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Troy, MI 48084
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PLANNING COMMISSION MEETING AGENDA REGULAR MEETING

Tom Krent, Chairman, David Lambert, Vice Chairman
Carlton Faison, Michael W. Hutson, Lakshmi Malalahalli,
Marianna Perakis, Sadek Rahman, Jerry Rauch and John J. Tagle

February 23, 2021

7:00 P.M.

Remote Meeting

Public Comment may be communicated to the Planning Commission via telephone voice mail by calling 248.524.1305 or by sending an email to planning@troymi.gov. All comments will be provided to the Planning Commission.

1. ROLL CALL
2. SUSPENSION OF PLANNING COMMISSION BYLAWS
3. APPROVAL OF AGENDA
4. APPROVAL OF MINUTES – February 9, 2021
5. PUBLIC COMMENT – For Items Submitted via Email or Telephone Message

PRELIMINARY SITE CONDOMINIUM REVIEW

6. PRELIMINARY SITE PLAN APPROVAL (File Number SP1019-0041) – Proposed Lange View Estates, East of Crooks Road, Southeast corner of Livernois and Leetonia (4080 Livernois), Section 15, Currently Zoned NN Neighborhood Node (Node “H”) District.

OTHER ITEMS

7. PLANNING COMMISSION COMMENT
8. ADJOURN

NOTICE: *People with disabilities needing accommodations for effective participation in this meeting should contact the City Clerk by e-mail at clerk@troymi.gov or by calling (248) 524-3317 at least two working days in advance of the meeting. An attempt will be made to make reasonable accommodations.*

PROPOSED RESOLUTION

PROPOSED RESOLUTION TO TEMPORARILY SUSPEND THE PLANNING COMMISSION RULES OF PROCEDURE

Resolution # PC-2021-02-

Moved by:

Seconded by:

WHEREAS, the Michigan Department of Health and Human Services (MDHHS) Director Robert Gordon issued an Order on October 5, 2020 under MCL 333.2253 restricting indoor gathering sizes to protect public health and safety, and

WHEREAS Public Act 254 of 2020 permits public meetings to be held by electronic means where an in person meeting could detrimentally increase exposure of board members and the general public to COVID-19,

THEREFORE BE IT RESOLVED, That as allowed by Planning Commission Rules of Procedure Article IV, Section 6, the Troy Planning Commission hereby **TEMPORARILY SUSPENDS** the requirement of holding a meeting at the Troy City Hall and **ALLOWS** all Troy Planning Commission Members to electronically participate in any Planning Commission meeting through March 31, 2021.

Members participating electronically will be considered present and in attendance at the meeting and may participate in the meeting as if physically present. However, members must avoid using email, texting, instant messaging, and other such electronic forms of communication to make a decision or deliberate toward a decision.

RESOLVED, As allowed by Planning Commission By-laws and Rules of Procedure Article X, the Troy Planning Commission hereby **TEMPORARILY SUSPENDS AND MODIFIES** the By-laws and Rules of Procedure concerning the Order of the Agenda, as set forth in Article V, Section 3, to consolidate the Public Comment sections of the meeting for any meeting held through March 31, 2021.

RESOLVED, As allowed by Planning Commission By-laws and Rules of Procedure Article X, the Troy Planning Commission hereby **TEMPORARILY SUSPENDS AND ALLOWS** two methods of receiving Public Comment for virtual meetings. Public comments can be submitted for the Planning Commission meeting by sending an email to: planning@troymi.gov. Emails received prior to 4:00 pm on the day of the Planning Commission meeting, will be read at the meeting and made part of the public record. Public comments can also be submitted by calling the following phone number and leaving a voicemail message: (248) 524-1305. Recorded voicemail messages received prior to 4:00 pm on the day of the Planning Commission meeting will be played at the meeting. For emails and recorded messages received after the deadline, reasonable efforts will be made to read emails and play recorded messages received during the meeting. Email and voicemail public comments will be limited to three minutes each.

Chair Krent called the virtual Regular meeting of the Troy City Planning Commission to order at 7:00 p.m. on February 9, 2021. Chair Krent introduced the procedure to be followed for a remote meeting.

1. ROLL CALL

Present:

- Carlton M. Faison
- Michael W. Hutson
- Tom Krent
- David Lambert
- Lakshmi Malalahalli
- Marianna Perakis
- Sadek Rahman
- Jerry Rauch
- John J. Tagle

Also Present:

- R. Brent Savidant, Community Development Director
- Ben Carlisle, Carlisle Wortman Associates
- Julie Quinlan Dufrane, Assistant City Attorney
- Jackie Ferencz, Planning Department Administrative Assistant
- Kathy L. Czarnecki, Recording Secretary

2. SUSPENSION OF PLANNING COMMISSION BYLAWS

Resolution # PC-2021-02-009

Moved by: Rahman
 Support by: Tagle

WHEREAS, the Michigan Department of Health and Human Services (MDHHS) Director Robert Gordon issued an Order on October 5, 2020 under MCL 333.2253 restricting indoor gathering sizes to protect public health and safety, and

WHEREAS, Public Act 254 of 2020 permits public meetings to be held by electronic means where an in-person meeting could detrimentally increase exposure of board members and the general public to COVID-19,

THEREFORE BE IT RESOLVED, That as allowed by Planning Commission Rules of Procedure Article IV, Section 6, the Troy Planning Commission hereby **TEMPORARILY SUSPENDS** the requirement of holding a meeting at the Troy City Hall and **ALLOWS** all Troy Planning Commission Members to electronically participate in any Planning Commission meeting through March 31, 2021.

Members participating electronically will be considered present and in attendance at the meeting and may participate in the meeting as if physically present. However, members must avoid using email, texting, instant messaging, and other such electronic forms of communication to make a decision or deliberate toward a decision.

RESOLVED, As allowed by Planning Commission By-laws and Rules of Procedure Article X, the Troy Planning Commission hereby **TEMPORARILY SUSPENDS AND MODIFIES** the Bylaws and Rules of Procedure concerning the Order of the Agenda, as set forth in Article V, Section 3, to consolidate the Public Comment sections of the meeting for any meeting held through March 31, 2021.

RESOLVED, As allowed by Planning Commission By-laws and Rules of Procedure Article X, the Troy Planning Commission hereby **TEMPORARILY SUSPENDS AND ALLOWS** two methods of receiving Public Comment for virtual meetings. Public comments can be submitted for the Planning Commission meeting by sending an email to: planning@troymi.gov. Emails received prior to 4:00 pm on the day of the Planning Commission meeting, will be read at the meeting and made part of the public record. Public comments can also be submitted by calling the following phone number and leaving a voicemail message: (248) 524-1305. Recorded voicemail messages received prior to 4:00 pm on the day of the Planning Commission meeting will be played at the meeting. For emails and recorded messages received after the deadline, reasonable efforts will be made to read emails and play recorded messages received during the meeting. Email and voicemail public comments will be limited to three minutes each.

Yes: All present (9)

MOTION CARRIED

3. APPROVAL OF AGENDA

Resolution # PC-2021-02-010

Moved by: Faison
Support by: Hutson

RESOLVED, To approve the Agenda as prepared.

Yes: All present (9)

MOTION CARRIED

4. APPROVAL OF MINUTES

Resolution # PC-2021-02-011

Moved by: Lambert
Support by: Tagle

RESOLVED, To approve the minutes of the January 26, 2021 Regular meeting as submitted.

Yes: All present (9)

MOTION CARRIED

5. PUBLIC COMMENT – For Items Submitted via Email or Telephone Message

Ms. Ferencz reported there was no public comment.

PRELIMINARY SITE CONDOMINIUM REVIEW

6. PRELIMINARY SITE CONDOMINIUM – Proposed Casca Village of Troy, East of Crooks Road, South of West South Boulevard (88-20-04-100-085 and 88-20-04-100-086), Section 20, Currently Zoned R-1B (One Family Residential) District

Mr. Carlisle reviewed the Preliminary Site Condominium application. He said the application is a permitted use and meets the R1-B zoning district requirements. Mr. Carlisle reported the applicant must provide a second elevation and a revised landscape plan that meets the required screening of the road for adjacent residential to the east. He asked the Board to consider additional screening. Mr. Carlisle stated the Fire Department approves the proposed T-turnaround for emergency vehicles and noted the turnaround could be extended for future development to the north.

Mr. Carlisle recommended Preliminary Site Plan approval with the conditions as identified in his report dated February 3, 2021.

Mr. Savidant gave a brief explanation of a site condominium development versus a subdivision development. He said the application for consideration this evening is essentially the same project as initially submitted and approved by the Planning Commission in 2015. Mr. Savidant said the landscape plan that was approved in 2015 would be a good starting point for discussion and noted it is on page 41 of the agenda packet. Mr. Savidant said it was his judgment call to place the item on the agenda so the project could move forward, subject to a revised landscape plan that meets Zoning Ordinance requirements.

Michael Powell, Design Engineer, Powell Engineering and Associates, 4700 Cornerstone, White Lake, Michigan, was present to represent the applicant. Mr. Powell addressed the different aspects of the plan before the Board this evening and the 2015 approved plan. He specifically addressed setbacks within the building envelope, additional landscaping to meet screening requirements, emergency vehicular access, and Homeowners Association regulations and maintenance of the private road.

Mr. Powell indicated economic reasons for expiration of the 2015 application. He expressed regret that time was limited to provide a revised landscape plan for the Board's review this evening.

There was discussion on:

- Required setbacks within building envelope; review through Building Department permitting process.
- Distance between residential properties.

- Location of T-turnaround, in relation to unit one.
- Landscape plan.
 - Minimum requirements to buffer residential.
 - Property lines required to be screened.
 - Existing landscaping; berm, vegetation.
 - Enhancement of landscaping.
 - Administrative review of revised landscape plan.

Resolution # PC-2021-02-012

Moved by: Tagle
 Support by: Rahman

RESOLVED, That Preliminary Site Condominium Approval, pursuant to Article 8 and Section 10.02 of the Zoning Ordinance, as requested for Casca Village of Troy Site Condominium, 4 units/lots, East of Crooks Road, South of West South Boulevard (88-20-04-100-085 and 88-20-04-100-086), Section 4, Currently Zoned R-1B (One Family Residential) District, be granted, subject to the following:

1. Submit required landscape plan.
2. Work with Engineering Department to work out private road specifications, including placing sidewalk within easement, prior to Final Approval.
3. Provide second elevation during Building Permit review.

Discussion on the motion on the floor.

Mr. Carlisle indicated the direction from the Planning Commission on submission of a revised landscape plan is sufficient to move the project forward and that the landscape plan must comply with the requirements of the Zoning Ordinance.

Vote on the motion on the floor.

Yes: All present (9)

MOTION CARRIED

OTHER ITEMS

7. **PLANNING COMMISSION 2020 ANNUAL REPORT**

Mr. Savidant said the Planning Commission 2020 Annual Report is an effective tool for City Council and residents to observe activity of the Planning Commission. He noted the volume of activity for the year was notable given the effect of the pandemic.

Mr. Rauch questioned if the report omitted a Zoning Ordinance Text Amendment relating to building heights and setbacks in Neighborhood Node zoning districts.

Mr. Savidant said he would reflect that omission on the report before submitting to City Council.

Note: Immediately following adjournment of tonight's meeting, Mr. Savidant sent an email message to the Planning Commission informing them that Zoning Ordinance Text Amendment (ZOTA 255) relating to Transitions in Neighborhood Nodes was considered by the Planning Commission at the December 10, 2019 Regular meeting; therefore the 2020 Annual Report as submitted this evening is correct.

8. PLANNING COMMISSION COMMENT

There were general Planning Commission comments.

The virtual Regular meeting of the Planning Commission adjourned at 7:46 p.m.

Respectfully submitted,

Tom Krent, Chair

Kathy L. Czarnecki, Recording Secretary

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DATE: February 18, 2021

TO: Planning Commission

FROM: R. Brent Savidant, Community Development Director

SUBJECT: PRELIMINARY SITE PLAN APPROVAL (File Number SP1019-0041) – Proposed Lange View Estates, East of Crooks Road, Southeast corner of Livernois and Leetonia (4080 Livernois), Section 15, Currently Zoned NN Neighborhood Node (Node “H”) District.

The petitioner 4080 Troy LLC submitted the above referenced Preliminary Site Plan application for the 8-unit Lange View Estates townhome project. The units are proposed to be in 2 buildings and are 3 stories in height.

The property is currently zoned NN (Neighborhood Node “H”) District. Townhomes are permitted by right in the NN district. The Planning Commission is responsible for granting Preliminary Site Plan approval for this item.

The application was submitted to the Planning Department on November 6, 2019. The Planning Consultant provided a review to the applicant via email on January 10, 2020 that identified deficiencies in the site plan. The applicant submitted revised plans on December 17, 2020. This is the first time the Planning Commission has reviewed this project.

The attached report prepared by Carlisle/Wortman Associates, Inc. (CWA), the City’s Planning Consultant, summarizes the project. CWA prepared the report with input from various City departments including Planning, Engineering, Public Works and Fire. City Management supports the findings of fact contained in the report and the recommendations included therein.

Attachments:

1. Maps
2. Report prepared by Carlisle/Wortman Associates, Inc.
3. Site Plan

G:\SITE PLANS\SP JPLN2019-0041 LANGE VIEW\PC Memo 2021 02 23.docx

PROPOSED RESOLUTION

PRELIMINARY SITE PLAN APPROVAL (File Number SP1019-0041) – Proposed Lange View Estates, East of Crooks Road, Southeast corner of Livernois and Leetonia (4080 Livernois), Section 15, Currently Zoned NN Neighborhood Node (Node “H”) District.

Resolution # PC-2021-02-

Moved by:

Seconded by:

RESOLVED, That Preliminary Site Plan Approval, pursuant to Article 8 of the Zoning Ordinance, as requested for the proposed Lange View Estates, 8 units, located on the Southeast corner of Wattles and Leetonia (4080 Livernois), Section 15, Zoned NN (Neighborhood Node “H”) District, be granted, subject to applicant the following:

_____) or

(denied, for the following reasons: _____) or

(postponed, for the following reasons: _____)

1. Provide the applicant an opportunity to address issues identified in the report and by the Planning Commission.

Yes:

No:

MOTION CARRIED/FAILED



GIS Online



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Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.



GIS Online



595 0 297 595Feet



Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.



Carlisle | Wortman
ASSOCIATES, INC.

117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

Date: February 12, 2021

Preliminary Site Plan Review For City of Troy, Michigan

Applicant:	Vince Pangle, Strategic Property Services, LLC.
Project Name:	Lange View Townhouses
Plan Date:	September 30, 2020
Location:	4080 Livernois Road, Troy MI
Zoning:	NN, Neighborhood Node
Action Requested:	Preliminary Site Plan Approval

PROJECT AND SITE DESCRIPTION

The subject site is located on the east side of Livernois Road, just north of Wattles Road. The approximate 1.62-acre site is currently improved with a one (1) story 7,175 square-foot commercial building. The existing office building was recently improved with a new façade. The applicant proposes to incorporate eight (8) townhomes that front on Leetonia onto the site with the existing improved office building. There is a third parcel to the south that is undeveloped but could be developed in the future. The applicant should confirm if they have any plans for the future development of this parcel.

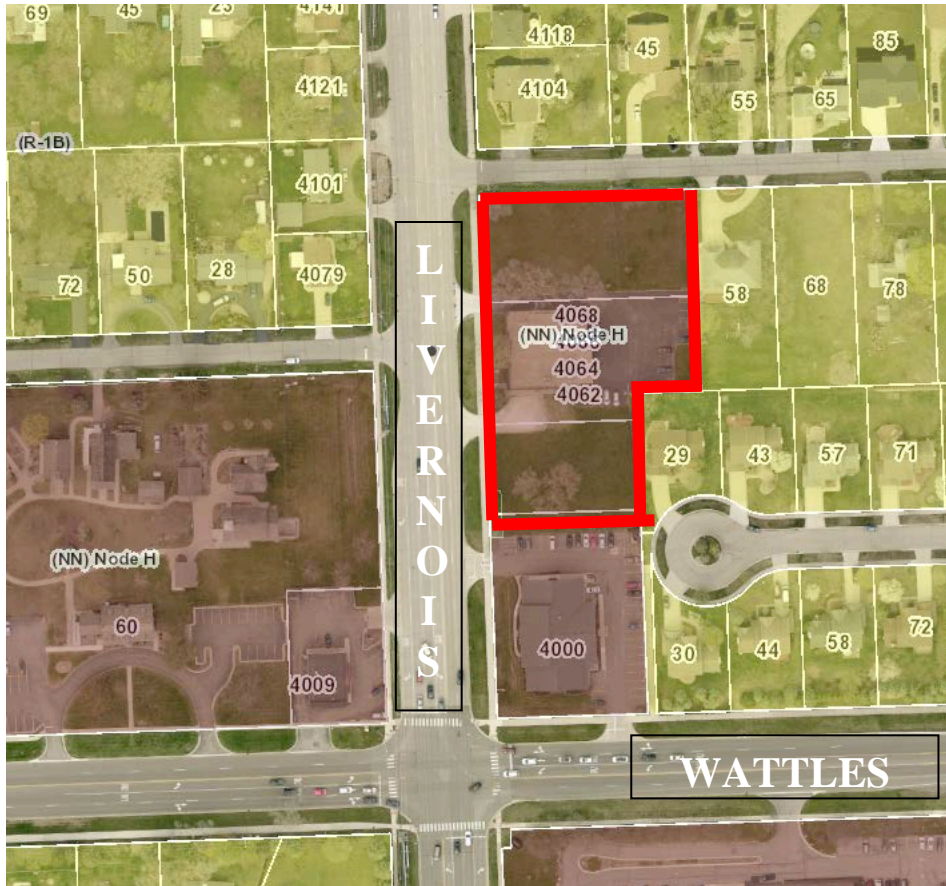
All vehicular access to the site is via Livernois Road. The applicant shows two (2) access driveways onto Livernois Road. The property is zoned Neighborhood Node (NN) and multiple family residential is a permitted use.

The site is adjacent to a dental office also zoned Neighborhood Node to the south; a church zoned Neighborhood Node and One-Family Residential (R-1B) properties to the west; and more One-Family Residential (R-1B) properties to the north and east.

Lange View Townhomes

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Site Location:



Proposed Uses of Subject Parcel:

Eight (8) townhome units and an office building.

Current Use of Subject Property:

The subject property is currently a one (1) story commercial building.

Current Zoning:

The property is currently zoned NN, Neighborhood Node District.

Surrounding Property Details:

Direction	Zoning	Use
North	R1-B, Single Family	Single Family Residential
South	NN, Neighborhood Node	Dental Office
East	R1-B, Single Family	Single Family Residential
West	NN, Neighborhood Node / R1-B, Single Family	Church / Liquor Store / Single Family Residential

NATURAL RESOURCES

Topography: A topographic survey has been provided on sheet C4.0 and shows that the site has a slightly higher elevation in the west portion of the property. Elevations decrease eastward towards the east property line.

Woodlands: There are trees on the site that will be removed for the new townhomes and parking for the site. According to Preliminary site plan submittal requirements in Section 8.05, a tree inventory in accordance with Article 13 shall be attached to all applications for Site Plan Approval.

Wetlands: There are no wetlands on site.

Items to be Addressed: *Provide tree inventory in accordance with Article 13.*

BUILDING LOCATION AND SITE ARRANGEMENT

Access to the site will be via dual driveways on Livernois Road. The applicant proposes three (3) buildings, one (1) existing building will be office space, while the other two (2) buildings will be used as 8 residential units. Both residential buildings are three (3) stories.

The site is adjacent to a dental office also zoned Neighborhood Node to the South; a church zoned Neighborhood Node and One-Family Residential (R-1B) properties to the west; and more One-Family Residential (R-1B) properties to the north and east.

Items to be Addressed: *None.*

AREA, WIDTH, HEIGHT, SETBACKS

Table 5.03.B.3, Building Form C, Standards Applicable to All Districts of the Zoning Ordinance establishes the dimensional requirements for the NN, Neighborhood Node District. The requirements of Building form C and the proposed dimensions are shown in the following table.

	Required	Provided	Compliance
Front (Livernois)	10 feet. 75% of the building façade must meet the required building line, while up to 25% of the façade can be set back to allow for architectural consideration.	11 Feet	Complies
Front (Leetonia)	10 feet. 75% of the building façade must meet the required building line, while up to 25% of the façade can be set back to allow for architectural consideration.	20 Feet	Complies
Side	N/A, building may be placed up to property line	N/A	Complies
Rear	30-foot minimum setback	31.4 Feet	Complies
Building Height	Maximum 4 stories, 55 feet, Minimum 2 stories	39 Feet (as noted on site plan)	Complies
Maximum Lot Coverage	30%	20.4%	Complies
Minimum Open Space	20%	43.9%	Complies
Parking Location	Cannot be located in front yard	Parking lots not in front yard	Complies

The proposed height of the townhomes is indicated on the site plan as 39-feet. The maximum height in the adjacent residential neighborhood is 30-feet. Most of the homes in the adjacent neighborhood and directly across the street on Leetonia are ranch homes and the existing office building on the same site is only one story. The applicant should describe how the height difference provides of 39-feet and three-stories is an appropriate transition as set-forth in the requirements of the form-based district.

Items to be addressed: Describe how the height of the townhomes provides an appropriate transition between the residential neighborhood to the north and east and the one-story office building to the south.

PARKING, LOADING

Section 13.06.G of the Zoning Ordinance requires:

	Required	Provided
Residential (General): 2 spaces per unit	8 units = 16 spaces	39 spaces and 16 garage spaces = 55 Spaces. It is likely that the applicant will lose spaces based on the needed parking lot reconfiguration. See
Office (1 space for each 300 square feet of floor area)	7,175 gross square feet = 24 spaces	

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		comments below for more details.
TOTAL	40 spaces	
Barrier Free	2	1
Bicycle Parking	2	0
Loading	0	0
Total	40 Spaces	55 Spaces

Many of the parking spaces for the office are too short. The deep of a parking space may be reduced by 2-feet if overhanging a 7-foot-wide sidewalk or greenbelt. The spaces adjacent to the building overhang a 5-foot sidewalk and the spaces in the middle cannot be reduced to 18-feet. Lastly, the applicant is deficient in handicapped parking.

Items to be Addressed: 1) Provide bicycle parking; 2). Increase depth of parking spaces; and 3) Provide more barrier-free parking spaces for the office building.

SITE ACCESS AND CIRCULATION

Vehicular access to the site is via Livernois Road. A turning plan has been provided on Sheet C3.1 for fire trucks and garbage trucks. Both the Fire Department and the Engineering Department note significant access and circulation deficiencies.

Fire:

- FD apparatus does not fit in rear parking lot. Need to reconfigure parking spaces or curbs.

Engineering:

- Dimensions throughout the site do not comply with City Ordinance requirements.
 - As a commercial driveway, the driveway should be 30 feet wide at the throat and with 30 feet radii. The plans currently show 22 feet wide driveways with 20 feet radii.
 - Aisles in the parking lot must be 24 feet wide.
 - Parking spaces should be 19 feet long by 9.5 feet wide. Parking that abuts landscape areas may be reduced to 17 feet, and the landscape area shall be increased by 2 feet to accommodate vehicle bumper overhang.
 - Where parking spaces overhangs sidewalk, the minimum sidewalk width should feet. The parking stall may be reduced to 17 feet in length, accounting for a 2-foot er overhang.
- Livernois Road is under the jurisdiction of the Road Commission for Oakland County, therefore the proposed driveways must be approved by the RCOC. While OHM defers to the RCOC, we suggest that a right turn deceleration taper be provided at the site driveways.
- The rear parking area, located west of the office building, is awkwardly configured with poor vehicular circulation. The layout requires a vehicle to make a series of sharp turns in order to navigate from the north side of the site to the south side. The tight radii and narrow aisle width add to the difficulty. Further, the landscape screening along the southeast corner severely

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restricts sight distance, so a vehicle maneuvering in this area may have limited visibility. This entire area must be reconfigured.

- Improve pedestrian connectivity.
 - Provide a route for pedestrians from the parking lot to the townhouse units. As shown, there is no clear or convenient route for a visitor or guest using the parking lot to reach the front door of the townhouses.
 - Concrete sidewalk and sidewalk jointing should extend through the driveway openings.

Items to be Addressed: Address the Fire and Engineering Department concerns.

LANDSCAPING

A landscaping plan has been provided on sheet C5.0. The applicant should verify that the plant list provided on sheet C5.0 corresponds to drawings provided. The following table discusses the development's compliance with the landscape requirements set forth in Section 13.02.

	Required:	Provided:	Compliance:
<i>Livernois Greenbelt (1 Tree per 30 lineal feet)</i>	245 feet = 9 trees	9 trees	Complies
<i>Leetonia Greenbelt (1 Tree per 30 lineal feet)</i>	255 feet = 9 trees	9 trees	Complies
<i>Screening Between Uses (Residential to the East) Narrow Evergreen every 3 lineal feet</i>	315 Lineal Feet = 105 Trees	70 trees	Does not comply. Applicant is not proposing any screening between the townhomes and the SF residential to the east.
<i>General Site Landscaping (20% of the site area)</i>	41,820 sq ft. x 0.20 = 8,364 square feet 20%	14,197 square feet 33.9%	Complies
<i>Parking Lot Landscaping (1 Tree per 8 spaces)</i>	47 spaces = 6 trees	5 Trees	Deficient by one tree, also we note that there is a long aisle along the rear property line that should be broken up by a landscape island

Provide screening between townhomes and SF to the east. Add one additional parking lot tree and break up the island along the rear property line with a landscape island.

Trash Enclosure:

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The applicant has indicated a central trash enclosure. According to Section 13.03B, the applicant should provide trash enclosure details to ensure that containers used to dispose of trash, grease, recyclables, and similar materials shall be screened on all sides with a wall, and gate at least as high as the container, but no less than six (6) feet in height and shall be constructed of durable material and construction which is compatible with the architectural materials used in the site development.

Items to be Addressed: 1) Provide screening between townhomes and SF to the east; 2). Add one additional parking lot tree and break up the island along the rear property line with a landscape island; and 3). Provide trash enclosure details in accordance to Section 13.03B.

LIGHTING / PHOTOMETRICS

A photometric plan has been provided. A total of 4 pole-mounted light fixtures are proposed. There are no building mounted fixtures indicated. The pole-mounted fixtures are noted as having a height of 20 feet (where the maximum height is 25 feet). The applicant should provide lighting fixture cutsheets to confirm that the lights are downshielded and directed away from neighboring properties and roadways. According to Section 13.05C, light shall not exceed one-tenth (0.1) foot-candle along any boundary adjacent to residentially zoned or used property, and one (1) foot-candle along all nonresidential property boundaries. The foot-candle numbers along the southeast property line, which abuts a residential property, has a 0.7 measurement. Applicant must provide a photometric plan that meets ordinance requirements.

Items to be Addressed: 1) Indicate building lighting; 2). Provide lighting fixture cutsheets to confirm fixtures are downshielded and directed away from neighboring properties and roadways; and 3) Provide a photometric plan that meets ordinance requirements with foot-candle numbers below 0.1 at property lines.

FLOOR PLAN AND ELEVATIONS

Floor plans and elevations have been provided on sheets A1, A2, A3, and A4. The elevations provided show architectural details, variations in material and pattern. The materials appear to be brick; however, details were not provided on the elevations. The Planning Commission should discuss the architecture and materials used. The applicant should provide answers to the Site Plan Design Standards. Also the applicant should provide a 3D color rendering(s) to illustrate scale and design context.

Items to be Addressed: 1). Provide material details on the elevations; 2). Provide answers to the Site Plan Design Standards; and, 3). Provide 3D color rendering.

DESIGN STANDARDS and SITE PLAN REVIEW STANDARDS

The Neighborhood Node design standards as well as Site Plan review standards provide the Planning Commission with direction when reviewing the proposed site plan and design features of this development.

Section 5.06.E Design Standards:

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1. *Building Orientation and Entrance*
2. *Ground Story Activation*
3. *Transitional Features*
4. *Site Access, Parking, and Loading*

Please see Section 5.06.E for standard details.

Section 8.06 Site Plan Review Design Standards

1. *Development shall ensure compatibility to existing commercial districts and provide a transition between land uses.*
2. *Development shall incorporate the recognized best architectural building design practices.*
3. *Enhance the character, environment and safety for pedestrians and motorists.*

Please see Section 8.06 for standard details.

Section 5.06.E.3 Transitional Features outlines transitional standards for the Planning Commission to consider:

3. Transitional Features.

- a. *Transitional features are architectural elements, site features, or alterations to building massing that are used to provide a transition between higher intensity uses and low- or moderate-density residential areas. These features assist in mitigating potential conflicts between those uses. Transitional features are intended to be used in combination with landscape buffers or large setbacks.*
- b. *Intensity. A continuum of use intensity, where moderate intensity uses are sited between high-intensity uses and low-intensity uses, shall be developed for multi-building developments. An example would be an office use between commercial and residential uses.*
- c. *Height and Mass. Building height and mass in the form of building step-backs, recess lines or other techniques shall be graduated so that structures with higher intensity uses are comparable in scale with adjacent structures of lower intensity uses.*
- d. *Orientation. Primary building facades shall be placed away from the residential use.*
- e. *Architectural Features. Similarly sized and patterned architectural features such as windows, doors, arcades, pilasters, cornices, wall offsets, building materials, and other building articulations included on the lower-intensity use shall be incorporated in the transitional features.*

It's difficult to answer these design standards until the applicant address the design standards themselves and address the other noted site plan issues.

RECOMMENDATIONS

We recommend that the Planning Commission postpone action in order for the applicant to resubmit plans that address the following:

1. *The parcel to the south that is undeveloped but could be developed in the future. The applicant should confirm if they have any plans for the future development of this parcel.*

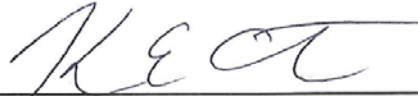
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2. *Provide tree inventory in accordance with Article 13 of the City of Troy Zoning Ordinance.*
3. *Describe how the height of the townhomes provides an appropriate transition between the residential neighborhood to the north and east and the one-story office building to the south.*
4. *Provide bicycle parking.*
5. *Increase depth of parking spaces.*
6. *Provide more barrier-free parking spaces for the office building.*
7. *Address the Fire and Engineering Department concerns.*
8. *Provide screening between townhomes and SF to the east.*
9. *Add one additional parking lot tree and break up the island along the rear property line with a landscape island.*
10. *Provide trash enclosure details in accordance to Section 13.03B.*
11. *Indicate building lighting.*
12. *Provide lighting fixture cutsheets to confirm fixtures are downshielded and directed away from neighboring properties and roadways.*
13. *Provide a photometric plan that meets ordinance requirements with foot-candle numbers below 0.1 at property lines.*
14. *Provide material details on the elevations.*
15. *Provide answers to the Site Plan Design Standards.*
16. *Provide 3D color rendering(s).*



CARLISLE/WORTMAN ASSOC., INC.
Benjamin R. Carlisle, LEED AP, AICP



CARLISLE/WORTMAN ASSOC., INC.
Kristoffer Canty
Planner

LANGE VIEW TOWNHOUSES

OFFICE AND RESIDENTIAL DEVELOPMENT

SECTION 15, T02N - R11E

CITY OF TROY, OAKLAND COUNTY, MICHIGAN

DRAWING INDEX

- C1.0 COVER SHEET
- SV1 TOPOGRAPHIC SURVEY
- C2.0 REMOVAL PLAN
- C3.0 OVERALL SITE PLAN
- C3.1 TURNING PLAN
- C4.0 GRADING PLAN
- C4.1 UTILITY PLAN
- C4.2 STORMWATER DETAILS
- C4.3 STORMWATER DETAILS 2
- C5.0 LANDSCAPING PLAN
- E1.0 PHOTOMETRIC PLAN
- A1 FLOOR PLANS
- A2 ELEVATIONS
- A3 ELEVATIONS
- A4 UNIT PLANS

OWNER

4080 TROY LLC
4080 LIVERNOIS ROAD
TROY, MI 48098

CIVIL ENGINEER

REDRIDGE ENGINEERING, LLC
RICHARD FOSGITT, PE
2807 Highbrook Dr
Midland, MI 48642
PHONE: (989) 513-4058

LEGEND	
	MONUMENT / SECTION CORNER
	FOUND PROPERTY IRON
	SET PROPERTY IRON W/CAP NO.26454
	SET MAG NAIL
	EXISTING CATCHBASIN
	EXISTING MANHOLE/CATCHBASIN
	EXISTING MANHOLE
	EXISTING HYDRANT
	EXISTING VALVE
	EXISTING SANITARY SEWER
	EXISTING STORM SEWER
	EXISTING WATERMAIN
	EXISTING FENCE LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING UNDERGROUND GAS LINE
	EXISTING UNDERGROUND TELEPHONE LINE
	EXISTING CENTERLINE
	EXISTING OVERHEAD ELECTRICAL WIRES
	EXISTING MAILBOX/NEWSPAPER BOX
	EXISTING SIGN
	EXISTING DECIDUOUS TREES
	EXISTING CONIFEROUS TREES
	EXISTING UTILITY POWER POLE
	EXISTING TELEPHONE RISER
	EXISTING BOLLARD
	EXISTING LIGHT POLE
	EXISTING GAS METER
	EXISTING TRANSFORMER
	EXISTING FLAGPOLE
	EXISTING GRASS SURFACE
	EXISTING BITUMINOUS SURFACE
	EXISTING CONCRETE SURFACE

BENCHMARKS	
B.M. #1	ARROW ON FLANGE OF HYDRANT, COR OF LEETONIA AVE & LIVERNOIS RD
	ELEV. 687.33 NAVD 88

ZONING INFORMATION	
ZONED NN (NEIGHBORHOOD NODE)	
NODE H - LIVERNOIS & W. WATILES INTERSECTION	
STREET TYPE NN:A(LIVERNOIS) AND TYPE NN:B (LEETONIA)	
SITE TYPE NN:B	

FLOODPLAIN INFORMATION	
CITY OF TROY, COMMUNITY NO. 260180	
OAKLAND COUNTY, MICHIGAN	
MAP NUMBER: 26125C0534F	
EFFECTIVE DATE: 9/29/2006	
FLOOD ZONE: X	
AREA OF MINIMAL FLOOD HAZARD (PER FIRM)	

UTILITY CONTACTS	
TELEPHONE	GAS AND ELECTRIC
AT & T	CONSUMERS ENERGY
54 N. MILL ST.	GAS INFORMATION MGMT
P.O. BOX 32	1030 FEATHERSTONE RD.
PONTIAC, MI 48642	PONTIAC, MI 48342
ZONING	WATER/SEWER
CITY OF TROY	CITY OF TROY
ZONING & PLANNING	TROY DPW
500 W. BIG BEAVER RD	4893 ROCHESTER RD
TROY, MICHIGAN 48084	TROY, MICHIGAN 48085
(248) 524-3364	(248) 524-3392

SITE INFORMATION

SITE ADDRESS
4080 LIVERNOIS ROAD
TROY, MI 48098-4721

ZONING CLASSIFICATION
NN - NEIGHBORHOOD NODE

TAX IDENTIFICATION NUMBER
88-20-15-353-053

PROPRIETOR

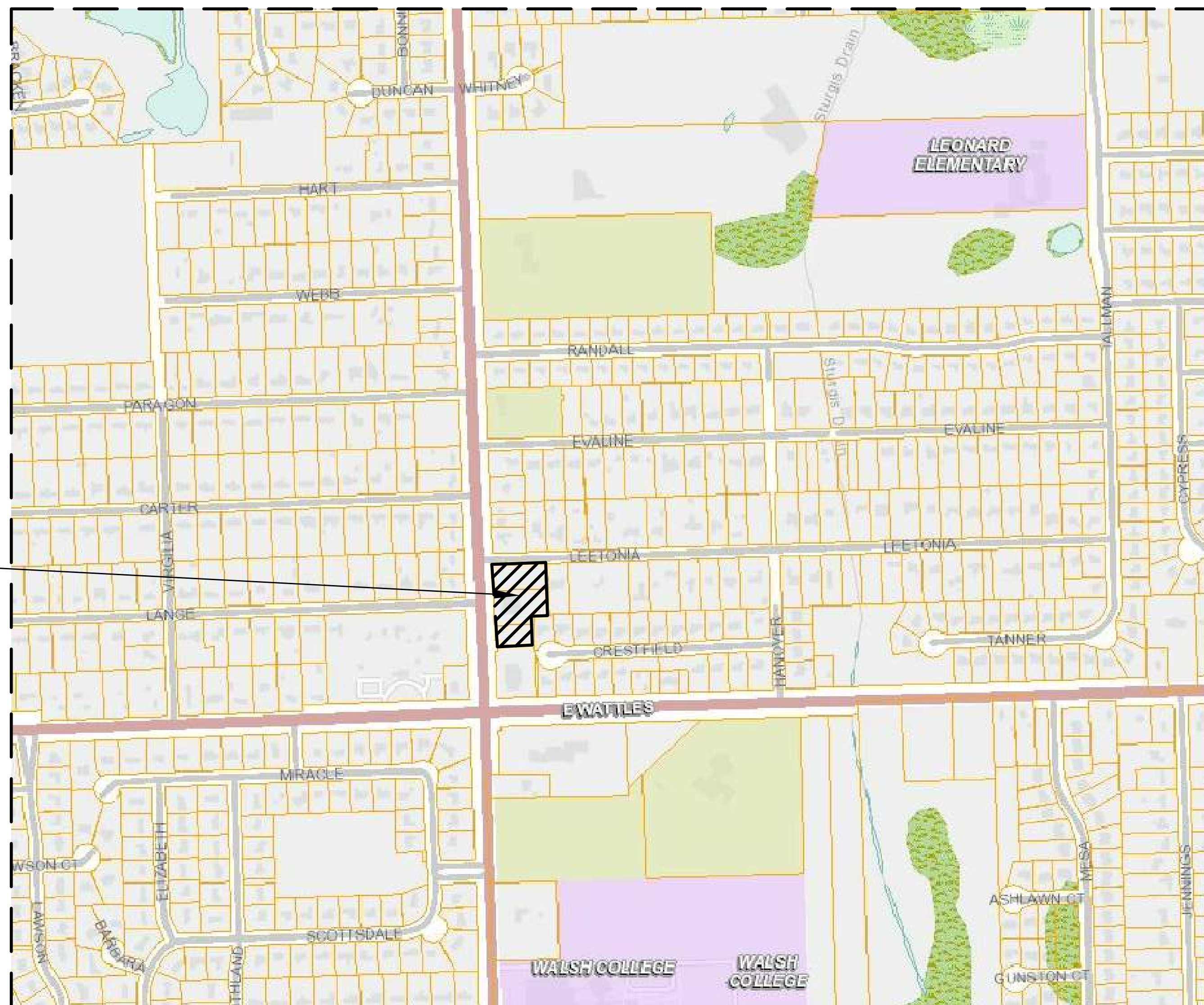
STRATEGIC PROPERTY SERVICES, LLC
ATTN: VINCE PANGLE
4080 LIVERNOIS ROAD
TROY, MI 48098

SURVEYOR

D&M SITE, INC.
401 BALSAM STREET
CARROLLTON, MI 48624
(989) 752-6500

ENGINEER

REDRIDGE ENGINEERING, LLC
RICHARD FOSGITT, P.E.
2807 Highbrook Drive
Midland, MI 48642
(989) 513-4058



LOCATION MAP

SITE

UTILITY NOTE

THE UTILITY LOCATIONS AS HEREON SHOWN ARE BASED ON FIELD OBSERVATIONS AND A CAREFUL REVIEW OF MUNICIPAL AND UTILITY RECORDS. HOWEVER, IT IS NOT POSSIBLE TO DETERMINE THE PRECISE SIZE, LOCATION, DEPTH, PRESSURE, OR ANY OTHER CHARACTERISTICS OF UNDERGROUND UTILITIES, TANKS OR SEPTIC FIELDS WITHOUT EXCAVATION. THEREFORE, WE CANNOT GUARANTEE THE ACCURACY OF COMPLETENESS OF THE BURIED UTILITY INFORMATION HEREON SHOWN. THE CONTRACTOR SHALL CALL MISS DIG (1-800-482-7171) A MINIMUM OF THREE WORKING DAYS PRIOR TO ANY EXCAVATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THESE UTILITY LOCATIONS PRIOR TO CONSTRUCTION AND MAKE EVERY EFFORT TO PROTECT AND/OR RELOCATE THEM AS REQUIRED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER/SURVEYOR AS SOON AS POSSIBLE IN THE EVENT A DISCREPANCY IS FOUND.



Know what's below.
Call before you dig.

PREPARED UNDER THE SUPERVISION OF:

PROJECT LOG

FILE # OVERALL

PROJ MGR:

DESIGN BY:

DRAWN BY:

CHECKED BY:

SCALE:

SHEET: 1 OF 1

REDRIDGE ENGINEERING, LLC
2807 Highbrook Drive, Midland, MI 48642
989-513-4058 RFOSGITT@REDRIDGE-ENG.COM

CONFIDENTIAL - confidential, proprietary, and copyright information. Reproduction or distribution of drawings or any information contained in these drawings without the written approval of the Owner.

LANGE VIEW TOWNHOUSES
STRATEGIC PROPERTY SERVICES, LLC
4080 LIVERNOIS ROAD
CITY OF TROY
OAKLAND COUNTY, MICHIGAN

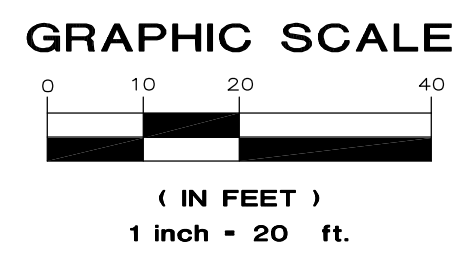
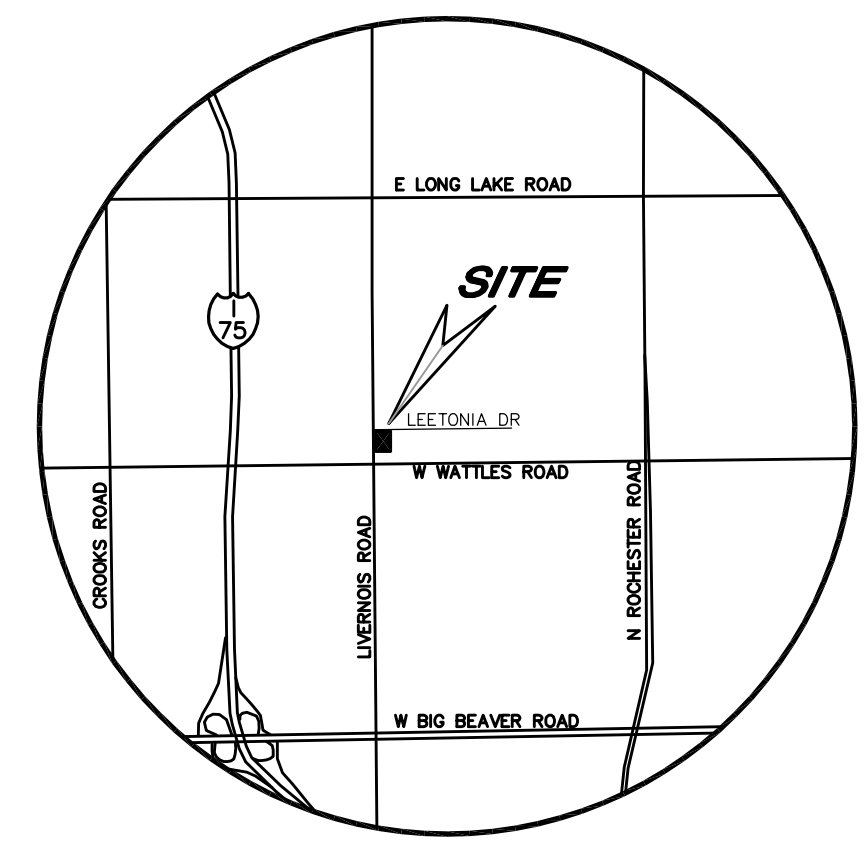
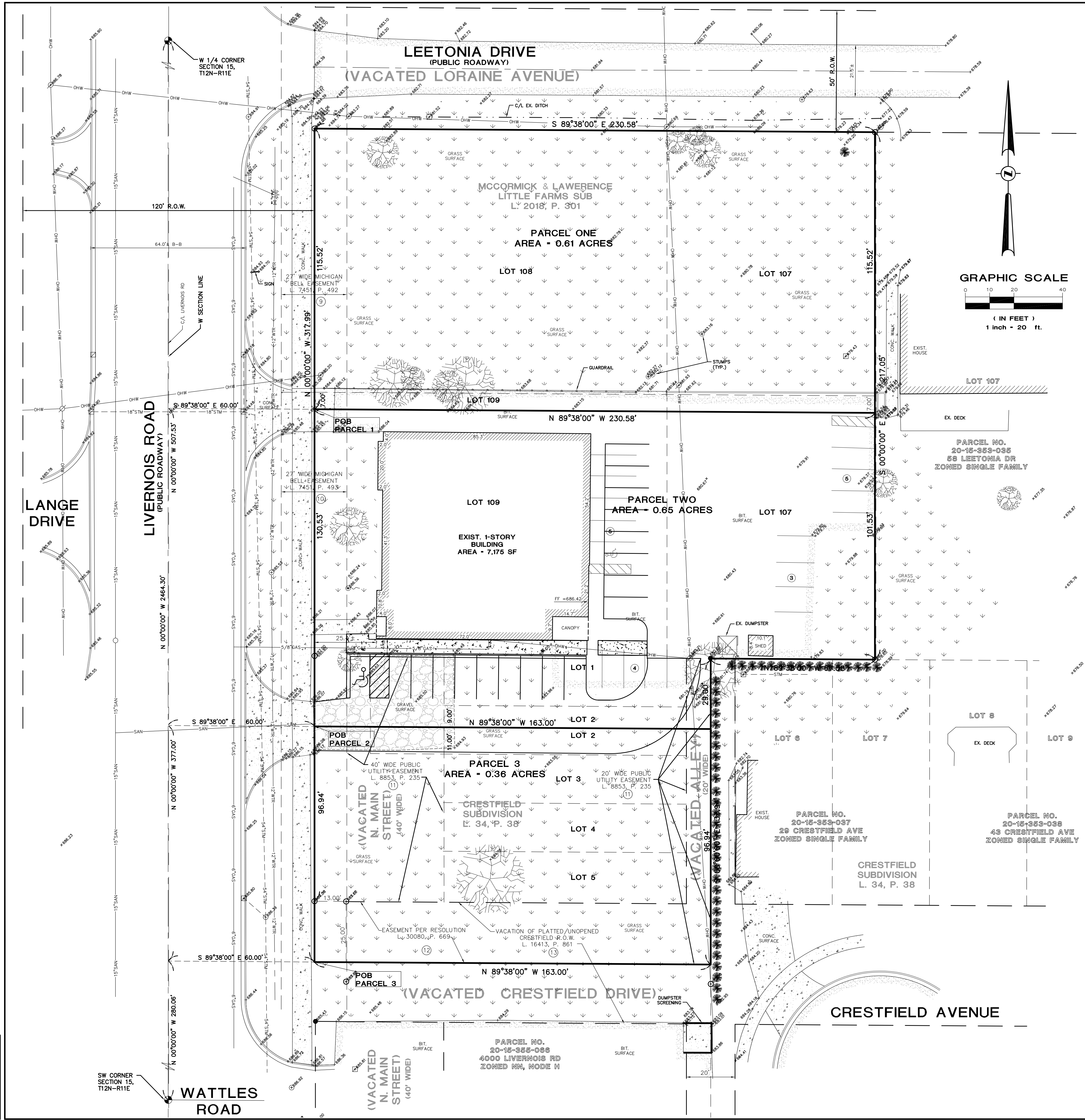
TITLE SHEET

C1.0

180401

(A&M)B - 10-20-04

NOT PUBLISHED - ALL RIGHTS RESERVED. D AND M SITE



FURNISHED PROPERTY DESCRIPTIONS

ATA NATIONAL TITLE GROUP, LLC
 FILE NO.: 63-18594696-GCM
 DATE: JUNE 01, 2018, AT 8:00 AM

PARCEL I:
 THE NORTH 108.52 FEET OF THE WEST 86 FEET OF LOT 107, ALSO LOT 108, EXCEPT THE WEST 27 FEET, MCCORMICK & LAWRENCE LITTLE FARMS SUBDIVISION, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 20, PAGE 30 OF PLATS, OAKLAND COUNTY RECORDS.

AND
 LOT 109, EXCEPT THE WEST 27 FEET AND SOUTH 108.53 FEET OF THE WEST 86 FEET OF LOT 107, MCCORMICK & LAWRENCE LITTLE FARMS SUBDIVISION, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 20, PAGE 30 OF PLATS, OAKLAND COUNTY RECORDS.

AND LOTS 1 AND 2, AND ADJACENT 1/2 OF VACATED ALLEY AND ALL VACATED MAIN STREET, CRESTFIELD SUBDIVISION, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 34, PAGE 38 OF PLATS, OAKLAND COUNTY RECORDS.

AND
 THE NORTH 40 FEET OF THE SOUTH 406 FEET OF THE EAST 13 FEET OF THE WEST 73 FEET OF THE SOUTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 15, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MICHIGAN.

PARCEL II:
 LOTS 3, 4, 5, AND ALL OF VACATED MAIN STREET AND WEST 1/2 OF VACATED ALLEY ADJACENT THERETO, CRESTFIELD SUBDIVISION, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 34, PAGE 38 OF PLATS, OAKLAND COUNTY RECORDS.

AND
 THE SOUTH 60.94 FEET OF NORTH 100.94 FEET OF SOUTH 406 FEET OF EAST 13 FEET OF WEST 73 FEET OF SOUTHWEST 1/4 OF SECTION 15, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MICHIGAN, ALSO NORTH 1/2 OF VACATED CRESTFIELD AVE ADJACENT TO SAME.

SPLIT PARCEL DESCRIPTION

PARCEL ONE
 PART OF LOTS 107, 108 AND THE NORTH 7.00 FEET OF LOT 109 OF MCCORMICK & LAWRENCE LITTLE FARMS SUBDIVISION, AND PART OF THE SOUTHWEST CORNER OF SECTION 15, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, BEING FURTHER DESCRIBED AS: COMMENCING AT THE SOUTHWEST CORNER OF SECTION 15; THENCE N 00°00'00" W, 507.53 FEET ALONG THE WEST LINE OF SAID SECTION; THENCE S 89°38'00" E, 60.00 FEET TO THE POINT OF BEGINNING; THENCE N 00°00'00" W, 115.52 FEET; TO THE SOUTHERLY RIGHT OF WAY LINE OF LEETONIA DRIVE; THENCE S 89°38'00" E, 230.58 FEET ALONG SAID SOUTHERLY LINE; THENCE S 00°00'00" E, 115.52 FEET; THENCE N 89°38'00" W, 230.58 FEET EASTERLY RIGHT OF WAY LINE OF LIVERNOS ROAD; TO THE POINT OF BEGINNING, CONTAINING 0.61 ACRES, MORE OR LESS, AND SUBJECT TO ANY AND ALL EASEMENTS AND/OR RIGHTS-OF-WAY WHETHER USED, IMPLIED OR OF RECORD.

PARCEL TWO
 PART OF LOTS 107, 109 AND OF MCCORMICK & LAWRENCE LITTLE FARMS SUBDIVISION, ALSO PART LOTS 1, THE NORTH 9.00 FEET OF LOT 2 OF CRESTFIELD SUBDIVISION AND PART OF THE SOUTHWEST CORNER OF SECTION 15, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, BEING FURTHER DESCRIBED AS: COMMENCING AT THE SOUTHWEST CORNER OF SECTION 15; THENCE N 00°00'00" W, 377.00 FEET ALONG THE WEST LINE OF SAID SECTION; THENCE S 89°38'00" E, 60.00 FEET TO THE EASTERLY RIGHT OF WAY LINE OF LIVONIA ROAD AND THE POINT OF BEGINNING; THENCE N 00°00'00" W, 130.53 FEET; ALONG SAID RIGHT OF WAY LINE; THENCE S 89°38'00" E, 230.58 FEET; THENCE S 00°00'00" E, 101.53 FEET; THENCE N 89°38'00" W, 87.58 FEET; THENCE S 00°00'00" E, 29.00 FEET; THENCE N 89°38'00" W, 163.00 FEET TO THE EASTERLY RIGHT OF WAY LINE OF LIVERNOS ROAD AND THE POINT OF BEGINNING, CONTAINING 0.65 ACRES, MORE OR LESS, AND SUBJECT TO ANY AND ALL EASEMENTS AND/OR RIGHTS-OF-WAY WHETHER USED, IMPLIED OR OF RECORD.

PARCEL THREE
 THE SOUTH 11.00 FEET OF LOT 2, AND LOTS 3, 4, AND 5 OF CRESTFIELD SUBDIVISION, AND PART OF THE SOUTHWEST CORNER OF SECTION 15, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, BEING FURTHER DESCRIBED AS: COMMENCING AT THE SOUTHWEST CORNER OF SECTION 15; THENCE N 00°00'00" W, 280.06 FEET ALONG THE WEST LINE OF SAID SECTION; THENCE S 89°38'00" E, 60.00 FEET TO THE EASTERLY RIGHT OF WAY LINE OF LIVONIA ROAD AND THE POINT OF BEGINNING; THENCE N 00°00'00" W, 96.94 FEET ALONG SAID RIGHT OF WAY LINE; THENCE S 89°38'00" E, 163.00 FEET; THENCE S 00°00'00" E, 96.94 FEET TO THE CENTERLINE OF VACATED CRESTFIELD DRIVE; THENCE N 89°38'00" W, 163.00 FEET ALONG SAID CENTERLINE TO THE POINT OF BEGINNING, CONTAINING 0.36 ACRES, MORE OR LESS, AND SUBJECT TO ANY AND ALL EASEMENTS AND/OR RIGHTS-OF-WAY WHETHER USED, IMPLIED OR OF RECORD.

SCHEDULE "B" EXCEPTIONS

ATA NATIONAL TITLE GROUP, LLC
 FILE NO.: 63-18594696-GCM
 DATE: JUNE 01, 2018, AT 8:00 AM

⑨ RIGHT OF WAY GRANTED TO MICHIGAN BELL TELEPHONE COMPANY RECORDED MARCH 1, 1979 IN LIBER 7451, PAGE 492, OAKLAND COUNTY RECORDS. COVERS LOT 108, MCCORMICK & LAWRENCE LITTLE FARMS ONLY. -AS SHOWN; AFFECTS PARCEL I

⑩ RIGHT OF WAY GRANTED TO MICHIGAN BELL TELEPHONE COMPANY RECORDED MARCH 1, 1979 IN LIBER 7451, PAGE 493, OAKLAND COUNTY RECORDS. COVERS ALL OF LOT 109 AND SOUTH 108.53 FEET OF THE WEST 86 FEET OF LOT 107, MCCORMICK & LAWRENCE LITTLE FARMS ONLY. -AS SHOWN; AFFECTS PARCEL I

⑪ EASEMENT FOR PUBLIC UTILITIES OVER THAT PORTION OF SUBJECT PROPERTY INCLUDED IN THE VACATED ALLEY AND VACATED STREET AS EVIDENCED BY INSTRUMENT RECORDED IN LIBER 8853, PAGE 235, OAKLAND COUNTY RECORDS. -AS SHOWN; AFFECTS PARCEL I

⑫ TERMS AND CONDITIONS OF RESOLUTION RECORDED JULY 24, 2003 IN LIBER 30080, PAGE 669, OAKLAND COUNTY RECORDS. - AS SHOWN

⑬ TERMS AND CONDITIONS OF RESOLUTION RECORDED JULY 8, 1996 IN LIBER 16413, PAGE 861, OAKLAND COUNTY RECORDS. -AS SHOWN; AFFECTS PARCEL II

⑭ TERMS, CONDITIONS AND PROVISIONS WHICH ARE RECITED IN WATER AGREEMENT RECORDED IN LIBER 2125, PAGE 87, OAKLAND COUNTY RECORDS. -DOES NOT AFFECT SUBJECT PROPERTY

LEGEND

	MONUMENT / SECTION CORNER
	FOUND PROPERTY IRON
	SET PROPERTY IRON W/CAP NO.26454
	SET MAG NAIL
	EXISTING CATCHBASIN
	EXISTING MANHOLE/CATCHBASIN
	EXISTING MANHOLE
	EXISTING HYDRANT
	EXISTING VALVE
	EXISTING SANITARY SEWER
	EXISTING STORM SEWER
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	EXISTING FENCE LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING UNDERGROUND GAS LINE
	EXISTING UNDERGROUND TELEPHONE LINE
	EXISTING CENTERLINE
	EXISTING OVERHEAD ELECTRICAL WIRES
	EXISTING MAILBOX/NEWSPAPER BOX
	EXISTING SIGN
	EXISTING DECIDUOUS TREES
	EXISTING CONIFEROUS TREES
	EXISTING UTILITY POWER POLE
	EXISTING TELEPHONE RISER
	EXISTING BOLLARD
	EXISTING LIGHT POLE
	EXISTING GAS METER
	EXISTING TRANSFORMER
	EXISTING FLAGPOLE
	EXISTING GRASS SURFACE
	EXISTING BITUMINOUS SURFACE
	EXISTING CONCRETE SURFACE

PREPARED UNDER THE SUPERVISION OF:

PROJECT LOG

PROJECT START	06-01-18
REVISIONS	07-25-18
REVISED BOUNDARY	04-19-19
REVISED PARCEL 3	02-27-19

PROJECT FILE: 2018-236

PROJECT MGR: JDM

DESIGNED BY: DUG

DRAWN BY: DUG

CHECKED BY:

SCALE: 1" = 20'

SHEET: 1 OF 1

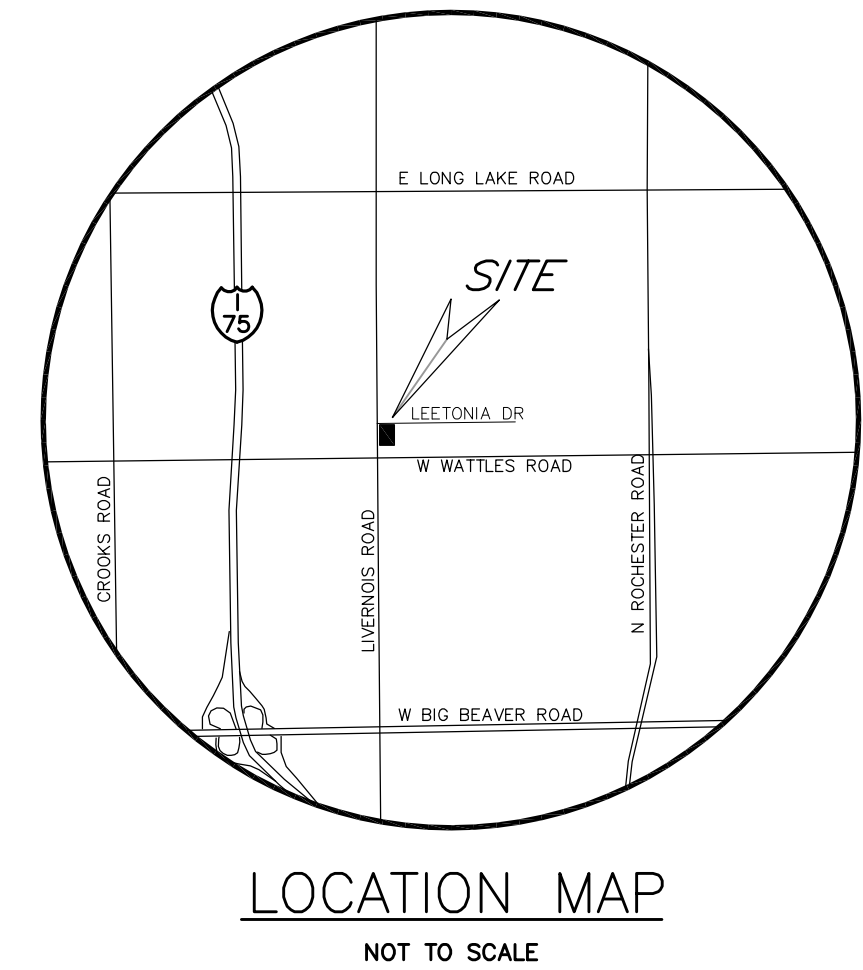
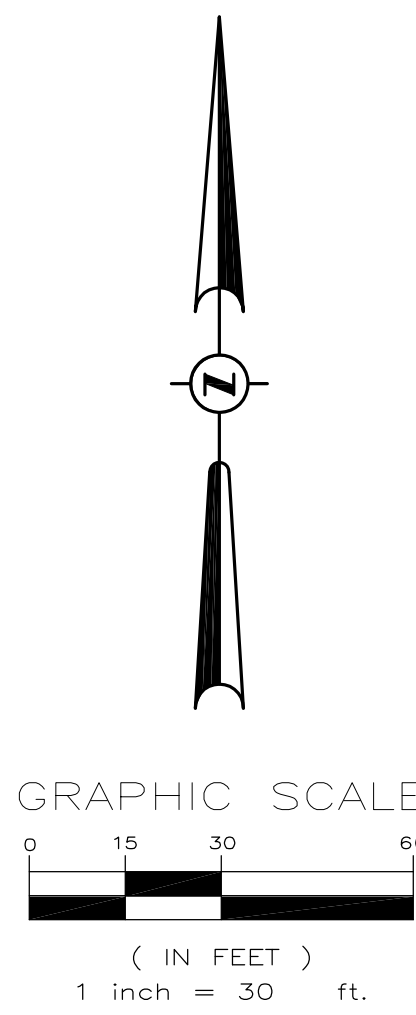
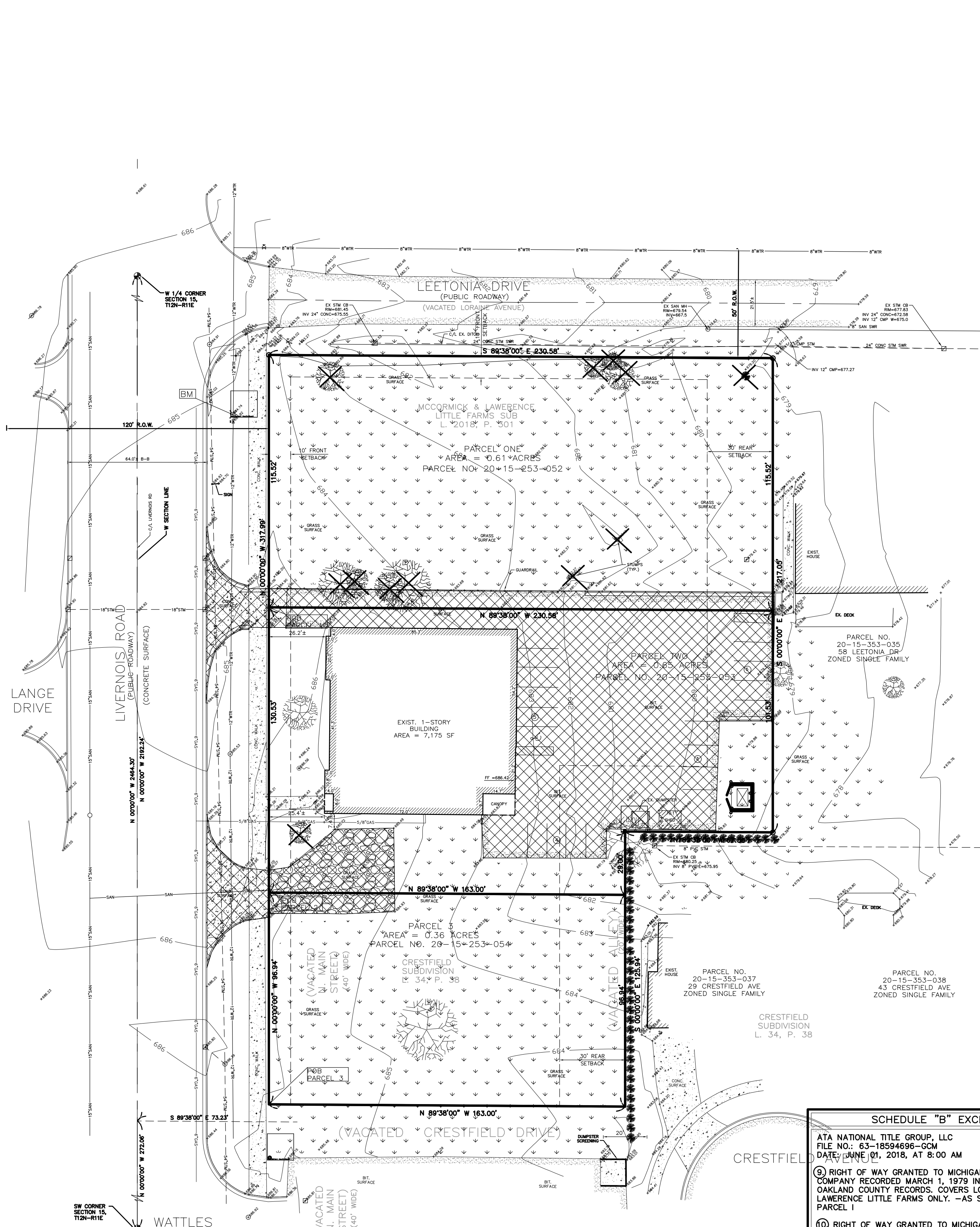
GREAT LAKES FAMILY LLC
 5070 NEW KING ST. SUITE 375
 TROY, MICHIGAN 48068
 (248) 312-7200

4080 LIVERNOS ROAD
 SECTION 15, T2N-R11E
 CITY OF TROY, OAKLAND COUNTY, MICHIGAN

PARCEL SPLIT

D&M SITE INC. Engineering
 Surveying - Inspection - Testing - Engineering
 401 BALSAM STREET PO BOX 159, CARROLLTON, MICHIGAN 48724
 PHONE (989) 752-6500 • FAX (989) 752-6500

1
 2018.236



FURNISHED PROPERTY DESCRIPTIONS

ATA NATIONAL TITLE GROUP, LLC
 FILE NO.: 63-18594696-GCM
 DATE: JUNE 01, 2018, AT 8:00 AM

PARCEL I:
 THE NORTH 108.52 FEET OF THE WEST 86 FEET OF LOT 107, ALSO LOT 108, EXCEPT THE WEST 27 FEET, MCCORMICK & LAWRENCE LITTLE FARMS SUBDIVISION, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 20, PAGE 30 OF PLATS, OAKLAND COUNTY RECORDS.

AND
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AND LOTS 1 AND 2, AND ADJACENT 1/2 OF VACATED ALLEY AND ALL VACATED MAIN STREET, CRESTFIELD SUBDIVISION, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 34, PAGE 38 OF PLATS, OAKLAND COUNTY RECORDS.

AND
 THE NORTH 40 FEET OF THE SOUTH 406 FEET OF THE EAST 13 FEET OF THE WEST 73 FEET OF THE SOUTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 15, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MICHIGAN.

PARCEL II:
 LOTS 3, 4, 5, AND ALL OF VACATED MAIN STREET AND WEST 1/2 OF VACATED ALLEY ADJACENT THERETO, CRESTFIELD SUBDIVISION, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 34, PAGE 38 OF PLATS, OAKLAND COUNTY RECORDS.

AND
 THE SOUTH 60.94 FEET OF NORTH 100.94 FEET OF SOUTH 406 FEET OF EAST 13 FEET OF WEST 73 FEET OF SOUTHWEST 1/4 OF SECTION 15, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MICHIGAN, ALSO NORTH 1/2 OF VACATED CRESTFIELD AVE ADJACENT TO SAME.

SPLIT PARCEL DESCRIPTION

PARCEL ONE (20-15-253-052)
 PART OF LOTS 107, 108 AND THE NORTH 7.00 FEET OF LOT 109 OF MCCORMICK & LAWRENCE LITTLE FARMS SUBDIVISION, BEING FURTHER DESCRIBED AS: COMMENCING AT THE SOUTHWEST CORNER OF SECTION 15, T2N-R11E CITY OF TROY OAKLAND COUNTY, MICHIGAN; THENCE N 00°00'00" W, 507.53 FEET ALONG THE WEST LINE OF SAID SECTION; THENCE S 89°38'00" E, 60.00 FEET TO THE POINT OF BEGINNING; THENCE N 00°00'00" W, 115.52 FEET; TO THE SOUTHERLY RIGHT OF WAY LINE OF LEETONIA DRIVE; THENCE S 89°38'00" E, 230.58 FEET ALONG SAID SOUTHERLY LINE; THENCE S 00°00'00" E, 115.52 FEET; THENCE N 89°38'00" W, 230.58 FEET EASTERLY RIGHT OF WAY LINE OF LIVERNOIS ROAD TO THE POINT OF BEGINNING, CONTAINING 0.61 ACRES, MORE OR LESS, AND SUBJECT TO ANY AND ALL EASEMENTS AND/OR RIGHTS-OF-WAY WHETHER USED, IMPLIED OR OF RECORD.

PARCEL TWO (20-15-253-013)
 PART OF LOTS 107, 109 OF MCCORMICK & LAWRENCE LITTLE FARMS SUBDIVISION, ALSO LOT 1, THE NORTH 9.00 FEET OF LOT 2 OF CRESTFIELD SUBDIVISION ALSO PART OF VACATED MAIN STREET AND PART OF THE SOUTHWEST ADJACENT THERETO, AND PART OF THE SOUTHWEST 1/4 OF SECTION 15, T2N-R11E CITY OF TROY, OAKLAND COUNTY, MICHIGAN, BEING FURTHER DESCRIBED AS: COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION; THENCE N 00°00'00" W, 377.00 FEET ALONG THE WEST LINE OF SAID SECTION; THENCE S 89°38'00" E, 60.00 FEET TO THE SOUTHERLY RIGHT OF WAY LINE OF LIVERNOIS ROAD AND THE POINT OF BEGINNING; THENCE N 00°00'00" W, 130.53 FEET; ALONG SAID RIGHT OF WAY LINE; THENCE S 89°38'00" E, 230.58 FEET; THENCE S 00°00'00" E, 101.53 FEET; THENCE N 89°38'00" W, 67.58 FEET; THENCE S 00°00'00" E, 29.00 FEET; THENCE N 89°38'00" W, 163.00 FEET TO THE EASTERLY RIGHT OF WAY LINE OF LIVERNOIS ROAD AND THE POINT OF BEGINNING, CONTAINING 0.65 ACRES, MORE OR LESS, AND SUBJECT TO ANY AND ALL EASEMENTS AND/OR RIGHTS-OF-WAY WHETHER USED, IMPLIED OR OF RECORD.

PARCEL THREE (20-15-253-054)
 THE SOUTH 11.00 FEET OF LOT 2, AND LOTS 3, 4, AND 5 OF THE VACATED ALLEY AND ALSO PART OF VACATED CRESTFIELD DRIVE THERETO OF CRESTFIELD SUBDIVISION AS RECORDED IN LIBER 34, PAGE 38 OF PLATS OAKLAND COUNTY RECORDS. AND ALSO THE SOUTHWEST 1/4 OF SECTION 15, T2N-R11E CITY OF TROY, OAKLAND COUNTY, MICHIGAN, BEING FURTHER DESCRIBED AS: COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION; THENCE N 00°00'00" W, 305.06 FEET ALONG THE WEST LINE OF SAID SECTION; THENCE S 89°38'00" E, 60.00 FEET TO THE SOUTHERLY RIGHT OF WAY LINE OF LIVERNOIS ROAD AND THE POINT OF BEGINNING; THENCE N 00°00'00" W, 71.94 FEET ALONG SAID RIGHT OF WAY LINE; THENCE S 89°38'00" E, 163.00 FEET; THENCE S 00°00'00" E, 96.94 FEET TO THE CENTERLINE OF VACATED CRESTFIELD DRIVE; THENCE N 89°38'00" W, 150.00 FEET ALONG SAID CENTERLINE; THENCE N 00°00'00" W, 25.00 FEET; THENCE N 89°38'00" W, 13.00 FEET TO THE POINT OF BEGINNING, CONTAINING 0.36 ACRES, MORE OR LESS, AND SUBJECT TO ANY AND ALL EASEMENTS AND/OR RIGHTS-OF-WAY WHETHER USED, IMPLIED OR OF RECORD.

SCHEDULE "B" EXCEPTIONS

ATA NATIONAL TITLE GROUP, LLC
 FILE NO.: 63-18594696-GCM
 DATE: JUNE 01, 2018, AT 8:00 AM

9. RIGHT OF WAY GRANTED TO MICHIGAN BELL TELEPHONE COMPANY RECORDED MARCH 1, 1979 IN LIBER 7451, PAGE 492, OAKLAND COUNTY RECORDS, COVERS ALL OF LOT 109 AND SOUTH 108.53 FEET OF THE WEST 86 FEET OF LOT 107, MCCORMICK & LAWRENCE LITTLE FARMS ONLY. -AS SHOWN; AFFECTS PARCEL I.

10. RIGHT OF WAY GRANTED TO MICHIGAN BELL TELEPHONE COMPANY RECORDED MARCH 1, 1979 IN LIBER 7451, PAGE 493, OAKLAND COUNTY RECORDS, COVERS ALL OF LOT 109 AND SOUTH 108.53 FEET OF THE WEST 86 FEET OF LOT 107, MCCORMICK & LAWRENCE LITTLE FARMS ONLY. -AS SHOWN; AFFECTS PARCEL I.

11. EASEMENT FOR PUBLIC UTILITIES OVER THAT PORTION OF SUBJECT PROPERTY INCLUDED IN THE VACATED ALLEY AND VACATED STREET AS EVIDENCED BY INSTRUMENT RECORDED IN LIBER 8853, PAGE 235, OAKLAND COUNTY RECORDS. -AS SHOWN; AFFECTS PARCEL I.

12. TERMS AND CONDITIONS OF RESOLUTION RECORDED JULY 24, 2003 IN LIBER 30080, PAGE 869, OAKLAND COUNTY RECORDS. -AS SHOWN

13. TERMS AND CONDITIONS OF RESOLUTION RECORDED JULY 8, 1996 IN LIBER 16413, PAGE 861, OAKLAND COUNTY RECORDS. -AS SHOWN; AFFECTS PARCEL II.

14. TERMS, CONDITIONS AND PROVISIONS WHICH ARE RECITED IN WATER AGREEMENT RECORDED IN LIBER 2125, PAGE 87, OAKLAND COUNTY RECORDS. -DOES NOT AFFECT SUBJECT PROPERTY

LEGEND

	MONUMENT / SECTION CORNER
	FOUND PROPERTY IRON
	SET PROPERTY IRON W/CAP NO.26454
	SET MAG NAIL
	EXISTING CATCHBASIN
	EXISTING MANHOLE/CATCHBASIN
	EXISTING MANHOLE
	EXISTING HYDRANT
	EXISTING VALVE
	EXISTING SANITARY SEWER
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	EXISTING BOLLARD
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	EXISTING GAS METER
	EXISTING TRANSFORMER
	EXISTING FLAGPOLE
	EXISTING GRASS SURFACE
	EXISTING BITUMINOUS SURFACE
	EXISTING CONCRETE SURFACE

UTILITY CONTACTS

TELEPHONE	GAS AND ELECTRIC
AT & T 54 N. MILL ST. P.O. BOX 32 PONTIAC, MI 48642	CONSUMERS ENERGY GAS INFORMATION MGMT 1030 FEATHERSTONE RD. PONTIAC, MI 48342
ZONING	WATER/SEWER
CITY OF TROY ZONING & PLANNING 500 W. BIG BEAVER RD TROY, MICHIGAN 48084 (248) 524-3364	CITY OF TROY 4693 ROCHESTER RD TROY, MICHIGAN 48085 (248) 524-3392

UTILITY NOTE

THE UTILITY LOCATIONS AS HEREON SHOWN ARE BASED ON FIELD OBSERVATIONS AND A CAREFUL REVIEW OF MUNICIPAL AND UTILITY RECORDS. HOWEVER, IT IS NOT POSSIBLE TO DETERMINE THE PRECISE SIZE, LOCATION, DEPTH, PRESSURE, OR ANY OTHER CHARACTERISTICS OF UNDERGROUND UTILITIES, TANKS OR SEPTIC FIELDS WITHOUT EXCAVATION. THEREFORE, WE CANNOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE BURIED UTILITY INFORMATION HEREON SHOWN. THE CONTRACTOR SHALL CALL MISS DIG (1-800-482-7171) A MINIMUM OF THREE WORKING DAYS PRIOR TO ANY EXCAVATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THESE UTILITY LOCATIONS PRIOR TO CONSTRUCTION AND MAKE EVERY EFFORT TO PROTECT AND/OR RELOCATE THEM AS REQUIRED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER/SURVEYOR AS SOON AS POSSIBLE IN THE EVENT A DISCREPANCY IS FOUND.

ZONING INFORMATION

ZONED NN (NEIGHBORHOOD NODE)
 NODE H - LIVERNOIS & W. WATTLES INTERSECTION
 STREET TYPE NN:A(LIVERNOIS) AND TYPE NN:B (LEETONIA)
 SITE TYPE NN:B

PROPRIETOR

STRATEGIC PROPERTY SERVICES, LLC
 ATTN: VINCE PANGLE
 5750 NEW KING STREET, STE 350
 TROY, MI 48098

SURVEYOR

D&M SITE, INC.
 401 BALSAM STREET
 CARROLLTON, MI 48624
 (989) 752-6500

ENGINEER

REDRIDGE ENGINEERING, LLC
 RICHARD FOSGITT, P.E.
 2807 Highbrook Drive
 Midland, MI 48642
 (989) 513-4058

PREPARED UNDER THE SUPERVISION OF:

FILE #	OVERALL	PROJ MGR	DESIGN BY	DRAWN BY	CHECKED BY	SCALE	SHEET
		RF	RF	RF	RF	1"=30'	1 OF 1

PROJECT LOG

DATE	DESCRIPTION
06-17-18	ISSUE FOR PERMITS
09-30-20	ISSUE FOR SITE PLAN REVIEW

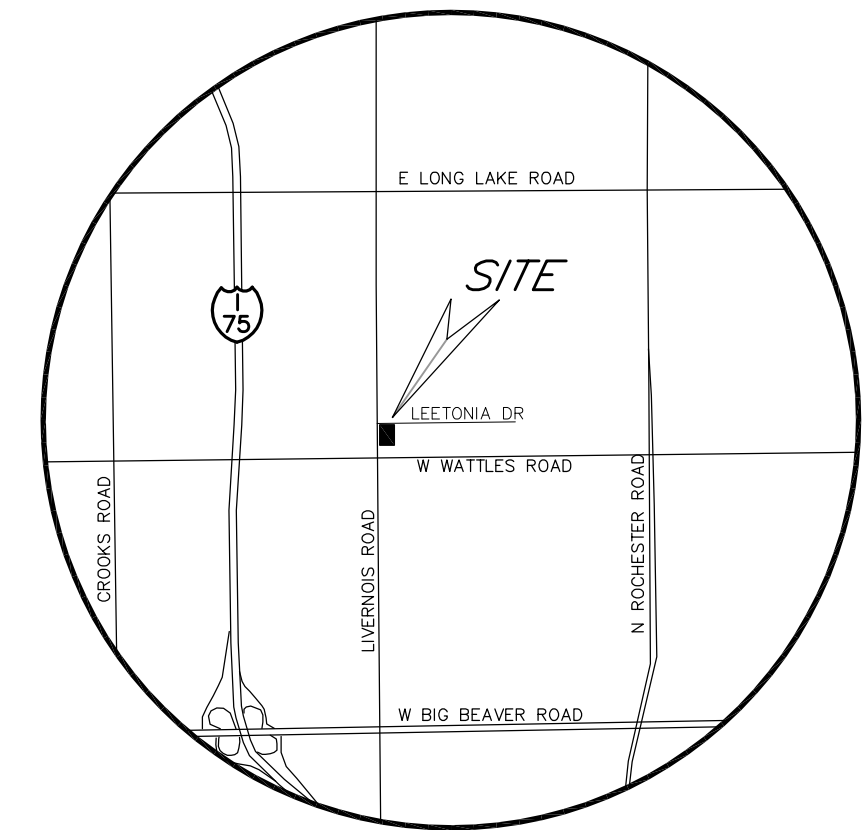
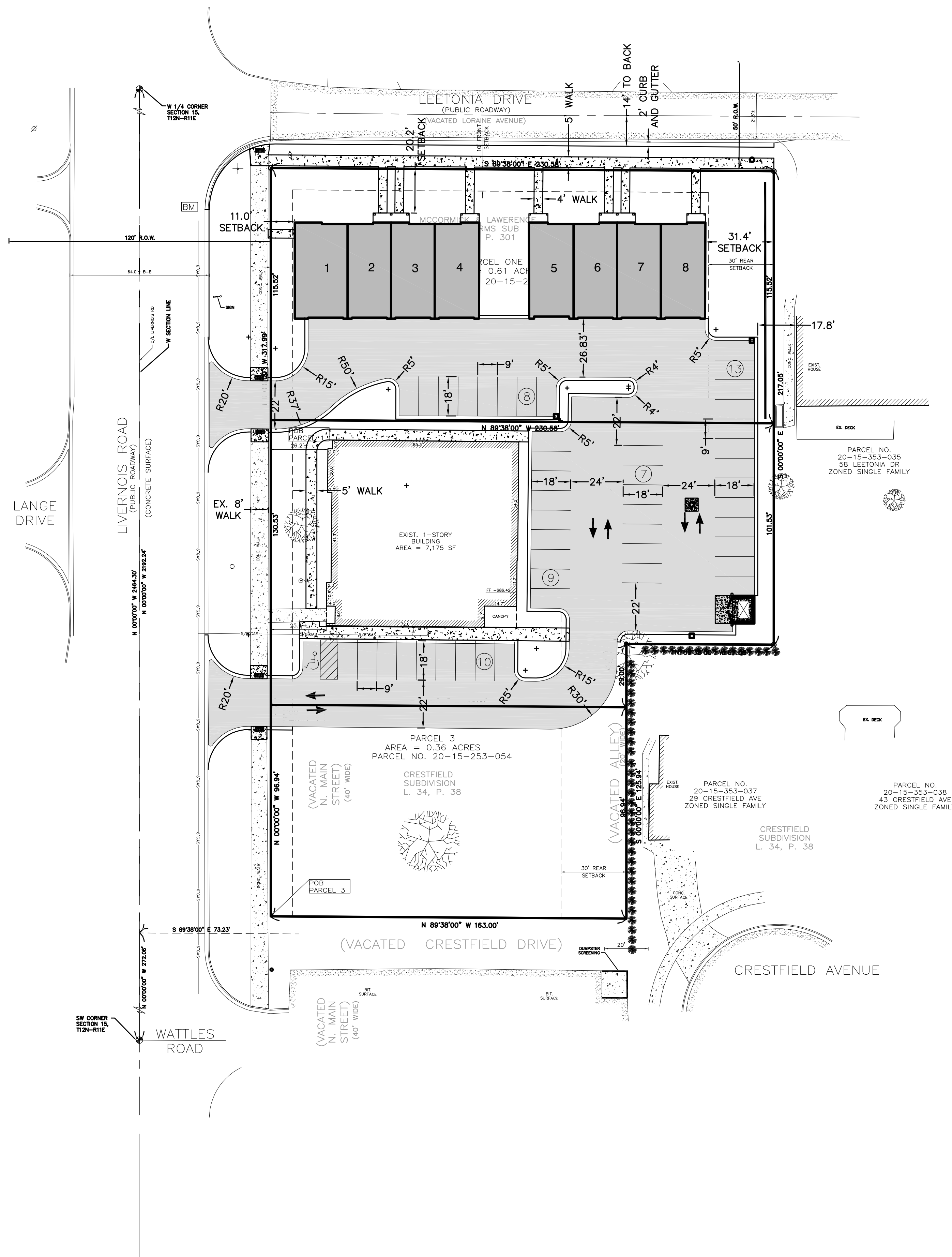
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 2807 Highbrook Drive, Midland, MI 48642
 989-513-4058 RFOSSGITT@REDRIDGE-ENG.COM

LANGE VIEW TOWNHOUSES
 STRATEGIC PROPERTY SERVICES, LLC
 4080 LIVERNOIS ROAD
 TROY, MICHIGAN
 OAKLAND COUNTY, MICHIGAN

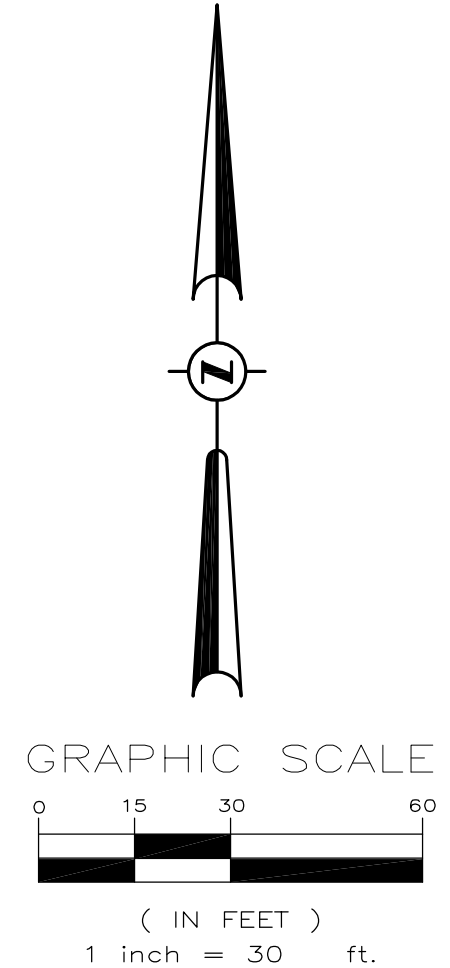
DEMOLITION PLAN

C2.0
 180401

OVERALL SITE PLAN: LANGE VIEW TOWNHOUSES



LOCATION MAP
NOT TO SCALE



LEGEND

○	MONUMENT / SECTION CORNER
●	FOUND PROPERTY IRON
⊕	SET PROPERTY IRON W/CAP NO.26454
⊙	SET MAG NAIL
⊗	EXISTING CATCHBASIN
⊘	EXISTING MANHOLE/CATCHBASIN
⊚	EXISTING MANHOLE
⊛	EXISTING HYDRANT
⊜	EXISTING VALVE
⊝	EXISTING SANITARY SEWER
⊞	EXISTING STORM SEWER
⊟	EXISTING WATERMAIN
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⊥	EXISTING OVERHEAD ELECTRICAL WIRES
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⊧	EXISTING SIGN
⊨	EXISTING DECIDUOUS TREES
⊩	EXISTING CONIFEROUS TREES
⊪	EXISTING UTILITY POWER POLE
⊫	EXISTING TELEPHONE RISER
⊬	EXISTING BOLLARD
⊭	EXISTING LIGHT POLE
⊮	EXISTING GAS METER
⊯	EXISTING TRANSFORMER
⊰	EXISTING FLAGPOLE
⊱	EXISTING GRASS SURFACE
⊲	EXISTING BITUMINOUS SURFACE
⊳	EXISTING CONCRETE SURFACE

BULK REGULATIONS

	REQUIRED: NEIGHBORHOOD NODE SITE TYPE NNB BUILDING FORM C	PROVIDED
GROSS SITE AREA		1.62 ACRES
USABLE BUILDING AREA		1.22 ACRES
REQUIRED OPEN SPACE	MIN. 15%	31,002 SFT
LOT COVERAGE BY ALL BLDGS	MAX. 30%	14,375 SFT
BUILDING HEIGHT MAX.	55 FEET	39 FEET

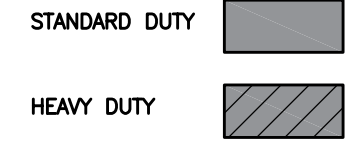
PROPOSED SETBACKS		
FRONT (W)	10'	11.0'
FRONT (N)	10'	20.2'
REAR (E)	30'	31.4'
SIDE (S)	0'	NA

* SETBACK TO EXISTING BUILDING (TO REMAIN)

STORMWATER DETENTION DATA

DRAINAGE AREA: 1.31 AC
 DEVELOPED % IMPERV: 0.96 AC (73.2%)
 ALLOWABLE RELEASE RATE: 0.2 CFS/AC = 0.26 CFS
 25-YR DETENTION STORAGE REQD: 9,106 CFT
 PROPOSED DETENTION: UG DETENTION ~9,200 CFT

PAVEMENT TYPE



PARKING

REQUIRED NUMBER OF PARKING SPACES:

	REQUIREMENT	BUILDING AREA	REQUIRED PARKING
OFFICE/PROF.	1 SPACE FOR EACH 300 SQ FT OF FLOOR AREA	7,175 GSFT	24 SPACES
SINGLE-FAMILY	2 SPACES PER UNIT	8 UNITS	16 SPACES
TOTAL SPACES REQUIRED			40 SPACES

TOTAL PROVIDED = 39 SPACES + 16 GARAGE SPACES = 55 SPACES

FLOODPLAIN INFORMATION

CITY OF TROY, COMMUNITY NO. 260180
 OAKLAND COUNTY, MICHIGAN
 MAP NUMBER: 26125C0534F
 EFFECTIVE DATE: 9/29/2006
 FLOOD ZONE: X
 AREA OF MINIMAL FLOOD HAZARD (PER FIRM)

ZONING INFORMATION

ZONED NN (NEIGHBORHOOD NODE)
 NODE H - LIVERNOIS & W. WATTLES INTERSECTION
 STREET TYPE NN:(LIVERNOIS) AND TYPE NN:B (LEETONIA)
 SITE TYPE NN:B

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ENGINEER

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 RICHARD FOSGITT, P.E.
 2807 HIGHBROOK DRIVE
 MIDLAND, MI 48642
 (989) 513-4058

PREPARED UNDER THE SUPERVISION OF:

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20-15-353-035	RF	RF	RF	RF	RF	1"=30'	1 OF 1

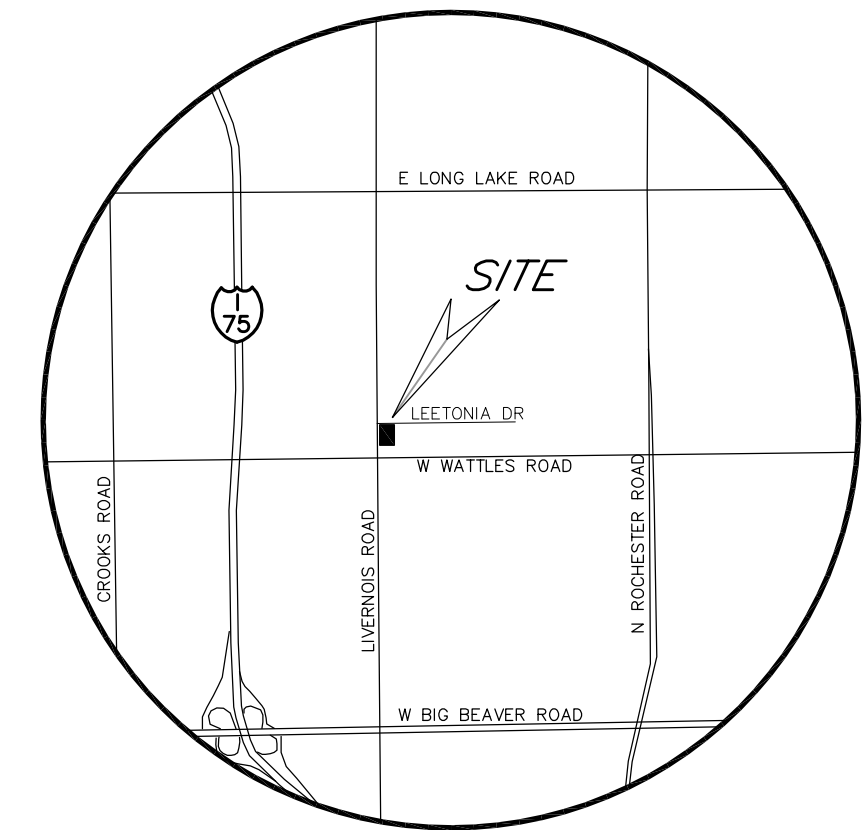
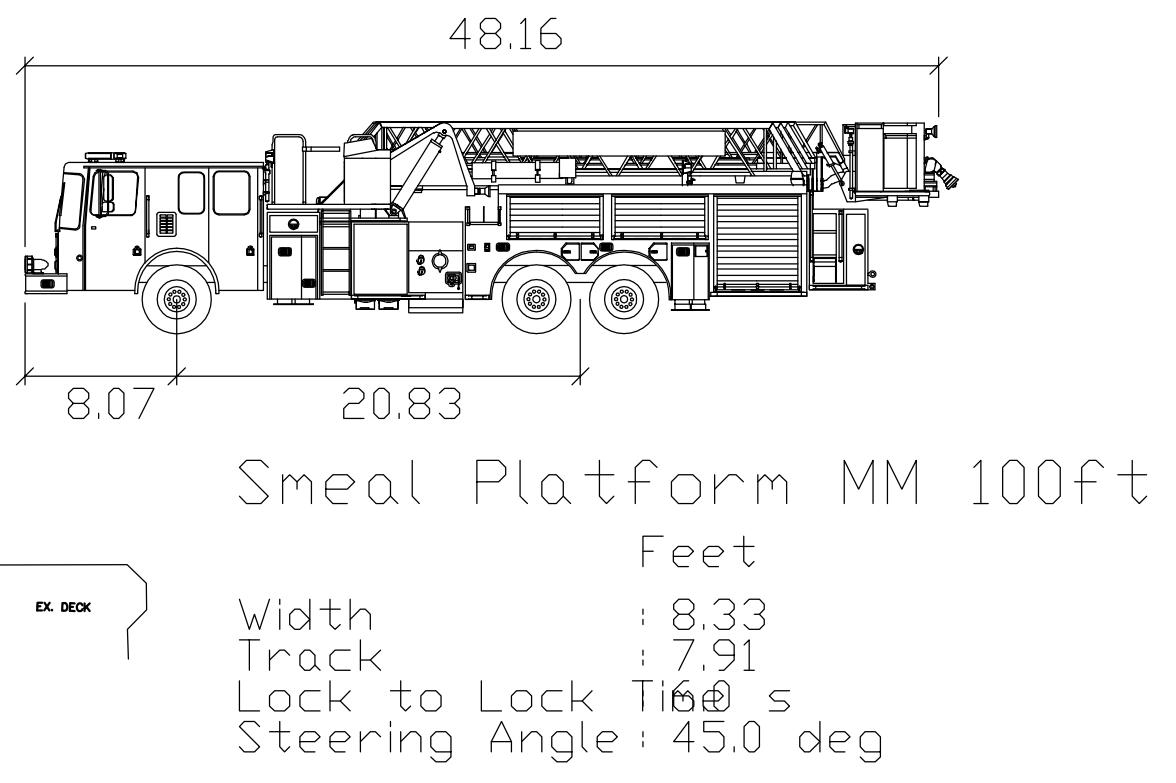
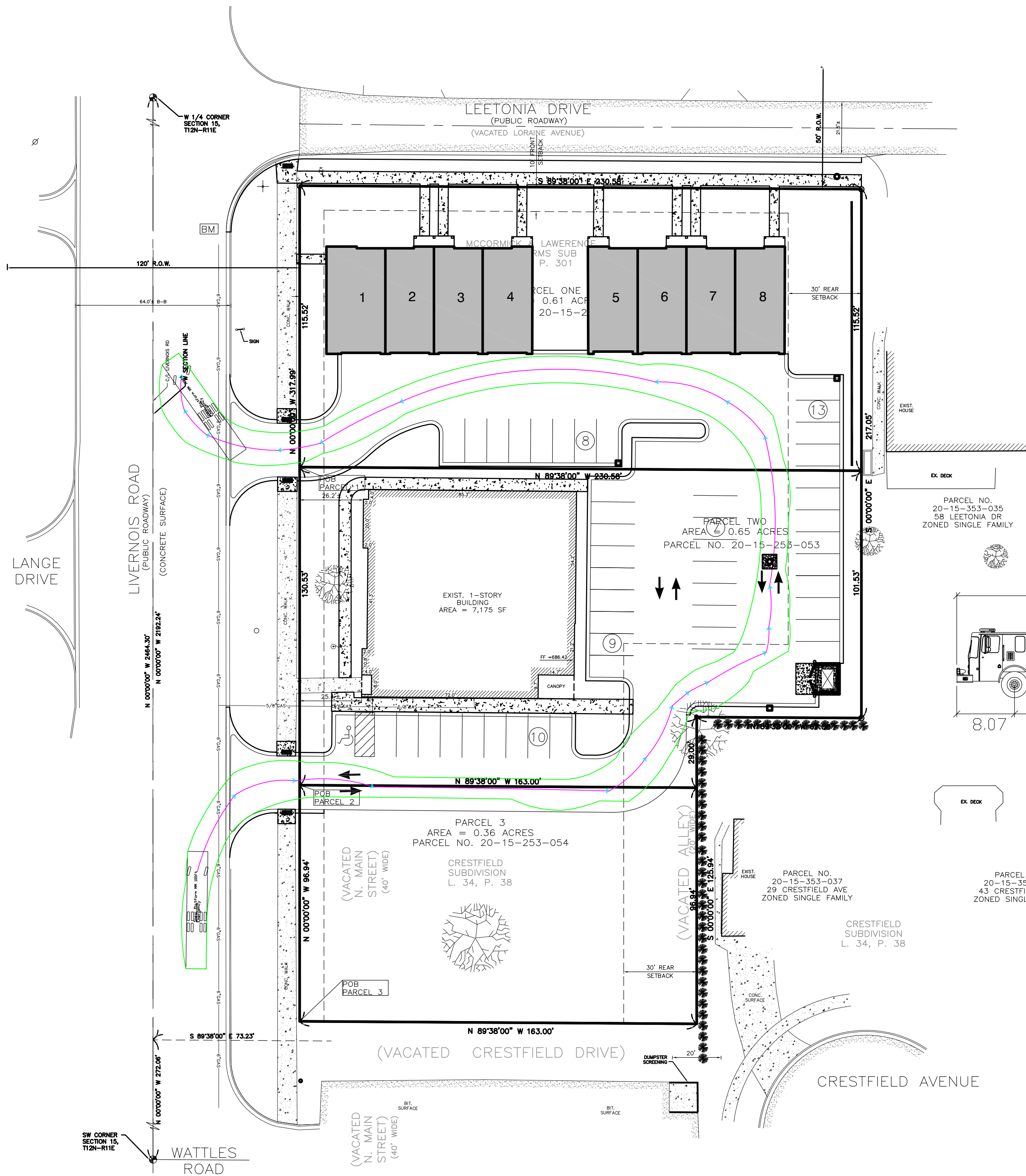
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 989-513-4058 RFOSGITT@REDRIDGE-ENG.COM

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LANGE VIEW TOWNHOUSES
 STRATEGIC PROPERTY SERVICES, LLC
 4080 LIVERNOIS ROAD
 TROY, MI 48068
 OAKLAND COUNTY, MICHIGAN

OVERALL SITE PLAN

C3.0
 180401



LOCATION MAP
NOT TO SCALE

LEGEND	
●	MONUMENT / SECTION CORNER
○	FOUND PROPERTY IRON
⊕	SET PROPERTY IRON W/CAP NO.26454
⊙	SET MAG NAIL
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PROPRIETOR
STRATEGIC PROPERTY SERVICES, LLC
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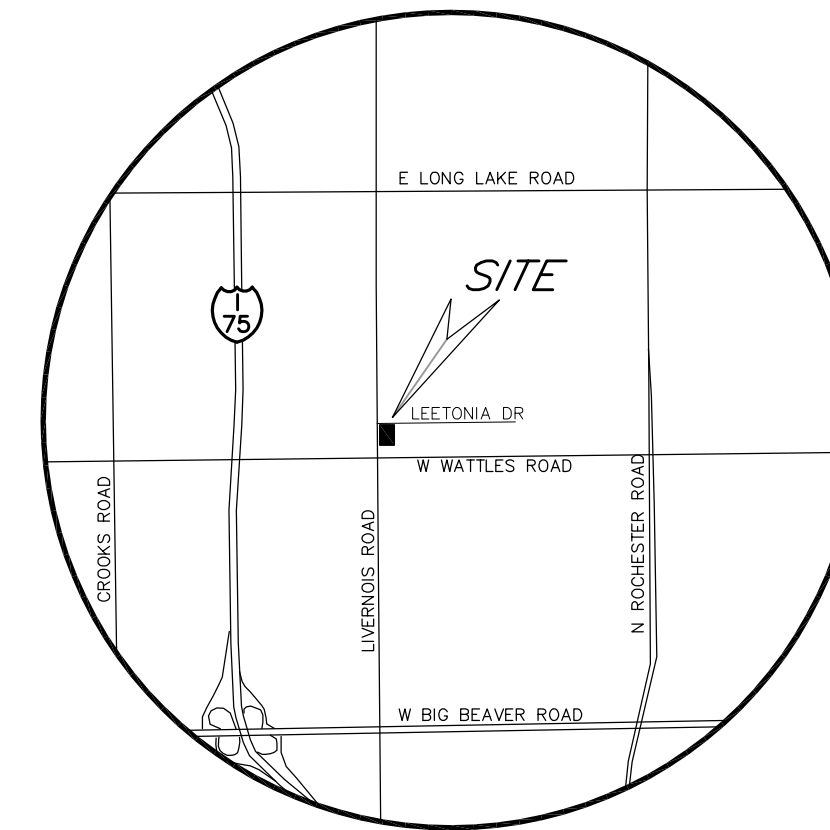
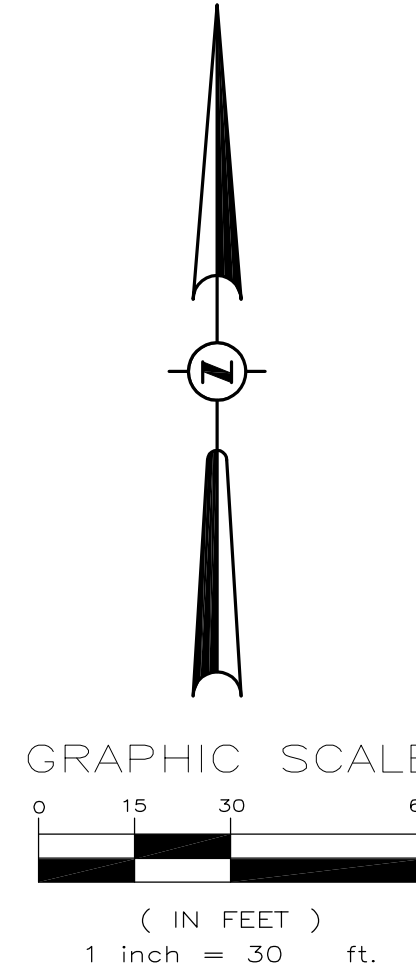
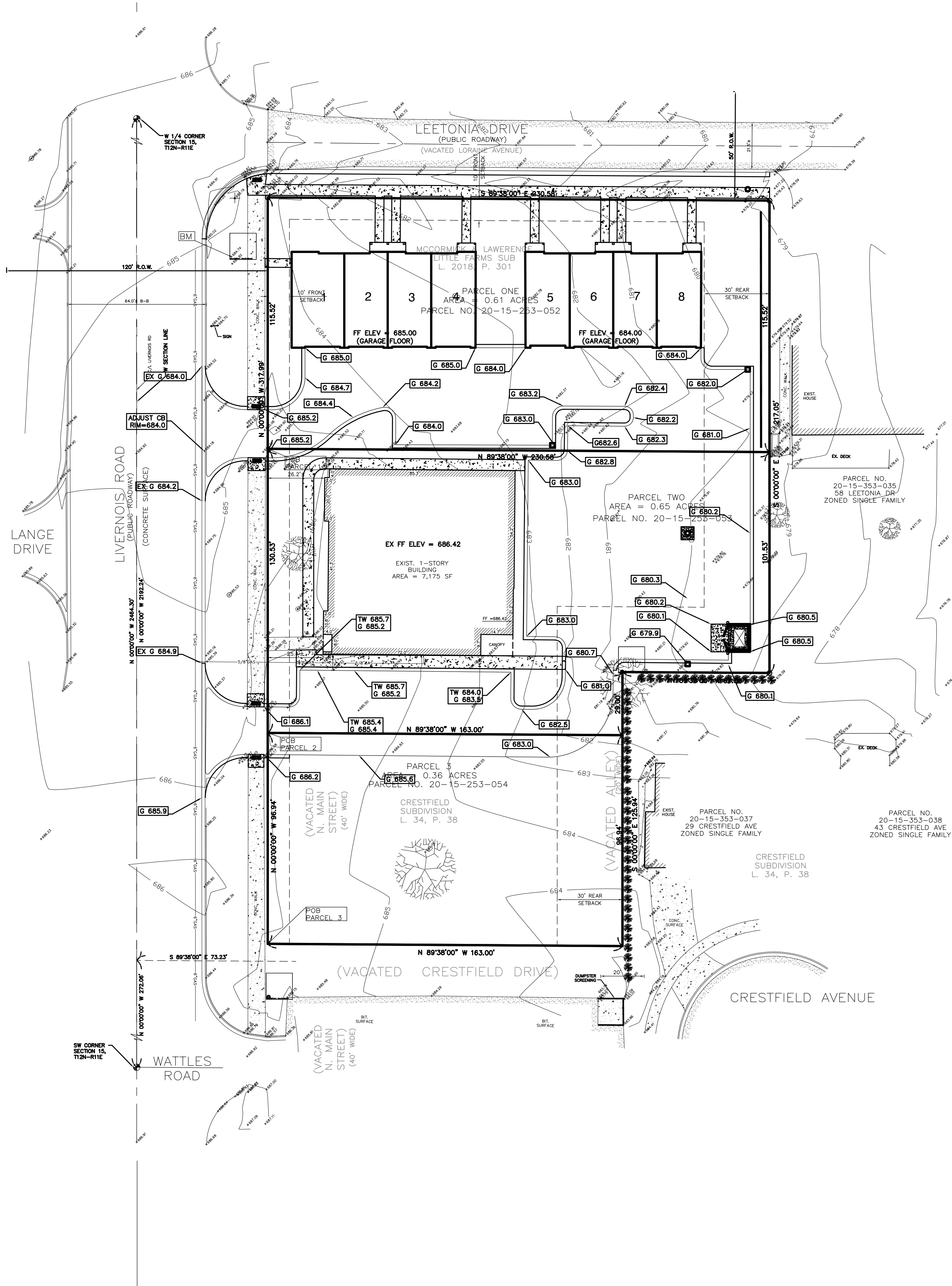
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LANGE VIEW TOWNHOUSES
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4080 LIVERNOIS ROAD
TROY, MICHIGAN
OAKLAND COUNTY, MICHIGAN

TURNING PLAN

C3.1
180401



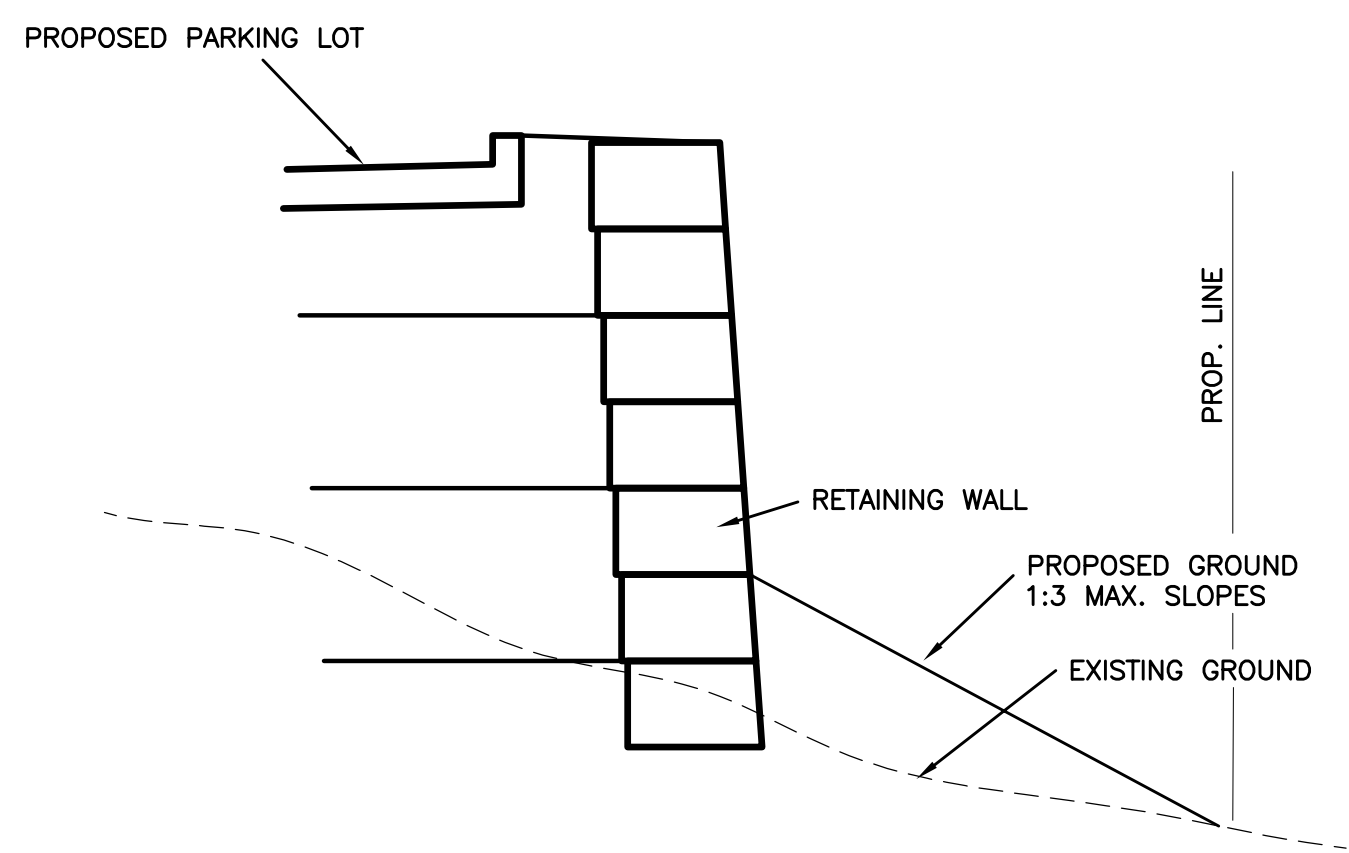
LOCATION MAP
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LEGEND	
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	EXISTING FLAGPOLE
	EXISTING GRASS SURFACE
	EXISTING BITUMINOUS SURFACE
	EXISTING CONCRETE SURFACE

G XXX.X DENOTES PAVEMENT GRADE (EDGE OF METAL)
W XXX.X DENOTES SIDEWALK GRADE

SITE GRADING NOTES

1. GRADING BASIS OF DESIGN:
PAVEMENT MIN. 1.0% SLOPE
CURB AND GUTTER MIN. 0.50% SLOPE
2. CONTRACTOR TO PROVIDE SOIL EROSION CONTROL MEASURES AS NECESSARY TO PREVENT ANY EROSION OR SEDIMENTATION. PROTECT ALL DRAINAGE STRUCTURES WITH SILT FENCE, SURFACE SEDIMENT SUMPS, OR OTHER APPROVED MEASURES.
3. PROPOSED RETAINING WALL SHALL BE REDI-ROCK OR APPROVED EQUAL. CONTRACTOR TO PROVIDE SHOP DRAWINGS OF RETAINING WALL FOR APPROVAL BY OWNER AND TOWNSHIP ENGINEER.



EAST RETAINING WALL SECTION

PROPRIETOR
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TROY, MI 48098

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401 BALSAM STREET
CARROLLTON, MI 48624
(989) 752-6500

ENGINEER
REDRIDGE ENGINEERING, LLC
RICHARD FOSGITT, P.E.
2807 HIGHBROOK DRIVE
MIDLAND, MI 48642
(989) 513-4058

PREPARED UNDER THE SUPERVISION OF:

FILE #	OVERALL
PROJ MGR:	RLF
DESIGN BY:	RLF
DRAWN BY:	RLF
CHECKED BY:	
SCALE:	1"=30'
SHEET:	1 OF 1

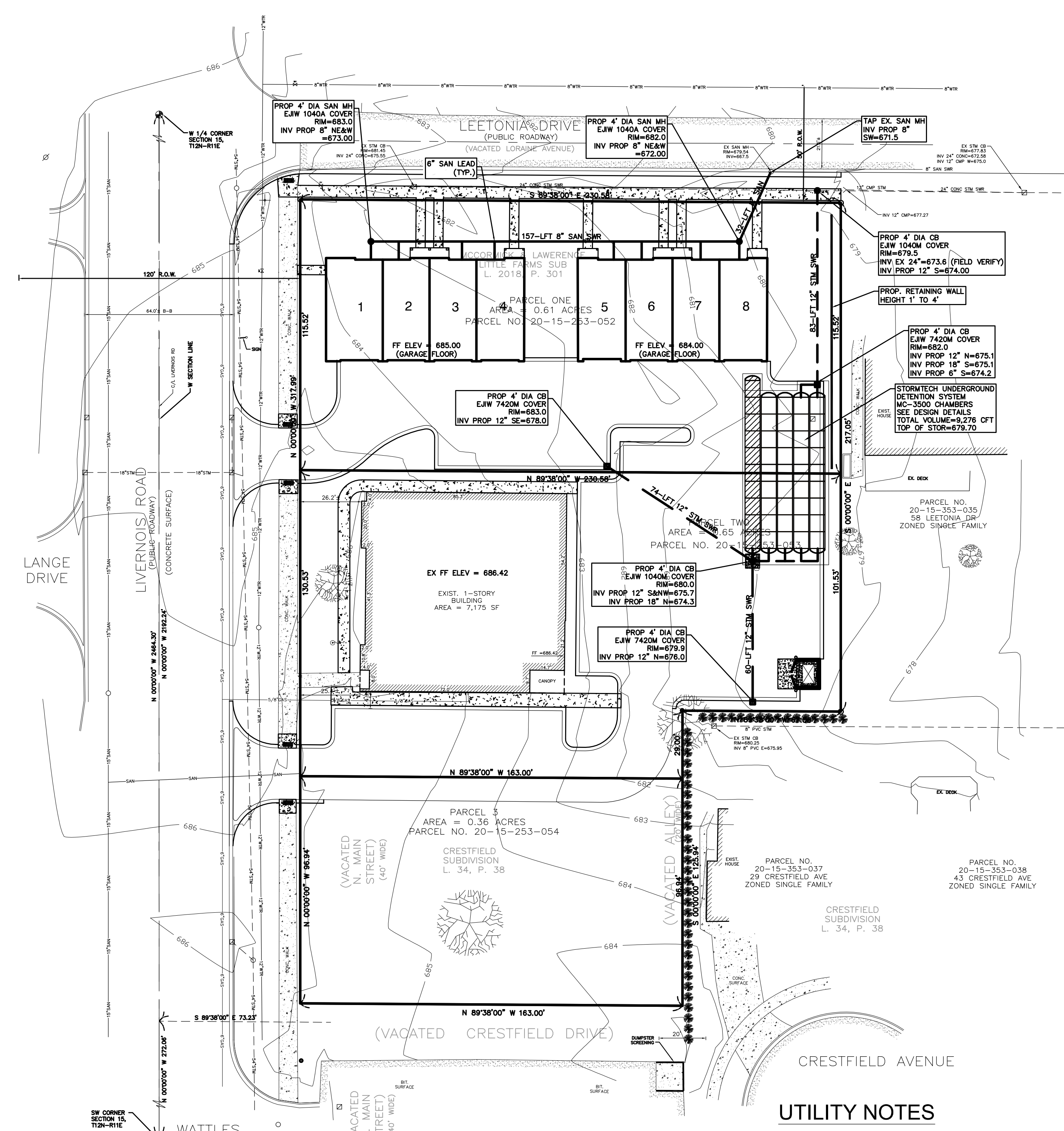
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OAKLAND COUNTY, MICHIGAN

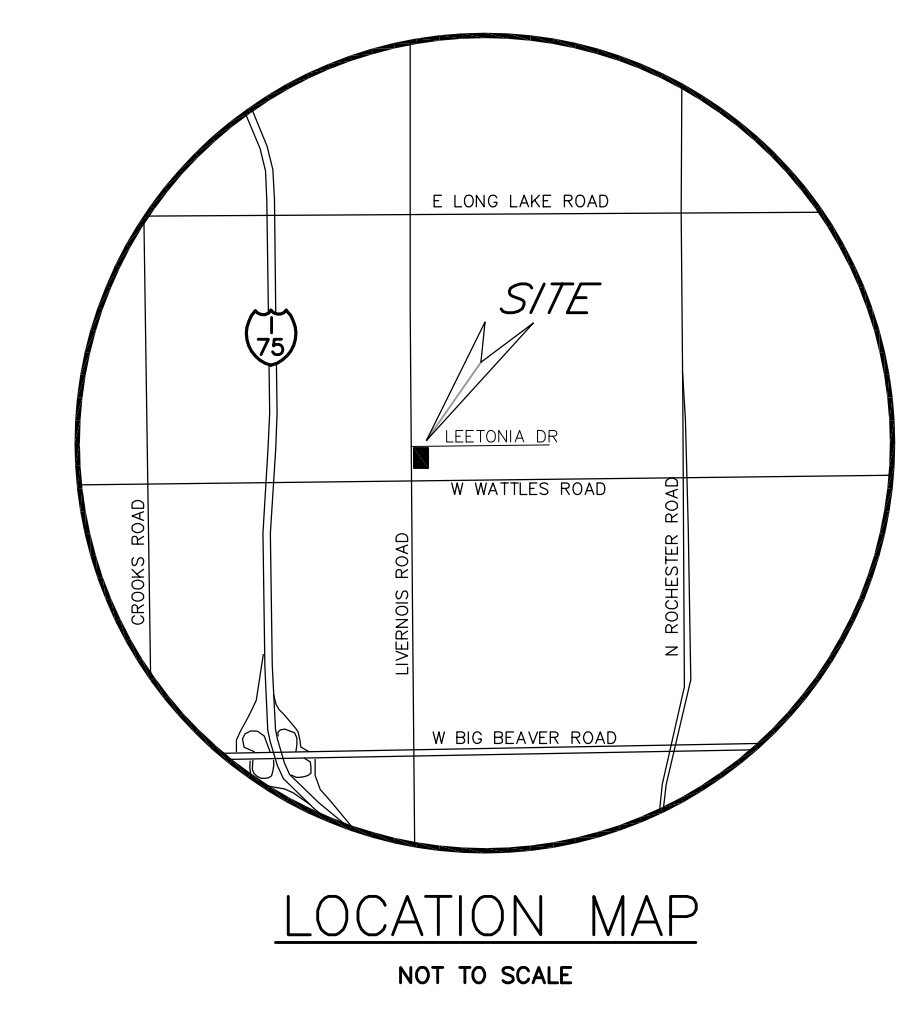
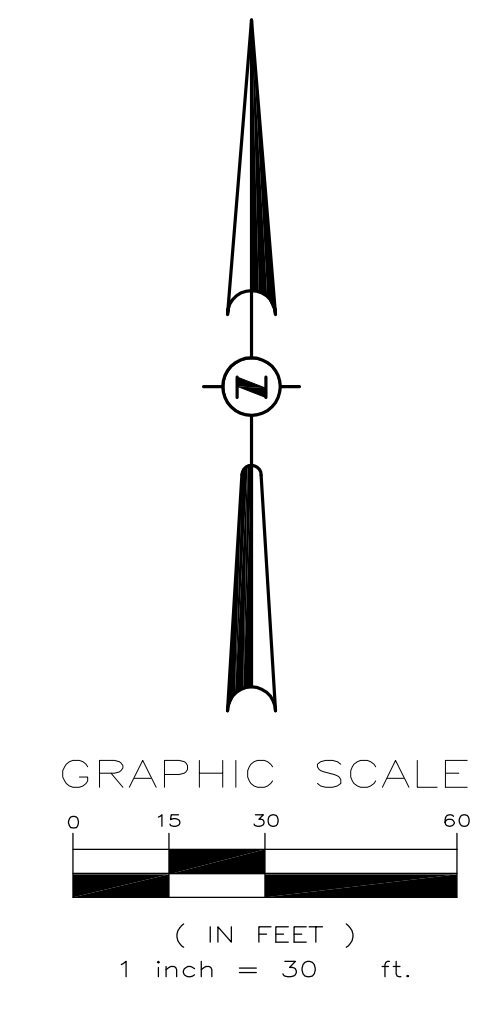
GRADING PLAN

C4.0
180401



UTILITY NOTES

- ALL 12" AND LARGER STORM SEWER SHALL BE DUAL WALL HDPE PIPE INSTALLED WITH FULL SAND BACKFILL PER CITY STD. DETAILS. ALL STORM SEWER SHALL BE CONSTRUCTED WITH PREMIUM GASKETED JOINTS.
- ALL 6" STORM ROOF LEADS SHALL BE PVC SDR-26 PIPE.
- WATER SERVICE SHALL BE TYPE K COPPER SERVICE WITH FULL SAND BACKFILL.
- SANITARY SEWER LEADS SHALL BE PVC SDR-26 PIPE INSTALLED WITH FULL SAND BACKFILL AND BEDDING PER CITY STANDARD DETAILS.
- ALL DRAINAGE STRUCTURE CASTINGS LOCATED WITHIN BITUMINOUS PAVEMENT SHALL HAVE CONCRETE COLLARS PER THE SITE DETAILS.
- SANITARY AND WATER BASIS OF DESIGN: **8.0** REU



Stormwater Detention Calculations

Input Data

Return Period	25-yr	Per city of Troy Requirements
Ai (acres)	0.96	
A (acres)	1.31	

Detention Area Calculations

I, Intensity of Rainfall	=	1.2256	
Qa, Allowable Runoff	=	0.262	0.2 cfs/ac Per city of Troy Requirements
Qo, Maximum Outflow	=	0.262	cfs
T, Storage Time	=	150.42	min
Vs, Volume of Storage per Ai	=	9485	cft
Vt, Total Storage Required	=	9106	cft

Detention Volume Required

= 9106 cft

Formulas/Definitions

A, Acreage of Site	
Ai, Proposed Imp. Acres (After Construction)	
Ci, Impervious Run-off Coef	= 0.90
Cp, Pervious Run-off Coef	= 0.15
I, Intensity of Rainfall	= 215/(25+I)
Qa, Allowable Runoff	= Ci I Ai + Cp I Ap
Qo, Maximum Outflow	= Qa/Ai
T, Storage Time	= [(8062.5/Qo)^0.5]-25
T, Time in Minutes	
Vs, Volume of Storage per Ai	= (12900xT)/(T+25) - 40QoT
Vt, Total Storage Required	= Vs x Ai

User Inputs

Chamber Model:	MC-3500
Outlet Control Structure:	Yes
Project Name:	Livernois Site 2 copy
Engineer:	Richard Fosgitt
Project Location:	Michigan
Measurement Type:	Imperial
Required Storage Volume:	9100 cubic ft.
Stone Porosity:	40%
Stone Foundation Depth:	9 in.
Stone Above Chambers:	12 in.
Average Cover Over Chambers:	18 in.
Design Constraint Dimensions:	(80 ft. x 100 ft.)

Results

System Volume and Bed Size

Installed Storage Volume:	9276.06 cubic ft.
Storage Volume Per Chamber:	109.90 cubic ft.
Number Of Chambers Required:	46
Number Of End Caps Required:	10
Chamber Rows:	5
Maximum Length:	81.55 ft.
Maximum Width:	36.08 ft.
Approx. Bed Size Required:	2797.01 square ft.

System Components

Amount Of Stone Required:	377.01 cubic yards
Volume Of Excavation (Not including Fill):	569.76 cubic yards

Restrictor Sizing Calculations

Detention Pond

Qa, Allowable Runoff	0.262	cfs
Pass through (existing)	0.000	cfs
Total Release Rate	0.262	cfs
Design High Water Elev	679.20	ft
Downstream Water Surface	675.60	ft
Computed Head, h	3.60	ft
C (coefficient)	0.62	

Restrictor Sizing Calculations

Q = CA (2gh)^0.5 (cfs)		
A, Area of Pipe	0.0278	sft
r, Radius of Pipe	0.0940	ft
d, Diameter of Pipe (ft)	0.1880	ft
d, diameter of Pipe (in)	2.2558	in

Restrictor Size Required	2.26	in
Actual Restrictor Size	2.250	in
Actual Release Rate	0.261	cfs

O.K.

LEGEND

●	MONUMENT / SECTION CORNER
○	FOUND PROPERTY IRON
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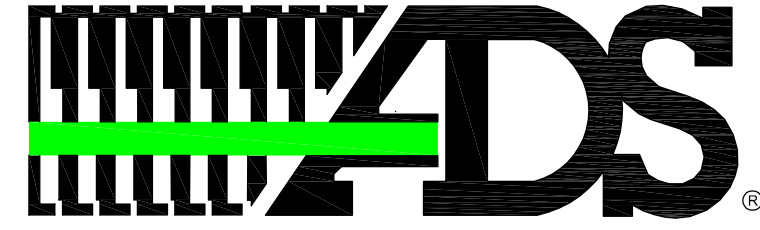
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LANGE VIEW TOWNHOUSES
STRATEGIC PROPERTY SERVICES, LLC
4080 LIVERNOIS ROAD
TROY, MICHIGAN
OAKLAND COUNTY, MICHIGAN

UTILITY PLAN

C4.1
180401

REDRIDGE ENGINEERING, LLC
RICHARD FOSGITT, P.E.
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MIDLAND, MI 48642
(989) 513-4058



ADVANCED DRAINAGE SYSTEMS, INC.

4080 LIVERNOIS SITE

TROY, MI



MC-3500 STORMTECH CHAMBER SPECIFICATIONS

- 1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a...
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPIDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS...
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787...
7. REQUIREMENTS FOR HANDLING AND INSTALLATION...
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED...
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

- 1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE 'STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE'.
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS...
4. THE FOUNDATION STONE SHALL BE LEVELLED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM 6" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF 'FLEXSTORM CATCH IT' INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

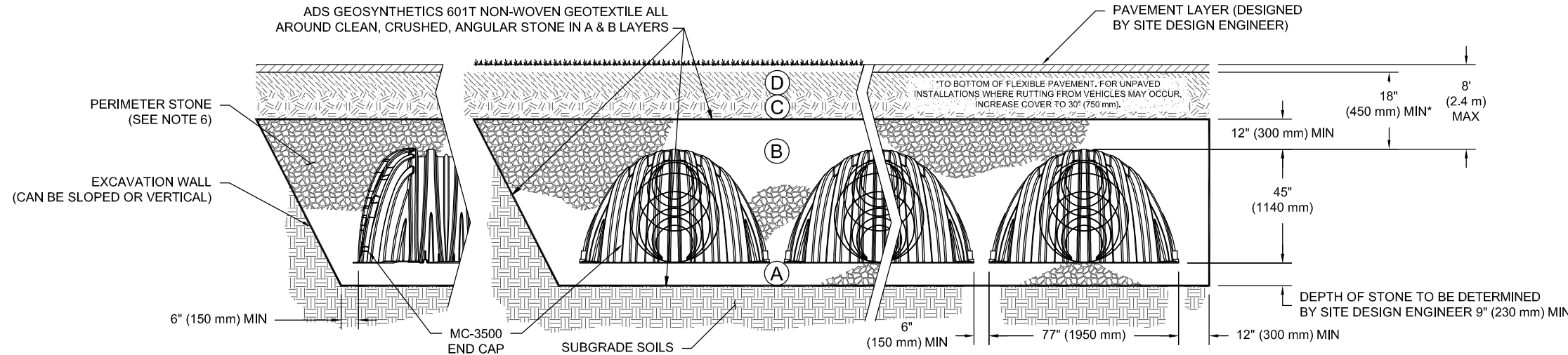
- 1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE 'STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE'.
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED...
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.
USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE 'DUMP AND PUSH' METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

Table with 4 columns: MATERIAL LOCATION, DESCRIPTION, AASHTO MATERIAL CLASSIFICATIONS, COMPACTION / DENSITY REQUIREMENT. Rows A-D describe fill materials for foundation stone, embedment stone, and final fill.

- PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR...
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR A LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS...
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION...
4. ONCE LAYER 'C' IS PLACED, ANY SOIL MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE.

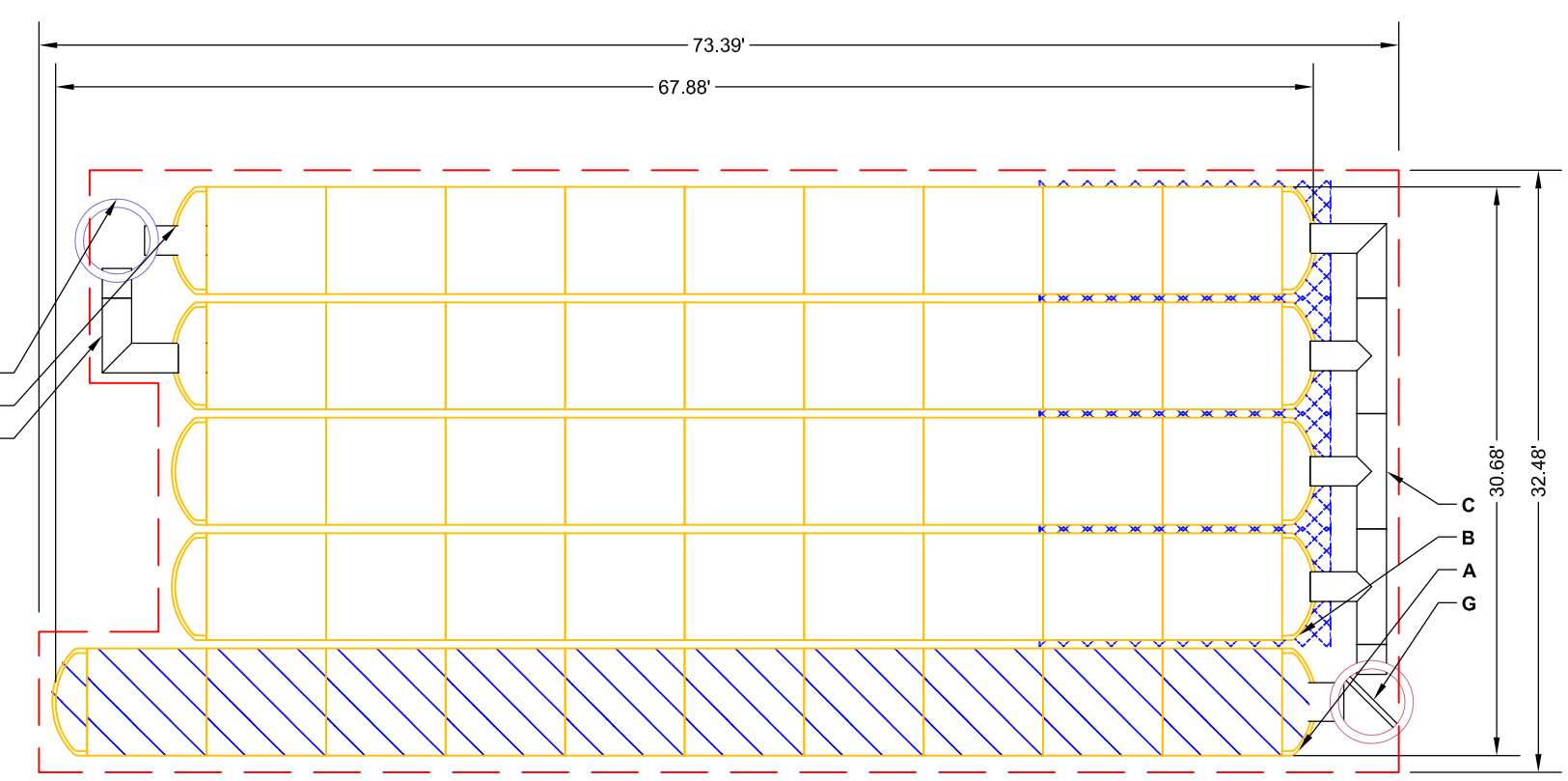


NOTES:

- 1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a...
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787...
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE...
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL...
5. REQUIREMENTS FOR HANDLING AND INSTALLATION...
6. TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING...
7. TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL...
8. TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION...

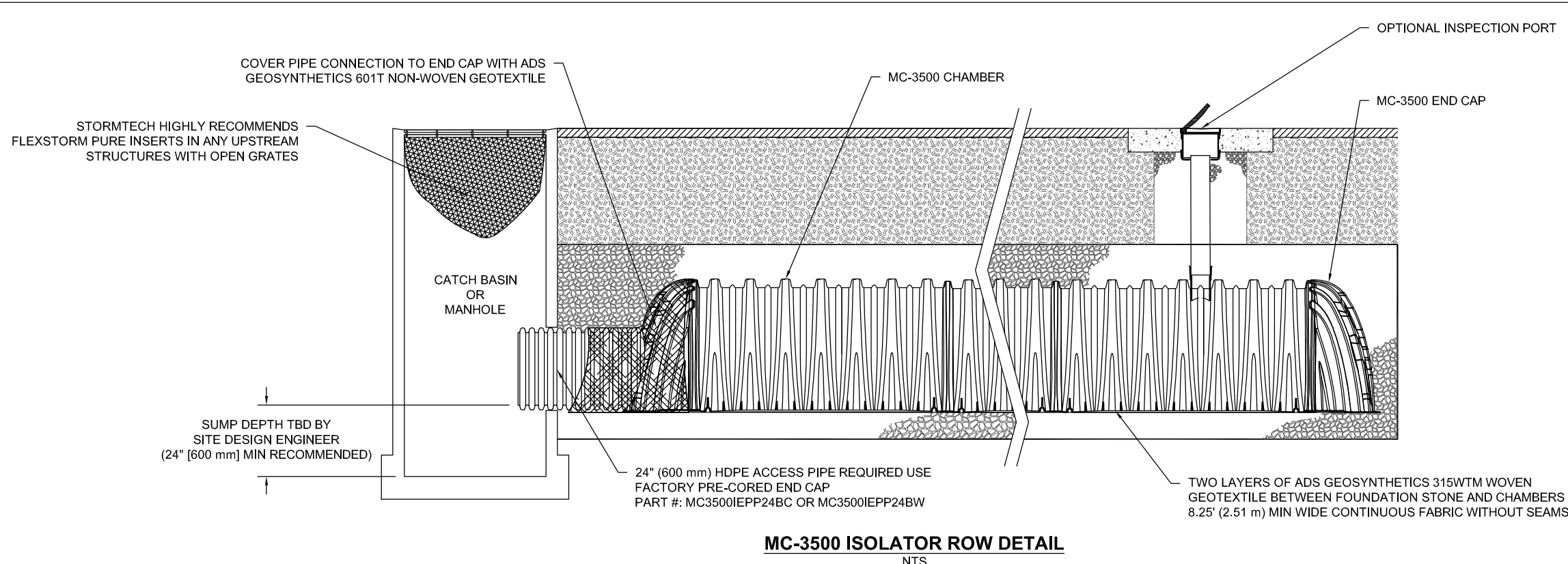
Table with 2 columns: PROPOSED LAYOUT, PROPOSED ELEVATIONS. Lists various components and their elevations.

Table with 4 columns: PART TYPE, ITEM ON LAYOUT, DESCRIPTION, INVERT / MAX FLOW. Lists parts like end caps, manifolds, and connections.



- NOTES:
- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER...
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS...
- ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD...
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET...
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY...
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS...
- THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- NOT FOR CONSTRUCTION

Project information block including title 'LIVERNOIS SITE 2 COPY', location 'TROY, MI', and sheet number '2 OF 5'.



- INSPECTION & MAINTENANCE
STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
A. INSPECTION PORTS (IF PRESENT)
A.1. REMOVE OPEN LID ON NYLOPLAST INLINE DRAIN
A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
A.3. USING A FLASHLIGHT AND STADIUM ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
B. ALL ISOLATOR ROWS
B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
C. VACUUM STRUCTURE SUMP AS REQUIRED
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

- NOTES:
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION...
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

Project information block including title 'LIVERNOIS SITE 2 COPY', location 'TROY, MI', and sheet number '2 OF 5'.

Project information block for Stormtech, including contact details and sheet number '3 OF 5'.

Project information block for Stormtech, including contact details and sheet number '4 OF 5'.

Project information block for Redridge Engineering, LLC, including contact details and sheet number '1 OF 1'.

Project information block for Lange View Townhouses Strategic Property Services, LLC, including contact details and sheet number '4 OF 5'.

Project information block for C4.2, including sheet number '180401'.

MC-3500 TECHNICAL SPECIFICATION

NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0' X 45.0' X 86.0'	(1966 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	108.9 CUBIC FEET	(3.11 m ³)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	(4.96 m ³)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	75.0' X 45.0' X 22.2'	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m ³)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	(1.28 m ³)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" SPACING BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
 STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
 END CAPS WITH A WELDED CROWN PLATE END WITH "C"
 END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC3500EPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500EPP06B	6" (150 mm)	---	0.66" (17 mm)
MC3500EPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500EPP08B	8" (200 mm)	---	0.81" (21 mm)
MC3500EPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500EPP10B	10" (250 mm)	---	0.93" (24 mm)
MC3500EPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500EPP12B	12" (300 mm)	---	1.35" (34 mm)
MC3500EPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500EPP15B	15" (375 mm)	---	1.50" (38 mm)
MC3500EPP18T	18" (450 mm)	20.03" (509 mm)	---
MC3500EPP18B	18" (450 mm)	---	1.77" (45 mm)
MC3500EPP18BW	18" (450 mm)	---	---
MC3500EPP24T	24" (600 mm)	14.48" (368 mm)	---
MC3500EPP24B	24" (600 mm)	---	2.06" (52 mm)
MC3500EPP24BW	24" (600 mm)	---	---
MC3500EPP30B	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

NOTE: MANFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

MANIFOLD STUB, MANIFOLD HEADER, STORMTECH END CAP, 12" (300 mm) MIN SEPARATION

REV: _____ DRAW: _____ CHK: _____

DESCRIPTION: _____

LIVERNOIS SITE 2 COPY

DATE: _____ PROJECT: _____

DRAWN: RF CHECKED: NIA

PROJECT #:

Stormtech

1665 TRUMAN RD
 WILLARD, OH 44092
 440-752-7473

DS

DESIGN SERVICES

SHEET 5 OF 5

LANGE VIEW TOWNHOUSES
STRATEGIC PROPERTY SERVICES, LLC
 4080 LIVERNOIS ROAD
 OAKLAND COUNTY, MICHIGAN
 STORMWATER DETAILS 2

REDRIDGE ENGINEERING, LLC
 2807 HIGHBROOK DRIVE, MIDLAND, MI 48642
 989-513-4058 RFOSGITT@REDRIDGE-ENG.COM

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FILE #:	OVERALL	PROJ MGR:	RF	DESIGN BY:	RF	DRAWN BY:	RF	CHECKED BY:	RF	SCALE:	1"=30'	NONE	SHEET:	1 OF 1	
PROJECT LOS		DESIGNER		CHECKER		DATE		PROJECT		SCALE		SHEET		PROJECT	

PREPARED UNDER THE
 SUPERVISION OF:

LANDSCAPE MAINTENANCE PLAN:

ALL SCREENING ELEMENTS AND PLANT MATERIALS SHALL BE MAINTAINED IN ACCORDANCE WITH THIS SITE PLAN, AND THE FOLLOWING:

A. SCREENING ELEMENTS AND PLANT MATERIALS SHALL BE INSTALLED IN A MANNER CONSISTENT WITH AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS

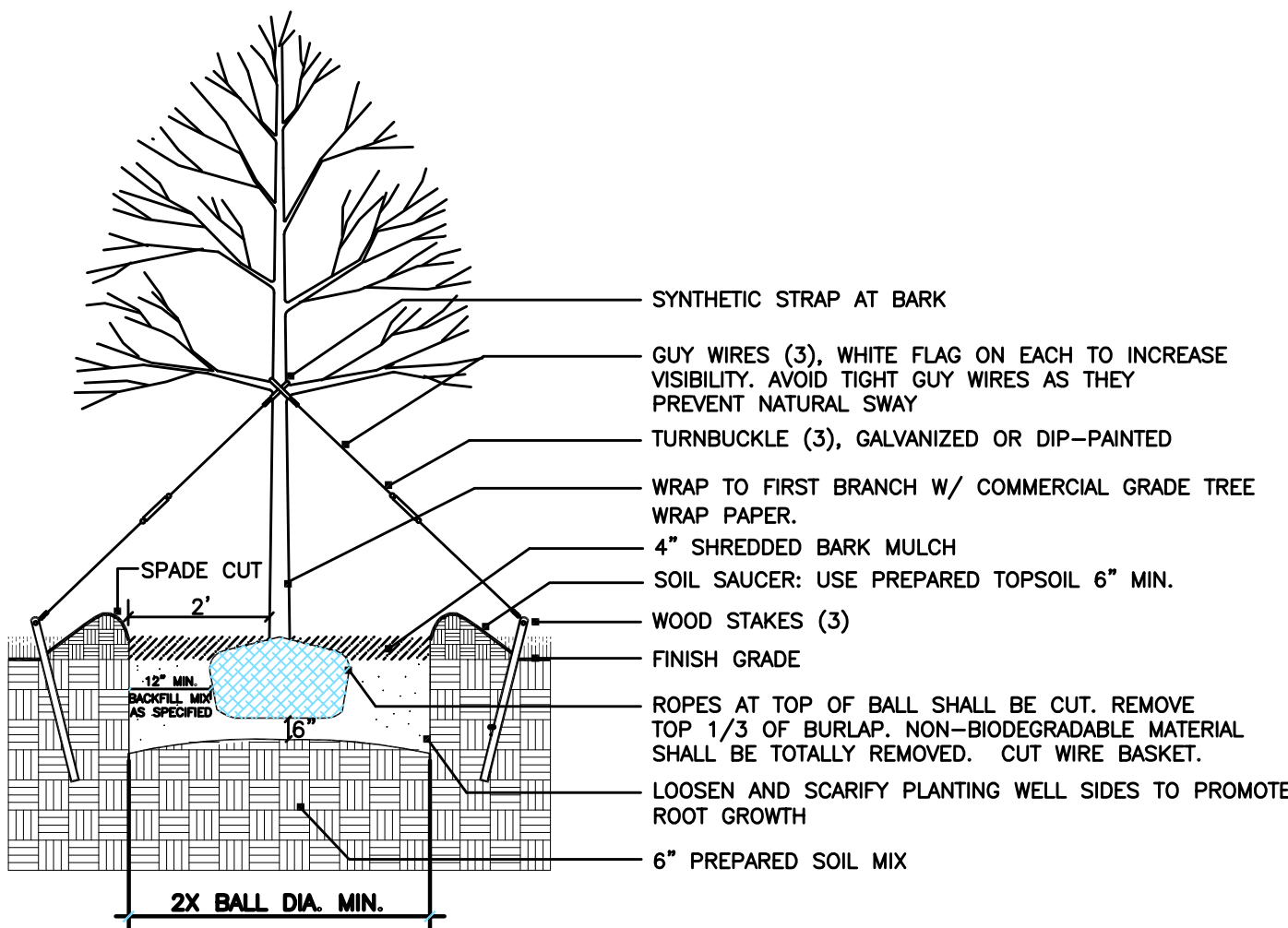
B. IN ADDITION TO THE WATERING-IN REQUIRED AT THE TIME OF PLANTING, WATER, CULTIVATE, AND REMOVE GRASS AND WEEDS AROUND EACH PLANT AT LEAST 5 TIMES DURING THE FIRST FULL YEAR GROWING SEASON TO ENSURE HEALTHY PLANTING GROWTH. DURING EACH WATERING AND CULTIVATION, REMOVE GRASS AND WEEDS WITHIN THE MULCH RING. CUT GRASS TO 3 INCHES HIGH. INSPECT LANDSCAPING AND REMOVE INSECT INFESTATIONS OR DISEASE DAMAGE TO THE PLANTS AND PRUNE DEAD WOOD.

C. DURING THE FIRST AND SECOND WATERING OF THE SECOND GROWING SEASON, USE A NITROGEN-ENRICHED SOLUTION AS PART OF WATERING. APPLY FERTILIZER BEFORE JULY 7. AT THE FIRST WATERING OF THE SECOND GROWING SEASON, REMOVE AND DISPOSE OF THE GUYING MATERIAL, WRAPPING MATERIAL, IDENTIFICATION TAGS, AND INSPECTION TAGS. AT THE FINAL WATERING, REPLENISH THE MULCH AROUND THE PLANTS TO A DEPTH OF 4-6 INCHES.

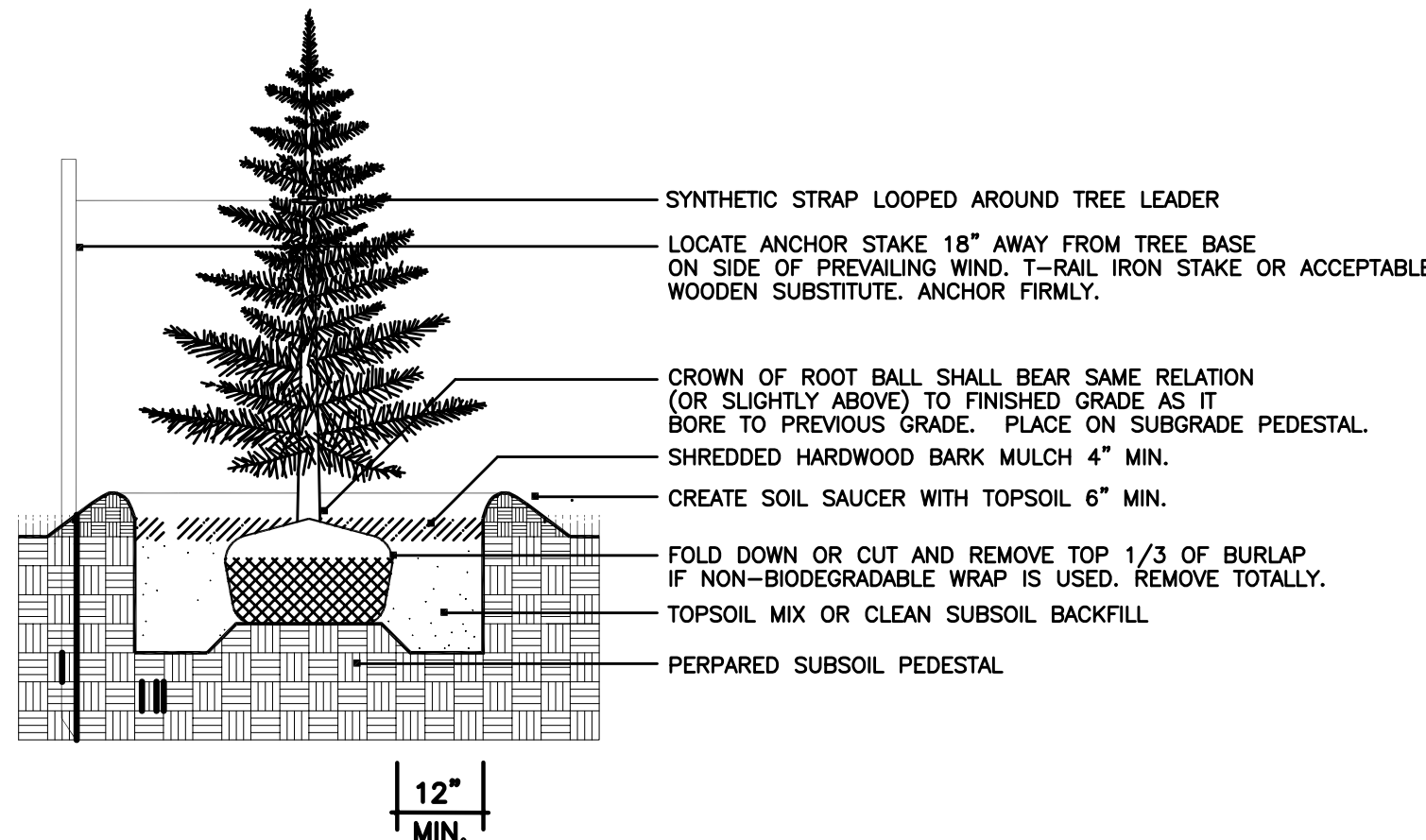
D. PRUNING OF PLANT MATERIALS SHALL BE LIMITED TO THE MINIMUM NECESSARY TO ENSURE PROPER MATURATION OF PLANTS TO ACHIEVE THEIR INTENDED PURPOSE. ENSURE AN ARBORIST, CERTIFIED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE, PRUNES BRANCHES BEFORE PLANTING. DO NOT USE PRUNING PAINT. PRUNE DECIDUOUS TREES TO REMOVE DEAD WOOD AND BROKEN BRANCHES. PRUNE EVERGREENS TO REMOVE BROKEN OR DAMAGED BRANCHES. PRUNE SHRUBS TO FORM AN OUTLINE CONFORMING TO THE GENERAL SHAPE OF THE SHRUB TYPE.

E. PLANT MATERIALS SHALL BE KEPT IN A NEAT, ORDERLY AND HEALTHY GROWING CONDITION, FREE FROM WEEDS, DEBRIS AND REFUSE. ALL REQUIRED PLANTINGS SHALL BE PLANTED AND MAINTAINED AS SHOWN. OWNER SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF DEAD OR DISEASED PLANT MATERIALS.

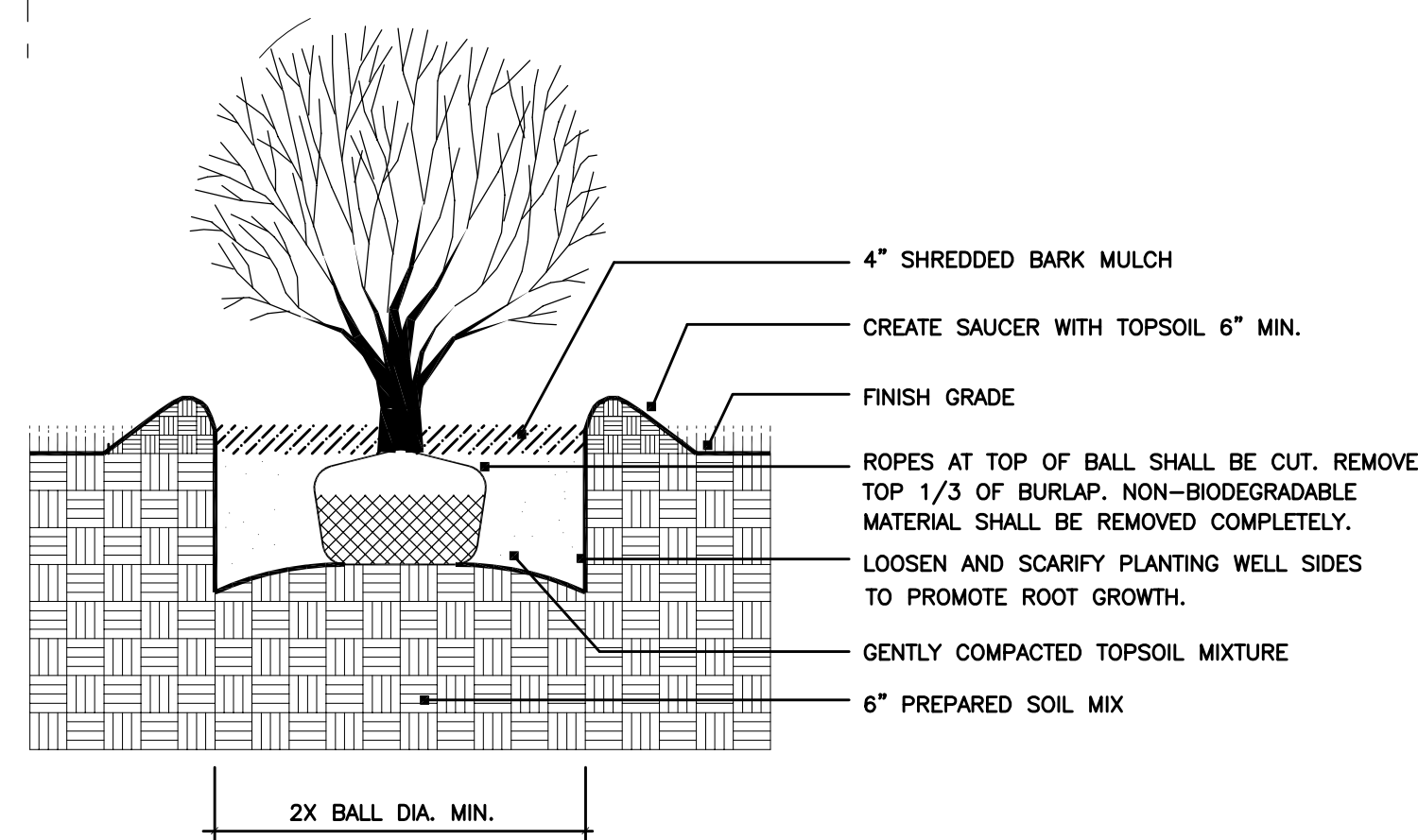
F. THE REPLACEMENT OR REMOVAL OF ANY PLANT MATERIALS IN A MANNER NOT CONSISTENT WITH THIS SITE PLAN IS NOT PERMITTED WITHOUT CITY APPROVAL.



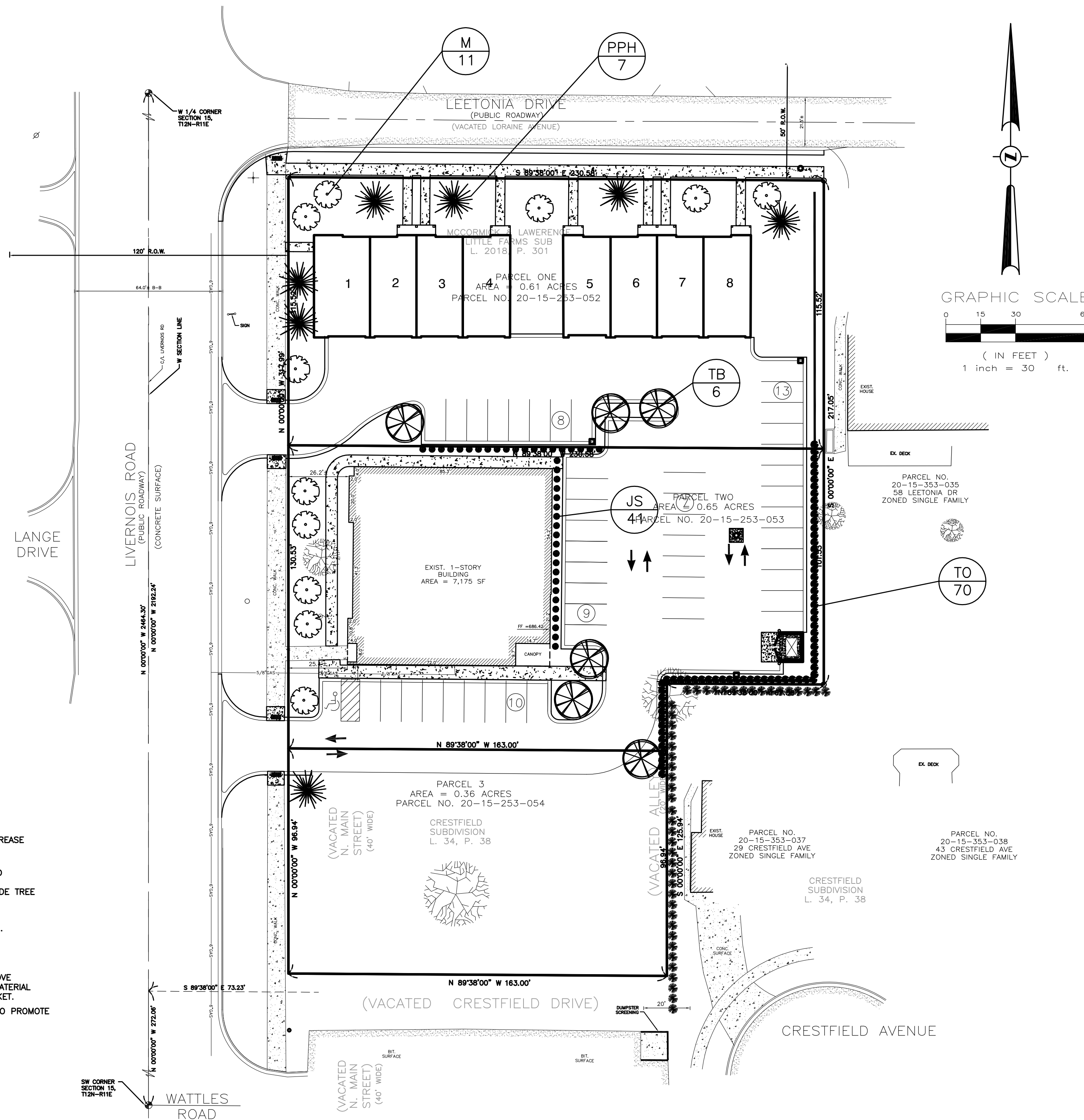
TYPICAL TREE PLANTING DETAIL
NOT TO SCALE



TYPICAL EVERGREEN PLANTING DETAIL
NOT TO SCALE



TYPICAL SHRUB PLANTING DETAIL
NOT TO SCALE



LEGEND	
●	MONUMENT / SECTION CORNER
○	FOUND PROPERTY IRON
⊙	SET PROPERTY IRON W/CAP NO.26454
⊕	SET MAG NAIL
⊖	EXISTING CATCHBASIN
⊗	EXISTING MANHOLE/CATCHBASIN
⊘	EXISTING MANHOLE
⊙	EXISTING HYDRANT
⊕	EXISTING VALVE
— SAN —	EXISTING SANITARY SEWER
— STM —	EXISTING STORM SEWER
— WTR —	EXISTING WATERMAIN
— X —	EXISTING FENCE LINE
— ELEC —	EXISTING UNDERGROUND ELECTRIC LINE
— GAS —	EXISTING UNDERGROUND GAS LINE
— TELE —	EXISTING UNDERGROUND TELEPHONE LINE
—	EXISTING CENTERLINE
— OHW —	EXISTING OVERHEAD ELECTRICAL WIRES
⊕	EXISTING MAILBOX/NEWSPAPER BOX
—	EXISTING SIGN
⊙	EXISTING DECIDUOUS TREES
⊙	EXISTING CONIFEROUS TREES
⊙	EXISTING UTILITY POWER POLE
⊙	EXISTING TELEPHONE RISER
⊙	EXISTING BOLLARD
⊙	EXISTING LIGHT POLE
⊙	EXISTING GAS METER
⊙	EXISTING TRANSFORMER
⊙	EXISTING FLAGPOLE
—	EXISTING GRASS SURFACE
—	EXISTING BITUMINOUS SURFACE
—	EXISTING CONCRETE SURFACE

NOTES:

- BARK MULCH AREAS NOTED ON PLANS SHALL CONSIST OF 4" DEPTH OF SHREDDED HARDWOOD BARK MULCH.
- A SIX FOOT DIAMETER SHREDDED HARDWOOD BARK MULCH RING SHALL BE PLACED AROUND ALL PROPOSED PLANTINGS NOT DESIGNATED FOR PLANTERS.
- ALL PLANT MATERIAL AND PLANTINGS SHALL CONFORM TO ANSI 260.1 OR CURRENT EDITION.
- AREAS NOT SPECIFIED WITH PLANT MATERIAL SHALL BE FINE GRADED AND SEEDED FOR TURF ESTABLISHMENT.
- CONTRACTOR/LANDSCAPE CONTRACTOR SHALL COORDINATE FINAL PLACEMENT OF ALL PLANT MATERIAL LOCATIONS FOR APPROVAL BY ENGINEER IN RELATION TO FINAL UTILITY PLACEMENT.
- WHERE A DISCREPANCY IS FOUND BETWEEN EXISTING FIELD CONDITIONS AND/OR REQUIRED LANDSCAPING WORK, NOTIFY OWNER OR ENGINEER FOR CLARIFICATION IMMEDIATELY.
- ALL EXCESS EXCAVATED MATERIALS AND DEBRIS, WHICH ARE NOT ACCEPTED FOR DISPOSAL ON SITE BY THE OWNER SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF LEGALLY OFFSITE.
- PLANT DECIDUOUS PLANTS FROM MARCH 1 TO MAY 15 AND FROM OCTOBER 1 UNTIL THE PREPARED SOIL FREEZES. IF UNUSUAL PLANTING CONDITIONS EXIST OR IF USING CONTAINER-GROWN MATERIAL, THE ENGINEER MAY ALTER THESE PLANTING SEASONS. PLANT EVERGREEN PLANTS FROM MARCH 1 TO JUNE 1.
- SEEDING SHALL OCCUR FROM APRIL 15 THROUGH OCTOBER 10. DORMANT SEEDING IS PERMITTED AFTER NOVEMBER 15, BUT NOT ON FROZEN GROUND.
- ALL TURF ESTABLISHMENT SHALL BE DONE BY HYDROSEEDING WITH A COMMERCIAL MIXTURE INCLUDING SEED, FERTILIZER, AND MULCH. SEED MIX SHALL BE APPROVED FOR HEAVY SOIL IN FULL SUN CONDITIONS AND APPLIED AT A MINIMUM RATE OF 400 LBS PER ACRE.
- THE OWNER SHALL BE RESPONSIBLE TO MAINTAIN ALL LANDSCAPING PER THE MAINTENANCE PLAN CONTAINED HEREIN AND IN ACCORDANCE WITH ALL CITY REQUIREMENTS.

LANDSCAPING REQUIREMENTS

REQUIREMENT	REQUIREMENT	PROVIDED
13.02.B SCREENING BETWEEN USES: REQUIRED: ABUTS RESID. ADJ. TO OFFICE TO THE EAST, ALT. 1 OR ALT. 2 PROVIDED: ALT. 1, 1" NARROW EVG. PER 3 FT.	201 LFT 67 TREES	70 TREES
13.02.E GENERAL SITE LANDSCAPE: REQUIRED: 20% OF SITE AREA SHALL BE LANDSCAPE MATERIAL 41,820 SFT X 20% = 8,364 SFT REQUIRED	8,364 SFT 20.0%	14,197 SFT 33.9%
13.02.C LANDSCAPING WITHIN PARKING LOTS: REQUIRED: 1 TREE FOR EVERY 8 SPACES; 200 SFT MIN CURBED ISLANDS	47 SPACES 6 TREES	6 TREES
13.02.D GREENBELT STANDARDS: REQUIRED: 1 TREE FOR EVERY 30 LFT	500 LFT 17 TREES	17 TREES

LANDSCAPE PLANTING SCHEDULE

SYM	KEY	QUANTITY	SIZE	BOTANICAL NAME	COMMON NAME	NOTES
●	TO	70	6' TALL	THUJA OCCIDENTALIS 'TECHNY'	TECHNY ARBORVITAE	BALLED IN BURLAP
●	PPH	7	6' TALL	PICEA PUNGENS 'HOOPSII'	COLORADO BLUE SPRUCE	BALLED IN BURLAP
●	M	11	1 1/2" CALIPER	MALUS 'PRAIRIEFIRE'	PRAIRIEFIRE CRABAPPLE	BALLED IN BURLAP
●	TB	6	2 1/2" CALIPER	TILIA AMERICANA 'BOULEVARD'	BOULEVARD LINDEN	BALLED IN BURLAP
●	JS	41	2.5 QT 24" HT.	JUNIPERUS SABINA 'BROADMORE'	BROADMORE JUNIPER	4' ON CENTER

PREPARED UNDER THE SUPERVISION OF:

PROJECT LOG

FILE # OVERALL: RLF
PROJ MGR: RLF
DESIGN BY: RLF
DRAWN BY: RLF
CHECKED BY: RLF
SCALE: 1"=30'
SHEET: 1 OF 1

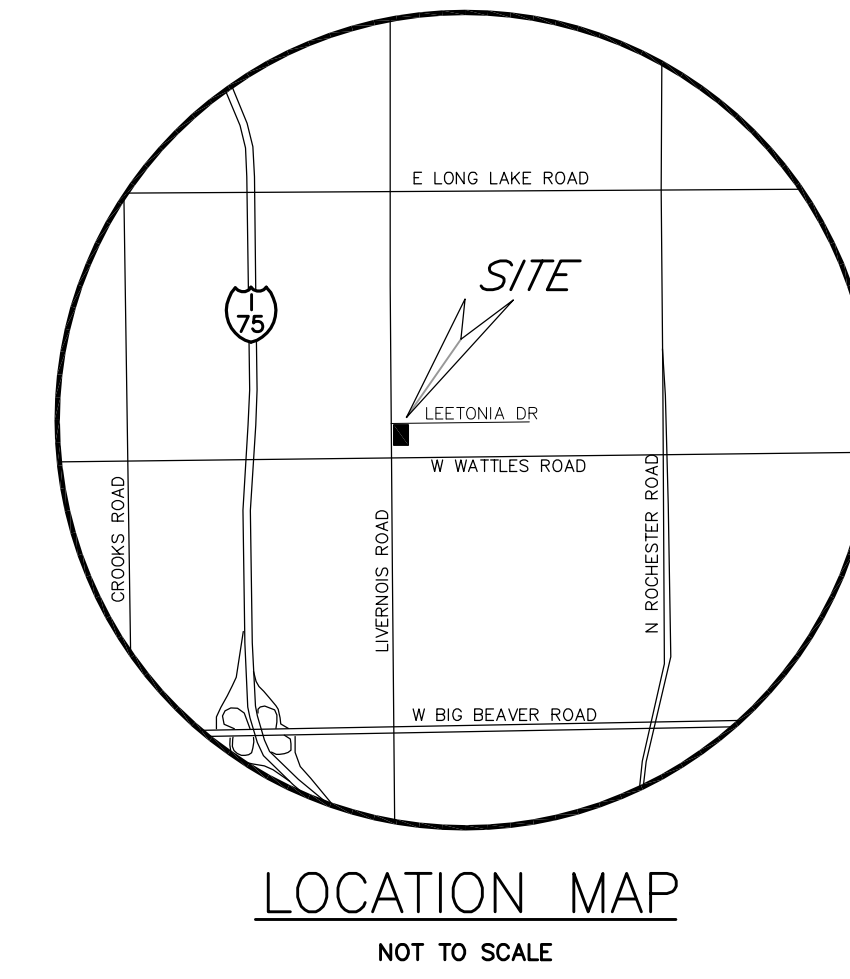
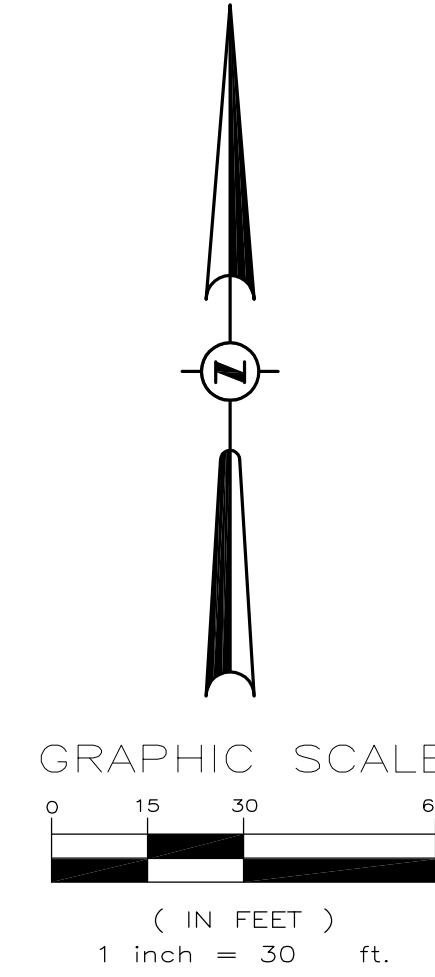
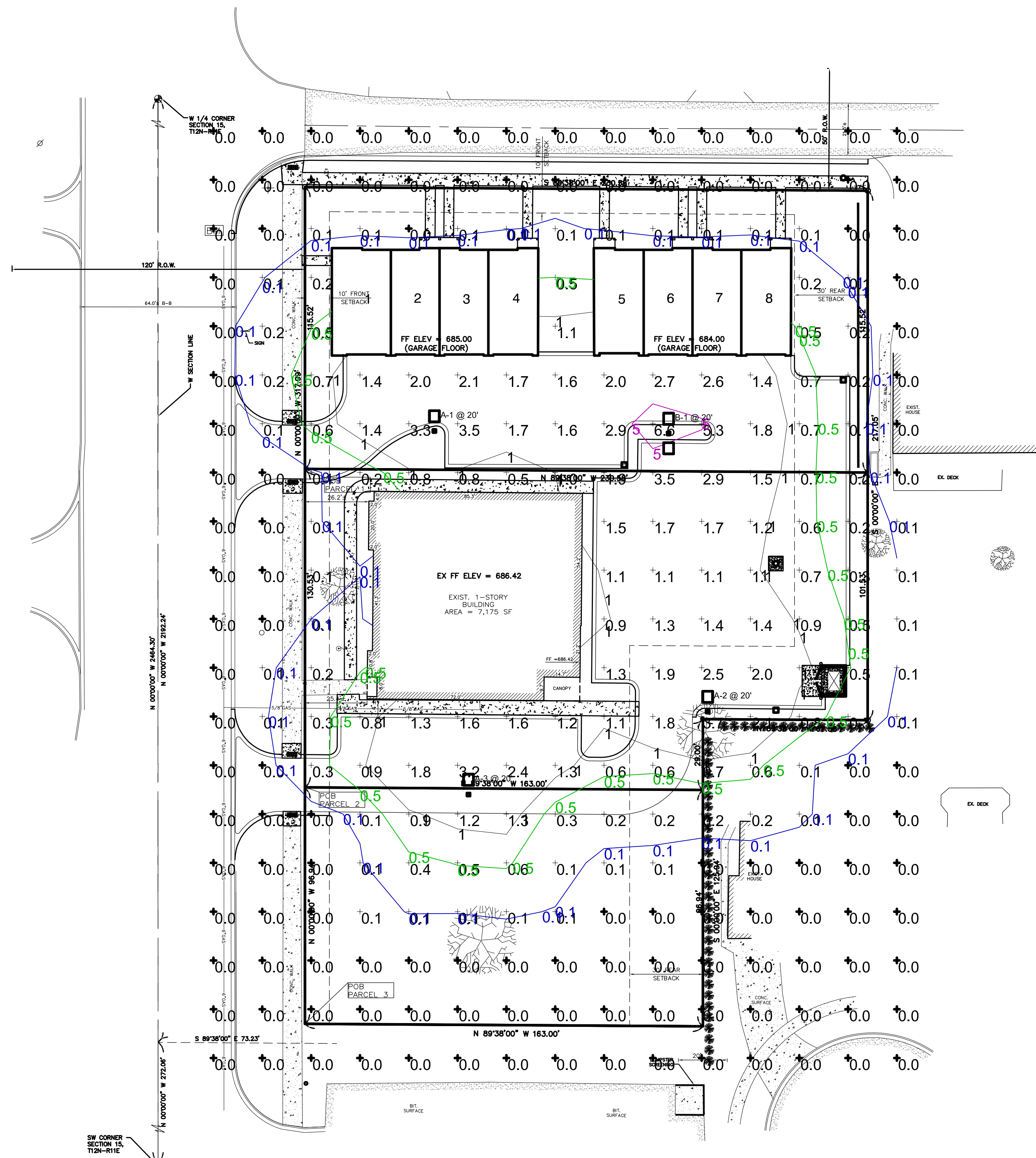
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989-513-4058 RFOSSGITT@REDRIDGE-ENG.COM

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LANGE VIEW TOWNHOUSES
STRATEGIC PROPERTY SERVICES, LLC
4080 LIVERNIS ROAD
TROY, MICHIGAN
OAKLAND COUNTY, MICHIGAN

OVERALL LANDSCAPING PLAN

180401



LEGEND	
	MONUMENT / SECTION CORNER
	FOUND PROPERTY IRON
	SET PROPERTY IRON W/CAP NO.26454
	SET MAG NAIL
	EXISTING CATCHBASIN
	EXISTING MANHOLE/CATCHBASIN
	EXISTING MANHOLE
	EXISTING HYDRANT
	EXISTING VALVE
	EXISTING SANITARY SEWER
	EXISTING STORM SEWER
	EXISTING WATERMAIN
	EXISTING FENCE LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING UNDERGROUND GAS LINE
	EXISTING UNDERGROUND TELEPHONE LINE
	EXISTING CENTERLINE
	EXISTING OVERHEAD ELECTRICAL WIRES
	EXISTING MAILBOX/NEWSPAPER BOX
	EXISTING SIGN
	EXISTING DECIDUOUS TREES
	EXISTING CONIFEROUS TREES
	EXISTING UTILITY POWER POLE
	EXISTING TELEPHONE RISER
	EXISTING BOLLARD
	EXISTING LIGHT POLE
	EXISTING GAS METER
	EXISTING TRANSFORMER
	EXISTING FLAGPOLE
	EXISTING GRASS SURFACE
	EXISTING BITUMINOUS SURFACE
	EXISTING CONCRETE SURFACE

Schedule											
Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
	A	3	Lithonia Lighting	DSX1 LED 40C 1000 40K T4M MVOLT	DSX1 LED WITH (2) 20 LED LIGHT ENGINES, TYPE T4M OPTIC, 4000K, @ 1050mA	LED	1	DSX1_LED_40C_10 00_40K_T4M_MVO LT.fes	12379	1	138
	B	1	Lithonia Lighting	DSX1 LED 40C 1000 40K T4M MVOLT	DSX1 LED WITH (2) 20 LED LIGHT ENGINES, TYPE T4M OPTIC, 4000K, @ 1050mA	LED	1	DSX1_LED_40C_10 00_40K_T4M_MVO LT.fes	12379	1	276

Luminaire Locations										
No.	Label	Location			MH	Orientation	Tilt	Aim		
		X	Y	Z				X	Y	Z
1	A	53.00	243.00	20.00	20.00	0.00	0.00	53.00	244.21	0.00
2	A	165.00	128.00	20.00	20.00	0.00	0.00	165.00	129.21	0.00
3	A	67.00	94.00	20.00	20.00	0.00	0.00	67.00	95.21	0.00
1	B	149.00	242.00	20.00	20.00	180.00	0.00			

Statistics							
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	
Calc Zone #1	+	0.5 fc	6.6 fc	0.0 fc	N/A	N/A	

PREPARED UNDER THE SUPERVISION OF:
 PROJECT LOS
 FILE # OVERALL
 PROJ MGR:
 DESIGN BY:
 DRAWN BY:
 CHECKED BY:
 SCALE: 1"=30'
 SHEET: 1 OF 1

REDRIDGE ENGINEERING, LLC
 2807 Highbrook Drive, Midland, MI 48642
 989-513-4058 rfosgitt@redridge-eng.com

LANGE VIEW TOWNHOUSES
 STRATEGIC PROPERTY SERVICES, LLC
 4080 LIVERNOIS ROAD
 TROY, MICHIGAN
 OAKLAND COUNTY, MICHIGAN
 PHOTOMETRIC PLAN

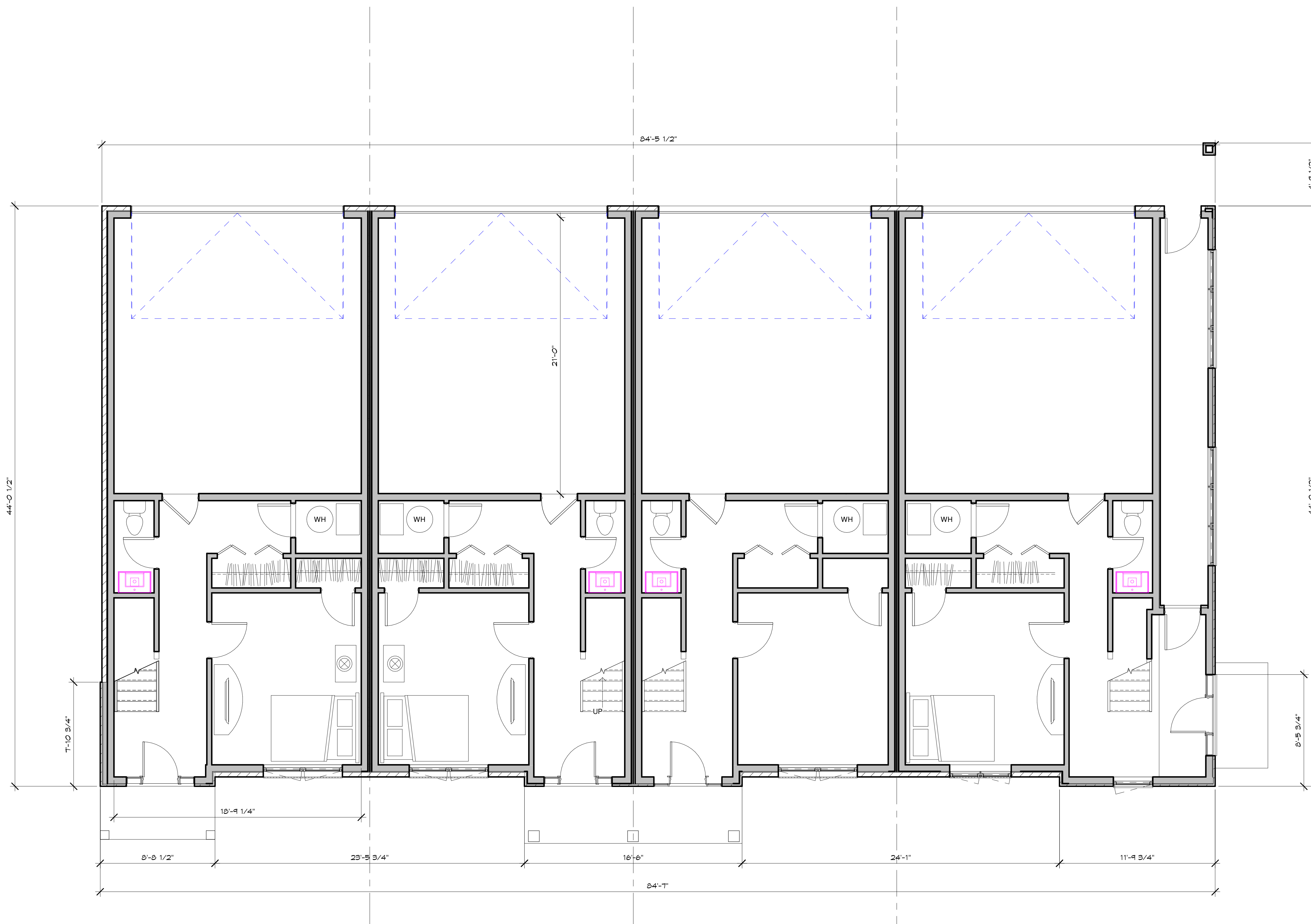
PROPRIETOR
 STRATEGIC PROPERTY SERVICES, LLC
 ATTN: VINCE PANGLE
 5750 NEW KING STREET, STE 350
 TROY, MI 48098

SURVEYOR
 D&M SITE, INC.
 401 BALSAM STREET
 CARROLLTON, MI 48624
 (989) 752-6500

ENGINEER
 REDRIDGE ENGINEERING, LLC
 RICHARD FOSGITT, P.E.
 2807 Highbrook Drive
 Midland, MI 48642
 (989) 513-4058

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E1.0
 180401



First Floor

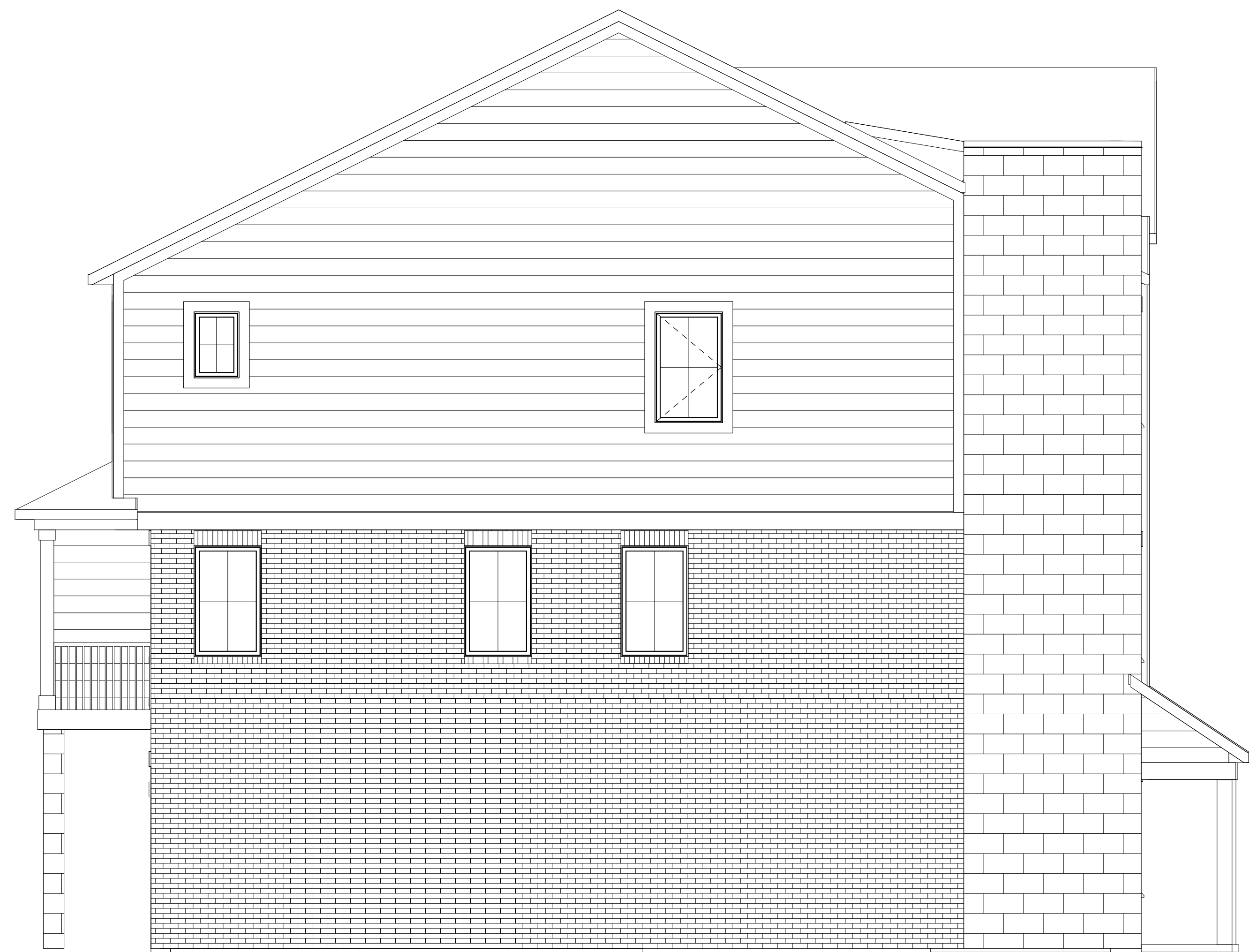
Scale: 1/4" = 1'-0"



West Elevation
Scale: 1/4" = 1'-0"



North Elevation
Scale: 1/4" = 1'-0"



East Elevation

Scale: 1/4" = 1'-0"

3

2

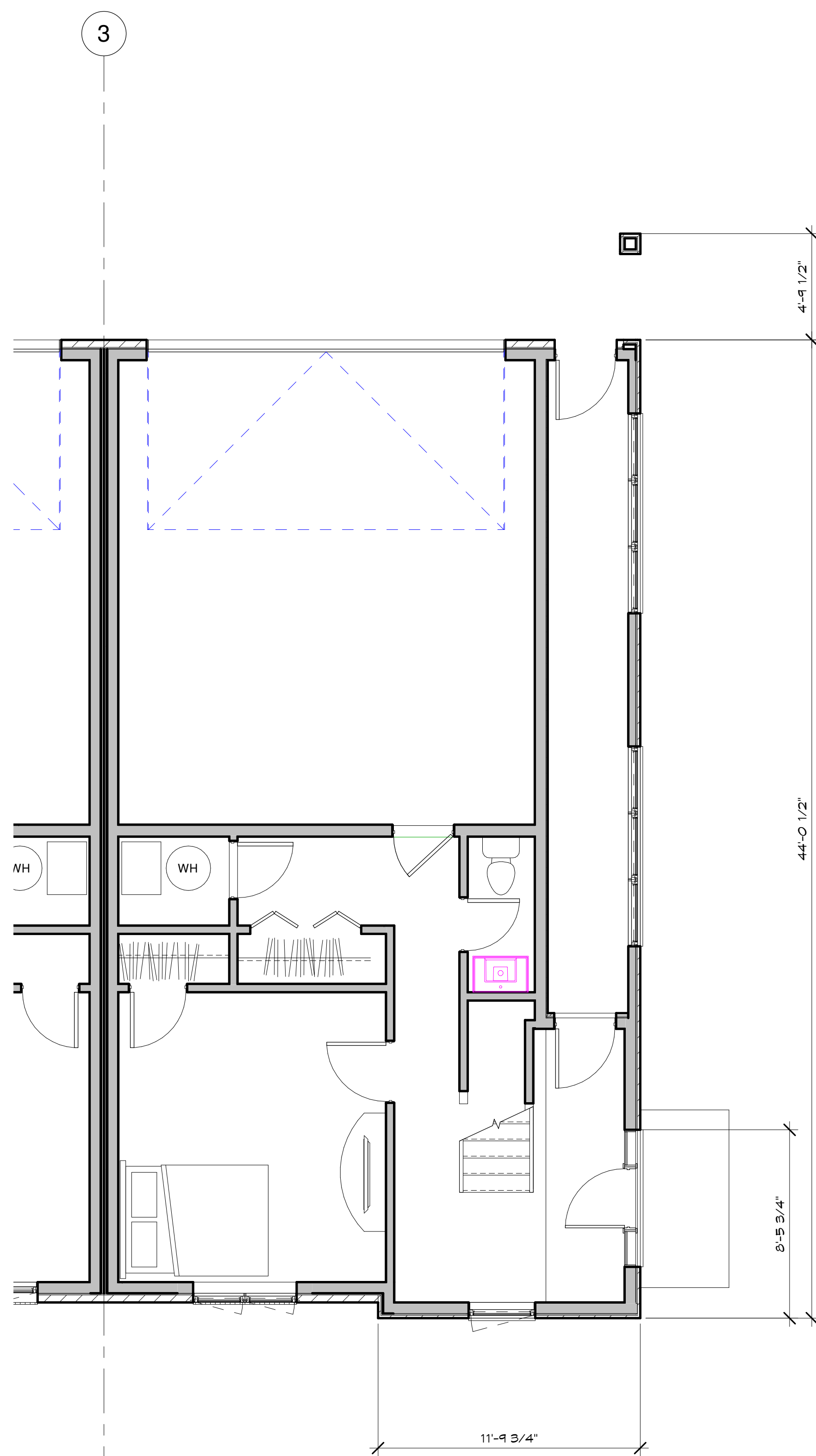
1



South Elevation

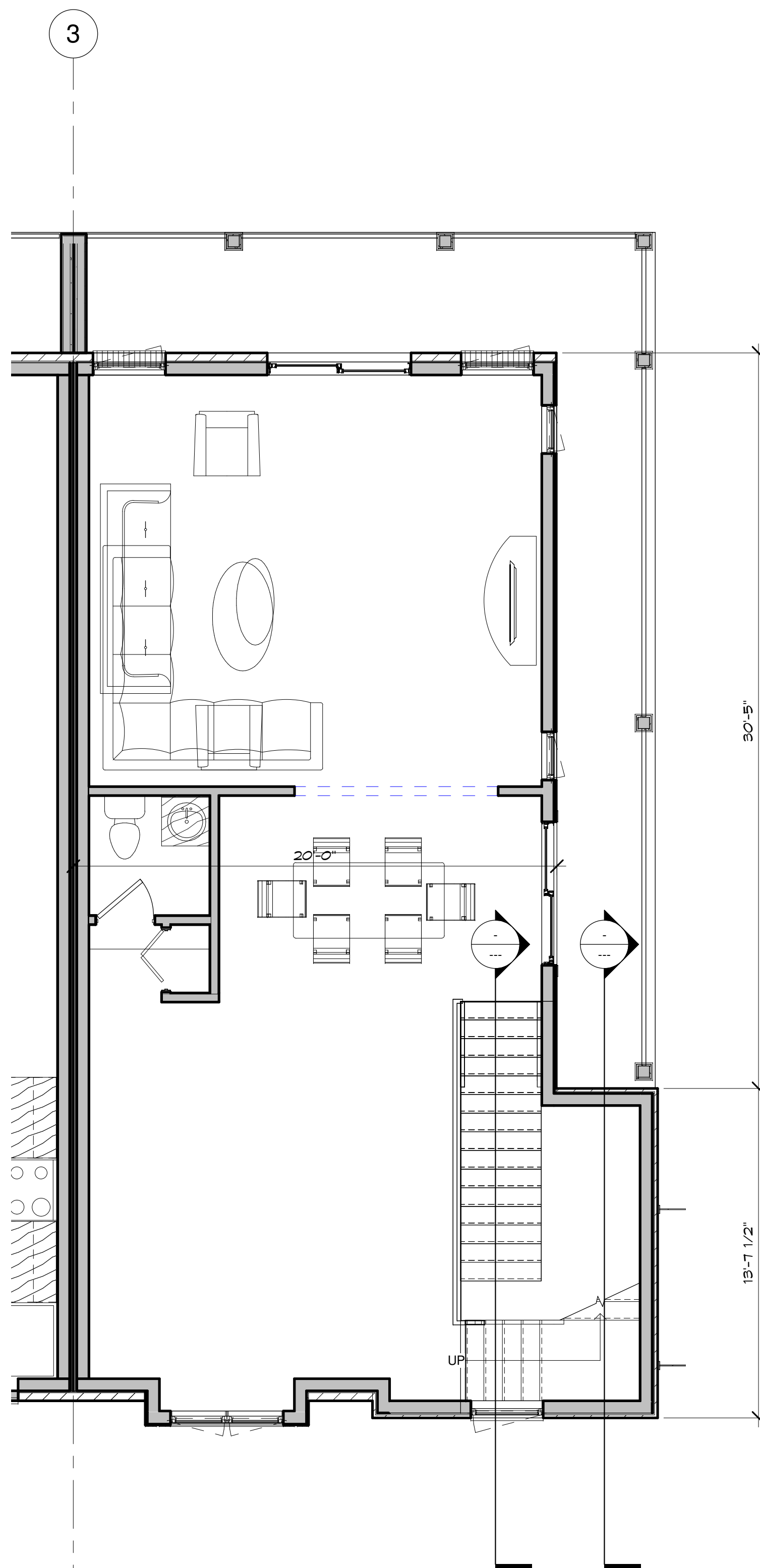
Scale: 1/4" = 1'-0"

7'-11 1/2"



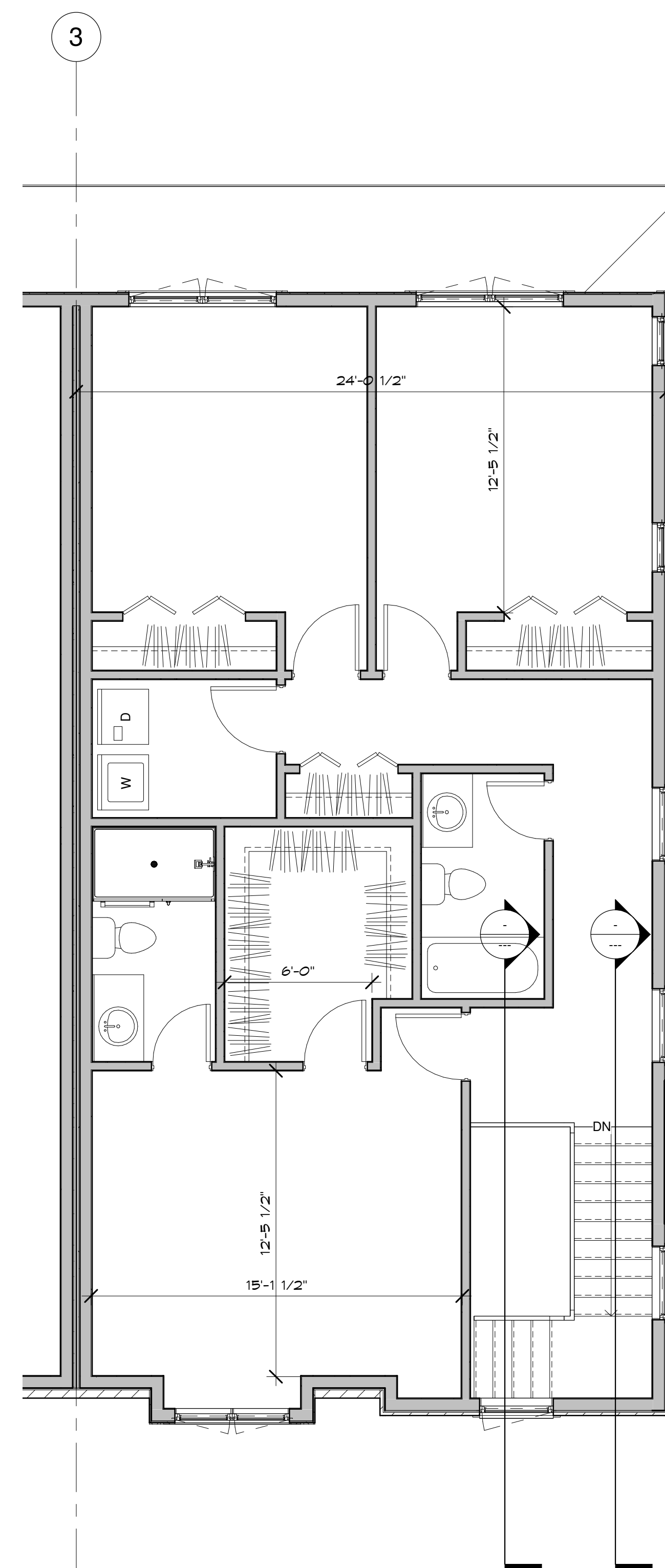
First Floor - Dependent 1

Scale: 1/4" = 1'-0"



Second Floor - Dependent 1

Scale: 1/4" = 1'-0"



Third Floor - Dependent 1

Scale: 1/4" = 1'-0"