

**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION PUBLIC HEARING
MONDAY, MARCH 14, 2016
6:30 P.M.
AGENDA**

CALL TO ORDER:

PLEDGE OF ALLEGIANCE:

APPROVAL OF AGENDA:

CALL TO THE PUBLIC:

(Note: The Board reserves the right to not begin new business after 10:00 p.m.)

OPEN PUBLIC HEARING #1 (Postponed from February 8, 2016)... Review of a special use application, impact assessment and sketch plan to allow for outdoor storage located at 5775 Brighton Pines Court, Brighton, parcel #11-15-200-025. The request is petitioned by CRW Plastics.

Planning Commission disposition of petition:

- A. Recommendation of Special Use Application
- B. Recommendation of Impact Assessment (2-15-16)
- C. Recommendation of Sketch Plan (12-15-15/Landscape Plan 2-24-16)

OPEN PUBLIC HEARING #2... Review of a request for a rezoning from Medium Density Residential (MDR) to High Density Residential (HDR) for parcel #11-06-400-015 which is located on the east side of Chilson Road south of Grand River in Howell. This request is petitioned by the Lockwood Companies.

Planning Commission disposition of petition:

- A. Recommendation of Rezoning from MDR to HDR
- B. Recommendation of Environmental Impact Assessment (2-24-16)

OPEN PUBLIC HEARING #3... Review of a site plan and impact assessment for a proposed phase 3 of the Lakeshore Village Apartments consisting of an additional 144 units with a business center/club house. The property is located on the east side of Chilson Road south of Grand River in Howell on parcel #11-06-400-015. The request is petitioned by the Lockwood Companies.

Planning Commission disposition of petition:

- A. Recommendation of Environmental Impact Assessment (2-24-16)
- B. Disposition of Site Plan pending approval of the Impact Assessment by the Board (2-24-16)

OPEN PUBLIC HEARING #4... Review of a site plan and impact assessment for a proposed Gilden Woods child care facility located on the north side of Grand Oak Drive in Howell on parcel #11-08-200-012. The request is located with the Livingston Commons Phase 2 Planned Unit Development and is petitioned by BBI Holdings, LLC.

Planning Commission disposition of petition:

- A. Recommendation of Environmental Impact Assessment
- B. Recommendation of Final PUD Site Plan

ADMINISTRATIVE BUSINESS:

- *Staff Report*
- *Approval of February 8th, 2016 Planning Commission meeting minutes*
- *Member discussion*
- *Adjournment*



GENOA CHARTER TOWNSHIP
Special Land Use Application

This application must be accompanied by a site plan review application and the associated submittal requirements. (The Zoning Official may allow a less detailed sketch plan for a change in use.)

APPLICANT NAME & ADDRESS: CRW PLASTICS USA INC 5775 Brighton Pines Ct Howell (Genoa Twp)

Submit a letter of Authorization from Property Owner if application is signed by Acting Agent.

APPLICANT PHONE: (517-545-0900 ext 216) EMAIL: aorlando@crwplasticos.us

OWNER NAME & ADDRESS: BRIVAR CONSTRUCTION CO. PO Box 309 Milford, MI 48381

SITE ADDRESS: 5775 Brighton pines Ct PARCEL #(s): Lot # 4 15-200-025

OWNER PHONE: 248-240-5880 EMAIL: Stan Brish (stan@briodevelopment.com)

Location and brief description of site and surroundings:

BrightonPines Ct Lot #4 – South of Grand River Ave. West of Dorr Road; Adjacent to I-96 Expressway.

Area affected will be the concrete/asphalt area next to Shipping/Receiving Dock on West side of building

Proposed Use:

This area will be dedicated for storage of empty shipping bins (totes) used for shipping of plastics automotive parts to CRW customers.

Describe how your request meets the Zoning Ordinance General Review Standards (section 19.03):

- a. Describe how the use will be compatible and in accordance with the goals, objectives, and policies of the Genoa Township Comprehensive Plan and subarea plans, and will promote the Statement of Purpose of the zoning district in which the use is proposed.

The area is planned for a reduction in stored items, there is minimal impact on public services. Property is in accordance with screening and distance allocation from the building.

- b. Describe how the use will be designed, constructed, operated, and maintained to be compatible with, and not significantly alter, the existing or intended character of the general vicinity.

The area is currently desinged and operated with reduction in quantity in the next 4 months. The area does have a tree line screening facing I-96, and is set behind Brighton pines court. The containers are within resonable distance from the building.

- c. How will the use be served adequately by essential public facilities and services such as highways, streets, police and fire protection, drainage structures, water and sewage facilities, refuse disposal and schools?

The area's use has not changed for its purpose, the amount of items stored in the area has been reduced. Reduction is continueing with-in the next few months.

There are no process water requirements for manufacturing and sewar discharge.

d. Will the use involve any uses, activities, processes, or materials potentially detrimental to the natural environment, public health, safety, or welfare by reason of excessive production of traffic, noise, vibration, smoke, fumes, odors, glare, or other such nuisance? If so, how will the impacts be mitigated?

The area is maintained daily by CRW staff with no nuisance.

e. Does the use have specific criteria as listed in the Zoning Ordinance (sections 3.03.02, 7.02.02, & 8.02.02)? If so, describe how the criteria are met.

The area is in accordance with 8.02.02 with screening and distance from building. The screening is a tree line covering the view of I-96 (pouting to add more trees).

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION ARE TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF. I AGREE TO DESIGN, CONSTRUCT AND OPERATE, AND MAINTAIN THESE PREMISES AND THE BUILDINGS, STRUCTURES, AND FACILITIES WHICH ARE GOVERNED BY THIS PERMIT IN ACCORDANCE WITH THE STATED REQUIREMENTS OF THE GENOA TOWNSHIP ZONING ORDINANCE, AND SUCH ADDITIONAL LIMITS AND SAFEGUARDS AS MAY BE MADE A PART OF THIS PERMIT.

THE UNDERSIGNED Antonio Orlando STATES THAT THEY ARE THE FREE OWNER OF THE PROPERTY OF PROPERTIES DESCRIBED ABOVE AND MAKES APPLICATION FOR THIS SPECIAL LAND USE PERMIT.

BY: _____


ADDRESS: 5775 Brighton Pines Court, Hazell ME 48843

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

Antonio Orlando of MP+L Manager at corlando@crwplastic.com
 Name Business Affiliation Email

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE:  DATE: 7/30/15

PRINT NAME: Antonio Orlando PHONE: (603) 531-0956



GENOA CHARTER TOWNSHIP APPLICATION
Sketch Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION:

APPLICANT NAME & ADDRESS: CRW Plastics
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: Brivar Construction Co. P.O. Box 309
Mt. Hope MI, 48381

SITE ADDRESS: 5775 Brighton Pines Court PARCEL #(s): LOT #4

APPLICANT PHONE: (810) 545-0900 OWNER PHONE: (248) 240-5880

LOCATION AND BRIEF DESCRIPTION OF SITE: Brighton Pines Ct Lot #4 -
South of Grand River Ave. West of Dorr Road; Adjacent to I-96
Expressway.

BRIEF STATEMENT OF PROPOSED USE: Outdoor Storage of
Shipping Containers.

THE FOLLOWING IMPROVEMENTS ARE PROPOSED: None

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE
PART OF THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY
KNOWLEDGE AND BELIEF.

BY: Antonio Orlando

ADDRESS: 5775 Brighton Pines Court

Contact Information - Review Letters and Correspondence shall be forwarded to the following:
1.) [Signature] of CRW Plastics at aorlando@crwplastics.com us
Name Business Affiliation Email Address

FEE EXCEEDANCE AGREEMENT
All sketch plans are allocated one (1) consultant review and one (1) Planning Commission meeting. If additional
reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional
reviews. If applicable, additional review fee payment will be required concurrent with submittal for a Land Use Permit.
By signing below, applicant indicates agreement and full understanding of this policy.
SIGNATURE: [Signature] DATE: 12/16/15
PRINT NAME: Antonio Orlando PHONE: 810-531-0956

**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION
PUBLIC HEARING
FEBRUARY 8, 2016
6:30 P.M.
MINUTES**

CALL TO ORDER: The meeting of the Genoa Charter Township Planning Commission was called to order at 6:30 p.m. Present were Chairman Doug Brown, Diana Lowe, James Mortensen, Chris Grajek, John McManus and Eric Rauch. Absent was Barbara Figurski. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

ELECTION OF OFFICERS: **Moved** by Commissioner Mortensen, seconded by Commissioner McManus, to reinstate Doug Brown as Chair, Diana Lowe as Vice Chair, and Barbara Figurski as Secretary. **The motion passed unanimously.**

APPROVAL OF AGENDA: **Moved** by Commissioner McManus, seconded by Commissioner Lowe, to approve the agenda as presented. **The motion passed unanimously.**

CALL TO THE PUBLIC: The call to the public was made at 6:32 pm with no response.

OPEN PUBLIC HEARING #1... Review of a special use application, impact assessment, and sketch plan to allow for outdoor storage located at 5775 Brighton Pines Court, Brighton, Parcel #11-15-200-025. The request is petitioned by CRW Plastics.

Planning Commission disposition of petition

- A. Recommendation of Special Use Application.
- B. Recommendation of Impact Assessment (12-14-15)
- C. Recommendation of Sketch Plan (12-15-15)

Mr. Antonio Orlando and Ms. Mikhail Rossignol were present to represent the applicant. Mr. Orlando stated they have been using this area for outdoor storage since CRW opened; however, now they need to obtain approval.

Mr. Borden stated that the sketch plan requires Township Board approval so the Planning Commission will be making a recommendation tonight. The request complies with the requirements of the PUD; however, he is concerned with the impact on the surrounding properties, specifically if the landscaping and screening for both lot lines meets the requirements. He also noted that the items being stored cannot be higher than the buffer.

There was a brief discussion regarding the buffer. Mr. Orlando stated that they will do what is required. The Planning Commission would like to see what will be proposed.

Commissioner Mortensen feels the applicant needs to provide a plan. Commissioner Rauch provided some suggestions to the applicant for what can be put in the area.

Mr. Borden noted that at the time of Special Land Use approval, the Planning Commission can require additional improvements to the site, such as landscaping, lighting, etc.

The Call to the Public was made at 6:53 pm with no response.

Mr. Orlando asked for the item to be tabled so they can develop a plan and present it to the Planning Commission.

Moved by Commissioner Lowe, seconded by Commissioner McManus, to table this item until the March 14, 2016 Planning Commission meeting. **The motion passed unanimously.**

OPEN PUBLIC HEARING #2... Review of a sketch plan for proposed storage enclosures located at 3850 Grand River Avenue, Howell, Parcel #11-05-400-049. The request is petitioned by Wal-Mart.

Planning Commission disposition of petition

A. Disposition of Sketch Plan (1-4-16)

Mr. Paul Furtaw of Berman Associates was present to represent the applicant. They are requesting approval to place an enclosure to store their wood pallets as well as a new Dumpster enclosure. Both structures will use building materials that will match the building.

Mr. Borden stated that this is a sketch plan approval so it can be approved by the Planning Commission.

Commissioner Rauch stated that because the Dumpster enclosure proposed on the south side of the building will be protruding out into the drive lane, he would like to see some type of striping to redefine the drive aisle. Mr. Furtaw agrees.

It was noted that the engineer's letter states the proposed Dumpster enclosure is within 20 feet of a hydrant, which is not allowed. Mr. Furtaw stated they will move it further to the east.

The Brighton Area Fire Authority is requiring measurements of the access adjacent to the site. Mr. Furtaw will obtain those measurements.

The Call to the Public was made at 7:23 pm with no response.

Moved by Commissioner Mortensen, seconded by Commissioner Lowe to approve the sketch plan dated January 4, 2016 for two minor storage structures at Wal-Mart, subject to the following:

- Before the Land Use Permit is granted, the Township will be provided with a letter from RG Properties confirming approval of the potential building into the private storm sewer easement.
- The second smaller structure shall be moved slightly to the east to ensure it is not within 20 feet of the fire hydrant.

- Striping will be added and maintained to the driveway on the south side of the building to mitigate the bend in the drive.
- The requirement of the Brighton Area Fire Authority regarding the measurements needed for the access drive be submitted.
- The concrete pad shall be constructed to support the imposed load of a fire apparatus weighing at least 75,000 pounds.

The motion passed unanimously.

Administrative Business:

- Staff Report – Annual Report

Ms. VanMarter presented the staff and Planning Commission annual report for 2015.

She stated that Lake Shore Village Apartments, Phase 3, requesting a rezoning and Site Plan approval and Gilden Woods, a proposed day care center behind Lowes, will be on the March Planning Commission agenda.

- Approval of November 9, 2015 Planning Commission meeting minutes:

Commissioner Mortensen asked to have the sentence “He is not sure if the correct plan” removed from the minutes.

Moved by Commissioner Lowe, seconded by Commissioner Mortensen, to approve the minutes from the November 9, 2015 Planning Commissioner Meeting as amended.

The motion carried unanimously.

- Member Discussion:

Chairman Brown introduced Josh Penn, a new Project Planner for LSL Planning.

- Adjournment: **Moved** by Commissioner Mortensen, seconded by Commissioner Grajek, to adjourn the meeting at 7:46 pm. **The motion carried unanimously.**



March 9, 2016

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Assistant Township Manager and Planning Director
Subject:	CRW Plastics outdoor storage – Special Land Use and Sketch Plan Review #2
Location:	5775 Brighton Pines Court – west of Dorr Road, between Grand River and I-96
Zoning:	IND Industrial District

Dear Commissioners:

As requested, we have reviewed the revised sketch plan (stamped received on 2/24/16) which proposes an outdoor storage area in the southerly side yard of the developed site at 5775 Brighton Pines Court.

Specifically, the applicant seeks special land use and sketch plan review/approval for the proposed project. We have reviewed the revised submittal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance and provide the following comments for your consideration.

A. Summary

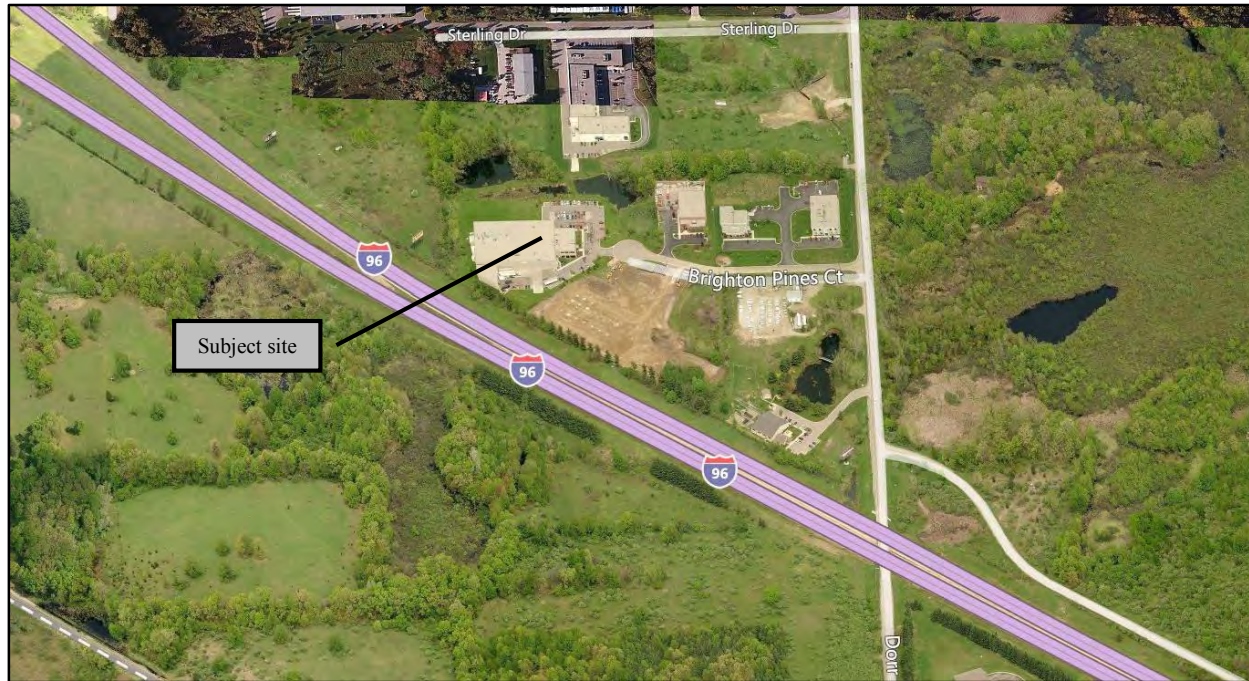
1. The submittal generally demonstrates compliance with the special use standards of Section 19.03 and the specific use requirements of Section 8.02.02.
2. We defer to the Township Engineer and Fire Department for any specific comments/concerns they may have.
3. If new signage is proposed, details must be provided. A permit will also be required.
4. The request for a new special land use on a developed property provides the Township with an opportunity to seek improvement to any existing site design deficiencies.

B. Proposal/Process

The applicant requests special land use and sketch plan review/approval for an outdoor storage yard on a developed industrial site. The submittal notes that the storage yard will be 5,225 square feet in area and is intended for the storage of shipping containers.

Table 8.02 of the Township Zoning Ordinance lists accessory outdoor material storage as a special land use in the GCD. Such uses are also subject to the specific use requirements of Section 8.02.02(b). Given the project's limited scope, it is eligible for sketch plan review (rather than conducting a full site plan review) in accordance with Article 18 of the Township Zoning Ordinance.

The request was originally presented to the Commission at their February 8th meeting. Discussion at that time revolved around the need for additional screening. In response, the applicant has submitted a revised plan showing a 4-foot tall berm with 9 evergreen trees on the south side of the outdoor storage yard.



Aerial view of site and surroundings (looking north)

C. Special Land Use Review

Section 19.03 of the Zoning Ordinance identifies the review criteria for Special Land Use applications as follows:

- 1. Master Plan.** The Township Master Plan and Future Land Use map identify the site as Industrial, which is intended for “industrial uses such as research, wholesale and warehouse activities and light industrial operations which manufacture, compounding, process, package, assemble and/or treat finished or semi-finished products from previously prepared material.” Both the location and nature of the site as a developed light industrial property are consistent with this category and description.
- 2. Compatibility.** Surrounding uses are developed with and/or zoned and planned for industrial uses and activities. The rear of the site also abuts I-96. A review of aerial photos indicates existing outdoor storage that is accessory to other industrial operations in the vicinity. As a side note, it also appears that the applicant is already using the proposed area for outdoor storage.

As described in Paragraph D below, the use is subject to the specific requirements of Section 8.02.02(b), which are intended to protect surrounding properties from the potential adverse impacts of outdoor storage. The revised submittal provides sufficient detail to demonstrate compliance with these requirements.

- 3. Public Facilities and Services.** Given the nature of the proposal and the fact that the site is already developed, we do not anticipate issues with the capacity of public facilities and services. However, we defer to the Township Engineer and Fire Department for any specific comments/concerns they may have.
- 4. Impacts.** As a previously developed site with no increase in impervious surface proposed, adverse impacts upon the natural environment are not anticipated.
- 5. Mitigation.** The Township may deem mitigation necessary to limit or alleviate any potential adverse impacts as a result of the proposed project.

D. Use Requirements

Section 8.02.02(b) identifies the specific requirements for commercial outdoor display sales or storage as follows:

1. Minimum lot area shall be one (1) acre.

The submittal identifies a lot area of 6.235 acres. This standard is met.

2. Any stockpiles of soils, fertilizer or similar loosely packaged materials shall be sufficiently covered or contained to prevent dust or blowing of materials.

The submittal indicates that the storage area will be used for shipping containers. Based on the information provided this standard is met; however, should the nature of the materials stored change, the applicant will need to comply with this requirement.

3. All outdoor storage areas shall be paved with a permanent, durable and dustless surface and shall be graded and drained to dispose stormwater without negatively impact adjacent property. The Township Board, following a recommendation of the Planning Commission and the Township Engineer, may approve a gravel surface for all or part of the display or storage area for low intensity activities, upon a finding that neighboring properties and the environment will not be negatively impacted.

The application form provided indicates that the storage area is already surfaced with concrete and asphalt. This standard is met.

4. No outdoor storage shall be permitted in any required yard (setback) of buildings for the district in which the outdoor display, sales or storage use is located. Any approved outdoor sales or display within a parking lot shall meet the required parking lot setback; provided the Planning Commission may require additional landscaping screening or ornamental fencing.

Section 8.03 requires setbacks of 40 feet (rear) and 25 feet (side). While the exact setback provided is not shown on the plan, the storage area is clearly outside of the minimum setback requirements for the IND. This standard is met.

5. The site shall include a building of at least five hundred (500) feet of gross floor area for office use in conjunction with the use.

The plan submitted indicates that the existing building contains 53,550 square feet gross floor area. This standard is met.

6. All loading and truck maneuvering shall be accommodated on-site.

The site has existing vehicular access from Brighton Pines Court. Given there are truck wells located adjacent to the proposed storage yard, we anticipate that an adequate area is provided for truck maneuvering with no off-site ramifications. This standard is met.

7. All outdoor storage area property lines adjacent to a residential district shall provide a buffer zone A as described in Section 12.02. A buffer zone B shall be provided on all other sides. The Planning Commission may approve a six (6) foot high screen wall or fence, or a four (4) foot high landscaped berm as an alternative.

The revised proposal demonstrates compliance with the depth requirements of a buffer zone B along the rear (SW) and side (SE) lot lines. Additionally, the new plan now provides for 9 new evergreens that are 10' tall and will be planted on a 4' berm.

8. **The height of all material and equipment stored in an outdoor storage area shall not exceed the height of any landscape screening, wall or fence. Boats and recreational vehicles may exceed the height of the fence provided that they are setback from the fence a distance equal to their height. Storage of materials up to the height of the adjacent building wall may be permitted in the rear yard if it is illustrated on the site plan, the rear yard does not abut a residential district or face an expressway, and such storage is confined to within twenty (20) feet of the building.**

The Impact Assessment notes a requested storage height of 12 feet; and the proposed screening will now provide a noticeable screening benefit to the site.


E. Sketch Plan Review

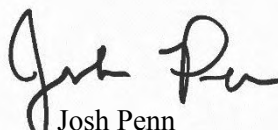
1. **Dimensional Requirements.** As noted above, the outdoor storage area complies with setback requirements. The only other applicable standard is the impervious surface coverage limitation of 85%, which is also met (51.5%).
2. **Parking.** The parking calculations note a surplus of parking, although the inclusion of an outdoor material storage yard does not alter the parking requirements for the development.
3. **Pedestrian Circulation.** As an industrial development in an industrial park, public sidewalks are not required or warranted. The plan identifies internal sidewalks between the parking lot and building.
4. **Vehicular Circulation.** As referenced above, the site has existing vehicular access from Brighton Pines Court and no changes are proposed to the ingress/egress or internal circulation pattern.
5. **Landscaping.** The revised submittal demonstrates compliance with screening/landscaping requirements given the presence of existing trees to be preserved and the berm/evergreen plantings proposed.
6. **Exterior Lighting.** The original plan noted that exterior lighting will not exceed 1 foot-candle at the property line.
7. **Waste Receptacles.** The plan identifies a compliant waste receptacle and enclosure.
8. **Signage.** The submittal does not identify any new signage. If proposed, the applicant should provide details for the Commission's consideration. A permit will also be required per Article 16 of the Township Zoning Ordinance.
9. **Impact Assessment.** The submittal includes a brief Impact Assessment (revised February 15, 2016). In summary, the Assessment notes that the project is not anticipated to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

Should you have any questions concerning this matter, please do not hesitate to contact our office. We can be reached by phone at (248) 586-0505, or via e-mail at borden@lslplanning.com and penn@lslplanning.com.

Sincerely,

LSL PLANNING, INC.


Brian V. Borden, AICP
Principal Planner


Josh Penn
Project Planner



March 9, 2016

Ms. Kelly Van Marter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

Re: CRW Plastics Storage Area Special Use Site Plan Review #2

Dear Ms. Van Marter:

We have reviewed the special use sketch plan documents for the CRW Plastics storage area dated December 16, 2015. The site is located at 5775 Brighton Pines Court, West of Dorr Road. The petitioner is planning to convert an approximately 55-foot by 95-foot paved area on the southwest corner of the existing parking area to be used as storage area. The screening that has been added to the site plan does not appear to result in an increase of the net impervious area on the site, and should have no impact on the existing on-site detention basin.

Our review found no engineering related impacts to the existing site from the proposed change in use as illustrated on the site plan. Therefore, we have no objections to the proposed renovation.

Sincerely,

A blue ink signature of Gary J. Markstrom.

Gary J. Markstrom, P.E.
Unit Vice President

A blue ink signature of Joseph C. Siwek.

Joseph C. Siwek, P.E.
Project Engineer

Copy: Antonio Orlando, CRW Plastics

Tetra Tech

401 South Washington Square, Suite 100, Lansing, MI 48933
Tel 517.316.3930 Fax 517.484.8140 www.tetrattech.com



BRIGHTON AREA FIRE AUTHORITY

615 W. Grand River Ave.
Brighton, MI 48116
o: 810-229-6640 f: 810-229-1619

March 1, 2016

Amy Ruthig
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: **Special Land Use Application**
CRW Plastics – Outdoor Storage
5775 Brighton Pines Court
Genoa Twp., MI

Dear Amy:

The Brighton Area Fire Department has reviewed the above mentioned Special Land Use site plan. The plans were received for review on February 25, 2016 and the drawings are not dated. The project is for a special land use application of a proposed outdoor area to be used for the storage of shipping containers. The proposed storage area is located on the south side of an existing manufacturing facility. The proposed area is over 20' from the existing structure and on an existing concrete surface. The plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

At this time the Brighton Area Fire Department has no further comments or requirements regarding the proposed outside storage area. If you have any questions about the comments on this plan review please contact me at 810-229-6640.

Cordially,

A handwritten signature in black ink that reads "D Bunge".

Derrick Bunge
Lieutenant - Fire Inspector

Impact Assessment

For

CRW Plastics

Article 19, Genoa Township,
Livingston County, Michigan

Prepared for:

CRW Plastics
5775 Brighton Pines Court
Howell MI 48843

Prepared By:

Antonio Orlando
Mickhail Rossignol

CRW Plastics
5775 Brighton Pines Court
Howell MI 48843

December 14, 2015

REVISED - February 15, 2016

Introduction:

This assessment is for gaining approval for outdoor storage at CRW Plastics on the south side of the building, using approximately 5,346 square feet. The 5,346 square feet of space is paved, and is part of the parking lot. The storage space would be used for empty containers, which are shipped back and fourth from our customers.

- A. Name and address of person responsible for preparation of the impact assessment and a brief statement of their qualifications:

The impact assessment was prepared by Antonio Orlando and Mikhail Rossignol, of CRW Plastics, 5775 Brighton Pines Court, Howell MI 48843. Mikhail is a certified storm water pollution prevention operator certificate id: I-13576. Antonio Orlando is Logistics' manager in charge of maintaining the area.

- B. Map and written description/analysis of the project:

Our site consist of manufacturing facility which is 95' by 55' which is 5,225 square feet that sits on approximately on 6.235 acres at 5775 Brighton Pines Court, Howell MI, 48843. The building is comprised of manufacturing facility, an office and warehouse space. The facility operates 24 hours Monday through Friday some weekends when applicable. Within and around the building we have existing low areas, detention pond, grassy berm. CRW has a two truck wells, and shed within three feet next to the building. CRW is requesting a stack height of 12 feet.

- C. Impact on natural features:

The building of the structure will little impact the surrounding natural features. Drainage occurs to five sewer drains, which drain directly to a drainage pond on the north side of the building. This site will house only empty containers and involve no handling of hazardous materials that may affect the surrounding grassy areas or detention pond.

- D. Impact on storm water management:

The outside storage area on permanent ground cover that is already established, the permanent ground cover is sections of blacktop pavement, and concrete pavement. This has no effect storm water system.

E. Impact on surrounding land use:

The property is currently zoned industrial and surrounded by the north, east, and south sides by other industrial zoned property. The I-96 expressway runs on the west side of the building. The facility has minimal impact on the surrounding land uses, because it is similar in nature to the other surrounding industrial properties and is zoned appropriately for its use. Additional pine trees will be added if necessary to provide screening.

Quote is being provided by a Landscaper for screening: Plan and quote will be turned in when it is received the end of this week of 2/15/16.

F. Impact on public facilities and services:

CRW is doing this impact assessment for outdoor storage; it will have no further impact on public schools, police or fire.

G. Impact on public utilities:

This impact assessment for outdoor storage use, there will be no water or sanitary sewer facilities to impact on public utilities.

H. Storage and handling of any hazardous materials:

This outdoor storage area will house empty storage containers, and will have no contact with hazardous materials.

I. Impact on traffic and pedestrians:

Not applicable.

J. Special provisions IE deed restrictions protective covenant's etc.

Not applicable. A copy of the previously approved impact assessment is attached for reference.

K. Description of all sources:

Genoa Township zoning ordinances.

F & F Outdoors, Inc.

2073 Sandlewood Dr
White Lake, MI 48383

Quote

Date	Project No.
2/23/2016	1609

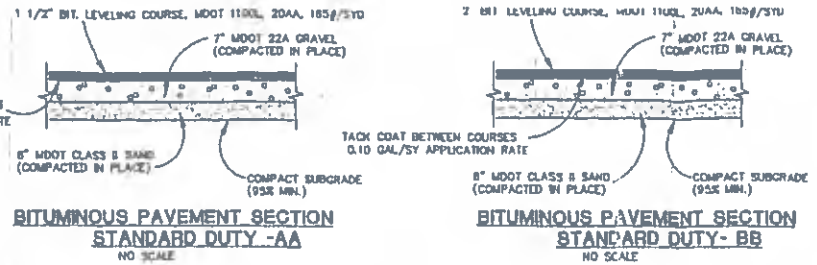
Customer
CRW Plastics, USA 5775 Brighton Pines Ct Howell, MI 48843

GEMDA TOWNSHIP

FEB 24 REC'D 2016

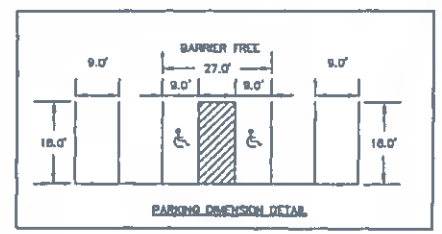
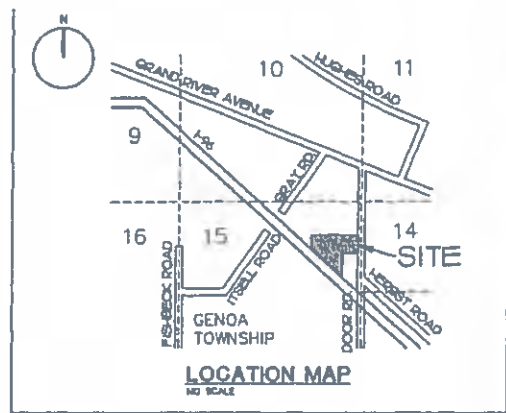
RECEIVED

Description	Qty	Sales Rep	Timing
		JA	
		Amount	Total
Top Soil & preparation for berm (yds.)	40	30.00	1,200.00
Mulch & Stakes (per tree)	9	55.00	495.00
Colorado Blue Spruce - 9/10'	9	729.30	6,563.70T
SUBTOTAL			8,258.70
Customer Design - including 3 copies of prints	1	500.00	500.00
Design Credit	1	-500.00	-500.00
Consult Credit	1	-150.00	-150.00
** Plants and workmanship warranted for 1 year from time of planting. Warranty does NOT cover labor to deliver & replace plant material. Plant replacement NOT covered for; acts of God, accidental/willful damage or improper maintenance, i.e.; lack of or too much watering. **			
Sales Tax		6.00%	393.82
Phone #	Fax #	E-mail	Web Site
248-705-0282	248-887-6451	joe2know@icloud.com	www.fandfoutdoors.com
Thank you for the opportunity to quote your project.			Total \$8,502.52



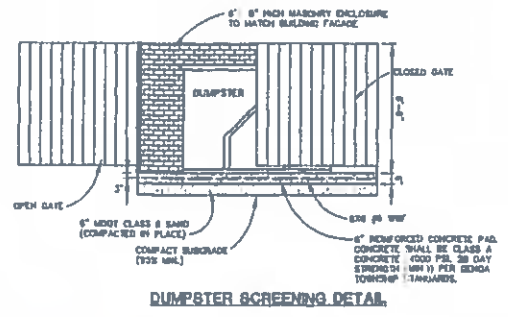
- GENERAL NOTES:**
1. Property zoned IND (INDUSTRIAL DISTRICT)
 2. Sitation use: Manufacturing, Warehouse and Office building.
 3. All construction shall be performed in accordance with the current standards and specifications of Livingston County and Genoa Township.
 4. The Contractor shall telephone Genoa Township (810) 277-5225 at least 48 hours prior to construction.
 5. Property to be serviced by an individual septic system that shall meet Genoa Township and Livingston County Health Department specifications.
 6. Property to be serviced by an individual well that shall meet Genoa Township and Livingston County Health Department specifications.
 7. Developer shall comply with soil erosion and sedimentation control measures as required by the Livingston County Drain Commissioner.
 8. Seventy-two hours prior to any excavation, the Contractor shall telephone M88 DIG (800-482-7171) for the location of underground gas and cable facilities and shall also notify representatives of other utilities located in the vicinity of the work. It shall be the Contractor's responsibility to verify and/or obtain any information necessary regarding the presence of underground utilities which might affect the job.
 9. Underground utilities (i.e. elec., gas) shall be extended from exist. locations along existing road to service this site as required by utility companies.
 10. Floor drains shall not be connected to the storm sewer or septic system.
 11. The soils on the site are predominantly loams (per the Soil Survey by the U.S.D.A.)
 12. Proposed sign shall conform to the standards and specifications of Genoa Township. See detail on this sheet.
 13. Dumpsters must comply with the following requirements:
 - A. Located on concrete pad, extended minimum 10' in front of dumpster enclosure.
 - B. A solid lockable gate should be provided.
 - C. Wood gate must be specified No. 1 pressure-treated wood.
 - D. Bollards shall be installed at opening to prevent damage.
 14. Barrier free parking spaces shall be marked with an above grade sign.
 15. All roof eaves are to be screened.
 16. Parking calculations: # of parking spaces required.

WAREHOUSE FLOOR AREA = 15,800 SF / 1500 * 1.0	= 11
MANUFACTURING FLOOR AREA = 31,600 SF / 1000 * 1.5	= 47
OFFICE FLOOR AREA = 6,160 SF / 300	= 21
PARKING SPACES REQUIRED	= 79
BARRIER FREE PARKING SPACES REQUIRED	= 4
LOADING/UNLOADING SPACES REQUIRED	= 2
PARKING SPACES PROVIDED = 110, including 5 barrier free, plus 3 loading/unloading	
 17. Exterior lighting not to exceed 1 f.c. at the property line.



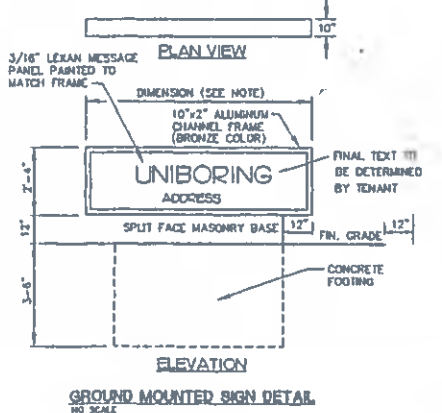
SITE DATA TABLE

	REQUIRED	PROVIDED
LOT AREA	2.00 AC.	6.235 AC.
SETBACKS		
FRONT	75'	93.49'
SIDE	25'	76.46'
REAR	40'	40.00'
MAX. COVERAGE		
BUILDING	40%	27.9%
IMPERVIOUS	75%	51.6%
MAX. HEIGHT		
HEIGHT	30'	30'
STORIES	2	2
ZONING:	IND (INDUSTRIAL DISTRICT)	



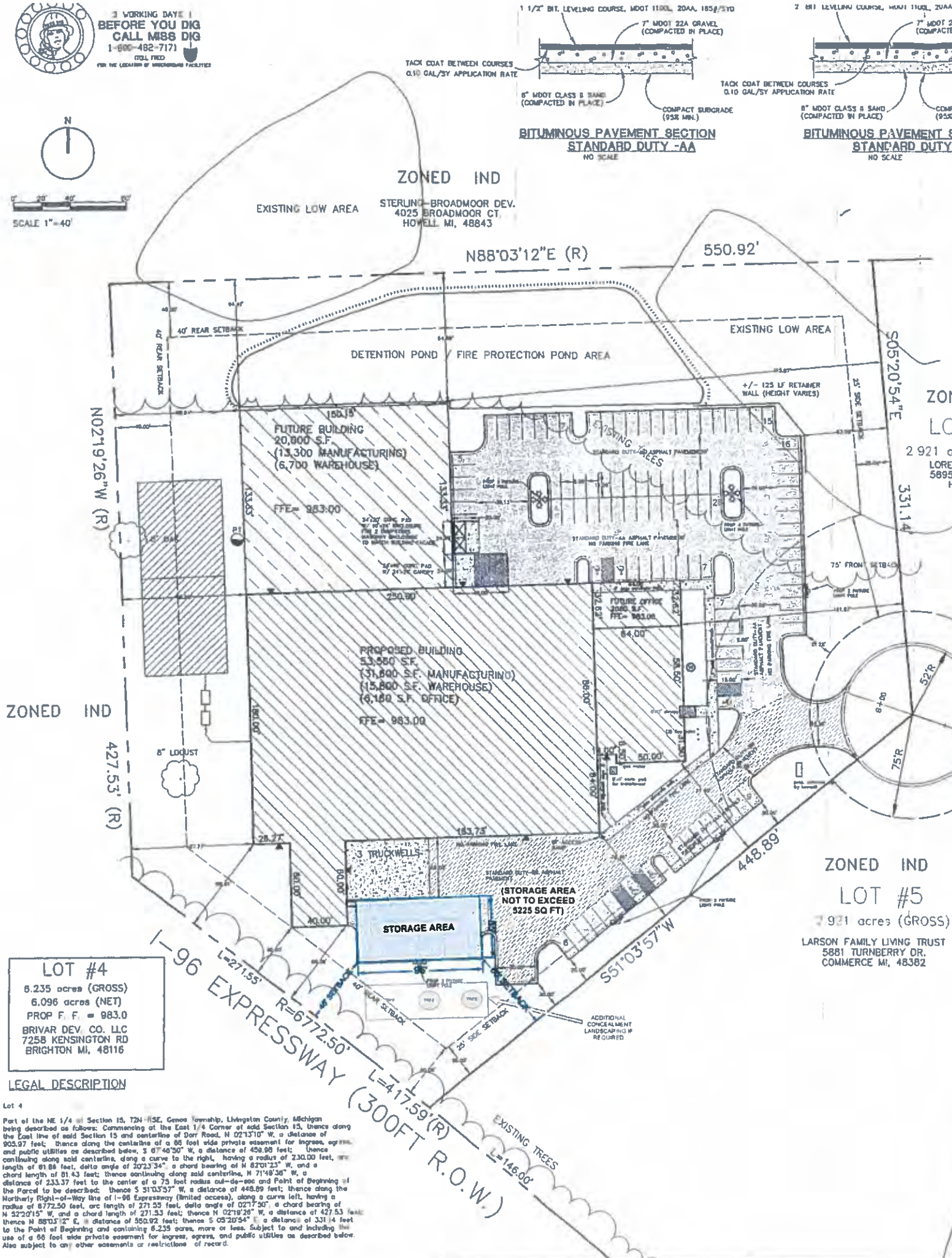
LEGEND

⊙	EXTERIOR BUILDING LIGHT
⊙	LIGHT POLE
⊙	SIGN
⊙	UTILITY POLE
⊙	TELEPHONE RISER
⊙	CATCH BASIN
⊙	MANHOLE
⊙	VALVE
⊙	HYDRANT
⊙	WELL
⊙	EXISTING SPOT ELEVATION
⊙	PROPOSED SPOT ELEVATION
⊙	MAJOR EXIST. CONTOUR - 5' INTERVAL
⊙	MINOR EXIST. CONTOUR - 1' INTERVAL
⊙	PROPOSED CONTOUR
⊙	EXISTING STORM SEWER
⊙	EXISTING SANITARY SEWER
⊙	EXISTING WATER MAIN
⊙	PROPOSED STORM SEWER
⊙	GAS MAIN
⊙	UNDERGROUND TELEPHONE LINE
⊙	UNDERGROUND ELECTRIC LINE
⊙	FENCE LINE
⊙	GUARDRAIL
⊙	DITCH CENTERLINE, TOE OF SLOPE
⊙	SILT FENCE
⊙	PROPOSED RIPRAP
⊙	EXISTING DECIDUOUS TREE
⊙	EXISTING TREE AND BRUSH LINE



NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE FOOTINGS AND THE SUPPORT OF THE SIGN. CONTRACTOR SHALL FOLLOW ALL LOCAL CODES AND ORDINANCES.
2. SIGN DIMENSIONS TO BE DETERMINED BY TENANT AND TO COMPLY W/ GENOA TOWNSHIP STANDARDS (MAX. AREA = 80 SQ. FT., MAX. HEIGHT = 6').



LOT #4
6.235 acres (GROSS)
6.096 acres (NET)
PROP F.F. = 983.0
BRIVAR DEV. CO. LLC
7258 KENSINGTON RD
BRIGHTON MI, 48116

LEGAL DESCRIPTION

Part of the NE 1/4 of Section 15, T34-N-E, Genoa Township, Livingston County, Michigan being described as follows: Commencing at the East 1/4 Corner of said Section 15, thence along the East line of said Section 15 and centerline of Dorr Road, N 02°13'10" W, a distance of 903.97 feet; thence along the centerline of a 60 foot wide private easement for ingress, egress, and public utilities as described below, S 87°46'50" W, a distance of 456.98 feet; thence continuing along said centerline, along a curve to the right, having a radius of 230.00 feet, length of 81.84 feet, delta angle of 20°23'34" a chord bearing of N 82°01'23" W, and a chord length of 81.43 feet; thence continuing along said centerline, N 71°48'30" W, a distance of 233.37 feet to the center of a 75 foot radius cul-de-sac and Point of Beginning of the Parcel to be described; thence S 51°03'57" W, a distance of 448.89 feet; thence along the Northernly Right-of-Way line of I-96 Expressway (limited access), along a curve left, having a radius of 8772.50 feet, arc length of 271.55 feet, delta angle of 02°17'50", a chord bearing of N 32°20'15" W, and a chord length of 271.53 feet; thence N 02°19'26" W, a distance of 427.53 feet; thence N 88°03'12" E, a distance of 550.92 feet; thence S 05°20'54" E, a distance of 331.14 feet to the Point of Beginning and containing 6.235 acres, more or less. Subject to and including the use of a 60 foot wide private easement for ingress, egress, and public utilities as described below. Also subject to any other assessments or restrictions of record.

REVISIONS:

NO.	DATE	DESCRIPTION
1		
2		
3		
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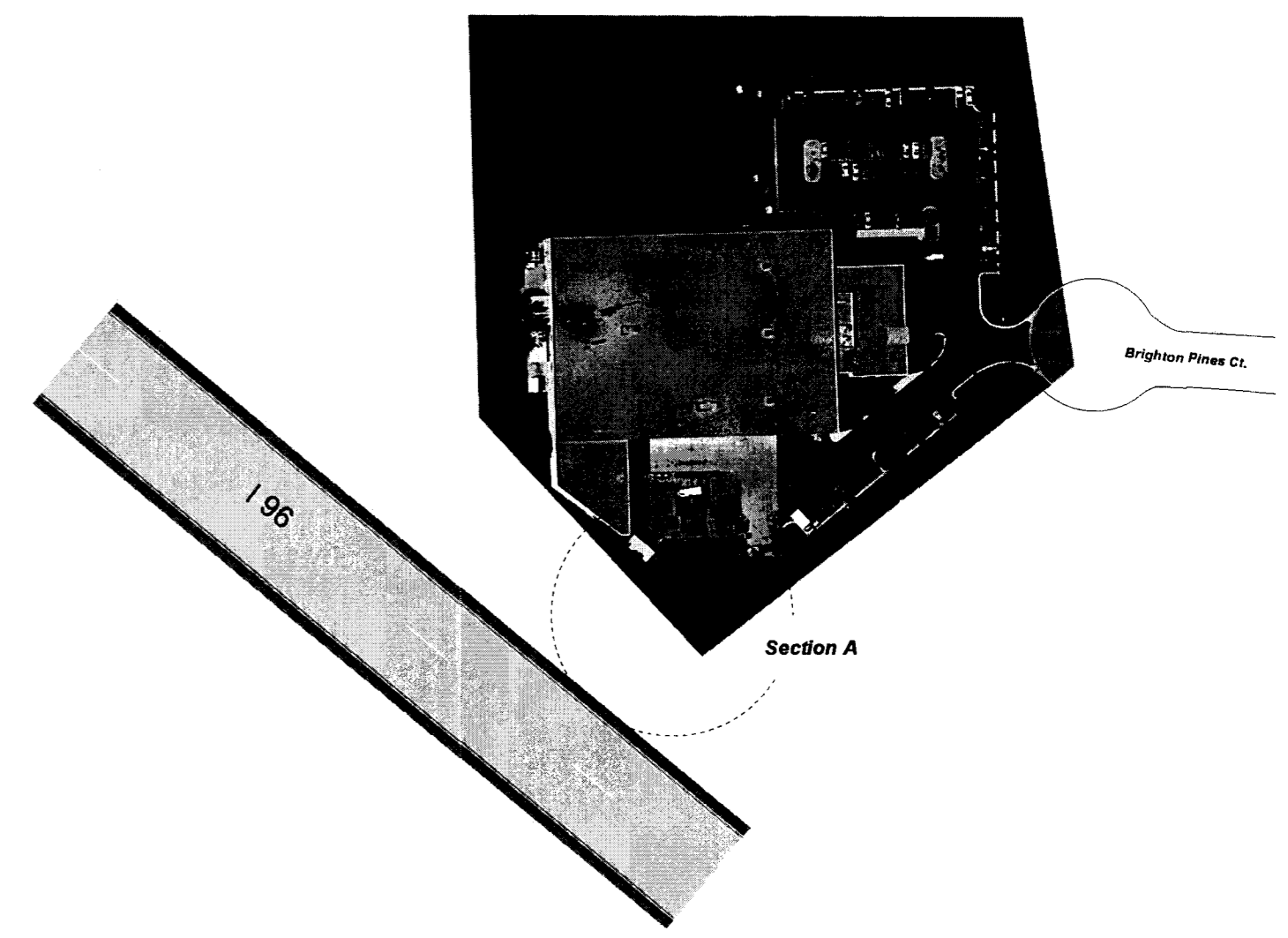
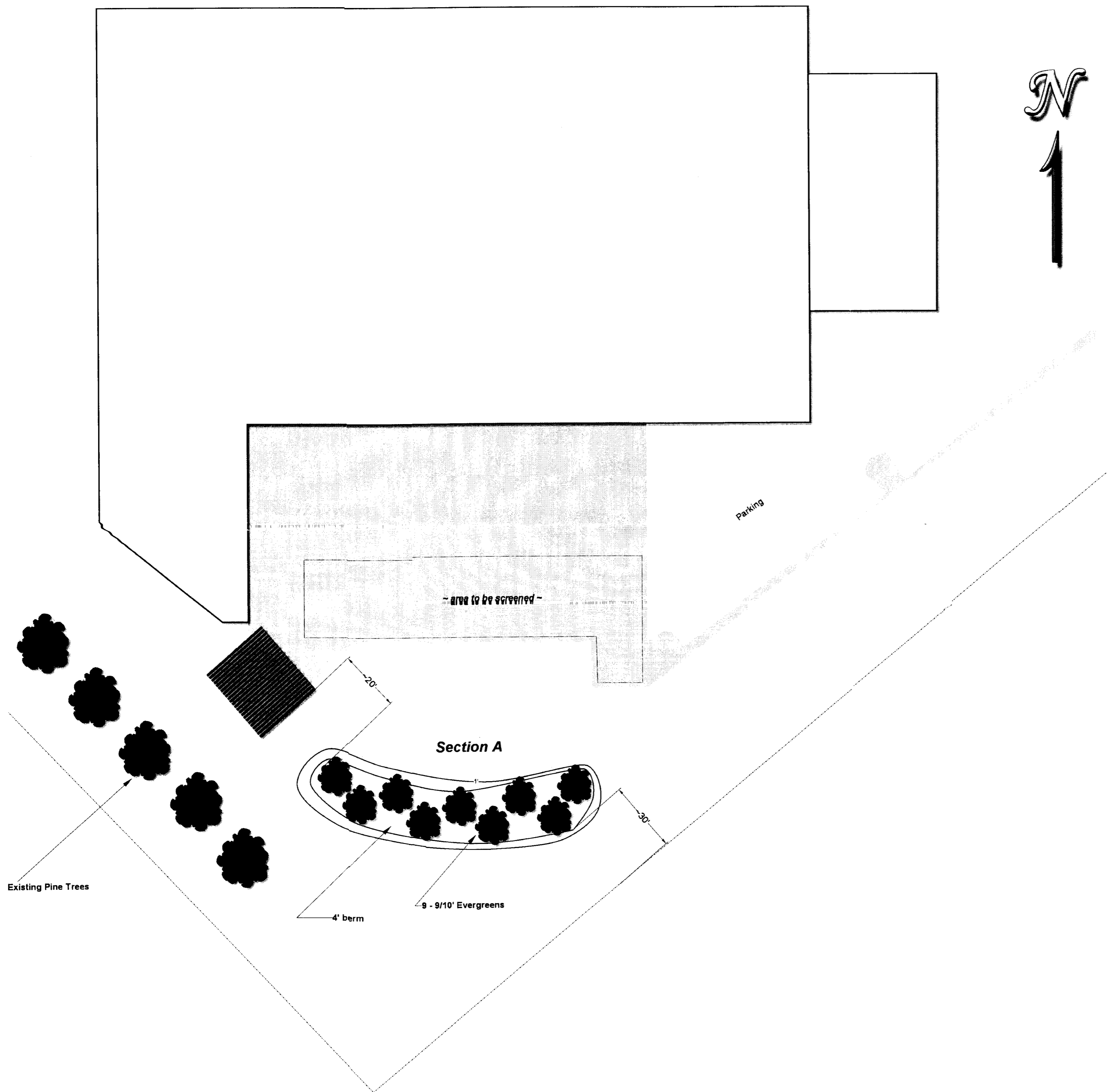
OWNER/DEVELOPER:
BRIVAR CONSTRUCTION
7258 KENSINGTON ROAD
BRIGHTON, STATE 48116
248-448-8000

PROPOSED SITE PLAN
LOT #4 BRIGHTON PINES CT.

BCC
BRIVAR Construction Company
7258 Kensington Rd, Brighton, MI 48116
248-448-8000

UNIBORNG
ADVANTAGE CIVIL ENGINEERING
118 E. Grand Street, Howell, MI 48842 517-848-1111 Fax 517-848-1148

DATE: 01-16-01
DRAWN BY: CMF
CHECKED BY: PKC
JOB No.: 00168
DRAWING No.: 1/4



Existing Pine Trees

Section A

4' berm

9 - 9/10' Evergreens

Parking

- area to be screened -

GENOA TOWNSHIP

FEB 24 REC'D

RECEIVED

Project:
CRW Plastics, USA
5775 Brighton Pines Court
Howell, MI 48843
Drawing: 1609

Design by:
F&F Outdoors, Inc.
'Your Landscaper for Outdoor Life'

Page 1 of 1
2073 Sandlewood Dr.
White Lake, MI 48383
Phone Number: 248-705-0282
E-mail: email@fandfoutdoors.com



GENOA CHARTER TOWNSHIP

Application for Re-Zoning

APPLICANT NAME: Rodney M. Lockwood, Jr. ADDRESS: 27777 Franklin Rd, Suite 1410

OWNER NAME: Lakeshore Village III LDHA LP ADDRESS: Southfield, MI 48034

PARCEL #(s): 4711-06-400-003 PRIMARY PHONE: (248) 433-7401

EMAIL 1: rlockwood@lockwoodcompanies.com EMAIL 2: jlunsford@lockwoodcompanies.com

We, the undersigned, do hereby respectfully make application to and petition the Township Board to amend the Township Zoning Ordinance and change the zoning map of the township of Genoa as hereinafter requested, and in support of this application, the following facts are shown:

A. REQUIRED SUBMITTAL INFORMATION

1. A legal description and street address of the subject property, together with a map identifying the subject property in relation to surrounding properties;
2. The name, signature and address of the owner of the subject property, a statement of the applicant's interest in the subject property if not the owner in fee simple title, and proof of consent from the property owner;
3. It is desired and requested that the foregoing property be rezoned from:
MDR to HDR
4. A site plan illustrating existing conditions on the site and adjacent properties; such as woodlands, wetlands, soil conditions, steep slope, drainage patterns, views, existing buildings, sight distance limitations, relationship to other developed sites, and access points in the vicinity;
5. A conceptual plan demonstrating that the site could be developed with representative uses permitted in the requested zoning district meeting requirements for setbacks, wetland buffers, access spacing, any requested service drives and other site design factors;
6. A written environmental assessment, a map of existing site features as described in Article 18 describing site features and anticipated impacts created by the host of uses permitted in the requested zoning district;
7. A written description of how the requested rezoning meets Sec. 22.04 "Criteria for Amendment of the Official Zoning Map."
8. The property in question shall be staked prior to the Planning Commission Public Hearing.

B. DESCRIBE HOW YOUR REQUESTED RE-ZONING MEETS THE ZONING ORDINANCE CRITERIA FOR AMENDING THE OFFICIAL ZONING MAP:

1. How is the rezoning consistent with the goals, policies and future land use map of the Genoa Township Master Plan, including any subareas or corridor studies. If not consistent, describe how conditions have changed since the Master Plan was adopted?

The development of Lakeshore Apartments III is both harmonious and consistent with the adjacent Lakeshore I and Lakeshore II apartments.

We are respecting the “quality of life” in Genoa Township by retaining significant, sensitive natural amenities such as water bodies, wetlands, slopes, mature trees and natural ecosystems, and are integrating the natural features of the site including wetlands and drainage system into the site plan features.

The addition of a secondary access to the combined phases of Lakeshore I, II and III at Chilson Road will reduce the need to residents to exit onto Grand River Avenue, thus improving safety throughout access management.

The application is consistent with the recently revised Master Plan, which designates the proposed Lakeshore III property as High Density Resident, not to exceed 8 units per acre. The property is served by public water and sanitary sewer.

2. Are the site’s physical, geological, hydrological and other environmental features suitable for the host of uses permitted in the proposed zoning district?

The applicant has performed extensive soil borings, a wetland survey and flood plain determination that indicates the proposed use is feasible.

3. Do you have any evidence that a reasonable return on investment cannot be received by developing the property with one (1) of the uses permitted under the current zoning?

The property has been on and off the market since 2001, when it was first offered to the Applicant, and has not been developed during the time under existing zoning.

4. How would all the potential uses allowed in the proposed zoning district be compatible with surrounding uses and zoning in terms of views, noise, air quality, the environment, density, traffic impacts, drainage and potential influence on property values?

HDR designation is consistent with adjacent Lakeshore Village Apartments Phases I and II. The Applicant believes the additional units in Lakeshore III will have minimal impact on views, noise, air quality and the environment. We believe it will have no impact on property values in the area and will actually improve the traffic impact on Grand River by providing a secondary access point onto Chilson Road for residents of all three phases.

5. Are infrastructure capacity (streets, sanitary sewer, water, and drainage) and services (police and fire protection, etc.) sufficient to accommodate the uses permitted in the requested district?

The civil engineering firm, Boss Engineering, has determined the sanitary sewer and water mains are sufficient capacity to handle the units in Lakeshore III. On-site detention will be

constructed to meet the requirements of the Livingston County Drain Commission. Lakeshore III will construct its own road and parking system within the community to meet the needs of its residents. We believe Genoa Township Police and Fire Departments have sufficient capacity to handle the additional units.

6. Is there a demonstrated demand in Genoa Township or the surrounding area for the types of uses permitted in the requested zoning district? If yes, explain how this is better suited for the zoning than others which may be planned or zoned to accommodate the demand.

The Applicant believes there is sufficient demand for the additional apartments in Lakeshore Phase III, by its experience in owning and managing Lakeshore Apartments Phases I and II. Those phases have been consistently full over the last several years and are forced to turn away a large number of potential applicants due to lack of inventory.

7. If you have a particular use in mind, is another zoning district more appropriate? Why should the Township re-zone the land rather than amend the list of uses allowed in another zoning district to accommodate your intended use?

Lakeshore Phase III will be managed on a combined basis with Phases I and II. Through this synergy, we are able to lower our operating expenses and produce a financially feasible project. In our opinion, we could not achieve feasibility on another location

8. Describe any deed restrictions which could potentially affect the use of the property.

There are no deed restrictions that could affect the use of the property. There are several drainage easements that will be re-configured. There is also an access easement for gas wellhead maintenance that will be accommodated in the site planning process.

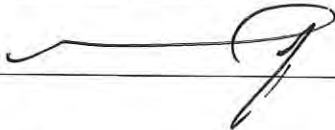
C. AFFIDAVIT

The undersigned says that they are the Optionee (owner, lessee, or other specified interest) involved in this petition and that the foregoing answers and statements herein contained and the information herewith submitted are in all respects true and correct to the best of his/her knowledge and belief. **(SEE ATTACHED CONSENT TO ZONING CHANGE REQUEST)**

BY: Rodney M. Lockwood, Jr.

ADDRESS: 27777 Franklin Road, Suite 1410, Southfield, MI 48034

SIGNATURE



The following contact should also receive review letters and correspondence:

Name: Jennifer Lunsford Email: jlunsford@lockwoodcompanies.com

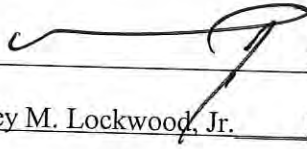
Business Affiliation: Assistant to Rodney M. Lockwood, Jr.

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

PROJECT NAME: Lakeshore Village Apartments Phase III

PROJECT LOCATION & DESCRIPTION: 2812 Ontario Court, Howell, MI/Vacant Land

SIGNATURE:  DATE: 2/2/2016

PRINT NAME: Rodney M. Lockwood, Jr. PHONE: (248) 433-7401

COMPANY ADDRESS: 27777 Franklin Road, Suite 1410, Southfield, MI 48034

Consent to Zoning Change Request

Genoa Township Planning Commission

2911 Dorr Rd

Brighton, MI 48116

Gentlemen:

Please be advised, as property owner of the 28.60 acre parcel described in the attached legal description and referenced in the Application for Rezoning by Lockwood Development, LLC that we agree with the Request to rezone from Medium Density Residential (MDR) to High Density Residential (MDR) in order to facilitate the development of the 144 unit apartment complex that will be known as Lakeshore Village Apartments Phase III.

Bayfield of Howell, Inc., a Michigan Corporation

By Dave Zimmerman *jt*

Dated 1-29-16

GENOA CHARTER TOWNSHIP BOARD
March 7, 2016
Regular Meeting

MINUTES

Supervisor McCririe called the regular meeting of the board to order at 6:30 p.m. The Pledge of Allegiance was then said. The following board members were present constituting a quorum for the transaction of business: Gary McCririe, Paulette Skolarus, Robin Hunt, Linda Rowell, Jim Mortensen and Jean Ledford. Also present were: Township Manager Michael Archinal and four persons in the audience.

A Call to the Public was made with no response.

Approval of Consent Agenda:

Moved by Mortensen and supported by Ledford to approve items 1, 2 and 3 listed under the consent agenda and move item 4 to the regular agenda for discussion. The motion carried unanimously.

1. Payment of Bills.

2. Request to Approve Minutes: February 15, 2016 and February 24, 2016

3. Request to authorize the direct purchase of a vactor truck from an internal new user account and set up a loan repayment schedule from the DPW Budget as requested by Utility Director Greg Tatara.

Approval of Regular Agenda:

Moved by Ledford and supported by Hunt to approve for action all items listed under the Regular Agenda. The motion carried unanimously.

4. Consider approval of a request from Livingston County for \$3,000 to support a Michigan DNR Trust Fund grant application for Fillmore County Park.

Moved by Ledford and supported by Rowell to approve the request from Livingston County and authorize the support. The motion carried unanimously.

5. Receive a report from Brighton Area Fire Authority Chief Mike O'Brian.

Chief O'Brian addressed the board and provided an overview of the annual report related to fire activity within the community and current training for his department. No formal action was taken by the board.

6. Introduction of a proposed rezoning and authorization of statutory notice for a public hearing on March 21, 2016 concerning 27.80 acres of land located on the east side of Chilson Road south of Grand River on parcel 4711-06-400-015. The application is

petitioned by The Lockwood Companies and the requested rezoning is from Medium Density Residential (MDR) to High Density Residential (HDR).

Moved by Hunt and supported by Ledford to approve the notice for a public hearing as petitioned by Lockwood Companies, setting the public hearing for Monday, March 21, 2016. The motion carried unanimously. *(Note: This approval does not endorse or approve in any manner the application that will be discussed by the Planning Commission at their next regularly scheduled meeting. A traffic study is important in this decision making process.)*

7. Approval of a software purchase from BS&A Software as requested by the Treasurer.

Moved by Mortensen and supported by Skolarus to approve the purchase of software from BS&A at a cost not to exceed \$72,595.00 for General Ledger, Accounts Payable, Cash Receipting, Payroll and Timesheets. This cost will include Data Conversion, Project Management, Implementation Planning and Training. The motion carried unanimously.

8. Request to approve a proposal from Classic Carpet in the amount of \$15,540.81 for new carpet at the Township Hall.

Moved by Mortensen and supported by Ledford to approve the purchase of carpet for the Township Hall as requested. The motion carried as follows: Ayes – McCririe, Ledford, Skolarus and Mortensen. Nay – Hunt and Rowell. Absent – Smith.

The board discussed the creation of a Smart Zone. Archinal provided a forecast of revenue for this project. The board has many questions with regard to the expenditure of funds. No formal action was taken by the board.

The regular meeting of the Genoa Charter Township Board was adjourned at 7:33 p.m.



Paulette A. Skolarus, Clerk
Genoa Charter Township

Gary McCririe, Supervisor
Genoa Charter Township



March 8, 2016

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Assistant Township Manager and Planning Director
Subject:	Proposed rezoning from MDR to HDR – Review #2
Location:	Chilson Road – east side of Chilson, between Grand River and C&O Railroad
Zoning:	Medium Density Residential District

Dear Commissioners:

At the Township's request, we have reviewed the proposed rezoning of the vacant 27.8-acre site from MDR Medium Density Residential (5 units per acre) to HDR High Density Residential (8 units per acre). This proposal has been reviewed in accordance with the Genoa Township Zoning Ordinance and Master Plan.

A. SUMMARY

1. In general, we find the proposed rezoning consistent with the review standards of Article 22; however, we defer to the Township Engineer, Utilities Director and Fire Department for any comments related to infrastructure compatibility or capacity.
2. The Master Plan Future Land Use map identifies the site as High Density Residential, which is consistent with the proposed rezoning.
3. Development of the site as proposed, appears to necessitate review and approval by MDEQ to work within/alter a floodplain boundary. This does not impact the rezoning request, but should be tied to any action on the site plan.
4. The host of permitted uses in MDR (current) and HDR (proposed) are nearly identical.
5. The distinction between current and proposed zoning is related to a slight increase in density (from 5 units per acre to 8).
6. The site plan submitted is for an extension of the existing apartment units to the north at a density consistent with the Master Plan and Zoning Ordinance.

B. PROCESS

As described in Article 22 of the Zoning Ordinance, the process to amend the Official Township Zoning Map is as follows:

1. The Township Planning Commission holds a public hearing on the rezoning and makes its recommendation to the Township Board;
2. The Livingston County Planning Commission reviews the request and makes its recommendation to the Township Board; and
3. The Township Board considers the recommendations and takes action to grant or deny the rezoning request.

MDR to HDR Rezoning


Review #2

Page 2


C. PROJECT DESCRIPTION

The site is located on the east side of Chilson Road, south of Grand River Avenue. Current zoning, as well as existing and planned land uses in the area are as follows:

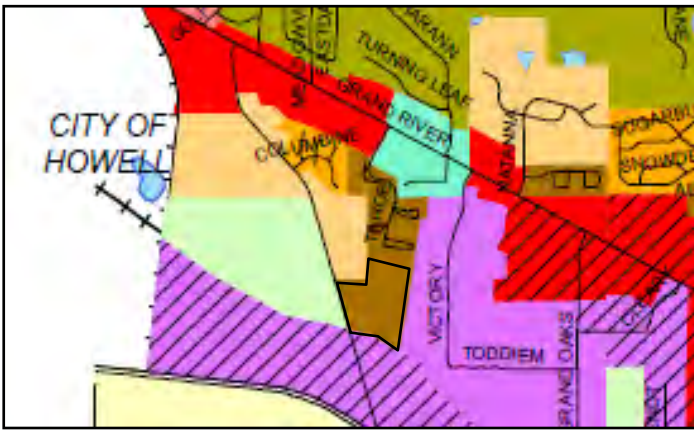
Existing Land Use	
Site	Vacant
North	Multiple-family
East	Light Industrial
South	Railroad/Agricultural
West	Public



Zoning	
Site	MDR
North	HDR
East	IND
South	PID
West	SR and PRF



Master Plan	
Site	High Density Residential
North	High Density Residential
East	Industrial
South	Research and Development
West	Small Lot Residential and Public



D. REZONING REVIEW

- 1. Consistency with the goals, policies and future land use map of the Genoa Township Master Plan, including any subarea or corridor studies. If conditions have changed since the Master Plan was adopted, the consistency with recent development trends in the area.***

The Township Master Plan and Future Land Use map identify the site and adjacent property to the north as High Density Residential. This category is intended for “higher density condominiums, apartments and other multiple family dwellings.” Planned residential densities within HDR are up to 8 units per acre.

The proposed rezoning is consistent with the Master Plan.

- 2. Compatibility of the site's physical, geological, hydrological and other environmental features with the host of uses permitted in the proposed zoning district.***

The 27.8-acre site is currently vacant. The site plan submittal notes areas of wetlands and floodplain with modifications proposed to the floodplain limits. Ultimately, this will require review and approval by MDEQ, but it does not appear to be detrimental to the proposed rezoning.

- 3. The ability of the site to be reasonably developed with one (1) of the uses permitted under the current zoning.***

The primary distinction between the existing and proposed zoning is a slight increase in residential density.

The submittal notes that the property has been for sale since 2001, which is a general indication that there was no development interest under MDR zoning and that challenges with the site warrant consideration of a slight increase in density.

- 4. The compatibility of all the potential uses allowed in the proposed zoning district with surrounding uses and zoning in terms of land suitability, impacts on the environment, density, nature of use, traffic impacts, aesthetics, infrastructure and potential influence on property values.***

As referenced above, the primary distinction between MDR and HDR is a slight increase in density. Review of Table 3.03 indicates that the host of permissible uses is nearly identical. Provided the Township finds that the capacity of infrastructure (criterion 5 below) is capable of accommodating the increase in density, we are of the opinion that this standard is met.

- 5. The capacity of Township infrastructure and services sufficient to accommodate the uses permitted in the requested district without compromising the "health, safety and welfare" of the Township.***

We defer to the Township Engineer, Utilities Director and Fire Department for any comments they may have under this criterion.

- 6. The apparent demand for the types of uses permitted in the requested zoning district in the Township in relation to the amount of land in the Township currently zoned to accommodate the demand.***

The existing apartment development to the north is one of only two areas zoned HDR in the northwest quadrant of the Township. Additionally, development of the site is proposed as an extension of this development (identified as Phase 3). Given the limited supply of land zoned HDR and the fact that this property sat idle for many years, we believe the proposed rezoning will help address the demand for this type of use.

MDR to HDR Rezoning

Review #2

Page 4

7. *Where a rezoning is reasonable given the above criteria, a determination the requested zoning district is more appropriate than another district or amending the list of permitted or Special Land Uses within a district.*

Since the distinction between existing and proposed zoning is related to density (5 units per acre versus up to 8), we do not believe that amending MDR uses is a reasonable or appropriate option.

8. *The request has not previously been submitted within the past one (1) year, unless conditions have changed or new information has been provided.*

We are unaware of any rezoning applications associated with this site within the past year.

Should you have any questions concerning this matter, please do not hesitate to contact our office. We can be reached by phone at (248) 586-0505, or via e-mail at borden@lslplanning.com and duffy@lslplanning.com.

Sincerely,

LSL PLANNING



Brian V. Borden, AICP
Principal Planner



Kathleen Duffy, AICP
Senior Planner

NOTE FROM K. VANMARTER:

**THIS REVIEW LETTER INCLUDES COMMENTS ON BOTH THE REZONING AND THE SITE PLAN.
THE SAME LETTER IS USED FOR BOTH AGENDA ITEMS 2 & 3.**



March 9, 2016

Ms. Kelly Van Marter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

Re: Lakeshore Village Apartments Phase 3 - Rezoning Site Plan Review #2

Dear Ms. Van Marter:

We have reviewed the resubmitted package for the Lakeshore Village Apartments Phase 3 site plan and rezoning request dated February 24, 2016, from The Lockwood Companies, prepared by Boss Engineering. The site is located on the east side of Chilson Road, bounded on the south by the Chesapeake & Ohio railroad and on the north by the existing Lakeshore Village Phase 2 property. The petitioner has requested rezoning of the parcels from Medium Density Residential (MDR) to High Density Residential (HDR), and provided a corresponding site plan and impact assessment documents. Tetra Tech has reviewed the documents and has the following comments for Township consideration:

SUMMARY

1. Narrative for 100-year floodplain impact.
2. Traffic impacts need to be evaluated.

COMMENTS

1. The previous letter held concern for the compensating excavation for fills to be placed within the 100-year floodplain and how excavation must be made to truly compensate for fill in similar flood stage elevations. A table was provided showing that the excavation has been made accordingly to provide a positive cut balance to the site, however, there is still some concern for the mechanics of how water will enter these basins from lower flood stages. For example, this site shows the existing 100-year flood elevation to be 945.5, with bottom of drain 938-939 and bottom of basins at 940. The question remains whether enough water from a 50-year storm work its way up the overflow pipes to the basins, and then fill the basin through the riser pipe holes quickly enough to compensate for the rise in flood levels on the site. A quick review of the 100-year floodplain did not show many potential impacts immediately adjacent to the site, but our experiences in permitting similar projects with the state has been to demonstrate there is enough freeboard around the floodplain to absorb a temporary increase in flood elevation to allow for these basins to reverse

Tetra Tech

401 South Washington Square, Suite 100, Lansing, MI 48933
Tel 517.316.3930 Fax 517.484.8140 www.tetrattech.com

- fill. Please provide some additional analysis and reassurance to the anticipated backwater levels so that, should the MDEQ review in closer detail, all documentation is in place.
2. An updated traffic impact study will need to be performed for the final phase of the development. The study will need to evaluate the operation of the existing and proposed driveways, as well as the intersection of Grand River Avenue and Chilson Road. The intent of the study is to determine how the existing drive operates with the proposed increased development density and then also what improvements need to be made to the Chilson Road drive such as bypass lanes or dedicated turn lanes. The study should also include a five-year safety review of the intersection of Grand River Avenue and Tahoe Boulevard. The full requirements of the study should be verified by the individual or firm performing the traffic impact study with the Township Engineer prior to performing the study.

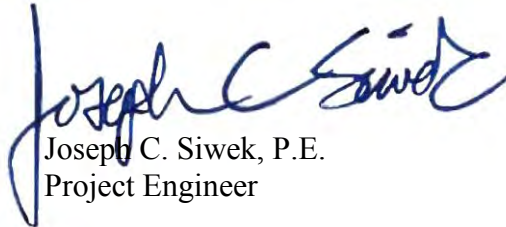
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We recommend the petitioner address the issues noted above and resubmit these documents for review prior to receiving approval from the Township.

Sincerely,



Gary J. Markstrom, P.E.
Unit Vice President



Joseph C. Siwek, P.E.
Project Engineer

Copy: Jennifer Lunsford, Lockwood Companies

NOTE FROM K. VANMARTER:

**THIS IMPACT ASSESSMENT APPIES TO BOTH THE REZONING AND SITE PLAN.
THE SAME DOCUMENT IS USED FOR AGENDA ITEMS 2 & 3.**

**IMPACT ASSESSMENT
FOR
“LAKESHORE VILLAGE PHASE III”
RE-ZONING AND SITE PLAN APPROVAL
GENOA TOWNSHIP
LIVINGSTON COUNTY, MI**

Prepared for:

**THE LOCKWOOD COMPANIES
c/o Ms. Jennifer Lunsford
27777 Franklin Road, Suite 1410
Southfield, MI 48034**

Prepared by:

**BOSS ENGINEERING COMPANY
3121 EAST GRAND RIVER AVE
HOWELL, MICHIGAN 48843
517-546-4836
BE Project No. 16-010**

February 1, 2016
revised February 24, 2016

INTRODUCTION

The purpose of this Impact Assessment (IA) report is to show the effect that this proposed development has on various factors in the general vicinity of the project. The format used for presentation of this report conforms to the *Submittal Requirements For Impact Assessment/Impact Statement* guidelines in accordance with Section 13.05 of the published Zoning Ordinance for Genoa Township, Livingston County, Michigan.

DISCUSSION ITEMS

A. Name(s) and address(es) of person(s) responsible for preparation of the impact assessment and a brief statement of their qualifications.

Prepared By:
BOSS ENGINEERING COMPANY
3121 E. Grand River
Howell, Michigan 48843
Phone: 517-546-4836

Prepared For:
Ms. Jennifer Lunsford
The Lockwood Companies
27777 Franklin Road, Suite 1410
Southfield, MI 48034

B. Description of the site, including existing structures, man made facilities, and natural features, all-inclusive to within 10' of the property boundary.

The subject site is located on the east side of Chilson Road, bounded on the south by the Chesapeake & Ohio Railroad and on the north by the existing Lakeshore Village Phase II property. The site improvements are located on a part a property owned by Lakeshore Village, LDHA, LP. The parcel number is 4711-06-400-015. The overall acreage of the site is 27.80 acres. The property is located in the Southeast ¼ of Section 6, T2N-R5E, Genoa Township, Livingston County, Michigan. Current zoning of the site is MDR (Medium Density Residential).

Currently on site is an existing natural gas well and access driveway located within easements.

The site is gently rolling with areas of steeper slopes and generally slopes from the Northwest to the Southeast, with a county drain (Marion-Genoa County Drain Branch No. 3) that flows to a culvert under the railroad at the south end of the site. Elevations vary between 969.0± and 935.0±, respectively.

Adjacent properties include:

- South – Farmland / Planned Industrial Development (zoned PID)
- North – Lakeshore Village Phase II (zoned MDR) / Single Family Homes (zoned SR)
- East – Industrial Buildings (zoned IND)
- West – Chilson Road / MHOG Sewage Treatment Plant (zoned PRF)

C. Impact on natural features: A written description of the environmental characteristics of the site prior to development, i.e., topography, soils, vegetative cover, drainage, streams, creeks or ponds.

The site is gently rolling with areas of steeper slopes and generally slopes from the Northwest to the Southeast, with a county drain (Marion-Genoa Drain Brain No. 3) that flows to a culvert under the railroad at the south end of the site. Elevations vary between 969.0± and 935.0±, respectively. The USDA Soil Conservation Service "Soil Survey of Livingston County, Michigan", indicates native site soils consist of:

1. MIAMI LOAM (MoB), 2% to 6% slopes. Surface runoff is slow, permeability is moderate, and erosion hazard is slight.
2. MIAMI LOAM (MoC), 6% to 12% slopes. Surface runoff is medium, permeability is moderate, and erosion hazard is moderate.
3. BOYER-OSHTEMO LOAMY SANDS, 2% to 6% slopes. Surface runoff is very slow, permeability is moderately rapid, and erosion hazard is slight.
4. GILFORD SANDY LOAM (Gd), 0% to 2% slopes. Surface runoff is very slow, permeability is moderately rapid, and erosion hazard is slight.
5. CONOVER LOAM (CvA), 0% to 2% slopes. Surface runoff is slow, permeability is moderately slow, and erosion hazard is slight.

Vegetative cover for the site includes heavy woods and low brush cover. There are three main areas that are heavily wooded with predominantly Poplar and Birch scrub vegetation (the majority of which is less than 4-in caliper). These vegetated areas are of low-quality and the majority of will be removed for the development.

The National Wetland Inventory Plan prepared by the United States Department of the Interior, Fish and Wildlife Service indicates that there are no wetlands located on the site. However, preliminary field observations of the site indicate that wetlands are present onsite.

Site drainage from the proposed site will be directed to storm sewers for conveyance. All site drainage will be directed into multiple proposed detention basins on site. The proposed detention basins will outlet to the existing Marion-Genoa County Drain Branch No. 3 located onsite.

D. Impact on storm water management: description of soil erosion control measures during construction.

Surface runoff during periods of construction will be controlled by proper methods set forth by the Livingston County Drain Commissioner. These methods shall include silt fence, silt sacks, and seeding with mulch and/or matting.

At the time of construction, there may be some temporary dust, noise, vibration and smoke, but these conditions will be of relatively short duration and shall be controlled by applying appropriate procedures to minimize the effects, such as watering if necessary for dust control.

E. Impact on surrounding land use: Description of proposed usage and other man made facilities; how it conforms to existing and potential development patterns. Effects of added lighting, noise or air pollution which could negatively impact adjacent properties.

The applicant is proposing to construct new buildings and parking lots. The new buildings will consist of apartments and a business center for the development. The property on which the site development is located is MDR (Medium Density Residential). As part of this proposal, the property is proposed to be rezoned to HDR (High Density Residential). This is consistent with Genoa Township's 2013 Master Plan Update. The proposed buildings and parking lots conform to the existing and potential land development patterns in the area.

The existing vegetation onsite is of poor quality and will be removed for the proposed development. Proposed landscaping will enhance the character of the existing site.

Chilson Road presently experiences a medium volume of traffic along with associated noise level generated from commercial vehicles. The proposed buildings are expected to accommodate an increase in residents, which is consistent with the property's proposed zoning (HDR). There will be minimal increase in the amount of noise emanating from the site due to the proposed site improvements.

Additional lighting is proposed on site and is to be directed away from adjacent properties to limit adverse affects of lighting. Proposed landscaping along the property boundary will help serve as a

visual buffer and as a noise buffer. Additional noise created by the development will be minimal and due to the nature of the adjacent properties (commercial and industrial facilities to the east, residential properties to the north, sewage treatment plant to the west), there will be very low impact. There will be no increase in the amount of odor emanating from the site.

F. Impact on public facilities and services: Description of number of residents, employees, patrons, and impact on general services, i.e., schools, police, fire.

The proposed development is planned to include the construction of 144 residential apartment units, with an expected 255 residents added to the community. This expected total includes 156 adults and 99 children. The additional residents will not cause a significant change in the availability of services.

G. Impact on public utilities: Description of public utilities serving the project, i.e., water, sanitary sewer, and storm drainage system. Expected flows projected in residential units.

There are new water, sanitary, and storm sewer drainage services proposed for the apartments, business center, and parking lots.

A new water main service is proposed to tie into the existing watermain that is located north of the subject site in Lakeshore Village Phase II on St Clair Ct. The new water main will be constructed through the development to the intersection of the private road entrance on Chilson Road for future extensions.

A new storm sewer system is proposed throughout the site and will connect two new detention basins on the southeast and south central areas of the site. These basins will both outlet to the existing Marion-Genoa County Drain Branch No. 3.

A new sanitary sewer system is proposed throughout the site and will connect to an existing sanitary sewer located in Victory Drive that drains to an existing lift station through an existing easement the adjacent site to the east of the subject site.

H. Storage or handling of any hazardous materials: Description of any hazardous materials used, stored, or disposed of on-site.

Lakeshore Village Phase III will not be storing or handling any hazardous materials.

I. Impact on traffic and pedestrians: Description of traffic volumes to be generated and their effect on the area.

The proposed expansion of the apartment community will house residents who will work in the surrounding community. Based on the Institute of Transportation Engineers' Trip Generation Manual, the expected increase of traffic volumes correlates with Land-Use #221 (Low-Rise Apartments). With the construction of 144 apartment units, the expected vehicular trips generated from this development will be 1,125 total trips per day with an AM peak volume of 79 trips and a PM peak volume of 99 trips.

The current residents of Lakeshore Village Apartments Phases I & II exit the property from Tahoe Boulevard at East Grand River Avenue. A sampling of traffic patterns from the existing residents indicates that approximately 16% of traffic is traveling westbound on East Grand River Avenue during the AM peak time period. Tahoe Boulevard is three lanes at the intersection with East Grand River Avenue with two exiting lanes and one entrance lane.

With the addition of the new driveway on Chilson Road that is proposed as a part of this development, an alternate route for traffic travelling westbound on East Grand River Avenue will be provided. Exiting right turns from the new driveway will travel approximately one mile north to the signalized intersection of East Grand River Avenue and Chilson Road. Since the Latson Road/I-96 interchange was constructed in 2013, Chilson Road traffic volumes have decreased more than 50%. With the reduction of traffic volumes on Chilson Road, this development will have minimal impact on traffic volumes at the intersection of East Grand River Avenue and Chilson Road.

The Livingston County Road Commission has determined that the additional traffic generated by this development will require acceleration and deceleration lanes, but bypass or left-turn lanes will not be required.

Since the community trash enclosure is located near the driveway on Chilson Rd, it is expected that residents will utilize this feature and continue to exit the development out to Chilson Road. In addition, through an information campaign, the developer will also encourage existing residents of Lakeshore Village Apartments Phases I & II who are traveling westbound on East Grand River Avenue to utilize the Chilson Road driveway, reducing wait times at the intersection of Tahoe Boulevard and East Grand River Avenue.

J. Special provisions: Deed restrictions, protective covenants, etc.

There is an existing natural gas well and access driveway located on the subject property. The existing easements for the well and driveway will be adjusted to ensure access and operation of the well

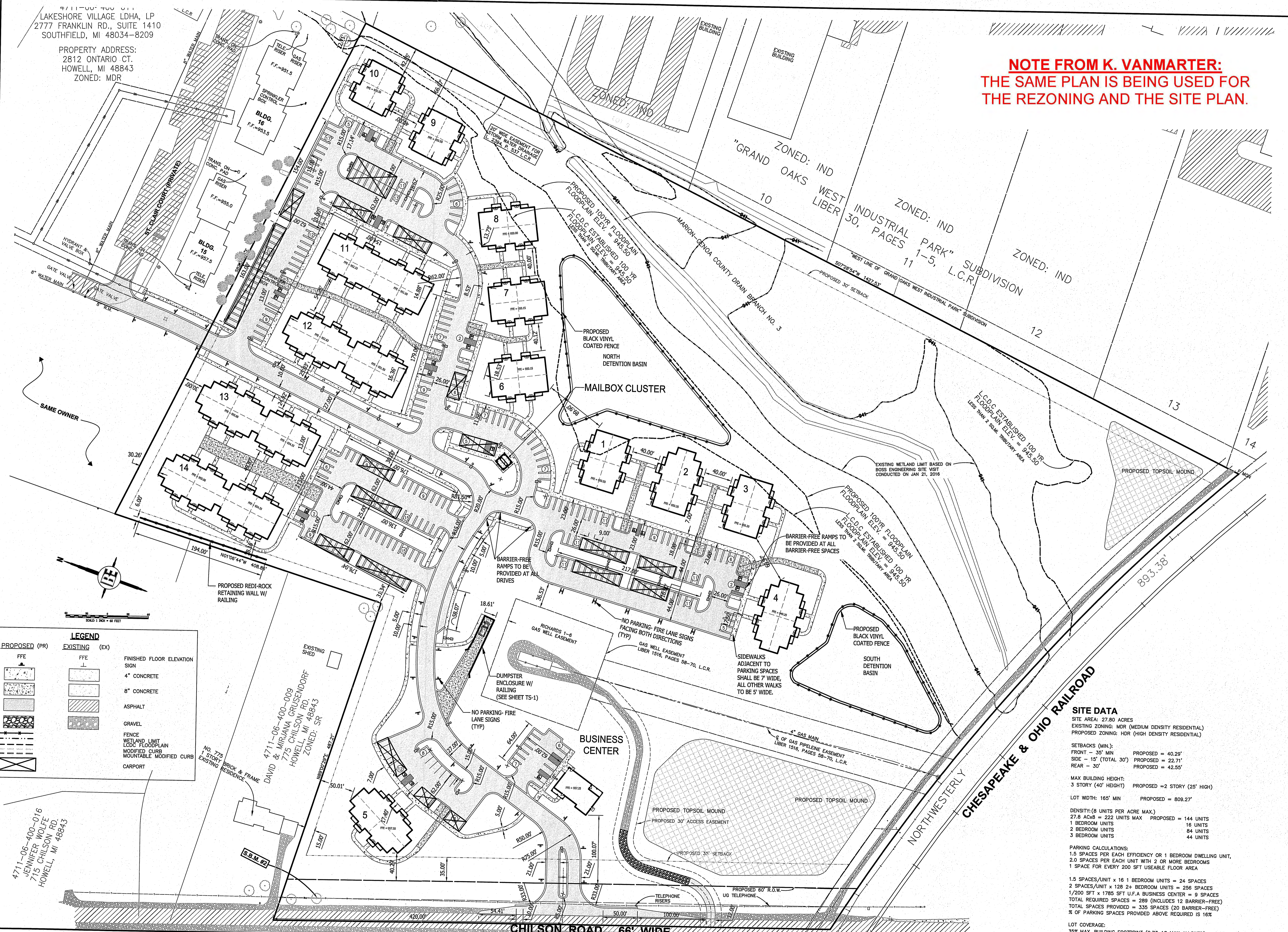
K. Description of all sources:

- Genoa Township Zoning Ordinance
- 2013 Genoa Township Master Plan Update
- "Soil Survey of Livingston County, Michigan" Soil Conservation Services, U.S.D.A.
- National Wetlands Inventory, U.S. Department of Interior, Fish and Wildlife Service
- Lockwood Development Company Topographic Survey (BE #15-357 - October 2015)

4711-00-400-011
 LAKESHORE VILLAGE LDHA, LP
 2777 FRANKLIN RD., SUITE 1410
 SOUTHFIELD, MI 48034-8209

PROPERTY ADDRESS:
 2812 ONTARIO CT.
 HOWELL, MI 48843
 ZONED: MDR

NOTE FROM K. VANMARTER:
 THE SAME PLAN IS BEING USED FOR
 THE REZONING AND THE SITE PLAN.



LEGEND

PROPOSED (PR)	EXISTING (EX)	
FFE	FFE	FINISHED FLOOR ELEVATION SIGN
[Pattern]	[Pattern]	4" CONCRETE
[Pattern]	[Pattern]	8" CONCRETE
[Pattern]	[Pattern]	ASPHALT
[Pattern]	[Pattern]	GRAVEL
[Pattern]	[Pattern]	FENCE
[Pattern]	[Pattern]	WETLAND LIMIT
[Pattern]	[Pattern]	LODC FLOODPLAIN
[Pattern]	[Pattern]	MODIFIED CURB
[Pattern]	[Pattern]	MOUNTABLE, MODIFIED CURB
[Pattern]	[Pattern]	CARPORIT

SITE DATA

SITE AREA: 27.80 ACRES
 EXISTING ZONING: MDR (MEDIUM DENSITY RESIDENTIAL)
 PROPOSED ZONING: HDR (HIGH DENSITY RESIDENTIAL)

SETBACKS (MIN.):
 FRONT - 35' MIN PROPOSED = 40.29'
 SIDE - 15' (TOTAL 30') PROPOSED = 22.71'
 REAR - 30' PROPOSED = 42.55'

MAX BUILDING HEIGHT:
 3 STORY (40' HEIGHT) PROPOSED = 2 STORY (25' HIGH)

LOT WIDTH: 165' MIN PROPOSED = 809.27'

DENSITY: (8 UNITS PER ACRE MAX.)
 27.8 AC x 8 = 222 UNITS MAX PROPOSED = 144 UNITS
 1 BEDROOM UNITS 16 UNITS
 2 BEDROOM UNITS 84 UNITS
 3 BEDROOM UNITS 44 UNITS

PARKING CALCULATIONS:
 1.5 SPACES PER EACH EFFICIENCY OR 1 BEDROOM DWELLING UNIT,
 2.0 SPACES PER EACH UNIT WITH 2 OR MORE BEDROOMS
 1 SPACE FOR EVERY 200 SFT USEABLE FLOOR AREA

1.5 SPACES/UNIT x 16 1 BEDROOM UNITS = 24 SPACES
 2 SPACES/UNIT x 128 2+ BEDROOM UNITS = 256 SPACES
 1/200 SFT x 1785 SFT U.F.A BUSINESS CENTER = 9 SPACES
 TOTAL REQUIRED SPACES = 289 (INCLUDES 12 BARRIER-FREE)
 TOTAL SPACES PROVIDED = 335 SPACES (20 BARRIER-FREE)
 % OF PARKING SPACES PROVIDED ABOVE REQUIRED IS 16%

LOT COVERAGE:
 35% MAX. BUILDING FOOTPRINT (9.73 AC MAX ALLOWED) = 2.05 AC (7.37%) PROVIDED
 50% MAX. IMPERVIOUS SURFACE (13.9 AC MAX ALLOWED) = 6.44 AC (23.16%) PROVIDED

BEFORE YOU DIG
 CALL MISS DIG
 1-800-482-7171
 MISS DIG

BEBOSS
 Engineering
 Engineers Surveyors Planners Landscape Architects
 3121 E. GRAND RIVER AVE.
 HOWELL, MI. 48843
 800.246.6735 FAX 517.548.1670

PROJECT: LAKESHORE VILLAGE APARTMENTS - PHASE 3
 PREPARED FOR: THE LOCKWOOD COMPANIES
 27777 FRANKLIN ROAD, SUITE 1410
 SOUTHFIELD, MI 48034
 248.433.7401

SITE PLAN

NO.	BY	DATE	REVISION PER
1	RD	2/24/2016	

DESIGNED BY: TD
 DRAWN BY: RD
 CHECKED BY:
 SCALE: 1" = 60'
 JOB NO. 16-010
 DATE 2-3-2016
 SHEET NO. C5



GENOA CHARTER TOWNSHIP
Application for Site Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: Lockwood Companies, 27777 Franklin Road, Suite 1410, Southfield, MI 48034
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: Lockwood Companies

SITE ADDRESS: 2812 Ontario Court PARCEL #(s): 11-06-400-015

APPLICANT PHONE: (248) 433-7401 OWNER PHONE: (248) 203-0991


OWNER EMAIL: mlockwood@lockwoodcompanies.com

LOCATION AND BRIEF DESCRIPTION OF SITE: Vacant Land

BRIEF STATEMENT OF PROPOSED USE: Multi Family Affordable Housing

THE FOLLOWING BUILDINGS ARE PROPOSED: _____

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: 

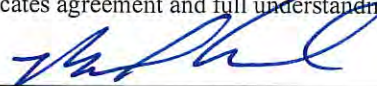
ADDRESS: 27777 Franklin Road, Suite 1410, Southfield, MI 48034

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

1.) Jennifer Lunsford of Lockwood Companies at jlunsford@lockwoodcompanies.com
Name Business Affiliation E-mail Address

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE:  DATE: 12/8/2015
PRINT NAME: Mark Lockwood PHONE: 248-203-0991
ADDRESS: 27777 Franklin Road, Suite 1410, Southfield, MI 48034



March 8, 2016

Planning Commission
 Genoa Township
 2911 Dorr Road
 Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Assistant Township Manager and Planning Director
Subject:	Lakeshore Village – Site Plan Review #2
Location:	Chilson Road – east side of Chilson, between Grand River and C&O Railroad
Zoning:	MDR Medium Density Residential District

Dear Commissioners:

At the Township’s request, we have reviewed the revised site plan (dated 2/24/16) proposing an expansion of the Lakeshore Village multiple family development. The proposed expansion, which is identified as Phase 3, is located on an adjacent parcel to the south that was recently purchased.

As a point of information, this parcel is currently under consideration for a change in zoning from MDR to HDR to accommodate the proposal. The rezoning considerations are found in separate review letter (dated March 8, 2016) from our office. Favorable consideration of this site plan should be contingent upon Township Board approval of the rezoning request.

We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance.

A. Summary

1. Favorable consideration on the site plan should be contingent upon approval of the rezoning request.
2. The applicant requests modification to the building material requirements of Section 12.01.

B. Proposal/Process

The applicant requests site plan review and approval for a new multiple family residential development. The applicant proposes nine buildings consisting of 144 apartment units, along with a business center and club house.

As noted above, the applicant is currently seeking a rezoning of the site from MDR to HDR. We have reviewed the revised site plan based on requirements for the HDR District.

C. Site Plan Review

1. **Dimensional Requirements.** As described in the table below, the proposed project meets the dimensional standards of the HDR district:

District	Lot Size		Minimum Setbacks (feet)				Max. Height	Max. Coverage
	Density	Width (feet)	Front Yard	Side Yard	Internal	Rear Yard		
HDR	8 units/acre	165	35	15	20	30	40’ (3 stories)	35% building 50% impervious
Proposal	5.18 units/acre	809.27	40.29	22.71 (N) 29 (S)	20	42.55	25’ (2 stories)	7.37% building 23.16% impervious



Aerial view of site and surroundings (looking north)

- 2. Building Design and Materials.** Proposed elevations, including colors and materials, are subject to review and approval by the Planning Commission.

The submittal includes elevation drawings showing a pitched roof traditional design with covered entries, balconies, and windows with shutters. The primary building material is vinyl siding. Section 12.01 limits use of vinyl siding to no more than 25% for walls visible from public roads or parking lots.

In response to our first review of this site plan, the applicant states that they feel it is important to maintain continuity from Phases 1 and 2 of Lakeshore Village. They state the inclusion of masonry as a primary material would render this final phase a completely different project. As such, the applicant asks the Planning Commission to modify the building material requirements.

- 3. Parking.** The proposal requires 289 parking spaces, while 335 are proposed. The amount of parking proposed (116%) is within the maximum amount allowed (120%) per Section 14.02.06.

Proposed parking spaces and drive aisles meet or exceed the minimum standards of Section 14.06, while the number of barrier free spaces (20) exceeds the minimum amount required (12).

Lastly, the carports meet the requirements per Section 14.02.07.

- 4. Pedestrian Circulation.** The site plan proposes 7 foot sidewalks adjacent to parking spaces with internal walks of 5 feet. Sidewalks connect each building and parking lot and to the mailbox cluster, business center, and dumpster. No sidewalk is proposed along Chilson Road (nor is one required).
- 5. Vehicular Circulation.** The plan includes a new driveway on Chilson Road and a drive aisle connection to the existing Lakeshore Village development to the north.

6. Landscaping. The table below is a summary of the landscaping required by Section 12.02:

Location	Ordinance Requirement	Landscaping Required	Proposed	Comments
Front yard greenbelt (810 ft.)	20' wide 1 tree per 40' frontage	21 canopy trees 20' width The Planning Commission may approve substitution of evergreen trees for up to 50% of the required trees.	10 canopy trees 16 evergreens 20' width	Requirements met
Detention ponds (1535 ft.)	1 tree, 10 shrubs per 50'	31 trees 307 shrubs	31 trees 310 shrubs	Requirements met
Parking lot (382 spaces, area not provided)	1 canopy tree and 100 sq. ft. of landscaped area per 15 spaces	22 canopy trees 2,200 sq. ft. landscaped area	28 canopy trees 2,500 sq. ft. landscaped area	Requirements met
Buffer Zone "B" (north side) (896 ft.)	1 canopy, 1 evergreen, 4 shrubs per 30'	30 canopy trees 30 evergreen trees 120 shrubs 6' wall/fence or 3' berm 20' width	30 canopy trees 35 evergreen trees 120 shrubs 3-4' berm 25' width	Requirements met

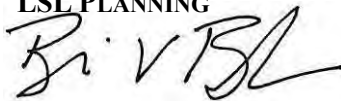
The landscape plan includes additional plantings throughout the site.

- 7. Waste Receptacle and Enclosure.** The site plan identifies a refuse compactor and enclosure northwest of the proposed business center in the southerly portion of the property. Sheet TS-1 includes details showing a concrete wall, steel railing, and wooden gate that meet ordinance requirements.
- 8. Exterior Lighting.** The lighting plan indicates that levels are within the maximums allowed by Ordinance – 10 footcandles on site and 1-footcandle at residential lot lines. The metal halide fixtures also meet the height and shielding requirements of the Ordinance.
- 9. Signs.** The proposal includes one entry monument sign on Chilson, which meets the requirements of Sections 16.07.05 and 16.07.06.
- 10. Impact Assessment.** The submittal includes an Impact Assessment (revised 2/24/16), which notes that the proposed project is not expected to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

Should you have any questions concerning this matter, please do not hesitate to contact our office. We can be reached by phone at (248) 586-0505, or via e-mail at borden@lslplanning.com and duffy@lslplanning.com.

Sincerely,

LSL PLANNING



Brian V. Borden, AICP
 Principal Planner



Kathleen Duffy, AICP
 Senior Planner



March 9, 2016

Ms. Kelly Van Marter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

Re: Lakeshore Village Apartments Phase 3 - Rezoning Site Plan Review #2

Dear Ms. Van Marter:

We have reviewed the resubmitted package for the Lakeshore Village Apartments Phase 3 site plan and rezoning request dated February 24, 2016, from The Lockwood Companies, prepared by Boss Engineering. The site is located on the east side of Chilson Road, bounded on the south by the Chesapeake & Ohio railroad and on the north by the existing Lakeshore Village Phase 2 property. The petitioner has requested rezoning of the parcels from Medium Density Residential (MDR) to High Density Residential (HDR), and provided a corresponding site plan and impact assessment documents. Tetra Tech has reviewed the documents and has the following comments for Township consideration:

SUMMARY

1. Narrative for 100-year floodplain impact.
2. Traffic impacts need to be evaluated.

COMMENTS

1. The previous letter held concern for the compensating excavation for fills to be placed within the 100-year floodplain and how excavation must be made to truly compensate for fill in similar flood stage elevations. A table was provided showing that the excavation has been made accordingly to provide a positive cut balance to the site, however, there is still some concern for the mechanics of how water will enter these basins from lower flood stages. For example, this site shows the existing 100-year flood elevation to be 945.5, with bottom of drain 938-939 and bottom of basins at 940. The question remains whether enough water from a 50-year storm work its way up the overflow pipes to the basins, and then fill the basin through the riser pipe holes quickly enough to compensate for the rise in flood levels on the site. A quick review of the 100-year floodplain did not show many potential impacts immediately adjacent to the site, but our experiences in permitting similar projects with the state has been to demonstrate there is enough freeboard around the floodplain to absorb a temporary increase in flood elevation to allow for these basins to reverse

Tetra Tech

401 South Washington Square, Suite 100, Lansing, MI 48933
Tel 517.316.3930 Fax 517.484.8140 www.tetrattech.com

- fill. Please provide some additional analysis and reassurance to the anticipated backwater levels so that, should the MDEQ review in closer detail, all documentation is in place.
2. An updated traffic impact study will need to be performed for the final phase of the development. The study will need to evaluate the operation of the existing and proposed driveways, as well as the intersection of Grand River Avenue and Chilson Road. The intent of the study is to determine how the existing drive operates with the proposed increased development density and then also what improvements need to be made to the Chilson Road drive such as bypass lanes or dedicated turn lanes. The study should also include a five-year safety review of the intersection of Grand River Avenue and Tahoe Boulevard. The full requirements of the study should be verified by the individual or firm performing the traffic impact study with the Township Engineer prior to performing the study.

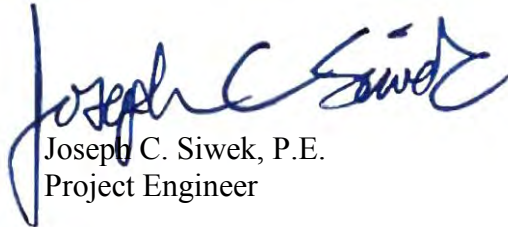
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We recommend the petitioner address the issues noted above and resubmit these documents for review prior to receiving approval from the Township.

Sincerely,



Gary J. Markstrom, P.E.
Unit Vice President



Joseph C. Siwek, P.E.
Project Engineer

Copy: Jennifer Lunsford, Lockwood Companies



BRIGHTON AREA FIRE AUTHORITY

615 W. Grand River Ave.
Brighton, MI 48116
o: 810-229-6640 f: 810-229-1619

March 9, 2016

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: Lakeshore Village Phase 3
2812 Ontario Court
Howell (Genoa Twp.), MI 48843

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on February 25, 2016 and the drawings are dated February 3, 2016 with latest revisions dated February 24, 2016. The project is for the proposed construction of Phase III of an existing multi-family dwelling community. The plan is for the construction 15 new buildings and new infrastructure appropriate for the use. The entire phase will add a new business office/health center and 14 multi-family buildings adding 144 new apartments to the community. There are numerous building floor plans and sizes planned for the buildings. The plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

1. The buildings shall be provided with an automatic sprinkler system in accordance with NFPA 13R, *Standard for the Installation of Sprinkler Systems in Residential Occupancies Up To and Including Four-Stories in Height*.

IFC 903.2.8

 - A. The Fire Department Connection (FDC) for each building shall be located on the front (street side) of the building as directed by the fire department at plan review.
 - B. The FDC shall be located that a fire hydrant is within 100' of the connection.
 - C. The size, gate valve, and connection of the fire protection lead shall be indicated on the utility site plan. Utility Plan is unclear on the location and size due to scaling of drawing.
(All items have been addressed on the Fire Protection Plan)
2. As it relates to fire hydrants for fire protection water supply the following proposed hydrants require relocation on the proposed plan: 1) Hydrant between Buildings 3 & 4 needs to be moved 40' Northwest to the corner of the parking lot, 2) Hydrant on East side of Building 13 needs to be moved 100' to the North and 3) Hydrant on East side of Building 11 move 90' South to the corner. **(Locations have been revised on the Utility Plan)**
3. Additional hydrants need to be added to the following locations: 1) Near the Northwest corner of Building 9 at curb corner (near symbol CO28B), 2) Northwest inside corner of the parking lot immediately South of Building 14. **(New locations have been added to the Utility Plan)**



4. The building address shall be displayed on the street side of the building. The address shall be a **minimum of 6"** high letters of contrasting colors and be clearly visible from the street. The location and size shall be verified prior to installation. **(Noted and shown on architectural elevations)**

IFC 505.1

5. The access roads through the site shall be a minimum of 26' wide. With a width of 26' wide, the following areas shall be marked as a fire lane: 1) Areas of the main thoroughfare from Chilson to the connection at St. Clair Ct. where the road is immediately adjacent to a building, 2) Both sides at the Southeast Corner of Building 11 between Buildings 7 & 8, 3) West side (Front) of Building 9, 4) West side of parking lot running North/South from Building 4.

Signage shall be placed every 50'. Include the location of the proposed fire lane signage and include a detail of the fire lane sign in the submittal. Access roads to site shall be provided and maintained during construction. **(Road width has been revised throughout and signage included with detail drawing)**

IFC 503.2

IFC 503.3

IFC D 106.3

6. One-way drives entering and exiting at Chilson Rd. shall be a minimum clear width of 20'. **(Road width revised on Site Layout)**

IFC 503.2.1

7. Access roads shall be constructed to be capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds. **(Noted with detail provided on Construction Details Sheet)**

IFC D 102.1

8. Access through site and around buildings shall provide emergency vehicles with a turning radius of 50' outside and 30' inside with a minimum vertical clearance of 13 ½ feet. Provide an emergency vehicle circulation plan for all areas. **(Revised on Fire Protection Plan, Emergency Vehicle circulation has been provided)**

IFC 503.2.1

IFC 503.2.4

9. Apparatus access roads shall be provided for all buildings and shall extend to within 150' of the entire first floor of each building and be provided the entire length of at least one side of each building. By meeting the aerial apparatus access road setback requirements this may be accomplished with the exception being the configuration of buildings 13 and 14. Alteration to the building locations, adjacent parking area and access road must be reconfigured to provide for proper access that meets setback and 150' access. **(Revised on drawings by providing a mountable curb and 20' wide access drive between Buildings 13 & 14, as well as by providing mountable curbs and 8' fire access drives between all other buildings. Provide a sign at the entrance of the mountable curb of access drives stating, "Emergency Vehicles Only")**

IFC 503.1.1

10. Access roads shall be provided at a minimum distance of 15' from each building with a maximum distance of 30'. Buildings 1-6, 9-11 and 14 do not meet this requirement. **(Distances have been revised on drawings)**

IFC D 105.1



11. The location of a key box (Knox Box) shall be indicated on future submittals. The Knox box will be located adjacent to the front door of each new building. **(Noted to be provided at the Fire Protection Riser Rooms. Riser room doors must be labeled, "Fire Riser Room")**
IFC 506.1
12. Provide names, addresses, phone numbers, emails of owner or owner's agent, contractor, architect, on-site project supervisor. **(Project design team is identified on Cover Sheet. Contractor's information shall be provided at initiation of construction)**

Additional comments will be given during the building plan review process (specific to the building plans and occupancy). The applicant is reminded that the fire authority must review the fire protection systems submittals (sprinkler & alarm) prior to permit issuance by the Building Department and that the authority will also review the building plans for life safety requirements in conjunction with the Building Department. If you have any questions about the comments on this plan review please contact me at 810-229-6640.

Cordially,

A handwritten signature in black ink, appearing to read "R. Boisvert".

Capt. Rick Boisvert, CFPS
Fire Inspector

From: [Brent LaVanway](#)
To: [Kelly VanMarter](#); [Gary Markstrom \(gary.markstrom@tetrattech.com\)](#)
Cc: [RLockwood@lockwoodcompanies.com](#); [Jennifer Lunsford](#); [Mark Korinek](#)
Subject: FW: Lakeshore Village Apts Ph. III - Traffic Impact
Date: Wednesday, March 09, 2016 6:39:37 AM

Hi Kelly and Gary, we had submitted our traffic assessment to Wendy Ramirez at MDOT in regard to the signalization at Chilson and Grand River to seek her input. Please see below for her response. Thanks.



Brent LaVanway, P.E.

Vice President
Director of Engineering
brentl@bosseng.com

3121 E. Grand River
Howell, Michigan 48843
tel 517.546.4836 / fx 517.548.1670

www.bosseng.com

Engineers / Surveyors / Planners / Landscape Architects

From: Ramirez, Wendy (MDOT) [<mailto:RamirezW@michigan.gov>]
Sent: Tuesday, March 08, 2016 4:23 PM
To: Marc Jones <marcj@bosseng.com>
Cc: Brent LaVanway <brentl@bosseng.com>; Hodges, Andrew (MDOT) <Hodgesa@michigan.gov>
Subject: RE: Lakeshore Village Apts Ph. III - Traffic Impact

Mr. Jones,

I have reviewed your assessment and verified that the volumes on Chilson Road have decreased by 50% with the opening of Latson Road. With the new connection of Tahoe Road to Chilson Road, this could slightly increase the left turns from Northbound Chilson at Grand River. However, this increase is not anticipated to cause negative impacts to the signal operation due to the reduction of volumes on Chilson Rd. In regards to the left turning traffic from WB Grand River to Chilson, left turn phasing already exists at this location.

Therefore, I agree with your assessment.

Thank you and please contact me with any questions.

Wendy Ramirez
Traffic & Safety Engineer
MDOT-Brighton TSC

810-225-2626

RamirezW@michigan.gov

 Please consider the environment before printing this email. Thanks!

From: Mark Jones (<mailto:marcj@bosseng.com>)
Sent: Wednesday, February 24, 2016 2:08 PM
To: Ramirez, Wendy (MDOT) <RamirezW@michigan.gov>
Cc: Brent LaVanway <brentl@bosseng.com>
Subject: Lakeshore Village Apts Ph. III - Traffic Impact

Ms. Ramirez –

I left you a voicemail about our project in Genoa Twp. Our client is seeking approvals for a 144 unit apartment complex expansion of the existing Lakeshore Village apartments near the intersection of E Grand River Ave and Chilson Rd. The township has some concerns about the impact our additional traffic may have at this signalized intersection.

According to the ITE Trip Generation Manual, we will be generating 1125 total trips per day with 79 trips at the AM peak and 99 trips at the PM peak. A sampling of traffic patterns from the existing residents indicates that approximately 16% of traffic is traveling westbound on East Grand River Avenue during the AM peak time period. It is expected that this directional distribution will be continued with the new phase of the development.

According to the Livingston County Road Commission, since the Latson Rd/I-96 interchange was constructed in 2013, traffic volumes on Chilson Rd have been reduced by over 50% (counts: 2012 – 6110 vehicles/day, 2014 – 2908 vehicles/day). We feel that with the reduced traffic volumes on Chilson Rd, any impact this development will have on traffic volumes at the intersection of E Grand River Ave and Chilson Rd will be negligible.

Would you be willing to provide a response that we can submit to the Township agreeing with this assessment?

Please feel free to contact me if you have any questions.

Thanks



Marc P. Jones, P.E.
Senior Project Manager
marcj@bosseng.com

3121 E. Grand River
Howell, Michigan 48843



2911 Dorr Road
Brighton, MI 48116
810.227.5225
810.227.3420 fax
genoa.org

MEMORANDUM

TO: File

FROM: Kelly VanMarter, Assistant Township Manager/Community Development Director

DATE: March 8, 2016

RE: Lakeshore Village Phase 3 Connection Fees

This memo will describe the water and sewer connection fees for the proposed 144 unit phase 3 expansion of the Lakeshore Village apartments.

ANALYSIS OF EXISTING: Township staff has analyzed the usage data for the existing Lakeshore Village Phase 1. Using the information provided I have determined that the per unit REU factor should be calculated using 0.57 REU per unit.

ANALYSIS OF PROPOSED PHASE 3: In consideration of the usage statistics discussed above the water and sewer connection fees for the 144 unit expansion is provided as follows: 144 units x 0.57 REU per unit = 82 REU's

CONNECTION CHARGES:

Water	82 REU @ \$7,900 (MHOG Water) =	\$ 647,800.00
Sewer	82 REU @ \$7,200 (G/O Sewer) =	\$ 590,400.00

Total amount due: \$ 1,238,200.00

SUPERVISOR

Gary T. McCririe

CLERK

Paulette A. Skolarus

TREASURER

Robin L. Hunt

MANAGER

Michael C. Archinal

TRUSTEES

H. James Mortensen

Jean W. Ledford

Todd W. Smith

Linda Rowell

**IMPACT ASSESSMENT
FOR
“LAKESHORE VILLAGE PHASE III”
RE-ZONING AND SITE PLAN APPROVAL
GENOA TOWNSHIP
LIVINGSTON COUNTY, MI**

Prepared for:

**THE LOCKWOOD COMPANIES
c/o Ms. Jennifer Lunsford
27777 Franklin Road, Suite 1410
Southfield, MI 48034**

Prepared by:

**BOSS ENGINEERING COMPANY
3121 EAST GRAND RIVER AVE
HOWELL, MICHIGAN 48843
517-546-4836
BE Project No. 16-010**

February 1, 2016
revised February 24, 2016

INTRODUCTION

The purpose of this Impact Assessment (IA) report is to show the effect that this proposed development has on various factors in the general vicinity of the project. The format used for presentation of this report conforms to the *Submittal Requirements For Impact Assessment/Impact Statement* guidelines in accordance with Section 13.05 of the published Zoning Ordinance for Genoa Township, Livingston County, Michigan.

DISCUSSION ITEMS

A. Name(s) and address(es) of person(s) responsible for preparation of the impact assessment and a brief statement of their qualifications.

Prepared By:
BOSS ENGINEERING COMPANY
3121 E. Grand River
Howell, Michigan 48843
Phone: 517-546-4836

Prepared For:
Ms. Jennifer Lunsford
The Lockwood Companies
27777 Franklin Road, Suite 1410
Southfield, MI 48034

B. Description of the site, including existing structures, man made facilities, and natural features, all-inclusive to within 10' of the property boundary.

The subject site is located on the east side of Chilson Road, bounded on the south by the Chesapeake & Ohio Railroad and on the north by the existing Lakeshore Village Phase II property. The site improvements are located on a part a property owned by Lakeshore Village, LDHA, LP. The parcel number is 4711-06-400-015. The overall acreage of the site is 27.80 acres. The property is located in the Southeast ¼ of Section 6, T2N-R5E, Genoa Township, Livingston County, Michigan. Current zoning of the site is MDR (Medium Density Residential).

Currently on site is an existing natural gas well and access driveway located within easements.

The site is gently rolling with areas of steeper slopes and generally slopes from the Northwest to the Southeast, with a county drain (Marion-Genoa County Drain Branch No. 3) that flows to a culvert under the railroad at the south end of the site. Elevations vary between 969.0± and 935.0±, respectively.

Adjacent properties include:

- South – Farmland / Planned Industrial Development (zoned PID)
- North – Lakeshore Village Phase II (zoned MDR) / Single Family Homes (zoned SR)
- East – Industrial Buildings (zoned IND)
- West – Chilson Road / MHOG Sewage Treatment Plant (zoned PRF)

C. Impact on natural features: A written description of the environmental characteristics of the site prior to development, i.e., topography, soils, vegetative cover, drainage, streams, creeks or ponds.

The site is gently rolling with areas of steeper slopes and generally slopes from the Northwest to the Southeast, with a county drain (Marion-Genoa Drain Brain No. 3) that flows to a culvert under the railroad at the south end of the site. Elevations vary between 969.0± and 935.0±, respectively. The USDA Soil Conservation Service "Soil Survey of Livingston County, Michigan", indicates native site soils consist of:

1. MIAMI LOAM (MoB), 2% to 6% slopes. Surface runoff is slow, permeability is moderate, and erosion hazard is slight.
2. MIAMI LOAM (MoC), 6% to 12% slopes. Surface runoff is medium, permeability is moderate, and erosion hazard is moderate.
3. BOYER-OSHTEMO LOAMY SANDS, 2% to 6% slopes. Surface runoff is very slow, permeability is moderately rapid, and erosion hazard is slight.
4. GILFORD SANDY LOAM (Gd), 0% to 2% slopes. Surface runoff is very slow, permeability is moderately rapid, and erosion hazard is slight.
5. CONOVER LOAM (CvA), 0% to 2% slopes. Surface runoff is slow, permeability is moderately slow, and erosion hazard is slight.

Vegetative cover for the site includes heavy woods and low brush cover. There are three main areas that are heavily wooded with predominantly Poplar and Birch scrub vegetation (the majority of which is less than 4-in caliper). These vegetated areas are of low-quality and the majority of will be removed for the development.

The National Wetland Inventory Plan prepared by the United States Department of the Interior, Fish and Wildlife Service indicates that there are no wetlands located on the site. However, preliminary field observations of the site indicate that wetlands are present onsite.

Site drainage from the proposed site will be directed to storm sewers for conveyance. All site drainage will be directed into multiple proposed detention basins on site. The proposed detention basins will outlet to the existing Marion-Genoa County Drain Branch No. 3 located onsite.

D. Impact on storm water management: description of soil erosion control measures during construction.

Surface runoff during periods of construction will be controlled by proper methods set forth by the Livingston County Drain Commissioner. These methods shall include silt fence, silt sacks, and seeding with mulch and/or matting.

At the time of construction, there may be some temporary dust, noise, vibration and smoke, but these conditions will be of relatively short duration and shall be controlled by applying appropriate procedures to minimize the effects, such as watering if necessary for dust control.

E. Impact on surrounding land use: Description of proposed usage and other man made facilities; how it conforms to existing and potential development patterns. Effects of added lighting, noise or air pollution which could negatively impact adjacent properties.

The applicant is proposing to construct new buildings and parking lots. The new buildings will consist of apartments and a business center for the development. The property on which the site development is located is MDR (Medium Density Residential). As part of this proposal, the property is proposed to be rezoned to HDR (High Density Residential). This is consistent with Genoa Township's 2013 Master Plan Update. The proposed buildings and parking lots conform to the existing and potential land development patterns in the area.

The existing vegetation onsite is of poor quality and will be removed for the proposed development. Proposed landscaping will enhance the character of the existing site.

Chilson Road presently experiences a medium volume of traffic along with associated noise level generated from commercial vehicles. The proposed buildings are expected to accommodate an increase in residents, which is consistent with the property's proposed zoning (HDR). There will be minimal increase in the amount of noise emanating from the site due to the proposed site improvements.

Additional lighting is proposed on site and is to be directed away from adjacent properties to limit adverse affects of lighting. Proposed landscaping along the property boundary will help serve as a

visual buffer and as a noise buffer. Additional noise created by the development will be minimal and due to the nature of the adjacent properties (commercial and industrial facilities to the east, residential properties to the north, sewage treatment plant to the west), there will be very low impact. There will be no increase in the amount of odor emanating from the site.

F. Impact on public facilities and services: Description of number of residents, employees, patrons, and impact on general services, i.e., schools, police, fire.

The proposed development is planned to include the construction of 144 residential apartment units, with an expected 255 residents added to the community. This expected total includes 156 adults and 99 children. The additional residents will not cause a significant change in the availability of services.

G. Impact on public utilities: Description of public utilities serving the project, i.e., water, sanitary sewer, and storm drainage system. Expected flows projected in residential units.

There are new water, sanitary, and storm sewer drainage services proposed for the apartments, business center, and parking lots.

A new water main service is proposed to tie into the existing watermain that is located north of the subject site in Lakeshore Village Phase II on St Clair Ct. The new water main will be constructed through the development to the intersection of the private road entrance on Chilson Road for future extensions.

A new storm sewer system is proposed throughout the site and will connect two new detention basins on the southeast and south central areas of the site. These basins will both outlet to the existing Marion-Genoa County Drain Branch No. 3.

A new sanitary sewer system is proposed throughout the site and will connect to an existing sanitary sewer located in Victory Drive that drains to an existing lift station through an existing easement the adjacent site to the east of the subject site.

H. Storage or handling of any hazardous materials: Description of any hazardous materials used, stored, or disposed of on-site.

Lakeshore Village Phase III will not be storing or handling any hazardous materials.

I. Impact on traffic and pedestrians: Description of traffic volumes to be generated and their effect on the area.

The proposed expansion of the apartment community will house residents who will work in the surrounding community. Based on the Institute of Transportation Engineers' Trip Generation Manual, the expected increase of traffic volumes correlates with Land-Use #221 (Low-Rise Apartments). With the construction of 144 apartment units, the expected vehicular trips generated from this development will be 1,125 total trips per day with an AM peak volume of 79 trips and a PM peak volume of 99 trips.

The current residents of Lakeshore Village Apartments Phases I & II exit the property from Tahoe Boulevard at East Grand River Avenue. A sampling of traffic patterns from the existing residents indicates that approximately 16% of traffic is traveling westbound on East Grand River Avenue during the AM peak time period. Tahoe Boulevard is three lanes at the intersection with East Grand River Avenue with two exiting lanes and one entrance lane.

With the addition of the new driveway on Chilson Road that is proposed as a part of this development, an alternate route for traffic travelling westbound on East Grand River Avenue will be provided. Exiting right turns from the new driveway will travel approximately one mile north to the signalized intersection of East Grand River Avenue and Chilson Road. Since the Latson Road/I-96 interchange was constructed in 2013, Chilson Road traffic volumes have decreased more than 50%. With the reduction of traffic volumes on Chilson Road, this development will have minimal impact on traffic volumes at the intersection of East Grand River Avenue and Chilson Road.

The Livingston County Road Commission has determined that the additional traffic generated by this development will require acceleration and deceleration lanes, but bypass or left-turn lanes will not be required.

Since the community trash enclosure is located near the driveway on Chilson Rd, it is expected that residents will utilize this feature and continue to exit the development out to Chilson Road. In addition, through an information campaign, the developer will also encourage existing residents of Lakeshore Village Apartments Phases I & II who are traveling westbound on East Grand River Avenue to utilize the Chilson Road driveway, reducing wait times at the intersection of Tahoe Boulevard and East Grand River Avenue.

J. Special provisions: Deed restrictions, protective covenants, etc.

There is an existing natural gas well and access driveway located on the subject property. The existing easements for the well and driveway will be adjusted to ensure access and operation of the well

K. Description of all sources:

- Genoa Township Zoning Ordinance
- 2013 Genoa Township Master Plan Update
- "Soil Survey of Livingston County, Michigan" Soil Conservation Services, U.S.D.A.
- National Wetlands Inventory, U.S. Department of Interior, Fish and Wildlife Service
- Lockwood Development Company Topographic Survey (BE #15-357 - October 2015)

4711-06-400-014
 LAKESHORE VILLAGE LDHA, LP
 2777 FRANKLIN RD., SUITE 1410
 SOUTHFIELD, MI 48034-8209

PROPERTY ADDRESS:
 2812 ONTARIO CT.
 HOWELL, MI 48843
 ZONED: MDR



LEGEND

---	EXISTING (EX)
-900	CONTOUR
+922.08	SPOT ELEVATION
FF	FINISHED FLOOR ELEVATION
FC	FINISHED GRADE ELEVATION
T/A	TOP OF ASPHALT
T/C	TOP OF CURB / CONCRETE
T/P	TOP OF GRAVEL
T/P	TOP OF PIPE
B/P	BOTTOM OF PIPE
RM	RIM ELEVATION
INV	INVERT ELEVATION
MH	MANHOLE STRUCTURE
IN	INLET STRUCTURE
CB	CATCHBASIN STRUCTURE
ES	END-SECTION GATEVALVE STRUCTURE
GV	GATEVALVE STRUCTURE
HY	HYDRANT
UP	UTILITY POLE
SM	SANITARY SEWER
SL	SANITARY LEAD
FM	FORCE MAIN
PS	PRESSURE SEWER
ST	STORM SEWER
WM	WATER MAIN
WL	WATER LEAD
FO	FIBER OPTIC
OH	OVERHEAD WIRE
C	CABLE
E	ELECTRIC
G	GAS
T	TELEPHONE
MH	MANHOLE
IN	INLET / CATCHBASIN
FL	FLARED END-SECTION
GV	GATE VALVE
HY	HYDRANT
UP	UTILITY POLE
S	SIGN
[Hatched Box]	CONCRETE
[Dotted Box]	ASPHALT

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS PLAN ARE BASED ON RECORD PLANS AND FIELD SURVEY. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

BEFORE YOU DIG
 CALL MISS DIG
 1-800-482-7171

BEBOSS
 Engineering
 Engineers Surveyors Planners Landscape Architects
 3121 E. GRAND RIVER AVE.
 HOWELL, MI. 48843
 800.246.6735 FAX 517.548.1670

PROJECT
 LAKESHORE VILLAGE APARTMENTS - PHASE 3
PREPARED FOR
 THE LOCKWOOD COMPANIES
 27777 FRANKLIN ROAD, SUITE 1410
 SOUTHFIELD, MI 48034
 246.433.7401

EXISTING CONDITIONS & DEMOLITION PLAN

DATE	2/24/2016
DESIGNED BY:	RD
DRAWN BY:	RD
CHECKED BY:	
SCALE	1" = 60'
JOB NO.	16-010
DATE	2-3-2016
SHEET NO.	C2

CURVE DATA
 ARC=893.38'
 RAD=2834.50'
 Δ=18°03'31"
 CH BRG=N67°50'07"W
 CH DIST=688.69'

BENCHMARK DATA
 S.B.M. #1
 MAG NAIL IN CENTERLINE OF CHILSON ROAD
 AT CENTERLINE OF CHESAPEAKE & OHIO
 RAILROAD.
 ELEVATION = 955.64
 S.B.M. #2
 MAG NAIL IN WEST FACE OF 30" WALNUT LOCATED
 50'± SOUTH OF NORTH PROPERTY LINE AND 15'±
 EAST OF THE EAST EDGE OF CHILSON ROAD.
 ELEVATION = 967.26

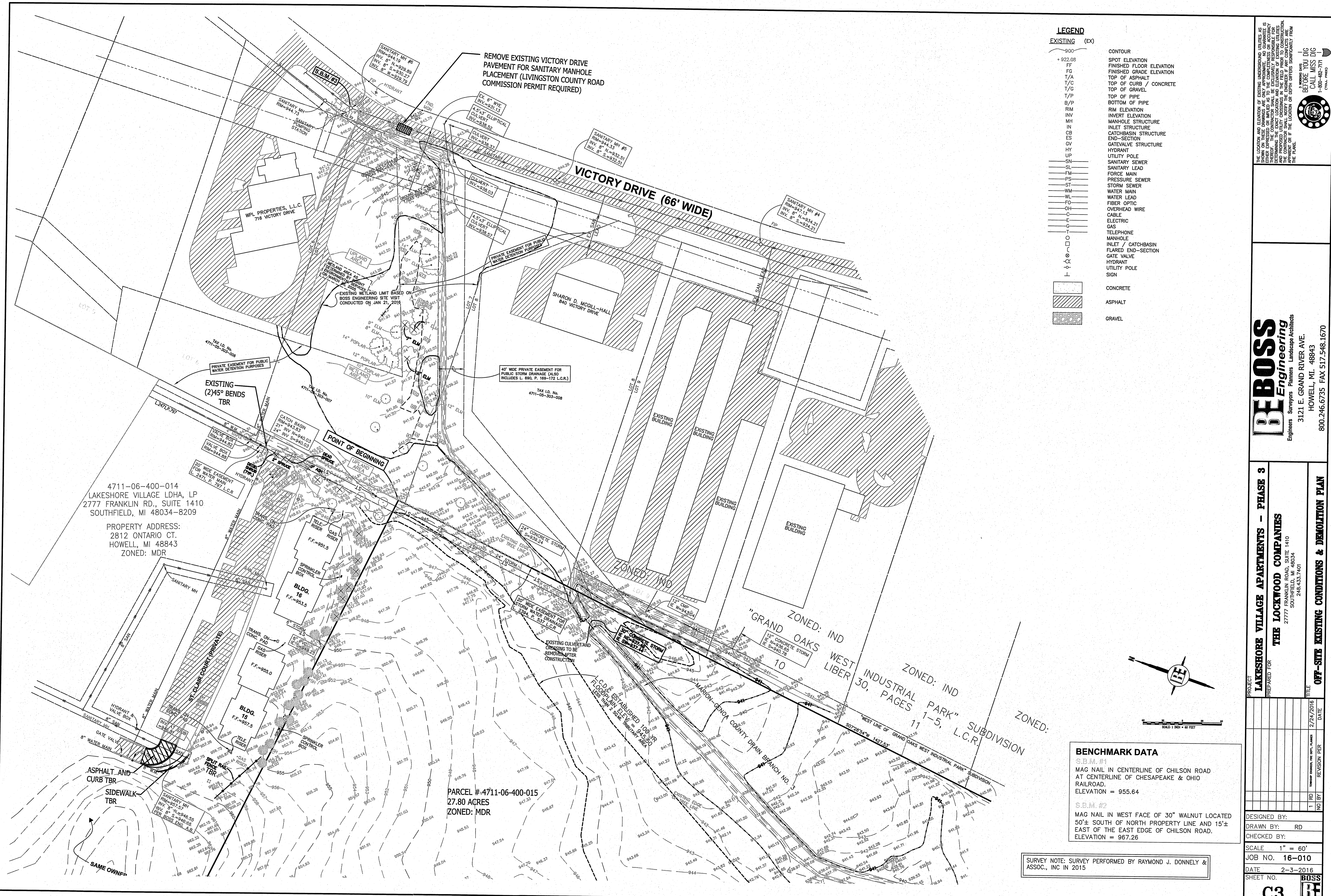
SURVEY NOTE: SURVEY PERFORMED BY RAYMOND J. DONNELLY & ASSOC., INC IN 2015

PARCEL # 4711-06-400-015
 27.80 ACRES
 ZONED: MDR

30' WIDE ACCESS EASEMENT TO
 RICHARDS 1-6 GAS STORAGE WELL
 (INSTRUMENT #2006R-06168, L.C.R.)
 TO BE REVISED

EXISTING GRAVEL
 TBR
 TO BE RELOCATED

CHILSON ROAD 66' WIDE



LEGEND

EXISTING (EX)	CONTOUR
900	SPOT ELEVATION
+ 922.08	FINISHED FLOOR ELEVATION
FF	FINISHED GRADE ELEVATION
T/A	TOP OF ASPHALT
T/C	TOP OF CURB / CONCRETE
T/G	TOP OF GRAVEL
T/P	TOP OF PIPE
B/P	BOTTOM OF PIPE
RIM	RIM ELEVATION
INV	INVERT ELEVATION
MH	MANHOLE STRUCTURE
IN	INLET STRUCTURE
CB	CATCHBASIN STRUCTURE
ES	END-SECTION
GV	GATEVALVE STRUCTURE
HY	HYDRANT
UP	UTILITY POLE
SN	SANITARY SEWER
SL	SANITARY LEAD
FM	FORCE MAIN
PS	PRESSURE SEWER
ST	STORM SEWER
WM	WATER MAIN
WL	WATER LEAD
FO	FIBER OPTIC
OH	OVERHEAD WIRE
C	CABLE
E	ELECTRIC
G	GAS
T	TELEPHONE
M	MANHOLE
I	INLET / CATCHBASIN
F	FLARED END-SECTION
G	GATE VALVE
H	HYDRANT
U	UTILITY POLE
S	SIGN
CONCRETE	CONCRETE
ASPHALT	ASPHALT
GRAVEL	GRAVEL

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS PLAN IS BASED ON RECORD DRAWINGS AND FIELD SURVEY. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL GOVERNMENT AND ANY COMPETING AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL GOVERNMENT AND ANY COMPETING AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL GOVERNMENT AND ANY COMPETING AGENCIES.

**BEFORE YOU DIG
CALL MISS DIG**
800-482-7371

BEBOSS Engineering
Engineers Surveyors Planners Landscape Architects
3121 E. GRAND RIVER AVE.
HOWELL, MI. 48843
800.246.6735 FAX 517.548.1670

PROJECT
LAKESHORE VILLAGE APARTMENTS - PHASE 3
PREPARED FOR
THE LOCKWOOD COMPANIES
27777 FRANKLIN ROAD, SUITE 1410
SOUTHFIELD, MI 48034
248-632-7461

TITLE
OFF-SITE EXISTING CONDITIONS & DEMOLITION PLAN

DESIGNED BY:	RD
DRAWN BY:	RD
CHECKED BY:	
SCALE	1" = 60'
JOB NO.	16-010
DATE	2-3-2016
SHEET NO.	C3

BENCHMARK DATA
S.B.M. #1
MAG NAIL IN CENTERLINE OF CHILSON ROAD AT CENTERLINE OF CHESAPEAKE & OHIO RAILROAD.
ELEVATION = 955.64
S.B.M. #2
MAG NAIL IN WEST FACE OF 30" WALNUT LOCATED 50'± SOUTH OF NORTH PROPERTY LINE AND 15'± EAST OF THE EAST EDGE OF CHILSON ROAD.
ELEVATION = 967.26

SURVEY NOTE: SURVEY PERFORMED BY RAYMOND J. DONNELLY & ASSOC., INC IN 2015

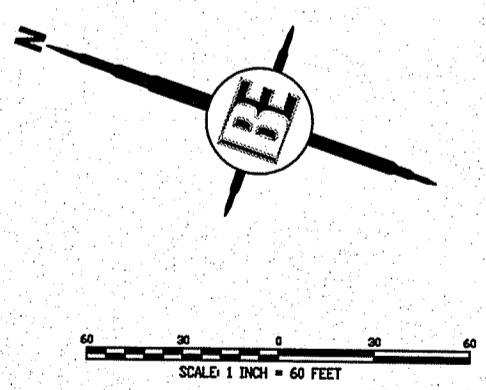
4711-06-400-014
LAKESHORE VILLAGE LDHA, LP
2777 FRANKLIN RD., SUITE 1410
SOUTHFIELD, MI 48034-8209
PROPERTY ADDRESS:
2812 ONTARIO CT.
HOWELL, MI 48843
ZONED: MDR

PARCEL # 4711-06-400-015
27.80 ACRES
ZONED: MDR

REMOVE EXISTING VICTORY DRIVE PAVEMENT FOR SANITARY MANHOLE PLACEMENT (LIVINGSTON COUNTY ROAD COMMISSION PERMIT REQUIRED)

VICTORY DRIVE (66' WIDE)

ZONED: IND
"GRAND OAKS"
WEST LIBER 10
INDUSTRIAL PARK
SUBDIVISION
ZONED: IND
PAGES 1-5, L.C.R.
11



SOUTHFIELD, MI 48034-8209


PROPERTY ADDRESS:
2812 ONTARIO CT.
HOWELL, MI 48843
ZONED: MDR

SOILS INFORMATION:
SOIL DATA FROM USDA NATURAL RESOURCES CONSERVATION SERVICE

THE MAJORITY OF SOILS ON SITE ARE CLASSIFIED AS LOAMS AND LOAMY SANDS.

- NORTH:
- MoA: MIAMI LOAM WITH 0-2% SLOPES
- NORTHEAST:
- BuA: BRADY LOAMY SAND WITH 0-2% SLOPES
- Cc: CARLISLE MUCK (Hydrologic)
- EAST:
- Gd: GILFORD SANDY LOAM WITH 0-2% SLOPES (Hydrologic)
- BwA: BRONSON LOAMY SAND WITH 0-2% SLOPES
- SOUTHEAST:
- CVA: CONOVER LOAM WITH 0-2% SLOPES
- SOUTH:
- BiB: BOYER-OSHTEMO LOAMY SANDS WITH 2-6% SLOPES
- WEST:
- MoC: MIAMI LOAM WITH 6-12% SLOPES
- NORTHWEST:
- MoB: MIAMI LOAM WITH 2-6% SLOPES

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CALL MISS DIG
1-800-482-7171
TOLLS FREE



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Engineers Surveyors Planners Landscape Architects

3121 E. GRAND RIVER AVE.
HOWELL, MI. 48843
800.246.6735 FAX 517.548.1670

PROJECT: **LAKESHORE VILLAGE APARTMENTS - PHASE 3**
PREPARED FOR: **THE LOCKWOOD COMPANIES**
27777 FRANKLIN ROAD, SUITE 1410
SOUTHFIELD, MI 48034
248.433.7401

TITLE: **NATURAL FEATURES PLAN**

DESIGNED BY:	2/24/2016	DATE
DRAWN BY: KWS		
CHECKED BY:		
SCALE 1" = 60'		
JOB NO. 16-010		
DATE 2-3-2016		
SHEET NO.		
C4		

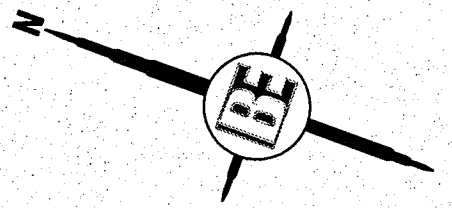


VEGETATIVE AREA - 1
APPROXIMATELY 11.37 AC
HEAVILY WOODED AREA
PREDOMINANTLY POPLAR AND
BIRCH SCRUB VEGETATION WITH
MAJORITY 1"-4" DBH

VEGETATIVE AREA - 2
APPROXIMATELY 1.27 AC
HEAVILY WOODED AREA
PREDOMINANTLY POPLAR AND
LOCUS SCRUB VEGETATION WITH
MAJORITY 1"-4" DBH

VEGETATIVE AREA - 3
APPROXIMATELY 1.53 AC
HEAVILY WOODED AREA
PREDOMINANTLY POPLAR AND
LOCUS SCRUB VEGETATION WITH
MAJORITY 1"-4" DBH

CURVE DATA
ARC=893.38'
RAD=2834.50'
Δ=1803.31°
CH BRG=N67°50'07"W
CH DIST=869.69'

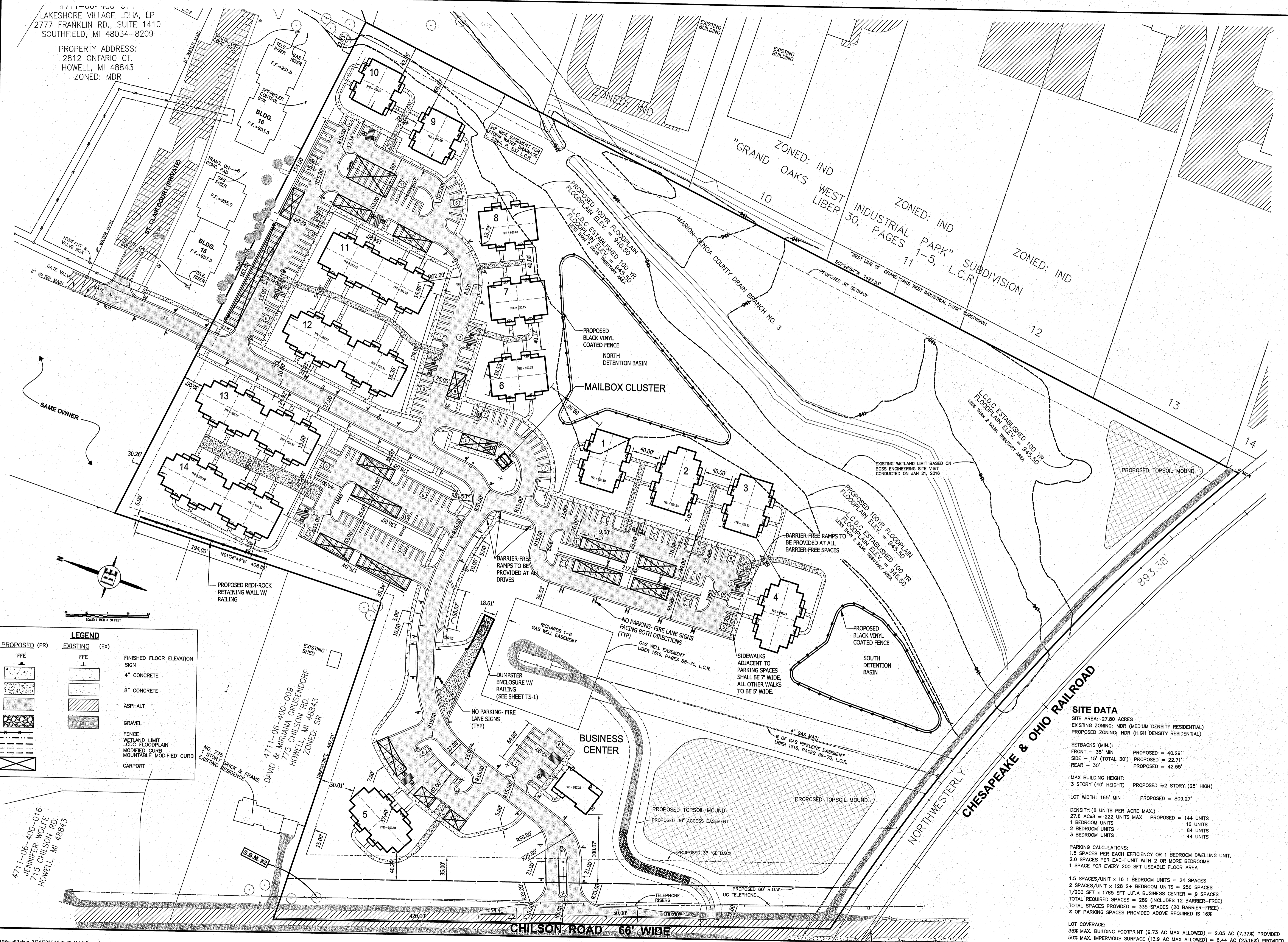


- LEGEND**
- 900 - EXISTING CONTOUR
 - 922.00 - EXISTING SPOT ELEVATION
 - - DECIDUOUS TREE
 - - CONIFEROUS TREE
 - ▨ - WOODED AREA

SCALE 1" = 60 FEET

4711-000-000
 LAKESHORE VILLAGE LDHA, LP
 2777 FRANKLIN RD., SUITE 1410
 SOUTHFIELD, MI 48034-8209

PROPERTY ADDRESS:
 2812 ONTARIO CT.
 HOWELL, MI 48843
 ZONED: MDR



LEGEND

PROPOSED (PR)	EXISTING (EX)	
FFE	FFE	FINISHED FLOOR ELEVATION SIGN
[Pattern]	[Pattern]	4" CONCRETE
[Pattern]	[Pattern]	8" CONCRETE
[Pattern]	[Pattern]	ASPHALT
[Pattern]	[Pattern]	GRAVEL
[Pattern]	[Pattern]	FENCE
[Pattern]	[Pattern]	WETLAND LIMIT
[Pattern]	[Pattern]	LODC FLOODPLAIN
[Pattern]	[Pattern]	MODIFIED CURB
[Pattern]	[Pattern]	MOUNTABLE MODIFIED CURB
[Pattern]	[Pattern]	CARPORIT

SITE DATA
 SITE AREA: 27.80 ACRES
 EXISTING ZONING: MDR (MEDIUM DENSITY RESIDENTIAL)
 PROPOSED ZONING: HDR (HIGH DENSITY RESIDENTIAL)

SETBACKS (MIN.):
 FRONT - 35' MIN PROPOSED = 40.29'
 SIDE - 15' (TOTAL 30') PROPOSED = 22.71'
 REAR - 30' PROPOSED = 42.55'

MAX BUILDING HEIGHT:
 3 STORY (40' HEIGHT) PROPOSED = 2 STORY (25' HIGH)

LOT WIDTH: 165' MIN PROPOSED = 809.27'

DENSITY: (8 UNITS PER ACRE MAX.)
 27.8 AC x 8 = 222 UNITS MAX PROPOSED = 144 UNITS
 1 BEDROOM UNITS 16 UNITS
 2 BEDROOM UNITS 84 UNITS
 3 BEDROOM UNITS 44 UNITS

PARKING CALCULATIONS:
 1.5 SPACES PER EACH EFFICIENCY OR 1 BEDROOM DWELLING UNIT,
 2.0 SPACES PER EACH UNIT WITH 2 OR MORE BEDROOMS
 1 SPACE FOR EVERY 200 SFT USEABLE FLOOR AREA

1.5 SPACES/UNIT x 16 1 BEDROOM UNITS = 24 SPACES
 2 SPACES/UNIT x 128 2+ BEDROOM UNITS = 256 SPACES
 1/200 SFT x 1785 SFT U.F.A BUSINESS CENTER = 9 SPACES
 TOTAL REQUIRED SPACES = 289 (INCLUDES 12 BARRIER-FREE)
 TOTAL SPACES PROVIDED = 335 SPACES (20 BARRIER-FREE)
 % OF PARKING SPACES PROVIDED ABOVE REQUIRED IS 16%

LOT COVERAGE:
 35% MAX. BUILDING FOOTPRINT (9.73 AC MAX ALLOWED) = 2.05 AC (7.37%) PROVIDED
 50% MAX. IMPERVIOUS SURFACE (13.9 AC MAX ALLOWED) = 6.44 AC (23.16%) PROVIDED

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS PLAN IS BASED ON RECORD DRAWINGS AND FIELD SURVEY. EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION PROVIDED HEREON. THE USER SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION AND ELEVATION OF EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.

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 3121 E. GRAND RIVER AVE.
 HOWELL, MI. 48843
 800.246.6735 FAX 517.548.1670

PROJECT
 LAKESHORE VILLAGE APARTMENTS - PHASE 3

PREPARED FOR
 THE LOCKWOOD COMPANIES
 2777 FRANKLIN ROAD, SUITE 1410
 SOUTHFIELD, MI 48034
 248.433.7401

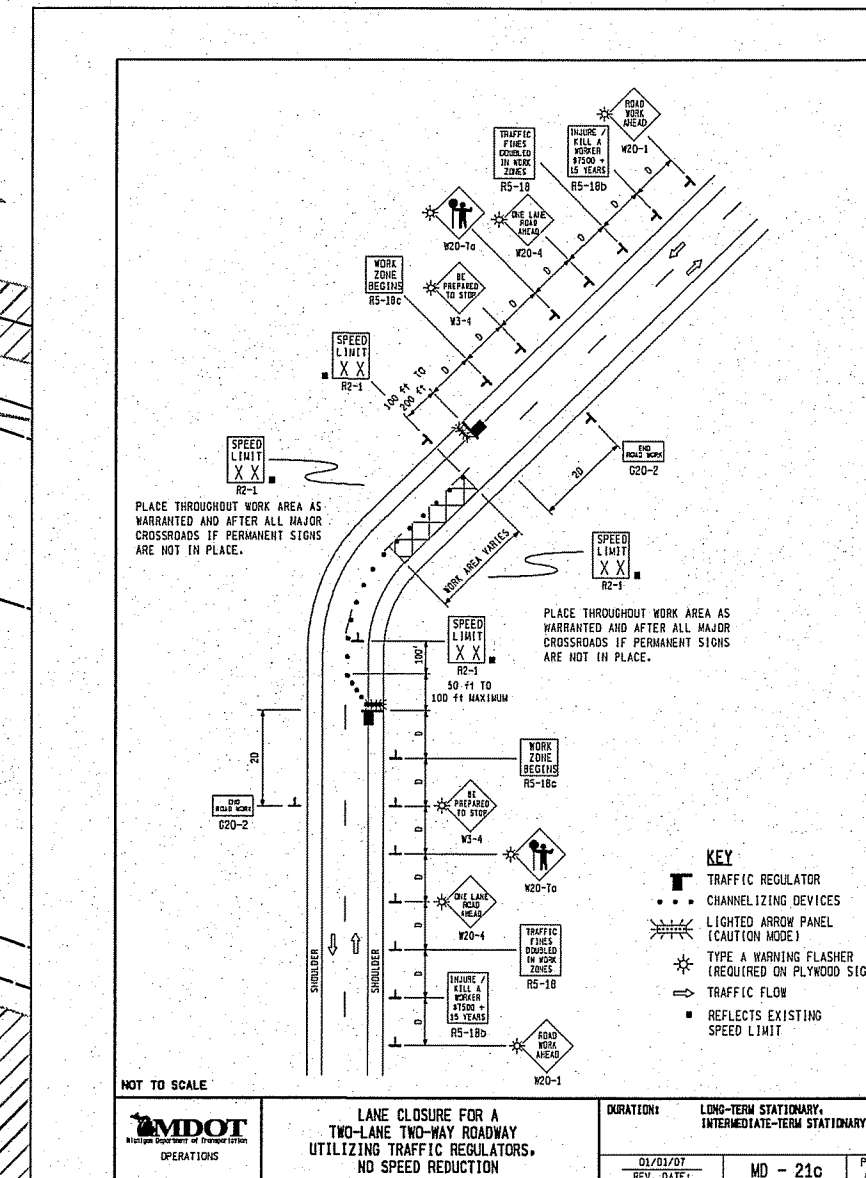
TITLE
 SITE PLAN

NO.	BY	REVISION PER	DATE
1	RD		2/24/2016

DESIGNED BY: TD
DRAWN BY: RD
CHECKED BY:
SCALE 1" = 60'
JOB NO. 16-010
DATE 2-3-2016
SHEET NO. BOSS
C5

SEE DETAIL (THIS SHEET) FOR LANE CLOSURE DETAILS-
 PROPOSED CROSS-SECTION TO MATCH EXISTING
 VICTORY DRIVE LANE CLOSURE SHALL BE IN
 ACCORDANCE WITH M.DOT. AND L.C.R.C. STANDARDS

PROPOSED (PR)	EXISTING (EX)	
FFA	FFE	FINISHED FLOOR ELEVATION SIGN
[Symbol]	[Symbol]	CONCRETE
[Symbol]	[Symbol]	ASPHALT
[Symbol]	[Symbol]	GRAVEL
[Symbol]	[Symbol]	FENCE
[Symbol]	[Symbol]	WETLAND LIMIT
[Symbol]	[Symbol]	LCDC FLOODPLAIN
[Symbol]	[Symbol]	CARPORT



DISTANCE BETWEEN TRAFFIC SIGNS "D"	
POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)	D (FEET)
25	300
30	350
35	400
40	450
45	500
50	550
55	600
60	650
65	700

GUIDELINES FOR LENGTH OF LONGITUDINAL BUFFER SPACE "B"	
POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)	B (FEET)
25	30
30	35
35	40
40	45
45	50
50	55
55	60
60	65
65	70

MINIMUM TAPER LENGTH "L" (FEET)	
POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)	L (FEET)
25	30
30	35
35	40
40	45
45	50
50	55
55	60
60	65
65	70

THE DESIGN AND CONSTRUCTION OF THIS PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

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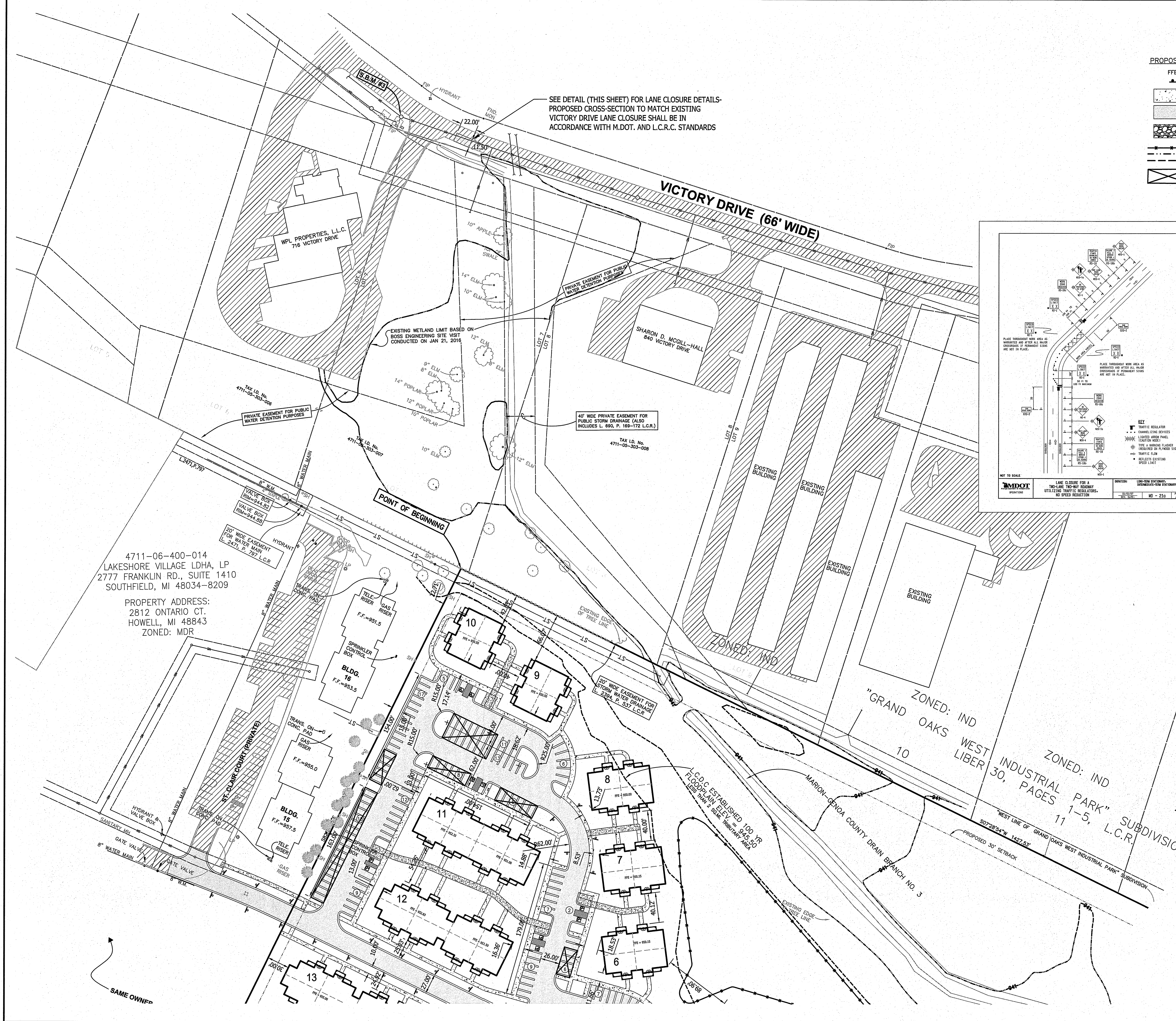
PROJECT: **LAKE SHORE VILLAGE APARTMENTS - PHASE 3**
 PREPARED FOR: **THE LOCKWOOD COMPANIES**
 27777 FRANKLIN ROAD, SUITE 1410
 SOUTHFIELD, MI 48034
 248.433.7401

NO.	BY	REVISION	PER	DATE
1	RD	ISSUED FOR PERMITS		2/24/2016
2	RD	REVISED PER		
3	RD	REVISED PER		
4	RD	REVISED PER		
5	RD	REVISED PER		
6	RD	REVISED PER		
7	RD	REVISED PER		
8	RD	REVISED PER		
9	RD	REVISED PER		
10	RD	REVISED PER		
11	RD	REVISED PER		
12	RD	REVISED PER		
13	RD	REVISED PER		
14	RD	REVISED PER		
15	RD	REVISED PER		
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17	RD	REVISED PER		
18	RD	REVISED PER		
19	RD	REVISED PER		
20	RD	REVISED PER		

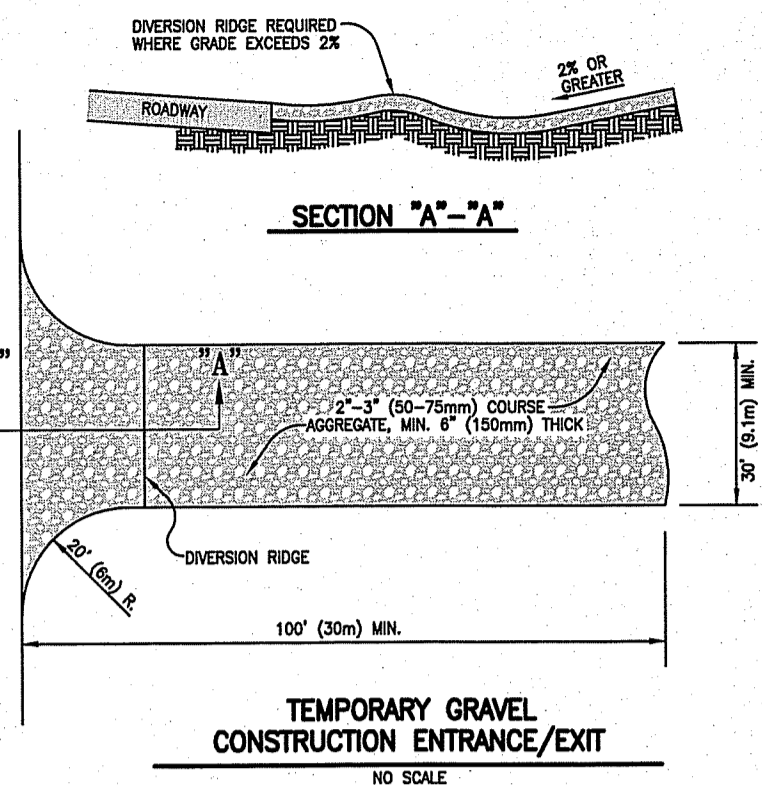
DESIGNED BY: RD
 DRAWN BY: RD
 CHECKED BY:
 SCALE: 1" = 60'
 JOB NO. 16-010
 DATE: 2-3-2016
 SHEET NO. C6

BENCHMARK DATA
 S.B.M. #3
 NORTH RIM OF EXISTING SANITARY MH #6
 RIM LOCATED ON WEST SIDE OF VICTORY DRIVE
 NORTH OF SOUTHERLY ENTRANCE TO ADDRESS No. 719
 ELEV. = 944.19

SURVEY NOTE: SURVEY PERFORMED BY RAYMOND J. DONNELLY & ASSOC., INC IN 2015



PROPOSED (PR)	EXISTING (EX)	
900	900	CONTOUR
T/C	+ 922.08	SPOT ELEVATION
XXX.XX		
FF	FF	FINISHED FLOOR ELEVATION
T/A	T/A	TOP OF ASPHALT
T/C	T/C	TOP OF CURB / CONCRETE
T/G	T/G	TOP OF GRAVEL
T/P	T/P	TOP OF PIPE
B/P	B/P	BOTTOM OF PIPE
RM	RM	RIM ELEVATION
INV	INV	INVERT ELEVATION
MH	MH	MANHOLE STRUCTURE
IN	IN	INLET STRUCTURE
CB	CB	CATCHBASIN STRUCTURE
ES	ES	END-SECTION
GV	GV	GATEVALVE STRUCTURE
HY	HY	HYDRANT
UP	UP	UTILITY POLE
SN	SN	SANITARY SEWER
SL	SL	SANITARY LEAD
FM	FM	FORCE MAIN
PS	PS	PRESSURE SEWER
ST	ST	STORM SEWER
WM	WM	WATER MAIN
WL	WL	WATER LEAD
FO	FO	FIBER OPTIC
OH	OH	OVERHEAD WIRE
C	C	CABLE
E	E	ELECTRIC
G	G	GAS
T	T	TELEPHONE
MH	MH	MANHOLE
IN	IN	INLET / CATCHBASIN
FL	FL	FLARED END-SECTION
GV	GV	GATE VALVE
HY	HY	HYDRANT
UP	UP	UTILITY POLE
SIGN	SIGN	SIGN
CONCRETE	CONCRETE	CONCRETE
ASPHALT	ASPHALT	ASPHALT
GRAVEL	GRAVEL	GRAVEL
SILT FENCE	SILT FENCE	SILT FENCE
DRAINAGE AREA LIMIT	DRAINAGE AREA LIMIT	DRAINAGE AREA LIMIT
MATCH LINE	MATCH LINE	MATCH LINE
CARPORT	CARPORT	CARPORT



- SOIL EROSION CONTROL NOTES:
1. ALL CATCH BASINS TO HAVE INLET SEDIMENT FILTERS (40T)
 2. ALL DISTURBED AREAS TO BE TOPSOILED, SEED, AND MULCHED.

SOIL EROSION CONTROL MEASURES:

6	SEEDING WITH MASH AND/OR ANTI EROSION MATS	FACILITATES ESTABLISHMENT OF VEGETATIVE COVER EFFICIENT FOR IMPROVEMENTS WITH LOW VELOCITY. BEST PLACED IN SMALL QUANTITIES BY EXPERIENCED PERSONNEL. SHOULD INCLUDE PREPARED TOPSOIL BED.
14	AGGREGATE COVER	STABILIZES SOIL SURFACE, TRAP NUTRIENT EROSION. PERMITS CONSTRUCTION TRAFFIC IN ADVERSE WEATHER. MAY BE USED AS PART OF PERMANENT BASE CONSTRUCTION OF PAVED AREAS.
15	PAVING	PROTECTS AREAS WHICH CANNOT OTHERWISE BE PROTECTED, BUT INCREASES RUNOFF VELOCITY. IRREGULAR SURFACE WILL HELP SLOW VELOCITY.
16	CURB & GUTTER	KEEPS HIGH VELOCITY RUNOFF ON PAVED AREAS FROM LEAVING PAVED SURFACE. COLLECTS AND CONDUCTS RUNOFF TO ENCLOSED DRAINAGE SYSTEM OR PREPARED DRAINAGE.
35	GRAVEL SWEEP	SYSTEM REMOVES COLLECTED RUNOFF FROM SITE, PARTICULARLY FROM PAVED AREAS. CAN ACCEPT LARGE CONCENTRATIONS OF RUNOFF. CONDUCTS RUNOFF TO MUNICIPAL SEWER SYSTEM OR STABILIZED OUTFALL LOCATION. USE CATCH BASINS TO COLLECT SEDIMENT.
36	GRASS SWEEP	COLLECTS HIGH VELOCITY CONCENTRATED RUNOFF. MAY USE FILTER CLOTH OVER INLET.
40	INLET SEDIMENT FILTER	EASY TO SWEEP. COLLECTS SEDIMENT. MAY BE CLEANED AND EXPANDED AS NEEDED.
51	RETAINING WALL	REDUCES GRADIENT WHERE SLOPES ARE EXTREMELY STEEP. PERMITS RETENTION OF EXISTING VEGETATION, KEEPING SOIL STABLE IN CRITICAL AREAS.
54	SILT FENCE	USES CONTROLLED FABRIC AND POST OR PILES. EASY TO CONSTRUCT AND LOCATE AS NECESSARY. (SEE DETAIL THIS SHEET)

T = TEMPORARY P = PERMANENT
TOTAL DISTURBED AREA = 18.25 ACRES

THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THIS PLAN IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE USER OF THIS PLAN SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND ELEVATION OF EXISTING UTILITIES AND PROPOSED UTILITY CROSSINGS IN THE FIELD PRIOR TO CONSTRUCTION. APPROVED FOR THE LOCATION OF DEPTH OFFERS SIGNIFICANTLY FROM THE PLANS.

BEFORE YOU DIG
1-800-482-7171
(CALL FIRST)

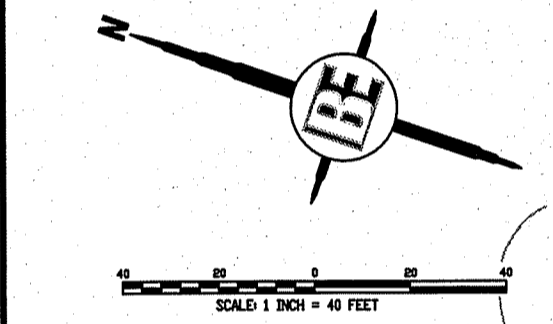
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Engineers Surveyors Planners Landscape Architects
3121 E. GRAND RIVER AVE.
HOWELL, MI. 48843
800.246.6735 FAX 517.548.1670

PROJECT: **LAKESHORE VILLAGE APARTMENTS - PHASE 3**
PREPARED FOR: **THE LOCKWOOD COMPANIES**
27777 FRANKLIN ROAD, SUITE 1410
500 W. WASHINGTON AVE., SUITE 204
248.433.7401

TITLE: **GRADING, DRAINAGE, & SOIL EROSION CONTROL PLAN**

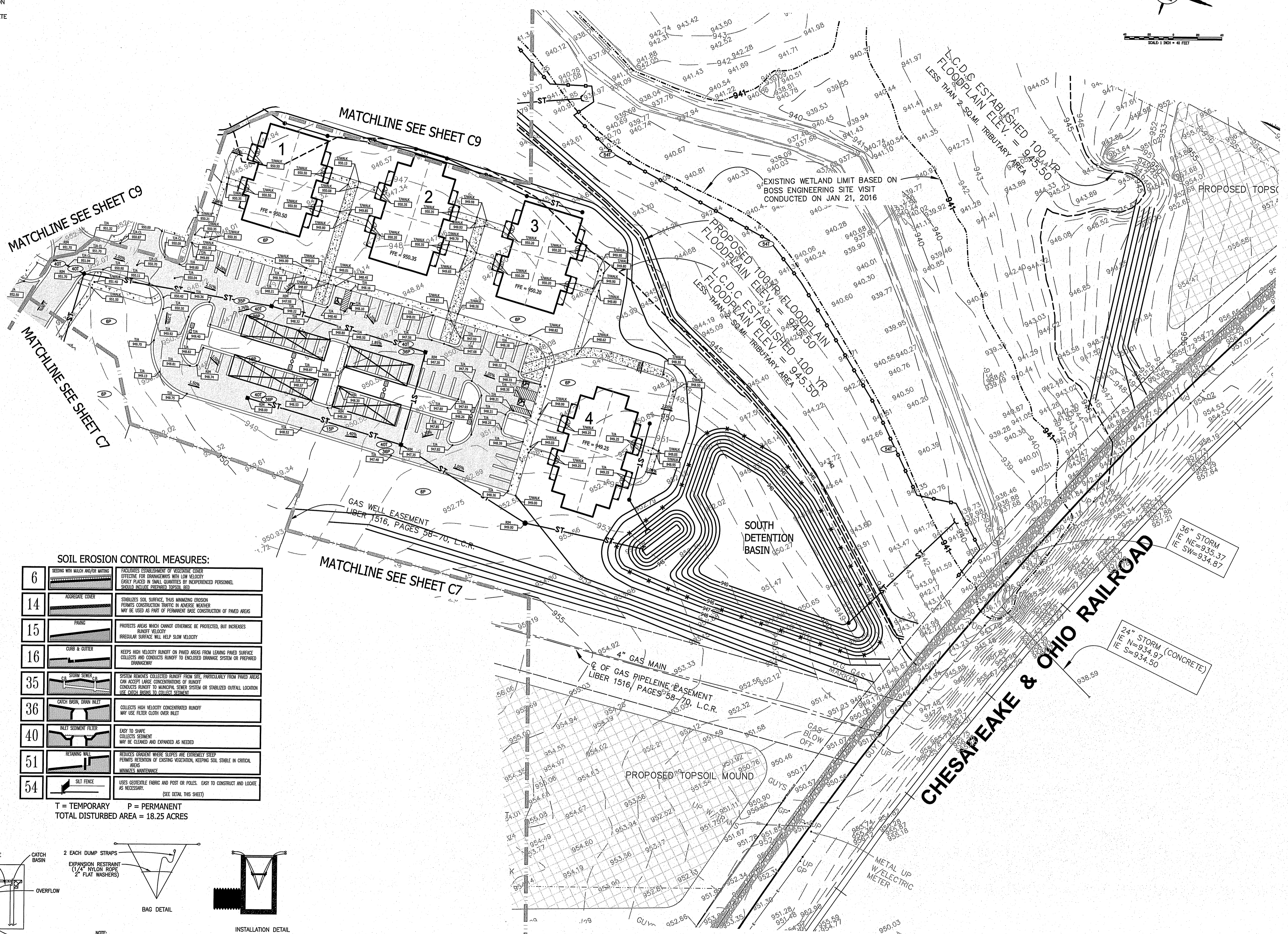
NO.	REVISION PER	DATE
1	RD	2/24/2016

DESIGNED BY: TD
DRAWN BY: RD
CHECKED BY:
SCALE: 1" = 40'
JOB NO. 16-010
DATE: 2-3-2016
SHEET NO. C7



LEGEND	
PROPOSED (PR)	EXISTING (EX)
900	900
T/C	T/C
XXX.XX	+ 922.08
FF	FF
FG	FG
T/A	T/A
T/C	T/C
T/P	T/P
B/P	B/P
RIM	RIM
INV	INV
MH	MH
IN	IN
CS	CS
ES	ES
CV	CV
HY	HY
UP	UP
SN	SN
SL	SL
FM	FM
PS	PS
ST	ST
WM	WM
WL	WL
FO	FO
OH	OH
C	C
E	E
G	G
T	T
MANHOLE	MANHOLE
INLET / CATCHBASIN	INLET / CATCHBASIN
FLARED END-SECTION	FLARED END-SECTION
GATE VALVE	GATE VALVE
HYDRANT	HYDRANT
UTILITY POLE	UTILITY POLE
SIGN	SIGN
CONCRETE	CONCRETE
ASPHALT	ASPHALT
GRAVEL	GRAVEL
SILT FENCE	SILT FENCE
DRAINAGE AREA LIMIT	DRAINAGE AREA LIMIT
MATCH LINE	MATCH LINE

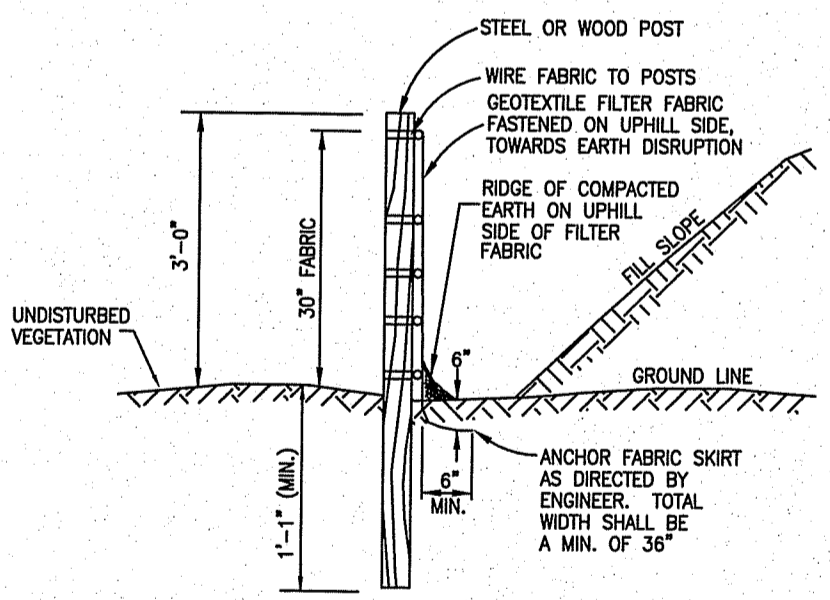
SOIL EROSION CONTROL NOTES:
 1. ALL CATCH BASINS TO HAVE INLET SEDIMENT FILTERS (40T)
 2. ALL DISTURBED AREAS TO BE TOPSOILED, SEEDED, AND MULCHED.



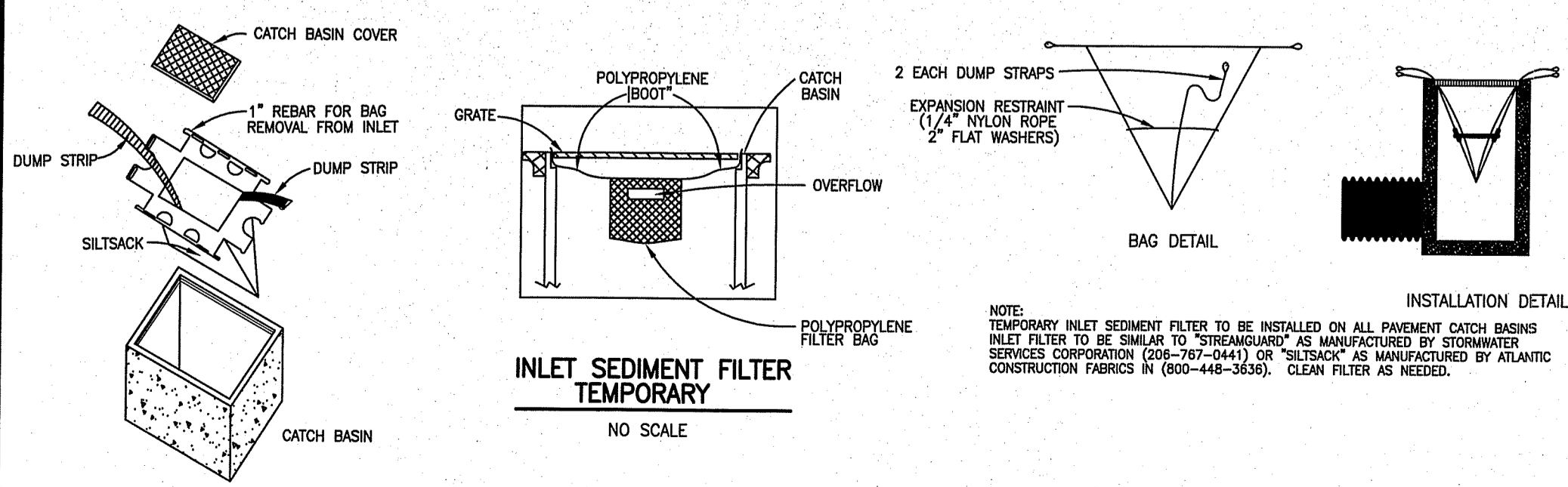
SOIL EROSION CONTROL MEASURES:

6		SEEDING WITH WHEAT AND/OR RYEGRASS FACILITATES ESTABLISHMENT OF VEGETATION COVER. EFFECTIVE FOR DRAINAGES WITH LOW VELOCITY. EARLY PLACED IN SMALL QUANTITIES BY EXPERIENCED PERSONNEL. SHOULD INCLUDE PREPARED TOPSOIL. (SEE DETAIL)
14		AGGREGATE COVER STABILIZES SOIL SURFACE, REDUCES SOIL EROSION. PERMITTED CONSTRUCTION TRAFFIC IN ADVERSE WEATHER MAY BE USED AS PART OF PERMANENT BASE CONSTRUCTION OF PAVED AREAS.
15		PAVING PROTECTS AREAS WHICH CANNOT OTHERWISE BE PROTECTED, BUT INCREASES RUNOFF VELOCITY. IRREGULAR SURFACE WILL HELP SLOW VELOCITY.
16		CURB & GUTTER KEEPS HIGH VELOCITY RUNOFF ON PAVED AREAS FROM LEAVING PAVED SURFACE. COLLECTS AND CONDUCTS RUNOFF TO ENCLOSED DRAINAGE SYSTEM OR PERMITTED DRAINAGEWAY.
35		STORM SEWER SYSTEM REMOVES COLLECTED RUNOFF FROM SITE, PARTICULARLY FROM PAVED AREAS. CAN ACCEPT LARGE CONCENTRATIONS OF RUNOFF. CONDUCTS RUNOFF TO MUNICIPAL SEWER SYSTEM OR STABILIZED OUTFALL LOCATION. USE CAREFUL DESIGN TO COLLECT SEWERAGE.
36		CATCH BASIN, DRAIN INLET COLLECTS HIGH VELOCITY CONCENTRATED RUNOFF. MAY USE FILTER COVER OVER INLET.
40		INLET SEDIMENT FILTER EASY TO SHAKE. COLLECTS SEDIMENT. MAY BE CLEANED AND EXPANDED AS NEEDED.
51		RETAINING WALL REDUCES GRADIENT WHERE SLOPES ARE EXTREMELY STEEP. PERMITS RETENTION OF EXISTING VEGETATION, KEEPING SOIL STABLE IN CRITICAL AREAS. MINIMIZES MAINTENANCE.
54		SILT FENCE USES GEOTEXTILE FABRIC AND POSTS OR POLES. EASY TO CONSTRUCT AND LOCATE AS NECESSARY. (SEE DETAIL THIS SHEET)

T = TEMPORARY P = PERMANENT
 TOTAL DISTURBED AREA = 18.25 ACRES



SILT FENCE DETAIL
NO SCALE



INLET SEDIMENT FILTER TEMPORARY
NO SCALE

NOTE: TEMPORARY INLET SEDIMENT FILTER TO BE INSTALLED ON ALL PAVED CATCH BASINS. INLET FILTER TO BE SIMILAR TO "STORMGUARD" AS MANUFACTURED BY STORMWATER SERVICES CORPORATION (800-767-8441) OR "SILTSTACK" AS MANUFACTURED BY ATLANTIC CONSTRUCTION FABRICS IN (800-448-3436). CLEAN FILTER AS NEEDED.

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE PLANS OR REFERRED TO IN THE COMPLETENESS OR ACCURACY OF THESE PLANS OR REFERRED TO IN THE COMPLETENESS OR ACCURACY OF THESE PLANS SHALL BE EXCLUSIVELY RESPONSIBLE FOR THE CLIENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.

BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
CIVIL, PRECISE

BEBOSS
 Engineering
 Engineers Surveyors Planners Landscape Architects
 3121 E. GRAND RIVER AVE.
 HOWELL, MI. 48843
 800.246.6735 FAX 517.548.1670

PROJECT: LAKESHORE VILLAGE APARTMENTS - PHASE 3
 PREPARED FOR: THE LOCKWOOD COMPANIES
 27777 FRANKLIN ROAD, SUITE 1410
 SOUTHFIELD, MI 48034
 248-633-7461

TITLE: GRADING, DRAINAGE, & SOIL EROSION CONTROL PLAN

NO.	BY	DATE	REVISION PER
1	TD	2/24/2016	

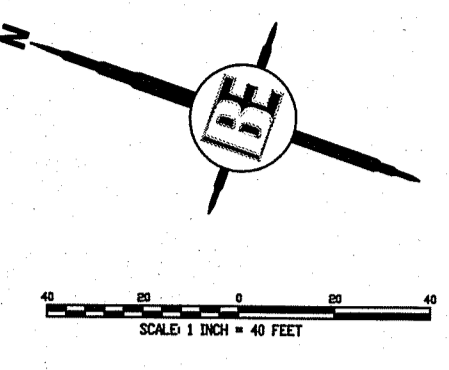
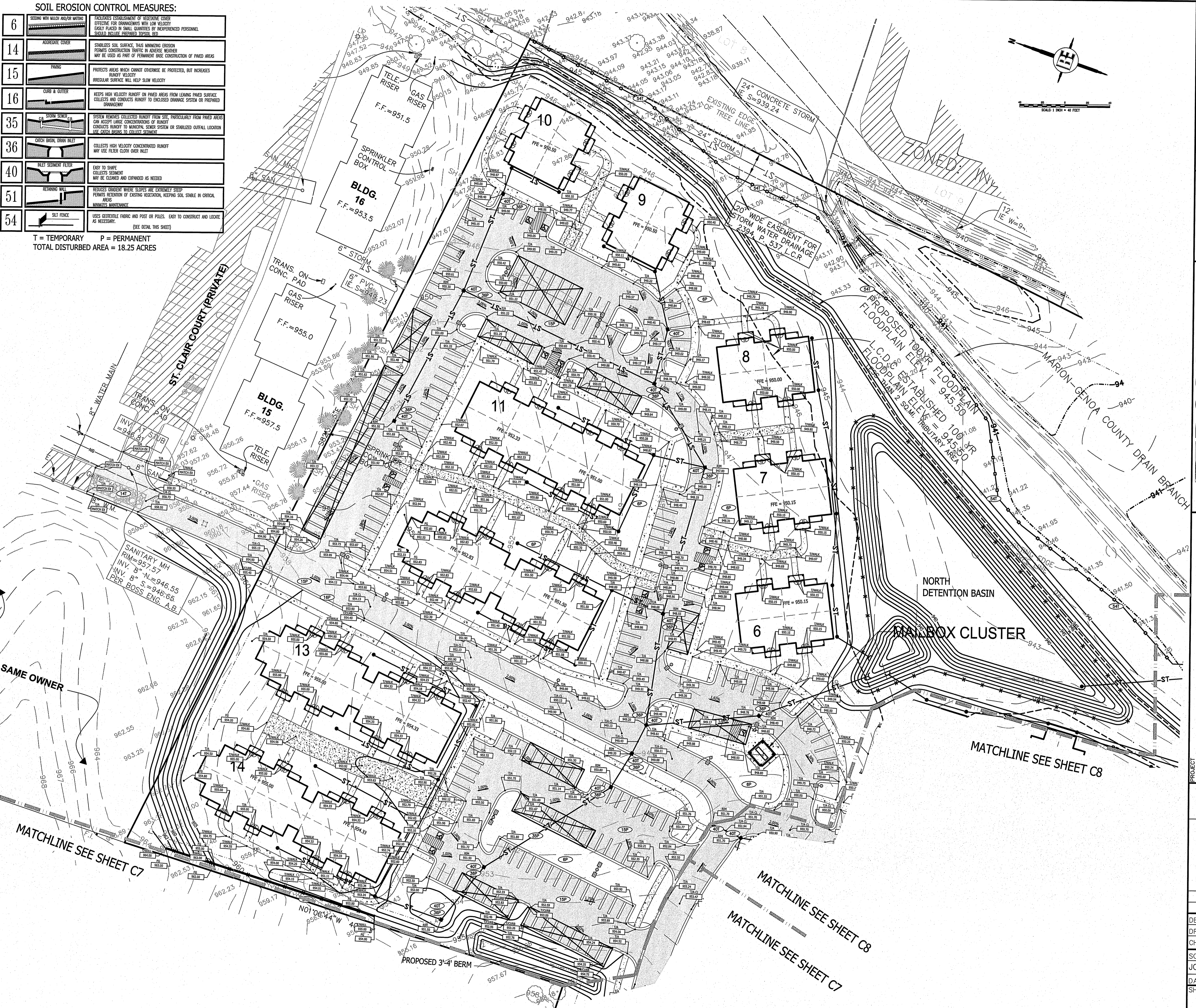
DESIGNED BY: TD
 DRAWN BY: RD
 CHECKED BY:
 SCALE: 1" = 40'
 JOB NO. 16-010
 DATE: 2-3-2016
 SHEET NO. C8

LEGEND	
PROPOSED (PR)	EXISTING (EX)
900	900
T/C	XXX.XX
FF	FF
T/A	FG
T/C	T/A
T/G	T/C
T/P	T/P
B/P	B/P
RIM	RIM
INV	INV
MH	MH
IN	IN
CB	CB
ES	ES
GV	GV
HY	HY
UP	UP
SN	SN
FM	FM
PS	PS
ST	ST
WM	WM
WL	WL
FO	FO
OH	OH
C	C
E	E
G	G
TELEPHONE	TELEPHONE
MANHOLE	MANHOLE
INLET / CATCHBASIN	INLET / CATCHBASIN
FLARED END-SECTION	FLARED END-SECTION
GATE VALVE	GATE VALVE
HYDRANT	HYDRANT
UTILITY POLE	UTILITY POLE
SIGN	SIGN
CONCRETE	CONCRETE
ASPHALT	ASPHALT
GRAVEL	GRAVEL
SILT FENCE	SILT FENCE
DRAINAGE AREA LIMIT	DRAINAGE AREA LIMIT
MATCH LINE	MATCH LINE

SOIL EROSION CONTROL MEASURES:	
6	SEEKING HIGH VELOCITY RUNOFF WITHIN FACILITIES ESTABLISHMENT OF VEGETATIVE COVER EFFECTIVE FOR DRAINAGEWAYS WITH LOW VELOCITY. EASY TO PLACE IN SMALL QUANTITIES BY INDEPENDENT PERSONNEL. SHOULD INCLUDE PREPARED TOPSOIL BED.
14	AGGREGATE COVER STABILIZES SOIL SURFACE. THIS MINIMIZES EROSION PERMITS CONSTRUCTION TRAFFIC IN ADVERSE WEATHER. MAY BE USED AS PART OF PERMANENT BASE CONSTRUCTION OF PAVED AREAS.
15	FRANGING PROTECTS AREAS WHICH CANNOT OTHERWISE BE PROTECTED, BUT INCREASES RUNOFF VELOCITY. IRREGULAR SURFACE WILL HELP SLOW VELOCITY.
16	CURB & GUTTER KEEPS HIGH VELOCITY RUNOFF ON PAVED AREAS FROM LEAVING PAVED SURFACE. COLLECTS AND CONDUCTS RUNOFF TO ENCLOSED DRAINAGE SYSTEM OR PREPARED DRAINAGEWAY.
35	SYSTEM REMOVES COLLECTED RUNOFF FROM SITE, PARTICULARLY FROM PAVED AREAS. CAN ACCEPT HIGH CONCENTRATIONS OF RUNOFF. CONDUCTS RUNOFF TO MUNICIPAL SEWER SYSTEM OR STABILIZED OUTFALL LOCATION. USE CATCH BASIN TO COLLECT RUNOFF.
36	CATCH BASIN, OPEN INLET COLLECTS HIGH VELOCITY CONCENTRATED RUNOFF. MAY USE FILTER CLOTH OVER INLET.
40	INLET SEDIMENT FILTER EASY TO SHAKE. COLLECTS SEDIMENT. MAY BE CLEANED AND EXPANDED AS NEEDED.
51	REINFORCING WALL REDUCES GRAVITY WATER SLOPES ARE EXTREMELY STEEP. PERMITS RETENTION OF EXISTING VEGETATION, KEEPING SOIL STABLE IN CRITICAL AREAS. MAINTENANCE.
54	SILT FENCE USES GEOTEXTILE FABRIC AND POST AND RAILS. EASY TO CONSTRUCT AND LOCATE AS NECESSARY. (SEE DETAIL SHEET)

T = TEMPORARY P = PERMANENT
TOTAL DISTURBED AREA = 18.25 ACRES

SOIL EROSION CONTROL NOTES:
1. ALL CATCH BASINS TO HAVE INLET SEDIMENT FILTERS (40T)
2. ALL DISTURBED AREAS TO BE TOPSOILED, SEEDED, AND MULCHED.



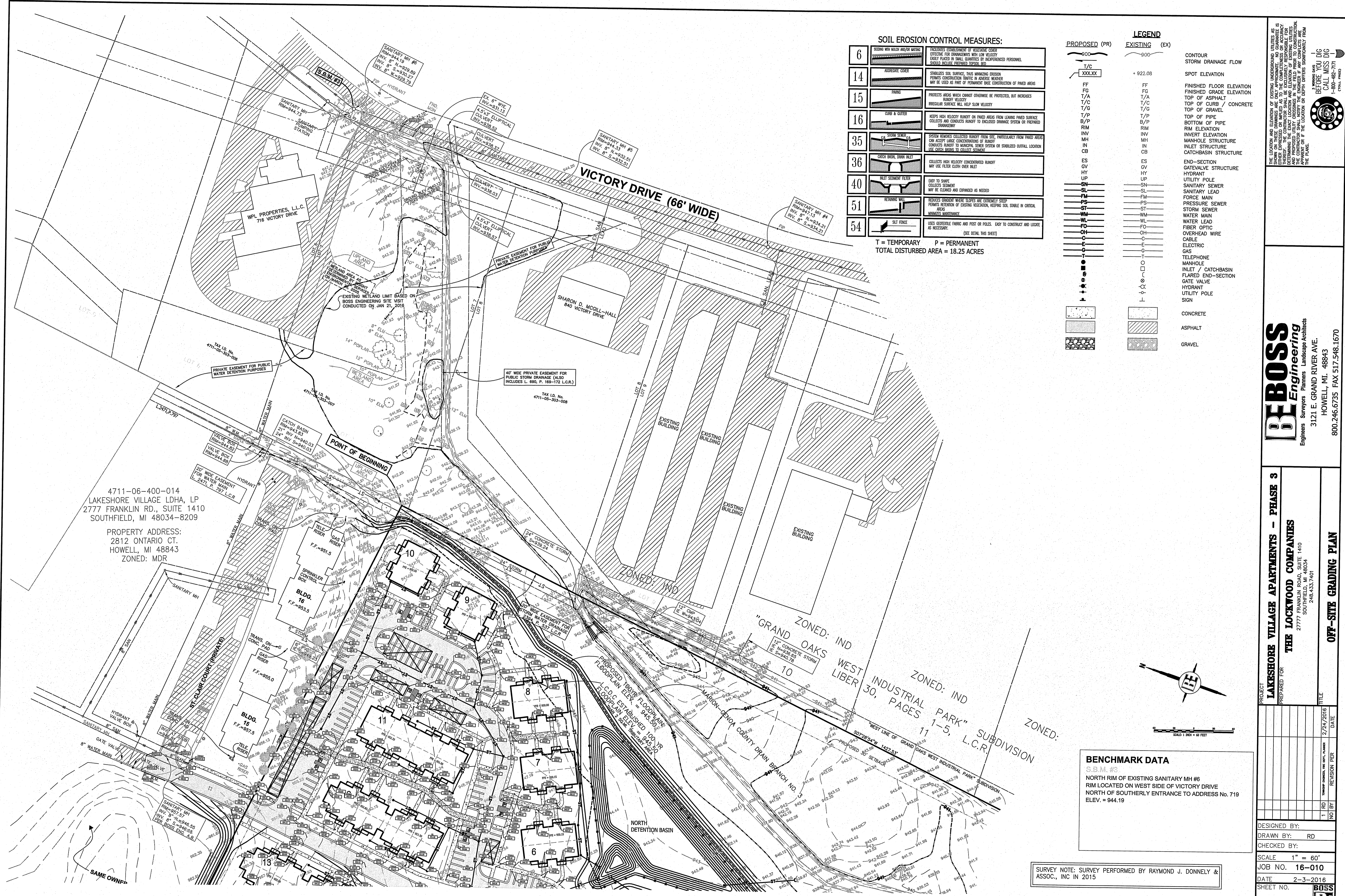
THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS PLAN ARE BASED ON RECORD DRAWINGS AND FIELD SURVEY. ENGINEER EXPRESSLY DISCLAIMS ANY LIABILITY FOR THE ACCURACY OF THE INFORMATION PROVIDED HEREON. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION AND FOR PROTECTING ALL UTILITIES EXPOSED IN THE FIELD PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND DEPTH OF ALL UTILITIES EXPOSED IN THE FIELD PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND DEPTH OF ALL UTILITIES EXPOSED IN THE FIELD PRIOR TO CONSTRUCTION.

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HOWELL, MI. 48843
800.246.6735 FAX 517.548.1670

PROJECT	LAKESHORE VILLAGE APARTMENTS - PHASE 3
PREPARED FOR	THE LOCKWOOD COMPANIES 27777 FRANKLIN ROAD, SUITE 1410 SOUTHFIELD, MI 48034 248-433-7401
TITLE	GRADING, DRAINAGE, & SOIL EROSION CONTROL PLAN
NO.	1
RD.	2/24/2016
DATE	
NO.	1
REVISION PER	
DESIGNED BY:	TD
DRAWN BY:	RD
CHECKED BY:	
SCALE	1" = 40'
JOB NO.	16-010
DATE	2-3-2016
SHEET NO.	C9



SOIL EROSION CONTROL MEASURES:

6	SEEDING WITH MULCH AND/OR MATING	ESTABLISHES VEGETATIVE COVER SPECIFIC FOR DRAINAGE WITH LOW VELOCITY. EASILY PLACED IN SMALL QUANTITIES BY INDEPENDENT PERSONNEL. SHOULD INCLUDE PROPER TYPICAL. SEE.
14	ROCKSTONE COVER	STABILIZES SOIL SURFACE, THIS MINIMIZES EROSION. PERMS CONSTRUCTION TRAFFIC IN AREAS WHERE THEY MAY BE USED AS PART OF PERMANENT GRASS CONSTRUCTION OF PAVED AREAS.
15	FRANK	PROTECTS AREAS WHICH CANNOT OTHERWISE BE PROTECTED, BUT INCREASES RUNOFF VELOCITY. IRREGULAR SURFACE WILL HELP SLOW VELOCITY.
16	CURB & CUTTER	KEEPS HIGH VELOCITY RUNOFF ON PAVED AREAS FROM LEAVING PAVED SURFACE. COLLECTS AND CONVEYS RUNOFF TO DEDICATED DRAINAGE SYSTEM OR PREPARED DRAINAGE.
35	SWAMP SINK	SYSTEM REMOVES COLLECTED RUNOFF FROM SITE, PARTICULARLY FROM PAVED AREAS. CAN ACCEPT LARGE CONCENTRATIONS OF RUNOFF. CONDUITS RUNOFF TO MANHOLE, SWAMP SYSTEM OR STABILIZED OUTFALL LOCATION. USE CARE TO COLLECT RUNOFF.
36	CATCH BASIN, DOWN INLET	COLLECTS HIGH VELOCITY CONCENTRATED RUNOFF. MAY USE FILTER CLOTH OVER INLET.
40	INLET SEDIMENT FILTER	EASY TO SHAPE. COLLECTS SEDIMENT. MAY BE CLEANED AND EXPANDED AS NEEDED.
51	RETAINING WALL	REDUCES GRADIENT WHERE SLOPES ARE EXTREMELY STEEP. PERMS RETENTION OF EXISTING VEGETATION, KEEPING SOIL STABLE IN CRITICAL AREAS. MINIMIZES MAINTENANCE.
54	SILT FENCE	USES GEOTEXTILE FABRIC AND POST OR POLES. EASY TO CONSTRUCT AND LOCATE AS NECESSARY. (SEE DETAIL THIS SHEET)

T = TEMPORARY P = PERMANENT
TOTAL DISTURBED AREA = 18.25 ACRES

LEGEND

PROPOSED (PR)	EXISTING (EX)	
900	900	CONTOUR
T/C	+ 922.08	SPOT ELEVATION
XXX.XX		
FF	FF	FINISHED FLOOR ELEVATION
FG	FG	FINISHED GRADE ELEVATION
T/A	T/A	TOP OF ASPHALT
T/C	T/C	TOP OF CURB / CONCRETE
T/P	T/P	TOP OF GRAVEL
B/P	B/P	TOP OF PIPE
RIM	RIM	RIM ELEVATION
INV	INV	INVERT ELEVATION
MH	MH	MANHOLE STRUCTURE
IN	IN	INLET STRUCTURE
CB	CB	CATCHBASIN STRUCTURE
ES	ES	END-SECTION
GV	GV	GATEVALVE STRUCTURE
HY	HY	HYDRANT
UP	UP	UTILITY POLE
SN	SN	SANITARY SEWER
SL	SL	SANITARY LEAD
FM	FM	FORCE MAIN
PS	PS	PRESSURE SEWER
ST	ST	STORM SEWER
WM	WM	WATER MAIN
WL	WL	WATER LEAD
FO	FO	FIBER OPTIC
OH	OH	OVERHEAD WIRE
C	C	CABLE
E	E	ELECTRIC
G	G	GAS
TE	TE	TELEPHONE
MH	MH	MANHOLE
IN	IN	INLET / CATCHBASIN
FL	FL	FLARED END-SECTION
GV	GV	GATE VALVE
HY	HY	HYDRANT
UP	UP	UTILITY POLE
S	S	SIGN
CONCRETE	CONCRETE	CONCRETE
ASPHALT	ASPHALT	ASPHALT
GRAVEL	GRAVEL	GRAVEL

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS PLAN IS THE RESULT OF FIELD SURVEY AND IS NOT TO BE CONSIDERED AS A GUARANTEE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AND STATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AND STATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AND STATE AGENCIES.

BE BOSS Engineering
 Engineers Surveyors Planners Landscape Architects
 3121 E. GRAND RIVER AVE.
 HOWELL, MI. 48843
 800.246.6735 FAX 517.548.1670

4711-06-400-014
 LAKESHORE VILLAGE LDHA, LP
 2777 FRANKLIN RD., SUITE 1410
 SOUTHFIELD, MI 48034-8209
 PROPERTY ADDRESS:
 2812 ONTARIO CT.
 HOWELL, MI 48843
 ZONED: MDR

BENCHMARK DATA

S.B.M. #3
 NORTH RIM OF EXISTING SANITARY MH #6
 RIM LOCATED ON WEST SIDE OF VICTORY DRIVE
 NORTH OF SOUTHERLY ENTRANCE TO ADDRESS No. 719
 ELEV. = 944.19

SURVEY NOTE: SURVEY PERFORMED BY RAYMOND J. DONNELLY & ASSOC., INC IN 2015

LAKESHORE VILLAGE APARTMENTS - PHASE 3
 PREPARED FOR: **THE LOCKWOOD COMPANIES**
 27777 FRANKLIN ROAD, SUITE 1410
 SOUTHFIELD, MI 48034
 248.433.7401

OFF-SITE GRADING PLAN

NO	BY	DATE
1	RD	2/24/2016

DESIGNED BY: RD
 DRAWN BY: RD
 CHECKED BY: RD
 SCALE: 1" = 60'
 JOB NO. 16-010
 DATE: 2-3-2016
 SHEET NO. C10

4711-06-400-011
LAKESHORE VILLAGE LDHA, LP
2777 FRANKLIN RD., SUITE 1410
SOUTHFIELD, MI 48034-8209

PROPERTY ADDRESS:
2812 ONTARIO CT.
HOWELL, MI 48843
ZONED: MDR



DRAINAGE AREAS				
DRAINAGE AREA	TOTAL (ACRES)	IMPERVIOUS (ACRES)	PERVIOUS (ACRES)	C
2	1.25	0.22	1.03	0.32
3	0.96	0.20	0.76	0.34
4	0.59	0.32	0.27	0.58
5	0.50	0.28	0.23	0.59
6	0.27	0.12	0.15	0.52
7	0.17	0.13	0.03	0.76
9	0.02	0.02	0.00	0.90
10	0.30	0.06	0.24	0.34
11	0.21	0.20	0.01	0.87
12	0.90	0.33	0.56	0.46
13	0.23	0.20	0.04	0.79
13A	0.16	0.00	0.16	0.20
14	0.41	0.02	0.39	0.24
15	0.19	0.14	0.05	0.72
17	0.41	0.28	0.12	0.69
18	0.03	0.01	0.02	0.52
19	1.45	0.25	1.20	0.32
20	0.44	0.31	0.13	0.69
21	0.74	0.40	0.35	0.57
22	5.81	0.09	5.72	0.21
23	0.74	0.30	0.44	0.48
24	0.53	0.25	0.28	0.53
25	0.32	0.23	0.09	0.71
26	0.40	0.21	0.19	0.57
27	0.45	0.23	0.22	0.56
28	0.31	0.14	0.17	0.51
29	0.39	0.25	0.13	0.66

ROOF AREAS				
DRAINAGE AREA	TOTAL (ACRES)	IMPERVIOUS (ACRES)	PERVIOUS (ACRES)	C
14A	0.03	0.03	0.00	0.9
14B	0.03	0.03	0.00	0.90
14C	0.03	0.03	0.00	0.90
14D	0.03	0.03	0.00	0.90
15A	0.06	0.06	0.00	0.9
20A	0.06	0.06	0.00	0.9
20B	0.06	0.06	0.00	0.90
20C	0.06	0.06	0.00	0.90
20D	0.06	0.06	0.00	0.90
22A	0.06	0.06	0.00	0.9
22B	0.06	0.06	0.00	0.90
22C	0.06	0.06	0.00	0.90
22D	0.06	0.06	0.00	0.90
23A	0.06	0.06	0.00	0.9
23B	0.06	0.06	0.00	0.90
23C	0.06	0.06	0.00	0.90
23D	0.06	0.06	0.00	0.90
24A	0.06	0.06	0.00	0.9
24B	0.06	0.06	0.00	0.90
24C	0.06	0.06	0.00	0.90
24D	0.06	0.06	0.00	0.90
28A	0.05	0.05	0.00	0.9
28B	0.05	0.05	0.00	0.90
29A	0.05	0.05	0.00	0.9
29B	0.05	0.05	0.00	0.90
101	0.06	0.06	0.00	0.9
102	0.06	0.06	0.00	0.9
201	0.06	0.06	0.00	0.9
202	0.06	0.06	0.00	0.9
203	0.06	0.06	0.00	0.9
204	0.06	0.06	0.00	0.9
205	0.06	0.06	0.00	0.9
206	0.06	0.06	0.00	0.9
301	0.06	0.06	0.00	0.9
302	0.06	0.06	0.00	0.9
303	0.05	0.05	0.00	0.9
304	0.05	0.05	0.00	0.9
305	0.06	0.06	0.00	0.9
306	0.06	0.06	0.00	0.9

AREA FLOWING DIRECTLY INTO SOUTH BASIN				
DRAINAGE AREA	TOTAL (ACRES)	IMPERVIOUS (ACRES)	PERVIOUS (ACRES)	C
SOUTH	4.63	0.64	3.98	0.30

AREA FLOWING DIRECTLY INTO NORTH BASIN				
DRAINAGE AREA	TOTAL (ACRES)	IMPERVIOUS (ACRES)	PERVIOUS (ACRES)	C
NORTH	1.21	0.01	1.20	0.21

DRAINAGE AREA	TOTAL (ACRES)	IMPERVIOUS (ACRES)	PERVIOUS (ACRES)	C
SOUTH BASIN	11.08	3.19	7.90	0.40
NORTH BASIN	14.99	4.71	10.28	0.42
TOTAL	26.07	7.89	18.18	0.82

*shading denotes area tributary to North basin

LEGEND

PROPOSED (PR)	EXISTING (EX)	
FFE	FFE	FINISHED FLOOR ELEVATION
↑	⊥	SIGN
[Pattern]	[Pattern]	CONCRETE
[Pattern]	[Pattern]	ASPHALT
[Pattern]	[Pattern]	GRAVEL
[Pattern]	[Pattern]	FENCE
[Pattern]	[Pattern]	LCDC FLOODPLAIN
[Pattern]	[Pattern]	WETLAND LIMIT
[Pattern]	[Pattern]	DRAINAGE AREA LIMIT
[Pattern]	[Pattern]	CARPORT

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LAKESHORE VILLAGE APARTMENTS - PHASE 3
PREPARED FOR
THE LOCKWOOD COMPANIES
2777 FRANKLIN ROAD, SUITE 1410
SOUTHFIELD, MI 48034
248.433.7401

OVERALL DRAINAGE PLAN

DESIGNED BY: TD
DRAWN BY: RD
CHECKED BY:
SCALE: 1" = 60'
JOB NO. 16-010
DATE 2-3-2016
SHEET NO. C11

DATE: 2/24/2016
REVISION PER: []

SANITARY SEWER PIPE SCHEDULE					
PROPOSED PIPES (LABEL BASED ON UPSTREAM STRUCTURE)					
PIPE	LENGTH	SIZE	TYPE	SLOPE	
2	123 FT.	8 IN.	PVC SDR 26	0.50%	
3	375 FT.	8 IN.	PVC SDR 26	0.50%	
4	236 FT.	8 IN.	PVC SDR 26	0.50%	
5	180 FT.	8 IN.	PVC SDR 26	0.50%	
6	161 FT.	8 IN.	PVC SDR 26	0.50%	
7	145 FT.	8 IN.	PVC SDR 26	0.50%	
8	45 FT.	8 IN.	PVC SDR 26	0.50%	
9	161 FT.	8 IN.	PVC SDR 26	1.00%	
10	250 FT.	8 IN.	PVC SDR 26	1.25%	
11	160 FT.	8 IN.	PVC SDR 26	0.00%	
12	151 FT.	8 IN.	PVC SDR 26	1.50%	
13	213 FT.	8 IN.	PVC SDR 26	1.50%	
14	299 FT.	8 IN.	PVC SDR 26	1.00%	

LEGEND

PROPOSED (PR)	EXISTING (EX)	CONTOUR
900	900	STORM DRAINAGE FLOW
T/C	+ 922.08	SPOT ELEVATION
XXX.XX		FINISHED FLOOR ELEVATION
FF	FF	FINISHED GRADE ELEVATION
FG	FG	TOP OF ASPHALT
T/A	T/A	TOP OF CURB / CONCRETE
T/C	T/C	TOP OF GRAVEL
T/G	T/G	TOP OF PIPE
T/P	T/P	RIM ELEVATION
B/P	B/P	INVERT ELEVATION
RM	RM	MANHOLE STRUCTURE
INV	INV	INLET STRUCTURE
MH	MH	CATCHBASIN STRUCTURE
IN	IN	END-SECTION
CB	CB	GATEVALVE STRUCTURE
ES	ES	HYDRANT
GV	GV	UTILITY POLE
HY	HY	SANITARY SEWER
UP	UP	SANITARY LEAD
SH	SH	FORCE MAIN
SL	SL	PRESSURE SEWER
FM	FM	STORM SEWER
PS	PS	WATER MAIN
ST	ST	WATER LEAD
WM	WM	FIBER OPTIC
WL	WL	OVERHEAD WIRE
FO	FO	CABLE
OH	OH	ELECTRIC
C	C	GAS
E	E	TELEPHONE
G	G	MANHOLE
T	T	INLET / CATCHBASIN
O	O	FLARED END-SECTION
□	□	GATE VALVE
○	○	HYDRANT
○	○	UTILITY POLE
+	+	SIGN

CONCRETE
ASPHALT
GRAVEL
WETLAND LIMIT
LDDC FLOODPLAIN

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS PLAN ARE EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE USER OF THIS PLAN SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND ELEVATION OF EXISTING UTILITIES AND PROPOSED UTILITY CROSSINGS IN THE FIELD PRIOR TO CONSTRUCTION. THE USER OF THIS PLAN SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY PERMITS AND APPROVALS FROM THE LOCAL GOVERNMENT OR IF THE LOCATION OR DEPTH DIFFERS SIGNIFICANTLY FROM THE PLANS.

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PROJECT: **LAKESHORE VILLAGE APARTMENTS - PHASE 3**
PREPARED FOR: **THE LOCKWOOD COMPANIES**
2777 FRANKLIN ROAD, SUITE 1410
SOUTHFIELD, MI 48034
248.433.7401

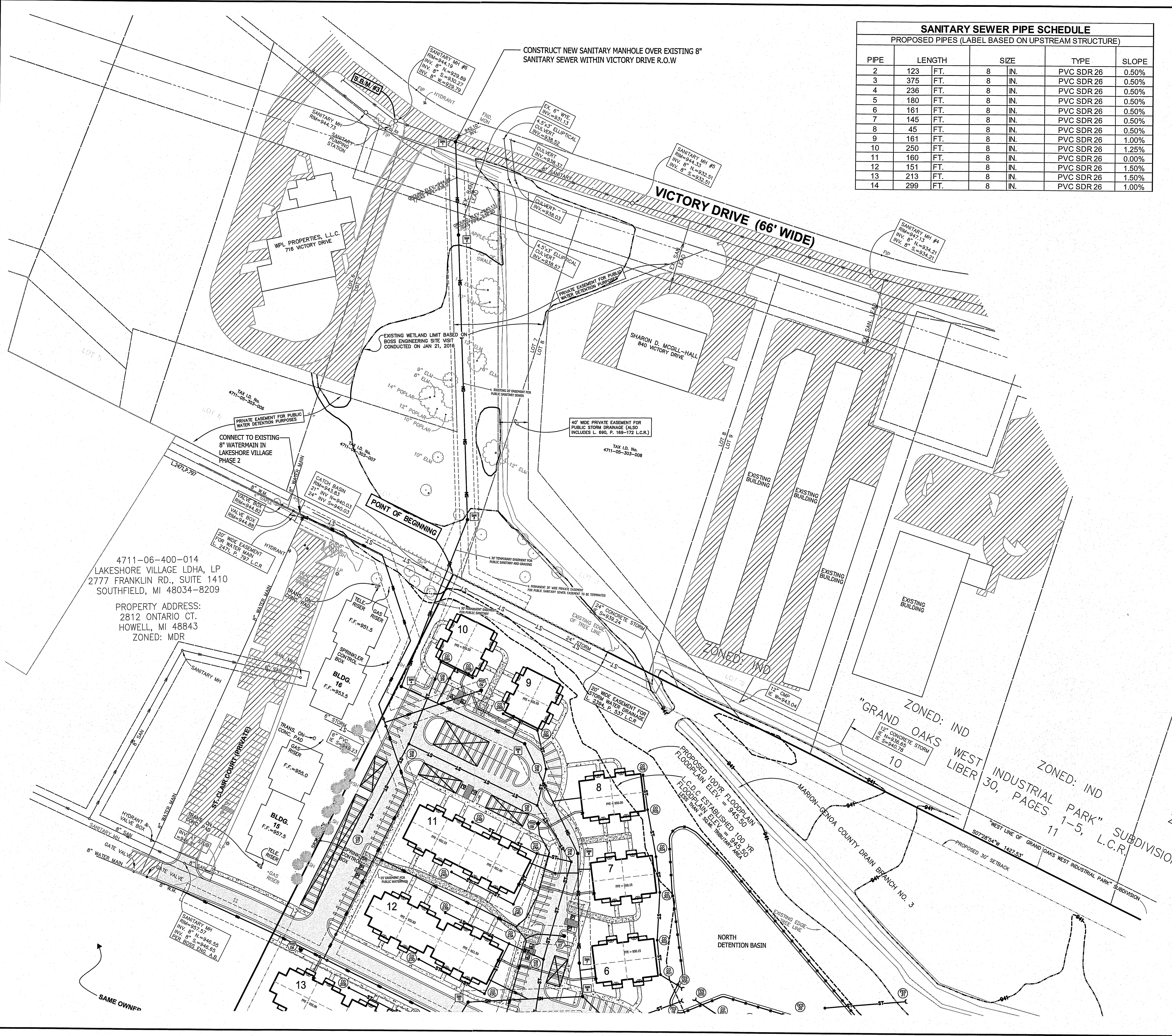
TITLE: **OFF-SITE UTILITY PLAN**

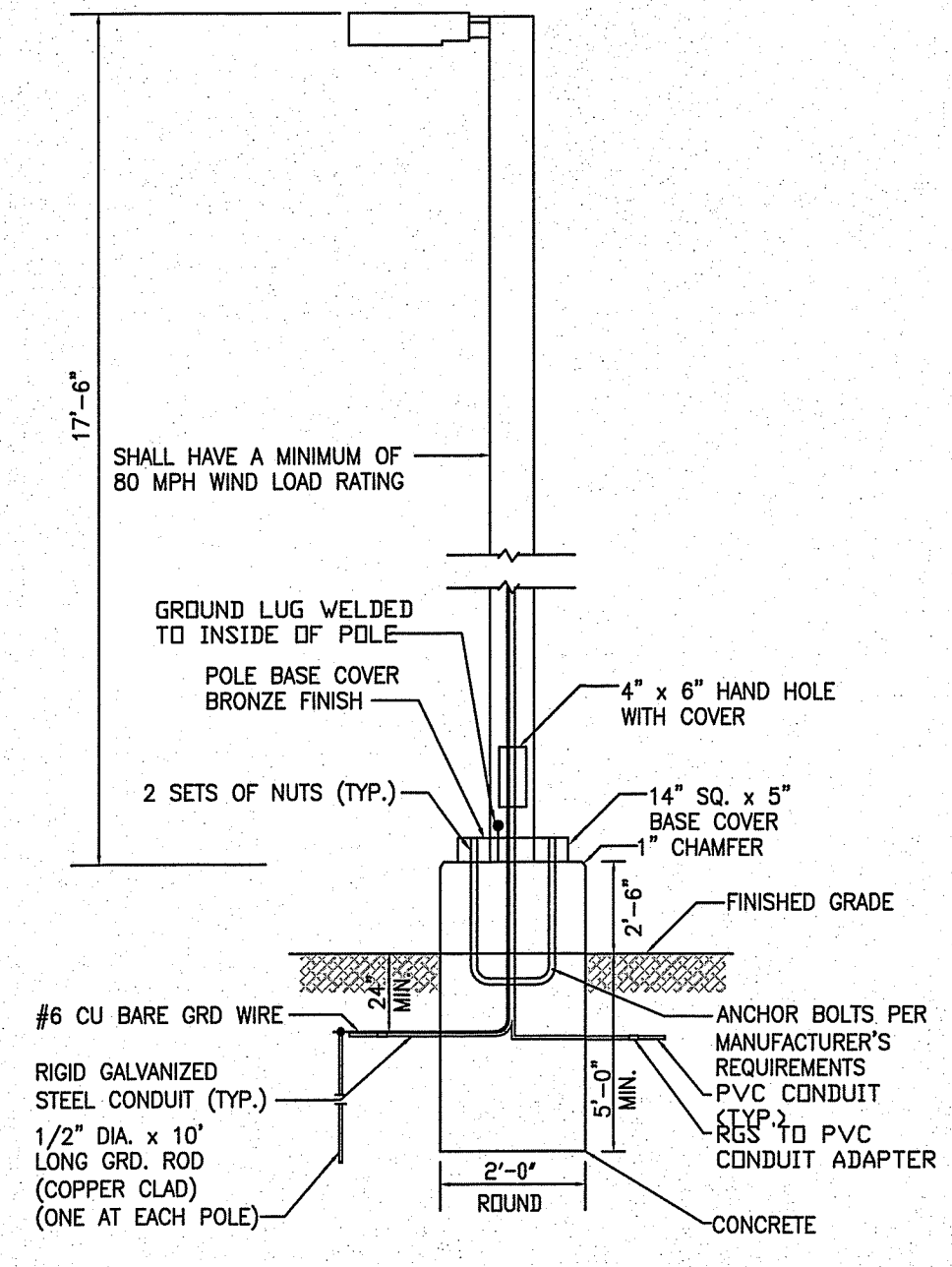
NO.	BY	REVISION	PER	DATE
1	RD	CHANGES TO THE OFF-SITE UTILITY PLAN		2/24/2016

BENCHMARK DATA
S.B.M. #3
NORTH RIM OF EXISTING SANITARY MH #6
RIM LOCATED ON WEST SIDE OF VICTORY DRIVE
NORTH OF SOUTHERLY ENTRANCE TO ADDRESS No. 719
ELEV. = 944.19

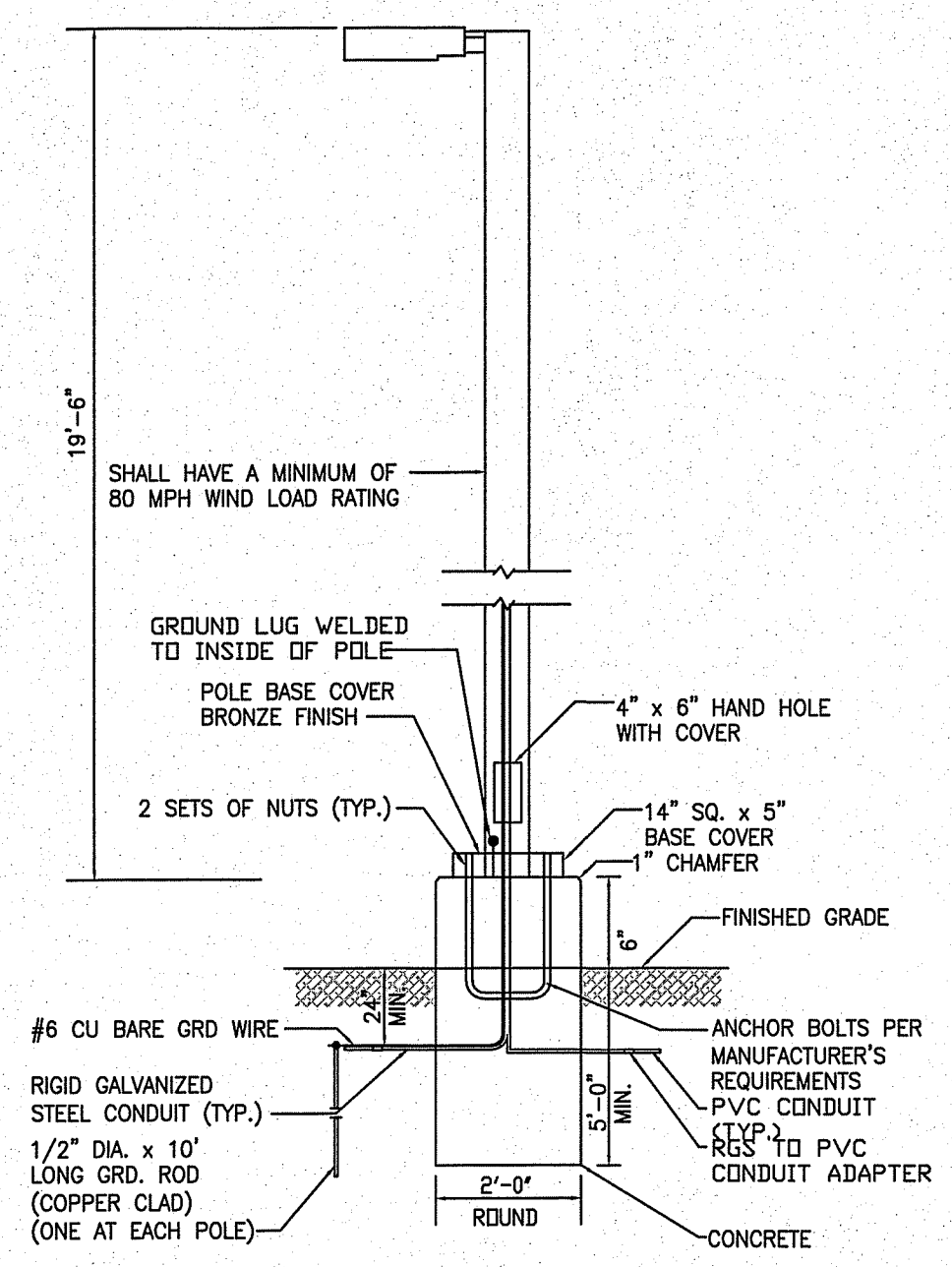
SURVEY NOTE: SURVEY PERFORMED BY RAYMOND J. DONNELLY & ASSOC., INC IN 2015

DESIGNED BY: RD
DRAWN BY: RD
CHECKED BY:
SCALE 1" = 60'
JOB NO. 16-010
DATE 2-3-2016
SHEET NO. **C13**





BOX LIGHT FIXTURE DETAIL IN PAVEMENT
(NO SCALE)



BOX LIGHT FIXTURE DETAIL IN LAWN
(NO SCALE)

LEGEND

PROPOSED (PR)	EXISTING (EX)	
UP	UP	LIGHT BOX FIXTURE
OH	OH	UTILITY POLE
E	E	OVERHEAD WIRE
G	G	ELECTRIC
T	T	GAS
+	+	TELEPHONE
U	U	UTILITY POLE SIGN
CONCRETE	CONCRETE	CONCRETE
ASPHALT	ASPHALT	ASPHALT
GRAVEL	GRAVEL	GRAVEL
DOUBLE FIXTURE LIGHT POLE	DOUBLE FIXTURE LIGHT POLE	DOUBLE FIXTURE LIGHT POLE
SINGLE FIXTURE LIGHT FIXTURE	SINGLE FIXTURE LIGHT FIXTURE	SINGLE FIXTURE LIGHT FIXTURE
WALL MOUNTED LIGHT FIXTURE	WALL MOUNTED LIGHT FIXTURE	WALL MOUNTED LIGHT FIXTURE
GROUND LIGHT FIXTURE	GROUND LIGHT FIXTURE	GROUND LIGHT FIXTURE
FOOT CANDLES ON SITE	FOOT CANDLES ON SITE	FOOT CANDLES ON SITE

LITHONIA LIGHTING

FEATURES & SPECIFICATIONS

CONTOUR Soft Square Lighting

KAD

METAL HULL: 70-800W
HIGH PRESSURE SODIUM 70-800W
2FT0 33" MOUNTING

Model	Power (W)	Height (ft)	Mounting	Notes
KAD 400W R3	400	17'-6"	33"	HS-IES
KAD 400W R4	400	19'-6"	33"	HS-IES

LUMINAIRE SCHEDULE

SYMBOL	LABEL	QTY.	DESCRIPTION	CATALOG NUMBER	LAMP	FILE	LUMENS	LLF	POLE DESCRIPTION	POLE HEIGHT	BASE HEIGHT	TOTAL HEIGHT
LA	LA	19	KAD 400W MH, R3 REFLECTOR, FULL CUTOFF, HOUSESIDE SHIELD	KAD 400M R3 HS (PULSE START)	400-WATT CLEAR BT-37 PULSE START METAL HALIDE, HORIZONTAL POSITION	KAD-400M-R3-HS.IES	38,000	.72	17'-6"	2'-6"	20'	
LB	LB	9	KAD 400W MH, R4 REFLECTOR, FULL CUTOFF	KAD 400M R4 (PULSE START)	400-WATT CLEAR BT-37 PULSE START METAL HALIDE, HORIZONTAL POSITION	KAD-400M-R4-HS.IES	20,000	.72	19'-6"	6"	20'	

BEBOSS Engineering
Engineers Surveyors Planners Landscape Architects
3121 E. GRAND RIVER AVE.
HOWELL, MI. 48843
800.246.6735 FAX 517.548.1670

PROJECT: LAKESHORE VILLAGE APARTMENTS - PHASE 3
PREPARED FOR: THE LOCKWOOD COMPANIES
27777 FRANKLIN ROAD, SUITE 1410
SOUTHFIELD, MI 48034
248.433.7401

TITLE: LIGHTING PLAN

NO.	BY	REVISION	DATE
1	TD		2/24/2016

DESIGNED BY: TD
CHECKED BY: TD
SCALE 1" = 60'
JOB NO. 16-010
DATE 2-3-2016
SHEET NO. C14

4711-06-400-014
 LAKESHORE VILLAGE LDHA, LP
 2777 FRANKLIN RD., SUITE 1410
 SOUTHFIELD, MI 48034-8209

PROPERTY ADDRESS:
 2812 ONTARIO CT.
 HOWELL, MI 48843
 ZONED: MDR

LEGEND

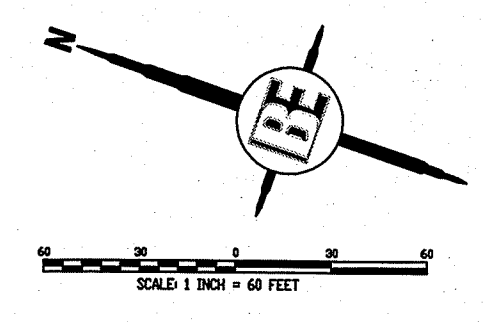
PROPOSED (PR) EXISTING (EX)

WM WM
 WL WL

WATER MAIN
 WATER LEAD
 EMERGENCY VEHICLE PATH

FIRE DEPT. CONNECTION
 HYDRANT
 UTILITY POLE
 SIGN

CONCRETE
 ASPHALT
 GRAVEL



- FIRE PLAN NOTES:**
1. FIRE LANES TO BE MARKED EVERY 50' WITH A "NO PARKING FIRE LANE" SIGN
 2. ACCESS ROADS TO THE SITE SHALL BE PROVIDED AND MAINTAINED DURING CONSTRUCTION.

FIRE PROTECTION LEADS				
UNIT	LEAD LENGTH	SIZE	SIZE	MATERIAL
1	29	FT.	4	IN. DUCTILE IRON CL52
2	29	FT.	4	IN. DUCTILE IRON CL52
3	64	FT.	4	IN. DUCTILE IRON CL52
4	80	FT.	4	IN. DUCTILE IRON CL52
5	92	FT.	4	IN. DUCTILE IRON CL52
6	104	FT.	4	IN. DUCTILE IRON CL52
7	73	FT.	4	IN. DUCTILE IRON CL52
8	63	FT.	4	IN. DUCTILE IRON CL52
9	76	FT.	4	IN. DUCTILE IRON CL52
10	33	FT.	4	IN. DUCTILE IRON CL52
11	13	FT.	4	IN. DUCTILE IRON CL52
12	15	FT.	4	IN. DUCTILE IRON CL52
13	22	FT.	4	IN. DUCTILE IRON CL52
14	97	FT.	4	IN. DUCTILE IRON CL52
BUSINESS CENTER	84	FT.	4	IN. DUCTILE IRON CL52



4711-06-400-018
 ROBERT JOHN OLD &
 LINDA R. BROWDER-OLD
 2444 PFEIFLE
 HOWELL, MI 48843
 ZONED: SR

4711-06-400-017
 CHILSON RD.
 HOWELL, MI 48843

4711-06-400-016
 JENNIFER WOLFE
 715 CHILSON RD.
 HOWELL, MI 48843

4711-06-400-018
 ROBERT JOHN OLD &
 LINDA R. BROWDER-OLD
 2444 PFEIFLE
 HOWELL, MI 48843
 ZONED: SR

4711-06-400-009
 DAVID & MIRIANA GRUENDORF
 775 CHILSON RD.
 HOWELL, MI 48843
 ZONED: SR

NO. 775
 1 STORY BRICK & FRAME
 EXISTING RESIDENCE

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETION OF AN ACQUAINTANCE WITH THE FIELD PRIOR TO CONSTRUCTION. THE ENGINEER HAS REVIEWED THE PLANS AND PROPOSED UTILITY CROSSINGS IN THE FIELD PRIOR TO CONSTRUCTION. THE ENGINEER HAS REVIEWED THE PLANS AND PROPOSED UTILITY CROSSINGS IN THE FIELD PRIOR TO CONSTRUCTION. THE ENGINEER HAS REVIEWED THE PLANS AND PROPOSED UTILITY CROSSINGS IN THE FIELD PRIOR TO CONSTRUCTION. THE ENGINEER HAS REVIEWED THE PLANS AND PROPOSED UTILITY CROSSINGS IN THE FIELD PRIOR TO CONSTRUCTION.

BEFORE YOU DIG
 CALL MISS DIG
 1-800-482-7177

BEBOSS Engineering
 Engineers Surveyors Planners Landscape Architects

3121 E. GRAND RIVER AVE.
 HOWELL, MI. 48843
 800.246.6735 FAX 517.548.1670

PROJECT: **LAKESHORE VILLAGE APARTMENTS - PHASE 3**

PREPARED FOR: **THE LOCKWOOD COMPANIES**
 2777 FRANKLIN ROAD, SUITE 1410
 SOUTHFIELD, MI 48034
 248-433-7401

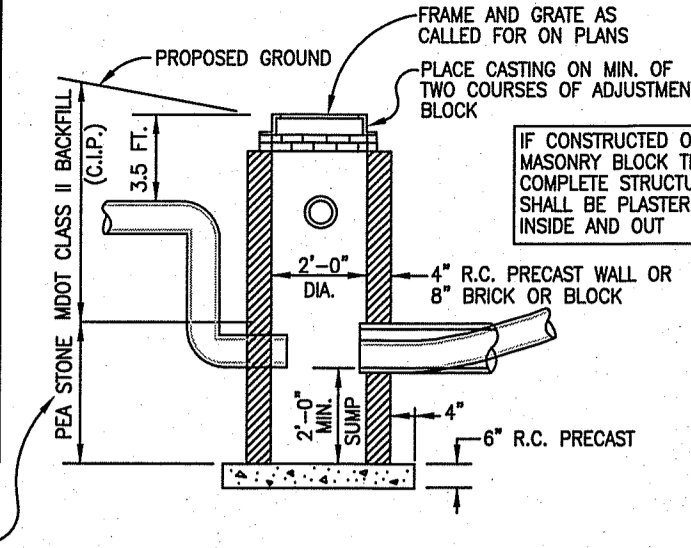
TITLE: **FIRE PROTECTION PLAN**

NO.	BY	REVISION PER	DATE
1	RD	REVISION PER	2/24/2016

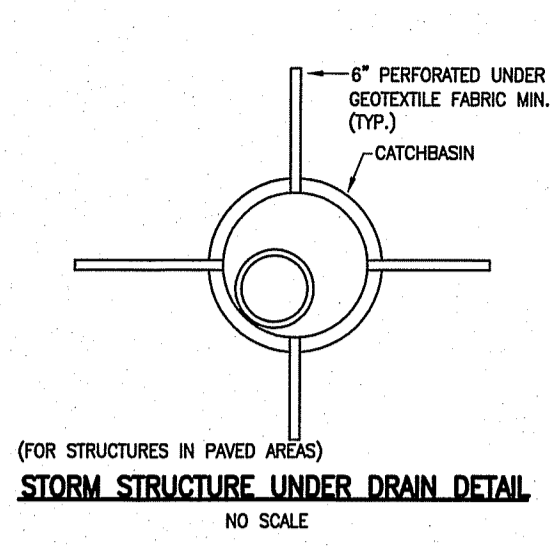
DESIGNED BY: TD
 DRAWN BY: RD
 CHECKED BY:
 SCALE: 1" = 60'
 JOB NO. 16-010
 DATE: 2-3-2016
 SHEET NO. **C15**

INSTALL SUBDRAINS AT ALL STORM STRUCTURES LOCATED WITHIN ROADWAY

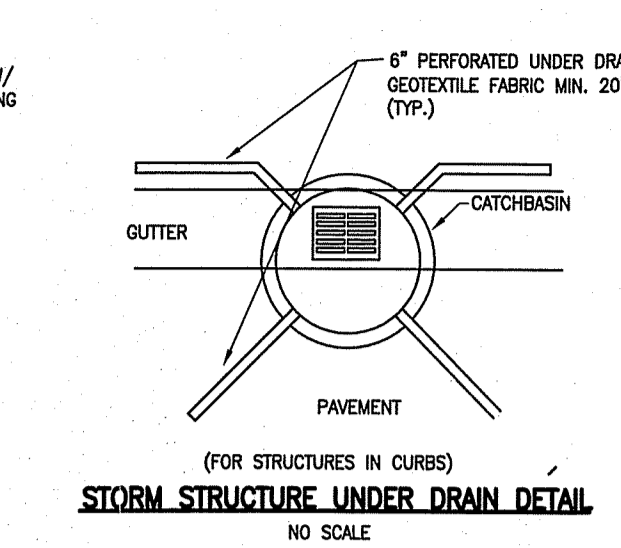
- 4 L.F. (MIN.) 6" PERFORATED P.V.C. PIPE WRAPPED WITH GEOTEXTILE FABRIC PLACED AT LOWEST INVERT PARALLEL TO ROAD OR LINE OF PIPE. BACK-FILLED WITH PEA STONE ONE FOOT ABOVE PIPE.
- AT LOWPOINT CATCH BASINS 20 L.F. (MIN.) OF 6" PERFORATED P.V.C. PIPE WRAPPED WITH GEOTEXTILE FABRIC, STARTING AT LOWEST INVERT AND CONTINUING AT 3.5 FT. BELOW ROAD-WAY, PARALLEL TO ROAD. (BOTH DIRECTIONS) BACK-FILLED WITH PEA STONE TO THE SURFACE.



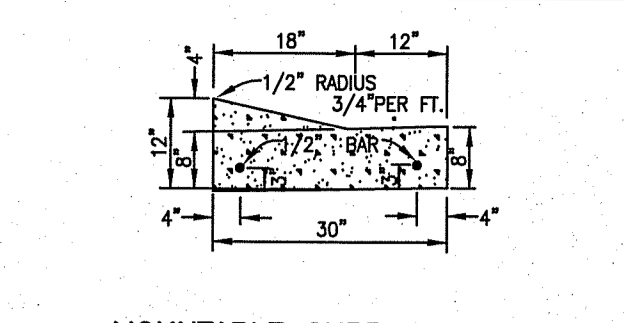
2 FT. DIA. CATCH BASIN W/SUMP
NO SCALE



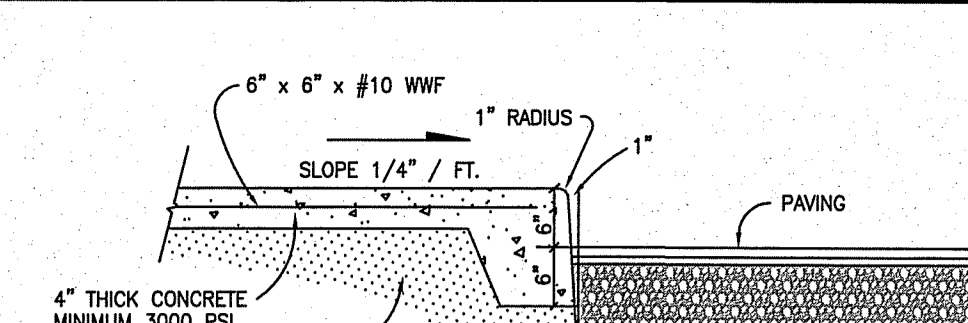
STORM STRUCTURE UNDER DRAIN DETAIL
NO SCALE



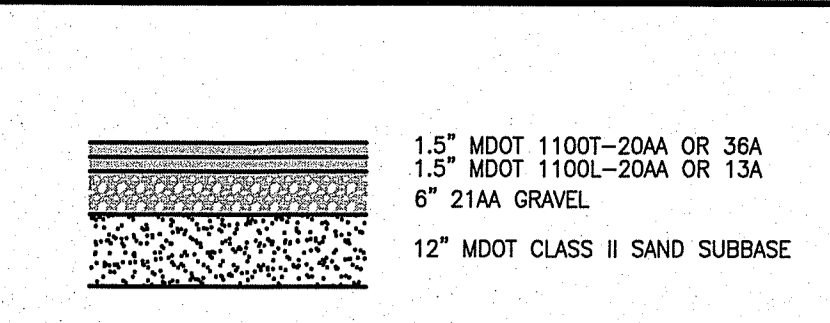
STORM STRUCTURE UNDER DRAIN DETAIL
NO SCALE



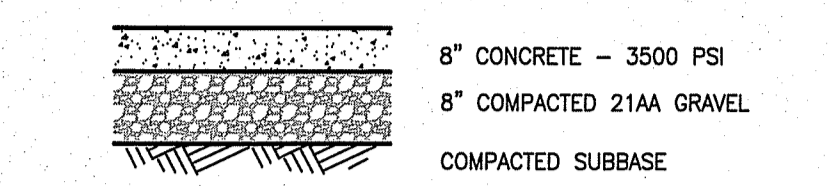
MOUNTABLE CURB & GUTTER
(NO SCALE)



INTEGRAL CONCRETE WALK / CURB DETAIL
(NO SCALE)



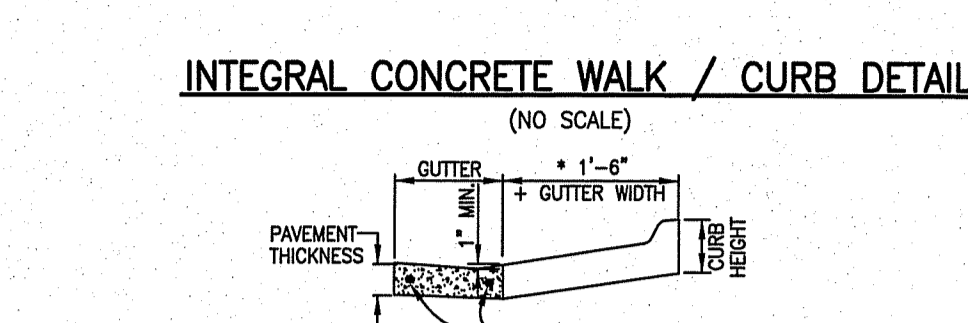
ASPHALT SECTION
(NO SCALE)



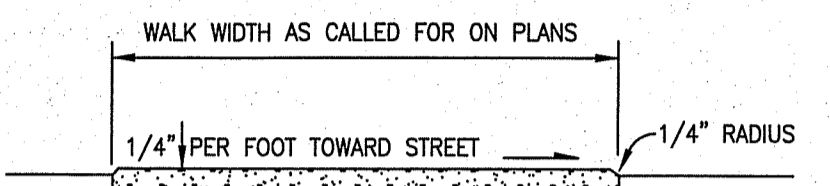
CONCRETE PAVEMENT CROSS SECTION
NOTE: FOR DUMPSTER PAD AND FIRE ACCESS ROADS
(NO SCALE)

DETAIL	DIMENSIONS	LANE TIES	CONCRETE CU.YD./LIN.FT.
M	N		
C1	1'-6"	7/8"	AS SHOWN 0.0506
C2	1'-6"	7/8"	OMITTED 0.0506
C3	2'-0"	1-3/8"	AS SHOWN 0.0632
C4	2'-0"	1-3/8"	OMITTED 0.0632
C5	2'-6"	1-7/8"	AS SHOWN 0.0757
C6	2'-6"	1-7/8"	OMITTED 0.0757

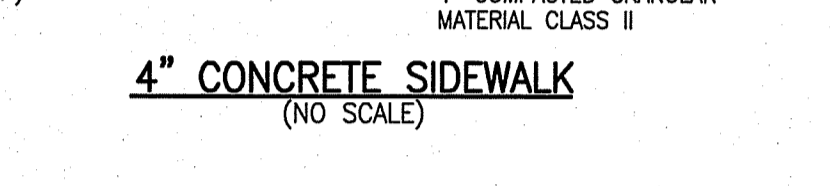
MODIFIED TYPE C CURB
(REF. MDT DETAIL II-300)
(NO SCALE)



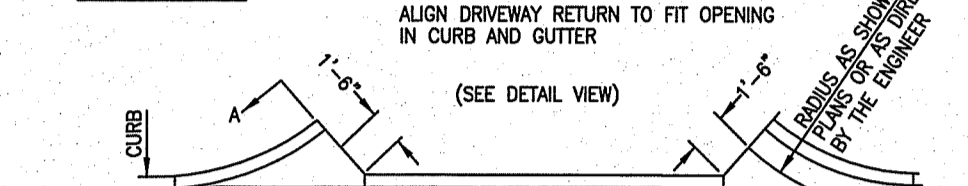
CONCRETE DRIVEWAY OPENING - MDT STANDARD II-42 DETAIL 'M'
(NO SCALE)



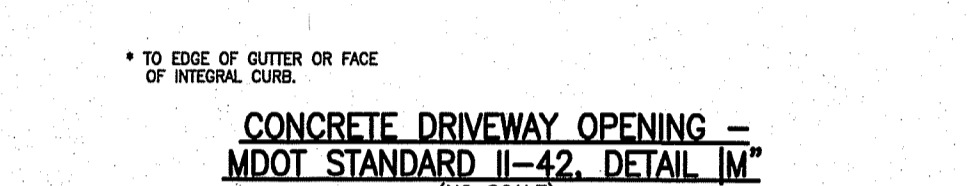
4" CONCRETE SIDEWALK
(NO SCALE)



"VALLEY TYPE" MOUNTABLE CURB & GUTTER DETAILS
(NO SCALE)



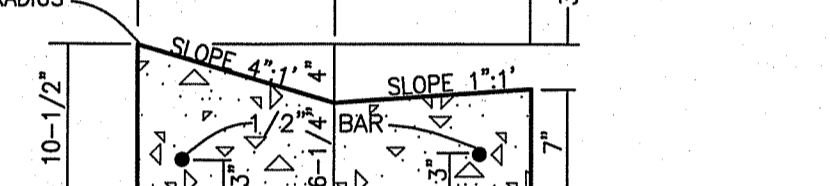
RETAINING WALL AND FENCE
(NO SCALE)



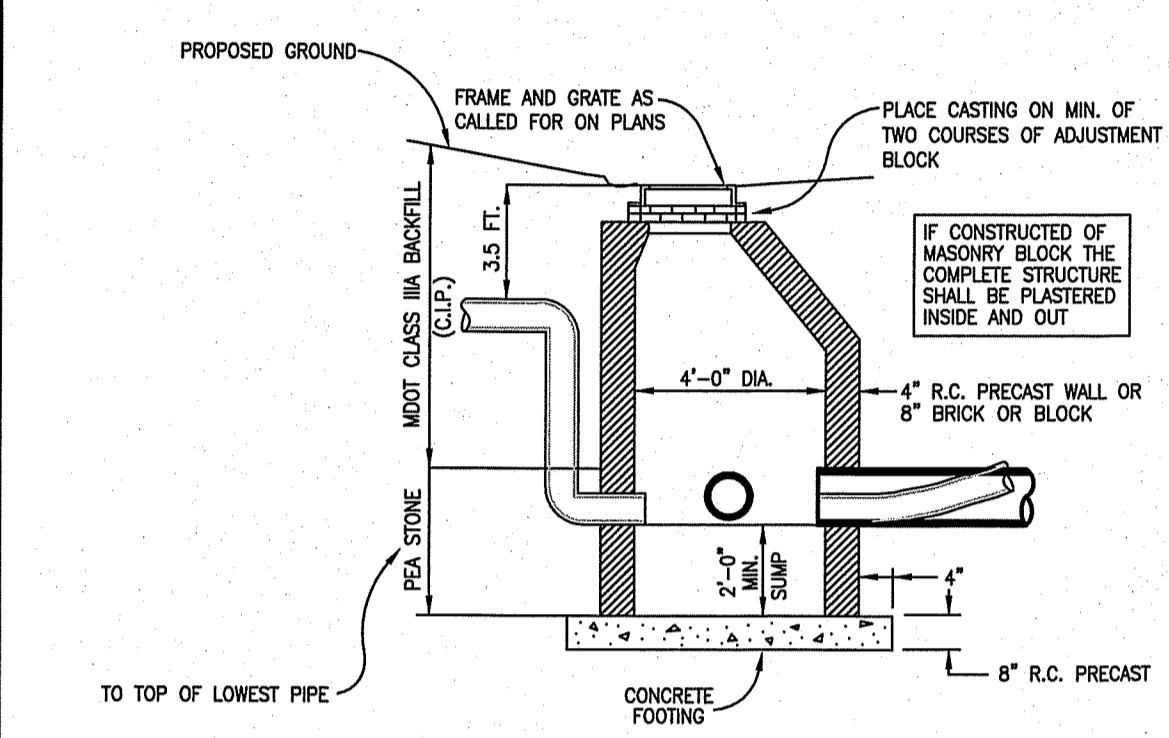
CONCRETE CURB AND GUTTER ENDINGS
(NO SCALE)



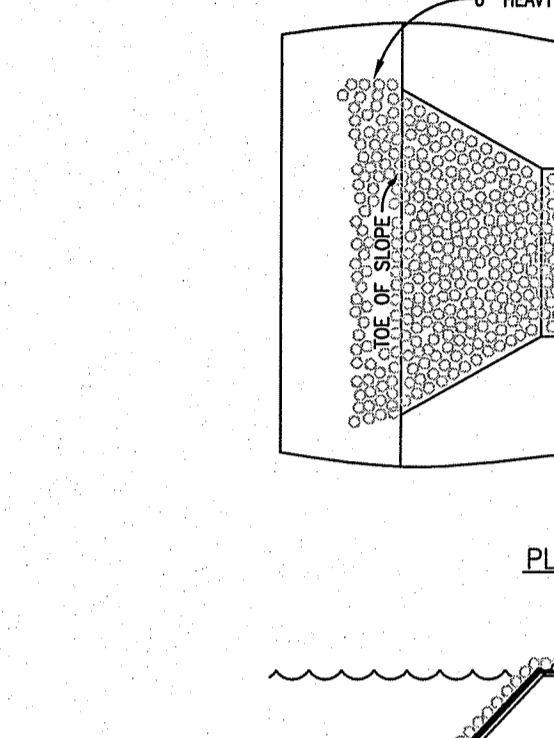
NO PARKING SIGN DETAIL
(NO SCALE)



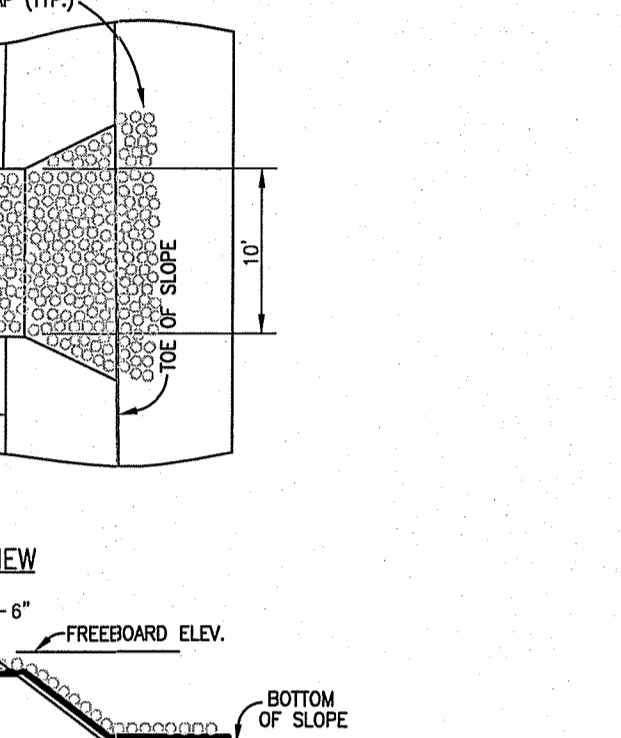
HANDICAP PARKING SIGN DETAIL
(NO SCALE)



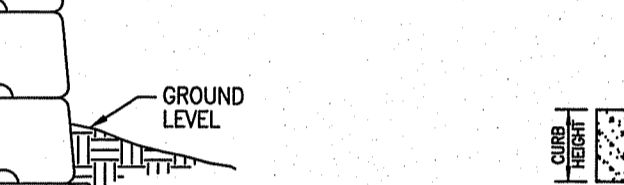
4 FT. DIA. CATCH BASIN W/SUMP
NO SCALE



EMERGENCY SPILLWAY DETAIL
NO SCALE



RETAINING WALL AND FENCE
(NO SCALE)



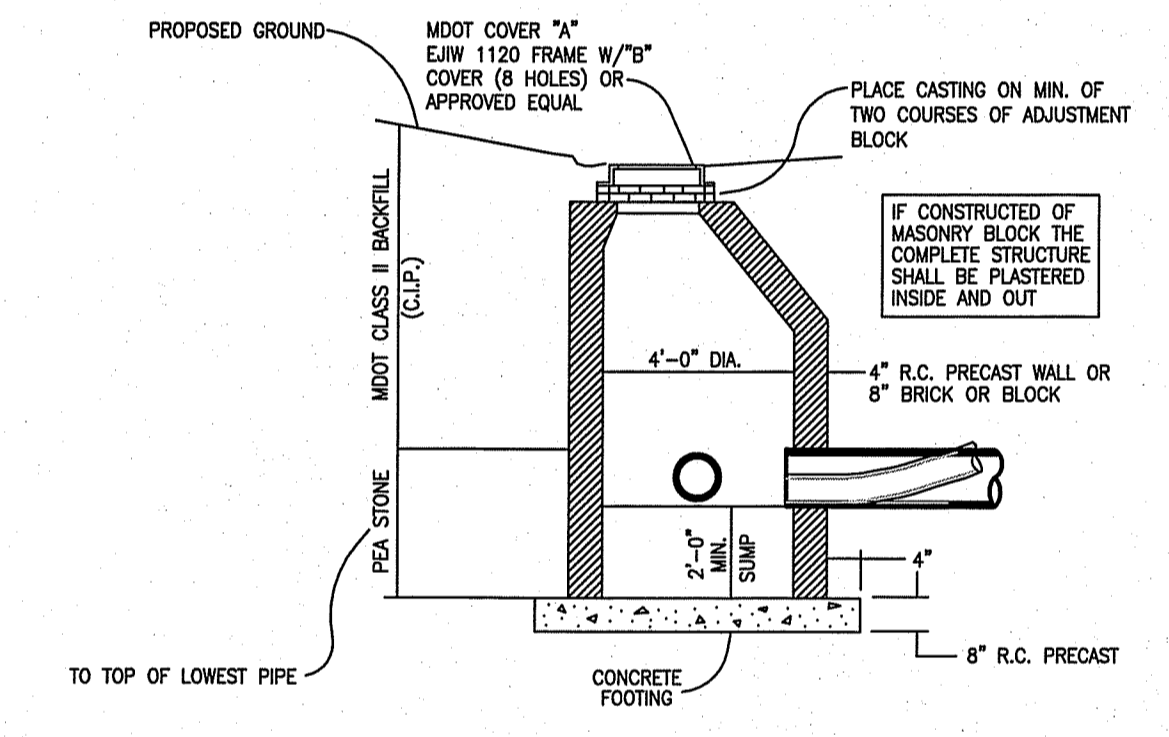
CONCRETE CURB AND GUTTER ENDINGS
(NO SCALE)



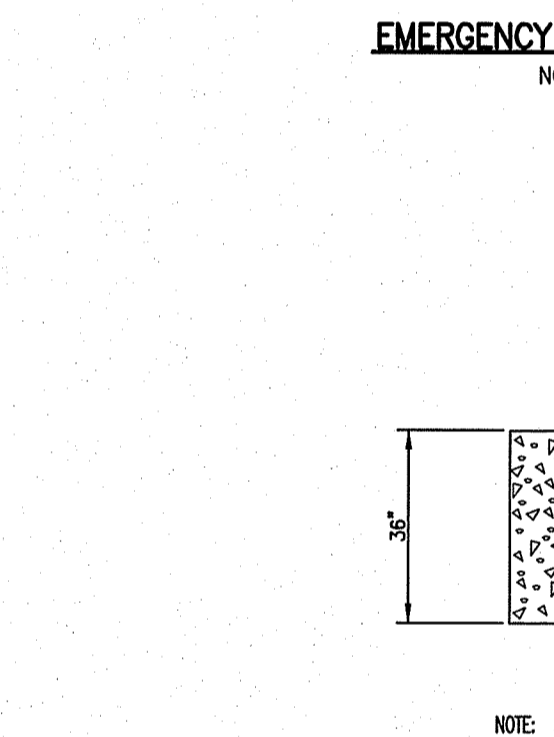
NO PARKING SIGN DETAIL
(NO SCALE)



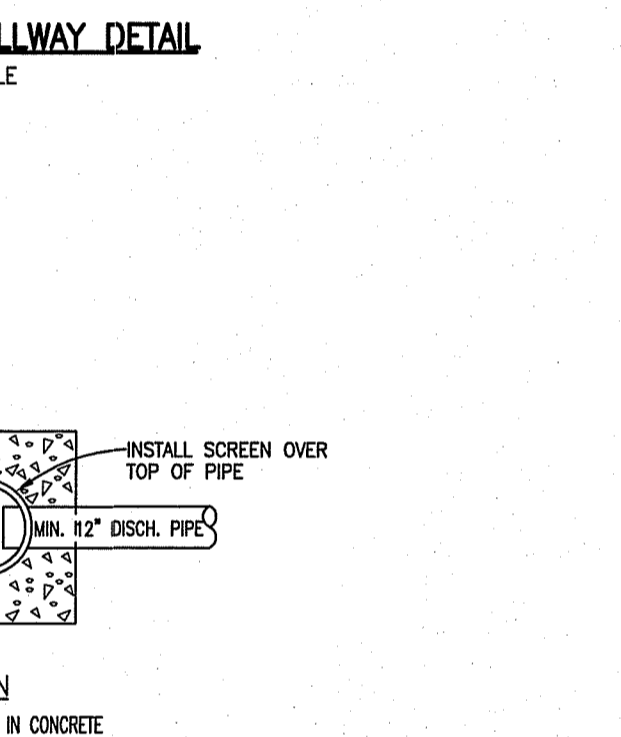
HANDICAP PARKING SIGN DETAIL
(NO SCALE)



4 FT. DIA. STORM MANHOLE W/SUMP
NO SCALE



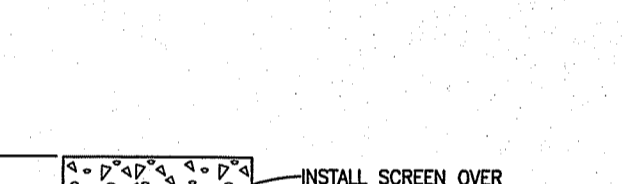
EMERGENCY SPILLWAY DETAIL
NO SCALE



RETAINING WALL AND FENCE
(NO SCALE)



CONCRETE CURB AND GUTTER ENDINGS
(NO SCALE)



NO PARKING SIGN DETAIL
(NO SCALE)

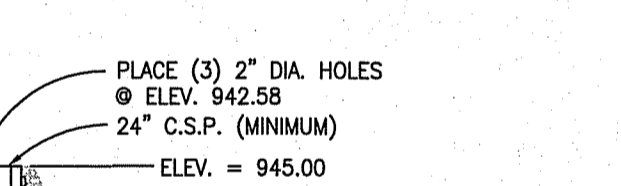


HANDICAP PARKING SIGN DETAIL
(NO SCALE)

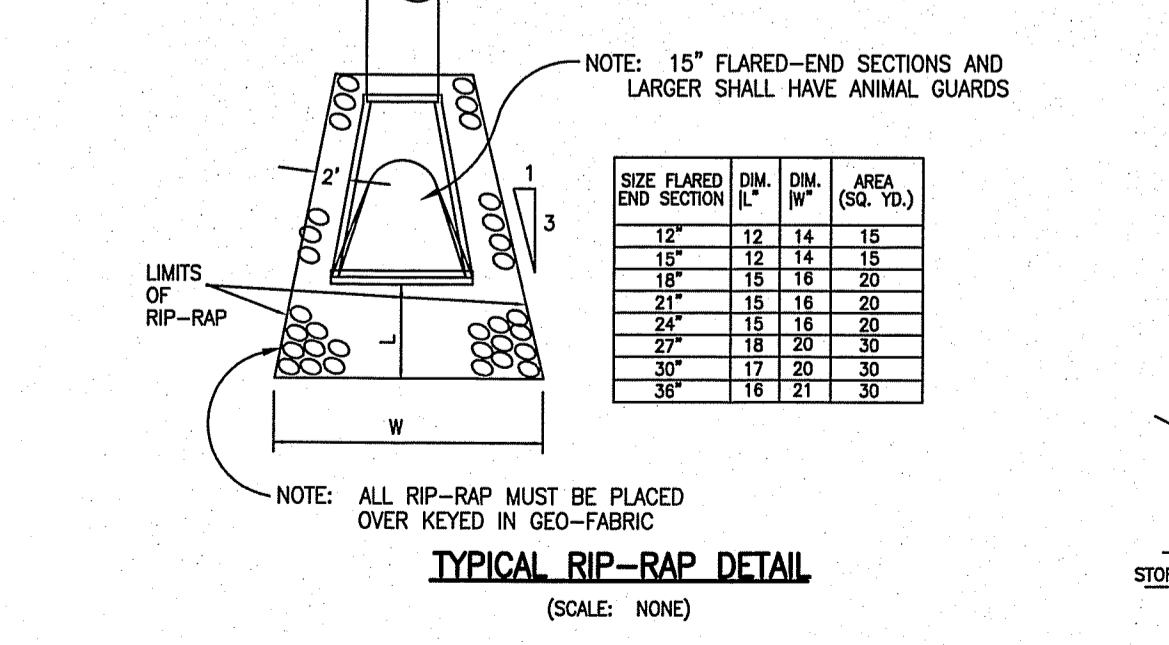
STRUCTURE FRAMES & COVERS					
COVER	TYPE	USE	MANUFACTURER OR EQUAL		TYPE OF COVER OR GRATE
			EAST JORDAN	NEEMH	
A	MH	ALL	1120	R-1415	SANITARY-SELF SEALING STORM-VENTED
B	CB & INLET	TYPE B2 CURB	7085	R-3038-A	
K	CB & INLET	TYPE C & F CURB	7045	R-3031-B	FLAT GRATE WITH VERT. 4" OPEN THROAT
C	CB & INLET	VALLEY CURB	7065	R-3034-B	
D	CB & INLET	PARKING LOTS	1020-MI	R-2560-D	FLAT GRATE
E	CB & INLET	LAWN AREA OR DITCH	1020-O1		BEEHIVE GRATE 4" HIGH



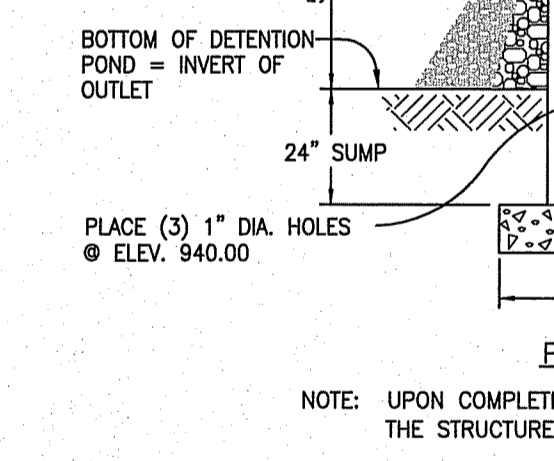
LCDC DETENTION/SEDIMENTATION POND OUTLET CONTROL STRUCTURE - SOUTH BASIN
(NO SCALE)



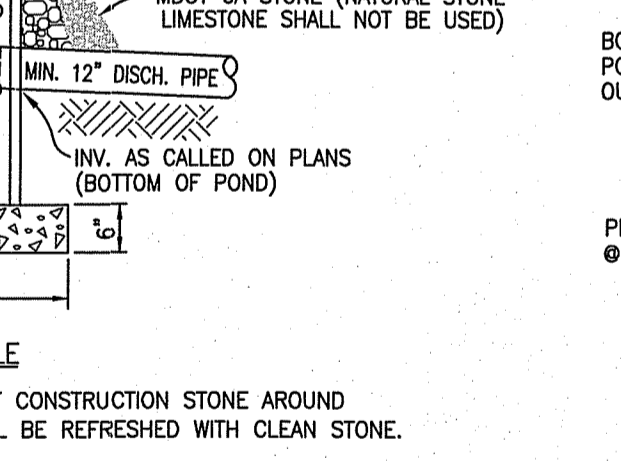
LCDC DETENTION/SEDIMENTATION POND OUTLET CONTROL STRUCTURE - NORTH BASIN
(NO SCALE)



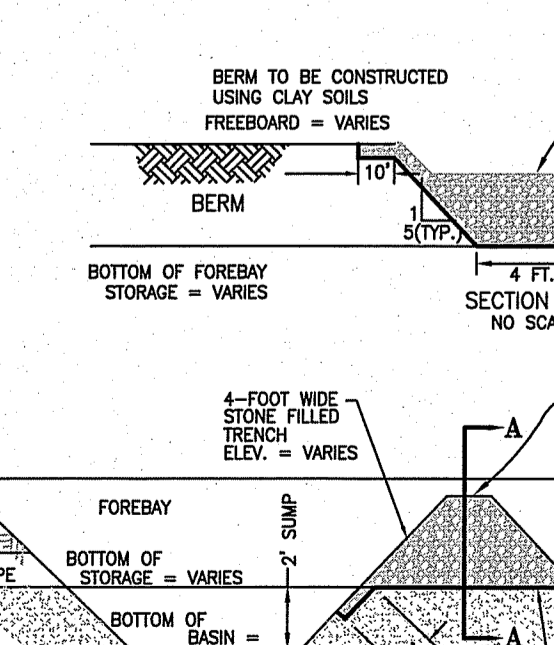
TYPICAL RIP-RAP DETAIL
(SCALE: NONE)



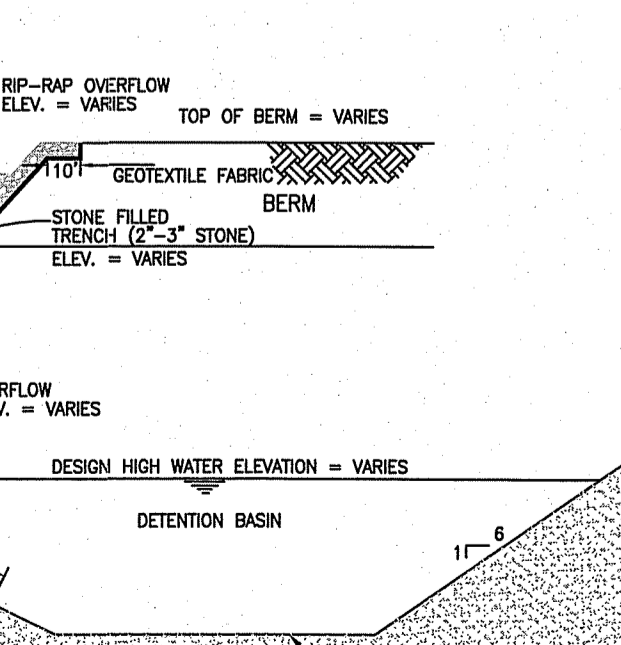
LCDC DETENTION/SEDIMENTATION POND OUTLET CONTROL STRUCTURE - SOUTH BASIN
(NO SCALE)



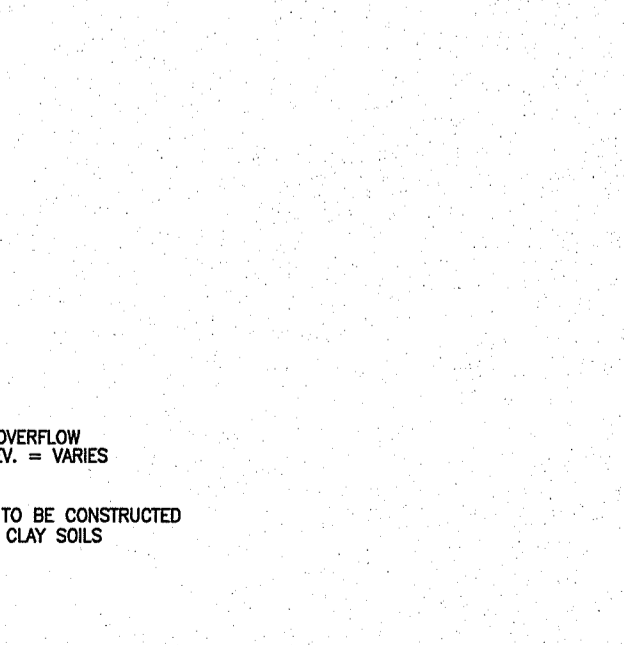
LCDC DETENTION/SEDIMENTATION POND OUTLET CONTROL STRUCTURE - NORTH BASIN
(NO SCALE)



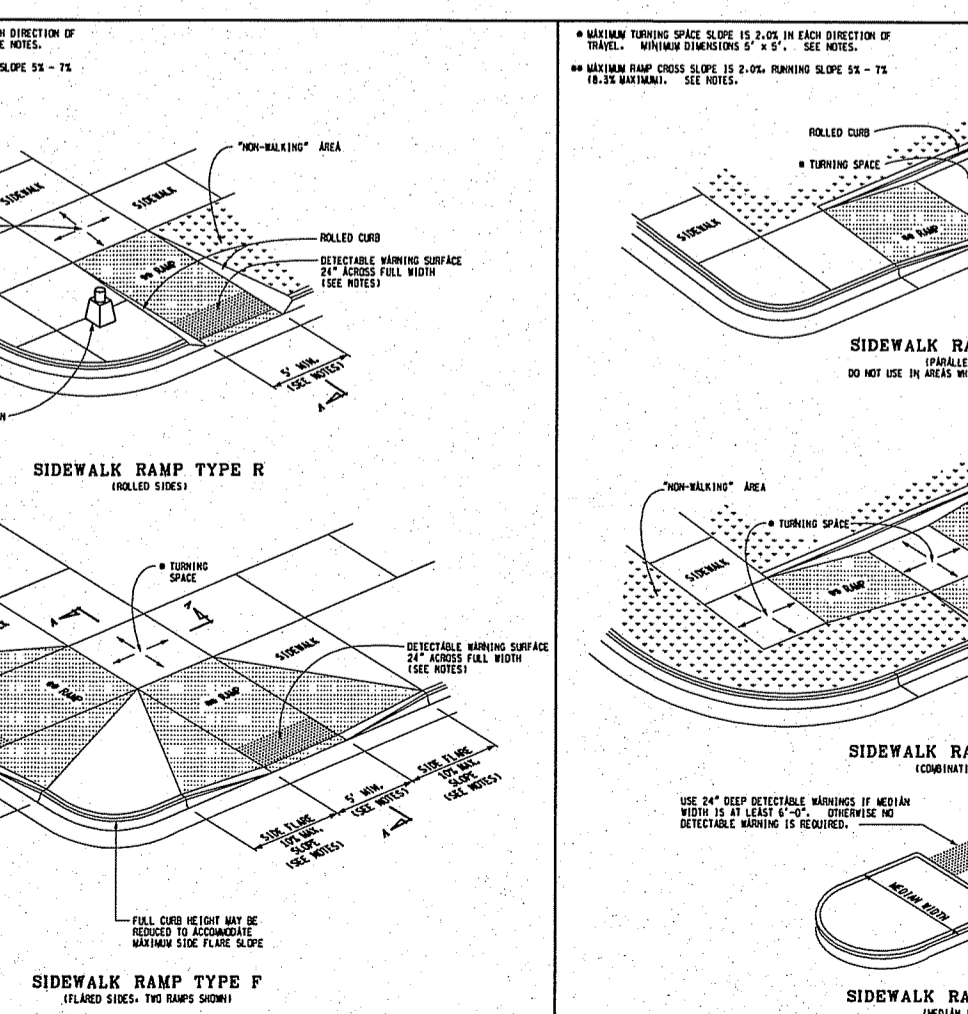
DETENTION BASIN CROSS SECTION
NOT TO SCALE



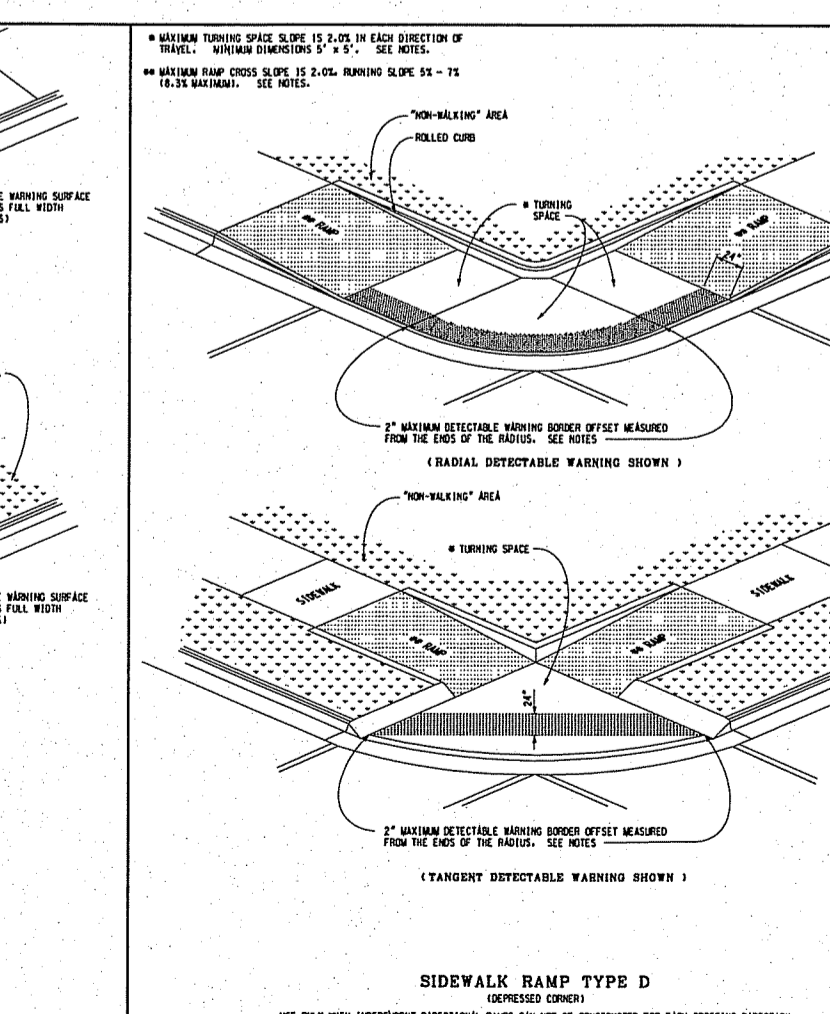
SIDEWALK RAMP AND DETECTABLE WARNING DETAILS
(NO SCALE)



SIDEWALK RAMP AND DETECTABLE WARNING DETAILS
(NO SCALE)



SIDEWALK RAMP AND DETECTABLE WARNING DETAILS
(NO SCALE)



SIDEWALK RAMP AND DETECTABLE WARNING DETAILS
(NO SCALE)

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORD DRAWINGS AND FIELD SURVEY. THE USER OF THESE PLANS SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND ELEVATION OF EXISTING UTILITIES AND PROPOSED UTILITY CROSSINGS IN THE FIELD PRIOR TO CONSTRUCTION. THE USER SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS FROM THE LOCAL, STATE, AND FEDERAL AGENCIES FOR THE LOCATION OF DEPTHS SUBSTANTIALLY FROM THE PLANS.

BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
(TOLL FREE)

BEBOSS Engineering
Planners Landscape Architects
Engineers Surveyors
3121 E. GRAND RIVER AVE.
HOWELL, MI. 48843
800.246.6735 FAX 517.548.1670

LAKESHORE VILLAGE APARTMENTS - PHASE 3
PREPARED FOR
THE LOCKWOOD COMPANIES
27777 FRANKLIN ROAD, SUITE 1410
SOUTHFIELD, MI 48034
248.433.7401

NO.	BY	REVISION	PER	DATE
1	RD	1		2/24/2016

DESIGNED BY: RD
DRAWN BY: RD
CHECKED BY:
SCALE: N/A
JOB NO. 16-010
DATE 2-3-2016
SHEET NO. C16

C16

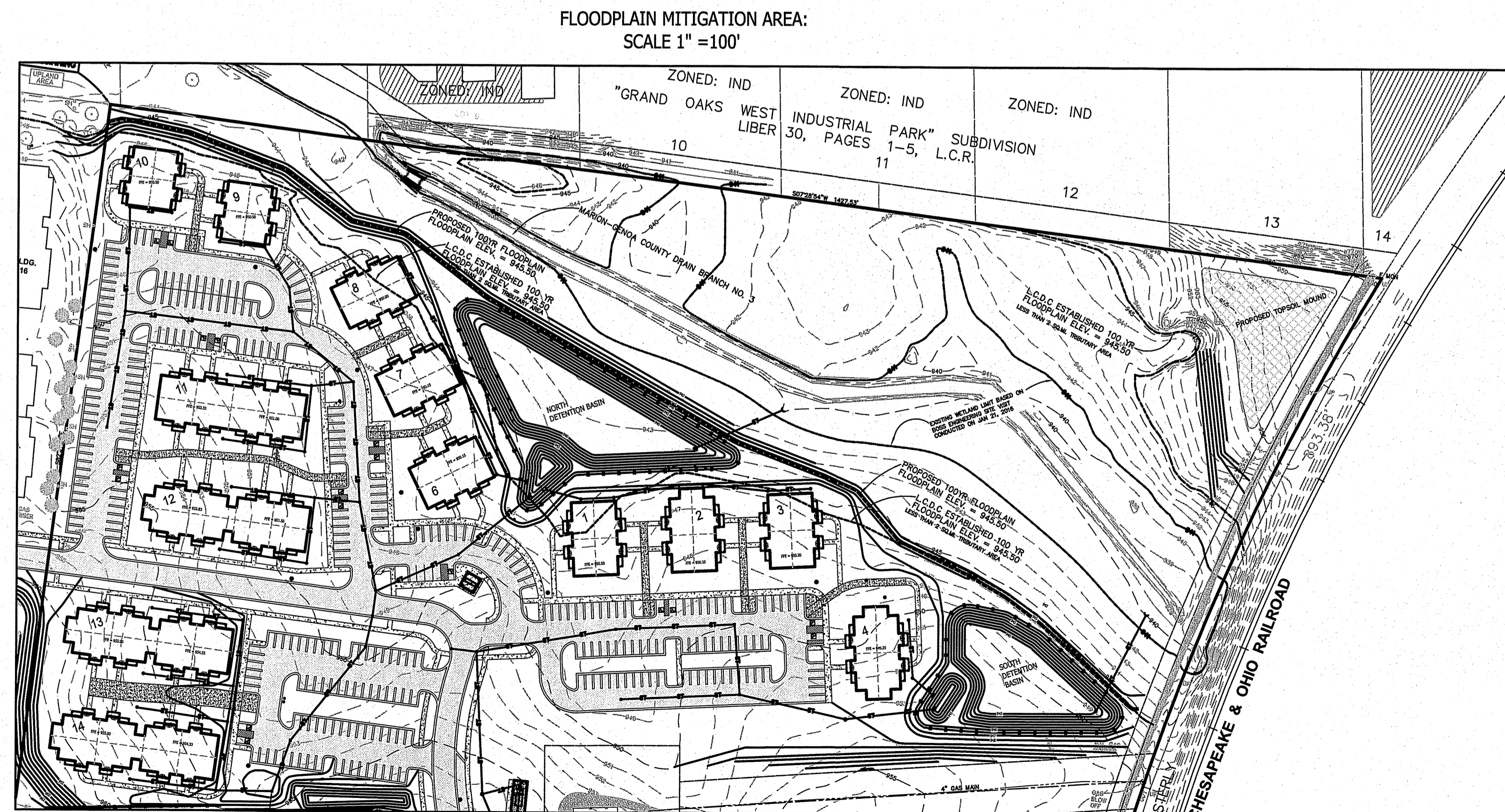
PIPE	FROM	TO	DRAIN	AREA	AREA	RUNOFF	EQUIV	INVEN	TIME OF	ADJL	RUNOFF	PIPE	VELOCITY	HYDRAULIC	ACTUAL	MANING	MANING	HO ELEV	HO ELEV	RM ELEV	RM ELEV	INVERT	INVERT	DNCP	RM	RM	PPE	FLOW	
						COEFF	CONC	CONC	CONC	CONC	CONC	LENGTH	LENGTH	LENGTH	LENGTH	LENGTH	LENGTH	UPPER	UPPER	UPPER	UPPER	UPPER	UPPER	UPPER	UPPER	UPPER	UPPER	THRU	
												(F)	(F)	(F)	(F)	(F)	(F)	END	END	END	END	END	END	(F)	(F)	(F)	COVER		
14B	CO14B	CO14A	14B	0.03	0.03	0.00	0.90	0.0278	4.38	15.00	0.12	32	8	0.35	0.01%	2.00%	1.71	4.91	0.11	954.12	953.47	953.58	952.93		3.67	3.13	3.00	0.12	
14A	CO14A	CB14	14A	0.03	0.03	0.00	0.90	0.0278	4.38	15.11	0.24	8	8	0.70	0.04%	2.00%	1.71	4.91	0.11	954.12	953.47	953.58	952.93		4.32	3.78	3.65	0.12	
14	CB14	CB13	14	0.03	0.03	0.00	0.90	0.0278	4.38	15.11	0.07	8	12	0.86	0.04%	2.00%	1.71	4.91	0.11	954.12	953.47	953.58	952.93		3.65	3.05	2.95	0.12	
13	CB13	CB12	13	0.23	0.20	0.04	0.79	0.1838	4.33	15.37	1.47	45	12	1.87	0.07%	2.00%	5.05	6.43	0.12	951.48	950.57	950.50	949.77		4.82	4.02	3.82	0.80	
12	CB12	CB11	12	0.90	0.33	0.56	0.46	0.1435	4.32	15.49	3.26	24	12	4.15	0.28%	1.00%	4.38	5.57	0.07	950.57	950.22	950.70	949.42		4.93	4.13	3.93	1.79	
11	CB11	MB08	11	0.21	0.02	0.01	0.91	0.1762	4.31	15.56	0.80	15	3.84	0.86%	0.50%	1.50%	7.45	4.21	0.02	945.79	945.79	945.79	944.22		3.84	4.48	4.22	0.77	
8	MB08	CB08	8	-	-	-	-	-	-	-	5.34	158	18	3.02	0.20%	1.00%	10.63	5.96	0.17	947.37	945.79	945.79	944.59		10.33	9.13	8.83	0.00	
6	CB08	CB05	6	0.27	0.12	0.15	0.52	0.14	4.22	16.30	0.55	649	157	18	3.67	0.30%	0.50%	7.45	4.21	0.02	945.79	945.05	945.70	944.80		7.11	5.91	5.61	0.59
5	CB05	CB02	5	0.50	0.28	0.22	0.59	0.2042	4.16	17.12	1.12	132	18	4.36	0.54%	0.50%	7.45	4.21	0.02	945.05	944.24	945.70	944.80		4.16	2.90	2.65	1.22	
4	CB02	MB01	4	0.59	0.32	0.27	0.58	0.3446	4.10	17.64	9.12	78	21	3.79	0.33%	0.50%	11.23	4.67	0.28	944.34	943.95	944.30	942.55		4.36	2.96	2.61	1.41	
2	MB01	FES90	2	1.25	0.22	1.03	0.32	0.4918	4.08	17.92	1.45	121	24	3.89	0.29%	0.50%	16.04	5.11	0.39	943.95	943.35	943.35	942.35		5.00	3.40	3.00	1.64	
1	FES90		1	-	-	-	-	-	-	-	12.81	99	3.89	0.29%	0.50%	16.25	5.11	0.39	943.35	942.81	943.35	941.25		7.29	5.65	5.25	0.00		
3	CB03	CB02	3	0.96	0.20	0.76	0.34	0.3318	4.38	15.00	1.45	132	12	1.85	0.17%	0.32%	2.02	2.57	0.85	943.77	943.35	943.00	942.87		5.03	4.23	4.03	1.45	
7	CB07	CB06	7	0.17	0.13	0.03	0.76	0.1261	4.38	15.00	0.55	28	12	0.70	0.02%	0.32%	2.02	2.57	0.18	945.48	945.39	945.70	944.68		7.02	6.22	6.02	0.55	
10	TD10	CB09	10	0.30	0.06	0.24	0.34	0.1028	4.38	15.00	0.45	39	12	0.57	0.02%	0.32%	2.02	2.57	0.26	947.24	947.11	950.00	946.34		3.56	2.76	2.56	0.45	
9	CB09	MB08	9	0.02	0.02	0.00	0.90	0.0444	4.35	15.00	0.51	44	12	0.65	0.02%	0.32%	2.02	2.57	0.28	947.11	946.97	950.00	946.34		3.69	2.89	2.69	0.06	
15A	CB15A	CB15	15A	0.06	0.06	0.00	0.90	0.0507	4.38	15.00	0.22	76	8	0.64	0.03%	1.00%	1.21	3.47	0.36	951.59	950.83	957.00	951.06		5.94	5.41	5.26	0.22	
15	CB15	CB11	15	0.19	0.14	0.05	0.72	0.1341	4.34	15.36	0.80	81	12	1.02	0.06%	1.00%	3.57	4.55	0.30	950.83	950.02	955.10	948.22		6.00	4.27	4.07	0.58	
102	CO102	CO101	102	0.06	0.06	0.00	0.90	0.0557	4.38	15.00	0.24	64	8	0.70	0.04%	1.00%	1.21	3.47	0.31	946.26	945.62	949.00	945.73		3.27	2.74	2.60	0.24	
101	CO101	FES100	101	0.06	0.06	0.00	0.90	0.0557	4.34	15.01	0.49	29	8	1.39	0.16%	1.00%	1.21	3.47	0.14	945.62	945.33	949.00	945.09		3.91	3.38	3.25	0.24	
13A	CB13A	CB13	13A	0.16	0.00	0.16	0.20	0.0288	4.38	15.00	0.14	87	12	0.18	0.00%	1.00%	3.57	4.55	0.32	952.34	951.48	955.00	951.54		3.96	3.16	2.96	0.14	
32	OC32	FES33	32	-	-	-	-	-	-	-	0.92	121	12	1.17	0.07%	0.50%	2.53	3.22	0.63	940.80	940.20	947.00	939.40		7.00	6.20	6.00	0.00	
27	CB27	CB26	27	0.45	0.23	0.22	0.58	0.2499	4.38	15.00	1.09	131	12	1.39	0.09%	0.32%	2.02	2.57	0.85	946.08	945.66	951.50	944.86		6.22	5.42	5.22	1.09	
28	CB26	CB25	28	0.40	0.21	0.19	0.57	0.2258	4.28	15.85	1.46	354	188	1.5	2.89	0.30%	0.30%	3.55	2.89	1.09	945.66	945.10	950.30	944.80		5.84	4.64	4.38	0.97
25	CB25	CB24	25	0.32	0.23	0.09	0.71	0.2252	4.17	16.93	1.04	552	67	1.8	3.13	0.27%	0.30%	5.77	3.26	0.44	945.10	944.85	946.78	943.80		4.88	3.68	3.38	0.84
24	CB24	CB23	24	0.53	0.25	0.28	0.53	0.2765	4.13	17.38	0.87	753	18	4.27	0.51%	0.50%	7.45	4.21	0.52	944.85	944.77	949.70	943.97		4.16	3.48	3.25	1.15	
23	CB23	CB18	23	0.74	0.30	0.44	0.48	0.3587	4.08	17.91	0.92	952	100	24	3.16	0.19%	0.35%	13.42	4.27	0.39	944.77	943.81	945.55	942.57		0.10	5.98	4.38	3.98
18	CB18	CB17	18	0.03	0.01	0.02	0.52	0.0149	4.04	18.30	12.70	228	100	30	4.82	0.30%	0.35%	24.33	4.96	0.34	943.71	943.36	945.20	941.71		7.49	5.49	4.99	0.06
17	CB17	FES17	17	0.41	0.26	0.12	0.88	0.2776	4.01	18.64	0.19	104	30	4.85	0.33%	0.35%	24.33	4.96	0.37	943.36	943.00	945.40	941.36		7.04	5.04	4.54	1.11	
29B	CO29B	CO29A	29B	0.05	0.05	0.00	0.90	0.0411	4.38	15.00	0.23	47	6	0.92	0.10%	1.00%	0.56	2.87	0.27	946.46	945.99	950.25	946.06		4.19	3.79	3.69	0.18	
29A	CO29A	CB29	29A	0.05	0.05	0.00	0.90	0.0411	4.35	15.27	0.36	24	6	1.83	0.41%	1.00%	0.56	2.87	0.14	946.46	945.78	950.25	945.38		4.68	4.26	4.16	0.18	
29	CB29	CB28	29	0.39	0.26	0.13	0.66	0.2598	4.33	15.41	1.48	92	12	1.89	0.17%	0.32%	2.02	2.57	0.80	945.78	945.48	948.40	944.66		3.44	2.64	2.44	1.12	
28B	CO28B	CO28A	28B	0.05	0.05	0.00	0.90	0.0411	4.38	15.00	0.18	50	6	0.92	0.10%	1.00%	0.56	2.87	0.29	945.88	945.38	950.25	944.88		4.77	4.37	4.27	0.18	
28A	CO28A	CB28	28A	0.05	0.05	0.00	0.90	0.0411	4.34	15.29	0.36	52	6	1.83	0.41%	1.00%	0.56	2.87	0.30	945.88	944.88	950.25	944.88		5.27	4.87	4.77	0.18	
28	CB28	CB26	28	0.31	0.14	0.17	0.51	0.1579	4.31	15.60	1.04	50	12	1.32	0.08%	0.32%	2.02	2.57	0.32	944.88	944.70	948.45	943.90		4.39	3.59	3.39	0.88	
24D	CO24D	CO24C	24D	0.06	0.06	0.00	0.90	0.0497	4.38	15.00	0.22	94	6	1.11	0.15%	4.00%	1.13	5.73	0.27	948.88	945.20	952.05	948.58		3.47	3.07	2.87	0.22	
24C	CO24C	CO24B	24C	0.06	0.06	0.00	0.90	0.0497	4.34	15.34	0.43	74	6	2.21	0.89%	2.50%	0.89	4.53	0.27	947.05	945.20	952.05	948.58		4.10	3.70	3.60	0.22	
24A	CO24A	CO24	24A	0.06	0.06	0.00	0.90	0.0497	4.31	15.61	0.22	94	6	1.11	0.15%	4.00%	1.13	5.73	0.27	948.88	945.20	952.05	948.58		3.47	3.07	2.87	0.22	
24B	CO24B	CO24	24B	0.06	0.06	0.00	0.90	0.0497	4.38	15.00	0.22	94	6	1.11	0.15%	4.00%	1.13	5.73	0.27	948.88	945.20	952.05	948.58		3.47	3.07	2.87	0.22	
23D	CO23D	CO23C	23D	0.06	0.06	0.00	0.90	0.0527	4.38	15.00	0.23	99	6	1.17	0.17%	2.75%	0.93	4.75	0.35	949.62	948.89	952.05	948.22		2.83	2.43	2.33	0.23	

SANITARY SEWER BASIS OF DESIGN				NUMBER OF UNITS	TOTAL POP.
APARTMENTS (2.6 CAPITA PER UNIT); CLUBHOUSE (1.5 CAPITA PER 1000 SF)				144	374.4
				2.1	5.46
TOTAL				146.1	380
Average Flow					
$Q_{avg} = 100 \text{ Gal. Per capita per day (assumed)}$					
$Q_{avg} = 37,986 \text{ GPD}$					
$Q_{avg} = \frac{1 \text{ day}}{86,400 \text{ sec}} \times 60 \text{ min}$	0.4397 gps	$\times 1 \text{ ft}^3$	0.0588 cfs		
$Q_{avg} = \frac{7.48 \text{ gal}}{7.48 \text{ gal}} \times 3.53 \text{ cfm}$	26.38 gpm	$\times 1 \text{ ft}^3$	3.53 cfm		
Peak Flow					
Peaking Factor = $\frac{18 + \sqrt{\text{population}/1000}}{4 + \sqrt{\text{population}/1000}}$					
In order to determine the population to use in this equation Convert the Avg. Daily Flow of 37,986 GPD to equivalent population					
Assume 100 gpcd					
Equivalent Population = $\frac{37,986 \text{ GPD}/100 \text{ GPCD}}{379.86 \text{ persons}}$					
Peaking Factor = $\frac{18 + \sqrt{\text{POP}/1000}}{4 + \sqrt{\text{POP}/1000}} = 4.03$					
$Q_{peak} = Q_{avg} \times \text{Peaking Factor}$					
$Q_{peak} = 106.38 \text{ gpm}$ which is equivalent to 0.24 cfs					
CAPACITY OF 8" SANITARY SEWER @ 0.40% SLOPE					
USE MANNING'S EQUATION					
$Q = 1.49/n \times A \times R_h^{2/3} \times S^{1/2}$					
$Q = (1.49/0.013) \times (0.349) \times (0.167)^{2/3} \times (0.004)^{1/2}$					
$Q = 0.7672 \text{ CFS}$					
CONCLUSION: SINCE CAPACITY OF THE 8-INCH SEWER AT A SLOPE OF 0.40% IS GREATER THAN PEAK FLOW, A 8-INCH SEWER IS SUFFICIENT					

SANITARY SEWER STRUCTURES					
SAN 1 4' DIA. SAN MANHOLE			SAN 8 4' DIA. SAN MANHOLE		
RIM	943.90		RIM	949.00	
INV. SW	8	930.94	INV. NE	8	937.86
EX INV. N	8	930.84	INV. NW	8	937.96
EX INV. S	8	930.84	INV. SW	8	937.96
SAN 2 4' DIA. SAN MANHOLE			SAN 9 4' DIA. SAN MANHOLE		
RIM	943.00		RIM	950.50	
INV. NE	8	931.55	INV. NE	8	939.57
INV. SW	8	931.65	INV. NW	8	939.67
INV. SW	8	931.65	INV. SW	8	939.67
SAN 3 4' DIA. SAN MANHOLE			SAN 10 4' DIA. SAN MANHOLE		
RIM	942.80		RIM	955.30	
INV. NE	8	933.53	INV. SE	8	942.80
INV. W	8	933.63	INV. SW	8	942.90
SAN 4 4' DIA. SAN MANHOLE			SAN 11 4' DIA. SAN MANHOLE		
RIM	946.00		RIM	955.80	
INV. E	8	934.81	INV. E	8	945.30
INV. S	8	934.91	INV. SE	6	945.40
SAN 5 4' DIA. SAN MANHOLE			SAN 12 4' DIA. SAN MANHOLE		
RIM	949.10		RIM	950.50	
INV. N	8	935.81	INV. SE	8	940.23
INV. SW	8	935.91	INV. W	8	940.33
SAN 6 4' DIA. SAN MANHOLE			SAN 13 4' DIA. SAN MANHOLE		
RIM	947.95		RIM	952.50	
INV. NE	8	936.72	INV. E	8	943.53
INV. W	8	936.82	INV. N	6	943.63
SAN 7 4' DIA. SAN MANHOLE			SAN 14 4' DIA. SAN MANHOLE		
RIM	949.80		RIM	949.00	
INV. E	8	937.54	INV. N	8	942.66
INV. SW	8	937.64	INV. S	6	942.76
SAN 7 4' DIA. SAN MANHOLE					
RIM	949.80				
INV. E	8	937.54			
INV. SW	8	937.64			

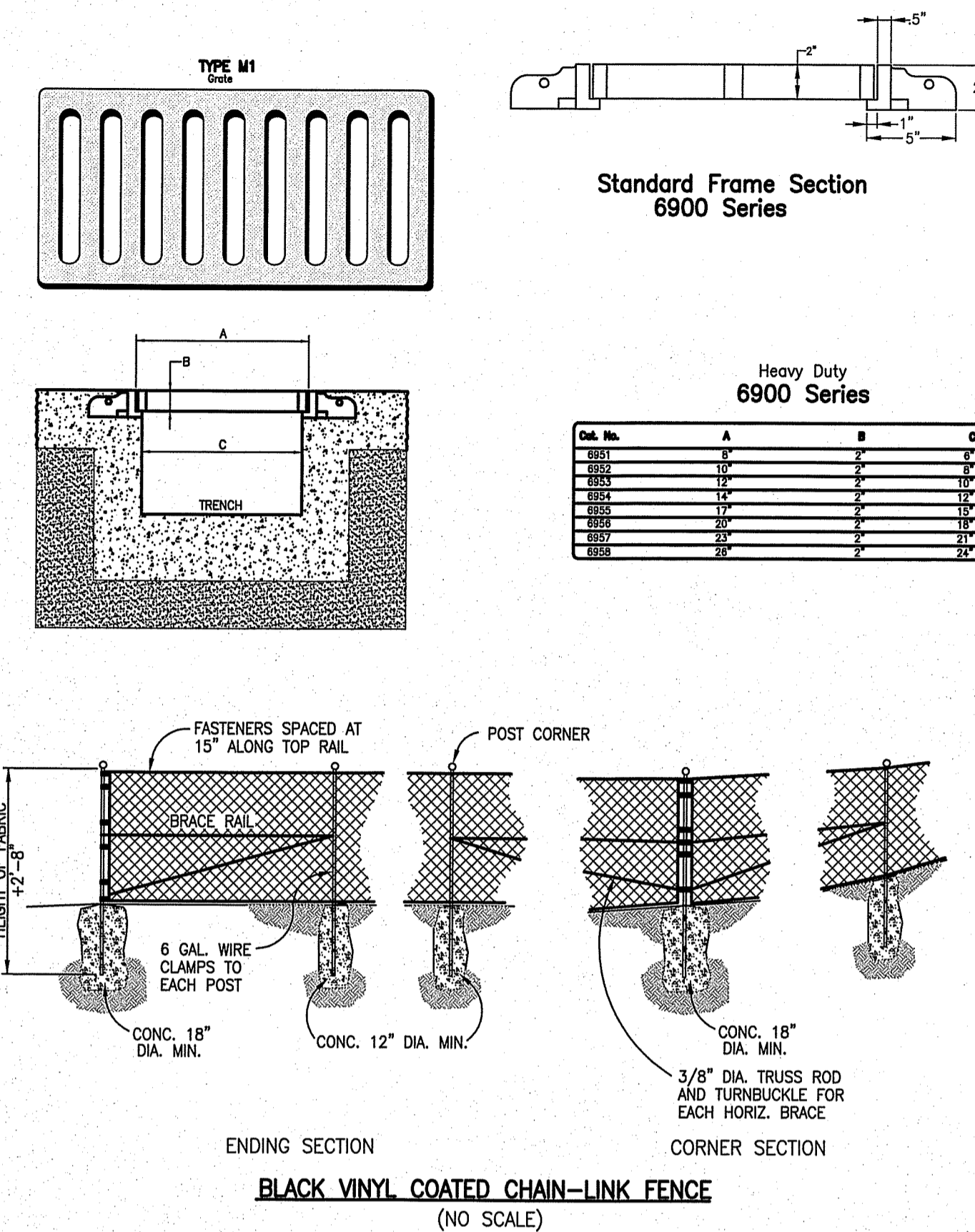
100 YEAR FLOODPLAIN MITIGATION CALCULATIONS:							
(ALL VALUES ARE IN CUBIC YARDS)							
ELEVATION	FILL FROM BASINS	FILL FROM BUILDINGS	TOTAL FILL AT ELEVATION	CUT FROM BASINS	CUT FROM SIDE SLOPE	TOTAL CUT AT ELEVATION	PROPOSED INCREASE IN FLOODPLAIN STORAGE
945.5	416	2209	2626	2114	858	2972	346
944	1913	884	2797	1589	1303	2892	95
943	1250	0	1250	1783	0	1783	533
942	1469	0	1469	2654	0	2654	1185
941	258	0	258	2815	0	2815	2557
940	0	0	0	2447	0	2447	2447
TOTAL	5306	3093	8399	13402	2160.21	15563	7163

THE PROPOSED MITIGATION WILL PROVIDE MORE STORAGE AT EACH ELEVATION OF THE PROPOSED 100 YEAR FLOODPLAIN AND WITH EACH BASIN PROVIDING A CONNECTION TO THE FLOODPLAIN AT AN ELEVATION BELOW 940, THE VOLUME WITHIN THE BASINS WILL PROVIDE STORAGE FOR THE FLOODPLAIN.



TRENCH FRAME AND GRATE

(EJW NUMBER 6900)



THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE PLANS ARE EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF EXISTING UTILITIES AND PROPOSED UTILITY CROSSINGS IN THE FIELD PRIOR TO CONSTRUCTION AND APPROVE OR REJECT THE LOCATION OR DEPTH DIFFERS SIGNIFICANTLY FROM THE PLANS.

BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
MISS DIG

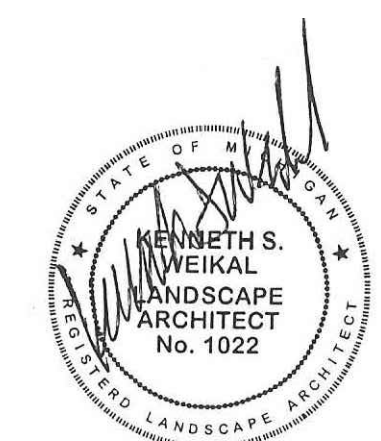
BEBOSS
Engineering
Engineers Surveyors Planners Landscape Architects
3121 E. GRAND RIVER AVE.
HOWELL, MI. 48843
800.246.6735 FAX 517.548.1670

PROJECT: **LAKESHORE VILLAGE APARTMENTS - PHASE 3**
PREPARED FOR: **THE LOCKWOOD COMPANIES**
27777 FRANKLIN ROAD, SUITE 1410
SOUTHFIELD, MI 48034
248.433.7401
TITLE: **CONSTRUCTION DETAILS/ FLOODPLAIN MITIGATION CALCULATIONS**

NO.	BY	REVISION PER	DATE
1	RD	REVISION PER	2/24/2016

DESIGNED BY:
DRAWN BY: RD
CHECKED BY:
SCALE: 1"=100'
JOB NO. 16-010
DATE: 2-3-2016
SHEET NO.

C18
BEBOSS
Engineering



LANDSCAPE DATA:

PUBLIC ROAD R.O.W. FRONTAGE (F)	
TOTAL FRONTAGE LENGTH:	810 LN. FT.
TREES REQ. (1/40 LN. FT.):	21 TREES
TOTAL TREES PROVIDED:	26 TREES
PARKING LOT LANDSCAPING - (P)	
TOTAL PARKING SPACE:	320 SPACES
320/15 = 22 X 100SF FT =	
2200 SF LANDSCAPE AREA REQUIRED	2200 SF
LANDSCAPE AREA PROVIDED	2500 SF +
TREES REQ. (1 TREE / 15 SPACES):	22 TREES
TREES PROVIDED:	28 TREES
ZONING DISTRICT BUFFER	
MDR TO HDR - NO BUFFER REQUIRED	
MDR TO SR - BUFFER TYPE 'B' (BS)	
TOTAL LENGTH: (409'+487')	896 LN. FT.
TREES DEC. REQ. (1/30 LN. FT.):	30 TREES
TREES DEC. PROVIDED:	30 TREES
TREES EVERGR. REQ. (1/30 LN. FT.):	30 TREES
TREES EVERGR. PROVIDED:	30 TREES
SHRUBS REQ. (4/30 LN. FT.):	120 SHRUBS
SHRUBS PROVIDED:	120 SHRUBS
MDR TO PID - NO BUFFER REQUIRED	
MDR TO IND - NO BUFFER REQUIRED	
POND - (D)	
TOTAL POND PERIMETER:	1535 LN. FT.
TREES (1/50 LN. FT.):	31 TREES
TREES PROVIDED:	31 TREES
SHRUBS REQ. (10/50 LN. FT.):	307 SHRUBS
SHRUBS PROVIDED:	310 SHRUBS

REQUESTED ZONING WAIVERS:

PUBLIC ROAD R.O.W. FRONTAGE (F)	NO WAIVER REQUESTED
PARKING LOT LANDSCAPING - (P)	NO WAIVER REQUESTED
ZONING DISTRICT BUFFER	
MDR TO HDR	NO WAIVER REQUESTED
MDR TO SR - BUFFER TYPE 'B' (BS)	NO WAIVER REQUESTED
1) WAIVER REQUIREMENT FOR 6' HT SCREEN WALL OR 3' HT. BERM - DENSE VEGETATION ALONG PROPERTY LINE SCREENS PROPERTIES	
MDR TO PID	NO WAIVER REQUESTED
MDR TO IND -	NO WAIVER REQUESTED
POND - (D)	NO WAIVER REQUESTED

LOCKWOOD COMPANIES
27777 FRANKLIN ROAD
SUITE 1410
SOUTHFIELD, MI 48304

LAKESHORE VILLAGE APARTMENTS PHASE 3

GENOA TWP, MI

SHEET
SITE
KEY PLAN

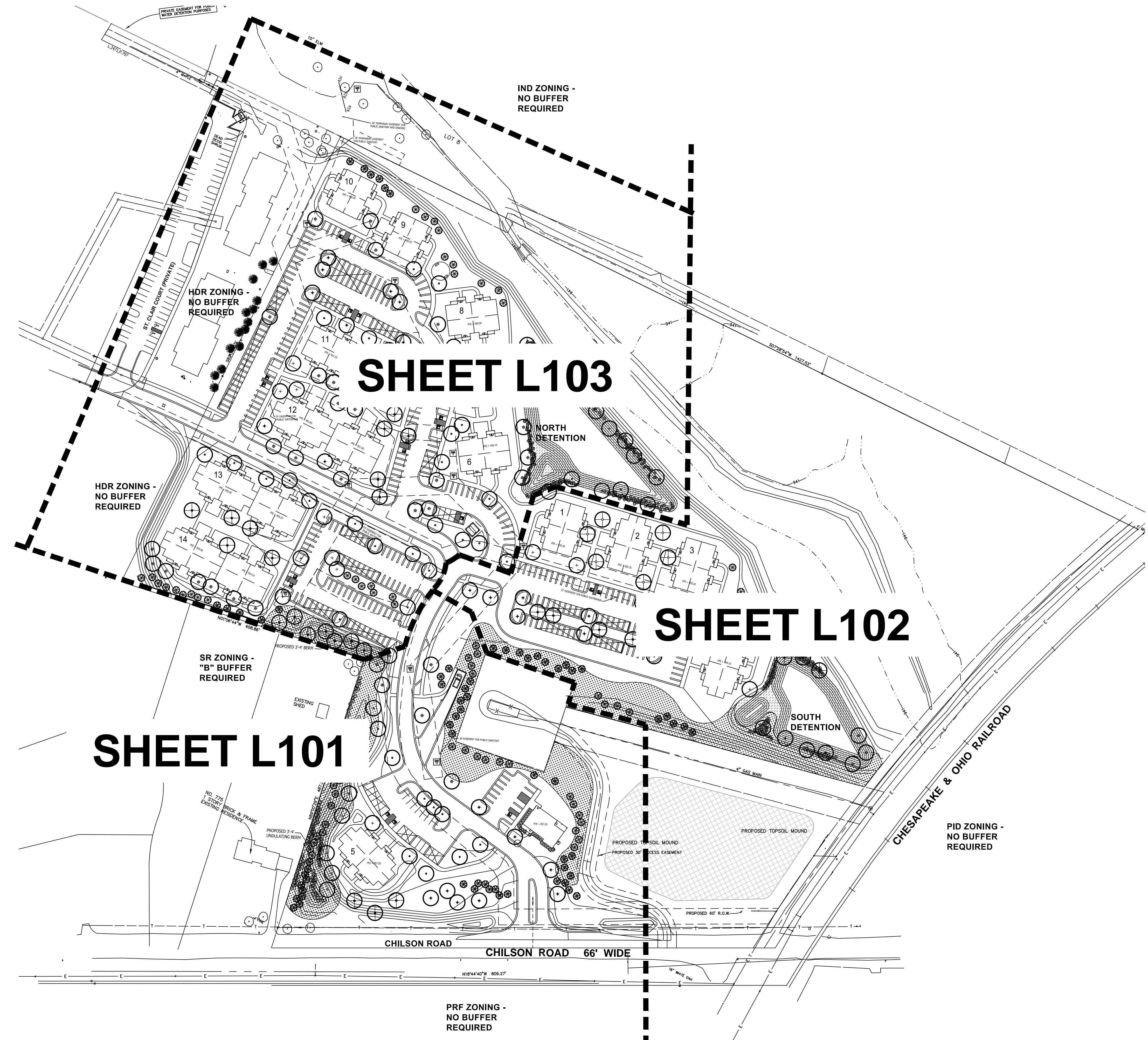
PRELIMINARY DATE
2016-02-02 SPA
2016-02-24 SPA

ISSUE DATE

REVISION DATE

SHEET NUMBER

L100



SITE KEY PLAN
SCALE 1" = 80'





LAKESHORE VILLAGE APARTMENTS PHASE 3

GENOA TWP, MI

SHEET

SITE PLANTING PLAN

PRELIMINARY DATE
2016-02-02 SPA
2016-02-24 SPA

ISSUE DATE

REVISION DATE

SHEET NUMBER

L101

PLANT LIST - (BS) SR ZONING

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.
10	PA10	Norway Spruce <i>Picea abies</i>	10' Ht.	B&B
6	PD10	Black Hill Spruce <i>Picea glauca var. densata</i>	10' Ht.	B&B
10	PA6	Norway Spruce <i>Picea abies</i>	6' Ht.	B&B
9	PD6	Black Hill Spruce <i>Picea glauca var. densata</i>	6' Ht.	B&B
7	QB	Swamp White Oak <i>Quercus bicolor</i>	3" Cal.	B&B
7	AB12	Autumn Blaze Maple - clump <i>Acer x. fremanii 'Autumn Blaze'</i>	12' Ht. 4 stem min	B&B
6	AB	Autumn Blaze Maple <i>Acer x. fremanii 'Autumn Blaze'</i>	3" Cal.	B&B
5	GT	Thornless Honeylocust <i>Gleditsia 'Skyline'</i>	3" Cal.	B&B
5	CO	Hackberry <i>Celtis occidentalis</i>	3" Cal.	B&B
35	CM	Cornelian Cherry - clump <i>Cornus mas</i>	4' Ht.	Cont.
40	SV	Common Lilac <i>Syringa vulgaris</i>	4' Ht.	Cont.
45	VD	Arrowood Viburnum <i>Viburnum dentatum</i>	36" Ht.	Cont.

PLANT LIST - (I) INTERIOR

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.
28	PA6	Norway Spruce <i>Picea abies</i>	6' Ht.	B&B
27	PD6	Black Hill Spruce <i>Picea glauca var. densata</i>	6' Ht.	B&B
25	PW6	White Spruce <i>Picea glauca</i>	6' Ht.	B&B
11	AB	Autumn Blaze Maple <i>Acer x. fremanii 'Autumn Blaze'</i>	3" Cal.	B&B
29	GT	Thornless Honeylocust <i>Gleditsia 'Skyline'</i>	3" Cal.	B&B
4	AB12	Autumn Blaze Maple - clump <i>Acer x. fremanii 'Autumn Blaze'</i>	12' Ht. 4 stem min	B&B
9	CO	Hackberry <i>Celtis occidentalis</i>	3" Cal.	B&B
11	LT	Tulip Tree <i>Liriodendron tulipifera</i>	3" Cal.	B&B
7	UA	Accolade Elm <i>Ulmus parviflora 'Morton'</i>	3" Cal.	B&B
5	UR	Regal Elm <i>Ulmus carpinifolia 'Regal'</i>	3" Cal.	B&B
9	TM	Dense Yew <i>Taxus x. m. 'Densiformis'</i>	24" Ht.	Cont.
10	SW	Anthony Waterer Spirea <i>Spiraea 'Anthony Waterer'</i>	24" Ht.	Cont.
3	VD	Arrowood Viburnum <i>Viburnum dentatum</i>	36" Ht.	Cont.

PLANT LIST - (P) PARKING LOT TREES

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.
7	GT	Thornless Honeylocust <i>Gleditsia 'Skyline'</i>	3" Cal.	B&B
9	UA	Accolade Elm <i>Ulmus parviflora 'Morton'</i>	3" Cal.	B&B
12	UR	Regal Elm <i>Ulmus carpinifolia 'Regal'</i>	3" Cal.	B&B

PLANT LIST - (F) FRONTAGE TREES

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.
16	PA7	Norway Spruce <i>Picea abies</i>	7' Ht.	B&B
8	UA	Accolade Elm <i>Ulmus parviflora 'Morton'</i>	3" Cal.	B&B
2	GT	Thornless Honeylocust <i>Gleditsia 'Skyline'</i>	3" Cal.	B&B

PLANT LIST - (D) DETENTION BASINS

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.
14	QB	Swamp White Red Oak <i>Quercus bicolor</i>	3" Cal.	B&B
6	AB12	Autumn Blaze Maple - clump <i>Acer x. fremanii 'Autumn Blaze'</i>	12' Ht. 4 stem min	B&B
8	GD	Kentucky Coffee Tree - fully branched <i>Gymnocladus dioica</i>	3" Cal.	B&B
3	GT	Thornless Honeylocust <i>Gleditsia 'Skyline'</i>	3" Cal.	B&B
150	CB	Buttonbush <i>Cephalanthus occidentalis</i>	36" Ht.	B&B
70	SC	American Elderberry <i>Sambucus canadensis</i>	36" Ht.	B&B
90	CR	Grey Dogwood <i>Cornus racemosa</i>	36" Ht.	B&B

PLANT MIX

PLANTING BEDS TO RECEIVE 70% LOAM TOPSOIL, 10% COMPOST, 20% SAND; EXCAVATE PLANT BED, DISPOSE OF SPOOLS OFF SITE, INSTALL PLANT MIX
HAND TILL INTO PLACED PLANT MIX:
(1) 6 CU. FT. BALE CANADIAN PEAT
(1) 40 LB BAG COMPOSTED POULTRY MANURE "CHICK MAGIC" 5-3-2 WWW.CHICKMAGIC.NET (262)495-6220
(1) 10 LB BAG SHERMANS 13-13-13 MULTI PURPOSE FERTILIZER
PER 100 SQ FT BED AREA
HAND TILL INTO PROVIDED PLANT MIX TO A DEPTH OF 12" MINIMUM

PLANT BEDS

ALL PLANT BEDS TO BE FULLY EXCAVATED TO DEPTH SHOWN ON DETAILS AND AREAS SHOWN ON PLANS, AND TO RECEIVE CONTINUOUS PLANT MIX AS SPECIFIED (NOT INDIVIDUAL PLANT HOLES)

MULCH

MULCH TO BE DOUBLE SHREDDED HARDWOOD BARK MULCH
NO GROUND WOOD PALLETTE MULCH PERMITTED

TOPSOIL

CONTRACTOR TO TILL OR DISK SUBGRADE TO 6" DEPTH AND INSTALL 4" COMPACTED DEPTH TOPSOIL IN ALL LAWN AREAS - FROM ONSITE STOCKPILE OR PROVIDED TO COMPLETE THE PROJECT

LANDSCAPE EDGING

ALL LANDSCAPE EDGES ARE SHOVEL CUT

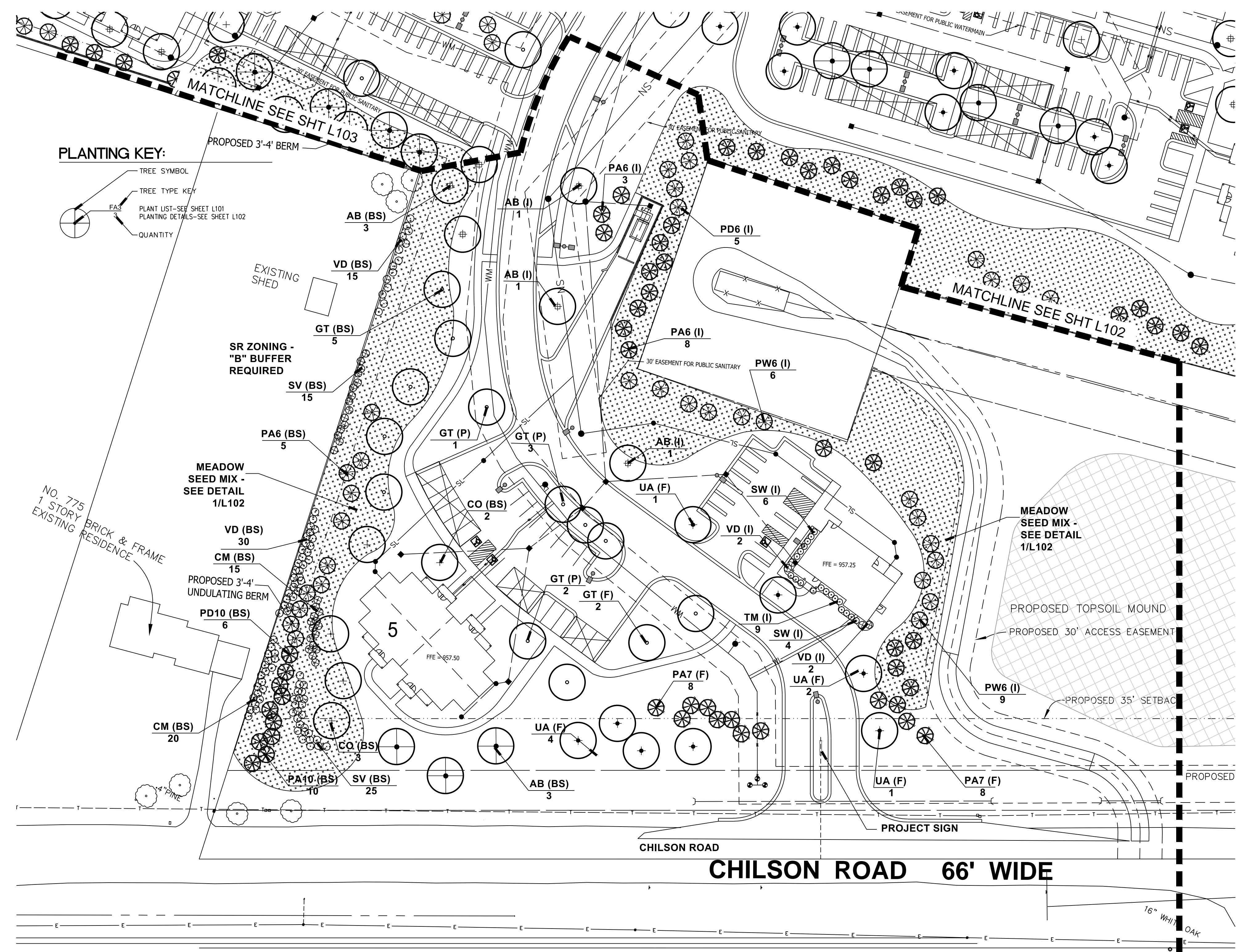
PLANT SPACING

FILL BED WITH PLANTS SPECIFIED. KEEP PLANTS AWAY FROM BUILDING 12" MATURE SIZE

WATERING

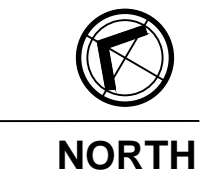
CONTRACTOR RESPONSIBLE FOR WATERING ALL PLANTINGS/ MONITORING IRRIGATION SYSTEM FOR ONE YEAR FROM THE START OF THE WARRANTY PERIOD IF NEEDED.

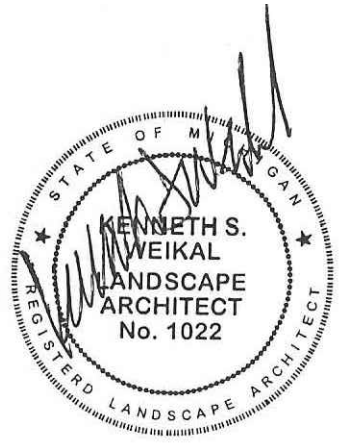
PLANTINGS THAT PERISH DUE TO LACK OF WATER/ TOO MUCH WATER DO NOT QUALIFY AS THE ONE REQUIRED REPLACEMENT PLANT AS STATED IN THE SPECIFICATION, AND SHALL BE REPLACED.
CONTRACTOR IS ALSO RESPONSIBLE FOR MONITORING IRRIGATION SYSTEM/ WATERING ALL NEWLY PLANTED LAWN AREAS FOR ONE YEAR FROM THE START OF THE WARRANTY PERIOD. NEWLY PLANTED LAWN AREAS THAT PERISH DUE TO LACK OF WATER/ TOO MUCH WATER DO NOT QUALIFY AS THE REQUIRED REPLACEMENT TO ESTABLISH A HEALTHY FULL DENSE LAWN AS STATED IN THE SPECIFICATION, AND SHALL BE REPLACED.



SITE PLANTING PLAN

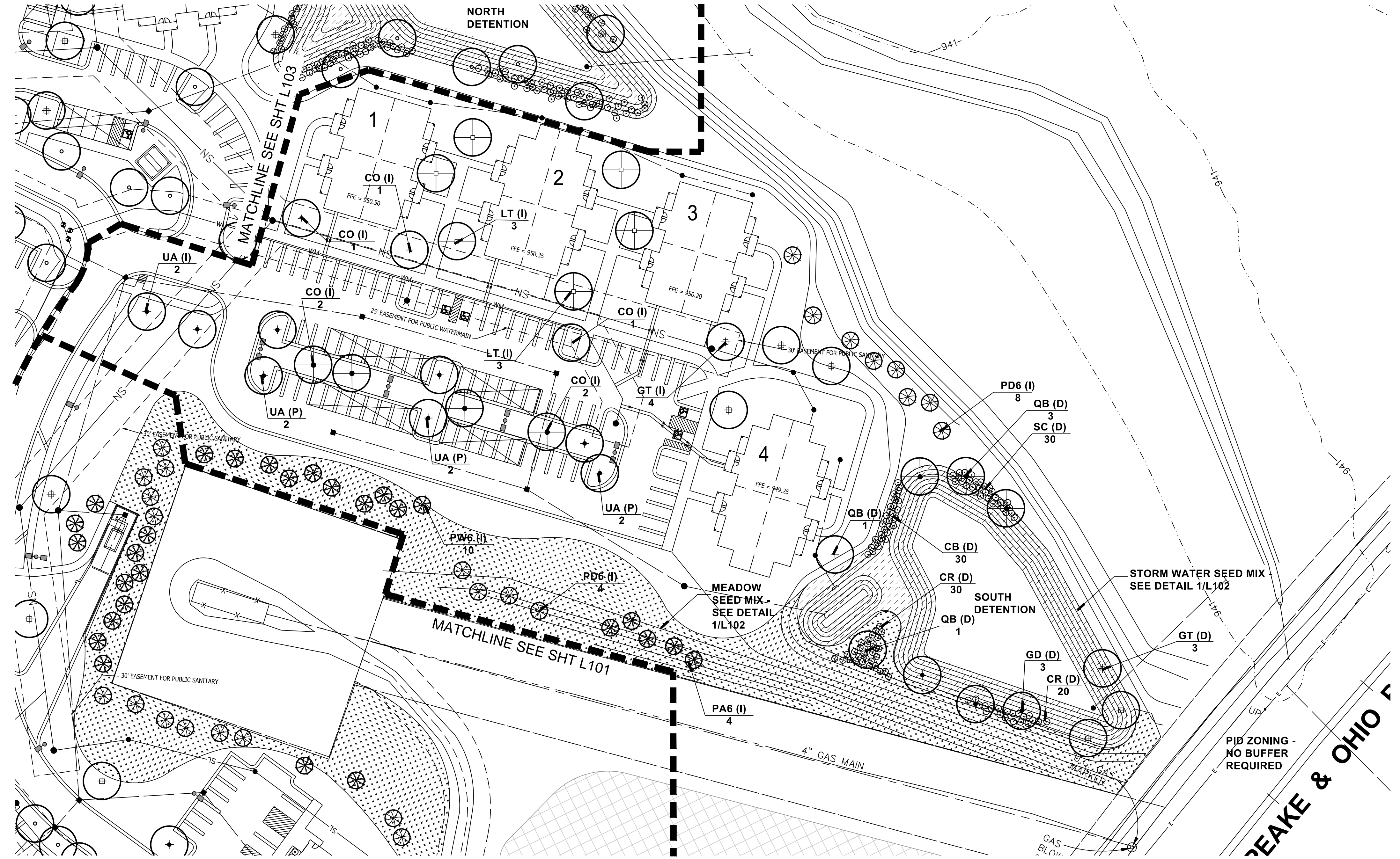
SCALE 1" = 40'





Stormwater Seed Mix				
Botanical Name	Common Name	PLS Ounce/Acre	Seeds/Oz	Seeds/SQ FT
Permanent Grasses/Sedges/Rushes:				
<i>Carex cristata</i>	Crested Oval Sedge	1.00	59000	1.35
<i>Carex lurida</i>	Bottlebrush Sedge	2.00	12000	0.55
<i>Carex vulpinoidea</i>	Brown Fox Sedge	6.00	125000	17.22
<i>Elymus virginicus</i>	Virginia Wild Rye	12.00	4375	1.21
<i>Glyceria striata</i>	Fowl Manna Grass	1.25	125000	3.59
<i>Juncus effusus</i>	Common Rush	1.00	281000	8.45
<i>Juncus torreyi</i>	Torrey's Rush	0.25	1134000	6.51
<i>Leersia oryzoides</i>	Rice Cut Grass	1.00	94500	2.17
<i>Panicum virgatum</i>	Switch Grass	8.00	28356	5.21
<i>Scirpus atrovirens</i>	Dark Green Rush	1.00	187500	4.30
<i>Scirpus cyperinus</i>	Wool Grass	0.50	562500	6.46
<i>Scirpus fluviatilis</i>	River Bulrush	0.25	27500	0.16
<i>Scirpus validus</i>	Great Bulrush	6.00	37813	5.21
Total		40.25		60.38
Temporary Cover:				
<i>Avena sativa</i>	Common Oat	360.00	8125	67.15
<i>Lolium multiflorum</i>	Annual Rye	100.00	14188	32.57
Total		460.00		99.72
Forbs & Shrubs:				
<i>Alois spp.</i>	Water Plantain (Various Mix)	4.25	70175	6.85
<i>Asclepias incarnata</i>	Swamp Milkweed	1.50	4540	0.16
<i>Bidens spp.</i>	Bidens (Various Mix)	2.00	14175	0.65
<i>Helenium autumnale</i>	Sneezeweed	2.00	141750	6.51
<i>Lycopus americanus</i>	Common Water Horehound	0.25	235000	1.35
<i>Mimulus ringens</i>	Monkey Flower	1.00	283500	6.51
<i>Penthorum sedoides</i>	Ditch Stonecrop	0.50	36063	0.41
<i>Polygonum pennsylvanicum</i>	Pinkweed	4.00	4063	0.37
<i>Rudbeckia subtomentosa</i>	Sweet Black-Eyed Susan	1.00	46000	1.06
<i>Sagittaria latifolia</i>	Common Arrowhead	1.00	56700	1.30
<i>Senna hebecarpa</i>	Wild Senna	1.00	1400	0.03
<i>Thalictrum dasycarpum</i>	Purple Meadow Rue	2.00	13500	0.62
Total		20.50		25.82

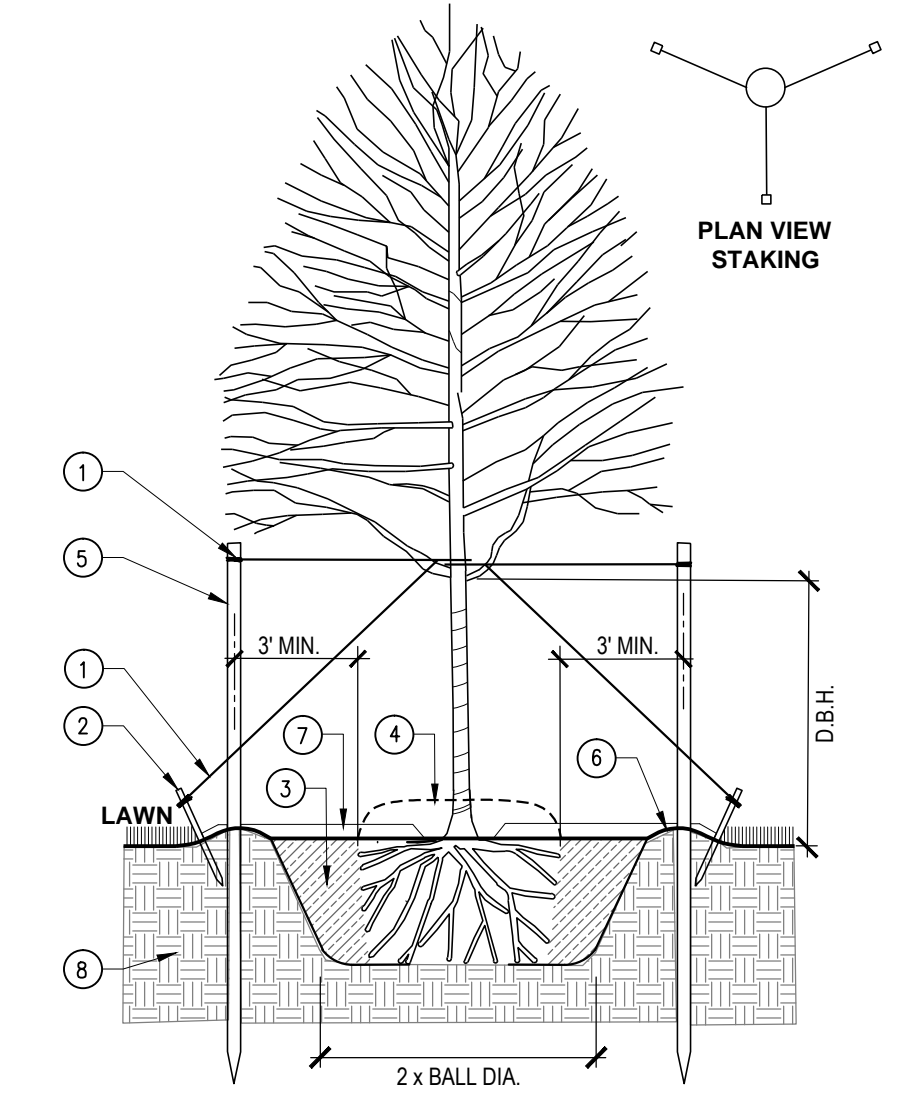
Low-profile Prairie Seed Mix				
Botanical Name	Common Name	PLS Ounce/Acre	Seeds/Oz	Seeds/SQ FT
Permanent Grasses:				
<i>Bouteloua curtipendula</i>	Side Oats Grama	10.00	9375	2.15
<i>Carex spp.</i>	Prairie Carex Mix	4.00	33422	3.07
<i>Elymus canadensis</i>	Canada Wild Rye	32.00	4258	3.13
<i>Koeleria cristata</i>	June Grass	1.00	150000	3.44
<i>Panicum virgatum</i>	Switch Grass	1.00	28356	0.65
<i>Schizachyrium scoparium</i>	Little Bluestem	32.00	8800	6.46
Total		80.00		18.91
Temporary Cover:				
<i>Avena sativa</i>	Common Oat	360.00	8125	67.15
<i>Lolium multiflorum</i>	Annual Rye	100.00	14188	32.57
Total		460.00		99.72
Forbs:				
<i>Anemone cylindrica</i>	Thimbleweed	0.50	20938	0.24
<i>Asclepias tuberosa</i>	Butterfly Milkweed	2.00	3500	0.16
<i>Aster ericoides</i>	Health Aster	0.25	140000	0.80
<i>Aster laevis</i>	Smooth Blue Aster	0.75	48000	0.63
<i>Aster novae-angliae</i>	New England Aster	0.25	76000	0.44
<i>Baptisia lactea</i>	White Wild Indigo	2.00	1600	0.07
<i>Chamaecrista fasciculata</i>	Partridge Pea	14.00	3800	1.22
<i>Coreopsis lanceolata</i>	Sand Coreopsis	5.00	12500	1.43
<i>Coreopsis palmata</i>	Prairie Coreopsis	1.00	11500	0.26
<i>Dalea candida</i>	White Prairie Clover	1.50	26250	0.90
<i>Dalea purpurea</i>	Purple Prairie Clover	1.50	20000	0.69
<i>Echinacea purpurea</i>	Broad-Leaved Purple Coneflower	7.00	6600	1.06
<i>Eryngium yuccifolium</i>	Rattlesnake Master	2.50	8000	0.46
<i>Lespedeza capitata</i>	Round-Head Bush Clover	2.00	10000	0.46
<i>Liatris aspera</i>	Rough Blazing Star	0.50	13000	0.15
<i>Lupinus perennis</i>	Wild Lupine	2.00	1000	0.05
<i>Mnarda fistulosa</i>	White Bergamot	0.75	78000	1.34
<i>Parthenium integrifolium</i>	Wild Quinine	1.00	6800	0.16
<i>Penstemon digitalis</i>	Foxglove Beard Tongue	0.50	115000	1.32
<i>Pycnanthemum virginianum</i>	Common Mountain Mint	1.00	331250	7.60
<i>Ratibida pinnata</i>	Yellow Coneflower	4.00	25250	2.32
<i>Rudbeckia hirta</i>	Black-Eyed Susan	5.00	110000	12.63
<i>Rudbeckia subtomentosa</i>	Sweet Black-Eyed Susan	1.00	46000	1.06
<i>Silphium integrifolium</i>	Rosin Weed	3.00	4000	0.28
<i>Silphium terebinthaceum</i>	Prairie Dock	0.50	1100	0.01
<i>Solidago nemoralis</i>	Old-Field Goldenrod	0.50	240000	2.75
<i>Solidago rigida</i>	Stiff Goldenrod	1.00	46000	1.06
<i>Tradescantia ohioensis</i>	Common Spiderwort	0.75	8000	0.14
<i>Vernonia spp.</i>	Ironweed (Various Mix)	1.75	24000	0.96
<i>Veronicastrum virginianum</i>	Culvers Root	0.25	750000	4.30
Total		63.75		45.16



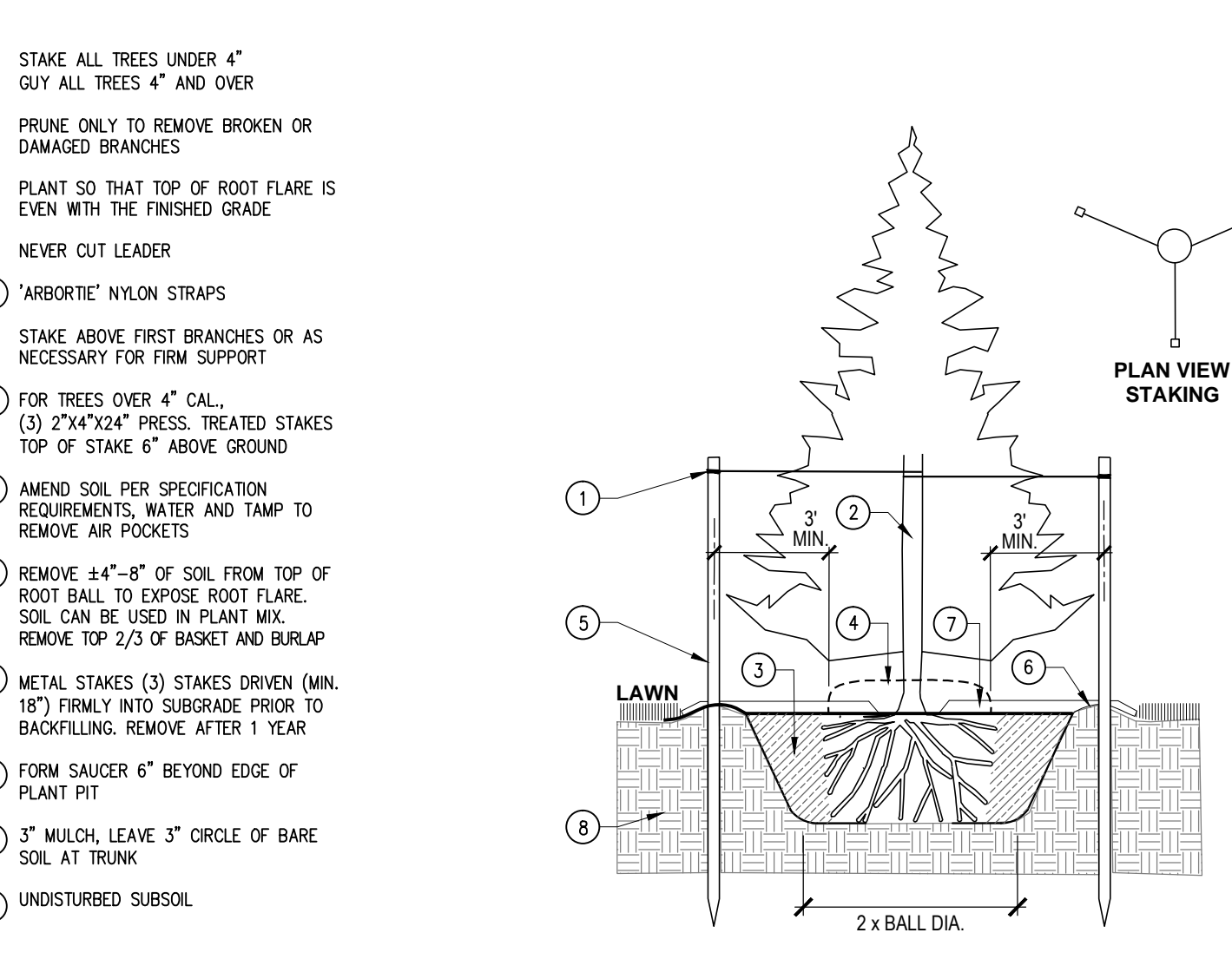
1 DETENTION BASIN AND MEADOW SEED MIXES
NOT TO SCALE

GENERAL PLANTING NOTES:

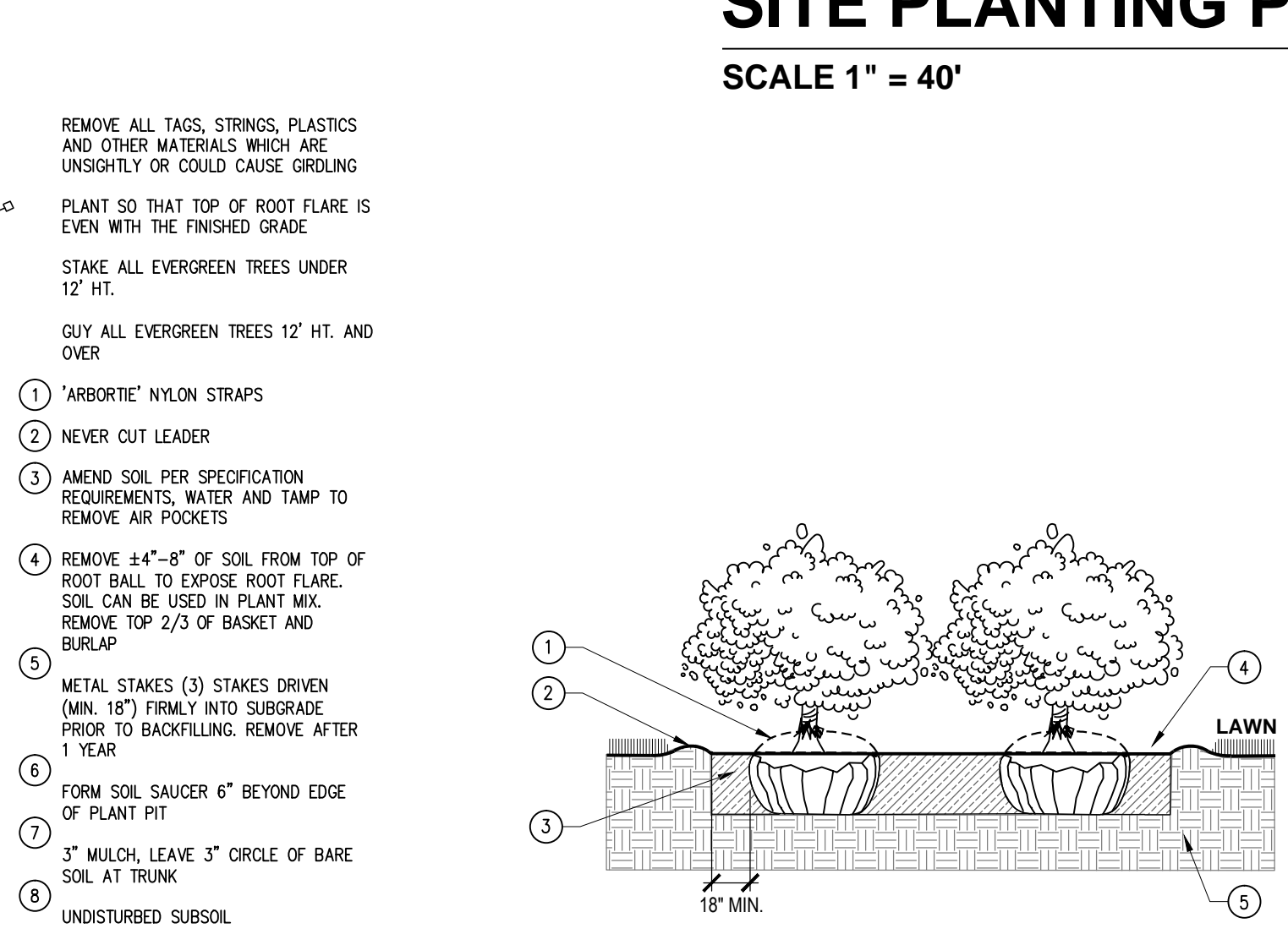
- ALL TREES TO HAVE CLAY OR LOAM BALLS, TREES WITH SAND BALLS WILL BE REJECTED.
- ALL SINGLE STEM SHADE TREES TO HAVE STRAIGHT TRUNKS AND SYMMETRICAL CROWNS.
- ALL SINGLE TRUNK SHADE TREES TO HAVE A CENTRAL LEADER, TREES WITH FORKED OR IRREGULAR TRUNKS WILL NOT BE ACCEPTED.
- ALL MULTI-STEM TREES SHALL BE HEAVILY BRANCHED AND HAVE SYMMETRICAL CROWNS. ONE SIDED TREES OR THOSE WITH THIN OR OPEN CROWNS SHALL NOT BE ACCEPTED.
- ALL EVERGREEN TREES SHALL BE HEAVILY BRANCHED AND FULL TO THE GROUND, SYMMETRICAL IN SHAPE AND NOT SHEARED FOR THE LAST FIVE GROWING SEASONS.
- NO MACHINERY IS TO BE USED WITHIN THE DRILLINE OF EXISTING TREES. HAND GRADE ALL LAWN AREAS WITHIN DRILLINE OF EXISTING TREES.
- ALL TREE LOCATIONS SHALL BE STAKED BY LANDSCAPE CONTRACTOR AND ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION OF THE PLANT MATERIAL.
- IT IS MANDATORY THAT POSITIVE DRAINAGE IS PROVIDED AWAY FROM ALL BUILDINGS, WALKS AND PAVED AREAS.
- ALL PLANTING BEDS SHALL RECEIVE 3" SHREDDED BARK MULCH. SEE SPECIFICATIONS.



1 DECIDUOUS TREE PLANTING
NOT TO SCALE



2 EVERGREEN TREE PLANTING
NOT TO SCALE



3 SHRUB BED PLANTING DETAIL
NOT TO SCALE

SITE PLANTING PLAN
SCALE 1" = 40'

STORM WATER SEED MIX - SEE DETAIL 1/L102
MEADOW SEED MIX - SEE DETAIL 1/L102
PIB ZONING - NO BUFFER REQUIRED
PEAKE & OHIO

LOCKWOOD COMPANIES
27777 FRANKLIN ROAD
SUITE 1410
SOUTHFIELD, MI 48304

LAKESHORE VILLAGE APARTMENTS PHASE 3

GENOA TWP, MI

SHEET SITE PLANTING PLAN

PRELIMINARY DATE
2016-02-02 SPA
2016-02-24 SPA

ISSUE DATE

REVISION DATE

ROLLMAX™
ROLLED EROSION CONTROL

Specification Sheet - BioNet® S150BN™ Erosion Control Blanket

DESCRIPTION
The short term bioerodible erosion control blanket shall be a machine produced mat of 100% agricultural straw with a functional longevity of up to 12 months. (NOTE: functional longevity may vary depending upon climatic conditions, soil, geographic location and elevation). The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top and bottom sides with a 100% biodegradable woven natural fiber netting. The netting shall consist of machine directional strands formed from two interwoven yarns with cross directional strands interwoven through the twisted machine strands (commonly referred to as a Leno weave) to form an approximate 0.50 x 1.0 in. (1.27 x 2.54 cm) mesh. The blanket shall be woven together on 1.50 inch (3.81 cm) centers with degradable thread. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2.5 inches (5-12.5 cm) from the edge) as an opening guide for adjacent mats.

The S150BN shall meet Type 2 specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.17.

Index Property	Test Method	Typical
Thickness	ASTM D525	0.23 in (5.84 mm)
Resiliency	ECTC Guidelines	80.5%
Water Absorbency	ASTM D1977	<20%
Max/Min Area	ASTM D5475	8.71 sq/yd (7.96 sq/m)
Shrink	ECTC Guidelines	10%
Smolder Resistance	ECTC Guidelines	Yes
Stiffness	ASTM D3388	6.23 sq-in
Light Penetration	ASTM D3067	12.2%
Tensile Strength - MD	ASTM D5618	188.4 lbs/ft (2.79 kN/m)
Elongation - MD	ASTM D5618	11.2%
Tensile Strength - TD	ASTM D5618	157.2 lbs/ft (2.33 kN/m)
Elongation - TD	ASTM D5618	12.5%
Biomass Improvement	ASTM D7322	549%

Design Permissible Shear Stress	
Unvegetated Shear Stress	1.85 psf (86 Pa)
Unvegetated Velocity	6.60 fps (1.83 m/s)

Slope Design Data: Factors	
Slope Length (L)	< 33' 3" - 21' < 2.1'
> 33' (10 m)	0.0074 0.019 N/A
> 50' (15 m)	0.01 0.070 N/A
> 50' R (15.2 m)	0.02 0.100 N/A

Roughness Coefficients - Manning	
< 0.50 R (0.15 m)	0.055
0.50 - 2.0 ft	0.055-0.021
> 2.0 R (0.60 m)	0.021

Material Content

Mat	100% Straw Fiber	63 lbs/46 sq ft (27.6 kg/m ²)
	Top Leno woven 100% biodegradable organic jute	9.35 lbs/7000 sq ft (4.5 kg/1000 sq m)
	Bottom 100% biodegradable organic jute	7.7 lbs/7000 sq ft (3.7 kg/1000 sq m)
Thread	Degradable	

Standard Roll Sizes

Width	6.67 ft (2.03 m)	8.0 ft (2.44 m)	15.5 ft (4.72 m)
Length	108 ft (32.92 m)	112 ft (34.14 m)	90 ft (27.43 m)
Weight ± 10%	52.2 lbs (23.6 kg)	55.38 lbs (25.11 kg)	101.2 lbs (45.9 kg)
Area	80 sq yd (80.5 sq m)	100 sq yd (92.9 sq m)	155 sq yd (148.8 sq m)
	Leno top and bottom	Leno top and bottom	Leno top and bottom

Tensar
NORTH AMERICAN GREEN™

Tensar International Corporation
2700 Northpark Parkway
Suite 100
Alpharetta, GA 30009
800-TENSAR-1
tensar.com

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1 EROSION MAT FOR SEEDED AREAS
L102 NOT TO SCALE

Elm Summary

The Elms specified are not American elm trees, which we all know have been decimated over the past 100 years in the American landscape, but special hybrids developed to replace the American Elm.

The Regal Elm - is a hybrid elm cultivar developed by the University of Wisconsin at Madison and released in 1983. 'Regal' was derived from seeds arising from the crossing of the Dutch hybrid clones of the Siberian elm and European smooth leaved elm (*Ulmus pumila* x 'Hoersholmensis'), sent in 1960 by the De Dorschkamp Research Institute in the Netherlands.

The Regal elm casts a honeylocust-like light shade that makes possible the successful culture of turf grass in the vicinity of the tree

The 'Accolade' Elm - is a cross of the Japanese elm and Chinese elm, (*Ulmus japonica* x *Ulmus wilsoniana*) - and was developed by the Morton Arboretum in Chicago

It is an elm cultivar derived from an elm hybrid planted at the Morton Arboretum in 1924, which itself originated as seed collected from a tree at the Arnold Arboretum in Massachusetts.

Accolade Elm is a cross of Japanese and Chinese species selected for its vase shape, vigorous growth, excellent drought tolerance and good strong yellow fall color. It has excellent disease resistance to both Elm Yellows and to the dreaded Dutch Elm Disease. Mayor Daley of Chicago chose the Accolade Elm to bring elms back to Chicago's Grant Park in 2002.

The original tree at the Morton Arboretum is noted for its resemblance to the American Elm (*Ulmus americana*), its upright-arching branches creating the familiar vase-shape. Moreover, in its 80+ years it has survived three epidemics of Dutch Elm Disease there unscathed.

The Triumph Elm - is another elm developed at the Morton Arboretum

It is Asian hybrid - a cross between the 'Vanguard Elm' and 'Accolade Elm' (parentage - Japanese, Chinese and Siberian elms)

All three of these elms have been selected for their fast growth and environmental tolerance.

All three of these elms have been specified by our office and are awaiting planting or have been specified and planted in Canton, Novi, Northville, West Bloomfield, Waterford, Shelby Township, Grand Blanc, the city of Detroit and projects in Illinois and Ohio.

2 HYBRID ELM TREE SUMMARY
L102 NOT TO SCALE



SITE PLANTING PLAN
SCALE 1" = 40'



HAGENBUCH WEIKAL
LANDSCAPE ARCHITECTURE

248.477.3600 TEL
WWW.KWLA.COM

33203 BIDDSTONE LANE, FARMINGTON HILLS, MI 48334

KENNETH S. WEIKAL
LANDSCAPE ARCHITECT
No. 1022

LOCKWOOD COMPANIES
27777 FRANKLIN ROAD
SUITE 1410
SOUTHFIELD, MI 48304

LAKESHORE VILLAGE APARTMENTS PHASE 3

GENOA TWP, MI

SHEET

SITE PLANTING PLAN

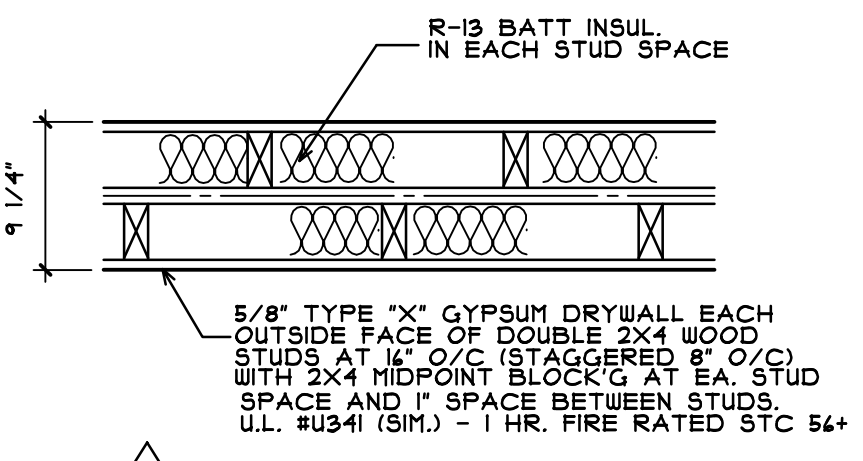
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2016-02-02 SPA
2016-02-24 SPA

ISSUE DATE

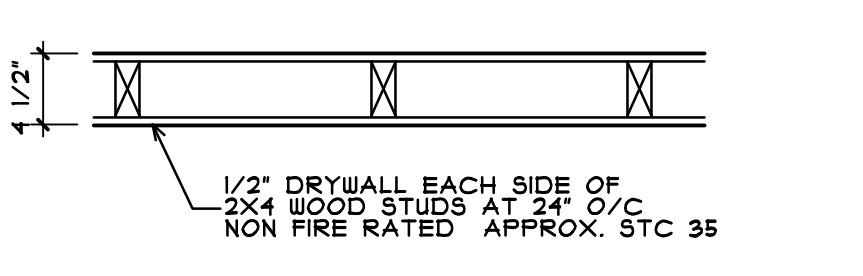
REVISION DATE

SHEET NUMBER
L103

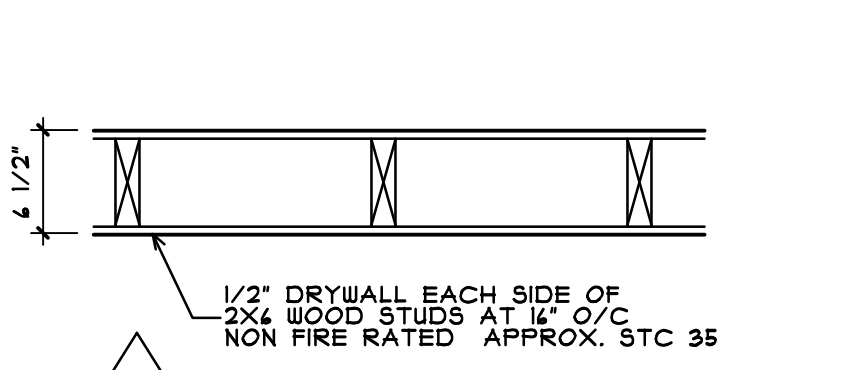
Lakeshore Village Apartments
 Phase III
 Genoa Township, Livingston County, Michigan



1 PARTYWALL PARTITION

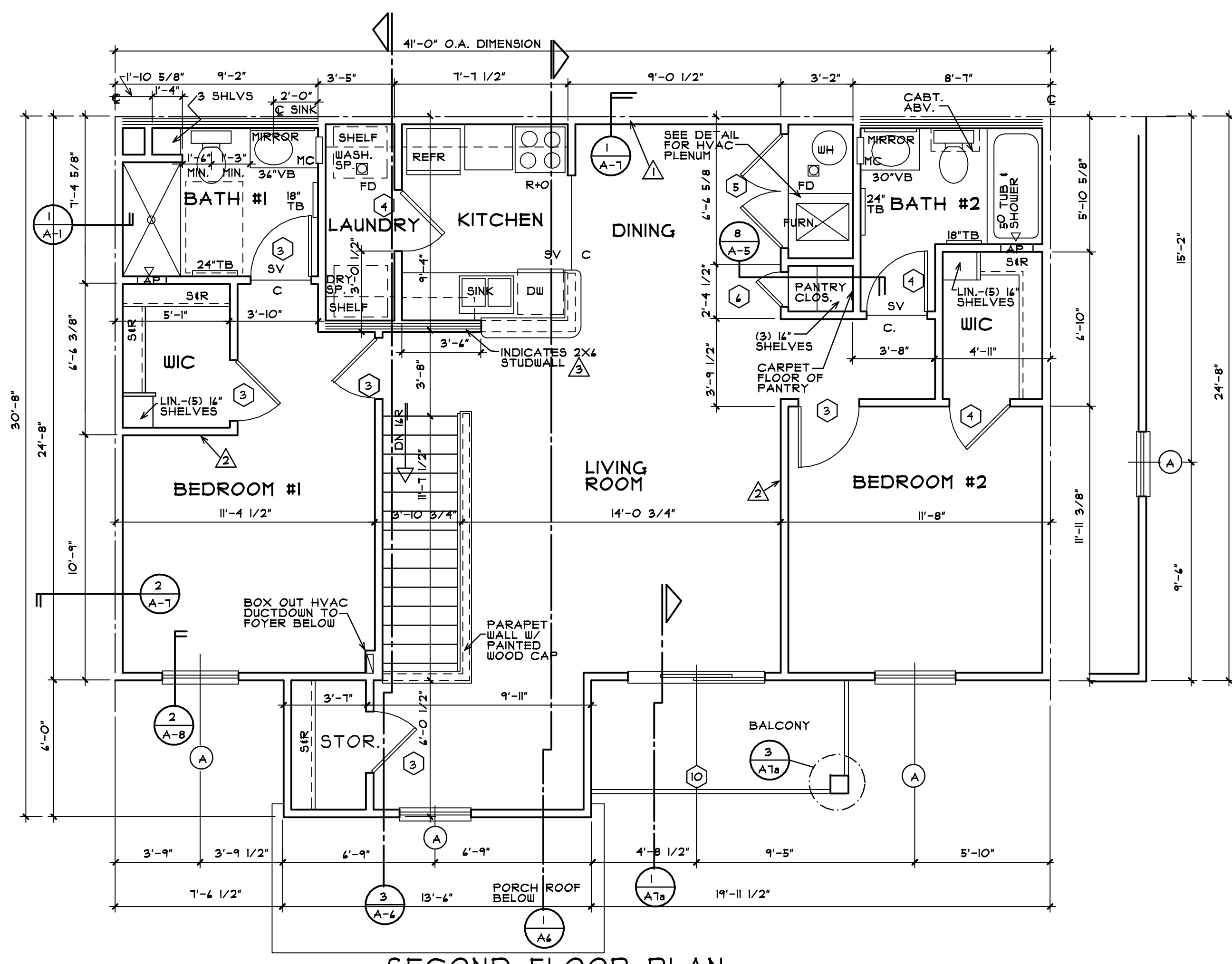


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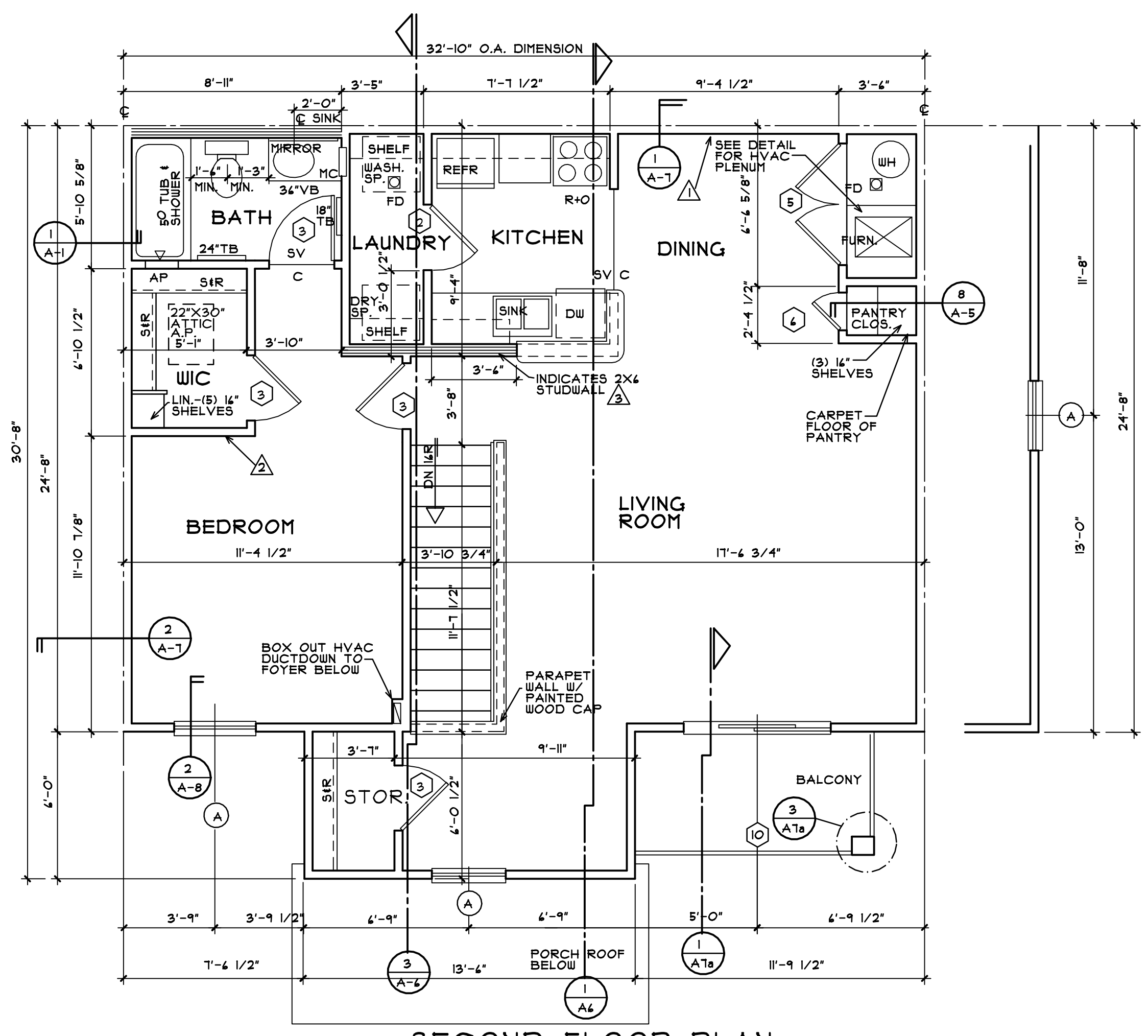


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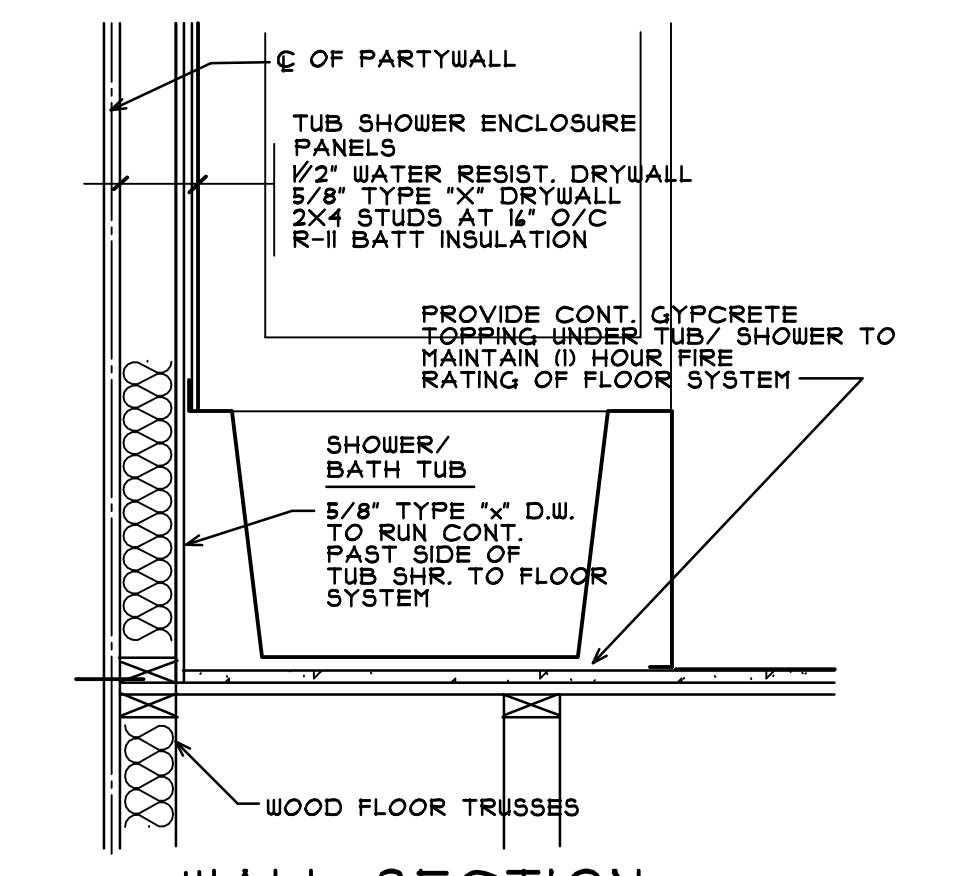
PARTITION WALL TYPES



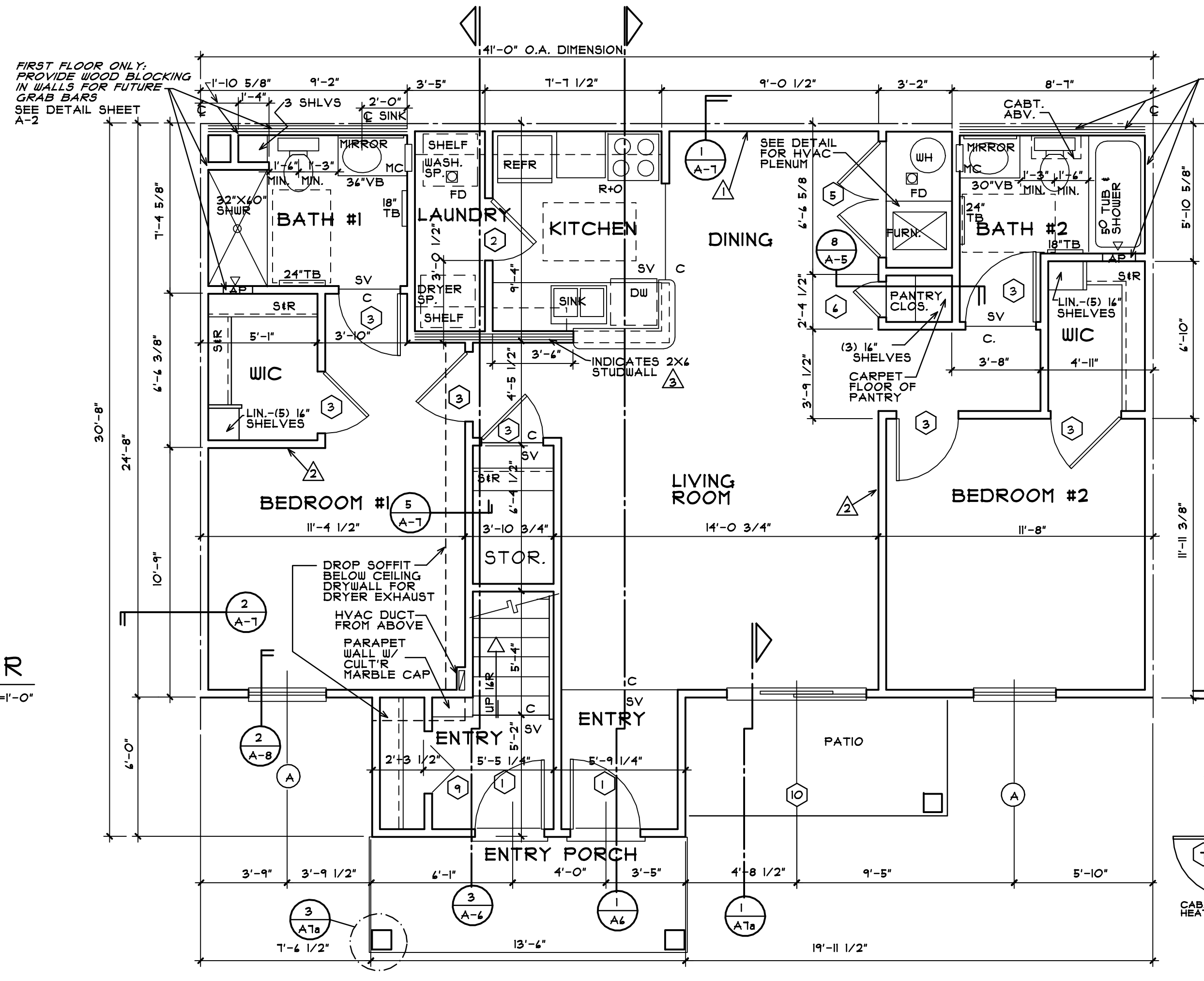
SECOND FLOOR PLAN
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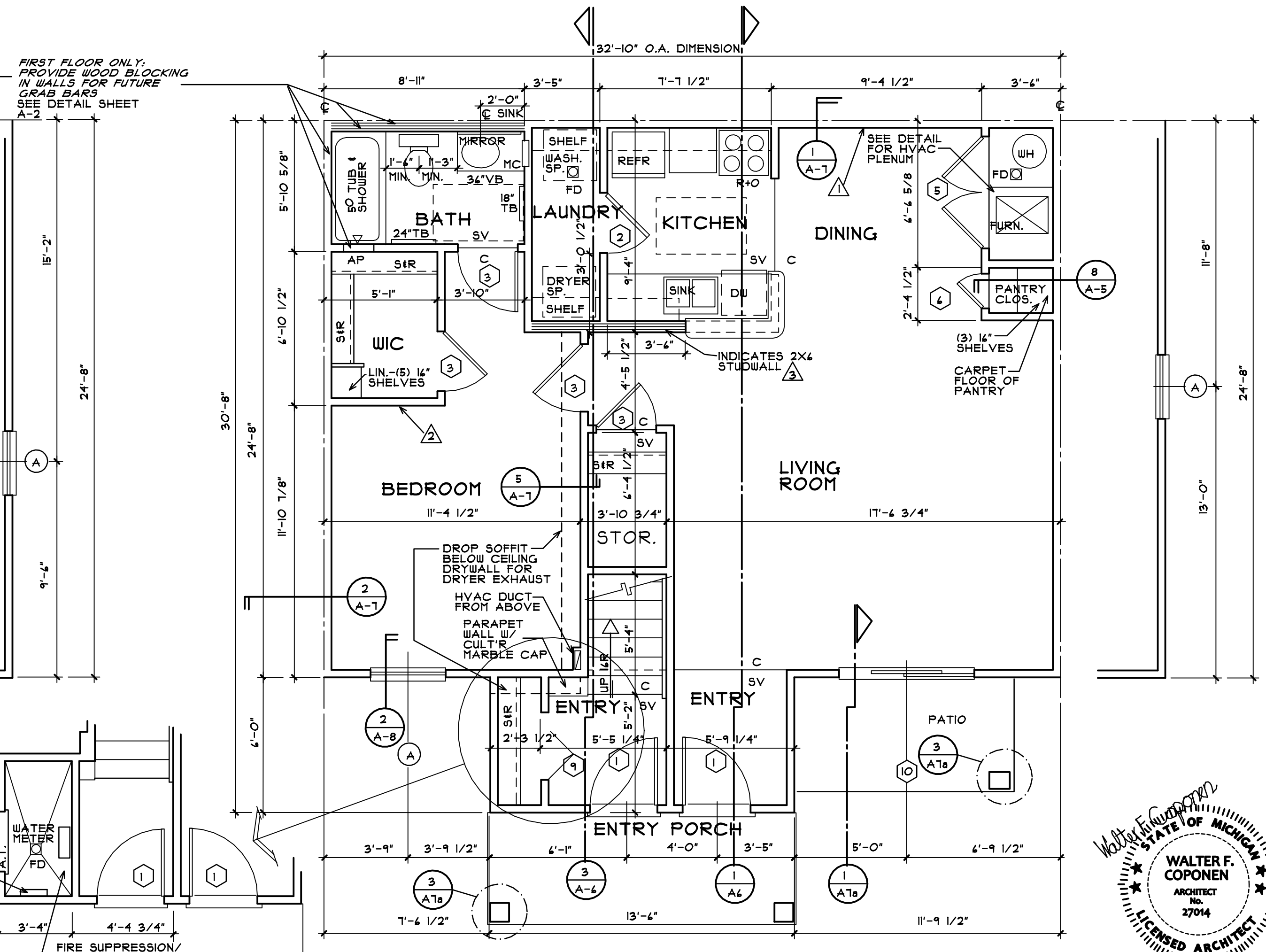
SECOND FLOOR PLAN
 UNIT TYPE A-2 891 SQ. FT. SCALE 1/4"=1'-0"



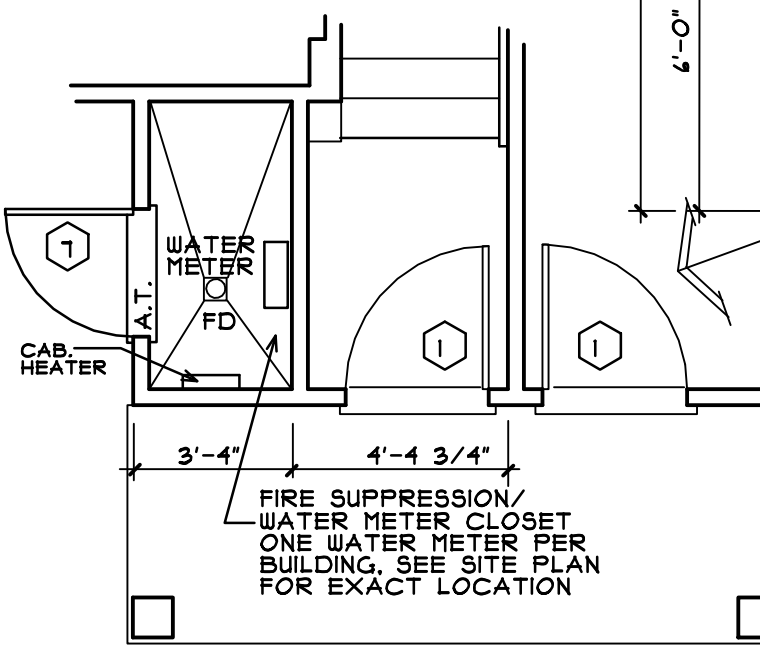
1 WALL SECTION at BATH TUB/SHOWER SCALE: 1"=1'-0"



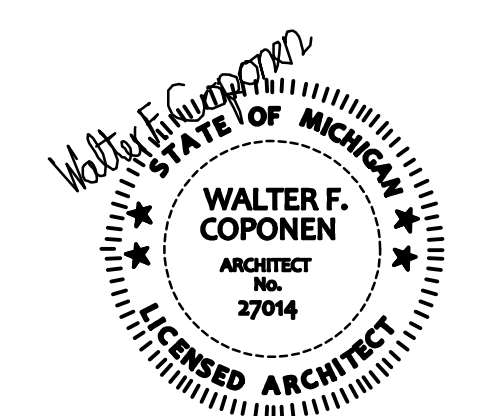
FIRST FLOOR PLAN
 UNIT TYPE B-1 1,021 SQ. FT. SCALE 1/4"=1'-0"



FIRST FLOOR PLAN
 UNIT TYPE A-1 821 SQ. FT. SCALE 1/4"=1'-0"

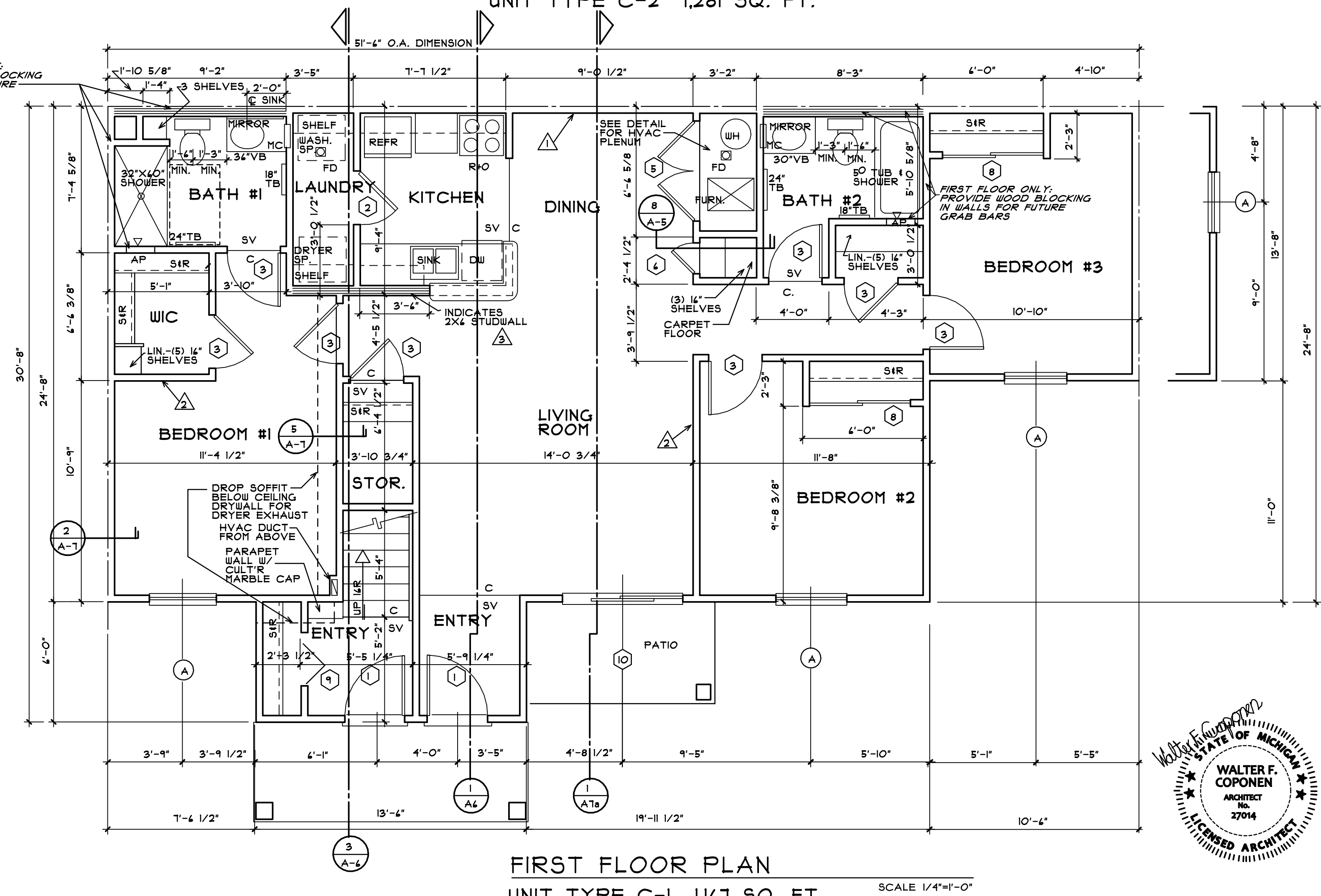
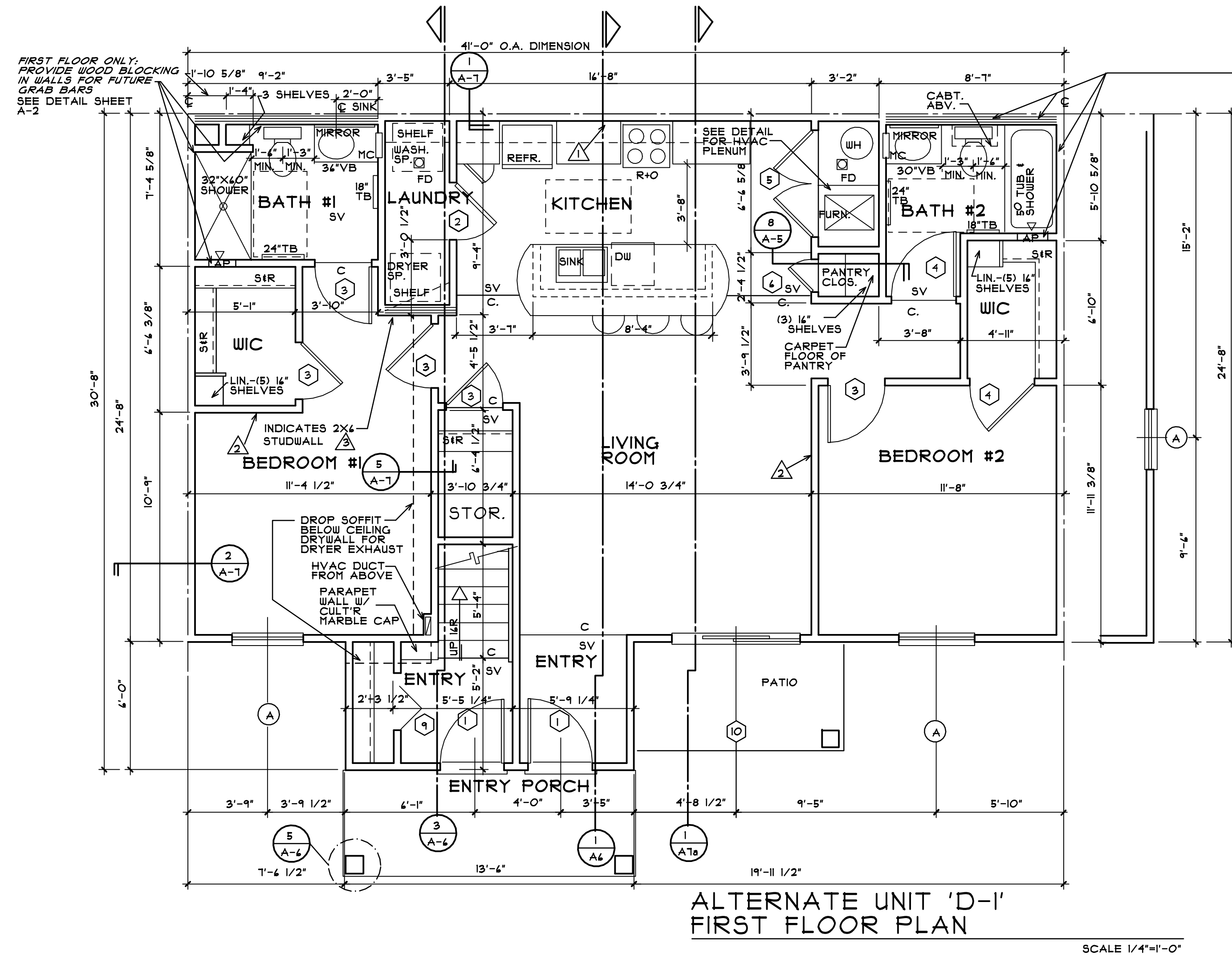
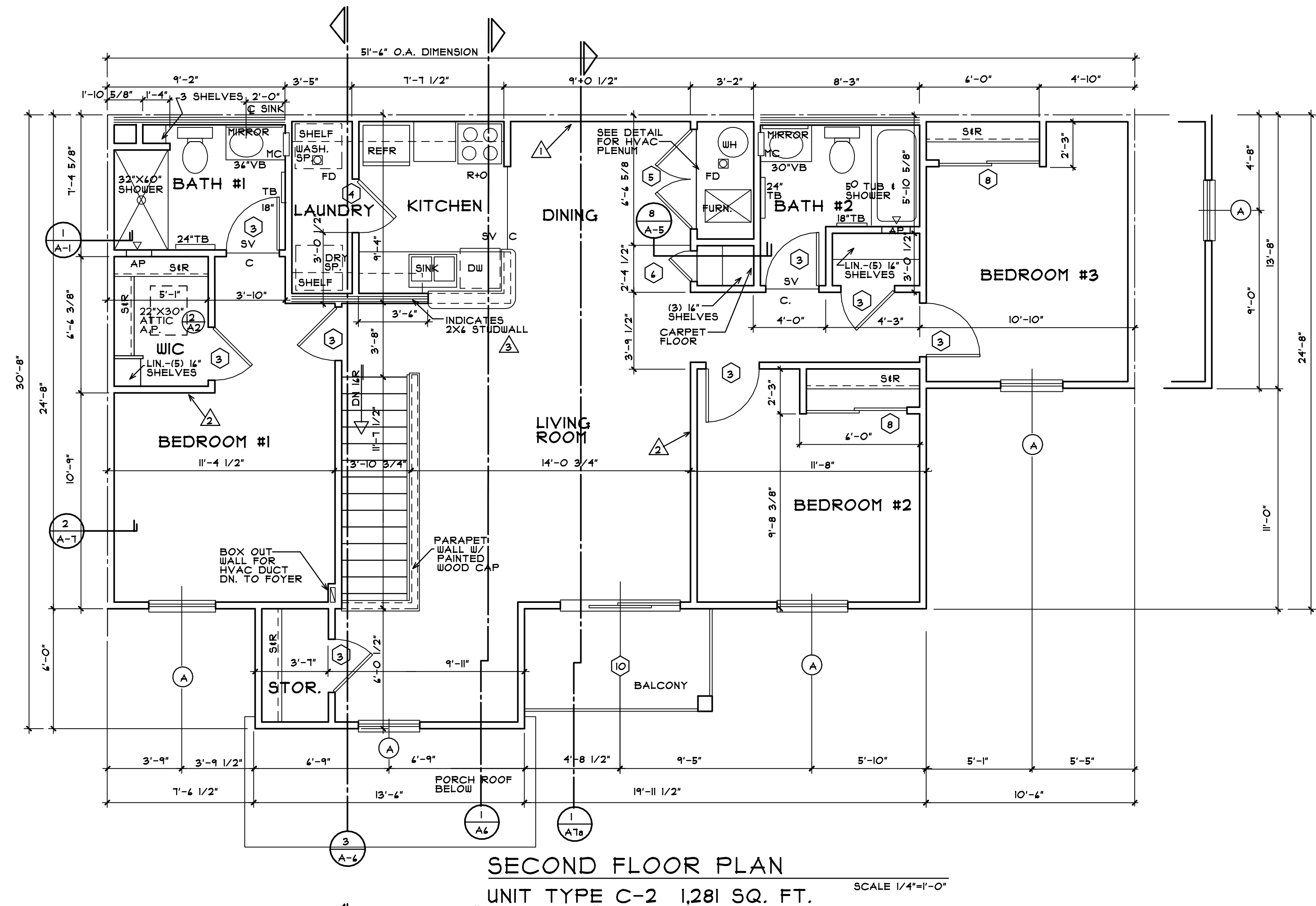
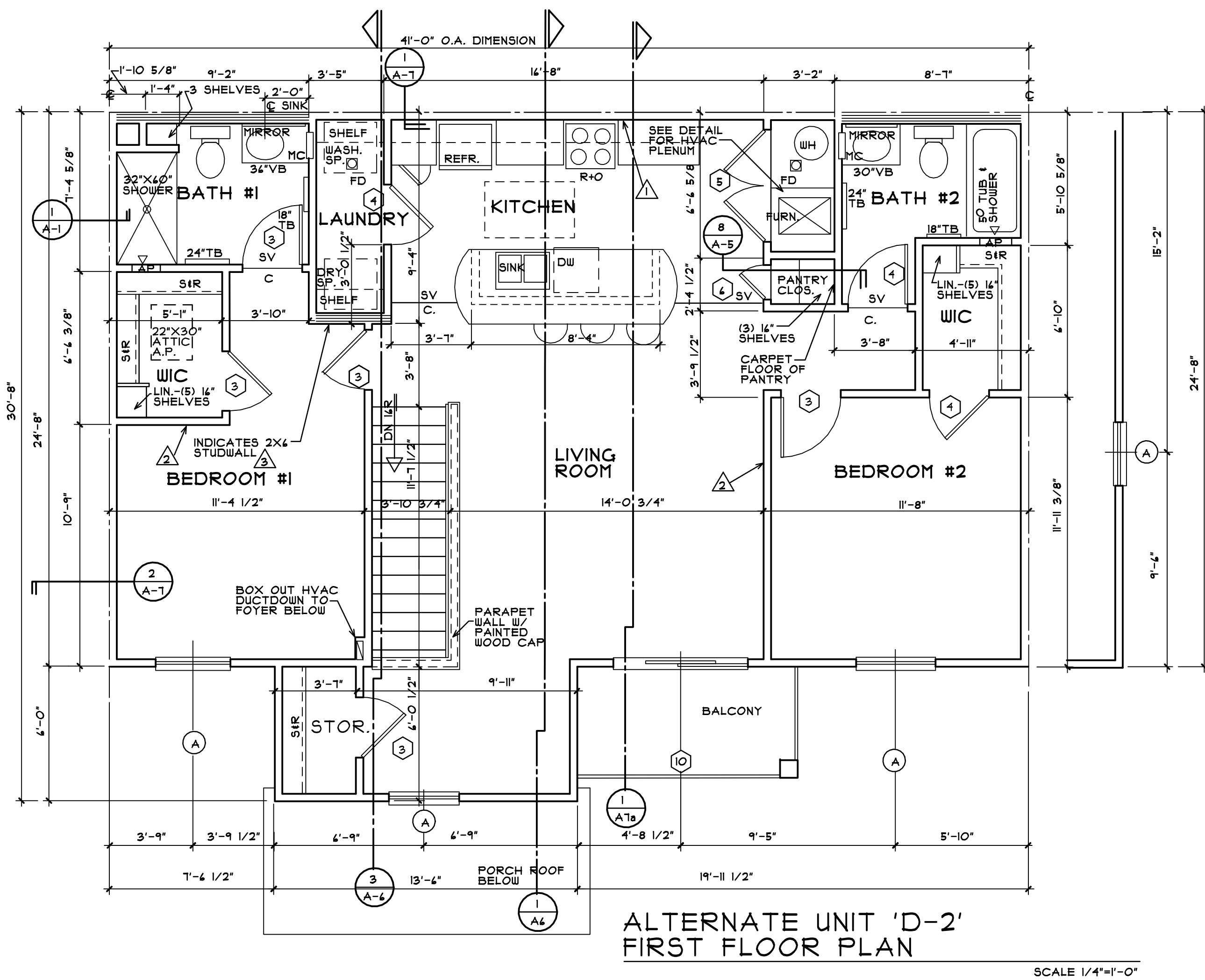


WATER METER CLOSET PLAN



sheet	UNIT FLOOR PLANS UNIT TYPE A UNIT TYPE B
drawing revisions	
issue date	MARCH 18, 2014
sheet number	

Lakeshore Village Apartments
 Phase III
 Genoa Township, Livingston County, Michigan



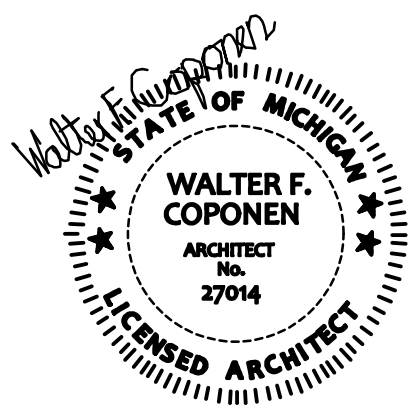
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 UNIT FLOOR PLANS
 UNIT TYPE C

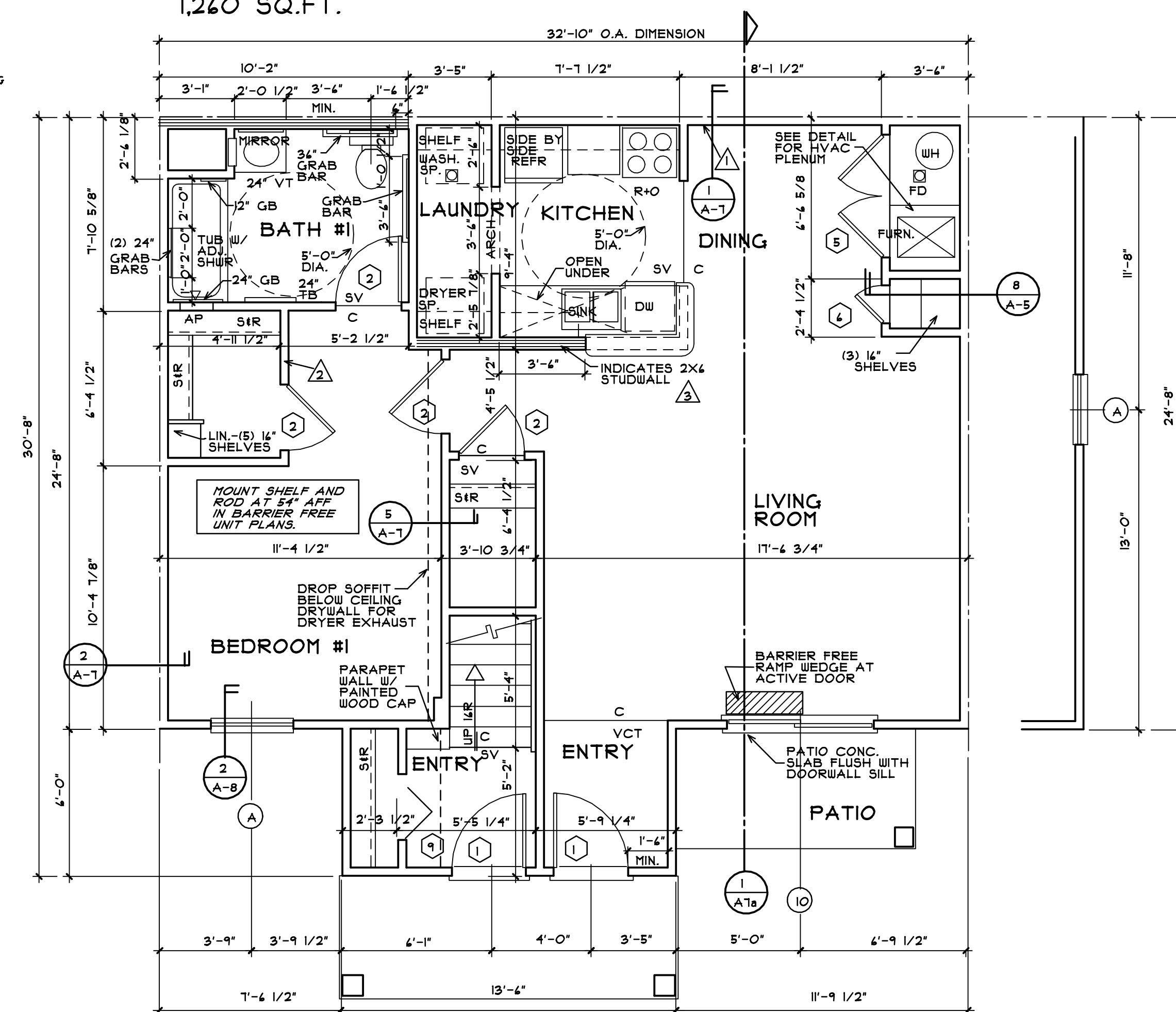
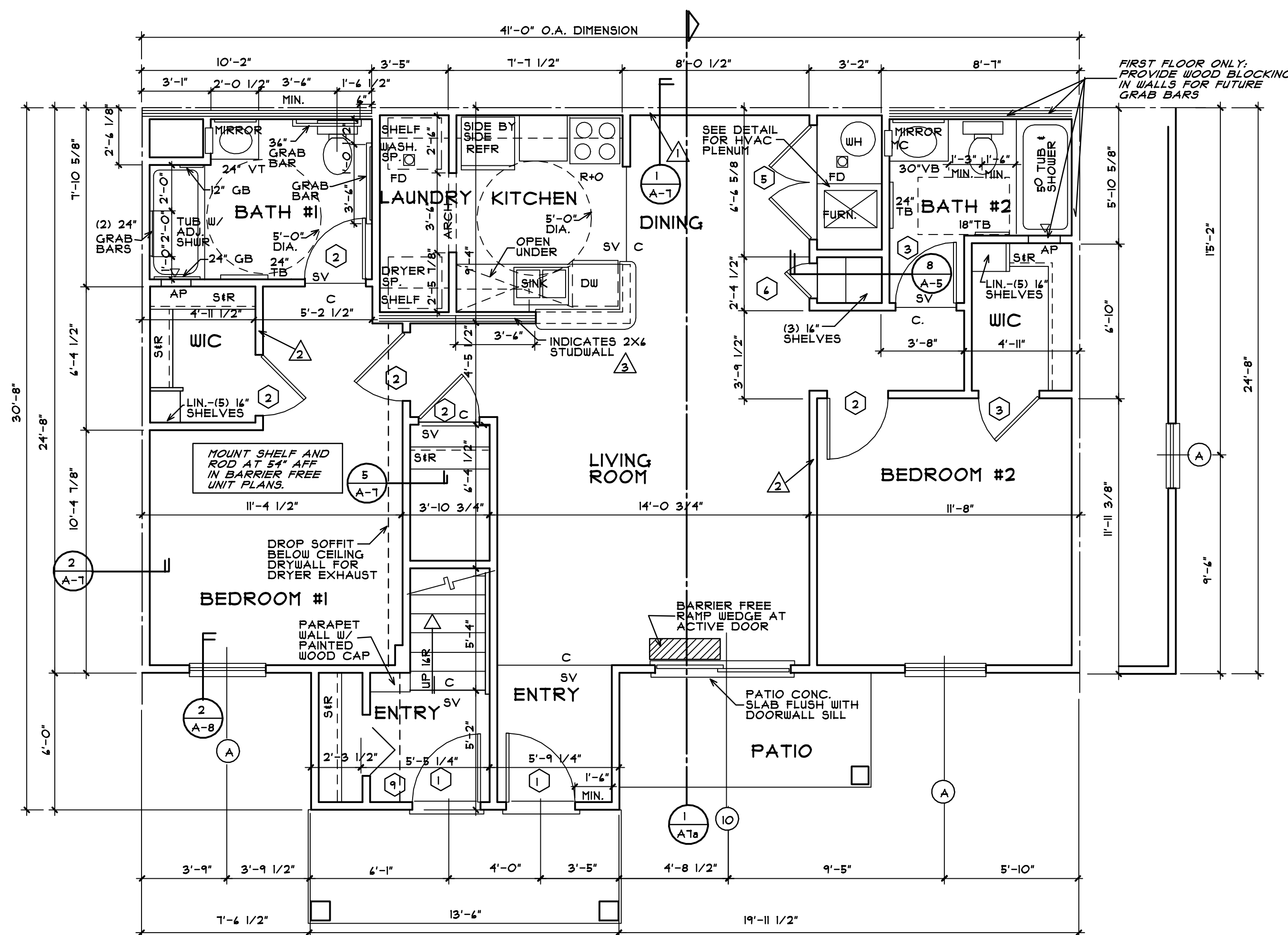
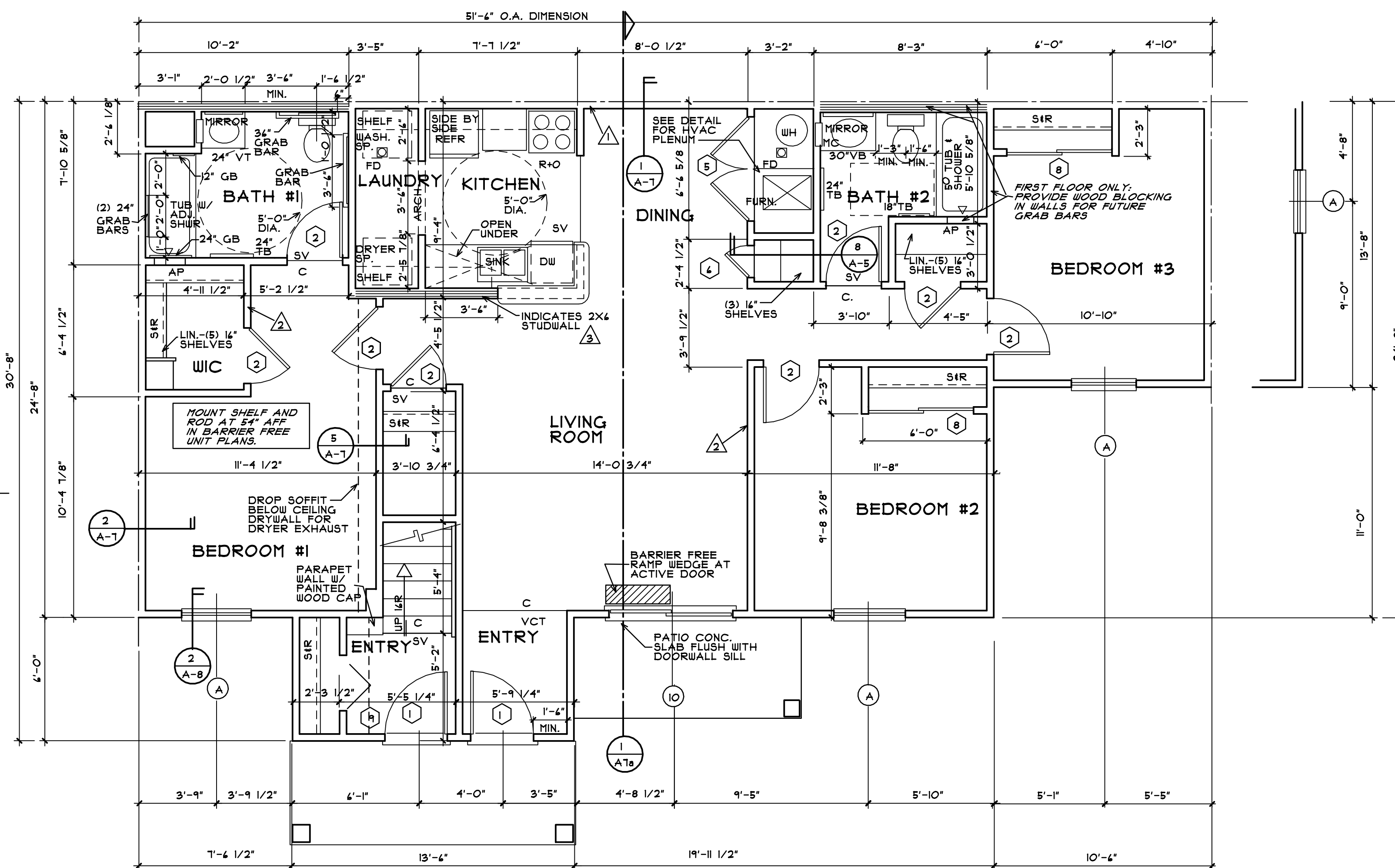
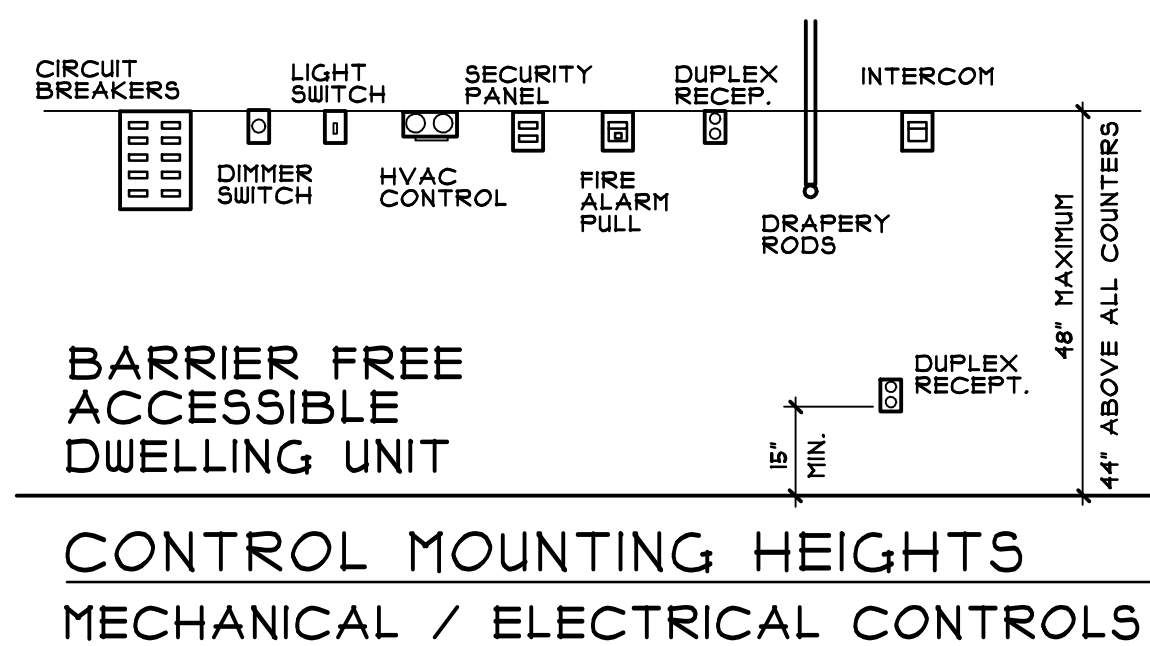
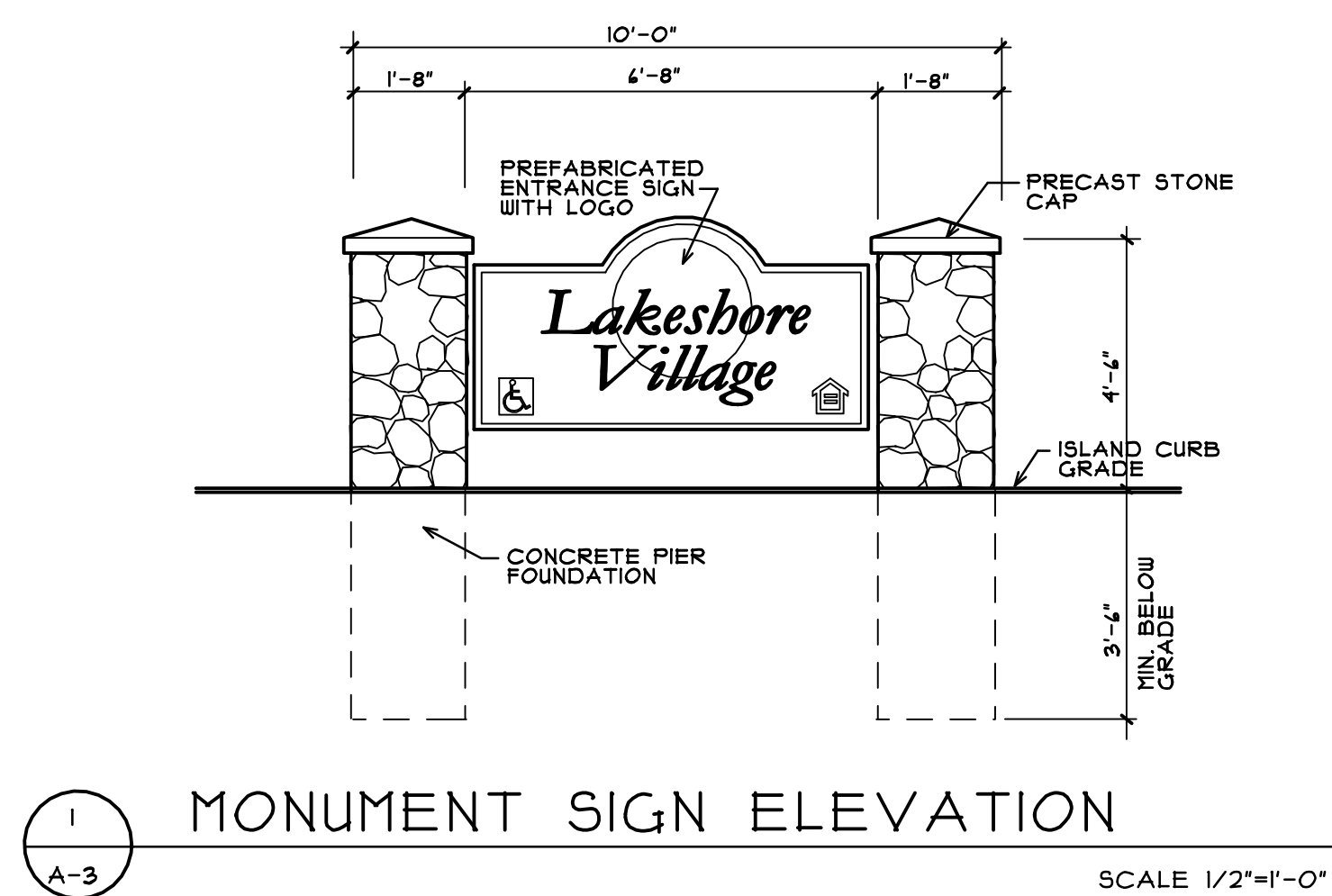
ALTERNATE
 UNIT FLOOR PLAN
 UNIT TYPE D

drawing
 revisions

issue date
 MARCH 18, 2014

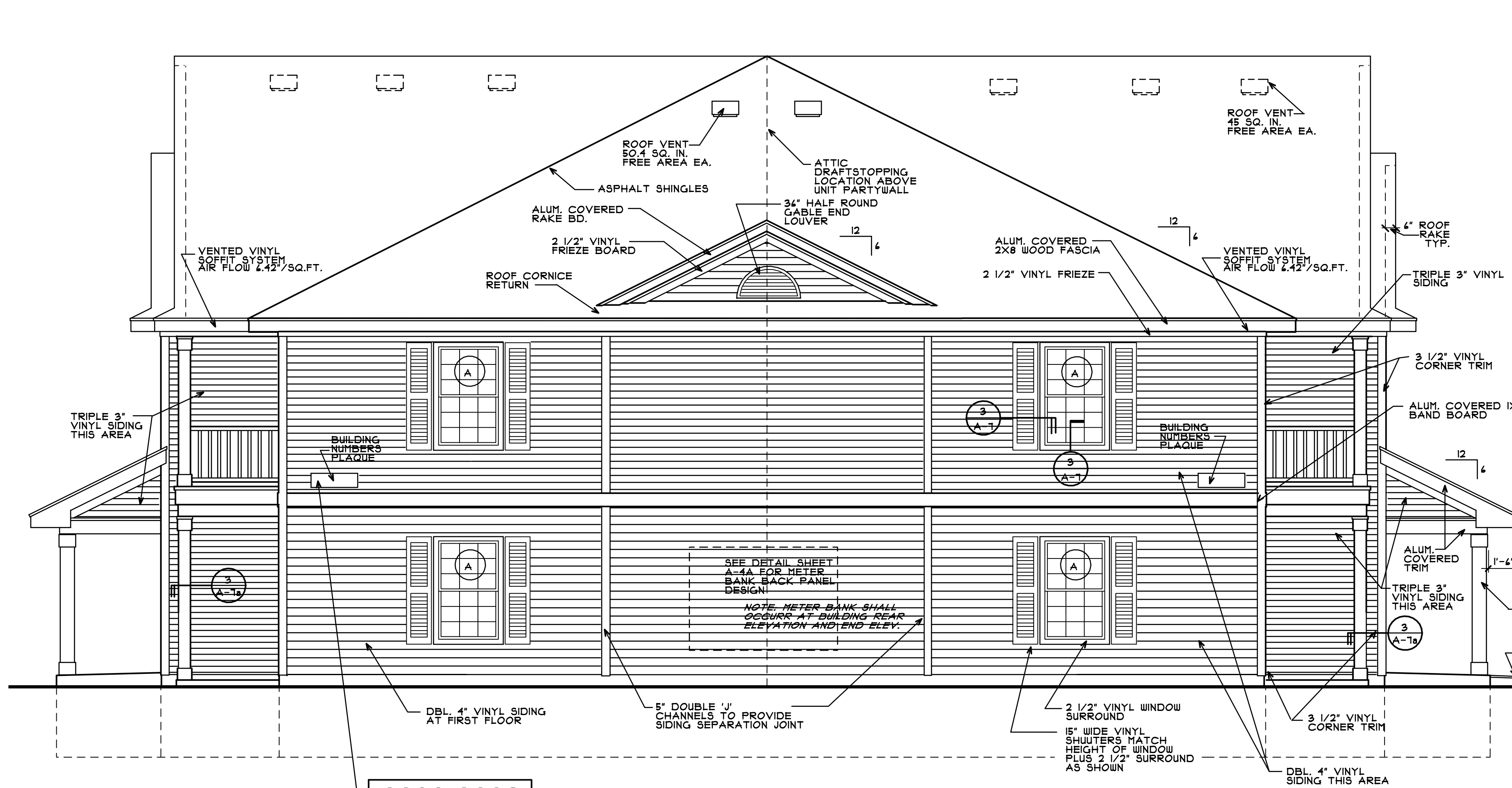
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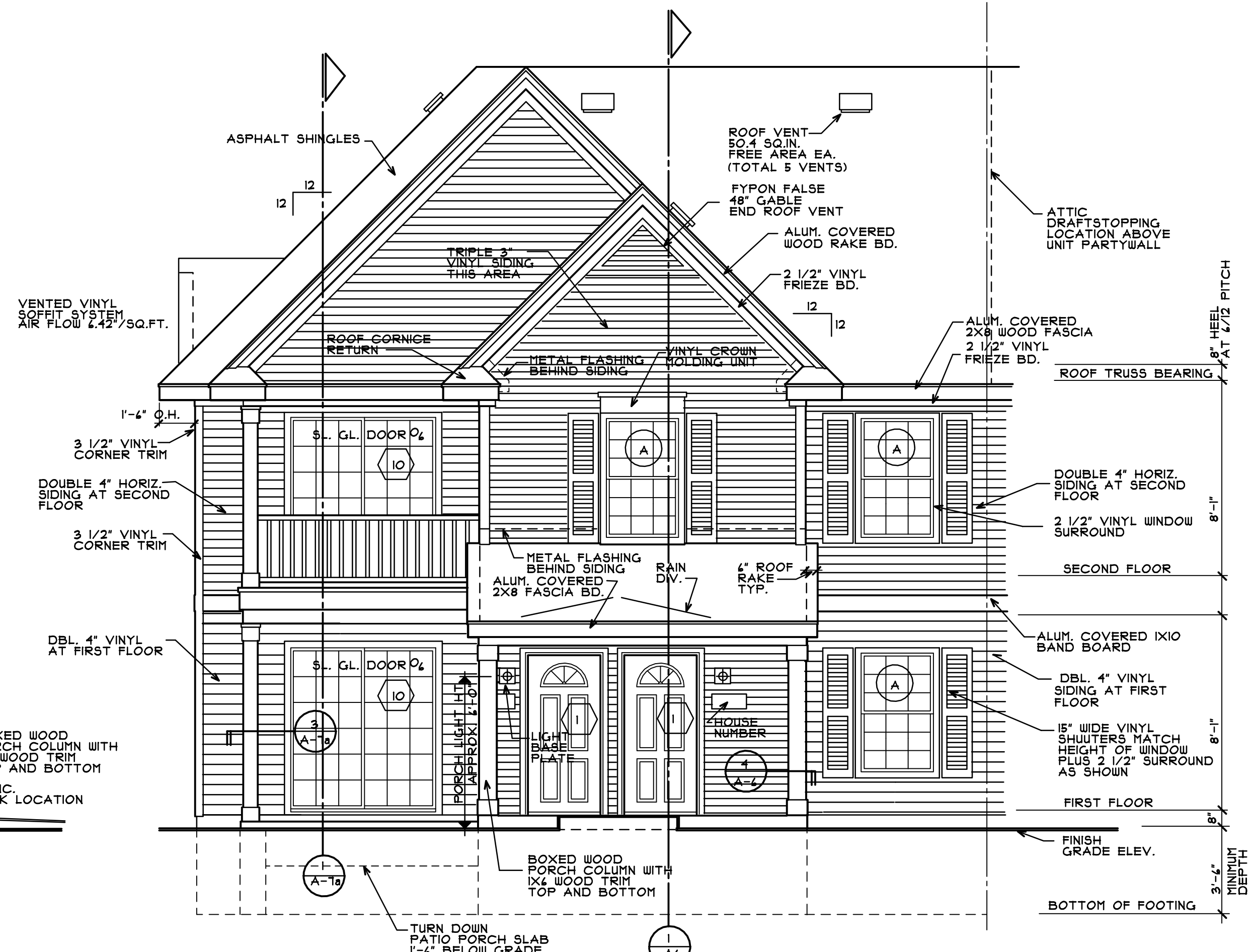
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BARRIER FREE UNIT FLOOR PLANS	
ENTRANCE SIGN	
drawing revisions	
issue date	MARCH 18, 2014
sheet number	

Lakeshore Village Apartments
 Phase III
 Genoa Township, Livingston County, Michigan

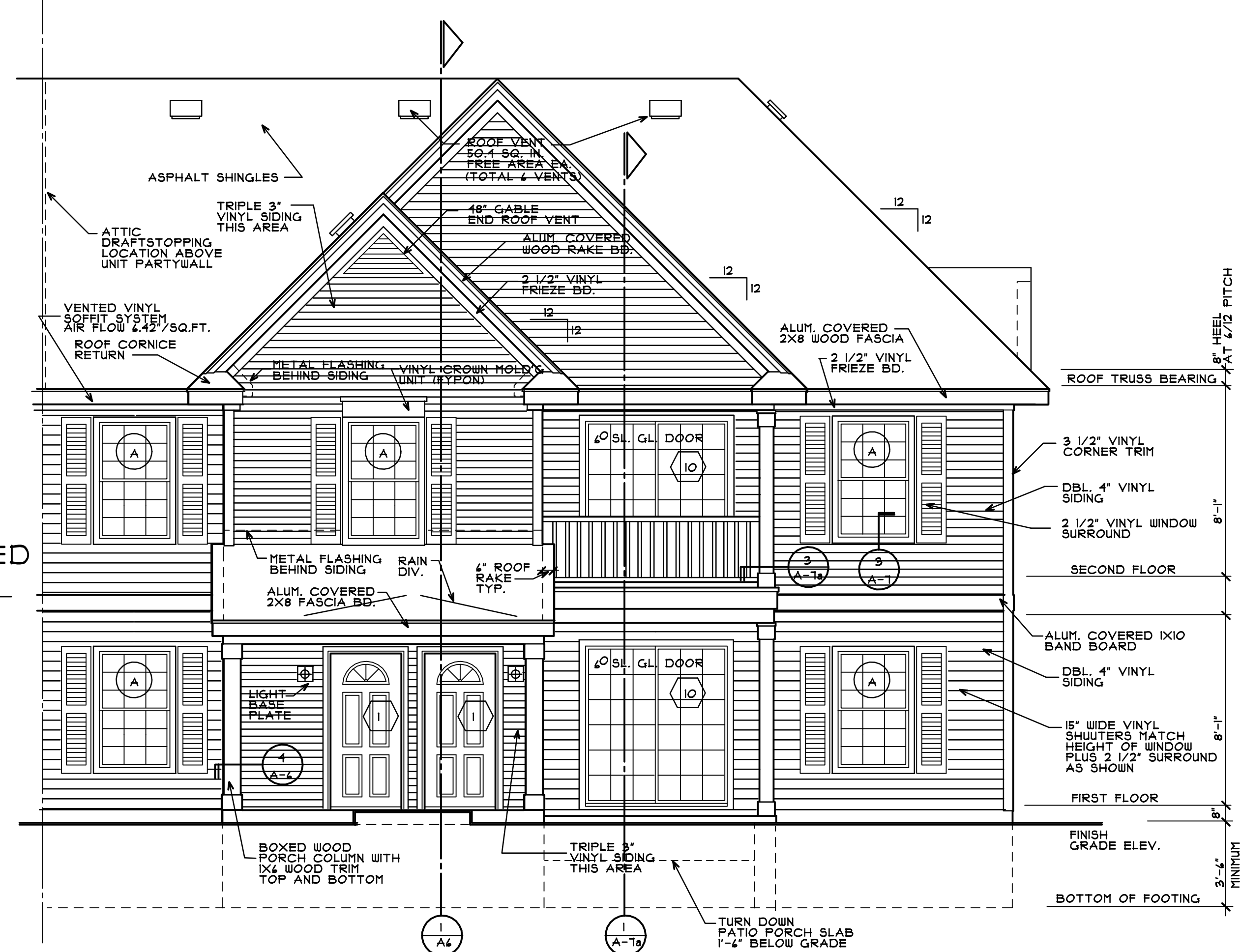


3200-3208
 BUILDING NUMBER PLAQUE
 LOCATION WHERE BUILDING
 END FACES PARKING DRIVE

END ELEVATION
 TYPICAL UNIT COND.
 SCALE 1/4"=1'-0"

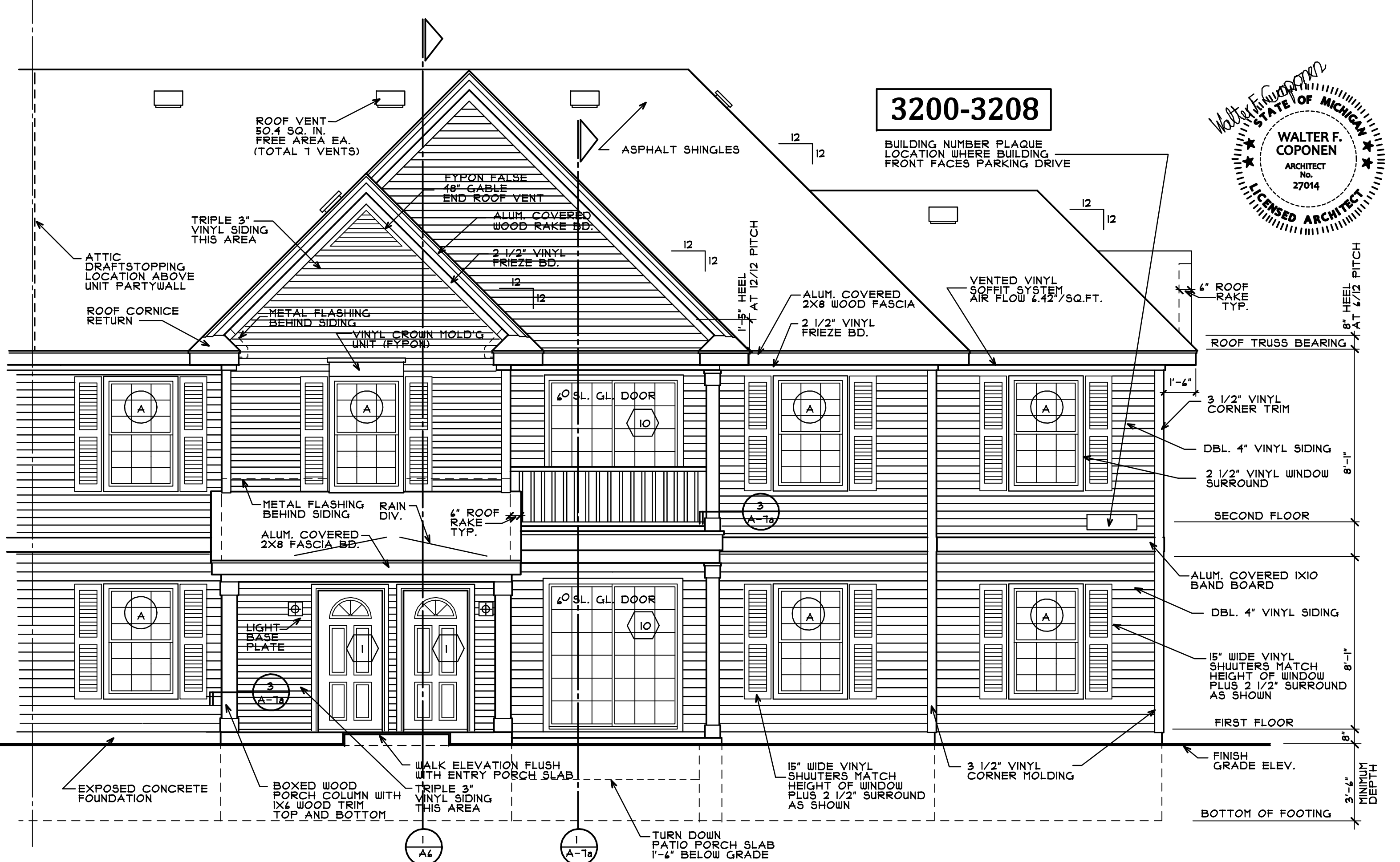


FRONT ELEVATION
 UNIT TYPE A-1/A-2
 SCALE 1/4"=1'-0"



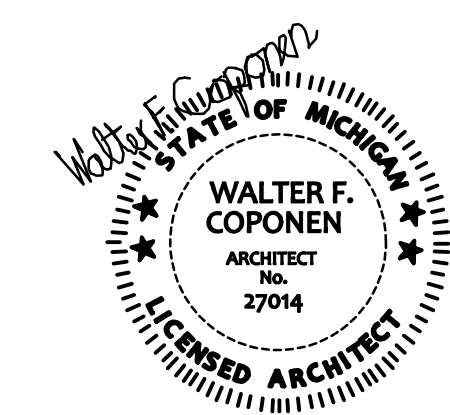
3200-3208
 BUILDING MOUNTED
 NUMBER PLAQUE

FRONT ELEVATION
 UNIT TYPE B-1/B-2
 SCALE 1/4"=1'-0"



3200-3208
 BUILDING NUMBER PLAQUE
 LOCATION WHERE BUILDING
 FRONT FACES PARKING DRIVE

FRONT ELEVATION
 UNIT TYPE C-1/C-2
 SCALE 1/4"=1'-0"



sheet

UNIT ELEVATIONS
 BUILDING SIGNAGE

drawing revisions

issue date
 MARCH 18, 2014

sheet number

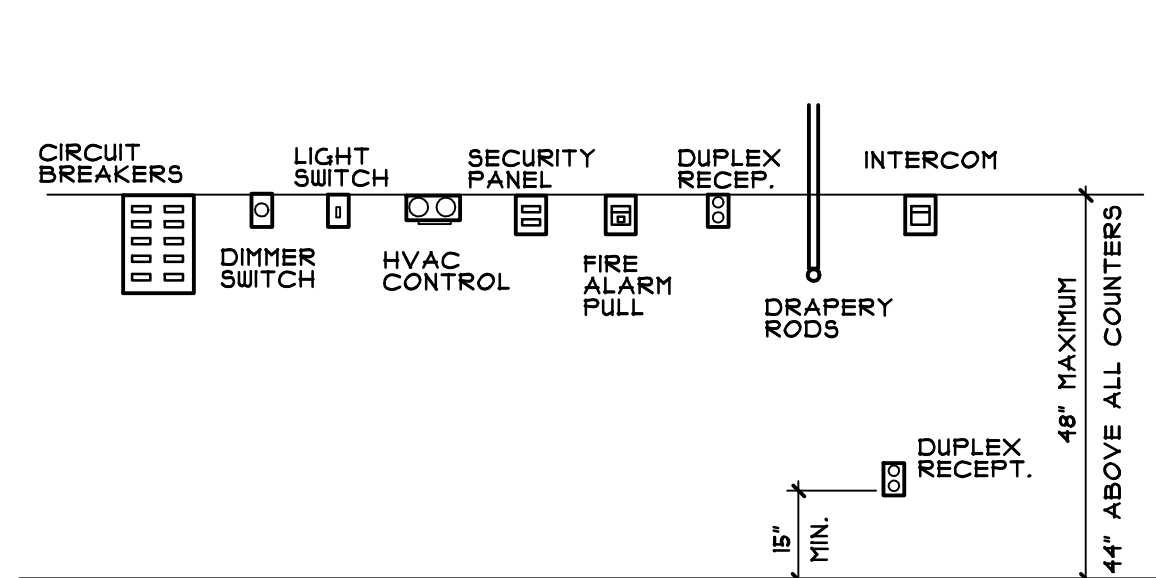
Lakeshore Village Apartments
 Phase III
 Genoa Township, Livingston County, Michigan

sheet
 HEALTH AND WEALTH CENTER BUILDING

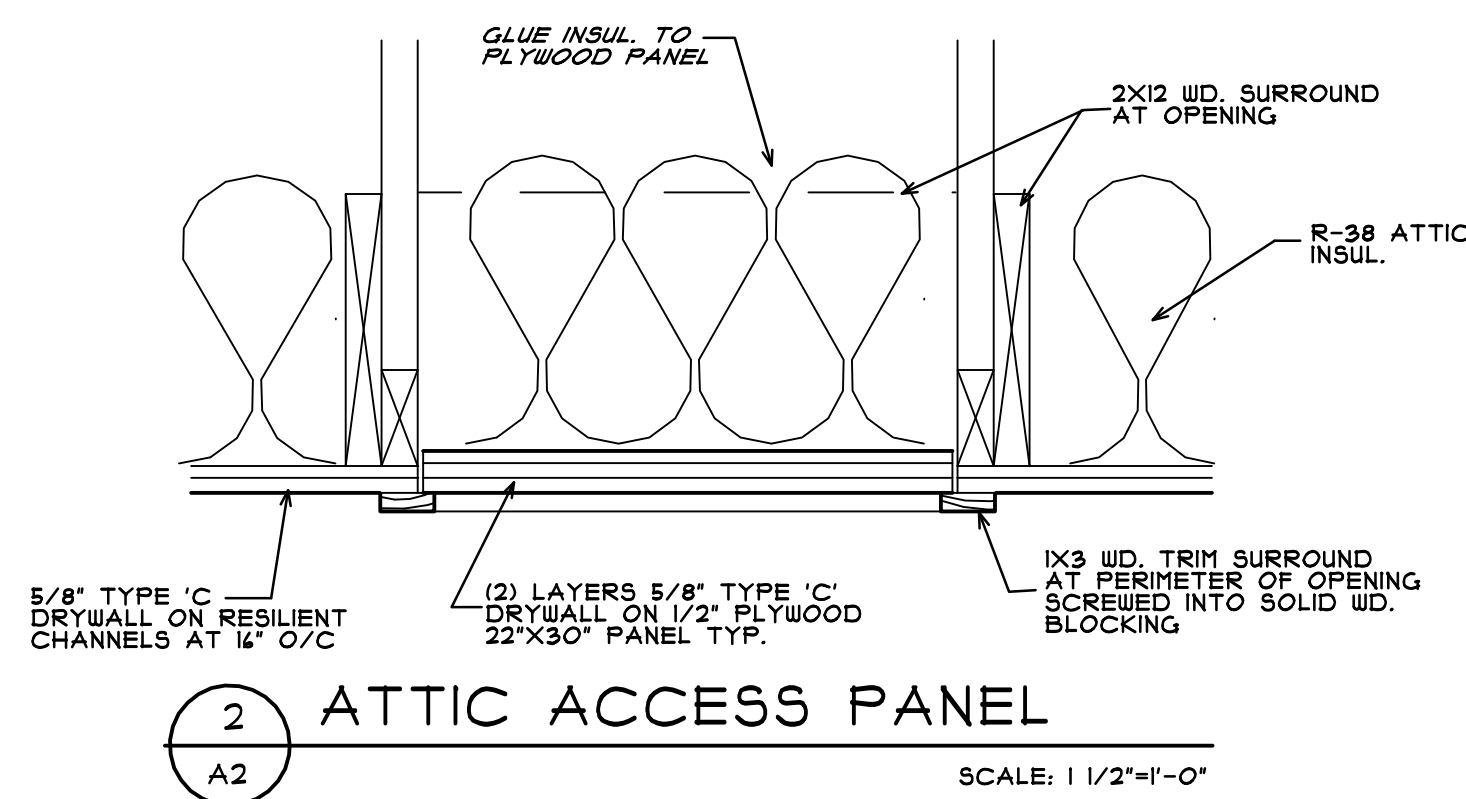
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issue date
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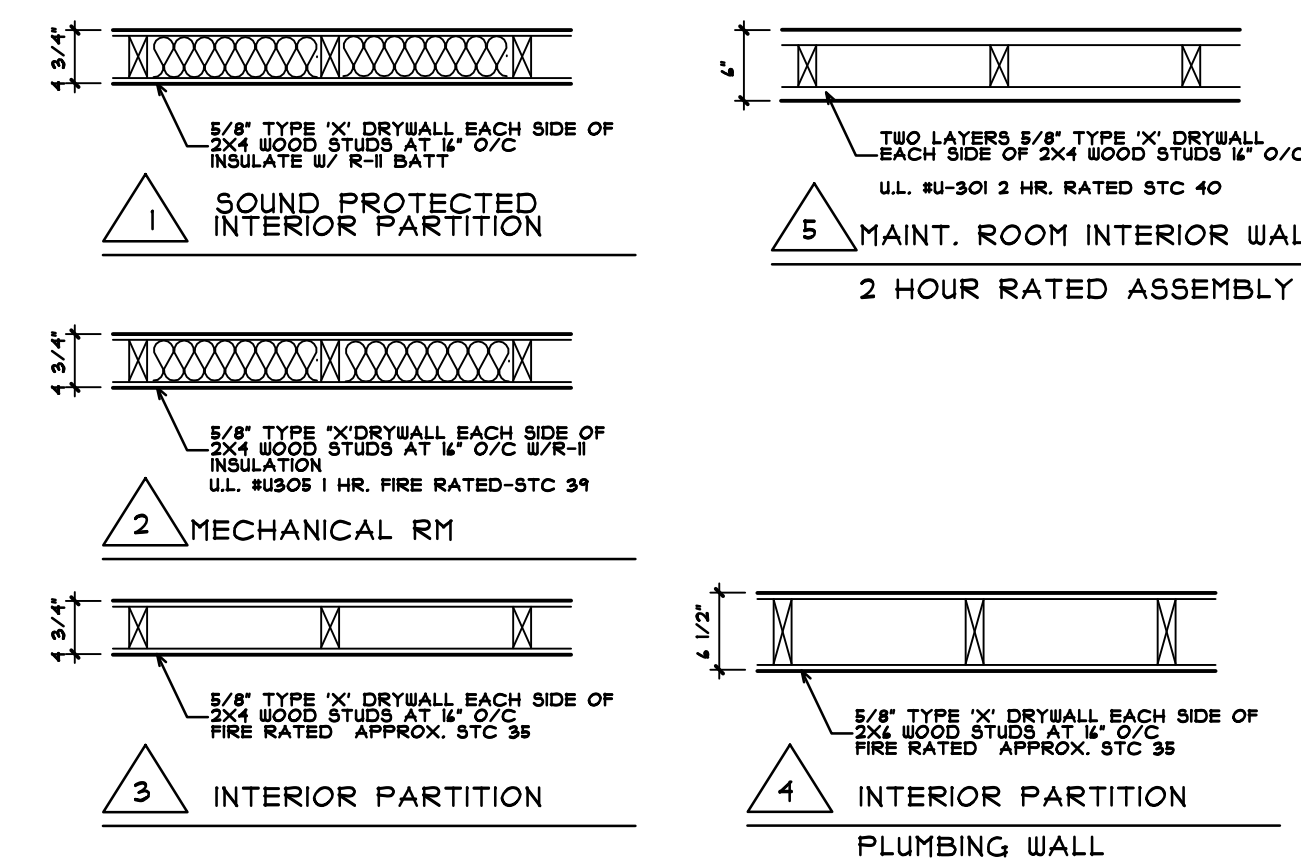


CONTROL MOUNTING HEIGHTS
 MECHANICAL / ELECTRICAL CONTROLS

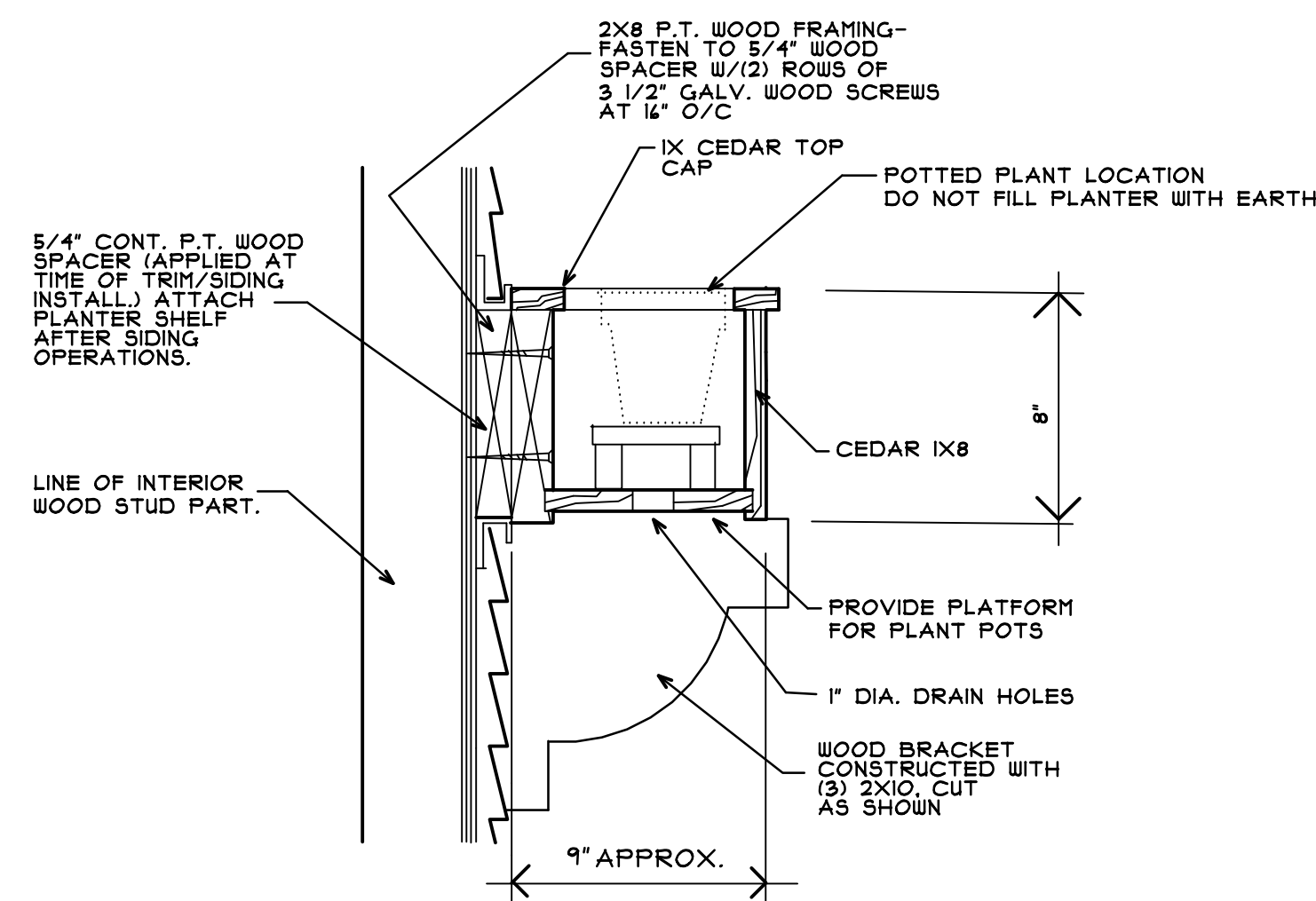


2 ATTIC ACCESS PANEL

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

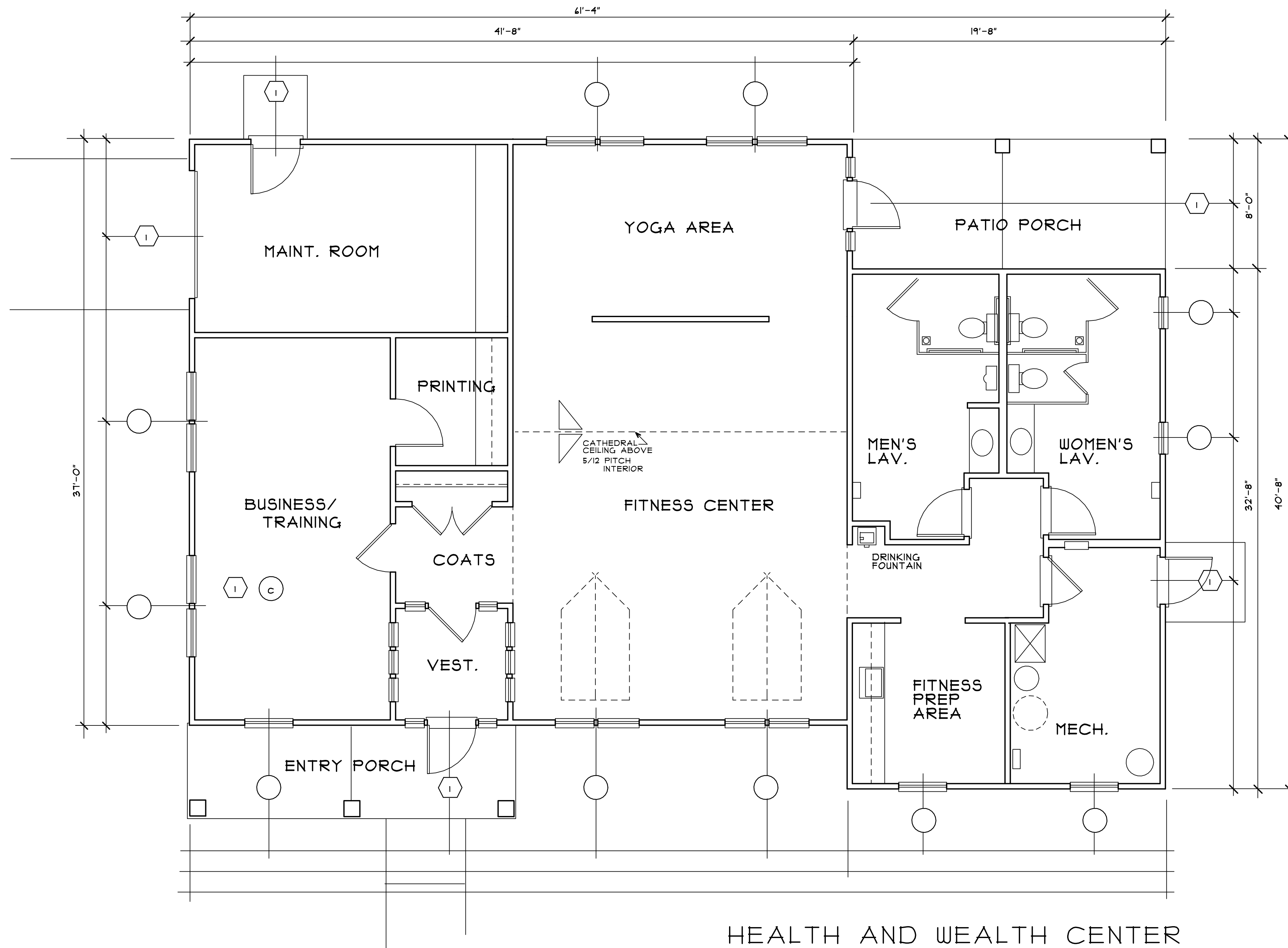


WALL PARTITION TYPES
 FITNESS CENTER



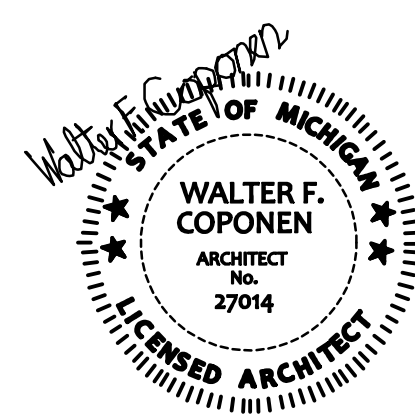
PLANTER SHELF DETAIL

NO SCALE

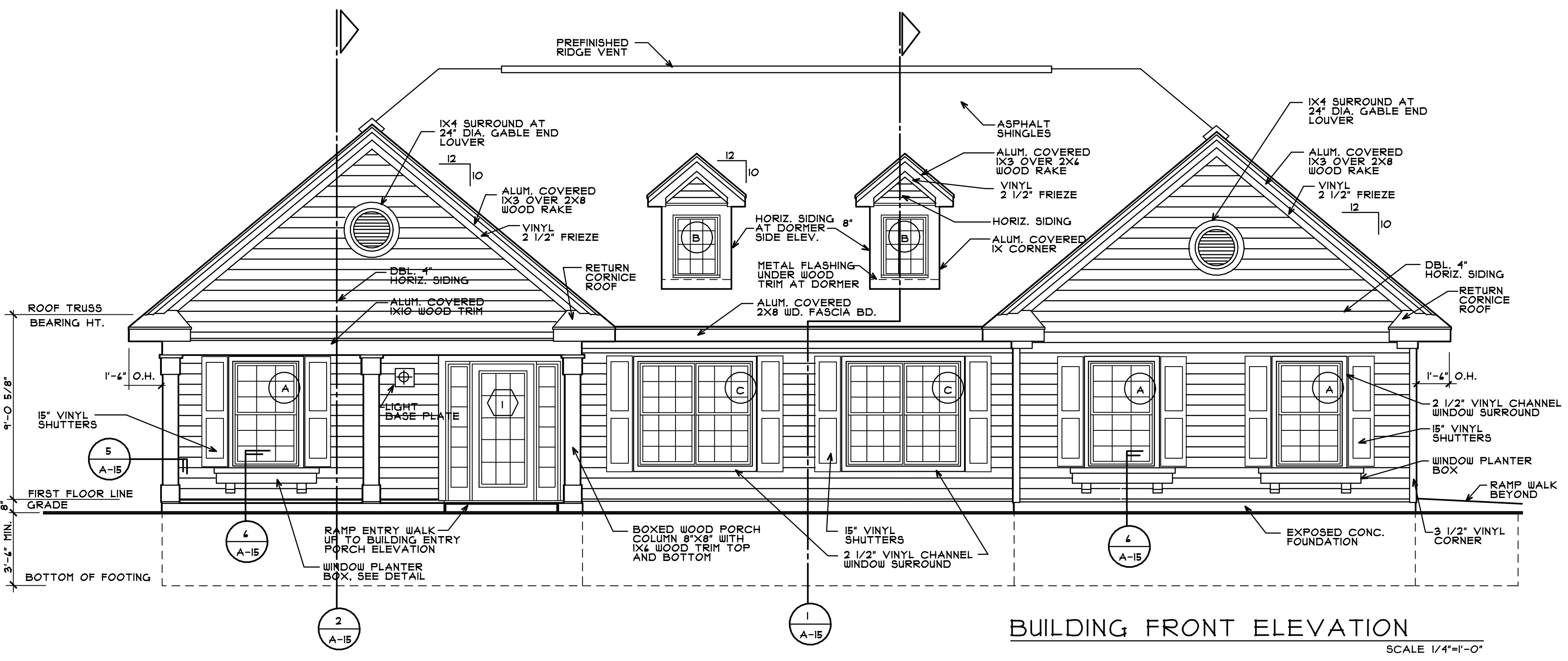
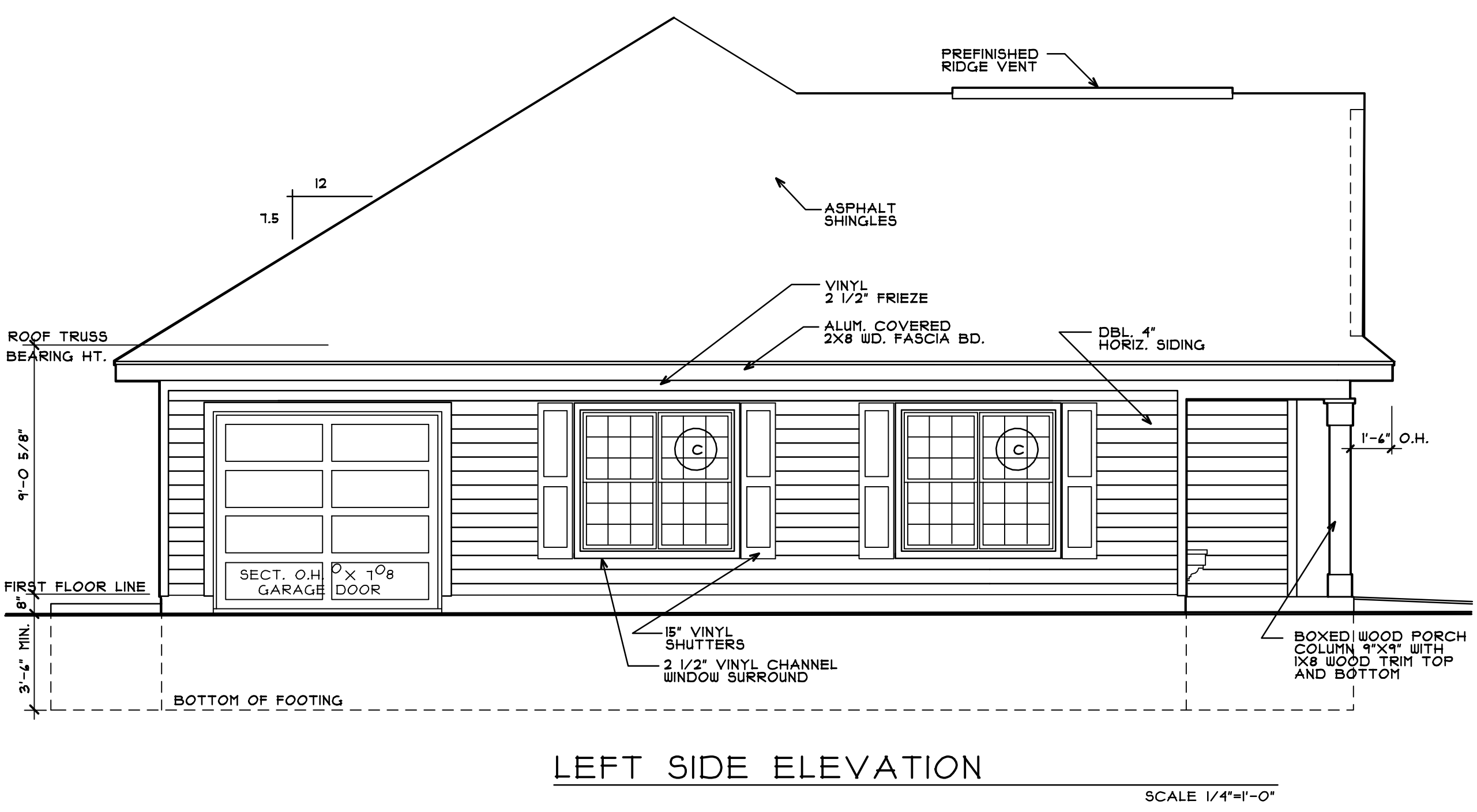
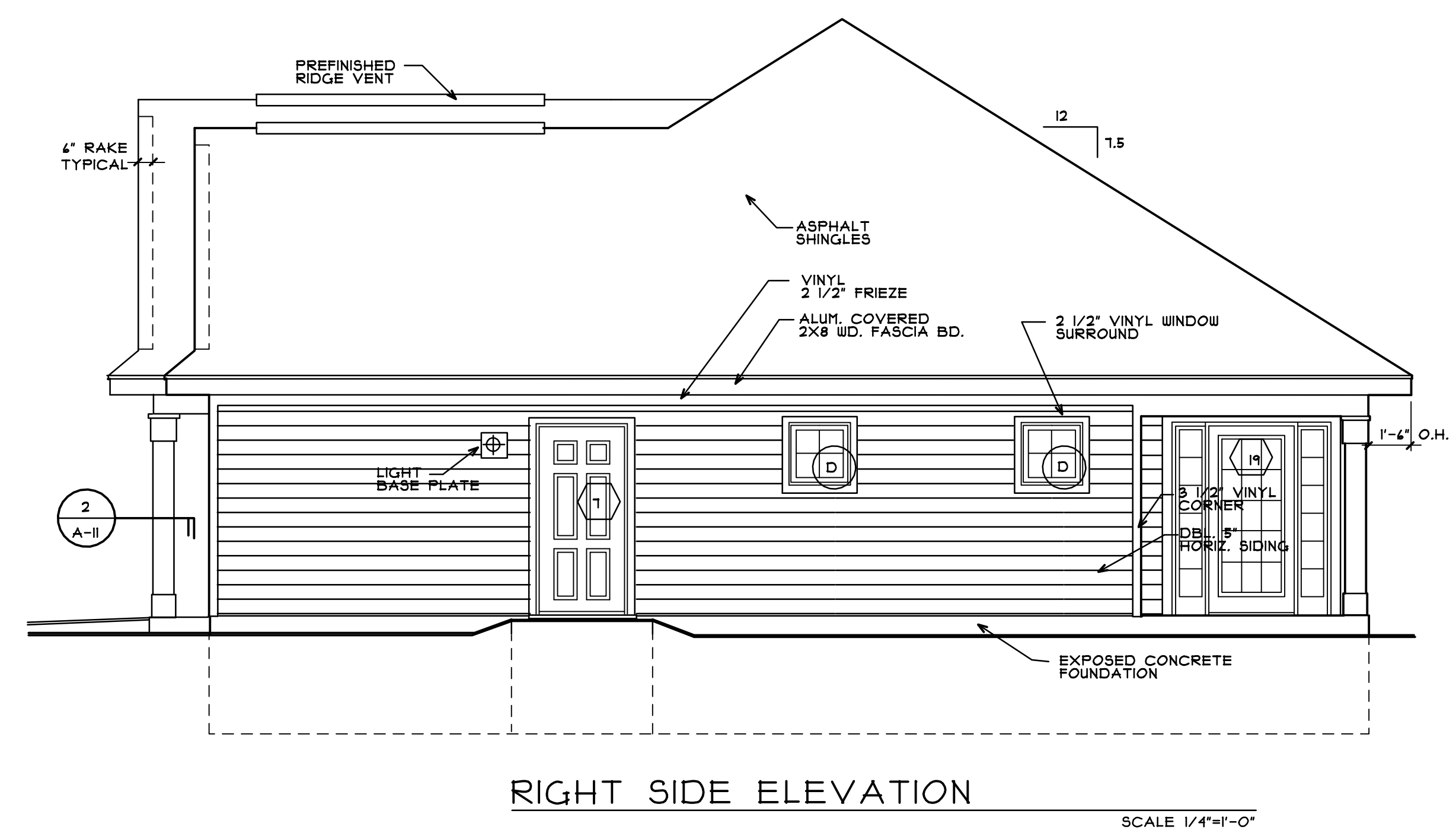
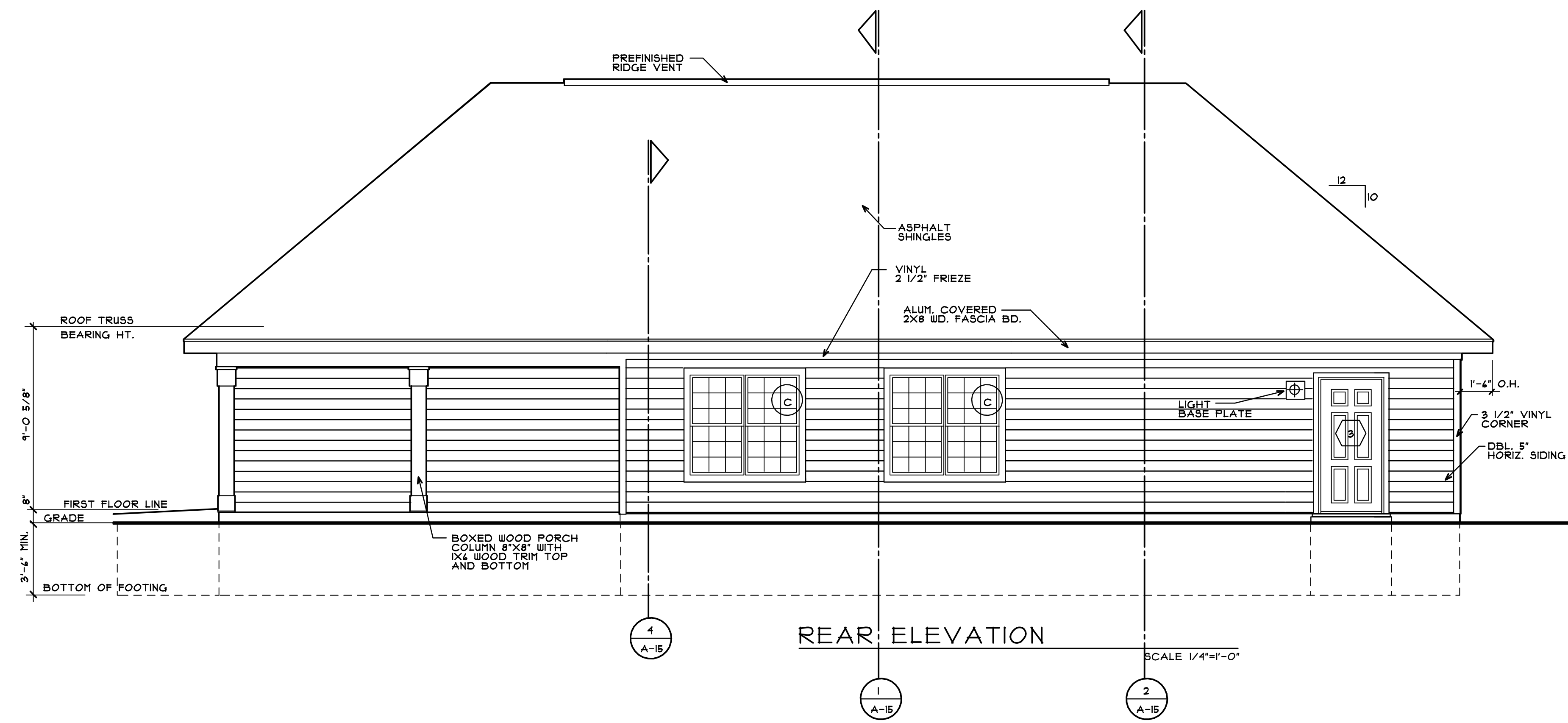


HEALTH AND WEALTH CENTER
 FLOOR PLAN

SCALE 1/4"=1'-0"



**Lakeshore Village Apartments
 Phase III**
 Genoa Township, Livingston County, Michigan



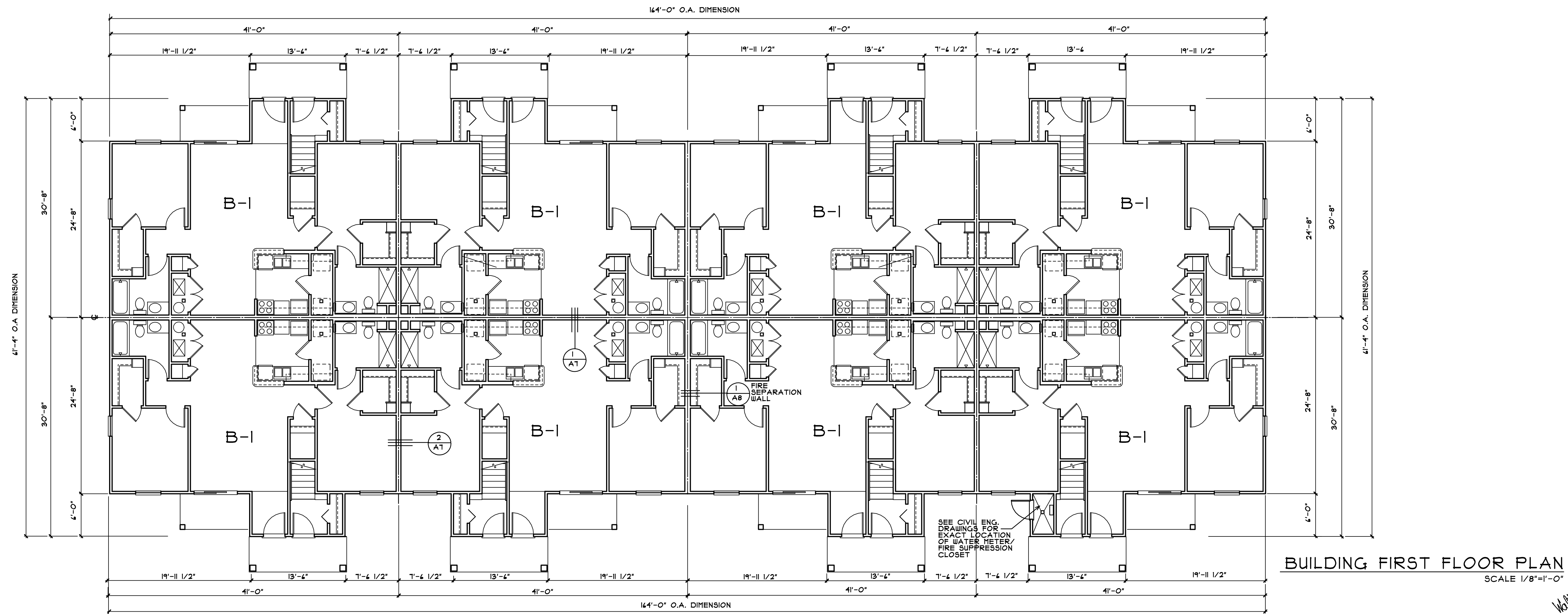
sheet
 HEALTH+WEALTH
 CENTER ELEVATIONS

drawing
 revisions

issue date
 MARCH 18, 2014

sheet
 number

Lakeshore Village Apartments
Phase III
 Genoa Township, Livingston County, Michigan



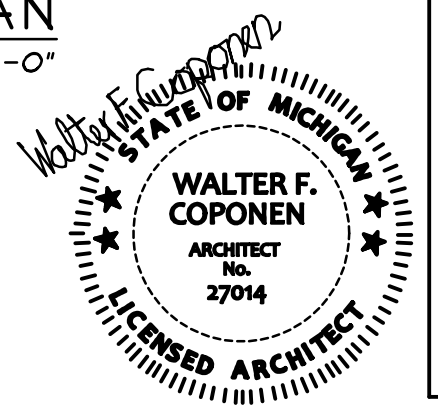
BUILDING FIRST FLOOR PLAN
 SCALE 1/8"=1'-0"

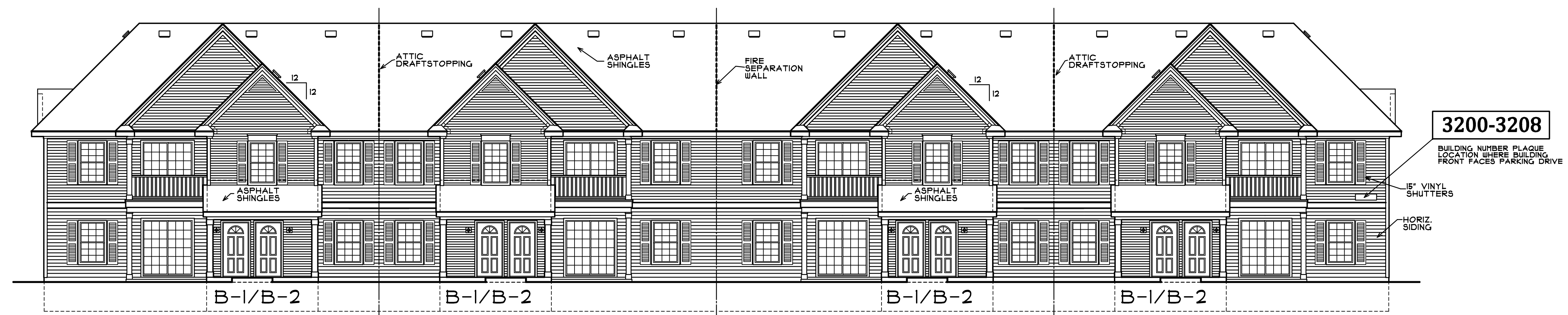
sheet
TYPICAL BUILDING PLAN

drawing
 revisions

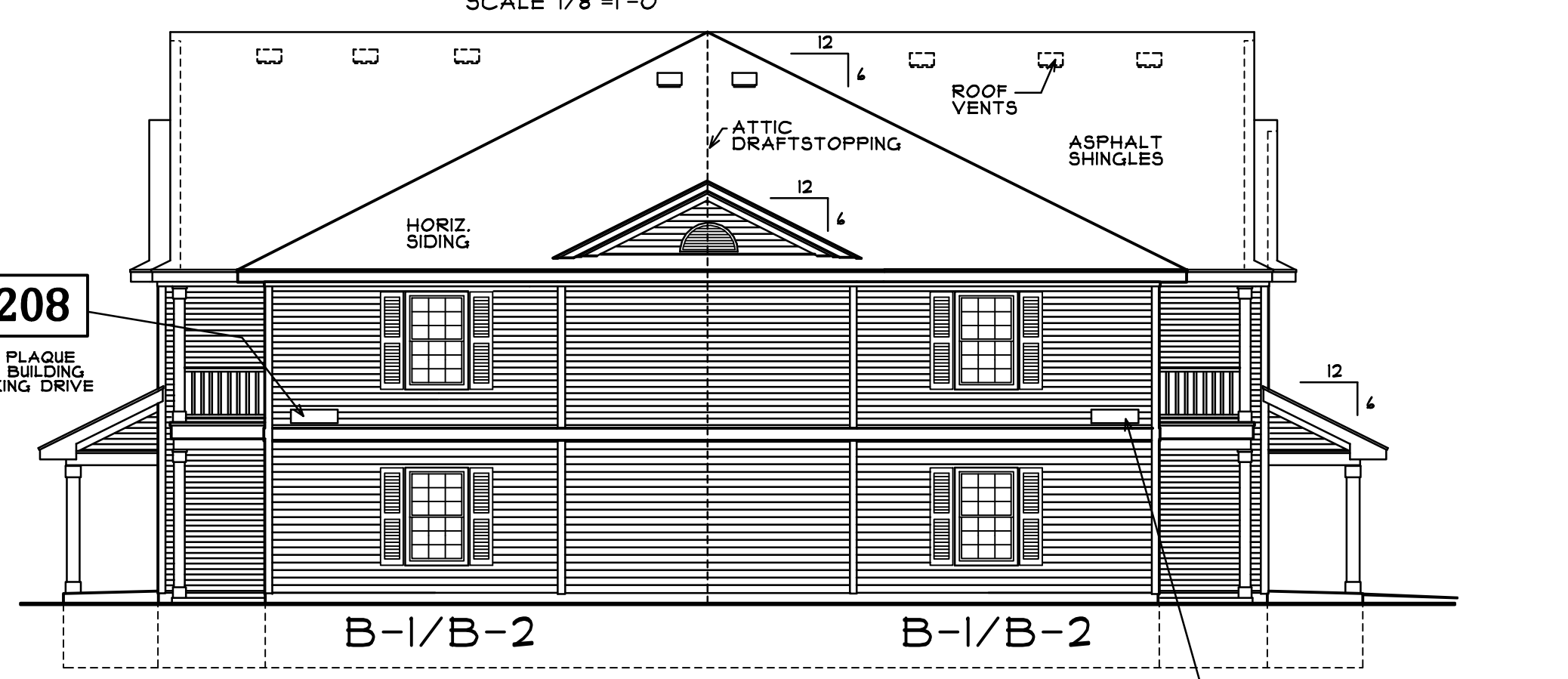
issue date
 MARCH 18, 2014

sheet
 number

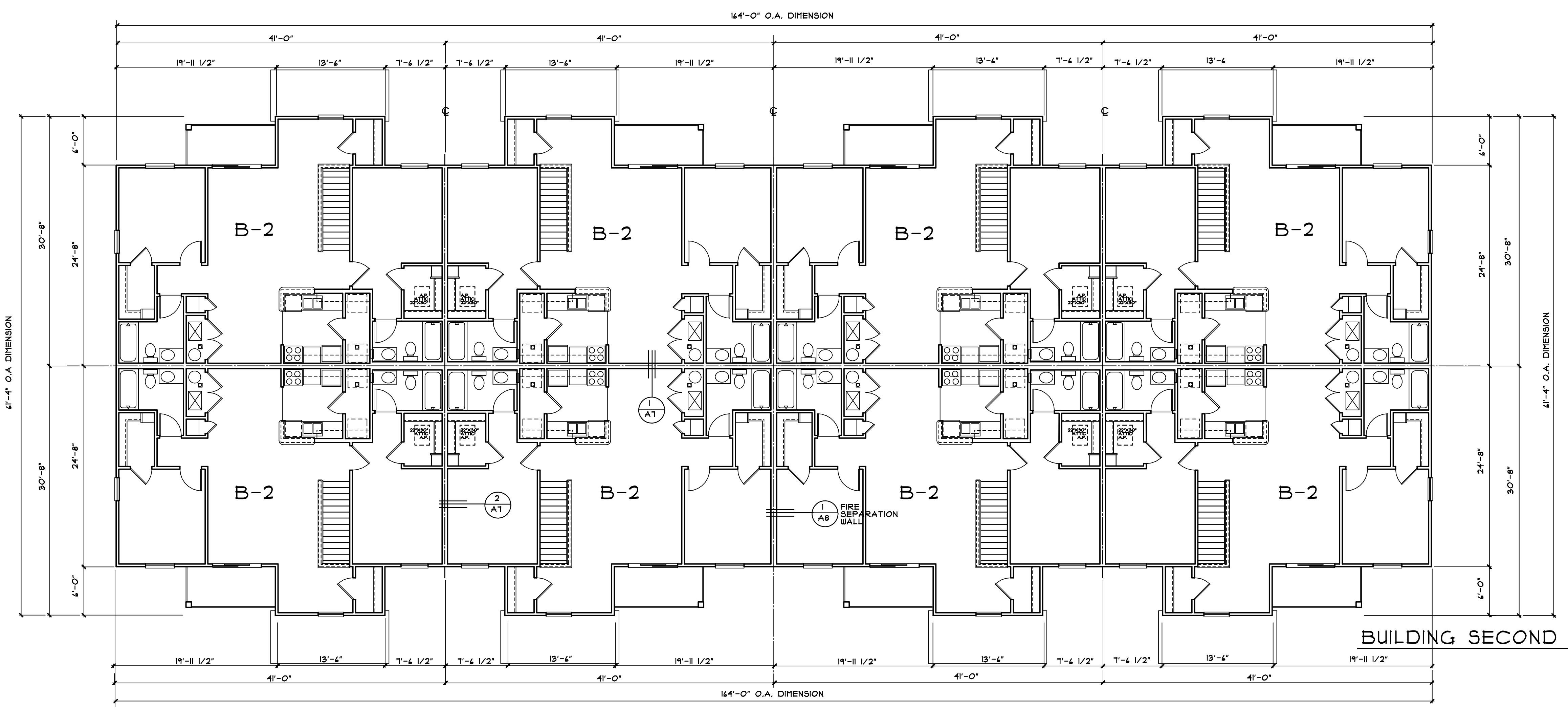




BUILDING FRONT/REAR ELEVATION



BUILDING END ELEVATION



BUILDING SECOND FLOOR PLAN

Lakeshore Village Apartments
Phase III
 Genoa Township, Livingston County, Michigan

sheet

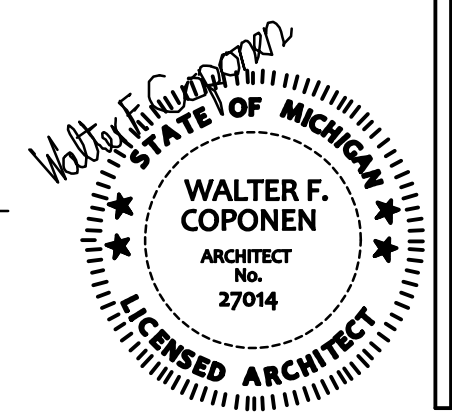
TYPICAL BUILDING PLAN + ELEVATIONS

drawing revisions

issue date

MARCH 18, 2014

sheet number



**Lakeshore Village Apartments
 Phase III**
 Genoa Township, Livingston County, Michigan

sheet

MAIL PAVILION
 FLOOR PLAN
 SECTION/DETAILS

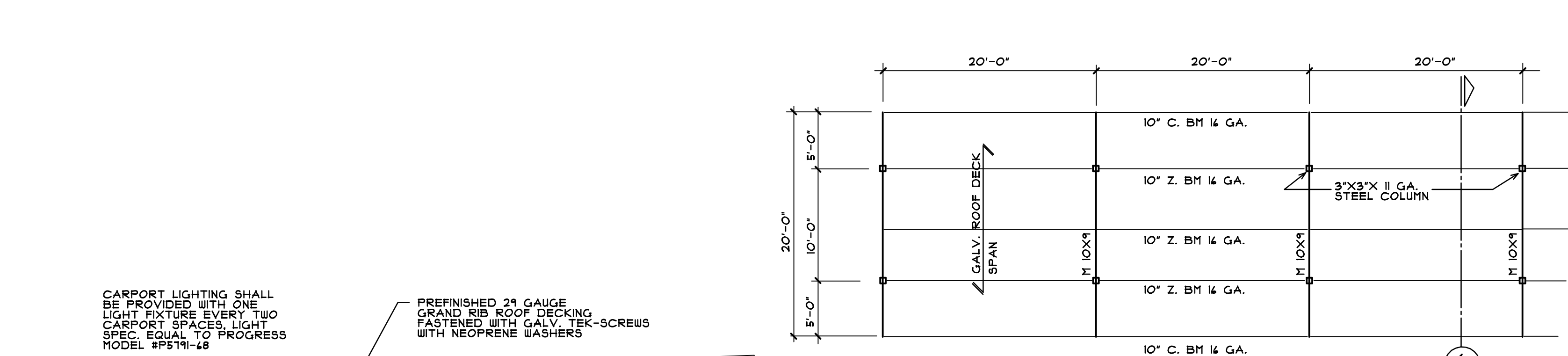
CARPORT
 DETAILS

drawing
 revisions

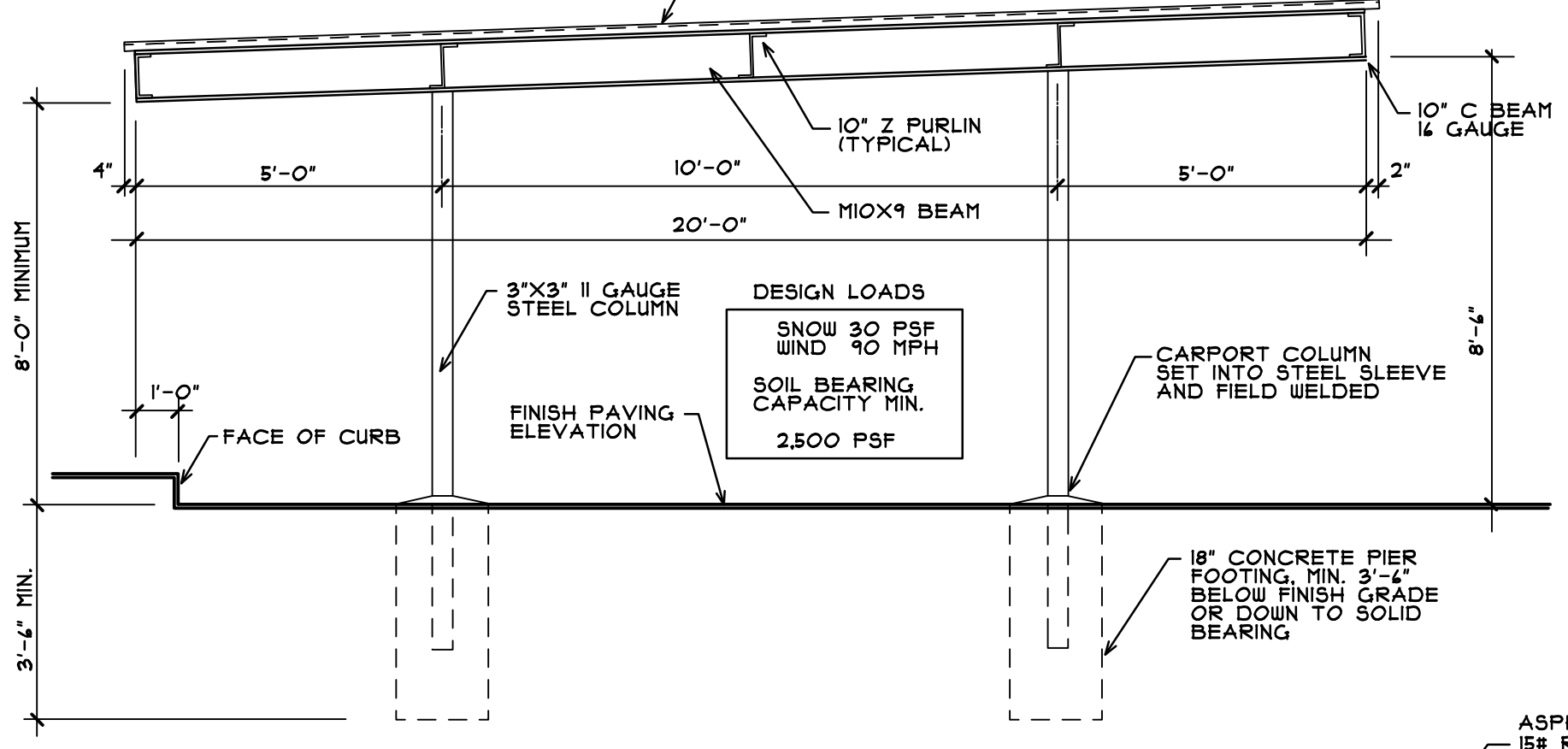
issue date
 MARCH 18, 2014

sheet
 number

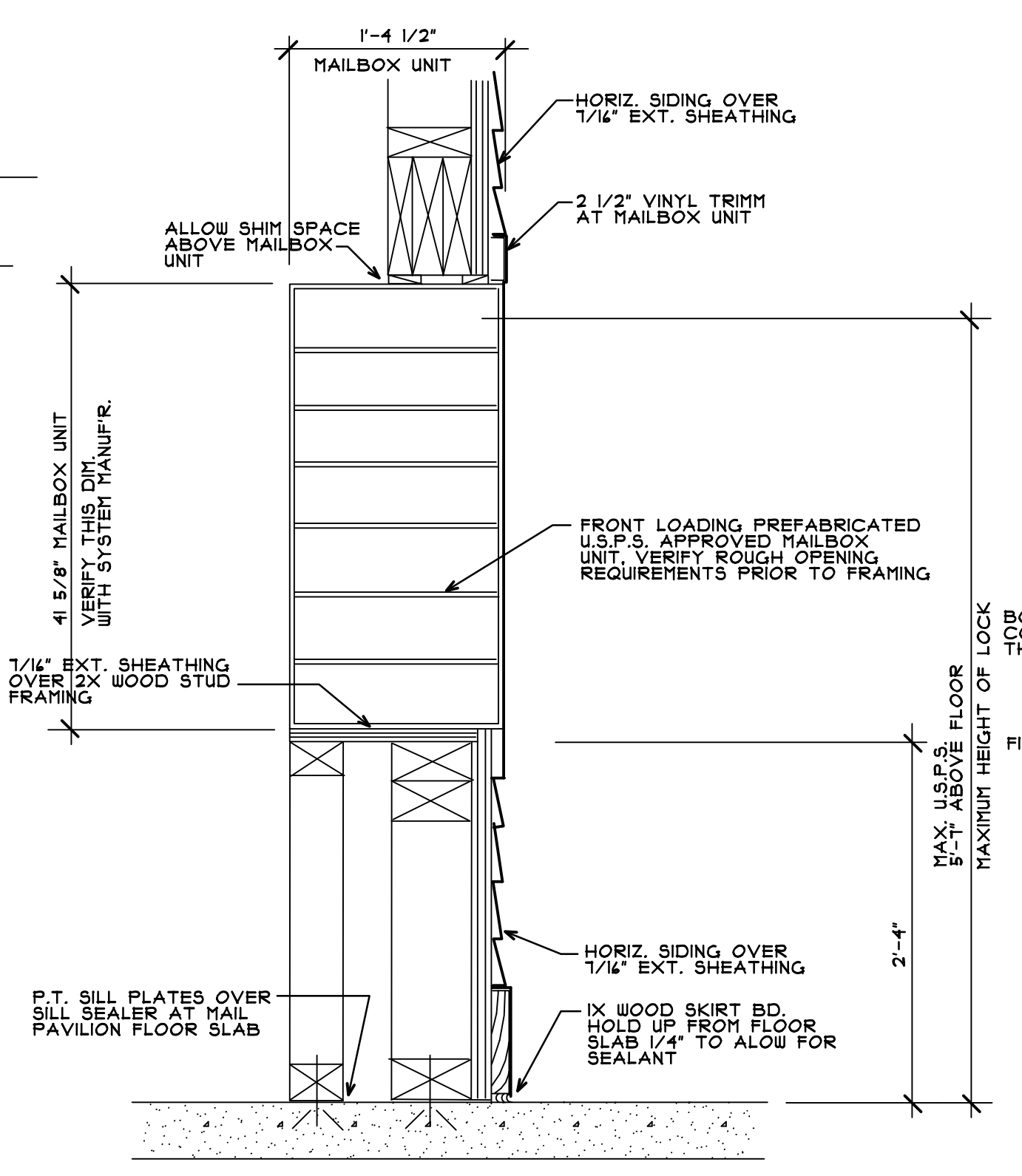
MP1



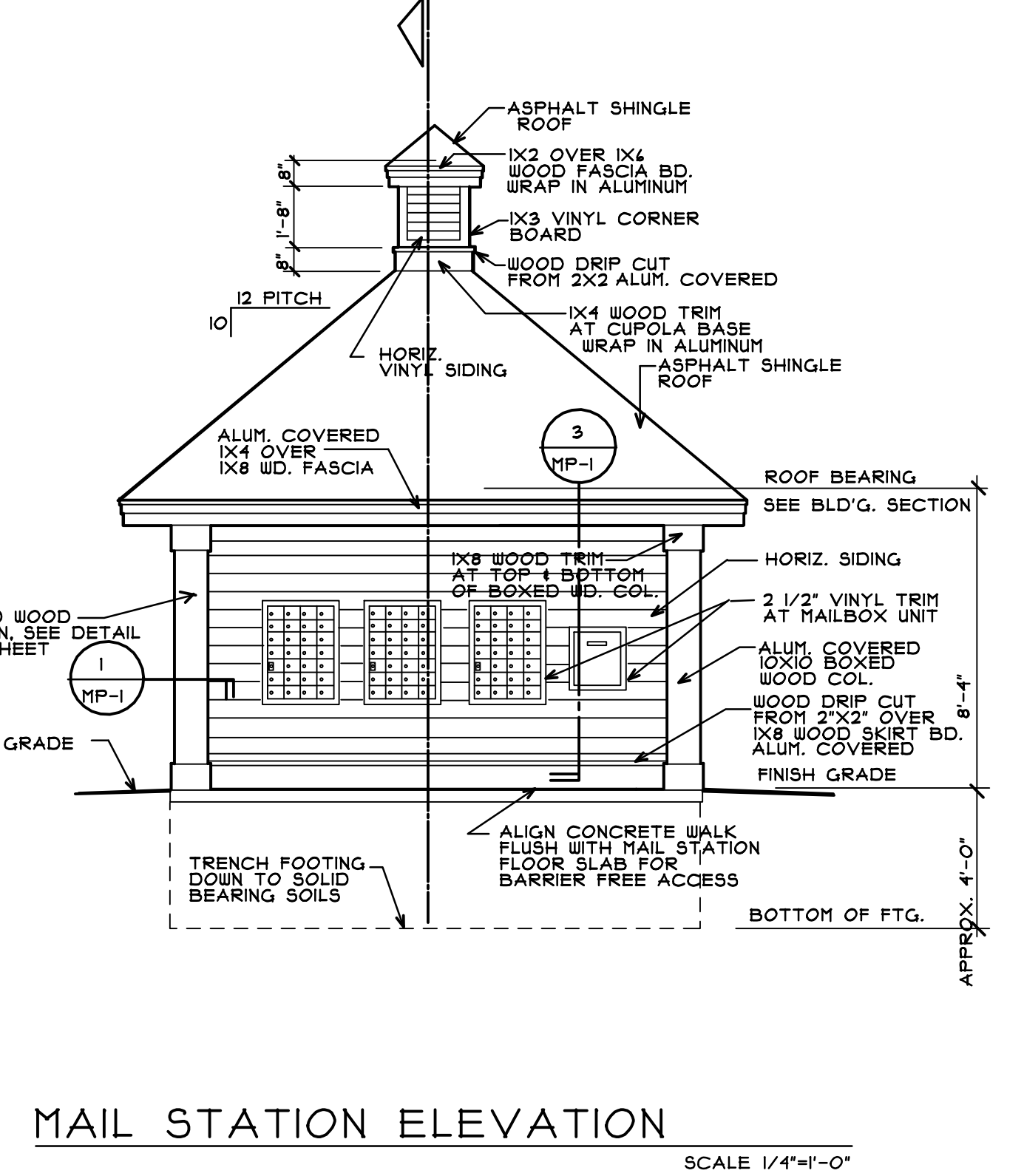
CARPOT FRAMING PLAN
 SCALE 1/8"=1'-0"



CARPOT DESIGN

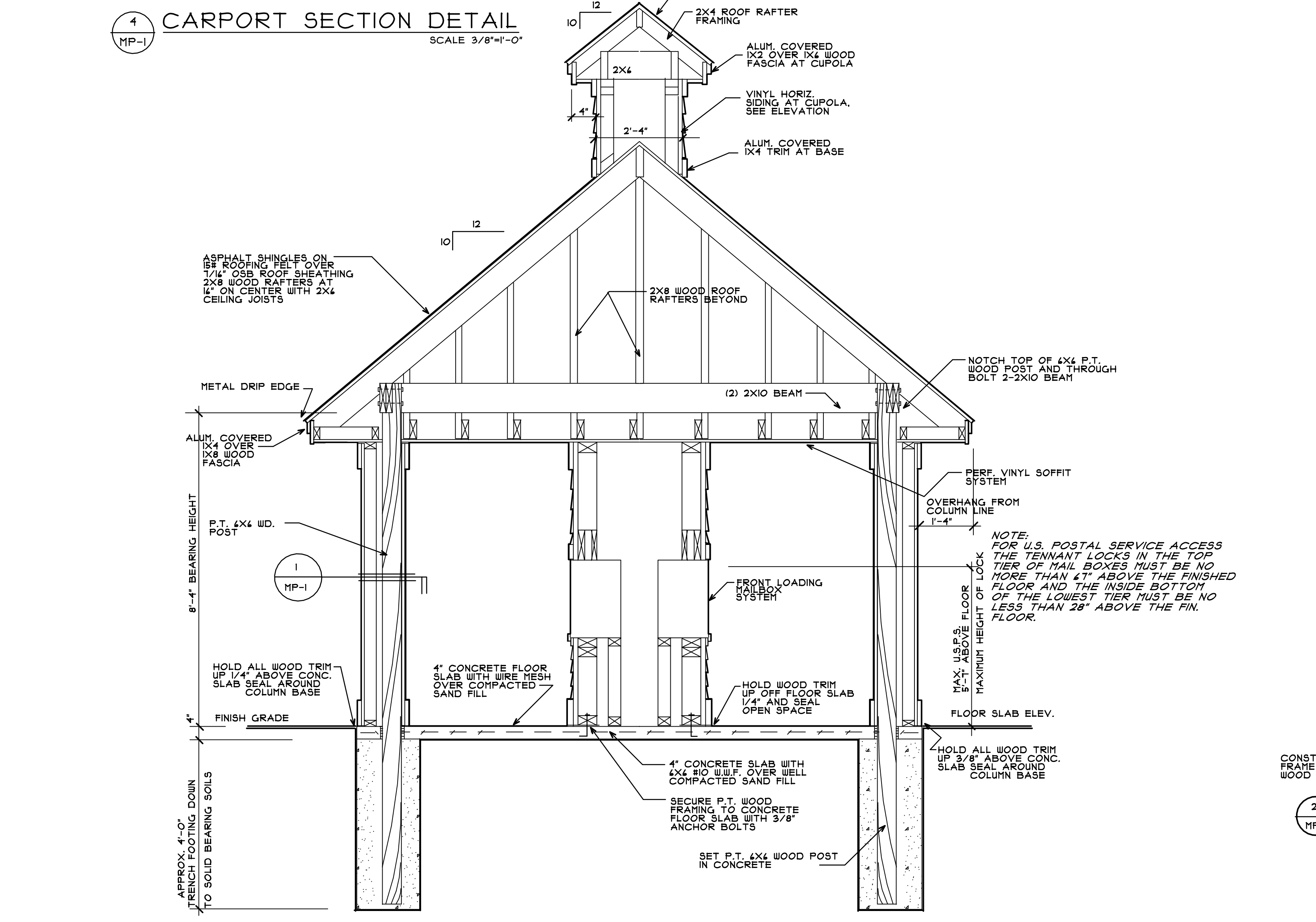


SECTION THRU MAILBOX SYSTEM
 SCALE 3/4"=1'-0"

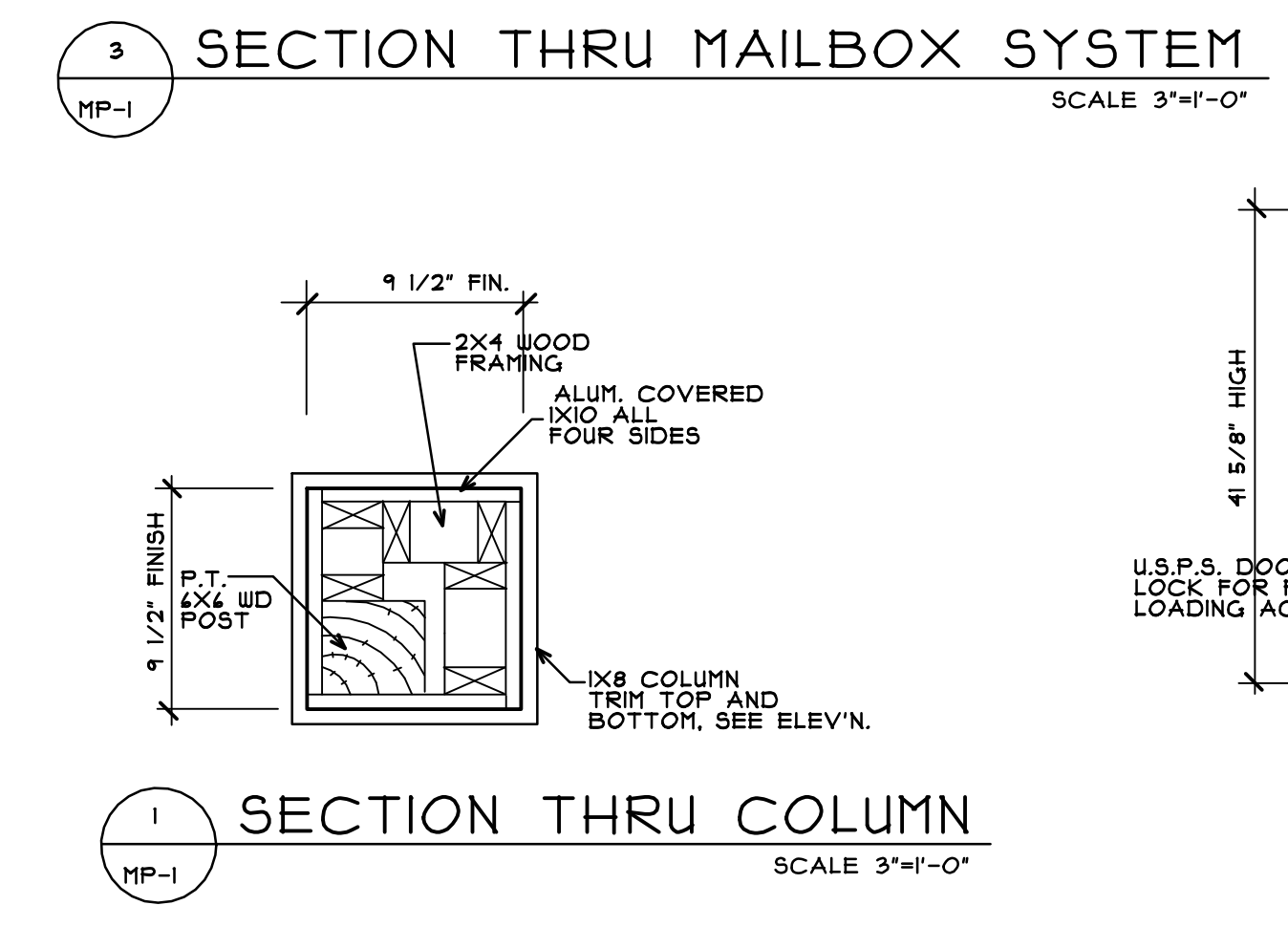


MAIL STATION ELEVATION
 SCALE 1/4"=1'-0"

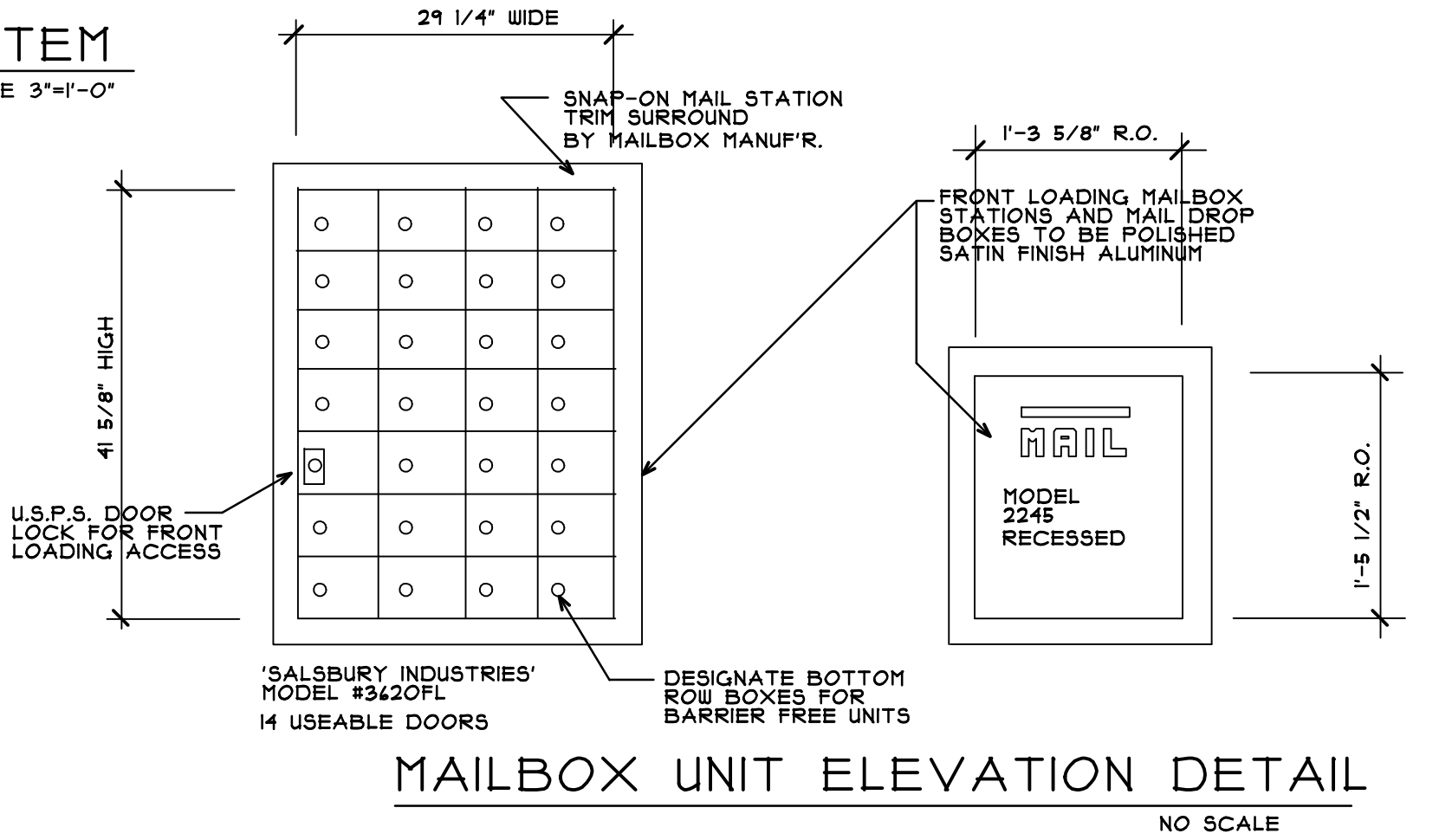
4 CARPORT SECTION DETAIL
 SCALE 3/8"=1'-0"



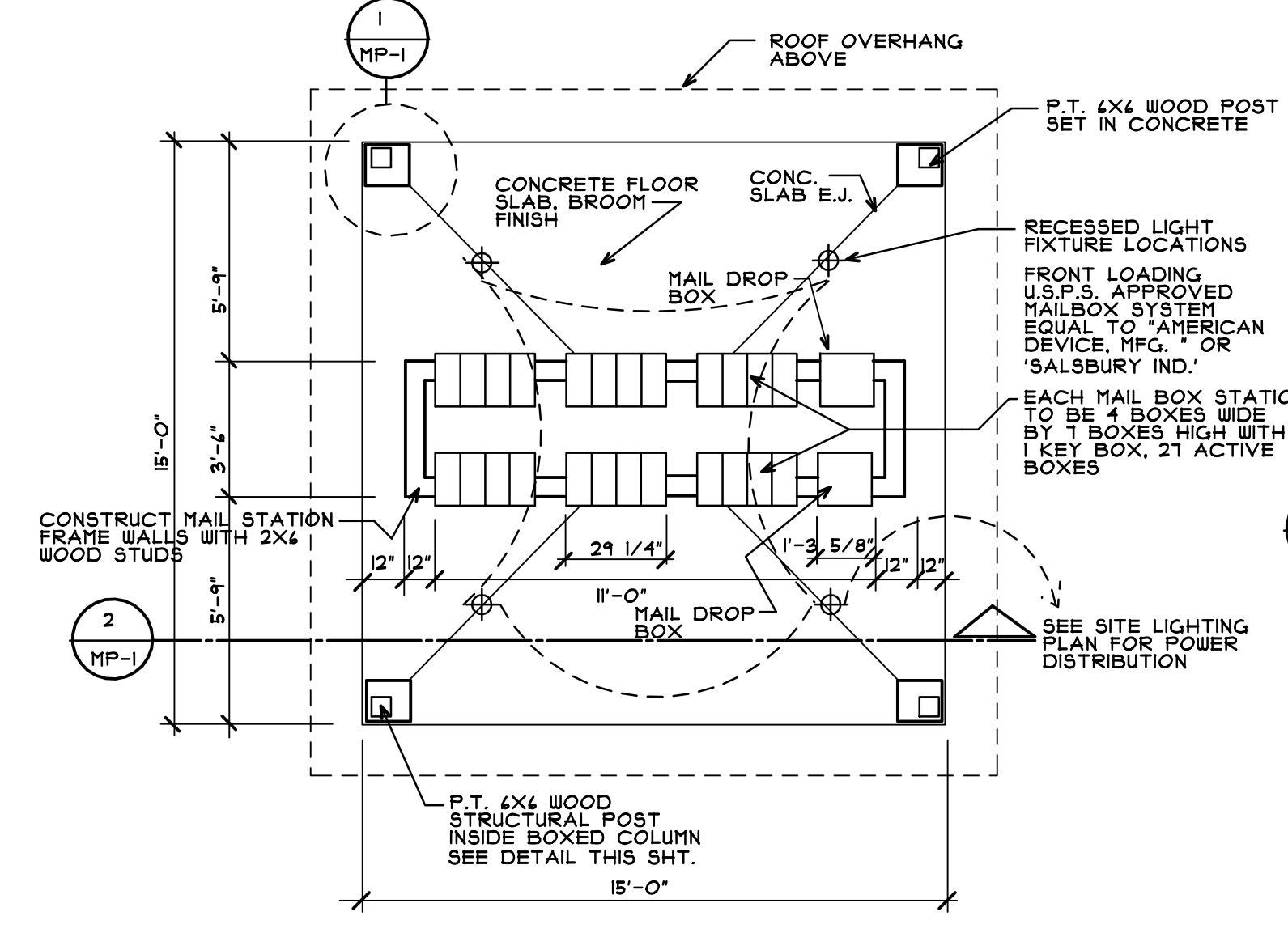
2 SECTION THRU MAIL STATION
 SCALE 1/2"=1'-0"



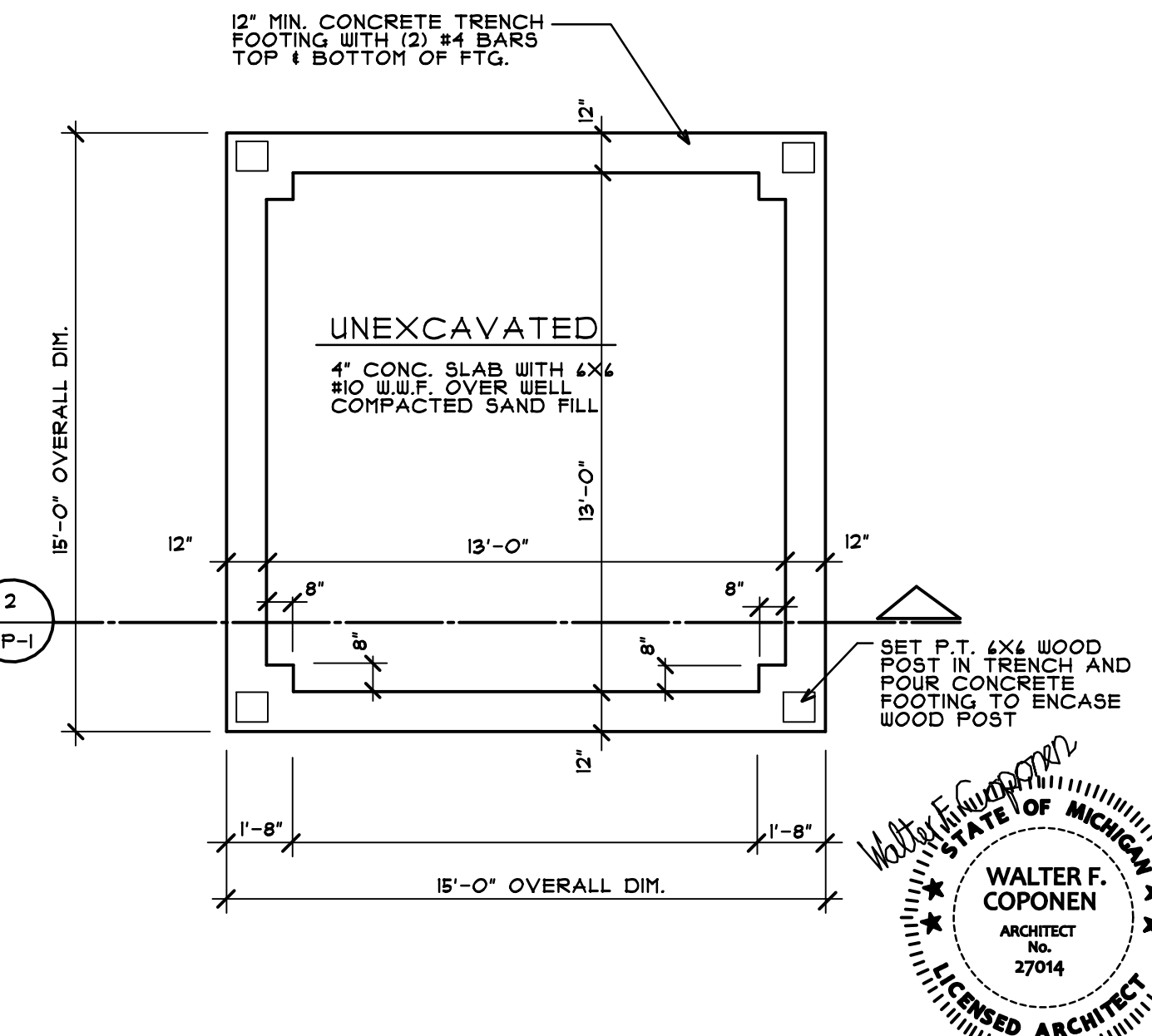
SECTION THRU COLUMN
 SCALE 3/4"=1'-0"



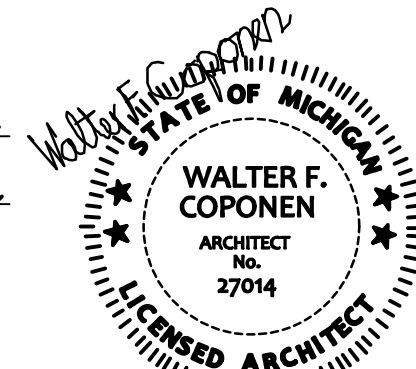
MAILBOX UNIT ELEVATION DETAIL
 NO SCALE

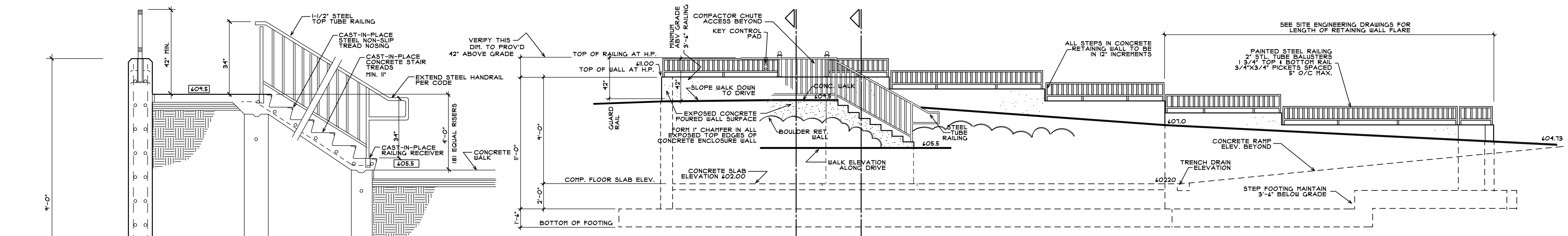


MAIL STATION FLOOR PLAN
 SCALE 1/4"=1'-0"

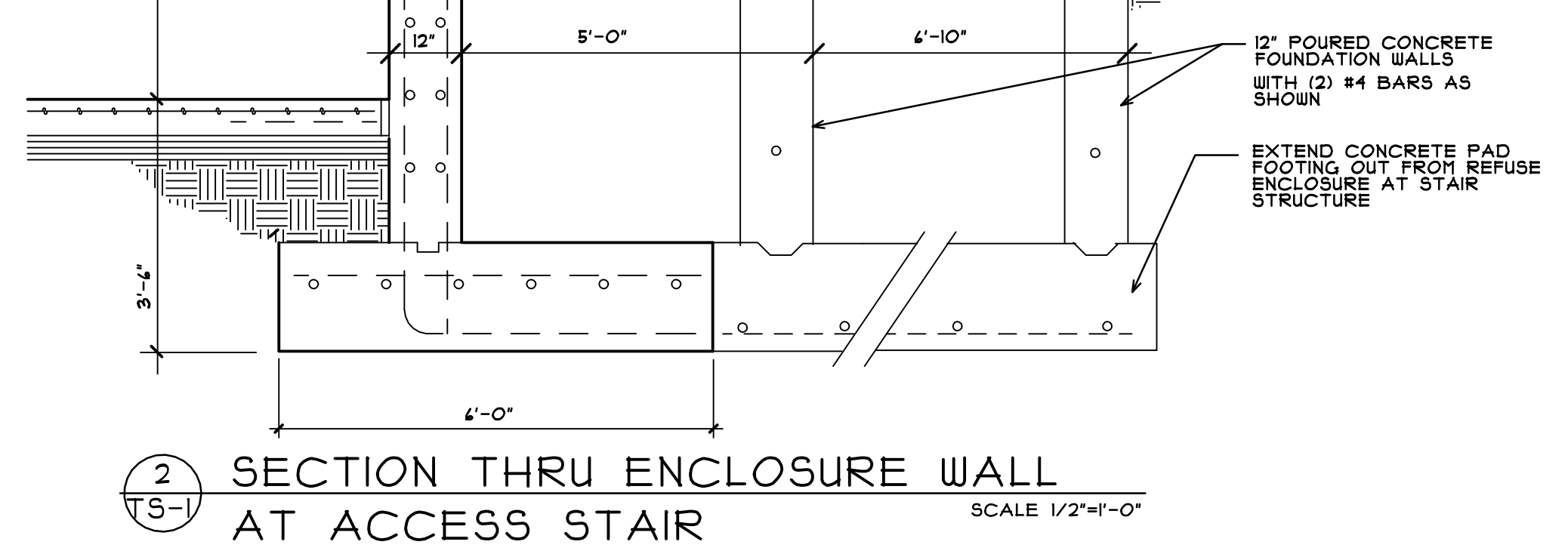


MAIL STATION FOUNDATION PLAN
 SCALE 1/4"=1'-0"

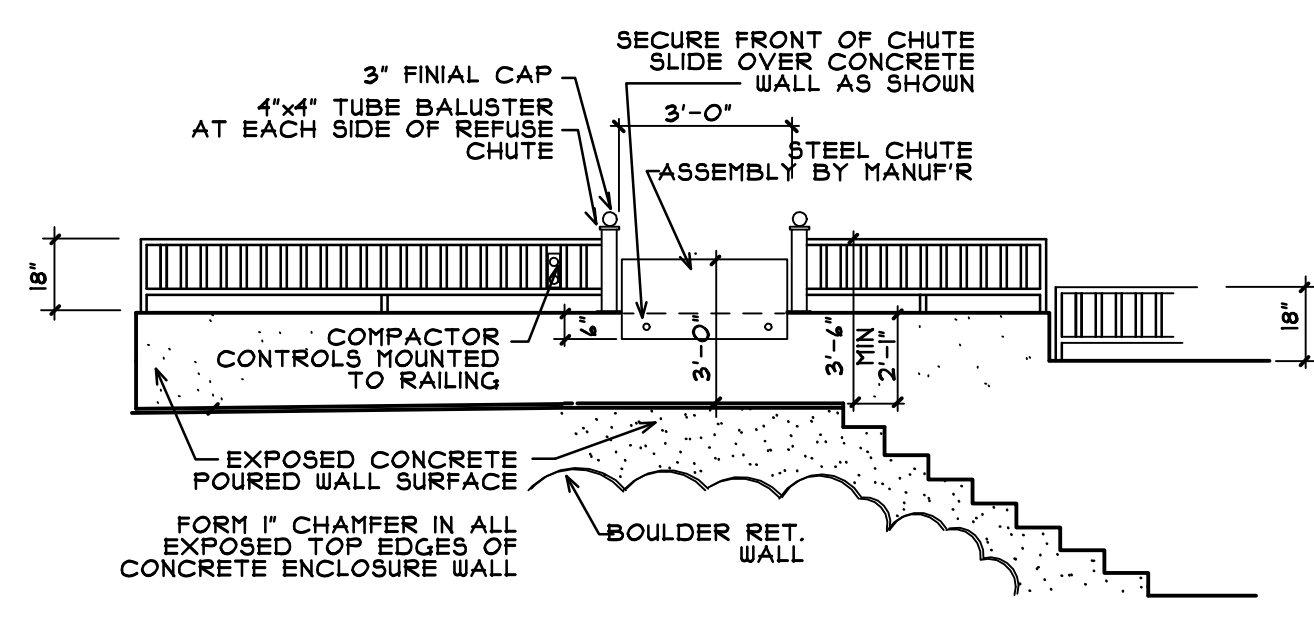




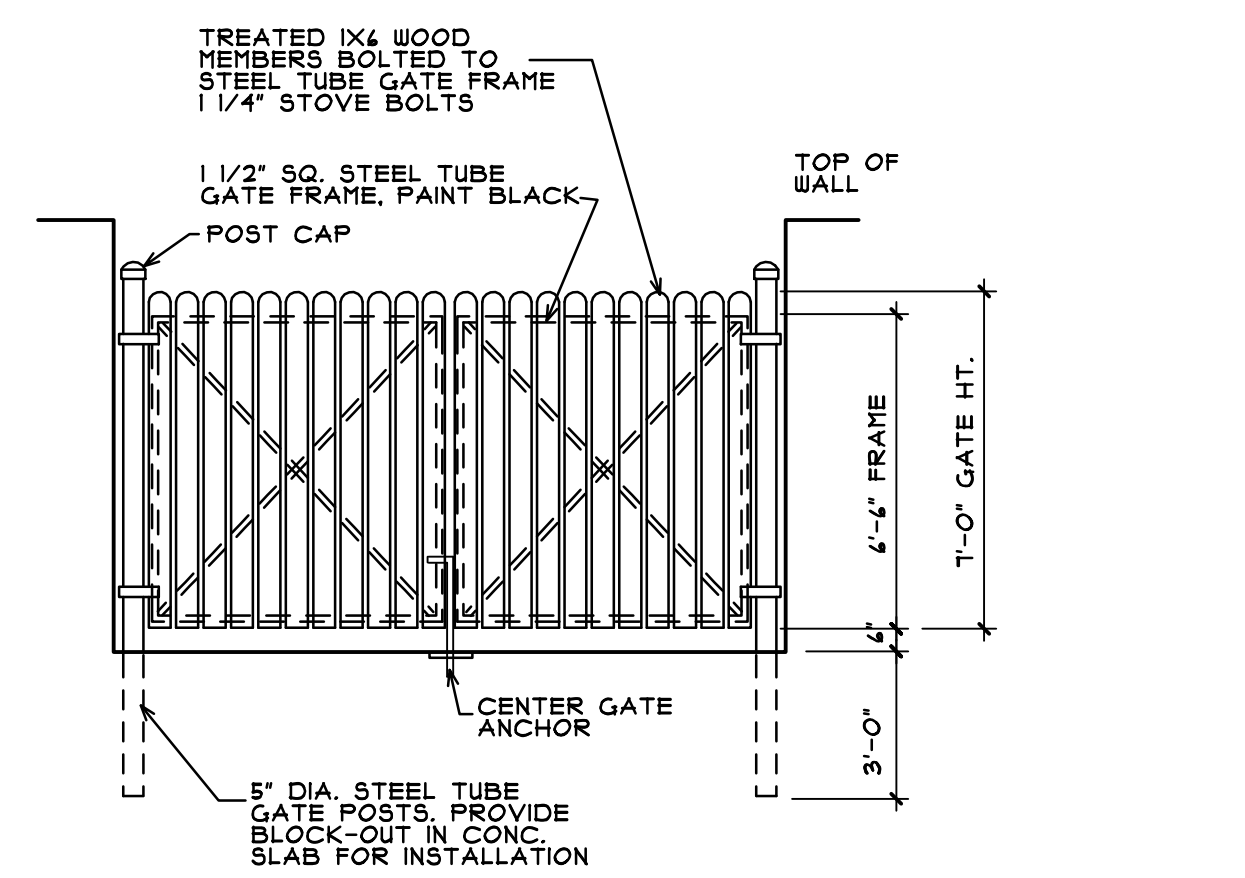
REFUSE COMPACTOR ELEVATION
 SCALE 1/4"=1'-0"



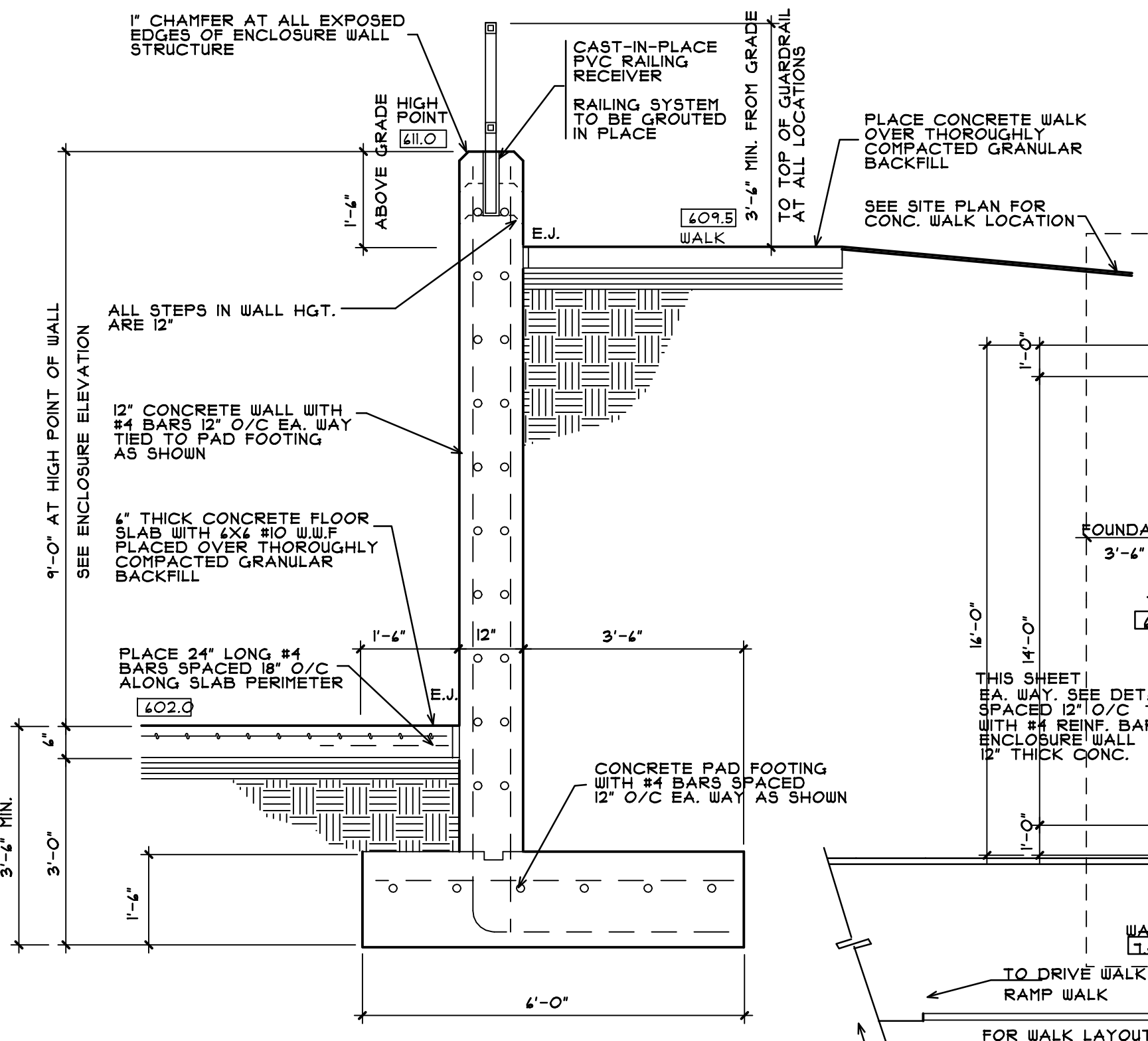
SECTION THRU ENCLOSURE WALL AT ACCESS STAIR
 SCALE 1/2"=1'-0"



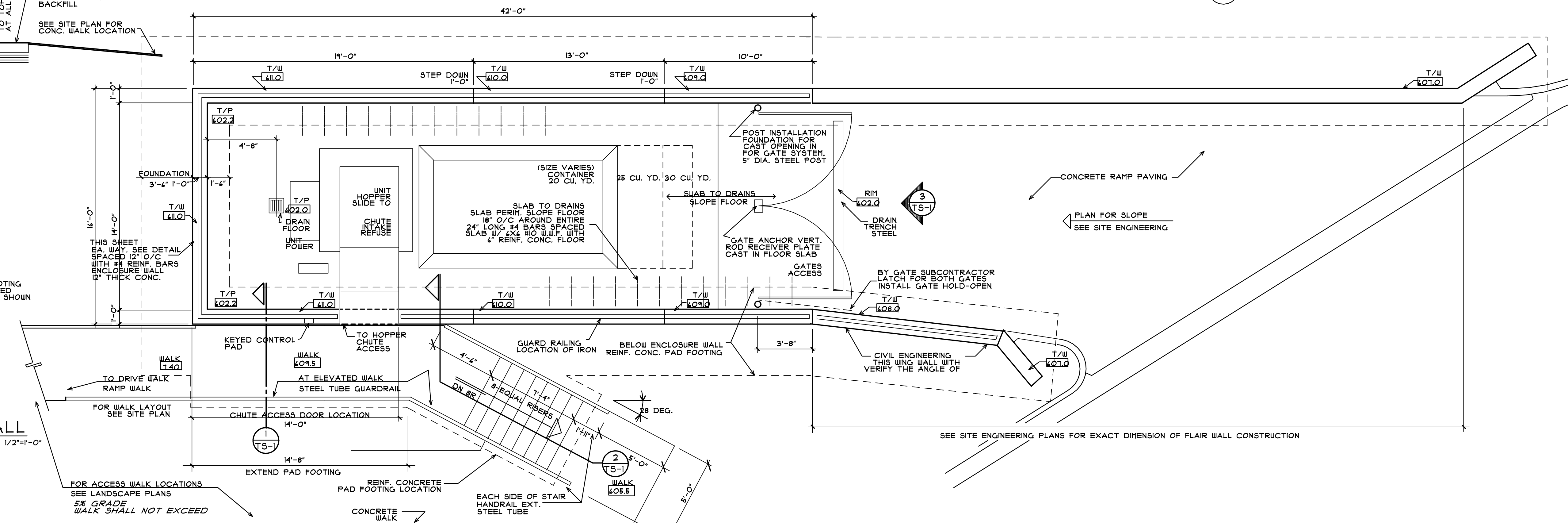
ELEVATION AT CHUTE ACCESS SLIDE
 SCALE 1/4"=1'-0"



ENCLOSURE GATE ELEVATION
 SCALE 1/4"=1'-0"

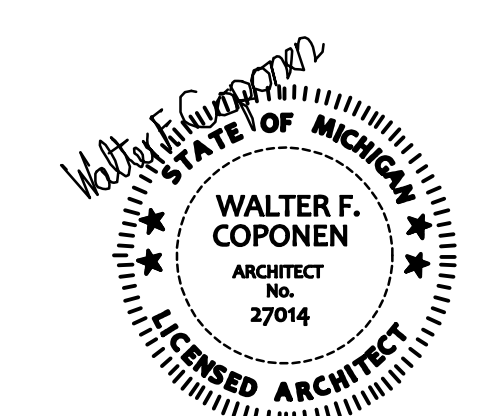


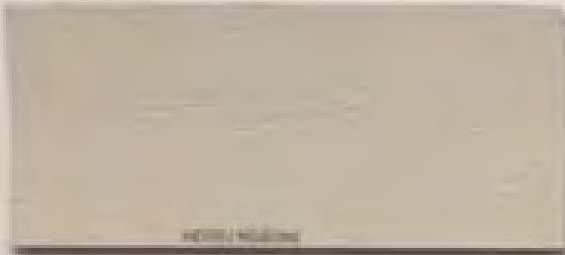
SECTION THRU ENCLOSURE WALL AT CHUTE ACCESS DOOR
 SCALE 1/2"=1'-0"



REFUSE COMPACTOR ENCLOSURE PLAN
 SCALE 1/4"=1'-0"

COMPACTOR EQUIPMENT LOCATION BASED ON U.S. WASTE & RECYCLING EQUIPMENT COMPANY, INC. PROVIDE 3/4" WATER LINE WITH A FROST FREE HOSE BIB TO THE CONTAINER COMPACTOR AREA





Main Siding | "Herringbone" Tan



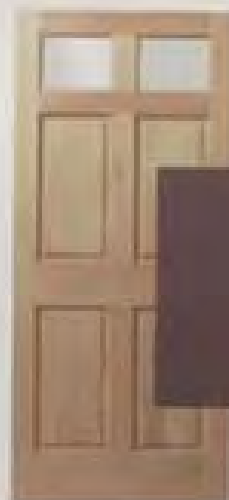
Trim | "Colonial" White



Accent Siding | "Cypress" Olive



Roofing | "Shingles" Slate



Door Style | "Colonial" Oak



Door Paint | "Rustic" Brown



Windows | "Colonial" White



Shutters | "Rustic" Brown

Lake Shore Village | *Exterior Materials*
Orion Road, Howell, Michigan



GENOA CHARTER TOWNSHIP
Application for Site Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: BBI Holdings, LLC; Attention: Dan Boverhof (see address below)
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: 5475 Settlers Pass, Kentwood, MI 49512

SITE ADDRESS: Grand Oaks Drive (no add. assigned) PARCEL #(s): 47-11-08-200-012

APPLICANT PHONE: (616) 291-4192 OWNER PHONE: ()

OWNER EMAIL: san@boverhofbuilders.com

LOCATION AND BRIEF DESCRIPTION OF SITE: On Grand Oaks Drive; Southern end of Livingston Commons PUD. South of Lowe's, on north/west side of Grand Oaks

BRIEF STATEMENT OF PROPOSED USE: Proposed use is a Gilden Woods Day Care Facility. The facility will be licensed for approximately 164 children. Sufficient parking and playground area will also be provided on the property.

THE FOLLOWING BUILDINGS ARE PROPOSED: 11,968 sf day care facility/building

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: Dan Boverhof 


ADDRESS: 5475 Settlers Pass, Kentwood, MI 49512

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

1.) Steve Witte of Nederveld, Inc. at switte@nederveld.com
Name Business Affiliation E-mail Address

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE:  DATE: January 29, 2016
PRINT NAME: Dan Boverhof PHONE: (616)291-4192
ADDRESS: 5475 Settlers Pass, Kentwood, MI 49512

REQUIRED SITE PLAN CONTENTS

Each site plan submitted to the Township Planning Commission shall be in accordance with the provisions of the Zoning Ordinance. No site plan shall be considered until reviewed by the Zoning Administrator. The following information shall be included in the site plan submittal packet:

<u>SUBMITTED</u>	<u>NOT APPLICABLE</u>	<u>ITEM</u>												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Application form and fee: A completed application form and payment of a non-refundable application fee. (A separate escrow fee may be required for administrative charges to review the site plan submittal.)												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Applicant information: The name and address of the property owner and applicant, interest of the applicant in the property, the name and address of the developer, and current proof of ownership of the land to be utilized or evidence of a contractual ability to acquire such land, such as an option or purchase agreement.												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Scale: The site plan should be drawn at an engineers scale on sheets measuring 24x36 inches at the scale noted below.												
		<table border="0"> <thead> <tr> <th style="text-align: left;"><u>ACREAGE</u></th> <th style="text-align: left;"><u>SCALE</u></th> </tr> </thead> <tbody> <tr> <td>160 or more</td> <td>1" = 200'</td> </tr> <tr> <td>5- 159.9</td> <td>1" = 100'</td> </tr> <tr> <td>2- 4.99</td> <td>1" = 50'</td> </tr> <tr> <td>1- 1.99</td> <td>1" = 30'</td> </tr> <tr> <td>0- .99</td> <td>1" = 20'</td> </tr> </tbody> </table>	<u>ACREAGE</u>	<u>SCALE</u>	160 or more	1" = 200'	5- 159.9	1" = 100'	2- 4.99	1" = 50'	1- 1.99	1" = 30'	0- .99	1" = 20'
<u>ACREAGE</u>	<u>SCALE</u>													
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1- 1.99	1" = 30'													
0- .99	1" = 20'													
		<u>COVER SHEET CONTAINING</u>												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	The name and address of the project.												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	The name, address and professional seal of the architect, engineer, surveyor or landscape architect responsible for preparation of the site plan.												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	A complete and current legal description and size of property in acres and square feet. Where a metes and bound description is used, lot line angles or bearings shall be indicated on the plan. Lot line dimensions and angles or angles or bearings shall be based upon a boundary survey and shall correlate with the legal description.												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	A small location sketch of sufficient size and scale to locate the property within the Township.												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Title block with north arrow, date of preparation and any revisions.												
		<u>EXISTING CONDITION SHEETS ILLUSTRATING</u>												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	All existing lot lines and dimensions, including setback lines and existing or proposed easements.												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing topography (minimum contour interval of two feet)												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing natural features such as streams, marshes, ponds; wetlands labeled with size and type (upland, emergent, etc)												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing woodlands shall be shown by an approximate outline of the total canopy; individual deciduous trees of eight inch caliper or larger and individual evergreen trees six feet in height or higher, where not a part of a group of trees, shall be accurately located and identified by species and size (caliper for deciduous, height for evergreen).												

<input checked="" type="checkbox"/>	<input type="checkbox"/>	Soil characteristics of the parcel to at least the detail as provided by the Soil Conservation Service Soil Survey of Livingston County. A separate map or overlay at the same scale as the site plan map may be used.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Zoning and current land use of applicant's property and all abutting properties and of properties across any public or private street from the site.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Indication of existing drainage patterns, surface or water bodies.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	The limits of any wetland regulated by the MDEQ, including attachment of any MDEQ approved wetland determination or documentation that an application for an MDEQ review has been submitted. If an MDEQ regulated wetland is to be impacted, an indication of the status of application for an MDEQ wetland permit or copy of a permit including description of any wetland migration required attached.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Aerial photograph indicating the limits of the site, surrounding land uses and street system.
<u>PROPOSED PROJECT INFORMATION</u>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Base information: The location of all existing buildings, structures, street names and existing right-of-way, utility poles, towers, drainage ditches, culverts, pavement, sidewalks, parking areas and driveways on the property and within one-hundred feet of the subject property (including driveways on the opposite side of any street). Notes shall be provided indicating those which will remain and those which are to be removed.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Building information: Footprints, dimensions, setbacks, typical floor plans, and a sketch of any rooftop or ground mounted equipment to scale.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Building elevations: Elevation drawings shall be submitted illustrating the building design and height, and describing construction materials for all proposed structures. Elevations shall be provided for all sides visible from an existing or proposed public street or visible to a residential district. The Planning Commission may require color renderings of the building. Proposed materials and colors shall be specified on the plan and color chips or samples shall also be provided at the time of site plan review. These elevations, colors, and materials shall be considered part of the approval site plan (as amended 4/15/95).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Building and lot coverage: Percentage of building coverage and impervious surface ratio (all paved areas and building v. total lot area) compared to the percentages specified in the Table of Dimensional Standards Article 4.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	For residential developments: Number of units for each project phase divided by acreage exclusive of any public right-of-way or private road access easement; lot area for each lot; and a description of the number of each unit by size and number of bedrooms; if a multi-phase development is proposed, identification of the areas included in each phase.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	For commercial and office uses: The Gross Floor Area and Useable Floor Area of each use or lease space. For industrial uses: The floor area devoted to industrial uses and the area intended for accessory office use.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Streets, driveways, and circulation: The layout and dimensions of proposed lots, streets and drives (including grades, existing or proposed right-of-way or easement and pavement width, number of lanes and typical cross section showing surface and sub base materials and dimensions,

grades of all entrances and exits, location and typical detail of curbs, intersection radii), access points (including deceleration or passing lanes, distance from adjacent driveways or street intersection), sidewalks (width, pavement type and distance from street) and recreation areas. Written verification of any access easements or agreements for shared access or driveway curb return extending beyond the property line shall be required.

Utilities: Existing and proposed locations of utility services (with sizes), degrees of slope of sides of retention/detention ponds; calculations for size of storm drainage facilities; location of electricity and telephone poles and wires; location and size of surface mounted equipment for electricity and telephone services; location and size of underground tanks where applicable; location and size of outdoor incinerators; location and size of wells, septic tanks and drain fields; location of manholes, catch basins and fire hydrants; location, size, and inverts for storm and sanitary sewers, any public or private easements; notes shall be provided clearly indicating which existing services will remain and which will be removed.

Grading and drainage: A site grading plan for all developments where grading will occur, with existing and proposed topography at a minimum of two (2) foot contour intervals and with topography extending a minimum of twenty (20) feet beyond the site in all directions and a general description of grades within fifty (50) feet, and further where required to indicate stormwater runoff into an approved drain or detention/retention pond so as to clearly indicate cut and fill required. All finished contour lines are to be connected to existing contour lines at or before the property lines. A general description and location of the stormwater management system shall be shown on the grading plan. The Township Engineer may require detailed design information for any retention/detention ponds and stormwater outfall structures or basins. If MDEQ regulated wetlands are to be used, status of MDEQ permit application or copy of permit with attached conditions shall be provided.

Landscape and screening: A landscape plan indicating proposed ground cover and plant locations and with common plant name, number, and size at installation. For any trees over eight (8) inch caliper to be preserved. A detail shall be provided to illustrate protection around the tree's drip line. Berms, retaining walls or fences shall be shown with elevations or cross section from the surrounding average grade. The location, type and height of proposed fences shall be described.

Waste receptacles: Location of proposed outdoor trash container enclosures; size, typical elevation, and vertical section of enclosures; showing materials and dimensions in compliance with Zoning Ordinance Standards.

Signs: Locations of all signs including location, size, area type, height, and method of lighting. Note that all regulatory signs shall meet the standards from the Michigan Manual of Uniform Traffic Control Devices (MMUTCD).

Lighting: Details of exterior lighting including location, height, method of shielding and style of fixtures.

Parking: Parking, storage and loading/unloading areas, including the dimensions of typical space, aisle, and angle of spaces. The total number of parking and loading/unloading spaces to be provided and the method by which the required parking was calculated shall be noted.

The applicant shall erect flagged stakes at the perimeter points of the property to assist Township officials and staff in reviewing the site.

Gilden Woods Learning Center

Site Plan Request

Grand Oaks Drive

OVERVIEW OF PROPOSED USE:

BBI Holdings, LLC, is proposing to construct an 11,968 sf building that will be used by Gilden Woods Learning Center as a day care. In addition to the building, an outdoor sf play area will be provided, as well as approximately 43 parking spaces. The facility will be licensed for up to approximately 164 children and will provide a needed service to the area.

The activities occurring at the site will primarily be conducted inside the building. The children are occasionally brought outside to the fenced-in play area. The outside activities are always supervised and are in smaller groups of approximately 32-40 children at one time.

The facility will obtain State licensing and all other required local and state permits and approvals.

The hours of operation will be 6 am to 6 pm Monday through Friday.

There will be approximately 25-30 total people employed by Gilden Woods to operate the site, with approximately 15 of them working at any given time.

The center will be licensed for approximately 164 children. On an average day, it is anticipated that there will be approximately 130 children at the site. The busiest time of day for drop off will be between 7:30 and 8:30 am, when it is anticipated that there will be approximately 40 families dropping their children off. Regarding traffic and safety internal to the site, please note that Gilden Woods requires all people dropping off and picking up their children to walk their children to/from the building. Therefore, no children will be outside by themselves and no formal drop off area is required or desired. Access to the site will be via a single drive entrance off Grand River Avenue.

The proposed building is a very attractive building. In general, the building materials consist of split face and smooth single-score block with integral color, windows, E.I.F.S., shutters, and asphalt shingles. The eave height is 11 ft above grade. Elevations have been submitted as part of the submittal for review and approval.



We provide quality, educational child care in a safe and nurturing environment.

Company Narrative

Gilden Woods Early Care and Preschool centers provide high quality child care and education to children 6 weeks to 12 years old, in a safe, nurturing environment where children can learn, play, and grow at their own pace. The schools are specifically designed to foster engaging, interactive learning that promotes Kindergarten Readiness and future school success.

Centers provide infant and toddler care and full- and half-day preschool. Before- and after-school care and fun, educational spring break, winter holiday, and summer day camps, are offered for school aged children. Transportation to and from several local schools is included in tuition.

With 15 schools open in Grand Rapids, Kalamazoo, Otsego, and East Lansing, Gilden Woods is a family of child care centers. The company has grown from 12 employees in 1998 to over 500 in 2015. We are celebrating 16 years of providing high quality child care and education in a safe, nurturing environment and are looking forward to the opening of additional Gilden Woods locations in 2015.

Our schools may provide care and education to up to (approximately):

- 12 children aged 6 weeks – 6 months
- 12 children aged 6 months – 12 months (1 year)
- 16 children aged 12 months (1 year) – 18 months
- 16 children aged 18 months – 24 months (2 years)
- 16 children aged 24 months (2 years) – 30 months
- 16 children aged 30 months – 36 months (3 years)
- 20 children aged 3 years – 4 years
- 24 children aged 4 years – 5 years
- 36 children aged 5 years and older – Young 5's and School Age (Before & After School Care and Explorers programs during school breaks in the spring, summer, and winter)

Corporate Office
770 Kenmoor Ave SE Suite 100
Grand Rapids, MI 49546
(616) 454-5432



March 8, 2016

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	Gilden Woods Day Care – Site Plan Review #2
Location:	Grand Oaks Drive – vacant parcel on northwest side of Grand Oaks, west of Latson Road
Zoning:	NR-PUD Non-Residential Planned Unit Development District

Dear Commissioners:

At the Township's request, we have reviewed the revised site plan (dated 2/23/16) proposing a new day care facility for the vacant 2.19-acre site on the northwest side of Grand Oaks Drive. The site is part of the Livingston Commons PUD and is zoned NR-PUD. We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance.

A. Summary

1. The amount of indoor play area exceeds State requirements, but is slightly deficient by Township standards.
2. The proposed building elevation drawings do not meet the material standards of the PUD Agreement, which includes a minimum requirement of 80% natural materials to be used.
3. Planning Commission approval is required for the excess parking proposed (120% maximum allowed; 187% proposed).
4. Crosswalk striping needs to be added to the connection between the public and private sidewalks.
5. We request the applicant present the preferred alternative for vehicular circulation, given roadway constraints and to accommodate the required area for emergency response vehicles.
6. The depth of the concrete base pad for the waste receptacle must be extended.
7. The landscape plan is deficient in terms of buffer zone plantings along the side and rear lot lines.
8. Modifications are needed to the monument sign (height and style) to bring it into compliance with the Ordinance and PUD Agreement.
9. The Impact Assessment should be updated to reflect the correct number of parking spaces.

B. Proposal

The applicant requests site plan review and approval of a new child care facility with licensing for up to 164 children. The project includes a new 11,968 square foot building and related exterior site improvements. Child care facilities are permitted by right, but must comply with the specific use requirements of Section 7.02.02, as outlined in Section C of this letter.

Gilden Woods

Site Plan Review #2

Page 2



Aerial view of site and surroundings (looking north)

C. Use Conditions (Child Care Facilities)

Section 7.02.02(e) provides the following use conditions for child care facilities:

Child day care shall provide a minimum of fifty (50) square feet of indoor play area for each child cared for. There shall be one hundred (100) square feet of outdoor play area for each child that would be using the play area at any one given time, provided the minimum outdoor play area shall be no less than one thousand (1,000) square feet. The required play area shall be fenced.

Based on the number of children proposed, 8,200 square feet of indoor play area is required. The revised submittal notes that 8,111 square feet is provided, which results in a ratio of 49.5 square feet per child. While this does not meet the Township's standard, it exceeds the amount of space required by the State of Michigan. The applicant also notes that the site will not have all 164 children on site at any given time.

With respect to outdoor play area, the project includes 19,730 square feet of fenced outdoor play area, which exceeds the amount required by Ordinance.

D. Site Plan Review

1. Dimensional Requirements. As described in the table below, the project complies with the dimensional standards for this PUD:

District	Lot Size		Minimum Setbacks (feet)				Max. Height	Lot Coverage
	Lot Area (acres)	Width (feet)	Front Yard	Side Yard	Rear Yard	Parking		
NR-PUD	1	175	50	20	20	20 front 10 side/rear	75' / 5 stories	35% building 85% impervious
Proposal	2.19	480	74	40.5 (W) 81.7 (N)	185	20 front 10 side/rear	19' / 1 story	12.5% building 35.2% impervious

- 2. Building Materials and Design.** The proposed elevations, including colors and materials, are subject to review and approval by the Planning Commission.

The front façade includes cement board siding with a stone veneer base and shake siding accents. The side and rear of the building are predominantly precast concrete panels with cement board trim as accents. The roof is peaked with asphalt shingles.

The PUD agreement states that the intent of building design within the PUD is to promote and encourage a development that incorporates varying building lines, natural earth tone construction materials (at least 80% of wall faces) and other elements intended to enhance the appearance of the development overall in the interest of visual aesthetics.

Building material calculations have been added to the elevation drawings; however, none of the building sides meets the requirement for 80% natural materials.

- 3. Parking and Vehicular Circulation.** Child care centers require 2 spaces plus 1 per each 8 children of licensed authorized capacity. While 43 parking spaces are proposed, sheet C-205 notes the need for 23 spaces for a facility licensed for 164 children. Given the excess amount of parking proposed, Planning Commission approval is required.

In response, the applicant notes that this development typically requires 40 to 50 spaces, an estimate based on other locations throughout the State. Furthermore, the additional parking is necessary for the number of employees anticipated (approximately 15).

Parking spaces and drive aisles either meet or exceed the dimensional standards of the Ordinance and the two required barrier-free spaces are provided.

- 4. Pedestrian Circulation.** An 8-foot wide concrete sidewalk is proposed along Grand Oaks Drive along with internal sidewalks between the building and parking lot. A connection is also provided between the Grand Oaks and internal sidewalks; however, crosswalk striping should be added across the driveway to alert drivers to the potential for pedestrians in this area.
- 5. Vehicular Circulation.** The revised plan includes two drive approaches along Grand Oaks Drive. There has been much discussion amongst the project team, Fire Department and Road Commission with respect to driveways and turn-arounds for emergency response vehicles.

A recent sketch provided to our office eliminated the southerly driveway and incorporated a “hammerhead” turn-around area for emergency vehicles. The preferred alternative is unclear at this point in the review process; however, our hope is that all parties involved present the best option to the Commission at next week’s meeting.

- 6. Waste Receptacle and Enclosure.** The project includes a new waste receptacle and enclosure at the north end of the parking lot. Section 12.04 requires a rear yard or non-required side yard location, unless otherwise approved by the Planning Commission. The proposed placement complies with these standards.

Details on Sheet A-22 identify a concrete base pad and a painted concrete enclosure, which is to match materials used on the building. Our only comment is that the depth of the concrete base pad must be extended to support the weight of refuse removal vehicles.

- 7. Exterior Lighting.** The revised submittal includes a lighting plan and fixture specifications. The lighting plan provides for 5 wall-mounted fixtures with a maximum on-site intensity of 7 footcandles. The proposed LED fixtures are downward directed and shielded, as per Ordinance requirements.

8. Landscaping. We have reviewed the landscape plan as follows:

Location	Requirements	Proposed	Comments
Front yard greenbelt	7 canopy trees 20' width	8 canopy trees 2 evergreen trees 1 existing tree 20' width	Requirements met
Parking lot	5 canopy trees 430 SF of landscaped area	5 canopy trees 966 SF of landscaped area	Requirements met
Buffer Zone "C" (N)	16 canopy trees OR 16 evergreen trees OR 64 shrubs 10' width	1 existing tree 10' width (minimum)	Additional plantings required
Buffer Zone "C" (W)	30 canopy trees OR 30 evergreen trees OR 120 shrubs 10' width	17 existing trees 15' width	Additional plantings required

9. Signs. The project proposes 1 wall sign and 1 monument sign. The wall sign's area is 20 square feet, while the monument sign is 32 square feet. Accordingly, the area of both signs is compliant. With that said, monument signs are limited to a maximum height of 6 feet, while the proposal is slightly taller.

Additionally, the PUD Agreement calls for channel or individual lettering, as opposed to panels. The wall sign appears to comply; however, the monument sign appears to be a sign panel.

The applicant must revise the proposed monument sign for compliance, as indicated above.

10. Impact Assessment. The submittal includes an Impact Assessment (not dated). In summary, the Assessment notes that the project is not anticipated to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

Our only comment is that there is an incorrect reference to the amount of parking provided in Section D – 41 spaces noted; 43 actually proposed. We suggest this minor item be corrected for consistency with the site plan.

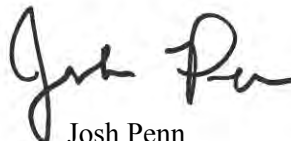
Should you have any questions concerning this matter, please do not hesitate to contact our office. We can be reached by phone at (248) 586-0505, or via e-mail at borden@lslplanning.com and penn@lslplanning.com.

Sincerely,

LSL PLANNING, INC.



Brian V. Borden, AICP
Principal Planner



Josh Penn
Project Planner I



March 9, 2016

Ms. Kelly Van Marter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

Re: Gilden Woods Preschool Site Plan Review #2

Dear Ms. Van Marter:

We have reviewed the updated impact assessment and site plan documents prepared by Nederveld, Inc. for the Gilden Woods preschool facility dated February 22, 2016. The site is on the north side of Grand Oaks Drive, east of Fendt Drive in the Livingston Commons PUD. The petitioner is planning to construct a 12,000 sft early care and preschool facility.

We offer the following comments for consideration by the planning commission:

SUMMARY

1. Show existing utility easements on site plan.

SITE PLAN

1. 20-foot-wide easement limits for existing water mains should be shown on the drawings.

The petitioner has successfully addressed all previous engineering comments. We recommend that the outstanding comment above be addressed on the construction drawings. Work regarding the public water main and sanitary sewer including extending hydrants and valves and service connections will require that the construction drawings receive an MHOG utility review, however no state permits appear to be necessary.

Please call if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Gary Markstrom'.

Gary J. Markstrom, P.E.
Unit Vice President

A handwritten signature in blue ink, appearing to read 'Joseph C. Siwek'.

Joseph C. Siwek, P.E.
Project Engineer

copy: Steve Witte, P.E., Nederveld, Inc.



BRIGHTON AREA FIRE AUTHORITY

615 W. Grand River Ave.
Brighton, MI 48116
o: 810-229-6640 f: 810-229-1619

March 9, 2016

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: Gilden Woods Daycare
Grand Oaks Drive
Genoa Twp., MI

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on February 25, 2016 and the drawings are dated February 2, 2016 with latest revisions dated February 23, 2016. The project is based on a new 11,968 square foot Educational-use (Day-care) building. The facility will provide care for up to 164 children. This plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

1. Future project submittals shall include the address and street name of the project in the title block. **(Noted on drawing that address will be provided in accordance with item #2)**
IFC 105.4.2
2. The building shall include the building address on the building. The address shall be a **minimum of 6"** high letters of contrasting colors and be clearly visible from the street. The location and size shall be verified prior to installation. **(Noted to be provided when assigned and construction begins)**
IFC 505.1
3. The access onto and through the site shall be a minimum of 26' wide. With a width of 26' wide, the East curb edge must be marked as a fire lane. Include the location of the proposed fire lane signage and include a detail of the fire lane sign in the submittal. Access roads to site shall be provided and maintained during construction. **(Revised on drawing, signage added)**
IFC D 103.6
IFC 503.2.2
4. Access roads shall be constructed to be capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds. **(Revised by note on drawing)**
IFC D 102.1
5. Access onto and through site access to building shall provide emergency vehicles with a turning radius of 50' outside and 30' inside radius wall to wall and a minimum vertical clearance of 13 ½ feet. **(Revised by note on drawing)**
IFC 503.2.1
6. Access drives onto and on the site dead-ends beyond 150' limitation with means of turn-around for emergency vehicles. An approved emergency vehicle turn-around shall be provided and meet the design criteria of Appendix D Section 103.4, or an alternative access from these dead-ends shall be provided. This applies to the drive along the East side of the structure. **(As submitted the drawing was sufficient for emergency vehicle access. Since receipt of the submittal, further discussion has taken place and an alternative means of turn around has been proposed. The new proposal has been reviewed electronically and appears to meet the intent of the fire code requirements for emergency vehicle turn-around)**



IFC 503.1.1

7. The location of a key box (Knox Box) shall be located adjacent to the biometric locking system control at the main entrance. **(Revised by note on drawing)**

IFC 506.1

8. Provide names, addresses, phone numbers, emails of owner or owner's agent, contractor, architect, on-site project supervisor. **(Provided on Cover Sheet of drawing)**

Additional comments will be given during the building plan review process (specific to the building plans and occupancy). The applicant is reminded that the fire authority must review the fire protection systems submittals (sprinkler & alarm) prior to permit issuance by the Building Department and that the authority will also review the building plans for life safety requirements in conjunction with the Building Department. If you have any questions about the comments on this plan review please contact me at 810-229-6640.

Cordially,

A handwritten signature in black ink, appearing to read "R. Boisvert".

Rick Boisvert
Captain - Fire Inspector



2911 Dorr Road
Brighton, MI 48116
810.227.5225
810.227.3420 fax
genoa.org

MEMORANDUM

TO: File

FROM: Kelly VanMarter, Assistant Township Manager/Community Development Director

DATE: March 8, 2016

RE: Gilden Woods Connection Fees

This memo will describe the water and sewer connection fees for the proposed Gilden Woods day care facility.

Using the formula for Child Care Centers in the Equivalent User Table which provides for 0.45 REU per 1,000 square feet the 11,968 center will necessitate 5.4 REUs.

CONNECTION CHARGES:

Water	5.4 REU @ \$7,900 (MHOG Water) =	\$ 42,660.00
Sewer	5.4 REU @ \$7,200 (G/O Sewer) =	\$ 38,880.00
Total amount due:		\$ 81,540.00

SUPERVISOR

Gary T. McCririe

CLERK

Paulette A. Skolarus

TREASURER

Robin L. Hunt

MANAGER

Michael C. Archinal

TRUSTEES

H. James Mortensen

Jean W. Ledford

Todd W. Smith

Linda Rowell



GENOA TOWNSHIP

FEB 24 2016

RECEIVED

GILDEN WOODS – GRAND OAKS DRIVE

GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

IMPACT ASSESSMENT

A. Name and address of person responsible for preparation of the impact assessment and a brief statement of their qualifications.

This narrative was written by:

Steve Witte, PE
Nederveld, Inc.
217 Grandville Avenue, SW
Suite 302
Grand Rapids, MI 49503

Mr. Witte has over 19 years of experience in site plan design, permitting, and plan approval. For typical site plans, Mr. Witte oversees the project from beginning to end – including due diligence, conceptual layouts, final layout, engineering design, attending meetings, and obtaining approvals from the municipality and affected agencies.

B. Map(s) and written description/analysis of the project site including all existing structures, manmade facilities, and natural features. The analysis shall also include information for areas within 10 feet of the property. An aerial photograph or drawing may be used to delineate these areas.

An aerial photograph is attached. The property is currently vacant. There are trees/vegetation along the west property line.

C. Impact on natural features: A written description of the environmental characteristics of the site prior to development and following development, i.e., topography, soils, wildlife, woodlands, mature trees (eight-inch caliper or greater), wetlands, drainage, lakes, streams, creeks or ponds. Documentation by a qualified wetland specialist shall be required wherever the Township determines that there is a potential regulated wetland. Reduced copies of the Existing Conditions Map(s) or aerial photographs may accompany written material.

The site plan includes an existing conditions plan that illustrates the topography of the site, as well as the existing trees/vegetation on the property

The topography of the site varies from a high elevation of approximately 1032 near the north end of the property, down to a low elevation of approximately 1022 at the south end of the property. Grand Oaks Drive is at an elevation of approximately 1025. The proposed grading of the site follows as closely as possible the existing grades of the site, while attempting to balance the grading. This minimizes impact to the area and reduces hauling soil to/from the site.

Based on the USDA Soil Survey Maps, the site soil is Conover Loam and Miami Loam.

This property is part of the Livingston Commons PUD and has been intended for development. As much of the vegetation as possible will remain, and a large portion of the property will remain green. This will provide habitat for any wildlife that may be in the area.

As mentioned above, the site plan illustrates the trees/vegetation on the property. The larger/more mature trees along/on the west property line will remain, as shown on the site plan set. The proposed playground fence will be located 25 ft off the west property line to protect/preserve as much of the vegetation as possible.

A copy of the US Fish and Wildlife Service National Wetlands Inventory Map does not illustrate wetland on the property. To our knowledge, there are no wetland present on this site.

Currently, the storm water runoff from the site sheet flows to the south. Per the original PUD approval, as part of their ramp construction, MDOT has provided regional storm water holding for this site/area. An 18" storm lead has been provided to the southeast corner of the property, which is where the storm water runoff from the site will be directed/discharged to.

There are no lakes, streams, creeks or ponds in the vicinity of this property.

D. Impact on stormwater management: Description of measures to control soil erosion and sedimentation during grading and construction operations and until a permanent ground cover is established. Recommendations for such measures may be obtained from the Livingston County Drain Commission at (517) 546-0040.

Best Management Practices will be utilized during and after construction to reduce/eliminate soil erosion on the site. The Soil Erosion Control Measures are indicated on the Grading and Utility Plan that is in the site plan set. A SESC permit will be obtained from Livingston County prior to start of construction, and all of the county's requirements will be met.

E. Impact on surrounding land used: Description of the types of proposed uses and other man-made facilities, including any project phasing, and an indication of how the proposed use conform or conflicts with existing and potential development patterns. A description shall be provided of any increases of light, noise or air pollution which could negatively impact adjacent properties.

The project involves construction of an approximate 11,968sf building that will be used as a day care facility. In addition to the building, an outdoor play area will be provided, as well as 41 parking spaces. The facility will be licensed for up to 164 children. The proposed use is consistent with commercial uses that are normally allowed in commercial districts and the surrounding area. The proposed use compliments the areas commercial uses and provides a needed service to the area and the community.

The project will be completed in one phase, with construction beginning promptly pending approvals and permits. It is envisioned that construction of the project will be completed in 2016.

All lighting on the project will be shielded with full cut off fixtures. The project will not create any air pollution. The only noise generated from the site will be a minimal amount of noise from the playground area. Note that the children are taken to the playground in smaller groups of children (32-40 children at one time), and the outdoor play is always supervised by staff who are outside with the children. The traffic generated from the site is consistent with other commercial uses and will not have a negative impact on adjacent properties.

F. Impact on public facilities and services: Describe the number of expected residents, employees, visitors, or patrons, and the anticipated impact on public schools, police protection and fire protection. Letters from the appropriate agencies may be provided, as appropriate.

The facility will be licensed for up to approximately 164 children. There will be approximately 25-30 total people employed by Gilden Woods to operate the site, with approximately 15 of them working at any given time.

On an average day, it is anticipated that there will be approximately 130 children at the site. The busiest time of day for drop off will be between 7:30 and 8:30 am, when it is anticipated that there will be approximately 40 families dropping their children off. Regarding traffic and safety internal to the site, please note that Gilden Woods requires all people dropping off and picking up their children to walk their children to/from the building. Therefore, no children will be outside by themselves and no formal drop off area is required or desired. Access to the site will be via a single drive entrance off Grand River Avenue.

This use will not have any impact to the public schools, as the use serves residents that are already living in the area. There is adequate police and fire protection to this area.

G. Impact on public utilities: Describe the method to be used to service the development with water and sanitary sewer facilities, the method to be used to control drainage on the site and from the site, including runoff control during periods of construction. For sites serviced with sanitary sewer, calculations for pre- and post development flows shall be provided in comparison with sewer line capacity. Expected sewage rates shall be provided in equivalents to a single family home. Where septic systems are proposed, documentation or permits from the Livingston County Health Department shall be provided.

The proposed building will be serviced by public sanitary sewer and watermain. There is a 12" watermain running along the north side of Grand Oaks Drive. There is an 8" sanitary sewer main on the south side of Grand Oaks Drive, and a 6" sanitary sewer lateral has been stubbed to the property. The proposed use uses a relatively small amount of water, and is roughly the equivalent of 1 to 2 residential homes.

For drainage, on-site drainage catchbasins have been provided that will collect the storm water runoff from the site and direct the runoff to the existing 18" storm sewer lead that was provided to the site. It is our understanding that a regional storm water holding area has been provided for the entire PUD, including this property, as part of the MDOT work on the highway ramps.

H. Storage and handling of any hazardous materials: A description of any hazardous substances expected to be used, stored or disposed of on the site. The information shall describe the type of materials, location within the site and method of containment. Documentation of compliance with federal and state requirements, and a Pollution Incident Prevention Plan (PIPP) shall be submitted, as appropriate.

The site does not use, store or dispose of any hazardous substances.

I. Impact on Traffic and Pedestrians: A description of the traffic volumes to be generated based on national reference documents, such as the most recent edition of the Institute of Transportation Engineers Trip Generation Manual, other published studies or actual counts of similar uses in Michigan. A detailed traffic impact study shall be submitted for any site over ten (10) acres in size which would be expected to generate 100 directional vehicle trips (i.e. 100 inbound or 100 outbound trips) during the peak hour of traffic of the generator or on the adjacent streets.

The center will be licensed for approximately 164 children. On an average day, it is anticipated that there will be approximately 130 children at the site. The busiest time of day for drop off/pick up will be between 7:30 and 8:30 am, when a typical Gilden Woods has approximately 40 families dropping their children off. Regarding traffic and safety internal to the site, please note that Gilden Woods requires all people dropping off and picking up their children to walk their children to/from the building. Therefore, no children will be outside by themselves and no formal drop off area is required or desired.

J. Special Provisions: General description of any deed restrictions, protective covenants, master deed or association bylaws.

The project is located in the Livingston Commons PUD and shall be abide by the requirements of the approved PUD. We are not aware of any other deed restrictions, protective covenants, master deed, or association bylaws.

K. A list of all sources shall be provided.

USDA Soil Survey Map

National Wetland Inventory Map

Survey information from Nederveld, Inc.

Traffic and business operations information from Gilden Woods

AERIAL ↑



Grand Oaks Dr,
Howell, MI 48843

↑

NATIONAL WETLAND INVENTORY MAP



- Wetlands ?
- Riparian ?
- Riparian Mapping Areas
- Data Source
- Source Type
- Image Scale
- Image Year
- Areas of Interest ?
- FWS Refuges ?
- Historic Wetland Data ?

Wetlands ?

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Wetlands Mapping Status

- No Data

USDA SOIL SURVEY MAP

Soil Map—Livingston County, Michigan







































Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

1/29/2016
Page 1 of 3

MAP LEGEND

 Area of Interest (AOI)	 Spoil Area
Soils	 Stony Spot
 Soil Map Unit Polygons	 Very Stony Spot
 Soil Map Unit Lines	 Wet Spot
 Soil Map Unit Points	 Other
Special Point Features	 Special Line Features
 Blowout	Water Features
 Borrow Pit	 Streams and Canals
 Clay Spot	Transportation
 Closed Depression	 Rails
 Gravel Pit	 Interstate Highways
 Gravelly Spot	 US Routes
 Landfill	 Major Roads
 Lava Flow	 Local Roads
 Marsh or swamp	Background
 Mine or Quarry	 Aerial Photography
 Miscellaneous Water	
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
 Sandy Spot	
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Livingston County, Michigan
 Survey Area Data: Version 13, Sep 18, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 18, 2011—Mar 21, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Livingston County, Michigan (MI093)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CvA	Conover loam, 0 to 2 percent slopes	2.8	7.2%
MoB	Miami loam, 2 to 6 percent slopes	36.5	92.8%
Totals for Area of Interest		39.4	100.0%

Nederveld

Project:	Gilden Woods
Project #:	15500079
Date:	2/2/2006
Revised:	2/23/2016

DRAINAGE CALCULATIONS FOR GILDEN WOODS

Information For Determining Runoff Coefficient

C-DEVELOPED

A. Impervious Area (C=1.00)	Length (ft)	Width (ft)	Area (s.f.)	Quantity	Total Area		
					(s.f.)	Area (Ac)	
Building	1	1	11968	1	11968	0.27	
Asphalt	1	1	18110	1	18110	0.42	
Concrete	1	1	4700	1	4700	0.11	
Total						0.80	

B. 'Green' Area	C=	0.20		
Total site area			95614 sf	2.19
Total impervious area				0.80
Change in impervious area				0.80
Total 'Green' area				1.40

C. Calculate C-dev = $(1.0(\text{area } 1.0) + \text{Green Area } C(\text{Green Area})) / \text{total area}$ C-dev = 0.49

NOTE: REGIONAL DETENTION OF STORM WATER IS PROVIDED.

Nederveld

Project:	Gilden Woods
Project #:	15500079
Date:	2/2/06
Revised:	2/23/2016

Storm Sewer Design: 10 Year Storm
MODEL OF DEVELOPED AREAS

From	To	C	Factored C, overall area	Time (min)	Time Inc. (min)	Area Increment	Total Area (acres)	I (in/hr)	Q (cfs)	Full Flow Capacity (cfs)	L (ft)	Pipe Size (in)	Type of Pipe	Full Flow HGL (%)	Actual Pipe Grade (%)	Full Flow Velocity (ft/s)
Btg	1	0.90	0.90	15.0	0.26	0.263	0.263	3.80	0.90	1.31	41	8	P	0.47	1.00	2.58
1	2	0.20	0.55	15.3	1.08	0.271	0.534	3.78	1.10	2.18	91	12	P	0.08	0.32	1.40
2	3	0.90	0.64	16.3	0.84	0.201	0.735	3.68	1.74	2.18	112	12	P	0.20	0.32	2.21
3	4	0.90	0.70	17.2	0.51	0.211	0.945	3.60	2.38	2.73	92	12	P	0.38	0.50	3.03
5	4	0.20	0.20	17.7	4.13	0.535	0.535	3.56	0.38	2.18	120	12	P	0.01	0.32	0.48
4	Existing	0.90	0.58	21.8	0.58	0.261	1.741	3.22	3.22	4.95	91	15	P	0.21	0.50	2.63

Formulas and Constants

Rational Equation
 $Q = CiA$, where

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

Mannings Equation
 $Q = (1.486/n) \times (R^{2/3}) \times S^{1/2} \times A$, where

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

Manning Roughness Coefficients

Concrete	C	0.013
Cor. Metal	CM	0.024
Plastic	P	0.012



External Signage



Peak Signage

High-quality logo artwork is available from the Corporate Office.
Signage is printed on ½" flat cut stud mount acrylic painted to match

PMS 348 ("Gilden Woods"/"AppleTree Green")

or

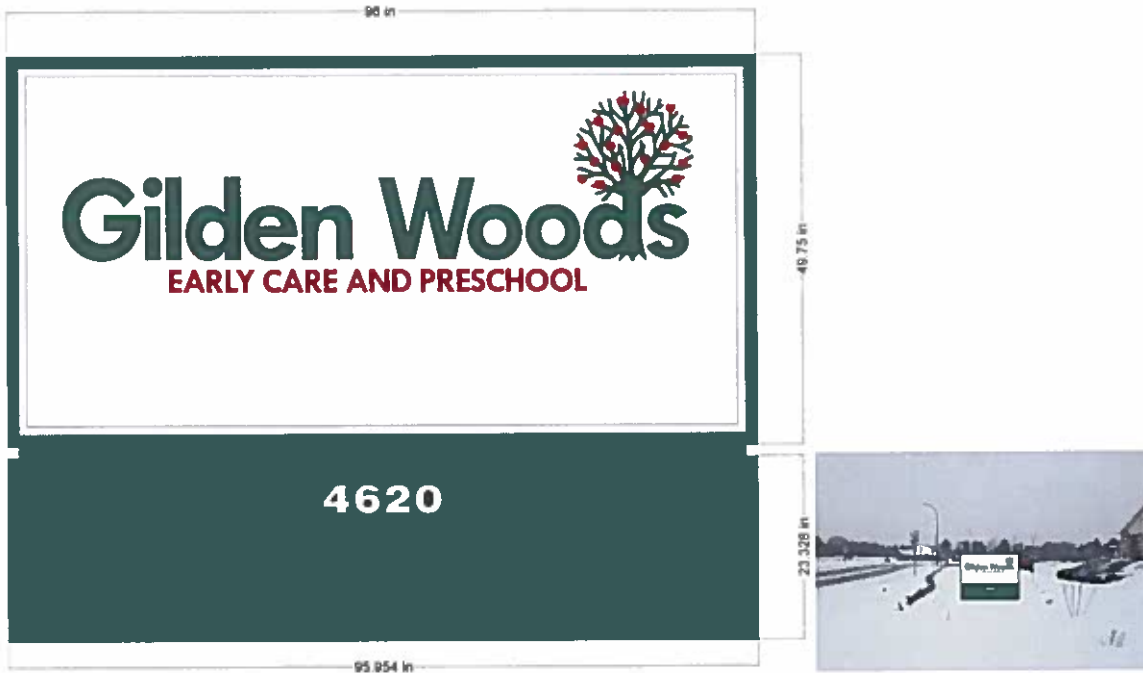
PMS 1795 ("Early Care and Preschool"/"AppleTree Red")

and placed within a frame in the peak of the building (either front façade
or peak of the front drop-off overhang)

Entire design is approximately 30" x 8'



External Signage



Monument/Street Signage

High-quality logo artwork is available from the Corporate Office.

Signage is made with **PMS 348** ("Gilden Woods"/"AppleTree Green") trim

8' x 4' internally illuminated double-faced sign cabinet with color translucent contour cut vinyl applied to translucent polycarb face

Faces have 2 4" tall zip tracks for changeable message board. Vendors will usually include 1 pack of 4" tall black commercial font letters for messaging.

Additional Options: Without Zip Tracks for Messaging, Zip Tracks for Messaging to Right of Logo

Recommended Placement: 60" from driveway, 30" from curb



D-Series Size 2 LED Wall Luminaire



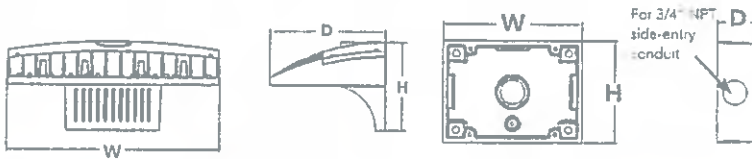
d²series

Specifications Luminaire

Width: 18-1/2" (47.0 cm)
Weight: 21 lbs (9.5 kg)
Depth: 10" (25.4 cm)
Height: 7-5/8" (19.4 cm)

Back Box (BBW)

Width: 5-1/2" (14.0 cm)
BBW Weight: 1 lbs (0.5 kg)
Depth: 1-1/2" (3.8 cm)
Height: 4" (10.2 cm)



Catalog Number	
Notes	
Type	A

Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 76% in energy savings over comparable 400W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

EXAMPLE: DSXW2 LED 30C 700 40K T3M MVOLT DDBTXD

Series	LEDs	Drive Current	Color temperature	Distribution	Voltage	Mounting	Control Options	Other Options	Finish (required)
DSXW2 LED	20C 20 LEDs (two engines)	350 350mA	30K 3000 K	T2S Type II Short	MVOLT ¹	Shipped included (blank) Surface mounting bracket	Shipped installed PE Photoelectric cell, button type ⁴	Shipped installed SF Single fuse (120, 277, 347V) ⁷	DDBXD Dark bronze
		530 530mA	40K 4000 K	T2M Type II Medium	120 ¹				
	30C 30 LEDs (three engines)	700 700mA	50K 5000 K	T3S Type III Short	208 ¹	Shipped separately ³ BBW Surface mounted back box (for conduit entry)	PER RFMA RFMA twist-lock receptacle only (no controls)	DF Double fuse (208, 240, 480V) ⁷	DWHXD White
		1000 1000mA (1 A)	AMBPC Amber phosphor converted	T3M Type III Medium	240 ¹				
				T4M Type IV Medium	277 ¹	DCR Dimmable and controllable via ROAM [®] (no controls) ⁵	HS House-side shield ³	SPD Separate surge protection ¹	DSSXD Sandstone
				TFTM Forward Throw Medium	347 ¹				
				ASYDF Asymmetric diffuse	480 ¹	PIRH 180° motion/ambient light sensor, 15-30' mtg ht ⁶	BSW Bird-deterrent spikes	Shipped separately ³	DDBTXD Textured Dark bronze
							VG Vandal guard	DWHXGD Textured white	DSSTXD Textured sandstone

NOTES

- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
- Available with 30 LED/700mA options only (DSXW2 LED 30C 700). DMG option not available.
- Also available as a separate accessory; see Accessories information.
- Photocontrol (PE) requires 120, 208, 240 or 277 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
- Specifies a ROAM[®] enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347V, 480V or PIRH. Additional hardware and services required for ROAM[®] deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@circservices.net.
- Specifies the Sensor Switch SBGR-6-ODP control; see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photo cell) or DCR. Dimming driver standard.
- Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
- See the electrical section on page 2 for more details.
- Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item.

Accessories

Ordered and shipped separately

DLL127F 1.5 CU, BU	Photo cell - SSL twist-lock (120-277V) ¹
DLL117F 1.5 CU, BU	Photo cell - SSL twist-lock (347V) ⁷
DLL420F 1.5 CU, BU	Photo cell - SSL twist-lock (480V) ¹
SCU	Shorting cap
DSXVBSU	House-side shield (one per light engine)
DSXVBSVU	Bird-deterrent spikes
DSXVWVGU	Wire guard accessory
DSXVWVGU	Vandal guard accessory
DSXVBBW	Back box accessory (specify finish)
DDBXD U	



Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K (5000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					
				Lumens	B	U	G	IPV	Lumens	B	U	G	IPV	Lumens	B	U	G	IPV	
20C (20 LEDs)	530	36W	T2S	3,649	1	0	1	101	3,876	1	0	1	108	3,429	1	0	1	95	
			T2M	3,478	1	0	1	97	3,694	1	0	1	103	3,267	1	0	1	91	
			T3S	3,609	1	0	1	100	3,833	1	0	1	106	3,390	1	0	1	94	
			T3M	3,572	1	0	1	99	3,794	1	0	1	105	3,356	1	0	1	93	
			T4M	3,500	1	0	2	97	3,717	1	0	2	103	3,288	1	0	1	91	
			TFTM	3,638	1	0	1	101	3,864	1	0	1	107	3,418	1	0	1	95	
			ASYDF	3,252	1	0	2	90	3,454	1	0	2	96	3,056	1	0	2	85	
			T2S	4,502	1	0	1	96	4,776	1	0	1	102	4,294	1	0	1	102	
			T2M	4,290	1	0	1	91	4,552	1	0	1	97	4,569	1	0	1	97	
	T3S	4,452	1	0	1	95	4,723	1	0	2	100	4,741	1	0	2	101			
	T3M	4,407	1	0	2	94	4,675	1	0	2	99	4,693	1	0	2	100			
	T4M	4,318	1	0	2	92	4,581	1	0	2	97	4,598	1	0	2	98			
	TFTM	4,488	1	0	2	95	4,761	1	0	2	101	4,779	1	0	2	107			
	ASYDF	4,012	1	0	2	85	4,257	1	0	2	91	4,273	1	0	2	91			
	T2S	5,963	2	0	2	81	6,327	1	0	1	84	6,351	1	0	1	85			
	T2M	5,683	2	0	2	77	6,029	1	0	2	80	6,052	1	0	2	81			
	T3S	5,896	1	0	2	80	6,256	1	0	2	83	6,280	1	0	2	84			
	T3M	5,837	2	0	3	79	6,193	1	0	2	83	6,216	1	0	2	83			
	T4M	5,719	1	0	2	77	6,067	1	0	2	81	6,090	1	0	2	81			
	TFTM	5,944	1	0	2	80	6,307	1	0	2	84	6,330	1	0	2	84			
	ASYDF	5,314	1	0	2	72	5,638	2	0	2	75	5,660	2	0	2	75			
	30C (30 LEDs)	530	54W	T2S	4,333	1	0	1	80	5,280	1	0	1	98	5,769	1	0	1	107
				T2M	4,216	1	0	1	78	5,137	1	0	2	95	5,613	1	0	2	104
				T3S	4,279	1	0	1	79	5,214	1	0	1	97	5,696	1	0	1	105
T3M				4,349	1	0	2	81	5,298	1	0	2	98	5,789	1	0	2	107	
T4M				4,291	1	0	1	79	5,228	1	0	2	97	5,712	1	0	2	106	
TFTM				4,287	1	0	1	79	5,223	1	0	2	97	5,707	1	0	2	106	
T2S				5,346	1	0	1	75	6,513	1	0	1	92	7,118	2	0	2	100	
T2M				5,201	1	0	2	73	6,337	2	0	2	89	6,925	2	0	2	98	
T3S				5,279	1	0	1	74	6,431	1	0	2	91	7,028	1	0	2	99	
T3M		5,365	1	0	2	76	6,536	1	0	2	92	7,143	2	0	3	101			
T4M		5,293	1	0	2	75	6,449	1	0	2	91	7,047	1	0	2	99			
TFTM		5,289	1	0	2	74	6,444	1	0	2	91	7,042	1	0	2	99			
1000		109W	T2S	7,137	2	0	2	65	8,697	2	0	2	80	9,501	2	0	2	87	
			T2M	6,944	2	0	2	64	8,462	2	0	2	78	9,244	2	0	2	85	
			T3S	7,047	1	0	2	65	8,588	1	0	2	79	9,381	2	0	2	86	
			T3M	7,162	2	0	3	66	8,728	2	0	3	80	9,534	2	0	3	87	
			T4M	7,066	1	0	2	65	8,611	1	0	2	79	9,407	2	0	2	86	
			TFTM	7,060	1	0	2	65	8,604	2	0	2	79	9,399	2	0	2	86	

Note:

Available with phosphor-converted amber LED's (nomenclature AMOPC). These LED's produce light with 97+% = 530 nm. Output can be calculated by applying a 0.7 factor to 4000 K lumen values and photometric files.



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	1.00
40°C	104°F	0.98

Electrical Load

LEDs	Driver Current (mA)	Spacem Volt.	Current (A)					
			120V	208V ±1%	240V	277V	347V	480V
20C	350	25 W	0.23	0.13	0.12	0.10	-	-
	530	36 W	0.33	0.19	0.17	0.14	-	-
	700	47 W	0.44	0.25	0.22	0.19	-	-
	1000	73 W	0.68	0.39	0.34	0.29	-	-
30C	350	36 W	0.33	0.19	0.17	0.14	-	-
	530	54 W	0.50	0.29	0.25	0.22	-	-
	700	71 W	0.66	0.38	0.33	0.28	0.23	0.16
	1000	109 W	1.01	0.58	0.50	0.44	-	-

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the DSXW2 LED 30C 1000 platform in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

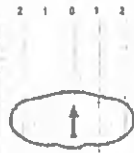
Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.95	0.92	0.87

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Wall Size 2 homepage.

Isocandela plots for the DSXW2 LED 30C 1000 40K. Distances are in units of mounting height (25').

LEGEND
 0.1 fc
 0.5 fc
 1.0 fc



T2M

Test No. Z250P72, tested in accordance with IESNA LM-79-08.



T3M

Test No. Z250P72, tested in accordance with IESNA LM-79-08.

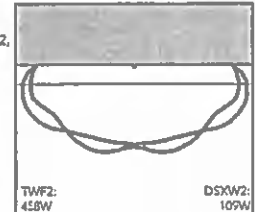


T3S

Test No. Z250P72, tested in accordance with IESNA LM-79-08.

Distribution overlay comparison to 400W metal halide.

LEGEND
 DSXW2, 0.5 fc
 TWF2, 0.5 fc
 10' W Sidelark
 LLDs:
 TWF2 = 0.72
 DSXW2 = 0.95



TWF2: 458W
 DSXW2: 109W
 DSXW2 LED 30C 40K 1000 T2M,
 TWF2 400W Pulse, 25' Mounting Ht

FEATURES & SPECIFICATIONS

INTENDED USE

The energy savings, long life and easy-to-install design of the D-Series Wall Size 2 make it the smart choice for building-mounted doorway and pathway illumination for nearly any facility.

CONSTRUCTION

Two-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance. The LED driver is mounted to the door to thermally isolate it from the light engines for low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65).

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses provide multiple photometric distributions tailored specifically to building mounted applications. Light engines are available in 3000 K (80 min. CRI), 4000 K (70 min. CRI) or 5000 K (70 CRI) configurations.

ELECTRICAL

Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal-core circuit board to maximize heat dissipation and promote long life (L87/100,000 hrs at 25°C). Class 1 electronic drivers have a power factor >90%, THD <20%, and a minimum 2.5KV surge rating. When ordering the SPD option, a separate surge protection device is installed within the luminaire which meets a minimum Category C Low (per ANSI/IEEE C62.41.2).

INSTALLATION

Included universal mounting bracket attaches securely to any 4" round or square outlet box for quick and easy installation. Luminaire has a slotted gasket wireway and attaches to the mounting bracket via corrosion-resistant screws.

LISTINGS

CSA certified to U.S. and Canadian standards. Rated for -40°C minimum ambient.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY

Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

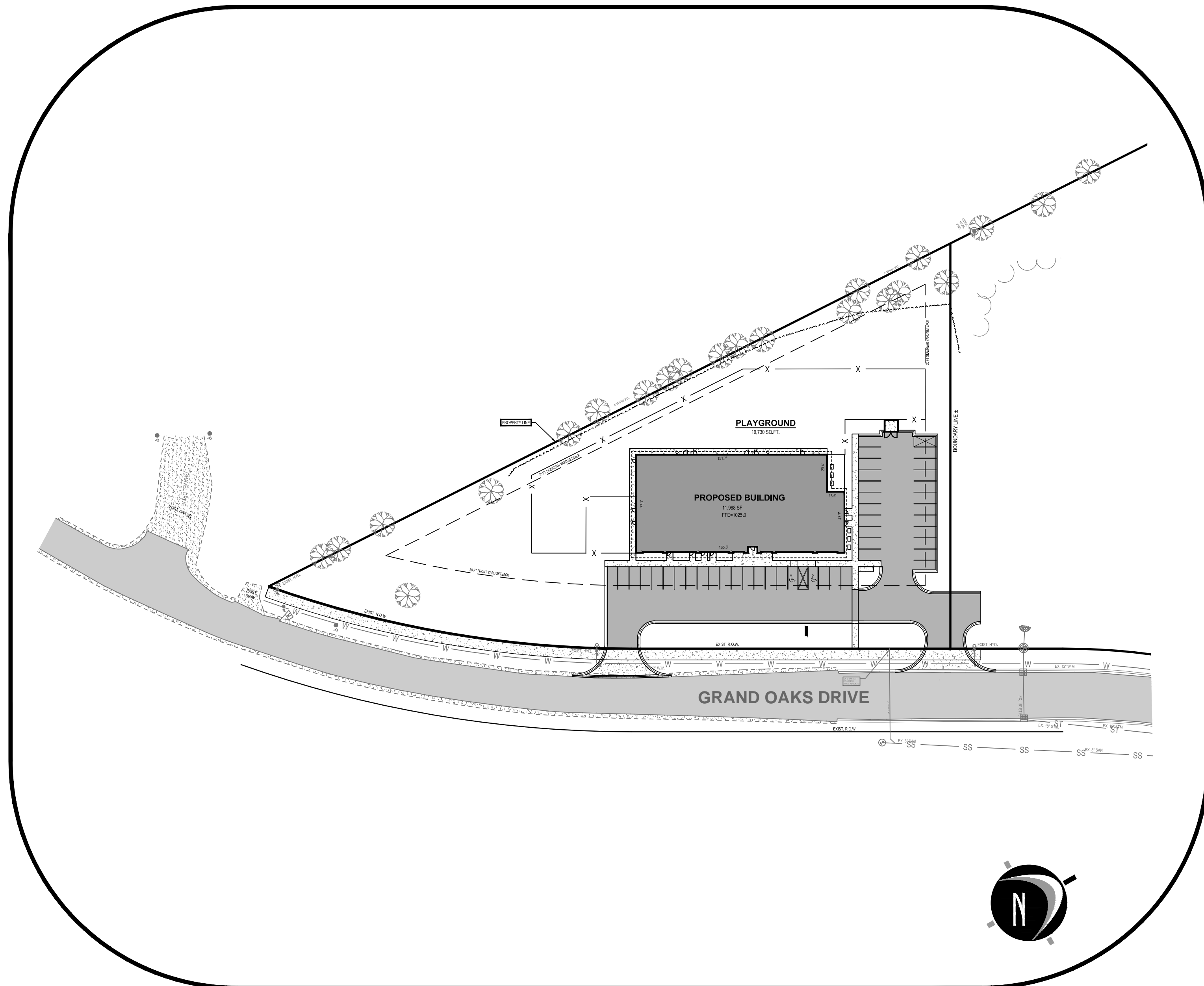
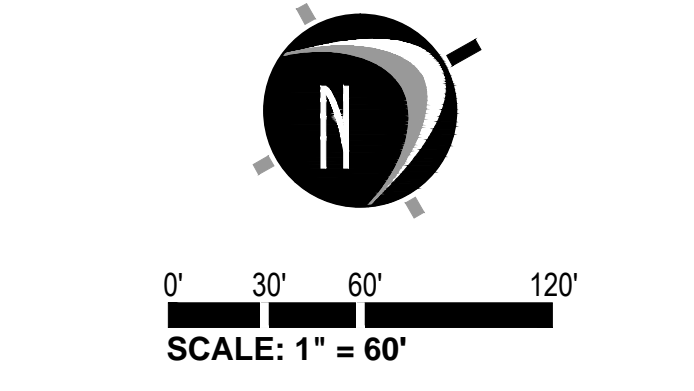
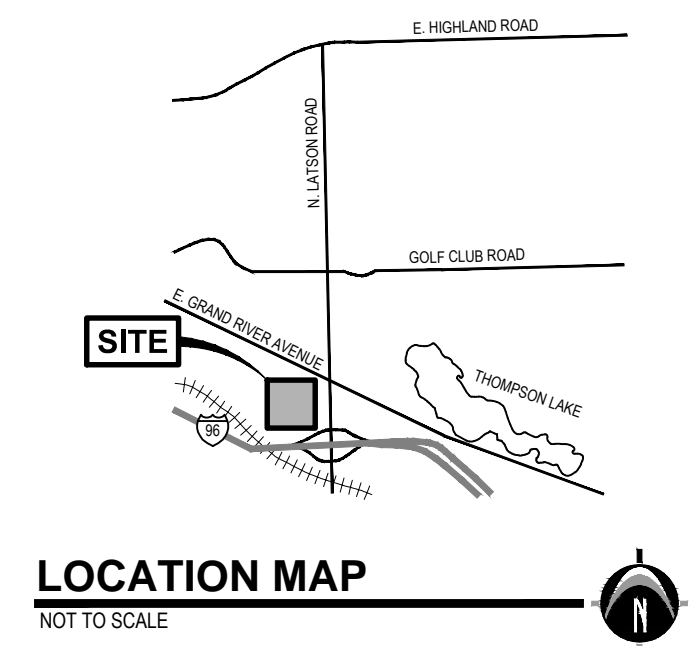
Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.





A PART OF THE NORTHEAST 1/4 OF SECTION 8, T2N, R5E,
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

SITE PLAN SET



SHEET INDEX

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Site Layout Plan	C-205	Page 3
S.E.S.C., Grading & Utility Plan	C-300	Page 4
Details & Specifications	C-500	Page 5
Landscape Plan	L-201	Page 6
Photometric Plan		
Architectural Plans		

CONTACT INFORMATION:

PROPERTY OWNER/DEVELOPER:
BBI HOLDINGS, LLC.
ATTENTION: DAN BOVERHOF
5575 SETTLERS PASS
KENTWOOD, MICHIGAN 49512
TELEPHONE: (616) 291 - 4192
EMAIL ADDRESS: dan@boverhofbuilders.com

GENERAL CONTRACTOR (ON SITE SUPERVISOR):
BOVERHOF BUILDERS
ATTENTION: DAN BOVERHOF
5575 SETTLERS PASS
KENTWOOD, MICHIGAN 49512
TELEPHONE: (616) 291 - 4192
EMAIL ADDRESS: dan@boverhofbuilders.com

ARCHITECT:
ARCHITECTURAL CONCEPTS
ATTENTION: KEN WATKINS
6650 CROSSINGS DRIVE, SE
SUITE E
GRAND RAPIDS, MICHIGAN 49508
TELEPHONE: (616) 554-1222
EMAIL ADDRESS: archconcepts@stbglobal.net

SITE CIVIL ENGINEER:
NEDERVELD, INC.
ATTENTION: STEVE WITTE, PE
217 GRANDVILLE AVENUE
SUITE 302
GRAND RAPIDS, MI 49503
TELEPHONE: (616) 575-5190
EMAIL ADDRESS: switte@nederveld.com

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

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

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

ANN ARBOR
CHICAGO
COLUMBUS
HOLLAND
INDIANAPOLIS
ST. LOUIS

PREPARED FOR:
Boverhof Builders Inc.
Attn: Dan Boverhof
5475 Settlers Pass
Kentwood, MI 49512

REVISIONS:

Title: Site Plan Submittal	Checked: SW	V. Date: 02.02.16	S. Date: 02.02.16
Title: Site Plan Resubmittal	Checked: SW	V. Date: 02.11.16	S. Date: 02.11.16
Title: Site Plan Resubmittal	Checked: SW	V. Date: 02.23.16	S. Date: 02.23.16

GILDEN WOODS HOWELL
Cover Sheet
Grand Oaks Drive - Howell, MI 48843
PART OF THE NE CORNER OF SECTION 8, T2N, R5E,
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

STAMP:

LEGAL DESCRIPTION

TAX DESCRIPTION OF PARENT PARCEL/OVERALL PARCEL
(PARCEL NUMBER 47-11-08-200-012):

SEC 8 T2N R5E COMM AT NE COR TH S87°16'42"W 3.27 FT TH S'LY ALONG ARC OF A CURVE RIGHT CHORD BEARING S00°40'20"W 159.72 FT TH S01°07'48"W 913.15 FT TH S'LY ALONG ARC OF A CURVE LEFT CHORD BEARING S00°42'13"W 148.82 FT TH S89°48'26"W 159.53 FT TH N00°15'45"E 40 FT TO POB TH S89°48'26"W 244.24 FT TH SW'LY ALONG ARC OF A CURVE LEFT CHORD BEARING S57°22'16"W 579.27 FT TH S24°56'06"W 342.59 FT SW'LY ON AN ARC OF A CURVE RIGHT CHORD BEARING S34°41'46"W 291.61 FT TH N01°46'39"W 1170.50 FT TH S66°55'38"E 785.76 FT TH N88°06'02"E 251.53 FT TH N10°21'54"E 310.18 FT TH N12°59'10"E 332.05 FT TH S79°09'02"E 22.66 FT TH N11°14'53"E 360.22 FT TH S01°07'48"W 874.11 FT TH S'LY ALONG ARC OF A CURVE LEFT CHORD BEARING S01°05'59"W 142.07 FT TO POB CONT. 10.53 AC MIL SPLIT ON 01/25/2012 FROM 4711-08-200-009;

PROJECT NO:
15500079

SHEET NO:
C-100

SHEET: 1 OF 6

REMOVAL / DEMOLITION NOTES

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

REMOVAL / DEMOLITION NOTES

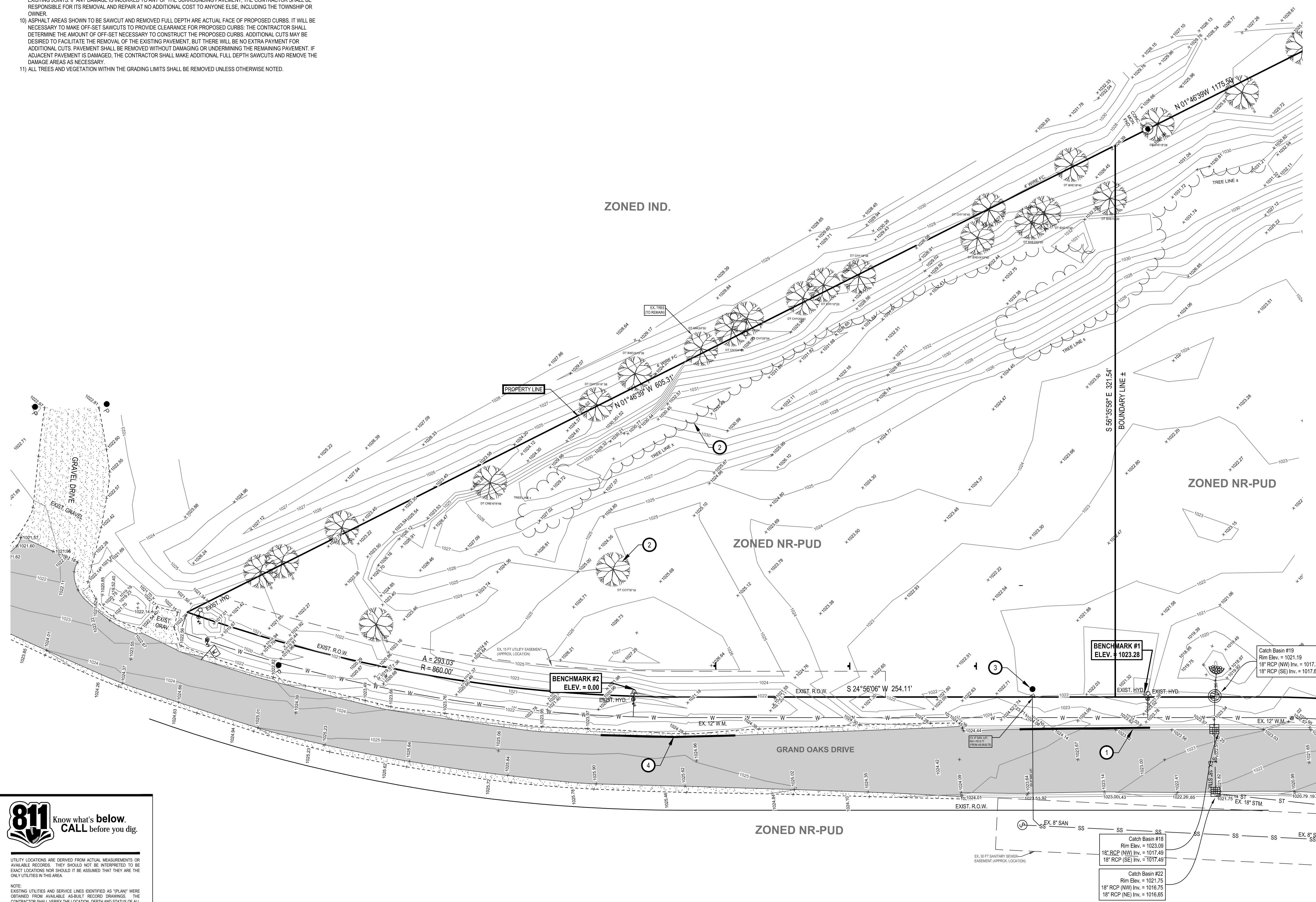
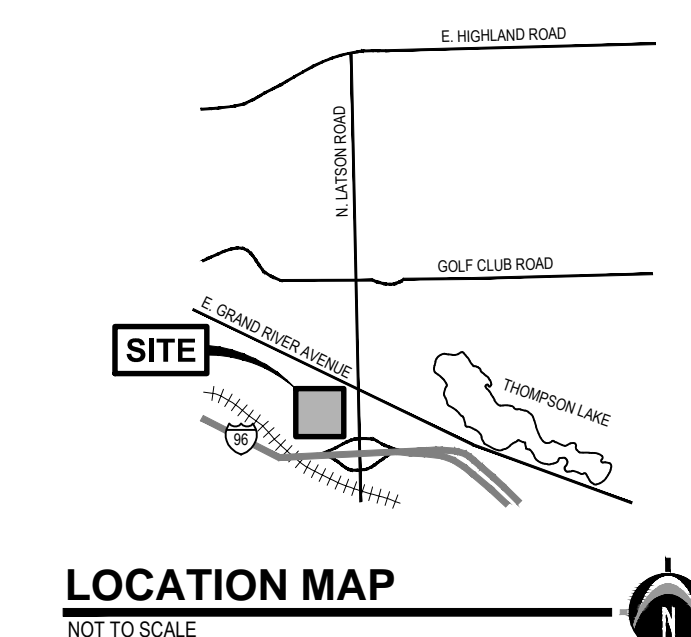
- 1 SAWCUT, REMOVE, AND REPLACE EX. PAVEMENT AND CURBS AS NECESSARY FOR CONSTRUCTION OF NEW DRIVE ENTRANCE
- 2 REMOVE EXISTING TREES/SHRUBS
- 3 REMOVE EXISTING SIGN
- 4 SAWCUT, REMOVE, AND REPLACE EDGE OF EXISTING PAVEMENT AND GRAVEL SHOULDER AS NECESSARY FOR CONSTRUCTION OF NEW DRIVE ENTRANCE
- 5
- 6
- 7

LEGEND

- EXISTING GRADE CONTOUR
- EXISTING BITUMINOUS REMOVAL
- EXISTING CONCRETE REMOVAL
- EXISTING UTILITY LINE REMOVAL
- EXISTING TREE REMOVAL

BENCHMARKS

- BENCHMARK #1** ELEV. = 1023.28 (DATUM - NAVD 88)
Arrow on hydrant located ± North 44° and East 348° from the most Southwesterly property corner.
- BENCHMARK #2** ELEV. = 1023.48 (DATUM - NAVD 88)
Arrow on hydrant located ± North 192° and East 182° from the most Southwesterly property corner.



LEGEND

- | | |
|-----------------------------|------------------------|
| Air Conditioner | Stop Sign |
| Benchmark | Yield Sign |
| Catch Basin - Round | Sanitary Sewer Manhole |
| Catch Basin - Square | Stake |
| Cleanout | Stormwater Manhole |
| Cable Riser | Telephone Manhole |
| Culvert | Transformer |
| Deciduous Tree | Utility Pole |
| Electric Manhole | Underground Gas Marker |
| Electric Meter | Wetland Marker |
| Electric Riser | Water Meter |
| Evergreen Tree | Water Manhole |
| Faucet | Water Valve |
| Flag | Water Well |
| Gas Meter | Yard Drain |
| Gas Riser | Miscellaneous/Unknown |
| Gas Valve | Cable TV |
| Guy Anchor | Electric |
| Guy Pole | Overhead Electric |
| Hand Hole | Underground Electric |
| Handicap Parking | Fiber Optic |
| Iron - Set | Gas |
| Iron - Found | Overhead Utility |
| Light Pole | Sanitary |
| Mailbox | Storm |
| Miss Dig Flag - Cable | Telephone |
| Miss Dig Flag - Electric | Overhead Telephone |
| Miss Dig Flag - Fiber Optic | Underground Telephone |
| Miss Dig Flag - Gas | Watermain |
| Miss Dig Flag - Phone | Fence |
| Miss Dig Flag - Water | Guard Rail |
| Manhole | Railroad |
| Monitor Well | Zoning Setback |
| Parking Meter | Tree |
| Post | Ex. Grade Contour |
| Phone Riser | Asphalt |
| Soil Boring | Concrete |
| Stop Box | Gravel |
| Sign | Building |

LEGAL DESCRIPTION

TAX DESCRIPTION OF PARENT PARCEL/OVERALL PARCEL (PARCEL NUMBER 47-11-08-200-012):
 SEC 8 T2N R5E COMM AT NE COR TH S87°16'42" W 3.27 FT TH SLY ALONG ARC OF A CURVE RIGHT CHORD BEARING S00°40'20" W 159.72 FT TH S01°07'48" W 91.15 FT TH SLY ALONG ARC OF A CURVE LEFT CHORD BEARING S00°42'13" W 148.82 FT TH S89°48'26" W 159.53 FT TH N00°15'45" E 40 FT TO POB TH S89°48'26" W 244.24 FT TH SWLY ALONG ARC OF A CURVE LEFT CHORD BEARING S57°22'16" W 579.27 FT TH S34°56'06" W 342.59 FT SWLY ON AN ARC OF A CURVE RIGHT CHORD BEARING S34°41'46" W 291.61 FT TH N01°46'39" W 1170.50 FT TH S66°55'38" E 785.76 FT TH N88°06'02" E 251.53 FT TH N10°21'34" E 310.18 FT TH N12°59'10" E 332.05 FT TH S79°09'02" E 22.66 FT TH N11°14'53" E 360.23 FT TH S01°07'48" W 874.11 FT TH SLY ALONG ARC OF A CURVE LEFT CHORD BEARING S01°05'59" W 142.07 FT TO POB CONT. 10.53 AC M.L. SPLIT ON 01/25/2012 FROM 4711-08-200-009.

811 Know what's below. CALL before you dig.

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PREPARED FOR:
 Boverhof Builders Inc.
 Attn: Dan Boverhof
 5475 Settlers Pass
 Kentwood, MI 49512

REVISIONS:

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Drawn: SW	Checked: SW
Title: Site Plan Resubmittal	V. Date: 02.23.16
Drawn: SW	Checked: SW

GILDEN WOODS HOWELL
 Existing Conditions and Demolition Plan
 Grand Oaks Drive - Howell, MI 48843
 PART OF THE NE CORNER OF SECTION 8, T2N R5E,
 GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

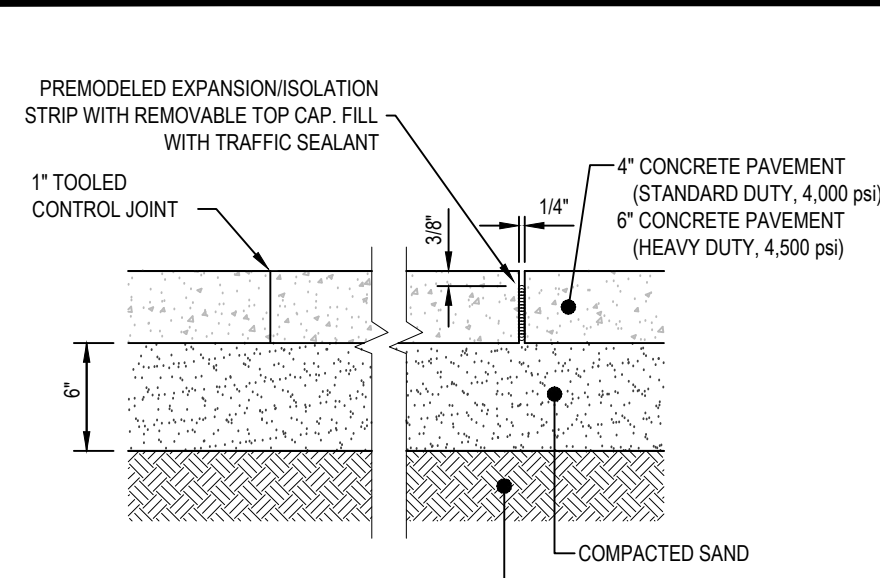
STAMP:

STATE OF MICHIGAN
 LICENSED PROFESSIONAL ENGINEER
 STEVEN L. WITTE
 ENGINEER
 No. 46769
 EXPIRES 12/31/2018

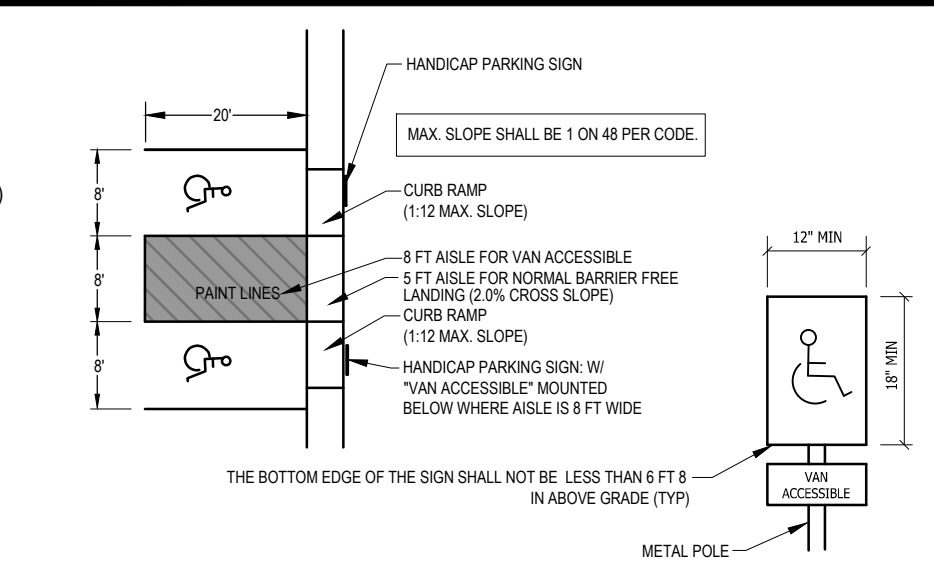
PROJECT NO:
15500079

SHEET NO:
C-201

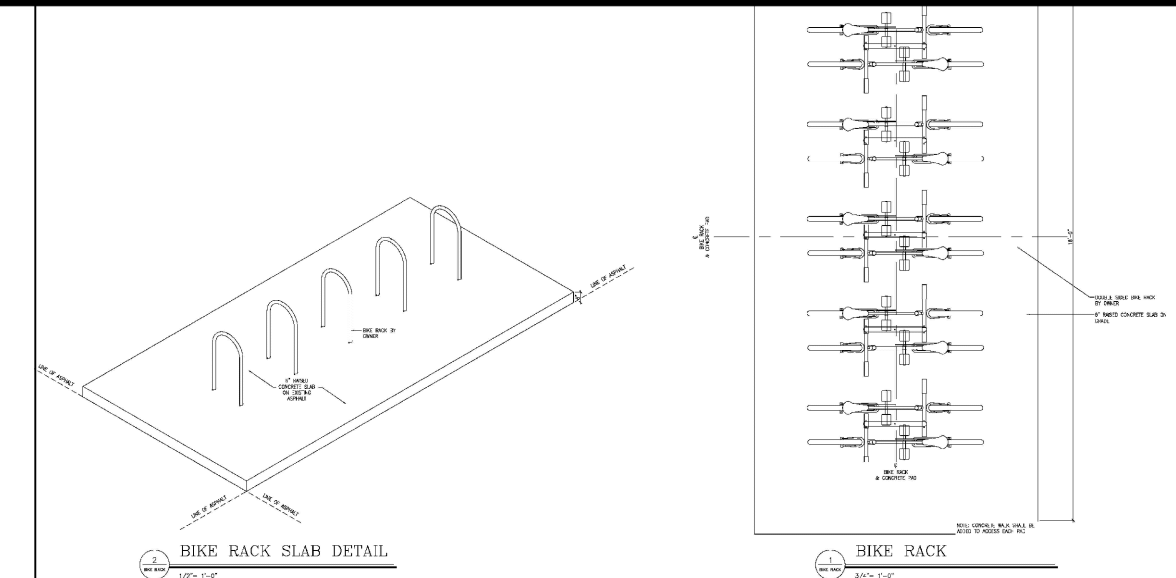
SHEET: 2 OF 6



- CONCRETE PAVEMENT DETAIL**
N.T.S.
- 1. LIGHT BROOM FINISH
 - 2. LOCATE CONTROL JOINTS AND EXPANSION JOINTS PER ACI STANDARDS
 - 3. PANEL SIZE SHALL NOT EXCEED 8 FEET
 - 4. PANELS SHALL BE KEPT AS SQUARE AS POSSIBLE WITH THE LENGTH NEVER EXCEEDING 1.25X THE WIDTH
 - 5. 1.0% CY. FIBER REINFORCEMENT
 - 6. AIR ENTRAPMENT - 6% ± 1%
 - 7. SLUMP 4" ± 1"

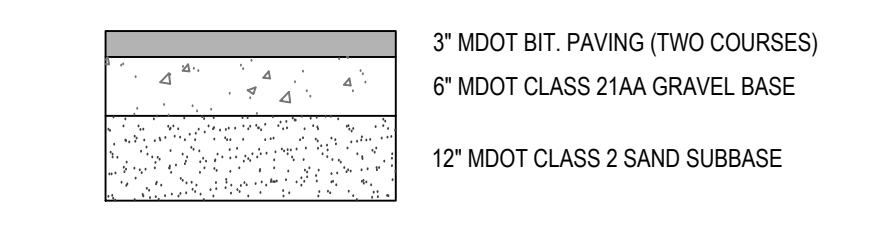


TYPICAL BARRIER FREE ACCESSIBLE PARKING SPACES
N.T.S.

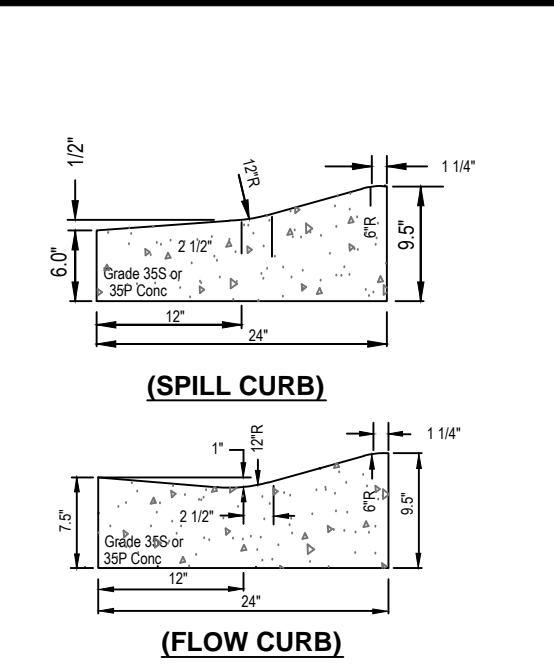
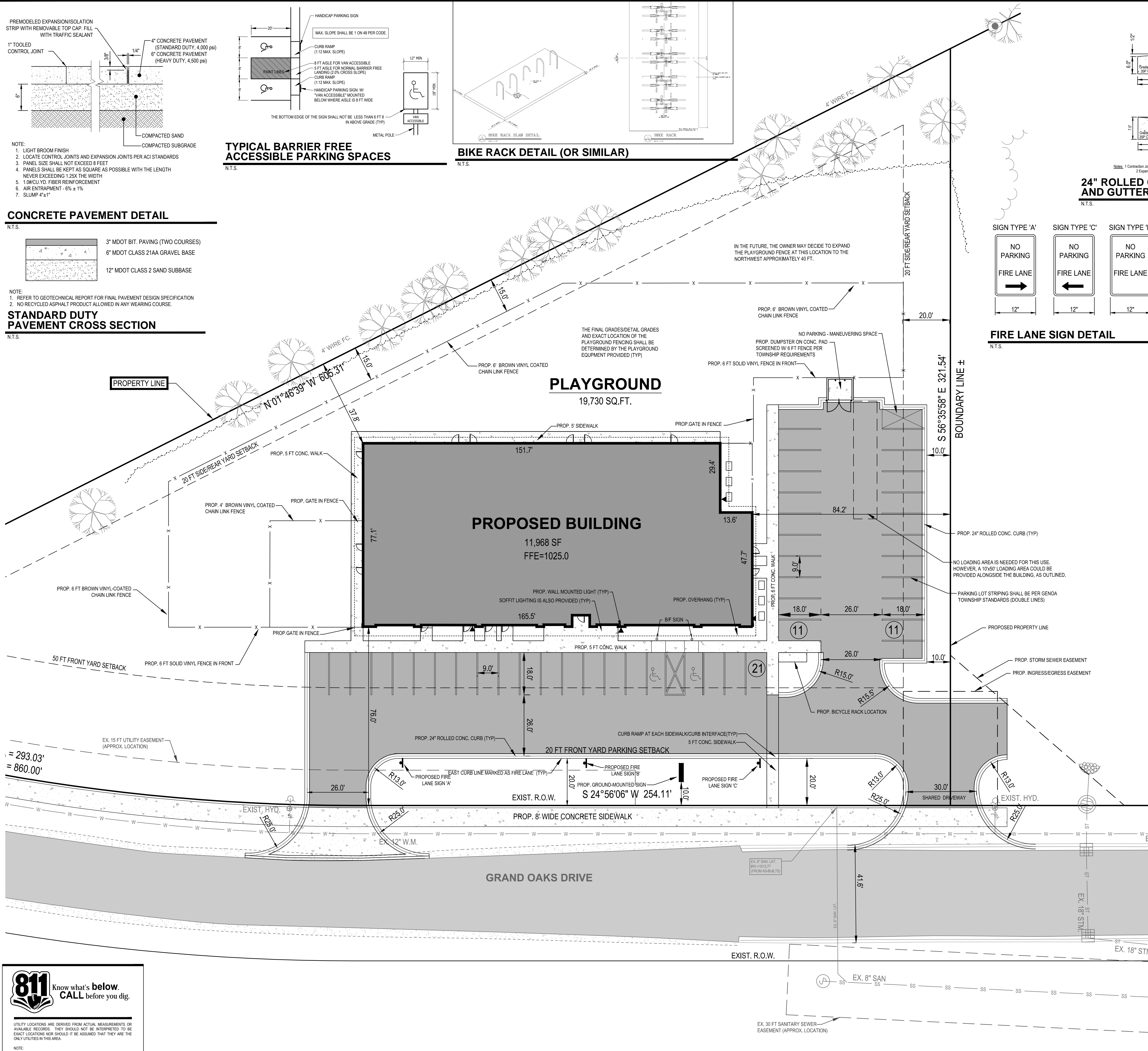


BIKE RACK DETAIL (OR SIMILAR)
N.T.S.

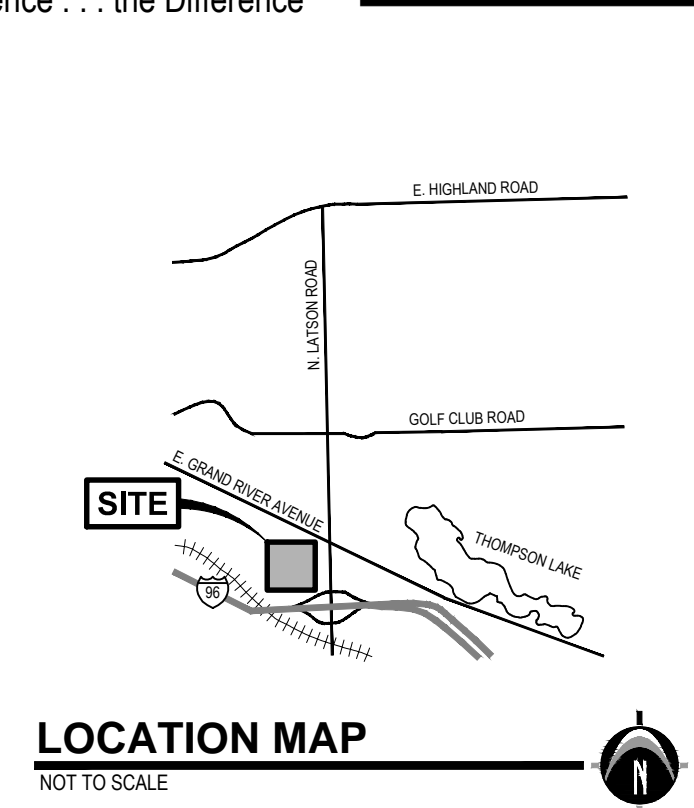
CONCRETE PAVEMENT DETAIL
N.T.S.



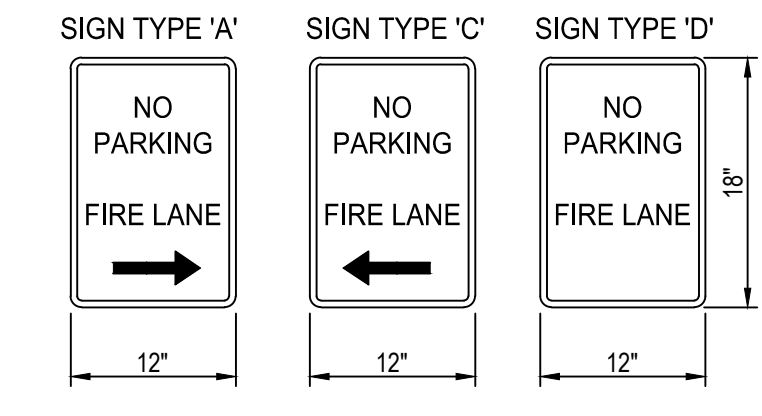
- STANDARD DUTY PAVEMENT CROSS SECTION**
N.T.S.
- 1. REFER TO GEOTECHNICAL REPORT FOR FINAL PAVEMENT DESIGN SPECIFICATION
 - 2. NO RECYCLED ASPHALT PRODUCT ALLOWED IN ANY WEARING COURSE.



24" ROLLED CONCRETE CURB AND GUTTER DETAIL
N.T.S.



LOCATION MAP
NOT TO SCALE



FIRE LANE SIGN DETAIL
N.T.S.

LEGEND

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

GENERAL NOTES

- ZONING OF PROPERTY: NR-PUD = NON-RESIDENTIAL PLANNED UNIT DEVELOPMENT NR-PUD ZONING REQUIREMENTS (ZONE 3 IN THE PUD)
MINIMUM LOT AREA = 1 ACRE
MINIMUM LOT WIDTH = 175 FT
MAXIMUM ALLOWED BUILDING HEIGHT = 75 FT, 5 STORIES
MAXIMUM ALLOWED BUILDING COVERAGE = 35%
MAXIMUM ALLOWED IMPERVIOUS AREA/HARD SURFACE COVERAGE = 85%
MINIMUM ALLOWED BUILDING SETBACKS:
FRONT YARD = 50 FT
SIDE YARD = 20 FT
REAR YARD = 20 FT
- SUMMARY OF LAND USE:
A) TOTAL ACREAGE 2.19 ACRES (APPROX. 95,614 SF) (EXCLUDING ROAD R.O.W.)
B) AREA OF PROPOSED BUILDING 11,968 SF INTERIOR (APPROXIMATELY 10,960 SF USABLE)
C) PROPOSED BUILDING HEIGHT APPROXIMATELY 11 FT TO EAVES (ONE STORY)
9 FT TO THE MID-POINT OF THE ROOF
D) BUILDING LOT COVERAGE = APPROXIMATELY 12.5%
E) GROSS ON-SITE PAVEMENT AREA = APPROXIMATELY 18,110 SF
F) GROSS ON-SITE CONCRETE AREA = APPROXIMATELY 4,700 SF (INCLUDING CURBING)
G) IMPERVIOUS PERCENTAGE = APPROXIMATELY 36.4%
H) THE BUILDING WILL BE USED AS A DAY CARE FACILITY, WITH LICENSING FOR UP TO 164 CHILDREN.
I) THE OUTDOOR PLAY AREA IS REQUIRED TO BE 100 SF PER CHILD PER THE ORDINANCE (16,400 SF). THE OUTDOOR PLAY AREA PROVIDED COVERS APPROXIMATELY 19,730 SF. THIS AREA CAN BE LARGER IF REQUIRED.
J) ZONING OF PARCELS TO THE NORTH, SOUTH, AND EAST = NR-PUD ZONING OF PARCEL WEST = IND
- PARKING REQUIREMENTS:
A) TYPICAL PARKING SPACE 9' x 18' (24 FT TWO-WAY DRIVE AISLES)
B) TYPICAL BARRIER FREE SPACE 8' x 18' (WITH 8 FT WIDE VAN ACC. AISLES)
C) NUMBER OF SPACES REQUIRED 23 (BASED ON 2 PLUS 1 PER 8 CHILDREN (164 CHILDREN))
D) NUMBER OF SPACES PROVIDED 43
E) MINIMUM ALLOWED PARKING SETBACK = 10 FT
10 FT IN SIDE AND REAR YARDS
10 FT IN FRONT YARD
- THIS PROJECT IS NOT LOCATED IN THE 100 YEAR FLOOD PLAIN.
- BEST MANAGEMENT PRACTICES WILL BE UTILIZED DURING AND AFTER CONSTRUCTION OF THE PROJECT. MEASURES WILL INCLUDE THE USE OF SILT FENCING, SEEDING AND MULCHING, SEDIMENT INLET FILTERS, COMPACTION AND PAVING. THE OWNER OF THE SUBJECT PARCEL SHALL HAVE THE RESPONSIBILITY TO MAINTAIN THE PERMANENT SOIL EROSION PROTECTION MEASURES.
- SIGNS SHALL BE CONSTRUCTED TO THE STANDARDS SET FORTH BY ARTICLE 16 OF THE GENOA TOWNSHIP ZONING ORDINANCE.
FREESTANDING SIGN: ONE ALLOWED
MAXIMUM SIZE = 72 SF
MAXIMUM HEIGHT = 6 FT
MINIMUM SETBACK = 10 FT
WALL-MOUNTED SIGNS: ONE ALLOWED
MAXIMUM SIZE = 10% OF FRONT FACADE, OR 100 SF; WHICHEVER IS LESS
- UTILITIES SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETTED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.
- CONTRACTOR TO FIELD VERIFY ALL INVERTS.
- ALL LIGHTING SHALL COMPLY WITH THE GENOA TOWNSHIP ZONING ORDINANCE (ARTICLE 12.03)
ALL LIGHTING SHALL BE SHIELDED FROM ALL ADJACENT PROPERTIES.
PROPOSED LIGHTING SHALL CONSIST OF SOFFIT LIGHTS AT BUILDING ENTRANCES AND WALL MOUNTED LIGHTS. THE FIXTURES WILL BE SHOEBOX TYPE FIXTURES THAT DIRECT THE LIGHT DOWNWARD. ALL LIGHTING SHALL BE INSTALLED MOUNTED HORIZONTALLY SO FIXTURES ARE FULL CUT-OFF, DARK SKY FRIENDLY. NO LIGHT POLES ARE PROPOSED AT THIS TIME.
- LANDSCAPING SHALL COMPLY WITH THE REQUIREMENTS OF THE GENOA TOWNSHIP ZONING ORINANCE AND SHALL BE SIMILAR TO WHAT IS SHOWN ON THIS PLAN SET.
- THE PERMANENT PARCEL NUMBER FOR THE SITE IS 47-11-08-200-012.
NO ADDRESS HAS BEEN ASSIGNED TO PROPERTY AT THIS TIME (VACANT PARCEL).
- THE CONSTRUCTION OF THE SITE WILL BEGIN IMMEDIATELY PENDING TOWNSHIP/AGENCY APPROVALS AND PERMITS. IT IS ANTICIPATED THAT THE PROJECT WILL BE COMPLETED IN 2016. THE PROJECT WILL BE COMPLETED IN ONE PHASE.
- THE STORM WATER RUNOFF FROM THE SITE WILL BE COLLECTED BY CATCHBASINS AND STORM SEWER PIPES WHICH WILL DIRECT THE RUNOFF TO THE EXISTING 18" STORM LEAD PROVIDED TO THE SITE. IT IS OUR UNDERSTANDING THAT REGIONAL STORM WATER HOLDING IS PROVIDED FOR THIS SITE.
- THE SITE SOIL IS PRIMARILY CONOVER LOAM AND MIMI LOAM, BASED ON SOIL SURVEY MAP INFORMATION
- THERE WILL NOT BE ANY HAZARDOUS MATERIALS STORED, USED OR GENERATED ON-SITE.
- THE BUILDING SHALL INCLUDE THE BUILDING ADDRESS ON THE BUILDING. THE ADDRESS SHALL BE A MINIMUM OF 6" HIGH LETTERS OF CONTRASTING COLORS AND BE CLEARLY VISIBLE FROM THE STREET. THE LOCATION AND SIZE SHALL BE VERIFIED BY THE FIRE DEPARTMENT PRIOR TO INSTALLATION.
- ACCESS ROADS TO SITE SHALL BE PROVIDED AND MAINTAINED DURING CONSTRUCTION. ACCESS ROADS SHALL BE CONSTRUCTED TO BE CAPABLE OF SUPPORTING THE IMPOSED LOAD OF FIRE APPARATUS WEIGHING AT LEAST 75,000 POUNDS.
- ACCESS ONTO AND THROUGH SITE ACCESS TO THE BUILDING SHALL PROVIDE A TURNING RADIUS OF 50 FT OUTSIDE AND 30 FT INSIDE, WALL TO WALL, WITH A MINIMUM CLEARANCE OF 13.5 FT.
- KEY BOX (KNOX BOX) SHALL BE PROVIDED AND SHALL BE LOCATED ADJACENT TO THE BIOMETRIC LOCKING SYSTEM CONTROL AT THE MAIN ENTRANCE.

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Phone: 616.575.5190

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PREPARED FOR:
Boverhof Builders Inc.
Attn: Dan Boverhof
5475 Settlers Pass
Kentwood, MI 49512

REVISIONS:

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Drawn: SW	Checked: SW
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Drawn: SW	Checked: SW

GILDEN WOODS HOWELL
Site Layout Plan
Grand Oaks Drive - Howell, MI 48843
PART OF THE NE CORNER OF SECTION 8, T2N, R9E,
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

STAMP:

STATE OF MICHIGAN
LITERSED PROFESSIONAL ENGINEER
STEVEN L. WITTE
ENGINEER
No. 46769

PROJECT NO:
15500079

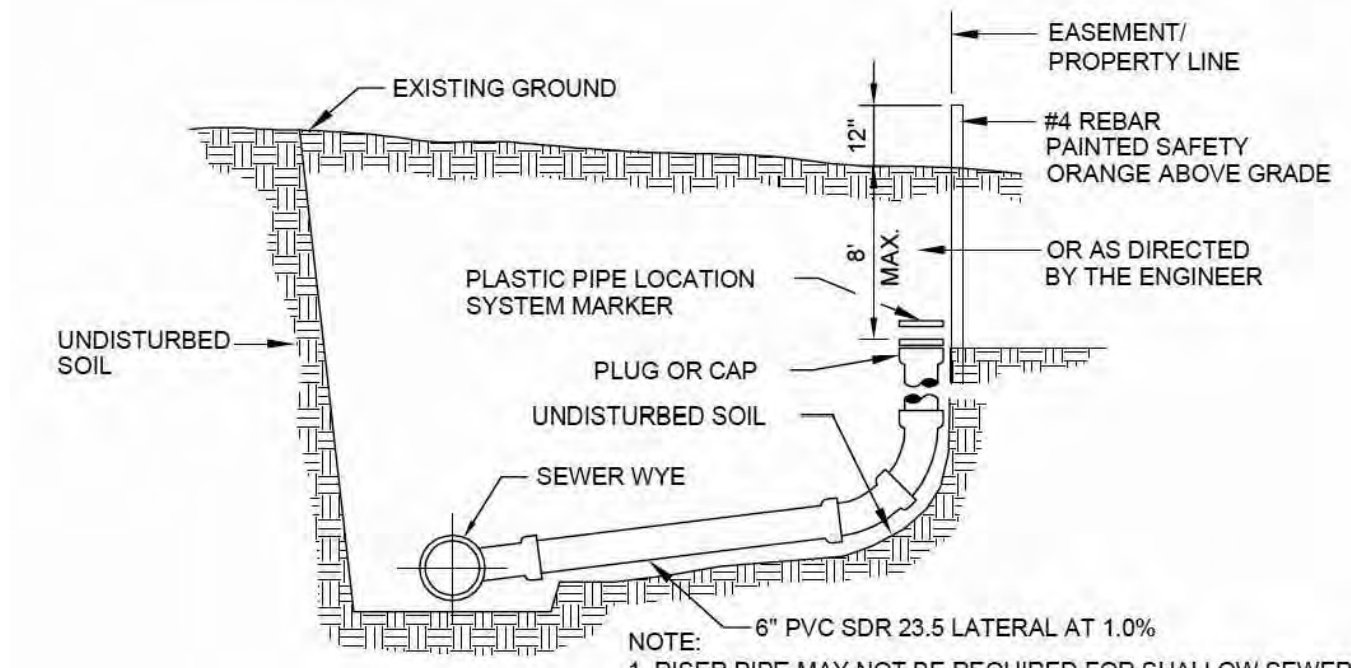
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C-205

SHEET: 3 OF 6

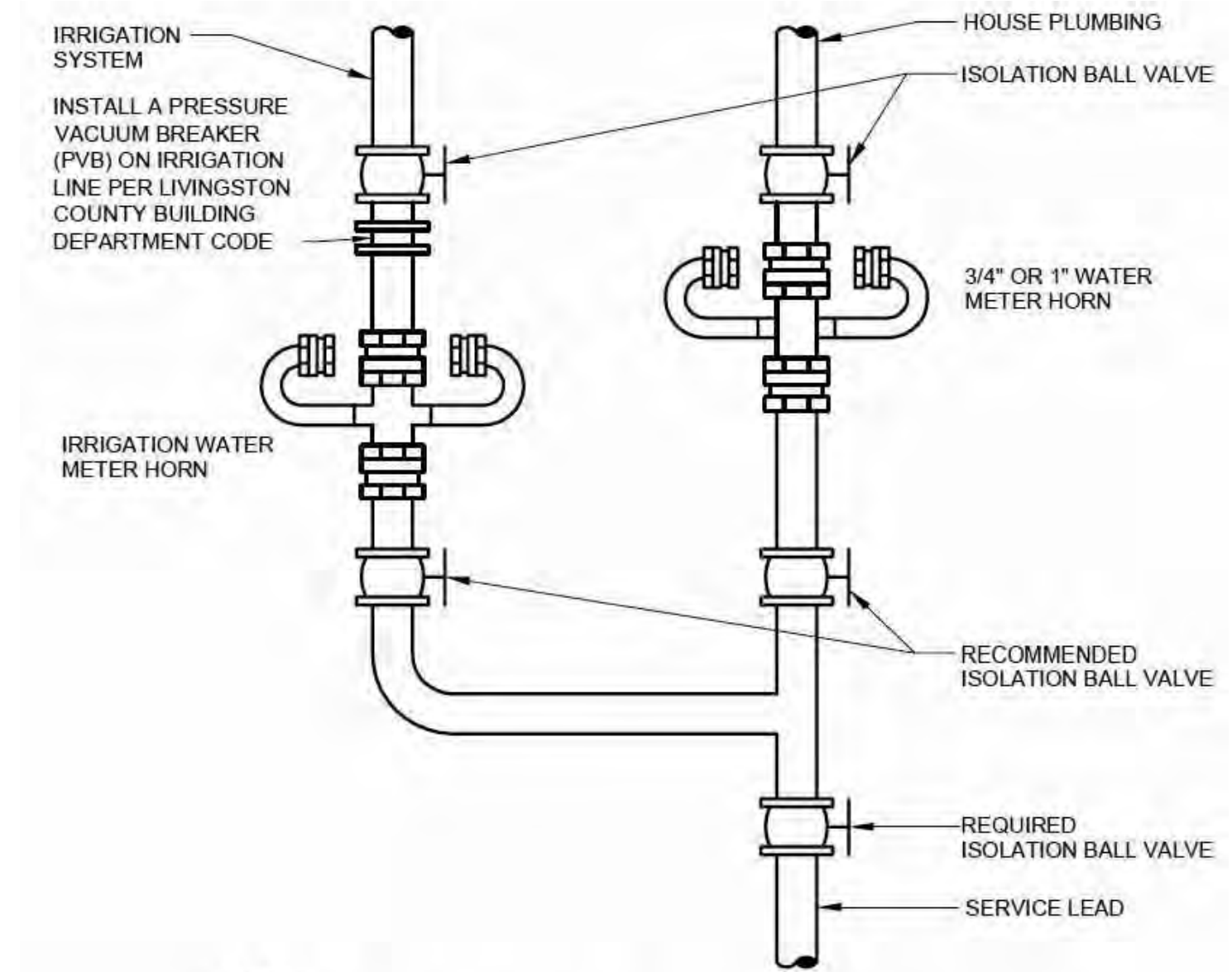
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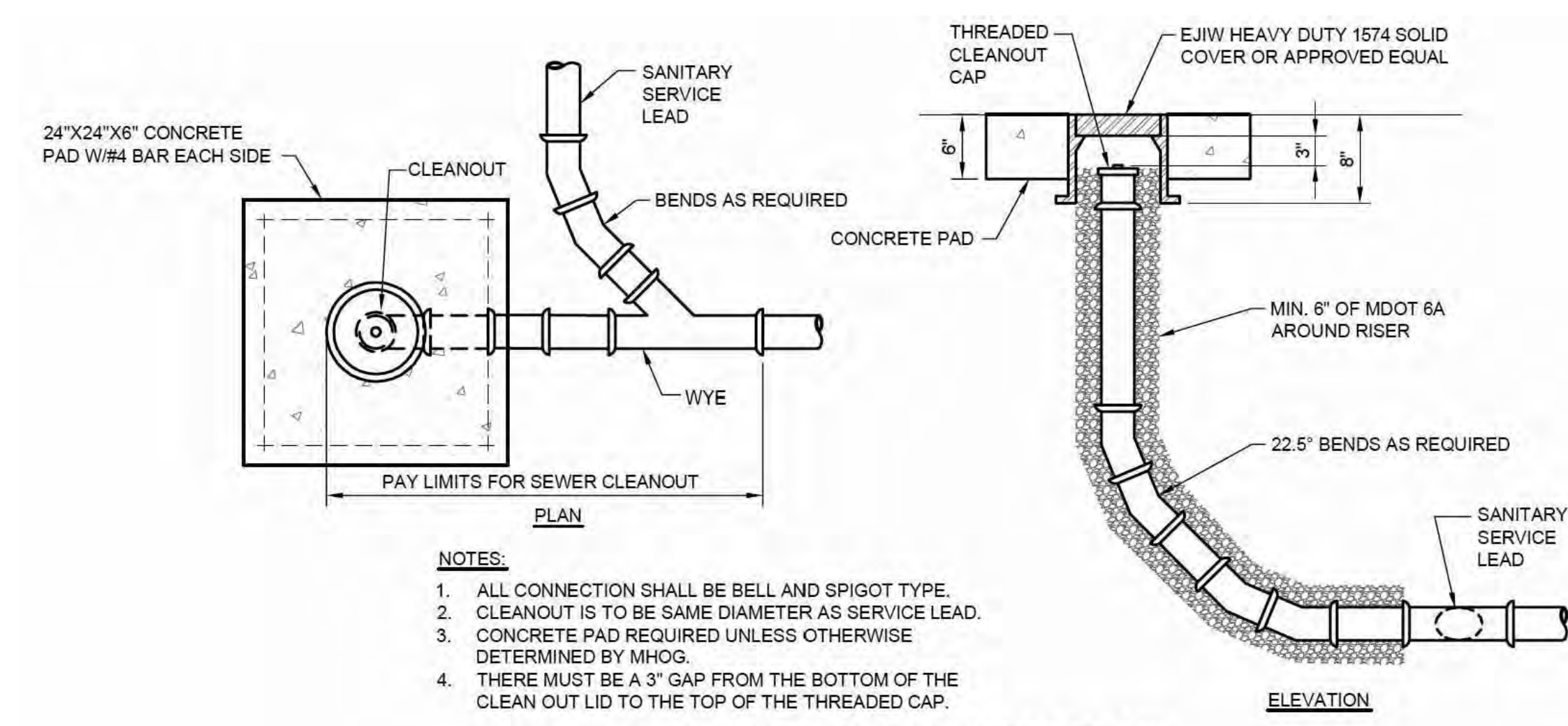


SANITARY SEWER LATERAL



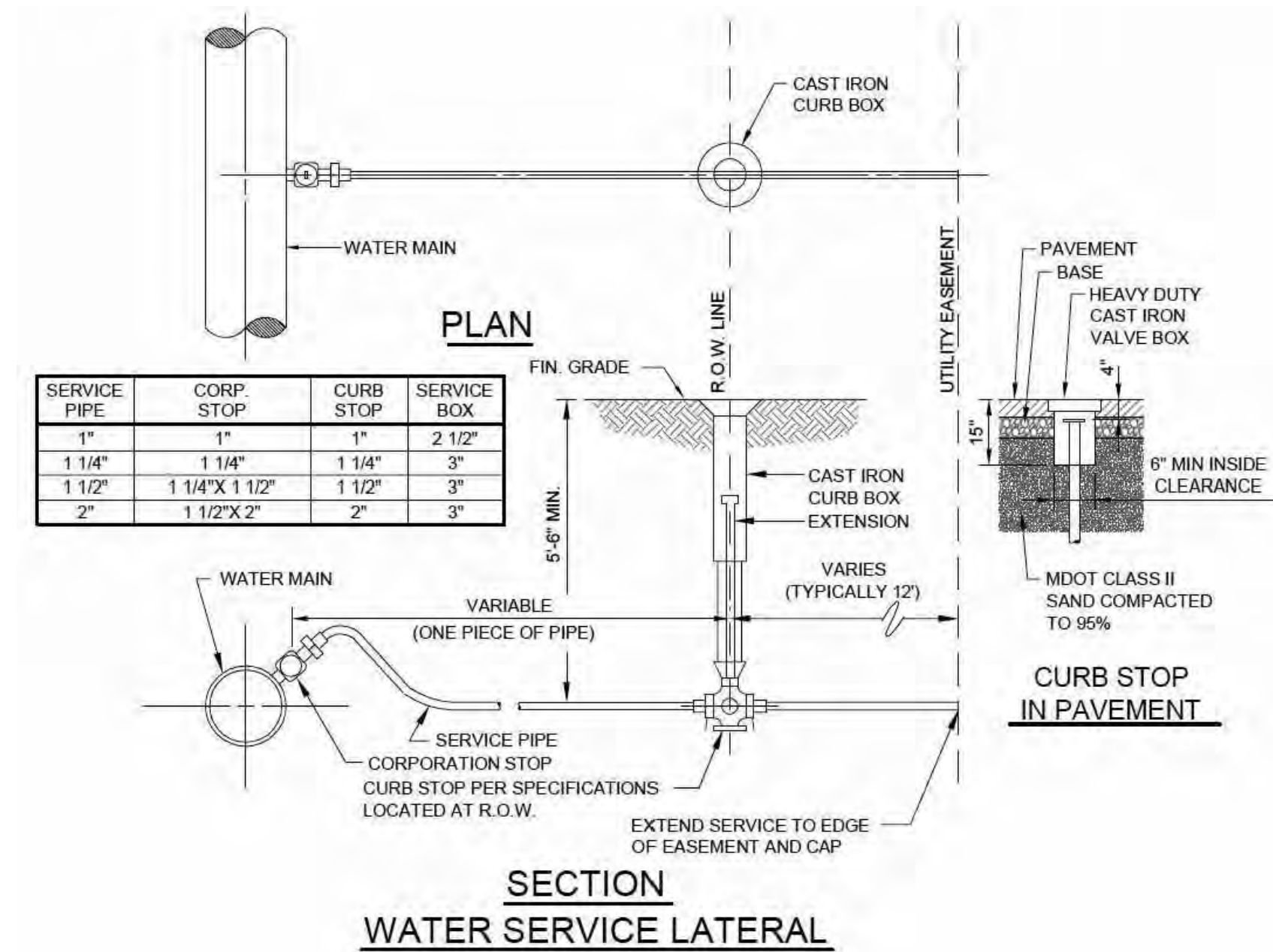
- NOTES:**
1. ALL METERS ARE TO BE INSTALLED HORIZONTALLY IN A DRY, CLEAN, SANITARY LOCATION THAT IS READILY ACCESSIBLE. THIS DRAWING IS NOT TO SCALE & IS ONLY A REPRESENTATION OF HOW THE METERS SHOULD BE INSTALLED. THE SECOND METER IS OPTIONAL FOR IRRIGATION USAGE. METERS SHOULD NOT BE INSTALLED IN LINE (ONE RIGHT AFTER THE OTHER).
 2. PROPERTIES DESIGNATED "HIGH HAZARD" PER THE MHOG CROSS CONNECTION RULES MANUAL WILL REQUIRE THE INSTALLATION OF A REDUCED PRESSURE ZONE (RPZ) BACK FLOW PREVENTION DEVICE.

TYPICAL METER HORN INSTALLATION



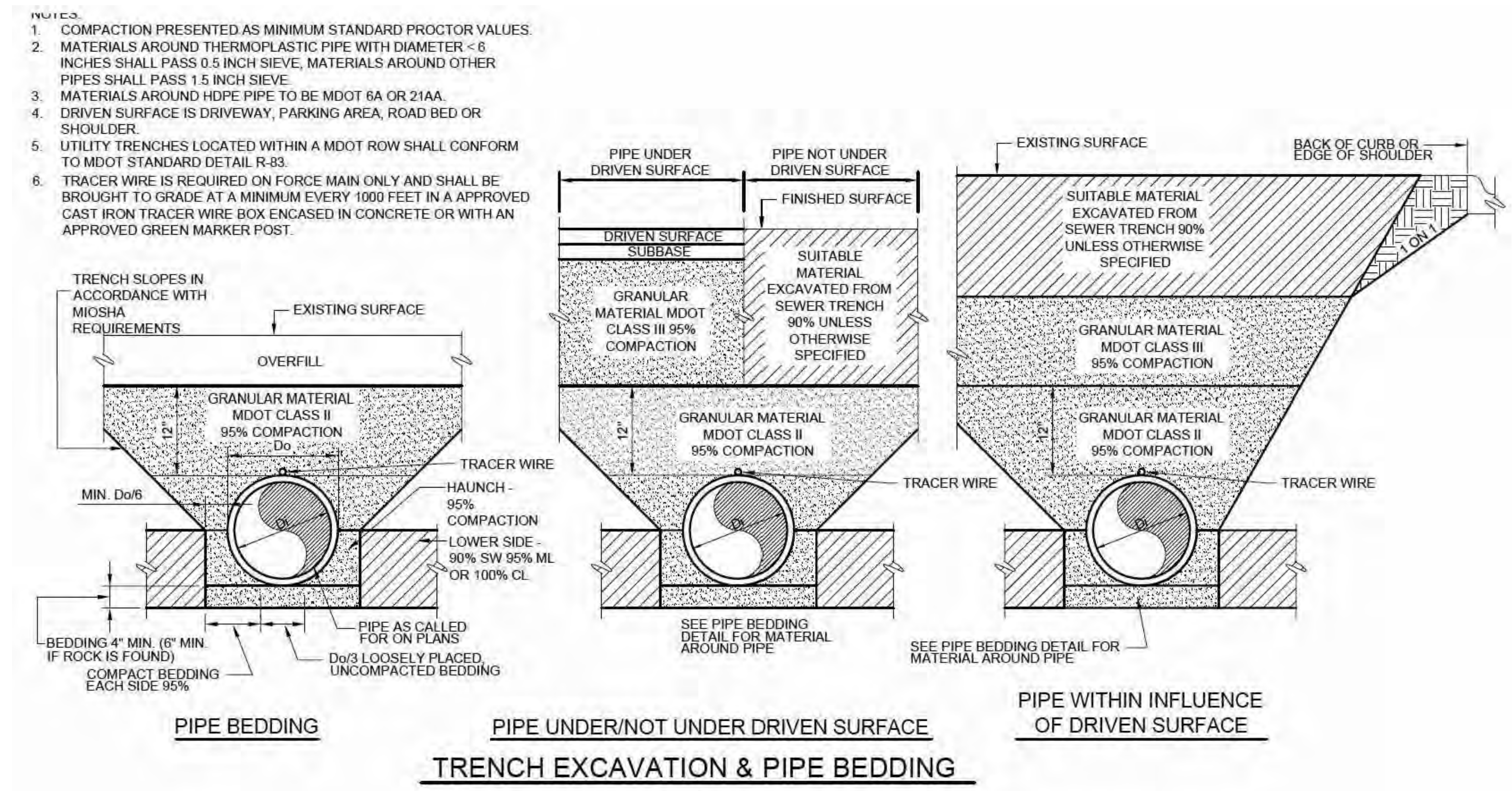
- NOTES:**
1. ALL CONNECTION SHALL BE BELL AND SPIGOT TYPE.
 2. CLEANOUT IS TO BE SAME DIAMETER AS SERVICE LEAD.
 3. CONCRETE PAD REQUIRED UNLESS OTHERWISE DETERMINED BY MHOG.
 4. THERE MUST BE A 3\"/>

SEWER CLEANOUT DETAIL



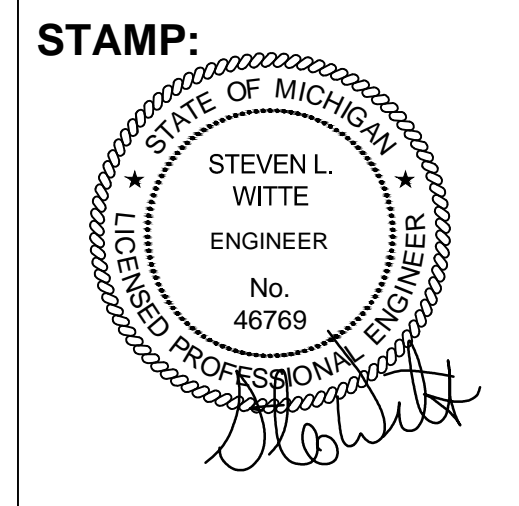
SERVICE PIPE	CORP. STOP	CURB STOP	SERVICE BOX
1"	1"	1"	2 1/2"
1 1/4"	1 1/4"	1 1/4"	3"
1 1/2"	1 1/4" X 1 1/2"	1 1/2"	3"
2"	1 1/2" X 2"	2"	3"

SECTION WATER SERVICE LATERAL

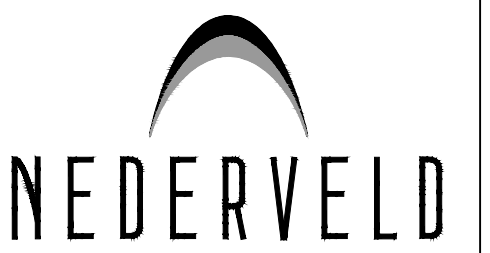


TRENCH EXCAVATION & PIPE BEDDING

GILDEN WOODS HOWELL
Details & Specifications
 Grand Oaks Drive - Howell, MI 48843
 PART OF THE NE CORNER OF SECTION 8, T2N, R9E,
 GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN



PROJECT NO:
 15500079
SHEET NO:
C-500
SHEET: 5 OF 6



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LANDSCAPE LEGEND / SCHEDULE

TREES					
SYMBOL	KEY	QUANTITY	SCIENTIFIC NAME	COMMON NAME	SIZE
	AB	2	Abies balsamea	Balsam Fir	8' hgt. avg. ⁽¹⁾
	AR	5	Acer rubrum	Red Maple	2.5' cal. min.
	CC	4	Cercis canadensis	Eastern Redbud	2.5' cal. min.
	TT	4	Tilia tomentosa	Silver Linden	2.5' cal. min.

(1) Balsam Fir shall be planted at varying heights, approximately 6'-10'.

SHRUBS					
SYMBOL	KEY	QUANTITY	SCIENTIFIC NAME	COMMON NAME	SIZE
	Fg	8	Fothergilla gardenii	Dwarf Fothergilla	#3 cont.
	Js	6	Juniperus sabinina 'Broadmoor'	'Broadmoor' Juniper	#5 cont.
	Tm	5	Taxus x media 'Densiformis'	Compact Yew	#3 cont.

GROUND COVER					
SYMBOL	KEY	QUANTITY	SCIENTIFIC NAME	COMMON NAME	SIZE
	As Needed ⁽¹⁾	N/A		Bark Mulch	3" depth
	As Needed ⁽²⁾		Poa pratensis	Kentucky Bluegrass Sod	Roll

(1) All disturbed areas programmed as planting beds shall receive bark mulch to a depth of 3".
(2) All disturbed areas not otherwise programmed shall receive turf grass sod.

NOTE: THE EXACT SPECIES AND PLANTINGS SHOWN ON THIS PLAN MAY BE ADJUSTED IF MUTUALLY AGREED TO BY THE OWNER, THE TOWNSHIP, AND THE LANDSCAPE ARCHITECT.

LANDSCAPE NOTES

PLANTING NOTES:
1) ALL PLANT MATERIAL SHALL BE LOCALLY NURSERY GROWN NO. 1 GRADE AND INSTALLED ACCORDING TO ACCEPTED PLANTING PROCEDURES. ALL PLANT MATERIALS SHALL MEET CURRENT AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS. DO NOT PLANT MATERIALS UNTIL DIRECTED BY OWNER, LANDSCAPE ARCHITECT, AND/OR CONSTRUCTION MANAGER. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL, FOR ANY REASON BEFORE OR AFTER IT IS INSTALLED.
2) SIZES SPECIFIED ARE MINIMUM SIZES TO WHICH THE PLANTS ARE TO BE INSTALLED.
3) ANY PLANT SUBSTITUTIONS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT.

4) MAINTENANCE OF LANDSCAPING ITEMS, TREES, AND PLANTS SHALL BE PERFORMED BY THE PROPERTY OWNER OR A QUALIFIED PROFESSIONAL. ALL LANDSCAPING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH APPLICABLE MUNICIPAL STANDARDS AND IN ACCORDANCE WITH CURRENT INDUSTRY STANDARDS IN A NEAT, HEALTHY AND WEED FREE CONDITION. ANY DEAD, DISEASED OR DAMAGED PLANT MATERIALS ARE TO BE REPLACED IMMEDIATELY AFTER NOTIFIED TO DO SO.
5) PLANT TREES AND SHRUBS IN ACCORDANCE WITH PLANTING DETAILS. DIG TREE PITS PER DETAILS. PLANT TREES AND SHRUBS AT THE SAME GRADE LEVEL AT WHICH THEY WERE GROWN AT THE NURSERY. IF HEAVY CLAY SOILS ARE EVIDENT, PLANT TREES AND SHRUBS HIGHER, APPROX. 1/4 OF THE ROOT BALL ABOVE GRADE, AND BACKFILL TO TOP OF ROOT BALL. REMOVE ALL TWINE, WIRE, NURSERY TREE GUARDS, TAGS AND INORGANIC MATERIAL FROM ROOT BALLS. REMOVE THE TOP 1/3 OF BURLAP FROM EARTH BALLS AND REMOVE BURLAP FROM AROUND TRUNK.
6) REMOVE ALL TWINE, WIRE, NURSERY TREE GUARDS, TAGS AND INORGANIC MATERIAL FROM ROOT BALLS. REMOVE THE TOP 1/3 OF BURLAP FROM EARTH BALLS AND REMOVE BURLAP FROM AROUND TRUNK.
7) FINELY SHREDDED HARDWOOD BARK MULCH, NATURAL COLOR (NON-COLORED), IS REQUIRED FOR ALL PLANTINGS AND PLANTING BEDS. MULCH PER PLANTING DETAILS. MULCH IN PLANT BEDS SHALL BE 3" THICK AT TIME OF INSPECTION AND AFTER COMPACTED BY RAIN OR IRRIGATION. ALL PLANTING BEDS SHALL BE EDGED WITH 6" X 12 GAUGE STEEL LANDSCAPE EDGING.
8) LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION OF ALL UNDERGROUND AND OVERHEAD UTILITIES. IF A CONFLICT WITH UTILITIES EXIST, NOTIFY OWNER/CONSTRUCTION MANAGER PRIOR TO PLANTING.
9) PLANT MATERIAL SHALL BE GUARANTEED FOR ONE YEAR AFTER PLANTING AND ACCEPTANCE.

TOPSOIL AND TURF NOTES:
1) WHEREVER GROUND IN ITS NATURAL STATE HAS BEEN DISTURBED, APPROVED LANDSCAPING OR GRASS SHALL BE FULLY INSTALLED, AND ESTABLISHED WITHIN A REASONABLE PERIOD OF TIME, BUT NO LONGER THAN ONE GROWING SEASON (UNLESS OTHERWISE NOTED AND APPROVED).
2) DURING EXCAVATION, GRADING, AND INSTALLATION OF REQUIRED LANDSCAPING, ALL SOIL EROSION AND SEDIMENTATION CONTROL REGULATIONS SHALL BE STRICTLY FOLLOWED AND COMPLIED WITH.
3) ALL LAWN AREAS SHALL RECEIVE SOD OR HYDROSEED. TURF SHALL BE INSTALLED ON TOPSOIL UNLESS APPROVED OTHERWISE. DO NOT PLANT UNTIL ACCEPTANCE OF FINISH GRADE.
4) SOD SHALL BE GROWN ON TOPSOIL UNLESS APPROVED OTHERWISE. SOD SHALL BE 2 YEARS OLD AND STRONGLY ROOTED. PLACE SOD TIGHTLY WITH NO GAPS AND WITH GRAIN IN SAME DIRECTION. SEAMS OF SOD SHALL BE STAGGERED IN A RUNNING BOND PATTERN. SOD SHALL BE WATERED IMMEDIATELY TO AVOID DRYING OUT. DO NOT INSTALL SOD UNTIL ACCEPTANCE OF FINISH GRADE AND IRRIGATION SYSTEM IS OPERATING PROPERLY UNLESS DIRECTED IN WRITING TO DO OTHERWISE. FINISH ROLL SOD WITH A WATER FILLED LAWN ROLLER, ROLL PERPENDICULAR TO LENGTH OF SOD.
5) TURF SHALL BE INSTALLED ON A MIN. OF 3" OF LIGHTLY COMPACTED APPROVED TOPSOIL. TOPSOIL SHALL BE FERTILE, SCREENED, FRAGILE TOPSOIL, FREE OF STONES 1/2" IN DIA. AND LARGER, ROOTS, STICKS, OR OTHER EXTRANEOUS MATERIAL INCLUDING NOXIOUS PLANTS. PH BETWEEN 6.0 AND 6.5, SALTS 500 PARTS PPM, ORGANIC CONTENT 3% MIN. DO NOT INSTALL TOPSOIL UNTIL APPROVED BY OWNER/M. TOPSOIL SHALL BE FINE GRADED TO A SMOOTH FINISH, FREE OF LUMPS AND DEPRESSIONS.
6) ALL LANDSCAPE ISLANDS WITHIN PARKING LOTS SHALL BE BACK FILLED WITH TOPSOIL TO A DEPTH OF 18" MIN.

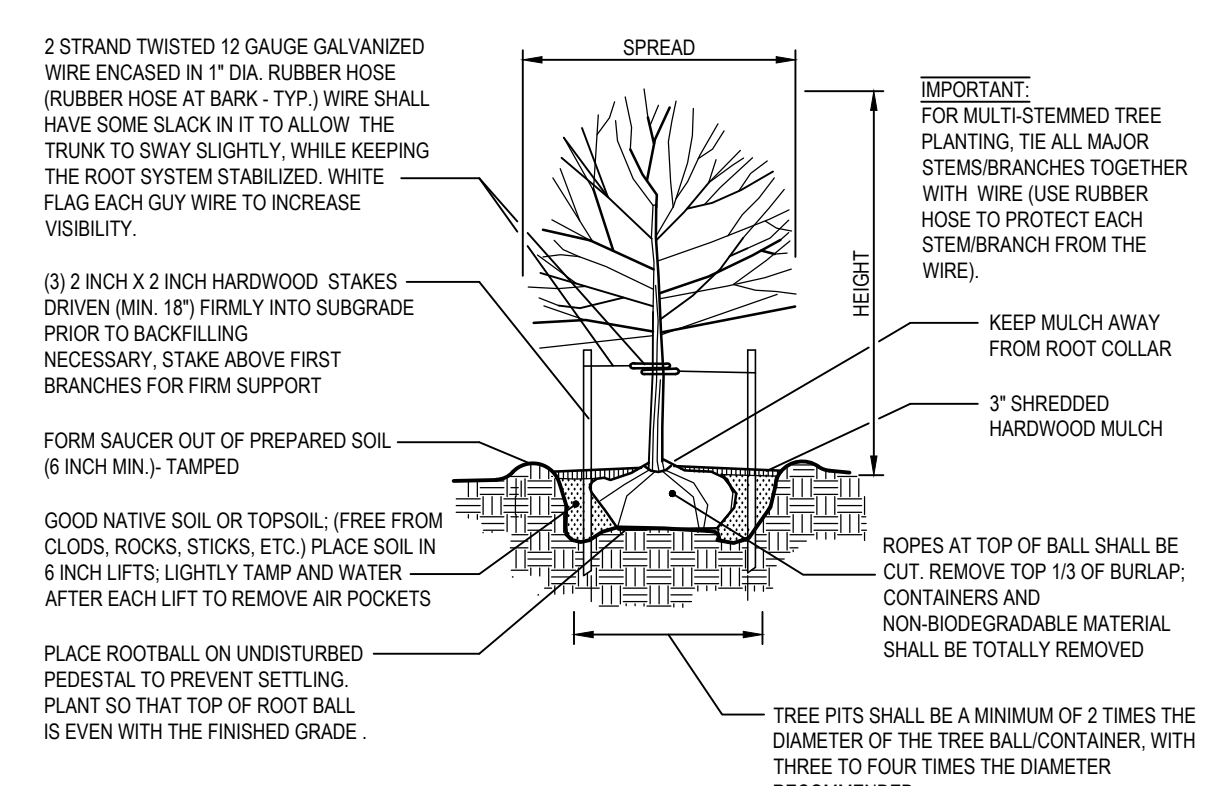
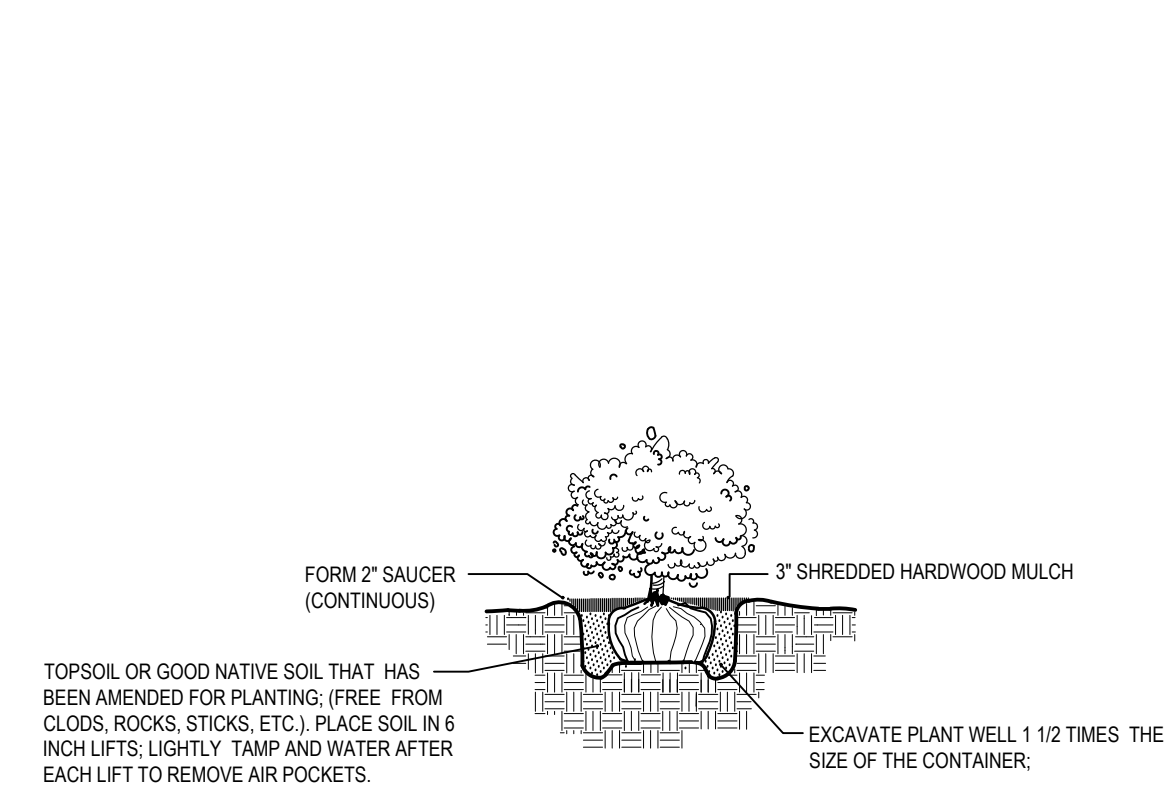
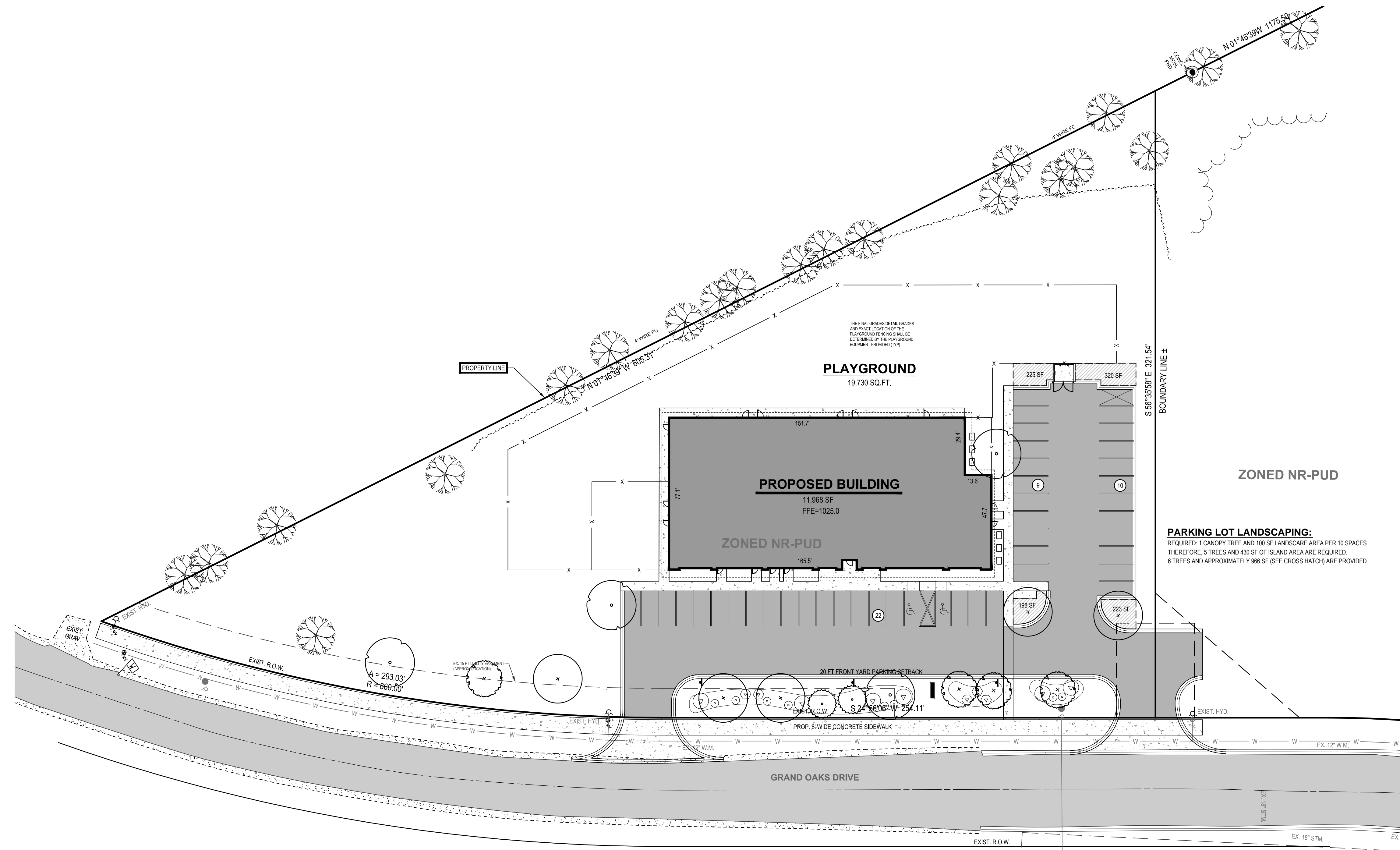
IRRIGATION NOTES:
1) ALL PLANTING AREAS, LAWN AREAS AND LANDSCAPE ISLANDS SHOWN ARE TO HAVE A COMPLETE IRRIGATION SYSTEM. THE G.C. SHALL BE RESPONSIBLE FOR RETAINING A QUALIFIED FIRM FOR THE DESIGN OF THE IRRIGATION SYSTEM. THE DESIGN MUST SHOW HOW THE SYSTEM TIES INTO THE BUILDING AND MUST SHOW ALL OF THE NECESSARY EQUIPMENT FOR A COMPLETE SYSTEM. THE G.C. SHALL SUBMIT THE IRRIGATION SYSTEM DESIGN TO THE ARCHITECT/OWNER FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK.

LEGEND

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



0' 15' 30' 60'
SCALE: 1" = 30'



811 Know what's below. CALL before you dig.
UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.
NOTE: EXISTING UTILITIES AND SERVICE LINES IDENTIFIED AS 'PLANNED' WERE OBTAINED FROM AVAILABLE AS-BUILT RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH AND STATUS OF ALL UTILITIES AND SERVICE LINES PRIOR TO NEW CONNECTIONS.

TYPICAL SHRUB / PERENNIAL / ORNAMENTAL GRASS PLANTING DETAIL
N.T.S.

TYPICAL TREE PLANTING DETAIL
N.T.S.

GILDEN WOODS HOWELL
Landscape Plan
Grand Oaks Drive - Howell, MI 48843
PART OF THE NE CORNER OF SECTION 8, T2N, R2E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

STAMP
STATE OF MICHIGAN
JAMES C. WALTER, JR.
LANDSCAPE ARCHITECT
No. 1588
J. C. Walter, Jr.

PROJECT NO:
15500079

SHEET NO:
L-201
SHEET: 6 OF 6

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

ANN ARBOR
 CHICAGO
 COLUMBUS
 HOLLAND
 INDIANAPOLIS
 ST. LOUIS

Plan View
 Scale - 1" = 50'

PREPARED FOR:
 Boverhof Builders Inc.
 Attn: Dan Boverhof

5475 Settlers Pass
 Kentwood, MI 49512

REVISIONS:

Title: Site Plan Submittal	V. Date: 02.23.16
Drawn: SW	Checked: SW
Title: Site Plan Reubmittal	V. Date: 02.23.16
Drawn: SW	Checked: SW

GILDEN WOODS HOWELL
 Site Layout Plan
 Grand Oaks Drive - Howell, MI 48843
 PART OF THE NE CORNER OF SECTION 8, T2N, R1E,
 CITY OF HOWELL, LIVINGSTON COUNTY, MICHIGAN

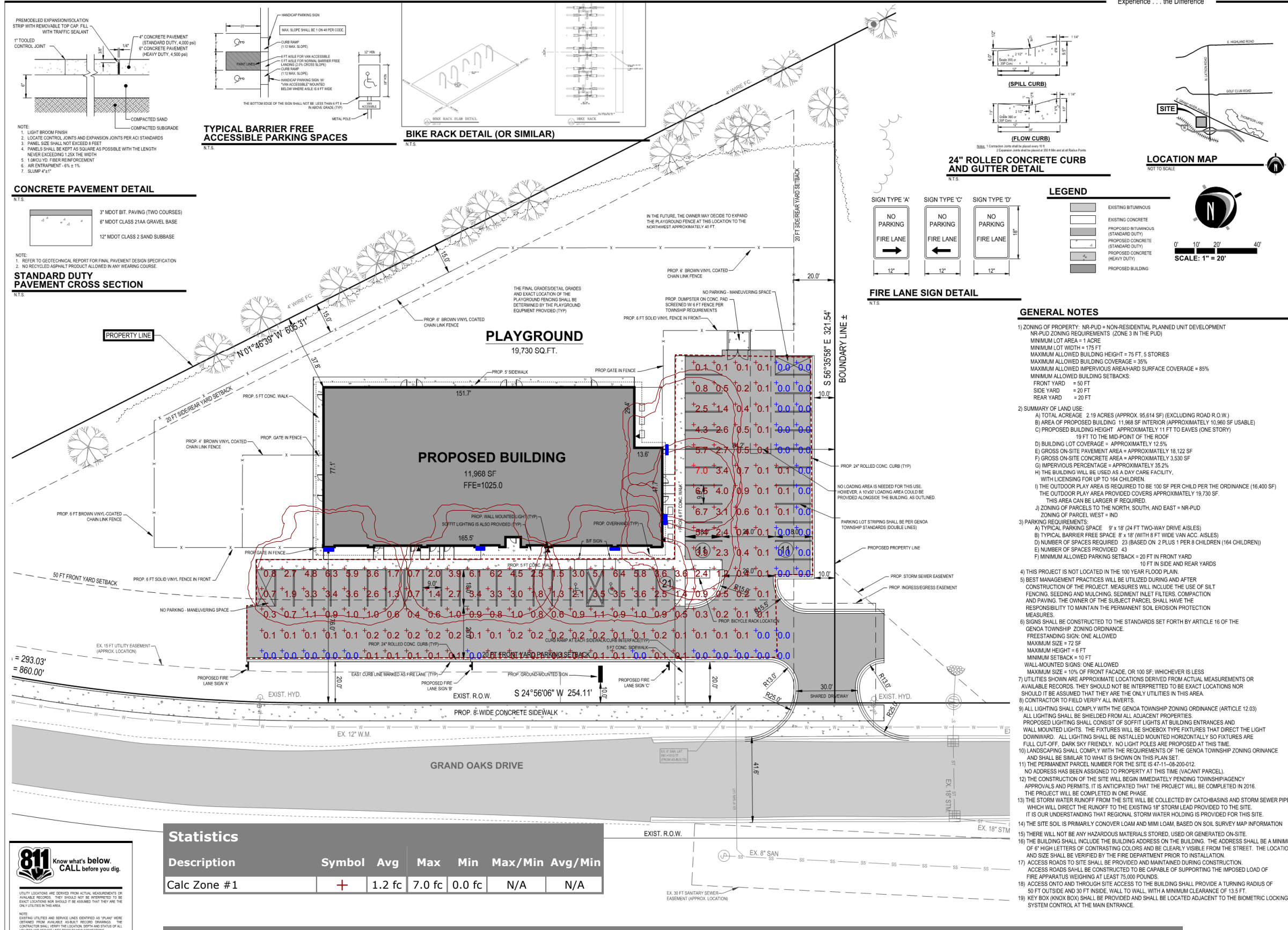
STAMP:

STEVEN L. WITTE
 ENGINEER
 No. 46769
 PROFESSIONAL ENGINEER

PROJECT NO:
 15500079

SHEET NO:
C-205

SHEET: 3 OF 6



811 Know what's below. CALL before you dig.

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

Land Planning - Landscape Architect

MOVEABLE PARTITION NOTES:

- PARTITION SHALL BE HUFOR, 432 SERIES WITH PAIRED PANELS.
- PANELS SHALL BE 51C-47 AND SHALL BE FINISHED WITH NON-TACKABLE STANDARD VINYL AND 2" BOTTOM, VINYL PATTERN AND COLOR SHALL BE SELECTED BY OWNER.
- PROVIDE UNISPAN SELF SUPPORT SYSTEM. PROVIDE HEADER SIDE PANELS AT HIGH CEILING ON GYM SIDE OF WALL IN VINYL FINISH TO MATCH DOOR PANELS.

NOTE:
LAYOUT DIMENSIONS SHOWN ON THIS SHEET FOR INTERIOR WALLS ARE FROM INTERIOR FACE OF EXTERIOR WALL TO CENTERLINES OF INTERIOR WALLS.

NOTES:

- PROVIDE ALTERNATE COST FOR USE OF METAL FIBER REINFORCING IN CONCRETE SLAB IN LIEU OF M.I.F., SEE STRUCTURAL DRAWINGS.
- PROVIDE 3" x 3" STEEL ANGLES SET IN CONCRETE SLAB IN LOW-HEIGHT WALLS. PROVIDE ANGLES @ 10'-0" O.C. MAX. IN LOW-HEIGHT WALLS 20' LONG OR OVER. PROVIDE ANGLES AT ALL FREE ENDS OF LOW-HEIGHT WALLS SUCH AS AT EACH SIDE OF DOOR OPENINGS.
- ALL FURNITURE AND EQUIPMENT BY OWNER, N.I.C.
- ALL INTERIOR WALLS MAY BE FRAMED USING 3 5/8" AND 6" METAL STUDS AT CONTRACTOR'S OPTION.
- OWNER TO PROVIDE AND CONTRACTOR TO INSTALL ALL WALL MOUNTED AUTOMATIC PAPER TOWEL DISPENSERS AND SOAP DISPENSERS. VERIFY EXACT BRAND AND MODEL NUMBER WITH OWNER.
- PROVIDE "KIDDY" TOILET FIXTURES AT UNISEX #122, #123, #126, AND #127. DELETE H.C. GRAB BARS @ KIDDY TOILETS.
- PROVIDE RADIUS CORNERS ON ALL PLASTIC LAMINATE COUNTERS AND SILLS IN ALL AREAS OF BUILDING.
- ELECTRICAL CONTRACTOR TO INCLUDE ALL DATA, PHONE AND SECURITY CAMERA WIRING USING CAT 5 CABLES FOR DATA AND CAMERAS. ALL DATA, PHONE, SECURITY AND CAMERA EQUIPMENT IS TO BE PROVIDED AND INSTALLED BY OWNER.
- SEE ELECTRIC STRIKE NOTES ON SHEET A-11 FOR INFORMATION AND REQUIREMENTS FOR DOOR HARDWARE AT DOOR # 100A.
- PROVIDE AND INSTALL MANUAL ROLLER SHADES W/ CONTINUOUS CHAIN CONTROL ON ALL EXTERIOR WINDOWS.
- PROVIDE AND INSTALL KNIX BOX KEY HOLDER AT MAIN ENTRY. VERIFY EXACT MODEL NUMBER AND MOUNTING LOCATION WITH LOCAL FIRE DEPARTMENT.
- PROVIDE ADA COMPLIANT SIGNAGE AT ALL TOILET ROOMS.

WALL TYPES

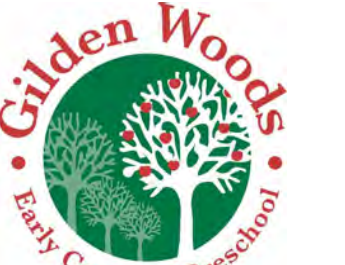
- TYPICAL EXTERIOR WALL CONSTRUCTION**
 - PRECAST INSULATED CONCRETE WALL PANELS
 - 6" FIBERGLASS BATT INSULATION (R-19)
 - 5/8" GYPSUM BOARD
 - SYNTHETIC STONE VENEER TO 3'-0" A.F.F. WITH CEMENT BOARD SIDING ABOVE AT SOUTH WALL)
- TYPICAL EXTERIOR WALL CONSTRUCTION @ ENTRY**
 - SYNTHETIC STONE VENEER TO 3'-0" A.F.F. WITH CEMENT BOARD SIDING ABOVE
 - 1/2" ASPHALT BUILDING PAPER
 - PLYWOOD SHEATHING, SEE STRUCTURAL DRAWINGS
 - 2x6 STUDS @ 24" O.C.
 - 6" FIBERGLASS BATT INSULATION (R-19)
 - 5/8" GYPSUM BOARD
- TYPICAL INTERIOR PARTITION CONSTRUCTION**
 - 5/8" GYPSUM BOARD
 - 2x4 WOOD STUDS @ 16" O.C.
 - 3 1/2" FIBERGLASS BATT INSULATION
 - 5/8" GYPSUM BOARD
 - (EXTEND WALL CONSTRUCTION UP TO DRYWALL AT ROOF CONSTRUCTION ABOVE)
- TYPICAL LOW-HEIGHT PARTITION CONSTRUCTION**
 - 5/8" GYPSUM BOARD
 - 2x4 WOOD STUDS @ 16" O.C.
 - 5/8" GYPSUM BOARD
 - (TOP OF WALL @ 4'-0" A.F.F.) (SEE NOTE #2)
- INTERIOR PARTITION CONSTRUCTION**
 - 5/8" GYPSUM BOARD
 - 2x6 WOOD STUDS @ 16" O.C., U.N.O.
 - 6" FIBERGLASS BATT INSULATION
 - 5/8" GYPSUM BOARD
 - (EXTEND WALL CONSTRUCTION UP TO DRYWALL AT ROOF CONSTRUCTION ABOVE)

PRELIMINARY NOT FOR CONSTRUCTION

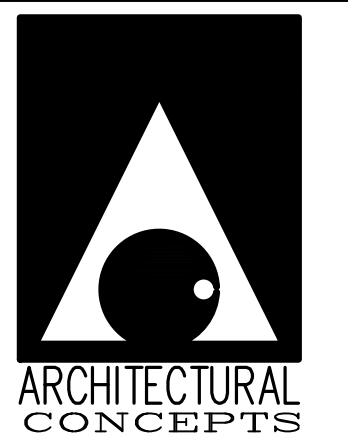
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DATE	REVISION
01-29-2016	FOR SITE PLAN APPROVAL

PROPOSED BUILDING FOR:



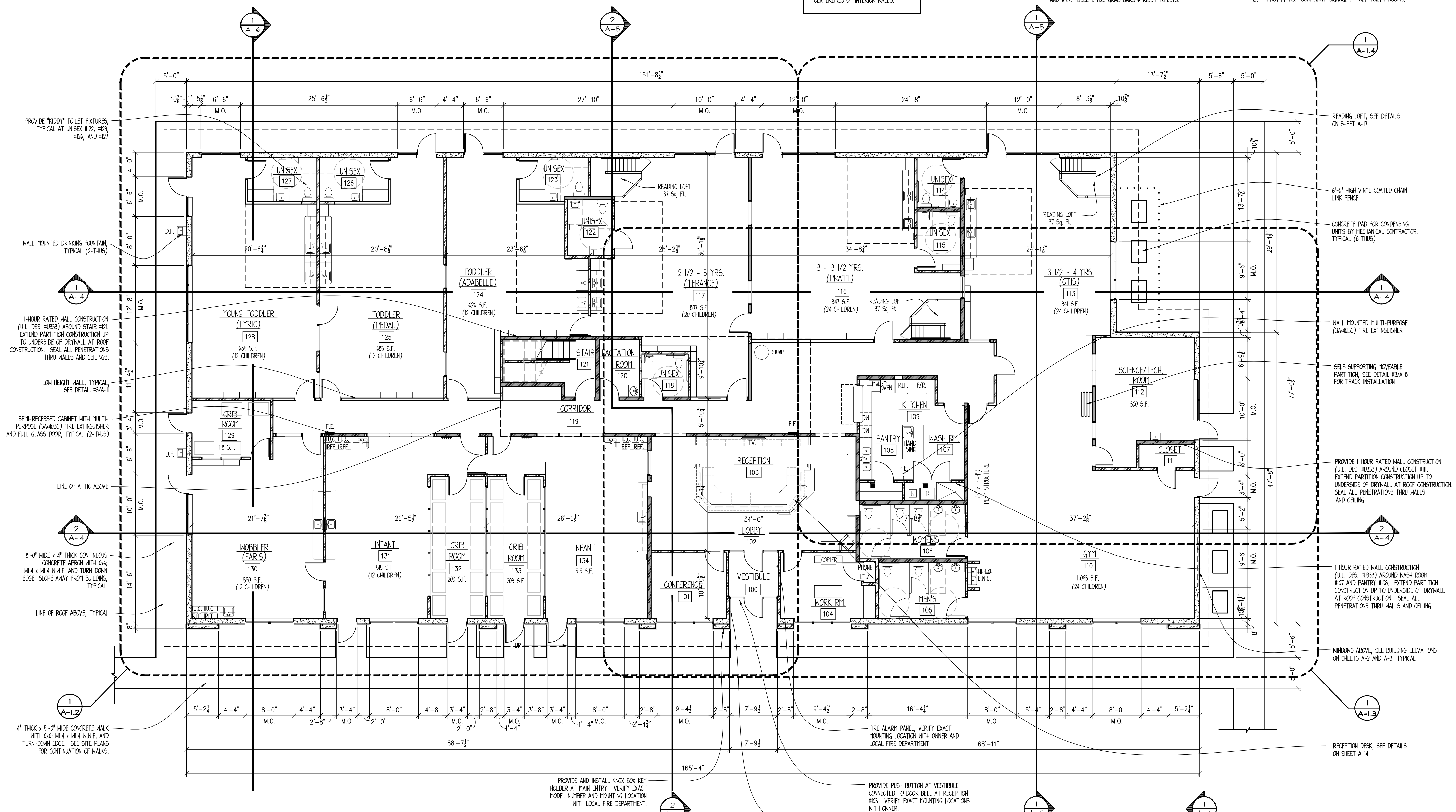
HOWELL GRAND OAKS DRIVE GENOA TWP., MICHIGAN

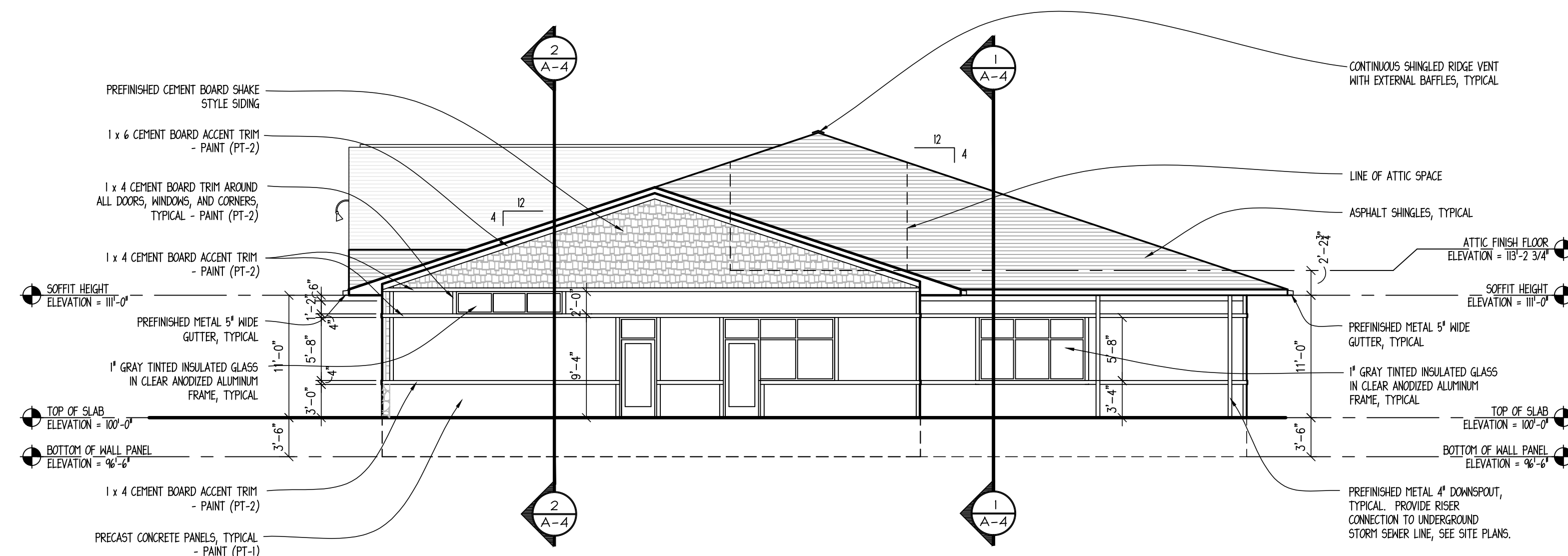


ARCHITECTURE
PLANNING
ENGINEERING
6650 CROSSING DRIVE, S.E.
GRAND RAPIDS, MI 49508
(616) 554-1222
FAX (616) 554-1225

DATE JANUARY 29, 2016	PROJECT No. 16-05
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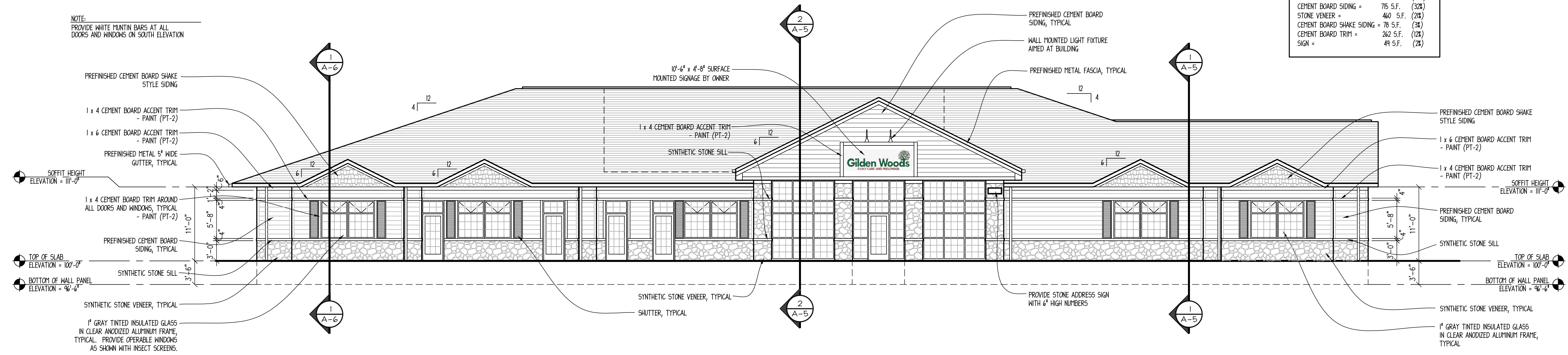
SHEET No. A-1





2 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

NOTE:
PROVIDE WHITE MUNTIN BARS AT ALL DOORS AND WINDOWS ON SOUTH ELEVATION



1 EAST ELEVATION
SCALE: 1/8" = 1'-0"

EXTERIOR MATERIALS

- SYNTHETIC STONE - BORAL STONE PRODUCTS, SPRING STREAM STONE
- PREFINISHED CEMENT BOARD SIDING - HARD-PLANK HORIZONTAL LAP AND SHAKE STYLE AS SHOWN
LAP SIDING - "NAVAJO BEIGE"
SHAKE SIDING - "AUTUMN LEAF"
- WINDOWS - 1" GRAY TINTED INSULATED GLASS IN CLEAR ANODIZED ALUMINUM FRAME. PROVIDE OPERABLE WINDOWS AS SHOWN WITH INSECT SCREENS.
- EXTERIOR PAINT COLORS -
PT #1 - MATCH PREFINISHED LAP SIDING "NAVAJO BEIGE"
PT #2 - TO MATCH QUALITY EDGE, #522 "FOREST"
- PRE FINISHED METAL FASCIA & DRIP EDGE - QUALITY EDGE, #606 "COZY COTTAGE"
- PRE FINISHED METAL GUTTER - QUALITY EDGE, #606 "COZY COTTAGE"
- PRE FINISHED METAL DOWN SPOUTS - QUALITY EDGE, #606 "COZY COTTAGE"
- PRE FINISHED METAL SOFFIT PANEL - QUALITY EDGE, #606 "COZY COTTAGE"
- ARCHITECTURAL DIMENSIONAL SHINGLES - OWENS CORNING, "DRIFTWOOD"

NOTE:
CAULK ALL JOINTS BETWEEN TRIM & SIDING

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DATE	REVISION
01-29-2016	FOR SITE PLAN APPROVAL

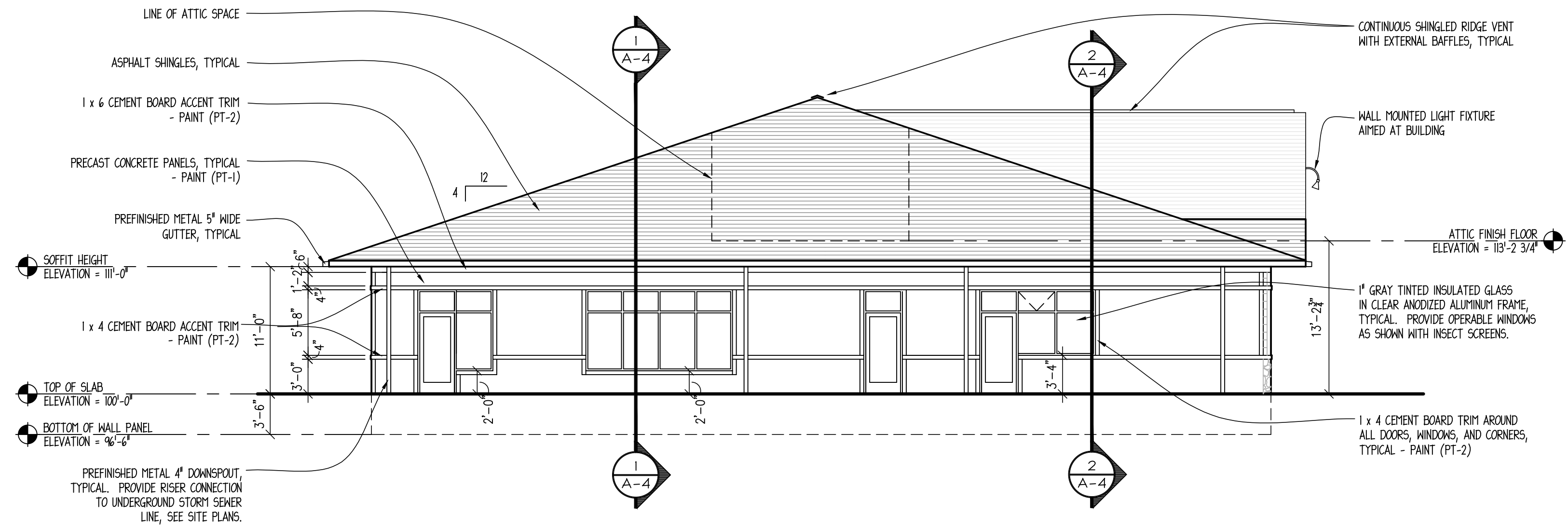
PROPOSED BUILDING FOR:

**HOWELL
GRAND OAKS DRIVE
GENOA TWP., MICHIGAN**

ARCHITECTURE
PLANNING
ENGINEERING

6650 CROSSING DRIVE, S.E.
GRAND RAPIDS, MI 49508
(616) 554-1222
FAX (616) 554-1225

DATE JANUARY 29, 2016	PROJECT No. 16-05
SHEET No. A-2	



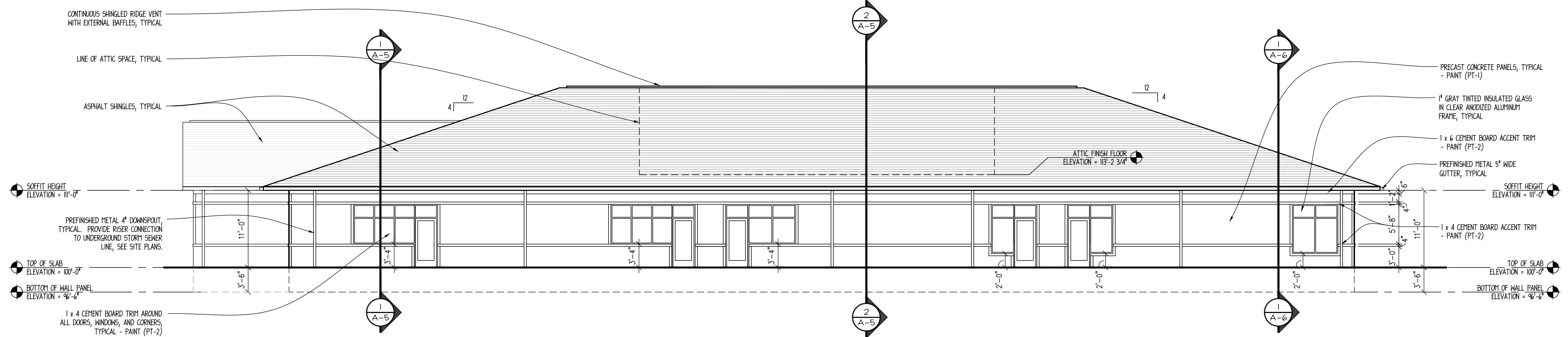
TOTAL Sq.Ft. = 855 S.F.	
GLASS =	238 S.F. (28%)
CONCRETE PANELS WITH	495 S.F. (58%)
SPRAY TEXTURED FINISH =	115 S.F. (13%)
CEMENT BOARD SIDING &	
STONE VENEER =	7 S.F. (1%)

2 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

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DATE	REVISION
01-29-2016	FOR SITE PLAN APPROVAL



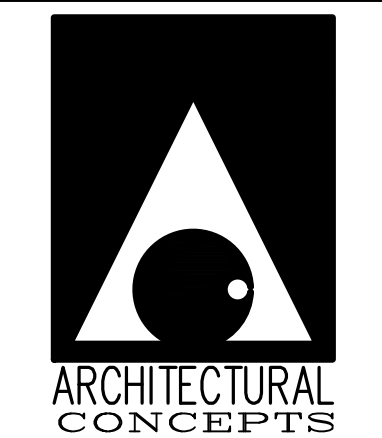
TOTAL Sq.Ft. = 1,889 S.F.	
GLASS =	376 S.F. (20%)
CONCRETE PANELS WITH	1,214 S.F. (64%)
SPRAY TEXTURED FINISH =	229 S.F. (12%)
CEMENT BOARD TRIM =	

1 WEST ELEVATION
SCALE: 1/8" = 1'-0"

PROPOSED BUILDING FOR:



HOWELL
GRAND OAKS DRIVE
GENOA TWP., MICHIGAN

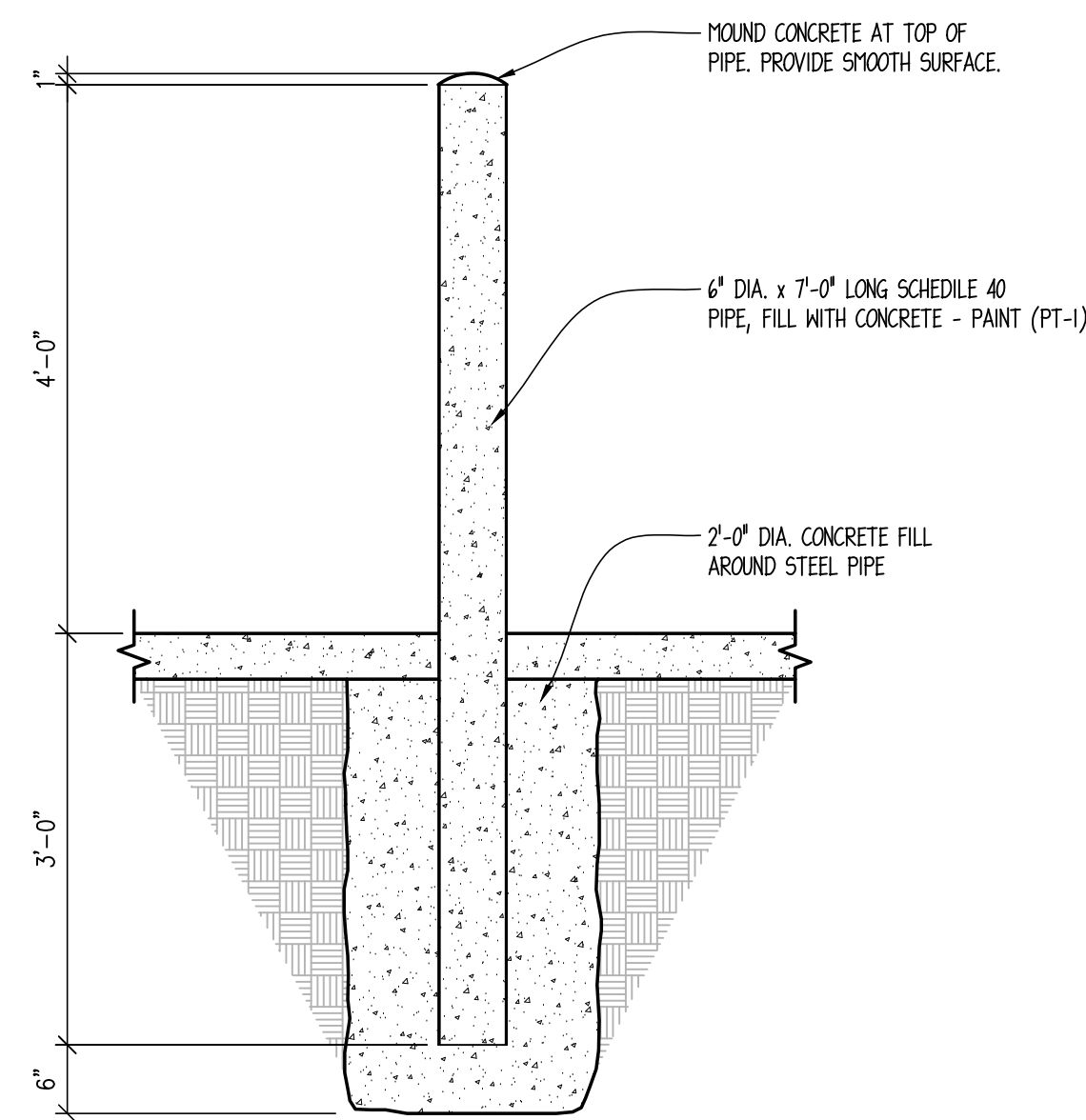


ARCHITECTURE
PLANNING
ENGINEERING
6650 CROSSING DRIVE, S.E.
GRAND RAPIDS, MI 49508
(616) 554-1222
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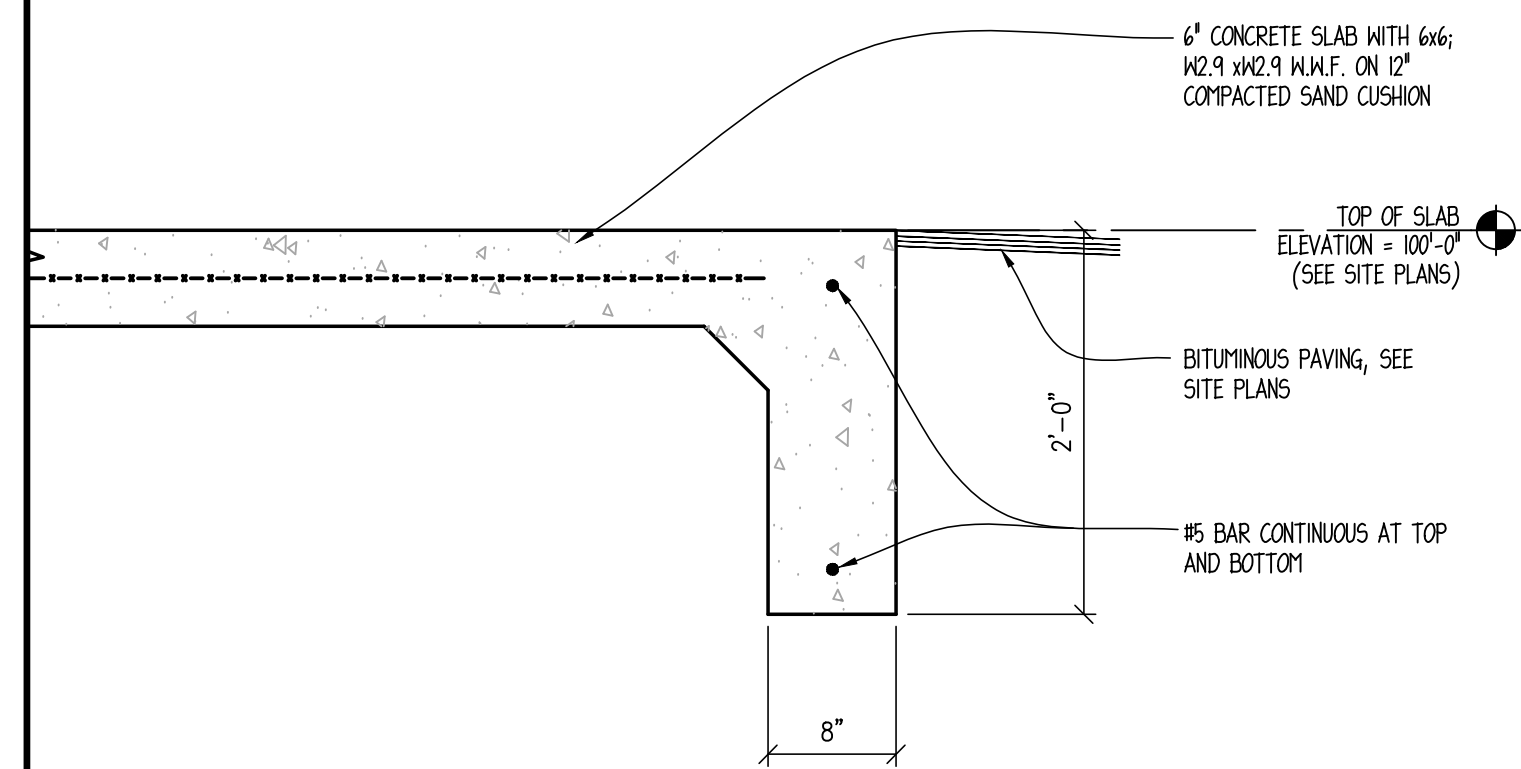
DATE JANUARY 29, 2016	PROJECT No. 16-05
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SHEET No.	
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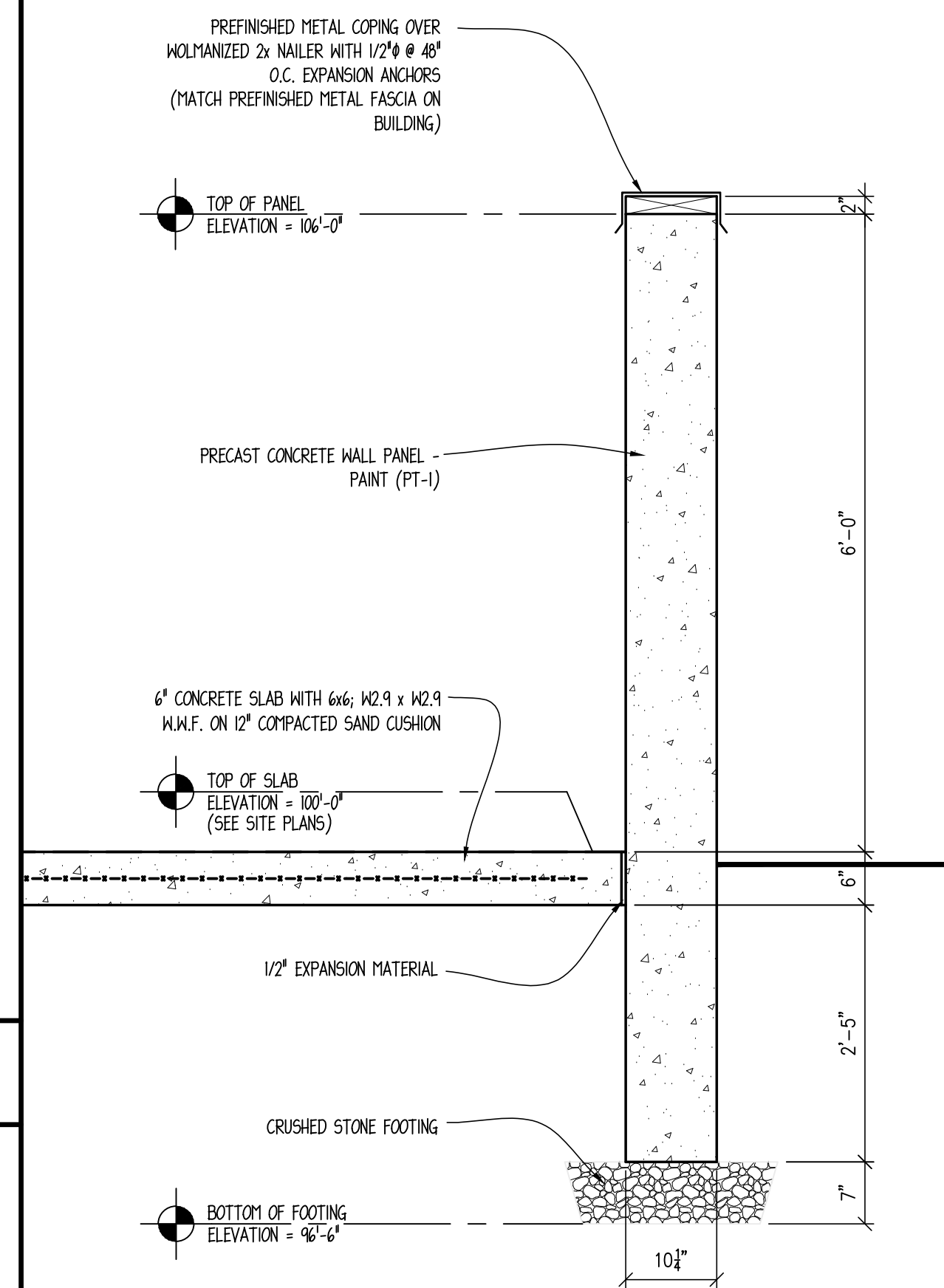
A-3



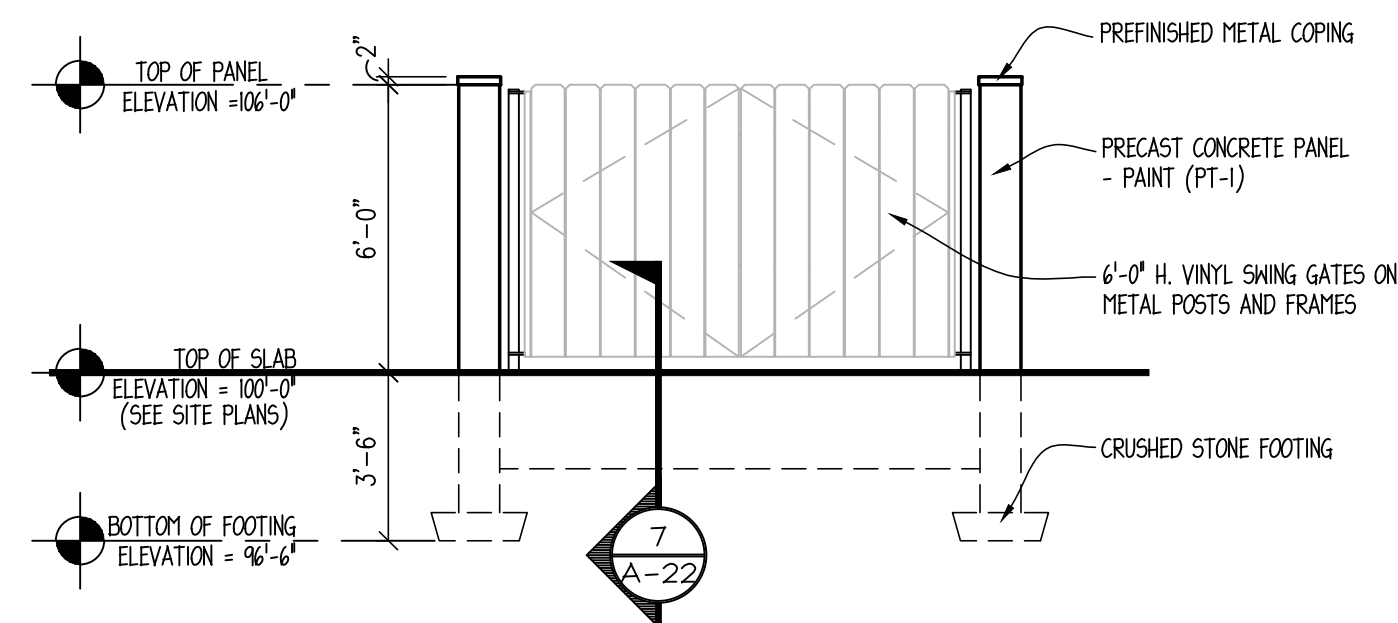
8 GUARDPOST DETAIL
A-22 SCALE: 3/4" = 1'-0"



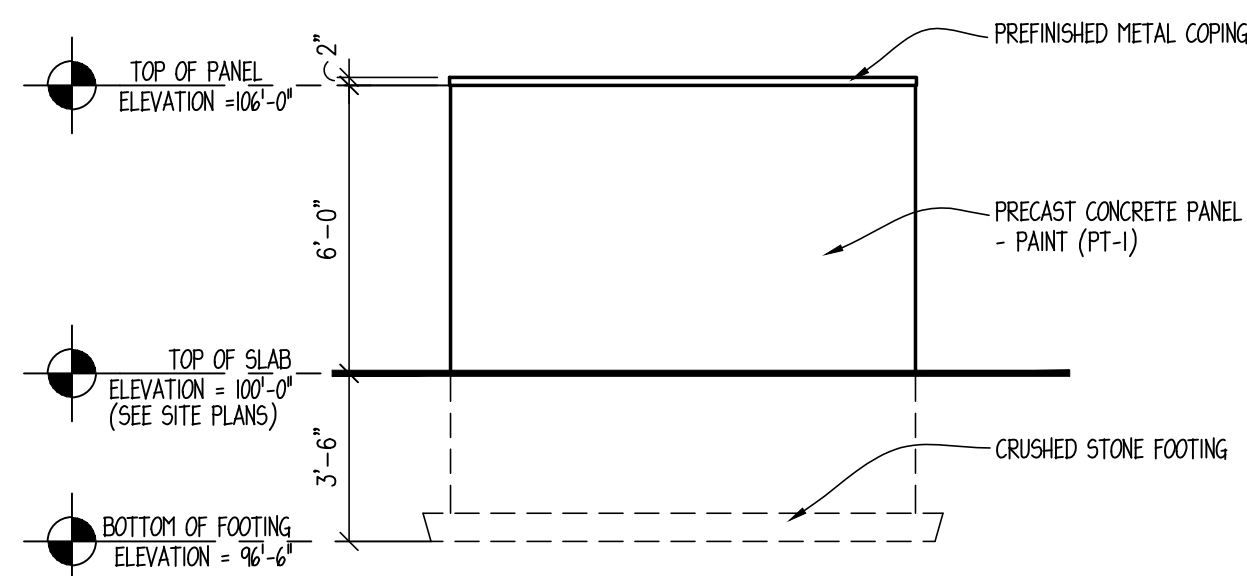
7 SLAB DETAIL
A-22 SCALE: 1" = 1'-0"



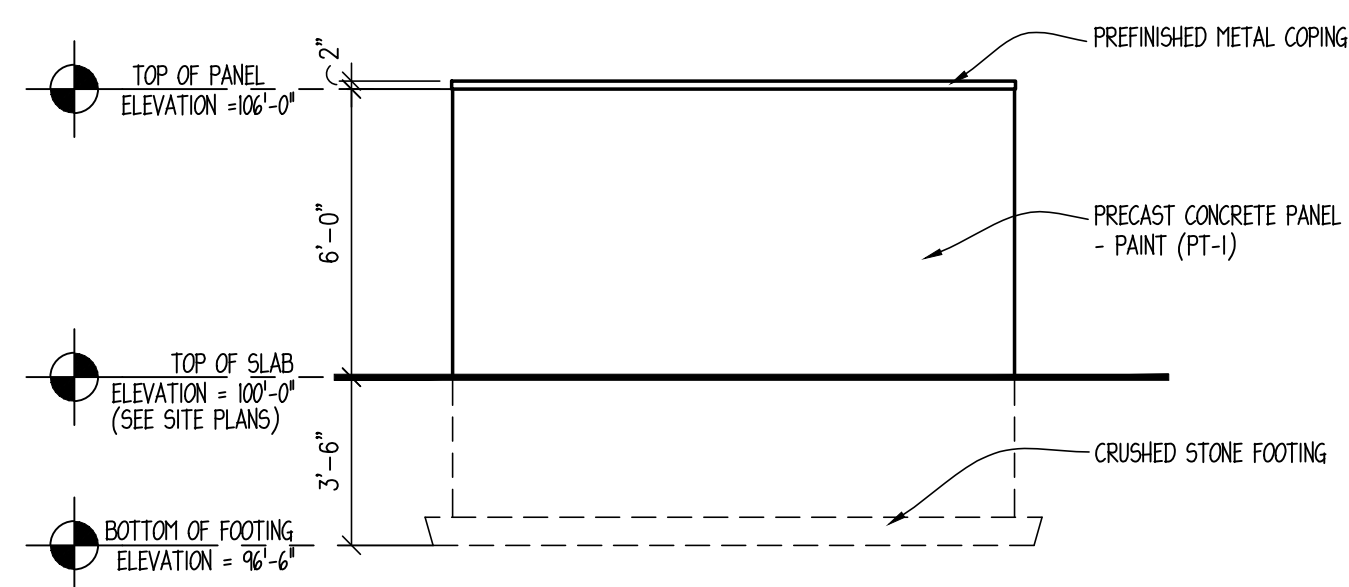
6 WALL SECTION
A-22 SCALE: 3/4" = 1'-0"



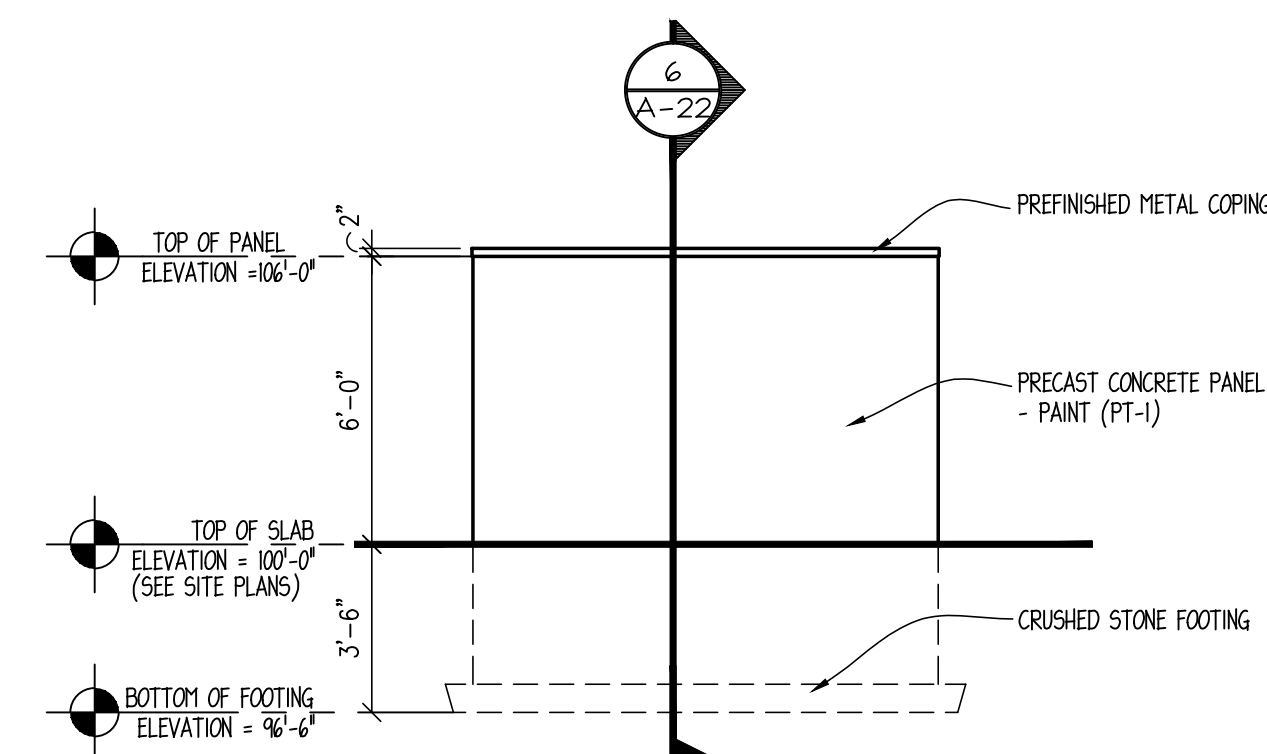
4 NORTH ELEVATION
A-22 SCALE: 1/4" = 1'-0"



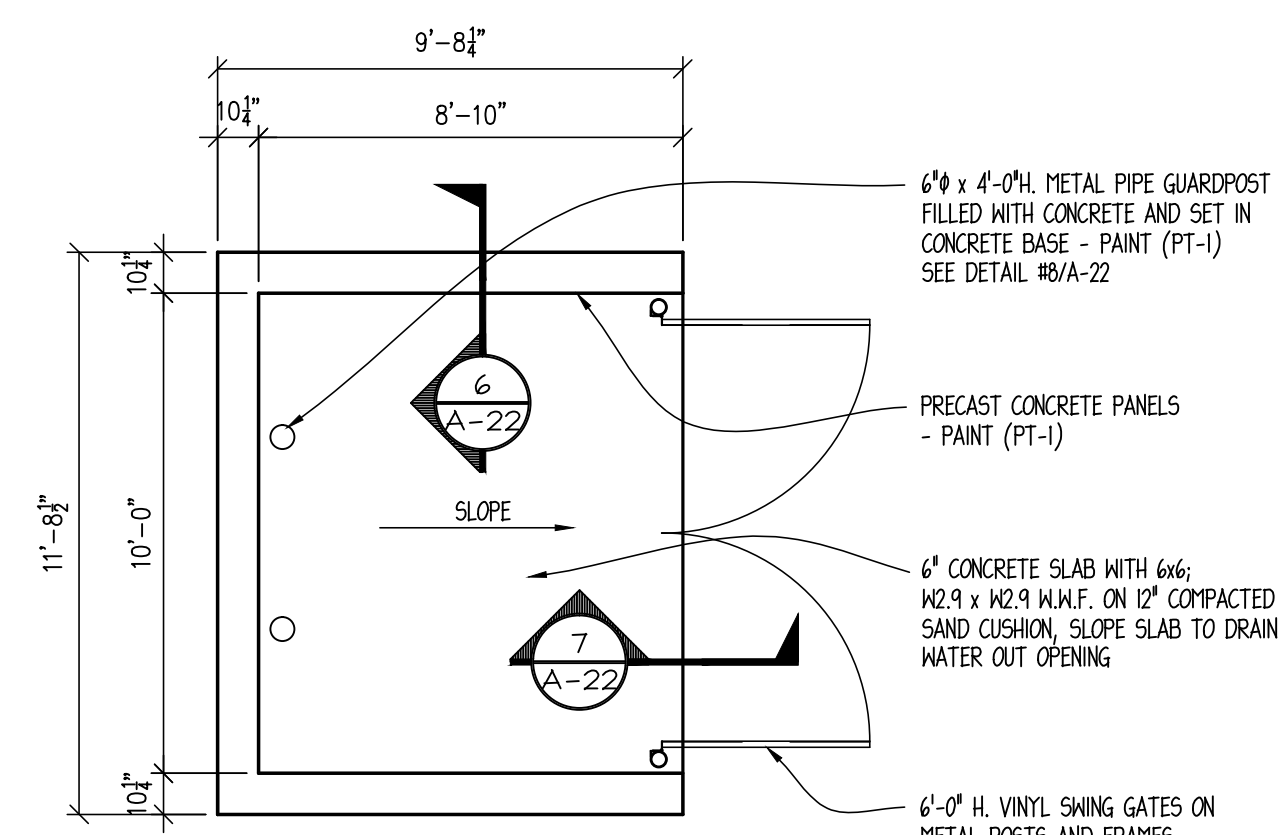
5 EAST ELEVATION
A-22 SCALE: 1/4" = 1'-0"



3 SOUTH ELEVATION
A-22 SCALE: 1/4" = 1'-0"



2 WEST ELEVATION
A-22 SCALE: 1/4" = 1'-0"



1 DUMSTER ENCLOSURE PLAN
A-22 SCALE: 1/4" = 1'-0"

PROJECT NORTH

EXTERIOR MATERIALS

PT #1 - MATCH PREFINISHED LAP SIDING 'NAVALO BEIGE'

PRE FINISHED METAL COPING - QUALITY EDGE, #606 'COZY COTTAGE'

PRELIMINARY
NOT FOR CONSTRUCTION

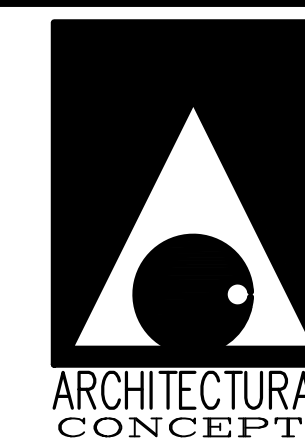
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DATE	REVISION
01-29-2016	FOR SITE PLAN APPROVAL

PROPOSED BUILDING FOR:



HOWELL
GRAND OAKS DRIVE
GENOA TWP., MICHIGAN



ARCHITECTURE
PLANNING
ENGINEERING
6650 CROSSING DRIVE, S.E.
GRAND RAPIDS, MI 49508
(616) 554-1222
FAX (616) 554-1225

DATE: JANUARY 29, 2016 PROJECT No. 16-05

SHEET No.

A-22

**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION
PUBLIC HEARING
FEBRUARY 8, 2016
6:30 P.M.
MINUTES**

CALL TO ORDER: The meeting of the Genoa Charter Township Planning Commission was called to order at 6:30 p.m. Present were Chairman Doug Brown, Diana Lowe, James Mortensen, Chris Grajek, John McManus and Eric Rauch. Absent was Barbara Figurski. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

ELECTION OF OFFICERS: **Moved** by Commissioner Mortensen, seconded by Commissioner McManus, to reinstate Doug Brown as Chair, Diana Lowe as Vice Chair, and Barbara Figurski as Secretary. **The motion passed unanimously.**

APPROVAL OF AGENDA: **Moved** by Commissioner McManus, seconded by Commissioner Lowe, to approve the agenda as presented. **The motion passed unanimously.**

CALL TO THE PUBLIC: The call to the public was made at 6:32 pm with no response.

OPEN PUBLIC HEARING #1... Review of a special use application, impact assessment, and sketch plan to allow for outdoor storage located at 5775 Brighton Pines Court, Brighton, Parcel #11-15-200-025. The request is petitioned by CRW Plastics.

Planning Commission disposition of petition

- A. Recommendation of Special Use Application.
- B. Recommendation of Impact Assessment (12-14-15)
- C. Recommendation of Sketch Plan (12-15-15)

Mr. Antonio Orlando and Ms. Mikhail Rossignol were present to represent the applicant. Mr. Orlando stated they have been using this area for outdoor storage since CRW opened; however, now they need to obtain approval.

Mr. Borden stated that the sketch plan requires Township Board approval so the Planning Commission will be making a recommendation tonight. The request complies with the requirements of the PUD; however, he is concerned with the impact on the surrounding properties, specifically if the landscaping and screening for both lot lines meets the requirements. He also noted that the items being stored cannot be higher than the buffer.

There was a brief discussion regarding the buffer. Mr. Orlando stated that they will do what is required. The Planning Commission would like to see what will be proposed.

Commissioner Mortensen feels the applicant needs to provide a plan. Commissioner Rauch provided some suggestions to the applicant for what can be put in the area.

Mr. Borden noted that at the time of Special Land Use approval, the Planning Commission can require additional improvements to the site, such as landscaping, lighting, etc.

The Call to the Public was made at 6:53 pm with no response.

Mr. Orlando asked for the item to be tabled so they can develop a plan and present it to the Planning Commission.

Moved by Commissioner Lowe, seconded by Commissioner McManus, to table this item until the March 14, 2016 Planning Commission meeting. **The motion passed unanimously.**

OPEN PUBLIC HEARING #2... Review of a sketch plan for proposed storage enclosures located at 3850 Grand River Avenue, Howell, Parcel #11-05-400-049. The request is petitioned by Wal-Mart.

Planning Commission disposition of petition

A. Disposition of Sketch Plan (1-4-16)

Mr. Paul Furtaw of Berman Associates was present to represent the applicant. They are requesting approval to place an enclosure to store their wood pallets as well as a new Dumpster enclosure. Both structures will use building materials that will match the building.

Mr. Borden stated that this is a sketch plan approval so it can be approved by the Planning Commission.

Commissioner Rauch stated that because the Dumpster enclosure proposed on the south side of the building will be protruding out into the drive lane, he would like to see some type of striping to redefine the drive aisle. Mr. Furtaw agrees.

It was noted that the engineer's letter states the proposed Dumpster enclosure is within 20 feet of a hydrant, which is not allowed. Mr. Furtaw stated they will move it further to the east.

The Brighton Area Fire Authority is requiring measurements of the access adjacent to the site. Mr. Furtaw will obtain those measurements.

The Call to the Public was made at 7:23 pm with no response.

Moved by Commissioner Mortensen, seconded by Commissioner Lowe to approve the sketch plan dated January 4, 2016 for two minor storage structures at Wal-Mart, subject to the following:

- Before the Land Use Permit is granted, the Township will be provided with a letter from RG Properties confirming approval of the potential building into the private storm sewer easement.
- The second smaller structure shall be moved slightly to the east to ensure it is not within 20 feet of the fire hydrant.

- Striping will be added and maintained to the driveway on the south side of the building to mitigate the bend in the drive.
- The requirement of the Brighton Area Fire Authority regarding the measurements needed for the access drive be submitted.
- The concrete pad shall be constructed to support the imposed load of a fire apparatus weighing at least 75,000 pounds.

The motion passed unanimously.

Administrative Business:

- Staff Report – Annual Report

Ms. VanMarter presented the staff and Planning Commission annual report for 2015.

She stated that Lake Shore Village Apartments, Phase 3, requesting a rezoning and Site Plan approval and Gilden Woods, a proposed day care center behind Lowes, will be on the March Planning Commission agenda.

- Approval of November 9, 2015 Planning Commission meeting minutes:

Commissioner Mortensen asked to have the sentence “He is not sure if the correct plan” removed from the minutes.

Moved by Commissioner Lowe, seconded by Commissioner Mortensen, to approve the minutes from the November 9, 2015 Planning Commissioner Meeting as amended.

The motion carried unanimously.

- Member Discussion:

Chairman Brown introduced Josh Penn, a new Project Planner for LSL Planning.

- Adjournment: **Moved** by Commissioner Mortensen, seconded by Commissioner Grajek, to adjourn the meeting at 7:46 pm. **The motion carried unanimously.**