



**PLANNING COMMISSION MEETING**  
**LOCATION: 7527 HIGHLAND ROAD, WHITE LAKE, MI 48383**  
**(FORMER WHITE LAKE LIBRARY)**  
**THURSDAY, DECEMBER 02, 2021 – 7:00 PM**

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*White Lake Township | 7525 Highland Rd | White Lake, MI 48383 | Phone: (248) 698-3300 | www.whitelaketwp.com*

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## **AGENDA**

- 1. CALL TO ORDER**
- 2. ROLL CALL**
- 3. PLEDGE OF ALLEGIANCE**
- 4. APPROVAL OF AGENDA**
- 5. APPROVAL OF MINUTES**  
A. Regular Meeting Minutes of November 18th, 2021
- 6. CALL TO THE PUBLIC (FOR ITEMS NOT ON THE AGENDA)**
- 7. PUBLIC HEARING**
- 8. CONTINUING BUSINESS**
- 9. NEW BUSINESS**  
A. **4 Corners Retail Outlot**  
Located on the northeast corner of Union Lake Road and Cooley Lake Road, currently zoned Neighborhood Mixed Use (NMU), identified as parcel number 12-36-476-032 consisting of approximately 1.02 acres.  
Request:  
**i) Preliminary Site Plan Approval**  
**ii) Final Site Plan Approval**  
Applicant: 4 Corners Square, LLC  
29580 Northwestern Hwy, Suite 1000  
Southfield, MI 48034
- 10. LIAISON'S REPORT**
- 11. PLANNING CONSULTANT'S REPORT**
- 12. DIRECTOR'S REPORT**
- 13. OTHER BUSINESS**
- 14. COMMUNICATIONS**
- 15. NEXT MEETING DATE:**  
A. December 16th, 2021 & January 6th, 2022
- 16. ADJOURNMENT**

**Procedures for accommodations for persons with disabilities:** The Township will follow its normal procedures for individuals with disabilities needing accommodations for effective participation in this meeting. **Please contact the Township Clerk's office at (248) 698-3300 X-113 at least two days in advance of the meeting.** An attempt will be made to make reasonable accommodations.

**WHITE LAKE TOWNSHIP  
PLANNING COMMISSION**  
Township Annex. 7527 Highland Road  
White Lake, MI 48383  
**NOVEMBER 18, 2021 @ 7:00 p.m.**

Chairperson Anderson called the meeting to order at 7:00 p.m. and led the Pledge of Allegiance. Roll was called.

ROLL CALL: Steve Anderson  
Rhonda Grubb  
Matt Slicker  
Debbie Dehart  
Merrie Carlock  
Joe Seward  
Scott Ruggles  
Mark Fine

Absent: Peter Meagher

Also Present: Justin Quagliata, Staff Planner  
Sherri Barber, Recording Secretary

Visitors: None

**Approval of Agenda**

**Commissioner Grubb moved to approve the agenda as presented. Commissioner Carlock supported and the MOTION CARRIED with a voice vote: 8 yes votes.**

**Approval of Minutes**

a. October 21, 2021

**Commissioner Seward moved to approve the minutes of October 21, 2021 as presented. Commissioner Fine supported and the MOTION CARRIED with a voice vote: 8 yes votes.**

### Call to the Public (for items not on the agenda)

Mary Earley (5925 Pine Ridge Ct.) commented about the private launch on Oxbow Lake. She was wondering where was the parking for cars and trailers. What guarantee was there from the Township the property will be maintained? These questions would be appropriately answered at subsequent meetings.

### Public Hearing:

#### Zoning Ordinance Text Amendments

Staff Planner Quagliata summarized the proposed zoning ordinance amendments. There was clarification for the base of freestanding (monument) signs. Small animal vet clinics and animal hospitals would be allowed by special land use in (LB) Local Business. Currently, PD (Planned Development) did not allow restaurants with alcohol; the amendment would allow restaurants with alcohol. The ordinance was unclear if drive throughs were allowed in PD; the amendment would clarify drive throughs were permitted in PD.

Chairperson Anderson went over each text amendment and asked Commissioners for input.

Article 2.2. Freestanding signs. There was no additional discussion.

Class II Animal Care Facility — 4.51. Staff Planner Quagliata stated this would allow large animal vet clinics and hospitals in AG (Agricultural) with special land use approval. Part 2 and 11 of the proposed amendments related to this item.

Planned Development: restaurants with or without alcohol. Staff Planner Quagliata stated this would be decided by the Planning Commission and Township Board during review of a site plan and development agreement. The Commissioners supported the amendment.

Drive-in or drive-thru (restaurant) – 4.17. Staff Planner Quagliata stated currently the ordinance was not clear if drive-thrus were allowed in PD. The amendment would clarify drive-thrus would be permitted.

There was discussion on the text amendments for Class II animal care facilities and Chairperson Anderson asked staff if amendments pertaining to this use could be revisited at a later date.

Staff Planner Quagliata stated the items related to Class II animal care facilities could be removed from the current list of ordinance amendments and revisited in early 2022. The Commissioners agreed to exclude Part 2 and Part 11 from the motion.

Chairperson Anderson opened the public hearing at 7:54 p.m.

Valerie Kemp (182 Angola, Wolverine Lake) was the listing broker for 7755 Highland Road (Centerpointe Plaza) and she spoke in support of allowing veterinary clinics in LB zoning. She read a letter from VCA corporate in support of the vet clinic. VCA Vet Clinic had been in White Lake for many years. A copy of the letter was entered into the record. Rob Pope, the developer of Centerpointe, spoke in favor of the ordinance amendment.

Chairperson Anderson closed the public hearing at 8:01 p.m.

Commissioner Seward moved to recommend the Township Board adopt the proposed Zoning Ordinance text amendments, excluding Part 2 and Part 11. Commissioner Dehart supported and the MOTION CARRIED with a roll call vote: Anderson – yes; Grubb – yes; Slicker – yes; Dehart – yes; Carlock – yes; Seward – yes; Ruggles – yes; Fine – yes. 8 yes votes.

**Continuing Business**

None.

**Old Business**

None.

**New Business**

None.

**Other Business:**

**A. PD Waiver Request for Oxbow Lake Private Launch Association (OLPLA)**

Staff Planner Quagliata reported the applicant was proposing to rezone to PD, which required a minimum lot size of 10 acres. The applicant requested a waiver for the lot size which was approximately 1.9 gross acres and 0.75 net acre. The proposed use would be a private launch for Oxbow Lake riparians. The Township Attorney recommended rezoning to PD to review the proposed use. There was Commissioner and Staff discussion about the best process for the applicant to undertake for review. Staff Planner Quagliata discussed the Planning Commission and Township Board preventing keyhole access. Commissioner Dehart stated whatever process was undertaken there would have to be significant control and restrictions on the use.

Commissioner Seward moved to approve the PD Waiver Request requested by Oxbow Lake Private Launch Association (OLPLA) for Parcel Number 12-22-279-004 to waive the 10-acre minimum lot size requirement under Planned Development (PD) to pursue rezoning. Commissioner Fine supported and the MOTION CARRIED with a roll call vote: Steve Anderson – no; Grubb – yes; Slicker – yes; Dehart – no; Carlock – no; Seward – yes; Ruggles – yes; Fine – yes. 5 yes votes.

Staff Planner Quagliata stated the waiver request would proceed to the Township Board.

**B. 2022 Meeting Dates**

Commissioner Grubb moved to approve the 2022 Meeting Dates as presented. Commissioner Carlock supported and the MOTION CARRIED with a voice vote: 8 yes votes.

### **Liaison's Report**

Trustee Ruggles reported the Township Board met on Tuesday and approved the CDBG budget. There was \$31,977 for minor home repair. The Board approved the 2022 budget. Sean O'Neil was promoted to Community Development Director. The Township Board approved a resolution of intent to issue bonds in the amount of \$29 million for the Civic Center and Public Safety Building.

Commissioner Grubb reported the Parks and Recreation Committee did not have a meeting in November. There was a December meeting scheduled.

Commission Dehart stated the last Zoning Board of Appeals (ZBA) meeting lasted 4 hours. One of the cases was signage at Arby's. A stripe on a building was considered signage. Staff Planner Quagliata commended the ZBA; it had many cases, some meetings had gone 4-6 hours, and the members were dedicated.

Commissioner Anderson noted he attended the ribbon cutting at New Hope Assisted Living and Memory Care along with many representatives from White Lake Township and local chambers.

### **Planning Consultant's Report**

No report.

### **Director's Report:**

Staff Planner Quagliata reported there were many projects currently under review.

### **Communications:**

None.

**Next Meeting Dates:** December 2, 2021  
December 16, 2021

### **Adjournment:**

**Commissioner Fine moved to adjourn the meeting at 8:42 p.m. Commissioner Dehart supported and the MOTION CARRIED with a voice vote: 8 yes votes.**

**Director's Report**

Project Name: Four Corners Outlot

Description: Preliminary and Final Site Plan Approval

Date on Agenda this packet pertains to: December 2<sup>nd</sup>, 2021

- Public Hearing
   
  Special Land Use  
 Initial Submittal
   
  Rezoning  
 Revised Plans
   
  Other: \_\_\_\_\_  
 Preliminary Approval  
 Final Approval

Contact	Consultants & Departments	Approval	Denial	Approved w/Conditions	Comments
Sean O'Neil	Planning Director	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Based on conditional approval from reviewer's
DLZ	Engineering Consultant	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See letter dated 11/22/2021
Justin Quagliata	Staff Planner	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See letter dated 11/19/2021
John Holland	WLT Fire Chief	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See email dated 11/05/2021
Jeanine Smith	Assessor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See memo dated 10/26/2021



INNOVATIVE IDEAS  
EXCEPTIONAL DESIGN  
UNMATCHED CLIENT SERVICE

November 22, 2021

Sean O’ Neil  
Community Development Department  
Charter Township of White Lake  
7525 Highland Road  
White Lake, Michigan 48383

**RE: Four Corners Outlot- Preliminary Site Plan, Final Site Plan/Final Engineering Plan Review – 2<sup>nd</sup> Review**

Ref: DLZ No. 2145-7233-17 Design Professional: Nowak & Fraus Engineers

Dear Mr. O’ Neil,

Our office has performed the above mentioned Plan Reviews for the plan dated November 8, 2021. The plans were reviewed for feasibility based on general conformance with the Township Engineering Design Standards.

**General Site Information**

This site is located at the northeast corner of Cooley Lake and Union Lake Roads and is an outlot of the established and previously approved 4 Corners Square development. Total site acreage is 1.017 acres.

**Site Improvement Information:**

- Construction of a (1) one story building totaling 4,169 square feet.
- Associated paved and curbed parking including ADA accessible parking spaces and maneuvering aisles were established and built as part of the overall 4 Corners Square development.
- Associated loading space is proposed.
- Site to be serviced by watermain and sanitary sewer.
- Storm water runoff is proposed to be pretreated and detained in an existing underground detention facility.



INNOVATIVE IDEAS  
EXCEPTIONAL DESIGN  
UNMATCHED CLIENT SERVICE

WLT-4 Corners Outlot- PSP, FSP/FEP Review.02

November 22, 2021

Page 2 of 5

We offer the following comments:

Note that comments from our review dated November 5, 2021 are in *italics*. Responses to those comments are in **bold**. New comments are in standard typeface.

The following items should be noted with respect to Planning Commission review:

- a) *The plans indicate that the proposed transformer and pad will be screened by landscaping. Please note the slope of the ground in this area may make screening with the proposed ornamental grasses difficult. We defer further comment to the Planning Department if this meets the intent of Zoning Ordinance 5.19 N. ii. a.* **Comment addressed. The design engineer has noted that the transformer location has now been moved and the screening has been changed to Arborvitae.**
- b) *The proposed transformer location will conflict with the connection of the building to the existing water supply line for fire department use. Although it is indicated on the plan that this connection is not required, it should be considered as to whether a future change in the use of the building may require the connection of this line; this would not be feasible due to the current proposed transformer location.* **Comment addressed. The transformer location has been moved such that the conflict with the water supply line no longer exists.**
- c) *The proposed patio encroaches on the existing 33-foot-wide sanitary sewer easement (Liber 24814, Page 271). The original development plans showed the patio further away from the Right-of-Way and outside of this easement. Plans will need to be revised to show the patio outside of this easement or the Township would need to agree to modify the easement to accommodate this configuration.* **The owner intends to provide a hold harmless letter to the effect that the owner shall be responsible for removal and replacement of proposed patio and retaining wall in the event that maintenance and repair for the sanitary sewer are necessary. DLZ recommends the Township work with the Township Attorney to determine sufficient language for this agreement.**

Final Site Plan/Final Engineering Plan Comments-

General

1. *Plan shall contain notes per White Lake Township Engineering Design Standards Section A. 8. a.-d.* **Comment addressed.**





INNOVATIVE IDEAS  
EXCEPTIONAL DESIGN  
UNMATCHED CLIENT SERVICE

WLT-4 Corners Outlot- PSP, FSP/FEP Review.02

November 22, 2021

Page 3 of 5

### Paving/Grading

1. *The topo survey shows existing asphalt pavement south of the proposed retail building; however, this pavement does not exist. The curbs have been poured but the pavement has not been placed, please update plans accordingly. **Comment addressed. Design engineer has indicated that the area south of proposed building shall be asphalt paved per original construction plans.***
2. *The existing grade of 946.17 shown adjacent to the southeast corner of the proposed building is shown on the as built plan for 4 Corners as 947.17. Please verify and adjust grade(s) as needed. **Comment addressed. Design engineer notes that grade of 947.17 on as built plan for Four Corners Square appears to be in error.***
3. *Clarify the existing grades shown for the area adjacent to the northeast corner of the proposed building. The as built plan for 4 Corners shows what appears to be an existing ramp in this area with associated as built grades. **Comment addressed. The design engineer states that the existing curb grades do not indicate that there is a curb height drop and thus no existing ramp.***
4. *Although a retaining wall is proposed around the outdoor seating area, it appears that the grades at the bottom of the wall to the north will greatly exceed the allowable grade of 33%. We note that the slopes in these areas will be difficult to maintain and request clarification regarding the proposed grading and ground cover in this area to minimize maintenance and to minimize potential soil erosion. **Comment addressed. The landscape plan has been revised and indicates vegetation proposed in these areas that will minimize maintenance and erosion, per the design engineer.***
5. *The bollards for the dumpster enclosure shown on Sheet C7 will need to be 6" diameter instead of 4" diameter and also on Sheet A.502 where 5" diameter bollards are proposed. **Comment partially addressed. The bollard diameter is now correct (6") on Sheet C8; note that we did not receive Sheet A.502 as part of this submittal. The diameter of the bollard shall be revised on Sheet A.502 as well.***
6. *The plans show stairs with a handrail extending out to the sidewalk along Union Lake Road. Please note the Road Commission for Oakland County may require these items not extend into the public Right-of-Way as shown on the plans. **Comment addressed. Handrail and sidewalk have been pulled back to outside of ROW.***

### Watermain

1. *We defer to the Fire Department with regard to items related to fire suppression and whether the proposed building will need to connect to the existing 6" fire suppression stub that was previously planned. **Comment remains as a notation.***



INNOVATIVE IDEAS  
EXCEPTIONAL DESIGN  
UNMATCHED CLIENT SERVICE

WLT-4 Corners Outlot- PSP, FSP/FEP Review.02

November 22, 2021

Page 4 of 5

2. *The Estimated Quantities for watermain on Sheet C5 will need to be revised as the quantities shown do not match the utility plan. **Comment addressed.***

### Sanitary Sewer

1. *The Estimated Quantities for sanitary sewer on Sheet C5 will need to be revised as the quantities shown do not match the utility plan. **Comment addressed.***
2. *The previous plan set indicated a proposed grease interceptor be installed for this outlot assuming that the use would include food service. The proposed grease interceptor was not installed which appears consistent with the proposed retail use as identified. Please note that if use changes to include food service an external grease interceptor would be required for each food service establishment. **Comment addressed. An external grease interceptor is now shown on the plans. Please note the previous review comment did not require the grease interceptor be added but indicated that one WOULD be required if the retail use were changed to food service for any of the units. DLZ did not receive any indication that food service is planned for this building, but the plans now indicate it will be possible to fit the required 1000-gallon grease interceptor if the intent changes.***

### Stormwater Management

1. *The Estimated Quantities for storm sewer on Sheet C5 will need to be revised as the quantities shown do not match the utility plan. **Comment addressed.***
2. *Verify the slope of the proposed downspout for the section that runs north/south; we calculate <1.00%. In addition, provide length and size for the section of unlabeled downspout on the Utility Plan. **Comment addressed.***
3. *Provide the as built rim elevation for MH 29 (where the proposed downspout is connecting to). **Comment outstanding. Please place the as built rim elevation of 945.36 for the above mentioned structure on the plan.***
4. *It appears there is storm sewer pipe proposed between MH29 and the catch basin to the east. Please clarify as the 4 Corners as built indicates there is 7' of 15" existing pipe in this area. **Comment addressed.***

### Landscape Plan

1. *It is not clear as to whether the two trees north of the proposed transformer location are proposed or existing. The trees as shown on the plan are too close to the proposed water and sanitary sewer lead extensions and will need to be relocated preferably at a distance of 10' horizontally from the proposed leads. **Comment addressed.***



INNOVATIVE IDEAS  
EXCEPTIONAL DESIGN  
UNMATCHED CLIENT SERVICE

WLT-4 Corners Outlot- PSP, FSP/FEP Review.02

November 22, 2021

Page 5 of 5

2. *It should be verified with the easement owner of the pipeline as to whether trees are allowed within the easement.* **Comment addressed.**

### **Recommendation**

The majority of our previous comments have been addressed. A Hold Harmless agreement between the Applicant and the Township will be required for construction of the patio within the existing sanitary sewer easement. DLZ recommends approval of the Preliminary/Final Site Plans subject to this agreement and cleanup of any remaining items referenced in this letter.

Please feel free to contact our office should you have any questions.

Sincerely,

DLZ Michigan

Michael Leuffgen, P.E.  
Department Manager

Victoria Loemker, P.E.  
Senior Engineer

Cc: Justin Quagliata, Community Development, *via email*  
Hannah Micallef, Community Development, *via email*  
Aaron Potter, DPS Director, White Lake Township, *via email*  
John Holland, Fire Chief, White Lake Township, *via email*  
Jason Hanifen, Fire Marshal, White Lake Township, *via email*

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# WHITE LAKE TOWNSHIP PLANNING COMMISSION

## REPORT OF THE COMMUNITY DEVELOPMENT DEPARTMENT

**TO:** Planning Commission

**FROM:** Sean O'Neil, AICP, Planning Director  
Justin Quagliata, Staff Planner

**DATE:** November 19, 2021

**RE:** Four Corners Square – Retail Center #2  
Preliminary and Final Site Plan – Review #2

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Staff reviewed the revised site plan prepared by Nowak & Fraus Engineers dated August 25, 2021 (revision date November 8, 2021). The following comments from the first review letter dated November 4, 2021 are listed below. Responses to those comments are provided in **(red)**.

Veritas (Shakir W. Alkhafaji) has requested site plan approval to construct a retail center at 1449 Union Lake Road (Parcel Number 12-36-476-032), located on the east side of Union Lake Road, north of Cooley Lake Road. The approximate 0.714 acre (excluding road right-of-way) subject site is zoned NMU (Neighborhood Mixed Use) and contains 201.61 feet of total frontage on Cooley Lake Road and 220 feet of total frontage on Union Lake Road. A parking area and landscaping are located on the site.

The subject parcel is part of the Four Corners Square development, which consists of three other parcels containing an 81-unit, three-story apartment building with underground parking, 9,375 square foot five-tenant retail building with a drive-thru restaurant (Tim Hortons), and 2,139 square foot Taco Bell drive-thru restaurant. At its meeting on August 3, 2017 the Planning Commission approved the final site plan for the already constructed portion of the development. On May 4, 2017 the Planning Commission granted special land use approval for the Taco Bell and Tim Hortons drive-thrus, with conditions. At the same meeting, the Planning Commission also granted special land use approval for outdoor seating at Taco Bell, the retail plaza, and “the future restaurant pad.” At its meeting on March 23, 2017 the Zoning Board of Appeals approved variances required for the already constructed portion of the project.

The final site plan approved by the Planning Commission showed a proposed 3,600 square foot full-service restaurant building with a 1,200 square foot patio on the subject property. The proposed one-story, three-tenant retail center would contain 4,169 square feet. **The note stating 3,893 square feet of gross floor area on Sheet A.001 of the site plan (architectural plans) shall be revised to correctly indicate 4,169 square feet of gross floor area. (Comment outstanding. Revised architectural plans were not provided).** The submitted plans show Beyond Juice is intended to occupy the westerly tenant space and Detroit Wings is intended to occupy the easterly tenant space. A prospective tenant for the middle unit has not been identified.

### Master Plan

The Future Land Use Map from the Master Plan designates the subject site in the Planned Community category, and the property is located in the Four Towns Focus Area. Retail, dining, and personal service establishments are typical commercial uses within Planned Community. The Master Plan envisions the Four Towns area as a mixed-use core of activity for retail and residential utilizing pedestrian-oriented design. This Focus Area encourages ground floor retail and office with upper floor residential. The Master Plan states a corner feature at Union Lake Road and Cooley Lake Road is desired to define the area. At the March 23, 2017 Zoning Board of Appeals meeting, the applicant’s representative at the time stated the “Welcome to White Lake” sign would be relocated to the corner of the property. The sign has not been relocated; any relocation of the sign would require approval by the Township.

### FUTURE LAND USE MAP

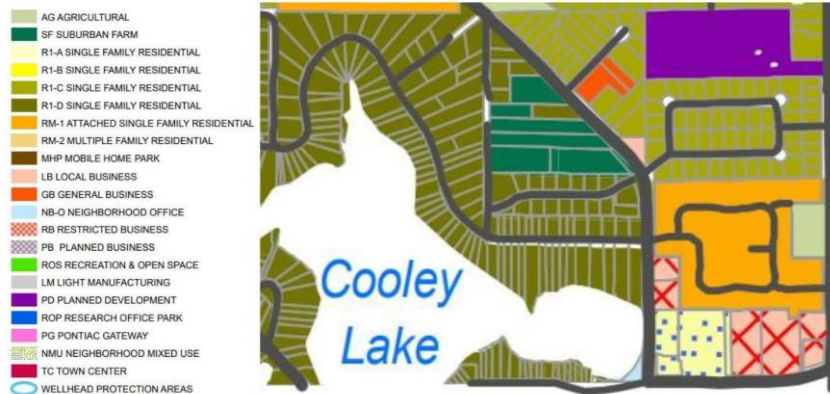


### Zoning

At its meeting on October 18, 2016 the Township Board approved rezoning the parcels within the Four Corners Square development from Restricted Business (RB) to NMU (Neighborhood Mixed Use), which requires a minimum lot area of 5,000 square feet. There is not a minimum lot width requirement in the NMU district.

The parcels within Four Corners Square are the only properties in the Township zoned NMU. The intent of the NMU district is to create small centers of neighborhood life which encourage a mix of compatible retail, service, office, and residential uses in a walkable environment.

### ZONING MAP



### Physical Features

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) Wetland Map and the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map indicate neither wetlands nor floodplain are present on or near the site. Currently landscaping and parking associated with Four Corners Square occupies the site. American & Import, a vehicle service and repair facility, formerly occupied the site. Precipitated by a request for a Rehabilitation Exemption Certificate, the Township Board created a Commercial Rehabilitation District in 2016. Plumes of contamination were present and posed a potential adverse impact to water in the vicinity. After establishing the district, in 2018 the Township received a \$250,000 grant from the Michigan Economic Development Corporation (MEDC) to assist in funding the clean-up of the contaminated area. In 2019, the Township and the developer signed an agreement to transfer the grant funds to the developer to reimburse incurred costs associated with the remediation activities on the property.

In 2016 the Township Board approved the developer’s Commercial Rehabilitation Exemption Certificate application for Four Corners Square. The seven-year tax abatement ends December 30, 2023. At its meeting on October 19, 2021 the Township Board approved a three-year extension of the tax abatement for only the subject parcel, with an ending date of December 30, 2026. This addition of three years allows the exemption for the maximum total of 10 years. The proportioned frozen taxable value on the certificate for the subject parcel is \$44,119.

### Access

The retail center would be accessed from existing driveways on Wadi Boulevard (private drive) and Cooley Lake Road (this driveway is right-out only and serves the existing Four Corners Square retail center). **The applicant will be required to dedicate (if not already completed) the additional portion of the future right-of-way at the east side of Union Lake Road to the Road Commission for Oakland County (RCOC).** (Comment remains as a notation).

An existing eight-foot-wide pathway along Union Lake Road and six-foot-wide pathway along Cooley Lake Road border the property frontages. Internal sidewalks are five-feet-wide at the rear (north) and along the east side of the building. Along the front (south side) of the building, a seven-foot-wide sidewalk is shown on the plans. **The note stating “Pr. 4” concrete sidewalk (TYP)” on Sheet C3 of the site plan appears to be an error and shall be revised to correctly indicate a seven-foot-wide concrete sidewalk (noted on Sheet C4 of the site plan).** (Comment addressed. A note has been added to Sheet C3 indicating a seven-foot-wide sidewalk is proposed).

### Utilities

Municipal water and sanitary sewer are available to serve the retail center. Utilities are located on the Four Corners Square property since installation to serve the already constructed portion of the development. The Township Engineering Consultant will perform an analysis of stormwater, utilities, and grading to ensure compliance with all applicable ordinances as well as the Township Engineering Design Standards.

### Staff Analysis

The development standards for the NMU district allow for zero-foot front and side yard building setbacks, and a five-foot setback from a service drive located at the rear of the site. The ordinance also requires a building to occupy 60 percent of the front build-to-line of a site, which is defined as its front right-of-way line. Four Corners Square was not developed in this manner, and a variance from this requirement for the already constructed portion of the project was granted by the Zoning Board of Appeals on March 23, 2017, reducing the 60 percent requirement to 0 percent. The layout of the development is consistent with the variance granted. As the building would utilize traditional setbacks, **a variance from this standard is required to construct the proposed retail center.** (Comment outstanding; however, the applicant has filed a variance application and a public hearing is scheduled at the December 9, 2021 Zoning Board of Appeals meeting).

The NMU district requires a minimum building height of two stories, 25 feet, with a maximum height of three stories, 40 feet. A first floor must be at least 14 feet in height, and upper floors are required to be at least 10 feet in height. The previously constructed retail center and Taco Bell are one-story buildings, and a variance from the minimum height standard of the district was granted by the Zoning Board of Appeals on March 23, 2017. The proposed building is one-story and 22’-1” in height. **A variance from the minimum building height standard is required to construct the proposed retail center.** (Comment outstanding; however, the applicant has filed a variance application and a public hearing is scheduled at the December 9, 2021 Zoning Board of Appeals meeting).

### *Building Architecture and Design*

Generally, exterior building materials should be composed primarily of high quality, durable, low maintenance material, such as masonry, stone, brick, glass, or equivalent materials. Buildings should be completed on all sides with acceptable materials. In the NMU district, the design of buildings should relate to and blend with the facades of adjacent buildings and complement streetscape improvements in the area. The proposed building materials for the project are a mix of light and dark four-inch brick veneer, and pre-finished burnished CMU (concrete masonry unit) veneer with a cast stone veneer accent band three feet up around the base of the building. **The Material Legend on Sheet A.202 of the architectural plans shall be revised to relabel the CMU improperly identified as split face; burnished block is proposed. (Comment outstanding. Revised architectural plans were not provided).** The dark brick veneer would wrap around the upper 3.5 feet of the building. Pre-finished metal (aluminum) coping would be located on top of the walls around the building. **The address (street number) location shall be shown on the building. Six-inch-tall numbers visible from the street shall be required. The address location is subject to approval of the Township Fire Marshall. (Comment outstanding. Revised architectural plans were not provided).** Two, 4'-4" tall, 25' wide steel trellises are proposed 34 feet apart on the roof of the building, fronting on the south elevation. Pre-finished metal (aluminum) canopies would be located on the front (south) and both sides of the building, using tension rods with turnbuckles anchored to wall plates to attach to the building. The light color brick veneer with a cast stone sill is proposed to cover the 6'-4" retaining wall below the patio.

While elevations of the building were submitted showing the different building materials for the project, finalized colors were not noted on the elevations. Staff requested a sample board of building materials to be displayed at the Planning Commission meeting. Elevations in color are also required by the ordinance and were not submitted. The applicant stated these items were not provided because the proposed materials match the existing retail building (light and dark gray materials). **The Planning Commission should require these items to be submitted. (Comment outstanding. The Planning Commission may require these items be provided).**

The outdoor patio is 12-feet-wide, approximately 660 square feet in size, and located on the west side of the building. **It appears the western portion of the patio is located within an existing 33-foot-wide sanitary sewer easement. The Planning Department defers to the Director of Public Services and Township Engineering Consultant on this matter. (Comment outstanding. The response letter provided to the first review indicates the applicant would provide a letter to the effect the applicant would be responsible for removal and replacement of the proposed patio if removal was necessary for sanitary sewer maintenance/repair. Approval of the Director of Public Services is required to allow the patio to encroach on the existing sanitary sewer easement).**



Accessory items such as railings, benches, trash receptacles, outdoor seating (such as tables and chairs), or sidewalk planters located in the vicinity of sidewalks and/or outdoor seating areas are required to be of commercial quality and complement the building design and style. The submitted architectural plans show a 3.5-inch decorative cast iron guard rail with posts surrounding the patio. **Details were not provided for the proposed concrete steps with handrails to the Union Lake Road sidewalk or the materials of items to be located on the patio; such details shall be provided for Planning Commission review and approval. Details shall also be provided for the patio surfacing; an ornamental paving treatment should be required by the Planning Commission.** (Comment partially addressed. Stair details have been added to the landscape plan. However, the handrail detail shall be updated to specify the proposed color. The Township Engineering Consultant shall provide comment on the stairs' accessibility and compliance with the Americans and Disabilities Act. Furthermore, details were not provided for the items to be located on the patio, nor were details provided for the patio surfacing. Revised architectural plans were not provided). The paving treatment should be something either decorative or something to provide aesthetic quality to the patio. Potential options for ornamental paving treatments include, but are not limited to, CMU pavers; brick; stone; or stamped, stained, and sealed concrete.

### *Parking*

The parking layout for this site was approved with the site plan for the already constructed portion of Four Corners Square. Parking calculations for the previously proposed full-service restaurant and patio indicated 80 spaces were required. In 2017 the Zoning Board of Appeals granted an 11-space variance to allow 69 parking spaces to serve the subject site. 42 of the 69 spaces are located on the subject site; the remaining 27 spaces are located on the adjoining property to the east. Two barrier-free parking spaces are shown along the front of the building. A barrier-free parking sign detail is provided on Sheet C3 of the site plan. **A “Van Accessible” sign detail shall also be provided on Sheet C3 of the site plan.** (Comment partially addressed. While the response letter provided to the first review indicates a van accessible sign detail was added to Sheet C3, a boxed area was added to the previously supplied barrier free parking sign detail with a note stating a sign indicating “van accessibility” shall be provided. The requested “Van Accessible” sign detail was not provided).

### *Off-Street Loading Requirements*

The zoning ordinance requires one loading space for a development of this size. Such loading and unloading space must be an area 10 feet by 50 feet, with a 15-foot height clearance. The proposed loading area is located at the rear (north side) of the building and 10 feet by 40 feet; **therefore, a 10-foot variance from the required loading space length shall be required. Also, a note shall be added to the site plan indicating there will be a 15-foot height clearance for the loading space. As a condition of site plan approval, the proposed screen wall on the north and west sides of the loading area shall match the same brick veneer as the facade of the building. A wall detail shall be provided on Sheet C3 of the site plan to show a four-inch brick face on the outside walls of the enclosure.** (Comment partially addressed. The applicant has filed a variance application and a public hearing is scheduled at the December 9, 2021 Zoning Board of Appeals meeting. The dumpster enclosure was relocated to the west end of the loading area. However, the applicant shall clarify the size of the loading area; Sheet C3 indicates the area is 31.3 feet by 17.8 feet and Sheet C4 indicates the area is 31 feet by 17 feet. The plans shall be revised for consistency. A 15-foot height clearance note has been added to Sheet C3, and the dumpster enclosure detail was revised on Sheet C8 to note brick veneer would be utilized on the outside walls).

### *Trash Receptacle Screening*

The zoning ordinance requires dumpsters to be surrounded by a six-foot-tall wall on three sides and an obscuring wood gate on a steel frame on the fourth side, located on a six-inch concrete pad extending 10 feet in front of the gate, with six-inch concrete-filled steel bollards to protect the rear wall and gates. The proposed enclosure is located at the rear (north side) of the building. A six-foot-tall concrete screen wall is proposed around three sides of the dumpster enclosure, with a steel backed wood gate on the east side of the structure. The zoning ordinance states dumpsters and trash storage enclosures shall be constructed of the same decorative masonry materials as the buildings to which they are accessory. Brickform concrete (simulated brick pattern) or stained, decorative CMU block are not permitted where the principal building contains masonry. Plain CMU block is also prohibited. **As a condition of site plan approval, the dumpster enclosure shall match the same brick veneer as the facade of the building with a steel backed wood gate painted a complementary color to the brick veneer. The dumpster enclosure detail on Sheet C7 of the site plan shall be revised to show a four-inch brick face on the outside walls of the concrete enclosure and indicate the color of the gate.** (Comment partially addressed. The dumpster enclosure detail was revised on Sheet C8 to note brick veneer would be utilized on the outside walls. While the plan notes the gate would be painted a complimentary color to the brick veneer, the color was not indicated as requested).

### *Landscaping and Screening*

The landscape layout for this site was approved with the site plan for the already constructed portion of Four Corners Square. Variances were granted by the Zoning Board of Appeals in 2017 to reduce the required greenbelt for nonresidential parking areas abutting road right-of-way. A condition of such approval allowed the Planning Commission to retain the authority to require a 30-inch screen wall in conjunction with a five-foot greenbelt. A landscape plan was submitted showing the relocation of some of the existing plant material to screen the proposed transformer, dumpster enclosure, and loading area. **If any plant materials required by site plan approval dies or becomes diseased during construction or from transplanting, the applicant shall be required to replace the plant materials. Additionally, all lawn areas shall be sodded. All applicable notes on the landscape plan, including the General Landscape Notes and General Seed Note, shall be revised accordingly to indicate the required installation of sod in lawn areas.** (Comment addressed. The General Seed Note was replaced with a General Sod Note. Also, five trees planted as part of the original approval are proposed to be transplanted. The Plant Material Note indicates all existing plant material on-site shall be transplanted as shown or elsewhere on-site at the direction of the applicant. Any and all transplant locations, as well as a stockpile location, shall receive prior review and approval by the Township). The landscape plan notes five Spruce trees would be transplanted on-site at the direction of the owner. **The landscape plan shall be revised to show where the five transplanted Spruce trees are proposed to be relocated.** (Comment addressed. A note has been added to the landscape plan stating the Spruce trees were temporary landscape screening installed as a part of the original approval and would be removed to facilitate construction).

### *Signs*

A variance was granted by the Zoning Board of Appeals in 2017 to permit nonresidential signs at Four Corners Square in accordance with the RB (Restricted Business) district standards. One wall sign is permitted per tenant; total sign area per tenant cannot exceed 10 percent of the front facade for the individual tenant space. The submitted building elevations show one wall sign per tenant on the front (south) facade of the building. A wall sign is shown on the west elevation, which would be permitted up to one-half the size of the primary sign for the westerly tenant since the building contains frontage on Union Lake Road. **A wall sign is shown on the east elevation, which is not permitted and shall be removed from the plan.** (Comment outstanding. Revised architectural plans were not provided. However, the applicant has filed a variance application and a public hearing is scheduled at the December 9, 2021 Zoning Board of Appeals meeting).

**The site plan shows an unidentified object at the southwest corner of the site; this shall be labeled. Staff believes the symbol likely depicts the location of a sign. The applicant shall specify if this is the proposed location for the “Welcome to White Lake” sign.** Comment outstanding. The response letter provided to the first review indicates the object appears to be the “Welcome to White Lake” sign. The applicant shall confirm and the plans revised to label accordingly).

### *Lighting*

The applicant stated the proposed building would contain the same wall-mounted fixtures as the existing retail center. However, photometrics on the luminaries located on the existing retail building were not provided for review and approval in 2017. The submitted electrical plan shows luminaries on all sides of the building, with a note stating all light fixture selections and colors will be approved by the owner; **light fixture selections and colors are subject to review and approval by the Township. No wall-mounted decorative or architectural lighting shall be installed on the north (rear) facade of the building. Up-lighting or outward shining lighting are also not permitted on the building. An outdoor lighting plan (photometric plan) shall be required specifying the type of fixtures to be used, light intensity, and method of shielding the fixtures so light does not project onto adjoining properties or on any public or private street or right-of-way. Catalog details (lighting fixture specification sheets) for all proposed fixtures shall be provided. Outdoor lights must meet the performance standards of Article 5, Section 18.G of the zoning ordinance.** (Comment outstanding. Architectural plans are not acceptable for the purpose of reviewing outdoor lighting. A lighting (photometric) plan is required and was requested, along with lighting fixture specification sheets for all proposed fixtures. The requested information was not provided. Outdoor lighting cannot be installed on the building or site without prior review and approval by the Township).

### **Planning Commission Options / Recommendation**

The applicant has requested preliminary and final site plan approval. As the site is considered part of Four Corners Square, and the general layout/engineering of the property was previously considered by the Township, proceeding in this manner would not compromise the review of development on the site. The Planning Commission may recommend approval, approval with conditions, or denial of the preliminary site plan to the Township Board; action on the final site plan is determined by the Planning Commission. **Staff recommends approval of the preliminary and final site plan, subject to the items identified in this memorandum being addressed prior to a pre-construction meeting, and the necessary variances being received.**

The following notations summarize the site plan review:

- Recommendation of approval is in accordance with the plans prepared by Nowak & Fraus Engineers dated August 25, 2021 (revision date ~~October 14, 2021~~ **November 8, 2021**), subject to revisions as required. The utility, grading, and storm drainage plans for the site are subject to the approval of the Township Engineer and shall be completed in accordance with the Township Engineering Design Standards.
- Recommendation of approval is in accordance with the plans prepared by G.A.V. & Associates, Inc. dated October 21, 2021, subject to revisions as required.

- Transformer and mechanical equipment (heating, ventilation, air conditioning, and similar systems) shall be screened in accordance with Article 5, Section 19.N.ii of the zoning ordinance. **(Comment addressed. The transformer has been relocated and screened, and such relocation allows the existing arborvitae buffer to remain. Furthermore, five arborvitae have been added to the west side to screen both the transformer and dumpster enclosure from Union Lake Road).**
- Six-inch straight-faced (vertical) curb of concrete construction shall be used around landscape and parking areas. The standard Michigan Department of Transportation (MDOT) detail for six-inch straight-faced curb shall be provided on Sheet C7 of the site plan. **(Comment partially addressed. Curb details have been added to Sheet C8. However, the standard MDOT detail was not provided as requested).**

**From:** [John Holland](#)  
**To:** [Hannah Micallef](#)  
**Cc:** [Jason Hanifen](#); [Sean O'Neil](#)  
**Subject:** Four Corners  
**Date:** Friday, November 5, 2021 11:22:10 AM

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Hey Sean,

With regards to Four Corners - the Fire Department has no further comments until the construction plans are submitted. At that time the occupancy classification, use, and overall square footage will be reviewed as it pertains to the life safety requirements for the building.

If you need anything else, let me know,



John Holland  
Fire Chief  
(248) 698-3993  
[jholland@whitelaketwp.com](mailto:jholland@whitelaketwp.com)

**Assessing Department**

# Memo

**To:** Sean O'Neil, Planning

**From:** Jeanine A Smith

**Date:** October 26, 2021

**Re:** Project Name: 4 Corners Retail      File No:      Parcel Number:12-36-476-032  
Center

---

**Comments:** No comments

White Lake Township,  
Oakland County, Michigan  
**CONSTRUCTION/SITE PLAN DOCUMENTS**  
Prepared For  
**4 Corners Square LLC**  
PART OF THE SE 1/4 OF SECTION 36,  
WHITE LAKE TOWNSHIP,  
OAKLAND COUNTY, MICHIGAN

**Owner / Developer**

VERITAS  
29580 Northwestern Hwy, Suite 1000  
Southfield, Michigan 48075  
Tel: (248) 559-5555

CONTACT: Shakir W. Alkhafaji, President

**Architect**

GAV & Associates  
24001 Orchard Lake Rd., Suite 180A  
Farmington, MI 48336  
Tel. (248) 985-9101

CONTACT: David Ganezer

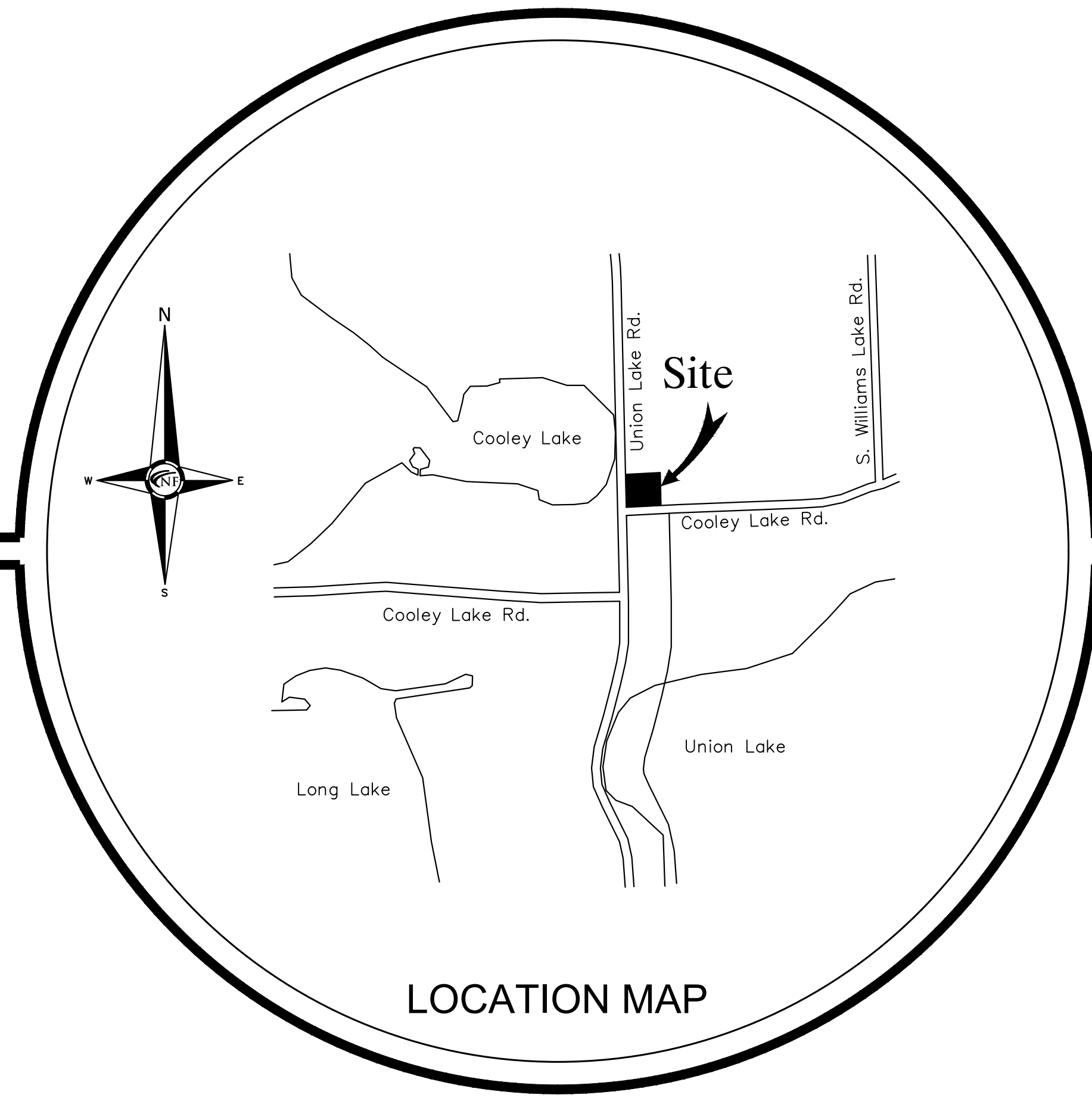
**Civil Engineer**

Nowak & Fraus Engineers  
46777 Woodward Ave.  
Pontiac, MI 48342-5032  
Tel. (248) 332-7931  
Fax. (248) 332-8257

CONTACT: Michael D. Peterson, P.E.

WHITE LAKE TOWNSHIP STANDARD SITE CONSTRUCTION NOTES

1. All construction shall be in accordance with the current standards and specifications of White Lake Charter Township.
2. The developer shall contact the Township Planning Department at (248) 698-3300 to schedule a pre-construction meeting. The developer's prime site contractor shall attend. A copy of all permits must be submitted to the Planning Department prior to scheduling the meeting.
3. The contractor shall contact the Township Engineer at (248) 681-7800 48 hours prior to the beginning of construction. The contractor shall keep the inspector apprised of the need for inspection on a day by day basis. Lacking specific scheduling with the inspector, the contractor shall give 48 hours notice to the Township Engineer prior to re-commencing work requiring inspection. Failure to inform the inspector or the Township Engineer of a work cancellation may result in a one half day inspection charge to the developer.
4. All water main or sanitary sewer work will require full time inspection. Full time inspection will generally be required for underground storm sewer construction with intermittent inspection for retaining walls, concrete curbing and paving operations. Site grading and detention basin construction will generally be inspected on an infrequent basis.
5. The contractor shall contact MISS DIG at (800) 482-7171 72 hours in advance of construction to have existing underground facilities located. Contractor shall contact the White Lake Township Water Department at (248) 698-3300 (ext 8) a minimum of 72 hours in advance of construction to have water utilities located.



**LEGAL DESCRIPTION**

A PARCEL OF LAND BEING A PART OF THE EAST 1/2 OF THE SOUTHEAST 1/4 OF SECTION 36, T.3N, R.8E., WHITE LAKE TOWNSHIP, OAKLAND COUNTY MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 36; THENCE PROCEEDING ALONG THE SOUTH LINE OF SAID SECTION 36, AND THE NOMINAL CENTERLINE OF COOLEY LAKE ROAD, N 89° 57' 40" W, 726.90 FEET; THENCE N 00° 00' 00" E, 43.00 FEET TO A POINT ON THE NORTH LINE OF COOLEY LAKE ROAD AS DEDICATED TO THE ROAD COMMISSION OF OAKLAND COUNTY, RECORDED IN LIBER 4601 OF PLATS, PAGES 224 AND 225 O.C.R.; THENCE PROCEEDING ALONG THE 43' RIGHT OF WAY LINE, N 89° 57' 40" W., 403.00 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG THE NORTH LINE OF COOLEY LAKE ROAD, N 89° 57' 40" W, 201.61 FEET TO A POINT ON THE WEST LINE OF THE EAST 1/2 OF THE SOUTHEAST 1/4 AND THE NOMINAL CENTERLINE OF UNION LAKE ROAD; THENCE PROCEEDING ALONG THE WEST LINE OF THE EAST 1/2 OF THE SOUTHEAST 1/4 AND THE NOMINAL CENTERLINE OF UNION LAKE ROAD N 00° 05' 45" E, 220.00 FEET; THENCE S 89° 57' 40" E, 201.24 FEET; THENCE S 00° 00' 00" W, 220.00 FEET TO THE POINT OF BEGINNING. CONTAINING 44,313 GROSS SQUARE FEET OR 1.017 GROSS ACRES OF LAND MORE OR LESS.

OR CONTAINING 31,113 NET SQUARE FEET, 0.714 NET ( MINUS FUTURE 60' R.O.W.)

ALSO BEING SUBJECT TO THE RIGHTS OF THE PUBLIC AND OR ANY OTHER GOVERNMENTAL UNIT THEREOF IN THAT PART OF UNION LAKE ROAD, USED, TAKEN OR DEEDED FOR STREET, ROAD OR HIGHWAY PURPOSES, ALSO BEING SUBJECT TO ANY EASEMENTS, RESTRICTIONS OR CONDITIONS OF RECORD.

PARCEL NO.: 12-36-476-032

**SHEET INDEX**

- C0 Cover Sheet
- C1 Topographic Survey
- C2 Demolition Plan
- C3 Stringer Dimension Plan
- C4 Paving & Grading Plan
- C5 Utility Plan
- C6 Utility Details Plan
- C7 Soil Erosion / Sedimentation Control Plan
- C8 General Construction Requirements, Contractor's Duties, Notes and Details Plan
- L1 Landscape Plan

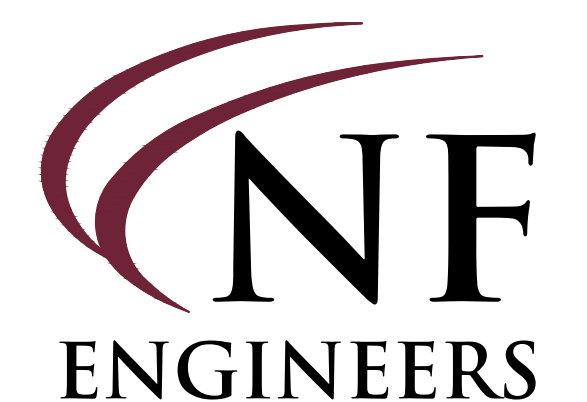
Standard Details

- White Lake Township Sanitary Sewer Standard Details
- White Lake Township Storm Sewer Standard Details
- White Lake Township Water Main Standard Details
- Oakland County WRC Soil Erosion & Sedimentation Control Details

Project Name

# 4 Corners Retail Center

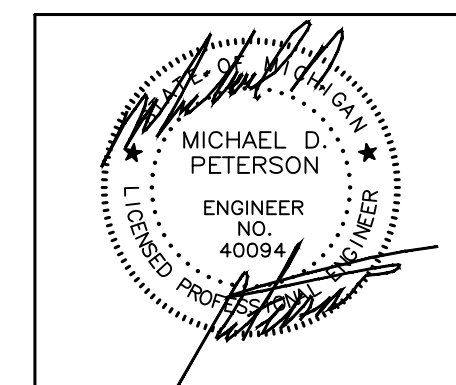
REVISIONS:	
10-14-21	ISSUED FOR SITE PLAN REVIEW
11-08-21	REVISED PER SITE PLAN REVIEW



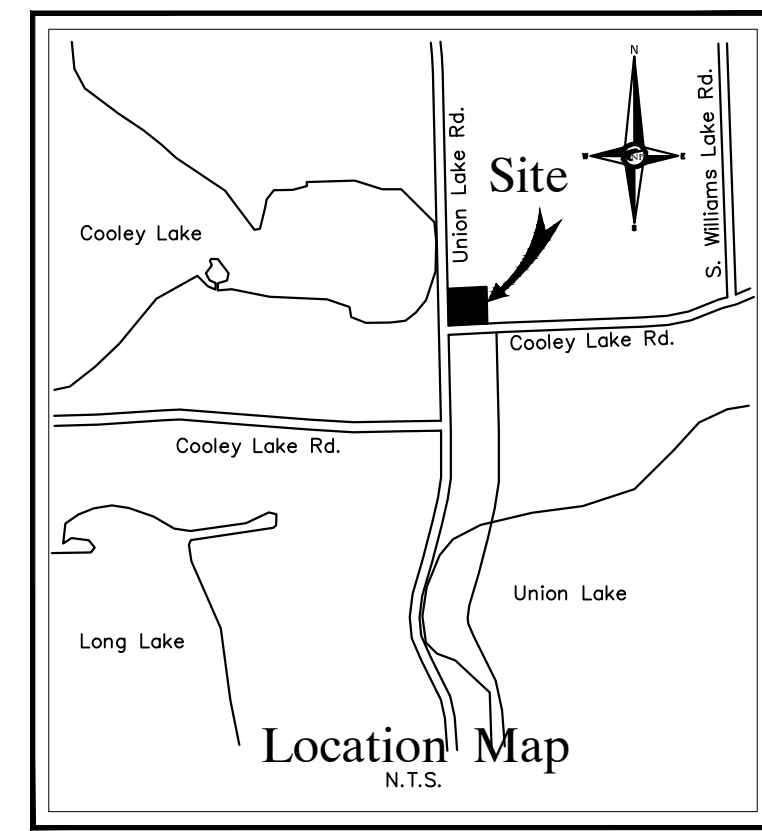
CIVIL ENGINEERS  
LAND SURVEYORS  
LAND PLANNERS

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

N & F JOB #J635-03

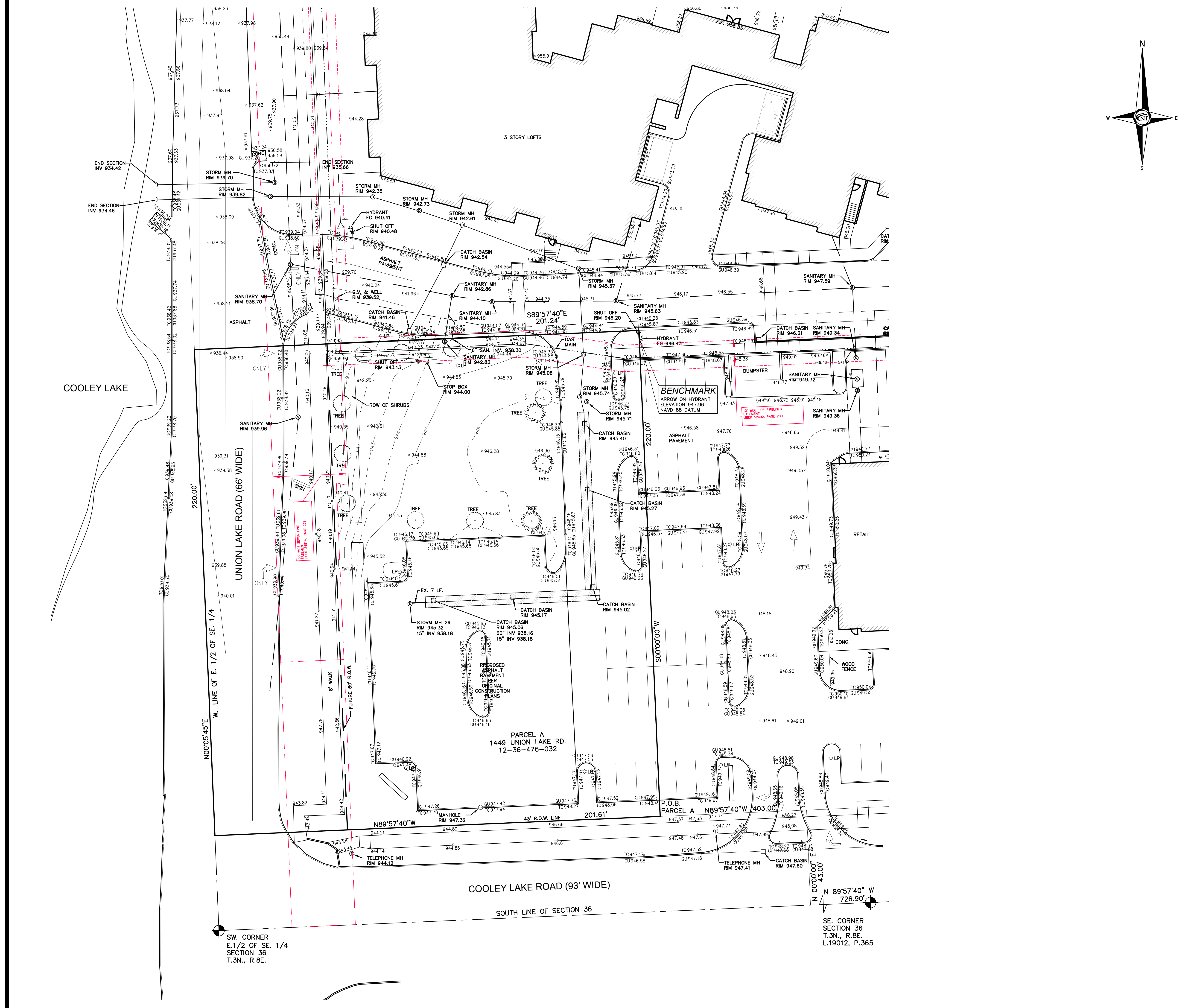
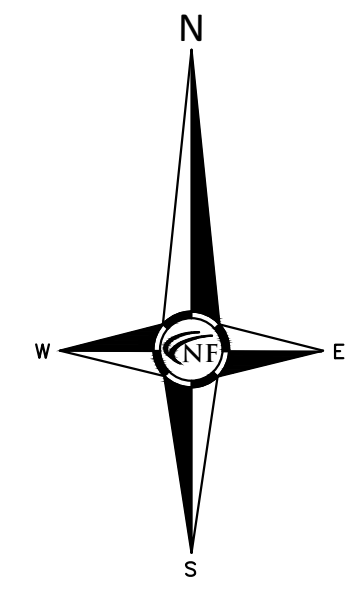






**NF ENGINEERS**  
 CIVIL ENGINEERS  
 LAND SURVEYORS  
 LAND PLANNERS

NOWAK & FRAUS ENGINEERS  
 4677 WOODWARD AVE.  
 PONTIAC, MI 48342-5032  
 TEL. (248) 332-7931  
 FAX. (248) 332-8257  
 WWW.NOWAKFRAUS.COM



SEAL

PROJECT  
 4 Corners Retail Center  
 1449 Union Lake Road  
 White Lake Township

CLIENT  
 VERITAS  
 29580 Northwestern Hwy,  
 Suite 1000  
 Southfield, Michigan 48075

Contact: Shakir W. Alkhafaji, President  
 Phone: (248) 559-5555

**LEGAL DESCRIPTION: PARCEL A**

A PARCEL OF LAND BEING A PART OF THE EAST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 36, T.3N., R.8E., WHITE LAKE TOWNSHIP, OAKLAND COUNTY MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 36; THENCE PROCEEDING ALONG THE SOUTH LINE OF SAID SECTION 36, AND THE NOMINAL CENTERLINE OF COOLEY LAKE ROAD, N 89° 57' 40" W, 726.90 FEET; THENCE N 00° 00' 00" E, 43.00 FEET TO A POINT ON THE NORTH LINE OF COOLEY LAKE ROAD AS DEDICATED TO THE ROAD COMMISSION OF OAKLAND COUNTY, RECORDED IN LIBER 4601 OF PLATS, PAGES 224 AND 225, O.C.R.; THENCE PROCEEDING ALONG THE EAST 1/2 OF THE SOUTHWEST 1/4 AND THE NOMINAL CENTERLINE OF UNION LAKE ROAD; THENCE CONTINUING ALONG THE WEST LINE OF THE EAST 1/2 OF THE SOUTHWEST 1/4 AND THE NOMINAL CENTERLINE OF UNION LAKE ROAD N 00° 05' 45" E, 220.00 FEET; THENCE S 89° 57' 40" E, 201.24 FEET; THENCE S 00° 00' 00" W, 220.00 FEET TO THE POINT OF BEGINNING, CONTAINING 44,313 GROSS SQUARE FEET OR 1.017 GROSS ACRES OF LAND MORE OR LESS.

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**COVID-19 PANDEMIC CONDITION**

DUE TO THE UNPRECEDENTED COVID-19 PANDEMIC CONDITION AND RESTRICTIONS THE STANDARD DATA WHICH IS OBTAINED FROM MISS DIG / CALL 811 HAS BEEN RESTRICTED TO CRITICAL INFRASTRUCTURE ONLY. NFE WILL MAKE EVERY EFFORT TO OBTAIN CURRENT REFERENCE DATA FROM THE GOVERNING AGENCIES. HOWEVER, THIS DATA MAY BE PARTIAL OR INCOMPLETE. NFE WILL ISSUE THIS SURVEY WITH THE BEST AVAILABLE INFORMATION FROM OUR FIELD SURVEY AND OTHER AVAILABLE REFERENCE DATA. NFE WILL NOT BE RESPONSIBLE FOR INCOMPLETE OR PARTIAL DATA PROVIDED BY THIRD PARTY FACILITY OWNERS.

ALL SURVEYS BEING UTILIZED FOR DESIGN PURPOSES BY OTHERS; IT WILL BE THE CLIENT'S OBLIGATION TO UPDATE THE UTILITY INFORMATION AS IT BECOMES AVAILABLE. NFE IS NOT RESPONSIBLE FOR BURIED UTILITIES FOR WHICH PLANS WERE NOT FURNISHED OR CANNOT BE OBSERVED IN THE FIELD.

**MISS DIG / UTILITY DISCLAIMER NOTE**

A MISS DIG TICKET NUMBER PURSUANT TO MICHIGAN PUBLIC ACT 174 WAS ENTERED FOR THE SURVEYED PROPERTY, DUE TO THE EXTENDED REPORTING PERIOD FOR UNDERGROUND FACILITY OWNERS TO PROVIDE THEIR RECORDS, THE SURVEY MAY NOT REFLECT ALL THE UTILITIES AT THE TIME THE SURVEY WAS ISSUED ON. THE SURVEY ONLY REFLECTS THOSE UTILITIES WHICH COULD BE OBSERVED BY THE SURVEYOR IN THE FIELD OR AS DEPICTED BY THE UTILITY COMPANY RECORDS FURNISH PRIOR TO THE DATE THIS SURVEY WAS ISSUED. THE CLIENT AND/OR THEIR AUTHORIZED AGENT SHALL VERIFY WITH THE FACILITY OWNERS AND/OR THEIR AUTHORIZED AGENTS, THE COMPLETENESS AND EXACTNESS OF THE UTILITIES LOCATION.

**TOPOGRAPHIC SURVEY NOTES**

ALL ELEVATIONS ARE EXISTING ELEVATIONS, UNLESS OTHERWISE NOTED.

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

THIS SURVEY MAY NOT SHOW ALL EASEMENTS OF RECORD UNLESS AN UPDATED TITLE POLICY IS FURNISHED TO THE SURVEYOR BY THE OWNER.

**811**  
 Know what's below  
 Call before you dig.

DATE ISSUED/REVISED  
 10-14-21 ISSUED FOR SITE PLAN REVIEW  
 11-08-21 REVISED PER SITE PLAN REVIEW

**LEGEND**

MANHOLE	EXISTING SANITARY SEWER
HYDRANT	EXISTING SAN. CLEAN OUT
MANHOLE	EXISTING WATER MAIN
MANHOLE	EXISTING STORM SEWER
MANHOLE	EX. R.Y. CATCH BASIN
UTILITY POLE	EXISTING BURIED CABLES
GUY WIRE	OVERHEAD LINES
SIGN	LIGHT POLE
EXISTING GAS MAIN	EXISTING GAS MAIN

DRAWN BY:  
 N. Naoum

DESIGNED BY:

APPROVED BY:  
 K. Navaroli

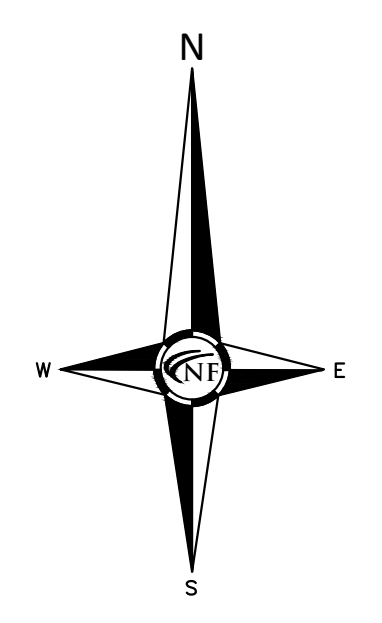
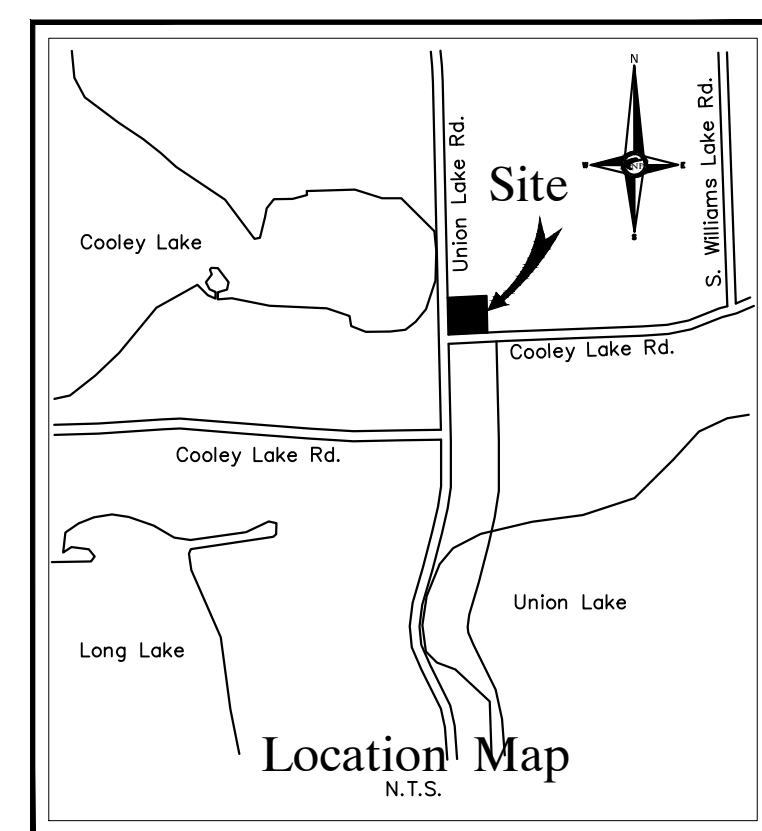
DATE:  
 08-25-2021

SCALE: 1" = 20'

NFE JOB NO. SHEET NO.  
**J635-03 C1**



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LAND SURVEYORS  
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### DEMOLITION NOTES

DEMOLITION OF SITE IMPROVEMENTS SHALL BE ALLOWED ONLY AFTER AN APPROVED PERMIT HAS BEEN SECURED FROM THE PUBLIC AGENCY HAVING JURISDICTION OVER SAID DEMOLITION. FOR ANY DEMOLITION WITHIN PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL PAY FOR, AND SECURE, ALL NECESSARY PERMITS AND LICENSES AND MAKE ARRANGEMENTS FOR ALL SITE INSPECTIONS.

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

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

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

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

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

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

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

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

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

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

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

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

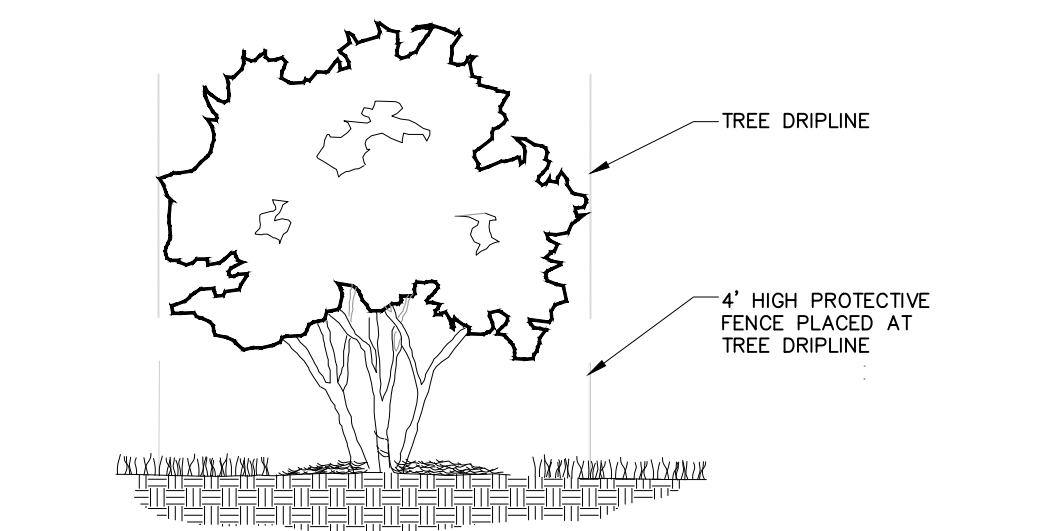
PRIOR TO BUILDING DEMOLITION, ALL HAZARDOUS MATERIAL SHALL BE REMOVED BY OTHERS. THE DEMOLITION CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER SHOULD ANY SUSPICIOUS MATERIAL BE FOUND.

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

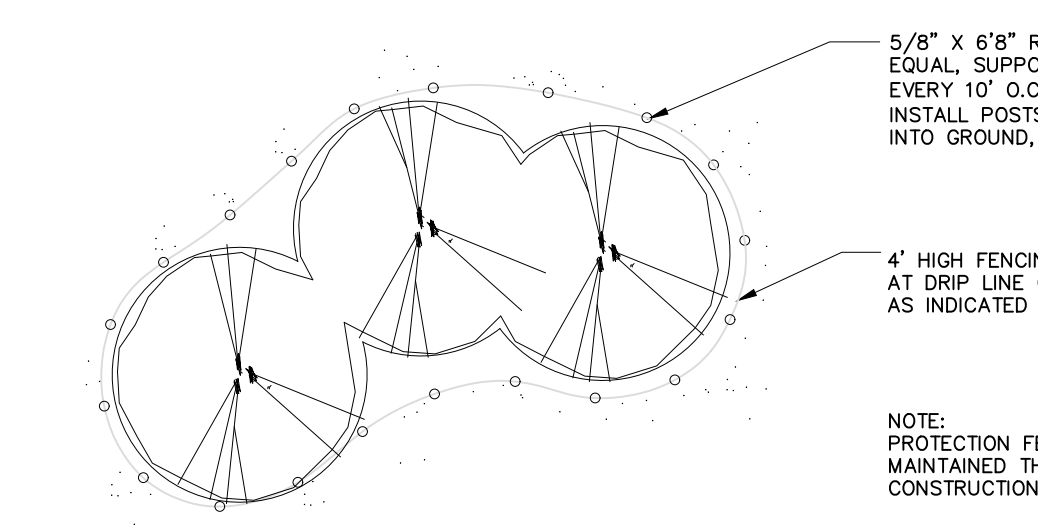
WHERE EXISTING BUILDINGS PLANNED FOR DEMOLITION FALL WITHIN PROPOSED BUILDING FOOT PRINTS, BASEMENT FLOOR SLABS, FOUNDATION WALLS AND FOOTINGS SHALL BE COMPLETELY REMOVED AND BACK FILLED WITH MOST CLASS II GRANULAR MATERIAL AND BE MACHINE COMPACTED TO A MINIMUM OF 98% OF MATERIALS MAXIMUM DENSITY.

### GENERAL TREE PROTECTION NOTES

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



TREE PROTECTION DETAIL-SECTION N.T.S.



TREE PROTECTION DETAIL-PLAN N.T.S.

### TOPOGRAPHIC SURVEY NOTES

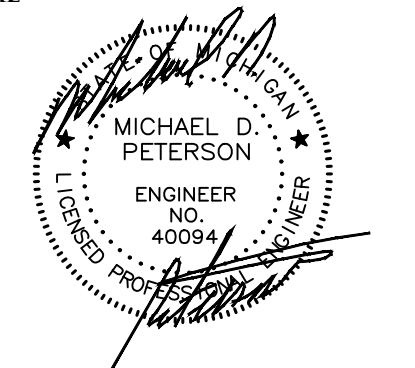
ALL ELEVATIONS ARE EXISTING ELEVATIONS, UNLESS OTHERWISE NOTED.

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

THIS SURVEY MAY NOT SHOW ALL EASEMENTS OF RECORD UNLESS AN UPDATED TITLE POLICY IS FURNISHED TO THE SURVEYOR BY THE OWNER.

LEGEND	
	MANHOLE
	HYDRANT
	MANHOLE
	UTILITY POLE
	GUY POLE
	GUY WIRE
	SIGN
	EXISTING GAS MAIN
	EXISTING UTILITY TO BE REMOVED
	EXISTING UTILITY TO BE ABANDONED
	12" MAPLE
	INDICATES EXISTING TREE TO BE REMOVED
	INDICATES AREAS OF PAVEMENT, BUILDINGS, ETC. TO BE REMOVED

SEAL



PROJECT  
4 Corners Retail Center  
1449 Union Lake Road  
White Lake Township

CLIENT  
VERITAS  
29580 Northwestern Hwy,  
Suite 1000  
Southfield, Michigan 48075

Contact: Shahir W.  
Alkhafaji, President  
Phone: (248) 559-5555

PROJECT LOCATION  
Part of the E. 1/2  
of the SE. 1/4 of Section 8  
T.3N., R.8E.  
White Lake Township,  
Oakland County, Michigan

SHEET  
Demolition Plan



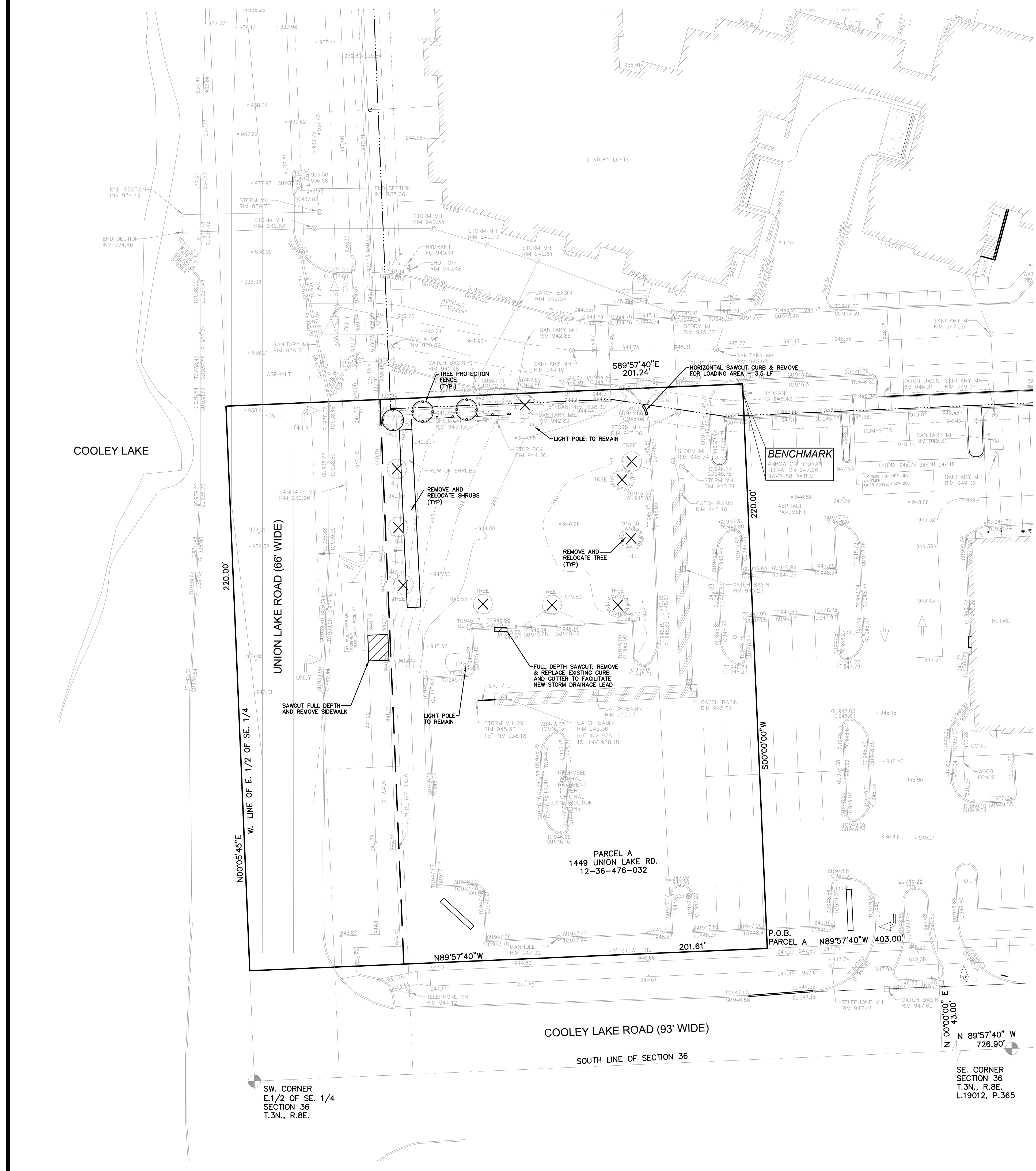
Know what's below  
Call before you dig.

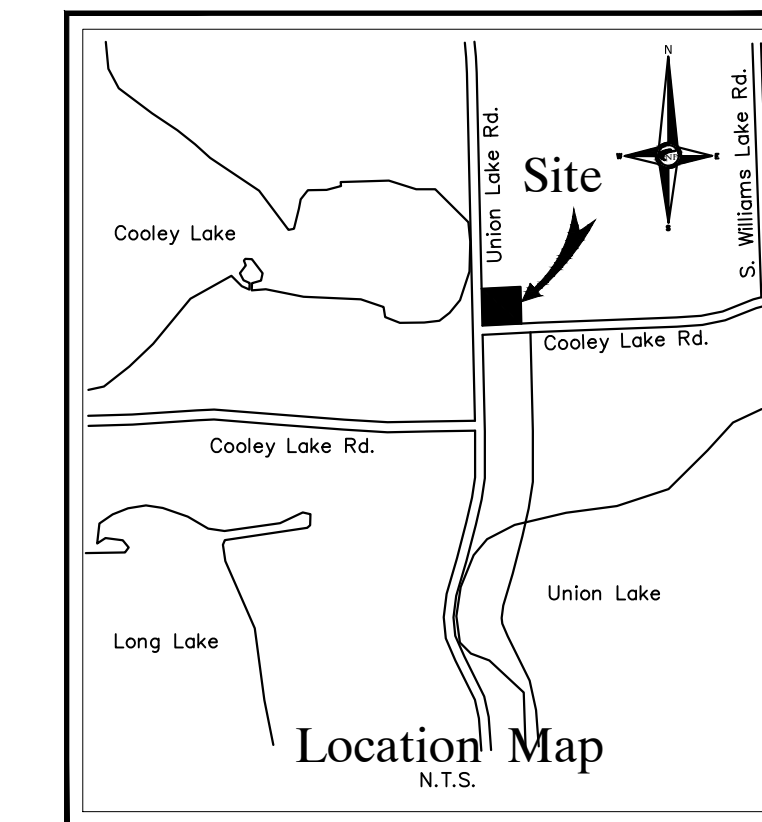
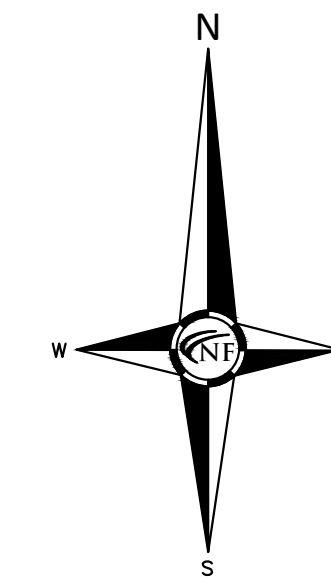
DATE ISSUED/REVISED  
10-14-21 ISSUED FOR SITE PLAN REVIEW  
11-08-21 REVISED PER SITE PLAN REVIEW

DRAWN BY:  
N. Naoum  
DESIGNED BY:  
M. Kurmas  
APPROVED BY:  
M. Peterson

DATE:  
08-25-2021  
SCALE: 1" = 20'  
20 10 0 10 20 30

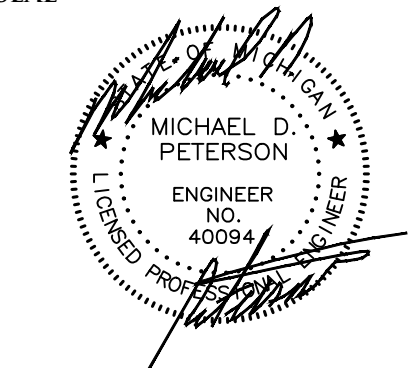
NFE JOB NO. SHEET NO.  
J635-03 C2





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

SEAL



**PROJECT**  
4 Corners Retail Center  
1449 Union Lake Road  
White Lake Township

**CLIENT**  
VERITAS  
29580 Northwestern Hwy,  
Suite 1000  
Southfield, Michigan 48075

Contact: Shakir W.  
Alkhafaji, President  
Phone: (248) 559-5555

**PROJECT LOCATION**  
Part of the E. 1/2  
of the SE. 1/4 of Section 8  
T.3N., R.8E.  
White Lake Township,  
Oakland County, Michigan

**SHEET**  
Stringer Dimension Plan



Know what's below  
Call before you dig.

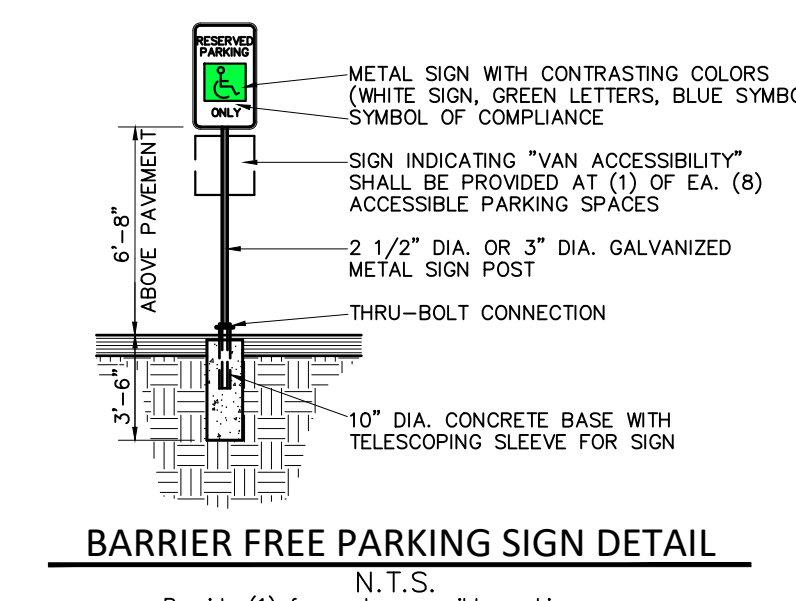
**DATE ISSUED/REVISED**  
10-14-21 ISSUED FOR SITE PLAN REVIEW  
11-08-21 REVISED PER SITE PLAN REVIEW

**DRAWN BY:**  
N. Naoum  
**DESIGNED BY:**  
M. Kurmas  
**APPROVED BY:**  
M. Peterson

**DATE:**  
08-25-2021

**SCALE:** 1" = 20'  
20 10 0 10 20 30

**NFE JOB NO. SHEET NO.**  
J635-03 C3



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

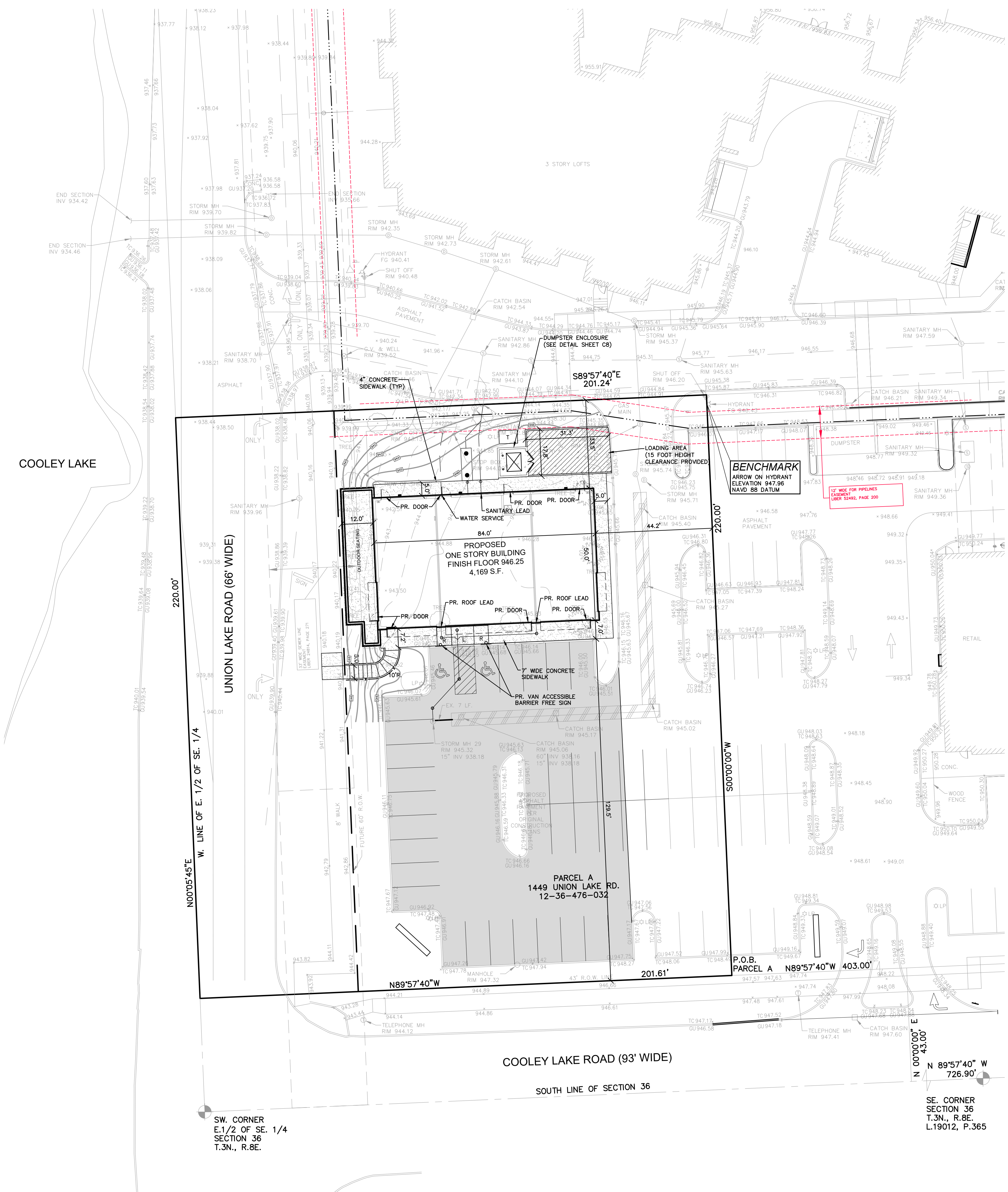
**PAVING LEGEND**

	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

**LEGEND**

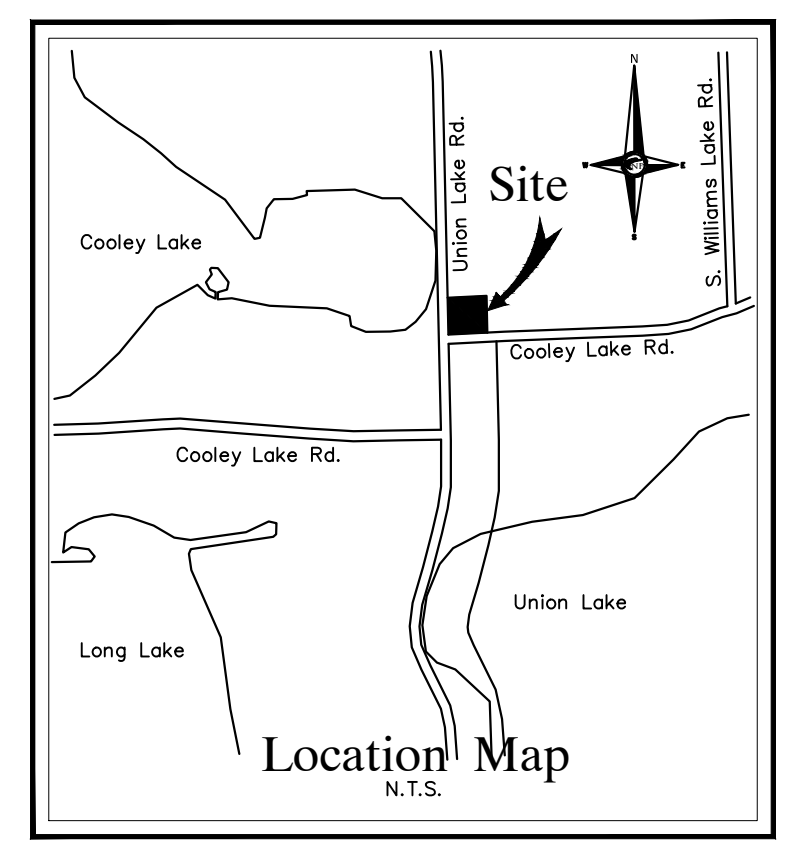
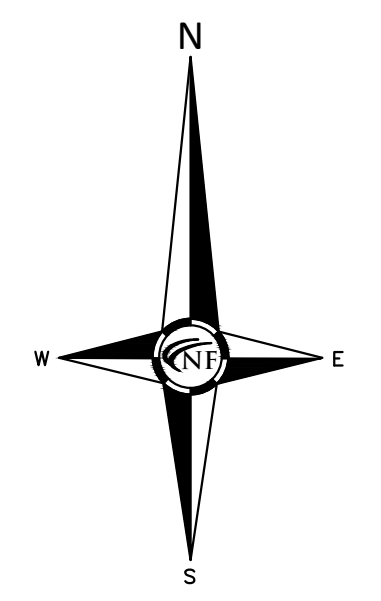
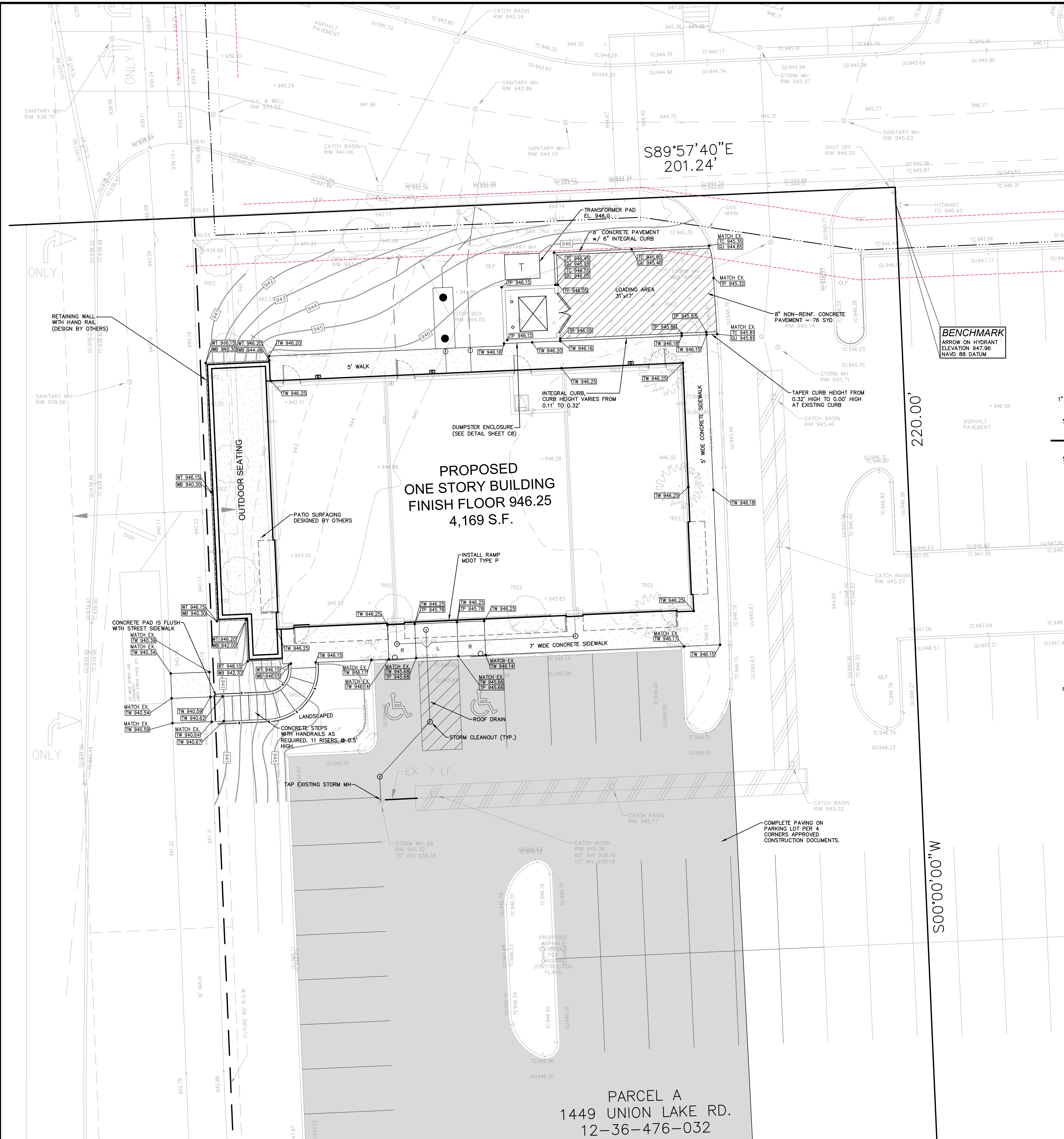
	MANHOLE		EXISTING SANITARY SEWER
	HYDRANT		SAN. CLEAN OUT
	MANHOLE CATCH BASIN		EXISTING WATERMAIN
	UTILITY POLE		EXISTING STORM SEWER
	GUY POLE		EX. R. Y. CATCH BASIN
	GUY WIRE		EXISTING BURIED CABLES
	C.O.		OVERHEAD LINES
	MANHOLE		LIGHT POLE
	HYDRANT		SIGN
	INLET		EXISTING GAS MAIN
	C.B.		PR. SANITARY SEWER
	MANHOLE		PR. WATER MAIN
			PR. STORM SEWER
			PR. R. Y. CATCH BASIN
			PROPOSED LIGHT POLE

**SITE DATA**  
Zoned: NMU Neighborhood Mixed Use  
**Building Setbacks:**  
Front= 0'  
Sides= 0'  
Rear= 5'



SW. CORNER  
E.1/2 OF SE. 1/4  
SECTION 36  
T.3N., R.8E.

SE. CORNER  
SECTION 36  
T.3N., R.8E.  
L.19012, P.365



**NF ENGINEERS**  
 CIVIL ENGINEERS  
 LAND SURVEYORS  
 LAND PLANNERS

NOWAK & FRAUS ENGINEERS  
 4677 WOODWARD AVE.  
 PONTIAC, MI 48342-5032  
 TEL. (248) 332-7931  
 FAX. (248) 332-8257  
 WWW.NOWAKFRAUS.COM

**GENERAL PAVING NOTES**

PAVEMENT SHALL BE OF THE TYPE, THICKNESS AND CROSS SECTION AS INDICATED ON THE PLANS AND AS FOLLOWS:

**CONCRETE:** PORTLAND CEMENT TYPE IA (AIR-ENTRAINED) WITH A MINIMUM CEMENT CONTENT OF SIX SACKS PER CUBIC YARD, MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,500 PSI AND A SLUMP OF 1 1/2 TO 3 INCHES.

**ASPHALT:** BASE COURSE - MDT BITUMINOUS MIXTURE HMA 4E1, 20A; SURFACE COURSE - MDT BITUMINOUS MIXTURE HMA 5E1, 20A; ASPHALT CEMENT PENETRATION GRADE 85-100, BOND COAT - MDT SS-1H EMULSION AT 0.10 GALLON PER SQUARE YARD; MAXIMUM 2 INCH LIFT.

PAVEMENT BASE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT. EXISTING SUB-BASE SHALL BE PROOF-ROLLED IN THE PRESENCE OF THE ENGINEER TO DETERMINE STABILITY.

ALL CONCRETE PAVEMENT, DRIVEWAYS, CURB & GUTTER, ETC., SHALL BE SPRAY CURED WITH WHITE MEMBRANE CURING COMPOUND IMMEDIATELY FOLLOWING FINISHING OPERATION.

ALL CONCRETE PAVEMENT JOINTS SHALL BE FILLED WITH HOT POURED RUBBERIZED ASPHALT JOINT SEALING COMPOUND IMMEDIATELY AFTER SAWCUT OPERATION. FEDERAL SPECIFICATION SS-5164.

ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE MUNICIPALITY AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, CURRENT EDITION.

ALL TOP OF CURB ELEVATIONS, AS SHOWN ON THE PLANS, ARE CALCULATED FOR A 6" CONCRETE CURB UNLESS OTHERWISE NOTED.

ALL SIDEWALK RAMP, CONFORMING TO PUBLIC ACT NO. 8, 1993, SHALL BE INSTALLED AS INDICATED ON THE PLANS.

CONSTRUCTION OF A NEW OR RECONSTRUCTED DRIVE APPROACH CONNECTING TO AN EXISTING STATE OR COUNTY ROADWAY SHALL BE ALLOWED ONLY AFTER AN APPROVED PERMIT HAS BEEN SECURED FROM THE AGENCY HAVING JURISDICTION OVER SAID ROADWAY.

FOR ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL PAY FOR AND SECURE ALL NECESSARY PERMITS AND LIKewise ARRANGE FOR ALL INSPECTION.

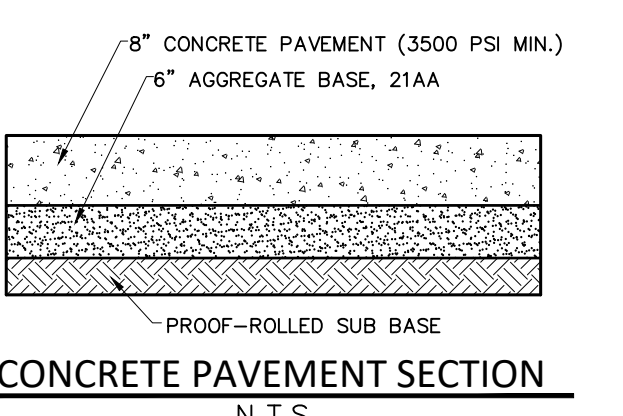
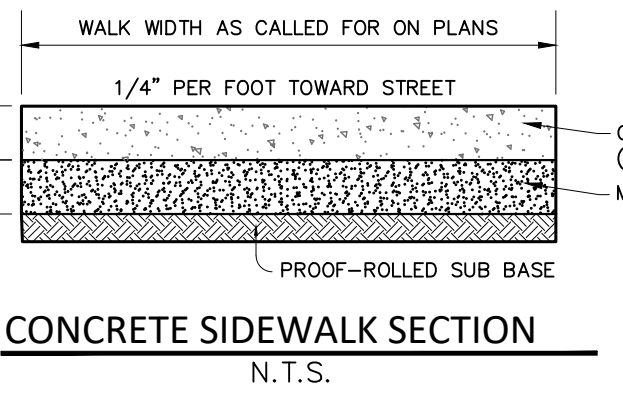
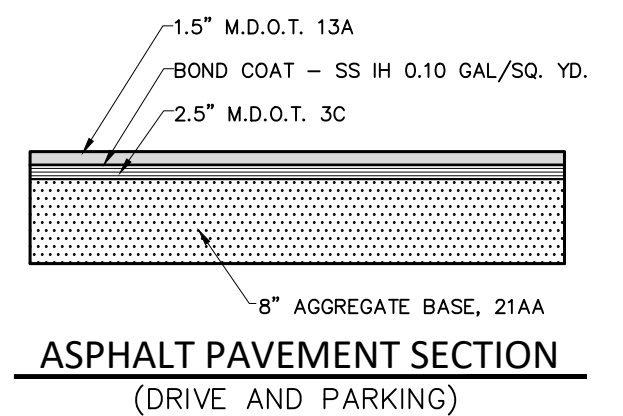
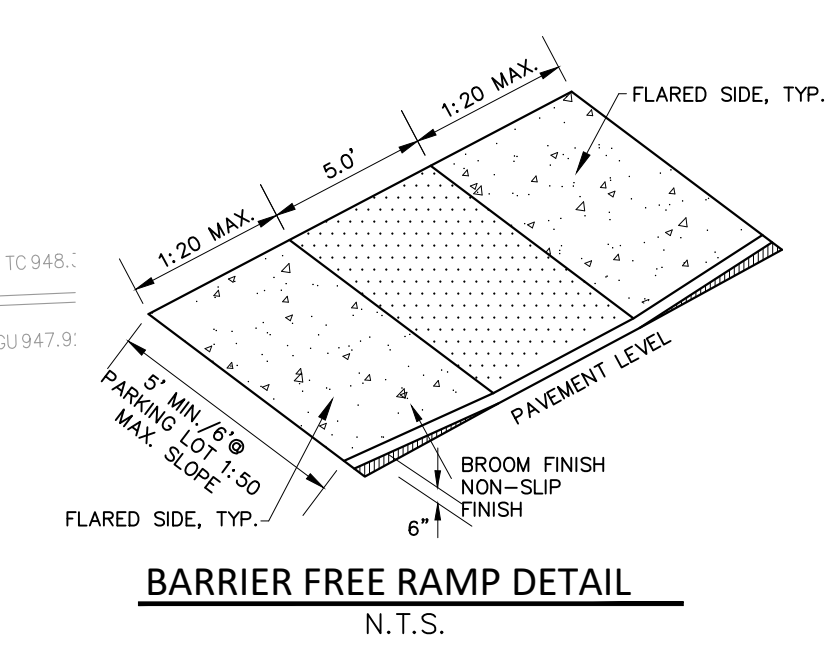
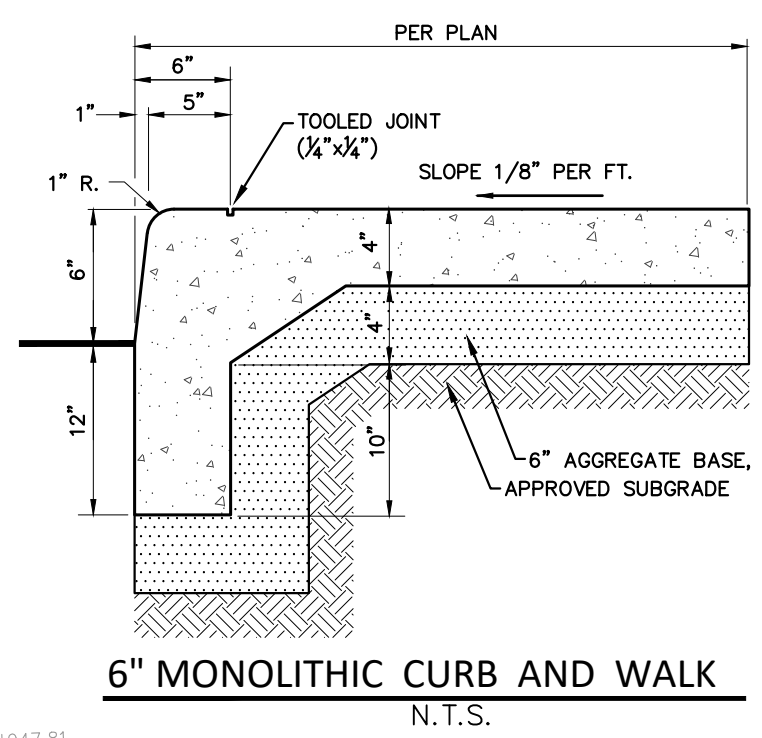
EXISTING TOPSOIL, VEGETATION AND ORGANIC MATERIALS SHALL BE STRIPPED AND REMOVED FROM PROPOSED PAVEMENT AREA PRIOR TO PLACEMENT OF BASE MATERIALS.

EXPANSION JOINTS SHOULD BE INSTALLED AT THE END OF ALL INTERSECTION RADII.

SIDEWALK RAMP, CONFORMING TO PUBLIC ACT NO. 8, 1973, SHALL BE INSTALLED AS SHOWN AT ALL STREET INTERSECTIONS AND AT ALL BARRIER FREE PARKING AREAS AS INDICATED ON THE PLANS.

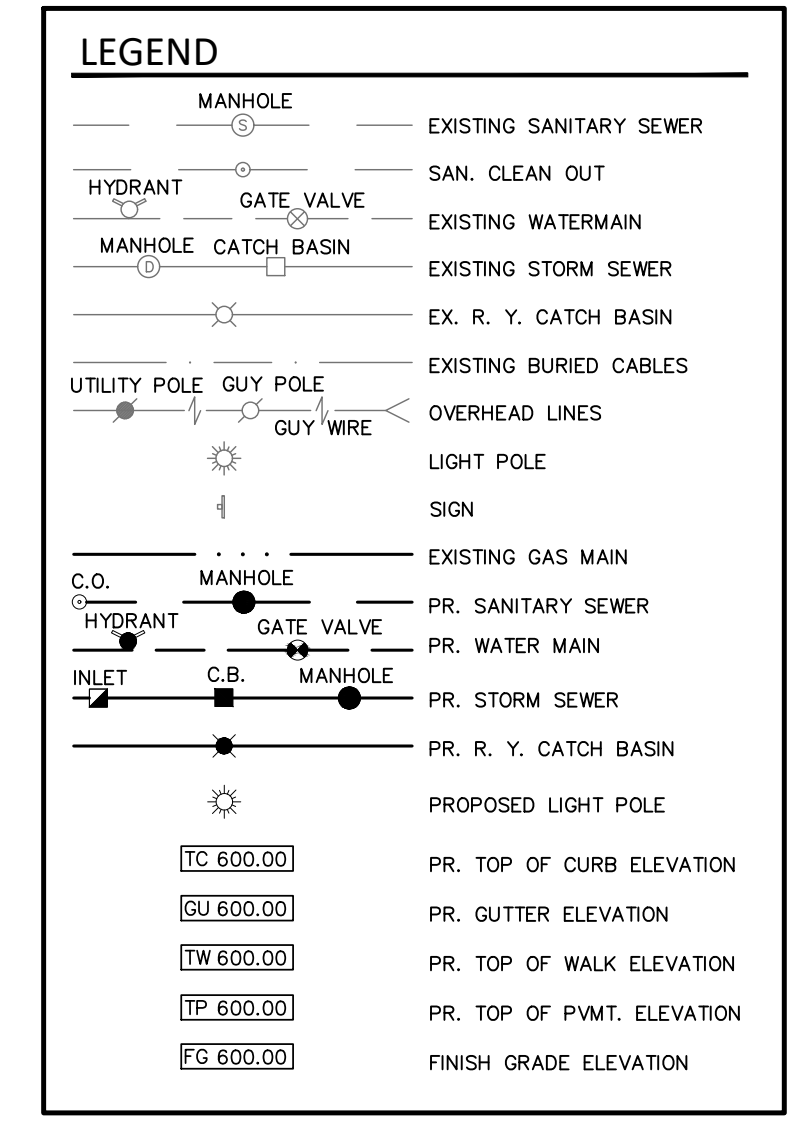
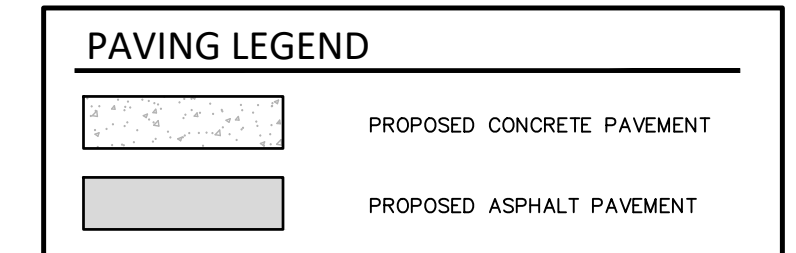
ALL PAVEMENT AREAS SHALL BE PROOF-ROLLED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF BASE MATERIALS AND PAVING MATERIALS.

FILL AREAS SHALL BE MACHINE COMPACTED IN UNIFORM LIFTS NOT EXCEEDING 9 INCHES THICK TO 98% OF THE MAXIMUM DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT.



**ESTIMATED QUANTITIES PAVING**

DESCRIPTION	QUANTITY	UNITS
4" ASPHALT ON 8" 21AA BASE	20	S.Y.
4" CONCRETE SIDEWALK	1,527	S.F.
8" NON-REINFORCED CONCRETE	96	S.Y.



SEAL

PROJECT  
 4 Corners Retail Center  
 1449 Union Lake Road  
 White Lake Township

CLIENT  
 VERITAS  
 29580 Northwestern Hwy,  
 Suite 1000  
 Southfield, Michigan 48075

Contact: Shkir W. Alkhafaji, President  
 Phone: (248) 559-5555

PROJECT LOCATION  
 Part of the E. 1/2 of the SE. 1/4 of Section 8 T.3N., R.8E. White Lake Township, Oakland County, Michigan

SHEET  
 Paving & Grading Plan



DATE ISSUED/REVISED  
 10-14-21 ISSUED FOR SITE PLAN REVIEW  
 11-08-21 REVISED PER SITE PLAN REVIEW

DRAWN BY:  
 N. Naoom

DESIGNED BY:  
 M. Kurmas

APPROVED BY:  
 M. Peterson

DATE:  
 08-25-2021

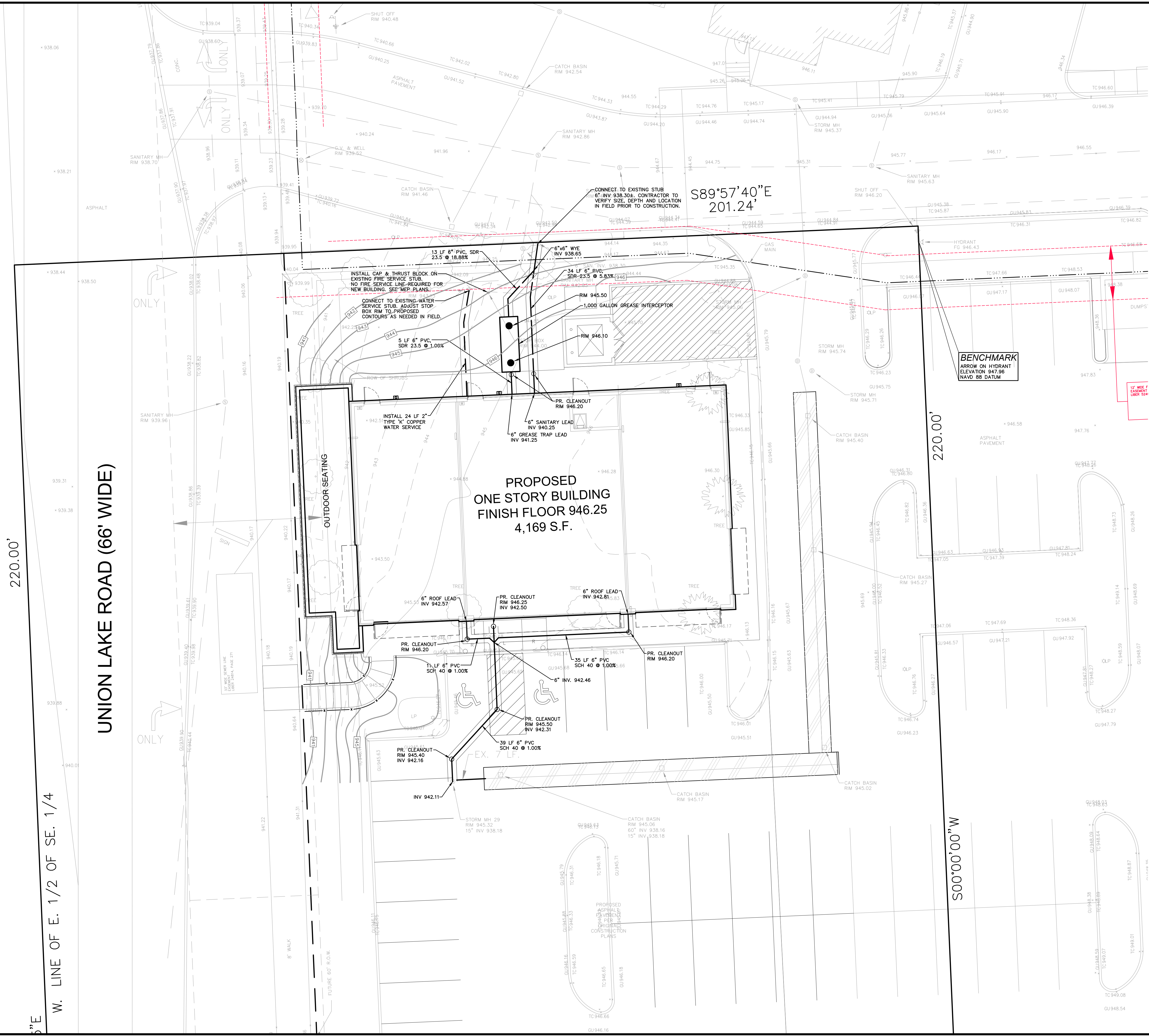
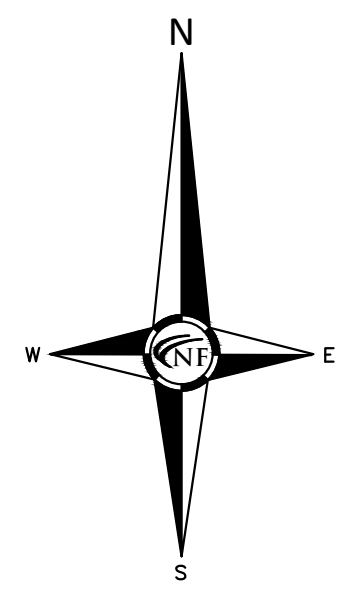
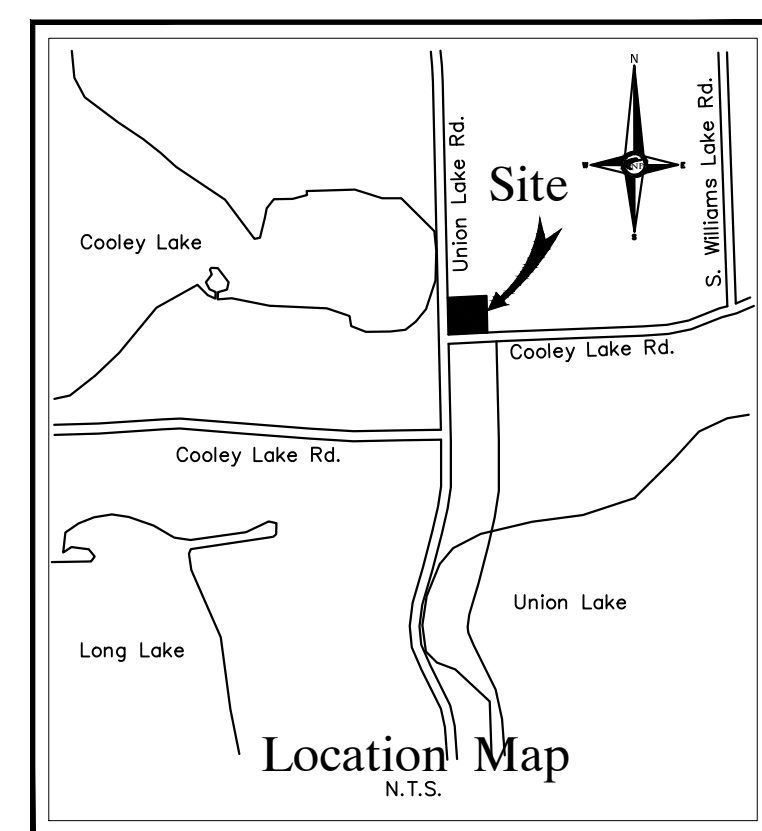
SCALE: 1" = 10'

NFE JOB NO. SHEET NO.  
**J635-03 C4**

PARCEL A  
 1449 UNION LAKE RD.  
 12-36-476-032



NOWAK & FRAUS ENGINEERS  
4677 WOODWARD AVE.  
PONTIAC, MI 48342-5032  
TEL. (248) 332-7931  
FAX. (248) 332-8257  
WWW.NOWAKFRAUS.COM



Project: 4 Corners Outlot  
Date: 9-07-2021  
Revised:

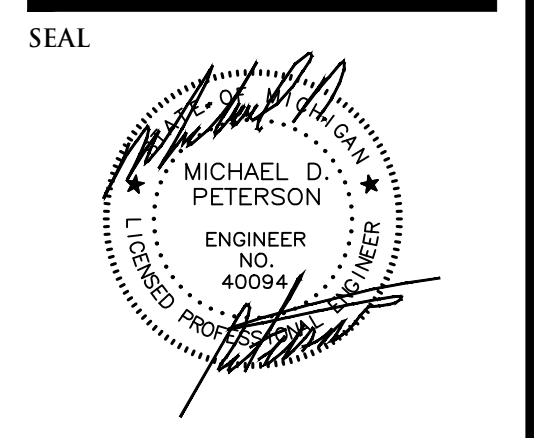
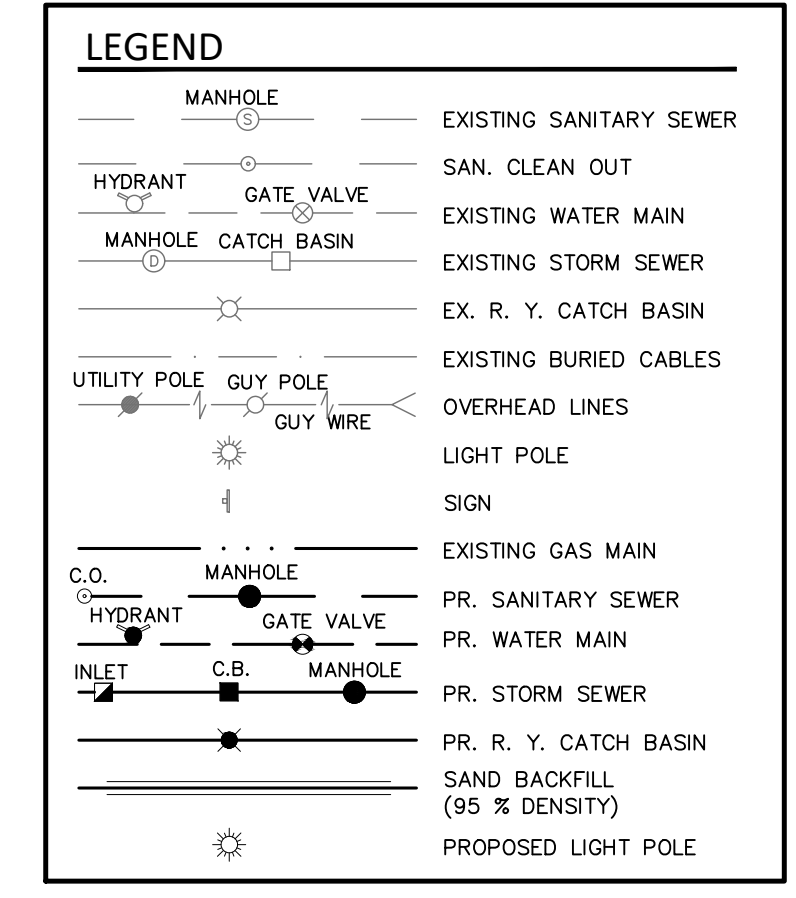
**SANITARY SEWER/WATER MAIN BASIS OF DESIGN**

<b>Retail</b>		
0.04 per 1,000 sq. ft.		
4,169 sq. ft. total		
0.04 x 4,169/1000 =		0.17 REU
<b>Total:</b>		0.17 Total REU
1 retail building with 4,169 sq. ft. total =		
*Note: 1 REU Equals 100 G.P.D.		
3.5 Persons per REU x Total REU =	0.5835 Persons Total	
<b>Ave Q =</b> (100 GPD * 3.5 People * Total REU) / 1000000		6E-05 mgpd
<b>Peaking =</b> 18 + (# of Persons/1000) * 0.50		4.48
<b>Factor =</b> 4 + (# of Persons/1000) * 0.50		
<b>PEAK Q =</b> Ave Flow * Peaking Factor		0.0003 mgpd
		0.0004 cfs
<b>SIZE OF SANITARY SEWER</b>		6 inch
<b>PIPE SLOPE</b>		1.00 %
<b>PIPE CAPACITY</b>		0.56 cfs.

WRC REU Table Assumptions:  
Stores (other than specifically listed) = 0.04 REU per 1,000 sq. ft.

**ESTIMATED QUANTITIES**

DESCRIPTION	QUANTITY	UNITS
<b>STORM SEWER</b>		
6" PVC, SCH 40, SEWER PIPE	85	L.F.
CLEANOUT	5	EA.
TAP/CONNECTION	1	EA.
<b>SANITARY SEWER</b>		
6" PVC, SDR 23.5, BUILDING LEAD	52	L.F.
1,000 GALLON GREASE INTERCEPTOR	1	EA.
CLEANOUT	2	EA.
TAP/CONNECTION	1	EA.
<b>WATER MAIN</b>		
2" X" COPPER BUILDING SERVICE	24	L.F.
WATER MAIN CONNECTION	1	EA.



PROJECT  
4 Corners Retail Center  
1449 Union Lake Road  
White Lake Township

CLIENT  
VERITAS  
29580 Northwestern Hwy,  
Suite 1000  
Southfield, Michigan 48075

Contact: Shakir W. Alkhafaji, President  
Phone: (248) 559-5555

PROJECT LOCATION  
Part of the E. 1/2 of the SE. 1/4 of Section 8 T.3N., R.8E. White Lake Township, Oakland County, Michigan

SHEET  
Utility Plan



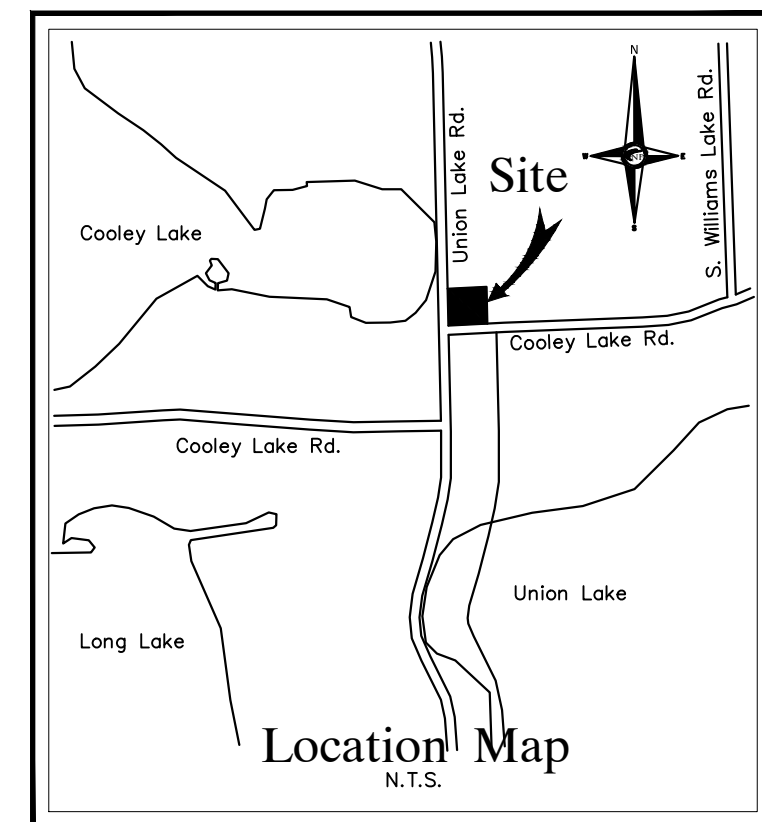
DATE ISSUED/REVISED  
10-14-21 ISSUED FOR SITE PLAN REVIEW  
11-08-21 REVISED PER SITE PLAN REVIEW

DRAWN BY: M. Kurmas  
DESIGNED BY: M. Kurmas  
APPROVED BY: M. Peterson

DATE: 08-25-2021

SCALE: 1" = 10'

NFE JOB NO. SHEET NO.  
J635-03 C5



**NF ENGINEERS**  
 CIVIL ENGINEERS  
 LAND SURVEYORS  
 LAND PLANNERS

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

**KSI** Kennedy Solutions, Inc.  
 2111 Sage Lake Road  
 Prescott, MI 48756  
 Phone: (989) 873-5280  
 Fax: (248) 375-8144  
 Email: sales@kennedysolutionsinc.com

Specializing in Storm Water Management and NPDES Phase II BMP's

Product Submittal  
 Package  
 For  
**KSI HDPE GRAVITY GREASE/GRIT INTERCEPTOR**

APPROVED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_

Kennedy Solutions Inc.  
 General Specification  
 HDPE Gravity Grease/Grit Interceptor

The KSI Gravity Grease/Grit Interceptor (GI) unit shall be as manufactured by KSI (Kennedy Solutions, Inc.) (800) 669-4046.

The GI shall remove oil and grease from the sanitary sewer line prior to discharge. The GI shall be installed underground as part of the sanitary sewer system and be structurally designed for (min. H-20) traffic loading at the surface. The GI shall be maintainable from the surface via access points.

The GI shall be circular and constructed from HDPE material. The GI shall be designed and manufactured by KSI. Applicable specifications are AASHTO M294, ASTM F2306, ASTM F2649 and ASTM F894. Fusion welded joints shall be oil resistance, virtually water tight and meet the design criteria of DVS 2207. The GI unit shall be tested hydrostatically or vacuum pressure for water tightness.

The difference between the inlet pipe elevation to the GI and the outlet pipe elevation from the GI should be minimized to allow installations into existing systems. The footprint of the GI shall be minimized to prevent conflicts with other piping and utilities.

The GI is capable of containing floatable substances such as free oil (FOG) and settleable solids (grit) and not be compromised by temporary backwater conditions. The capabilities of the selected GI must be documented with scientific studies and reports.

KSI will provide a manufacturers certificate of compliance for each KSI Gravity Grease/Grit Interceptor (owner, design engineer & municipal engineer/inspectors).

**KSI HDPE GRAVITY GREASE/GRIT INTERCEPTOR TANK**

NOTE: INSTALL UNIT PER ASTM D2321

FULLY WELDED HDPE STUBS

WATERTIGHT FRAME & COVERS BY OTHERS

ASHTO M 294 TYPE S PIPE

6" HDPE "VENTED" TEE

6" HDPE OUTLET STUB IN=V= 941.03

FERRO/ FLEXIBLE COUPLER BY OTHERS TYPICAL

FULLY WELDED GUSSETS

BACKFILL UNIT WITH 6A STONE

1/2" HDPE PLATE FULLY WELDED TO HDPE PIPE EACH END

1/2" HDPE BAFFLE 2-6" DIA. HOLES

GREASE INTERCEPTOR

RIM= 946.10 RIM= 945.50

24" ID 24" ID

MIN. COVER 24" COVER

941.20

INTERCEPTOR TANK DIMENSIONS

MODEL NO.	A	B	C	D	E
300 GALLON	36"	29"	27"	85"	84"
500 GALLON	48"	41"	39"	74"	56"
750 GALLON	48"	41"	39"	110"	83"
1000 GALLON	48"	41"	39"	147"	111"
1250 GALLON	60"	53"	51"	113"	85"
1500 GALLON	60"	53"	51"	136"	102"
1750 GALLON	60"	53"	51"	158"	118"
2000 GALLON	60"	53"	51"	181"	136"

CROSS SECTION NO SCALE

USE 1,000 GALLON

INSTALLATION NOTE: HDPE GRAVITY GREASE/GRIT INTERCEPTOR SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321. CARE SHOULD BE EXERCISED WITH CONSTRUCTION EQUIPMENT DURING INSTALLATION TO PROTECT THE UNIT FROM DAMAGE DUE TO POINT AND IMPACT LOADING. USE AN EXCAVATOR TO PLACE THE STONE AROUND AND ABOVE THE UNIT IS PREFERRED. COMPACTION OF THE 6A STONE IN 8 INCH LIFTS TO 12 INCHES ABOVE THE UNIT. USE A VIBRATORY COMPACTOR, NOT A HOE PACK. PLACE THE REMAINING STONE USING A TRACKED PIECE OF EQUIPMENT (DOZER) OR CONTINUE USING THE EXCAVATOR. DO NOT USE RUBBER Tired EQUIP. ONCE THE UNIT IS INSTALLED, PLACE AN ORANGE SAFETY FENCE 4-5 FT HIGH W/ TEE POSTS AROUND THE UNIT. PLACE FENCE 5 FT BEYOND THE FOOTPRINT OF THE UNIT. ANY DAMAGE TO THE UNIT AS A RESULT OF NOT FOLLOWING INSTRUCTIONS AND THE BLUEPRINT DETAILS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR THE UNIT TO KSI'S SATISFACTION. IF GIVEN

DESIGN BY: AG / RK REV: 12-17-17 DATE: 1-22-09 1 OF 1  
 MANUF. APPROVAL BY: \_\_\_\_\_ SCALE: NTS SHEET NO. \_\_\_\_\_  
 DRAWING NO. GREASE INTERCEPTOR V3

**KSI HDPE GRAVITY GREASE/GRIT INTERCEPTOR (GGGI) INSTALLATION AND MAINTENANCE GUIDELINES**

**INSTALLATION GUIDELINES**

- EXCAVATE AREA FOR KSI HDPE GGGI AND PREPARE TANK/TRENCH BOTTOM PER ASTM D2321, SECTIONS 6 & 7.
- THE KSI HDPE GGGI TANK SHALL BE INSTALLED ON A BED OF NO LESS THAN 12" CLASS I, CRUSHED STONE BEDDING COMPACTED TO 95% PROCTOR DENSITY.
- BACKFILL GGGI UNIT WITH CLASS I, II OR III MATERIALS PER ASTM D 2321. CLASS I MATERIAL IS RECOMMENDED. BACKFILL SHALL BE COMPACTED TO 95% PROCTOR DENSITY.
- THE HDPE ACCESS RISERS SHALL BE FIELD CUT TO FINISH GRADE BY THE CONTRACTOR. SEE RISER INSTALLATION OPTIONS PAGE.
- KSI RECOMMENDS FILLING THE GGGI UNIT WITH WATER UPON COMPLETION OF INSTALLATION UP TO THE OUTLET HEIGHT.

**MAINTENANCE GUIDELINES**

- ALL GREASE INTERCEPTOR TANKS WILL REQUIRE PERIODIC MAINTENANCE DEPENDING ON SPECIFIC SITE CONDITIONS.
- KSI RECOMMENDS FREQUENT CLEANING THE GREASE INTERCEPTOR, WEEKLY, MONTHLY, QUARTERLY, ETC. AS DICTATED BY THE ESTABLISHMENTS NEEDS. THIS WILL BE BASED ON THE BUILDING WASTE EFFLUENT DISCHARGE CAPACITY AND CONCENTRATION. MATERIAL IS EASIER TO REMOVE WHEN IT IS REMOVED ON A REGULAR BASIS.
- DISPOSAL OF MATERIAL FROM THE KSI GREASE INTERCEPTOR ARE SIMILAR TO THAT OF ANY OTHER BEST MANAGEMENT PRACTICES (BMP). LOCAL GUIDELINES SHOULD BE CONSULTED PRIOR TO DISPOSAL OF THE GREASE INTERCEPTOR CONTENTS. WASTE PRODUCTS SHOULD BE REMOVED BY A LICENSED WASTE MANAGEMENT COMPANY.
- AFTER CLEANING THE UNIT - KSI RECOMMENDS REFILLING THE GGGI UNIT WITH WATER.

DESIGN BY: AG / RK REV: 6-8-18 DATE: 2-24-09 1 OF 1  
 MANUF. APPROVAL BY: \_\_\_\_\_ SCALE: NTS SHEET NO. \_\_\_\_\_  
 DRAWING NO. GGGI INSTALL & MAINT.

SEAL

PROJECT  
 4 Corners Retail Center  
 1449 Union Lake Road  
 White Lake Township

CLIENT  
 VERITAS  
 29580 Northwestern Hwy,  
 Suite 1000  
 Southfield, Michigan 48075

Contact: Shakir W. Alkafaji, President  
 Phone: (248) 559-5555

PROJECT LOCATION  
 Part of the E. 1/2 of the SE. 1/4 of Section 8 T.3N. , R.8E.  
 White Lake Township,  
 Oakland County, Michigan

SHEET  
 Utility Details Plan

**KSI TANK INSTALLATION**

NOTES:

- FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH A FOUNDATION OF CLASS I, II OR III MATERIAL AS DEFINED IN ASTM D2321, LATEST EDITION; AS AN ALTERNATIVE TRENCH BOTTOM MAY BE STABILIZED USING A WOVEN GEOTEXTILE FABRIC AND OR A GEOGRID.
- BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 12" FOR 36"-60" DIA. HDPE CHAMBER.
- HAUNCHING AND INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. CLASS I & II MATERIAL IS RECOMMENDED.
- UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MIN. TRENCH WIDTHS ARE AS FOLLOWS:

NOMINAL I.D.	NOMINAL O.D.	MINIMUM RECOMM. TRENCH WIDTH
36"	42"	90"
48"	54"	102"
60"	66"	114"

- MINIMUM COVER: MINIMUM RECOMMENDED COVER FOR VARIOUS LIVE LOADING CONDITIONS ARE AS SUMMARIZED IN THE FOLLOWING TABLE. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TAKEN FROM THE TOP OF THE HDPE TANK TO THE GROUND SURFACE.

SURFACE LIVE LOAD	MIN. RECOMMENDED COVER
H20/H25 (FLEXIBLE PAVEMENT)	12" FOR 30" TO 48" DIA. HDPE TANK & 24" FOR 60"-96" DIA. HDPE TANK
H20/H25 (RIGID PAVEMENT)	12" FOR 30" TO 48" DIA. HDPE TANK & 24" FOR 60"-96" DIA. HDPE TANK
ERD HIGHWAY	24"
HEAVY CONSTRUCTION	48"

\*TOP OF TANK TO BOTTOM OF BITUMINOUS PAVEMENT SECTION

NOTE: ALSO SEE RISER INSTALLATION OPTIONS PAGE

\*\*NOTE: FOR INSTALLATIONS WITH LESS THAN 2 FT COVER, CONTACT KSI FOR SHALLOW BURY ASSISTANCE. SEE SHALLOW BURY DETAIL.

DESIGN BY: AG / RK REV: 4-5-18 DATE: 8-29-07 1 OF 1  
 MANUF. APPROVAL BY: \_\_\_\_\_ SCALE: NTS SHEET NO. \_\_\_\_\_  
 DRAWING NO. TANK INSTALLATION DETAIL

**KSI RISER INSTALLATION OPTIONS**  
 KSI POLY COATED STEEL COVER

CONCRETE COLLAR, MIN. 8"-10" THICK W/ 1.4x1.4 W/M IN CENTER

CAREFULLY REMOVE 2 RIBS OF THE HDPE RISER, MAKE SURE NOT TO DAMAGE INTERIOR WALL OF RISER

BACKFILL RISER W/ CRUSHED STONE PER ASTM D2321

MIN. 18"

**EAST JORDAN IRON WORKS FRAME & GRATE/COVER**

ASPHALT OR CONCRETE FINAL LAYER

CAREFULLY REMOVE 2 RIBS OF THE HDPE RISER, MAKE SURE NOT TO DAMAGE INTERIOR WALL OF RISER

EJW 1490Z FRAME & COVER OR APPROVED EQUAL

CONCRETE COLLAR, MIN. 8"-10" THICK W/ 1.4x1.4 W/M IN CENTER

MIN. 18"

**EAST JORDAN IRON WORKS FRAME & GRATE/COVER**

ASPHALT OR CONCRETE FINAL LAYER

EJW 1040 FRAME & COVER OR APPROVED EQUAL

30" I.D. PRE-CAST CONCRETE DONUT

MIN. 18"

BACKFILL RISER W/ CRUSHED STONE PER ASTM D2321

FILL GAP WITH NON WOVEN GEOTEXTILE

DESIGN BY: AG / RK REV: 9-29-07 DATE: 1-22-09 1 OF 1  
 MANUF. APPROVAL BY: \_\_\_\_\_ SCALE: NTS SHEET NO. \_\_\_\_\_  
 DRAWING NO. RISER INSTALLATION

**EJW / RISER INSTALLATION**

DEAD HEAD GRATE TO CONCRETE

FINAL LAYER CONC/ASPH

MIN. 6"

MIN. 18"

HDPE RISER

FILL GAP WITH NON WOVEN GEOTEXTILE

DEAD HEAD GRATE TO CONCRETE

BACKFILL RISER W/ CRUSHED STONE (KSI RECOMMENDS MDOOT 21AA) PER ASTM D2321

CONCRETE DISTRIBUTION RING PRECAST OR ON-SITE POUR

HDPE RISER

CAREFULLY REMOVE 2 RIBS OF THE HDPE RISER, MAKE SURE NOT TO DAMAGE INTERIOR WALL OF RISER

FILL GAP WITH NON WOVEN GEOTEXTILE

BACKFILL RISER W/ CRUSHED STONE (KSI RECOMMENDS MDOOT 21AA) PER ASTM D2321

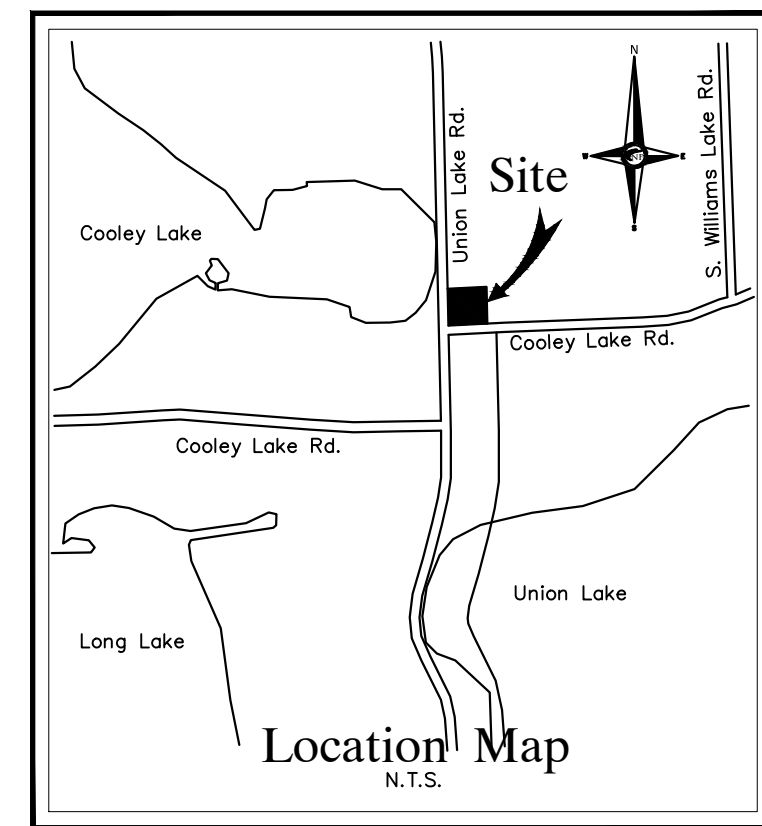
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 MANUF. APPROVAL BY: \_\_\_\_\_ SCALE: NTS SHEET NO. \_\_\_\_\_  
 DRAWING NO. EJW-RISER CONC INSTALL

**811**  
 Know what's below  
 Call before you dig.

DATE ISSUED/REVISED  
 10-14-21 ISSUED FOR SITE PLAN REVIEW  
 11-08-21 REVISED PER SITE PLAN REVIEW

DRAWN BY:  
 M. Kurmas  
 DESIGNED BY:  
 M. Kurmas  
 APPROVED BY:  
 M. Peterson  
 DATE:  
 08-25-2021  
 SCALE: N.T.S.

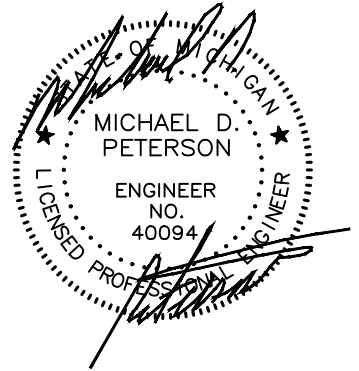
NFE JOB NO. SHEET NO.  
**J635-03 C6**



**NF ENGINEERS**  
 CIVIL ENGINEERS  
 LAND SURVEYORS  
 LAND PLANNERS

NOWAK & FRAUS ENGINEERS  
 4677 WOODWARD AVE.  
 PONTIAC, MI 48342-5032  
 TEL. (248) 332-7931  
 FAX. (248) 332-8257  
 WWW.NOWAKFRAUS.COM

SEAL



PROJECT  
 4 Corners Retail Center  
 1449 Union Lake Road  
 White Lake Township

CLIENT  
 VERITAS  
 29580 Northwestern Hwy,  
 Suite 1000  
 Southfield, Michigan 48075

Contact: Shakir W.  
 Alkhafaji, President  
 Phone: (248) 559-5555

PROJECT LOCATION  
 Part of the E. 1/2  
 of the SE. 1/4 of Section 8  
 T.3N. , R.8E.  
 White Lake Township,  
 Oakland County, Michigan

SHEET  
 Soil Erosion Control /  
 Drainage Area Plan



Know what's below  
 Call before you dig.

DATE ISSUED/REVISED  
 10-14-21 ISSUED FOR SITE PLAN REVIEW  
 11-08-21 REVISED PER SITE PLAN REVIEW

SOIL DATA  
 THIS SITE CONSISTS OF  
 15C--SPINKS LOAMY SAND, 6 TO 12 PERCENT SLOPES  
 5B--URBAN LAND

BASED ON DATA PROVIDED BY THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE.

DRAWN BY:  
 N. Naoum

DESIGNED BY:  
 M. Kurmas

APPROVED BY:  
 M. Peterson

DATE:  
 08-25-2021

SCALE: 1" = 20'

20 10 0 10 20 30

NFE JOB NO. SHEET NO.  
**J635-03 C7**

SEE OAKLAND COUNTY WRC SOIL EROSION AND  
 SEDIMENTATION CONTROL STANDARD DETAILS

CONSTRUCTION SEQUENCE / TIMING SCHEDULE	
1. INSTALL PERIMETER FILTER FABRIC FENCING AND STONE FILTER WHERE REQUIRED.	OCTOBER 2021
2. MASS GRADE SITE.	OCTOBER 2021
3. COMMENCE UNDERGROUND UTILITY WORK.	NOVEMBER 2021
4. INSTALL INLET FILTERS ON PROPOSED DRAINAGE STRUCTURES.	NOVEMBER 2021
5. FILL IN SEDIMENTATION TRAPS AND PAVE SITE.	MARCH 2022
6. COMPLETE ALL BUILDINGS AND LANDSCAPE ACTIVITY.	MARCH 2022
7. JET VAC NEW STORM SEWER SYSTEM AS REQUIRED.	MAY 2022
8. REMOVE ALL TEMPORARY SOIL EROSION MEASURES.	MAY 2022

NOTES

REFER TO THE WRC SOIL EROSION AND SEDIMENTATION CONTROL DETAIL SHEET FOR ALL ADDITIONAL NOTES & DETAILS (TYP)  
 A DISTANCE OF 66' TO THE NEAREST BODY OF WATER IS COOLEY LAKE.

THE TOTAL AREA OF EARTH DISRUPTION IS 0.22 ACRES.

THE SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT BY THE CONTRACTOR  
 A SOIL EROSION PERMIT IS REQUIRED FROM THE OAKLAND COUNTY COUNTY.

SOIL DATA

THIS SITE CONSISTS OF  
 15C--SPINKS LOAMY SAND, 6 TO 12 PERCENT SLOPES  
 5B--URBAN LAND

BASED ON DATA PROVIDED BY THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE.

ESTIMATED QUANTITIES

DESCRIPTION	QUANTITY	UNITS
SILT FABRIC FENCING	199	L.F.
SILT SACK OR EQUAL	6	EA.
SOIL EROSION CONTROL BLANKET	105	S.Y.

LEGEND

	INDICATES LIMITS OF SILT FABRIC FENCE
	INDICATES LIMITS OF DRAINAGE DISTRICT AREA
	INDICATES LIMITS OF SOIL DISRUPTION
	INDICATES LOW POINT INLET FILTER OR PROPOSED DRAINAGE STRUCTURE
	INDICATES SILT SACK OR EQUAL ON EXISTING DRAINAGE STRUCTURE
	INDICATES DRAINAGE DISTRICT AREA

SOIL EROSION CONTROL

CUTTING, FILLING AND GRADING SHALL BE MINIMIZED AND THE NATURAL TOPOGRAPHY OF THE SITE SHALL BE PRESERVED TO THE MAXIMUM POSSIBLE EXTENT, EXCEPT WHERE SPECIFIC FINDINGS DEMONSTRATE THAT MAJOR ALTERATIONS WILL STILL MEET THE PURPOSES AND REQUIREMENTS OF THIS ORDINANCE.

DEVELOPMENT SHALL BE STAGED TO KEEP THE EXPOSED AREAS OF SOIL AS SMALL AS PRACTICABLE.

SOIL EROSION CONTROL MEASURES SHALL BE INSTALLED BETWEEN THE DISTURBED AREA AND ANY WATERCOURSES, INCLUDING RIVERS, STREAMS, CREEKS, LAKES, PONDS AND OTHER WATERCOURSES, WETLANDS, OR ROADWAYS ON OR NEAR THE SITE.

SEDIMENT RESULTING FROM ACCELERATED SOIL EROSION SHALL BE REMOVED FROM RUNOFF WATER BEFORE THAT WATER LEAVES THE SITE.

TEMPORARY AND PERMANENT SOIL EROSION CONTROL MEASURES DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF WATER AROUND, THROUGH, OR AWAY FROM THE SITE SHALL BE DESIGNED TO LIMIT THE WATER FLOW TO A NON-EROSIVE VELOCITY.

TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE REMOVED AFTER PERMANENT SOIL EROSION CONTROL MEASURES HAVE BEEN IMPLEMENTED. ALL SITES SHALL BE STABILIZED WITH PERMANENT SOIL EROSION CONTROL MEASURES.

IF LAKES, PONDS, CREEKS, STREAMS, OR WETLANDS ARE LOCATED ON OR NEAR THE SITE, EROSION CONTROL MEASURES WHICH DIVERT RUNOFF AND TRAP SEDIMENT MUST BE PROVIDED AT STRATEGIC LOCATIONS. STRAW BALE BERMS MAY BE USED AS TEMPORARY STORMWATER DIVERSION STRUCTURES, BUT WILL NOT BE CONSIDERED SUFFICIENT FOR TRAPPING SEDIMENT. THE USE OF SEDIMENT BASINS, FILTER FABRIC, VEGETATED BUFFER STRIPS, AND ROCK FILTERS IN LIEU OF STRAW BALE BERMS SHALL BE STRONGLY ENCOURAGED. OTHER MEASURES MAY BE REQUIRED IF REASONABLY DETERMINED TO BE NECESSARY TO PROTECT A WATERCOURSE OR WETLAND.

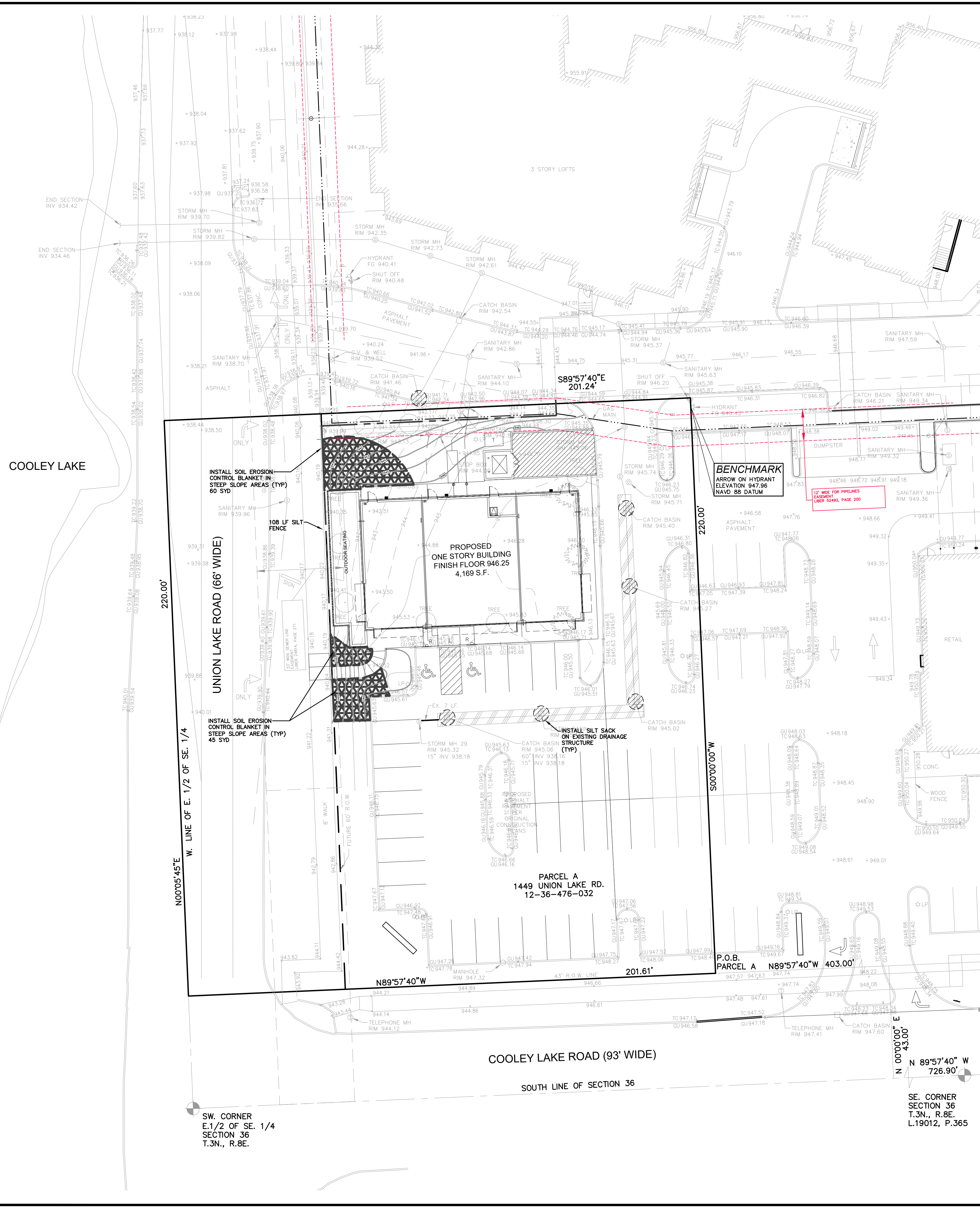
WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH CHANGE HAS BEEN COMPLETED OR WHEN SIGNIFICANT EARTH CHANGE ACTIVITY CEASES, TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE INSTALLED.

PERMANENT EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 15 (FIFTEEN) CALENDAR DAYS AFTER FINAL GRADING OR THE FINAL EARTH CHANGE HAS BEEN COMPLETED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.

VEGETATED BUFFER STRIPS SHALL BE CREATED OR RETAINED ALONG THE EDGES OF ALL LAKES, PONDS, CREEKS, STREAMS, OTHER WATERCOURSES, OR WETLANDS.

EROSION AND SEDIMENTATION CONTROL MEASURES SHALL RECEIVE REGULAR MAINTENANCE TO ASSURE PROPER FUNCTIONING.

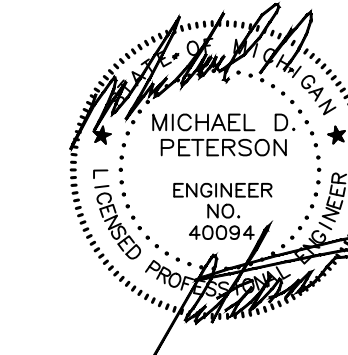
ALL GRADING PLANS AND SPECIFICATIONS, INCLUDING EXTENSIONS OF PREVIOUSLY APPROVED PLANS, SHALL INCLUDE PROVISIONS FOR EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH, BUT NOT LIMITED TO, THE STANDARDS CONTAINED IN THE "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", PUBLISHED BY THE OAKLAND SOIL CONSERVATION DISTRICT.



SW CORNER  
 E.1/2 OF SE. 1/4  
 SECTION 36  
 T.3N., R.8E.

SE CORNER  
 SECTION 36  
 T.3N., R.8E.  
 L.19012, P.365

SEAL



PROJECT

4 Corners Retail Center 1449 Union Lake Road White Lake Township

CLIENT

VERITAS 29580 Northwestern Hwy, Suite 1000 Southfield, Michigan 48075

Contact: Shkir W. Alkhafaji, President Phone: (248) 559-5555

PROJECT LOCATION

Part of the E. 1/2 of the SE. 1/4 of Section 8 T.3N., R.8E. White Lake Township, Oakland County, Michigan

SHEET

General Construction Requirements, Contractor's Duties, Notes and Details



Table with columns: DATE, ISSUED/REVISED, 10-14-21 ISSUED FOR SITE PLAN REVIEW, 11-08-21 REVISED PER SITE PLAN REVIEW

DRAWN BY:

M. Kurmas

DESIGNED BY:

M. Kurmas

APPROVED BY:

M. Peterson

DATE:

08-25-2021

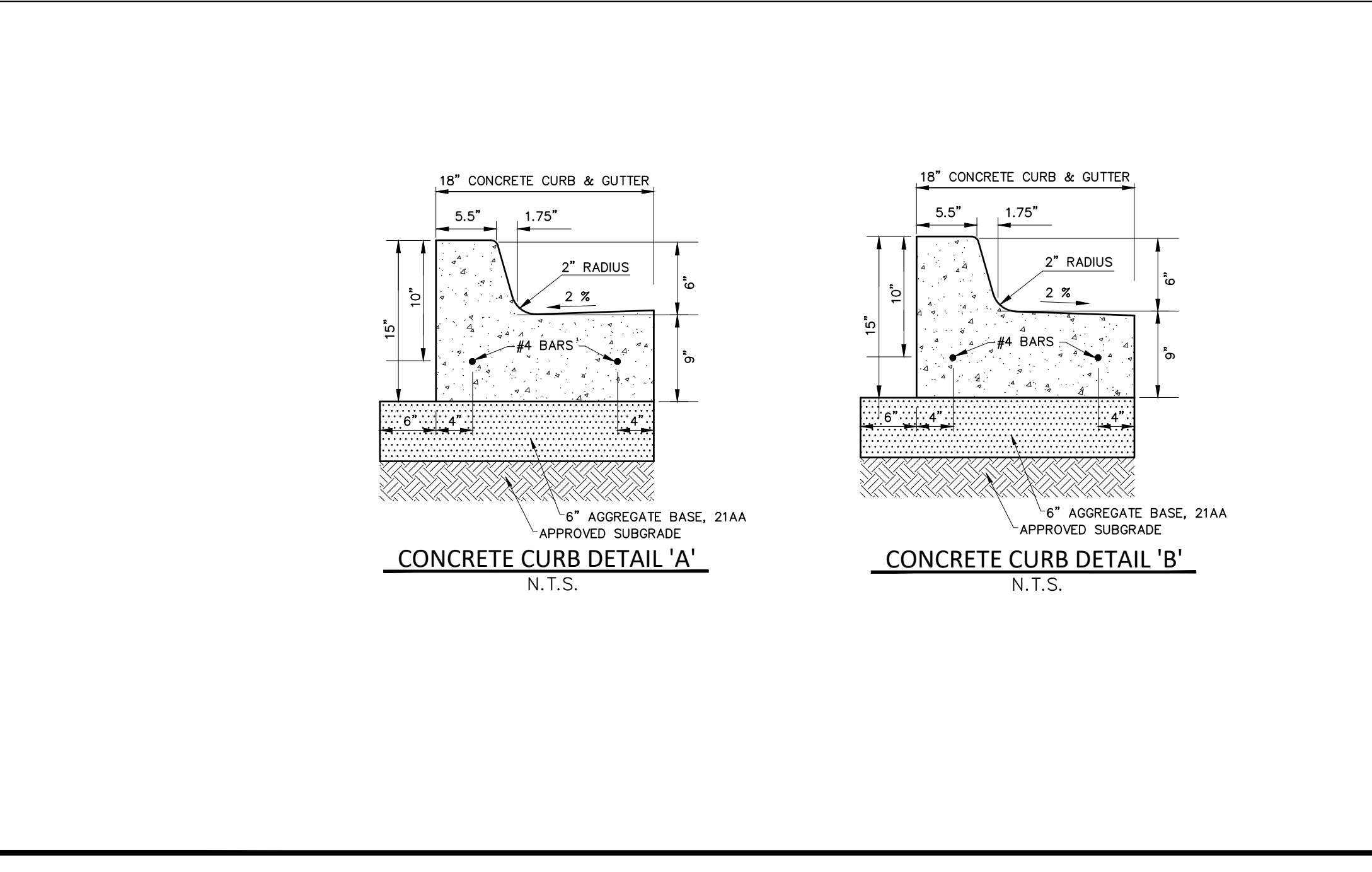
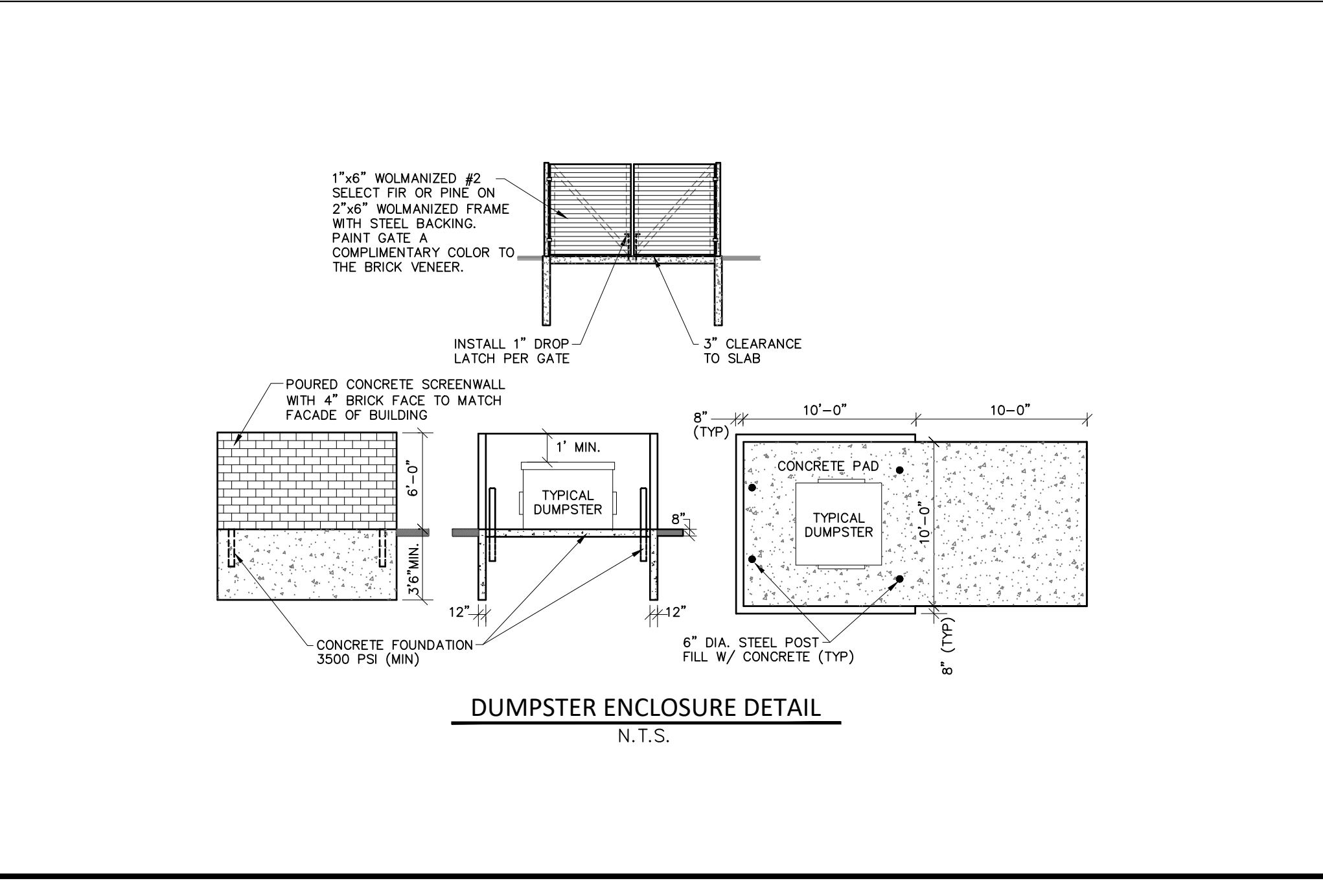
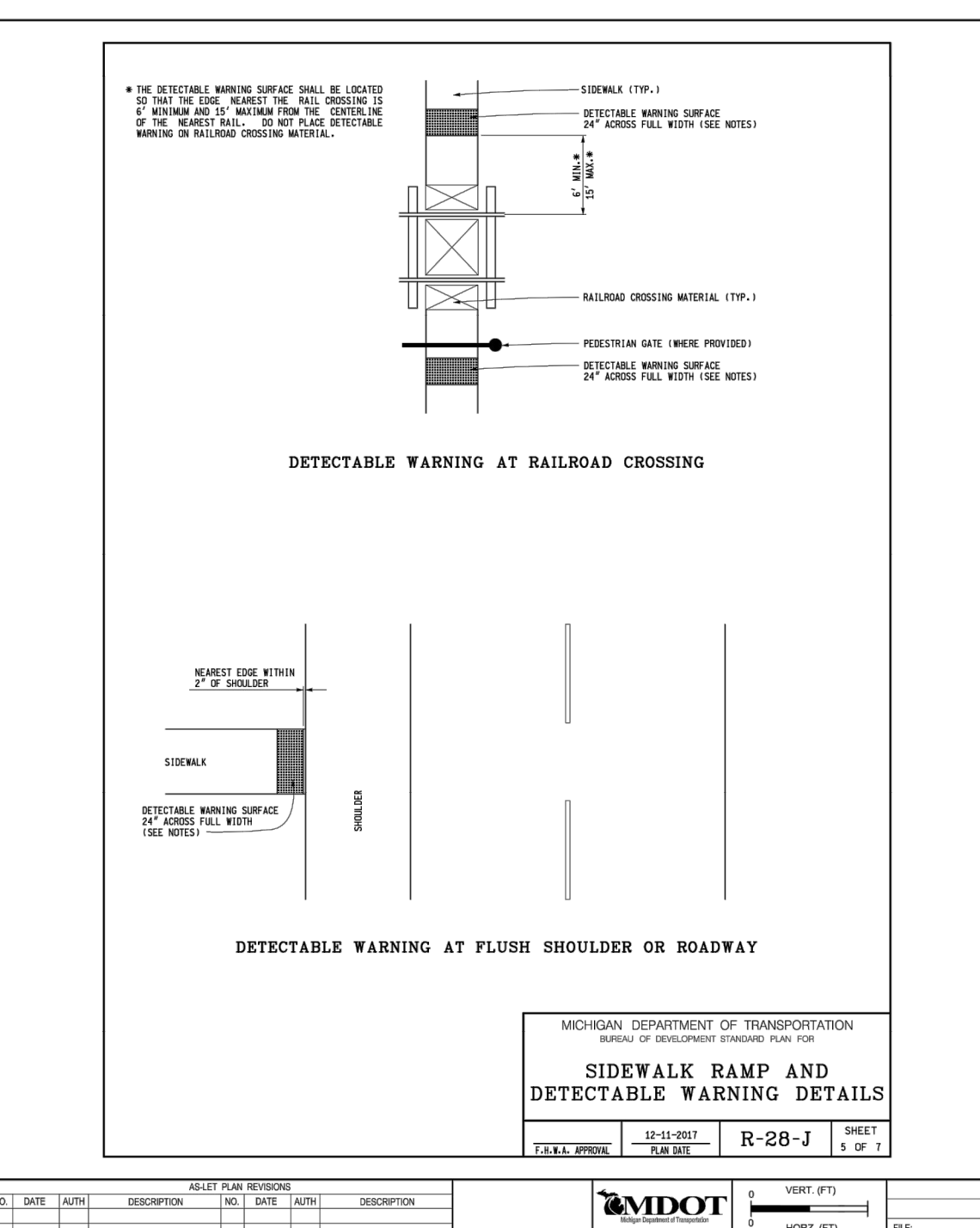
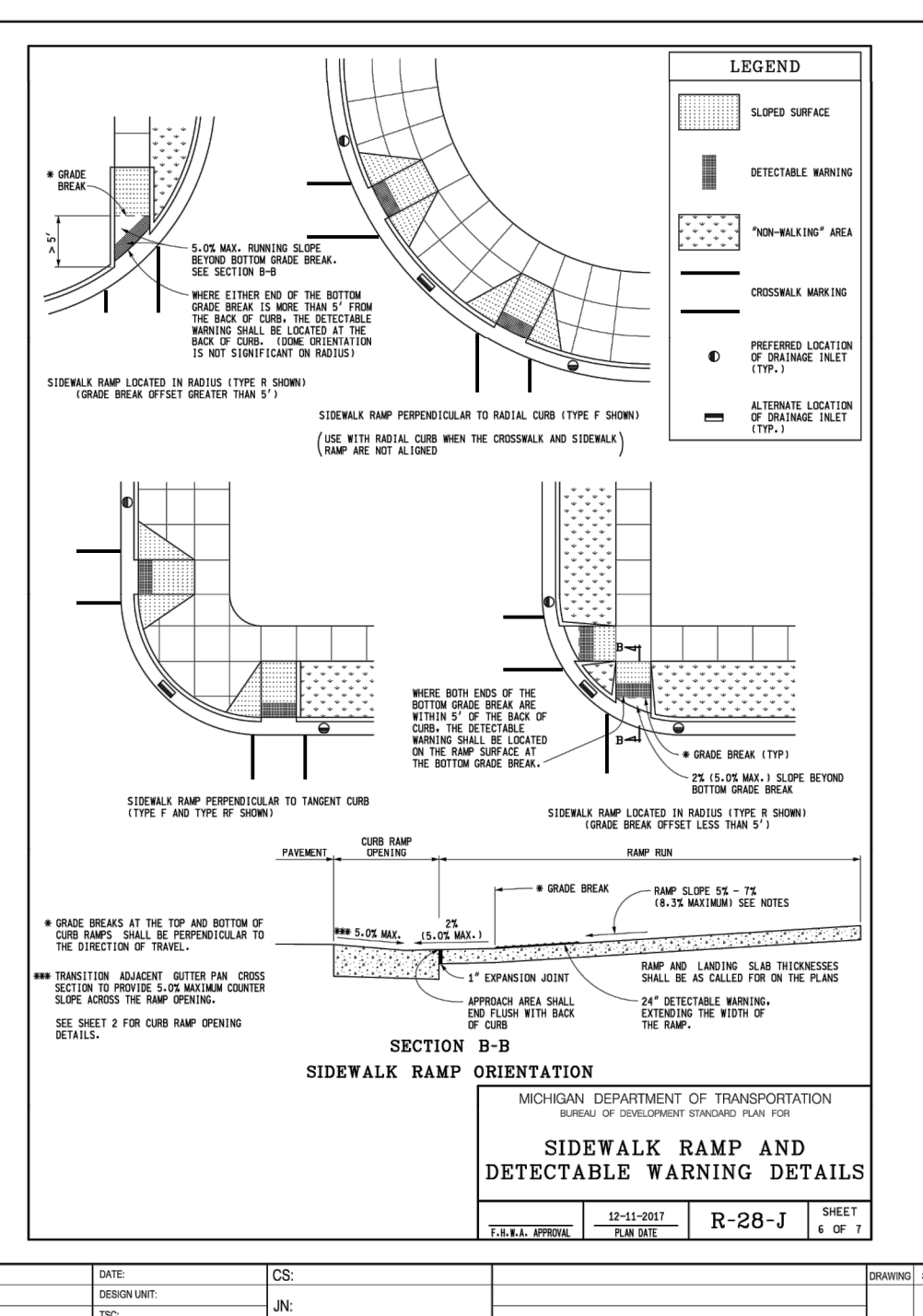
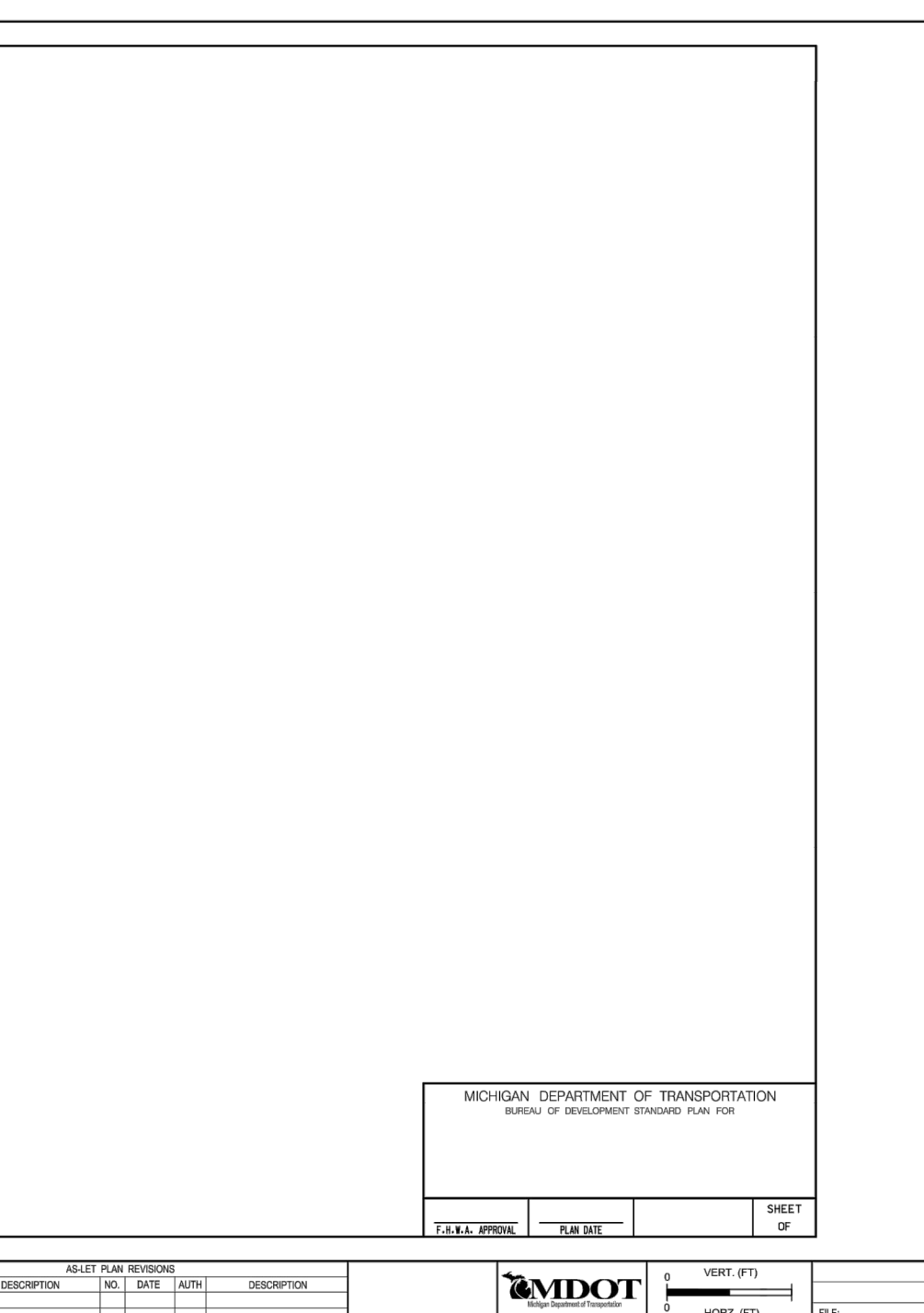
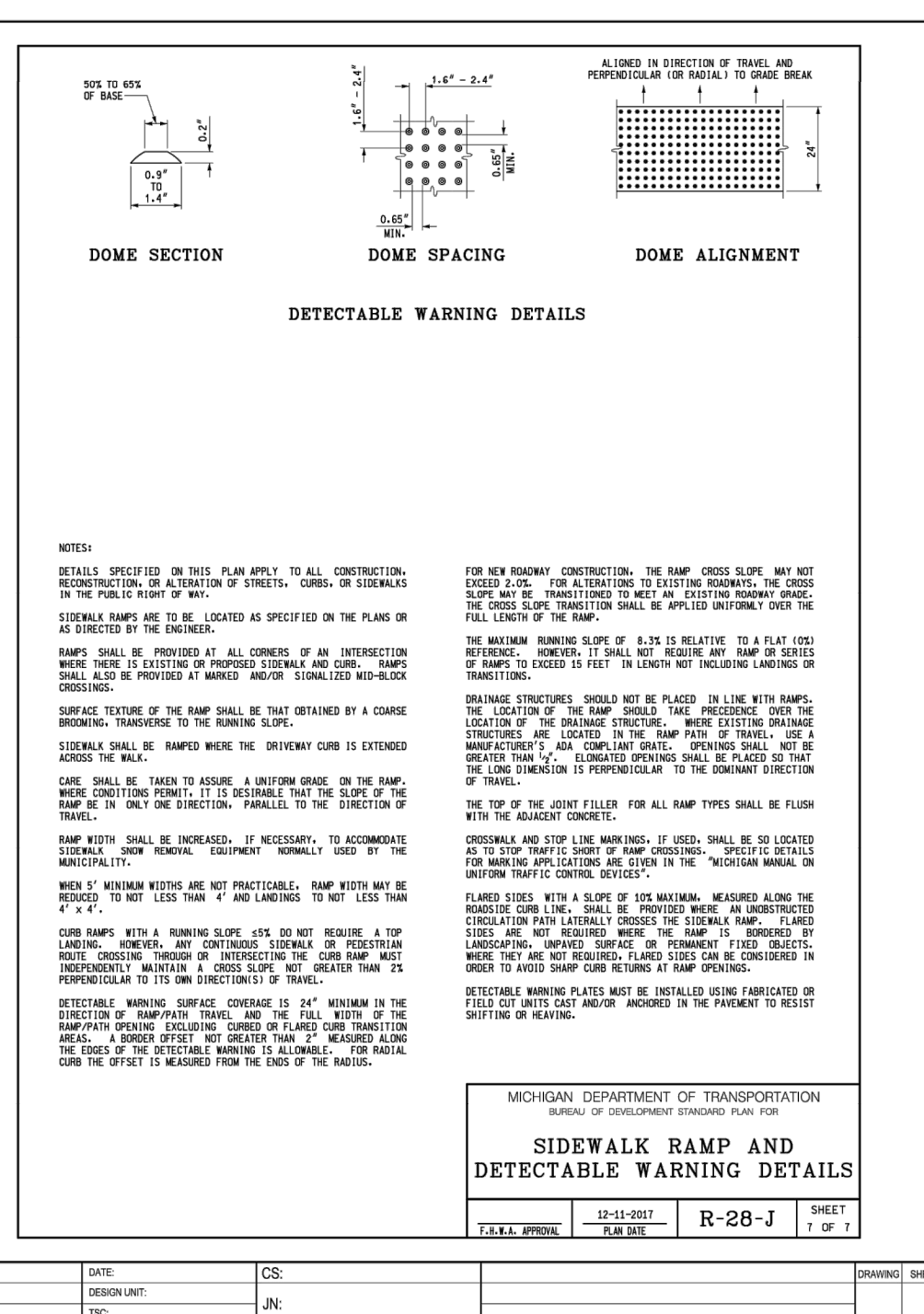
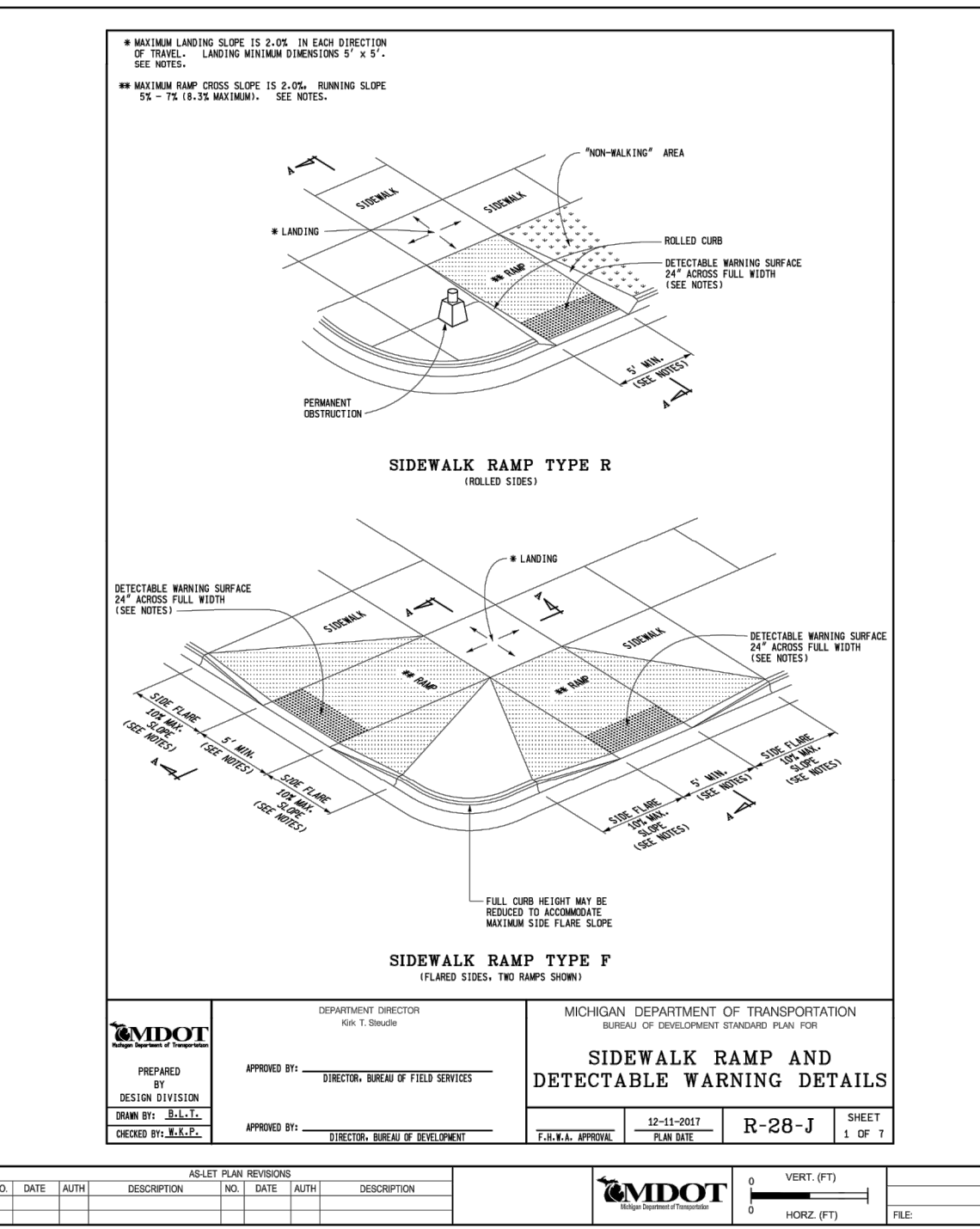
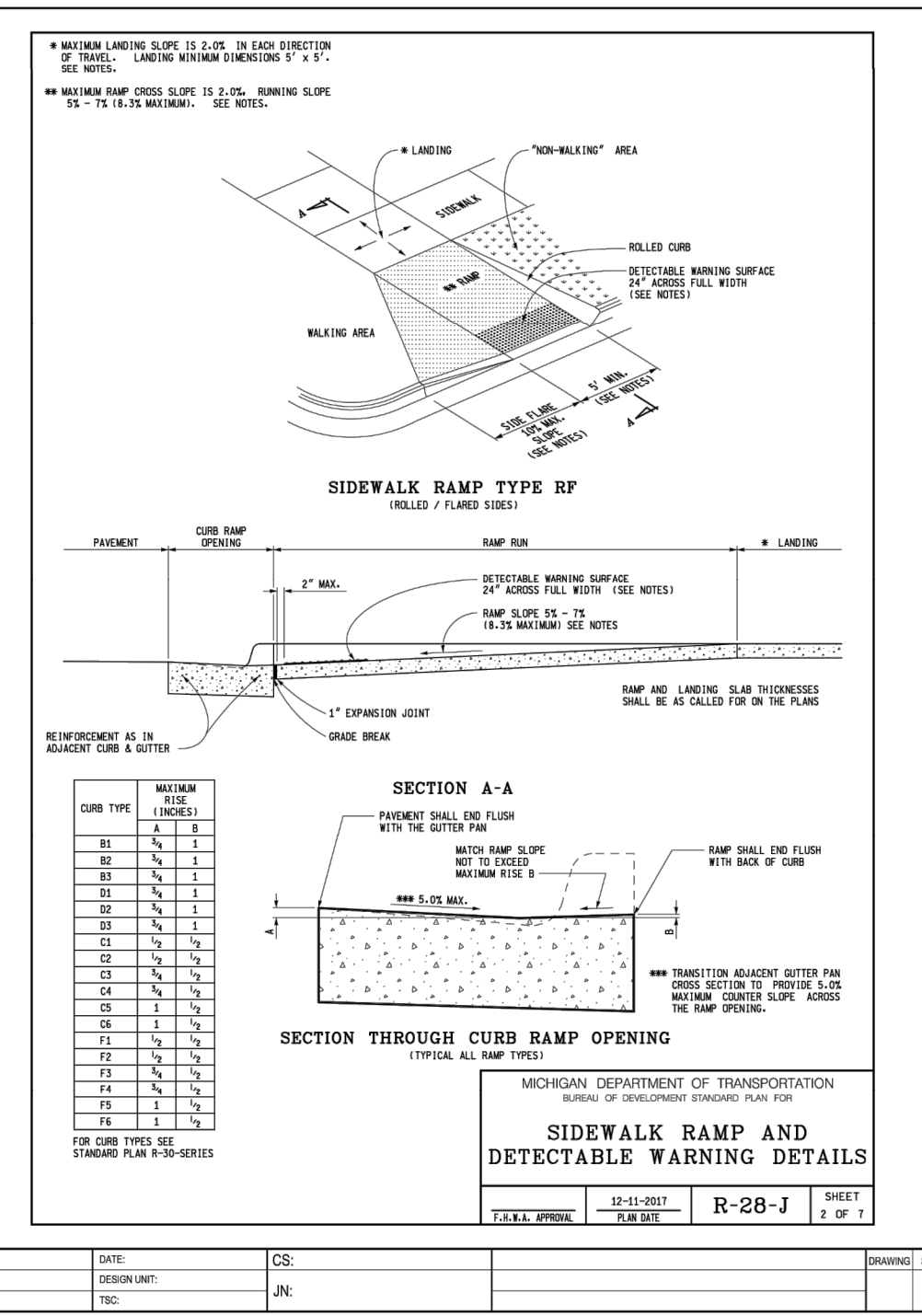
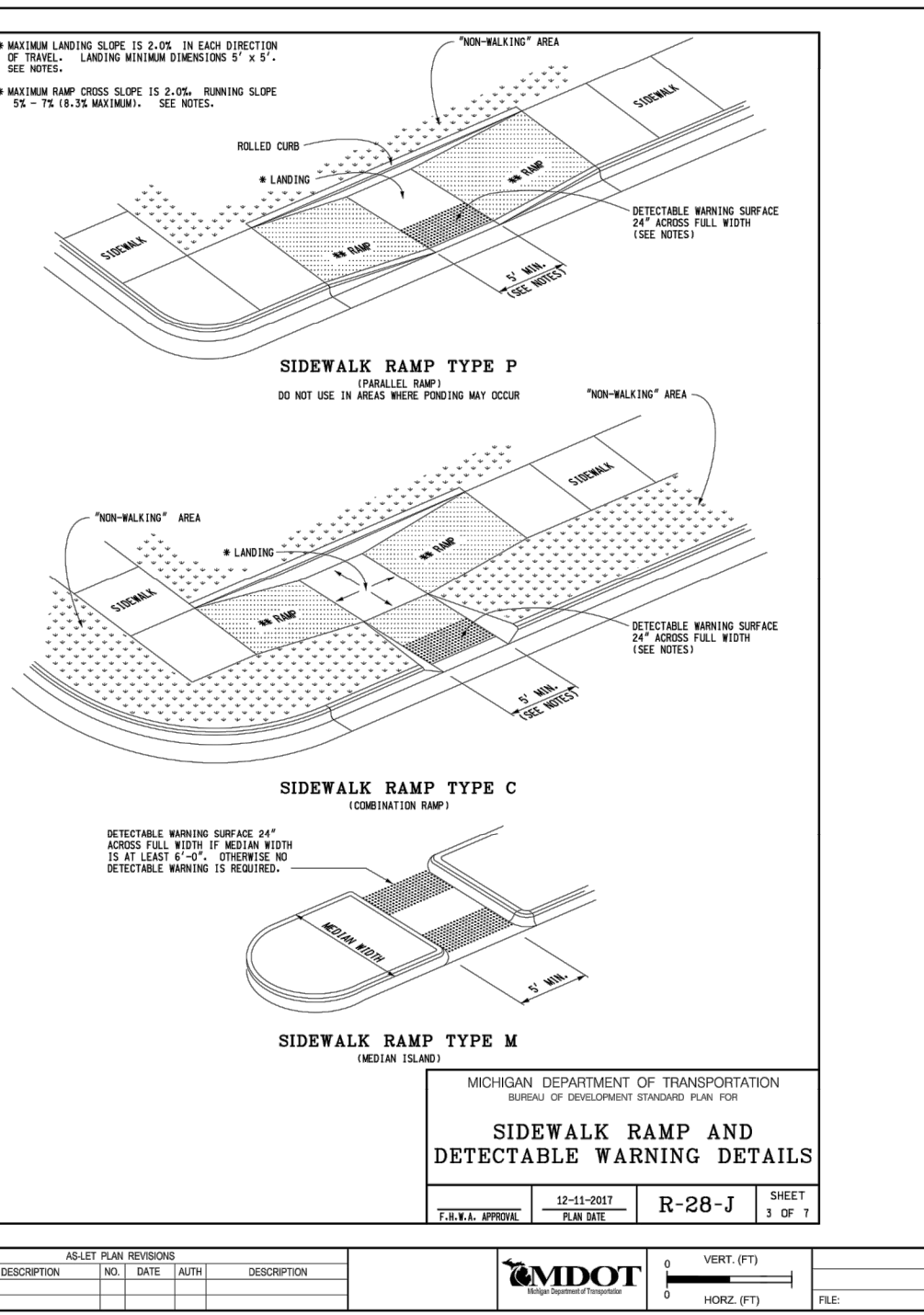
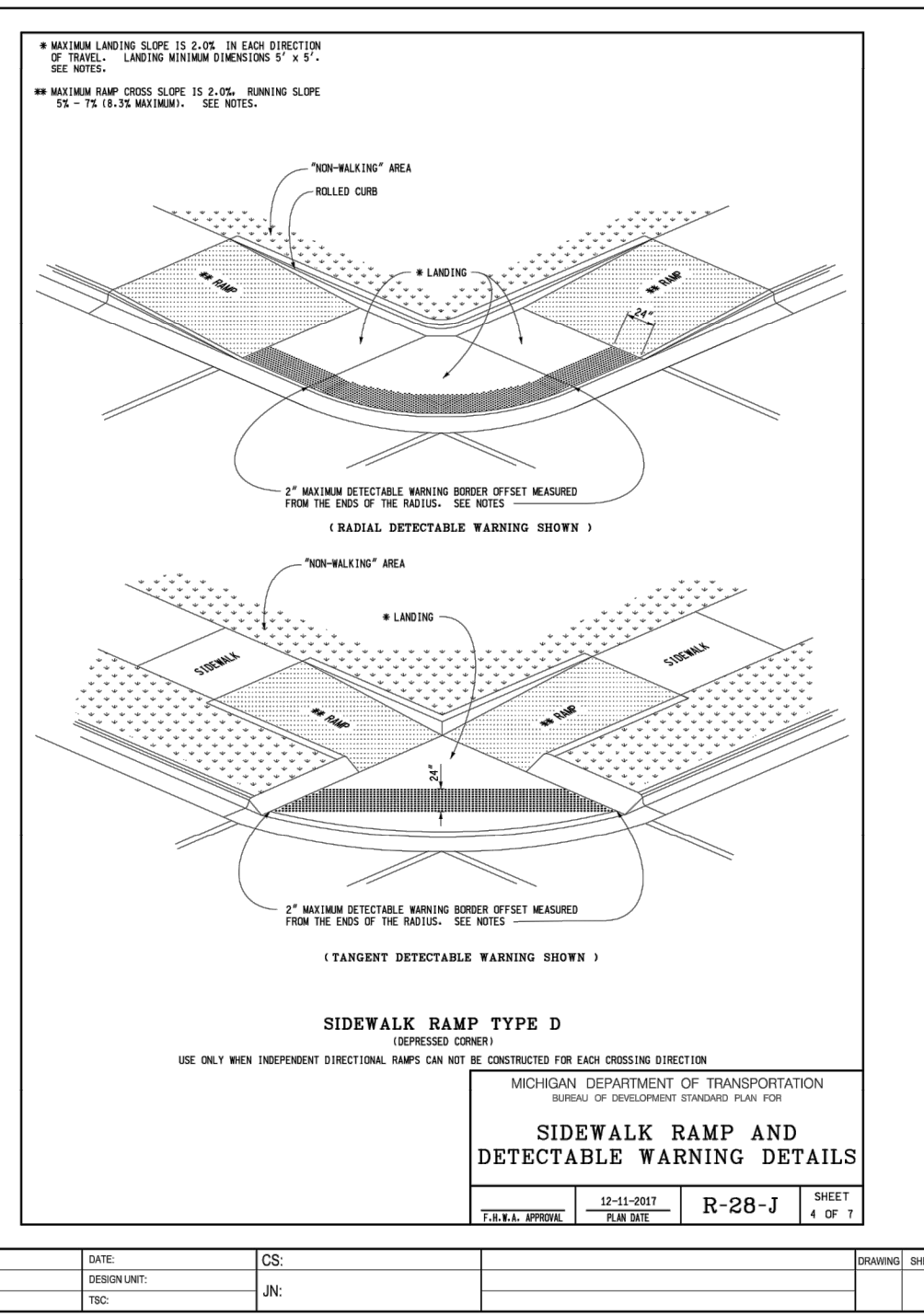
SCALE: N.T.S.

NFE JOB NO.

J635-03

SHEET NO.

C8



UTILITIES

AT LEAST 72 HOURS (3 WORKING DAYS) PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY MISS DIG AND THE LOCAL COMMUNITY (WHERE APPLICABLE) TO STAKE LOCATIONS OF EXISTING UTILITIES.

THE CONTRACTOR SHALL EXPOSE AND VERIFY EXISTING UTILITIES FOR LOCATION, SIZE, DEPTH, MATERIAL AND CONFIGURATION PRIOR TO CONSTRUCTION. COSTS FOR EXPLORATORY EXCAVATION IS AN INCIDENTAL COST AND SHALL NOT BE CONSIDERED AN EXTRA TO THE CONTRACT.

THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY EXISTING UTILITIES WHICH DO NOT MATCH THE PLANS AND SPECIFICATIONS PRIOR TO COMMENCING WORK. ANY FIELD CHANGES OF THE PROPOSED UTILITIES SHALL BE APPROVED BY THE OWNER AND ENGINEER BEFORE THE WORK IS DONE.

THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES FROM DAMAGE. ANY SERVICE OR UTILITY DAMAGED OR REMOVED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR, IN CONFORMANCE WITH THE REQUIREMENTS OF THE UTILITY COMPANY PROVIDER.

DAMAGE TO PRIVATE PROPERTY

ALL SIDEWALKS, DRIVEWAYS, LAWNS, FENCING, TREES, SHRUBS, SPRINKLERS, LANDSCAPING, ETC., THAT ARE DAMAGED DURING CONSTRUCTION MUST BE REPAIRED OR REPLACED, IN KIND OR BETTER, BY THE CONTRACTOR. ALL STREET SIGNS, MAIL BOXES, ETC., REMOVED SHALL BE REPLACED IN KIND OR BETTER, BY THE CONTRACTOR. ALL THE REPAIRS OR REPLACEMENTS DUE TO THE CONTRACTOR'S WORK ARE TO BE INCLUDED IN THE CONTRACT PRICE(S) AND SHALL NOT BE AN EXTRA TO THE CONTRACT.

DEWATERING OF TRENCH AND EXCAVATIONS

IF NOT SPECIFICALLY PROVIDED FOR IN THE CONSTRUCTION DESIGN DOCUMENTS, THE DESIGN OR QUALITATIVE ANALYSIS OF GROUND WATER FOR INFORMATIONAL PURPOSES ONLY AS TO THE SCOPE OF DESIGN FOR THESE DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTING AND PROVIDING APPROPRIATE EXCAVATION DEWATERING SYSTEMS FOR USE DURING CONSTRUCTION.

THE DEWATERING METHOD SELECTED BY THE CONTRACTOR WILL NOT ADVERSELY AFFECT ADJACENT PAVEMENTS OR STRUCTURES PRIOR TO BEGINNING DEWATERING CONDITIONS. MEANS AND METHODS OF DEWATERING ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. THE COST OF DEWATERING WILL BE CONSIDERED INCLUDED IN THE WORK OF CONSTRUCTING THE UNDERGROUND UTILITIES UNLESS SPECIFICALLY INDICATED OTHERWISE.

BY-PASS PUMPING

FROM TIME TO TIME IT MAY BE NECESSARY FOR THE CONTRACTOR TO BY-PASS PUMP TO COMPLETE THE WORK INDICATED ON THE PLANS. THE COST OF BY-PASS PUMPING, THE METHODS, EQUIPMENT AND MEANS OF PROVIDING THAT WORK ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE CONSIDERED PART OF THE WORK WHETHER SPECIFICALLY CALLED OUT ON THE PLANS OR NOT.

MEANS AND METHODS FOR PIPE CONSTRUCTION

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE MEANS AND METHODS FOR CONSTRUCTING THE UNDERGROUND PIPE SYSTEMS PROPOSED ON THE PLANS, INCLUDING BUT NOT LIMITED TO THE NEED FOR SHORING/BRACING OF TRENCHES, DEWATERING OF TRENCHES, SCHEDULING THE WORK AT OFF-PEAK HOURS, AND/OR MAINTAINING EXISTING FLOWS THAT MAY BE ENCOUNTERED VIA PUMPING, BY-PASS PIPING OR OTHER MEANS. THE CONTRACTOR SHALL NOT BE PAID ANY ADDITIONAL COMPENSATION TO IMPLEMENT ANY MEANS AND METHODS TO SATISFACTORILY COMPLETE THE CONSTRUCTION.

PAVEMENT REMOVAL

THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE THICKNESS OF THE PAVEMENT REMOVAL. PAVEMENT CORE SAMPLES ARE FOR INFORMATIONAL PURPOSES ONLY AS TO THE THICKNESS OF THE PAVEMENT AT THE LOCATION OF THE SAMPLE. THE OWNER AND ENGINEER MAKE NO REPRESENTATION, WARRANTY OR GUARANTEE THAT THE SAMPLES ACCURATELY REFLECT THE PAVEMENT THICKNESS ON THE PROJECT.

MAINTENANCE OF TRAFFIC

DURING THE PROGRESS OF THE WORK THE CONTRACTOR SHALL ACCOMMODATE BOTH VEHICULAR AND PEDESTRIAN RIGHT OF WAY. THE CONTRACTOR'S EQUIPMENT AND OPERATIONS ON PUBLIC STREETS SHALL BE GOVERNED BY ALL APPLICABLE LOCAL, COUNTY AND STATE ORDINANCES, REGULATIONS AND LAWS. THE CONTRACTOR SHALL OBTAIN AND SATISFY ANY AND ALL PERMIT REQUIREMENTS BY THE LOCAL, COUNTY AND STATE GOVERNMENTAL AGENCIES.

IN ADDITION, WHERE THE WORK REQUIRES THE CLOSURE OF ONE OR MORE LANES OR IS WITHIN THE INFLUENCE OF THE ROAD OR PEDESTRIAN RIGHT OF WAY, THE CONTRACTOR SHALL PROVIDE ALL SIGNS, SIGNALS, AND OTHER TRAFFIC CONTROL MEASURES AS REQUIRED BY MDT, THE COUNTY, OR THE COMMUNITY HAVING JURISDICTION OF THE ROAD AND IN CONFORMANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

COMPENSATION FOR TRAFFIC CONTROL SHALL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE(S) UNLESS SPECIFIC TRAFFIC CONTROL ITEMS ARE INCLUDED IN THE ACCEPTED BID PROPOSAL.

IRRIGATION

THE CONTRACTOR SHALL MAINTAIN OR REPAIR ANY EXISTING IRRIGATION SYSTEMS WITHIN THE PROJECT AREA UNLESS THE DRAWING CALL FOR THE IRRIGATION SYSTEM TO BE REMOVED. THE OWNER AND NFE MAKE NO REPRESENTATIONS, WARRANTY OR GUARANTEE AS TO THE LOCATION OF THE IRRIGATION SYSTEM. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PROTECT THE IRRIGATION SYSTEM DURING CONSTRUCTION. ACTIVE COMPENSATION FOR MAINTAINING OR REPAIRING EXISTING IRRIGATIONS SYSTEMS SHALL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE(S) UNLESS SPECIFIC IRRIGATION SYSTEM REPAIR ITEMS ARE INCLUDED IN THE ACCEPTED BID PROPOSAL.

SUB-SOIL CONDITIONS

ANY SOIL BORING PROVIDED BY THE OWNER AND/OR ENGINEER IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THIS INFORMATION IS NOT OFFERED AS EVIDENCE OF GROUND CONDITIONS THROUGHOUT THE PROJECT AND ONLY REFLECT THE GROUND CONDITIONS AT THE LOCATION OF THE BORING ON THE DATE THEY WERE TAKEN.

THE ACCURACY AND RELIABILITY OF THE SOIL LOGS AND REPORT ARE NOT WARRANTED OR GUARANTEED IN ANY WAY BY THE OWNER OR ENGINEER AS TO THE SUB-SOIL CONDITIONS FOUND ON THE SITE. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION AND SUB-SOIL INVESTIGATION AND SECURE OTHER SUCH INFORMATION AS THE CONTRACTOR CONSIDERS NECESSARY TO DO THE WORK PROPOSED AND IN PREPARATION OF THEIR BID.

SUBGRADE UNDERCUTTING AND PREPARATION

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REMOVE ANY AND ALL SOILS WHICH DO NOT CONFORM TO THE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE A SUBGRADE IN CONFORMANCE WITH THE PROJECT PLANS AND/OR SPECIFICATIONS. THE MEANS AND METHODS USED TO ACHIEVE THE REQUIRED RESULT SHALL REST SOLELY WITH THE CONTRACTOR.

ANY AREAS OF UNDERCUTTING THAT RESULT IN ADDITIONAL OR EXTRA WORK BECAUSE THEY COULD NOT BE IDENTIFIED BY THE CONTRACTOR'S PRE-BID SITE OBSERVATION OR ARE NOT SET FORTH IN THE PLANS AND SPECIFICATIONS, SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER BEFORE ANY EXTRA WORK IS PERFORMED. THE CONTRACTOR SHALL MAKE A REQUEST FOR ANY ADDITIONAL COMPENSATION FOR THE UNDERCUTTING IN WRITING AND THE REQUEST SHALL CONFORM TO THE CONTRACT'S CHANGE ORDER PROVISIONS.

STRUCTURE BACKFILL

STRUCTURAL BACKFILL SHALL BE PLACED IN CONFORMANCE WITH THE PROJECT PLANS, SPECIFICATIONS OR AS REQUIRED BY THE COMMUNITY, GOVERNMENT AGENCY OR UTILITY THAT HAS JURISDICTION OVER THE WORK.

TRENCH BACKFILL

TRENCH BACKFILL SHALL BE PLACED IN CONFORMANCE WITH THE PLANS AND/OR SPECIFICATIONS. TRENCH BACKFILL SHALL ALSO BE INSTALLED IN CONFORMANCE WITH THE COMMUNITY REQUIREMENTS OR AGENCY/UTILITY GOVERNING SAID TRENCH CONSTRUCTION. IN THE CASE OF CONFLICTING REQUIREMENTS, THE MORE STRINGENT SHALL APPLY.

EARTH BALANCE / GRADING

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE WHETHER THE SITE EARTHWORK BALANCES OR NOT. ANY EXCESS CUT MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR. IN A LIKE MANNER, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO IMPORT APPROVED FILL MATERIAL AND PLACE IT AS REQUIRED TO ATTAIN THE SITE GRADE AND COMPACTION REQUIREMENTS PER THE ENGINEER'S PLAN AND ALL APPLICABLE GOVERNMENTAL STANDARDS. THE ENGINEER AND OWNER MAKE NO REPRESENTATION AS TO THE QUANTITIES THAT MAY BE NEEDED TO CREATE A BALANCED EARTHWORK CONDITION OR THAT THE SITE EARTHWORK IS BALANCED.

SOIL EROSION / SEDIMENTATION CONTROL

THE CONTRACTOR SHALL OBTAIN THE REQUIRED SOIL EROSION PERMIT AND SATISFY ALL REGULATORY REQUIREMENTS FOR CONTROLLING SOIL EROSION AND SEDIMENT TRANSPORT. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS. THE ENGINEER AND OWNER ARE NOT RESPONSIBLE FOR INSPECTION OR APPROVAL OF THE CONTRACTOR'S WORK IN CONNECTION WITH SATISFYING THE SOIL EROSION PERMIT REQUIREMENTS UNLESS SPECIFICALLY STATED IN THE CONTRACT DOCUMENTS.



SEAL



**PROJECT**  
 4 Corners Square LLC  
 1449 Union Lake Road  
 White Lake Township

**CLIENT**  
 VERITAS  
 29580 Northwestern Hwy,  
 Suite 1000  
 Southfield, Michigan 48075

Contact: Shakir W. Alkhafaji, President  
 Phone: (248) 559-5555

**PROJECT LOCATION**  
 Part of the E. 1/2 of the SE. 1/4 of Section 8 T.3N., R.8E.  
 White Lake Township, Oakland County, Michigan

**SHEET**  
 Landscape Plan



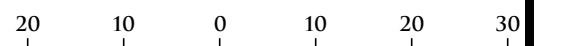
Know what's below  
 Call before you dig.

**DATE** ISSUED/REVISED  
 10-14-21 ISSUED FOR SITE PLAN REVIEW  
 11-08-21 REVISED PER SITE PLAN REVIEW

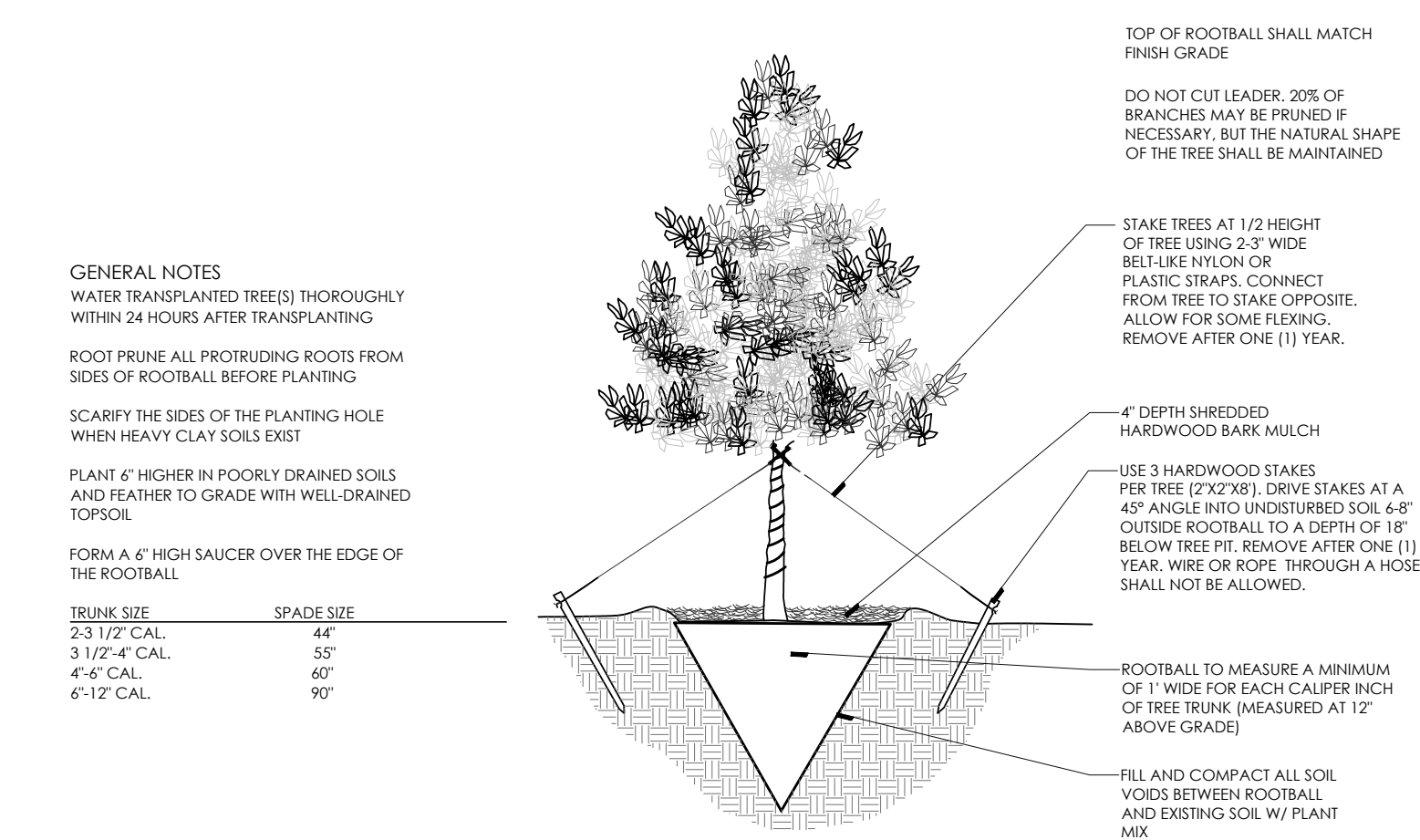
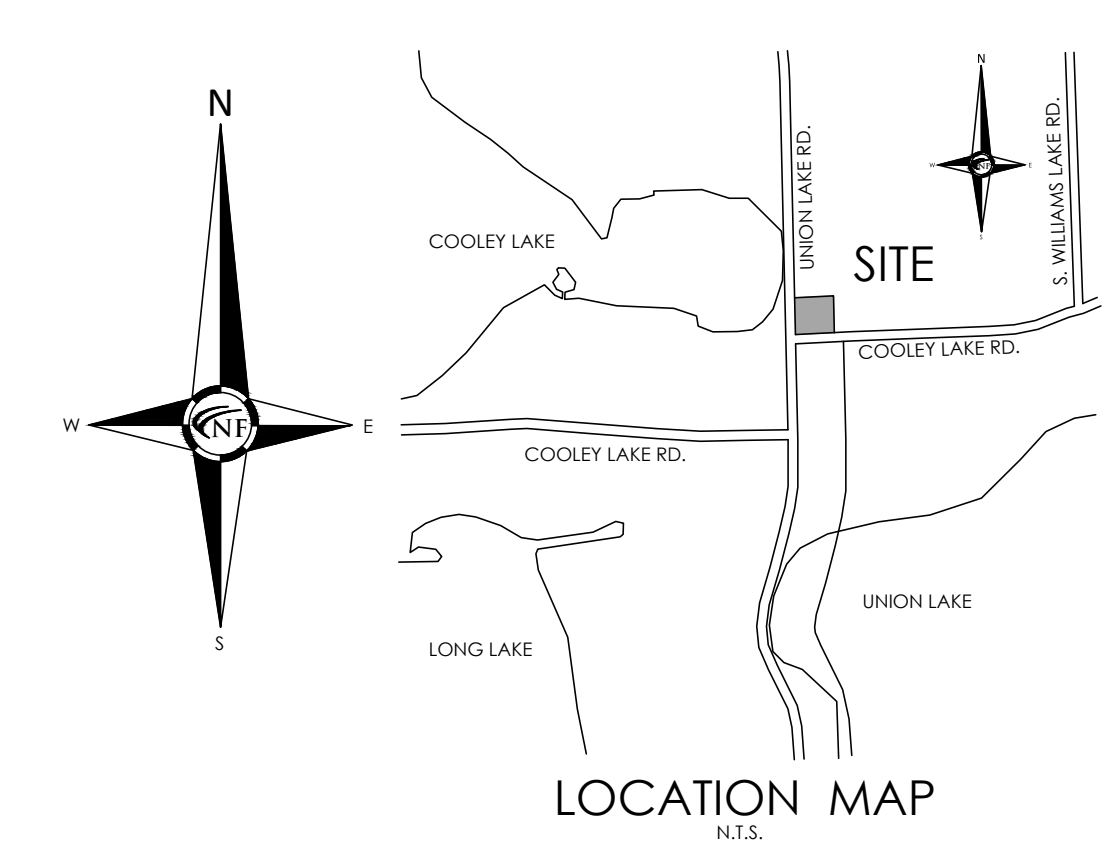
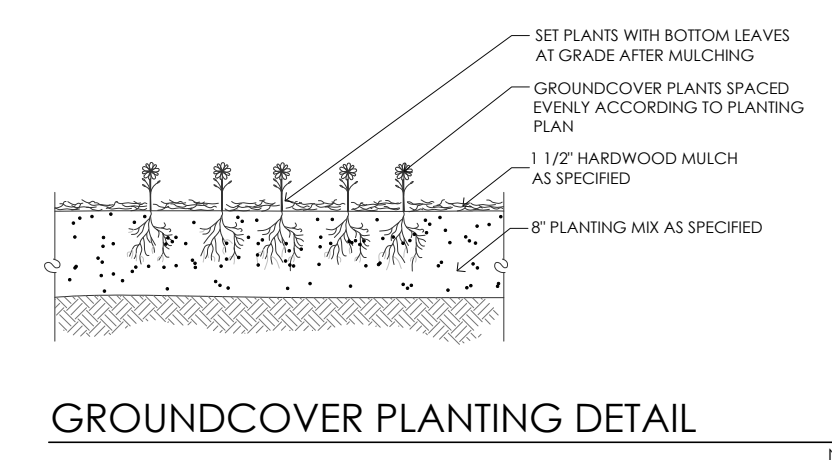
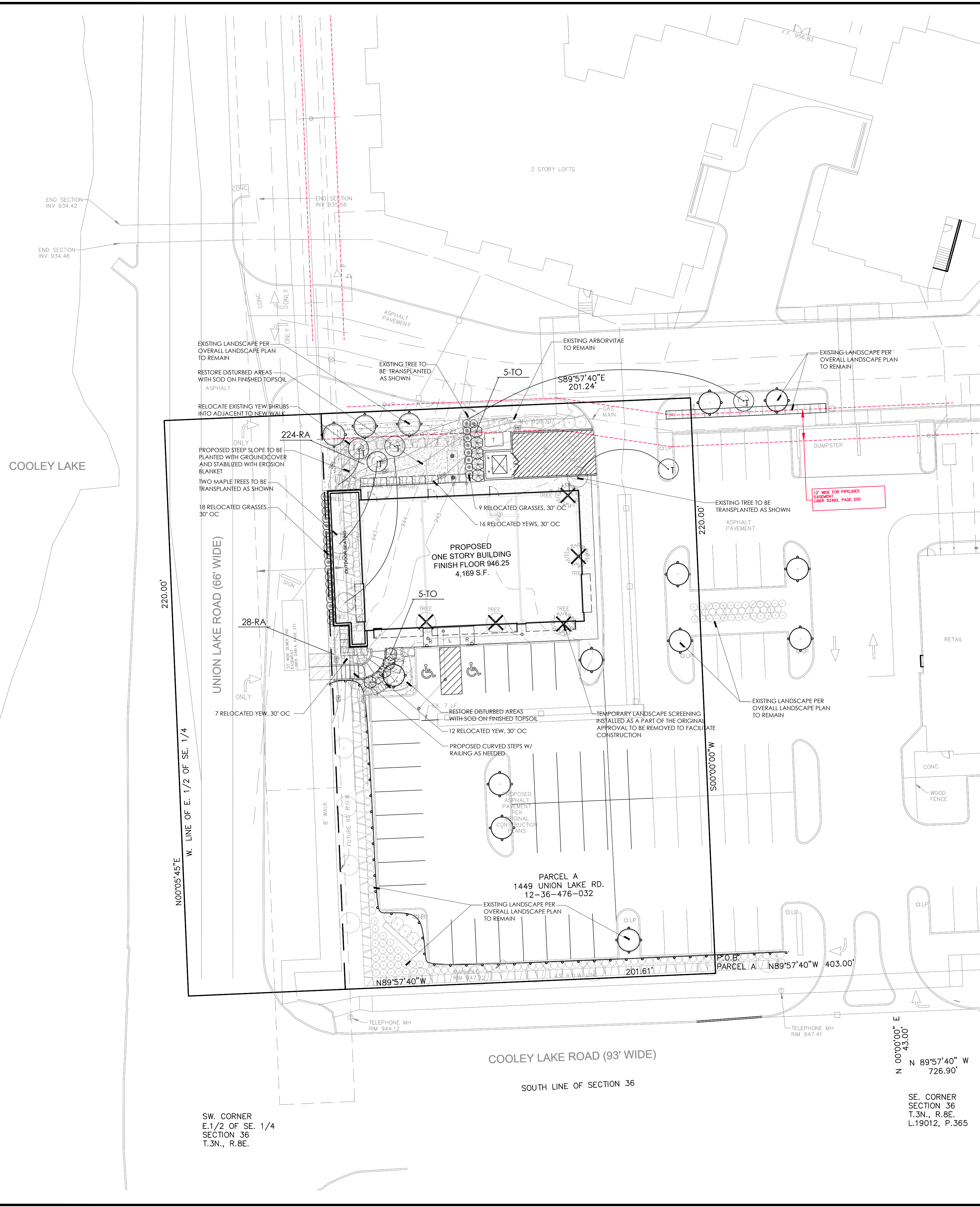
**DRAWN BY:**  
 G. Ostrowski  
**DESIGNED BY:**  
 G. Ostrowski  
**APPROVED BY:**  
 G. Ostrowski

**DATE:**  
 08-25-2021

**SCALE:** 1" = 20'

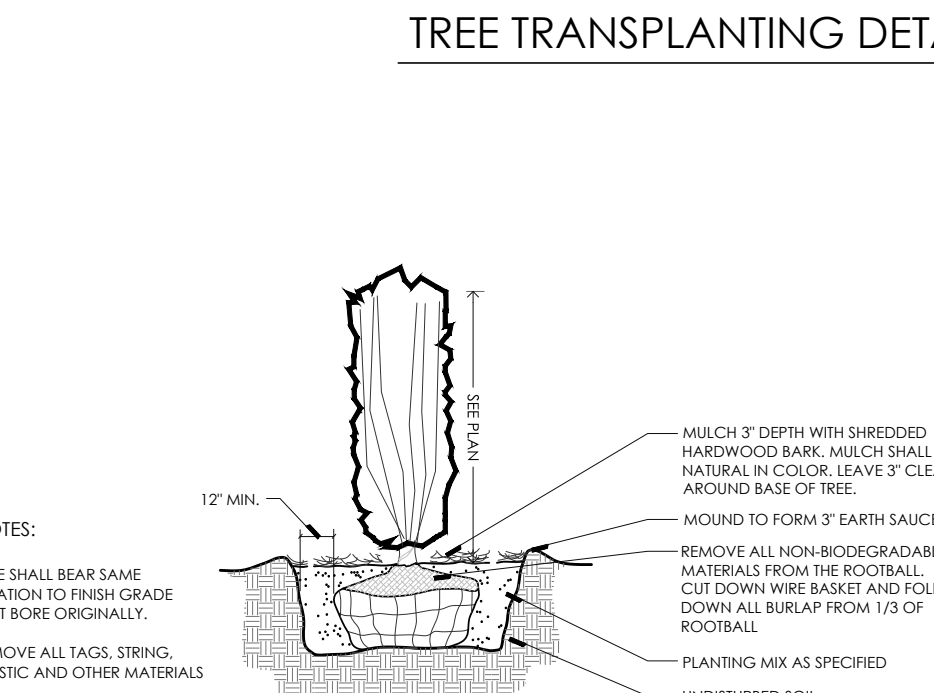


**NFE JOB NO.** SHEET NO.  
**J635-03** **L1**



**GENERAL NOTES**  
 WATER TRANSPLANTED TREES THOROUGHLY WITHIN 24 HOURS AFTER TRANSPLANTING  
 ROOT PRUNE ALL PROTRUDING ROOTS FROM SIDES OF ROOTBALL BEFORE PLANTING  
 SCARIFY THE SIDES OF THE PLANTING HOLE WHEN HEAVY CLAY SOILS EXIST  
 PLANT 6" HIGHER IN POORLY DRAINED SOILS AND FEATHER TO GRADE WITH WELL-DRAINED TOPSOIL  
 FORM A 6" HIGH SAUCER OVER THE EDGE OF THE ROOTBALL

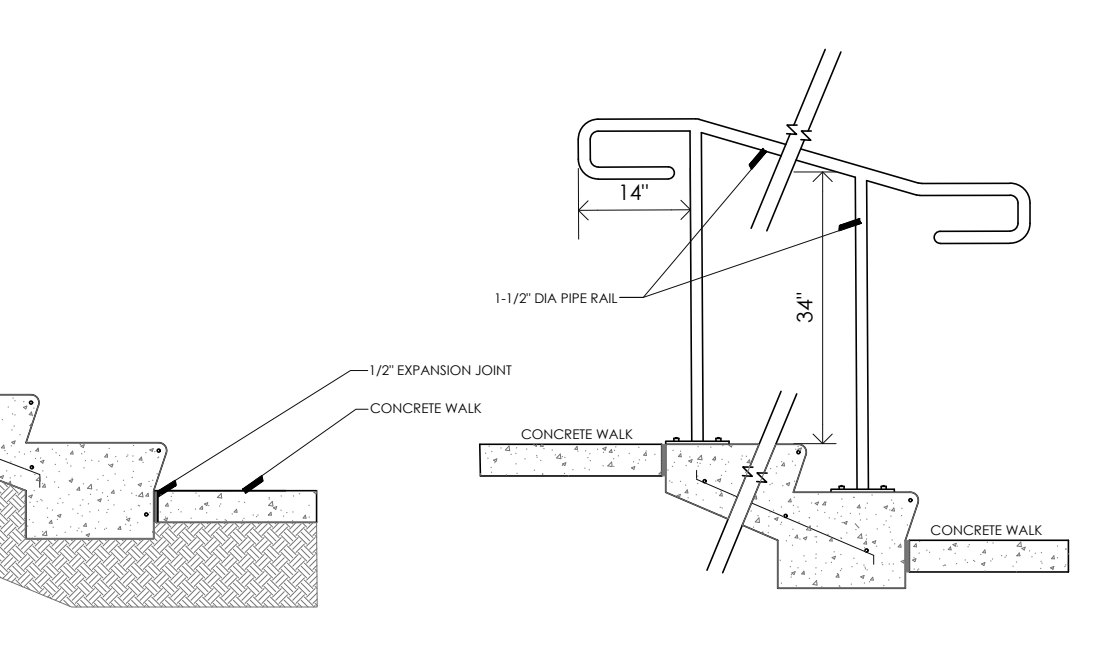
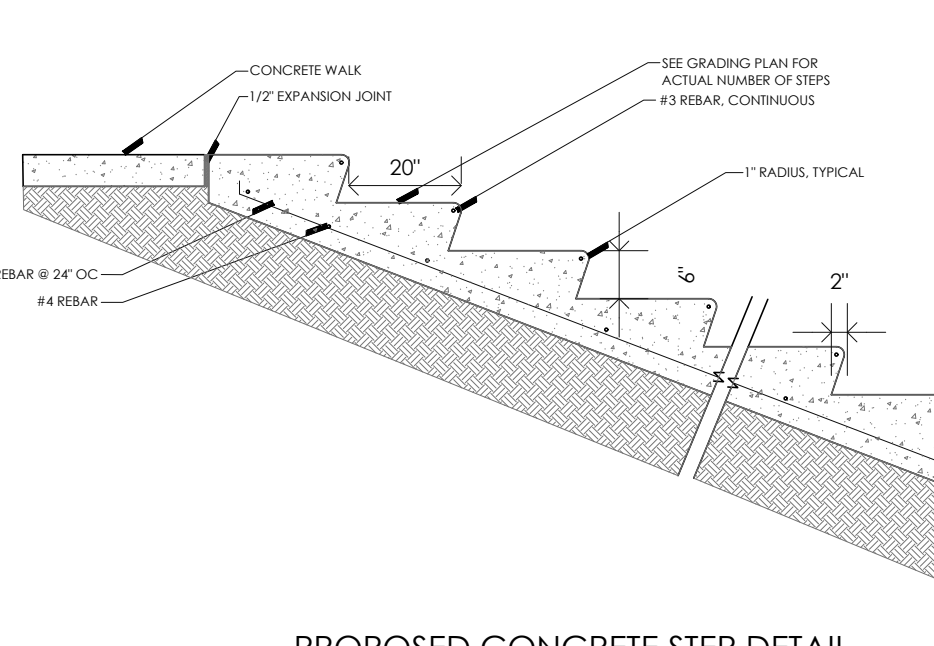
TRUNK SIZE	SPACE SIZE
2 1/2" CAL.	44"
3 1/2" CAL.	55"
4" CAL.	60"
6" CAL.	90"



**NOTES:**  
 TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY.  
 REMOVE ALL TAGS, STRING, PLASTIC AND OTHER MATERIALS

**GENERAL SOD NOTE:**  
 ALL LAWN AREAS DESIGNATED TO BE SODDED, SHALL BE SODDED WITH A BLENDED DURABLE BLUEGRASS SOD, TYPICALLY GROWN IN THE REGION. ALL TURF SHALL BE PLACED ON A MINIMUM 3" PREPARED TOPSOIL AND WATERED DAILY UNTIL ESTABLISHMENT. IN AREAS SUBJECT TO EROSION, SODDED LAWN SHALL BE STABILIZED WHERE NECESSARY, AND LAID PERPENDICULAR TO SLOPES  
 SOD INSTALLATION SHALL OCCUR ONLY:  
 SPRING: APRIL TO JUNE  
 FALL: AUGUST 15 TO OCTOBER 15

**PLANT MATERIAL NOTE:**  
 ALL EXISTING PLANT MATERIAL ON-SITE SHALL BE TRANSPLANTED AS SHOWN OR ELSEWHERE ON-SITE AT THE DIRECTION OF OWNER OR OWNER'S REPRESENTATIVE. WHERE EXISTING PLANT MATERIAL IS IN GOOD CONDITION AND DIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING THE MATERIAL IN-KIND. THE CONTRACTOR SHALL FAMILIARIZE HIM/HERSELF WITH SITE AND PROPOSED LOCATIONS, AND PLAN AND COORDINATE A STOCKPILE LOCATION WITH THE GENERAL CONTRACTOR.

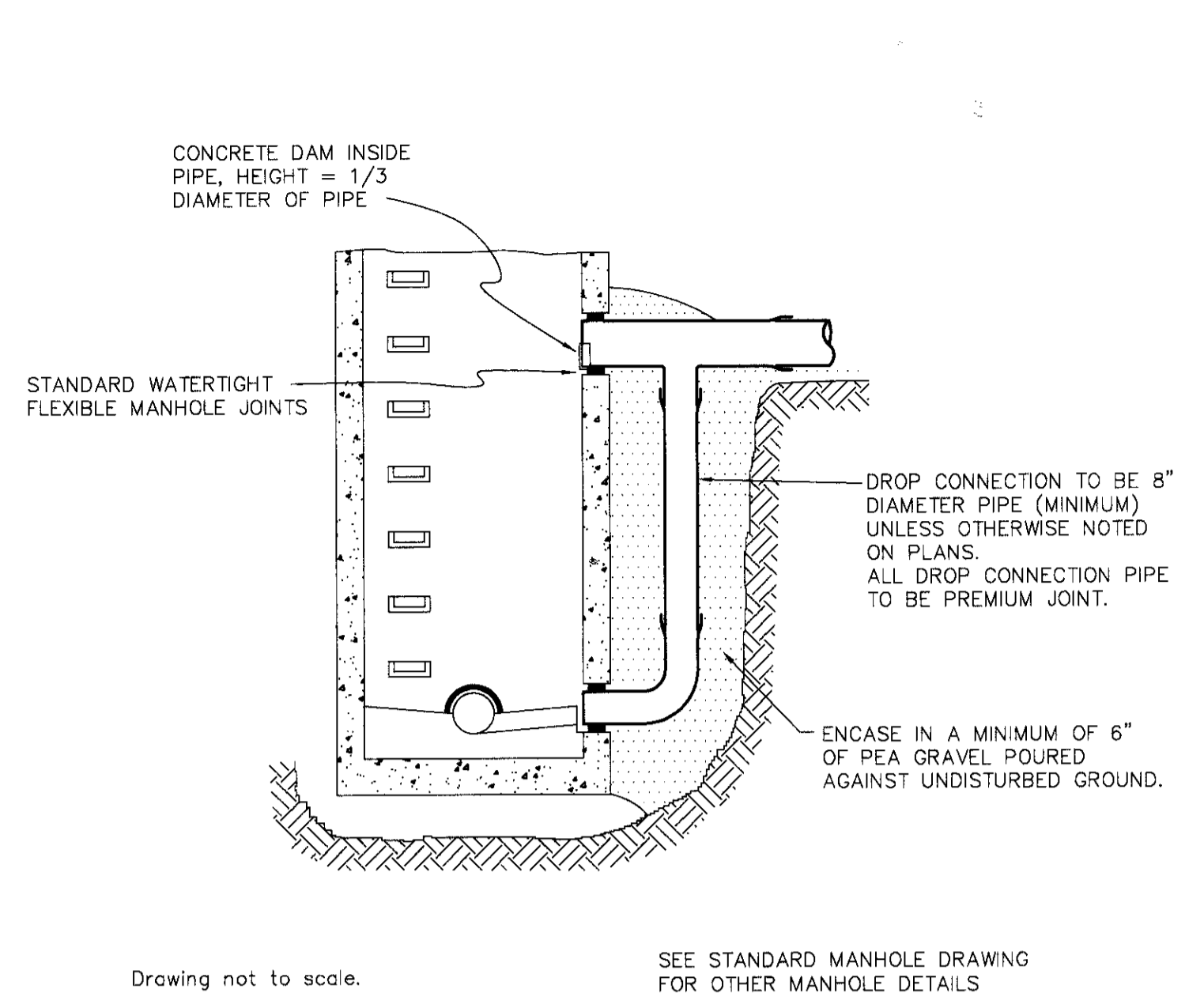


**PLANT SCHEDULE**

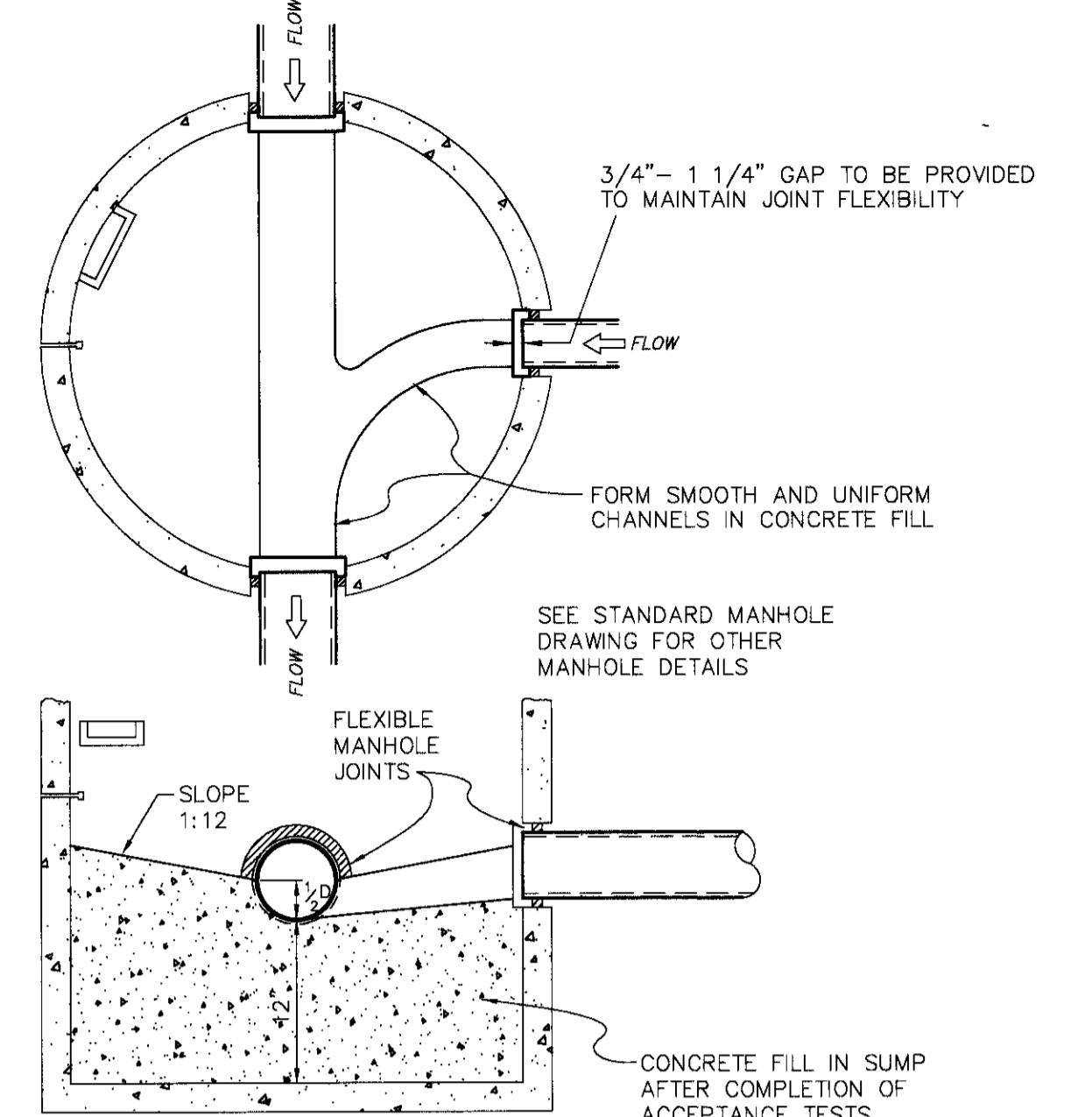
KEY	QTY	BOTANICAL/COMMON NAME	SIZE	SPACING	ROOT	COMMENT
<b>SHRUBS</b>						
TO	10	<i>Thuja occidentalis</i> 'Smaragda'	6' HT	30" OC	B&B	
<b>GROUND COVER</b>						
RA	252	<i>Rhus aromatica</i> 'Low-Grow'	3 GAL	24" OC	CONT	TRIANGULAR SPACING
		Low-Grow Fragrant Sumac				

SANITARY SEWER CONSTRUCTION NOTES

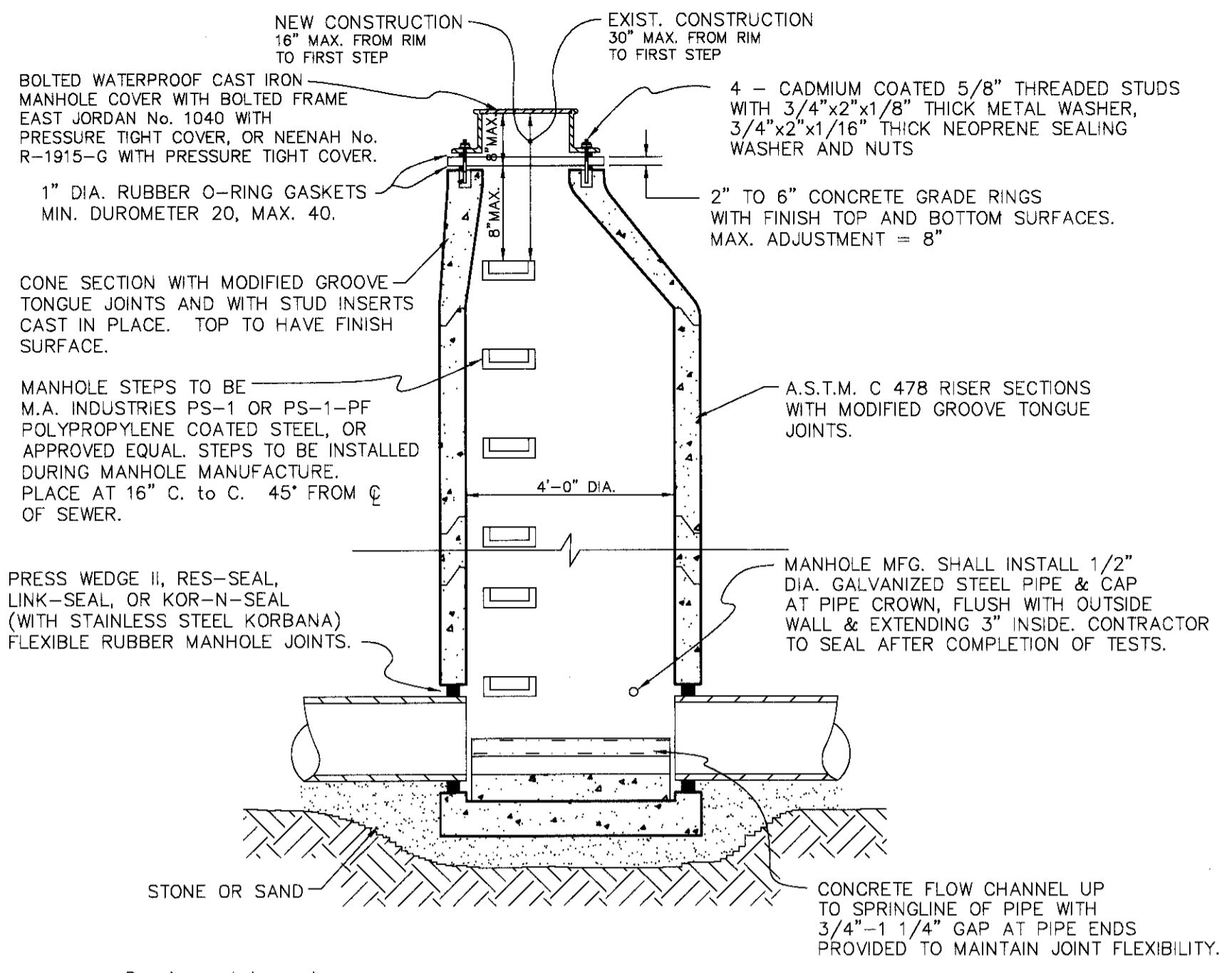
- All construction shall conform to the current standards and specifications of the local unit of government and the Oakland County Drain Commissioner (O.C.D.C.). All sanitary sewer construction shall have full time inspection supervised by a professional engineer provided by or caused to be provided by the local unit of government.
- At all connections to Oakland County Drain Commissioner's sewers or extensions, and before start of construction, the Contractor must obtain a Sewer Inspection Permit issued by the O.C.D.C. Gravity sewer permit charges are \$150.00 for each connection plus \$15.00 for each manhole constructed. Pressure sewer permit charges are \$250.00 per 2460 l.f. of force main with a minimum permit fee of \$250.00. Failure to pass any test segment will result in an additional charge to the Contractor for each retest in accordance with the above price schedule. The Contractor shall also have posted with the O.C.D.C. a \$5,000.00 surety bond and \$500.00 cash deposit. The Contractor shall notify the local unit of government and the O.C.D.C. 24 hours prior to the beginning of any construction. Final air tests must be witnessed by County personnel and must be scheduled in advance.
- No sewer installation shall have an infiltration exceeding 200 gallons per inch diameter per mile of pipe in a 24 hour period, and no single run of sewer between manholes shall exceed 250 gallons per inch diameter per mile. Air tests in lieu of infiltration tests shall be as specified in the O.C.D.P.W. "Acceptance Tests", dated September, 1972. Only pipe and pipe joints approved by the Oakland County Drain Commissioner may be used for sanitary sewer construction.
- At all connections to an existing Oakland County Drain Commissioner sewer or extension thereto a watertight bulkhead with a capped 1-inch diameter pipe to permit measuring infiltration shall be provided. A temporary 12-inch deep sump shall also be provided in the first manhole above the connection which will be filled in after such successful completion of any infiltration test up to the standard fillet provided for the flow channel.
- All building leads and risers shall be 6-inch S.D.R. 23.5 ABS OR PVC pipe with chemically fused joints, or an approved equal pipe and joint. Sewer pipe wye or tee openings shall contain factory installed premium joint material of an approved type compatible with that of the building lead pipe used. Building leads to be furnished with removable air tight and water-tight stoppers.
- All rigid sewer pipe shall be installed in Class "B" bedding or better. All flexible, semi-flexible or composite sewer pipe shall be installed in conformance to the Oakland County Drain Commissioner specifications.
- All new manholes shall have Oakland County Drain Commissioner approved flexible, water-tight seals where pipes pass through walls. Manholes shall be of precast sections with modified groove tongue and rubber gasket type joints. Precast manhole cone sections shall be Oakland County Drain Commissioner approved modified eccentric cone type. All manholes shall be provided with bolted, water-tight covers.
- At all connections to manholes on Oakland County Drain Commissioner's sewers or extensions thereto drop connections will be required when the difference in invert elevations exceeds 18-inches. Outside drop connections only will be approved.
- Taps to existing manholes shall be made by coring. The Contractor shall place a KOR-N-SEAL boot (or O.C.D.C. approved equal) after coring is completed. Blind drilling will not be permitted in lieu of coring.
- New manholes constructed directly on Oakland County Drain Commissioner's sewers shall be provided with covers reading "Oakland County - Sanitary" in raised letters. New manholes built over an existing sanitary sewer shall have monolithic poured bottoms.
- No ground water, storm water, construction water, downspout drainage or weep tile drainage shall be allowed to enter any sanitary sewer installation.
- Prior to excavation, the Contractor shall telephone MISS DIG (647-7344) for the location of underground pipeline and cable facilities, and shall also notify representatives of other utilities located in the vicinity of the work.
- 18" minimum vertical separation and 10' minimum horizontal separation must be maintained between sanitary sewer and water main.
- Manhole frame and cover shall be as follows: East Jordan heavy manhole cover, base flange type #1040 or Neenah Foundry heavy duty #R-1642 manhole frame. Solid lid cover shall be non-rocking and marked "WHITE LAKE TOWNSHIP SEWER DEPARTMENT."



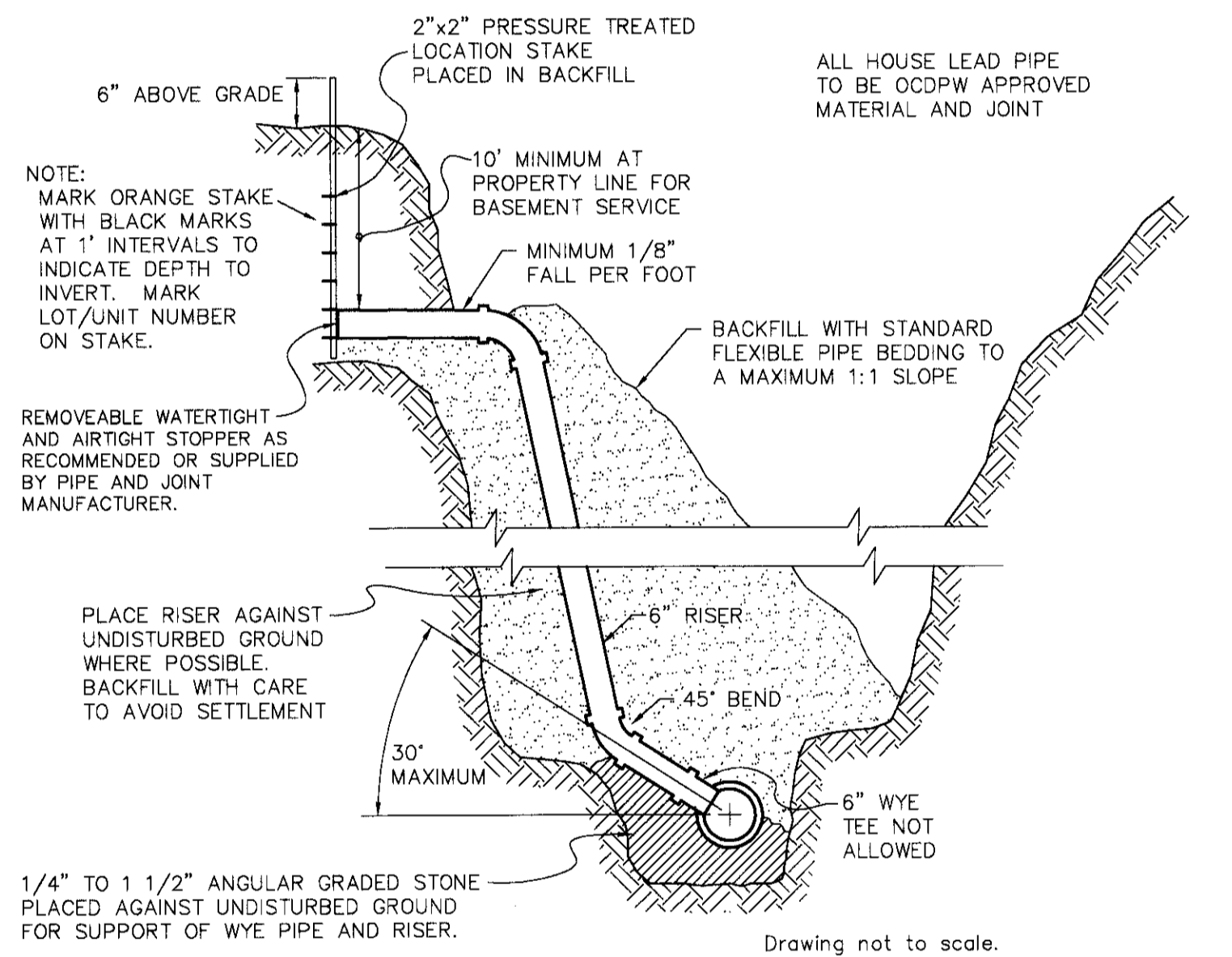
EXTERIOR DROP CONNECTION



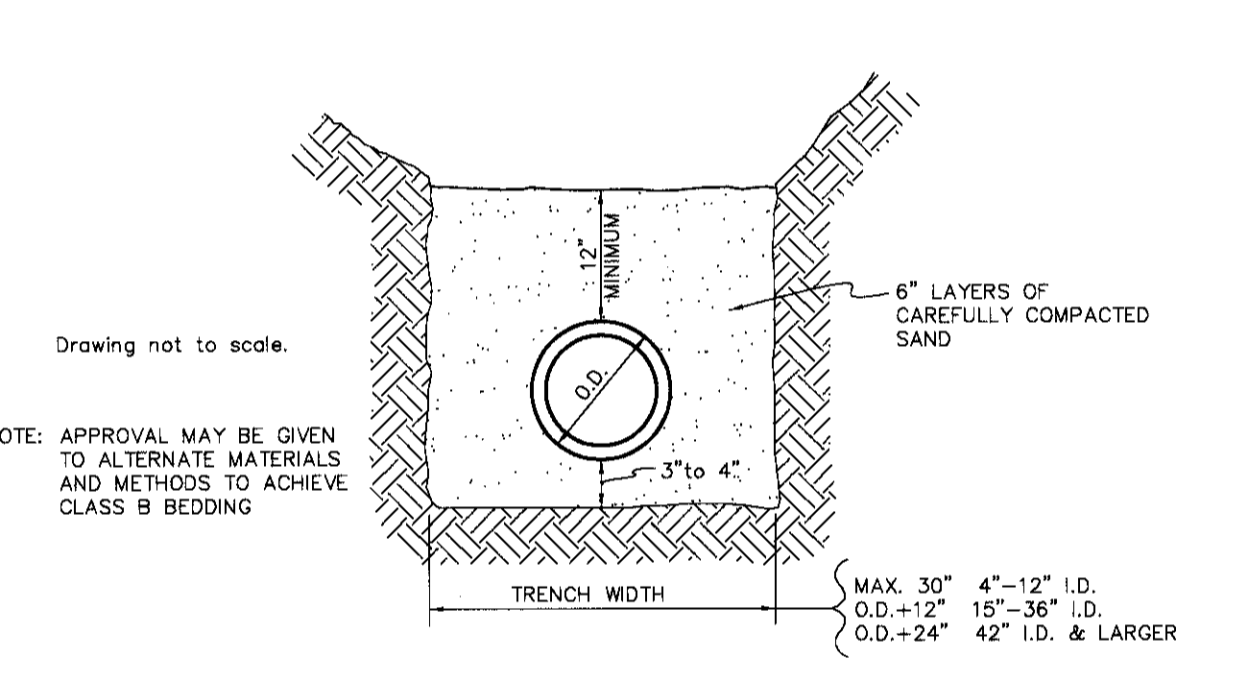
SUMP MANHOLE FOR TESTING, CLEANING, AND DEWATERING



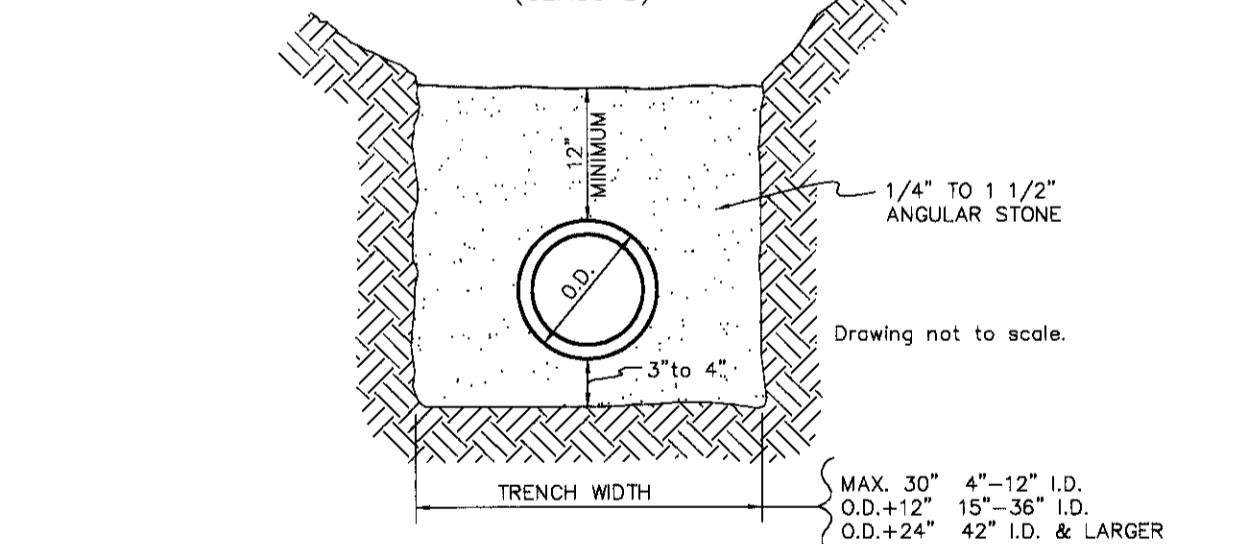
STANDARD MANHOLE ON 8" THROUGH 24" DIAMETER SEWERS



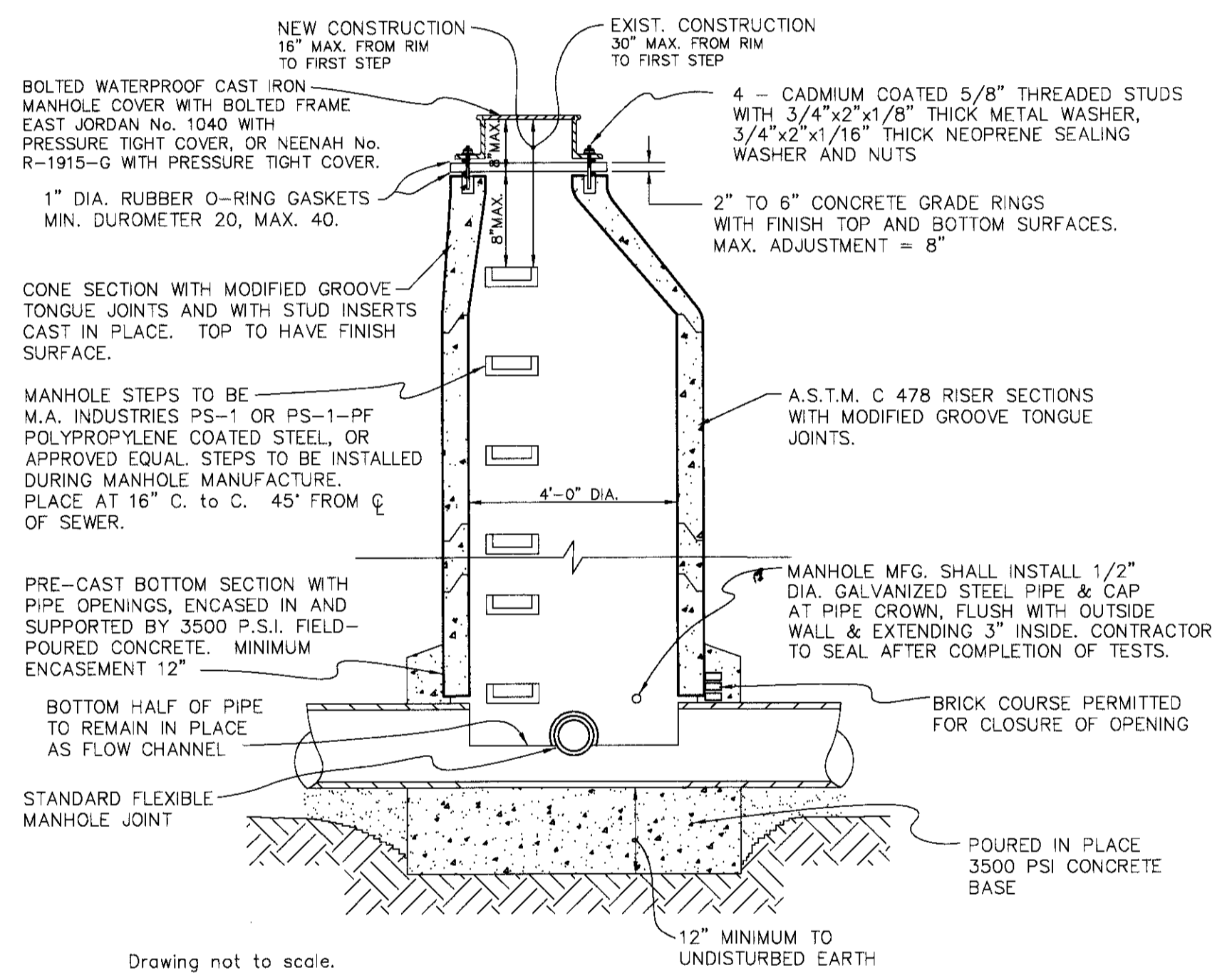
HOUSE/BUILDING LEAD DETAIL



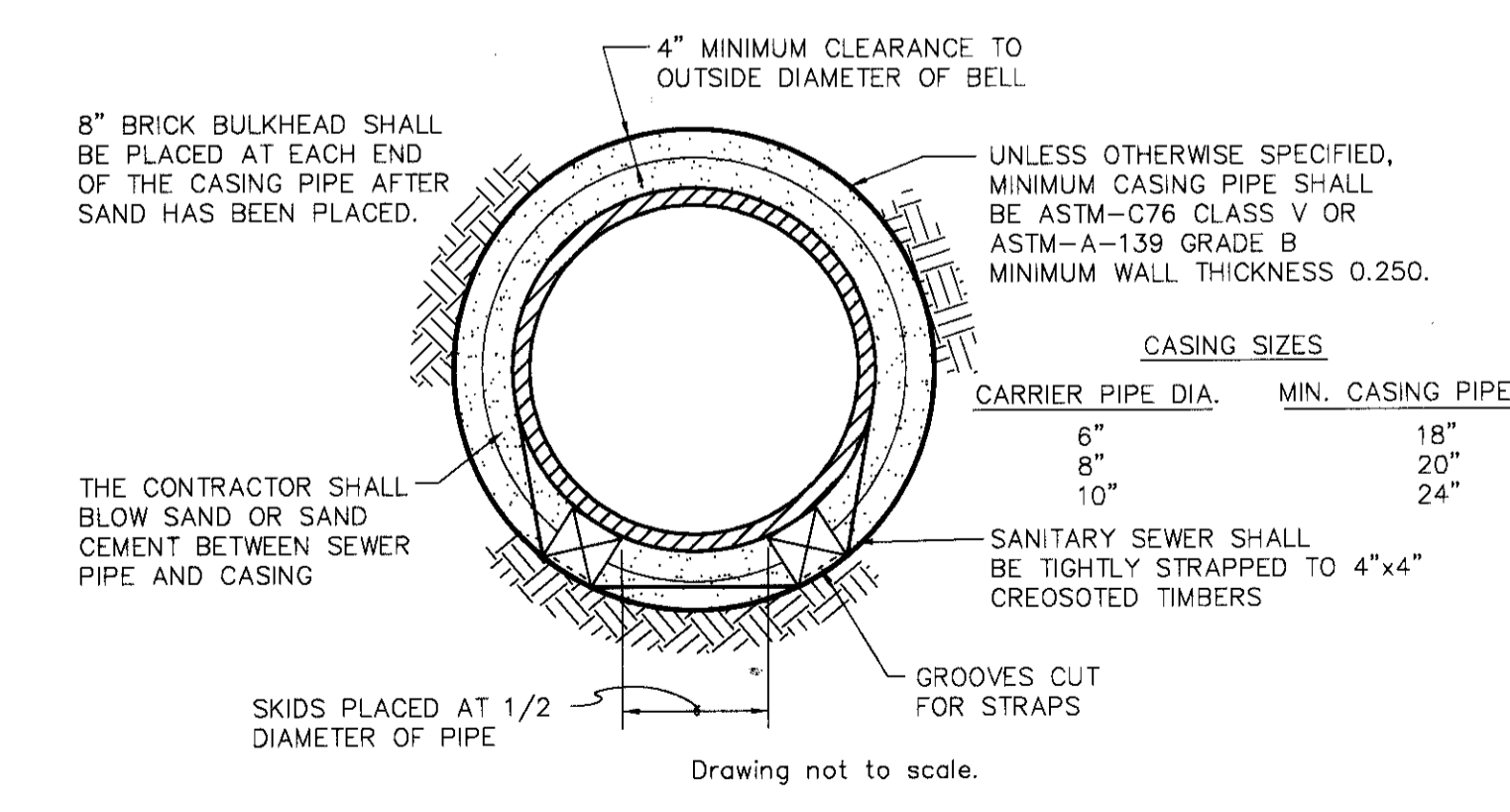
BEDDING DETAIL FOR RIGID PIPE (CLASS B)



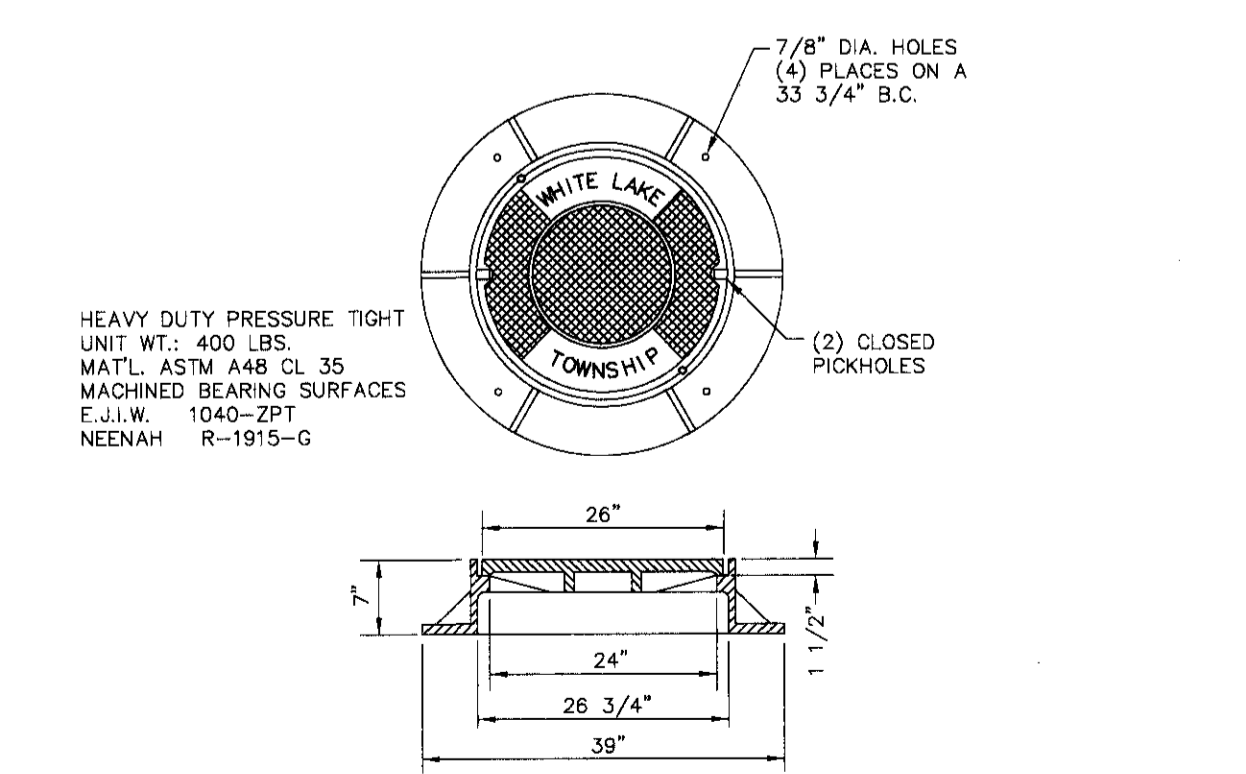
BEDDING DETAIL FOR FLEXIBLE PIPE



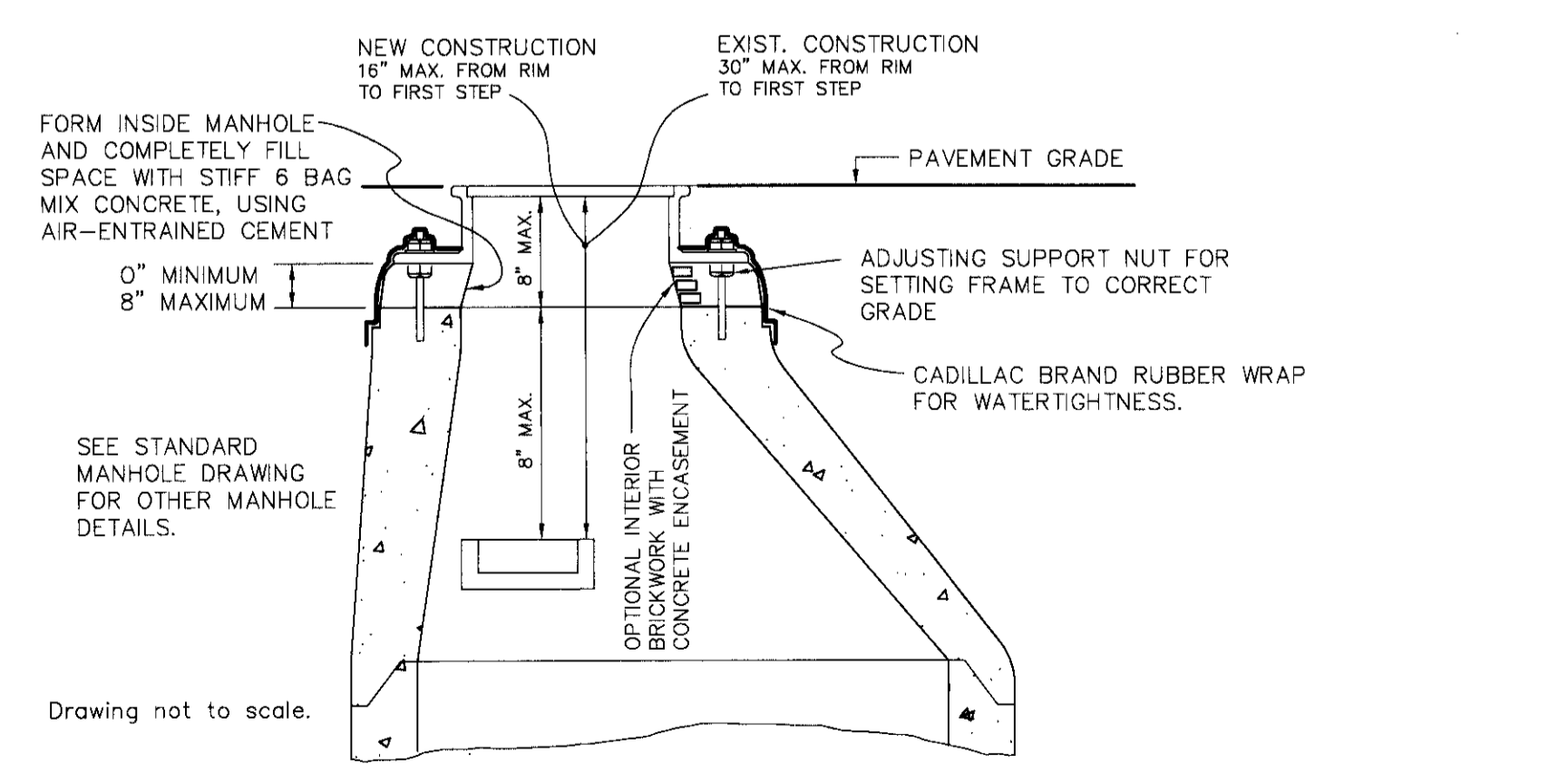
SKETCH OF MINIMUM MANHOLE REQUIREMENTS ON MANHOLES CONSTRUCTED OVER EXISTING SEWERS



PIPE BARREL SUPPORT FOR SEWER



MANHOLE COVER & FRAME



OPTIONAL CONSTRUCTION DETAILS

DRAWN: CAD  
 DESIGN: OA  
 CHECKED:

SCALE: VERT. AS NOTED  
 HORZ.

REVISIONS	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE
		FIRST ISSUE	9-11-97						

**Johnson & Anderson, Inc.**  
 CONSULTING ENGINEERS  
 4479 DIXIE HIGHWAY  
 WATERFORD, MICHIGAN 48329  
 (248) 698-3300

**White Lake Charter Township**  
 7525 Highland Road, White Lake, Michigan 48383-2900  
 (248) 698-3300

**SANITARY SEWER STANDARD DETAILS**

JOB NO. \_\_\_\_\_  
 DATE ISSUED 9-11-97  
 SHEET NO. 34

C:\Drawings\Std-Detail\Std-Detail-Sanitary.dwg Thu Sep 11 13:55:50 1997 rdl

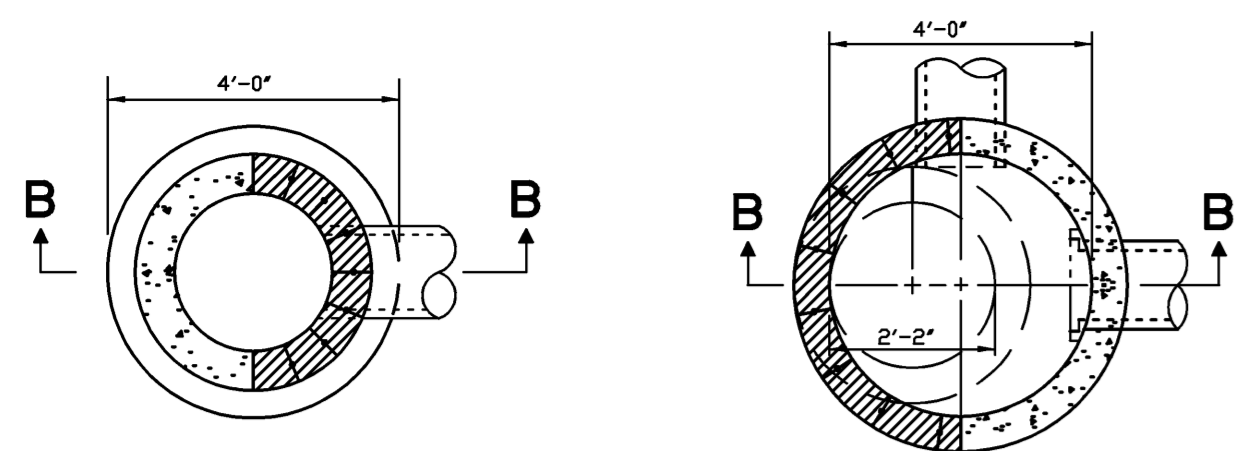
BRD24X36

STORM SEWER NOTES

- PRECAST CONC. RISERS SHALL MEET A.S.T.M. C478
- DIAMETER OF CONC. BASE: I.D. + 2(WALL) + 8"
- MANHOLE STEP SPACING SHALL MEET MIOSHA REQUIREMENTS. NO MORE THAN 21" FROM RIM TO FIRST STEP. MAX. 16" O.C. STEPS SHALL BE CAST POLYPROPYLENE REINFORCED WITH A 1/2" STEEL ROD.
- WALL THICKNESS OF BLOCK STRUCTURES SHALL BE:
 

DEPTH	THICKNESS
0-8'	6"
8-15'	8"
OVER 15'	12"
- MINIMUM I.D. OF STRUCTURE FOR: 36" to 42" = 5'-0"  
48" to 54" = 6'-0"  
LARGER DIAMETER STRUCTURES MAY BE REQUIRED DEPENDING ON PIPING CONFIGURATION.
- ALL LIFTING HOLES AND VOIDS IN INTERIOR JOINTS SHALL BE FILLED BY MORTAR.
- THE FINGER DRAIN DETAIL SHALL BE USED AT ALL LOW POINT CATCH BASINS IN PAVEMENT AREAS. THE DETAIL MAY BE OMITTED WITH THE APPROVAL OF THE TOWNSHIP ENGINEER IN AREAS WITH VERY POROUS SOILS AND NO GROUNDWATER PROBLEMS.
- PRECAST ONE PIECE BASES AND RISERS ARE ACCEPTABLE FOR INLETS, CATCH BASINS AND MANHOLES
- FRAMES & COVERS WITH INLET CAPACITY
  - TRAFFIC AND PARKING AREAS: MDOOT "D" (EJW 5105) 1.9 CFS
  - REAR YARD AND DITCH INLETS: MDOOT "E" (EJW 6508) 3.1 CFS
  - MANHOLES: MDOOT "A" (EJW 1060)
  - CURB AND GUTTER INLETS: MDOOT "K" (EJW 7045) 1.8 CFS
  - MOUNTABLE CURB & GUTTER: MDOOT "C" (EJW 7066) 2.2 CFS
- CONTACT THE TOWNSHIP ENGINEER 48 HOURS PRIOR TO CONSTRUCTION TO SCHEDULE INSPECTION. FULL TIME INSPECTION WILL BE REQUIRED FOR ALL UNDERGROUND STORM SEWER CONSTRUCTION. PHONE (248) 334-9901
- THE CONTRACTOR SHALL CONTACT MISS DIG 72 HOURS BEFORE CONSTRUCTION AT (800) 482-7171 TO LOCATE EXISTING UNDERGROUND UTILITIES.
- PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL HAVE IN HIS POSSESSION A CURRENT SOIL EROSION CONTROL PERMIT AS ISSUED BY THE OAKLAND COUNTY DRAIN COMMISSIONER.
- A 2' DEEP SUMP SHALL BE USED IN ANY STRUCTURE SUBJECT TO A WATER DROP GREATER THAN 2.0' FROM AN INLET PIPE.
- ALLOWABLE STORM SEWER PIPE TYPES:
  - 12" AND UP: RCP ASTM C-76 MIN. CLASS 3, MIN. CLASS 4 UNDER TRAFFIC AREAS, RUBBER JOINT
  - 6" TO 15" SCH 40 PVC OR SDR 23.5 PVC WITH RUBBER OR GLEE JOINT
  - 6" TO 48" SMOOTH BORE CORRUGATED HIGH DENSITY POLYETHYLENE WITH NEOPRENE LINED JOINTS OR BETTER
- THE MINIMUM PIPE SIZE IN PUBLIC RIGHT-OF-WAY OR EASEMENTS AND FOR PIPES CARRYING OFF-SITE STORM WATER SHALL BE 12"
- ALL PIPE ENDS NOT WITHIN A STRUCTURE SHALL HAVE A CONCRETE OR METAL FLARE END SECTION (FES) WITH A BAR SCREEN ON PIPES 18" AND LARGER EXCEPT THOSE WITHIN A SECURE FENCED AREAS/NEED NO BAR SCREEN.
- ALL DRAINAGE STRUCTURES WITHIN THE ROAD SHALL BE SEALED WITH WRAPPED GEOTEXTILE PER RDCD STANDARDS

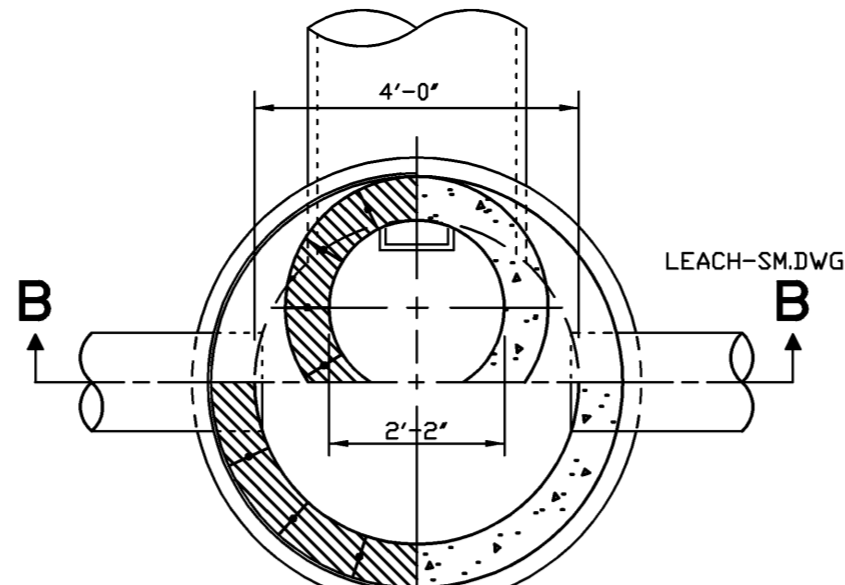
PIPE DIA.	"D"	"E"	"F"	S.Y.
12"	5'-0"	6'-6"	3'-0"	4
15"	5'-0"	7'-0"	3'-0"	4
18"	5'-0"	7'-6"	3'-6"	4
21"	5'-6"	8'-0"	4'-0"	5
24"	6'-0"	8'-6"	4'-6"	6
27"	6'-6"	9'-0"	5'-0"	6
30"	7'-0"	9'-6"	5'-6"	7
36"	7'-6"	10'-0"	5'-6"	8
42"	8'-0"	10'-6"	6'-0"	10
48"	9'-0"	11'-0"	6'-6"	12
	10'-0"	13'-0"	7'-0"	14



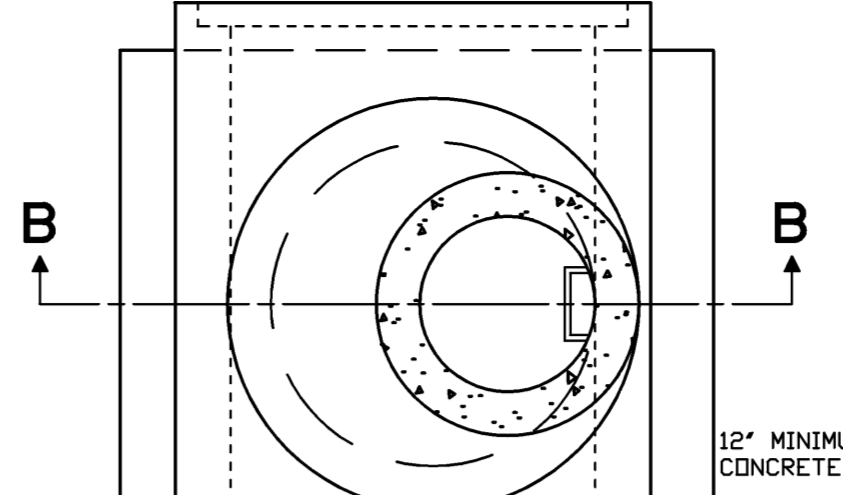
SECTION A-A

SECTION A-A

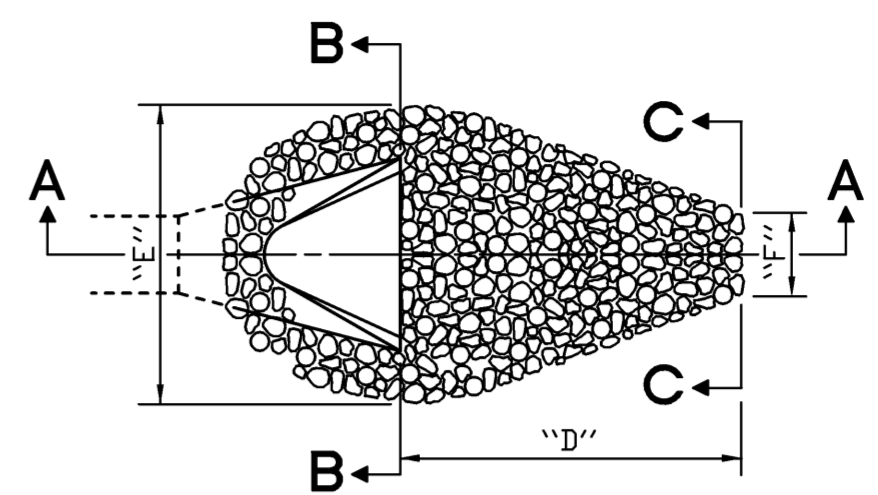
SECTION A-A



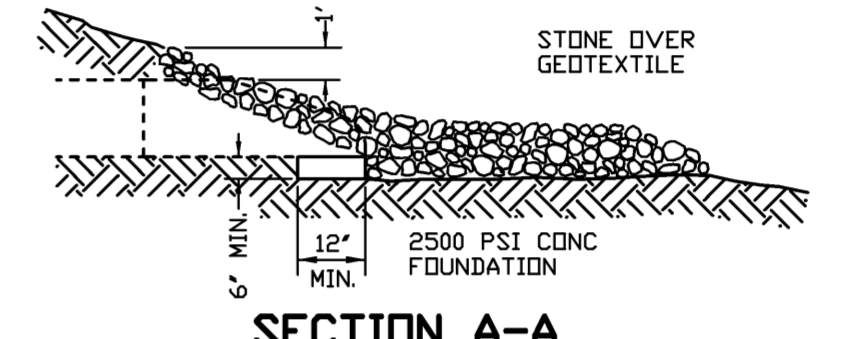
SECTION A-A



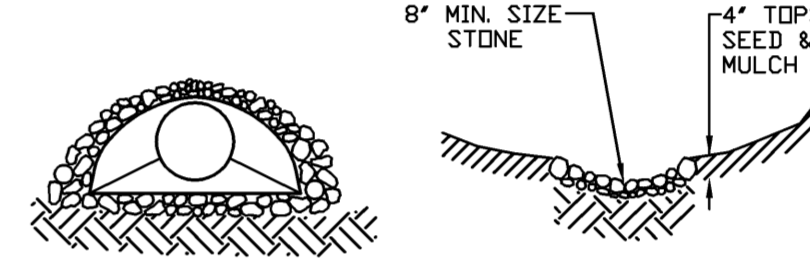
SECTION A-A



PLAN VIEW

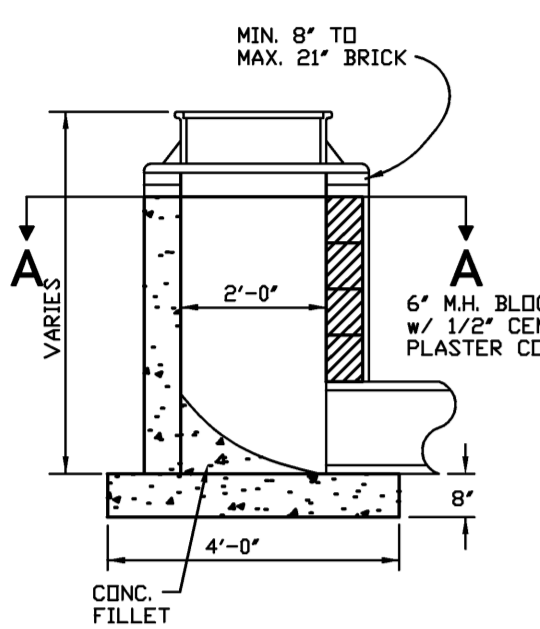


SECTION A-A



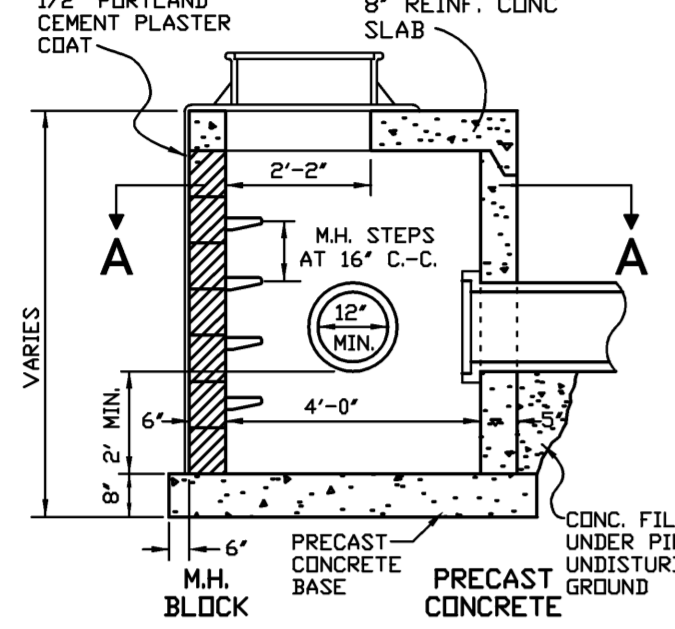
SECTION B-B SECTION C-C

PLAIN STONE RIP-RAP



SECTION B-B

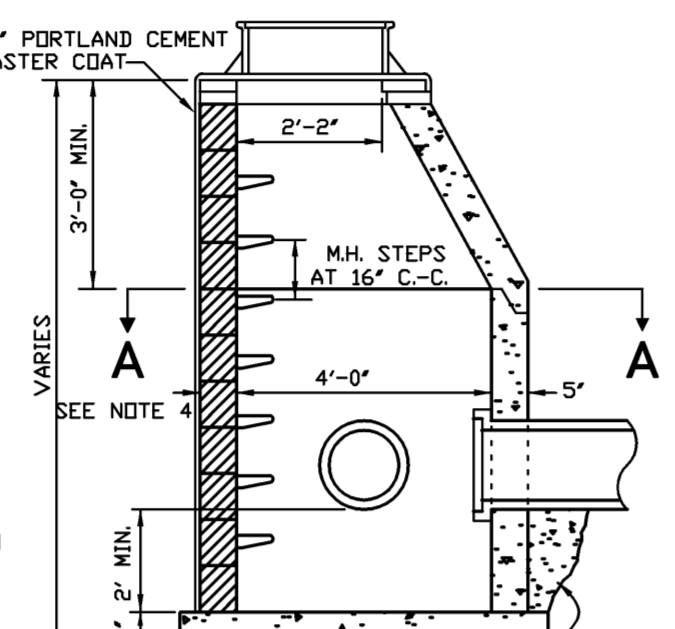
24" INLET



SECTION B-B

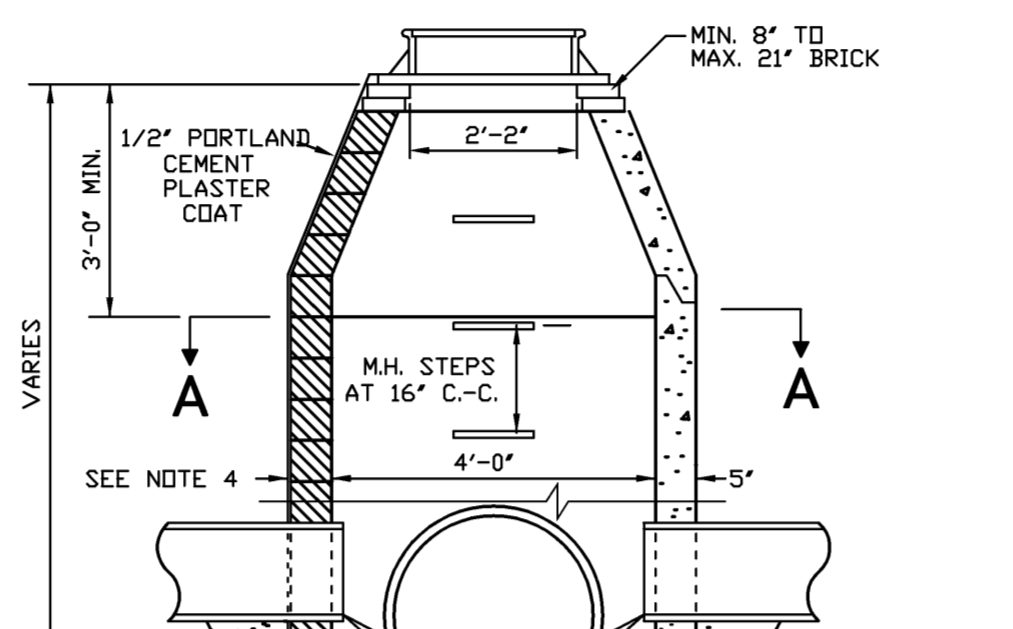
STRUCTURE WITH SLAB COVER

(CATCH BASIN SHOWN)



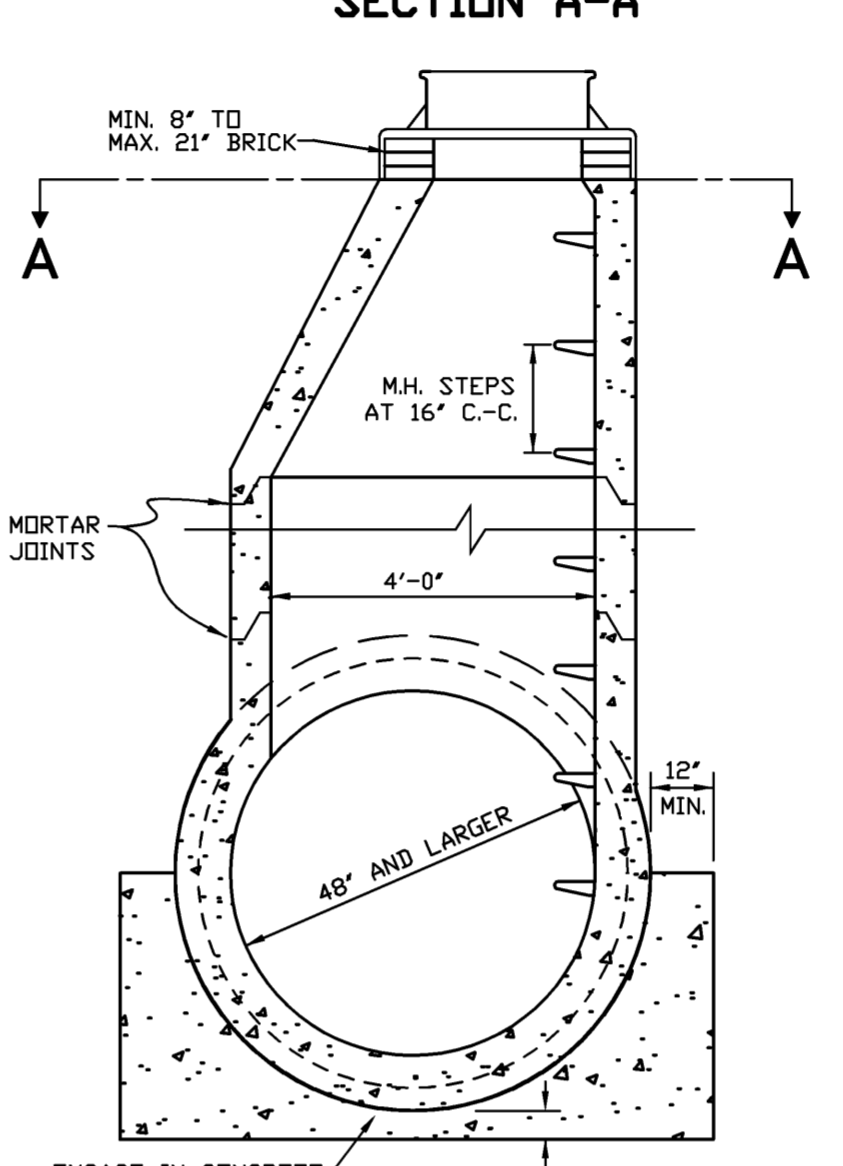
SECTION B-B

STANDARD CATCH BASIN



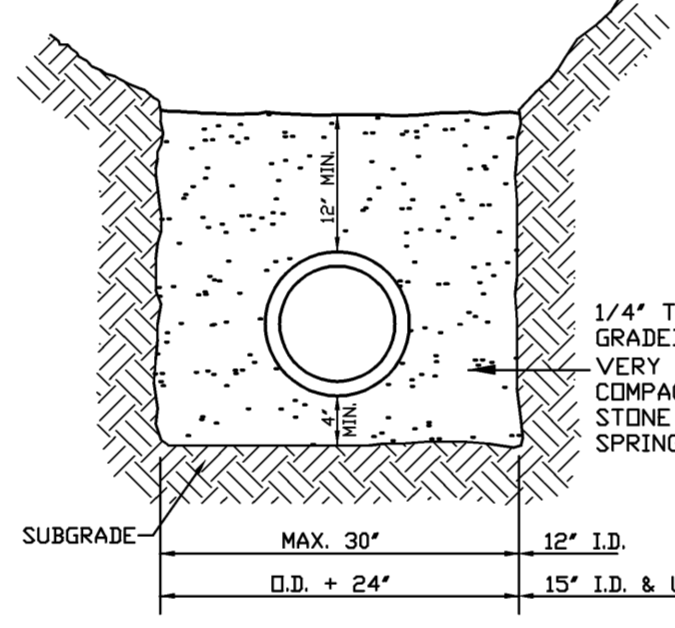
SECTION B-B

STANDARD STORM MANHOLE

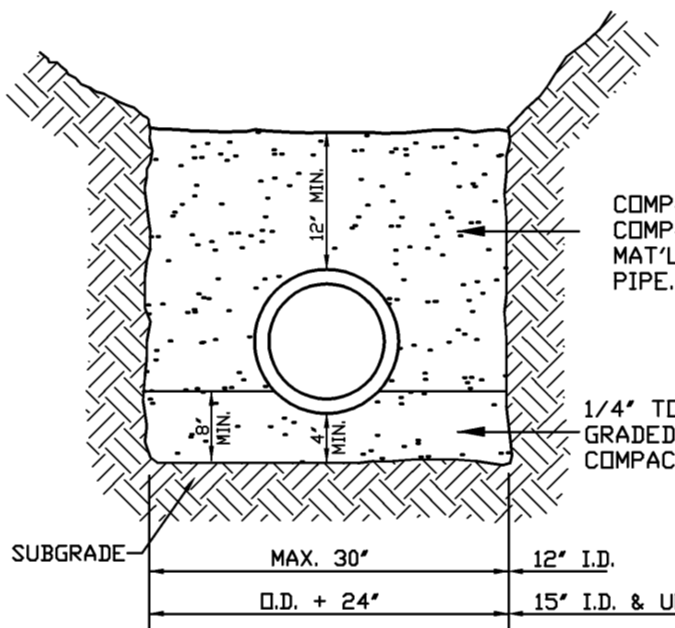


SECTION B-B

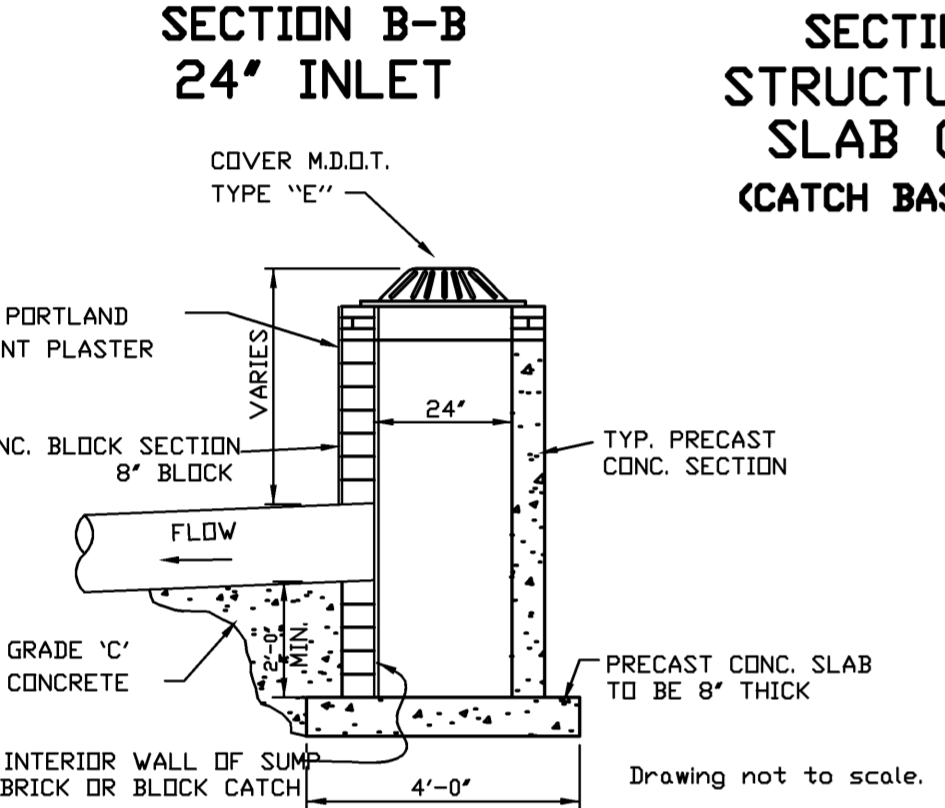
STANDARD PRECAST CONCRETE MANHOLE TEE



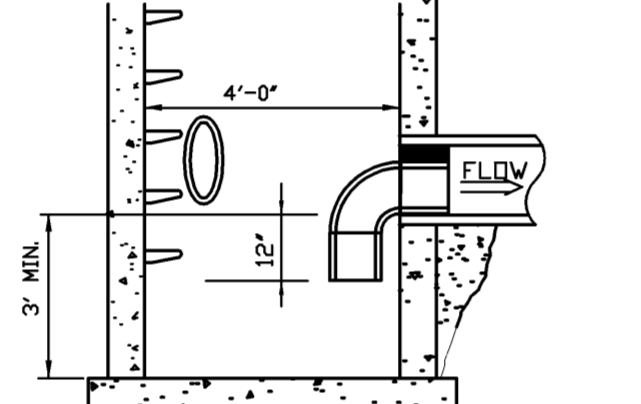
PIPE BEDDING FOR PLASTIC PIPE



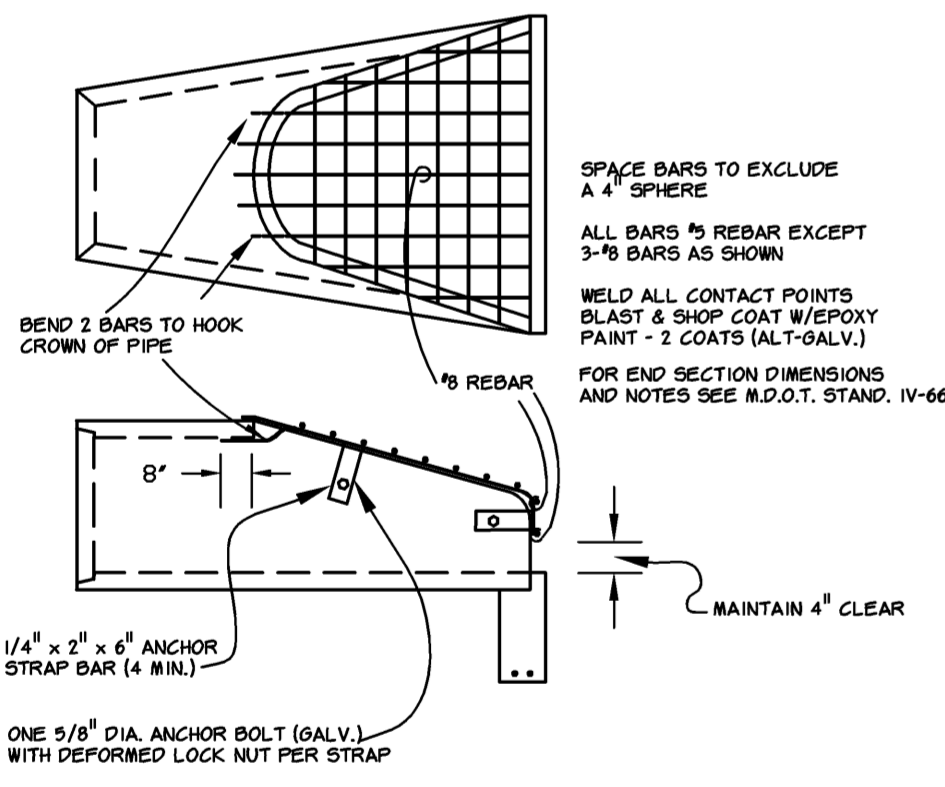
CLASS "B" BEDDING FOR SEWER PIPE LESS THAN 48"



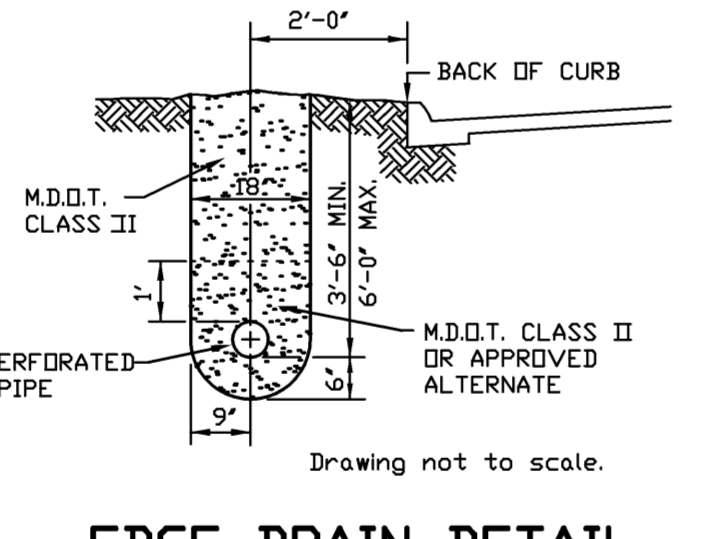
STANDARD REAR YARD CATCH BASIN



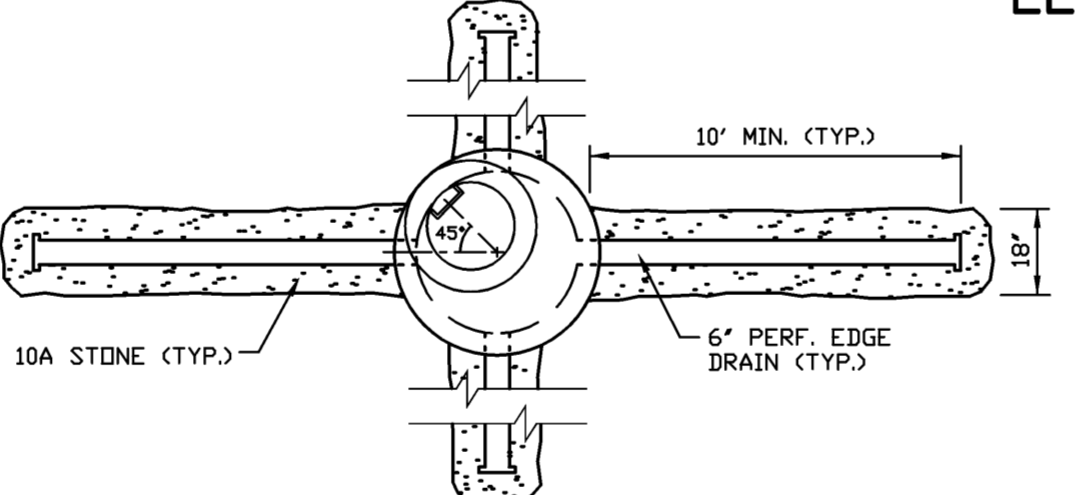
TRAPPED CATCH BASIN



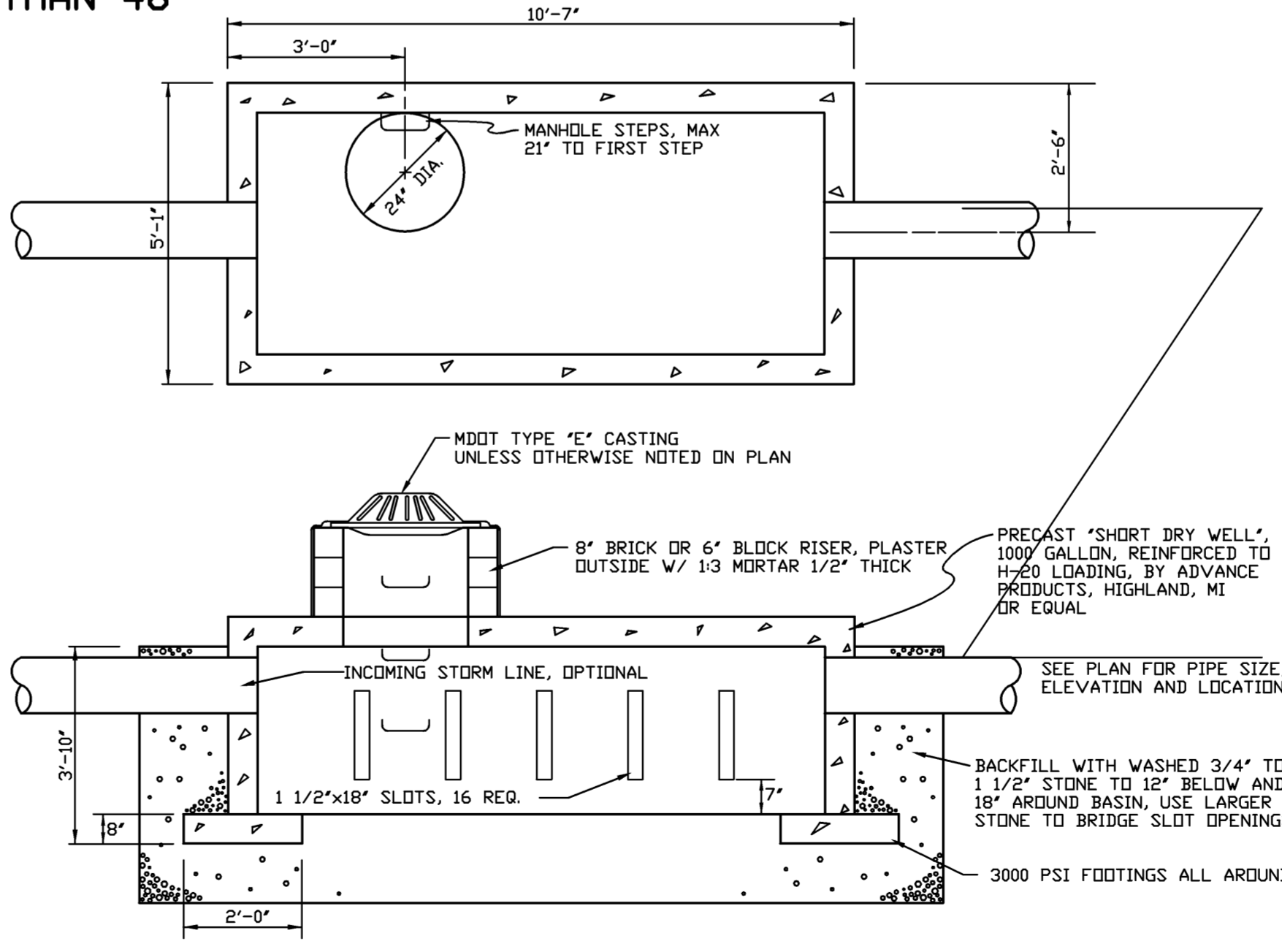
BAR SCREEN DETAIL



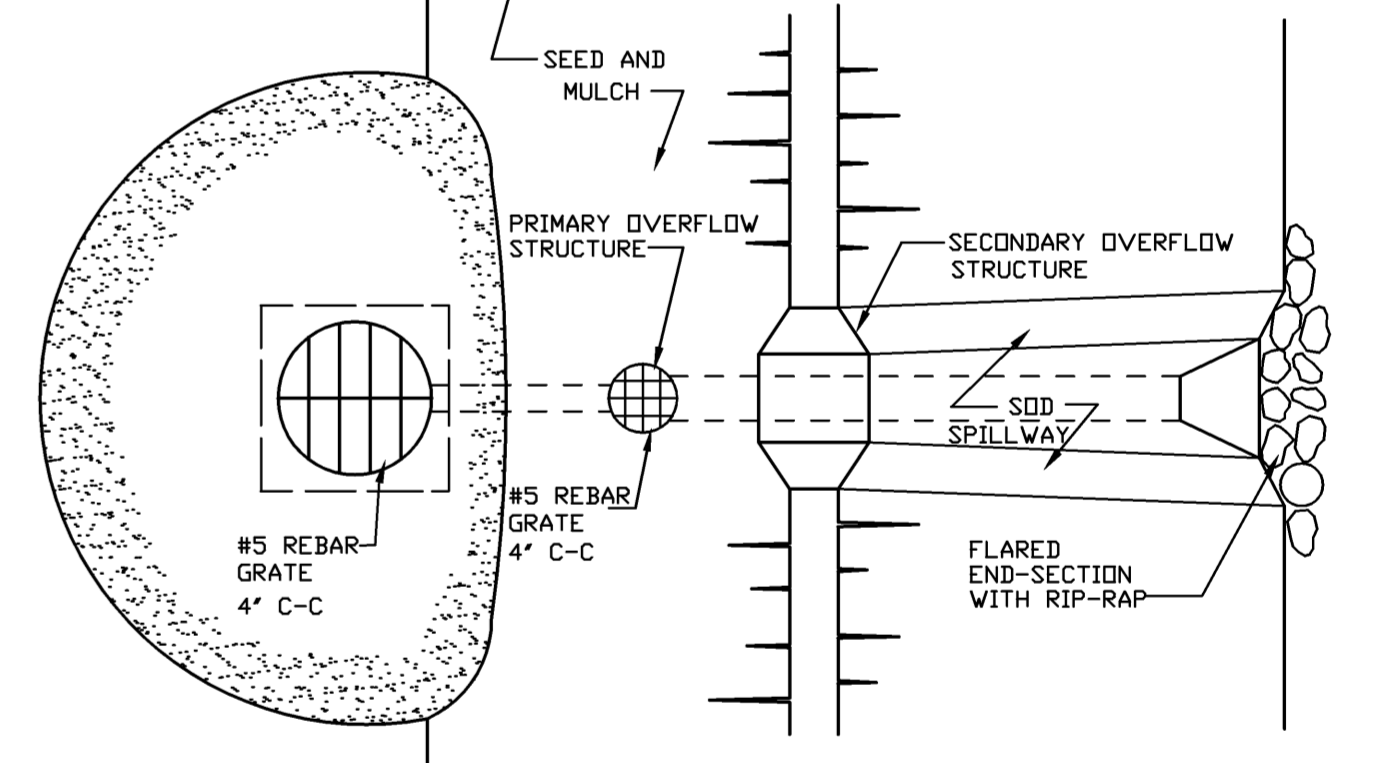
EDGE DRAIN DETAIL



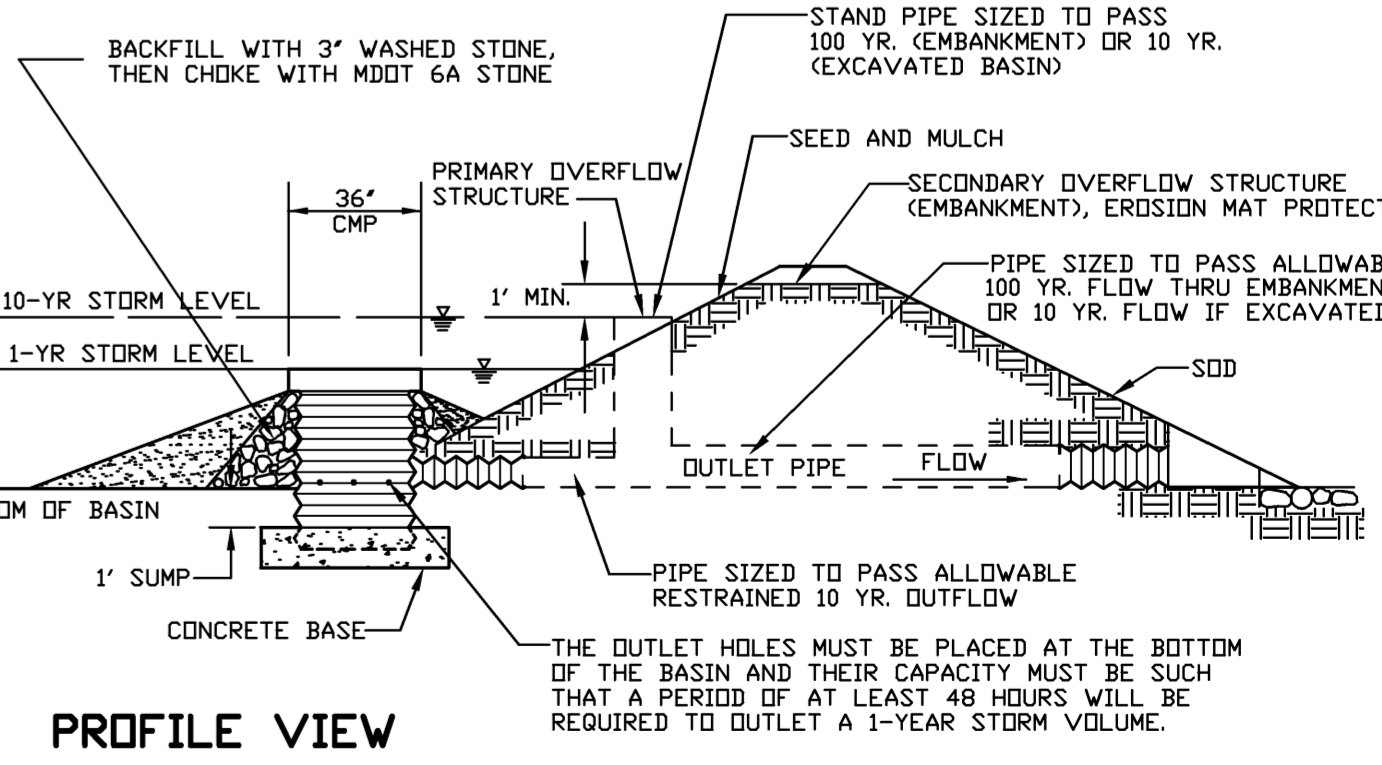
DETAIL STANDARD LEACHING BASIN



1000 GALLON LEACHING/SETTLING BASIN

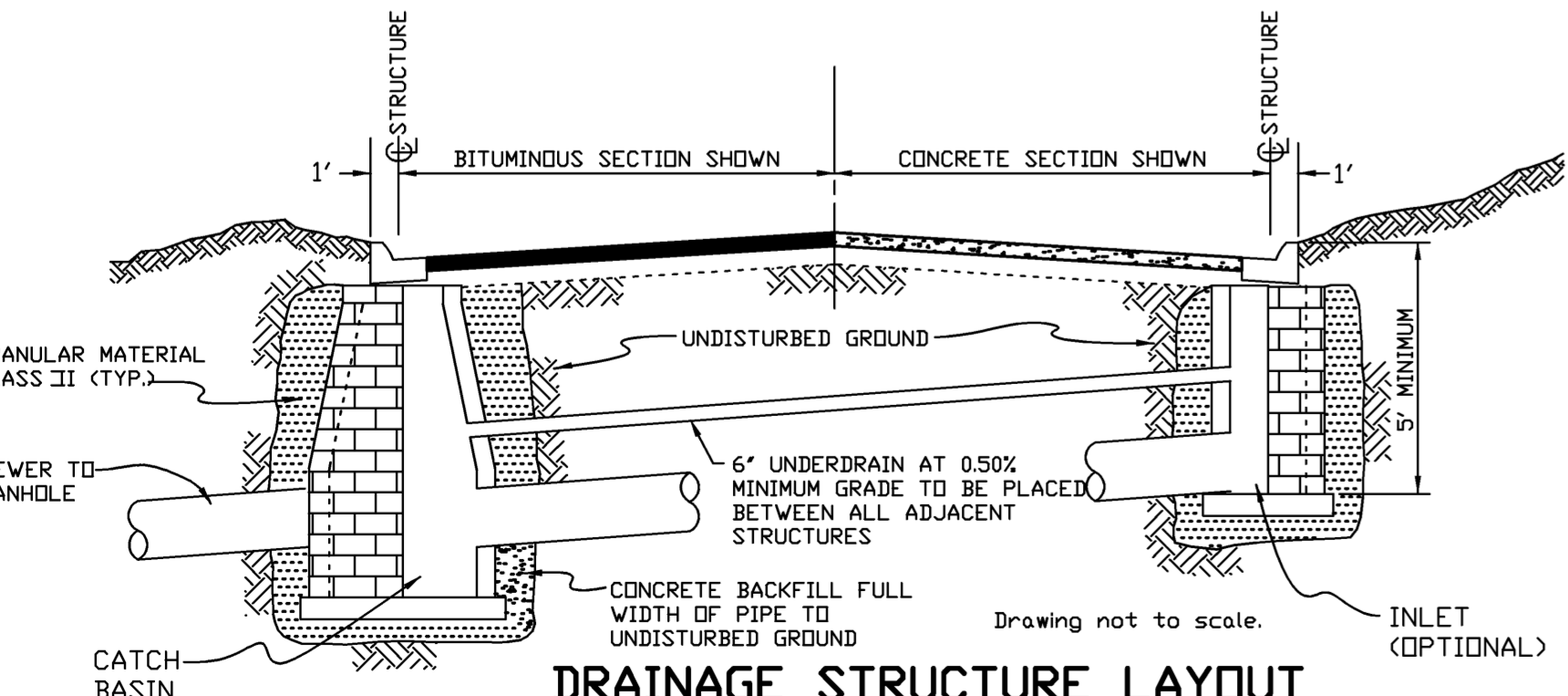


PLAN VIEW



PROFILE VIEW

SO-2 DETENTION BASIN OUTLET FILTER (CMP) (SEE CCDC STANDARD DETAILS FOR SEDIMENT BASIN OUTLET STRUCTURE)



DRAINAGE STRUCTURE LAYOUT

REVISIONS	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE
		FIRST ISSUE	8-16-99						
		ADD SO-1	6-17-96						
		NEW BAR GRATE	11-3-97						

BRD24X36

DRAWN: CAD  
DESIGN: OA  
CHECKED:



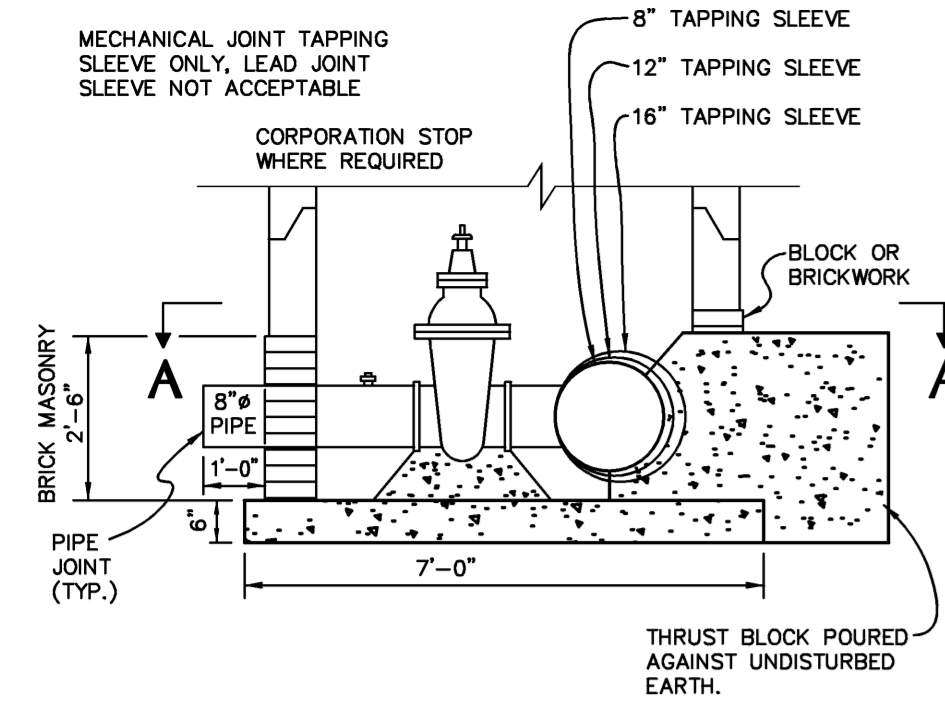
**Johnson & Anderson, Inc.**  
CONSULTING ENGINEERS  
4479 DIXIE HIGHWAY  
WATERFORD, MICHIGAN 48329  
(248) 334-9901

**White Lake Charter Township**  
7525 Highland Road, White Lake, Michigan 48383-2900  
(248) 698-3300

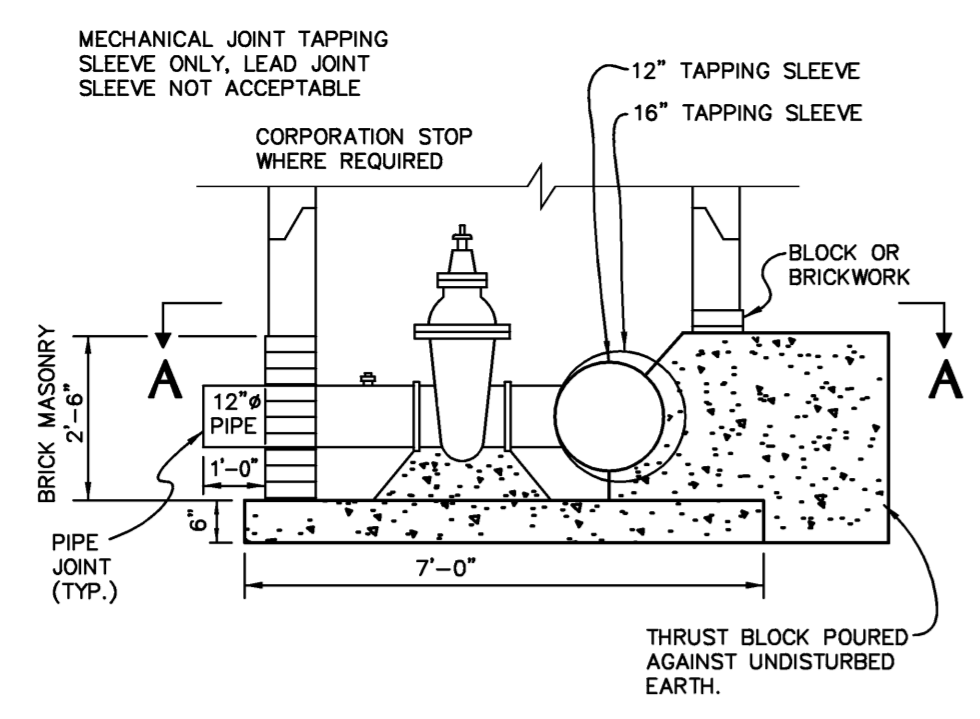
**STORM SEWER  
STANDARD DETAILS**

JOB NO.	
DATE ISSUED	
SHEET NO.	35

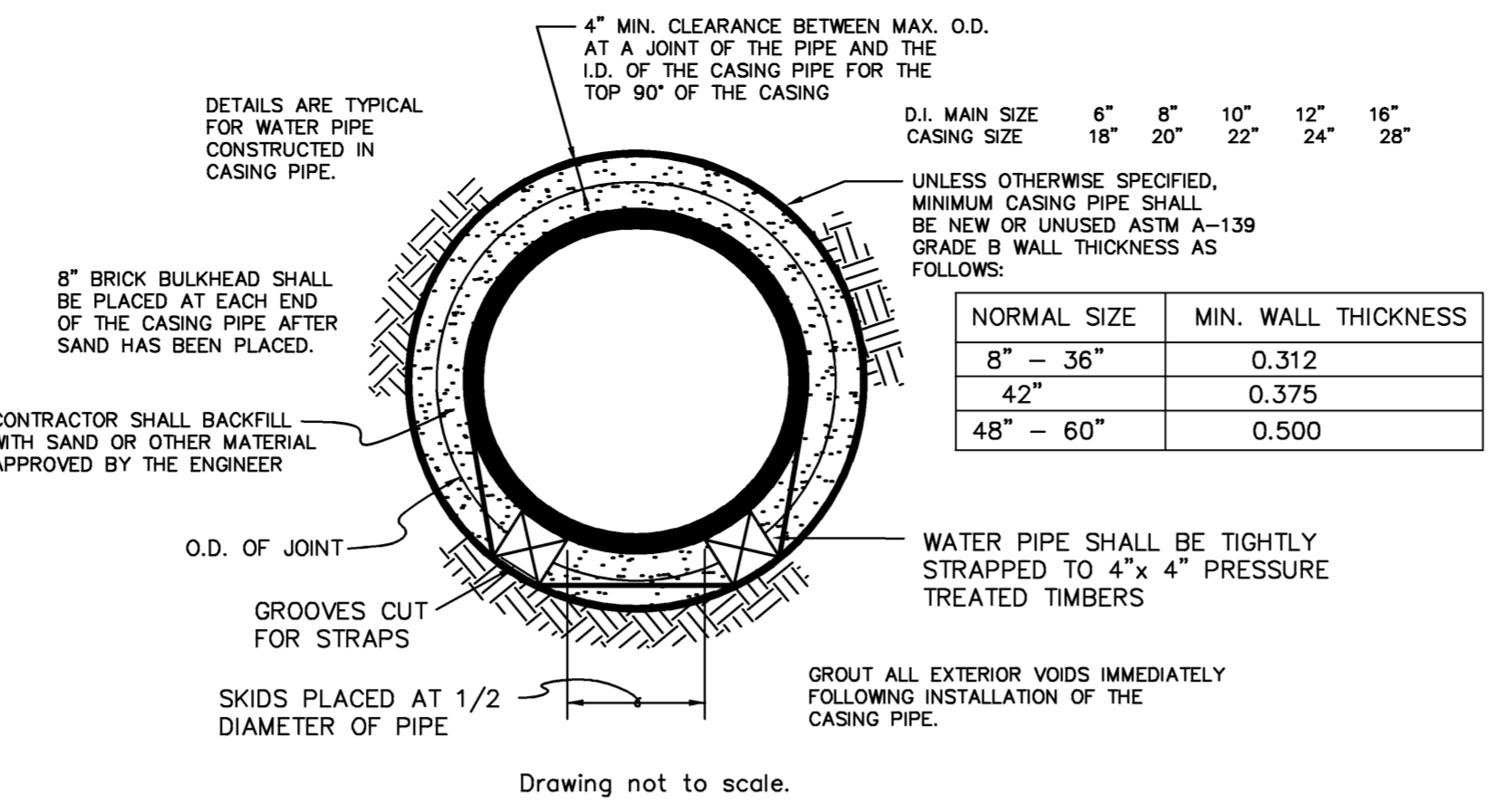
SCALE: VERT. AS NOTED  
HORZ.



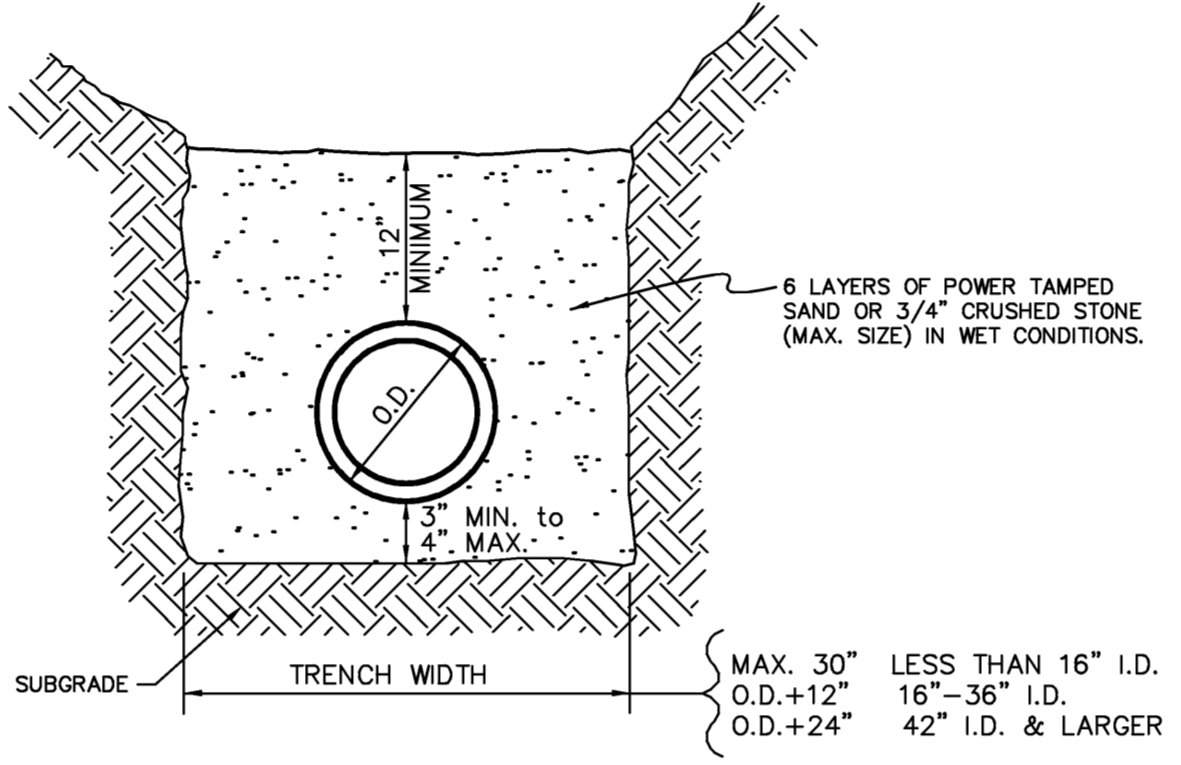
**16" X 8", 12" X 8", 8" X 8" TAPPING SLEEVE, VALVE & WELL**  
(B-B)



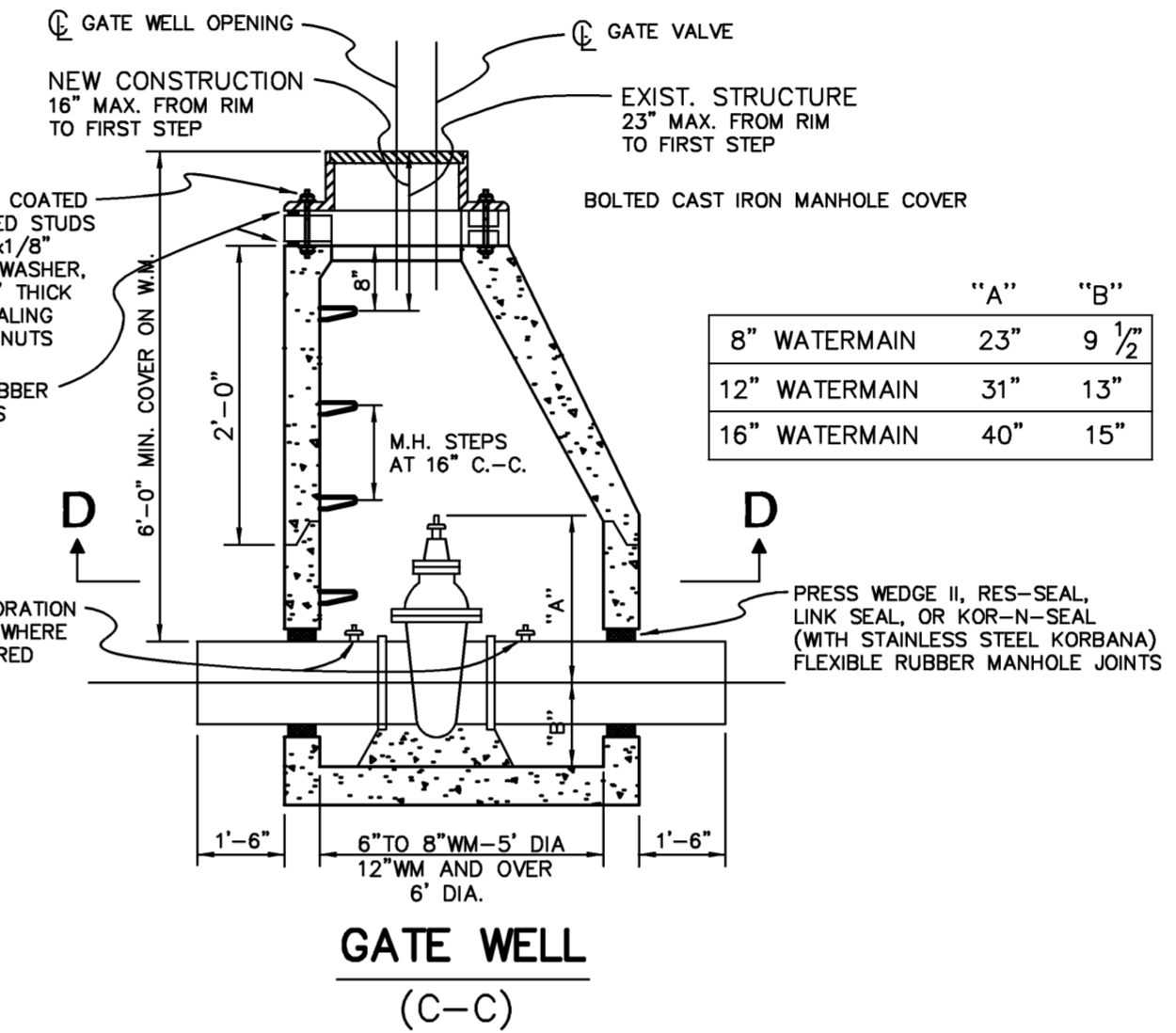
**16" X 12", 12" X 12" TAPPING SLEEVE, VALVE & WELL**  
(B-B)



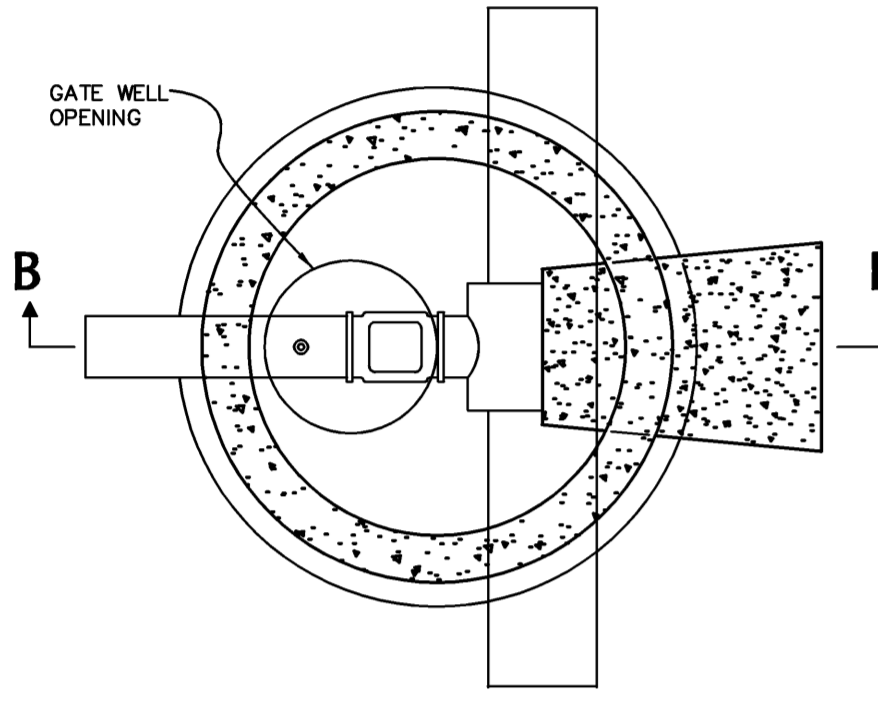
**PIPE BARREL SUPPORT FOR WATERMAIN CONSTRUCTED IN CASING**



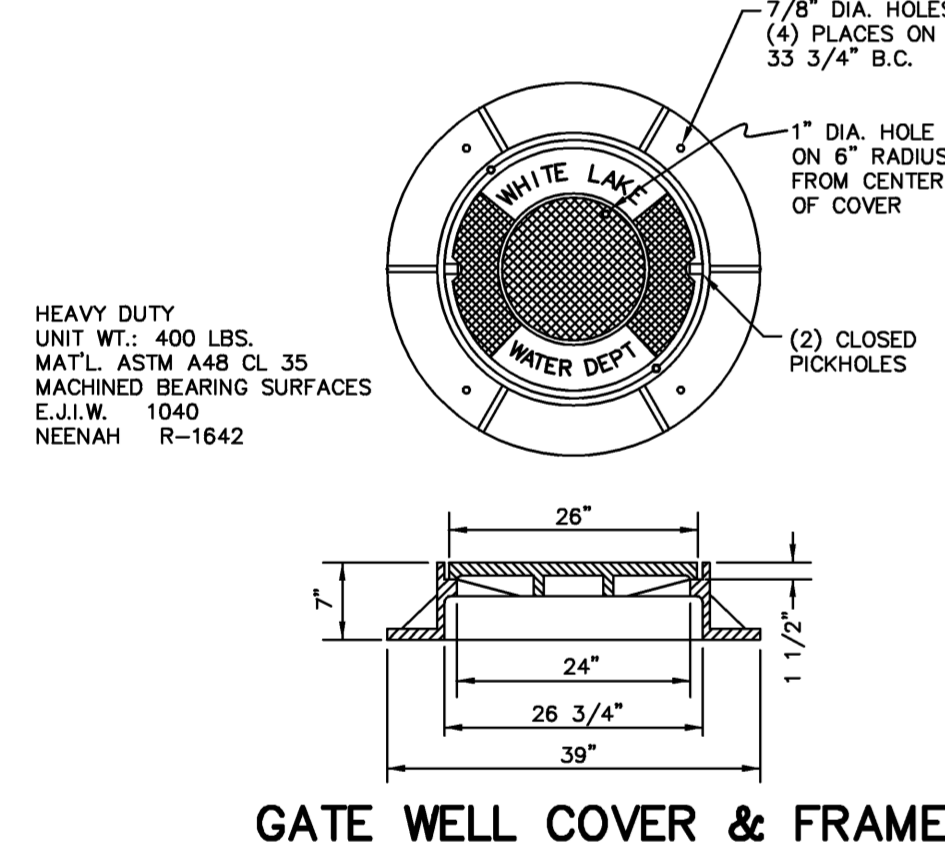
**STANDARD BEDDING FOR WATER PIPE**



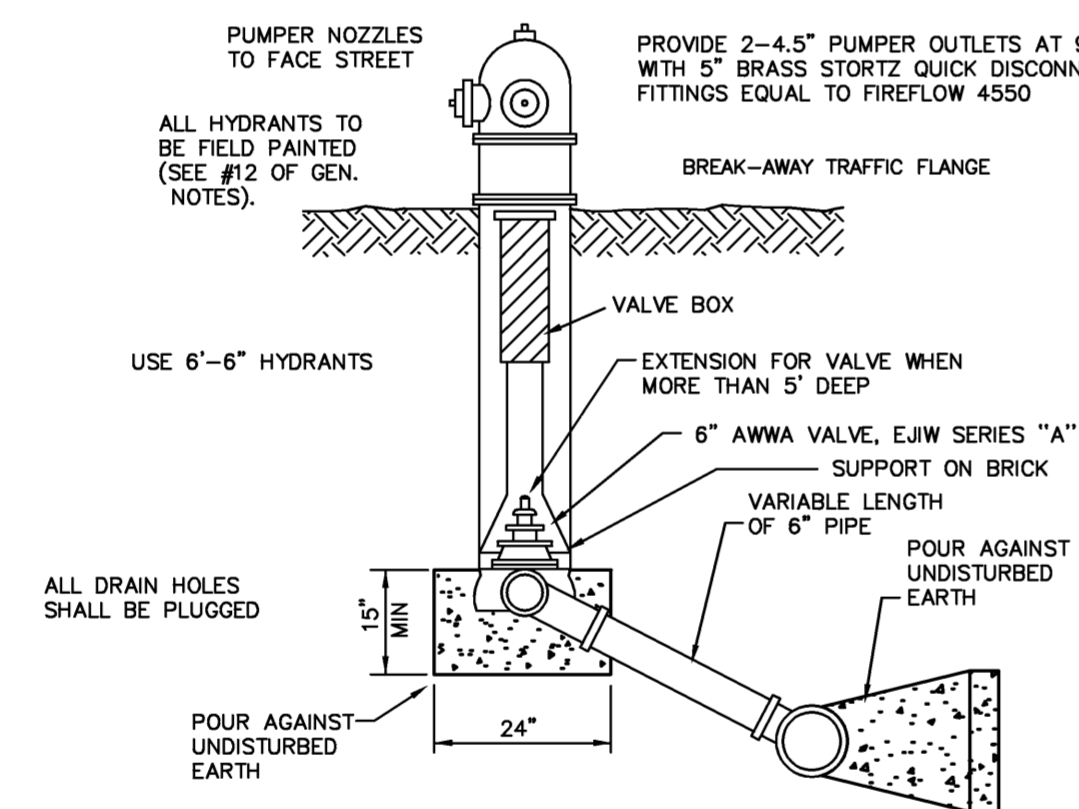
**GATE WELL**  
(C-C)



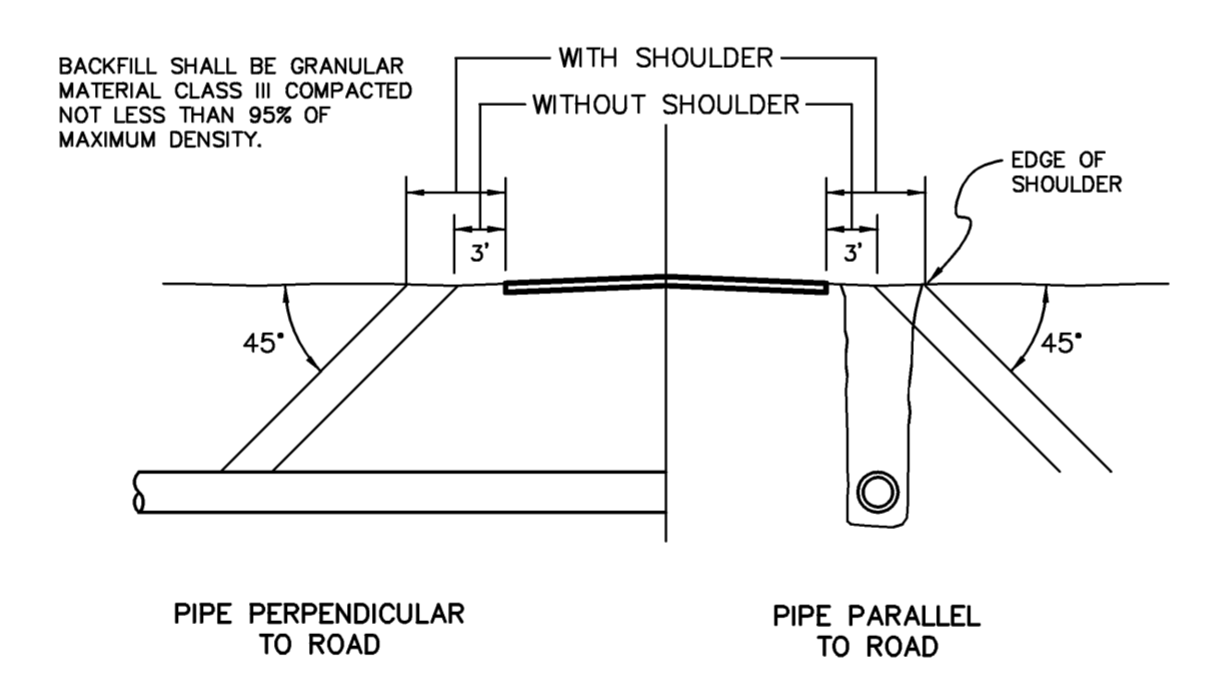
**PLAN TAPPING SLEEVE, VALVE & WELL - TYPICAL**  
(A-A)



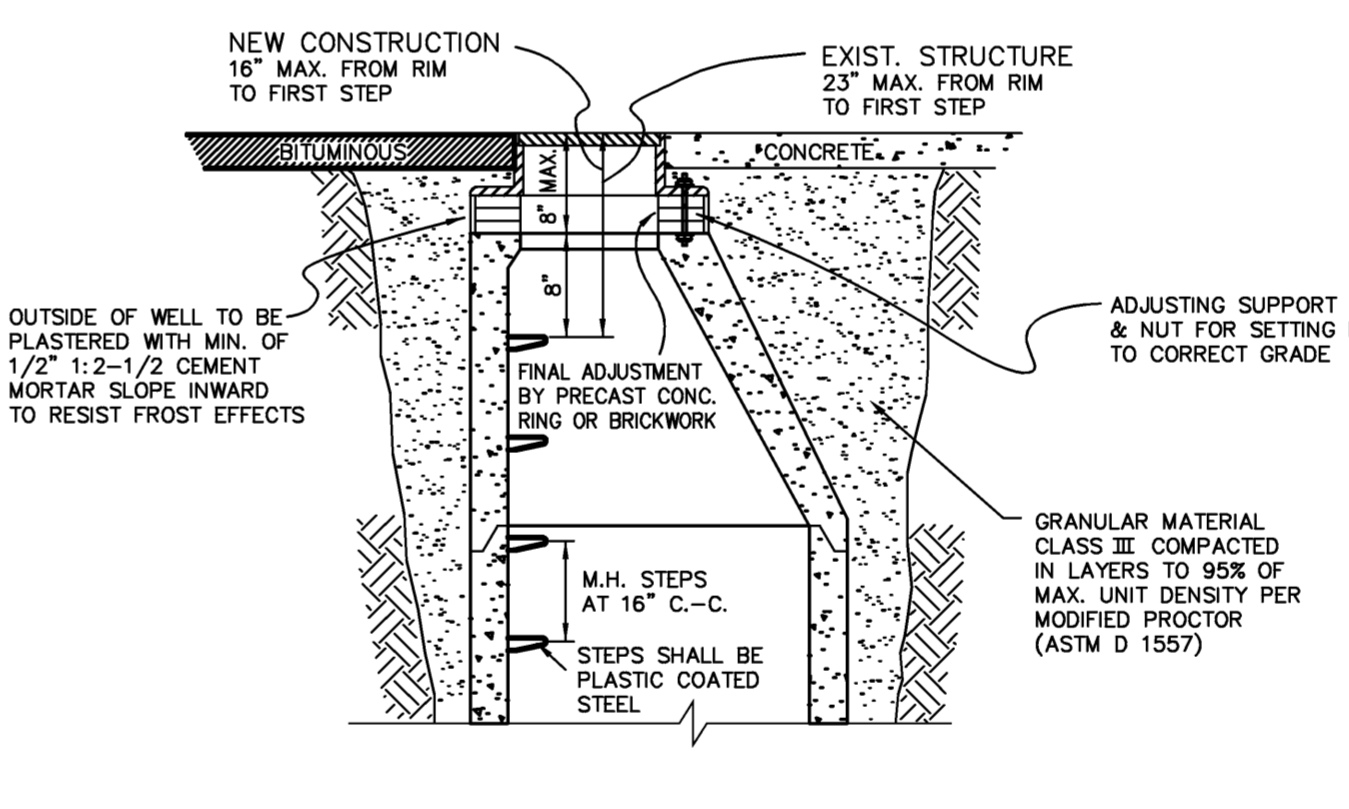
**GATE WELL COVER & FRAME**



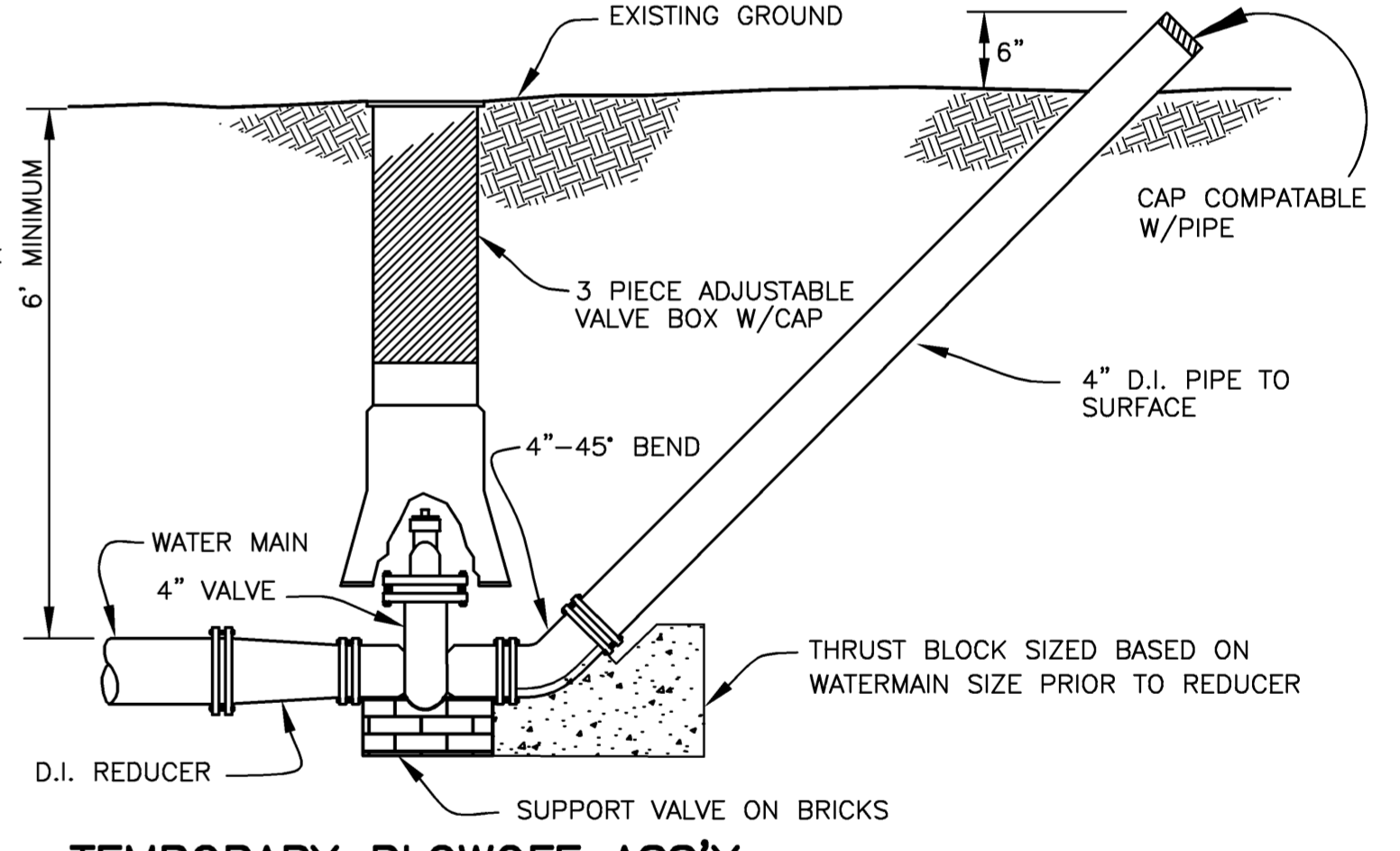
**DETAIL OF HYDRANT SETTINGS**



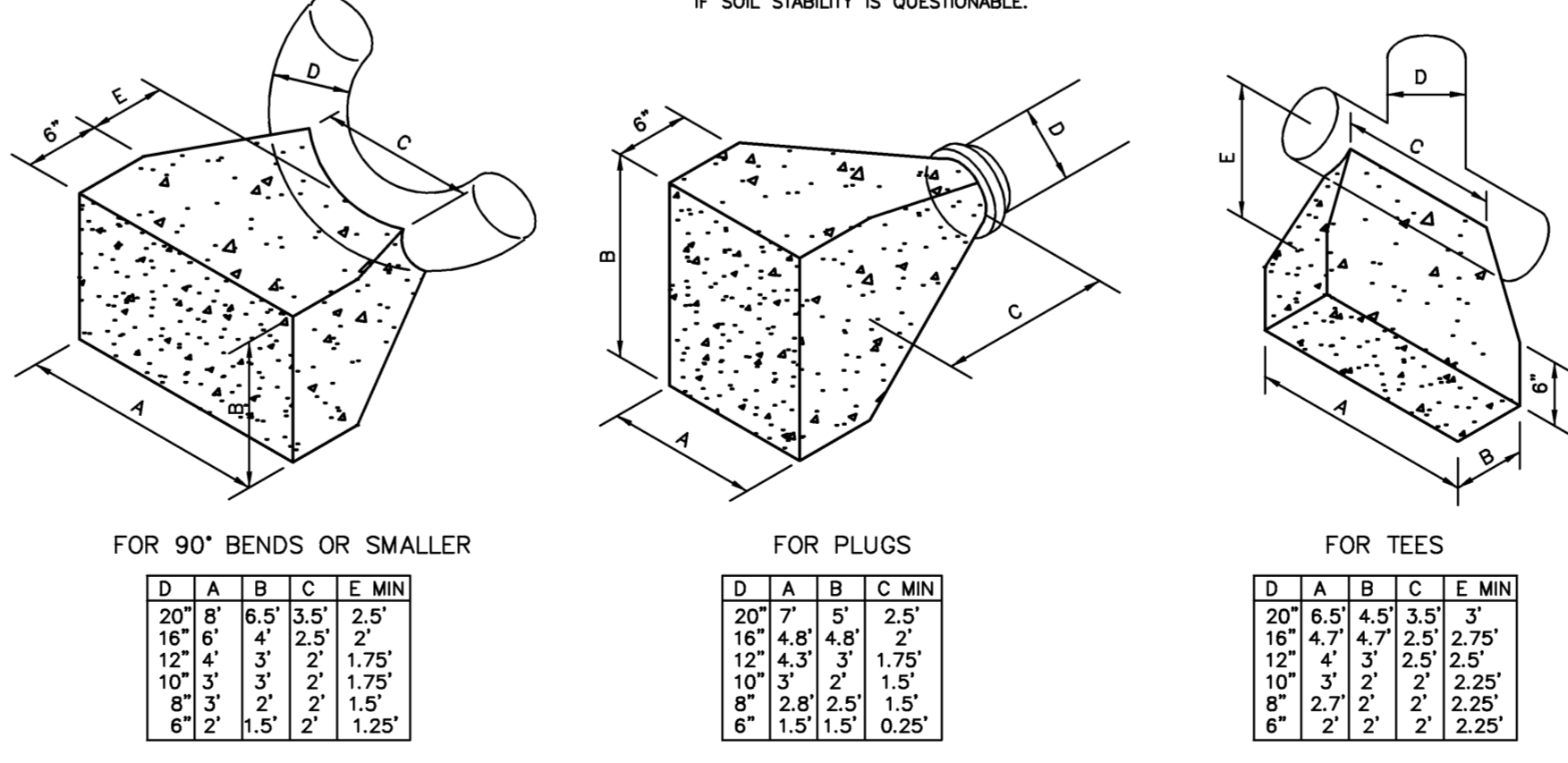
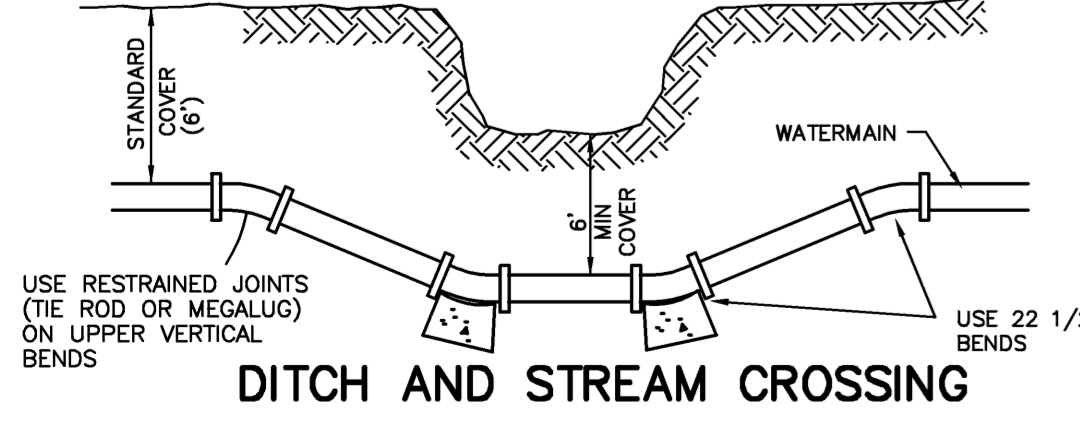
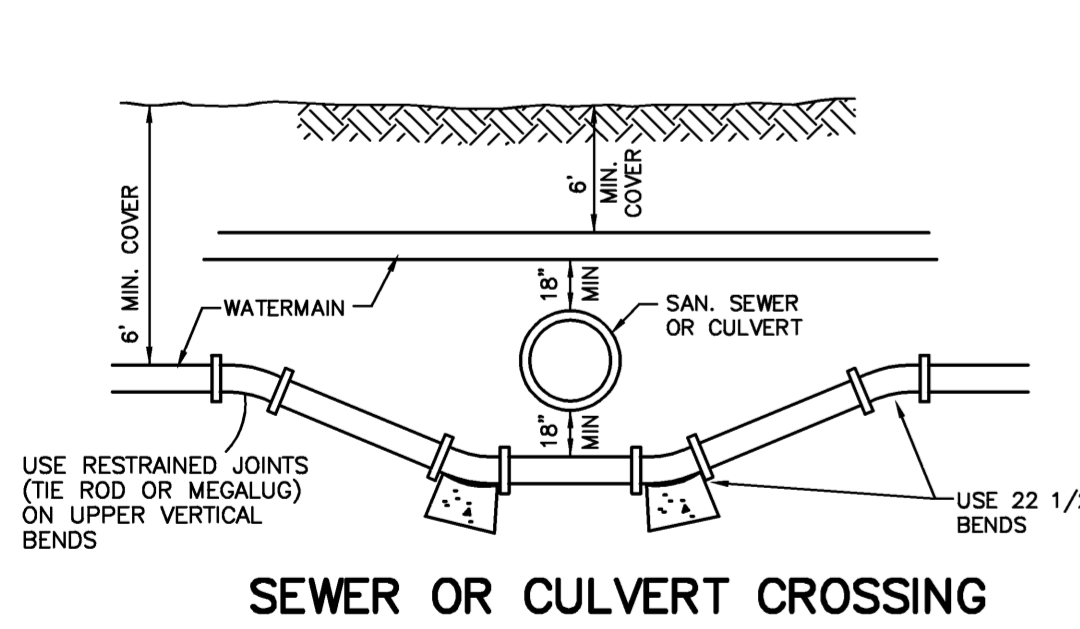
**BACKFILL IN THE AREA OF STREETS, ALLEYS, SIDEWALKS, DRIVES & PARKING AREAS**



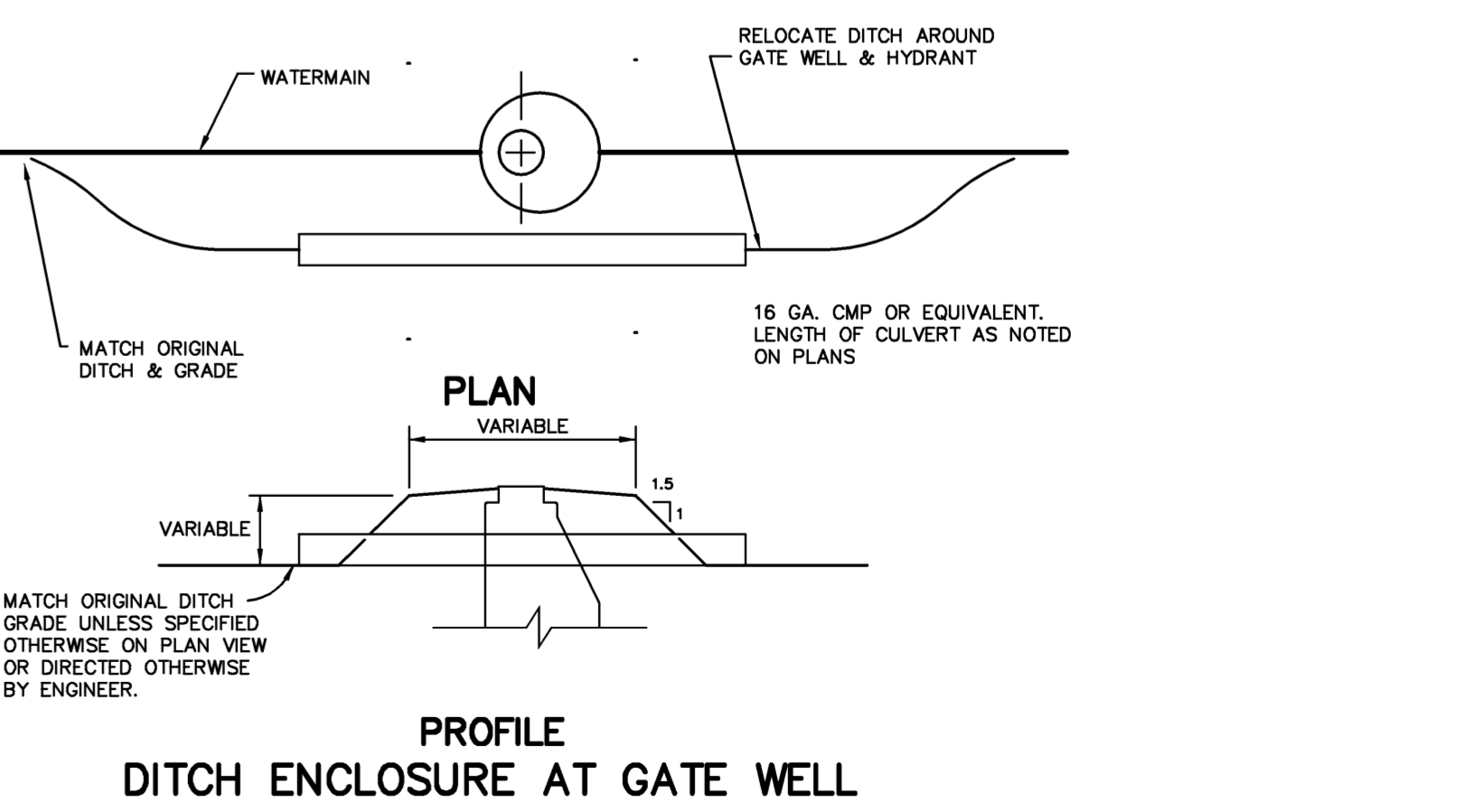
**GATE WELL TOPS WITHIN PAVEMENT AREAS**



**TEMPORARY BLOWOFF ASS'Y**



**THRUST BLOCK DETAILS**



BRD24X36

DRAWN: GAP  
DESIGN: OA  
CHECKED:

REVISIONS	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE
		GENERAL REVISION TO CAD	12-29-99		GW & NUT SIZE	7-23-98		CLARIFY HYD SPEC	2-7-01
		ADD NOTE IT	11-4-97		PIPE COVER & FLANGE TAPE	10-12-99		5-BR HYD. WS STAKE	2-27-02
		REVISE HYD & THRUSTING	5-18-98		ADD BLOWOFF	7-6-99			

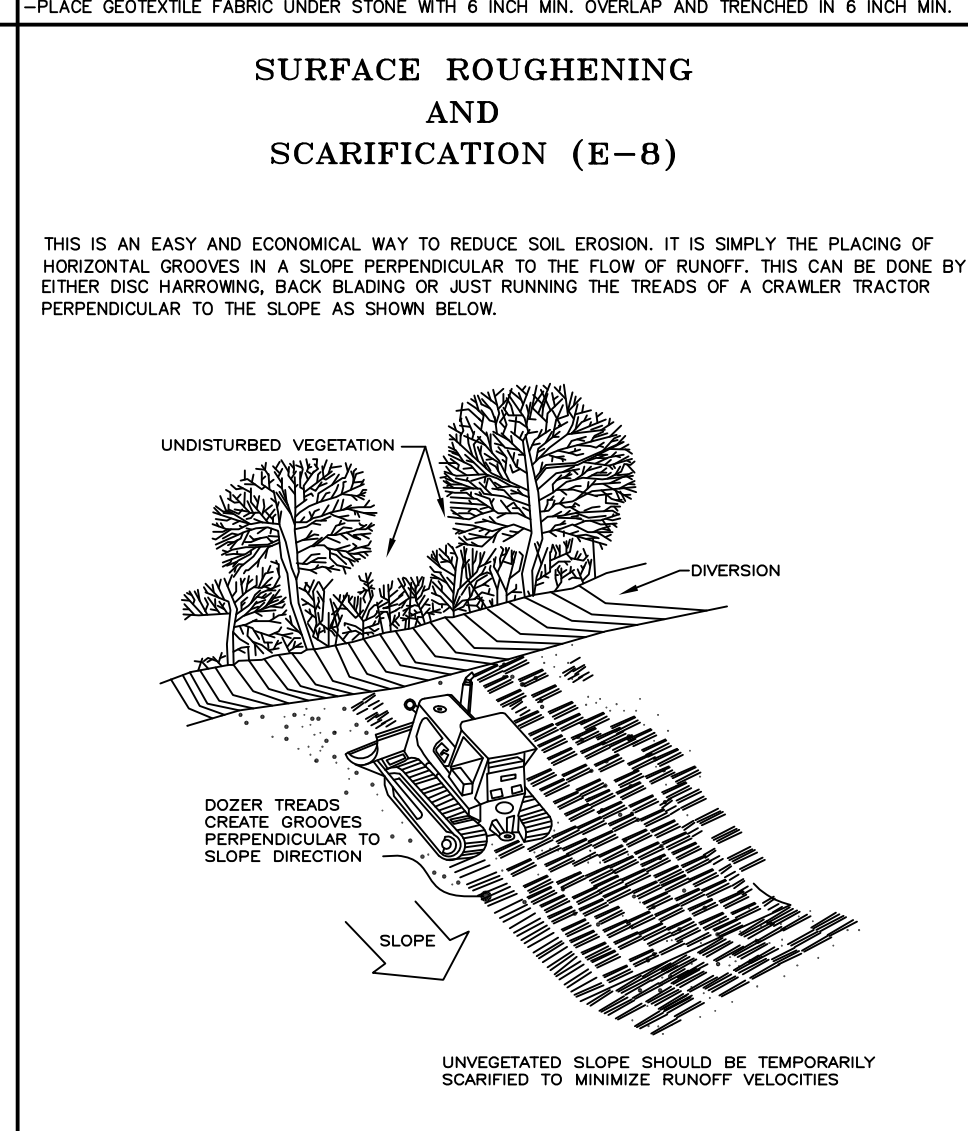
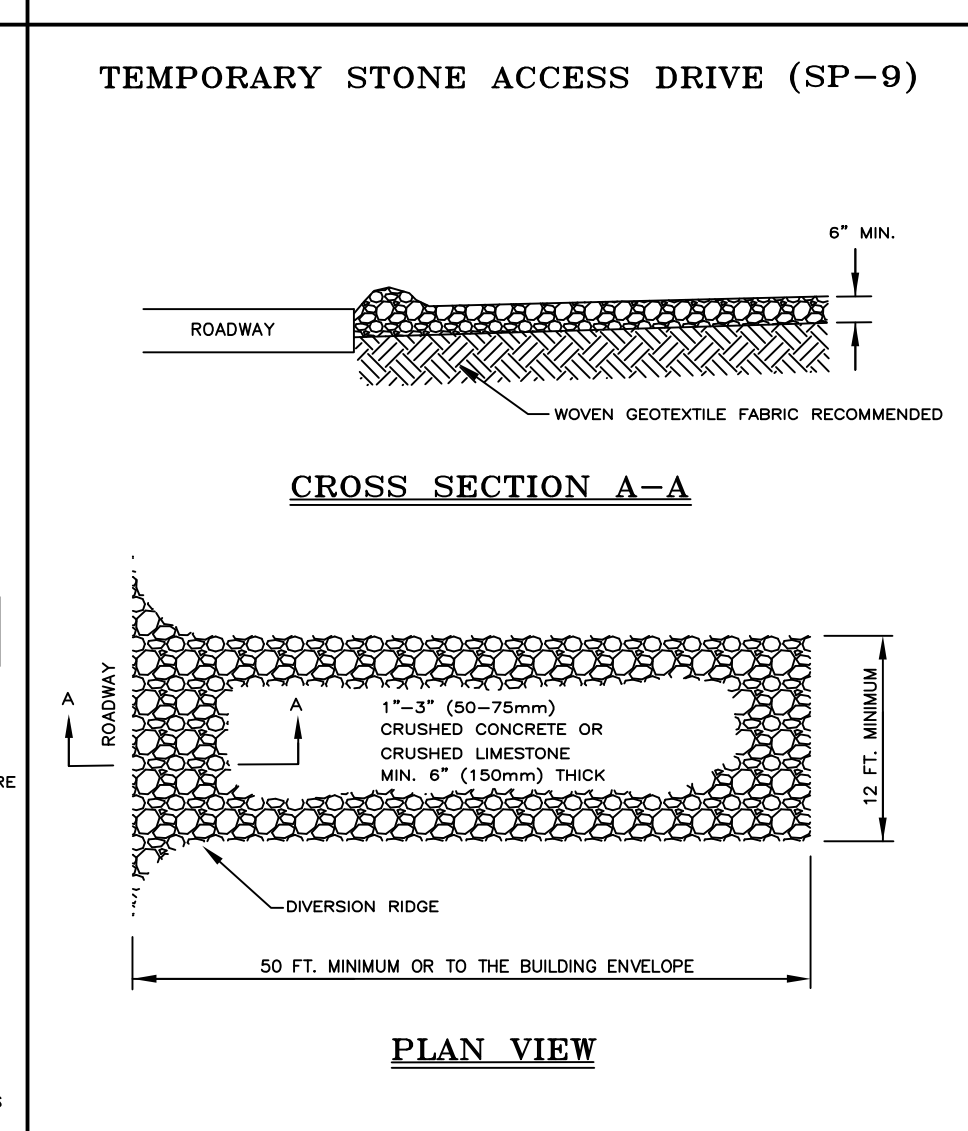
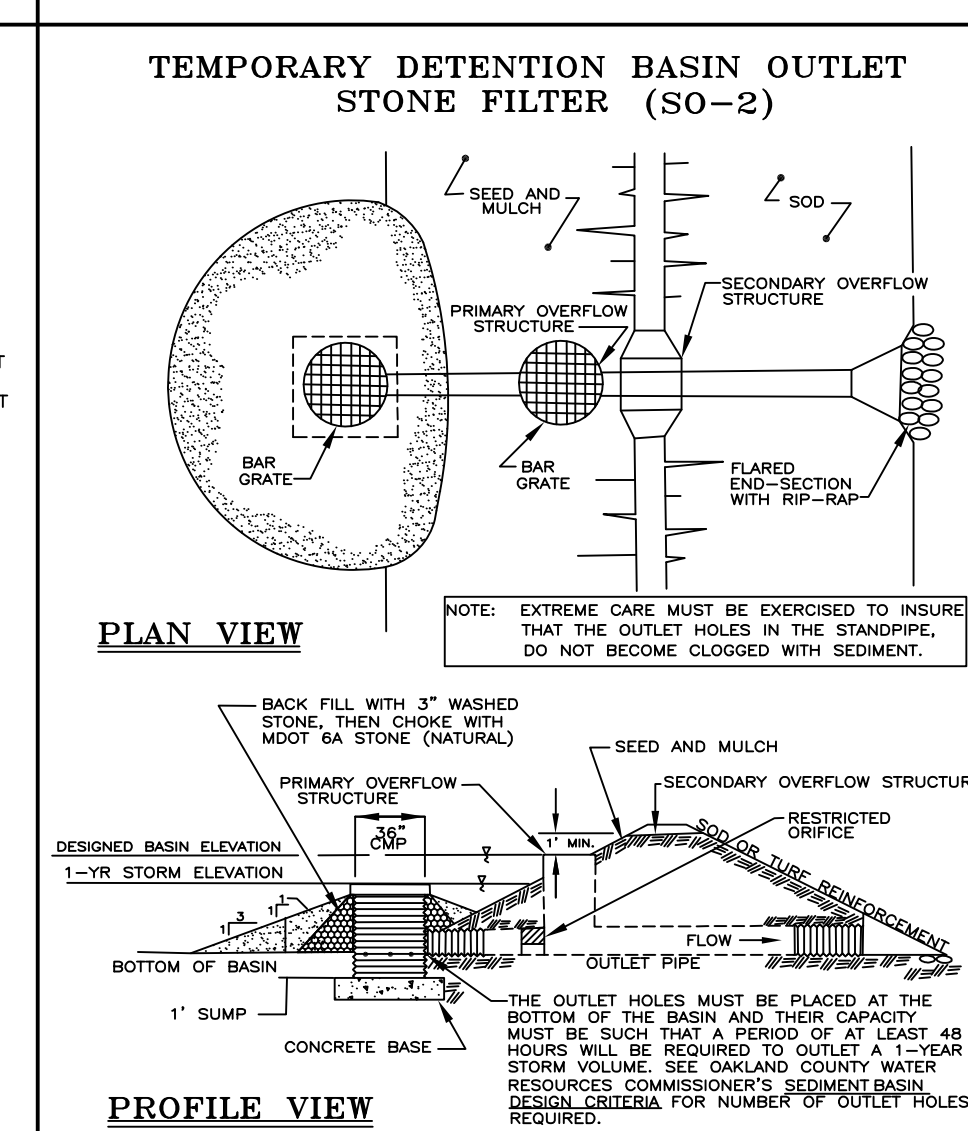
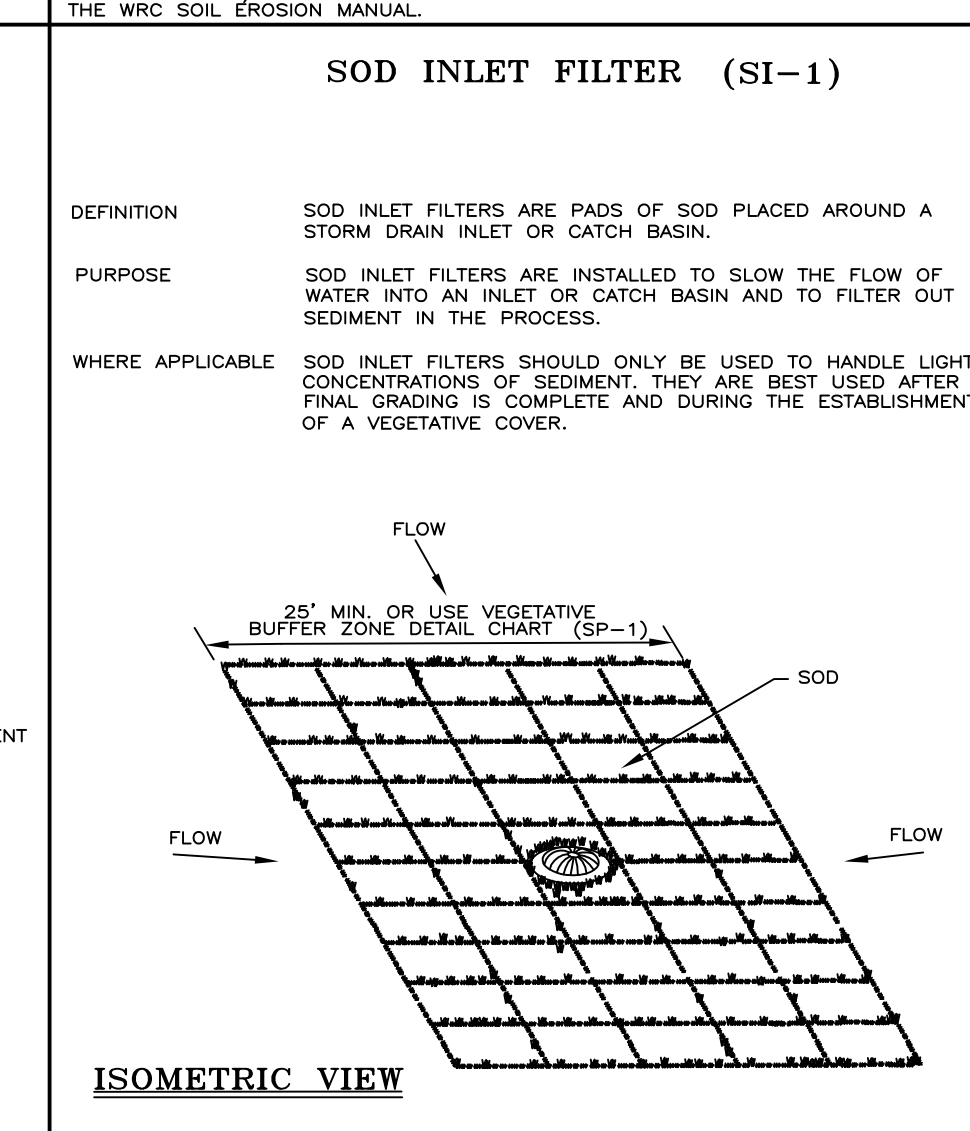
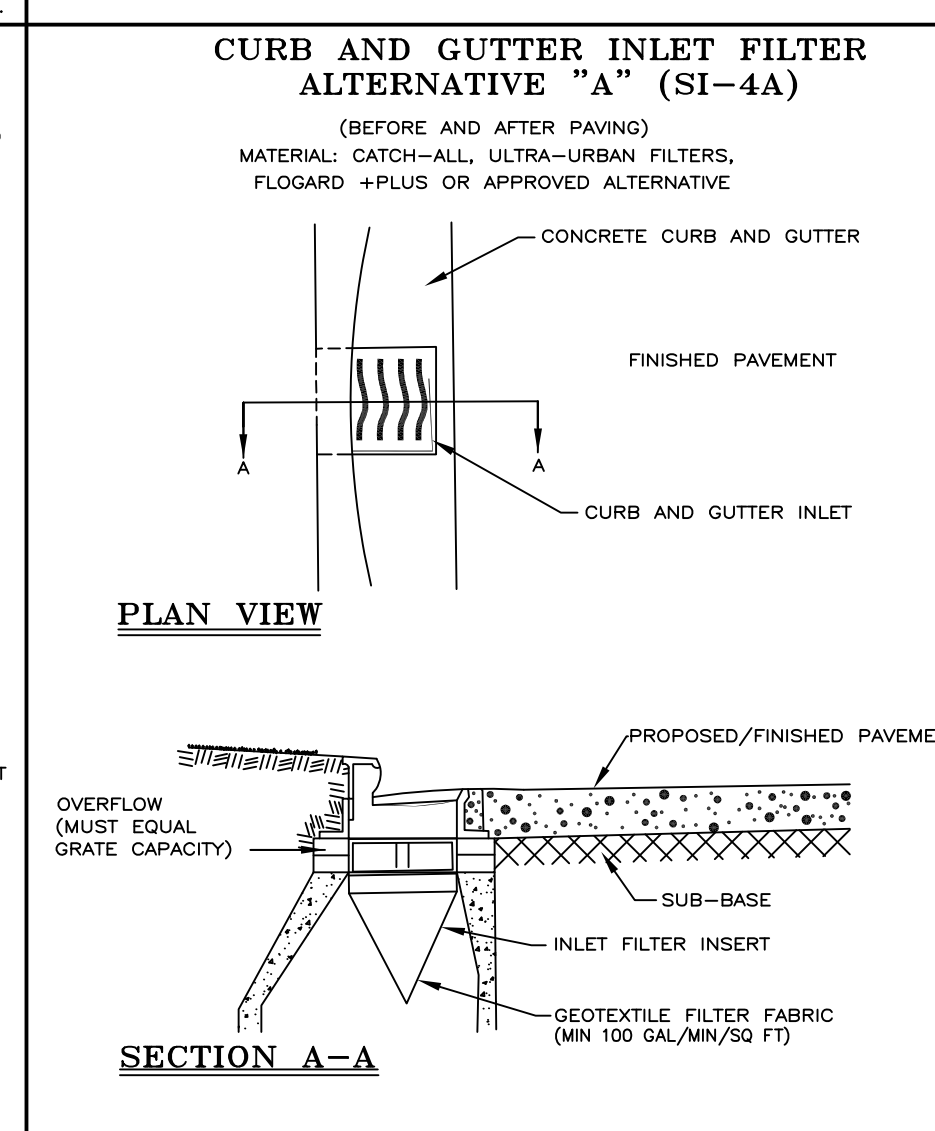
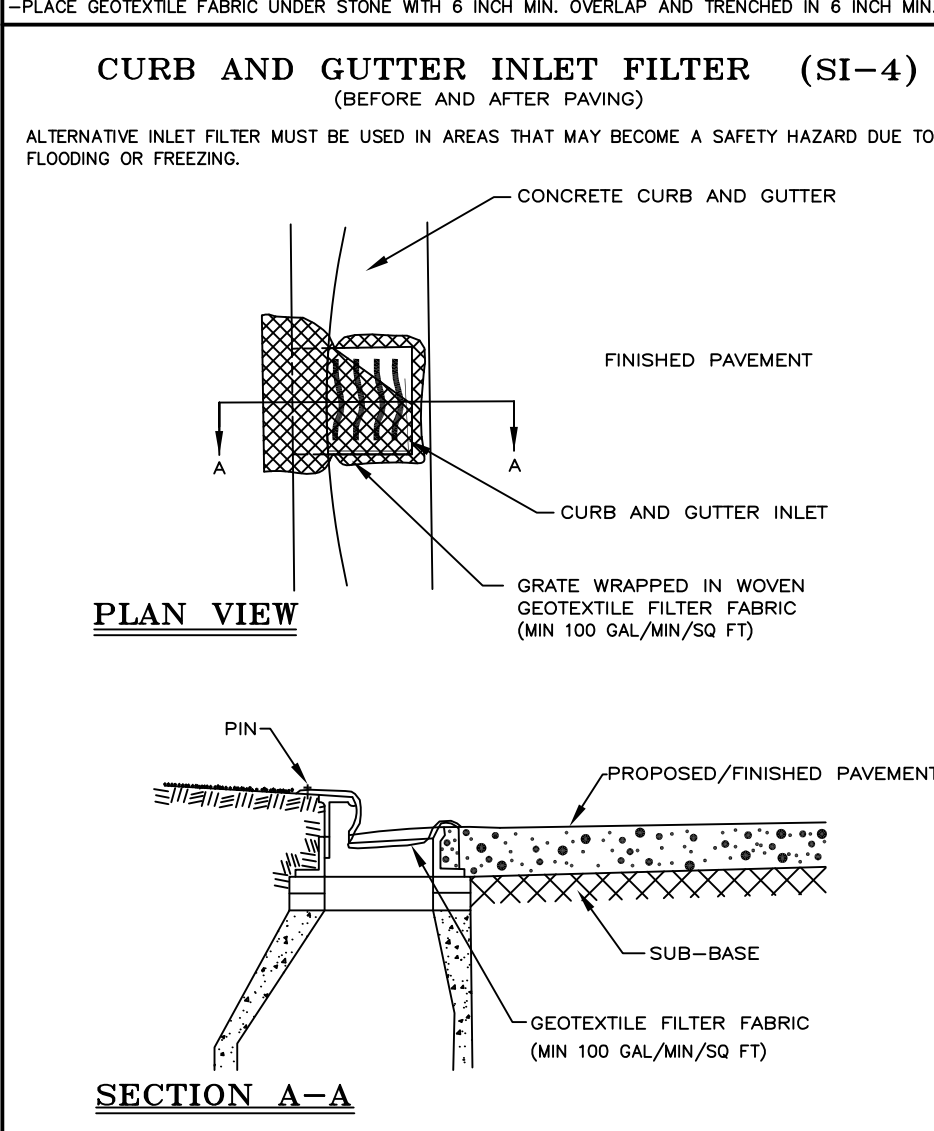
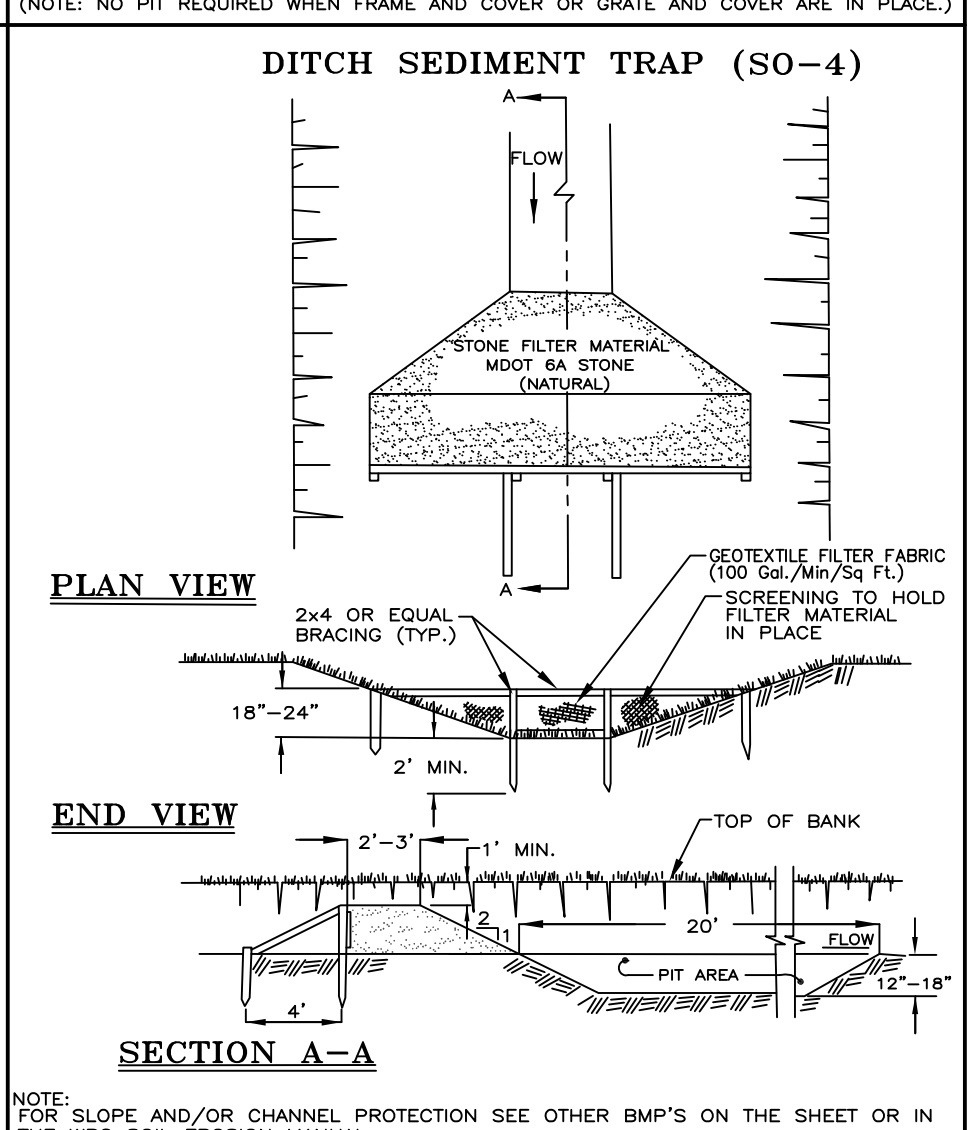
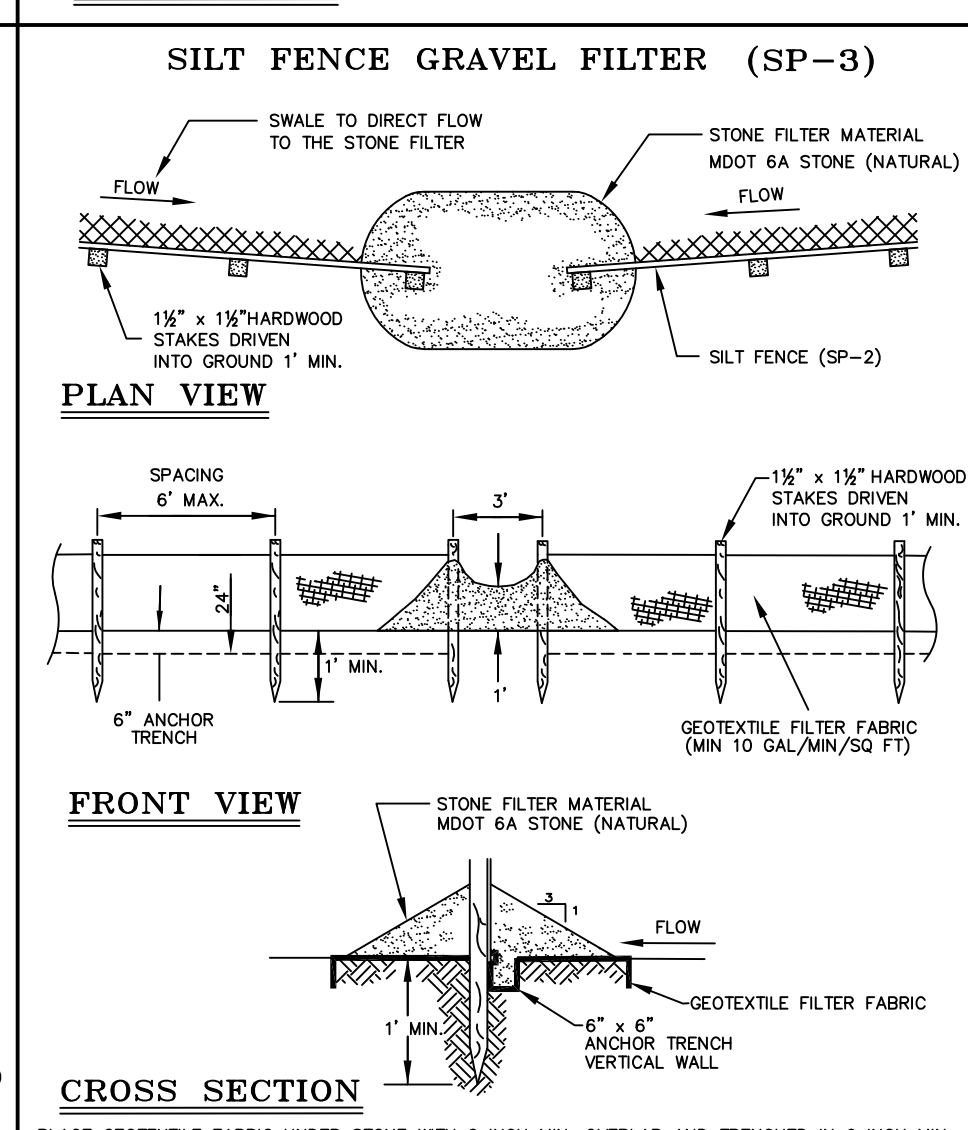
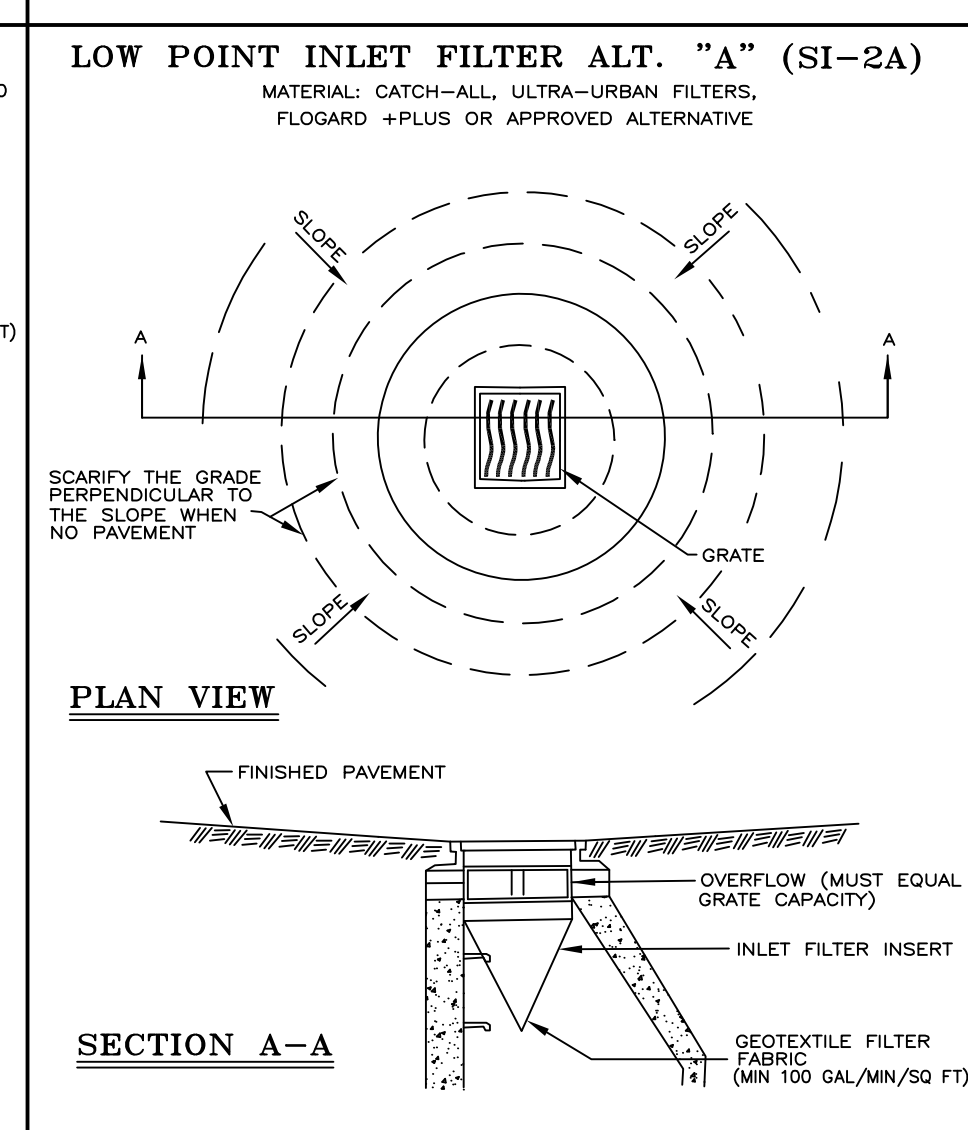
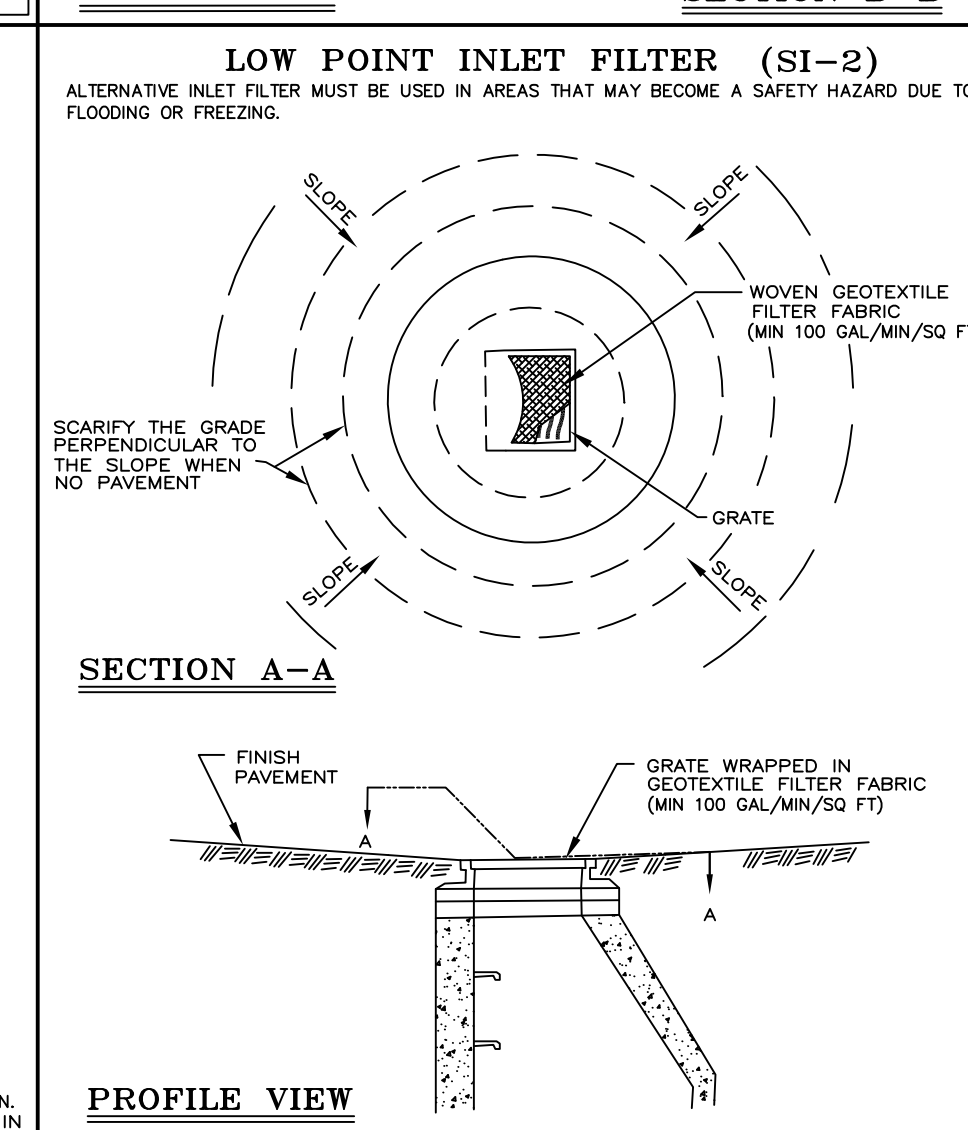
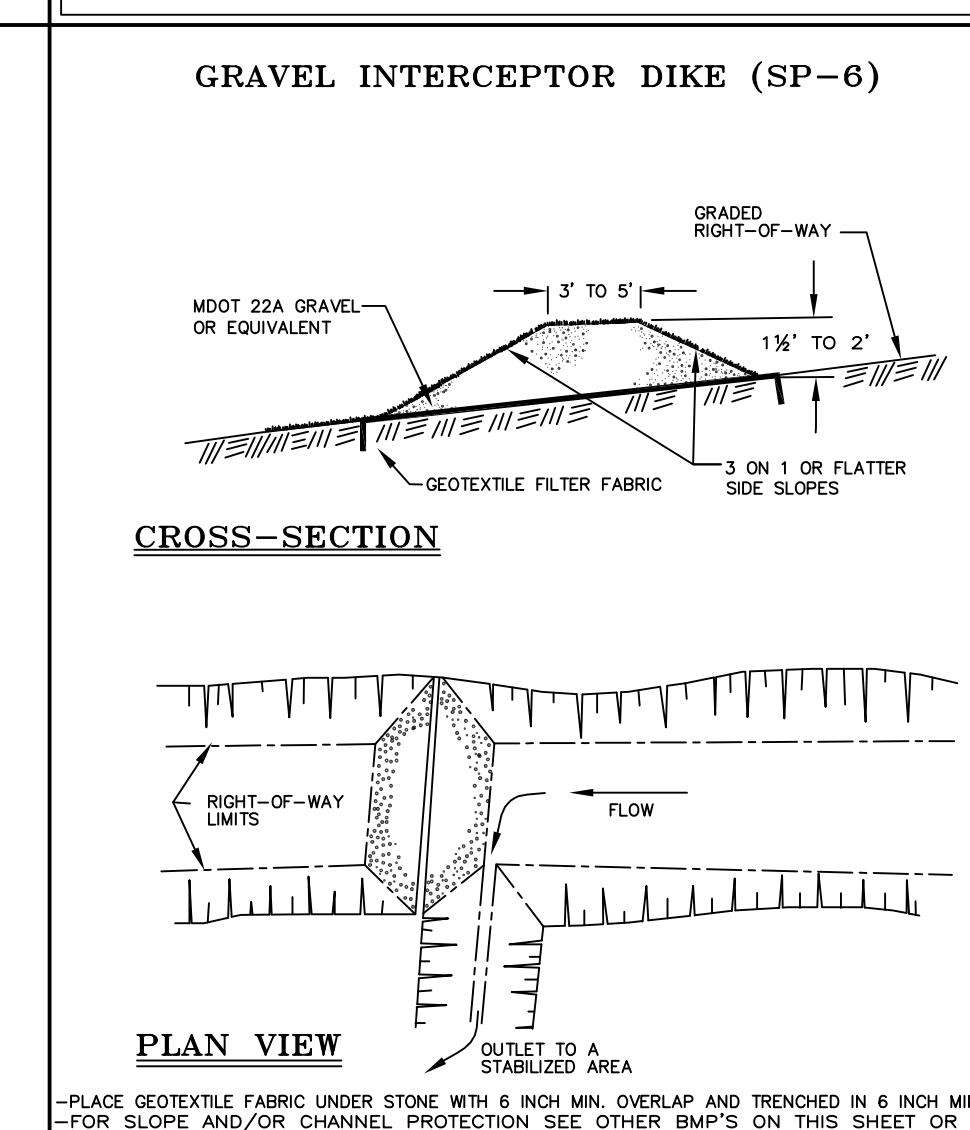
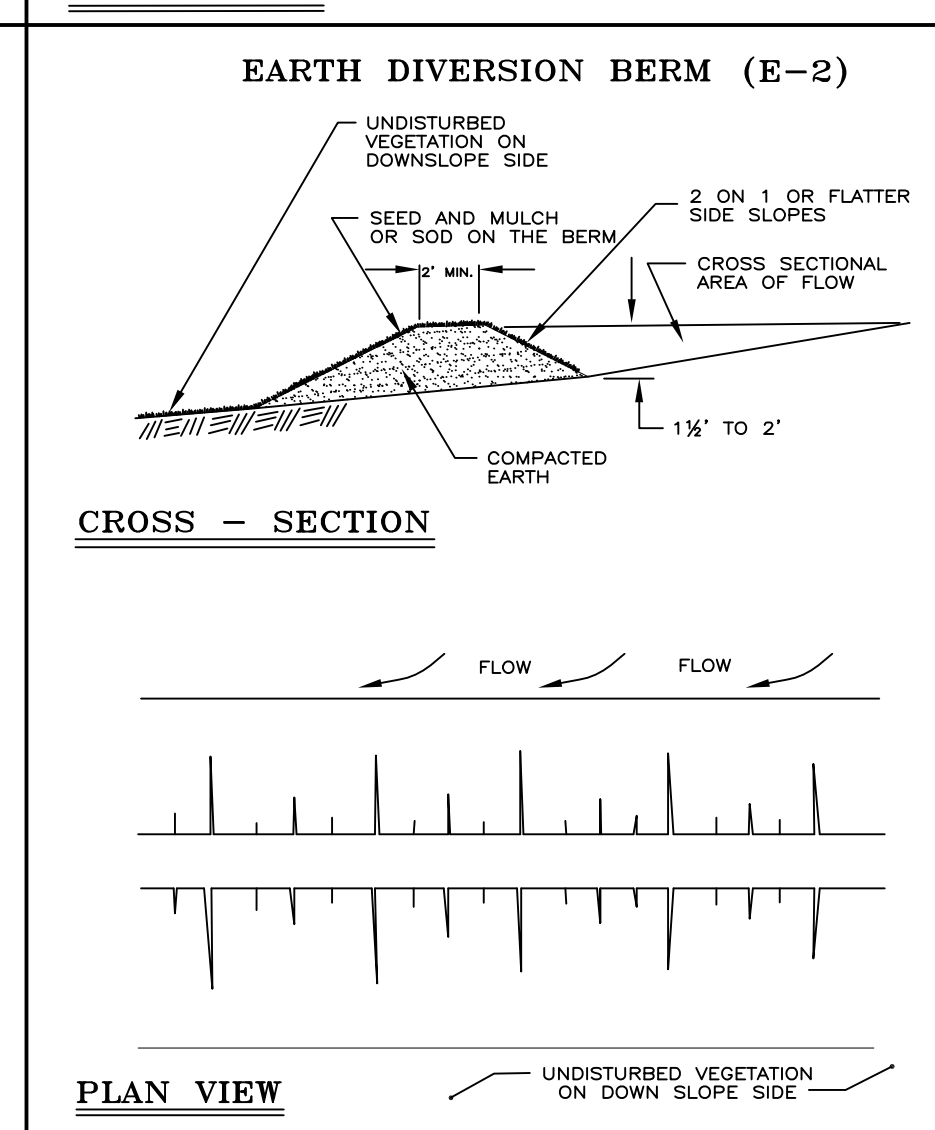
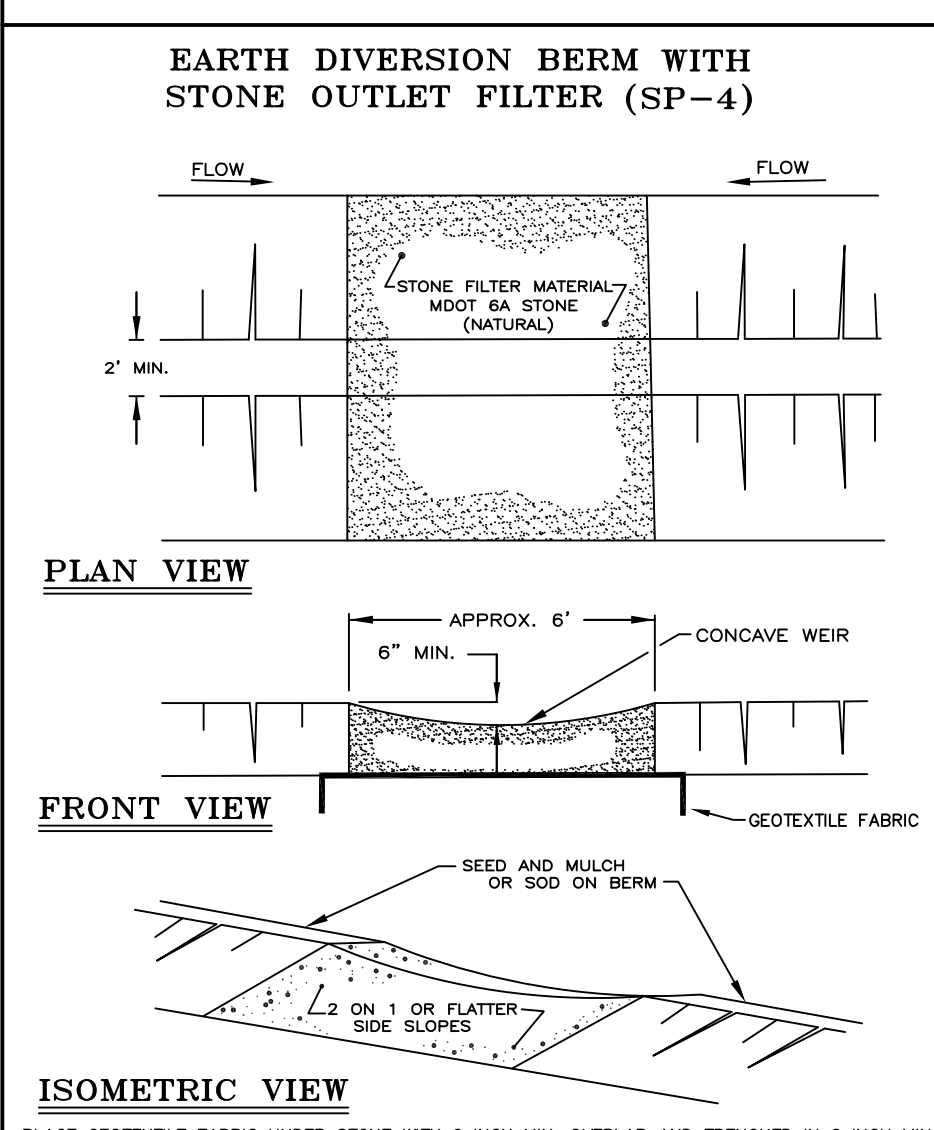
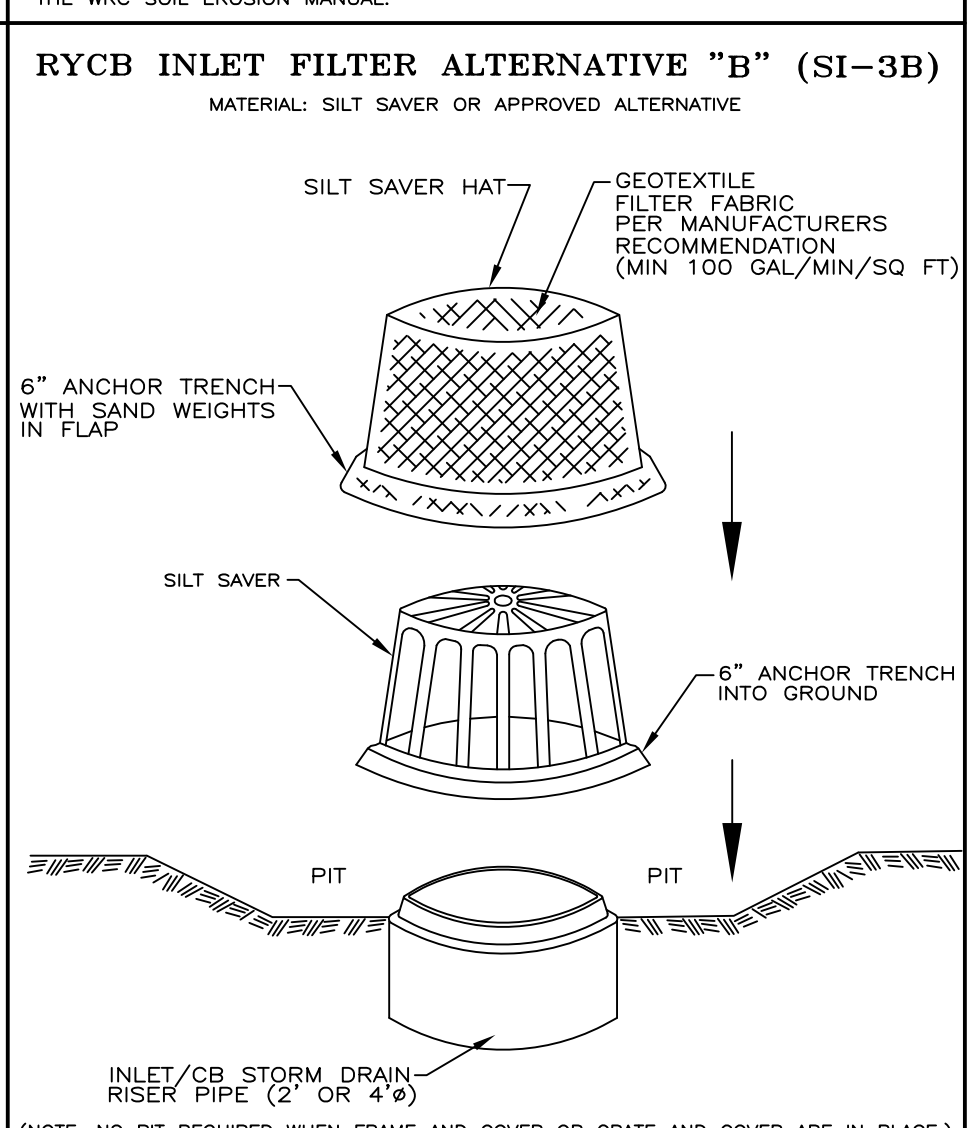
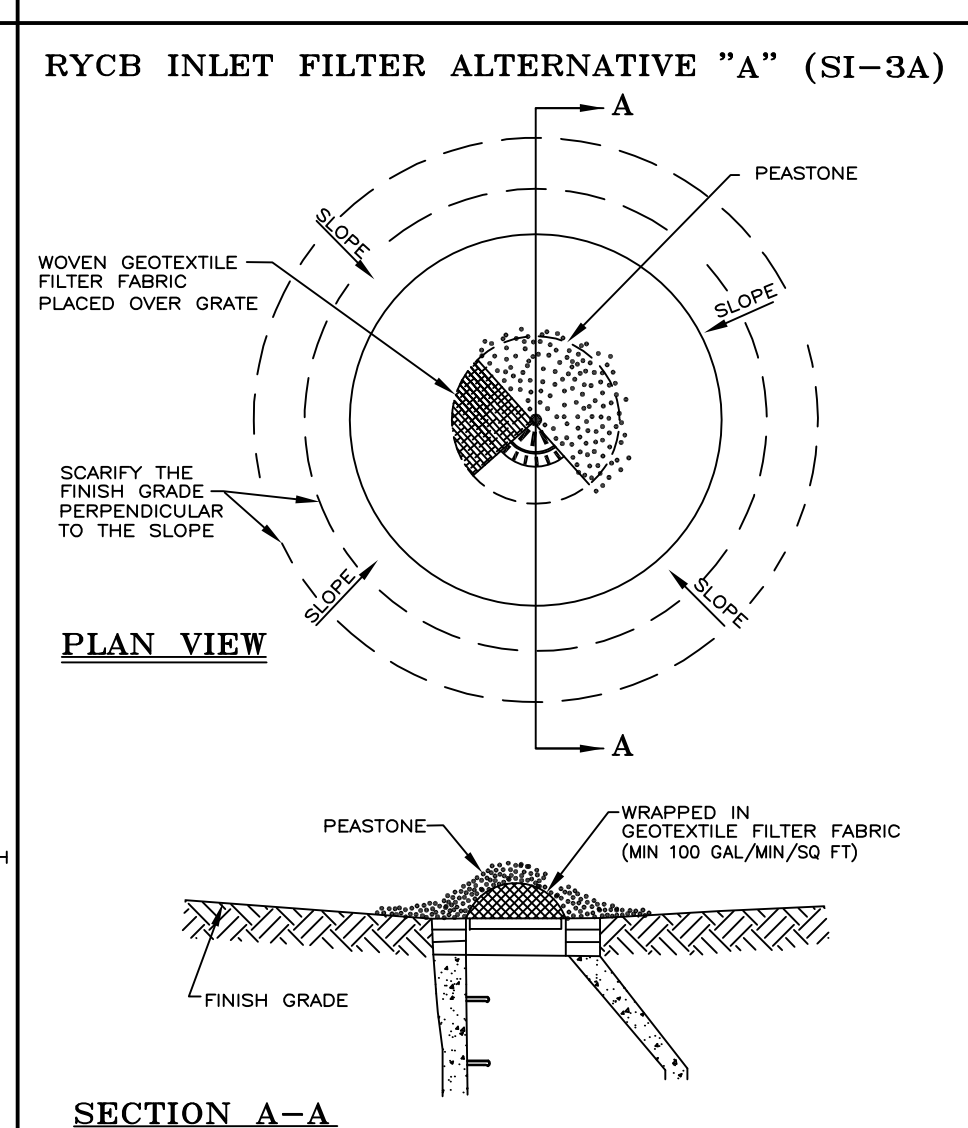
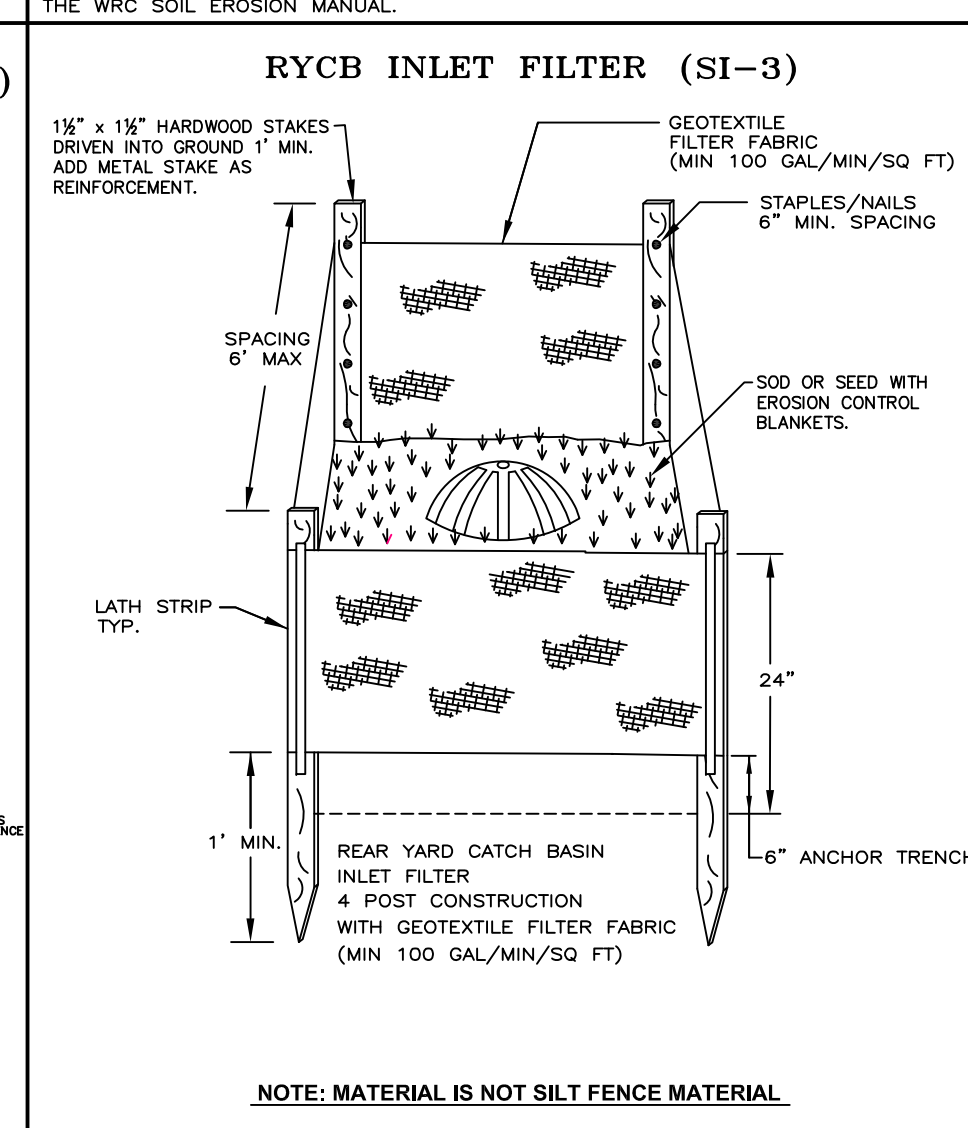
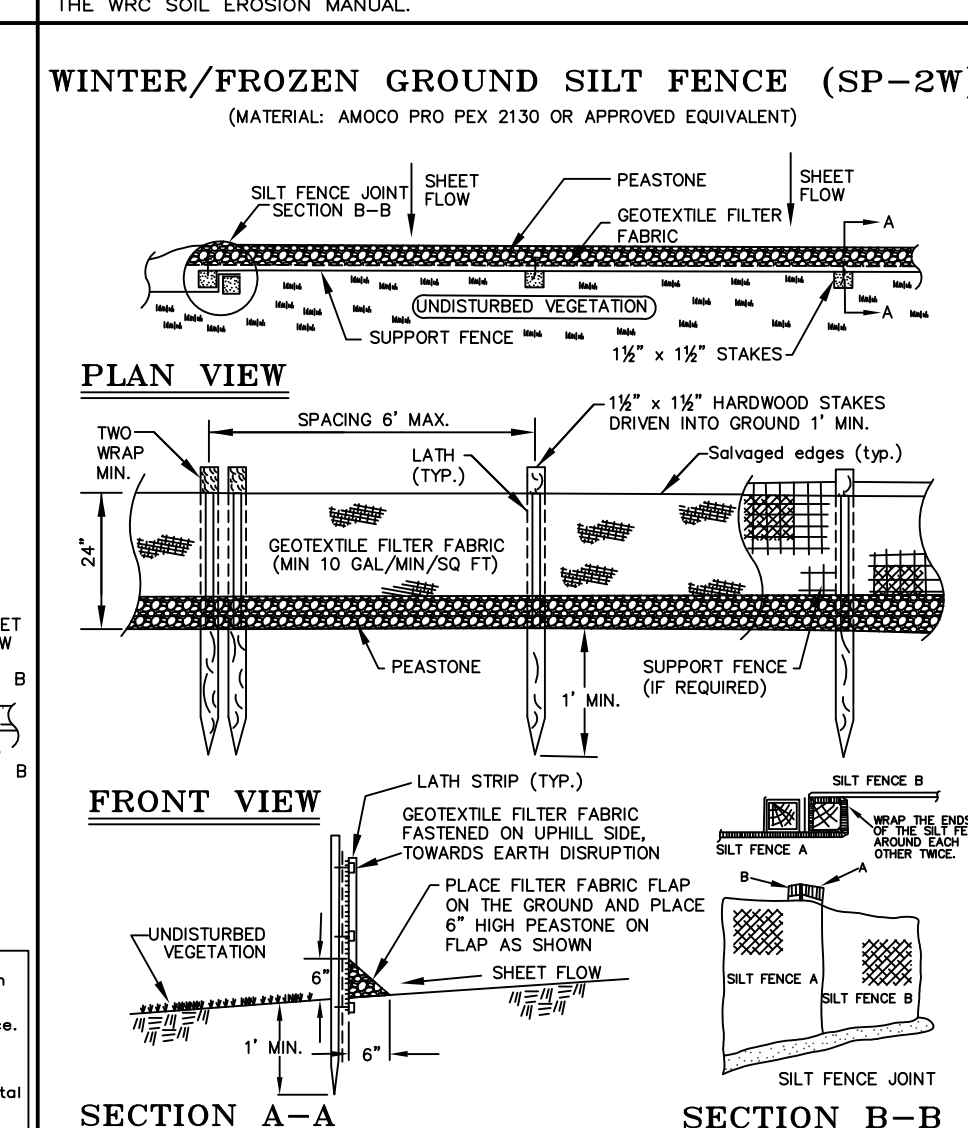
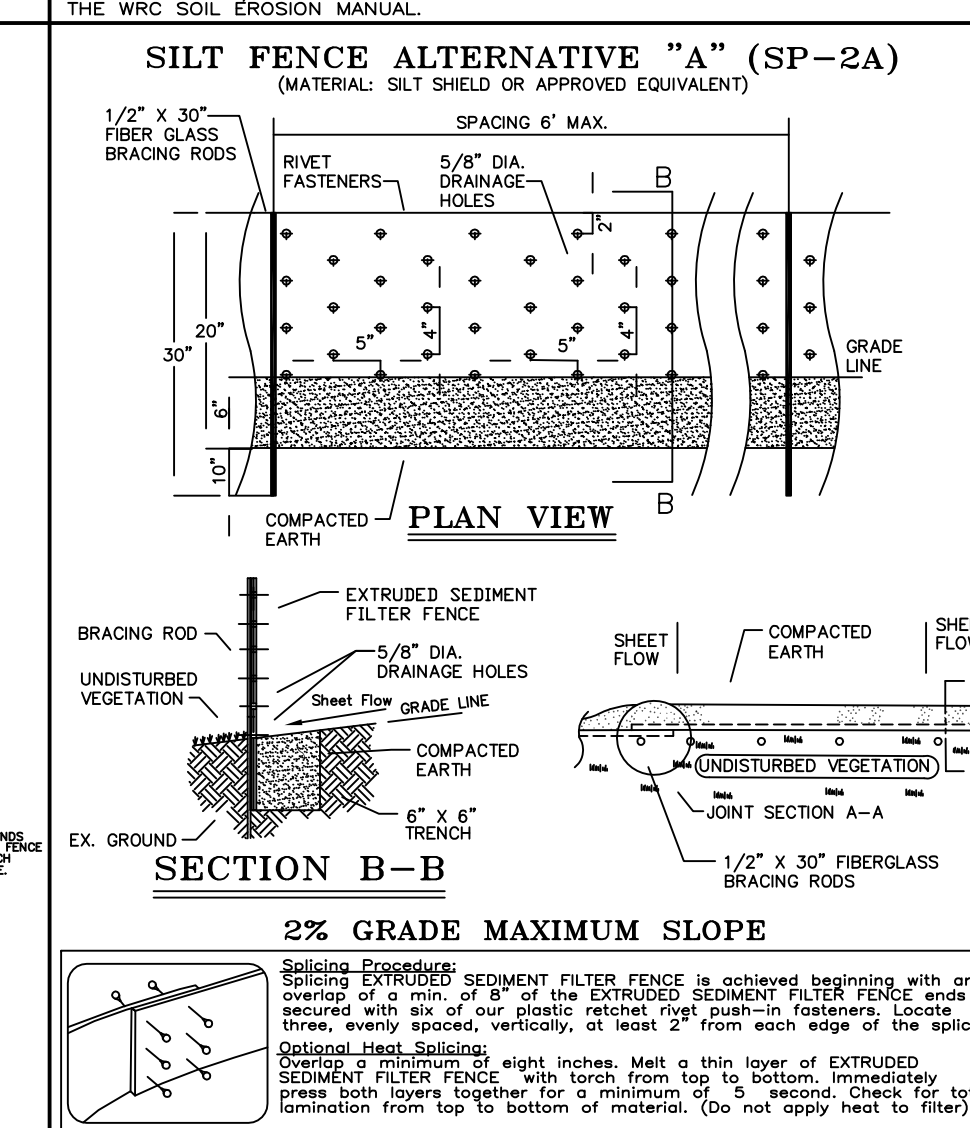
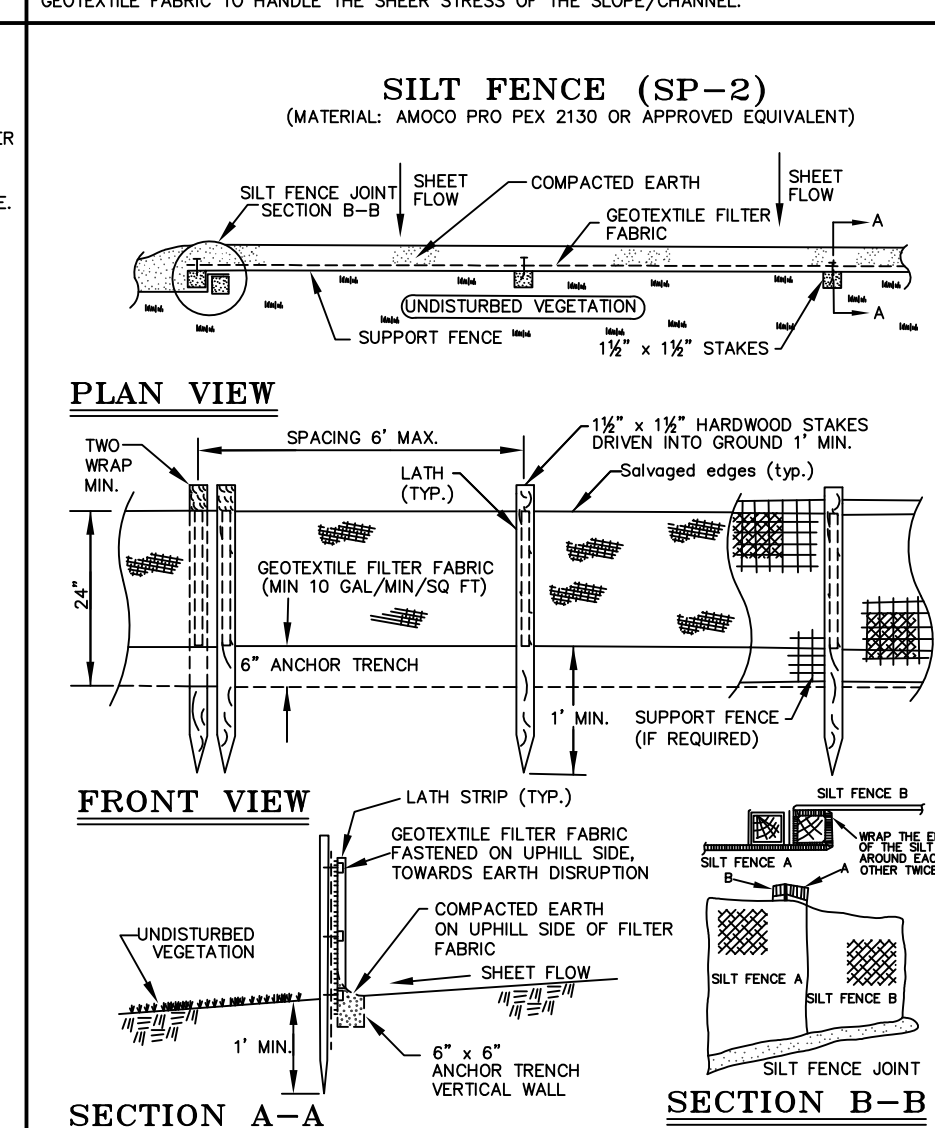
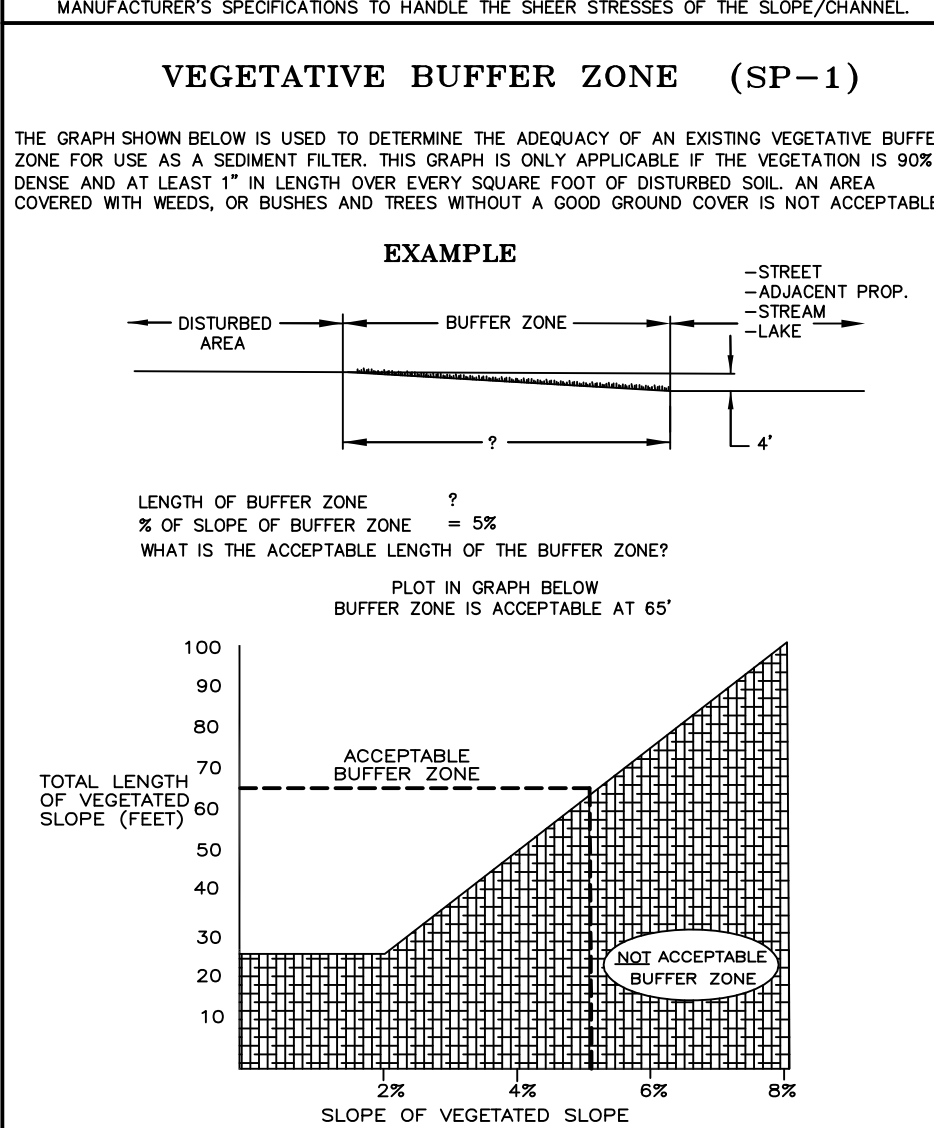
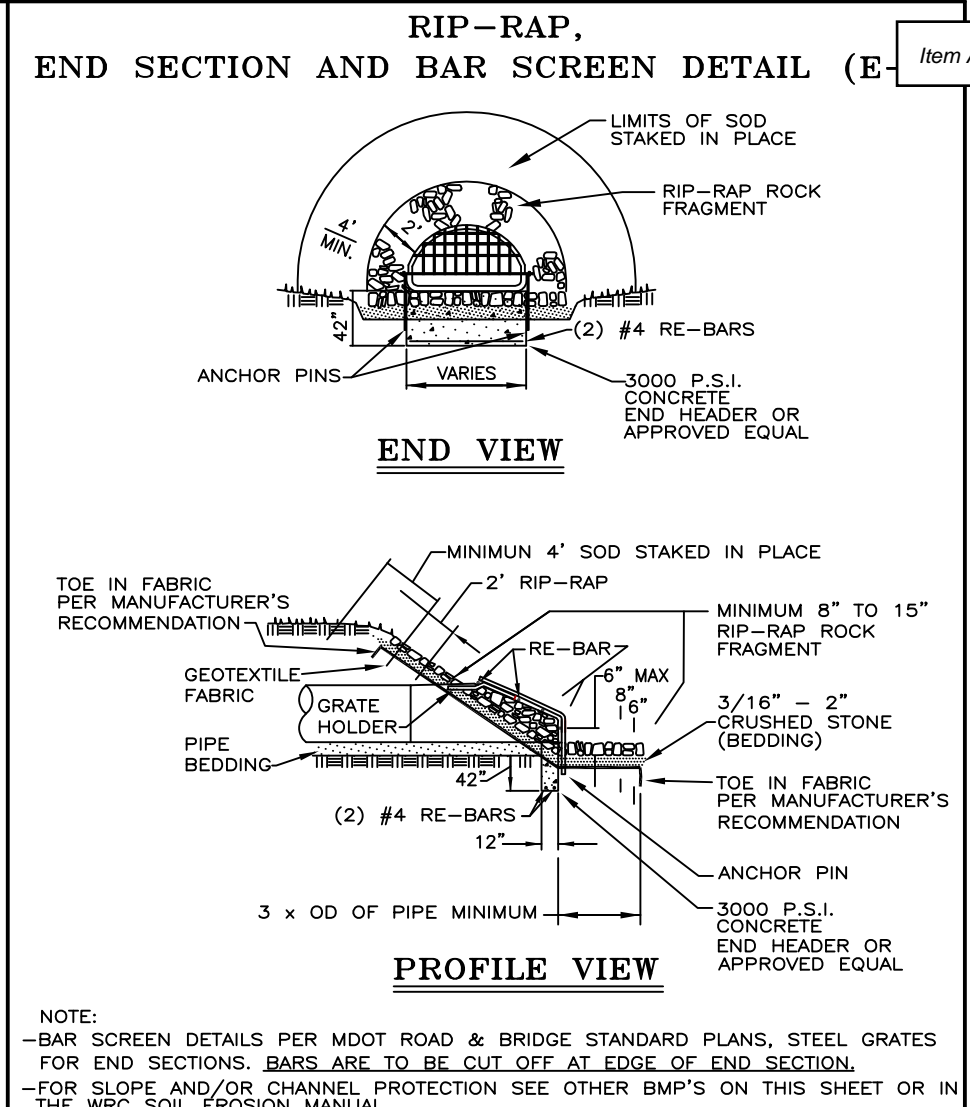
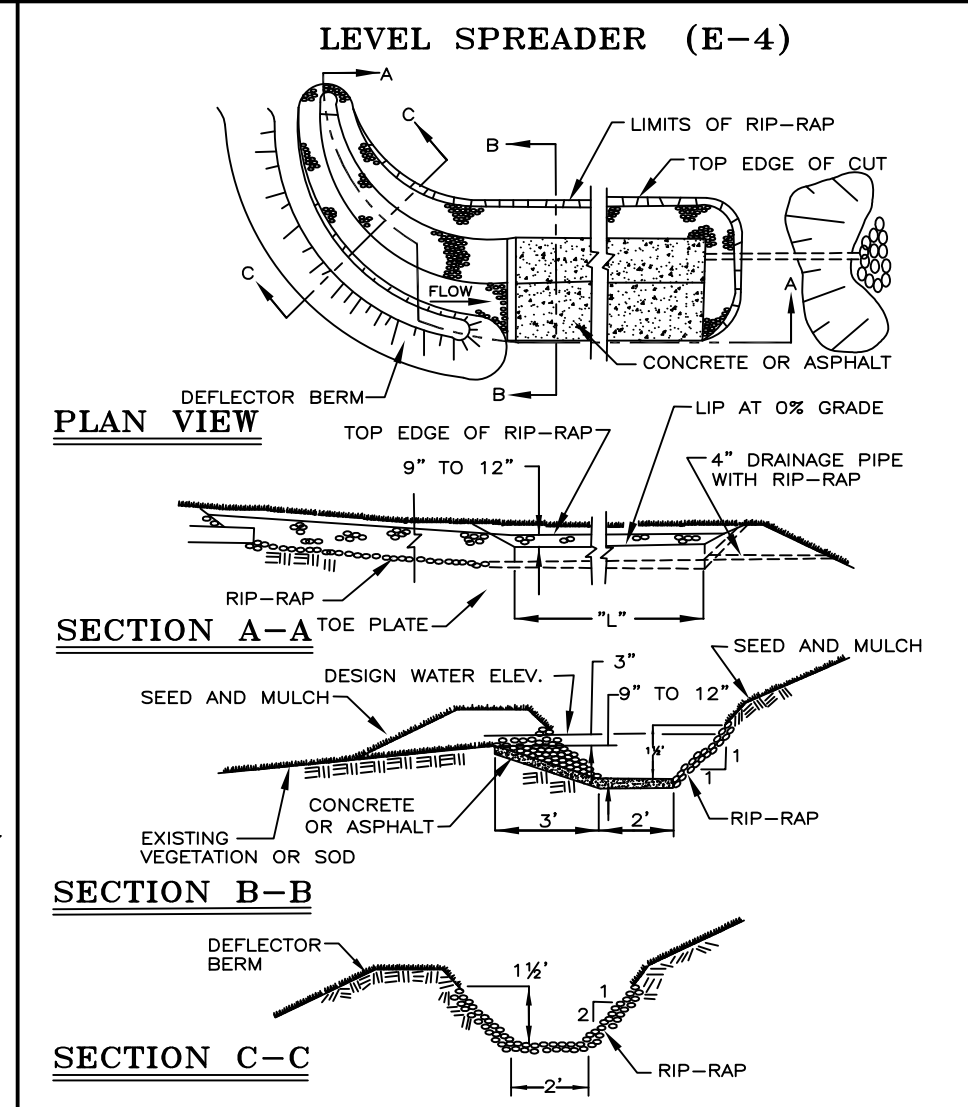
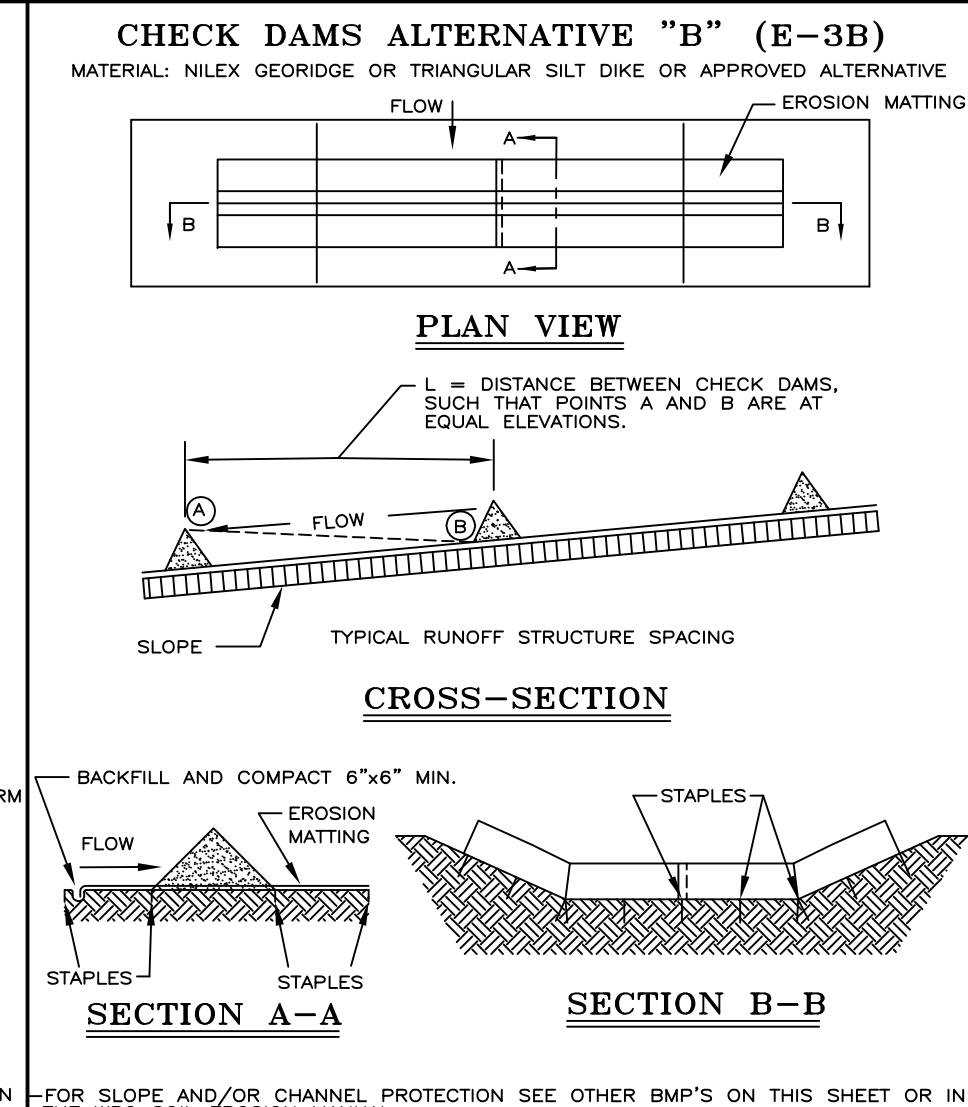
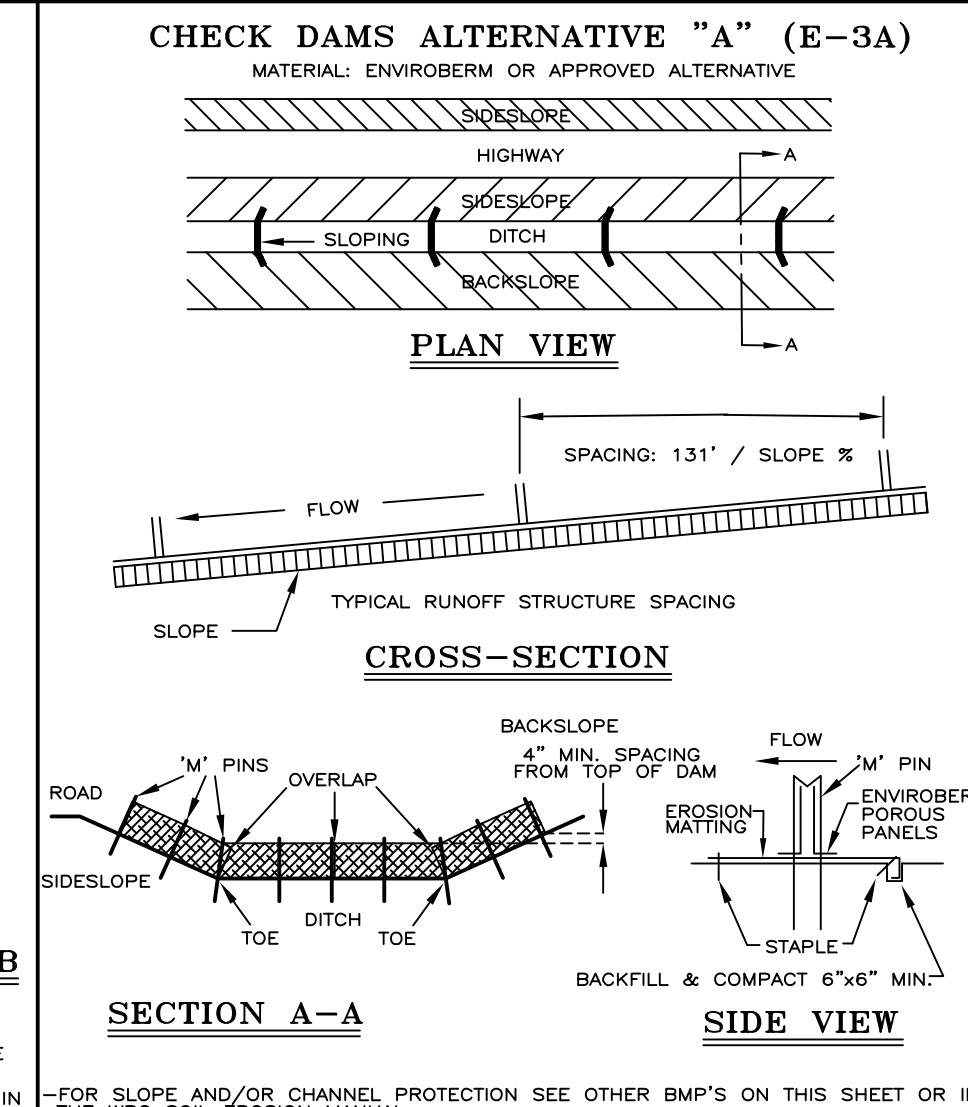
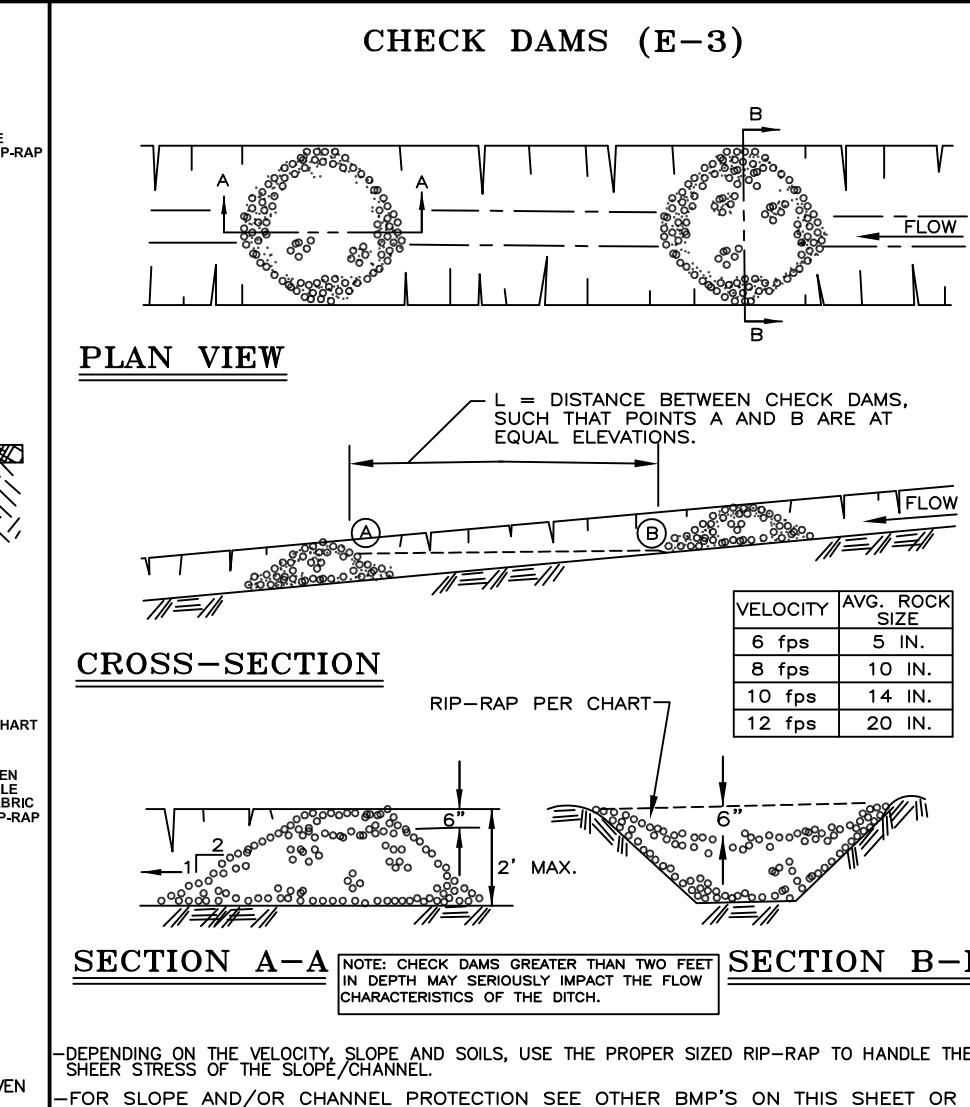
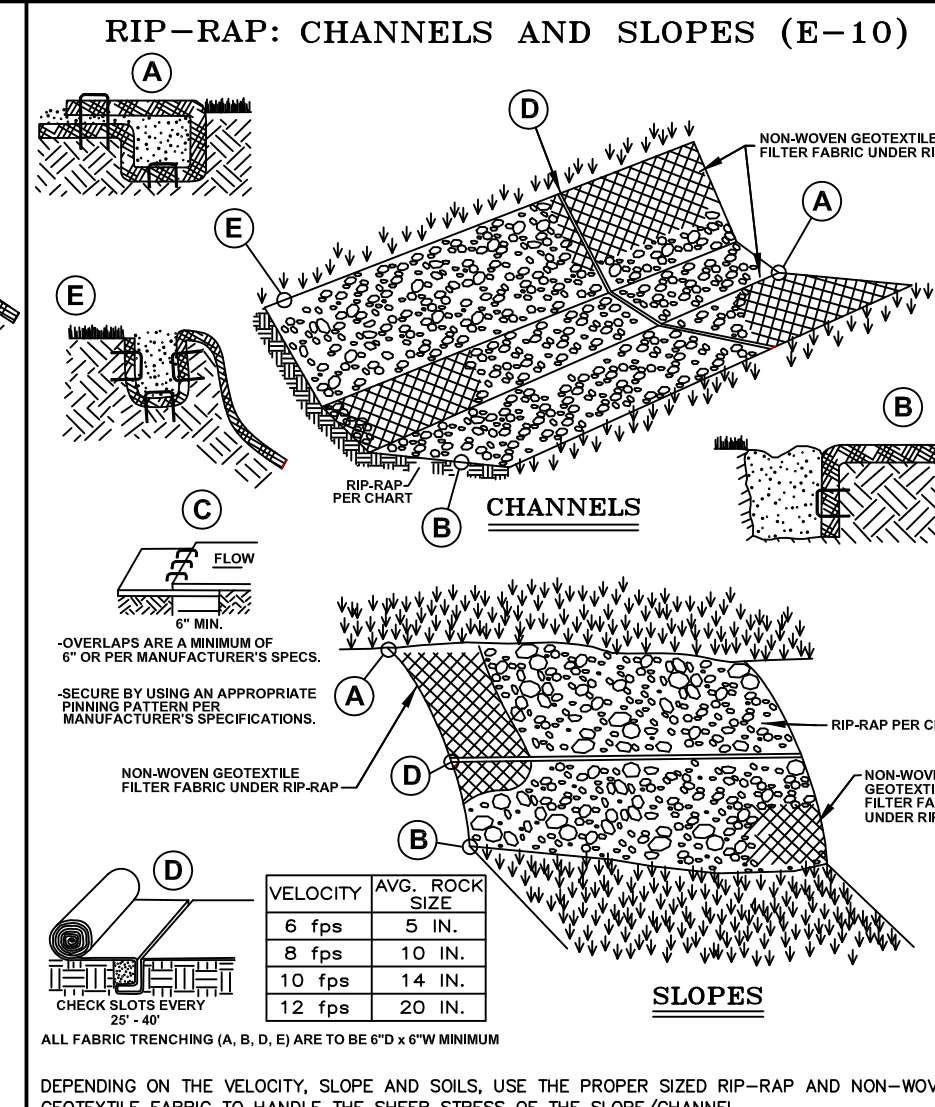
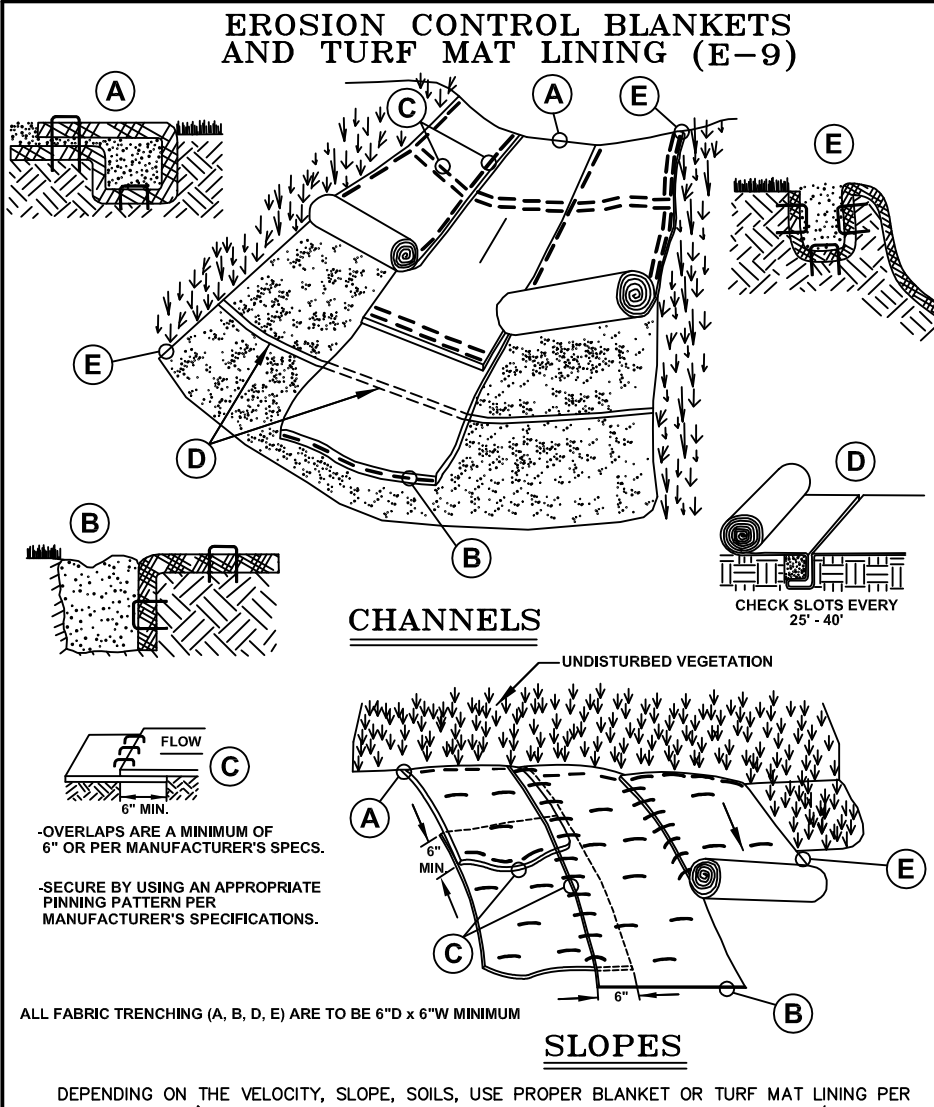
**Johnson & Anderson, Inc.**  
CONSULTING ENGINEERS  
4479 DIXIE HIGHWAY  
WATERFORD, MICHIGAN 48329  
(248) 698-3300

**White Lake Charter Township**  
7525 Highland Road, White Lake, Michigan 48383-2900  
(248) 698-3300

**WATER MAIN STANDARD DETAILS**

SCALE: VERT. AS NOTED  
HORZ.

JOB NO.  
DATE ISSUED  
SHEET NO.



**NOTE:**

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

**SOIL EROSION AND SEDIMENTATION CONTROL DETAILS**

REVISION BLOCK

Rev.	Date	By	Description
1	01/10/01	WRC	ISSUED FOR CONSTRUCTION
2	01/10/01	WRC	PROPOSED DETAIL REVISIONS
3	01/10/01	WRC	PROPOSED DETAIL REVISIONS
4	01/10/01	WRC	PROPOSED DETAIL REVISIONS
5	01/10/01	WRC	PROPOSED DETAIL REVISIONS
6	01/10/01	WRC	PROPOSED DETAIL REVISIONS
7	01/10/01	WRC	PROPOSED DETAIL REVISIONS
8	01/10/01	WRC	PROPOSED DETAIL REVISIONS

ORIG. DATE: 01/10/01

SCALE: \_\_\_\_\_

DESIGNED BY: WRC

DRAWN BY: Mapping

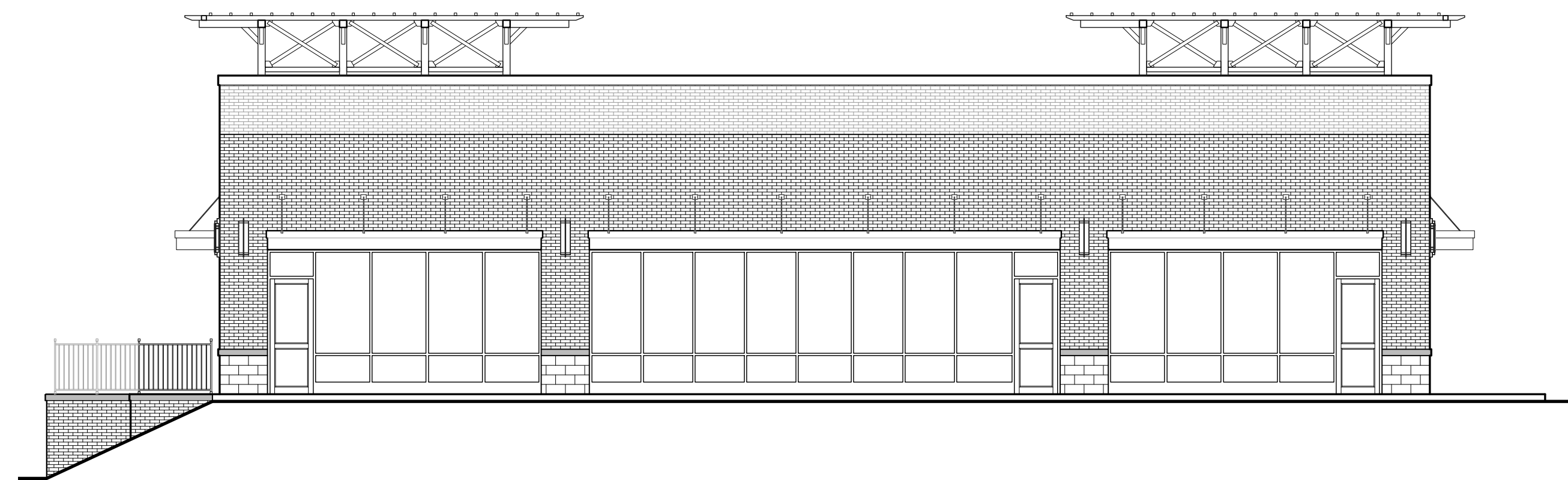
WRC WATER RESOURCES COMMISSIONER

ONE PUBLIC WORKS DRIVE, BLDG 905 WEST WATERFORD MICHIGAN 48320-1907

SHEET NO.: 1 of 37

# NEW RETAIL CENTER SHELL FOR: WHITE LAKE DEVELOPMENT

## COOLEY LAKE AND UNION LAKE ROADS WHITE LAKE, MICHIGAN PHASE 3 PERMITS



### CIVIL



CIVIL ENGINEERS  
LAND SURVEYORS  
LAND PLANNERS

### NOWAK & FRAUS ENGINEERS

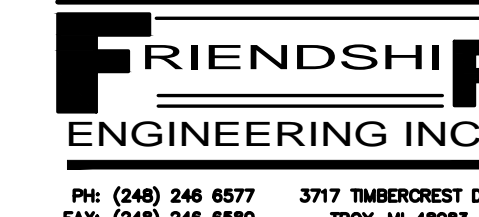
46777 Woodward Ave.  
Pontiac, MI 48342-5032  
Tel. (248) 332-7931  
Fax. (248) 332-8257

### ARCHITECTURAL



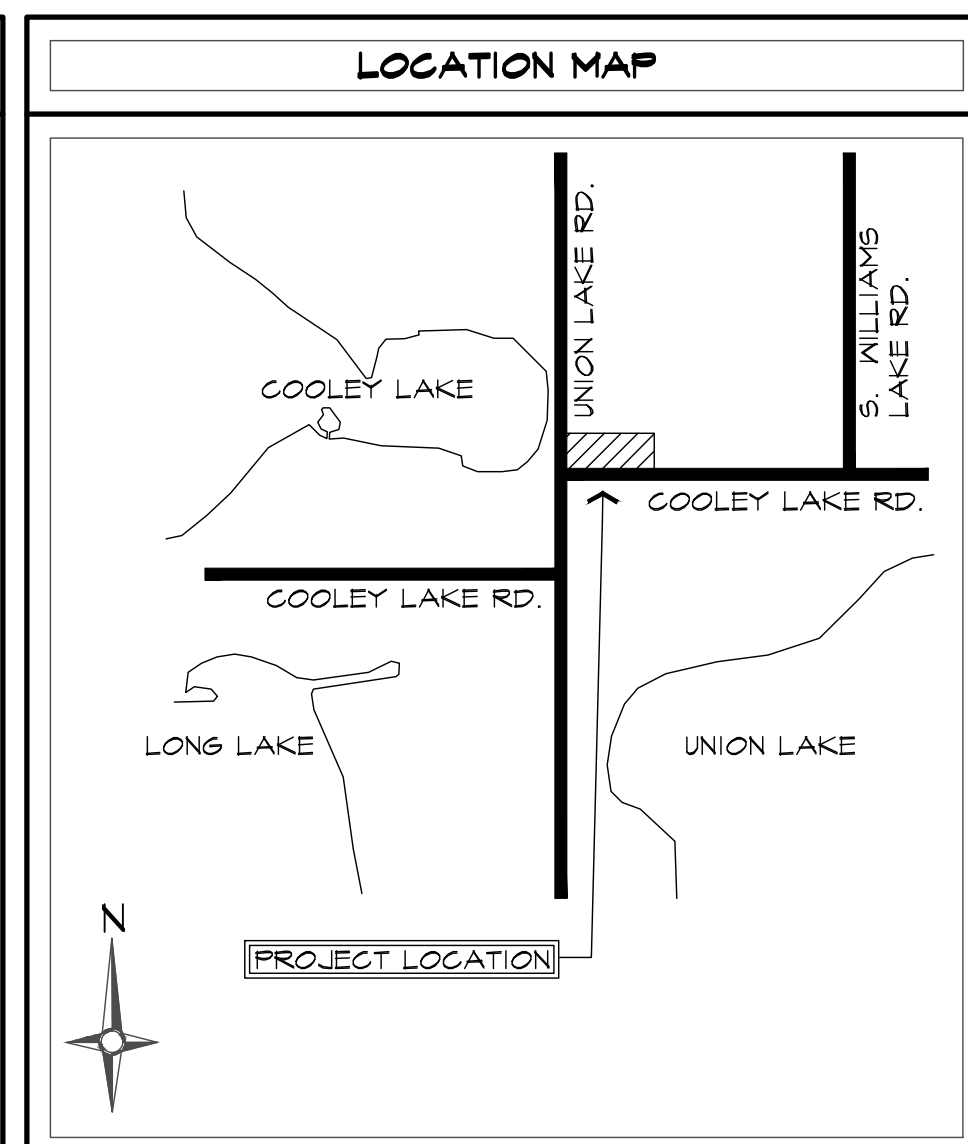
ARCHITECTURAL DESIGN  
RESIDENTIAL COMMERCIAL INDUSTRIAL  
G.A.V. & ASSOCIATES, INC.  
24001 ORCHARD LAKE RD., SUITE #180A  
FARMINGTON, MICHIGAN 48336  
PHONE (248) 985-9101

### STRUCTURAL



CONSULTING ENGINEER  
STRUCTURE  
FRIENDSHIP ENGINEERING  
3717 TIMBERCREST DRIVE  
TROY, MICHIGAN, 48063  
PHONE (248) 246-6577  
FAX (248) 246-6580

PROJECT INFORMATION	
PROJECT NUMBER:	21096
PROJECT LOCATION:	COOLEY LAKE & UNION LAKE ROADS WHITE LAKE, MICHIGAN
DESIGN FIRM:	G.A.V. & ASSOCIATES, INC. 24001 ORCHARD LAKE RD FARMINGTON, MI 48336 PHONE: (248) 985-9101
1. THE DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE:	SAMIR M. KARIM, M. LIC. #1801038452
2. THESE CONSTRUCTION DOCUMENTS WERE PREPARED FOR COMPLIANCE WITH THE MICHIGAN CONSTRUCTION CODES IN EFFECT AT THE TIME OF PERMIT SUBMITTAL. ALL ENGINEERS, CONTRACTORS AND SUPPLIERS INVOLVED WITH THIS PROJECT SHALL COMPLY WITH THE SAME CODES, ISSUED AND APPROVED CODE MODIFICATIONS AND/OR WHITE LAKE TOWNSHIP / STATE OF MICHIGAN CONSTRUCTION BOARDS OF APPEALS RULINGS AND WHENEVER REQUIRED SHALL PROVIDE SHOP DRAWINGS AND SUBMITTALS CLEARLY DESCRIBING COMPLIANCE TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE FOR REVIEW AND APPROVAL.	
3. ALL APPLICABLE GOVERNMENTAL AGENCIES, SUCH AS MDOT, OAKLAND COUNTY, UTILITY SERVICES, ETC. SHALL HAVE DRAWINGS SUBMITTED FOR REVIEW FOR ENGINEERING APPROVAL AT THE TIME OF PERMIT SUBMITTAL.	



SHEET INDEX	
CIVIL	NOT INCLUDED
ARCHITECTURAL	T.001 TITLE SHEET & PROJECT INFORMATION A.001 GENERAL INFORMATION AND SPECIFICATIONS A.101 FLOOR PLAN A.102 ROOF PLAN A.201 BUILDING ELEVATIONS A.202 BUILDING SECTIONS A.401 WALL SECTIONS A.402 WALL SECTIONS A.501 DETAILS AND SCHEDULES A.502 DETAILS A.503 DETAILS A.601 REFLECTED CEILING PLAN
STRUCTURAL	S.101 FOUNDATION PLAN S.102 ROOF FRAMING PLAN S.103 ENLARGED FRAMING PLANS S.104 SECTIONS AND DETAILS

SHEET INDEX (CONTINUED)	
MECHANICAL	M.000 SYMBOLS AND ABBREVIATIONS M.101 FLOOR PLAN - MECHANICAL
ELECTRICAL	E.100 ELECTRICAL SYMBOLS & NOTES E.102 ELECTRICAL PLAN E.103 ELECTRICAL RISER DIAGRAM & SCHEDULES
<b>DEFERRED SUBMITTALS</b>	
DEFERRED SUBMITTALS AND SPECIAL INSPECTIONS 1. CIVIL AND SITE DESIGN. 2. SIGNAGE. 3. INTERIOR BUILDOUTS FOR FUTURE RESTAURANT. 4. FINISHES.	

ABBREVIATIONS:			
AFF	ABOVE FINISH FLOOR	DN	DOWN
ALUM	ALUMINUM	DS	DOWN SPOUT
ANOD	ANODIZED	DWS	DRAWING
ACT	ACOUSTICAL TILE	EA	EACH
BC	BOTTOM CHORD	E.C.	ELEG. CONTRACTOR
BRD	BOARD	EF	EACH FACE
BFF	BELOW FINISH FLOOR	E.J.	EXPANSION JOINT
BLK	BLOCK	ELEC	ELECTRICAL
BM	BEAM	ELEV	ELEVATION
B.O.	BOTTOM OF	EXH	EXHAUST
BOF	BOTTOM OF FOOTING	EX/EXIST	EXISTING
BU	BUILT UP	EXT	EXTERIOR
CAB	CABINET	EW	EACH WAY
C.B.	CATCH BASINS	F#1	FURNISH AND INSTALL
C	COLD	FD	FLOOR DRAIN
CER	CERAMIC	FFE	FINISH FLOOR
C.J.	CONTROL JOINT	FND.	FOUNDATION
C.L.	CENTER LINE	FO	FINISHED OPENING
CLS	CELLING	FOF	FACE OF FINISH
CLOS	CLOSET	FOG	FACE OF GYPSUM
C.O.	CLEAN OUT	FOM	FACE OF MASONRY
CM	CONSTRUCTION MANAGER	FTG	FOOTING
COL	COLUMN	FS	FLOOR SINK
CONC	CONCRETE	GALV	GALVANIZED
CONT	CONTINUOUS	GC	GENERAL CONTRACTOR
DEFS	DIRECT APPLIED FINISH SYSTEM	GL	GLASS
DET	DETAIL	GB	GRAB BAR
DIM	DIMENSION	GYP	GYPSUM
DIA	DIAMETER	HM	HOLLOWED METAL
DL	DEAD LOAD	HVAC	HEATING & VENT.
DN	DOWN	INSUL.	INSULATION
DS	DOWN SPOUT	IST	JOIST
DWS	DRAWING	JT	JOINT
EA	EACH	LD	LIVE LOAD
E.C.	ELEG. CONTRACTOR	LP	LIGHT POLE
EF	EACH FACE	MAS	MASONRY
E.J.	EXPANSION JOINT	MAX	MAXIMUM
ELEC	ELECTRICAL	MCM	METAL COMPOSITE MATERIAL
ELEV	ELEVATION	MECH.	MECHANICAL
EXH	EXHAUST	MIN	MINIMUM
EX/EXIST	EXISTING	MTL.	METAL
EXT	EXTERIOR	ND	NOOD
EW	EACH WAY	OD	ON CENTER
F#1	FURNISH AND INSTALL	OPH	OPPOSITE HAND
FD	FLOOR DRAIN	NTS	NOT IN CONTRACT NOT TO SCALE
FFE	FINISH FLOOR	PL	PLATE
FND.	FOUNDATION	PSF	POUNDS PER SQUARE
FO	FINISHED OPENING	FT	FOOT
FOF	FACE OF FINISH	PSI	POUNDS PER SQUARE
FOG	FACE OF GYPSUM	PT	PAINT
FOM	FACE OF MASONRY	RA	RETURN AIR
FTG	FOOTING	RD	ROOF DRAIN
FS	FLOOR SINK	REIN	REINFORCEMENT
GALV	GALVANIZED	REQ	REQUIRED
GC	GENERAL CONTRACTOR	RO	ROUGH OPENING
GL	GLASS	SA	SUPPLY AIR
GB	GRAB BAR	SIM	SIMILAR
GYP	GYPSUM	STL	STEEL
HM	HOLLOWED METAL	STOR	STORAGE
HVAC	HEATING & VENT.	TB	TOWEL BAR
INSUL.	INSULATION	TC	TOP CHORD
IST	JOIST	T & B	TOP AND BOTTOM
JT	JOINT	TBL	TOP OF BRICK LEDGE
LD	LIVE LOAD	T.O.S.	TOP OF TOP OF STEEL
LP	LIGHT POLE	T.O.P.	TOP OF PIER
MAS	MASONRY	T.O.W.	TOP OF WALL
MAX	MAXIMUM	TYP	TYPICAL
MCM	METAL COMPOSITE MATERIAL	UN.O.	UNLESS NOTED OTHERWISE
MECH.	MECHANICAL	VIF	VERIFY IN FIELD
MIN	MINIMUM	W	WITH
MTL.	METAL	WD	WOOD
ND	NOOD	WNF	WELDED WIRE FABRIC
OD	ON CENTER		
OPH	OPPOSITE HAND		
NTS	NOT IN CONTRACT NOT TO SCALE		
PL	PLATE		
PSF	POUNDS PER SQUARE	AASHO	AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS
FT	FOOT	AIA	AMERICAN INSTITUTE FOR ARCHITECTS
PSI	POUNDS PER SQUARE	ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
PT	PAINT	AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
RA	RETURN AIR	CRSI	CONCRETE REINFORCING SOCIETY INSTITUTE.
RD	ROOF DRAIN	MEC	MICHIGAN BUILDING CODE
REIN	REINFORCEMENT	MHC	MICHIGAN MECHANICAL CODE
REQ	REQUIRED	MPC	MICHIGAN PLUMBING CODE
RO	ROUGH OPENING	MEC	MICHIGAN ELECTRICAL CODE
SA	SUPPLY AIR	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
SIM	SIMILAR	UL	UNDERWRITERS LABORATORIES
STL	STEEL		
STOR	STORAGE		
TB	TOWEL BAR		

ISSUED FOR	
PERMITS	10.22.2021
<b>SEAL</b>	

**PROJECT DATA:**

USE GROUP M - MERCANTILE
CONSTRUCTION TYPE I1B NOT SPRINKLED

**SITE REQUIREMENTS:**

MAXIMUM BUILDING HEIGHT 25'-0"
PROPOSED BUILDING HEIGHT 22'-11"

BUILDING DATA
BUILDING GROSS FLOOR AREA 3,843 GSF

**CODE REVIEW & BUILDING ANALYSIS:**

- THESE BUILDING PLANS ARE BEING SUBMITTED FOR THE PROPOSED ONE STORY RETAIL SHELL BUILDING ONLY. INTERIOR BUILD OUT SHALL BE SUBMITTED IN FUTURE SUBMITTALS. COORDINATE WITH OWNER ANY FUTURE BUILD OUT (S) BASED ON USE GROUPS AND AS PERMITTED PER CURRENT APPLICABLE LOCAL AND STATE CODES. THIS INCLUDES, BUT NOT LIMITED TO, THE CONSTRUCTION OF THE TENANT DEMISING WALLS.
GENERAL CONTRACTOR TO COMPLY WITH ALL FEDERAL, STATE, CITY AND LOCAL CODES WHERE APPLICABLE. ALL NEW CONSTRUCTION SHALL COMPLY TO THE FOLLOWING:
• 2015 MICHIGAN BUILDING CODE (MBC).
• 2015 MICHIGAN MECHANICAL CODE (MMC).
• 2015 MICHIGAN PLUMBING CODE (MPC).
• 2014 MICHIGAN ELECTRICAL CODE PTS (NEC).
• 2017 NATIONAL ELECTRICAL CODE (NEC).
• 2009 (ICC/ANSI) A117.1 AND MICHIGAN BARRIER FREE DESIGN LAW P.A. 1 OF 1966 AS AMENDED.
• 2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) WITH 2013 ASHRAE STANDARD 90.1 STANDARD INCLUDING AMENDMENTS.
• 2015 MICHIGAN UNIFORM ENERGY CODE, PART 10a (MEC)
• 2010 FIRE SUPPRESSION NFPA 13
• 2013 FIRE ALARM CODE NFPA 72
• 2012 INTERNATIONAL FIRE CODE (IFC)
• 2015 INTERNATIONAL FUEL GAS CODE (IFGC)
• PROJECT SHALL COMPLY WITH MBC 2015 CHAPTER 35 REFERENCE STANDARDS.
• WHITE LAKE TOWNSHIP ZONING ORDINANCE AND CODES

**SITE WORK:**

REFER TO CIVIL DRAWINGS FOR ALL SITE INFORMATION. CIVIL DRAWINGS SHALL OVERRIDE THE SITE NOTES IN THIS SECTION.

**GENERAL SITE NOTES:**

- OWNER AGREES TO SEASONAL MAINTENANCE PROGRAM AND WILL REPLACE ALL DISEASED, DEAD OR DAMAGED PLANTS, REPLENISH MULCH, CONTROL WEEDS, FERTILIZE AND PRUNE, BEGINNING UPON COMPLETION OF CONSTRUCTION OF LANDSCAPING.
2. ANY HAZARDOUS MATERIALS PRODUCED, STORED OR OTHERWISE ON PREMISE WILL BE HANDLED PER APPLICABLE RULES AND REGULATIONS.
3. OWNER AGREES TO PICK-UP DEBRIS WITHIN PROPERTY LIMITS WEEKLY OR AS NEEDED.
4. PAVED SURFACES, WALK WAYS, SIGNS, LIGHTING AND OTHER STRUCTURES AND SURFACES SHALL BE MAINTAINED IN A SAFE, ATTRACTIVE CONDITION AS ORIGINALLY DESIGNED AND CONSTRUCTED. PARKING LOT STRIPING AND MARKINGS SHALL BE MAINTAINED IN A CLEARLY VISIBLE MANNER.
5. THERE WILL BE NO OUTDOOR STORAGE.
6. THERE ARE NO EXISTING WETLANDS ON-SITE.
7. ALL LIGHTING ON THE SITE SHALL BE SHIELDED AND NOT ENCRDACH UPON ADJUTING PROPERTIES OR RIGHT-OF-WAYS. THE LIGHT POLES SHALL BE NO HIGHER THAN 20 FEET. ALL GLARES SHALL BE ELIMINATED FROM ALL LIGHT FIXTURES. UPWARD DIRECTED LIGHTING SHALL NOT BE PERMITTED.
8. ALL LANDSCAPED AREAS SHALL BE AUTOMATICALLY IRRIGATED.
9. FIRE ACCESS TO BE MAINTAINED DURING CONSTRUCTION.
10. ON-SITE HYDRANT LOCATIONS SHALL BE APPROVED BY THE FIRE MARSHALL PRIOR TO ENGINEERING APPROVAL. ON-SITE HYDRANTS MAY BE REQUIRED.
11. PROPOSED BUILDING TO COMPLY WITH MBC 2015 SECTION 304.
12. ALL BARBED WIRE AND SUPPORTS FOR BARBED WIRE ARE PROHIBITED ON THE SITE.
13. ALL OUTDOOR RETAIL SALES OF ITEMS SHALL BE PROHIBITED ON THE SITE.

**GENERAL CONDITIONS:**

- THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERALLY THE LOCATIONS OF MATERIAL AND EQUIPMENT. THESE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE. CONTRACTOR'S RESPONSIBILITY FOR REVISIONS, COORDINATING AND APPROVING ALL WORK TO BE DONE BY CONTRACTORS. ANY SUBMITTAL TO ARCHITECT / ENGINEER SHALL BE REVIEWED BY THE C.M. BEFORE SUBMITTING TO ARCHITECT / ENGINEER.
2. BUILDING SHALL HAVE A NEW FIRE ALARM SYSTEM PER ELECTRICAL DRAWINGS AND THE SYSTEM SHALL COMPLY WITH 2015 MBC AND ALL APPLICABLE CODES.
3. ALL EXTERIOR WOOD, PLYWOOD, ETC. SHALL BE PRESERVATIVE TREATED.
4. CONSTRUCTION MANAGER AND THE CONTRACTORS SHALL COMPLY WITH ALL CODES CURRENTLY IN EFFECT IN THE CITY OF AUBURN HILLS AND THE STATE OF MICHIGAN.
5. CONFORM TO A.I.A. DOCUMENT NO. A-201, LATEST EDITION, AND COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES, LAWS, RULES AND REGULATIONS.
6. ALL CONTRACTORS SHALL CARRY ADEQUATE INSURANCE OR OTHERWISE SECURE, PROTECT AND HOLD HARMLESS THE OWNER AND ITS AGENTS AND THE ARCHITECT/ENGINEER FROM ANY LIABILITY OR DAMAGE WHATSOEVER, FOR INJURY (INCLUDING DEATH) TO ANY PERSON OR PROPERTY.
7. SUSPENDED ACoustICAL CEILING TILES AND GRID SYSTEM SHALL COMPLY NFPA 101 2012 AND MBC 2015.
8. GRID WORK SHALL BE SUPPORTED WITH A MINIMUM OF 2-12 GA. HANGER WIRES TO STRUCTURE ABOVE.
9. PROVIDE A KNOX BOX FOR FIRE DEPARTMENT ACCESS. LOCATE ON BUILDING, AS PER FIRE MARSHALL.
10. INSTALL 6" HIGH ADDRESS NUMBERS WHICH ARE VISIBLE FROM THE STREET. VERIFY LOCATION WITH FIRE MARSHALL.
11. ALL WALLS SHALL EXTEND UP TO AND BE SEALED TO THE UNDERSIDE OF FLOOR / ROOF DECK.
12. CONTRACTOR SHALL PROVIDE ALL NECESSARY SIGNAGE PER SECTION 1109 OF THE 2015 MBC AND SECTION 703 OF THE ANS I A117.1.
13. ALL PROTRUDING OBJECTS ON CIRCULATION PATHS SHALL COMPLY WITH SECTION 307 OF THE ANS I A117.1-2009
14. ANY RATED WALL THAT HAS PROTECTED OPENINGS OR PENETRATIONS SHALL BE PERMANENTLY IDENTIFIED ABOVE CEILING WITH SIGNS OR STENCILING @ NOT LESS THAN 30'-0" O.C. ALONG THE HORIZONTAL DIMENSION. LETTERS SHALL NOT BE LESS THAN 0.5" IN HT. AND CONTAIN THE WORDS 'FIRE & SMOKE BARRIER-PROTECT ALL OPENINGS' ALL PENETRATIONS IN WALLS FOR PIPING.
15. ALL PENETRATIONS IN RATED WALLS SHALL BE SEALED W/ APPLICABLE FIRE RATED SEALANT, STOP, OR OTHER APPROVED METHOD PER I.F.C. 2012. ANY PENETRATIONS SHALL BE SEALED WITH FIRE RATING EQUIVALENT TO PENETRATED SYSTEM.

**GENERAL CONDITIONS (CONTINUED):**

- A PORTABLE FIRE EXTINGUISHER MUST BE PRESENT DURING CONSTRUCTION. PERMANENT PORTABLE FIRE EXTINGUISHER LOCATIONS TO BE DETERMINED PER I.F.C. AND FIELD BUILDING INSPECTOR.
17. FIRESTOPPING SHALL BE TESTED IN ACCORDANCE WITH ASTM E-814 TEST STANDARDS. CONTRACTOR TO SUBMIT TEST REPORT ATTACHED WITH THE SUBMITTAL COVER SHEET FOR EACH APPLICATION, I.E. FOR EACH KIND OF CONSTRUCTION (RATED FLOOR/CeILING RATED WALLS, ETC.) BEFORE INSTALLATION. FIRESTOPPING INSTALLATION SHALL NOT BE CONCEALED WITH FINAL CONSTRUCTION UNTIL APPROVED BY BUILDING INSPECTOR.
18. ALL HAZARDOUS ROOMS TO HAVE DOOR CLOSURE AND SHALL BE SMOKE TIGHT ENCLOSURES IN JANITOR CLOSETS, MECHANICAL / ELECTRICAL ROOMS AND STORAGE ROOMS.
19. DO NOT SCALE DRAWINGS, USE GIVEN DIMENSIONS ONLY. DIMENSIONS ARE TO THE FACE OF FINISH U.N.O. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERALLY THE LOCATIONS OF MATERIAL AND EQUIPMENT. THESE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE. GENERAL CONTRACTOR IS RESPONSIBLE FOR REVIEWING, COORDINATING AND APPROVING ALL WORK TO BE DONE BY SUB CONTRACTORS. ANY SUBMITTAL TO ARCHITECT / ENGINEER SHALL BE REVIEWED BY THE S.C. BEFORE SUBMITTING TO ARCHITECT / ENGINEER. IF DIMENSIONS ARE IN QUESTION THE CONTRACTOR IS RESPONSIBLE FOR CONSULTING WITH THE TENANT AND OWNER BEFORE CONTINUING WITH THE WORK FOR POSSIBLE REDESIGN.
20. VERIFY LOCATION OF ALL EQUIPMENT AND VERIFY SIZES, WALL OPENINGS, AND SUPPORT REQUIREMENTS WITH MANUFACTURER. PROVIDE OPENINGS, BRACING AND REINFORCEMENT AS REQUIRED BY MANUFACTURER.
21. CONSTRUCTION MANAGER WILL SUPPLY SECURED STAGING AREA AND OFFICE TRAILER.
22. CONSTRUCTION MANAGER WILL COMPLY WITH ENVIRONMENTAL AGENCIES.
23. CONSTRUCTION MANAGER WILL SUPPLY TOILET FACILITIES FOR ALL TRADES.
24. CONSTRUCTION MANAGER WILL COMPLY WITH DEWATERING AS NECESSARY.
25. CONSTRUCTION MANAGER WILL BE RESPONSIBLE TO KEEP A CLEAN SITE AT ALL TIMES.
26. TEMPORARY BRACING, GUYING AND TIE DOWNS OF THE STRUCTURE DURING ERECTION SHALL BE THE RESPONSIBILITY OF THE ERECTOR AND CONTRACTOR(S). THE ENGINEER AND ARCHITECT ASSUME NO RESPONSIBILITY FOR THE ABSENCE, PRESENCE OR ADEQUACY OF ANY TEMPORARY BRACING. ALL EXISTING STRUCTURES THAT MAY BE AFFECTED BY THE NEW CONSTRUCTION SHALL BE BRACED AND PROTECTED AS REQUIRED.
27. WHERE A DETAIL IS SHOWN FOR ONE CONDITION, IT SHALL APPLY FOR ALL LIKE OR SIMILAR CONDITIONS (UNLESS NOTED OTHERWISE).
28. ALL FURRED/ STUPPED WALLS SHALL HAVE FIRE BLOCKING AS REQUIRED BY CODE.
29. VERIFY ALL EXISTING FIELD CONDITIONS PRIOR TO COMMENCEMENT OF ANY WORK. VERIFY ALL DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS. IN THE EVENT OF DISCREPANCY, NOTIFY THE S.C. AND/OR THE ARCHITECT AND OBTAIN RESOLUTION BEFORE PROCEEDING. FAILURE TO NOTIFY THE ARCHITECT WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO PERFORM THE WORK AS INTENDED BY THE CONTRACT DOCUMENTS. CONTRACTOR(S) SHALL BE RESPONSIBLE FOR ANY AND ALL WORK ARISING FROM SUCH FAILURE TO COORDINATE DISCREPANCIES TO THE SATISFACTION OF THE ARCHITECT.
31. ALIGN PARTITIONS WITH FACE OF OTHER PARTITIONS OR COLUMNS UNLESS NOTED OTHERWISE. THE FACE OF EVERY PARTITION SHALL BE FLUSH WITHOUT OFFSETS. CHANGES IN PARTITION THICKNESS SHALL OCCUR AT CORNERS, PARTITION INTERSECTIONS OR OTHER FEATURES WHICH INTERRUPT THE PLANE OF THE PARTITION. FACE OF CORRIDOR PARTITIONS SHALL BE FLUSH FOR THE ENTIRE LENGTH OF THE CORRIDOR REGARDLESS OF CHANGES IN PARTITION THICKNESS. ALL ADJUSTMENTS SHALL BE MADE TO THE ROOM SIDE OF THE CORRIDOR PARTITION AND AT CORNERS.
32. ALL GYPSUM BOARD MATERIALS AND ACCESSORIES SHALL CONFORM TO THE APPROPRIATE STANDARDS IN ACCORDANCE WITH TABLE 2506.2 MBC 2015.
33. REFER TO INTERIOR FINISHES REQUIREMENT ON LIFE SAFETY SHEET A.041. ALL INTERIOR FINISHES SHALL HAVE A CLASS C FLAME SPREAD OF 16 TO 200 AND A SMOKE DEVELOPMENT INDEX NOT GREATER THAN 450 IN ACCORDANCE WITH ASTM E84 OR UL T23. ALL INTERIOR CARPET INCLUDING THOSE IN EXIT ENCLOSURES SHALL COMPLY WITH MBC SECTION 804, DOC FF-1 "FILL TEST" (CPSC 16 CFR PART 1630) CONTRACTOR TO PROVIDE COMPLETE DOCUMENTATION TO FIELD INSPECTOR. FLOOR FINISH SHALL MEET A MIN. OF CLASS II FOR THE MIN. CRITICAL RADIANT FLUX INCLUDING THOSE IN EXIT ENCLOSURES. ALL FLOOR FINISHES SHALL BE IN ACCORDANCE WITH NFPA 285.
34. ALL EXPOSED INSULATION SHALL HAVE A CLASS A FLAME SPREAD NOT GREATER THAN 25 AND A SMOKE DEVELOPMENT NOT GREATER THAN 450 IN ACCORDANCE WITH ASTM E84 REQUIREMENTS. OWNER TO PROVIDE DOCUMENTATION.
35. ALL PLYWOOD, WOOD BLOCKING & NAILERS TO BE NON COMBUSTIBLE.
36. INFILL AROUND ALL EXTERIOR WALL PENETRATIONS. FLASH WITH METAL & RUBBER AND SEAL TIGHT AT WALL.
37. "EXIT" SIGNS SHALL HAVE RED LETTERS AT LEAST 6" HIGH AND THE MINIMUM WIDTH OF EACH STROKE SHALL BE 3/4" ON A WHITE BACKGROUND OR IN OTHER APPROVED DISTINGUISHABLE COLOR. THE WORD "EXIT" EXCEPT THE LETTER "I" SHALL HAVE LETTERS HAVING A WIDTH NOT LESS THEN 2 INCHES AND THE MINIMUM SPACING BETWEEN LETTERS SHALL NOT BE LESS THAN 3/8" OF AN INCH. SIGNS LARGER THAN THE MINIMUM SIZE REQUIRED SHALL HAVE LETTERS WIDTH AND SPACING IN THE SAME PROPORTION TO THE HEIGHT AS INDICATED IN THIS CODE. IF AN ARROW IS PROVIDED AS PART OF AN "EXIT" SIGN, THE CONSTRUCTION SHALL BE SUCH THAT THE ARROW CANNOT BE READILY CHANGED. THE WORD "EXIT" SHALL BE CLEARLY DISCERNIBLE WHEN THE SIGN IS ILLUMINATION MEANS IS NOT ENERGIZED.
38. MIN. AVERAGE ILLUMINATION OF 10 FOOT CANDLES IS REQUIRED AT A HEIGHT OF 30' AFF OVER THE AREA OF ALL ROOMS.
39. PROVIDE TYVEK DRAINWRAP SHEET FOR ALL E.F.I.S. WORK INDICATED ON DRAWINGS.
40. ALL EXIT DOORS & MEANS OF EGRESS DOORS SHALL BE SIDE HINGED, NON-LOCKING & SWING IN DIRECTION OF EGRESS.
41. ALL DOORS TO COMPLY WITH THE 2015 EDITION OF THE MICHIGAN BUILDING CODE SECTION 1008 AND ICC/ANSI A117.1-2009 SECTION 404.2.
42. DOOR HANDLES, PLUS LATCH, LOCKS AND OTHER OPERATING MAXIMUM HEIGHT OF 34"-48" ABOVE FINISH FLOOR. OPERATING DEVICES SHALL BE CAPABLE OF OPERATION WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING OR TWISTING OF THE WRIST TO OPERATE. ALL MEANS OF EGRESS WHERE SERVING AN OCCUPANT LOAD OF 50 OR MORE PERSONS, THE OPENING FORCE FOR INTERIOR SIDE-SWING DOORS WITH- OUT CLOSERS SHALL NOT EXCEED 5-POUND FORCE. FOR ALL OTHER SIDE-SWING, SLIDING AND FOLDING DOORS, THE DOORS SHALL RELEASE WHEN SUBJEGT TO A 15-POUND FORCE. THE DOOR SHALL SWING TO A FULL-OPEN POSITION WHEN SUBJECTED TO A 15 POUND FORCE. FORCES SHALL BE APPLIED TO THE LATCHSIDE.
43. ALL MEANS OF EGRESS DOORS SHALL BE READILY OPERABLE FROM THE SIDE FROM WHICH EGRESS IS TO BE MADE WITHOUT THE USE OF A KEY, SPECIAL KNOWLEDGE, OR EFFORT.
44. ALL EXIT DOORS & MEANS OF EGRESS DOORS SHALL BE SIDE HINGED, NON-LOCKING & SWING IN DIRECTION OF EGRESS.
45. ALL GLASS SHALL BE SAFETY GLASS AS REQ'D PER SECTION 2406.2 AND SHALL PASS THE TEST REQMT'S OF CPSC 16 CFR, PART 1201
46. ALL EXIT DISCHARGE DOORS TO CONTAIN A RAISED CHARACTER SIGN STATING "EXIT" COINCIDING WITH ICC A117.1 SECTION 709.3 AS REQ'D BY MBC 2015 SECTIONS 110.4 (ITEM #2) AND 1011.4.
47. NO COMBUSTIBLES MATERIAL SHALL BE USED IN PLENUM SPACES.

**DESIGN LOADS:**

THE STRUCTURE IS DESIGN FOR THE FOLLOWING LIVE LOADS, IN ADDITION TO THE LATERAL LOADS AND SUPERIMPOSED DEAD LOADS AND SELF-WEIGHT OF THE STRUCTURE.
BUILDING OCCUPANCY CATEGORY: II
LIVE LOADS:
1. ROOF SNOW LOAD
A. GROUND SNOW LOAD: 25 PSF
B. FLAT ROOF SNOW LOAD (P)1: (MIN ROOF LOAD): 20 PSF
C. SNOW EXPOSURE FACTOR (Ce): 1.0
D. SNOW LOAD IMPORTANCE FACTOR (I): 1.0
E. THERMAL FACTOR (Ct): 1.0
F. ADDITIONAL LOADING DUE TO DRIFTING AT CHANGES IN ROOF ELEVATIONS AND ICE AT OVERHANGS PER APPLICABLE CODE.
TOTAL ROOF DESIGN LOAD: 35 PSF
WIND LOAD:
1. BASIC WIND SPEED (3-SECOND GUST): 115 MPH
2. RISK CATEGORY FACTOR: II
3. EXPOSURE CATEGORY: A
4. INTERNAL PRESSURE COEFFICIENT: +/- 0.18
5. MAIN FORCE RESISTING STRUCTURAL SYS (EQUIVALENT STATIC FORCE): MIN UNIFORM: 16 PSF

EARTHQUAKE DATA:
1. OCCUPANCY CATEGORY: II
2. MAPPED SPECTRAL RESPONSE ACCELERATION Ss=0.0285g & S1=0.044g
3. SITE CLASS D
4. SPECTRAL RESPONSE COEFFICIENT Sps=0.091g & SD1=0.071g
5. SEISMIC DESIGN CATEGORY A
6. SECTION 11.7 (ASCE7-10) DESIGN REQUIREMENT FOR SDc A
7. DESIGN BASE SHEER Fx=0.01Wx
8. Cs=Sds / (R)1
9. RESPONSE MODIFICATION FACTOR R=5
10. SECTION 11.7 (ASCE7-10) DESIGN REQUIREMENT FOR SDc A

**FOUNDATION & EARTH WORK**

- FOOTINGS SHALL BEAR ON THE FIRM UNDISTURBED SOIL WITH A SAFE NET CAPACITY OF 2,000 PSF. IF SOIL OF THIS CAPACITY IS NOT FOUND AT THE ELEVATIONS INDICATED, FOOTINGS SHALL BE ENLARGED OR LOWERED AT THE DIRECTION OF THE ENGINEER. VERIFY FOUNDATION SOIL BEARING PRESSURE IN FIELD BY SOILS ENGINEER.
2. EXCAVATION OF FILLS, ORGANIC MATERIALS AND OTHER UNSUITABLE MATERIAL IS TO BE REMOVED UNTIL THE MIN. SOIL BEARING IS OBTAINED PER AN ON-SITE SOILS ENGINEER. PAD FOOTING IS TO EXTEND TO THAT POINT. IF WATER IS ENCOUNTERED DURING EXCAVATION, CONTRACTOR TO CONSULT WITH DEWATERING CONTRACTOR FOR RECOMMENDATIONS.
3. ALL FOOTINGS SHALL BE PLACED ONTO COMPACTED SUB GRADE OR ENGINEERED FILL (95% MINIMUM DENSITY AT OPTIMUM MOISTURE CONTENT). FOOTING ELEVATIONS SHOWN DESIGNATE A MINIMUM DEPTH OF FOOTINGS WHERE A SAFE SOIL BEARING PRESSURE OF 2,000 PSF FOR COLUMNS AND WALL FOOTINGS IS EXPECTED. UNDERCUT AND PROVIDE ENGINEERED FILL AS NECESSARY TO ACHIEVE BEARING CAPACITY INDICATED.
4. ALL FOUNDATION EXCAVATIONS SHALL BE INSPECTED AND CERTIFIED. CONTRACTOR TO SUBMIT TESTING REPORT TO CITY.
5. NO FOOTINGS SHALL BE PLACED ONTO OR AGAINST SUB GRADES CONTAINING FROST OR ICE. CROSS REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS TO ASSURE PROPER DIMENSIONS AND PLACEMENT OF ALL ANCHORS, BOLTS, INSERTS, ETC.
6. AFTER EXCAVATING FOR ALL EARTH-SUPPORTED FLOOR AND STAIR SLABS, THE EXPOSED NATURAL SOIL SHALL BE THOROUGHLY COMPACTED PRIOR TO PLACING FILL.

**STEEL JOISTS:**

- ALL PROVISIONS OF THE RECOMMENDED CODE OF STANDARD PRACTICE FOR STEEL JOISTS AS ADOPTED BY THE STEEL JOIST INSTITUTE SHALL BE ADHERED TO.
2. STEEL JOIST BEARING ON STEEL BEAMS OR PLATES TO BE WELDED TO STEEL WITH 2" LONG PER "SJI". EXTEND BOTTOM CHORDS OF JOISTS AT COLUMNS TO A STABILIZER TAB, IF NO JOIST OCCURS AT COLUMNS, EXTEND BOTTOM CHORDS OF EACH ADJACENT JOIST AND CONNECT.
3. STEEL JOISTS OR JOIST GIRDERS ARE TO BE FABRICATED BY A MEMBER OF THE STEEL JOIST INSTITUTE AND BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS OF THE STEEL JOIST INSTITUTE.
4. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS THAT CONFORM TO THE STANDARDS OF THE STEEL JOIST INSTITUTE (SJI) SPECIFICATIONS.
5. PROVIDE X-BRACING AND BOTTOM CHORD BRACINGS AT LOCATIONS INDICATED BY MANUFACTURER AND SHALL COMPLY WITH SJI STANDARDS.
6. COLD FORMED CHORDS ARE NOT PERMITTED.
7. ALL HANGERS FOR CEILINGS, DUCTWORK, ELECTRICAL CONDUIT, PIPES, ETC. SHALL BE HUNG DIRECTLY OR SUPPORTED FROM OR AT THE PANEL POINTS OF THE JOIST.
8. JOISTS SHALL HAVE ONE SHOP COAT OF PAINT. CHECK WITH ARCHITECT FOR COLOR.
9. MECHANICAL FRAMING, OPENINGS AND STRUCTURE IN ANY WAY RELATED TO MECHANICAL REQUIREMENTS ARE SHOWN FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL OBTAIN APPROVAL OF MECHANICAL AND OTHER TRADES BEFORE PROCEEDING WITH SUCH PORTION OF THE WORK. EXCESS COST RELATED TO VARIATION IN MECHANICAL REQUIREMENTS TO BE BORNE BY MECHANICAL CONTRACTOR.
10. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND COORDINATING ALL UNITS AND ANY ROOF / FLOOR OPENINGS SUPPORTS WITH STEEL JOISTS FABRICATOR FOR FINAL SELECTION OF UNITS / EQUIPMENTS. UNITS SPECIFICATION SHEETS SHALL BE SUBMITTED TO ARCHITECT AND JOISTS MANUFACTURER PRIOR TO JOIST FABRICATION.

**REINFORCING STEEL:**

- DETAILINGS AND PLACING OF REINFORCING SHALL CONFORM TO AIC MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES.
2. SECURE REBAR AND HOLD IN PLACE WITH GALVANIZED METAL ACCESSORIES, OR PLASTIC BOOTED CHAIRS.
3. ALL RE-STEEL SHALL BE INTERMEDIATE GRADE NEW BILLET STEEL, ASTM 65.
4. PLACE (2) #5 BARS CONTINUOUS IN TOP AND BOTTOM OF ALL WALL FOOTINGS, GRADE BEAMS AND AT THE SIDES OF ALL OPENINGS, UNLESS NOTED OTHERWISE IN THE DRAWINGS.
5. UNLESS NOTED OTHERWISE ON THE DRAWINGS, ALL CONCRETE WALLS 12" THICK SHALL BE REINFORCED WITH #4 @ 12" EACH WAY, AT EACH VERTICAL FACE.
6. ANCHOR BOLT SIZE AND LOCATION SHALL BE FURNISHED BY BUILDING OR EQUIPMENT MANUFACTURER, AND SHALL BE INSTALLED BY THIS CONTRACTOR FROM APPROVED SHOP DRAWINGS.

**STRUCTURAL STEEL:**

- THE STRUCTURAL INTEGRITY OF THE BUILDING SHOWN ON THESE PLANS IS DEPENDENT UPON COMPLETION ACCORDING TO THE PLANS AND SPECIFICATIONS. STRUCTURAL MEMBERS ARE NOT SELF-BRACING UNTL PERMANENTLY AFFIXED TO THE STRUCTURE AS DIRECTED. THE ARCHITECT/STRUCTURAL ENGINEERS ASSUME NO LIABILITY FOR THE STRUCTURE DURING CONSTRUCTION. MEANS AND METHODS OF CONSTRUCTION AND JOB SITE SAFETY ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR(S).
2. ALL STRUCTURAL STEEL CONSTRUCTION TO CONFORM TO AISC-360 "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" AND AISC CODE OF STANDARD PRACTICE, UNLESS MODIFIED.
3. ALL DETAILING FABRICATION AND ERECTION SHALL CONFORM TO MBC SECTION 2204 CODE, THE LATEST EDITION OF "AISC SPECIFICATION FOR STRUCTURAL FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS AND BRIDGES.
4. CONTRACTOR TO USE AISC SPECIFICATIONS FOR THE MANUFACTURE OF ALL STRUCTURAL STEEL MEMBERS WITH TENSILE YIELD STRENGTH Fy = 50 KSI, AND WHICH SHALL CONFORM TO ASTM A-992 STANDARDS, AND SHALL SUBMIT SHOP DRAWINGS. ALL STRUCTURAL STEEL SHALL BE ASTM A-992 (UNLESS NOTED OTHERWISE) HAVING Fy=50,000 PSI.
5. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, GRADE B OR ASTM A501. SEE DRAWINGS FOR EACH APPLICATION.
6. ALL DRAWINGS SHOW THE INTENT AND CONCEPT OF THE CONNECTIONS BUT NOT THE DETAIL OF BOLTS AND WELDS. ALL CONNECTIONS NOT DETAILED SHALL BE DESIGNED, DETAILED AND MANUFACTURED BY THE FABRICATOR.
7. SHOP CONNECTIONS SHALL BE WELDED FIELD CONNECTIONS USE ETOXX ELECTRODES, RUN PARALLEL TO THE TENSION MEMBERS, AND USE HIGH STRENGTH BOLTS WITH WASHER AND NUT.
8. FIELD BOLT CONNECTIONS WITH ASTM A-325 OR ASTM A-490.
9. PROVIDED PERIMETER STEEL, ANGLES FOR METAL, ROOF DECK SUPPORT AS REQUIRED, INCLUDING AROUND ALL ELEVATORS, STAIRS, AND OPENINGS IN FLOOR OR ROOF.
10. ALL WELDING TO CONFORM TO AWS D11 "STRUCTURAL WELDING CODE". E TO XX LECT HYDROGEN ELECTRODES CONFORMING TO AWS SPECIFICATION A51 SHALL BE USED FOR WELDING.
11. ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS USING ELECTRIC ARC METHODS IN ACCORDANCE WITH LATEST EDITION OF "AWS CODE FOR WELDING IN BUILDING CONSTRUCTION". ETOXX ELECTRODES TO BE USED.
12. UNLESS OTHERWISE NOTED, ALL FIELD CONNECTIONS SHALL BE FASTENED WITH 3/4 INCH DIAMETER ASTM A325-X BEARING TYPE (WITH THREADS EXCLUDED FROM SHEAR PLANE) BOLTS.
13. UNLESS OTHERWISE SHOWN, ALL BEAM END CONNECTIONS SHALL BE DESIGNED TO SUPPORT ONE-HALF THE TOTAL UNIFORM LOAD CAPACITY SHOWN IN AISC MANUAL FOR GIVEN BEAM, SPAN AND AND GRADE OF STEEL SPECIFIED. FOR COMPOSITE BEAM CONNECTIONS SHALL BE DESIGNED FOR THREE-FOURTH OF THE TOTAL UNIFORM LOAD CAPACITY.
14. ALL ANCHOR BOLTS SHALL CONFORM TO ASTM A-307-00.
15. MINIMUM CONNECTION SHALL BE 3/4 INCH DIAMETER BOLTS OR A WELD DEVELOPING A FORGE OF 10 KIPS.
16. PAINT ONE COAT OF PRIMER ON ALL EXPOSED SURFACES EXCEPT FOR THE FOLLOWING SURFACES WHICH WILL NOT BE PAINTED :
A. SURFACES THAT ARE IN CONTACT WITH CONCRETE.
B. CONTACT SURFACES IN FRICTION TYPE CONNECTIONS.
C. SURFACES WHICH METAL FLOOR DECK AND/OR SHEAR STUDS ARE TO BE WELDED.
D. SURFACES TO BE WELDED SHALL NOT BE PAINTED WITHIN THREE INCHES OF THE WELD.
17. THE CONTRACTOR SHALL FURNISH AND INSTALL STEEL, ANGLES WITH ANCHORS AT MECHANICAL CURBS WHERE INDICATED.
18. FLOOR AND ROOF OPENINGS ARE TO BE FRAMED WITH STEEL, ANGLES AS INDICATED. FRAMES TO BE CONNECTED TO THE PANEL POINTS OF BAR JOISTS OR GIRDERS AND TRUSSES.
19. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL ANGLES, PLATES, BARS, CLIPS, ETC., ATTACHED TO STRUCTURAL STEEL. VERIFY EXACT SIZE AND LOCATION OF ALL FLOOR AND ROOF OPENINGS WITH CONTRACTOR INVOLVED.
20. PROVIDE "DUR-O-WALL" RE-STEEL. USE No. 8 LADDER TYPE ONLY, BLOCKWORK - EVERY 24" STEEL FABRICATOR TO PROVIDE SHOP DRAWINGS FOR ARCHITECTS APPROVAL PRIOR TO FABRICATION. THE SHOP DRAWINGS SHALL INCLUDE CONNECTION DETAILS FOR ALL STRUCTURAL STEEL MEMBERS. SPECIFY THAT STEEL JOIST AND JOIST GIRDER STRUCTURAL.
CONCRETE WORK:
1. CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318-14 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, AND ACI STANDARD 301-49 BY AMERICAN CONCRETE INSTITUTE, AND CRSI STANDARD FOR PLACING CONCRETE.
2. DETAILS AND DETAILING OF CONCRETE REINFORCEMENT SHALL CONFORM TO ACI 318-14 STANDARDS AND ALSO TO THE MANUAL OF STANDARD PRACTICES AS PUBLISHED BY CRSI.
3. UNLESS OTHERWISE NOTED ALL CONCRETE SHALL BE NORMAL WEIGHT AND SHALL DEVELOP MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS FOLLOWS:
TRENCH AND PAD FOOTINGS .....3,000 PSI
FOUNDATION WALLS AND PIERS .....3,000 PSI
INTERIOR SLAB-ON-GRADE .....3,000 PSI
EXTERIOR SLAB ON GRADE .....3,500 PSI (AIR ENTRAINED)
4. CONCRETE OVER METAL DECK FOR SUPPORTED FLOORS AS INDICATED ON THE PLANS SHALL BE 145 PCF AND SHALL DEVELOP MINIMUM COMPRESSIVE STRENGTH OF MIN. 2,500 PSI AT 28 DAYS.
5. CONCRETE EXPOSED TO WEATHER SHALL BE AIR -ENTRAINED. AIR CONTENT TO BE 6% +/- 1 %
6. ALL REINFORCING STEEL SHALL BE DEFORMED BARS GRADE 60 CONFORMING TO THE LATEST EDITION OF ASTM A-615/A 615M-00 OR ASTM-616 AND HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI.
7. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185-85 USING COLD DRANN WIRE CONFORMING TO ASTM A82-01.
8. UNLESS OTHERWISE NOTED, MINIMUM CONCRETE COVER FOR REINFORCING STEEL SHALL BE 3/4 INCH FOR SLABS, 1.5 INCH FOR BEAMS, COLUMNS AND PIERS, AND 1 INCH FOR WALLS. ALL CONCRETE EXPOSED TO WEATHER OR EARTH-FILL SHALL HAVE A MINIMUM COVER OF 1.5 INCHES FOR #5 BARS OR SMALLER, 2 INCHES FOR BARS LARGER THAN #5 AND 3 INCH FOR CONCRETE PLACED AGAINST EARTH.
9. VERIFY LOCATION AND DIMENSION OF ALL OPENINGS AND ALL EMBEDDED SLEEVES, FLOOR DRAINS, ROOF SUMPS, ETC., AS REQUIRED FOR DIFFERENT TRADES PRIOR TO POURING OF CONCRETE.
10. UNLESS OTHERWISE NOTED, PROVIDE VERTICAL DOWELS FROM FOOTINGS TO PIERS AND TO WALLS OF SAME SIZE AND SPACING AS VERTICAL REINFORCING. OFFSET FOR DOWELS AS REQUIRED. DOWELS TO EXTEND 24 BAR DIAMETERS INTO EACH MEMBER AT THE JOINT.
11. CONSTRUCTION JOINTS SHALL BE PLACED AT THE CENTER OF SPANS WITH A VERTICAL BULKHEAD.
12. SLABS, BEAMS AND FOOTINGS SHALL BE PLACED WITH OUT HORIZONTAL JOINTS.
13. PROVIDE HORIZONTAL BENT BARS AT ALL CORNERS AND INTERSECTIONS OF CONCRETE WALL OR GRADE BEAMS OF SAME SIZE AND SPACING AS HORIZONTAL WALL OR BEAM REINFORCING. USE BENT DOWELS TO DEVELOP ANCHORAGE, IF NECESSARY. DOWELS TO EXTEND 24 BAR DIAMETERS INTO EACH MEMBER.

**METAL DECK:**

- METAL DECK SHALL CONFORM TO ALL REQUIREMENTS OF "BASIC DESIGN SPECIFICATION" AS ADOPTED BY THE STEEL DECK INSTITUTE (S.D.I.).
2. ALL METAL DECK WORK SHALL COMPLY WITH APPLICABLE REQUIREMENTS OF AISI, SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS, AISI-STRUCTURAL WELDING CODE D1-1, STEEL DECK INSTITUTE.
3. UNLESS NOTED, ROOF DECK SHALL BE MANUFACTURED FROM STEEL CONFORMING TO ASTM A1008, 39 KSI.
4. LOADS SHALL NOT BE HUNG FROM ROOF DECK.
5. METAL DECK TO BE CONNECTED TO SUPPORTING MEMBERS AS PER RECOMMENDATION BY SDI OR AS SPECIFIED.
6. THE CONTRACTOR SHALL FURNISH ALL ACCESSORIES INCLUDING CLOSURES, "Z" CLOSURES, COLUMN CLOSURES, SCREED ANGLES AND GIRDER FILLERS, AS REQUIRED.
7. ROOF DECK SHALL HAVE MANUFACTURER'S STANDARD RUST INHIBITIVE PAINT.
8. METAL DECK SHALL BE CONTINUOUS OVER THREE SPANS WHEREVER INDICATED. SINGLE AND DOUBLE SPANS SHALL COMPLY WITH "STEEL DECK INSTITUTE" REQUIREMENT.
9. ALL METAL DECKING SHALL BE WELDED TO THE STEEL BEAM WITH A 3/4 INCH FLUG WELD AT THE FLUTES NOT EXCEEDING 12 INCHES APART.
10. ALL INTERIOR ROOF SUMPS SHALL HAVE AN OVER FLOW 3" ABOVE ROOF SURFACE

**MASONRY WORK:**

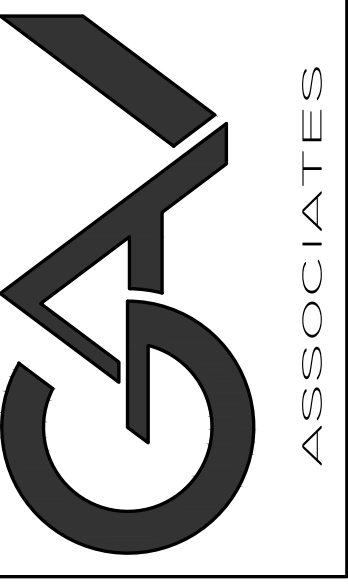
- PATCH EXISTING BRICK FOR THE ADDITION AND VERIFY WITH OWNER.
2. PROVIDE MASONRY CONTROL JOINTS FOR ALL MASONRY WALLS AT A MAXIMUM 20'-0" APART, AND MAXIMUM OF 5'-0" FROM EACH WALL CORNER. BOND BEAM STEEL TO CONTINUE THROUGH JOINTS.
3. MASONRY CONSTRUCTION/ DESIGN STANDARD TO COMPLY WITH ACI 530-11/ ASCE 5-11 / TMS 402 "AMERICAN STANDARD BUILDING CODE REQUIREMENT FOR MASONRY" BY US DEPARTMENT OF COMMERCE, MISC.PUB. 211 AND ASA A41
4. THE REFERENCE MATERIAL STANDARD FOR EACH MASONRY CONSTRUCTION MATERIAL USED ON THIS PROJECT INCLUDING MASONRY UNITS, MORTAR AND METAL ACCESSORIES.
MASONRY: ASTM C90-01a FOR CONCRETE BLOCK
ASTM C62-01 FOR BRICK
ASTM C210-01a FOR MORTAR
REINF WIRE: ASTM A82-01
5. BLOCK - GRADE A, LOAD BEARING UNITS ASTM-C90-01a, IN ACCORD WITH CONCRETE MASONRY ASSOCIATION SPECIFICATIONS.
6. ALL MASONRY BEARING STEEL BEAMS AND LINTELS TO BEAR 8" MINIMUM ON THREE COURSES SOLID MASONRY, WITH 2 - 3/4" BOLTS EACH END, UNLESS OTHERWISE NOTED.
7. PROVIDE BULLNOSE EDGE FOR ALL EXPOSED C/MU EDGES. SEE TYPICAL MASONRY DETAILS.
8. UNLESS OTHERWISE NOTED, PROVIDE 4" x 4" x 5/16" ANGLE (L.L.V.) LINTEL FOR EACH 4' OF MASONRY FOR SPANS UP TO 5'-0" MAXIMUM.
9. ALL DOUBLE ANGLE LINTELS SHALL BE WELDED BACK TO BACK WITH A 3/16" FILLER WELD WITH MINIMUM 2 INCH STITCH WELD EVERY 8 INCHES.
10. MASONRY COMPRESSIVE STRENGTH F'm TO BE 1,500 PSI (MINIMUM) ALL BLOCK SHALL CONFORM WITH ASTM C90-01a AND C145, TYPE 1, GRADE N, MORTAR - TYPE M OR S, 1,900 PSI. MORTAR - TYPE TO CONFORM TO ASTM C270-01a.
11. UNLESS OTHERWISE NOTED, PROVIDE 4" x 3 1/2" x 5/16" ANGLE (L.L.V.) LINTEL FOR EACH 4' OF MASONRY FOR SPANS UP TO 5'-0" MAXIMUM.
12. ALL MASONRY BEARING STEEL BEAMS AND LINTELS TO BEAR 8" MINIMUM ON THREE COURSES SOLID MASONRY, WITH 2 - 3/4" BOLTS EACH END, UNLESS OTHERWISE NOTED.
13. PROVIDE "DUR-O-WALL" REINFORCEMENT STAGGERED AT 16" O.C. USE LADDER TYPE WITH ADJUSTABLE VENEER TIES FOR ALL BLOCK AND BRICK VENEER WALLS.

**SPECIAL INSPECTIONS:**

BUILDER SHALL BE SELECT AND PROVIDE A THIRD PARTY TESTING AGENCY - PER SECTION 1705 MBC 2015. THE SPECIAL INSPECTIONS SHALL INCLUDE:
SECTION 1705.3 STEEL CONSTRUCTION
SECTION 1705.3 CONCRETE CONSTRUCTION
SECTION 1705.4 MASONRY CONSTRUCTION
SECTION 1705.6 SOILS
SECTION 1705.8 CAST IN PLACE DEEP FOUNDATIONS
SECTION 1705.11 SPECIAL INSPECTIONS FOR WIND RESISTANCE
SECTION 1705.12 SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE
SECTION 1705.13 TESTING FOR SEISMIC RESISTANCE.
SECTION 1705.16 EXTERIOR INSULATION AND FINISH SYSTEM SYSTEM (EIFS). REQUIRED IF DRAINWRAP SHEET IS NOT PROVIDED.

ISSUED FOR PERMITS 10/22/2021
Item A.

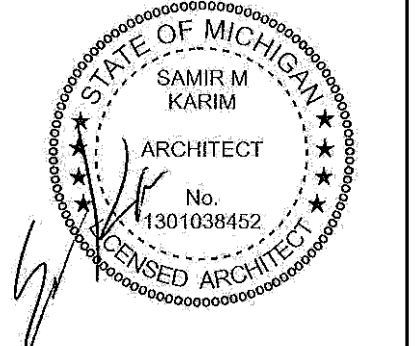
ARCHITECTURAL DESIGN
RESIDENTIAL COMMERCIAL INDUSTRIAL
G.A.V. ASSOCIATES, INC
3600 GRAND LAKE RD., STE. 100A
FARMINGTON, MICHIGAN 48336
PH: (248) 985-9191
WEB: WWW.GAVASSOCIATES.COM



4 CORNERS

NEW RETAIL CENTER SHELL FOR:
UNION LAKE & COOLEY LAKE ROADS
COOLEY LAKE ROAD
WHITE LAKE, MICHIGAN

DRAWN: SSA DESIGNED: SA CHECKED: SA
SCALE:
FILE NAME: 21046\_A001
JOB #: 21046
SHEET TITLE: GENERAL NOTES AND SPECIFICATIONS SHEET #
A.OO1

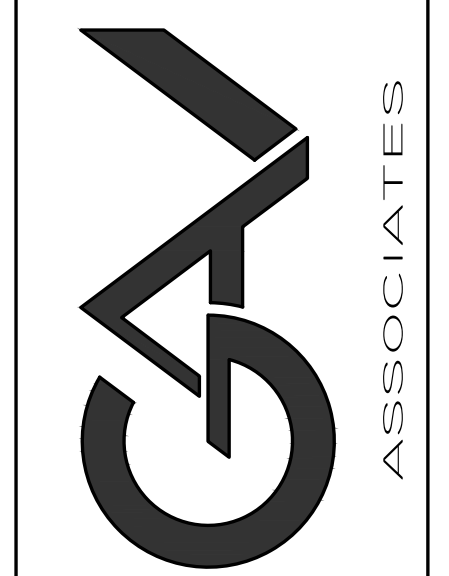


ISSUED FOR	Item A
OWNER REVIEW	08.27.2021
PERMITS	10.22.2021

**ARCHITECTURAL DESIGN**

**RESIDENTIAL COMMERCIAL INDUSTRIAL**

G.A.V. ASSOCIATES, INC.  
 24051 ORCHARD LAKE RD., STE. 100A  
 FARMINGTON, MICHIGAN 48336  
 PH: (248) 985-9191  
 WEB: WWW.GAVASSOCIATES.COM



4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
 UNION LAKE & COOLEY LAKE ROADS  
 COOLEY LAKE ROAD  
 WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
SSA	GA	GA

SCALE :  
 FILE NAME : 21096\_A101

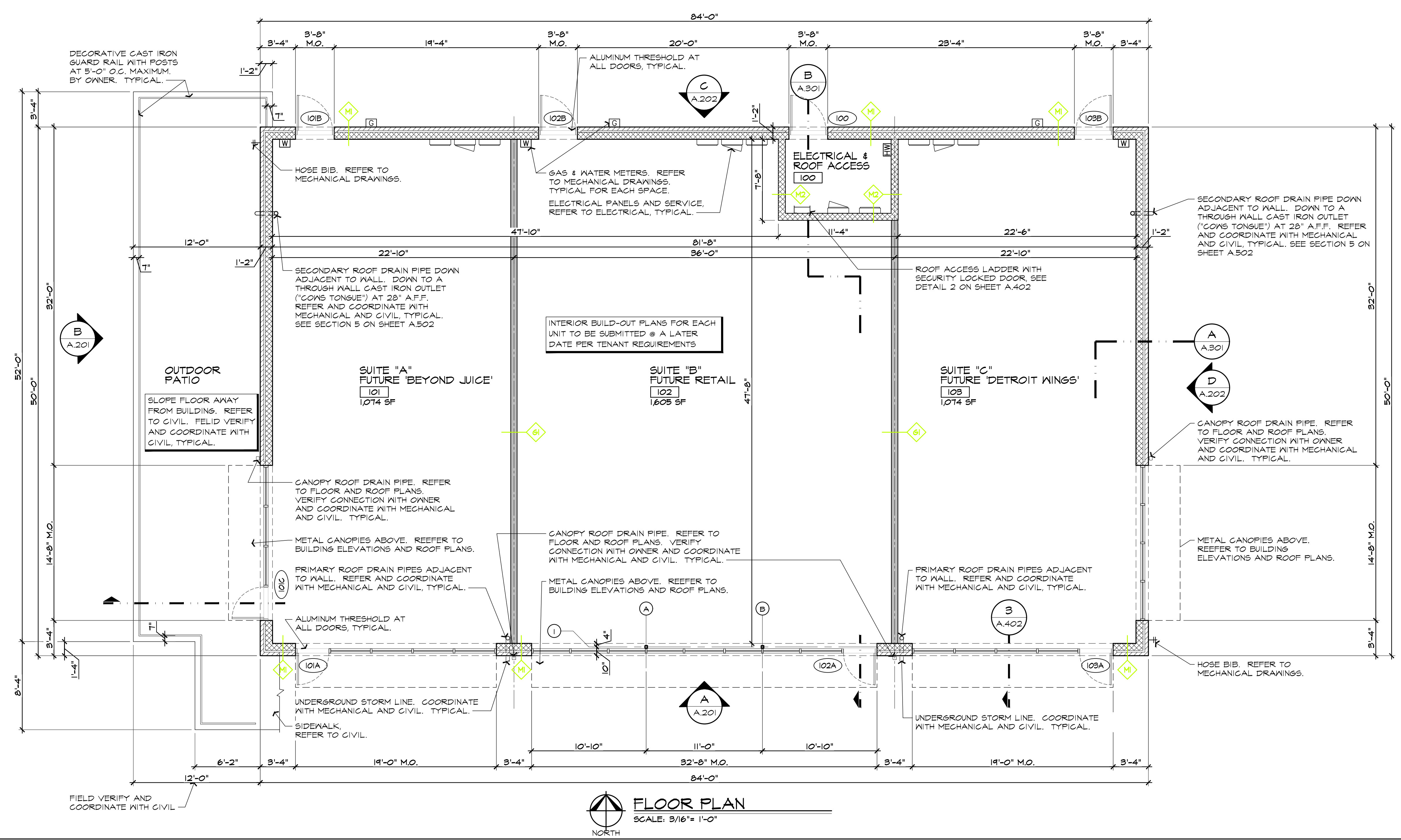
JOB # : 21096

SHEET TITLE  
 FLOOR PLAN

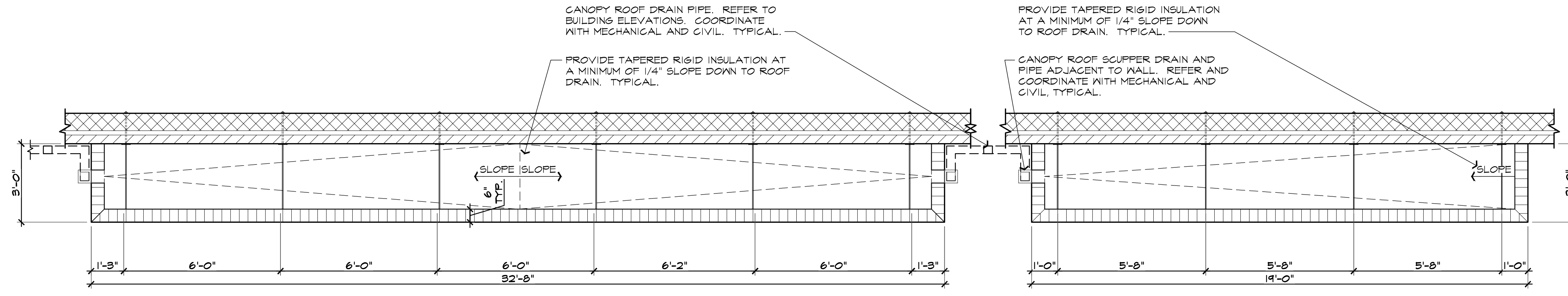
SHEET #  
 A.101

- WALL LEGEND:**
- 4" BRICK & 4" PRE-FINISHED BURNISHED FACE CMU VENEER
  - 2 3/4" CAVITY WITH 1-1/2" HIGH R VALUE XPS RIGID BOARD INSULATION (R11 MINIMUM) AND AIR BARRIER
  - 8" CMU WALL
  - REFER TO BUILDING ELEVATION FOR COURSING AND MATERIAL.
  - REINFORCEMENT: #5 VERTICAL @ 48" O.C. DOWELS TO BE 2'-0" INTO FOOTINGS AND 3'-0" ABOVE.
- 8" CMU WALL WITH:
    - #5 VERTICAL @ 48" O.C. DOWELS TO BE 2'-0" INTO FOOTING AND 3'-0" ABOVE.
    - CORES FILLED 1/4" FOAM INSULATION
- 6"-18 GA METAL STUD FRAMING AT 16" O.C WITH 5/8" GYPSUM BOARD ON BOTH SIDES.
    - (COMPOSITE) STUD TYPE C83-600S200-43 (18) OR APPROVED EQUAL TO MEET WALL SPAN AT 10 PSF AND L/360.
    - EXTEND STUDS AND GYPSUM TO UNDERSIDE OF FLOOR / ROOF DECK U.O.
    - DEFLECTION TRACK AT FLOOR DECK TO WALL CONNECTION.
    - DIAGONAL BRACING TO STRUCTURE ABOVE AT 4'-0".

- WALL LEGEND NOTES:**
- PROVIDE 9 GA LADDER TYPE HORIZONTAL JOINT REINFORCEMENT WITH CROSS WIRES @ 16" O.C. SPACED VERTICALLY FOR ALL CMU WALLS.
  - PROVIDE 9 GA LADDER TYPE HORIZONTAL JOINT REINFORCEMENT WITH CROSS WIRES @ 16" O.C. WITH ADJUSTABLE VENEER TIES AT 16" O.C. STAGGERED FOR ALL CMU WITH BRICK, STONE OR CMU VENEER WALLS.
  - PROVIDE STONE ANCHORS AT TOP AND SIDES FOR EVERY PIECE AND PER STONE FABRICATOR.
  - KEEP HOLES: PROVIDE ONE PIECE SINGLE-PLY FLASHING (MINIMUM OF 1 CMU COURSE WITH END DAMS) AND ONE PIECE METAL FLASHING WITH HEMMED DRIP EDGE. PROVIDE PARTIALLY OPEN HEAD JOINT KEEP HOLES @ 24" O.C. MINIMUM OF TWO HOLES OVER WINDOWS AND DOORS. GROUT AIR SPACE SOLID UNDER FLASHINGS. PROVIDE WASHED PEA STONE FOR PROPER DRAINAGE.
  - EXTEND ALL WALLS TO UNDER SIDE OF FLOOR / ROOF METAL DECK FOR SMOKE TIGHT CONSTRUCTION. CLOSE ALL OPENINGS WITH GROUT MATERIAL TO MEET CODE REQUIREMENTS FOR A SMOKE TIGHT CONSTRUCTION OR FIRE RATE CONSTRUCTION AS INDICATED. SEE PLANS FOR LOCATIONS OF SMOKE / FIRE WALLS.
  - GROUT ALL CMU WALLS SOLID AT RE-BARS AND FIRST TWO COURSES OVER EXISTING MASONRY OR FOUNDATIONS. DOWEL INTO EXISTING MASONRY.
  - PROVIDE A MASONRY CONTROL / EXPANSION JOINTS FOR ALL NEW WALLS OVER 20'-0" IN RUN OR MORE. MAXIMUM SPACING OF 25'-0"
  - PROVIDE CONTINUOUS 8"/12" BOND BEAM (B.B.) W/ (2) #5 BARS. VERTICAL WALL BARS TO CONTINUE THRU B.B. & HOOK TO B.B. STEEL FOR UPLIFT CONTINUITY. GROUT ONE COURSE ABOVE AND ONE BELOW B.B. PROVIDE METAL LATH OR WIRE SCREEN UNDER B.B. TO CONFINE GROUT. LAPPED B.B. MINIMUM OF 48" TO ACCOMMODATE ELEVATION CHANGES FOR THE CORRIDOR WALLS.
  - REFER TO BUILDING ELEVATIONS AND SECTIONS FOR COURSING AND OTHER MATERIALS.







**2 ENLARGED CANOPY PLAN**  
SCALE: 3/8" = 1'-0"

**1 ENLARGED CANOPY PLAN**  
SCALE: 3/8" = 1'-0"

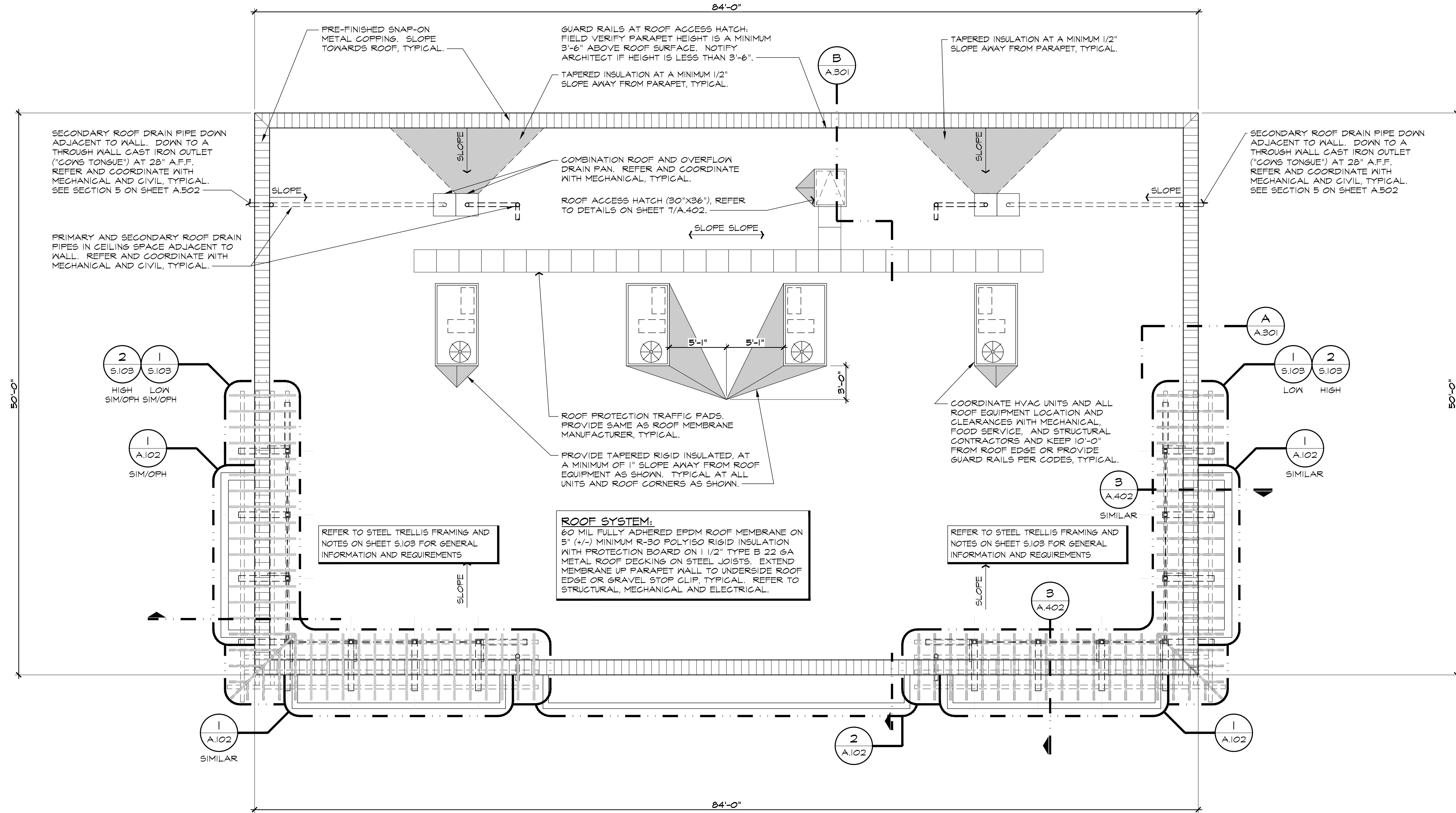
CANOPY ROOF SYSTEM: 60 MIL FULLY ADHERED EPDM ROOF MEMBRANE ON POLYISO TAPERED RIGID INSULATION ON 1 1/2" TYPE B 22 GA METAL ROOF DECKING ON STEEL CHANNELS. EXTEND MEMBRANE UP PARAPET WALL TO UNDERSIDE ROOF EDGE OR GRAVEL STOP CLIP, TYPICAL. REFER TO STRUCTURAL, MECHANICAL AND ELECTRICAL.

**ROOF PLAN GENERAL NOTES:**

1. SEE MECHANICAL DRAWINGS FOR ALL ROOF EQUIPMENT
2. MAINTAIN MINIMUM OF 10 FEET BETWEEN RTU'S INTAKES AND EXHAUST.
3. VERIFY RTU SIZE WITH MANUFACTURER FOR CURB SIZES AND LOCATIONS.
4. COORDINATE ROOF CONDUCTORS WITH PLUMBING, STEEL AND CONCRETE FOUNDATION CONTRACTORS.
5. COORDINATE WITH MECHANICAL ROOF VENT PIPE LOCATIONS (NOT SHOWN).

**STORM DRAINAGE:**

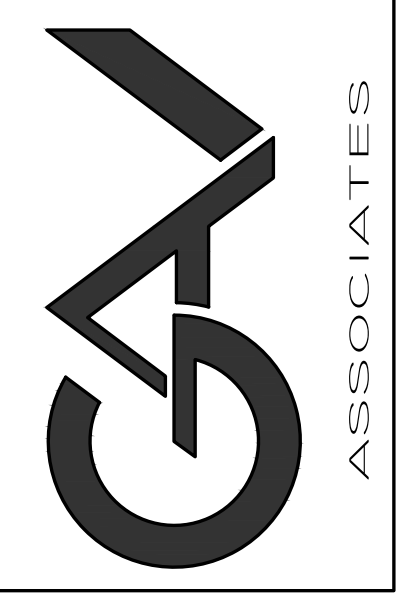
ROOF AREA = 3,850 SF  
VERTICAL WALL AREA = 258 L.F. X 3.0 HT. = 774 SF  
0.0291 GPM/SF X 4624 SF = 135 GPM



**FLOOR PLAN**  
SCALE: 3/16" = 1'-0"

ISSUED FOR	Item A.
PERMITS	10.22.2021

**ARCHITECTURAL DESIGN**  
RESIDENTIAL  
COMMERCIAL  
INDUSTRIAL  
G.A.V. ASSOCIATES, INC.  
34051 ORCHARD LAKE RD., STE. 100A  
FARMINGTON, MICHIGAN 48336  
PH: (248) 985-9191  
WEB: WWW.GAVASSOCIATES.COM



4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
UNION LAKE & COOLEY LAKE ROADS  
COOLEY LAKE ROAD  
WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
SSA	GA	GA

SCALE :

FILE NAME : 21096\_A102

JOB # : 21096

SHEET TITLE  
ROOF PLAN

SHEET #

A.102



ISSUED FOR	Item A.
PERMITS	10/22/2021

**BUILDING ELEVATIONS GENERAL NOTES:**

- REFER TO SITE APPROVAL RENDERING FOR COLOR SELECTION AND COORDINATE WITH OWNERS. COLOR MUST MATCH RENDERING AS CLOSE AS POSSIBLE OR BE APPROVED BY THE CITY PRIOR TO CONSTRUCTION.
- REFER TO REFLECTED CEILING PLANS AND ELECTRICAL DRAWINGS FOR LIGHTING AND POWER ON THE ELEVATIONS.
- REFER TO STEEL TRELLIS FRAMING AND NOTES ON SHEET S.103 FOR GENERAL INFORMATION AND REQUIREMENTS.

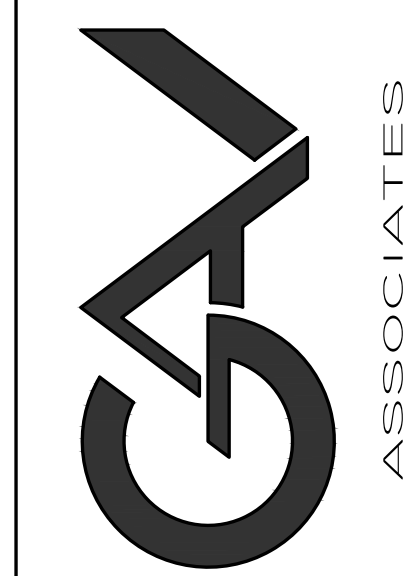
**MATERIAL LEGEND:**

- COORDINATE ALL SELECTIONS WITH OWNER AND REFER TO WALL SECTIONS AND DETAILS.
- BRK-1: BRICK VENEER - LIGHT COLOR
  - BRK-2: BRICK VENEER - DARK COLOR
  - CMU-1: PRE-FINISH SPLIT FACE CMU VENEER
  - CST-1: CAST STONE VENEER ACCENT BAND. MATCH TWO BRICK COURSE HEIGHT +/- 5-3/8"
  - CST-2: CAST STONE SILL. MATCH TWO BRICK COURSE HEIGHT +/- 5-3/8"

**ARCHITECTURAL DESIGN**

RESIDENTIAL COMMERCIAL INDUSTRIAL

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 34051 ORCHARD LAKE RD., STE. 100A  
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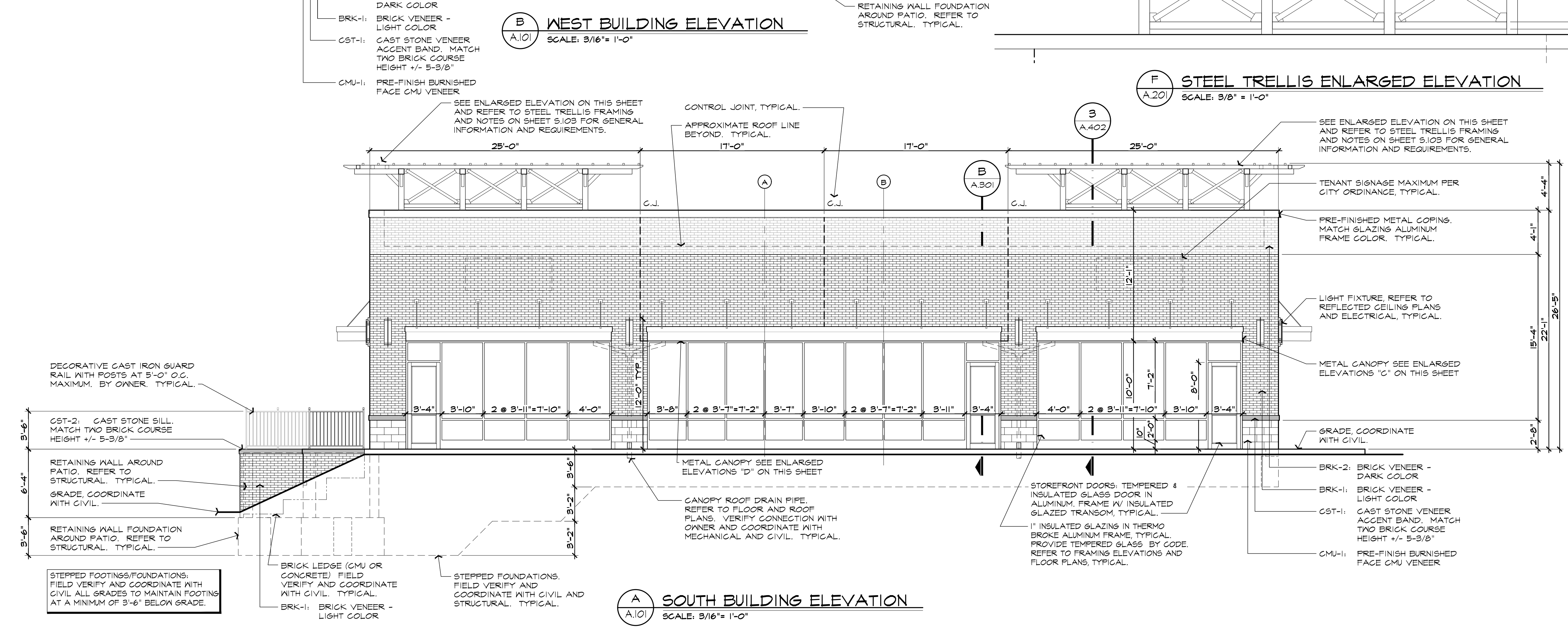
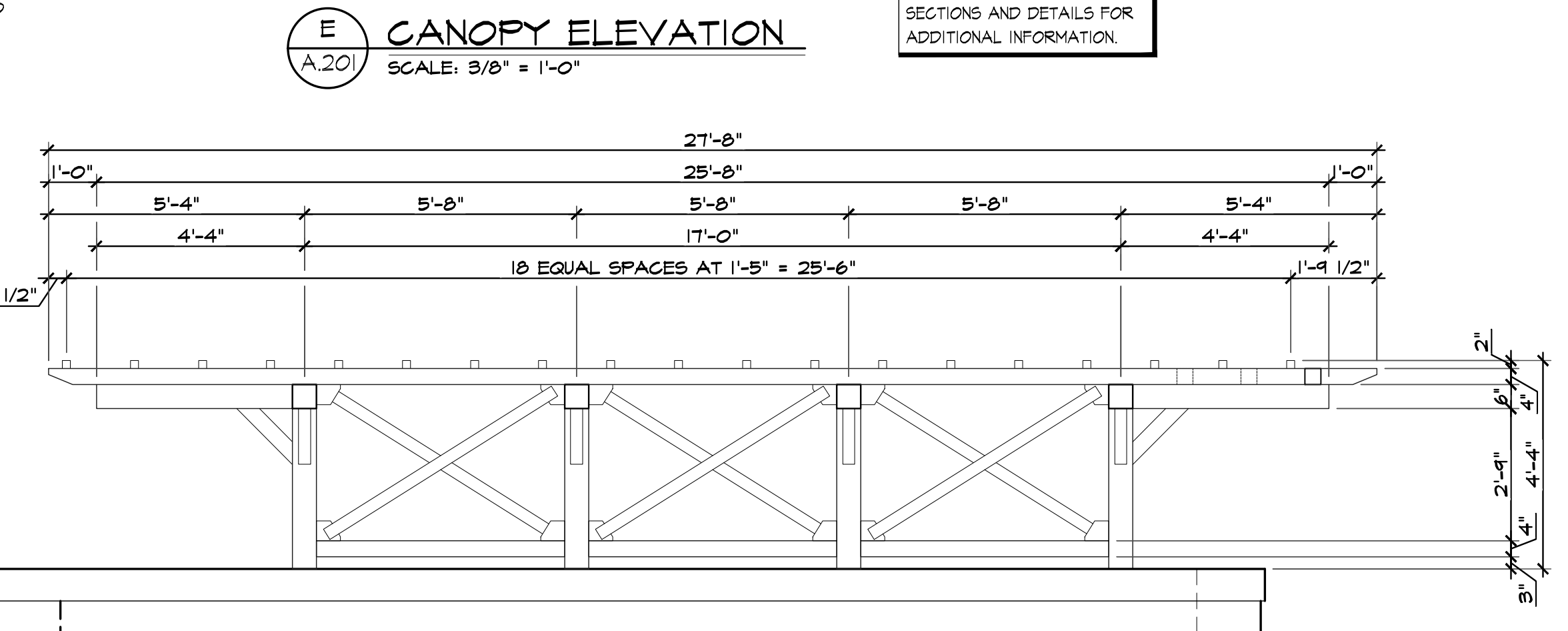
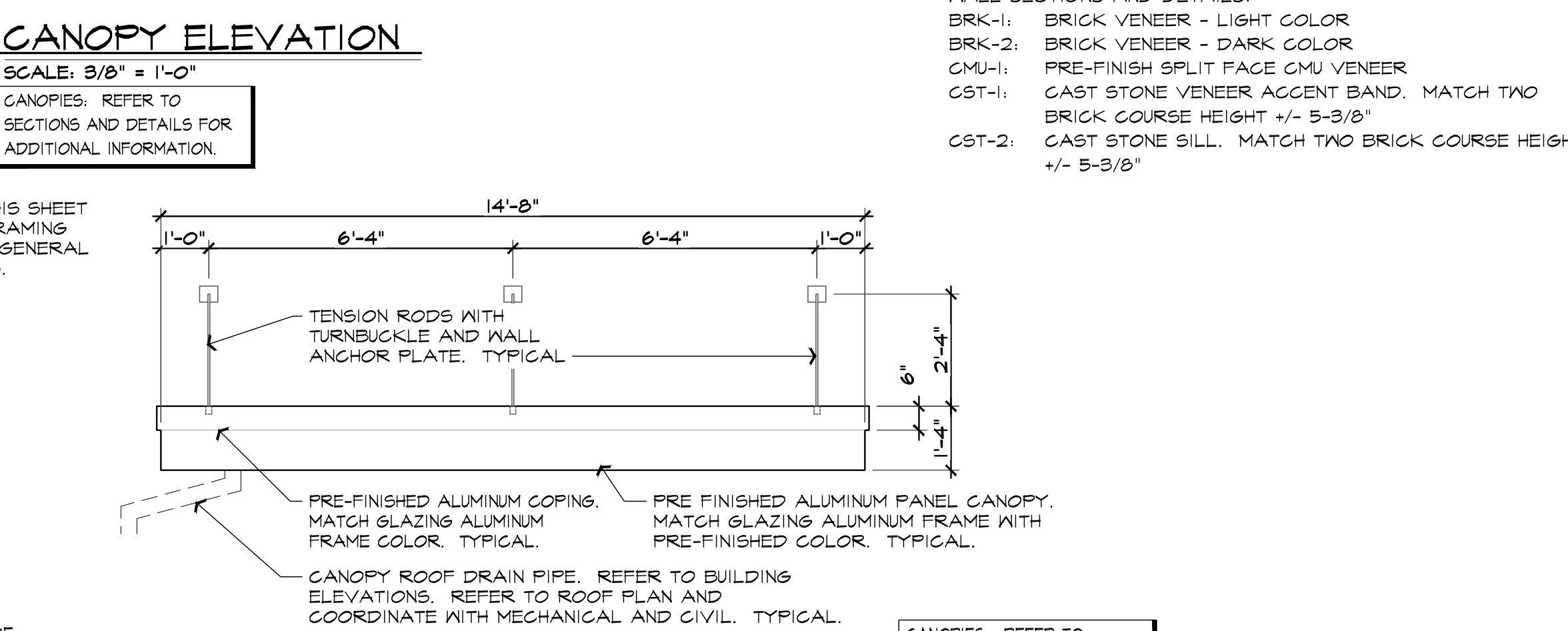
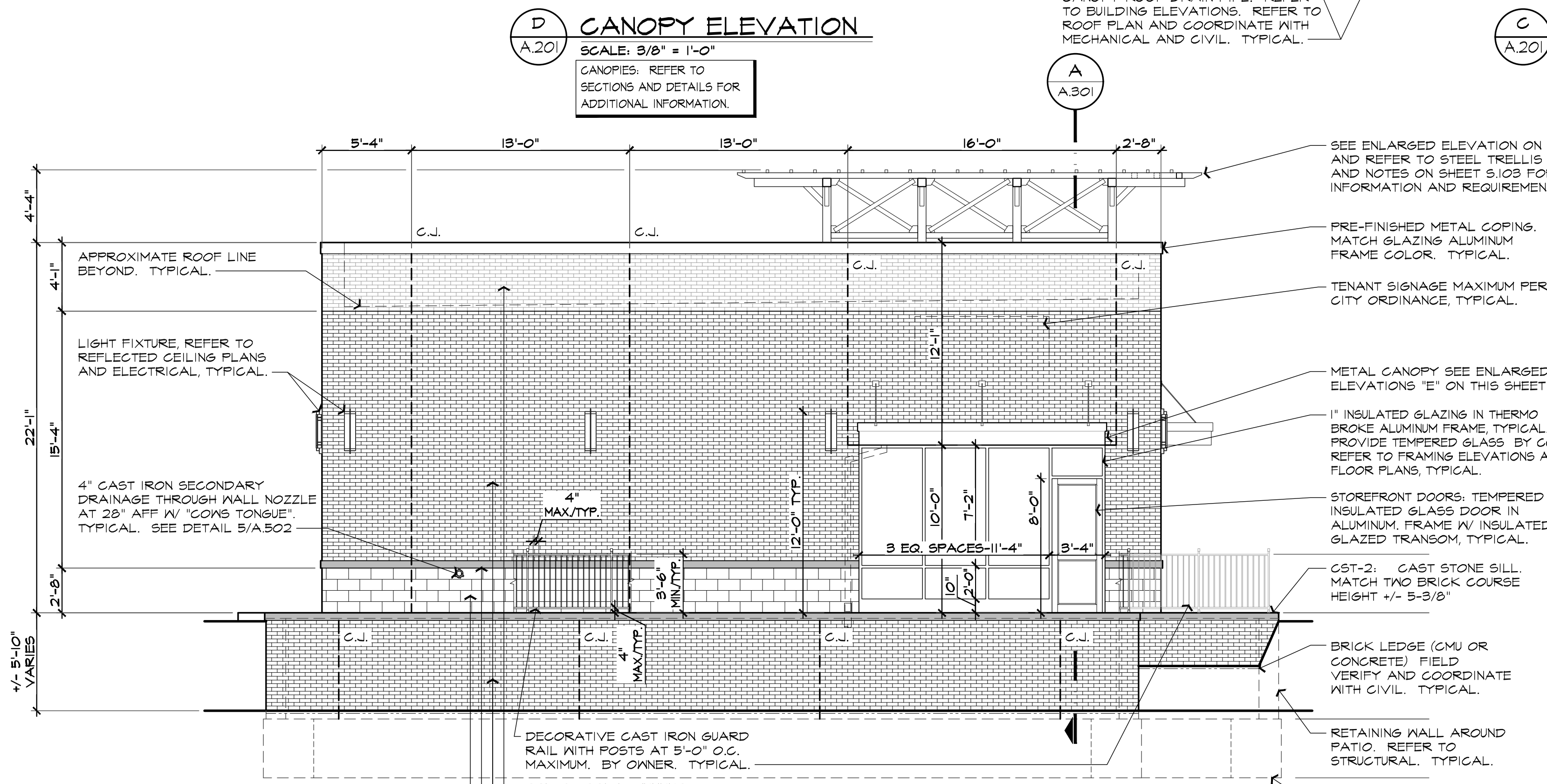
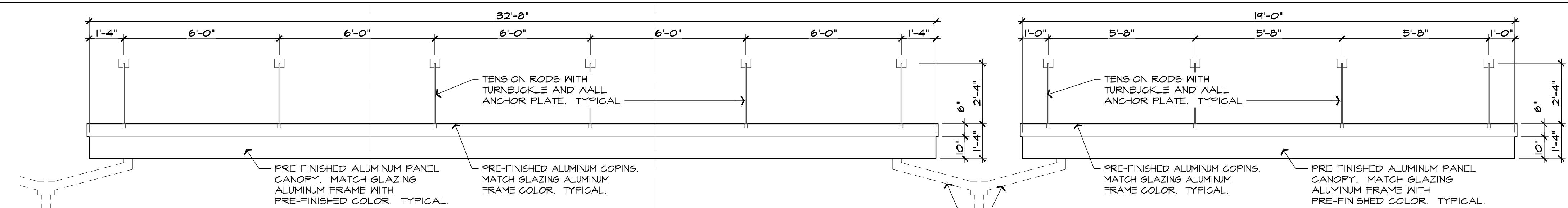


4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
 UNION LAKE & COOLEY LAKE ROADS  
 COOLEY LAKE ROAD  
 WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
	SA	SA

SCALE :  
 FILE NAME : 21096\_A201  
 JOB # : 21096  
 SHEET TITLE  
 BUILDING ELEVATIONS  
 SHEET #  
**A.20**



ISSUED FOR	Item A.
PERMITS	10/22/2021

**BUILDING ELEVATIONS GENERAL NOTES:**

- REFER TO SITE APPROVAL RENDERING FOR COLOR SELECTION AND COORDINATE WITH OWNERS. COLOR MUST MATCH RENDERING AS CLOSE AS POSSIBLE OR BE APPROVED BY THE CITY PRIOR TO CONSTRUCTION.
- REFER TO REFLECTED CEILING PLANS AND ELECTRICAL DRAWINGS FOR LIGHTING AND POWER ON THE ELEVATIONS.
- REFER TO STEEL TRELLIS FRAMING AND NOTES ON SHEET S.103 FOR GENERAL INFORMATION AND REQUIREMENTS

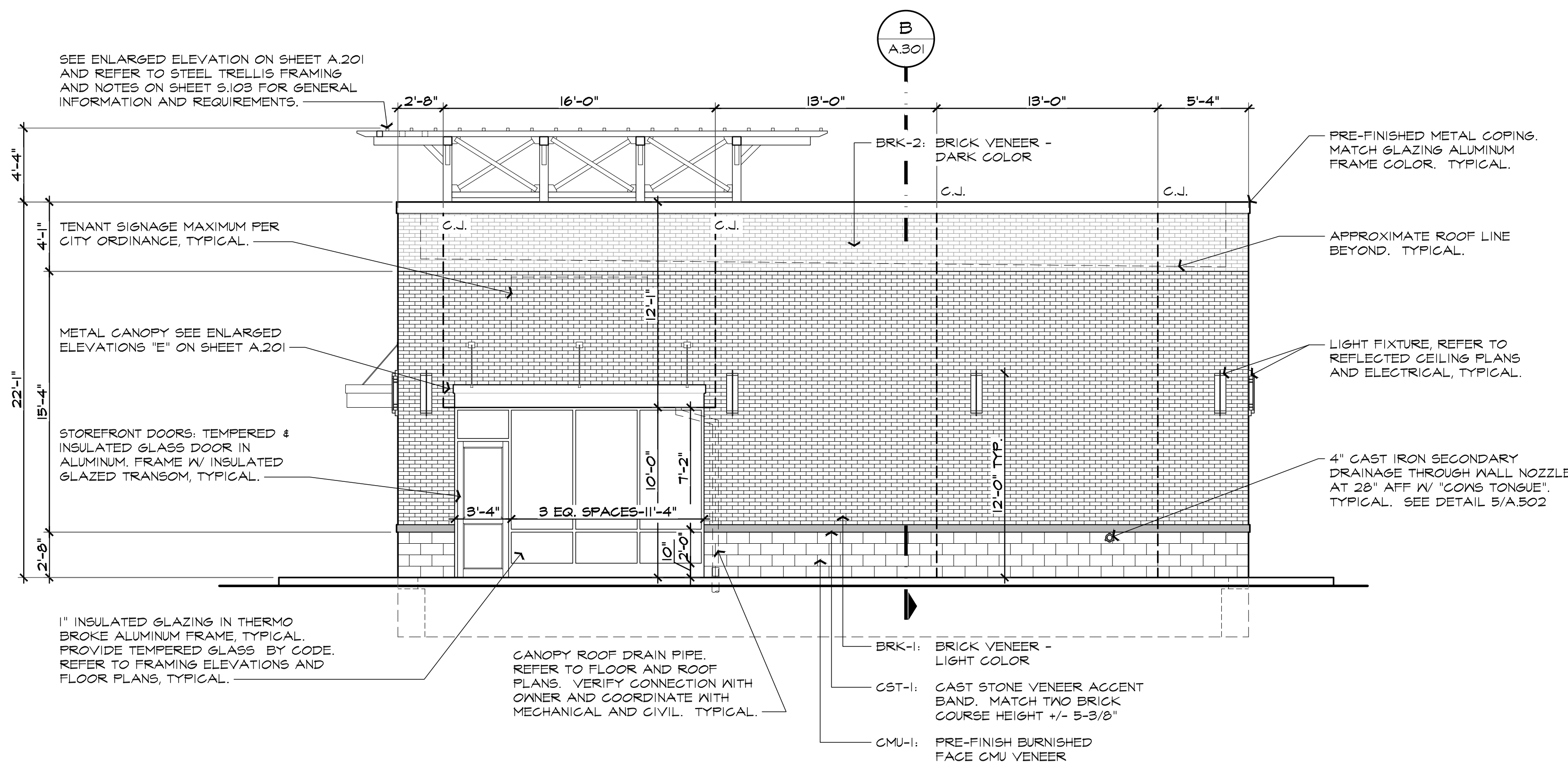
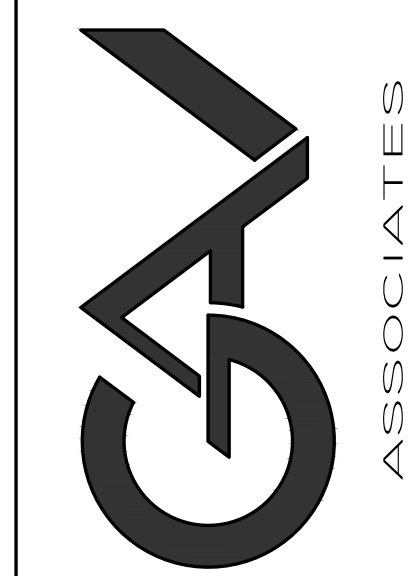
**MATERIAL LEGEND:**

- COORDINATE ALL SELECTIONS WITH OWNER AND REFER TO WALL SECTIONS AND DETAILS.
- BRK-1: BRICK VENEER - LIGHT COLOR
  - BRK-2: BRICK VENEER - DARK COLOR
  - CMU-1: PRE-FINISH SPLIT FACE CMU VENEER
  - CST-1: CAST STONE VENEER ACCENT BAND. MATCH TWO BRICK COURSE HEIGHT +/- 5-3/8"
  - CST-2: CAST STONE SILL. MATCH TWO BRICK COURSE HEIGHT +/- 5-3/8"

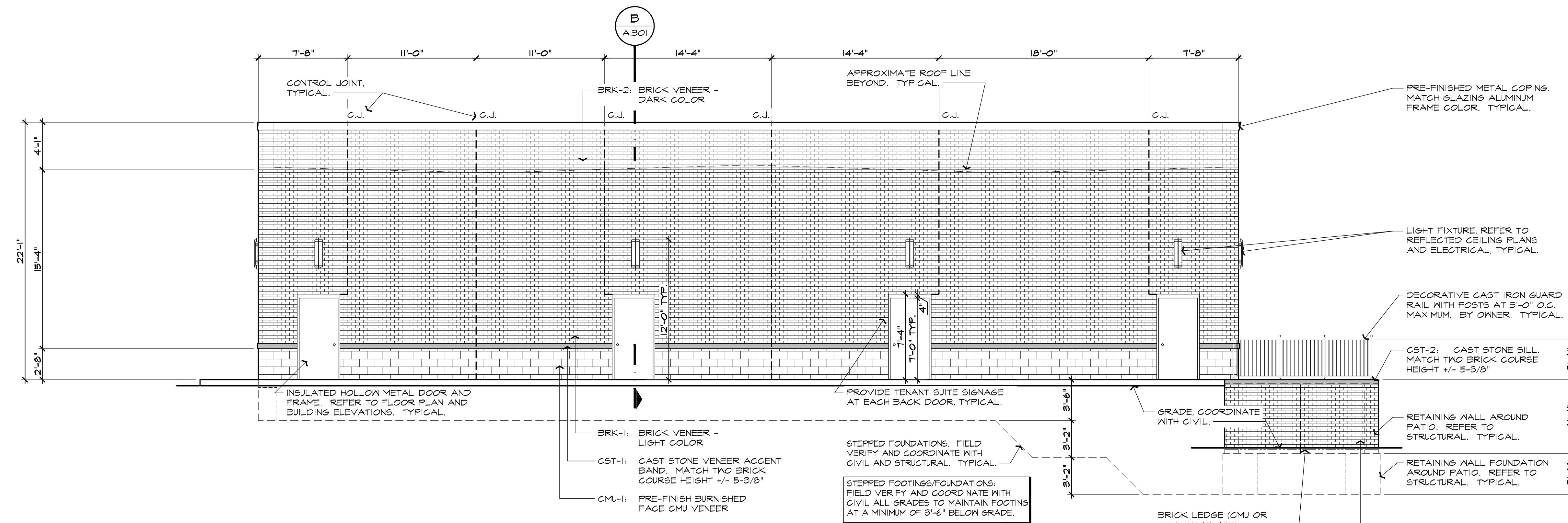
**ARCHITECTURAL DESIGN**

RESIDENTIAL  
COMMERCIAL  
INDUSTRIAL

G.A.V. ASSOCIATES, INC.  
3801 GARDEN LAKE RD., STE. 100A  
FARMINGTON, MICHIGAN 48336  
PH: (248) 985-9191  
WEB: WWW.GAVASSOCIATES.COM



**D EAST BUILDING ELEVATION**  
SCALE: 3/16" = 1'-0"



**C NORTH BUILDING ELEVATION**  
SCALE: 3/16" = 1'-0"

4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
UNION LAKE & COOLEY LAKE ROADS  
COOLEY LAKE ROAD  
WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
	SA	SA

SCALE :

FILE NAME : 21096\_A202

JOB # : 21096

SHEET TITLE  
BUILDING  
ELEVATIONS

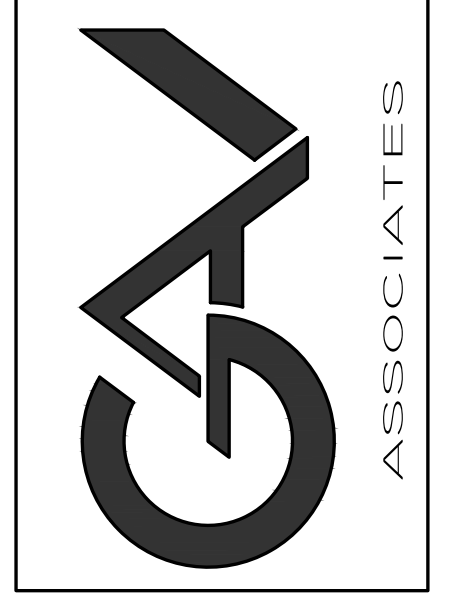
SHEET #  
**A.202**



ISSUED FOR	Item A.
PERMITS	10.22.2021

**ARCHITECTURAL DESIGN**  
 RESIDENTIAL  
 COMMERCIAL  
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G.A.V. ASSOCIATES, INC.  
 24051 ORCHARD LAKE RD., STE. 100A  
 FARMINGTON, MICHIGAN 48336  
 PH: (248) 985-9191  
 WEB: WWW.GAVASSOCIATES.COM



4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
 UNION LAKE & COOLEY LAKE ROADS  
 COOLEY LAKE ROAD  
 WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
	SA	SA

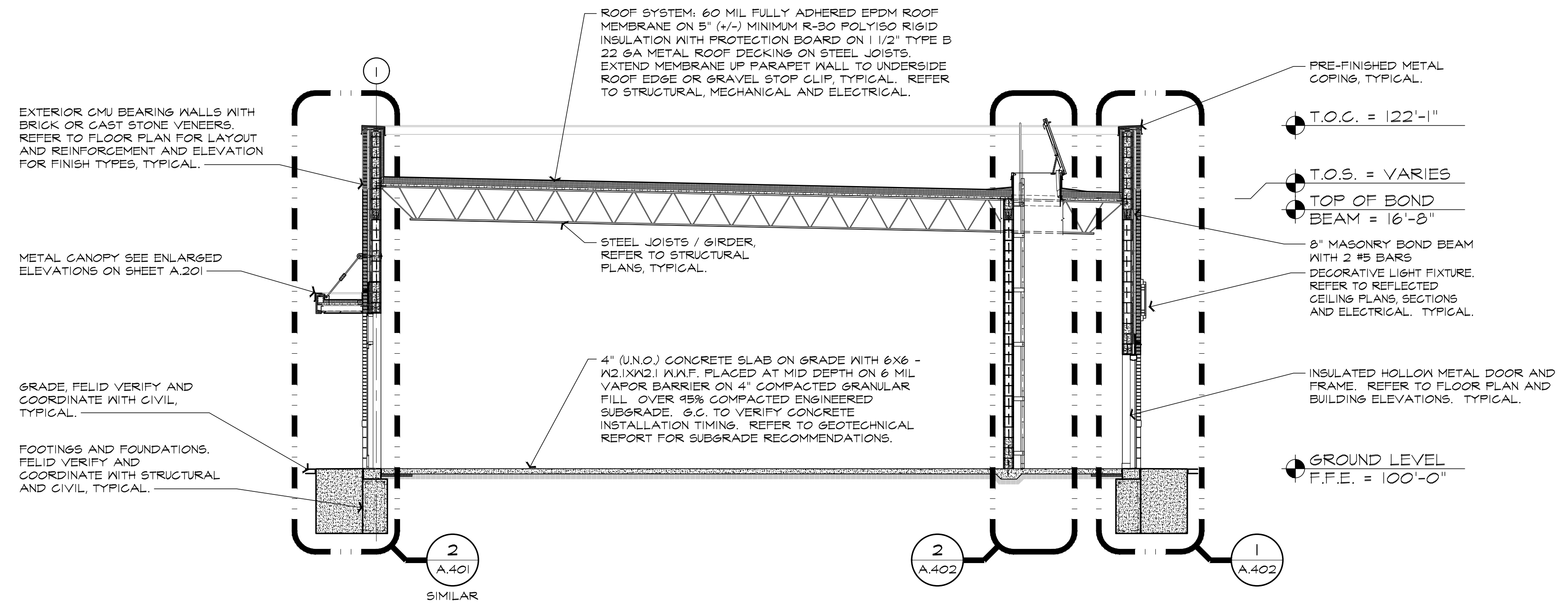
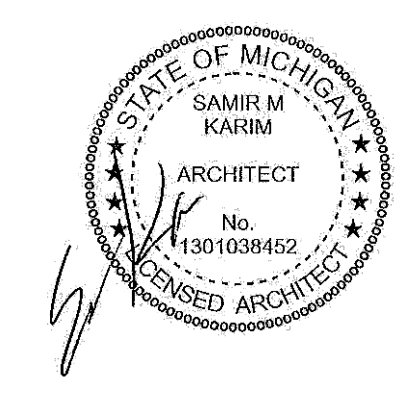
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FILE NAME : 21096\_A301

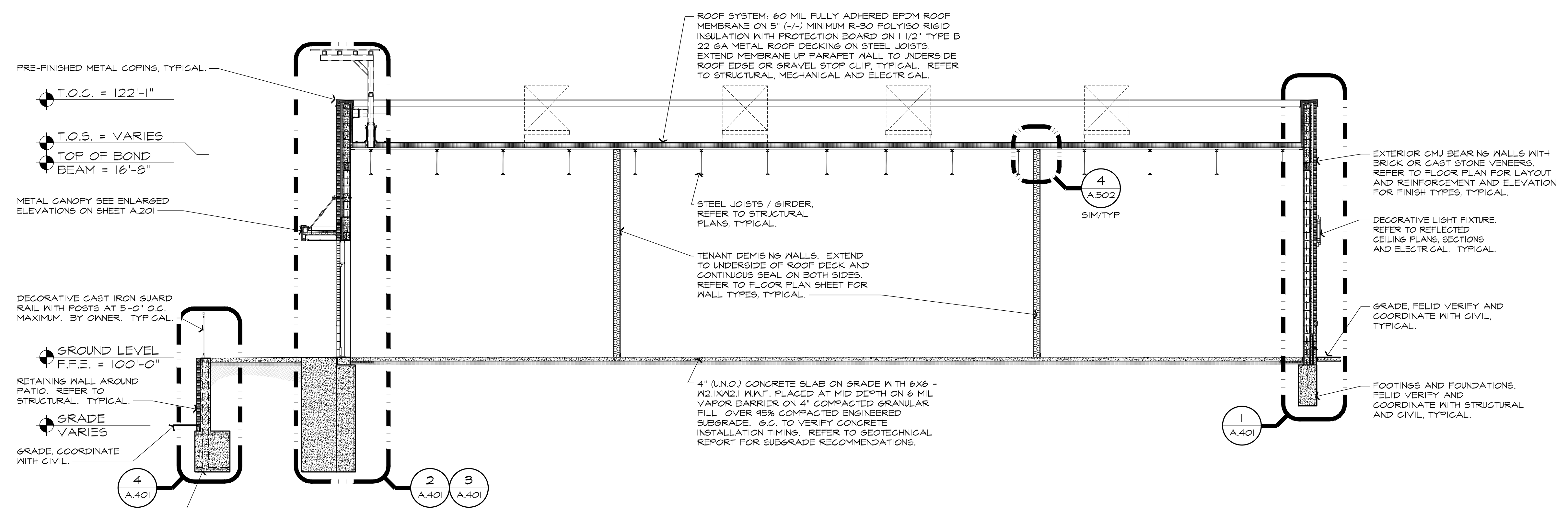
JOB # 21096

SHEET TITLE  
 BUILDING SECTIONS

SHEET #  
 A.30



**B BUILDING SECTION**  
 SCALE: 3/16" = 1'-0"



**A BUILDING SECTION**  
 SCALE: 3/16" = 1'-0"

ISSUED FOR	Item A.
PERMITS	10.22.2021

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4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
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 COOLEY LAKE ROAD  
 WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
SA	SA	SA

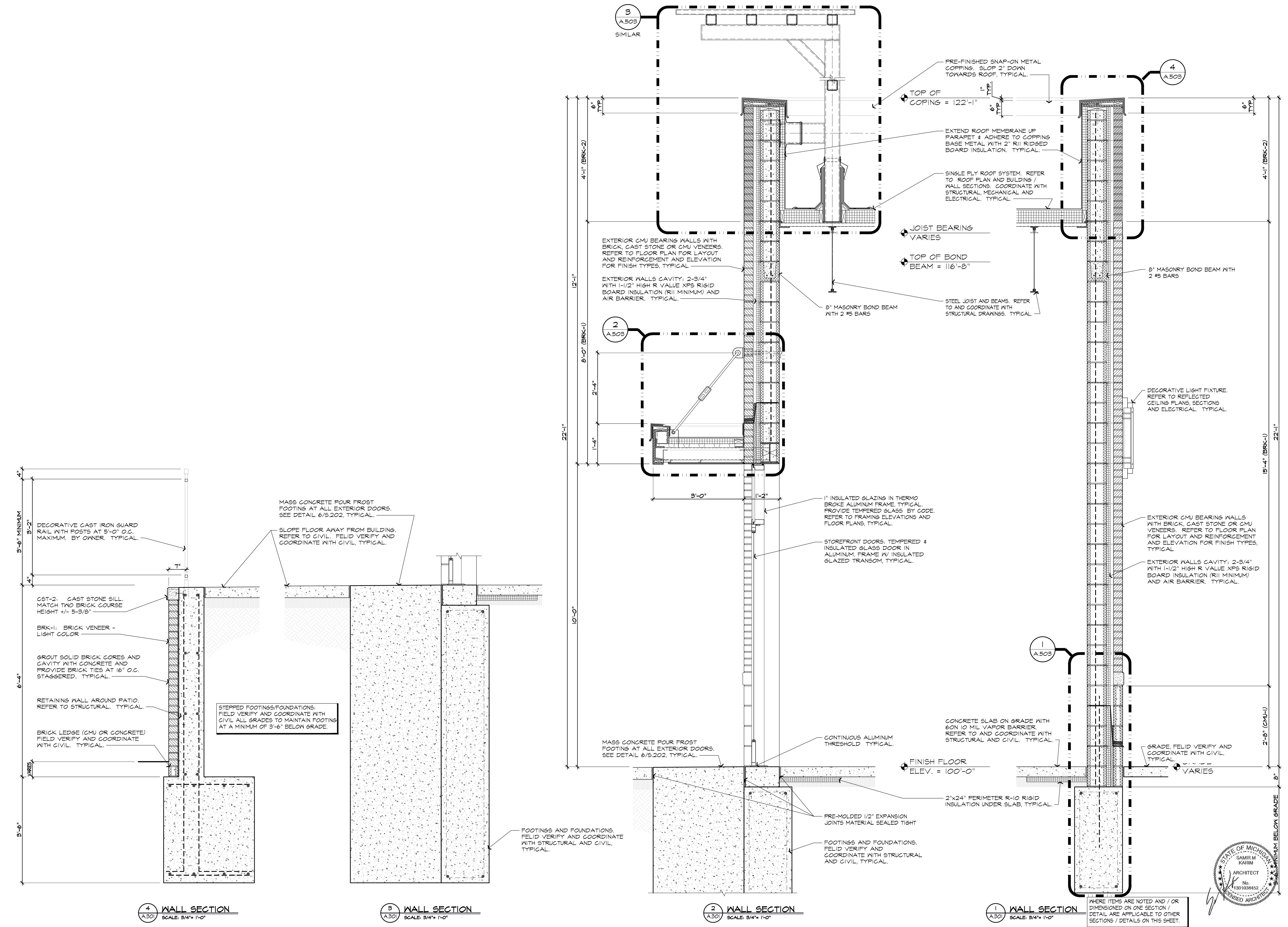
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FILE NAME : 21096\_A401

JOB # 21096

SHEET TITLE  
**WALL SECTIONS**

SHEET #  
**A.40**

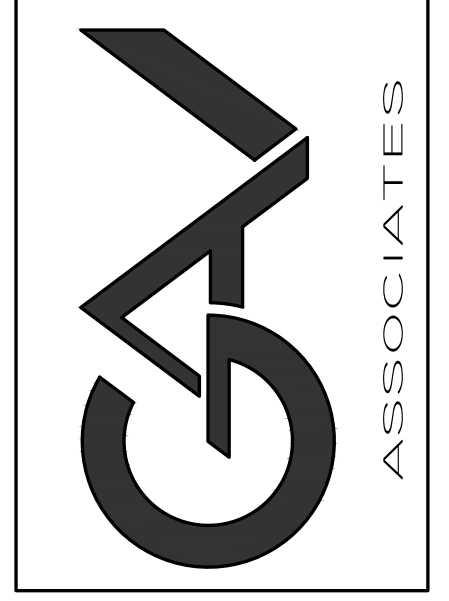


WHERE ITEMS ARE NOTED AND / OR DIMENSIONED ON ONE SECTION / DETAIL ARE APPLICABLE TO OTHER SECTIONS / DETAILS ON THIS SHEET.



ISSUED FOR	Item A.
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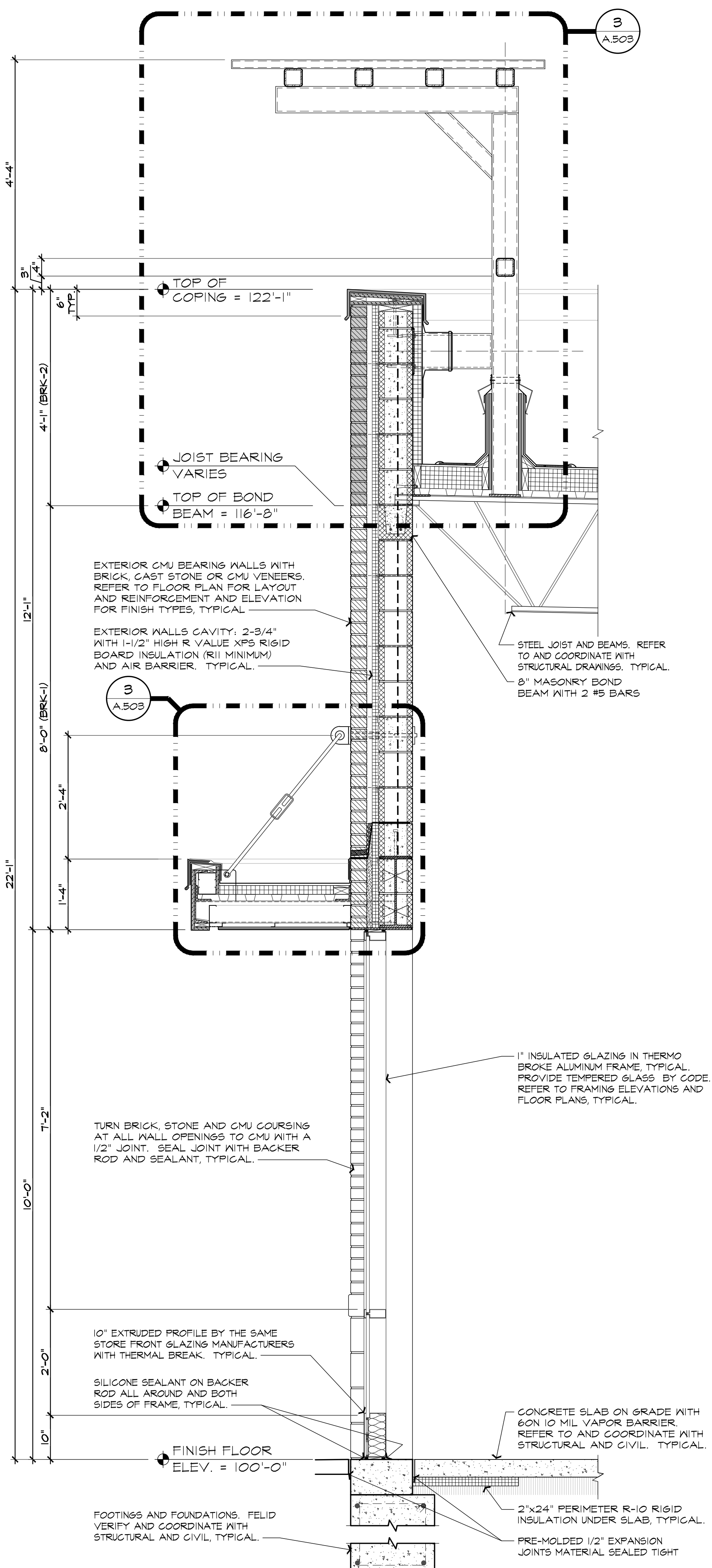
**ARCHITECTURAL DESIGN**  
**RESIDENTIAL COMMERCIAL INDUSTRIAL**  
 G.A.V. ASSOCIATES, INC.  
 34051 ORCHARD LAKE RD., STE. 100A  
 FARMINGTON, MICHIGAN 48336  
 PH: (248) 985-9191  
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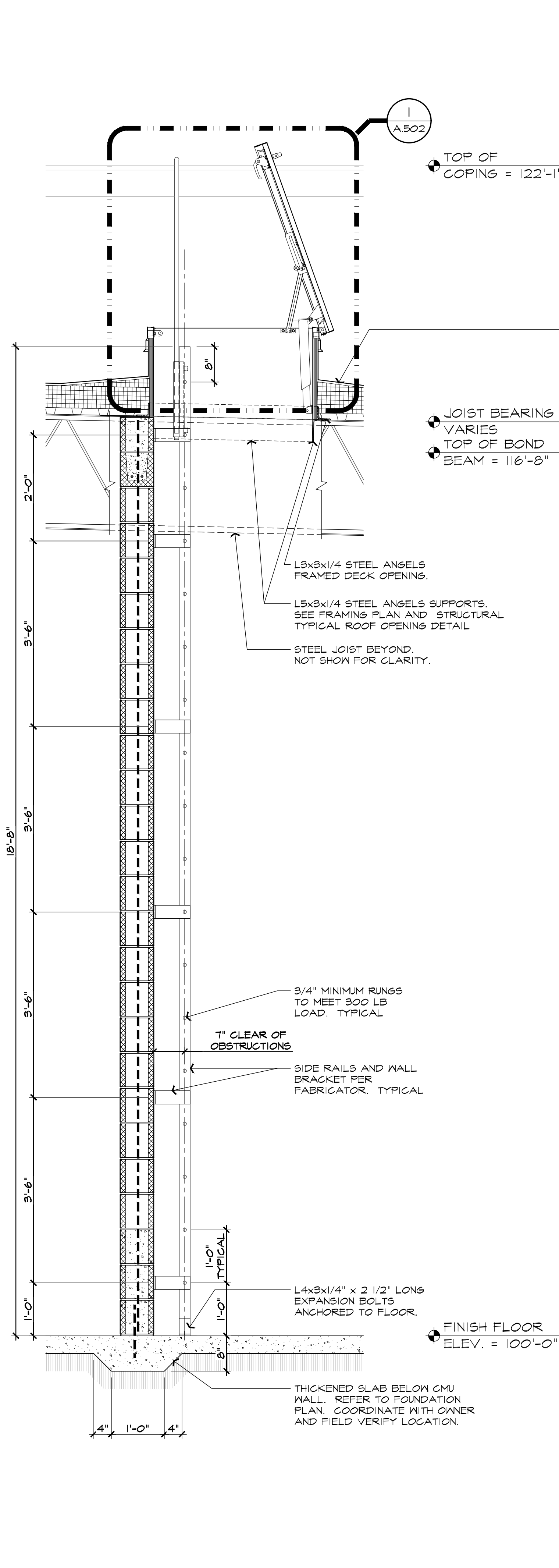
4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
 UNION LAKE & COOLEY LAKE ROADS  
 COOLEY LAKE ROAD  
 WHITE LAKE, MICHIGAN

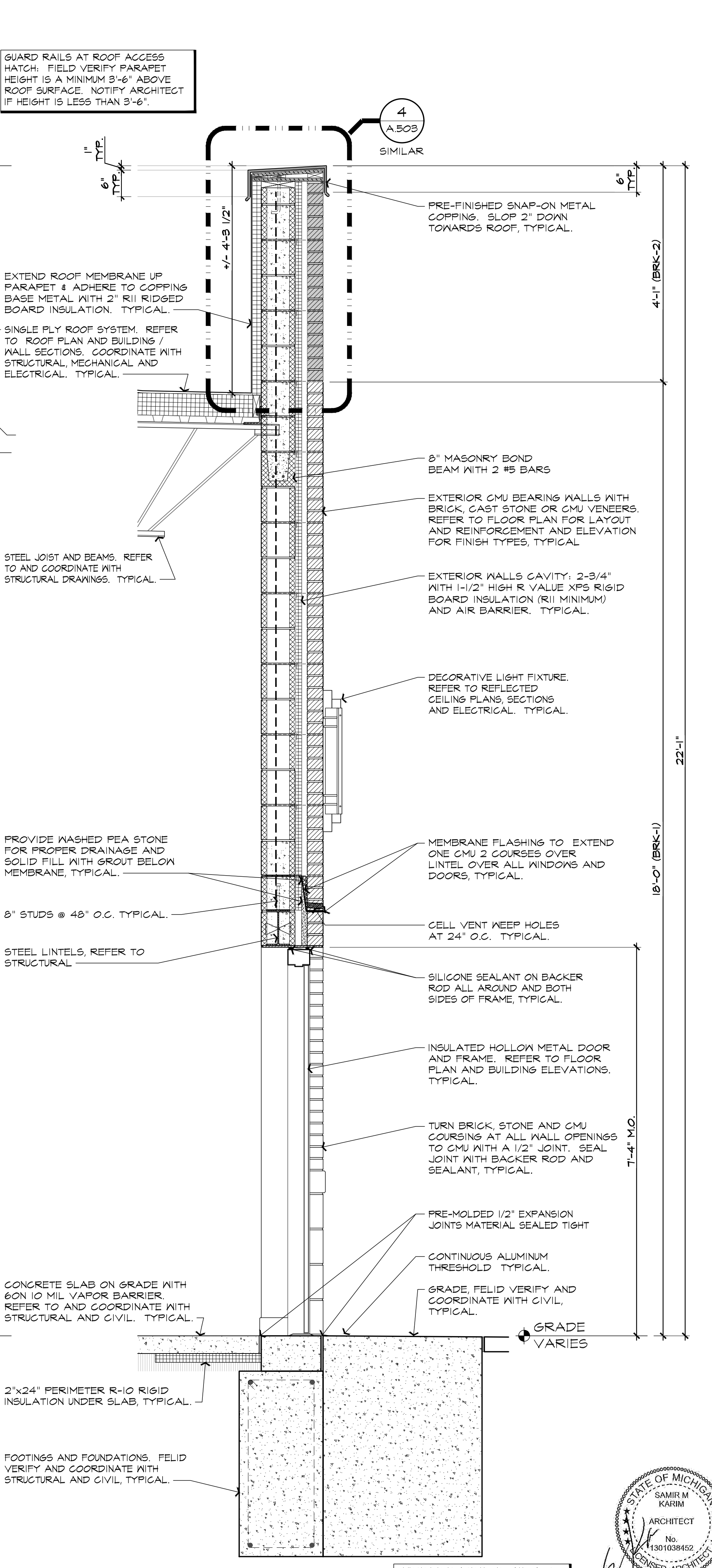
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	SA	SA
SCALE :		
FILE NAME : 21096_A402		
JOB # : 21096		
SHEET TITLE		
WALL SECTIONS		
SHEET #		
A.402		



3 WALL SECTION  
 SCALE: 3/4"=1'-0"



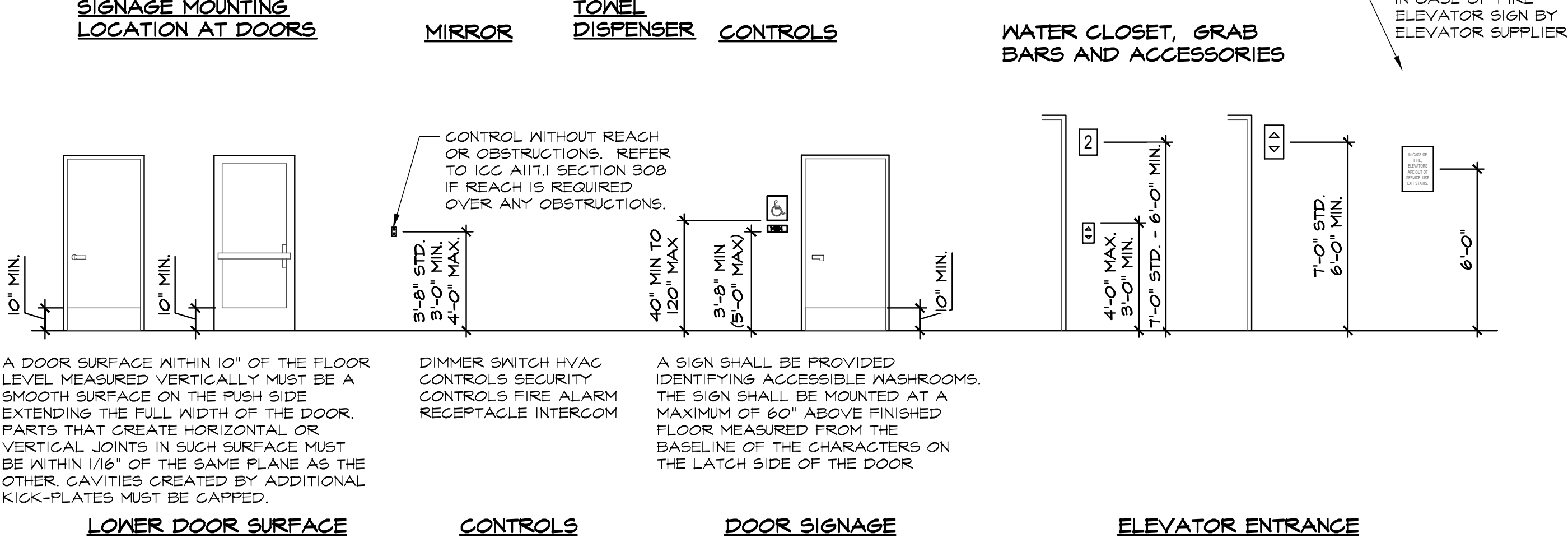
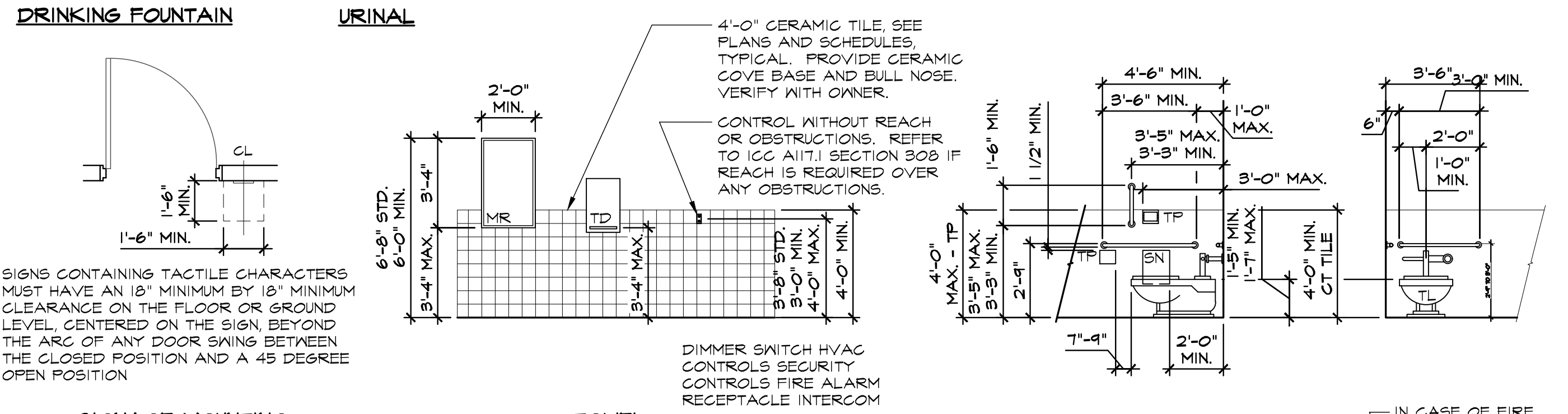
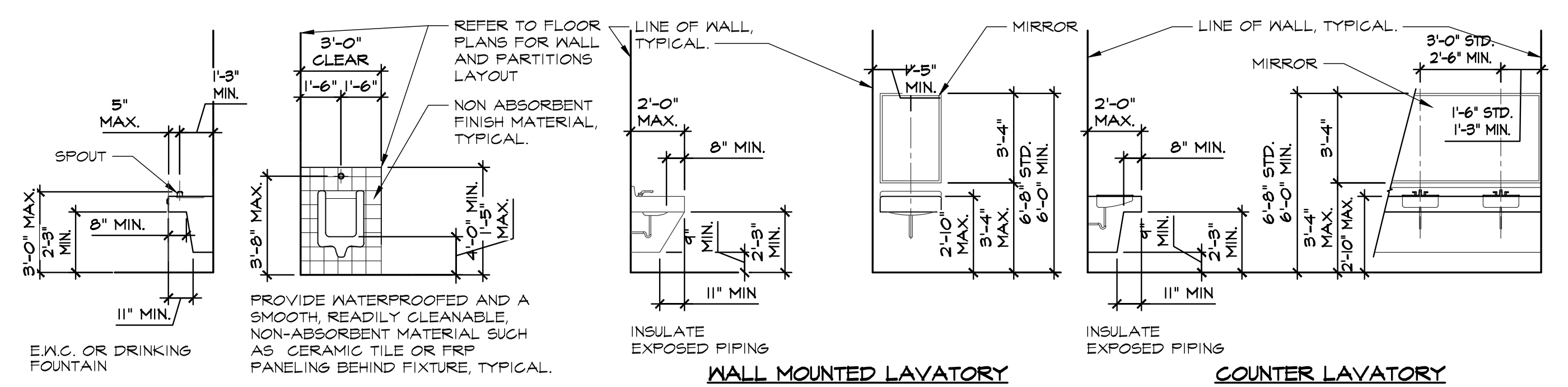
2 WALL SECTION  
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1 WALL SECTION  
 SCALE: 3/4"=1'-0"

WHERE ITEMS ARE NOTED AND / OR DIMENSIONED ON ONE SECTION / DETAIL ARE APPLICABLE TO OTHER SECTIONS / DETAILS ON THIS SHEET.





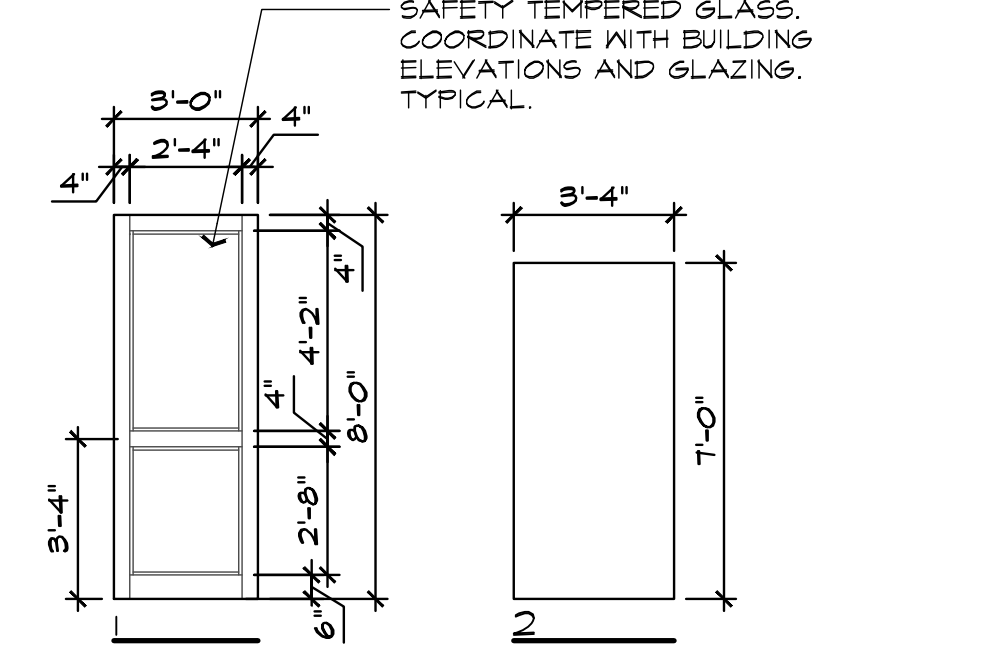
**TYPICAL RESTROOMS BARRIER FREE MOUNTING HEIGHTS AND REQUIREMENTS**  
 NOT TO SCALE

DOOR SCHEDULE																
ROOM NAME/TYPE	DOOR SIZE (WxHxT)	DOOR TYPE	MAT.	FINISH	FRAME TYPE	MAT.	FINISH	HARDWARE						RTG.	REMARKS	
TENANT MAIN ENTRIES SINGLE DOORS - SUITE NO'S A, B & C	3'-0"X8'-0"X1-3/4"	1	AL/GL	AA	A	AL	AA	A	B	C	D	E	F	G		COORDINATE WITH STORE FRONT GLAZING SYSTEM.
TENANT REAR ENTRIES DOORS SUITE NO'S 1, 2, 3, 4, 5 & 6	3'-4"X7'-0"X1-3/4"	2	HM	PNT	B	HM	PNT									
ELECTRICAL / ROOF ACCESS ROOM #100	3'-0"X7'-0"X1-3/4"	2	HM	PNT	B	HM	PNT									

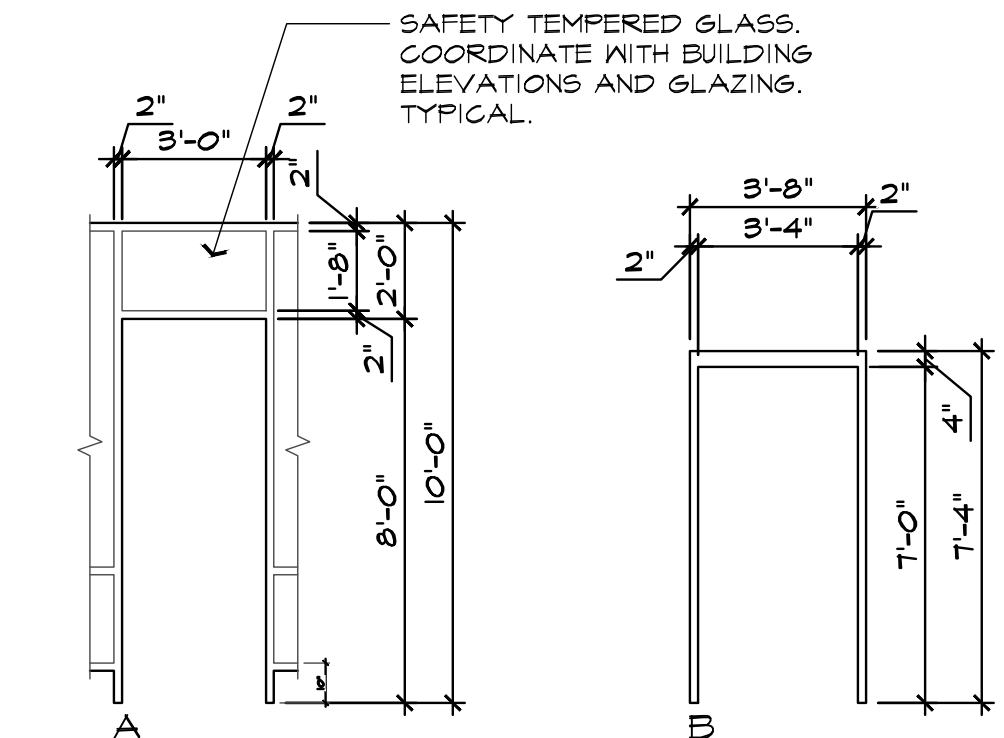
**GENERAL DOOR & WINDOW SPECIFICATION**

- 6.G. TO COORDINATE DOOR AND FRAME LOCATIONS TO MATCH SIZE AND SWINGS SHOWN ON PLAN. CONTACT ARCHITECT WITH ANY DISCREPANCIES.
- HOLLOW METAL DOORS AND FRAMES SHALL BE: AS FURNISHED BY PIONEER / STEELCRAFT / SPECIALITE (OR EQUAL). FRAMES TO 18-GAUGE COMMERCIAL GRADE. "T" SERIES KNOCK DOWN WITH ANCHORS AS REQUIRED BY WALL CONDITIONS. REFER TO DETAILS ON THIS SHEET. DOORS SHALL BE 18-GAUGE COMMERCIAL GRADE, "VM" SERIES, PREPARED TO RECEIVE MORTISED HARDWARE AS SPECIFIED. ALL HARDWARE MUST BE RECESSED FLUSH WITH NO SHARP EDGES EXPOSED. H.M. DOORS AND FRAMES SHALL PRIMED AND PAINTED TO MATCH ROOM COLOR.
- ALL GLASS USED IN DOORS AND SIDE LITES SHALL BE TEMPERED 1/4" GLASS.
- GLASS FRAME IN DOORS SHALL ALSO BE PRE-FINISHED TO MATCH DOOR OR FINISHED IN FIELD.
- COORDINATE ALL DOORS AND FRAMES SIZES WITH MASONRY AND CARPENTRY CONTRACTORS PRIOR TO CONSTRUCTION.
- DOORS AND FRAMES AT THE MAIN ENTRANCE SHALL BE ALUMINUM ENTRANCES OR STOREFRONT MATERIAL WITH THERMAL BREAK EQUAL TO SYSTEMS DESIGNED AND ENGINEERED BY KAWNEER CO., INC. OR TUBELITE DIVISION, INDAL INC. FINISH IS TO BE DARK BRONZE (M10-C22-A44).
- ALL EXTERIOR DOORS AND FRAMES, EXCEPT AT MAIN ENTRANCE, SHALL BE CUSTOM HOLLOW METAL CONSTRUCTION PROVIDED WITH HEAVY DUTY COMMERCIAL GRADE HARDWARE. DOOR FACE SHEETS SHALL BE COMMERCIAL QUALITY ROLLER LEVELLED COLD ROLL, 16 GAUGE STEEL WITH 18 GAUGE STIFFENERS AT 6" ON CENTER. PROVIDE POLYSTYRENE OR URETHANE INSULATION CORE FILLER. ALL EXPOSED STEEL SURFACES SHALL BE CLEANED, BONDED AND COATED WITH A BAKED ON ZINC CHROMATE BASED PRIME PAINT. FRAMES SHALL BE PREFABRICATED COMBINATION BUCK, FRAME, AND TRIM TYPE. MITERED JOINTS SHALL HAVE LOCKING TABS AT FRAME RABBETS AND BACKBOARDS. ALL INTERIOR DOOR FRAMES SHALL BE FURNISHED FOR INTERIOR OPENINGS. REINFORCE, DRILL, AND TAP DOORS AND FRAMES FOR FULLY-TEMPLATED MORTISED AND CONCEALED HARDWARE.

<b>ABBREVIATION (DOORS):</b>	<b>HARDWARE:</b>
AA ANODIZED ALUMINUM	A: LOCK SET
AL ALUMINUM	B: PASSAGE SET
HM HOLLOW METAL (WELDED FRAME)	C: PUSH/PULL
LG LEGACY WOOD DOOR	D: CLOSER
GL GLAZING	E: WALL/FLOOR/DOOR STOP
RM RED-METAL	F: PUSH BAR/FULL BAR/LOCK SET NON LOCKING AGAINST EGRESS
PF PRE FINISHED	G: KICK PLATE



**DOOR PANEL TYPES**  
 NOT TO SCALE



**DOOR FRAME TYPES**  
 NOT TO SCALE

**ARCHITECTURAL DESIGN**  
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G.A.V. ASSOCIATES, INC  
 5905 GARDNER LAKE RD., STE. 100A  
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4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
 UNION LAKE & COOLEY LAKE ROADS  
 COOLEY LAKE ROAD  
 WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
	SA	SA

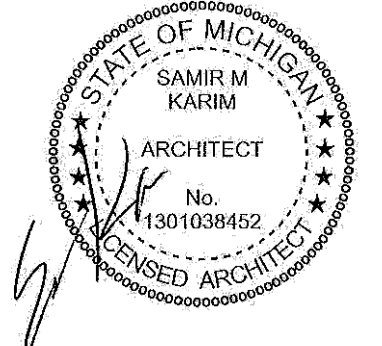
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FILE NAME : 21096\_A501

JOB # : 21096

SHEET TITLE  
 DETAILS AND SCHEDULES  
 SHEET #

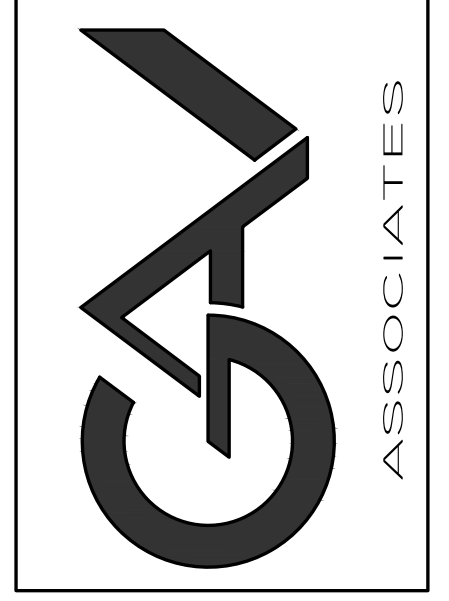
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ISSUED FOR	Item A.
PERMITS	10/22/2021

**ARCHITECTURAL DESIGN**  
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 COMMERCIAL  
 INDUSTRIAL

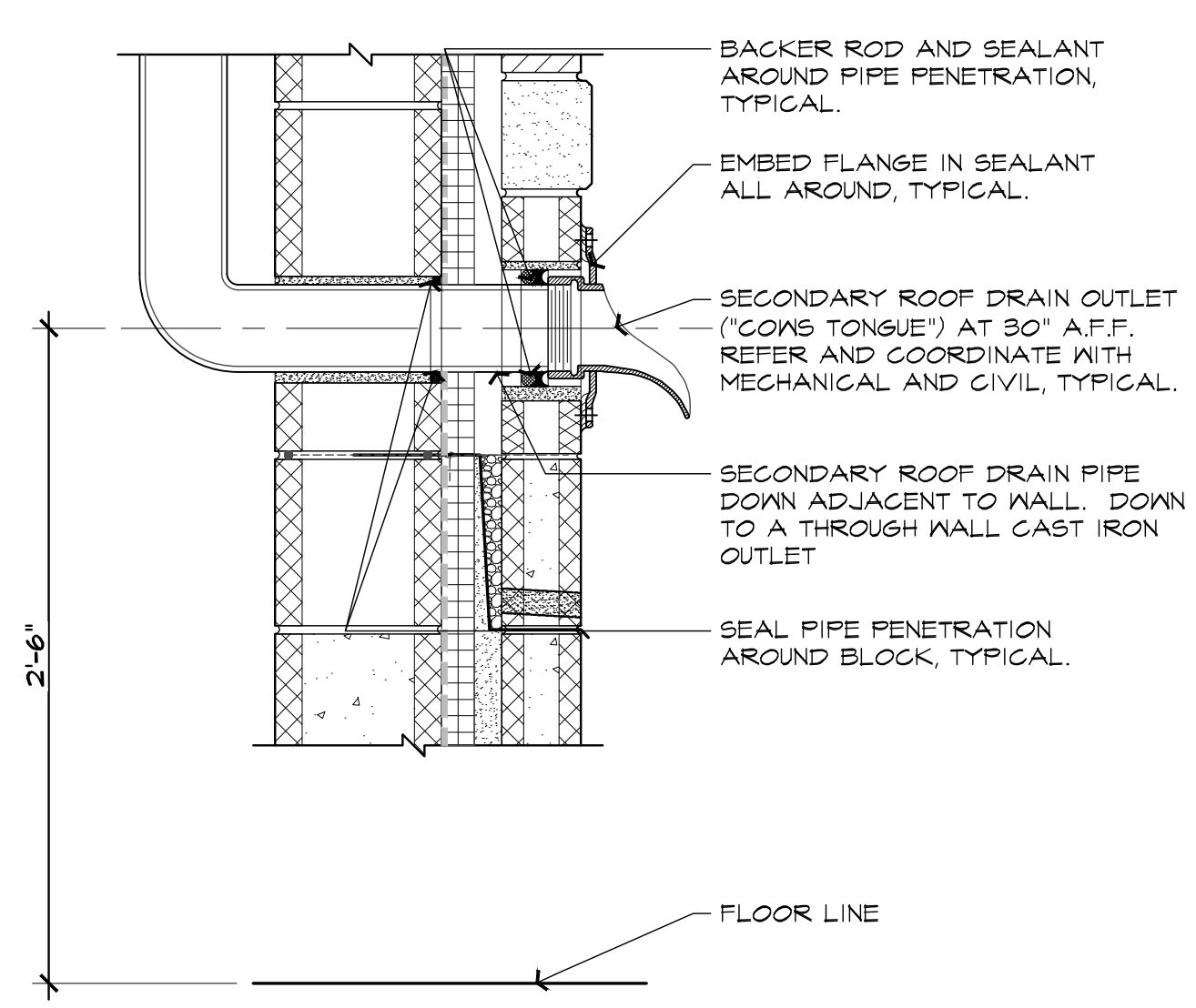
G.A.V. ASSOCIATES, INC.  
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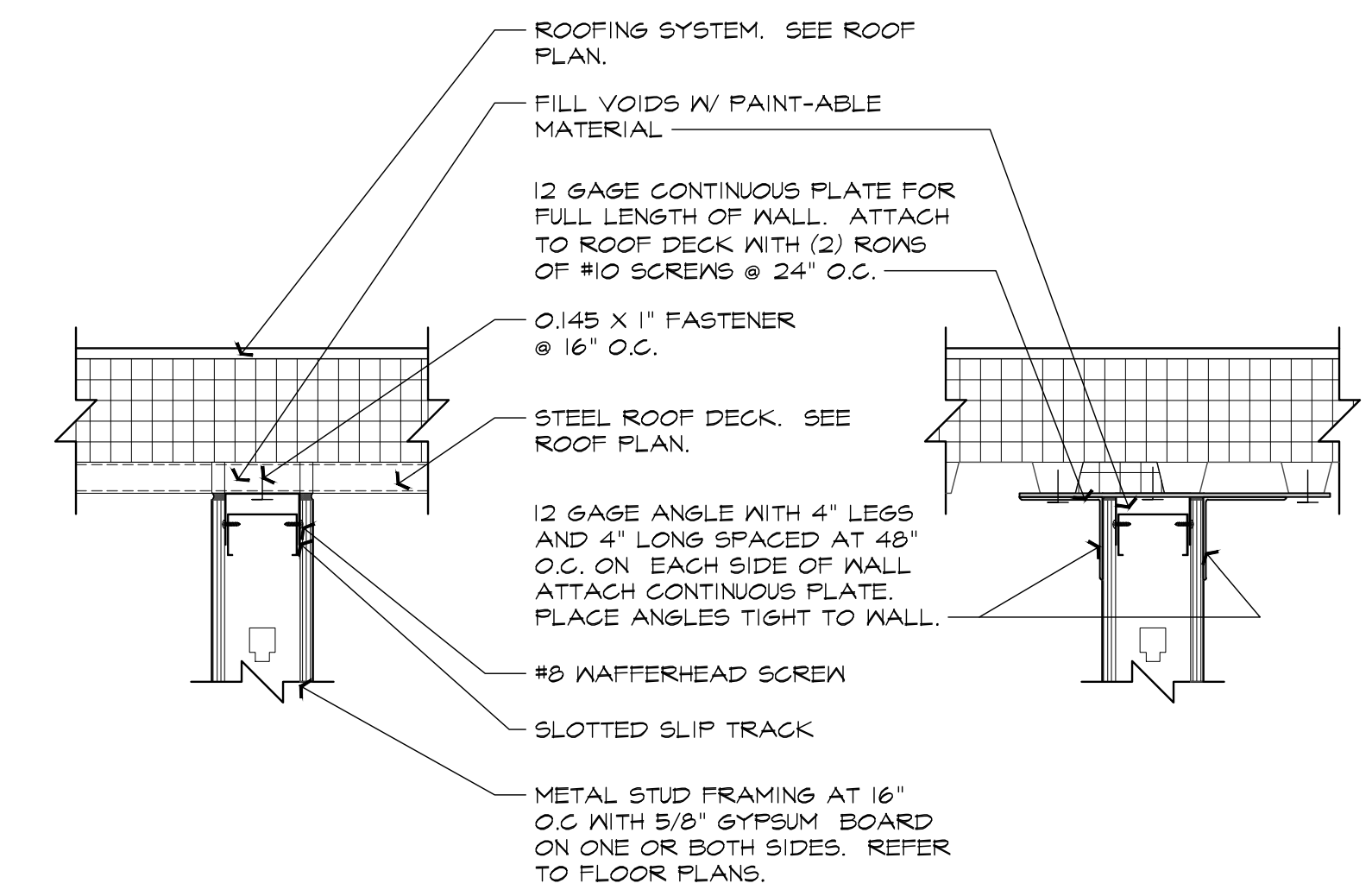
4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
 UNION LAKE & COOLEY LAKE ROADS  
 COOLEY LAKE ROAD  
 WHITE LAKE, MICHIGAN

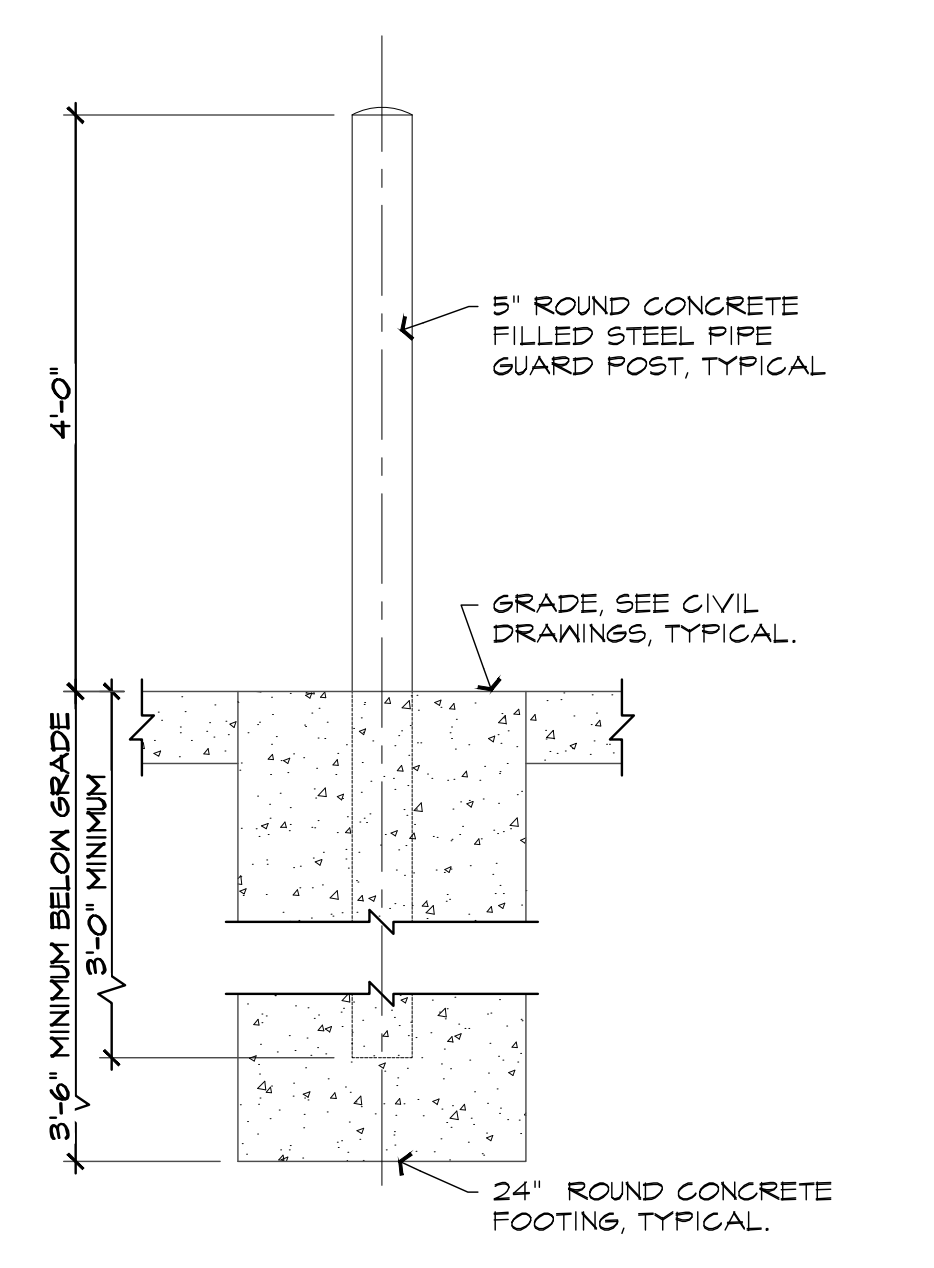
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	SA	SA
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JOB # : 21096		
SHEET TITLE		
DETAILS		
SHEET #		
A.502		



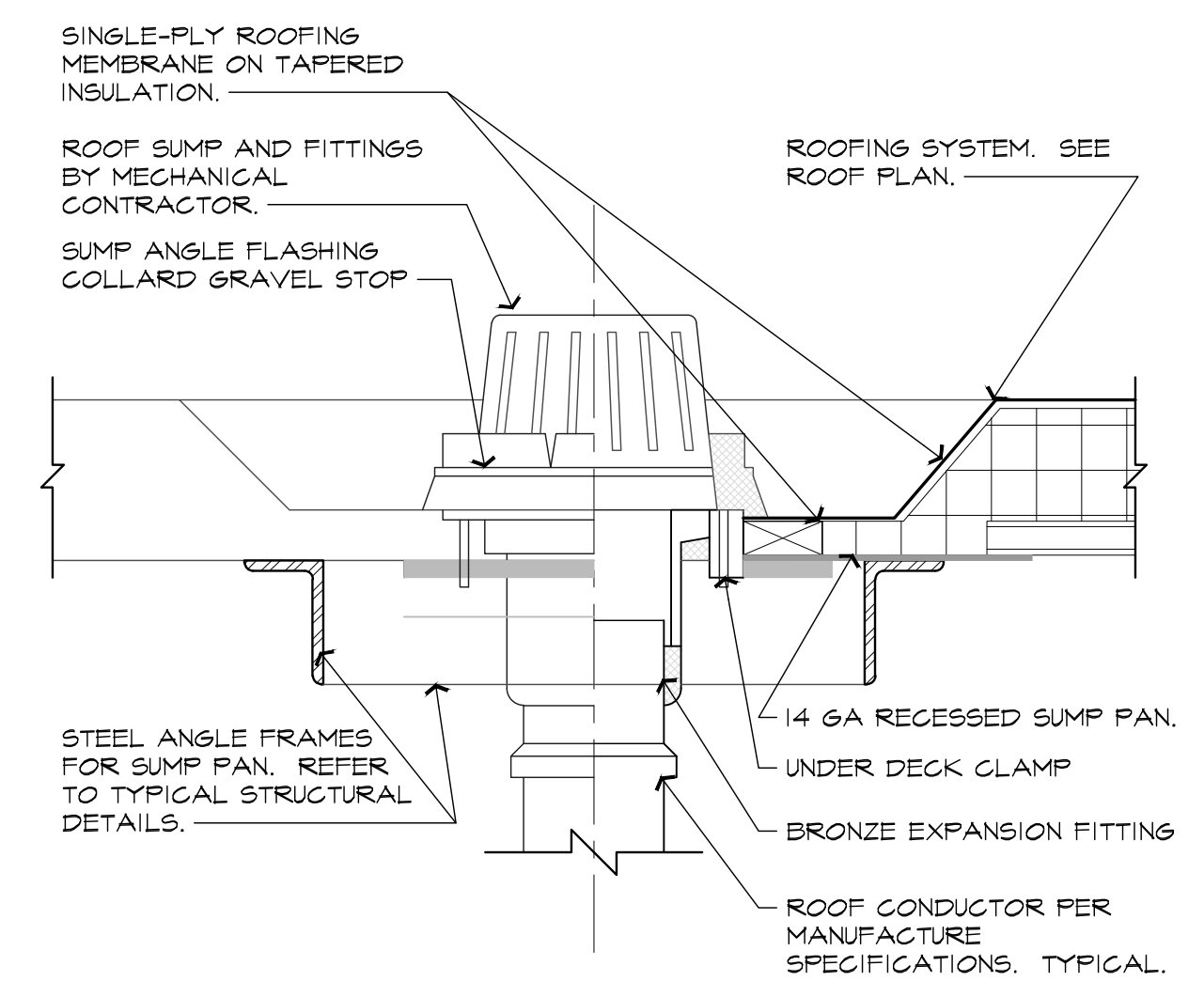
**5 SECTION**  
 A.405 SCALE: 1 1/2" = 1'-0"



**4 TYPICAL DEFLECTION TRACK DETAIL**  
 A.501 NOT TO SCALE

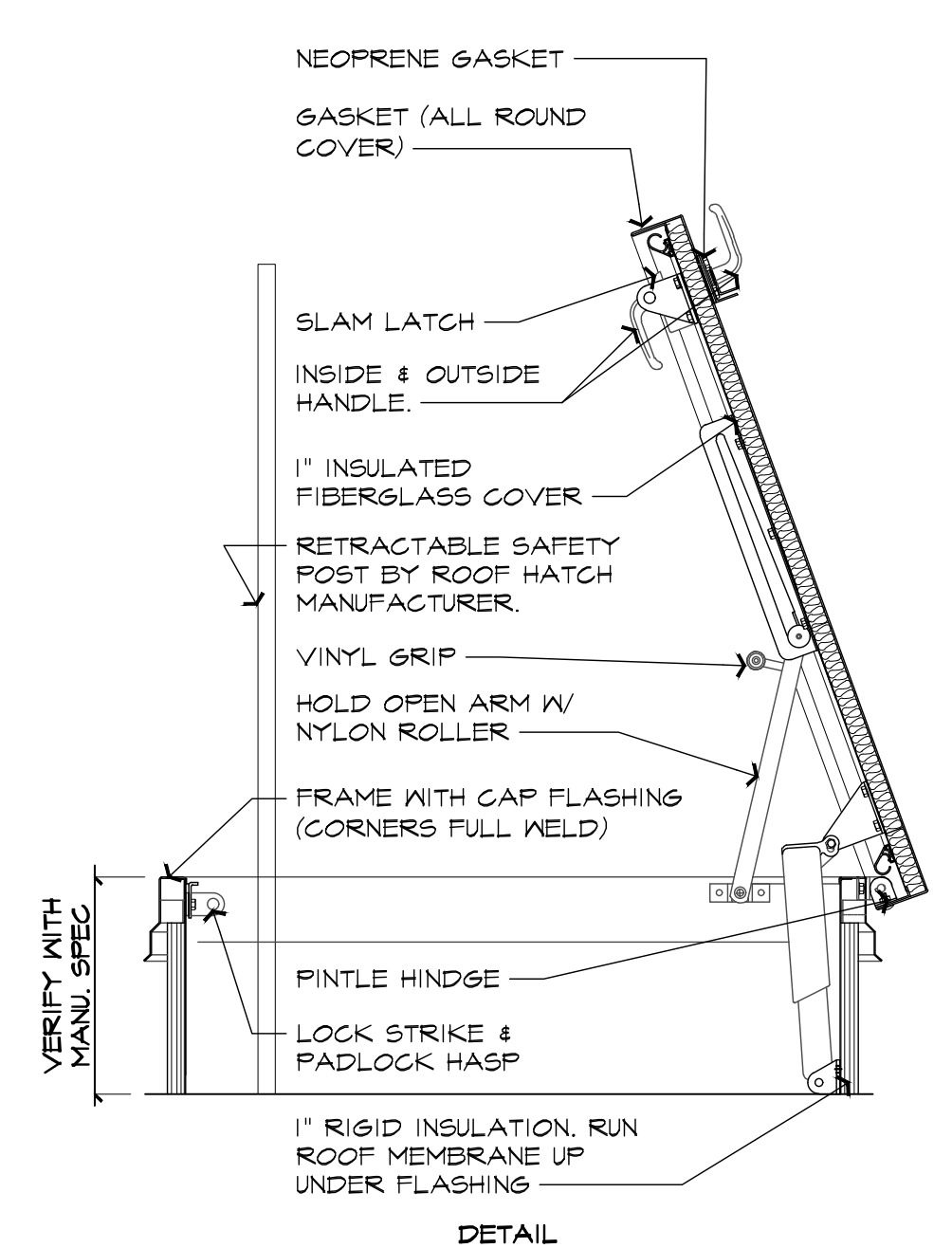


**3 TYPICAL BOLLARD DETAIL**  
 A.501 NOT TO SCALE

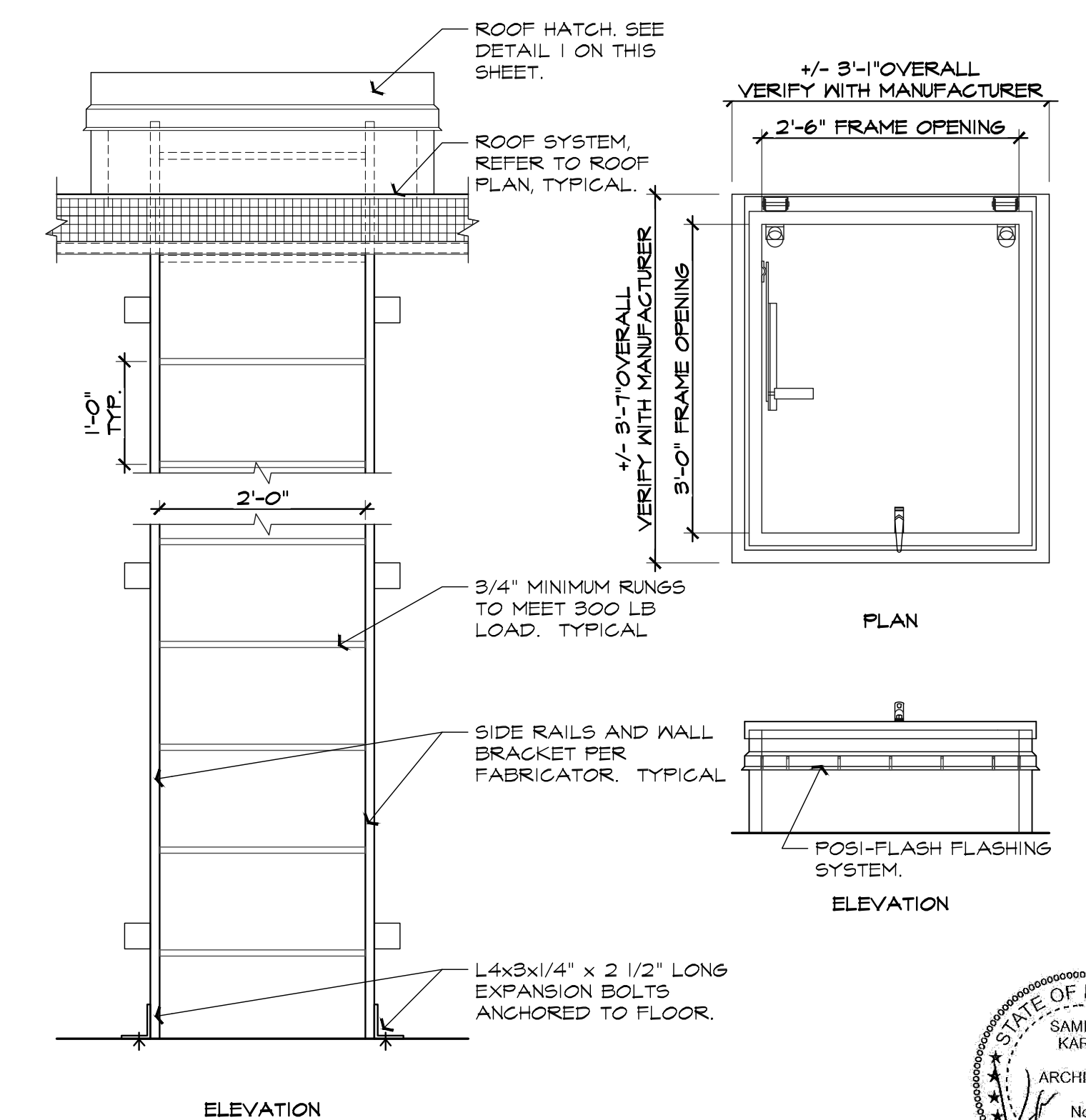


**2 TYPICAL PRIMARY AND SECONDARY ROOF DRAIN DETAIL**  
 A.502 NOT TO SCALE

- G.C. / C.M. TO COORDINATE WITH MECHANICAL ALL REQUIREMENTS TO ENSURE PROPER WATERTIGHT INSTALLATION.
- REFER TO ROOF PLAN AND MECHANICAL FOR PRODUCT TYPE AND.



**1 ROOF HATCH DETAIL**  
 A.102 SCALE: 3/4" = 1'-0"





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4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
 UNION LAKE & COOLEY LAKE ROADS  
 COOLEY LAKE ROAD  
 WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
	SA	SA

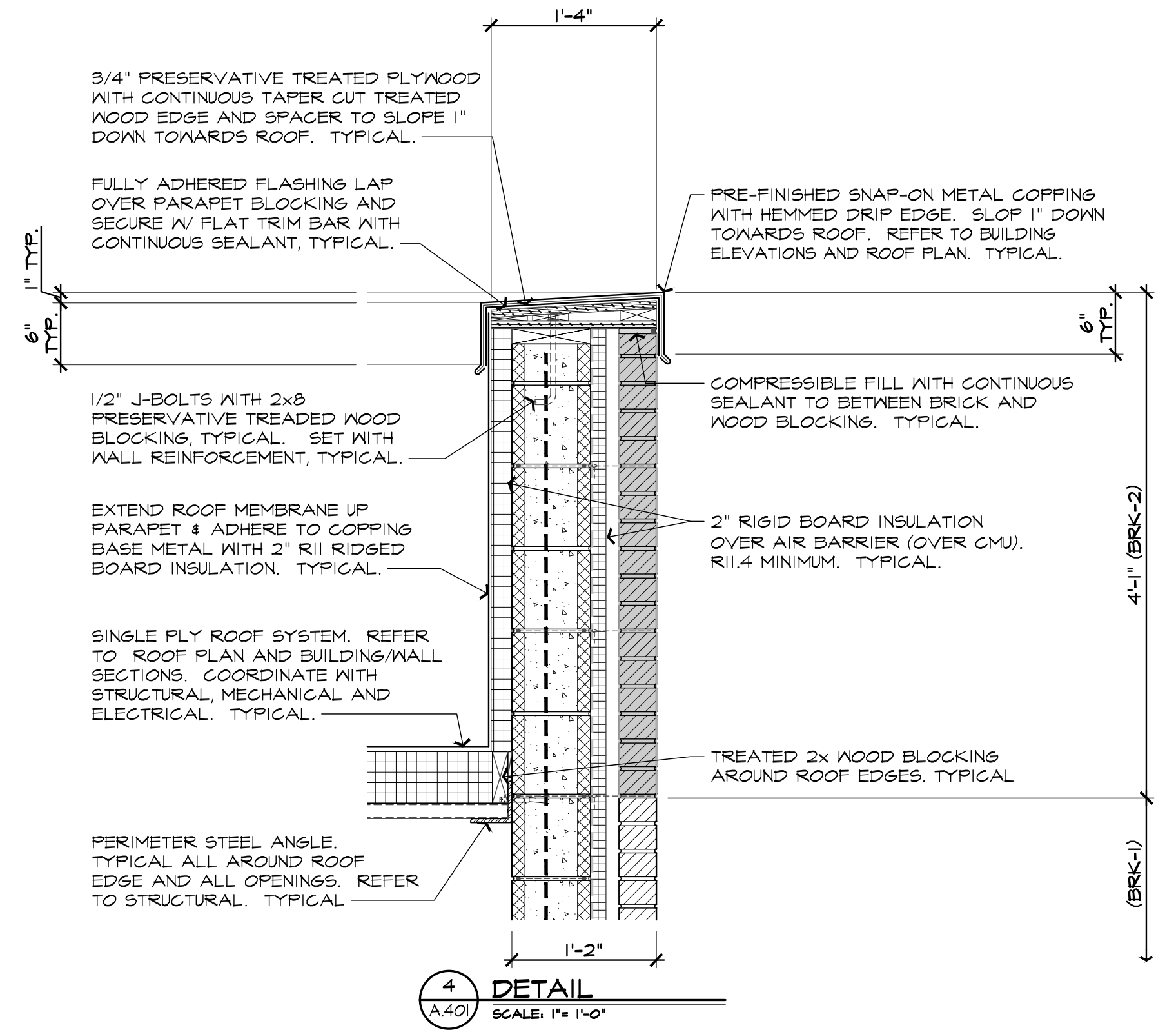
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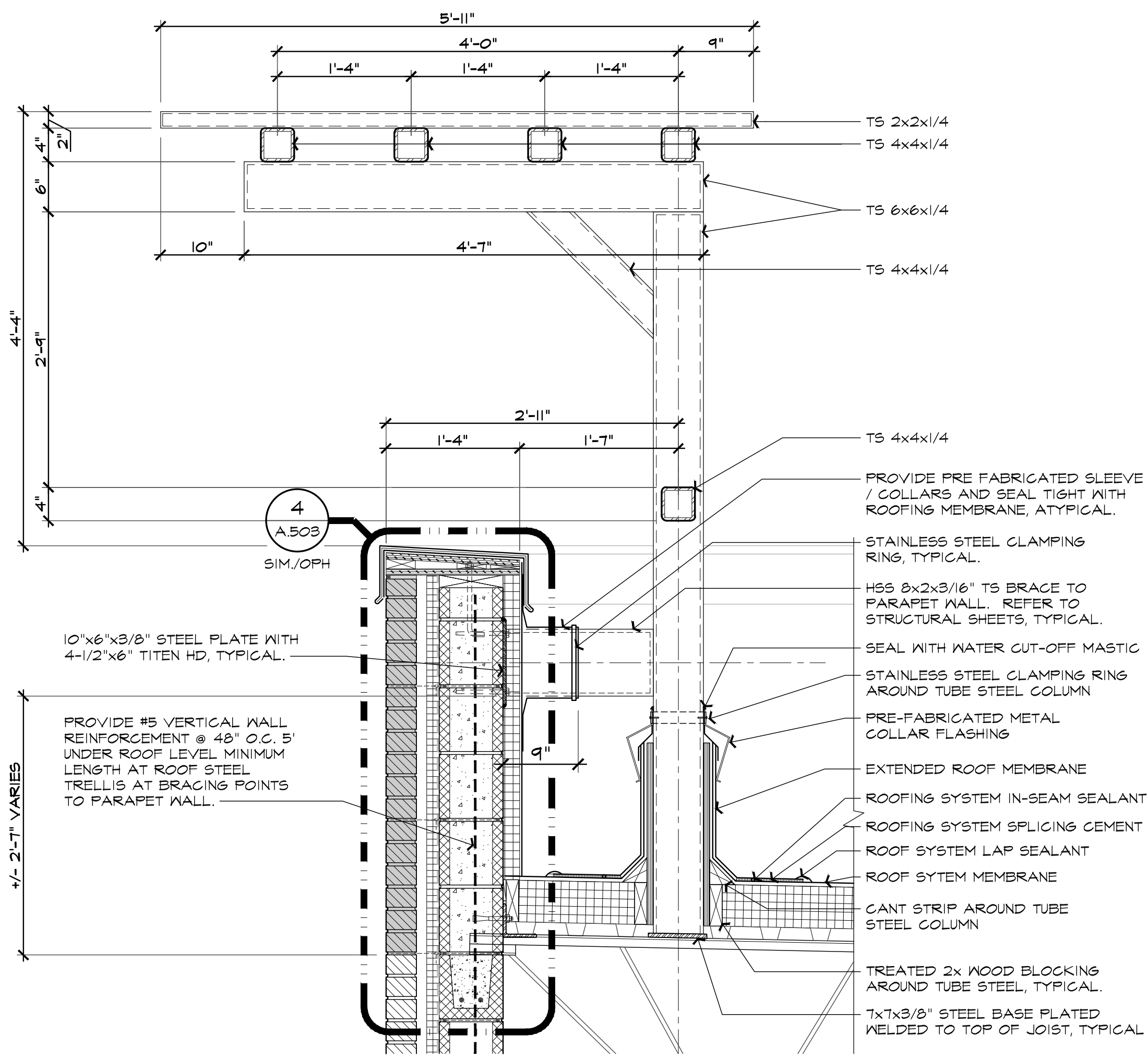
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SHEET TITLE  
 DETAILS

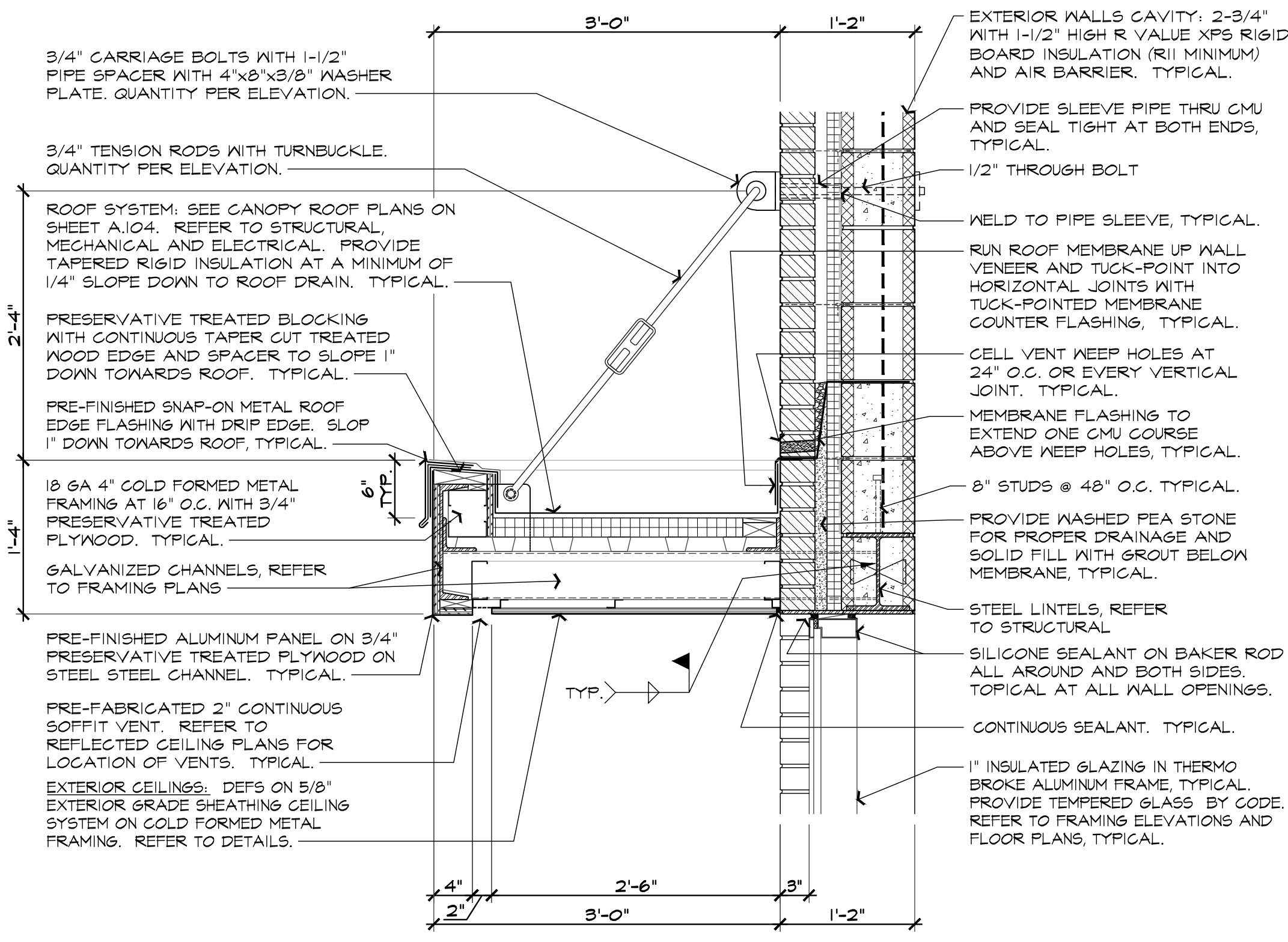
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**A.503**



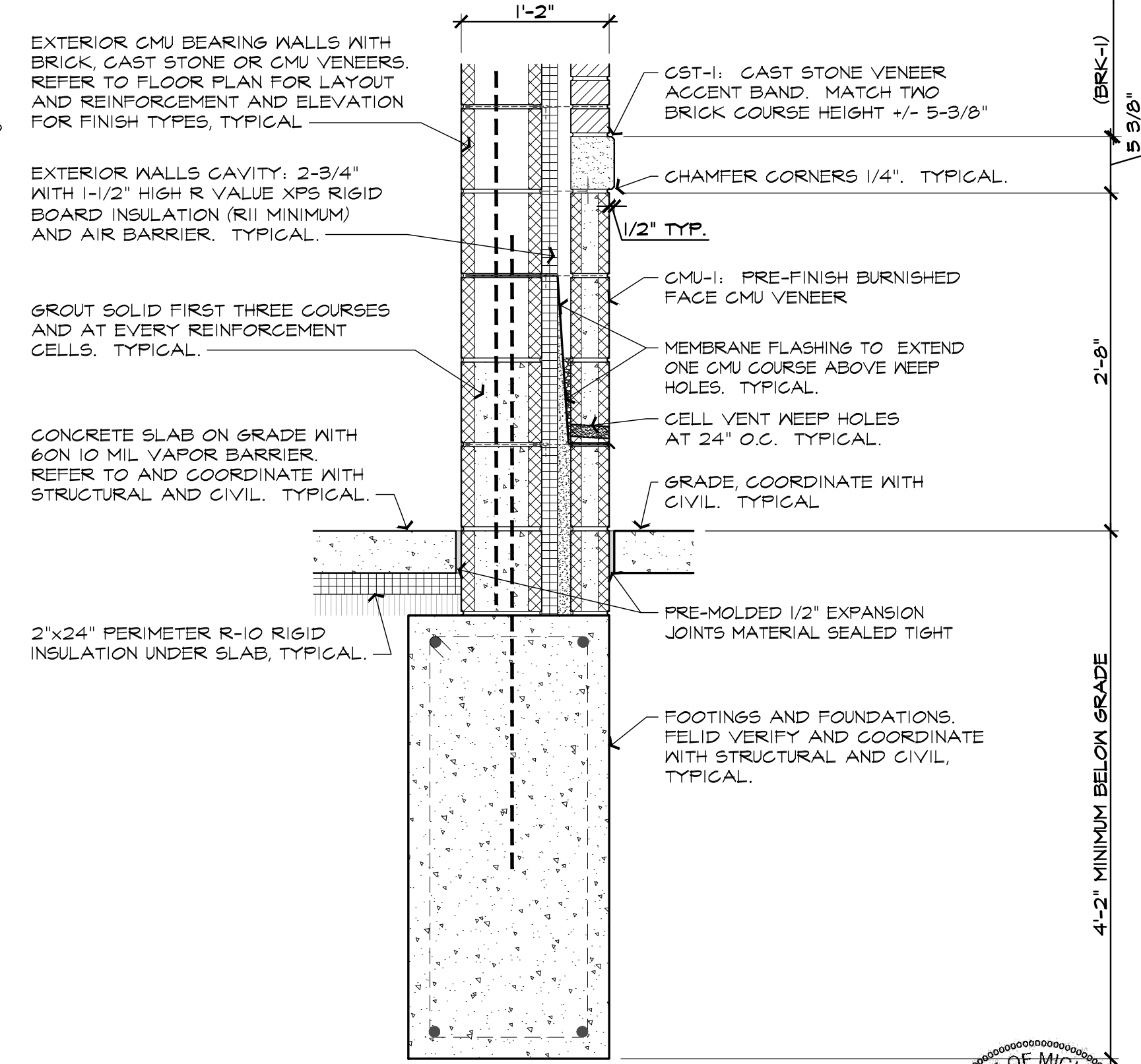
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 SCALE: 1" = 1'-0"



**3** DETAIL  
 SCALE: 1" = 1'-0"

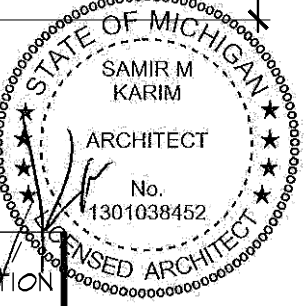


**2** DETAIL  
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**1** DETAIL  
 SCALE: 1" = 1'-0"

WHERE ITEMS ARE NOTED AND/OR DIMENSIONED ON ONE SECTION / DETAIL ARE APPLICABLE TO OTHER SECTIONS / DETAILS ON THIS SHEET.



**REFLECTED CEILING PLAN LEGEND:**

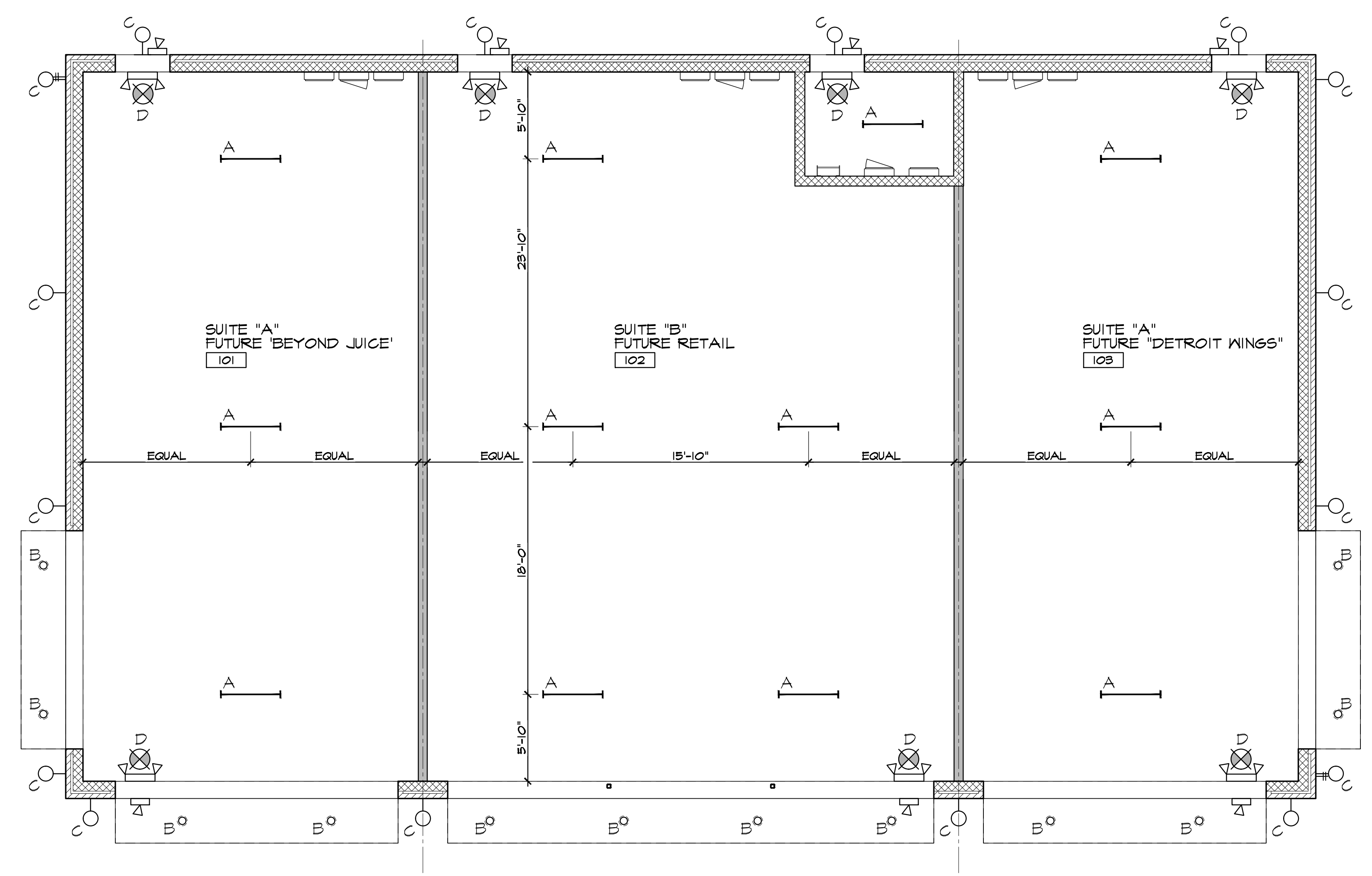
- A — 4' LONG CEILING SUSPENDED LED LIGHT FIXTURE  
MODEL: LAMAR LIGHTING DLLR SERIES
- B ○ ROUND CEILING RECESSED EXTERIOR LED LIGHT FIXTURE
- C ○ EXTERIOR WALL MOUNTED DECORATIVE LIGHT FIXTURE MODEL:  
674-31-WP SERIES BY COOPER LIGHTING. SIZE 31" IN CG  
COLOR (CUSTOM COLOR) WITH LED LAMPS.
- D □ POLYCARBONATE EXIT UNIT COMBO LIGHTING FIXTURE W/ NICAD  
BATTERY FOR 90 MINUTES MAINTENANCE FREE IV  
SELF-DIAGNOSTIC.

NOTE: COORDINATE ALL LIGHT FIXTURE SELECTIONS AND COLORS WITH OWNER FOR APPROVALS. TYPICAL FOR ALL FIXTURES.

ISSUED FOR	Item A.
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4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
UNION LAKE & COOLEY LAKE ROADS  
COOLEY LAKE ROAD  
WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
SSA	GA	GA

SCALE :

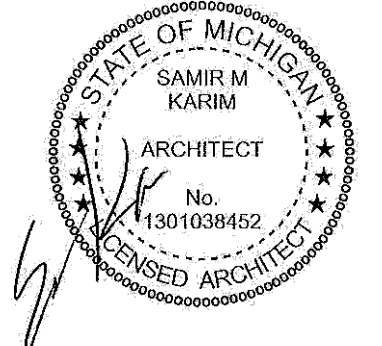
FILE NAME : 21096\_A601

JOB # : 21096

SHEET TITLE  
REFLECTED  
CEILING PLAN

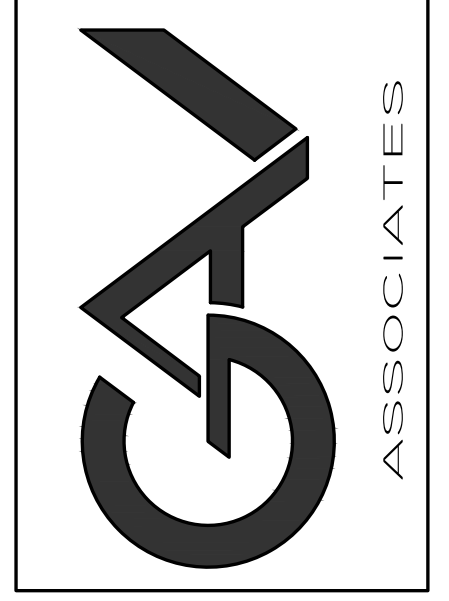
SHEET #  
A.60

**REFLECTED CEILING PLAN**  
SCALE: 3/16" = 1'-0"



ISSUED FOR	Item A
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4 CORNERS

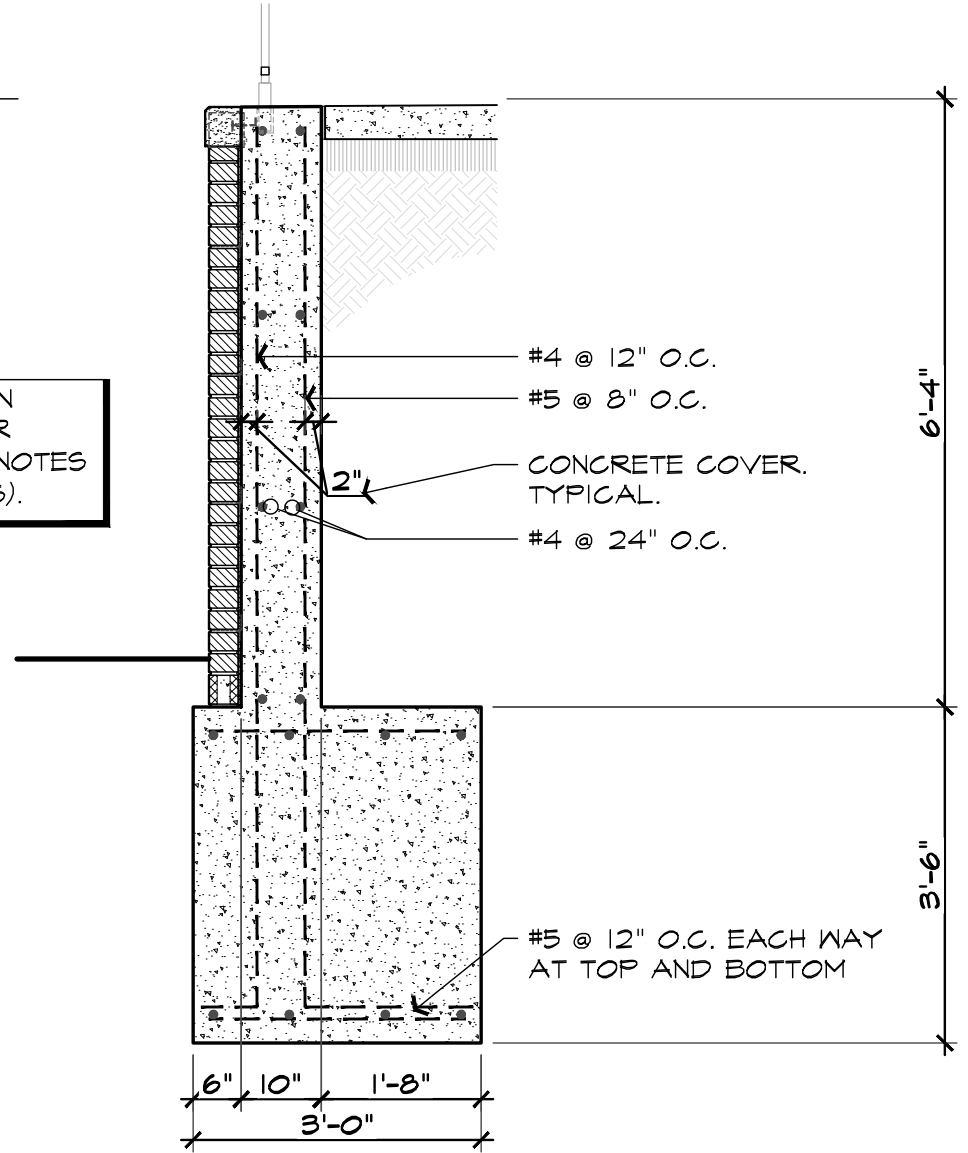
NEW RETAIL CENTER SHELL FOR:  
 UNION LAKE & COOLEY LAKE ROADS  
 COOLEY LAKE ROAD  
 WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
SSA	GA	GA
SCALE :		
FILE NAME : 21096_S101		
JOB # : 21096		
SHEET TITLE		
FOUNDATION PLAN		
SHEET #		
S.101		

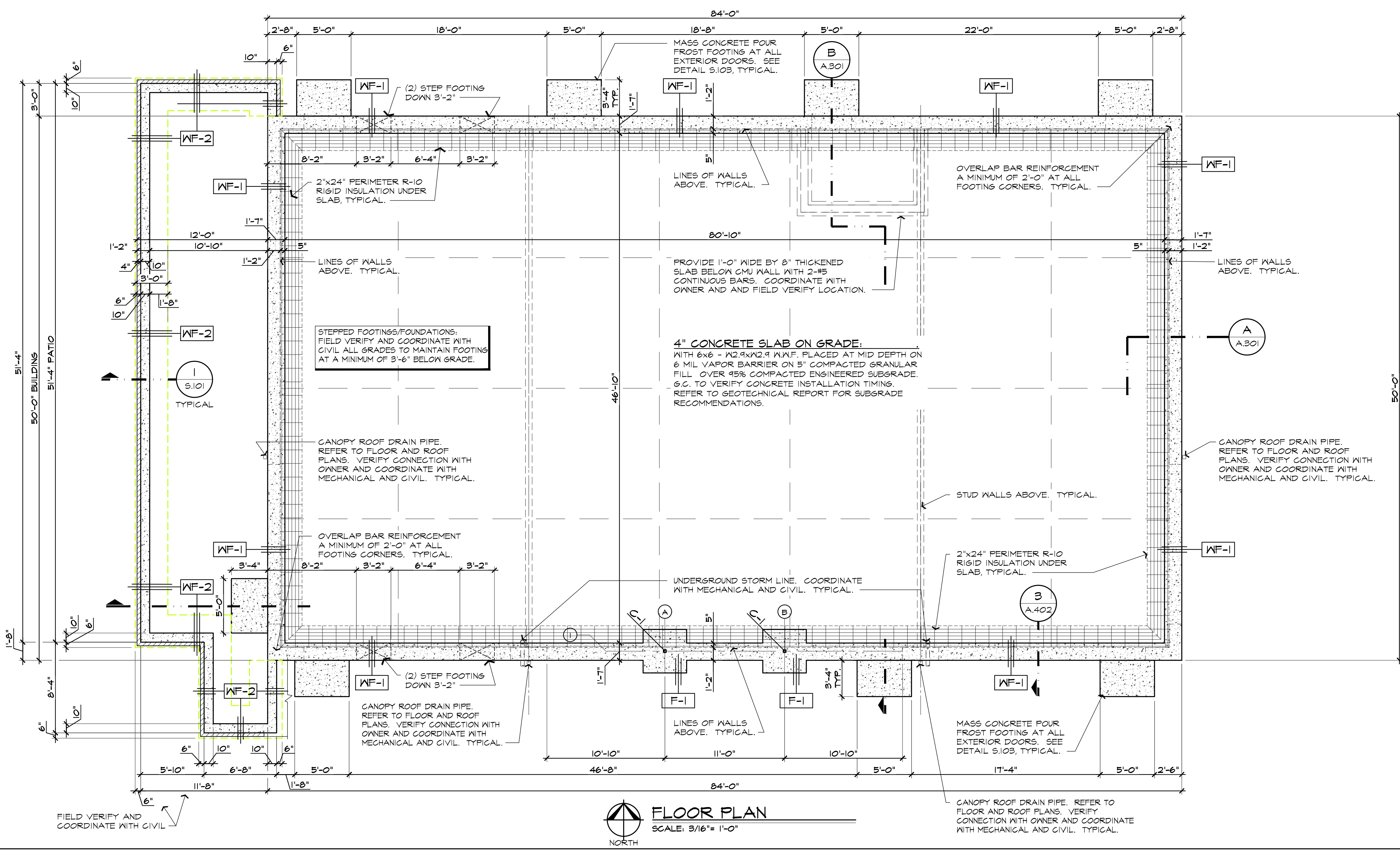
**FOUNDATIONS NOTES:**

1. REFER TO SPECIAL INSPECTIONS NOTES ON SHEET T.002.
2. OVERLAP BAR REINFORCEMENT A MINIMUM OF 3'-0" AT ALL FOOTING CORNERS, UNO.
3. ALL WALL FOOTINGS ARE BASED ON 2,000 LB/FT<sup>2</sup>.
4. COORDINATE WITH UNDERGROUND PLUMBING AND CIVIL.
5. BOTTOM OF EXTERIOR FOOTINGS / FOUNDATIONS SHALL BE A MINIMUM OF 42" BELOW GRADE.
6. COORDINATE ROOF CONDUCTORS WITH PLUMBING, ROOFING AND CONCRETE FOUNDATION CONTRACTORS.
7. PROVIDE MASS POUR FROST FOOTINGS AT ALL ENTRY DOORS.
8. REFER TO GROUND FRAMING PLAN FOR COLUMNS AND BASE PLATES LOCATIONS.

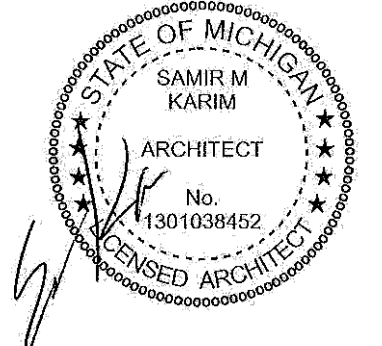
SEE DETAIL 4 ON A.301 SHEET FOR WALL DETAILS (NOTES AND DIMENSIONS).



**1**  
 S.101  
 SCALE: 1/2" = 1'-0"



**FLOOR PLAN**  
 SCALE: 3/16" = 1'-0"  
 NORTH



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4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
UNION LAKE & COOLEY LAKE ROADS  
COOLEY LAKE ROAD  
WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
SSA	GA	GA

SCALE :

FILE NAME : 21096\_S102

JOB # : 21096

SHEET TITLE  
**ROOF FRAMING PLAN**  
SHEET #

**S.102**

**COLUMN SCHEDULE**

MARK	SIZE	BASE PLATE	ANCHOR BOLTS
C-1	HSS 3x3x3/8	9x9x5/8	(4) 3/4x16"

**LINTELS SCHEDULE**

MARK	SIZE	STEEL PLATE	BASE PLATE
L-1	W8x24	3/8"x13-1/2"	BP-2
L-2	W16x50	3/8"x13-1/2"	BP-2
L-3	W8x28	3/8"x13-1/2"	BP-1
L-4	W8x15	3/8"x13-1/2"	BP-1

- ALL STEEL LINTELS TO HAVE 5/8"x8" STEEL STUDS AT 48" O.C. WELDED TO TOP FLANGE.
- REFER FLOOR PLANS, ELEVATIONS AND WALL SECTIONS.
- COORDINATE BASE PLATE THICKNESS TO MAINTAIN MASONRY COURSING JOINTS.

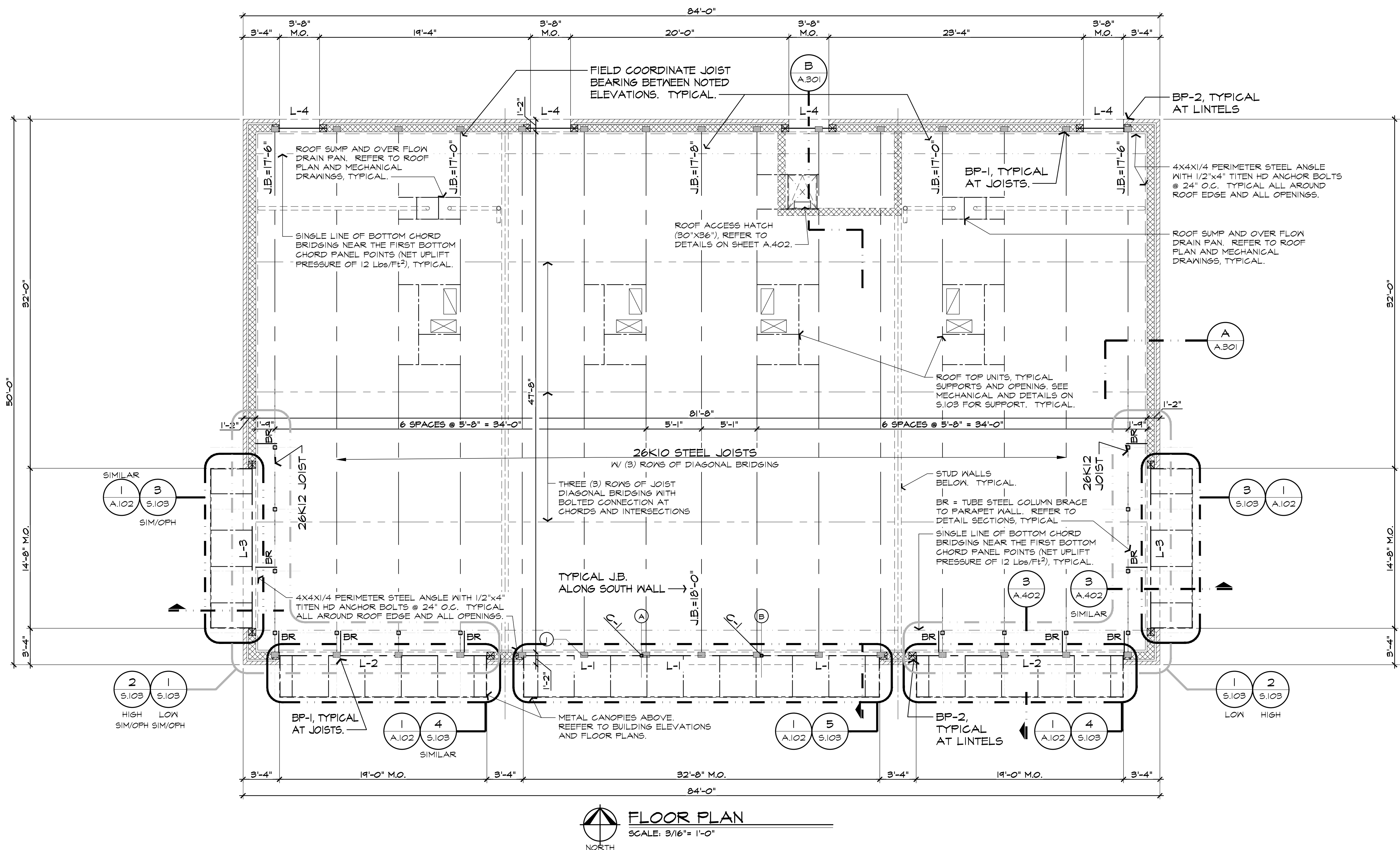
**BEARING PLATE SCHEDULE**

MARK	SIZE	ANCHORS
(JOISTS) BP-1	6"x8"x3/8"	2-1/2"φ x 8" STEEL STUDS
(LINTELS) BP-2	1 1/2"x1 1/2"x1/2"	2-1/2"φ x 8" STEEL STUDS

REFER TO ARCHITECTURAL SECTION DETAILS FOR MISCELLANEOUS GALVANIZED STEEL ANGLES AND BENT PLATES. TYPICAL.

**NOTES:**

- REFER TO WALL LEGEND ON ARCHITECTURAL PLANS AND SECTIONS FOR MASONRY AND CONCRETE STEEL REINFORCEMENT.
- ALL CMU WALLS TO HAVE #5 VERTICAL @ 48" O.C. DONNELS TO BE 2'-0" INTO FOOTING AND 3'-0" ABOVE. COORDINATE WITH FLOOR PLAN LEGEND AND NOTIFY ARCHITECT / ENGINEER OF ANY DISCREPANCIES.
- REFER TO ARCHITECTURAL SECTIONS MASONRY WALLS DIMENSIONS AND COORDINATION.
- VERIFY AND COORDINATE STEEL ANGLE FRAMING FOR MECHANICAL PENETRATION OPENING SIZE WITH MECHANICAL CONTRACTOR. PROVIDE 2 HOUR FIRE RATED MATERIAL AROUND PENETRATION.
- COORDINATE CONCRETE FLOOR AND STEEL FRAMING WITH MECHANICAL, PLUMBING AND ELECTRICAL CONTRACTORS FOR CLEARANCES.



**FLOOR PLAN**  
SCALE: 3/16" = 1'-0"  
NORTH



**GENERAL NOTES:**

REFER TO SHEET S.102 FOR SCHEDULES AND NOTES.

**ROOF STEEL TRELLIS FRAMING NOTES:**

- ALL EXPOSED STEEL TO RECEIVE SPECIAL PRIMER. SOLVENT BASED TWO PART INORGANIC ETHYL SILICATE ZINC RICH PRIMER.
- SPECIAL PRIMER SHALL BE APPLIED TO ALL ROOF EXPOSED STEEL TRELLIS AND STEEL TOWER. COORDINATE COLOR AND FINISH WITH OWNER AND FINISH PRIME TO ACCEPT PAINT AS REQUESTED BY OWNER.
- SUBMIT A COMPLETE DETAILED SHOP DRAWINGS FOR TRELLIS AND TOWER FOR REVIEW.
- ALL TUBE STEEL MEMBERS TO CAPPED WITH 3/8" WELDED SMOOTH PLATE AT END CAPS.
- WELD CORNERS AND SEAMS CONTINUOUSLY TO COMPLY WITH AISC RECOMMENDATIONS AND THE FOLLOWING:
  - USE MATERIALS AND METHODS THAT MINIMIZE DISTORTION AND DEVELOP STRENGTH AND CORROSION RESISTANCE OF BASE METALS.
  - AT EXPOSED CONNECTIONS, FINISH EXPOSED WELDS AND SURFACES SMOOTH AND BLENDED SO THAT NO ROUGHNESS SHOWS AFTER FINISHING AND CONTOUR OF WELDED SURFACE MATCHES THOSE ADJACENT.
- COORDINATE COLOR / FINISH WITH OWNER.

ISSUED FOR	Item A.
PERMITS	10.22.2021

**ARCHITECTURAL DESIGN**

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4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
UNION LAKE & COOLEY LAKE ROADS  
COOLEY LAKE ROAD  
WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
SSA	GA	GA

SCALE :

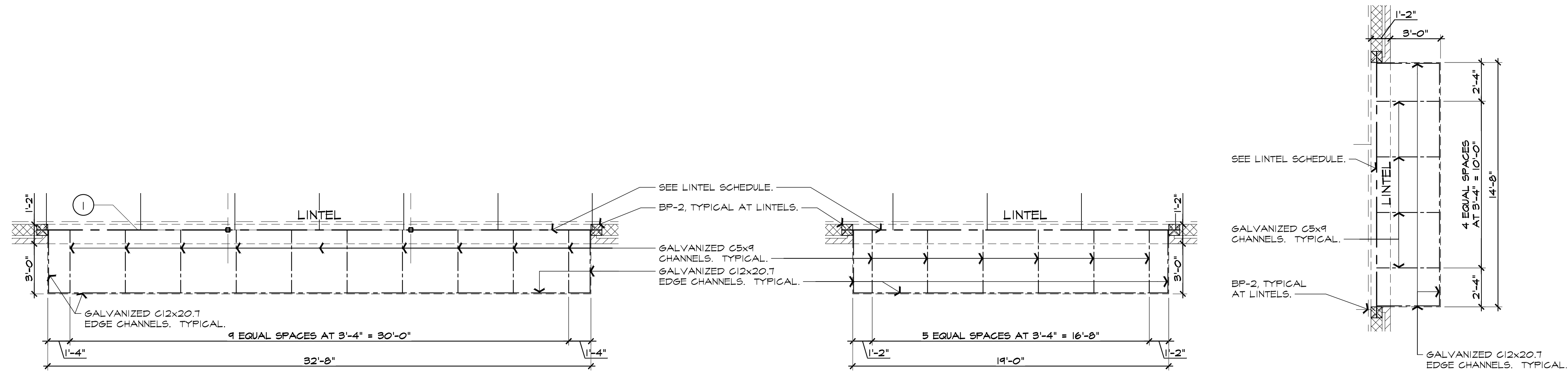
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JOB # : 21096

SHEET TITLE

ENLARGED  
FRAMING  
PLANS  
SHEET #

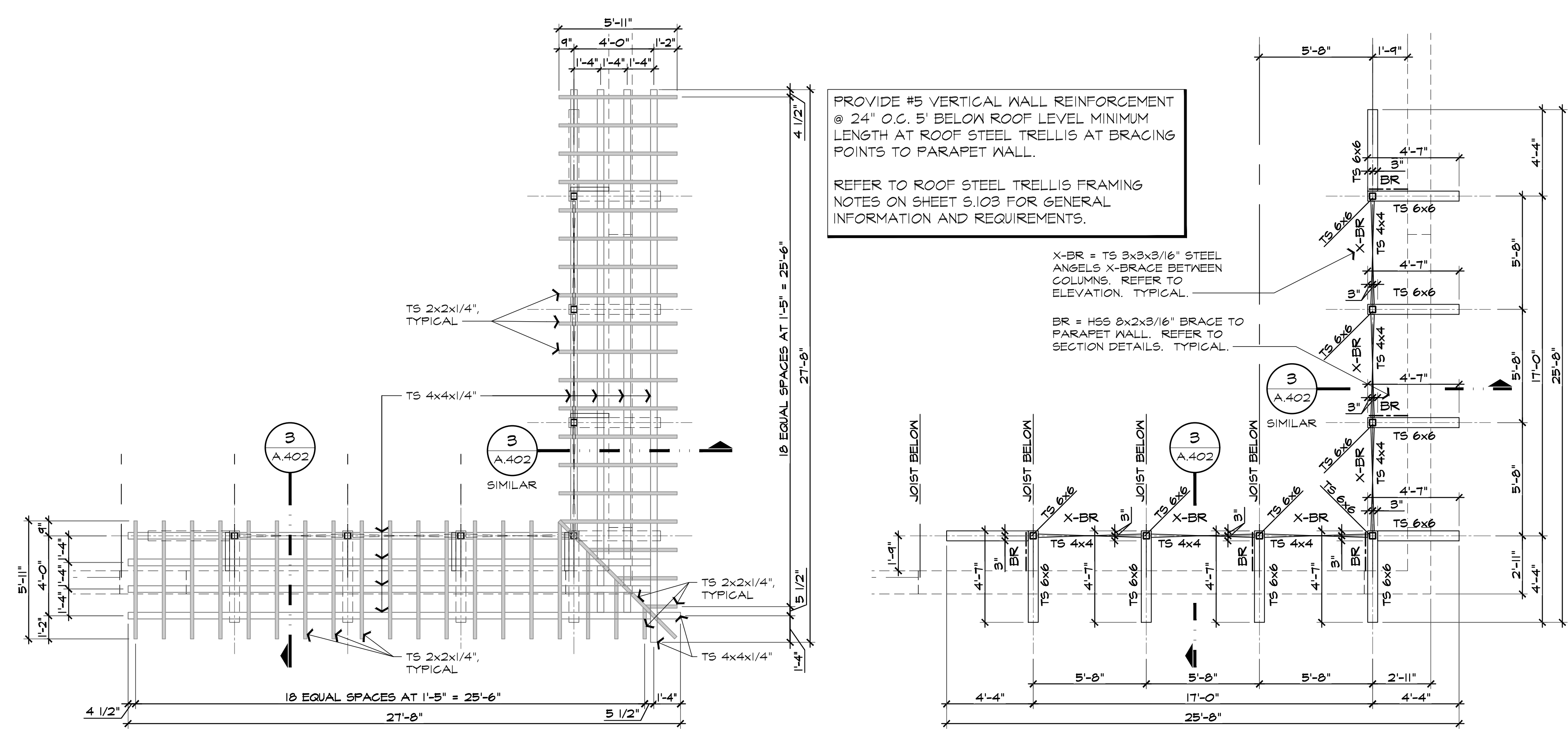
S.103



5 ENLARGED CANOPY FRAMING PLAN  
SCALE: 3/8" = 1'-0"

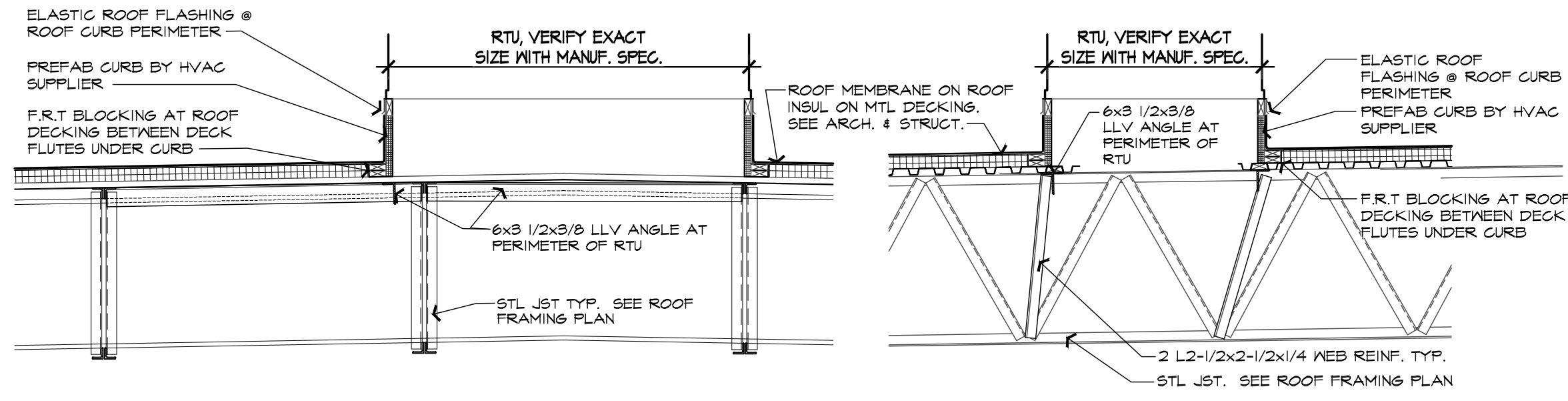
4 ENLARGED CANOPY FRAMING PLAN  
SCALE: 3/8" = 1'-0"

3 ENLARGED CANOPY FRAMING PLAN  
SCALE: 3/8" = 1'-0"



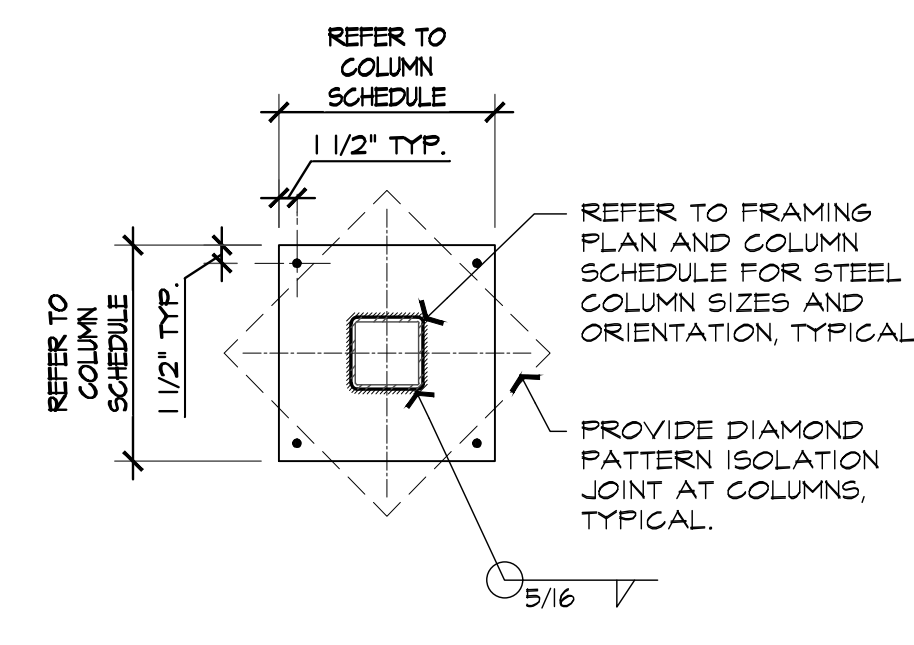
2 ROOF STEEL TRELLIS FRAMING PLAN - HIGH  
SCALE: 3/8" = 1'-0"

1 ROOF STEEL TRELLIS FRAMING PLAN - LOW  
SCALE: 3/8" = 1'-0"

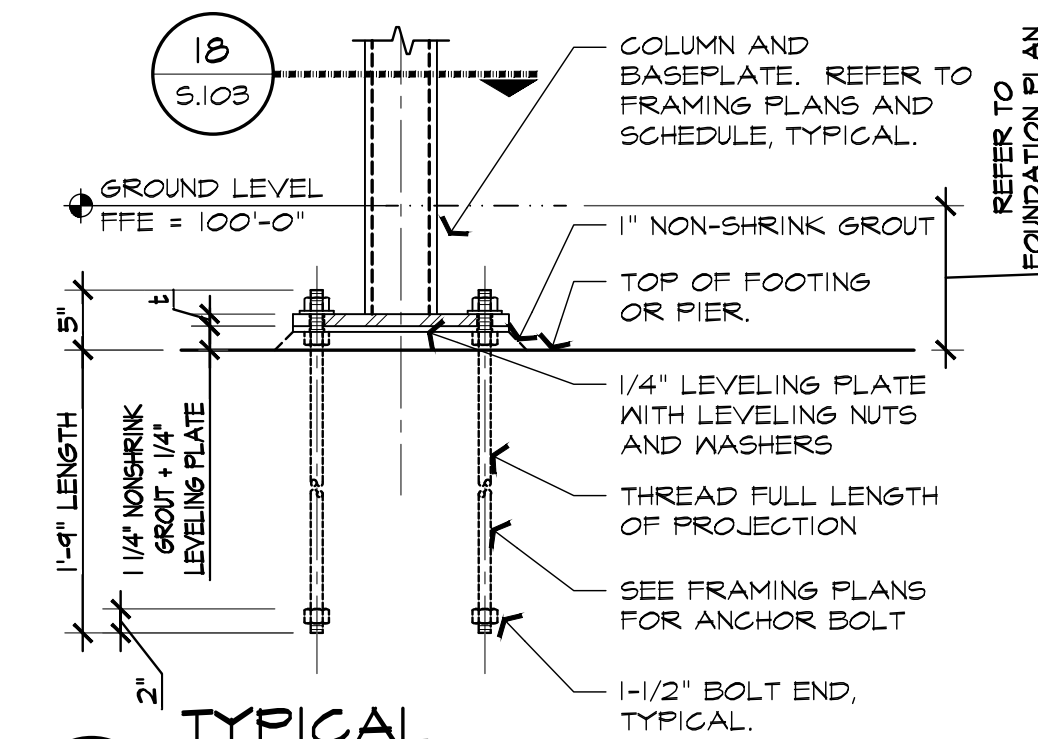


**21**  
5.104  
**TYPICAL ROOFTOP MECH UNIT SUPPORT DETAIL**  
NOT TO SCALE

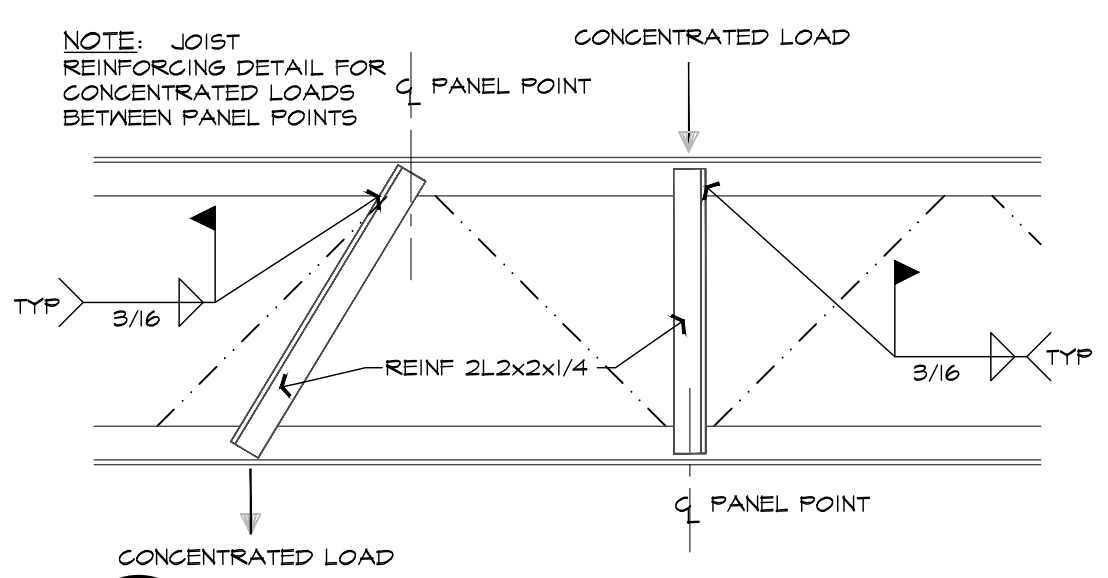
REFER TO FRAMING PLAN AND DETAILS FOR ADDITIONAL REQUIREMENTS THAT ARE NOT DEPICTED ON THESE DETAILS.



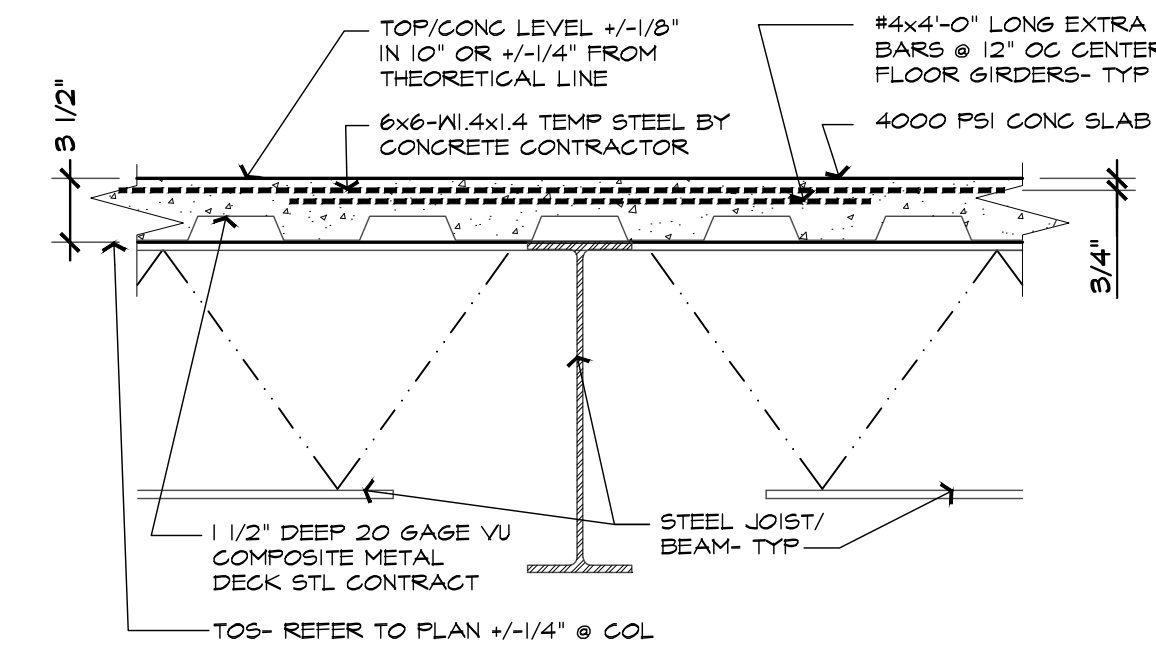
**18**  
5.103  
**TYPICAL BASE PLATE DETAIL**  
NOT TO SCALE



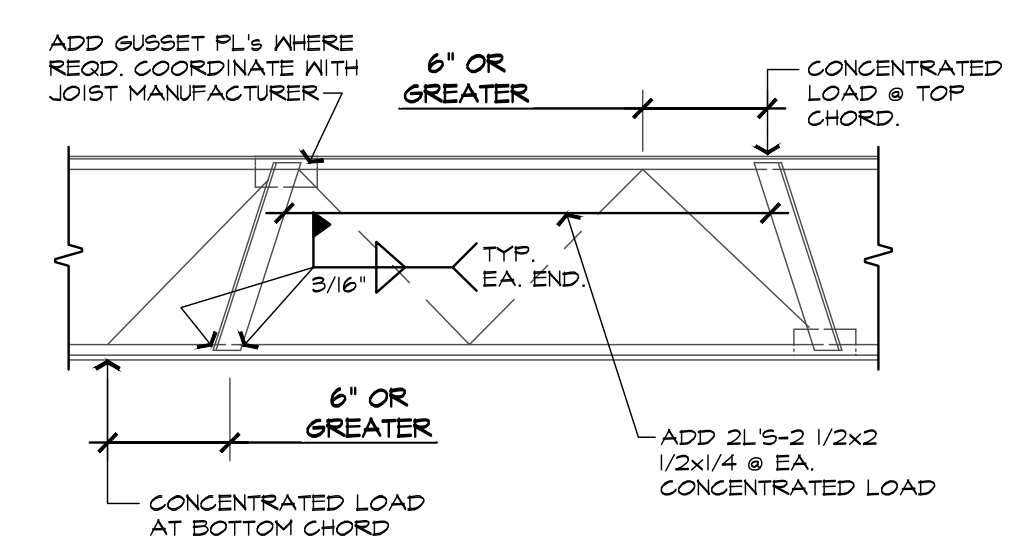
**17**  
5.103  
**TYPICAL BASE PLATE DETAIL**  
NOT TO SCALE



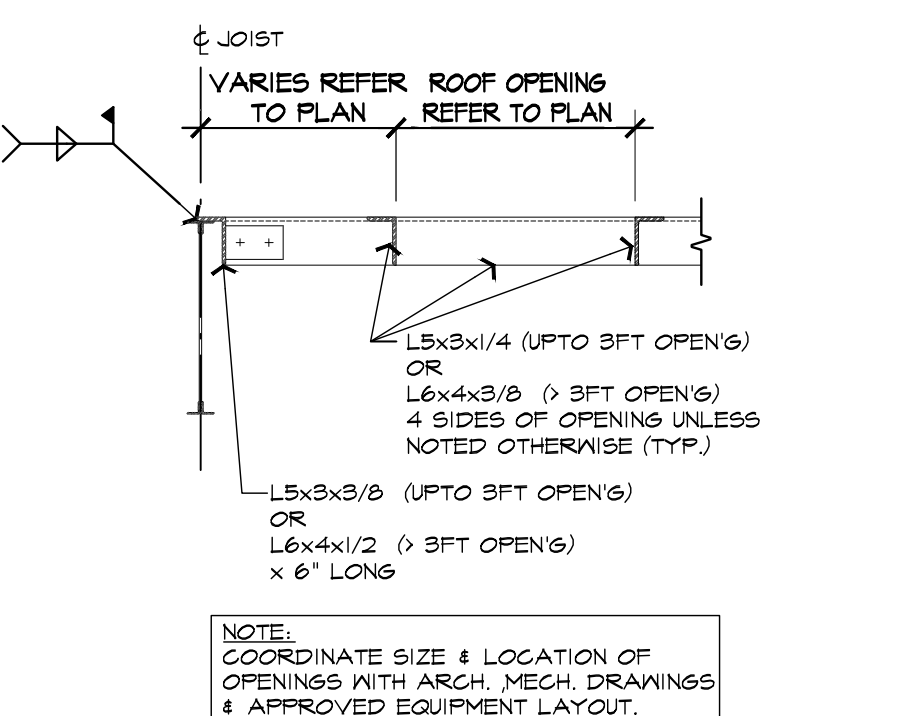
**16**  
5.103  
**TYPICAL DETAIL**  
NOT TO SCALE



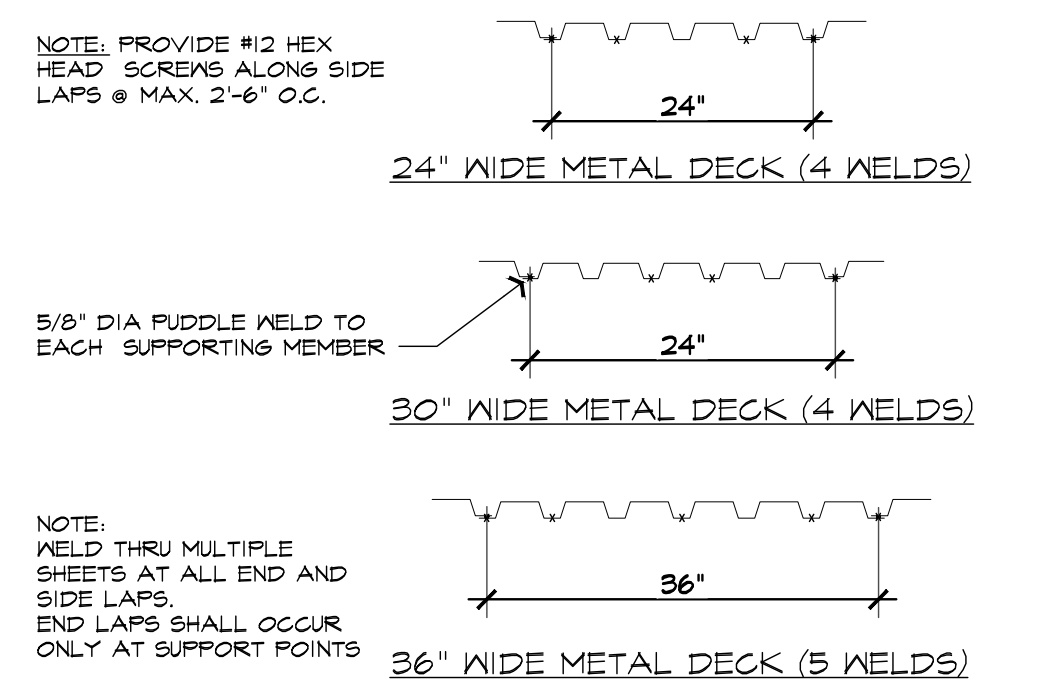
**15**  
5.103  
**TYPICAL SUPPORTED SLAB DETAIL**  
NOT TO SCALE



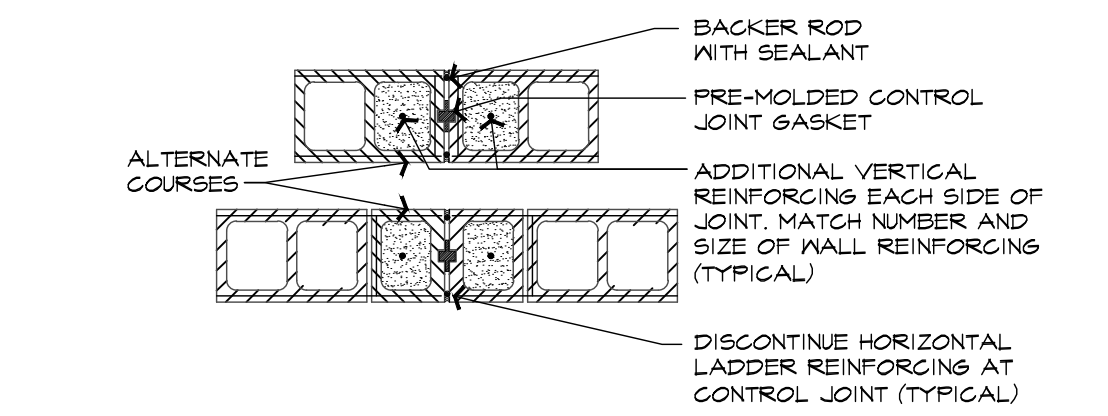
**14**  
5.103  
**TYPICAL JOIST REINFORCING AT CONCENTRATED LOAD**  
NOT TO SCALE



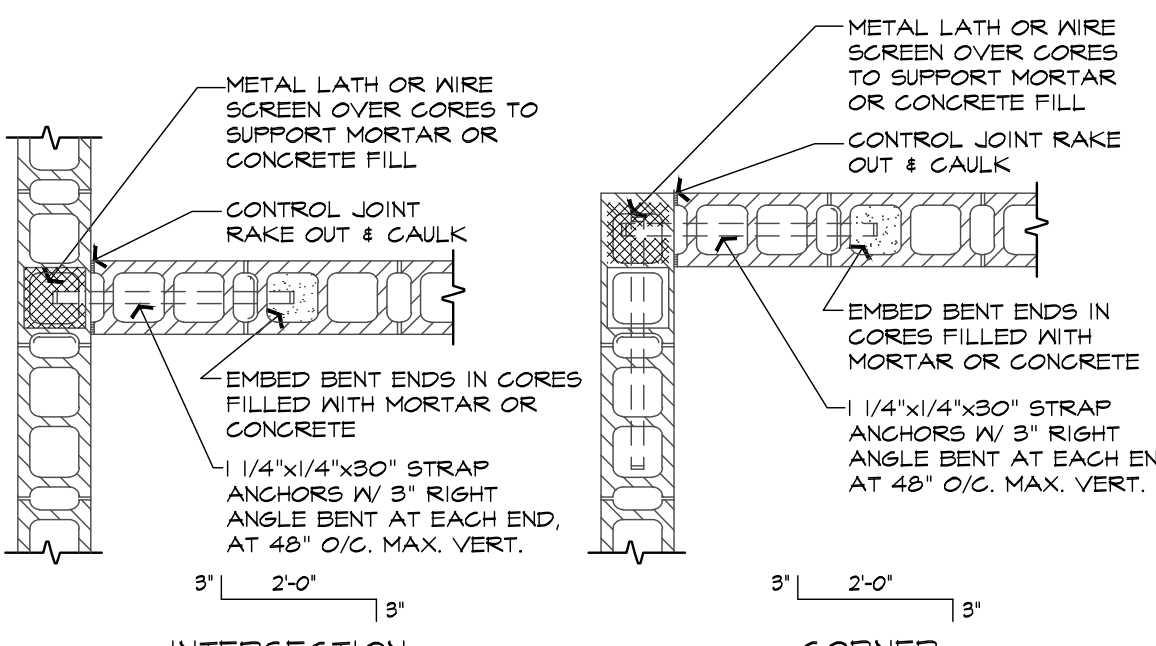
**13**  
5.103  
**TYPICAL ROOF OPENING DETAIL**  
NOT TO SCALE



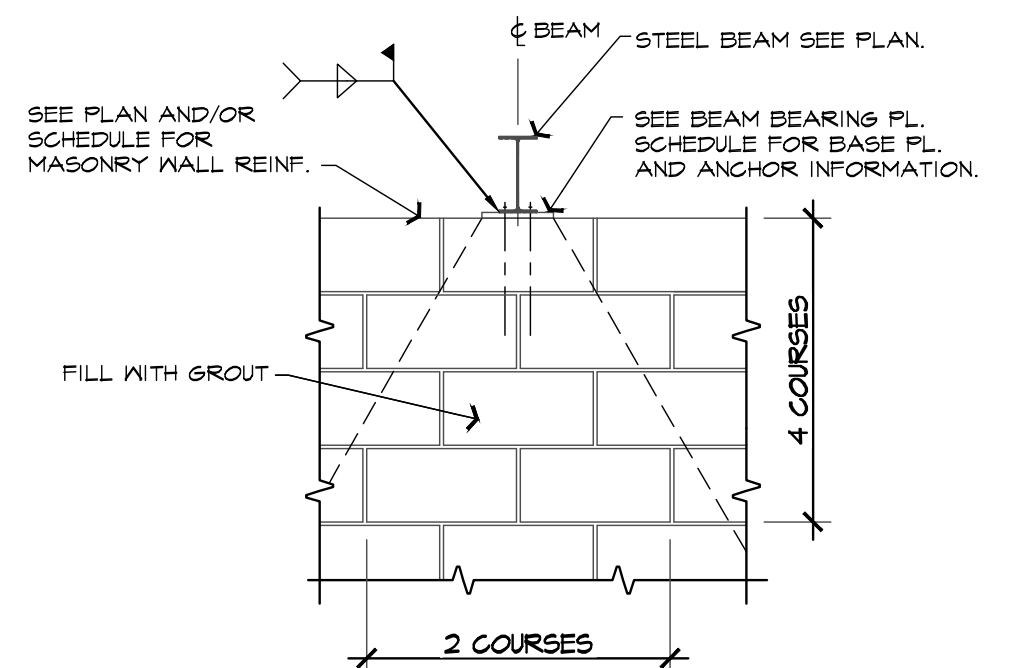
**12**  
5.103  
**METAL ROOF DECK ATTACHMENT DETAIL**  
NOT TO SCALE



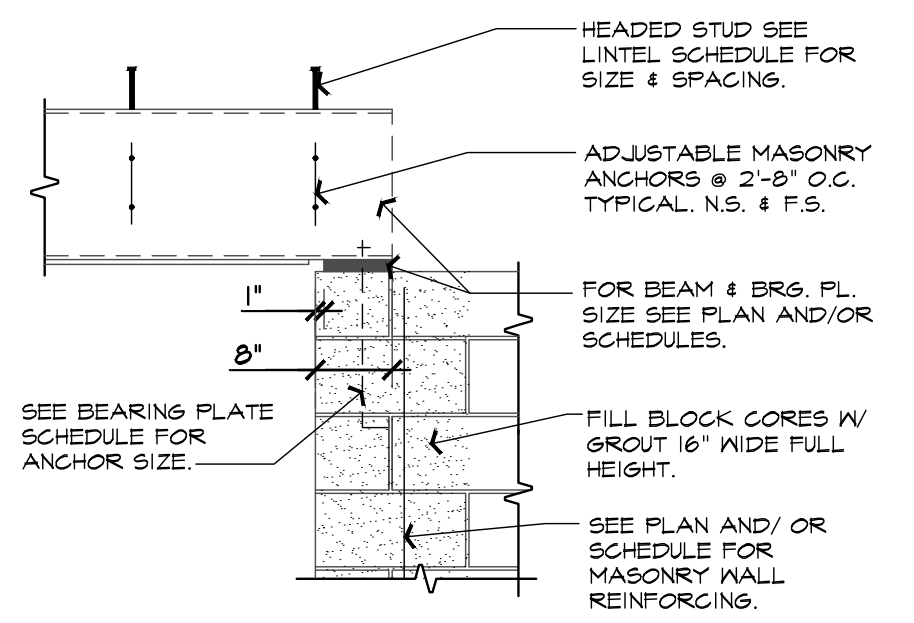
**6**  
5.103  
**TYPICAL MASONRY CONTROL JOINT**  
NOT TO SCALE



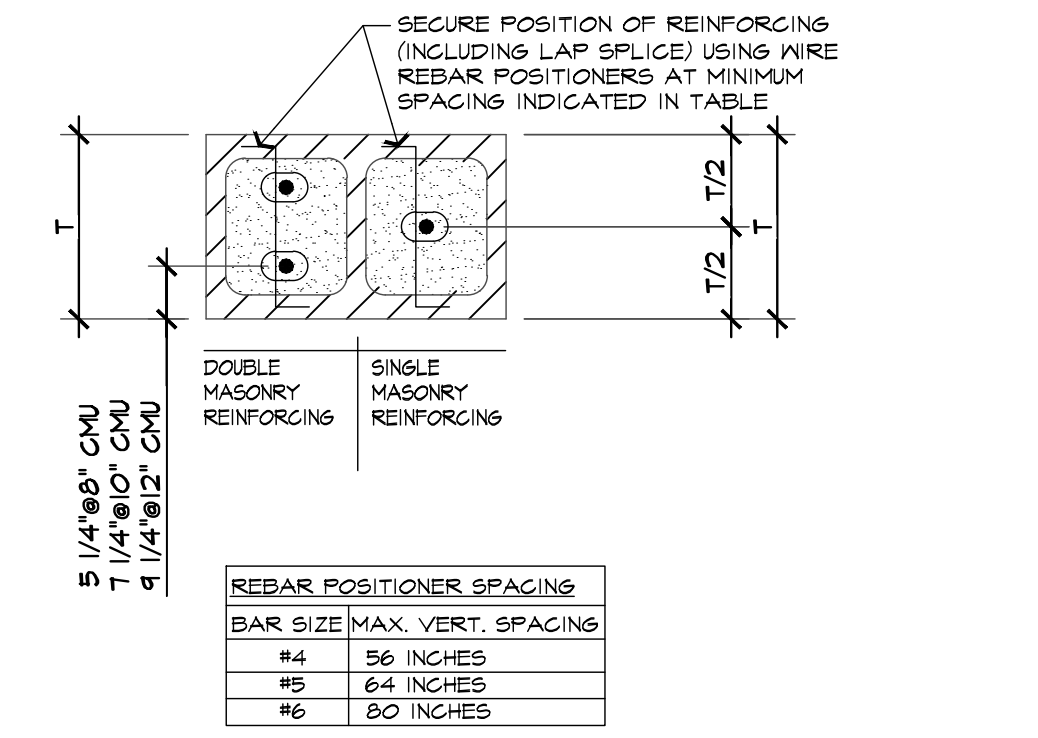
**11**  
5.103  
**TYPICAL PLANS DETAILS @ CMU WALL**  
NOT TO SCALE



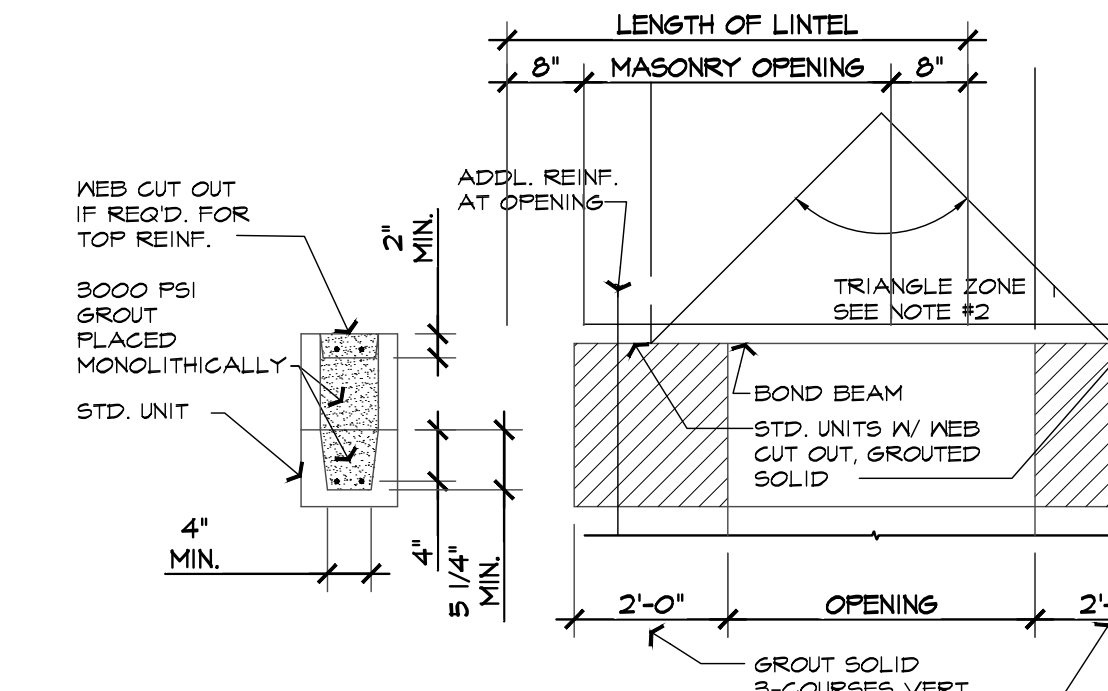
**10**  
5.103  
**TYPICAL GROUTING OF MASONRY WALL AT STEEL BEAM BEARING**  
NOT TO SCALE



**9**  
5.103  
**TYPICAL LINTEL BEARING DETAIL**  
NOT TO SCALE

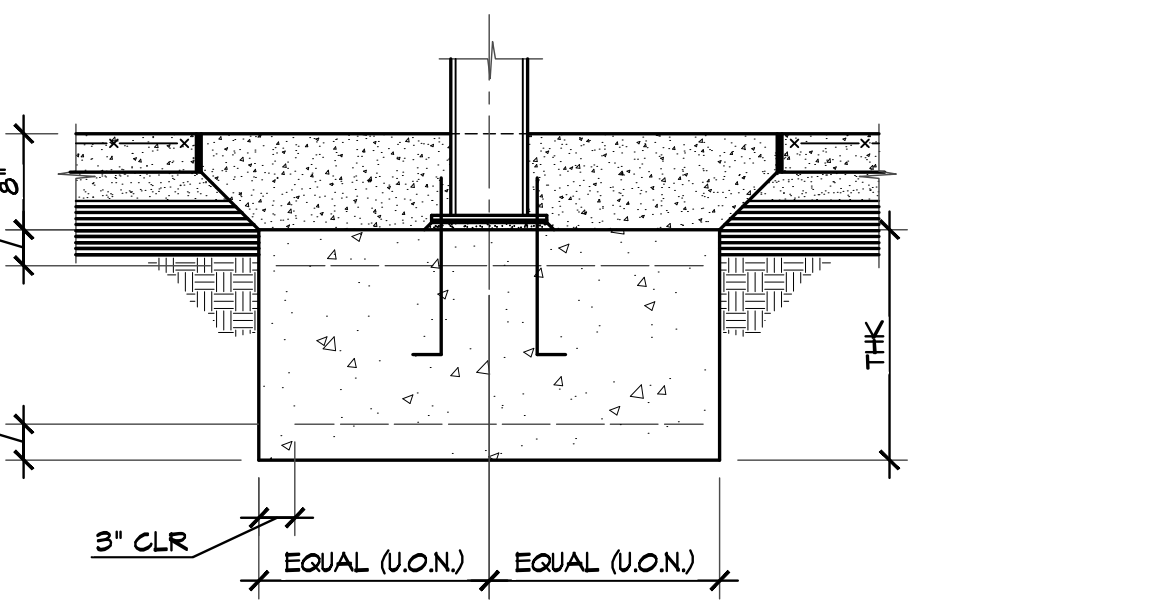


**8**  
5.103  
**TYPICAL WALL REINFORCING**  
NOT TO SCALE

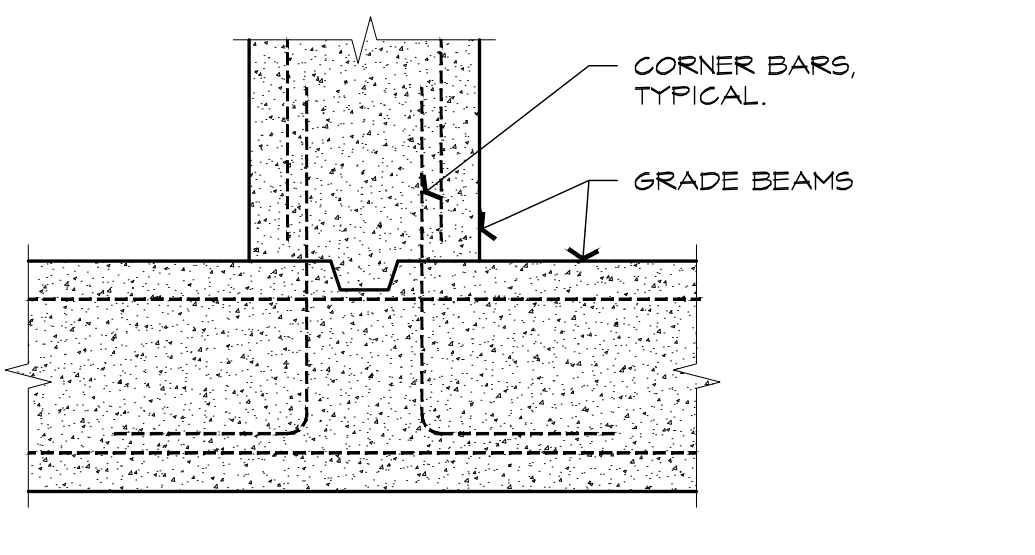


**7**  
5.103  
**TYP. MASONRY LINTEL DETAIL**  
NOT TO SCALE

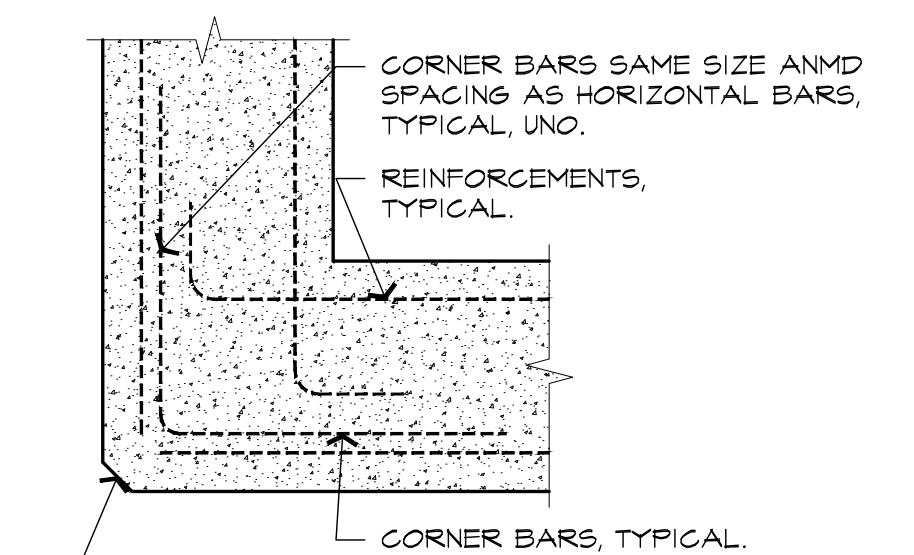
REFER TO FOUNDATION PLAN AND OTHER DETAILS FOR ADDITIONAL REQUIREMENTS THAT ARE NOT DEPICTED ON THESE DETAILS SUCH AS, BUT LIMITED TO, WATER STOPS AND WATER PROOFING.



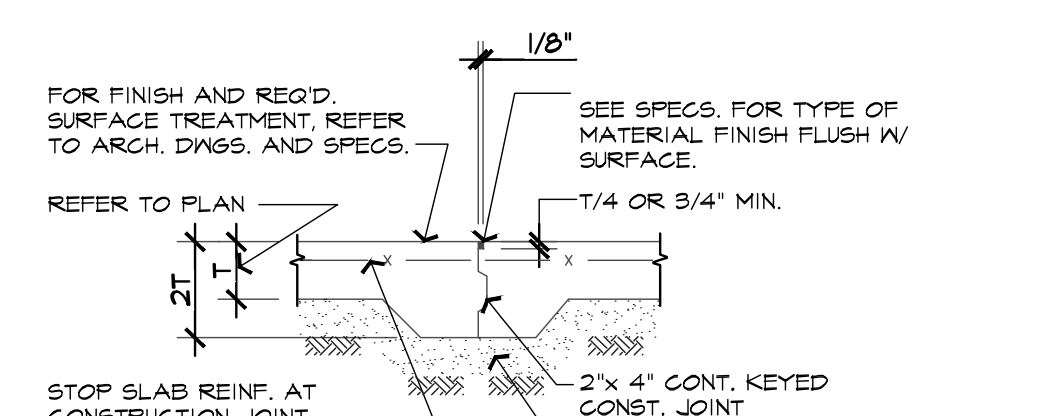
**5**  
5.103  
**FOOTING WITHOUT PIER CURB PERPENDICULAR TO JOIST**  
NOT TO SCALE



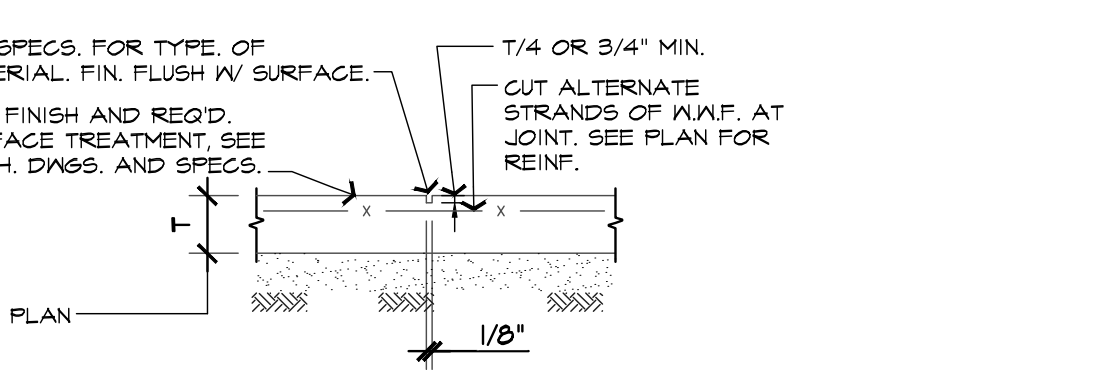
**4**  
5.103  
**TYPICAL INTERSECTION OF TWO GRADE BEAMS**  
NOT TO SCALE



**3**  
5.103  
**TYPICAL INTERSECTION OF TWO GRADE BEAMS**  
NOT TO SCALE



**2**  
5.103  
**TYPICAL SLAB CONSTRUCTION JOINT**  
NOT TO SCALE

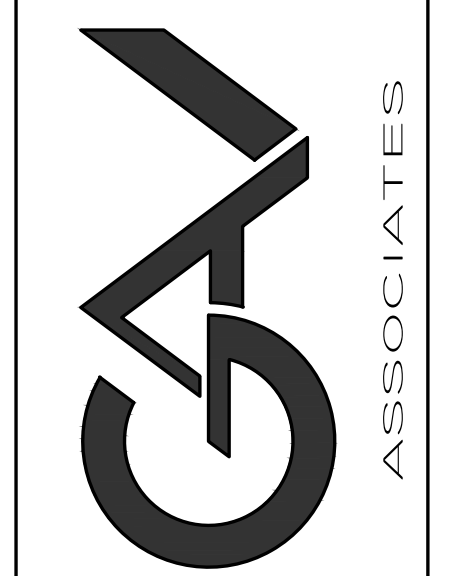


**1**  
5.103  
**TYPICAL SLAB CONTROL JOINT**  
NOT TO SCALE

- NOTES:
- PLACE LINTEL BEAMS CENTERED ON BLOCK, UNO.
  - ALL EXTERIOR LINTEL PLATES AND ANGLES TO BE GALVANIZED (690 COATING)
  - LINTELS NOT SPECIFICALLY SIZED BY DRAWINGS AND DETAIL SECTIONS SHALL COMPLY WITH THE FOLLOWING:
    - WALLS OR VENEERS OF 4\"/>

ISSUED FOR	Item A
PERMITS	10.22.2021

**ARCHITECTURAL DESIGN**  
RESIDENTIAL  
COMMERCIAL  
INDUSTRIAL  
G.A.V. ASSOCIATES, INC.  
3801 ORCHARD LAKE RD., STE. 100A  
FARMINGTON, MICHIGAN 48336  
PH: (248) 985-9191  
WEB: WWW.GAVASSOCIATES.COM

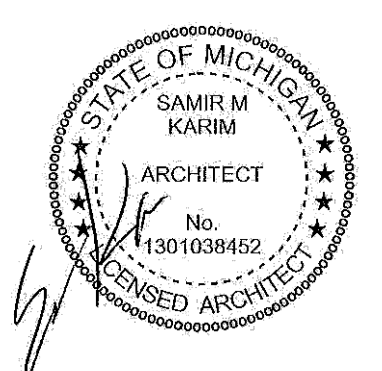


4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
UNION LAKE & COOLEY LAKE ROADS  
COOLEY LAKE ROAD  
WHITE LAKE, MICHIGAN

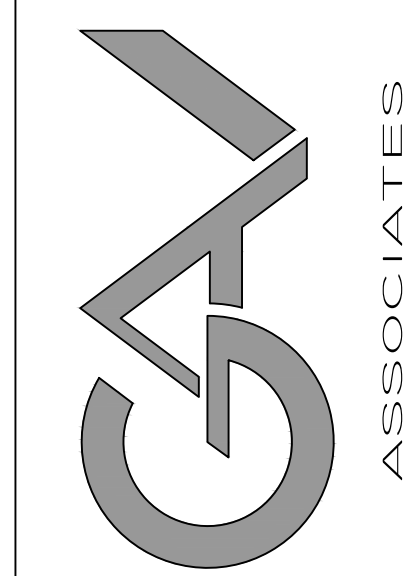
DRAWN:	DESIGNED:	CHECKED:
SSA	GA	GA

SCALE:  
FILE NAME: 21096\_S104  
JOB #: 21096  
SHEET TITLE  
SECTIONS AND DETAILS  
SHEET #  
**S.104**



ISSUED FOR	Item A.
PERMITS	10.22.2021

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**G.A.V. ASSOCIATES, INC.**  
 24051 ORCHARD LAKE RD., STE. 100A  
 FARMINGTON, MICHIGAN 48336  
 PH: (248) 985-9101  
 WEB: WWW.GAVASSOCIATES.COM



4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
 UNION LAKE & COOLEY LAKE ROADS  
 COOLEY LAKE ROAD  
 WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
DS	GA	GA
SCALE : AS NOTED		
FILE NAME : 21096_M000		
JOB # : 21096		
SHEET TITLE		
SYMBOLS AND ABBREVIATIONS		
SHEET #		
M.000		



MECH. SHEET INDEX	
SHEET No.	DESCRIPTION
M.000	SYMBOLS AND ABBREVIATIONS
M.100	MECHANICAL PLAN, SCHEDULES & DETAILS

**NOTE:**  
 NOT ALL SYMBOLS AND ABBREVIATIONS  
 ARE APPLICABLE TO THIS PROJECT

**H.V.A.C. SYMBOLS**

- SPIN-IN FITTING W/DAMPER
- FLEXIBLE DUCT
- RETURN AIR GRILLE
- SUPPLY AIR DIFFUSER
- HORIZONTAL FIRE DAMPER
- VERTICAL FIRE DAMPER
- HORIZONTAL FIRE & SMOKE DAMPER
- VERTICAL FIRE & SMOKE DAMPER
- VOLUME DAMPER
- RECTANGULAR TO ROUND TRANSITION
- MOTORIZED AIR DAMPER
- TRANSFER BOOT

**ABBREVIATIONS**

- A.F.F ABOVE FINISH FLOOR
- C.S.D. CEILING SUPPLY DIFFUSER
- C.F.M. CUBIC FEET PER MINUTE
- C.O. CLEAN OUT
- COMB. COMBUSTION
- C.P. CIRCULATING PUMP
- DPR. DAMPER
- D.F. DRINKING FOUNTAIN
- E. EXISTING
- E.F. EXHAUST FAN
- ER-# EXHAUST REGISTER
- EXH. EXHAUST
- EWC ELECTRIC WATER COOLER
- F.C.O. FLOOR CLEANOUT
- F.D. FLOOR DRAIN
- F.D. FIRE DAMPER
- H.B. HOSE BIBB
- IE INVERT ELEVATION
- LAV. LAVATORY
- N.C. NEW CONNECTION/ NORMALLY CLOSED
- O.A. OUTSIDE AIR
- P.H. PHYSICAL HANDICAPPED
- R.A. RETURN AIR
- R.C. RAIN CONDUCTOR
- E.D.H. ELECTRIC DUCT HEATER
- RG -# RETURN AIR GRILLE
- R.P.B.P. REDUCED PRESSURE BACKFLOW PREVENTER
- RR-# RETURN AIR REGISTER
- S.A. SUPPLY AIR
- S-1 SUPPLY DIFFUSER
- SR-# SUPPLY REGISTER
- S.F. SQUARE FEET
- SAN. SANITARY
- S.S. SERVICE SINK
- SHWR. SHOWER
- ST. STORM
- T.G. TRANSFER GRILLE
- T.P. TRAP PRIMER
- U/GRD. UNDERGROUND
- U.H. UNIT HEATER
- UR. URINAL
- V. VENT
- V.T.R. VENT THRU ROOF
- W. WASTE
- W.C. WATER CLOSET
- W.C.O. WALL CLEANOUT
- W.H. WATER HEATER

**PLUMBING SYMBOLS**

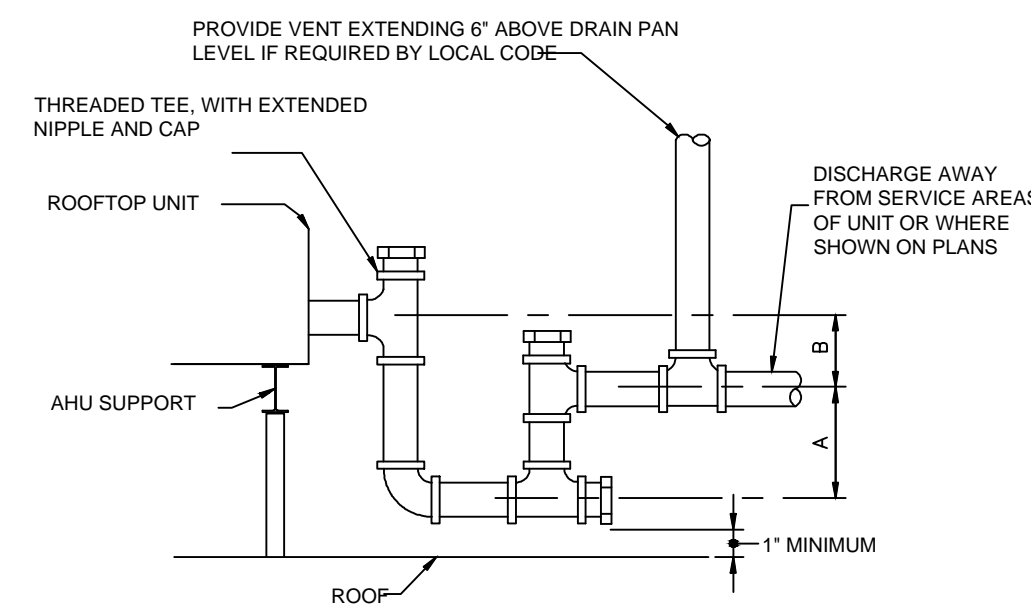
- DOMESTIC COLD WATER (C.W.)
- DOMESTIC HOT WATER (H.W.)
- DOMESTIC HOT WATER RETURN (H.W.R.)
- NATURAL GAS
- SANITARY SEWER
- STORM SEWER
- VENT
- GATE VALVE
- CHECK VALVE
- BALANCING VALVE
- THERMOMETER
- STRAINER
- UNION
- FLEXIBLE CONNECTOR
- BALL VALVE
- THERMOSTAT
- NEW CONNECTION

**MECHANICAL AND PLUMBING NOTES**

- A. WATER SUPPLY SYSTEM**
- ALL PLUMBING FIXTURES MUST CONFORM TO BUT NOT LIMITED TO SECTION 6 PROTECTION OF POTABLE WATER SUPPLY OF THE 2012 MICHIGAN PLUMBING CODE AND THE STANDARDS OF THE ASSE-AMERICAN SOCIETY OF SANITARY ENGINEERS.
  - ALL PIPING SHALL BE TYPE L COPPER, INSULATED WITH 1 INCH PLENUM RATED FIBERGLASS WRAP.
  - PROVIDE SHUT-OFF VALVE AT TENANT AREA AS INDICATED ON THE PLAN.
- B. SANITARY SEWER SYSTEM**
- ALL SANITARY SEWER PIPING SHALL BE CAST IRON ABOVE FLOOR. PVC PIPING SHALL BE PERMITTED BELOW THE FLOOR SLAB IF APPROVED BY AHJ.
  - SANITARY SEWER PIPING SHALL BE SLOPED PER FOOT. CLEANOUTS SHALL BE IN ACCORDANCE WITH UP TO DATE PLUMBING CODES IN THE LOCATION OF THE BUILDING.
  - PROVIDE SANITARY VENTS AND VTR'S AT INTERIOR WALLS AS REQUIRED.
  - PROVIDE CLEAN OUTS AT EVERY CHANGE OF DIRECTION GREATER THAN 45 DEGREES AND EVERY 50 FEET STRAIGHT RUN.
- C. STORM SEWER SYSTEM**
- STORM SEWER PIPING MAY BE PCV BELOW THE FLOOR SLAB IF APPROVED BY AHJ.
  - METAL ROOF LEADERS SHALL BE CONNECTED TO UNDERGROUND STORM SEWER PIPING.
  - ALL PIPING SHALL BE INSULATED WITH 1 INCH PLENUM RATED FIBERGLASS WRAP.
  - CLEANOUTS ARE TO BE PROVIDED THE SAME AS REQUIRED FOR SANITARY PIPING.
  - OVERFLOW NOZZLE, PER ARCHITECTURAL TRADE.
- D. MECHANICAL HVAC UNITS**
- MECHANICAL ROOF TOP UNITS, CURBS AND ACCESSORIES AS SPECIFIED ARE TO BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR.
  - GAS PIPING FROM GAS METER TO ROOF TOP HVAC UNITS SHALL BE PROVIDED AND INSTALLED PER GAS COMPANY AND ASHRAE STANDARDS.
  - GAS PIPING SHALL BE SIZED BY THE MECHANICAL CONTRACTOR PER UTILITY COMPANY AND ROOF TOP UNIT MANUFACTURER'S REQUIREMENTS.
  - GAS PIPING ON ROOF TO CONNECT TO EACH CORRESPONDING TENANT GAS METER. SEE MEP-200 FOR GAS PIPE ROOF SUPPORT DETAILS.

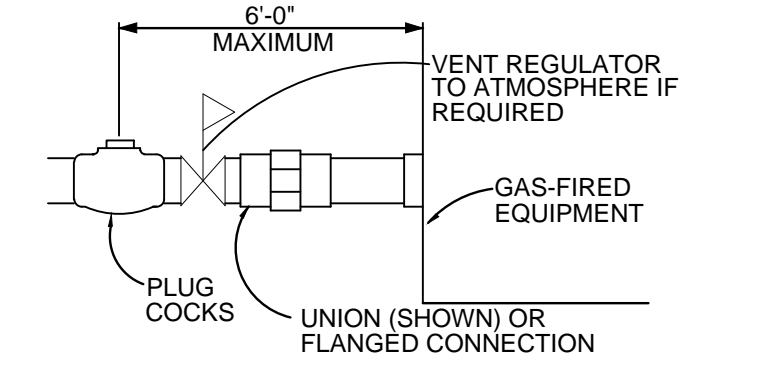
**KEYED MECHANICAL NOTES**

- GAS SERVICE MAIN COORDINATE WITH CIVIL & UTILITY CO.
- 2 INCH DOMESTIC WATER METER PER THE CITY REQUIREMENTS. SEE DOMESTIC WATER METER RISER DETAIL ON THIS SHEET.
- 6 INCH ROOF SUMP 6 INCH CAST IRON HORIZONTAL TO 6 INCH VERTICAL DOWN FACE OF BACK WALL WITH CLEAN OUT AT BASE. HOLD VERTICAL CONDUCTOR TIGHT TO BACK WALL FACE. REFER TO ARCHITECTURAL DRAWINGS FOR TYPICAL ROOF SUMP DETAIL AND PLUMBING GENERAL NOTES FOR PIPE INSULATION REQUIREMENTS.
- 6 INCH OVERFLOW ROOF SUMP TO 6 INCH HORIZONTAL CAST IRON OVERFLOW CONDUCTOR IN JOIST SPACE. SLOPE AT MINIMUM " " PER L.F. HOLD CONDUCTOR AS HIGH AS POSSIBLE WITHIN JOIST SPACE. REFER TO ARCHITECTURAL DRAWINGS FOR TYPICAL ROOF OVERFLOW NOZZLE DETAIL AND PLUMBING GENERAL NOTES FOR PIPE INSULATION REQUIREMENTS.
- 6 INCH CAST IRON STORM ABOVE. SLOPE AT MINIMUM 1/8" PER L.F.
- 8 INCH BUILDING STORM SEWER LEAD, COORDINATE SITE STORM LEAD SIZE, INVERT ELEVATION AND LOCATION WITH CIVIL.
- 6 INCH SANITARY SEWER UNDERGROUND. PITCH AT MINIMUM " " PER L.F.
- 6 INCH BUILDING SANITARY LEAD-COORDINATE SITE SANITARY SIZE, INVERT ELEVATION AND LOCATION WITH CIVIL.
- GAS SERVICE MAIN COORDINATE WITH CIVIL & UTILITY CO.
- BUILDING HOSE BIBS TO BE ON HOUSE METER. VERIFY EXACT LOCATION IN FIELD W/ OWNER AND CONTRACTOR.



A = GREATER OF 4\"/>

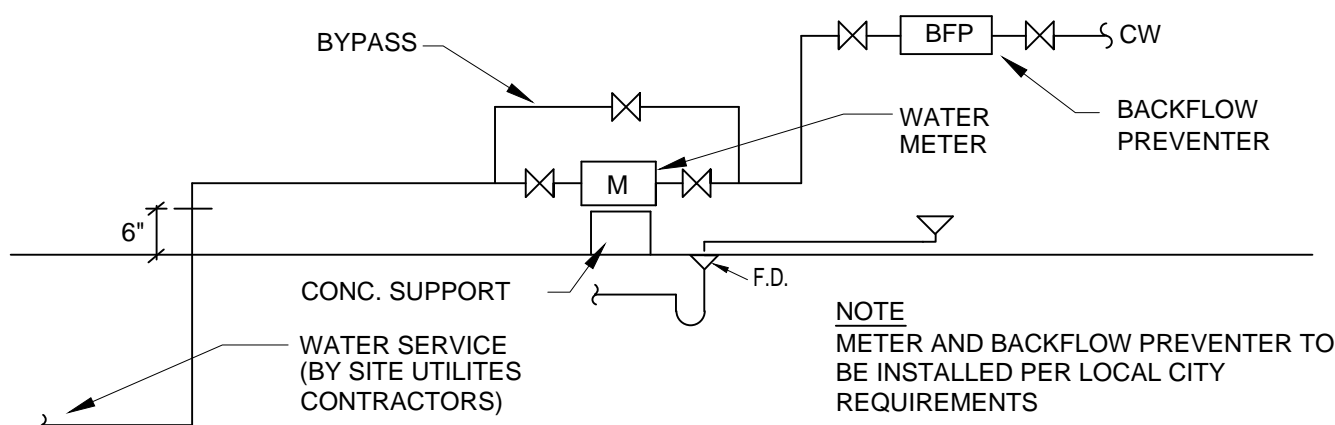
**CONDENSATE DRAIN TRAP**  
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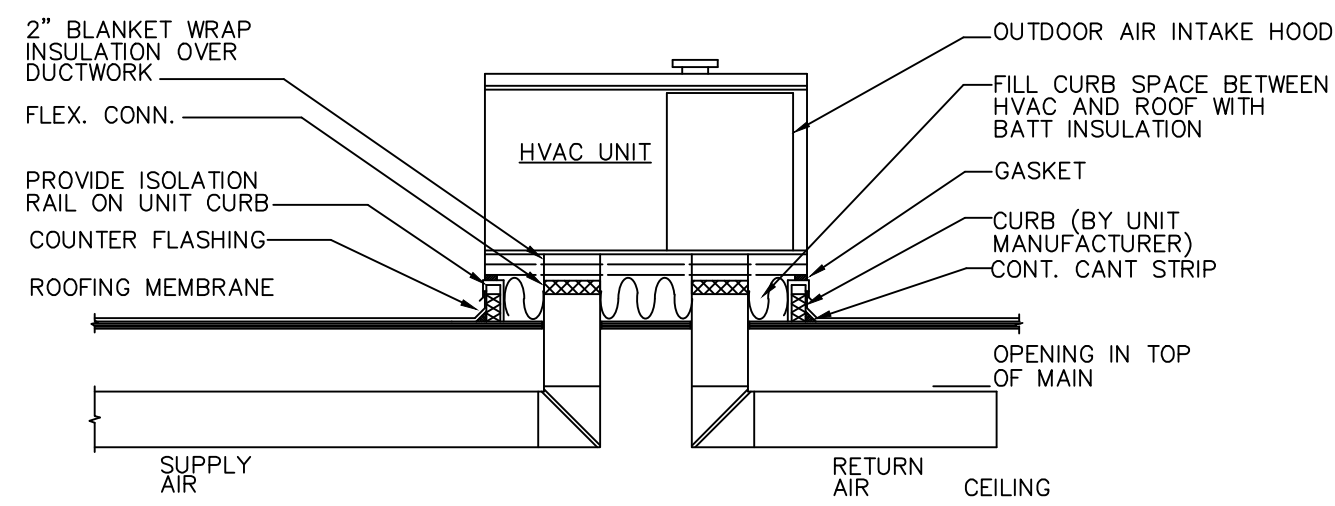
**TYPICAL GAS PIPING CONNECTION**  
NO SCALE

HVAC UNIT SCHEDULE		
HVAC UNIT	MANUFACTURER	DESCRIPTION
1,4	CARRIER	MODEL # 48HC05, NOMINAL 4 TON COOLING: TOTAL= 48.5 MBH, SENSIBLE = 38.1 MBH, 1600 CFM TOTAL, 368 CFM MIN. OUTSIDE AIR, HEATING: GAS INPUT= 150 CFH, GAS OUTPUT= 117 CFH, 208-3-60 4W, 32 MCA, 45A MOCP, STD. UNIT WEIGHT 850 LBS
2,3	CARRIER	MODEL # 48HC04, NOMINAL 3 TON COOLING: TOTAL= 36 MBH, SENSIBLE = 28.3 MBH, 1200 CFM TOTAL, 276 CFM MIN. OUTSIDE AIR, HEATING: GAS INPUT= 115 CFH, GAS OUTPUT= 89 CFH, 208-3-60 4W, 26 MCA, 30A MOCP, STD. UNIT WEIGHT 700 LBS

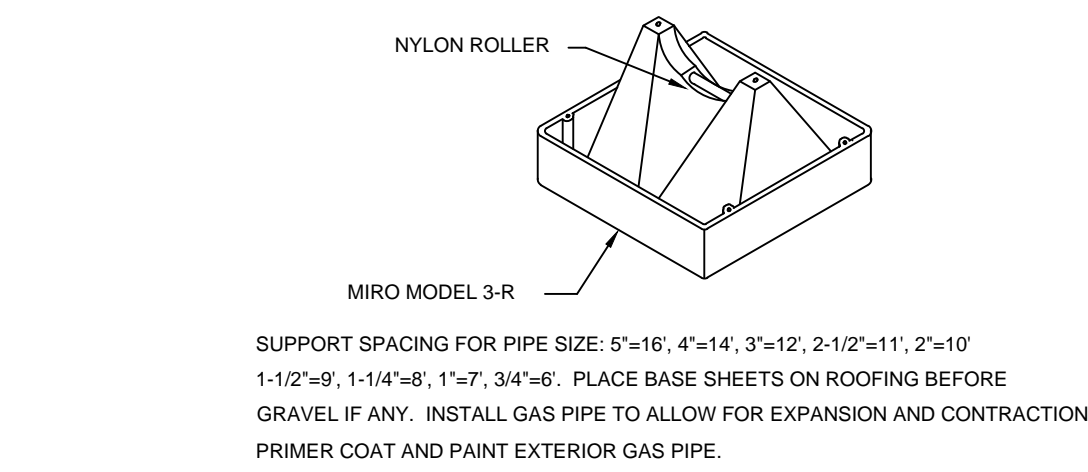
- NOTES:  
PROVIDE AT EACH UNIT:
- 18" MANUFACTURER'S ROOF CURB, U.N.O.
  - ENTHALPY CONTROLLED ECONOMIZER
  - THROW-AWAY FILTERS
  - BIRDSCREEN
  - RETURN AIR SMOKE DETECTORS FOR HVAC UNIT
  - PROVIDE GENERAL SERVICE DUPLEX ELECTRICAL OUTLET (GFCI) AT EACH HVAC ROOF TOP UNIT. OUTLET BY HVAC MANUFACTURER. CIRCUIT TO FUTURE TENANT PANEL, U.N.O.
  - PROVIDE PROGRAMMABLE THERMOSTAT AT ALL UNITS.
  - TRANE AND LENNOX ARE ACCEPTABLE ALTERNATE MANUFACTURERS
  - WHERE AN ALTERNATE HVAC UNIT MANUFACTURER IS PROVIDED, THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE ALTERNATE UNITS WEIGHT WITH THE STRUCTURAL FRAMING INCLUDING BUT NOT LIMITED TO ANY ADDITIONAL STRUCTURAL REINFORCING THAT MAY BE REQUIRED TO SUPPORT THE NEW LOADS.



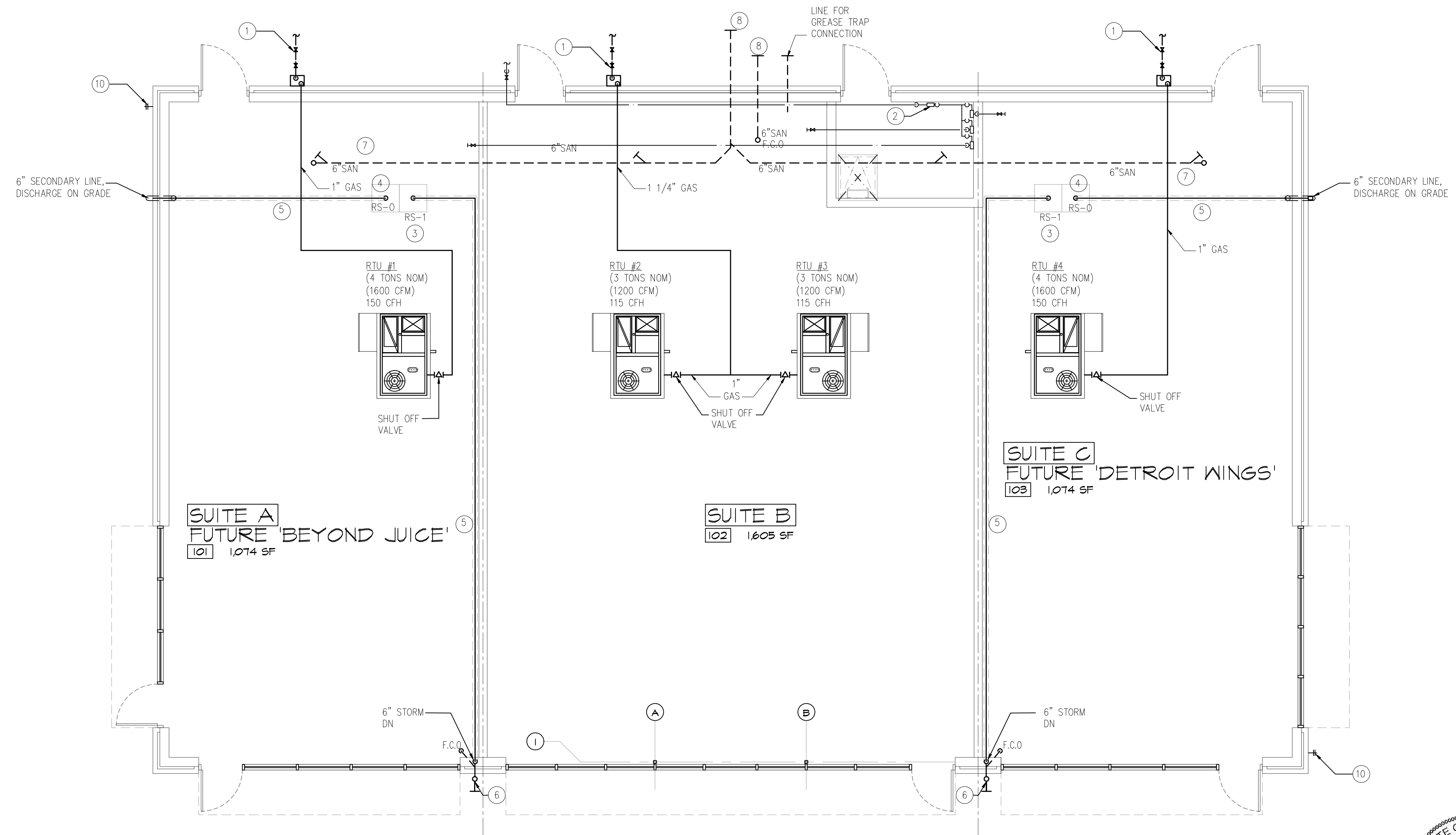
**WATER METER INSTALLATION DIAGRAM**  
NO SCALE



**SECTION THROUGH HVAC UNIT**  
SCALE: N.T.S.



**TYPICAL GAS PIPE SUPPORT DETAIL ON ROOF**  
NO SCALE



**FLOOR PLAN-MECHANICAL**  
SCALE: 3/16" = 1'-0"  
NORTH



**ARCHITECTURAL DESIGN**  
RESIDENTIAL  
COMMERCIAL  
INDUSTRIAL

G.A.V. ASSOCIATES, INC.  
24091 ORCHARD LAKE RD., STE. 100A  
FARMINGTON, MICHIGAN 48336  
PH: (248) 985-9101  
WEB: WWW.GAVASSOCIATES.COM



4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
UNION LAKE & COOLEY LAKE ROADS  
COOLEY LAKE ROAD  
WHITE LAKE, MICHIGAN

DRAWN: DS DESIGNED: DS CHECKED: MB

SCALE: 3/16" = 1'-0"

FILE NAME: 21096\_M101

JOB #: 21096

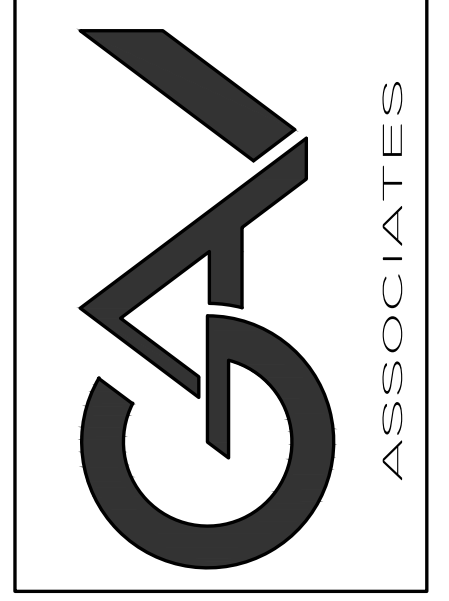
SHEET TITLE  
**FLOOR PLAN-MECHANICAL**

SHEET #  
**M.101**



ISSUED FOR	Item A.
PERMITS	10/22/2021

**ARCHITECTURAL DESIGN**  
 RESIDENTIAL COMMERCIAL INDUSTRIAL  
 G.A.V. ASSOCIATES, INC.  
 24051 RICHARD LAKE RD., STE. 100A  
 FARMINGTON, MICHIGAN 48336  
 PH: (248) 985-9101  
 WEB: WWW.GAVASSOCIATES.COM



4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
 UNION LAKE AND COOLEY LAKE ROADS  
 COOLEY LAKE ROAD  
 WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
DS	GA	GA
SCALE : NONE		
FILE NAME : 21096_E.100		
JOB # : 21096		
SHEET TITLE		
ELECTRICAL SYMBOLS & NOTES		
SHEET #		
100		



ELECTRICAL SYMBOLS LIST	
SYMBOLS	DESCRIPTION
NOTE: NOT ALL ELECTRICAL SYMBOLS SHOWN ARE USED FOR THIS PROJECT.	
—	CONDUIT RUN EXPOSED
- - - -	CONDUIT RUN CONCEALED
→	HOME RUN TO PANEL
—○—	FLEXIBLE CONDUIT
—●—	CONDUIT TURNED DOWN
—○—	CONDUIT TURNED UP
A,1	INDICATES PANEL A, BRANCH CIRCUIT #1
□	SERVICE TERMINAL CABINET
⊕	LIGHTING AND POWER PANEL (NORMAL – SURFACE)
⊙	POWER CONNECTION
⊕⊙	DUPLEX RECEPTACLE, GROUNDING TYPE, CEILING MOUNTED FLUSH
⊕⊙	DUPLEX RECEPTACLE, GROUNDING TYPE, WALL MOUNTED 18" AFF
GFCI ⊕⊙	OVER THE COUNTER DUPLEX RECEPTACLE, GROUND FAULT CIRCUIT INTERRUPTER, WALL MOUNTED 6" ABOVE COUNTER
WP ⊕⊙	WEATHERPROOF DUPLEX RECEPTACLE
⊕	SINGLE POLE SWITCH
⊕T	MANUAL START WITH THERMAL OVERLOAD
⊕	DISCONNECT SWITCH – FUSED
□	DISCONNECT SWITCH – UNFUSED
⊕	JUNCTION BOX OR PULL BOX – SIZED PER NEC
⊕	SINGLE PHASE MOTOR
⊕	THREE PHASE MOTOR
○	INCANDESCENT OR HID FIXTURE AS INDICATED ON THE LIGHTING FIXTURES SCHEDULE
□	2'X4' FLUORESCENT LIGHTING FIXTURE AS INDICATED ON THE SCHEDULE
□	2'X4' NIGHT LIGHT FLUOR. FIXTURE AS INDICATED ON THE SCHEDULE
X ⊕	LED EXIT LIGHT – WALL MOUNTED OR CEILING MOUNTED
EM ⊕	EMERGENCY LIGHT – W/90 MINUTES NICAD BATTERY MAINTENANCE FREE
⊕	DUCT SMOKE DETECTOR – (COORDINATE WITH MECH. TRADE FOR TYPE)

GENERAL REQUIREMENTS	
A. CODES:	1. THE WORK SHALL COMPLY WITH THE CURRENT NATIONAL ELECTRIC CODE AND ALL APPLICABLE CODES.
B. COORDINATION:	1. THE WORK SHALL BE COORDINATED WITH THE WORK OF OTHER TRADES TO AVOID INTERFERENCE. REFER TO CIVIL, ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS FOR CEILING HEIGHTS, ROOM FINISHES, DOOR SWINGS, BUILDING DIMENSIONS, LOCATION AND SIZES OF DUCTS, PIPES AND MECHANICAL EQUIPMENT ETC.. PROVIDE ADDITIONAL SUPPORT FOR RACEWAYS, BOXES, SWITCHES, CIRCUIT BREAKERS, MOTOR CONTROLLERS, FIXTURES AND THE LIKE, WHERE THE BUILDING STRUCTURE IS NOT ADAPTED OR SUITABLE FOR MOUNTING THE SAME DIRECTLY THERE ON. RACEWAYS SHALL NOT BE USED AS SUPPORTS FOR BOXES OR OTHER ELECTRICAL EQUIPMENT. 2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT ALL EQUIPMENT FURNISHED UNDER OTHER TRADES IS COMPATIBLE WITH THE ELECTRICAL FEEDER PROVIDED UNDER THE ELECTRICAL TRADE. CASES OF DISCREPENCY MUST BE BROUGHT TO THE ENGINEER ATTENTION. 3. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERALLY THE LOCATIONS OF MATERIALS AND EQUIPMENT. THESE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE.
C. TESTING:	1. THE CONTRACTOR SHALL MAKE ALL TESTS, ADJUSTMENTS, AND TRIAL OPERATIONS REQUIRED TO PLACE THE SYSTEM IN BALANCED AND SATISFACTORY OPERATING CONDITION.

ABBREVIATIONS	
A	AMPS
AC	ALTERNATE CURRENT
AFF	ABOVE FINISH FLOOR
AMP	AMPLIFIER
BKR	BREAKER
C,CND	CONDUIT
CUH	CABINET UNIT HEATER
CAT. NO.	CATALOG NUMBER
CKT.	CIRCUIT
CLG.	CEILING
CONT.	CONTRACTOR
C/T	CURRENT TRANSFORMER
D	DUCT SMOKE DETECTOR
D.E.CO.	DETROIT EDISON COMPANY
DN.	DOWN
DISC.	DISCONNECT
ELECT.	ELECTRICAL
EF	EXHAUST FAN
EXIST.	EXISTING
F	FIRE
FIXT.	FIXTURE
FL	FLOOR
GND.,G.	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HP	HORSE POWER
KVA	KILO VOLT AMPERE
L.LTG.	LIGHTING
M.B.	MAIN BREAKER
MECH.	MECHANICAL
MIC	MICROPHONE
MIN.	MINIMUM
MTD	MOUNTED
N.T.S.	NOT TO SCALE
NO.	NUMBER
PNL	PANEL
PWR	POWER
R	RECEPTACLE
RM	ROOM
SD	SMOKE DETECTOR
SHT	SHEET
SW	SWITCH
TS	TIMER SWITCH
TYP.	TYPICAL
UM	UTILITY METER
VA	VOLT AMPERE
V	VOLT
W	WATTS
W/W	WITH
W/O	WITHOUT
WP	WEATHER PROOF
XFMR	TRANSFORMER

SITE ELECTRICAL NOTES	
1.	CADWELD #2/0 BARE COPPER GROUND WIRE TO GROUND ROD (3/4" X 10'-0"). TOP OF GROUND ROD SHALL BE 12" MIN. BELOW GRADE.
2.	REFER TO CIVIL DRAWINGS FOR EXACT LOCATION OF EXISTING UTILITY AND THE EXACT LOCATION OF UTILITY CO. CONCRETE PAD MOUNTED TRANSFORMER.
3.	PRIOR TO INSTALLATION OF THE CONCRETE PAD, COORDINATE THE WORK WITH UTILITY CO. FOR SPECIFIC DETAIL OF GROUNDING SYSTEM INSTALLATION OF THE TRANSFORMER.
4.	COORDINATE ALL NEW ELECTRICAL UNDERGROUND WORK WITH NEW AND EXISTING UNDERGROUND UTILITIES BEFORE INSTALLATION.
5.	PROVIDE WATERTIGHT HUBS AT CONDUIT ENTRANCES TO ALL ENCLOSURES MOUNTED OUTDOOR AND TO ALL WATERTIGHT (NEMA 4) ENCLOSURES MOUNTED INDOORS.
6.	ALL EXISTING DUCTS, MANHOLES, ETC. ARE APPROXIMATE LOCATIONS ONLY. THE ELECTRICAL CONTRACTOR SHALL VERIFY EXACT LOCATIONS IN THE FIELD.
7.	EXACT LOCATIONS MAYBE ADJUSTED IN THE FIELD TO AVOID EXISTING AND UNEXPECTED CONSTRUCTION OBSTACLES.
8.	IT SHALL BE THE CONTRACTOR RESPONSIBILITY TO EXERCISE EXTREME CAUTION WHILE EXCAVATING TO AVOID DAMAGE TO ANY BURIED UTILITY LINES, PIPING, CONDUIT, ETC., CONTRACTOR SHALL REPAIR OR REPLACE TO THE OWNER SATISFACTION ANY AND ALL DAMAGED UTILITY LINES, PIPING, CONDUIT, ETC., WHICH MAY BECOME DAMAGED DURING EXCAVATION OF THE NEW WORK AT NO EXTRA COST.

GENERAL NOTES & SPECIFICATIONS	
1.	CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY CHECK THE FIELD CONDITIONS PRIOR TO SUBMITTING HIS BID.
2.	CONTRACTOR SHALL BE PREPARED TO WORK CONTINUOUSLY AND EXPEDITIOUSLY TO COMPLETE THE WORK RIGHT ON SCHEDULE FOR A COMPLETE LIGHTING AND POWER SYSTEM.
3.	CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES.
4.	ALL WORK AND MATERIALS SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, CODES AND REGULATIONS AS WELL AS APPLICABLE CURRENT STANDARDS.
5.	CABINETS, MOTOR FRAMES, STARTERS, CONDUIT SYSTEM, PANELBOARDS, ETC., SHALL BE GROUNDED IN ACCORDANCE WITH THE LATEST N.E.C. AND LOCAL CODES.
6.	MATERIALS SHALL BE NEW AND BEAR THE U.L. LABEL OR LISTING, WHEREVER STANDARDS HAVE BEEN ESTABLISHED.
7.	COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES AND ELECTRICAL DEVICES WITH OTHER TRADES BEFORE INSTALLATION.
8.	ALL WALL MOUNTED CONTROL DEVICES, LIGHTING SWITCHES SHALL BE 4'-0" A.F.F. UNLESS OTHERWISE NOTED ON THE DRAWINGS. SWITCHES SHALL BE 20A, 120/277V, 1 POLE, 2 POLE, 3 AND 4 WAY AS INDICATED, HUBBELL #1221 SERIES OR EQUAL.
9.	WALL MOUNTED DISCONNECT SWITCHES AND CONTROL PANELS SHALL BE 6'-0" TO TOP ABOVE FINISH FLOOR.
10.	EXPANSION FITTINGS SHALL BE PROVIDED FOR ALL CONDUIT CROSSING BUILDING EXPANSION JOINTS.
11.	ALL WEATHERPROOF (WP) DUPLEX RECEPTACLES SHALL BE INSTALLED HORIZONTALLY SUCH THAT COVER DOORS OPEN UPWARD.
12.	ALL PENETRATIONS OF FIRE WALLS OR FLOORS SHALL BE SEALED AFTER INSTALLATION OF CONDUIT WITH A FIRE RETARDANT SEALANT THAT IS RATED THE SAME AS THE FIRE WALL OR FLOOR.
13.	PROVIDE A GREEN GROUND CONDUCTOR IN ALL SYSTEMS CONDUITS INCLUDING BRANCH CIRCUIT CONDUITS FOR LIGHTING AND RECEPTACLES PER NEC TABLE 250-95.
14.	ALL CONDUIT SHALL BE 3/4" EMT (MIN.) AND THEY SHALL BE OF SIZES REQUIRED TO ACCOMMODATE NUMBER OF CONDUCTORS IN ACCORDANCE WITH NEC WIRING TABLES OR AS INDICATED ON DRAWINGS, WHICHEVER IS LARGER.
15.	FEEDERS SHALL BE TYPE "THW" OR "XHHW", AND ALL 120 VAC LIGHTING AND RECEPTACLE CIRCUITS RUN 2#12 (THWN/THHN) MIN. + GND IN 3/4" C MIN. TO THE LIGHTING PANELBOARD INDICATED UNLESS NOTED OTHERWISE. HOME RUN TO PANEL IF MORE THAN 80' SHALL BE #10 IN 3/4" C. OR CONTRACTOR SHALL USE A CONDUCTOR SO THAT VOLTAGE DROP IS LESS THAN 2%. ALL WIRE SHALL BE COPPER, HAVE 600 VOLT INSULATION AND INSTALLED IN CONDUIT.
16.	RECEPTACLES SHALL BE DUPLEX GROUNDING TYPE 20A, 125V, HUBBELL #5362 OR EQUAL. SPECIAL PURPOSE RECEPTACLES 30A, 40A, 50A-2P OR 3P, ETC., SHALL BE SPECIFICATIONS GRADE.
17.	WALL PLATES FOR SWITCHES, RECEPTACLES AND TELEPHONE OUTLETS SHALL BE SUPER STAINLESS STEEL, TYPE 302, HUBBELL #93000 SERIES OR EQUAL.
18.	SINGLE PHASE MOTOR STARTERS SHALL HAVE MANUAL TOGGLE SWITCH WITH THERMAL OVERLOADS, FLUSH MOUNTED WITH PILOT LIGHT, ALLEN-BRADLEY #600 OR EQUAL.
19.	THREE PHASE MOTOR STARTERS SHALL BE MAGNETIC TYPE, WITH FUSED CONTROL TRANSFORMER (120 VOLT SECONDARY) AND AUXILIARY CONTACTS AS REQUIRED, ALLEN BRADLEY #712 OR EQUAL.
20.	DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE, FUSED OR NON-FUSED AS INDICATED, IN A NEMA 1 OR 12 ENCLOSURE, DISCONNECT SWITCHES INSTALLED OUTDOOR SHALL BE NEMA 3R ENCLOSURE, CUTLER-HAMMER, SQUARE D, OR G.E.
21.	METER CENTERS, OR PANELBOARDS SHALL BE SIEMENS, SQUARE D, CUTLER-HAMMER, OR G.E. SIZE ON THE DRAWINGS.
22.	FOR BRANCH CIRCUIT PANELBOARD TERMINATION AND CIRCUITRY, REFER TO PANEL SCHEDULES.
23.	FOR TYPE OF LIGHTING FIXTURES REFER TO LIGHTING FIXTURE SCHEDULE.
24.	ALL ELECTRICAL EQUIPMENT MOUNTED ON EXTERIOR WALLS SHALL HAVE A 1/2" MIN. AIR SPACE BETWEEN WALL AND EQUIPMENT. PROVIDE A NON-CORROSIVE SPACERS AND BRACKETS AS REQUIRED.
25.	VERIFY ALL ROUGH-IN LOCATIONS, FINAL CONNECTIONS, MOUNTING HEIGHTS, VOLTAGES AND PHASES WITH OTHER TRADES EQUIPMENT SUPPLIERS SHOP DRAWINGS PRIOR TO INSTALLATION OF EQUIPMENT. FAILURE TO DO SO SHALL RESULT IN NO EXTRA CHARGE TO THE OWNER.
26.	EXACT LOCATIONS OF ELECTRICAL EQUIPMENT MAYBE ADJUSTED IN THE FIELD TO AVOID EXISTING AND UNEXPECTED CONSTRUCTION OBSTACLES.
27.	VERIFY EXACT LOCATION OF ALL CONTROL PANELS ETC., FOR MECHANICAL EQUIPMENT, AND WIRE ACCORDINGLY FOR A COMPLETE FUNCTIONAL SYSTEM.
29.	WHEN THE JOB IS COMPLETED, THE CONTRACTOR SHALL PROVIDE THE ARCHITECT WITH CERTIFICATE OF APPROVAL FROM THE LOCAL INSPECTION AUTHORITY. THE CONTRACTOR SHALL GIVE THE OWNER A WRITTEN GUARANTEE THAT HE WILL MAKE GOOD, AT HIS OWN EXPENSE, ANY DEFECTS IN MATERIALS OR WORKMANSHIP WHICH MAY DEVELOP WITHIN ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE.

**NOTES: (FOR POWER)**

- FOR GENERAL NOTES SEE SHEET E-100
- ELECT. CONT. TO COORDINATE THE SERVICE ENTRANCE EQUIP'T LOCATIONS & INSTALLATIONS WITH UTILITY COMPANY AND THE OWNER PRIOR TO INSTALLATION.
- REQUIRE 1000A TO SERVICE METERS MODULE, @ 208/120V, 3Ø, 4W, UNDERGROUND SECONDARY SERVICE ENTRANCE.
- REQUIRE 600A TO SERVICE ENTRANCE C/T CABINET, @ 208/120V, 3Ø, 4W, UNDERGROUND SECONDARY SERVICE ENTRANCE.
- ELECTRICAL CONTRACTOR TO COORDINATE ALL MECHANICAL INTERLOCK WITH MECHANICAL TRADE AS REQUIRED.

**NOTES: (FOR LIGHTING)**

- FOR GENERAL NOTES SEE SHEET E-100.
- BATTERY BACK-UP EXIT AND EMERGENCY LIGHTS SHALL BE FED FROM THE SAME CIRCUIT AS NORMAL LIGHTING IN THEIR RESPECTIVE AREAS AND BE CONNECTED AHEAD OF ANY LOCAL SWITCHES.
- PROVIDE A SEPARATE RACEWAY SYSTEM FOR ALL NIGHTLIGHTS, EXIT LIGHTS, AND EMERGENCY LIGHTS AS REQUIRED PER LATEST NEC.

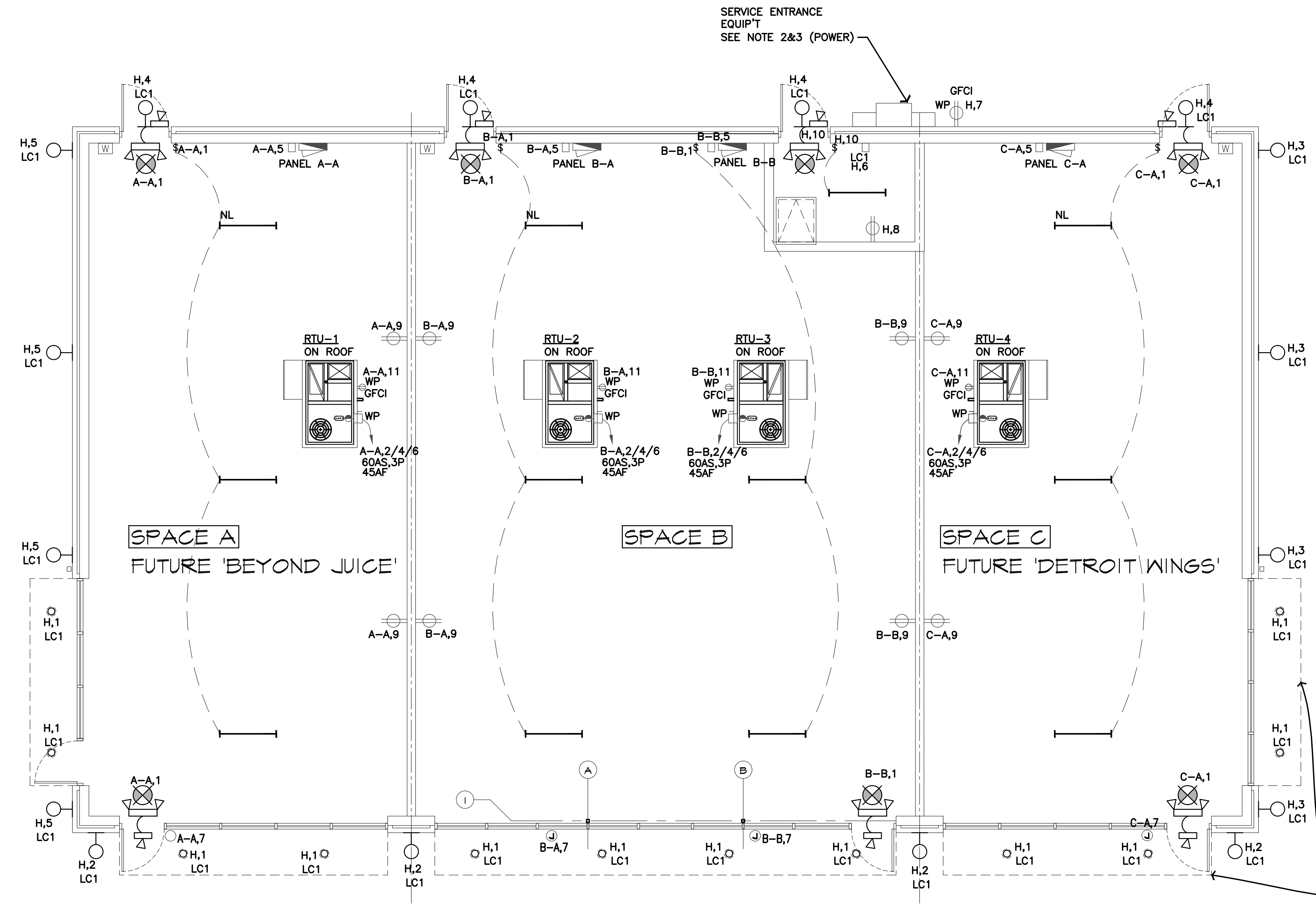
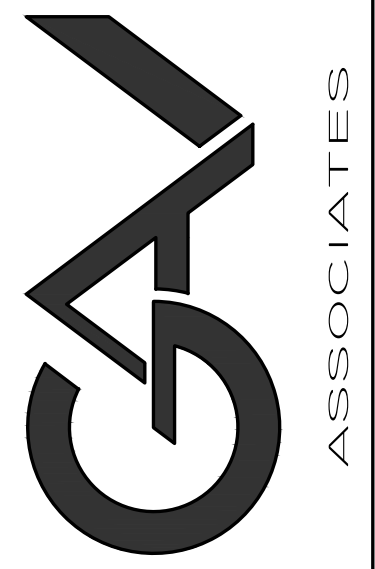
LIGHTING FIXTURE SCHEDULE		
=====	1'x4' LED SERIES LUMINAIRE	MOUNTED @ 12'-0"
○	ARCHITECTURAL WALL LED LUMINAIRE SCENCE, 674-91-WP SERIES BY COOPER LIGHTING. SIZE 31" IN CC COLOR (CUSTOM COLOR) WITH LED LAMPS.	REFER TO ELEVATIONS SHEET A.201
○	COMMERCIAL RECESSED EXTERIOR LED LAMP DOWNLIGHT (8" ROUND)	REFER TO ELEVATIONS SHEET A.201
☐	POLYCARBONATE EXIT UNIT COMBO LIGHTING FIXTURE W/INCAID BATTERY FOR 90 MINUTES MAINTENANCE FREE IV SELF-DIAGNOSTIC	ABOVE DOOR HEAD ON MASONRY
☐	EXTERIOR REMOTE HEAD EMERGENCY LAMPHEAD WIRED TO ADJACENT EMERGENCY LIGHT AT INTERIOR	ABOVE DOOR HEAD ON MASONRY
NOTE:	COORDINATE ALL LIGHT FIXTURE SELECTIONS AND COLORS WITH OWNER FOR APPROVALS. TYPICAL FOR ALL FIXTURES.	

ISSUED FOR	Item A.
PERMITS	10.22.2021

**ARCHITECTURAL DESIGN**

RESIDENTIAL  
COMMERCIAL  
INDUSTRIAL

G.A.V. ASSOCIATES, INC  
24091 ORCHARD LAKE RD., STE. 100A  
FARMINGTON, MICHIGAN 48336  
PH: (248) 985-9101  
WEB: WWW.GAVASSOCIATES.COM



ANNING ABOVE, TYPICAL.

4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
UNION LAKE AND COOLEY LAKE ROADS  
COOLEY LAKE ROAD  
WHITE LAKE, MICHIGAN

**ELECTRICAL FLOOR PLAN**  
SCALE: 3/16" = 1'-0"  
NORTH



DRAWN:	DESIGNED:	CHECKED:
DS	GA	GA

SCALE : 3/16" = 1'-0"

FILE NAME : 21096\_E102

JOB # : 21096

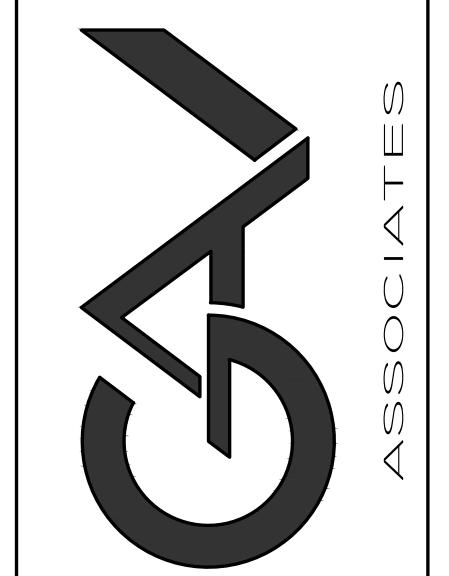
SHEET TITLE  
ELECTRICAL  
PLAN

SHEET #  
E102

ISSUED FOR	Item A.
PERMITS	10.22.2021

**ARCHITECTURAL DESIGN**  
RESIDENTIAL  
COMMERCIAL  
INDUSTRIAL

G.A.V. ASSOCIATES, INC.  
24801 ORCHARD LAKE RD., STE. 100A  
FARMINGTON, MICHIGAN 48336  
PH: (248) 985-9191  
WEB: WWW.GAVASSOCIATES.COM



4 CORNERS

NEW RETAIL CENTER SHELL FOR:  
UNION LAKE AND COOLEY LAKE ROADS  
COOLEY LAKE ROAD  
WHITE LAKE, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
DS	GA	GA

SCALE : NONE

FILE NAME : 21096\_E103

JOB # : 21096

SHEET TITLE  
ELECTRICAL  
RISER DIAGRAM  
& SCHEDULES  
SHEET #

11.03

PANEL DESIGNATION: LP-A-A (LEASE SPACE 'A')		SERVICE: 208/120V, 3ø, 4W		ENCLOSURE: NEMA-1				
TYPE: SURFACE MTD (NQ0D)		MAINS: 200A, M.B., WITH 225A COPPER BUS		RATING: 65,000 AIC				
LOCATION: LEASE SPACE "A"								
CKT NO.	DESCRIPTION	WIRE SIZE	CKT. BKR.	LOAD KVA / PHASE	CKT. BKR.	WIRE SIZE	DESCRIPTION	CKT NO.
* 1	L- NIGHT LIGHTS, EXIT/EMERG.	#12	20 1	0.5	A B C	4.5 4.5 4.5	3 45 #8 RTU #1	2
3	SPARE	-	20 1	-	-	-	-	4
* 5	OUTDOOR SIGN TIMER SWITCH (TS)	#12	20 1	0.5	-	-	-	6
* 7	OUTDOOR SIGN	#12	20 1	1.0	-	-	-	8
9	R- STORE	#12	20 1	0.4	-	-	-	10
11	R- ROOF	#12	20 1	0.2	-	-	-	12
13	SPARE	-	20 1	-	-	-	-	14
15	SPARE	-	20 1	-	-	-	-	16
17	SPARE	-	20 1	-	-	-	-	18
19	SPARE	-	20 1	-	-	-	-	20
21	SPARE	-	20 1	-	-	-	-	22
23	SPARE	-	20 1	-	-	-	-	24
25	SPARE	-	20 1	-	-	-	-	26
27	SPARE	-	20 1	-	-	-	-	28
29	SPARE	-	20 1	-	-	-	-	30
31	SPARE	-	20 1	-	-	-	-	32
33	SPARE	-	20 1	-	-	-	-	34
35	SPARE	-	20 1	-	-	-	-	36
37	SPARE	-	20 1	-	-	-	-	38
39	SPARE	-	20 1	-	-	-	-	40
41	SPARE	-	20 1	-	-	-	-	42

CONNECTED LOAD: 16.1 KVA  
DEMAND LOAD: 16.1 KVA

\* PROVIDE LOCK-ON TRIP FREE DEVICE FOR SINGLE POLE CIRCUIT BREAKER.

PANEL DESIGNATION: LP-B-A (LEASE SPACE 'B')		SERVICE: 208/120V, 3ø, 4W		ENCLOSURE: NEMA-1				
TYPE: SURFACE MTD (NQ0D)		MAINS: 200A, M.B., WITH 225A COPPER BUS		RATING: 65,000 AIC				
LOCATION: LEASE SPACE "B"								
CKT NO.	DESCRIPTION	WIRE SIZE	CKT. BKR.	LOAD KVA / PHASE	CKT. BKR.	WIRE SIZE	DESCRIPTION	CKT NO.
* 1	L- NIGHT LIGHTS, EXIT/EMERG.	#12	20 1	0.5	A B C	3.5 3.5 3.5	3 30 #8 RTU #1	2
3	SPARE	-	20 1	-	-	-	-	4
* 5	OUTDOOR SIGN TIMER SWITCH (TS)	#12	20 1	0.5	-	-	-	6
* 7	OUTDOOR SIGN	#12	20 1	1.0	-	-	-	8
9	R- STORE	#12	20 1	0.4	-	-	-	10
11	R- ROOF	#12	20 1	0.2	-	-	-	12
13	SPARE	-	20 1	-	-	-	-	14
15	SPARE	-	20 1	-	-	-	-	16
17	SPARE	-	20 1	-	-	-	-	18
19	SPARE	-	20 1	-	-	-	-	20
21	SPARE	-	20 1	-	-	-	-	22
23	SPARE	-	20 1	-	-	-	-	24
25	SPARE	-	20 1	-	-	-	-	26
27	SPARE	-	20 1	-	-	-	-	28
29	SPARE	-	20 1	-	-	-	-	30
31	SPARE	-	20 1	-	-	-	-	32
33	SPARE	-	20 1	-	-	-	-	34
35	SPARE	-	20 1	-	-	-	-	36
37	SPARE	-	20 1	-	-	-	-	38
39	SPARE	-	20 1	-	-	-	-	40
41	SPARE	-	20 1	-	-	-	-	42

CONNECTED LOAD: 13.1 KVA  
DEMAND LOAD: 13.1 KVA

\* PROVIDE LOCK-ON TRIP FREE DEVICE FOR SINGLE POLE CIRCUIT BREAKER.  
\*\* COORDINATE WITH MECHANICAL TRADE AND THE ELECTRICAL FLOOR PLANS ON WHICH HVAC UNIT SERVING THE OTHER LEASE SPACES.

PANEL DESIGNATION: LP-A-A (LEASE SPACE 'A')		SERVICE: 208/120V, 3ø, 4W		ENCLOSURE: NEMA-1				
TYPE: SURFACE MTD (NQ0D)		MAINS: 200A, M.B., WITH 225A COPPER BUS		RATING: 65,000 AIC				
LOCATION: LEASE SPACE "A"								
CKT NO.	DESCRIPTION	WIRE SIZE	CKT. BKR.	LOAD KVA / PHASE	CKT. BKR.	WIRE SIZE	DESCRIPTION	CKT NO.
* 1	L- NIGHT LIGHTS, EXIT/EMERG.	#12	20 1	0.5	A B C	3.5 3.5 3.5	3 30 #8 RTU #1	2
3	SPARE	-	20 1	-	-	-	-	4
* 5	OUTDOOR SIGN TIMER SWITCH (TS)	#12	20 1	0.5	-	-	-	6
* 7	OUTDOOR SIGN	#12	20 1	1.0	-	-	-	8
9	R- STORE	#12	20 1	0.4	-	-	-	10
11	R- ROOF	#12	20 1	0.2	-	-	-	12
13	SPARE	-	20 1	-	-	-	-	14
15	SPARE	-	20 1	-	-	-	-	16
17	SPARE	-	20 1	-	-	-	-	18
19	SPARE	-	20 1	-	-	-	-	20
21	SPARE	-	20 1	-	-	-	-	22
23	SPARE	-	20 1	-	-	-	-	24
25	SPARE	-	20 1	-	-	-	-	26
27	SPARE	-	20 1	-	-	-	-	28
29	SPARE	-	20 1	-	-	-	-	30
31	SPARE	-	20 1	-	-	-	-	32
33	SPARE	-	20 1	-	-	-	-	34
35	SPARE	-	20 1	-	-	-	-	36
37	SPARE	-	20 1	-	-	-	-	38
39	SPARE	-	20 1	-	-	-	-	40
41	SPARE	-	20 1	-	-	-	-	42

CONNECTED LOAD: 13.1 KVA  
DEMAND LOAD: 13.1 KVA

\* PROVIDE LOCK-ON TRIP FREE DEVICE FOR SINGLE POLE CIRCUIT BREAKER.  
\*\* COORDINATE WITH MECHANICAL TRADE AND THE ELECTRICAL FLOOR PLANS ON WHICH HVAC UNIT SERVING THE OTHER LEASE SPACES.

PANEL DESIGNATION: LP-A (LEASE SPACE 'C')		SERVICE: 208/120V, 3ø, 4W		ENCLOSURE: NEMA-1				
TYPE: SURFACE MTD (NQ0D)		MAINS: 200A, M.B., WITH 225A COPPER BUS		RATING: 65,000 AIC				
LOCATION: LEASE SPACE "C"								
CKT NO.	DESCRIPTION	WIRE SIZE	CKT. BKR.	LOAD KVA / PHASE	CKT. BKR.	WIRE SIZE	DESCRIPTION	CKT NO.
* 1	L- NIGHT LIGHTS, EXIT/EMERG.	#12	20 1	0.3	A B C	4.5 4.5 4.5	3 45 #8 RTU #4	2
3	SPARE	-	20 1	-	-	-	-	4
* 5	OUTDOOR SIGN TIMER SWITCH (TS)	#12	20 1	0.5	-	-	-	6
* 7	OUTDOOR SIGN	#12	20 1	1.0	-	-	-	8
9	R- STORE	#12	20 1	0.4	-	-	-	10
11	R- ROOF	#12	20 1	0.2	-	-	-	12
13	SPARE	-	20 1	-	-	-	-	14
15	SPARE	-	20 1	-	-	-	-	16
17	SPARE	-	20 1	-	-	-	-	18
19	SPARE	-	20 1	-	-	-	-	20
21	SPARE	-	20 1	-	-	-	-	22
23	SPARE	-	20 1	-	-	-	-	24
25	SPARE	-	20 1	-	-	-	-	26
27	SPARE	-	20 1	-	-	-	-	28
29	SPARE	-	20 1	-	-	-	-	30
31	SPARE	-	20 1	-	-	-	-	32
33	SPARE	-	20 1	-	-	-	-	34
35	SPARE	-	20 1	-	-	-	-	36
37	SPARE	-	20 1	-	-	-	-	38
39	SPARE	-	20 1	-	-	-	-	40
41	SPARE	-	20 1	-	-	-	-	42

CONNECTED LOAD: 16.1 KVA  
DEMAND LOAD: 16.1 KVA

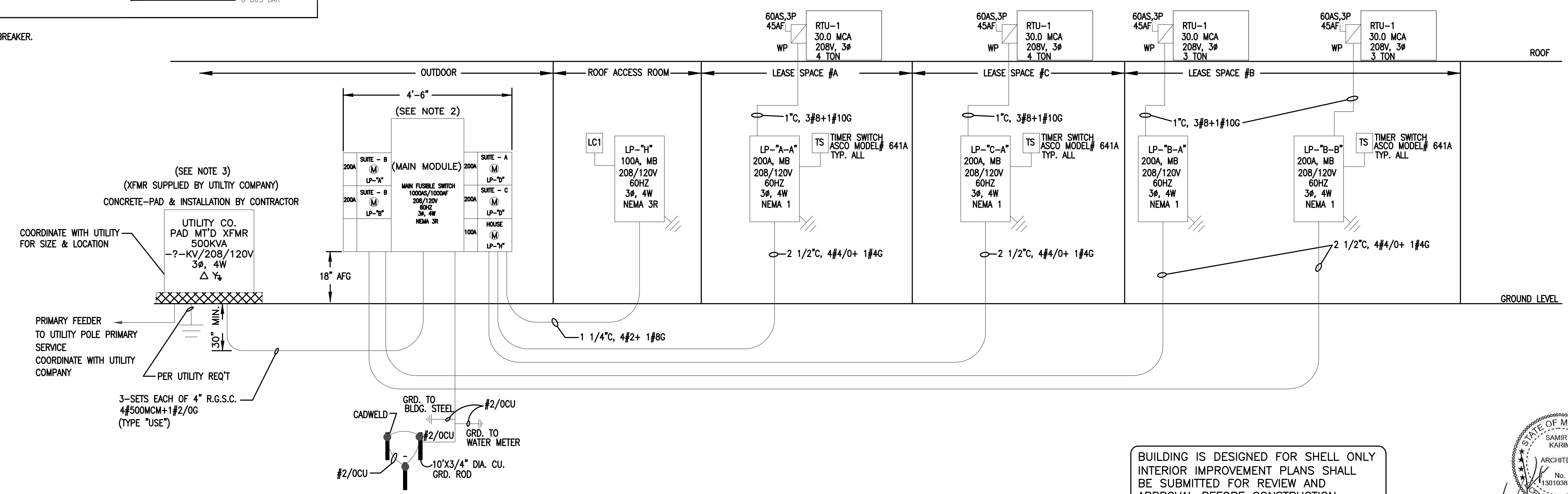
\* PROVIDE LOCK-ON TRIP FREE DEVICE FOR SINGLE POLE CIRCUIT BREAKER.

PANEL DESIGNATION: LP-H (HOUSE PANEL)		SERVICE: 208/120V, 3ø, 4W		ENCLOSURE: NEMA-3R				
TYPE: SURFACE MTD (NQ0D)		MAINS: 100A, M.B., WITH 125A COPPER BUS		RATING: 65,000 AIC				
LOCATION: ROOF ACCESS ROOM								
CKT NO.	DESCRIPTION	WIRE SIZE	CKT. BKR.	LOAD KVA / PHASE	CKT. BKR.	WIRE SIZE	DESCRIPTION	CKT NO.
1	L- EXTERIOR CANOPY LIGHTS	#10	30 1	1.0	A B C	1.0 1.0 1.0	1 20 #10 L- EXTERIOR LIGHTS (SOUTH)	2
3	L- EXTERIOR LIGHTS (EAST)	#10	30 1	1.0	-	-	1 20 #10 L- EXTERIOR LIGHTS (NORTH)	4
5	L- EXTERIOR LIGHTS (WEST)	#10	30 1	1.0	-	-	1 20 #10 LC1 (LIGHTING CONTACTOR #1)	6
7	R- OUTDOOR RECEPTACLES	#10	30 1	0.4	-	-	1 20 #10 R- ELECT. RM. RECEPTACLES	8
9	L- OUTDOOR SIGN	#12	20 1	1.2	-	-	1 20 #10 L- ELECT. RM	10
11	SPARE	#12	20 1	-	-	-	-	12
13	SPARE	#12	20 1	-	-	-	-	14
15	SPARE	-	20 1	-	-	-	-	16
17	SPARE	-	20 1	-	-	-	-	18
19	SPARE	-	20 1	-	-	-	-	20

CONNECTED LOAD: 8.3 KVA  
DEMAND LOAD: 6.64 KVA

**NOTES:**

- FOR GENERAL NOTES SEE SHEET E-100.
- FOR EXACT UTILITY EQUIPMENT DIMENSIONS, UTILITY SECONDARY METERS LOCATION, AND INSTALLATION COORDINATE WITH THE SELECTED MANUFACTURER AND THE UTILITY COMPANY PRIOR TO INSTALLATION.
- ELECT. CONT. TO COORDINATE WITH UTILITY COMPANY SERVICE PLANNER FOR LOCATION OF TRANSFORMER SIZES, SPECIFICATION, CONCRETE SIZE FOR HOUSE-KEEPING PAD, AND THEIR GROUNDING REQUIREMENT FOR A COMPLETE POWER SYSTEM TO THE BUILDING.



**POWER DISTRIBUTION - RISER DIAGRAM @208/120V, 3ø, 4W SYSTEM**

N.T.S.

BUILDING IS DESIGNED FOR SHELL ONLY  
INTERIOR IMPROVEMENT PLANS SHALL  
BE SUBMITTED FOR REVIEW AND  
APPROVAL BEFORE CONSTRUCTION

