



CITY of NOVI CITY COUNCIL

Agenda Item 4
October 22, 2018

SUBJECT: Approval at the request of Orville Properties, LLC for Adell Center JSP 18-27 for City Council for approval of a Site Plan for Roads and Utilities, a Wetland Permit, a Woodland Permit and a Site Condominium Plan. The subject property is approximately 22.48 acres and is located at 43700 Expo Center Drive, north of Grand River Avenue and south of I-96 in Section 15. The applicant is proposing to develop the property as a multi-unit commercial development consisting of nine units accessed by a proposed private drive. The existing water tower on site will remain on a separate unit. Approval is contingent on completion of the rezoning of the property through the Planned Rezoning Overlay (PRO) process.

SUBMITTING DEPARTMENT: Community Development Department - Planning *Bew*

CITY MANAGER APPROVAL: *[Signature]*

BACKGROUND INFORMATION:

The applicant is proposing to develop a multi-unit commercial Site Condominium with nine units accessed by a proposed private drive. The submitted plan proposes the construction of the proposed private road and the utilities, along with certain landscaping, stormwater management, and lighting, in preparation for future development. The planned improvements are all proposed to be completed in one phase, except for the paving for the secondary emergency access, which will extend from the proposed private drive to a location west of the existing water tower. The applicant is proposing to use a gravel surface for the secondary emergency access drive until Unit 2 is developed. The existing water tower on site is proposed remain, but will be located on a separate condominium unit.

The submittal included a restoration and enhancement plan for the south area of the site, with planned removal of invasive species of woody vegetation, including Buckthorn and Honeysuckle, removal of invasive common reed, and trimming of City of Novi regulated trees. The proposed site enhancement work would not significantly disturb any existing desirable vegetation that provides wildlife habitat.

According to Section 3.27 of City Zoning Ordinance, for all uses permitted in the TC and TC-1 districts, site plans shall be submitted for preliminary approval by the Planning Commission, in accordance with the provisions of this ordinance and other applicable ordinances. In those instances where the site under development is five acres or more in area, Preliminary Site Plan approval shall be by the City Council after review and recommendation by the Planning Commission. The current request, comprising

approximately 22.48 acres, would require City Council's consideration for approval based on Planning Commission recommendation. Approval of the Roads and Utilities Site Plan will be contingent upon City Council's approval of the PRO plan and PRO Agreement, and finalization of the PRO rezoning process.

Ordinance Deviations:

The site plan has been reviewed against TC, Town Center district standards where applicable. The current plan does not conform to the code for certain requirements. Typically, the plan would have required City Council/Zoning Board of Appeals approval. However, the deviations provided in the PRO Agreement are expected to cover the deviations that are shown on the Preliminary Site Plan for Roads and Utilities, as could be determined from the information submitted for review.

Planning Commission Action:

On September 12, 2018, Planning Commission held a public hearing and made a motion to recommend approval to the City Council for the Preliminary Site Plan, Site Condominium, Wetland permit, Woodland Permit and Storm water Management Plan, contingent on PRO rezoning approval. The Planning Commission did not provide any additional comments at the meeting and hence no further changes were made to the plan.

The review and recommendation by the Planning Commission with respect to approval of the Preliminary Site Plan was conducted at the applicant's request before the PRO rezoning process has been completed by the City Council. The applicant had acknowledged as part of its submission of this request that the City Council has not yet reviewed its PRO Concept Plan and proposal, that there is no PRO Agreement between the City and the applicant, and that the City Council might not approve the rezoning. The following provisions are therefore completely contingent on approval of the PRO rezoning through the PRO Concept Plan and PRO Agreement, and if those approvals do not occur, then this approval of the preliminary site plan is null and void, and of no force or effect whatsoever. The applicant has been apprised of the fact that the PRO rezoning, which is required in order to allow site plan approval, might not occur, and has determined to bear that risk, including, but not limited to, all of the costs incurred in the preparation of the preliminary plans.

Planning Commission's recommendation for Preliminary Site Plan approval was therefore granted subject to completion of the of the PRO Concept Plan and PRO Agreement process, and any and all requirements that result from such approval, if it is granted; at a minimum, the Planning Commission recommended various deviations would need to be granted. The City Council's PRO rezoning process in order for the preliminary site plan to be approved as prepared.

RECOMMENDED ACTION:

Please note the four-part motion, below:

Part 1:

Approval the request of Orville Properties, LLC, for the Adell Center JSP 18-27, of the Preliminary Site Plan for Roads and Utilities with a Site Condominium, including the

deviations as noted in the PRO Agreement approval for Project JZ-18-24, if granted by the City Council. This approval is subject to completion of the of the PRO Concept Plan and PRO Agreement process at the City Council, and any and all requirements that result from such approval, if it is granted. If those approvals do not occur, then this approval of the preliminary site plan is null and void, and of no force or effect whatsoever. The applicant has been apprised of the fact that the PRO rezoning, which is required in order to allow site plan approval, might not occur, and has determined to bear that risk, including, but not limited to, all of the costs incurred in the preparation of the preliminary plans.

1. This Preliminary Site Plan approval is also contingent upon and subject to the following conditions being made part of the PRO rezoning through approval of the PRO Concept Plan and PRO Agreement approval for project JZ18-24, if granted by the City Council:
 - a. All PRO Conditions set forth in the PRO Agreement and any additional conditions made part of the City Council's final approval of the PRO Plan and PRO Agreement;
 - b. The applicant shall provide additional information required for the wetland restoration and enhancement plan at the time of Final Site Plan approval for Roads and Utilities;
 - c. The applicant shall stake the trail proposed on the south part of the site prior to construction to allow for the City of Novi's staff and consultants to approve the alignment prior to the applicant's construction of the trail;
 - d. Approval by the City of the timeline for paving the temporary gravel secondary access in the event Unit 2 is not completed within a certain period of time must be as addressed in the PRO agreement;
 - e. The applicant shall obtain all necessary off-site easements for connecting secondary emergency access to the west prior to Final Site Plan approval for Roads and Utilities.

This motion is made because the plan is otherwise in compliance with Article 3, Article 4, and Article 5 of the Zoning Ordinance and all other applicable provisions of the Ordinance.

Part 2:

Approve the request of Orville Properties, LLC, for the Adell Center JSP 18-27, for approval of Wetland Permit, based on and subject to the following:

- a. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and
- b. This approval is subject to completion of the of the PRO Concept Plan and PRO Agreement process at the City Council, and any and all requirements that result from such approval, if it is granted. If those approvals do not occur, then this approval of the wetland permit is null and void, and of no force or effect whatsoever. The applicant has been apprised of the fact that the PRO rezoning, which is required in order to allow site plan/wetland approval, might not occur, and has determined to bear that risk, including, but not limited to, all of the costs incurred in the preparation of the preliminary plans.

This motion is made because the plan is otherwise in compliance with Chapter 12, Article V of the Code of Ordinances and all other applicable provisions of the Ordinance.

Part 3:

Approval the request of Orville Properties, LLC, for the Adell Center JSP 18-27, for approval of Woodland Permit, based on and subject to the following:

- a. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and
- b. This approval is subject to completion of the of the PRO Concept Plan and PRO Agreement process at the City Council, and any and all requirements that result from such approval, if it is granted. If those approvals do not occur, then this approval of the woodland permit is null and void, and of no force or effect whatsoever. The applicant has been apprised of the fact that the PRO rezoning, which is required in order to allow site plan/woodland approval, might not occur, and has determined to bear that risk, including, but not limited to, all of the costs incurred in the preparation of the preliminary plans.

This motion is made because the plan is otherwise in compliance with Chapter 37 of the Code of Ordinances and all other applicable provisions of the Ordinance.

Part 4:

Approval the request of Orville Properties, LLC, for the Adell Center JSP 18-27, for approval of Storm Water Management Plan, based on and subject to the following:

- a. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and
- b. This approval is subject to completion of the of the PRO Concept Plan and PRO Agreement process at the City Council, and any and all requirements that result from such approval, if it is granted. If those approvals do not occur, then this approval of the storm water plan is null and void, and of no force or effect whatsoever. The applicant has been apprised of the fact that the PRO rezoning, which is required in order to allow site plan/storm water approval, might not occur, and has determined to bear that risk, including, but not limited to, all of the costs incurred in the preparation of the preliminary plans.

This motion is made because the plan is otherwise in compliance with Chapter 11 of the Code of Ordinances and all other applicable provisions of the Ordinance.

**09-12-18 PLANNING COMMISSION MEETING MINUTES
DRAFT**



PLANNING COMMISSION MINUTES

CITY OF NOVI

Regular Meeting

September 12, 2018 7:00 PM

Council Chambers | Novi Civic Center
45175 W. Ten Mile (248) 347-0475

CALL TO ORDER

The meeting was called to order at 7:00 PM.

ROLL CALL

Present: Member Avdoulos, Member Greco, Member Lynch, Chair Pehrson

Absent: Member Anthony (excused), Member Maday (excused)

Also Present: Barbara McBeth, City Planner; Sri Komaragiri, Planner; Lindsay Bell, Planner; Darcy Rechten, Staff Engineer; Rick Meader, Landscape Architect; Thomas Schultz, City Attorney; Peter Hill, Environmental Consultant; Maureen Peters, Traffic Consultant; Doug Necci, Façade Consultant

PLEDGE OF ALLEGIANCE

Member Lynch led the meeting attendees in the recitation of the Pledge of Allegiance.

APPROVAL OF AGENDA

Moved by Member Greco and seconded by Member Avdoulos.

VOICE VOTE TO APPROVE THE SEPTEMBER 12, 2018 AGENDA MOTION MADE BY MEMBER GRECO AND SECONDED BY MEMBER AVDOULOS.

Motion to approve the September 12, 2018 Planning Commission Agenda. Motion carried 4-0.

AUDIENCE PARTICIPATION

Gary Zack, 359 South Lake Drive, said I'm here to speak about the Robertson Brothers development that's being proposed for Pavilion Shores Village. I have a couple concerns and I've voiced them before and sent them in. My big concerns are adding traffic to the area and maintaining the look and feel of the existing neighborhood. I feel, as many others do, that it should be single-family homes. I don't think we should be changing zoning from single family to commercial as they are proposing for the strip on Thirteen Mile. People bought their homes there backing up to what they thought was residential and I think it should stay that way.

I am a bit concerned about recently I've heard that they're proposing a zoning of RM-2, which is high-density multiple-family mid-rise building for the development which they've been telling us is single-family homes. Now I've heard the reason this is being done is because there's no zoning in the City of Novi with the density they're proposing for single-

2. ADELL CENTER ROADS AND UTILITIES JSP 18-27

Public hearing at the request of Orville Properties, LLC for Adell Center JSP 18-27 for Planning Commission's recommendation to City Council for approval of a Site Plan for Roads and Utilities, a Wetland Permit, a Woodland Permit and a Site Condominium Plan. The subject property is approximately 22.48-acres and is located at 43700 Expo Center Drive, north of Grand River Avenue and south of I-96 in Section 15. The applicant is proposing to develop the property as a multi-unit commercial development consisting of nine units accessed by a proposed private drive. The existing water tower on site will remain on a separate unit.

Planner Komaragiri said thank you. As you can remember, just at the last meeting the Planning Commission has recommended approval to City Council for the applicant's request to rezone the subject property from EXPO to Town Center on August 22nd. The current proposed improvements include a site condominium request for nine units and the construction of the road and utilities, along with certain landscaping, storm water management, and lighting in preparation for future development. The planned improvements are all proposed to be completed in one phase except the paving for the secondary emergency access, from the proposed private drive to a location west of the existing water tower. The applicant is proposing to use a gravel surface for the secondary emergency access drive at this time until Unit 2 is developed. The existing water tower on site is proposed remain, but be located on a separate condominium unit.

The current site plan is reviewed against TC standards where applicable. The current plan does not conform to the code for certain requirements as discussed in detail at our last meeting. Those deviations such as not having access on public road, lots being in floodplain, not meeting the standards for side lot lines, lighting, and a few others are currently being reviewed as part of the PRO plan concurrently.

Recommendation for approval motion for the rezoning request required the applicant to provide an approvable restoration plan for the southerly area with regulated wetlands and woodlands. The applicant has supplemented that information since the last meeting and staff recommends approval. The work associated with the enhancement plan includes removal of invasive species of woody vegetation, including Buckthorn and Honeysuckle, removal of invasive common reed and trimming of City of Novi Regulated Trees. The proposed site enhancement work would not be significantly disturbing any existing desirable vegetation that provides wildlife habitat. The applicant agreed to work with staff to provide additional details listed in letter.

Planner Komaragiri said this review and recommendation with respect to approval of the Preliminary Site Plan is being conducted at the applicant's request before the PRO rezoning process has been completed by the City Council. The recommended motion for approval is therefore completely contingent on approval by the City Council of the PRO rezoning as required by the ordinance, The Planning Commission is asked to hold the scheduled Public Hearing make a recommendation to City Council to either approve or deny the applicant request for roads and utilities with site condominium. Thank you again for your time.

Dan LeClair from GreenTech Engineering said we don't have a whole lot to add tonight. We've been working diligently with staff on this project and we are also working on several of the individual sites so those will be coming before you in the next month or month and a half. So with that, we're happy to answer any questions. Mr. Adell is here, as well.

Kevin Adell said thank you, I appreciate you taking the time. I know it's late, so we'll keep it short. Thank you for considering this, I know last time we were here, there was overwhelming approval of the project. This is the road and utilities; we already brought equipment out there. I would like to start tearing up the cement pad and foundation October 1st, and start with the wetlands in November. And so I humbly ask and request that you approve the road and utilities, and I'm here for any questions.

Chair Pehrson asked if there was anyone in the audience that wished to address the Planning Commission regarding this project. Seeing no one, he asked if we have any correspondence.

Member Lynch said there is no correspondence.

Chair Pehrson closed the public hearing and turned it over to the Planning Commission for their consideration.

Member Lynch said I can make a motion.

Motion made by Member Lynch and seconded by Member Avdoulos.

Chair Pehrson said Mr. Schultz, is this compliant with our PRO still going forward?

City Attorney Schultz said as Sri indicated, this is probably something that you haven't actually done before, looking at a site plan before the actual rezoning is complete. I think the language of the motion makes clear that it's a request, you can do it. So this will all end up on the City Council's desk in a few weeks.

Chair Pehrson said thank you.

Member Avdoulos said this is something that we, at least in my business, we try to avoid this because you don't know what is actually going to happen. So if there are adjustments that come forward and it has to come back to the City, are there additional fees that the applicant pays? Or is this like a bottomless cup of coffee and we're taking a shot? That's why we avoid it, and then it takes more time for us, so I didn't know how the City would handle it. Because right now, we're approving a Preliminary Site Plan and the Concept hasn't even been approved by the City yet. And then after the City approves the Concept, then this goes to the City for approval, correct? So we're backlogged two projects to the City for this.

City Attorney Schultz said I'll defer to the Planning folks on the amounts of fees and what not, but there is nothing about this process that waives any fees or reduces any or fails to collect what we would normally collect.

Member Avdoulos said thank you.

Motion made by Member Lynch and seconded by Member Avdoulos.

ROLL CALL VOTE TO RECOMMEND APPROVAL OF PRELIMINARY SITE PLAN MADE BY MEMBER LYNCH AND SECONDED BY MEMBER AVDOULOS.

In the matter of the request of Orville Properties, LLC, for the Adell Center JSP 18-27, motion to recommend approval to the City Council for Preliminary Site Plan for Roads and Utilities with a site

condominium, based on and subject to the following:

1. This review and recommendation with respect to approval of the Preliminary Site Plan is being conducted at the applicant's request before the PRO rezoning process has been completed by the City Council. The applicant has acknowledged as part of its submission of this request that the City Council has not yet reviewed its PRO concept Plan and proposal and that there is no PRO Agreement between the City and the applicant. The City Council might or might not approve the rezoning. The following provisions are therefore completely contingent on approval by the City Council of the PRO rezoning through the PRO Concept Plan and PRO Agreement at the City Council as required by the ordinance, and if those approvals do not occur, then any approval of the preliminary site plan is null and void, and of no force or effect whatsoever, as the applicant has been apprised of the fact that the PRO rezoning, which is required in order to allow site plan approval, might not occur, and has determined to bear the risk that such approval might not occur, including but not limited to all of the costs incurred in the preparation of the preliminary plans before rezoning is even granted.
2. This recommendation for Preliminary Site Plan approval is therefore granted subject to completion of the of the PRO Concept Plan and PRO Agreement process, and any and all requirements that result from such approval, if it is granted; at a minimum, the Planning Commission the following deviations would need to be granted as part of the City Council's PRO rezoning process in order for the preliminary site plan to be approved as prepared:
 1. Planning deviation from Section 5.12 to allow lack of required frontage on public road for Units 1 through 8. Frontage is proposed a proposed private drive, built to City standards;
 2. Planning deviation to allow lack of required frontage on public road as listed in section 5.12 for Unit 9. Frontage is proposed on a private access/secondary emergency access drive;
 3. Traffic deviation from Section 11-194(a)(7)of Design and Constructions Standards Manual to allow exceeding the maximum allowable length of the proposed cul-de-sac street length of 800 feet, from the centerline intersection of Crescent Boulevard to the center of the bulb of the Adell Center Drive cul-de-sac. A maximum of 1,540 feet is proposed;
 4. Planning deviation from Section 3.1.25.B& C to allow the water tower is to remain on its own separate site (Unit 9). This is not a principal permitted use of a site. It is also not considered an accessory use, since its proposed use is not detailed; provided that the creation of a new, separate legal parcel of limited size for the purpose of housing the tower on its own shall be addressed in the PRO Agreement including, but not limited to, the prohibition of future uses in the event the tower is removed and requirements relating to maintenance obligations;
 5. Planning deviation to allow partial rear yards for Units 3, 4 and 5 to be located within the floodplain, as listed in section 4.03A of Subdivision Ordinance, provided there is no danger to health, life or property are proposed. There appears to be no impacts proposed for Units 3 and 5. A pedestrian bridge is proposed on Unit 4;
 6. Planning deviation to allow proposing the minimum required Open Space for each Unit as Common element spread within the development boundaries as shown in the Open Space Plan, provided the applicant restores the wetland/woodland on

- the southerly portion of the site pursuant to a plan meeting City ordinance requirements is submitted and approved at the time of Wetland permit/preliminary site plan approval, and provides the pedestrian walkway through the open space as proposed. (A minimum of 15% of total site area designed as permanently landscaped open areas and pedestrian plazas is required per section 3.27.1.F.);
7. Traffic deviation from section 7.13.1.D. to waive the requirement for required Traffic Impact Study as the site falls under the study boundaries for the ongoing Comprehensive Traffic study by the City;
 8. Planning deviation from Section 5.7.3.K. to allow exceeding the maximum spillover of 1 foot candle along interior side property lines provided the applicant submits a photometric plan that demonstrates that the average to minimum light level ratio is kept the maximum allowable 4:1;
 9. Planning deviation to allow exceeding the maximum spillover of 1 foot candle and approvable increase of the average to minimum light level ration from 4:1 within the Adell Drive pavement areas as listed in Section 5.7.3.K. along access easements along Adell Drive, at the time of or Preliminary Site Plan review for the individual units;
 10. Engineering deviation from Section 4.04, Article IV, Appendix C-Subdivision ordinance of City Code of Ordinances for absence of a stub street required at 1,300 feet interval along the property boundary to provide connection to the adjacent property boundary;
 11. Engineering deviation from Section 11-194(a)19 of the Design and Construction Standards for allowing gravel surface for the secondary emergency access road within Unit 2 lot boundaries until construction of Unit 2 site improvements or until an agreed upon timeline provided in the PRO agreement;
3. This recommendation for Preliminary Site Plan approval is also subject to following conditions being made part of any PRO rezoning through the PRO Concept Plan and PRO Agreement approval if granted by the City Council:
1. The creation of a new, separate legal parcel of limited size for the purpose of housing the water tower on its own is a required deviation that will need to be addressed in the PRO Agreement. No other use than the existing tower shall be permitted, maintenance of this Unit must be addressed in the PRO agreement;
 2. A irrigation plan and any necessary easements that demonstrates the applicant's intent will be required at the time of the approval of the Roads and Utilities plan;
 3. The applicant shall develop the road with a three-lane cross-section to further accommodate left-turning activities and provide a wider "buffer zone" for large vehicles entering/exiting the various facilities without entering into the opposing traffic through lane, at the time of Preliminary Site Plan approval;
 4. The applicant shall confirm understanding that they may be subject to certain off-site and/or on-site mitigation measures as a result of the region-wide traffic impact study. Any mitigation measures that are determined as part of the region-wide traffic impact study shall consider existing congestion and network deficiencies absent this project, as well as the proportion of existing versus future traffic, in evaluation and determination of responsibility of such measures;
 5. The applicant has provided a preliminary restoration plan which is recommended for approval. The applicant shall provide additional information at the time of Final Site Plan approval for Roads and Utilities;

6. The applicant shall stake the trail proposed on the south part of the site prior to construction to allow for the City of Novi's staff and consultants to approve the alignment prior to the applicant's construction of the trail;
7. The timeline for paving the temporary gravel secondary access in the event Unit 2 is not completed within a certain period of time shall be addressed in the PRO agreement;
8. The applicant shall obtain all necessary off-site easements for connecting secondary emergency access to the west prior to Final Site Plan approval for Roads and Utilities.

This motion is made because the plan is otherwise in compliance with Article 3, Article 4, and Article 5 of the Zoning Ordinance and all other applicable provisions of the Ordinance. *Motion carried 4-0.*

ROLL CALL VOTE TO RECOMMEND APPROVAL OF WETLAND PERMIT MADE BY MEMBER LYNCH AND SECONDED BY MEMBER AVDOULOS.

In the matter of the request of Orville Properties, LLC, for the Adell Center JSP 18-27, motion to recommend approval to the City Council for Wetland Permit based on and subject to the following:

- a. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and
- b. This recommendation is subject to completion of the of the PRO Concept Plan and PRO Agreement process at the City Council, and any and all requirements that result from such approval, if it is granted; and if those approvals do not occur, then this recommendation is null and void, and of no force or effect whatsoever, as the applicant has been apprised of the fact that the PRO rezoning, which is required in order to allow site plan and other approvals, might not occur, and has determined to bear the risk that such approval might not occur, including but not limited to all of the costs incurred in the preparation of the preliminary plans before rezoning is even granted.

This motion is made because the plan is otherwise in compliance with Chapter 12, Article V of the Code of Ordinances and all other applicable provisions of the Ordinance. *Motion carried 4-0.*

ROLL CALL VOTE TO RECOMMEND APPROVAL OF WOODLAND PERMIT MADE BY MEMBER LYNCH AND SECONDED BY MEMBER AVDOULOS.

In the matter of the request of Orville Properties, LLC, for the Adell Center JSP 18-27, motion to recommend approval to the City Council for Woodland Permit based on and subject to the following:

- a. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and
- b. This recommendation is subject to completion of the of the PRO Concept Plan and PRO Agreement process at the City Council, and any and all requirements that result from such approval, if it is granted; and if those approvals do not occur, then this recommendation is null and void, and of no force or effect whatsoever, as the applicant has been apprised of the fact that the PRO rezoning, which is required in order to allow site plan and other approvals, might

not occur, and has determined to bear the risk that such approval might not occur, including but not limited to all of the costs incurred in the preparation of the preliminary plans before rezoning is even granted.

This motion is made because the plan is otherwise in compliance with Chapter 37 of the Code of Ordinances and all other applicable provisions of the Ordinance. *Motion carried 4-0.*

ROLL CALL VOTE TO RECOMMEND APPROVAL OF STORMWATER MANAGEMENT PLAN MADE BY MEMBER LYNCH AND SECONDED BY MEMBER AVDOULOS.

In the matter of the request of Orville Properties, LLC, for the Adell Center JSP 18-27, motion to recommend approval to the City Council for Stormwater Management Plan based on and subject to the following:

- a. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and
- b. This recommendation is subject to completion of the of the PRO Concept Plan and PRO Agreement process at the City Council, and any and all requirements that result from such approval, if it is granted; and if those approvals do not occur, then this recommendation is null and void, and of no force or effect whatsoever, as the applicant has been apprised of the fact that the PRO rezoning, which is required in order to allow site plan and other approvals, might not occur, and has determined to bear the risk that such approval might not occur, including but not limited to all of the costs incurred in the preparation of the preliminary plans before rezoning is even granted.

This motion is made because the plan is otherwise in compliance with Chapter 11 of the Code of Ordinances and all other applicable provisions of the Ordinance. *Motion carried 4-0.*

3. FOX RUN NEIGHBORHOOD 3, JSP 18-18

Public hearing at the request of Erickson Living for Planning Commission's recommendation to the City Council of a Revised Preliminary Site Plan with a PD-1 Option, Revised Special Land Use Permit, Revised Phasing Plan, Revised Wetland Permit and Revised Stormwater Management Plan approval. The subject property is 102.8 acres in Section 1 of the City of Novi, located north of Thirteen Mile Road and west of M-5 in the RM-1, Low Density Low-Rise Multiple-Family District. The applicant is proposing to revise the original approval and layout of Neighborhood/Phase 3 of the Fox Run Community.

Planner Bell said Erickson Living is proposing to move forward with Phase 3, or Neighborhood 3 of the Fox Run Community. The total Fox Run site is over 102 acres and located in Section 1, north of Thirteen Mile Road, west of M-5. The location of Neighborhood 3 is north of the Fox Run ring road. The proposed Phase 3 consists of four residential buildings, associated parking, and utilities. Within the buildings are 370 independent living units, multiple dining facilities, as well as spaces for social gathering, classrooms, fitness and other lifestyle amenities for the residents.

The subject property is currently zoned RM-1 and developed under a PD-1 Option development agreement. The properties to the east are zoned RM-1 low density low rise multiple family (Lenox Park) and RA Residential Acreage (developed as Brightmoor

MAPS

Location

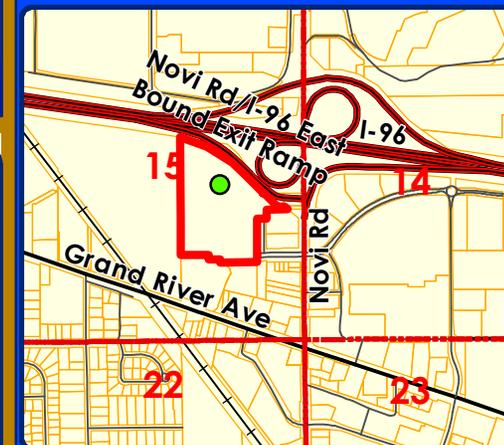
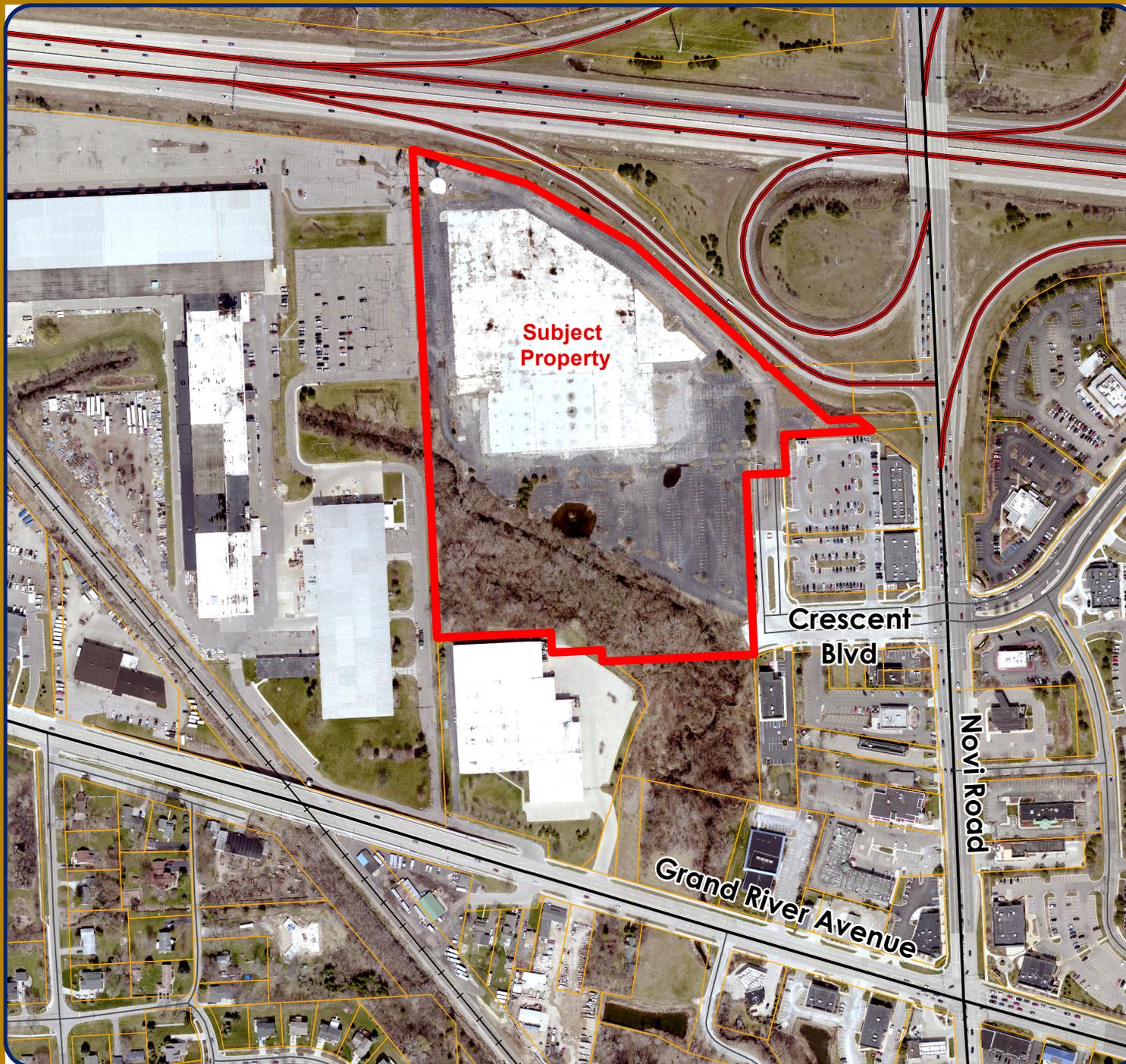
Zoning

Future Landuse

Natural Features

JSP 18-27 ADELL CENTER ROADS & UTILITIES

Location



LEGEND

 Sections



City of Novi

Dept. of Community Development
City Hall / Civic Center
45175 W Ten Mile Rd
Novi, MI 48375
cityofnovi.org

Map Author: Sri Komaragiri
Date: 09/07/18
Project: JSP 18-27: ADELL CENTER ROADS & UTILITIES

Version #: 1
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1 inch = 381 feet

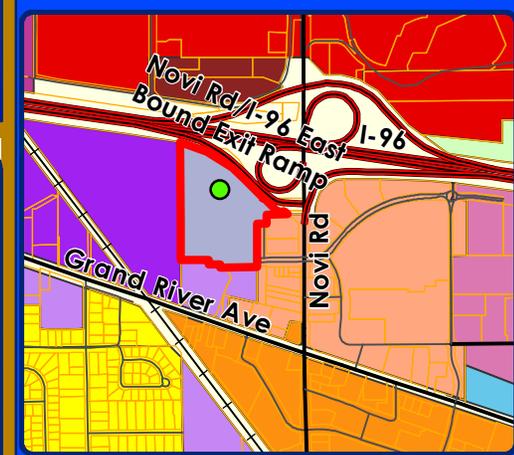
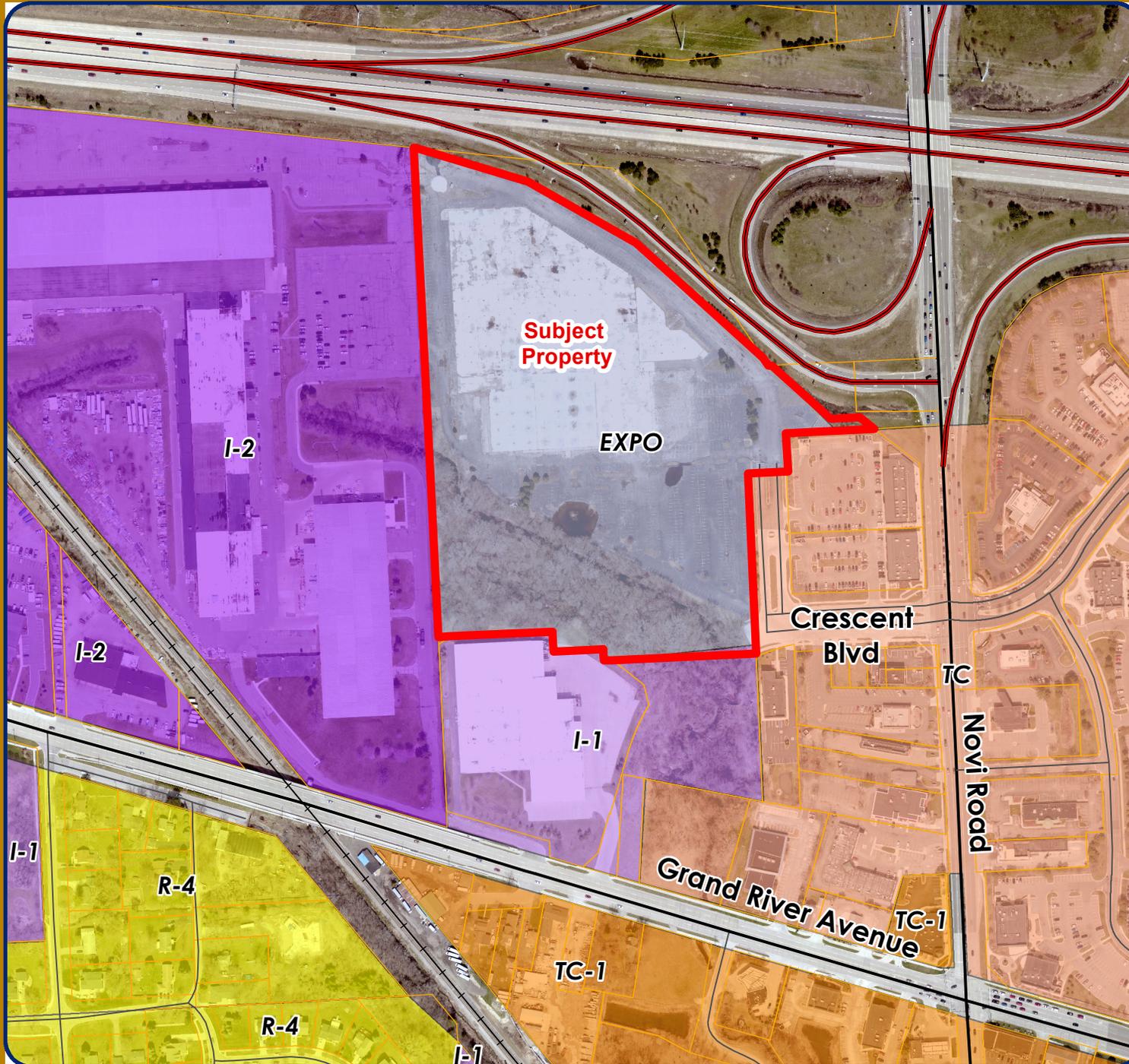


MAP INTERPRETATION NOTICE

Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent, accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Please contact the City GIS Manager to confirm source and accuracy information related to this map.

JSP 18-27 ADELL CENTER ROADS & UTILITIES

Zoning



LEGEND

- R-A: Residential Acreage
- R-4: One-Family Residential District
- C: Conference District
- EXPO: EXPO District
- I-1: Light Industrial District
- I-2: General Industrial District
- OS-1: Office Service District
- OSC: Office Service Commercial
- OST: Office Service Technology
- RC: Regional Center District
- TC: Town Center District
- TC-1: Town Center -1 District


City of Novi
 Dept. of Community Development
 City Hall / Civic Center
 45175 W Ten Mile Rd
 Novi, MI 48375
cityofnovi.org

Map Author: Sri Komaragiri
 Date: 09/07/18
 Project: JSP 18-27: ADELL CENTER ROADS & UTILITIES

Version #: 1 Feet
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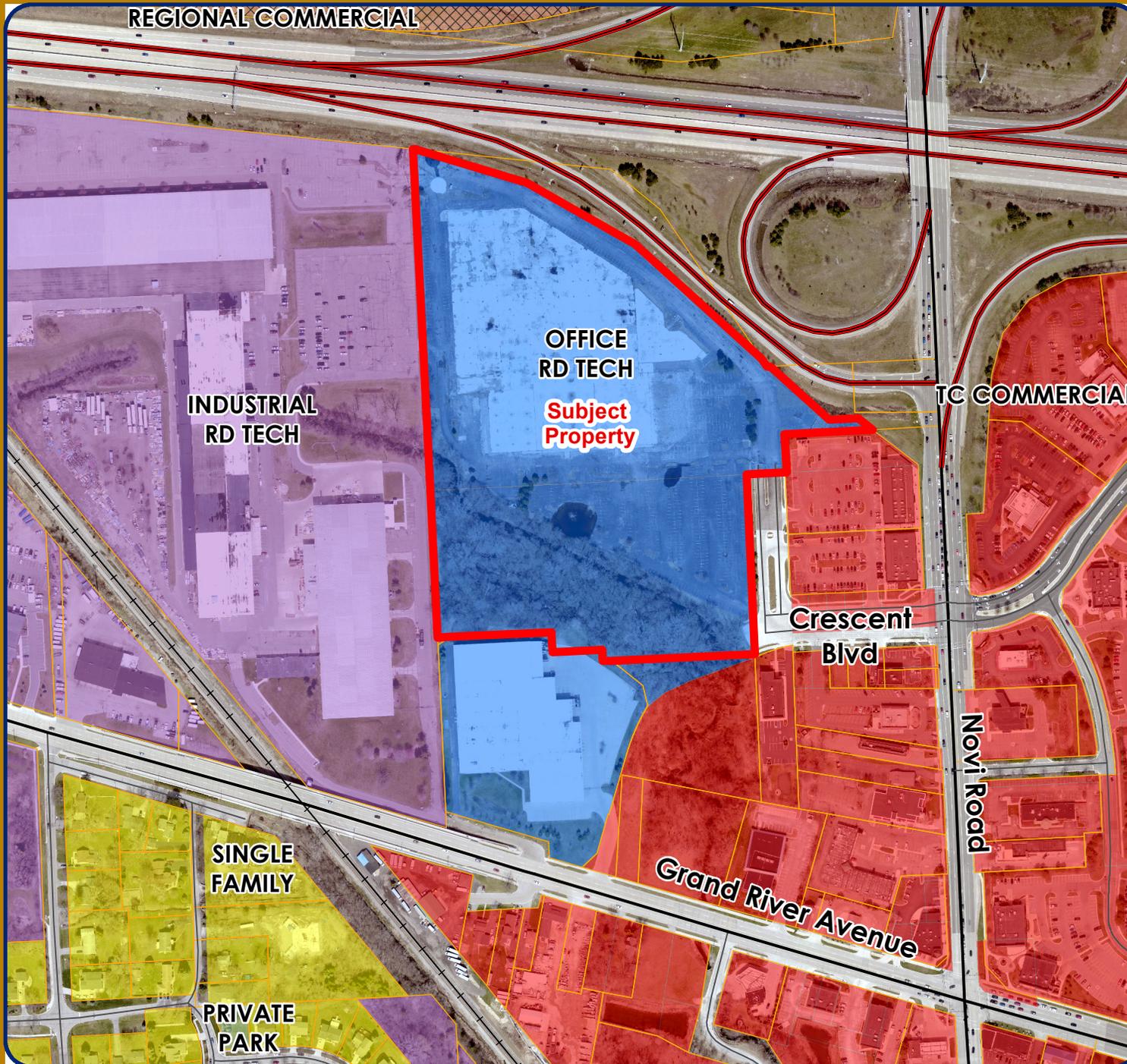
1 inch = 381 feet

MAP INTERPRETATION NOTICE

Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent, accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Please contact the City GIS Manager to confirm source and accuracy information related to this map.

JSP 18-27 ADELL CENTER ROADS & UTILITIES

Future Landuse



LEGEND

FUTURE LAND USE

- Single Family
- Office RD Tech
- Office Commercial
- Industrial RD Tech
- Regional Commercial
- TC Commercial
- TC Gateway
- PD2
- Public
- Private Park
- Cemetry

CITY OF NOVI
 City of Novi
 Dept. of Community Development
 City Hall / Civic Center
 45175 W Ten Mile Rd
 Novi, MI 48375
 cityofnovi.org

Map Author: Sri Komaragiri
 Date: 09/07/18
 Project: JSP 18-27: ADELL CENTER ROADS & UTILITIES

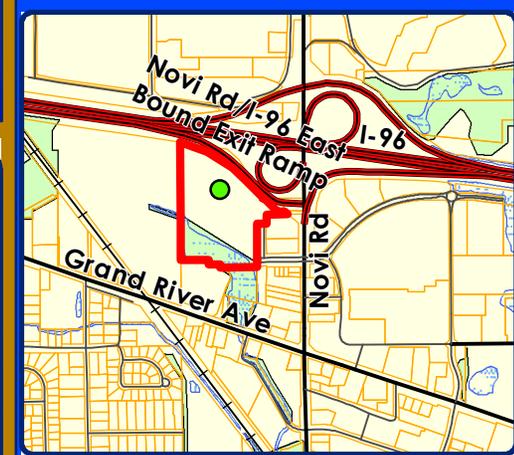
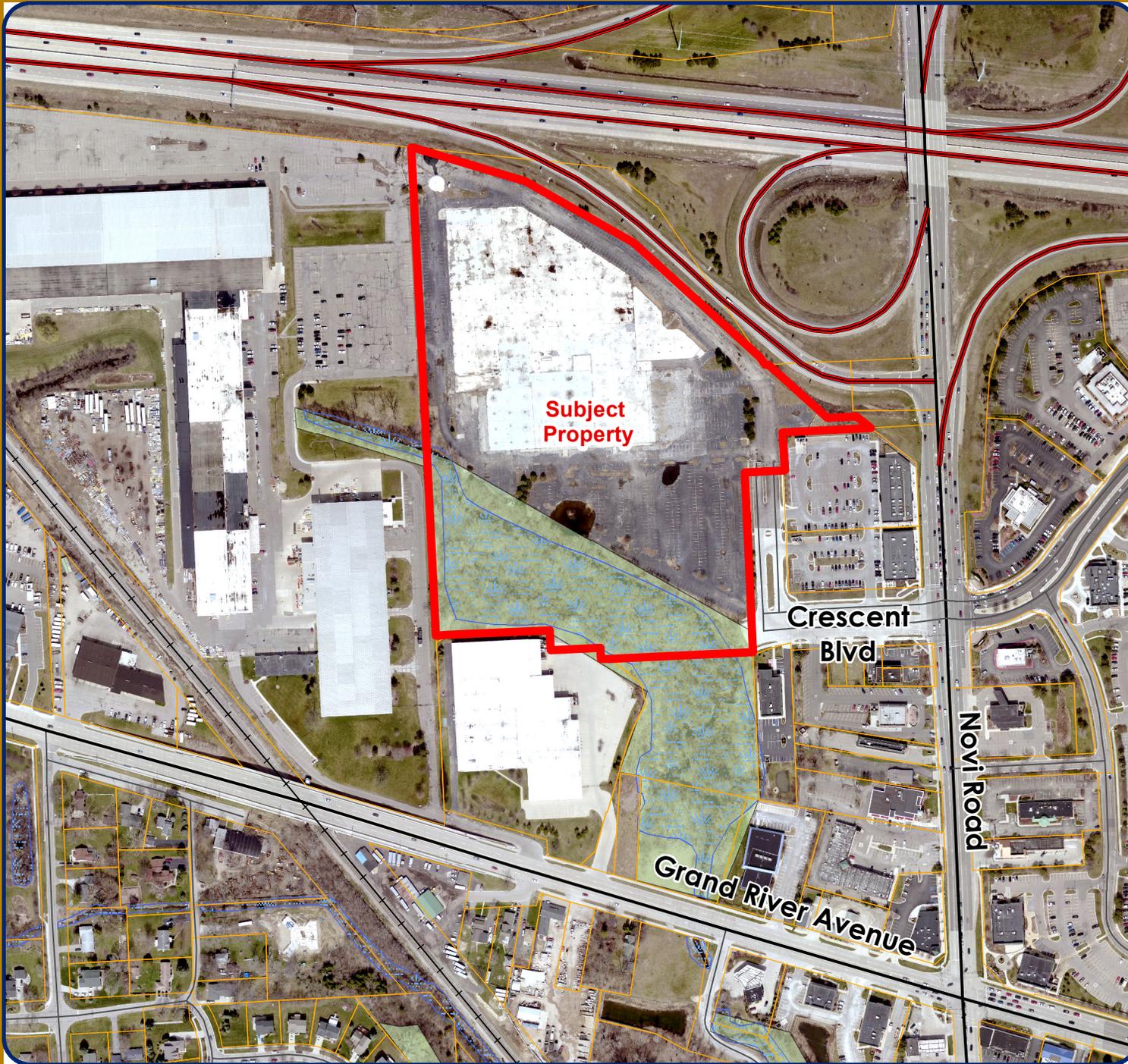


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JSP 18-27 ADELL CENTER ROADS & UTILITIES

Natural Features



LEGEND

- WETLANDS
- WOODLANDS



City of Novi
Dept. of Community Development
City Hall / Civic Center
45175 W Ten Mile Rd
Novi, MI 48375
cityofnovi.org

Map Author: Sri Komaragiri
Date: 09/07/18
Project: JSP 18-27: ADELL CENTER ROADS & UTILITIES



MAP INTERPRETATION NOTICE

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SITE PLAN

(Full size plans are available at Community Development Department for review)

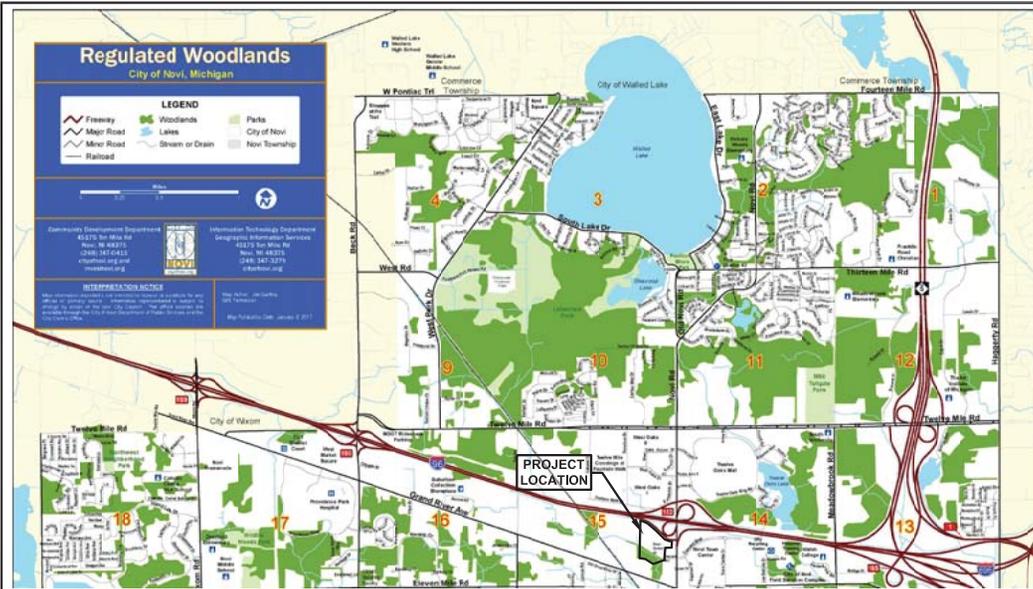
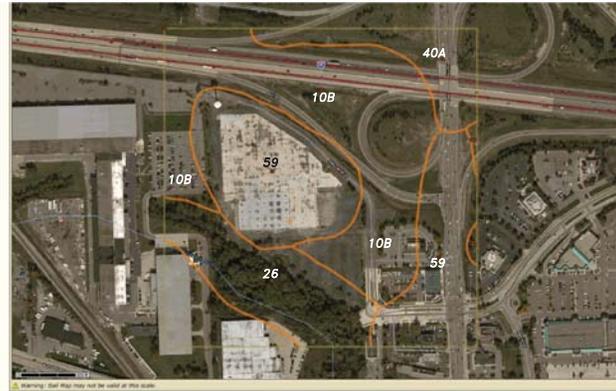


Figure 2.8: Range River Watershed



Map Unit	Map Unit Name	Area (Ac)	Percent of Area
108	Marquette sandy loam, 8 to 6 percent slopes	25.3	36.1%
118	Cappas sandy loam, 0 to 4 percent slopes	0.4	0.5%
26	Silvan silt loam	10.6	15.1%
65A	Substrate, heavy, stony loam	3.8	5.3%
19	Urban land	28.0	39.8%
69	Thomas silt loam	0.3	0.4%
Totals for Area of Interest		70.2	100.0%

NOTE:
REFER TO SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING REPORT BY HAENGEL & ASSOCIATES ENGINEERING, INC. DATED JUNE 21, 2018 FOR ADDITIONAL SOILS INFORMATION



BENCHMARKS:
CITY OF NOVI BM 1542
"X" ON NORTH RIM OF SANITARY MANHOLE, 25'± WEST OF BACK OF CURB NOVI ROAD & 45'± SOUTH OF DRIVE #20179 NOVI ROAD ELEVATION: 915.10 N.A.V.D.88
BM #1
ARROW ON HYDRANT, SOUTH SIDE OF CRESCENT BOULEVARD, 24'± EAST OF SOUTHEAST PROPERTY CORNER ELEVATION: 915.58 (N.A.V.D.88 DATUM)
BM #2
ARROW ON HYDRANT, 260'± WEST OF EXPO CENTER DRIVE, 68'± SOUTH OF BUILDING FOUNDATION. ELEVATION: 912.13 (N.A.V.D.88 DATUM)
BM #3
ARROW ON HYDRANT NORTH SIDE OF SITE, 12.5'± SOUTHWEST OF RIGHT OF WAY FENCE, 250'± EAST OF ADELL WATER TOWER. ELEVATION: 914.36 (N.A.V.D.88 DATUM)

UTILITY CONTACTS:

GAS:
CONSUMERS ENERGY
530 W. WILLOW ST.
LANSING, MI 48206
EMAIL: MICHIGAN@CONSUMERS.ENERGY.COM
CONSUMERS ENERGY

STORM DRAINAGE:
CITY OF NOVI
ENGINEERING DIVISION
26300 LEE BEGUE DR
NOVI, MI 48275
(248)735-5644

WATER SERVICE:
CITY OF NOVI
WATER AND SEWER DIVISION
26300 LEE BEGUE DR
NOVI, MI 48275
(248)735-5644

SANITARY SERVICE:
CITY OF NOVI
WATER AND SEWER DIVISION
26300 LEE BEGUE DR
NOVI, MI 48275
(248)735-5644

SOL EROSION PERMIT: CITY OF NOVI
ENGINEERING DIVISION
26300 LEE BEGUE DR
NOVI, MI 48275
(248)735-5644

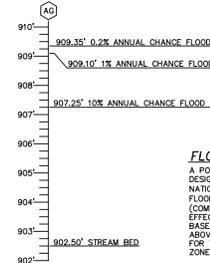
CABLE TV:
COMCAST CABLE COMMUNICATIONS, INC.
25008 TELEGRAPH RD
SOUTHFIELD, MI 48034
(248)969-2715

ELECTRIC:
DTE
ENERGY ONE ENERGY PLAZA, 518 5B
DETROIT, MI 48208
(313)235-5632
ITC
27175 ENERGY WAY
NOVI, MI 48277
(313)267-4857

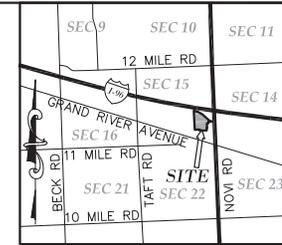
TELEPHONE:
ATA1 (FORMERLY SRC)
54 N. MILL ST., 4TH FLOOR
PONTIAC, MI 48342
(248)456-8256

HATCH LEGEND

[Symbol]	ASPHALT
[Symbol]	ASPHALT-HEAVY DUTY
[Symbol]	CONCRETE
[Symbol]	PROPOSED BUILDING
[Symbol]	EXISTING BUILDING
[Symbol]	SIDEWALK
[Symbol]	SIDEWALK IN DRIVE
[Symbol]	GRAVEL



FLOOD HAZARD STATEMENT:
A PORTION OF THIS PROPERTY IS LOCATED WITHIN A FEMA DESIGNATED ZONE AE FLOOD HAZARD AREA AS SHOWN ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FOR MICHIGAN FLOOD INSURANCE RATE MAP (FIRM) #26125C0626F (COMMUNITY ID NO. 260175 - CITY OF NOVI, MI) WITH AN EFFECTIVE DATE OF SEPTEMBER 29, 2006. THIS STATEMENT IS BASED ON THE RESULTS OF GRAPHIC PLOTTING ONTO THE ABOVE NAMED MAP AND PANEL, WHICH IS THE CURRENT MAP FOR THE COMMUNITY IN WHICH THE PROPERTY IS LOCATED. ZONE AE INDICATES BASE FLOOD ELEVATIONS DETERMINED.



LOCATION MAP SCALE: 1"=4000'

EXISTING: LEGEND PROPOSED:

(R)	RECORDED	(P)	PROPOSED
(M)	MEASURED	(S)	FOUND POST
(C)	COMMUNICATION/ELECTRIC	(X)	SECTION CORNER
(O)	FIB/FO/PP/AMON	(V)	UTILITY POLE
(X)	SECTION CORNER	(W)	GUY WIRE
(V)	UTILITY POLE	(M)	MAILBOX
(W)	GUY WIRE	(F)	FLAG POLE
(M)	MAILBOX	(A)	AIR CONDITIONER
(F)	FLAG POLE	(L)	LIGHT POLE
(A)	AIR CONDITIONER	(P)	POST
(L)	LIGHT POLE	(B)	BOLLARD
(P)	POST	(B)	BOLLARD LIGHT
(B)	BOLLARD	(S)	SIGN
(B)	BOLLARD LIGHT	(D)	DOWNSPOUT
(S)	SIGN	(C)	CLEANOUT
(D)	DOWNSPOUT	(I)	INLET
(C)	CLEANOUT	(C)	CATCH BASIN
(I)	INLET	(E)	END SECTION
(C)	CATCH BASIN	(M)	STORM MANHOLE
(E)	END SECTION	(M)	SANITARY MANHOLE
(M)	STORM MANHOLE	(E)	ELECTRIC MANHOLE
(M)	SANITARY MANHOLE	(H)	HYDRANT
(E)	ELECTRIC MANHOLE	(G)	GATE VALVE
(H)	HYDRANT	(S)	SOIL BORING
(G)	GATE VALVE	(U)	UTILITY CROSSING
(S)	SOIL BORING	(N)	NOTE NUMBER
(U)	UTILITY CROSSING	(S)	SAN STR NUMBER
(N)	NOTE NUMBER	(S)	STM STR NUMBER
(S)	SAN STR NUMBER	(G)	GATE VALVE NUMBER
(S)	STM STR NUMBER	(H)	HYDRANT NUMBER
(G)	GATE VALVE NUMBER	(A)	ANTICIPATED DRIVEWAY LOCATION
(H)	HYDRANT NUMBER	(C)	CONIFEROUS TREE
(A)	ANTICIPATED DRIVEWAY LOCATION	(D)	DECIDUOUS TREE
(C)	CONIFEROUS TREE	(L)	LANDSCAPE TREE
(D)	DECIDUOUS TREE	(S)	SANITARY SEWER
(L)	LANDSCAPE TREE	(W)	WATER MAIN
(S)	SANITARY SEWER	(G)	GAS MAIN
(W)	WATER MAIN	(O)	OVERHEAD LINES
(G)	GAS MAIN	(F)	FENCE LINE
(O)	OVERHEAD LINES	(R)	RIGHT OF WAY
(F)	FENCE LINE	(Z)	ZONING LIMITS
(R)	RIGHT OF WAY	(P)	PROPERTY BOUNDARY
(Z)	ZONING LIMITS	(M)	RETAINING WALL
(P)	PROPERTY BOUNDARY	(T)	TREE LINE
(M)	RETAINING WALL	(-033)	CONTOUR 1 FT. INCR.
(T)	TREE LINE	(-035)	CONTOUR 5 FT. INCR.
(-033)	CONTOUR 1 FT. INCR.	(-)	CURB & GUTTER
(-035)	CONTOUR 5 FT. INCR.	(-)	SPILLOUT CURB & GUTTER
(-)	CURB & GUTTER	(-)	WETLAND BOUNDARY
(-)	SPILLOUT CURB & GUTTER	(-)	WETLAND BUFFER
(-)	WETLAND BOUNDARY	(-)	FLOORPLAN
(-)	WETLAND BUFFER	(-)	FLOODWAY
(-)	FLOORPLAN	(-)	EASEMENT
(-)	FLOODWAY		
(-)	EASEMENT		

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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

RESIDENTIAL
COMMERCIAL
INDUSTRIAL
MUNICIPAL
CONSTRUCTION
LANDSCAPE ARCHITECTURE
SURVEYING
ENGINEERING
PLANNING
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DESIGN
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811
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LEGEND SHEET
CLIENT: ADELL CENTER
43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
TOWNSHIP: 15N
RANGE: 8E
SECTION: 15
CITY OF NOVI, MICHIGAN

REVISED
DATE: 7-19-2018
DRAWN BY: RMS/MW
CHECKED BY: DJL/JMF
SCALE: H&V 1"= 10' FT
V 1"= 10' FT

LEGAL DESCRIPTION:

FILE NO: 717659

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

PART OF THE NORTHEAST 1/4 OF SOUTHWEST 1/4 OF SECTION 15, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN, BEGINNING AT POINT DISTANT SOUTH 00 DEGREES 00 MINUTES 42 SECONDS EAST 1179.04 FEET FROM EAST 1/4 CORNER, THENCE NORTH 87 DEGREES 44 MINUTES 28 SECONDS WEST 270.04 FEET; THENCE NORTH 00 DEGREES 04 MINUTES 09 SECONDS WEST 131.04 FEET; THENCE SOUTH 89 DEGREES 55 MINUTES 51 SECONDS WEST 224.83 FEET; THENCE NORTH 31 DEGREES 30 MINUTES 20 SECONDS WEST 499.91 FEET; THENCE NORTH 48 DEGREES 20 MINUTES 51 SECONDS WEST 166.64 FEET; THENCE NORTH 24 DEGREES 21 MINUTES 39 SECONDS WEST 524.04 FEET; THENCE SOUTH 00 DEGREES 16 MINUTES 56 SECONDS EAST, 890.81 FEET; THENCE NORTH 89 DEGREES 59 MINUTES 36 SECONDS EAST 937.39 FEET; THENCE NORTH 00 DEGREES 16 MINUTES 10 SECONDS WEST 100 FEET; THENCE NORTH 89 DEGREES 35 MINUTES 39 SECONDS EAST 407.41 FEET; THENCE NORTH 40 DEGREES 00 MINUTES 42 SECONDS WEST 37.67 FEET TO BEGINNING, EXCEPT THAT PART LYING NORTHERLY OF A LINE DESCRIBED AS BEGINNING AT POINT DISTANT NORTH 02 DEGREES 07 MINUTES 02 SECONDS WEST 1321.42 FEET AND SOUTH 87 DEGREES 15 MINUTES 42 SECONDS EAST 60.00 FEET FROM SOUTHEAST SECTION CORNER, THENCE NORTH 51 DEGREES 28 MINUTES 13 SECONDS WEST 200.14 FEET; THENCE SOUTH 88 DEGREES 10 MINUTES 42 SECONDS WEST 76.45 FEET; THENCE NORTH 47 DEGREES 20 MINUTES 28 SECONDS WEST 888.09 FEET; THENCE NORTH 59 DEGREES 47 MINUTES 08 SECONDS WEST 320.71 FEET; THENCE NORTH 72 DEGREES 46 MINUTES 18 SECONDS WEST, 313.38 FEET TO POINT OF ENDING.

ALSO PART OF LOT 11 OF "SUPERVISOR'S PLAT NO. 4" BEGINNING AT NORTHWEST LOT CORNER, THENCE NORTH 89 DEGREES 48 MINUTES 00 SECONDS EAST 837.48 FEET; THENCE SOUTH 00 DEGREES 02 MINUTES 00 SECONDS WEST 448.20 FEET; THENCE SOUTH 00 DEGREES 13 MINUTES 40 SECONDS WEST 25.00 FEET; THENCE SOUTH 89 DEGREES 48 MINUTES 00 SECONDS WEST 404.18 FEET; THENCE NORTH 00 DEGREES 14 MINUTES 00 SECONDS WEST 30.00 FEET; THENCE SOUTH 89 DEGREES 48 MINUTES 00 SECONDS WEST 131.00 FEET; THENCE NORTH 00 DEGREES 14 MINUTES 00 SECONDS WEST 52.00 FEET; THENCE SOUTH 89 DEGREES 48 MINUTES 00 SECONDS WEST 300.00 FEET; THENCE NORTH 00 DEGREES 14 MINUTES 00 SECONDS WEST 391.20 FEET TO BEGINNING.

EXCEPT THAT PART TAKEN FOR EXPO CENTER DRIVE DESCRIBED AS: BEGINNING NORTH 89 DEGREES 48 MINUTES 00 SECONDS EAST ALONG THE NORTH LINE OF LOT 11 837.48 FEET AND SOUTH 00 DEGREES 02 MINUTES 00 SECONDS WEST 298.85 FEET FROM THE NORTHWEST CORNER OF LOT 11 OF "SUPERVISOR'S PLAT NO. 4" AS RECORDED IN LIBER 54 A OF PLATS, PAGE 83, OAKLAND COUNTY RECORDS; THENCE CONTINUING SOUTH 00 DEGREES 02 MINUTES 00 SECONDS WEST 149.35 FEET; THENCE SOUTH 00 DEGREES 13 MINUTES 40 SECONDS WEST 25.00 FEET; THENCE SOUTH 89 DEGREES 48 MINUTES 00 SECONDS WEST 25.0 FEET; THENCE NORTH 00 DEGREES 13 MINUTES 40 SECONDS EAST 25.14 FEET; THENCE NORTH 00 DEGREES 02 MINUTES 00 SECONDS EAST 149.31 FEET; THENCE SOUTH 89 DEGREES 58 MINUTES 00 SECONDS EAST 25.0 FEET TO THE POINT OF BEGINNING.

EASEMENT PARCELS TOGETHER WITH RIGHTS OF INGRESS AND EGRESS AS CREATED, LIMITED, DEFINED IN INSTRUMENT RECORDED IN LIBER 7245, PAGE 96, AND TOGETHER WITH NON-EXCLUSIVE FOR RAILROAD SIDEWALK AS CREATED, LIMITED AND DEFINED IN INSTRUMENT RECORDED IN LIBER 8286, PAGE 38.

EXCEPTIONS:

- SCHEDULE B-1, PER FIRST AMERICAN TITLE INSURANCE COMPANY FILE NO. 717659, DATE PRINTED: MARCH 2, 2018 REVISION E EFFECTIVE DATE: FEBRUARY 14, 2018 @ 8:00 A.M.
- INTEREST OF NOVI EXPO CENTER, INC. A MICHIGAN CORPORATION, LESSEE, AND TERMS, CONDITIONS AND PROVISIONS OF LEASE AS EVIDENCED BY MEMORANDUM OF LEASE, DATED JUNE 21, 2004, RECORDED JUNE 29, 2004, IN LIBER 33447, PAGE 185. (NOTHING TO PLOT.)
 - EASEMENT FOR INGRESS AND EGRESS AS DISCLOSED BY LIBER 4556, PAGE 627. (AS SHOWN.)
 - RIGHT OF WAY IN FAVOR OF CONSUMERS POWER COMPANY AND THE COVENANTS, CONDITIONS AND RESTRICTIONS CONTAINED IN INSTRUMENT RECORDED IN LIBER 5199, PAGE 322. (AS SHOWN.)
 - EASEMENT IN FAVOR OF COUNTY OF OAKLAND AND THE COVENANTS, CONDITIONS AND RESTRICTIONS CONTAINED IN INSTRUMENT RECORDED IN LIBER 5723, PAGE 125. (AS SHOWN.)
 - EASEMENT IN FAVOR OF CITY OF NOVI AND THE COVENANTS, CONDITIONS AND RESTRICTIONS CONTAINED IN INSTRUMENT RECORDED IN LIBER 5776, PAGE 350. (DOES NOT AFFECT SUBJECT PROPERTY. EASEMENT LOCATED APPROXIMATELY 258 FEET SOUTH OF THE SOUTHEAST PROPERTY CORNER.)
 - HIGHWAY EASEMENT RELEASE IN FAVOR OF STATE OF MICHIGAN AND THE COVENANTS, CONDITIONS AND RESTRICTIONS CONTAINED IN INSTRUMENT RECORDED IN LIBER 6846, PAGE 561. (EASEMENT FOR CONSTRUCTION AND MAINTENANCE OF DRAINAGE AS SHOWN.)
 - TERMS AND CONDITIONS CONTAINED IN DECLARATION OF TAKING AS DISCLOSED BY INSTRUMENT RECORDED IN LIBER 7245, PAGE 95. (EASEMENT FOR HIGHWAY PURPOSES AS SHOWN.)
 - TERMS AND CONDITIONS CONTAINED IN EASEMENT AGREEMENT AS DISCLOSED BY INSTRUMENT RECORDED IN LIBER 8286, PAGE 38. (EASEMENT IS NOT LOCATED ON SUBJECT PROPERTY. THE LOCATION IS ARBITRARY THE WEST PROPERTY LINE AS SHOWN.)
 - TERMS AND CONDITIONS CONTAINED IN RESTRICTIVE COVENANTS AS DISCLOSED BY INSTRUMENT RECORDED IN LIBER 40213, PAGE 442. (NOTHING TO PLOT.)
 - TEMPORARY CONSTRUCTION EASEMENT IN FAVOR OF CITY OF NOVI AND THE COVENANTS, CONDITIONS AND RESTRICTIONS CONTAINED IN INSTRUMENT RECORDED IN LIBER 12884, PAGE 850. (AS SHOWN. EASEMENT TERMINATES ON COMPLETION OF EXPO DRIVE PROJECT NO. N-3056-01. DOCUMENT RECORDED IN 1992.)
 - RIGHTS OF OTHERS OVER THAT PORTION OF THE LAND USED AS INGRESS AND EGRESS TO OTHER LANDS, (THERE ARE 2 AREAS ON THE WEST PROPERTY LINE WHERE PAVING EXTENDS ONTO ADJACENT PROPERTY. THESE 2 FENCING AND CONCRETE BARRIERS BLOCKING VEHICULAR TRAVEL BETWEEN SUBJECT PROPERTY AND OTHER LANDS.)
 - ANY RIGHTS, TITLE INTEREST OR CLAIM THEREOF TO THAT PORTION OF THE LAND TAKEN, USED OR GRANTED FOR STREETS, ROADS OR HIGHWAYS. (NOTHING TO PLOT.)

NOTE:

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

COORDINATE SYSTEM:
COORDINATES BASED ON THE MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, (NAD83), GEOID 2011B.

WETLAND NOTE:
WETLAND DELINEATION WAS PERFORMED ON SEPTEMBER 22, 2017. ECT CONFIRMED ON-SITE WETLANDS WERE DELINEATED ACCURATELY VIA LETTER DATED MAY 16, 2018. 52 (6) WETLAND AREAS WERE DELINEATED AND CONSIDERED ESSENTIAL/REGULATED WETLANDS.

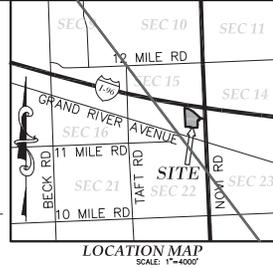
FLOOD HAZARD STATEMENT:
A PORTION OF THIS PROPERTY IS LOCATED WITHIN A FEMA DESIGNATED ZONE AS FLOOD HAZARD AREA AS SHOWN ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FOR MICHIGAN FLOOD INSURANCE RATE MAP (FRM). PROFESSIONAL COMMUNITY # 00 000171 CITY OF NOVI, MI WITH AN EFFECTIVE DATE OF SEPTEMBER 29, 2006. THIS STATEMENT IS BASED ON THE RESULTS OF GRAPHIC PLOTTING ONTO THE ABOVE NAMED MAP AND PANEL WHICH IS THE CURRENT MAP FOR THE COMMUNITY IN WHICH THE PROPERTY IS LOCATED. ZONE #A INDICATES BASE FLOOD FLOOD ELEVATIONS DETERMINED.

SITE ADDRESS:
#43700 EXPO CENTER DRIVE, NOVI, MICHIGAN 48375

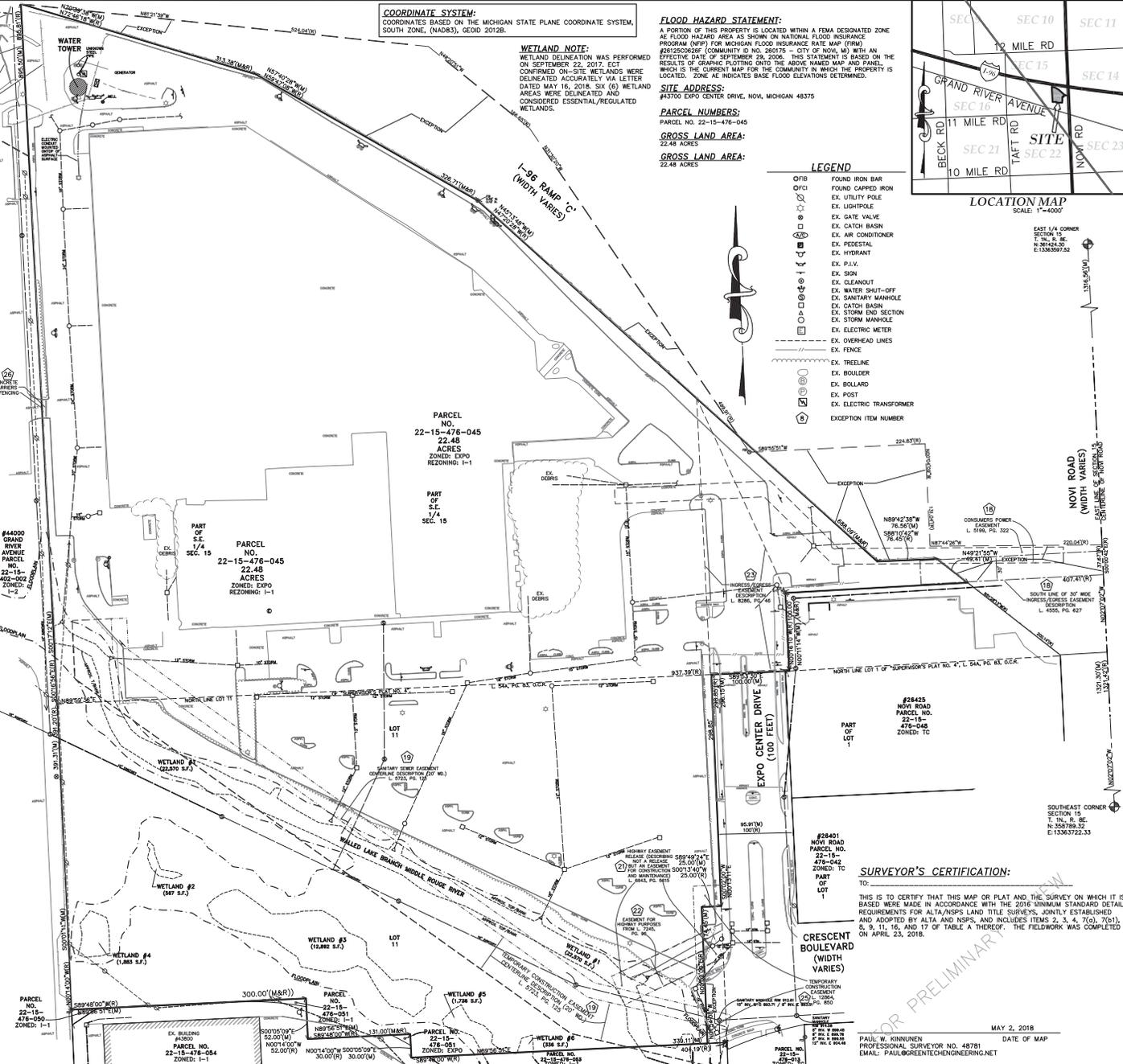
PARCEL NUMBERS:
PARCEL NO. 22-15-476-045

GROSS LAND AREA:
22.48 ACRES

GROSS LAND AREA:
22.48 ACRES



- LEGEND**
- FOUND IRON BAR
 - FOUND CAPPED IRON
 - UTILITY POLE
 - LIGHTPOLE
 - GATE VALVE
 - CATCH BASIN
 - AIR CONDITIONER
 - PEDESTAL
 - HYDRANT
 - P.V.V.
 - IGN
 - CLEANOUT
 - WATER SHUT-OFF
 - SANITARY MANHOLE
 - GATOR BASIN
 - STORM DND SECTION
 - STORM MANHOLE
 - ELECTRIC METER
 - OVERHEAD LINES
 - FENCE
 - TREELINE
 - BOULDER
 - BOLLARD
 - POST
 - ELECTRIC TRANSFORMER
 - EXCEPTION ITEM NUMBER



GREENTECH ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS
15147 W. Pavilion Trail, Warren, MI 48093
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8m
Know what's below
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ALTA/NSPS LAND TITLE SURVEY
43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
RANGE: 8E
SECTION: 15
OAKLAND COUNTY MICHIGAN

SURVEYOR'S CERTIFICATION:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 7(a), 7(b), 8, 9, 11, 16, AND 17 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON APRIL 23, 2018.

MAY 2, 2018 DATE OF MAP
PAUL W. KINNUNEN PROFESSIONAL SURVEYOR NO. 48781
EMAIL: PAUL@GREENTECHENGINEERING.NET

DATE: 5-2-18
DRAWN BY: PWK
CHECKED BY: DJL
SCALE: HOR 1"=60 FT. VER 1"=11 FT.

BENCHMARKS:
 CITY OF NOVI BM 1542
 2' ON NORTH B.M. OF SANITARY MANHOLE,
 25'± WEST OF BACK OF CURB NOV1 ROAD
 & 45'± SOUTH OF DRIVE #28179 NOV1 ROAD
 ELEVATION: 915.10 (N.A.V.D.88)

BM #1
 ARROW ON HYDRANT, SOUTH SIDE OF
 CRESCENT BOULEVARD, 24'± EAST OF
 SOUTHEAST PROPERTY CORNER
 ELEVATION: 915.58 (N.A.V.D.88 DATUM)

BM #2
 ARROW ON HYDRANT, 260'± WEST OF EXPO
 CENTER DRIVE, 68'± SOUTH OF BUILDING
 FOUNDATION.
 ELEVATION: 912.13 (N.A.V.D.88 DATUM)

BM #3
 ARROW ON HYDRANT NORTH SIDE OF SITE,
 12.5'± SOUTHWEST OF RIGHT OF WAY FENCE,
 250'± EAST OF ADELL WATER TOWER.
 ELEVATION: 914.36 (N.A.V.D.88 DATUM)

LEGAL DESCRIPTION:

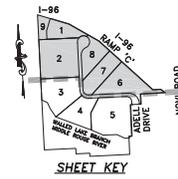
FILE NO.: 717659

THE LAND REFERRED TO IN THIS COMMITMENT, SITUATED IN THE COUNTY OF OAKLAND, CITY OF NOVI, STATE OF MICHIGAN, IS DESCRIBED AS FOLLOWS:
 PART OF THE NORTHEAST 1/4 OF SOUTHEAST 1/4 OF SECTION 15, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN, BEGINNING AT POINT DISTANT SOUTH 00 DEGREES 00 MINUTES 42 SECONDS WEST 1173.04 FEET FROM EAST 1/4 CORNER, THENCE NORTH 87 DEGREES 44 MINUTES 26 SECONDS WEST 220.04 FEET; THENCE NORTH 00 DEGREES 04 MINUTES 09 SECONDS WEST 131.04 FEET; THENCE SOUTH 89 DEGREES 55 MINUTES 01 SECONDS WEST 224.83 FEET; THENCE NORTH 31 DEGREES 30 MINUTES 20 SECONDS WEST 499.91 FEET; THENCE NORTH 48 DEGREES 20 MINUTES 01 SECONDS WEST 146.85 FEET; THENCE SOUTH 81 DEGREES 01 MINUTES 39 SECONDS WEST, 524.04 FEET; THENCE SOUTH 00 DEGREES 16 MINUTES 56 SECONDS EAST, 895.81 FEET; THENCE NORTH 89 DEGREES 59 MINUTES 38 SECONDS EAST 937.39 FEET; THENCE NORTH 00 DEGREES 16 MINUTES 10 SECONDS WEST 100 FEET; THENCE NORTH 89 DEGREES 35 MINUTES 39 SECONDS EAST 407.41 FEET; THENCE NORTH 00 DEGREES 00 MINUTES 42 SECONDS WEST 37.67 FEET TO BEGINNING, EXCEPT THAT PART LYING NORTHERLY OF A LINE DESCRIBED AS BEGINNING AT POINT DISTANT NORTH 02 DEGREES 07 MINUTES 02 SECONDS WEST 1321.42 FEET AND SOUTH 87 DEGREES 15 MINUTES 42 SECONDS WEST 60.00 FEET FROM SOUTHEAST SECTION CORNER, THENCE NORTH 21 DEGREES 28 MINUTES 13 SECONDS WEST 200.14 FEET; THENCE SOUTH 88 DEGREES 10 MINUTES 42 SECONDS WEST 76.45 FEET; THENCE NORTH 47 DEGREES 20 MINUTES 28 SECONDS WEST 688.09 FEET; THENCE NORTH 59 DEGREES 47 MINUTES 08 SECONDS WEST 326.71 FEET; THENCE NORTH 72 DEGREES 46 MINUTES 18 SECONDS WEST, 313.38 FEET TO POINT OF ENDING.

ALSO PART OF LOT 11 OF "SUPERVISOR'S PLAT NO. 4" BEGINNING AT NORTHWEST LOT CORNER, THENCE NORTH 89 DEGREES 48 MINUTES 00 SECONDS EAST 837.48 FEET; THENCE SOUTH 00 DEGREES 02 MINUTES 00 SECONDS WEST 448.20 FEET; THENCE SOUTH 00 DEGREES 13 MINUTES 40 SECONDS WEST 25.00 FEET; THENCE SOUTH 89 DEGREES 48 MINUTES 00 SECONDS WEST 404.19 FEET; THENCE NORTH 00 DEGREES 14 MINUTES 00 SECONDS WEST 30.00 FEET; THENCE SOUTH 89 DEGREES 48 MINUTES 00 SECONDS WEST 131.00 FEET; THENCE NORTH 00 DEGREES 14 MINUTES 00 SECONDS WEST 52.00 FEET; THENCE SOUTH 89 DEGREES 48 MINUTES 00 SECONDS WEST 300.00 FEET; THENCE NORTH 00 DEGREES 14 MINUTES 00 SECONDS WEST 391.20 FEET TO BEGINNING.

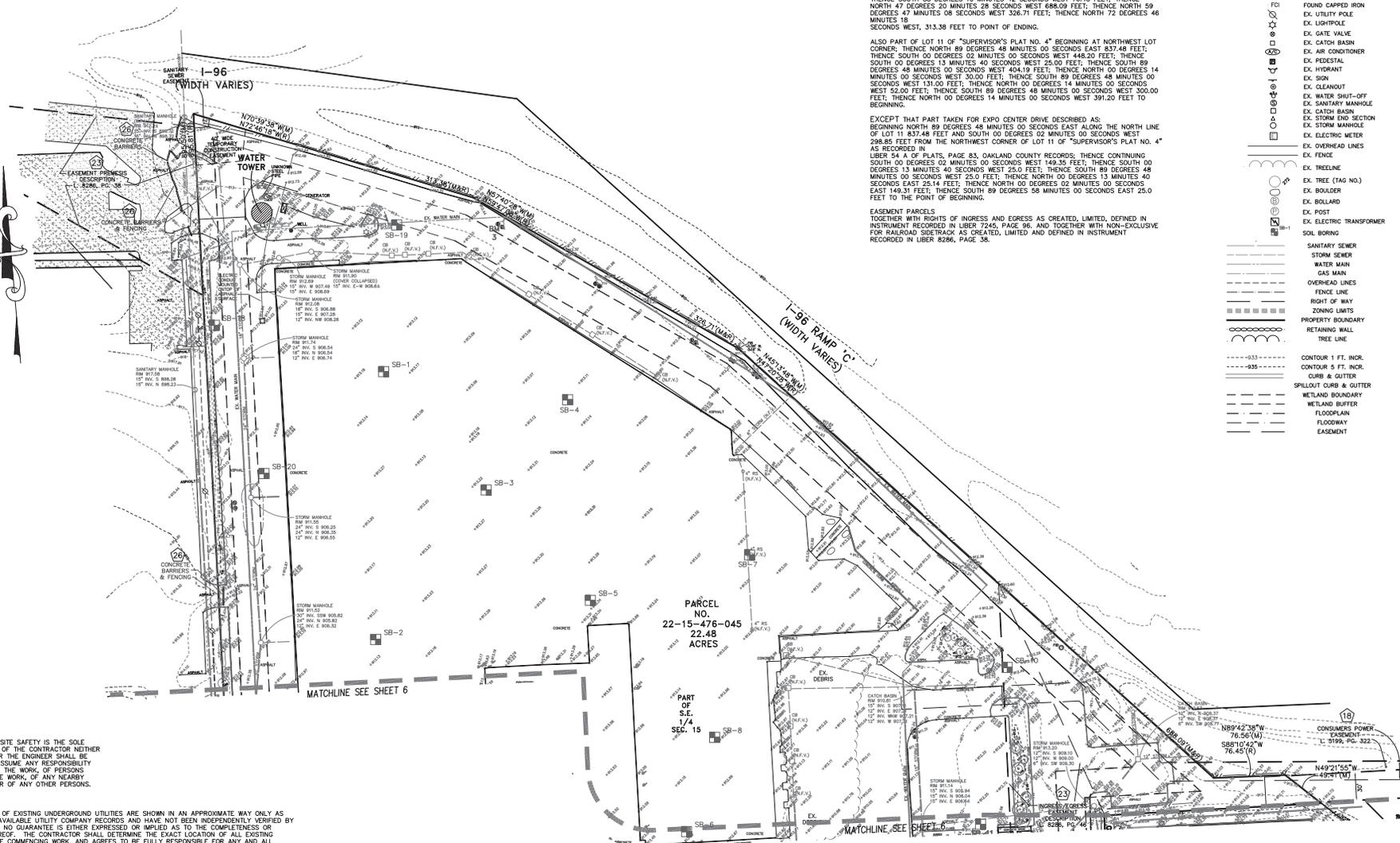
EXCEPT THAT PART TAKEN FOR EXPO CENTER DESCRIBED AS: BEGINNING NORTH 89 DEGREES 48 MINUTES 00 SECONDS EAST ALONG THE NORTH LINE OF LOT 11 837.48 FEET AND SOUTH 00 DEGREES 02 MINUTES 00 SECONDS WEST 298.85 FEET FROM THE NORTHWEST CORNER OF LOT 11 OF "SUPERVISOR'S PLAT NO. 4" AS RECORDED IN LIBER 24 A PLATS, PAGE 83, OAKLAND COUNTY RECORDS; THENCE CONTINUING SOUTH 00 DEGREES 02 MINUTES 00 SECONDS WEST 149.30 FEET; THENCE SOUTH 00 DEGREES 13 MINUTES 40 SECONDS WEST 25.00 FEET; THENCE SOUTH 89 DEGREES 48 MINUTES 00 SECONDS WEST 25.00 FEET; THENCE NORTH 00 DEGREES 13 MINUTES 40 SECONDS EAST 25.14 FEET; THENCE NORTH 00 DEGREES 02 MINUTES 00 SECONDS EAST 149.31 FEET; THENCE SOUTH 89 DEGREES 58 MINUTES 00 SECONDS EAST 25.0 FEET TO THE POINT OF BEGINNING.

EASEMENT PARCELS TOGETHER WITH RIGHTS OF INGRESS AND EGRESS AS CREATED, LIMITED, DEFINED IN INSTRUMENT RECORDED IN LIBER 7245, PAGE 96, AND TOGETHER WITH NON-EXCLUSIVE FOR RAILROAD USE/TRACK AS CREATED, LIMITED AND DEFINED IN INSTRUMENT RECORDED IN LIBER 8286, PAGE 38.



LEGEND

FB	FOUND IRON BAR
FI	FOUND CAPPED IRON
EX	UTILITY POLE
EX	LIGHT POLE
EX	GATE VALVE
EX	CATCH BASIN
EX	AIR CONDITIONER
EX	PEDESTAL
EX	HYDRANT
EX	SIGN
EX	CLEANOUT
EX	WATER SHUT-OFF
EX	SANITARY MANHOLE
EX	CATCH BASIN
EX	STORM END SECTION
EX	STORM MANHOLE
EX	ELECTRIC WATER
EX	OVERHEAD LINES
EX	FENCE
EX	TREELINE
EX	TREE (TAG NO.)
EX	BOULDER
EX	BOLLARD
EX	POST
EX	ELECTRIC TRANSFORMER
EX	SOIL BORING
EX	SANITARY SEWER
EX	STORM SEWER
EX	WATER MAIN
EX	CAS MAIN
EX	OVERHEAD LINES
EX	RIGHT OF WAY
EX	ZONING LIMITS
EX	PROPERTY BOUNDARY
EX	RETAINING WALL
EX	TREE LINE
---	CONTOUR 1 FT. INCR.
---	CONTOUR 5 FT. INCR.
---	CURB & GUTTER
---	SPILLOUT CURB & GUTTER
---	WETLAND BUFFER
---	FLOODPLAIN
---	FLOODWAY
---	EASEMENT



NOTE:
 CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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

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 Telephone: (248) 868-0700 Fax: (248) 668-0701

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 Know what's below
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EXISTING CONDITIONS PLAN (NORTH)
 43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
 SECTION 15 RANGE 8E
 CLIENT: ADELL CENTER
 REVISED

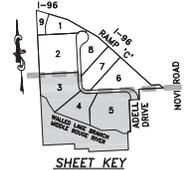
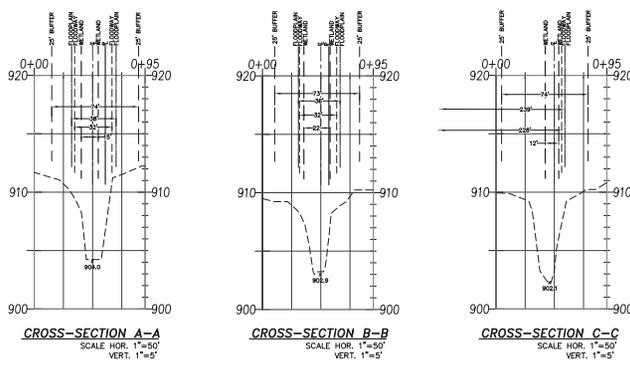
DATE: 7-19-2018
 DRAWN BY: RMS/MW
 CHECKED BY: DJL/AMF
 FBK: ---
 CHP: ---
 SCALE: HOR 1"=50 FT
 VER 1"=10 FT

BENCHMARKS:
 CITY OF NOVI BM 1542
 "X" ON NORTH RM OF SANITARY MANHOLE,
 25'± WEST OF BACK OF CURB NOVI ROAD
 & 45'± SOUTH OF DRIVE, #28179 NOVI ROAD
 ELEVATION: 915.10 (N.A.V.D.88)

BM #1
 ARROW ON HYDRANT, SOUTH SIDE OF
 CRESCENT BOULEVARD, 24'± EAST OF
 SOUTHEAST PROPERTY CORNER
 ELEVATION: 915.58 (N.A.V.D.88 DATUM)

BM #2
 ARROW ON HYDRANT, 260'± WEST OF EXPO
 CENTER DRIVE, 48'± SOUTH OF BUILDING
 FOUNDATION.
 ELEVATION: 912.13 (N.A.V.D.88 DATUM)

BM #3
 ARROW ON HYDRANT NORTH SIDE OF SITE,
 12.5'± SOUTHWEST OF RIGHT OF WAY FENCE,
 250'± EAST OF ADELL WATER TOWER.
 ELEVATION: 914.36 (N.A.V.D.88 DATUM)



LEGEND

FIB	FOUND IRON BAR	---	SANITARY SEWER
FCI	FOUND CAPPED IRON	---	STORM SEWER
EX	EX. UTILITY POLE	---	WATER MAIN
EX	EX. LIGHTPOLE	---	GAS MAIN
EX	EX. GATE VALVE	---	OVERHEAD LINES
EX	EX. CATCH BASIN	---	FENCE LINE
EX	EX. AIR CONDITIONER	---	RIGHT OF WAY
EX	EX. PEDESTAL	---	ZONING LIMITS
EX	EX. HYDRANT	---	PROPERTY BOUNDARY
EX	EX. SIGN	---	RETAINING WALL
EX	EX. CLEANOUT	---	TREE LINE
EX	EX. WATER SHUT-OFF	---	CONTOUR 1 FT. INCR.
EX	EX. SANITARY MANHOLE	---	CONTOUR 5 FT. INCR.
EX	EX. CATCH BASIN	---	CURB & GUTTER
EX	EX. STORM MANHOLE	---	SPILLOUT CURB & GUTTER
EX	EX. ELECTRIC METER	---	WETLAND BOUNDARY
EX	EX. OVERHEAD LINES	---	WETLAND BUFFER
EX	EX. FENCE	---	FLOODPLAIN
EX	EX. TREE (TAD NO.)	---	FLOODWAY
EX	EX. BOULDER	---	EASEMENT
EX	EX. BOLLARD	---	REGULATED WOODLAND
EX	EX. POST	---	
EX	EX. ELECTRIC TRANSFORMER	---	
EX	EX. SOL	---	

WETLAND LEGEND

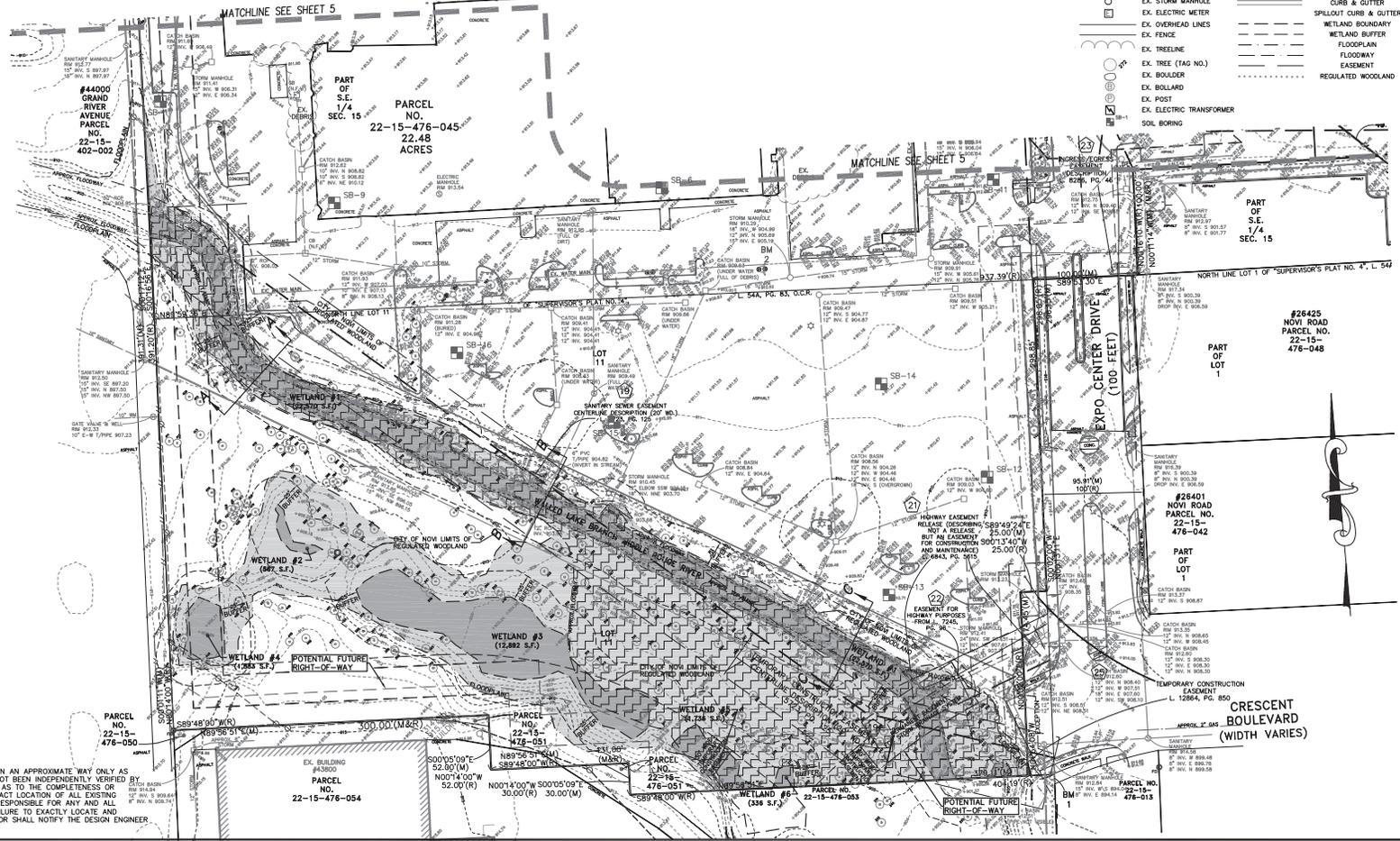
[Pattern]	WETLAND
[Pattern]	FLOODPLAIN
[Pattern]	FLOODWAY

WETLAND NOTE:
 WETLAND DELINEATION WAS PERFORMED ON
 SEPTEMBER 22, 2017. ECT CONFIRMED ON-SITE
 WETLANDS WERE DELINEATED ACCURATELY VIA
 LETTER DATED MAY 16, 2018. SOI (S) (D) WETLAND
 AREAS WERE DELINEATED AND CONSIDERED
 ESSENTIAL/REGULATED WETLANDS.

FLOOD HAZARD STATEMENT:
 A PORTION OF THIS PROPERTY IS LOCATED WITHIN A
 FEMA DESIGNATED ZONE AS FLOOD HAZARD
 AREA AS SHOWN ON NATIONAL FLOOD INSURANCE
 PROGRAM (NFIP) FOR MICHIGAN FLOOD INSURANCE
 RATE MAP (FIRM) #28125C0626F (COMMUNITY ID
 NO. 260175 - CITY OF NOVI, MI) WITH AN
 EFFECTIVE DATE OF SEPTEMBER 29, 2006. THIS
 STATEMENT IS BASED ON THE RESULTS OF GRAPHIC
 PLOTTING ONTO THE ABOVE NAMED MAP AND
 PANEL, WHICH IS THE CURRENT MAP FOR THE
 COMMUNITY IN WHICH THE PROPERTY IS LOCATED.
 ZONE AE INDICATES BASE FLOOD ELEVATIONS
 DETERMINED.

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EXISTING CONDITIONS PLAN (SOUTH)

43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
 SECTION 15 TOWNSHIP 15 N RANGE 16 E

CLIENT: ADELL CENTER

REVISED

DATE: 7-19-2018
 DRAWN BY: RMS/JMF
 CHECKED BY: DJL/AMF

SCALE: HORIZ. 1"=50 FT. VERT. 1"=5 FT.

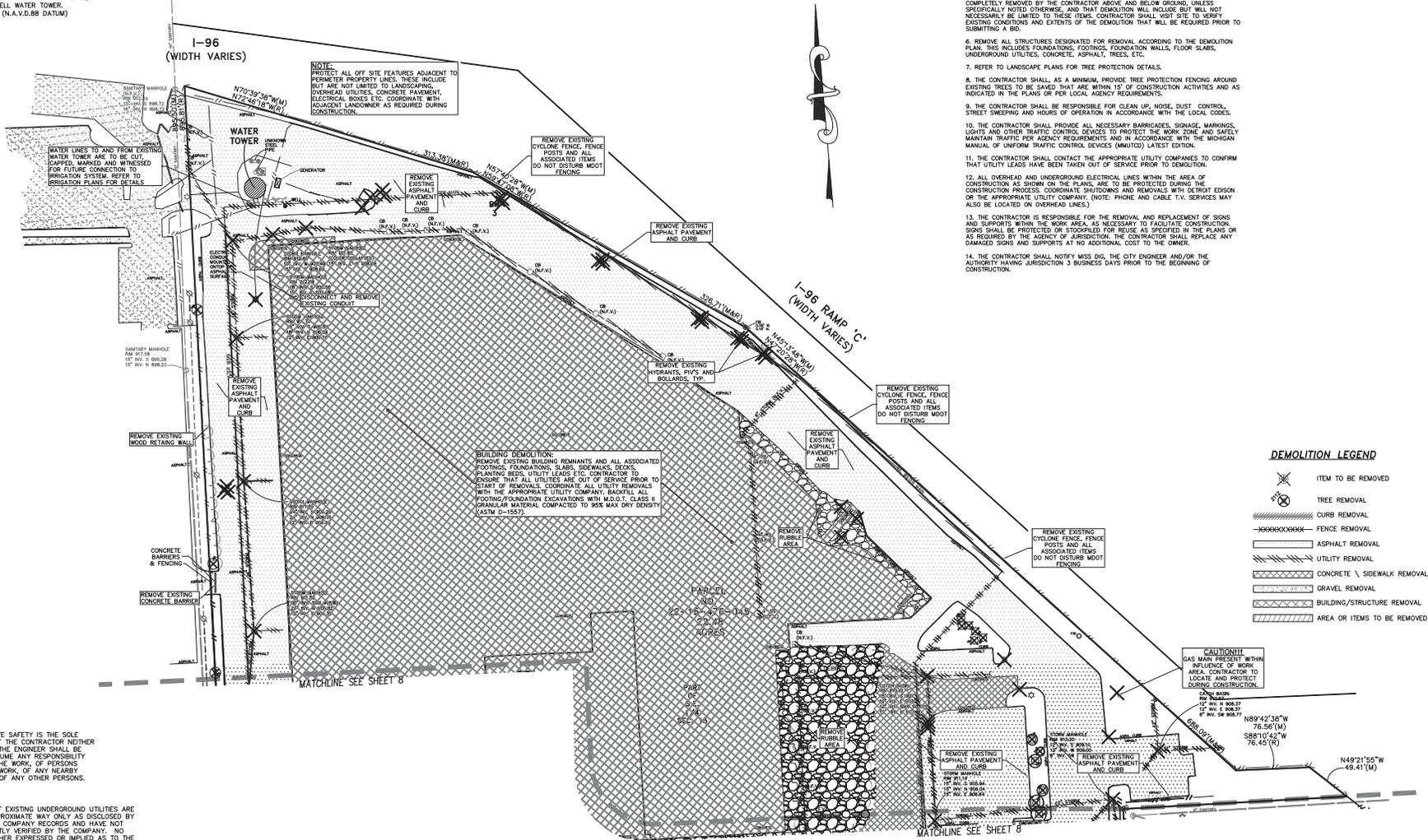
BENCHMARKS:

BM #1
CITY OF NOVI BM 1542
3" ON NORTH RM OF SANITARY MANHOLE,
25' WEST OF BACK OF CURB NOVI ROAD
& 45' SOUTH OF DRIVE #26179 NOVI ROAD
ELEVATION: 915.10 (N.A.V.D.88 DATUM)

BM #2
ARROW ON HYDRANT, SOUTH SIDE OF
CRESCENT BOULEVARD, 24' EAST OF
SOUTHEAST PROPERTY CORNER
ELEVATION: 915.58 (N.A.V.D.88 DATUM)

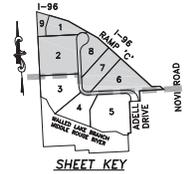
BM #3
ARROW ON HYDRANT, 260' WEST OF EXPO
CENTER DRIVE, 68' SOUTH OF BUILDING
FOUNDATION.
ELEVATION: 912.13 (N.A.V.D.88 DATUM)

BM #4
ARROW ON HYDRANT NORTH SIDE OF SITE,
12.5' SOUTH OF RIGHT OF WAY FENCE,
250' EAST OF ADELL WATER TOWER.
ELEVATION: 914.36 (N.A.V.D.88 DATUM)



GENERAL DEMOLITION NOTES:

- THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT:
1. CONCRETE AND ASPHALT DEMOLISHED MATERIALS CAN BE MILLED, CRUSHED AND PULVERIZED TO CREATE SUBBASE MATERIAL PER GEOTECHNICAL SPECIFICATIONS RECOMMENDATIONS.
 2. ALL MATERIAL TO BE REMOVED AND EXCESS MATERIAL, WHETHER SPECIFICALLY NOTED IN THE PLANS OR NOT, SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF OFF-SITE IN A LEGAL MANNER. NO ON-SITE BURY OR BURN PITS SHALL BE ALLOWED.
 3. ALL DEMOLITION WORK SHALL CONFORM TO ALL LOCAL, STATE AND FEDERAL CODES AND ORDINANCES.
 4. STAGING/PHASING OF DEMOLITION AND CONSTRUCTION IS TO BE COORDINATED WITH THE OWNER AND CITY OF NOVI.
 5. SPECIFIC DEMOLITION ITEMS HAVE BEEN INDICATED ON THE PLANS AS A GUIDE TO THE GENERAL SCOPE OF THE WORK. IT IS THE INTENT THAT THESE ITEMS SHALL BE COMPLETELY REMOVED BY THE CONTRACTOR ABOVE AND BELOW GROUND, UNLESS SPECIFICALLY NOTED OTHERWISE, AND THAT DEMOLITION WILL INCLUDE BUT WILL NOT NECESSARILY BE LIMITED TO THESE ITEMS. CONTRACTOR SHALL VISIT SITE TO VERIFY EXISTING CONDITIONS AND EXTENTS OF THE DEMOLITION THAT WILL BE REQUIRED PRIOR TO SUBMITTING A BID.
 6. REMOVE ALL STRUCTURES DESIGNATED FOR REMOVAL ACCORDING TO THE DEMOLITION PLAN. THIS INCLUDES FOUNDATIONS, FOOTINGS, FOUNDATION WALLS, FLOOR SLABS, UNDERGROUND UTILITIES, CONCRETE, ASPHALT, TREES, ETC.
 7. REFER TO LANDSCAPE PLANS FOR TREE PROTECTION DETAILS.
 8. THE CONTRACTOR SHALL, AS A MINIMUM, PROVIDE TREE PROTECTION FENCING AROUND EXISTING TREES TO BE SAVED THAT ARE WITHIN 15' OF CONSTRUCTION ACTIVITIES AND AS INDICATED IN THE PLANS OR PER LOCAL AGENCY REQUIREMENTS.
 9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN UP, NOISE, DUST CONTROL, STREET SWEEPING AND HOURS OF OPERATION IN ACCORDANCE WITH THE LOCAL CODES.
 10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADES, SIGNAGE, MARKINGS, LIGHTS AND OTHER TRAFFIC CONTROL DEVICES TO PROTECT THE WORK ZONE AND SAFELY MAINTAIN TRAFFIC PER AGENCY REQUIREMENTS AND IN ACCORDANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) LATEST EDITION.
 11. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY COMPANIES TO CONFIRM THAT UTILITY LEADS HAVE BEEN TAKEN OUT OF SERVICE PRIOR TO DEMOLITION.
 12. ALL OVERHEAD AND UNDERGROUND ELECTRICAL LINES WITHIN THE AREA OF CONSTRUCTION AS SHOWN ON THE PLANS, ARE TO BE PROTECTED DURING THE CONSTRUCTION PROCESS. COORDINATE SHUTDOWNS AND REMOVALS WITH DETROIT Edison OR THE APPROPRIATE UTILITY COMPANY. (NOTE: PHONE AND CABLE T.V. SERVICES MAY ALSO BE LOCATED ON OVERHEAD LINES)
 13. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF SIGNS AND SUPPORTS WITHIN THE WORK AREA, AS NECESSARY TO FACILITATE CONSTRUCTION. SIGNS SHALL BE PROTECTED OR STOCKPILED FOR REUSE AS SPECIFIED IN THE PLANS OR AS REQUIRED BY THE AGENCY OF JURISDICTION. THE CONTRACTOR SHALL REPLACE ANY DAMAGED SIGNS AND SUPPORTS AT NO ADDITIONAL COST TO THE OWNER.
 14. THE CONTRACTOR SHALL NOTIFY MISS DIG, THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.



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DEMOLITION PLAN (NORTH)

43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
TOWNSHIP: 15 N. RANGE: 4E
SECTION: 15

CITY OF NOVI COUNTY OF OAKLAND MICHIGAN

REVISED

DATE: 7-19-2018
DRAWN BY: RMS/MW
CHECKED BY: DJL/AMF

SCALE: HOR 1"=50 FT
VER 1"=1" FL

7

17-334

- PHASE I - CONSTRUCTION RESPONSIBILITIES:**
- CONSTRUCTION PLANS FOR ROADS AND UTILITIES.
 - TEMPORARY 20' WIDE GRAVEL EMERGENCY ACCESS ROAD TO BE CONSTRUCTED ON UNITS 1 AND 2. THE PERMANENT PAVED EMERGENCY ACCESS ROAD WILL BE CONSTRUCTED WITH UNITS 1 AND/OR 2. CONSTRUCTION UNIT 9 PERMANENT PAVED EMERGENCY ACCESS CONSTRUCTED.
 - LANDSCAPE BERM, SCREEN WALL, AND LANDSCAPING AT 1'-6" ADOT PROPERTY LINE. LANDSCAPE BETWEEN SIDEWALK AND ADELL CENTER DRIVE.
 - PROPOSED IMPROVEMENTS SOUTH OF WALLED LAKE BRANCH OF MIDDLE ROUTE WHEN PEDESTRIAN BRIDGE, AND SIDEWALK CONNECTING TO SIDEWALK AT ADELL CENTER DRIVE.
 - UNIT 9 PROPOSED IMPROVEMENTS.

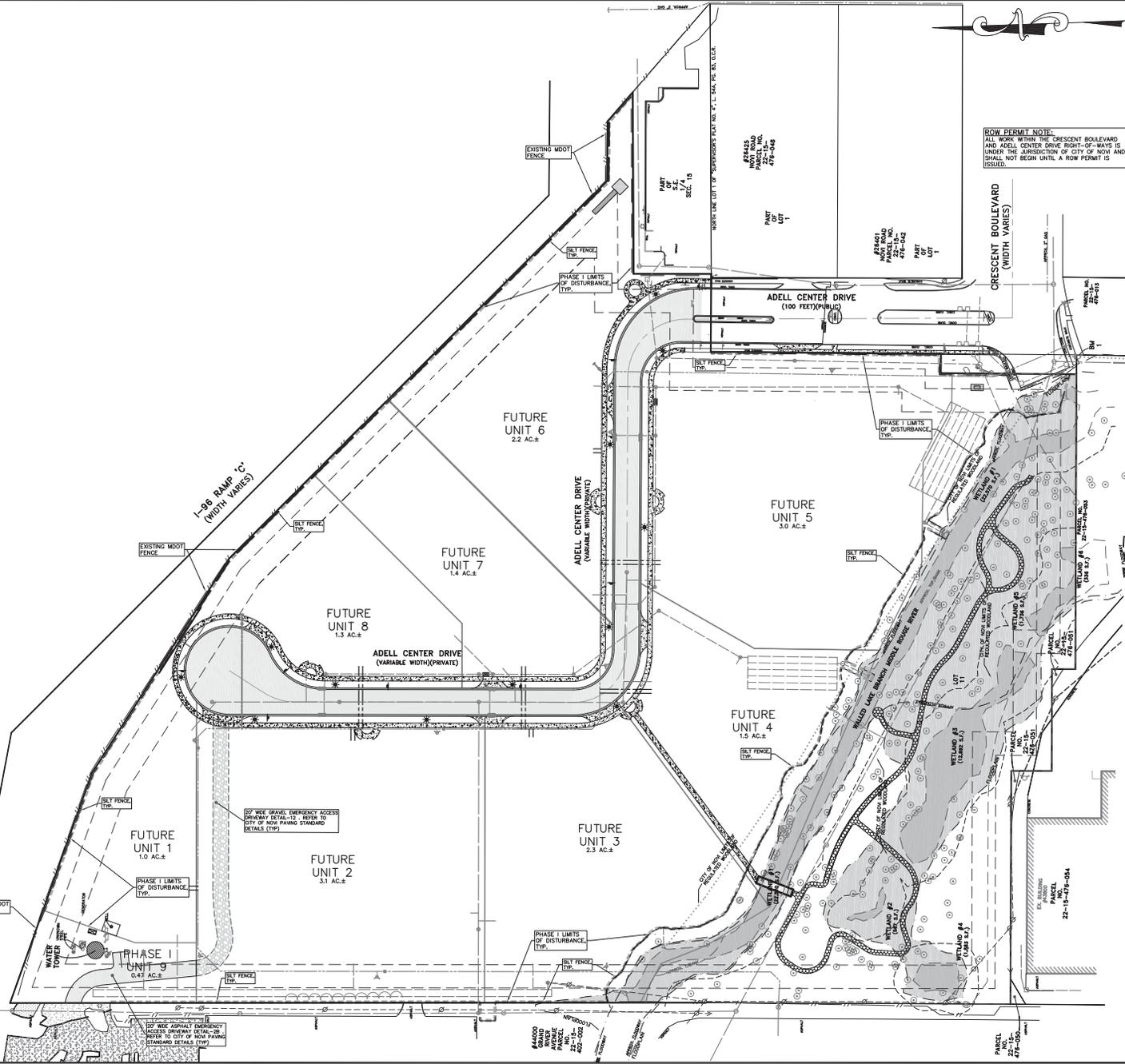
- PRE-CONSTRUCTION NOTES:**
- A PRE-CONSTRUCTION MEETING SHALL BE REQUIRED PRIOR TO THE COMMENCEMENT OF ANY SITE WORK. PLEASE CONTACT SARAH MARSHON IN THE COMMUNITY DEVELOPMENT DEPARTMENT TO SET UP A MEETING PHONE (248-347-0430).
 - A CITY OF NOW GRADING PERMIT WILL BE REQUIRED PRIOR TO ANY GRADING ON THE SITE. THIS PERMIT WILL BE ISSUED ONCE THE PRE-CONSTRUCTION MEETING, THERE IS NO FEE FOR THIS PERMIT.
 - A SOIL EROSION CONTROL PERMIT MUST BE OBTAINED FROM THE CITY OF NOW. PLEASE CONTACT SARAH MARSHON IN THE COMMUNITY DEVELOPMENT DEPARTMENT TO SET UP A MEETING PHONE (248-347-0430).
 - CONSTRUCTION INSPECTION FEES DETERMINED ONCE THE REVISED CONSTRUCTION COST ESTIMATE IS SUBMITTED, MUST BE PAID PRIOR TO THE PRE-CONSTRUCTION MEETING.
 - A STORM WATER PERFORMANCE GUARANTEE, EQUAL TO 1.2 TIMES THE AMOUNT REQUIRED TO COMPLETE STORM WATER MANAGEMENT FACILITIES AS SPECIFIED IN THE STORM WATER MANAGEMENT ORDINANCE, MUST BE POSTED AT THE TREASURER'S OFFICE.
 - A CITY OF NOW RIGHT-OF-WAY PERMIT WILL BE REQUIRED PRIOR TO THE COMMENCEMENT OF ANY WORK IN THE RIGHT-OF-WAY.

- FUTURE - CONSTRUCTION RESPONSIBILITIES:**
- DEVELOP INDIVIDUAL SITE PLANS FOR UNITS 1-8 PER APPROVED ADELL CENTER P.U.D. AGREEMENT REQUIREMENTS.
 - PROVIDE UTILITIES FOR INDIVIDUAL SITES 1-8. CONNECT TO LEADS AS PROVIDED IN PHASE I CONSTRUCTION.
 - PROVIDE PARKING LOTS FOR INDIVIDUAL SITES 1-8. UTILIZE ENTRANCE DRIVES ON ADELL DRIVE AS PROVIDED IN PHASE I CONSTRUCTION.
 - PROVIDE MECHANICAL FILTRATION UNIT UPSTREAM OF INDIVIDUAL SITE UNIT STORM LEAD.
 - PROVIDE SANITARY MONITORING MANHOLE UPSTREAM OF INDIVIDUAL SITE UNIT SANITARY LEAD.
 - INDIVIDUAL UNIT MONUMENT SIGN ON ADELL CENTER DRIVE.
 - LANDSCAPE BERM, SCREEN WALL, AND ASSOCIATED LANDSCAPING BEHIND SIDEWALK AT ADELL CENTER DRIVE, EXCEPT AT END OF COA-DE-SAC.

- PRIOR TO USE OF ROADS AND UTILITIES NOTES:**
- THE AMOUNT OF THE INCOMPLETE SITE WORK PERFORMANCE GUARANTEE OR ANY OUTSTANDING SITE IMPROVEMENT ITEMS, LIMITED TO TOP COURSE OF PAVEMENT AND OTHER MAJOR ITEMS, AT 1.2 TIMES THE AMOUNT REQUIRED TO COMPLETE THE SITE IMPROVEMENTS AS SPECIFIED IN THE PERFORMANCE GUARANTEE ORDINANCE.
 - SPALDING CHECKER WILL PREPARE THE RECORD DRAWINGS FOR THIS DEVELOPMENT. THE RECORD DRAWINGS WILL BE PREPARED IN ACCORDANCE WITH ARTICLE 14, SECTION AND CONSTRUCTION STANDARDS, CHAPTER 11 OF THE NOW CODE OR ORDINANCES.
 - ALL EASEMENTS AND AGREEMENTS REFERENCED ABOVE MUST BE EXECUTED, NOTARIZED, AND APPROVED BY THE CITY ATTORNEY AND CITY ENGINEER.
 - SUBMIT AN UP-TO-DATE TITLE POLICY (DATED WITHIN 90 DAYS OF CITY COUNCIL CONSIDERATION OF ACCEPTANCE) FOR THE PURPOSE OF VERIFYING THAT THE PARTIES SIGNING THE EASEMENT AND BILL OF SALE DOCUMENTS HAVE THE LEGAL AUTHORITY TO DO SO. PLEASE BE SURE THAT ALL PARTIES OF INTEREST SHOWN ON THE TITLE POLICY (INCLUDING MORTGAGE HOLDERS) EITHER SIGN THE EASEMENT DOCUMENTS THEMSELVES OR A SUBORDINATION AGREEMENT. PLEASE BE AWARE THAT THE TITLE POLICY MAY INDICATE THAT ADDITIONAL DOCUMENTATION IS NECESSARY TO COMPLETE THE ACCEPTANCE PROCESS.

SILT FENCE NOTE:
ALL PERIMETER SILT FENCE TO BE PROVIDED DURING PHASE I. EACH SEGMENT OF PHASE I SHALL PROVIDE SILT FENCE WITHIN EACH UNIT AND MAINTAIN PERIMETER SILT FENCE WITHIN ITS BOUNDARY.

PHASE II NOTE:
EACH SEGMENT FOR PHASE II, TO BE MASS GRADED AS PART OF PHASE I CONSTRUCTION. ADELL DRIVE, UTILITIES AND STORM AND UNDERGROUND STORMWATER STORAGE TO BE CONSTRUCTED AS PART OF PHASE I.



ROW PERMIT NOTE:
ALL WORK WITHIN THE CRESCENT BOULEVARD AND ADELL CENTER DRIVE RIGHT-OF-WAYS IS UNDER THE JURISDICTION OF CITY OF NOW AND SHALL NOT BEGIN UNTIL A ROW PERMIT IS ISSUED.

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PHASING PLAN (OVERALL)
43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
TOWNSHIP 15 N
CITY OF NOW MI
SECTION 15
OAKLAND COUNTY MICHIGAN

CLIENT: ADELL CENTER
REVISED

DATE: 7-19-2018
DRAWN BY: RMS/MW
CHECKED BY: DJL/AMF

SCALE: HORIZONTAL 1"=60 FT
VERTICAL 1"=15 FT

***CONSTRUCTION MATERIALS:**

PHASE 1:		
6" CURB & GUTTER (DETAIL 3E)	- 3500 PSI CONCRETE	2,295 LF
8" CONCRETE APPROACH (DETAIL 9B)	- 3500 PSI CONCRETE	3,915 SF
CONCRETE WALK (DETAIL 11B)	- 3500 PSI CONCRETE	14,283 SF
ASPHALT PAVEMENT -2" DEPTH HMA 5E 1 (SURFACE)		45,391 SF
ASPHALT PAVEMENT -2.5" DEPTH HMA 4C (LEVELING)		45,391 SF
ASPHALT PAVEMENT -2.5" DEPTH HMA 3C (LEVELING)		45,391 SF
8" 21AA AGGREGATE BASE		1,590 TONS

* CONTRACTOR TO EVALUATE AND DETERMINE QUANTITIES, ONLY USE ABOVE TABLE AS REFERENCE

NOTES:

- SEE CITY OF NOVI PAVING STANDARD DETAILS FOR ASPHALT PAVEMENT CROSS SECTION, CURB & GUTTER, AND CONCRETE SIDEWALK DETAILS.
- THE CITY OF NOVI HAS NO RESPONSIBILITY TO IMPROVE OR MAINTAIN THE PRIVATE STREETS CONTAINED WITHIN OR PRIVATE STREETS PROVIDING ACCESS TO THE PROPERTY DESCRIBED IN THIS PLAN.
- ALL PROPOSED BUILDINGS HAVING A BUILDING WIDTH OF OVER 125 FEET SHALL HAVE A PEDESTRIAN ENTRANCEWAY LOCATED AT LEAST EVERY 125 FEET.

CURRENT ZONING:

EXPO, EXPO PER CITY OF NOVI ZONING MAP PROPOSED ZONING: PRO. PLANNED REZONING OVERLAY

BUILDING SETBACKS:

PERIMETER: 50 FEET
ADJL. DRIVE: 30 FEET
INTERIOR SIDES: 0 FEET
INTERIOR REAR: 15 FEET

PARKING SETBACKS:

PERIMETER: 20 FEET
ADJL. DRIVE: 20 FEET
INTERIOR SIDES: 0 FEET
INTERIOR REAR: 0 FEET

SITE AREA:

TOTAL ACRES: 22.48 ACRES

GENERAL NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

- ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
- REFER TO CITY OF NOVI PAVING STANDARD DETAILS FOR ADDITIONAL DETAILS.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF NOVI CURRENT STANDARDS AND SPECIFICATIONS.
- THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- ALL ON-SIGHT SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN COMPLIANCE WITH MUTCD. PARKING STALL STRIPING SHALL BE 4" WIDE (SINGLE) AND WHITE. PARKING ISLANDS ARE 3" SHORTER THAN PARKING STALLS.
- ANY WORK WITHIN THE STREET OR HIGHWAY RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AGENCIES HAVING JURISDICTION AND SHALL NOT BEGUN UNTIL ALL NECESSARY PERMITS HAVE BEEN ISSUED FOR THE WORK.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ADJUST THE TOP OF ALL EXISTING AND PROPOSED STRUCTURES (MANHOLES, CATCH BASINS, INLETS, GATE WELLS ETC.) WITHIN GRADED AND/OR PAVED AREAS TO FINAL GRADE SHOWN ON THE PLANS. ALL SUCH ADJUSTMENTS SHALL BE INCIDENTAL TO THE JOB AND WILL NOT BE PAID FOR SEPARATELY.
- ALL ROADSIDE SIGNS SHOULD BE INSTALLED TWO FEET FROM THE FACE OF THE CURB TO THE NEAR EDGE OF THE SIGN.
- SINGLE SIGNS WITH NOMINAL DIMENSIONS OF 12"x18" OR SMALLER IN SIZE SHALL BE MOUNTED ON A GALVANNEED 2 IN. U-CHEMICAL POST. MULTIPLE SIGNS AND/OR SIGNS WITH NOMINAL DIMENSIONS GREATER THAN 12"x18" SHALL BE MOUNTED ON A GALVANNEED 3 IN. LB. OR GREATER U-CHEMICAL POST AS DICTATED BY THE WEIGHT OF THE PROPOSED SIGNS.
- TRAFFIC CONTROL SIGNS SHALL USE THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) STANDARD ALPHABET SERIES.
- TRAFFIC CONTROL SIGNS SHALL HAVE HIGH INTENSITY PRISMATIC (HIP) SHEETING TO MEET THE FHWA RETROREFLECTIVITY REQUIREMENTS.

NOTE:

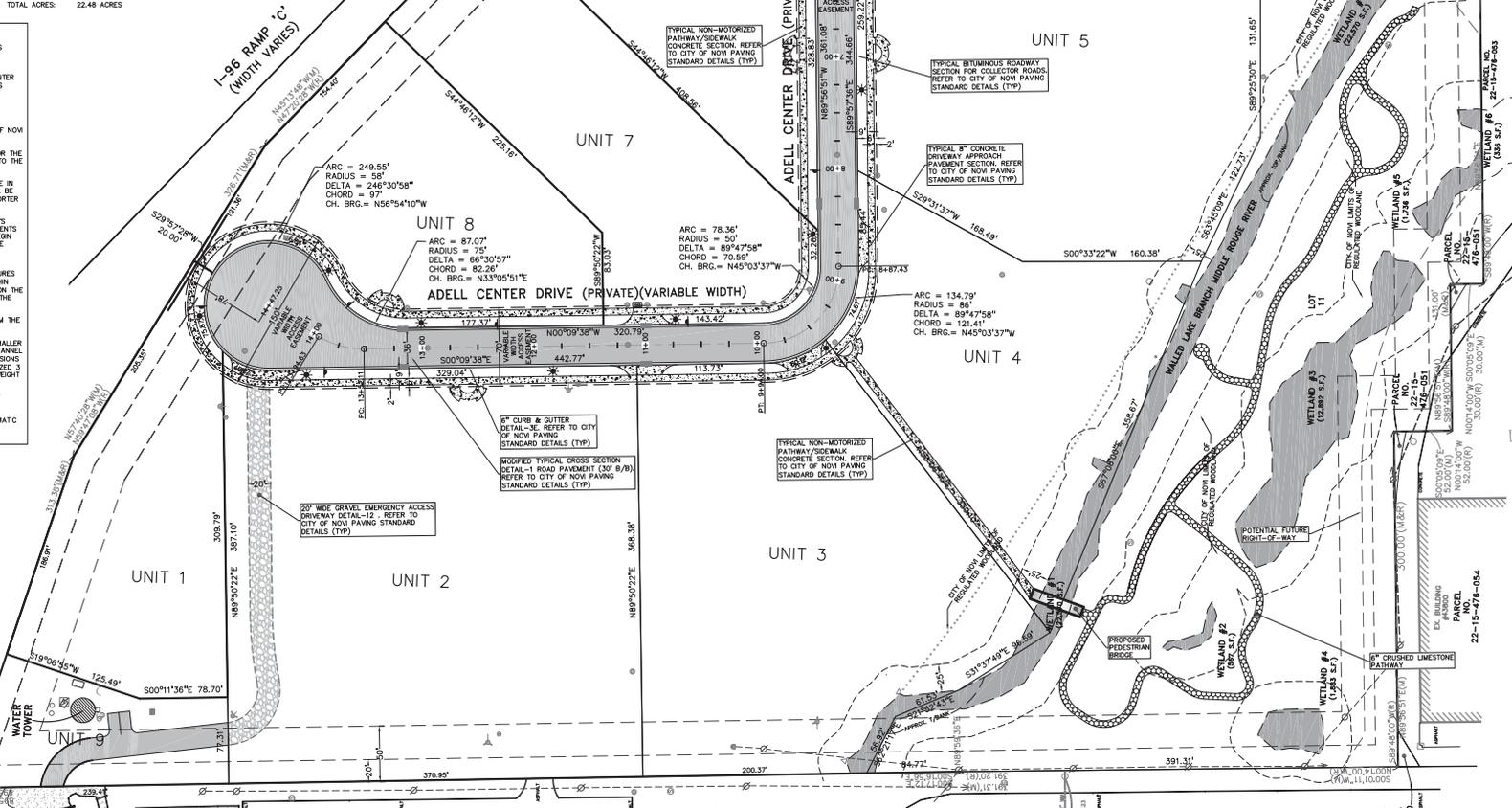
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL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

NOTICE:

CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OR PERSONS ENGAGED IN THE WORK, OR ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

1-96 RAMP 'C' (WIDTH VARIES)

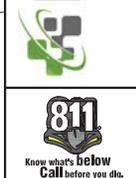
1-96 (WIDTH VARIES)



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Phone: (313) 688-0700 Fax: (313) 688-0701



ADPELL CENTER
SITE PLAN

43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
TOWNSHIP 15 N RANGE 06 E
SECTION 15
CITY OF NOVI MICHIGAN

CLIENT: _____

REVISED _____

DATE: 7-19-2018
DRAWN BY: RMS/MW
CHECKED BY: DJL/JMF

SCALE: HORIZ. 1" = 50 FT
VERT. 1" = 10 FT

10
FL-334

BENCHMARKS:

CITY OF NOVI BM 1542
 "X" ON NORTH RM OF SANITARY MAINLINE,
 25'± WEST OF BACK OF CURB NOVI ROAD
 & 45'± SOUTH OF DRIVE #26179 NOVI ROAD
 ELEVATION: 915.10 (N.A.V.D.88 DATUM)

BM #1
 ARROW ON HYDRANT, SOUTH SIDE OF
 CRESCENT BOULEVARD, 24'± EAST OF
 SOUTHEAST PROPERTY CORNER
 ELEVATION: 915.58 (N.A.V.D.88 DATUM)

BM #2
 ARROW ON HYDRANT, 260'± WEST OF EXPO
 CENTER DRIVE, 68'± SOUTH OF BUILDING
 FOUNDATION
 ELEVATION: 912.13 (N.A.V.D.88 DATUM)

BM #3
 ARROW ON HYDRANT NORTH SIDE OF SITE,
 12.5'± SOUTHWEST OF RIGHT OF WAY FENCE,
 250'± EAST OF ADELL WATER TOWER.
 ELEVATION: 914.36 (N.A.V.D.88 DATUM)

GRADING NOTES

- SUBGRADE PREPARATION FOR PAVEMENT AND UTILITIES SHALL BE MONITORED BY A GEOTECHNICAL ENGINEER.
- ACCEPTABLE MATERIAL FROM UNDERCUTTING MAY BE USED AS ENGINEERED FILL AS APPROVED BY SOILS ENGINEER.
- CONTRACTOR SHALL TEMPORARILY STOCKPILE TOP SOIL TO BE USED FOR FINAL GRADING.
- REMOVE ANY EXISTING TOPSOIL, ORGANIC SOILS, VEGETATION, TREES AND OTHER DELETERIOUS MATERIALS TO EXPOSE THE SUBGRADE SOIL. TREES SHOULD BE COMPLETELY REMOVED OR DIRECTED BY OWNER.
- THE TOP 12 INCHES OF THE EXPOSED SUBGRADE AS WELL AS INDIVIDUAL FILL LAYERS SHOULD BE COMPACTED TO ACHIEVE A 95% COMPACTION LEVEL (MODIFIED PROCTOR - ASTM D1557).
- THE FINAL SUBGRADE SHOULD BE THOROUGHLY PROFFERED USING A FULLY LOADED TANDEM AXLE TRUCK UNDER THE OBSERVATION OF A GEOTECHNICAL/PAVEMENT ENGINEER. LOOSE OR YIELDING AREAS THAT CAN NOT BE MECHANICALLY STABILIZED SHOULD BE REMOVED AND REPLACED WITH ENGINEERED FILL.
- THE AGGREGATE BASE SHOULD BE COMPACTED TO ACHIEVE A 95 PERCENT COMPACTION LEVEL (MODIFIED PROCTOR - ASTM D1557). THE BASE AND SUBGRADE COMPACTION SHOULD EXCEED A MINIMUM OF 1 FOOT BEYOND THE PAVED EDGE.
- ALL BITUMINOUS MATERIAL SHOULD BE COMPACTED TO A DENSITY OF 97% OF THE MAXIMUM DENSITY AS DETERMINED BY THE MARSHALL METHOD.
- NO GRADING TO TAKE PLACE ON ADJACENT PROPERTIES
- ALL SIDEWALKS TO BE ADA COMPLIANT.
- ALL SPOT GRADES SHOWN ON THIS PLANS ARE PROPOSED TOP OF PAVEMENT UNLESS OTHERWISE NOTED.
- ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES MUST BE SHOWN AND MAINTAINED DURING GRADING AND CONSTRUCTION OPERATIONS OR UNTIL A PERMANENT GROUNDCOVER IS ESTABLISHED.
- CONSTRUCT THE PROPOSED SIDEWALK (5.0 FOOT FROM THE ROAD BACK OF CURB) WITHIN THE PROPOSED DRIVE APPROACH LIMITS (5.0 FEET MINIMUM FROM THE EDGE OF THE DRIVE). WITHOUT RAMPS WITH 4-INCH NON-REINFORCED CONCRETE, AND WITH 4-INCH NON-REINFORCED CONCRETE OUTSIDE THE DRIVE APPROACH LIMITS WITH 2% MAXIMUM TRANSVERSE SLOPE TOWARD THE ROAD OR AS DIRECTED BY THE CITY ENGINEER.

EARTHWORK BALANCING NOTE:

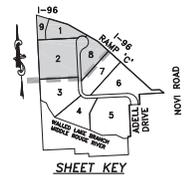
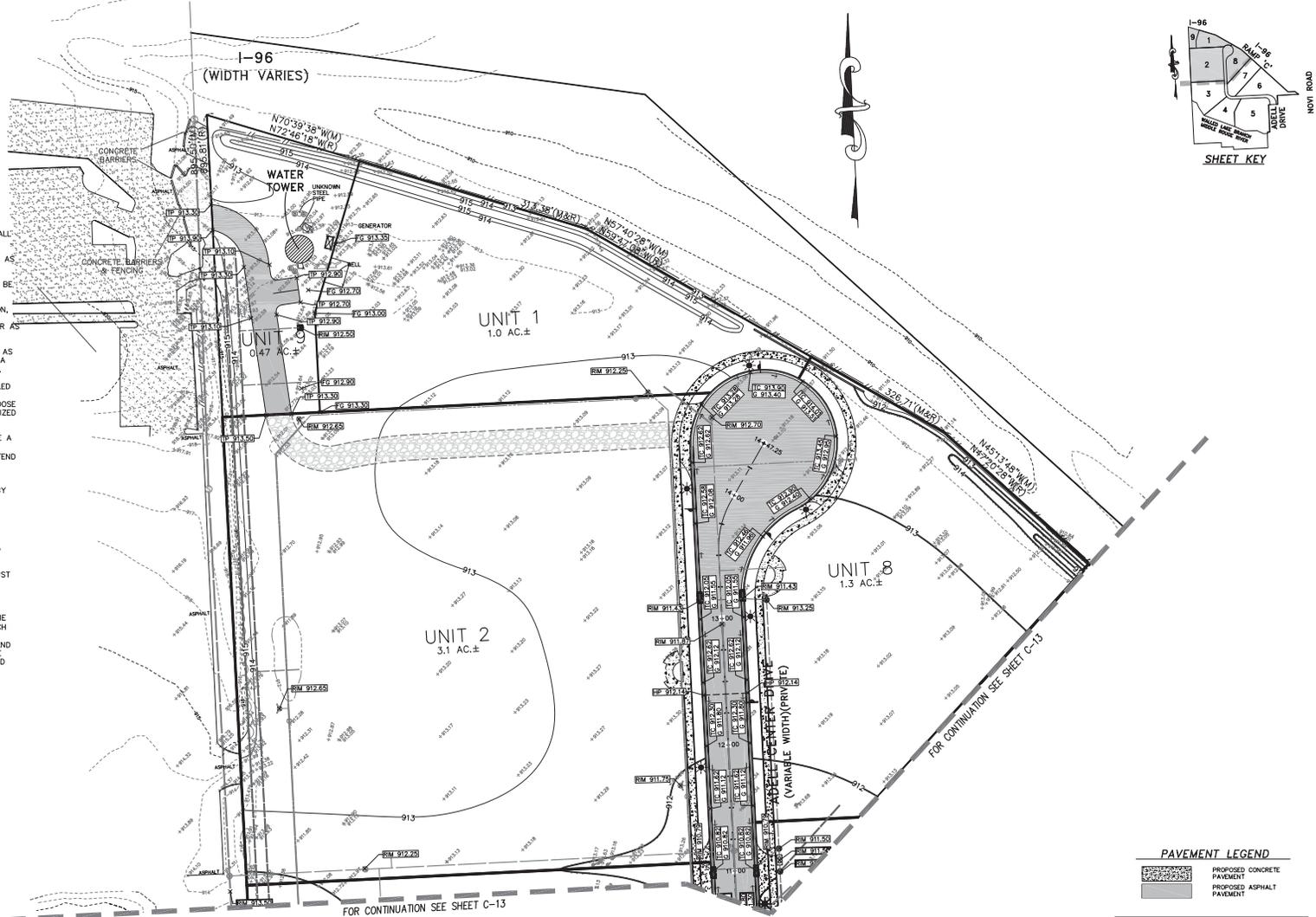
THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT TO THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

NOTICE:

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NOTE:

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PAVEMENT LEGEND

	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

GRADING AND DRAINAGE LEGEND:

	PROPOSED SPOT GRADE ELEVATION
DBL	DRIP BRICK LEDGE
TP	TOP OF PAVEMENT
TW	TOP OF WALK
TC	TOP OF CURB
TG	TOP OF GRAVEL
G	GUTTER
T/R	FINISH GRADE AT TOP OF RETAINING WALL
B/R	FINISH GRADE AT BOTTOM OF RETAINING WALL
FG	FINISH GRADE
FF	FINISH FLOOR
	OVERLAND FLOW DIRECTION
	EMERGENCY 100HR OVERFLOW ROUTE

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CLIENT: ADELL CENTER
GRADING PLAN (NORTH)
 43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
 TOWNSHIP 15 N RANGE 06 E
 SECTION 15
 CITY OF NOVI, MICHIGAN

REVISED

DATE: 7-19-2018
 DRAWN BY: RMS/JMW
 CHECKED BY: DJL/AMF

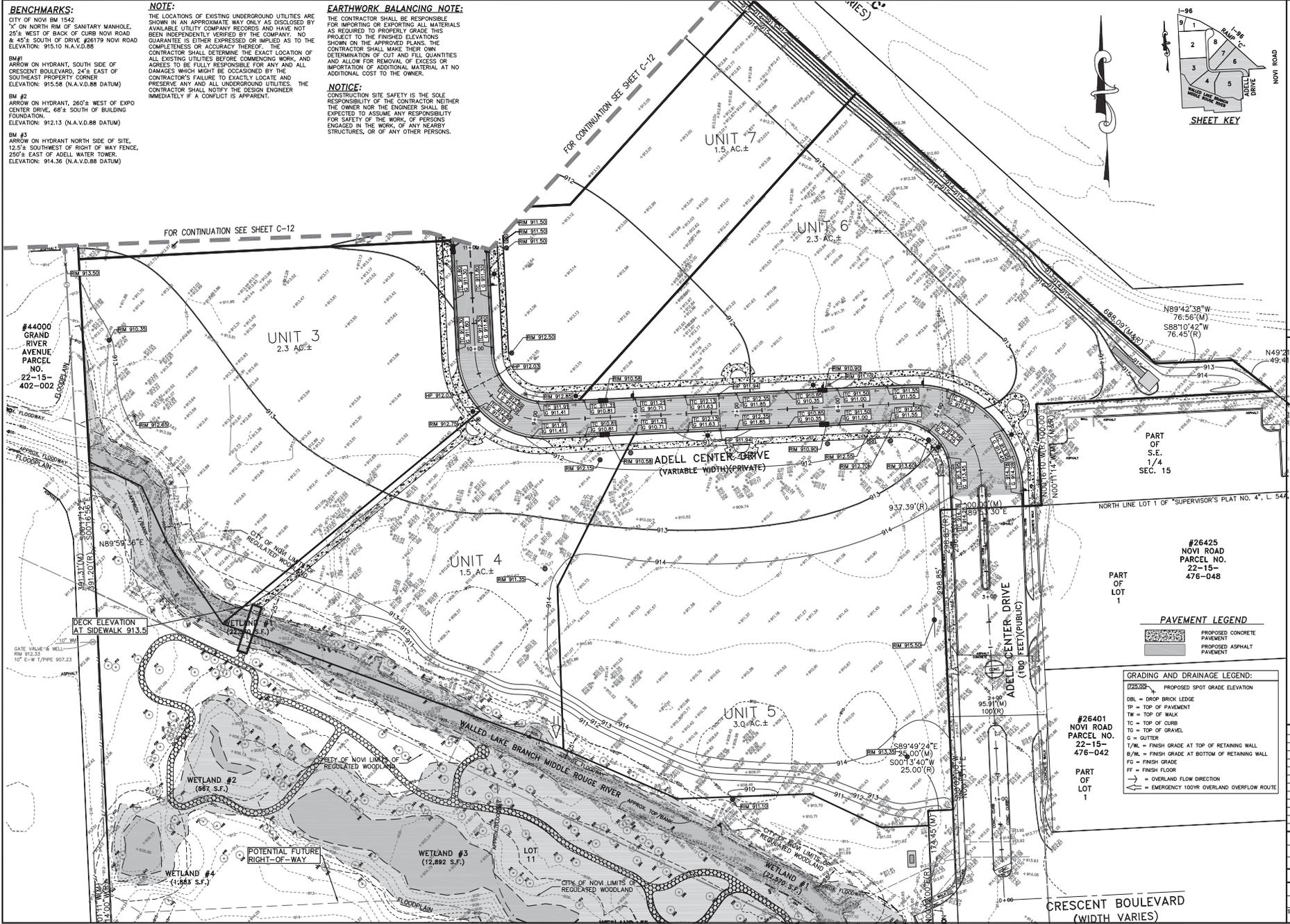
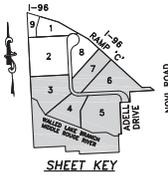
SCALE: HORIZ. 1"=40 FT.
 VERT. 1"=4 FT.

12
 17-334

BENCHMARKS:
 CITY OF NOVI BM 1542
 3" ON NORTH RM OF SANITARY MANHOLE,
 25'± WEST OF BACK OF CURB NOVI ROAD,
 & 45'± SOUTH OF DRIVE #26179 NOVI ROAD
 ELEVATION: 915.10 (N.A.V.D.88 DATUM)
 BM #1
 ARROW ON HYDRANT, NORTH SIDE OF
 CRESCENT BOULEVARD, 24'± EAST OF
 SOUTHEAST PROPERTY CORNER
 ELEVATION: 915.58 (N.A.V.D.88 DATUM)
 BM #2
 ARROW ON HYDRANT, 360'± WEST OF EXPO
 CENTER DRIVE, 68'± SOUTH OF BUILDING
 FOUNDATION
 ELEVATION: 912.13 (N.A.V.D.88 DATUM)
 BM #3
 ARROW ON HYDRANT NORTH SIDE OF SITE,
 12.5'± SOUTHWEST OF RIGHT OF WAY FENCE,
 250'± EAST OF ADELL WATER TOWER.
 ELEVATION: 914.36 (N.A.V.D.88 DATUM)

NOTE:
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 AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL
 DAMAGES WHICH MIGHT BE OCCASIONED BY THE
 CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND
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 CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER
 IMMEDIATELY IF A CONFLICT IS APPARENT.

EARTHWORK BALANCING NOTE:
 THE CONTRACTOR SHALL BE RESPONSIBLE
 FOR IMPORTING OR EXPORTING ALL MATERIALS
 AS REQUIRED TO PROPERLY GRADE THIS
 PROJECT TO THE FINISHED ELEVATIONS
 SHOWN ON THE APPROVED PLANS. THE
 CONTRACTOR SHALL MAKE THEIR OWN
 DETERMINATION OF CUT AND FILL QUANTITIES
 AND ALLOW FOR REMOVAL OF EXCESS OR
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 ENGAGED IN THE WORK OF ANY NEARBY
 STRUCTURES, OR OF ANY OTHER PERSONS.



PAVEMENT LEGEND

	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

GRADING AND DRAINAGE LEGEND:

	PROPOSED SPOT GRADE ELEVATION
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 ALTIMETER: Leica
 STATIONING: 100'±
 CONTRACTOR: [Blank]

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GRADING PLAN (SOUTH)

43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
 TOWNSHIP 15 N RANGE 06 E
 SECTION 15

#26425 NOVI ROAD PARCEL NO. 22-15-476-048
 PART OF LOT 1

#26401 NOVI ROAD PARCEL NO. 22-15-476-042
 PART OF LOT 1

CLIENT: [Blank]

DATE: 7-19-2018
 DRAWN BY: RMS/MW
 CHECKED BY: DJL/JMF

SCALE: HOR 1"=40 FT
 VER 1"=17'-3.34

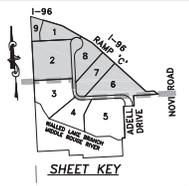
13

BENCHMARKS:
 CITY OF NOVI BM 1542
 2' ON NORTH RM OF SANITARY MANHOLE,
 25'± WEST OF BACK OF CURB NOVI ROAD
 & 45'± SOUTH OF DRIVE 228779 NOVI ROAD
 ELEVATION: 915.58 (N.A.V.D.88)

BM #1
 ARROW ON HYDRANT, SOUTH SIDE OF
 CRESCENT BOULEVARD, 24'± EAST OF
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 ELEVATION: 915.58 (N.A.V.D.88 DATUM)

BM #2
 ARROW ON HYDRANT, 260'± WEST OF EXPO
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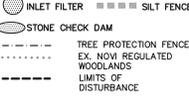
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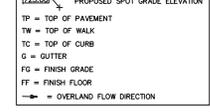
PAVEMENT LEGEND



SOIL EROSION LEGEND



GRADING AND DRAINAGE LEGEND:



TIMING AND SEQUENCE OF CONSTRUCTION:

1. SOIL EROSION AND SEDIMENTATION CONTROL PRE-GRADING MEETING.
2. STAKE TREE CLEARING LIMITS AND INSTALL NATURAL FEATURES PROTECTION FENCING.
3. REMOVE TREE STEMS (NOT ROOT SYSTEMS).
4. INSTALL ALL PERIMETER SOIL EROSION AND SEDIMENTATION CONTROL MEASURES INCLUDING MUD TRACKING SURFACES.
5. GRUB (REMOVE TREE ROOT SYSTEMS) AND ROUGH GRADE SITE, STOCKPILE TOPSOIL (INSTALL TEMPORARY EROSION CONTROLS AROUND STOCKPILE PILES), INSTALL SWALE AND/OR CHANNEL EROSION CONTROLS.
6. INSTALL UNDERGROUND DETENTION WITH INLET AND OUTLET CONTROL STRUCTURES, RIP-RAP, AND OVERFLOW SPILLWAY.
7. INSTALL ADDITIONAL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES TO PROTECT STABILIZED AREAS FROM SEDIMENTATION.
8. INSTALL STORM SEWER SYSTEM WITH INLET FILTER CONTROLS.
9. PERFORM MASS GRADING AND PROOF ROLING.
10. INSTALL OTHER UTILITIES.
11. INSTALL CURBING AND SUB-BASE OF AREAS TO BE PAVED, THEN INSTALL WEAR COAT OF ASPHALT.

GRADING AND DRAINAGE LEGEND:

12. FINAL GRADE SITE AND REDISTRIBUTE TOPSOIL. STABILIZE ALL DISTURBED WITH SOD, HYDROSEED APPLICATION, OR SEEDING UNDER A CRIMPED STRAW MULCH.
13. MONITOR AND MAINTAIN ALL EROSION CONTROLS THROUGH CONSTRUCTION SEQUENCE.
14. CLEAN OUT MECHANICAL WATER QUALITY DEVICES. REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROLS AFTER VEGETATION HAS ROOTED TO THE POINT OF PERMANENTLY STABILIZING THE SOILS.
15. PRIOR TO REQUESTING A CERTIFICATE OF OCCUPANCY, DESIGN ENGINEER TO FURNISH THE CITY, IN WRITING VERIFICATION THAT THE UNDERGROUND DETENTION AND ACCOMPANYING STRUCTURES HAVE BEEN BUILT AND WILL FUNCTION PER PLAN.

MAINTENANCE REQUIREMENTS (EROSION CONTROL)

INSPECTION & MAINTENANCE OF SOIL EROSION CONTROL MEASURES TO BE CONDUCTED ON A WEEKLY BASIS OR AS INDICATED BELOW, WHICHEVER IS SOONER.

SILT FENCE:
 SILT FENCES SHOULD BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND SEVERAL TIMES DURING PROLONGED RAINFALLS. IF THE FENCE IS SAGGING OR THE SOIL HAS REACHED ONE HALF THE HEIGHT OF THE FABRIC, THE SOIL BEHIND THE FABRIC MUST BE REMOVED AND DISPOSED OF IN A STABLE UPLAND SITE. THE SOIL CAN BE ADDED TO THE SPILL PILE, IF THE FABRIC IS BEING UNDERCUT (I.E. IF THE WATER IS SEEPING UNDER THE FENCE), THE FENCE SHOULD BE REMOVED AND REINSTALLED FOLLOWING THE GIVEN PROCEDURES. FABRIC WHICH DECOMPOSES OR OTHERWISE BECOMES INEFFECTIVE, SHOULD BE REMOVED AND SAVED WITH NEW FILTER FABRIC IMMEDIATELY. FILTER FENCES SHOULD BE REMOVED ONCE VEGETATION IS WELL ESTABLISHED AND THE UP-SLOPE IS FULLY STABILIZED OR UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

ACCESS ROADS (HAUL ROADS):
 PROPER MAINTENANCE MAY INCLUDE ADDING ADDITIONAL LAYERS OF STONE WHEN THE ORIGINAL STONE BECOMES COVERED WITH MUD. AFTER EACH STORM EVENT, INSPECT THE ROAD FOR EROSION AND MAKE ANY NECESSARY REPAIRS. IT IS ALSO IMPORTANT TO CHECK AND MAINTAIN ANY BMP'S WHICH ARE USED IN CONJUNCTION WITH THIS BMP, ESPECIALLY THOSE FOR DRAINAGE. ALL SEDIMENT DROPPED OR ERODED ON PUBLIC RIGHT-OF-WAYS SHOULD BE REMOVED IMMEDIATELY BY SWEEPING.

SEEDING, SODDING & MULCHING:
 SEEDING, SODDING OR MULCHED AREAS SHOULD BE CHECKED FOLLOWING EACH RAIN TO ENSURE THE MATERIAL IS STAYING IN PLACE. ADDITIONAL TACKING MATERIALS OR NETTING MAY NEED TO BE APPLIED TO HOLD THE AFORESAID MATERIALS IN PLACE. MAINTENANCE PROCEDURES SHOULD ALSO BE FOLLOWED FOR THE BMP'S WHICH WERE IMPLEMENTED TO KEEP ERODED SOIL OR CONCENTRATED RUNOFF AWAY FROM THESE TARGET AREAS. SHALL BE COMPLETED WITHIN 5 DAYS OF FINAL GRADING OR WHENEVER DISTURBED AREAS HAVE REMAINED UNCHANGED FOR GREATER THAN 30 DAYS OR GREATER. 3"-4" OF TOPSOIL REQUIRED.

SOIL/WATER SEPARATOR STRUCTURE:
 SHOULD BE INSPECTED WEEKLY THROUGH CONSTRUCTION. CLEAN AS REQUIRED AND AT END OF CONSTRUCTION.

STORMWATER DETENTION BASIN:

THE STORMWATER DETENTION FOR THE PROPOSED SITE IS ACCOMMODATED WITHIN UNDERGROUND DETENTION, AS SHOWN. STORMWATER PRE-TREATMENT TO BE ACCOMMODATED IN A MECHANICAL SEPARATOR UNIT INSTALLED ON EACH UNIT AND PER CITY OF NOVI STANDARDS.

CLEANING SCHEDULE:

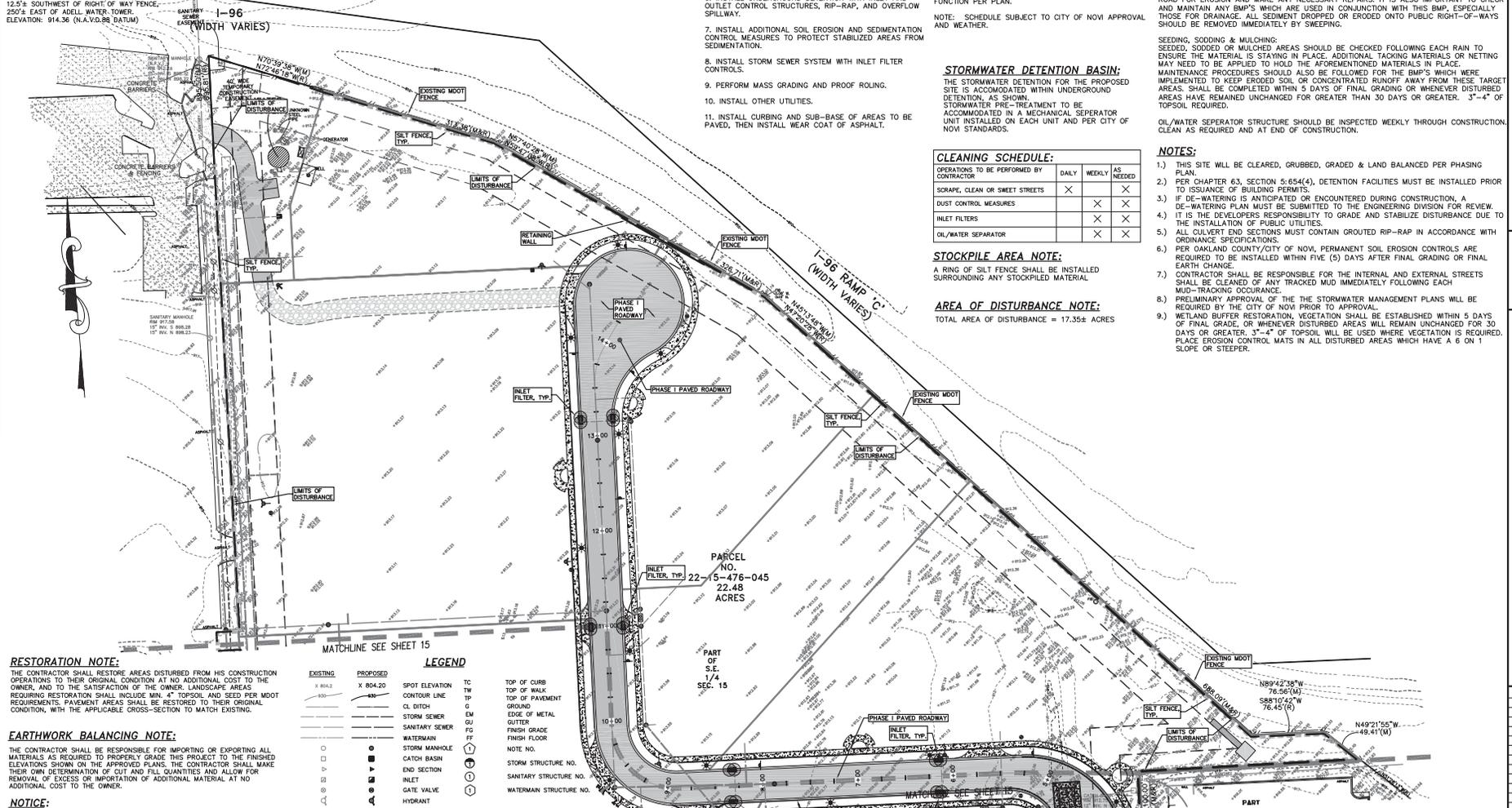
OPERATIONS TO BE PERFORMED BY CONTRACTOR	DAILY	WEEKLY	AS NEEDED
SCRAPE, CLEAN OR SWEET STREETS	X		X
DUST CONTROL MEASURES		X	X
INLET FILTERS		X	X
SOIL/WATER SEPARATOR		X	X

STOCKPILE AREA NOTE:
 A RING OF SILT FENCE SHALL BE INSTALLED SURROUNDING ANY STOCKPILED MATERIAL.

AREA OF DISTURBANCE NOTE:
 TOTAL AREA OF DISTURBANCE = 17,358± ACRES

NOTES:

- 1.) THIS SITE WILL BE CLEARED, GRUBBED, GRADED & LAND BALANCED PER PHASING PLAN.
- 2.) PER CHAPTER 63, SECTION 5.654(4), DETENTION FACILITIES MUST BE INSTALLED PRIOR TO ISSUANCE OF BUILDING PERMITS.
- 3.) IF DE-WATERING IS ANTICIPATED OR ENCOUNTERED DURING CONSTRUCTION, A DE-WATERING PLAN MUST BE SUBMITTED TO THE ENGINEERING DIVISION FOR REVIEW. IT IS THE DEVELOPER'S RESPONSIBILITY TO GRADE AND STABILIZE DISTURBANCE DUE TO THE INSTALLATION OF PUBLIC UTILITIES.
- 4.) ALL CULVERT END SECTIONS MUST CONTAIN GROUTED RIP-RAP IN ACCORDANCE WITH ORDINANCE SPECIFICATIONS.
- 5.) PER OAKLAND COUNTY/CITY OF NOVI, PERMANENT SOIL EROSION CONTROLS ARE REQUIRED TO BE INSTALLED WITHIN FIVE (5) DAYS AFTER FINAL GRADING OR FINAL EARTH CHANGE.
- 6.) CONTRACTOR SHALL BE RESPONSIBLE FOR THE INTERNAL AND EXTERNAL STREETS SHALL BE CLEANED OF ANY TRACKED MUD IMMEDIATELY FOLLOWING EACH MUD-TRACKING OCCURRENCE.
- 7.) PRELIMINARY APPROVAL OF THE STORMWATER MANAGEMENT PLANS WILL BE REQUIRED BY THE CITY OF NOVI PRIOR TO APPROVAL.
- 8.) WETLAND BUFFER RESTORATION, VEGETATION SHALL BE ESTABLISHED WITHIN 5 DAYS OF FINAL GRADE, OR WHENEVER DISTURBED AREAS WILL REMAIN UNCHANGED FOR 30 DAYS OR GREATER. 3"-4" OF TOPSOIL WILL BE USED WHERE VEGETATION IS REQUIRED. PLACE EROSION CONTROL MATS IN ALL DISTURBED AREAS WHICH HAVE A 6 ON 1 SLOPE OR STEEPER.



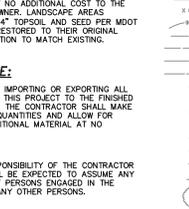
RESTORATION NOTE:
 THE CONTRACTOR SHALL RESTORE AREAS DISTURBED FROM HIS CONSTRUCTION OPERATIONS TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER, AND TO THE SATISFACTION OF THE OWNER. LANDSCAPE AREAS REQUIRING RESTORATION SHALL INCLUDE MIN. 4" TOPSOIL AND SEED PER MUD REQUIREMENTS. PAVEMENT AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, WITH THE APPLICABLE CROSS-SECTION TO MATCH EXISTING.

EARTHWORK BALANCING NOTE:
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT TO THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

NOTICE:
 CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

NOTE:
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LEGEND



TOP OF CURB
 TOP OF WALK
 TOP OF PAVEMENT
 GROUND
 EDGE OF METAL
 FINISH GRADE
 FINISH FLOOR

NOTE NO.
 STORM STRUCTURE NO.
 SANITARY STRUCTURE NO.
 WATERMAIN STRUCTURE NO.

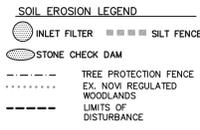
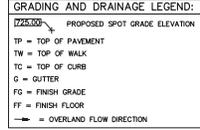
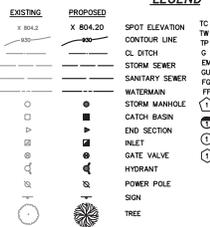
GREENTECH ENGINEERS & LAND SURVEYORS
 51147 W. Pontiac Trail, Warren, MI 48393
 Telephone: (248) 688-0700
 Fax: (248) 688-0701

811
 Know what's below
 Call before you dig.

SOIL EROSION & SEDIMENTATION CONTROL (NORTH)
 CLIENT: ADELL CENTER
 43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
 TOWNSHIP: IN
 RANGE: BE
 SECTION: 15
 REVISED

DATE: 7-19-2018
 DRAWN BY: RMS/MW
 CHECKED BY: DJL/AMF
 FBK: --
 CWF:
 SCALE: HOR 1"=50 FT
 VER 1"=1' 14

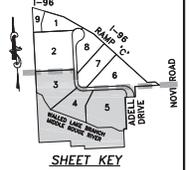
BENCHMARKS:
 CITY OF NOVI BM 1542
 X ON NORTH RM OF SANITARY MANHOLE,
 25'± WEST OF BACK OF CURB NOVI ROAD
 & 45'± SOUTH OF DRIVE #28179 NOVI ROAD
 ELEVATION: 915.10 (N.A.V.D.88)
 BM #1
 ARROW ON HYDRANT, SOUTH SIDE OF
 CRESCENT BOULEVARD, 24'± EAST OF
 SOUTHEAST PROPERTY CORNER
 ELEVATION: 915.58 (N.A.V.D.88 DATUM)
 BM #2
 ARROW ON HYDRANT, 260'± WEST OF EXPO
 CENTER DRIVE, 48'± SOUTH OF BUILDING
 FOUNDATION.
 ELEVATION: 912.13 (N.A.V.D.88 DATUM)
 BM #3
 ARROW ON HYDRANT NORTH SIDE OF SITE,
 12.5'± SOUTH WEST OF RIGHT OF WAY FENCE,
 250'± EAST OF JOEL WATER TOWER.
 ELEVATION: 914.36 (N.A.V.D.88 DATUM)



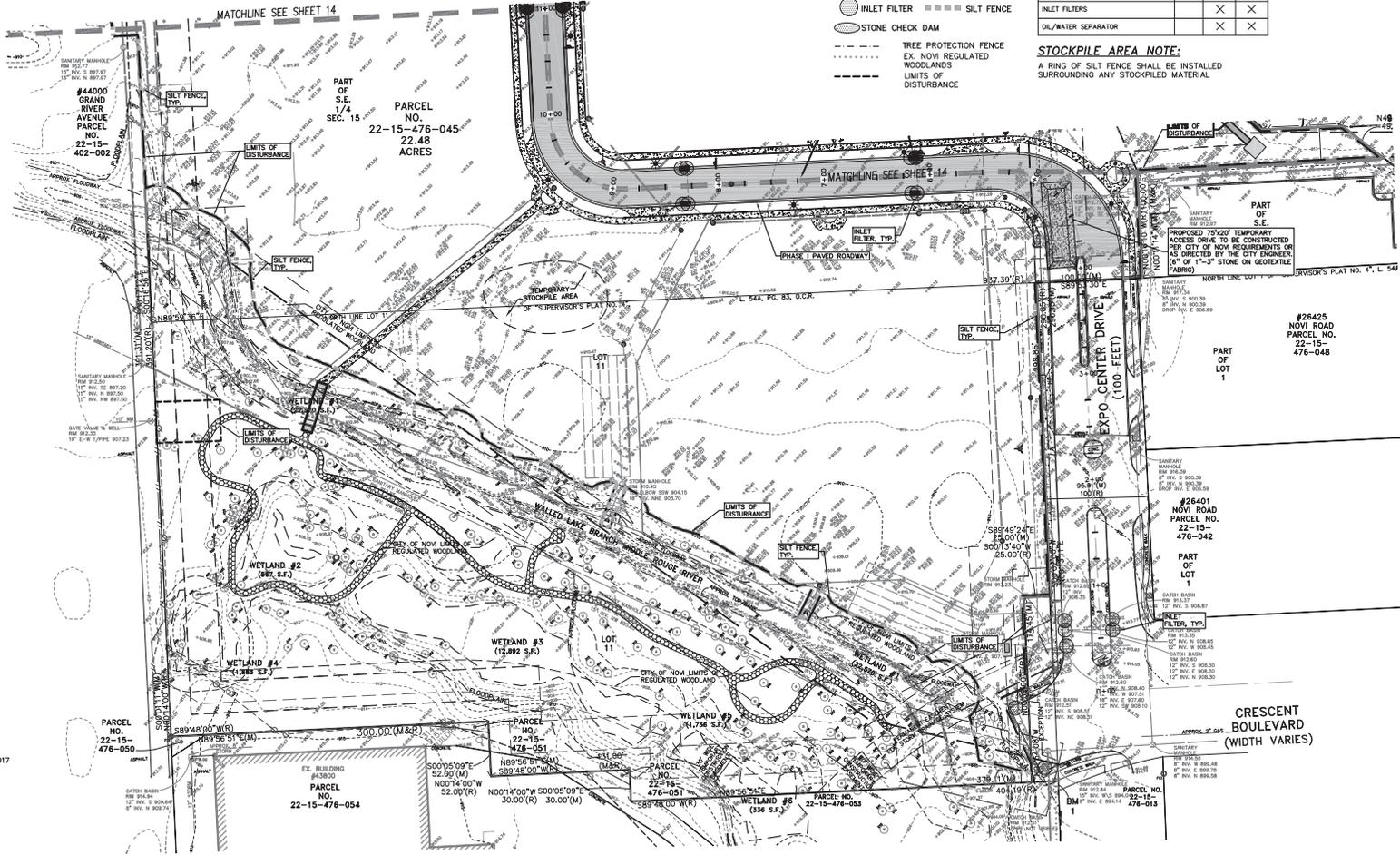
CLEANING SCHEDULE:

OPERATIONS TO BE PERFORMED BY CONTRACTOR	DAILY	WEEKLY	AS NEEDED
SCRAPE, CLEAN OR SWEET STREETS	X	X	X
DUST CONTROL MEASURES	X	X	X
INLET FILTERS	X	X	X
OIL/WATER SEPARATOR	X	X	X

STACKPILE AREA NOTE:
 A RING OF SILT FENCE SHALL BE INSTALLED SURROUNDING ANY STACKPILED MATERIAL



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 CIVIL ENGINEERS & LAND SURVEYORS
 51147 W. Pontiac Trail, Warren, MI 48393
 Phone: (248) 668-0700 Fax: (248) 668-0701



WETLAND NOTE:
 WETLAND LIMITS WERE DELINEATED OCTOBER, 2017 AND ARE CURRENTLY FLAGGED ON SITE.
NOTICE:
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SOIL EROSION & SEDIMENTATION CONTROL (SOUTH)
 43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
 TOWNSHIP 15 N RANGE 06 E SECTION 15
 CITY OF NOVI COUNTY OAKLAND MICHIGAN

CLIENT: ADELL CENTER
 REVISIONS:
 DATE: 7-19-2018
 DRAWN BY: RMS/MW
 CHECKED BY: DJL/AMF

SCALE: HORIZ. 1"=50 FT. VERT. 1"=10 FT.
 FBK: ---
 15
 17-334

BENCHMARKS:

CITY OF NOVI BM 1542
 7' ON NORTH RM OF SANITARY MANHOLE,
 25' WEST OF BACK OF CURB NOVI ROAD
 & 45' SOUTH OF DRIVE #26179 NOVI ROAD
 ELEVATION: 915.10 (N.A.V.D.88 DATUM)

BM #1
 ARROW ON HYDRANT, SOUTH SIDE OF
 CRESCENT BOULEVARD, 24' EAST OF
 SOUTHEAST PROPERTY CORNER
 ELEVATION: 915.58 (N.A.V.D.88 DATUM)

BM #2
 ARROW ON HYDRANT, 260' WEST OF EXPO
 CENTER DRIVE, 68' SOUTH OF BUILDING
 FOUNDATION.
 ELEVATION: 912.13 (N.A.V.D.88 DATUM)

BM #3
 ARROW ON HYDRANT NORTH SIDE OF SITE,
 12.5' SOUTHWEST OF RIGHT OF WAY FENCE,
 250' EAST OF ADELL CENTER DRIVE.
 ELEVATION: 914.36 (N.A.V.D.88 DATUM)

RESTORATION NOTE:

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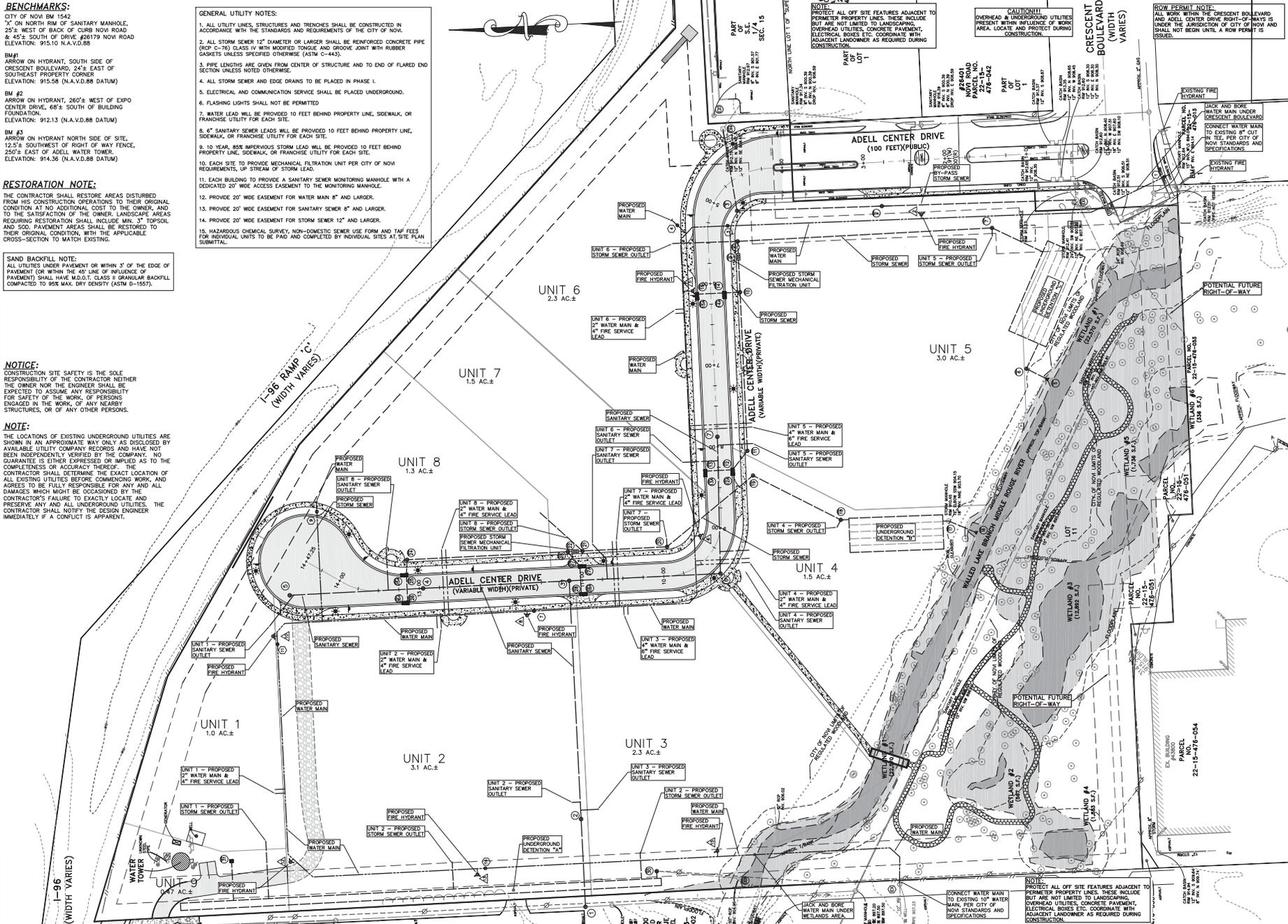
SAND BACKFILL NOTE:
 ALL UTILITIES UNDER PAYMENT OR WITHIN 3' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45' LINE OF INFLUENCE OF PAYMENT) SHALL HAVE M.D.T. CLASS 5 GRANULAR BACKFILL COMPACTED TO 95% MAX. DRY DENSITY (ASTM D-1557).

NOTICE:
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GENERAL UTILITY NOTES:

1. ALL UTILITY LINES, STRUCTURES AND TRENCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS AND REQUIREMENTS OF THE CITY OF NOVI.
2. ALL STORM SEWER 12" DIAMETER OR LARGER SHALL BE REINFORCED CONCRETE PIPE (RCP C-76) CLASS IV WITH MOFFET TONGUE AND GROOVE JOINT WITH RUBBER GASKETS UNLESS SPECIFIED OTHERWISE (ASTM C-443).
3. PIPE LENGTHS ARE GIVEN FROM CENTER OF STRUCTURE AND TO END OF FLARED END SECTION UNLESS NOTED OTHERWISE.
4. ALL STORM SEWER AND EDGE DRAINS TO BE PLACED IN PHASE I.
5. ELECTRICAL AND COMMUNICATION SERVICE SHALL BE PLACED UNDERGROUND.
6. FLASHING LIGHTS SHALL NOT BE PERMITTED.
7. WATER LEAD WILL BE PROVIDED 10 FEET BEHIND PROPERTY LINE, SIDEWALK, OR FRANCHISE UTILITY FOR EACH SITE.
8. 6" SANITARY SEWER LEADS WILL BE PROVIDED 10 FEET BEHIND PROPERTY LINE, SIDEWALK, OR FRANCHISE UTILITY FOR EACH SITE.
9. 10 YEAR, 85% IMPERVIOUS STORM LEAD WILL BE PROVIDED 10 FEET BEHIND PROPERTY LINE, SIDEWALK, OR FRANCHISE UTILITY FOR EACH SITE.
10. EACH SITE TO PROVIDE MECHANICAL FILTRATION UNIT PER CITY OF NOVI REQUIREMENTS, UP STREAM OF STORM LEAD.
11. EACH BUILDING TO PROVIDE A SANITARY SEWER MONITORING MANHOLE WITH A DEDICATED 20' WIDE ACCESS EASEMENT TO THE MONITORING MANHOLE.
12. PROVIDE 20' WIDE EASEMENT FOR WATER MAIN 8" AND LARGER.
13. PROVIDE 20' WIDE EASEMENT FOR SANITARY SEWER 8" AND LARGER.
14. PROVIDE 20' WIDE EASEMENT FOR STORM SEWER 12" AND LARGER.
15. HAZARDOUS CHEMICAL SURVEY, NON-DOMESTIC SEWER USE FORM AND TAP FEES FOR INDIVIDUAL UNITS TO BE PAID AND COMPLETED BY INDIVIDUAL SITES AT SITE PLAN SUBMITTAL.



GREENTECH ENGINEERING, INC.
 CIVIL ENGINEERS & LAND SURVEYORS

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51147 M. Pontiac Trail, Warren, MI 48093
 Telephone: (586) 251-1100
 Fax: (586) 251-1101

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UTILITY PLAN (OVERALL)

CLIENT: ADELL CENTER

43700 EXPO CENTER DRIVE -- PARCEL NO. 22-15-476-045
 TOWNSHIP 15N
 RANGE 06E
 SECTION 15

DATE: 7-19-2018
 DRAWN BY: RMS/MW
 CHECKED BY: DJL/AMF

REVISED

SCALE: 1" = 50' FT

DATE: 7-19-2018
 DRAWN BY: RMS/MW
 CHECKED BY: DJL/AMF

SCALE: 1" = 50' FT

16

BENCHMARKS:

BM #1
CITY OF NOVI BM 1542
1" ON NORTH RM OF SANITARY MAINLINE,
25'± WEST OF BACK OF CURB NOVI ROAD
& 45'± SOUTH OF DRIVE #26179 NOVI ROAD
ELEVATION: 915.10 (N.A.V.D.88 DATUM)

BM #2
ARROW ON HYDRANT, SOUTH SIDE OF
CRESCENT BOULEVARD, 24'± EAST OF
SOUTHWEST PROPERTY CORNER
ELEVATION: 915.58 (N.A.V.D.88 DATUM)

BM #3
ARROW ON HYDRANT, 260'± WEST OF EXPO
CENTER DRIVE, 68'± SOUTH OF BUILDING
FOUNDATION
ELEVATION: 912.13 (N.A.V.D.88 DATUM)

BM #5
ARROW ON HYDRANT NORTH SIDE OF SITE,
12.5'± SOUTHWEST OF FRONT OF WAY FENCE,
250'± EAST OF ADELL WATER TOWER.
ELEVATION: 914.36 (N.A.V.D.88 DATUM)

SAND BACKFILL NOTE:
ALL UTILITIES UNDER PAYMENT OR WITHIN 3' OF THE EDGE OF
PAYMENT OR WITHIN THE 45° LINE OF INFLUENCE OF
PAYMENT SHALL HAVE M.D.T. CLASS 9 GRANULAR BACKFILL
COMPACTED TO 95% MAX. DRY DENSITY (ASTM D-1557).

Sanitary Sewer Basis of Design

Usage	Unit	Factor	Units (per seat/room)	Residential Equivalent (REU)
Adell Center				
Canina	0.30	per 1000 sf	5,796	1.7
City Office	0.40	per 1000 sf	5,977	2.4
Texas Road House (Restaurant)	0.13	per 1 seat	350	46.8
Texas Road House (Seasonal)	0.13	per 1/2 seat	50	15.6
Restaurants	0.13	per 1 seat	290	36.4
(Seasonal)	0.13	per 1/2 seat	49	12.5
Planet Fitness (Health Club)	2.30	per 1000 sf	30,000	69.0
Druy Hotel	0.38	per 1 room	180	68.4
Funkland Manor (Hotel)	0.38	per 1 room	138	49.0
Unit 4 (Future unknown)				40.0
Total REU			341.8	1367.3
Total Population (4 People per REU)				1367.3

AVERAGE FLOW:

Total Population: 1,367 people
Average Daily Flow: 100 gallons/person/day
Average Flow: 136,731 gallons/day
0.212 cfs
0.193731 mgd

PEAK FLOW:

Peaking Factor: 4.00
Peak Flow: 546,923 gallons/day
0.846 cfs
0.546923 mgd

ESTIMATED CAPACITY OF 8" SANITARY SEWER

Pipe Size: 8 inch
Minimum Slope: 0.40 %
Area: 0.35 s.f.
K: 0.013
Capacity: 0.786 cfs

SANITARY SEWER QUANTITIES:

6" SDR 23.5 PVC 288 LF
10" SDR 26 PVC 923 LF
4" DIA. MANHOLE 7 EACH

WATER MAIN QUANTITIES:

12" D.I.W.M. 2,735 LF
12"x45" BEND 10 EACH
12"x22 1/2" BEND 1 EACH
12"x6"x12" TEE 8 EACH
12"x12"x12" TEE 2 EACH
8"x12"x8" TEE 1 EACH
12" GV IN WELL 6 EACH
HYDRANT ASSEMBLY 8 EACH
12" PLUG 2 EACH
1 1/2" "K" COPPER 159 LF
2" "K" COPPER 106 LF
4" D.I.W.M. 352 LF
6" D.I.W.M. 87 LF

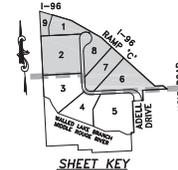
STORM SEWER QUANTITIES:

12" C-76 CL-IV RCP 425 LF
15" C-76 CL-IV RCP 34 LF
18" C-76 CL-IV RCP 131 LF
21" C-76 CL-IV RCP 518 LF
30" C-76 CL-IV RCP 886 LF
STORM LEADS 352 LF
2" INLET 5 EACH
4" CATCH BASIN 5 EACH
4" DIA. MANHOLE 10 EACH
30" END SECTION 2 EACH
UNDERGROUND STORAGE* 3 EACH

*REFER TO STORMWATER
MANAGEMENT PLAN FOR
UNDERGROUND STORAGE
SPECIFICATIONS.

UTILITY CROSSING INFORMATION:

- 2 BOTTOM OF WATER MAIN = +906.65
- 2 TOP OF SANITARY = 905.53
- 2 BOTTOM OF STORM = 908.22
- 15" C-76 CL-IV RCP 34 LF
- 18" C-76 CL-IV RCP 131 LF
- 21" C-76 CL-IV RCP 518 LF
- 30" C-76 CL-IV RCP 886 LF
- 2" INLET 5 EACH
- 4" CATCH BASIN 5 EACH
- 4" DIA. MANHOLE 10 EACH
- 30" END SECTION 2 EACH
- UNDERGROUND STORAGE* 3 EACH
- 6" BOTTOM OF STORM = 904.88
- 6" TOP OF SANITARY = 902.25
- 6" BOTTOM OF STORM = 904.84
- 6" TOP OF WATER MAIN = 903.42
- 12" BOTTOM OF STORM = 905.80
- 12" TOP OF SANITARY = 901.17
- 12" BOTTOM OF STORM = 905.66
- 12" TOP OF SANITARY = 902.81
- 12" BOTTOM OF WATER MAIN = +904.98
- 12" TOP OF SANITARY = 902.21
- 12" BOTTOM OF WATER MAIN = +905.30
- 12" TOP OF SANITARY = 902.85
- 12" BOTTOM OF STORM = 904.35
- 12" TOP OF SANITARY = 899.27
- 12" BOTTOM OF WATER MAIN = +904.61
- 12" TOP OF SANITARY = 902.84
- 12" BOTTOM OF STORM = 908.57
- 12" TOP OF WATER MAIN = ±
- 12" BOTTOM OF WATER MAIN = +901.12
- 12" TOP OF SANITARY = 906.39



GREENTECH ENGINEERING, INC.
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UTILITY PLAN (NORTH)

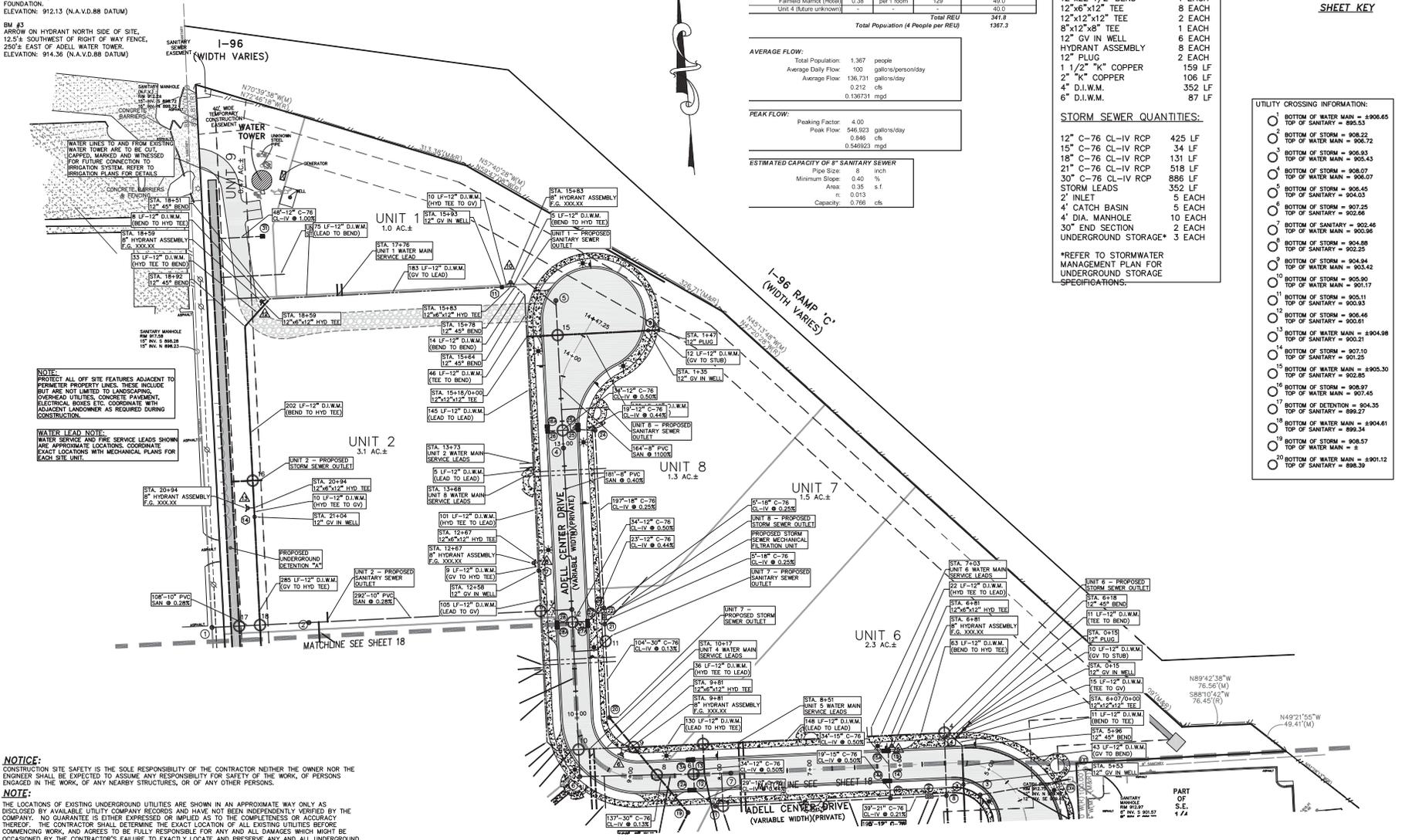
CLIENT: ADELL CENTER

43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
TOWNSHIP: 15 N RANGE: 06 E SECTION: 15

REVISED
2018-6-4 PER REVIEW
2018-7-19 PER REVIEW

DATE: 4-30-2018
DRAWN BY: EMS
CHECKED BY: DJL/JMF

SCALE: HORIZ. 1"=50 FT. VERT. 1"=10 FT.



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BENCHMARKS:

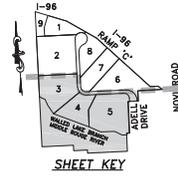
CITY OF NOVI BM 1542
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25' S WEST OF BACK OF CURB NOV ROAD
& 45' S SOUTH OF DRIVE #26179 NOV ROAD
ELEVATION: 915.10 (N.A.V.D. DATUM)

BM #1
ARROW ON HYDRANT, SOUTH SIDE OF
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SOUTHWEST PROPERTY CORNER
ELEVATION: 915.58 (N.A.V.D. DATUM)

BM #2
ARROW ON HYDRANT, 260' S WEST OF EXPO
CENTER DRIVE, 68' S SOUTH OF BUILDING
FOUNDATION
ELEVATION: 912.13 (N.A.V.D. DATUM)

BM #3
ARROW ON HYDRANT NORTH SIDE OF SITE,
12.5' S SOUTH WEST OF RIGHT OF WAY FENCE,
250' S EAST OF ADELL WATER TOWER.
ELEVATION: 914.36 (N.A.V.D. DATUM)

SAND BACKFILL NOTE:
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COMPACTED TO 95% MAX. DRY DENSITY (ASTM D-1557).



NOTE:
PROTECT ALL OFF-SITE FEATURES ADJACENT TO
PERMETER PROPERTY LINES. THESE INCLUDE
BUT ARE NOT LIMITED TO LANDSCAPING,
OVERHEAD UTILITIES, CONCRETE PAVEMENT,
ELECTRICAL BOXES ETC. COORDINATE WITH
ADJACENT LANDOWNER AS REQUIRED DURING
CONSTRUCTION.

WATER LEAD NOTIS:
WATER SERVICE AND FIRE SERVICE LEADS
SHOWN ARE APPROXIMATE LOCATIONS.
COORDINATE EXACT LOCATIONS WITH
MECHANICAL PLANS FOR EACH SITE UNIT.

**CONNECT WATER MAIN TO
EXISTING 10" WATER MAIN,
PER CITY OF NOV STANDARDS
AND SPECIFICATIONS.**

NOTE:
PROTECT ALL OFF-SITE FEATURES ADJACENT TO
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ELECTRICAL BOXES ETC. COORDINATE WITH
ADJACENT LANDOWNER AS REQUIRED DURING
CONSTRUCTION.

CAUTION!
OVERHEAD & UNDERGROUND UTILITIES
PRESENT WITHIN INFLUENCE OF WORK
AREA. LOCATE AND PROTECT DURING
CONSTRUCTION.

NOTE:
LACK AND BORE 80' LF
WATER MAIN UNDER
CRESCENT BOULEVARD.

NOTE:
LACK AND BORE 80' LF
WATER MAIN UNDER
CRESCENT BOULEVARD.

ROW PERMIT NOTE:
ALL WORK WITHIN THE CRESCENT BOULEVARD
AND ADELL DRIVE RIGHT-OF-WAYS IS UNDER THE
JURISDICTION OF CITY OF NOV AND SHALL NOT
BEGIN UNTIL A ROW PERMIT IS ISSUED.

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INCURRED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND
UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.

THE CONTRACTOR SHALL RESTORE AREAS DISTURBED FROM HIS CONSTRUCTION OPERATIONS TO THEIR ORIGINAL
CONDITION AT NO ADDITIONAL COST TO THE OWNER, AND TO THE SATISFACTION OF THE OWNER. LANDSCAPE
AREAS REQUIRING RESTORATION SHALL INCLUDE MIN. 3" TOPSOIL AND 500' PAVEMENT AREAS SHALL BE
RESTORED TO THEIR ORIGINAL CONDITION, WITH THE APPLICABLE CROSS-SECTION TO MATCH EXISTING.

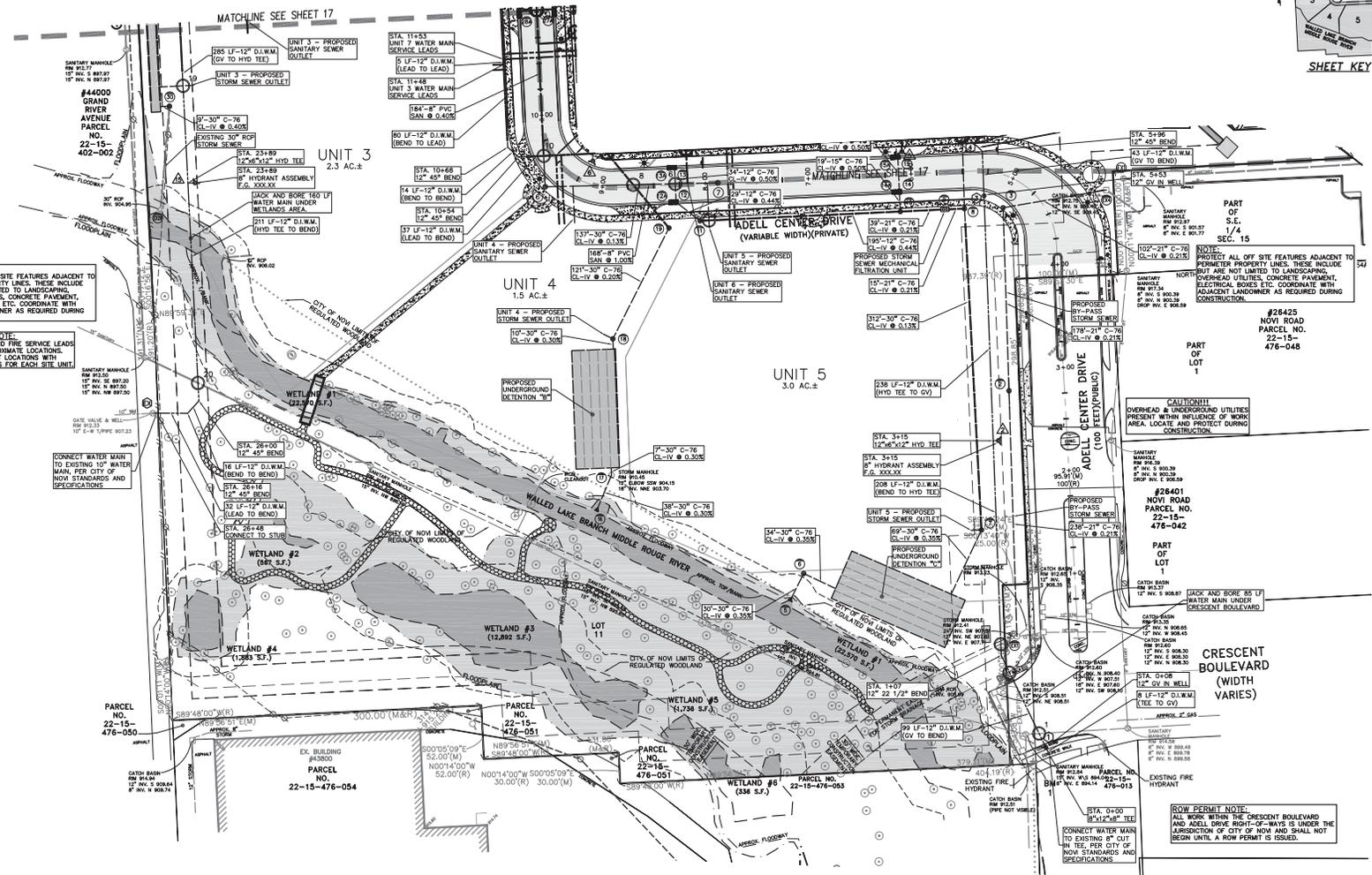
**GREENTECH
ENGINEERING, INC.**
CIVIL ENGINEERS & LAND SURVEYORS
51147 Potomac Trail, Warsaw, MI 48393
Phone: (248) 668-0700 Fax: (248) 668-0701

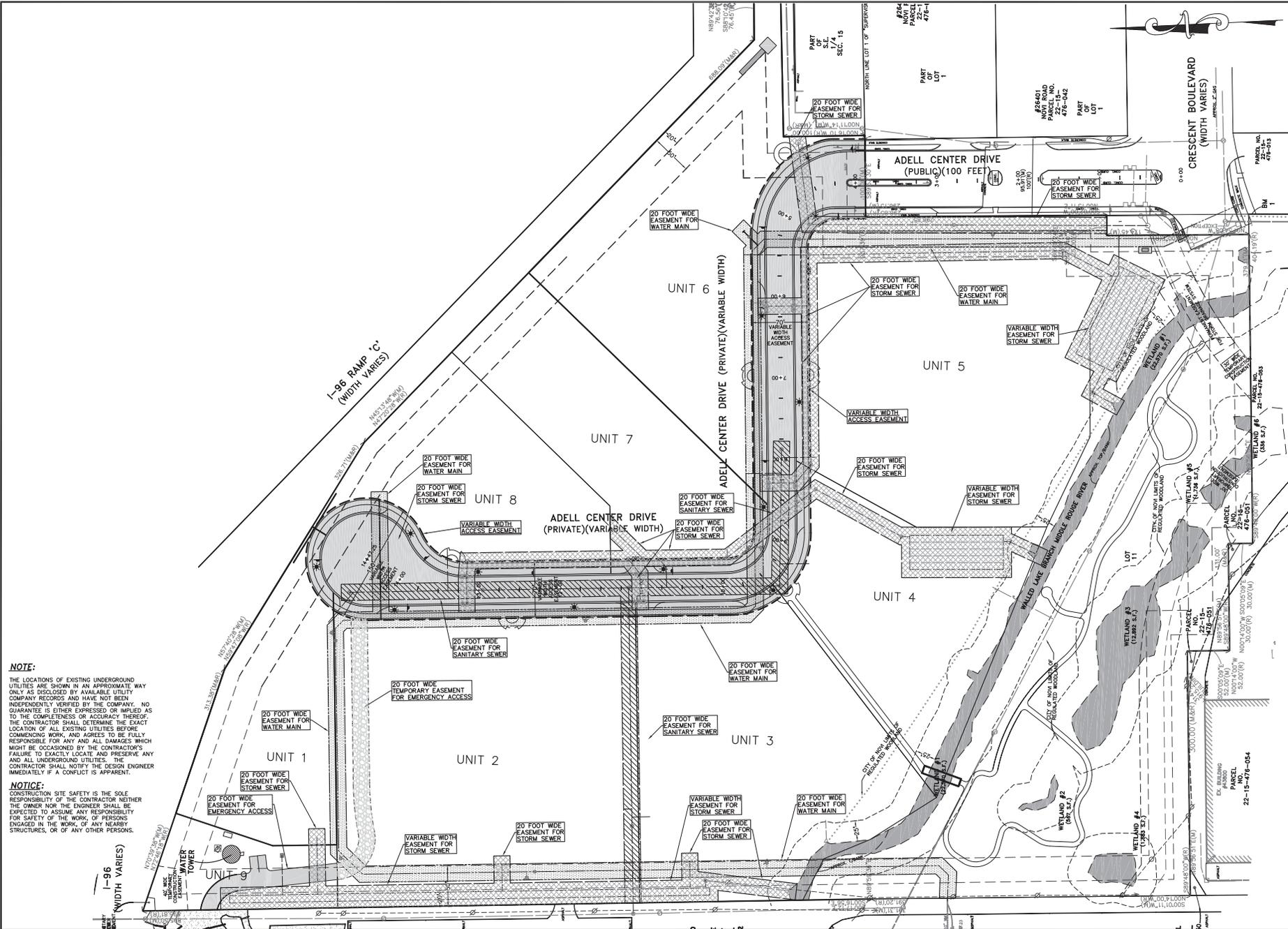
811
Know what's below
Call before you dig.

ADPELL CENTER
UTILITY PLAN (SOUTH)
43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
TOWNSHIP 15 N
RANGE 06 E
SECTION 15
MICHIGAN

CLIENT:
REVISED
2018-6-4 PER REVIEW
2018-7-19 PER REVIEW

DATE: 4-30-2018
DRAWN BY: RMS
CHECKED BY: DJL/JMF
SCALE: HORIZ. 1"=50 FT
VERT. 1"=1' 17-334





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

NOTICE:
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GREENTECH
 ENGINEERING, INC.
 CIVIL ENGINEERS & LAND SURVEYORS
 51147 W. Pontiac Trail, Wixom, MI 48393
 Phone: (248) 668-0700 Fax: (248) 668-0701

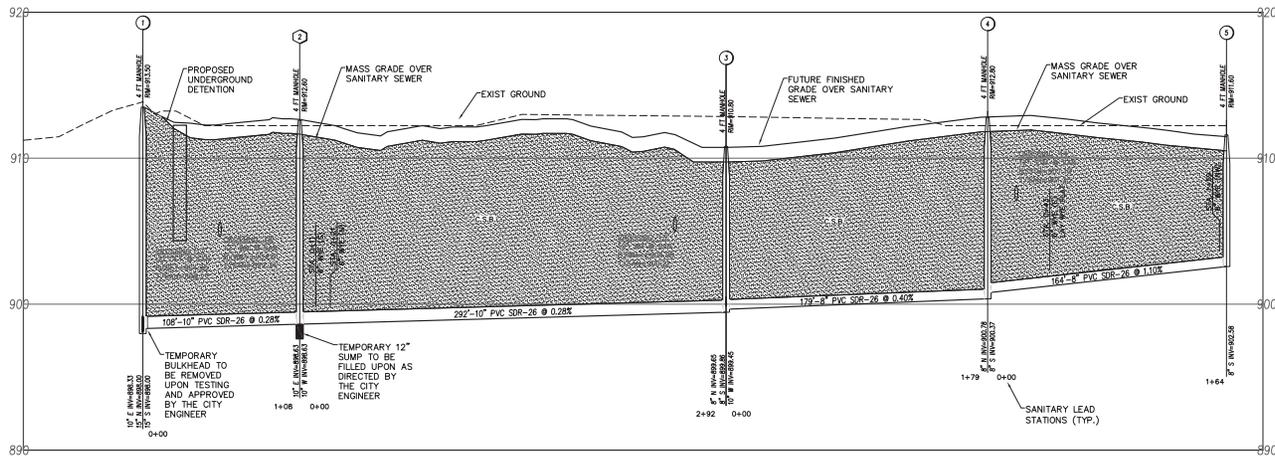
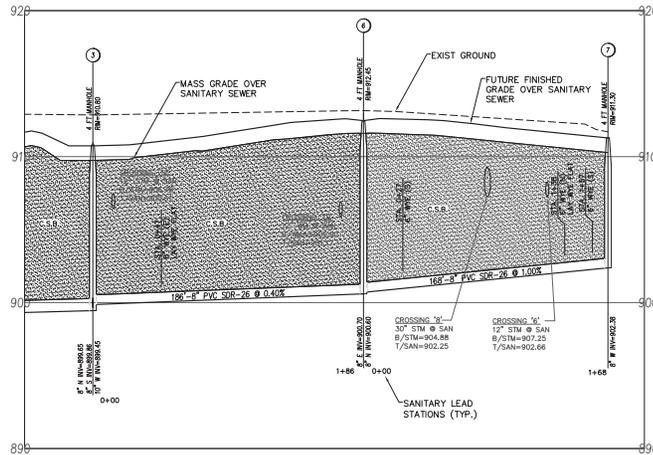


PROPOSED EASEMENT PLAN (OVERALL)
 43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
 TOWNSHIP 15 N RANGE 16 E
 CITY OF NOVI MICHIGAN

CLIENT: ADELL CENTER
 REVISED

DATE: 7-19-2018
 DRAWN BY: RMS/MW
 CHECKED BY: DJL/JMF

SCALE: HORIZ 1"=50 FT
 VERT 1"=10 FT



C.S.B. INDICATES COMPACTED SAND BACKFILL

COMPACTED SAND BACKFILL NOTE:
ALL UTILITIES UNDER PAVEMENT OR WITHIN 3' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45' LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE M.D.S.T. CLASS 5 GRANULAR BACKFILL COMPACTED TO 90% MAX. DRY DENSITY (ASTM D-1557).

UTILITY LEAD NOTE:
CONTRACTOR TO CAP, PLUS, MARK AND WITNESS ENDS OF ALL UTILITY SUBS PER CITY OF NOB STANDARDS AND SPECIFICATIONS OR AS DIRECTED BY THE CITY ENGINEER.



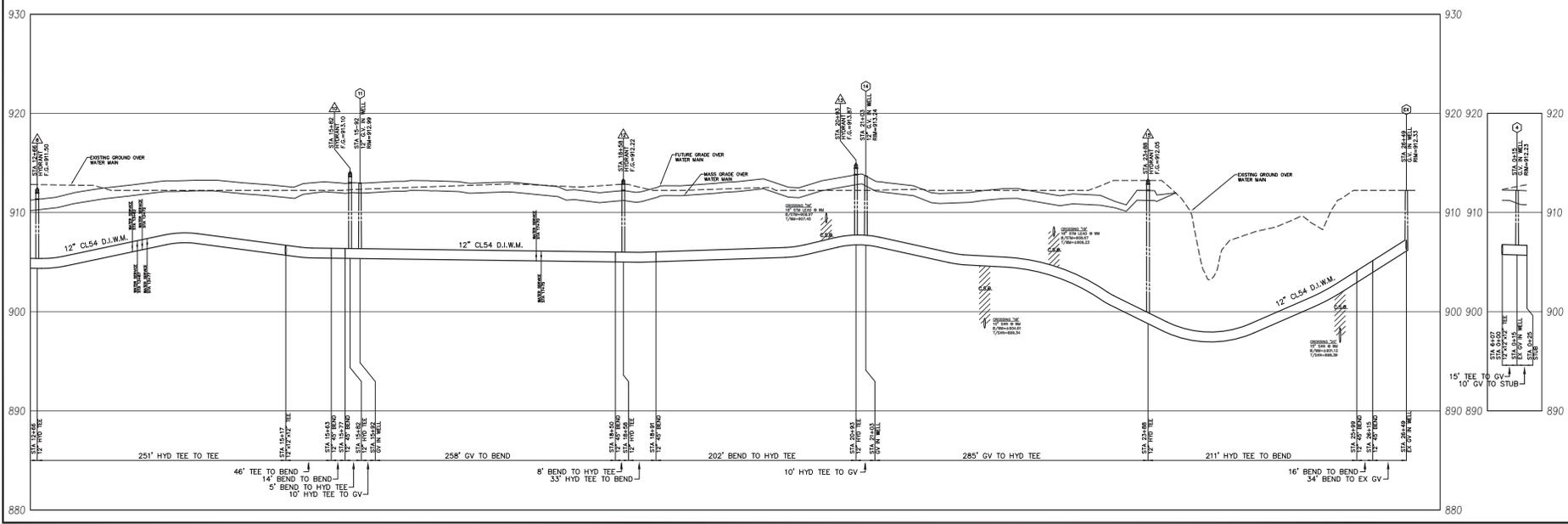
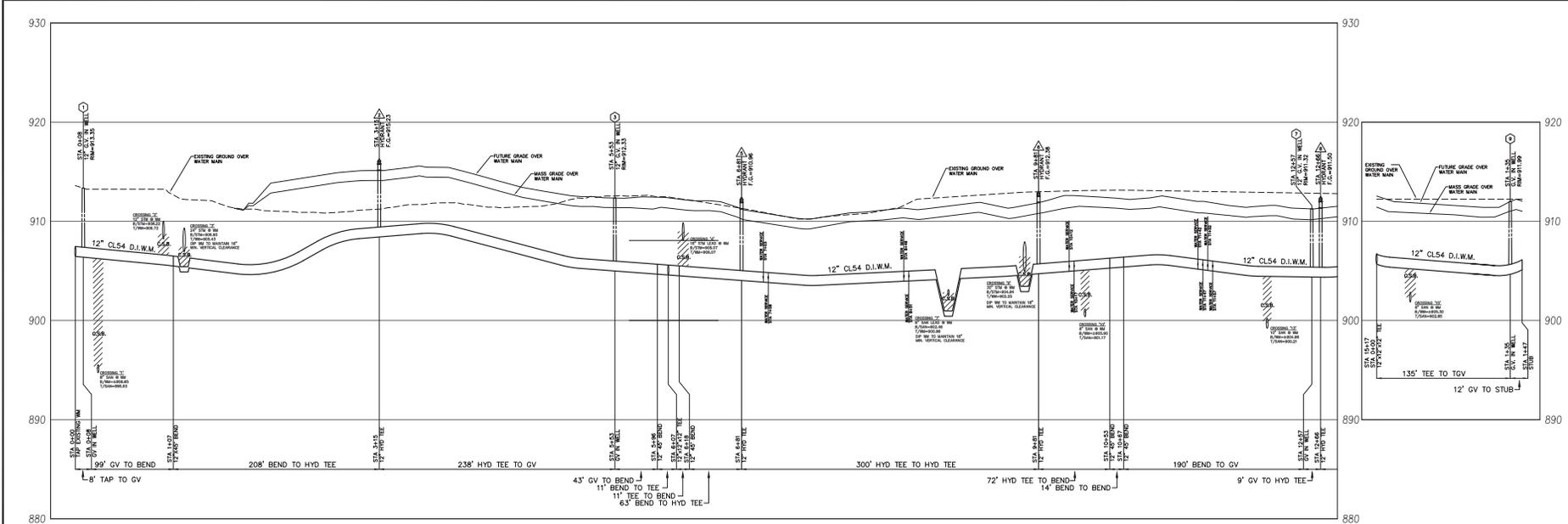
CLIENT: ADELL CENTER
SANITARY SEWER PROFILES
43700 EXPO. CENTER DRIVE - PARCEL NO. 22-15-476-045
TOWNSHIP: 15 N. RANGE: 06 E
SECTION: 15
CITY OF NOB, MICHIGAN

REVISED

DATE: 7-19-2018
DRAWN BY: RMS/MW
CHECKED BY: DJL/AMF

SCALE: HORIZ. 1"=40 FT.
VERT. 1"=4 FT.

22
17-334



RESIDENTIAL
COMMERCIAL
INDUSTRIAL
MUNICIPAL
UTILITY
CONSTRUCTION

GREENTECH
ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS

51147 N. Pontiac Trail, Wixom, MI 48393
Phone: (248) 868-0700 Fax: (248) 668-0701

811
Know what's below
Call before you dig.

CLIENT: **ADELL CENTER**

WATER MAIN PROFILES

43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
TOWNSHIP 15 N RANGE 06 E
SECTION 15
CITY OF NOVATA
MICHIGAN

REVISED

DATE: 7-19-2018
DRAWN BY: RMS/MW
CHECKED BY: DJL/AMF

SCALE: HORIZ. 1" = 50 FT
VERT. 1" = 5 FT

FBK: --
CHP: --

DETENTION A (UNIT 1, 2, 3, & 9)

NOVI STORM WATER DETENTION BASIN DESIGN
BANK FULL STORM

PROJECT: OAKLAND COUNTY / NOVI
DETENTION BASIN DESIGN

DESIGN VARIABLES: Tributary Area (A) = 6.15 acres
Run-Off Coefficient (C) = 0.85

BANKFULL STORAGE VOLUME REQUIRED

- 1. ALLOWABLE DISCHARGE (Qa) = 0.15 cfs/acre * A = 0.92 cfs
- 2. ALLOWABLE DISCHARGE PER ACRE IMPERVIOUS (Qo) = 0.18 cfs/acre impervious
- 3. MAXIMUM STORAGE TIME (T) = 25 + SQRT(10312.5/Qo) = 216.74 minutes
- 4. MAXIMUM STORAGE VOLUME PER ACRE IMPERVIOUS (Vs) = 13,264 cfs/acre impervious
- 5. STORAGE VOLUME REQUIRED (V1) = 69,336 cf

FIRST FLUSH VOLUME

Vf1 = 1815 * A * C = 9,488 cf

BANKFULL FLOOD VOLUME

Vf1 = 5160 * A * C = 26,974 cf (Required Volume)
= 29,205 cf (Provided Volume)
= 30,349 cf (Provided Volume)

Advanced Concrete Products
Advanced Drainage Systems, INC

DETENTION B (UNIT 4, 7, & ROADWAY)

NOVI STORM WATER DETENTION BASIN DESIGN
BANK FULL STORM

PROJECT: OAKLAND COUNTY / NOVI
DETENTION BASIN DESIGN

DESIGN VARIABLES: Tributary Area (A) = 4.71 acres
Run-Off Coefficient (C) = 0.85

BANKFULL STORAGE VOLUME REQUIRED

- 1. ALLOWABLE DISCHARGE (Qa) = 0.15 cfs/acre * A = 0.71 cfs
- 2. ALLOWABLE DISCHARGE PER ACRE IMPERVIOUS (Qo) = 0.18 cfs/acre impervious
- 3. MAXIMUM STORAGE TIME (T) = 25 + SQRT(10312.5/Qo) = 216.74 minutes
- 4. MAXIMUM STORAGE VOLUME PER ACRE IMPERVIOUS (Vs) = 13,264 cfs/acre impervious
- 5. STORAGE VOLUME REQUIRED (V1) = 53,101 cf

FIRST FLUSH VOLUME

Vf1 = 1815 * A * C = 7,266 cf

BANKFULL FLOOD VOLUME

Vf1 = 5160 * A * C = 20,658 cf (Required Volume)
= 22,087 cf (Provided Volume)
= 21,022 cf (Provided Volume)

Advanced Concrete Products
Advanced Drainage Systems, INC

DETENTION C (UNIT 5, 6, ROADWAY)

NOVI STORM WATER DETENTION BASIN DESIGN
BANK FULL STORM

PROJECT: OAKLAND COUNTY / NOVI
DETENTION BASIN DESIGN

DESIGN VARIABLES: Tributary Area (A) = 6.17 acres
Run-Off Coefficient (C) = 0.85

BANKFULL STORAGE VOLUME REQUIRED

- 1. ALLOWABLE DISCHARGE (Qa) = 0.15 cfs/acre * A = 0.93 cfs
- 2. ALLOWABLE DISCHARGE PER ACRE IMPERVIOUS (Qo) = 0.18 cfs/acre impervious
- 3. MAXIMUM STORAGE TIME (T) = 25 + SQRT(10312.5/Qo) = 216.74 minutes
- 4. MAXIMUM STORAGE VOLUME PER ACRE IMPERVIOUS (Vs) = 13,264 cfs/acre impervious
- 5. STORAGE VOLUME REQUIRED (V1) = 69,561 cf

FIRST FLUSH VOLUME

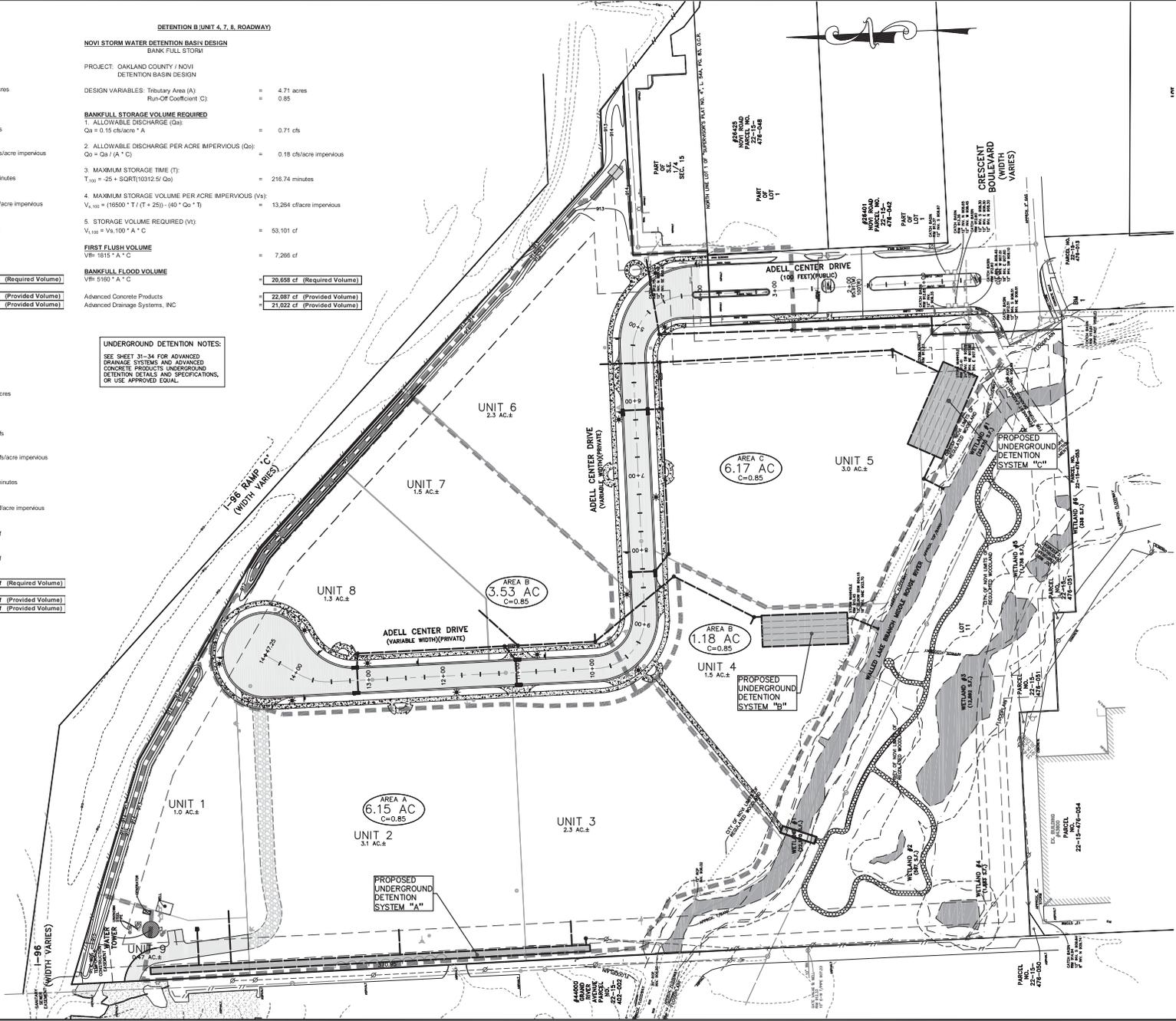
Vf1 = 1815 * A * C = 9,519 cf

BANKFULL FLOOD VOLUME

Vf1 = 5160 * A * C = 27,062 cf (Required Volume)
= 27,643 cf (Provided Volume)
= 26,109 cf (Provided Volume)

Advanced Concrete Products
Advanced Drainage Systems, INC

UNDERGROUND DETENTION NOTES:
SEE SHEET 31-34 FOR ADVANCED DRAINAGE SYSTEMS AND ADVANCED CONCRETE PRODUCTS UNDERGROUND DETENTION DETAILS AND SPECIFICATIONS, OR USE APPROVED EQUAL.



GREENTECH ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS
31147 N. Pontiac Trail, Wixom, MI 48393
Phone: (248) 868-0700 Fax: (248) 668-0701

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Know what's below
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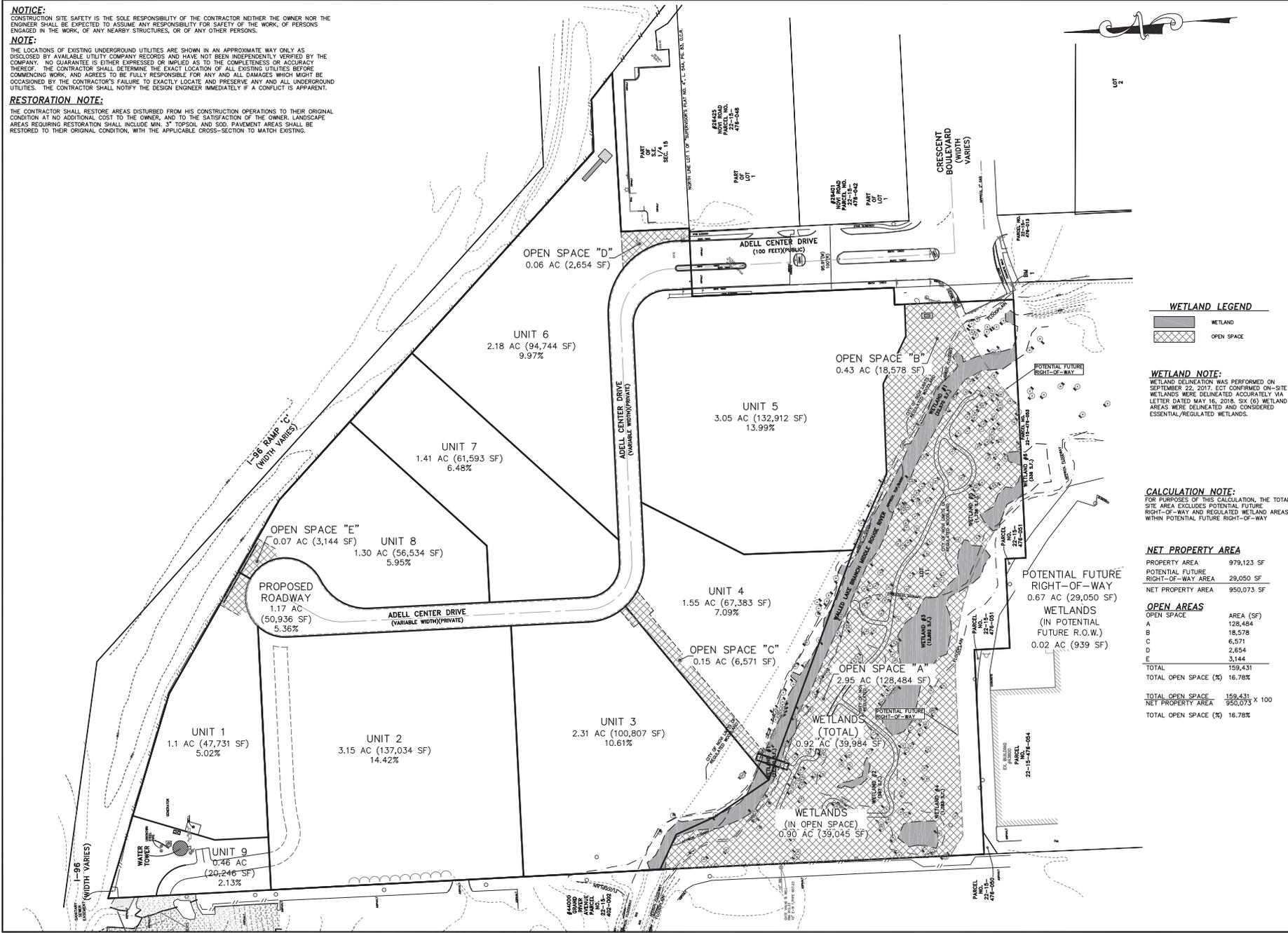
ADPELL CENTER
STORM WATER MANAGEMENT PLAN
43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
TOWNSHIP 15 N RANGE 3E
SECTION 15
CITY OF NOVI
OAKLAND COUNTY
MICHIGAN

CLIENT: _____
REVISED: _____
DATE: 7-19-2018
DRAWN BY: RMS/MW
CHECKED BY: DJL/JMF
SCALE: HORIZONTAL 1"=60 FT
VERTICAL 1"=30 FT
FBK: _____
CHP: _____
17-334

NOTICE:
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WETLAND LEGEND



WETLAND NOTE:
WETLAND DELINEATION WAS PERFORMED ON SEPTEMBER 22, 2017. ECT CONFIRMED ON-SITE WETLANDS WERE DELINEATED ACCURATELY VIA LETTER DATED MAY 16, 2018. SIX (6) WETLAND AREAS WERE DELINEATED AND CONSIDERED ESSENTIAL/REGULATED WETLANDS.

CALCULATION NOTE:
FOR PURPOSES OF THIS CALCULATION, THE TOTAL SITE AREA EXCLUDES POTENTIAL FUTURE RIGHT-OF-WAY AND REGULATED WETLAND AREAS WITHIN POTENTIAL FUTURE RIGHT-OF-WAY

NET PROPERTY AREA

PROPERTY AREA	979,123 SF
POTENTIAL FUTURE RIGHT-OF-WAY AREA	29,050 SF
NET PROPERTY AREA	950,073 SF

OPEN SPACES

OPEN SPACE	AREA (SF)
A	128,484
B	18,578
C	6,571
D	2,654
E	3,144
TOTAL	159,431
TOTAL OPEN SPACE (%)	16.78%

WETLANDS (IN POTENTIAL FUTURE R.O.W.)

TOTAL WETLANDS	159,431
NET PROPERTY AREA	950,073 X 100
TOTAL WETLANDS (%)	16.78%

GREENTECH ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS
51147 N. Pontiac Trail, Wauwatosa, WI 53193
Phone: (248) 668-0700 Fax: (248) 668-0701

811
Know what's below
Call before you dig.

ADPELL CENTER OPEN SPACE PLAN
43700 EMPLOYEE CENTER DRIVE - PARCEL NO. 22-15-476-045
TOWNSHIP 15 N RANGE 06 E
SECTION 15
CITY OF NEW BRITAIN MICHIGAN

CLIENT: _____

REVISED: _____

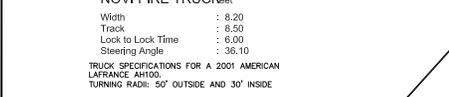
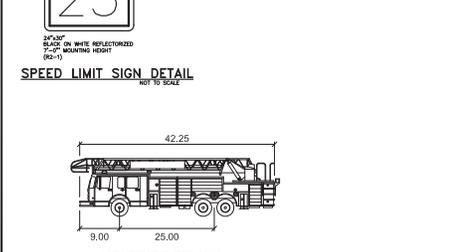
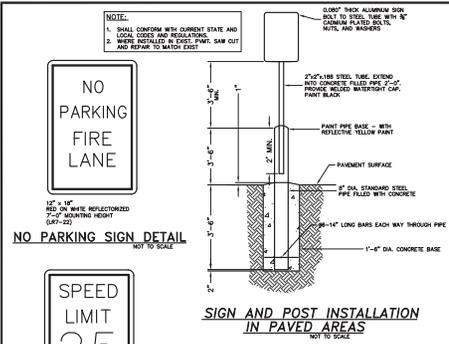
DATE: 7-19-2018
DRAWN BY: RMS/MW
CHECKED BY: DJL/AMF

FBK: --
CHP: --
SCALE: H&V 1"=60 FT
V&H 1"=30 FT

26
17-334

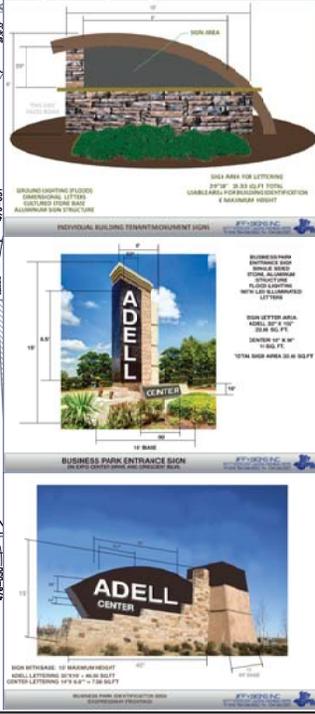
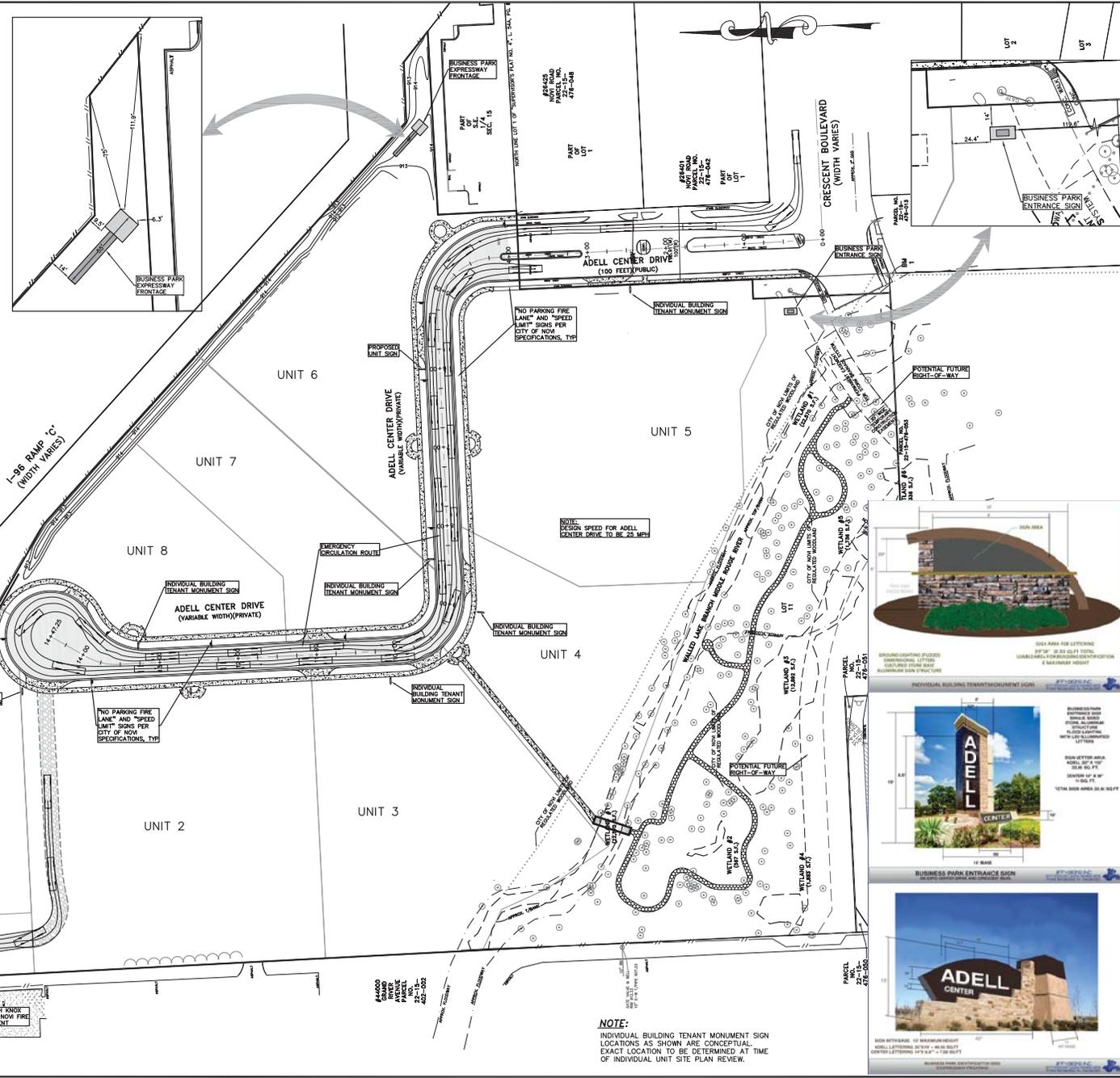
Tag No.	DBH	Common Name	Botanical Name	Condition	Remarks	Required Replacement
141	11	Australian Pine	Pinus nigra	Good	Remove	Exempt
142	11	Australian Pine	Pinus nigra	Good	Remove	Exempt
143	9	Australian Pine	Pinus nigra	Good	Remove	Exempt
144	9	Pin Oak	Quercus palustris	Good	Remove	Exempt
145	8, 8.9	Australian Pine	Pinus nigra	Good	Remove	Exempt
146	12	Australian Pine	Pinus nigra	Good	Remove	Exempt
147	10	Australian Pine	Pinus nigra	Good	Remove	Exempt
148	12	Australian Pine	Pinus nigra	Good	Remove	Exempt
149	7.8	Australian Pine	Pinus nigra	Fair	Remove	Exempt
150	12	Australian Pine	Pinus nigra	Good	Remove	Exempt
151	12	Green Sycamore	Picea pungens	Good	Remove	Exempt
152	12	Green Sycamore	Picea pungens	Good	Remove	Exempt
153	11	Green Sycamore	Picea pungens	Good	Remove	Exempt
154	10	Green Sycamore	Picea pungens	Good	Remove	Exempt
155	14	Green Sycamore	Picea pungens	Good	Remove	Exempt
156	9	Green Sycamore	Picea pungens	Good	Save	-
157	9, 10, 11	American Elm	Ulmus americana	Good	Remove	Exempt
158	14	Black Cherry	Prunus serotina	Fair	Remove	Exempt
159	18	American Elm	Ulmus americana	Good	Remove	Exempt
160	14	Box Elder	Acer negundo	Good	Save	-
161	13	Box Elder	Acer negundo	Good	Save	-
162	12	Eastern Cottonwood	Populus deltoides	Good	Save	-
163	10	Eastern Cottonwood	Populus deltoides	Good	Save	-
164	14	Eastern Cottonwood	Populus deltoides	Good	Save	-
165	9.9	Box Elder	Acer negundo	Good	Save	-
166	9	Black Cherry	Prunus serotina	Good	Save	-
167	8	Box Elder	Acer negundo	Good	Save	-
168	12	Box Elder	Acer negundo	Good	Save	-
169	9	Box Elder	Acer negundo	Good	Save	-
170	12	Box Elder	Acer negundo	Good	Save	-
171	10, 14	Box Elder	Acer negundo	Good	Save	-
172	18	Box Elder	Acer negundo	Poor	Save	-
173	14	Sugar Maple	Acer saccharum	Good	Save	-
174	18	Box Elder	Acer negundo	Good	Save	-
175	18	Box Elder	Acer negundo	Good	Save	-
176	10	Box Elder	Acer negundo	Good	Save	-
177	10	Box Elder	Acer negundo	Good	Save	-
178	8	Box Elder	Acer negundo	Good	Save	-
179	13	Box Elder	Acer negundo	Good	Save	-
180	9	Box Elder	Acer negundo	Good	Save	-
181	8	Box Elder	Acer negundo	Good	Save	-
182	8	Box Elder	Acer negundo	Good	Save	-
183	10	Box Elder	Acer negundo	Good	Save	-
184	11	Box Elder	Acer negundo	Good	Save	-
185	9	Green Sycamore	Picea pungens	Good	Remove	Exempt
186	10	Green Sycamore	Picea pungens	Good	Remove	Exempt
187	11	Green Sycamore	Picea pungens	Good	Remove	Exempt
188	9	Australian Pine	Pinus nigra	Good	Remove	Exempt
189	11	Australian Pine	Pinus nigra	Good	Remove	Exempt
190	9	Australian Pine	Pinus nigra	Good	Remove	Exempt
191	12	Green Sycamore	Picea pungens	Good	Remove	Exempt
192	9	Australian Pine	Pinus nigra	Good	Remove	Exempt
193	12	Pin Oak	Quercus palustris	Good	Remove	Exempt
194	14	Box Elder	Acer negundo	Poor	Save	-
195	10	Box Elder	Acer negundo	Good	Save	-
196	12	Box Elder	Acer negundo	Good	Save	-
197	10	Box Elder	Acer negundo	Good	Save	-
198	13	Box Elder	Acer negundo	Fair	Save	-
199	12	Box Elder	Acer negundo	Good	Save	-
200	11	Box Elder	Acer negundo	Good	Save	-
201	10, 10	Box Elder	Acer negundo	Good	Save	-
202	16	Eastern Cottonwood	Populus deltoides	Good	Save	-
203	10	Box Elder	Acer negundo	Good	Save	-
204	16, 18	Box Elder	Acer negundo	Good	Save	-
205	11	Box Elder	Acer negundo	Good	Save	-
206	9	Pin Oak	Quercus palustris	Good	Remove	Exempt
207	11	Groenopre Linden	Tilia cordata 'Groenopre'	Good	Save	-
208	16	Box Elder	Acer negundo	Good	Save	-
209	18	Box Elder	Acer negundo	Good	Save	-
210	10	Box Elder	Acer negundo	Good	Save	-
211	8	Box Elder	Acer negundo	Good	Save	-
212	11	Box Elder	Acer negundo	Good	Save	-
213	13	Box Elder	Acer negundo	Good	Save	-
214	18	Box Elder	Acer negundo	Poor	Save	-
215	14	Box Elder	Acer negundo	Good	Remove	Exempt
216	10	Box Elder	Acer negundo	Good	Save	-
217	11	American Elm	Ulmus americana	Good	Save	-
218	11	Box Elder	Acer negundo	Good	Save	-
219	11	Box Elder	Acer negundo	Good	Save	-
220	10	Box Elder	Acer negundo	Good	Save	-
221	17	Box Elder	Acer negundo	Good	Save	-
222	11	Box Elder	Acer negundo	Good	Save	-
223	8	Box Elder	Acer negundo	Good	Save	-
224	13	Box Elder	Acer negundo	Good	Save	-
225	11	Box Elder	Acer negundo	Good	Save	-
226	13	Box Elder	Acer negundo	Good	Save	-
227	21	Eastern Cottonwood	Populus deltoides	Good	Save	-
228	10	Box Elder	Acer negundo	Good	Save	-
229	13	Box Elder	Acer negundo	Good	Save	-
230	7, 12	Box Elder	Acer negundo	Good	Save	-
231	14	Box Elder	Acer negundo	Good	Save	-
232	21	Box Elder	Acer negundo	Poor	Save	-
233	8	Box Elder	Acer negundo	Good	Save	-
234	12	Common Apple	Malus spp.	Good	Save	-
235	10	Box Elder	Acer negundo	Good	Save	-
236	11	Sugar Maple	Acer saccharum	Good	Save	-
237	10	Box Elder	Acer negundo	Poor	Save	-
238	10	Box Elder	Acer negundo	Good	Save	-
239	10	Box Elder	Acer negundo	Good	Save	-
240	14	Box Elder	Acer negundo	Good	Save	-
241	9	Box Elder	Acer negundo	Good	Save	-
242	12	Eastern Cottonwood	Populus deltoides	Good	Save	-
243	10, 13	Box Elder	Acer negundo	Poor	Save	-
244	10, 11	Box Elder	Acer negundo	Poor	Save	-
245	10	Box Elder	Acer negundo	Good	Save	-
246	11	Box Elder	Acer negundo	Good	Save	-
247	13	Black Willow	Salix nigra	Good	Save	-
248	10	Box Elder	Acer negundo	Good	Save	-
249	11	Box Elder	Acer negundo	Good	Save	-
250	11, 13	Box Elder	Acer negundo	Fair	Save	-
251	14, 15	Box Elder	Acer negundo	Good	Save	-
252	13	Box Elder	Acer negundo	Good	Save	-
253	16	Box Elder	Acer negundo	Good	Save	-
254	12	Box Elder	Acer negundo	Good	Save	-
255	14	Box Elder	Acer negundo	Good	Save	-
256	11	Box Elder	Acer negundo	Good	Save	-
257	22, 24	Eastern Cottonwood	Populus deltoides	Good	Save	-
258	11	Box Elder	Acer negundo	Good	Save	-
259	9	Box Elder	Acer negundo	Good	Save	-
260	11	Box Elder	Acer negundo	Good	Save	-
261	12	Box Elder	Acer negundo	Good	Save	-
262	10	Box Elder	Acer negundo	Good	Save	-
263	9	Box Elder	Acer negundo	Good	Save	-
264	12, 13	Box Elder	Acer negundo	Good	Save	-
265	8, 8.8	Box Elder	Acer negundo	Good	Save	-
266	11	Eastern Cottonwood	Populus deltoides	Good	Save	-

Tag No.	DBH	Common Name	Botanical Name	Condition	Remarks	Required Replacement
267	8	Box Elder	Acer negundo	Good	Save	-
268	9	Box Elder	Acer negundo	Good	Save	-
269	11	Box Elder	Acer negundo	Good	Save	-
270	11	Box Elder	Acer negundo	Good	Save	-
271	10	Box Elder	Acer negundo	Good	Save	-
272	10	Box Elder	Acer negundo	Good	Save	-
273	13	Box Elder	Acer negundo	Good	Save	-
274	10	Box Elder	Acer negundo	Good	Save	-
275	9	Box Elder	Acer negundo	Good	Save	-
276	15	Box Elder	Acer negundo	Good	Save	-
277	11	Box Elder	Acer negundo	Good	Save	-
278	12	Box Elder	Acer negundo	Good	Save	-
279	14	Box Elder	Acer negundo	Good	Save	-
280	15	Box Elder	Acer negundo	Good	Save	-
281	27	Box Elder	Acer negundo	Good	Save	-
282	21	Box Elder	Acer negundo	Good	Save	-
283	47	Eastern Cottonwood	Populus deltoides	Good	Save	-
284	10	Box Elder	Acer negundo	Good	Save	-
285	21	Box Elder	Acer negundo	Good	Save	-
286	11	Box Elder	Acer negundo	Good	Save	-
287	12	Box Elder	Acer negundo	Good	Save	-
288	17	Box Elder	Acer negundo	Good	Save	-
289	12	Box Elder	Acer negundo	Good	Save	-
290	15	Box Elder	Acer negundo	Good	Save	-
291	10	Box Elder	Acer negundo	Good	Save	-
292	8	Box Elder	Acer negundo	Good	Save	-
293	10	Box Elder	Acer negundo	Good	Save	-
294	10	Box Elder	Acer negundo	Good	Save	-
295	13	Box Elder	Acer negundo	Good	Save	-
296	17	Box Elder	Acer negundo	Good	Save	-
297	14	Box Elder	Acer negundo	Good	Save	-
298	12	Box Elder	Acer negundo	Good	Save	-
299	11	Box Elder	Acer negundo	Good	Save	-
300	17	Box Elder	Acer negundo	Good	Save	-
301	11	Box Elder	Acer negundo	Poor	Save	-
302	17	Box Elder	Acer negundo	Good	Save	-
303	17	Box Elder	Acer negundo	Good	Save	-
304	14	Box Elder	Acer negundo	Good	Save	-
305	10	Box Elder	Acer negundo	Poor	Save	-
306	12	Box Elder	Acer negundo	Good	Save	-
307	12	Box Elder	Acer negundo	Good	Save	-
308	14	Box Elder	Acer negundo	Good	Save	-
309	16, 14	Box Elder	Acer negundo	Good	Save	-
310	3, 10	Box Elder	Acer negundo	Good	Save	-
311	13	Box Elder	Acer negundo	Good	Save	-
312	10, 10	Box Elder	Acer negundo	Good	Save	-
313	4, 22	Box Elder	Acer negundo	Good	Save	-
314	15	Box Elder	Acer negundo	Good	Save	-
315	16	Box Elder	Acer negundo	Good	Save	-
316	14	Box Elder	Acer negundo	Good	Save	-
317	12	Box Elder	Acer negundo	Good	Save	-
318	19	Box Elder	Acer negundo	Poor	Save	-
319	11	Box Elder	Acer negundo	Poor	Save	-
320	10, 17	Box Elder	Acer negundo	Good	Save	-
321	17	Box Elder	Acer negundo	Good	Save	-
322	9	Box Elder	Acer negundo	Good	Save	-
323	12	Box Elder	Acer negundo	Good	Save	-
324	12	Box Elder	Acer negundo	Good	Save	-
325	11	Box Elder	Acer negundo	Good	Save	-
326	8	Box Elder	Acer negundo	Poor	Save	-
327	14	Box Elder	Acer negundo	Good	Save	-
328	1, 13, 16	Box Elder	Acer negundo	Good	Save	-
329	17	Box Elder	Acer negundo	Good	Save	-
330	11	Box Elder	Acer negundo	Good	Save	-
331	37	Eastern Cottonwood	Populus deltoides	Good	Save	-
332	15	Box Elder	Acer negundo	Good	Save	-
333	15	Box Elder	Acer negundo	Good	Save	-
334	8, 10	White Mulberry	Morus alba	Good	Save	-
335	11	Eastern Cottonwood	Populus deltoides	Good	Save	-
336	25	Eastern Cottonwood	Populus deltoides	Good	Save	-
337	8	Box Elder	Acer negundo	Good	Save	-
338	10	Box Elder	Acer negundo	Poor	Save	-
339	23	Eastern Cottonwood	Populus deltoides	Good	Save	-
340	18	Box Elder	Acer negundo	Good	Save	-
341	14	Box Elder	Acer negundo	Good	Save	-
342	13	Box Elder	Acer negundo	Good	Save	-
343	17	Box Elder	Acer negundo	Good	Save	-
344	17	Box Elder	Acer negundo	Good	Save	-
345	11	Box Elder	Acer negundo	Good	Save	-
346	20	Box Elder	Acer negundo	Good	Save	-
347	14	Box Elder	Acer negundo	Good	Save	-
348	17	Box Elder	Acer negundo	Good	Save	-
349	1, 15	Box Elder	Acer negundo	Good	Save	-
350	9	Box Elder	Acer negundo	Good	Save	-
351	14	Sugar Maple	Acer saccharum	Good	Save	-
352	13	Black Cherry	Prunus serotina	Good	Save	-
353	13	Black Cherry	Prunus serotina	Good	Save	-
354	11	Sugar Maple	Acer saccharum	Good	Save	-
355	11, 13	Sugar Maple	Acer saccharum	Good	Save	-
356	15	Sugar Maple	Acer saccharum	Good	Save	-
357	13	Black Cherry	Prunus serotina	Good	Save	-
358	9	Common Apple	Malus spp.	Good	Save	-
359	9	American Elm	Ulmus americana	Good	Save	-
360	15	Box Elder	Acer negundo	Good	Save	-
361	12	Box Elder	Acer negundo	Good	Save	-
362	12	Box Elder	Acer negundo	Good	Save	-
363	12	Box Elder	Acer negundo	Good	Save	-
364	15	Box Elder	Acer negundo	Good	Save	-
365	18	Box Elder	Acer negundo	Good	Save	-
366	12	Box Elder	Acer negundo	Good	Save	-
367	12, 12	Box Elder	Acer negundo	Good	Save	-
368	10	Box Elder	Acer negundo	Good	Save	-
369	10	Box Elder	Acer negundo	Good	Save	-
3						



NOTE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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



GREENTECH ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS

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CONSTRUCTION

51147 W. Pontiac Trail, Wixom, MI 48393
Phone: (248) 868-0700 Fax: (248) 668-0701



ADELL CENTER
CIRCULATION & SIGNAGE PLAN (OVERALL)

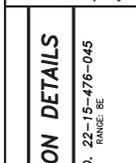
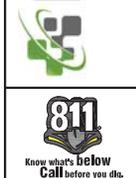
CLIENT: ADELL CENTER
REVISED: _____

43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
TOWNSHIP: IN
SECTION: 15
CITY OF NOVI, MICHIGAN

DATE: 7-19-2018
DRAWN BY: RMS/MW
CHECKED BY: DJL/AMF

SCALE: HORIZONTAL 1" = 60 FT
VERTICAL 1" = 30 FT

FBK: _____
30
17-334



UNDERGROUND DETECTION DETAILS

CLIENT: ADELL CENTER

43700 EMPOR CENTER DRIVE - PARCEL NO. 22-15-476-045
TOWNSHIP 15 N RANGE 06 E SECTION 15
OAKLAND COUNTY MICHIGAN

REVISED

DATE: 7-17-2018
DRAWN BY: RMS/MW
CHECKED BY: DJL/JMF

SCALE: HORIZ. 1" = 100' VERT. 1" = 10'

FBK: --

17-334

Project: Adell Center Novi - Bed A

Chamber Model - MC-3500
Units - Imperial
Number of Chambers - 16
Number of End Caps - 48
% Voids in the stone (porosity) - 48
Base of STONE Elevation - 902.50
Amount of Stone Above Chambers - 12
Amount of Stone Below Chambers - 8
Area of system - 9232 sq ft Min. Area - 7974 sq ft min. area

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Include Perimeter Stone in Calculations

Height of System (meters)	Incremental Single Chamfer (cubic feet)	Incremental Single End Cap (cubic feet)	Incremental Chambers (cubic feet)	Incremental End Cap (cubic feet)	Incremental Stone EC and Stone (cubic feet)	Incremental Ch. EC and Stone (cubic feet)	Cumulative System (cubic feet)	Elevation (feet)
66	0.00	0.00	307.73	0.00	307.73	29346.22	908.00	907.50
65	0.00	0.00	307.73	0.00	307.73	30044.49	907.50	907.50
64	0.00	0.00	307.73	0.00	307.73	30742.76	907.50	907.50
63	0.00	0.00	307.73	0.00	307.73	31441.03	907.50	907.50
62	0.00	0.00	307.73	0.00	307.73	32139.30	907.50	907.50
61	0.00	0.00	307.73	0.00	307.73	32837.57	907.50	907.50
60	0.00	0.00	307.73	0.00	307.73	33535.84	907.50	907.50
59	0.00	0.00	307.73	0.00	307.73	34234.11	907.50	907.50
58	0.00	0.00	307.73	0.00	307.73	34932.38	907.50	907.50
57	0.00	0.00	307.73	0.00	307.73	35630.65	907.50	907.50
56	0.00	0.00	307.73	0.00	307.73	36328.92	907.50	907.50
55	0.00	0.00	307.73	0.00	307.73	37027.19	907.50	907.50
54	0.00	0.00	307.73	0.00	307.73	37725.46	907.50	907.50
53	0.19	0.02	28.12	0.38	285.93	32643.46	906.92	906.92
52	0.29	0.04	44.09	0.80	289.86	33455.26	906.83	906.83
51	0.49	0.05	60.95	0.92	293.18	34468.48	906.75	906.75
50	0.69	0.07	77.81	1.08	286.07	35272.23	906.67	906.67
49	1.09	0.09	154.24	1.41	285.47	40113.26	906.58	906.58
48	1.49	0.11	187.63	1.92	282.48	42122.22	906.50	906.50
47	1.42	0.13	213.33	2.02	229.99	43856	904.42	904.42
46	1.57	0.14	236.97	2.31	232.40	45070.00	903.33	903.33
45	1.71	0.16	256.07	2.61	204.26	46284	902.25	902.25
44	1.83	0.18	274.27	2.91	186.86	47404	901.16	901.16
43	1.96	0.20	290.87	3.21	162.18	48406	900.08	900.08
42	2.04	0.22	306.12	3.49	183.89	49300	900.00	900.00
41	2.11	0.23	320.20	3.76	178.15	50211	900.00	900.00
40	2.22	0.25	333.63	4.01	172.88	51032	900.00	900.00
39	2.31	0.27	346.02	4.25	167.83	51789	900.00	900.00
38	2.38	0.28	357.72	4.48	162.95	52586	900.00	900.00
37	2.46	0.29	368.88	4.70	158.31	53317	900.00	900.00
36	2.50	0.31	378.23	4.93	153.82	54000	900.00	900.00
35	2.59	0.32	386.06	5.14	150.05	54645	900.00	900.00
34	2.68	0.33	394.41	5.35	146.23	55259	900.00	900.00
33	2.72	0.36	407.27	5.55	142.61	55842	900.00	900.00
32	2.77	0.38	415.69	5.76	139.15	56400	900.00	900.00
31	2.82	0.37	423.70	5.96	135.87	56935	900.00	900.00
30	2.88	0.38	431.32	6.15	132.75	57450	900.00	900.00
29	2.92	0.40	438.82	6.34	129.75	57945	900.00	900.00
28	2.97	0.41	446.48	6.52	126.83	58420	900.00	900.00
27	3.01	0.42	451.87	6.71	124.31	58877	900.00	900.00
26	3.05	0.43	457.99	6.87	121.79	59318	900.00	900.00
25	3.09	0.44	464.14	7.05	119.26	59745	900.00	900.00
24	3.13	0.45	469.58	7.21	117.09	60158	900.00	900.00
23	3.17	0.46	474.88	7.37	114.84	60557	900.00	900.00
22	3.20	0.47	479.92	7.53	112.75	60940	900.00	900.00
21	3.23	0.48	484.67	7.68	110.76	61304	900.00	900.00
20	3.28	0.49	489.21	7.83	108.92	61650	900.00	900.00
19	3.29	0.50	493.54	7.97	107.13	62008	900.00	900.00
18	3.32	0.51	497.69	8.10	105.41	62324	900.00	900.00
17	3.35	0.51	501.62	8.23	103.78	62640	900.00	900.00
16	3.37	0.52	505.29	8.36	102.27	62953	900.00	900.00
15	3.39	0.53	508.88	8.47	100.79	63264	900.00	900.00
14	3.41	0.54	512.18	8.58	99.43	63572	900.00	900.00
13	3.44	0.54	515.56	8.68	98.04	63878	900.00	900.00
12	3.46	0.55	518.60	8.78	96.80	64182	900.00	900.00
11	3.48	0.56	521.80	8.88	95.65	64484	900.00	900.00
10	3.51	0.56	525.76	8.97	94.56	64784	900.00	900.00
9	0.00	0.00	0.00	0.00	307.73	2769.00	903.28	903.28
8	0.00	0.00	0.00	0.00	307.73	2461.87	903.17	903.17
7	0.00	0.00	0.00	0.00	307.73	2154.73	903.08	903.08
6	0.00	0.00	0.00	0.00	307.73	1847.60	903.00	903.00
5	0.00	0.00	0.00	0.00	307.73	1540.46	902.92	902.92
4	0.00	0.00	0.00	0.00	307.73	1233.33	902.84	902.84
3	0.00	0.00	0.00	0.00	307.73	926.20	902.75	902.75
2	0.00	0.00	0.00	0.00	307.73	619.07	902.67	902.67
1	0.00	0.00	0.00	0.00	307.73	311.94	902.58	902.58

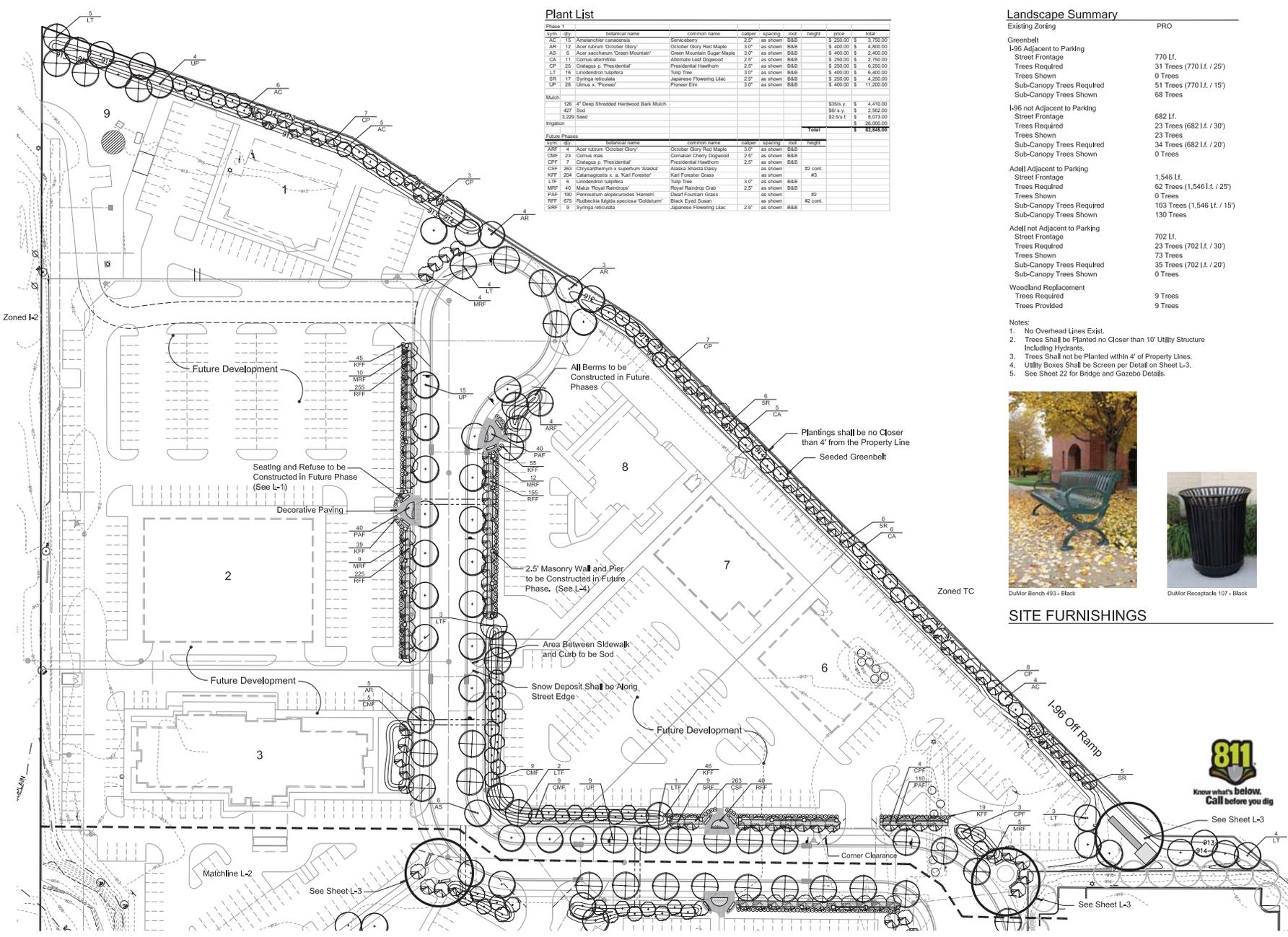
Project: Adell Center Novi - Bed B

Chamber Model - MC-3500
Units - Imperial
Number of Chambers - 16
Number of End Caps - 48
% Voids in the stone (porosity) - 48
Base of STONE Elevation - 902.50
Amount of Stone Above Chambers - 12
Amount of Stone Below Chambers - 8
Area of system - 6372 sq ft Min. Area - 5611 sq ft min. area

Stormtech
A Division of **IMVDS**

Include Perimeter Stone in Calculations

Height of System (meters)	Incremental Single Chamfer (cubic feet)	Incremental Single End Cap (cubic feet)	Incremental Chambers (cubic feet)	Incremental End Cap (cubic feet)	Incremental Stone EC and Stone (cubic feet)	Incremental Ch. EC and Stone (cubic feet)	Cumulative System (cubic feet)	Elevation (feet)	
66	0.00	0.00	307.73	0.00	307.73	21022.88	908.35	908.35	
65	0.00	0.00	307.73	0.00	307.73	21721.15	908.27	908.27	
64	0.00	0.00	307.73	0.00	307.73	22419.42	908.19	908.19	
63	0.00	0.00	307.73	0.00	307.73	23117.69	908.11	908.11	
62	0.00	0.00	307.73	0.00	307.73	23815.96	908.02	908.02	
61	0.00	0.00	307.73	0.00	307.73	24514.23	907.94	907.94	
60	0.00	0.00	307.73	0.00	307.73	25212.50	907.85	907.85	
59	0.00	0.00	307.73	0.00	307.73	25910.77	907.77	907.77	
58	0.00	0.00	307.73	0.00	307.73	26609.04	907.68	907.68	
57	0.00	0.00	307.73	0.00	307.73	27307.31	907.60	907.60	
56	0.00	0.00	307.73	0.00	307.73	28005.58	907.52	907.52	
55	0.00	0.00	307.73	0.00	307.73	28703.85	907.43	907.43	
54	0.00	0.00	307.73	0.00	307.73	29402.12	907.35	907.35	
53	0.19	0.02	20.19	0.38	204.17	224.74	18257.88	907.27	907.27
52	0.29	0.04	30.57	0.80	198.93	231.10	18033.12	907.18	907.18
51	0.40	0.05	41.98	0.92	196.28	238.08	17620.21	907.10	907.10
50	0.69	0.07	71.47	1.08	183.38	255.93	17583.93	907.02	907.02
49	1.03	0.09	106.94	1.41	169.06	277.41	17306.00	906.93	906.93
48	1.35	0.11	139.63	1.75	150.73	291.22	17030.69	906.85	906.85
47	1.42	0.13	147.91	2.02	152.43	300.28	16758.19	906.77	906.77
46	1.57	0.14	165.61	2.31	145.61	311.05	16483.68	906.68	906.68
45	1.71	0.16	177.54	2.61	140.34	320.49	16214.80	906.60	906.60
44	1.83	0.18	190.16	2.91	135.17	328.54	15954.39	906.52	906.52
43	1.96	0.20	203.65	3.21	130.51	335.54	15701.16	906.43	906.43
42	2.04	0.22	212.25	3.49	126.10	341.54	15450.00	906.35	906.35
41	2.11	0.23	222.01	3.76	122.09	347.66	15200.85	906.27	906.27
40	2.22	0.25	231.32	4.01	118.27	353.00	14950.18	906.18	906.18
39	2.31	0.27	239.91	4.25	114.74	358.69	14707.81	906.10	906.10
38	2.38	0.28	248.02	4.48	111.40	363.80	14473.22	906.02	906.02
37	2.46	0.29	255.76	4.70	108.22	368.87	14246.11	905.93	905.93
36	2.50	0.31	263.23	4.93	105.26	373.11	14026.16	905.85	905.85
35	2.59	0.32	269.75	5.14	102.44	377.33	13813.03	905.77	905.77
34	2.68	0.33	276.23	5.35	99.77	381.35	13606.20	905.68	905.68
33	2.72	0.35	282.37	5.55	97.23	385.15	13405.16	905.60	905.60
32	2.77	0.36	288.21	5.76	94.81	388.78	13209.20	905.52	905.52
31	2.82	0.37	293.76	5.96	92.41	392.23	13018.41	905.43	905.43
30	2.88	0.38	299.05	6.15	90.12	395.52	12832.16	905.35	905.35
29	2.92	0.40	304.11	6.34	88.22	398.67	12650.85	905.27	905.27
28	2.97	0.41	308.87	6.52	86.24	401.63	12474.99	905.18	905.18
27	3.01	0.42	313.29	6.71	84.40	404.40	12304.00	905.10	905.10
26	3.05	0.43	317.54	6.87	82.63	407.05	12138.49	905.02	905.02
25	3.09	0.44	321.50	7.05	81.00	409.51	12000.00	904.93	904.93
24	3.13	0.45	325.28	7.21	79.28	412.07	11867.21	904.85	904.85
23	3.17	0.46	328.88	7.37	77.76	414.58	11739.67	904.77	904.77
22	3.20	0.47	332.74	7.53	75.29	416.98	11616.80	904.68	904.68
21	3.23	0.48	336.04	7.68	74.91	419.63	11498.20	904.60	904.60
20	3.28	0.49	338.99	7.83	73.59	422.01			



Plant List

Phase	Symbol	Botanical Name	Common Name	Calendar	Spacing	Code	Height	Price	Total
Phase 1	AS	Araucarioxiphetus	Serviceweed	2.5'	as shown	B&B	8'	\$ 250.00	\$ 3,750.00
	AR	Acer rubrum 'October Glory'	October Glory Red Maple	3.0'	as shown	B&B	8'	\$ 400.00	\$ 4,800.00
	AS	Acer saccharum 'Green Mountain'	Green Mountain Sugar Maple	3.0'	as shown	B&B	8'	\$ 400.00	\$ 2,400.00
	CA	Cornus alternifolia	Alternate Leaf Dogwood	2.5'	as shown	B&B	8'	\$ 250.00	\$ 2,750.00
	CP	Camelia s. 'Presidential'	Presidential Hawthorn	2.5'	as shown	B&B	8'	\$ 250.00	\$ 6,250.00
	LT	Liriodendron tulipifera	Tulip Tree	3.0'	as shown	B&B	8'	\$ 400.00	\$ 6,400.00
	SR	Syringa reticulata	Japanese Flowering Lilac	2.5'	as shown	B&B	8'	\$ 250.00	\$ 4,250.00
	UP	Ulmus x. 'Pioneer'	Pioneer Elm	3.0'	as shown	B&B	8'	\$ 400.00	\$ 11,200.00
	Mulch	126	4" Deep Shredded Hardwood Bark Mulch					\$305/y.	\$ 4,410.00
	407	Soil						\$84/y.	\$ 2,460.00
3,229	Seed						\$2.93/l.	\$ 8,073.00	
								\$ 26,000.00	
									\$ 12,648.00

Phase	Symbol	Botanical Name	Common Name	Calendar	Spacing	Code	Height
Phase 1	AR	Acer rubrum 'October Glory'	October Glory Red Maple	3.0'	as shown	B&B	8'
	CMF	Cornus meae	Common Cherry Dogwood	2.5'	as shown	B&B	8'
	CP	Crataegus s. 'Presidential'	Presidential Hawthorn	2.5'	as shown	B&B	8'
	CSF	Chrysanthemum s. 'spectabile Alaska'	Alaska Shasta Daisy		as shown	#2	cont.
	KFF	Kalmia latifolia	Kalm's Flowering Shrub	3.0'	as shown	#3	
	LT	Liriodendron tulipifera	Tulip Tree	3.0'	as shown	B&B	8'
	MRF	Morus 'Royal Raindrops'	Royal Raindrop Crab	2.5'	as shown	B&B	8'
	PAF	Panicum sp. 'alpicornis Handel'	Dean's Fountain Grass		as shown	#2	cont.
	RFF	Rudbeckia hirta ssp. 'Goldsturm'	Black-eyed Susan		as shown	#2	cont.
	SRF	Syringa reticulata	Japanese Flowering Lilac	2.5'	as shown	B&B	8'

Landscape Summary

Existing Zoning	PRO
Greenbelt	
1-96 Adjacent to Parking Street Frontage	770 Lf.
Trees Required	31 Trees (770 Lf. / 25')
Trees Shown	0 Trees
Sub-Canopy Trees Required	51 Trees (770 Lf. / 15')
Sub-Canopy Trees Shown	68 Trees
1-96 not Adjacent to Parking Street Frontage	682 Lf.
Trees Required	23 Trees (682 Lf. / 30')
Trees Shown	23 Trees
Sub-Canopy Trees Required	34 Trees (682 Lf. / 20')
Sub-Canopy Trees Shown	0 Trees
Adell Adjacent to Parking Street Frontage	1,546 Lf.
Trees Required	62 Trees (1,546 Lf. / 25')
Trees Shown	0 Trees
Sub-Canopy Trees Required	103 Trees (1,546 Lf. / 15')
Sub-Canopy Trees Shown	130 Trees
Adell not Adjacent to Parking Street Frontage	702 Lf.
Trees Required	23 Trees (702 Lf. / 30')
Trees Shown	73 Trees
Sub-Canopy Trees Required	35 Trees (702 Lf. / 20')
Sub-Canopy Trees Shown	0 Trees
Woodland Replacement	
Trees Required	9 Trees
Trees Provided	9 Trees

- Notes:
1. No Overhead Lines Exist.
 2. Trees Shall be Planted no Closer than 10' Utility Structure Including Hydrants.
 3. Trees Shall not be Planted within 4' of Property Lines.
 4. Utility Boxes Shall be Screen per Detail on Sheet L-3.
 5. See Sheet 22 for Bridge and Gazebo Details.



SITE FURNISHINGS

ALLEN DESIGN
 LAND PLANNING / LANDSCAPE ARCHITECTURE
 857 CARPENTER + NORTHVILLE, MI 48167
 248.487.4668 + Fax 248.347.5589
 Email: jca@alldesign.com



Seal:



Title:
Landscape Plan Phase 1

Project:

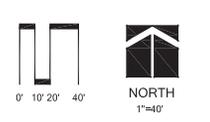
**Adell Center
 Novi, Michigan**

Prepared for:
 Orville Properties, LLC
 20733 West Ten Mile
 Southfield, Michigan 48075

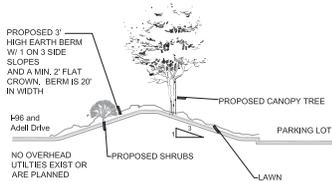
Revision:	Issued:
Submission	April 16, 2018
Revised	April 30, 2018
Revised	May 30, 2018
Revised	June 5, 2018
Revised	June 29, 2018
Revised	July 19, 2018

Job Number:
 17-058

Drawn By: jca Checked By: jca



Sheet No.



Plant List

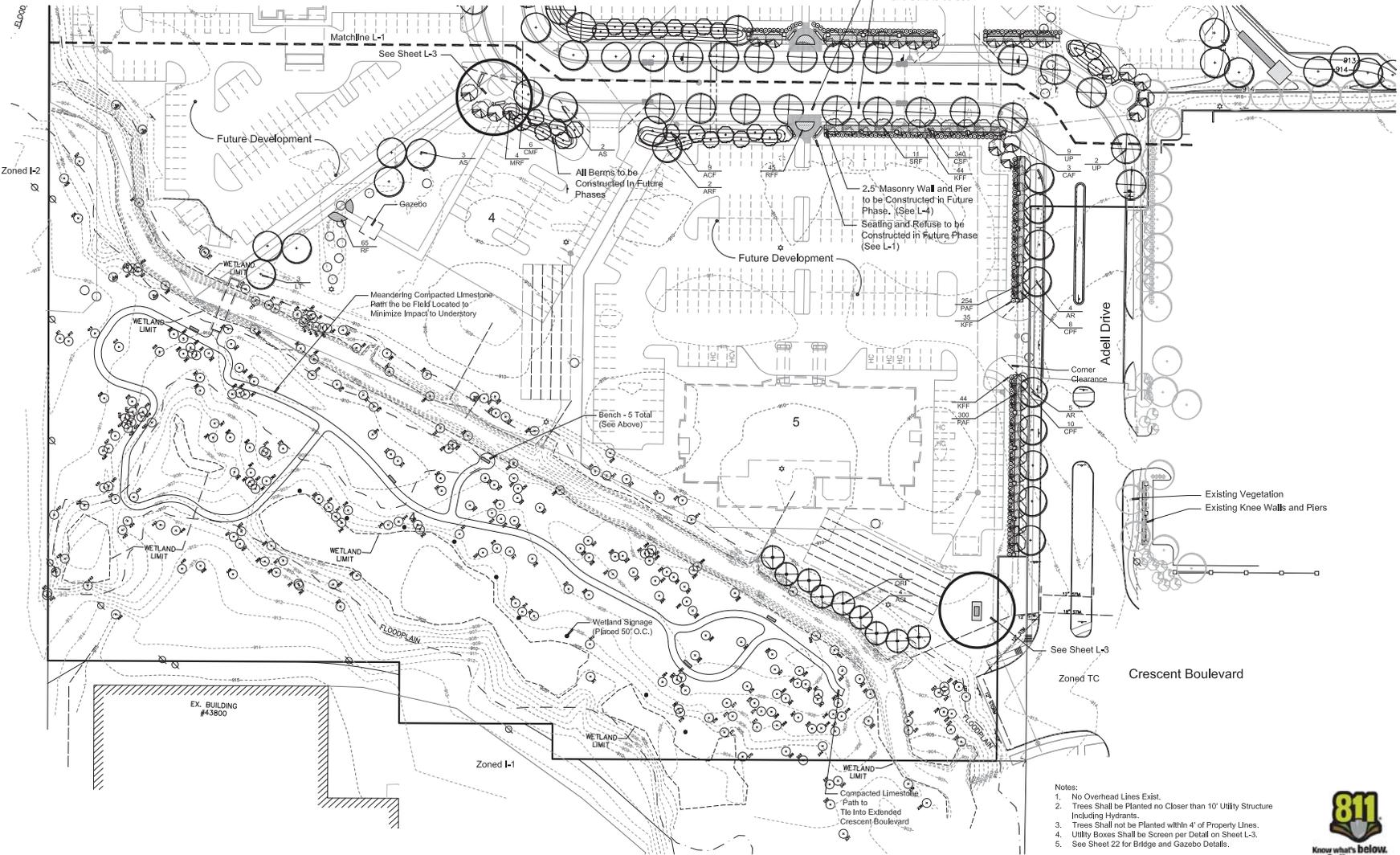
Plant Name	Quantity	Plant Code	Plant Size	Plant Type	Plant Price					
1. Acer rubrum 'October Glory'	10	AS	10"	Tree	\$400.00	\$4,000.00				
2. Acer saccharum 'Green Mountain'	10	AS	10"	Tree	\$400.00	\$4,000.00				
3. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
4. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
5. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
6. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
7. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
8. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
9. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
10. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
11. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
12. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
13. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
14. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
15. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
16. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
17. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
18. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
19. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
20. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
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25. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
26. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
27. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
28. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
29. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
30. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
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32. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
33. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
34. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
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99. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				
100. Thuja occidentalis 'Green Mound'	10	AS	10"	Tree	\$400.00	\$4,000.00				

BERM CROSS SECTION
Horizontal Scale: 1"=10'

WETLAND SIGNAGE

NATURE PARK FURNITURE

Snow Deposit Shall be Along Street Edge Area Between Sidewalk and Curb to be Sod

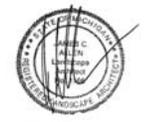


- Notes:
1. No Overhead Lines Exist.
 2. Trees Shall be Planted no Closer than 10' Utility Structure Including Hydrants.
 3. Trees Shall not be Planted within 4' of Property Lines.
 4. Utility Boxes Shall be Screen per Detail on Sheet L-3.
 5. See Sheet 22 for Bridge and Gazebo Details.

ALLEN DESIGN
LAND PLANNING / LANDSCAPE ARCHITECTURE
857 CARPENTER + NORTHVILLE, MI 48167
248.487.4868 + Fax 248.347.0589
Email: jason@alldesign.com



Seal:



Title:
Landscape Plan Phase 1

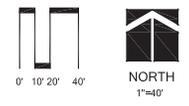
Project:
Adell Center Novi, Michigan

Prepared for:
Orville Properties, LLC
20733 West Ten Mile
Southfield, Michigan 48075

Revision:	Issued:
Submission	April 16, 2018
Revised	April 30, 2018
Revised	May 30, 2018
Revised	June 5, 2018
Revised	June 29, 2018
Revised	July 19, 2018

Job Number:
17-058

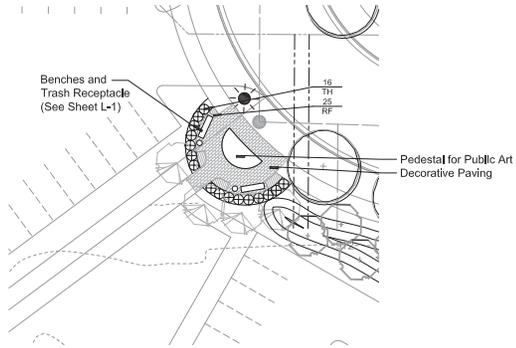
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Checked By: jca



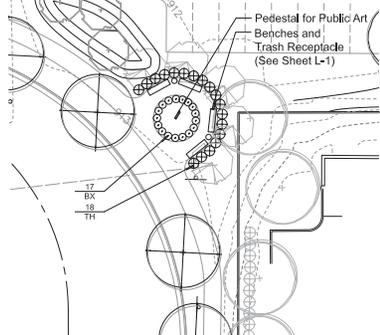
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Focal Area A



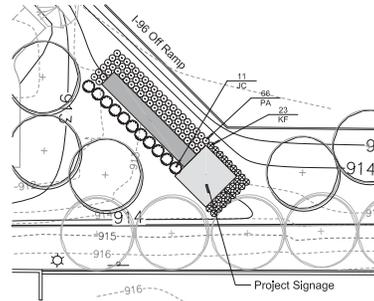
Focal Area B



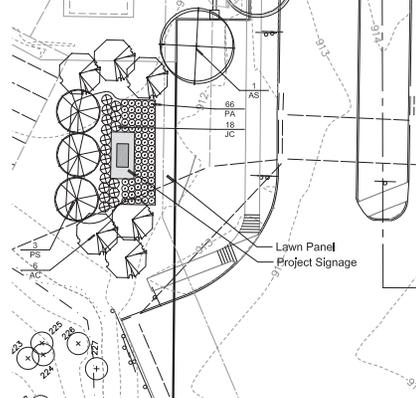
Plant List

sym.	qty.	botanical name	common name	caliper	spacing	root	height	price	total
AC	6	<i>Ametanther canadensis</i>	Servicetree	2.5"	as shown	B&B		\$ 250.00	\$ 1,500.00
AS	1	<i>Acer saccharum</i> 'Green Mountain'	Green Mountain Sugar Maple	3.0"	as shown	B&B		\$ 400.00	\$ 400.00
BX	17	<i>Buxus x. Green Velvet</i>	Green Velvet Boxwood		24"	as shown		\$ 50.00	\$ 850.00
JC	20	<i>Juniperus ch. 'Keteleer'</i>	Keteleer Juniper		as shown	B&B	8'	\$ 50.00	\$ 1,450.00
KF	23	<i>Calamagrostis v. a. Karl Foerster</i>	Karl Foerster Grass		as shown	#3		\$ 15.00	\$ 345.00
PA	66	<i>Pennisetum alopecuroides 'Hamelin'</i>	Dwarf Fountain Grass		as shown	#2		\$ 15.00	\$ 990.00
PS	3	<i>Pinus strobus</i>	White Pine		as shown	B&B	12'-14'	\$ 400.00	\$ 1,200.00
RF	25	<i>Rudbeckia hirta speciosa 'Goldsturm'</i>	Black Eyed Susan		as shown	#2 cont.		\$ 15.00	\$ 375.00
TH	34	<i>Taxus - Media 'Hicksii'</i>	Hicks Juniper		as shown	B&B	36'-40'	\$ 50.00	\$ 1,700.00
Mulch	68	4" Deep Shredded Hardwood Bark Mulch					335 s.y.	\$ 2,380.00	
	488	Sod (s.y.)					80 s.y.	\$ 2,436.00	
Irrigation								\$ 8,000.00	
								Total	\$ 21,626.00

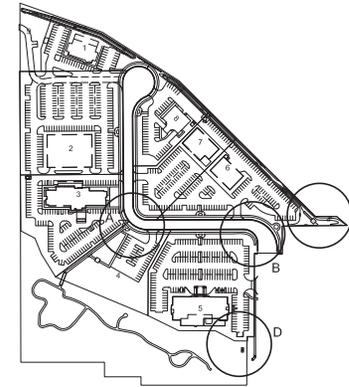
Sign Area C



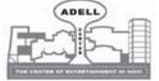
Sign Area D



Key Map



ALLEN DESIGN
LAND PLANNING / LANDSCAPE ARCHITECTURE
557 CARPENTER • NORTHVILLE, MI 48167
248.487.4668 • Fax 248.347.0589
Email: jon@alldesignmi.com



Seal:



Title:
**Landscape Plan
Phase 1**

Project:

**Adell Center
Novi, Michigan**

Prepared for:
Orville Properties, LLC
51147 West Ten Mile
Southfield, Michigan 48075

Revision:	Issued:
Submission	April 16, 2018
Revised	April 30, 2018
Revised	May 30, 2018
Revised	June 5, 2018
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Revised	July 19, 2018

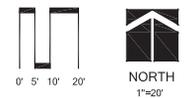
Job Number:

17-058

Drawn By: _____ Checked By: _____

jca

jca



Sheet No. _____



L-3

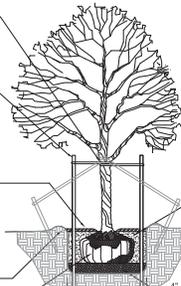
NOTE:
GUY DECIDUOUS TREES ABOVE 3" CAL. STAKE DECIDUOUS TREES BELOW 3" CAL.

STAKE TREES AT FIRST BRANCH USING 2-3" WIDE BELT-LIKE NYLON OR PLASTIC STRAPS. ALLOW FOR SOME MINIMAL FLEXING OF THE TREE. REMOVE AFTER ONE YEAR.

2" X 2" HARDWOOD STAKES, MIN. 36" ABOVE GROUND FOR UPRIGHT, 18" IF ANGLED. DRIVE STAKES A MIN. 18" INTO UNDISTURBED GROUND OUTSIDE ROOTBALL. REMOVE AFTER ONE YEAR.

MULCH 4" DEPTH WITH SHREDDED HARDWOOD BARK, NATURAL IN COLOR. LEAVE 3" CIRCLE OF BARE SOIL AT BASE OF TREE TRUNK. PULL ANY ROOT BALL DIRT EXTENDING ABOVE THE ROOT FLARE AWAY FROM THE TRUNK SO THE ROOT FLARE IS EXPOSED TO AIR.

MOUND EARTH TO FORM SAUCER. REMOVE ALL NON-Biodegradable MATERIALS COMPLETELY FROM THE ROOTBALL. CUT DOWN WIRE BASKET AND FOLD DOWN BURLAP FROM TOP 1/2 OF THE ROOTBALL.



NOTE:
TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY OR SLIGHTLY HIGHER THAN FINISH GRADE UP TO 18" ABOVE GRADE, IF DIRECTED BY LANDSCAPE ARCHITECT FOR HEAVY CLAY SOIL AREAS.

STAKE TREES AT FIRST BRANCH USING 2-3" WIDE BELT-LIKE NYLON OR PLASTIC STRAPS. ALLOW FOR SOME MINIMAL FLEXING OF THE TREE. REMOVE AFTER ONE YEAR.

DO NOT PRUNE TERMINAL LEADER. PRUNE ONLY DEAD OR BROKEN BRANCHES.

REMOVE ALL TAGS, STRING, PLASTICS AND OTHER MATERIALS THAT ARE UNSIGHTLY OR COULD CAUSE GIRDLING.

PLANTING MIXTURE: AMEND SOILS PER SITE CONDITIONS AND REQUIREMENTS OF THE PLANT MATERIAL. REMOVE EXCESS DIRT FROM ROOT FLARE.

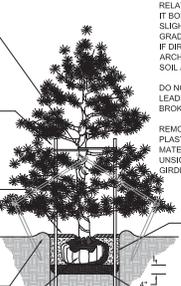
NOTE:
GUY EVERGREEN TREES ABOVE 12" HEIGHT, STAKE EVERGREEN TREES BELOW 12" HEIGHT.

STAKE TREES AT FIRST BRANCH USING 2-3" WIDE BELT-LIKE NYLON OR PLASTIC STRAPS. ALLOW FOR SOME MINIMAL FLEXING OF THE TREE. REMOVE AFTER ONE YEAR.

DO NOT PRUNE TERMINAL LEADER. PRUNE ONLY DEAD OR BROKEN BRANCHES.

2" X 2" HARDWOOD STAKES, MIN. 36" ABOVE GROUND FOR UPRIGHT, 18" IF ANGLED. DRIVE STAKES A MIN. 18" INTO UNDISTURBED GROUND OUTSIDE ROOTBALL. REMOVE AFTER ONE YEAR.

MULCH 4" DEPTH WITH SHREDDED HARDWOOD BARK, NATURAL IN COLOR. LEAVE 3" CIRCLE OF BARE SOIL AT BASE OF TREE TRUNK. PULL ANY ROOT BALL DIRT EXTENDING ABOVE THE ROOT FLARE AWAY FROM THE TRUNK SO THE ROOT FLARE IS EXPOSED TO AIR.



NOTE:
TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY OR SLIGHTLY HIGHER THAN FINISH GRADE UP TO 18" ABOVE GRADE, IF DIRECTED BY LANDSCAPE ARCHITECT FOR HEAVY CLAY SOIL AREAS.

STAKE TREES AT FIRST BRANCH USING 2-3" WIDE BELT-LIKE NYLON OR PLASTIC STRAPS. ALLOW FOR SOME MINIMAL FLEXING OF THE TREE. REMOVE AFTER ONE YEAR.

DO NOT PRUNE TERMINAL LEADER. PRUNE ONLY DEAD OR BROKEN BRANCHES.

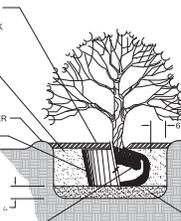
REMOVE ALL TAGS, STRING, PLASTICS AND OTHER MATERIALS THAT ARE UNSIGHTLY OR COULD CAUSE GIRDLING.

PLANTING MIXTURE: AMEND SOILS PER SITE CONDITIONS AND REQUIREMENTS OF THE PLANT MATERIAL. REMOVE EXCESS DIRT FROM ROOT FLARE.

MULCH 3" DEPTH WITH SHREDDED HARDWOOD BARK, NATURAL IN COLOR. PULL BACK 3" FROM TRUNK.

REMOVE COLLAR OF ALL FIBER POTS. POTS SHALL BE CUT TO PROVIDE FOR ROOT GROWTH. REMOVE ALL NONORGANIC CONTAINERS COMPLETELY.

REMOVE ALL NON-Biodegradable MATERIALS COMPLETELY FROM THE ROOTBALL. FOLD DOWN BURLAP FROM TOP 1/2 OF THE ROOTBALL.



NOTE:
TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY OR SLIGHTLY HIGHER THAN FINISH GRADE UP TO 4" ABOVE GRADE, IF DIRECTED BY LANDSCAPE ARCHITECT FOR HEAVY CLAY SOIL AREAS.

FRUNE ONLY DEAD OR BROKEN BRANCHES.

REMOVE ALL TAGS, STRING, PLASTICS AND OTHER MATERIALS THAT ARE UNSIGHTLY OR COULD CAUSE GIRDLING.

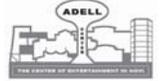
SCARIFY SUBGRADE AND PLANTING PIT SIDES. RECOMPACT BASE OF TO 4" DEPTH.

DECIDUOUS TREE PLANTING DETAIL

EVERGREEN TREE PLANTING DETAIL

SHRUB PLANTING DETAIL

NOT TO SCALE



Seal:



Title:
Landscape Details
Phase 1

Project:

Adell Center
Novi, Michigan

Prepared for:
Orville Properties, LLC
20733 West Ten Mile
Southfield, Michigan 48075

Revision:	Issued:
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Revised	June 29, 2018
Revised	July 19, 2018

Job Number:

17-058

Drawn By: Checked By:

jaa jaa

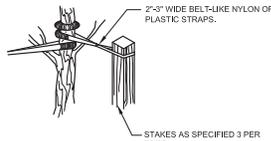
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STAKING/GUYING LOCATION

NOTE:
ORIENT STAKING/GUYING TO PREVAILING WINDS, EXCEPT ON SLOPES GREATER THAN 3:1. ORIENT TO SLOPE.
USE SAME STAKING/GUYING ORIENTATION FOR ALL PLANTS WITHIN EACH GROUPING OR AREA.

2-3" WIDE BELT-LIKE NYLON OR PLASTIC STRAPS.



GUYING DETAIL

STAKING DETAIL

TREE STAKING DETAIL

Not to scale

NOTES:

PRUNE AS SPECIFIED. STAKE 3 LARGEST STEMS. IF TREE HAS MORE THAN 3 LEADERS, SET TREE STAKES VERTICAL AND AT SAME HEIGHT.

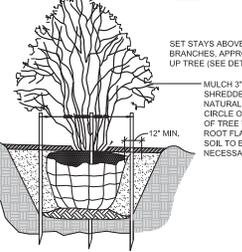
MOUND TO FORM SAUCER

REMOVE ALL NON-Biodegradable MATERIALS COMPLETELY FROM THE ROOTBALL. CUT DOWN WIRE BASKET AND FOLD DOWN BURLAP FROM TOP 1/2 OF THE ROOTBALL. PLANT MIXTURE AS SPECIFIED.

SCARIFY SIDES TO 4" DEPTH AND RECOMPACT

STAKES TO EXTEND 12" BELOW TREE FIT IN UNDISTURBED GROUND

3 STAKES PER TREE MAX. LACE STRAPS TOGETHER WITH SINGLE STAY



SET STAYS ABOVE FIRST BRANCHES, APPROX. HALFWAY UP TREE (SEE DETAIL)

MULCH 3" DEPTH WITH SHREDDED HARDWOOD BARK, NATURAL IN COLOR. LEAVE 3" CIRCLE OF BARE SOIL AT BASE OF TREE TRUNK TO EXPOSE ROOT FLARE. REMOVE EXCESS SOIL TO EXPOSE ROOT FLARE IF NECESSARY.

MULTI-STEM TREE PLANTING DETAIL

Not to scale

CITY OF NOVI NOTES

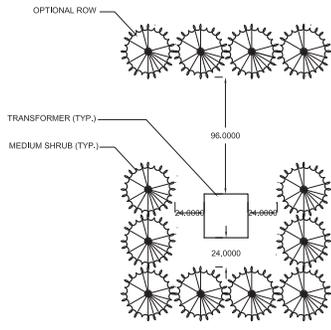
- All landscape islands shall be backfilled with a sand mixture to facilitate drainage.
- All proposed landscape islands shall be curbed.
- All landscape areas shall be irrigated.
- Overhead utility lines and poles to be relocated as directed by utility company of record.
- Evergreen and canopy trees shall be planted a minimum of 10' from a building, and manhole, 15' from overhead wires.
- All plant material shall be guaranteed for two (2) years after City Approval and shall be installed and maintained according to City of Novi standards. Replace Falling Material within 3 Months of Discovering the Need for Replacement. One cullivation per month shall occur in July-August.
- All proposed street trees shall be planted a minimum of 4' from both the back of curb and proposed walks.
- All tree and shrub planting beds shall be mulched with shredded hardwood bark, spread to minimum depth of 4". All lawn area trees shall have a 4" diameter circle of shredded hardwood mulch 3' away from trunk. All perennial, annual and ground cover beds shall receive 2" of dark colored bark mulch as indicated on the plant list. Mulch is to be free from debris and foreign material, and shall contain no pieces of inconsistent size.
- All Substitutions or Deviations from the Landscape Plan Must be Approved in Writing by the City of Novi Prior to their Installation.

NOTES:
THE APPROXIMATE DATE OF INSTALLATION FOR THE PROPOSED LANDSCAPE WILL BE BETWEEN MARCH/NOVEMBER 2019.

THE SITE WILL BE MAINTAINED BY THE DEVELOPER IN ACCORDANCE WITH THE STANDARDS SET FORTH IN THE CITY OF NOVI ZONING ORDINANCE. THIS INCLUDES WEEDING AND WATERING AS REQUIRED BY NORMAL MAINTENANCE PRACTICES.

DEVELOPER SHALL BE RESPONSIBLE FOR REPLACING ANY TREES WITHIN UTILITY EASEMENTS THAT ARE DAMAGED THROUGH NORMAL MAINTENANCE OR REPAIRS.

PLANT MATERIALS SHALL BE GUARANTEED FOR 2 YEARS AND SHALL BE MAINTAINED IN ACCORDANCE WITH CITY ORDINANCES. WARRANTY PERIOD BEGINS AT THE TIME OF CITY APPROVAL. WATERING AS NECESSARY SHALL OCCUR DURING THE WARRANTY PERIOD.



TRANSFORMER SCREENING DETAIL

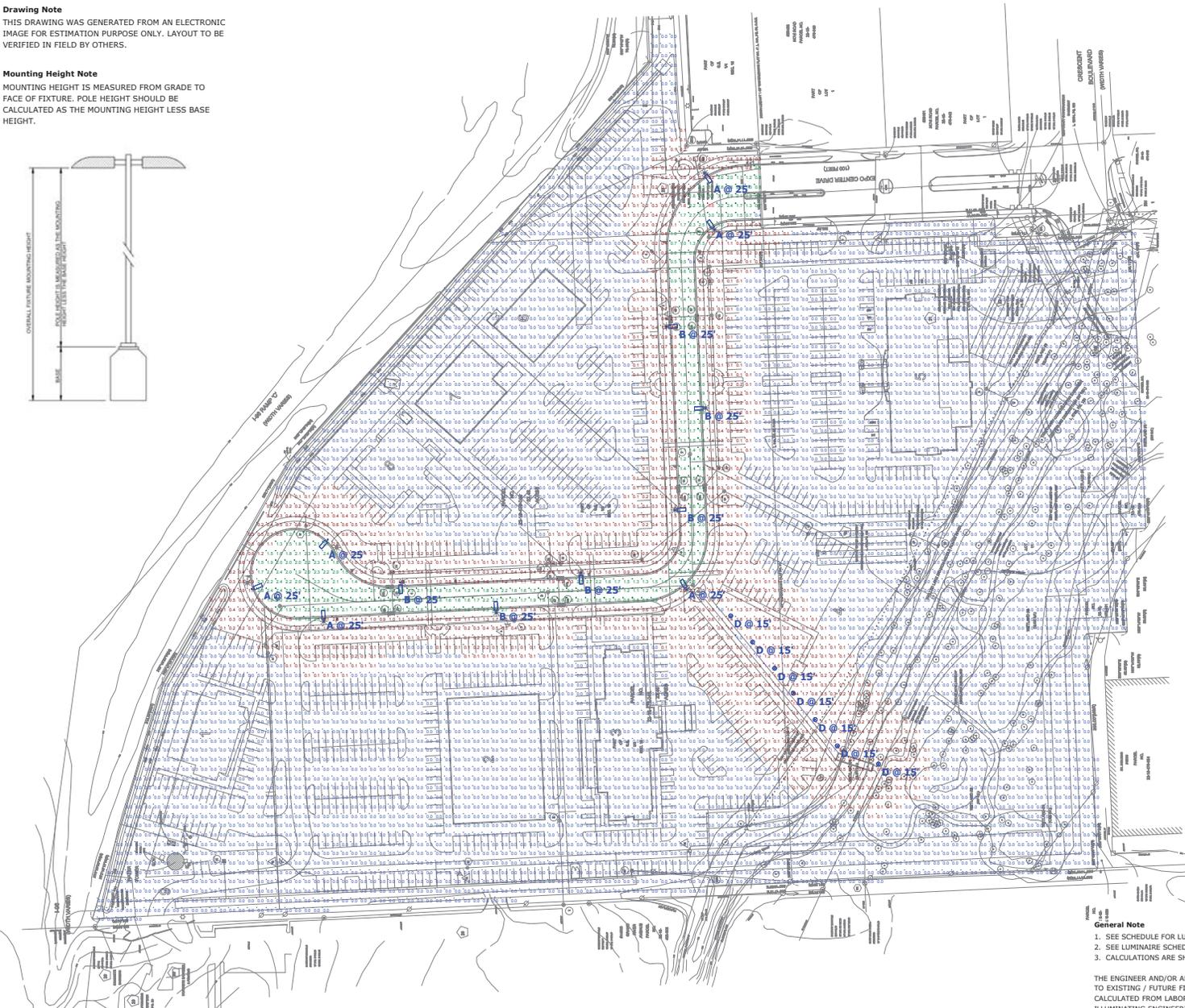
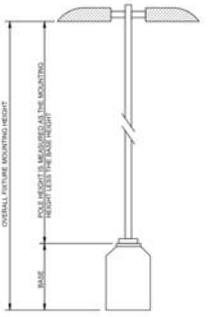
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WALL DETAIL

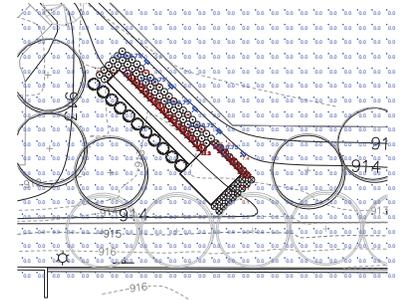
1-1/2" = 1'-0"

Drawing Note
THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

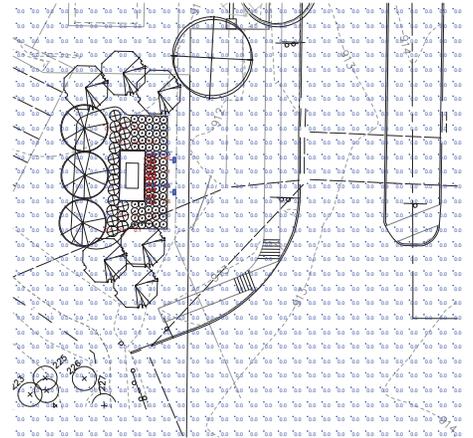
Mounting Height Note
MOUNTING HEIGHT IS MEASURED FROM GRADE TO FACE OF FIXTURE. POLE HEIGHT SHOULD BE CALCULATED AS THE MOUNTING HEIGHT LESS BASE HEIGHT.



Plan View
Scale - 1" = 60ft



Plan View - SIGN C
Scale - 1" = 20ft



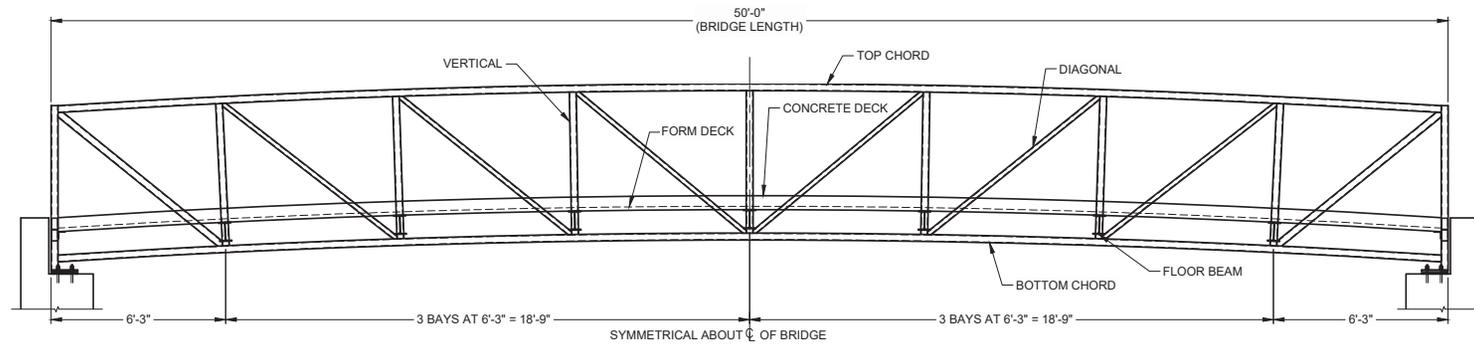
Plan View - SIGN D
Scale - 1" = 20ft

Statistics							
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
COMBINED SIGN C		20.8 fc	77.7 fc	6.0 fc	13.0:1	3.5:1	0.3:1
MAIN ROAD	X	1.9 fc	3.6 fc	0.4 fc	9.0:1	4.8:1	0.5:1
OVERALL	+	0.2 fc	3.6 fc	0.0 fc	N/A	N/A	0.1:1
PATHWAY TO FOOT BRIDGE	X	1.4 fc	1.8 fc	1.0 fc	1.8:1	1.4:1	0.8:1
SIGN D	+	15.4 fc	20.3 fc	9.3 fc	2.2:1	1.7:1	0.8:1

- General Note**
1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
 2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.
 3. CALCULATIONS ARE SHOWN IN FOOTCANDELES AT: 0' - 0'

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

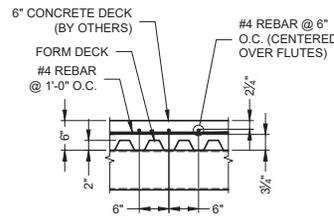
THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.



BRIDGE ELEVATION

GENERAL NOTES

- DESIGN STRESSES ARE IN ACCORDANCE WITH "STANDARD SPECIFICATION FOR HIGHWAY BRIDGES" & "GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES" BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) LATEST EDITION.
- BRIDGE MEMBERS ARE FABRICATED FROM HIGH STRENGTH, LOW ALLOY, ENHANCED ATMOSPHERIC CORROSION RESISTANT ASTM A847 COLD-FORMED WELDED SQUARE AND RECTANGULAR TUBING, AND ASTM A588, ASTM A606, OR ASTM A242 PLATE AND STRUCTURAL SHAPES (F_y=50,000 PSI).
- CONCRETE DECK: GALVANIZED FORM DECK SUPPLIED BY CONTECH. CONCRETE, REINFORCING AND EXPANSION MATERIAL SUPPLIED BY OTHERS. SEE CONCRETE DECK SHEET.
- THE GAS METAL ARC WELDING PROCESS OR FLUX CORED ARC WELDING PROCESS WILL BE USED. WELDING TO BE IN ACCORDANCE WITH AWS D1.1.
- ALL TOP AND BOTTOM CHORD SHOP SPLICES TO BE COMPLETE PENETRATION TYPE WELDS. WELD BETWEEN TOP CHORD AND END VERTICAL SHALL BE AS DETAILED.
- UNLESS OTHERWISE NOTED, WELDED CONNECTIONS SHALL BE FILLET WELDS (OR HAVE THE EFFECTIVE THROAT OF A FILLET WELD) OF A SIZE EQUAL TO THE THICKNESS OF THE LIGHTEST GAGE MEMBER IN THE CONNECTION. WELDS SHALL BE APPLIED AS FOLLOWS:
 - A. BOTH ENDS OF VERTICALS, DIAGONALS, AND FLOOR BEAMS SHALL BE WELDED ALL AROUND.
 - B. BRACE DIAGONALS WILL BE WELDED ALL AROUND.
 - C. MISCELLANEOUS NON-STRUCTURAL MEMBERS WILL BE STITCH WELDED TO THEIR SUPPORTING MEMBERS.
- BRIDGE DESIGN WAS ONLY BASED ON COMBINATIONS OF THE FOLLOWING LOADS WHICH WILL PRODUCE MAXIMUM CRITICAL MEMBER STRESSES.
 - A. 90 PSF UNIFORM LIVE LOADING ON THE FULL DECK AREA OR ONE 4,000 LB VEHICLE LOAD. THE LOAD SHALL BE DISTRIBUTED AS A FOUR-WHEEL VEHICLE WITH 50% OF THE LOAD ON THE REAR WHEELS. THE WHEEL TRACK WIDTH OF THE VEHICLE SHALL BE 2'-8" AND THE WHEEL BASE SHALL BE 4'-0". THE VEHICLE SHALL BE POSITIONED SO AS TO PRODUCE THE MAXIMUM STRESSES IN EACH MEMBER, INCLUDING DECKING.
 - B. 35 PSF WIND LOAD ON THE FULL HEIGHT OF THE BRIDGE, AS IF ENCLOSED.
 - C. 20 PSF UPWARD FORCE APPLIED AT THE WINDWARD QUARTER POINT OF THE TRANSVERSE BRIDGE WIDTH (AASHTO 3.15.3).
- CLEANING: ALL EXPOSED SURFACES OF STEEL SHALL BE CLEANED IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL SURFACES PREPARATION SPECIFICATIONS NO. 7 BRUSH-OFF BLAST CLEANING. SSPC-SP7-LATEST EDITION.
- MINIMUM MATERIAL THICKNESS OF 1/4" ON ALL STRUCTURAL MEMBERS.



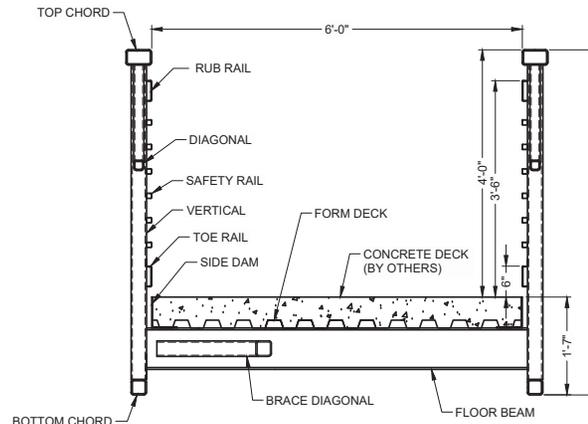
2
1 TYP SLAB REINFORCEMENT DETAIL
f_c = 4,000 PSI (MINIMUM 28 DAY STRENGTH)
GRADE 60 REINFORCING (f_y = 60,000 PSI)

COMBINE REACTIONS AS PER LOCAL OR GOVERNING BUILDING CODES AS REQUIRED

BRIDGE REACTIONS	* DOWNWARD LOAD - UPWARD LOAD		
	P (LBS)	H (LBS)	L (LBS)
DEAD LOAD ②	6,850		
UNIFORM LIVE LOAD	6,750		
VEHICLE LOAD	2,000		
WIND UPLEFT 20 PSF	-2,440		
WIND DOWNLEFT 20 PSF	-813		
WIND UPRIGHT		4,890	
WIND DOWNRIGHT			1,030
THERMAL ②			

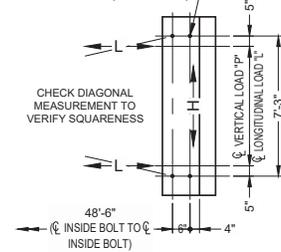
*P - VERTICAL LOAD EACH BASE PLATE (4 PER BRIDGE)
*H - HORIZONTAL LOAD EACH FOOTING (2 PER BRIDGE)
*L - LONGITUDINAL LOAD EACH BASE PLATE (4 PER BRIDGE)

- ① BRIDGE LIFTING WEIGHT: 9,100 LBS
- ② FINAL BRIDGE WEIGHT: 27,400 LBS
- ① DOES NOT INCLUDE WEIGHT OF CONCRETE DECK
- ② INCLUDES WEIGHT OF CONCRETE DECK

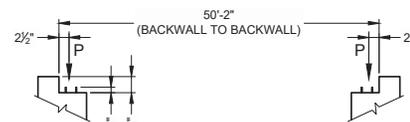


1
1 BRIDGE SECTION

(8) 0 3/4" ASTM F1554 GRADE 36 GALV. ANCHOR RODS W/(2) NUTS AND (1) 2" O.D. WASHER EACH. (BY OTHERS)



PLAN



ANCHOR BOLT ELEVATION

CONTECH
FABRICATION
DRAWING



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REVISION DESCRIPTION	DATE	MARK	BY

50'-0" x 6'-0"
AASHTO EXPRESS
PEDESTRIAN BRIDGE
STANDARD CONCRETE DECK

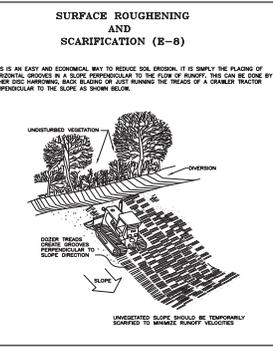
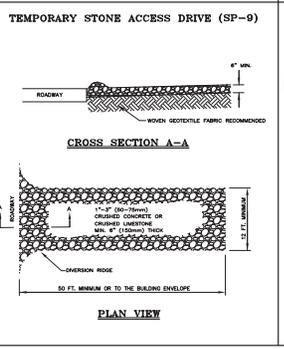
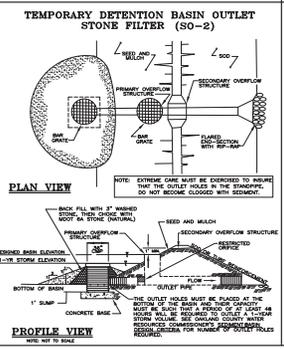
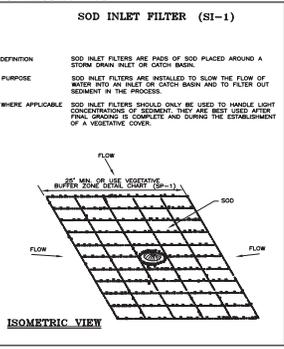
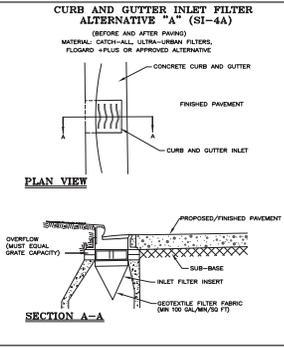
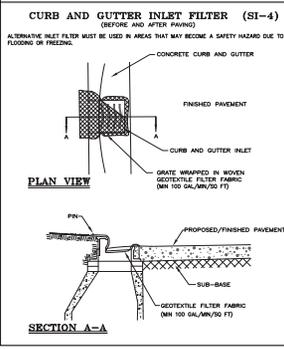
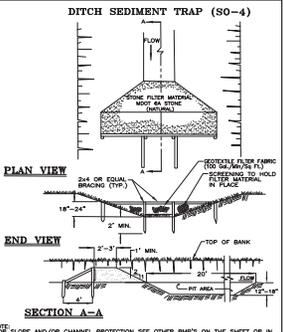
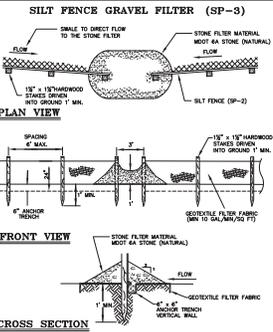
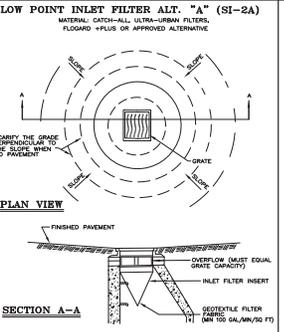
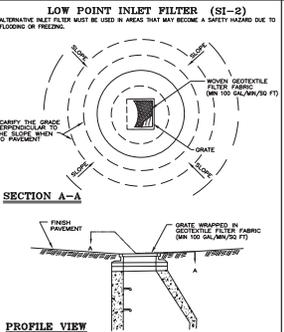
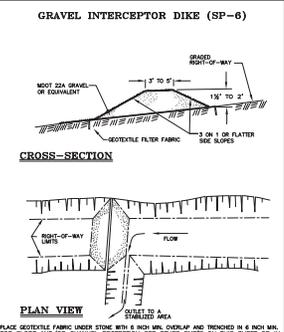
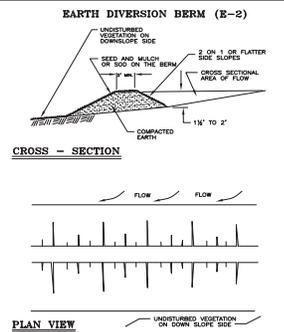
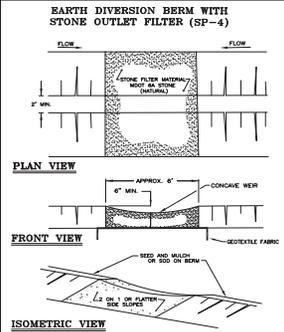
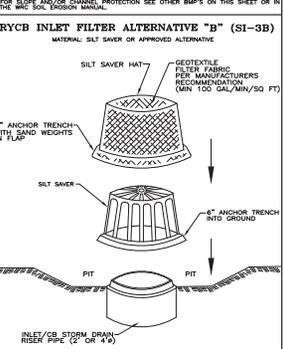
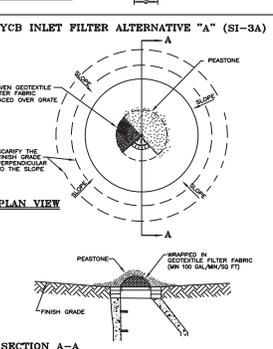
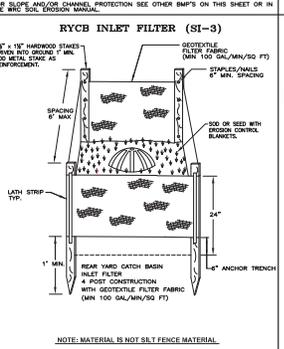
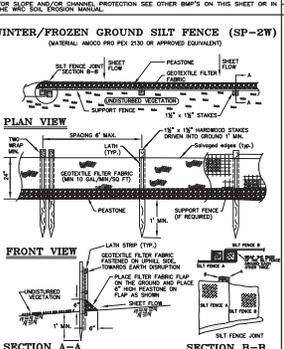
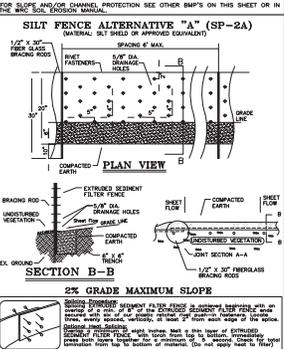
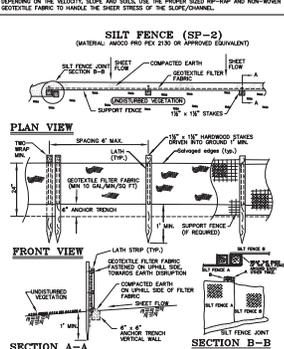
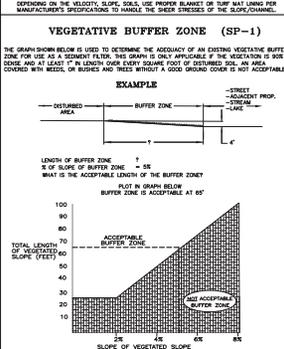
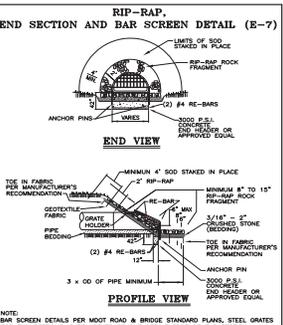
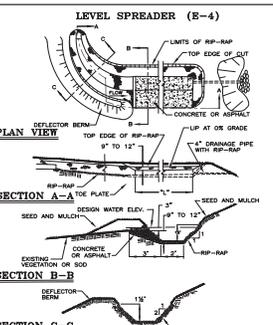
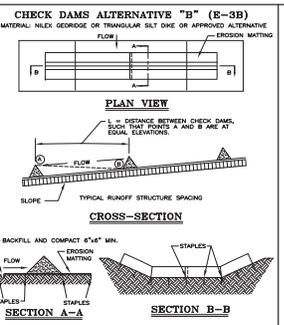
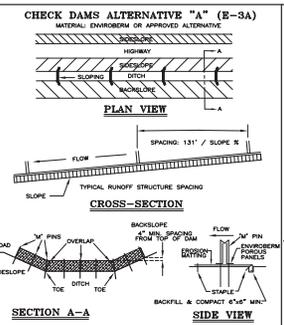
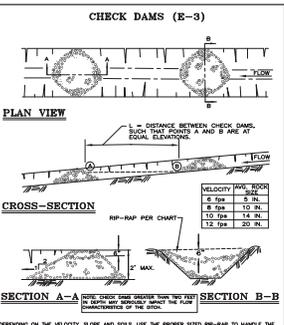
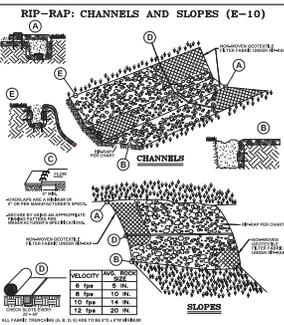
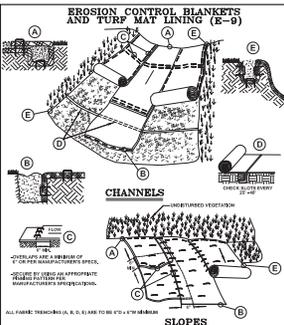
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800 S. Main Highway 23 North, Annapolis, MD 21403
301-268-2047 301-268-7900 301-268-7079 FAX

EXPRESS

DATE: 11/3/2015

DESIGNED: XXX	DRAWN: XXX
CHECKED: XXX	APPROVED: XXX
PROJECT No.: XXX	SEQUENCE No.: XX

SHEET: 1 OF 1



NOTE:

WHILE PERFORMING WORK INVOLVING GROUNDS MAINTENANCE AND/OR THE CONSTRUCTION/MAINTENANCE OF ANY INFRASTRUCTURE, INCLUDING ROADS, WATER MAINS, SANITARY SEWERS, STORM DRAINS AND STORM WATER BEST MANAGEMENT PRACTICES (BMPs), CONTRACTORS SHALL MINIMIZE POLLUTION FROM STORM WATER RUNOFF THAT CAN AFFECT WATER QUALITY RELATED TO WORK ACTIVITIES. POLLUTANTS THAT COULD IMPAIR WATER QUALITY MAY INCLUDE FUEL, GREASE AND OIL, NUTRIENTS, BACTERIA AND PATHOGENS, LITTER AND DEBRIS, AND SOIL EROSION AND SEDIMENTATION. APPLICABLE BMPs SHALL BE IMPLEMENTED BY THE CONTRACTOR TO THE MAXIMUM EXTENT PRACTICABLE TO PROTECT WATER QUALITY AND WILDLIFE HABITAT.

SOIL EROSION AND SEDIMENTATION CONTROL DETAILS

DESIGNED BY: [Name]

SCALE: [Scale]

DATE: [Date]

PROJECT: [Project Name]

SHEET NO.: [Sheet Number]

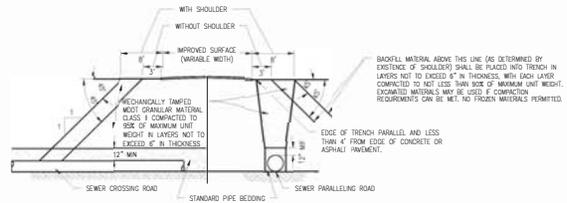


SANITARY SEWER CONSTRUCTION NOTES

- GENERAL NOTES
1. All construction shall conform to the current standards and specifications of the City of Novi and the Oakland County Water Resources Commissioner (O.C.W.R.C.)
2. At all connections to O.C.W.R.C. sewers or to extension thereto, and before the start of construction, the Contractor must request and have in his possession an approved Sewer Inspection Permit issued by the O.C.W.R.C.
3. Three (3) working days prior to construction, the Contractor shall telephone MISS DIG (811 or 1-800-452-7171) for underground facilities locations and shall also notify representatives of other utilities located in the vicinity of the work.
4. No ground water, storm water, construction water, downspout drainage or seep tile drainage shall be allowed to enter any sanitary sewer.
5. 18 inch minimum vertical separation and 10 foot minimum horizontal separation must be maintained between sanitary sewer and water main.
6. No sewer installation shall have an infiltration exceeding 100 gallons per inch diameter per mile of pipe per 24 hour period and no single run of sewer between manholes shall exceed 100 gallons per inch diameter per mile.
7. All connections to an existing sewer or to extension thereto to a temporary watertight bulkhead with a threaded, capped or vented 1 inch diameter pipe...
8. When connections are made to sewers carrying fluids, special care must be taken that no part of the work is built under water.
9. A MSDSD PAPD formatted video of the interior of sanitary sewer 8" or greater in diameter...
10. The completed installation shall at no point have out-of-round pipe deflections greater than 5%.
11. The materials specified below may be substituted with an approved equal as determined by the City.
12. The materials specified below may be substituted with an approved equal if a material is acceptable and can be used within the jurisdiction must be obtained prior to ordering or installing the approved equal.

- 13. Core shall be taken during bedding compaction to avoid distorting the shape of the pipe or damaging its exterior wall.
14. Backfill shall be compacted above pipe or as indicated on construction drawings.
15. Joints
16. Cutting and Hauling
17. Bedding and Wrapping
18. Sewer Connections
19. Manholes
20. Sewer Connections
21. Sewer Connections
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42. Sewer Connections

- BEYOND
1. Bedding for Truss Pipe and solid wall pipe shall be in accordance with the current ASTM D321, except...
2. Where available bottoms are encountered, the Contractor shall undercut to stable ground and construct a foundation consisting of MORTAR STONE to act as an impervious seal to prevent migration or vertical movement of unstable soils or bedding materials.
3. Due to potential drops to interior walls of Truss Pipe or solid wall pipe, particularly under cold weather conditions, it is recommended that the pipe be placed on a bed of bedding material, such as stone or gravel, to provide support and prevent bedding settlement during handling, and that it be fully inspected just prior to placing in the trench.



SAND OR GRAVEL BACKFILL DETAILS FOR SEWERS UNDER GRAVEL, CONCRETE OR ASPHALT PAVEMENTS, SIDEWALKS, DRIVEWAYS AND PARKING AREAS

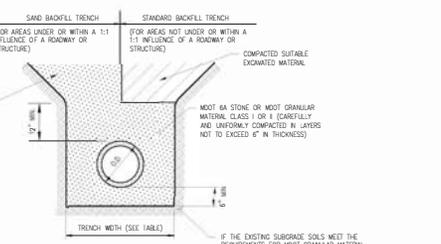
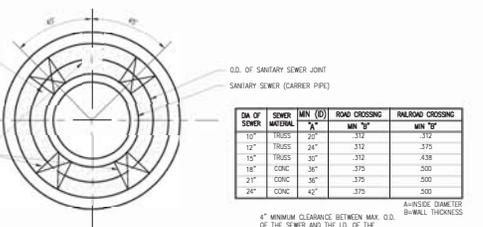
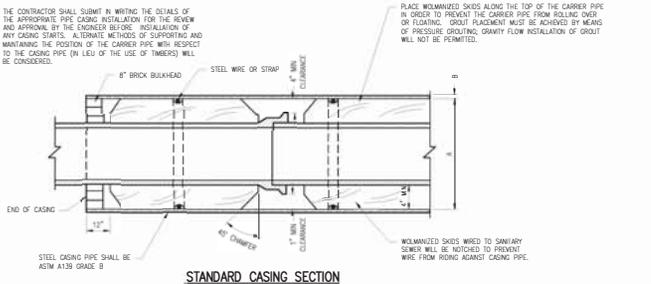


Table with 2 columns: 'ID PIPE SIZE' and 'TRENCH WIDTH'. Rows include 10" to 12", 12" to 16", 16" to 24", and 24" or larger.

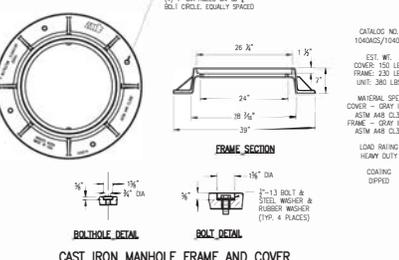
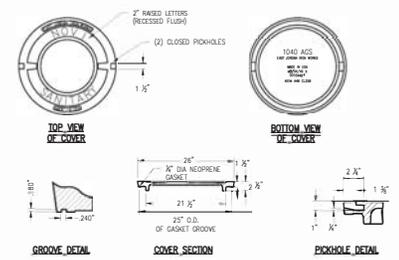
BEDDING AND TRENCH BACKFILL DETAIL



PIPE BARREL SUPPORT FOR SANITARY SEWER CONSTRUCTED IN CASING PIPE



STANDARD CASING SECTION



CAST IRON MANHOLE FRAME AND COVER



CITY OF NOVI (WEST TOWLE ROAD) (NOVI UTILITIES) (P. 048) (AFC-06) (WWW.CITYOFNOVI.ORG)

CITY OF NOVI
WATER MAIN
STANDARD DETAILS

SHEET
4
OF 5

BEND ANGLES (degrees)		PIPE DIAMETER (inches)													
		3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"
11.25°	1	2	2	3	4	4	5	6	7	7	9	11	13	15	
22.5°	3	3	5	6	8	9	10	12	13	15	17	21	25	29	
30°	4	4	6	8	10	12	14	16	18	20	23	29	34	40	
45°	6	7	10	13	16	19	22	25	28	31	36	45	53	61	
60°	8	10	14	18	22	26	30	34	39	43	51	62	74	85	
90°	14	17	24	31	38	46	53	60	67	74	88	108	128	148	
Unit Frictional Force (ft/lbs)		124	151	217	284	349	415	481	547	613	679	811	1,005	1,203	1,398
Unit Bearing Resistance (ft/lbs)		152	185	268	354	437	523	611	699	789	879	1,064	1,344	1,639	1,939

Assumptions: Cover = 6.0 feet
 Design Pressure = 150 psi
 Safety Factor = 1.5
 Laying Condition = Type 3
 Soil Designation = Clay 1
 Non-Polywrapped Pipe

☐ = Not Permitted (for 60°, use two 30° bends; for 90°, use two 45° bends)

* Data Table acquired from the Ductile Iron Pipe Research Association (DIPRA)

PIPE DIAMETER OF BRANCH RUN (inches)		PIPE DIAMETER OF MAIN PIPE RUN (inches)													
		3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"
3"	8	7	6	4	2	1	0	0	0	0	0	0	0	0	
4"	10	9	6	6	5	3	2	0	0	0	0	0	0	0	
6"			16	15	14	13	12	11	10	9	7	4	1	0	
8"				22	22	21	20	19	19	18	16	14	11	8	
10"					28	27	27	26	26	25	24	22	19	17	
12"						34	33	33	32	32	31	29	27	25	
14"							40	39	39	38	37	36	35	33	
16"								45	45	45	44	43	41	40	
18"									52	51	51	49	48	47	
20"										58	57	56	55	54	
24"											69	68	68	67	
30"												87	86	85	
36"													104	104	
42"														122	
Unit Frictional Force (ft/lbs)		249	302	434	569	697	829	961	1,093	1,225	1,357	1,621	2,011	2,406	2,796
Unit Bearing Resistance (ft/lbs)		152	185	268	354	437	523	611	699	789	879	1,064	1,344	1,639	1,939

Assumptions: Cover = 6.0 feet
 Design Pressure = 150 psi
 Safety Factor = 1.5
 Laying Condition = Type 3
 Soil Designation = Clay 1
 Non-Polywrapped Pipe

☐ = Not Applicable

* Data Table acquired from the Ductile Iron Pipe Research Association (DIPRA)

BEND ANGLES (degrees)		PIPE DIAMETER (inches)													
		3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"
11.25°	1	2	2	3	4	4	5	6	7	7	9	11	13	15	
22.5°	3	3	5	6	8	9	10	12	13	15	17	21	25	29	
30°	4	4	6	8	10	12	14	16	18	20	23	29	34	40	
45°	6	7	10	13	16	19	22	25	28	31	36	45	53	61	
60°	8	10	14	18	22	26	30	34	39	43	51	62	74	85	
90°	14	17	24	31	38	46	53	60	67	74	88	108	128	148	
Unit Frictional Force (ft/lbs)		124	151	217	284	349	415	481	547	613	679	811	1,005	1,203	1,398
Unit Bearing Resistance (ft/lbs)		152	185	268	354	437	523	611	699	789	879	1,064	1,344	1,639	1,939

Assumptions: Cover = 6.0 feet
 Design Pressure = 150 psi
 Safety Factor = 1.5
 Laying Condition = Type 3
 Soil Designation = Clay 1
 Non-Polywrapped Pipe

☐ = Not Permitted (for 60°, use two 30° bends; for 90°, use two 45° bends)

* Data Table acquired from the Ductile Iron Pipe Research Association (DIPRA)

DIAMETER OF SMALLER PIPE (inches)		DIAMETER OF LARGER PIPE (inches)												
		3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"
3"														
4"	4	13	21	27	34	40	46	53	59	71	89	107	124	142
6"		10	18	25	32	39	45	52	58	70	88	106	124	142
8"			11	19	27	34	41	48	55	67	86	104	122	140
10"				11	20	29	37	45	50	64	83	102	120	138
12"					11	20	29	37	45	59	79	99	117	135
14"						11	21	30	38	54	75	95	114	132
16"							11	21	30	47	69	91	110	128
18"								11	21	40	63	85	106	127
20"									11	31	57	80	101	122
24"										22	49	73	96	119
30"											31	59	83	107
36"												33	60	84
42"													32	56
Unit Frictional Force (ft/lbs)		302	434	569	697	829	961	1,093	1,225	1,357	1,621	2,011	2,406	2,796

Assumptions: Cover = 6.0 feet
 Design Pressure = 150 psi
 Safety Factor = 1.5
 Laying Condition = Type 3
 Soil Designation = Clay 1
 Non-Polywrapped Pipe

☐ = Not Applicable
 ☐ = Not Probable

* Data Table acquired from the Ductile Iron Pipe Research Association (DIPRA)

BEND ANGLES (degrees)		PIPE DIAMETER (inches)													
		3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"
11.25°	2	3	4	5	6	7	8	10	11	12	14	18	21	25	
22.5°	4	5	8	10	12	15	17	19	22	24	29	36	43	50	
30°	6	7	10	14	17	20	23	26	29	33	39	48	58	67	
45°	9	11	16	21	26	31	36	41	45	50	60	75	89	104	
60°	13	16	22	29	36	43	50	57	63	70	84	104	124	145	
90°	22	27	39	51	62	74	86	98	110	122	145	180	215	250	
Unit Frictional Force (ft/lbs)		124	151	217	284	349	415	481	547	613	679	811	1,005	1,203	1,398
Unit Bearing Resistance (ft/lbs)		152	185	268	354	437	523	611	699	789	879	1,064	1,344	1,639	1,939

Assumptions: Cover = 6.0 feet
 Design Pressure = 150 psi
 Safety Factor = 1.5
 Laying Condition = Type 3
 Soil Designation = Clay 1
 Non-Polywrapped Pipe

☐ = Not Permitted (for 60°, use two 30° bends; for 90°, use two 45° bends)

* Data Table acquired from the Ductile Iron Pipe Research Association (DIPRA)

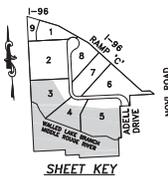
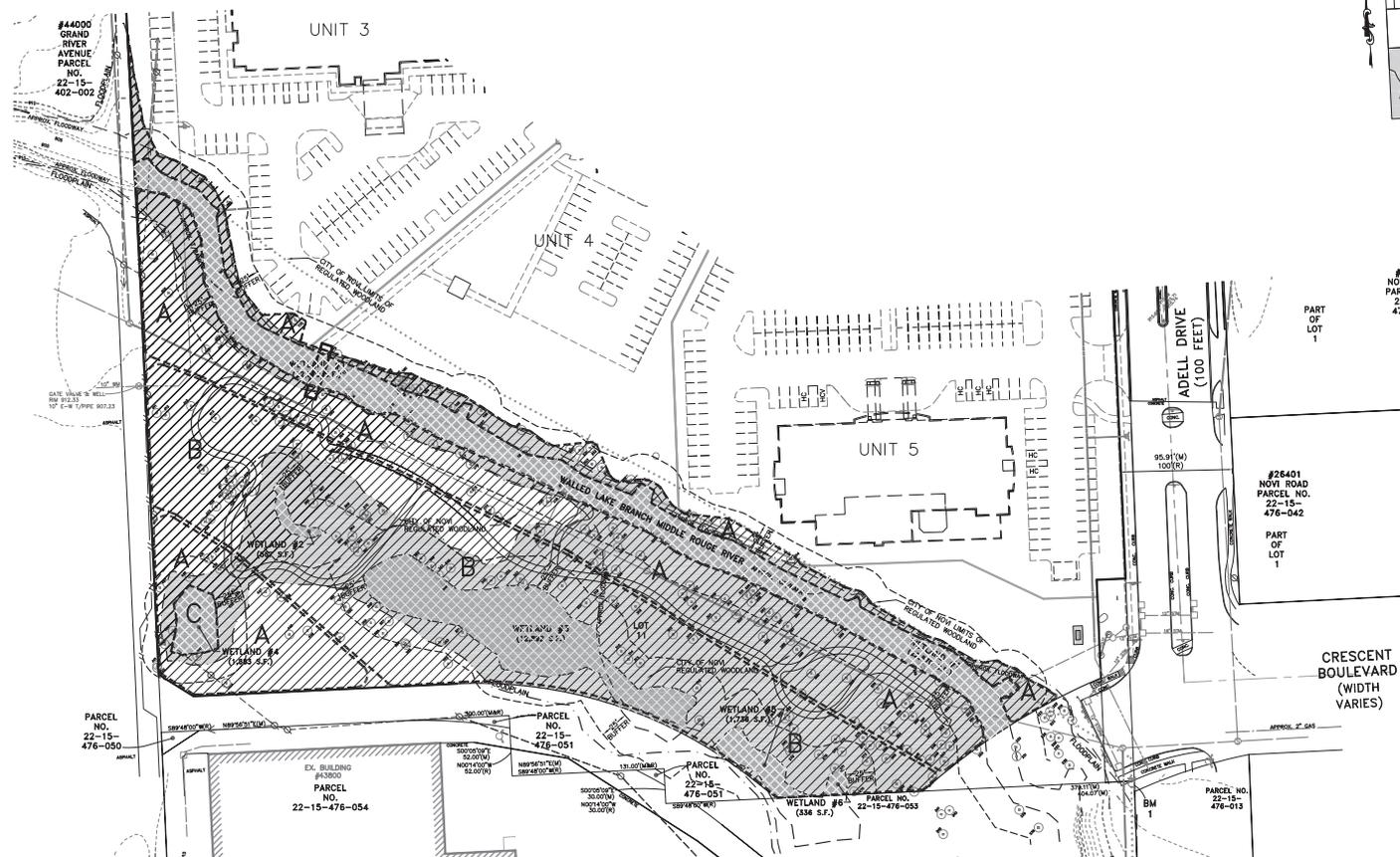
Pipe Diameter (inches)	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"
	Restraint Length (feet)	11	14	19	25	31	37	43	49	55	61	73	90	108
Unit Frictional Force (ft/lbs)	249	302	434	569	697	829	961	1,093	1,225	1,357	1,621	2,011	2,406	2,796

Assumptions: Cover = 6.0 feet
 Design Pressure = 150 psi
 Safety Factor = 1.5
 Laying Condition = Type 3
 Soil Designation = Clay 1
 Non-Polywrapped Pipe

* Data Table acquired from the Ductile Iron Pipe Research Association (DIPRA)

DRAWING PATH: J:\INTEGRITY\2025-Nov-2017 Standards and Details\DWG\Water\mg... File 15, 2015 - 2:03pm

RESTORATION PLAN



HATCH LEGEND

[Diagonal hatching /]	WETLAND
[Diagonal hatching \]	FLOODPLAIN
[Cross-hatching]	AREA OF WETLAND ENHANCEMENT
[Stippled pattern]	AREA OF SELECTED CLEARING

WETLAND NOTE:
 WETLAND DELINEATION WAS PERFORMED ON SEPTEMBER 22, 2017. ECT CONFIRMED ON-SITE WETLANDS WERE DELINEATED ACCURATELY VIA LETTER DATED MAY 16, 2018. SIX (6) WETLAND AREAS WERE DELINEATED AND CONSIDERED ESSENTIAL/REGULATED WETLANDS.

SEQUENCE OF REMOVAL FOR WOODY INVASIVE SPECIES

1. THE LANDSCAPE ARCHITECT WILL FIELD VISIT THE SITE AND FIELD MARK ALL PRESERVATION AREAS. ONCE THIS IS COMPLETED, THE LANDSCAPE ARCHITECT WILL CONDUCT AN ON-SITE MEETING WITH CITY OF NOVI STAFF AND CONTRACTOR TO VERIFY PRESERVATION/CLEARING LIMITS AND REMOVAL PROCESS.
2. MARKED PLANT MATERIAL SHALL BE CUT BY HAND OR AS APPROVED BY THE LANDSCAPE ARCHITECT AND CITY OF NOVI STAFF. LIMBS AND BRANCHES SHALL BE REMOVED FROM THE PRESERVATION AREAS AND CHIPPED.
3. VEHICLES SHALL REMAIN SHALL REMAIN OUTSIDE OF THE 25' WETLAND SETBACK. STUMPS SHALL REMAIN IN PLACE AND BE TREATED WITHIN 15 MINUTES OF CUTTING WITH USE COLORED TRICLOPIR.
4. NO STUMP OR ROOT REMOVAL SHALL OCCUR WITHIN THE WETLAND AREA OR THE 25' WETLAND SETBACK.
5. ALL DEAD STANDING TREES THAT ARE TO BE REMOVED.
6. AFTER 20 DAYS FROM CLEARING, THE LANDSCAPE ARCHITECT AND CONTRACTOR SHALL CONDUCT A VISUAL INVENTORY OF INVASIVE SPECIES. ANY PLANTS THAT HAVE BE OBSERVED SHALL BE GRABED WITH A GLYPHOSATE BASED HERBICIDE (I.E. ROUNDUP) TAKING CARE NOT TO SPRAY NATIVE VEGETATION. SPRAYING TO BE COMPLETED ON A WINDLESS DAY TO ENSURE NO DRIFT OF THE HERBICIDE ONTO SURROUNDING NATIVE VEGETATION. THE GLYPHOSATE BASED HERBICIDE USED TO TREAT THE VEGETATION WITHIN 15' OF THE WALLEYE LAKE BRANCH OF THE MIDDLE ROUGE RIVER SHALL BE AQUATIC APPROVED PRODUCT (I.E. AQUICOL OR AQUANET).
7. AFTER A DURATION OF 20 DAYS FROM THE FIRST APPLICATION, THE LANDSCAPE ARCHITECT AND CONTRACTOR SHALL VISIT THE SITE AGAIN TO ASSES THE EFFECTIVENESS OF THE FIRST HERBICIDE APPLICATION. APPLY ADDITIONAL GLYPHOSATE BASED HERBICIDE ON ANY PLANTS EXHIBITING LIFE. THIS PROCESS SHALL BE REPEATED UNTIL ALL OF THE INVASIVE SPECIES ARE DEAD.

SECOND YEAR MAINTENANCE

1. IN MID TO LATE SPRING THE LANDSCAPE ARCHITECT SHALL CONDUCT A VISUAL SURVEY OF INVASIVE SPECIES AND SUBMIT A REPORT TO THE CITY OF NOVI. THE REPORT WILL CONTAIN WRITTEN GRAPHIC AND PHOTOGRAPHIC DOCUMENTATION OF SITE CONDITIONS. IF INVASIVE SPECIES REMAIN, THE LANDSCAPE ARCHITECT WILL NOTIFY THE CONTRACTOR TO REPEAT STEPS 6 AND 7 AS OUTLINED ABOVE.
2. THE INVASIVE SPECIES REMOVAL PROGRAM WILL BE DEEMED COMPLETE WHEN 90% OF THE SITE IS FREE FROM INVASIVE PLANTS. A FINAL REPORT SHALL BE SUBMITTED TO THE CITY WHEN THE PROGRAM IS COMPLETE.

SEQUENCE OF REMOVAL FOR PHRAGMITES

1. PHRAGMITES SHOULD BE TREATED IN EARLY TO LATE SUMMER (JUNE-SEPTEMBER) USING GLYPHOSATE, OR LATE SUMMER (AUGUST-SEPTEMBER) USING ALTERNATE TO ACHIEVE EFFECTIVE CONTROL.
2. APPLICATION OF HERBICIDES SHOULD BE HAND SPRAYING FOR SCATTERED PLANTS AND HAND SPRAYING ON DENSER STANDS. THE USE OF A LICENSED OR CERTIFIED APPLICATOR IS REQUIRED TO MINIMIZE DAMAGE TO NATIVE PLANT MATERIAL.
3. AFTER TWO WEEKS OF HERBICIDE APPLICATION, THE DEAD STALKS SHOULD BE CUT AND REMOVED TO DISCOURAGE NATIVE PLANT MATERIAL GROWTH. IF A MECHANICAL METHOD IS USED, EQUIPMENT SHOULD BE CLEANED TO PREVENT THE SPREAD OF SEED.

SECOND YEAR MAINTENANCE

1. A VISUAL INSPECTION WILL BE MADE DURING JUNE - JULY. IF PHRAGMITES IS PRESENT, STEPS 1-3 ABOVE WILL BE REPEATED.

SEQUENCE OF TRIMMING REGULATED TREES

1. EXISTING REGULATED TREES ARE PROPOSED TO REMAIN BUT MAY BE TRIMMED AFTER INVASIVE SPECIES REMOVAL. ANY TREES PROPOSED TO BE TRIMMED WILL BE MARKED AND REQUIRE CITY STAFF INSPECTION PRIOR TO TRIMMING.

UNDERSTORY:

- A. BUCKTHORN AND HONEYSUCKLE
- B. BUCKTHORN
- C. PHRAGMITES

NOTICE:
 CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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

RESTORATION NOTE:
 THE CONTRACTOR SHALL RESTORE AREAS DISTURBED FROM HIS CONSTRUCTION OPERATIONS TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER, AND TO THE SATISFACTION OF THE OWNER. LANDSCAPE AREAS REQUIRING RESTORATION SHALL INCLUDE MIN. 3" TOPSOIL AND SOD. PAVEMENT AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, WITH THE APPLICABLE CROSS-SECTION TO MATCH EXISTING.

GREENTECH
 ENGINEERING, INC.
 CIVIL ENGINEERS & LAND SURVEYORS

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 Phone: (248) 868-0700 Fax: (248) 668-0701

811
 Know what's below
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CLIENT: ADELL CENTER

SITE ENHANCEMENT PLAN

43700 EXPO CENTER DRIVE - PARCEL NO. 22-15-476-045
 TOWNSHIP 15 N RANGE 06 E
 SECTION 15
 CITY OF NOVI COUNTY OAKLAND MICHIGAN

REVISED	2018-8-31 PER REVIEW

DATE: 7-19-2018
 DRAWN BY: RMS/JWF
 CHECKED BY: DJL/JWF

SCALE: HORIZ 1"=50 FT
 VERT 1"=10 FT

35
 17-334

PLANNING REVIEW



PLAN REVIEW CENTER REPORT
Planning Review
ADELL CENTER
Roads and Utilities with a Site Condominium
 JSP 18-27

PETITIONER

Orville Properties, LLC

REVIEW TYPE

Preliminary and Final Site Plan for Roads and Utilities with a Site Condominium

PROPERTY CHARACTERISTICS

Section	15	
Site Location	Address: 43700 Expo Center Drive; Parcel Id: 50-22-15-476-045 north of Grand River Avenue and south of I-96 in Section 15	
Site School District	Novi Community School District	
Current Site Zoning	Expo: Expo	
Proposed Site Zoning	TC: Town Center	
Adjoining Zoning	North	C: Conference (across I-96)
	East	TC: Town Center
	West	I-2: General Industrial
	South	I-1: Light Industrial
Current Site Use	Vacant; Existing unused parking lot	
Adjoining Uses	North	Novi Oaks Hotels
	East	Retail/Restaurants
	West	Industrial Office
	South	Industrial Office
Site Size	Approximately 21.8 Acres (950,073 SF)	
Plan Date	Revised: July 19, 2018	

PROJECT SUMMARY

The applicant is proposing to develop a multi-unit commercial Site Condominium with nine units accessed by a proposed private drive. The current proposed improvements include the construction of the road and utilities, along with certain landscaping, stormwater management, and lighting in preparation for future development. The planned improvements are all proposed to be completed in one phase except the paving for the secondary emergency access, from the proposed private drive to a location west of existing water tower. The applicant is proposing to use a gravel surface for the secondary emergency access drive at this time until Unit 2 is developed. The existing water tower on site is proposed remain, but be located on a separate condominium unit.

The site is currently zoned Expo. The applicant has requested to rezone it to Town Center (TC) district with a Planned Rezoning Overlay (PRO). The PRO Concept plan is currently under review. The current site plan is reviewed against TC standards where applicable. The current plan does not conform to the code for certain requirements as listed in this chart. Typically, it would have required City Council/Zoning Board of Appeals approval. However, those deviations are currently being reviewed as part of the PRO plan concurrently.

RECOMMENDATION

Approval of the ***Preliminary Site Plan and Final Site Plan is recommended contingent upon City Council's approval of the PRO plan and PRO Agreement.*** The plan mostly does not conform to the requirements of the Zoning Ordinance and Subdivision Ordinance as noted in the items listed in the chart and the letter. If the rezoning and PRO Agreement are approved by the City Council, the site will be subject to ordinance deviations and conditions listed in PRO agreement. The plan also requires approval of wetland permit, woodland permit and storm water management plan.

ORDINANCE REQUIREMENTS

This project was reviewed for conformance with the Zoning Ordinance with respect to Article 3 (Zoning Districts), Article 4 (Use Standards), Article 5 (Site Standards), and any other applicable provisions of the Zoning Ordinance and Appendix C - Subdivision Ordinance of City Code of Ordinances. Items in **bold** below must be addressed and incorporated as part of the Preliminary/Final Site Plan:

1. Site Plans Approval (Sec.3.27.1): For all uses permitted in the TC and TC-1 districts, site plans shall be submitted for preliminary approval by the Planning Commission, in accordance with the provisions of this ordinance and other applicable ordinances. In those instances where the site under development is five (5) acres or more in area, Preliminary Site Plan approval shall be by the City Council after review and recommendation by the Planning Commission. The current request would require City Council's approval based on Planning Commission recommendation. Approval of the Roads and Utilities Site Plan would be contingent upon City Council's approval of the PRO plan and agreement.
2. Illustrative Plan (Sec 6.1.E.i): An illustrative plan is required that shows future buildings, parking and landscaped areas, future lot lines, required building setbacks, public or private parks, open spaces, utility locations and storm water detention basins. **The applicant should include Overall PRO Concept plan in this set. Please refer to the set as 'Illustrative Plan' and include it with the next submittal.**
3. Written Statement (Sec 6.1.E.ii): A written statement reinforcing the illustrative plan explaining in detail the full intent of the applicant, indicating type of structures contemplated, expected uses of property and scheduling of development is required. **A narrative was provided as part of the rezoning request. The applicant should revise it for the current request and include it with the next submittal.**
4. Boundary Survey (Sec 6.1.E.iv): A boundary survey prepared by a registered land surveyor or civil engineer is required. **Sheet 3 provides ALTA/NSPS Land Title survey. The applicant should update the future Right-of-way information and related legal description on this sheet.**
5. Site Condominium (Sec 6.1.E.vi): If development is proposed as a site condominium, compliance with Section 6.3 is required, including the provision for Master Deed review. Refer to Plan review chart for more comments with regards to compliance with Section 6.3. **A Master Deed draft should be submitted for City legal review prior to approval of Final stamping sets.**
6. Concurrent Road and Utilities / Rezoning (PRO) review: The site is currently zoned Expo. The applicant has requested to rezone it to Town Center (TC) district with a Planned Rezoning Overlay (PRO). The PRO Concept plan is currently under review, but not yet approved by the City Council. The current site plan is reviewed against TC standards where applicable. The current plan does **not** conform to the code for certain requirements as listed in the Planning Review chart. Typically, it would have required City Council/Zoning Board of Appeals approval. However, the following deviations are currently being reviewed as part of the PRO plan (concurrently with the Roads and Utilities site plan).
 - a. **Lack of frontage on a Public Street for Units 1 through 8 (Sec. 5.12)**: Each of the proposed condominium units (units 1 through 8) has access from the proposed private drive. **The applicant**

- has requested this deviation for Units 1 through 8. Staff supports the deviation as the proposed private drive is built to City standards.
- b. **Lack of frontage on a Public/Private Street for Unit 9 (Sec. 5.12):** Unit 9 does not have any frontage on any drive. It is considered a landlocked parcel with no frontage. Access is proposed to be provided by a private access easement. This access easement also allows a secondary emergency access for the entire development. **The applicant has requested this deviation. Off-site easements will be required at the time of Final Site Plan submittal.**
 - c. **Exceeding Cul-de-sac street distance (11-194(a)(7)):** Adell Drive exceeds the maximum allowable length of the proposed cul-de-sac street length of 800 (proposed 1,450 feet) from the centerline intersection of Crescent Boulevard to the center of the bulb of the Adell Center Drive cul-de-sac. **The applicant has requested this deviation and is supported by staff.**
 - d. **Water Tower (unit 9) (Sec. 3.1.25.B& C):** The applicant is proposing that the water tower is to remain where it is currently located, but on its own separate site (Unit 9). This is not a principal permitted use of a site. It is also not considered an accessory use, since its proposed use is not detailed. The creation of a new, separate legal parcel of limited size for the purpose of housing the tower on its own is therefore a required deviation that will need to be addressed in the PRO Agreement (e.g., what happens to the property if the owner determines to remove it, access, etc). The future and current use and maintenance of this Unit must be addressed in the PRO agreement, at a minimum.
 - e. **Units in the floodplain (Sec. 4.03A):** Condominium units cannot be created within floodplain that increases danger to health, life or property. Units 3, 4, and 5 lie partially within the floodplain. There appears to be no impacts to the floodplain proposed for Units 3 and 5. A pedestrian bridge is proposed on Unit 5. The applicant has made this request. Staff supports the request noting additional permits may be required for pedestrian bridge.
 - f. **Side Lot lines:** The current unit layout does not conform to the Section 4.02.B of Subdivision Ordinance. Side lot (unit) lines between Units 6 and 7, 4 and 5, 1 and 2 do not meet the requirement. **The applicant is requesting the deviation for lot lines for 1, 6, 7, and 8.** It should be revised as listed above.
 - g. **Lighting spillover front property lines (Sec. 5.7.3.K.):** Maximum illumination at the property line shall not exceed 1 foot candle. The intent of this requested deviation is unclear. The proposed access easement acts as a Right-of-way for the subject property. **Staff can support a deviation to exceed 1 foot candle along access easements along Adell Drive, within reason, upon review of a Conceptual photometric plan.**
 - h. **Gravel Access Drive:** The applicant is proposing a gravel emergency access driveway, per sheet 12. The use of gravel, instead of hard surface such as concrete or asphalt, would require a variance. The timeline for paving the access in the event Unit 2 is not completed within a certain period of time should be addressed in the PRO agreement.
 - i. **Stub Streets:** A stub street to the property boundary at intervals not to exceed 1,300 feet along the perimeter of the site is required by ordinance. Refer to Engineering review for more details.
7. Wetland/Woodland Restoration Plan: The applicant has identified 15 percent open space in various locations within the site, the majority of it being located along the southerly portion. This area contains about an acre of wetlands that account for about 25 percent of the open space area in the southerly portion. The Environmental consultant recommended that the applicant consider restoration efforts to existing wetlands and woodlands are in order to make it more usable and aesthetically pleasing. **This was expected to be reviewed and approved as part of the Preliminary Site Plan/wetland permit approval. However, the current site plan was submitted prior to receiving the PRO comments. Staff recommends that the applicant submit the requested information prior to Planning Commission meeting for staff review.**
8. Proposed Trail: The proposed trail is shown on the PRO Concept plan. It appears that there are no impacts to any regulated woodlands. The plan notes that path will be field located. **Staff recommends that field location staking of the path shall be inspected by staff prior to installation.**

Ideally, the applicant should attempt to locate the trail outside of regulated wetlands and 25-foot wetland buffers while preserving existing trees.

9. Lighting and Photometric Plan (Sec. 5.7): The applicant has provided lighting and photometric plan for street lights along Adell Drive, landscape lighting for two Adell development signs and decorative lighting for the promenade in Unit 4. **Additional information is requested to complete the review. Please refer to Plan review chart for more comments.**
10. **Plan Review Chart: Please refer to attached Plan Review Chart for additional comments and minor clarifications requested to be included in the revised submittal.**
11. Other Reviews
 - a. Engineering Review: Engineering is recommending approval for Preliminary Site Plan, but is requesting additional information for Final Site Plan approval.
 - b. Landscape Review: Landscape has requested for additional information to verify conformance. Landscape recommends approval for Preliminary Site Plan, but requires a resubmittal for Final site plan approval.
 - c. Wetlands and Woodland Review: Due to the deficiencies in the information included on the Plan related to proposed wetland impacts as well as lack of information with respect to restoration of the proposed Open Space area containing Regulated Wetland/Woodland areas, ECT recommends that the applicant address the items noted in the Wetland Comments Section of their review letter in a Revised Plan.
 - d. Traffic Review (08-13-18): Traffic has requested for additional information to verify conformance. Traffic recommends approval for Preliminary Site Plan, but requires a resubmittal for Final site plan approval based on several undetermined site items including driveway spacing, pavement markings and/or other missing site elements, as detailed in their review letter.
 - e. Fire Review: No additional comments. Fire does not recommend approval.

NEXT STEP: PLANNING COMMISSION MEETING

It is staff's opinion that the applicant should submit revised site plans prior to Planning Commission's recommendation to the City for items noted in review letters, especially with regards to Wetlands/Woodlands restoration plan, and the Fire Marshal's concerns. Staff recommends a Planning Commission meeting at a later date after giving time for staff to review the revised submittal. However, the site plan with site condominium is scheduled to go before Planning Commission for public hearing on September 12, 2018 based on applicant's request. Please provide the following by 10 am on **August 24, 2018**. **Staff reserves the right to make additional comments as this expedited review continues.**

1. Site plan submittal in PDF format. Staff has received this item with the initial submittal
2. A response letter addressing ALL the comments from ALL the review letters
3. A color rendering of the Site Plan, if any to be used for presentation purposes.
4. A wetland/woodland restoration plan

CITY COUNCIL MEETING

When the site under development is five (5) acres or more in area, Preliminary Site Plan approval shall be by the City Council after review and recommendation by the Planning Commission.

REVISED FINAL SITE PLAN SUBMITTAL

Engineering, Landscape and Traffic are recommending approval of Preliminary Site Plan, but not the Final site plan. Wetlands, Woodlands, Traffic and Fire are not recommending approval of either the Preliminary or the Final Site Plan. Please address all the concerns raised in the review letters and resubmit for final site plan approval. The resubmittal should include the following

1. A Site Plan Revision Application
2. Six copies of revised site plan.

3. A response letter addressing all concerns from review letters and the sheet numbers where the comment is addressed.

ELECTRONIC STAMPING SET SUBMITTAL AND RESPONSE LETTER

After receiving Final Site Plan approval from all concerned reviews, please submit the following for Electronic stamping set approval:

1. Plans addressing the comments in all of the staff and consultant review letters in PDF format.
2. Response letter addressing all comments in ALL letters and ALL charts and **refer to sheet numbers where the change is reflected.**

STAMPING SET APPROVAL

Stamping sets are still required for this project. After having received all of the review letters from City staff the applicant should make the appropriate changes on the plans and submit **10 size 24" x 36" copies with original signature and original seals,** to the Community Development Department for final Stamping Set approval.

PRE-CONSTRUCTION MEETING

A Pre-Construction meeting is required for this project. Prior to the start of any work on the site, Pre-Construction (Pre-Con) meetings must be held with the applicant's contractor and the City's consulting engineer. Pre-Con meetings are generally held after Stamping Sets have been issued and prior to the start of any work on the site. There are a variety of requirements, fees and permits that must be issued before a Pre-Con can be scheduled. If you have questions regarding the checklist or the Pre-Con itself, please contact Sarah Marchioni [248.347.0430 or smarchioni@cityofnovi.org] in the Community Development Department.

CHAPTER 26.5

Chapter 26.5 of the City of Novi Code of Ordinances generally requires all projects be completed within two years of the issuance of any starting permit. Please contact Sarah Marchioni at 248-347-0430 for additional information on starting permits. The applicant should review and be aware of the requirements of Chapter 26.5 before starting construction.

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.735.5607 or skomaragiri@cityofnovi.org.



Sri Ravali Komaragiri – Planner



PLANNING REVIEW CHART

Review Date: August 15, 2018
Review Type: Preliminary Site Plan
Project Name: JSP 18-27 Adell Center: Roads and Utilities
Plan Date: July 19, 2018
Prepared by: Sri Komaragiri, Planner
E-mail: skomaragiri@cityofnovi.org; **Phone:** (248) 735-5607

Items in **Bold** need to be addressed by the applicant with the revised submittal

NOTE: The site is currently zoned Expo. The applicant has requested to rezone it to Town Center (TC) district with a Planned Rezoning Overlay (PRO). The PRO Concept plan is currently under review. The current site plan is reviewed against TC standards where applicable. The current plan does not conform to the code for certain requirements as listed in this chart. Typically, it would have required City Council/Zoning Board of Appeals approval. However, those deviations are currently being reviewed as part of the PRO plan concurrently.

Approval of Roads and Utilities site plan with the site condominium is contingent upon City Council’s approval of the PRO plan and agreement. At that time, it will be subject to conditions listed in PRO agreement.

Item	Required Code	Proposed	Meets Code	Comments
Zoning and Use Requirements				
Master Plan <i>(adopted July 26, 2017)</i>	Office Research Development Technology	The applicant is requesting to rezone to TC under a separate application which is currently under review	No?	
Area Study	The site does not fall under any special category	NA	No?	
Zoning <i>(Effective December 25, 2013)</i>	EXPO	The applicant is requesting to rezone to TC under a separate application which is currently under review. If approved, uses are regulated by the approved PRO agreement	No?	
Uses Permitted	Sec 3.1.25.B Principal Uses Permitted. Sec 3.1.25.C Special Land Uses		No?	
Roads and Utilities Site Plan				
Site Plan <i>(Sec 6.1.E)</i>	- Site plans shall be submitted to the City for review of all plans that propose construction of new public and/or private roads, regardless of whether any buildings or other structures are proposed.	- A site plan is provided.	No?	Refer to rest of the chart and letter for more comments

Item	Required Code	Proposed	Meets Code	Comments
	- Demonstrate the engineering feasibility if utilities are proposed			
Illustrative Plan (Sec 6.1.E.i)	Submittal of an illustrative plan required to show: future buildings, parking and landscaped areas, future lot lines, required building setbacks, public or private parks, open spaces, utility locations and storm water detention basins.	- Staff is currently reviewing the applicant's request for rezoning with a Planned Rezoning Overlay which includes the elements listed for an illustrative plan	No	Detailed comments are provided to the illustrative plan under separate cover as part of the PRO Concept review plan (JZ 18-24) The applicant should include Overall PRO Concept Plan in this set. Please refer to the set as 'Illustrative Plan' and include it with the next submittal.
Written Statement (Sec 6.1.E.ii)	A written statement reinforcing the illustrative plan explaining in detail the full intent of the applicant, indicating type of structures contemplated, expected uses of property and scheduling of development is required.	A written statement is not submitted.	No	Provide a written statement explaining the full intent of the proposal. A narrative was provided as part of the rezoning request. The applicant should revise it for the current request and include it with the next submittal.
Topographic Map (Sec 6.1.E.iii)	A topographic map at a contour interval of not more than 2 feet is required.	Sheet 06 and 07 provide the information requested	Yes	
Preliminary wetland Assessment (Sec 6.1.E.iii)	Drainage patterns and hydrologic character of the wetlands.	Wetlands consultant completed wetland boundary assessment	Yes	Refer to wetland review comments for more detail
Preliminary Woodland Assessment (Sec 6.1.E.iii)	For woodlots up to 5 acres, three woodland assessment samples per acre are required	Woodlands consultant completed woodland boundary assessment	Yes	See woodlands for additional information pertaining to the Woodland Assessments.
Boundary Survey (Sec 6.1.E.iv)	A boundary survey prepared by a registered land surveyor or civil engineer is required.	Sheet 3 provides ALTA/NSPS Land Title survey	No?	The applicant should update the future Right-of-way information and related legal description on this sheet
Aerial Photograph (Sec 6.1.E.v)	Submittal of a recent aerial photo in a scale not smaller than 1"=200' is required.	Aerial photo provided, no scale indicated.	No	Provide a scaled, recent aerial photograph.

Item	Required Code	Proposed	Meets Code	Comments
<p>Contemplated Storm and Sanitary Sewer design <i>(Sec 6.1.E.vi)</i></p>	<p>If utilities are not proposed to be constructed at the same time roads are constructed, the applicant shall submit a plan with an indication of the contemplated storm and sanitary sewer design with preliminary engineering calculations, and a preliminary topographic map indicating how the land area is proposed to be shaped.</p>	<p>Sheets 16, 17 and 18 refer to that information</p>	<p>Yes?</p>	<p>Refer to Engineering review for related comments</p> <p>Please correct the sheet numbers under sheet index</p>
<p>Site Condominium <i>(Sec 6.1.E.vi)</i></p>	<p>If development is proposed as a site condominium, compliance with Section 6.3 is required, including the provision for Master Deed review.</p>	<p>9 Units; The existing water tower which is proposed to remain in its own unit as a non-conforming structure and/or use.</p>	<p>Yes</p>	<p>A request to allow this deviation is currently under review as part of the PRO Concept plan review, which is ongoing.</p>
<p>Exterior Lighting <i>(Sec. 5.7.2.N)</i></p>	<p>All residential developments shall provide lighting at each entrance intersecting with a major thoroughfare sufficient to illuminate the entrance of the development.</p> <ul style="list-style-type: none"> - Minimum illumination shall be 0.2 fc - Fixtures shall not exceed 25 ft. - Lighting shall be subject to the requirements of this Section of the Zoning Ordinance. 	<p>Light fixtures are indicated along the proposed private Road, in front of development monument sign (Two of them) and in Unit 4</p>	<p>No?</p>	<p>Additional comments provided later in the chart</p>
<p>Height, bulk, density and area limitations</p>				

Item	Required Code	Proposed	Meets Code	Comments
Frontage on a Public Street. (Sec. 5.12)	No lot or parcel of land shall be used for any purpose permitted by this Ordinance unless said lot or parcel shall front directly upon a public street, unless otherwise provided for in this Ordinance.	Each of the proposed lots has access from the proposed private drive. Unit 9 does not have any frontage on any drive.	No	A request to allow this deviation is currently under review as part of the PRO Concept plan review, which is ongoing.
Minimum Zoning Lot Size for each Unit in Ac	Except where otherwise provided in this Ordinance, the minimum lot area and width, and the maximum percent of lot coverage shall be determined on the basis of off-street parking, loading, greenbelt screening, yard setback or usable open space requirements as set forth in this Ordinance.	Lot sizes are not listed on the Sheet 10	No?	List Unit sizes and approximate lot coverage on Sheet 10 for each unit The subject property is currently zoned Expo and the applicant is requesting to be rezoned to TC. Height, bulk and density limitations should conform to Town Center standards, if the rezoning is approved; They would be subject to EXPO standards if the rezoning is not approved;
Minimum Zoning Lot Size for each Unit: Width in Feet				
Maximum % of Lot Area Covered (By All Buildings)				
Building Height	65 ft. or 5 stories, whichever is less	Information not provided.	No	A request to allow this deviation is currently under review as part of the PRO Concept plan review, which is ongoing
Building Setbacks				
Setbacks are to be measured from edge of 70 feet access proposed access easements.				
Front /Exterior Side Yard	50 feet minimum from all lot lines for exterior lot 15 feet minimum for front side, for interior lot lines 15 feet between separate buildings on same side	Unit 1 is requesting a reduction up to 35 ft. All other units are conforming	No?	A request of certain deviations from setbacks is currently under review as part of the PRO Concept plan review, which is ongoing Setbacks should conform to Town Center standards, if the rezoning is approved; They would be subject to EXPO standards if the rezoning is not approved;
Side	50 feet exterior 15 feet interior Exterior: lot lines located abutting non-TC district lots.	All units appear to conform; No deviations requested	No?	An illustrative plan is not provided with this

Item	Required Code	Proposed	Meets Code	Comments
	Interior: lot lines abutting TC district lots.			submittal, information is from the parallel PRO review
Rear	50 feet exterior 15 feet interior Exterior: lot lines located abutting non-TC district lots. Interior: lot lines abutting TC district lots.	All units appear to conform; No deviations requested	No?	
Note To District Standards (Sec 3.6.2)				
Exterior Side Yard Abutting a Street (Sec 3.6.2.C)	All exterior side yards abutting a street shall be provided with a setback equal to front yard.	Units 1, 5, 6, 7 and 8 have an exterior side yard	No?	
Minimum lot area and width (Sec 3.6.2.D)	Except where otherwise provided in this ordinance, the minimum lot area and width, maximum percentage of lot coverage shall be determined by the requirements set forth.	It is unclear whether each unit meets ordinance standards for setback, landscaping, parking, loading and open space etc. Refer to all reviews for other notes	No?	Unit 9 does not have any frontage on proposed private drive A request to allow this deviation is currently under review as part of the PRO Concept plan review, which is ongoing.
Yard setbacks (Sec 3.6.2.H&L)	If site abuts a residential zone, buildings must be set back at least 3' for each 1' of building height, but in no case can be less than 20' setback	Does not abut residential zoning	NA	
Wetland/Watercourse Setback (Sec 3.6.2.M)	A setback of 25 ft. from wetlands and from high watermark course shall be maintained	Wetland setbacks are shown on Sheet 4. It appears that there may be disturbance to the buffer; A wetland crossing is proposed from a pathway from Unit 4. Additional information such as type of construction, etc. is not provided	No?	Refer to wetlands review letter for more detail.

Item	Required Code	Proposed	Meets Code	Comments
Parking setback screening (Sec 3.6.2.P)	Required parking setback area shall be landscaped per sec 5.5.3.	Unable to determine. Information indicated to be provided with Preliminary site plan for individual units	No?	Refer to Landscape review for more details. Parking lot screening should conform to the code as deviations are not currently requested.
Modification of parking setback requirements (Sec 3.6.2.Q)	The Planning Commission may modify parking setback requirements based on its determination according to Sec 3.6.2.Q.	Site plan does not conform with front and side yard parking setback requirements	No?	An illustrative plan is not provided with this submittal, information is from the parallel PRO review
Subdivision Ordinance (Subdivision Ordinance Appendix C, Article IV)				
Blocks (Subdivision Ordinance: Sec. 4.01)	<ul style="list-style-type: none"> - Maximum length for all blocks shall not exceed 1,400 ft. - Widths of blocks shall be determined by the conditions of the layout. 	It is not designed as typical residential block layout	NA	Street blocks do not apply as a cul de sac is proposed for a non-residential development.
Lot Depth Abutting a Secondary Thoroughfare (Subdivision Ordinance: Sec. 4.02.A5)	Lots abutting a major or secondary thoroughfare must have a depth of at least 140'	Not applicable	NA	
Depth to Width Ratio (Subdivision Ordinance: Sec. 4.02.A6)	Lots shall not exceed a 3:1 depth to width ratio	They appear to be in conformance	Yes?	Provide the depth to width ratio for each lot
Arrangement (Subdivision Ordinance: Sec. 4.02.B)	<ul style="list-style-type: none"> - Every lot shall front or abut on a street. - Side lot lines shall be at right angles or radial to the street lines, or as nearly as possible thereto. - Residential lots abutting major thoroughfares shall include an approved screen planting and/or a raised berm, as determined by the Planning Board, contained in a non- 	<ul style="list-style-type: none"> - Unit 9 does not abut on any street - Units 1, 7 and 9 do not meet the code 	No?	A request for this deviation is currently under review as part of the PRO Concept plan review, which is ongoing

Item	Required Code	Proposed	Meets Code	Comments
	access greenbelt easement having a minimum width of fifteen (15) feet. Where power lines exist or are planned for such areas, the easement shall be at least twenty (20) feet wide. The screen plantings shall be installed at the time of construction of the subdivision.			
Streets <i>(Subdivision Ordinance: Sec. 4.04)</i>	Extend streets to boundary to provide access intervals not to exceed 1,300 ft. unless one of the following exists: <ul style="list-style-type: none"> - practical difficulties because of topographic conditions or natural features - Would create undesirable traffic patterns 	Stub streets are not proposed	No	<u>This deviation is not requested at this time.</u>
Secondary Access Sec. 4.04.A. 1.h	A secondary access is required	One is provided for entire development from Unit 9 to parking lot to the west.	No	<u>Refer to Engineering review for more details</u> All individual Units should have a second point of access
Topographic Conditions (Subdivision Ordinance Appendix C, Article IV, Sec 4.03)				
A. Flood plain	Compliance with applicable state laws and City Code Areas in a floodplain cannot be platted	Units 3, 4 and have flood plain in part of their rear yards	No	A request to allow this deviation is currently under review as part of the PRO Concept plan review, which is ongoing.
B. Trees and Landscaping	Compliance with Chapter 37 and Article 5 of City Zoning Code	Landscape Plan is provided.	NA	Refer to Landscape review for more comments
C. Natural Features	To be preserved Lots cannot extend into a wetland or watercourse	There are wetlands and woodlands that exist on site	Yes?	Refer to woodland and Wetland review letter for more details.
D. Man-made Features	To be built according to City standards	Not Applicable. None proposed	NA	

Item	Required Code	Proposed	Meets Code	Comments
<p>E. Open Space Areas</p>	<p>Any Open Space Area shall meet the following:</p> <ul style="list-style-type: none"> - Require performance guarantee - Shall be brought to a suitable grade - Compliance with zoning ordinance - Except for wooded areas, all ground area should be top dressed with a minimum of 25% of red fescue and a maximum of 20% perennial rye. 	<p>Applicant is proposing to use the southerly part of the site (south of Middle Rouge river) as open space</p>	<p>No?</p>	<p>As part of the PRO Concept plan review, a restoration plan is recommended for the southerly area, which was expected to be reviewed and to be approved as part of the Preliminary site plan/wetland permit approval. However, the current site plan submittal was submitted prior to receiving the PRO comments.</p> <p>Staff recommends to submit the following information prior to Planning Commission meeting</p>
<p>F. Non-Access Greenbelt Easements</p>	<p>The non-access greenbelt easements along rear or side property lines of those lots arranged according to Section 4.02.B.3. of this Ordinance, shall be developed in the following manner:</p> <ul style="list-style-type: none"> - Easements shall be at least fifteen (15) feet wide and shall extend along all lots abutting major thoroughfares. Where power lines exist or are planned for such areas, the easement shall be at least twenty (20) feet wide. - Easements shall contain suitable ground cover and a screen planting including such elements as earth berms, shrubs, coniferous and deciduous trees, as approved by the City. - The grading of these 	<p>The lot lines does not abut major thoroughfares</p>	<p>No</p>	

Item	Required Code	Proposed	Meets Code	Comments
	easements shall be approved by the City Engineer and other City Departments.			
G. Zoning Boundary Screening	A non-residential development abutting a residential development would need screening	Does not abut residential district	NA	
TC District Required Conditions (Sec 3.27)				
<p>The site is currently zoned Expo. The applicant has requested to rezone it to Town Center (TC) district with a Planned Rezoning Overlay. The PRO Concept plan is currently under review. The current site plan is reviewed against TC standards, contingent upon PRO approval. At that time, it will be subject to PRO agreement. Pertinent items under Sec 3.27 are referred below. Rest is reviewed as part of PRO review.</p>				
Site Plans (Sec. 3.27.1.A.)	Site area under 5 acres: Requires Planning Commission approval; Site area over 5 acres: Requires City Council approval upon Planning Commission recommendation	The parent parcel is over 5 acres. Individual lots are less than 5 acres	No?	<p>Site plan for roads and utilities plan and site condominium, requires City Council approval upon Planning Commission recommendation.</p> <p>Site plan approval for individual lots less than require Planning Commission approval, unless Council reserves the right to approval of site plans as part of PRO approval</p>
Bicycle Paths (Sec. 3.27.1 J)	Bike paths required to connect to adjacent residential & non-residential areas.	None provided	NA?	
Development amenities (Sec. 3.27.1 L)	All sites must incorporate amenities such as exterior lighting, outdoor furniture, and safety paths in accordance with Town Center Study Area.	<p>Minimal amenities are proposed ;</p> <p>Four focal areas are provided with enhanced landscaping.</p> <p>Five areas including the area to the south are identified as open space areas, but details such as benches, plazas, lighting, safety path etc. are not provided. Refer to sheet 19</p>	No?	<p>The applicant is asked to consider providing more amenities to meet the intent of destination entertainment center as indicated in the narrative.</p> <p>The design has more potential for providing more defined public gathering spaces, especially with Unit 4.</p>
Street and Roadway Rights-	Nonresidential collector and local streets shall	Roadway width: 36 feet Access Easement: 70	Yes	Traffic recommends a center turn lane. Refer to

Item	Required Code	Proposed	Meets Code	Comments
Of-Way (Sec. 3.27.1 N)	provide ROWs consistent with DCS standards Roadway width: 36 feet ROW/Access Easement: 70 feet	feet		Traffic and Engineering comments for more information
Sidewalk Requirements				
Sidewalks Article XII <i>Sec. 11-276(b)& Sec. 11-279</i> Town Center Area Study	- A 6' -10' wide sidewalk shall be constructed along all arterial and collector roads except in industrial districts - All pedestrian safety paths shall be concrete and four (4) in. thick except residential driveway crossings which shall be six (6) in. thick, and industrial/commercial driveway crossings which shall be eight (8) in. thick.	All proposed sidewalks along proposed Private Road and Adell drive are 6 feet wide	Yes	
Pedestrian Connectivity	Whether the traffic circulation features within the site and location of automobile parking areas are designed to assure safety and convenience of both vehicular and pedestrian traffic both within the site and in relation to access streets	This will be reviewed at the time of site plan review.	NA	The applicant should consider crosswalks to connect northerly and southerly part of development
Building Code and other design standard Requirements				
Building Code	Building exits must be connected to sidewalk system or parking lot.	Not Applicable.	NA	
Design and Construction Standards Manual (DSM)	Land description, Sidwell number (metes and bounds for acreage parcel, lot number(s), Liber, and page for subdivisions).	Incorrect description included, since it does not include the land proposed for Future ROW.	No	Existing ALTA survey (Sheet 6) shall be updated to include Future ROW.
General layout and dimension of proposed	Location of all existing and proposed buildings, proposed	Some dimensions are missing.	No	Please refer to review comments for additional details.

Item	Required Code	Proposed	Meets Code	Comments
physical improvements	building heights, building layouts, (floor area in square feet), location of proposed parking and parking layout, streets and drives, and indicate square footage of pavement area (indicate public or private).			
Other Requirements				
Property Split or Combination	Property combination or split shall be reviewed and approved by the Community Development Department.	A Master deed is required for the proposed condominium		<u>Drafts should be submitted prior to final stamping set approval for review</u>
Development and Street Names	Development and street names must be approved by the Street Naming Committee before Preliminary Site Plan approval	Development Name is approved by the Project Naming Committee	Yes	
Development/ Business Sign	Signage if proposed requires a permit.	Sign information provided	NA	<u>Signage is not reviewed as part of this application</u>
Lighting	A lighting and photometric plan is provided	Street lights along Adell Drive are proposed; Landscape up lights are proposed near the two Adell development signs Pedestrian lighting is proposed along the promenade in Unit 5	No?	<u>The plan does not clearly indicate the lot lines</u> All luminaires shall be full cut off. Light poles cannot conflict with utility easements or landscape Average to Minimum ratio for Adell Drive is exceeding the maximum allowed 4:1
Lighting and Photometric Plan (Sec. 5.7)				
STAFF COMMENT: Photometric plan and additional information is typically required at the time of Final Site Plan when the site is not abutting a residential district.				
Intent (Sec. 5.7.1)	Establish appropriate minimum levels, prevent unnecessary glare, reduce spill-over onto adjacent properties &	A plan is provided which indicates street lighting along Adell Drive, but does not include lighting for each unit.	No?	Photometric Plans will be required with Preliminary Site Plan submittal for each unit.

Item	Required Code	Proposed	Meets Code	Comments
	reduce unnecessary transmission of light into the night sky			
Lighting Plan (Sec. 5.7.2 A.i)	Site plan showing location of all existing & proposed buildings, landscaping, streets, drives, parking areas & exterior lighting fixtures			
Building Lighting (Sec. 5.7.2.A.iii)	Relevant building elevation drawings showing all fixtures, the portions of the walls to be illuminated, illuminance levels of walls and the aiming points of any remote fixtures.			
Lighting Plan (Sec.5.7.2 A.ii)	Specifications for all proposed & existing lighting fixtures	Provided	Yes?	Street lights conform to the requirement. However, staff recommends considering decorative lights as recommended in Town Center area study.
	Photometric data	Provided	Yes?	Road layout is not visible on the plan. Please provide a revised plan that indicates the site layout.
	Fixture height	Not indicated		
	Mounting & design	Indicated		
	Glare control devices	Indicated		
	Type & color rendition of lamps	Indicated		
	Hours of operation	Not indicated		
	Photometric plan illustrating all light sources that impact the subject site, including spill-over information from neighboring properties			
Required Conditions (Sec. 5.7.3.A)	Light pole height not to exceed maximum height of zoning district (65 ft. for TC)	Appears to be		

Item	Required Code	Proposed	Meets Code	Comments
Required Conditions (Sec. 5.7.3.B&G)	<ul style="list-style-type: none"> - Electrical service to light fixtures shall be placed underground - Flashing light shall not be permitted - Only necessary lighting for security purposes & limited operations shall be permitted after a site's hours of operation 			
Security Lighting (Sec. 5.7.3.H) Lighting for security purposes shall be directed only onto the area to be secured.	<ul style="list-style-type: none"> - All fixtures shall be located, shielded, and aimed at the areas to be secured. - Fixtures mounted on the building and designed to illuminate the facade are preferred. 			
Required Conditions (Sec.5.7.3.E)	Average light level of the surface being lit to the lowest light of the surface being lit shall not exceed 4:1	Unable to determine		The applicant has not demonstrated if this can be achieved. This can be demonstrated by providing a lighting plan with assumed light pole locations for an estimated calculation.
Required Conditions (Sec. 5.7.3.F)	Use of true color rendering lamps such as metal halide is preferred over high & low pressure sodium lamps			
Min. Illumination (Sec. 5.7.3.K)	Parking areas: 0.2 min			
	Loading & unloading areas: 0.4 min			
	Walkways: 0.2 min			
	Building entrances, frequent use: 1.0 min			
	Building entrances, infrequent use: 0.2 min			
Max. Illumination adjacent to Non-Residential (Sec. 5.7.3.K)	0BWhen site abuts a non-residential district, maximum illumination at the property line shall not exceed 1 foot			<u>The applicant has requested a deviation to allow spillover to exceed 1 fc along unit lines. Staff recommends to limit the</u>

Item	Required Code	Proposed	Meets Code	Comments
	candle			deviation to interior side lot lines one.
Cut off Angles <i>(Sec. 5.7.3.L)</i>	When adjacent to residential districts: - All cut off angles of fixtures must be 90° - maximum illumination at the property line shall not exceed 0.5 foot candle	Site does not abut residential districts	No	The applicant could still consider full off fixtures instead of antique street lamps along the promenade in Unit 4

NOTES:

1. This table is a working summary chart and not intended to substitute for any Ordinance or City of Novi requirements or standards.
2. The section of the applicable ordinance or standard is indicated in parenthesis. Please refer to those sections in Article 3, 4 and 5 of the zoning ordinance for further details.
3. Please include a written response to any points requiring clarification or for any corresponding site plan modifications to the City of Novi Planning Department with future submittals.

ENGINEERING REVIEW



PLAN REVIEW CENTER REPORT

August 16, 2018

Engineering Review

Adell Center – Roads and Utilities
JSP18-0027

Applicant

Orville Properties

Review Type

Preliminary/Final Site Plan

Property Characteristics

- Site Location: West of Novi Road, North of Crescent Drive
- Site Size: 22.48 acres
- Plan Date: 07/19/2018
- Design Engineer: Greentech Engineering, Inc.

Project Summary

- Construction of roads and utilities to serve multiple commercial developments on the site.
- Water service would be provided by two connections to existing City water main south of site at Crescent Boulevard, and west of the development for a looped system.
- Sanitary sewer service would be provided extension of sanitary sewer from existing 15-inch sanitary sewer southwest of the site.
- Storm water would be collected by a single storm sewer collection system. The site is located within the drainage area for the C&O Regional detention basin. Restricted discharge via the Walled Lake Branch of the Middle Rouge is proposed with bankfull storage provided in a proposed underground detention system.

Recommendation

Approval of the Preliminary Site Plan and storm water management is recommended; approval of the Final Site Plan is NOT recommended.

Comments:

The Preliminary Site Plan meets the general requirements of Chapter 11 of the Code of Ordinances, the Storm Water Management Ordinance and the Engineering Design

Manual. Additional detail and information is required for Final Site Plan approval, as described in the following comments.

General

1. A right-of-way permit will be required from the City of Novi for work in the Crescent Boulevard and Expo Center Drive right-of-way.
2. Provide the City's standard detail sheets for water main (5 sheets-rev. 02/16/2018), sanitary sewer (3 sheets- rev. 02/16/2018), storm sewer (2 sheets-rev. 02/16/2018), and paving (2 sheets-rev. 03/05/2018) at the time of the Stamping Set submittal. These details can be found on the City's website at this location: <http://cityofnovi.org/Government/City-Services/Public-Services/Engineering-Division/Engineering-Standards-and-Construction-Details.aspx> Non-domestic user survey forms will be required from each occupant with the site plan submittals for development of each unit.
3. The demolition plan indicates site benchmarks 2 and 3 will be removed. Additional benchmarks may need to be referenced to City established benchmark(s). An interactive map of the City's established survey benchmarks can be found under the 'Map Gallery' tab on www.cityofnovi.org.
4. A stub street to the property boundary at intervals not to exceed 1,300 feet along the perimeter is required by ordinance. **A request for variance from Appendix C Section 4.04(A)(1) of the Novi City Code can be requested.** City staff supports this request, and this is being considered with the PRO review process, concurrent with this site plan review.
5. The length of Adell Drive exceeds the maximum cul-de-sac street length of eight hundred (800) feet. **A variance from Section 11-194(a)7 of the Design and Construction Standards can be requested.** Staff can support this request, and this is being considered with the PRO review process, concurrent with this site plan review.
6. Provide a table listing the quantities of each sign type proposed for the development. Provide a note along with the table stating all traffic signage will comply with the current MMUTCD standards.
7. Provide a traffic control plan for the proposed road work activity (City roads).
8. Provide a utility crossing table indicating that at least 18-inch vertical clearance will be provided, or that additional bedding measures will be utilized at points of conflict where adequate clearance cannot be maintained.
9. Provide a note stating if dewatering is anticipated or encountered during construction a dewatering plan must be submitted to the Engineering Division for review.
10. Generally, all proposed trees shall remain outside utility easements. Where proposed trees are required within a utility easement, the trees shall maintain a minimum 5-foot horizontal separation distance from any existing or proposed utility. All utilities shall be shown on the landscape plan, or other

- appropriate sheet, to confirm the separation distance.
11. Show the locations of all light poles on the utility plan and indicate the typical foundation depth for the pole to verify that no conflicts with utilities will occur. Light poles in a utility easement will require a License Agreement.
 12. Per Section 26.5-35(h), a statement is required on any plan containing a private street with the following language: "City of Novi has no responsibility to improve or maintain the private streets contained within or private streets providing access to the property described in this plan".

Water Main

13. Fire hydrants shall be provided as required by the Fire Marshal, generally at no more than five hundred (500) foot intervals and such that no part of a building is more than three hundred (300) feet of hose length from a hydrant.
14. Place the hydrants at least 7 feet off back of curb (allowing 3-foot clearance from sidewalk).
15. A tapping sleeve, valve and well is required at the connection to the existing water main.
16. Shut off valves are required at the main for each domestic and fire lead.
17. Provide additional valves to limit pipe runs to a maximum of 800 feet between valves.
18. Include the location and length of jack and bore segment on water main profile.
19. Call out vertical bends where required on water main profile.
20. Three (3) sealed sets of revised utility plans along with the MDEQ permit application (06/12 rev.) for water main construction and the Streamlined Water Main Permit Checklist should be submitted to the Engineering Division for review, assuming no further design changes are anticipated. Utility plan sets shall include only the cover sheet, any applicable utility sheets and the standard detail sheets.

Sanitary Sewer

21. Revise the sanitary sewer alignment to outside the sidewalk. Water main and sewer main can be placed along the same or opposite sides Adell Drive to minimize utility crossings and conflicts.
22. Confirm size and location of sanitary sewer and sewer easement to the southwest to determine if any off site easements are needed for proposed sanitary sewer extension.
23. Each building is required to have a unique sanitary sewer monitoring manhole, within a dedicated 20-foot wide access easement to the monitoring manhole from the public right-of-way (rather than a public sanitary sewer easement).

24. On sheet 17, show the estimated capacity of the 10-inch sanitary sewer proposed to connect to existing sanitary sewer west of the site.
25. Note on the construction materials table that 6-inch sanitary leads shall be a minimum SDR 23.5, and mains shall be SDR 26.
26. Provide a note on the Utility Plan and sanitary profile stating the sanitary lead will be buried at least 5 feet deep where under the influence of pavement.
27. Provide a testing bulkhead immediately upstream of the sanitary connection point. Additionally, provide a temporary 1-foot deep sump in the first sanitary structure proposed upstream of the connection point, and provide a secondary watertight bulkhead in the downstream side of this structure.
28. Provide a drop of one-tenth (0.1) foot in downstream sewer invert at direction changes greater than thirty (30) degrees.
29. Seven (7) sealed sets of revised utility plans along with the MDEQ permit application (01/18 rev.) for sanitary sewer construction and the Streamlined Sanitary Sewer Permit Certification Checklist should be submitted to the Engineering Division for review, assuming no further design changes are anticipated. Utility plan sets shall include only the cover sheet, any applicable utility sheets and the standard detail sheets. Also, the MDEQ can be contacted for an expedited review by their office.

Storm Sewer

30. A minimum cover depth of 3 feet shall be maintained over all storm sewers. In situations where the minimum cover cannot be achieved, Class V pipe must be used with an absolute minimum cover depth of 2 feet. An explanation shall be provided where the cover depth cannot be provided.
31. Provide all storm sewer sizing calculations.
32. Provide a 0.1-foot drop in the downstream invert of all storm structures where a change in direction of 30 degrees or greater occurs.
33. Match the 0.80 diameter depth above invert for pipe size increases.
34. Storm manholes with differences in invert elevations exceeding two feet shall contain a 2-foot deep plunge pool.
35. Label all inlet storm structures on the profiles. Inlets are only permitted in paved areas and when followed by a catch basin within 50 feet.
36. Label the 10-year HGL on the storm sewer profiles, and ensure the HGL remains at least 1-foot below the rim of each structure.
37. Illustrate all pipes intersecting storm structures on the storm profiles.
38. An easement is required over the storm sewer accepting and conveying off-site drainage.
39. Provide a schedule listing the casting type and other relevant information for each proposed storm structure on the utility plan. Round castings shall be provided on all catch basins except curb inlet structures.

Storm Water Management Plan

40. The Storm Water Management Plan (SWMP) shall comply with the Storm Water Ordinance and Chapter 5 of the Engineering Design Manual (refer to the runoff coefficients, 1V:4H allowable basin slopes, etc.).
41. The conceptual storm water management plan indicates underground storage in three locations sized for bankfull volume. Indicate the proposed location of each first flush storm water quality treatment unit for each building unit and the roadway. Each unit will require its own Storm Drain Facility Maintenance Easement Agreement.
42. Provide supporting calculations for runoff coefficient determination. A runoff coefficient of 0.35 shall be used for all turf grass lawns (mowed lawns).
43. Identify the location of each underground detention outlet control structure and indicate the invert elevation where discharging to the Walled Lake Branch of the Middle Rouge. MDEQ permitting will be required for any new outlet locations.
44. An adequate maintenance access route to the outlet structures and any other pretreatment structures shall be provided (15 feet wide, maximum slope of 1V:5H, and able to withstand the passage of heavy equipment). The access route(s) must not conflict with proposed landscaping.
45. A Storm Drain Facility Maintenance Easement Agreement and access easement the outlet structures will be required for the underground detention units.
46. Indicate the overland routing or storm sewer bypass designed for the event that the underground system cannot accept flow.
47. Provide a soil boring in the vicinity of the proposed underground detention system to determine bearing capacity and the high water elevation of the groundwater table.
48. Provide a cross-section of each underground detention system showing critical elevations (low water, and bankfull high water, and pavement elevation). Ensure at least 1 ft. of freeboard between the high water elevation and the subgrade elevation under the pavement.
49. The underground detention system(s) shall be kept outside the influence of any planting areas.
50. The plans show two alternatives for underground detention systems. One type should be selected and shown on a revised final site plan for full review.
51. Provide release rate calculations for the design storm events (first flush, bankfull).

Paving & Grading

52. No more than ¼" vertical obstacle shall be allowed at each transition between the pathway and the drive approach.
53. Provide existing topography and 2-foot contours extending at least 100 feet past the site boundary. Any off-site drainage entering this site shall be identified.

54. Site grading shall be limited to 1V:4H (25-percent), excluding landscaping berms.
55. Provide spot grades along property lines adjacent to perimeter curb line to demonstrate that site drainage is self-contained.
56. Show the limits of the 100-year floodplain and floodway and Base Flood Elevations for the Walled Lake Branch of the Middle Rouge River.
57. A City of Novi floodplain use permit may be required for any proposed floodplain impact. An MDEQ floodplain use permit may also be required for discharge to the Middle Rouge. The applicant will need to confirm any required MDEQ permitting.
58. The secondary access road to the west is proposed with a temporary gravel surface within the limits of the Unit 2 lot. **A request for variance from Section 11-194(a)19 of the Design and Construction Standards can be requested for gravel surface for the secondary emergency access road.** This request may be supported for a short-term, temporary solution only. The developer may be responsible for paving of the access route depending on the timing of the build out of Unit 2. This variance is being considered with the PRO concept plan review, concurrent with this site plan review.
59. An emergency access easement is required on Units 2 and 9 for the 20 foot secondary emergency access route shown on the plans.
60. Off-site emergency access agreement is required for the secondary access route shown to the west.
61. Vertical curves of on the proposed road profile should be designed in accordance with Figure VIII-D of the Design & Construction Standards.

Flood Plain

62. A City of Novi floodplain use permit will be required for the proposed floodplain impact. This should be submitted as soon as possible. Contact the Building Department for submittal information. An MDEQ floodplain use permit may also be required prior to site plan approval.
63. Show the limits of the 100-year flood plain and floodway, if applicable, per the current FIRM maps (2006).

Soil Erosion and Sediment Control

64. A SESC permit is required and has been applied for under separate cover.

Off-Site Easements

65. Any off-site easements anticipated must be executed **prior to final approval of the plans.** Drafts of the easements and a recent title search shall be submitted to the Community Development Department as soon as possible for review, and shall be approved by the Engineering Division and the City Attorney prior to executing the easements.

The following must be submitted with the Revised Final Site Plan:

66. A letter from either the applicant or the applicant's engineer must be submitted with the Stamping Set highlighting the changes made to the plans addressing each of the comments listed above and indicating the revised sheets involved. **Additionally, a statement must be provided stating that all changes to the plan have been discussed in the applicant's response letter.**
67. A revised itemized construction cost estimate must be submitted to the Community Development Department for the determination of plan review and construction inspection fees. This estimate should only include the civil site work and not any costs associated with construction of the building or any demolition work. **The estimate must be itemized** for each utility (water, sanitary, storm sewer), on-site paving (square yardage), right-of-way paving (including proposed right-of-way), grading, and the storm water basin (basin construction, control structure, pretreatment structure and restoration).
68. A draft copy of the off-site emergency access easement must be submitted to the Community Development Department. This document is available on our website.

The following must be submitted with the Stamping Set:

(Please note that all documents must be submitted together as a package with the Stamping Set submittal with a legal review transmittal form that can be found on the City's website. Partial submittals will not be accepted.)

69. A draft copy of the Storm Drainage Facility Maintenance Easement Agreement, as outlined in the Storm Water Management Ordinance, must be submitted to the Community Development Department. Once the form of the agreement is approved, this agreement must be approved by City Council and shall be recorded in the office of the Oakland County Register of Deeds. This document is available on our website.
70. A draft copy of the 20-foot wide easement for the water main to be constructed on the site must be submitted to the Community Development Department. This document is available on our website.
71. A draft copy of the 20-foot wide easement for the sanitary sewer to be constructed on the site must be submitted to the Community Development Department. This document is available on our website.
72. A 20-foot wide easement where storm sewer or surface drainage crosses lot boundaries must be shown on the Exhibit B drawings of the Master Deed.
73. Executed copies of approved off-site easements.

The following must be addressed prior to construction:

74. A pre-construction meeting shall be required prior to any site work being started. Please contact Sarah Marchioni in the Community Development Department to setup a meeting (248-347-0430).

75. A City of Novi Grading Permit will be required prior to any grading on the site. This permit will be issued at the pre-construction meeting (no application required). No fee is required for this permit.
76. Material certifications must be submitted to Spalding DeDecker for review prior to the construction of any utilities on the site. Contact Ted Meadows at 248-844-5400 for more information.
77. Construction inspection fees in an amount to be determined must be paid to the Community Development Department.
78. Legal escrow fees must be deposited with the Community Development Department. Unused escrow will be returned to the payee at the end of the project. This amount includes engineering legal fees only. There may be additional legal fees for planning legal documents.
79. A storm water performance guarantee in an amount of equal to 120% of the cost required to complete the storm water management facilities as specified in the Storm Water Management Ordinance must be posted at the Community Development Department.
80. Water and Sanitary Sewer Fees must be paid prior to the pre-construction meeting. Contact the Water & Sewer Division at 248-347-0498 to determine the amount of these fees.
81. A street sign financial guarantee in the amount of \$400 per traffic control sign proposed must be posted at the Community Development Department. Signs must be installed in accordance with MMUTCD standards.
82. A Soil Erosion Control Permit must be obtained from the City of Novi. Contact Sarah Marchioni in the Community Development Department, Building Division (248-347-0430) for forms and information. The financial guarantee and inspection fees will be determined during the SESC review.
83. A permit for work within the right-of-way must be obtained from the City of Novi. The application is available from the City Engineering Division or on the City website and may be filed once the Final Site Plan has been submitted. Please contact the Engineering Division at 248-347-0454 for further information. Only submit the cover sheet, standard details and plan sheets applicable to the permit.
84. A permit for water main construction must be obtained from the MDEQ. This permit application must be submitted through the City Engineer after the water main plans have been approved. Only submit the cover sheet, overall utility sheet, standard details and plan/profile sheets applicable to the permit.
85. A permit for sanitary sewer construction must be obtained from the MDEQ. This permit application must be submitted through the City Engineer after the sanitary sewer plans have been approved. Only submit the cover sheet, overall utility sheet, standard details and plan/profile sheets applicable to the permit.

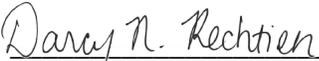
86. An NPDES permit must be obtained from the MDEQ because the site is over 5 acres in size. The MDEQ may require an approved SESC plan to be submitted with the Notice of Coverage.
87. An inspection permit for the sanitary sewer tap must be obtained from the Oakland County Water Resource Commissioner.

The following must be addressed prior to issuance of a Temporary Certificate of Occupancy approval for the development:

88. The amount of the incomplete site work performance guarantee for any outstanding site improvement items, limited to top course of pavement and other minor items, at 1.2 times the amount required to complete the site improvements as specified in the Performance Guarantee Ordinance.
89. All easements and agreements referenced above must be executed, notarized and approved by the City Attorney and City Engineer.
90. A Bill of Sale for the utilities conveying the improvements to the City of Novi must be submitted to the Community Development Department. This document is available on our website.
91. Spalding DeDecker will prepare the record drawings for this development. The record drawings will be prepared in accordance with Article XII, Design and Construction Standards, Chapter 11 of the Novi Code of Ordinances.
92. Submit to the Community Development Department, Waivers of Lien from any parties involved with the installation of each utility as well as a Sworn Statement listing those parties and stating that all labor and material expenses incurred in connection with the subject construction improvements have been paid.
93. Submit a Maintenance Bond to the Community Development Department in the amount to be determined (equal to 25 percent of the cost of the construction of the utilities to be accepted). This bond must be for a period of two years from the date that the Utility Acceptance Permit is issued by the City of Novi Engineering Division. This document is available on our website.
94. Submit an up-to-date Title Policy (dated within 90 days of City Council consideration of acceptance) for the purpose of verifying that the parties signing the Easement and Bill of Sale documents have the legal authority to do so. Please be sure that all parties of interest shown on the title policy (including mortgage holders) either sign the easement documents themselves or a Subordination Agreement. Please be aware that the title policy may indicate that additional documentation is necessary to complete the acceptance process.

To the extent this review letter addresses items and requirements that require the approval of or a permit from an agency or entity other than the City, this review shall not be considered an indication or statement that such approvals or permits will be issued.

Please contact Darcy Rechtien at (248) 735-5695 with any questions.



Darcy N. Rechtien, P.E.

cc: Sri Komaragiri, Community Development
Kristin Pace, Treasurers
Ben Croy, Water and Sewer
Theresa Bridges, Engineering
George Melistas, Engineering

LANDSCAPE REVIEW



PLAN REVIEW CENTER REPORT

August 8, 2018

Combined Preliminary/Final Site Plan

Adell Center Roads & Utilities

Review Type

Combined Preliminary/Final Roads & Utilities Plan Landscape Review

Job

JSP18-0027

Property Characteristics:

- Site Location: Northwest of Novi Road/Crescent Drive.
- Site Zoning: Expo – Proposed rezoning to TC with PRO
- Adjacent Zoning: North: I-96, East: TC, South: TC/I-1, West: I-2
- Plan Date: July 19, 2018

Recommendation:

This plan, which only covers landscaping for the internal drive and I-96 frontage, is **recommended for approval for Preliminary Site Plan, but not for Final Site Plan**. Some revisions are necessary to meet all ordinance requirements, but there are no additional requirements for a landscape deviation. The changes required can be handled as part of the revised Final Site Plan process.

GENERAL NOTE:

1. Please add call-outs on Sheets L-1 and L-2, labeling each Focus area with the area label shown on L-3 and making clear that they will be constructed as Part of Phase I.
2. Please remove the landscaping that is not part of the Road & Utilities Construction from these plans.

Ordinance Considerations:

This project was reviewed for conformance with Chapter 37: Woodland Protection, Zoning Article 5.5 Landscape Standards, the Landscape Design Manual and any other applicable provisions of the Zoning Ordinance. Items in **bold** below and on the accompanying Landscape Chart must be addressed as part of the revised Final Site Plan submittal. Please follow guidelines of the Zoning Ordinance and Landscape Design Guidelines. This review and the accompanying landscape chart are summaries and are not intended to substitute for any Ordinance.

Existing Soils (Preliminary Site Plan checklist #10, #17)

Provided

Existing and proposed overhead and underground utilities, including hydrants.(LDM 2.e.(4))

1. Provided.
2. **Please add all proposed lighting fixtures to the landscape plans to help avoid conflicts.**

Existing Trees (Sec 37 Woodland Protection, Preliminary Site Plan checklist #17 and LDM 2.3 (2))

1. A tree survey is provided.
2. It appears that all but two non-regulated trees, north of the stream, will be removed. Two trees within the regulated woodland are shown as being removed and will be replaced with nine trees.

Proposed topography. 2' contour minimum (LDM 2.e.(1))

1. Conceptual berms along Adell Drive are shown on the landscape plans, outside of the Adell Drive's access easement. They are noted as being constructed in future phases.
2. A berm is also proposed along the I-96 frontage. **That berm should undulate in height, with a minimum height of 36"**. No berm is required for Unit 1, where the building will front directly on the I-96 right-of-way or in front of the sign at the east end of the site.
3. Please clearly note that the I-96 berm and landscaping will be built as part of the Roads & Utilities phase of construction.

Street Tree Requirements (Zoning Sec. 5.5.3.E.i.c and LDM 1.d.)

1. Street trees are not required along I-96, or in the TC district.
2. 57 of the required greenbelt trees along Adell Drive are proposed as street trees. This is acceptable and appreciated.
3. **Please clearly note that the street trees will be installed as part of the Roads & Utilities Construction Phase.**

Adjacent to Public Rights-of-Way – Berm (Wall) & Buffer (Zoning Sec. 5.5.3.B.ii and iii)
I-96.

1. A 36" berm is proposed for all of the frontage except between the cul-de-sac and the I-96 right-of-way, where a wall is proposed
2. **The berm should have undulations with a minimum height of 36"**.
3. **The wall should be at least 36" high to screen headlights from reaching I-96.**
4. **Some of the subcanopy trees along the I-96 berm should be changed to canopy trees to meet the parking lot perimeter tree requirements.**
5. **The canopy trees should be provided at a rate of 1/35lf of parking areas and be spaced evenly along the berm.**

Adell Drive.

1. A mix of berm, 2.5' tall brick wall and 2.5' brick pilasters and ornamental fencing, as requested in the Town Center Study, is provided along both sides of Adell Drive. They are noted as being built in future phases.
2. The 20 foot greenbelt starts at the back edge of the sidewalk. The unit lines are drawn to the back of curb, not 1' behind the sidewalk as is typically the case.

Corner Clearance (Zoning Sec 5.9)

1. Provided.
2. **Please adjust the trees at the new Unit 7 entrance to take them out of the corner clearance zones.**

Parking Lot Landscaping – interior and perimeter (Zoning Sec. 5.5.3.C.)

Not applicable for this phase of construction.

Snow Deposit (LDM.2.q.)

1. Snow deposit areas are shown on the site, along with a note that snow will be deposited along the edge of the road.
2. **Please add at least one snow deposit area along Adell Drive for snow that can't be handled along the side of the road.**

Building Foundation Landscape Requirements (Sect 5.5.3.D)

Not applicable for this phase of construction.

Transformer/Utility Box Screening (Zoning Sec 5.5.3.D.)

Not applicable for this phase of construction.

Storm Basin Landscape (Zoning Sec 5.5.3.E.iv and LDM 1.d.(3))

1. As only underground storm water detention is proposed, no detention landscaping is required.
2. If any surface level detention is required or proposed, the required detention basin landscaping must be provided.

Plant List (LDM 2.h. and t.)

1. Plant lists for the I-96 and Adell Drive greenbelts, and the focus areas, are provided.
2. **Please adjust each plant list as necessary to provide species native to Michigan for at least 50% of the species used.**
3. **Please remove the plants and plant lists for future phases of construction to avoid confusion with this phase of construction.**

Planting Notations and Details (LDM)

Provided

Irrigation (LDM 1.a.(1)(e) and 2.s)

Irrigation plan for landscaped areas or an alternative plan for ensuring that plants get the water required for establishment and long-term survival is required for Final Site Plans.

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.735.5621 or rmeader@cityofnovi.org.



Rick Meader – Landscape Architect

LANDSCAPE REVIEW SUMMARY CHART – Roads & Utilities Plan

Review Date: August 8, 2018
Project Name: JSP18 – 0027: Adell Center Roads & Utilities Plan
Plan Date: July 19, 2018
Prepared by: Rick Meader, Landscape Architect E-mail: rmeader@cityofnovi.org;
 Phone: (248) 735-5621

Items in **Bold** need to be addressed by the applicant before approval of the Preliminary Site Plan. Underlined items need to be addressed for Final Site Plan. *Italicized* comments need to be addressed on individual units' plans.

GENERAL NOTES:

1. Please add call-outs on Sheets L-1 and L-2, labeling each Focus area with the area label shown on L-3 and making clear that they will be constructed as Part of Phase I.
2. Please remove all future plantings from these Landscape Plans to avoid confusion.

Item	Required	Proposed	Meets Code	Comments
Landscape Plan Requirements (LDM (2))				
Landscape Plan <i>(Zoning Sec 5.5.2, LDM 2.e.)</i>	<ul style="list-style-type: none"> ▪ New commercial or residential developments ▪ Addition to existing building greater than 25% increase in overall footage or 400 SF whichever is less. ▪ 1"=20' minimum with proper North. Variations from this scale can be approved by LA ▪ Consistent with plans throughout set 	Landscape plans: 1"=40' Focal areas: 1"=20'	Yes	
Project Information <i>(LDM 2.d.)</i>	Name and Address	Yes	Yes	
Owner/Developer Contact Information <i>(LDM 2.a.)</i>	Name, address and telephone number of the owner and developer or association	Yes	Yes	
Landscape Architect contact information <i>(LDM 2.b.)</i>	Name, Address and telephone number of RLA	Yes	Yes	
Sealed by LA. <i>(LDM 2.g.)</i>	Requires original signature	Yes	Yes	<u>Need for Final Site Plans</u>
Miss Dig Note (800) 482-7171 <i>(LDM.3.a.(8))</i>	Show on all plan sheets	Yes	Yes	
Zoning <i>(LDM 2.f.)</i>	Include all adjacent zoning	<u>Parcel:</u> EXPO Rezone to TC w/PRO	Yes	

Item	Required	Proposed	Meets Code	Comments
		<u>North:</u> I-96 <u>East:</u> TC <u>South:</u> TC/I-1 <u>West:</u> I-2		
Survey information (LDM 2.c.)	<ul style="list-style-type: none"> ▪ Legal description or boundary line survey ▪ Existing topography 	Sheets 6-9	Yes	
Existing plant material Existing woodlands or wetlands (LDM 2.e.(2))	<ul style="list-style-type: none"> ▪ Show location type and size. Label to be saved or removed. ▪ Plan shall state if none exists. 	Sheets 28-29	Yes	See ECT review for detailed discussion of woodland replacement requirements.
Soil types (LDM.2.r.)	<ul style="list-style-type: none"> ▪ As determined by Soils survey of Oakland county ▪ Show types, boundaries 	Sheet 2	Yes	
Existing and proposed improvements (LDM 2.e.(4))	Existing and proposed buildings, easements, parking spaces, vehicular use areas, and R.O.W	Yes	Yes	
Existing and proposed utilities (LDM 2.e.(4))	<ul style="list-style-type: none"> • Overhead and underground utilities, including hydrants • Show all light posts on landscape plan 	Proposed storm sewer, water and sanitary are provided.	Yes	Please add all lighting fixtures to the landscape plan to avoid conflicts.
Proposed grading. 2' contour minimum (LDM 2.e.(1))	Provide proposed contours at 2' interval	<ul style="list-style-type: none"> • Contours showing a 3' berm along parts of Adell Drive, in the greenbelt are provided, which will be built in future phases. • Contours showing a 3' berm along I-96 frontage are provided. 	Yes	The berm along I-96 needs to undulate in height, with a 36" minimum height to screen the vehicles from view of I-96.
Snow deposit (LDM.2.q.)	Show snow deposit areas on plan	A note indicates that the snow will be deposited along the drive.	Yes/No	Please indicate at least one area for deposit of excess snow that won't fit along the road (such as for the cul-de-sac).
LANDSCAPING REQUIREMENTS				
Parking Area Landscape Requirements LDM 1.c. & Calculations (LDM 2.o.)				
General requirements (LDM 1.c)	<ul style="list-style-type: none"> ▪ Clear sight distance within parking islands 	NA		

Item	Required	Proposed	Meets Code	Comments
	<ul style="list-style-type: none"> No evergreen trees 			
Name, type and number of ground cover (LDM 1.c.(5))	As proposed on planting islands	Sod is indicated to cover the area between sidewalk and curb for Phase 1	Yes	
General (Zoning Sec 5.5.3.C.ii)				
Parking lot Islands (a, b, i)	<ul style="list-style-type: none"> A minimum of 200 SF to qualify A minimum of 200sf unpaved area per tree planted in an island 6" curbs Islands minimum width 10' BOC to BOC 	NA		
Curbs and Parking stall reduction (c)	Parking stall can be reduced to 17' and the curb to 4" adjacent to a sidewalk of minimum 7 ft.	NA		
Contiguous space limit (j)	Maximum of 15 contiguous spaces	NA		
Plantings around Fire Hydrant (d)	No plantings with matured height greater than 12' within 10 ft. of fire hydrants or utility structures, or 5' from underground utility lines.	Proper spacing is provided.	Yes	
Landscaped area (g)	Areas not dedicated to parking use or driveways exceeding 100 sq. ft. shall be landscaped	Notes indicate that the area between the sidewalk and the curb will be sodded.	Yes	
Clear Zones (LDM 2.3.(5))	25 ft corner clearance required. Refer to Zoning Section 5.5.9	Clear zones are provided and trees are not located within them for all but the new entry to Unit 7	Yes/No	<ol style="list-style-type: none"> Please add clear zones for Unit 7's new entry and adjust trees as necessary. Please provide clear zones as necessary.
Category 1: For OS-1, OS-2, OSC, OST, B-1, B-2, B-3, NCC, EXPO, FS, TC, TC-1, RC, Special Land Use or non-residential use in any R district (Zoning Sec 5.5.3.C.iii)				
A = Total square footage of vehicular use areas up to 50,000sf x 7.5%	<ul style="list-style-type: none"> $A = x \text{ sf} * 7.5\% = A \text{ sf}$ $x * 7.5\% = A \text{ sf}$ 	NA		
B = Total square footage of additional paved vehicular use areas (not including	<ul style="list-style-type: none"> $B = x \text{ sf} * 1\% = B \text{ sf}$ $(xxx - 50000) * 1\% = B \text{ sf}$ 	NA		

Item	Required	Proposed	Meets Code	Comments
A or B) over 50,000 SF) x 1 %				
Category 2: For: I-1 and I-2 (Zoning Sec 5.5.3.C.iii)				
A. = Total square footage of vehicular use area up to 50,000 sf x 5%	$A = x \text{ sf} * 5\% = A \text{ sf}$	NA		
B = Total square footage of additional paved vehicular use areas over 50,000 SF x 0.5%	$B = 0.5\% \times 0 \text{ sf} = B \text{ SF}$	NA		
All Categories				
C = A+B Total square footage of landscaped islands	$xxx + xxx = xx \text{ SF}$	NA		
D = C/200 Number of canopy trees required	$xx/200 = xx \text{ Trees}$	NA		
Perimeter Green space	1 Canopy tree per 35 lf	No deciduous canopy perimeter trees are proposed	No	<ol style="list-style-type: none"> 1. Please clearly indicate that the I-96 berm and landscaping will be part of the Road & Utilities phase of construction. 2. Please add required deciduous canopy trees (minimum mature height of 30 feet and canopy width of 20 feet) along I-96 berm where it abuts vehicular use areas at a rate of 1/35lf, spaced evenly along the vehicular use areas. They can replace some of the subcanopy trees used there.
Parking land banked	NA	None		
Berms, Walls and ROW Planting Requirements				
Berms				
<ul style="list-style-type: none"> ▪ All berms shall have a maximum slope of 33%. Gradual slopes are encouraged. Show 1ft. contours ▪ Berm should be located on lot line except in conflict with utilities. ▪ Berms should be constructed with 6" of top soil. 				

Item	Required	Proposed	Meets Code	Comments
Residential Adjacent to Non-residential (Sec 5.5.3.A) & (LDM 1.a)				
Berm requirements (Zoning Sec 5.5.A)	Site does not abut residential so no berm is required for this purpose.	None	Yes	
Planting requirements (LDM 1.a.)	LDM Novi Street Tree List	NA		
Adjacent to Public Rights-of-Way (Sec 5.5.B) and (LDM 1.b)				
Berm requirements (Zoning Sec 3.27.1.D and 5.5.3.B.(5), LDM 1.b)	<ul style="list-style-type: none"> ▪ Surface parking lots within the TC-1 district need to be screened from the right-of-way line by either: <ul style="list-style-type: none"> ○ a 2.5' ornamental brick wall OR ○ semi-transparent screening such as a brick pilaster with metal decorative fence, OR ○ a landscaped berm. ▪ In addition, the Landscape Design Manual 1.b (2)(c) requires that sites adjacent to freeways achieve substantial aesthetic enhancement and diminution of paving and parking views along these corridors. 	A wall is proposed north of the cul-de-sac.	Yes	<ol style="list-style-type: none"> 1. Please add a call-out for the retaining wall north of the cul-de-sac, and note that it will be built as part of the Roads & Utilities Phase. Also, please indicate whether the wall will match the other walls along Adell or be some other design. 2. The wall should be at least 3 feet tall to block headlights from shining toward I-96.
Cross-Section of Berms (LDM 2.j)				
Slope, height and width	<ul style="list-style-type: none"> ▪ Label contour lines ▪ Maximum 33% ▪ Min. 3 feet flat horizontal area ▪ Minimum 3 feet high ▪ Constructed of loam with 6' top layer of topsoil. 	Detail for I-96 berm is provided on Sheet L-2.	Yes/No	Please add callouts that berms are to be built of loam, with a 6" top layer of topsoil.
Type of Ground Cover		NA		
Setbacks from Utilities	Overhead utility lines and 15 ft. setback from edge of utility or 20 ft. setback from closest pole	A note indicates that there are no overhead utility lines on the site.		

Item	Required	Proposed	Meets Code	Comments
Walls (LDM 2.k & Zoning Sec 5.5.3.vi)				
Material, height and type of construction footing	Freestanding walls should have brick or stone exterior with masonry or concrete interior	A standard wall detail is provided on L-4.	Yes	
Walls greater than 3 ½ ft. should be designed and sealed by an Engineer		No details provided	TBD	If walls taller than 3.5' are proposed, detailed construction drawings will need to be reviewed for building permits.
ROW Landscape Screening Requirements (Sec 5.5.3.B. ii) – USE TC Requirements				
Greenbelt width (2)(3) (5)	Adjacent to Pkg: 20 ft. Not adjacent to Pkg: 0 ft	NA		
Min. berm crest width	3 ft along I-96	Approx. 5 feet	Yes	
Minimum berm ht (9)	3 ft along I-96	Approx 3. – no undulations	Yes/No	Minimum height of undulating berm should be 36".
3' wall	(4)(7)	Sign walls		
Canopy deciduous or large evergreen trees Notes (1) (10)	<ul style="list-style-type: none"> ▪ Parking: 1 tree per 25 lf ▪ Not adj to Pkg: 1 per 30 ft <p><u>I-96:</u> Adj to pkg: 770 lf/25 = 31 trees Not adj to pkg: 682 lf/30 = 23 trees Total: 54 trees</p> <p><u>Adell Drive:</u> Adj to pkg: 1546 lf/25 = 62 trees Not adj to pkg: 702 lf/30 = 23 trees Total: 85 trees</p> <ul style="list-style-type: none"> • In the TC district, either the large tree or subcanopy tree requirement must be met but not both. 	<p><u>I-96:</u> 15 canopy trees</p> <p><u>Adell Dr:</u> NA</p>	In total with subcanopy trees, the I-96 frontage exceeds the requirements.	The screening along I-96 may have to be denser to achieve the objective of screening the parking from the ROW.
Sub-canopy deciduous trees Notes (2)(10)	<p><u>I-96:</u> Adj to pkg: 770 lf/15 = 51 trees Not adj to pkg: 682 lf/20 = 34 trees Total: 85 trees</p> <p><u>Adell Drive:</u> Adj to pkg: 1546 lf/15 =</p>	<p><u>I-96:</u> 68 subcanopy trees</p> <p><u>Adell Dr:</u> NA</p>	See above	The screening along I-96 may have to be denser to achieve the objective of screening the parking from the ROW.

Item	Required	Proposed	Meets Code	Comments
	103 trees Not adj to pkg: 702 lf/20 = 35 trees Total: 138 trees			
Canopy deciduous trees in area between sidewalk and curb <i>(Novi Street Tree List)</i> <i>(Zoning Sec 6.3 Site Condominiums, LDM2.)</i>	In the TC district, street trees are not required.	57 greenbelt trees are located along Adell Drive as street trees.	Yes	
Non-Residential Zoning Sec 5.5.3.E.iii & LDM 1.d (2) Refer to Planting in ROW, building foundation landscape, parking lot landscaping and LDM				
Screening of outdoor storage, loading/unloading <i>(Zoning Sec. 3.14, 3.15, 4.55, 4.56, 5.5)</i>		NA		
Transformers/Utility boxes <i>(LDM 1.e from 1 through 5)</i>	<ul style="list-style-type: none"> ▪ A minimum of 2ft. separation between box and the plants ▪ Ground cover below 4" is allowed up to pad. ▪ No plant materials within 8 ft. from the doors 	NA		
Building Foundation Landscape Requirements (Sec 5.5.3.D)				
Interior site landscaping SF	<ul style="list-style-type: none"> ▪ Equals to entire perimeter of the building x 8 with a minimum width of 4 ft. ▪ At least 75% of building should be landscaped – ideally all but paved points of entry will be landscaped. ▪ Patios are to be landscaped. 	NA		
<i>Zoning Sec 5.5.3.D.ii. All items from (b) to (e)</i>	If visible from public street a minimum of 60% of the exterior building perimeter facing Adell Drive and/or I-96 should be covered in green space.	NA		
Detention/Retention Basin Requirements (Sec. 5.5.3.E.iv)				
Planting requirements <i>(Sec. 5.5.3.E.iv)</i>	<ul style="list-style-type: none"> ▪ Clusters of large native shrubs shall cover 70- 	None – only underground		If any above-ground detention is required, it

Item	Required	Proposed	Meets Code	Comments
	75% of the basin rim area <ul style="list-style-type: none"> 10" to 14" tall grass along sides of basin Refer to wetland for basin mix 	detention is proposed.		shall be landscaped per the requirement.
Phragmites Control (Sec 5.5.6.C)	<ul style="list-style-type: none"> Any and all populations of <i>Phragmites australis</i> on site shall be included on tree survey. Treat populations per MDEQ guidelines and requirements to eradicate the weed from the site. 	None indicated	TBD	1. Please survey the site for any populations of <i>Phragmites australis</i> and submit plans for its complete removal. 2. If none is found, please indicate that on the survey.
LANDSCAPING NOTES, DETAILS AND GENERAL REQUIREMENTS				
Landscape Notes - Utilize City of Novi Standard Notes				
Installation date (LDM 2.i. & Zoning Sec 5.5.5.B)	Provide intended date	Between Mar 15 and Nov 15, 2019	Yes	
Maintenance & Statement of intent (LDM 2.m & Zoning Sec 5.5.6)	<ul style="list-style-type: none"> Include statement of intent to install and guarantee all materials for 2 years. Include a minimum one cultivation in June, July and August for the 2-year warranty period. 	Yes	Yes	
Plant source (LDM 2.n & LDM 3.a.(2))	Shall be northern nursery grown, No.1 grade.	Yes	Yes	
Irrigation plan (LDM 2.s.)	A fully automatic irrigation system or a method of providing sufficient water for plant establishment and survival is required on Final Site Plans.	No		1. Please add irrigation plan or information as to how plants will be watered sufficiently for establishment and long-term survival. 2. If xeriscaping is used, please provide information about plantings included.
Other information (LDM 2.u)	Required by Planning Commission	NA		
Establishment period (Zoning Sec 5.5.6.B)	2 yr. Guarantee	Yes	Yes	
Approval of substitutions.	City must approve any substitutions in writing	Yes	Yes	

Item	Required	Proposed	Meets Code	Comments
<i>(Zoning Sec 5.5.5.E)</i>	prior to installation.			
Plant List (LDM 2.h.) – Include all cost estimates				
Quantities and sizes	Refer to LDM suggested plant list as well as requirements for planting diversity and prohibited species.	Plant list is provided for all Phase I plantings and Future Phase greenbelt plantings.	Yes	1. Please revise plant lists to include species native to Michigan for at least 50% of the species on each list. 2. Please remove future phase plantings from these plans.
Root type		Yes	Yes	
Botanical and common names		Yes	Yes	
Type and amount of lawn		Sod quantities provided for each plant list	Yes	
Cost estimate <i>(LDM 2.t)</i>	For all new plantings, mulch and sod as listed on the plan	Costs are included on plant lists, including costs for sod, seed and mulch.	Yes	
Planting Details/Info (LDM 2.i) – Utilize City of Novi Standard Details				
Canopy Deciduous Tree	Refer to LDM for detail drawings	Yes	Yes	
Evergreen Tree		Yes	Yes	
Multi-stem Tree		Yes	Yes	
Shrub		Yes	Yes	
Perennial/ Ground Cover		No	No	
Tree stakes and guys. (Wood stakes, fabric guys)		Yes	Yes	
Tree protection fencing	Located at Critical Root Zone (1' outside of dripline)	No	No	Please show tree fencing line on Demolition Plans drawn outside of trees' driplines.
Other Plant Material Requirements (LDM 3)				
General Conditions <i>(LDM 3.a)</i>	Plant materials shall not be planted within 4 ft. of property line	Yes	Yes	
Plant Materials & Existing Plant Material <i>(LDM 3.b)</i>	Clearly show trees to be removed and trees to be saved.	Sheets 10 and 11	Yes	
Landscape tree credit <i>(LDM3.b.(d))</i>	Substitutions to landscape standards for	Credit for 2 trees being preserved		If ECT determines that the trees being saved

Item	Required	Proposed	Meets Code	Comments
	preserved canopy trees outside woodlands/ wetlands should be approved by LA. Refer to Landscape tree Credit Chart in LDM	north of stream is being taken.		are in fact within the regulated woodland, then the credits can't be taken. Please see their review.
Plant Sizes for ROW, Woodland replacement and others <i>(LDM 3.c)</i>	2.5" canopy trees 6' evergreen trees			
Plant size credit <i>(LDM 3.c.(2))</i>	NA	No		
Prohibited Plants <i>(LDM 3.d)</i>	No plants on City Invasive Species List	None are proposed on plant lists.	Yes	
Recommended trees for planting under overhead utilities <i>(LDM 3.e)</i>	Label the distance from the overhead utilities	A note indicating that there are no overhead lines on the site has been provided.	Yes	
Collected or Transplanted trees <i>(LDM 3.f)</i>		No		
Nonliving Durable Material: Mulch <i>(LDM 4)</i>	<ul style="list-style-type: none"> ▪ Trees shall be mulched to 3" depth and shrubs, groundcovers to 2" depth ▪ Specify natural color, finely shredded hardwood bark mulch. Include in cost estimate. ▪ Refer to section for additional information 	Yes	Yes	Please revise Landscape Note #8 to use compost instead of peat.

NOTES:

1. This table is a working summary chart and not intended to substitute for any Ordinance or City of Novi requirements or standards.
2. The section of the applicable ordinance or standard is indicated in parenthesis. For the landscape requirements, please see the Zoning Ordinance landscape section 5.5 and the Landscape Design Manual for the appropriate items under the applicable zoning classification.
3. Please include a written response to any points requiring clarification or for any corresponding site plan modifications to the City of Novi Planning Department with future submittals.

WETLANDS REVIEW



ECT Project No. 180481-0100

August 13, 2018

Ms. Barbara McBeth, AICP
City Planner
Community Development Department
City of Novi
45175 W. Ten Mile Road
Novi, Michigan 48375

Re: Adell Center Roads & Utilities (JSP18-0027)
Wetland Review of the Combined Preliminary & Final Site Plan (PSP18-0110)

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) has reviewed the Combined Preliminary & Final Site Plan for the proposed Adell Center Roads & Utilities project prepared by Greentech Engineering, Inc. dated and stamped "Received" by the City of Novi Community Development Department on July 19, 2018 (Plan). The Plan was reviewed for conformance with the City of Novi Wetland and Watercourse Protection Ordinance and the natural features setback provisions in the Zoning Ordinance.

Due to the deficiencies in the information included on the Plan related to proposed wetland impacts as well as lack of information with respect to restoration of the proposed Open Space area containing Regulated Wetland areas, ECT recommends that the applicant address the items noted in the *Wetland Comments* Section of this letter in a Revised Plan.

Item	Required/Not Required/Not Applicable
Wetland Permit (specify Non-Minor or Minor)	Required (Non-Minor)
Wetland Mitigation	Not Required
Wetland Buffer Authorization	Required
MDEQ Permit	To Be Determined. It is the applicant's responsibility to contact the MDEQ in order to determine the need for a wetland use permit.
Wetland Conservation Easement	Required

The Plan includes the construction of a mixed-use district with several proposed building sites, associated parking, utilities and underground stormwater detention systems. The current Plan indicates a total of nine (9) building units, with Unit 4 being a parking lot and gazebo. The Plan notes that this unit is planned to be a temporary use by the developer and is subject to future development in accordance with the PRO agreement for the Adell Center.

Wetland Evaluation

ECT conducted a wetland evaluation for the proposed Adell Center project (hotel and entertainment center) at 43700 Expo Center Drive (Parcel ID 50-22-15-476-045) on May 15, 2018. ECT met with the applicant's current wetland consultant, King & MacGregor Environmental, Inc. for the wetland boundary verification.

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The subject site is located south of I-96 and north of Grand River Avenue, west of Novi Road in Section 15. (Parcel ID number 50-22-15-476-045). ECT also reviewed the *Old Novi Expo: Wetland Delineation and Determination of Jurisdiction* report prepared by BWA Consulting dated October 5, 2017 (i.e., Report). This Report was received by the City by the applicant on May 1, 2018 as part of a wetland boundary verification request for the property.

The site is the home of the Novi Expo Center which closed and the building was demolished in 2012. Currently, the only structure on the property is the existing water tower in the northwest corner of the site. Remnants of the former Novi Expo Center remain including the concrete building slab and the asphalt parking lot. The southern portion of the site (south of the existing asphalt parking lot) contains the Walled Lake Branch of the Middle Rouge River, wetlands, floodplains and trees. This area (approximately 7 acres), contains the areas of City-regulated wetlands as mentioned above.

ECT's in-office review of available materials included the City of Novi Regulated Wetland and Watercourse map (see Figure 1), USGS topographic quadrangle map, NRCS soils map, USFWS National Wetland Inventory map, and historical aerial photographs (from Oakland County). Based on our review of this information the overall proposed project parcel contains areas mapped as City-Regulated Wetlands/Watercourses. The site appears to contain wetland/watercourse areas that are regulated by the City of Novi as well as the Michigan Department of Environmental Quality (MDEQ).

The focus of the site inspection was to review site conditions in order to determine whether City-regulated wetlands are found on-site. BWA completed a wetland delineation on the site on September 22, 2017. Pink wetland boundary flagging was in place at the time of this site inspection. ECT reviewed the flagging and agrees that the wetland boundaries were accurately flagged in the field. It should be noted that the applicant has provided a wetland flagging map that indicates the approximate locations of the wetland flagging/staking on site (see Figure 2). Based on the existing vegetation and topography, it is ECT's assessment that the on-site wetlands have been accurately delineated at this time.

The BWA Report notes that a total of six (6) wetlands were identified. The following is a brief description of the on-site wetland features (see Figure 2 provided by BWA):

Wetland 1 – Forested, scrub shrub, and emergent wetland contiguous to the Creek (Walled Lake Branch of the Middle Rouge River). BWA notes that the dominant wetland vegetation includes reed canary grass (*Phalaris arundinacea*), American elm (*Ulmus americana*), and orange jewelweed (*Impatiens capensis*). Wetland hydrology is indicated by saturated soils adjacent to the stream. Hydric (i.e., wetland) soils were identified within the wetland boundaries. This wetland area is essentially confined to the upper banks of the Creek.

Wetlands 2, 3, and 5 – These are isolated emergent depressions within the floodplain (according to FEMA FIRM Panel #0626) of the Walled Lake Branch of the Middle Rouge River. Dominant wetland vegetation includes reed canary grass, orange jewelweed, and wood nettle (*Laportea canadensis*). Wetland hydrology is indicated by water stained leaves and drift lines. Hydric soils were identified within the wetland boundaries. These wetland areas are located south of Wetland 1.

Wetland 4 – This is an area of isolated, forested and emergent depression. Dominant wetland vegetation includes common reed (*Phragmites australis*), American elm, and wood nettle. Wetland hydrology is indicated by water stained leaves. Hydric soils were identified within the wetland boundaries. This wetland area is located in the southwest corner of the site.

Wetland 6 – This area is an emergent swale associated with the Walled Lake Branch of the Middle Rouge River. Dominant vegetation includes reed canary grass, wood nettle, and orange jewelweed. Wetland hydrology is indicated by saturated soils near the surface. Hydric soils were identified within the wetland boundaries. This wetland is located in the southeast corner of the site.

BWA noted in the Report that in their opinion all six (6) on-site wetlands are subject to regulation by the City of Novi as well as MDEQ and that permits would be required for any work proposed within these wetlands.

Wetland Impact Review

As noted above, several areas of wetland have been confirmed on the subject property by the applicant’s wetland consultant and ECT. Currently, the Plan indicates two (2) direct impacts to on-site wetlands. The Plan quantifies the areas of the proposed wetland impacts on Sheet 27 (*Wetland Plan*). The total amount of direct (i.e., fill or excavation) impact to on-site wetlands currently indicated is 0.030-acre (1,307 square feet). The current impacts are to Wetland 1 for the purpose of constructing stormwater outfalls from proposed underground stormwater storage systems on Units 4 and 5.

The following table summarizes the proposed wetland impacts as listed on the *Wetland Plan*:

Table 1. Proposed Wetland Impacts

<i>Wetland Impact Area</i>	<i>City Regulated?</i>	<i>MDEQ Regulated?</i>	<i>Impact Area (acre)</i>	<i>Estimated Impact Volume (cubic yards)</i>
A	Yes City Regulated /Essential	Likely	786 Sq. Ft. (0.018-acre)	Not Indicated
B	Yes City Regulated /Essential	Likely	521 Sq. Ft. (0.012-acre)	Not Indicated
TOTAL	--	--	1,307 Sq. Ft. (0.030-acre)	Not Indicated

It is unclear if the proposed pedestrian bridge that will cross the Walled Lake Branch of the Middle Rouge River from the area near the Unit 3/Unit 4 boundary will involve additional impacts to Wetland 1. This information should be provided/clarified on subsequent site plan submittals. This proposed bridge crossing will likely require a permit from MDEQ (Part 301 – Inland Lakes and Streams and/or Part 303 – Wetlands Protection).

In addition to the proposed wetland impacts, the Plan proposes disturbance to on-site 25-foot wetland buffer areas. These impacts are associated with the stormwater outfalls and proposed pedestrian bridge noted above, as well as the crushed limestone pedestrian path that is to be located south of the Walled Lake Branch of the Middle Rouge River.

The existing area of the 25-foot wetland buffers and the proposed impacts to 25-foot wetland buffers have yet to be quantified on the Plan. The applicant shall provide information on subsequent plans that clearly indicates the areas of all existing wetland buffers as well as the area (square feet or acreage) of the proposed impacts to the 25-foot wetland buffers (both permanent and temporary, if applicable). This information is

required before any necessary City of Novi Wetland and Watercourse Permits or Authorization to Encroach Upon the 25-Foot Natural Features Setback letters can be issued.

The applicant is urged to minimize impacts to all wetlands and 25-foot wetland setback areas to the greatest extent practicable. The City regulates wetland and watercourse buffers/setbacks. Article 24, Schedule of Regulations, of the Zoning Ordinance states that:

“There shall be maintained in all districts a wetland and watercourse setback, as provided herein, unless and to the extent, it is determined to be in the public interest not to maintain such a setback. The intent of this provision is to require a minimum setback from wetlands and watercourses”.

Finally, the Plan proposes a compacted limestone pedestrian path to be located south of the Walled Lake Branch of the Middle Rouge River. Detailed information with regard to this trail shall be provided on subsequent site plan submittals in order to ensure that any proposed impacts to wetlands, wetland buffers or regulated trees are minimized to the greatest extent practicable. It seems as if some of the apparent impacts to 25-foot wetland setbacks can be avoided through slight revisions to the proposed trail alignment. Ideally, the applicant should attempt to locate the trail outside of regulated wetlands and 25-foot wetland buffers while preserving existing trees. The *Landscape Plan Phase 1* (Sheet L-2) notes that the limestone path is to be field located in order to minimize the impact to the existing understory. ECT suggests that applicant have the limits of the proposed trail staked prior to construction so that the City’s Landscape Architect or Forestry Asset Manager (or ECT) can review the alignment prior to site work.

Regulatory Status - MDEQ

ECT has evaluated the on-site wetlands and believes that they are all considered to be essential/regulated by the City of Novi as they meet one or more of the essentiality criteria (i.e., functions and values) outlined in the City of Novi Wetland and Watercourse Protection Ordinance and regulated by the MDEQ . As noted, the wetlands appear to accurately flagged in the field and appear to be generally indicated accurately on the *Wetland Sketch* provided by BWA (Figure 2, attached).

The Michigan Department of Environmental Quality (MDEQ) generally regulates wetlands that are within 500 feet of an inland lake, pond, or stream, or within 1,000 feet of a Great Lake, Lake St. Clair, the St. Clair River, or the Detroit River. Isolated wetlands five (5) acres in size or greater are also regulated. The MDEQ may also exert regulatory control over isolated wetlands less than five acres in size “...if the department determines that protection of the area is essential to the preservation of the natural resources of the state from pollution, impairment, or destruction and the department has notified the owner”. BWA states that in their opinion, all six (6) of the on-site wetland areas are subject to regulation by the MDEQ, as they are either contiguous to, or are within 500 feet of the on-site stream. It is the applicant’s responsibility to contact MDEQ in order to confirm the regulatory authority with respect to the on-site wetland areas.

Regulatory Status – City of Novi

The City of Novi Wetland and Watercourse Protection Ordinance (City of Novi Code of Ordinances, Part II, Chapter 12, Article V.; Division 2.) describes the regulatory criteria for wetlands and review standards for wetland permit applications. The City of Novi regulates wetlands that are: (1) contiguous to a lake, pond, river or stream, as defined in Administrative Rule 281.921; (2) two (2) acres in size or greater; or (3) less than two (2) acres in size but deemed essential to the preservation of the natural resources of the city under the criteria set forth in subsection 12-174(b). Wetlands deemed regulated by the City of Novi require the approval of a use permit for any proposed impacts to the wetland.

All six (6) of the on-site wetlands appear to be located within the area depicted as regulated wetland on the City of Novi Regulated Wetland and Watercourse Map (Figure 2). ECT has evaluated each wetland and believes that each wetland is regulated by the City's Wetland and Watercourse Protection Ordinance because all on-site wetlands are located within 500-feet of the Walled Lake Branch of the Middle Rouge River.

Our previous plan review letter requested that the applicant provide information on subsequent plans that clearly indicates the areas (square feet and/or acres) of all of the existing on-site wetlands and their 25-foot setbacks/buffers. The areas of the existing wetlands have now been provided on the Plan (i.e., on the *Wetland Plan*). The Plan shall also clearly indicate the area (square feet or acres) of all wetland/watercourse buffer (i.e., 25-foot setback) areas. The Plan currently appears to indicate the proposed impacts to wetlands (shown on the *Wetland Plan*) but does not appear to quantify the impact areas to the 25-foot setbacks. The Plan shall indicate and quantify the wetland buffer impacts (both permanent and temporary, if applicable) and the volume (cubic yards) of all wetland impacts.

It should be noted that in those cases where an activity results in the impact to wetland areas of 0.25-acre or greater that are deemed essential under City of Novi Ordinance subsection 12-174(b) mitigation shall be required. The applicant shall submit a mitigation plan which provides for the establishment of replacement wetlands at a ratio of 1:1 through 2:1 times the area of the natural wetland impaired or destroyed, if impacts meet or exceed the 0.25-acre threshold. In general, the MDEQ's threshold for the requirement of wetland mitigation is 0.3-acre of wetland impacts. Wetland mitigation does not appear to be a requirement of the current Plan.

As noted above, any proposed use of the wetlands will require a City of Novi *Wetland Use Permit* as well as an *Authorization to Encroach the 25-Foot Natural Features Setback* for any proposed impacts to the 25-foot wetland buffers. The applicant is urged to minimize impacts to on-site wetlands and wetland setbacks to the greatest extent practicable. The City regulates wetland buffers/setbacks. Article 24, Schedule of Regulations, of the Zoning Ordinance states that:

“There shall be maintained in all districts a wetland and watercourse setback, as provided herein, unless and to the extent, it is determined to be in the public interest not to maintain such a setback. The intent of this provision is to require a minimum setback from wetlands and watercourses”.

Finally, as proposed, the project will require a City of Novi Non-Minor Use wetland permit. The granting or denying of nonresidential minor use permits shall be the responsibility of the Community Development Department. A nonresidential minor use permit is a permit for activities consisting of no more than one (1) of the following activities which have a minimal environmental effect:

- a. Minor fills of three hundred (300) cubic yards or less and not exceeding ten thousand (10,000) square feet in a wetland area, providing the fill consists of clean, nonpolluting materials which will not cause siltation and do not contain soluble chemicals or organic matter which is biodegradable, and providing that any upland on the property is utilized to the greatest degree possible. All fills shall be stabilized with sod, or seeded, fertilized and mulched, or planted with other native vegetation, or riprapped as necessary to prevent soil erosion.
- b. Installation of a single water outfall provided that the outlet is riprapped or otherwise stabilized to prevent soil erosion.

- c. Watercourse crossings by utilities, pipelines, cables and sewer lines which meet all of the following design criteria:
 - i. The method of construction proposed is the least disturbing to the environment employable at the given site;
 - ii. The diameter of pipe, cable or encasement does not exceed twenty (20) inches;
 - iii. A minimum of thirty (30) inches of cover will be maintained between the top of the cable or pipe and the bed of the stream or other watercourse on buried crossings; and
 - iv. Any necessary backfilling will be of washed gravel.
- d. Extension of a wetland/watercourse permit previously approved by the Planning Commission.
- e. Replacement of a culvert of an identical length and size, and at the same elevation. If the proposed culvert is of a greater length or size than the existing culvert, or is a new culvert altogether, it must meet the conditions of subpart c., above, to qualify for a nonresidential minor use permit.
- f. Temporary impacts where the encroachment into protected areas is less than five hundred (500) feet.

Because the project contains more than one (1) proposed stormwater outfall, a Non-Minor Wetland Permit (and approval of Planning Commission) shall be required.

Wetland and Watercourse Comments

ECT recommends that the Applicant address the items noted below in subsequent site plan submittals:

1. ECT encourages the Applicant to minimize impacts to on-site wetlands and 25-foot wetland setbacks to the greatest extent practicable. The applicant should clarify what (if any) work/grading will be required within Wetland 1/Walled Lake Branch of the Middle Rouge River for the proposed pedestrian bridge.
2. The applicant shall provide a detail of the proposed pedestrian bridge that will cross the Walled Lake Branch of the Middle Rouge River. It is unclear if the bridge crossing will involve impacts to Wetland 1. This information should be provided/clarified on subsequent site plan submittals. This proposed bridge crossing will likely require a permit from MDEQ (Part 301 – Inland Lakes and Streams and/or Part 303 – Wetlands Protection).
3. The applicant shall clarify what impacts are required to construct the proposed compacted limestone pedestrian path to be located south of the Walled Lake Branch of the Middle Rouge River. Detailed information with regard to this trail shall be provided on subsequent site plan submittals in order to ensure that any proposed impacts to wetlands, wetland buffers or regulated trees are minimized to the greatest extent practicable. It seems as if some of the apparent impacts to 25-foot wetland setbacks can be avoided through slight revisions to the proposed trail alignment. Ideally, the applicant should attempt to locate the trail outside of regulated wetlands and 25-foot wetland buffers while preserving existing trees. ECT suggests that applicant have the limits of the proposed trail staked prior to construction so that the City's Landscape Architect or Forestry Asset Manager (or ECT) can review the alignment prior to site work.

4. The applicant shall indicate, quantify and label all proposed impacts to the wetlands including proposed volume of cut/fill (cubic feet or cubic yards).
5. The applicant shall indicate, quantify and label all areas of existing 25-foot wetland buffers (square feet or acres).
6. The applicant shall indicate, quantify and label all proposed impacts to the 25-foot wetland setbacks (square feet or acres). Any proposed buffer impacts to the 25-foot wetland buffers for the purpose of constructing the pedestrian pathway shall be indicated on the Plan.
7. It appears as though a MDEQ Wetland Permit and a City of Novi Non-Minor *Wetland Use Permit* would be required for any proposed impacts to on-site wetlands, if applicable. A City of Novi *Authorization to Encroach the 25-Foot Natural Features Setback* would be required for any proposed impacts to on-site 25-foot wetland or watercourse buffers.
8. It should be noted that it is the Applicant's responsibility to confirm the need for a Permit from the MDEQ for any proposed wetland or floodplain impacts. Final determination as to the regulatory status of any on-site wetlands (if applicable) shall be made by MDEQ. The Applicant should provide a copy of the MDEQ Wetland Use Permit application to the City (and our office) for review and a copy of the approved permit upon issuance. A City of Novi Wetland Permit cannot be issued prior to receiving this information.
9. The Plan should address how any temporary impacts to wetland or 25-foot wetland buffers shall be restored, if applicable. Subsequent Plan submittals shall include specifications for any proposed seed mixes proposed for use within these areas. Sod or common grass seed is not acceptable in areas of temporary wetland or 25-foot wetland buffer restoration.
10. The applicant should ensure that any proposed snow storage areas are located such that any runoff will not directly affect any on-site wetlands, or the Walled Lake Branch of the Middle Rouge River (if applicable).
11. The *Landscape Plan Phase 1* (Sheet L-2) notes that wetland signage shall be placed around some of the existing wetland areas at a spacing of 50-feet on-center. The Plan currently indicates that proposed signage will be provided along the northern boundary of Wetland 3 and 5. The applicant should revise the Plan to indicate that conservation easement signage will be provided along all of the existing wetland areas. ECT suggest that the signage be placed at the edge of the 25-foot wetland buffers.

Sheet L-2 includes an example of signage used at a different development within the City of Novi. Subsequent site plan submittals shall provide a signage detail that is specific to the proposed site so that the proposed language can be reviewed/approved.

12. Sheet L-2 (*Landscape Plan Phase 1*) notes that the compacted limestone pedestrian path is to be field located in order to minimize the impact to the regulated woodland area and the understory plants. The path should also be located such that impacts to the existing 25-wetland buffer areas area minimized/avoided.
13. ECT suggests that any proposed stormwater management plan be reviewed by the City of Novi Engineering Department to ensure that they meet the City of Novi design requirements. Specifically, the Plan appears to propose underground stormwater detention systems. It is not immediately clear if these systems will include stormwater pre-treatment structures in conjunction with the storage. The stormwater shall receive pre-treatment prior to being outlet to wetlands.
14. The majority of the area south of the Walled Lake Branch of the Middle Rouge River that contains Regulated Wetland and Regulated Woodland areas is being included in the calculation of total Open Space being provided for the development. Currently, this area of the site contains a large quantity of undesirable, invasive plant and shrub species located in both the wetlands and woodland areas as well as refuse and debris generally located along the banks of the Walled Lake Branch. ECT recommends

that the applicant provide a proposed restoration/site enhancement plan that addresses these items in order to provide for a more usable and aesthetic Open Space area for the development. Specifically, the plan should provide a proposed approach to address the following:

- a. List of invasive species to be targeted for removal;
- b. Sequence of removal for invasive species of woody vegetation including buckthorn, honeysuckle, and/or autumn olive;
- c. Sequence of removal for invasive common reed (*Phragmites australis*) and or purple loosestrife (*Lythrum salicaria*);
- d. Identify what herbicide chemicals and application strategies will be used to treat invasive species of vegetation,
- e. Description of chemical treatment schedule;
- f. Description of proposed method for assessment of treatment effectiveness;
- g. Description of follow-up treatments depending on assessment of treatment effectiveness;
- h. Description of removal approach for refuse/debris.

Wetland Conclusion

The project site appears to contain wetlands/watercourse that are regulated by both the City of Novi and the MDEQ. Any proposed impacts to on-site wetlands will require a permit from the MDEQ, a City of Novi *Wetland and Watercourse Use Permit*, and an *Authorization to Encroach the 25-Foot Natural Features Setback* for any proposed impacts to the 25-foot wetland buffers. Subsequent site plan submittals shall clearly indicate all proposed impacts (permanent or temporary) to the existing wetlands/watercourse and associated 25-foot wetland setbacks.

Recommendation

Due to the deficiencies in the information included on the Plan related to proposed wetland impacts as well as lack of information with respect to restoration of the proposed Open Space area containing Regulated Wetland areas, ECT recommends that the applicant address the items noted in the *Wetland Comments* Section of this letter in a Revised Plan.

Respectfully submitted,
ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.



Pete Hill, P.E.
Senior Associate Engineer

cc: Lindsay Bell, City of Novi Planner
Sri Komaragiri, City of Novi Planner
Rick Meader, City of Novi Landscape Architect
Hannah Smith, City of Novi Planning Assistant

Attachments: Figure 1 – City of Novi Regulated Wetland and Woodland Map
Figure 2 – Wetland Sketch
Site Photos



Figure 1. City of Novi Regulated Wetland & Woodland Map (approximate parcel boundary shown in orange). Regulated Woodland areas are shown in green and Regulated Wetland areas are shown in blue.

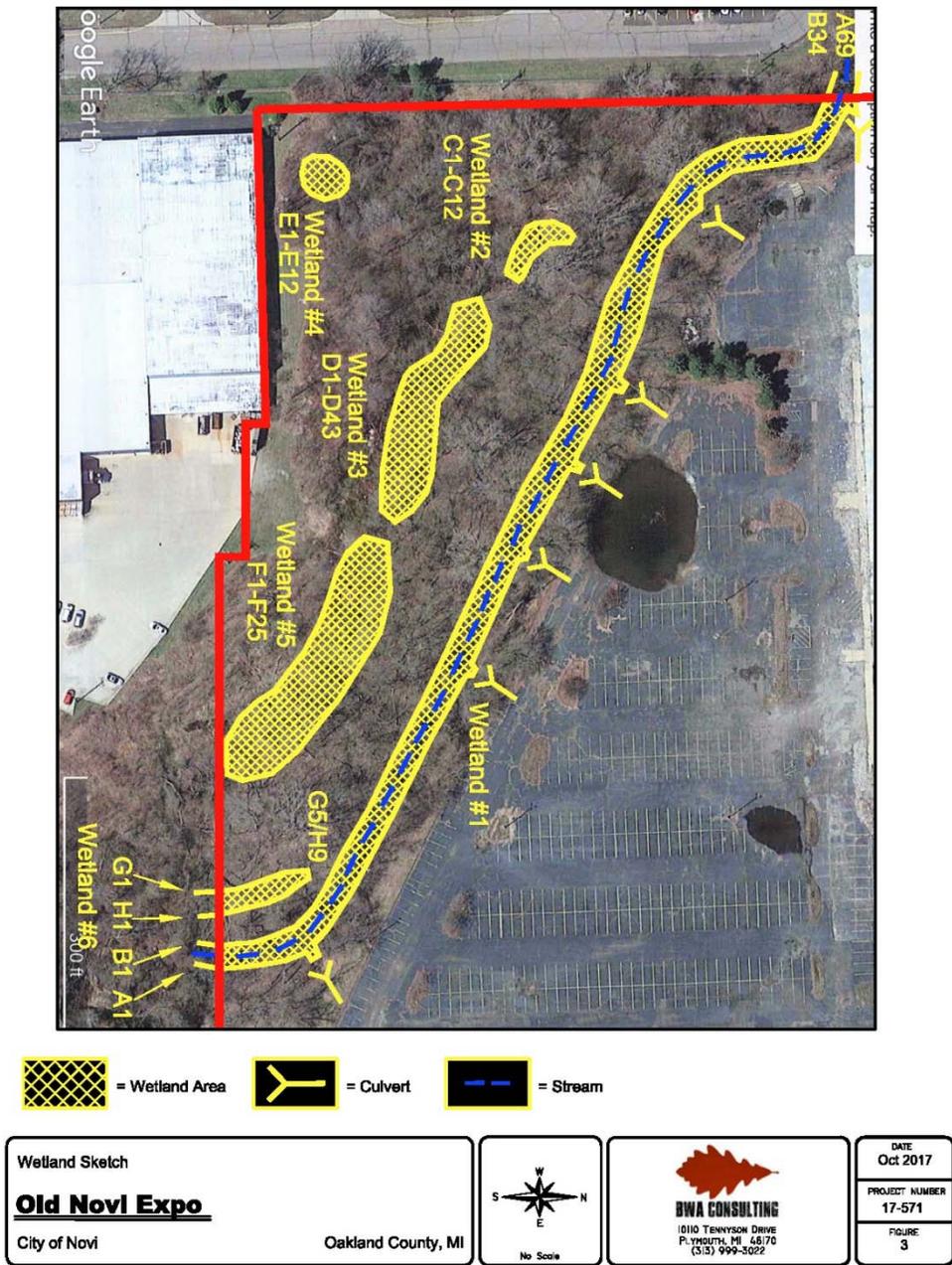


Figure 2. Wetland Sketch (provided by BWA).

Site Photos



Photo 1. Looking northeast along the Walled Lake Branch of the Middle Rouge River (ECT June 19, 2018).



Photo 2. Looking west at Wetland D in the southern portion of the project property (ECT, June 19, 2018).



Photo 3. Refuse/debris located along the Walled Lake Branch of the Middle Rouge River (ECT, June 19, 2018).



Photo 4. Southern portion of site currently contains species of invasive vegetation that should be addressed by the applicant in order to provide for a more usable and aesthetic Open Space area for the development (ECT, June 19, 2018)

WOODLANDS REVIEW



ECT Project No. 180481-0200

August 13, 2018

Ms. Barbara McBeth, AICP
City Planner
Community Development Department
City of Novi
45175 W. Ten Mile Road
Novi, Michigan 48375

Re: Adell Center Roads & Utilities (JSP18-0027)
Woodland Review of the Combined Preliminary & Final Site Plan (PSP18-0110)

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) has reviewed the Combined Preliminary & Final Site Plan for the proposed Adell Center Roads & Utilities project prepared by Greentech Engineering, Inc. dated and stamped "Received" by the City of Novi Community Development Department on July 19, 2018 (Plan). The Plan was reviewed for conformance with the City of Novi Woodland Protection Ordinance Chapter 37.

Due to the deficiencies in the information included on the Plan related to potential impacts to the Regulated Woodland area for the construction of the proposed walking path as well as lack of information with respect to restoration of the proposed Open Space area containing Regulated Woodlands, ECT recommends that the applicant address the items noted in the *Woodland Comments* Section of this letter in a Revised Plan.

The following woodland related items are required for this project:

Item	Required/Not Required/Not Applicable
Woodland Permit	Required
Woodland Fence	Required
Woodland Conservation Easement	Required

The proposed development is located north of Grand River Avenue and west of Novi Road in Section 15. The Plan includes the construction of a mixed-use district with several proposed building sites, associated parking, utilities and underground stormwater detention systems. The current Plan indicates a total of nine (9) building units, with Unit 4 being a parking lot and gazebo. The Plan notes that this unit is planned to be a temporary use by the developer and is subject to future development in accordance with the PRO agreement for the Adell Center.

The site is the home of the Novi Expo Center which closed and the building was demolished in 2012. Currently, the only structure on the property is the existing water tower in the northwest corner of the site. Remnants of the former Novi Expo Center remain including the concrete building slab and the asphalt parking lot. The southern portion of the site (south of the existing asphalt parking lot) contains the Walled Lake Branch of the Middle Rouge River, wetlands, floodplains and trees. This area (approximately 7 acres), contains the areas of City-regulated wetlands and City-regulated woodlands.

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Based on our review of the Plan, Novi aerial photos, Novi GIS, City of Novi Official Wetlands and Woodlands Map (see Figure 1), and on-site evaluation this proposed project site contains areas indicated as Regulated Woodlands as well as Regulated Wetlands. The area of regulated woodland is located in the southern portion of the property (south of the Walled Lake Branch of the Middle Rouge River).

It should be noted that the purpose of the City of Novi Woodland Protection Ordinance (Chapter 37) is to:

- *Provide for the protection, preservation, replacement, proper maintenance and use of trees and woodlands located in the city in order to minimize disturbance to them and to prevent damage from erosion and siltation, a loss of wildlife and vegetation, and/or from the destruction of the natural habitat. In this regard, it is the intent of this chapter to protect the integrity of woodland areas as a whole, in recognition that woodlands serve as part of an ecosystem, and to place priority on the preservation of woodlands, trees, similar woody vegetation, and related natural resources over development when there are no location alternatives;*
- *Protect the woodlands, including trees and other forms of vegetation, of the city for their economic support of local property values when allowed to remain uncleared and/or unharvested and for their natural beauty, wilderness character of geological, ecological, or historical significance; and*
- *Provide for the paramount public concern for these natural resources in the interest of health, safety and general welfare of the residents of the city.*

On-Site Woodland Evaluation

ECT has reviewed the City of Novi Official Woodlands Map and completed an onsite Woodland Evaluation on June 19, 2018. ECT's in-office review of available materials included the City of Novi Regulated Woodland map and other available mapping. As noted above, a portion of the southern end of the subject property is mapped as City of Novi Regulated Woodlands on the official City of Novi Regulated Wetland and Watercourse Map (see Figure 1). The proposed limits of disturbance for the main portion of the proposed project do not include areas mapped as City-Regulated Woodlands. Some proposed site improvements are however proposed within the area of City-Regulated Woodlands, including a compacted limestone pedestrian path to be located south of the Walled Lake Branch of the Middle Rouge River.

An existing tree list is included on Sheet 29 (*Tree Inventory Plan*). This Plan identifies tree tag numbers, diameter-at-breast-height (DBH), common name, condition, and removal status. The tree survey for the area designated as City-Regulated Woodland is included on Sheet 28 (*Woodland Plan*). The surveyed trees have been marked with aluminum tree tags allowing ECT to compare the tree diameters reported on the Plan with the existing trees in the field. ECT found that the Plan appears to accurately depict the location, species composition and the size of the existing trees. ECT took a sample of diameter-at-breast-height (DBH) measurements and found that the data provided on the Plan was consistent with the field measurements.

As noted above, the area north of the Walled Lake Branch of the Middle Rouge River is not mapped as City of Novi Regulated Woodland. In general, the majority of the on-site trees are box elder (*Acer negundo*) and eastern cottonwood (*Populus deltoides*). The site also includes Austrian pine (*Pinus nigra*), green spruce (*Picea pungens*), sugar maple (*Acer saccharum*), black walnut (*Juglans nigra*), American elm (*Ulmus americana*), and several other species. In terms of habitat quality and diversity of tree species, the overall subject site consists of fair to good quality trees. In terms of a scenic asset, wildlife habitat, windblock, noise buffer or other environmental asset, the forested area located on the subject site is considered to be of fair quality.

City of Novi Woodland Review Standards & Woodland Permit Requirements

Based on Section 37-29 (*Application Review Standards*) of the City of Novi Woodland Ordinance, the following standards shall govern the grant or denial of an application for a use permit required by this article:

No application shall be denied solely on the basis that some trees are growing on the property under consideration. However, the protection and conservation of irreplaceable natural resources from pollution, impairment, or destruction is of paramount concern. Therefore, the preservation of woodlands, trees, similar woody vegetation, and related natural resources shall have priority over development when there are location alternatives.

In addition,

“The removal or relocation of trees shall be limited to those instances when necessary for the location of a structure or site improvements and when no feasible and prudent alternative location for the structure or improvements can be had without causing undue hardship”.

The City of Novi regulates all trees 8-inches diameter-at-breast-height (DBH) and greater that are located within the areas delineated as regulated woodlands on the City-Regulated Woodlands Map. The City also regulates any individual tree greater than or equal to 36-inches DBH, irrespective of whether such tree is within a regulated woodland. Proposed woodland impacts will require a Woodland Permit and the regulated trees shall be relocated or replaced by the permit grantee.

Proposed Woodland Impacts and Replacements

Based on the *Woodland Summary* information provided on the *Tree Inventory Plan*, there appear to be a total of 312 surveyed trees on the subject property. Of these, 32 of the trees are not located within the Regulated Woodland Boundary leaving a total of 280 Regulated Woodland Trees.

A total of two (2) City-Regulated Trees are proposed for removal. These trees are located in the southwestern portion of the site and the removal appears to be associated with proposed utility installation. The proposed trees to be removed are the following:

- Tree No. 409 – 9”/10”/12”/13” multi-stemmed eastern cottonwood – Requires 6 Woodland Replacement Credits;
- Tree No. 410 – 11”/13” two-stemmed eastern cottonwood – Requires 3 Woodland Replacement Credits.

The Plan also notes that two (2) Woodland Replacement Credits for the preservation of non-Woodland trees is requested (i.e., for Tree No. 168, 12” box elder and Tree No. 169, 9” box elder). The Landscape Tree Credit Chart (Table 7.b.(1)(f) in the City of Novi Landscape Design Manual notes that a total of two (2) Replacement Tree Credits are provided for trees between 7” and 12” DBH. This project therefore requires a total of five (5) Woodland Replacement Credits.

The Plan proposes a compacted limestone pedestrian path to be located south of the Walled Lake Branch of the Middle Rouge River. The *Landscape Plan Phase 1* (Sheet L-2) notes that the limestone path is to be field located in order to minimize the impact to the existing understory. ECT suggests that applicant have the limits of the proposed trail staked prior to construction so that the City’s Landscape Architect or Forestry Asset Manager (or ECT) can review the alignment prior to site work. Ideally, the applicant should

attempt to locate the trail outside of regulated wetlands and 25-foot wetland buffers while preserving existing trees.

Currently, the Plan proposes to provide required Woodland Replacement Tree Credits on-site through the planting of nine (9) deciduous trees (for a total of 9 Woodland Replacement Credits). It should be noted that with the proposed preservation of the two (2) non-woodland trees, the applicant has noted that seven (7) Woodland Replacement Credits are required. These trees are proposed south of proposed Unit 5 along the north edge of the Walled Lake Branch of the Middle Rouge River. The Plan proposes four (4) Green Mountain sugar maples and five (5) red oaks. These are acceptable Woodland Replacement trees per the City's *Woodland Tree Replacement Chart*. The *Tree Inventory Plan* (Sheet 18) notes that these replacement trees are to be provided in a conservation easement. The applicant shall clearly indicate the proposed conservation easement boundaries on the Plan. As noted above the proposed removal of regulated trees and the preservation of two (2) non-woodland trees results in a total of five (5) required Woodland Replacement Tree credits.

Woodland Comments

Please consider the following comments when preparing subsequent site plan submittals:

1. ECT encourages the Applicant to minimize impacts to on-site woodlands to the greatest extent practicable. Currently, the Plan proposes to remove a total of two (2) regulated trees and the preservation of two (2) non-woodland trees for preservation credit. The current required Woodland Replacement Credit quantity is five (5) Woodland Replacement Credits. The applicant currently proposes to provide nine (9) Woodland Replacement Credits on site, within a Conservation Easement. The applicant shall clearly indicate the proposed conservation easement boundaries on the Plan.
2. The discrepancy between Woodland Replacement Credits Required and Woodland Replacement Credits provided in the *Woodland Summary Table* and on the *Landscape Plan* should be reviewed and revised.
3. The Plan proposes a compacted limestone pedestrian path to be located south of the Walled Lake Branch of the Middle Rouge River. The *Landscape Plan Phase 1* (Sheet L-2) notes that the limestone path is to be field located in order to minimize the impact to the existing understory. ECT suggests that applicant have the limits of the proposed trail staked prior to construction so that the City's Landscape Architect or Forestry Asset Manager (or ECT) can review the alignment prior to site work. Ideally, the applicant should attempt to locate the trail outside of regulated wetlands and 25-foot wetland buffers while preserving existing trees.
4. A Woodland Permit from the City of Novi would be required for proposed impacts to any trees 8-inch diameter-at-breast-height (DBH) or greater and located within an area designated as City Regulated Woodland, or any tree 36-inches DBH regardless of location on the site. Such trees shall be relocated or replaced by the permit grantee.
5. A Woodland Replacement Performance financial guarantee for the planting of replacement trees will be required. This financial guarantee will be based on the number of on-site woodland replacement trees (credits) being provided at a per tree value of \$400. In this case, the Woodland Replacement Performance Guarantee would be \$2,000 (5 Woodland Replacement Credits Required x \$400/Credit). Based on a successful inspection of the installed on-site Woodland Replacement

trees, the original Woodland Financial Guarantee shall be returned to the Applicant. Twenty-five percent (25%) of the value of the Woodland Replacement material shall be kept for a period of 2-years after the successful inspection of the tree replacement installation as a *Woodland Maintenance and Guarantee Bond*. The City Regulations state that the minimum *Woodland Maintenance and Guarantee Bond* value is to be \$1,000.

6. If applicable, Woodland Replacement material should not be located 1) within 10' of built structures or the edges of utility easements and 2) over underground structures/utilities or within their associated easements. In addition, replacement tree spacing should follow the *Plant Material Spacing Relationship Chart for Landscape Purposes* found in the City of Novi *Landscape Design Manual*.
7. If applicable, the Applicant will be required to pay the City of Novi Tree Fund at a value of \$400/credit for any Woodland Replacement tree credits that cannot be placed on-site. If no Woodland Replacement Trees are proposed on-site, the required payment to the City of Novi Tree Fund will be \$3,600 (9 Credits Required x \$400/Credit).
8. The Applicant shall provide preservation/conservation easements as directed by the City of Novi Community Development Department for any areas of woodland replacement trees (if applicable). The applicant shall demonstrate that the all proposed woodland replacement trees will be guaranteed to be preserved as planted with a conservation easement or landscape easement to be granted to the city. This language shall be submitted to the City Attorney for review. The executed easement must be returned to the City Attorney within 60 days of the issuance of the City of Novi Woodland permit. As noted in Comment #1, the applicant shall clearly indicate the proposed conservation easement boundaries on the Plan.
9. The majority of the area south of the Walled Lake Branch of the Middle Rouge River that contains Regulated Wetland and Regulated Woodland areas is being included in the calculation of total Open Space being provided for the development. Currently, this area of the site contains a large quantity of undesirable, invasive plant and shrub species located in both the wetlands and woodland areas as well as refuse and debris generally located along the banks of the Walled Lake Branch. ECT recommends that the applicant provide a proposed restoration/site enhancement plan that addresses these items in order to provide for a more usable and aesthetic Open Space area for the development. Specifically, the plan should provide a proposed approach to address the following:
 - a. List of invasive species to be targeted for removal;
 - b. Sequence of removal for invasive species of woody vegetation including buckthorn, honeysuckle, and/or autumn olive;
 - c. Sequence of removal for invasive common reed (*Phragmites australis*) and or purple loosestrife (*Lythrum salicaria*);
 - d. Identify what herbicide chemicals and application strategies will be used to treat invasive species of vegetation,
 - e. Description of chemical treatment schedule;
 - f. Description of proposed method for assessment of treatment effectiveness;
 - g. Description of follow-up treatments depending on assessment of treatment effectiveness;
 - h. Description of removal approach for refuse/debris.

Adell Center Roads & Utilities (JSP18-0027)
Woodland Review of the Combined Preliminary & Final Site Plan (PSP18-0110)
August 13, 2018
Page 6 of 9

Recommendation

Due to the deficiencies in the information included on the Plan related to potential impacts to the Regulated Woodland area for the construction of the proposed walking path as well as lack of information with respect to restoration of the proposed Open Space area containing Regulated Woodlands, ECT recommends that the applicant address the items noted in the *Woodland Comments* Section of this letter in a Revised Plan.

If you have any questions regarding the contents of this letter, please contact us.

Respectfully submitted,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.



Pete Hill, P.E.
Senior Associate Engineer

cc: Lindsay Bell, City of Novi Planner (lbell@cityofnovi.org)
Sri Komaragiri, City of Novi Planner (skomaragiri@cityofnovi.org)
Rick Meader, City of Novi Landscape Architect (rmeader@cityofnovi.org)
Hannah Smith, City of Novi Planning Assistant (hsmith@cityofnovi.org)

Attachments: Figure 1 – City of Novi Regulated Wetland and Woodland Map
Woodland Tree Replacement Chart
Site Photos

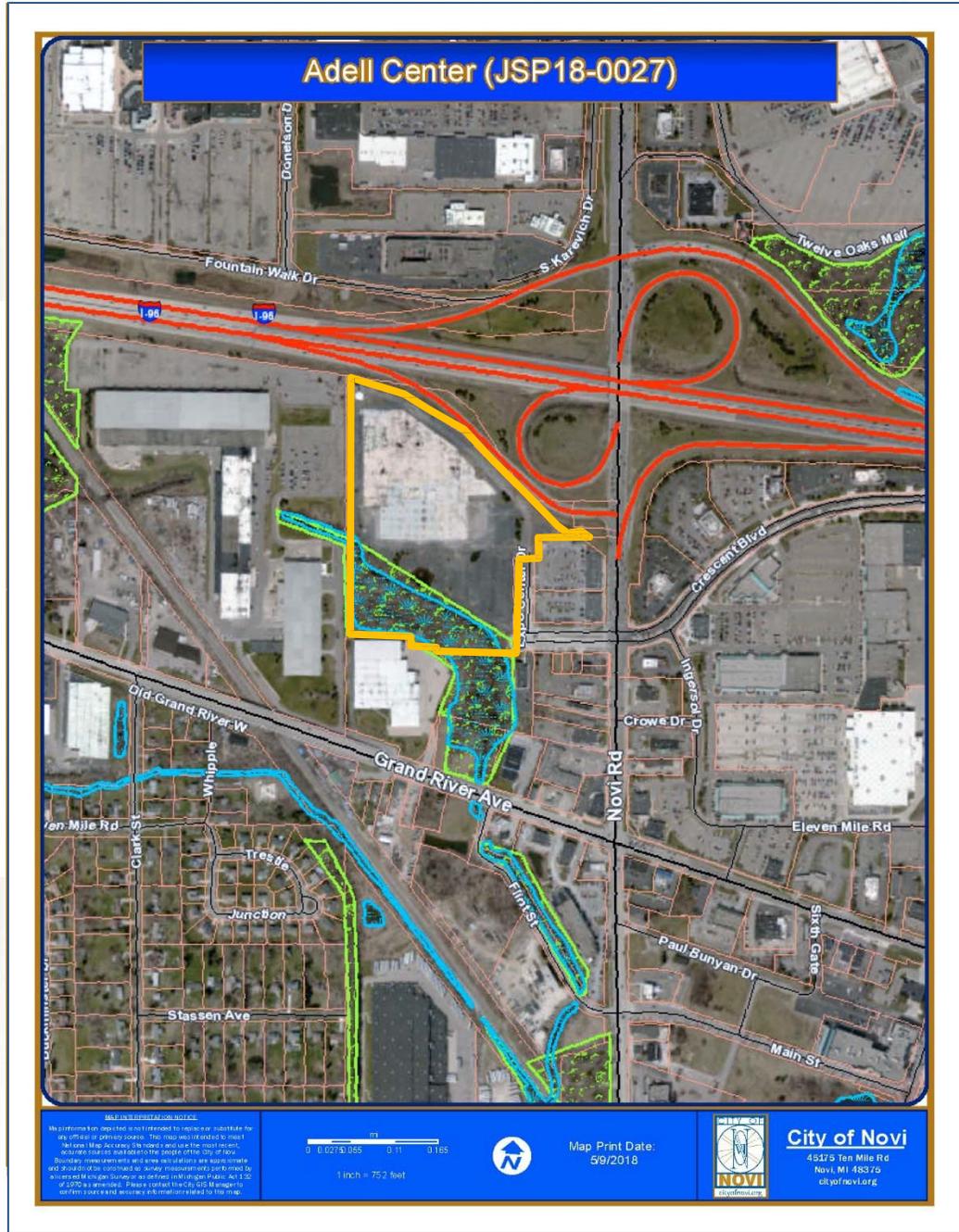


Figure 1. City of Novi Regulated Wetland & Woodland Map (approximate parcel boundary shown in orange). Regulated Woodland areas are shown in green and Regulated Wetland areas are shown in blue.

Woodland Tree Replacement Chart

(from Chapter 37 Woodlands Protection)
 (All canopy trees to be 2.5" cal or larger, evergreens as listed)

Common Name	Botanical Name
Black Maple	Acer nigrum
Striped Maple	Acer pennsylvanicum
Red Maple	Acer rubrum
Sugar Maple	Acer saccharum
Mountain Maple	Acer spicatum
Ohio Buckeye	Aesculus glabra
Downy Serviceberry	Amelanchier arborea
Smooth Shadbush	Amelanchier laevis
Yellow Birch	Betula alleghaniensis
Paper Birch	Betula papyrifera
American Hornbeam	Carpinus caroliniana
Bitternut Hickory	Carya cordiformis
Pignut Hickory	Carya glabra
Shagbark Hickory	Carya ovata
Northern Hackberry	Celtis occidentalis
Eastern Redbud	Cercis canadensis
Pagoda Dogwood	Cornus alternifolia
Flowering Dogwood	Cornus florida
American Beech	Fagus grandifolia
Thornless Honeylocust	Gleditsia triacanthos inermis
Kentucky Coffeetree	Gymnocladus dioica
Walnut	Juglans nigra or Juglans cinerea
Eastern Larch	Larix laricina
Tuliptree	Liriodendron tulipifera
Tupelo	Nyssa sylvatica
American Hophornbeam	Ostrya virginiana
White Spruce_(1.5:1 ratio) (6' ht.)	Picea glauca
Black Spruce_(1.5:1 ratio) (6' ht.)	Picea mariana
Red Pine_(1.5:1 ratio) (6' ht.)	Pinus resinosa
White Pine_(1.5:1 ratio) (6' ht.)	Pinus strobus
American Sycamore	Platanus occidentalis
Black Cherry	Prunus serotina
White Oak	Quercus alba
Swamp White Oak	Quercus bicolor
Scarlet Oak	Quercus coccinea
Shingle Oak	Quercus imbricaria
Burr Oak	Quercus macrocarpa
Chinkapin Oak	Quercus muehlenbergii
Red Oak	Quercus rubra
Black Oak	Quercus velutina
American Basswood	Tilia americana

Site Photos



Photo 1. Looking northwest across the north end of the proposed development site. This section of the site does not contain areas mapped as City-Regulated Woodlands (ECT, June 19, 2018).



Photo 2. Looking east at area of City-Regulated Woodland located south of the Walled Lake Branch of the Middle Rouge River (ECT, June 19, 2018).

RESTORATION PLAN REVIEW

ECT Project No. 180481

September 5, 2018

Ms. Barbara McBeth, AICP
City Planner
Community Development Department
City of Novi
45175 W. Ten Mile Road
Novi, Michigan 48375

Re: Adell Center Roads & Utilities (JSP18-0027)
Review of the Site Enhancement Plan

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) has completed a review of the Site Enhancement Plan (Sheet 35) for the proposed Adell Center Roads & Utilities project prepared by Greentech Engineering, Inc. dated August 31, 2018 (Plan) ahead of the proposed site development project. The project is located at 43700 Expo Center Drive (Parcel ID 50-22-15-476-045), south of I-96 and north of Grand River Avenue, west of Novi Road in Section 15. The site development plan includes the construction of a mixed-use district with several proposed building sites, associated parking, utilities and underground stormwater detention systems. The current Plan indicates a total of nine (9) building units, with Unit 4 being a parking lot and gazebo.

The Site Enhancement Plan includes proposed activity within areas mapped City-Regulated Wetlands/Watercourses and City-Regulated Woodlands on the City's Wetlands and Woodlands Maps (see Figure 1). Six (6) wetland areas and a section of the Walled Lake Branch of the Middle Rouge River as well as City-Regulated woodland are located on the southern section of the subject site. The wetlands appear to be regulated by the City of Novi as well as by the Michigan Department of Environmental Quality (MDEQ).

The work associated with this Site Enhancement Plan consists of the following activity:

- Removal of invasive species of woody vegetation, including:
 - Buckthorn
 - Honeysuckle
- Removal of invasive common reed (*Phragmites australis*)
- Trimming of City of Novi Regulated Trees

Wetland Evaluation

ECT previously met on-site on May 15, 2018 with the applicant's current wetland consultant, King & MacGregor Environmental, Inc. for a wetland boundary verification. ECT also reviewed the *Old Novi Expo: Wetland Delineation and Determination of Jurisdiction* report prepared by BWA Consulting dated October 5, 2017 (i.e., Report). This Report was received by the City by the applicant on May 1, 2018 as part of a wetland boundary verification request for the property.

The site is the former home of the Novi Expo Center which closed and the building was demolished in 2012. Currently, the only structure on the property is the existing water tower in the northwest corner of the site. Remnants of the former Novi Expo Center remain including the concrete building slab and the asphalt parking lot. The southern portion of the site (south of the existing asphalt parking lot) contains the Walled Lake Branch of the Middle Rouge River, wetlands, floodplains and trees. This area (approximately 7 acres), contains areas of City-regulated and MDEQ-regulated wetlands.

The focus of the previous site inspection was to review site conditions in order to determine whether City-regulated wetlands have been accurately located/indicated on-site. BWA completed a wetland delineation on the site on September 22, 2017. Pink wetland boundary flagging was in place at the time of this site inspection. ECT reviewed the flagging and agrees that the wetland boundaries were accurately flagged in the field. Based on the existing vegetation and topography, it is ECT's assessment that the on-site wetlands have been accurately delineated at this time. The BWA Report notes that a total of six (6) wetlands were identified. The following is a brief description of the on-site wetland features.

Wetland 1 – Forested, scrub shrub, and emergent wetland contiguous to the Creek (Walled Lake Branch of the Middle Rouge River). BWA notes that the dominant wetland vegetation includes reed canary grass (*Phalaris arundinacea*), American elm (*Ulmus americana*), and orange jewelweed (*Impatiens capensis*). Wetland hydrology is indicated by saturated soils adjacent to the stream. Hydric (i.e., wetland) soils were identified within the wetland boundaries. This wetland area is essentially confined to the upper banks of the Creek.

Wetlands 2, 3, and 5 – These are isolated emergent depressions within the floodplain (according to FEMA FIRM Panel #0626) of the Walled Lake Branch of the Middle Rouge River. Dominant wetland vegetation includes reed canary grass, orange jewelweed, and wood nettle (*Laportea canadensis*). Wetland hydrology is indicated by water stained leaves and drift lines. Hydric soils were identified within the wetland boundaries. These wetland areas are located south of Wetland 1.

Wetland 4 – This is an area of isolated, forested and emergent depression. Dominant wetland vegetation includes common reed (*Phragmites australis*), American elm, and wood nettle. Wetland hydrology is indicated by water stained leaves. Hydric soils were identified within the wetland boundaries. This wetland area is located in the southwest corner of the site.

Wetland 6 – This area is an emergent swale associated with the Walled Lake Branch of the Middle Rouge River. Dominant vegetation includes reed canary grass, wood nettle, and orange jewelweed. Wetland hydrology is indicated by saturated soils near the surface. Hydric soils were identified within the wetland boundaries. This wetland is located in the southeast corner of the site.

BWA noted in the Report that in their opinion all six (6) on-site wetlands are subject to regulation by the City of Novi as well as MDEQ and that permits would be required for any work proposed within these wetlands.

City of Novi Wetland/Watercourse Ordinance Requirements

The City of Novi Wetland and Watercourse Protection Ordinance (City of Novi Code of Ordinances, Part II, Chapter 12, Article V.; Division 2.) describes the regulatory criteria for wetlands and review standards for wetland permit applications. The City of Novi regulates wetlands that are: (1) contiguous to a lake, pond, river or stream, as defined in Administrative Rule 281.921; (2) two (2) acres in size or greater; or (3) less than two (2) acres in size but deemed essential to the preservation of the natural resources of the city

under the criteria set forth in subsection 12-174(b). Wetlands deemed regulated by the City of Novi require the approval of a use permit for any proposed impacts to the wetland.

Any proposed use of on-site wetlands (if applicable) will require a permit from MDEQ, a City of Novi *Wetland and Watercourse Permit* as well as an *Authorization to Encroach the 25-Foot Natural Features Setback* for any proposed impacts to the 25-foot wetland/watercourse buffers. **The Plan does not currently appear to propose direct impacts (i.e., cut, fill, etc.) to wetlands or 25-foot natural features setback buffers and no wetland permits or buffer authorization appears to be necessary.**

Woodland Evaluation

ECT has reviewed the City of Novi Official Woodlands Map and completed an onsite Woodland Evaluation on June 19, 2018. ECT's in-office review of available materials included the City of Novi Regulated Woodland map and other available mapping. As noted above, a portion of the southern end of the subject property is mapped as City of Novi Regulated Woodlands on the official City of Novi Regulated Wetland and Watercourse Map (see Figure 1). The proposed limits of disturbance for the main portion of the proposed project do not include areas mapped as City-Regulated Woodlands. Some proposed site improvements and the proposed Site Enhancement Plan are however proposed within the area of City-Regulated Woodlands. A compacted limestone pedestrian path has been proposed to be located south of the Walled Lake Branch of the Middle Rouge River.

Previously submitted site plans included an existing tree list (*Tree Inventory Plan*, Sheet 29). This Plan identifies tree tag numbers, diameter-at-breast-height (DBH), common name, condition, and removal status. The tree survey for the area designated as City-Regulated Woodland was included on Sheet 28 (*Woodland Plan*). The surveyed trees have been marked with aluminum tree tags allowing ECT to compare the tree diameters reported on the Plan with the existing trees in the field. ECT found that the Plan appears to accurately depict the location, species composition and the size of the existing trees. ECT took a sample of diameter-at-breast-height (DBH) measurements and found that the data provided on the Plan was consistent with the field measurements.

As noted above, the area north of the Walled Lake Branch of the Middle Rouge River is not mapped as City of Novi Regulated Woodland. In general, the majority of the on-site trees are box elder (*Acer negundo*) and eastern cottonwood (*Populus deltoides*). The site also includes Austrian pine (*Pinus nigra*), green spruce (*Picea pungens*), sugar maple (*Acer saccharum*), black walnut (*Juglans nigra*), American elm (*Ulmus americana*), and several other species. In terms of habitat quality and diversity of tree species, the overall subject site consists of fair to good quality trees. In terms of a scenic asset, wildlife habitat, windblock, noise buffer or other environmental asset, the forested area located on the subject site is considered to be of fair quality.

Woodland Requirements

As noted above, the site does contain City of Novi Regulated Woodlands. This mapped regulated woodland area is located south of the Walled Lake Branch of the Middle Rouge River. **The Site Enhancement Plan does not propose impacts to any of the on-site, surveyed trees, only the removal of invasive woody vegetation.** It should be noted that the existing understory consists mainly of undesirable, invasive plant species such as buckthorn and honeysuckle. The proposed site enhancement work would not be significantly disturbing any existing desirable vegetation that provides beneficial wildlife habitat.

It should be noted that the purpose of the City of Novi Woodland Protection Ordinance (Chapter 37) is to:

- *Provide for the protection, preservation, replacement, proper maintenance and use of trees and woodlands located in the city in order to minimize disturbance to them and to prevent damage from erosion and siltation, a loss of wildlife and vegetation, and/or from the destruction of the natural habitat. In this regard, it is the intent of this chapter to protect the integrity of woodland areas as a whole, in recognition that woodlands serve as part of an ecosystem, and to place priority on the preservation of woodlands, trees, similar woody vegetation, and related natural resources over development when there are no location alternatives;*
- *Protect the woodlands, including trees and other forms of vegetation, of the city for their economic support of local property values when allowed to remain uncleared and/or unharvested and for their natural beauty, wilderness character of geological, ecological, or historical significance; and*
- *Provide for the paramount public concern for these natural resources in the interest of health, safety and general welfare of the residents of the city.*

Site Enhancement Plan Comments

ECT recommends that the Applicant address the items noted below prior to approval of the Final Site Enhancement Plan:

1. In the ***Sequence of Removal of Woody Invasive Species*** section of the Plan, ECT recommends:
 - a. The Plan shall include information related to the proposed site access locations to be used for getting tools and equipment to the Site Enhancement Area. Crossing the Walled Lake Branch of the Middle Rouge River with a bridge may require a permit from the MDEQ. Perhaps site access authorization from an adjacent property can be obtained.
 - b. The Plan shall include a list of all mechanical equipment that is proposed to be used in order to implement the Site Enhancement Plan. Disturbance of the ground surface shall be minimized and avoided through the use of small, rubber tracked equipment. ECT recommends that all work be done with hand-held equipment where possible and that any vehicles be kept out of the wetland and 25-foot wetland buffer thereby avoiding unauthorized soil disturbance.
 - c. No clearing or cutting of existing vegetation shall commence without the City of Novi Landscape Architect or City Environmental Consultant being present on-site. 48-hour notification shall be given by the applicant prior to the start of such work.
 - d. Treating with chemicals in areas where water is visibly-present requires an Aquatic Nuisance Control Permit from the Michigan Department of Environmental Quality (MDEQ). This permit should not be required in order to complete the treatment of the invasive woody vegetation as proposed.
 - e. Item No. 1: All preservation areas, or plants to be preserved, shall be marked in the field with survey flagging and/or stakes.

- f. Item No. 3: Vehicles shall remain outside of the delineated wetland boundaries and the 25-foot wetland setbacks.
 - g. Item No. 5: Any dead standing trees that are 14” diameter-at-breast height (DBH) or larger shall be preserved and left standing as wildlife habitat. If desired, these trees can be cut 12-feet or higher off of the ground and left as habitat for bats and or birds, etc.
 - h. Items No. 6: All herbicide chemicals shall be applied by a licensed, certified herbicide applicator.
2. In the ***Sequence of Removal of Woody Invasive Species (Second Year Maintenance)*** section of the Plan, ECT recommends:
 - a. Item No. 1: In mid to late spring the Landscape Architect shall conduct a visual survey of invasive species and submit a report to the City of Novi. The report will contain written, graphic and photographic documentation of site conditions. All invasive species that have re-sprouted shall be re-treated (as outlined in No. 6 and No. 7 of the *Sequence of Removal for Woody Invasive Species*) – i.e., a 2nd year of invasive species treatment for woody plant species shall be required.
3. In the ***Sequence of Removal for Phragmites*** section of the Plan, ECT recommends:
 - a. Item No. 1: Phragmites shall be treated in late summer (August to September) using Glyphosate-based herbicide applied by a licensed, certified herbicide applicator to achieve effective control.
4. In the ***Sequence of Removal for Phragmites (Second Year Maintenance)*** section of the Plan, ECT recommends:
 - a. Add Item No. 2:

The Phragmites removal program will be deemed complete when the site is free from the invasive Phragmites plants (i.e., Phragmites is eradicated from the site).
5. The Site Enhancement Plan does not currently include a proposal to re-plant/landscape the area of site enhancement after the removal of invasive species has been accomplished. A plan (landscape plan) for restoration planting of appropriate native forbs (plants or seed mixes), shrubs and/or trees shall be provided as part of the Adell Center Roads and Utilities Final Site Plan.

Adell Center Roads and Utilities (JSP18-0027)
Review of the Site Enhancement Plan
September 5, 2018
Page 6 of 7

Recommendation

ECT recommends that the Applicant address the items noted in the *Site Enhancement Plan Comments* section of this letter prior to approval of the Final Site Enhancement Plan and provide a restoration planting plan as part of the Adell Center Roads and Utilities Final Site Plan.

If you have any questions regarding the contents of this letter, please contact us.

Sincerely,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

cc: Lindsay Bell, City of Novi Planner (lbell@cityofnovi.org)
Sri Komaragiri, City of Novi Planner (skomaragiri@cityofnovi.org)
Rick Meader, City of Novi Landscape Architect (rmeader@cityofnovi.org)
Hannah Smith, City of Novi Planning Assistant (hsmith@cityofnovi.org)

Attachments: Figure 1 – City of Novi Regulated Wetland & Woodland Map



Figure 1. City of Novi Regulated Wetland & Woodland Map (approximate property boundary shown in red). Regulated Woodland areas are shown in green and Regulated Wetland areas are shown in blue.

TRAFFIC REVIEW



AECOM
27777 Franklin Road
Southfield
MI, 48034
USA
aecom.com

Project name:
JSP18-0027 – Adell Center Roads and Utilities
PSP/FSP Traffic Review

From:
AECOM

Date:
August 17, 2018

To:
Barbara McBeth, AICP
City of Novi
45175 10 Mile Road
Novi, Michigan 48375

CC:
Sri Komaragiri, Lindsay Bell, George Melistas,
Theresa Bridges, Darcy Rechten, Hannah Smith

Memo

Subject: JSP18-0027 Adell Center Roads and Utilities PSP/FSP Traffic Review

The roads and utilities preliminary / final site plan was reviewed to the level of detail provided and AECOM **recommends approval of the preliminary site plan and denial** for the applicant to move forward on the **final site plan** based on several undetermined site items including driveway spacing, pavement markings and/or other missing site elements, as detailed below.

GENERAL COMMENTS

1. The applicant, Orville Properties, LLC, is proposing a multi-use development located on the west side of Novi Road, south of I-96, with one point of access to Crescent Blvd. The applicant is proposing eight (8) individual units within the project:
 - a. IFLY indoor skydiving
 - b. Planet Fitness
 - c. Fairfield hotel
 - d. Off-street parking
 - e. Drury hotel
 - f. Sit-down restaurant
 - g. Sit-down restaurant
 - h. Carvana
2. Crescent Blvd is under the jurisdiction of the City of Novi.
3. The parcel is currently zoned EXPO, and the applicant is proposing to rezone to TC (Town Center District) with a Planned Rezoning Overlay (PRO).
4. All traffic review comments on the proposed internal site operations are discussed in the revised PRO concept submittal under a separate cover letter.
5. Summary of traffic-related waivers/variances related to Adell Center Drive only:
 - a. At the time of the preliminary/final site plan, the applicant is requesting the following traffic-related waivers or variances related to Adell Center Drive. Notes (*in italics*) following each proposed deviation include AECOM's agreement or disagreement with the deviation.
 - i. City Council Variance (11-194(a)(7)) for the maximum length of the proposed cul-de-sac street length of 1450 feet from the centerline intersection of Crescent Boulevard to the center of the bulb of the Adell Center Drive cul-de-sac. *AECOM would support this variance.*
 - ii. City Council variance for lack of a traffic impact study due to the city is currently undertaking a traffic study for this area. *The applicant has provided trip generation information for the development that*

will be incorporated into the region-wide traffic impact study. AECOM supports the variance for lack of a full traffic impact study as part of the plan review process such that the applicant understands that they may be requested to provide additional traffic-related data and information during the review at the City's discretion. The applicant should also confirm understanding that they may be subject to certain off-site and/or on-site mitigation measures as a result of the region-wide traffic impact study.

- b. Once additional information is received from the applicant, further review will be performed and additional required deviations may be identified. Items that may require additional deviations include:
 - i. Should the minimum same side driveway spacing requirements not be met, the applicant may be required to seek a deviation.
 - ii. Should the proposed number of drive approaches and/or the drive approach system not comply with the guidance in the ordinance, the applicant may be requested/required to provide justification and/or apply for deviations.

TRAFFIC IMPACTS

- 1. The applicant provided a trip generation analysis, prepared by Bergmann, which outlines the anticipated number of daily, AM peak and PM peak trips that each of the various land uses may be expected to generate. AECOM reviewed the trips generation estimates and accepts the calculations as provided.
- 2. The number of new trips expected to be generated by the entire development are as follows:

Trip Generation Summary				
	Estimated Trips	Estimated Peak-Direction Trips	City of Novi Threshold	Above Threshold?
AM Peak-Hour Trips	188	102	100	Yes
PM Peak-Hour Trips	334	186	100	Yes
Daily (One-Directional) Trips	3,988	N/A	750	Yes

- a. The development trip generation estimates exceed the City's threshold of more than 750 trips per day or 100 trips per either the AM or PM peak hour. The applicant has requested a variance for the completion of a traffic impact study because the development will be included in the region-wide TIS that is underway by AECOM. Reference item 4.a.vi under General Comments for further potential conditions related to a traffic impact study and/or mitigation measures that may be required.
- b. Additionally, AECOM performed a preliminary analysis to assess roadway capacity impacts of the proposed Adell Center development. The initial results of that analysis indicate that the intersection of Novi Road and Crescent Boulevard is expected to be able to accommodate the additional traffic during the AM and PM peak periods. The intersection of Novi Road and Grand River operates under existing congested conditions and may worsen with the added traffic demand of the development, specifically the eastbound and southbound left turn movements.

EXTERNAL SITE ACCESS AND OPERATIONS

The following comments relate to the external interface between the proposed development and the surrounding roadway(s). It should be noted that each commercial driveway interface with Adell Center Drive is also considered an external access point for purposes of this review letter.

1. The applicant has proposed the site roadway to be a private street with a width of 36 feet B/B. and a 70 foot access easement.
 - a. While it is not anticipated that any of the currently proposed sites would warrant left turn passing lanes, the inclusion of a center left turn lane would likely have positive impacts on traffic flow throughout the development. It is recommended that the developer develop the road with a three-lane cross-section to further accommodate left-turning activities and provide a wider "buffer zone" for large vehicles entering/exiting the various facilities without entering into the opposing traffic thru lane.
 - b. The applicant should update the note near Unit 2 on sheet 10 to indicate 36' B/B instead of 30' B/B for Adell Center Drive.
2. The applicant has indicated a length of 1,540 feet for Adell Center Drive. Section 11-194(a)(7) indicates a maximum cul-de-sac street length of 800 feet for all developments except for R-A zoned properties. The applicant is seeking a City Council variance for exceeding the maximum street length.
 - a. Additionally, Section 11-194(a)(7) states a required outside pavement radius of 54 feet for the cul-de-sac. The developer is proposing back-of-curb radius of 58 feet.
3. The applicant has proposed a secondary point of access to the site at the water tower with a gate per the Fire Department.
 - a. The applicant has indicated that a gate will be provided but does not show the specific gate location(s) on the site plan.
 - i. The applicant should provide the proposed location for the gate(s).
 - ii. Additionally, note that, per Figure VIII-K, an "EMERGENCY ACCESS ONLY" sign is required if the gate is more than 100; from the beginning of the access drive.
4. The applicant has proposed a 20 foot wide emergency access drive at the end of the cul-de-sac. This width does not match the 16 foot width on sheet 2 of the Paving Standard Details.
 - a. Sheet 10 indicates it is a gravel driveway, however, the detail on sheet 2 of the standard paving details indicates HMA.
 - b. The applicant should include the appropriate signing and emergency access gate per Figure VIII-K of the City's Code of Ordinances.
5. The applicant has indicated a 25 MPH proposed speed along Adell Center Drive.
6. The applicant should review the two (2) proposed (90 degree) curves along Adell Center Drive and provide calculations for the proposed radius given the 25 MPH design speed, OR may be requested to incorporate additional traffic calming/control measures (e.g., signing) near these turns to improve maneuverability and safety for motorists.
7. The applicant shall provide a clear vision area for all drive approaches to Adell Center Drive in accordance with Section 216(b).
8. The applicant is encouraged to provide a joint drive approach system throughout the development. If each parcel within the development will be independently owned, the applicant may be required to execute ingress/egress easements, as applicable.
9. The applicant shall indicate same side driveway spacing for commercial driveways proposed along Adell Center Drive. Commercial drive approaches must be spaced according to the minimum requirements indicated in Section 11-216(d)(1)d for a speed limit of 25 MPH, thereby indicating a required driveway spacing of 105 feet. Should the minimum driveway spacing requirements not be met, the applicant may be required to seek a deviation.
10. The applicant should review the driveway placement with relation to the sharp horizontal curves along Adell Center Drive and consider alternative placement for purposes of creating safe and effective traffic operations throughout the development.
11. The applicant should review Section 216(d)(1)a-c to review driveway spacing and number of driveways provided per parcel. Should the proposed drive approach system not comply with the guidance in the ordinance, the applicant may be requested/required to provide justification and/or apply for deviations.
12. The driveway approach designs will be reviewed as part of each unit's individual site plan review.
13. The applicant should consider pedestrian activity and connections across Adell Center Drive and to the various parcels throughout the site in an effort to provide a more walkable district. Any such pedestrian facilities shall be designed in accordance with City standards and the requirements of the American Disability Act. Example locations where connections (e.g., crosswalks) could be considered would be in front of Units 5 and 6 and Units 3 and 7.

INTERNAL SITE OPERATIONS

The following comments relate to the on-site design and traffic flow operations of Adell Center Drive. The applicant should refer to the revised PRO traffic review letter for additional comments regarding on-site topics such as general traffic flow and parking facilities.

Sidewalk Requirements

1. The applicant is proposing sidewalk along both sides of Adell Center Drive.
2. The location of the sidewalk along Adell Center Drive is proposed to be located such that the outside edge is 15 feet from the back of curb, which meets City standards.
3. The applicant is proposing a sidewalk width of six (6) feet along Adell Center Drive which is in accordance with the City's Master Plan for Bicycle and Pedestrian Paths.
4. The applicant should include any sidewalk ramp/detectable warning surface locations and details in future submittals.
5. The applicant should review the walkability of the development and provide additional non-motorized connections as applicable including crossings across Adell Center Drive. The only proposed crossing for pedestrians is located at Adell Center Drive and Crescent Boulevard.

SIGNING AND STRIPING

1. All on-site signing and pavement markings shall be in compliance with the Michigan Manual on Uniform Traffic Control Devices (MMUTCD). The following is a discussion of the proposed signing and striping.
 - a. The applicant should provide a signing quantities table and additional details (MMUTCD designation and proposed size) in future submittals.
 - b. The applicant should include proposed signing locations throughout the development.
 - i. The applicant should consider including keep right (R4-7) signs in the medians of the boulevard section of Adell Center Drive.
 - c. The applicant should refer to the City of Novi Traffic Control Sign Standards for any proposed street name signs.
 - d. The applicant provided the following notes and details on sheet 10.
 - i. All roadside signs should be installed two feet from the face of the curb to the near edge of the sign.
 - ii. Single signs with nominal dimensions of 12" x 18" or smaller in size shall be mounted on a galvanized 2 lb. U-channel post. Multiple signs and/or signs with nominal dimension greater than 12" x 18" shall be mounted on a galvanized 3 lb. or greater U-channel post as dictated by the weight of the proposed signs.
 - iii. Traffic control signs shall use the Federal Highway Administration (FHWA) Standard Alphabet series.
 - iv. Traffic control signs shall have High Intensity Prismatic (HIP) sheeting to meet FHWA retroreflectivity requirements.
 - e. The applicant should provide notes and details related to proposed pavement markings.
 - i. Provide details for pavement markings along Adell Center Drive including a left center turn lane, which is the preferred layout, and any crosswalk markings.
 - ii. Provide details for any proposed pavement marking arrows.

Should the City or applicant have questions regarding this review, they should contact AECOM for further clarification.

Sincerely,

AECOM

Memo



Maureen N. Peters, PE
Senior Traffic/ITS Engineer



Paula K. Johnson, PE
Senior Transportation Engineer

FIRE REVIEW



July 27, 2018

TO: Barbara McBeth- City Planner
Sri Ravali Komaragiri- Plan Review Center
Lindsay Bell-Plan Review Center
Hannah Smith-Planning Assistant

RE: Adell Center Roads and Utilities

PSP# 18-0110

CITY COUNCIL

Mayor
Bob Gatt

Mayor Pro Tem
Dave Staudt

Andrew Mutch

Wayne Wrobel

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City Manager
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**Director of Public Safety
Chief of Police**
David E. Molloy

Director of EMS/Fire Operations
Jeffery R. Johnson

Assistant Chief of Police
Erick W. Zinser

Assistant Chief of Police
Scott R. Baetens

Project Description:

Roads and Utilities for the Adell Center project.

Comments:

- **All** fire hydrants **MUST** in installed and operational prior to any building construction begins.
- Water flow hydraulic calculations for units 1, 2, 4, 6, 7 & 8 **MUST** be turned into the Fire Marshal's office for review. (For the 4" fire services leads).
- **MUST** add water-main sizes on plans for review.
- Hydrant spacing is <300' from fire hydrant to fire hydrant. **Novi City Ordinance 11-68(F)(1)c.**
- **MUST** provide documentation to the Fire Marshal's office the agreement from the neighboring business for the secondary access point.
- Fire access roads **MUST** designed and maintained to support a 35 ton weigh requirements. **IFC 503.2.3.**

Recommendation:

NOT APPROVED

Sincerely,

Kevin S. Pierce-Fire Marshal
City of Novi – Fire Dept.

cc: file

Novi Public Safety Administration
45125 Ten Mile Road
Novi, Michigan 48375
248.348.7100
248.347.0590 fax

cityofnovi.org

APPLICANTS RESPONSE LETTER

September 4, 2018

Ms. Sri Ravali Komaragiri
Planner
City of Novi
Planning Department
45175 10 Mile Road
Novi, Michigan 48375

Re: **ADELL CENTER**
Roads and Utilities with a Site Condominium Submittal
Project #JSP 18-27
Greentech Job No. #17-334

Ms. Komaragiri and consultants,

The following is our response to the Plan Review Center Report, dated August 16th, 2018, relating to the above referenced project:

Planning Review Chart: (addressing applicable comments in bold)

- Overall PRO plan will be included as “Illustrative Plan” in the next submittal.
- Narrative will be revised as requested.
- ROW information will be revised.
- Master Deed draft will be provided prior to final stamping sets.
- Applicant has requested deviations as suggested.
- A detailed Wetland/Woodland plan has been work through in great detail the past two weeks and plan sheets are attached with this response letter for reference. This plan has been developed in coordination with the Applicant, GreenTech, Novi consultants, and GreenTech consultants. (Prior to Planning Commission Meeting)
- Will provide staking for path as requested.
- Additional Lighting information will be provided as requested.
- Will refer to plan review chart for additional comments.
- A recent, scaled, aerial photograph plan will be provided.
- Sheet index will be corrected.
- Unit size and coverage will be added for each unit.
- Depth to Width ratio will be provided for each lot.
- Units will provide a secondary point of access.

- Noted that these plans will need to be approved by City Council as well.
- Noted that site plan approval will be required for each individual lot.
- Additional amenities provided per PRO agreement.
- Center turn lane provided as requested.
- Crosswalks added as requested.
- Noted that photometric plans will be required for each unit.
- Decorative lights will be considered, will work with Novi for a solution.
- Lighting for streets will be provided per Novi and PRO agreement requirements.

Engineering Review: (dated 08-16-2018)

Darcy Rechten, P.E. City of Novi

- All items (1-61) will be provided at the time of Final Site Plan submittal.
- All items (62-94) will be provided as required.

Landscaping Review (dated 08-08-2016)

Rick Meader, City of Novi

- General Notes – Call outs for each focus area will be provided at the time of Final Site Plan submittal.
- The landscaping that is not part of the Road and Utilities Construction is removed from the plans.
- All street lighting will be provided at the time of Final Site Plan submittal.
- The I-96 berm will be revised to undulate between 36" and 42" height.
- All comments in the Street tree requirements, Adjacent to Public Rights-of-Way, Corner Clearance, Snow Deposit and Plant List sections will be addressed and additional information will be provided at the time of Final Site Plan submittal.

Wetlands Review (dated 08-13-2018)

Pete Hill, P.E., Environmental Consulting and Technology, Inc.

The following responses address those comments listed in the ECT Wetland and Water Course comments section of their review letter dated August 13, 2018.

1. No grading will take place within the wetland #1 as part of this project. The proposed pedestrian bridge will completely span wetland #1.
2. The details of the proposed pedestrian bridge are indicated on sheet XX of the submittal package. The pedestrian bridge will span the entire wetland #1. The only impacts to wetland #1 will include the removal and replacement of the existing storm sewer end sections that will be replaced at the same invert elevations as the existing.
3. Further details of the compacted aggregate walking path will be provided as part of the final site plan submittal. As indicated on the site enhancement plan sheet

- 35, we note that the proposed walking path will be staked and the proposed trail location will be reviewed with ECT and city staff prior to construction.
4. There is no proposed wetland fill as part of this project.
 5. The 25' wetland buffer area quantities have been added and tabulated on sheet 34 of the plan set.
 6. All proposed 25' wetland buffer impacts have been quantified and tabulated on sheet 34 of the plan set.
 7. We are currently preparing a MDEQ application of all of the proposed MDEQ regulated wetland impacts.
 8. Comment noted.
 9. The proposed wetland setback restoration seed mixtures will be provided as part of the final site plan submittal.
 10. No snow storage from the proposed Adell Center drive will be located directly adjacent to the wetland areas, therefore we do not anticipate any direct runoff from snow storage areas into the existing wetlands.
 11. The final site plan will be revised to include conservation easement signage along all of the existing wetland areas. The signage indicated on the landscape plan is a picture of an existing sign from another project in the city. The signs installed for this project will be labeled Adell Center.
 12. The plans have been revised to note that the proposed pathway will be staked and field reviewed with the wetland consultant prior to installation. The pathway location may be revised in the field as required to minimize impacts to the wetland and buffer areas.
 13. All proposed plans will be reviewed by the City of Novi engineering department. All individual sites within the development will provide pre-treatment structures.
 14. A site enhancement plan has been added to the plan set. See sheet 35

Woodlands Review (dated 08-13-2018)

Pete Hill, P.E., Environmental Consulting and Technology, Inc.

The following responses address those comments listed in the ECT Woodland review letter dated August 13, 2018.

1. The proposed woodland conservation easement will be indicated around the proposed replacement trees as part of the final site plan.
2. The discrepancy will be clarified as part of the final site plan.
3. Further details of the compacted aggregate walking path will be provided as part of the final site plan submittal. As indicated on the site enhancement plan sheet 35, we note that the proposed walking path will be staked and the proposed trail location will be reviewed with ECT and city staff prior to construction.
4. Comment Noted.
5. Comment Noted.
6. Comment Noted.
7. We anticipate planting all replacement trees on-site, therefore payment to the City of Novi tree fund is not anticipated.

8. A conservation easement will be granted over the woodland replacement tree area.
9. A site enhancement plan has been added to the plan set. See sheet 35

Traffic Review (dated 08-17-2018)
Maureen Peters, P.E., AECOM

GENERAL COMMENTS

- All items (1-5) noted.

TRAFFIC IMPACTS

- All items (1-2) noted.

EXTERNAL SITE ACCESS AND OPERATIONS

1. Will revise as requested.
2. Noted.
3. Gates and signs will be provided per Novi requirements and clearly shown on the plans.
4. Dimension of 20' wide and temporary gravel will be provided.
5. Noted.
6. Noted.
7. Will provide as required.
8. Noted.
9. Noted.
10. Noted.
11. Noted.
12. Noted.
13. Provided per PRO plan approved by planning commission.

INTERNAL SITE OPERATIONS

- Noted.

SIDEWALK REQUIREMENTS

1. Noted.
2. Noted.
3. Noted.
4. Will provide as requested.
5. Provided per PRO plan approved by planning commission.

SIGNING AND STRIPING

1. Will provide as requested.

Fire Department Review (dated 07-27-2018)

Kevin S. Pierce, City of Novi

- All fire hydrants will be installed prior to building construction beginning. There will be a hydrant located within 100' feet of the building FDC. Stubs for additional hydrants will be provided (coordinated) as needed on the Roads and Utilities package to ensure not having to cut in tees in the future.
- Individual unit representatives have been contacted for this information and informed to provide it this upcoming week.
- Will add additional water main sizes per request.
- Hydrant spacing will be less than 300'.
- An agreement with the neighboring parcel to provide a secondary access point is currently being worked on.
- Fire access roads in the Roads and Utilities package will meet the 35 ton requirement. GreenTech also informed individual unit representatives that this comment also applies to their individual sites.

Please feel free to contact our office with any questions or concerns, regarding the Roads and Utilities response letter, Woodland/Wetland Restoration Plans.

Sincerely,

A handwritten signature in black ink that reads "Jason Fleis". The signature is written in a cursive style with a large initial "J" and "F".

Jason Fleis, P.E.
GreenTech Engineering, Inc.

September 7, 2018

Ms. Sri Ravali Komaragiri
Planner
City of Novi
Planning Department
45175 10 Mile Road
Novi, Michigan 48375

Re: **ADELL CENTER**
Roads and Utilities Site Enhancement Plan (Wetland & Woodland)
Project #JSP 18-27
Greentech Job No. #17-334

Ms. Komaragiri and consultants,

The following is our response to the Review of the Site Enhancement Plan, dated September 5th, 2018, relating to the above referenced project:

Pete Hill, P.E., Environmental Consulting and Technology, Inc.

The following responses address those comments listed in the ECT Wetland and Water Course comments section of their review letter dated August 13, 2018.

1. Noted.
 - a) Noted, will obtain authorization as required.
 - b) Will comply, use of hand held equipment within 25' buffer and wetland areas.
 - c) Will comply.
 - d) Noted.
 - e) Will comply.
 - f) Will comply.
 - g) Will comply.
 - h) Will comply.
2. Will comply.
3. Will comply.
4. Will comply.
5. Will work with staff/consultants to provide the appropriate seed mixes for the site enhancement area. Will provide a restoration planting plan.

Please feel free to contact our office with any questions or concerns, regarding the Site Enhancement response letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Jason Fleis". The signature is written in a cursive style with a large initial "J" and a long horizontal stroke.

Jason Fleis. P.E.
GreenTech Engineering, Inc.