



COMMUNITY DEVELOPMENT DEPARTMENT

45175 Ten Mile Road
Novi, MI 48375
(248) 347-0415 Phone
(248) 735-5600 Facsimile
www.cityofnovi.org

ZONING BOARD OF APPEALS STAFF REPORT

FOR: City of Novi Zoning Board of Appeals

ZONING BOARD APPEALS DATE: March 13, 2018

REGARDING: Parcel # 50-22-11-300-009 (PZ18-0005)

BY: Larry Butler, Deputy Director Community Development

I. GENERAL INFORMATION:

Applicant

CA Senior Living Holdings, LLC

Variance Type

Dimensional Variance

Property Characteristics

Zoning District:	Office Service & Residential Acreage
Location:	East of Novi Road and North of Thirteen Mile Road
Parcel #:	50-22-11-300-009

Request

The applicant is requesting variances from the City of Novi Zoning Ordinance Sections 5.4.1 to allow a proposed loading zone in the side yard. Rear yard location required by code. Section 4.19.2.F to allow placement of a proposed dumpster (screened) in the side yard. Rear yard location required by code. Section 4.19.2.A to allow proposed transformer and generator (screened) placement in the side yard. Rear yard location required by code in rear yard by code.

This property is zoned Office Service (OS-1) and Residential Acreage (RA) and is governed by the William R. Eldridge v City of Novi Consent Judgment.

II. STAFF COMMENTS:

III. RECOMMENDATION:

The Zoning Board of Appeals may take one of the following actions:

1. I move that we **grant** the variance in Case No. **PZ18-0005**, sought by _____, for _____ because Petitioner has shown practical difficulty requiring _____.
- (a) Without the variance Petitioner will be unreasonably prevented or limited with respect to use of the property because _____.
- (b) The property is unique because _____.

- (c) Petitioner did not create the condition because _____
_____.
- (d) The relief granted will not unreasonably interfere with adjacent or surrounding properties because _____
_____.
- (e) The relief is consistent with the spirit and intent of the ordinance because _____
_____.
- (f) The variance granted is subject to:
 - 1. _____.
 - 2. _____.
 - 3. _____.
 - 4. _____.

2. I move that we **deny** the variance in Case No. **PZ18-0005**, sought by _____
for _____ because Petitioner has not shown practical difficulty requiring _____.

- (a) The circumstances and features of the property including _____ are not unique because they exist generally throughout the City.
- (b) The circumstances and features of the property relating to the variance request are self-created because _____
_____.
- (c) The failure to grant relief will result in mere inconvenience or inability to attain higher economic or financial return based on Petitioner's statements that _____.
- (d) The variance would result in interference with the adjacent and surrounding properties by _____.
- (e) Granting the variance would be inconsistent with the spirit and intent of the ordinance to _____
_____.

Should you have any further questions with regards to the matter please feel free to contact me at (248) 347-0417.

Larry Butler
Deputy Director Community Development
City of Novi



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ZONING BOARD OF APPEALS APPLICATION

APPLICATION MUST BE FILLED OUT COMPLETELY

I. PROPERTY INFORMATION (Address of subject ZBA Case)				Application Fee: _____	
PROJECT NAME / SUBDIVISION Novi Senior living (CA Senior)				Meeting Date: _____	
ADDRESS 42400 W. 12 Mile Rd.		LOT/SIUTE/SPACE #		ZBA Case #: PZ _____	
SIDWELL # 50-22-11 -300 -009		May be obtain from Assessing Department (248) 347-0485			
CROSS ROADS OF PROPERTY East of Novi Rd. and 12 Mile Rd.					
IS THE PROPERTY WITHIN A HOMEOWNER'S ASSOCIATION JURISDICTION? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			REQUEST IS FOR: <input type="checkbox"/> RESIDENTIAL <input checked="" type="checkbox"/> COMMERCIAL <input type="checkbox"/> VACANT PROPERTY <input type="checkbox"/> SIGNAGE		
DOES YOUR APPEAL RESULT FROM A NOTICE OF VIOLATION OR CITATION ISSUED? <input type="checkbox"/> YES <input type="checkbox"/> NO					
II. APPLICANT INFORMATION					
A. APPLICANT		EMAIL ADDRESS mduggan@ca-ventures.com		CELL PHONE NO.	
NAME CA Senior Living Holdings, LLC				TELEPHONE NO. 312.248.2091	
ORGANIZATION/COMPANY CA Senior Living Holdings, LLC				FAX NO.	
ADDRESS 130 E. Randolph St. Suite 2100		CITY Chicago		STATE IL	ZIP CODE 60601
B. PROPERTY OWNER <input type="checkbox"/> CHECK HERE IF APPLICANT IS ALSO THE PROPERTY OWNER					
Identify the person or organization that owns the subject property:		EMAIL ADDRESS JOE@URSCOMPANIES.COM		CELL PHONE NO.	
NAME Mosaic of Novi, LLC				TELEPHONE NO. 248.530.9199	
ORGANIZATION/COMPANY Mosaic of Novi, LLC				FAX NO.	
ADDRESS 2145 Crooks Rd. Suite 210		CITY Troy		STATE MI	ZIP CODE 48084
III. ZONING INFORMATION					
A. ZONING DISTRICT					
<input type="checkbox"/> R-A <input type="checkbox"/> R-1 <input type="checkbox"/> R-2 <input type="checkbox"/> R-3 <input type="checkbox"/> R-4 <input type="checkbox"/> RM-1 <input type="checkbox"/> RM-2 <input type="checkbox"/> MH <input type="checkbox"/> I-1 <input type="checkbox"/> I-2 <input type="checkbox"/> RC <input type="checkbox"/> TC <input type="checkbox"/> TC-1 <input checked="" type="checkbox"/> OTHER OS-1/OSC - Consent Judgement					
B. VARIANCE REQUESTED					
INDICATE ORDINANCE SECTION (S) AND VARIANCE REQUESTED:					
1. Section <u>5.4.1</u>		Variance requested <u>Allow loading zone in side yard</u>			
2. Section <u>4.19.2.F</u>		Variance requested <u>Allow dumpster in the side yard (screened)</u>			
3. Section <u>4.19.2.F</u>		Variance requested <u>Allow transformer and generator in side yard (screened)</u>			
4. Section _____		Variance requested _____			
IV. FEES AND DRAWINGS					
A. FEES					
<input type="checkbox"/> Single Family Residential (Existing) \$200 <input type="checkbox"/> (With Violation) \$250 <input type="checkbox"/> Single Family Residential (New) \$250 <input checked="" type="checkbox"/> Multiple/Commercial/Industrial \$300 <input type="checkbox"/> (With Violation) \$400 <input type="checkbox"/> Signs \$300 <input type="checkbox"/> (With Violation) \$400 <input type="checkbox"/> House Moves \$300 <input type="checkbox"/> Special Meetings (At discretion of Board) \$600					
B. DRAWINGS 1-COPY & 1 DIGITAL COPY SUBMITTED AS A PDF					
<ul style="list-style-type: none"> • Dimensioned Drawings and Plans • Site/Plot Plan • Existing or proposed buildings or addition on the property • Number & location of all on-site parking, if applicable 			<ul style="list-style-type: none"> • Existing & proposed distance to adjacent property lines • Location of existing & proposed signs, if applicable • Floor plans & elevations • Any other information relevant to the Variance application 		



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REVIEW STANDARDS DIMENSIONAL VARIANCE

The Zoning Board of Appeals (ZBA) will review the application package and determine if the proposed Dimensional Variance meets the required standards for approval. In the space below, and on additional paper if necessary, explain how the proposed project meets each of the following standards. (Increased costs associated with complying with the Zoning Ordinance will not be considered a basis for granting a Dimensional Variance.)

Standard #1. Circumstances or Physical Conditions.

Explain the circumstances or physical conditions that apply to the property that do not apply generally to other properties in the same zoning district or in the general vicinity. Circumstances or physical conditions may include:

- a. Shape of Lot.** Exceptional narrowness, shallowness or shape of a specific property in existence on the effective date of the Zoning Ordinance or amendment.

Describe below:

The lot is very narrow and the rear end of the lot is heavily wooded so our goal was to avoid removing too many trees in the rear by adding equipment and loading access.

OR

- b. Environmental Conditions.** Exceptional topographic or environmental conditions or other extraordinary situations on the land, building or structure. **Describe below:**

OR

- c. Abutting Property.** The use or development of the property immediately adjacent to the subject property would prohibit the literal enforcement of the requirements of the Zoning Ordinance or would involve significant practical difficulties. **Describe below:**

Standard #2. Not Self-Created.

Describe the immediate practical difficulty causing the need for the Dimensional Variance, that the need for the requested variance is not the result of actions of the property owner or previous property owners (i.e., is not self-created).

The difficult is caused by the shape of the site and existing woodlands. The nature of the design of senior living project requires that service elements be in the center of the building.

Standard #3. Strict Compliance.

Explain how the Dimensional Variance in strict compliance with regulations governing area, setback, frontage, height, bulk, density or other dimensional requirements will unreasonably prevent the property owner from using the property for a permitted purpose, or will render conformity with those regulations unnecessarily burdensome.

The variance allows us to avoid extending the buildable any further north into the woodlands than necessary. The nature of the building is such that the service areas need to be centrally located for safety, efficiency and operations.

Standard #4. Minimum Variance Necessary.

Explain how the Dimensional Variance requested is the minimum variance necessary to do substantial justice to the applicant as well as to other property owners in the district.

Although the elements are proposed in the side yard they are screen both by the building and the screen walls. None of which can be seen from the front of the property. While they aren't in the rear of the property these are in the rear of the building. The narrow shape of the site lends itself to this arrangement.

Standard #5. Adverse Impact on Surrounding Area.

Explain how the Dimensional Variance will not cause an adverse impact on surrounding property, property values, or the use and enjoyment of property in the neighborhood or zoning district.

The side yard faces a cemetery which is then additionally screened with landscaping as to not impact their enjoyment.

NOVI SENIOR COMMUNITY PROJECT

PRELIMINARY SITE PLAN

A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH,
RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

DESCRIPTION OF PROPERTY (OF RECORD)

PART OF TAX ID . 22-11-300-009

PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN; MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE SOUTH 1/4 CORNER OF SAID SECTION 11; THENCE N00°14'12"E, 90.00 FEET, ALONG THE NORTH AND SOUTH 1/4 LINE OF SAID SECTION 11, TO THE POINT OF BEGINNING; THENCE DUE WEST, 399.75 FEET, (PREVIOUSLY DESCRIBED AS 400.00 FEET), (SAID LINE BEING 90.00 FEET NORTH OF AND PARALLEL TO THE SOUTH LINE OF SAID SECTION 11 AND THE CENTERLINE OF TWELVE MILE ROAD); THENCE N00°23'54"E, 296.70 FEET; THENCE DUE WEST, 1.09 FEET; THENCE N00°14'12"E, 762.31 FEET; THENCE DUE EAST, 400.00 FEET, TO A POINT ON THE NORTH AND SOUTH 1/4 LINE OF SAID SECTION 11, (SAID POINT BEING S00°14'12"W, 1483.34 FEET, FROM THE CENTER OF SAID SECTION 11); THENCE S00°14'12"W, 1059.00 FEET, ALONG THE NORTH AND SOUTH 1/4 LINE OF SAID SECTION 11, TO THE POINT OF BEGINNING.
ALL OF THE ABOVE CONTAINING 9.720 ACRES.

ALL OF THE ABOVE BEING SUBJECT TO EASEMENT, RESTRICTIONS AND RIGHT-OF-WAY OF RECORD.

DESCRIPTION OF PROPERTY (AS SURVEYED)

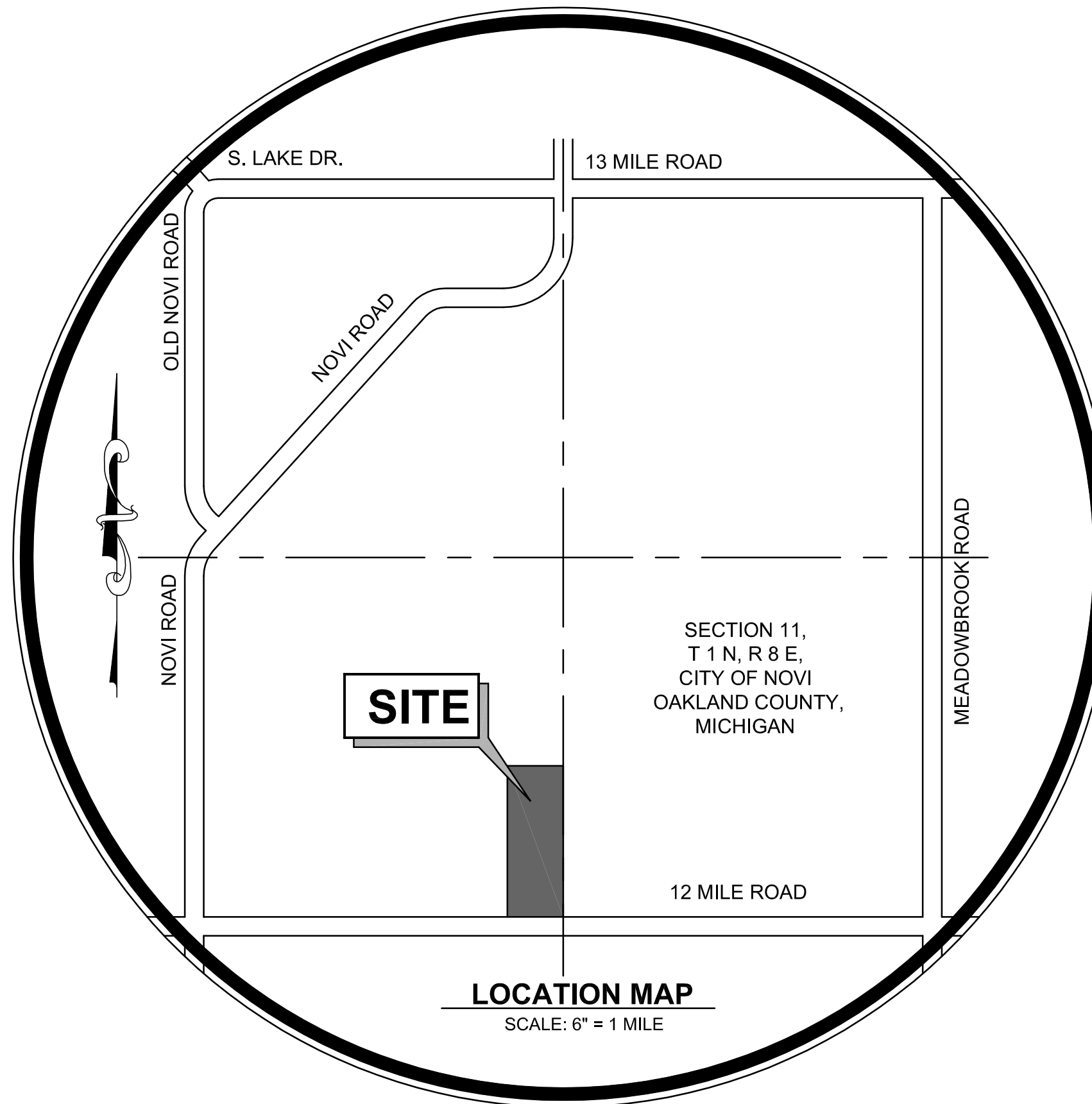
PART OF TAX ID . 22-11-300-009

PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN; MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE SOUTH 1/4 CORNER OF SAID SECTION 11; THENCE N00°13'43"E, 90.00 FEET, ALONG THE NORTH AND SOUTH 1/4 LINE OF SAID SECTION 11, TO THE POINT OF BEGINNING; THENCE DUE WEST, 399.73 FEET, (SAID LINE BEING 90.00 FEET NORTH OF AND PARALLEL TO THE SOUTH LINE OF SAID SECTION 11 AND THE CENTERLINE OF TWELVE MILE ROAD); THENCE N00°23'54"E, 296.70 FEET; THENCE DUE WEST, 1.09 FEET; THENCE N00°14'12"E, 762.31 FEET; THENCE DUE EAST, 399.84 FEET, TO A POINT ON THE NORTH AND SOUTH 1/4 LINE OF SAID SECTION 11, (SAID POINT BEING S00°13'43"W, 1483.48 FEET, FROM THE CENTER OF SAID SECTION 11); THENCE S00°13'43"W, 1059.00 FEET, ALONG THE NORTH AND SOUTH 1/4 LINE OF SAID SECTION 11, TO THE POINT OF BEGINNING.
ALL OF THE ABOVE CONTAINING 9.718 ACRES.

ALL OF THE ABOVE BEING SUBJECT TO EASEMENT, RESTRICTIONS AND RIGHT-OF-WAY OF RECORD.

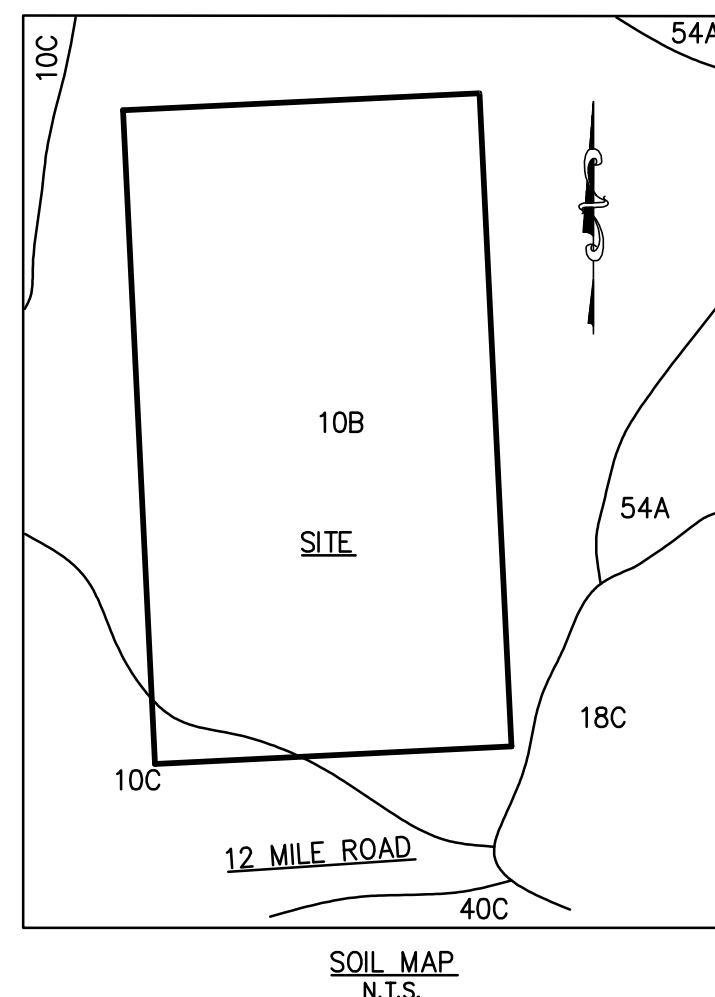
INDEX OF SHEETS

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SHEET A5.2	EXTERIOR ELEVATIONS



GENERAL NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE CITY OF NOVI ENGINEERING DIVISION (248-347-0454) 48 HOURS PRIOR TO THE START OF CONSTRUCTION OF PUBLIC UTILITIES OR CONSTRUCTION IN THE STREET RIGHT OF WAY.
2. ON SITE PARKING SHALL BE PROVIDED FOR CONSTRUCTION WORKERS.
3. ALL ON-SITE STORAGE TANKS, EXCEPT THOSE CONTAINING POTABLE WATER, SHALL BE PROVIDED WITH SECONDARY CONTAINMENT EQUAL TO A MINIMUM 110% OF TANK CAPACITY.
4. ALL POTENTIAL UTILITY CONFLICTS MUST BE PHYSICALLY DETERMINED PRIOR TO THE START OF CONSTRUCTION OF UTILITIES. AN ENGINEERING INSPECTOR MUST BE PRESENT.
5. UNDERGROUND SANITARY SEWER, WATER MAIN, AND STORM SEWER ARE SHOWN PER RECORD LOCATION WHERE NOT PHYSICALLY EVIDENT. ALL SIZES AND LOCATIONS ARE TO BE VERIFIED PRIOR TO AN CONSTRUCTION.
6. UNDERGROUND ELECTRIC, TELEPHONE, AND GAS LINE LOCATIONS ARE UNKNOWN AND NOT SHOWN AT THIS TIME. COPIES OF THE SURVEY WILL BE SENT TO THE RESPECTIVE COMPANIES REQUESTING THEIR LOCATIONS AND REVISIONS WILL BE MADE UPON RECEIPT OF THEIR COMMENTS.
7. TREE REMOVAL PERMIT IS REQUIRED.
8. STREET SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF NOVI.



SOIL TYPES
 10B Mariette sandy loam, 1 to 6 percent slopes
 10C Mariette sandy loam, 6 to 12 percent slopes
 18C Fox sandy loam, 6 to 12 percent slopes
 40A Udorthents, loamy, nearly level
 40C Udorthents, loamy, rolling
 54A Matheron sandy loam, 0 to 3 percent slopes

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REPRODUCTION OF DRAWINGS AND RELATED DOCUMENTS, IN WHOLE OR IN PART, IS FORBIDDEN WITHOUT THE WRITTEN PERMISSION OF FAZAL KHAN & ASSOCIATES INC.

THE CONTRACTOR SHALL CHECK AND VERIFY ALL PERTINENT DIMENSIONS AND REPORT ANY DISCREPANCIES TO FAZAL KHAN & ASSOCIATES INC. BEFORE PROCEEDING WITH THE WORK.

ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF ALL GOVERNING AGENCIES.

ALL WATER MAINS, SANITARY SEWERS (AND LEADS) AND STORM SEWERS UNDER PROPOSED OR EXISTING PAVEMENT OR WITHIN 3 FT. OF PAVEMENT TO BE SAND BACK FILLED AND COMPACTED TO 95% OPTIMUM DENSITY (PROCTOR). ALSO ALL UTILITY CROSSINGS TO BE SAND BACK FILLED. SAND BACK FILLING TO BE INCIDENTAL TO CONTRACT.

OWNER / DEVELOPER
 CA SENIOR LIVING HOLDINGS, LLC
 130 EAST RANDOLPH STREET, SUITE 2100
 CHICAGO, IL 60601
 PHONE: 312-248-2091

SURVEYOR / ENGINEER
 FAZAL KHAN AND ASSOCIATES, INC.
 43279 SCHOENHERR ROAD
 STERLING HEIGHTS, MI 48313
 PHONE: 586-739-8007

PERMITS

SANITARY PERMIT # _____ ISSUED _____

WATER MAIN PERMIT # W _____ ISSUED _____

SOIL EROSION PERMIT # _____ ISSUED _____

DEQ WETLAND PERMIT # _____ ISSUED _____

NPDES PERMIT # MIR _____ ISSUED _____

FIRE MARSHALL APPROVAL _____

NOTE:
 ALL WORK SHALL CONFORM TO THE CURRENT CITY OF NOVI STANDARDS AND SPECIFICATIONS.

PLANS SUBMITTED TO:	DATE SUBMITTED:	COMMENTS RECEIVED:	RE-SUBMITTED:	COMMENTS RECEIVED:	RE-SUBMITTED:	COMMENTS RECEIVED:	RE-SUBMITTED:	DATE APPROVED:	ADDRESS AND PHONE #:
CITY OF NOVI PRELIMINARY SITE PLAN REVIEW	01-04-2018								ADDRESS: 45375 10 MILE ROAD, NOVI, MI 48375 PHONE: 248-347-0415 FAX: 248-735-5000

CALL MISS DIG (3 WORKING DAYS) BEFORE YOU DIG 1-800-482-7171 CALL811.COM (TOLL FREE)

BY: M.J.R.

REVISIONS:

DATE: 10/18

REVISIONS:

NOVI SENIOR COMMUNITY PROJECT

A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

FAZAL KHAN & ASSOCIATES, INC.
 CIVIL ENGINEERS & LAND SURVEYORS
 43279 SCHOENHERR ROAD, STERLING HEIGHTS, MI 48313
 PHONE (586) 739-8007 FAX (586) 739-8994
 WWW.FAZALKHAN.COM

COVER SHEET

PROJECT NO. 14-032
 DATE 1-4-18
 DRAWN BY M.B.
 CHECKED BY C.P.

FIELD BOOK XXX

CLIENT CA SENIOR LIVING HOLDINGS, LLC
 SCALE NO SCALE

PRELIMINARY CONSTRUCTION AS-BUILT

SHEET NO. C-1

NOVI SENIOR COMMUNITY PROJECT

A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH,
RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

BENCHMARK LIST

#1042: "X" ON NORTH RIM OF GATE WELL LOCATED IN THE NORTHWEST QUAD OF INTERSECTION 12 MILE ROAD AND NOVI ROAD, 5 FEET WEST OF SIDEWALK AND 15 FEET NORTH OF BACK OF CURB. ELEVATION=951.69

#1411: "X" ON NORTH RIM OF GATE WELL LOCATED BETWEEN LOTS #43223/43025 12 MILE ROAD, SOUTH OF 12 MILE ROAD AND 3 FEET SOUTH OF SIDEWALK. ELEVATION=944.39

#1412: "X" ON NORTH RIM OF GATE WELL LOCATED 6 FEET EAST OF WEST ENTRANCE TO 12 OAKS MALL OF 12 MILE ROAD, 15 FEET SOUTH OF SIDEWALK. ELEVATION=915.33

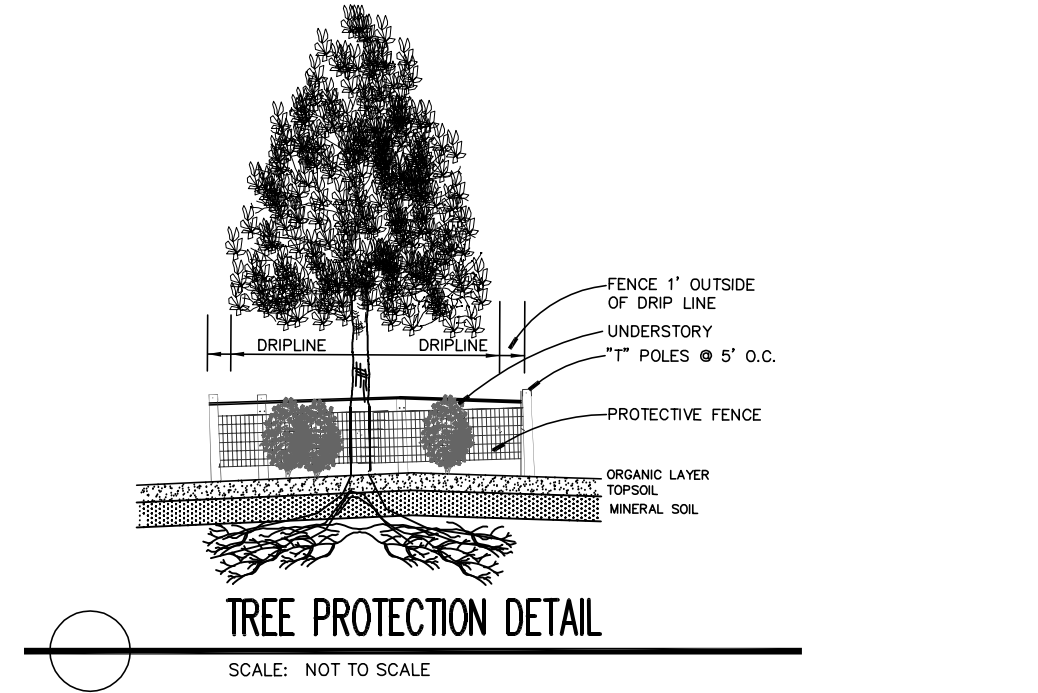
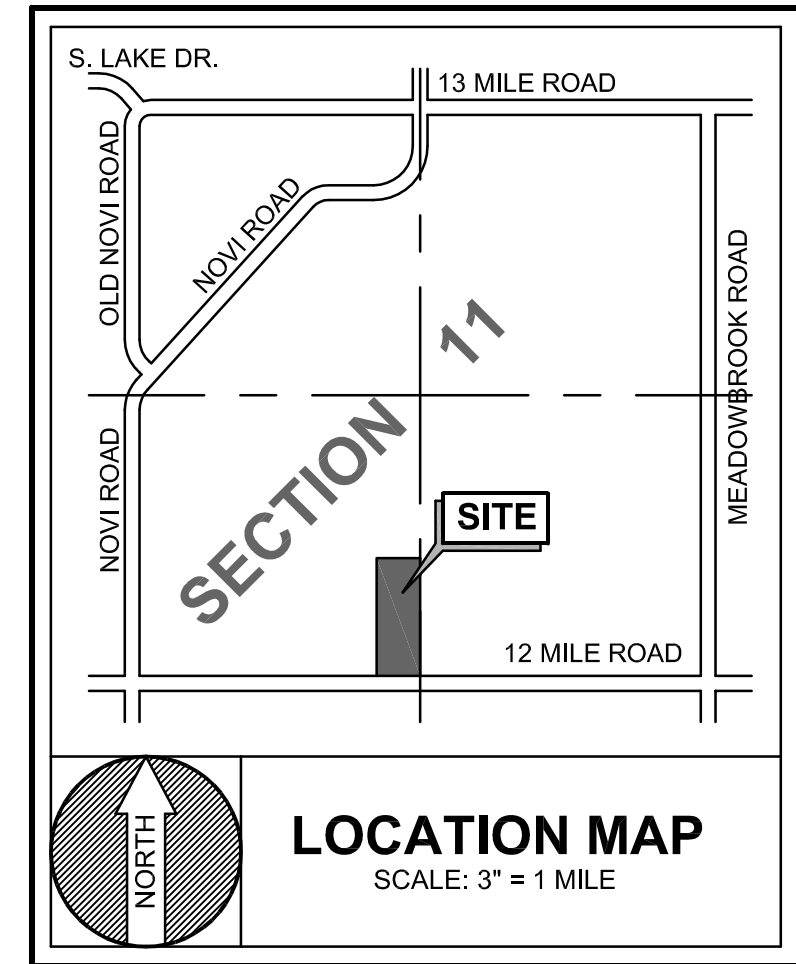
#1422: "X" ON NORTH RIM OF GATE WELL LOCATED 100 FEET EAST OF INTERSECTION EAST OF 12 OAKS ENTRANCE AND 12 MILE ROAD, 7 FEET SOUTH BACK CURB. ELEVATION=944.91

#1423: "X" ON SOUTH FLANGE BOLT OF FIRE HYDRANT LOCATED 380 FEET EAST OF INTERSECTION ENTRANCE TO DETROIT MEDICAL CENTER REHABILITATION CENTER AND 12 MILE ROAD, 6 FEET NORTH OF SIDEWALK. ELEVATION=941.17

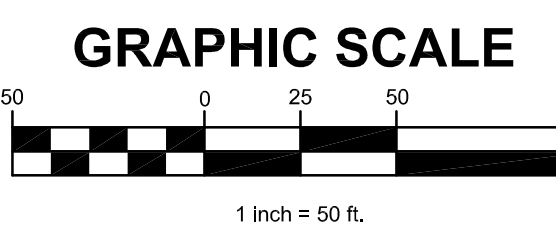
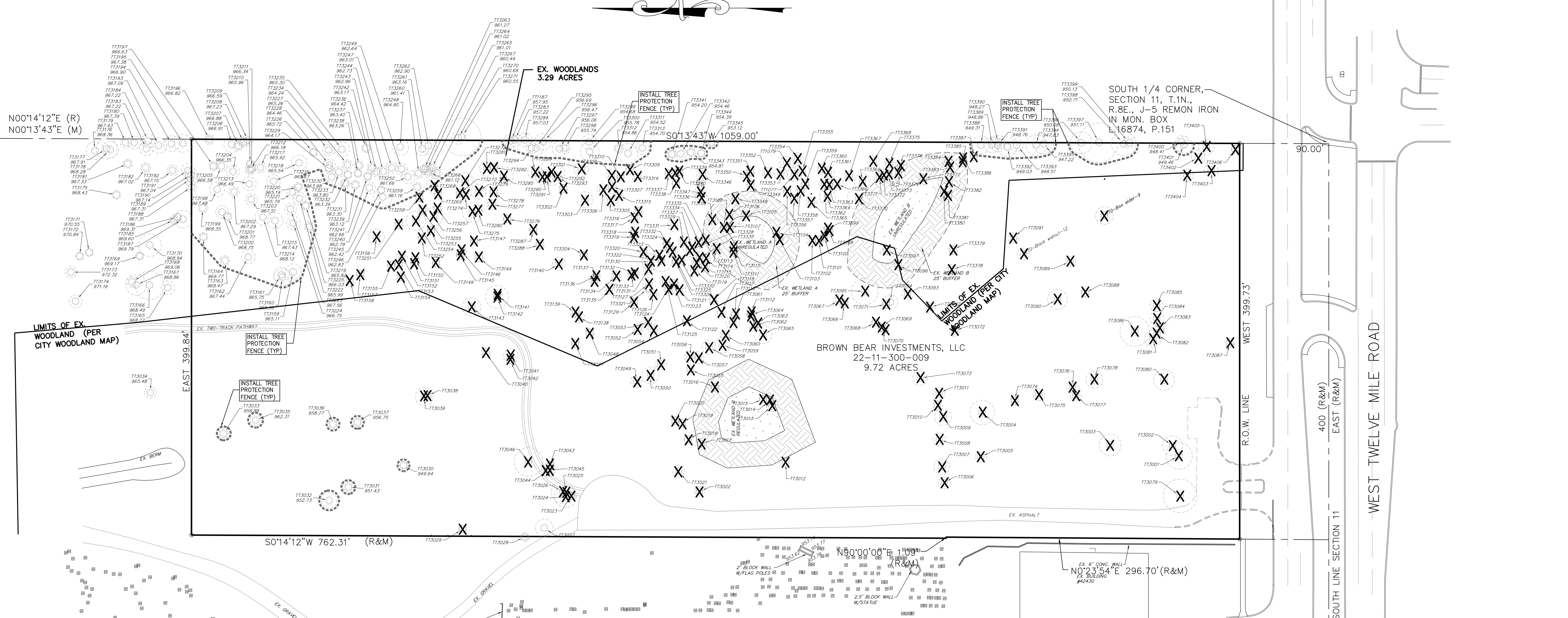
#1421: "X" ON NORTH RIM OF GATE WELL LOCATED IN THE SOUTHWEST QUAD OF INTERSECTION 12 MILE ROAD MEADOWCREEK, 70 FEET SOUTH OF BACK OF CURB 12 MILE ROAD AND 4 FEET EAST OF SIDEWALK. ELEVATION=923.33

LEGEND

	SECTION CORNER		FOUND IRON
	SET IRON		SECTION LINE
	EXISTING FIRE HYDRANT		EXISTING WATER MAIN
	EXISTING GATE VALVE AND WELL		EXISTING SANITARY SEWER
	EXISTING WATER WELL		EXISTING SEWER
	EXISTING SANITARY MANHOLE		EXISTING SWALE
	EXISTING ROAD CATCH BASIN		EXISTING FENCE LINE
	EXISTING YARD CATCH BASIN		EXISTING OVERHEAD WIRES
	EXISTING STORM MANHOLE		EXISTING UNDERGROUND UTILITY
	EXISTING END SECTION		EXISTING CONTOUR
	EXISTING TRANSFORMER		EXISTING TREE / BRUSH LINE
	EXISTING UTILITY PEDESTAL		EXISTING AMERITECH MANHOLE
	EXISTING GRAVE HEADSTONE		EXISTING CABLE TV
	EXISTING GROUND		EXISTING ELECTRIC MANHOLE
	EXISTING ASPHALT		EXISTING TELEPHONE MANHOLE
	EXISTING CONCRETE		EXISTING MAILBOX
	EXISTING GRAVEL		EXISTING UTILITY POLE
			EXISTING SIGN
			EXISTING GAS
			EXISTING TREE
			EXISTING TREE
			EXISTING SHRUB



- IDENTIFY ON SITE ALL TREES OR AREAS OF TREES WHICH ARE BEING PROPOSED TO BE PRESERVED WITH FLUORESCENT ORANGE SPRAY PAINT(CHALK BASE) OR BY RED FLAGGING TAPE.
- ERECT BARRIERS OF FOUR(4) FOOT HIGH FENCING STAKED WITH METAL "T-POST" FIVE(5) FEET ON CENTER OR ALL SUCH TREES OR GROUPS OF TREES PROPOSED TO REMAIN.
- PROTECTIVE BARRIERS ARE TO BE ERRECTED PRIOR TO ANY 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.
- KEEP CLEAR ALL DEBRIS OR FILL, EQUIPMENT, AND MATERIAL FROM WITHIN THE REQUIRED PROTECTIVE BARRIER.
- DURING CONSTRUCTION, THE OWNER, DEVELOPER, OR AGENT SHALL NOT CAUSE OR PERMIT ANY ACTIVITY WITHIN THE FENCE LINE OF ANY PROTECTED TREE OR GROUP OF TREES INCLUDING, BUT NOT LIMITED TO, THE STORAGE EQUIPMENT, DUMPSTER BOULDERS, DIRT, AND EXCAVATED MATERIAL, BUILDING OR WASTE MATERIAL, OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF A TREE.
- NO DAMAGING ATTACHMENT, WIRES (OTHER THAN CABLE WIRES FOR TREES) SIGNS OR PERMITS MAY BE FASTENED TO ANY TREE PROTECTED BY THIS ORDINANCE.



CALL MISS DIG (3 WORKING DAYS) BEFORE YOU DIG 1-800-482-7171 CALL811.COM (TOLL FREE)

BY: M.L.B.

REVISIONS:

DATE	DATE	REVISIONS

NOVI SENIOR COMMUNITY PROJECT
A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

FAZAL KHAN & ASSOCIATES, INC.
CIVIL ENGINEERS & LAND SURVEYORS
4373 SANDHURST, STEELING HEIGHTS, MI 48313
PHONE (586) 739-8007 FAX (586) 739-6994
WWW.FAZALKHAN.COM

TREE SURVEY AND TREE REMOVAL PLAN

PROJECT NO. 14-032	FIELD BOOK XXX
DATE 05-16-17	
CHECKED BY O.P.	
DRAWN BY L.A.	

CLIENT: SENIOR LIVING HOLDINGS, LLC
SCALE: 1" = 50'

SHEET NO. C-3

PRELIMINARY []
CONSTRUCTION []
AS-BUILT []

NOVI SENIOR COMMUNITY PROJECT

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ALL OF THE ABOVE BEING SUBJECT TO EASEMENT, RESTRICTIONS AND RIGHT-OF-WAY OF RECORD.

DESCRIPTION OF PROPERTY (AS SURVEYED)

PART OF TAX ID . 22-11-300-009

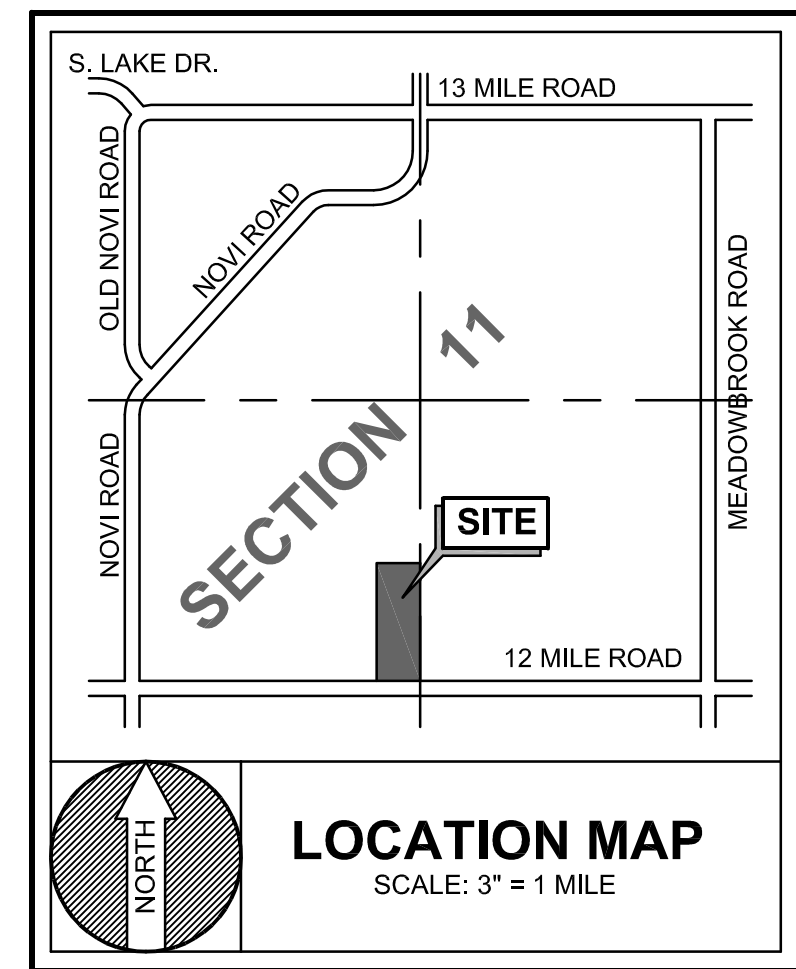
PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN; MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE SOUTH 1/4 CORNER OF SAID SECTION 11; THENCE N00°13'43"E, 90.00 FEET, ALONG THE NORTH AND SOUTH 1/4 LINE OF SAID SECTION 11, TO THE POINT OF BEGINNING; THENCE DUE WEST, 399.73 FEET, (SAID LINE BEING 90.00 FEET NORTH OF AND PARALLEL TO THE SOUTH LINE OF SAID SECTION 11 AND THE CENTERLINE OF TWELVE MILE ROAD); THENCE N00°23'54"E, 296.70 FEET; THENCE DUE WEST, 1.09 FEET; THENCE N00°14'12"E, 762.31 FEET; THENCE DUE EAST, 399.84 FEET, TO A POINT ON THE NORTH AND SOUTH 1/4 LINE OF SAID SECTION 11, (SAID POINT BEING S00°13'43"W, 1483.48 FEET, FROM THE CENTER OF SAID SECTION 11); THENCE S00°13'43"W, 1059.00 FEET, ALONG THE NORTH AND SOUTH 1/4 LINE OF SAID SECTION 11, TO THE POINT OF BEGINNING. ALL OF THE ABOVE CONTAINING 9.718 ACRES.

ALL OF THE ABOVE BEING SUBJECT TO EASEMENT, RESTRICTIONS AND RIGHT-OF-WAY OF RECORD.

WETLANDS:
 WETLAND A:
 1586 S.F. = 0.036 ACRES
 9516 C.F. FILL
 WETLAND A BUFFER
 5655 S.F. = 0.130 ACRES
 24414 C.F. FILL
 WETLAND B
 3097 S.F. = 0.071 ACRES
 17034 C.F. FILL
 WETLAND B BUFFER
 8183 S.F. = 0.188 ACRES
 27973 C.F. FILL

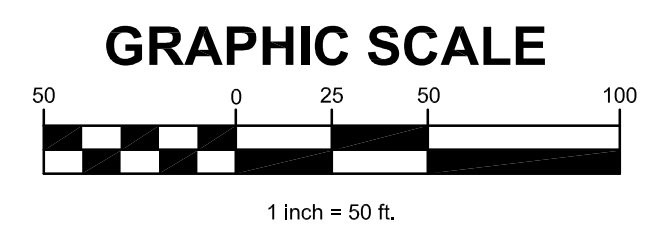
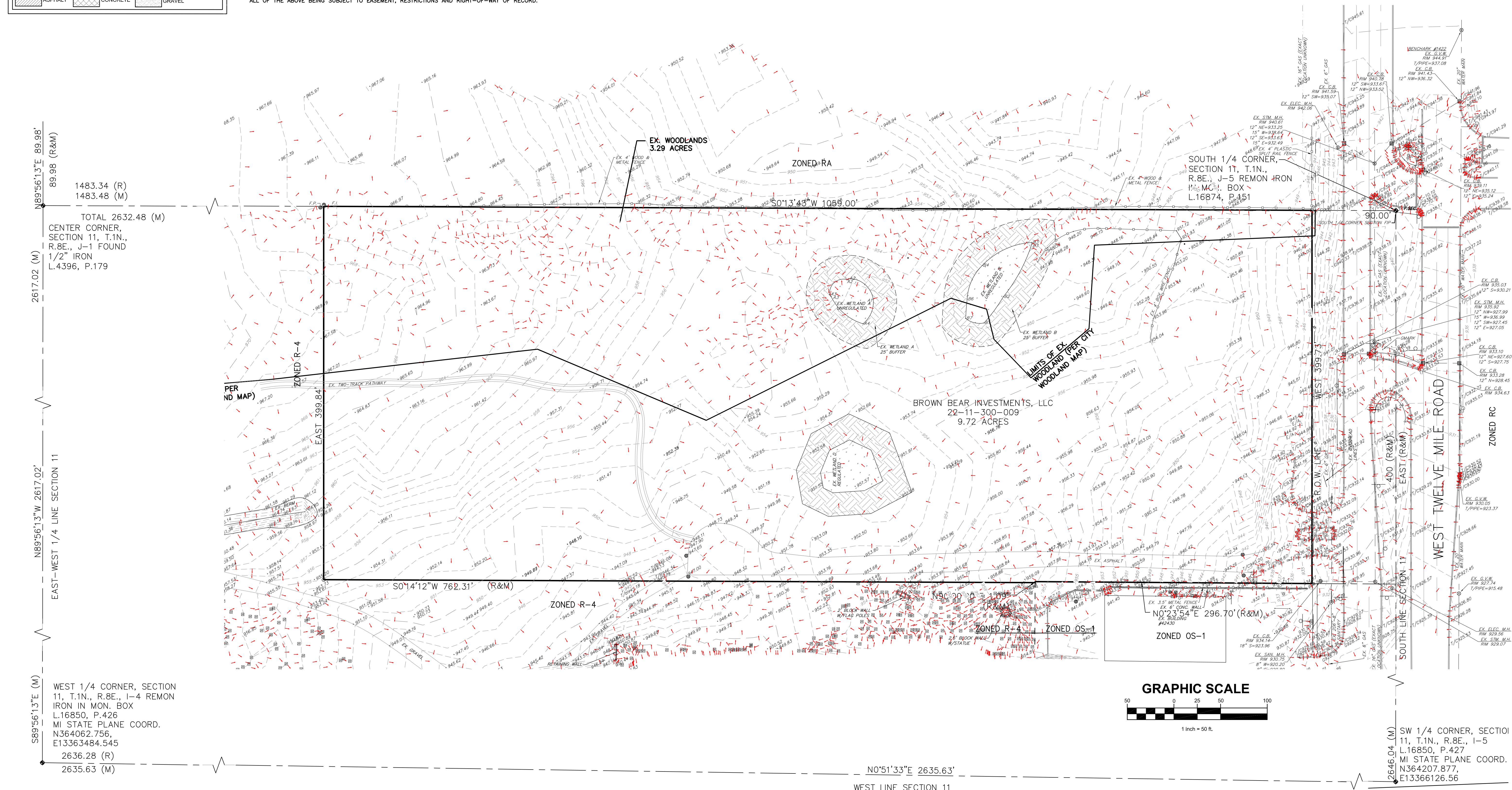
BENCHMARK LIST

- #1042: "X" ON NORTH RIM OF GATE WELL LOCATED IN THE NORTHWEST QUAD OF INTERSECTION 12 MILE ROAD AND NOV1 ROAD, 5 FEET WEST OF SIDEWALK AND 15 FEET NORTH OF BACK OF CURB. ELEVATION=951.69
- #1411: "X" ON NORTH RIM OF GATE WELL LOCATED BETWEEN LOTS 84322843025 12 MILE ROAD, SOUTH OF 12 MILE ROAD AND 3 FEET SOUTH OF SIDEWALK. ELEVATION=944.39
- #1412: "X" ON NORTH RIM OF GATE WELL LOCATED 6 FEET EAST OF WEST ENTRANCE TO 12 OAKS MALL OF 12 MILE ROAD, 15 FEET SOUTH OF SIDEWALK. ELEVATION=915.53
- #1422: "X" ON NORTH RIM OF GATE WELL LOCATED 100 FEET EAST OF INTERSECTION EAST OF 12 OAKS ENTRANCE AND 12 MILE ROAD, 7 FEET SOUTH BACK CURB. ELEVATION=944.91
- #1423: "X" ON SOUTH FLANGE BOLT OF FIRE HYDRANT LOCATED 380 FEET EAST OF INTERSECTION ENTRANCE TO DETROIT MEDICAL CENTER REHABILITATION CENTER AND 12 MILE ROAD, 6 FEET NORTH OF SIDEWALK. ELEVATION=941.17
- #1421: "X" ON NORTH RIM OF GATE WELL LOCATED IN THE SOUTHWEST QUAD OF INTERSECTION 12 MILE ROAD MEADOWCREEK, 70 FEET SOUTH OF BACK OF CURB 12 MILE ROAD AND 4 FEET EAST OF SIDEWALK. ELEVATION=923.33



LEGEND

SECTION CORNER	FOUND IRON
SET IRON	
SECTION LINE	
ROAD CENTERLINE	
EXISTING WATER MAIN	
EXISTING SANITARY SEWER	
EXISTING WATER MAIN	
EXISTING SANITARY SEWER	
EXISTING SWALE	
EXISTING FENCE LINE	
EXISTING OVERHEAD WIRES	
EXISTING UNDERGROUND UTILITY	
EXISTING CONTOUR	
EXISTING TREE / BRUSH LINE	
EXISTING FIRE HYDRANT	EXISTING AMERITECH MANHOLE
EXISTING GATE VALVE AND WELL	EXISTING CABLE TV
EXISTING WATER WELL	EXISTING ELECTRIC MANHOLE
EXISTING SANITARY MANHOLE	EXISTING TELEPHONE MANHOLE
EXISTING ROAD CATCH BASIN	EXISTING MAILBOX
EXISTING YARD CATCH BASIN	EXISTING UTILITY POLE
EXISTING STORM MANHOLE	EXISTING SIGN
EXISTING END SECTION	EXISTING GAS
EXISTING TRANSFORMER	EXISTING TREE
EXISTING UTILITY PEDESTAL	EXISTING TREE
EXISTING GRAVE HEADSTONE	EXISTING SHRUB
EXISTING GROUND	
EXISTING ASPHALT	EXISTING CONCRETE
	EXISTING GRAVEL



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NOVI SENIOR COMMUNITY PROJECT
 A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

REVISIONS

NOVI SENIOR COMMUNITY PROJECT
 A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

FAZAL KHAN & ASSOCIATES, INC.
 CIVIL ENGINEERS & LAND SURVEYORS
 4373 SCARBOROUGH STERLING HEIGHTS, MI 48313
 PHONE (586) 739-8007 FAX (586) 739-6994
 WWW.FAZALKHAN.COM

BOUNDARY AND TOPOGRAPHY

PROJECT NO. 14-032
 DATE 05-16-17
 CLIENT CA SENIOR HOLDINGS, LLC
 SCALE 1" = 50'
 DRAWN BY L.A.
 CHECKED BY O.P.
 SHEET NO. C-2

Table 1. Novi Tree Inventory (Portion of Oakland Hills Memorial Gardens)

Tag #	Common Name	Scientific Name	DBH (in)	Inches	DBH of 2" Stems (in)	Notes/Condition	Save/Remove/Replacement
1077	Black locust	<i>Robinia pseudoacacia</i>	9.6	9.0			Remove 1
1078	Black locust	<i>Robinia pseudoacacia</i>	8.5	7.5	Multiple		Remove 4
1187	Black locust	<i>Robinia pseudoacacia</i>	10.0	10.0			Remove 2
1188	Black locust	<i>Robinia pseudoacacia</i>	10.0	10.0			Remove 3
1001	Blue spruce	<i>Picea pungens</i>	27.1			SW Property Corner	Remove 3
1002	Blue spruce	<i>Picea pungens</i>	20.4	20.0			Remove 3
1003	Red maple	<i>Acer rubrum</i>	21.7	21.0			Remove 2
1004	White ash	<i>Fraxinus americana</i>	25.0	25.0		** <50% ISA Health & Condition Std. Factor	Remove 3
1005	Apple	<i>Malus spp.</i>	11.5	11.0	9.0 6.5		Remove 4
1006	Scots pine	<i>Pinus sylvestris</i>	12.0	12.0	1.3	Double	Remove 2
1007	Scots pine	<i>Pinus sylvestris</i>	16.9	16.0			Remove 2
1008	Scots pine	<i>Pinus sylvestris</i>	13.0	13.0			Remove 2
1009	Scots pine	<i>Pinus sylvestris</i>	17.1	17.0			Remove 2
1010	Scots pine	<i>Pinus sylvestris</i>	10.0	10.0			Remove 1
1011	Scots pine	<i>Pinus sylvestris</i>	12.3	12.0	11.6	Double	Remove 3
1012	Eastern cottonwood	<i>Populus deltoides</i>	11.0	11.0	9.0 7.0	Multiple	Remove 4
1013	Eastern cottonwood	<i>Populus deltoides</i>	11.5	11.5			Remove 2
1014	Eastern cottonwood	<i>Populus deltoides</i>	10.8	10.0			Remove 1
1015	Eastern cottonwood	<i>Populus deltoides</i>	8.2	8.0			Remove 1
1016	American elm	<i>Ulmus americana</i>	8.6	8.0			Remove 1
1017	Eastern red cedar	<i>Juniperus virginiana</i>	11.0	11.0			Remove 1
1018	Eastern red cedar	<i>Juniperus virginiana</i>	8.4	8.0			Remove 1
1019	American elm	<i>Ulmus americana</i>	9.5	9.0			Remove 1
1020	Eastern red cedar	<i>Juniperus virginiana</i>	12.7	12.0			Remove 1
1021	White ash	<i>Fraxinus americana</i>	12.0	12.0	11.8		Remove 2
1022	Crabapple	<i>Malus spp.</i>	10.7	10.0	6.6	Multiple	Remove 3
1023	Black willow	<i>Salix nigra</i>	9.0	9.0	7.0		Remove 1
1024	Eastern cottonwood	<i>Populus deltoides</i>	22.0	22.0			Remove 3
1025	Eastern cottonwood	<i>Populus deltoides</i>	11.0	11.0			Remove 1
1026	Eastern cottonwood	<i>Populus deltoides</i>	23.0	23.0			Remove 3
1027	Black willow	<i>Salix nigra</i>	18.0	18.0			Remove 2
1028	Black willow	<i>Salix nigra</i>	9.6	9.0	9.6 7.8	Multiple	Offsite 0
1029	Black willow	<i>Salix nigra</i>	12.0	12.0			Save 0
1030	Eastern red cedar	<i>Juniperus virginiana</i>	8.3	8.0			Save 0
1031	Eastern red cedar	<i>Juniperus virginiana</i>	10.0	10.0			Save 0
1032	Eastern red cedar	<i>Juniperus virginiana</i>	16.6	16.0			Save 0
1033	White ash	<i>Fraxinus americana</i>	12.0	12.0	8.0 8.5	Multiple, infested with emerald ash borer	Remove 0
1034	Eastern red cedar	<i>Juniperus virginiana</i>	12.0	12.0			Save 0
1035	Norway maple	<i>Acer platanoides</i>	11.5	11.0	7.0	Double	Save 0
1036	Eastern red cedar	<i>Juniperus virginiana</i>	9.1	9.0			Save 0
1037	Apple	<i>Malus spp.</i>	9.0	9.0	7.5	Double	Save 0
1038	American elm	<i>Ulmus americana</i>	9.0	9.0			Remove 1
1039	Scots pine	<i>Pinus sylvestris</i>	18.0	18.0			Remove 2
1040	Eastern red cedar	<i>Juniperus virginiana</i>	10.0	10.0	8.4	Double	Remove 3
1041	Black cherry	<i>Prunus serotina</i>	15.1	15.0			Remove 2
1042	Apple	<i>Malus spp.</i>	10.0	10.0			Remove 1
1043	Eastern cottonwood	<i>Populus deltoides</i>	8.5	8.0			Remove 1
1044	Eastern cottonwood	<i>Populus deltoides</i>	9.0	9.0			Remove 1
1045	Eastern cottonwood	<i>Populus deltoides</i>	14.9	14.0			Remove 2
1046	White ash	<i>Fraxinus americana</i>	7.9	7.0			Remove 0
1047	Black locust	<i>Robinia pseudoacacia</i>	8.5	8.0		** <50% ISA Health & Condition Std. Factor	Remove 1
1048	Eastern red cedar	<i>Juniperus virginiana</i>	9.3	9.0			Remove 1
1049	Black locust	<i>Robinia pseudoacacia</i>	12.0	12.0	9.5	Double	Remove 3
1050	Black locust	<i>Robinia pseudoacacia</i>	17.1	17.0			Remove 2
1051	Black locust	<i>Robinia pseudoacacia</i>	11.8	11.0			Remove 2
1052	Black locust	<i>Robinia pseudoacacia</i>	11.5	11.0			Remove 2
1053	Black locust	<i>Robinia pseudoacacia</i>	14.1	14.0			Remove 2
1054	Black locust	<i>Robinia pseudoacacia</i>	12.4	12.0	11.5	Double	Remove 3
1055	Black locust	<i>Robinia pseudoacacia</i>	12.6	12.0	10.5	Double	Remove 3
1056	Black locust	<i>Robinia pseudoacacia</i>	11.0	11.0			Remove 1
1057	Black locust	<i>Robinia pseudoacacia</i>	12.4	12.0			Remove 2
1058	Black locust	<i>Robinia pseudoacacia</i>	14.3	14.0			Remove 2
1059	Black locust	<i>Robinia pseudoacacia</i>	8.6	8.0			Remove 1
1060	Black locust	<i>Robinia pseudoacacia</i>	10.1	10.0			Remove 1
1061	Black locust	<i>Robinia pseudoacacia</i>	14.5	14.0			Remove 2
1062	Black locust	<i>Robinia pseudoacacia</i>	11.3	11.0			Remove 2
1063	Black locust	<i>Robinia pseudoacacia</i>	10.3	10.0			Remove 1
1064	Black locust	<i>Robinia pseudoacacia</i>	8.3	8.0			Remove 1
1065	American elm	<i>Ulmus americana</i>	19.5	19.0			Remove 2
1066	Apple	<i>Malus spp.</i>	9.8	9.0			Remove 1
1067	Scots pine	<i>Pinus sylvestris</i>	12.7	12.0			Remove 2
1068	Black cherry	<i>Prunus serotina</i>	8.6	8.0			Remove 1
1069	Black cherry	<i>Prunus serotina</i>	9.0	9.0			Remove 1
1070	Black cherry	<i>Prunus serotina</i>	8.6	8.0			Remove 1
1071	Apple	<i>Malus spp.</i>	8.9	8.0			Remove 1
1072	Black walnut	<i>Juglans nigra</i>	12.0	12.0			Remove 1
1073	Box elder	<i>Acer negundo</i>	15.8	15.0	15.8 14.8	Multiple	Remove 6
1074	Box elder	<i>Acer negundo</i>	9.0	9.0			Remove 1
1075	Apple	<i>Malus spp.</i>	12.0	12.0	11.0	Double	Remove 3
1076	Douglas fir	<i>Pseudotsuga menziesii</i>	11.0	11.0			Remove 2
1077	Douglas fir	<i>Pseudotsuga menziesii</i>	11.9	11.0			Remove 2
1078	Blue spruce	<i>Picea pungens</i>	17.9	17.0			Remove 2
1079	White ash	<i>Fraxinus americana</i>	24.5	24.0			Remove 4
1080	Box elder	<i>Acer negundo</i>	21.0	21.0			Remove 3
1081	Norway spruce	<i>Picea abies</i>	17.8	17.0			Remove 2
1082	Norway spruce	<i>Picea abies</i>	16.8	16.0			Remove 2
1083	Eastern red cedar	<i>Juniperus virginiana</i>	10.0	10.0			Remove 1
1084	Norway spruce	<i>Picea abies</i>	14.8	14.0			Remove 2
1085	Norway spruce	<i>Picea abies</i>	12.8	12.0			Remove 2
1086	Weeping willow	<i>Salix x sepulcralis</i>	30.0	30.0	12.0	Double	Remove 6
1087	Black locust	<i>Robinia pseudoacacia</i>	9.4	9.0			Remove 1
1088	Box elder	<i>Acer negundo</i>	9.0	9.0			Remove 1
1089	Box elder	<i>Acer negundo</i>	11.3	11.0	9.3	Double	Remove 3
1090	Box elder	<i>Acer negundo</i>	20.0	20.0	16.0	Double	Remove 5
1091	Black walnut	<i>Juglans nigra</i>	11.9	11.0			Remove 2
1092	Green ash	<i>Fraxinus pennsylvanica</i>	11.6	11.0			Remove 2
1093	Box elder	<i>Acer negundo</i>	12.3	12.0			Remove 2
1094	Silver maple	<i>Acer spicatum</i>	15.1	15.0	11.5	Double	Remove 4
1095	Silver maple	<i>Acer spicatum</i>	27.0	27.0			Remove 3
1096	Silver maple	<i>Acer spicatum</i>	20.0	20.0	16.4 9.3	Multiple	Remove 6
1097	American elm	<i>Ulmus americana</i>	9.5	9.0			Remove 1
1098	Black locust	<i>Robinia pseudoacacia</i>	9.3	9.0			Remove 1
1099	American elm	<i>Ulmus americana</i>	9.6	9.0			Remove 1
1100	Black locust	<i>Robinia pseudoacacia</i>	8.0	8.0			Remove 1
1101	Black locust	<i>Robinia pseudoacacia</i>	10.8	10.0	7.3	Double	Remove 3
1102	Black locust	<i>Robinia pseudoacacia</i>	11.2	11.0			Remove 2
1103	American elm	<i>Ulmus americana</i>	9.3	9.0			Remove 1
1104	Silver maple	<i>Acer spicatum</i>	28.0	28.0	25.0 23.0	Multiple	Remove 3
1105	Silver maple	<i>Acer spicatum</i>	10.9	10.0	8.8		Remove 3
1106	Eastern cottonwood	<i>Populus deltoides</i>	24.0	24.0		Previous tag #1108	Remove 3
1107	Green ash	<i>Fraxinus pennsylvanica</i>	9.3	9.0			Remove 1
1108	Black locust	<i>Robinia pseudoacacia</i>	8.5	8.0			Remove 1
1109	Black locust	<i>Robinia pseudoacacia</i>	11.6	11.0			Remove 2
1110	Black locust	<i>Robinia pseudoacacia</i>	8.3	8.0			Remove 1
1111	Black locust	<i>Robinia pseudoacacia</i>	10.3	10.0			Remove 1
1112	Black locust	<i>Robinia pseudoacacia</i>	10.3	10.0			Remove 1
1113	Black locust	<i>Robinia pseudoacacia</i>	11.8	11.0			Remove 2
1114	Black locust	<i>Robinia pseudoacacia</i>	10.0	10.0		** <50% ISA Health & Condition Std. Factor	Remove 1
1115	Black locust	<i>Robinia pseudoacacia</i>	11.5	11.0			Remove 1
1116	Black locust	<i>Robinia pseudoacacia</i>	8.4	8.0			Remove 1
1117	Black locust	<i>Robinia pseudoacacia</i>	11.6	11.0			Remove 2
1118	Black locust	<i>Robinia pseudoacacia</i>	9.8	9.0		** <50% ISA Health & Condition Std. Factor	Remove 1
1119	Black locust	<i>Robinia pseudoacacia</i>	11.2	11.0			Remove 2
1120	Black locust	<i>Robinia pseudoacacia</i>	11.8	11.0			Remove 2
1121	Black locust	<i>Robinia pseudoacacia</i>	13.0	13.0			Remove 2
1122	Black locust	<i>Robinia pseudoacacia</i>	8.3	8.0			Remove 1
1123	Black locust	<i>Robinia pseudoacacia</i>	9.8	9.0			Remove 1
1124	Black locust	<i>Robinia pseudoacacia</i>	9.4	9.0			Remove 1
1125	Black locust	<i>Robinia pseudoacacia</i>	12.0	12.0			Remove 2
1126	Black locust	<i>Robinia pseudoacacia</i>	11.4	11.0			Remove 2
1127	Black locust	<i>Robinia pseudoacacia</i>	13.9	13.0			Remove 2
1128	Black locust	<i>Robinia pseudoacacia</i>	12.5	12.0			Save 0
1129	Black maple	<i>Acer nigrum</i>	8.8	8.0			Remove 1
1130	Black locust	<i>Robinia pseudoacacia</i>	17.5	17.0			Remove 2
1131	American elm	<i>Ulmus americana</i>	11.6	11.0			Remove 2
1132	Black locust	<i>Robinia pseudoacacia</i>	10.5	10.0			Remove 1
1133	Black locust	<i>Robinia pseudoacacia</i>	9.5	9.0			Remove 1
1134	Black locust	<i>Robinia pseudoacacia</i>	10.9	10.0			Remove 1
1135	Black locust	<i>Robinia pseudoacacia</i>	11.0	11.0			Remove 1

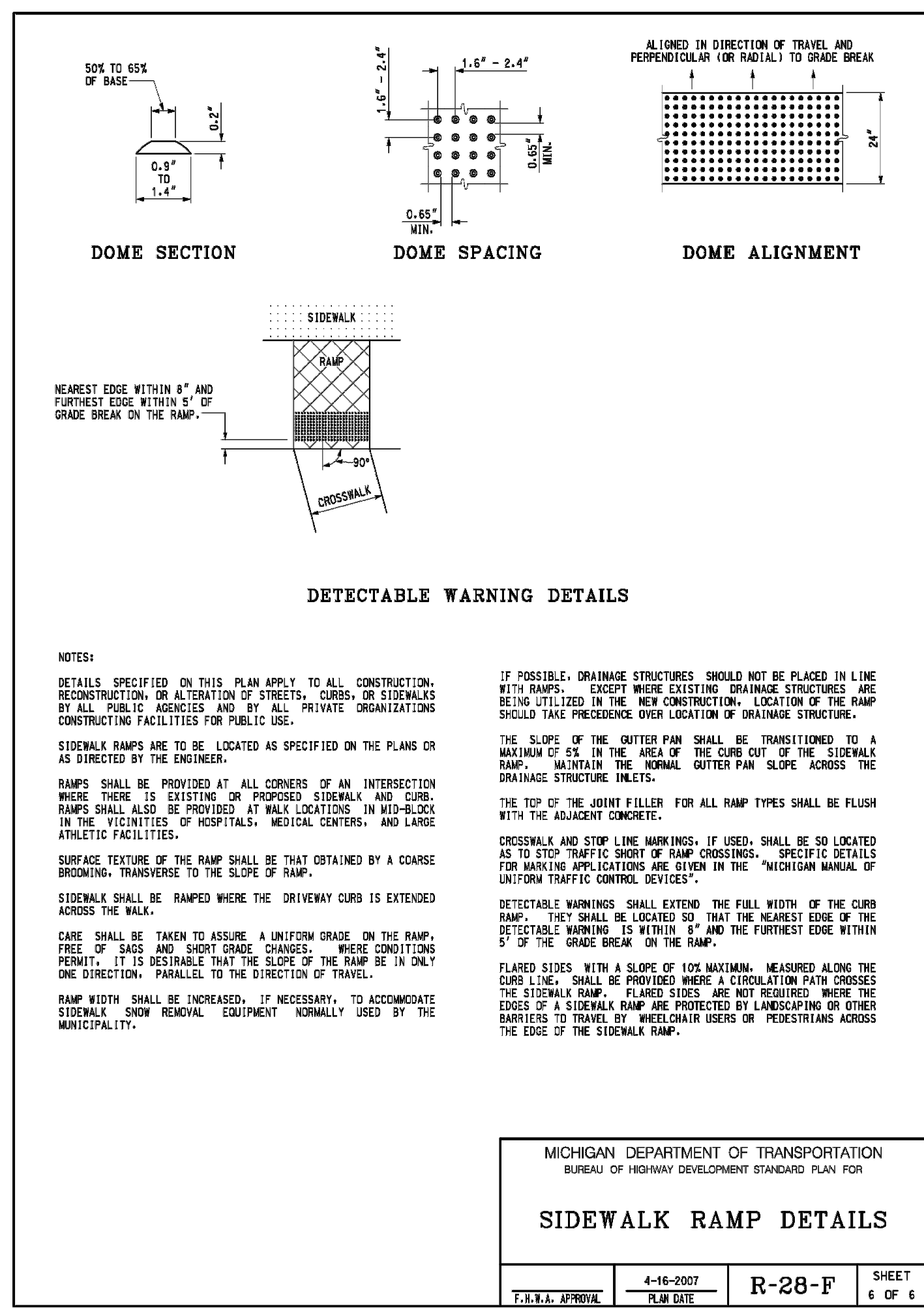
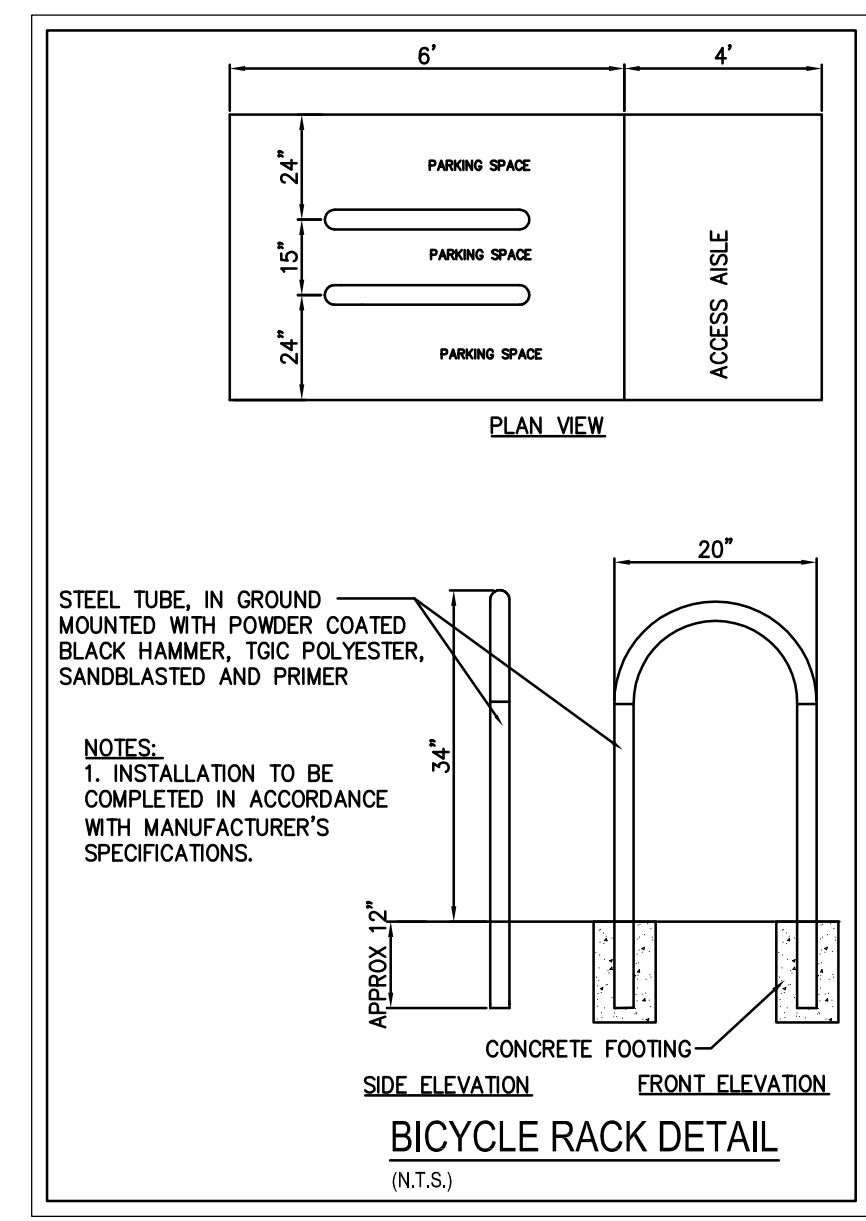
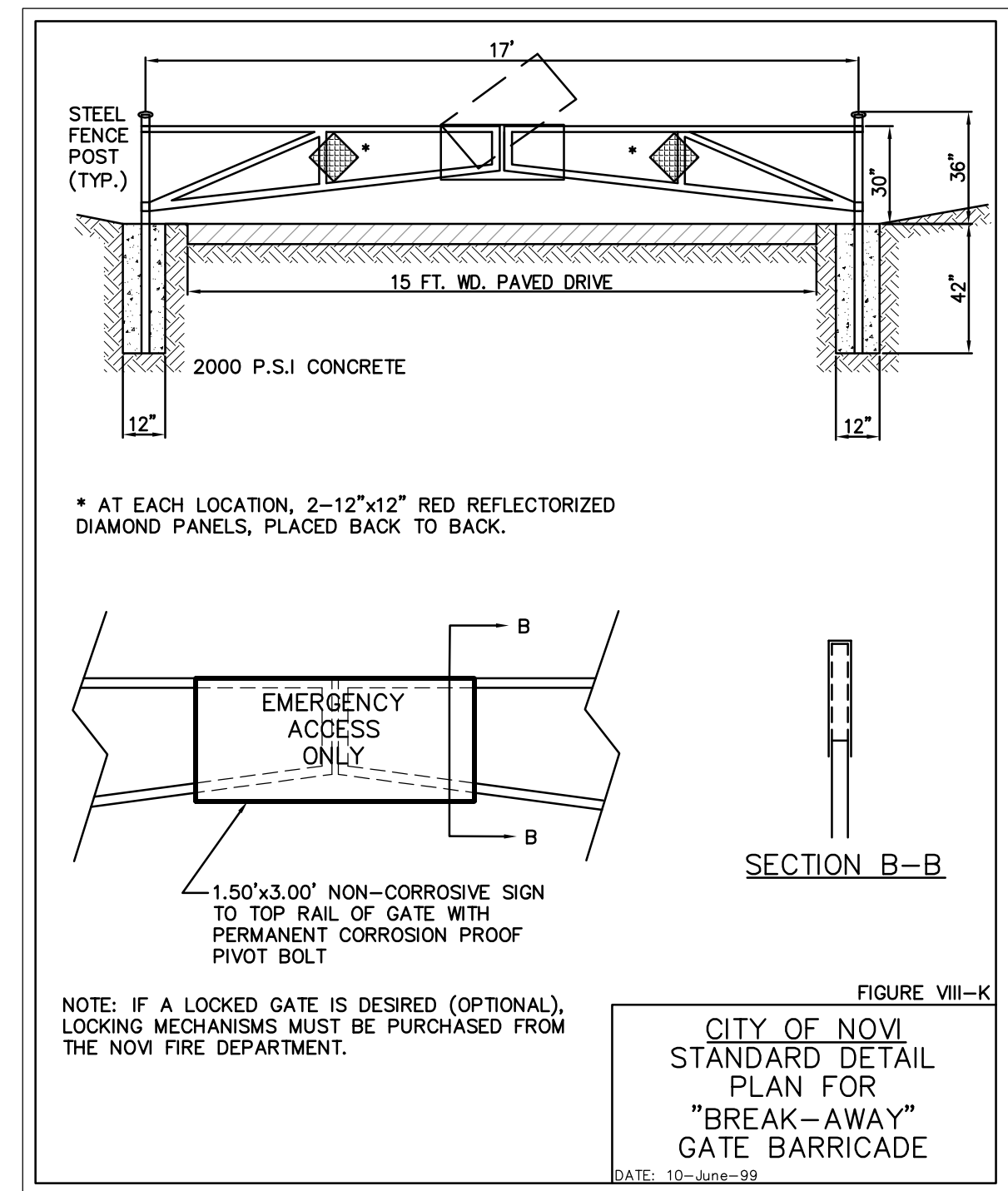
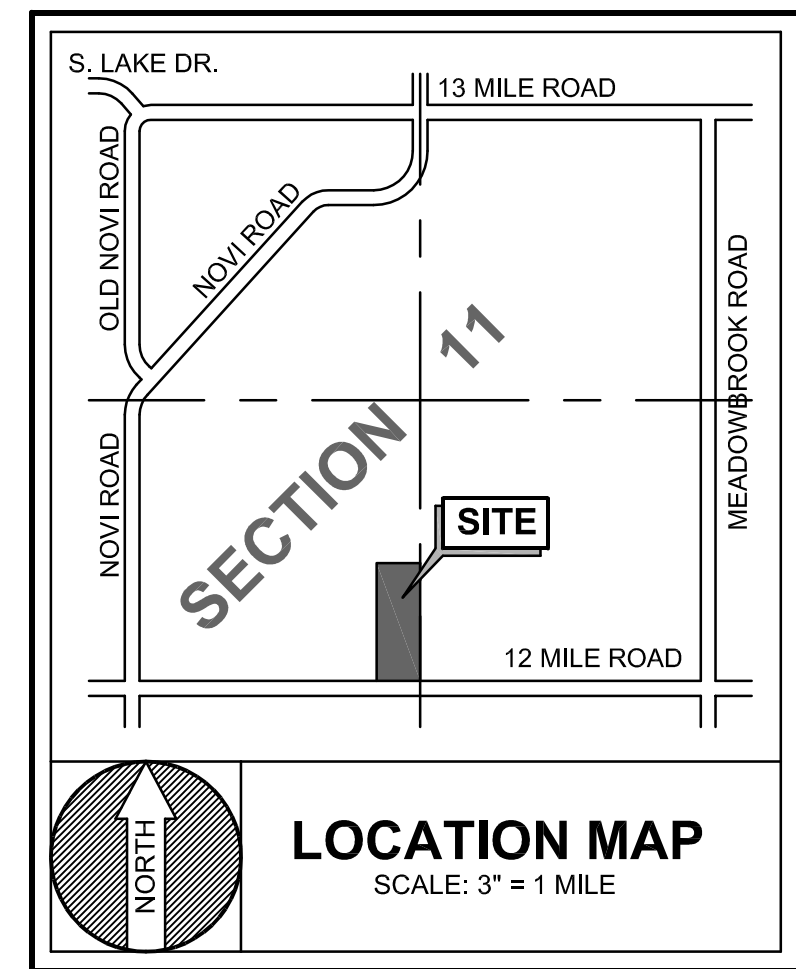
** Trees < 50% condition rating, all others >50% rating

Bold tag numbers indicate specimen trees

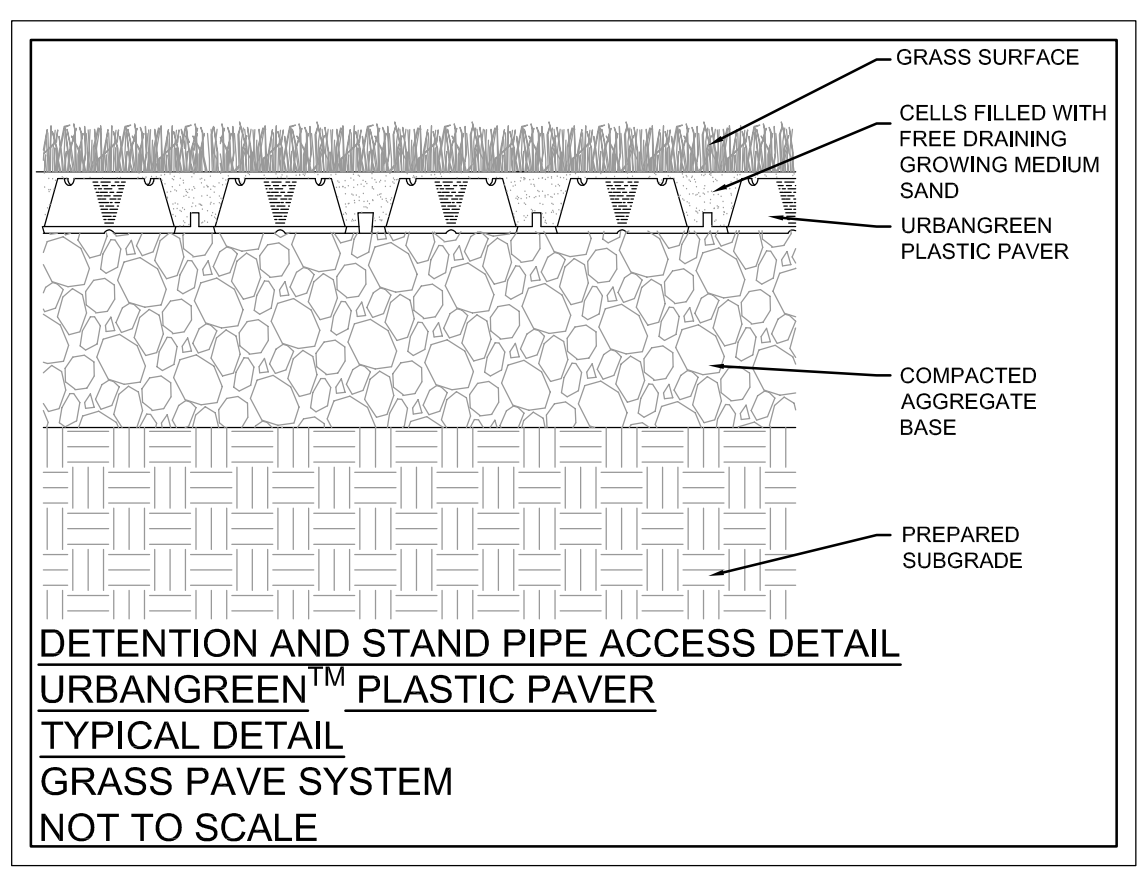
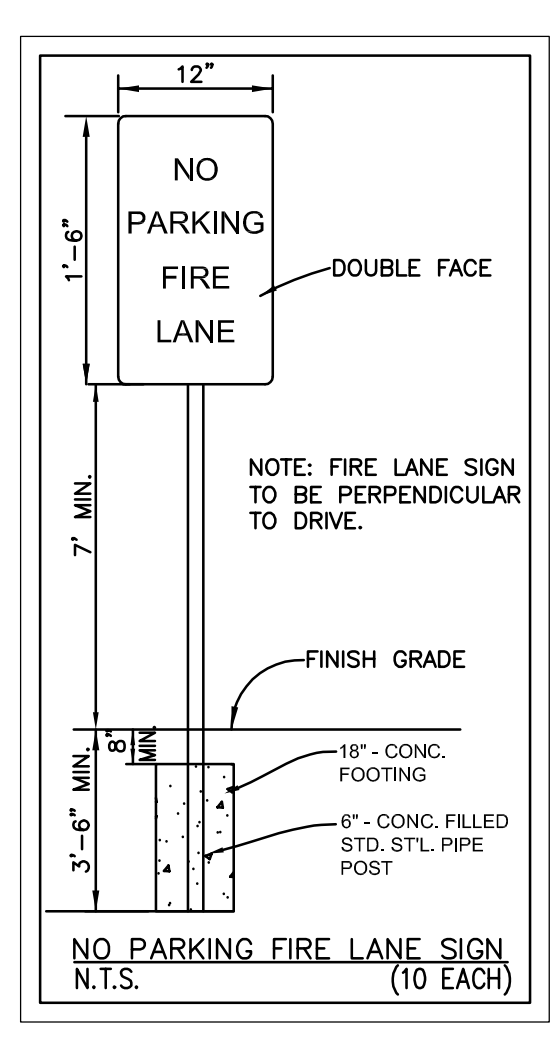
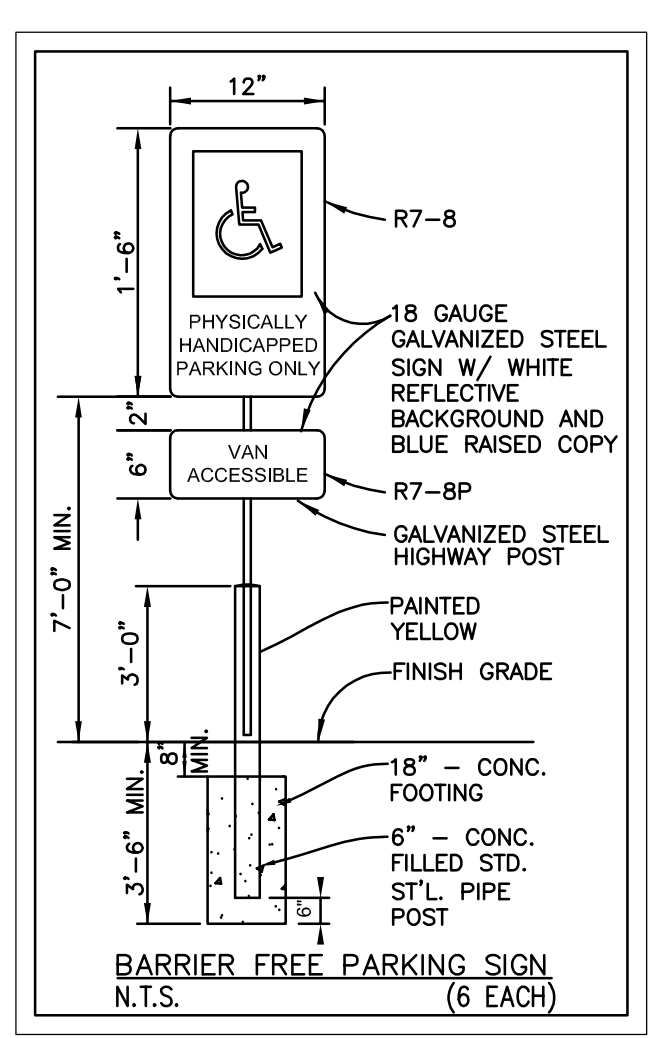
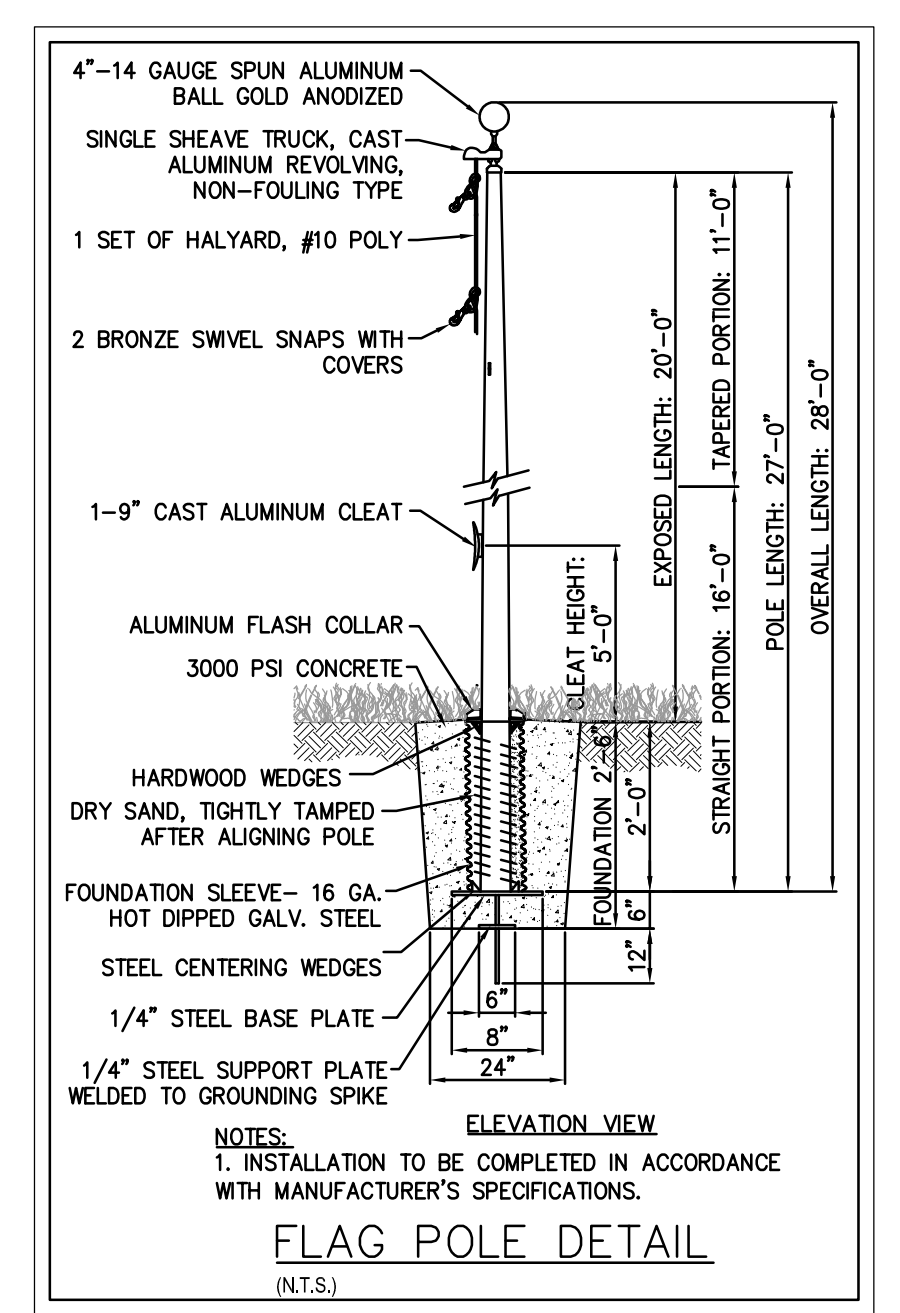
Tag #	Common Name	Scientific Name	DBH (in)	Inches	DBH of 2" Stems (in)	Notes/Condition	Save/Remove/Replacement
1136	Black locust	<i>Robinia pseudoacacia</i>	9.6	9.0			Remove 1
1137	Black locust	<i>Robinia pseudoacacia</i>	12.3	12.0			Remove 4
1138	Black locust	<i>Robinia pseudoacacia</i>	12.3	12.0			Remove 2
1139	Black locust	<i>Robinia pseudoacacia</i>	10.0	10.0			Remove 1
1140	Eastern cottonwood	<i>Populus deltoides</i>	13.3	13.0			Remove 2
1141	Northern red oak	<i>Quercus rubra</i>	10.0	10.0			Remove 1
1142	Eastern cottonwood	<i>Populus deltoides</i>	23.0	23.0			Remove 3
1143	Eastern cottonwood	<i>Populus deltoides</i>	19.0	19.0			Remove 2
1144	Black locust	<i>Robinia pseudoacacia</i>	10.9	10.0			Remove 1
1145	Black locust	<i>Robinia pseudoacacia</i>	8.1	8.0			Remove 1
1146	Black locust	<i>Robinia pseudoacacia</i>	9.1	9.0			Remove 1
1147	Black locust	<i>Robinia pseudoacacia</i>	8.6	8.0			Remove 1
1148	Black locust	<i>Robinia pseudoacacia</i>	9.0	9.0			Save 0
1149	Black locust	<i>Robinia pseudoacacia</i>	8.3	8.0			Remove 1
1150	Black locust	<i>Robinia pseudoacacia</i>	8.8	8.0			Remove 1
1151	Black locust	<i>Robinia pseudoacacia</i>	8.1	8.0			Remove 1
1152	Black locust	<i>Robinia pseudoacacia</i>	11.1	11.0			Remove 2
1153	Black locust	<i>Robinia pseudoacacia</i>	8.8	8.0			Remove 1
1154	American elm	<i>Ulmus americana</i>	10.8	10.0			Remove 1
1155	Black locust	<i>Robinia pseudoacacia</i>	8.4	8.0			Remove 1
1156	Northern red oak	<i>Quercus rubra</i>	16.0	16.0			Remove 2
1157	Black locust	<i>Robinia pseudoacacia</i>	8.8	8.0			Remove 1
1158	Scots pine	<i>Pinus sylvestris</i>	12.3	12.0			Remove 2
1159	Northern red oak	<i>Quercus rubra</i>	16.8	16.0			Save 0
1160	Red maple	<i>Acer rubrum</i>	17.0	17.0	15.0	Double	Save 0
1161	Northern red oak	<i>Quercus rubra</i>	16.5	16.0			Save 0
1162	Scots pine	<i>Pinus sylvestris</i>	14.4	14.0			Save 0
1163	Northern red oak	<i>Quercus rubra</i>	10.0	10.0			Save 0
1164	Black maple	<i>Acer nigrum</i>	9.5	9.0			Save 0
1165	Eastern cottonwood	<i>Populus deltoides</i>	14.3	14.0			Offsite 0
1166	Eastern cottonwood	<i>Populus deltoides</i>	29.0	29.0			Offsite

NOVI SENIOR COMMUNITY PROJECT

A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH,
RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN



NOTE: ALL ONSITE SIGNING AND PAVEMENT MARKINGS SHALL BE IN COMPLIANCE WITH THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.



TRAFFIC CONTROL SIGN QUANTITIES

"NO PARKING FIRE LANE" SIGN	14 EA.
"BARRIER FREE PARKING" SIGN	6 EA.
"STOP" SIGN	1 EA.

CALL MISS DIG (3 WORKING DAYS) BEFORE YOU DIG 1-800-482-7171 CALL811.COM (TOLL FREE)

BY: M.J.R.

REMARKS:

DATE: 12/15/16

FOR CITY REVIEW:

REVISIONS:

NOVI SENIOR COMMUNITY PROJECT
A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

FAZAL KHAN & ASSOCIATES, INC.
CIVIL ENGINEERS & LAND SURVEYORS
4373 SCHAUBERTS, STERLING HEIGHTS, MI 48313
PHONE (586) 739-8007 FAX (586) 739-6994
WWW.FAZALKHAN.COM

PRELIMINARY SITE PLAN DETAILS

PROJECT NO. 14-032
DATE 05-16-17
DRAWN BY L.A.
CHECKED BY O.P.

CLIENT: CA SENIOR LIVING HOLDINGS, LLC
SCALE: NO SCALE

PRELIMINARY CONSTRUCTION AS-BUILT

SHEET NO. C-6

BENCHMARK LIST

#1104: "X" ON NORTH RIM OF GATE WELL LOCATED IN THE NORTHWEST QUAD OF INTERSECTION 12 MILE ROAD AND NOVI ROAD, 5 FEET WEST OF SIDEWALK AND 15 FEET NORTH OF BACK OF CURB. ELEVATION=951.89

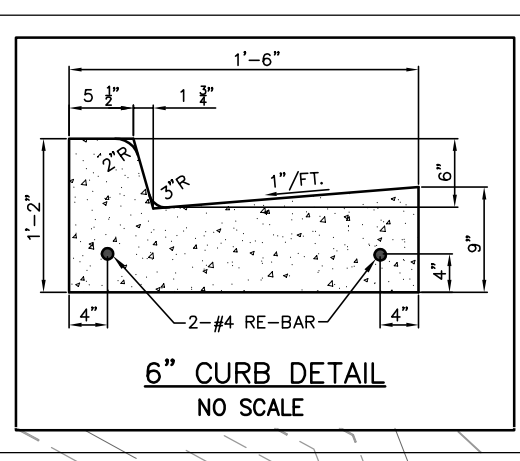
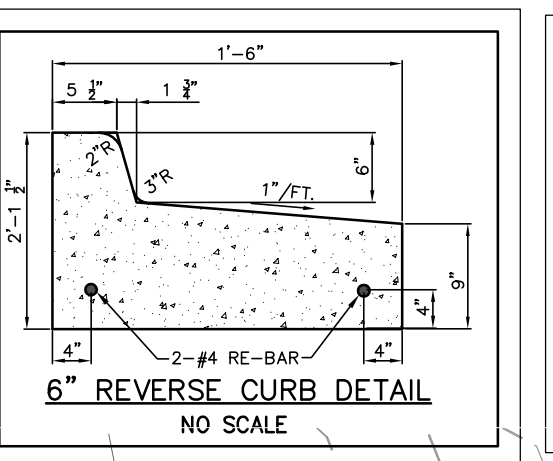
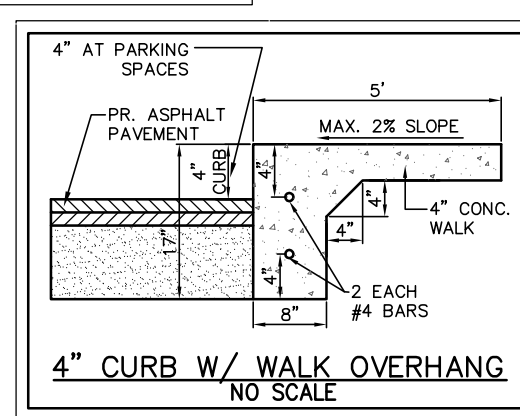
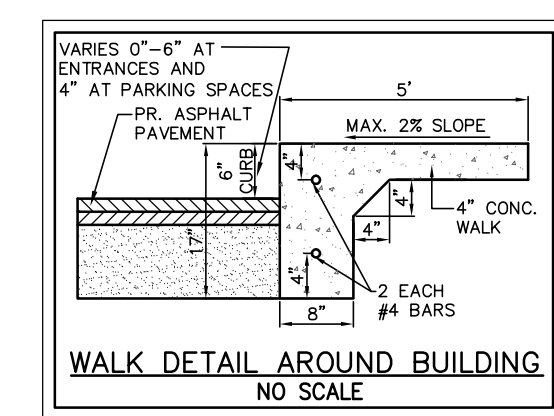
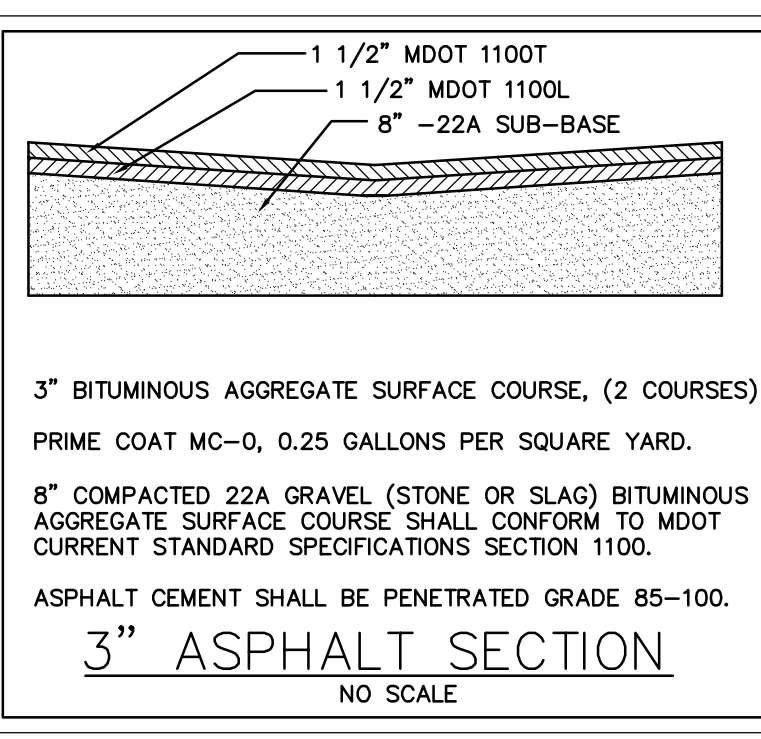
#1411: "X" ON NORTH RIM OF GATE WELL LOCATED BETWEEN LOTS #432234025 12 MILE ROAD, SOUTH OF 12 MILE ROAD AND 3 FEET SOUTH OF SIDEWALK. ELEVATION=944.39

#1412: "X" ON NORTH RIM OF GATE WELL LOCATED 6 FEET EAST OF WEST ENTRANCE TO 12 OAKS MALL OF 12 MILE ROAD, 15 FEET SOUTH OF SIDEWALK. ELEVATION=915.33

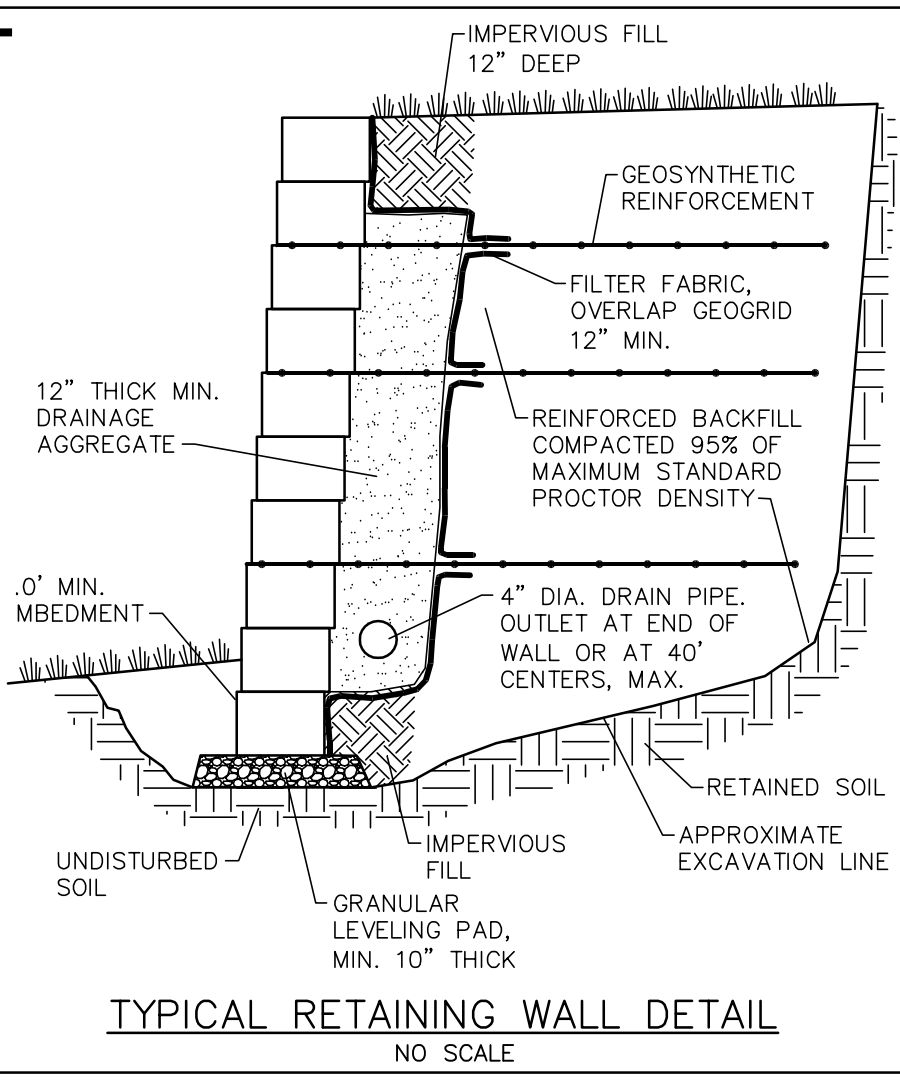
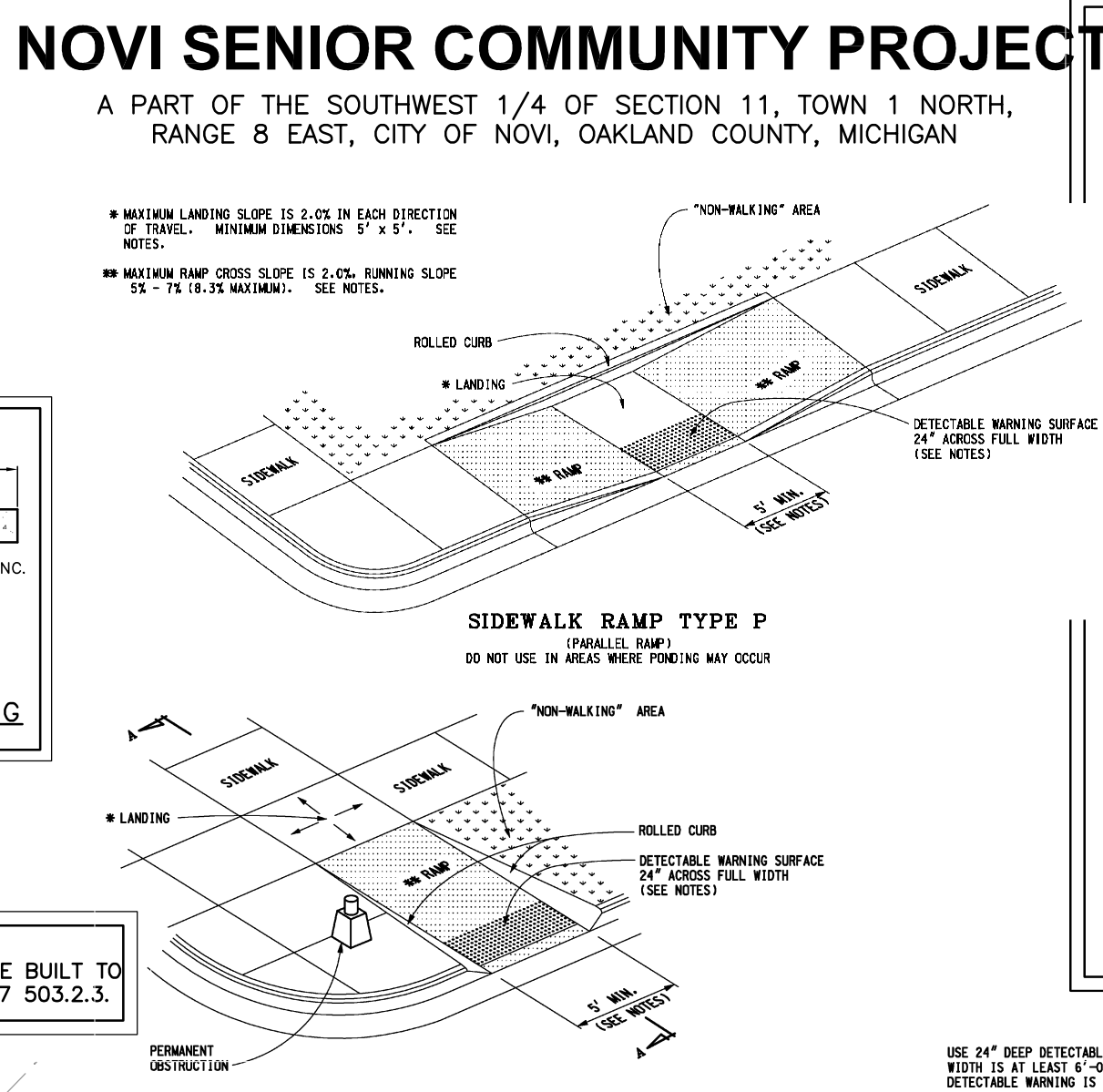
#1422: "X" ON NORTH RIM OF GATE WELL LOCATED 100 FEET EAST OF INTERSECTION EAST OF 12 OAKS ENTRANCE AND 12 MILE ROAD, 7 FEET SOUTH BACK CURB. ELEVATION=944.91

#1423: "X" ON SOUTH FLANGE BOLT OF FIRE HYDRANT LOCATED 380 FEET EAST OF INTERSECTION ENTRANCE TO DETROIT MEDICAL CENTER REHABILITATION CENTER AND 12 MILE ROAD, 6 FEET NORTH OF SIDEWALK. ELEVATION=941.17

#1421: "X" ON NORTH RIM OF GATE WELL LOCATED IN THE SOUTHWEST QUAD OF INTERSECTION 12 MILE ROAD MEADOWCREEK, 70 FEET SOUTH OF BACK OF CURB 12 MILE ROAD AND 4 FEET EAST OF SIDEWALK. ELEVATION=923.33



NOTE:
ALL ROADS AND ACCESS DRIVES MUST BE BUILT TO SUPPORT 35 TON. CITY ORDINANCE 15-17 503.2.3.



LEGEND

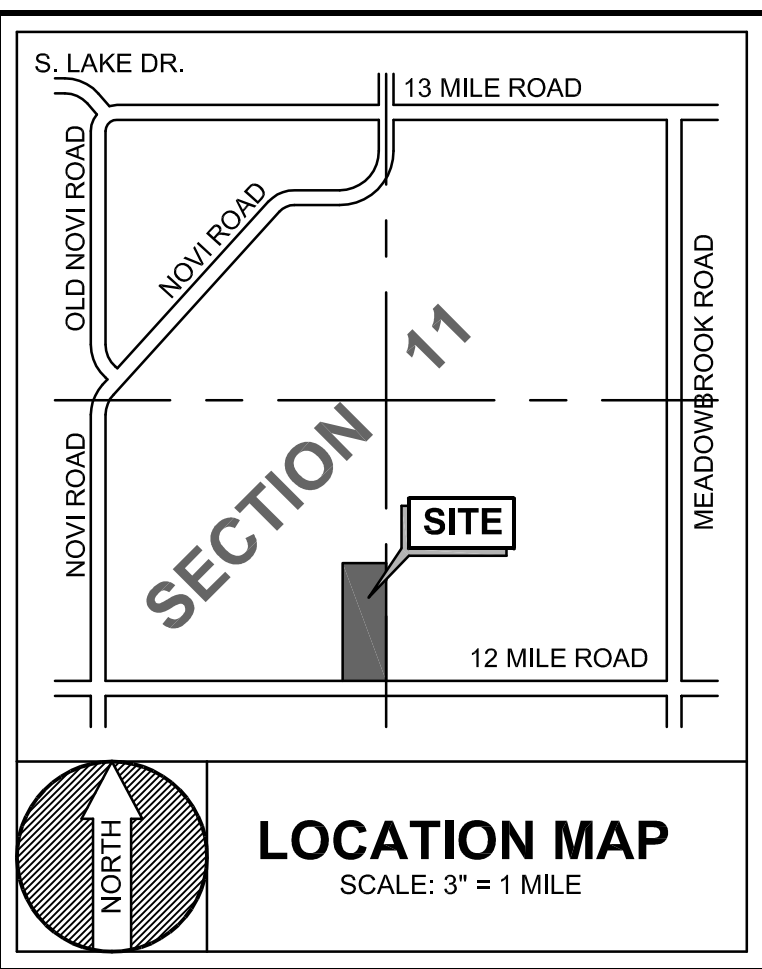
SECTION CORNER
FOUND IRON SET IRON

SECTION LINE
ROAD CENTERLINE
EXISTING WATER MAIN
EXISTING SANITARY SEWER
EXISTING STORM SEWER
EXISTING SWALE
EXISTING FENCE LINE
EXISTING OVERHEAD WIRES
EXISTING UNDERGROUND UTILITY
EXISTING CONTOUR
EXISTING TREE / BRUSH LINE

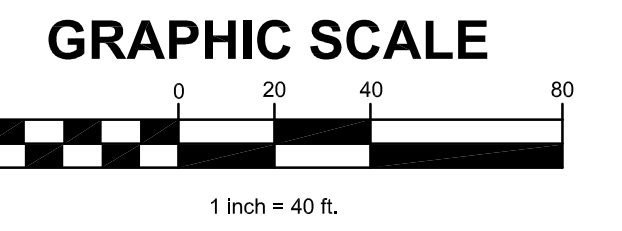
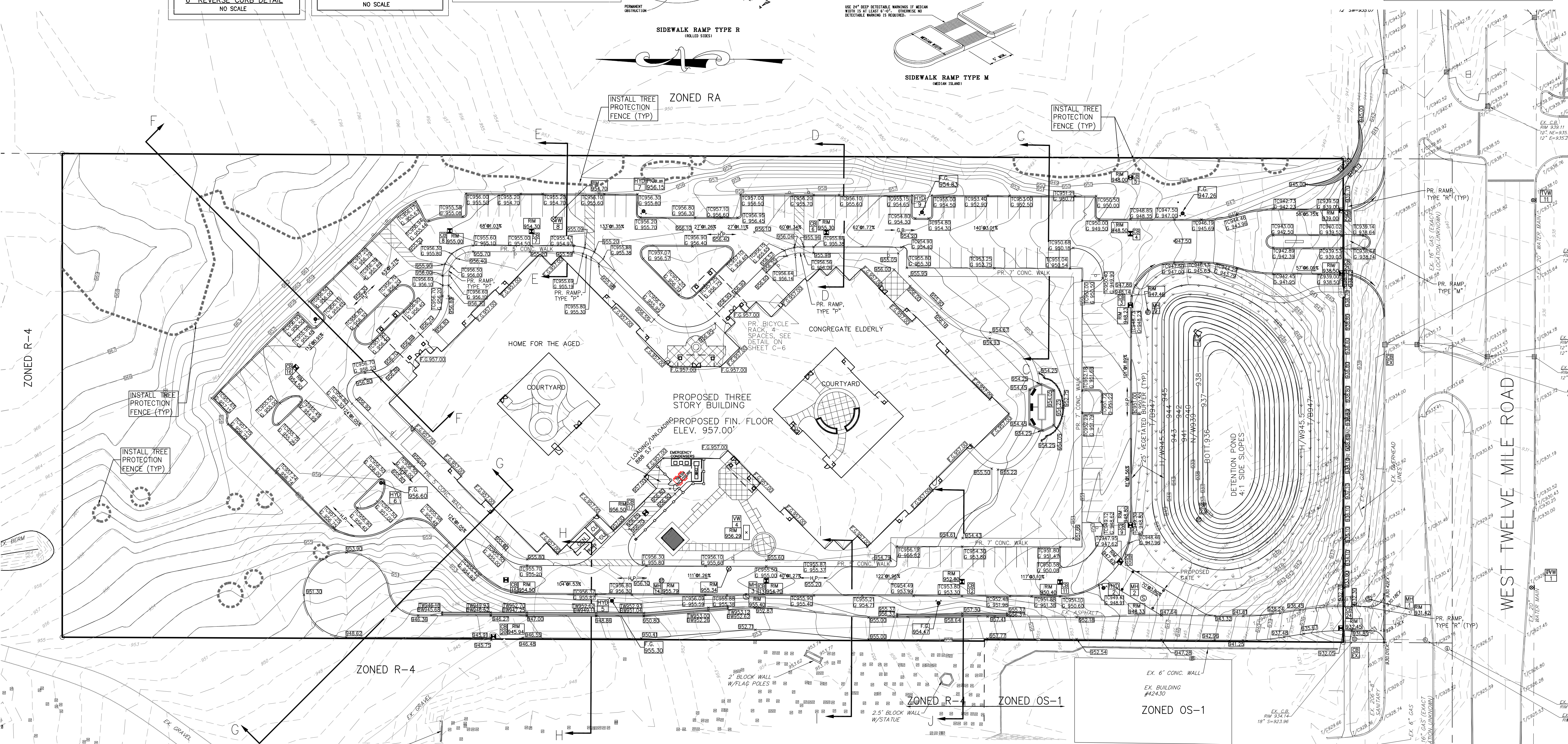
EXISTING FIRE HYDRANT
EXISTING GATE VALVE AND WELL
EXISTING WATER WELL
EXISTING SANITARY MANHOLE
EXISTING ROAD CATCH BASIN
EXISTING YARD CATCH BASIN
EXISTING STORM MANHOLE
EXISTING END SECTION
EXISTING TRANSFORMER
EXISTING UTILITY PEDESTAL
EXISTING GRAVE HEADSTONE
EXISTING GROUND

EXISTING AMERITECH MANHOLE
EXISTING CABLE TV
EXISTING ELECTRIC MANHOLE
EXISTING TELEPHONE MANHOLE
EXISTING MAILBOX
EXISTING UTILITY POLE
EXISTING SIGN
EXISTING GAS
EXISTING TREE
EXISTING SHRUB

EXISTING ASPHALT
EXISTING CONCRETE
EXISTING GRAVEL



NOTE:
ALL WORK SHALL CONFORM TO THE CURRENT CITY OF NOVI STANDARDS AND SPECIFICATIONS.



CALL MISS DIG (3 WORKING DAYS) BEFORE YOU DIG 1-800-882-7171
CALL 811 (TOLL FREE)

DATE: 10/15/16
BY: M.J.B.

REVISIONS

NOVI SENIOR COMMUNITY PROJECT
A PART OF THE SOUTHWEST QUAD OF SECTION 11, TOWN 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

FAZAL KHAN & ASSOCIATES, INC.
CIVIL ENGINEERS & LAND SURVEYORS
4370 SCARBOROUGH STEERING HEIGHTS, MICHIGAN 48134
PHONE (586) 739-8907 FAX (586) 739-8994
WWW.FAZALKHAN.COM

PRELIMINARY GRADING PLAN

SHEET NO. C-7

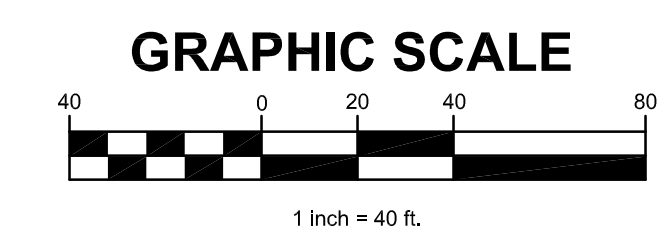
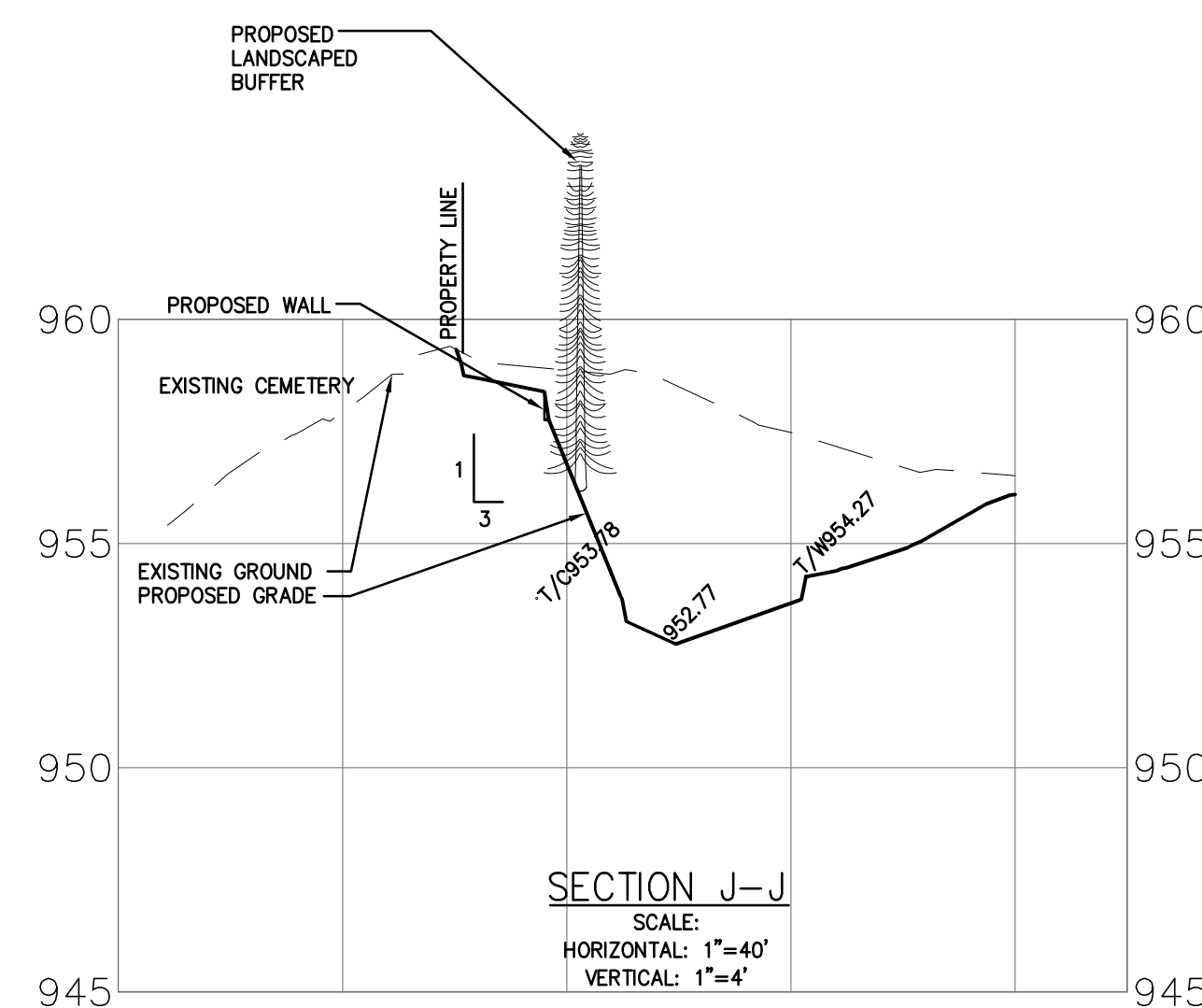
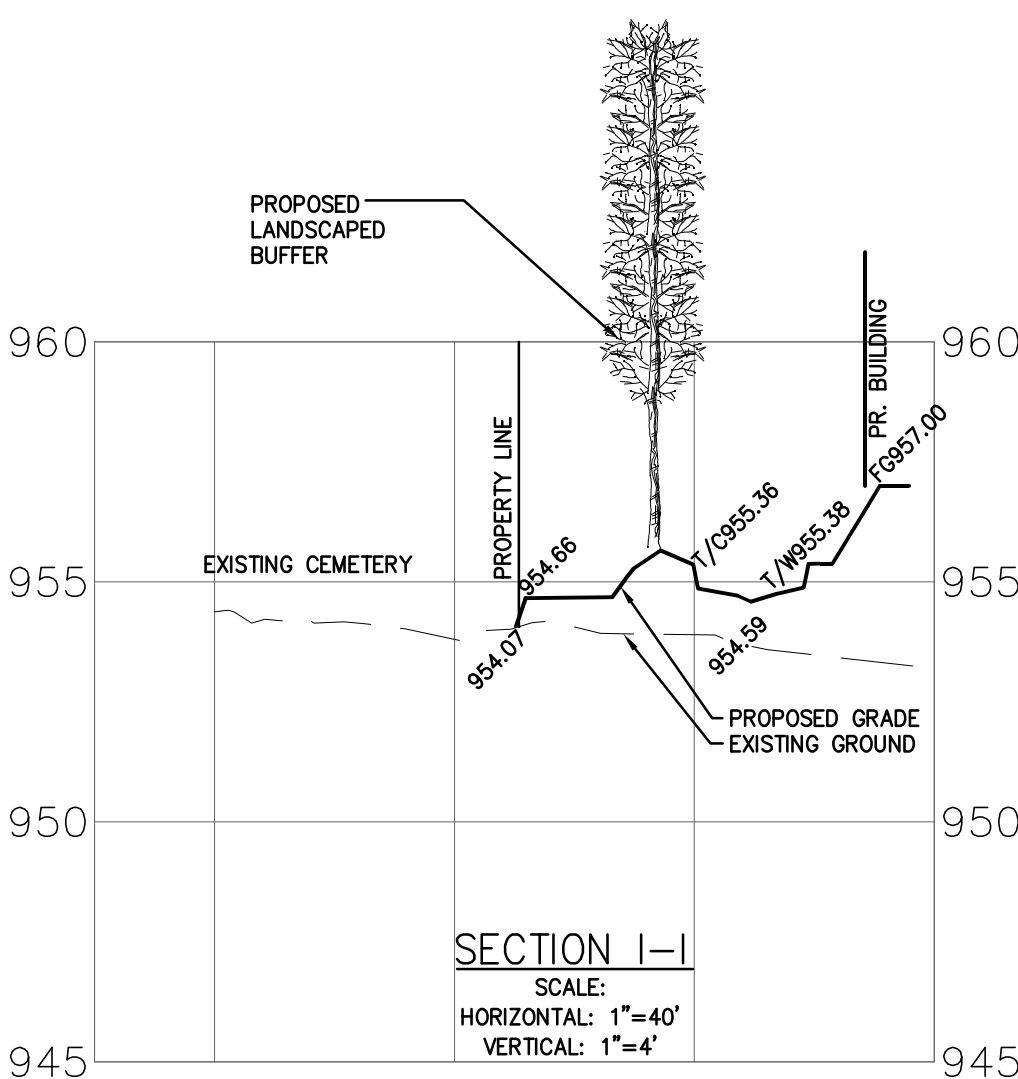
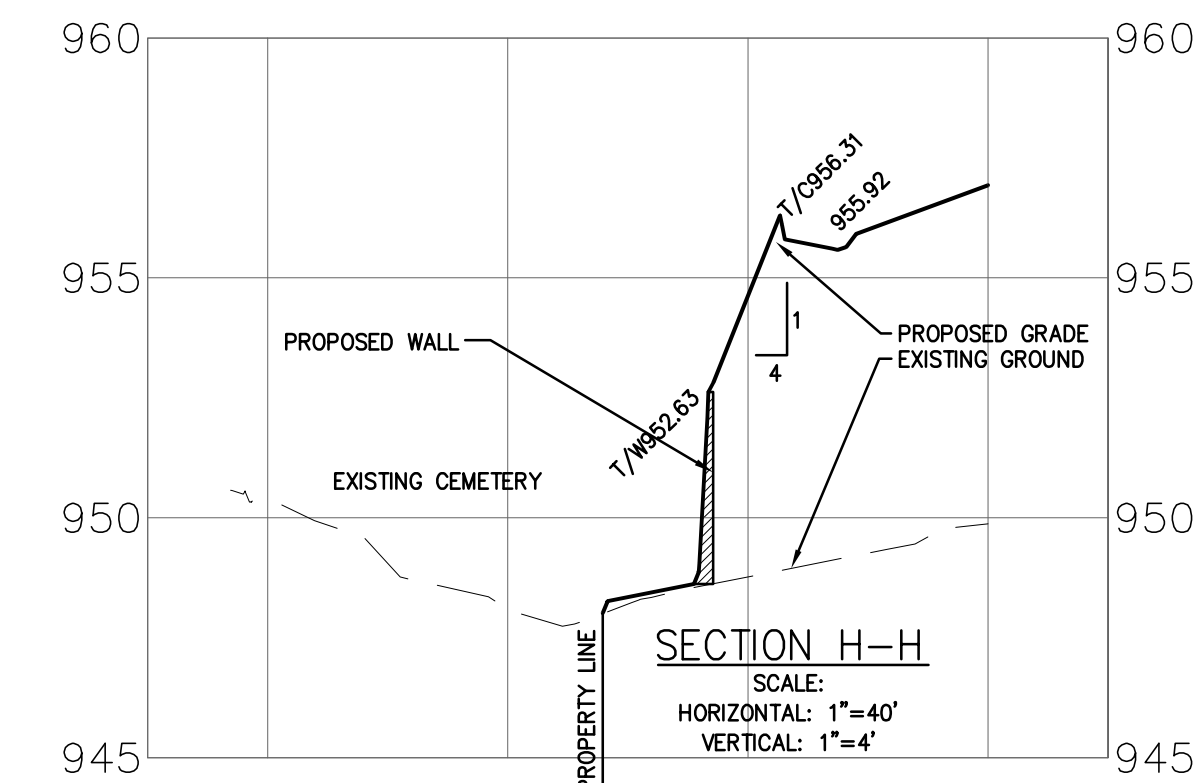
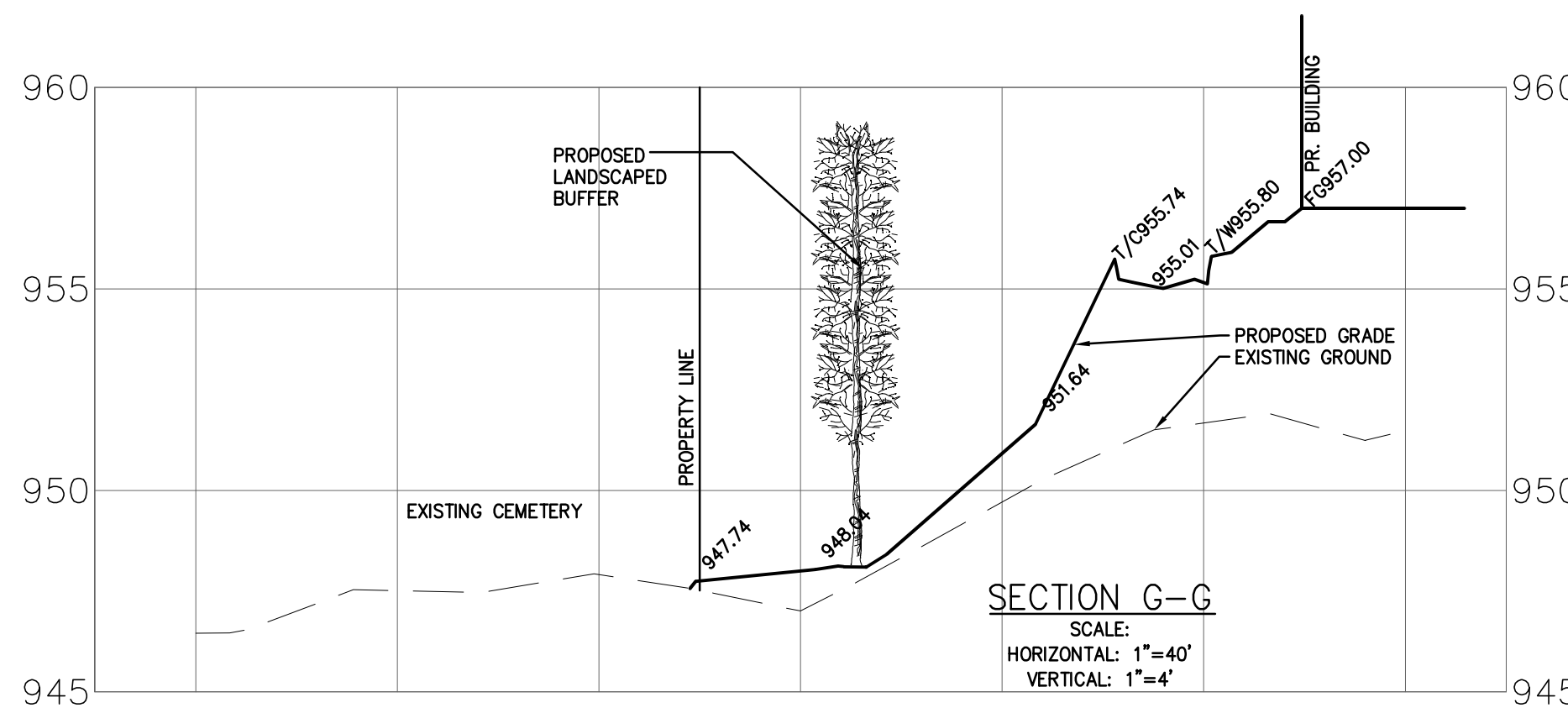
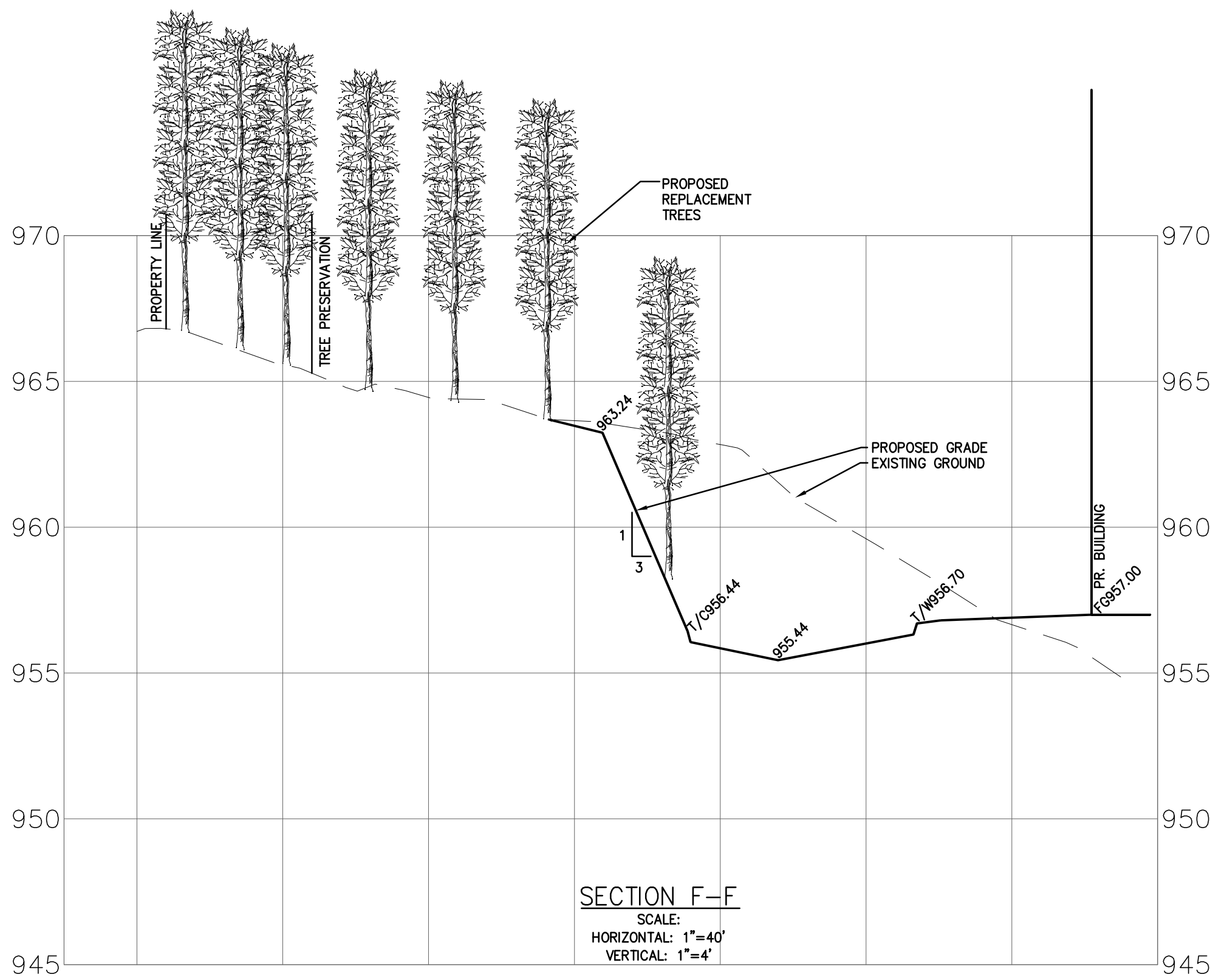
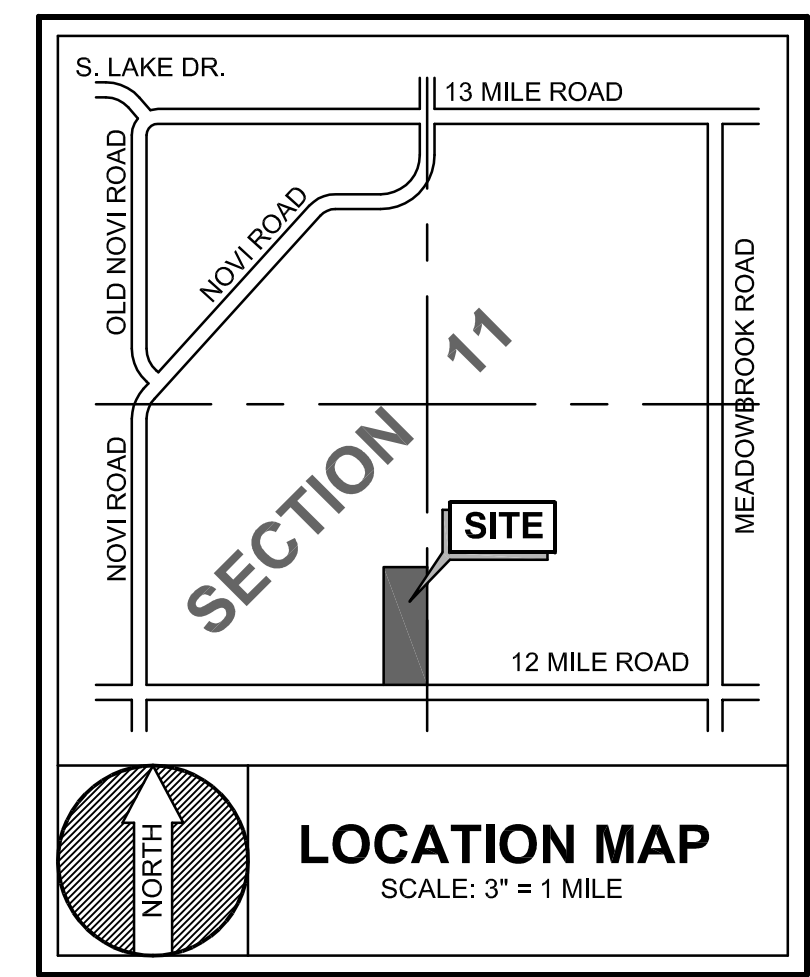
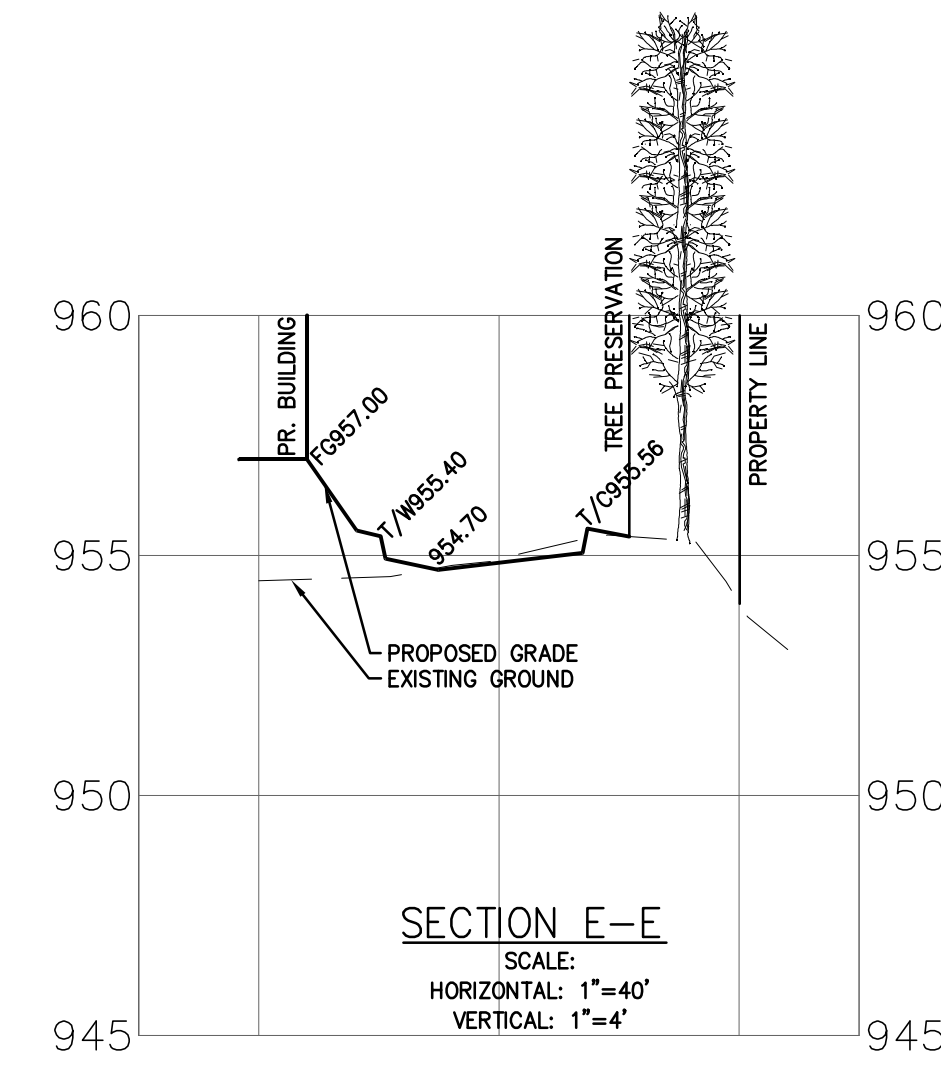
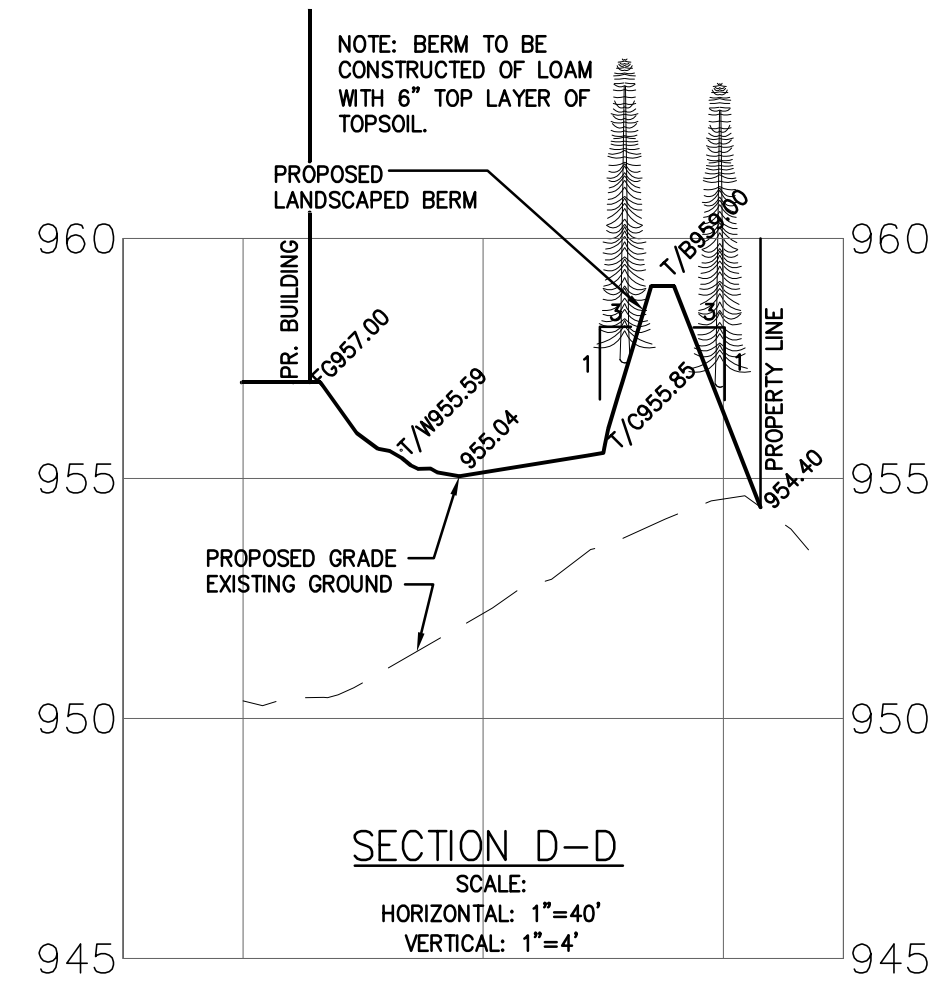
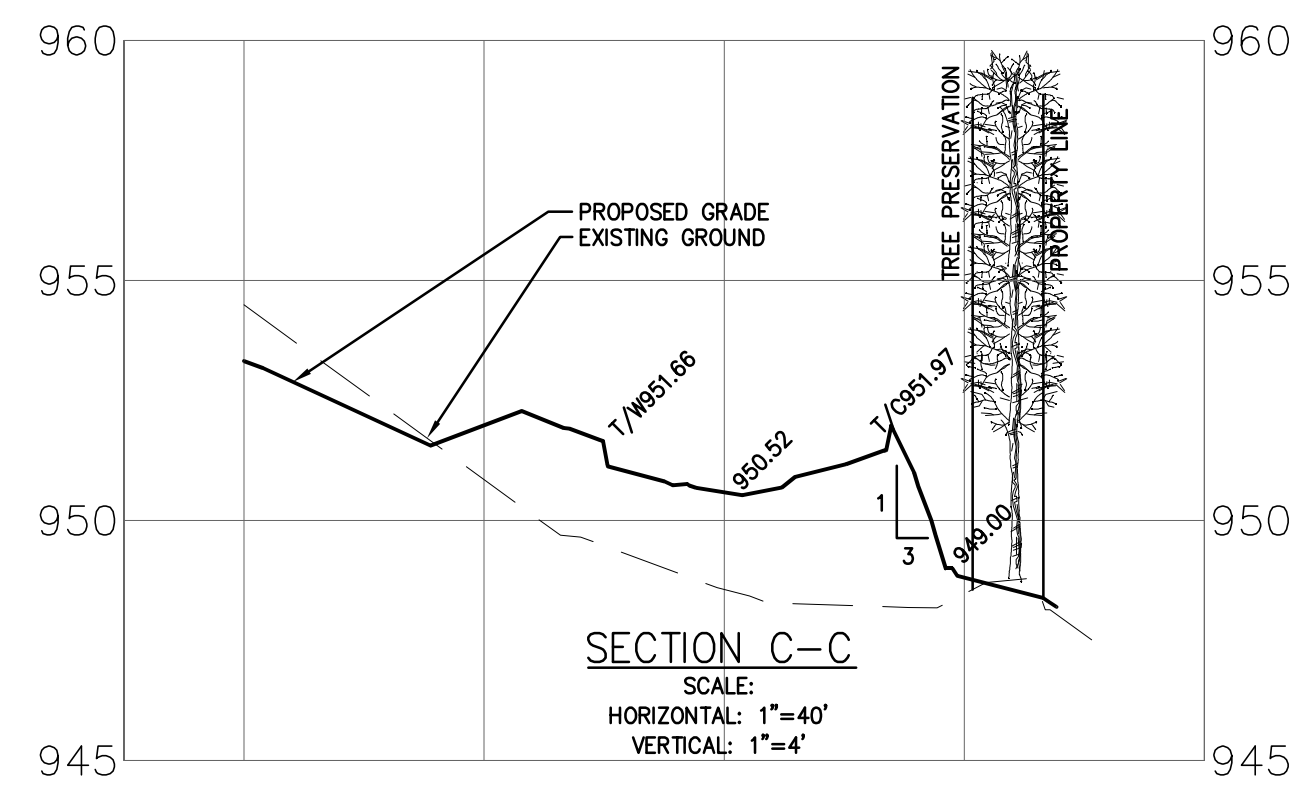
PROJECT NO. 14-032
DATE 05-16-17
DRAWN BY J.L.A.
CHECKED BY O.P.

CLIENT: CALVIN HOLDINGS, LLC
SCALE: 1" = 40'

PRELIMINARY []
CONSTRUCTION []
AS-BUILT []

NOVI SENIOR COMMUNITY PROJECT

A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH,
RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN



CALL MISS DIG (3 WORKING DAYS) BEFORE YOU DIG 1-800-487-1171
CALL811.COM (TOLL FREE)

DATE:	12/15
REVISIONS:	
BY:	M.J.R.

NOVI SENIOR COMMUNITY PROJECT
A PART OF THE SOUTHWEST 1/4 OF SECTION 11,
TOWN 1 NORTH, RANGE 8 EAST,
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

FAZAL KHAN & ASSOCIATES, INC.
CIVIL ENGINEERS & LAND SURVEYORS
4373 SCADENBERG STERLING HEIGHTS, MI 48313
PHONE (586) 739-8007 FAX (586) 739-8994
WWW.FAZALKHAN.COM

PRELIMINARY SITE CROSS SECTIONS

PROJECT NO.:	14-032
DATE:	05-16-17
DRAWN BY:	L.A.
CHECKED BY:	O.P.

CLIENT: **NOVI SENIOR HOLDINGS, LLC**
SCALE: 1"=40'

PRELIMINARY	FIELD BOOK
CONSTRUCTION	XXX
AS-BUILT	

C-8

BENCHMARK LIST

- #1042: "X" ON NORTH RIM OF GATE WELL LOCATED IN THE NORTHWEST QUAD OF INTERSECTION 12 MILE ROAD AND NOVI ROAD, 5 FEET WEST OF SIDEWALK AND 15 FEET NORTH OF BACK OF CURB. ELEVATION=951.69
- #1411: "X" ON NORTH RIM OF GATE WELL LOCATED BETWEEN LOTS #43223/43025 12 MILE ROAD, SOUTH OF 12 MILE ROAD AND 3 FEET SOUTH OF SIDEWALK. ELEVATION=944.39
- #1412: "X" ON NORTH RIM OF GATE WELL LOCATED 6 FEET EAST OF WEST ENTRANCE TO 12 OAKS MALL OF 12 MILE ROAD, 15 FEET SOUTH OF SIDEWALK. ELEVATION=951.33
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Item No.	Description	Quantity	Unit
Quantities			
SANITARY SEWER			
1	4" Diameter Manhole	2	Ea
2	4" Diameter Monitoring Manhole	1	Ea
3	8" PVC Truss	602	LF
4	Oil/Grease Interceptor (1000 Gal)	1	Ea
WATERMAIN			
1	8" Class 54 Ductile Iron	138	LF
2	8" Class 54 Ductile Iron	2169	LF
3	Tapping Sleeve w/Gate Valve	2	Ea
4	Hydrant	8	Ea
5	Gate Valve	2	Ea
STORM SEWER			
1	12" C-76 CL IV	357	LF
2	15" C-76 CL IV	790	LF
3	18" C-76 CL IV	221	LF
4	21" C-76 CL IV	216	LF
5	24" C-76 CL IV	508	LF
6	30" C-76 CL IV	58	LF
7	4" Rear Yard CB	1	Ea
8	4" Pavement CB	2	Ea
9	6" Pavement CB	14	Ea
10	7" Pavement CB	1	Ea
11	4" Manhole	2	Ea
12	30" Conc. End Section	1	Ea
PAVING			
1	5" Asphalt on 6" Base	13470	SY
2	6" Conc. Curb & Gutter	3305	LF
3	4" Conc. Walk	1740	LF
MISCELLANEOUS			
1	Mass Grading	1	LSUM
2	Soil Erosion	1	LSUM
3	Retaining Wall	328	LF

LEGEND

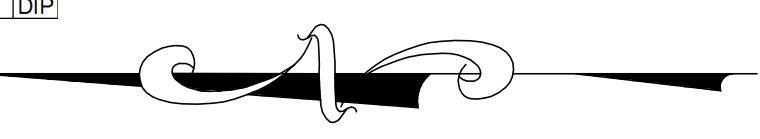
SECTION CORNER	FOUND IRON
SET IRON	
SECTION LINE	ROAD CENTERLINE
EXISTING WATER MAIN	EXISTING SANITARY SEWER
EXISTING STORM SEWER	EXISTING SWALE
EXISTING FENCE LINE	EXISTING OVERHEAD WIRES
EXISTING UNDERGROUND UTILITY	EXISTING CONTOUR
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EXISTING GRAVE HEADSTONE	EXISTING SHRUB
EXISTING GROUND	
EXISTING ASPHALT	EXISTING CONCRETE
EXISTING GRAVEL	

SANITARY SEWER CALCULATIONS

MH-MH	PIPE DIA in	PIPE LEN ft	GRND UP ft	GRND LOW ft	INV UP ft	INV LOW ft	SLOPE %
BLDG-GO	8	48	957.00	956.29	949.00	948.29	1.48
GO-MH	8	53	956.29	955.40	948.00	947.40	1.30
MH3-MH2	8	328	955.40	948.33	947.20	940.33	2.09
MH2-MH1A	8	186	948.33	931.42	940.13	923.42	8.98
MH1-EX STUB	8	36	931.42	--	923.22	921.00	6.17

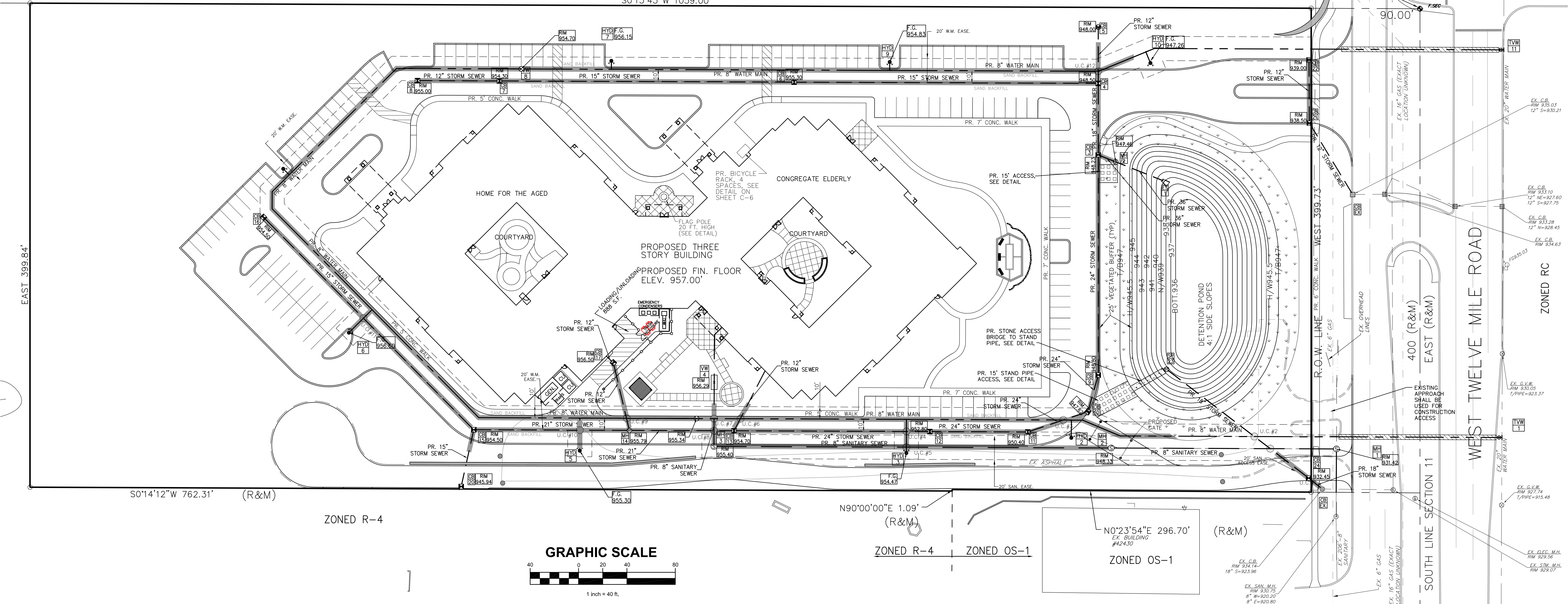
CROSSING SCHEDULE

CROSSING #	STORM SEWER	SANITARY SEWER	WATERMAIN	CLEARANCE (FEET)	FINISHED GRADE
1	927.58	926.06		1.52	
2	927.86		926.36	1.50	935.50 DIP
3	940.53		939.03	1.50	949.19 DIP
4	943.30	942.07	948.38	4.98	953.18
5			948.38	1.50	955.03 DIP
6	950.64		949.14	1.50	955.03 DIP
7		939.80	949.67	8.54	
8	940.91	948.34		4.07	956.03 DIP
9	951.37		949.87	1.50	956.03 DIP
10	943.69		950.35	6.16	955.85
11	951.43		947.81	1.50	955.27 DIP
12	943.63		942.13	1.50	948.59 DIP



ZONED RA

S01'3'43"W 1059.00'



GRAPHIC SCALE



1 inch = 40 ft.

NOVI SENIOR COMMUNITY PROJECT

A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

WATER MAIN BASIS OF DESIGN:

Residential Equivalent Units	0.30 per bed	105	units	31.5
Convallescent and/or Nursing Homes	0.32 per employee	30	employees	9.6
Institutions other than Hospitals	0.60 per residence	78	units	46.8
Multiple Family				87.9
Population	3.2 people per unit	281.28 people		
Average Flow =	281.28 People x 150 GPCPD	=	0.065 cfs	= 0.0422 mgd
	86400 Sec/Day x 7.48 Gal / C.F.			
Peak Flow =	2.5 times Average Flow	=	0.163 cfs	= 0.1055 mgd

NOTE:
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SANITARY SEWER BASIS OF DESIGN:

Residential Equivalent Units	0.30 per bed	105	units	31.5
Convallescent and/or Nursing Homes	0.32 per employee	30	employees	9.6
Institutions other than Hospitals	0.60 per residence	78	units	46.8
Single Family				87.9
Population	3.2 people per unit	281.28 people		
100 Gallons per Capita per Day =	281.28 people	=	28128 gal/day	
		=	0.044 cfs	
Peaking Factor =	0.044 x 4	=	0.174 cfs	

AN 8" SEWER @ 0.40% HAS A CAPACITY OF 0.76 CFS

DOWNSTREAM SANITARY SEWER ANALYSIS:

Site (22-11-300-009)

Peak Flow = 0.174 cfs

42430 W. 12 Mile (22-11-300-005)
(Per plans prepared by Adentage Civil Engineering, As-built dated 01-21-03)

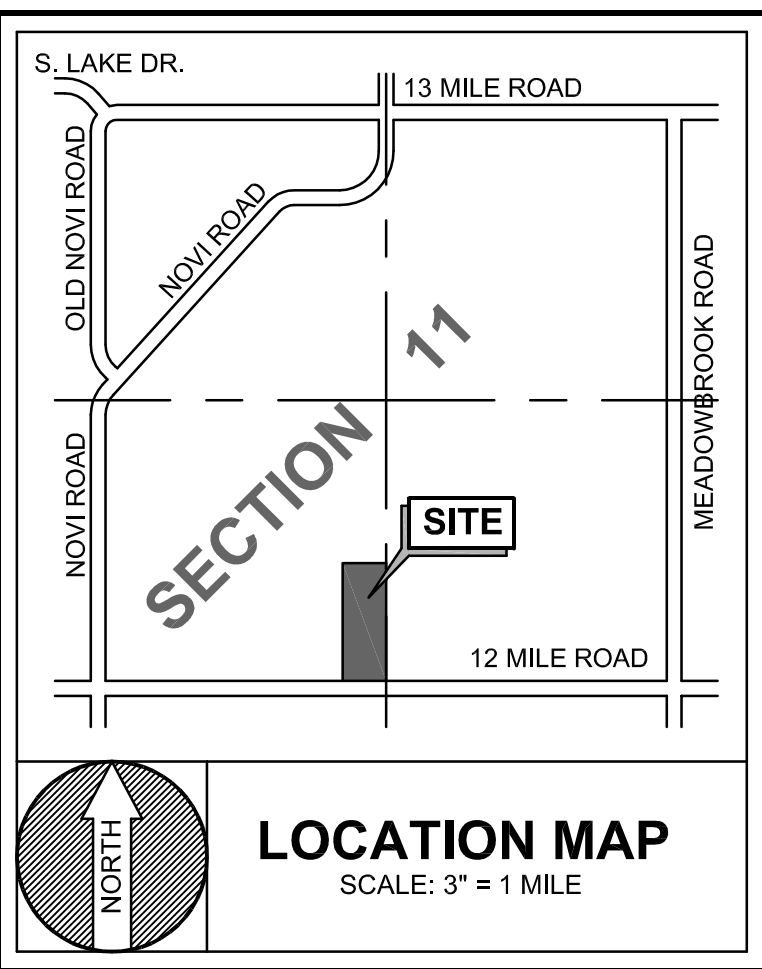
Residential Equivalent Units	1.00 per doctor	1	doctor	1
Doctor	1.40 per dentist	1	dentist	1.4
Dentist				2.4
Population	3.2 people per unit	7.68 people		
100 Gallons per Capita per Day =	7.68 people	=	768 gal/day	
		=	0.0012 cfs	
Peaking Factor =	0.0012 x 4	=	0.0048 cfs	

42450 W. 12 Mile (22-11-300-007)
(Per current use from existing records)

Residential Equivalent Units	1.00 per doctor	2	doctor	2
Doctor	1.40 per dentist	2	dentist	2.8
Dentist				4.8
Population	3.2 people per unit	15.36 people		
100 Gallons per Capita per Day =	15.36 people	=	1536 gal/day	
		=	0.0024 cfs	
Peaking Factor =	0.0024 x 4	=	0.0096 cfs	

Total Peak Flow = 0.1884 cfs

Analysis of the existing downstream sanitary sewer indicates that the sewer to the west is installed as an 8" diameter pipe with a slope varying between 0.40% to 1.48%. This indicates a minimum capacity of 0.76 cfs which exceeds the requirements for this site and that of the adjacent developments.



LOCATION MAP
SCALE: 3" = 1 MILE

CALL MISS DIG (3 WORKING DAYS) BEFORE YOU DIG 1-800-482-7171

NOVI SENIOR COMMUNITY PROJECT
A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

FAZAL KHAN & ASSOCIATES, INC.
CIVIL ENGINEERS & LAND SURVEYORS
4373 SCHOENBERG STERLING HEIGHTS, MI 48313
PHONE (586) 739-8007 FAX (586) 739-6994
WWW.FAZALKHAN.COM

PRELIMINARY UTILITY PLAN

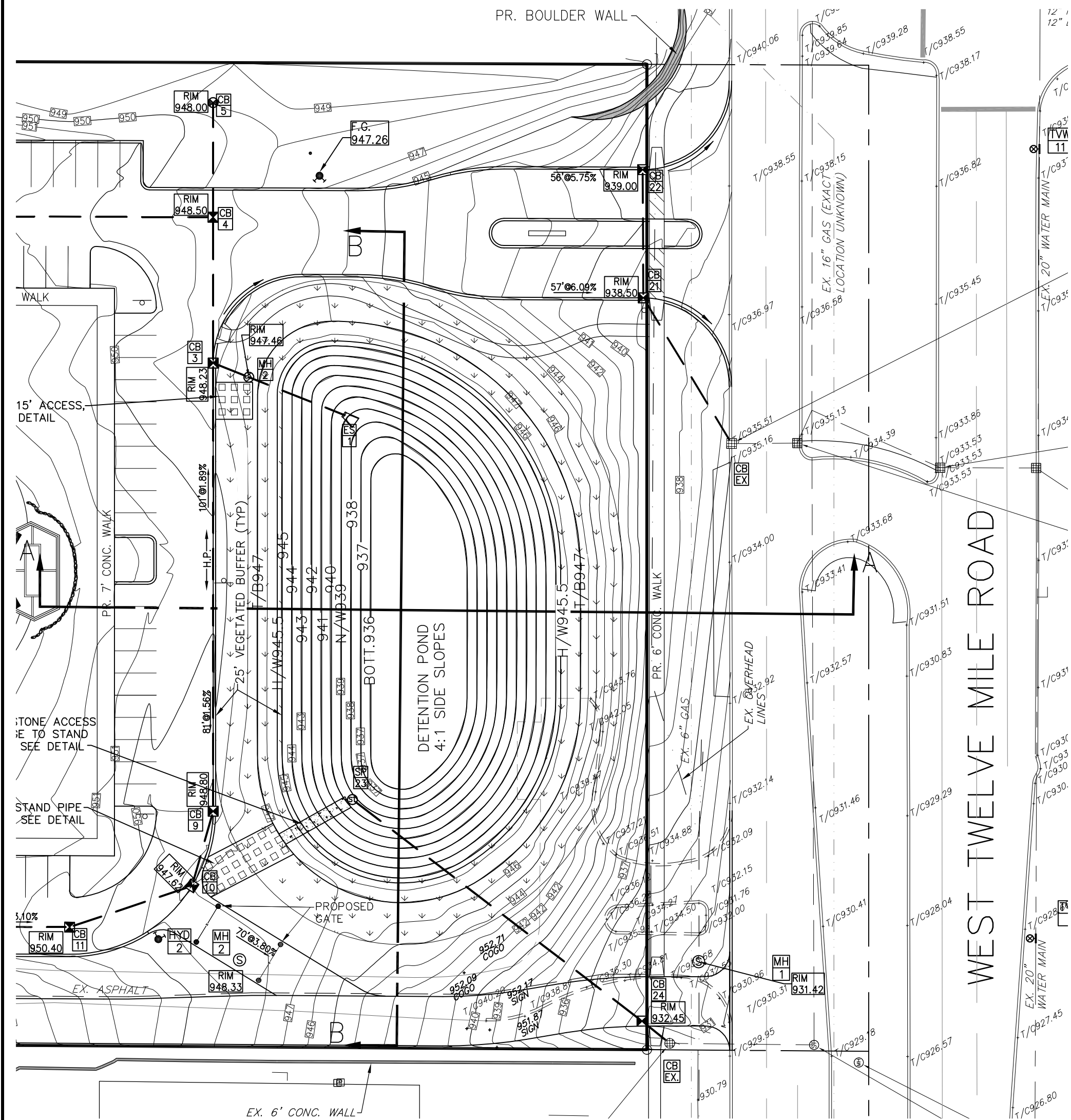
PROJECT NO. 14-032
DATE 05-16-17
DRAWN BY L.A.
CHECKED BY O.P.

CLIENT: SENIOR HOLDINGS, LLC
SCALE: 1" = 40'

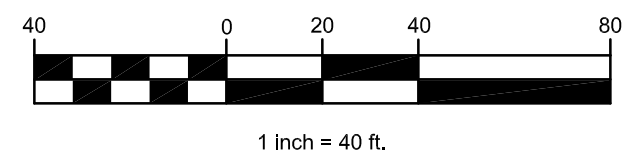
SHEET NO. C-9

NOVI SENIOR COMMUNITY PROJECT

A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN



GRAPHIC SCALE



DETECTION POND DETENTION CALCULATION PER OAKLAND COUNTY DESIGN METHOD

Project: Novi Senior Community
Location: Novi, Oakland Co.
Date: 01/04/18
Project No: 14432

100 YEAR STORM DETENTION DESIGN
Weighted Runoff Coefficient: 0.65
Drainage Area: 389,850.72 s.f.
Paved and Building Area @ 0.95: 187,612.97 s.f.
Pond @ 1.5: 217,190.8 s.f.
Grass Area @ 0.35: 187,744.11 s.f.

Runoff Coefficient = 0.65
Contributing Area (A): 8.81 acres
Allowable Discharge (Qa) (0.15 cfs/ac): 1.32 cfs
Coefficient of Runoff (Co): 0.69

Calculation of Required Discharge/Acre
Do = ((Qa)/A)(C)
T = 25 + ((0.01125)(Qa)/Do) + 0.5
Storage Volume Required:
Vs = (1.65)(Qa)(T) - 4000(T)
Vt = (Vs)(A)(C)

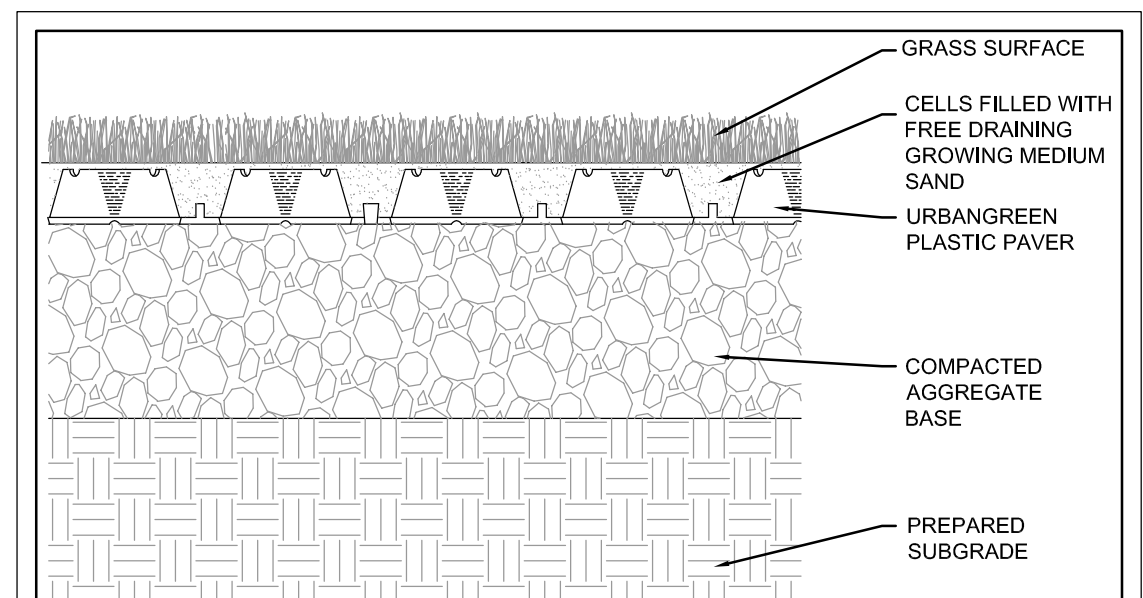
Storage Volume Required: 129,345.52 cubic feet
Total Volume: 78885.11 cubic feet

DETECTION PROVIDED

STORAGE PROVIDED	V = ((A1 + A2 + SQRT(A1 x A2)) x H) / 3	CONTOUR	AREA	HEIGHT	VOLUME (CF)	SUMMATION (CF)
NORMAL WATER		939	9033.42	1	4888.15	4888.15
		940	1705.70	1	6268.08	11156.23
		941	12483.99	1	13414.91	24571.14
		942	14387.88	1	15347.33	39918.46
		943	16348.07	1	17374.27	57292.73
		944	18421.08	1	19497.75	76790.48
		945	20594.62	0.5	10577.18	87367.66
HIGH WATER DETENTION		945.5	21719.08			87367.66

FIRST FLUSH VOLUME REQUIRED
Vf = (1815)(A)(C)
11869.24 C.F.

STORAGE PROVIDED	V = ((A1 + A2 + SQRT(A1 x A2)) x H) / 3	CONTOUR	AREA	HEIGHT	VOLUME (CF)	SUMMATION (CF)
NORMAL WATER		939	9033.42	1	8238.04	8238.04
		938	7467.49	1	6724.52	14962.57
		937	6007.98	1	5316.56	20279.12
BOTTOM OF POND		936	4653.91			20279.12



DETECTION AND STAND PIPE ACCESS DETAIL
URBANGREEN™ PLASTIC PAVER
TYPICAL DETAIL
GRASS PAVE SYSTEM
NOT TO SCALE

BENCHMARK LIST

#1042: "X" ON NORTH RIM OF GATE WELL LOCATED IN THE NORTHWEST QUAD OF INTERSECTION 12 MILE ROAD AND NOVI ROAD, 5 FEET WEST OF SIDEWALK AND 15 FEET NORTH OF BACK OF CURB, ELEVATION=951.69

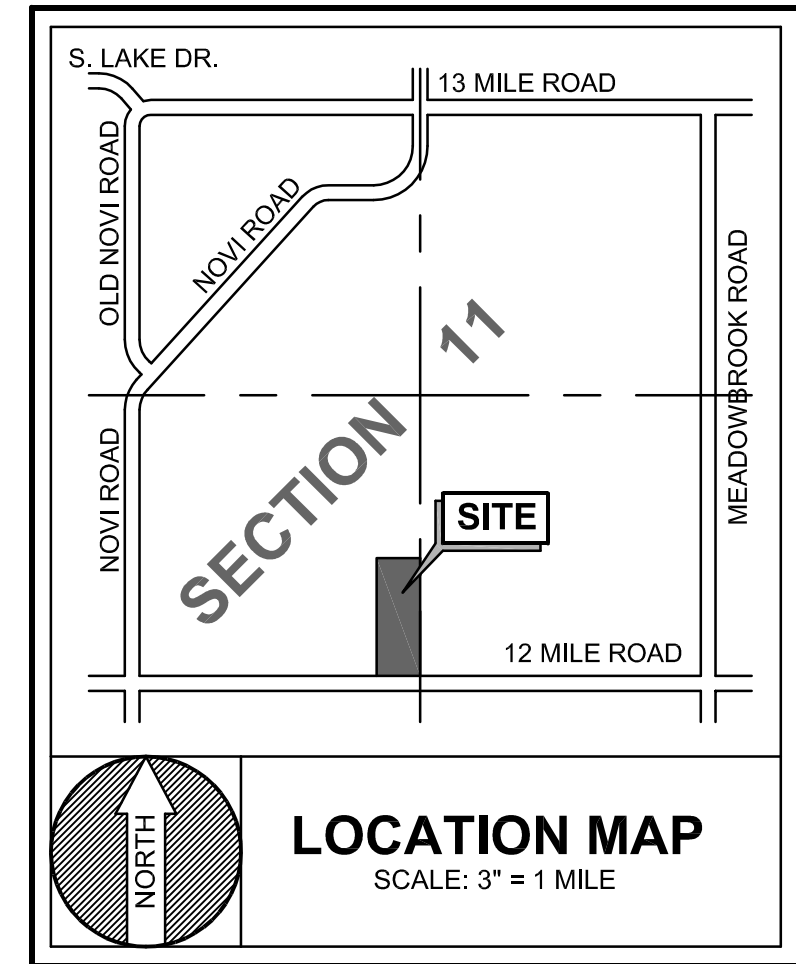
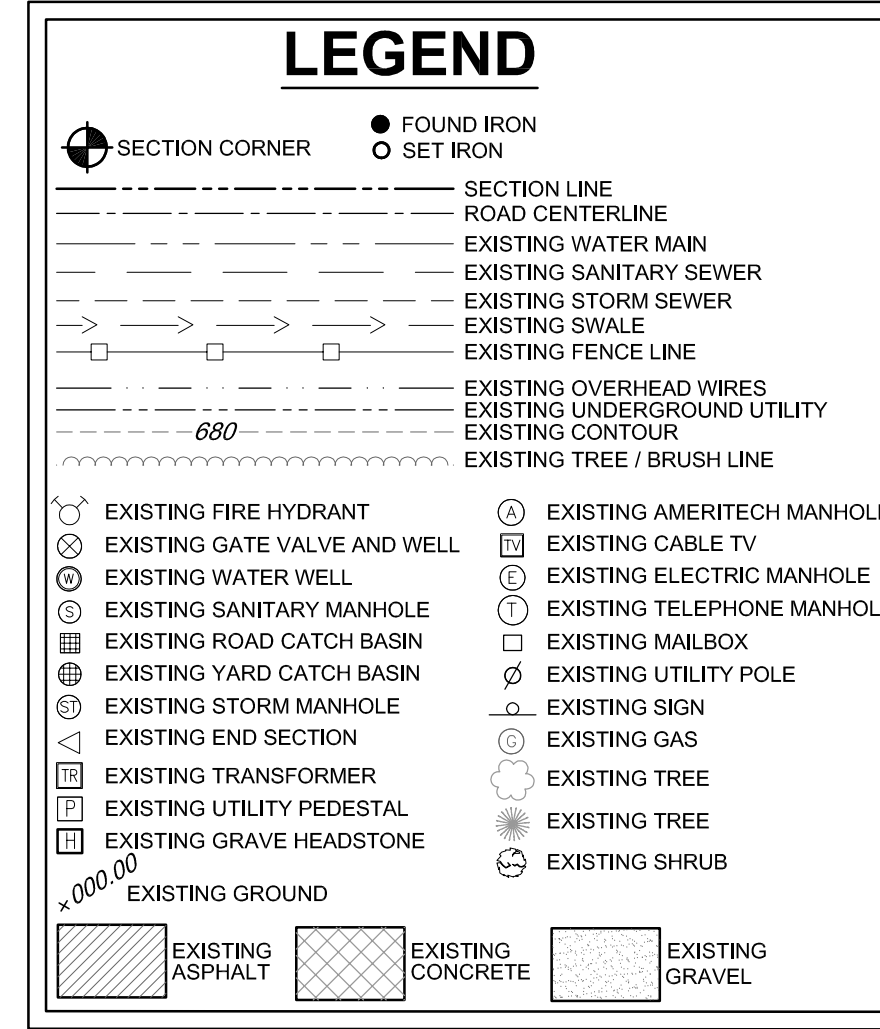
#1411: "X" ON NORTH RIM OF GATE WELL LOCATED BETWEEN LOTS #43223/43025 12 MILE ROAD, SOUTH OF 12 MILE ROAD AND 3 FEET SOUTH OF SIDEWALK, ELEVATION=944.39

#1412: "X" ON NORTH RIM OF GATE WELL LOCATED 6 FEET EAST OF WEST ENTRANCE TO 12 OAKS MALL OF 12 MILE ROAD, 15 FEET SOUTH OF SIDEWALK, ELEVATION=915.33

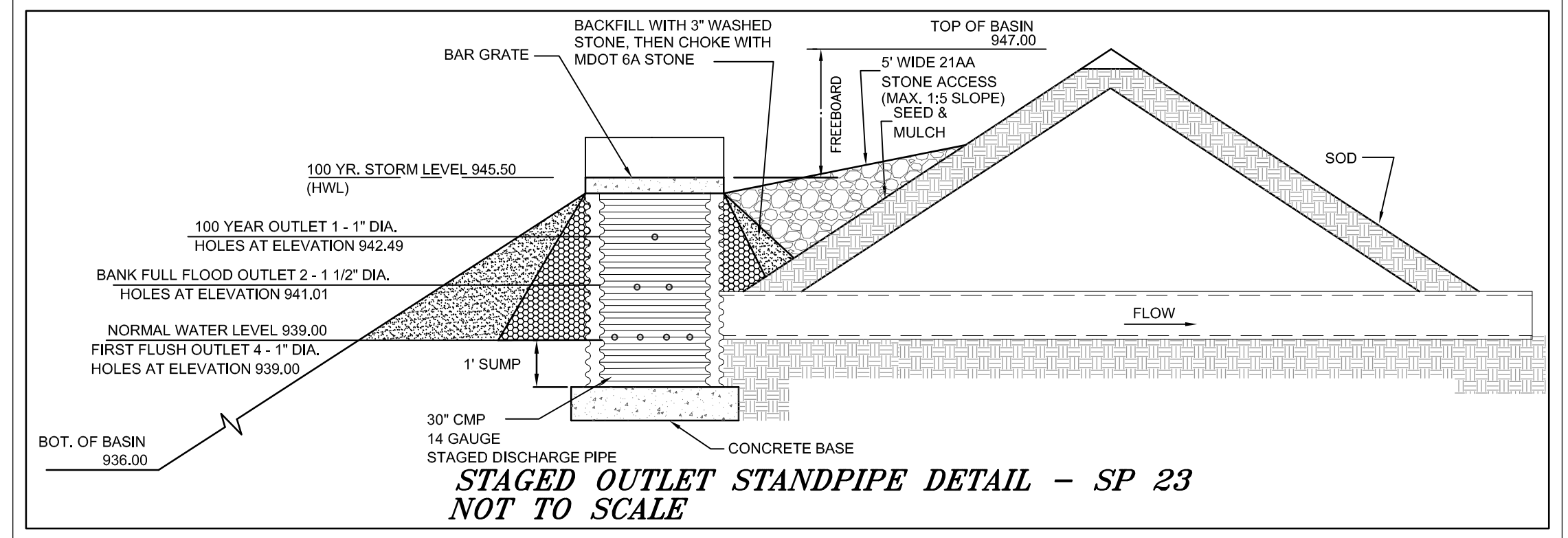
#1422: "X" ON NORTH RIM OF GATE WELL LOCATED 100 FEET EAST OF INTERSECTION EAST OF 12 OAKS ENTRANCE AND 12 MILE ROAD, 7 FEET SOUTH BACK CURB, ELEVATION=944.91

#1423: "X" ON SOUTH FLANGE BOLT OF FIRE HYDRANT LOCATED 380 FEET EAST OF INTERSECTION ENTRANCE TO DETROIT MEDICAL CENTER REHABILITATION CENTER AND 12 MILE ROAD, 6 FEET NORTH OF SIDEWALK, ELEVATION=941.17

#1421: "X" ON NORTH RIM OF GATE WELL LOCATED IN THE SOUTHWEST QUAD OF INTERSECTION 12 MILE ROAD MEADOWCREEK, 70 FEET SOUTH OF BACK OF CURB 12 MILE ROAD AND 4 FEET EAST OF SIDEWALK, ELEVATION=923.33



NOTE: THE STORM WATER MANAGEMENT SYSTEM SHALL BE MAINTAINED BY THE OWNER.



AREA	8.52	High Water=	945.5
C FACTOR	0.73	Low Water=	939
LOW WATER	939.00		

FIRST FLUSH VOL: 1815*A*C
(1-YR, 0.5" EVENT) 11274 c.f.

FF ELEVATION
24571 - 11274 = 942 - FF
24571 - 11156 = 942 - 941

FF ELEV: 941.01

RELEASE OVER 24 HOURS
Qavg = 11274 / 24 x 1 HR/3600 sec = 0.1305 CFS
Havg = 2/3 (FF-BOT) = 2/3 * 941.01 - 939.00 = 1.34 FT

A = Qavg / 0.62 * SQRT(2 g H) = 0.0227 SF

1" HOLES = A/0.00545 = 4.158309128 # 1 1/2" HOLES = A/0.01227 = 1.84701

PLACE 4 - 1" HOLES AT ELEVATION 939.00

BANKFULL FLOOD: 5160*A*C (1.5 year storm)
VOLUME: 32052 c.f.

BF ELEVATION
39918 - 32052 = 943 - BF
39918 - 24571 = 943 - 942

BF ELEV: 942.49

DISCHARGE RATE THROUGH F.F. ORIFICES
Havg = 2/3 (FF-BOT) = 2/3 * 941.01 - 939.00 = 1.34 FT

Qff = 0.62 * A * SQRT(2 g H) = 0.62 * 2 * 0.00545 * SQRT(2 * 32 * 1.34) = 0.1256 CFS

REMAINING VOLUME: 32052 CF - 11274 CF (FROM F.F.) = 20778 CF

RELEASE OVER 40 HOURS
Qavg = 20778 CF / 40 HRS = 0.144 CFS
Havg = (2/3) * 942.49 - 941.01 = 0.99 FT

ORIFICE AREA
A = Qavg / 0.62 * SQRT(2 g Havg) = 0.0292 SF

1 1/2" HOLES = A/0.01227 = 2.380468821 # 1" HOLES = A/0.00545 = 5.35933

PLACE 2 - 1 1/2" HOLES AT ELEVATION 941.01

100-YEAR EVENT: See Detention Calculations
80881.59 c.f.

100 YEAR ELEVATION
87368 - 80881.6 = 945.5 - 100 YEAR
87368 - 76790 = 945.5 - 945

100 YEAR ELEV = 945.19

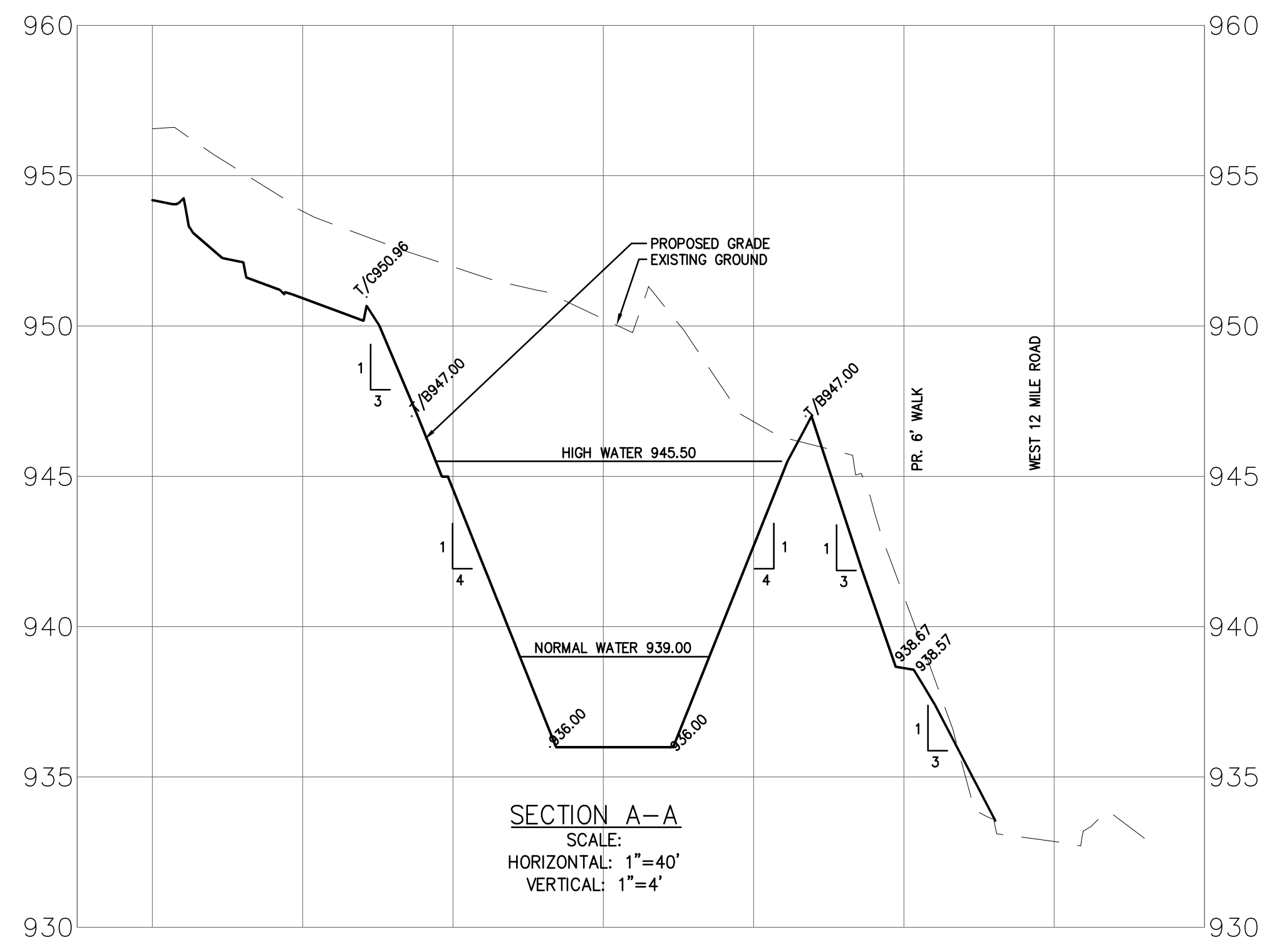
DISCHARGE RATE THROUGH FIRST FLUSH AND BANK FULL ORIFICES:
Qbf = 0.62 * A * SQRT(2 g H) = 0.62 * 2 * 0.01227 * SQRT(2 * 32 * 2 * 945.19 - 941.01) = 0.2498 CFS
Qff = 0.62 * A * SQRT(2 g H) = 0.62 * 2 * 0.00545 * SQRT(2 * 32 * 2 * (945.19 - 939.00)) = 0.2701 CFS

RELEASE OVER 40 HOURS
ALLOWABLE OUTFLOW: DEWATER IN 40 HOURS
Qall = 80881.59732 CF / 40 HRS = 0.562 CFS
0.562 - 0.2498 = 0.2701 = 0.0417 CFS
Havg = (2/3) * 945.19 - 942.49 = 1.80 FT

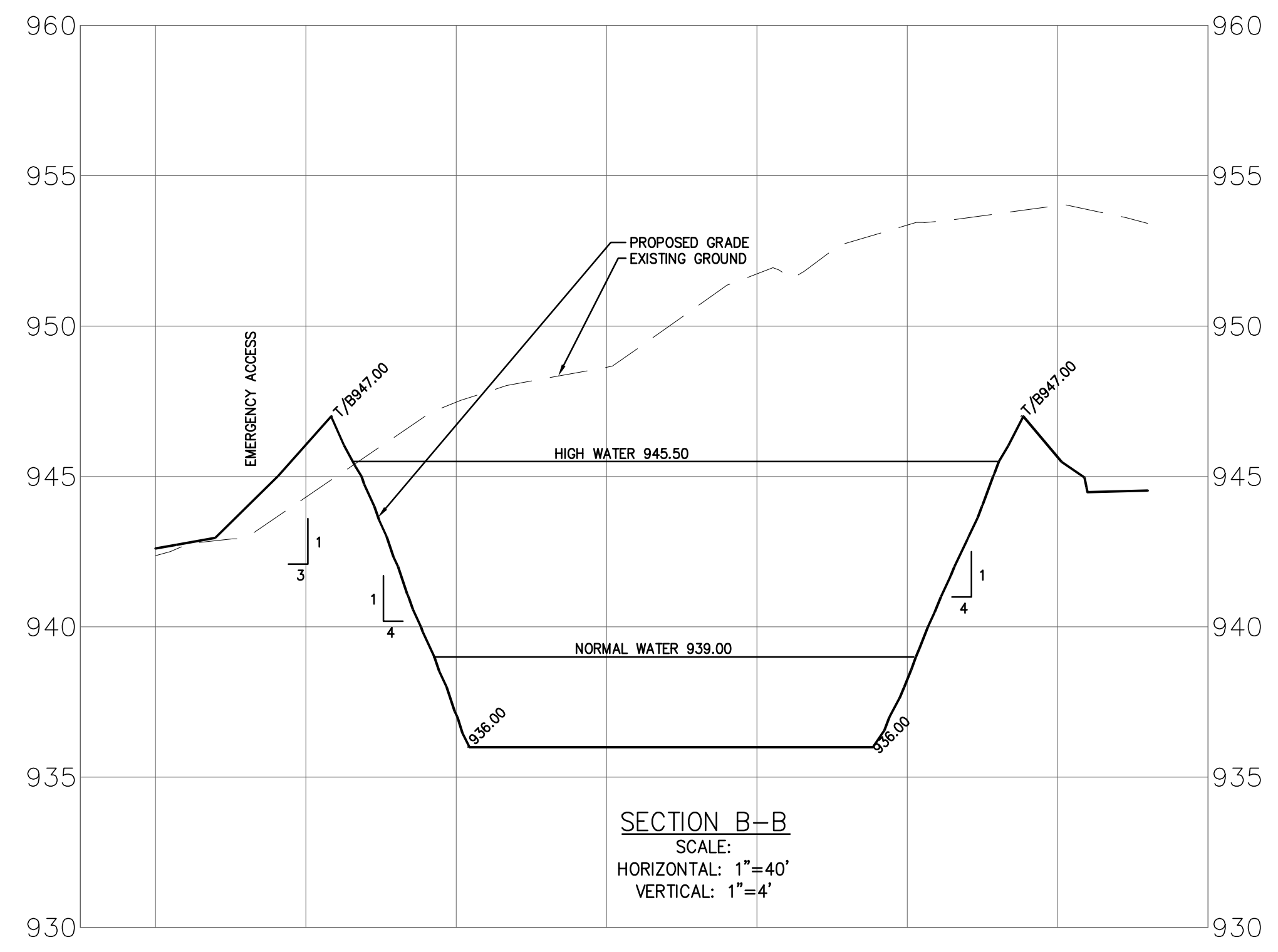
ORIFICE AREA
A = Qall / 0.62 * SQRT(2 g Havg) = 0.006 SF

1 1/2" HOLES = A/0.01227 = 0.508961704 # 1" HOLES = A/0.00545 = 1.14586

PLACE 1 - 1" HOLE AT ELEVATION 942.49



SECTION A-A
SCALE:
HORIZONTAL: 1"=40'
VERTICAL: 1"=4'



SECTION B-B
SCALE:
HORIZONTAL: 1"=40'
VERTICAL: 1"=4'

CALL MSS DIG (3 WORKING DAYS) BEFORE YOU DIG 1-800-482-7171 1-800-482-7171 CALL811.COM (TOLL FREE)

NOVI SENIOR COMMUNITY PROJECT
A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

NOVI SENIOR COMMUNITY PROJECT
A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

PRELIMINARY STORM WATER MANAGEMENT PLAN

PROJECT NO: 14432
DATE: 05-16-17
DRAWN BY: L.A.
CHECKED BY: O.P.

CLIENT: CA SENIOR LIVING HOLDINGS, LLC
SCALE: 1"=40'

PRELIMINARY CONSTRUCTION AS-BUILT

SHEET NO. C-10

BENCHMARK LIST

#1042: "X" ON NORTH RIM OF GATE WELL LOCATED IN THE NORTHWEST QUAD OF INTERSECTION 12 MILE ROAD AND NOVI ROAD, 5 FEET WEST OF SIDEWALK AND 15 FEET NORTH OF BACK OF CURB. ELEVATION=951.69

#1411: "X" ON NORTH RIM OF GATE WELL LOCATED BETWEEN LOTS #43223/43025 12 MILE ROAD, SOUTH OF 12 MILE ROAD AND 3 FEET SOUTH OF SIDEWALK. ELEVATION=944.39

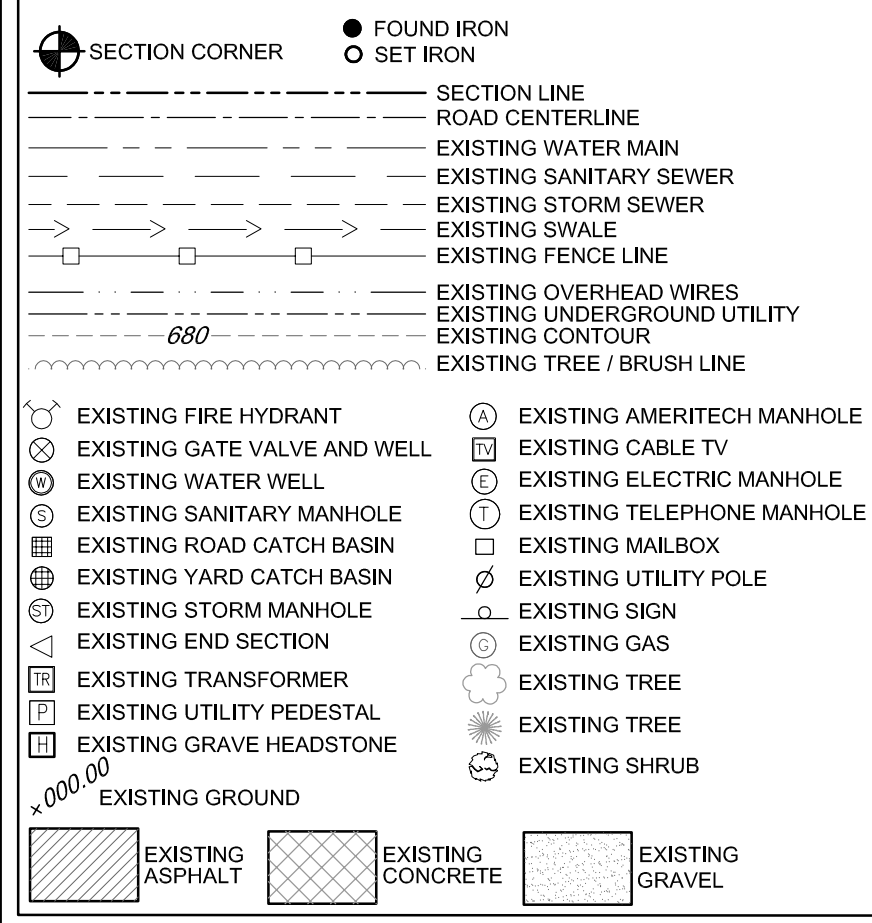
#1412: "X" ON NORTH RIM OF GATE WELL LOCATED 6 FEET EAST OF WEST ENTRANCE TO 12 OAKS MALL OF 12 MILE ROAD, 15 FEET SOUTH OF SIDEWALK. ELEVATION=945.33

#1422: "X" ON NORTH RIM OF GATE WELL LOCATED 100 FEET EAST OF INTERSECTION EAST OF 12 OAKS ENTRANCE AND 12 MILE ROAD, 7 FEET SOUTH BACK CURB. ELEVATION=944.91

#1423: "X" ON SOUTH FLANGE BOLT OF FIRE HYDRANT LOCATED 380 FEET EAST OF INTERSECTION ENTRANCE TO DETROIT MEDICAL CENTER REHABILITATION CENTER AND 12 MILE ROAD, 6 FEET NORTH OF SIDEWALK. ELEVATION=941.17

#1421: "X" ON NORTH RIM OF GATE WELL LOCATED IN THE SOUTHWEST QUAD OF INTERSECTION 12 MILE ROAD MEADOWBROOK, 70 FEET SOUTH OF BACK OF CURB 12 MILE ROAD AND 4 FEET EAST OF SIDEWALK. ELEVATION=923.33

LEGEND



UTILITY NOTES:

1. DUE TO EXTREME GRADE CHANGES ON THIS SITE, IT IS NOT PRACTICAL TO DISCHARGE CATCH BASINS #21 AND #22 INTO THE DETENTION POND. CATCH BASINS #21 AND #22 ARE PROPOSED TO OUTLET DIRECTLY TO 12 MILE ROAD. EXISTING DRAINAGE TO 12 MILE ROAD IS 2.20 ACRES WITH A RUNOFF COEFFICIENT OF 0.35 AND A TIME OF CONCENTRATION OF 20 MINUTES = 2.99 CFS. PROPOSED DRAINAGE TO 12 MILE ROAD IS 0.822 ACRES WITH AN AVERAGE RUNOFF COEFFICIENT OF 0.53 AND A TIME OF CONCENTRATION OF 21 MINUTES = 1.25 CFS.

NOVI SENIOR COMMUNITY PROJECT

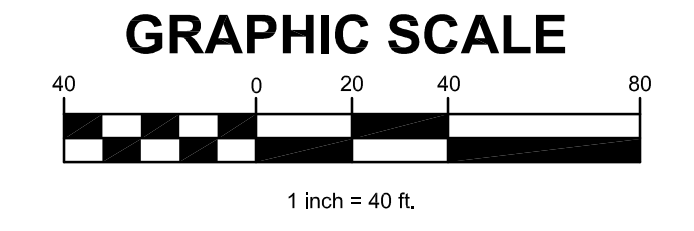
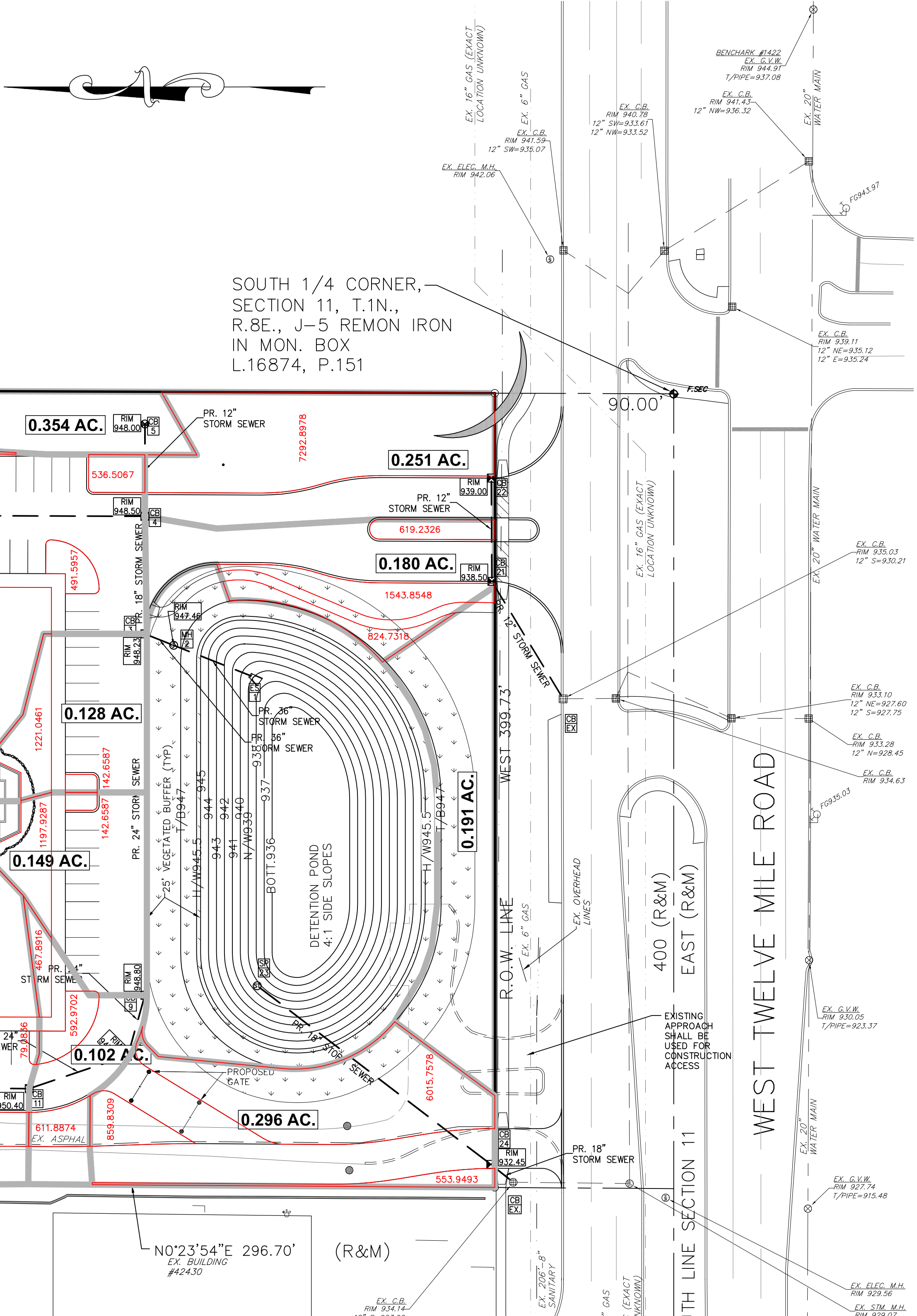
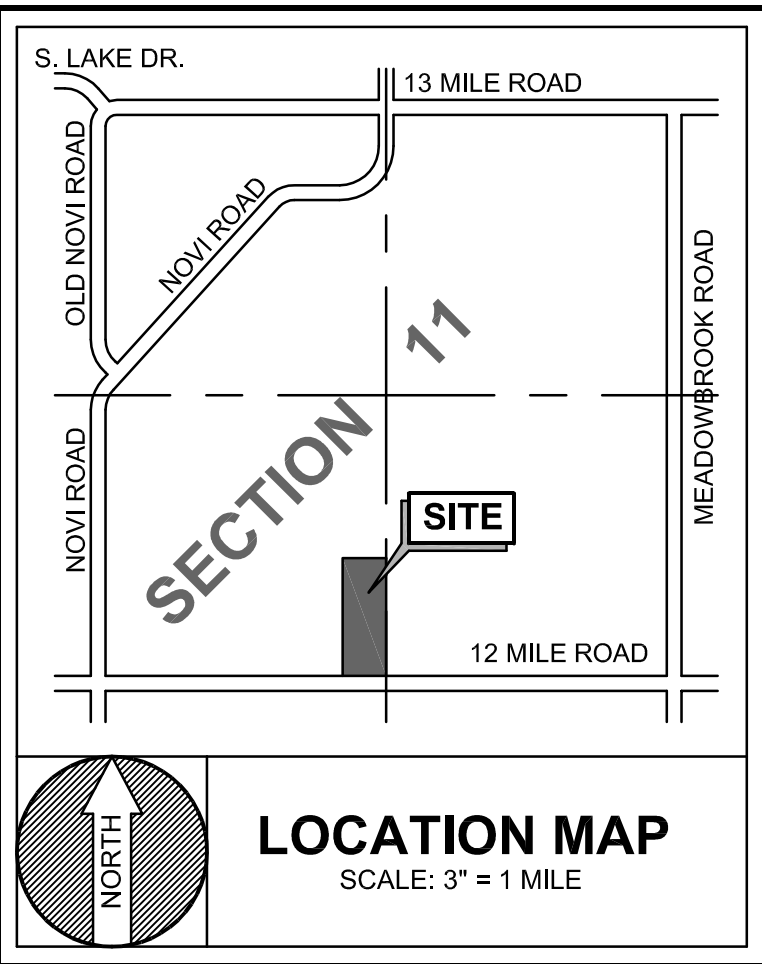
A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

STORM SEWER CALCULATIONS

FR TO MH-MH	ADD AC	C	EQV AC	TOTAL EQ AC	T min	I (ft)	Q+CIA cfs	PIPE CFS (HG SLOPE)	PIPE DIA (IN)	PIPE SLOPE %	PIPE LEN (FT)	PIPE SLOPE %	VEL FULL (FPS)	TIME (MIN)	HG UP	HG LOW	RM UP	RM LOW	INVERT UP	INVERT LOW	
CB20-CB15	1.553	0.46	0.71	0.71	20.00	3.89	2.78	3.17	3.16	10	48	0.24	0.24	2.6	0.31	945.16	945.05	945.94	954.50	941.50	941.39
CY-STRUB-CB13	0.398	0.82	0.33	0.33	20.00	3.89	1.27	3.56	3.56	12	56	1.00	1.00	4.5	0.21	951.89	951.33	957.00	954.70	951.09	950.53
CY-STRUB-CB17	0.348	0.86	0.30	0.30	20.00	3.89	1.16	3.56	3.56	12	8	1.00	1.00	4.5	0.03	953.21	953.13	957.00	956.50	952.41	952.33
CB17-CB14	0.158	0.92	0.15	0.44	20.03	3.89	1.73	2.02	2.02	12	57	0.32	0.32	2.6	0.37	953.13	952.95	956.50	955.79	952.33	952.15
CB16-CB15	1.196	0.58	0.69	0.69	20.00	3.89	2.70	3.17	3.16	15	247	0.24	0.24	2.6	1.60	951.06	950.47	954.50	954.50	950.06	949.47
CB15-MH14	0.387	0.84	0.33	1.73	21.60	3.76	6.51	6.34	6.34	21	129	0.16	0.16	2.6	0.82	944.95	944.74	954.50	955.79	940.99	940.78
MH14-CB13	0.398	0.82	0.33	2.06	22.41	3.69	7.60	6.34	6.34	21	87	0.16	0.16	2.6	0.55	944.74	944.60	955.79	954.70	940.68	940.54
CB13-CB12	0.373	0.74	0.28	2.78	22.96	3.65	10.14	9.05	9.05	24	162	0.16	0.16	2.9	0.94	944.60	944.34	954.70	952.80	940.34	940.08
CB12-CB11	0.265	0.77	0.20	2.98	23.90	3.58	10.68	9.60	9.60	24	81	0.18	0.18	3.1	0.44	944.34	944.20	952.80	950.40	940.08	939.94
CB11-CB10	0.399	0.65	0.26	3.24	24.34	3.55	11.50	10.62	10.61	24	52	0.22	0.22	3.4	0.26	944.20	944.08	950.40	947.62	939.94	939.82
CB10-CB9	0.102	0.72	0.07	3.32	24.60	3.53	11.70	10.62	10.61	24	31	0.22	0.22	3.4	0.15	943.98	943.91	947.62	948.80	939.72	939.65
CB9-CB3	0.149	0.82	0.12	3.44	24.75	3.52	12.09	11.09	11.08	24	182	0.24	0.24	3.5	0.86	943.91	943.48	948.80	948.23	939.65	939.22
CB5-CB4	0.354	0.35	0.12	0.12	20.00	3.89	0.48	2.02	2.02	12	47	0.32	0.32	2.6	0.31	945.11	944.96	948.00	948.50	943.83	943.68
CB8-CB7	0.506	0.60	0.30	0.30	20.00	3.89	1.18	2.02	2.02	12	68	0.32	0.32	2.6	0.44	951.15	950.93	955.00	954.30	950.35	950.13
CB7-CB6	0.722	0.79	0.57	0.87	20.44	3.85	3.37	3.42	3.42	15	244	0.28	0.28	2.8	1.46	950.93	950.25	954.30	955.30	949.93	949.25
CB6-CB4	0.241	0.82	0.20	1.07	21.90	3.73	4.00	4.46	4.46	15	251	1.00	1.00	5.3	0.79	947.57	945.06	955.30	949.50	946.57	946.06
CB4-CB3	0.806	0.73	0.59	1.78	22.70	3.67	6.55	6.65	6.64	18	59	0.40	0.40	3.8	0.26	944.96	944.73	948.50	948.23	943.76	943.53
FR 5						0.12	20.31														
CB3-MH2	0.128	0.79	0.10	5.32	25.61	3.46	18.41	18.87	18.86	36	16	0.08	0.08	2.7	0.10	943.38	943.36	948.23	947.46	938.32	938.30
FR 4 & 8						5.22	25.61														
MH2-ES1	0.000	0.00	0.00	5.32	25.71	3.45	18.37	18.87	18.86	36	42	0.08	0.08	2.7	0.26	943.36	943.33	947.46		938.30	938.27
OUTLET							8.49 AC @ 0.15														
SP23-CB24	0.000	0.00	0.00	0.00	20.00	3.89	1.27	4.46	4.46	18	148	0.18	0.18	2.5	0.98	929.21	928.94	945.50	932.45	928.01	927.74
CB24-EX CB	0.296	0.63	0.19	0.19	20.98	3.81	1.98	4.46	4.46	18	14	0.18	0.18	2.5	0.09	928.84	928.82	932.45	934.14	927.64	927.62
EX CB-EX MH	0.134	0.35	0.05	0.23	21.07	3.80	2.16	4.46	4.46	18	58	0.18	0.18	2.5	0.38	925.16	925.06	934.14	929.07	923.96	923.86
CB22-CB21	0.296	0.23	0.07	0.07	20.98	3.81	0.26	2.02	2.02	12	52	0.32	0.32	2.6	0.34	928.84	928.68	939.00	938.50	928.04	927.88
CB21-EX CB	0.000	0.13	0.00	0.07	21.32	3.78	0.26	2.02	2.02	12	69	0.32	0.32	2.6	0.45	928.68	928.45	938.50	935.03	927.88	927.65
TOTAL TO 12 MILE OVERLAND	0.191	0.35	0.07	0.07	20.00	3.89	0.26														
FR EX MH-21.24						0.37	21.45	3.77	1.39												
EXISTING TO 12 MILE OVERLAND	2.200	0.35	0.77	0.77	20.00	3.89	2.99														
EXISTING 18" SEWER HAS A MINIMUM CAPACITY OF 4.46 CFS																					

WEIGHTED C

PAV/BLDG GRASS	C	0.95	0.35
1	0.000	0.00	0.000
2	0.000	0.00	0.000
3	0.128	5575.68	1484.634
4	0.806	35109.36	13090.256
5	0.354	15420.24	15420.240
6	0.241	10497.96	2257.665
7	0.722	31460.32	8219.898
8	0.506	22041.36	12676.747
9	0.149	6490.44	1421.737
10	0.102	4443.12	1672.749
11	0.399	17390.44	8715.704
12	0.265	11543.40	3404.634
13	0.373	16247.88	5701.556
14	0.000	0.00	0.000
15	0.387	16857.72	3047.775
16	1.196	52097.76	32149.551
17	0.158	6892.48	306.448
18	0.398	17390.44	8715.704
19	0.241	10497.96	2257.665
20	1.553	67848.68	54983.579
21	0.180	7840.80	2987.819
22	0.251	10933.56	7292.898
23	0.000	0.00	0.000
24	0.296	12893.76	6878.589
GRASS	8.812	383850.72	187744.11
PAV/BLDG			187612.97
C			0.64



CALL MISS DIG (800) 487-1111 BEFORE YOU DIG (3 WORKING DAYS) 1-800-487-1111 1-800-487-1111 (TOLL FREE)

NOVI SENIOR COMMUNITY PROJECT
A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

FAZAL KHAN & ASSOCIATES, INC.
CIVIL ENGINEERS & LAND SURVEYORS
43733 SCADENBERG, STERLING HEIGHTS, MI 48313
PHONE (586) 739-8007 FAX (586) 739-6994
WWW.FAZALKHAN.COM

NOVI SENIOR COMMUNITY PROJECT
DRAINAGE AREA MAP AND STORM CALCULATIONS

PROJECT NO. 14-032
DATE 05-16-17
DRAWN BY L.A.
CHECKED BY O.P.
SCALE 1" = 40'

CLIENT CALVIN HOLDINGS, LLC
CONSTRUCTION
AS-BUILT

SHEET NO. C-11

BENCHMARK LIST

#142: "X" ON NORTH RIM OF GATE WELL LOCATED IN THE NORTHWEST QUAD OF INTERSECTION 12 MILE ROAD AND NOVI ROAD, 5 FEET WEST OD SIDEWALK AND 15 FEET NORTH OF BACK OF CURB. ELEVATION=951.69

#1411: "X" ON NORTH RIM OF GATE WELL LOCATED BETWEEN LOTS #4323/43025 12 MILE ROAD, SOUTH OF 12 MILE ROAD AND 3 FEET SOUTH OF SIDEWALK. ELEVATION=944.39

#1412: "X" ON NORTH RIM OF GATE WELL LOCATED 6 FEET EAST OF WEST ENTRANCE TO 12 OAKS MALL OF 12 MILE ROAD, 15 FEET SOUTH OF SIDEWALK. ELEVATION=915.33

#1422: "X" ON NORTH RIM OF GATE WELL LOCATED 100 FEET EAST OF INTERSECTION EAST OF 12 OAKS ENTRANCE AND 12 MILE ROAD, 7 FEET SOUTH BACK CURB. ELEVATION=944.91

#1423: "X" ON SOUTH FLANGE BOLT OF FIRE HYDRANT LOCATED 380 FEET EAST OF INTERSECTION ENTRANCE TO DETROIT MEDICAL CENTER REHABILITATION CENTER AND 12 MILE ROAD, 6 FEET NORTH OF SIDEWALK. ELEVATION=941.17

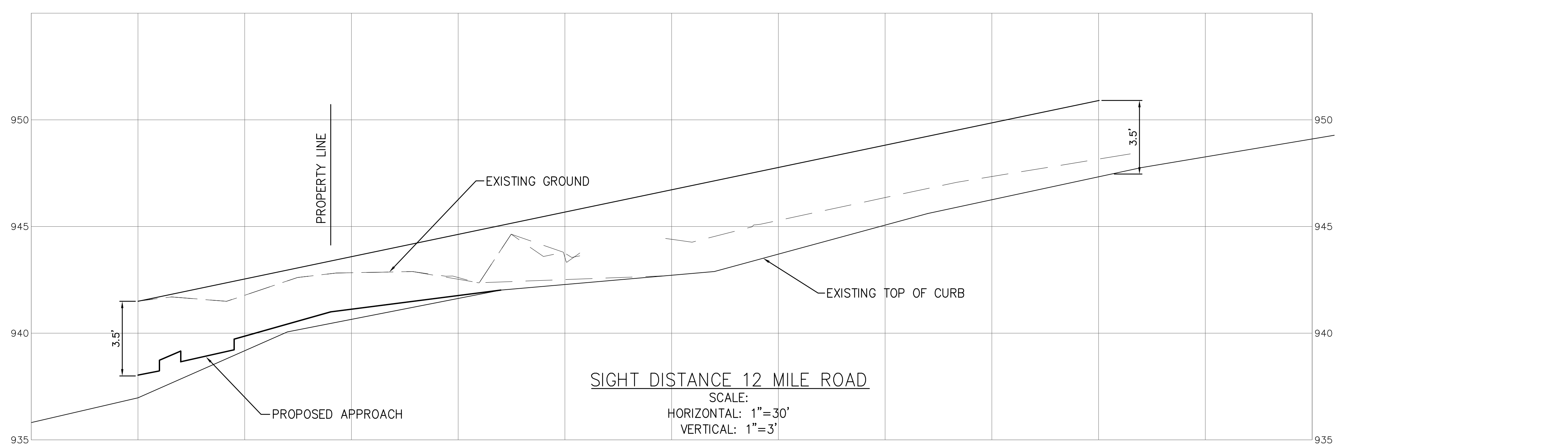
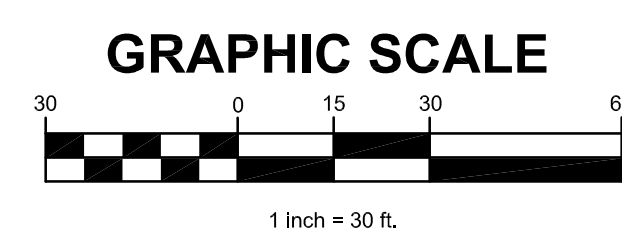
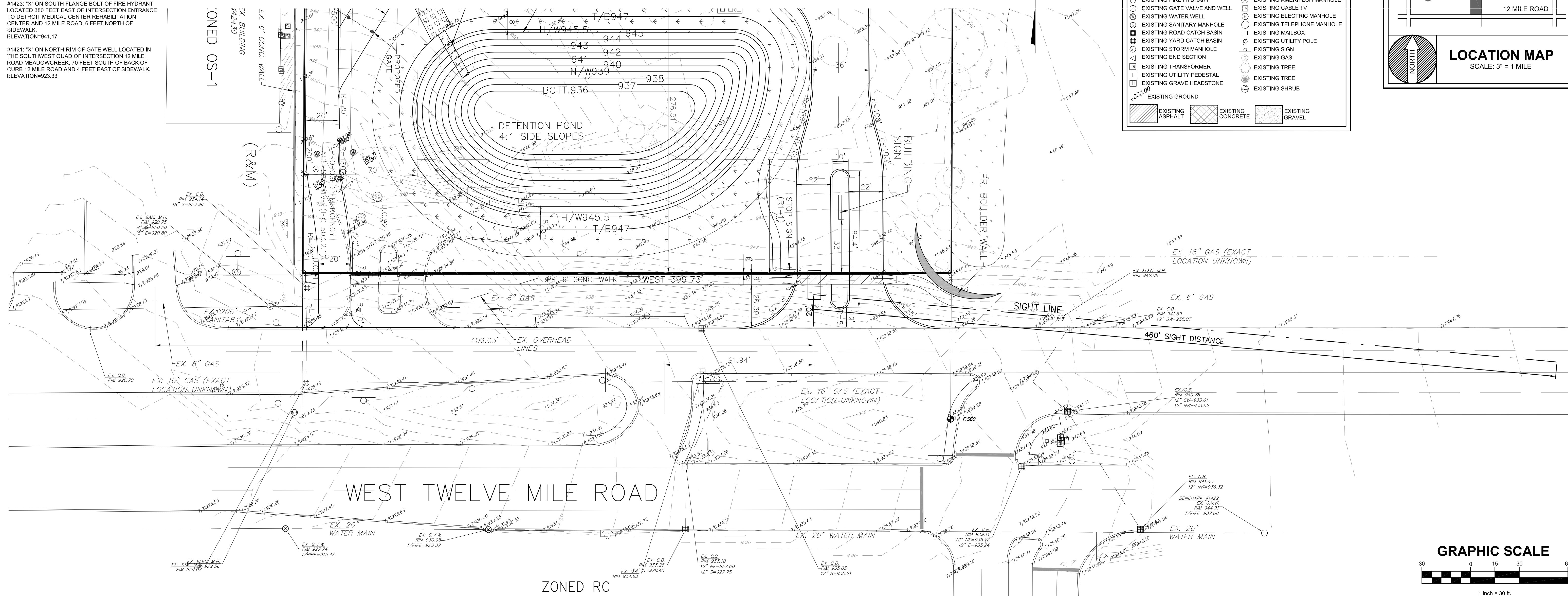
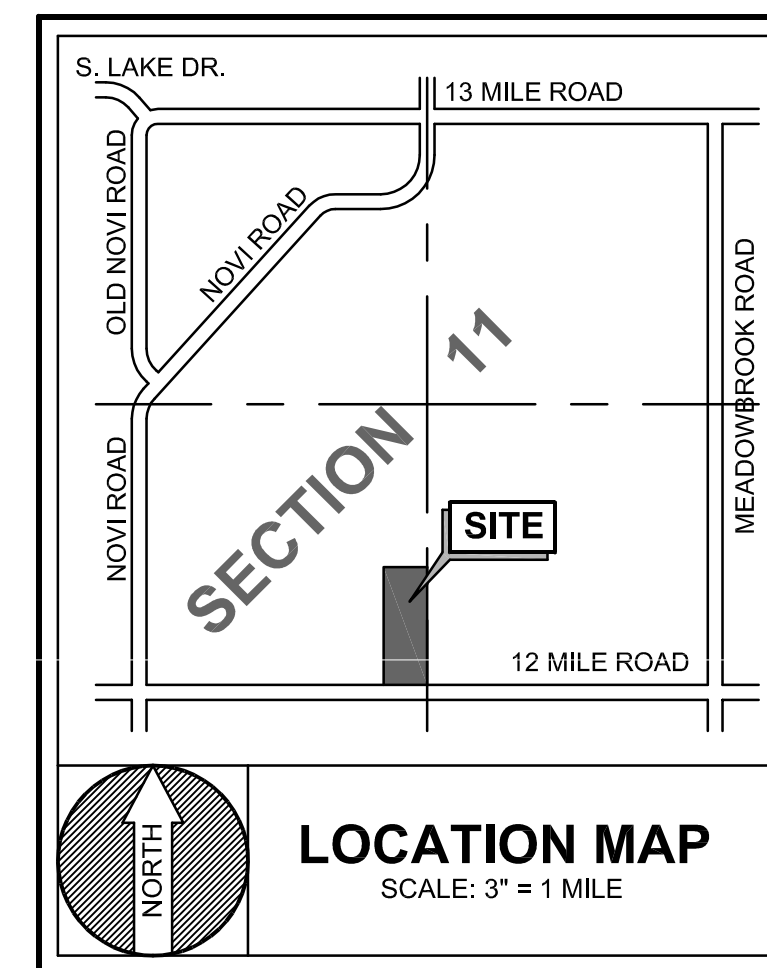
#1421: "X" ON NORTH RIM OF GATE WELL LOCATED IN THE SOUTHWEST QUAD OF INTERSECTION 12 MILE ROAD MEADOWCREEK, 70 FEET SOUTH OF BACK OF CURB 12 MILE ROAD AND 4 FEET EAST OF SIDEWALK. ELEVATION=923.33

NOVI SENIOR COMMUNITY PROJECT

A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

LEGEND

- SECTION CORNER
- FOUND IRON
- SET IRON
- SECTION LINE
- ROAD CENTERLINE
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING SWALE
- EXISTING FENCE LINE
- EXISTING OVERHEAD WIRES
- EXISTING UNDERGROUND UTILITY
- EXISTING CONTOUR
- EXISTING TREE / BRUSH LINE
- EXISTING FIRE HYDRANT
- EXISTING GATE VALVE AND WELL
- EXISTING WATER WELL
- EXISTING SANITARY MANHOLE
- EXISTING ROAD CATCH BASIN
- EXISTING YARD CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING END SECTION
- EXISTING TRANSFORMER
- EXISTING UTILITY PEDESTAL
- EXISTING GRAVE HEADSTONE
- EXISTING GROUND
- EXISTING AMERITECH MANHOLE
- EXISTING CABLE TV
- EXISTING ELECTRIC MANHOLE
- EXISTING TELEPHONE MANHOLE
- EXISTING MAILBOX
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING GAS
- EXISTING TREE
- EXISTING SHRUB
- EXISTING ASPHALT
- EXISTING CONCRETE
- EXISTING GRAVEL



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CALL 811.COM (TOLL FREE)

NOVI SENIOR COMMUNITY PROJECT
A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

FAZAL KHAN & ASSOCIATES, INC.
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4373 SCADENBERG, STERLING HEIGHTS, MI 48313
PHONE (586) 739-8007 FAX (586) 739-6994
WWW.FAZALKHAN.COM

SIGHT DISTANCE PLAN

PROJECT NO. 14-032	FIELD BOOK XXX
DATE 05-16-17	DATE
DRAWN BY L.A.	CHECKED BY O.P.
SCALE 1" = 30'	

PRELIMINARY CONSTRUCTION AS-BUILT

SHEET NO. **C-12**

CONSULTANTS

PROJECT TITLE

CA Novi Senior Housing

KEY PLAN

ISSUE # DATE DESCRIPTION

NOT FOR CONSTRUCTION

CERTIFICATION

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Architect under the laws of the State of Michigan

Jack O. Boorman
 Jack O. Boorman
 1301033020 1/4/18
 License Number Date

DATE 1/4/18
 DRAWN BY ZHR
 CHECKED BY CJP
 COMMISSION NUMBER 1966.10

SHEET TITLE

LEVEL 1

SHEET NUMBER

A1.1



	MC	AL	IL	TOTAL
LEVEL 1	39	-	15	54
LEVEL 2	-	33	31	64
LEVEL 3	-	33	32	65
TOTAL	39	66	78	183

CONSULTANTS

PROJECT TITLE

CA Novi Senior Housing

KEY PLAN

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COMMISSION NUMBER	1966.10

SHEET TITLE

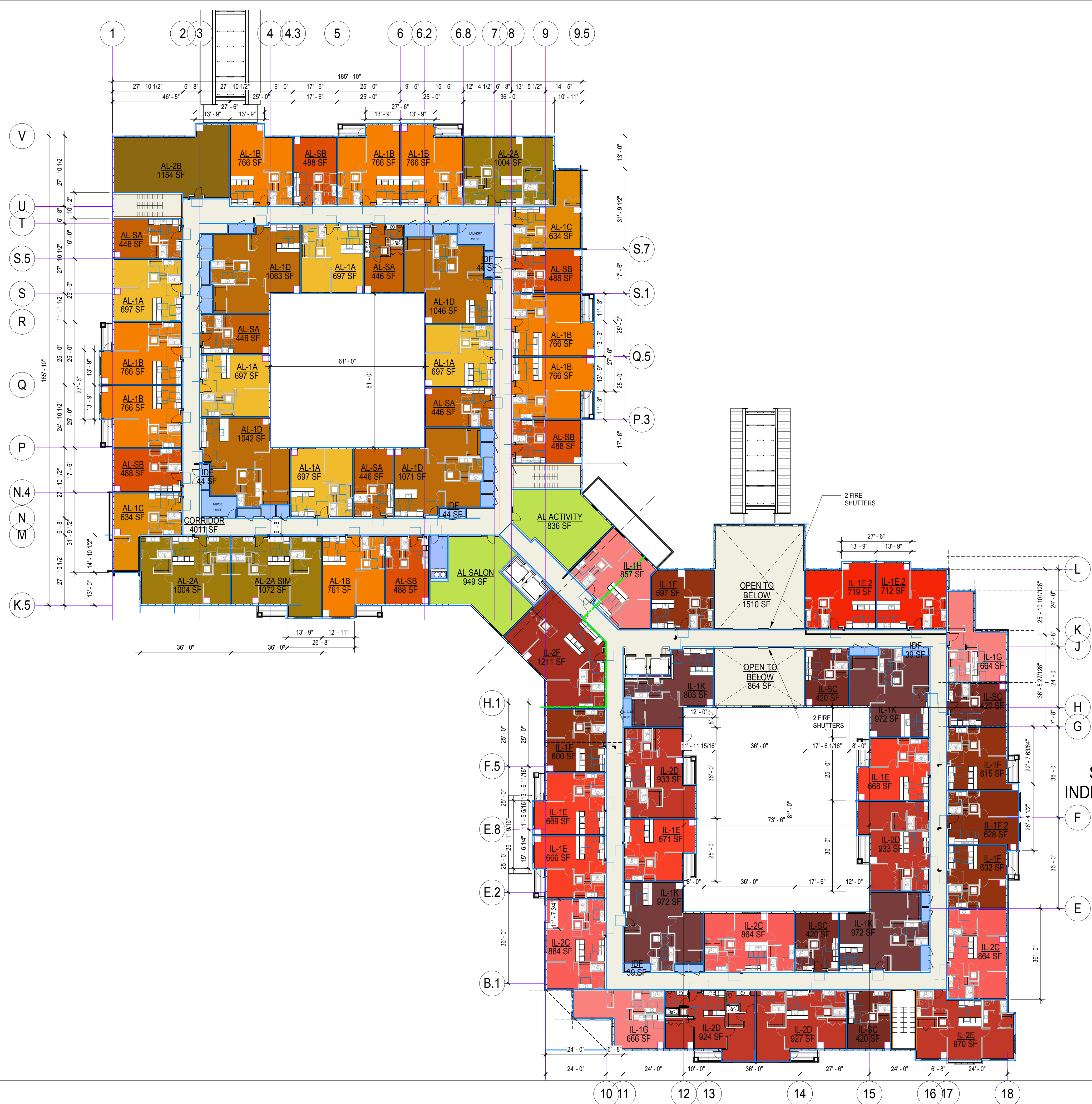
LEVEL 2

SHEET NUMBER

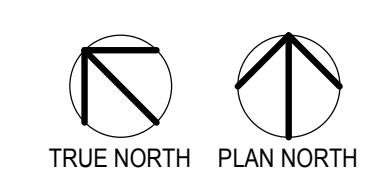
A1.2

SENIOR ASSISTED LIVING

SENIOR INDEPENDANT LIVING



BIM 360//1966-10 Novi MI/1966-10 CA Novi MI_2018_A1.rvt
 1/4/2018 8:34:33 AM



CONSULTANTS

PROJECT TITLE

CA Novi Senior Housing

KEY PLAN

ISSUE #	DATE	DESCRIPTION
NOT FOR CONSTRUCTION		

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Jack Boarman
 Jack O. Boarman
 1301033020 1/4/18
 License Number Date

DATE	1/4/18
DRAWN BY	ZHR
CHECKED BY	CJP
COMMISSION NUMBER	1966.10

SHEET TITLE

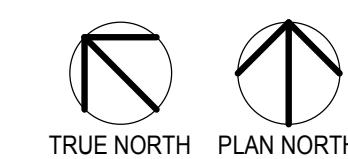
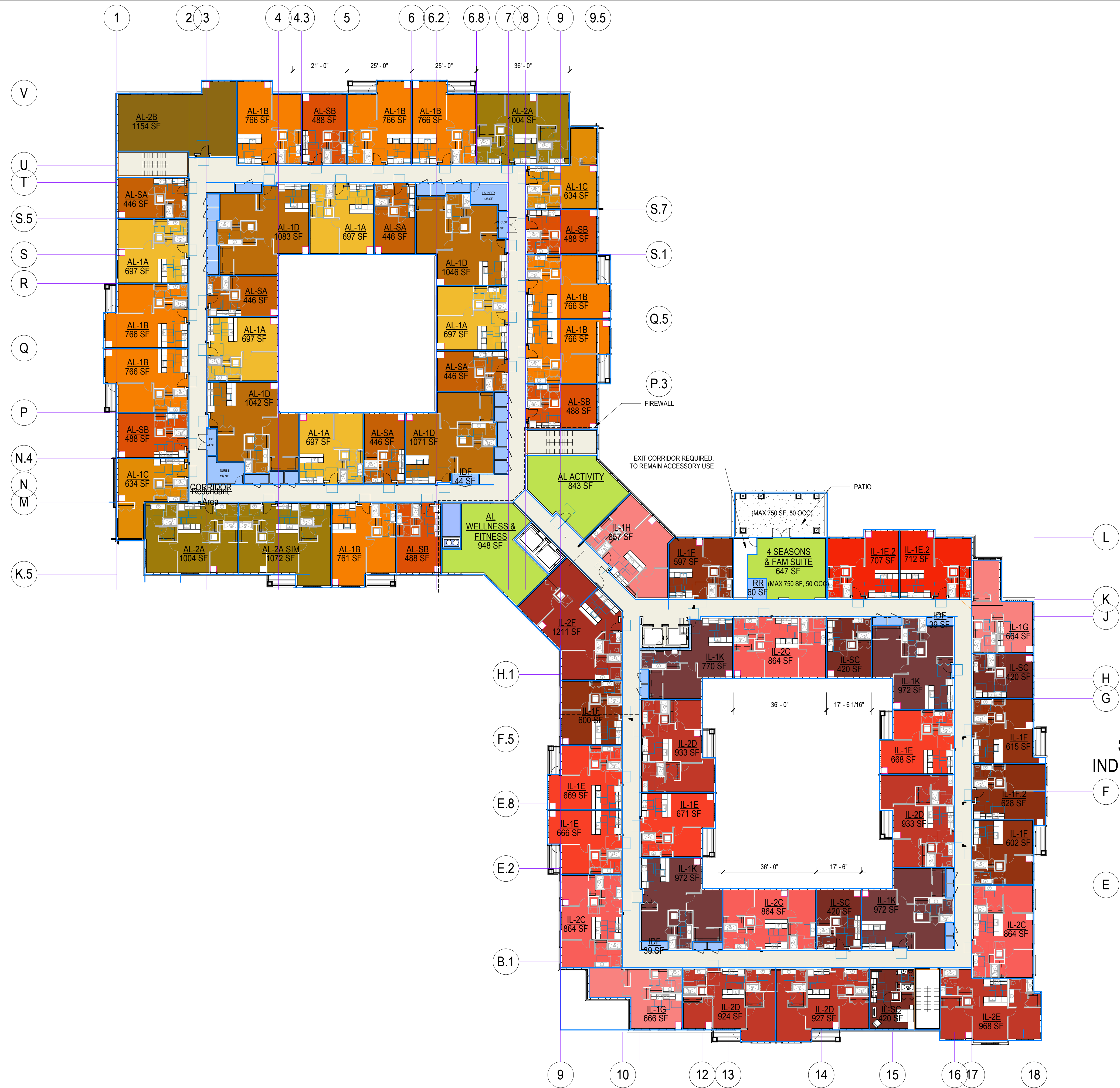
LEVEL 3

SHEET NUMBER

A1.3

SENIOR ASSISTED LIVING

SENIOR INDEPENDANT LIVING





CA Novi Senior Housing

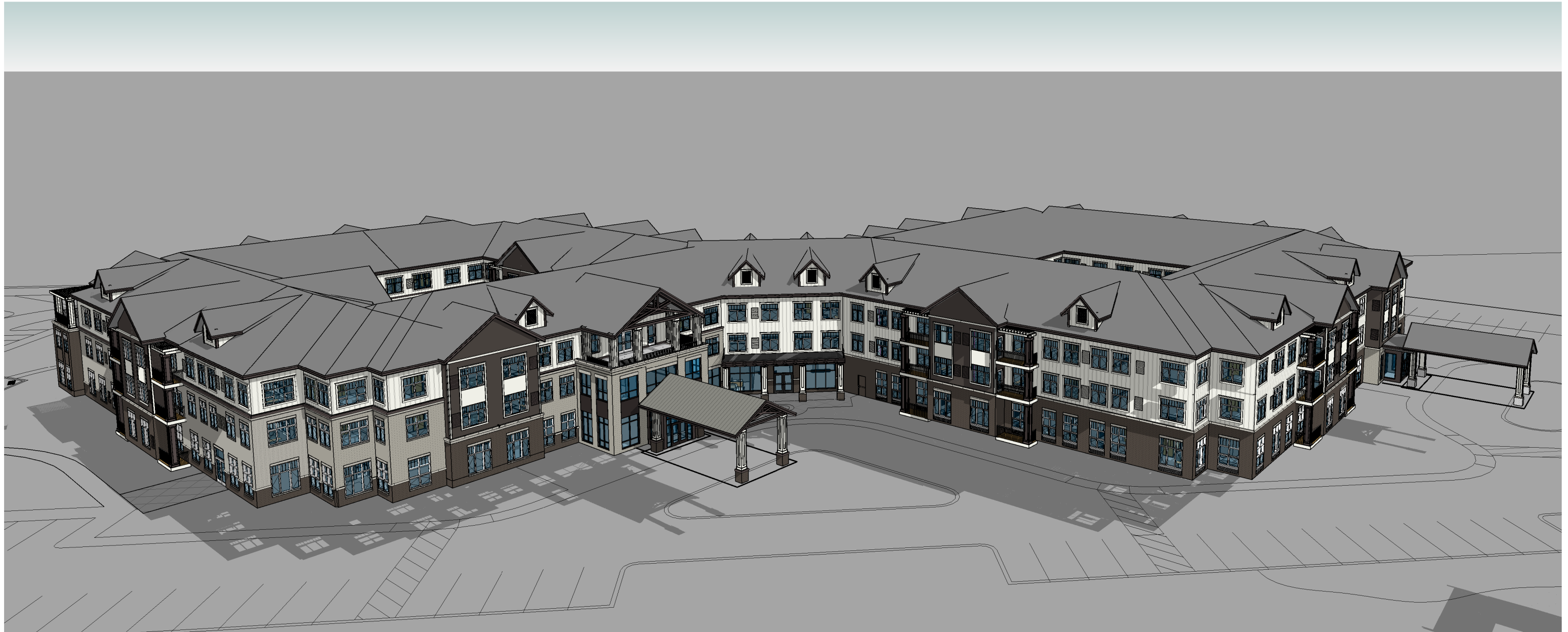
1/19/18

Scale

Perspective View - Northwest
(Main Entry)



BKV
GROUP



CA Novi Senior Housing

1/19/18

Scale

Birdseye View - Northeast



BKV
GROUP



CA Novi Senior Housing

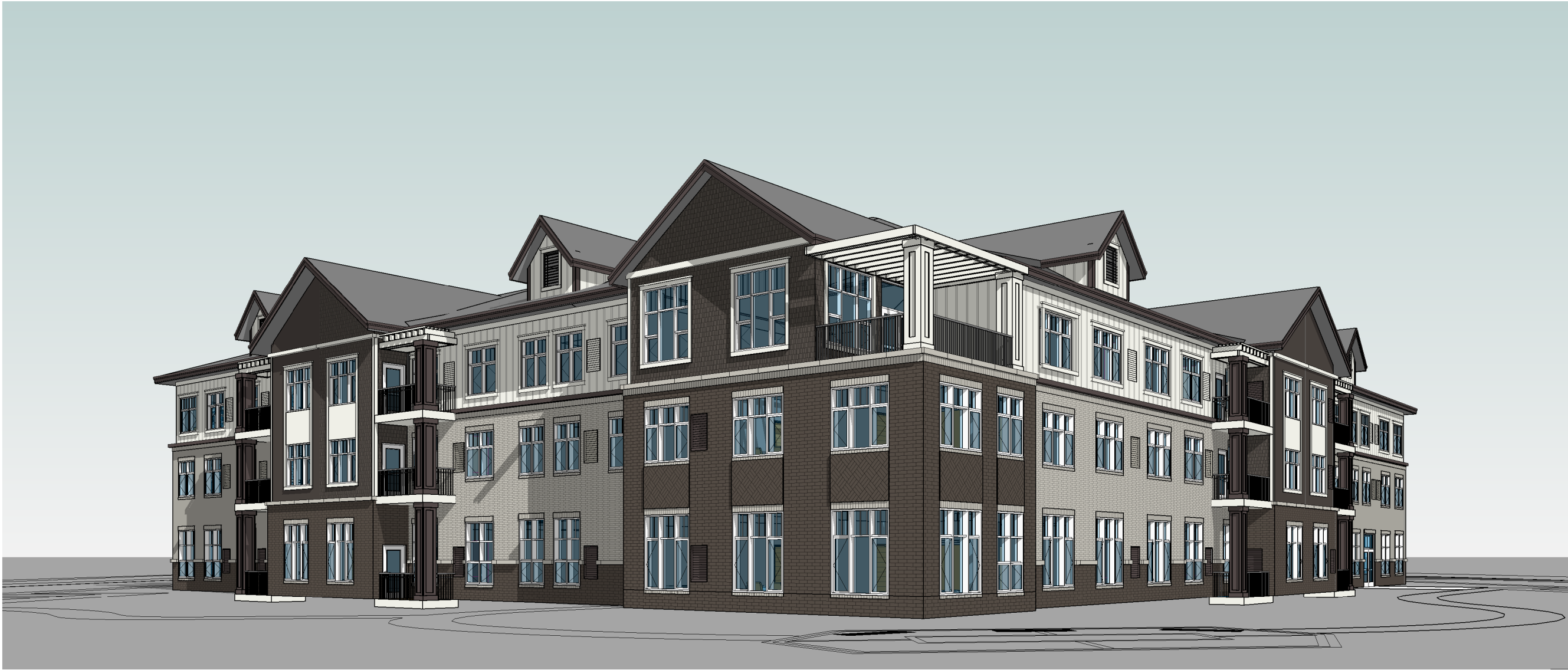
1/19/18

Scale

Perspective View - East

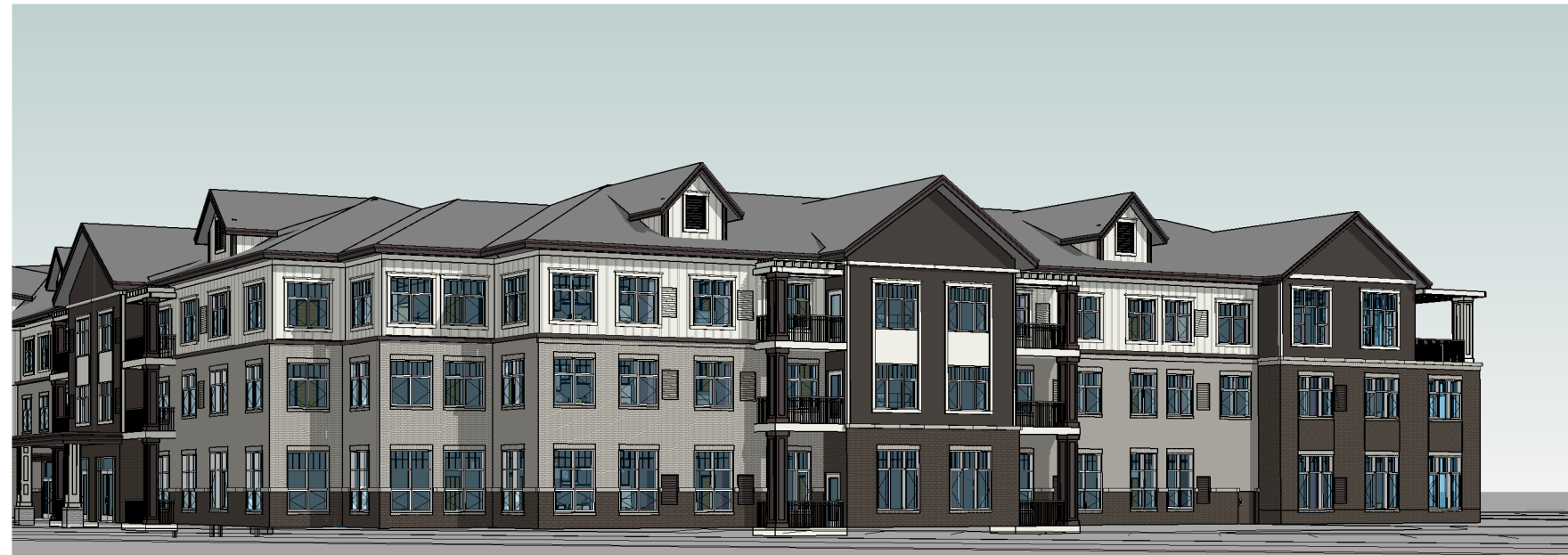


BKV
GROUP



2
A9.3

Perspective View - South



1
A9.3

Perspective View- Southwest



CA Novi Senior Housing

1/19/18

Scale

Perspective View - West



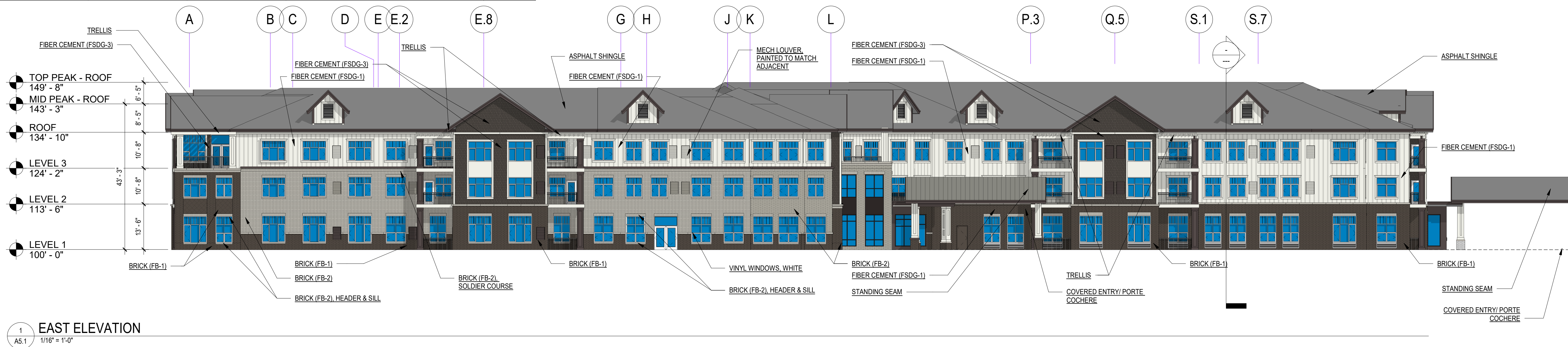
BKV
GROUP

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Jack O. Boorman
 Jack O. Boorman
 1301033020 1/19/18
 License Number Date

DATE	1/19/18
DRAWN BY	ZHR
CHECKED BY	CJP
COMMISSION NUMBER	1966.10

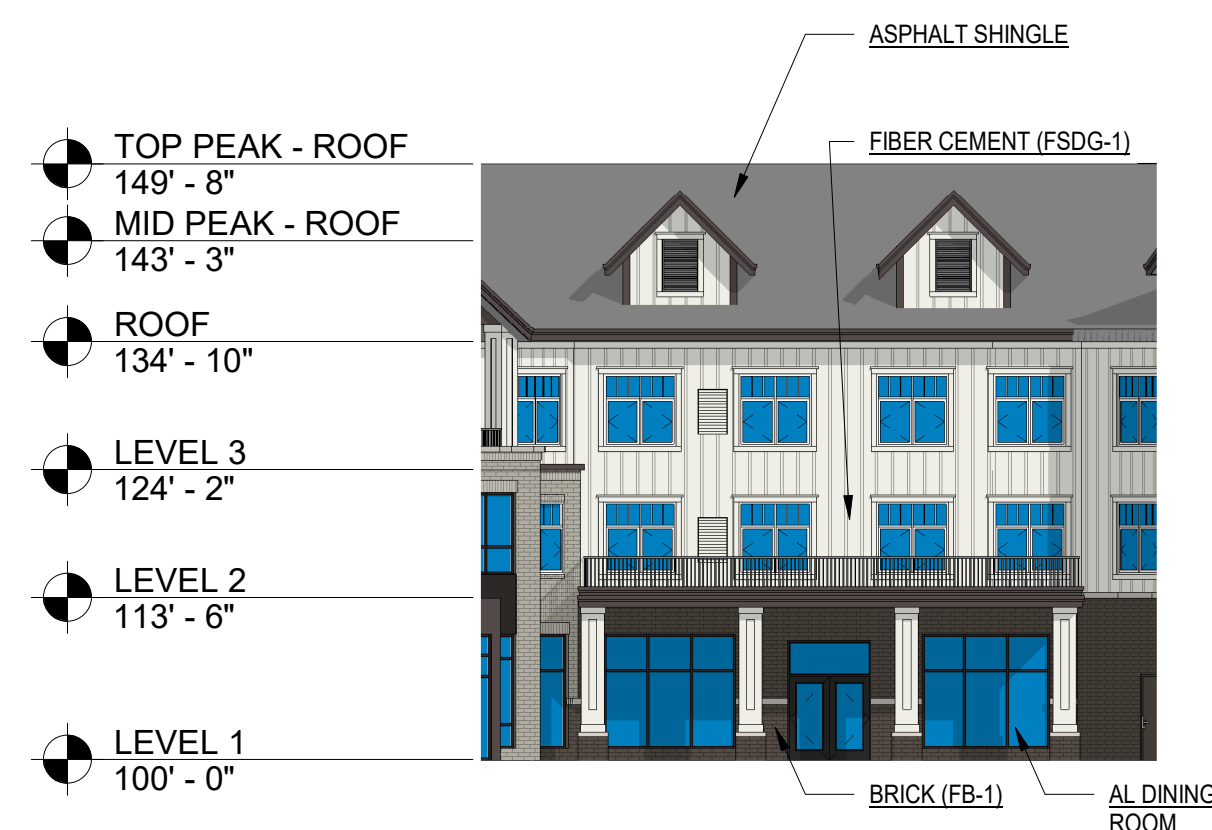
ELEVATION DESIGNATION	FIBER CEMENT SIDING	BRICK	STANDING SEAM METAL ROOF	ASPHALT SHINGLE ROOF	TOTAL
NORTH ELEVATION	46.59%	28.79%	0.53%	24.10%	100%
SOUTH ELEVATION	37.12%	35.22%		27.66%	100%
EAST ELEVATION	29.69%	30.79%	4.09%	35.43%	100%
WEST ELEVATION	38.92%	29.58%	2.25%	29.25%	100%
EAST LINK ELEVATION	49.68%	19.30%		31.02%	100%
WEST LINK ELEVATION	42.44%	32.74%		24.82%	100%
TOTAL BRICK AVERAGE		30.90%			



1 EAST ELEVATION
 A5.1 1/16" = 1'-0"

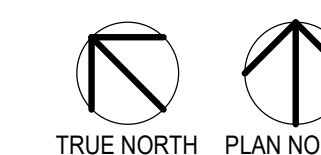


2 NORTH ELEVATION
 A5.1 1/16" = 1'-0"



3 EAST LINK - FRONT ENTRY
 A5.1 1/16" = 1'-0"

MATERIAL LEGEND	
(FSDG-1)	BOARD & BATTEN- 12" O.C
(FSDG-3)	SHAKE
(FB-1)	BRICK
(FB-2)	BRICK
(ASPHALT SHINGLES)	
(STANDING SEAM METAL)	



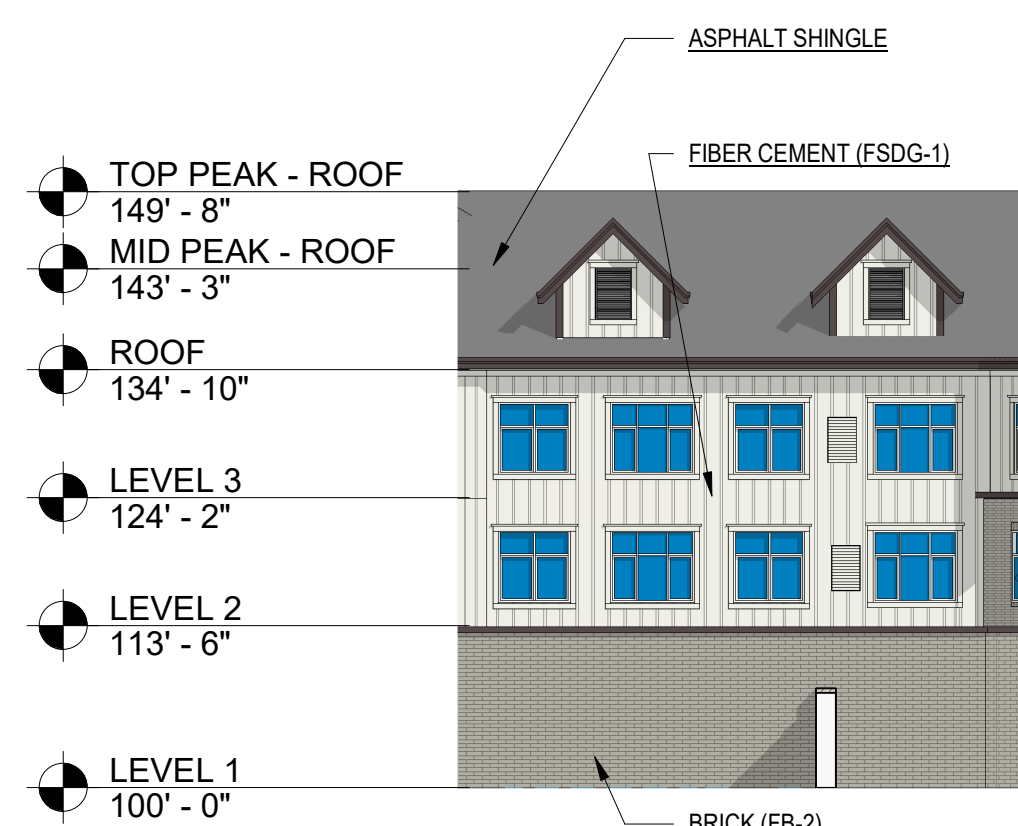
ELEVATION DESIGNATION	FIBER CEMENT SIDING	BRICK	STANDING SEAM METAL ROOF	ASPHALT SHINGLE ROOF	TOTAL
NORTH ELEVATION	46.59%	28.79%	0.53%	24.10%	100%
SOUTH ELEVATION	37.12%	35.22%		27.66%	100%
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WEST LINK ELEVATION	42.44%	32.74%		24.82%	100%
TOTAL BRICK AVERAGE		30.90%			



1 WEST ELEVATION
 A5.2 1/16" = 1'-0"



2 SOUTH ELEVATION
 A5.2 1/16" = 1'-0"



3 WEST LINK (KITCHEN SIDE)
 A5.2 1/16" = 1'-0"

MATERIAL LEGEND	
(FSDG-1)	BOARD & BATTEN - 12" O.C
(FSDG-3)	SHAKE
(FB-1)	BRICK
(FB-2)	BRICK
(ASPHALT SHINGLES)	
(STANDING SEAM METAL)	

PROJECT TITLE

CA Novi Senior Housing

KEY PLAN

ISSUE # DATE DESCRIPTION

CERTIFICATION

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Jack O. Boorman
 Jack O. Boorman
 1301033020 1/19/18
 License Number Date
 DATE 1/19/18
 DRAWN BY ZHR
 CHECKED BY CJP
 COMMISSION NUMBER 1966.10

SHEET TITLE

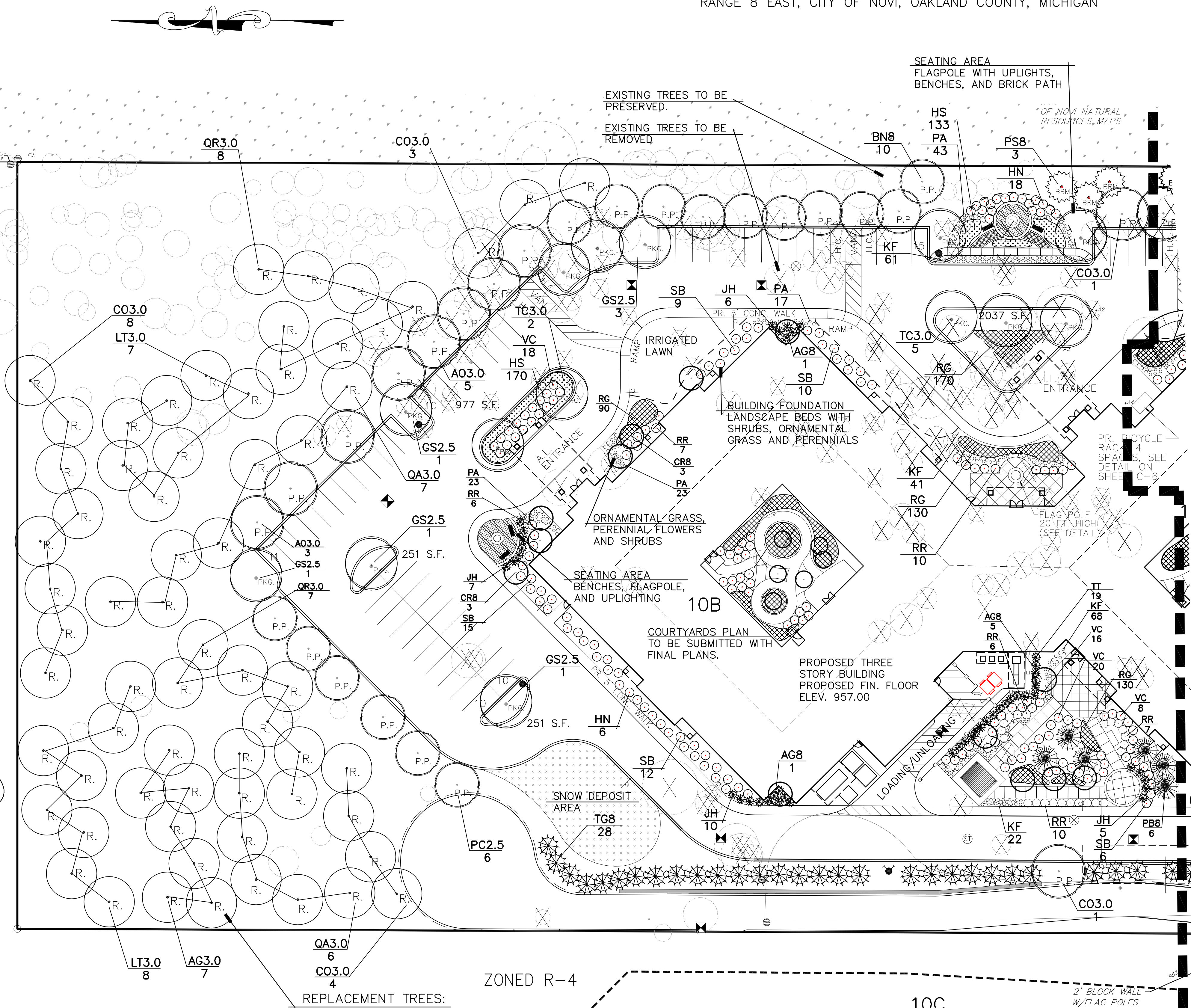
EXTERIOR ELEVATIONS

SHEET NUMBER

A5.2

NOVI SENIOR COMMUNITY PROJECT

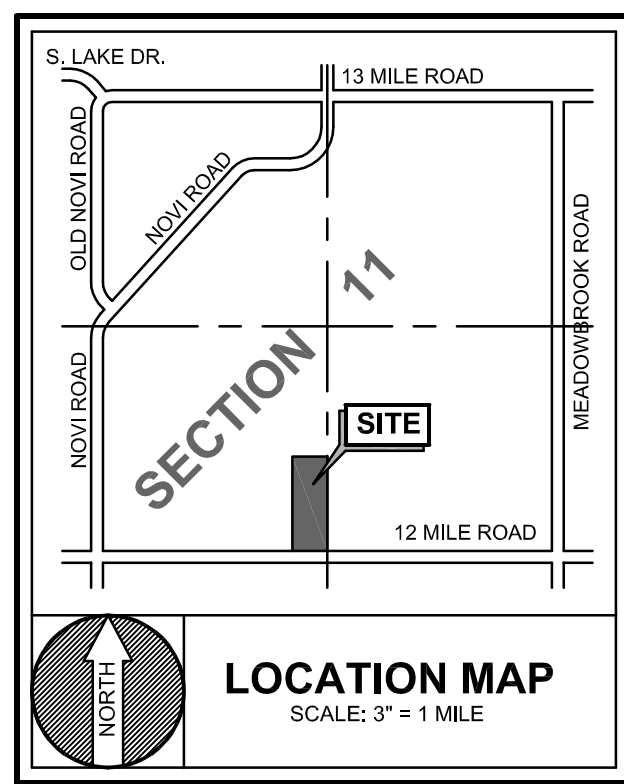
A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN



MATCH LINE
SEE SHEET L-1

LEGEND

- DECIDUOUS TREE-2.5"-3" CAL. (STREET TREE-R.O.W WITH RCOO APPROVAL)
- DECIDUOUS TREE-2.5"-3" CAL. (GREENBELT TREE)
- SUB-CANOPY TREE 2-2.5" CAL./8' HT. (GREENBELT TREE)
- DECIDUOUS TREE-2.5"-3" CAL. (PARKING LOT TREE)
- DECIDUOUS TREE-2.5"-3" CAL. (PARKING LOT PERIMETER TREE)
- REPLACEMENT TREE-2.5"-3" CAL.
- ORNAMENTAL TREE 2-2.5" CAL./8' HT. EVERGREEN TREE-8' HT. (DETENTION POND & BUILDING FOUNDATION)
- (BERM AND BUFFER TREES) DECIDUOUS TREE-2.5"-3" CAL. EVERGREEN TREE-8' HT.



LANDSCAPE SCHEDULE:

QTY	KEY	SCIENTIFIC NAME	COMMON NAME	SIZE	ROOT	COMMENTS
7	AG3.0	ACER SACCHARUM 'GREEN MOUNTAIN'	GREEN MOUNTAIN SUGAR MAPLE	3" CAL.	B&B	
8	AO3.0	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY MAPLE	3" CAL.	B&B	
17	CO3.0	CELTIS OCCIDENTALIS	HACKBERRY	3" CAL.	B&B	HIGH BRANCHED
7	TC3.0	TILIA CORDATA	GREENSPIRE LINDEN	3" CAL.	B&B	
13	QA3.0	QUERCUS ALBA	WHITE OAK	3" CAL.	B&B	
15	QR3.0	QUERCUS RUBRA	RED OAK	3" CAL.	B&B	
7	GS2.5	GLEDITSIA TRI. INERMIS 'SKYCOLE'	SKYLINE HONEYLOCUST	2.5" CAL.	B&B	
15	LT3.0	LIRIODENDRON TULIPIFERA	TULIPTREE	3" CAL.	B&B	
10	BN8	BETULA NIGRA 'CULLY'	HERITAGE RIVER BIRCH	8' HT.	B&B	CLUMP
6	PC2.5	PYRUS CALLERYANA 'CLEVELAND SELECT'	CLEVELAND SELECT PEAR	2.5" CAL.	B&B	
7	AG8	AMELANCHER X GRANDIFLORA	AUTUMN BRILLANCE SERVICEBERRY	2.5" CAL./8' HT.	B&B	CLUMP
6	CR8	CORNUS FLORIDA F. RUBRA	PINK FLOWERING DOGWOOD	2.5" CAL./8' HT.	B&B	CLUMP
6	PBB	ABIES BALSAMEA	BALSAM FIR	8' HT.	B&B	
3	PSB	PINUS SYLVESTRIS	SCOTCH PINE	8' HT.	B&B	
28	TGB	THUJA PUCATA 'GREEN GIANT'	GREEN GIANT ARB.	8' HT.	B&B	
46	RR	ROSA X 'RADTKO'	RED DOUBLE-KNOCKOUT ROSES	18" HT.	CONT.	
28	JH	JUNIPERUS HOR. PL. COMP. 'YOUNGSTOWN'	ANDORRA JUNIPER	24" SPD.	CONT.	
62	VC	VIBURNUM CARLESII	KOREAN SPICE VIBURNUM	24" HT.	CONT.	
52	SB	SPIREA X BUM. 'ANTHONY WATERER'	ANTHONY WATERER SPIREA	24" HT.	CONT.	
24	HN	HYDRANGEA M. 'NIKKO BLUE'	NIKKO BLUE HYDRANGEA	24" HT.	CONT.	
19	TT	THUJA O. 'TECHNY'	MISSION ARBORVITAE	5' HT.	CONT.	
192	KF	CALAMAGROSTIS X A. 'KARL FOERSTER'	KARL FOERSTER GRASS	2 GAL.	CONT.	18" O.C. (FULL WELL ROOTED)
106	PA	PENSETUM ALOPE. 'HAEMEL'	DWARF FOUNTAIN GRASS	2 GAL.	CONT.	18" O.C. (FULL WELL ROOTED)
303	HS	HEMEROCALLIS 'STELLA D'ORO'	STELLA D'ORO	2 GAL.	CONT.	18" O.C. (FULL WELL ROOTED)
430	RG	RUDECKIA FUL. 'GOLDSTURM'	BLACK EYE SUSAN	2 GAL.	CONT.	18" O.C. (FULL WELL ROOTED)

- GENERAL NOTES:**
- INSTALL ALL LANDSCAPING BETWEEN MARCH 15th AND NOVEMBER 15th OF 2017.
 - ESTABLISHMENT: THE ESTABLISHMENT PERIOD FOR THE PLANT MATERIAL GUARANTEE WILL OCCUR BEGINNING AT THE FINAL CERTIFICATE OF OCCUPANCY INSPECTION APPROVAL TO 2 YEARS FROM THAT DATE. ALL PLANTINGS SHALL BE PROPERLY PLANTED AS TO BE IN A HEALTHY, GROWING CONDITION AT COMMENCEMENT OF THE ESTABLISHMENT PERIOD. AT THE END OF THE ESTABLISHMENT PERIOD, PLANTING WHICH ARE 20% DEAD OR GREATER, SHALL BE REPLACED.
 - LANDSCAPE SHALL BE MAINTAINED IN A HEALTHY, NEAT AND ORDERLY APPEARANCE, FREE FROM REFUSE. ALL UNHEALTHY & DEAD PLANT MATERIAL SHALL BE REPLACED WITHIN 1 YEAR, OR DURING THE NEXT APPROPRIATE PLANTING PERIOD.
 - ALL LANDSCAPE AREAS SHALL HAVE AN AUTOMATIC IRRIGATION SYSTEM, BARK AS REQUIRED FOR ALL PLANTINGS. IF GRASS OR WEEDS EXCEED THE HEIGHT SPECIFIED IN THE NOVI CODE OF ORDINANCES OR IF SHRUBS ARE ALLOWED TO OBSTRUCT VISION ACROSS ANY PORTION OF THE ISLAND AND THE RESPONSIBLE PARTY IS UNWILLING TO RECTIFY THE PROBLEM THE CITY WILL ABATE SUCH VIOLATIONS AND SHALL ASSESS THE COST OF SUCH ABATEMENT MEASURES IN THE MANNER SPECIFIED BY THE DEVELOPER AND APPROVED BY THE CITY IN SUCH INSTRUMENT.
 - BARK MULCH SHALL BE NATURAL COLOR, FINELY SHREDDED HARDWOOD BARK AS REQUIRED FOR ALL PLANTINGS. 4" THICK BARK MULCH FOR TREES, IN A 4-FOOT DIAMETER CIRCLE WITH 3" PULLED AWAY FROM TRUNK. 3" THICK BARK MULCH FOR SHRUBS AND 2" THICK BARK FOR PERENNIALS.
 - ALL SUBSTITUTIONS OR DEVIATIONS FROM THE LANDSCAPE PLAN MUST BE APPROVED BY THE CITY OF NOVI PRIOR TO INSTALLATION. A MINIMUM OF ONE (1) CULTIVATION IN PLANTED AREAS IN JUNE, JULY AND AUGUST FOR THE 2 YEAR WARRANTY PERIOD.
 - REMOVE ALL TREE STAKES, GUY WIRES, AND TREE WRAP AFTER ONE(1) WINTER SEASON
 - IRRIGATION PLANS WILL BE SUBMITTED WITH FINAL LANDSCAPE PLANS.
 - MAINTENANCE: A TWO(2) YEAR MAINTENANCE GUARANTEE IS REQUIRED FOR ALL REPLACEMENT TREES PLANTED ON-SITE AND ALL EXISTING TREES ADJACENT TO GRADING ACTIVITY OR NEW CONSTRUCTION.
- PLANTING NOTES:**
- LANDSCAPE CONTRACTOR (CONTRACTOR) SHALL VISIT SITE, INSPECT EXISTING CONDITIONS AND REVIEW PROPOSED PLANTING AND RELATED WORK. IN CASE OF DISCREPANCY BETWEEN PLAN AND PLANT LIST, PLAN SHALL GOVERN QUANTITIES. CONTACT LANDSCAPE ARCHITECT WITH ANY CONCERNS.
 - CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ON-SITE UTILITIES PRIOR TO BEGINNING CONSTRUCTION ON HIS/HER PHASE OF WORK. ELECTRIC, GAS, TELEPHONE, CABLE, TELEVISION MAY BE LOCATED BY CALLING MISS DIG 1-800-482-7171. ANY DAMAGE OR INTERRUPTION OF SERVICES SHALL BE THE RESPONSIBILITY OF CONTRACTOR. CONTRACTOR SHALL COORDINATE ALL RELATED ACTIVITIES WITH OTHER TRADES ON THE JOB AND SHALL REPORT ANY UNACCEPTABLE JOB CONDITIONS TO OWNER'S REPRESENTATIVE PRIOR TO COMMENCING.
 - ALL PLANT MATERIAL TO BE PREMIUM GRADE NURSERY STOCK, AND SHALL SATISFY AMERICAN ASSOCIATION OF NURSERYMEN STANDARD FOR NURSERY STOCK. ALL PLANT MATERIAL TO BE NORTHERN GROWN, NO 1 GRADE. TREES SHALL BE STAKED, WRAPPED, WATERED AND MULCHED PER CITY OF NOVI DETAILS AND SPECIFICATION.
 - INSTALL SOD IN ALL AREAS INDICATED ON PLAN. SOD TO BE WELL THE AUTOMATIC IRRIGATION SYSTEM SHALL PROVIDE 100% COVERAGE ON ALL LAWN AREAS.
 - GUARANTEE OF PLANTS FOR TWO(2) YEARS SHALL BEGIN AFTER ACCEPTANCE BY LANDSCAPE ARCHITECT AND/OR PROJECT REPRESENTATIVE. THE CONTRACTOR SHALL GUARANTEE ALL PLANTS TO BE IN A HEALTHY, VIGOROUS CONDITION FOR A PERIOD OF TWO(2) YEARS FOLLOWING ACCEPTANCE. CONTRACTOR SHALL REPLACE WITHOUT COST TO OWNER, ANY DEAD OR UNACCEPTABLE PLANTS, AS DETERMINED BY PROJECT REPRESENTATIVE DURING AND AT THE END OF THE GUARANTEE PERIOD. THE TWO(2) YEAR WARRANTY PERIOD WILL BEGIN AFTER THE "CITY OF NOVI" HAS APPROVED THE TREES.
 - PLANT TREES & SHRUBS GENERALLY NO CLOSER THAN THE FOLLOWING DISTANCES, FROM PROPERTY LINES, PUBLIC UTILITIES, ROADS, AND WALKWAYS:
 PROPERTY LINES.....4'
 PUBLIC UTILITIES.....6'
 OVERHEAD LINES.....5'
 HYDRANTS.....15'
 ROADS.....10'
 WALKWAYS.....4'

REPLACEMENT TREES:

453 REPLACEMENT TREES REQUIRED
 — 86 REPLACEMENT TREES PROVIDED

367 REPLACEMENT TREES, NOT INSTALLED DUE TO UTILITIES, LIMITED AREA.

(367) PAYMENT TO TREE FUND

NOTE:
 SEE TREE SURVEY & TREE LIST FOR TREE PRESERVATION PLAN. SHEETS C-3 AND C-4

CALL MISS DIG 772 HOURS BEFORE YOU DIG 1-800-482-7171 CALL 811.COM (TOLL FREE)

BY: [Signature]

REVISIONS:

DATE:

NOVI SENIOR COMMUNITY PROJECT
 A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

NOVI SENIOR COMMUNITY PROJECT
 A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

FAZAL KHAN & ASSOCIATES, INC.
 CIVIL ENGINEERS & LAND SURVEYORS
 15000 WOODBURN AVENUE, SUITE 100
 FARMINGTON HILLS, MI 48334
 WWW.FAZALKHAN.COM

LANDSCAPE PLAN-NORTH

PROJECT NO. 14-032
 DATE 05-16-17
 DRAWN BY JOE CARADONNA
 CHECKED BY [Signature]
 O.G.
 SCALE 1" = 30'

SHEET NO. L-2

NOVI SENIOR COMMUNITY PROJECT

A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

PLANTING NOTES:

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PLANT TREES & SHRUBS GENERALLY NO CLOSER THAN THE FOLLOWING DISTANCES, FROM PROPERTY LINES, PUBLIC UTILITIES ROADS, AND WALKWAYS:
PROPERTY LINES.....4'
PUBLIC UTILITIES.....6'
OVERHEAD LINES.....15'
HYDRANTS.....15'
ROADS.....15'
WALKWAYS.....4'
- ALL REQUIRED LANDSCAPE MATERIAL INDICATED ON THE APPROVED PLANS WILL BE REQUIRED THROUGHOUT THE LIFE OF THE PROJECT AND MUST BE REPLACED IF REMOVED OR DIES.
- WOODLAND PRESERVATION:
TO PRESERVE WOODLAND CHARACTER OF EXISTING WOODLAND, TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL REMAIN UNTIL CONSTRUCTION IS COMPLETE. NO ACTIVITY INCLUDING STORAGE OF EQUIPMENT, VEHICULAR PARKING ETC. SHALL TAKE PLACE WITHIN THE BOUNDARIES OF FENCED-OFF AREA.
THE OWNER SHALL PROVIDE ON-GOING MAINTENANCE AFTER CONSTRUCTION IS COMPLETE. THE OWNER SHALL PROHIBIT THE USE OF LAWN MOWERS, WEED WHIPS, FERTILIZERS, AND IRRIGATION FROM IMPACTING EXISTING WOODLANDS.

REPLACEMENT TREES:
REPLACEMENT TREE PLANTED ON-SITE, INCLUDING UNDERSTORY VEGETATION AND GROUND COVER WILL BECOME REGULATED.

REQUIRED REPLACEMENT TREES:
8" < 11" = 1 REPLACEMENT TREE
> 11" < 20" = 2 REPLACEMENT TREES
> 20" < 29" = 3 REPLACEMENT TREES
> 30" = 4 REPLACEMENT TREES

PRELIMINARY COST OPINION:

QTY	COMMON NAME	COST	TOTAL
124	SHADE TREES	\$400.00	\$49,600
81	EVERGREEN TREE	\$325.00	\$26,325
86	SUB CANOPY	\$250.00	\$21,500
374	DECIDUOUS SHRUB	\$50.00	\$18,700
77	EVERGREEN SHRUB	\$50.00	\$3,850
1784	PERENNIALS	\$15.00	\$26,760
			\$146,735
700 L.F.	EDGING	\$1.50 L.F.	\$1,050
160 CY	MULCH	\$35.00 CY	\$5,600
2970 SY	SOD	\$6.00 SY	\$17,820
7500 SY	HYDRO-SEED	\$3.00 SY	\$22,500
2370 SY	DETENTION BASIN SEED	\$3.00 SY	\$7,110
			\$54,080
TOTAL			\$200,815

GENERAL NOTES:

- INSTALL ALL LANDSCAPING BETWEEN MARCH 15th AND NOVEMBER 15th.
- ESTABLISHMENT:
THE ESTABLISHMENT PERIOD FOR THE PLANT MATERIAL GUARANTEE WILL OCCUR BEGINNING AT THE FINAL CERTIFICATE OF OCCUPANCY INSPECTION APPROVAL TO 2 YEARS FROM THAT DATE. ALL PLANTINGS SHALL BE PROPERLY PLANTED AS TO BE IN A HEALTHY, GROWING CONDITION AT COMMENCEMENT OF THE ESTABLISHMENT PERIOD; AT THE END OF THE ESTABLISHMENT PERIOD, PLANTING WHICH ARE 20% DEAD OR GREATER, SHALL BE REPLACED.
- LANDSCAPE SHALL BE MAINTAINED IN A HEALTHY, NEAT AND ORDERLY APPEARANCE, FREE FROM REFUSE. ALL UNHEALTHY & DEAD PLANT MATERIAL SHALL BE REPLACED WITHIN 1 YEAR, OR DURING THE NEXT APPROPRIATE PLANTING PERIOD.

TO INSURE PROPER MAINTENANCE AS A CONDITION OF FINAL SITE PLAN APPROVAL THE PROPERTY OWNER SHALL ENTER INTO AND RECORD WITH THE OFFICE OF THE OAKLAND COUNTY REGISTER OF DEEDS A LANDSCAPE MAINTENANCE AGREEMENT, OR INCLUDE SUCH PROVISIONS AS PART OF SUBDIVISION RESTRICTIONS OR CONDOMINIUM MASTER DEED, EACH OF WHICH SHALL BE APPROVED BY THE CITY ATTORNEY. THIS INSTRUMENT SHALL IDENTIFY THE MIN. PLAN OF MAINTENANCE, THE PERSON OR ENTITY RESPONSIBLE FOR MAINTENANCE.

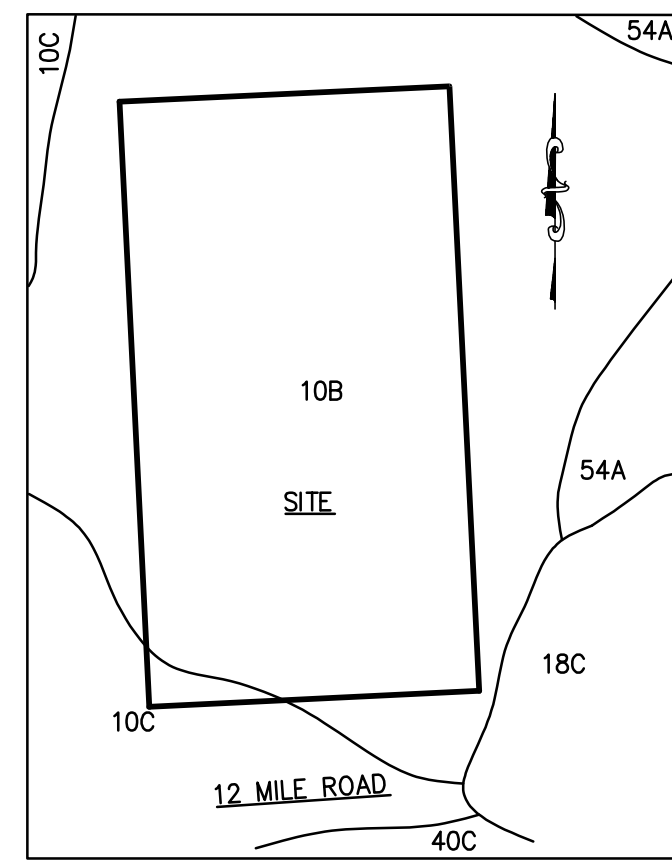
IF GRASS OR WEEDS EXCEED THE HEIGHT SPECIFIED IN THE NOVI CODE OF ORDINANCES OR IF SHRUBS ARE ALLOWED TO OBSTRUCT VISION ACROSS ANY PORTION OF THE ISLAND AND THE RESPONSIBLE PARTY IS UNWILLING TO RECTIFY THE PROBLEM THE CITY WILL ABATE SUCH VIOLATIONS AND SHALL ASSESS THE COST OF SUCH ABATEMENT MEASURES IN THE MANNER PROPOSED BY THE DEVELOPER AND APPROVED BY THE CITY IN SUCH INSTRUMENT.
- ALL LANDSCAPE AREAS SHALL HAVE AN AUTOMATIC IRRIGATION SYSTEM, TREE STAKES, GUY WIRES, AND TREE WRAP TO BE REMOVED AFTER ONE WINTER SEASON. PLANTINGS SHALL BE GUARANTEED FOR TWO(2) GROWING SEASONS AFTER DATE OF THE ACCEPTANCE OF THE INSTALLATION.

WOODLAND PERMIT:
PERMIT REQUIRED BEFORE, REMOVING ANY EXISTING ON-SITE TREE.

BARK MULCH SHALL BE NATURAL COLOR, FINELY SHREDDED HARDWOOD BARK AS REQUIRED FOR ALL PLANTINGS.
4" THICK BARK MULCH FOR TREES, IN A 4-FOOT DIAMETER CIRCLE WITH 3" PULLED AWAY FROM TRUNK.
3" THICK BARK MULCH FOR SHRUBS AND 2" THICK BARK FOR PERENNIALS.

ALL SUBSTITUTIONS OR DEVIATIONS FROM THE LANDSCAPE PLAN MUST BE APPROVED BY THE CITY OF NOVI PRIOR TO INSTALLATION. A MINIMUM OF ONE (1) CULTIVATION IN PLANTED AREAS IN JUNE, JULY AND AUGUST FOR THE 2 YEAR WARRANTY PERIOD.

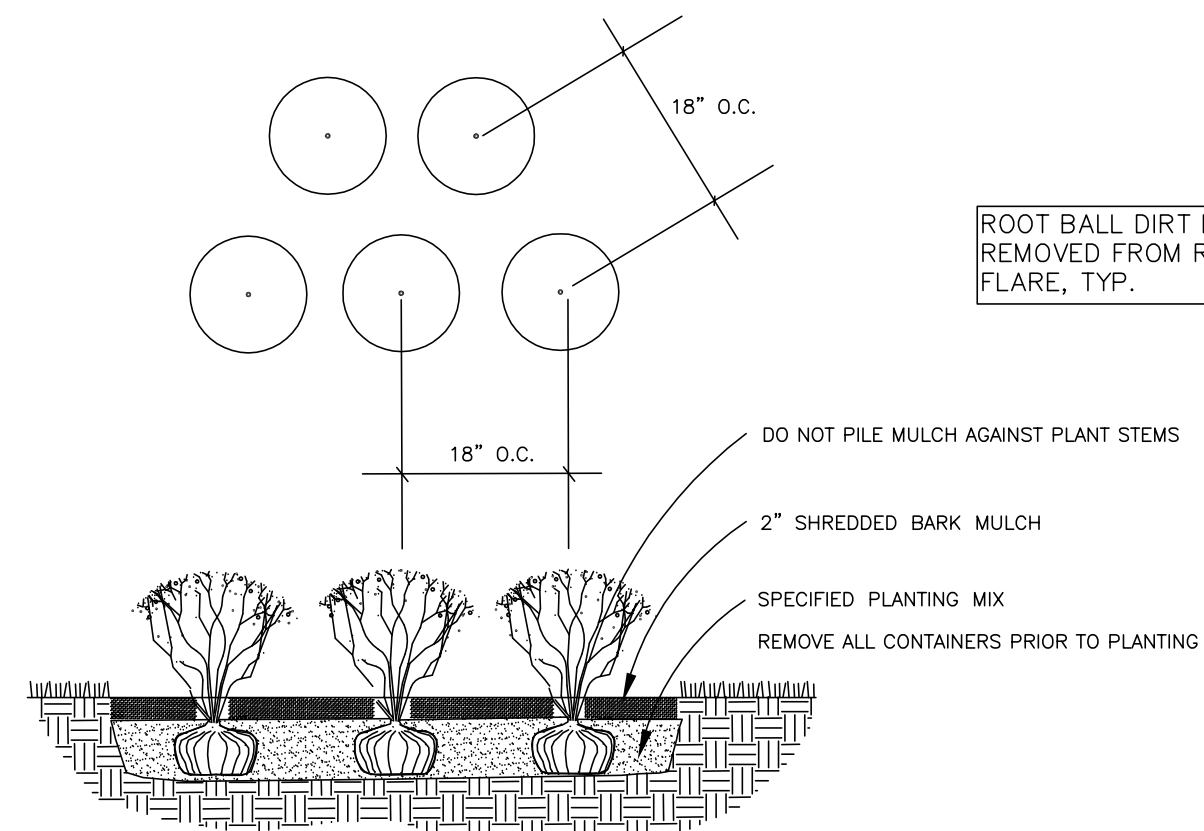
REMOVE ALL TREE STAKES, GUY WIRES, AND TREE WRAP AFTER ONE(1) WINTER SEASON
- IRRIGATION PLANS WILL BE SUBMITTED WITH FINAL LANDSCAPE PLANS.
- MAINTENANCE:
A TWO(2) YEAR MAINTENANCE GUARANTEE IS REQUIRED FOR ALL REPLACEMENT TREES PLANTED ON-SITE AND ALL EXISTING TREES ADJACENT TO GRADING ACTIVITY OR NEW CONSTRUCTION.



SOIL TYPES
10B Mariette sandy loam, 1 to 6 percent slopes
10C Mariette sandy loam, 6 to 12 percent slopes
18C Fox sandy loam, 6 to 12 percent slopes
40A Udorthents, loamy, nearly level
40X Udorthents, loamy, rolling
54A Matheron sandy loam, 0 to 3 percent slopes

PERENNIAL PLANTING DETAIL

NOT TO SCALE

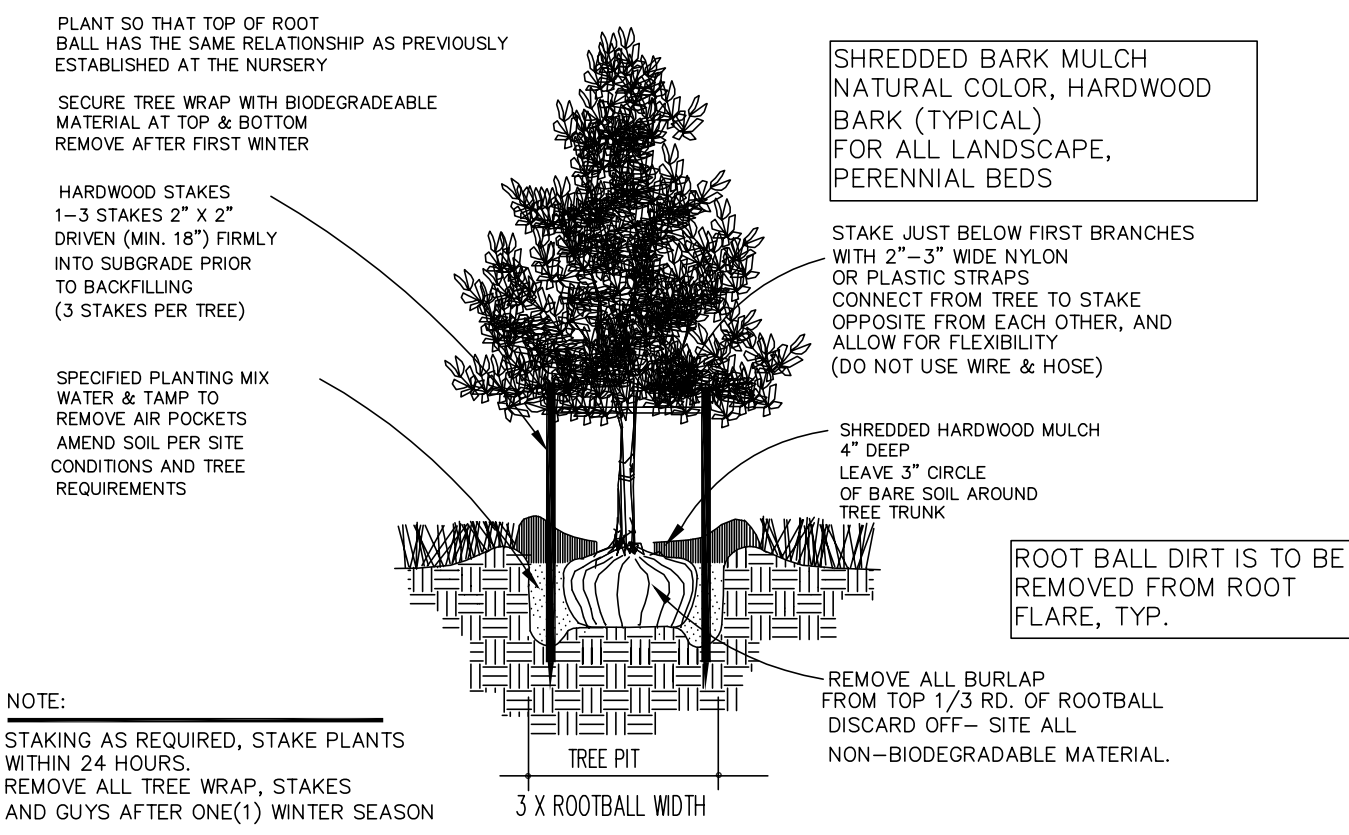


SEED SUPPLIER CONTACT:
CARDNO JF NEW
605 S. MAIN STREET
ANN ARBOR, MI 48104
(734)222-9690 OFFICE

Stormwater Seed Mix

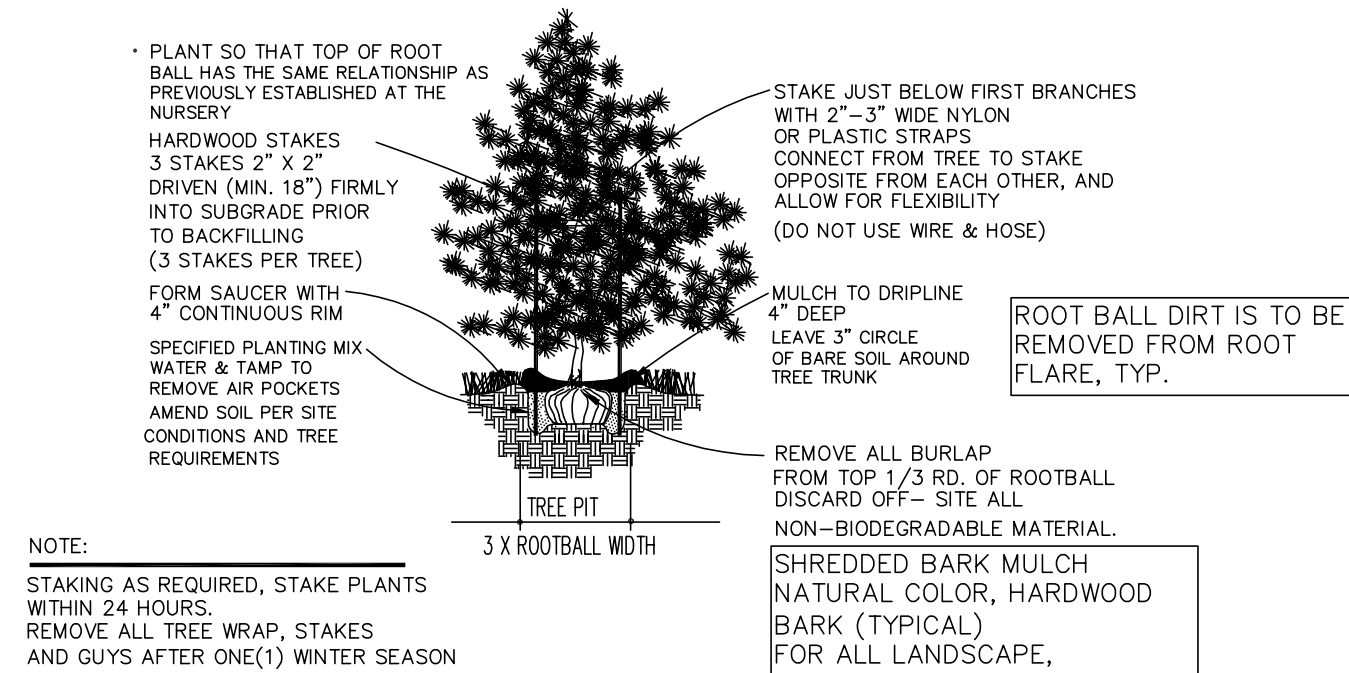
A wetland seed mix for saturated soils in a detention pond or for seeding a saturated basin, this mix will tolerate highly fluctuating water levels and poor water quality associated with urban stormwater wetlands and ponds.

Botanical Name	Common Name	PLS Ounces/Acre
Permanent Grasses/Sedges/Rushes:		
<i>Carex crissatella</i>	Crested Oval Sedge	2.00
<i>Carex lurida</i>	Bottlebrush Sedge	3.00
<i>Carex vulpinoidea</i>	Brown Fox Sedge	6.00
<i>Elymus virginicus</i>	Virginia Wild Rye	13.50
<i>Glyceria striata</i>	Fowl Manna Grass	1.25
<i>Juncus effusus</i>	Common Rush	2.00
<i>Leersia oryzoides</i>	Rice Cut Grass	1.00
<i>Panicum virgatum</i>	Switch Grass	2.00
<i>Scirpus atrovirens</i>	Dark Green Rush	2.00
<i>Scirpus cypenus</i>	Wool Grass	1.00
<i>Scirpus fluviatilis</i>	River Bulrush	0.25
<i>Scirpus validus</i>	Great Bulrush	3.00
Total		37.00
Temporary Cover:		
<i>Avena sativa</i>	Common Oat	360.00
<i>Lolium multiflorum</i>	Annual Rye	100.00
Total		460.00
Forbs & Shrubs:		
<i>Alisma spp.</i>	Water Plantain (Various Mix)	4.25
<i>Asclepias incarnata</i>	Swamp Milkweed	1.50
<i>Aster novae-angliae</i>	New England Aster	1.50
<i>Bidens spp.</i>	Bidens (Various Mix)	2.00
<i>Helenium autumnale</i>	Sneezeweed	2.00
<i>Iris virginica</i>	Blue Flag	4.00
<i>Lycopus americanus</i>	Common Water Horehound	0.25
<i>Mimulus ringens</i>	Monkey Flower	1.00
<i>Penthorum sedoides</i>	Ditch Stonecrop	0.50
<i>Polygonum spp.</i>	Pinkweed (Various Mix)	4.00
<i>Rudbeckia subtomentosa</i>	Sweet Black-Eyed Susan	1.00
<i>Rudbeckia triloba</i>	Brown-Eyed Susan	1.50
<i>Sagittaria latifolia</i>	Common Arrowhead	1.00
<i>Senna hebecarpa</i>	Wild Senna	1.00
<i>Solidago riddellii</i>	Riddell's Goldenrod	0.50
<i>Thalictrum dasycarpum</i>	Purple Meadow Rue	2.00
Total		28.00



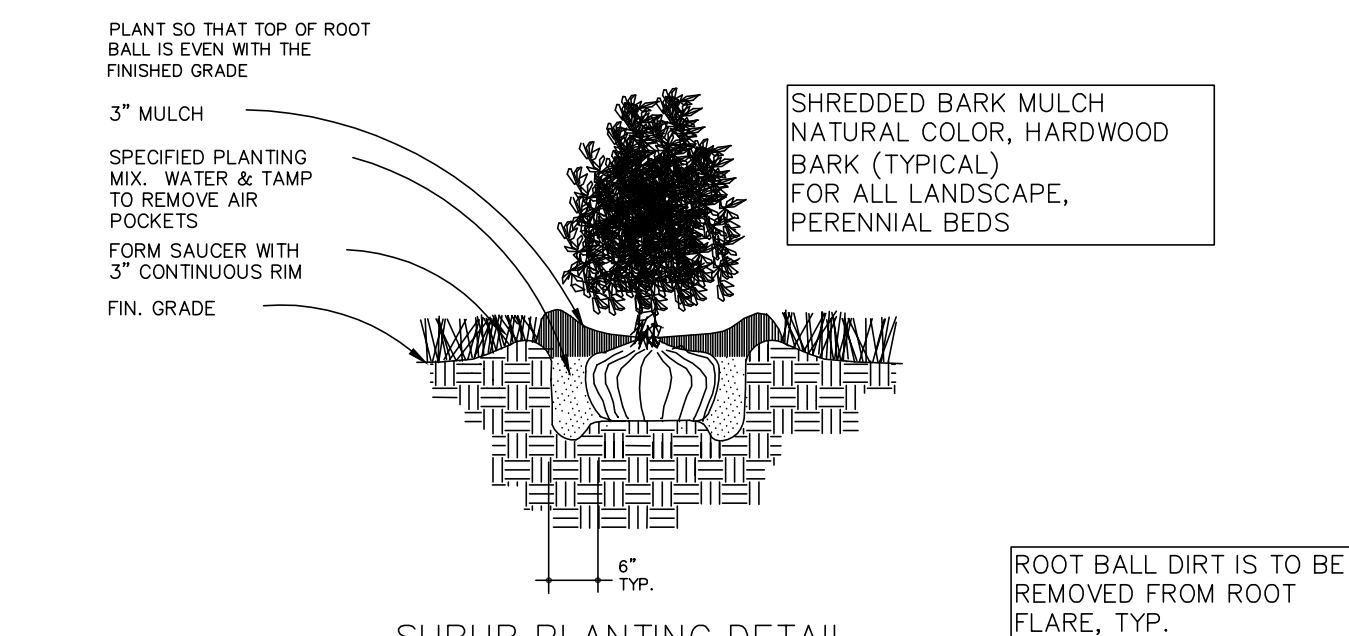
DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE



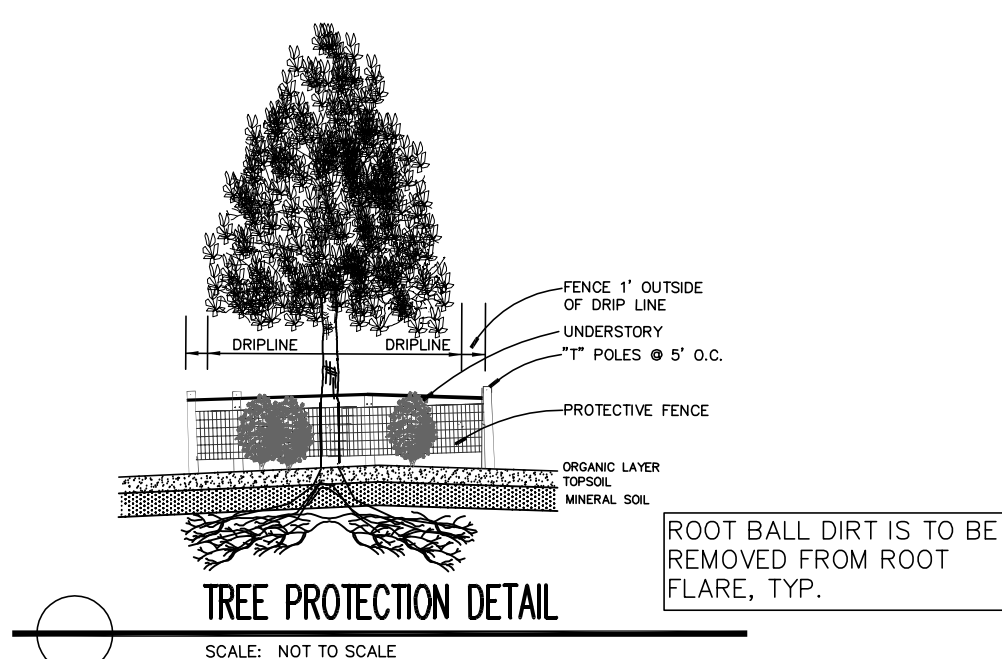
EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE



SHRUB PLANTING DETAIL

NOT TO SCALE

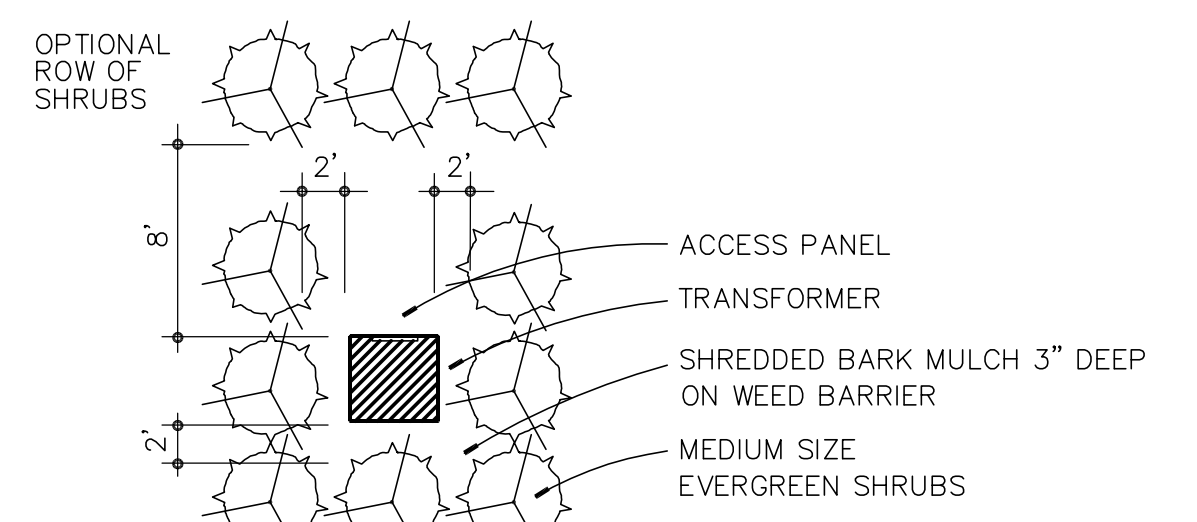


TREE PROTECTION DETAIL

SCALE: NOT TO SCALE

SCREENING FOR TRANS./UTILITY BOXES

NOT TO SCALE



- IDENTIFY ON SITE ALL TREES OR AREAS OF TREES WHICH ARE BEING PROPOSED TO BE PRESERVED WITH FLUORESCENT ORANGE SPRAY PAINT(CHALK BASE) OR BY RED FLAGGING TAPE.
- ERECT BARRIERS OF FOUR(4) FOOT HIGH FENCING STAKED WITH METAL "T-POST" FIVE(5) FEET ON CENTER OR ALL SUCH TREES OR GROUPS OF TREES PROPOSED TO REMAIN.
- PROTECTIVE BARRIERS ARE TO BE ERRECTED PRIOR TO ANY 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.
- KEEP CLEAR ALL DEBRIS OR FILL, EQUIPMENT, AND MATERIAL FROM WITHIN THE REQUIRED PROTECTIVE BARRIER.
- DURING CONSTRUCTION, THE OWNER, DEVELOPER, OR AGENT SHALL NOT CAUSE OR PERMIT ANY ACTIVITY WITHIN THE FENCE LINE OF ANY PROTECTED TREE OR GROUP OF TREES INCLUDING, BUT NOT LIMITED TO, THE STORAGE EQUIPMENT, DUMPSTER BOLLIDERS, DIRT, AND EXCAVATED MATERIAL, BUILDING OR WASTE MATERIAL, OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF A TREE.
- NO DAMAGING ATTACHMENT, WIRES (OTHER THAN CABLE WIRES FOR TREES) SIGNS OR PERMITS MAY BE FASTENED TO ANY TREE PROTECTED BY THIS ORDINANCE.

NOVI SENIOR COMMUNITY PROJECT
A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

FAZAL KHAN & ASSOCIATES INC.
CIVIL ENGINEERS & LAND SURVEYORS
4370 SCHOENBER STEERING HEIGHTS, MI 48313
PHONE (568) 739-8007 FAX (568) 739-6994
WWW.FAZALKHAN.COM

LANDSCAPE DETAILS

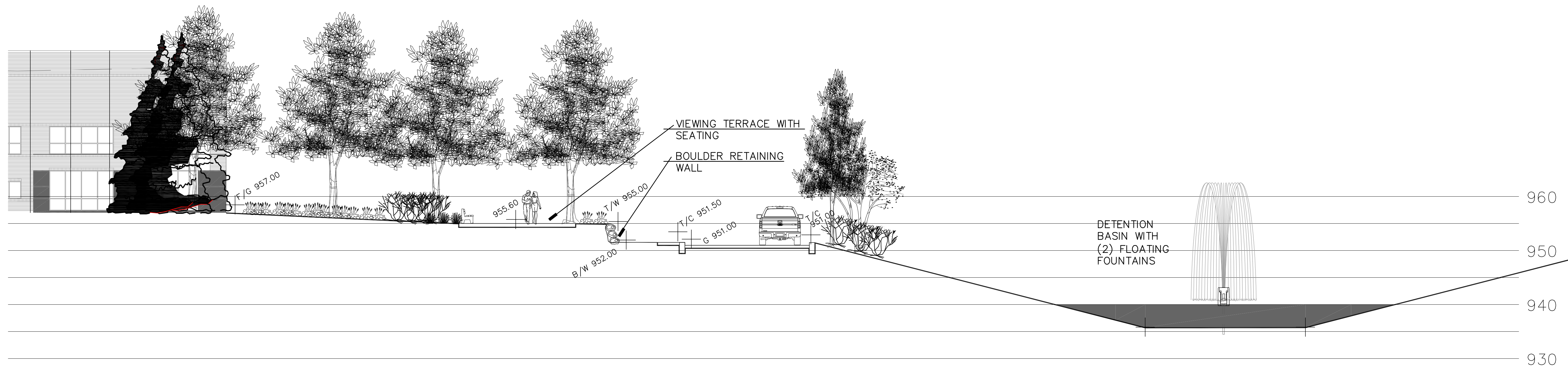
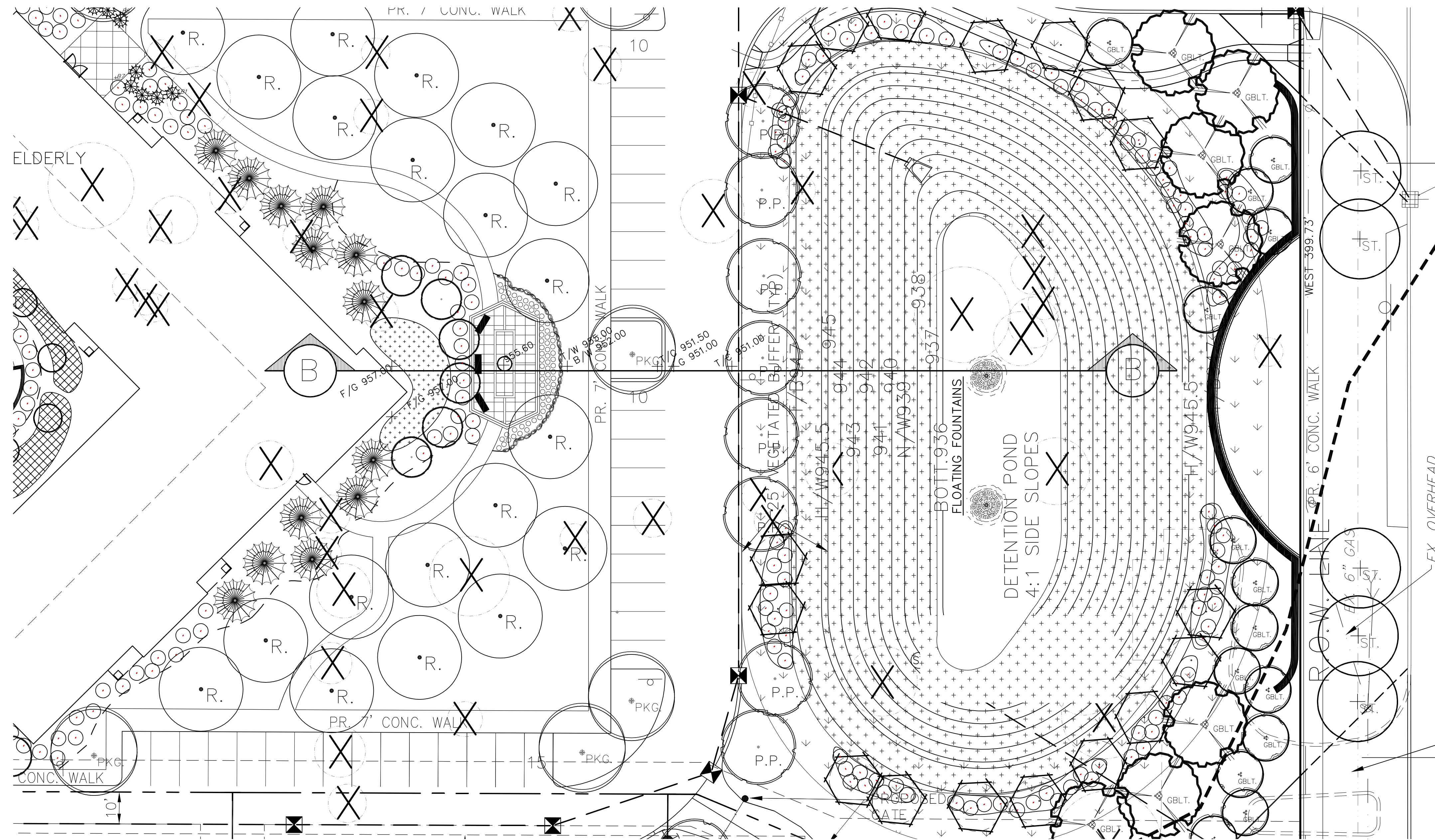
PROJECT NO. 14-032
DATE 05-16-17
CLIENT JOE CARADONNA
SCALE 1" = 30'

FIELD BOOK XXX
DRAWN BY O.G.
CHECKED BY F.K.
AS-BUILT

L-3

NOVI SENIOR COMMUNITY PROJECT

A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN



SECTION "B" - "B"
SCALE 1"=10'

CALL US TO DISCUSS YOUR PROJECT BEFORE YOU DIG
1-800-811-7171
CALL 811.COM (TOLL FREE)

REVISIONS	DATE	REMARKS

NOVI SENIOR COMMUNITY PROJECT
A PART OF THE SOUTHWEST 1/4 OF SECTION 11, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

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4379 SCHUBERT ST. STERLING HEIGHTS, MI 48313
PHONE (588) 739-8007 FAX (588) 739-6994
WWW.FAZALKHAN.COM

OBSERVATION DECK

PROJECT NO.	FIELD BOOK
L-4	AAA
DATE	05-16-17
DRAWN BY	O.G.
CHECKED BY	F.K.
CLIENT	JOE CARADONNA
SCALE	1" = 30'
PRELIMINARY	<input checked="" type="checkbox"/>
CONSTRUCTION	<input type="checkbox"/>
AS-BUILT	<input type="checkbox"/>
SHEET NO.	L-4