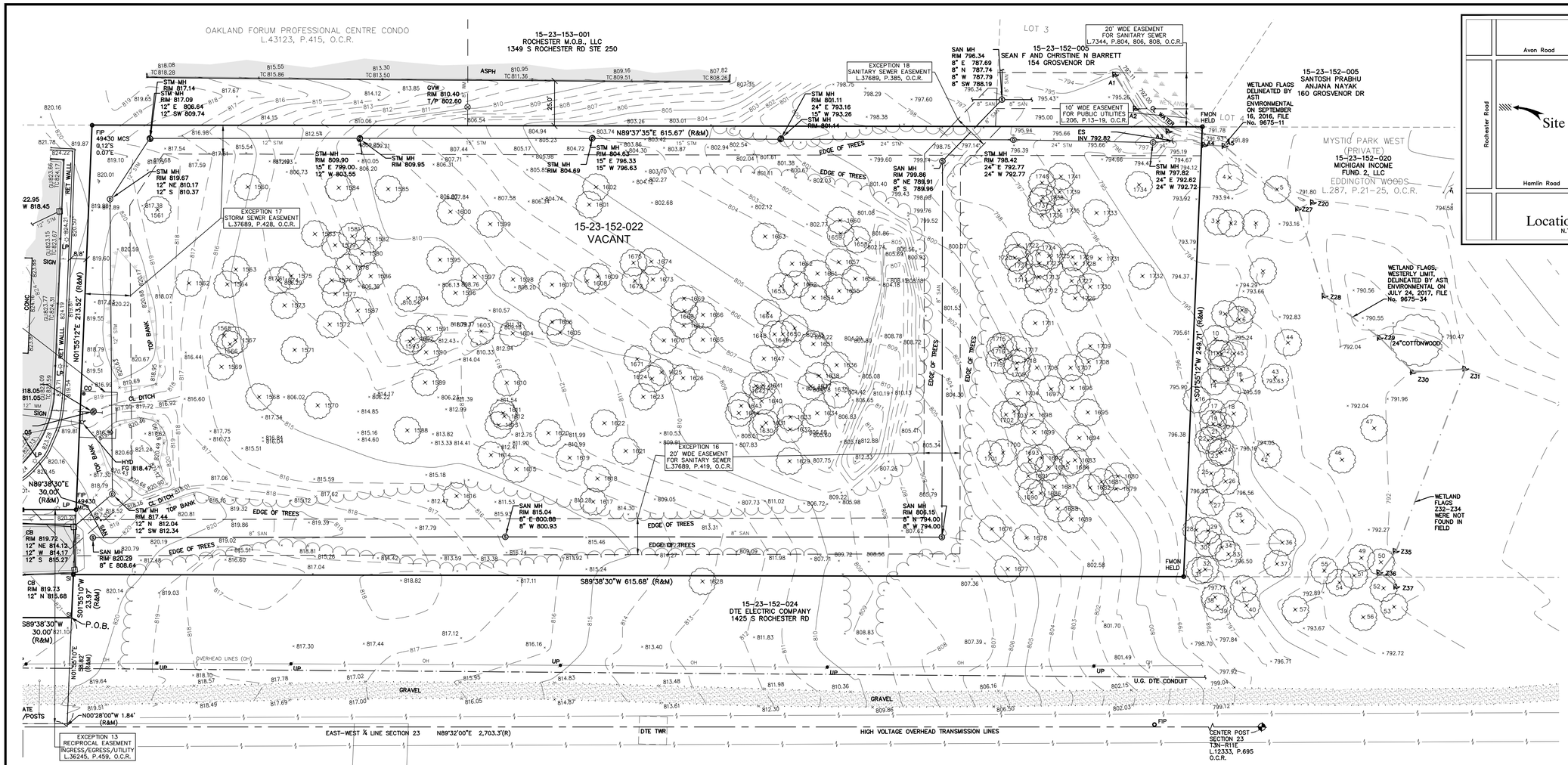
PART OF THE NORTHWEST 1/4 OF SECTION 23, TOWN 3 NORTH, RANGE 11 EAST, CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

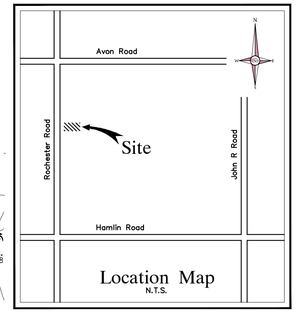
BEGINNING AT A POINT WHICH IS NORTH 89 DEGREES 32 MINUTES 00 SECONDS EAST 286.15 FEET ALONG THE EAST-WEST 1/4 LINE OF SECTION 23 AND NORTH 00 DEGREES 28 MINUTES 00 SECONDS WEST 1.84 FEET; AND NORTH 01 DEGREES 55 MINUTES 10 SECONDS EAST 58.82 FEET FROM THE WEST 1/4 CORNER OF SECTION 23, TOWN 3 NORTH, RANGE 11 EAST; THENCE SOUTH 89 DEGREES 38 MINUTES 30 SECONDS WEST 30.00 FEET; THENCE NORTH 01 DEGREES 55 MINUTES 25 SECONDS EAST 60.00 FEET; THENCE NORTH 89 DEGREES 38 MINUTES 30 SECONDS EAST 30.00 FEET; THENCE NORTH 01 DEGREES 55 MINUTES 12 SECONDS EAST 213.52 FEET; THENCE NORTH 89 DEGREES 37 MINUTES 35 SECONDS EAST 615.67 FEET ALONG (IN PART) THE SOUTH LINE OF YORKTOWNE COMMONS SUBDIVISION, AS RECORDED IN LIBER 206, PAGES 13, 14, 15, 16, 17, 18 AND 19 OF PLATS, OAKLAND COUNTY RECORDS; THENCE SOUTH 01 DEGREES 55 MINUTES 12 SECONDS WEST 249.71 FEET ALONG THE WEST LINE OF EDDINGTON WOODS SUBDIVISION, AS RECORDED IN LIBER 287, PAGES 21, 22, 23, 24 AND 25 OF PLATS, OAKLAND COUNTY RECORDS; THENCE SOUTH 89 DEGREES 38 MINUTES 30 SECONDS WEST (SOUTH 85 DEGREES 53 MINUTES 06 SECONDS WEST RECORD) 615.68 FEET; THENCE SOUTH 01 DEGREES 55 MINUTES 10 SECONDS WEST 23.97 FEET TO THE POINT OF BEGINNING.

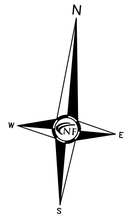


LEGEND

- CATCH BASIN (CB)
- BEEHIVE CATCH BASIN (CB)
- STORM MANHOLE (MH)
- END SECTION (ES)
- SANITARY MANHOLE (MH)
- CLEAN OUT (CO)
- COMBINED MANHOLE (MH)
- GATE VALVE IN WELL (GVW)
- STOP BOX (SB)
- HYDRANT (HYD)
- WATER SHUT OFF (SO)
- WELL
- PUMP
- ELECTRIC MANHOLE (MH)
- TELEPHONE MANHOLE (MH)
- UTILITY POLE (UP)
- GUY POLE (GWP)
- GUY WIRE (GW)
- LIGHT POLE (LP)
- PUBLIC PHONE
- ELECTRIC METER (EM)
- GAS METER (GM)
- GAS VALVE (GV)
- GAS MARKER
- SIGN
- POST/BOLLARD (GP)
- PARKING METER
- MAIL BOX (MB)
- ROCK/BOULDER
- SPRINKLER VALVE (SV)
- SPRINKLER HEAD (SH)
- DOWNSPOUT (DS)
- FOUND IRON/PIPE/MONUMENT (FI, FIP, FMON)
- SET IRON/PK NAIL (SI, SPK)
- (R) RECORD MEASUREMENT
- (M) SURVEYED MEASUREMENT
- +000.00 GROUND ELEVATION
- STORM SEWER (STM)
- SANITARY SEWER (SAN)
- WATER MAIN (WATER, WM)
- GAS MAIN (GAS)
- OVERHEAD LINES (OH)
- UNDERGROUND LINES







TREE INVENTORY LIST TREES SURVEYED: 179

JOB LOCATION: PARCEL ID: 15-23-152-022
DATE COMPLETED: 9/16/2016

CONDITION DESCRIPTION NOTES:
"GOOD" – NO OBSERVED STRUCTURAL DEFECTS*
"FAIR" – MINOR STRUCTURAL DEFECTS, MARGINAL FORM, SOME INSECT ACTIVITY NOTED*
"POOR" – MAJOR STRUCTURAL DEFECTS, POOR FORM, INSECT INFESTED*
STRUCTURAL DEFECTS MAY INCLUDE DECAYED WOOD, CRACKS, ROOT PROBLEMS, WEAK BRANCH UNIONS, CANKERS, POOR TREE ARCHITECTURE, DEAD/FAILED BRANCHES DUE TO VARIOUS CAUSES.

ANTHONY J. DOMBROWSKI
REGISTERED FORESTER
STATE OF MICHIGAN ID #3301000669

TR#	BOTANICAL NAME	COMMON NAME	DIA	TYPE	OTHER	COND	COMMENTS
1560	ACER PLATANODES	NORWAY MAPLE	13			FAIR	
1561	ACER PLATANODES	NORWAY MAPLE	14	MULTI	13, 9	POOR	80% DEAD
1562	ACER PLATANODES	NORWAY MAPLE	26			POOR	75% DEAD, UPPER TRUNK FAILURE
1563	ACER PLATANODES	NORWAY MAPLE	14	TWIN	14	GOOD	
1564	ACER PLATANODES	NORWAY MAPLE	9			GOOD	
1565	ACER PLATANODES	NORWAY MAPLE	16	TWIN	15	GOOD	
1566	PRUNUS SEROTINA	BLACK CHERRY	12			GOOD	
1567	ACER PLATANODES	NORWAY MAPLE	13			POOR	IN-ROLLED TRUNK SEAM, WOOD EXPOSED, DECAY
1568	ACER PLATANODES	NORWAY MAPLE	20	MULTI	18, 15	POOR	TRUNK & SCAFFOLD BRANCH FAILURES
1569	PRUNUS SEROTINA	BLACK CHERRY	13			FAIR	BOWS IN TRUNK, being CHOKED BY POISON IVY VINES
1570	ACER PLATANODES	NORWAY MAPLE	26			POOR	SCAFFOLD BRANCH SEPARATION UPPER TRUNK
1571	ACER PLATANODES	NORWAY MAPLE	17			GOOD	
1572	PRUNUS SEROTINA	BLACK CHERRY	14			POOR	EXCESSIVE TRUNK LEAN, 35°
1573	ACER PLATANODES	NORWAY MAPLE	15	MULTI	13, 12	POOR	TRUNK FAILURE, 35% DEAD
1574	ACER PLATANODES	NORWAY MAPLE	16	TWIN	15	POOR	WEAK TRUNK UNION, INCLUDED BARK, TRUNK DECAY
1575	ACER PLATANODES	NORWAY MAPLE	12	TWIN	9	GOOD	
1576	PRUNUS SEROTINA	BLACK CHERRY	15			GOOD	
1577	PRUNUS SEROTINA	BLACK CHERRY	15			FAIR	SPARSE CROWN DEV., SOME LIMB DEADWOOD
1578	ACER PLATANODES	NORWAY MAPLE	10			GOOD	
1579	ACER PLATANODES	NORWAY MAPLE	22			POOR	SCAFFOLD BRANCH DEADWOOD, UPPER TRUNK DECAY
1580	ACER PLATANODES	NORWAY MAPLE	14			GOOD	
1581	ACER PLATANODES	NORWAY MAPLE	13			GOOD	
1582	ACER PLATANODES	NORWAY MAPLE	7			GOOD	
1583	ACER PLATANODES	NORWAY MAPLE	14			GOOD	
1584	ACER PLATANODES	NORWAY MAPLE	16	TWIN	11	POOR	50% OF TREE HAS FAILED
1585	ACER PLATANODES	NORWAY MAPLE	17			GOOD	
1586	ACER PLATANODES	NORWAY MAPLE	14	TWIN	12	POOR	50% DEAD
1587	ACER PLATANODES	NORWAY MAPLE	20	TWIN	12	GOOD	
1588	JUGLANS NIGRA	BLACK WALNUT	26			GOOD	
1589	ACER PLATANODES	NORWAY MAPLE	15	TWIN	14	POOR	60% DEAD
1590	ACER PLATANODES	NORWAY MAPLE	14			POOR	TRUNK DECAY
1591	ACER PLATANODES	NORWAY MAPLE	16			FAIR	SOME SCAFFOLD BRANCH DECAY
1592	ACER PLATANODES	NORWAY MAPLE	16			POOR	90% DEAD
1593	PRUNUS SEROTINA	BLACK CHERRY	14			POOR	TRUNK FAILURE
1594	ACER PLATANODES	NORWAY MAPLE	24			GOOD	
1595	ACER PLATANODES	NORWAY MAPLE	22			POOR	SCAFFOLD BRANCH FAILURE, SOME UPPER TRUNK DECAY
1596	ACER PLATANODES	NORWAY MAPLE	10			GOOD	
1597	ACER PLATANODES	NORWAY MAPLE	26			GOOD	
1598	PRUNUS SEROTINA	BLACK CHERRY	13			FAIR	SOME LIMB DEADWOOD
1599	ACER PLATANODES	NORWAY MAPLE	26			GOOD	
1600	ACER PLATANODES	NORWAY MAPLE	18			FAIR	SOME BASAL TRUNK DECAY
1601	POPULUS DELTOIDES	EASTERN COTTONWOOD	6			GOOD	
1602	JUGLANS NIGRA	BLACK WALNUT	22			GOOD	
1603	ACER PLATANODES	NORWAY MAPLE	18			GOOD	
1604	PRUNUS SEROTINA	BLACK CHERRY	17			POOR	LIMB DEADWOOD & DIEBACK
1605	ACER PLATANODES	NORWAY MAPLE	15			GOOD	
1606	PRUNUS SEROTINA	BLACK CHERRY	11			GOOD	
1607	PRUNUS SEROTINA	BLACK CHERRY	10			FAIR	SOME LIMB DEADWOOD
1608	PRUNUS SEROTINA	BLACK CHERRY	6			GOOD	
1609	PRUNUS SEROTINA	BLACK CHERRY	8			GOOD	
1610	PRUNUS SEROTINA	BLACK CHERRY	15			POOR	LEANING 25°, POOR STRUCTURE
1611	PRUNUS SEROTINA	BLACK CHERRY	9			FAIR	BEING CHOKED BY GRAPE VINES
1612	PRUNUS SEROTINA	BLACK CHERRY	11			POOR	LIMB DEADWOOD & DIEBACK
1613	PRUNUS SEROTINA	BLACK CHERRY	15			GOOD	
1614	PRUNUS SEROTINA	BLACK CHERRY	9	TWIN	5	FAIR	LIMB DEADWOOD & DIEBACK
1615	ACER PLATANODES	NORWAY MAPLE	13			GOOD	
1616	POPULUS DELTOIDES	EASTERN COTTONWOOD	6			GOOD	
1617	POPULUS DELTOIDES	EASTERN COTTONWOOD	6			GOOD	
1618	ACER PLATANODES	NORWAY MAPLE	13			GOOD	
1619	JUGLANS NIGRA	BLACK WALNUT	20			GOOD	
1620	ACER NEGUNDO	BOX ELDER	9			GOOD	
1621	PRUNUS SEROTINA	BLACK CHERRY	14			FAIR	SPARSE CROWN, SOOME LIMB DEADWOOD
1622	ACER PLATANODES	NORWAY MAPLE	22			FAIR	IN-ROLLED TRUNK SEAM, WOOD EXPOSED, DECAY
1623	PRUNUS SEROTINA	BLACK CHERRY	7			GOOD	
1624	ACER PLATANODES	NORWAY MAPLE	18	TWIN	12	GOOD	
1625	PYRUS SPP.	PEAR	8	TWIN	4	POOR	4" TRUNK IS DEAD
1626	PYRUS SPP.	PEAR	18			POOR	EXTENSIVE LIMB DEADWOOD
1627	NO TREE WITH THIS #						
1628	JUGLANS NIGRA	BLACK WALNUT	26			FAIR	LIMB DEADWOOD & DIEBACK
1629	PINUS SYLVESTRIS	SCOTCH PINE	26			POOR	TRUNK HOLLOW DETECTED
1630	PINUS SYLVESTRIS	SCOTCH PINE	18			POOR	PUNKEY WOOD DETECTED
1631	ACER NEGUNDO	BOX ELDER	7			GOOD	
1632	PINUS SYLVESTRIS	SCOTCH PINE	22			GOOD	
1633	PINUS SYLVESTRIS	SCOTCH PINE	17			GOOD	
1634	ACER PLATANODES	NORWAY MAPLE	11			GOOD	
1635	PINUS SYLVESTRIS	SCOTCH PINE	17			GOOD	
1636	PINUS SYLVESTRIS	SCOTCH PINE	16			GOOD	
1637	PINUS SYLVESTRIS	SCOTCH PINE	16			GOOD	
1638	PINUS SYLVESTRIS	SCOTCH PINE	17			GOOD	
1639	PINUS SYLVESTRIS	SCOTCH PINE	14			GOOD	
1640	PINUS SYLVESTRIS	SCOTCH PINE	11			GOOD	
1641	PINUS SYLVESTRIS	SCOTCH PINE	24			GOOD	
1642	CRATAEGUS SPP.	HAWTHORN	7			GOOD	
1643	ACER PLATANODES	NORWAY MAPLE	12			GOOD	
1644	PRUNUS SEROTINA	BLACK CHERRY	12			GOOD	
1645	PRUNUS SEROTINA	BLACK CHERRY	9			GOOD	
1646	CRATAEGUS SPP.	HAWTHORN	8	MULTI		GOOD	
1647	PINUS SYLVESTRIS	SCOTCH PINE	23			GOOD	
1648	ACER NEGUNDO	BOX ELDER	7			GOOD	
1649	PINUS SYLVESTRIS	SCOTCH PINE	17			GOOD	
1650	PINUS SYLVESTRIS	SCOTCH PINE	16			GOOD	
1651	PINUS SYLVESTRIS	SCOTCH PINE	16			GOOD	
1652	PINUS SYLVESTRIS	SCOTCH PINE	20			GOOD	
1653	PINUS SYLVESTRIS	SCOTCH PINE	18			GOOD	INSECT DAMAGE, SPARSE CROWN
1654	PINUS SYLVESTRIS	SCOTCH PINE	14			GOOD	
1655	PINUS SYLVESTRIS	SCOTCH PINE	26			GOOD	
1656	PINUS SYLVESTRIS	SCOTCH PINE	16			GOOD	
1657	PINUS SYLVESTRIS	SCOTCH PINE	13			GOOD	
1658	PINUS SYLVESTRIS	SCOTCH PINE	17			GOOD	
1659	PINUS SYLVESTRIS	SCOTCH PINE	15			GOOD	
1660	PINUS SYLVESTRIS	SCOTCH PINE	18			GOOD	
1661	PINUS SYLVESTRIS	SCOTCH PINE	11			GOOD	
1662	PINUS SYLVESTRIS	SCOTCH PINE	17			GOOD	
1663	PINUS SYLVESTRIS	SCOTCH PINE	14			GOOD	
1664	PINUS SYLVESTRIS	SCOTCH PINE	18			GOOD	
1665	PYRUS SPP.	PEAR	8	TWIN	8	POOR	SIGNIFICANTLY CHOKED BY ORIENTAL BITTERSWEET
1666	PRUNUS SEROTINA	BLACK CHERRY	7			POOR	SIGNIFICANTLY CHOKED BY ORIENTAL BITTERSWEET
1667	ACER PLATANODES	NORWAY MAPLE	8			GOOD	
1668	PRUNUS SEROTINA	BLACK CHERRY	9			GOOD	
1669	PRUNUS SEROTINA	BLACK CHERRY	12			GOOD	
1670	PRUNUS SEROTINA	BLACK CHERRY	12			POOR	BASAL TRUNK DECAY
1671	PRUNUS SEROTINA	BLACK CHERRY	9			GOOD	
1672	ACER PLATANODES	NORWAY MAPLE	18	MULTI	16, 12	GOOD	
1673	ACER RUBRUM	RED MAPLE	11			GOOD	
1674	PRUNUS SEROTINA	BLACK CHERRY	9			GOOD	
1675	ULMUS AMERICANA	AMERICAN ELM	14			GOOD	
1676	PINUS SYLVESTRIS	SCOTCH PINE	18			GOOD	
1677	PRUNUS SEROTINA	BLACK CHERRY	8			FAIR	SOME LIMB DEADWOOD
1678	PINUS SYLVESTRIS	SCOTCH PINE	17			GOOD	
1679	ACER NEGUNDO	BOX ELDER	13			GOOD	
1680	CATALPA SPECIOSA	CATALPA	8			GOOD	
1681	PRUNUS SEROTINA	BLACK CHERRY	7			POOR	LARGE IN-ROLLED TRUNK SEAM, WOOD EXPOSED, DECAY
1682	PRUNUS SEROTINA	BLACK CHERRY	9			GOOD	
1683	ACER PLATANODES	NORWAY MAPLE	9			GOOD	
1684	PINUS SYLVESTRIS	SCOTCH PINE	15			GOOD	
1685	PINUS SYLVESTRIS	SCOTCH PINE	16			GOOD	
1686	QUERCUS BICOLOR	SWAMP WHITE OAK	6			GOOD	
1687	QUERCUS BICOLOR	SWAMP WHITE OAK	5			GOOD	
1688	PRUNUS SEROTINA	BLACK CHERRY	7			GOOD	
1689	PRUNUS SEROTINA	BLACK CHERRY	7			GOOD	
1690	PINUS SYLVESTRIS	SCOTCH PINE	15			GOOD	
1691	ACER PLATANODES	NORWAY MAPLE	10			GOOD	
1692	ACER NEGUNDO	BOX ELDER	9			FAIR	CROOK IN TRUNK
1693	PINUS SYLVESTRIS	SCOTCH PINE	16			GOOD	
1694	PRUNUS SEROTINA	BLACK CHERRY	7			GOOD	
1695	PINUS SYLVESTRIS	SCOTCH PINE	20			GOOD	
1696	PINUS SYLVESTRIS	SCOTCH PINE	20			GOOD	
1697	PINUS SYLVESTRIS	SCOTCH PINE	13			GOOD	
1698	PINUS SYLVESTRIS	SCOTCH PINE	10			GOOD	
1699	PINUS SYLVESTRIS	SCOTCH PINE	12			GOOD	
1700	ULMUS AMERICANA	AMERICAN ELM	28			GOOD	
1701	ULMUS PUMILA	SIBERIAN ELM	28			GOOD	
1702	JUGLANS NIGRA	BLACK WALNUT	11			GOOD	
1703	PINUS SYLVESTRIS	SCOTCH PINE	10			FAIR	
1704	PINUS SYLVESTRIS	SCOTCH PINE	20			GOOD	
1705	PINUS SYLVESTRIS	SCOTCH PINE	14			GOOD	
1706	PINUS SYLVESTRIS	SCOTCH PINE	18			GOOD	
1707	PRUNUS SEROTINA	BLACK CHERRY	6			GOOD	
1708	PINUS SYLVESTRIS	SCOTCH PINE	18			GOOD	
1709	PINUS SYLVESTRIS	SCOTCH PINE	22			GOOD	
1710	PRUNUS SEROTINA	BLACK CHERRY	7			GOOD	
1711	PINUS SYLVESTRIS	SCOTCH PINE	15			GOOD	
1712	PINUS SYLVESTRIS	SCOTCH PINE	15			GOOD	
1713	PINUS SYLVESTRIS	SCOTCH PINE	15			GOOD	
1714	PINUS SYLVESTRIS	SCOTCH PINE	13			GOOD	
1715	ULMUS AMERICANA	AMERICAN ELM	10			GOOD	
1716	PINUS SYLVESTRIS	SCOTCH PINE	18			FAIR	
1717	PINUS SYLVESTRIS	SCOTCH PINE	15			POOR	INSECT DAMAGE
1718	PINUS SYLVESTRIS	SCOTCH PINE	14			GOOD	
1719	PINUS SYLVESTRIS	SCOTCH PINE	15			FAIR	
1720	ACER SACCHARINUM	SILVER MAPLE	10			GOOD	
1721	PINUS SYLVESTRIS	SCOTCH PINE	14			GOOD	
1722	PINUS SYLVESTRIS	SCOTCH PINE	15			GOOD	
1723	PINUS SYLVESTRIS	SCOTCH PINE	16			FAIR	
1724	ULMUS AMERICANA	AMERICAN ELM	10			FAIR	LARGE BOW IN TRUNK
1725	PINUS SYLVESTRIS	SCOTCH PINE	17			GOOD	
1726	PINUS SYLVESTRIS	SCOTCH PINE	17			GOOD	
1727	ULMUS AMERICANA	AMERICAN ELM	10			GOOD	
1728	PINUS SYLVESTRIS	SCOTCH PINE	17			GOOD	
1729	ULMUS AMERICANA	AMERICAN ELM	9			GOOD	
1730	PINUS SYLVESTRIS	SCOTCH PINE	14			GOOD	
1731	PRUNUS SEROTINA	BLACK CHERRY	7			GOOD	
1732	MALUS SPP.	CRABAPPLE SPP.	9	MULTI	9, 6	POOR	TRUNK DECAY
1733	PINUS SYLVESTRIS	SCOTCH PINE	18			GOOD	
1734	ACER PLATANODES	NORWAY MAPLE	28	TWIN	26	GOOD	
1735	PINUS SYLVESTRIS	SCOTCH PINE	17			GOOD	
1736	PINUS SYLVESTRIS	SCOTCH PINE	17			GOOD	
1737	ULMUS AMERICANA	AMERICAN ELM	7			GOOD	
1738	PINUS SYLVESTRIS	SCOTCH PINE	14			GOOD	
1739	PINUS SYLVESTRIS	SCOTCH PINE	18			GOOD	
1740	PINUS SYLVESTRIS	SCOTCH PINE	9			GOOD	
1741	PINUS SYLVESTRIS	SCOTCH PINE	13			GOOD	
1742	PINUS SYLVESTRIS	SCOTCH PINE	17			GOOD	
1743	POPULUS DELTOIDES	EASTERN COTTONWOOD	7			GOOD	

TREE INVENTORY LIST TREES SURVEYED: 57

JOB LOCATION: PARCEL ID: 15-23-152-020 & 15-23-152-024
DATE COMPLETED: 8/7/2016

CONDITION DESCRIPTION NOTES:
"GOOD" – NO OBSERVED STRUCTURAL DEFECTS*
"FAIR" – MINOR STRUCTURAL DEFECTS, MARGINAL FORM, SOME INSECT ACTIVITY NOTED*
"POOR" – MAJOR STRUCTURAL DEFECTS, POOR FORM, INSECT INFESTED*
STRUCTURAL DEFECTS MAY INCLUDE DECAYED WOOD, CRACKS, ROOT PROBLEMS, WEAK BRANCH UNIONS, CANKERS, POOR TREE ARCHITECTURE, DEAD/FAILED BRANCHES DUE TO VARIOUS CAUSES.

TREE #	BOTANICAL NAME	COMMON NAME	DIA	TYPE	OTHER DIA	COND	COMMENTS
1	JUGLANS NIGRA	BLACK WALNUT	13			GOOD	
2	PRUNUS SEROTINA	BLACK CHERRY	12			GOOD	
3	JUGLANS NIGRA	BLACK WALNUT	26			GOOD	
4	PRUNUS SEROTINA	BLACK CHERRY	8				FAIRBEING CHOKED BY BITTERSWEET VINES
5	JUGLANS NIGRA	BLACK WALNUT	11			GOOD	
6	BETULA POPULIFOLIA	GRAY BIRCH	14	TWIN	13	POOR	50% DEAD
7	JUGLANS NIGRA	BLACK WALNUT	16			GOOD	
8	JUGLANS NIGRA	BLACK WALNUT	9			GOOD	
9	BETULA POPULIFOLIA	GRAY BIRCH	8	TWIN	7	POOR	POOR STRUCTURE
10	BETULA POPULIFOLIA	GRAY BIRCH	15			GOOD	
11	BETULA POPULIFOLIA	GRAY BIRCH	13			GOOD	
12	BETULA POPULIFOLIA	GRAY BIRCH	11			GOOD	
13	BETULA POPULIFOLIA	GRAY BIRCH	12			GOOD	
14	BETULA POPULIFOLIA	GRAY BIRCH	11	TWIN	7	POOR	7" TRUNK IS DEAD
15	JUGLANS NIGRA	BLACK WALNUT	13			GOOD	
16	ACER PLATANODES	NORWAY MAPLE	18			GOOD	
17	BETULA POPULIFOLIA	GRAY BIRCH	13			GOOD	
18	PRUNUS SEROTINA	BLACK CHERRY	8			POOR	SEVERELY CHOKED BY VINES, POOR STRUCTURE
19	BETULA POPULIFOLIA	GRAY BIRCH	10			GOOD	
20	BETULA POPULIFOLIA	GRAY BIRCH	14			GOOD	
21	BETULA POPULIFOLIA	GRAY BIRCH	11	TWIN	10	GOOD	
22	PRUNUS SEROTINA	BLACK CHERRY	7			GOOD	
23	BETULA POPULIFOLIA	GRAY BIRCH	14			POOR	BASAL TRUNK DECAY
24	ACER PLATANODES	NORWAY MAPLE	11			GOOD	
25	PRUNUS SEROTINA	BLACK CHERRY	9			GOOD	
26	PRUNUS SEROTINA	BLACK CHERRY	12			GOOD	
27	BETULA POPULIFOLIA	GRAY BIRCH	11			GOOD	
28	PINUS SYLVESTRIS	SCOTCH PINE	13			GOOD	
29	ACER NEGUNDO	BOXELDER	8			POOR	POOR STRUCTURE
30	BETULA POPULIFOLIA	GRAY BIRCH	12			GOOD	
31	PRUNUS SEROTINA	BLACK CHERRY	8			GOOD	
32	PRUNUS SEROTINA	BLACK CHERRY	11			GOOD	
33	BETULA POPULIFOLIA	GRAY BIRCH	14			GOOD	
34	PRUNUS SEROTINA	BLACK CHERRY	6			GOOD	
35	PRUNUS SEROTINA	BLACK CHERRY	8			GOOD	
36	JUGLANS NIGRA	BLACK WALNUT	7			GOOD	
37	JUGLANS NIGRA	BLACK WALNUT	14			GOOD	
38	BETULA POPULIFOLIA	GRAY BIRCH	13	TWIN	10	GOOD	
39	BETULA POPULIFOLIA	GRAY BIRCH	10			GOOD	
40	PRUNUS SEROTINA	BLACK CHERRY	9			GOOD	
41	JUGLANS NIGRA	BLACK WALNUT	13			GOOD	
42	JUGLANS NIGRA	BLACK WALNUT	9			GOOD	
43	JUGLANS NIGRA	BLACK WALNUT	7			GOOD	
44	JUGLANS NIGRA	BLACK WALNUT	15			GOOD	
45	PRUNUS SEROTINA	BLACK CHERRY	12			POOR	EXCESSIVE TRUNK LEAN
46	JUGLANS NIGRA	BLACK WALNUT	16			GOOD	
47	JUGLANS NIGRA	BLACK WALNUT	12			GOOD	
48	JUGLANS NIGRA	BLACK WALNUT	17			GOOD	
49	JUGLANS NIGRA	BLACK WALNUT	18			GOOD	
50	JUGLANS NIGRA	BLACK WALNUT	10	TWIN	9	GOOD	
51	JUGLANS NIGRA	BLACK WALNUT	16			GOOD	
52	JUGLANS NIGRA	BLACK WALNUT	12			GOOD	
53	JUGLANS NIGRA	BLACK WALNUT	16			GOOD	
54	JUGLANS NIGRA	BLACK WALNUT	14			GOOD	
55	CRATAEGUS SPP.	HAWTHORN SPP.	13			GOOD	
56	JUGLANS NIGRA	BLACK WALNUT	26			GOOD	
57	ACER NEGUNDO	BOXELDER	14			GOOD	

LEGEND

- CATCH BASIN (CB)
- BEEHIVE CATCH BASIN (CB)
- STORM MANHOLE (MH)
- END SECTION (ES)
- SANITARY MANHOLE (MH)
- CLEAN OUT (CO)
- COMBINED MANHOLE (MH)
- GATE VALVE IN WELL (GVW)
- STOP BOX (SB)
- HYDRANT (HYD)
- WATER SHUT OFF (SO)
- WELL
- PUMP
- ELECTRIC MANHOLE (MH)
- TELEPHONE MANHOLE (MH)
- UTILITY POLE (UP)
- GUY POLE (GWP)
- GUY WIRE (GW)
- LIGHT POLE (LP)
- PUBLIC PHONE
- ELECTRIC METER (EM)
- GAS METER (GM)
- GAS VALVE (GV)
- GAS MARKER
- SIGN
- POST/BOLLARD (GP)
- PARKING METER
- MAIL BOX (MB)
- ROCK/BOULDER
- SPRINKLER VALVE (SV)
- SPRINKLER HEAD (SH)
- DOWNSPOUT (DS)
- FOUND IRON/PIPE/MONUMENT (FI, FIP, FMON)
- SET IRON/PK NAIL (SI, SPK)
- RECORD MEASUREMENT
- SURVEYED MEASUREMENT
- GROUND ELEVATION
- STORM SEWER (STM)
- SANITARY SEWER (SAN)
- WATER MAIN (WATER, WM)
- GAS MAIN (GAS)
- OVERHEAD LINES (OH)
- UNDERGROUND LINES

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL
STATE OF MICHIGAN
KEVIN NAVAROLI
PROFESSIONAL SURVEYOR
NO. 53503
LICENSED PROFESSIONAL SURVEYOR

PROJECT
Cedar Valley Luxury Apartments

CLIENT
Bret Russell, Inc.
31000 Telegraph Road
Suite 145
Bingham Farms, MI 48025

Contact:
Bret Russell/Matt Johnson
Phone: (248) 792-5164
Fax: (248) 792-5165
Email: mjohnson@russellbuild.com

PROJECT LOCATION
Part of the Northwest ¼ of Section 23, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan

SHEET
Tree Survey

811 Know what's below Call before you dig.

REVISIONS
12-14-16 Site Plan Approval
01-20-17 SPA Revision #1
03-03-17 Final SPA
03-27-17 Engineering Review / Permits
04-19-17 Final SPA #2
05-18-17 Updated Tree Survey
05-26-17 Revised per City
08-23-17 Amendment to Approved Site Plan

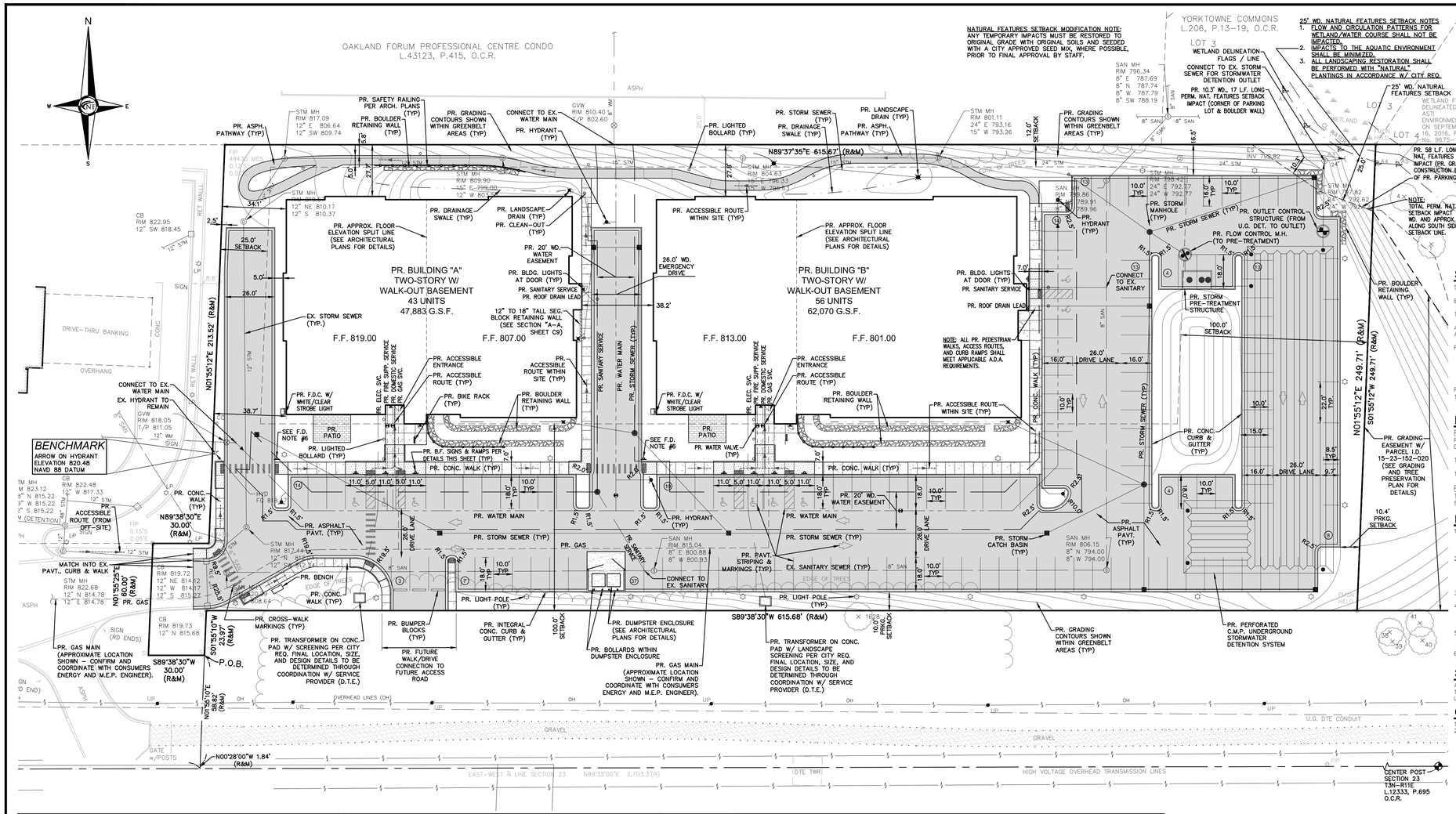
DRAWN BY:
J. Nelson
DESIGNED BY:

APPROVED BY:
K. N. (PS) / B. B.(PM)

DATE:
11-30-16

SCALE: 1" = 30'
30 15 0 15 30 45

NFE JOB NO. J401
SHEET NO. T2



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SITE SUMMARY

SITE ZONING: R4 (SINGLE-FAMILY RESIDENTIAL) W/ FB-2 FLEX BUSINESS OVERLAY

EXISTING SITE ACREAGE: 3.567 ACRES (155,364 SQUARE FEET)

TAX I.D. NO.: 15-23-152-022

APPROXIMATE AREA OF PROJECT (SITE) AREA OF IMPACT: 3.567 ACRES
APPROXIMATE AREA OF EARTH DISRUPTION: 3.567 ACRES

PROPOSED BUILDING FOOTPRINTS:
TWO BUILDINGS PROPOSED.
BUILDING "A" FOOTPRINT AREA = 0.414 ACRES (18,031 S.F.)
BUILDING "B" FOOTPRINT AREA = 0.522 ACRES (22,760 S.F.)
TOTAL PROPOSED BUILDING FOOTPRINT AREA = 0.936 ACRES (40,791 S.F.)

PROPOSED BUILDING CONSTRUCTION TYPE (PER NFPA STANDARDS):
TYPE 3B (UNPROTECTED SPRINKLED CONSTRUCTION)

PARKING CALCULATIONS

PARKING REQUIREMENTS
PER CITY ORDINANCE: MULTIPLE-FAMILY RESIDENTIAL WITHIN FLEX BUSINESS OVERLAY DISTRICTS REQUIRES 1.5 SPACES PER DWELLING UNIT WITH 2 OR FEWER BEDROOMS

TOTAL NUMBER OF UNITS (BOTH BUILDINGS) = 99 UNITS

TOTAL REQUIRED PARKING SPACES = 1.5 SPACES/UNIT * 99 UNITS = 149 SPACES REQUIRED

PROPOSED PARKING
TOTAL NUMBER OF PROPOSED SPACES = 149 (INCLUDING 9 BARRIER-FREE, VAN ACCESSIBLE SPACES)

FIRE DEPARTMENT NOTES

1. A KNOX KEY SYSTEM SHALL BE INSTALLED IF REQUIRED BY THE CITY FIRE DEPARTMENT. IF REQUIRED, THE LOCATION SHALL BE REVIEWED AND APPROVED BY THE FIRE CODE OFFICIAL. ORDERING INFORMATION IS AVAILABLE FROM THE KNOX COMPANY AT KNOXBOX.COM.
2. FIRE LANES SHALL BE DESIGNATED BY THE FIRE CODE OFFICIAL, AND SHALL BE CONSPICUOUSLY POSTED ON BOTH SIDES OF THE FIRE LANE, WITH THE 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.
3. CONSTRUCTION SITES SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC 2006 CHAPTER 14.
4. 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.
5. IF FIRE DEPARTMENT CONNECTION IS NOT LOCATED ON THE STREET FRONT OF THE BUILDING, A WHITE/CLEAR STROBE LIGHT SHALL BE TIED INTO THE FIRE ALARM SYSTEM AND INSTALLED OVER THE FIRE DEPARTMENT CONNECTION.
6. INSTALL TWO (2) SIGNS AT SOUTH ENDS OF WEST AND CENTRAL FIRE LANES STATING: "NO PARKING EMERGENCY VEHICLES ONLY".

SIGN NOTE

ALL MONUMENT SIGNS AND OTHER SIGNS PROPOSED ON THIS PLAN MUST MEET SECTION 138-8.603 AND CHAPTER 134 OF THE CITY CODE OF ORDINANCES AND BE APPROVED UNDER A SEPARATE PERMIT ISSUED BY THE BUILDING DEPARTMENT.

OVERALL SITE PLAN NOTES

1. ALL CURB RADIAL DIMENSIONS SHOWN ARE LABELED TO PROPOSE BACK OF CURB.
2. LOCATIONS FOR PROPOSED GAS, ELECTRIC, U.G. COMMUNICATIONS, AND OTHER FRANCHISED UTILITY LINES ARE T.B.D. UPON COORDINATION WITH SERVICE PROVIDERS DURING FINAL CONSTRUCTION DRAWING PHASE OF PROJECT DESIGN.

UTILITY NOTE

THE LOCATIONS AND ELEVATIONS OF SOME OF THE EXISTING UNDERGROUND UTILITIES AS SHOWN ON THE SURVEY DRAWING WERE OBTAINED FROM MUNICIPAL AND UTILITY COMPANY RECORDS AND MAPS. THEREFORE, NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

SEAL

STATE OF MICHIGAN
PAUL TULIKANGAS
ENGINEER NO. 057929
LICENSED PROFESSIONAL ENGINEER

PROJECT
Cedar Valley Luxury Apartments

CLIENT
Bret Russell, Inc.
31000 Telegraph Road
Suite 145
Bingham Farms, MI 48025
Contact:
Bret Russell/Matt Johnson
Phone: (248) 792-5164
Fax: (248) 792-5165
Email: mjohnson@russellbuild.com

PROJECT LOCATION
Part of the Northwest ¼ of Section 23, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan

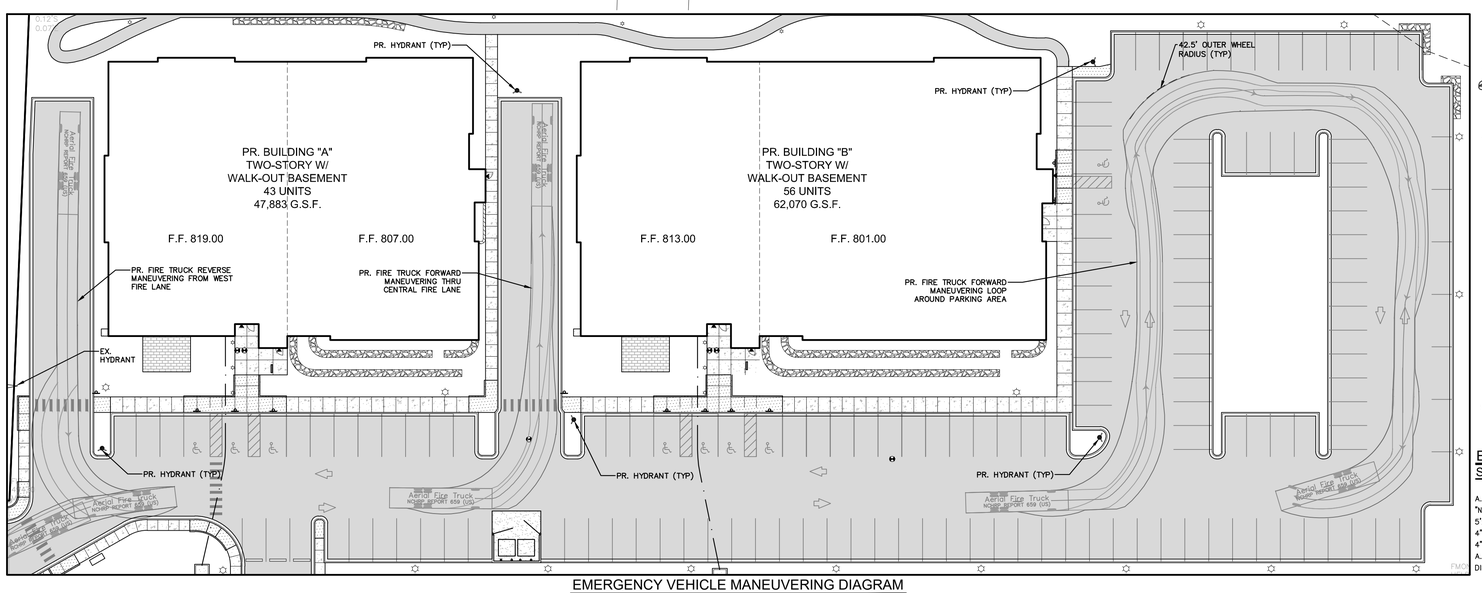
SHEET
Overall Site Plan & Emergency Vehicle Maneuvering Plan

811 Know what's below Call before you dig.

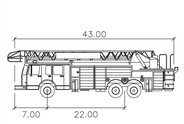
REVISIONS
12-14-16 Site Plan Approval
01-20-17 SPA Revision #1
02-06-17 Revisions per F.D.
03-03-17 Final SPA
03-27-17 Engineering Review / Permits
04-19-17 Final SPA #2
05-05-17 Revised per City
05-26-17 Revised per City
08-23-17 Amendment to Approved Site Plan
09-06-17 Revisions to Amended SPA

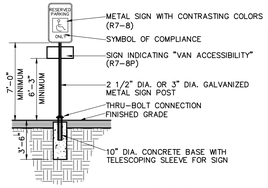
DRAWN BY: P. Tulikangas
DESIGNED BY: P. Tulikangas
APPROVED BY: B. Buchholz
DATE: 11-21-16
SCALE: 1" = 30'
30 15 0 15 30 45

NFE JOB NO. J401
SHEET NO. C1

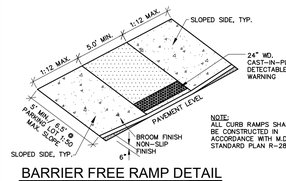


EMERGENCY VEHICLE MANEUVERING DIAGRAM
SCALE: 1" = 30'

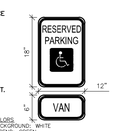




BARRIER FREE PARKING SIGN DETAIL
N.T.S.
Provide (1) for each accessible parking space



BARRIER FREE RAMP DETAIL
N.T.S.



TYPICAL R7-8 BARRIER FREE PARKING SIGN DETAIL

ESTIMATED QUANTITIES

STRIPING & SIGNAGE

DESCRIPTION	QUANTITY	UNITS
A.D.A. PARKING SIGN & POST	9	EA.
"NO PARKING – EMERGENCY VEHICLES ONLY"	2	EA.
5'x1' CROSS-WALK MARKING (WHITE)	31	EA.
4" WD. PAVEMENT MARKING (WHITE)	2,200	L.F.
4" WD. PAVEMENT MARKING (BLUE)	575	L.F.
A.D.A ACCESSIBILITY SYMBOL MARKING	9	EA.
DIRECTIONAL ARROW MARKING	8	EA.

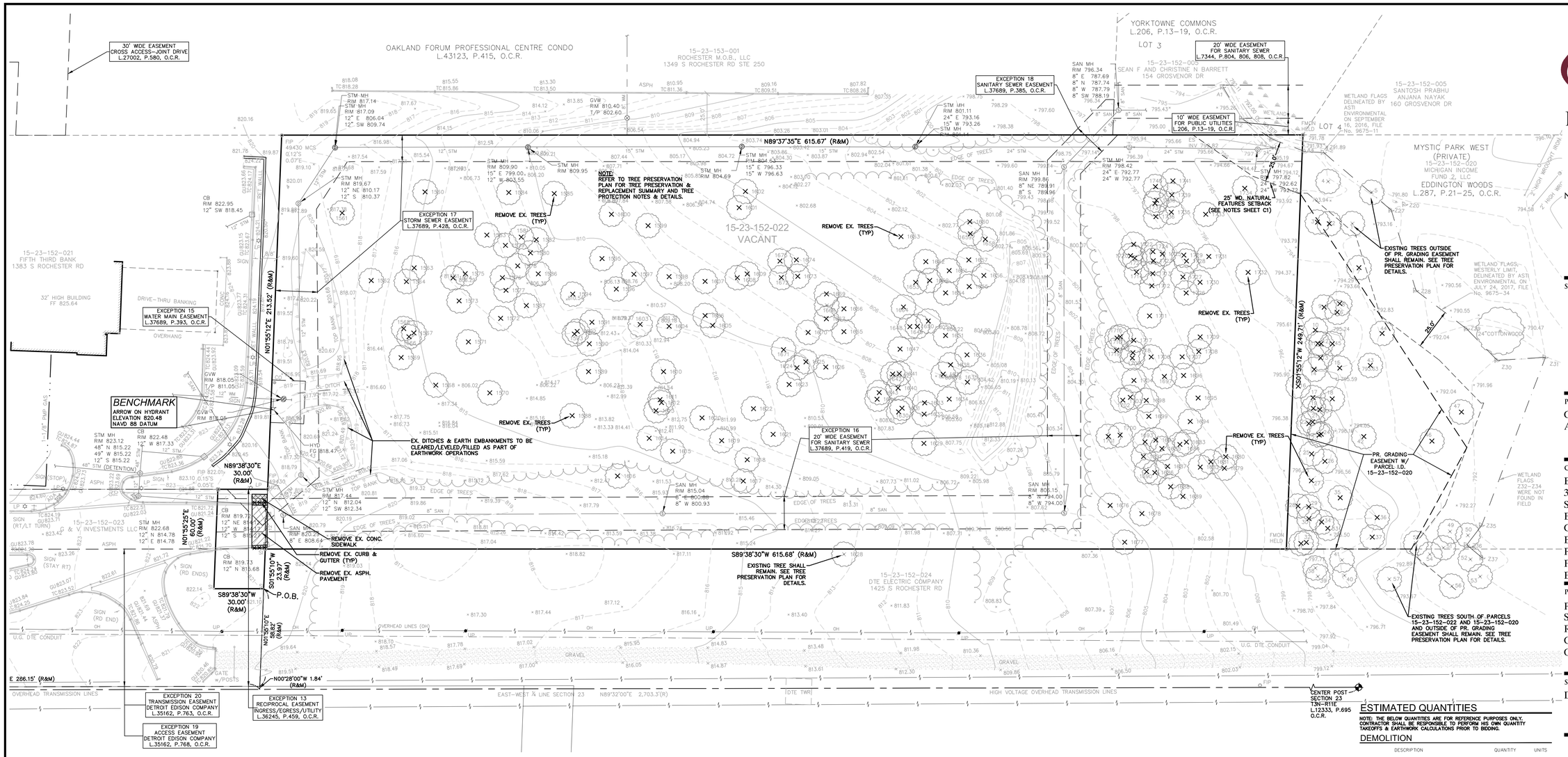
GENERAL PAVING LEGEND

- PROPOSED CONCRETE PAVEMENT
- PROPOSED CONCRETE SIDEWALK RAMP
- PROPOSED CONCRETE SIDEWALK
- PROPOSED BRICK PAVER PATIO
- PROPOSED BOULDER RETAINING WALL
- (00) PROPOSED PARKING COUNT

LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- HYDRANT, GATE VALVE — SAN. CLEAN OUT
- EXISTING WATER MAIN
- MANHOLE, CATCH BASIN — EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE, GUY POLE, GUY WIRE — OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O., MANHOLE — PR. SANITARY SEWER
- HYDRANT, GATE VALVE — PR. WATER MAIN
- INLET, C.B., MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE

CITY OF ROCHESTER HILLS
PROJECT #16-018



DEMOLITION NOTES

DEMOLITION OF SITE IMPROVEMENTS SHALL BE ALLOWED ONLY AFTER AN APPROVED PERMIT HAS BEEN SECURED FROM THE PUBLIC AGENCY HAVING JURISDICTION OVER SAID DEMOLITION.

FOR ANY DEMOLITION WITHIN PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL PAY FOR, AND SECURE, ALL NECESSARY PERMITS AND LIKEWISE SHALL ARRANGE FOR ALL SITE INSPECTIONS.

SITE DEMOLITION INCLUDES THE COMPLETE REMOVAL OF SITE IMPROVEMENTS AND OFF-SITE DISPOSAL. DEBRIS SHALL BE TRANSPORTED TO AN APPROPRIATE DISPOSAL FACILITY THAT IS LICENSED FOR THAT TYPE OF DEBRIS.

THE CONTRACTOR SHALL COORDINATE TRUCK ROUTES WITH THE MUNICIPALITY PRIOR TO COMMENCEMENT OF SITE DEMOLITION. ALL TRUCKS SHALL BE TARPED OR PROPERLY SECURED TO CONTAIN DEMOLITION DEBRIS PRIOR TO LEAVING SITE.

EXISTING ON-SITE UNDERGROUND UTILITIES AND BUILDING SERVICES HAVE BEEN INDICATED BASED UPON THE BEST AVAILABLE UTILITY RECORDS AND/OR ON-SITE INSPECTION. NO GUARANTEE IS MADE BY THE DESIGN ENGINEER, AS TO THE COMPLETENESS OR ACCURACY OF UTILITY DATA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF UTILITY INFORMATION (THE DESIGN ENGINEER MAKES NO GUARANTEE NOR ASSUMES ANY LIABILITY AS TO THE COMPLETENESS AND/OR ACCURACY OF UTILITY DATA).

PRIOR TO THE REMOVAL OR ABANDONMENT OF ANY EXISTING UNDERGROUND UTILITY OR BUILDING SERVICE LINES CALLED FOR IN THE PLANS OR DISCOVERED DURING EXCAVATION, THE CONTRACTOR MUST DETERMINE IF THE UTILITY LINE OR BUILDING SERVICE IS STILL IN USE. IF THE UTILITY LINE OR BUILDING SERVICE IS STILL IN USE/ACTIVE THE CONTRACTOR MUST TAKE ALL THE NECESSARY STEPS TO GUARANTEE THAT THE UTILITY LINE OR BUILDING SERVICE IS RECONNECTED WITHOUT AN INTERRUPTION IN SERVICE. THE RECONNECTION OF THE UTILITY LINE OR BUILDING SERVICE MUST BE IN ACCORDANCE WITH THE STANDARDS AND REQUIREMENTS OF THE APPROPRIATE GOVERNMENTAL AGENCY OR PRIVATE UTILITY COMPANY.

SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO SITE DEMOLITION.

* THE CONTRACTOR SHALL NOTIFY MISS DIG (1-800-482-7171) A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO THE START OF THE SITE DEMOLITION.

THE CONTRACTOR SHALL COORDINATE THE REMOVAL AND/OR RELOCATION OF EXISTING UTILITY POLES AND BUILDING SERVICES WITH THE DETROIT EDISON COMPANY. REMOVAL OF DETROIT EDISON ELECTRICAL SERVICES SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND REQUIREMENTS OF DETROIT EDISON.

THE CONTRACTOR SHALL COORDINATE THE REMOVAL AND/OR RELOCATION OF EXISTING UTILITY POLES AND BUILDING SERVICES WITH CONSUMERS ENERGY/MICHCON. REMOVAL OF CONSUMERS ENERGY/ MICHCON GAS SERVICES SHALL BE IN ACCORDANCE WITH THE STANDARDS AND REQUIREMENTS OF CONSUMERS ENERGY/MICHCON.

THE CONTRACTOR SHALL COORDINATE THE REMOVAL AND/OR RELOCATION OF EXISTING UTILITY POLES AND BUILDING SERVICES WITH AMERITECH. REMOVAL OF AMERITECH COMMUNICATION SERVICES SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND REQUIREMENTS OF AMERITECH.

THE CONTRACTOR SHALL COORDINATE THE REMOVAL AND/OR RELOCATION OF EXISTING UTILITY POLES AND BUILDING SERVICES WITH THE APPROPRIATE CABLE MEDIA COMPANY. REMOVAL OF CABLE SERVICES SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND REQUIREMENTS OF THE CABLE COMPANY.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFICATION OF PRIVATE UTILITY COMPANIES AND COORDINATE UTILITY SERVICE SHUT OFF/DISCONNECT, PRIOR TO DEMOLITION OF EXISTING STRUCTURES OR PROPERTIES.

ALL UTILITY METERS SHALL BE REMOVED BY THE APPROPRIATE UTILITY COMPANY.

ANY ON-SITE STORM SEWER FACILITIES LOCATED DURING DEMOLITION SHALL BE REMOVED AND BULK HEADED AT THE PROPERTY LINE IF INDICATED FOR REMOVAL ON THE PLANS.

PRIOR TO BUILDING DEMOLITION, ALL HAZARDOUS MATERIAL SHALL BE REMOVED BY OTHERS. THE DEMOLITION CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER SHOULD ANY SUSPICIOUS MATERIAL BE FOUND.

WATER SERVICES AND/OR STOP-BOX SHALL BE PRESERVED AND BULK HEADED AT THE PROPERTY LINE OR AS DIRECTED BY THE OWNER'S REPRESENTATION.

WHERE EXISTING BUILDINGS PLANED FOR DEMOLITION FALL WITHIN PROPOSED BUILDING FOOT PRINTS, BASEMENT FLOOR SLABS, FOUNDATION WALLS AND FOOTINGS SHALL BE COMPLETELY REMOVED AND BACK FILLED WITH MDOT CLASS II GRANULAR MATERIAL AND BE MACHINE COMPACTED TO A MINIMUM OF 98% OF MATERIALS MAXIMUM DENSITY.

ESTIMATED QUANTITIES

NOTE: THE BELOW QUANTITIES ARE FOR REFERENCE PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE TO PERFORM HIS OWN QUANTITY TAKEOFFS & EARTHWORK CALCULATIONS PRIOR TO BIDDING.

DEMOLITION

DESCRIPTION	QUANTITY	UNITS
REMOVE EX. ASPHALT PAVEMENT	25	S.Y.
REMOVE EX. CONCRETE SIDEWALK	6	S.Y.
REMOVE EX. CURB & GUTTER	18	L.F.
REMOVE EX. TREE	223	EA.

UTILITY NOTE

THE LOCATIONS AND ELEVATIONS OF SOME OF THE EXISTING UNDERGROUND UTILITIES AS SHOWN ON THE SURVEY DRAWING WERE OBTAINED FROM MUNICIPAL AND UTILITY COMPANY RECORDS AND MAPS. THEREFORE, NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CITY OF ROCHESTER HILLS
PROJECT #16-018

DEMOLITION LEGEND

- INDICATES AREAS OF ASPHALT PAVEMENT TO BE REMOVED
- INDICATES AREAS OF CONCRETE PAVEMENT OR SIDEWALK TO BE REMOVED
- INDICATES CURB & GUTTER REMOVAL
- INDICATES TREE REMOVAL (SEE TREE PRESERVATION PLAN FOR DETAILS)

LEGEND

- EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- EXISTING WATER MAIN
- EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- PR. SANITARY SEWER
- PR. WATER MAIN
- PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE

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LAND PLANNERS

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46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
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FAX. (248) 332-8257

SEAL

STATE OF MICHIGAN
PAUL TULIKANGAS
ENGINEER NO. 057929
LICENSED PROFESSIONAL ENGINEER

PROJECT
Cedar Valley Luxury Apartments

CLIENT
Bret Russell, Inc.
31000 Telegraph Road
Suite 145
Bingham Farms, MI 48025
Contact:
Bret Russell/Matt Johnson
Phone: (248) 792-5164
Fax: (248) 792-5165
Email: mjohnson@russellbuild.com

PROJECT LOCATION
Part of the Northwest ¼ of Section 23, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan

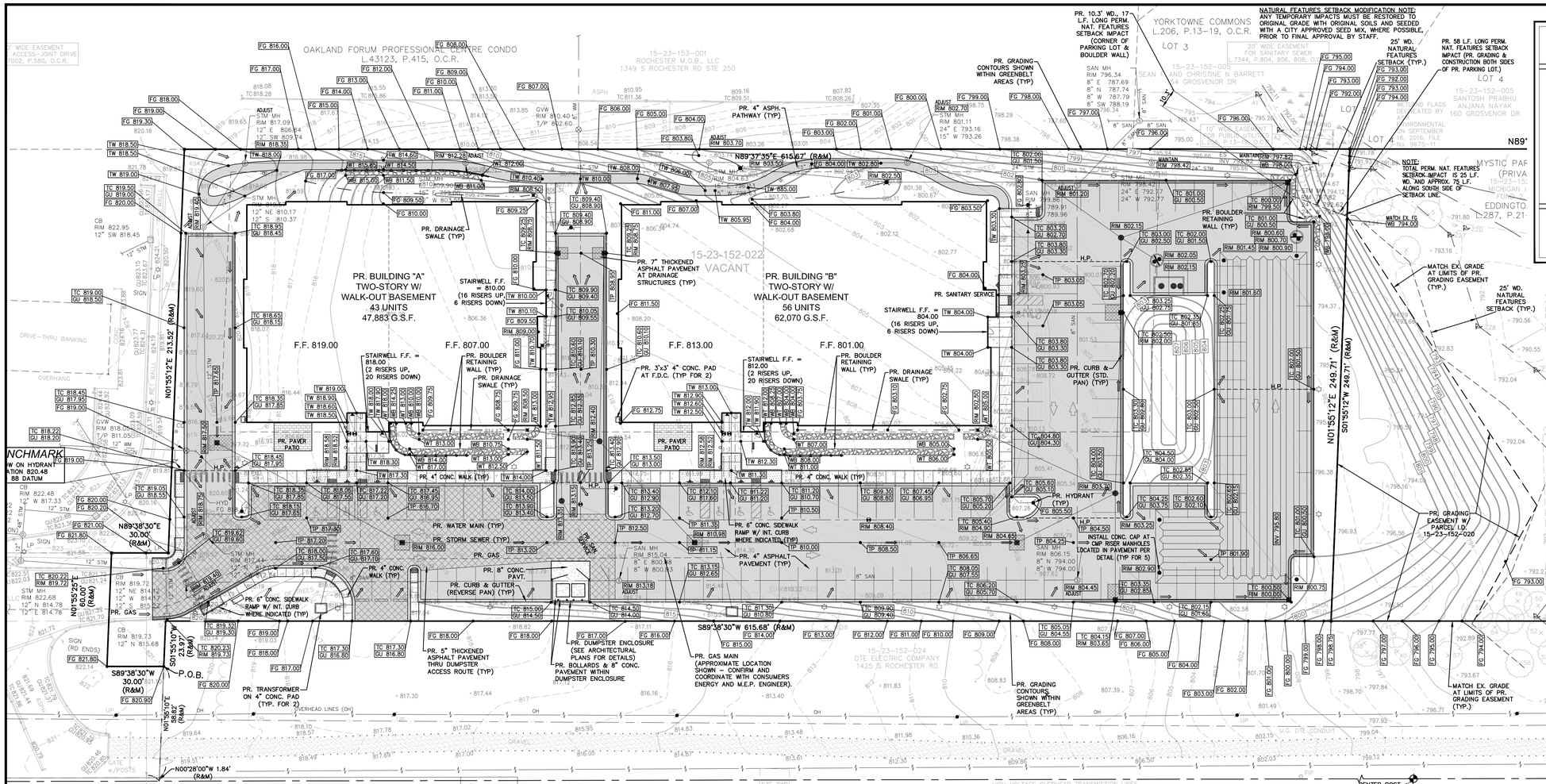
SHEET
Demolition Plan

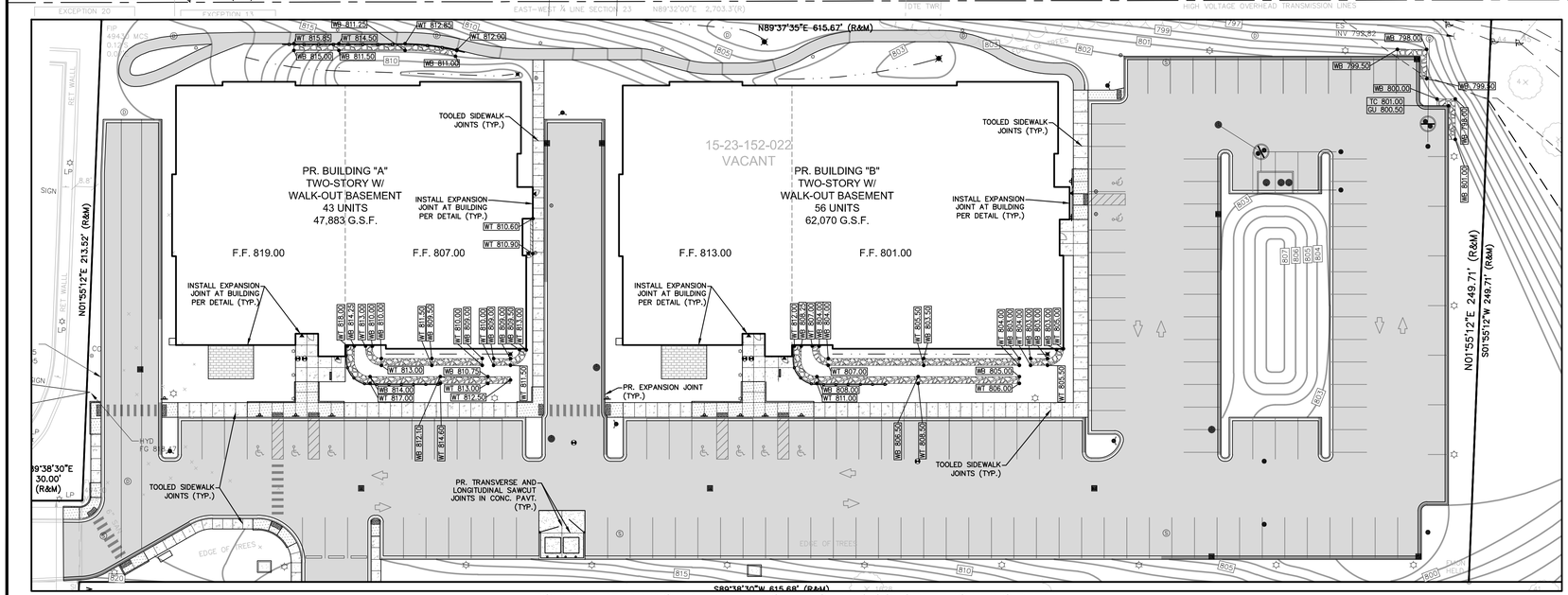
811 Know what's below Call before you dig.

REVISIONS
12-14-16 Site Plan Approval
01-20-17 SPA Revision #1
03-03-17 Final SPA
03-27-17 Engineering Review / Permits
04-19-17 Final SPA #2
05-05-17 Revised per City
05-26-17 Revised per City
08-23-17 Amendment to Approved Site Plan

DRAWN BY: P. Tulikangas
DESIGNED BY: P. Tulikangas
APPROVED BY: B. Buchholz
DATE: 11-21-16
SCALE: 1" = 30'
30 15 0 15 30 45

NFE JOB NO. J401
SHEET NO. C2





BOULDER RETAINING WALL ELEVATION DIAGRAM & CONCRETE JOINTING DETAIL

SCALE: 1" = 20'

PAVING LEGEND

- PROPOSED 4" ASPHALT PAVEMENT
- PROPOSED 5" THICKENED ASPHALT PAVEMENT THRU DUMPSTER ACCESS ROUTE
- PROPOSED 7" THICKENED ASPHALT PAVEMENT AT DRAINAGE STRUCTURES
- PROPOSED 6" CONCRETE SIDEWALK RAMP
- PROPOSED 4" CONCRETE SIDEWALK
- PROPOSED BRICK PAVER WALK OR PATIO
- PROPOSED BOULDER RETAINING WALL
- PROPOSED SEGMENTAL BLOCK RETAINING WALL
- PR. CONC. CURB & GUTTER, REVERSE PAN
- PR. CONC. CURB & GUTTER, STANDARD PAN
- INDICATES SURFACE DRAINAGE

UTILITY NOTE

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ESTIMATED QUANTITIES

PAVING

DESCRIPTION	QUANTITY	UNITS
8" NON-REINFORCED CONCRETE PAVEMENT W/ INT. CURB	47	S.Y.
6" CONCRETE SIDEWALK RAMP	1,715	S.F.
4" CONCRETE SIDEWALK	4,520	S.F.
7" ASPHALT ON 10" 21AA LIMESTONE BASE (AT DRAINAGE STRUCTURES)	63	S.Y.
5" ASPHALT ON 10" 21AA LIMESTONE BASE (DUMPSTER ROUTE)	1,150	S.Y.
4" ASPHALT ON 8" 21AA LIMESTONE BASE	5,620	S.Y.
18" WD. CONCRETE CURB & GUTTER	2,800	L.F.
PEDESTRIAN PAVER PATIO	600	S.F.
4" CONCRETE TRANSFORMER PAD	80	S.F.
4" CONCRETE F.D.C. PAD	18	S.F.
CONCRETE CAP AT C.M.P. RISER MANHOLE	5	EA.
2' WD. DETECTABLE WARNING (C.I.P.)	130	S.F.
BOULDER RETAINING WALL	175	S.Y.
SEGMENTAL BLOCK RETAINING WALL	20	L.F.
DUMPSTER ENCLOSURE (PER ARCH. PLANS)	1	EA.
6" BOLLARD	4	EA.

CITY OF ROCHESTER HILLS
PROJECT #16-018

LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- HYDRANT, GATE VALVE — SAN. CLEAN OUT
- EXISTING WATERMAIN
- MANHOLE, CATCH BASIN — EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE, GUY POLE, GUY WIRE — OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O., MANHOLE — PR. SANITARY SEWER
- HYDRANT, GATE VALVE — PR. WATER MAIN
- INLET, C.B., MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- PROPOSED LIGHT POLE
- WT 600.00 — PR. TOP OF WALL ELEVATION
- TC 600.00 — PR. TOP OF CURB ELEVATION
- GU 600.00 — PR. GUTTER ELEVATION
- TW 600.00 — PR. TOP OF WALK ELEVATION
- TP 600.00 — PR. TOP OF PVMT. ELEVATION
- FG 600.00 — FINISH GRADE ELEVATION

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SEAL

STATE OF MICHIGAN — PAUL TULIKANGAS — ENGINEER NO. 057929 — LICENSED PROFESSIONAL ENGINEER

PROJECT
Cedar Valley Luxury Apartments

CLIENT
Bret Russell, Inc.
31000 Telegraph Road
Suite 145
Bingham Farms, MI 48025
Contact:
Bret Russell/Matt Johnson
Phone: (248) 792-5164
Fax: (248) 792-5165
Email: mjohnson@russellbuild.com

PROJECT LOCATION
Part of the Northwest ¼ of Section 23, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan

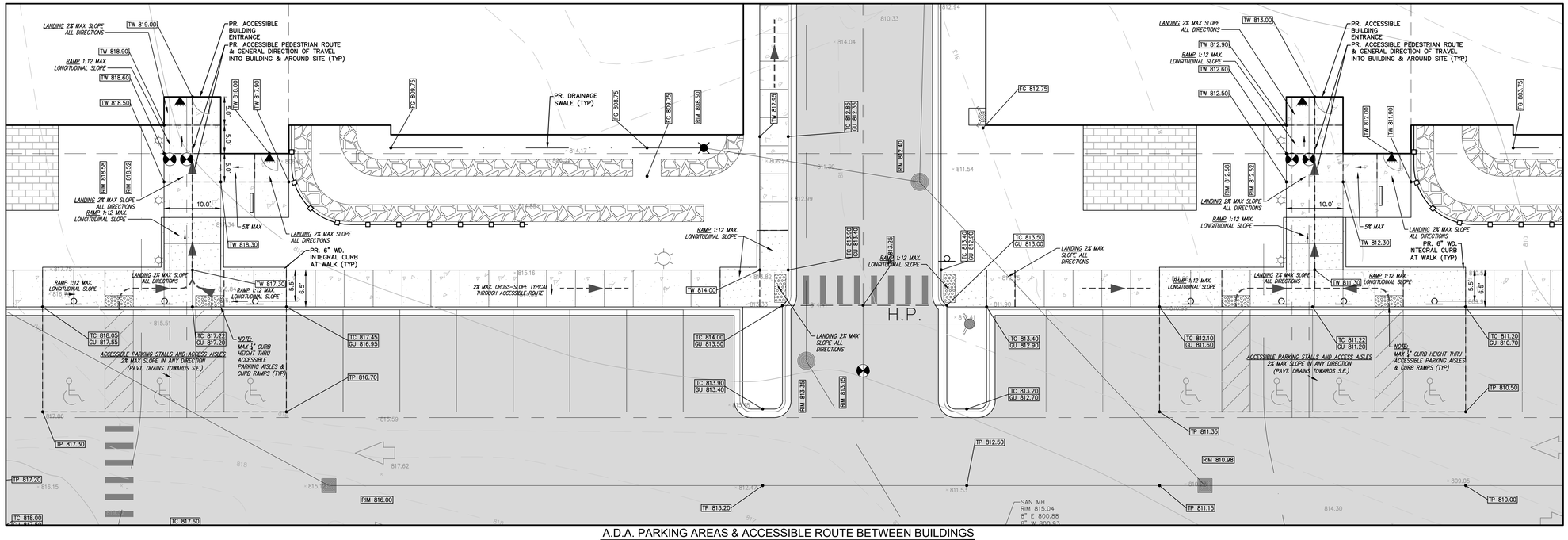
SHEET
Paving & Grading Plan

811 Know what's below Call before you dig.

REVISIONS
12-14-16 Site Plan Approval
01-20-17 SPA Revision #1
03-03-17 Final SPA
03-27-17 Engineering Review / Permits
04-19-17 Final SPA #2
05-05-17 Revised per City
05-26-17 Revised per City
08-23-17 Amendment to Approved Site Plan
08-31-17 Engineering Review / Permits
09-06-17 Revisions to Amended SPA

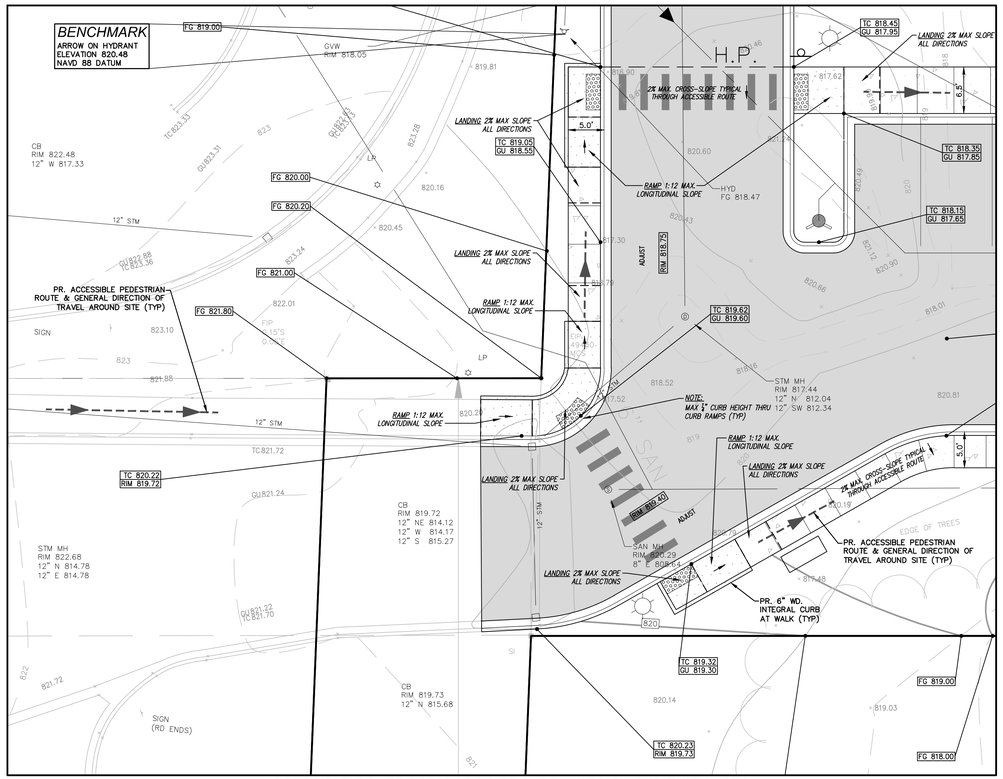
DRAWN BY: P. Tulikangas
DESIGNED BY: P. Tulikangas
APPROVED BY: B. Buchholz
DATE: 11-21-16
SCALE: 1" = 30'

NFE JOB NO. J401
SHEET NO. C3



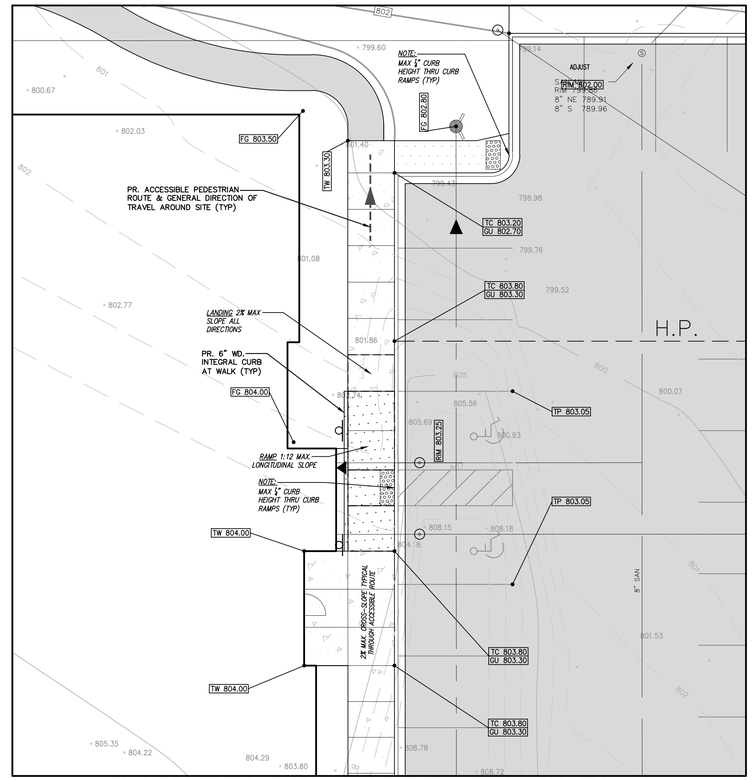
A.D.A. PARKING AREAS & ACCESSIBLE ROUTE BETWEEN BUILDINGS

SCALE: 1" = 10'



ACCESSIBLE ROUTE FROM OFF-SITE (WEST) & TO SITE AMENITY AREA

SCALE: 1" = 10'



ACCESSIBLE ROUTE FROM EAST BUILDING "B" ENTRANCE AND ACCESS FROM PARKING

SCALE: 1" = 10'

CITY OF ROCHESTER HILLS
PROJECT #16-018

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HYDRANT, GATE VALVE	EXISTING WATERMAIN
MANHOLE, CATCH BASIN	EXISTING STORM SEWER
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UTILITY POLE, GUY POLE, GUY WIRE	OVERHEAD LINES
	LIGHT POLE
	SIGN
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INLET, C.B., MANHOLE	PR. STORM SEWER
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	PROPOSED LIGHT POLE
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TW 600.00	PR. TOP OF WALK ELEVATION
TP 600.00	PR. TOP OF PVMT. ELEVATION
FG 600.00	FINISH GRADE ELEVATION

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PROJECT LOCATION
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Detail Grading Area Plan

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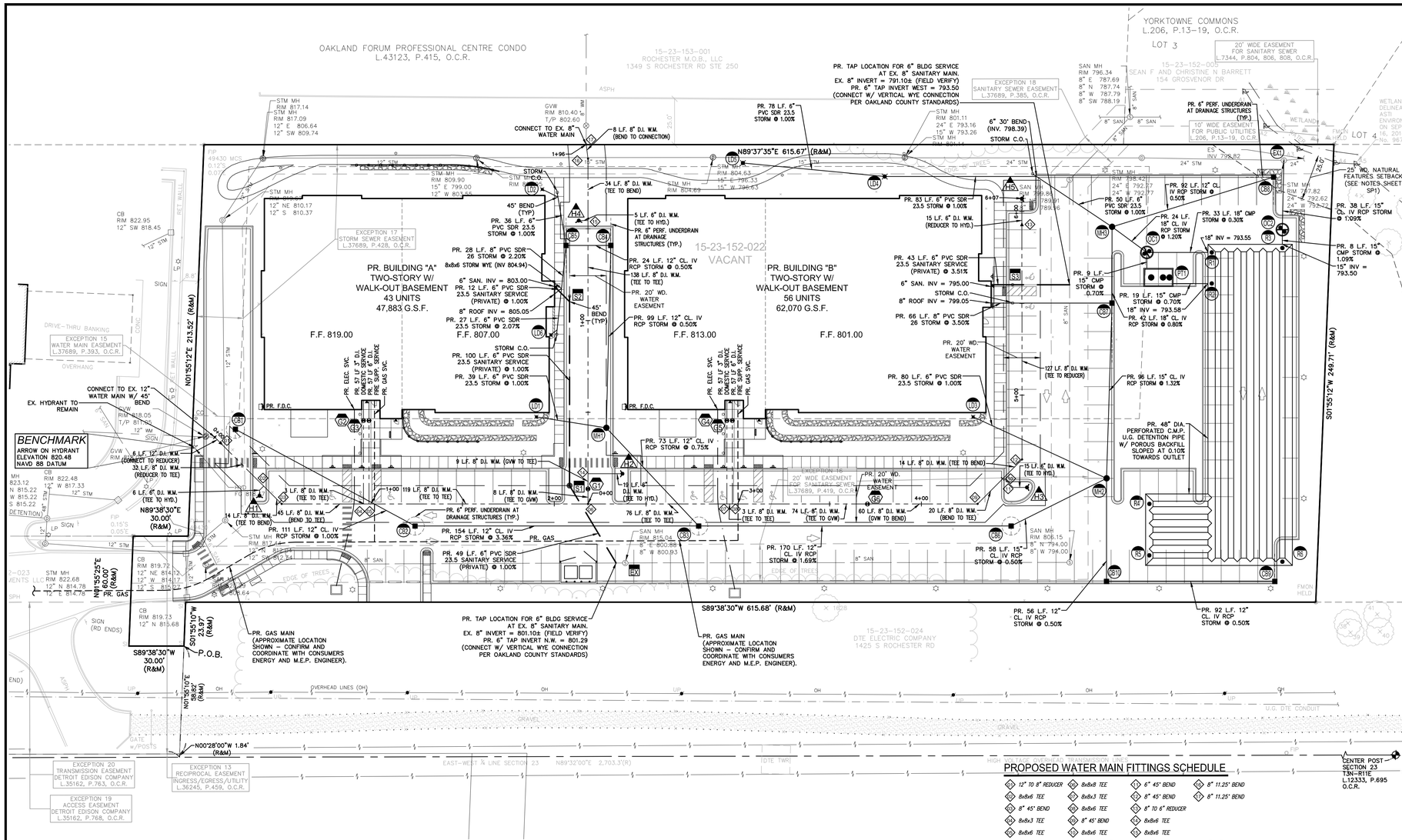
DRAWN BY: P. Tulikangas
DESIGNED BY: P. Tulikangas
APPROVED BY: B. Buchholz
DATE: 11-21-16
SCALE: 1" = 10'

NFE JOB NO. J401
SHEET NO. C4



STORM SEWER STRUCTURE SCHEDULE

- EX1 — EX. STORM MANHOLE; EX. RIM 797.82; EX. 24" INV W. 792.72; EX. 24" INV E. 792.62; PR. 15" INV S. 793.00 (TAP)
- CB1 — PR. 2' DIA. PRE-CAST STORM INLET; EJIW COVER 5105-M1; RIM 817.50; PR. 12" INV S.E. 812.91
- CB2 — PR. 4' DIA. PRE-CAST STORM CATCH BASIN W/ 3' SUMP; EJIW COVER 5105-M1; RIM 816.00; PR. 12" INV N.W. 811.80; PR. 12" INV E. 811.70 (TRAP*)
- CB3 — PR. 4' DIA. PRE-CAST STORM CATCH BASIN W/ 2' SUMP; EJIW COVER 5105-M1; RIM 810.98; PR. 12" INV N.W. 802.90; PR. 12" INV W. 806.50; PR. 12" INV E. 802.80
- CB4 — PR. 4' DIA. PRE-CAST STORM CATCH BASIN W/ 3' SUMP; EJIW COVER 5105-M1; RIM 808.75; PR. 12" INV S. 804.05 (TRAP*); PR. 12" INV W. 804.05
- CB5 — PR. 4' DIA. PRE-CAST STORM CATCH BASIN W/ 2' SUMP; EJIW COVER 5105-M1; RIM 808.75; PR. 6" INV N.W. 804.64; PR. 8" INV S.W. 804.43; PR. 12" INV E. 804.17
- CB6 — PR. 4' DIA. PRE-CAST STORM CATCH BASIN W/ 3' SUMP; EJIW COVER 5105-M1; RIM 804.65; PR. 12" INV W. 799.93; PR. 12" INV N.E 799.83 (TRAP*)
- CB7 — PR. 4' DIA. PRE-CAST STORM CATCH BASIN W/ 3' SUMP; EJIW COVER 5105-M1; RIM 802.00; PR. 8" INV W. 796.74; PR. 15" INV S. 794.69; PR. 18" INV N. 794.49 (TRAP*)
- CB8 — PR. 4' DIA. PRE-CAST STORM CATCH BASIN W/ 3' SUMP; EJIW COVER 5105-M1; RIM 799.50; PR. 12" INV S.W. 795.50 (TRAP*)
- CB9 — PR. 2' DIA. PRE-CAST STORM INLET; EJIW COVER 5105-M1; RIM 801.00; PR. 12" INV S.W. 797.00
- CB10 — PR. 4' DIA. PRE-CAST STORM CATCH BASIN W/ 3' SUMP; EJIW COVER 5105-M1; RIM 803.65; PR. 12" INV E. 796.54; PR. 12" INV N. 796.44 (TRAP*)
- MH1 — PR. 4' DIA. PRE-CAST STORM MANHOLE; EJIW COVER 1040-A; RIM 812.40; PR. 6" INV W. 804.61; PR. 12" INV N. 803.55; PR. 12" INV S. 803.45
- MH2 — PR. 4' DIA. PRE-CAST STORM MANHOLE; EJIW COVER 1040-A; RIM 803.70; PR. 6" INV N.W. 798.20; PR. 12" INV S.W. 799.54; PR. 12" INV S. 796.16; PR. 15" INV N. 795.96
- MH3 — PR. 6' DIA. PRE-CAST STORM MANHOLE W/ 2' SUMP; EJIW COVER 1040-A; RIM 802.15; PR. 6" INV N.W. 797.89; PR. 12" INV N.E. 795.04; PR. 18" INV S.E. 794.05; PR. 18" INV S. 794.15
- DC1 — PR. 5' DIA. FLOW CONTROL MANHOLE W/ WEIR PLATE; PR. RIM (S.W.) 802.15; PR. RIM (N.E.) 802.05; PR. 18" INV N.W. 793.76; PR. 15" INV S. 793.76; PR. TOP/WEIR 795.01; PR. 18" INV E. 793.76
- PT1 — PR. PRE-TREATMENT STRUCTURE VORTECHS VX 9000 OR EQUAL; PR. RIM 802.30 (W) 802.15 (MID) 802.08 (E); PR. 15" INV N. (INLET) 793.70; PR. 15" INV E. (OUTLET) 793.70
- DC2 — PR. 5' DIA. OUTLET CONTROL MANHOLE W/ WEIR PLATE; PR. RIM (N.W.) 800.60; PR. RIM (S.E.) 800.70; PR. 15" INV S. 793.41; PR. 15" INV N. 793.41; PR. TOP/WEIR 798.25
- R1 — PR. 30" DIA. CMP RISER MANHOLE; PR. RIM 801.45; PR. 48" INV 793.55
- R2 — PR. 30" DIA. CMP RISER MANHOLE; PR. RIM 801.60; PR. 48" INV 793.58
- R3 — PR. 30" DIA. CMP RISER MANHOLE; PR. RIM 800.90; PR. 48" INV 793.50
- R4 — PR. 30" DIA. CMP RISER MANHOLE; PR. RIM 803.25; PR. 48" INV 793.75
- R5 — PR. 30" DIA. CMP RISER MANHOLE; PR. RIM 802.90; PR. 48" INV 793.75
- R6 — PR. 30" DIA. CMP RISER MANHOLE; PR. RIM 800.75; PR. 48" INV 793.68
- LD1 — PR. 18" DIA. LANDSCAPE DRAIN (NYLOPLAST OR EQUAL) "BEE-HIVE" GRATE (PER MANUFACTURER); RIM 808.50; PR. 6" INV E. 805.00
- LD2 — PR. 18" DIA. LANDSCAPE DRAIN (NYLOPLAST OR EQUAL) "BEE-HIVE" GRATE (PER MANUFACTURER); RIM 808.50; PR. 6" INV S.E. 805.00
- LD3 — PR. 18" DIA. LANDSCAPE DRAIN (NYLOPLAST OR EQUAL) "BEE-HIVE" GRATE (PER MANUFACTURER); RIM 802.50; PR. 6" INV S.E. 799.00
- LD4 — PR. 18" DIA. LANDSCAPE DRAIN (NYLOPLAST OR EQUAL) "BEE-HIVE" GRATE (PER MANUFACTURER); RIM 802.50; PR. 6" INV E. 799.22; PR. 6" INV N.W. 799.22
- LD5 — PR. 18" DIA. LANDSCAPE DRAIN (NYLOPLAST OR EQUAL) "BEE-HIVE" GRATE (PER MANUFACTURER); RIM 803.50; PR. 6" INV S.E. 800.00
- LD6 — PR. 6" DIA. 90° ELBOW LANDSCAPE DRAIN "ATRIUM" GRATE (PER MANUFACTURER); RIM 809.00; PR. 6" INV N.E. 805.50

*TRAP NOTE:
INSTALL TRAP AT OUTLET SEWER WITHIN STRUCTURE AS INDICATED. CONTRACTOR SHALL PROVIDE & INSTALL TRAP PER CITY REQUIREMENTS. PROVIDE SHOP DRAWING FOR REVIEW/APPROVAL.

NOTE:
ALL EXISTING STORM STRUCTURES NOT LISTED IN STRUCTURE SCHEDULE THAT ARE LOCATED WITHIN PROPOSED PAVING AND GRADING LIMITS SHALL HAVE RIM ELEVATION ADJUSTED TO MEET PROPOSED FINISHED GRADE ELEVATION.

PROPOSED WATER MAIN FITTINGS SCHEDULE

- 1 — 12" TO 8" REDUCER
- 2 — 8x8x6 TEE
- 3 — 8" 45° BEND
- 4 — 8x8x3 TEE
- 5 — 8x8x6 TEE
- 6 — 8x8x8 TEE
- 7 — 8x8x3 TEE
- 8 — 8x8x6 TEE
- 9 — 8" 45° BEND
- 10 — 8x8x6 TEE
- 11 — 6" 45° BEND
- 12 — 8" 45° BEND
- 13 — 8" TO 6" REDUCER
- 14 — 8x8x6 TEE
- 15 — 8x8x6 TEE
- 16 — 8" 11.25° BEND
- 17 — 8" 11.25° BEND

WATER MAIN STRUCTURE SCHEDULE

- G1 — PR. 8" GATE VALVE IN WELL; PR. RIM 813.15; PR. T/PIPE 807.65
- G2 — PR. 3" DOMESTIC BUILDING SERVICE SHUT-OFF VALVE IN BOX; PR. RIM 818.58; PR. T/PIPE 813.08
- G3 — PR. 6" FIRE SUPPRESSION SERVICE SHUT-OFF VALVE IN BOX; PR. RIM 818.52; PR. T/PIPE 813.02
- G4 — PR. 3" DOMESTIC BUILDING SERVICE SHUT-OFF VALVE IN BOX; PR. RIM 812.58; PR. T/PIPE 807.08
- G5 — PR. 6" FIRE SUPPRESSION SERVICE SHUT-OFF VALVE IN BOX; PR. RIM 812.52; PR. T/PIPE 807.02
- G6 — PR. 8" GATE VALVE IN WELL; PR. RIM 808.40; PR. T/PIPE 802.90
- H1 — PR. HYDRANT ASSEMBLY; PR. F.G. 818.25; PR. T/PIPE 812.75
- H2 — PR. HYDRANT ASSEMBLY; PR. F.G. 813.60; PR. T/PIPE 808.10
- H3 — PR. HYDRANT ASSEMBLY; PR. F.G. 805.50; PR. T/PIPE 800.00
- H4 — PR. HYDRANT ASSEMBLY; PR. F.G. 809.60; PR. T/PIPE 804.10
- H5 — PR. HYDRANT ASSEMBLY; PR. F.G. 802.80; PR. T/PIPE 797.30

SANITARY SEWER STRUCTURE SCHEDULE

- EX — ADJUST EX. SANITARY MANHOLE; EX. RIM 815.04; PR. RIM 813.18; EX. 8" INV W 800.93; EX. 8" INV E 800.88
- S1 — PR. 4' DIA. SANITARY MANHOLE; PR. RIM 813.35; PR. 6" INV N. 801.88; PR. 6" INV S.E. 801.78
- S2 — PR. 6" DIA. SANITARY CLEAN-OUT; PR. RIM 809.45; PR. 6" INV S. 802.91
- S3 — PR. 6" DIA. SANITARY CLEAN-OUT; PR. RIM 803.25; PR. 6" INV E/W 794.60

NOTE:
ALL EXISTING SANITARY STRUCTURES NOT LISTED IN STRUCTURE SCHEDULE THAT ARE LOCATED WITHIN PROPOSED PAVING AND GRADING LIMITS SHALL HAVE RIM ELEVATION ADJUSTED TO MEET PROPOSED FINISHED GRADE ELEVATION.

SANITARY BASIS OF DESIGN

TOTAL CONTRIBUTORY POPULATION (TOTAL FOR BOTH BUILDINGS)

ASSUME 3.5 PERSONS PER RESIDENTIAL EQUIVALENT UNIT (REU)

PER O.C.W.R.C. UNIT FACTOR TABLE
MULTIPLE FAMILTY RESIDENCE: 0.60 REU / 1 RESIDENCE
PROPOSED NUMBER OF RESIDENCE UNITS (PER BUILDING): 43 UNITS
PROPOSED NUMBER OF RESIDENCE UNITS (TOTAL): 86 UNITS
TOTAL REU: 0.60 REU / 1 RESIDENCE UNIT X 86 UNIT = 52 REU
TOTAL POPULATION: 52 REU X 3.5 PERSONS = 182 PERSONS

TOTAL DESIGN POPULATION (TOTAL): 182 PERSONS

FLOW CALCULATION

ASSUMED DESIGN CAPACITY: 100 GAL/PERSON/DAY
AVERAGE FLOW = 18,200 GPD = 0.0282 CFS
PEAK FLOW (TEN STATES): 4.145 x 0.0282 = 0.117 CFS
CAPACITY OF PROPOSED 6" PVC SANITARY LEAD @ MINIMUM SLOPE OF 1.00% = 0.608 CFS

CITY OF ROCHESTER HILLS
PROJECT #16-018

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UTILITY NOTE

THE LOCATIONS AND ELEVATIONS OF SOME OF THE EXISTING UNDERGROUND UTILITIES AS SHOWN ON THE SURVEY DRAWING WERE OBTAINED FROM MUNICIPAL AND UTILITY COMPANY RECORDS AND MAPS. THEREFORE, NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- HYDRANT, GATE VALVE — EXISTING WATER MAIN
- MANHOLE, CATCH BASIN — EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE, GUY POLE, GUY WIRE — OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O., MANHOLE — PR. SANITARY SEWER
- HYDRANT, GATE VALVE — PR. WATER MAIN
- INLET, C.B., MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL
STATE OF MICHIGAN — PAUL TULIKANGAS — ENGINEER NO. 057929 — LICENSED PROFESSIONAL ENGINEER

PROJECT
Cedar Valley Luxury Apartments

CLIENT
Bret Russell, Inc.
31000 Telegraph Road
Suite 145
Bingham Farms, MI 48025
Contact:
Bret Russell/Matt Johnson
Phone: (248) 792-5164
Fax: (248) 792-5165
Email: mjohnson@russellbuild.com

PROJECT LOCATION
Part of the Northwest ¼ of Section 23, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan

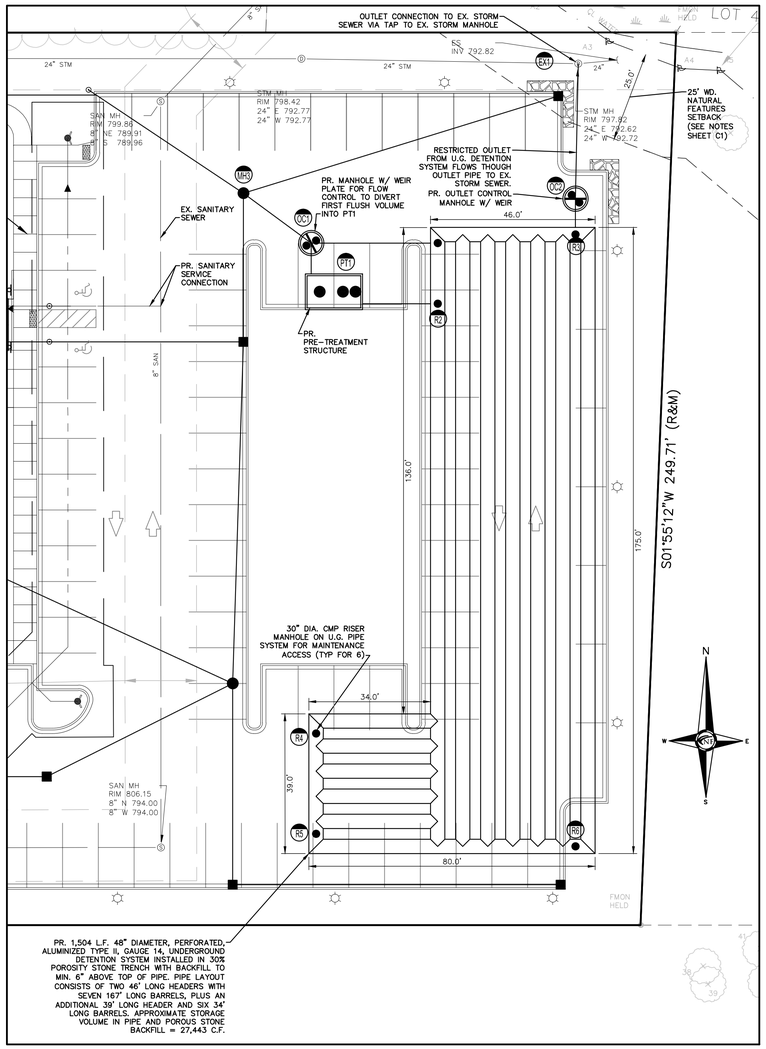
SHEET
Utility Plan

811 Know what's below Call before you dig.

REVISIONS
- 12-14-16 Site Plan Approval
- 01-20-17 SPA Revision #1
- 03-03-17 Final SPA
- 03-27-17 Engineering Review / Permits
- 04-19-17 Final SPA #2
- 05-05-17 Revised per City
- 05-26-17 Revised per City
- 08-23-17 Amendment to Approved Site Plan

DRAWN BY: P. Tulikangas
DESIGNED BY: P. Tulikangas
APPROVED BY: B. Buchholz
DATE: 11-21-16
SCALE: 1" = 30'
30 15 0 15 30 45

NFE JOB NO. J401
SHEET NO. C5



STORMWATER DETENTION PLAN DETAIL

SCALE: 1" = 20'

STORM DETENTION STRUCTURE SCHEDULE

EX1 — EX. STORM MANHOLE
EX. RIM 797.82
EX. 24" INV W. 792.72
EX. 24" INV E. 792.62
PR. 15" INV S. 793.00 (TAP)

MH3 — PR. 6' DIA. PRE-CAST STORM MANHOLE W/ 2' SUMP
EJW COVER 1040-A
RIM 802.15
PR. 6" INV N.W. 797.89
PR. 12" INV N.E. 795.04
PR. 18" INV S.E. 794.05
PR. 18" INV S. 794.15

OC1 — PR. 5' DIA. FLOW CONTROL MANHOLE W/ WEIR PLATE
PR. RIM (S.W.) 802.15
PR. RIM (N.E.) 802.05
PR. 18" INV N.W. 793.76
PR. 15" INV S. 793.76
PR. TOP/WEIR 795.01
PR. 18" INV E. 793.76

PT1 — PR. PRE-TREATMENT STRUCTURE
VORTECHS VX 9000 OR EQUAL
PR. RIM 802.30 (W) 802.15 (MD) 802.08 (E)
PR. 15" INV N. (INLET) 793.70
PR. 15" INV E. (OUTLET) 793.70

OC2 — PR. 5' DIA. OUTLET CONTROL MANHOLE W/ WEIR PLATE
PR. RIM (N.W.) 800.60
PR. RIM (S.E.) 800.70
PR. 15" INV S. 793.41
PR. 15" INV N. 793.41
PR. TOP/WEIR 798.25

R1 — PR. 30" DIA. CMP RISER MANHOLE
PR. RIM 801.45
PR. 48" INV 793.55

R2 — PR. 30" DIA. CMP RISER MANHOLE
PR. RIM 801.60
PR. 48" INV 793.58

R3 — PR. 30" DIA. CMP RISER MANHOLE
PR. RIM 800.90
PR. 48" INV 793.50

R4 — PR. 30" DIA. CMP RISER MANHOLE
PR. RIM 803.25
PR. 48" INV 793.75

R5 — PR. 30" DIA. CMP RISER MANHOLE
PR. RIM 802.90
PR. 48" INV 793.75

R6 — PR. 30" DIA. CMP RISER MANHOLE
PR. RIM 800.75
PR. 48" INV 793.68

PROJECT NO:	J401
PROJECT NAME:	Cedar Valley
LOCATION:	Rochester Hills, MI
DATE:	3/22/2017
REVISED:	8/18/2017

C - Pervious	0.300
C - Imervious	0.950

SURFACE TYPE	TOTAL AREA	PERVIOUS AREA	IMPERVIOUS AREA
OVERALL SITE	3.567		
Pavement/Curbs/Walks/Walls			1.730
Buildings			0.935
Lawn / Landscape		0.902	
OVERALL TOTALS	3.567	0.902	2.665
	Weighted C Factor OVERALL SITE	0.786	

DETENTION BASIN DESIGN

Using OCDC Equations for a 25 Year Storm

Name of Project:	Cedar Valley Luxury Apartments	
Location of Project:	Rochester Hills, MI	
Contributing Acreage is:	3.567	acres
Runoff Coefficient is:	0.79	
Allowable Discharge is:	0.2	cfs/acre
Then Q_a is:	0.7134	cfs
Then Q_o is:	0.2532	cfs/(acre x runoff coefficient)
Detention Time T is:	153.46	minutes
Storage Volume V_s is:	9,538.85	cf/(acre x runoff coefficient)
Total Storage Volume Required V_t is:	**26,879.80**	**cubic feet**
Required Storage in U.G. System	**26,879.80**	**cubic feet**
Underground Detention		
Proposed Pipe Diam.	48	inches
Cross-Sectional Area (Pipe)	**12.57**	**square feet**
Porous Stone Trench Width	7	feet
Porous Stone Trench Height	4.5	feet
Cross-Sectional Area (Trench)	18.93	square feet
Minimum Stone Porosity	30	percent
Area (Trench Storage)		
Cross-Sectional Area (Stone)	**5.68**	**square feet**
Total Storage per Linear Foot (Pipe and Stone)	**18.25**	**square feet**
Required Length of 48" Pipe	1473	feet
Provided Length of 48" Pipe	**1504**	**feet**
Provided Storage (Pipe and Stone)	**27,442.66**	**cubic feet**
PR. STORAGE IN U.G. SYSTEM	**27,442.66**	**cubic feet**
TOTAL STORAGE PROVIDED	**27,442.66**	**cubic feet**

DETENTION VOLUME STORAGE CALCULATIONS

SOIL PERMEABILITY & INFILTRATION NOTE

A SOILS INVESTIGATION REPORT PREPARED BY McdOWELL & ASSOCIATES, DATED JANUARY 20TH, 2017, INDICATES THAT THE PRIMARILY CLAY SOILS AT THIS SITE HAVE VERY LOW PERMEABILITIES, WITH AN ESTIMATED COEFFICIENT OF PERMEABILITY OF APPROXIMATELY 0.04 FT. PER DAY. THEREFORE, INFILTRATION HAS NOT BEEN FACTORED INTO THE STORM SEWER DETENTION CALCULATIONS.

OUTLET CALCULATIONS - CITY OF ROCHESTER HILLS (25) YEAR STORM EVENT - U.G. DETENTION SYSTEM

CONTRIBUTING ACREAGE:	3.567	ACRES
Qa ALLOWABLE OUTFLOW:	0.713	CFS (0.2 CFS/ACRE)
C RUNOFF COEFFICIENT:	0.790	IMPERVIOUSNESS
Qo MAXIMUM ALLOWABLE OUTFLOW:	0.253	CFS/(ACRE*IMPER.)
Ts STORAGE TIME (100 YEAR):	153.457	MINUTES
Vs STORAGE VOLUME:	9,538.85	CF/(ACRE*IMPER.)
Vt TOTAL VOLUME:	26,879.80	CUBIC FEET
VOLUME REQUIRED	26,880	CUBIC FEET

Required Formulae:
Qa = (0.15 CFS/Acre) Vs = (16,500 x T)/(T + 25) - (40 x Qo x T)
Qo = Qa / (Area x C) Vt = Vs x A x C
T = -25 + (10,312.5 / Qo)^0.5

DETERMINE STORAGE VOLUME PROVIDED

Detetion Volume Provided in U.G. Detention	27,443.00	Cubic Feet
Total Provided Volume =	27,443.00	Cubic Feet
Z25 =	798.25	
Zo =	793.62	
Zoutlet=	793.41	

FIRST FLUSH CALCULATIONS

TOTAL SITE ACREAGE:	3.567	ACRES
RUNOFF COEFFICIENT (C):	0.790	IMPERVIOUSNESS
VOLUME REQUIRED (Vt,ff):	5,115	CUBIC FEET
First Flush Elevation	794.58	

FORMULA: Vt,ff = 1,815 x A x C

OUTLET CALCULATIONS FOR FIRST FLUSH

REQUIRED AVE. RELEASE RATE; Qave	0.059	CFS
AVERAGE HEAD; h(ave)	0.69	FEET
REQUIRED OUTLET SIZE, A:	0.0143	SQUARE FEET
REQUIRED No. OF 1.5" DIA. HOLES:	1.17	HOLE(s)
PROVIDED No. OF 1.5" DIA. HOLES:	1.0	HOLE(s) at outlet
ACTUAL AVE. RELEASE RATE; Qave(a)	0.051	CFS
ACTUAL HOLDING TIME; T,ff	28.0	HOURS

Required Formulae:
Qave = V(t,ff) / 86,400* sec h(ave) = (0.5) x (Zff - Zo) + (Zo - Zoutlet)
A = Qave / (0.62 x (2gh(ave))^0.5) Qave(a) = 0.62 x A x (2gh(ave))^0.5
Tff = V(t,ff) / Qave(a)
*Based on 24 hour release rate

BANKFULL FLOOD CALCULATIONS

CONTRIBUTING ACREAGE:	3.567	ACRES
RUNOFF COEFFICIENT (C):	0.790	IMPERVIOUSNESS
VOLUME REQUIRED (Vt,bf):	14,541	CUBIC FEET
BankFull Elevation	795.72	

FORMULA: Vt,bf = 5,160 x A x C

OUTLET CALCULATIONS FOR BANKFULL

REQUIRED AVE. RELEASE RATE; Qave bf	0.218	CFS
AVERAGE HEAD; h(ave)	1.74	FEET
REQUIRED OUTLET SIZE, A:	0.0333	SQUARE FEET
REQUIRED No. OF 1.5" DIA. HOLES:	2.71	HOLE(s)
PROVIDED No. OF 1.5" DIA. HOLES:	3.0	HOLE(s) at outlet
ACTUAL AVE. RELEASE RATE; Qact	0.242	CFS
ACTUAL HOLDING TIME; T,bf	38.9	HOURS

Required Formulae:
Qavebf = (V(t,bf)-V(t,ff)) / [(40-Tff)x3600] h(avebf) = (Zff-Zo) + (0.5) x (Zbf - Zff) + (Zo - Zoutlet)
A = Qave / (0.62 x (2gh(ave))^0.5) Qact = 0.62 x A x (2gh(ave))^0.5
Tbf = [V(t,bf)-V(t,ff)] / (Qave bf x 3600) + Tff
*Based on 40 hour release rate

OUTLET CALCULATION FOR 25-YEAR FLOOD

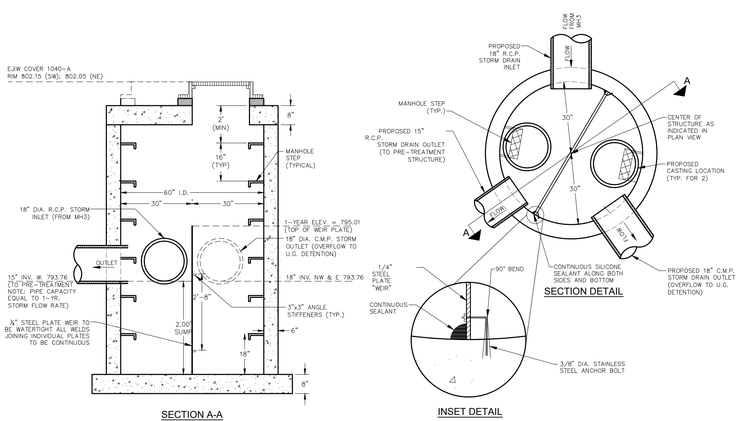
ULTIMATE OUTFLOW, Q	0.713	CFS
25-Year Elevation	798.25	
Calculate for First Flush Hole(s) and Bank Full Hole(s) Contribution		
AVERAGE HEAD; h(aveff)	3.58	FEET
AVERAGE HEAD; h(avebf)	2.40	FEET
Q(ff+bf)	0.392	CFS
Extra Holes are Required		
ADJUSTED OUTFLOW; Qadj	0.322	CFS
AVERAGE HEAD; h(ave)	4.63	FEET
REQUIRED OUTLET SIZE; A	0.03006	SQUARE FEET
REQUIRED No. OF 2.25" DIA. HOLES:	1.089	HOLE(s)
PROVIDED No. OF 2.25" DIA. HOLES:	1.0	HOLE(s) at outlet
ACTUAL OUTLET SIZE; Aact	0.02760	SQUARE FEET
ACTUAL AVE. RELEASE RATE; Qact	0.6871	CFS

Required Formulae:
h(aveff) = (Zbf-Zo) + 0.5(Z100-Zbf) + (Zo-Zoutlet) h(avebf) = (Zbf - Zff) + 0.5(Z10-Zbf)
Q(ff+bf) = 0.62 x Aff x (2gh(aveff))^0.5 + 0.62 x Abf x (2gh(avebf))^0.5
A = Qadj / (0.62 x (2gh(ave))^0.5) Qadj = Q - Q(ff+bf)
Aact = (No. of Holes x Area of Holes) h(ave) = (Z100- Zo)
Qact = Q(ff+bf) + 0.62 x Aact x (2gh(ave))^0.5

Job No:	J401
Dated:	08/23/17
Revised:	

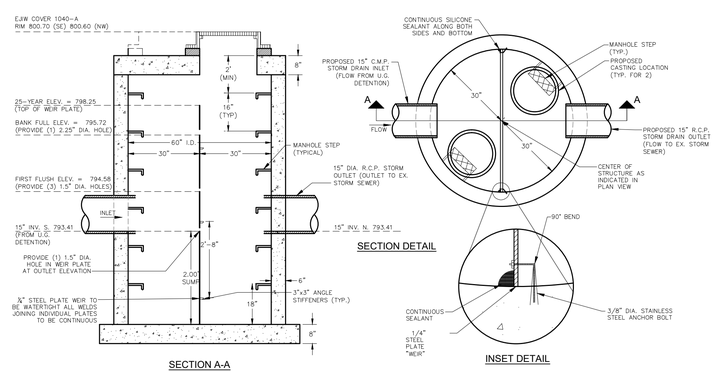
MULTI-STAGE OUTLET CONTROL CALCULATIONS FOR STRUCTURE OC2

BASED ON 25-YEAR STORM PER O.C.W.R.C. STANDARDS



OC1 5' DIAMETER OUTLET CONTROL MANHOLE

N.T.S.



OC2 5' DIAMETER OUTLET CONTROL MANHOLE

N.T.S.

CITY OF ROCHESTER HILLS
PROJECT #16-018

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL

STATE OF MICHIGAN
PAUL TULIKANGAS
ENGINEER NO. 057929
LICENSED PROFESSIONAL ENGINEER

PROJECT
Cedar Valley Luxury Apartments

CLIENT
Bret Russell, Inc.
31000 Telegraph Road
Suite 145
Bingham Farms, MI 48025
Contact:
Bret Russell/Matt Johnson
Phone: (248) 792-5164
Fax: (248) 792-5165
Email: mjohnson@russellbuild.com

PROJECT LOCATION
Part of the Northwest ¼ of Section 23, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan

SHEET
Storm Water Management Plan (1 of 2)

Know what's below
Call before you dig.

REVISIONS
12-14-16 Site Plan Approval
01-20-17 SPA Revision #1
03-03-17 Final SPA
03-27-17 Engineering Review / Permits
04-19-17 Final SPA #2
05-05-17 Revised per City
05-26-17 Revised per City
08-23-17 Amendment to Approved Site Plan

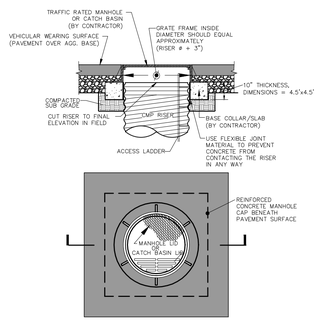
DRAWN BY: P. Tulikangas
DESIGNED BY: P. Tulikangas
APPROVED BY: B. Buchholz
DATE: 11-21-16
SCALE: 1" = 20'
20 10 0 10 20 30

NFE JOB NO. J401
SHEET NO. C6A

PRE-TREATMENT STRUCTURE DESIGN

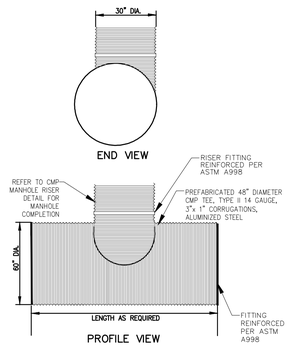
Using OCDC Equations for a 1 Year Storm
First Flush Calculation for Pre-Treatment Volume

Site Area	3.567	acres
Overall Runoff Coefficeint ("C")	0.79	
Time of Concentration	15	minutes
1 Year Storm Intensity (72/Tc+25)	1.8	In/Hr
Mannings Eqation: Q = CxIxA		
Q (1 year storm flow rate)	**5.07**	**cfs**



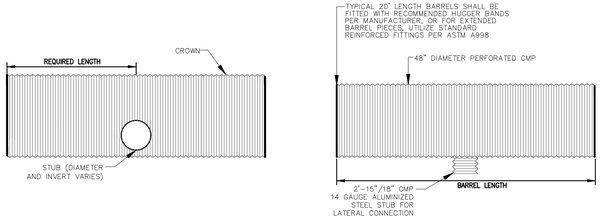
NOTES:
1. THE CONCRETE CAP SHALL BE SIZED AND DESIGNED BY OTHERS SO THAT THE LOADS ARE TRANSMITTED TO THE SOIL, AND NOT THE RISER.
2. THE CONCRETE CAP SHALL BE SIZED TO PROVIDE AN ADEQUATE BOTTOM AREA BASED ON THE ALLOWABLE BEARING CAPACITY OF THE SOIL.
3. THE FLEXIBLE JOINT MATERIAL (RECYCLED VINYL OR EQ.) TO BE STIFF ENOUGH SO THAT THE CONCRETE CAN NEVER ENGAGE WITH THE RISER CORRUGATIONS.

30" DIAMETER CMP RISER DETAIL



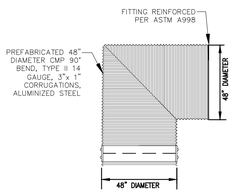
PROFILE VIEW

48" DIA. CMP BARREL W/PREFAB MANHOLE RISER
N.T.S. R1 R2 R3 R4 R5 R6



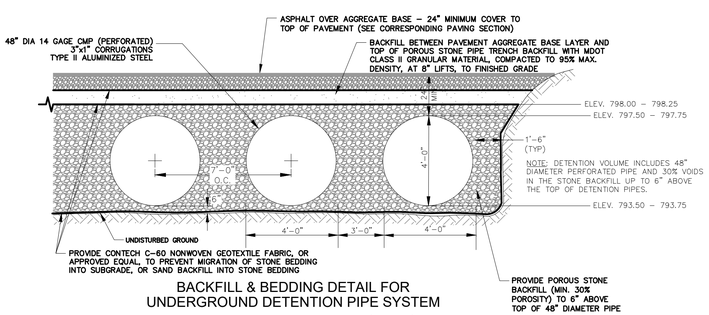
PROFILE VIEW PLAN VIEW

48" DIA. CMP BARREL W/ PREFAB SIDE WALL STUB
N.T.S.



PLAN VIEW

CMP 48" 90° BEND SECTION
N.T.S.



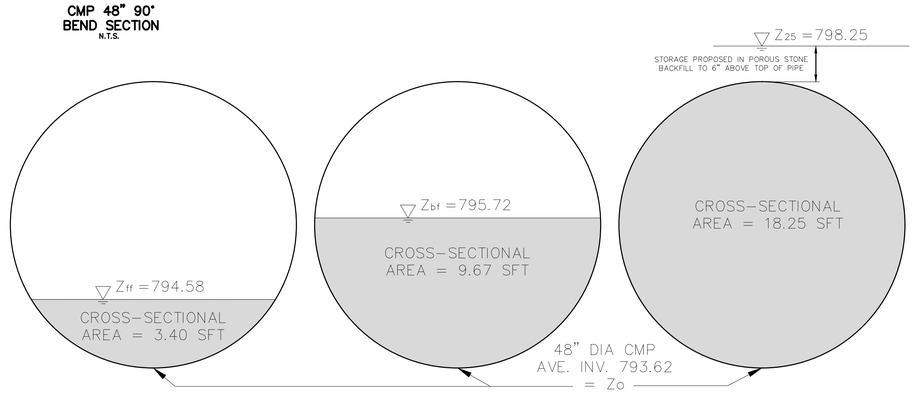
BACKFILL & BEDDING DETAIL FOR UNDERGROUND DETENTION PIPE SYSTEM

NOTE: UNDERGROUND DETENTION PIPES SHALL CONFORM TO AASHTO M36 (ASTM 760) ALUMINUM COATED SHEET CONFORMING TO AASHTO M274

NOTE: USE OF THE CONTINUOUS WELDED SEAM PROCESS IN THE FABRICATION OF THE UNDERGROUND DETENTION PIPES IS PROHIBITED

PROVIDE CONTECH C-60 NONWOVEN GEOTEXTILE FABRIC AROUND ALL JOINTS.

PRIOR TO INSTALLATION OF THE UNDERGROUND DETENTION SYSTEM, ALL PIPE AND HARDWARE SHALL BE IN SOUND CONDITION, WITHOUT DAMAGE TO METAL COATING AND/OR SHAPE, BEFORE BACKFILLING TRENCH PER APPROVAL FROM THE CITY ENGINEER.

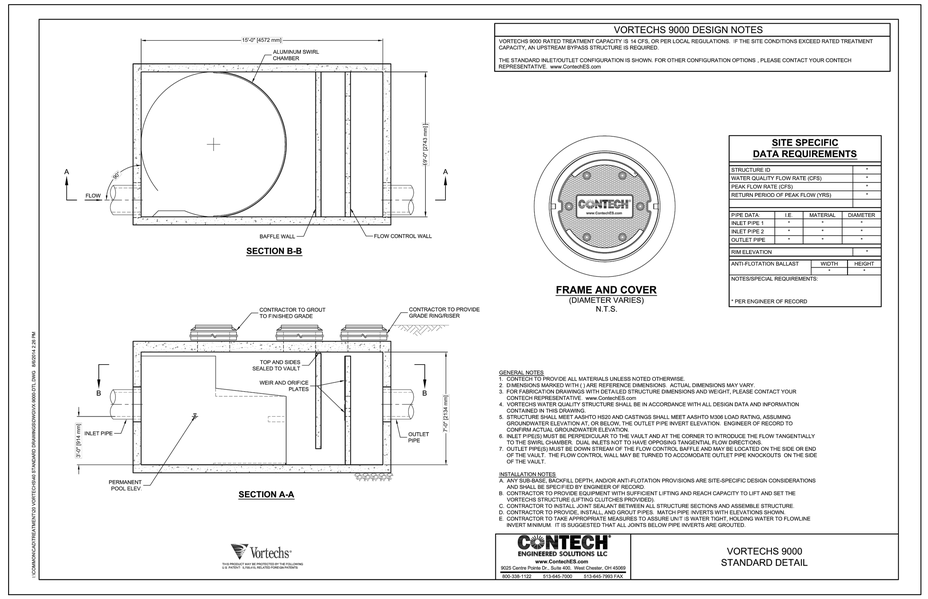


FIRST FLUSH
VOLUME = 5,115 CFT
AREA = 5,115 C.F./ 1,504 L.F.
= 3.40 S.F.

BANK FULL FLOOD
VOLUME = 14,541 CFT
AREA = 14,541 C.F./ 1,504 L.F. = 9.67 S.F.

25-YEAR FLOOD
VOLUME = 26,880 CFT
AREA = 27,443 C.F./ 1,504 L.F. = 18.25 S.F.

NOTE: SEE PROVIDED U.G. STORAGE CALCULATIONS
CROSS-SECTIONAL AREA 48" PIPE= 12.57 S.F.
MAX. STORAGE PER L.F. W/ POROUS STONE BACKFILL = 18.25 S.F.



VORTECHS 9000 DESIGN NOTES

VORTECHS 9000 RATED TREATMENT CAPACITY IS 14 CFS, OR PER LOCAL REGULATIONS. IF THE SITE CONDITIONS EXCEED RATED TREATMENT CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

THE STANDARD INLET/OUTLET CONFIGURATION IS SHOWN. FOR OTHER CONFIGURATION OPTIONS , PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			*
WATER QUALITY FLOW RATE (CFS)			*
PEAK FLOW RATE (CFS)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*
NOTES/SPECIAL REQUIREMENTS:			

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE : www.ContechES.com
4. CONTECH TO PROVIDE STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. INLET PIPE(S) MUST BE PERPENDICULAR TO THE VAULT AND AT THE CORNER TO INTRODUCE THE FLOW TANGENTIALLY TO THE SWIRL CHAMBER. DUAL INLETS NOT TO HAVE OPPOSING TANGENTIAL FLOW DIRECTIONS.
7. OUTLET PIPE(S) MUST BE DOWN STREAM OF THE FLOW CONTROL BAFFLE AND MAY BE LOCATED ON THE SIDE OR END OF THE VAULT. THE FLOW CONTROL WALL MAY BE TURNED TO ACCOMODATE OUTLET PIPE KNOCKOUTS ON THE SIDE OF THE VAULT.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE VORTECHS STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

VORTECHS 9000
STANDARD DETAIL

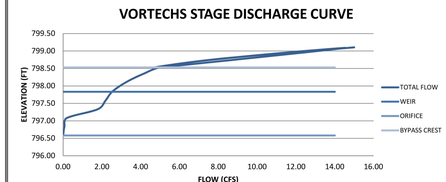
PT1 PRE-TREATMENT STRUCTURE DETAIL
N.T.S.

VORTECHS SYSTEM® FLOW CALCULATIONS
CEDAR VALLEY LUXURY APATMENTS
ROCHESTER, MI
MODEL NAME VORTECHS 9000
SITE DESIGNATION

Vortechs Orifice	Vortechs Weir	Bypass Weir
Cd = 0.56	Cd = 3.37	Cd = 3.3
A (ft^2) = 0.56	Weir Crest Length (ft) = 0.83	Crest Length (ft) = 5
Crest Elevation (ft) = 796.58	Crest Elevation (ft) = 797.83	Crest Elev. (ft) = 798.5

Head (ft)	Elevation (ft)	Orifice Flow (cfs)	Weir Flow (cfs)	Bypass Flow (cfs)	Total Flow (cfs)
0.00	796.58	0.00	0.00	0.00	0.00
0.25	796.83	0.07	0.00	0.00	0.07
0.50	797.08	0.20	0.00	0.00	0.20
0.75	797.33	1.79	0.00	0.00	1.79
1.00	797.58	2.19	0.00	0.00	2.19
1.25	797.83	2.53	0.00	0.00	2.53
1.50	798.08	2.82	0.35	0.00	3.17
1.75	798.33	3.09	0.99	0.00	4.08
2.00	798.58	3.34	1.82	0.20	5.35
2.25	798.83	3.57	2.80	2.74	9.11
2.50	799.08	3.79	3.91	6.77	14.47
1.95	798.53	3.29	1.63	0.00	4.92
2.20	798.78	3.53	2.58	2.06	8.17
2.52	799.11	3.81	4.01	7.18	15.00
1.95	798.53	3.29	1.63	0.00	4.92
1.99	799.12	3.56	4.06	7.39	15.02
Calculated by: PWV			4/26/17		

VORTECHS STAGE DISCHARGE CURVE



CITY OF ROCHESTER HILLS
PROJECT #16-018

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL
STATE OF MICHIGAN PAUL TULIKANGAS ENGINEER NO. 057929 LICENSED PROFESSIONAL ENGINEER

PROJECT
Cedar Valley Luxury Apartments

CLIENT
Bret Russell, Inc.
31000 Telegraph Road
Suite 145
Bingham Farms, MI 48025
Contact:
Bret Russell/Matt Johnson
Phone: (248) 792-5164
Fax: (248) 792-5165
Email: mjohnson@russellbuild.com

PROJECT LOCATION
Part of the Northwest ¼ of Section 23, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan

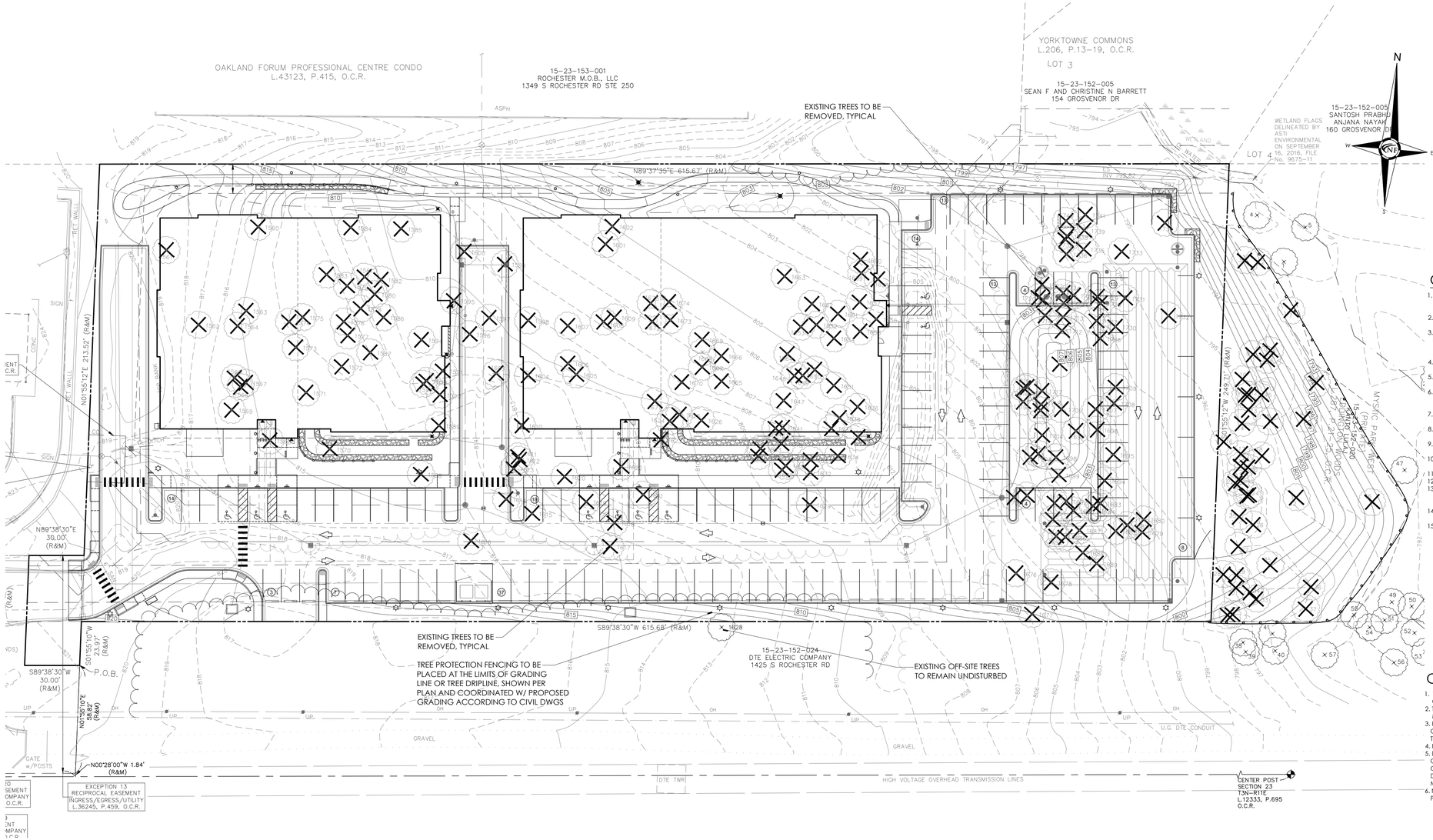
SHEET
Storm Water Management Plan (2 of 2)

811 Know what's below Call before you dig.

REVISIONS
12-14-16 Site Plan Approval
01-20-17 SPA Revision #1
03-03-17 Final SPA
03-27-17 Engineering Review / Permits
04-19-17 Final SPA #2
05-05-17 Revised per City
05-26-17 Revised per City
08-23-17 Amendment to Approved Site Plan

DRAWN BY: P. Tulikangas
DESIGNED BY: P. Tulikangas
APPROVED BY: B. Buchholz
DATE: 11-21-16
SCALE: 1" = 20'
20 10 0 10 20 30

NFE JOB NO. J401
SHEET NO. C6B



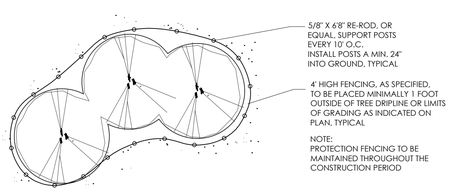
LOCATION MAP
N.T.S.

GENERAL TREE PROTECTION NOTES

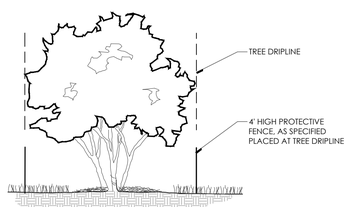
1. APPROVED TREE PROTECTION SHALL BE ERECTED PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, AND SHALL REMAIN IN PLACE UNTIL THE IN PLACE UNTIL CONSTRUCTION IS COMPLETE.
2. ALL UNDERSTORY VEGETATION WITHIN THE LIMITS OF PROTECTIVE FENCING SHALL BE PRESERVED.
3. NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE DRIP LINE OF ANY TREE DESIGNATED TO REMAIN, INCLUDING BUT NOT LIMITED TO, PLACING SOLVENTS, BUILDING MATERIALS, CONSTRUCTION EQUIPMENT, OR SOIL DEPOSITS WITHIN THE DRIP LINE.
4. WHERE GROUPINGS OF TREES ARE TO REMAIN, TREE FENCING SHALL BE PLACED AT THE LIMITS OF GRADING LINE.
5. DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY DEVICE OR WIRE TO ANY TREE, SCHEDULED TO REMAIN.
6. ALL UTILITY SERVICE REQUESTS MUST INCLUDE NOTIFICATION TO THE INSTALLER THAT PROTECTED TREES MUST BE AVOIDED. ALL TRENCHING SHALL OCCUR OUTSIDE OF THE PROTECTIVE FENCING.
7. SWALES SHALL BE ROUTED TO AVOID THE AREA WITHIN THE DRIP LINES OF PROTECTED TREES.
8. TREES LOCATED ON ADJACENT PROPERTIES THAT MAY BE AFFECTED BY CONSTRUCTION ACTIVITIES MUST BE PROTECTED.
9. ROOT ZONES OF PROTECTED TREES SHOULD BE SURROUNDED WITH RIGIDLY STAKED FENCING.
10. THE PARKING OF IDLE AND RUNNING EQUIPMENT SHALL BE PROHIBITED UNDER THE DRIP LINE OF PROTECTED TREES.
11. THE STRIPPING OF TOPSOIL FROM AROUND PROTECTED TREES SHALL BE PROHIBITED.
12. ALL TREES TO BE REMOVED SHALL BE CUT AWAY FROM TREES TO REAMIN.
13. THE GRUBBING OF UNDERSTORY VEGETATION WITHIN CONSTRUCTION AREAS SHOULD BE CLEARED BY CUTTING VEGETATION AT THE GROUND WITH A CHAIN SAW OR MINIMALLY WITH A HYDRO-AXE.
14. THE CONTRACTOR IS RESPONSIBLE FOR THE REPLACEMENT PER ORDINANCE GUIDELINES, FOR THE DAMAGE OR REMOVAL OF ANY TREE DESIGNATED TO REMAIN.
15. TREES TO BE REMOVED SHALL BE FIELD VERIFIED, EVALUATED AND FLAGGED FOR REMOVAL, BY THE LANDSCAPE ARCHITECT OR FORESTER, ONLY AS DIRECTED BY THE OWNER OR OWNERS REPRESENTATIVE.

CITY TREE PROTECTION NOTES

1. TREES PROPOSED TO BE SAVED WILL BE IDENTIFIED WITH CHALK BASE FLUORESCENT ORANGE PAINT, OR RED FLAGGING TAPE.
2. TREES TO BE PRESERVED WILL BE PROTECTED WITH 4' HIGH SNOW FENCE WITH METAL 'T-POSTS EVERY 5' FEET.
3. PROTECTIVE BARRIERS ARE TO BE ERECTED PRIOR TO CLEARING OR GRUBBING ON THE SITE, AND BARRIERS ARE TO REMAIN IN TACT UNTIL APPROVED BY THE CITY TO BE REMOVED, OR WHEN A CERTIFICATE OF OCCUPANCY IS ISSUED.
4. NO FILL OR DEBRIS IS ALLOWED WITHIN THE PROTECTED AREA.
5. DURING CONSTRUCTION, THE OWNER, DEVELOPER, OR AGENT SHALL NOT CAUSE OR PERMIT ANY ACTIVITY WITHIN THE DRIP LINE OF ANY PROTECTED TREE OR GROUP OF TREES INCLUDING, BUT NOT LIMITED TO, THE STORAGE OF EQUIPMENT, DUMPSTERS, DIRT, AND EXCAVATED MATERIAL, BUILDING WASTE OR MATERIAL, OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF A TREE.
6. NO DAMAGING ATTACHMENT, WIRES (OTHER THAN CABLES FOR TREES), SIGNS, OR PERMITS MAY BE FASTENED TO ANY TREE PROTECTED BY THIS ORDINANCE.



TREE PROTECTION DETAIL-PLAN
NTS



TREE PROTECTION DETAIL-SECTION
NTS

TREE PRESERVATION SUMMARY

TREES >6" DBH SHALL BE REPLACED AT 1:1
2" CAL. DECIDUOUS = 1 CREDIT
2.5" CAL. DECIDUOUS = 1.5 CREDIT
3" CAL. DECIDUOUS = 2 CREDITS
8' HT. EVERGREEN = 1 CREDIT
10' HT. EVERGREEN = 2 CREDITS

TOTAL TREES SURVEYED:	240
TOTAL DEAD TREES ON-SITE:	0
TOTAL NET REGULATED TREES:	240
TOTAL TREES TO BE SAVED:	17
TOTAL TREES TO BE REMOVED:	223
TOTAL REPLACEMENT CREDITS REQUIRED:	223
TOTAL REPLACEMENT CREDITS PROVIDED:	224 (112 TREES X 2 CREDITS)

TREE PROTECTION LEGEND

9 — EXISTING TREES TO REMAIN
10 — EXISTING TREES TO BE REMOVED
PROPOSED TREE PROTECTION FENCING

NOTE:

NO DIGGING, GRADING (CUT OR FILL), TRENCHING OR ANY OTHER CONSTRUCTION OPERATION IS PERMITTED WITHIN THE DRIPLINE OF ANY TREE DESIGNATED FOR PRESERVATION.

NOTE:

SEE SHEET L2, LANDSCAPE PLAN FOR PROPOSED TREE REPLACEMENT LOCATIONS

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL

PROJECT
Cedar Valley Luxury Apartments

CLIENT
Bret Russell, Inc.
31000 Telegraph Road
Suite 145
Bingham Farms, MI 48025
Contact:
Bret Russell/Matt Johnson
Phone: (248) 792-5164
Fax: (248) 792-5165
Email: mjohnson@russellbuild.com

PROJECT LOCATION
Part of the Northwest ¼ of Section 23, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan

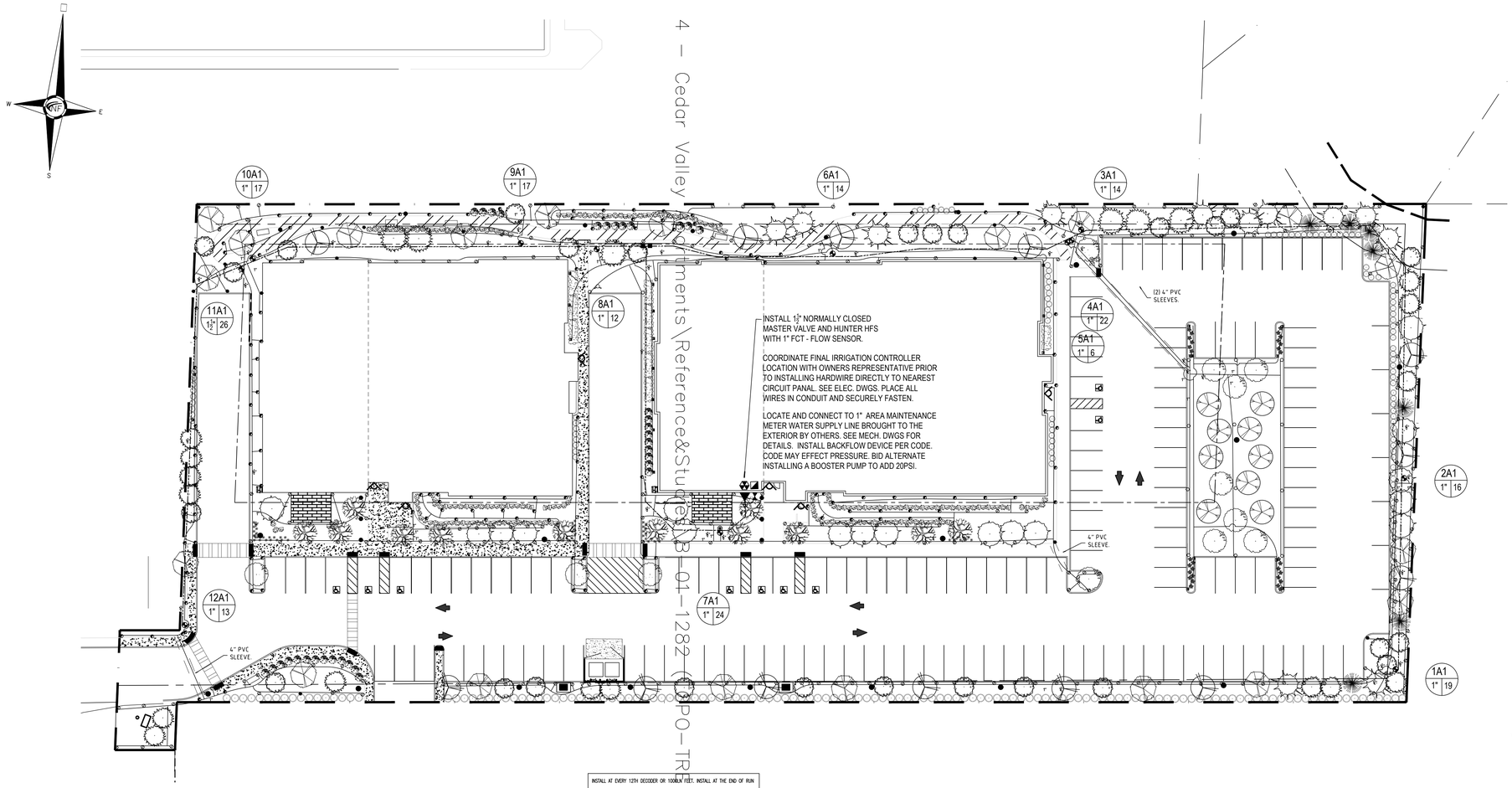
SHEET
Tree Preservation Plan

811 Know what's below Call before you dig.

REVISIONS
12-14-16 SPA SUBMITTAL
01-20-17 SPA REVISION #1
04-19-17 FINAL SPA #2
08-23-17 REVISED SPA

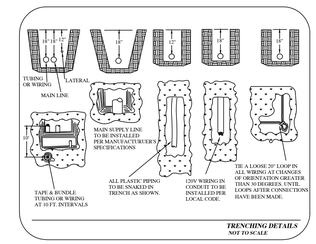
DRAWN BY: G. Ostrowski
DESIGNED BY: G. Ostrowski
APPROVED BY: G. Ostrowski
DATE: 12-14-16
SCALE: 1" = 30'
30 15 0 15 30 45

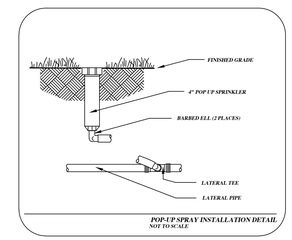
NFE JOB NO. J401
SHEET NO. L1

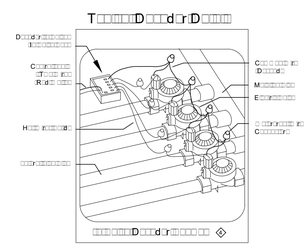


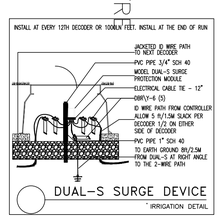
NF ENGINEERS
civil Engineers
Land Surveyors
Land Planners

NOWAK & FRAUS ENGINEERS
46777 Woodward Ave.
Pontiac, MI 48342–5032
Tel. (248) 332–7931
Fax. (248) 332–8257









PIPE SIZE CHART
0–12 GPM = 1" DIAMETER POLYETHYLENE PIPE
12–24 GPM = 1 ¼" DIAMETER POLYETHYLENE PIPE
24–30 GPM = 1 1/2" DIAMETER POLYETHYLENE PIPE
30–60 GPM = 2" DIAMETER POLYETHYLENE PIPE

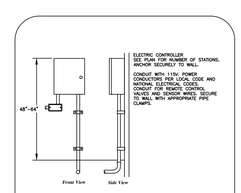
IRRIGATION LEGEND:
Hunter

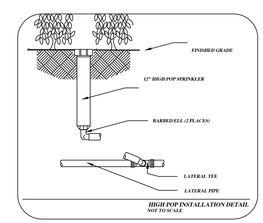
FIXED SPRAY POP-UP (12") ▪10 Series ■ 12 Series ▫15 Series ▪ Strip Series	PROS-12-CV
▲ FIXED SPRAY POP-UP (4") w/ 2' radius nozzle	PROS-04-CV
FIXED SPRAY POP-UP (4") w/ MPR nozzle ◯ MP1000 ● MP2000 ◯ MP3000 ◐ MPSS530/MPLC(RC)15	PROS04-PRS04-CV
ELECTRIC VALVE W DECODER	ICV-Series
QUICK COUPLER VALVE	QVC-100
ELECTRIC CONTROLLER	ICORE-m-DUAL
PRESSURE VACUUM BREAKER	FEBCO 765P100
ISOLATION GATE VALVE (LINE SIZE)	
RAIN SENSOR DEVICE	SOLAR SYNC (wireless)
POINT OF CONNECTION TO WATER SOURCE	See note this sheet
PVC MAINLINE, SDR 26, BE, Size as shown	
POLYETHYLENE PIPE, 100#, NSF APPROVED, Size as shown	
PVC SLEEVES – SDR 26 – Size as shown	

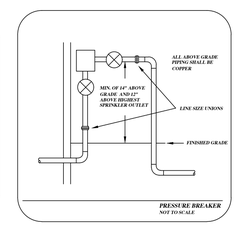
WATER REQUIREMENTS: 27 GPM @ 55 PSI
CONTRACTOR TO VERIFY WITH AVAILABLE SITE PRESSURE TEMPORARY TURNOVER

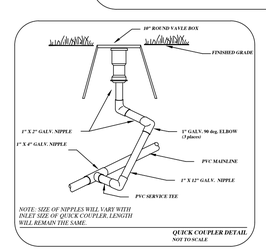
VALVE DESIGNATION:
Controller and Station Number
Valve Size
Gallons Per Minute

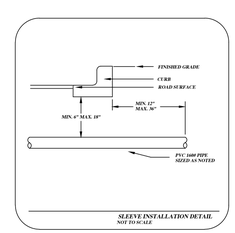
NOTES:
1. Refer to the specifications for installation details and descriptions, as well as, construction methods which will be accepted.
2. All work shall be in compliance with all local, state, and federal codes and ordinances.
3. All electrical connections shall be made using 3m DBY–6 splice kits.
4. All control wiring downstream of the controller shall be HUNTER ID–WIRE paired communication cable – red approved for direct bury.
5. All clamps shall be stainless steel worm gear type clamps. Pipes 1–1/2" or larger shall be double clamped.
6. Pipe routing is schematic. All heads are to be field adjusted to within 2' to take into consideration any obstruction. Final head placements are subject to the landscape architects approval.
7. All sprinkler heads shall be mounted on 2 elbow poly swing joints as specified.
8. Contractor to verify final controller location with owner's authorized representative prior to installation.
9. All pipe not sized downstream of control valve is 1".
10. All sleeves shall be PVC 160# (see specifications).
11. Irrigation contractor's point of connection to water source shall be as noted on this sheet.
12. Locate and connect to indicated water source. All pipe installed above grade shall be copper type "M".
13. 120v power to the controller locations should be provided others. Coordinate with owner's representative. Hardwire controller directly to nearest circuit panel. Place all wires in conduit per code.
14. Design pressure does not take into account seasonal supply fluctuations. Periods of drought may cause temporary pressure losses to the city water supply resulting in inadequate irrigation system performance. Irrigation design is based on normal weather conditions and typical municipal water supply abilities.
15. Irrigation contractor shall be responsible for determining and maintaining the irrigation schedule during the project construction and throughout the length of the warranty period.
16. The irrigation schedule shall deliver 1" of precipitation per week +/– natural rainfall quantities for turf grass.
17. Landscape material shall receive adjusted amounts of precipitation to maintain proper plant health.
18. Landscape and turf grass shall be irrigated separately.
19. Rotors and spray zones may not be combined to operate at the same time.
20. When specified, follow manufacturer's product recommendations concerning proper installation of water flow sensors. Allow proper straight pipe distances before and after flow sensors.

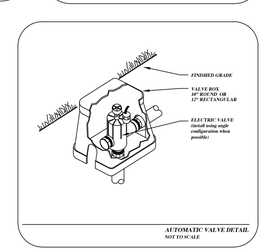


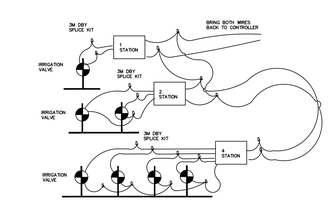












SAMPLE DECODER WIRING DIAGRAM

LIQUID ASSETS LLC
IRRIGATION DESIGN & WATER MANAGEMENT

4843 Kittery NW
Comstock Park, Michigan 49321
Tel. (248) 789–0330
email: abarnes@lqdassets.org
www.lqdassets.org

SEAL

PROJECT
Cedar Valley Luxury Apartments

CLIENT
Bret Russell, Inc.
31000 Telegraph Road
Suite 145
Bingham Farms, MI 48025
Contact:
Bret Russell/Matt Johnson
Phone: (248) 792-5164
Fax: (248) 792-5165
Email: mjohnson@russellbuild.com

PROJECT LOCATION
Part of the Northwest ¼ of Section 23, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan

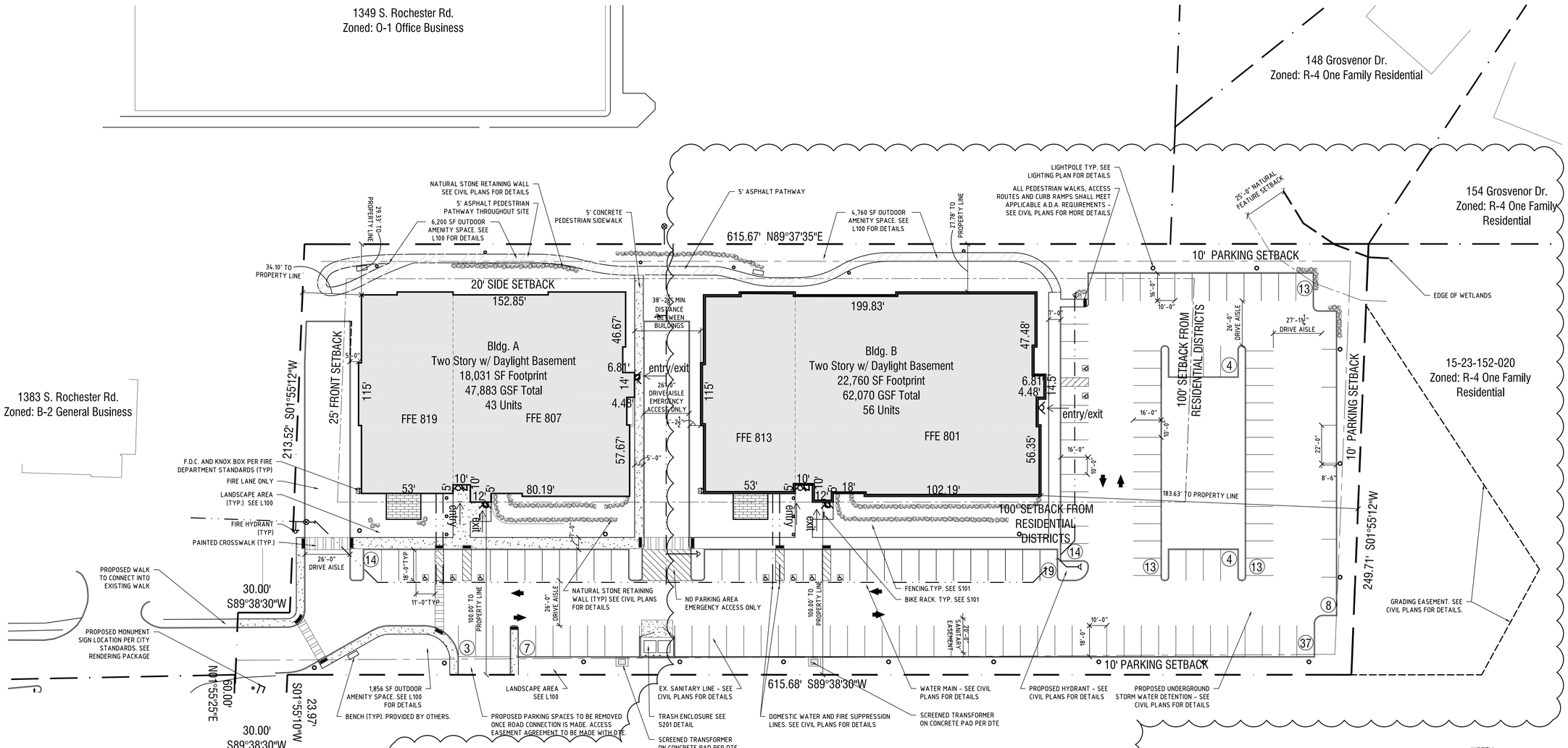
SHEET
Irrigation Plan

811 Know what's below Call before you dig.

REVISIONS
12–14–16 SPA SUBMITTAL
01–20–17 SPA REVISION #1
08–23–17 Amendment to Approved Site Plan

DRAWN BY: AJB
DESIGNED BY: AJB
APPROVED BY: AJB
DATE: 12-14-16
SCALE: 1" = 30'
30 15 0 15 30 45

NFE JOB NO. J401
sheet no. IR-1



1 Architectural Site Plan

SCALE: 1" = 30'

PARKING SUMMARY

Regulation	Required	Provided
Parking	1.5 Spaces per unit 99 units x 1.5= 149 Spaces Required	149 Parking Spots including (9) Handicap Accessible

SITE DATA

Regulation	Information
Parcel I.D.	# 15-23-152-022
Address	1401 & 1413 S. Rochester Road
Zoning	R-4 Single Family Residential with FB-2 Overlay
Parcel Area	(155,364 Sq.Ft.) 3.567 Acres

NOTES

Mechanical units to be roof top mounted and screened

Lighting and photometric information provided on lighting plans

All signs to meet Section 138-8.603 and Chapter 134 of City Code of Ordinances and be approved by Building Department

F.D.C and Knox Box per Rochester Hills Fire Department standards

BUILDING INFORMATION

Building	Building A	Building B
Building Size	18,031 SF Footprint (47,883 GSF)	22,760 SF Footprint (62,070 GSF)
Studio Units	8 Units	8 Units
One Bedroom Units	7 Units	9 Units
Two Bedroom Units	19 Units	33 Units
Three Bedroom Units	9 Units	6 Units
Total Unit Counts	43 Total Units	56 Total Units
Total Units on Site	99 Total Units	

ZONING SCHEDULE OF REGULATIONS

Regulation	Required for R-4	Provided
Setbacks	Front: 25' Sides: 10' each/20' total Rear: 35' 100' from Residential	Front: 34.10' Sides:100'/27.78'/29.33' Rear: 223.59'
Building Height	Maximum: 2 stories/30'	27.92' (2 Stories w/ walkout basement)
Coverage	Maximum: 30%	40,807 SF Total Footprint: 26.27%
Density	No max. w/FB overlay	27.75 Units per Acre

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No.	Revision/Issue	Date
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	Amendment to Approved Site Plan	8.23.17

Cedar Valley Building B
1413 S. Rochester Rd
Rochester Hills, MI
PID # 15-23-152-022

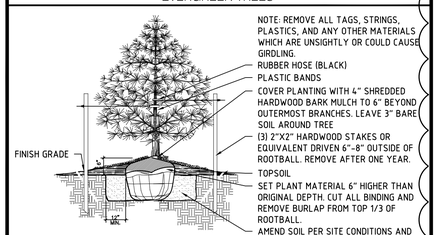
Architectural Site Plan

S100 | #16-018 | 017137

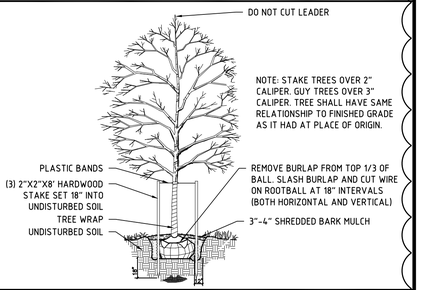
S100 Site Plan.dwg
8/23/2017
Francesca

PLANTING DETAILS

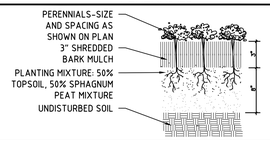
EVERGREEN TREES



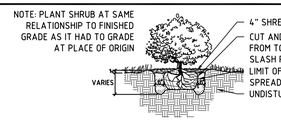
DECIDUOUS TREES



PERENNIALS



SHRUBS



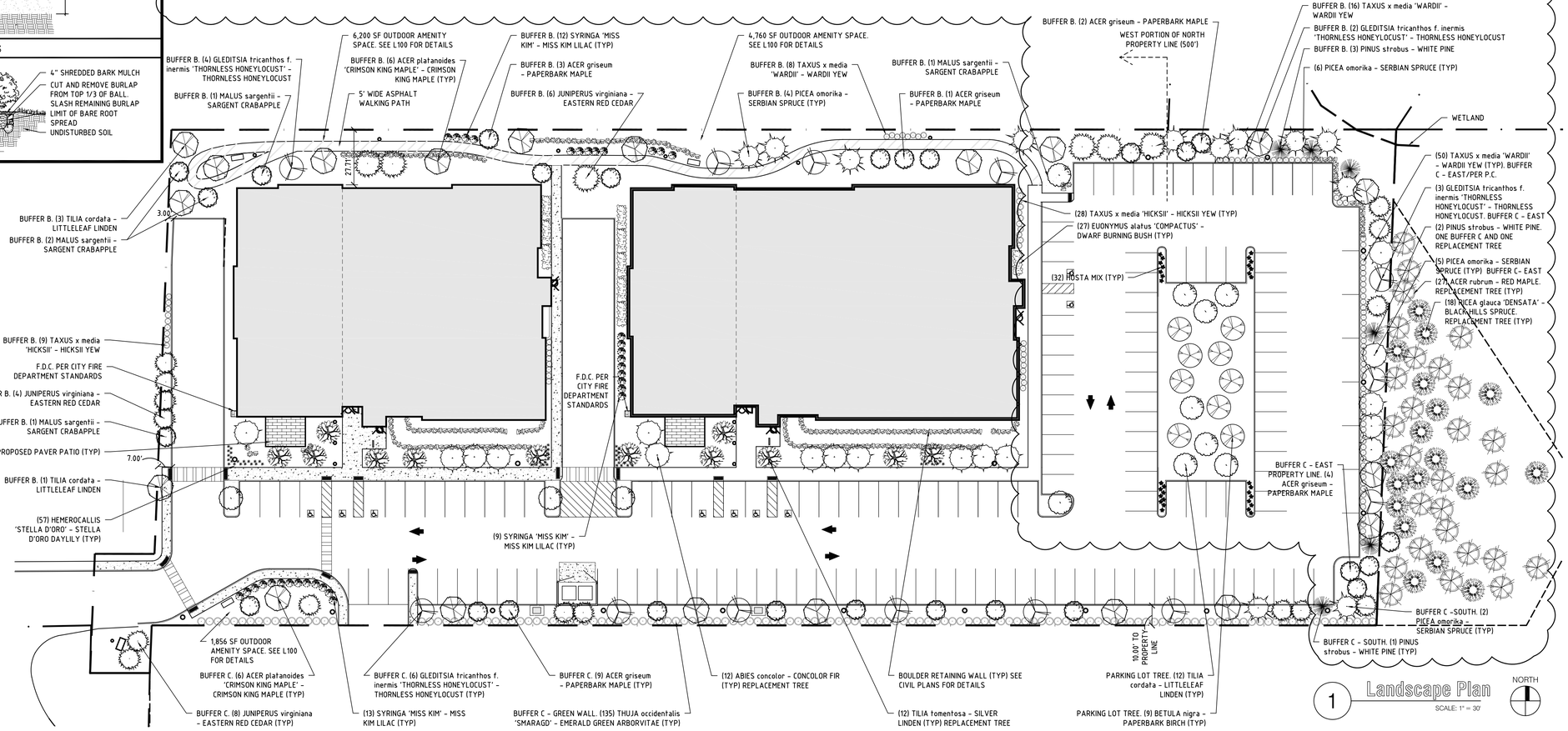
PLANT SCHEDULE

#	BOTANICAL NAME / COMMON NAME	SIZE/ROOT	REQUIRED PER CODE	UNIT/TOTAL COST
BUFFER B - WEST (214')				
4	JUNIPERUS virginiana / EASTERN REDCEDAR	10' B&B	4/4 EVERGREEN	$350/$1,400
3	MALUS sargentii / SARGENT CRABAPPLE	5 GAL.	3/3 ORNAMENTAL	$200/$600
9	TAXUS x media 'HICKSII' / HICKSII YEWS	30-34" B&B	9/9 SHRUBS	$100/$900
4	TILIA cordata / LITTLELEAF LINDEN	3" CAL.	4/4 DECIDUOUS	$325/$1,300
		TOTAL BUFFER B WEST PLANTS: $4,200		
BUFFER B - WEST PORTION OF NORTH PROPERTY LINE (500')				
6	ACER platanoides 'CRIMSON KING MAPLE'/ CRIMSON KING MAPLE	3" CAL	6/10 DECIDUOUS	$325/$1,950
4	GLEDITSIA tricanthos inermis 'THORNLESS HONEYLOCUST'	3" CAL	4/10 DECIDUOUS	$325/$1,300
4	ACER griseum 'PAPERBARK MAPLE' - PAPERBARK MAPLE	3" CAL	4/8 ORNAMENTAL	$325/$1,300
4	MALUS sargentii / SARGENT CRABAPPLE	12 GAL.	4/8 ORNAMENTAL	$200/$800
4	PICEA omorika/SERBIAN SPRUCE	10' B&B	4/10 EVERGREEN	$350/$1,400
6	JUNIPERUS virginiana / EASTERN REDCEDAR	10' B&B	6/10 EVERGREEN	$350/$2,100
8	TAXUS x media 'WARDII' / WARDII YEWS	12-15" B&B	8/20 SHRUBS	$100/$800
12	SYRINGA 'MISS KIM'/MISS KIM LILAC	5 GAL.	12/20 SHRUBS	$100/$1,200
		TOTAL BUFFER B WEST OF NORTH PL: $10,850		
BUFFER B - EAST PORTION OF NORTH PROPERTY LINE (116')				
2	GLEDITSIA tricanthos inermis 'THORNLESS HONEYLOCUST'	3" CAL	4/4 DECIDUOUS	$325/$650
2	ACER griseum 'PAPERBARK MAPLE' - PAPERBARK MAPLE	3" CAL	2/2 ORNAMENTAL	$325/$650
3	PINUS strobus/WHITE PINE	10' B&B	3/4 EVERGREEN	$350/$1,050
16	TAXUS x media 'WARDII' / WARDII YEWS	12-15" B&B	6/6 SHRUBS	$100/$1,600
6	PICEA omorika/SERBIAN SPRUCE	10' B&B		$350/$2,100
		TOTAL BUFFER B EAST OF NORTH PL: $6,050		
BUFFER C - SOUTH PROPERTY LINE (616')				
6	ACER platanoides 'CRIMSON KING MAPLE'/ CRIMSON KING MAPLE	3" CAL	6/12 DECIDUOUS	$325/$1,950
6	GLEDITSIA tricanthos inermis 'THORNLESS HONEYLOCUST'	3" CAL	6/12 DECIDUOUS	$325/$1,950
9	ACER griseum 'PAPERBARK MAPLE' - PAPERBARK MAPLE	3" CAL	9/9 ORNAMENTAL	$325/$2,925
2	PICEA omorika/SERBIAN SPRUCE	10' B&B		$350/$700
8	JUNIPERUS virginiana / EASTERN RED CEDAR	10' B&B		$350/$2,800
1	PINUS strobus/WHITE PINE	10' B&B		$350/$350
135	THUJA occidentalis 'SMARAGD' - EMERALD GREEN ARBORVITAE	8' B&B	GREEN WALL	$300/$40,500
13	SYRINGA 'MISS KIM'/MISS KIM LILAC	5 GAL.		$100/$1,300
		TOTAL BUFFER C SOUTH PROPERTY LINE: $51,775		

PLANT SCHEDULE (CON'T)

#	BOTANICAL NAME / COMMON NAME	SIZE/ROOT	REQUIRED PER CODE	UNIT/TOTAL COST
REPLACEMENT TREES				
12	TILIA tomentosa/SILVER LINDEN	3" CAL	223 REQUIRED TO BE REPLACED	($205.50/$45,827)
15	ABIES concolor/WHITE FIR	10' B&B	101 REPLACEMENT TREES ON SITE	$205.50/$20,756
1	PINUS strobus/WHITE PINE	10' B&B	DEFICIENT REPLACEMENTS: 11	($205.50/$2,261)
27	ACER rubrum/RED MAPLE	3" CAL		
18	PICEA glauca 'DENSATA'/BLACK HILLS SPRUCE	10' B&B		
			TOTAL REPLACEMENT TREES ON SITE: $20,756	
REPLACEMENT TREE NOTE: 10' EVERGREENS AND 3" CAL. DECIDUOUS MAY BE COUNTED AS TWO REPLACEMENT TREES EACH. 11 DEFICIENT TREES TO BE PAID INTO TREE FUND.				
PARKING LOT TREES				
12	TILIA cordata/ LITTLELEAF LINDEN	3" CAL		$325/$3,900
9	BETULA nigra / PAPERBARK BIRCH	3" CAL		$325/$2,925
	5% OF PARKING LOT = 1 DECIDUOUS PER 150 SF			
	5% = 3,127 SF/150 = 21 TREES REQUIRED AND PROVIDED		TOTAL PARKING LOT TREES: $6,825	
ADDITIONAL PLANTS ON SITE				
57	HEMEROCALLIS 'STELLA D'ORO' / STELLA D'ORO DAYLILY	1 GAL		$50/$2,850
9	SYRINGA 'MISS KIM' / MISS KIM LILAC	5 GAL		$100/$900
28	TAXUS x media 'WARDII' / WARDII YEWS	12-15" B&B		$100/$2,800
27	EUONYMUS alatus 'COMPACTUS' / DWARF BURNING BUSH	12-15" B&B		$100/$2,700
32	HOSTA VARIETY MIX	1-3 GAL		$50/$1,600
			TOTAL ADDITIONAL PLANTS: $10,850	
BUFFER C - EAST PROPERTY LINE (250')				
4	PICEA omorika/SERBIAN SPRUCE	10' B&B	4/10 EVERGREEN	$350/1,400
3	GLEDITSIA tricanthos inermis 'THORNLESS HONEYLOCUST'	3" CAL	3/5 DECIDUOUS	$325/$975
1	PINUS strobus/WHITE PINE	10' B&B	1/10 EVERGREEN	$350/$350
2	ACER platanoides 'CRIMSON KING MAPLE'/ CRIMSON KING MAPLE	3" CAL	2/5 DECIDUOUS	$325/$650
5	ABIES concolor/WHITE FIR	10' B&B	5/10 EVERGREEN	$350/$1,750
4	ACER griseum 'PAPERBARK MAPLE' - PAPERBARK MAPLE	3" CAL	4/4 ORNAMENTAL	$325/$1,300
55	TAXUS x media 'WARDII' / WARDII YEWS	12-15" B&B	55/15 SHRUBS	$100/$5,500
		TOTAL BUFFER C - EAST PROPERTY LINE: $11,925		

BUFFER REQUIREMENTS:
BUFFER B: 10' WIDTH + 2 DECIDIUOUS + 1.5 ORNAMENTAL + 2 EVERGREEN + 4 SHRUBS PER 100'
BUFFER C: 8' GREEN WALL + 2 DECIDUOUS + 1.5 ORNAMENTAL PER 100' OR 20' + 2 DECIDUOUS + 1.5 ORNAMENTAL + 4 EVERGREEN + 6 SHRUBS PER 100'
STORMWATER: 6' WIDTH + 1.5 DECIDUOUS + 1 EVERGREEN + 4 SHRUBS PER 100'
OUTDOOR AMENITY SPACE REQUIRED: 2% OF GROSS LAND AREA = 3,071 SF. PROVIDED OUTDOOR AMENITY SPACE: 12,816 SF
ANY TEMPORARY IMPACTS TO BE RESTORED TO ORIGINAL GRADE WITH ORIGINAL SOILS AND SEEDED WITH A CITY APPROVED SEED MIX, WHERE POSSIBLE, PRIOR TO FINAL APPROVAL BY STAFF.



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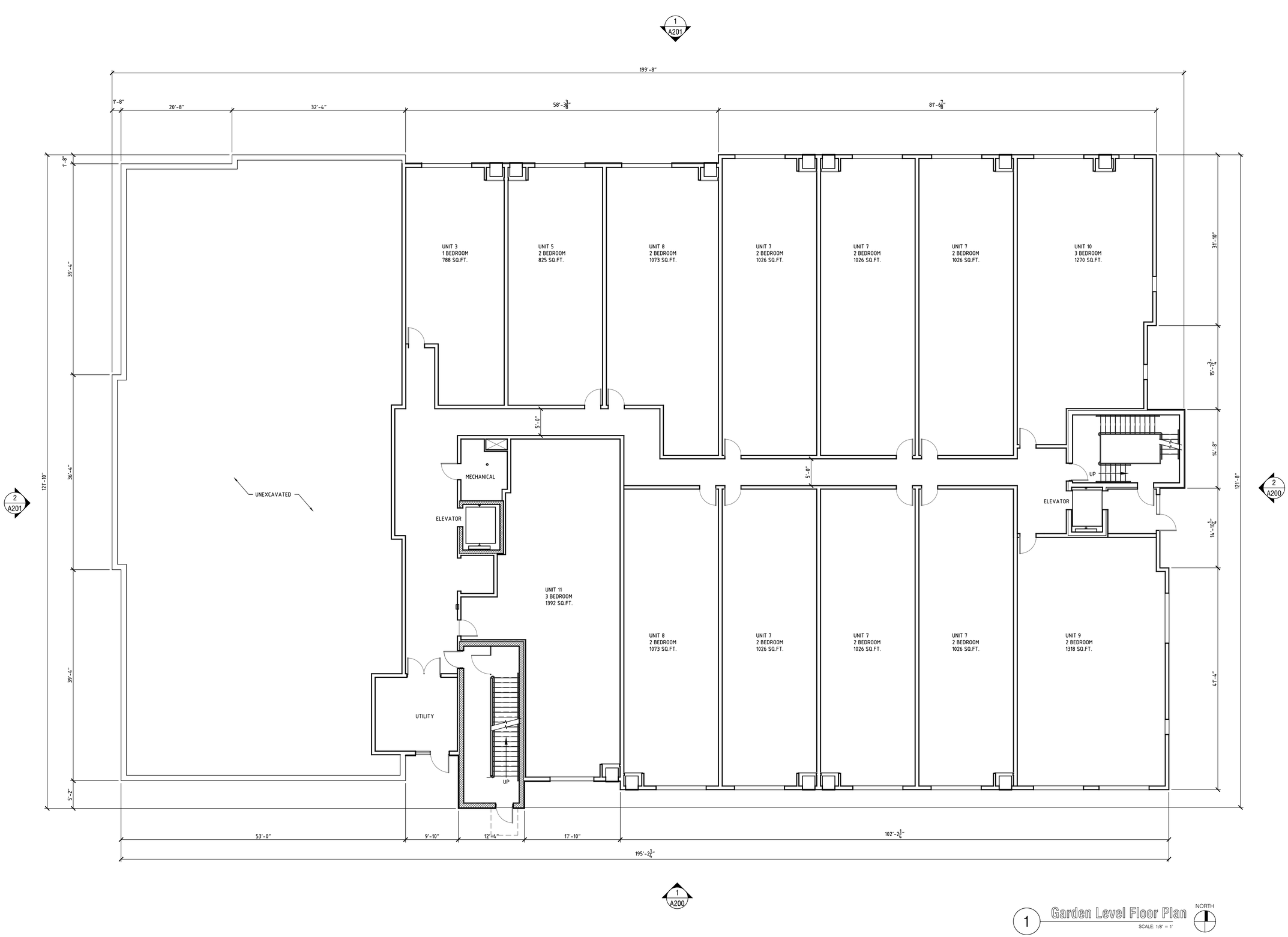
	Amendment to Approved Site Plan	8.23.17

Cedar Valley Building B
1413 S. Rochester Rd
Rochester Hills, MI

Landscape Plan

L100 | #16-018 | 017137

L100 Landscape Plan.dwg
8/23/2017
Francesca



1 Garden Level Floor Plan

SCALE: 1/8" = 1'

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Cedar Valley Building B
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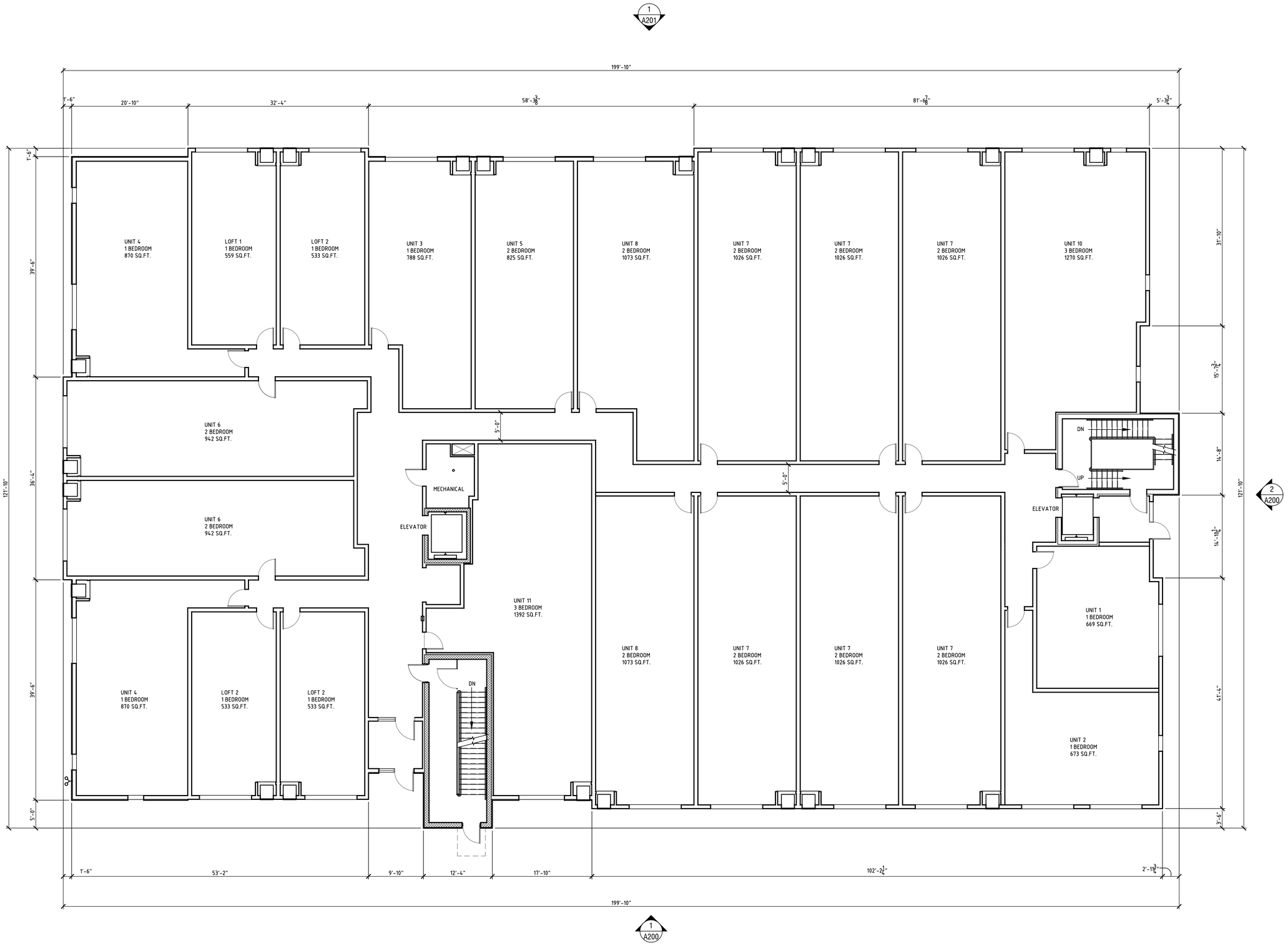
Garden Level Floor Plan

A100 | #16-018 | 017137

A100 Overall Construction Plan.dwg

8/23/2017

DHWS-60



1 First Story Floor Plan

SCALE: 1/8" = 1'

NORTH

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Cedar Valley Building B
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Rochester Hills, MI

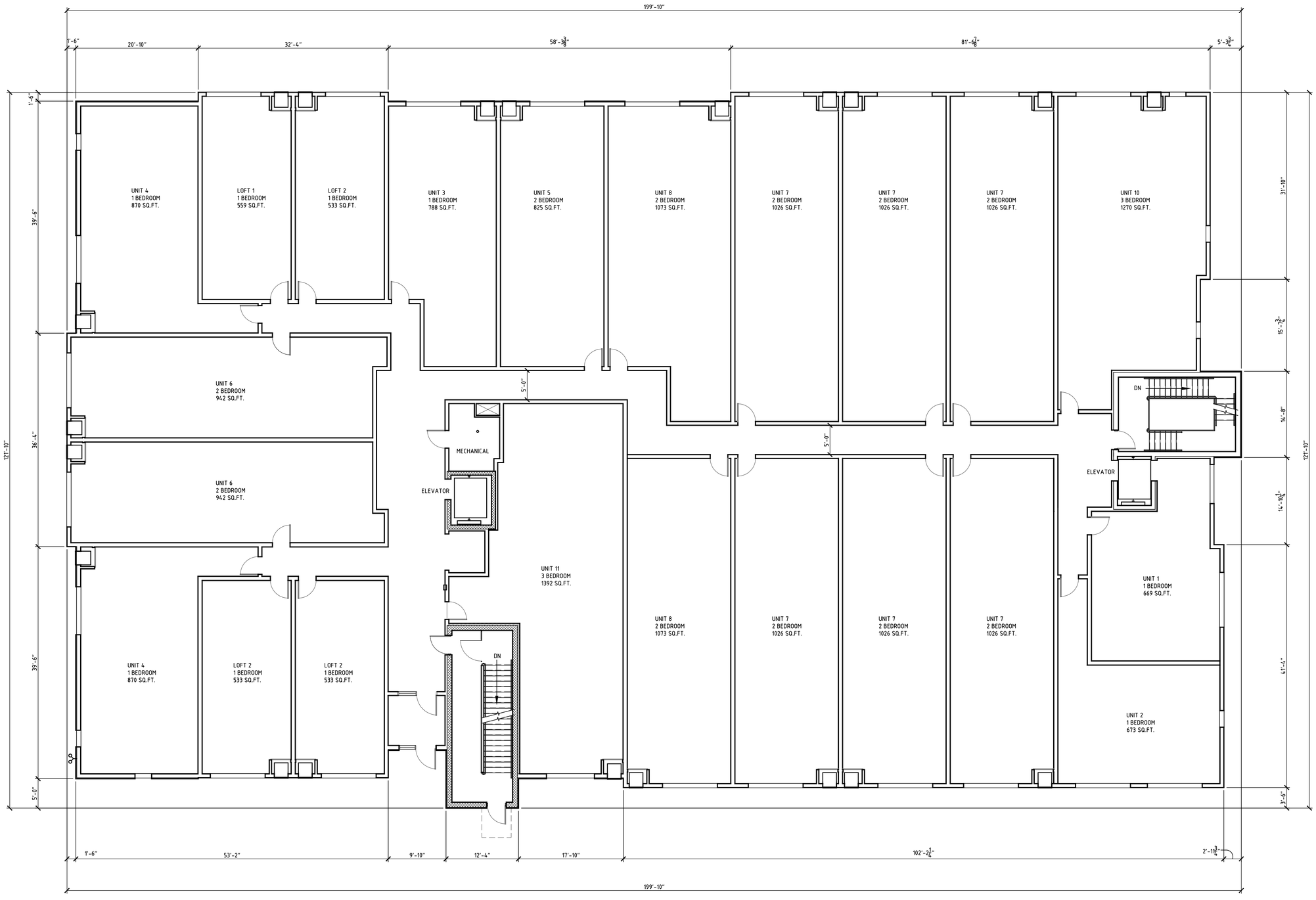
First Story Floor Plan

A101 | #16-018 | 017137

A101 Second Story Floor Plan.dwg

8/23/2017

DHWS-60



1 Second Story Floor Plan

SCALE: 1/8" = 1'

NORTH

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Cedar Valley Building B
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Rochester Hills, MI

Second Story Floor Plan

A102 | #16-018 | 017137

A102 Third Story Floor Plan.dwg

8/23/2017

DHWS-60

Exterior Material Schedule

Code	MFG/Contact		Specifications		REMARKS
P-1	MGF: Contact: Number: Web:	Atas Kevin Bush 1-734-249-0869 atas.com	Type: Series: Color:	Vertical Metal Panel Metafor Dove Grey	Charcoal Grey Trim
P-2	MGF: Contact: Number: Web:	Allura Corporate 1-844-425-5872 allurausa.com	Type: Color:	Fiber Cement Board Cedar	
S-1	MGF: Contact: Number: Web:	Boral Corporate 1-800-255-1727 boralamerica.com	Type: Color:	Cultured Stone Dressed Field Stone, Aspen	
P-1	MGF: Contact: Number: Web:	Benjamin Moore Corporate 1-855-724-6802 benjaminmoore.com	Type: Color:	Paint Graphite	Exterior Areas

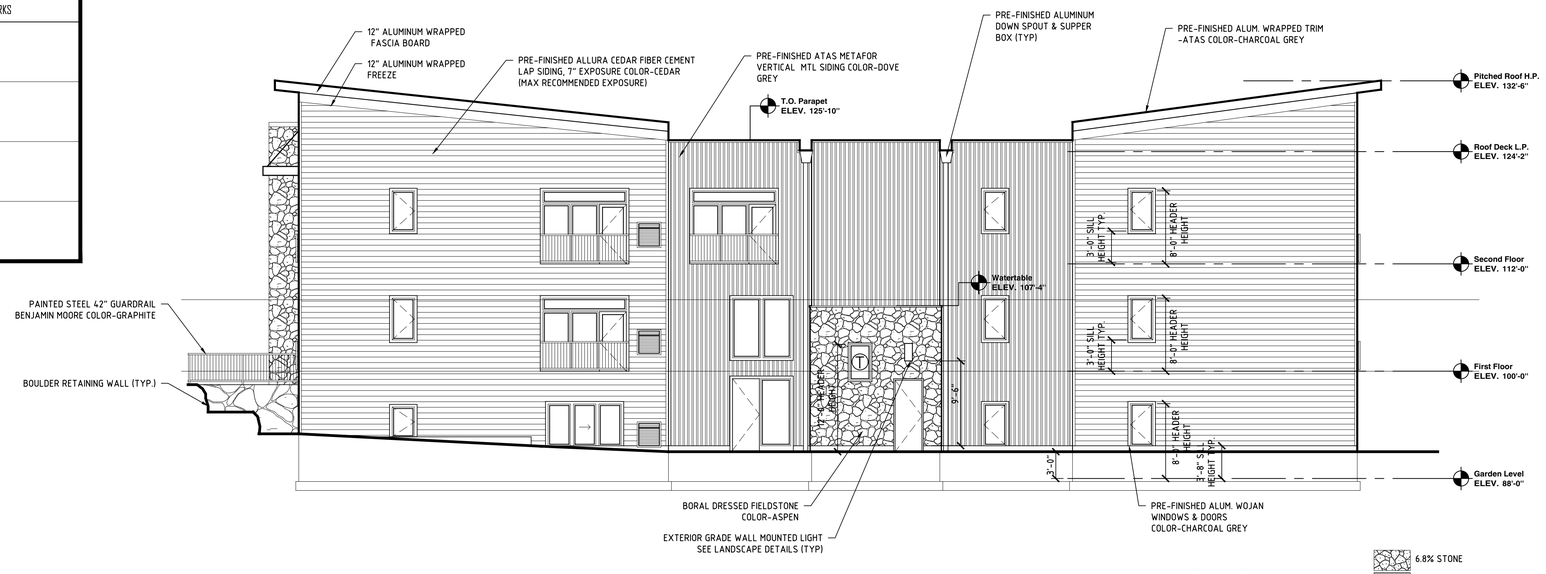
Building Materials

- BORAL DRESSED FIELDSTONE COLOR-ASPEN
- ALLUR FIBER CEMENT BOARD COLOR-CEDAR
- ATAS METAFOR VERTICAL MTL SIDING COLOR-CHARCOAL GREY
- ATAS ALUMINUM TRIM COLOR-CHARCOAL GREY
- TEMPERED GLASS

NOTE: ALL PATIO DOORS AND ALUMINUM ENTRY DOORS TO BE TEMPERED

Building Materials %'s (Total)

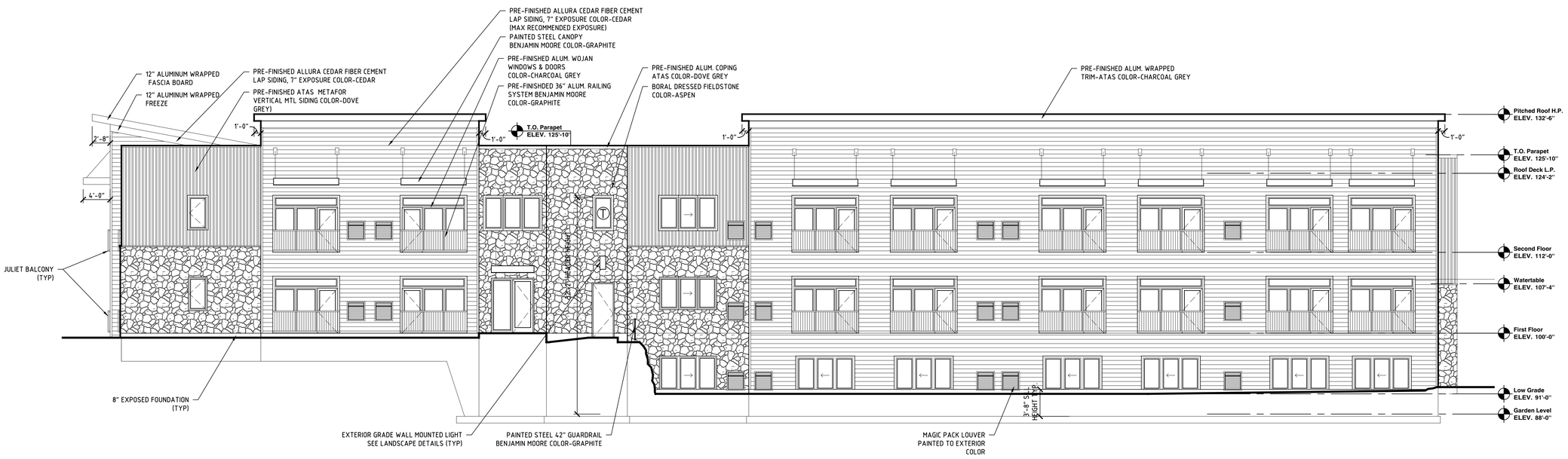
- 16.6% STONE
- 45.7% CEDAR FIBER CEMENT
- 16.2% CORRUGATED MTL
- 21.5% GLASS



2 East Elevation

SCALE: 1/8" = 1'

- 6.8% STONE
- 55.3% CEDAR FIBER CEMENT
- 24.7% CORRUGATED MTL
- 13.2% GLASS



1 South Elevation

SCALE: 1/8" = 1'

- 15.3% STONE
- 49.9% CEDAR FIBER CEMENT
- 8% CORRUGATED MTL
- 26.8% GLASS

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Cedar Valley Building B
1413 S. Rochester Rd
Rochester Hills, MI

Elevations

A200 | #16-018 | 017137

A200 Elevations.dwg

8/23/2017

Intern – D

Exterior Material Schedule

Code	MFG/Contact		Specifications		REMARKS
P-1	MGF: Contact: Number: Web:	Atas Kevin Bush 1-734-249-0869 atas.com	Type: Series: Color:	Vertical Metal Panel Metafor Dove Grey	Charcoal Grey Trim
P-2	MGF: Contact: Number: Web:	Allura Corporate 1-844-425-5872 allurausa.com	Type: Color:	Fiber Cement Board Cedar	
S-1	MGF: Contact: Number: Web:	Boral Corporate 1-800-255-1727 boralamerica.com	Type: Color:	Cultured Stone Dressed Field Stone, Aspen	
P-1	MGF: Contact: Number: Web:	Benjamin Moore Corporate 1-855-724-6802 benjaminmoore.com	Type: Color:	Paint Graphite	Exterior Areas

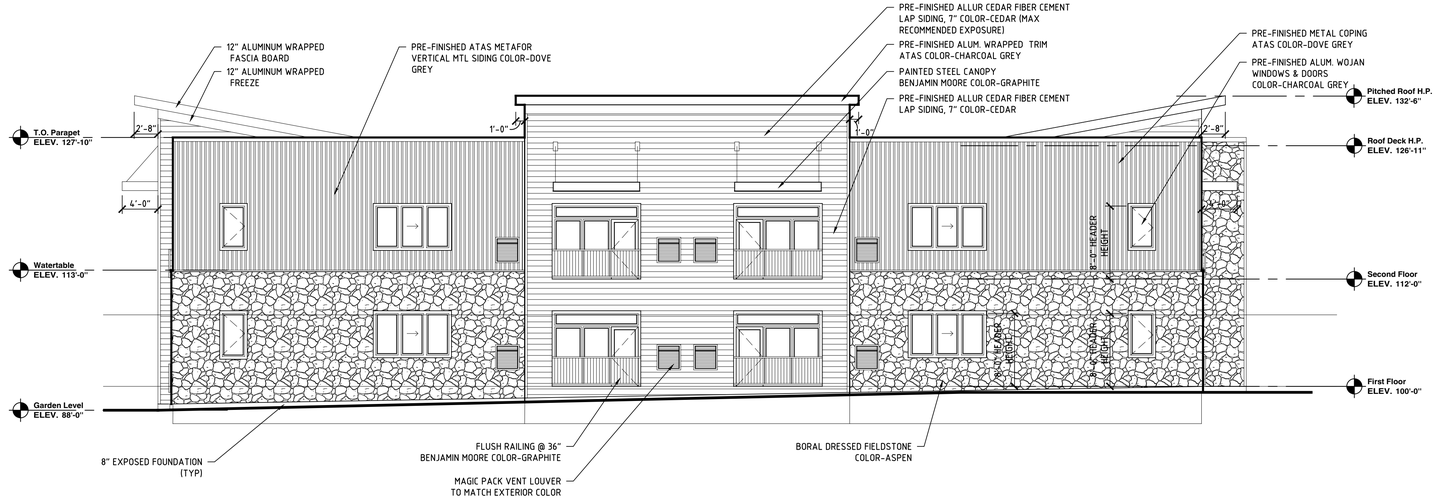
Building Materials

- BORAL DRESSED FIELDSTONE COLOR-ASPEN
- ALLUR FIBER CEMENT BOARD COLOR-CEDAR
- ATAS METAFOR VERTICAL MTL SIDING COLOR-CHARCOAL GREY
- ATAS ALUMINUM TRIM COLOR-CHARCOAL GREY
- (T) TEMPERED GLASS

NOTE: ALL PATIO DOORS AND ALUMINUM ENTRY DOORS TO BE TEMPERED

Building Materials %'s (Total)

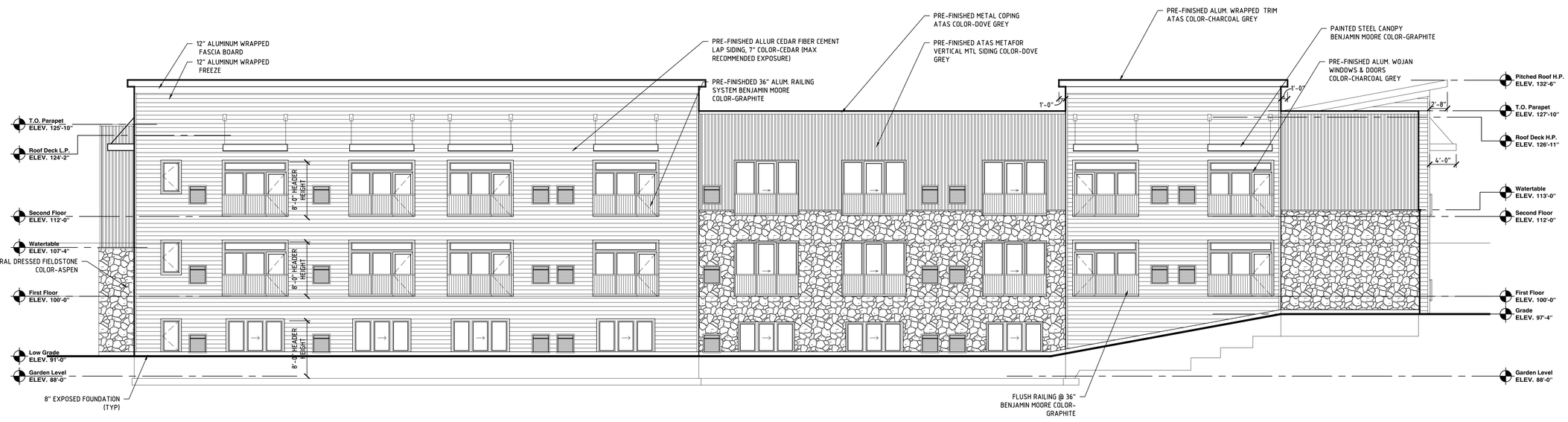
- 16.6% STONE
- 45.7% CEDAR FIBER CEMENT
- 16.2% CORRUGATED MTL
- 21.5% GLASS



2 West Elevation

SCALE: 1/8" = 1'

- 30.9% STONE
- 25.6% CEDAR FIBER CEMENT
- 27.9% CORRUGATED MTL
- 15.6% GLASS



1 North Elevation

SCALE: 1/8" = 1'

- 16.5% STONE
- 46.1% CEDAR FIBER CEMENT
- 13.2% CORRUGATED MTL
- 24.2% GLASS

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Cedar Valley Building B
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Rochester Hills, MI

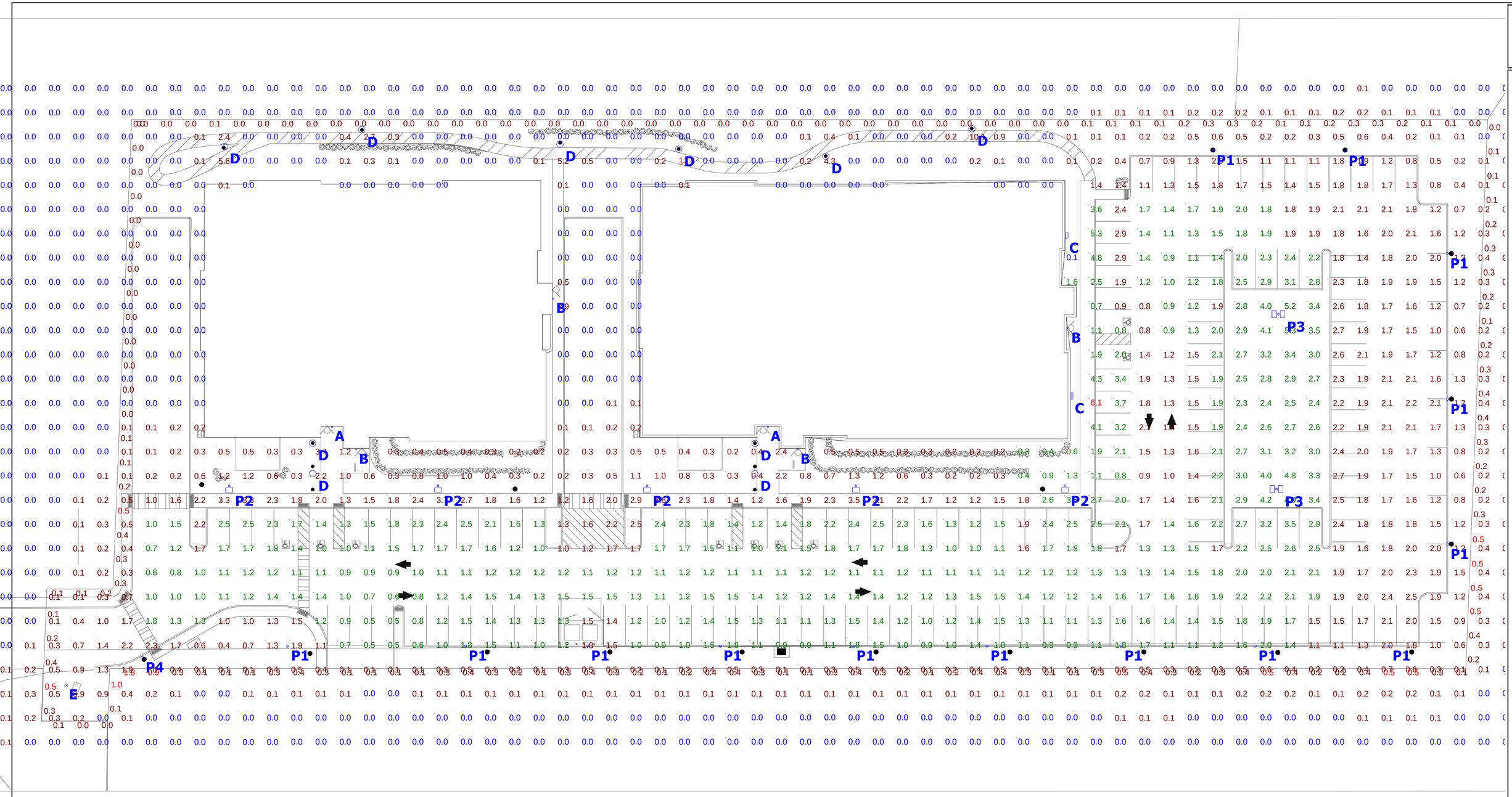
Elevations

A201 | #16-018 | 017137

A201 Elevations.dwg

8/23/2017

Intern – D



CEDAR VALLEY APARTMENT
PHOTOMETRIC SITE PLAN
PREPARED FOR: DESIGNHAUS
GASSER BUSH ASSOCIATES
WWW.GASSERBUSH.COM

GENERAL NOTE

1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.
3. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: GRADE.

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

Statistics

Description	Symbol	Avg	Max	Min	Max / Min	Avg / Min	Avg / Max
OVERALL SITE	+	0.8 fc	11.4 fc	0.0 fc	N/A	N/A	0.1:1
PARKING AREA	×	1.7 fc	6.1 fc	0.1 fc	61.0:1	17.0:1	0.3:1
PROPERTY LINE	+	0.2 fc	1.8 fc	0.0 fc	N/A	N/A	0.1:1

Plan View
Scale - 1" = 20ft

N

Luminaire Schedule

Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens per Lamp	LLF	Wattage	New Column
	A	2	VISA LIGHTING	CV1903 L40K-L	IMAGE. WALL MOUNT RECTANGULAR 26" VERTICAL. 4000k. 1100 lumens	LED	1	CV1903-L35K-L.ies	1147	0.9	12.3	7'-0"
	B	4	Lithonia Lighting	LDN6 40/10 LO6AR LSS	6IN LDN, 4000K, 1000LM, 80CRI, CLEAR, SEMI-SPECULAR REFLECTOR	LED	1	LDN6_40_10_LO6AR_LSS.ies	1054	0.9	12.75	10'-0"
	C	2	Lithonia Lighting	DSXW1 LED 20C 1000 40K TFTM MVOLT	DSXW1 LED WITH (2) 10 LED LIGHT ENGINES, TYPE TFTM OPTIC, 4000K, @ 1000mA.	LED	1	DSXW1_LED_20C_1000_40K_TFTM_MVOLT.ies	7711	0.9	73.2	10'-0"
	D	10	BEGA Lighting	99857	BEGA LED system bollard - luminaire head with unshielded light with safety guard - 180°	LED	1	99857 (1).ies	850	0.88	29	4'-0"
	E	1	Lithonia Lighting	OFL1 LED P2 40K MVOLT	FLOOD WITH 4 COBs, 4000K	LED	1	OFL1_LED_P2_40K_MVOLT.ies	Absolute	0.9	49.06	grade
	P1	14	Lithonia Lighting	DSX0 LED P1 40K TFTM MVOLT HS	DSX0 LED P1 40K TFTM MVOLT with houseside shield	LED	1	DSX0_LED_P1_40K_TFTM_MVOLT_HS.ies	3678	0.9	38	15'-0"
	P2	5	Lithonia Lighting	DSX0 LED P3 40K T3M MVOLT	DSX0 LED P3 40K T3M MVOLT	LED	1	DSX0_LED_P3_40K_T3M_MVOLT.ies	8205	0.9	71	15'-0"
	P3	2	Lithonia Lighting	DSX0 LED P5 40K T5W MVOLT	DSX0 LED P5 40K T5W MVOLT	LED	1	DSX0_LED_P5_40K_T5W_MVOLT.ies	12047	0.9	178	15'-0"
	P4	1	Lithonia Lighting	DSX0 LED P2 40K T2M MVOLT HS	DSX0 LED P2 40K T2M MVOLT with houseside shield	LED	1	DSX0_LED_P2_40K_T2M_MVOLT_HS.ies	4912	0.9	49	15'-0"

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Scale
Not to Scale
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