



PLANNING COMMISSION MEETING
LOCATION: ELECTRONIC MEETING
THURSDAY, AUGUST 19, 2021 – 7:00 PM

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

AGENDA

PLEASE SEE ATTACHED ON-LINE MEETING INSTRUCTIONS
RESIDENTS MAY CALL IN VIA:

1 312 626 6799 US (Chicago)
1 888 788 0099 US Toll-free
MEETING ID: 893 1989 2053

1. CALL TO ORDER

2. ROLL CALL

3. PLEDGE OF ALLEGIANCE

4. APPROVAL OF AGENDA

5. APPROVAL OF MINUTES

A. August 5th, 2021

6. CALL TO THE PUBLIC (FOR ITEMS NOT ON THE AGENDA)

7. PUBLIC HEARING

8. CONTINUING BUSINESS

A.

Location: Trailside Meadow
Located on the south side of Elizabeth Lake Road,
Consisting of approximately 73 acres. Identified as parcel numbers
12-25-251-001 and 12-25-201-004. Zoned as (PD) Planned
Development.

Request: **1) Amended Final Site Plan Approval**

Applicant: M/I Homes of Michigan, LLC
1668 S. Telegraph Road, Suite 200
Bloomfield Hills, MI 48302

9. NEW BUSINESS

A. PD Waiver for Vacant Parcel 12-36-176-002

10. OTHER BUSINESS

A. Review and Discussion of Draft 2022-2027 Capital Improvement Plans (CIP)

B. Conceptual Plan Discussion for Elizabeth Lake Retail

11. LIAISON'S REPORT

12. PLANNING CONSULTANT'S REPORT

13. DIRECTOR'S REPORT

14. COMMUNICATIONS

15. NEXT MEETING DATE:

A. September 2nd, 2021 & September 16th, 2021

16. ADJOURNMENT



ELECTRONIC MEETING INSTRUCTIONS

NOTE: THIS MEETING WILL BE HELD ELECTRONICALLY AS AUTHORIZED UNDER THE OPEN MEETINGS ACT, PUBLIC ACT 267 OF 1976, AS AMENDED. MEMBERS OF THE PUBLIC BODY AND MEMBERS OF THE PUBLIC MAY PARTICIPATE ELECTRONICALLY, AS DESCRIBED BELOW.

Reason for allowing participation by electronic means:

To mitigate the spread of COVID-19, protect the public health, and provide essential protections to vulnerable citizens, in-person contact should be limited. Critical mitigation measures include social distancing and limiting the number of people interacting at public gatherings. This includes public meetings.

Members of the public may access the agenda materials via the Township website – <https://www.whitelaketwp.com/meetings> by end of day, **Thursday, May 13, 2021**, but possibly sooner.

Members of the public wishing to participate in the electronic meeting may do so by:

Dialing the phone number below and enter the meeting ID when prompted. A password is no longer required for dial participation.

Telephone Access: 1 312 626 6799 US (Chicago) or
US Toll-free: 1 888 788 0099

Meeting ID: 893 1989 2053

Where to watch the meeting:

The meeting will be available to view live on our YouTube Channel which can be easily reached from the live meeting link located on the White Lake Township website home page www.whitelaketwp.com or by visiting:

https://www.youtube.com/channel/UCYPorjfGrhCNd368R_Cyg_w/featured. Closed captioning will be available after YouTube fully renders meeting video.

Procedure for public participation by electronic means:

In order for the Township to allow electronic participation in the meeting, there must be full opportunity for both the general public and the members of the public body to hear, and be heard at appropriate times during the meeting, except during any closed session portions of the meeting. Public participants will be muted upon entry to the meeting, but will have a chance to speak during public comment or at public hearings if one is involved.

Once connected to the meeting, members of the public wishing to participate in the virtual public comment or virtual public hearing must alert us that they wish to speak by pressing *9 on their telephone keypad. Pressing *9 will activate the “**raise your hand**” feature signaling to us that you wish to comment. Because of limitations with muting and unmuting members of the public, there will only be one public comment period which will be announced by the meeting moderator at the appropriate time. Participants who have “**raised their hand**” to **speak during public comment or public hearings** will be called on one at a time, as would happen during an in-person meeting. When you are unmuted, please introduce yourself by stating your name and address for the record. You will then have (3) minutes to share your comments with the Township board. At the conclusion of your comments or your (3) minutes, you will be muted and removed from the public comment queue.

Participants may also choose to submit written comments that will be read into record during public comment by the Chairperson of the Planning Commission. Submit any written comments via e-mail to Hmicallef@whitelaketwp.com by **Noon, May 26, 2021**, the day before the meeting.

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**
7525 Highland Road
White Lake, MI 48383
AUGUST 5, 2021 @ 7:00 p.m.
Electronic Meeting

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, White Lake, MI
Peter Meagher, White Lake, MI
Rhonda Grubb, White Lake, MI
Matt Slicker, White Lake, MI
Merrie Carlock, White Lake, MI

Absent: Debbie Dehart, White Lake, MI
Joe Seward, White Lake, MI
Scott Ruggles, White Lake, MI
Mark Fine, White Lake, MI

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

Visitors: Kathleen Jackson, McKenna
Michael Leuffgen, DLZ

Approval of Agenda

There are two corrections to the agenda. The parcel ID for 9328 Highland should be listed as 12-23-201-010. Under next meeting dates, the correct date is August 19, 2021, not August 18th.

Commissioner Meagher moved to approve the agenda as amended. Commissioner Grubb supported and the MOTION CARRIED with a roll call vote: (Meagher – yes; Anderson – yes; Grubb – yes; Slicker – yes; Carlock – yes). 5 yes votes.

Approval of Minutes

a. July 15, 2021

Commissioner Carlock moved to approve the minutes of July 15, 2021 as presented. Commissioner Meagher supported and the MOTION CARRIED with a roll call vote: (Meagher – yes; Anderson – yes; Grubb – yes; Slicker – yes; Carlock – yes). 5 yes votes.

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

No callers were waiting to speak at the Call to the Public.

Public Hearing:

None.

Continuing Business

a) **Redevelopment at 9328 Highland Road**

Location: Located on the northside of Highland Road (M-59) and west of Fisk Road. Consisting of approximately 1.17 acres. Currently zoned (GB) General Business. Identified as parcel number 12-23-201-010

Request: Preliminary Site Plan Approval

Applicant: White Lake Retail Management, LLC
30200 Telegraph Road
Bingham Farms, MI 48205

Michael Leuffgen presented the DLZ report. This is currently a Sonic and the building will be demolished and a new building will be constructed. He is satisfied from an engineering standpoint and they recommend approval after the applicant addresses any outstanding items in their review letter.

Kathleen Jackson presented the McKenna review. McKenna is recommending review subject to the issues outlined in their review letter prior to final site plan approval.

Staff Planner Quagliata wanted to note that Sonic had limited hours to be open and the proposed drive through will have the same.

Mitchell Harvey was in attendance on behalf of the redevelopment at 9328 Highland Road. The applicant discussed the site plan and some of their plans for the landscaping.

Staff Planner Quagliata noted that the sidewalk along the front is 5 feet, it's okay because the parking space is 19' in depth. The sidewalk in the rear will need to be 7' wide.

There were some questions about when deliveries would be happening. The tenant to the East will be a mattress store, that shouldn't be a major loading issue. The other tenant has not been secured yet. The applicant pointed out an additional area they would use for unloading and he thinks there may only be a few mattresses delivered per week to the store.

Commissioner Meagher asked about the buffer between this address and discount tire, it will remain as is. He asked if this will have to go before the ZBA for the loading area, and they will.

Commissioner Carlock questioned the 5' sidewalk in the front. She said the bumpers get messed up after a year or so and she feels the 5' is too narrow. Commissioner Slicker is in agreement.

Commissioner Anderson needs clarification for lighting. They are trying to use some of what they had, it's not abutting a residential area, and they would like the parking lot to be well lit. He also asked if we are blocked into the hours of operation from the Sonic's hours? He would like to see the hours modified like the Taco Bell nearby. Staff Planner Quagliata noted that the drive-throughs require special land use and Sonic already had one. If they want different hours than Sonic had, they would have to amend the special land use. Commissioner Meagher noted that there should be some consistency.

Commissioner Anderson wanted to verify the signs. Your leaseholders would only each have one sign, or one business would have two signs. He wanted the applicants to understand that variances aren't guaranteed and he wanted to make sure you are aware of it.

Commissioner Meagher moved to recommend to the Township Board Preliminary Site Plan Approval for 9328 Highland located on the northside of Highland Road (M-59) and west of Fisk Road. Consisting of approximately 1.17 acres. Currently zoned (GB) General Business. Identified as parcel number 12-23-201-010. The approval is subject to all Planning Department and planning consultant review comments, the current standards, and a sidewalk width of 7' in the front and rear. The rear loading area will require a variance. Commissioner Grubb supported and the MOTION CARRIED with a roll call vote: (Meagher – yes; Anderson – yes; Grubb – yes; Slicker – yes; Carlock – yes). 5 yes votes.

Kathleen Jackson asked about the zoning ordinance, if you decrease the parking depth to 17' do you have to have 8' sidewalk? Staff Planner Quagliata reported that you don't. Commissioner Slicker wanted to point out that the change in the sidewalk in the rear may affect the lineup of the connection to Discount Tire. Commissioner Anderson asked how they get from their cars to the retail space. They are walking in the traffic zone. They could add a 5' sidewalk instead of landscape along the side of the building instead.

As a friendly amendment, Commissioner Carlock wanted to supplement Commissioner Meagher's motion by adding a 5' sidewalk on the east side of building, instead of the landscaping. Commissioner Grubb supported the supplemental motion. Commissioner Meagher accepts the supplement to his original motion and Commissioner Grubb supports the acceptance of the supplemental motion. The MOTION CARRIED with a roll call vote: (Meagher – yes; Anderson – yes; Grubb – yes; Slicker – yes; Carlock – yes). 5 yes votes.

Staff Planner Quagliata noted that these motions will be on the Aug 17th Township board meeting agenda.

Old Business:

No old business.

New Business

No new business.

Liaison's Report

Commissioner Grubb reported that Parks and Recreation has not met since the last Planning Commission meeting and the August meeting is cancelled. Some of the parks saw minimal damage from the tornado. Bloomer and Hawley Park need tree work due to the storm. The Hawley Park work was done today, it looks 10 times better than before. Staff Planner Quagliata and Commissioner Carlock walked Hawley Park today and they did a great job. Commissioner Carlock wanted to note that the Township did a great job with the disaster.

Planning Consultant's Report

No report.

Director's Report:

Staff Planner Quagliata reported that the Township board met on July 20th and they adopted the resolution for the Bogie Lake main sewer project. The Police Department is purchasing new equipment for booking. The Township board approved the Preliminary Site Plan for Oakland Harvesters and the Pontiac Lake Apartments. During the meeting, the decision to demolish two Dangerous Buildings was enforced and one house has a postponement until the September meeting. The board approved the conversion to LED lights and they are working on personal policies amendments. On July 29th the Governor declared a State of Emergency from the tornado. We had an emergency management team on site in the Township and almost 1000 houses were impacted. We're trying to get another subcommittee meeting for the Elizabeth Lake retail plaza. We're hoping to have the Capital Improvement Plan ready for the meeting on August 19th.

Other Business:

None.

Communications:

The August 19th meeting will occur.

Next Meeting Dates: August 19, 2021
September 2, 2021

Adjournment:

Commissioner Meagher moved to adjourn the meeting at 8:19 p.m. Commissioner Slicker and the MOTION CARRIED with a roll call vote: (Meagher – yes; Anderson – yes; Grubb – yes; Slicker – yes; Carlock – yes). 5 yes votes.

Director's Report

Project Name: Trailside Meadow
 Description: Final Site Plan Amendment
 Date on Agenda this packet pertains to: August 19th, 2021

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

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 07/28/2021
McKenna & Associates	Planning Consultant	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See letter dated 07/23/2021



INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

July 28, 2021

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

RE: Trailside Meadow- Phases 2 and 3 - Revised FSP Review #3

DLZ# 1845-0218-00

Dear Mr. O' Neil,

We have completed our review of the revised Final Site Plan for the above-mentioned project. Plans were prepared by Atwell Group and are dated July 9, 2021. The submittal indicates the following changes to the Final Site Plan: 51 Active Adult units in Phases 2 and 3 have been changed to Single Family unit designation.

We offer the following comments with respect to the submitted plans:

General

1. Cover Sheet- It appears that the total acreage under 'Land Use' for Active Adult would be less than the 12.9 acres noted. The 12.9 acres was shown on the previous Final Site Plan and has since changed due to the change in unit designation. Please verify number and revise as needed.
2. Sheet 5- It appears that the proposed storm sewer easement edge between Units 126 and 127 will be right on or within the proposed building envelope for Unit 127. Storm sewer and/or easement in this area will require revision. If the storm sewer needs to be realigned, then this revision will also need to be shown on the Final Engineering Plan.

Our office is also in receipt of the following easements for Phases 2 and 3. Easement review comments will be sent under separate cover:

- a. Estates- Sanitary Sewer dated June 9, 2021.
- b. Estates- Storm Sewer dated June 9, 2021.
- c. Estates- Watermain dated June 9, 2021.
- d. Villas- Sanitary Sewer dated June 10, 2021.



INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

WLT- Trailside Meadow Phases 2 & 3- Revised FSP – Review.03

July 28, 2021

Page 2 of 2

- e. Villas- Storm Sewer dated June 10, 2021.
- f. Villas- Watermain dated June 10, 2021.

Recommendation

We find the Final Site Plan (FSP) to be acceptable subject to the above comments being addressed and plans resubmitted for our review.

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*

Enc. none

X:\Projects\GFL\2018\1845\021800 WLT Trailside Meadow\FSP & FEP Submittals\Amended FSP 7-12-2021\Revised FSP Submittal #3.docx

MCKENNA

July 23, 2021

Planning Commission
Charter Township of White Lake
7525 Highland Road
White Lake, MI 48383

Subject: Trailside Meadow Planned Development
Final Site Plan Review #2 (amendment)

Applicant(s): M/I Homes

Location: South side of Elizabeth Lake Road, west of Williams Lake Road

Dear Planning Commissioners:

Pinnacle Homes by M/I Homes is proposing a change to their previously approved (2019) site plan and corresponding Planned Development Agreement. The site was preliminarily approved for a 184-unit condominium development, which consisted of 91 active adult units and 93 single family homes. The initial approval was for three phases. The petitioner has built phase one, as approved in 2019. The current application is to eliminate the remaining 51 active adult units and replace them with 51 single family homes. This is a revision of Phases two and three.

According to the Zoning Ordinance, Section 6.7.E ii. ii. Minor changes in the floor area of buildings, including minor building additions, may be approved by the Planning Commission and upon written application by the developer. Such minor additions require site plan review only and may proceed without the need for another public hearing.

The site fronts on Elizabeth Lake Road and consists of 73.3 (gross) acres. The density is not changing as a result of this revised plan and will remain at 2.5 dwelling units per acre. The revised housing product will sit on the same sized “lots” (actually units, as referred to in the Condominium Act); which are 60’ wide and 120’ deep. The proposed single-family homes are all two stories with two car attached garages.

Planned Development Review Process

The Planned Development review process involves the following three (3) steps:



Source: Oakland County Property Gateway

DETROIT
28 West Adams Street
Suite 1000
Detroit, Michigan 48226

☎ 313.888.9882
☎ 248.596.0930
MCKA.COM

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1. Preliminary Site Plan Review: This is the step that the number of units and layout are established, the amount of open space is determined, and other project details are decided upon. At the preliminary review step the Planning Commission holds a public hearing on the rezoning application to PD – Planned Development. The Planning Commission must review the PD proposal and make a recommendation to the Township Board for the preliminary site plan and rezoning.
2. Final Site Plan Review: Final site plan review is the step at which all of the details are included on the site plan and all of the conditions of preliminary site plan review must be satisfied. The Planning Commission is required to review the final site plan and take action, approving or denying the final site plan. It is at this step where the Planning Commission also reviews the proposed Development Agreement and makes a recommendation to the Township Board. **This request is for revised final site plan approval and recommendation to the Township Board for a revised planned development agreement.**
3. Development Agreement Review: Upon recommendation of the Development Agreement by the Planning Commission, the Township Board takes final action on the Development Agreement.

REVIEW COMMENTS

1. **Zoning, Land Use, and Future Land Use**: The current Zoning District, current land use, and future land use of the site, as well as the surrounding areas, are as follows:

Location	Current Land Uses	Future Land Uses (Master Plan)	Zoning
Site	Single Family/Vacant	Residential Resort	Planned Development (PD)
North	Residential	Residential Resort	Single Family (R-1C)
East	Attached Single Family	Planned Neighborhood	Attached Single Family Residential (RM-1)
South	Single Family	Residential Resort	Single Family (R-1B)
West	Single family residential	Residential Resort	Single Family (R-1C)

2. **Required Information**: The information required for Planned Development final site plans, listed in Sections 6.8(B) of the Zoning Ordinance, has been submitted and comply with the previously approved plans and PDA.
3. **Dimensional Standards**:
 - a. **Lot Area, Setbacks, Lot Coverage, and Layout**. Sections 3.1.10 (PD, Planned Development District) and 3.11 (Notes to District Standards) of the Zoning Ordinance include provisions for minimum lot area, setbacks, and lot coverage, as follows:

Applicable Requirement	Zoning Ordinance Requirements	Proposed
Min. Lot Area (site)	10 acres	72.8 acres
Min. lot area (lots)	To be determined by the Planning Commission	7,200 square feet
Min. Lot Width	To be determined by the Planning Commission ¹	60 feet
Min. Front Yard Setback (PD)	40 feet	50 feet
Min. Front Yard Setback (lots)	To be determined by the Planning Commission	20 feet
Min. Side Yard Setbacks (PD)	25 feet	50 feet
Min. Side Yard (lots)	To be determined by Planning Commission	10 feet each side
Min. Rear Yard Setback	To be determined by Planning Commission	30 feet
Density	Determined by reference to the Master Plan	2.5 DU/A
Max. Lot Coverage	Governed by parking, landscaping, etc., otherwise 30%	25%

¹ A minimum of 65' of width is required along the right-of-way for lots on curvilinear streets or cul-de-sacs.

b. Wetland Setbacks. There are no wetlands indicated on the plans submitted.

4. Landscaping and Screening: A landscape plan has been provided, which meets the landscape requirements in Section 5.19. However, the petitioner has reduced some of the plant material on the landscape plan (Sheet LS1) as follows:

- A change from one hundred thirteen 2-inch caliper Redbud (ornamental) trees to one hundred eight 2-inch caliper Flowering Crabapples;
- A change from six hundred eighty 36-inch high Viburnum to 642 Viburnum (same size)
- A reduction from one hundred two, 36-inch Sweetspire to ninety Sweetspire (same size)

Additionally, in the originally approved plan, the petitioner was utilizing the foundation plantings to meet the landscape requirements. This note is still on the revised plans, although a reduction of fifty-one active adult units indicates that the foundation plantings for those units have been eliminated or moved.

The petitioner should explain why there has been a reduction in landscaping plants and address the foundation plantings previously used to meet the landscaping requirements.

5. Building Architecture and Design: Section 6.7(C)(iii) requires residential Planned Developments to provide variations in building facades and setbacks that avoid the creation of regimented alignment of buildings. However, design compatibility within the development is required. The petitioner's engineer stated that no new elevations are proposed. The three elevations that were submitted are identical to the originally approved plans.

6. Layout and Open Space: The layout and open space have not changed. In the approved site plan and PDA, the open space is primarily located south of Saddleback Court and within the preservation buffers along the west, east and southern property lines.

7. **Sidewalks and Non-Motorized Pathway:** Section 6.7(C)(i) recommends sidewalks along all frontage streets and sidewalk connections to all major rights-of-way. Sidewalks are provided on both sides of the streets and funds have been deposited for the Elizabeth Lake Road sidewalk, per the approved site plan and PDA.
8. **Roads and Access:** No changes are proposed to the road layout or access from Elizabeth Lake Road. The plans reflect those approved plans from 2019.
9. **Off-Street Parking:** The single-family homes will each have a two-car garage and a driveway large enough to accommodate two additional cars, as per the Zoning Ordinance requirements.
10. **Lighting:** Section 5.18(G) of the Zoning Ordinance includes standards for outdoor lighting. No information was provided with regard to outdoor lighting. **Information should be provided with this final site plan.**

RECOMMENDATION

Based on the above findings; the proposed plan appears to meet all of the Zoning Ordinance requirements. Subject to the following conditions being met, we recommend approval of the revised final site plan and recommendation to the Township Board for approval of the Planned Development Agreement:

1. Plans submitted verifying a minimum of 65' of lot width along the right-of-way for lots on curvilinear streets or cul-de-sacs.
2. Petitioner addressing the decrease in amount of plant materials and whether or not the previously approved foundation plantings for the active adult units have been relocated or eliminated.
3. Outdoor lighting information provided, which meets the Zoning Ordinance requirements.
4. Petitioner providing lot width dimensions for lots, to ensure that they meet the minimum lot width requirements.

Respectfully submitted,

MCKENNA

Kathleen M. Jackson
Kathleen M Jackson
Senior Principal Planner

cc: Mr. Sean O'Neal, AICP
Mr. Justin Quagliata
Ms. Hannah Micallef

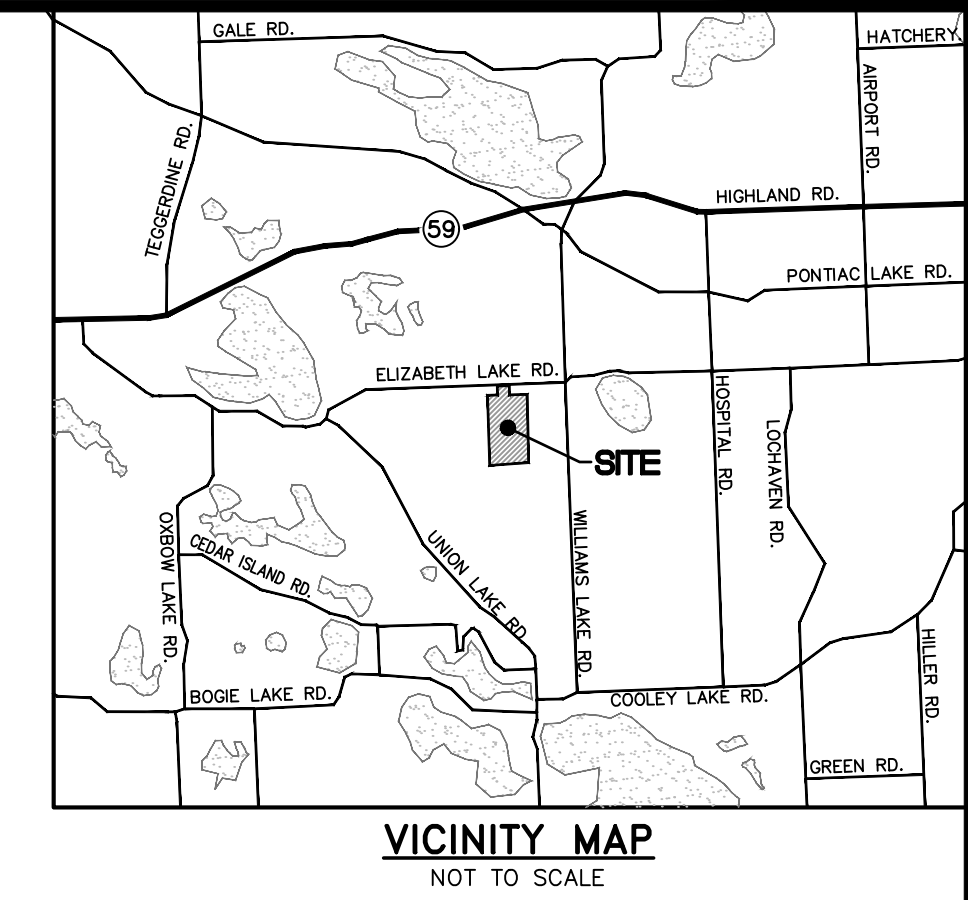
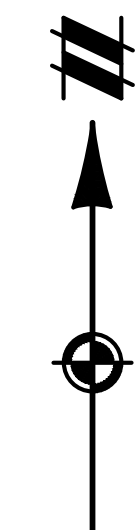


FINAL SITE ENGINEERING PLANS - PHASES 2-3

TRAILSIDE MEADOW

A SINGLE-FAMILY AND ACTIVE ADULT PLANNED DEVELOPMENT

SECTION 25, WHITE LAKE TOWNSHIP, OAKLAND COUNTY



811
Know what's below.
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THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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

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DEVELOPMENT TEAM

APPLICANT / DEVELOPER	PLANNER / ENGINEER	TRAFFIC CONSULTANT
M/I HOMES 1668 S. TELEGRAPH ROAD, SUITE 200 BLOOMFIELD HILLS, MI 48301 PHONE: 248.221.5009 CONTACT: NIKKI JEFFRIES EMAIL: NJEFFRIES@MIHOMES.COM	ATWELL, LLC 311 N. MAIN STREET ANN ARBOR, MICHIGAN 48104 PHONE: 810.923.6878 CONTACT: MATTHEW W. BUSH, PE EMAIL: MBUSH@ATWELL-GROUP.COM	FLEIS & VANDEBRINK 27725 STANSBURY BLVD, SUITE 195 FARMINGTON HILLS, MICHIGAN 48334 PHONE: 248.536.0090 ATTN: JULIE KROLL, PE EMAIL: JKROLL@FVENG.COM

PROJECT NARRATIVE

TRAILSIDE MEADOW IS AN EXCLUSIVE 184-UNIT RESIDENTIAL COMMUNITY LOCATED ON AN APPROXIMATELY 73-ACRE PARCEL IN SECTION 25 OF WHITE LAKE TOWNSHIP. THE SUBJECT PARCEL IS LOCATED ON THE SOUTH SIDE OF ELIZABETH LAKE ROAD, BOUNDED ON ALL SIDES BY EXISTING RESIDENTIAL LAND USES. THE SITE IS CURRENTLY ZONED AG WITH A SMALL PORTION ALONG ELIZABETH LAKE ROAD BEING R1-C RESIDENTIAL.

THIS PLANNED DEVELOPMENT (PD) PLAN PROPOSES A DENSITY OF 2.5 DU/ACRE, WHICH IS CONSISTENT WITH THE "RESIDENTIAL RESORT" LAND USE (DENSITY 2.0 TO 3.0 DU/ACRE) PLANNED FOR THIS SITE AS SPECIFIED IN THE WHITE LAKE TOWNSHIP "MASTER PLAN FOR LAND USE 2010-2011".

EXISTING CONDITIONS AND NATURAL FEATURES
THE EXISTING SITE IN THE AREA OF PROPOSED DEVELOPMENT IS MOSTLY WOODED WITH ROLLING TOPOGRAPHY AND APPROXIMATELY 110 FEET OF ELEVATION CHANGE ACROSS THE SITE. THE EXISTING UNDERLYING SOILS ARE PRIMARILY SANDY LOAMS. THERE ARE NO REGULATED WETLANDS OR FLOODPLAIN AREAS LOCATED ON-SITE.

THE PROPOSED DEVELOPMENT WILL SEEK TO PRESERVE EXISTING WOODED AREAS AROUND THE PERIMETER WHERE GRADING ALLOWS, TO SERVE AS A BUFFER BETWEEN THE DEVELOPMENT AND NEIGHBORING PROPERTIES. IT IS NOTED THAT THE EXISTING DEVELOPMENTS ADJACENT TO THE TRAILSIDE MEADOW SITE APPEAR TO HAVE BEEN SUBSTANTIALLY CLEARED TO THE ADJOINING PROPERTY LINE TO ACCOMMODATE GRADING FOR DEVELOPMENT.

LAND USE
THE PROPOSED LAND USE WILL BE A MIX OF ACTIVE-ADULT AND SINGLE FAMILY RESIDENTIAL HOMES. THIS USE CONFORMS TO THE WHITE LAKE TOWNSHIP MASTER PLAN FOR LAND USE WHICH PLANS FOR A FUTURE RESIDENTIAL RESORT USE IN THE AREA AT 2.0 TO 3.0 DU/ACRE.

PHASING
THE INFRASTRUCTURE FOR THE DEVELOPMENT IS PLANNED TO BE CONSTRUCTED IN THREE PHASES. PHASE 1 INFRASTRUCTURE WAS COMPLETED IN 2020. PHASE 2 WILL CONNECT TO PHASE 1 ROADWAYS AND UTILITIES AND IS PLANNED FOR CONSTRUCTION IN 2021. PHASE 3 WILL FOLLOW AS SALES WARRANT. FULL-BUILDOUT AND OCCUPANCY OF ALL OF THE PROPOSED BUILDINGS IS TARGETED FOR 2022-2023.

UTILITIES
WATER SUPPLY AND SANITARY SEWER SERVICE IS PROVIDED BY PUBLIC SEWER AND WATER. PHASE 1 CONSTRUCTION CONNECTED TO THE EXISTING SYSTEMS ALONG ELIZABETH LAKE ROAD AND PROVIDED STUBS FOR FUTURE PHASE CONNECTIONS. EXTENSIONS TO THE EXISTING MAINS WILL BE CONSTRUCTED ON-SITE TO PROVIDE A LOOPED SYSTEM IN ACCORDANCE WITH TOWNSHIP STANDARDS AND PLACED WITHIN PUBLIC EASEMENTS. THE PORTION BETWEEN ELIZABETH LAKE ROAD AND "WILDFLOWER MANOR" IS 12-INCH MAIN PER THE TOWNSHIP WATER SYSTEM MASTER PLAN. THE REMAINDER WILL BE 8-INCH. THE PROPOSED SANITARY IS PLANNED TO CONNECT TO THE EXISTING SEWER STUBS PROVIDED IN PHASE 1. THE SEWERS WITHIN THE DEVELOPMENT WILL FLOW VIA GRAVITY SEWER AT A DEPTH SUFFICIENT TO SERVICE BASEMENTS FOR ALL PROPOSED HOMES.

STORMWATER MANAGEMENT
STORMWATER MANAGEMENT FOR QUALITY TREATMENT AND FLOOD STORAGE IS PROVIDED IN DETENTION BASINS CONSTRUCTED IN PHASE 1, STRATEGICALLY LOCATED AT THE NORTHWEST END OF THE SITE WHERE THE EXISTING SITE RUNOFF LEAVES THE SITE BEFORE ULTIMATELY FLOWING TO ALLEN LAKE NORTH OF ELIZABETH LAKE ROAD. THESE BASINS HAVE BEEN DESIGNED IN ACCORDANCE WITH TOWNSHIP STANDARDS (CONSISTENT WITH OCWR DESIGN GUIDELINES) TO ACCOMMODATE THE 100-YEAR DESIGN RUNOFF FROM THE PROPOSED DEVELOPMENT, AND OUTLET TO FOLLOW THE EXISTING DRAINAGE PATTERN FROM THE SITE AT THE NORTHERN EDGE OF THE PROPERTY. NO ADDITIONAL STORMWATER BASINS ARE REQUIRED IN PHASES 2 OR 3 OF THE PROJECT.

TRAFFIC
TRAILSIDE MEADOW IS PROPOSED TO BE SERVED BY 27-FOOT WIDE ROADWAYS WITHIN 60-FOOT WIDE PRIVATE ROAD EASEMENTS. THERE ARE THREE PROPOSED ROAD CONNECTIONS FOR THE DEVELOPMENT, WITH THE MAIN BOULEVARD ENTRANCE AT ELIZABETH LAKE ROAD, AND TWO SECONDARY ACCESS POINTS CONNECTING TO ROAD STUBS PROVIDED FROM SHERRY DRIVE AND SHARON DRIVE WITHIN THE "COLONY HEIGHTS" SUBDIVISION WEST OF TRAILSIDE MEADOW.

A TRAFFIC IMPACT STUDY (TIS) HAS BEEN PREPARED AND REVIEWED BY THE TOWNSHIP. ENTRANCE GEOMETRICS AT ELIZABETH LAKE ROAD FOLLOW THE RECOMMENDATIONS OF THE TIS, WHICH INCLUDE PROVIDING A LEFT TURN TREATMENT AT THE ELIZABETH LAKE ROAD ENTRANCE. A MEETING WITH ROC CONCLUDED THAT THE USE OF A RCOO TYPICAL PASSING LANE CONFIGURATION IS ACCEPTABLE TO ALLOW LEFT TURNS INTO THE SITE WHILE MAINTAINING THROUGH TRAFFIC, AND MINIMIZES THE IMPACTS TO THE NEIGHBORING FRONTAGE PARCELS.

COMMUNITY IMPACT
A SEPARATE COMMUNITY IMPACT STATEMENT HAS BEEN PREPARED FOR TOWNSHIP REVIEW.

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWNSHIP'S CURRENT STANDARDS AND SPECIFICATIONS.
- THE CONTRACTOR SHALL NOTIFY THE TOWNSHIP ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION, 48 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- THE CONTRACTOR SHALL CONTACT MISS DIG AT 800-482-7171, 72 HOURS IN ADVANCE OF CONSTRUCTION, FOR EXISTING UNDERGROUND UTILITY LOCATIONS.
- IN ORDER TO VERIFY COMPLIANCE WITH APPROVED PLANS, FULL-TIME CONSTRUCTION OBSERVATION WILL GENERALLY BE REQUIRED DURING ALL PHASES OF UNDERGROUND SITE CONSTRUCTION INCLUDING INSTALLATION OF SANITARY SEWER, STORM SEWERS, DRAINS, WATERMANS AND APPURTENANCES AS WELL AS PRIVATE STREET CURBING AND PAVING CONSTRUCTION. INTERMITTENT OBSERVATIONS WILL BE MADE FOR SITE GRADING, PARKING LOT CURBING AND PAVING, RETAINING WALL CONSTRUCTION AND OTHER SURFACE ACTIVITY.
- STORM WATER MANAGEMENT FOR THIS PARCEL IS PROVIDED BY ON-SITE DETENTION BASINS CONSTRUCTED IN PHASE 1 THAT ULTIMATELY DRAIN TO ALLEN LAKE.
- PROPOSED ROAD APPROACHES WILL REQUIRE APPROVAL FROM OAKLAND COUNTY.
- PROPOSED DEVELOPMENT INFORMATION PRESENTED ON THIS PLAN IS BASED ON THE CONCEPT PLAN PREVIOUSLY PRESENTED TO WHITE LAKE TOWNSHIP REPRESENTATIVES AT THE FOLLOWING MEETINGS:
PRE APPLICATION MEETING: NOVEMBER 9, 2018
PLANNING COMMISSION (INFORMATIONAL PRESENTATION ONLY): DECEMBER 6, 2018
- PROJECT IS PLANNED TO BE DEVELOPED IN THREE PHASES. PHASE 1 HAS BEEN BUILT IN 2020.
- AN EXHIBIT SHOWING THE PROPOSED OPEN SPACE DELINEATION IS PROVIDED ON SHEET DT1

PROPERTY LEGAL DESCRIPTION

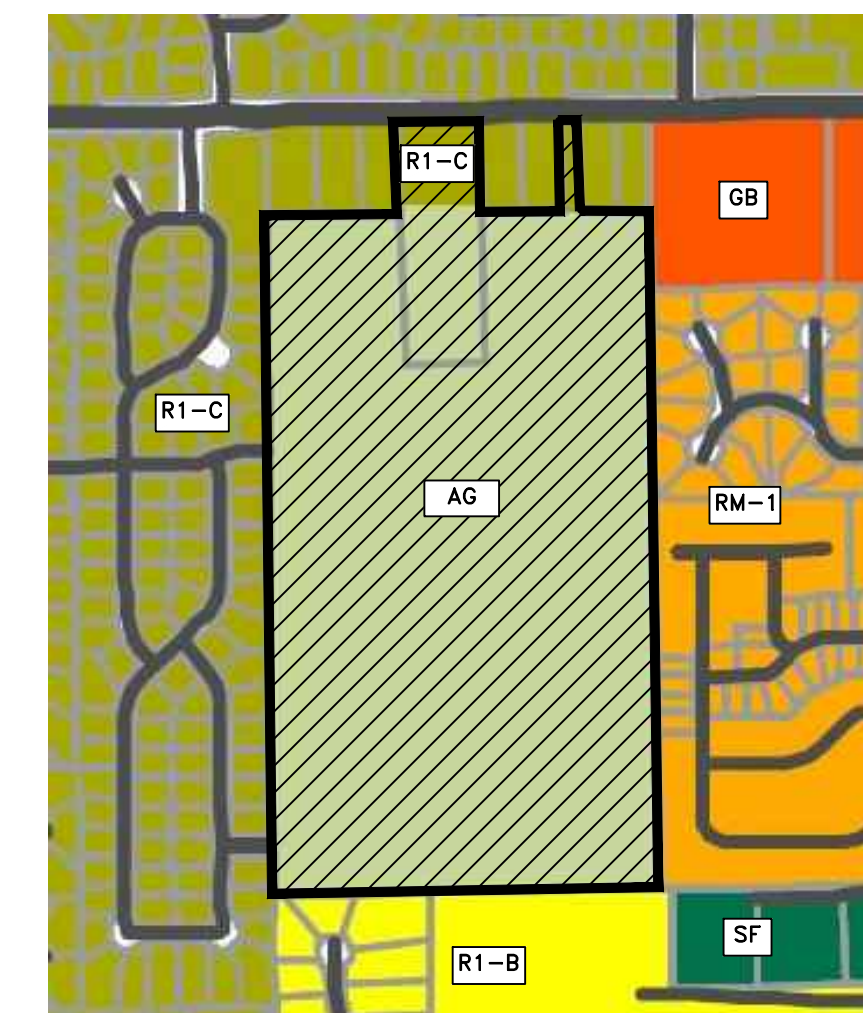
DESCRIPTION OF A 73.205 ACRE PARCEL OF LAND LOCATED IN THE NORTHEAST 1/4 OF SECTION 25, TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN (AS SURVEYED BY ATWELL)

COMMENCING AT THE NORTHEAST CORNER OF SECTION 25, T3N, R8E, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN; THENCE S87°18'50"W 1320.93 FEET ALONG THE NORTH LINE OF SAID SECTION 25, LYING IN ELIZABETH LAKE ROAD (VARIABLE WIDTH); THENCE S02°37'38"E 341.88 FEET (RECORDED AS 340.00 FEET) FOR A PLACE OF BEGINNING; THENCE S02°37'38"E (RECORDED AS N00°10'09"E AND PLATTED AS S00°25'00"W) 2318.40 FEET ALONG THE EAST LINE OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SAID SECTION 25 (AS MONUMENTED) AND ALONG THE WEST LINE OF "HILLVIEW VILLAGE SUBDIVISION", AS RECORDED IN LIBER 115 OF PLATS, PAGE 22, OAKLAND COUNTY RECORDS AND ALONG THE WEST LINE OF BLUFFS AT WILLIAMS LAKE CROSSINGS CONDOMINIUM, OAKLAND COUNTY CONDOMINIUM SUBDIVISION PLAN NO. 2176, ACCORDING TO THE MASTER DEED RECORDED IN LIBER 50299, PAGE 174, OAKLAND COUNTY RECORDS AND ALONG THE WEST LINE OF BLUFFS AT WILLIAMS LAKE CROSSINGS CONDOMINIUM, OAKLAND COUNTY CONDOMINIUM SUBDIVISION PLAN NO. 2001, ACCORDING TO THE MASTER DEED RECORDED IN LIBER 42093, PAGE 227, OAKLAND COUNTY RECORDS AND ALONG THE WEST LINE OF WILLIAMS LAKE CROSSING CONDOMINIUM, OAKLAND COUNTY CONDOMINIUM SUBDIVISION PLAN NO. 1599, ACCORDING TO THE MASTER DEED RECORDED IN LIBER 31835, PAGE 393, OAKLAND COUNTY RECORDS; THENCE S87°06'13"W 1328.51 FEET ALONG THE EAST-WEST 1/4 LINE OF SAID SECTION 25 (AS MONUMENTED) TO THE CENTER POST OF SAID SECTION 25; THENCE N02°20'56"W (PLATTED AS N00°08'00"W) 2325.19 FEET ALONG THE NORTH-SOUTH 1/4 LINE OF SAID SECTION 25 (AS MONUMENTED) AND ALONG THE EAST LINE OF "COLONY HEIGHTS NO. 3", AS RECORDED IN LIBER 141 OF PLATS, PAGES 4 & 5, OAKLAND COUNTY RECORDS AND ALONG THE EAST LINE OF "COLONY HEIGHTS NO. 2", AS RECORDED IN LIBER 135 OF PLATS, PAGES 29 & 30, OAKLAND COUNTY RECORDS AND ALONG THE EAST LINE OF "COLONY HEIGHTS NO. 1", AS RECORDED IN LIBER 127 OF PLATS, PAGES 6 & 7, OAKLAND COUNTY RECORDS; THENCE N87°18'50"E 458.55 FEET (RECORDED AS 451.50 FEET) ALONG THE SOUTH LINE OF THE NORTH 3/40 FEET OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SAID SECTION 25 (AS MONUMENTED); THENCE N03°38'12"W 340.05 FEET (RECORDED AS 340.00 FEET); THENCE N87°18'50"E 277.71 FEET ALONG THE NORTH LINE OF SAID SECTION 25; THENCE S02°37'08"E 341.88 FEET (RECORDED AS 340.00 FEET); THENCE N87°18'50"E 288.37 FEET (RECORDED AS 280.00 FEET) ALONG THE SOUTH LINE OF THE NORTH 3/40 FEET OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SAID SECTION 25 (AS MONUMENTED); THENCE N03°47'42"W 341.95 FEET (RECORDED AS 340.00 FEET); THENCE N87°18'50"E 59.69 FEET (RECORDED AS 60.00 FEET) ALONG THE NORTH LINE OF SAID SECTION 25; THENCE S02°37'08"E 341.88 FEET (RECORDED AS 340.00 FEET); THENCE N87°18'50"E 250.00 FEET ALONG THE SOUTH LINE OF THE NORTH 3/40 FEET OF THE WEST 1/2 OF THE NORTHEAST 1/4 OF SAID SECTION 25 TO THE PLACE OF BEGINNING, LOCATED IN THE NORTHEAST 1/4 OF SAID SECTION 25, CONTAINING 73.205 ACRES OF LAND, MORE OR LESS, BEING SUBJECT TO THE RIGHTS OF THE PUBLIC OVER THE NORTHERLY 33 FEET THEREOF AS OCCUPIED BY SAID ELIZABETH LAKE ROAD, ALSO BEING SUBJECT TO EASEMENTS, CONDITIONS, RESTRICTIONS AND EXCEPTIONS OF RECORD, IF ANY.



ESTIMATED QUANTITIES

WATERMAIN		Quantity	Unit	STORM SEWER		Quantity	Unit
8" D.I. CL. 54 Water Main		3,073	L.F.	12" RCP Storm Sewer		5,751	L.F.
1" Type K Copper water leads		2,779	L.F.	15" RCP Storm Sewer		1,228	L.F.
Hydrant Assembly		7	EA.	18" RCP Storm Sewer		319	L.F.
8" Gate Valve in Well		3	EA.	24" RCP Storm Sewer		547	L.F.
				Catch Basin / Manhole		73	EA.
SANITARY SEWER		Quantity	Unit				
8" PVC Truss Pipe		2,866	L.F.				
4" Dia. Sanitary Manhole		18	EA.				
5" Dia. Internal Drop Sanitary Manhole		1	EA.				
6" Sanitary Sewer Leads SDR 26		3,810	L.F.				



SITE DATA (OVERALL)

ACREAGE:	GROSS	73.3 AC.	NET	72.8 AC. (MINUS ELIZABETH LAKE ROAD R.O.W. DEDICATION)	
EXISTING ZONING:	AG AGRICULTURE, R1-C SINGLE FAMILY RESIDENTIAL				
PROPOSED ZONING:	PD-PLANNED DEVELOPMENT				
LAND USE:	PROPOSED RESIDENTIAL (ACTIVE ADULT):	12.9 AC (18% NET AREA)	PROPOSED RESIDENTIAL (SINGLE-FAMILY):	18.7 AC (26% NET AREA)	
	OPEN SPACE:	25.4 AC (35% NET AREA)	PRIVATE ROAD RIGHT-OF-WAY:	12.2 AC (17% NET AREA)	
DENSITY:	PH 1	PH 2	PH 3	TOTAL	
	ACTIVE ADULT	33	69	42	144
	SINGLE-FAMILY	33	69	42	144
	TOTAL UNITS	73	69	42	184
(NET)**	MASTER PLAN LAND USE DENSITY = 3.0 DU/AC (MAX)*				
	* THIS SITE IS LOCATED WITHIN THE FUTURE LAND USE "RESIDENTIAL RESORT" PER THE WHITE LAKE TOWNSHIP "MASTER PLAN FOR LAND USE 2010-2011". THE NET DENSITY FOR RESIDENTIAL RESORT AREAS IS PLANNED TO RANGE FROM 2.0 DU/AC TO A MAXIMUM 3.0 DU/AC.				
	** PROPOSED PRIVATE ROAD RIGHT-OF-WAY/EASEMENT = 12.2 AC. 72.8 AC (NET) - 12.2 AC (PVT R.O.W.) = 60.6 AC (ADJ. NET) DENSITY USING ADJUSTED NET AREA = 184 / 60.6 AC = 3.0 DU/AC 60.6 AC - 2.3 AC (DETENTION) = 58.3 AC DENSITY EXCLUDING DETENTION AREA = 184 / 58.3 AC = 3.2 DU/AC				
OVERALL DEVELOPMENT PERIMETER SETBACKS:	PD REQUIREMENT	PROPOSED			
	FRONT	40 FT	50 FT		
	SIDE	25 FT MIN	50 FT		
	REAR	PER P.C.	50 FT		
PROPOSED LOT/BUILDING DIMENSIONS AND SETBACKS:	PD	PROPOSED SF	R1-D		
	LOT				
	WIDTH	PER P.C.	60 FT	80 FT	
	DEPTH	N/A	120 FT	150 FT (12,000 SF)	
	COVERAGES *	25% (1,860 SF)**	20% (2,400 SF AT MIN)**		
	SETBACKS				
	FRONT	N/A	20 FT	30 FT	
	SIDE	N/A	10 FT	10 FT	
	REAR	N/A	(20 FT BLDG-BLDG)	30 FT	

RCCO NOTES (APPLICATION NUMBER R.C.O.C. 19-702)

- CALL INSPECTOR OR PERMIT SUPERVISOR BEFORE BEGINNING ANY WORK IN R.O.W.
- "PROPER SIGNING" IS REQUIRED BEFORE ANY WORK IN R.O.W. IS STARTED
- MAINTAIN TWO-WAY TRAFFIC AT ALL TIMES
- LANE CLOSURES RESTRICTED TO 9-3, MONDAY-FRIDAY
- FLAG PERSON REQUIRED FOR TEMPORARY ONE LANE ROADS
- CONSTRUCTION EQUIPMENT OR MATERIAL DELIVERIES PROHIBITED ON EXISTING SUBDIVISION ROADS

REVIEW AGENCY STATUS

WHITE LAKE TWP PLANNING	IN PROCESS
SEAN O'NEIL	
WHITE LAKE TWP ENGINEERING	IN PROCESS
JOHNSON & ANDERSON	
RCCO - PUBLIC ROAD CONNECTIONS / UTILITIES	N/A (PHASE 2)
OCWR - SOIL EROSION	APPROVED (08/01/2019)
MDEQ ACT 399 - PUBLIC WATER MAIN	APPROVED (06/29/2021)
OCWR - SANITARY SEWER	APPROVED (05/28/2021)
MDEQ PART 41 - WASTEWATER COLLECTION	TBA
MDEQ PART 303 - WETLANDS	N/A
GLWA - SANITARY SEWER	N/A
OCWR - STORMWATER	N/A



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SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
COVER SHEET

DATE: OCTOBER 29, 2020
02/17/2021: REV PER TOWNSHIP
05/27/2021: REV PER OCWR
07/09/2021: AMENDMENT TO PSP

REVISIONS	NO SCALE
DR. SK/KS GH. CK	
P.M. M BUSH	
BOOK ---	
JOB 18003309	
SHEET NO. 01	

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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

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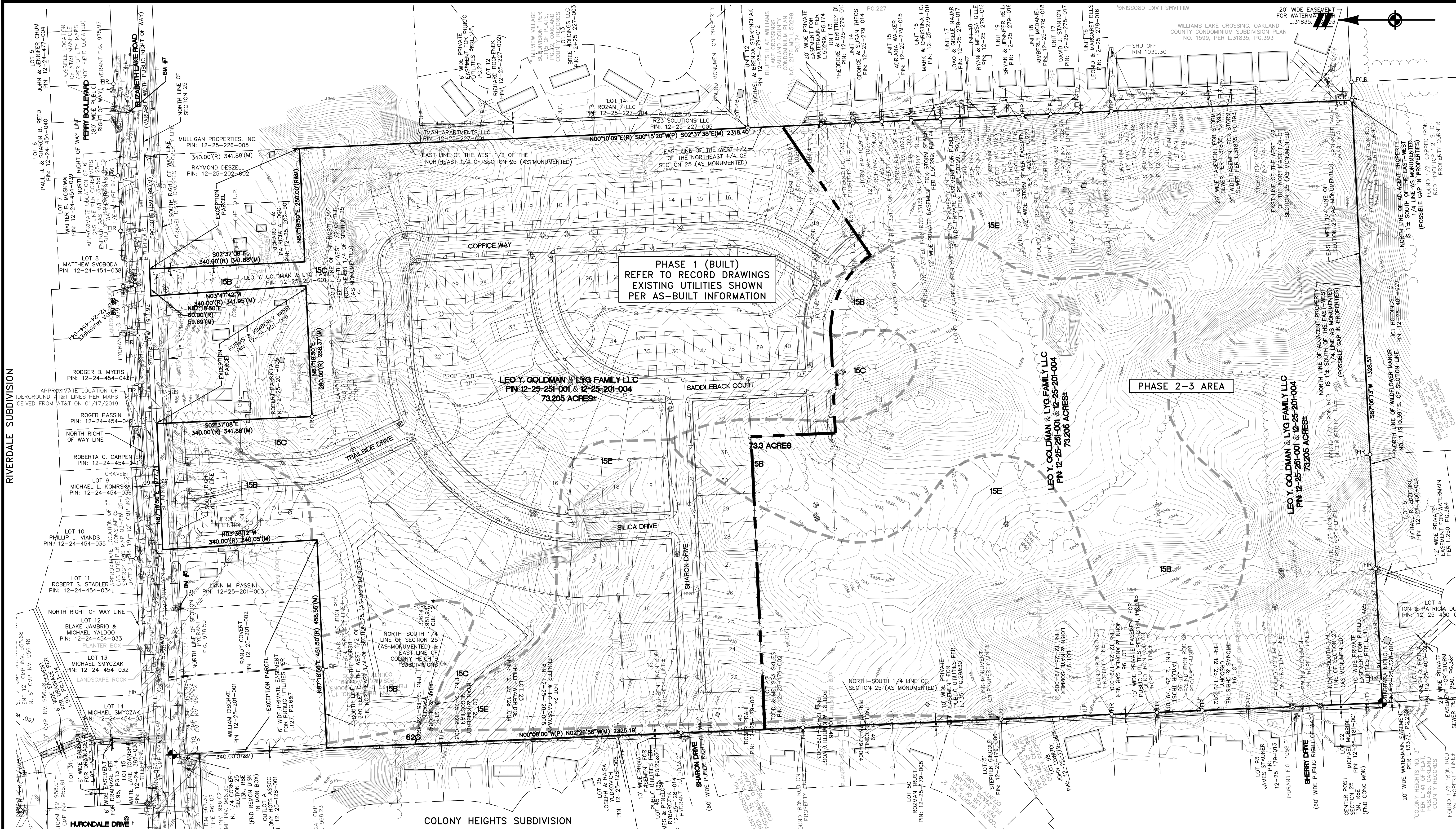
SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/1 HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
EXISTING CONDITIONS -
OVERALL

DATE: OCTOBER 29, 2020
02/17/2021: REV PER TOWNSHIP
05/27/2021: REV PER OWNERS
07/09/2021: AMENDMENT TO PSP

REVISIONS	
NO.	DESCRIPTION

SCALE: 0 50 100
1" = 100 FEET
DR. SK/KS GH. CK
BOOK ---
JOB 18003309
SHEET NO. 02



RIVERDALE SUBDIVISION

COLONY HEIGHTS SUBDIVISION

BENCHMARKS

BM #1: ARROW ON FIRE HYDRANT AT SOUTHEAST INTERSECTION OF BLACKBERRY DRIVE AND ELIZABETH LAKE ROAD
ELEVATION: 971.51 (NAVD88)

BM #2: SET MAG NAIL IN SOUTH FACE OF UTILITY POLE IN NORTH RIGHT OF WAY OF ELIZABETH LAKE ROAD AT ADDRESS #8750
ELEVATION: 990.08 (NAVD88)

BM #3: SET MAG NAIL IN SOUTH FACE OF UTILITY POLE IN NORTH RIGHT OF WAY OF ELIZABETH LAKE ROAD AT ADDRESS #8650
ELEVATION: 999.62 (NAVD88)

BM #4: ARROW ON FIRE HYDRANT AT SOUTHEAST INTERSECTION OF COLONY HEIGHTS BOULEVARD AND ELIZABETH LAKE ROAD
ELEVATION: 997.14 (NAVD88)

BM #5: ARROW ON FIRE HYDRANT IN SOUTH RIGHT OF WAY OF ELIZABETH LAKE ROAD AT ADDRESS #8381
ELEVATION: 980.84 (NAVD88)

BM #6: ARROW ON FIRE HYDRANT IN NORTH RIGHT OF WAY OF ELIZABETH LAKE ROAD AT ADDRESS #8294
ELEVATION: 981.57 (NAVD88)

BM #7: SET MAG NAIL IN SOUTH FACE OF UTILITY POLE AT NORTHWEST INTERSECTION OF PERRY BOULEVARD AND ELIZABETH LAKE ROAD
ELEVATION: 978.68 (NAVD88)

SOILS LEGEND

Map Symbol	Map Unit Name	Hydrologic Soil Group
15B	Spinks loamy sand, 0 to 6 percent slopes	A
15C	Spinks loamy sand, 6 to 12 percent slopes	A
15E	Spinks loamy sand, 12 to 35 percent slopes	A
62C	Urban land-Spinks complex, 8 to 15 percent slopes	A

SITE INFORMATION

SITE LOCATION: NORTHEAST 1/4 OF SECTION 25, WHITE LAKE TOWNSHIP, MICHIGAN.

- ULTIMATE RECEIVING WATER: ALLEN LAKE (1,150 FEET FROM SITE)
- SITE SOILS INFORMATION: PER THE NRCS WEB SURVEY FOR OAKLAND COUNTY; 15B, 15C, 15E, 62C
- APPROXIMATE AREA OF DISTURBANCE: 62.3± ACRES

SURVEY NOTES

- BEARINGS ARE BASED ON MICHIGAN STATE PLANE COORDINATES (NAD83), SOUTH ZONE, GROUND DISTANCES, INTERNATIONAL FEET. VERTICAL DATUM IS BASED ON NAVD88.
- THE SITE SHOWN HEREON IS LOCATED WITHIN ZONE X (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCED FLOODPLAIN) ACCORDING TO MAP NUMBER 26125C0339F OF THE FLOOD INSURANCE RATE MAP, EFFECTIVE DATE SEPTEMBER 26, 2006.
- WATER MAIN, STORM SEWER, SANITARY SEWER AND FRANCHISE UTILITY STRUCTURES HAVE BEEN FIELD LOCATED WHERE VISIBLE. UTILITY AND AS-BUILT MAPS HAVE BEEN REQUESTED AND SOME MAPS HAVE BEEN RECEIVED AT DATE OF THIS SURVEY. FRANCHISE UTILITY MAPS HAVE BEEN REQUESTED FROM THE APPROPRIATE FRANCHISE COMPANIES, BUT NOT ALL MAPS HAVE BEEN RECEIVED AT DATE OF SURVEY.

NOTE: THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED.

- SOIL BOUNDARIES AND SOIL TYPES SHOWN PER SOIL SURVEY, NATURAL RESOURCES CONSERVATION SERVICES, UNITED STATES DEPARTMENT OF AGRICULTURE WAYNE COUNTY WEB SITE SURVEY. AVAILABLE ONLINE AT: HTTP://WEBSOILSURVEY.NRCS.USDA.GOV/. ACCESSED 01/10/2019.
- THERE ARE NO RECORDED WETLANDS ON SITE.
- LIMITS OF WOODS/TREES IS SHOWN BASED ON FIELD SURVEY AND AERIAL PHOTOGRAPHY MAPS. THERE IS APPROXIMATELY 65.7 AC. OF TREES AND APPROXIMATELY 53.5 AC. OF TREE REMOVAL ONSITE.

LEGEND

—	BOUNDARY LINE	—	EXISTING SIGN
- - -	EXISTING EASEMENT	—	EXISTING TELEPHONE RISER
—	SECTION LINE	—	EXISTING MAILBOX
- - -	BOUNDARY/PROPERTY LINE	—	EXISTING UTILITY POLE
—	SECTION CORNER	—	EXISTING LIGHT POLE
—	EXISTING TREE LINE	—	EXISTING WELL
—	EXISTING FENCE	—	EXISTING WATER VALVE
—	EXISTING 1' CONTOUR	—	EXISTING HYDRANT
—	EXISTING 5' CONTOUR	—	EXISTING SANITARY MANHOLE
—	EXISTING SOIL TYPE LINE	—	EXISTING CATCH BASIN/INLET
—	EXISTING ASPHALT	—	EXISTING END SECTION
—	EXISTING GRAVEL	—	EXISTING GUY LINE
—	EXISTING STORM	—	EXISTING BUILDING
—	EXISTING WATER MAIN	—	EXISTING SOIL TYPE
—	EXISTING SANITARY	—	
—	EXISTING GAS	—	
—	EXISTING OVERHEAD ELECTRICAL LINE	—	
—	EXISTING UNDERGROUND TELEPHONE LINE	—	

811
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NOTICE:
 CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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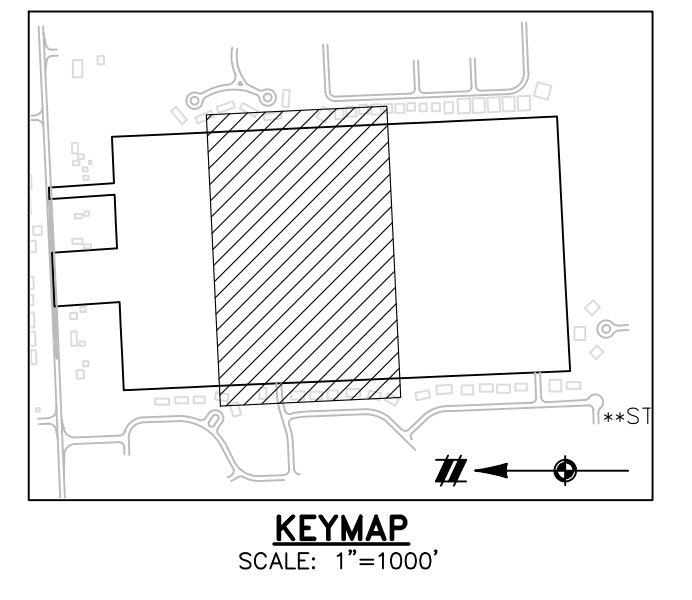
SECTION 25
 TOWN 3 NORTH, RANGE 8 EAST
 WHITE LAKE TOWNSHIP
 OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
 TRAILSIDE MEADOW
 FINAL SITE ENGINEERING PLAN
 PHASES 2-3
 EXISTING CONDITIONS - NORTH

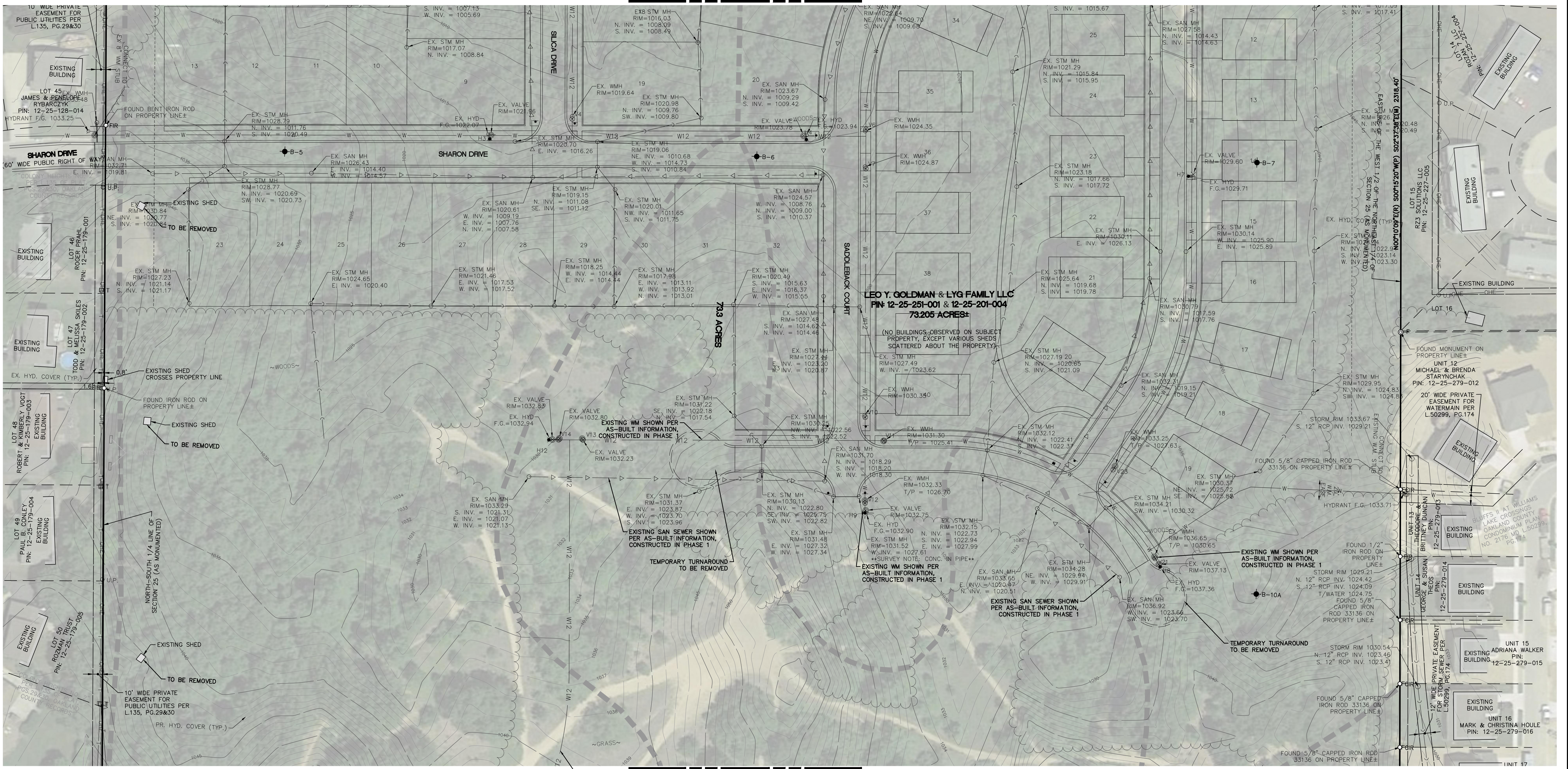
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REVISIONS
 SCALE 0 25 50
 1" = 50 FEET
 DR. SK/KS | GH. CK
 P.M. M BUSH
 BOOK --
 JOB 18003309
 SHEET NO. 03

LEGEND	
	BOUNDARY LINE
	EXISTING EASEMENT
	SECTION LINE
	BOUNDARY/PROPERTY LINE
	EXISTING TREE LINE
	EXISTING FENCE
	EXISTING 1' CONTOUR
	EXISTING 5' CONTOUR
	EXISTING SOIL TYPE LINE
	EXISTING ASPHALT
	EXISTING GRAVEL
	EXISTING STORM
	EXISTING WATER MAIN
	EXISTING SANITARY
	EXISTING GAS
	EXISTING OVERHEAD ELECTRICAL LINE
	EXISTING UNDERGROUND TELEPHONE LINE
	SECTION CORNER
	EXISTING SIGN
	EXISTING TELEPHONE RISER
	EXISTING MAILBOX
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING WELL
	EXISTING WATER VALVE
	EXISTING HYDRANT
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING END SECTION
	EXISTING GUY LINE
	EXISTING BUILDING
	SOIL BORING LOCATION
	EXISTING SOIL TYPE



SEE PHASE 1 PLANS



SEE SHEET 04 FOR CONTINUATION

EXISTING WM SHOWN PER AS-BUILT INFORMATION, CONSTRUCTED IN PHASE 1

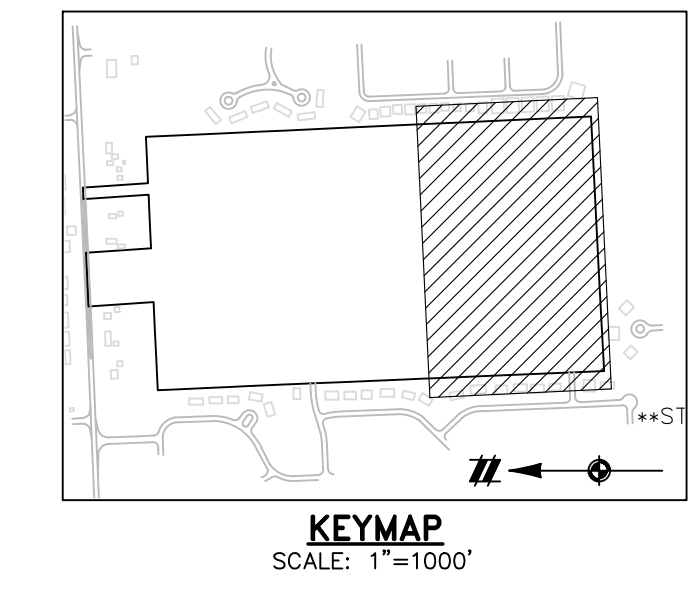
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NOTES

- EXISTING GROUND ELEVATIONS AND CONTOURS SHOWN AS APPROXIMATE PER GIS RECORDS AND 1" CONTOUR INFORMATION.
- THE BOUNDARY SURVEY INFORMATION SHOWN AS APPROXIMATE PER TAX RECORDS AND BEST FIT GIS RECORDS.
- SOIL BOUNDARIES AND SOIL TYPES SHOWN PER SOIL SURVEY, NATURAL RESOURCES CONSERVATION SERVICES, UNITED STATES DEPARTMENT OF AGRICULTURE WAYNE COUNTY WEB SOIL SURVEY, AVAILABLE ONLINE AT HTTP://WEBSOILSURVEY.NRCS.USDA.GOV/, ACCESSED 01/10/2019.
- EXISTING UTILITIES SHOWN AS APPROXIMATE PER AERIAL INFORMATION AND WHITE LAKE TOWNSHIP GIS SEWER MAP.
- THERE ARE NO RECORDED WETLANDS ON SITE.
- THERE ARE NO AREAS ON SITE THAT ARE WITHIN THE 100-YEAR FLOODPLAIN.
- FOREST DELINEATION IS SHOWN AS APPROXIMATE PER GIS RECORDS AND AERIAL INFORMATION. THERE IS APPROXIMATELY 65.7 AC. OF TREES AND APPROXIMATELY 62.0 AC. OF TREE REMOVAL ONSITE.

LEGEND

	BOUNDARY LINE		SECTION CORNER
	EXISTING EASEMENT		EXISTING SIGN
	SECTION LINE		EXISTING TELEPHONE RISER
	BOUNDARY/PROPERTY LINE		EXISTING MAILBOX
	EXISTING TREE LINE		EXISTING UTILITY POLE
	EXISTING FENCE		EXISTING LIGHT POLE
	EXISTING 1' CONTOUR		EXISTING WELL
	EXISTING 5' CONTOUR		EXISTING WATER VALVE
	EXISTING SOIL TYPE LINE		EXISTING HYDRANT
	EXISTING ASPHALT		EXISTING SANITARY MANHOLE
	EXISTING GRAVEL		EXISTING CATCH BASIN/INLET
	EXISTING STORM		EXISTING END SECTION
	EXISTING WATER MAIN		EXISTING GUY LINE
	EXISTING SANITARY		EXISTING BUILDING
	EXISTING GAS		SOIL BORING LOCATION
	EXISTING OVERHEAD ELECTRICAL LINE		EXISTING SOIL TYPE
	EXISTING UNDERGROUND TELEPHONE LINE		



SEE SHEET 03 FOR CONTINUATION



LEO Y. GOLDMAN & LYG FAMILY LLC
 PIN: 12-25-251-001 & 12-25-201-004
 73.205 ACRES

Know what's below.
Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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SECTION 25	TOWN 3 NORTH, RANGE 8 EAST	OAKLAND COUNTY, MICHIGAN
M/I HOMES OF MICHIGAN, LLC	TRAILSIDE MEADOW FINAL SITE ENGINEERING PLAN PHASES 2-3	EXISTING CONDITIONS - SOUTH
DATE: OCTOBER 29, 2020		
02/17/2021: REV PER TOWNSHIP		
05/27/2021: REV PER OCMRC		
07/09/2021: AMENDMENT TO PSP		
REVISIONS		
SCALE: 0 25 50		
1" = 50 FEET		
DR. SK/KS GH. CK		
P.M. M BUSH		
JOB 18003309		
SHEET NO. 04		

FILE: 18003309S2-02A-EC.DWG

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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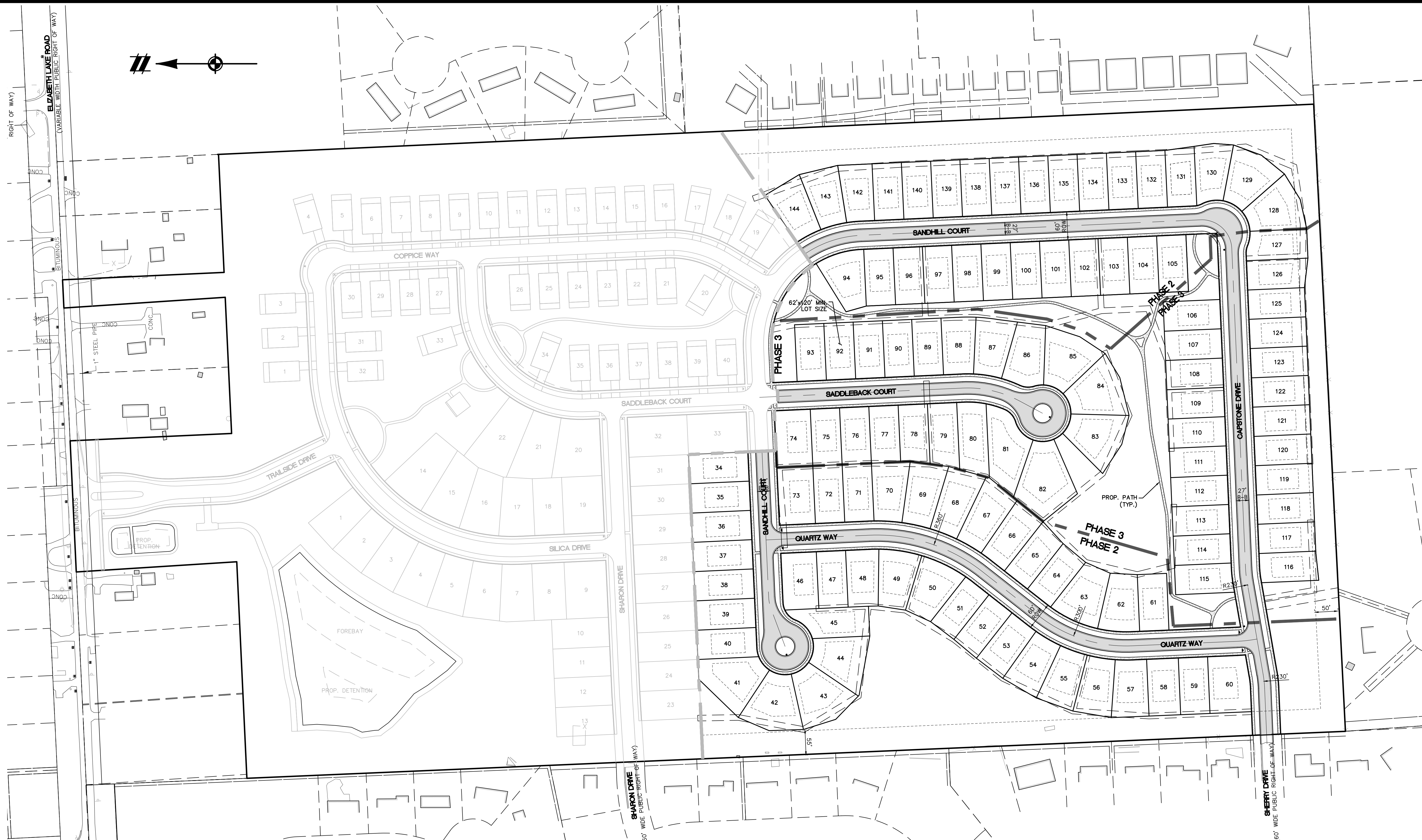
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SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
LAYOUT PLAN - OVERALL

DATE: OCTOBER 29, 2020
02/17/2021: REV PER TOWNSHIP
05/27/2021: REV PER OCMRC
07/09/2021: AMENDMENT TO FSP

REVISIONS
SCALE 0 50 100
1" = 100 FEET
DR. SK/KS GH. CK
P.M. M BUSH
BOOK --
JOB 18003309
SHEET NO. 05



PHASE SUMMARY

PHASE	SINGLE FAMILY	ACTIVE ADULT	COUNT
1	33	40	73
2	69	0	69
3	42	0	42
TOTAL	144	40	184

PHASE UNIT NO. SUMMARY

ACTIVE ADULT	SINGLE FAMILY
PHASE 1: 01-40	PHASE 1: 01-33
	PHASE 2: 34-73, 94-105, 128-144
	PHASE 3: 74-93, 106-127

SINGLE FAMILY LOT AREA TABLE

LOT #	AREA (SF)	LOT #	AREA (SF)	LOT #	AREA (SF)	LOT #	AREA (SF)	LOT #	AREA (SF)	LOT #	AREA (SF)	LOT #	AREA (SF)
1	7779.46	11	7440.00	21	7440.00	31	7440.00	41	7440.00	51	7440.00	61	7440.00
2	7779.46	12	7440.00	22	7440.00	32	7440.00	42	7440.00	52	7440.00	62	7440.00
3	7779.46	13	7440.00	23	7440.00	33	7440.00	43	7440.00	53	7440.00	63	7440.00
4	7779.46	14	7440.00	24	7440.00	34	7440.00	44	7440.00	54	7440.00	64	7440.00
5	7779.46	15	7440.00	25	7440.00	35	7440.00	45	7440.00	55	7440.00	65	7440.00
6	7779.46	16	7440.00	26	7440.00	36	7440.00	46	7440.00	56	7440.00	66	7440.00
7	7779.46	17	7440.00	27	7440.00	37	7440.00	47	7440.00	57	7440.00	67	7440.00
8	7779.46	18	7440.00	28	7440.00	38	7440.00	48	7440.00	58	7440.00	68	7440.00
9	7779.46	19	7440.00	29	7440.00	39	7440.00	49	7440.00	59	7440.00	69	7440.00
10	7779.46	20	7440.00	30	7440.00	40	7440.00	50	7440.00	60	7440.00	70	7440.00
11	7779.46	21	7440.00	31	7440.00	41	7440.00	51	7440.00	61	7440.00	71	7440.00
12	7779.46	22	7440.00	32	7440.00	42	7440.00	52	7440.00	62	7440.00	72	7440.00
13	7779.46	23	7440.00	33	7440.00	43	7440.00	53	7440.00	63	7440.00	73	7440.00
14	7779.46	24	7440.00	34	7440.00	44	7440.00	54	7440.00	64	7440.00	74	7440.00
15	7779.46	25	7440.00	35	7440.00	45	7440.00	55	7440.00	65	7440.00	75	7440.00
16	7779.46	26	7440.00	36	7440.00	46	7440.00	56	7440.00	66	7440.00	76	7440.00
17	7779.46	27	7440.00	37	7440.00	47	7440.00	57	7440.00	67	7440.00	77	7440.00
18	7779.46	28	7440.00	38	7440.00	48	7440.00	58	7440.00	68	7440.00	78	7440.00
19	7779.46	29	7440.00	39	7440.00	49	7440.00	59	7440.00	69	7440.00	79	7440.00
20	7779.46	30	7440.00	40	7440.00	50	7440.00	60	7440.00	70	7440.00	80	7440.00
21	7779.46	31	7440.00	41	7440.00	51	7440.00	61	7440.00	71	7440.00	81	7440.00
22	7779.46	32	7440.00	42	7440.00	52	7440.00	62	7440.00	72	7440.00	82	7440.00
23	7779.46	33	7440.00	43	7440.00	53	7440.00	63	7440.00	73	7440.00	83	7440.00
24	7779.46	34	7440.00	44	7440.00	54	7440.00	64	7440.00	74	7440.00	84	7440.00
25	7779.46	35	7440.00	45	7440.00	55	7440.00	65	7440.00	75	7440.00	85	7440.00
26	7779.46	36	7440.00	46	7440.00	56	7440.00	66	7440.00	76	7440.00	86	7440.00
27	7779.46	37	7440.00	47	7440.00	57	7440.00	67	7440.00	77	7440.00	87	7440.00
28	7779.46	38	7440.00	48	7440.00	58	7440.00	68	7440.00	78	7440.00	88	7440.00
29	7779.46	39	7440.00	49	7440.00	59	7440.00	69	7440.00	79	7440.00	89	7440.00
30	7779.46	40	7440.00	50	7440.00	60	7440.00	70	7440.00	80	7440.00	90	7440.00
31	7779.46	41	7440.00	51	7440.00	61	7440.00	71	7440.00	81	7440.00	91	7440.00
32	7779.46	42	7440.00	52	7440.00	62	7440.00	72	7440.00	82	7440.00	92	7440.00
33	7779.46	43	7440.00	53	7440.00	63	7440.00	73	7440.00	83	7440.00	93	7440.00
34	7779.46	44	7440.00	54	7440.00	64	7440.00	74	7440.00	84	7440.00	94	7440.00
35	7779.46	45	7440.00	55	7440.00	65	7440.00	75	7440.00	85	7440.00	95	7440.00
36	7779.46	46	7440.00	56	7440.00	66	7440.00	76	7440.00	86	7440.00	96	7440.00
37	7779.46	47	7440.00	57	7440.00	67	7440.00	77	7440.00	87	7440.00	97	7440.00
38	7779.46	48	7440.00	58	7440.00	68	7440.00	78	7440.00	88	7440.00	98	7440.00
39	7779.46	49	7440.00	59	7440.00	69	7440.00	79	7440.00	89	7440.00	99	7440.00
40	7779.46	50	7440.00	60	7440.00	70	7440.00	80	7440.00	90	7440.00	100	7440.00
41	7779.46	51	7440.00	61	7440.00	71	7440.00	81	7440.00	91	7440.00	101	7440.00
42	7779.46	52	7440.00	62	7440.00	72	7440.00	82	7440.00	92	7440.00	102	7440.00
43	7779.46	53	7440.00	63	7440.00	73	7440.00	83	7440.00	93	7440.00	103	7440.00
44	7779.46	54	7440.00	64	7440.00	74	7440.00	84	7440.00	94	7440.00	104	7440.00
45	7779.46	55	7440.00	65	7440.00	75	7440.00	85	7440.00	95	7440.00	105	7440.00
46	7779.46	56	7440.00	66	7440.00	76	7440.00	86	7440.00	96	7440.00	106	7440.00
47	7779.46	57	7440.00	67	7440.00	77	7440.00	87	7440.00	97	7440.00	107	7440.00
48	7779.46	58	7440.00	68	7440.00	78	7440.00	88	7440.00	98	7440.00	108	7440.00
49	7779.46	59	7440.00	69	7440.00	79	7440.00	89	7440.00	99	7440.00	109	7440.00
50	7779.46	60	7440.00	70	7440.00	80	7440.00	90	7440.00	100	7440.00	110	7440.00
51	7779.46	61	7440.00	71	7440.00	81	7440.00	91	7440.00	101	7440.00	111	7440.00
52	7779.46	62	7440.00	72	7440.00	82	7440.00	92	7440.00	102	7440.00	112	7440.00
53	7779.46	63	7440.00	73	7440.00	83	7440.00	93	7440.00	103	7440.00	113	7440.00
54	7779.46	64	7440.00	74	7440.00	84	7440.00	94	7440.00	104	7440.00	114	7440.00
55	7779.46	65	7440.00	75	7440.00	85	7440.00	95	7440.00	105	7440.00	115	7440.00
56	7779.46	66	7440.00	76	7440.00	86	7440.00	96	7440.00	106	7440.00	116	7440.00
57	7779.46	67	7440.00	77	7440.00	87	7440.00	97	7440.00	107	7440.00	117	7440.00
58	7779.46	68	7440.00	78	7440.00	88	7440.00	98	7440.00	108	7440.00	118	7440.00
59	7779.46	69	7440.00	79	7440.00	89	7440.00	99	7440.00	109	7440.00	119	7440.00
60	7779.46	70	7440.00	80	7440.00	90	7440.00	100	7440.00	110	7440.00	120	7440.00
61	7779.46	71	7440.00	81	7440.00	91	7440.00	101	7440.00	111	7440.00	121	7440.00
62	7779.46	72	7440.00	82	7440.00	92	7440.00	102	7440.00	112	7440.00	122	7440.00
63	7779.46	73	7440.00	83	7440.00	93	7440.00	103	7440.00	113	7440.00	123	7440.00
64	7779.46	74	7440.00	84	7440.00	94	7440.00	104	7440.00	114	7440.00	124	7440.00
65	7779.46	75	7440.00	85	7440.00	95	7440.00	105	7440.00	115	7440.00	125	7440.00
66	7779.46	76	7440.00	86	7440.00	96	7440.00	106	7440.00	116	7440.00	126	7440.00
67	7779.46	77	7440.00	87	7440.00	97	7440.00	107	7440.00	117	7440.00	127	7440.00
68	7779.46	78	7440.00	88	7440.00	98	7440.00	108	7440.00	118	7440.00	128	7440.00
69	7779.46	79	7440.00	89	7440.00	99	7440.00	109	7440.00	119	7440.00	129	7440.00
70	7779.46	80	7440.00	90	7440.00	100	7440.00	110	7440.00	120	7440.00	130	7440.00
71	7779.46	81	7440.00	91	7440.00	101	7440.00	111	7440.00	121	7440.00	131	7440.00
72	7779.46	82	7440.00	92	7440.00	102	7440.00	112	7440.00	122	7440.00	132	7440.00
73	7779.46	83	7440.00	93	7440.00	103	7440.00	113	7440.00	123	7440.00	133	7440.00
74	7779.46	84	7440.00	94	7440.00	104	7440.00	114	7440.00	124	7440.00	134	7440.00
75	7779.46	85	7440.00	95	7440.00	105	7440.00	115	7440.00	125	7440.00	135	7440.00
76	7779.46	86	7440.00	96	7440.00	106	7440.00	116	7440.00	126	7440.00	136	7440.00
77	7779.46	87	7440.00	97	7440.00	107	7440.00	117	7440.00	127	7440.00	137	7440.00
78	7779.46	88	7440.00	98	7440.00	108	7440.00	118	7440.00	128	7440.00	138	7440.00
79	7779.46												

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ON THIS PLAN AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
UTILITY PLAN - OVERALL

DATE: OCTOBER 29, 2020
02/17/2021: REV PER TOWNSHIP
05/27/2021: REV PER OCMRC
07/09/2021: AMENDMENT TO PSP

REVISIONS	
NO.	DESCRIPTION
1	SCALE 0 50 100 1" = 100 FEET
2	P.M. M BUSH
3	DR. SK/KS GH. CK
4	BOOK ---
5	JOB 18003309
6	SHEET NO. 06



SANITARY SEWER BASIS OF DESIGN

Phases - 2&3	
Number of Units =	111 R.E.U.*
Number of Users per Unit =	2.7 Persons
Total Expected Population Served =	300 Persons
Average Daily Flow (per capita) =	100 G.P.D.
Peaking Factor: $\frac{18+\sqrt{(POP/1000)}}{4+\sqrt{(POP/1000)}}$	4.08
Average Flow: POP * 100 =	30,000 G.P.D.
	0.0300 M.G.D.
	20.8 G.P.M.
	0.046 C.F.S.
Peak Flow: 30,000 * 4.08 =	122,354 G.P.D.
	0.1224 M.G.D.
	85.0 G.P.M.
	0.189 C.F.S.

Pipe Capacity Check

Pipe Material = PVC Truss	
Diameter =	8 inches
Slope =	0.40 %
Manning's 'n' =	0.013
A =	0.349 sf
R =	0.167 ft
Manning's Capacity =	0.786 C.F.S. > Peak... OK
Velocity Flowing Full =	2.20 F.P.S.

GENERAL NOTES

1. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE CURRENT STANDARDS, SPECIFICATIONS AND GENERAL CONDITIONS OF WHITE LAKE TOWNSHIP.
2. ALL WORK WITHIN THE ROAD COMMISSION FOR OAKLAND COUNTY (ROC) RIGHT-OF-WAY (ROW) SHALL BE IN ACCORDANCE WITH THE CURRENT ROC STANDARDS AND GENERAL SPECIFICATIONS.
3. HORIZONTAL SEPARATION OF 10 FEET AND VERTICAL SEPARATION OF 1.5 FEET SHALL BE MAINTAINED BETWEEN ALL WATER MAINS AND SANITARY/STORM SEWERS.
4. CALL MISS DIG 72 HOURS IN ADVANCE OF ANY CONSTRUCTION.
5. ALL STORM SEWER SHALL BE CENTERED IN A 12' EASEMENT.
6. THE DEVELOPER SHALL CONTACT THE TOWNSHIP PLANNING DEPARTMENT AT (248) 698-3300 TO SCHEDULE A PRECONSTRUCTION MEETING. ATTENDANCE AT THE PRECONSTRUCTION MEETING SHALL INCLUDE THE DEVELOPER'S PRIME CONTRACTOR. A COPY OF ALL PERMITS MUST BE SUBMITTED TO THE PLANNING DEPARTMENT PRIOR TO SCHEDULING THE MEETING.
7. THE DEVELOPER SHALL CONTACT THE TOWNSHIP ENGINEER AT (248)334-9901 48 HOURS PRIOR TO STARTING CONSTRUCTION. THE CONTRACTOR SHALL KEEP THE INSPECTOR APPRISED OF THE NEED FOR INSPECTION ON A DAILY BASIS. LACKING SPECIFIC SCHEDULING WITH THE INSPECTOR, THE CONTRACTOR SHALL GIVE 48 HOURS NOTICE TO THE TOWNSHIP ENGINEER PRIOR TO RECOMMENDING 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.
8. ALL WATER MAIN AND SANITARY SEWER WORK WILL REQUIRE FULL TIME INSPECTION. FULL TIME INSPECTION WILL GENERALLY BE REQUIRED FOR UNDERGROUND STORM SEWER CONSTRUCTION, CONCRETE CURBING AND PAVING OPERATIONS. SITE GRADING AND DETENTION BASIN CONSTRUCTION WILL GENERALLY BE INSPECTED ON AN INTERMITTENT BASIS.

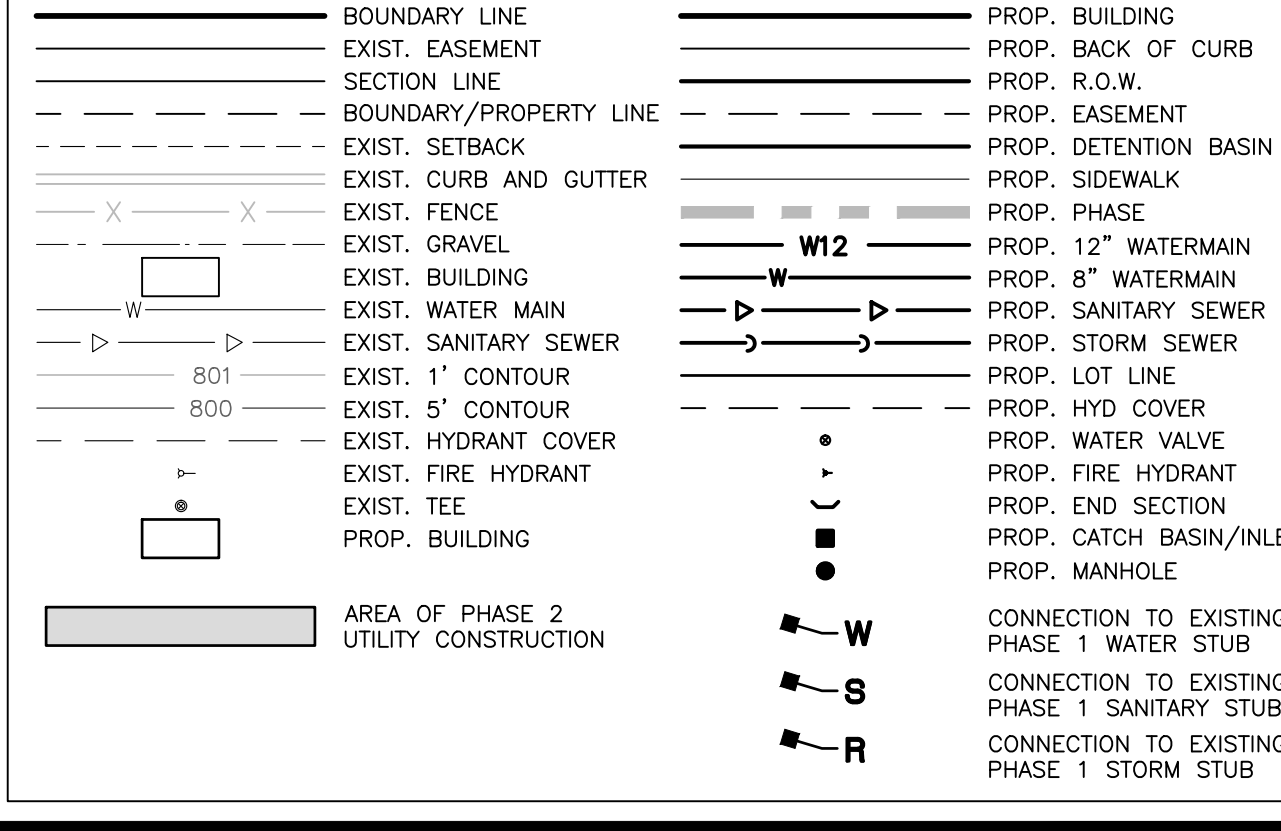
WATER SYSTEM NOTES

1. MINIMUM WATER PRESSURE AT A DEAD END SHALL BE 20 PSI (RESIDUAL), AND 1000 GPM FLOW.
2. WATER MAIN TO BE PLACED 7.5' INSIDE THE ROW LINE, GENERALLY ON THE N AND E SIDE.
3. ALL WATER MAIN SHALL BE CENTERED ON A 20-FOOT EASEMENT WHERE LOCATED OUTSIDE THE 60-FOOT PRIVATE ROAD EASEMENT.
4. PROVIDE 6 FEET OF COVER EXCEPT AT GATE WELLS (5-FEET).
5. STREET TREES TO BE LOCATED A MINIMUM 3 FEET FROM WATER MAIN.
6. WATER MAIN SHALL BE DUCTILE IRON, CLASS 54 W/ PUSH-ON JOINTS (INC. BENDS AND TEES).
7. MINIMUM DOMESTIC SERVICE SHALL BE 1-INCH.
8. HYDRANT LEADS MAY BE 6-INCH DIAMETER EXCEPT WHERE OVER 40 FEET IN LENGTH.
9. VALVES AND GATE WELLS SHALL BE LOCATED SO THAT NO MORE THAN FOUR (4) VALVES MUST BE CLOSED TO ISOLATE A SECTION OF WATER MAIN.
10. VALVES SHALL BE LOCATED 50' THAT NO MORE THAN 800 FEET OF WATERMAIN WILL BE OUT OF SERVICE.
11. HYDRANT SPACING SHALL BE 500 FEET MAXIMUM IN SINGLE FAMILY RESIDENTIAL AREAS, AND SHOULD BE LOCATED AT INTERSECTIONS WHERE PRACTICAL.
12. ALL MAINLINE GATE VALVES ARE TO BE WITHIN GATE WELLS, MATCHING THE WATERMAIN SIZE.
13. HYDRANTS AND AUXILIARY VALVES SHALL BE LOCATED TO BE READILY AVAILABLE BY FIRE FIGHTING EQUIPMENT.
14. HYDRANTS TO BE LOCATED 6 FEET FROM BACK OF CURB.
15. WATERMAIN AROUND CUL-DE-SACS SHALL EXTEND AROUND THE BULB TO SERVE ALL FRONTING LOTS, WITH A TERMINUS HYDRANT LOCATED IN THE CUL-DE-SAC ISLAND IN A POSITION MOST PROMINENT TO ONCOMING TRAFFIC.
16. REFER TO WHITE LAKE TOWNSHIP "STANDARD WATER MAIN DETAILS" FOR ADDITIONAL REQUIREMENTS FOR CONSTRUCTION.
17. 12-INCH WATERMAIN CONNECTION BETWEEN ELIZABETH LAKE ROAD AND SOUTH CONNECTION WAS BUILT AS PART OF PHASE 1 PER TOWNSHIP.

SANITARY SYSTEM NOTES

1. GENERALLY, NO SEWER SHALL BE LESS THAN 8 FEET DEEP FROM CROWN OF ROAD TO SEWER INVERT. IN NO CASE SHALL SEWER HAVE LESS THAN 4 FEET OF COVER.
2. SANITARY SEWER TO BE PLACED 7.5' INSIDE THE ROW LINE, GENERALLY ON THE S AND W SIDE.
3. ALL SANITARY SEWER SHALL BE CENTERED ON A 20-FOOT EASEMENT WHERE LOCATED OUTSIDE THE 60-FOOT PRIVATE ROAD EASEMENT.
4. STREET TREES TO BE LOCATED A MINIMUM 3 FEET FROM SEWER MAIN.
5. PIPE MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT STANDARDS OF WHITE LAKE TOWNSHIP AND OAKLAND COUNTY WATER RESOURCE COMMISSIONER (OCWRC).
6. CURRENT OCWRC "SANITARY SEWER CONSTRUCTION NOTES" APPLY TO FINAL CONSTRUCTION PLANS.
7. OCWRC "STANDARD BEDDING" DETAILS SHALL BE USED FOR THE PIPE UTILIZED.
8. PROPOSED SANITARY SEWER SHALL BE 8" MINIMUM DIAMETER.
9. SERVICE LEADS SHALL BE 6 INCH MINIMUM INSTALLED AT A MINIMUM 1% GRADE.
10. PROVIDE A 1 FOOT DEEP SUMP AT FURTHEST DOWNSTREAM MANHOLE FOR CONSTRUCTION AND TESTING PURPOSES.
11. FURTHEST UPSTREAM PIPE RUNS SHALL HAVE A MINIMUM 1% GRADE UNLESS APPROVED BY THE TOWNSHIP ENGINEER.
12. NO CONDUIT THAT CARRIES STORMWATER OR GROUND WATER IS PERMITTED TO DISCHARGE INTO THE SANITARY SEWER SYSTEM.
13. INTERIOR DROP CONNECTIONS PER OAKLAND COUNTY STANDARD DETAILS ARE REQUIRED WHERE A DROP OF 18 INCHES OR MORE OCCURS AT A MANHOLE.
14. MATCH THE 8/10 POINT AT MANHOLES WHERE DIFFERING PIPE SIZES ARE PROPOSED.
15. WHERE A CHANGE IN PIPE DIRECTION OF 135 DEGREES OR LESS IS CREATED AT A MANHOLE, PROVIDE A 0.1 FOOT DROP IN PIPE INVERTS FROM UPSTREAM TO DOWNSTREAM.
16. REFER TO THE "SANITARY SEWER STANDARD DETAILS" SHEET(S) FOR ADDITIONAL REQUIREMENTS FOR CONSTRUCTION.

LEGEND



* Trailside Meadow development (Ph 2-3)



Know what's below. Call before you dig.

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SECTION 25
 TOWN 3 NORTH, RANGE 8 EAST
 WHITE LAKE TOWNSHIP
 OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
 TRAILSIDE MEADOW
 FINAL SITE ENGINEERING PLAN
 PHASES 2-3
 LAYOUT & UTILITY PLAN - NORTH

DATE: OCTOBER 29, 2020
 02/17/2021: REV PER TOWNSHIP
 05/27/2021: REV PER OCMRC
 07/09/2021: AMENDMENT TO FSP

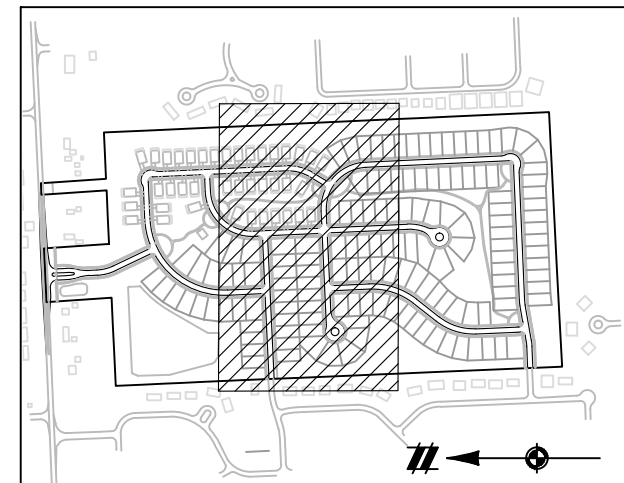
REVISIONS	
SCALE	0 25 50
1" = 50 FEET	
DR.	SK/KS GH. CK
P.M.	M BUSH
BOOK	--
JOB	18003309
SHEET NO.	07

GENERAL UTILITY NOTES

1. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE CURRENT STANDARDS, SPECIFICATIONS AND GENERAL CONDITIONS OF WHITE LAKE TOWNSHIP.
2. ALL WORK WITHIN THE ROAD COMMISSION FOR OAKLAND COUNTY (RCOC) RIGHT-OF-WAY (ROW) SHALL BE IN ACCORDANCE WITH THE CURRENT RCOC STANDARDS AND GENERAL SPECIFICATIONS.
3. HORIZONTAL SEPARATION OF 10 FEET AND VERTICAL SEPARATION OF 1.5 FEET SHALL BE MAINTAINED BETWEEN ALL WATER MAINS AND SANITARY/STORM SEWERS.
4. CALL MISS DIG 72 HOURS IN ADVANCE OF ANY CONSTRUCTION.
5. ALL STORM SEWER SHALL BE CENTERED ON A 12' EASEMENT.
6. ALL WATER MAIN SHALL BE CENTERED ON A 20-FOOT EASEMENT WHERE LOCATED OUTSIDE THE 60-FOOT PRIVATE ROAD EASEMENT.
7. ALL SANITARY SEWER SHALL BE CENTERED ON A 20-FOOT EASEMENT WHERE LOCATED OUTSIDE THE 60-FOOT PRIVATE ROAD EASEMENT.
8. SEE SHEETS 15 TO 19 FOR ADDITIONAL UTILITY NOTES, SIZES, AND INFORMATION.
9. SEE SHEET 06 FOR OVERALL UTILITY PHASING AND STUB LOCATIONS.
10. 12-INCH WATERMAIN CONNECTION BETWEEN ELIZABETH LAKE ROAD AND SOUTH CONNECTION WAS BUILT AS PART OF PHASE 1 PER TOWNSHIP.
11. ALL MAILBOX CLUSTERS MUST BE A MINIMUM 3' FROM WATER MAIN, SANITARY AND STORM SEWERS.

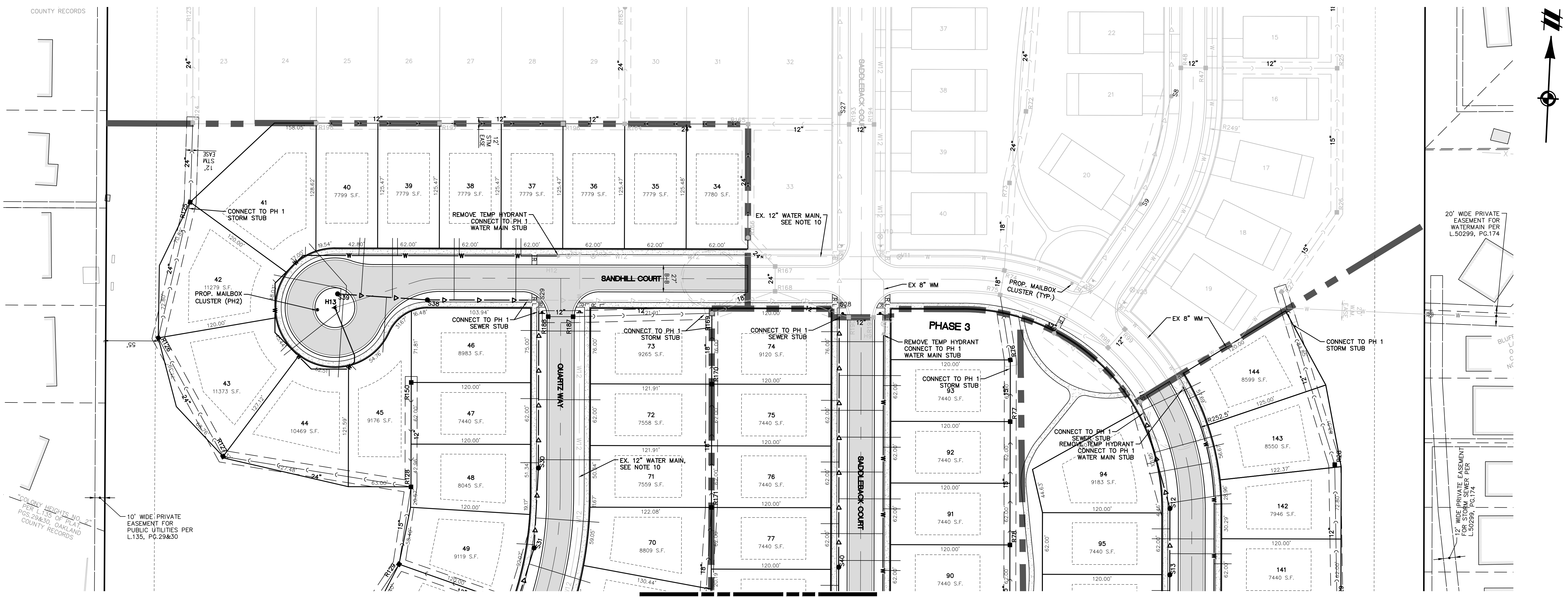
LEGEND

	BOUNDARY LINE		PROP. PHASE
	EXIST. EASEMENT		PROP. EASEMENT
	SECTION LINE		PROP. LOT LINE
	BOUNDARY/PROPERTY LINE		PROP. SETBACK
	EXIST. SETBACK		PROP. BUILDING
	EXIST. TREE LINE		PROP. BACK OF CURB
	EXIST. CURB AND GUTTER		PROP. R.O.W.
	EXIST. FENCE		PROP. CONCRETE
	EXIST. GRAVEL		PROP. ASPH.
	EXIST. ASPHALT		PROP. DETENTION
	EXIST. BUILDING		PROP. MAILBOX CLUSTER



SEE PHASE 1 PLANS

SEE SHEET 08 FOR CONTINUATION



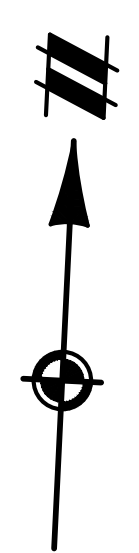
COUNTY RECORDS

*COLONY HEIGHTS NO. 21
 PER L.135 OF PLAT
 PGS.28&30, OAKLAND
 COUNTY RECORDS

10' WIDE PRIVATE
 EASEMENT FOR
 PUBLIC UTILITIES PER
 L.135, PG.29&30

20' WIDE PRIVATE
 EASEMENT FOR
 WATERMAIN PER
 L.50299, PG.174

12' WIDE PRIVATE EASEMENT
 FOR STORM SEWER PER
 L.50299, PG.174





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SECTION 25 TOWN 3 NORTH, RANGE 8 EAST WHITE LAKE TOWNSHIP OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC TRAILSIDE MEADOW FINAL SITE ENGINEERING PLAN PHASES 2-3 LAYOUT & UTILITY PLAN - SOUTH

DATE: OCTOBER 29, 2020 02/17/2021: REV PER TOWNSHIP 05/27/2021: REV PER OCMRC 07/09/2021: AMENDMENT TO FSP

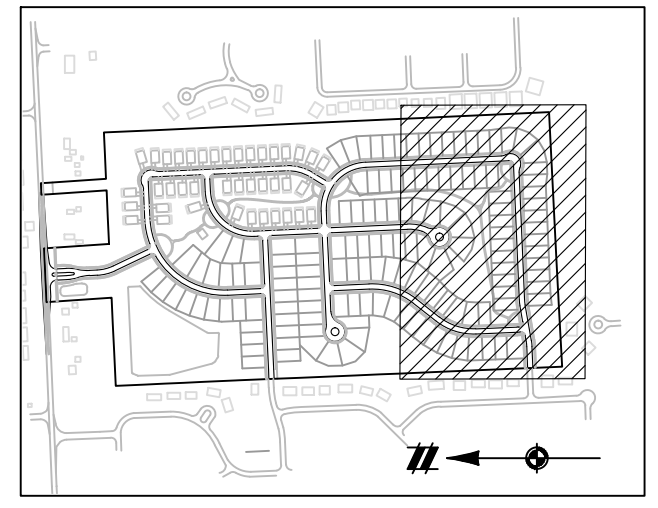
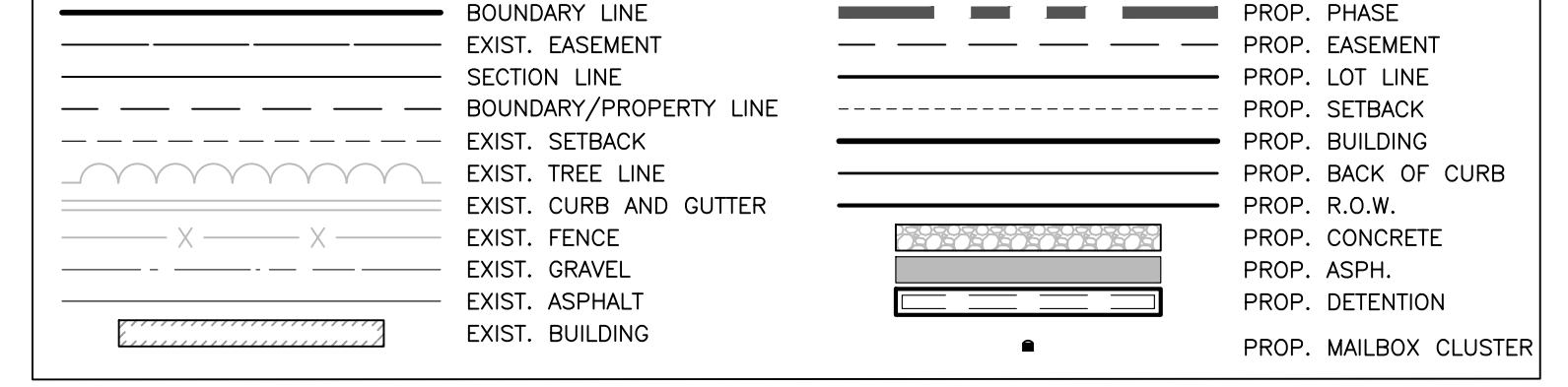
Table with 2 columns: DATE, REVISIONS. Includes dates and revision descriptions.

SCALE: 0 25 50 1" = 50 FEET DR. SK/KS G.H. CK BOOK P.M. M BUSH JOB 18003309 SHEET NO. 08

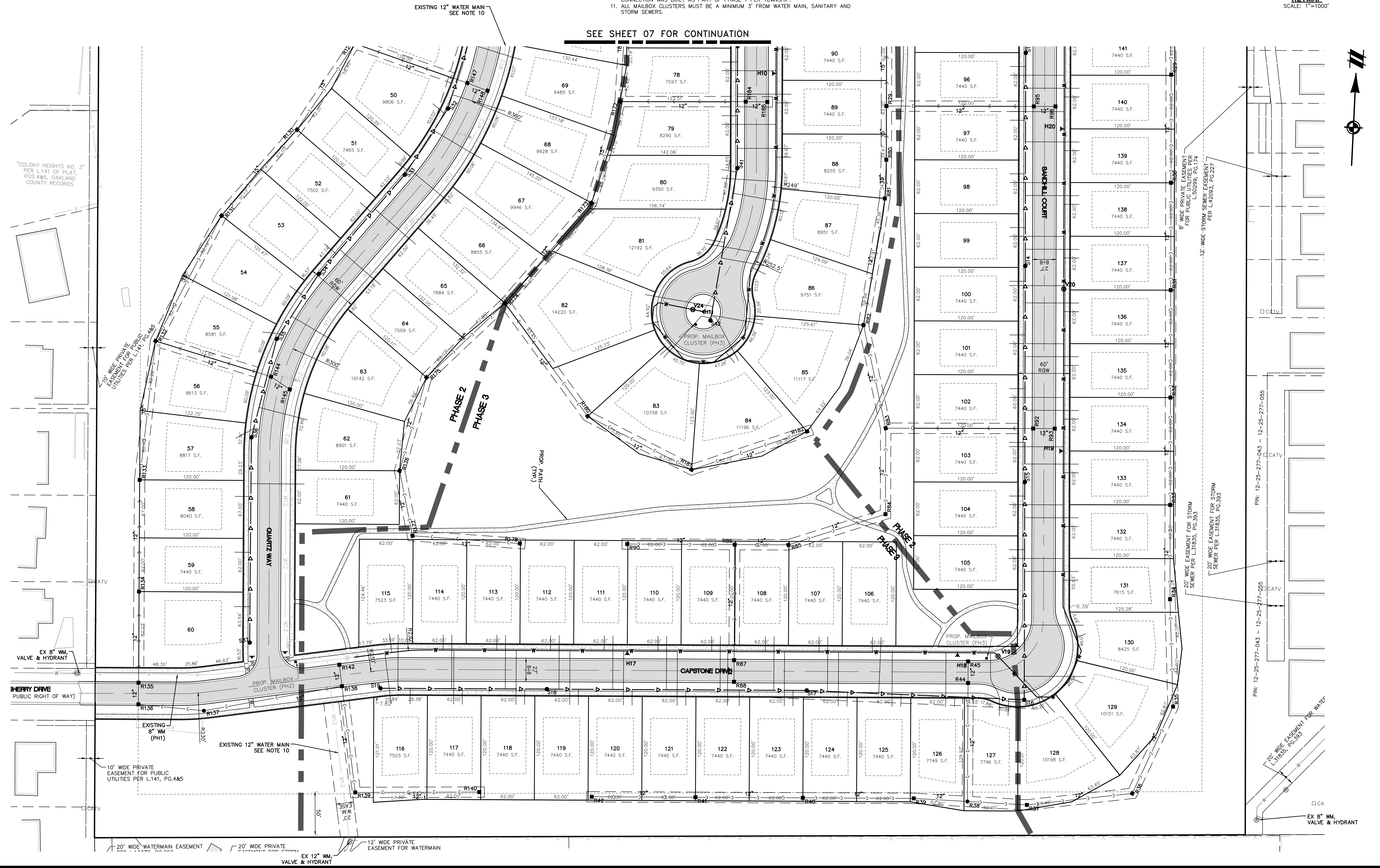
GENERAL UTILITY NOTES

- 1. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE CURRENT STANDARDS, SPECIFICATIONS AND GENERAL CONDITIONS OF WHITE LAKE TOWNSHIP. 2. ALL WORK WITHIN THE ROAD COMMISSION FOR OAKLAND COUNTY (ROCC) RIGHT-OF-WAY (ROW) SHALL BE IN ACCORDANCE WITH THE CURRENT ROCC STANDARDS AND GENERAL SPECIFICATIONS. 3. HORIZONTAL SEPARATION OF 10 FEET AND VERTICAL SEPARATION OF 1.5 FEET SHALL BE MAINTAINED BETWEEN ALL WATER MAINS AND SANITARY/STORM SEWERS. 4. CALL MISS DIG 72 HOURS IN ADVANCE OF ANY CONSTRUCTION. 5. ALL STORM SEWER SHALL BE CENTERED ON A 12' EASEMENT. 6. ALL WATER MAIN SHALL BE CENTERED ON A 20'-FOOT EASEMENT WHERE LOCATED OUTSIDE THE 60'-FOOT PRIVATE ROAD EASEMENT. 7. ALL SANITARY SEWER SHALL BE CENTERED ON A 20'-FOOT EASEMENT WHERE LOCATED OUTSIDE THE 60'-FOOT PRIVATE ROAD EASEMENT. 8. SEE SHEETS 15 TO 19 FOR ADDITIONAL UTILITY NOTES, SIZES, AND INFORMATION. 9. SEE SHEET 06 FOR OVERALL UTILITY PHASING AND STUB LOCATIONS. 10. 12-INCH WATERMAIN CONNECTION BETWEEN ELIZABETH LAKE ROAD AND SOUTH CONNECTION WAS BUILT AS PART OF PHASE 1 PER TOWNSHIP. 11. ALL MAILBOX CLUSTERS MUST BE A MINIMUM 3' FROM WATER MAIN, SANITARY AND STORM SEWERS.

LEGEND



SEE SHEET 07 FOR CONTINUATION



LEGEND	
	BOUNDARY LINE
	PROPERTY LINE
	EXIST. ROADS
	EXIST. CONTOUR
	EXIST. FENCE
	EXIST. GRAVEL
	EXIST. STORM SEWER
	EXIST. BUILDING
	PROP. CONTOUR
	PROP. LOT LINE
	PROP. RIGHT OF WAY
	PROP. EROSION CONTROL BLANKET ON 3:1 SLOPES
	PROP. BACK OF CURB
	PROP. SIDEWALK
	PROP. BUILDING
	PROP. STORM SEWER
	PROP. SANITARY
	PROP. 12" WATER MAIN
	PROP. 8" WATER MAIN
	PROP. SILT FENCE
	PROP. TREE FENCE
	PR. INLET FILTER (PH 1)
	PR. INLET FILTER (FUTURE)



SOIL EROSION AND SEDIMENTATION CONTROL NOTES:

- THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT.
- WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE EXPOSURE SHALL BE KEPT TO THE SHORTEST PERIOD OF TIME.
- TEMPORARY VEGETATION AND/OR MULCHING SHALL BE USED TO PROTECT CRITICAL AREAS EXPOSED DURING DEVELOPMENT. THE PLANS SUBMITTED TO THE TOWNSHIP SHALL SPECIFY SUCH TREATMENT.
- SEDIMENT BASINS (DEBRIS BASINS, OR SILT TRAPS) SHALL BE INSTALLED AND MAINTAINED TO REMOVE SEDIMENT FROM RUN OFF WATERS FROM LAND UNDERGOING DEVELOPMENT. THE PLANS SUBMITTED TO THE TOWNSHIP SHALL SPECIFY SUCH TREATMENT.
- PROVISION SHALL BE MADE TO EFFECTIVELY ACCOMMODATE THE INCREASED RUN OFF CAUSED BY CHANGED SOIL AND SURFACE CONDITIONS DURING AND AFTER DEVELOPMENT. THE PLANS SUBMITTED TO THE TOWNSHIP SHALL SPECIFY SUCH TREATMENT.
- THE PERMANENT FINAL VEGETATION AND STRUCTURES SHALL BE INSTALLED AS SOON AS PRACTICAL IN DEVELOPMENT. THE PLANS SUBMITTED TO THE TOWNSHIP SHALL SPECIFY SUCH TREATMENT.
- THE DEVELOPMENT PLAN SHOULD BE FITTED TO THE TOPOGRAPHY AND SOIL SO AS TO CREATE THE LEAST SOIL EROSION POTENTIAL.
- WHEREVER FEASIBLE, NATURAL VEGETATION SHOULD BE RETAINED AND PROTECTED.
- ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF WHITE LAKE TOWNSHIP AND THE OAKLAND COUNTY DRAIN COMMISSIONER.
- THE CONTRACTOR SHALL MAKE DAILY INSPECTIONS TO DETERMINE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES, AND ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY.
- EROSION AND ANY SEDIMENTATION FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF-SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.
- EROSION AND ANY SEDIMENTATION CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CONSTRUCTION. SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF SILT OFF THE SITE.
- PERMANENT SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 5 CALENDAR DAYS AFTER FINAL GRADING OR THE FINAL EARTH CHANGE HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH CHANGE HAS BEEN COMPLETED OR WHERE SIGNIFICANT EARTH CHANGE ACTIVITY CEASES, TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED. ALL PERMANENT SOIL EROSION CONTROL MEASURES WILL BE IMPLEMENTED AND ESTABLISHED BEFORE A CERTIFICATE OF COMPLIANCE IS ISSUED.
- DURING CONSTRUCTION OF THE STORM SEWER SYSTEM, STRAW BALES, STONE FILTERS OR OTHER APPROVED MEANS, WILL PROTECT THE ENDS OF ALL OPEN PIPES.
- PROMPTLY UPON THE BACKFILLING OF STORM STRUCTURES, INLET FILTERS WILL BE PLACED AROUND THE STRUCTURE PER DETAILS.

SOIL EROSION AND SEDIMENTATION CONTROL NOTES:

- ANY REMAINING DENUDED AREA SHALL BE SEED AND MULCHED WITHIN FIVE (5) DAYS AFTER COMPLETION OF FINAL GRADING.
- WITHIN FIVE (5) DAYS AFTER COMPLETION OF PAVING, A 16-FOOT STRIP AROUND PAVED AREAS SHALL BE PROTECTED FROM SOIL EROSION BY AN APPROVED METHOD CONSISTENT WITH THE GROWING SEASON.
- INSTALL EROSION CONTROL BLANKET ON SLOPES STEEPER THAN 3:1 WITH CONCENTRATED FLOW AND AS NEEDED TO ESTABLISH VEGETATION.
- WETLANDS EXIST ON OR ADJACENT TO THIS SITE. NO WORK MAY BE DONE WITHIN 25 FEET OF WETLANDS WITHOUT SPECIAL PERMITS BEING GRANTED BY THE TOWNSHIP AND/OR MDEQ.
- STREETS AND CURBS MUST BE MAINTAINED AS APPROVED BY TOWNSHIP.
- ALL DISTURBED AREAS MUST BE STABILIZED BY SOD, OR HYDROSEEDING/ SEEDING AND INSTALLATION OF BIODEGRADABLE SOIL EROSION CONTROL BLANKETS IMMEDIATELY FOLLOWING COMPLETION OF WORK.
- CATCH BASINS MUST BE PROTECTED AND MAINTAINED USING APPROVED SEDIMENTATION FILTER BAGS/SACKS.
- YARD CATCH BASINS MUST BE PROTECTED WITH SEDIMENTATION FILTER BAGS/SACKS ALONG WITH 3' PEASTONE/GRAVEL APRON AND INSTALLED SILT FENCING AT THE PERIMETER OF THE PEASTONE/GRAVEL APRON.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURING THE STREETS REMAIN CLEAN AND FREE OF SEDIMENT DAILY AND AT THE REQUEST OF THE TOWNSHIP.
- CONTRACTOR MUST CONTACT ENVIRONMENTAL DEPARTMENT FOR A PRE-CONSTRUCTION MEETING PER WETLAND/WOODLAND PERMIT

SEQUENCE OF CONSTRUCTION SOIL EROSION CONTROL

SEQUENCE OF CONSTRUCTION SOIL EROSION CONTROL	START DAY	END DAY
1. INSTALL SILT FENCE AS SHOWN ON THE SOIL EROSION CONTROL PLAN, AND ADJACENT TO GRAVEL ACCESS DRIVES.	1	5
2. STRIP AND STOCKPILE TOPSOIL.	6	9
3. MASS GRADE AS REQUIRED.	10	40
4. INSTALL WATER MAIN & SANITARY SEWER; IMMEDIATELY ESTABLISH VEGETATION ON ALL OFF-SITE AREAS.	41	71
5. INSTALL STORM SEWER; IMMEDIATELY INSTALL SILT SACKS ON ALL CATCH BASINS AND INLETS.	72	85
6. INSTALL ALL PUBLIC UTILITIES COMPLETE (GAS, ELECTRIC, TELEPHONE, AND CABLE TV).	86	93
7. INSTALL ALL PAVEMENT.	94	110
8. FINISH GRADE, REDISTRIBUTE TOP SOIL, AND ESTABLISH VEGETATION ON ALL DISTURBED GROUND AREAS.		
9. CLEAN PAVEMENT AND STORM SEWERS OF ALL SEDIMENT.		
10. REMOVE SOIL EROSION CONTROL MEASURES AFTER PERMANENT VEGETATION HAS BEEN ESTABLISHED.		
11. IT IS THE RESPONSIBILITY OF THE DEVELOPER TO INSURE THAT ALL SOIL EROSION CONTROL MEASURES ARE INSTALLED AND MAINTAINED.		
12. WHITE LAKE TOWNSHIP SHALL INSPECT ALL SOIL EROSION CONTROL MEASURES. UPON THEIR DIRECTION, ADDITIONAL MEASURES SHALL BE CONSTRUCTED OR MAINTENANCE WORK SHALL BE PERFORMED TO ASSURE EROSION AND SEDIMENTATION CONTROL.		

GRADING NOTES

- THE DEVELOPER IS RESPONSIBLE FOR RESOLVING ANY DRAINAGE PROBLEMS ON ADJACENT PROPERTIES WHICH ARE A RESULT OF THE DEVELOPER'S ACTIVITIES.
- GENERAL GUIDELINES USED FOR PRELIMINARY GRADING CONCEPT:
 MAX GRASS AREA GRADE = 1% (WHITE LAKE TOWNSHIP)
 MIN GRASS AREA GRADE = 2% (CLIENT)
 (NOTE 1% MIN PER WHITE LAKE TOWNSHIP)
 MAX PRIVATE ROAD SLOPE = 8% (WHITE LAKE TOWNSHIP)
 MAX DRIVEWAY SLOPE = 6% (WHITE LAKE TOWNSHIP)
 MIN DRIVEWAY SLOPE = 2%
 DROP BRICK LEDGE ON LOW SIDE OF HOUSE FRONT (CLIENT)
 WALKOUT = FG - 8 FT; VIEWOUT = FG - 4 FT (CLIENT)
 SIDE YARD = 6 INCHES BELOW BUILDING FG
- NO RETAINING WALLS ARE PROPOSED ON THIS GRADING PLAN. IF REQUIRED IN THE OPINION OF THE TOWNSHIP ENGINEER, SOIL RETAINING SYSTEMS SHALL BE DESIGNED BY A QUALIFIED STRUCTURAL OR GEOTECHNICAL ENGINEER AND SUBMITTED FOR REVIEW AND APPROVAL BY THE TOWNSHIP ENGINEER.
- ALL GRADING IS INTENDED TO MEET ADJACENT PROPERTY GRADES (NO GRADING EASEMENTS ARE PROPOSED).
- A SOIL EROSION PERMIT WILL BE REQUIRED FOR EARTH DISRUPTION GREATER THAN ONE ACRE.
- SEE SHEET 02 FOR SOILS INFORMATION.
- ENTIRE SITE TO BE MASS-GRADED IN PHASE 1.
- THE SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT BY THE CONTRACTOR OR THE CERTIFIED STORMWATER OPERATOR ASSIGNED BY THE CONTRACTOR.
- REFER TO SHEETS 10-11 (50-SCALE) FOR BETTER CLARITY OF EROSION CONTROL MEASURES.

Know what's below.
Call before you dig.

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SECTION 25

TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
GRADING & SECC PLAN -
OVERALL

DATE: OCTOBER 29, 2020

02/17/2021: REV PER TOWNSHIP
05/27/2021: REV PER OCMRC
07/09/2021: AMENDMENT TO FSP

REVISIONS

SCALE: 0 50 100
1" = 100 FEET

DR. SK/KS | GH. CK
P.M. M BUSH
BOOK ---
JOB 18003309
SHEET NO. 09

FILE: 18003309S2-05-CDWG

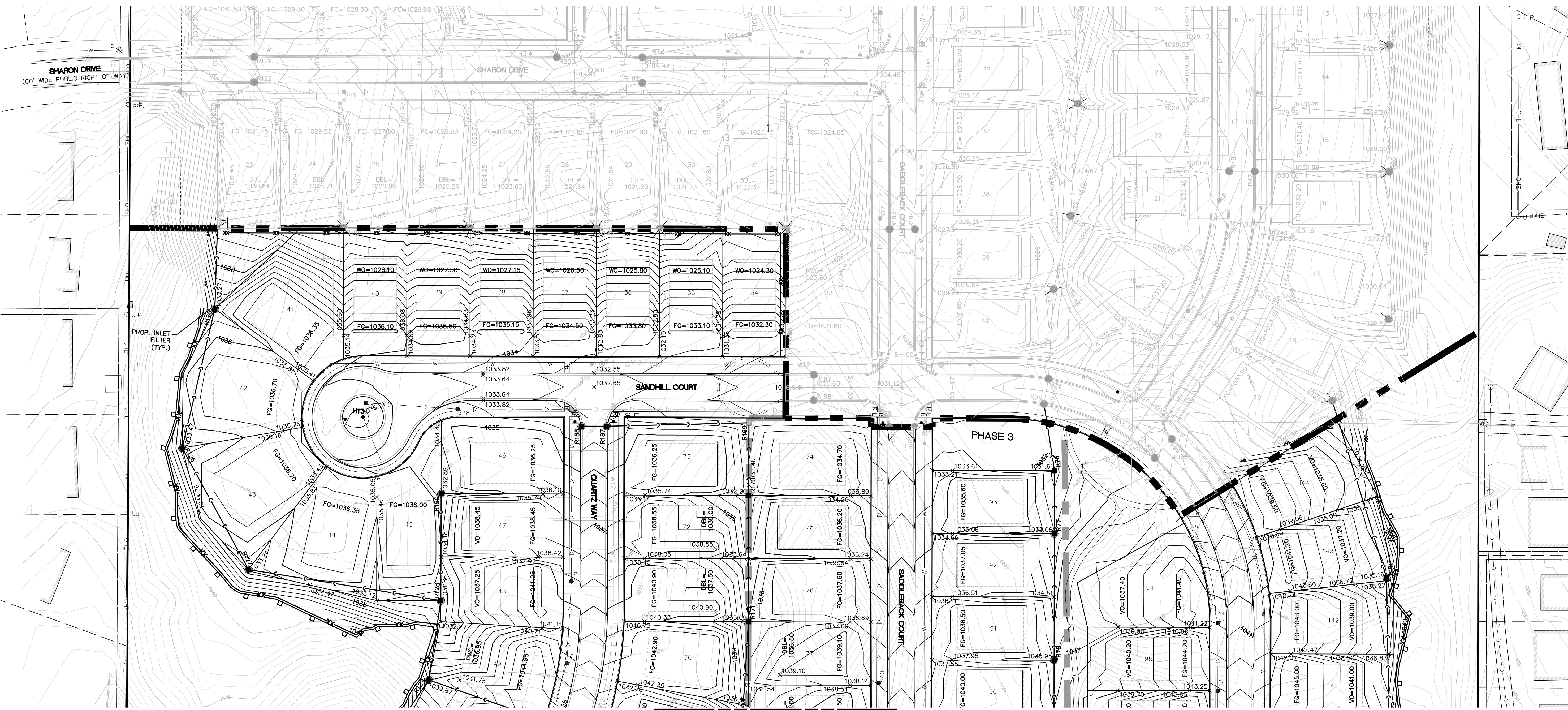
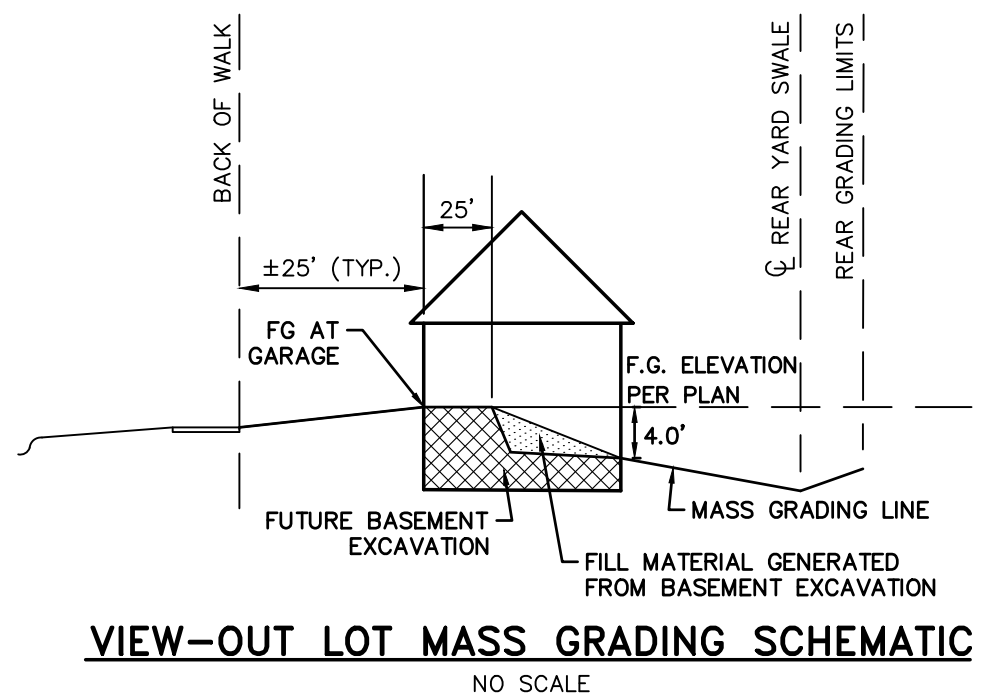
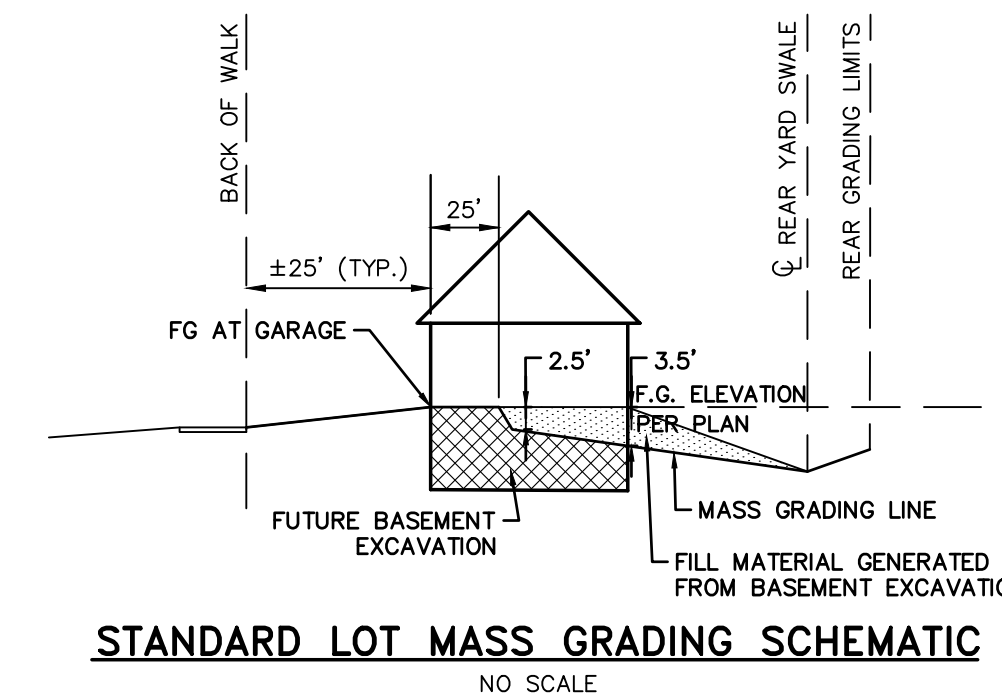
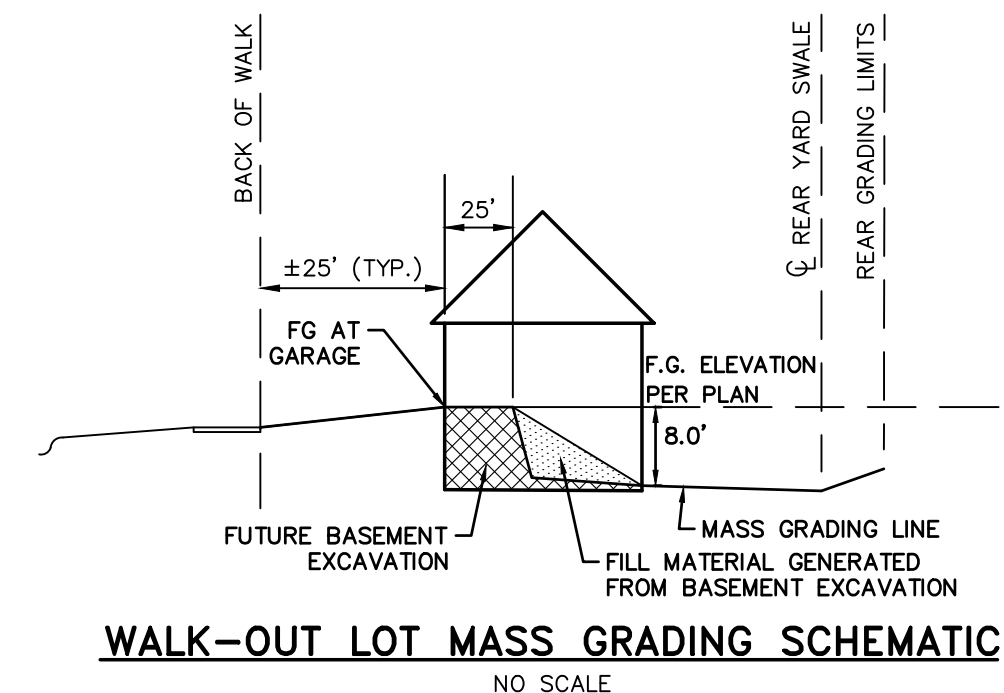
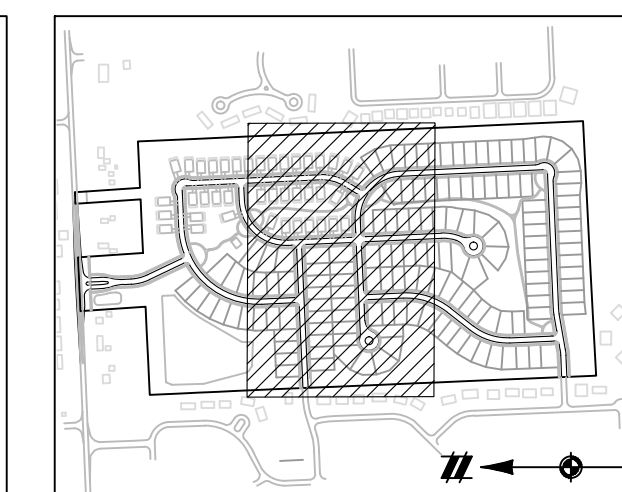


GRADING NOTES

1. SEE GRADING NOTES ON SHEET 09.
2. SEE OVERALL EROSION CONTROL PLAN - SHEET 09.

LEGEND

	BOUNDARY LINE		PROP. BUILDING
	PROPERTY LINE		PROP. STORM SEWER
	EXIST. ROADS		PROP. SANITARY
	EXIST. CONTOUR		PROP. 12" WATER MAIN
	EXIST. FENCE		PROP. 8" WATER MAIN
	EXIST. GRAVEL		PROP. SILT FENCE
	EXIST. STORM SEWER		PROP. TREE FENCE
	EXIST. BUILDING		PROP. INLET FILTER (PHASE 1)
	PROP. CONTOUR		PROP. INLET FILTER (FUTURE PHASE)
	PROP. LOT LINE		PROP. EROSION CONTROL BLANKET ON 3:1 SLOPES
	PROP. RIGHT OF WAY		
	PROP. BACK OF CURB		
	PROP. SIDEWALK		



SEE SHEET 11 FOR CONTINUATION

811
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SECTION 25
 TOWN 3 NORTH, RANGE 8 EAST
 WHITE LAKE TOWNSHIP
 OAKLAND COUNTY, MICHIGAN

M/1 HOMES OF MICHIGAN, LLC
 TRAILSIDE MEADOW
 FINAL SITE ENGINEERING PLAN
 PHASES 2-3
 GRADING & SECC
 PLAN - NORTH

DATE: OCTOBER 29, 2020
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REVISIONS

NO.	DATE	DESCRIPTION

SCALE: 0 25 50
 1" = 50 FEET
 DR. SK/KS G.H. CK
 P.M. M BUSH
 BOOK ---
 JOB 18003309
 SHEET NO. 10

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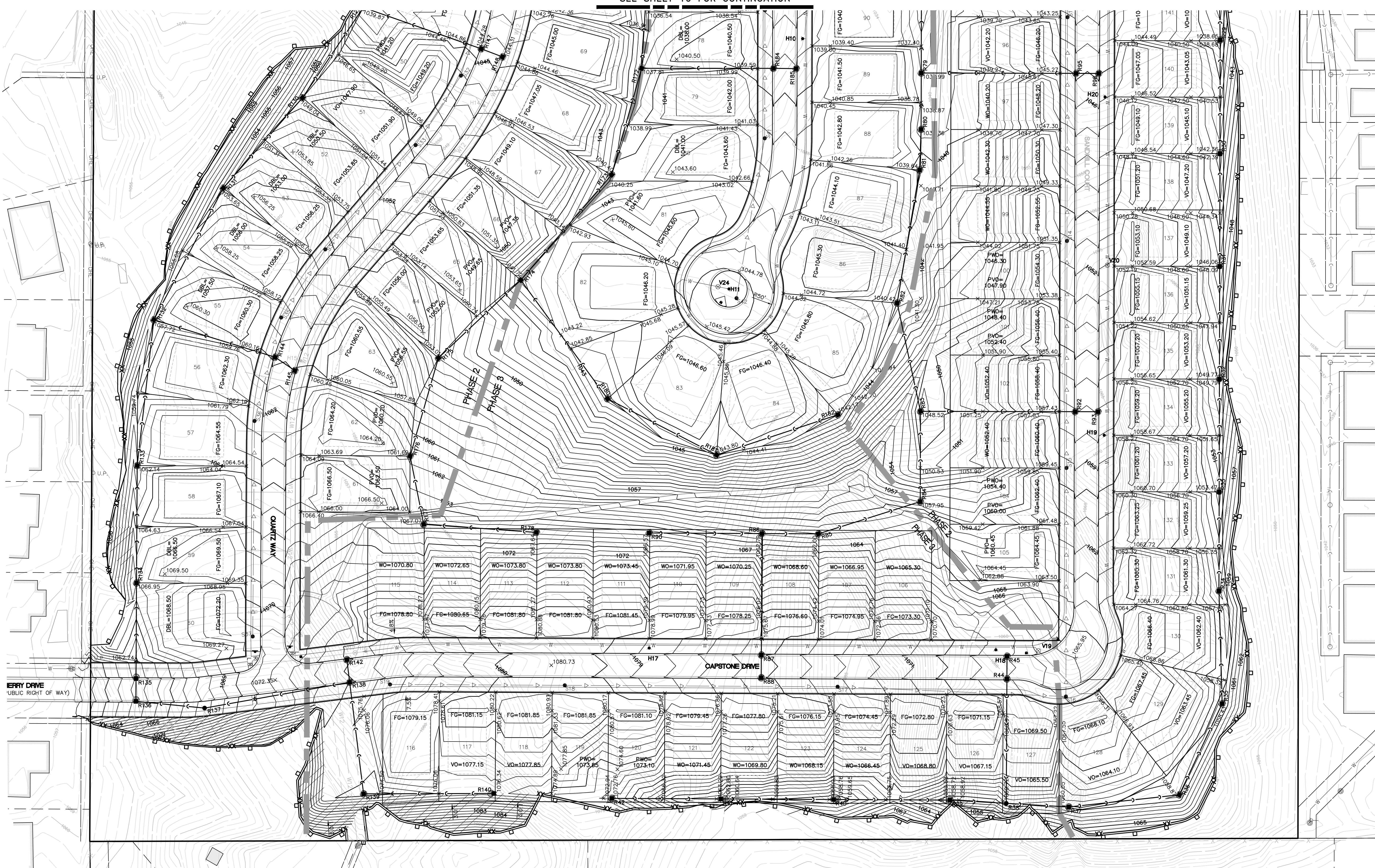
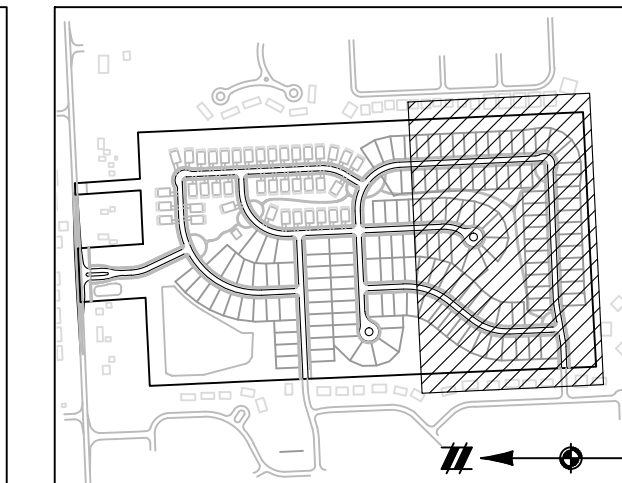
GRADING NOTES

1. SEE GRADING NOTES ON SHEET 09.
2. SEE OVERALL EROSION CONTROL PLAN - SHEET 09.

SEE SHEET 10 FOR CONTINUATION

LEGEND

	BOUNDARY LINE		PROP. BUILDING
	PROPERTY LINE		PROP. STORM SEWER
	EXIST. ROADS		PROP. SANITARY
	EXIST. CONTOUR		PROP. 12" WATER MAIN
	EXIST. FENCE		PROP. 8" WATER MAIN
	EXIST. GRAVEL		PROP. SILT FENCE
	EXIST. STORM SEWER		PROP. TREE FENCE
	EXIST. BUILDING		PROP. INLET FILTER (PHASE 1)
	PROP. LOT LINE		PROP. INLET FILTER (FUTURE PHASE)
	PROP. RIGHT OF WAY		PROP. EROSION CONTROL BLANKET ON 3:1 SLOPES
	PROP. BACK OF CURB		
	PROP. SIDEWALK		



811
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SECTION 25
 TOWN 3 NORTH, RANGE 8 EAST
 WHITE LAKE TOWNSHIP
 OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
 TRAILSIDE MEADOW
 FINAL SITE ENGINEERING PLAN
 PHASES 2-3
 GRADING & SESS PLAN - SOUTH

DATE: OCTOBER 29, 2020
 02/17/2021: REV PER TOWNSHIP
 05/27/2021: REV PER OCMRC
 07/09/2021: AMENDMENT TO PSP

REVISIONS
 SCALE: 0 25 50
 1" = 50 FEET
 DR. SK/KS GH. CK
 P.M. M BUSH
 BOOK ---
 JOB 18003309
 SHEET NO. 11

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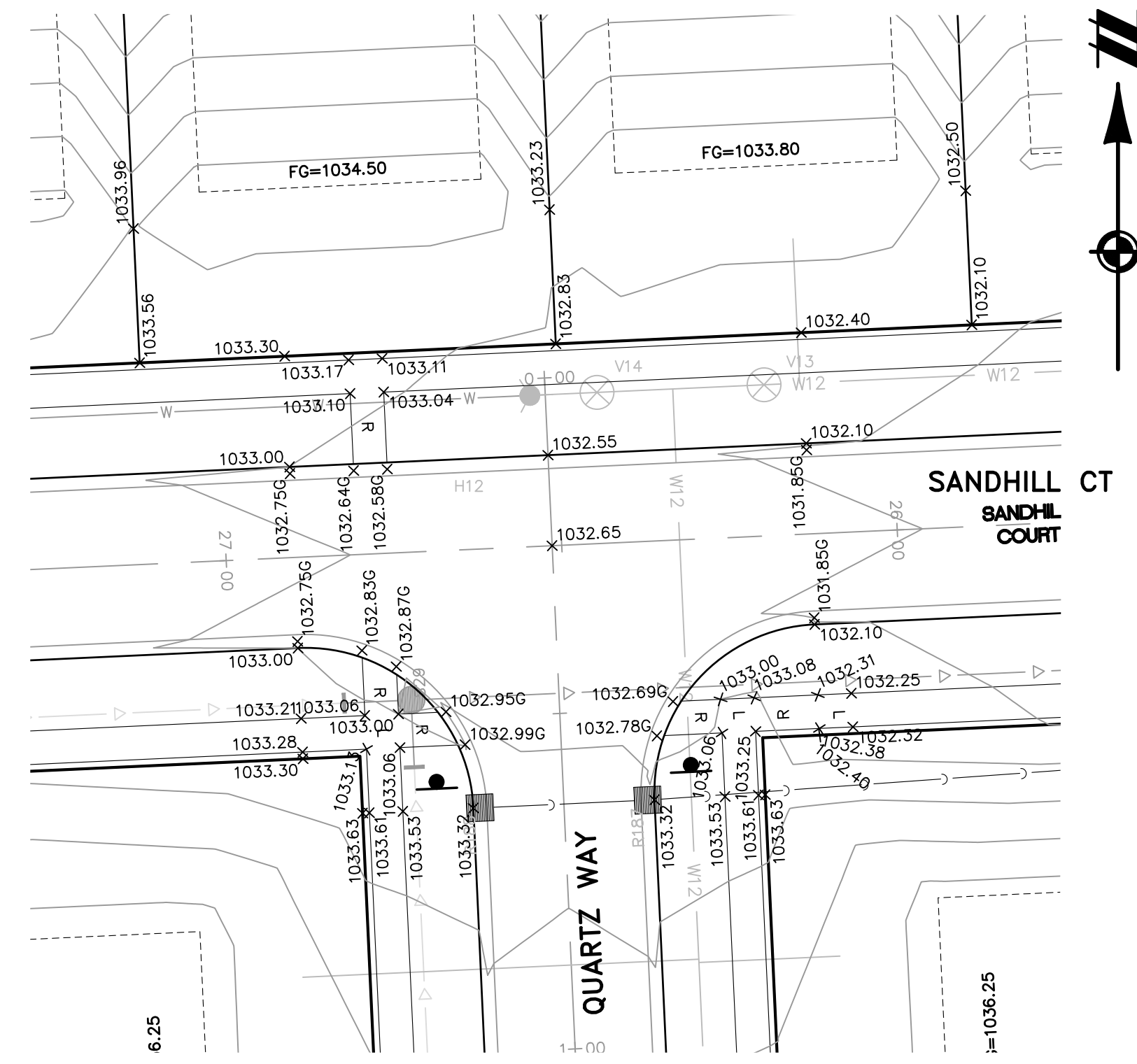
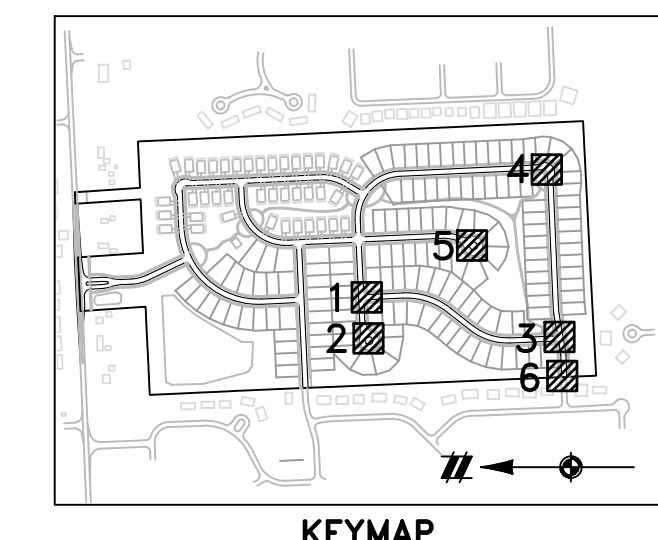
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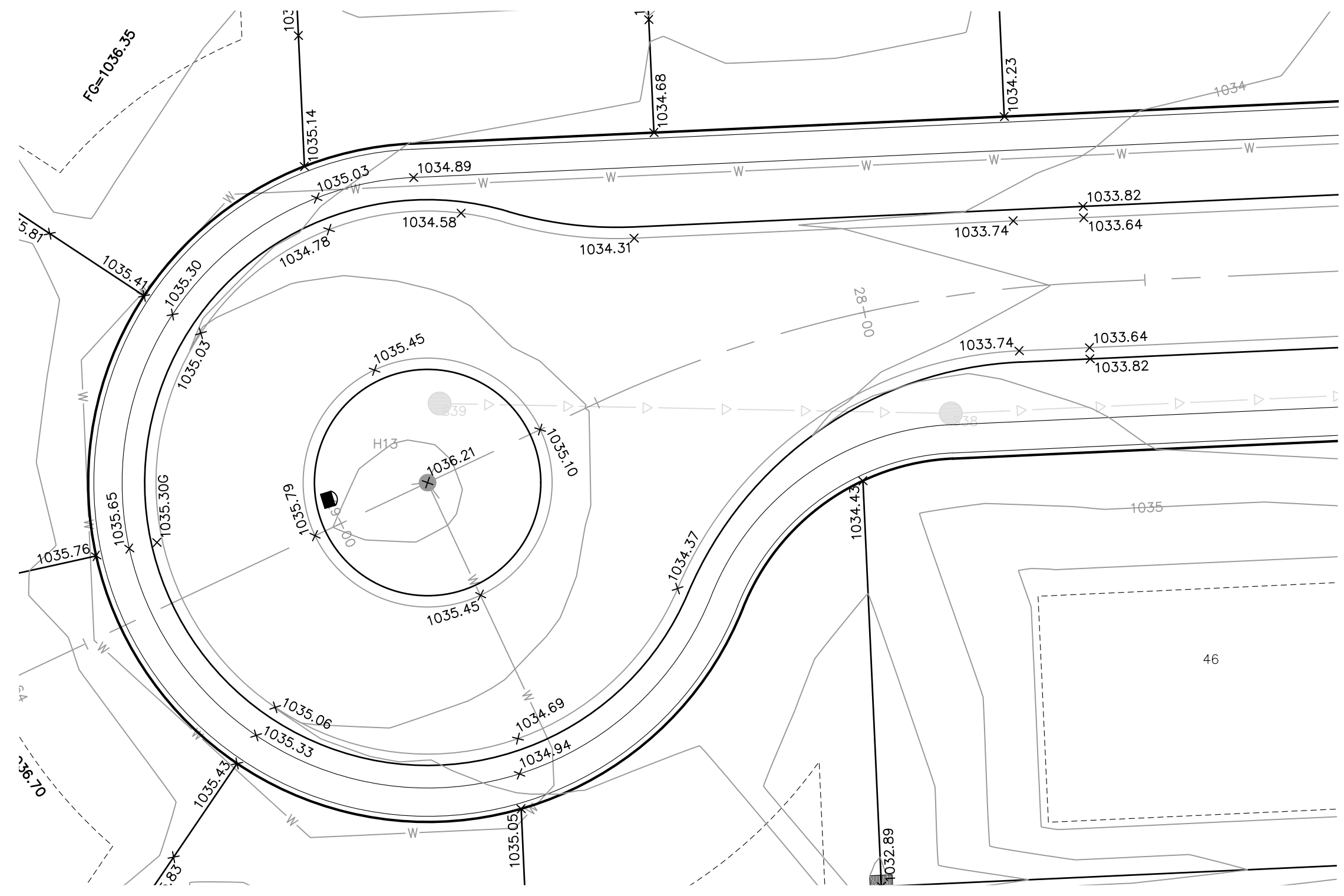
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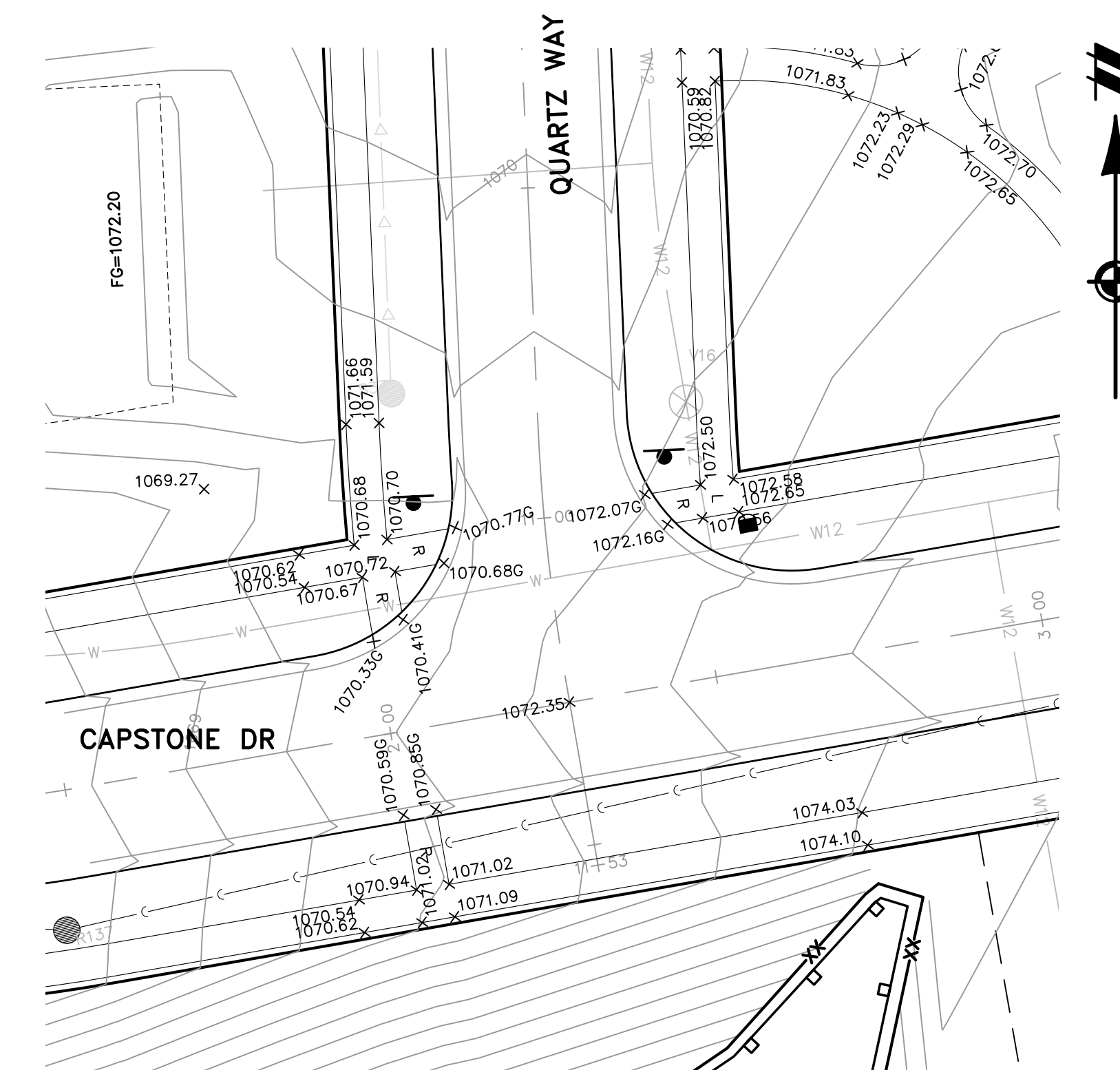
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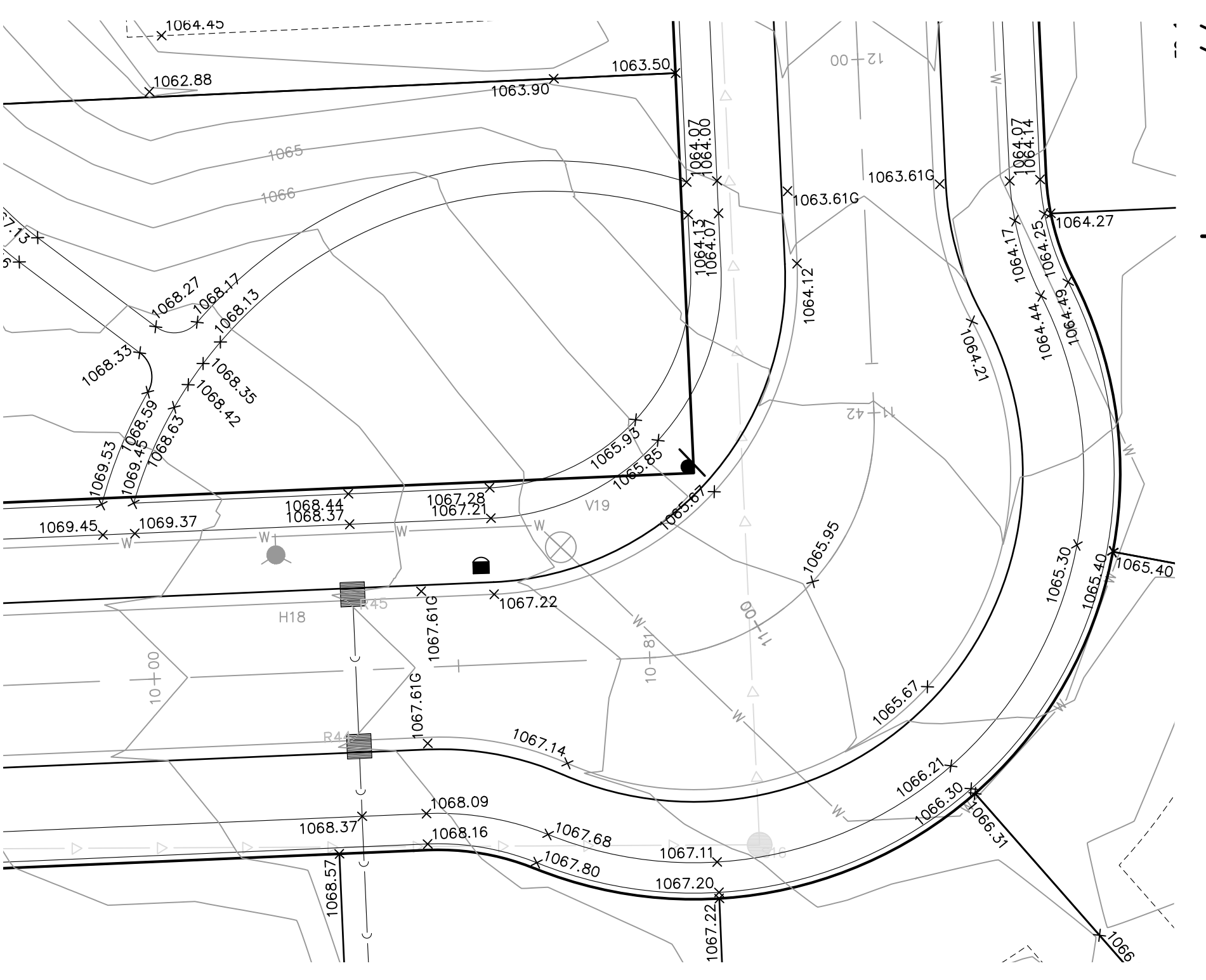
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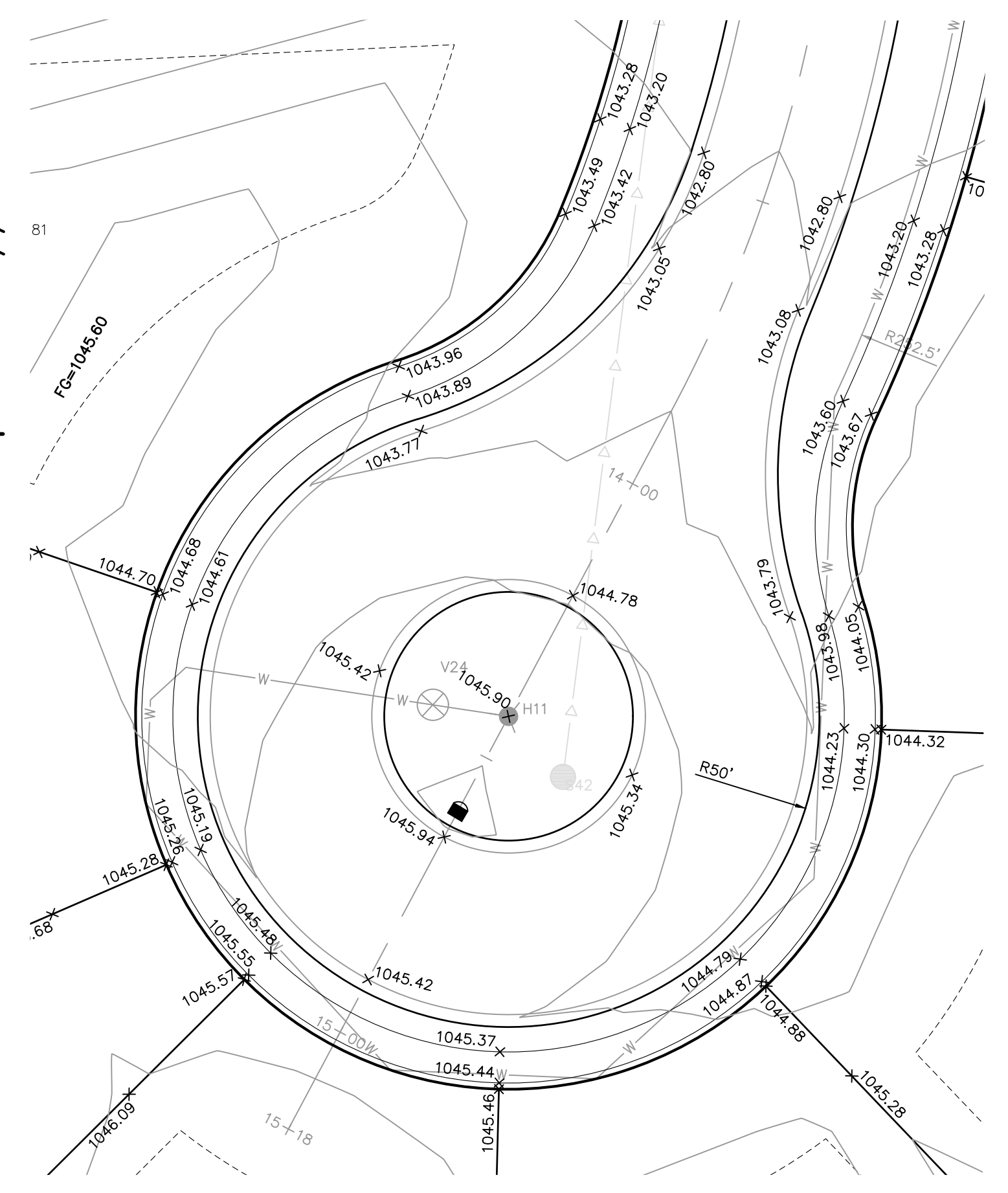
SANDHILL CT CUL-DE-SAC (2)



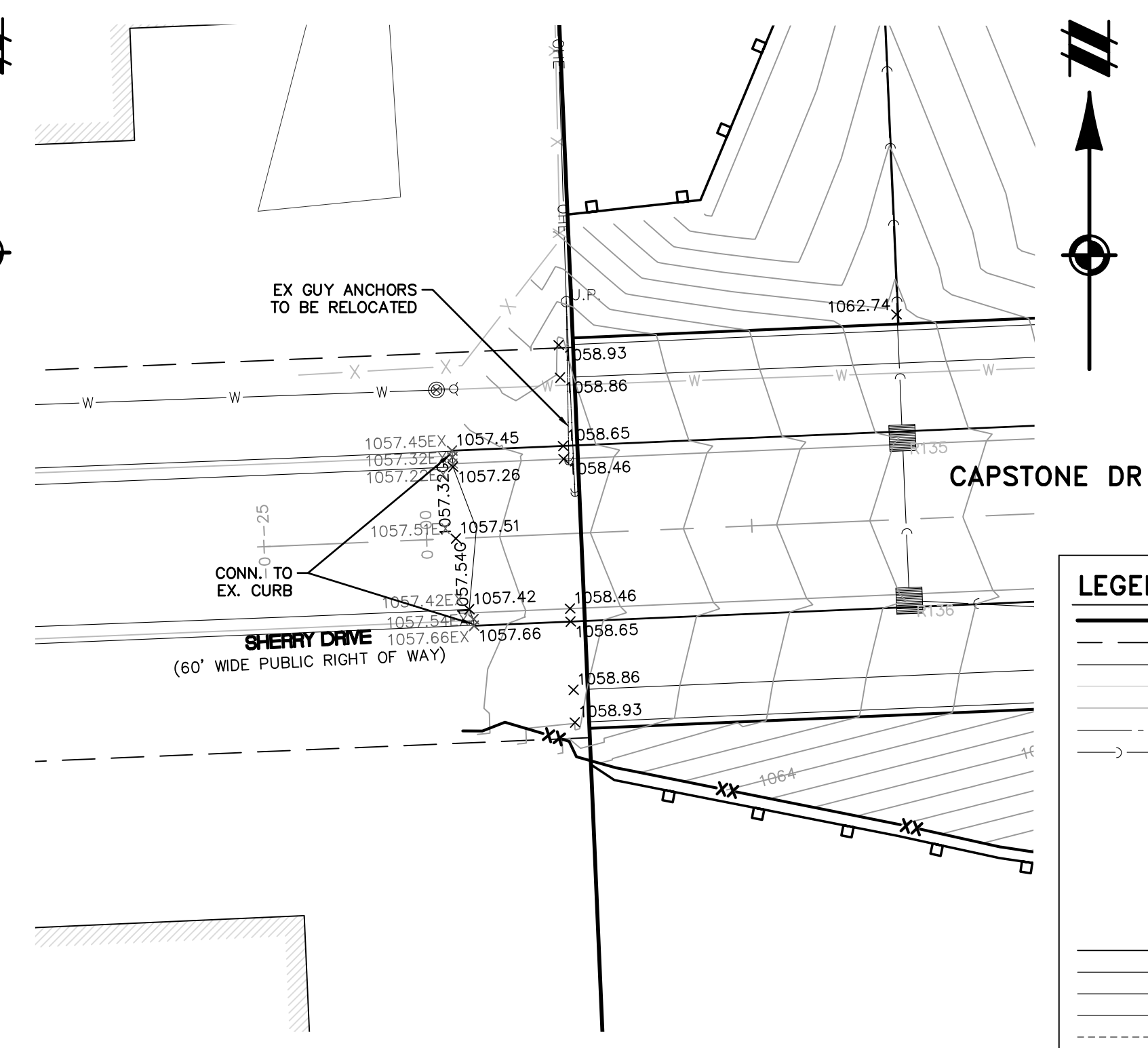
INTERSECTION (3)



EYEBROW DETAIL (4)



SADDLEBACK CT CUL-DE-SAC (5)



CONNECTION (6)

LEGEND

	BOUNDARY LINE
	PROPERTY LINE
	EXIST. ROADS
	EXIST. CONTOUR
	EXIST. FENCE
	EXIST. GRAVEL
	EXIST. STORM SEWER
	EXIST. BUILDING
	EXIST. WETLAND
	EXIST. SIGN
	EXIST. CATCH BASIN
	EXIST. END SECTION
	PROP. CONTOUR
	PROP. LOT LINE
	PROP. RIGHT OF WAY
	PROP. BACK OF CURB
	PROP. SETBACK
	PROP. SIDEWALK
	PROP. BUILDING
	PROP. STORM SEWER
	PROP. SANITARY
	PROP. 12" WATER MAIN
	PROP. 8" WATER MAIN
	PROP. END SECTION
	PROP. CATCH BASIN/INLET
	PROP. STORM MANHOLE
	PROP. FIRE HYDRANT
	PROP. VALVE

SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
GRADING DETAILS - INTERSECTION
& CUL-DE-SAC

DATE: OCTOBER 29, 2020
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REVISIONS
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1" = 20 FEET
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P.M. M BUSH
BOOK --
JOB 18003309
SHEET NO. 12

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SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
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OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
GRADING DETAILS - WALK 1

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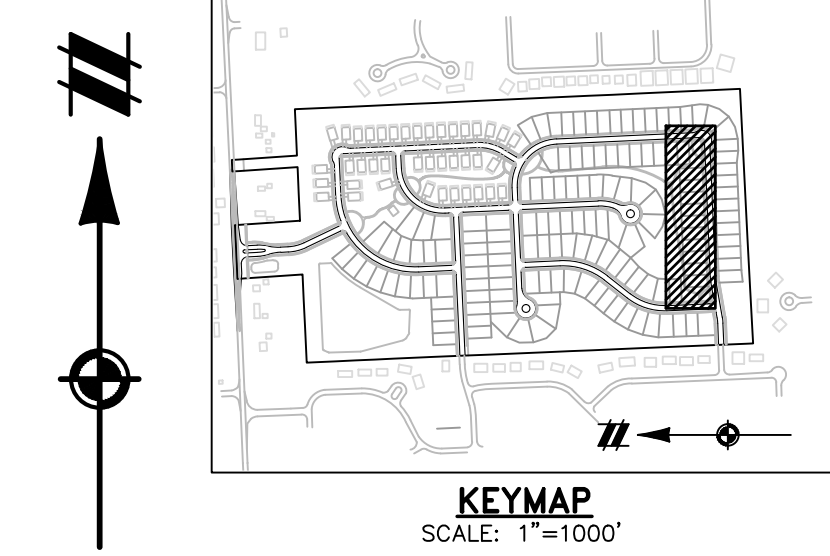
REVISIONS	
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1" = 20 FEET	
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P.M.	M BUSH
BOOK	--
JOB	18003309
SHEET NO.	13



SEE BELOW

SEE SHEET 14

SEE ABOVE



LEGEND	
[Symbol]	BOUNDARY LINE
[Symbol]	PROPERTY LINE
[Symbol]	EXIST. ROADS
[Symbol]	EXIST. CONTOUR
[Symbol]	EXIST. FENCE
[Symbol]	EXIST. GRAVEL
[Symbol]	EXIST. STORM SEWER
[Symbol]	EXIST. BUILDING
[Symbol]	EXIST. WETLAND
[Symbol]	EXIST. SIGN
[Symbol]	EXIST. CATCH BASIN
[Symbol]	EXIST. END SECTION
[Symbol]	PROP. CONTOUR
[Symbol]	PROP. LOT LINE
[Symbol]	PROP. RIGHT OF WAY
[Symbol]	PROP. BACK OF CURB
[Symbol]	PROP. SETBACK
[Symbol]	PROP. SIDEWALK
[Symbol]	PROP. BUILDING
[Symbol]	PROP. STORM SEWER
[Symbol]	PROP. SANITARY
[Symbol]	PROP. 12" WATER MAIN
[Symbol]	PROP. 8" WATER MAIN
[Symbol]	PROP. END SECTION
[Symbol]	PROP. CATCH BASIN/INLET
[Symbol]	PROP. STORM MANHOLE
[Symbol]	PROP. FIRE HYDRANT
[Symbol]	PROP. VALVE

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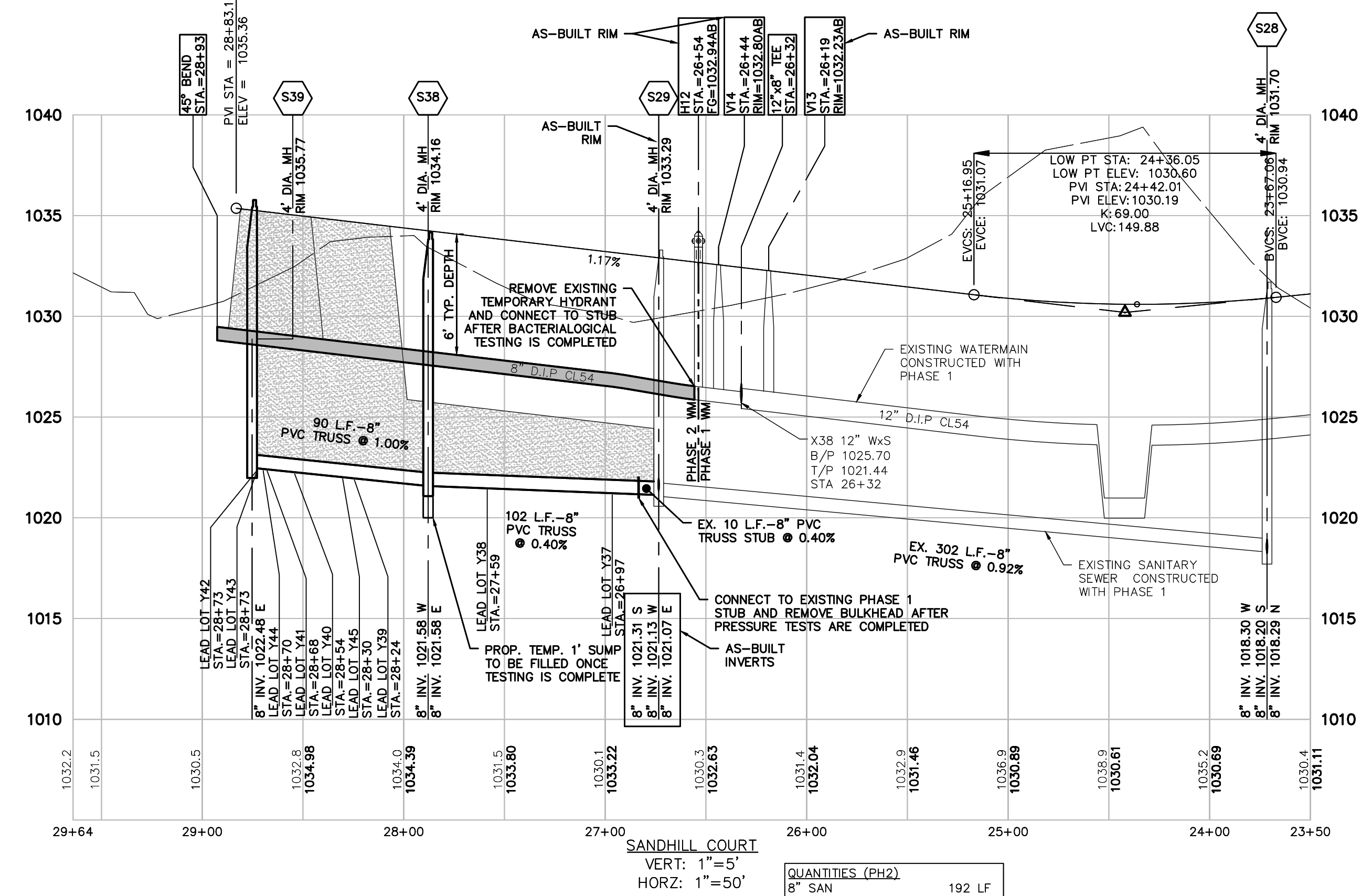
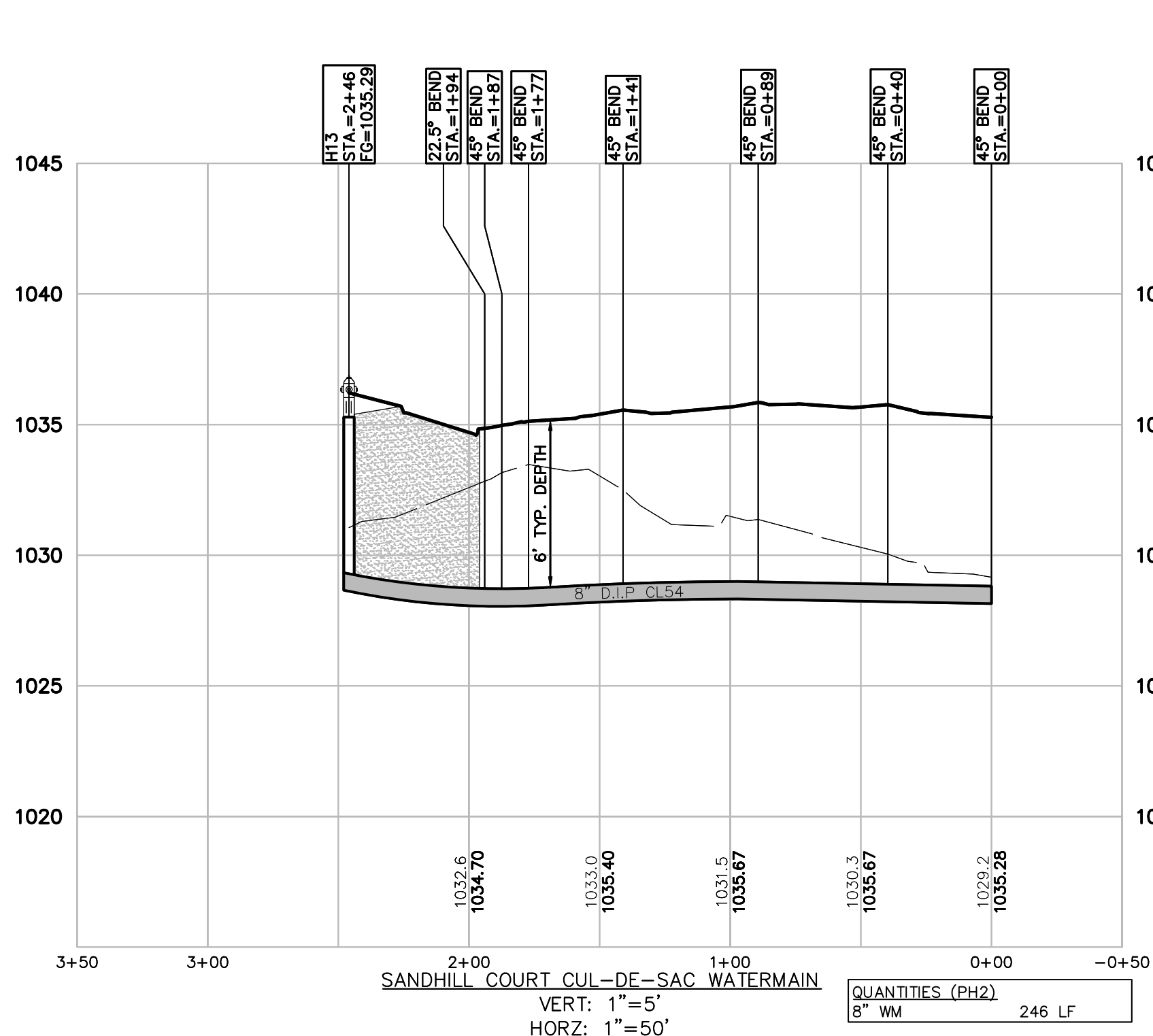
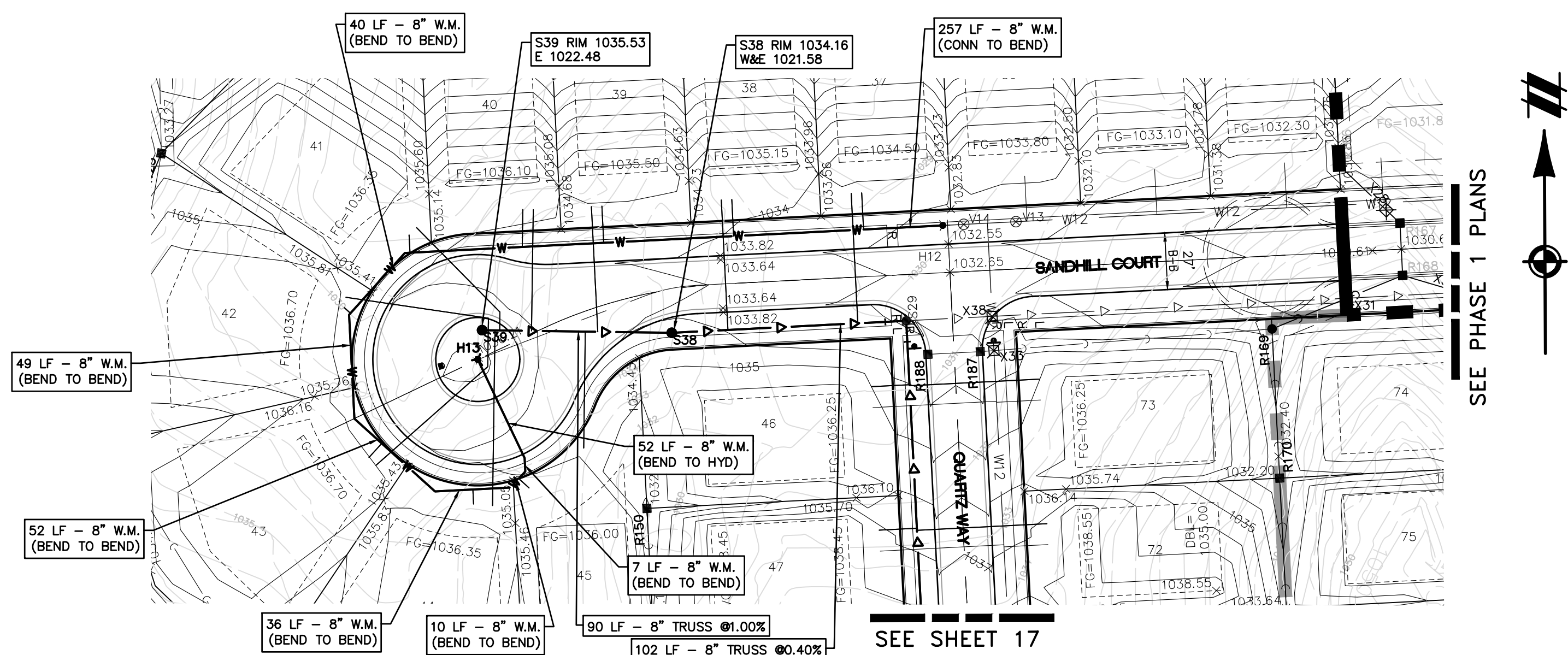
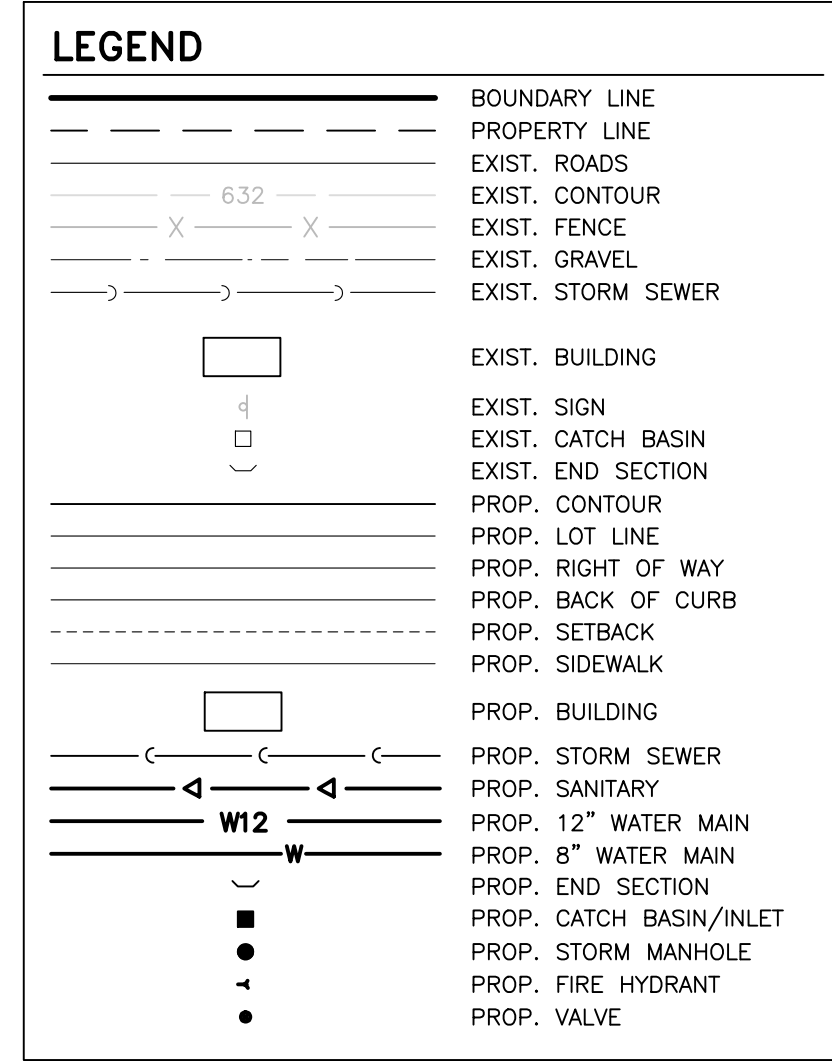
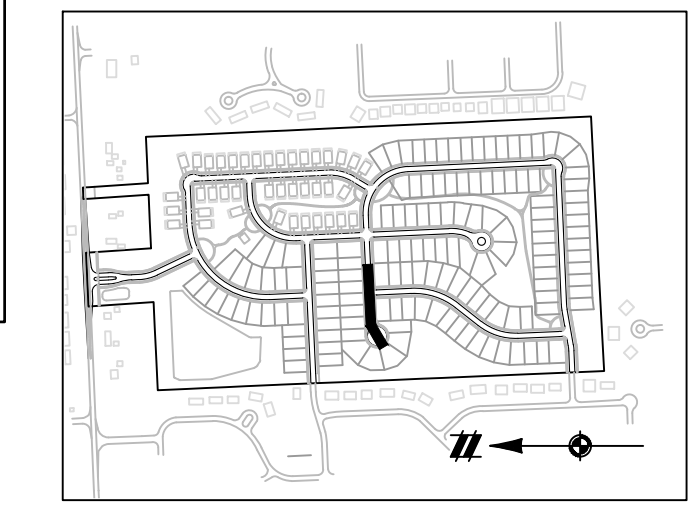
SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/1 HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
SANDHILL COURT SANITARY & WATER MAIN PLAN

DATE: OCTOBER 29, 2020
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NO.	REVISIONS
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1	DR. SK/KS GH. CK
2	P.M. M BUSH
3	BOOK --
4	JOB 18003309
5	SHEET NO. 15

- WATER MAIN NOTES:**
- ALL PROPOSED WATER MAIN SHALL BE DUCTILE IRON, CLASS 54
 - ALL WATER MAIN SHALL HAVE A MINIMUM OF 6' COVER, EXCEPT AT GATE WELLS WHERE 5' IS REQUIRED.
 - ALL HYDRANTS TO BE A MINIMUM 6' OFF BACK OF CURB
 - CENTER FULL STICK OF PIPE AT ALL WATER MAIN / UTILITY CROSSINGS.
 - ALL WATERMAIN SHOWN ON THIS SHEET SHALL BE CONSTRUCTED DURING PHASE 2.



SANITARY LEAD TABLE

LEAD NO.	SIZE	STA. FROM DIS. MANHOLE	RISER (FT)	LENGTH (FT)	INVERT ELEV. AT END OF LEAD	LOT FG.
Y37	6" SDR 23.5	STA 0+23	0.0' RISER	62 LF	1023.50	1034.50
Y38	6" SDR 23.5	STA 0+85	0.0' RISER	62 LF	1024.15	1035.15
Y39	6" SDR 23.5	STA 0+35	0.0' RISER	80 LF	1024.60	1035.60
Y40	6" SDR 23.5	STA 0+87	0.0' RISER	58 LF	1025.10	1036.10
Y41	6" SDR 23.5	STA 0+82	0.0' RISER	83 LF	1025.35	1036.35
Y42	6" SDR 23.5	STA 0+87	0.0' RISER	70 LF	1025.70	1036.70
Y43	6" SDR 23.5	STA 0+87	0.0' RISER	84 LF	1025.70	1036.70
Y44	6" SDR 23.5	STA 0+84	0.0' RISER	83 LF	1025.35	1036.35
Y45	6" SDR 23.5	STA 0+41	0.0' RISER	56 LF	1025.00	1036.00

GENERAL NOTES

- ALL WORK MUST BE DONE IN ACCORDANCE WITH THE CURRENT STANDARDS, SPECIFICATIONS AND GENERAL CONDITIONS OF WHITE LAKE TOWNSHIP.
- ALL WORK WITHIN THE ROAD COMMISSION FOR OAKLAND COUNTY (ROC) RIGHT-OF-WAY (ROW) SHALL BE IN ACCORDANCE WITH THE CURRENT ROC STANDARDS AND GENERAL SPECIFICATIONS.
- HORIZONTAL SEPARATION OF 10 FEET AND VERTICAL SEPARATION OF 1.5 FEET SHALL BE MAINTAINED BETWEEN ALL WATER MAINS AND SANITARY/STORM SEWERS.
- CALL MISS DIG 72 HOURS IN ADVANCE OF ANY CONSTRUCTION.
- ALL STORM SEWER SHALL BE CENTERED IN A 12' EASEMENT.
- THE DEVELOPER SHALL CONTACT THE TOWNSHIP PLANNING DEPARTMENT AT (248) 898-3300 TO SCHEDULE A PRECONSTRUCTION MEETING. ATTENDANCE AT THE PRECONSTRUCTION MEETING SHALL INCLUDE THE DEVELOPER'S PRIME CONTRACTOR. A COPY OF ALL PERMITS MUST BE SUBMITTED TO THE PLANNING DEPARTMENT PRIOR TO SCHEDULING THE MEETING.
- THE DEVELOPER SHALL CONTACT THE TOWNSHIP ENGINEER AT (248)334-8901 48 HOURS PRIOR TO STARTING CONSTRUCTION. THE CONTRACTOR SHALL KEEP THE INSPECTOR ADVISED OF THE NEED FOR INSPECTION ON A DAILY BASIS. LACKING SPECIFIC SCHEDULING BY THE INSPECTOR, THE CONTRACTOR SHALL GIVE 48 HOURS NOTICE TO THE TOWNSHIP ENGINEER PRIOR TO RECOMMENCING WORK REQUIRING INSPECTION. FAILURE TO INFORM THE INSPECTOR THE TOWNSHIP ENGINEER OF A WORK CANCELLATION MAY RESULT IN A ONE-HALF DAY INSPECTION CHARGE TO THE DEVELOPER.
- ALL WATER MAIN AND SANITARY SEWER WORK WILL REQUIRE FULL TIME INSPECTION. FULL TIME INSPECTION WILL GENERALLY BE REQUIRED FOR UNDERGROUND STORM SEWER CONSTRUCTION, CONCRETE CURBING AND PAVING OPERATIONS. SITE GRADING AND DETENTION BASIN CONSTRUCTION WILL GENERALLY BE INSPECTED ON AN INTERMITTENT BASIS.

WATER SYSTEM NOTES

- MINIMUM WATER PRESSURE AT A DEAD END SHALL BE 20 PSI (RESIDUAL), AND 1000 GPM FLOW.
- WATER MAIN TO BE PLACED 7.5' INSIDE THE ROW LINE, GENERALLY ON THE N AND E SIDE.
- ALL WATER MAIN SHALL BE CENTERED ON A 20-FOOT EASEMENT WHERE LOCATED OUTSIDE THE 60-FOOT PRIVATE ROAD EASEMENT.
- PROVIDE 6 FEET OF COVER EXCEPT AT GATE WELLS (5- FEET)
- STREET TREES TO BE LOCATED A MINIMUM 3 FEET FROM WATER MAIN.
- WATER MAIN SHALL BE DUCTILE IRON, CLASS 54 W/ PUSH-ON JOINTS (INC. BENDS AND TEES)
- MINIMUM DOMESTIC SERVICE SHALL BE 1-INCH
- HYDRANT LEADS MAY BE 6-INCH DIAMETER EXCEPT WHERE OVER 40 FEET IN LENGTH.
- VALVES AND GATE WELLS SHALL BE LOCATED SO THAT NO MORE THAN FOUR (4) VALVES MUST BE CLOSED TO ISOLATE A SECTION OF WATER MAIN.
- VALVES SHALL BE LOCATED SO THAT NO MORE THAN 800 FEET OF WATERMAIN WILL BE OUT OF SERVICE.
- HYDRANT SPACING SHALL BE 500 FEET MAXIMUM IN SINGLE FAMILY RESIDENTIAL AREAS, AND SHOULD BE LOCATED AT INTERSECTIONS WHERE PRACTICAL.
- ALL MAINLINE GATE VALVES ARE TO BE WITHIN GATE WELLS, MATCHING THE WATERMAIN SIZE.
- HYDRANTS AND AUXILIARY VALVES SHALL BE LOCATED TO BE READILY AVAILABLE BY FIRE FIGHTING EQUIPMENT.
- HYDRANTS TO BE LOCATED 6 FEET FROM BACK OF CURB.
- WATERMAIN AROUND CUL-DE-SACS SHALL EXTEND AROUND THE BULB TO SERVE ALL FRONTING LOTS, WITH A TERMINUS HYDRANT LOCATED IN THE CUL-DE-SAC ISLAND IN A POSITION MOST PROMINENT TO ONCOMING TRAFFIC.
- REFER TO WHITE LAKE TOWNSHIP "STANDARD WATER MAIN DETAILS" FOR ADDITIONAL REQUIREMENTS FOR CONSTRUCTION.
- PER WHITE LAKE TOWNSHIP WATER MASTER PLAN, PROVIDE A 12-INCH MAIN FROM ELIZABETH LAKE ROAD TO THE SOUTHERN CONNECTION AT THE 12-INCH STUB IN "WILDFLOWER MANOR". REMAINING WATER MAIN SHALL BE 8-INCH DIAMETER.

SANITARY SYSTEM NOTES

- GENERALLY, NO SEWER SHALL BE LESS THAN 8 FEET DEEP FROM CROWN OF ROAD TO SEWER INVERT. IN NO CASE SHALL SEWER HAVE LESS THAN 4 FEET OF COVER.
- SANITARY SEWER TO BE PLACED 7.5' INSIDE THE ROW LINE, GENERALLY ON THE S AND W SIDE.
- ALL SANITARY SEWER SHALL BE CENTERED ON A 20-FOOT EASEMENT WHERE LOCATED OUTSIDE THE 60-FOOT PRIVATE ROAD EASEMENT.
- PROVIDE 6- FEET OF COVER EXCEPT AT GATE WELLS (5- FEET)
- STREET TREES TO BE LOCATED A MINIMUM 3- FEET FROM SEWER MAIN.
- PIPE MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT STANDARDS OF WHITE LAKE TOWNSHIP AND OAKLAND COUNTY WATER RESOURCE COMMISSIONER (OCWRC).
- CURRENT OCWRC "SANITARY SEWER CONSTRUCTION NOTES" MUST BE SHOWN ON FINAL CONSTRUCTION PLANS.
- OCWRC "STANDARD BEDDING" DETAILS SHALL BE USED FOR THE PIPE UTILIZED.
- PROPOSED SANITARY SEWER SHALL BE 8" MINIMUM DIAMETER.
- SERVICE LEADS SHALL BE 6 INCH MINIMUM INSTALLED AT A MINIMUM 1% GRADE.
- PROVIDE A 1 FOOT DEEP SUMP AT FURTHEST DOWNSTREAM MANHOLE FOR CONSTRUCTION AND TESTING PURPOSES
- FURTHEST UPSTREAM PIPE RUNS SHALL HAVE A MINIMUM 1% GRADE UNLESS APPROVED BY THE TOWNSHIP ENGINEER.
- NO CONDUIT THAT CARRIES STORMWATER OR GROUND WATER IS PERMITTED TO DISCHARGE INTO THE SANITARY SEWER SYSTEM.
- INTERNAL DROP CONNECTIONS PER OAKLAND COUNTY STANDARD DETAILS ARE REQUIRED WHERE A DROP OF 18 INCHES OR MORE OCCURS AT A MANHOLE.
- MATCH THE 8/10 POINT AT MANHOLES WHERE DIFFERING PIPE SIZES ARE PROPOSED.
- WHERE A CHANGE IN PIPE DIRECTION OF 135 DEGREES OR LESS IS CREATED AT A MANHOLE, PROVIDE A 0.1 FOOT DROP IN PIPE INVERTS FROM UPSTREAM TO DOWNSTREAM.
- REFER TO THE "SANITARY SEWER STANDARD DETAILS" SHEET(S) FOR ADDITIONAL REQUIREMENTS FOR CONSTRUCTION, TO BE PROVIDED ON ENGINEERING PLANS.

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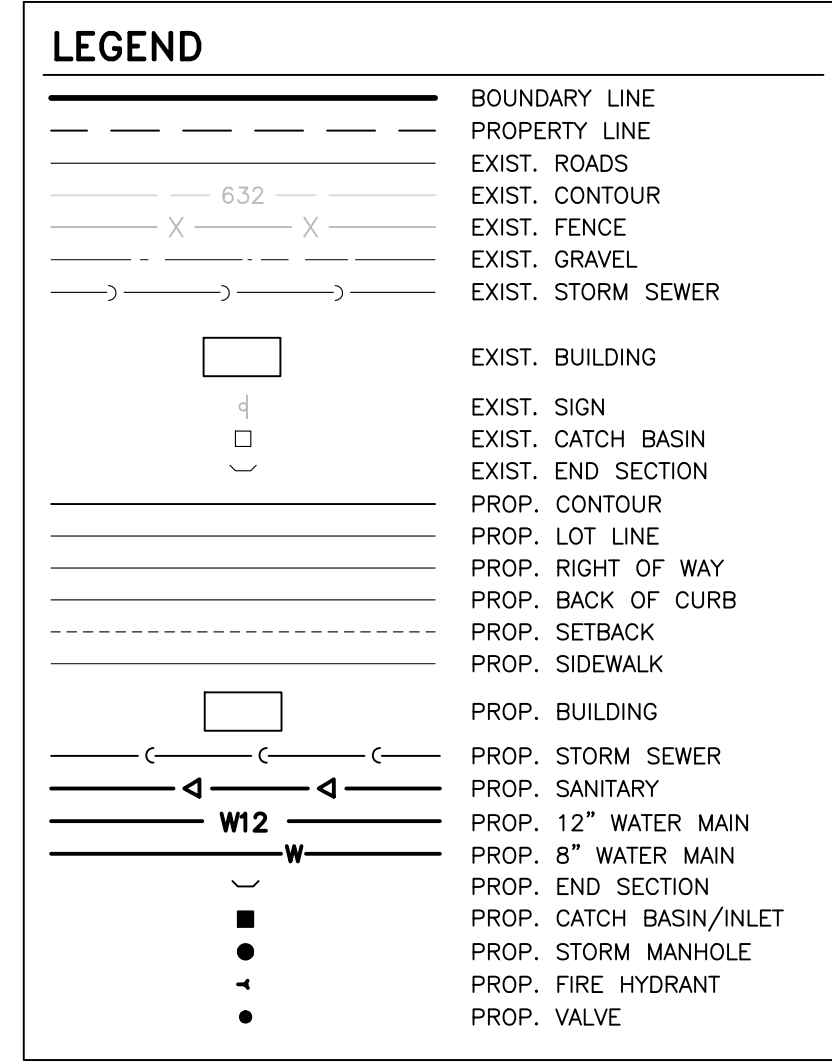
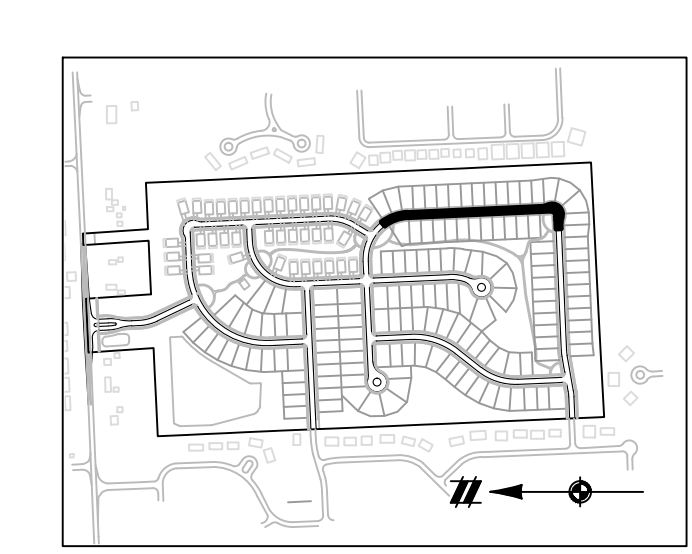
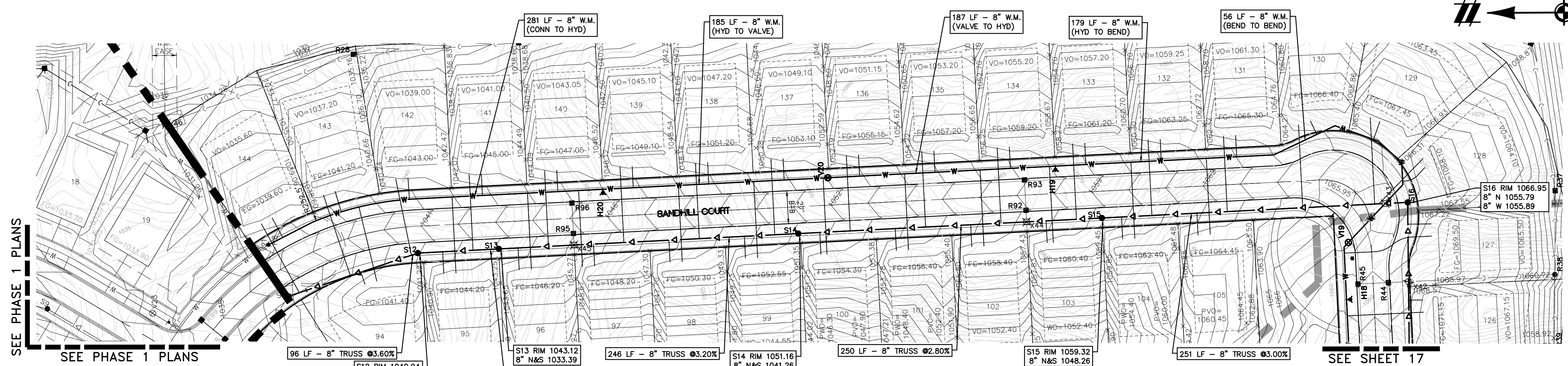
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SECTION 25
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OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
SANDHILL COURT SANITARY & WATER MAIN PLAN

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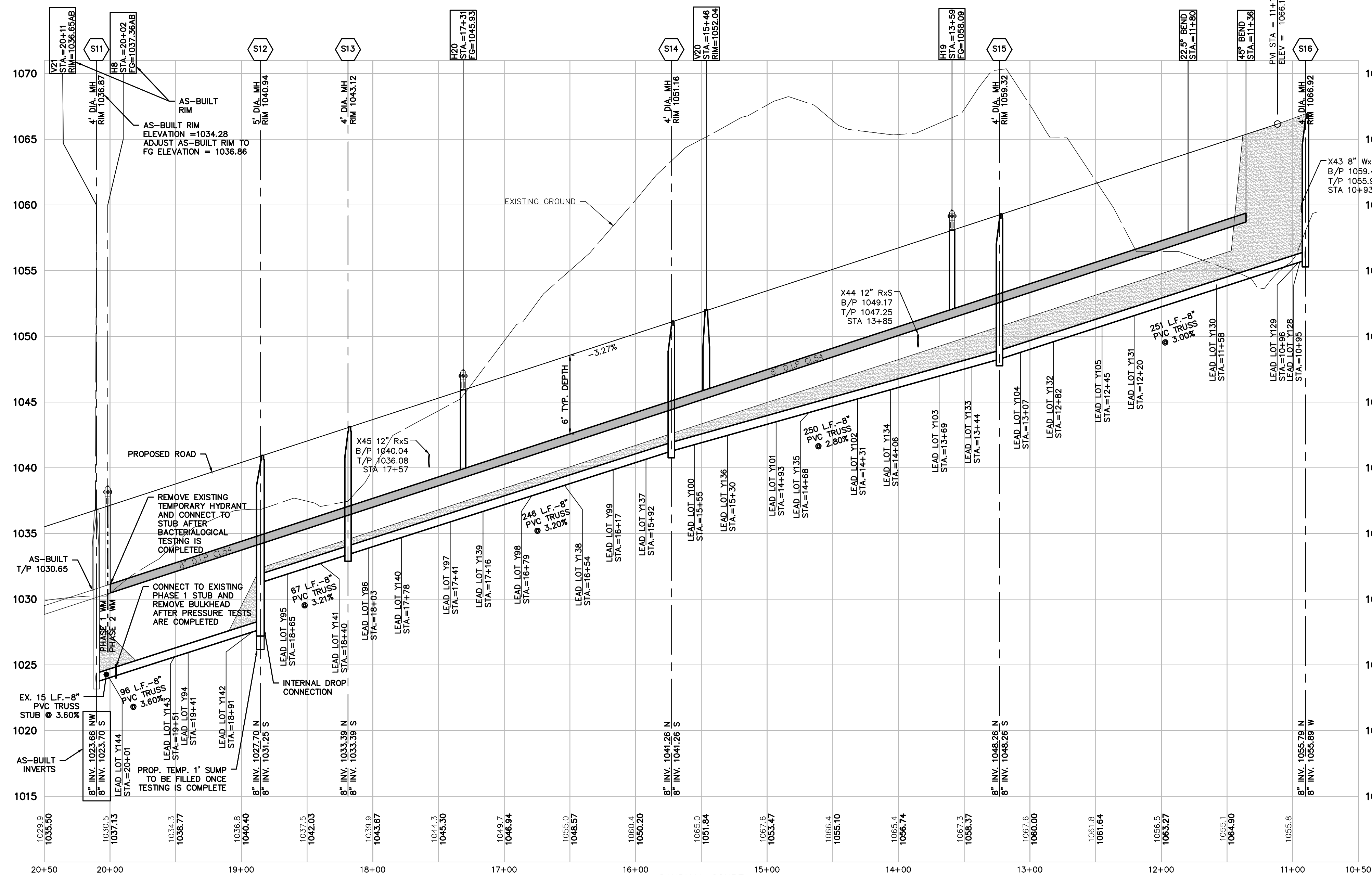


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SANITARY LEAD TABLE

LEAD NO	SIZE	STA FROM DIS MANHOLE	STA TO	RISE (FT)	LENGTH (FT)	INVERT ELEV AT END OF LEAD	LOT FG
Y94	6" SDR 23.5	STA 0+62	3' RISER	11 LF	1030.40	1041.40	
Y95	6" SDR 23.5	STA 0+20	0' RISER	18 LF	1033.20	1044.20	
Y96	6" SDR 23.5	STA 0+16	0' RISER	18 LF	1035.20	1046.20	
Y97	6" SDR 23.5	STA 0+78	0' RISER	18 LF	1037.20	1048.20	
Y98	6" SDR 23.5	STA 1+40	0' RISER	18 LF	1039.30	1050.30	
Y99	6" SDR 23.5	STA 2+02	0' RISER	18 LF	1041.55	1052.55	
Y100	6" SDR 23.5	STA 0+16	0' RISER	18 LF	1043.30	1054.30	
Y101	6" SDR 23.5	STA 0+30	1' RISER	18 LF	1045.40	1056.40	
Y102	6" SDR 23.5	STA 1+42	1' RISER	18 LF	1047.40	1058.40	
Y103	6" SDR 23.5	STA 2+04	1' RISER	18 LF	1049.40	1060.40	
Y104	6" SDR 23.5	STA 0+16	1' RISER	18 LF	1051.40	1062.40	
Y105	6" SDR 23.5	STA 0+78	2' RISER	18 LF	1053.45	1064.45	
Y106	6" SDR 23.5	STA 2+28	0' RISER	52 LF	1057.10	1068.10	
Y107	6" SDR 23.5	STA 2+24	0' RISER	71 LF	1056.45	1067.45	
Y108	6" SDR 23.5	STA 1+65	0' RISER	68 LF	1055.40	1066.40	
Y109	6" SDR 23.5	STA 1+03	0' RISER	62 LF	1054.30	1065.30	
Y110	6" SDR 23.5	STA 0+41	0' RISER	62 LF	1052.25	1063.25	
Y111	6" SDR 23.5	STA 2+29	0' RISER	62 LF	1050.20	1061.20	
Y112	6" SDR 23.5	STA 1+67	0' RISER	62 LF	1048.20	1059.20	
Y113	6" SDR 23.5	STA 1+05	0' RISER	62 LF	1046.20	1057.20	
Y114	6" SDR 23.5	STA 0+43	0' RISER	62 LF	1044.15	1055.15	
Y115	6" SDR 23.5	STA 2+27	0' RISER	62 LF	1042.10	1053.10	
Y116	6" SDR 23.5	STA 1+65	0' RISER	62 LF	1040.20	1051.20	
Y117	6" SDR 23.5	STA 1+03	0' RISER	62 LF	1038.10	1049.10	
Y118	6" SDR 23.5	STA 0+41	0' RISER	62 LF	1036.05	1047.05	
Y119	6" SDR 23.5	STA 0+45	0' RISER	62 LF	1034.00	1045.00	
Y120	6" SDR 23.5	STA 1+06	3' RISER	70 LF	1032.00	1043.00	
Y121	6" SDR 23.5	STA 0+33	3' RISER	70 LF	1030.20	1041.20	
Y122	6" SDR 23.5	STA 0+28	3' RISER	64 LF	1028.80	1039.80	



QUANTITIES (PH2)

8" SAN	910 LF
8" WM	888 LF

SEE PHASE 1 PLANS

SEE PHASE 1 PLANS

SEE SHEET 17

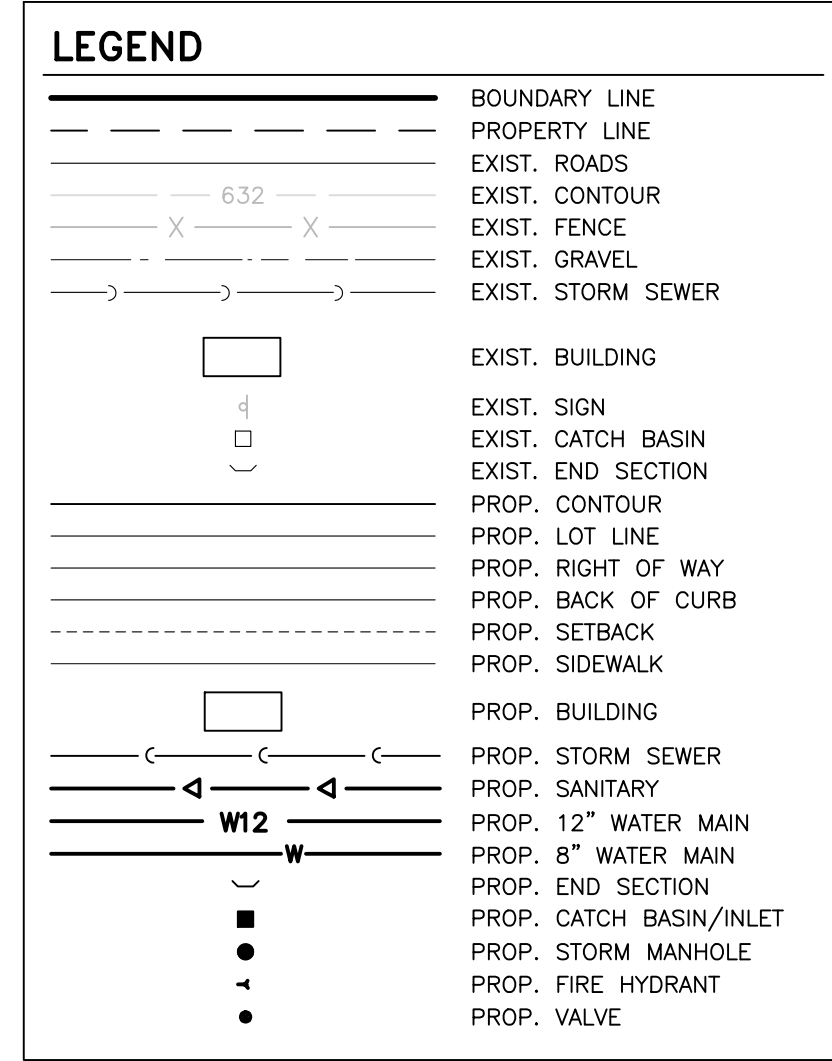
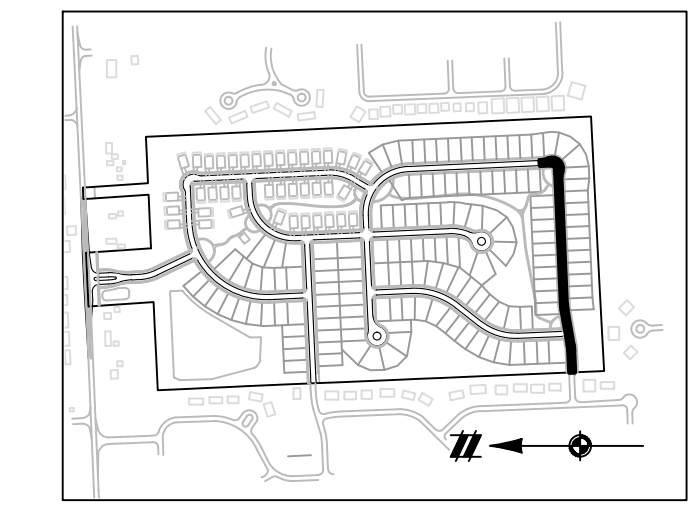
SANDHILL COURT
VERT: 1"=5'
HORIZ: 1"=50'

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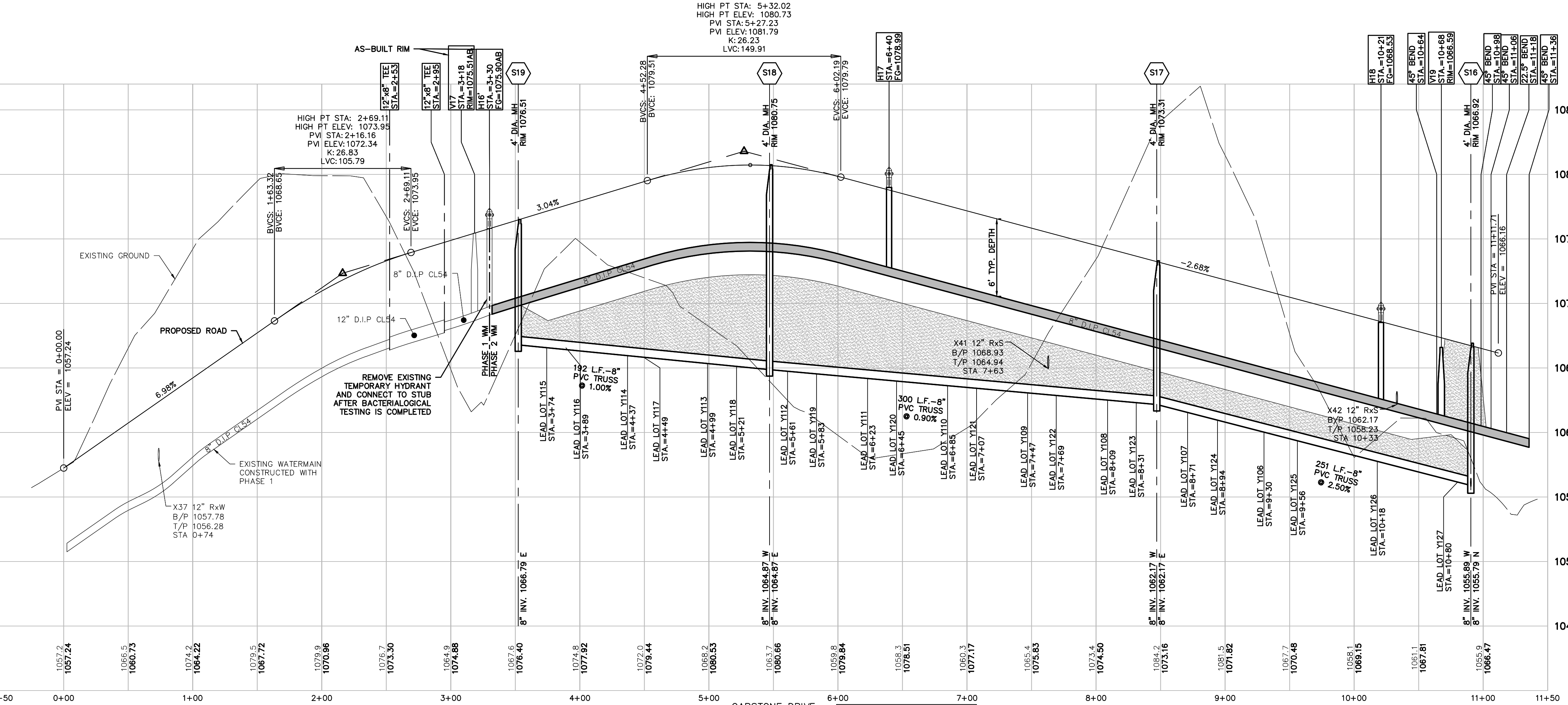
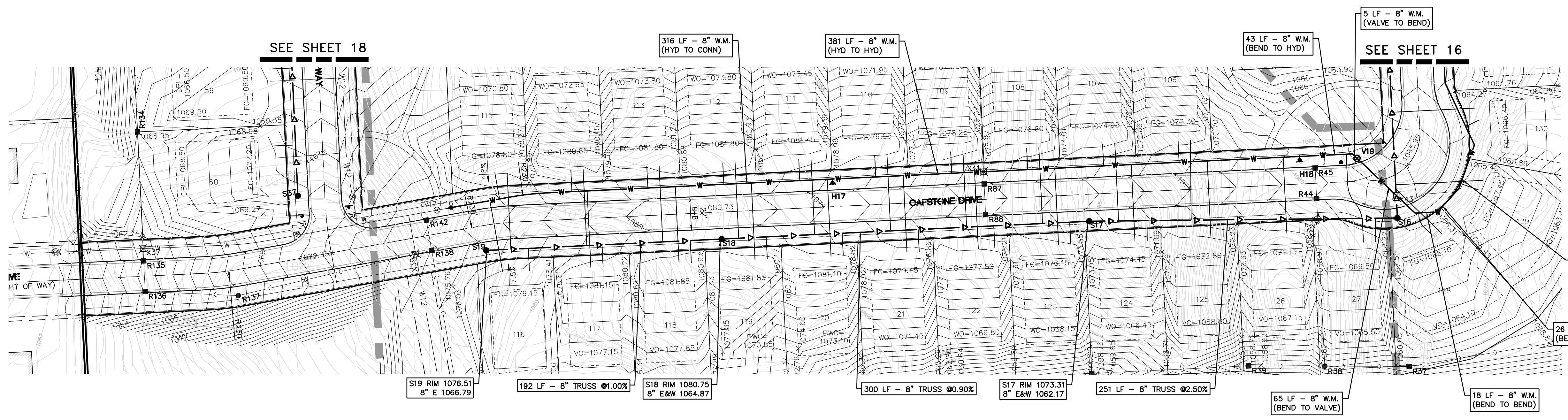
NOTICE: CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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WATER MAIN NOTES:

- ALL PROPOSED WATER MAIN SHALL BE DUCTILE IRON, CLASS 54.
- ALL WATER MAIN SHALL HAVE A MINIMUM OF 6' COVER, EXCEPT AT GATE WELLS WHERE 5' IS REQUIRED.
- ALL HYDRANTS TO BE A MINIMUM 6' OFF BACK OF CURB.
- CENTER FULL STICK OF PIPE AT ALL WATER MAIN / UTILITY CROSSINGS.
- ALL WATERMAIN SHOWN ON THIS SHEET SHALL BE CONSTRUCTED DURING PHASE 2.



SANITARY LEAD TABLE

LEAD NO.	SIZE	STA. FROM DIS MANHOLE	RISER (FT)	LENGTH (FT)	INVERT ELEV. AT END OF LEAD	LOT FG
Y106	6" SDR 23.5	STA 1+68	0'0" RISER	63 LF	1063.30	1073.30
Y107	6" SDR 23.5	STA 2+27	0'0" RISER	63 LF	1063.95	1074.95
Y108	6" SDR 23.5	STA 0+38	0'0" RISER	62 LF	1065.60	1076.60
Y109	6" SDR 23.5	STA 1+00	2'5" RISER	62 LF	1067.25	1078.25
Y110	6" SDR 23.5	STA 1+62	4'0" RISER	62 LF	1068.95	1079.95
Y111	6" SDR 23.5	STA 2+24	4'5" RISER	62 LF	1070.45	1081.45
Y112	6" SDR 23.5	STA 2+86	4'5" RISER	62 LF	1070.80	1081.80
Y113	6" SDR 23.5	STA 0+48	4'0" RISER	62 LF	1070.80	1081.80
Y114	6" SDR 23.5	STA 1+10	0'0" RISER	62 LF	1069.65	1080.65
Y115	6" SDR 23.5	STA 1+72	0'0" RISER	62 LF	1067.88	1078.88
Y116	6" SDR 23.5	STA 1+58	0'0" RISER	18 LF	1068.15	1079.15
Y117	6" SDR 23.5	STA 0+98	3'0" RISER	18 LF	1070.15	1081.15
Y118	6" SDR 23.5	STA 0+26	4'5" RISER	18 LF	1070.85	1081.85
Y119	6" SDR 23.5	STA 2+64	5'0" RISER	18 LF	1070.85	1081.85
Y120	6" SDR 23.5	STA 2+02	5'0" RISER	18 LF	1070.10	1081.10
Y121	6" SDR 23.5	STA 1+40	4'0" RISER	18 LF	1068.45	1079.45
Y122	6" SDR 23.5	STA 0+78	3'0" RISER	18 LF	1066.80	1077.80
Y123	6" SDR 23.5	STA 0+18	1'5" RISER	18 LF	1065.15	1076.15
Y124	6" SDR 23.5	STA 2+04	1'5" RISER	16 LF	1063.45	1074.45
Y125	6" SDR 23.5	STA 1+42	1'5" RISER	14 LF	1061.80	1072.80
Y126	6" SDR 23.5	STA 0+80	1'0" RISER	12 LF	1060.15	1071.15
Y127	6" SDR 23.5	STA 0+18	1'0" RISER	19 LF	1058.50	1069.50

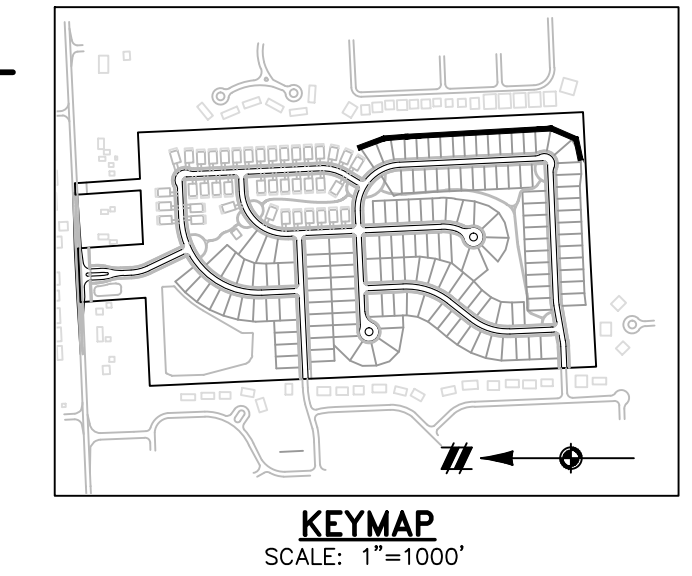
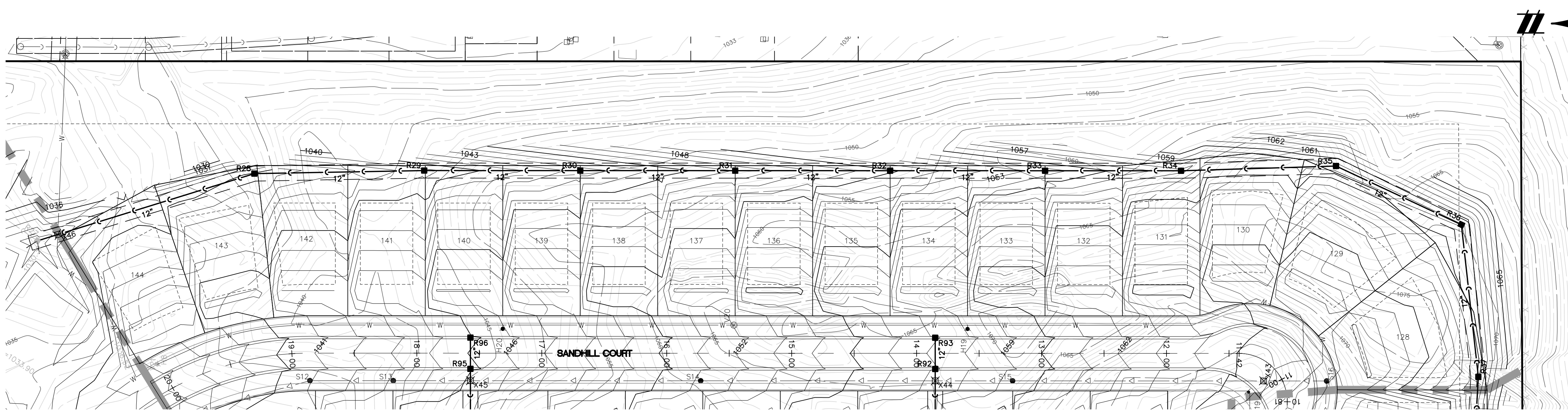
QUANTITIES (PH2)
743 LF
8" SAN
8" WM

SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
CAPSTONE DRIVE SANITARY & WATER MAIN PLAN

DATE: OCTOBER 29, 2020
02/17/2021: REV PER TOWNSHIP
05/27/2021: REV PER OCMRC
07/09/2021: AMENDMENT TO FSP

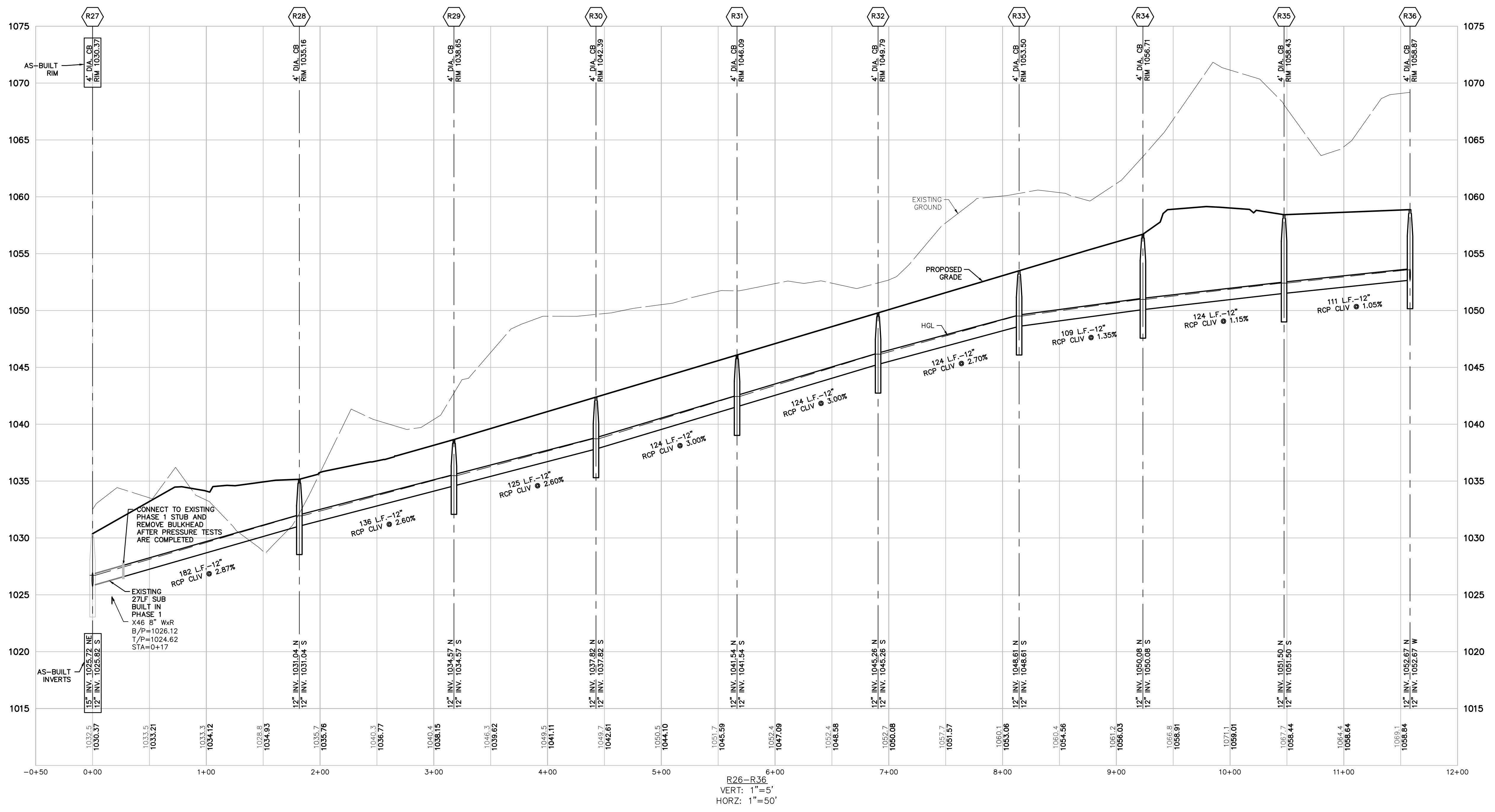
REVISIONS
SCALE: 0 25 50
1" = 50 FEET
DR. SK/KS GH. CK
P.M. M BUSH
BOOK --
JOB 18003309
SHEET NO. 17



- STORM SEWER NOTES:**
- REFER TO GENERAL NOTES ON SHEETS 01 AND 06.
 - REFER TO WHITE LAKE TOWNSHIP STANDARD STORM DETAILS AND NOTES ON SHEET DT4.
 - DUE TO THE PRESENCE OF PRIMARILY INFILTRATIVE SOILS (HYDROLOGIC GROUP 'A') ACROSS THE SITE, CONTINUOUS EDGE DRAIN BEHIND THE CURB IS NOT PROPOSED UNLESS FIELD CONDITIONS WARRANT INSTALLATION AS DIRECTED BY THE WHITE LAKE TOWNSHIP ON-SITE INSPECTOR. REFER TO NOTE #7 ON SHEET DT4 REGARDING FINGER DRAIN INSTALLATION AT LOW-POINT CATCH BASINS IN PAVED AREAS.
 - STORM SEWER SUMP LEADS MUST BE CONSTRUCTED WITH 3-INCH SCHEDULE 40 PVC PIPE.

LEGEND

	BOUNDARY LINE
	PROPERTY LINE
	EXIST. ROADS
	EXIST. CONTOUR
	EXIST. FENCE
	EXIST. GRAVEL
	EXIST. STORM SEWER
	EXIST. BUILDING
	EXIST. WETLAND
	EXIST. SIGN
	EXIST. CATCH BASIN
	EXIST. END SECTION
	PROP. CONTOUR
	PROP. LOT LINE
	PROP. RIGHT OF WAY
	PROP. BACK OF CURB
	PROP. SETBACK
	PROP. SIDEWALK
	PROP. BUILDING
	PROP. STORM SEWER
	PROP. SANITARY
	PROP. 12" WATER MAIN
	PROP. 8" WATER MAIN
	PROP. END SECTION
	PROP. CATCH BASIN/INLET
	PROP. STORM MANHOLE
	PROP. FIRE HYDRANT
	PROP. VALVE



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

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WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/1 HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
STORM SEWER PROFILES - 1

DATE: OCTOBER 29, 2020
02/17/2021: REV PER TOWNSHIP
05/27/2021: REV PER OCMRC
07/09/2021: AMENDMENT TO FSP

REVISIONS

SCALE: 0 25 50
1" = 50 FEET

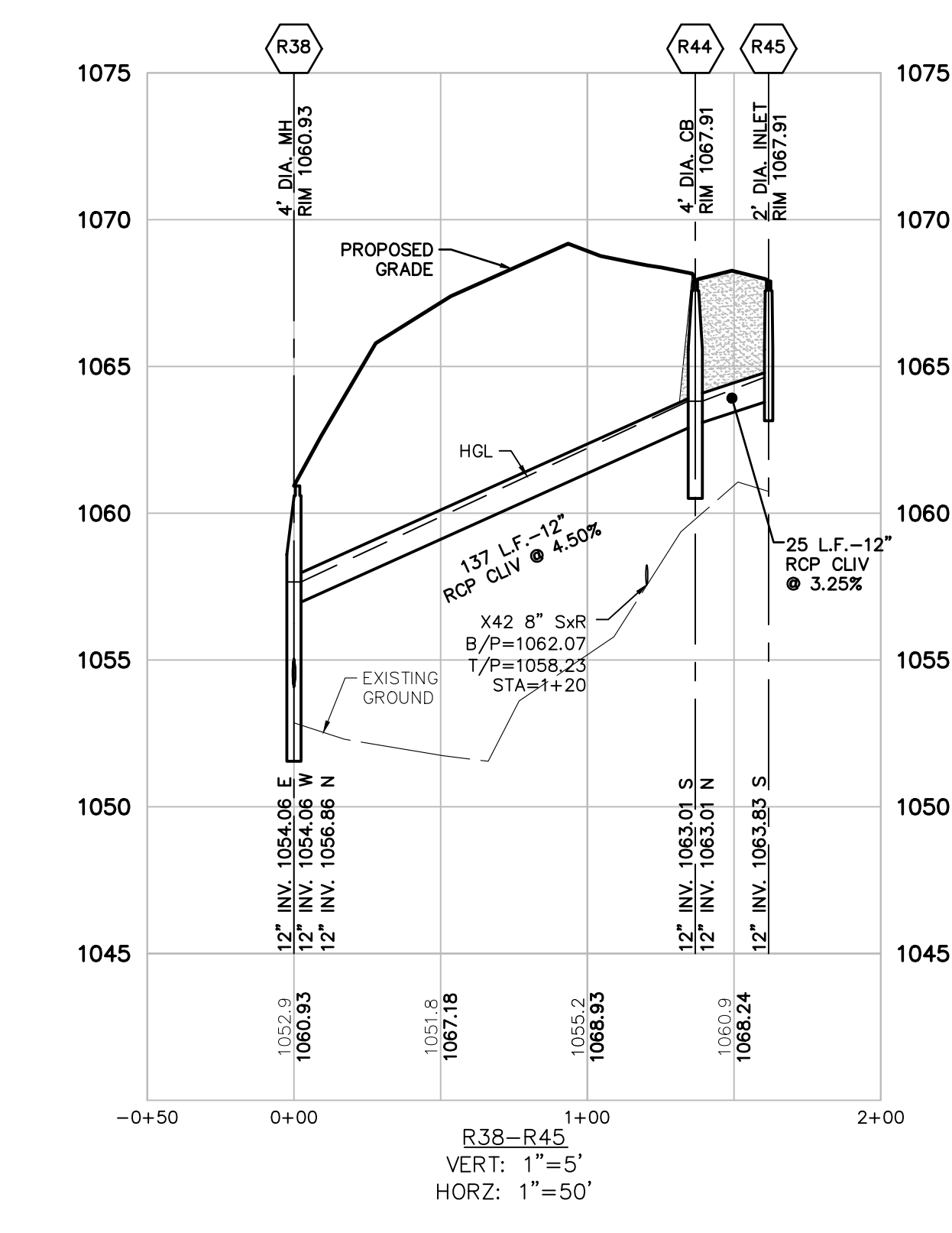
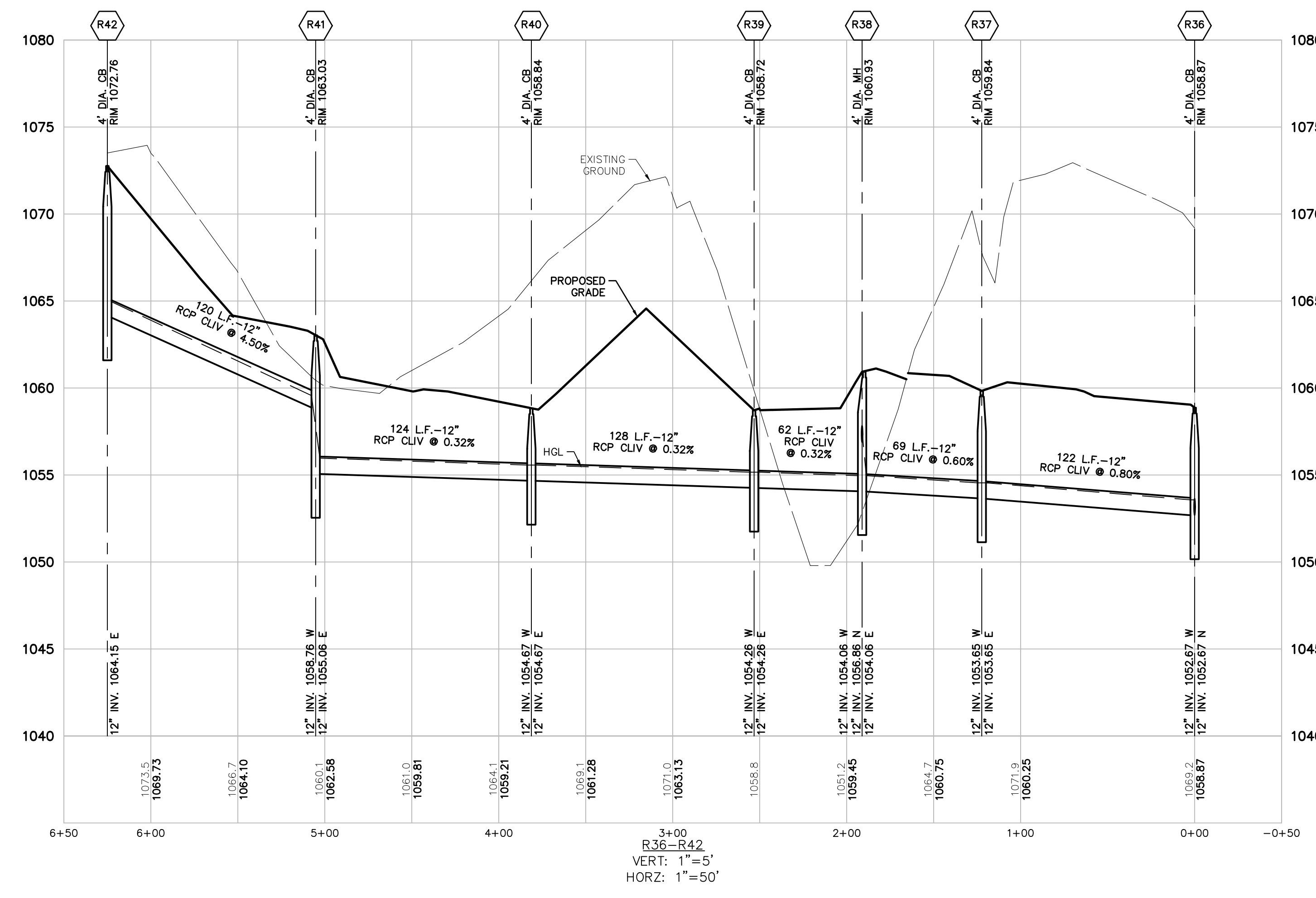
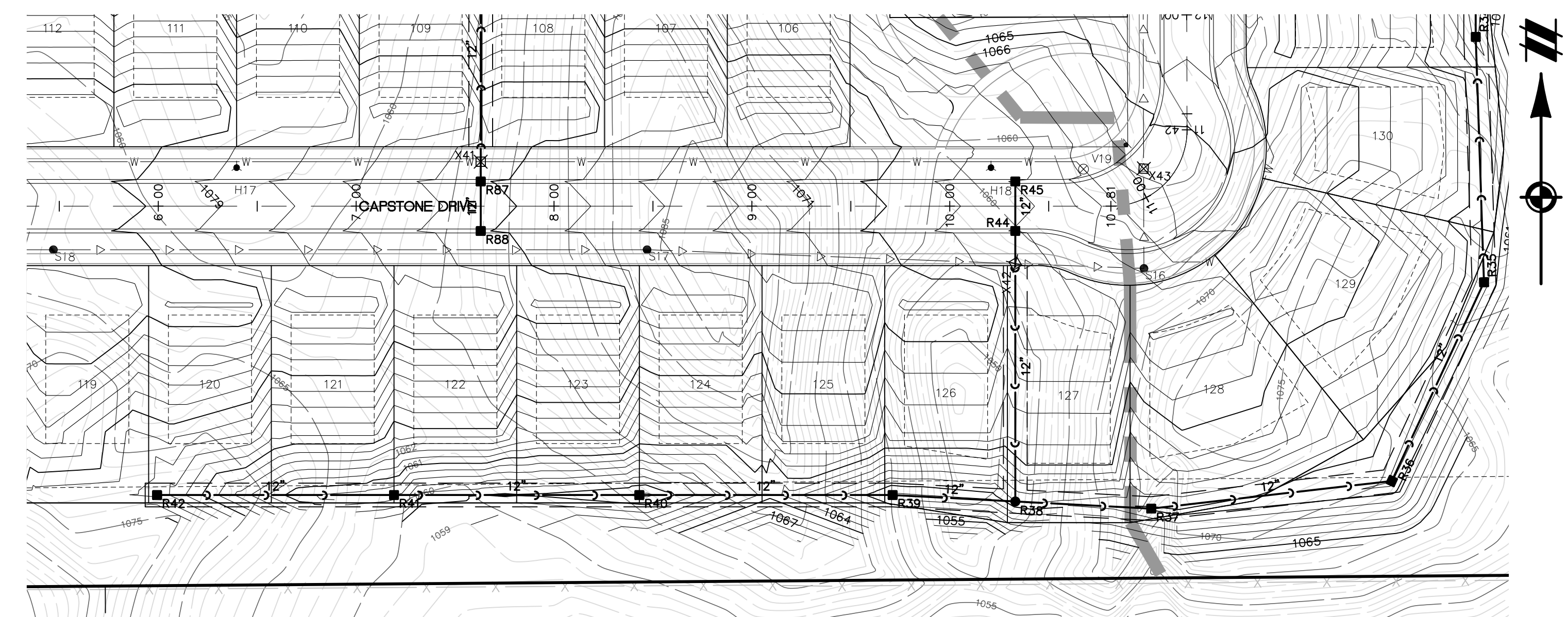
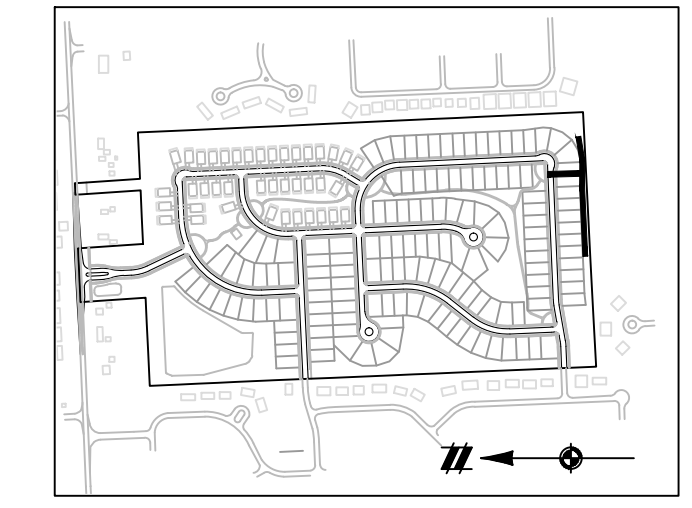
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BOOK --
JOB 18003309
SHEET NO. 20

FILE: 18003309S2-13-STRPROF.DWG

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STORM SEWER NOTES:
SEE SHEET 20 FOR STORM SEWER NOTES.

LEGEND	
	BOUNDARY LINE
	PROPERTY LINE
	EXIST. ROADS
	EXIST. CONTOUR
	EXIST. FENCE
	EXIST. GRAVEL
	EXIST. STORM SEWER
	EXIST. BUILDING
	EXIST. WETLAND
	EXIST. SIGN
	EXIST. CATCH BASIN
	EXIST. END SECTION
	PROP. CONTOUR
	PROP. LOT LINE
	PROP. RIGHT OF WAY
	PROP. BACK OF CURB
	PROP. SETBACK
	PROP. SIDEWALK
	PROP. BUILDING
	PROP. STORM SEWER
	PROP. SANITARY
	PROP. 12" WATER MAIN
	PROP. 8" WATER MAIN
	PROP. END SECTION
	PROP. CATCH BASIN/INLET
	PROP. STORM MANHOLE
	PROP. FIRE HYDRANT
	PROP. VALVE

SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
STORM SEWER PROFILES - 2

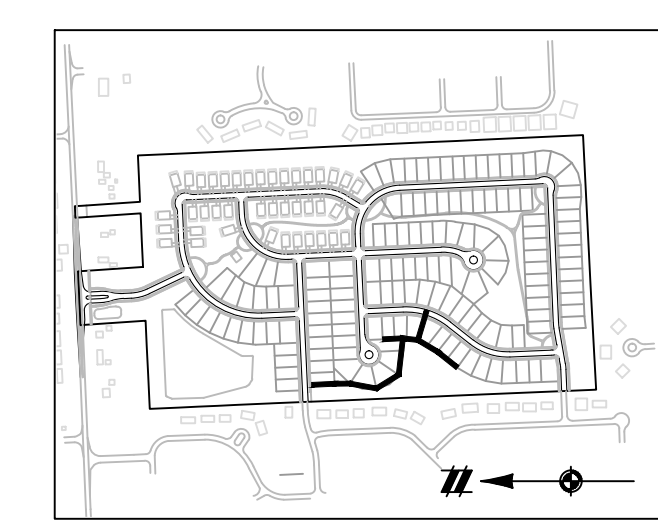
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05/27/2021: REV PER OCMRC
07/09/2021: AMENDMENT TO FSP

REVISIONS
SCALE: 0 25 50
1" = 50 FEET
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P.M. M BUSH
BOOK --
JOB 18003309
SHEET NO. 21

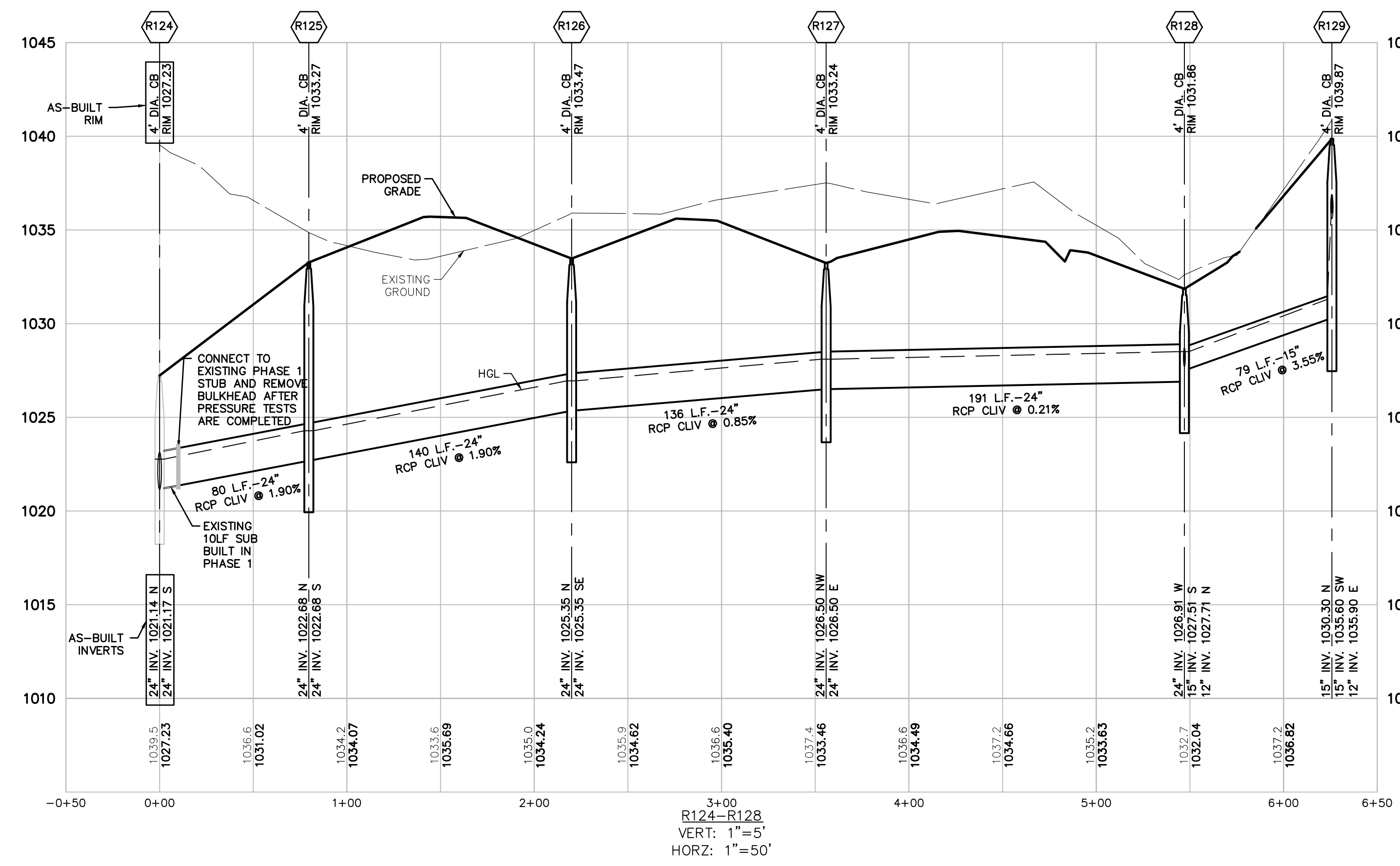
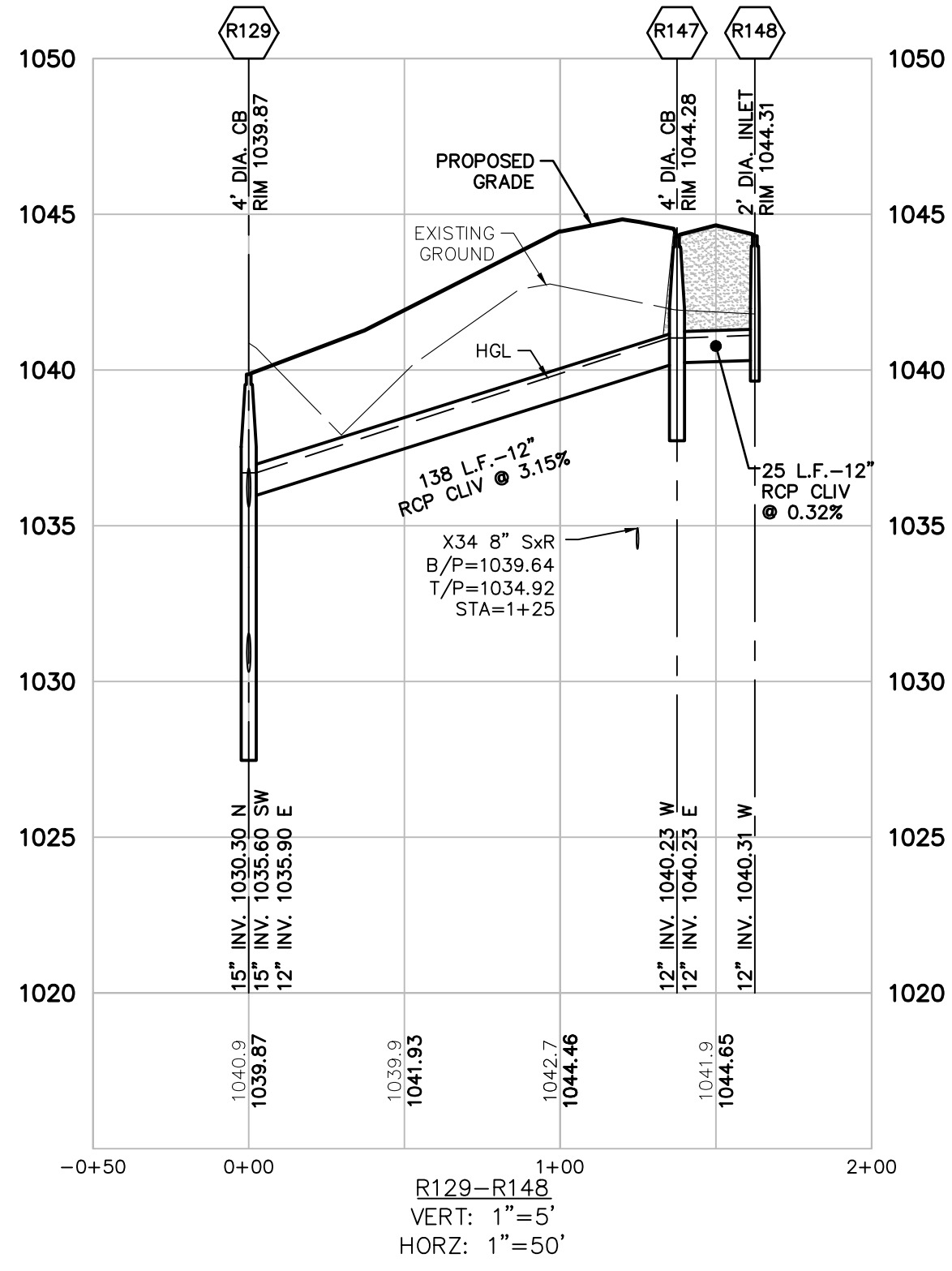
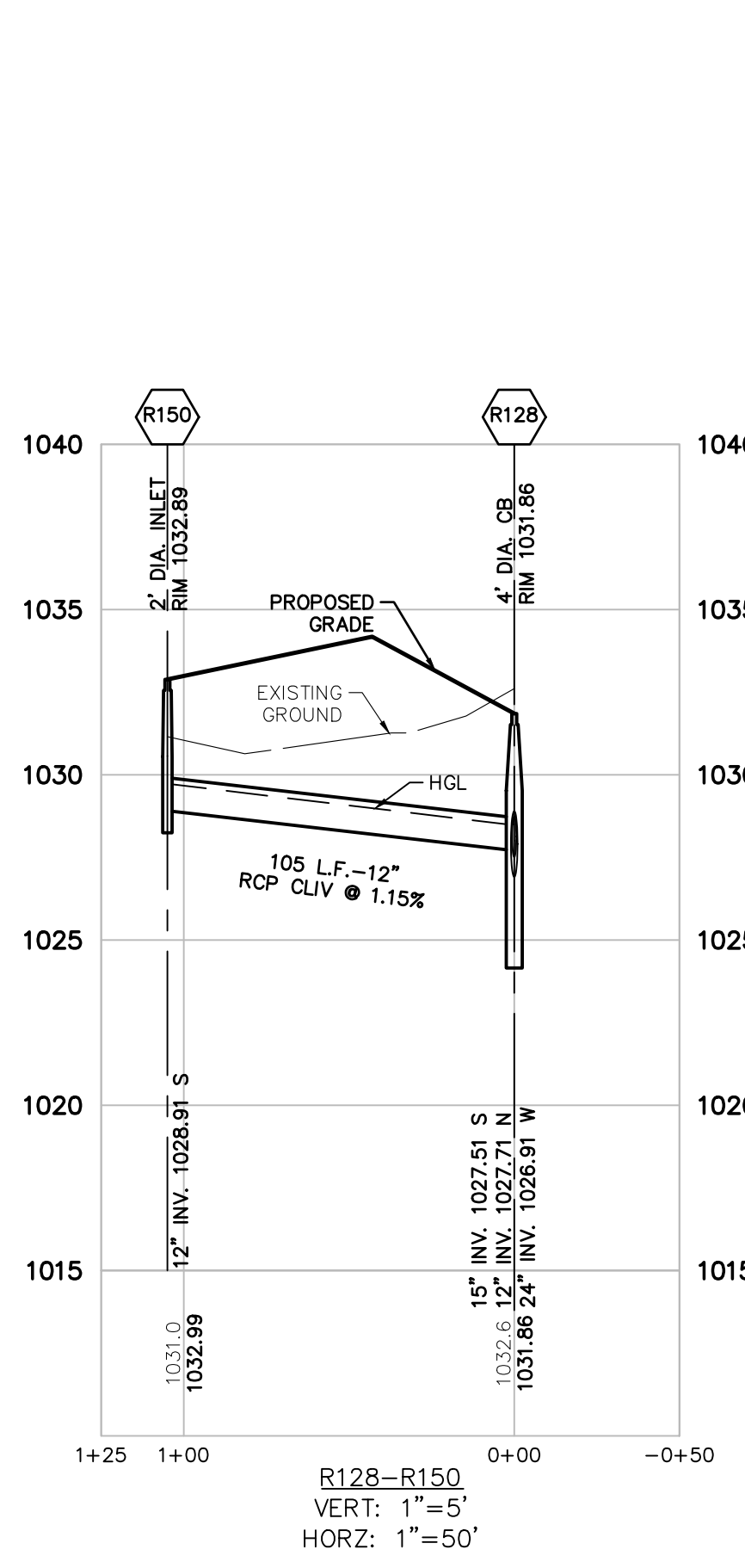
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KEYMAP
SCALE: 1"=1000'



STORM SEWER NOTES:
SEE SHEET 20 FOR STORM SEWER NOTES.

LEGEND

	BOUNDARY LINE
	PROPERTY LINE
	EXIST. ROADS
	EXIST. CONTOUR
	EXIST. FENCE
	EXIST. GRAVEL
	EXIST. STORM SEWER
	EXIST. BUILDING
	EXIST. WETLAND
	EXIST. SIGN
	EXIST. CATCH BASIN
	EXIST. END SECTION
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	PROP. 12" WATER MAIN
	PROP. 8" WATER MAIN
	PROP. END SECTION
	PROP. CATCH BASIN/INLET
	PROP. STORM MANHOLE
	PROP. FIRE HYDRANT
	PROP. VALVE

SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
STORM SEWER PROFILES - 3

DATE: OCTOBER 29, 2020
02/17/2021: REV PER TOWNSHIP
05/27/2021: REV PER OCMRC
07/09/2021: AMENDMENT TO FSP

REVISIONS

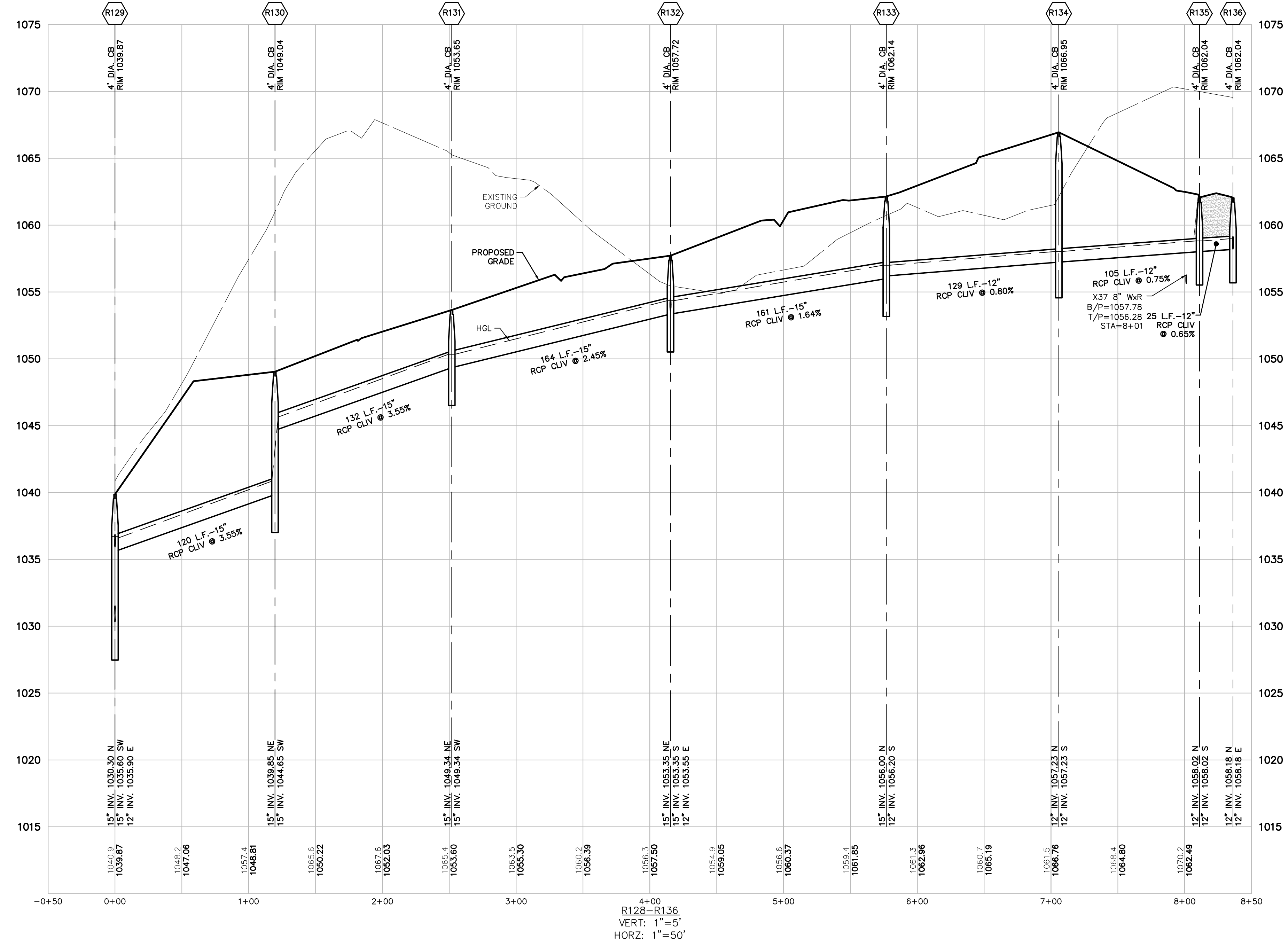
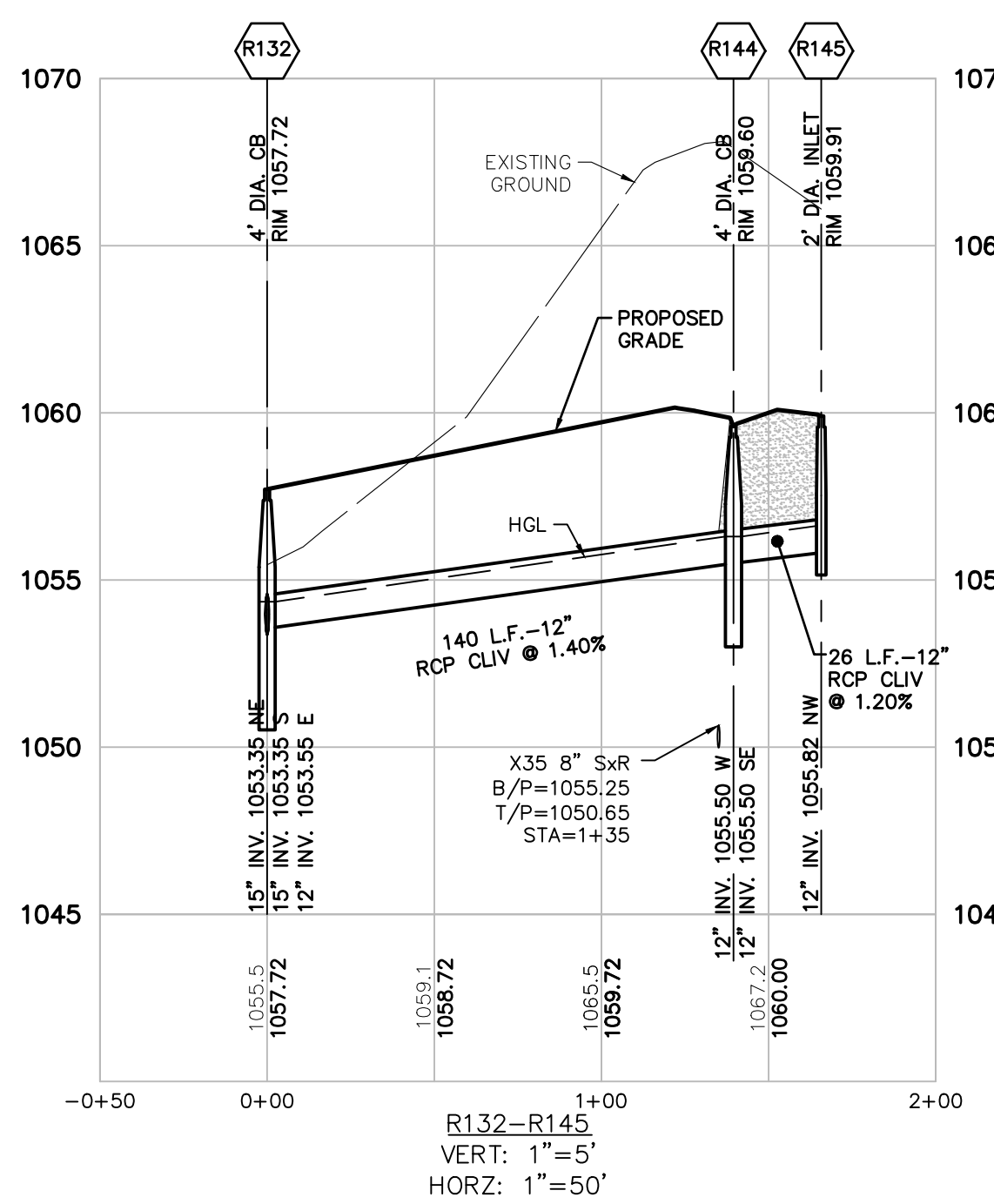
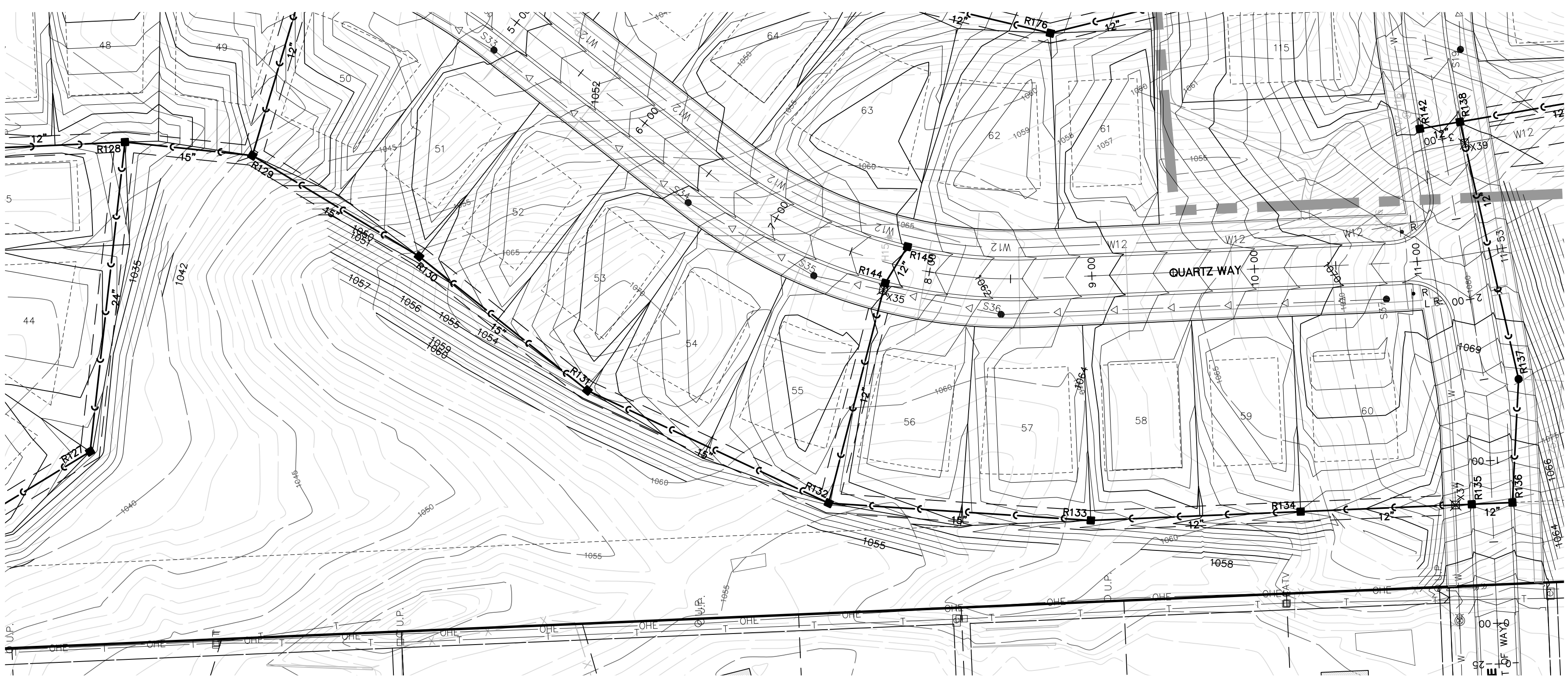
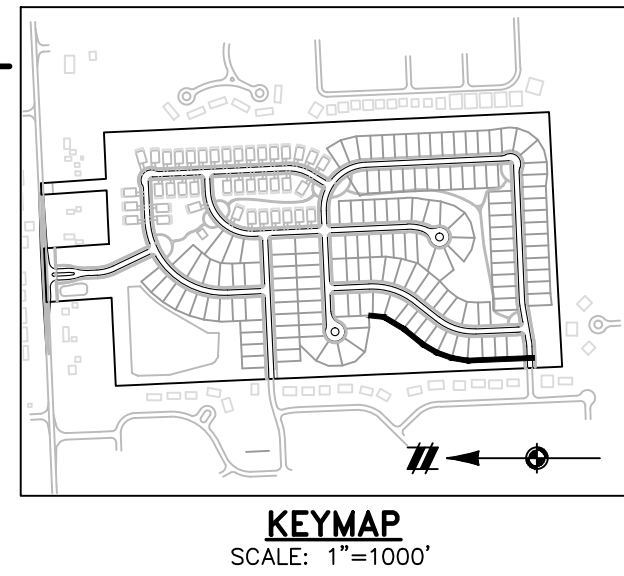
SCALE: 0 25 50
1" = 50 FEET

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JOB 18003309
SHEET NO. 22

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STORM SEWER NOTES:
SEE SHEET 20 FOR STORM SEWER NOTES.

LEGEND

	BOUNDARY LINE
	PROPERTY LINE
	EXIST. ROADS
	EXIST. CONTOUR
	EXIST. FENCE
	EXIST. GRAVEL
	EXIST. STORM SEWER
	EXIST. BUILDING
	EXIST. WETLAND
	EXIST. SIGN
	EXIST. CATCH BASIN
	EXIST. END SECTION
	PROP. CONTOUR
	PROP. LOT LINE
	PROP. RIGHT OF WAY
	PROP. BACK OF CURB
	PROP. SETBACK
	PROP. SIDEWALK
	PROP. BUILDING
	PROP. STORM SEWER
	PROP. SANITARY
	PROP. 12" WATER MAIN
	PROP. 8" WATER MAIN
	PROP. END SECTION
	PROP. CATCH BASIN/INLET
	PROP. STORM MANHOLE
	PROP. FIRE HYDRANT
	PROP. VALVE

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
STORM SEWER PROFILES - 4

DATE: OCTOBER 29, 2020
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SCALE: 0 25 50
1" = 50 FEET

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BOOK --
JOB 18003309
SHEET NO. 23



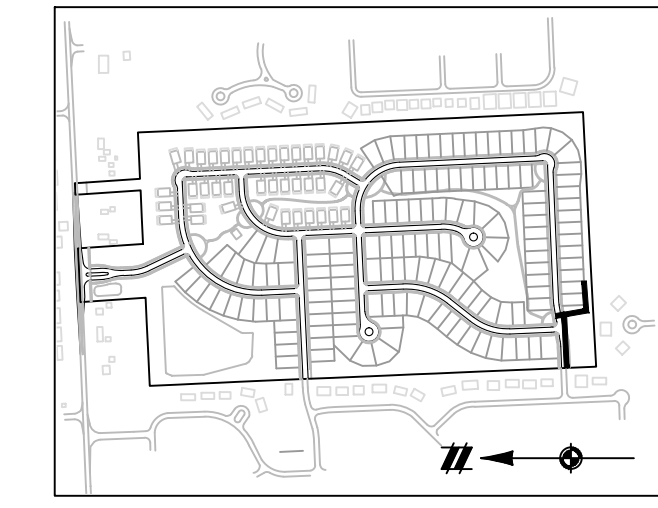
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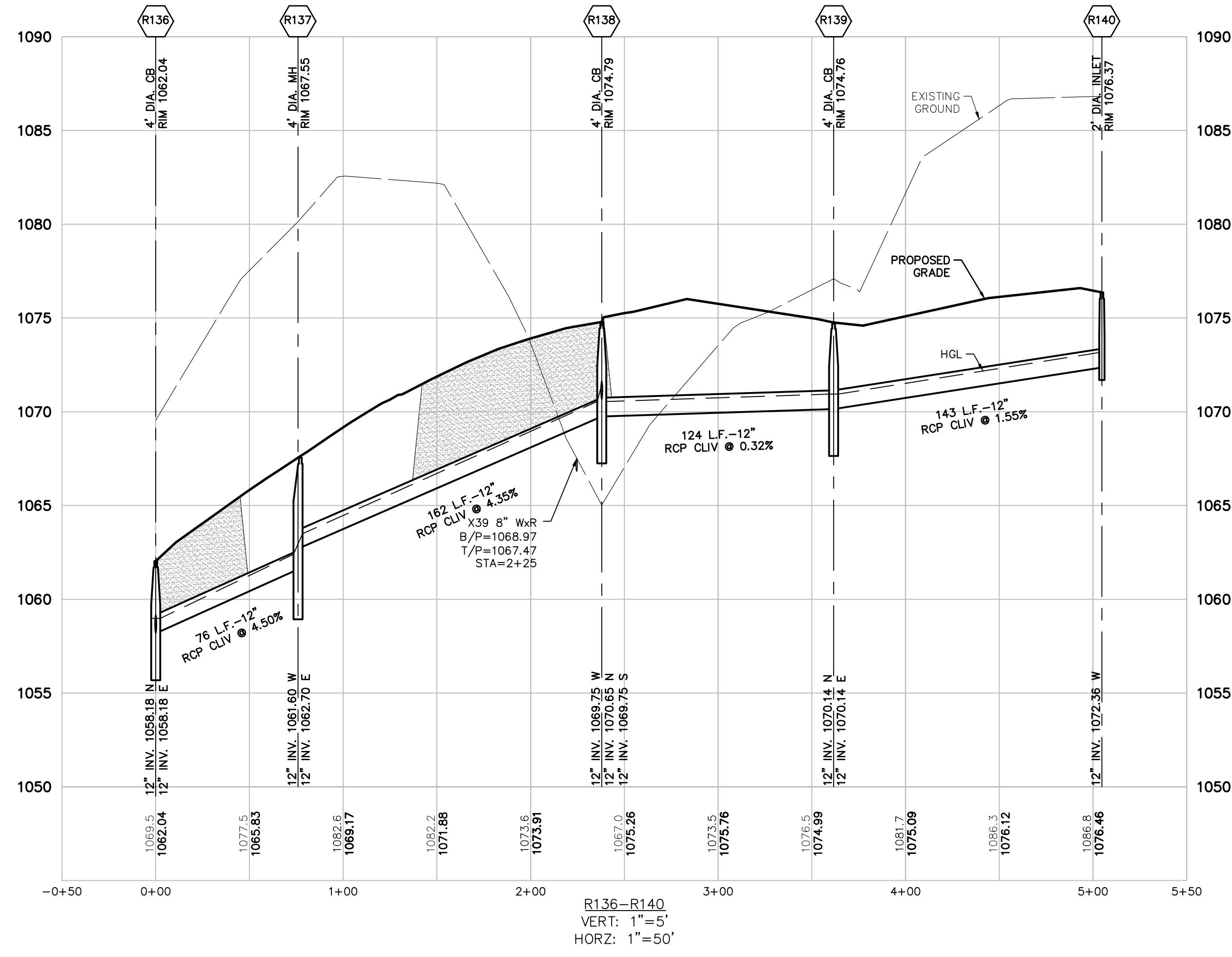
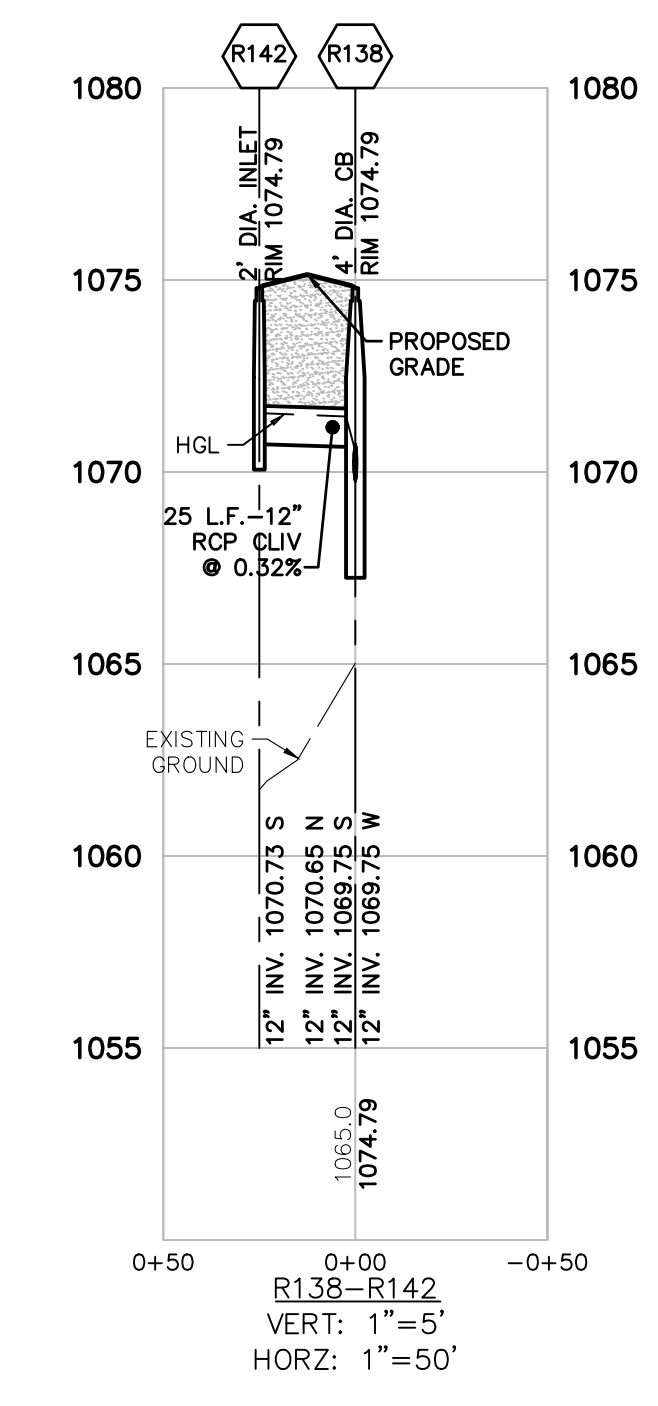
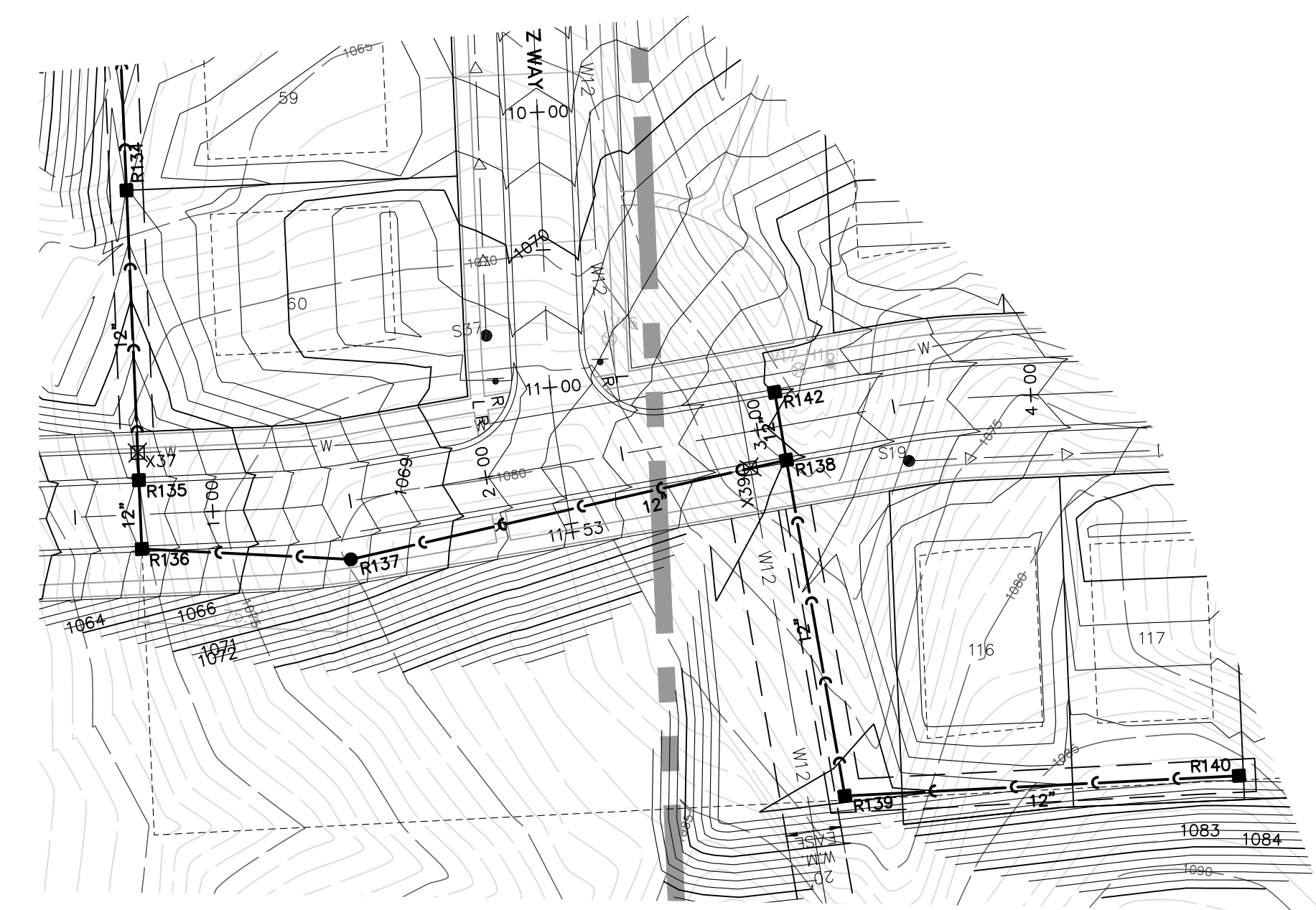
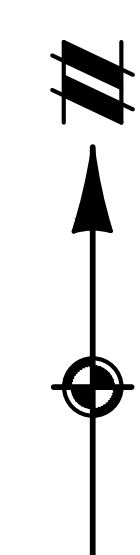
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STORM SEWER NOTES:
SEE SHEET 20 FOR STORM SEWER NOTES.

LEGEND

---	BOUNDARY LINE
---	PROPERTY LINE
---	EXIST. ROADS
---	EXIST. CONTOUR
X X	EXIST. FENCE
---	EXIST. GRAVEL
---	EXIST. STORM SEWER
---	EXIST. BUILDING
---	EXIST. WETLAND
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---	EXIST. CATCH BASIN
---	EXIST. END SECTION
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---	PROP. 8" WATER MAIN
---	PROP. END SECTION
---	PROP. CATCH BASIN/INLET
---	PROP. STORM MANHOLE
---	PROP. FIRE HYDRANT
---	PROP. VALVE



SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
STORM SEWER PROFILES - 5

DATE: OCTOBER 29, 2020
02/17/2021: REV PER TOWNSHIP
05/27/2021: REV PER OCMRC
07/09/2021: AMENDMENT TO FSP

REVISIONS

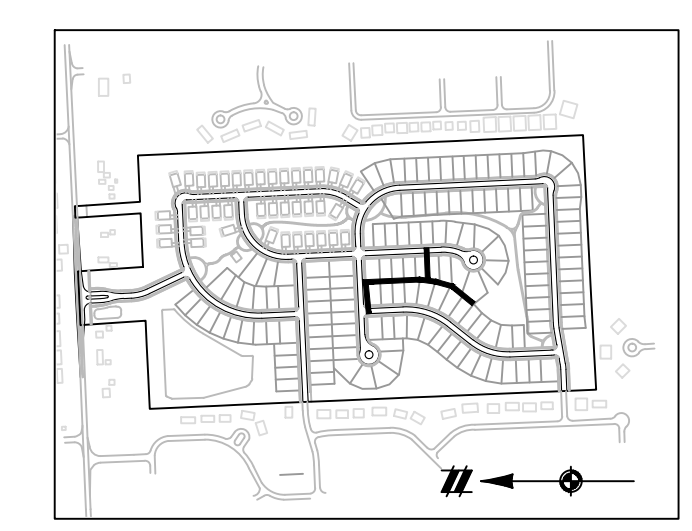
SCALE	0 25 50
1" = 50 FEET	
DR. SK/KS	GH. CK
P.M.	M BUSH
BOOK	--
JOB	18003309
SHEET NO.	24

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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

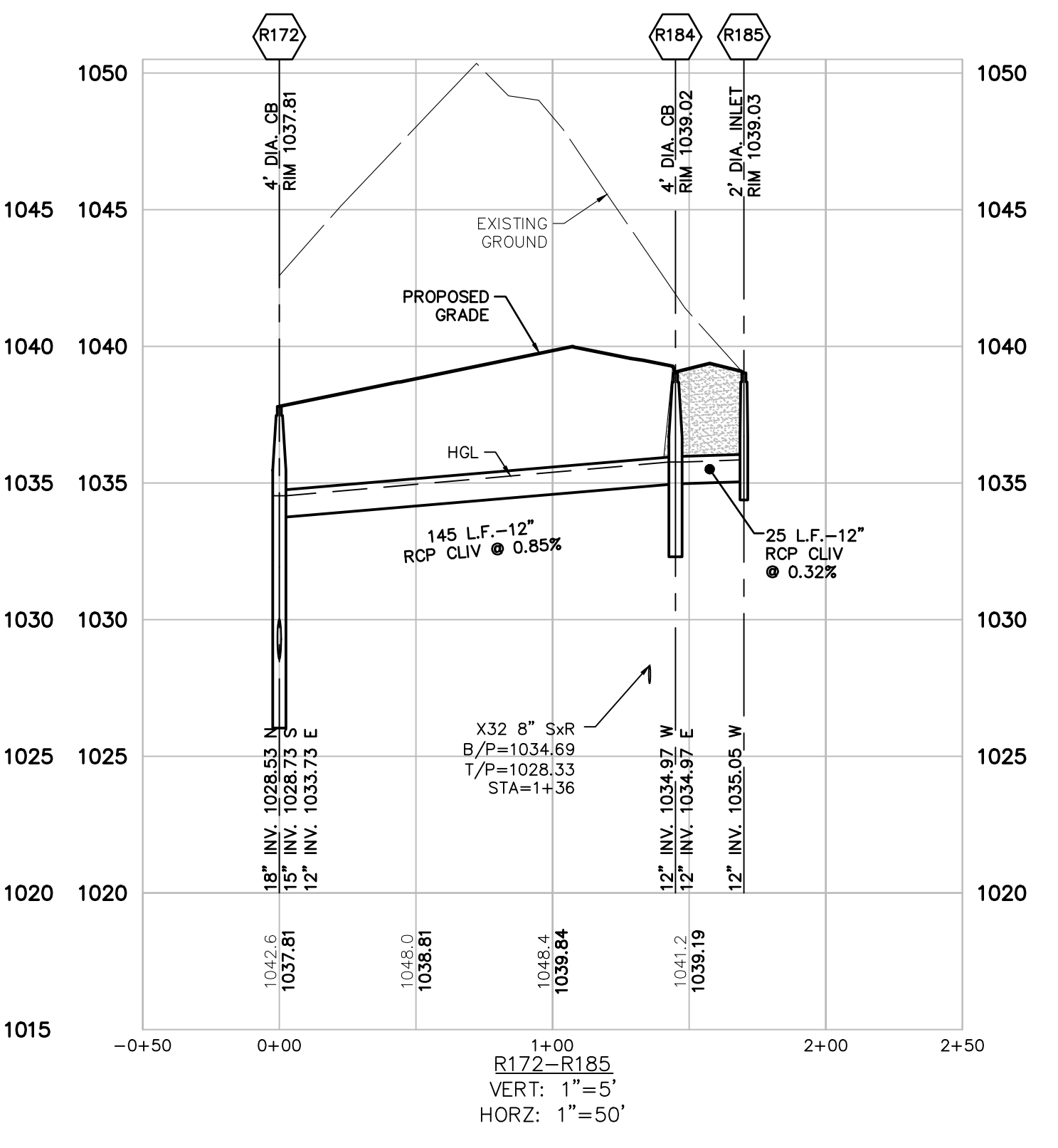
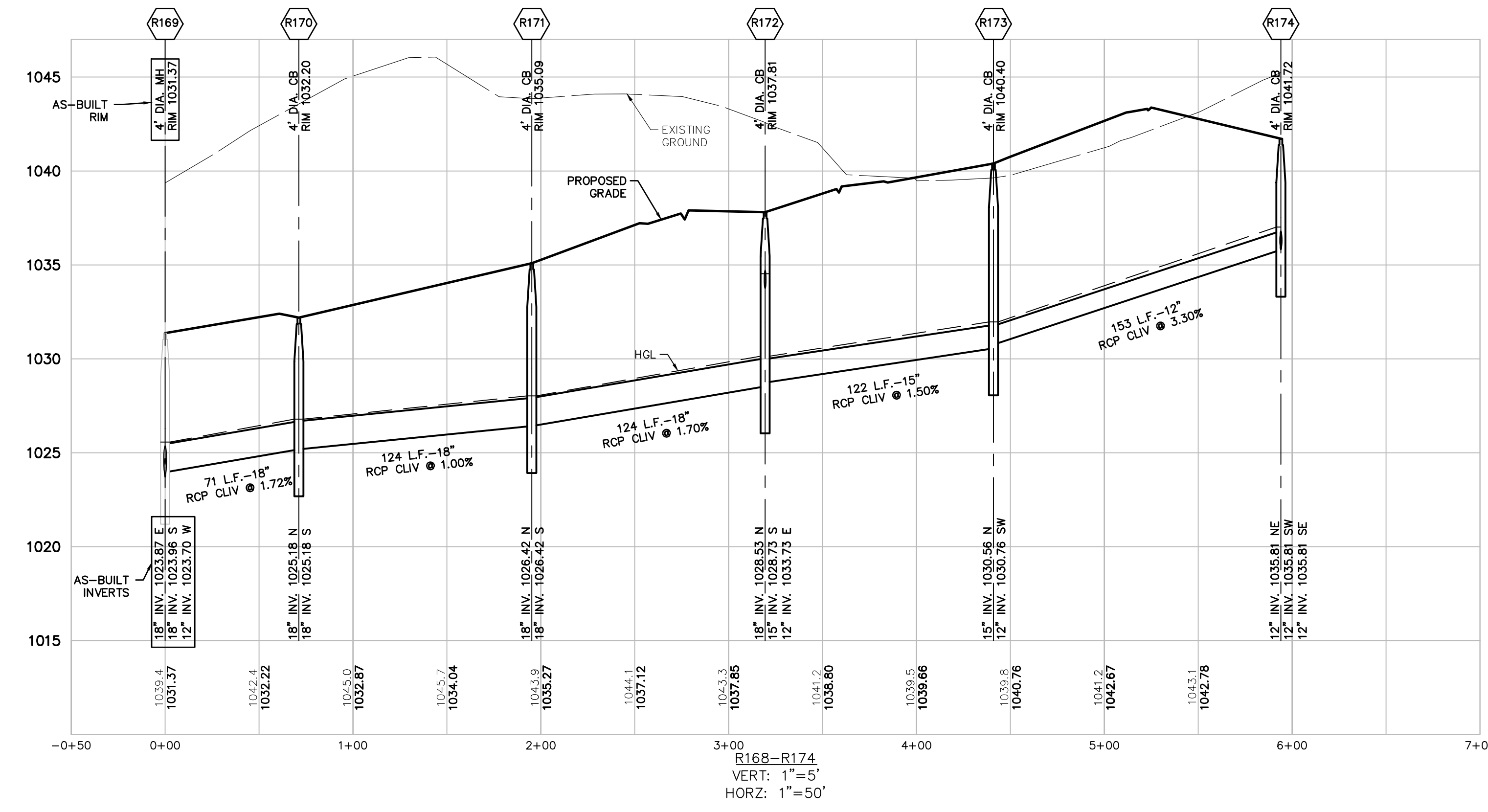
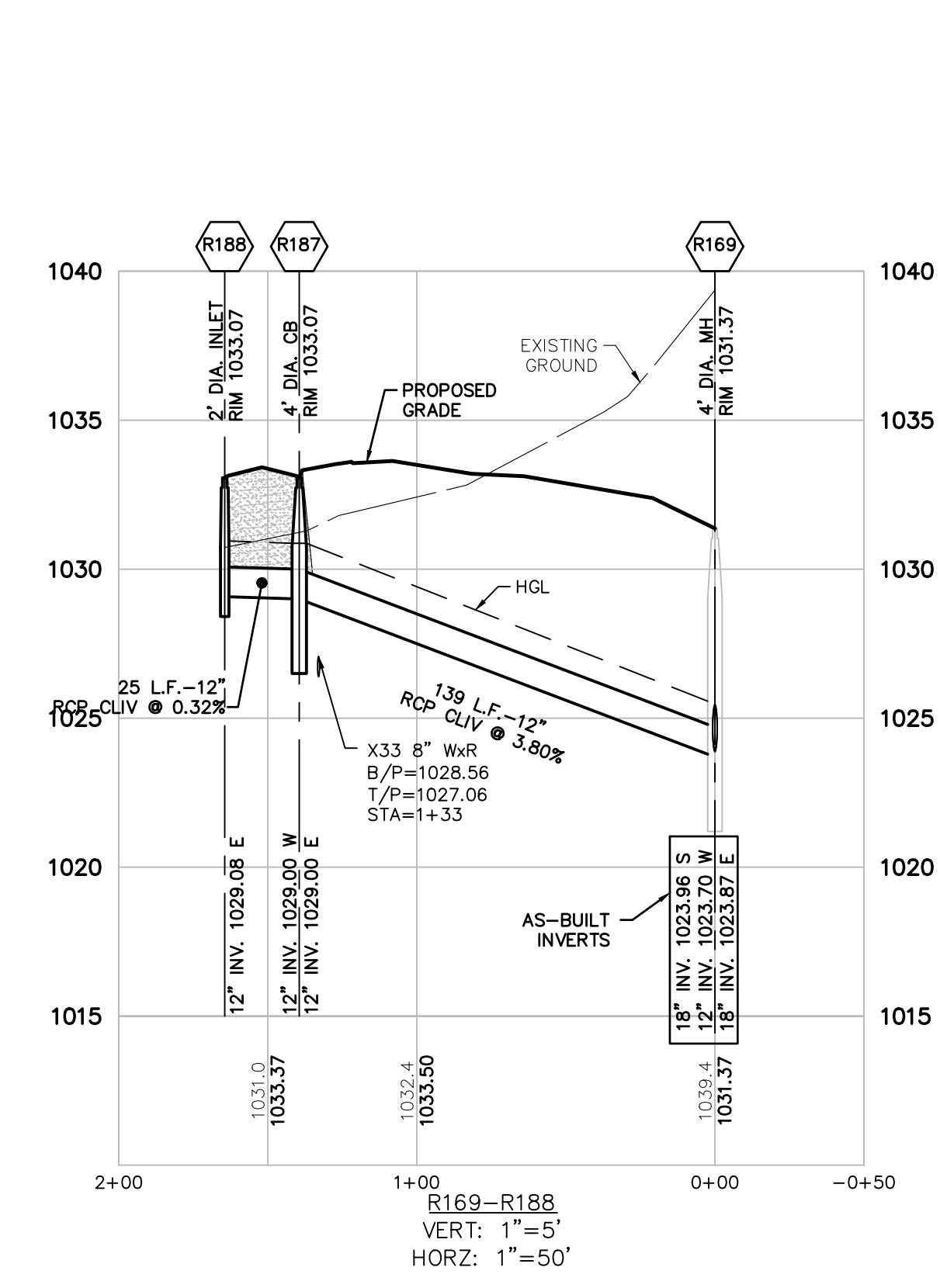
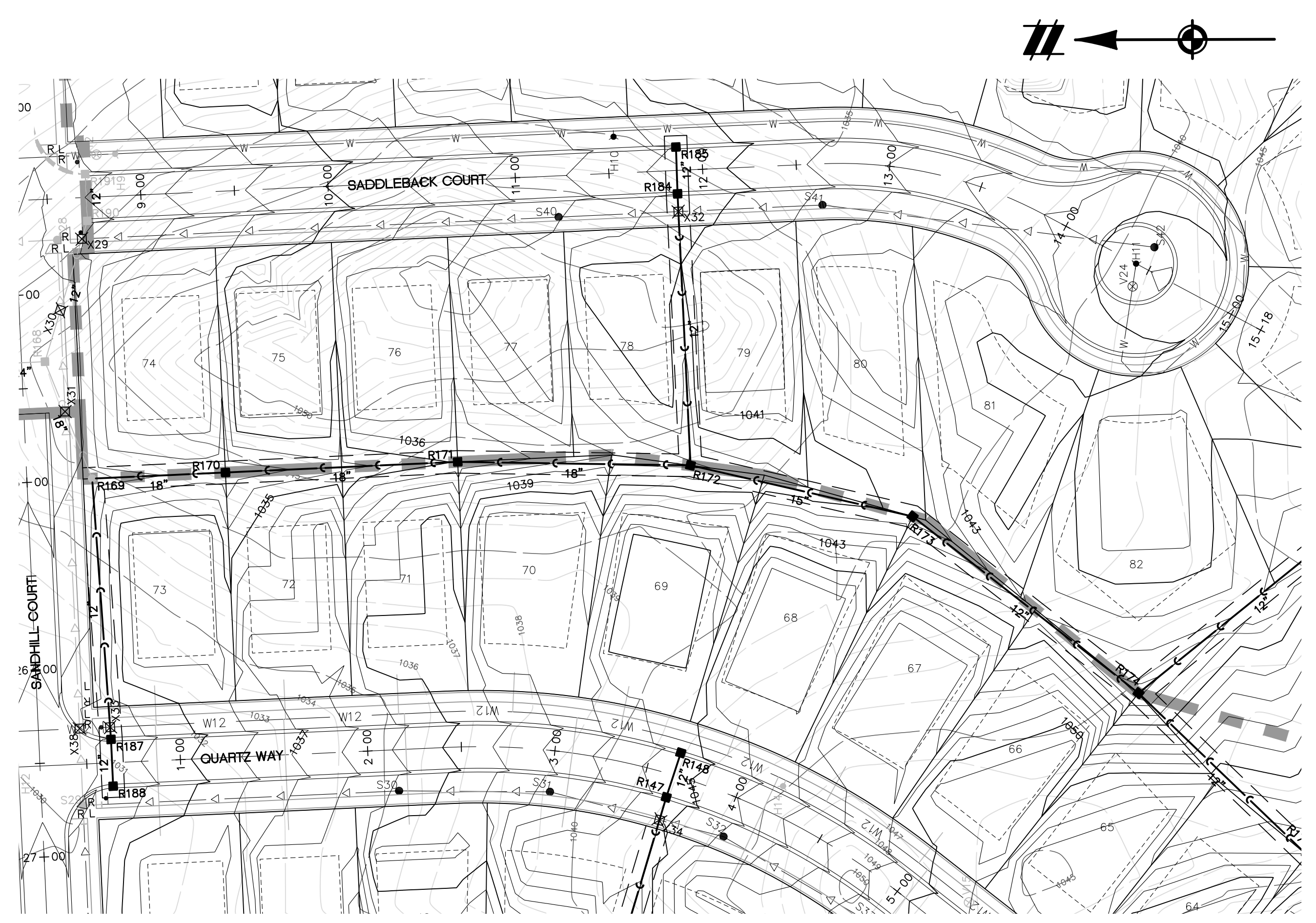
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ANN ARBOR, MI 48104
734.994.4060



STORM SEWER NOTES:
SEE SHEET 20 FOR STORM SEWER NOTES.

LEGEND	
[Symbol]	BOUNDARY LINE
[Symbol]	PROPERTY LINE
[Symbol]	EXIST. ROADS
[Symbol]	EXIST. CONTOUR
[Symbol]	EXIST. FENCE
[Symbol]	EXIST. GRAVEL
[Symbol]	EXIST. STORM SEWER
[Symbol]	EXIST. BUILDING
[Symbol]	EXIST. WETLAND
[Symbol]	EXIST. SIGN
[Symbol]	EXIST. CATCH BASIN
[Symbol]	EXIST. END SECTION
[Symbol]	PROP. CONTOUR
[Symbol]	PROP. LOT LINE
[Symbol]	PROP. RIGHT OF WAY
[Symbol]	PROP. BACK OF CURB
[Symbol]	PROP. SETBACK
[Symbol]	PROP. SIDEWALK
[Symbol]	PROP. BUILDING
[Symbol]	PROP. STORM SEWER
[Symbol]	PROP. SANITARY
[Symbol]	PROP. 12" WATER MAIN
[Symbol]	PROP. 8" WATER MAIN
[Symbol]	PROP. END SECTION
[Symbol]	PROP. CATCH BASIN/INLET
[Symbol]	PROP. STORM MANHOLE
[Symbol]	PROP. FIRE HYDRANT
[Symbol]	PROP. VALVE



SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
STORM SEWER PROFILES - 7

DATE	OCTOBER 29, 2020
02/17/2021	REV PER TOWNSHIP
05/27/2021	REV PER OCMRC
07/09/2021	AMENDMENT TO PSP

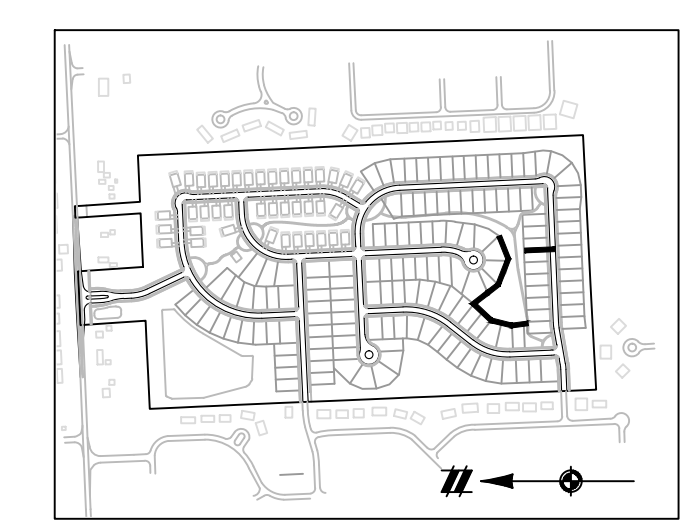
REVISIONS	
SCALE	0 25 50
1" = 50 FEET	
DR.	SK/KS GH. CK
P.M.	M BUSH
BOOK	--
JOB	18003309
SHEET NO.	26

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

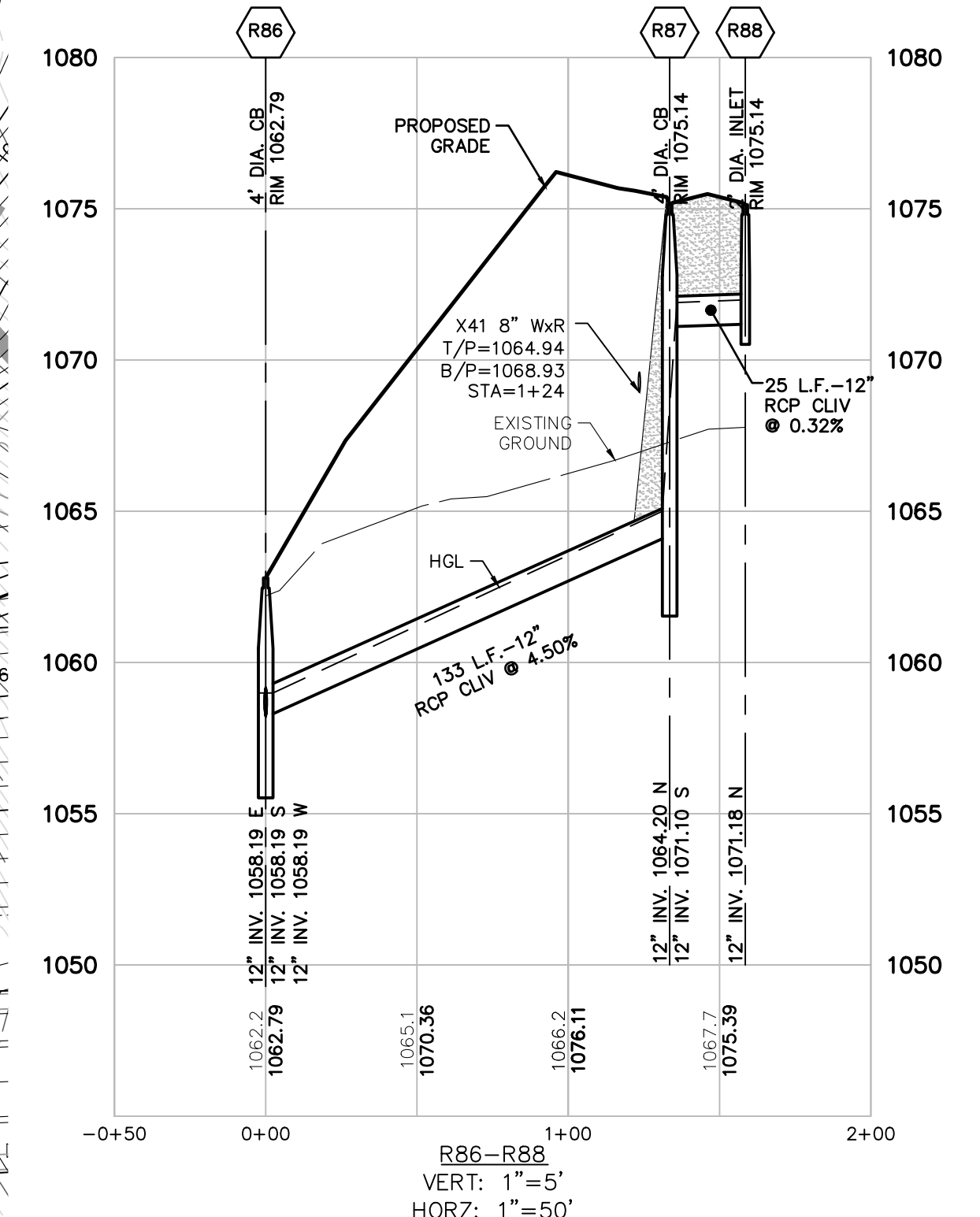
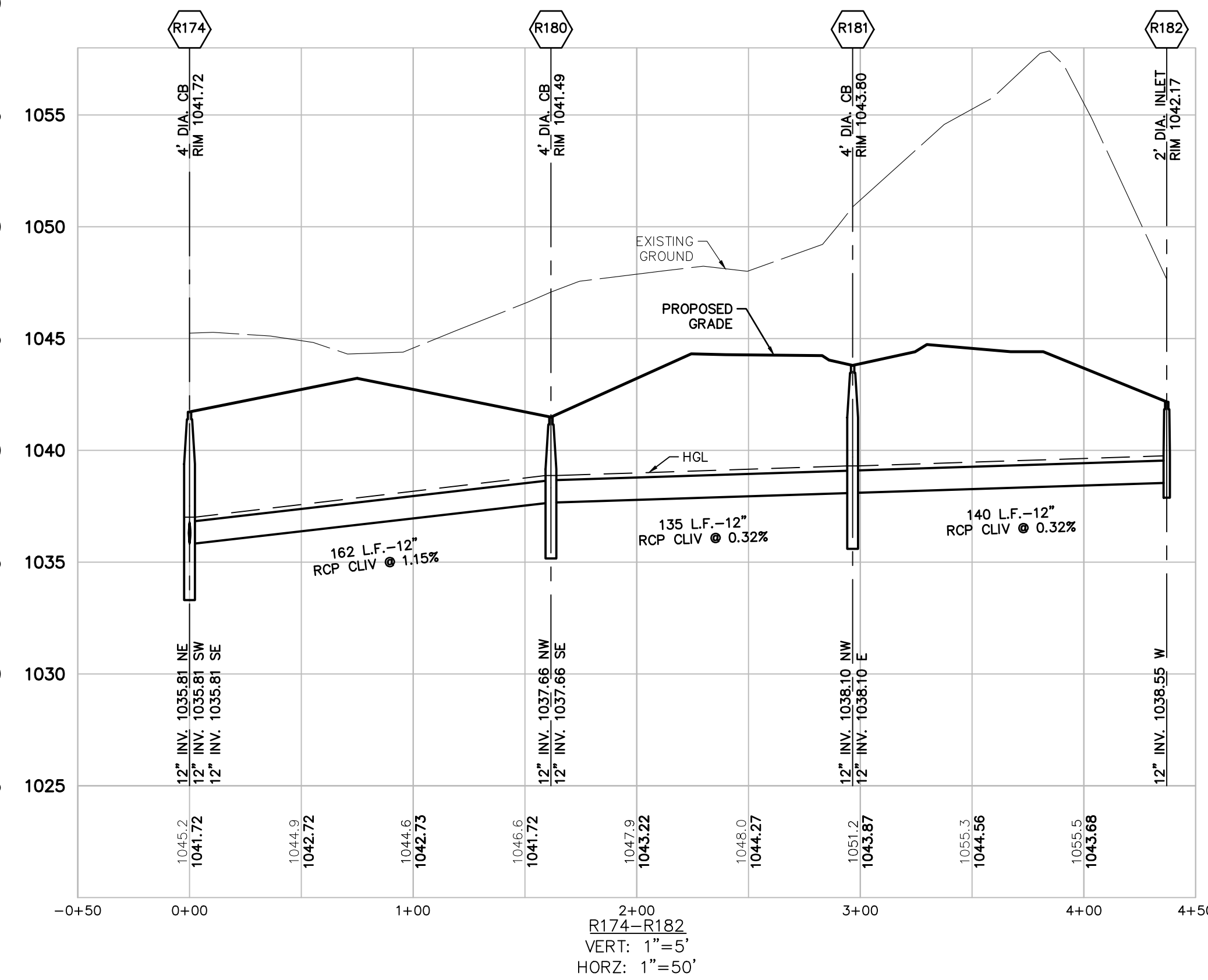
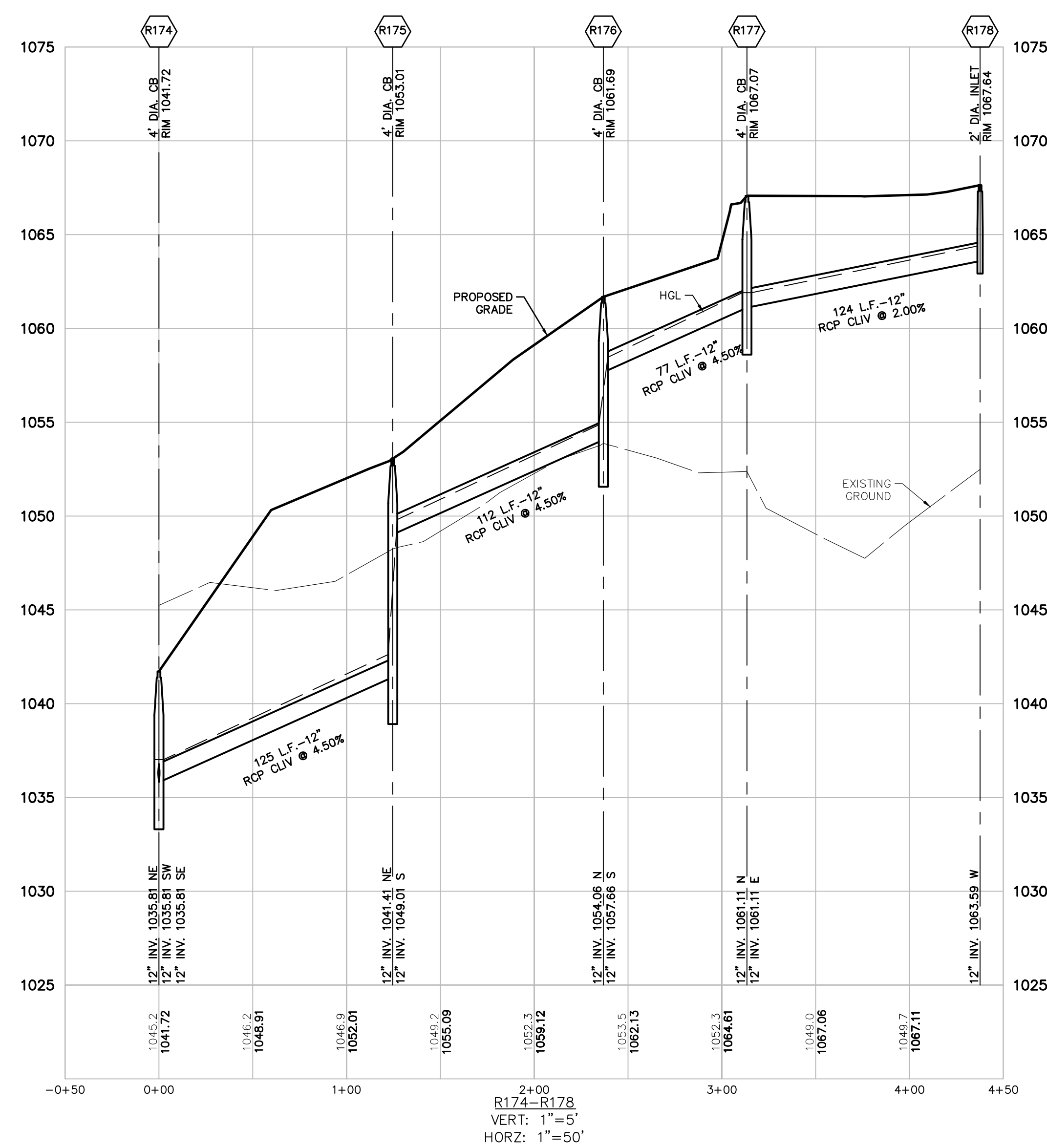
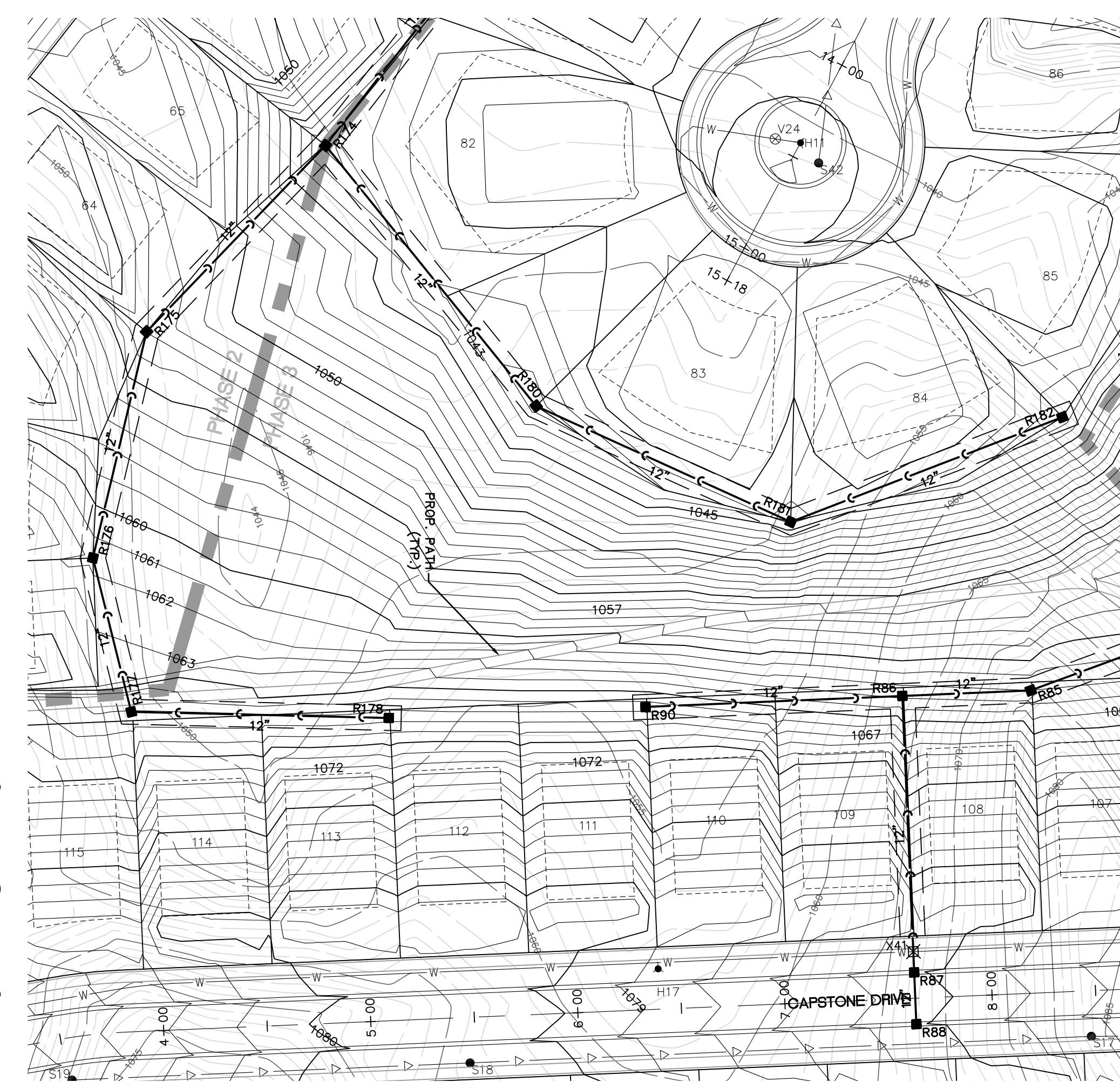
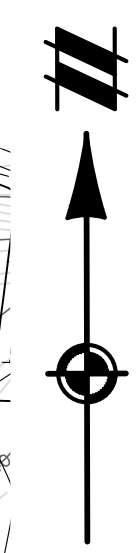
NOTICE: CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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KEYMAP
SCALE: 1"=1000'



STORM SEWER NOTES:
SEE SHEET 20 FOR STORM SEWER NOTES.

LEGEND	
	BOUNDARY LINE
	PROPERTY LINE
	EXIST. ROADS
	EXIST. CONTOUR
	EXIST. FENCE
	EXIST. GRAVEL
	EXIST. STORM SEWER
	EXIST. BUILDING
	EXIST. WETLAND
	EXIST. SIGN
	EXIST. CATCH BASIN
	EXIST. END SECTION
	PROP. CONTOUR
	PROP. LOT LINE
	PROP. RIGHT OF WAY
	PROP. BACK OF CURB
	PROP. SETBACK
	PROP. SIDEWALK
	PROP. BUILDING
	PROP. STORM SEWER
	PROP. SANITARY
	PROP. 12" WATER MAIN
	PROP. 8" WATER MAIN
	PROP. END SECTION
	PROP. CATCH BASIN/INLET
	PROP. STORM MANHOLE
	PROP. FIRE HYDRANT
	PROP. VALVE

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
STORM SEWER PROFILES - 8

REVISIONS	
0	SCALE 0 25 50 1" = 50 FEET
DR. SK/KS	GH. CK
P.M.	M BUSH
BOOK	--
JOB	18003309
SHEET NO.	27

STORM SEWER CALCULATIONS AND STRUCTURE SCHEDULE

STR	TYPE	CASTING	RIM	PIPE OUT	PIPE IN	PIPE IN
R42	2' INLET	EJWV 1040-02	RIM 1072.76	12" E. INV. 1064.15		
R41	4' CB	EJWV 1040-02	RIM 1063.03	12" E. INV. 1055.06	12" W. INV. 1,058.76	
R40	4' CB	EJWV 1040-02	RIM 1058.84	12" E. INV. 1054.67	12" W. INV. 1,054.67	
R39	4' CB	EJWV 1040-02	RIM 1058.72	12" E. INV. 1054.26	12" W. INV. 1,054.26	
R38	4' MH	EJWV 1040-A	RIM 1060.93	12" E. INV. 1054.06	12" W. INV. 1,054.06	12" W. INV. 1,056.86
R37	4' CB	EJWV 1040-02	RIM 1058.84	12" E. INV. 1053.65	12" W. INV. 1,053.65	
R36	4' CB	EJWV 1040-02	RIM 1058.87	12" E. INV. 1052.67	12" W. INV. 1,052.67	
R35	4' CB	EJWV 1040-02	RIM 1058.43	12" E. INV. 1051.50	12" W. INV. 1,051.50	
R34	4' CB	EJWV 1040-02	RIM 1056.71	12" E. INV. 1050.08	12" S. INV. 1,050.08	
R33	4' CB	EJWV 1040-02	RIM 1053.50	12" N. INV. 1048.61	12" S. INV. 1,048.61	
R32	4' CB	EJWV 1040-02	RIM 1049.79	12" N. INV. 1045.26	12" S. INV. 1,045.26	
R31	4' CB	EJWV 1040-02	RIM 1046.09	12" N. INV. 1041.54	12" S. INV. 1,041.54	
R30	4' CB	EJWV 1040-02	RIM 1042.39	12" N. INV. 1037.82	12" S. INV. 1,037.82	
R29	4' CB	EJWV 1040-02	RIM 1038.65	12" N. INV. 1034.57	12" S. INV. 1,034.57	
R28	4' CB	EJWV 1040-02	RIM 1035.16	12" N. INV. 1031.04	12" S. INV. 1,031.04	
R27	4' CB	EJWV 1040-02	RIM 1030.37	15" NE. INV. 1025.72	12" S. INV. 1,025.82	
R45	2' INLET	EJWV 7065-C4	RIM 1067.91	12" S. INV. 1063.83		
R44	4' CB	EJWV 7065-C4	RIM 1067.91	12" S. INV. 1063.01	12" N. INV. 1,063.01	
R88	2' INLET	EJWV 7065-C4	RIM 1075.14	12" N. INV. 1071.18		
R87	4' CB	EJWV 7065-C4	RIM 1075.14	12" N. INV. 1064.20	12" S. INV. 1,071.10	
R86	4' MH	EJWV 1040-A	RIM 1062.79	12" E. INV. 1058.19	12" S. INV. 1,058.19	12" W. INV. 1,058.19
R85	4' MH	EJWV 1040-A	RIM 1062.00	12" E. INV. 1057.00	12" W. INV. 1,058.00	
R84	4' CB	EJWV 1040-02	RIM 1057.95	12" N. INV. 1049.01	12" W. INV. 1,051.71	
R83	4' CB	EJWV 1040-02	RIM 1048.52	12" N. INV. 1040.94	12" S. INV. 1,044.54	12" E. INV. 1,044.54
R82	4' CB	EJWV 1040-02	RIM 1040.42	12" N. INV. 1035.46	12" S. INV. 1,035.46	
R81	4' CB	EJWV 1040-02	RIM 1039.64	15" N. INV. 1031.70	12" S. INV. 1,031.90	
R80	4' CB	EJWV 1040-02	RIM 1038.36	15" N. INV. 1031.27	15" S. INV. 1,031.27	
R79	4' CB	EJWV 1040-02	RIM 1037.99	15" N. INV. 1030.28	15" S. INV. 1,030.28	12" E. INV. 1,033.88
R78	4' CB	EJWV 1040-02	RIM 1035.95	15" N. INV. 1028.59	15" S. INV. 1,028.59	
R77	4' CB	EJWV 1040-02	RIM 1033.06	15" N. INV. 1026.05	15" S. INV. 1,026.05	
R76	4' CB	EJWV 1040-02	RIM 1031.61	15" N. INV. 1024.62	15" S. INV. 1,024.62	
R75	4' CB	EJWV 7065-C4	RIM 1032.19	18" N. INV. 1022.73	15" S. INV. 1,022.94	12" SE. INV. 1,027.99
R90	4' MH	EJWV 1040-A	RIM 1066.57	12" E. INV. 1062.53		
R93	2' INLET	EJWV 7065-C4	RIM 1056.87	12" W. INV. 1052.82		
R92	4' CB	EJWV 7065-C4	RIM 1056.87	12" W. INV. 1049.64	12" E. INV. 1,052.74	
R96	2' INLET	EJWV 7065-C4	RIM 1044.72	12" W. INV. 1040.77		
R95	4' CB	EJWV 7065-C4	RIM 1044.72	12" W. INV. 1038.99	12" E. INV. 1,040.69	
R140	2' INLET	EJWV 1040-02	RIM 1076.37	12" W. INV. 1072.36		
R139	4' CB	EJWV 1040-02	RIM 1074.76	12" N. INV. 1070.14	12" E. INV. 1,070.14	
R138	4' CB	EJWV 7065-C4	RIM 1074.79	12" W. INV. 1069.75	12" S. INV. 1,069.75	12" N. INV. 1,070.65
R137	4' MH	EJWV 1040-A	RIM 1067.55	12" W. INV. 1061.60	12" E. INV. 1,062.70	
R136	4' CB	EJWV 7065-C4	RIM 1062.04	12" N. INV. 1058.18	12" E. INV. 1,058.18	
R135	4' CB	EJWV 7065-C4	RIM 1062.04	12" N. INV. 1058.02	12" S. INV. 1,058.02	
R134	4' CB	EJWV 1040-02	RIM 1066.95	12" N. INV. 1057.23	12" S. INV. 1,057.23	
R133	4' CB	EJWV 1040-02	RIM 1062.14	15" N. INV. 1056.00	12" S. INV. 1,056.20	
R132	4' CB	EJWV 1040-02	RIM 1057.72	15" NE. INV. 1053.35	15" S. INV. 1,053.35	12" E. INV. 1,053.55
R131	4' CB	EJWV 1040-02	RIM 1053.65	15" NE. INV. 1049.34	15" SW. INV. 1,049.34	
R130	4' CB	EJWV 1040-02	RIM 1049.04	15" NE. INV. 1039.85	15" SW. INV. 1,044.64	
R129	4' CB	EJWV 1040-02	RIM 1039.87	15" N. INV. 1030.30	15" SW. INV. 1,035.61	12" E. INV. 1,035.90
R128	4' CB	EJWV 1040-02	RIM 1031.86	24" W. INV. 1026.91	15" S. INV. 1,027.51	12" N. INV. 1,027.71
R127	4' CB	EJWV 1040-02	RIM 1033.24	24" NW. INV. 1026.50	24" E. INV. 1,026.50	
R126	4' CB	EJWV 1040-02	RIM 1033.47	24" N. INV. 1025.35	24" SE. INV. 1,025.35	
R125	4' CB	EJWV 1040-02	RIM 1033.27	24" N. INV. 1022.68	24" S. INV. 1,022.68	
R124	4' CB	EJWV 1040-02	RIM 1027.23	24" N. INV. 1021.14	24" S. INV. 1,021.17	
R142	2' INLET	EJWV 7065-C4	RIM 1074.79	12" S. INV. 1070.73		
R145	2' INLET	EJWV 7065-C4	RIM 1059.91	12" NW. INV. 1055.82		
R144	4' CB	EJWV 7065-C4	RIM 1059.60	12" W. INV. 1055.50	12" SE. INV. 1,055.50	
R148	2' INLET	EJWV 7065-C4	RIM 1044.31	12" W. INV. 1040.31		
R147	4' CB	EJWV 7065-C4	RIM 1044.28	12" W. INV. 1040.23	12" E. INV. 1,040.23	
R150	2' INLET	EJWV 1040-02	RIM 1032.89	12" S. INV. 1028.91		
R178	4' MH	EJWV 1040-A	RIM 1067.64	12" W. INV. 1063.59		
R177	4' CB	EJWV 1040-02	RIM 1067.07	12" N. INV. 1061.11	12" E. INV. 1,061.11	
R176	4' CB	EJWV 1040-02	RIM 1061.69	12" N. INV. 1054.06	12" S. INV. 1,057.66	
R175	4' CB	EJWV 1040-02	RIM 1053.01	12" NE. INV. 1041.41	12" S. INV. 1,049.01	
R174	4' CB	EJWV 1040-02	RIM 1041.72	12" NE. INV. 1035.81	12" SW. INV. 1,035.81	12" SE. INV. 1,035.81
R173	4' CB	EJWV 1040-02	RIM 1040.40	15" N. INV. 1030.56	12" SW. INV. 1,030.74	
R172	4' CB	EJWV 1040-02	RIM 1037.81	18" N. INV. 1028.53	15" S. INV. 1,028.73	12" E. INV. 1,033.73
R171	4' CB	EJWV 1040-02	RIM 1035.09	18" N. INV. 1026.42	18" S. INV. 1,026.42	
R170	4' CB	EJWV 1040-02	RIM 1032.20	18" N. INV. 1025.18	18" S. INV. 1,025.18	
R169	4' MH	EJWV 1040-A	RIM 1031.37	18" E. INV. 1023.87	18" S. INV. 1,023.96	12" W. INV. 1,023.70
R182	2' INLET	EJWV 1040-02	RIM 1042.55	12" W. INV. 1038.55		
R181	4' CB	EJWV 1040-02	RIM 1043.80	12" NW. INV. 1038.10	12" E. INV. 1,038.10	
R180	4' CB	EJWV 1040-02	RIM 1041.49	12" NW. INV. 1037.66	12" SE. INV. 1,037.66	
R185	2' INLET	EJWV 7065-C4	RIM 1039.03	12" W. INV. 1035.05		
R184	4' CB	EJWV 7065-C4	RIM 1039.02	12" W. INV. 1034.97	12" E. INV. 1,034.97	
R188	2' INLET	EJWV 7065-C4	RIM 1033.07	12" E. INV. 1029.08		
R187	4' CB	EJWV 7065-C4	RIM 1033.07	12" E. INV. 1029.00	12" W. INV. 1,029.00	

$I = \frac{B}{(T+D)^2} \cdot E$ $B = 175.0$ 25 25.0 $E = 1$
 $C = 0.40$ $T_{min} = 20$ $n = 0.013$ $V_{min} = 2.5$ * = Check Rim-HGL clearance

FROM STRUCT INPUT	TO STRUCT	A TRIB AREA (AC)	C RUNOFF COEFF	ACX EQUIV AREA (AC)	CA DESIGN SUM ACX (AC)	T TIME CONC. (MIN)	I INTEN-SITY (IN/HR)	Q FLOW CAXI (CFS)	Qc PIPE CAPAC. (CFS)	D PIPE DIAM. (IN)	L PIPE LENGTH (FT)	S SLOPE (%)	HGq MIN HG for Q (%)	HGv MIN HG for Vmin (%)	HG HGL SLOPE (%)	VI VEL. FULL (FPS)	TI TIME OF FLOW (MIN)	H.G.L. ELEV. UPPER END	H.G.L. ELEV. LOWER END	RIMGROUND UPPER END	RIMGROUND LOWER END	INVERT ELEV. UPPER END	INVERT ELEV. LOWER END
R42	R41	0.30	0.40	0.12	0.12	20.0	3.89	0.47	7.56	12	120	4.50	0.02	0.30	0.30	9.6	0.2	1064.95	1059.56	1072.76	1063.03	1064.15	1058.76
R41	R40	0.30	0.40	0.12	0.24	20.2	3.87	0.93	2.02	12	124	0.32	0.07	0.30	0.30	2.6	0.8	1055.97	1055.57	1063.03	1058.84	1055.06	1054.67
R40	R39	0.27	0.40	0.11	0.35	21.0	3.80	1.33	2.02	12	128	0.32	0.14	0.30	0.30	2.6	0.8	1055.57	1055.16	1058.84	1055.72	1054.67	1054.26
R39	R38	0.14	0.40	0.05	0.40	21.8	3.74	1.50	2.02	12	62	0.32	0.18	0.30	0.30	2.6	0.4	1055.16	1054.96	1058.72	1060.93	1054.26	1054.06
R38	R37	0.00	0.40	0.00	0.74	22.2	3.71	2.74	2.76	12	69	0.60	0.59	0.30	0.59	3.5	0.3	1054.96	1054.55	1060.93	1059.84	1054.06	1053.65
R37	R36	0.28	0.40	0.11	0.85	22.5	3.68	3.13	3.19	12	122	0.80	0.77	0.30	0.77	4.1	0.5	1054.55	1053.57	1059.84	1058.87	1053.65	1052.67
R36	R35	0.34	0.40	0.13	0.98	23.0	3.65	3.57	3.65	12	111	1.05	1.01	0.30	1.01	4.7	0.4	1053.57	1052.41	1058.87	1058.43	1052.67	1051.50
R35	R34	0.14	0.40	0.06	1.04	23.4	3.62	3.76	3.82	12	124	1.15	1.11	0.30	1.11	4.9	0.4	1052.41	1050.98	1058.43	1056.71	1051.50	1050.08
R34	R33	0.24	0.40	0.10	1.14	23.8	3.59	4.09	4.14	12	109	1.35	1.32	0.30	1.32	5.3	0.3	1050.98	1049.51	1056.71	1053.50	1050.08	1048.61
R33	R32	0.23	0.40	0.09	1.23	24.1	3.56	4.38	5.85	12	124	2.70	1.51	0.30	1.51	7.5	0.3	1049.51	1046.16	1053.50	1049.79	1048.61	1045.26
R32	R31	0.22	0.40	0.09	1.32	24.4	3.54	4.68	6.17	12	124	3.00	1.72	0.30	1.72	7.9	0.3	1046.16	1042.44	1049.79	1046.09	1045.26	1041.54
R31	R30	0.23	0.40	0.09	1.41	24.7	3.52	4.96	6.17	12	124	3.00	1.94	0.30	1.94	7.9	0.3	1042.44	1038.72	1046.09	1042.39	1041.54	1037.82
R30	R29	0.25	0.40	0.10	1.51	25.0	3.50	5.29	5.74	12	136	2.90	2.20	0.30	2.20	7.3	0.3	1038.72	1035.48	1042.39	1038.65	1037.82	1034.57
R29	R28	0.25	0.40	0.10	1.61	25.3	3.48	5.60	6.74	12	136	2.80	2.47	0.30	2.47	7.3	0.3	1035.48	1031.94	1038.65	1035.16	1034.57	1031.04
R28	R27	0.28	0.40	0.11	1.72	25.6	3.46	5.95	6.04	12	182	2.87	2.79	0.30	2.79	7.7	0.4	1031.94	1026.72	1035.16	1030.37	1031.04	1025.82
R45	R44	0.38	0.40	0.15	0.15	20.0	3.89	0.58	6.42	12	25	3.25	0.03	0.30	0.30	8.2	0.1	1064.63	1063.81	1067.91	1067.91	1063.83	1063.01
R44	R38	0.48	0.40	0.19	0.34	20.1	3.88	1.32	7.56	12	137	4.50	0.14	0.30	0.30	9.6	0.2	1063.81	1057.66	1067.91	1060.93	1063.01	1058.76
R88	R87	0.42	0.40	0.17	0.17	20.0	3.89	0.66	2.02	12	25	0.32	0.03	0.30	0.30	2.6	0.2	1071.98	1071.90	1075.14	1075.14	1071.18	1071.10
R87	R86	0.42	0.40	0.17	0.34	20.2	3.87	1.32	7.56	12	133	4.50	0.14	0.30	0.30	9.6	0.2	1065.00	1058.99	1075.14	1062.79	1064.20	1058.19
R86	R85	0.03	0.40	0.01	0.36																		

Know what's below.
Call before you dig.

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SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
DRAINAGE AREA MAP

DATE: OCTOBER 29, 2020
02/17/2021: REV PER TOWNSHIP
05/27/2021: REV PER OCMRC
07/09/2021: AMENDMENT TO FSP

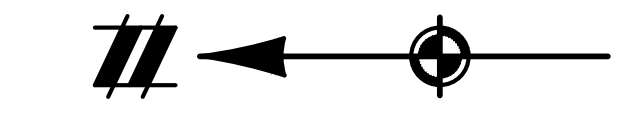
REVISIONS
SCALE: 0 50 100
1" = 100 FEET
DR. SK/KS GH. CK
P.M. M BUSH
BOOK --
JOB 18003309
SHEET NO. 29



RUNOFF COEFFICIENT 'C' SUMMARY

BASIN: 1		Basin Tributary Area: 66.7 Ac.			
LAND COVER	QUANTITY	UNIT	AREA (sf)	AREA (ac.)	'C' AC-IMP.
Misc. Impervious	0	0 sf	0.00	0.00	0.00
Houses - SF	93	1,800 sf	167,400	3.84	0.9
Houses - AA	91	2,500 sf	227,500	5.22	0.9
Driveway	184	700 sf	128,800	2.96	0.8
Road	8,800 ft	27' wide	237,600	5.45	0.8
Sidewalk	20,400 ft	5' wide	102,000	2.34	0.8
Open Water		at Outlet Elev.	36,000	0.83	1.00
Lawn		Remainder	2,006.152	46.05	0.2
Total			66.70	26.80	
Composite Runoff 'C':			26.80 / 66.70 =		0.40

BASIN: 2		Basin Tributary Area: 3.0 Ac.			
LAND COVER	QUANTITY	UNIT	AREA (sf)	AREA (ac.)	'C' AC-IMP.
Misc. Impervious	0	0 sf	0.00	0.00	0.00
Houses	0	2,700 sf	0	0.00	0.9
Driveway	0	600 sf	0	0.00	0.8
Road	200 ft	27' wide	5,400	0.12	0.8
Sidewalk	400 ft	5' wide	2,000	0.05	0.8
Open Water		at Outlet Elev.	0	0.00	1.00
Lawn		Remainder	123,280	2.83	0.2
Total			3.00	0.70	
Composite Runoff 'C':			0.70 / 3.00 =		0.23



DETENTION BASIN 2
TRIBUTARY AREA
3.0 AC

DETENTION BASIN 1
TRIBUTARY AREA
66.7 AC

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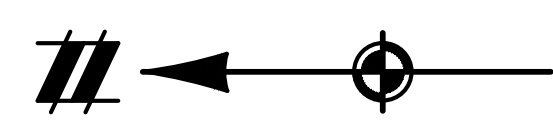
SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
FIRE PROTECTION AND SIGNAGE PLAN

DATE: OCTOBER 29, 2020
02/17/2021: REV PER TOWNSHIP
05/27/2021: REV PER OCMRC
07/09/2021: AMENDMENT TO FSP

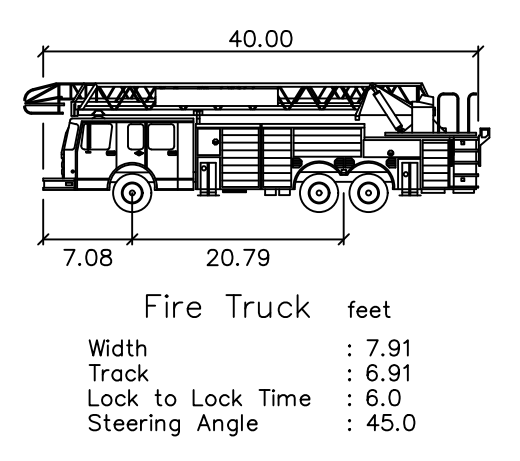
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1	1" = 100 FEET
2	DR. SK/KS GH. CK
3	P.M. M BUSH
4	BOOK --
5	JOB 18003309
6	SHEET NO.

REVISIONS
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1" = 100 FEET
DR. SK/KS GH. CK
P.M. M BUSH
BOOK --
JOB 18003309
SHEET NO. 30

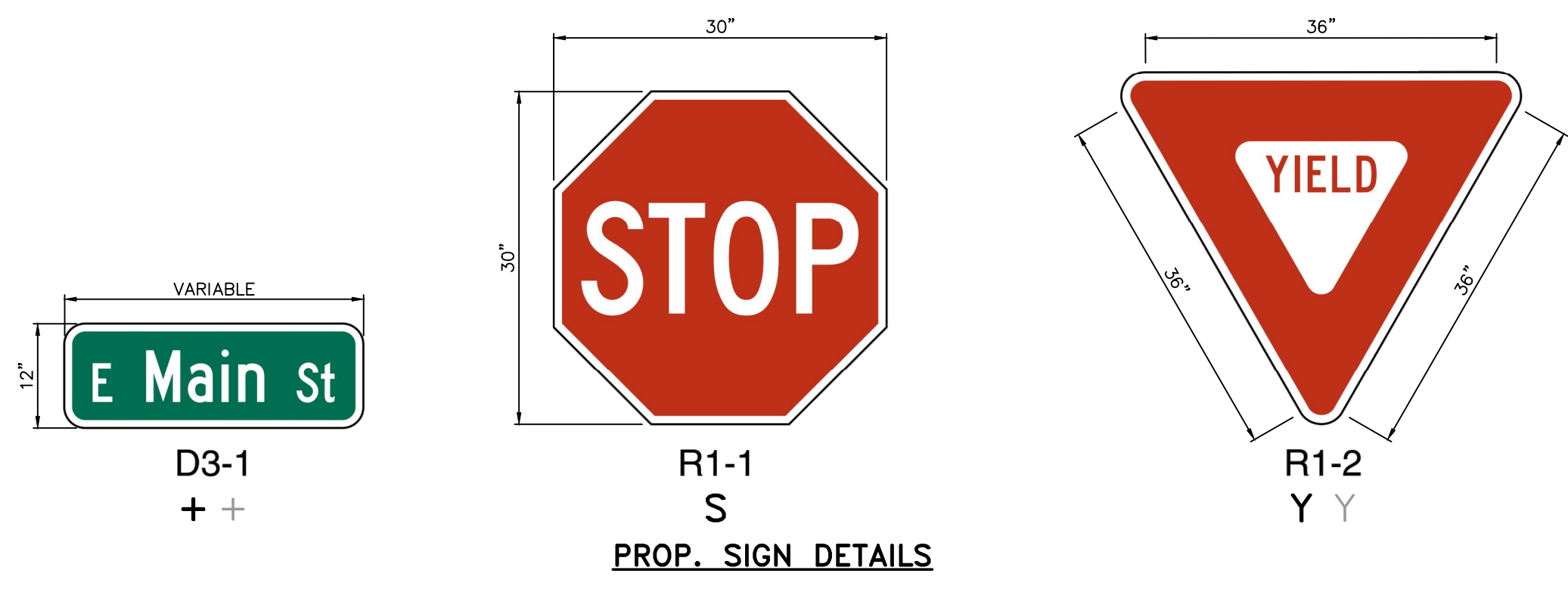


FIRE DEPARTMENT NOTES:

- ALL REQUIRED FIRE HYDRANTS SHALL BE INSTALLED, IN SERVICE, AND FLUSHED PRIOR TO THE START OF CONSTRUCTION.
- FIRE APPARATUS ACCESS ROADS SHALL NOT BE OBSTRUCTED IN ANY MANNER, INCLUDING THE PARKING OF VEHICLES OR THE PLACEMENT OF CONSTRUCTION MATERIAL. THE REQUIRED NO PARKING FIRE LANE SIGNS SHALL BE INSTALLED PRIOR TO ANY BUILDING CONSTRUCTION.
- PRIOR TO AND DURING CONSTRUCTION AN APPROVED FIRE APPARATUS ACCESS DRIVE SHALL BE CONSTRUCTED OF A MINIMUM 6" COMPACTED 21AA AGGREGATE PRIOR TO THE START OF CONSTRUCTION.
- STREETS AND ROAD SHALL BE IDENTIFIED WITH APPROVED SIGNS. TEMPORARY SIGNS SHALL BE INSTALLED AT EACH STREET INTERSECTION WHEN CONSTRUCTION OF NEW ROADWAYS ALLOWS PASSAGE BY VEHICLES. SIGNS SHALL BE OF AN APPROVED SIZE, WEATHER RESISTANT AND BE MAINTAINED UNTIL REPLACED BY PERMANENT SIGNS.



LEGEND			
	PROP. HYDRANT COVER		BOUNDARY LINE
	EXIST. HYDRANT COVER		PROPERTY LINE
Y	PROP. YIELD SIGN, PHASE 1		EXIST. ROADS
S	PROP. STOP SIGN, PHASE 1		EXIST. CONTOUR
+	PROP. ROAD NAME SIGN, PHASE 1		EXIST. FENCE
Y	PROP. YIELD SIGN, PHASE 2-3		EXIST. GRAVEL
+	PROP. ROAD NAME SIGN, PHASE 2-3		EXIST. STORM SEWER
			EXIST. BUILDING
			EXIST. WETLAND
			EXIST. SIGN
			EXIST. CATCH BASIN
			EXIST. END SECTION
			PROP. CONTOUR
			PROP. LOT LINE
			PROP. RIGHT OF WAY
			PROP. BACK OF CURB
			PROP. SETBACK
			PROP. SIDEWALK
			PROP. BUILDING
			EXIST. 12" WATER MAIN (PHASE 1)
			EXIST. 8" WATER MAIN (PHASE 1)
			EXIST. FIRE HYDRANT (PHASE 1)
			EXIST. VALVE (PHASE 1)
			PROP. 12" WATER MAIN
			PROP. 8" WATER MAIN
			PROP. FIRE HYDRANT
			PROP. VALVE
			EXIST. SIGN (PHASE 1)
			PROP. SIGN (PHASE 2-3)



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 WHITE LAKE TOWNSHIP
 OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
 TRAILSIDE MEADOW
 FINAL SITE ENGINEERING PLAN
 PHASES 2-3
 PAVING & MISCELLANEOUS DETAILS

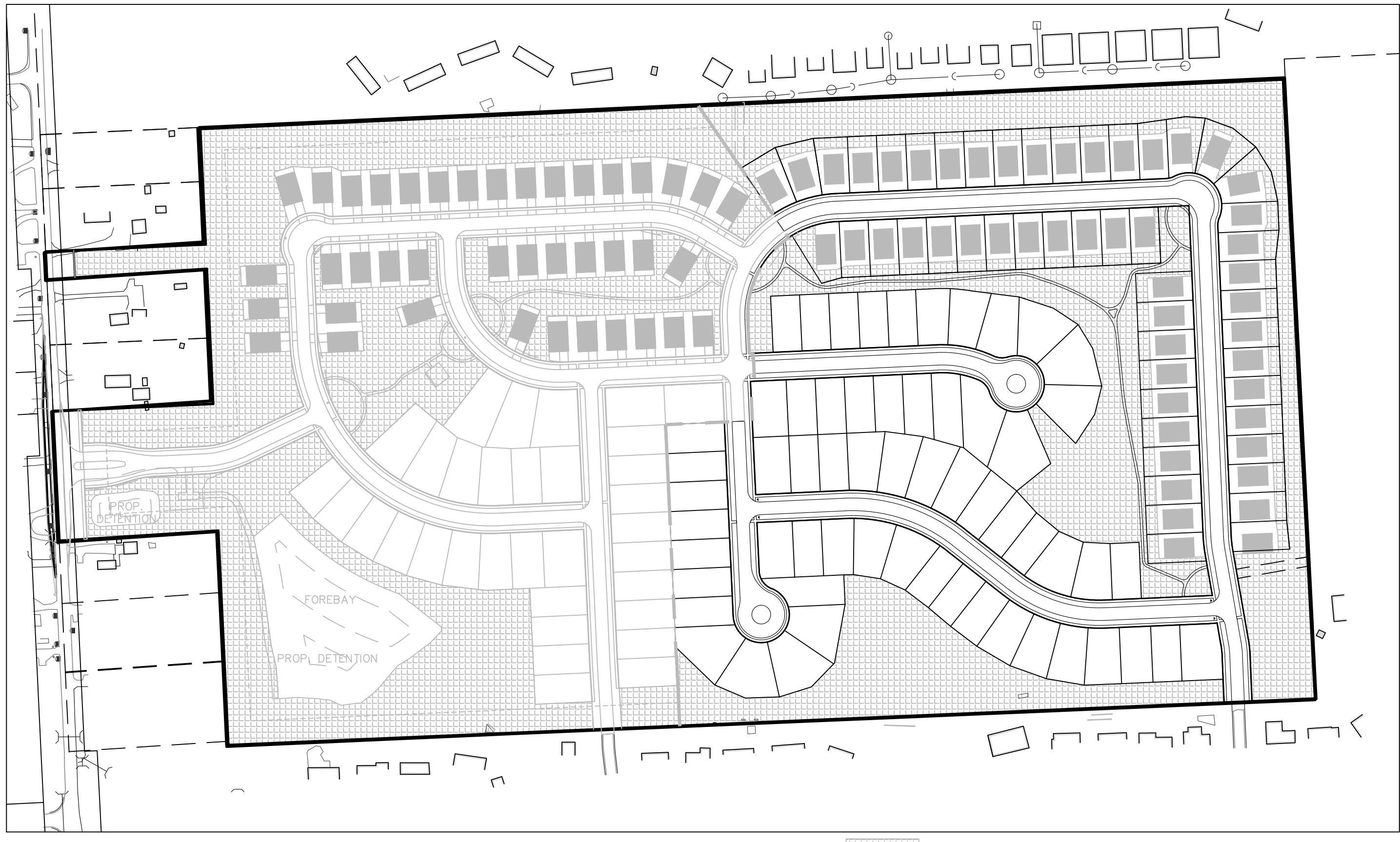
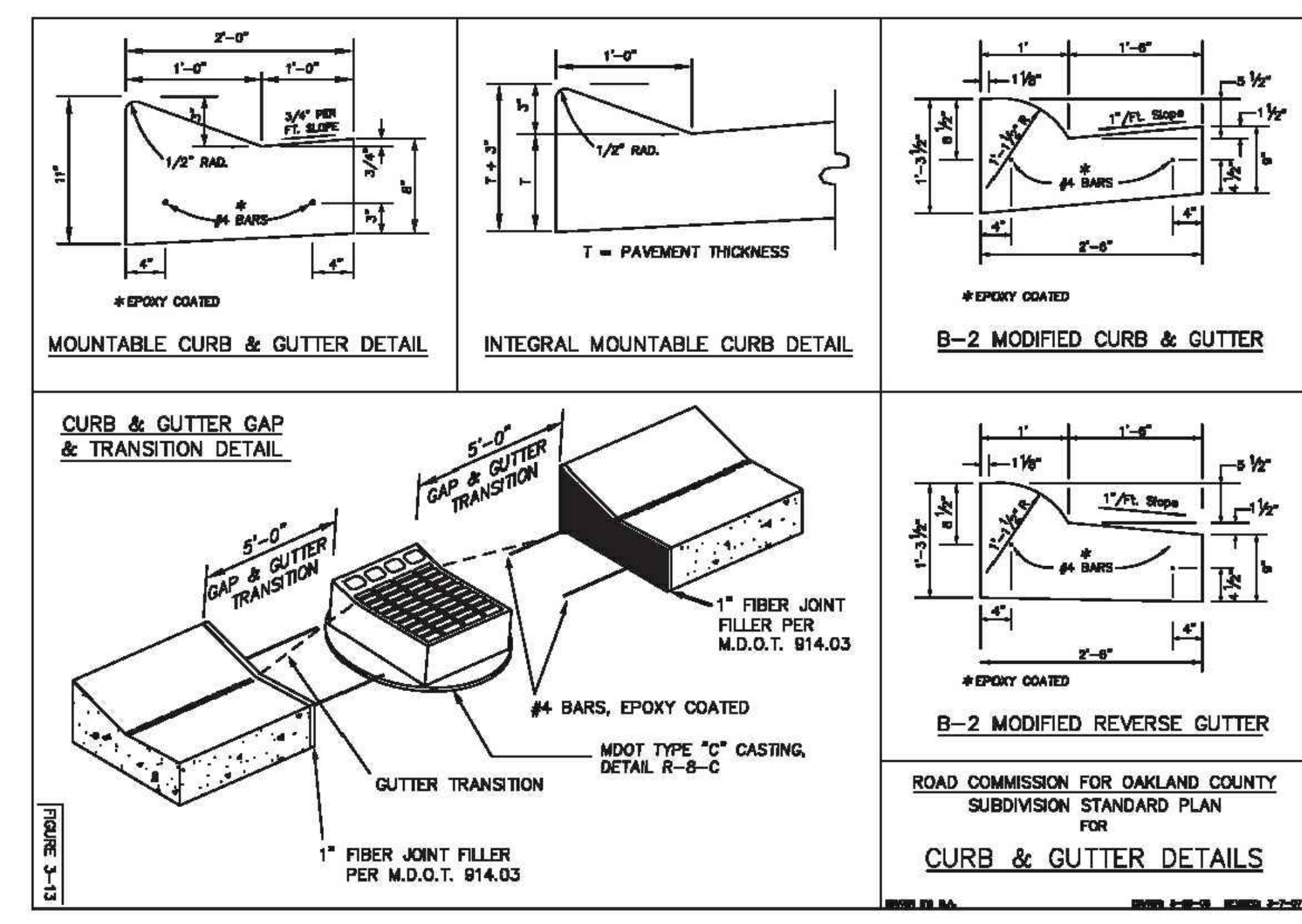
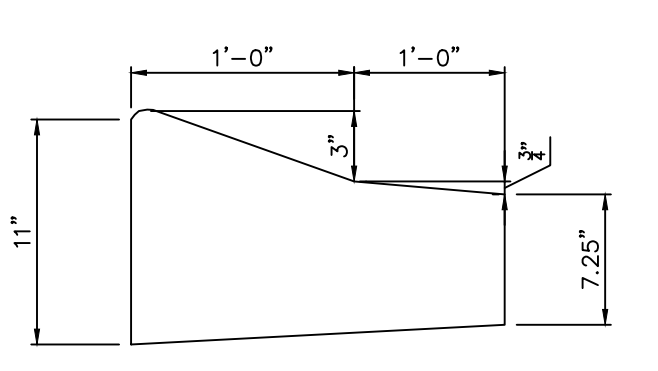
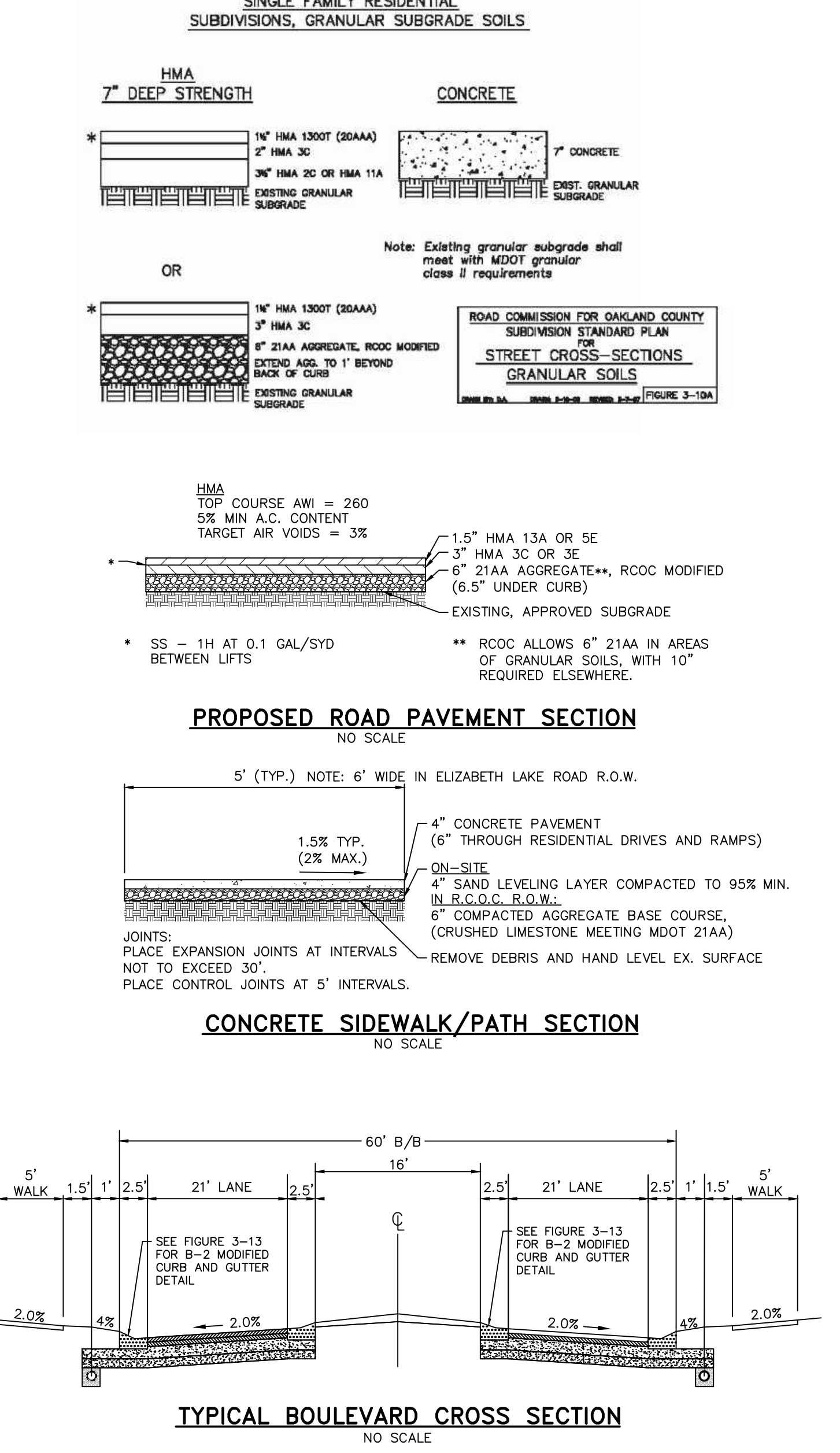
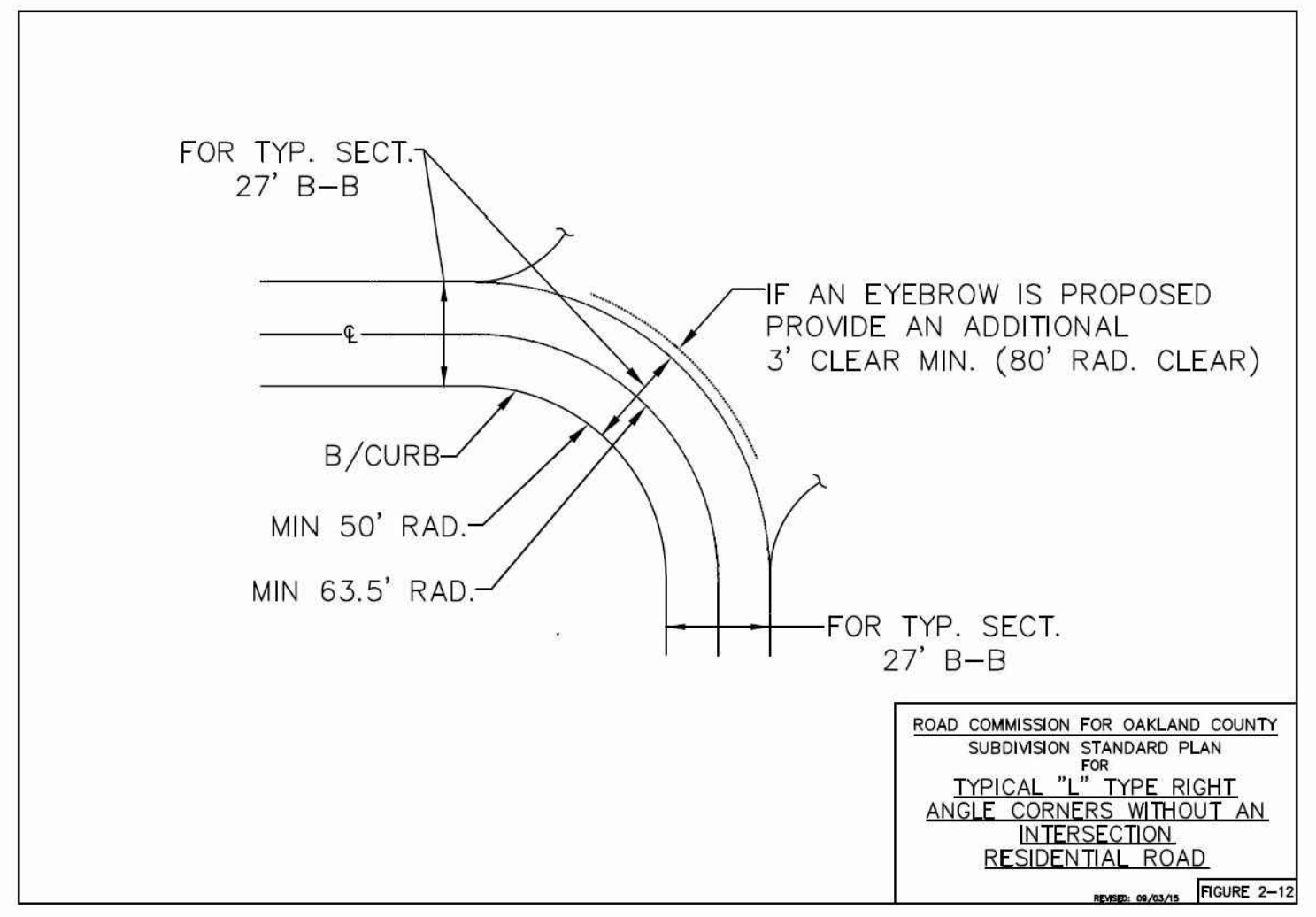
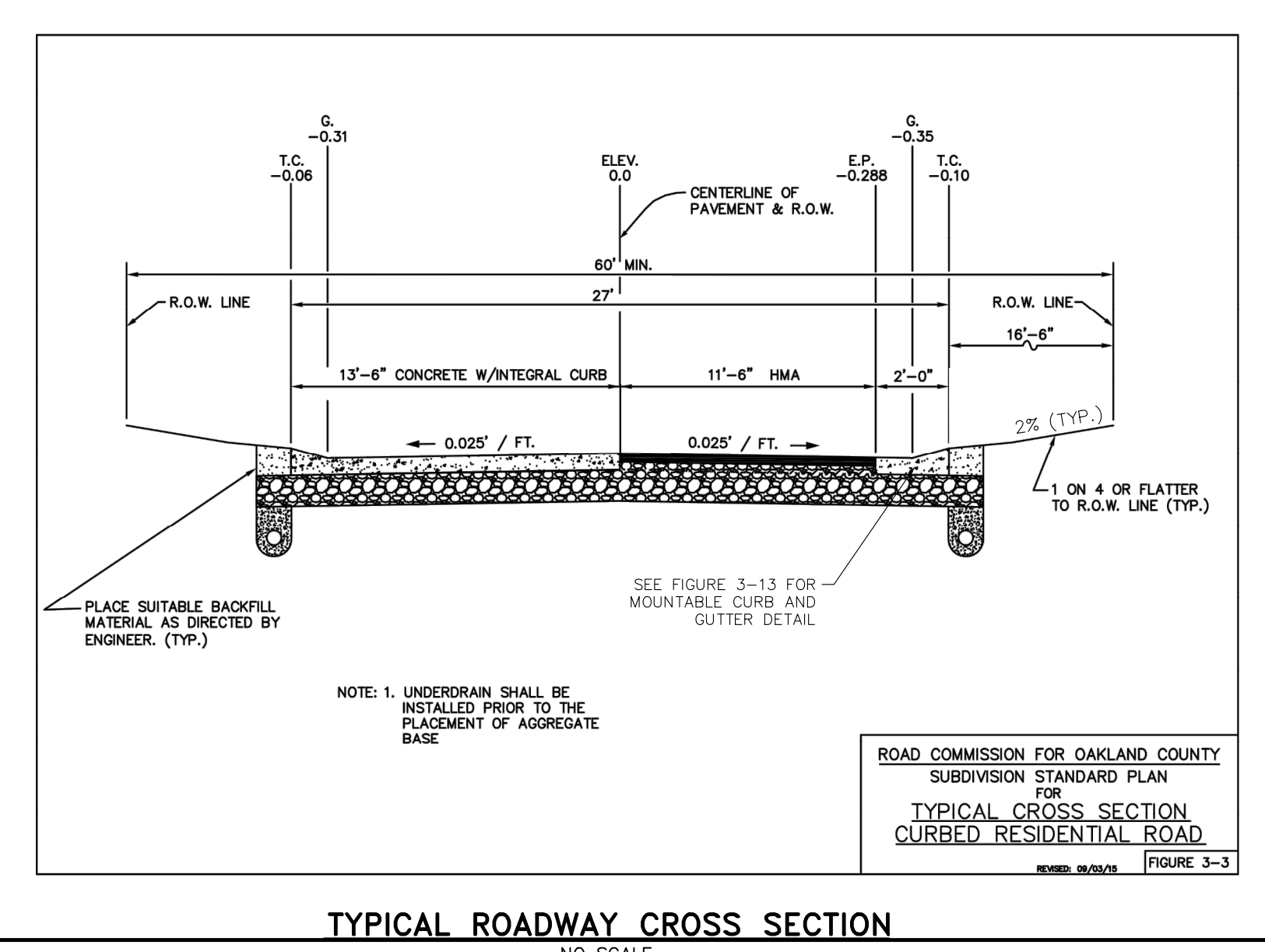
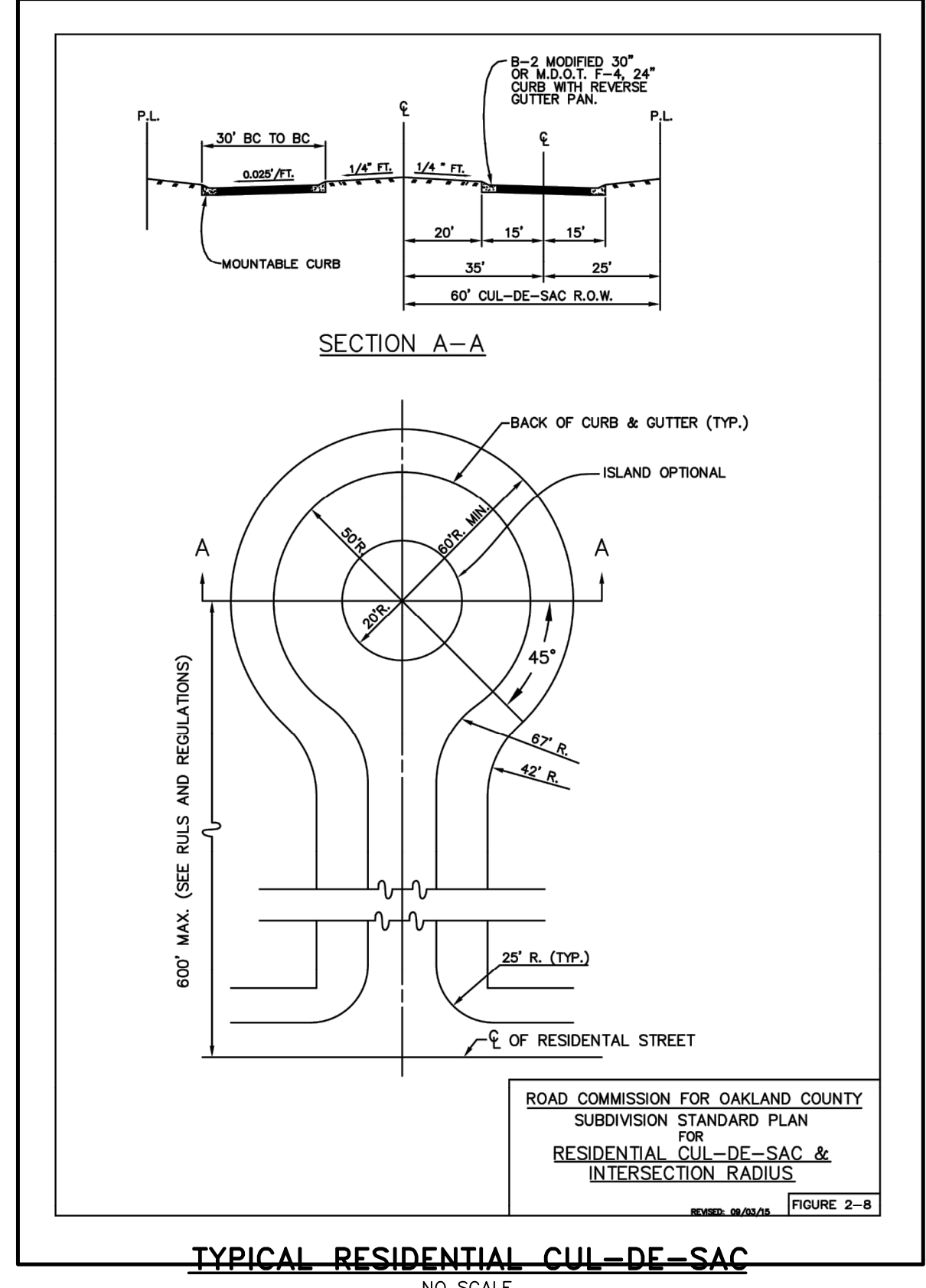
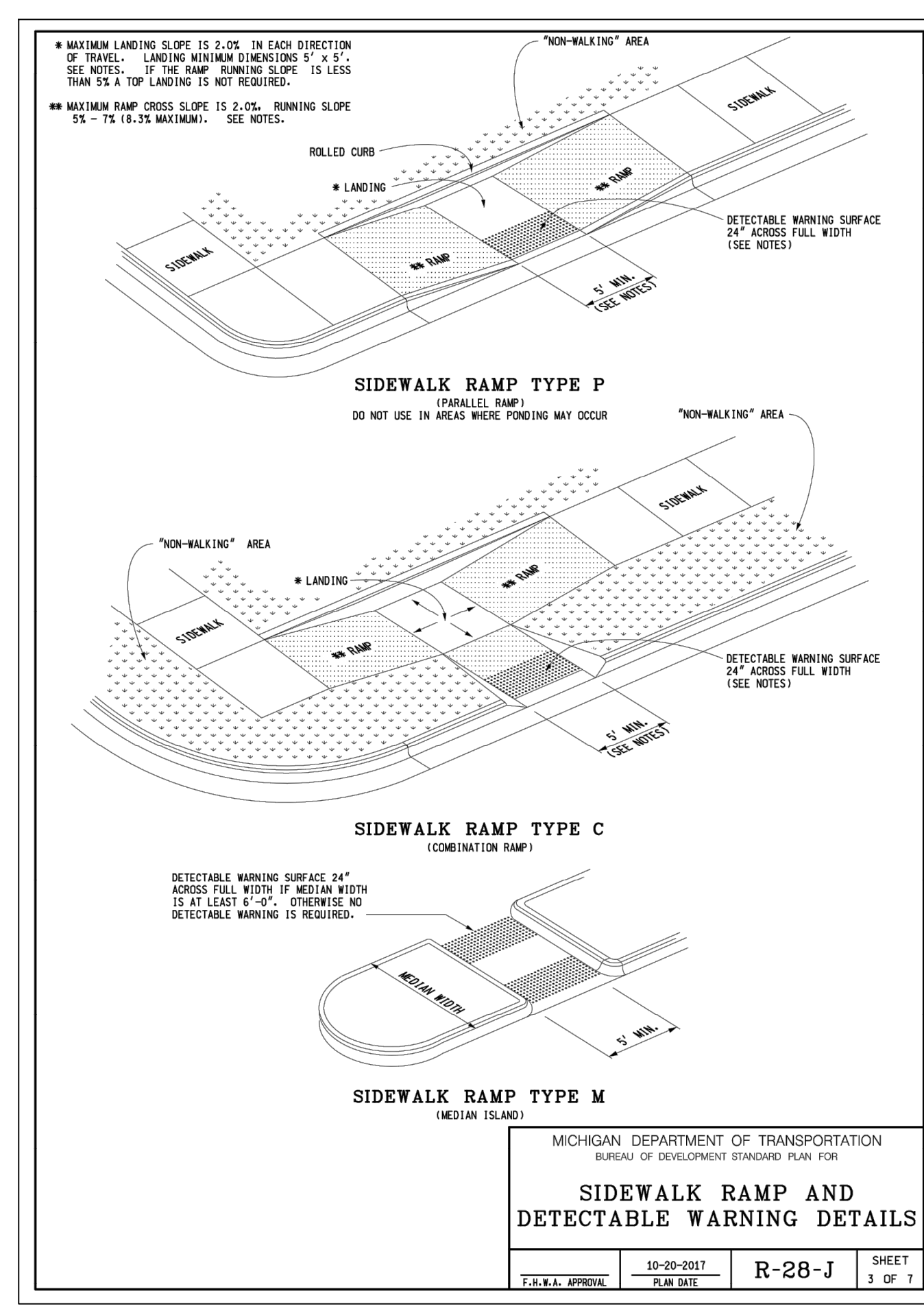
DATE: OCTOBER 29, 2020
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REVISIONS

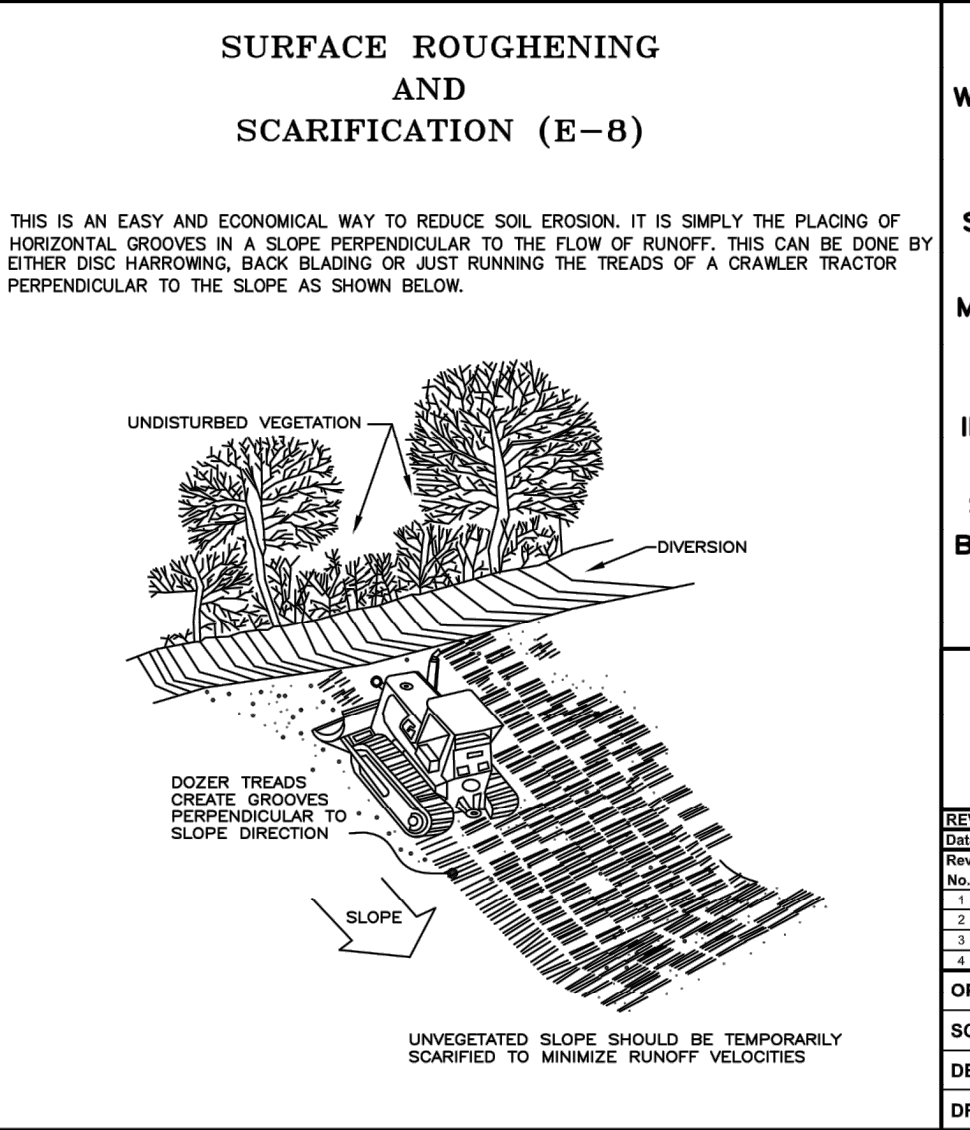
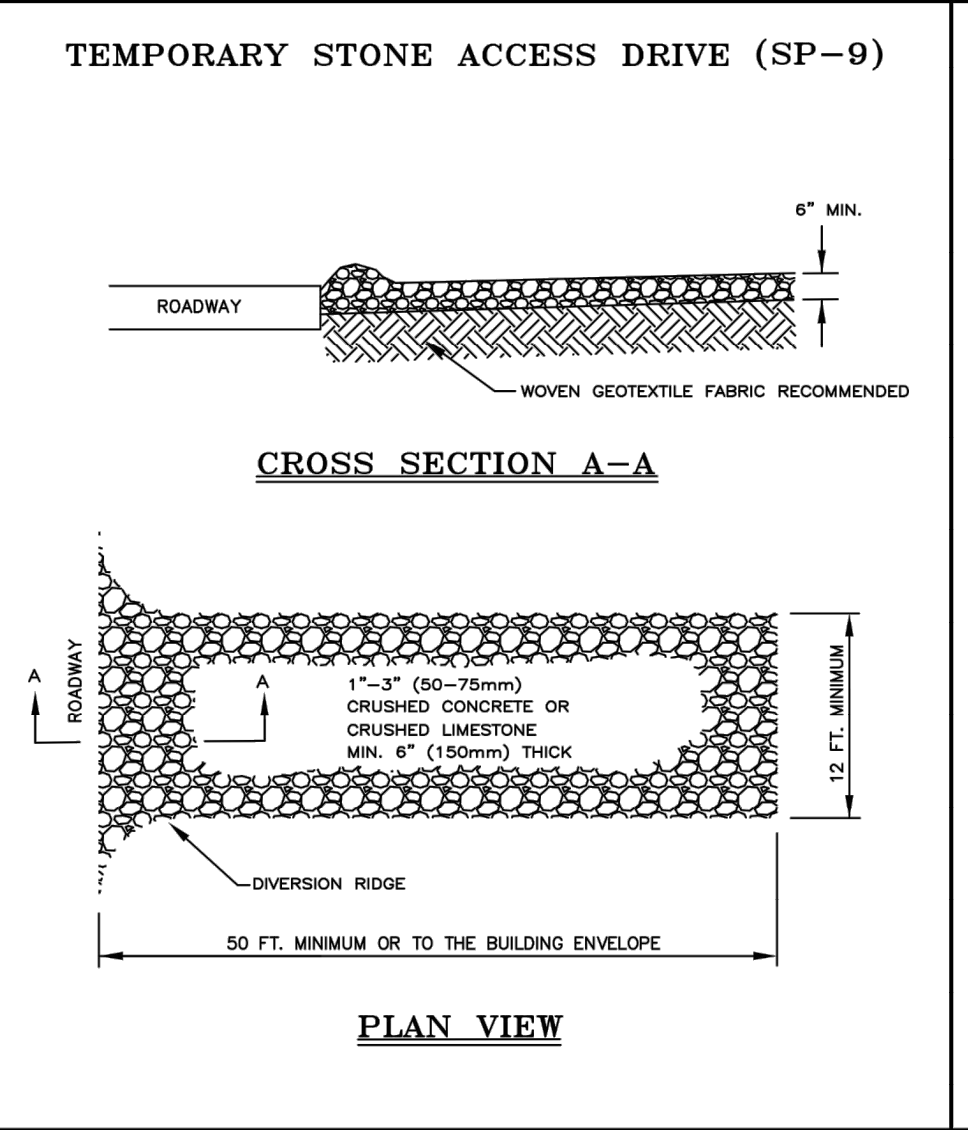
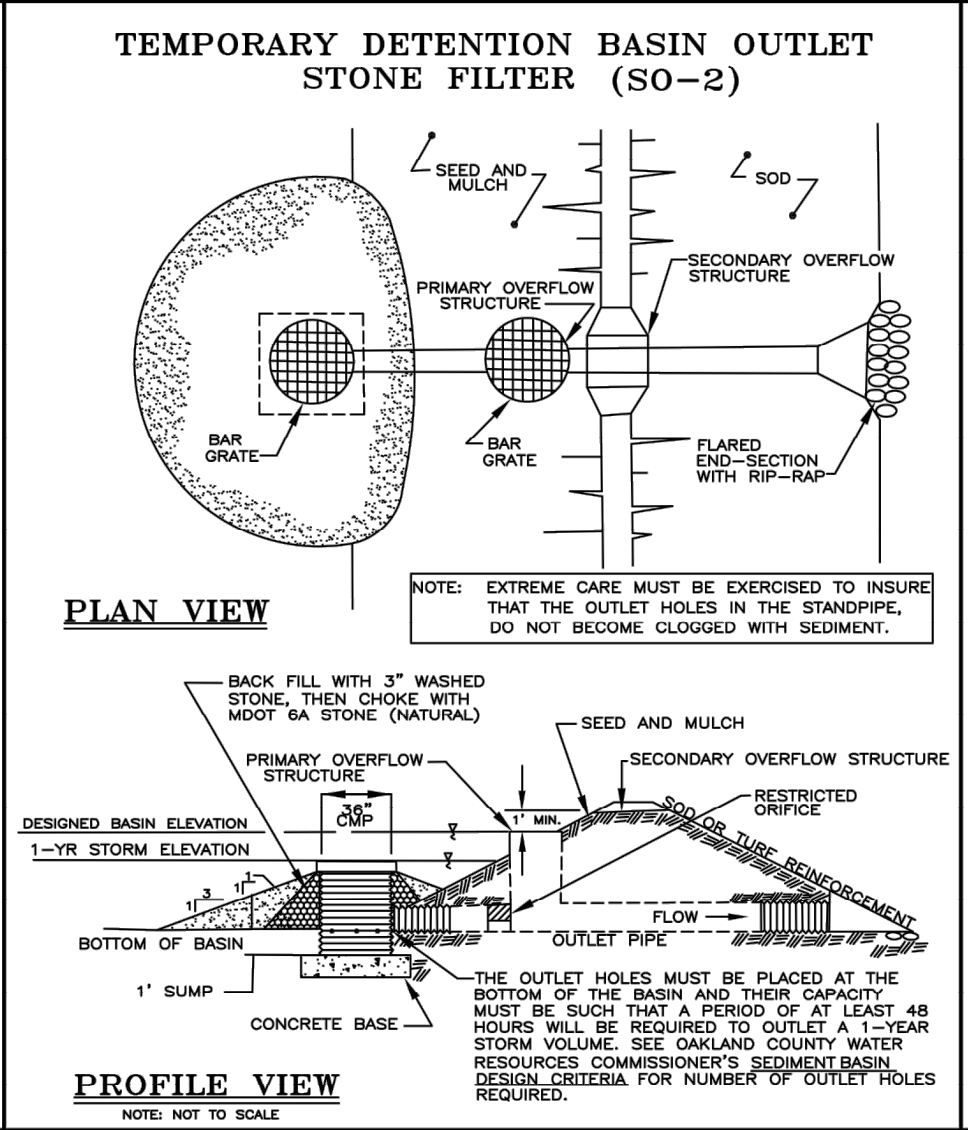
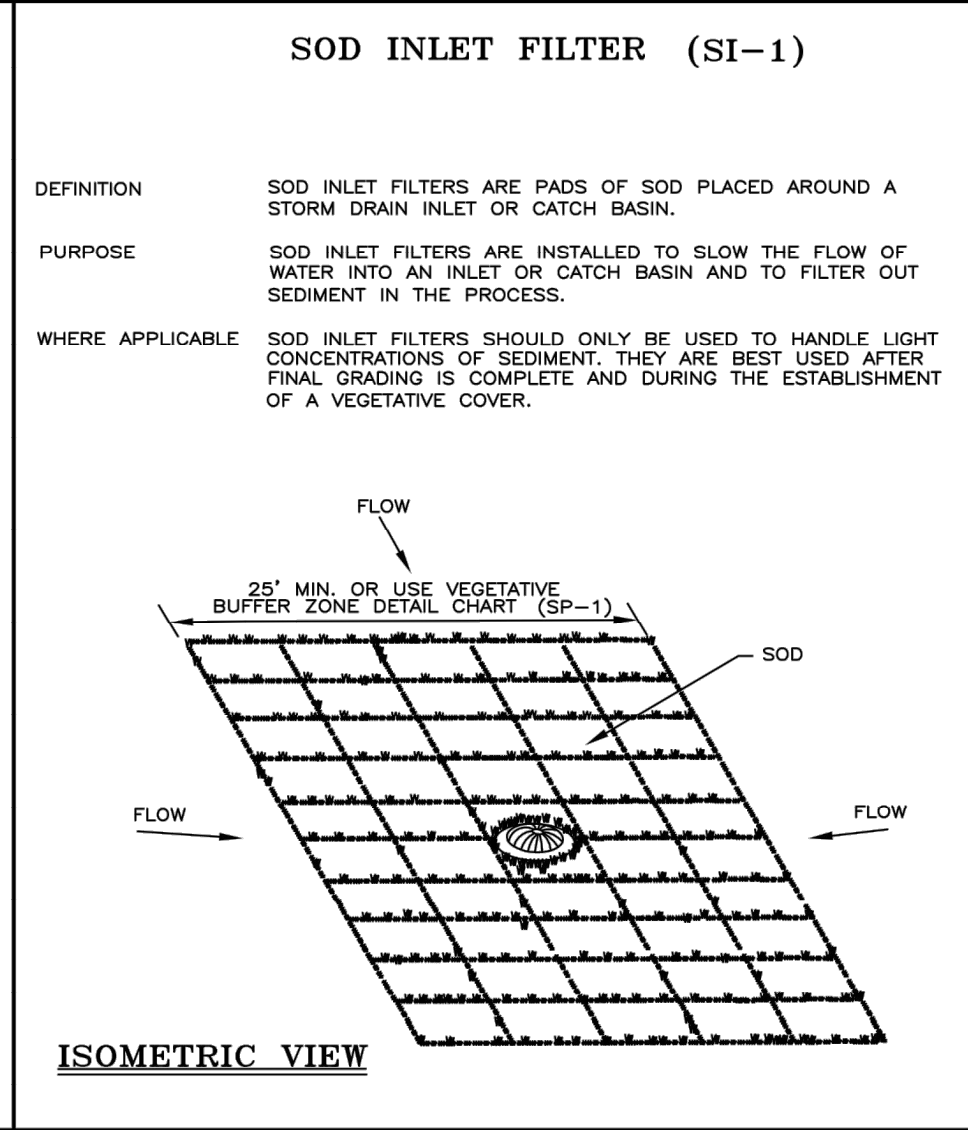
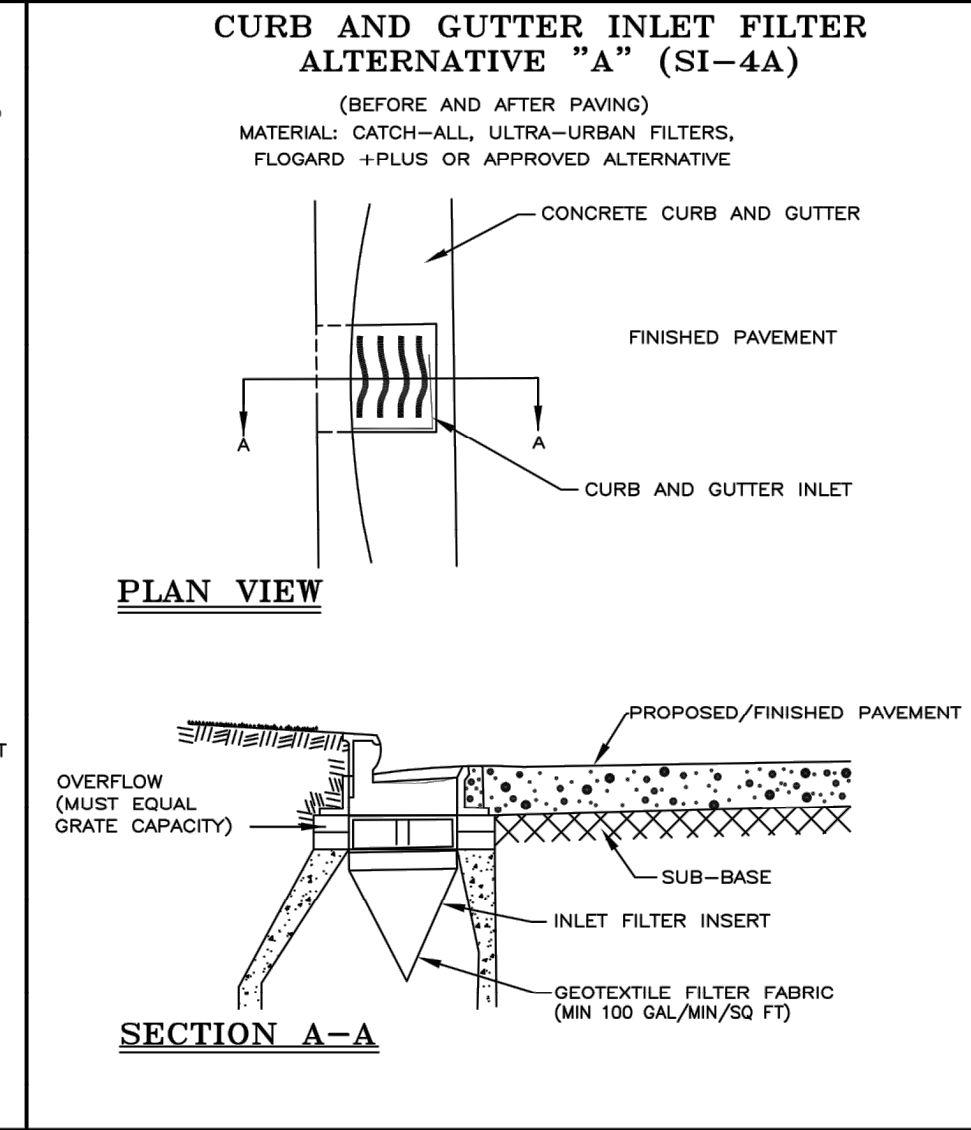
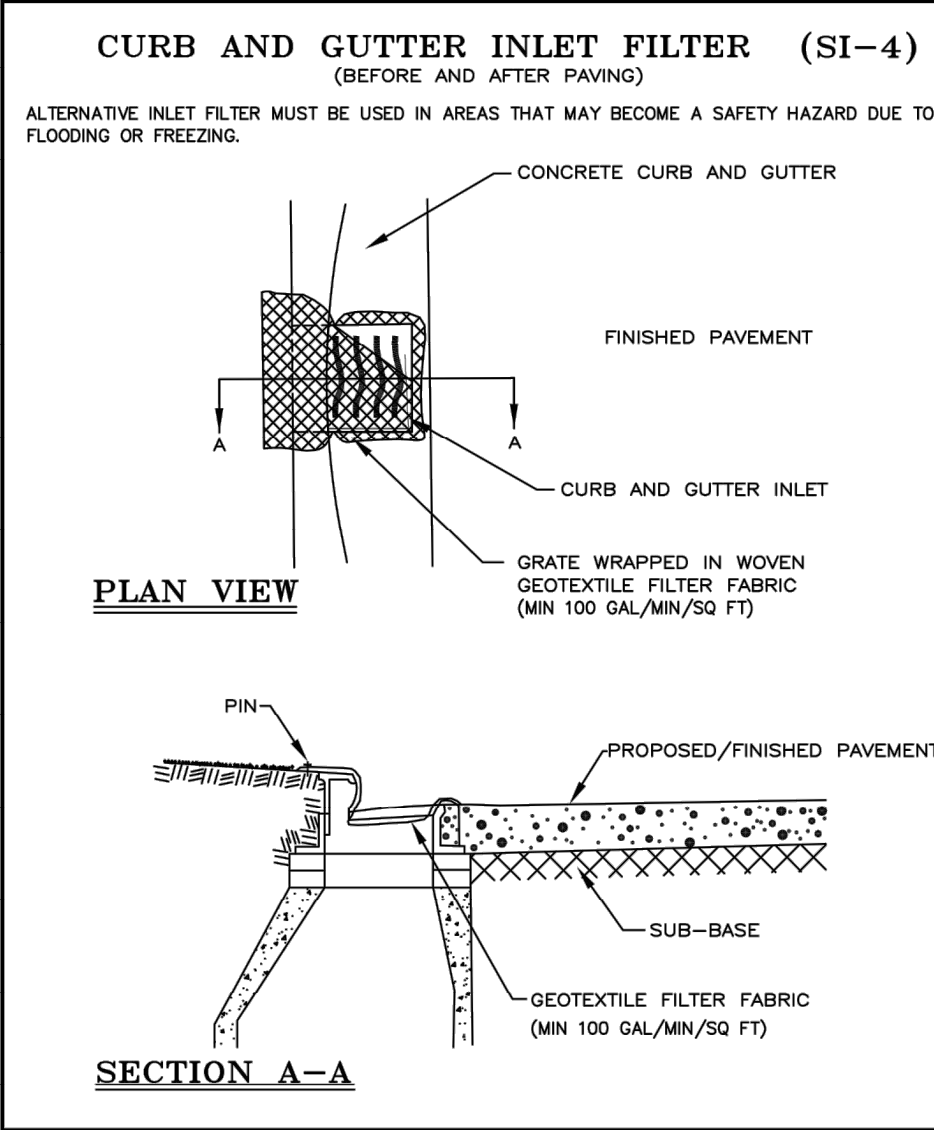
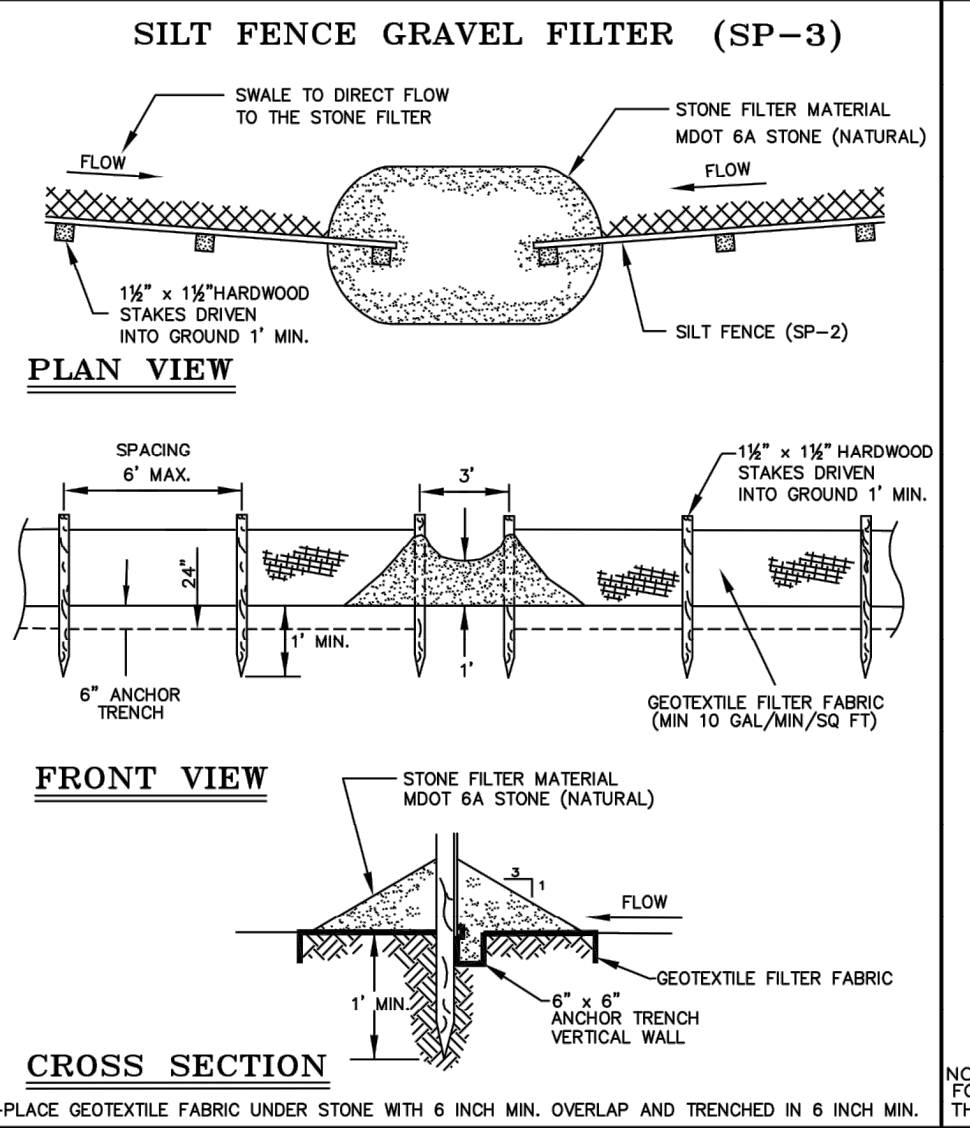
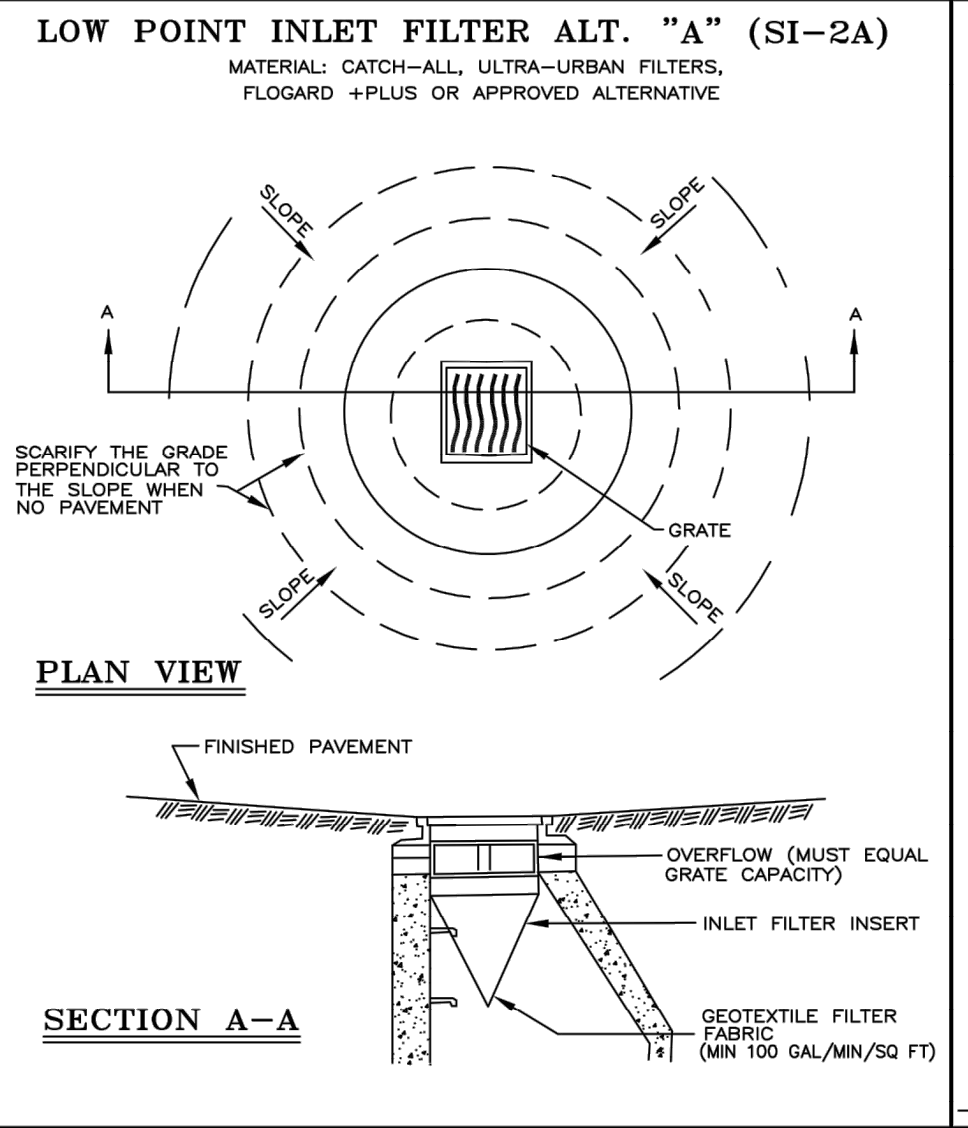
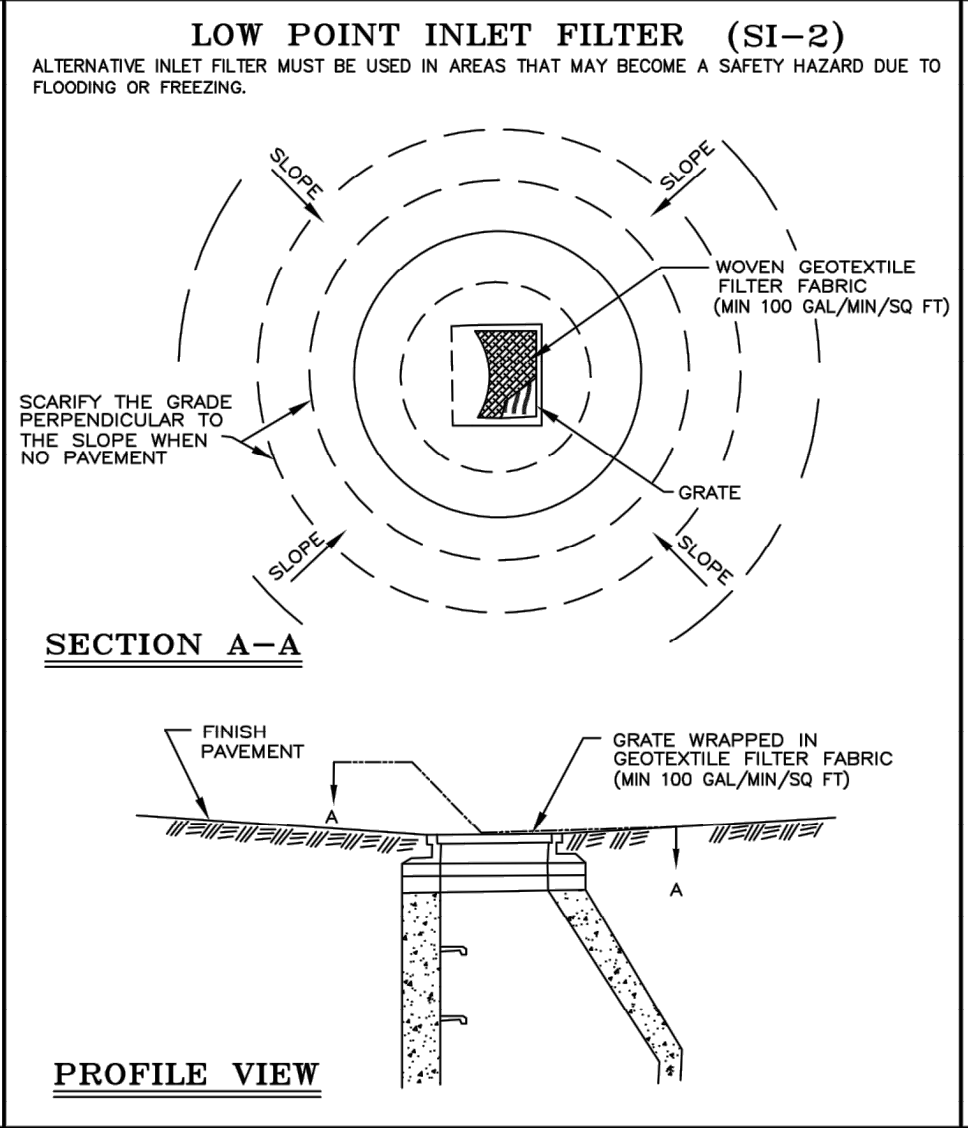
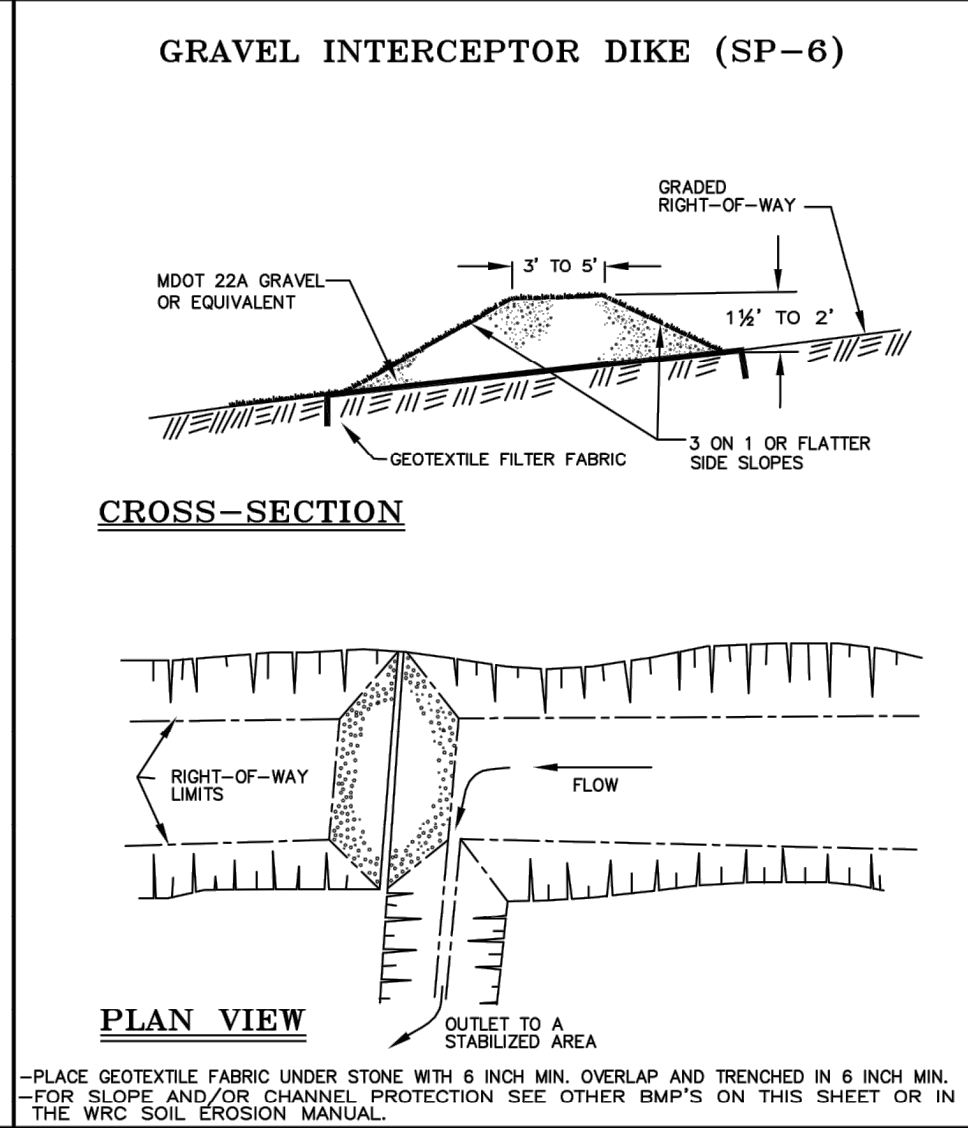
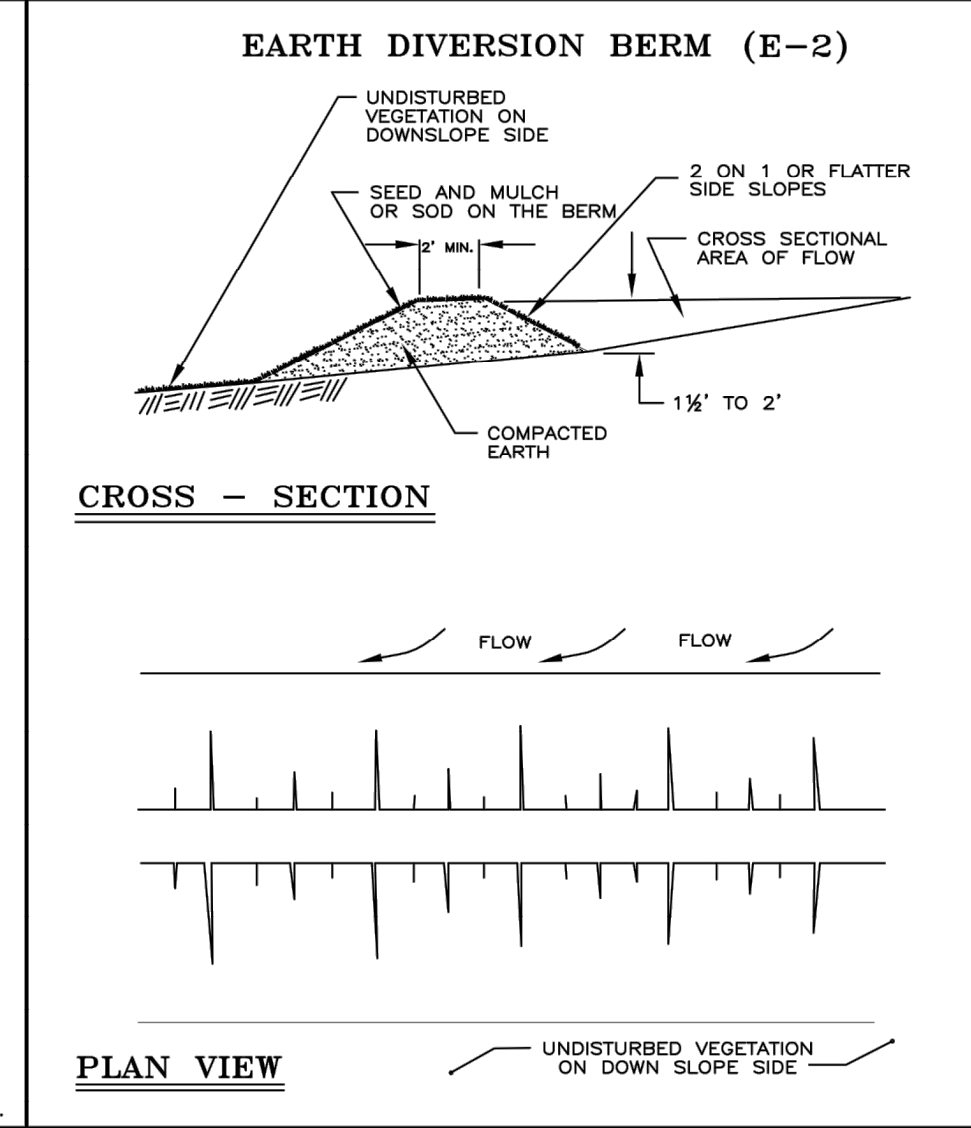
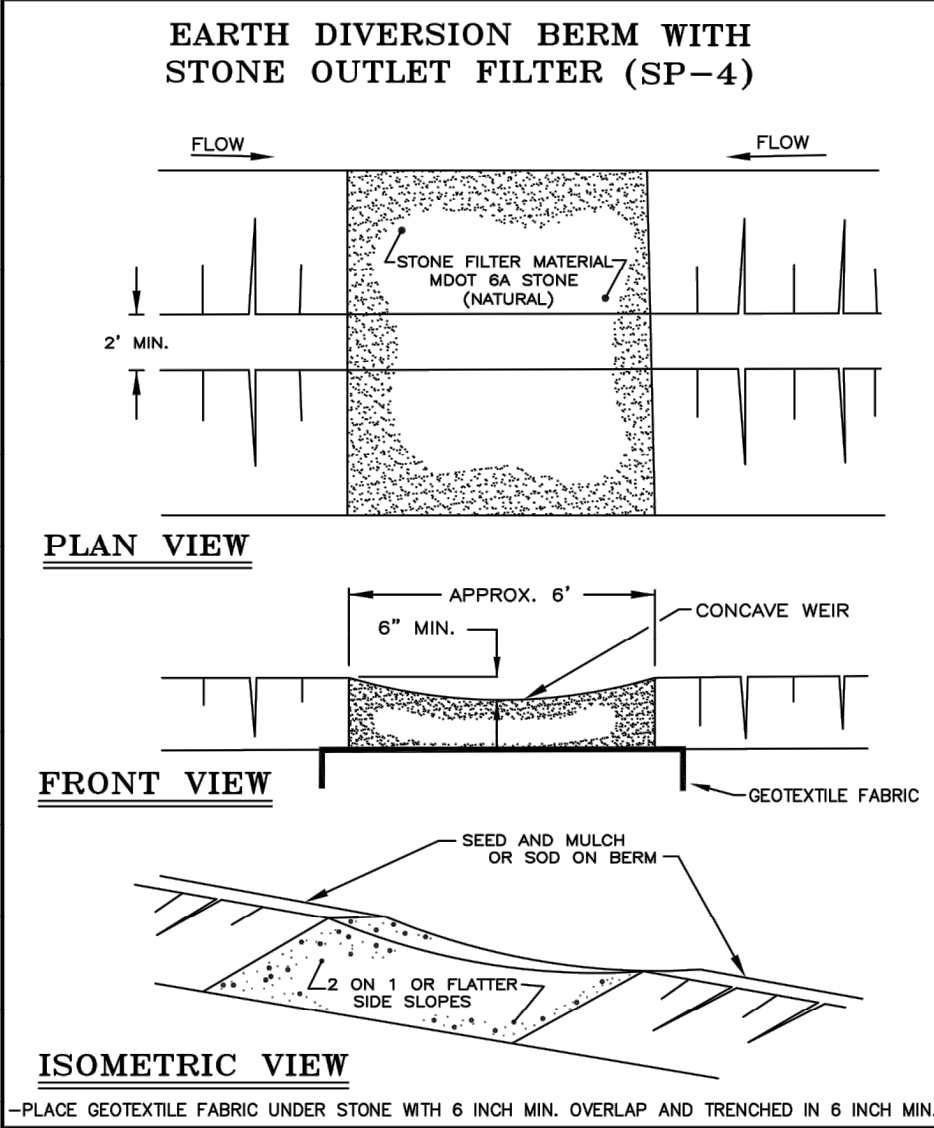
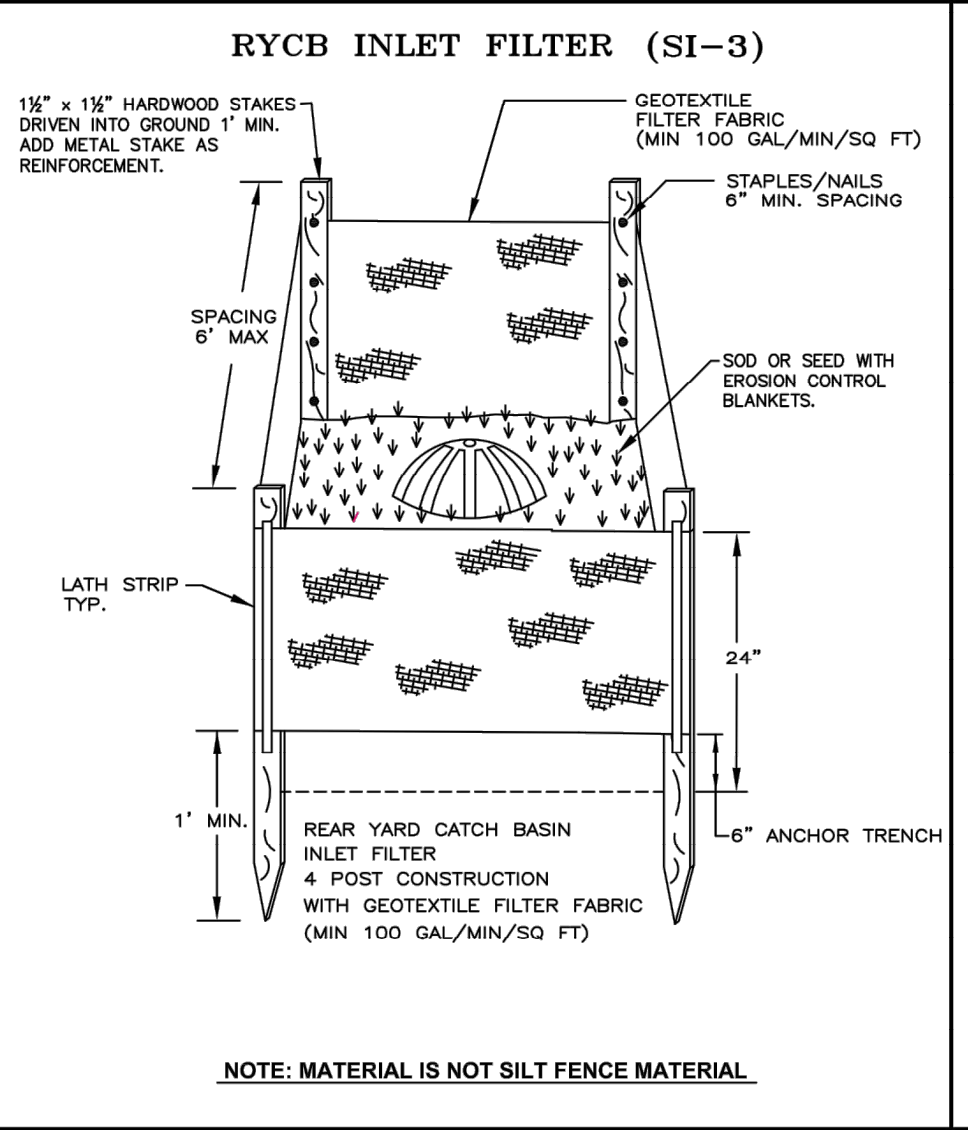
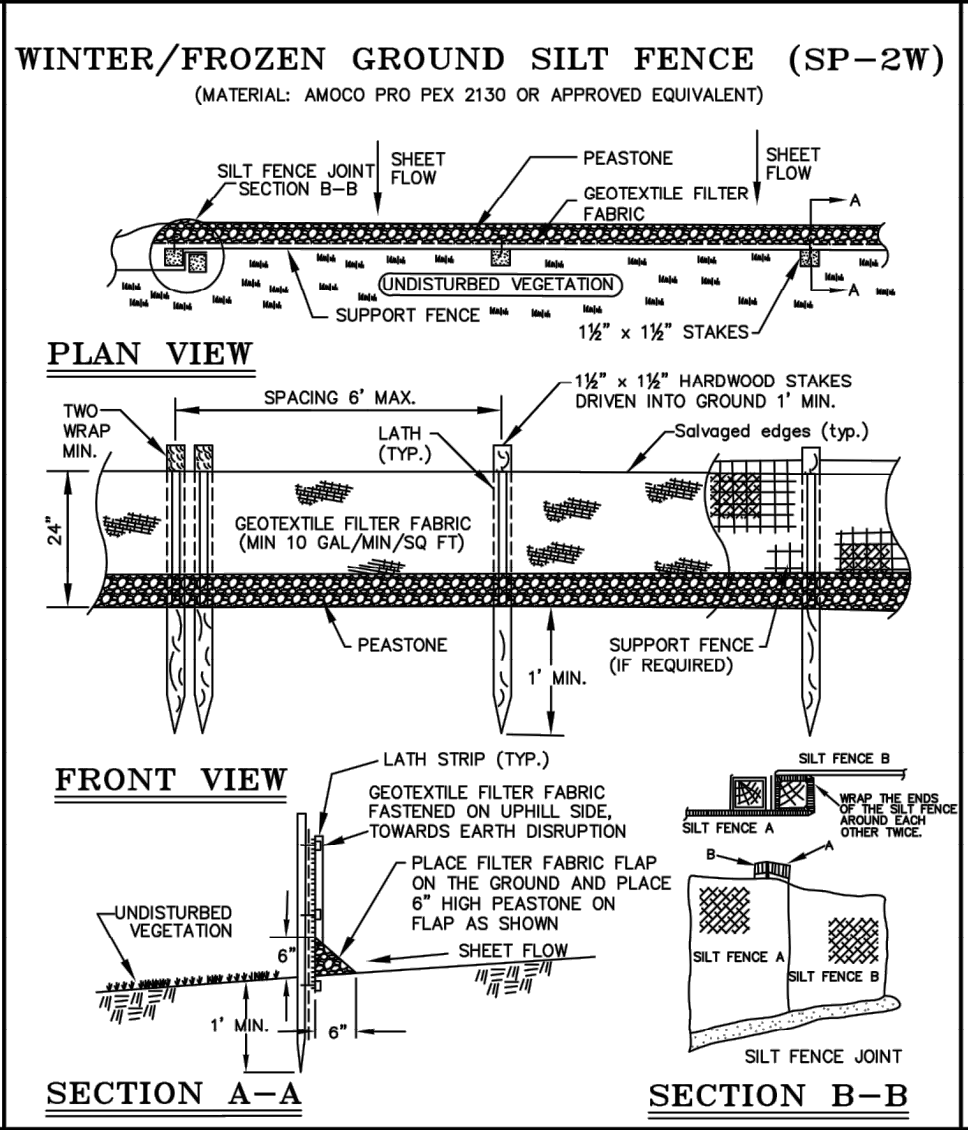
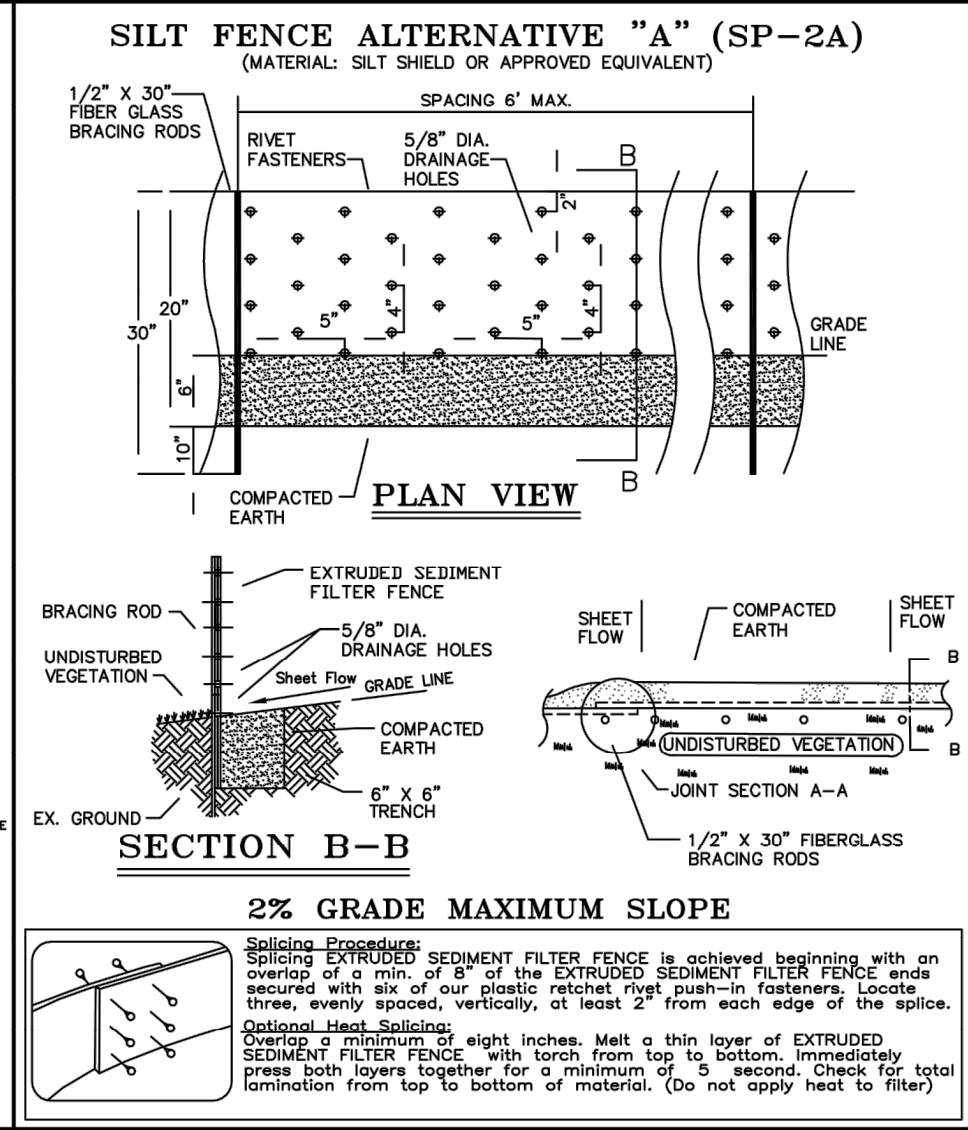
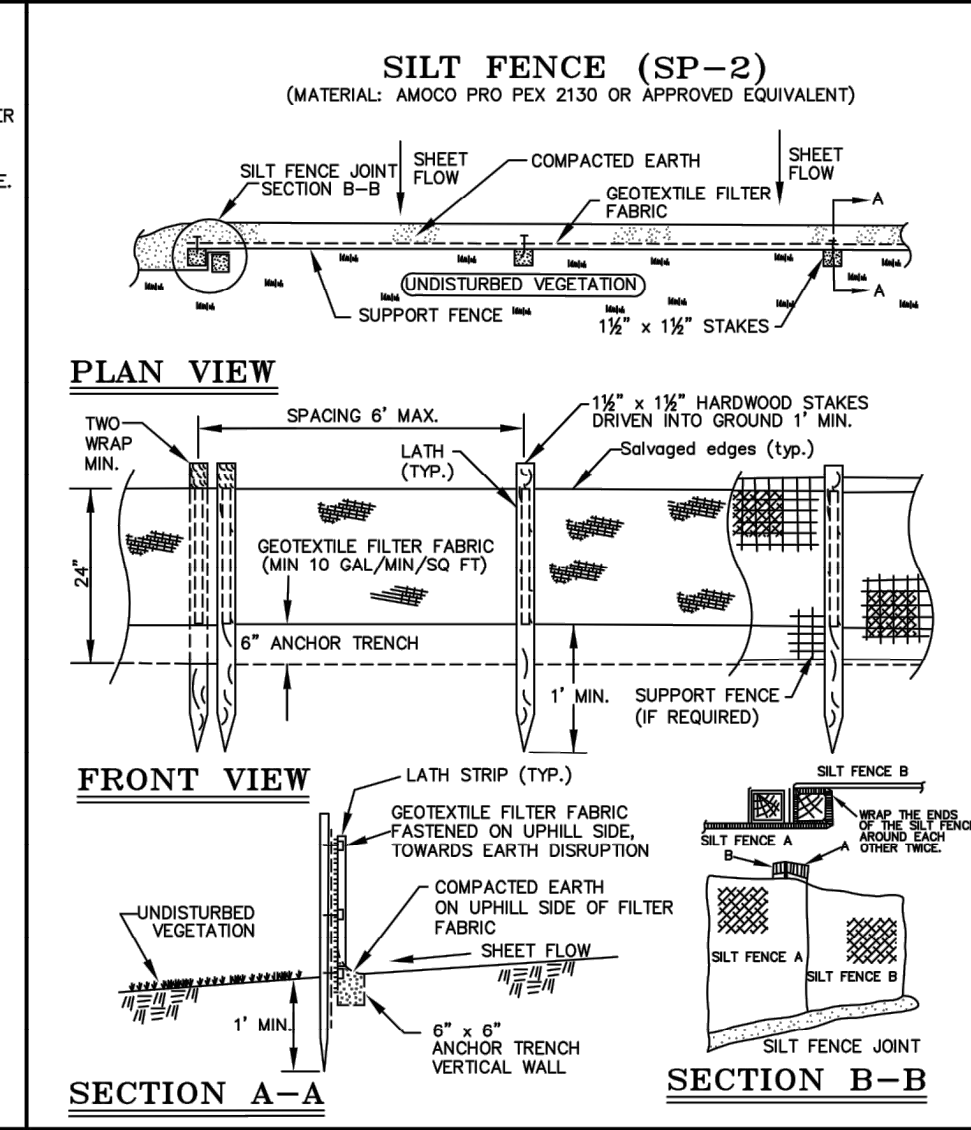
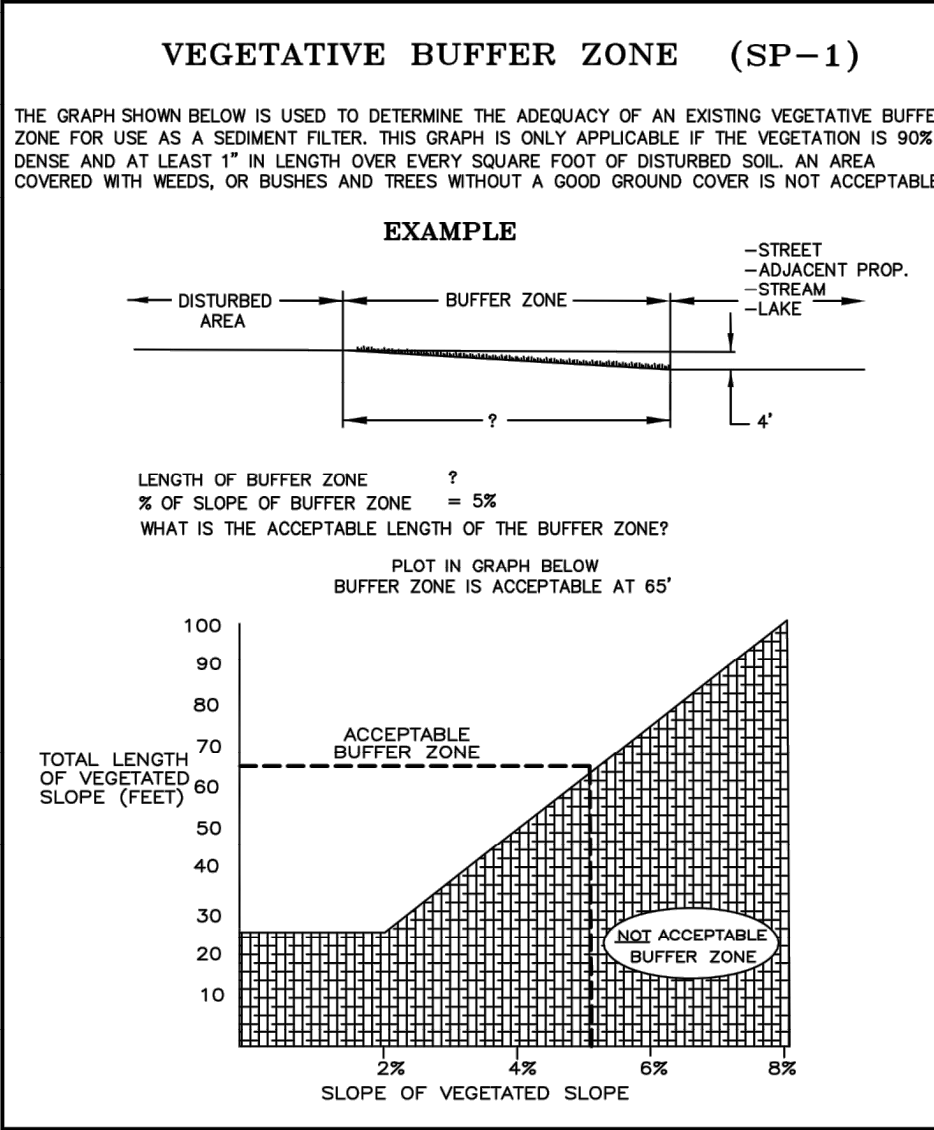
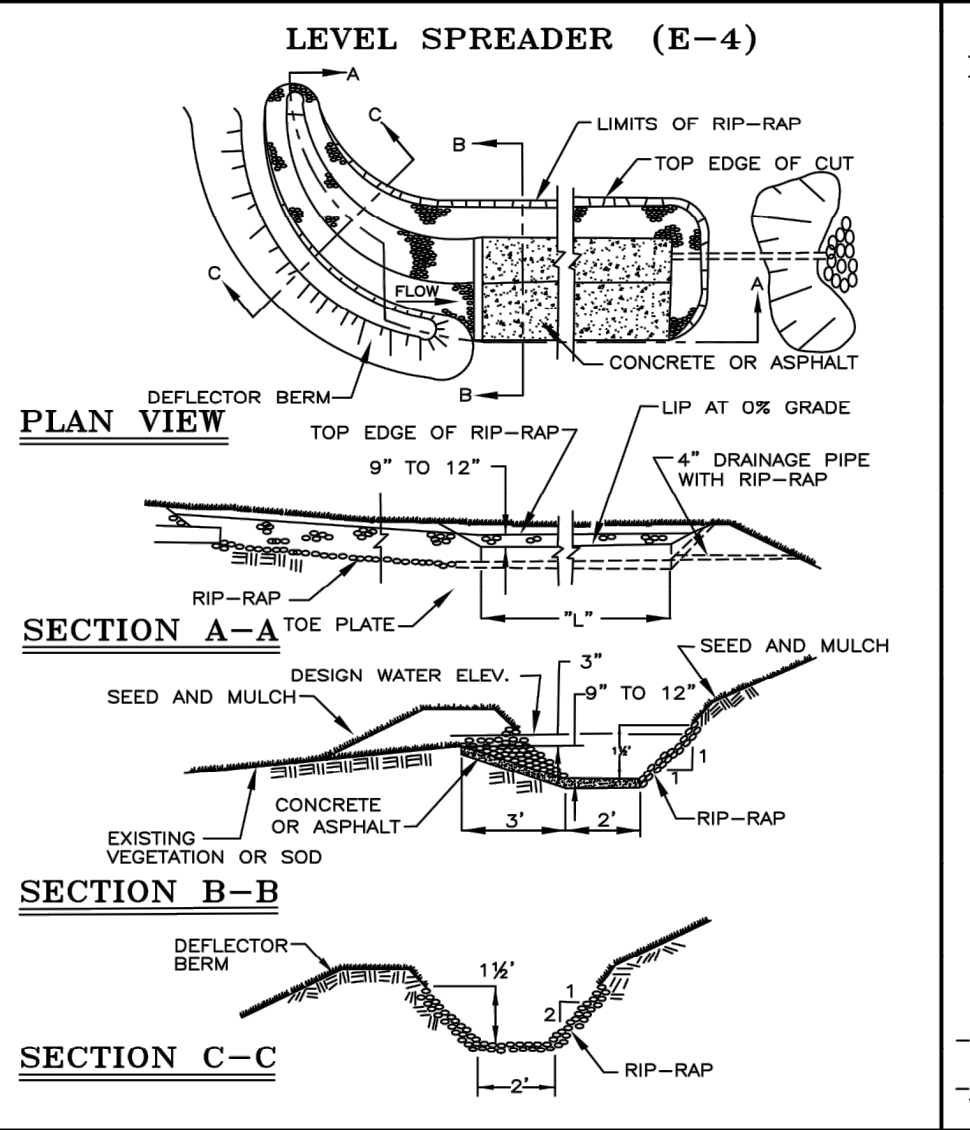
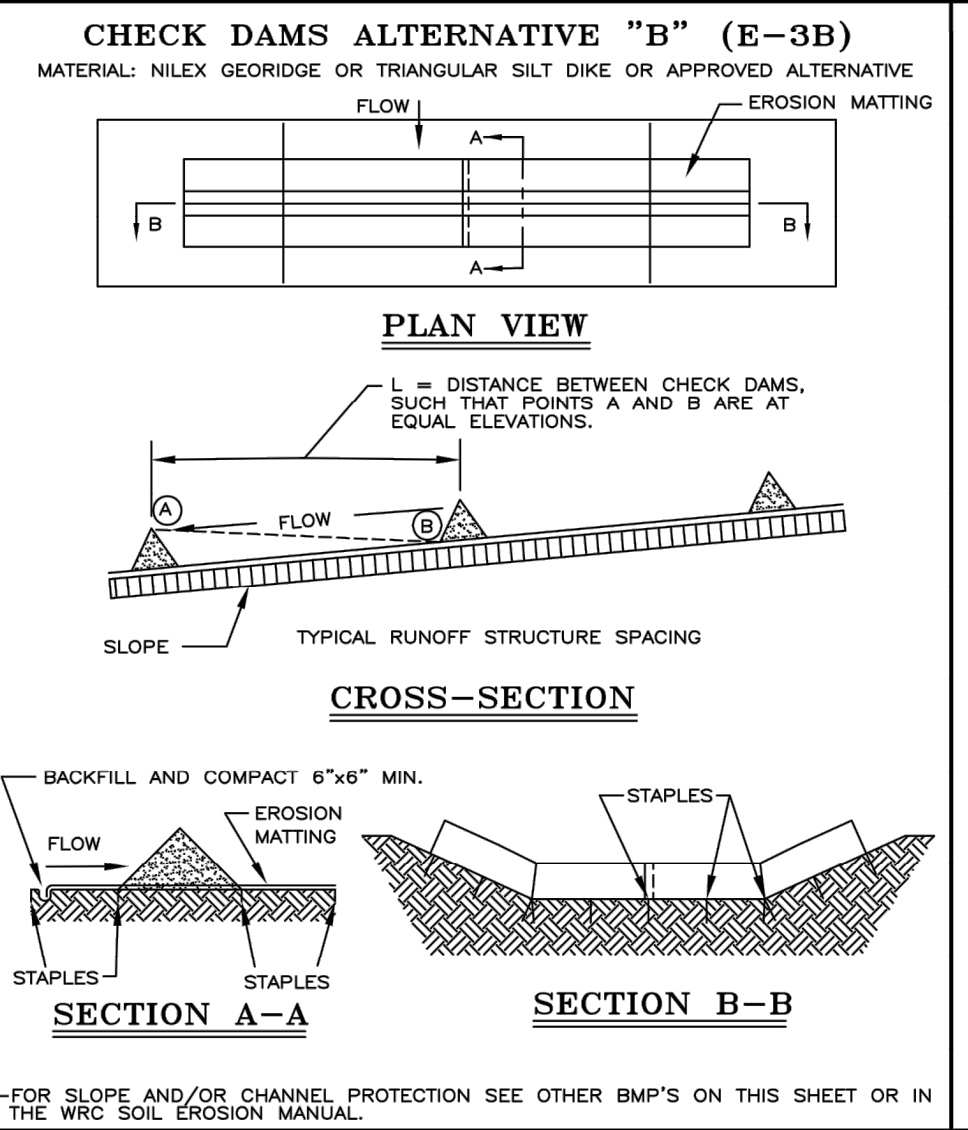
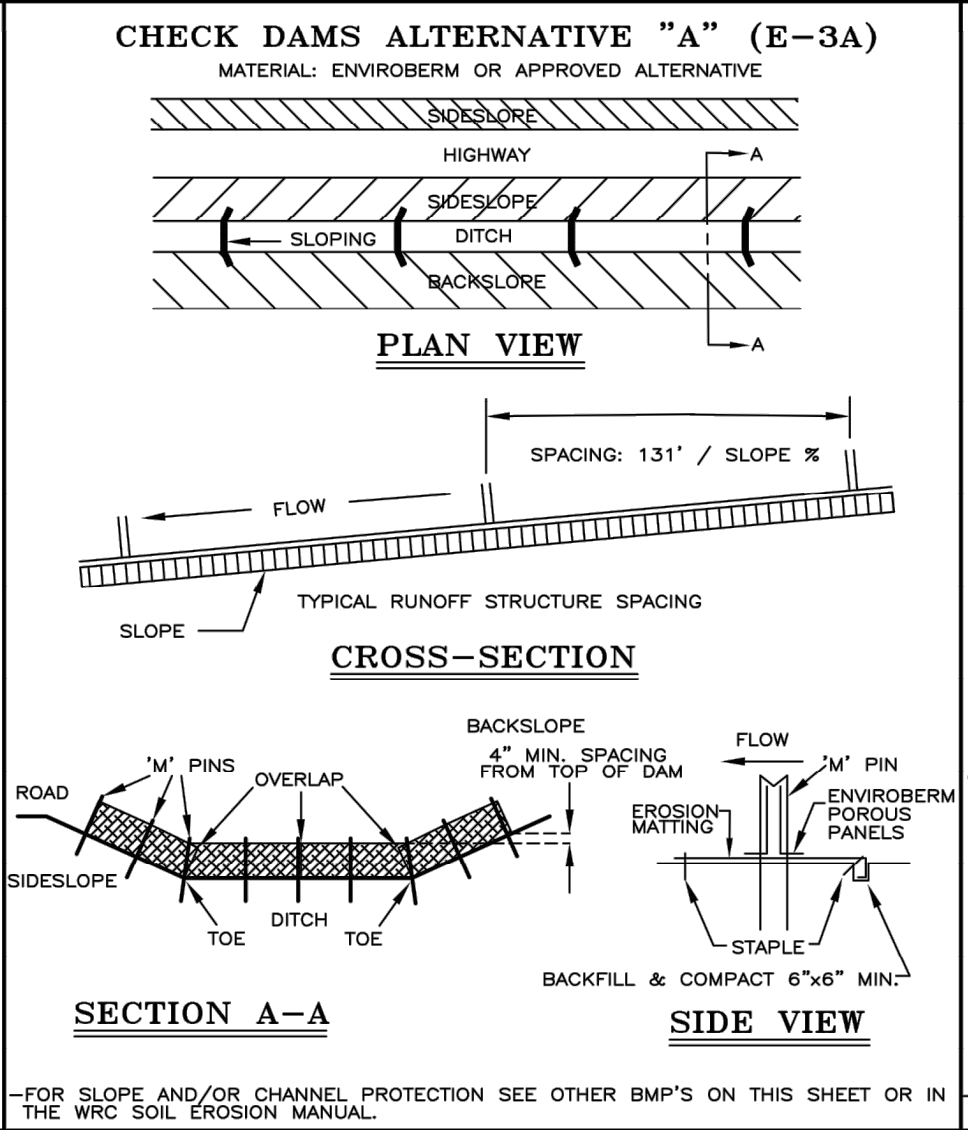
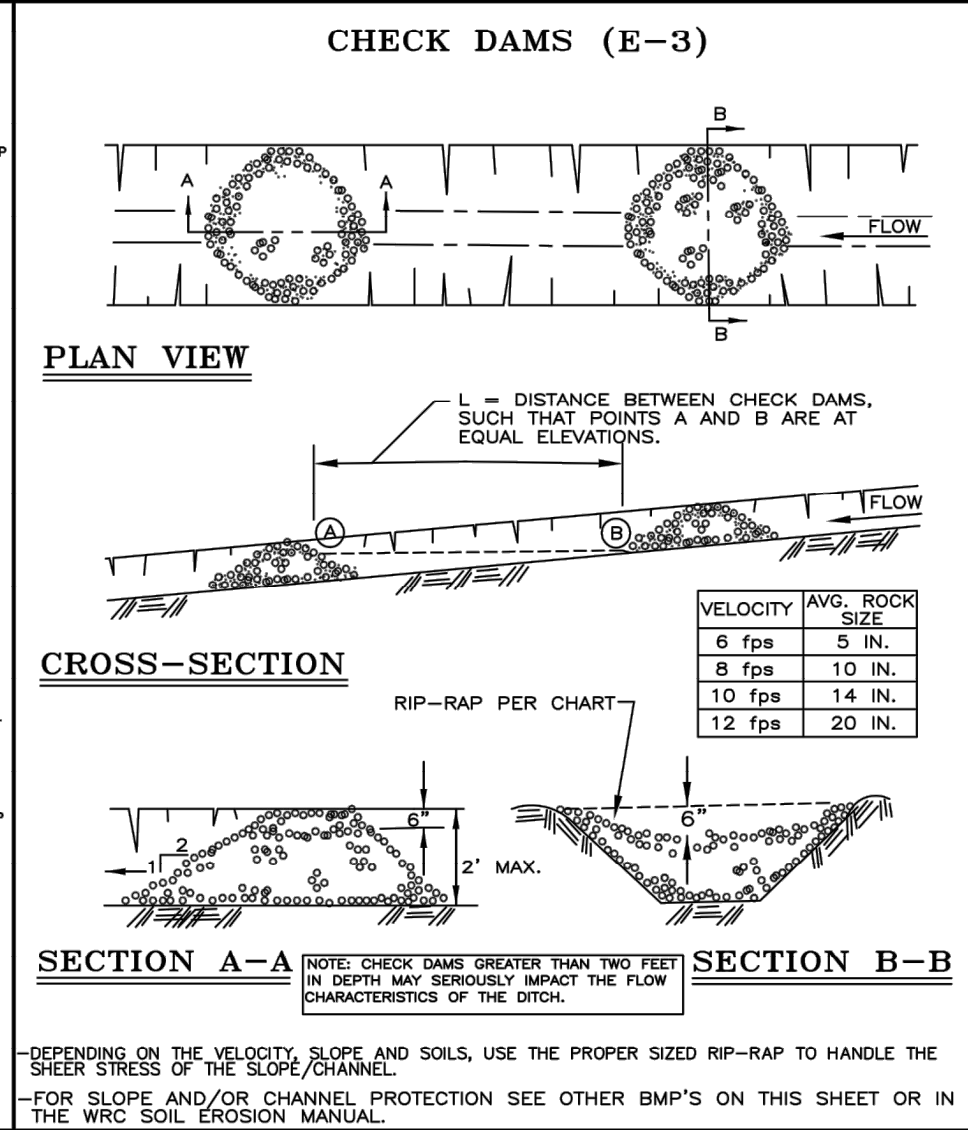
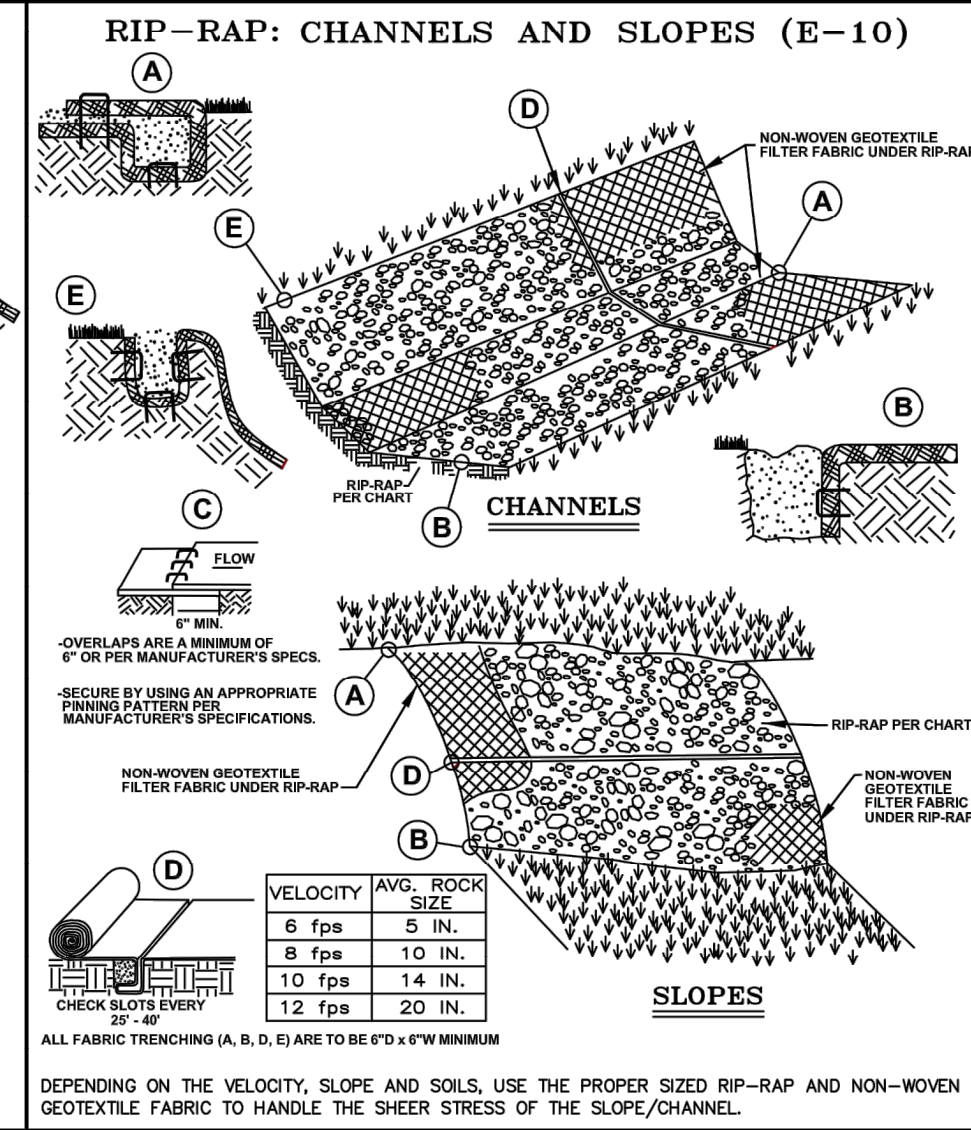
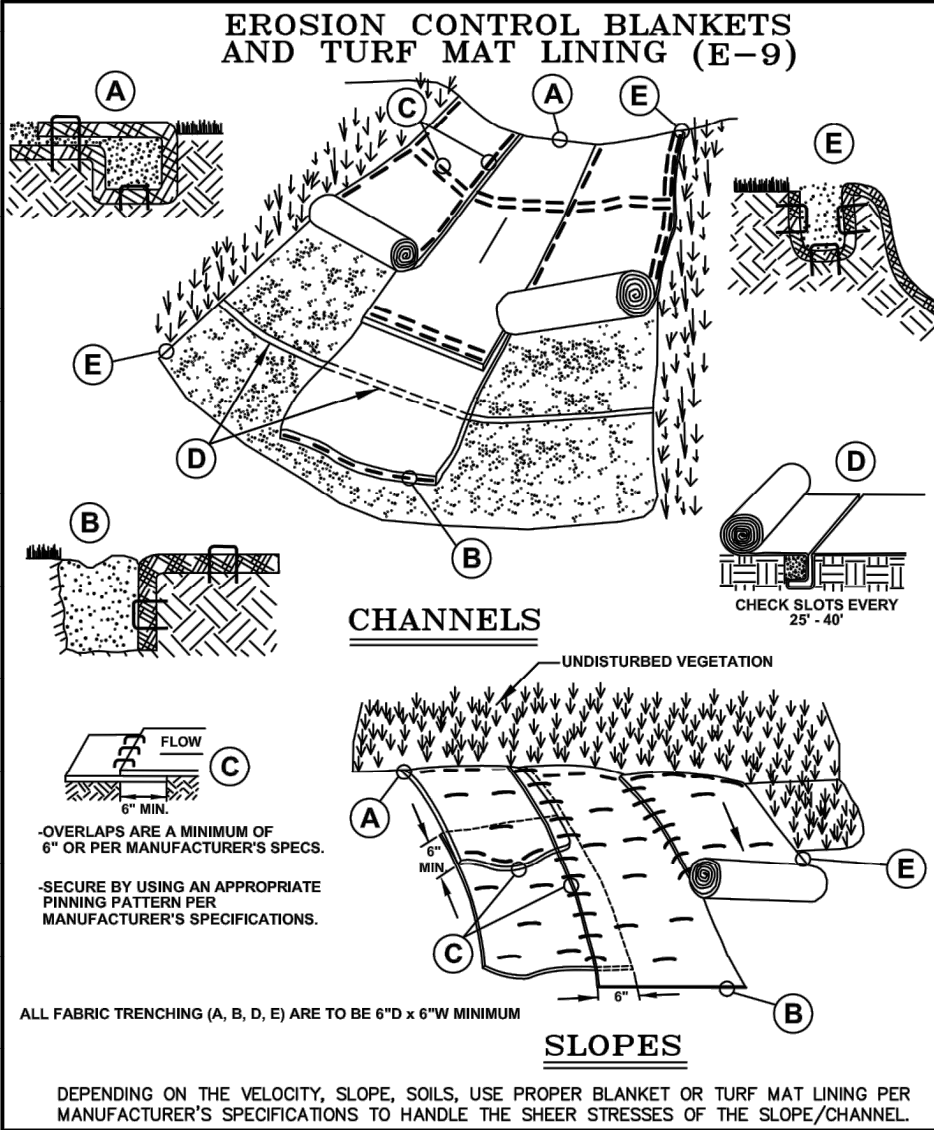
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AS NOTED

DR. SK/KS GH. CK
 P.M. M BUSH
 BOOK ---
 JOB 18003309
 SHEET NO. DTI



1. THE PROPOSED OPEN SPACE AREA IS COMPUTED USING COMMON-USE GREEN AREA WITHIN THE NET SITE AREA, GENERALLY EXCLUDING THE FOLLOWING (REFER TO EXHIBIT ABOVE FOR FURTHER CLARITY):
 PROPOSED ROAD RIGHT-OF-WAY EASEMENTS
 SINGLE FAMILY LOTS
 ACTIVE ADULT BUILDINGS, PATIOS, SIDE YARDS AND FRONT YARDS
 NOTE THAT THE DETENTION BASINS (APPROX. 2.3 AC. TOTAL AREA SHOWN) ARE NOT INCLUDED AS OPEN SPACE IN THE ABOVE EXHIBIT.



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

REV.	DATE	DESCRIPTION
1	11/11/09	ISSUED FOR PERIODIC DETAIL CHECKS
2	12/01/09	FOR CONSTRUCTION APPROVAL, NAME CHANGES
3	03/24/11	SET FENCE ALTERNATIVE "A" DETAIL (SP-4) ADDED
4	04/23/13	FOR CONSTRUCTION APPROVAL, NAME CHANGES

ORIG. DATE: 01/01/01

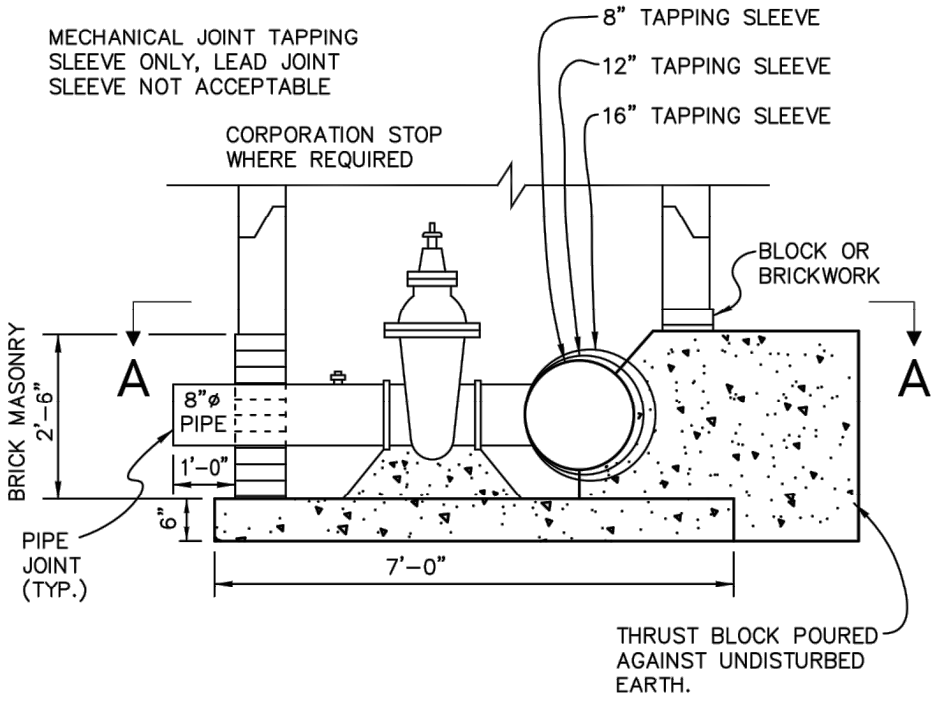
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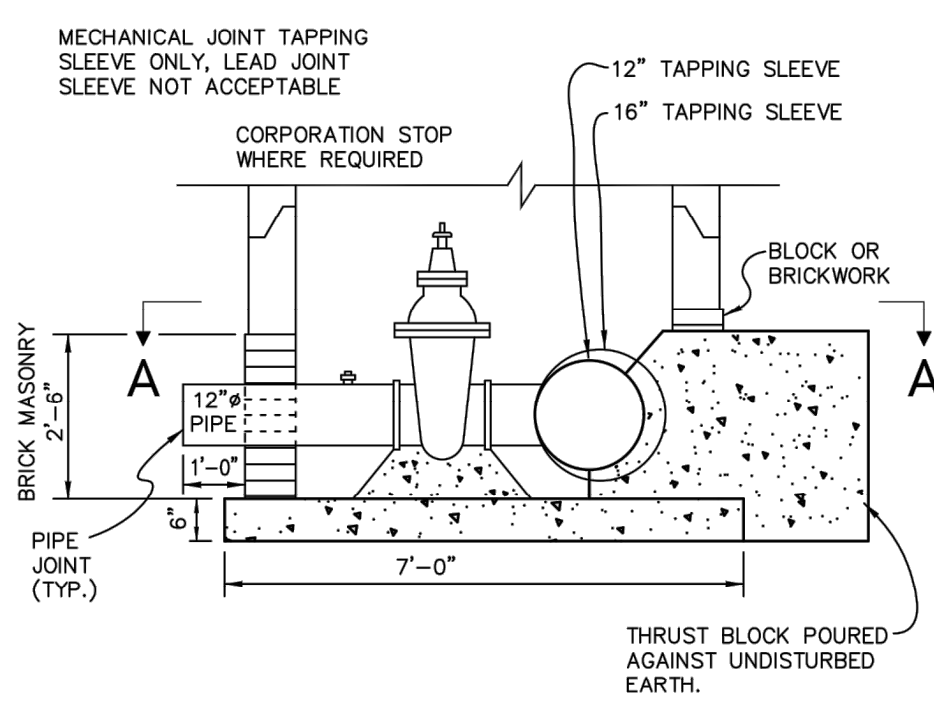
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ONE PUBLIC WORKS DRIVE, BLDG 95 WEST WATERFORD, MICHIGAN 48328-1907

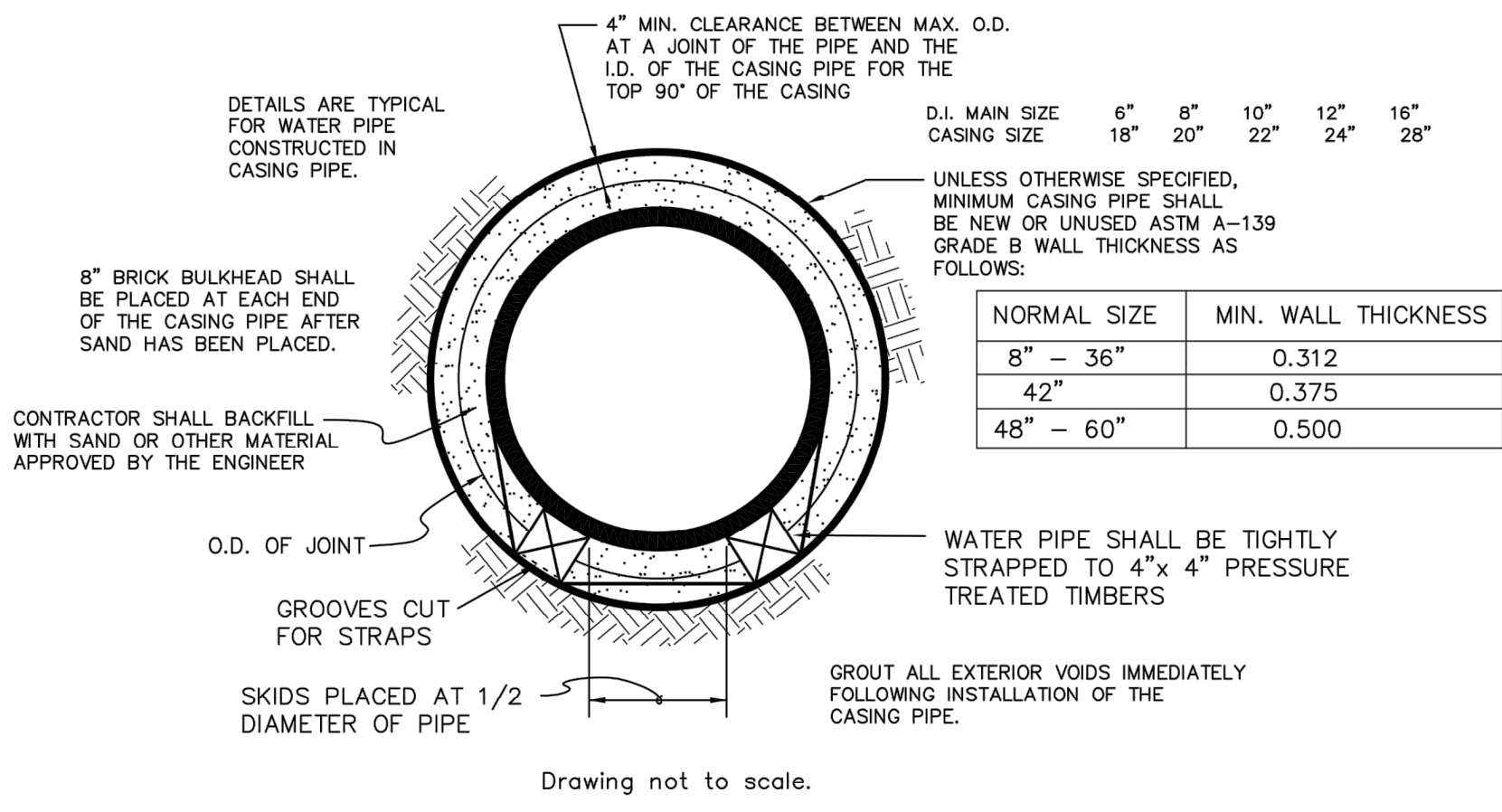
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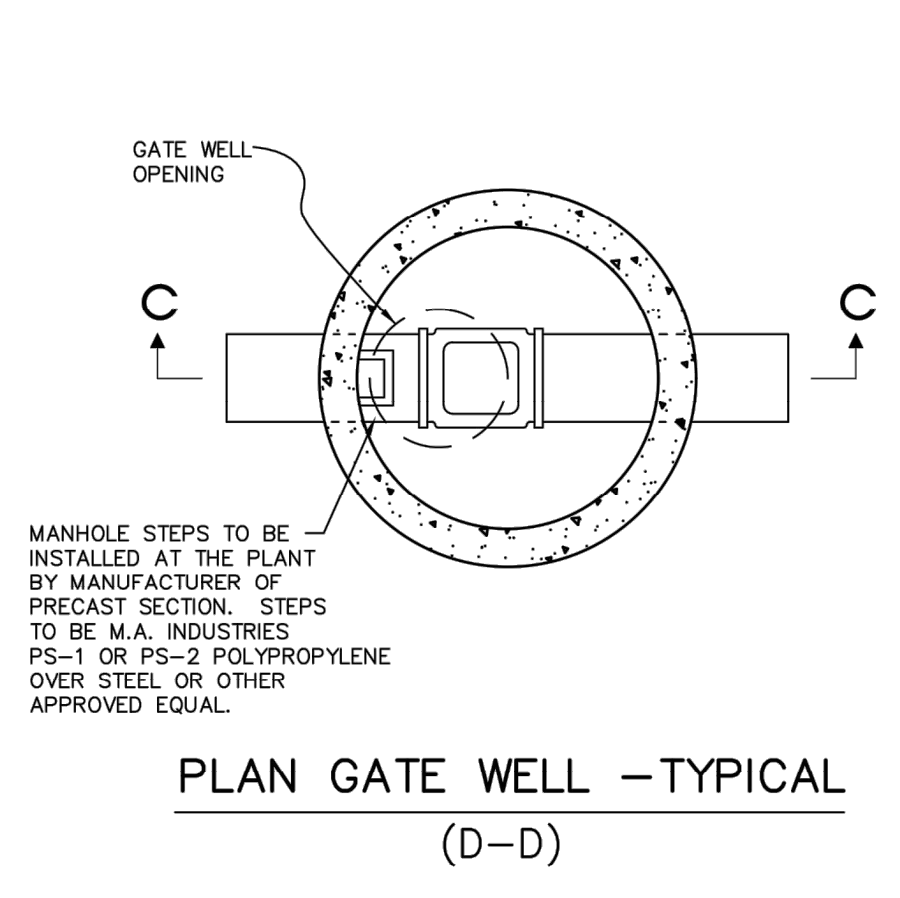
16" X 8", 12" X 8", 8" X 8" TAPPING SLEEVE, VALVE & WELL (B-B)



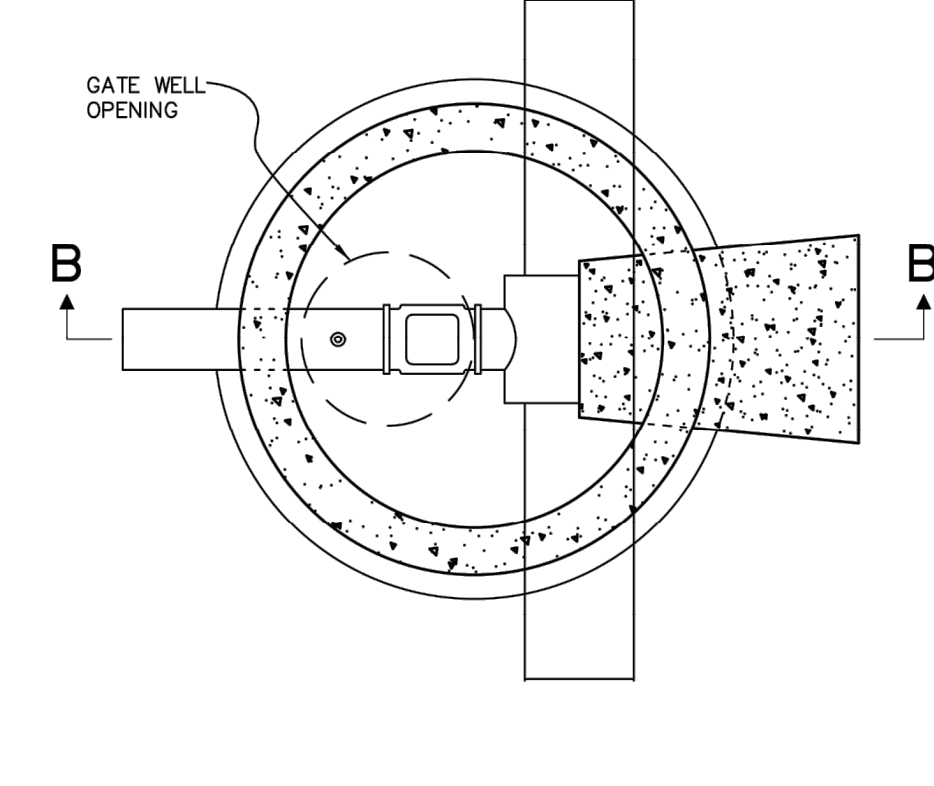
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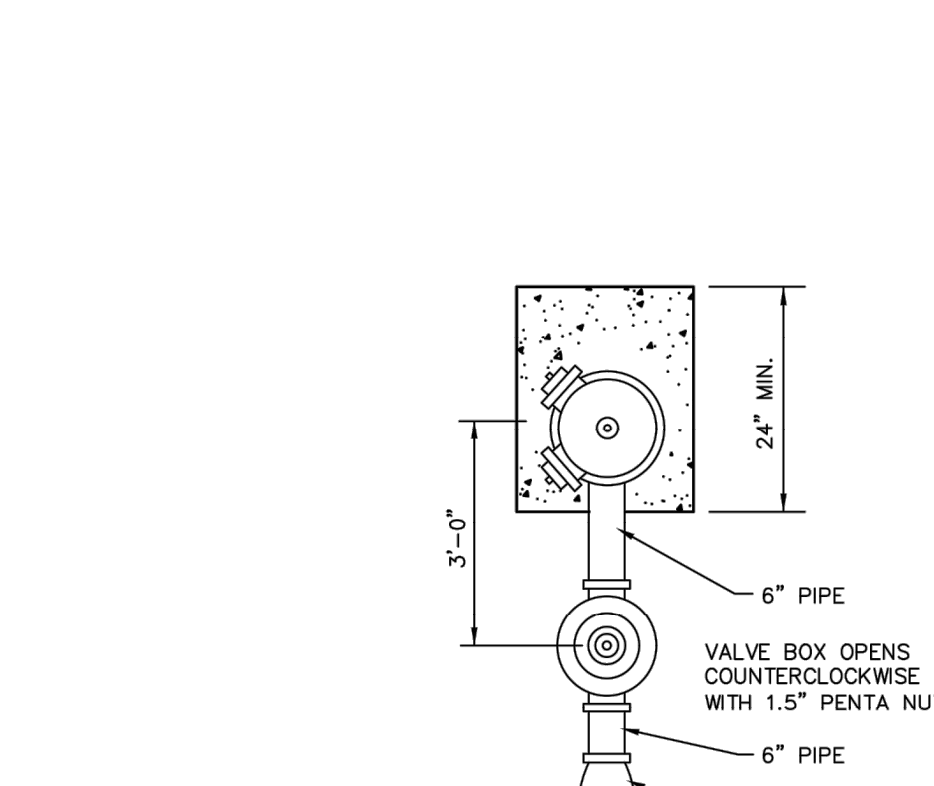
PIPE BARREL SUPPORT FOR WATER MAIN CONSTRUCTED IN CASING



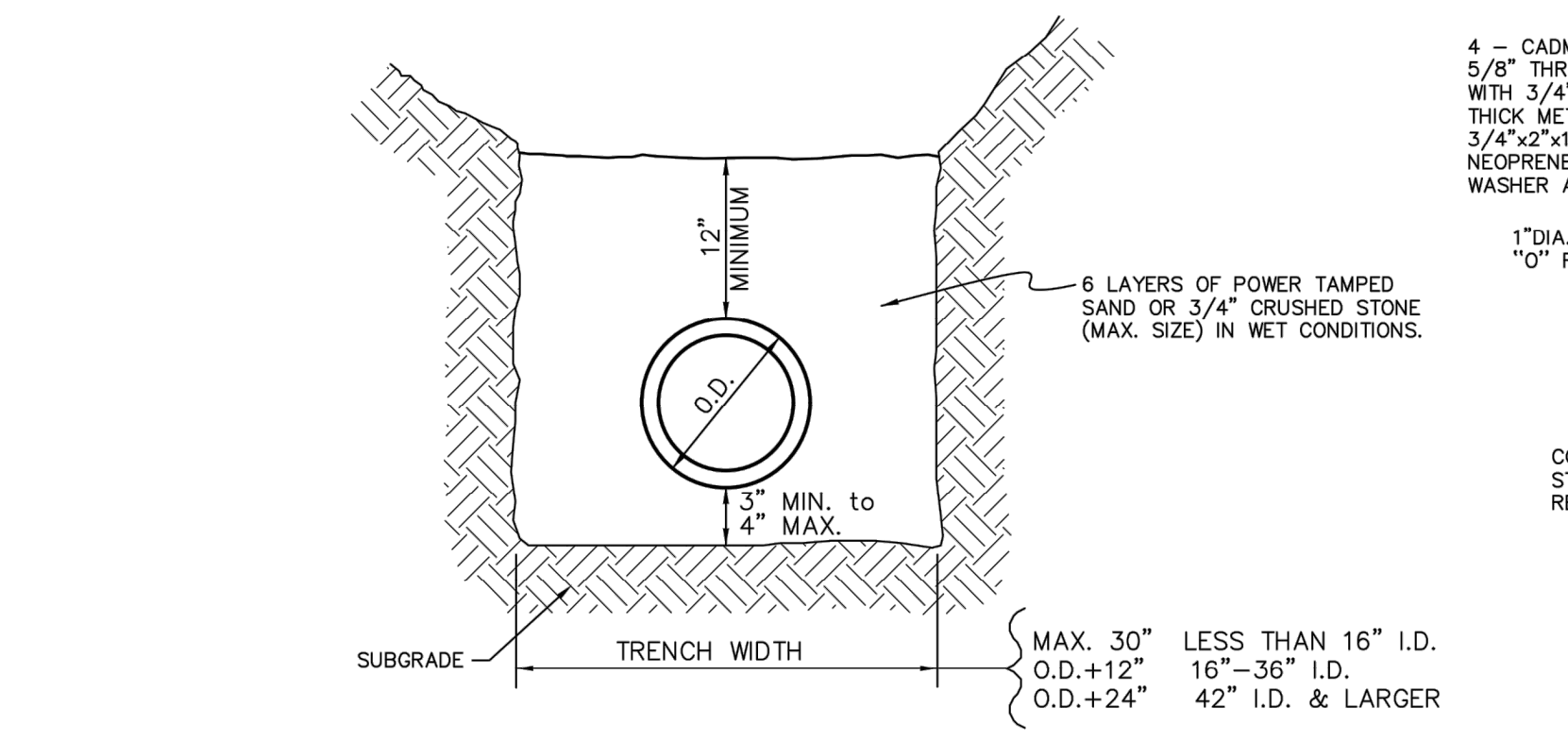
PLAN GATE WELL - TYPICAL (D-D)



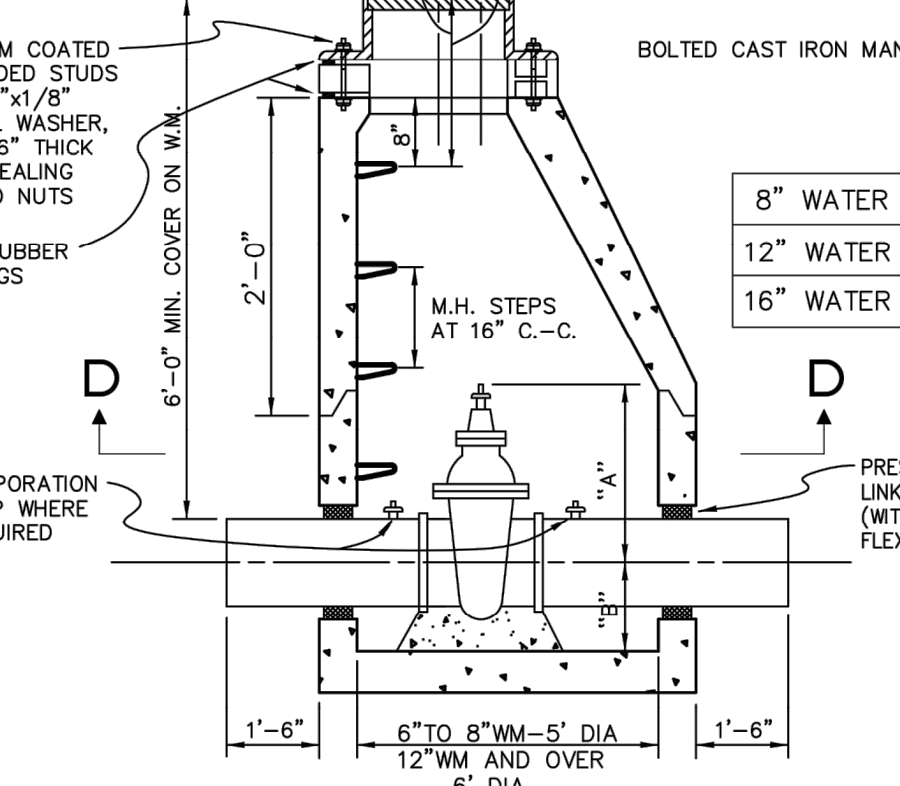
PLAN TAPPING SLEEVE, VALVE & WELL - TYPICAL (A-A)



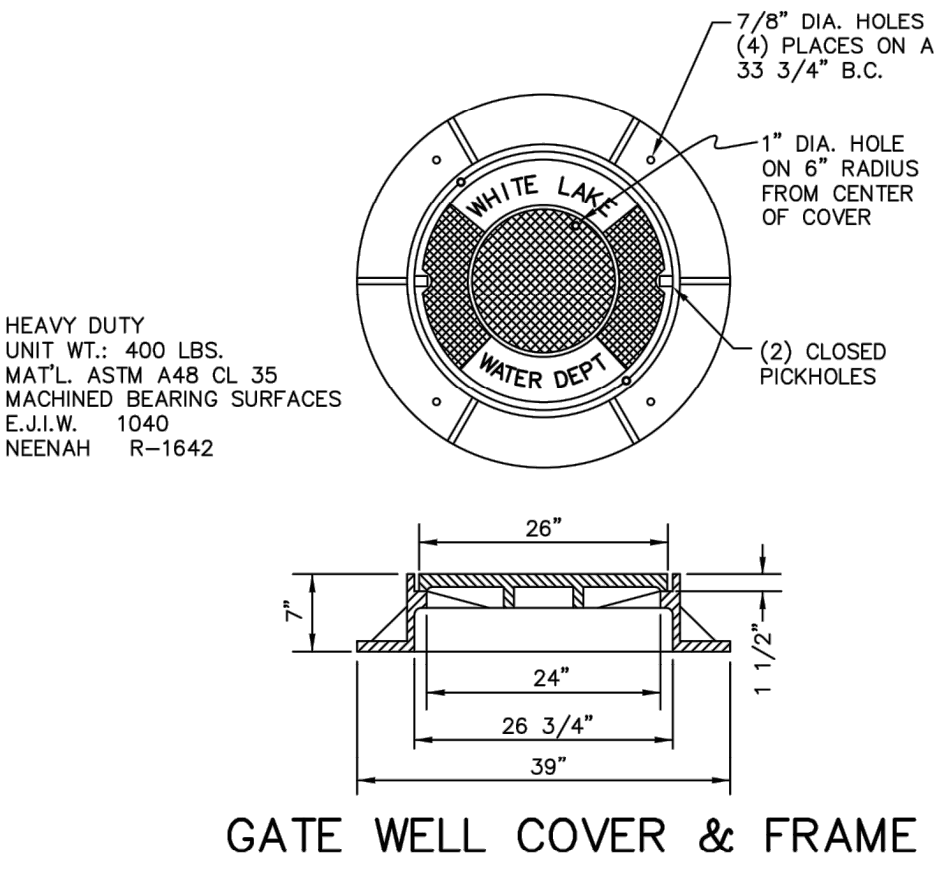
DETAIL OF HYDRANT SETTINGS



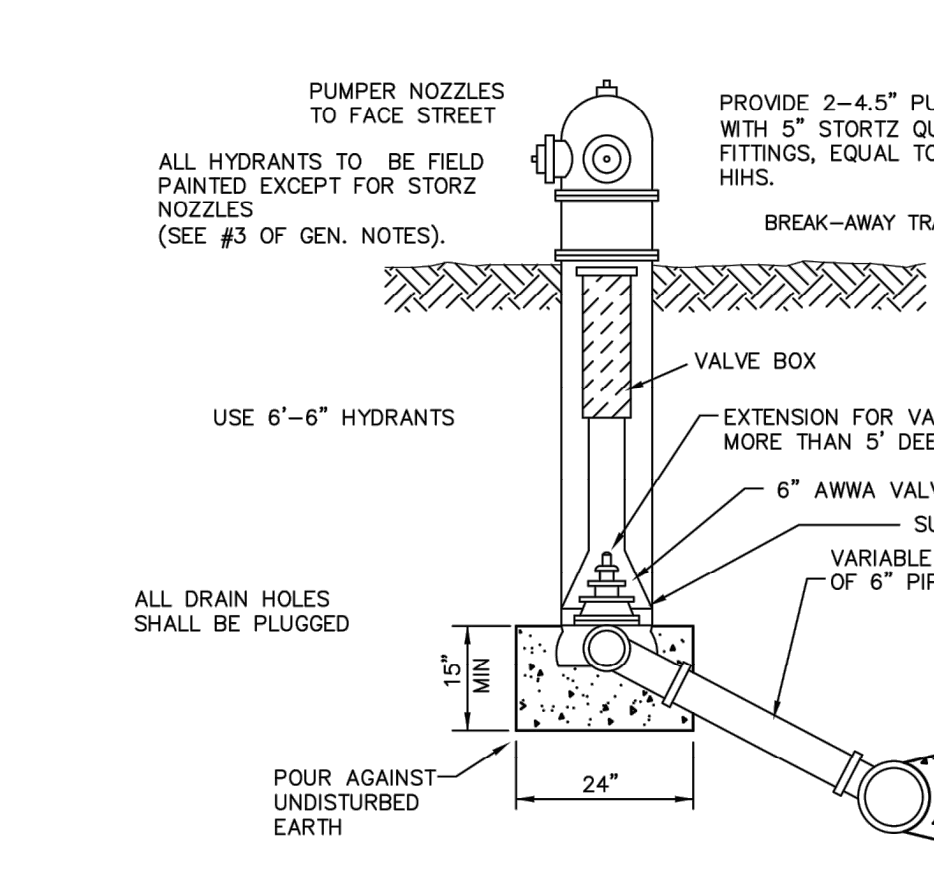
STANDARD BEDDING FOR WATER PIPE



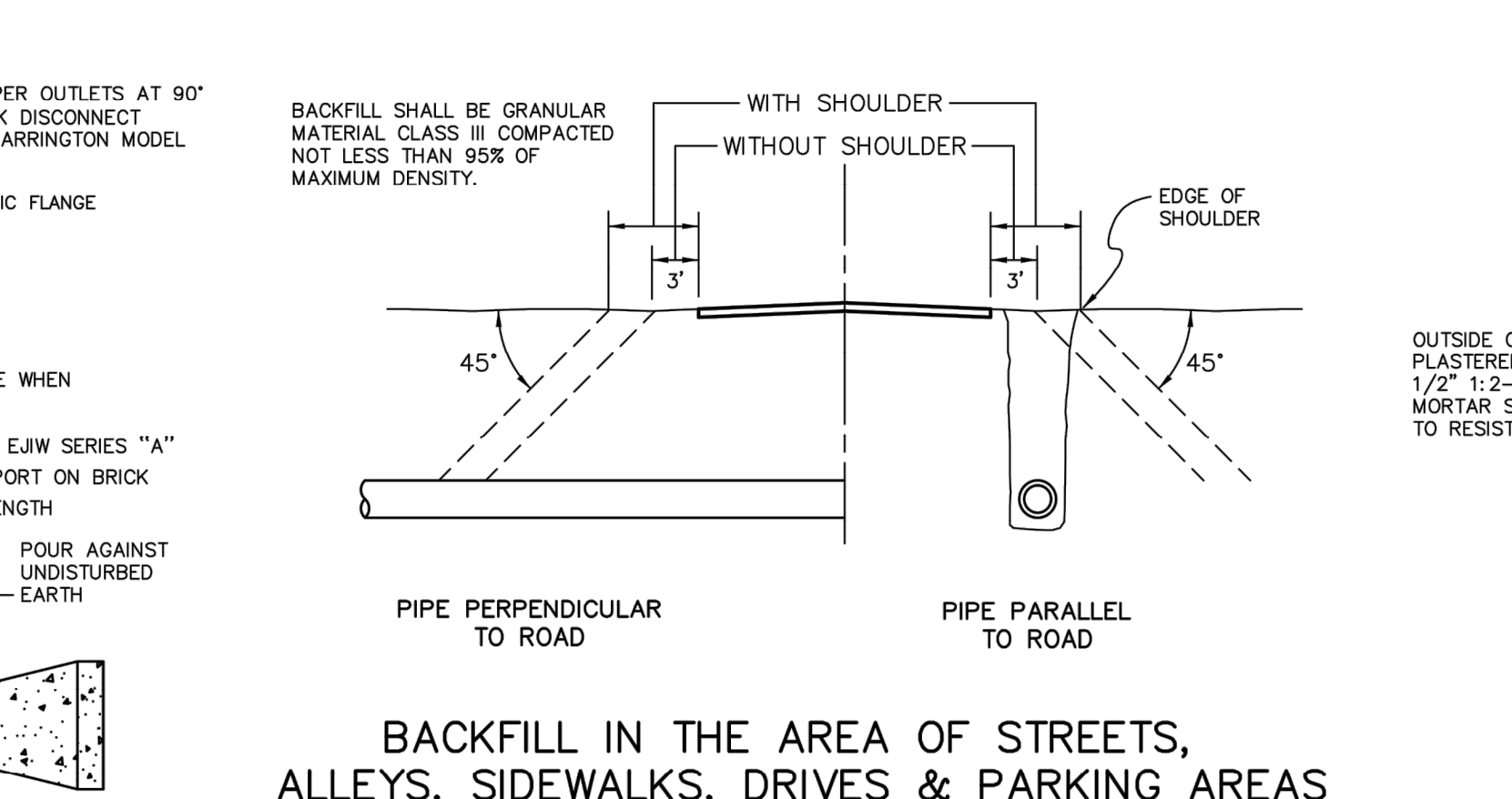
GATE WELL (C-C)



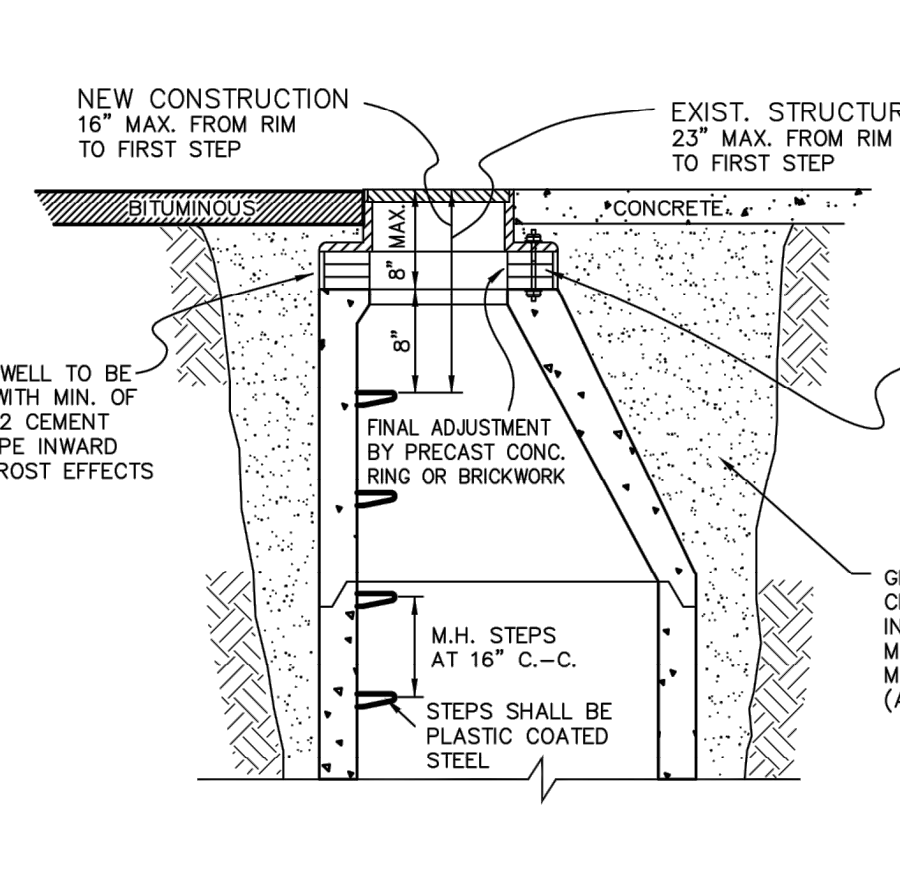
GATE WELL COVER & FRAME



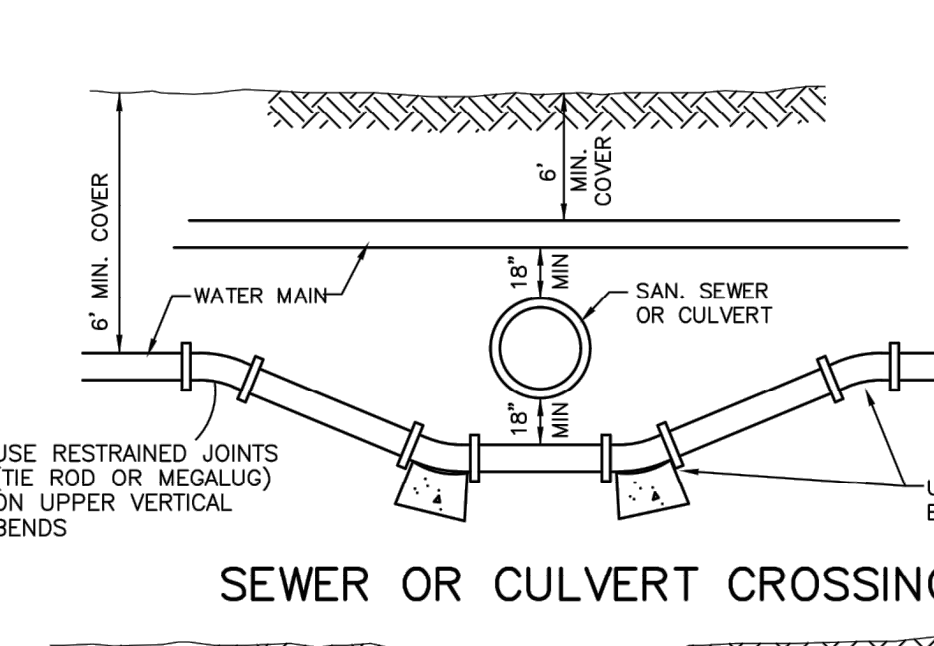
DETAIL OF HYDRANT SETTINGS



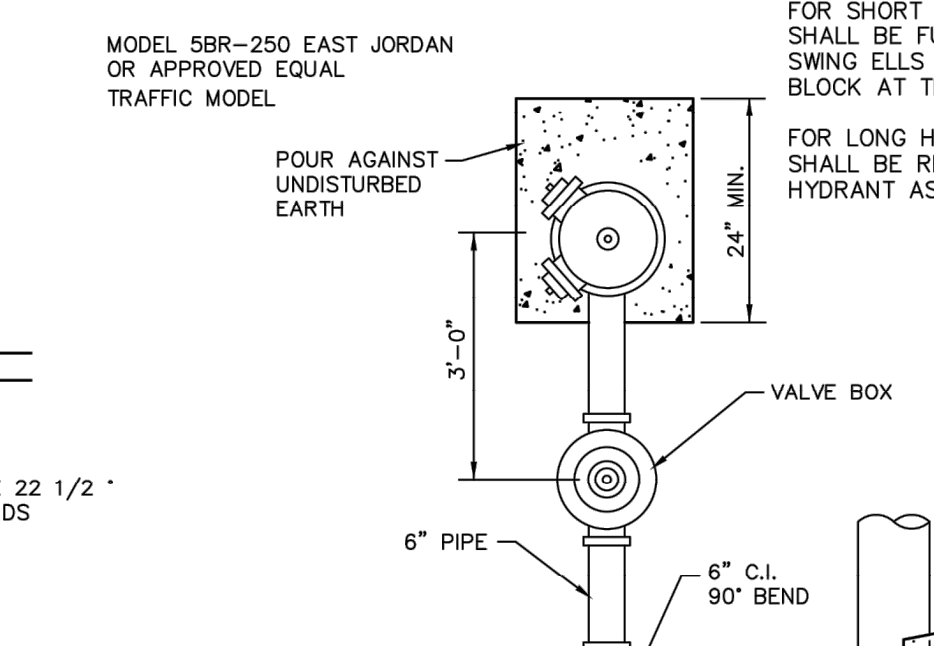
BACKFILL IN THE AREA OF STREETS, ALLEYS, SIDEWALKS, DRIVES & PARKING AREAS



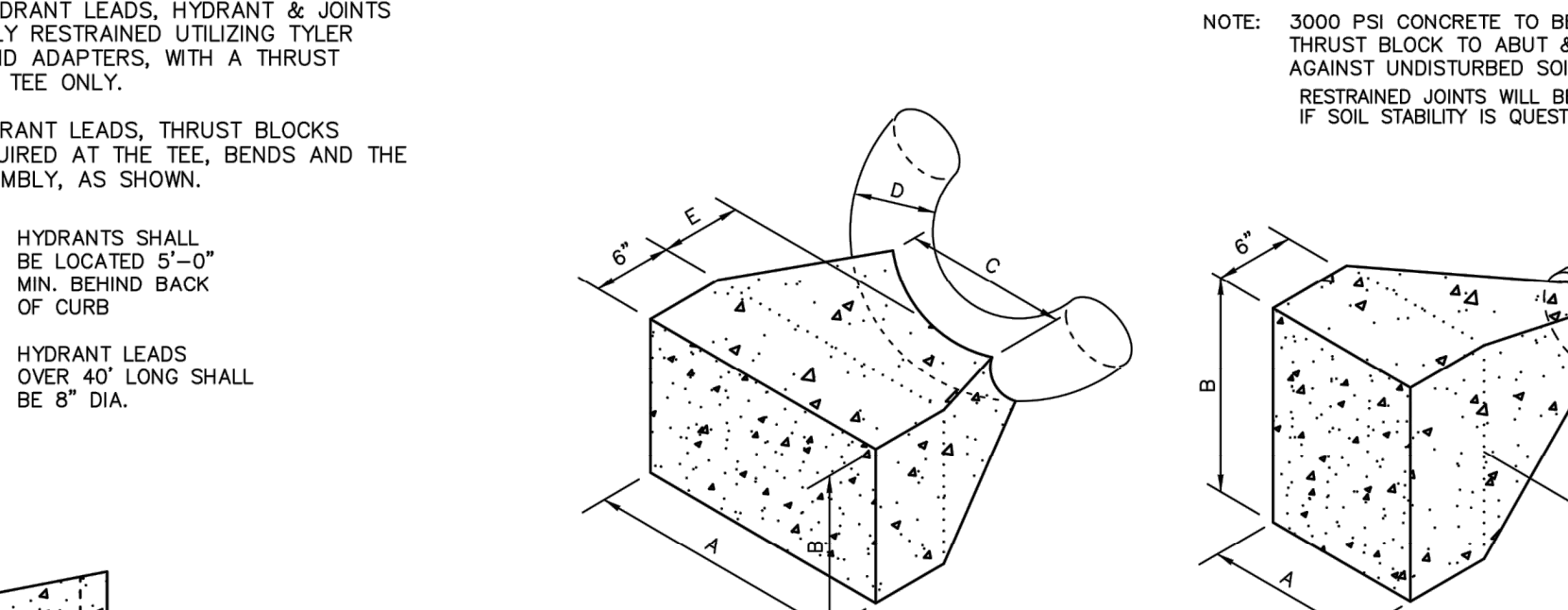
GATE WELL TOPS WITHIN PAVEMENT AREAS



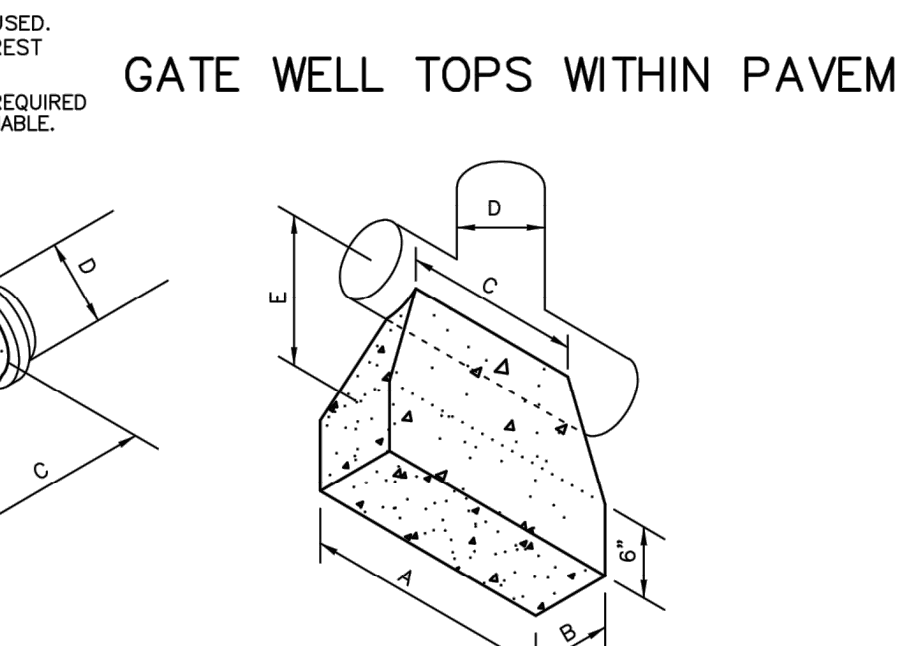
SEWER OR CULVERT CROSSING



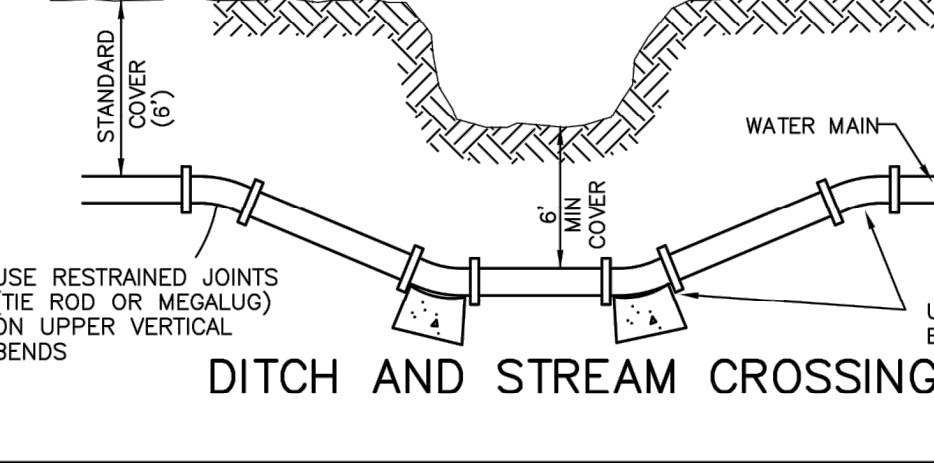
DETAIL OF HYDRANT SETTINGS



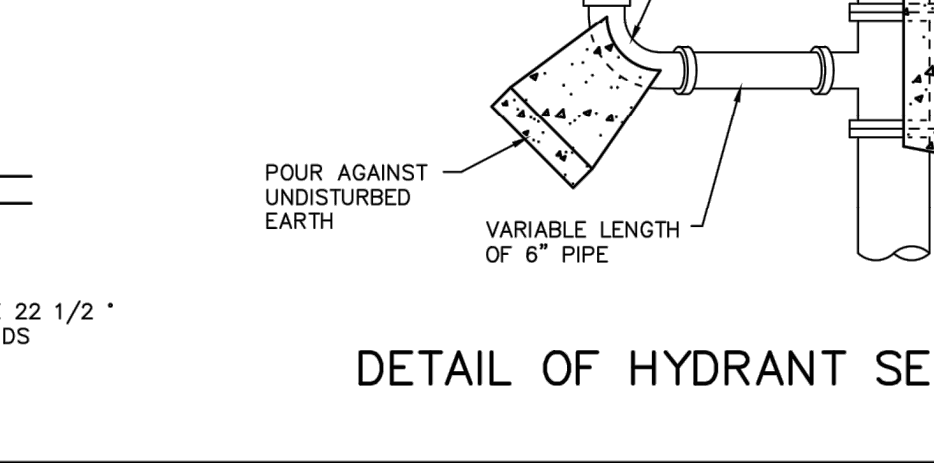
THRUST BLOCK DETAILS



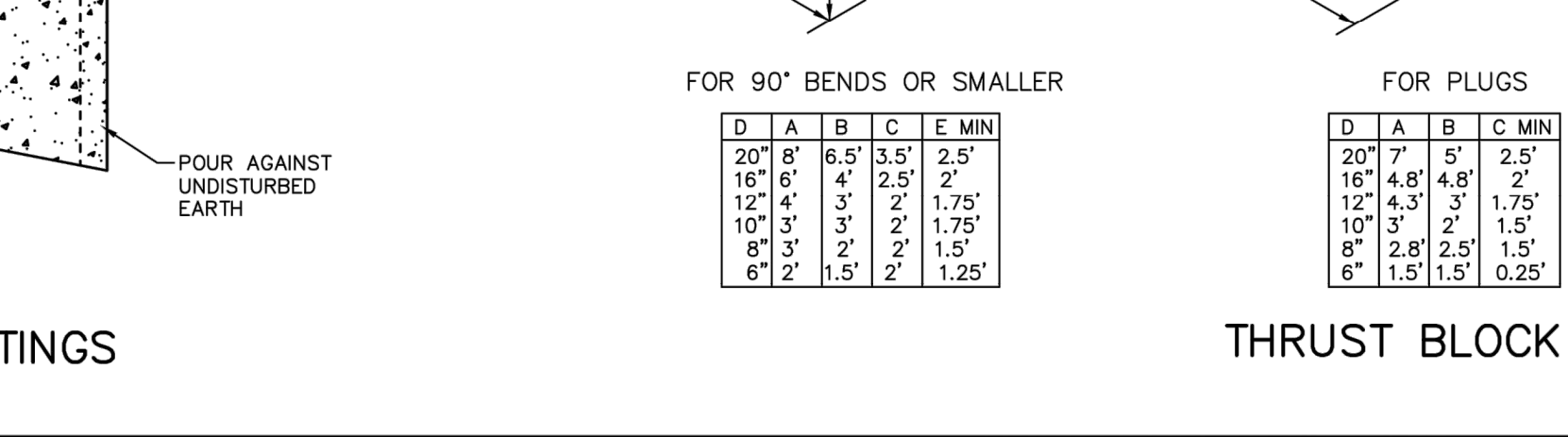
TEMPORARY BLOWOFF ASS'Y



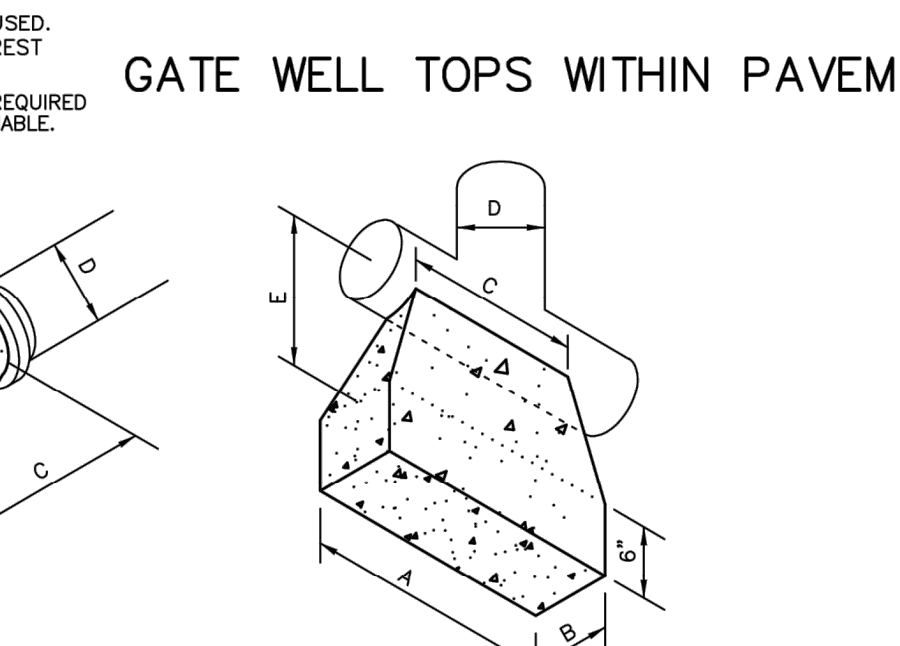
DITCH AND STREAM CROSSING



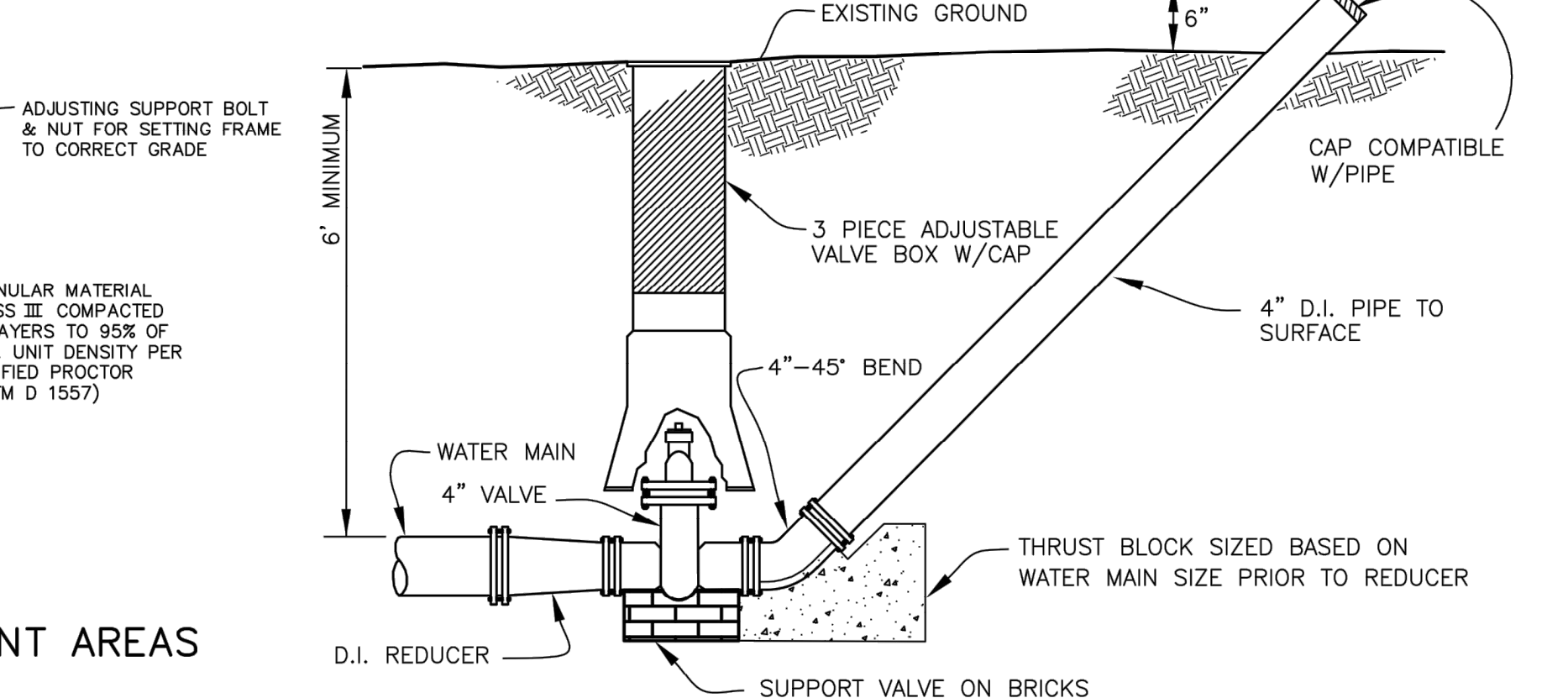
DETAIL OF HYDRANT SETTINGS



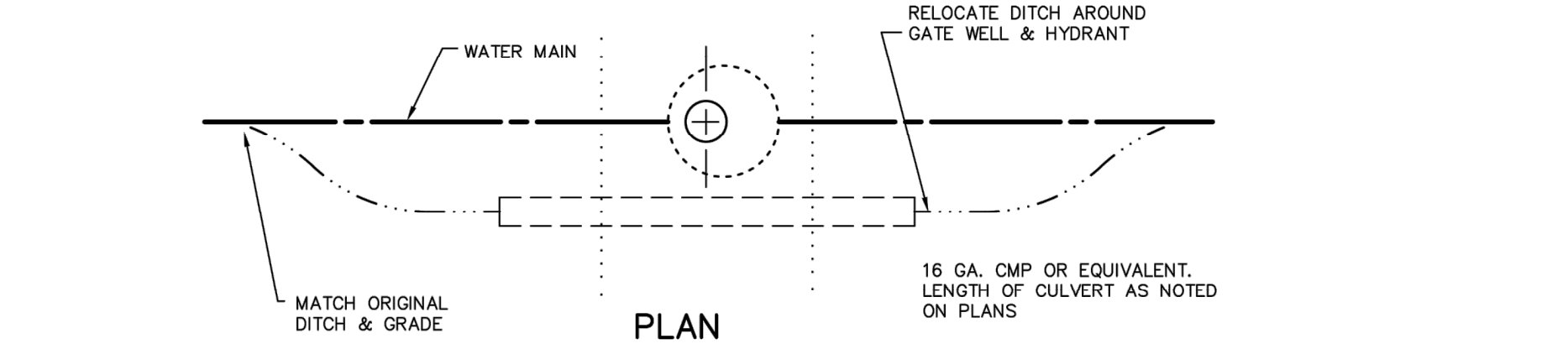
THRUST BLOCK DETAILS



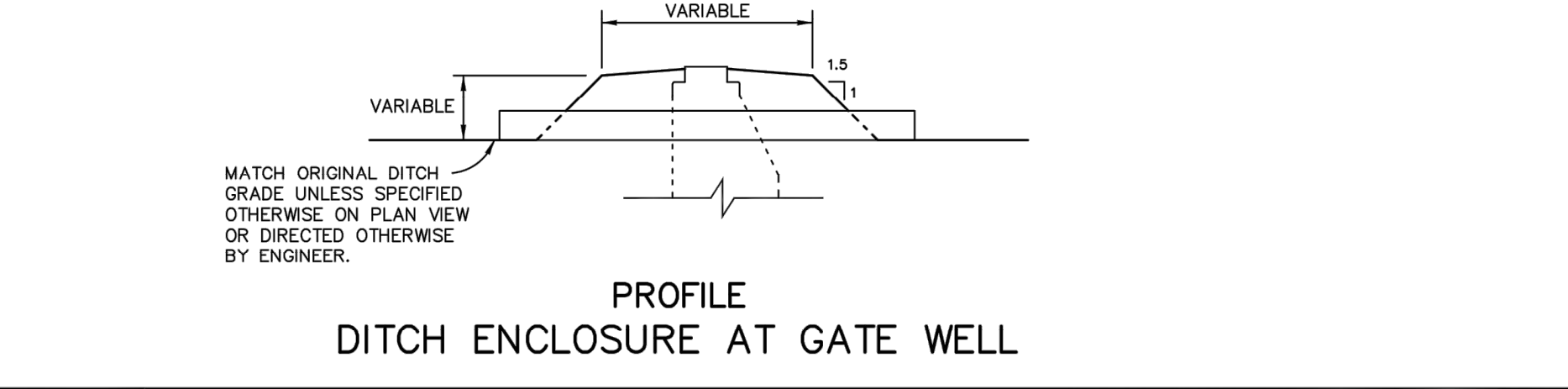
TEMPORARY BLOWOFF ASS'Y



DITCH ENCLOSURE AT GATE WELL



PLAN



PROFILE

- WATER MAIN NOTES**
- All construction procedures and materials used on this project shall conform to White Lake Township current standards and specifications.
 - All hydrants shall be East Jordan Iron Works 5BR-250 traffic model. Self-draining hydrants shall not be used. Valve shall have 1-1/2" pentagon nut and shall open counter-clockwise. Provide two 4.5" pumper outlets with 5" Storz quick connect nozzles (Harrington Integral Hydrant Storz, Model HHS) as manufactured by Harrington, Inc. of Erie, PA.
 - All hydrants shall be field painted with a heavy coat of bright safety red polyurethane or alkyd glass enamel, except for the Storz fittings and caps, which shall be left unpainted.
 - Johnson and Anderson, Inc. field personnel will affix to the fixed collar of each Storz connection 1" wide 3M Scotch reflective tape, color coded per NFPA 291 guidelines flow capacity.
 - All water mains shall be ductile iron pipe Class 54, cement lined with push on joints. Mechanical joints allowed only for tapping sleeves, hydrants & hydrant valves. Only Cor-Blue bolts shall be used for assembling mechanical joints. All bands, tees, valves and hydrant tees shall have a poured concrete thrust block as detailed on this sheet. Joints which have thrust blocks bearing on soil of questionable stability shall be fully restrained utilizing Tyler swivel ends and adapters or a system approved by the Township Engineer. HDPE pipe for directional boring, if approved by the Township Engineer, shall meet all of the requirements of the MDEQ and shall be DR9 (200 psi), and shall have two #8 tracer wires, terminated in the nearest gate well at the highest step.
 - Tapping sleeve shall be mechanical joint or approved equal. Ductile iron or Stainless steel are allowed.
 - Specifications shall include direction of operation of all valves. All valves shall be counter clockwise open.
 - All necessary easements shall be provided in the name of White Lake Township before acceptance of the water distribution system.
 - The design engineer shall furnish White Lake Township with one reproducible sets of "As-Built" water main plans or an AutoCAD file upon completion of the job.
 - All required cross-connection devices shall be installed as required by the local plumbing inspector and in accordance with the standards of the Michigan Department of Public Health.
 - Gate well 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-racking and marked "White Lake Water Department"
 - Gate valves shall be AWWA approved and of a double disc or resilient wedge design with push on joints, 16" gate valves may be mechanical joint provided Cor-Blue bolts are used. All gate valves with operating nuts greater than 5" below ground surface shall be provided with an extension stem. The length of the extension shall be such that it will be within 5' of the ground surface when an extension is used it shall be held in place by an extension stem guide suitably fastened to the wall of the gate well.
 - 1" corporation stops are to be placed on the main at each side of each main line gate valve and at such other locations as may be required by the engineer.
 - All pipe and fittings shall be subjected to a hydro-static pressure test of 150 PSI for a 2 hour duration; Township Engineer must be present. Maximum segment 2000 feet except that longer segments may be tested with allowable leakage based on 2000 feet.
 - 2 consecutive safe bacteria samples shall be taken from the water system approx. 24 hours apart at points established by the Township Engineer. Samples shall be taken by the Township Engineer.
 - Filling, flushing and sampling of water main can only be performed with a "Jumper" Line, the jumper shall be equipped with an approved RPZ type of backflow preventer.
 - Adjustments on gate wells shall be limited to 23" maximum from top of rim to first step in accordance with MIOSHA Rule 341.
 - All new water service lines shall have a minimum nominal size of 1". Services from 1" to 2" may be type K copper tubing or plastic DR-9 (200 PSI rated) meeting ASTM D2237-03 (Standard Specification for Polyethylene (PE) tubing). ASTM Designation and pressure rating shall be stamped on the pipe by the manufacturer. Plastic pipe shall also meet AWWA C-901 Specifications. All sizes shall relate to the copper tubing outside diameter standard size (CTS). Copper pipe joints shall be flared. Fittings shall adapt to the plastic pipe with compression to iron pipe thread adapter. Plastic pipes shall be either compression style with a steel insert or may be fusion welded in the larger sizes.
 - Plastic water service pipes shall be traced with two #10 copper tracer wires or two #12 copper coated steel or stainless steel wires insulated with a minimum of 30 mils of polyethylene insulation. The tracer wires shall be terminated to supply line so as to be locatable at the building and the curb box without digging.
 - Water services sizes 3" and greater shall be Class 54 cement lined ductile iron with push on joints or HDPE DR-9 (200 PSI rated) with fusion welded joints and fittings, DIPS (Ductile Iron Pipe Size).
 - A stop box shall be installed at the property or easement line and shall be equivalent to an A.Y. McDonald Mfg. 6100 flare regular pattern ball valve. The curb box shall have a 1" riser pipe with an Erie 2-hole pattern cover equivalent to A.Y. McDonald Mfg. 5601L. Stop box shall be protected with a 2'x4' painted blue extending 4 feet above ground.
 - Standard pipe cover shall be 6'-0".
 - Air release manholes shall consist of a standard 5' diameter gate well style structure with a ValMatic Model 25C air release valve mounted on a 1" corporation stop. Air release shall be equipped with the vacuum check option. A 1/2" diameter galvanized pipe or discharge shall be extended to within 12" of the top of the structure. A gooseneck trap shall be installed at the top of the riser to prevent debris & water from entering the valve.

DRAWN: CAD DESIGN: OA CHECKED: - SCALE: VERT. - HORZ. AS NOTED

NO.	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE
1	GENERAL	REVISION TO CAD	12/29/95	GW & NUT SIZE	07/23/98	CLARIFY HYD. SPEC	02/07/01	REV. HYD. THRUST, AIR REL.	03/29/04			
2	ADD NOTE	17	11/04/97	PIPE COVER & FLANGE TAPE	05/12/99	5-BR HYD. WS STAKE	02/27/02	HDPE, HYD. VALVES	07/18/05			
3	REVISE	HYD. & THRUSTING	05/18/98	ADD BLOWOFF	07/06/99	ADD NOTE 19	07/23/03	UPDATED TITLE BLOCK	04/30/13			

Johnson & Anderson
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 2291 Water Street, Suite 6 Port Huron, Michigan 48060 tel (810) 987-7820 fax (810) 987-7895

White Lake Township
 7525 Highland Road (M-59) White Lake, Michigan 48383 248-698-3300

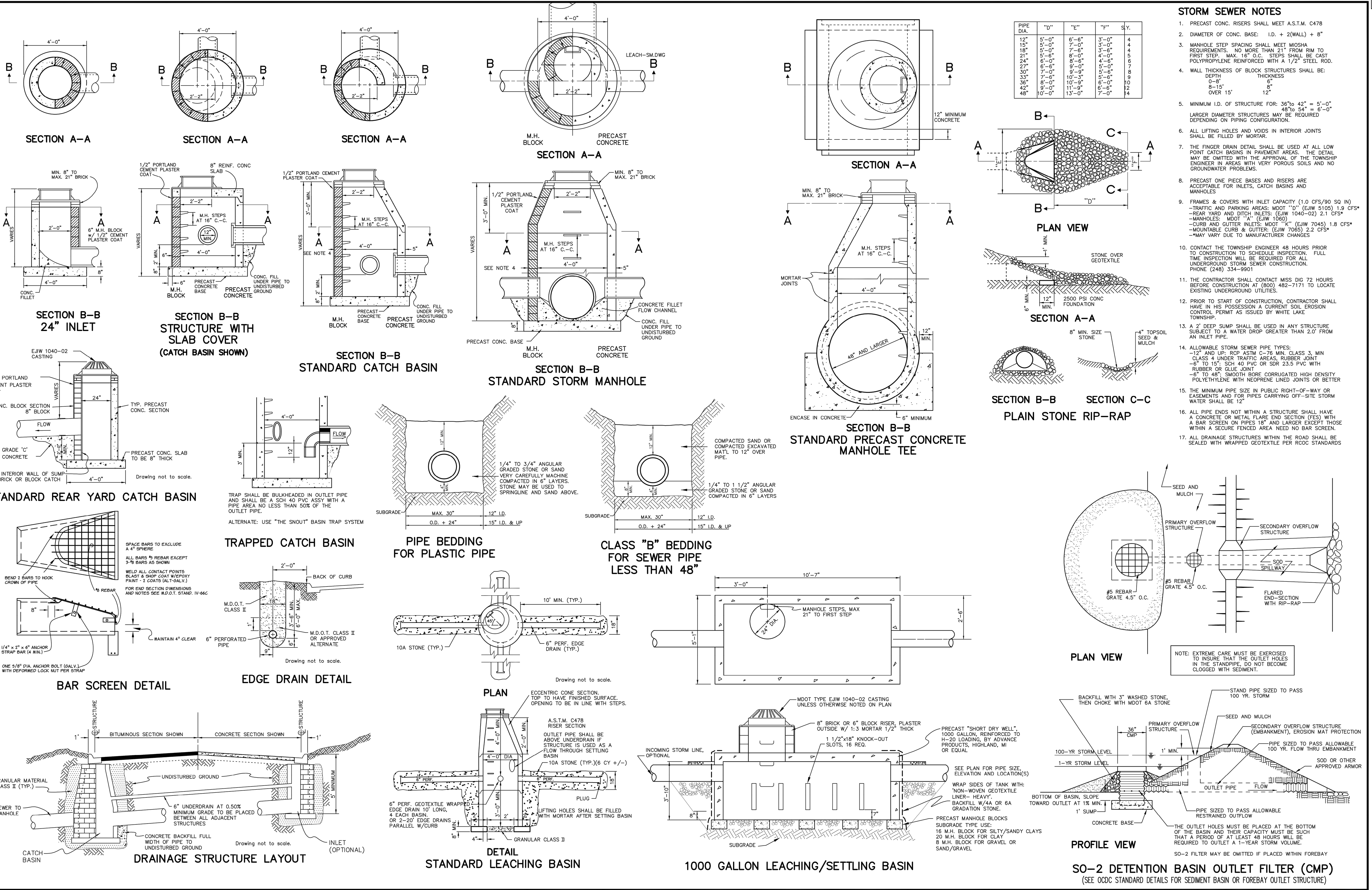
WATER MAIN STANDARD DETAILS

JOB NO. _____
 DATE ISSUED _____
 SHEET NO. **DT3**

STORM SEWER NOTES

1. PRECAST CONC. RISERS SHALL MEET A.S.T.M. C478
2. DIAMETER OF CONC. BASE: I.D. + 2(WALL) + 8"
3. MANHOLE STEP SPACING SHALL MEET MISHA 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.
4. WALL THICKNESS OF BLOCK STRUCTURES SHALL BE:
DEPTH THICKNESS
0-8' 8"
8-15' 8"
OVER 15' 12"
5. 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.
6. ALL LIFTING HOLES AND VOIDS IN INTERIOR JOINTS SHALL BE FILLED BY MORTAR.
7. 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.
8. PRECAST ONE PIECE BASES AND RISERS ARE ACCEPTABLE FOR INLETS, CATCH BASINS AND MANHOLES.
9. FRAMES & COVERS WITH INLET CAPACITY (1.0 CFS/90 SQ IN) -TRAFFIC AND PARKING AREAS: MDOT "D" (EJW 5105) 1.9 CFS* -REAR YARD AND DITCH INLETS: (EJW 1040-02) 2.1 CFS* -MANHOLES: MDOT "A" (EJW 1060) -CURB AND GUTTER INLETS: MDOT "K" (EJW 7045) 1.8 CFS* -MOUNTABLE CURB & GUTTER: (EJW 7065) 2.2 CFS* *MAY VARY DUE TO MANUFACTURER CHANGES
10. 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
11. THE CONTRACTOR SHALL CONTACT MISS DIG 72 HOURS BEFORE CONSTRUCTION AT (800) 482-7171 TO LOCATE EXISTING UNDERGROUND UTILITIES.
12. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL HAVE IN HIS POSSESSION A CURRENT SOIL EROSION CONTROL PERMIT AS ISSUED BY WHITE LAKE TOWNSHIP.
13. A 2' DEEP SUMP SHALL BE USED IN ANY STRUCTURE SUBJECT TO A WATER DROP GREATER THAN 2.0' FROM AN INLET PIPE.
14. 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 GLUE JOINT
-6" TO 48": SMOOTH BORE CORRUGATED HIGH DENSITY POLYETHYLENE WITH NEOPRENE LINED JOINTS OR BETTER
15. THE MINIMUM PIPE SIZE IN PUBLIC RIGHT-OF-WAY OR EASEMENTS AND FOR PIPES CARRYING OFF-SITE STORM WATER SHALL BE 12"
16. 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 AREA NEED NO BAR SCREEN.
17. ALL DRAINAGE STRUCTURES WITHIN THE ROAD SHALL BE SEALED WITH WRAPPED GEOTEXTILE PER ROO STANDARD

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"	7
30"	7'-0"	9'-6"	5'-6"	8
33"	7'-6"	10'-3"	5'-6"	9
36"	8'-0"	10'-9"	6'-0"	10
42"	9'-0"	11'-9"	6'-0"	12
48"	10'-0"	13'-0"	7'-0"	14



DRAWN: CAD
 DESIGN: OA
 CHECKED: -

REVISIONS	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE
	FIRST ISSUE		08/16/95	REVISE		10-03-02	REVISE		06-01-07
	ADD SO-1		06-17-96	REVISE		12-17-03	REVISE		04/30/13
	NEW BAR GRATE		11-03-97	SEC REFERENCE		05-17-05			

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 3910 Lapeer Road Port Huron, Michigan 48060 tel (810) 987-7820 fax (810) 987-7895

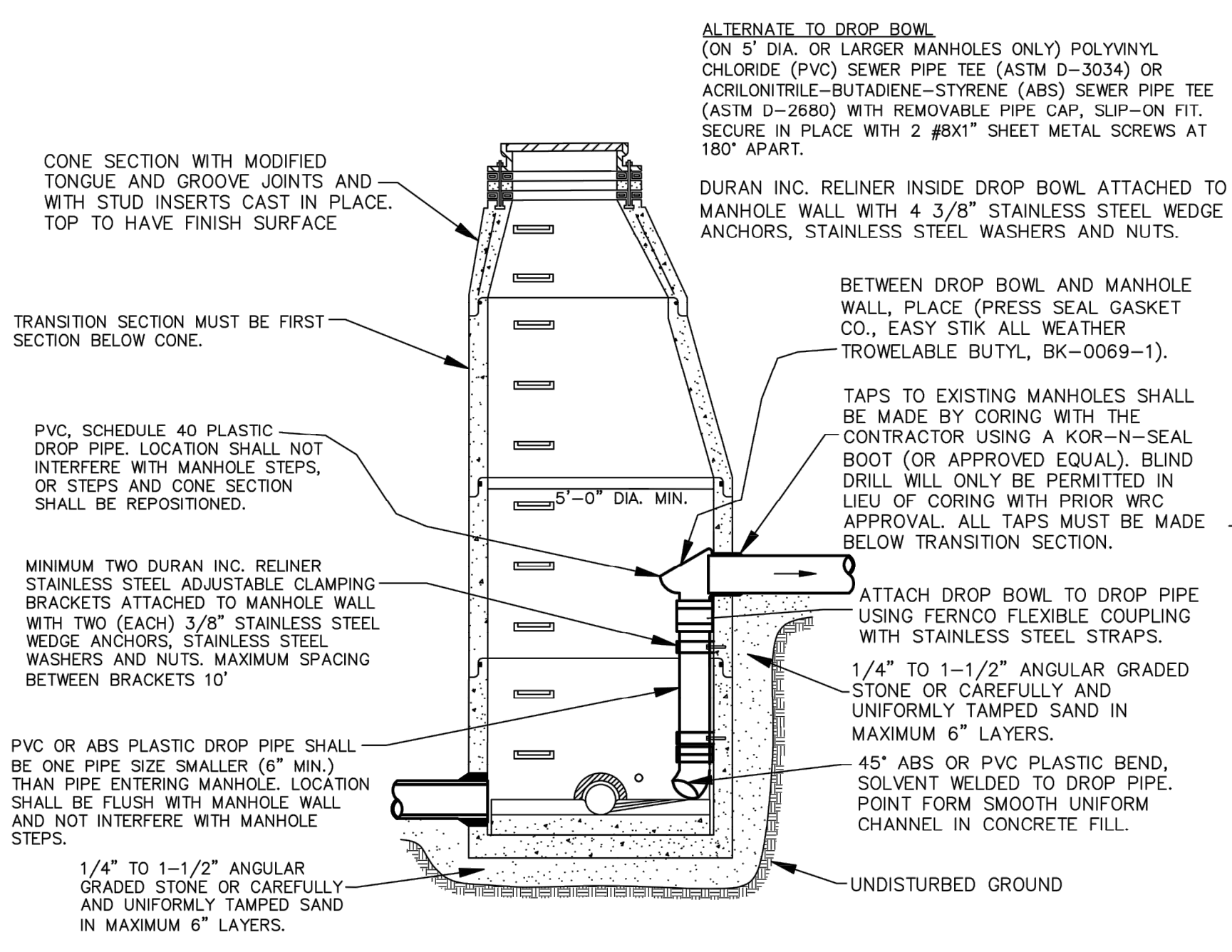
White Lake Township
 7525 Highland Road (M-59)
 White Lake, Michigan 48383
 248-698-3300

STORM SEWER STANDARD DETAILS

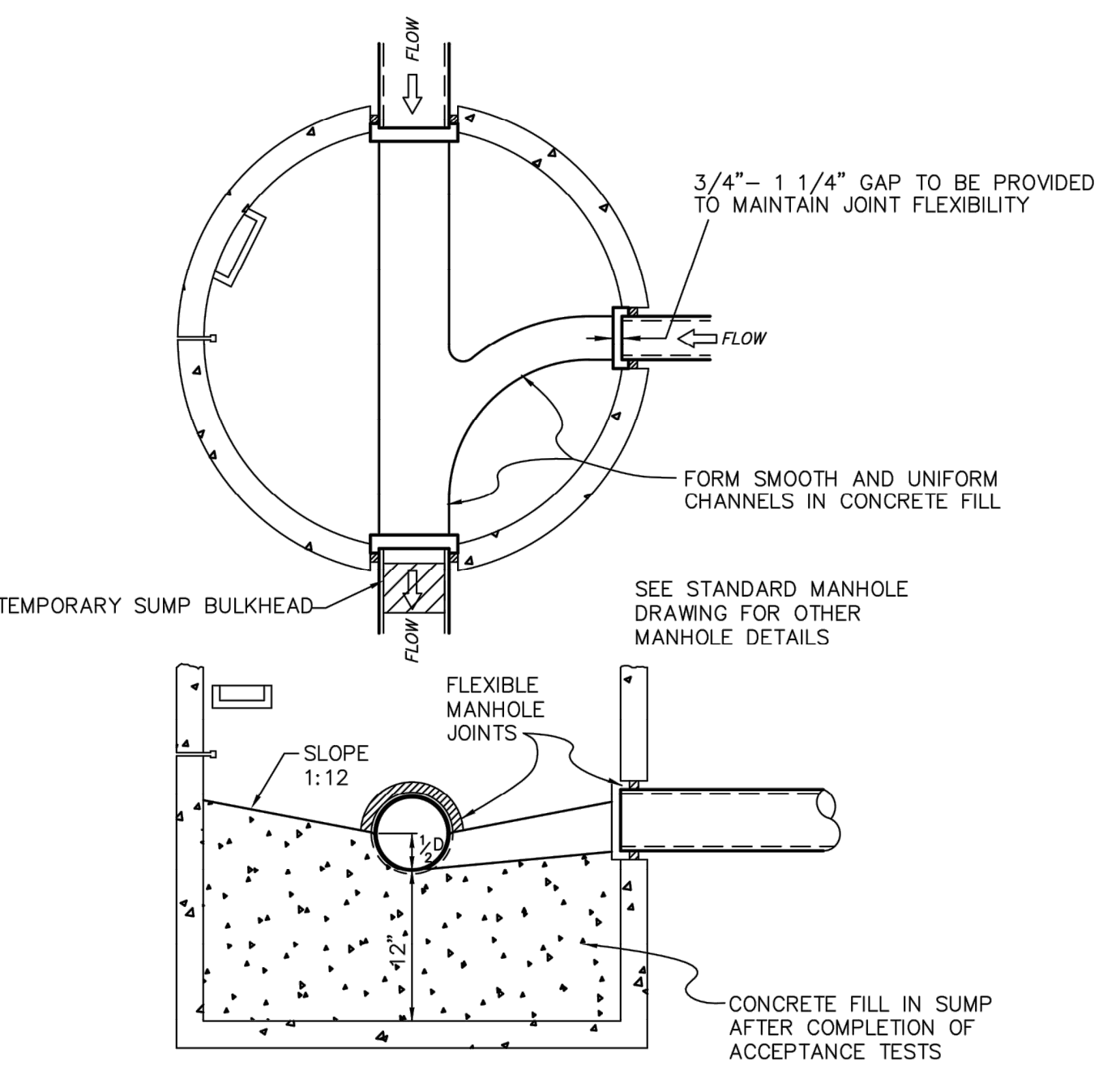
JOB NO. _____
 DATE ISSUED 08/16/95
 SHEET NO. **DT4**

SANITARY SEWER CONSTRUCTION NOTES

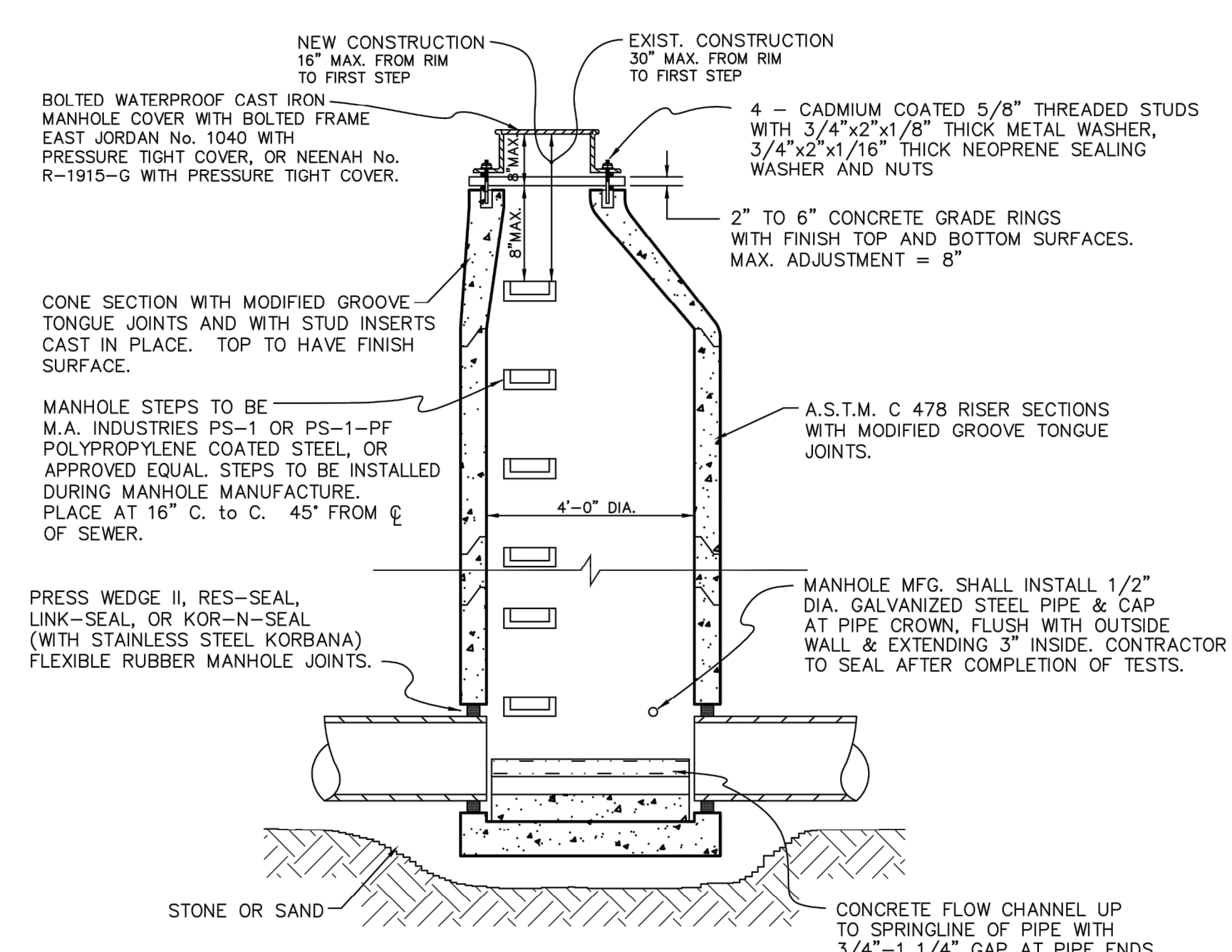
- All construction shall conform to the current standards and specifications of the local unit of government and the Oakland County Water Resources Commissioner (OCWRC). All sanitary sewer construction shall have full time inspection supervised by a professional engineer provided by or caused to be provided by the local unit of government.
- At all connections to Oakland County Water Resources Commissioner's sewers or extensions, and before start of construction, the Contractor must obtain a Sewer Inspection Permit issued by the OCWRC. Gravity sewer permit charges are \$250.00 for each connection plus \$25.00 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 OCWRC a \$5,000.00 surety bond and \$500.00 cash deposit. The Contractor shall notify the local unit of government and the OCWRC (248-858-1110) 24 hours prior to the beginning of any construction. Final acceptance tests must be witnessed by County personnel and must be scheduled by Municipality or its consultant in advance with 24 hour notice at 248-858-1110.
- No sewer installation shall have an infiltration or exfiltration exceeding 100 gallons per inch diameter per mile of pipe in a 24 hour period, and no single run of sewer between manholes shall exceed 100 gallons per inch diameter per mile. Air tests in lieu of infiltration tests shall be as specified in the OCWRC "Acceptance Tests", dated September, 1972. Only pipe and pipe joints approved by the Oakland County Water Resources Commissioner may be used for sanitary sewer construction.
- Located in the first manhole upstream from the point of all connections to an existing OCWRC sewer, or extension thereto, a temporary 12-inch deep sump shall be provided in the first manhole above the connection which will be filled in after such successful completion of any acceptance test up to the standard fillet provided for the flow channel. A watertight bulkhead shall be provided on the downstream of the sump manhole.
- 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 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 Water Resources Commissioner specifications.
- All new manholes shall have Oakland County Water Resources 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 Water Resources Commissioner approved modified eccentric cone type. All manholes shall be provided with bolted, water-tight covers.
- At all connections to manholes on Oakland County Water Resources 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 OCWRC approved equal) after coring is completed. Blind drilling will not be permitted in lieu of coring.
- New manholes constructed directly on Oakland County Water Resources 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."



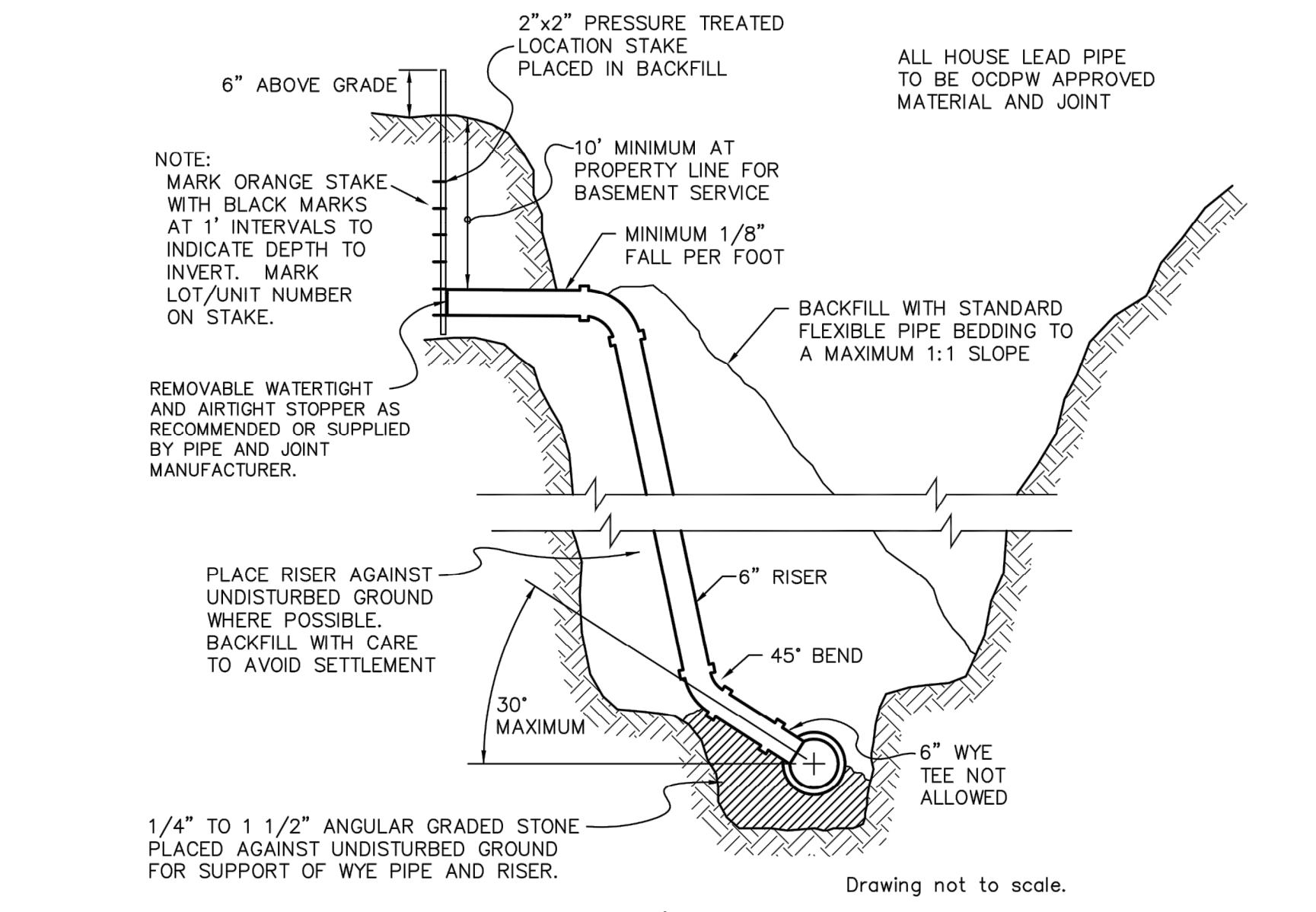
INTERIOR DROP CONNECTION



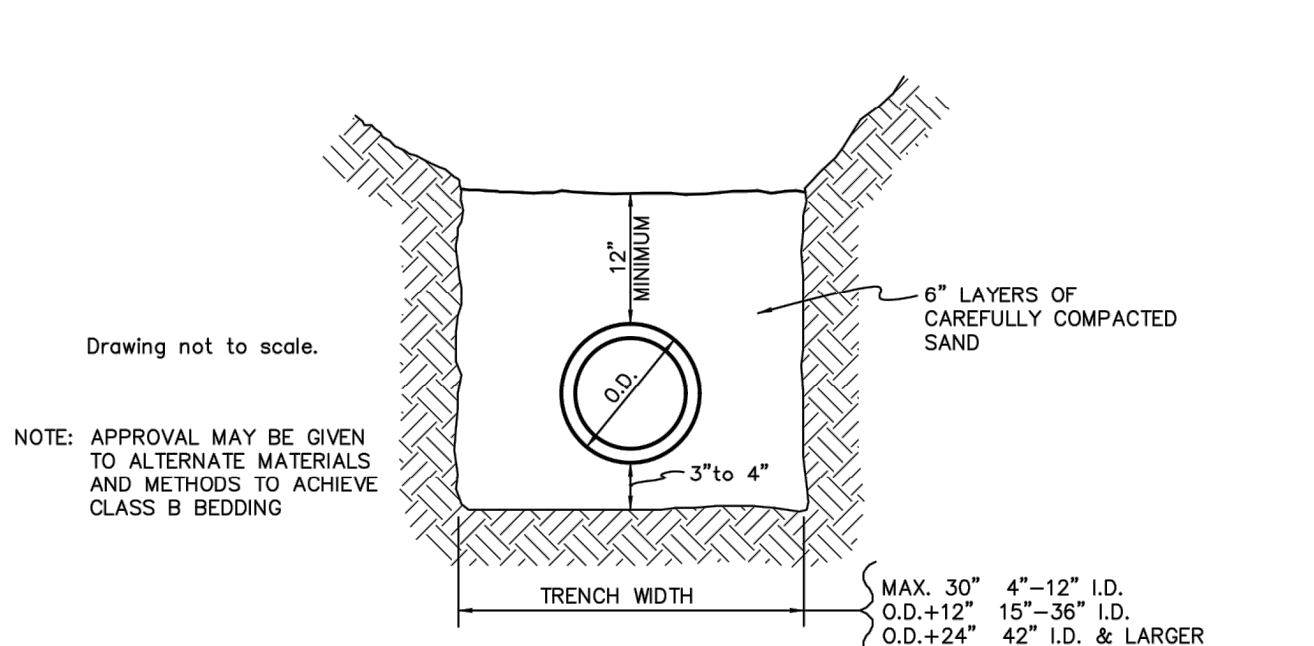
SUMP MANHOLE FOR TESTING, CLEANING, AND DEWATERING



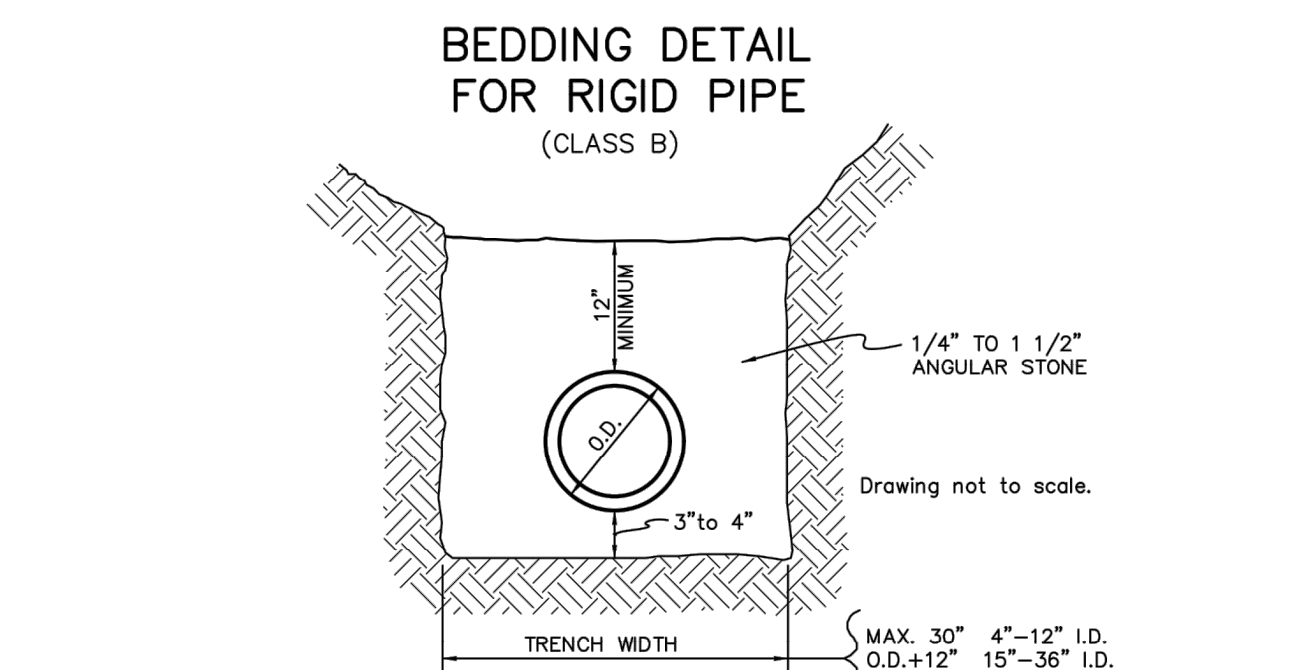
STANDARD MANHOLE ON 8" THROUGH 24" DIAMETER SEWERS



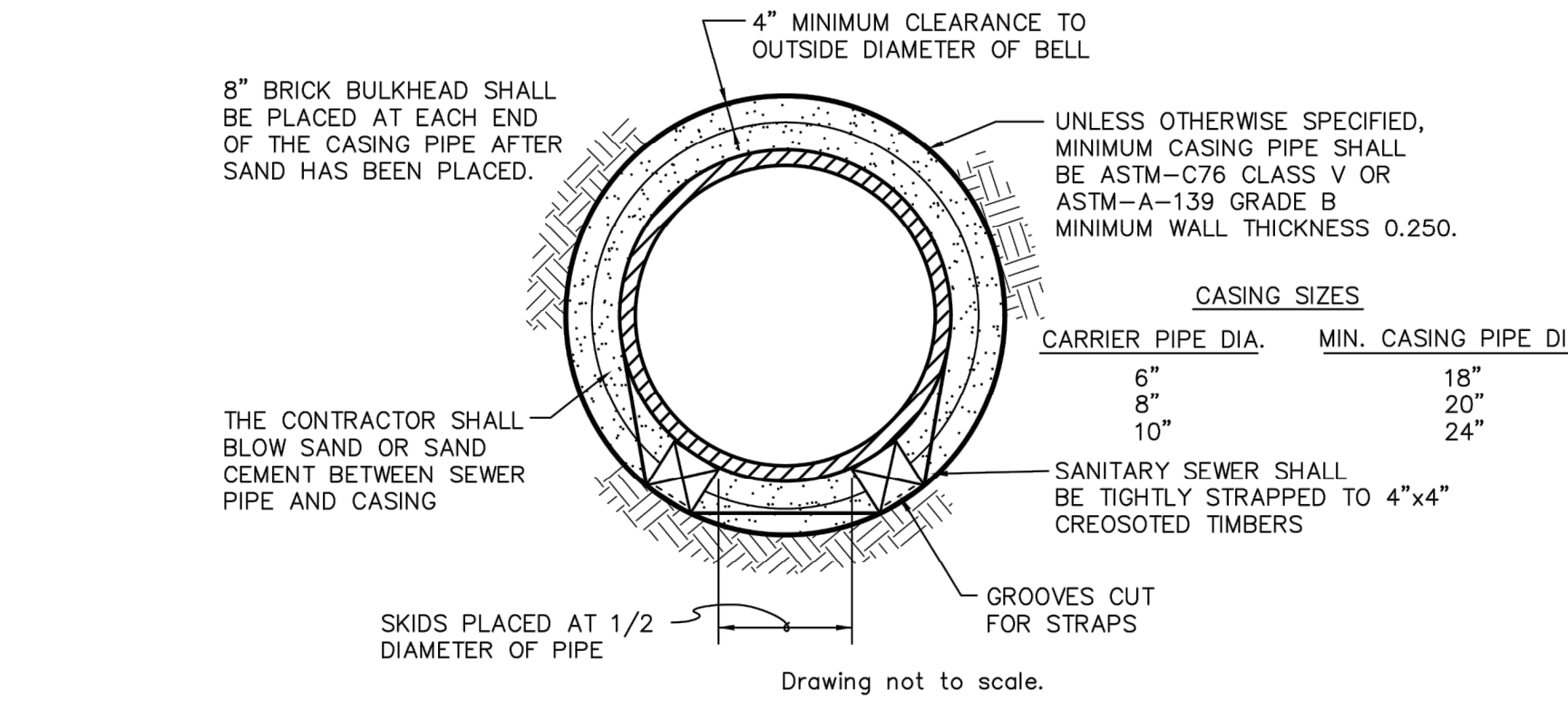
HOUSE/BUILDING LEAD DETAIL



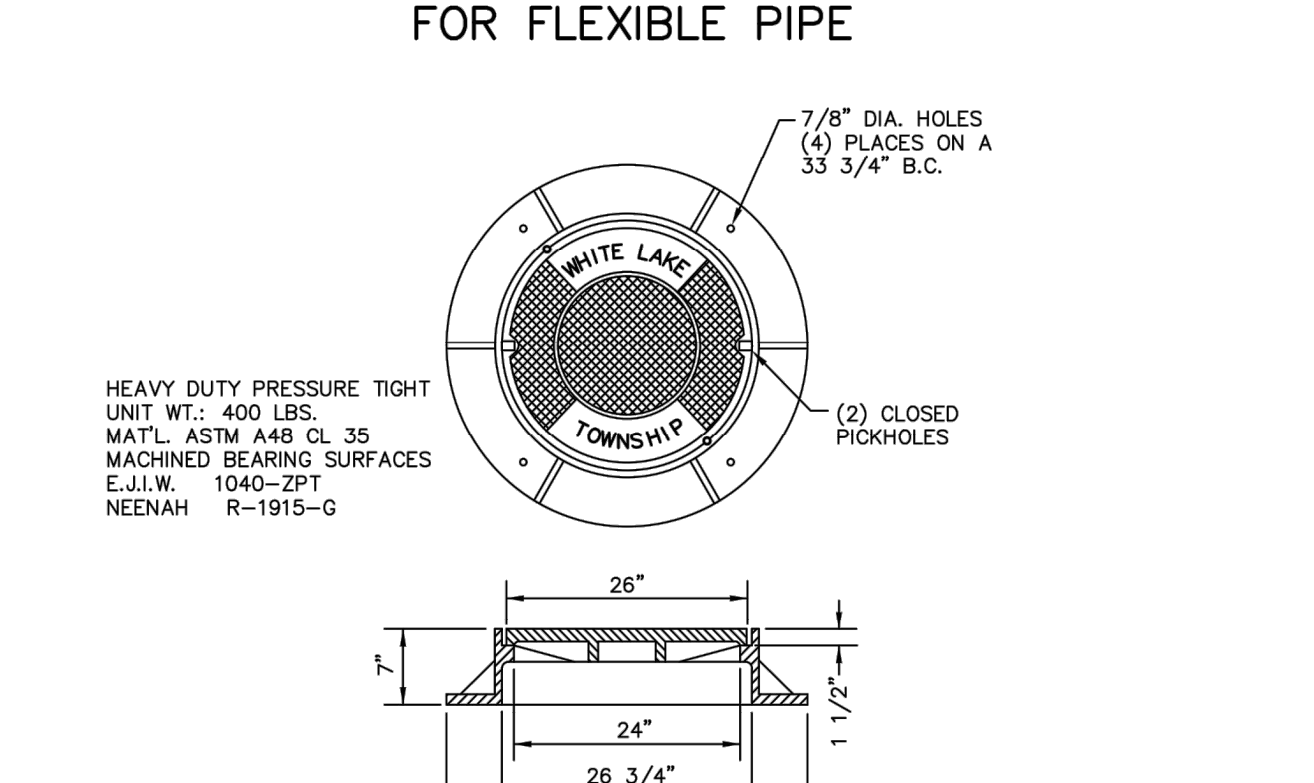
BEDDING DETAIL FOR RIGID PIPE (CLASS B)



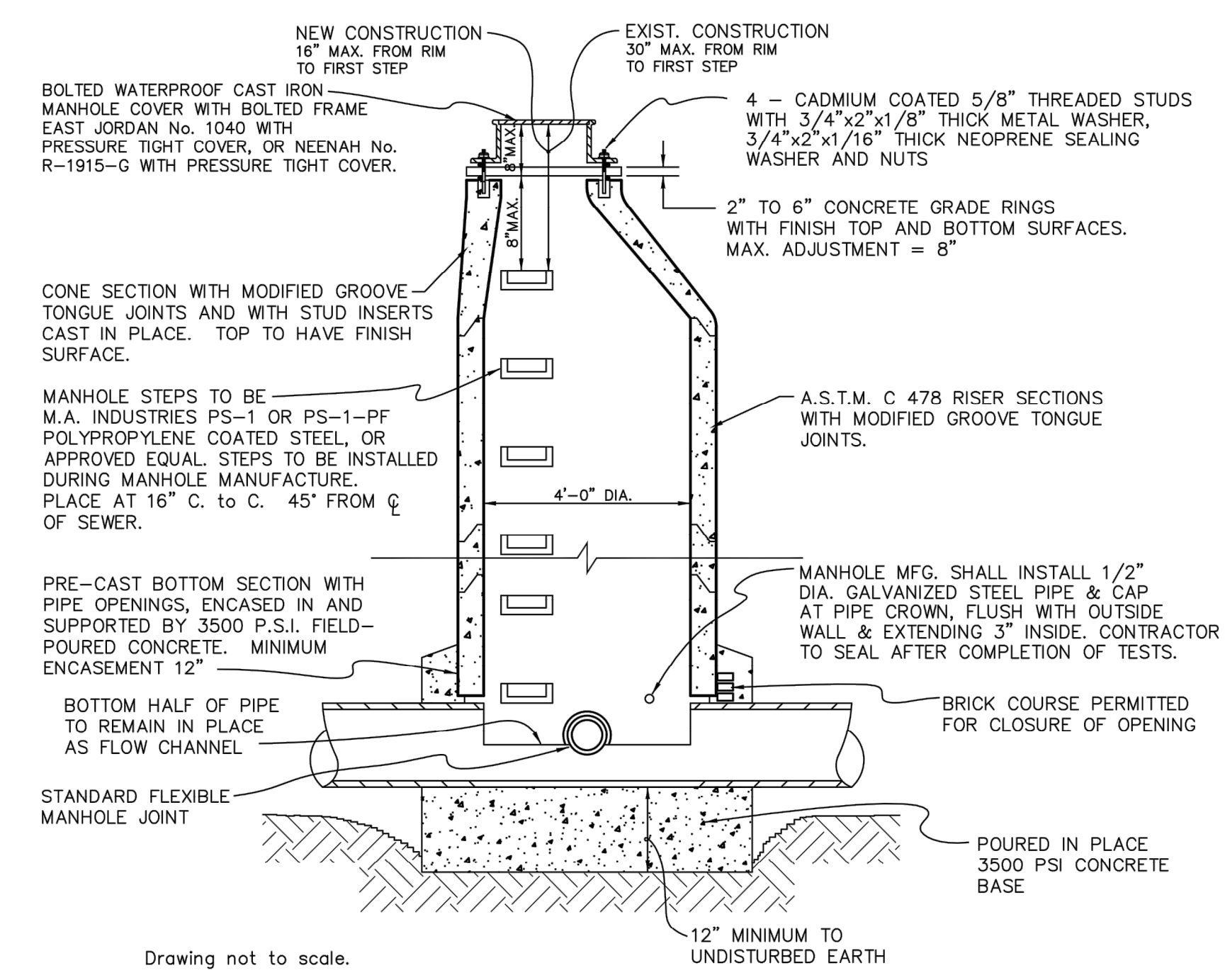
BEDDING DETAIL FOR FLEXIBLE PIPE



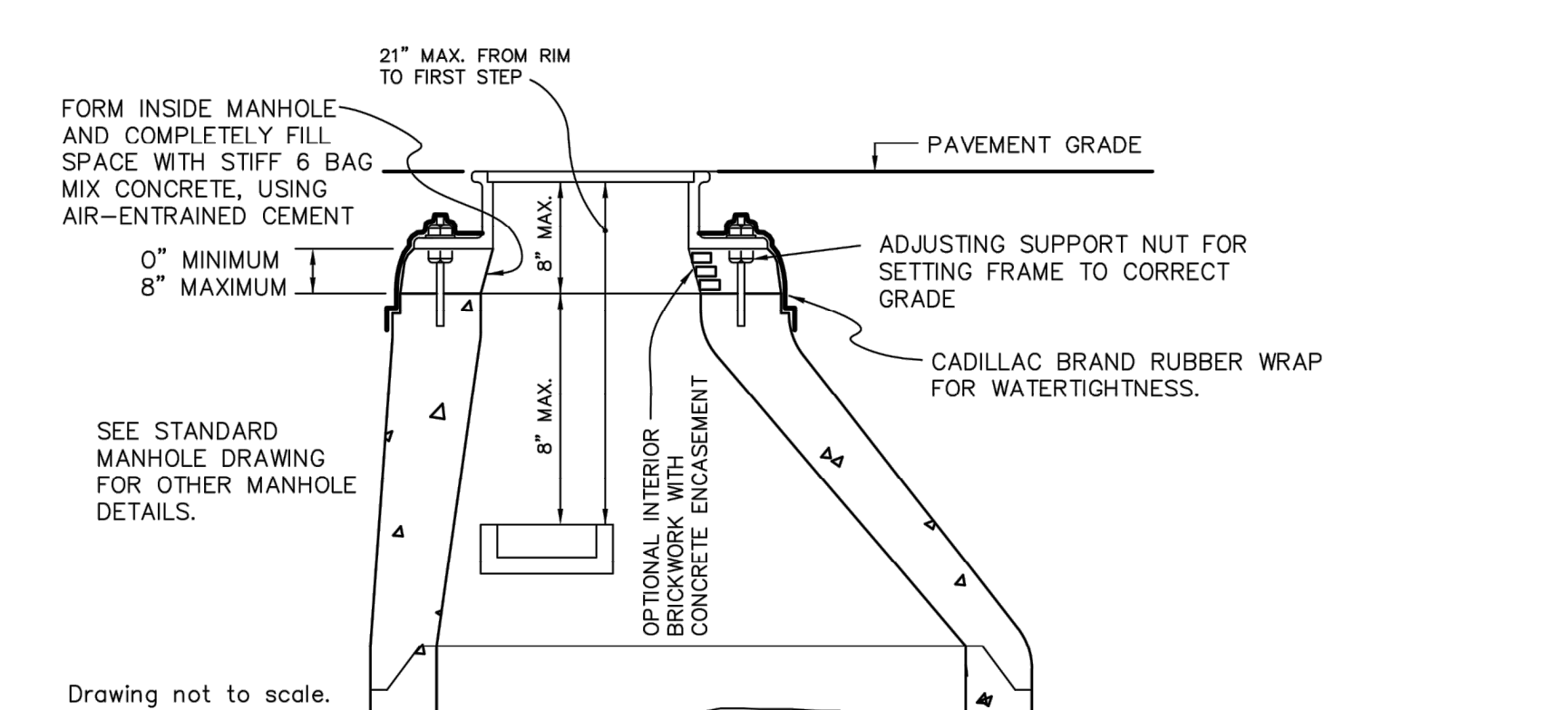
PIPE BARREL SUPPORT FOR SEWER



MANHOLE COVER & FRAME



SKETCH OF MINIMUM MANHOLE REQUIREMENTS ON MANHOLES CONSTRUCTED OVER EXISTING SEWERS



OPTIONAL CONSTRUCTION DETAILS

DRAWN:CAD DESIGN:OA CHECKED:--

VERT. - SCALE: HORZ. AS NOTED

REVISIONS	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE
		FIRST ISSUE	09/11/97		OCWRC COMMENTS	11/06/15			
		UPDATED TITLE BLOCK	04/30/13						
		UPDATED NOTES	02/17/15						

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SANITARY SEWER STANDARD DETAILS

JOB NO.	
DATE ISSUED	09/11/97
SHEET NO.	DT5

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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

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734.994.4600

SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
LANDSCAPE PLAN - OVERALL

DATE: OCTOBER 29, 2020
02/17/2021: REV PER TOWNSHIP
05/27/2021: REV PER OCMRC
07/09/2021: AMENDMENT TO FSP

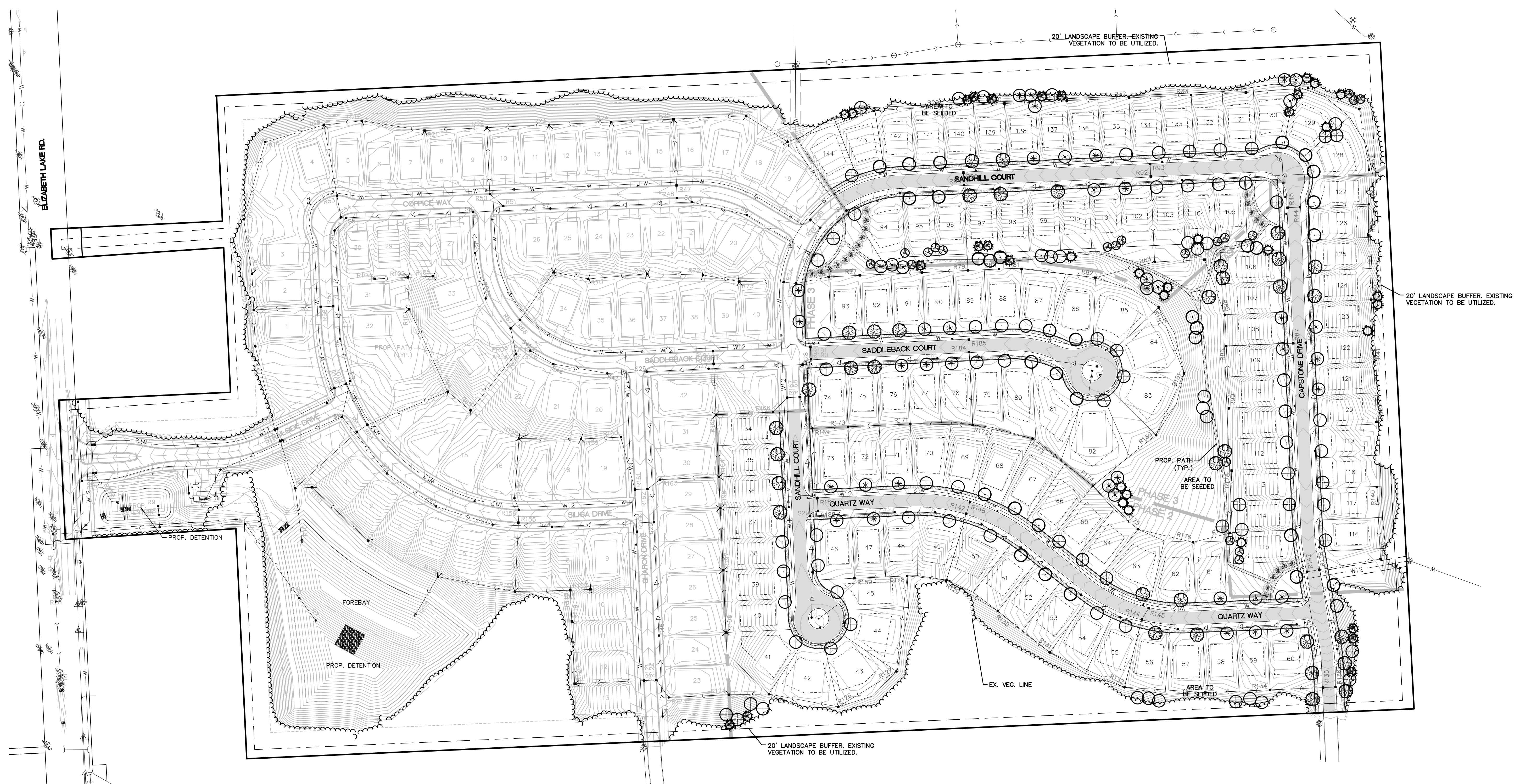
NOTES:
1. SEE SHEET LS5 FOR LANDSCAPE DETAILS
2. MAINTAIN 10' HORIZONTAL SEPARATION BETWEEN LARGE TREES AND SANITARY SEWER, WATERMAIN, AND STORM SEWER WHERE POSSIBLE, MIN. 3'.

LEGEND

- BOUNDARY LINE
- EXIST. EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXIST. SETBACK
- EXIST. TREE LINE
- EXIST. CURB AND GUTTER
- EXIST. FENCE AND GUTTER
- EXIST. GRAVEL
- EXIST. BUILDING
- EXIST. TREELINE
- PROP. SETBACK
- PROP. BUILDING
- PROP. BACK OF CURB
- PROP. R.O.W.
- PROP. EASEMENT
- PROP. CONTOUR
- PROP. STORM SEWER
- PROP. WATERMAIN

REVISIONS

SCALE: 0 50 100
1" = 100 FEET
DR. SK/KS GH. CK
P.M. M BUSH
BOOK ---
JOB 18003309
SHEET NO. LSI



MASTER PLANT LIST

SYMBOL	KEY	PRIVATE STREET TREE	ELIZABETH LAKE ROAD BUFFER	SITE AREA	ENTRANCE	TOTAL	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
PROPOSED DECIDUOUS TREES										
AF	49	0	41	0	90		Acer rubrum 'Franksred'	Red Sunset Red Maple	2 1/2" cal B&B	
AS	47	0	28	0	75		Acer saccharum 'Legacy'	Legacy Sugar Maple	2 1/2" cal B&B	*8 trees at 4" cal (Replacement trees)
QM	60	0	45	0	105		Quercus macrocarpa	Burr Oak	2 1/2" cal B&B	*5 trees at 4" cal (Replacement trees)
TC	49	0	26	0	75		Tilia cordata	Little Leaf Linden	2 1/2" cal B&B	*16 trees at 4" cal (Replacement trees)
UA	60	0	18	0	78		Ulmus american 'Valley Forge'	Valley Forge Elm	2 1/2" cal B&B	
		265	158		423					
PROPOSED EVERGREEN TREES										
PO	0	0	44	6	50		Picea omorika	Serbian Spruce	8' hgt B&B	
PP	0	0	49	3	52		Picea pungens	Green Spruce	8' hgt B&B	
			93	9	102					
ORNAMENTAL TREES										
AC	0	0	67	11	78		Amelanchier Canadensis	Serviceberry	Multistem B&B	
MP	0	11	97	5	108		Malus 'Prairifire'	Flowering Crabapple	2" cal B&B	
		11	164	16	186					
PROPOSED SHRUBS										
PO	0	29	298	25	352		Physocarpus opulifolius 'Little Devil'	Little Devil Ninebark	36" hgt B&B	
VB	0	0	653	27	642		Viburnum dentatum	Arrowwood Viburnum	36" hgt B&B	
IV	0	44	35	23	90		Itea virginica	Little Henry Sweetpire	36" hgt B&B	
WE	0	0	469	0	469		Weigela florida 'Bokraspiwi'	Weigela Spilled Wine	36" hgt B&B	
JN	0	0	455	0	455		Juniperus chinensis 'Sargentii'	Sargent Juniper	36" hgt B&B	
TD	0	15	15	0	30		Thuja occidentalis 'Little Giant'	Little Giant Dwarf Arborvitae	36" hgt B&B	
		88	1925	75	2038					

LANDSCAPE REQUIREMENTS

Street Tree	Required	Proposed	Notes
	1 Tree per 50 LF	265 Trees	
Entrance Plantings	Required	Proposed	Notes
First 150 LF of Entrance Drive	1 Deciduous Tree, Ornamental or Evergreen Tree and 3 Shrubs for Every 300 SF of the entrance area not paved.	7,650 SF/300SF= 25 Trees and 75 Shrubs	Includes boulevard plantings
Screening Requirements	Required	Proposed	Notes
Property Lines Adjacent to Residential (R1-B, R1-C, RM-1) and General Business (GB)	Screening Type B 1 Deciduous Tree or Evergreen and 8 Shrubs for every 15 LF in 20' Wide Buffer Strip	20' Wide buffer strip of existing vegetation	Existing perimeter vegetation used toward requirement.
ROW Screen on Elizabeth Lake Road	1 Deciduous Tree or Evergreen and 8 Shrubs for Every 30 LF in 20' Wide Buffer Strip	340LF/30LF= 11 Trees and 88 Shrubs and 20' wide buffer	
Interior Landscaping	Required	Proposed	Notes
	1 Deciduous Tree, Ornamental or Evergreen Tree and 5 Shrubs for Every 300 SF of 15% of the Total Lot Area	770,150SFx15%=115,522SF/300SF=385 Trees and 1,925 Shrubs	Total Lot Area=Combined single family lot area and active adult footprint. Active Adult foundation plantings used toward requirement. See detail sheet LS5.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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

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734.994.4000

SECTION 25
TOWN 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP
OAKLAND COUNTY, MICHIGAN

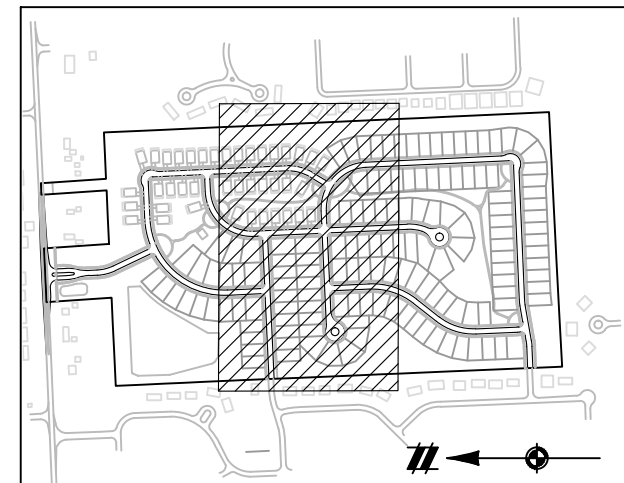
M/I HOMES OF MICHIGAN, LLC
TRAILSIDE MEADOW
FINAL SITE ENGINEERING PLAN
PHASES 2-3
LANDSCAPE PLAN - NORTH

DATE: OCTOBER 29, 2020
02/17/2021: REV PER TOWNSHIP
05/27/2021: REV PER OCMRC
07/09/2021: AMENDMENT TO FSP

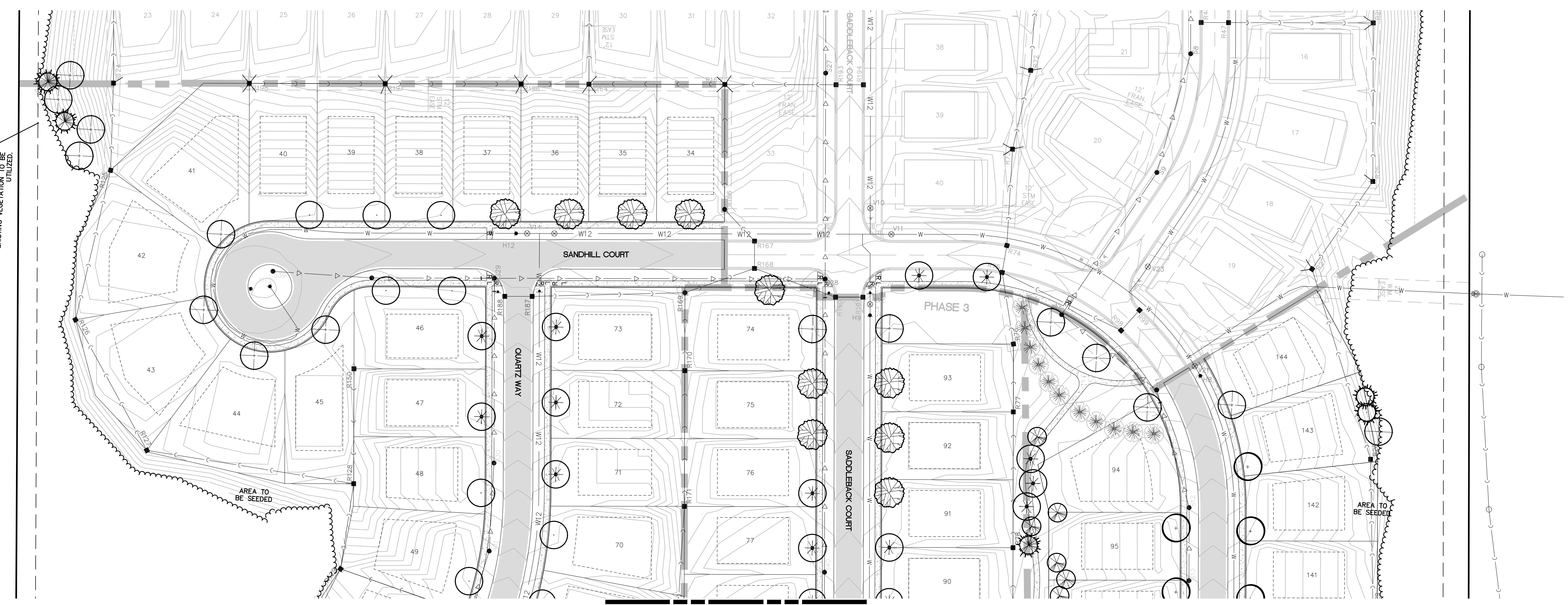
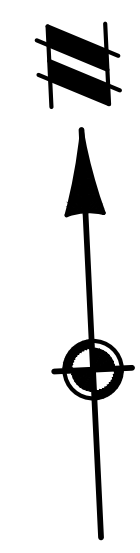
REVISIONS
SCALE 0 25 50
1" = 50 FEET
DR. SK/KS GH. CK
P.M. M BUSH
BOOK --
JOB 18003309
SHEET NO. LS2

LEGEND

	BOUNDARY LINE
	EXIST. EASEMENT
	SECTION LINE
	BOUNDARY/PROPERTY LINE
	EXIST. SETBACK
	EXIST. TREE LINE
	EXIST. CURB AND GUTTER
	EXIST. GRAVEL
	EXIST. BUILDING
	EXIST. TREELINE
	PROP. SETBACK
	PROP. BUILDING
	PROP. BACK OF CURB
	PROP. R.O.W.
	PROP. EASEMENT
	PROP. CONTOUR
	PROP. STORM SEWER
	PROP. WATERMAIN



- NOTES:**
- SEE SHEET LS5 FOR LANDSCAPE DETAILS
 - MAINTAIN 10' HORIZONTAL SEPARATION BETWEEN LARGE TREES AND SANITARY SEWER, WATERMAIN, AND STORM SEWER WHERE POSSIBLE, MIN. 3'.



SEE SHEET LS4 FOR CONTINUATION



Know what's below.
Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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SECTION 25
 TOWN 3 NORTH, RANGE 8 EAST
 WHITE LAKE TOWNSHIP
 OAKLAND COUNTY, MICHIGAN

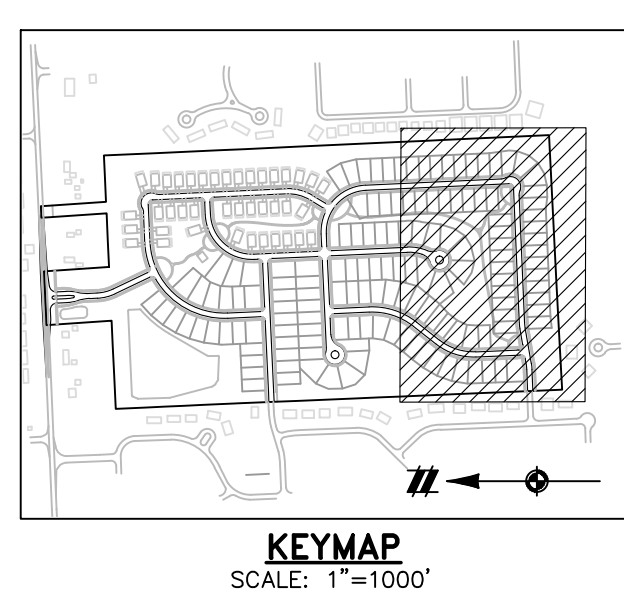
M/I HOMES OF MICHIGAN, LLC
 TRAILSIDE MEADOW
 FINAL SITE ENGINEERING PLAN
 PHASES 2-3
 LANDSCAPE PLAN - SOUTH

DATE: OCTOBER 29, 2020
 02/17/2021: REV PER TOWNSHIP
 05/27/2021: REV PER OCMRC
 07/09/2021: AMENDMENT TO FSP

REVISIONS	
SCALE	0 25 50
	1" = 50 FEET
DR. SK/KS	GH. CK
P.M.	M BUSH
BOOK	--
JOB	18003309
SHEET NO.	LS3

LEGEND

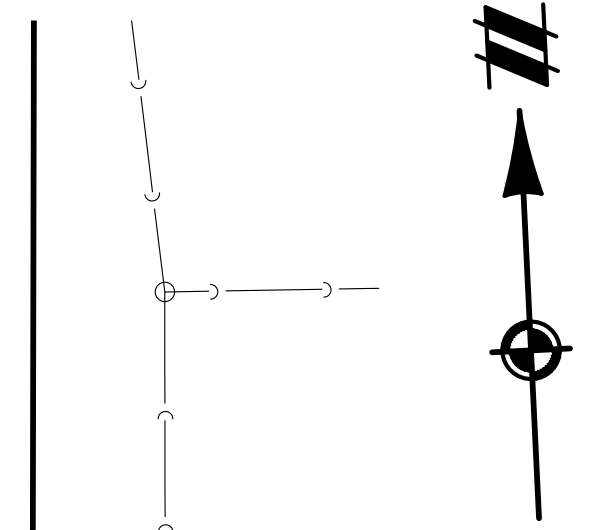
- BOUNDARY LINE
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- SECTION LINE
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- PROP. EASEMENT
- PROP. CONTOUR
- PROP. STORM SEWER
- PROP. WATERMAIN



NOTES:

- SEE SHEET LS5 FOR LANDSCAPE DETAILS
- MAINTAIN 10' HORIZONTAL SEPARATION BETWEEN LARGE TREES AND SANITARY SEWER, WATERMAIN, AND STORM SEWER WHERE POSSIBLE, MIN. 3'.

SEE SHEET LS3 FOR CONTINUATION



20' LANDSCAPE BUFFER. EXISTING VEGETATION TO BE UTILIZED.

20' LANDSCAPE BUFFER. EXISTING VEGETATION TO BE UTILIZED.

WHITE LAKE TOWNSHIP**COMMUNITY DEVELOPMENT DEPARTMENT**

DATE: August 13, 2021

TO: Planning Commissioners

FROM: Sean O'Neil, Planning Director 

SUBJECT: Request for Waiver of Minimum Parcel Size (Sec. 3.11.X)

As you are aware, we recently amended the Zoning Ordinance to allow an applicant to request a waiver from the ten (10) acre parcel size minimum, when developing a Planned Development (PD) or Planned Business (PB) project. We now have our third such request. The developer, Doug Boehm, wishes to make a PD application to build a Comfort Care assisted living facility on the west side of Union Lake Road, north of Carpathian (across from the Lakepointe Project and Independence Village). The parcel is approximately 8.37 acres in size, is currently zoned Local Business (LB), and is bordered by other residentially zoned properties. The Master Plan designation for this parcel is Planned Neighborhood. The project would be served by both the municipal water and sewer systems.

I would consider this type of product to be in line with the Township's Master Plan and also appropriate for this parcel. Developing this parcel under the current LB zoning is not desirable because of the traffic it would generate, on what is an already busy arterial road, and is also not consistent with the Master Plan vision. Please be aware that your recommendation would go to the Township Board for their final consideration. Additionally, a waiver approval does not, in any way, guarantee eventual site plan approval, or bestow any other approvals or rights beyond simply allowing the applicant to proceed ahead through the PD approval process with a parcel smaller than ten (10) acres in size. For your reference, I have attached the language found in Section 3.11.X of the Zoning Ordinance, as well as a brief description of the Planned Neighborhood section of the Master Plan. Please contact me if you have any questions, or require further information.

Thank you.

Commission may increase the minimum required setback up to one hundred fifty (150) feet based upon consideration of the site plan, landscape plan, and building elevation drawings.

- N. No interior side setback required where adequate provision is made for emergency access and loading/unloading access at the rear of the building. If a residential use abuts an RB district, the total of the two side yard setbacks may be reduced to 25 feet.
- O. In RM-1 and RM-2 districts, the Planning Commission may permit building heights up to 3 stories subject to approval of a site plan that demonstrates an increase in open space.
- P. Total minimum amount of habitable floor area ready for occupancy must equal the minimum amount of floor area required for a one story building in the same zoning district. One half of the finished habitable floor area of the story below the ground story may be included within the total minimum amount of floor area required per unit.
- Q. No building shall be located closer than 25 feet to any regulated wetland, submerged land, watercourse, pond, stream, lake or like body of water. The setback shall be measured from the edge of the established wetland boundary as reviewed and approved by the Township.
- R. No structure shall be erected, converted, enlarged, reconstructed or structurally altered to exceed the height limit established in Article 3.0, Zoning Districts, of this ordinance for the district in which the building is located, except that roof structures for the housing of elevators, stairways, tanks, ventilating fans, or similar equipment, required to operate and maintain the building, and fire or parapet walls, skylights, towers, steeples, stage lofts and screens, flagpoles, chimneys, smokestacks, individual domestic radio, television aerials and wireless masts, water tanks, or similar structures may be erected above the height limit, herein prescribed. No such structure may be erected to exceed by more than fifteen (15) feet the height limits of the district in which it is

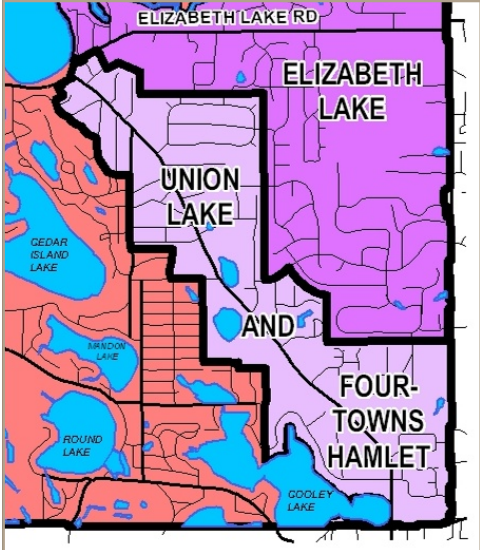
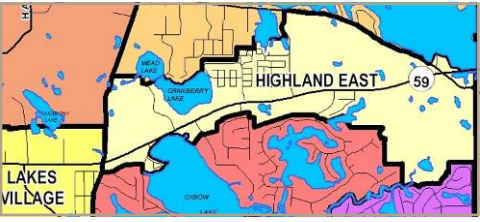
located; nor shall such structure have a total area greater than twenty-five (25) percent of the roof area of the building; nor shall such structure be used for any residential purpose or any commercial or industrial purpose other than a use incidental to the main use of the building.

- S. Lots on a cul-de-sac or curvilinear street shall have a minimum of 65 feet of frontage and shall comply with the lot width requirement at the minimum front setback line.
- T. The minimum side yard setback for a side-entry garage shall be 25'.
- U. Structures located within a multiple-family development, including attached condominiums, row and townhouse dwellings, and the like, shall have a minimum setback of 25' from the back of sidewalk or 25' from back of curb for developments without sidewalks.
- V. Maximum depth to width ration of 4:1.
- W. A maximum 30% lot coverage may be approved administratively by the Director of the Community Development Department or his/ her designee on existing lots of record where all of the following criteria are present:
 - i. The lot has sanitary sewer service, and
 - ii. Storm water collected from the roof of the home and garage is directed to a storm drain, retention or detention basin, lake or other body of water, and
 - iii. The proposed building development complies with all setback requirements of the appropriate zoning district, unless a variance has been approved by the Zoning Board of Appeals.
- X. To be eligible for Planned Development or Planned Business District approval, the Township Board, upon recommendation by the Planning Commission, may permit a smaller parcel than otherwise required by this Ordinance if:
 - i. The proposed project has unique characteristics and benefits; or
 - ii. The parcel in question has unique characteristics that significantly impact development.

- 1 Purpose and Introduction
- 2 Definitions
- 3 Zoning Districts
- 4 Use Standards
- 5 Site Standards
- 6 Development Procedures
- 7 Admin and Enforcement



LAND USE PLAN



density, single family subdivision developments, such as, recreation space, pedestrian circulation systems and amenities, preservation of sensitive natural features, and attractive landscaping of common areas. As an element of future Mobile Home development approval, the Township will require public park and connected open space dedications from landowners/developers. Connections to and segments of the Township’s community-wide pathway system will be required as an integral part of all new or redeveloped Mobile Home communities.

Planned Neighborhood

The Planned Neighborhood land use category is envisioned as a primarily residential land use of mixed densities and multiple product types, in a setting that may occasionally include a limited number of neighborhood retail, office and personal service clusters. Planned Neighborhoods are proposed to be located in the Highland West; Highland East; Lakes Village; and Union Lake and Four Towns Gateway planning areas. Connections to and segments of the Township’s community-wide pathway system will be required as an integral part of all Planned Neighborhoods. Dedicated, usable open space with a variety of amenities will be sought as an element of large-scale, residential development, and the Township will seek public park and connected open space dedications from landowners/ developers. All Planned Neighborhood development is intended to be served by Township sanitary sewers and either Township public water or community well systems. Net residential densities are anticipated to range between 2.0 and 8.0 units per acre, and non-residential elements should not exceed 25% of the net neighborhood land area after preservation of natural features.

Multiple Family

The Multiple Family land use category provides appropriate locations for the Township’s highest residential densities. This category may be characterized by owner-occupied duplexes, townhomes, stacked ranches, and flats, as well as traditional multi-family rental apartments. Developments in this land use category would typically require an RM-1 or RM-2 zoning classification and be characterized by state-of-the-art products types with significant amenities and facilities for their residents. As an element of large-scale, Mutiple Family residential development, the Township will seek public park and connected open space dedications from landowners/ developers. Connections to and segments of the Township’s community-wide pathway system will be expected as an integral part of all Multiple Family communities. Densities are expected to range between 6.0 and 10.0 units per acre, based upon the product type, zoning classification, and approved development plan.



August 5th, 2021

White Lake Township Planning Commission
7525 Highland Rd.
White Lake, MI 48383

White Lake Township Planning Commission:

My name is Douglas Boehm, and I am the Executive Director of Comfort Care Senior Living. I am writing this letter today regarding the property located with the Property Identification Number 12-36-176-002 (on Union Lake Road, south of Elizabeth Lake Road) in reference to rezoning from Local Business (LB) to Planned Development (PD). The property referenced above is 8.37 acres and is less than the required minimum lot area of 10 acres. This letter is to ask the Planning Commission to approve a waiver of the lot size and for us to move forward with the preliminary site plan and rezoning of this site.

What our organization is proposing is to develop an Independent Living, Assisted Living, and Memory Care facility, a home where the residents of White Lake Township can age in place. According to a third-party market study, there is a need for an additional 303 senior living beds in White Lake Township and its surrounding 5-mile radius.

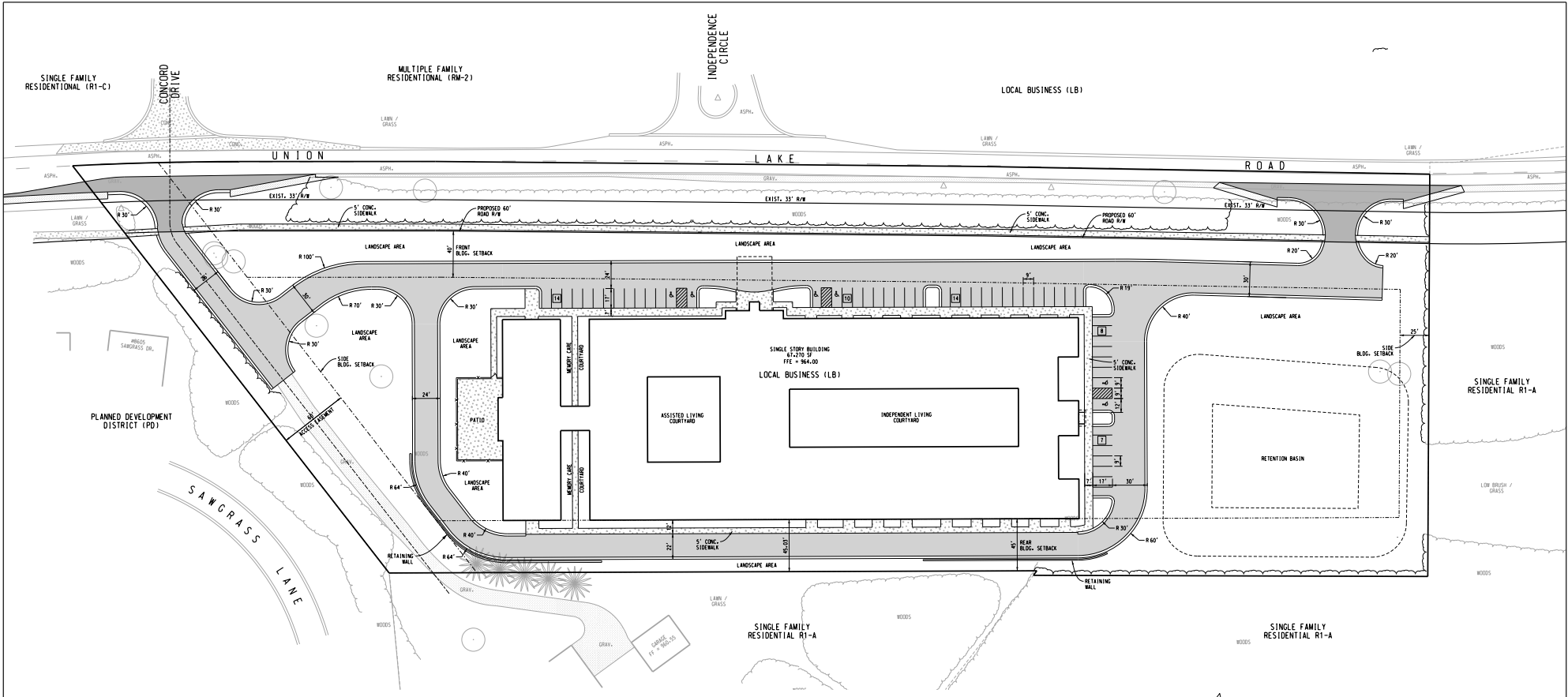
With this site being proposed from Local Business (LB) to Planned Development (PD), we would see a significant decrease in parking and traffic for our use compared to the uses in the LB district, such as retail commercial uses, restaurants, and fast foods chains. This will benefit and keep the same type of uses as the surrounding area that consists of single and multi-family homes. This development will also work with the RCOC on the future expansion of Union Lake Road and provide a sidewalk along the street Right-of-Way. Our resident will have open space areas which will be beautifully landscaped including the interior courtyards of the structure.

As a part of our development, we will also be working and coordinating with the neighbors to the south, West View, a multi-family residential community, with emergency access and extension of the water main loop onto our site.

Our organization will work with the municipality on other feasible community benefits that we are able to provide.

Sincerely,

Douglas Boehm
Executive Director
Comfort Care Senior Living
Doug@comfortcaresl.com
Phone: 248-930-7875



PARKING DATA:

USE	REQUIREMENTS	PARKING REQUIRED	PARKING PROVIDED
NURSING HOME	1 SPACE/4 BEDS + 1 SPACE/EMPLOY. 30 BEDS/4 = 10 EMPLOY. =	18 SPACES	53 SPACES
INDEPENDENT LIVING	1 SPACE/UNIT + 1 SPACE/EMPLOY. 30 UNITS + 5 EMPLOY. =	35 SPACES	
BARRIER FREE	51 - 75 SPACES	3 SPACES	6 SPACES
TOTAL		53 SPACES	53 SPACES

LAND USE INFORMATION:

CURRENT ZONING: LOCAL BUSINESS (LB)
 PROPOSED ZONING: PLANNED DEVELOPMENT DISTRICT (PD) REZONE REQUEST
 CURRENT USE: VACANT
 PROPOSED USE: NURSING HOME/INDEPENDENT LIVING
 10.0 AC.
 MIN. SITE AREA: 6.37 AC. (VARIANCE REQUIRED)
 ACTUAL SITE AREA: 61,270 SF
 TOTAL BUILDING AREA: 18,455
 LOT COVERAGE BY BLDG: 30 FT
 MAX. BLDG. HEIGHT: 22 FT
 PROPOSED BLDG. HEIGHT:
 BUILDING:
 FRONT YARD 40LF
 SIDE YARD 25LF (TOTAL SOLF)
 REAR YARD TO BE DETERMINED BY PLANN. COMM. (45LF PROVIDED)

PAVEMENT LEGEND:

- ASPHALT PAVEMENT SECTION (ON-SITE)
- ASPHALT PAVEMENT SECTION (WITHIN ROAD R/W)
- CONCRETE PAVEMENT SECTION

NORTH

SCALE: 1"=40'

NO.	DATE	SUBJECT
04-13-21 TOPOGRAPHIC SURVEY		
NO.	DATE	SUBJECT
REVISION OR ISSUE		

DESIGNED: BRZEZINSKI
 CHECKED: QUADERER
 FIELD WORK

Griggs Quaderer Inc.
 CIVIL ENGINEERING - LAND SURVEYING - SITE PLANNING

8308 OFFICE PARK DRIVE
 GRAND BLAINE, MI 48439
 PH: (810) 695-0154
 FX: (810) 695-0158
 WWW.GQINCORP.COM

NORTHWEST 1/4 SECTION 36 T-3N, R-3E

COMFORT CARE

UNION LAKE ROAD
 WHITE LAKE TWP.
 OAKLAND COUNTY
 STATE OF MICHIGAN

DRAWING TITLE
REZONING PLAN

PROJECT NUMBER: 210303
 PROJECT PHASE: SPA

SHEET
C200

2022-2027 Capital Improvement Plan (CIP)



CHARTER TOWNSHIP OF WHITE LAKE Oakland County, Michigan

2021 - 2026 Capital Improvement Plan (CIP)



ACKNOWLEDGEMENTS

White Lake Township Board of Trustees

Rik Kowall, Supervisor | Anthony L. Noble, Clerk | Mike Roman, Treasurer |
Scott Ruggles, Trustee | Michael Powell, Trustee | Andrea C. Voorheis, Trustee | Liz Fessler Smith, Trustee |

White Lake Township Planning Commission

Steve Anderson, Chair | Merrie Carlock, Vice-Chair | Rhonda Grubb, Secretary | Debby DeHart, ZBA Liaison |
Scott Ruggles, Township Board Liaison | Mark Fine | Peter Meagher | Matthew Slicker | T. Joseph Seward |

White Lake Township Department Heads

Rik Kowall, Supervisor | Anthony L. Noble, Clerk | Mike Roman, Treasurer |
Jeanine Smith, Assessor | Aaron Potter, DPS Director | John Holland, Fire Chief |
Daniel T. Keller, Chief of Police | Sean O'Neil (AICP), Planning Dept. Director |
Kathy Gordinear, Dublin Community Senior Center Director | Justin Quagliata, Parks and Recreation | Nick Spencer,
Building Official |

White Lake Township Community Development Department

Sean O'Neil (AICP), Planning Dept. Director | Justin Quagliata, Staff Planner | Hannah Micallef, Planning Department
Executive Secretary |

The CIP Team

White Lake Township Community Development Department | Staff and Administration of White Lake Township

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Resolution of Adoption

White Lake
Oakland County, Michigan

Capital Improvement Plan 2022-2027
Resolution #21-029

Motion by _____, Supported by _____, that the White Lake Township Board of Trustees accept the Capital Improvement Plan for the years 2022-2027. The White Lake Township Board has determined the following:

WHEREAS, the Michigan Planning Enabling Act, Act 33 of 2008, requires the White Lake Township Planning Commission to annually prepare a Capital Improvement Plan for the benefit of the health, safety, and welfare of the community as those criteria relate to the physical development of the Charter Township of White Lake; and

WHEREAS, the Township's professional engineering consultant, planning consultant, and Planning Director have consulted with the Township's professional staff who carry on the business of planning and providing for the present and future needs of the citizens of the Charter Township of White Lake; and

WHEREAS, the Capital Improvement Plan is intended to consider the present and future needs and goals of the Charter Township of White Lake, as identified by the public, department heads, the Township Board of Trustees, and the Township Planning Commission, in consideration of existing projects and plans as well as anticipated resources; and

WHEREAS, the Capital Improvement Plan is a flexible document, intended to be reevaluated and updated on an annual basis to project into the six (6) succeeding years, and further amended as necessary to address the policies and philosophies of relevant Township Boards, Planning Commissions, and other stakeholders; and

WHEREAS, the Capital Improvement Plan is a guide and forum to aid the Township Supervisor and Township Board of Trustees in making decisions regarding the physical development and infrastructure maintenance of the Township and determining what, if any, resources can and should be available to carry out the Township Board's policies and budgetary decisions; and

WHEREAS, the draft of the Capital Improvement Plan has been available for public review via the Township website and copies made available at the office of the Township Planning Department, and has been an agenda item for discussion and review by the Planning Commission and Township Board at several public meetings, and has been the subject of a duly-noticed Public Hearing held before the White Lake Township

Resolution of Adoption, continued

Planning Commission on September 2, 2021 and will be reviewed, revised, and updated by the Planning Commission on an annual basis; and

WHEREAS, the Capital Improvement Projects included within the Capital Improvement Plan have been evaluated utilizing a point-system of variables that included, among other things, whether a Capital Improvement Project has already begun, whether funds have been committed to the Project, the sources of funds committed to a Project, whether the Project is required per a legal obligation, or whether the projects is part of a Township-adopted policy, plan, or program; and

WHEREAS, the White Lake Township Planning Commission on September 2, 2021 moved to adopt the 2022-2027 Capital Improvement Plan.

NOW THEREFORE BE IT RESOLVED, that the Capital Improvement Plan presented during the Public Hearing on September 2, 2021 and revised per the public comments received during that Public Hearing, and adopted by the White Lake Township Planning Commission on September 2, 2021, IS ACCEPTED BY THE WHITE LAKE TOWNSHIP BOARD OF TRUSTEES; and

BE IT FURTHER RESOLVED, that this Capital Improvement Plan should be published and attested to according to State law.

Ayes:

Nays:

Absent:

RESOLUTION DECLARED ADOPTED.

I **HEREBY CERTIFY**, that I am duly elected and qualified Clerk of the Charter Township of White Lake, County of Oakland, State of Michigan, and the keeper of the records of the proceedings of said Township as authorized by the Township Board, and the foregoing is a true and correct copy of a resolution duly adopted by a majority vote at a regular meeting of the Township Board legally held on the September 21, 2021 at which a quorum was present.

Anthony L. Noble, Clerk
White Lake Township
Oakland County, Michigan

1. Overview

The 2022-2027 White Lake Township Capital Improvement Plan (CIP) will serve as a tool to assist White Lake Township in turning long-range policy planning into real improvements on the ground. A six-year capital improvement plan and an annual update of that plan is now a requirement for White Lake Township under the Michigan Planning Enabling Act of 2008. The following report identifies the major capital improvements needed and/or planned for the community, the timeframe for implementation of those improvements, and the budget and revenue sources that will make those improvements a reality. Capital improvements cover multiple departments within White Lake Township, and include new Township facilities, water and sewer extensions, fire protection vehicles and equipment, police equipment, parks and recreation facilities, non-motorized pathways, and professional services.

The following subsections within this first chapter include an introduction to capital improvement planning, the community of White Lake Township, and the capital improvement planning process. In subsequent chapters, this report summarizes existing facilities (Chapter 2), provides detailed components for all major Township departments, facilities, and systems (Chapter 3), and presents the projected cost and revenue sources for all covered improvements (Chapter 4).



1a. Overview - CIP Overview

What is a Capital Improvement Plan (CIP)?

A Capital Improvement Plan is a six-year schedule of public physical improvements which identifies the needs for major public infrastructure improvements, and the sources of funding to make those improvements. It provides a schedule of expenditures for constructing, maintaining, upgrading, and/or replacing a community's physical inventory. The CIP, therefore, is a tool to assess the long-term capital project requirements (the "big jobs") of White Lake Township. Since capital improvement projects are spread across multiple community needs (fire protection, police, water and sewer, parks and recreation, municipal administration, etc.), the CIP prioritizes these projects across the entire community and over time, providing an "apples-to-apples" comparison of the community's various needs and wants.

What are Capital Improvement Projects?

Capital improvement projects are major and infrequent expenditures, such as the construction of a new facility, a major rehabilitation or repair of an existing facility, or the purchase of major equipment. Capital improvement projects are non-recurring expenditures that tend to be large both in physical size and in cost, and have a long-term usefulness (10 years or more).

Examples of capital improvement projects can include:

- Construction of a new township hall
- Construction of a new fire station
- Extension of a water/sewer line
- Purchase of a new fire truck
- Major rehabilitation of a township's community/senior center
- Creation of a new township park

Examples of expenditures which would not usually constitute a capital improvement project include:

- Purchase of new office furniture
- Purchase of small equipment (lawn mowers, copiers, individual computers, etc.)
- Recurring maintenance of existing facilities
- Minor repairs of existing buildings and equipment
- Minor improvements to existing buildings (carpet, painting, etc.)

The term “major expenditure” is relative; what is “major” to one community might be “minor” to another. The City of Ann Arbor, for example, sets a minimum threshold of \$100,000 for projects to be included in the City’s CIP, while the City of Rochester Hills sets a minimum of \$25,000. White Lake Township’s policy for determining a Capital Improvement is defined in the following section.

What is White Lake Township’s Capital Improvement Policy?

A capital improvement project is a major, nonrecurring expenditure that meets one of more of the following criteria:

- Any acquisition of land for a public purpose which costs \$50,000 or more.
- Any construction of a new public facility (Township building, water/sewer lines, pathways), or any addition to an existing public facility, the cost of which equals \$50,000 or more and has a useful life of three or more years.
- A nonrecurring rehabilitation (not to include annual/recurring maintenance) of a building, its grounds, a facility, or equipment, the cost of said rehabilitation being \$50,000 or more with a useful life of three or more years.
- Purchase of major equipment which, individually or in total, cost \$50,000 or more with a useful life of three or more years.
- Planning, feasibility, engineering, or design studies related to an individual capital improvement project, or program implemented through individual capital improvement projects, with a cost of \$50,000 or more and a useful life of three or more years.

Why a CIP for White Lake Township now?

The Michigan Planning Enabling Act of 2008 requires a Capital Improvement Program for any Michigan township which owns and/or operates a water supply or sewage disposal system. Since White Lake Township owns and manages both a public water and sanitary sewer system, adopting and annually updating a Capital Improvement Plan is now a requirement per State law.

What are the benefits of preparing a CIP?

The CIP is more than just a State requirement; it is an essential planning tool in addition to a statement of budgetary policy. It informs the taxpayers of White Lake Township how the Township plans to prioritize, schedule, and coordinate capital improvement projects over the next six years. The benefits of creating and annually updating the CIP include:

- Prudent use of taxpayer dollars;
- Focusing the Township expenditures on the needs of the community;
- Prioritizing projects across the needs of the community;
- Generating community support by inviting public input;
- Promoting economic development;
- Improving the Township’s eligibility for State and Federal grants;

- Providing an implementation tool for the goals and objectives of the Township Master Plan;
- Transparency in identification of high-priority projects;
- Coordination/cost-sharing between projects.

What is the role of the Township Planning Commission in the CIP process?

The Capital Improvement Program is a dynamic planning document, intended to serve as a tool to implement the White Lake Township Master Plan. The Master Plan should correspondingly include capital improvement projects as well as guide long-term capital planning. The White Lake Township Planning Commission is uniquely qualified to manage the development and annual update of the Township's CIP, based on their role in creating and updating the Township Master Plan. The Planning Commission's role will ensure that public works projects are consistent with the land uses identified within the Master Plan. By making a recommendation of approval for the CIP to the Township Board, the Planning Commission agrees that the projects outlined within it reasonably address the Township's capital improvement needs.

The CIP is an essential link between planning for capital improvement projects and budgeting for them. Once approved by the Township Board, the CIP can be used to develop the capital project portion of the Township's budget. Those projects included in the CIP's first year (2022) potentially form the basis for the upcoming year's capital project budget. As the CIP is annually updated, a continuous relationship will be maintained between the CIP and the Township's annual budget. The annual update to the CIP will occur in advance of the preparation of the Township's budget.



1b. Overview - White Lake Township Overview

White Lake Township, Oakland County's "Four Seasons Playground," prides itself as a community which continues to promote economic growth, sustainable development, and a strong sense of place. White Lake's character as a premier residential community, with ample recreational opportunities and superior public and private schools, sets it apart and establishes the Township's unique identity.

The Township continues to promote sound fiscal policy while maintaining appropriate levels of service to meet the needs of its growing population. Public utilities infrastructure, police, fire and emergency services, parks, recreation and senior services, as well as planning, building inspection and administrative services are all designed to provide residents with the full-service amenities of a modern municipality in a cost effective, fiscally responsible and sustainable manner.

Principal Land Uses

While the commercial base of White Lake Township continues to grow, the principal land use within the Township remains single-family residential. Based on existing land use data from Oakland County Economic Development and Community Affairs, 35.2% of the Township's nearly 24,000 acres is developed as single family residential. The second largest land use in the Township (in terms of land area) is recreation/open space, comprised of two State Recreation Areas (Pontiac Lake and Highland), a regional Metropark (HCMA's Indian Springs), and an Oakland County-owned golf course (White Lake Oaks). Combined, the recreation/open space land uses within the Township comprise over 25% of the land area (6,000 acres). 11% of land within the Township (approx. 3,000 acres) was classified as vacant in 2018. The Township's commercial, industrial, and office uses comprised 2.5% of the land area in 2018. The majority of the commercial, industrial, and office uses in White Lake Township are located along the M-59 corridor, although some are scattered elsewhere throughout the Township, mostly in the southeast quadrant. There is also a small industrial concentration in the Township's northeast corner. The 21 lakes within White Lake Township comprise almost 11% of its total land area. Figure 1-1 displays the 2018 Existing Land Use Map.

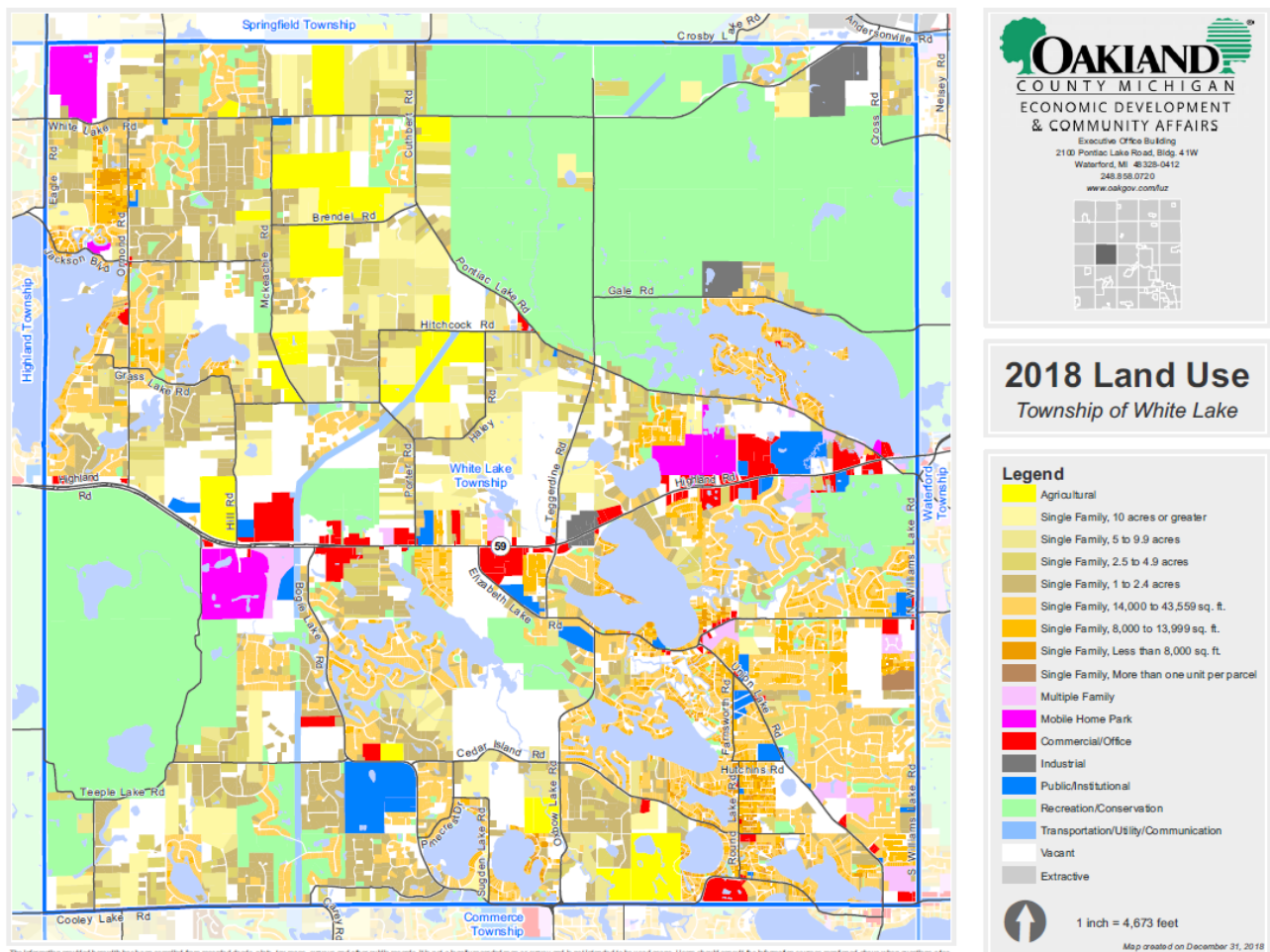
Population

As of the 2010 Census, the population of White Lake Township was 30,019, a 6.4% increase from the 2000 Census (28,219). Population projections created by the Southeast Michigan Council of Governments (SEMCOG) estimate that the population of White Lake Township will only increase slightly over the next twenty years with a forecasted population of 32,236 in 2040. This projection is subject to change based on social and economic factors.

Employment

SEMCOG Community Data for White Lake Township shows the two highest employment-sectors within the Township to be Retail Trade (approximately 21% of total employment) and Information and Financial Activities (approx. 15%).

FIGURE 1-1. EXISTING LAND USE, 2018



1c. Overview - CIP Process Overview

Background

The development and the adoption of a CIP is driven by a statutory requirement at the State level. The State of Michigan has set forth the requirement for a CIP under the Michigan Planning Enabling Act, Act 33 of 2008. This reporting requirement for townships was effective September 1, 2008. The following excerpt from Act 33 sets forth the requirement of a township to adopt a CIP:

“(2) Any township may prepare and adopt a capital improvement program. However, subsection (1) is only mandatory for a township if the township, alone or jointly with 1 or more other local units of government, owns or operates a water supply or sewage disposal system.”

The contents of the CIP are set forth under the Government Accounting Standards Board Statement 34 that basically requires the CIP to report on the value of their infrastructure. GASB 34 requires state and local governments to begin reporting all financial transactions, including the value of their infrastructure assets, roads, bridges, water and sewer facilities, and dams, in their annual financial reports on an accrual accounting basis.

The Charter Township of White Lake is not a road agency under Public Act 51 of the laws of the State of Michigan. Accordingly, public road and bridge projects are not reported in this CIP. **All other infrastructure components with construction costs in excess of \$50,000 per year are reported in this CIP.**

The following sections outline the Program Areas of the White Lake Township CIP:

1. Data Collection Process
2. Data Compilation Process
3. CIP Adoption Process

PROGRAM AREAS

The components of the CIP are compiled and reported by Program Areas. The following table (Figure 1-2) displays the Program Areas used in this CIP (each assigned with a color). These program areas represent the stakeholders in the CIP.

FIGURE 1-2. CIP PROGRAM AREAS	
Label	Definition / Description
BP / PK	Bike paths, trail ways, and park facilities/services
FA	Township-owned buildings and facilities (offices, storage buildings, museums, etc.)
FD	Fire protection / EMS facilities and equipment
IS	Internal support services (IT, GIS, fleet vehicles, communications, etc.)
PD	Police Department facilities and equipment
SS	Sanitary sewerage disposal system
WS	Water supply system

1. Data Collection

Each of the stakeholders outlined above has either a master plan or schedule that defines the needs and resource level within their respective area of responsibility. This information is in varied formats and cannot be readily compiled without a significant amount of interpretation. To resolve this interface situation, standard forms were created that allow the stakeholders to define their projects and resource allocation levels. The standard forms used for data collection are found in the Appendix. At a meeting with the stakeholders, the CIP process and the forms were explained in detail along with a request for the forms to be filled out based on what information is currently available. The information generated from these forms has been systematically compiled as the core of the CIP. A definition of the forms is provided as follows:

- **Project Application Form** - Consists of project descriptions, schedules, necessity, and possible sources of funding. The information provides an understanding of the overall scope of each project and how it is valued within its program area and within the Township. While stakeholders may be aware of major projects further out on the horizon, only those planned for within the six-year window of the 2022-2027 CIP were included.
- **Project Cost Detail Form** - Consists of a matrix of six (6) budget years across the top of the form and a listing of costing components along the side of the form. The form is split into two (2) parts; the upper half is the capital cost for the project and the lower half is the cost of operations or maintenance for that project if applicable. Recognition of the operations and maintenance costs of a project is a valuable tool in forecasting future needs for resource allocation. Investment in a new facility is only worthwhile if there are funds available to operate and maintain it.

- **Project Rating Form** - Used to rate both the importance and impact of a project within its program area and within the Township (an “apples-to-apples” comparison). The rating number is not an absolute in itself but is important in distinguishing between projects that are similar in scope. The ratings are weighted with emphasis given to those projects that are mandated by law, by agreement, or because they are a matter affecting health safety and welfare.

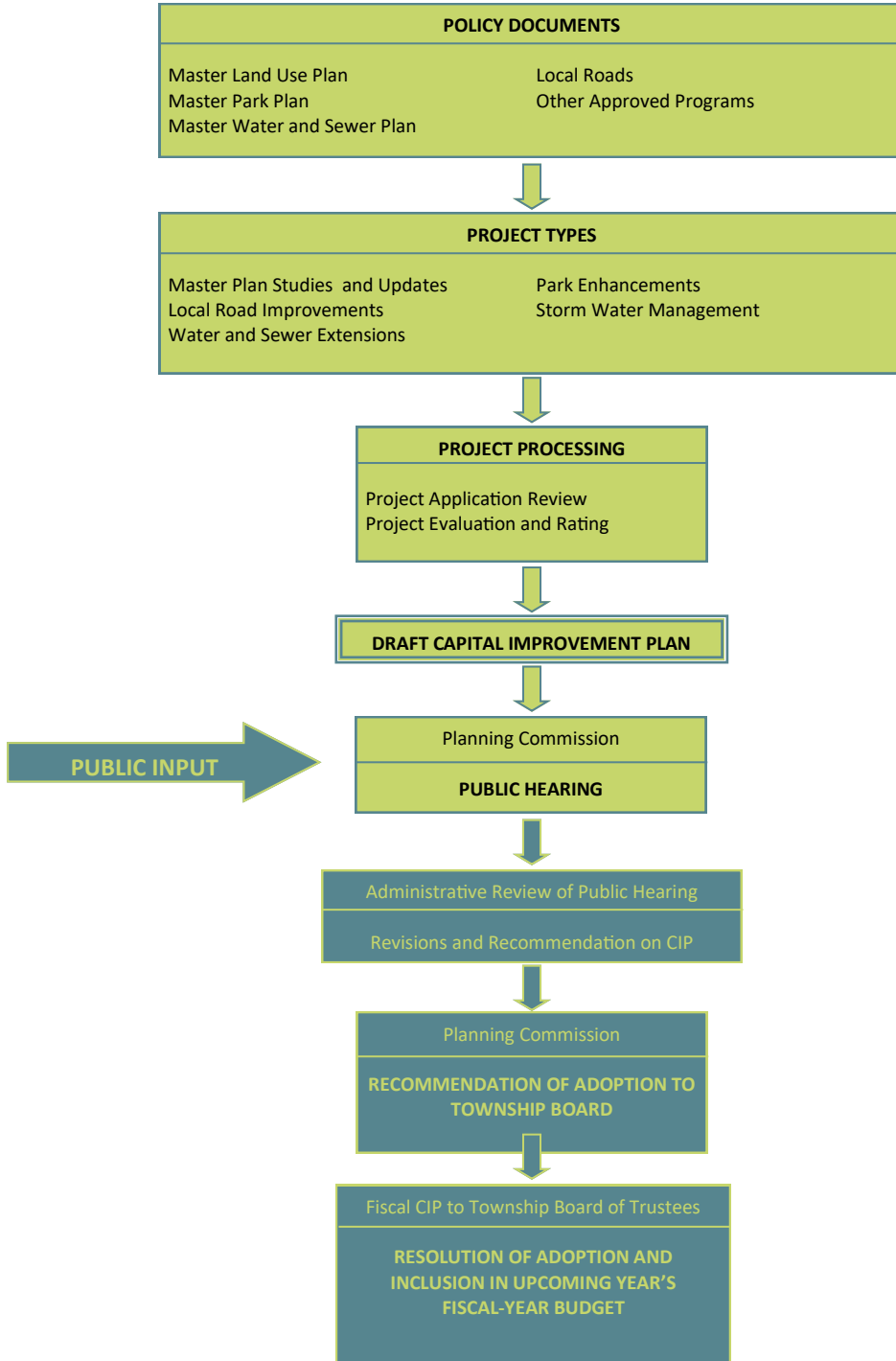
2. Data Compilation

The information received from the stakeholders has been compiled into a Project Summary Worksheet. This worksheet contains all of the projects in the CIP over six (6) budget years with a cost summary of each budget year by program area and for the entire CIP. Included with the worksheet is the listing of possible funding sources and an estimate of the Township’s share for each project. The project summary worksheet can be found in the Appendix of this CIP.

3. CIP Adoption Process

The adoption process involves a public hearing to solicit citizen input. The CIP will then be modified (if necessary), approved by the Township Planning Commission (via a formal recommendation for approval to the Township Board), and forwarded to the Township Board for adoption. Adoption of the CIP by the Township’s Board of Trustees does not constitute an authorization to commit resources to any project. This approval is recognition of a plan for projects within the community that may move toward implementation in the future. The projects included within Year 1 of the Capital Improvement Plan potentially form the basis for the upcoming year’s capital projects budget. An outline of the process is displayed in Figure 1-3 on the following page.

FIGURE 1-3. CIP ADOPTION PROCESS



2. Existing Capital Facilities

In developing a Capital Improvements Plan, communities often find it essential to develop an inventory of their existing capital facilities. Before a community develops a list of “What we need,” it is important to first look at “What we have.” As stated in White Lake Township’s Master Plan, “A municipality’s public facilities are an important part of community life and are directly related to important issues such as quality of life and protection of the public health, safety, and welfare.” The following is a summary of White Lake Township’s major capital facilities and their current condition (where applicable), as determined by the directors of the respective departments. The location of existing Township facilities is noted on the Existing Facilities Map (Figure 2-1).

White Lake Township Hall

7525 Highland Road

Year Built: 1949

Last Major Improvement: 1996

Houses: Supervisor, Clerk, Treasurer, Assessing, Building, Planning, Water, Sewer, Maintenance

Condition: Fair

Extent of Use: Heavy



White Lake Township Fleet Vehicles

Includes: Administrative vehicles, inspection vehicles; does not include Fire Dept. vehicles

Year Acquired: Varies

Condition: Varies

Extent of Use: Varies

Average Duty Cycle: Approximately 7 years



Fire Hall Number 1 (Headquarters)

7420 Highland Road

Year Built: Unknown

Last Major Improvement: Parking Lot Replacement

Serves: M-59 corridor; northeast and southwest quadrant

Condition: Fair

Extent of Use: Heavy



Fire Hall Number 2

Address: 860 Round Lake Road
Year Built: Unknown
Last Major Improvement: None
Serves: Southeast quadrant
Condition: Fair
Extent of Use: Heavy



Fire Hall Number 3

4870 Ormond Road
Year Built: Unknown
Last Major Improvement: None
Serves: Northwest quadrant
Condition: Fair
Extent of Use: Moderate



White Lake Township Police Station

7525 Highland Road
Year Built: approx. 1950
Last Major Improvement: 2001 (expansion)
Condition: Good
Extent of Use: Heavy



White Lake Township Police Garage

Location: Behind Police Station
Year Built: 2004
Last Major Improvement: None
Condition: Good
Extent of Use: Heavy



White Lake Township Police Communications System

Year Acquired: New in 2010
Last Major Improvement: None
Condition: Excellent
Extent of Use: Heavy



White Lake Township Police Vehicles

Includes: 18 Vehicles
Year Acquired: Varies
Condition: Excellent
Extent of Use: Heavy



Township Office Annex

7527 Highland Road
Year Built: 1985
Last Major Improvement: 2020 remodel
Condition: Excellent
Extent of Use: Heavy



Dublin Community Senior Center

685 Union Lake Road
Year Built: approx. 1950
Last Major Improvement: 2001
Condition: Excellent
Extent of Use: Heavy



Water Tower 1

360 Woodsedge Drive
Year Built: 1994
Last Major Improvement: 2007
Condition: Good
Extent of Use: Heavy



Water Tower 2

6055 Highland Road
Year Built: 2004
Last Major Improvement: None
Condition: Excellent
Extent of Use: Moderate



White Lake Charter Township

White Lake Township Water System

Includes: Water mains, wells, land, well houses and pump stations, generators

Year Built: Ongoing
Last Major Improvement/Extension: 2020 Hillview Well House & 2019 Twin Lakes II Well House
Condition: Varies; primarily Good to Excellent
Extent of Use: Varies; primarily Moderate to Heavy



White Lake Township Sanitary Sewer System

Includes: Phase I sewer/appurtenances, Pontiac Lake sewer/appurtenances, Elizabeth Lake/M-59/Meijer sewer/appurtenances

Year Built: Ongoing since 1998
Last Major Improvement/Extension: 2012
Condition: Good to Excellent
Extent of Use: Light to Moderate



White Lake Community Hall

Address: 7500 Highland Road
Year Built: 1875 (State-designated historic site)
Last Major Renovation: 2013 (Interior)
Condition: Good
Extent of Use: Light



Fire and EMS Equipment

Includes: three engines, one tanker, two ambulances, one light duty rescue (no pumping or water carrying capability), one pickup truck style grass truck with a skid mount pump and tank, four fleet vehicles, and breathing apparatus

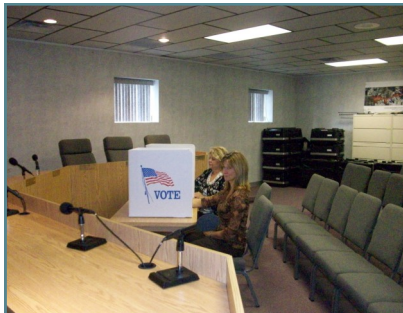
Year acquired: Varies; between 1997 and 2018
Condition: Varies; from Good to Excellent
Extent of Use: Varies; primarily Moderate to Heavy



White Lake Township Clerk's Equipment

Includes: Voting tabulation machines (17)
Voter assist terminals (12)

Year acquired: 2018
Condition: Excellent
Extent of Use: Varies



Hidden Pines Park

Location: Intersection of White Lake Road and Hidden Pines Drive.
Size: 9 Acres
Includes: One (1) Baseball Field and parking area



Township-Owned Land

Total acreage: approx. 177 acres (including Township parks)



Judy Hawley Park

Location: Behind Township Hall, just east of the Township Library
Size: 12 acres
Includes: Soccer fields, pavilion, play structure, basketball courts, sand volleyball court, and pathway



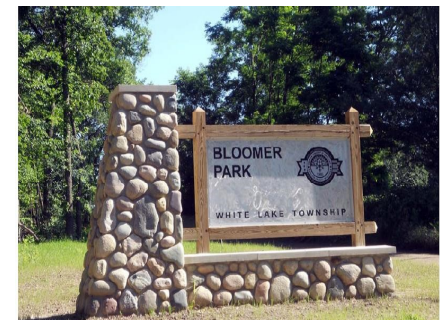
Ferdinand C. Vetter Park

Location: Behind Dublin Community Center on Union Lake Road
Size: 6 acres
Includes: Baseball field, picnic shelter, pathway, and play structure



Bloomer Park

Location: West side of McKeachie Road, between Grass Lake and Jackson Roads
Size: Approximately 28 acres
Description: Picnic shelter, scenic overlook, and nature trails

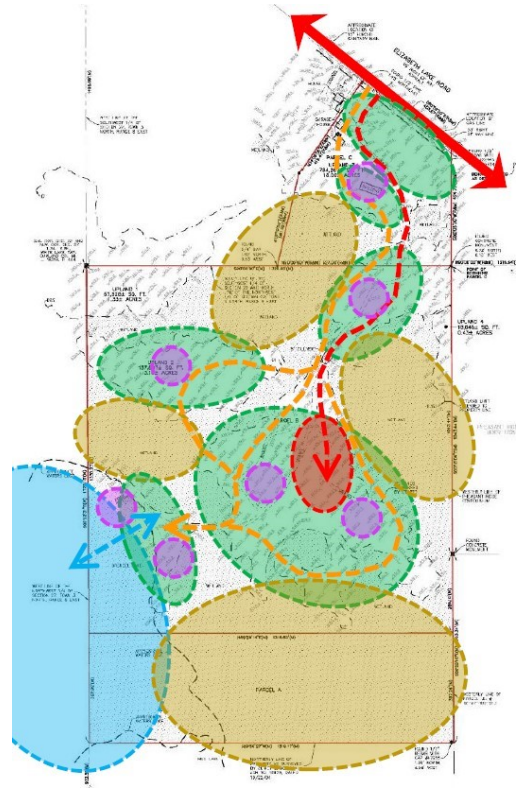


Stanley Park

Location: West side of Elizabeth Lake Road, south of White Lake Township Library

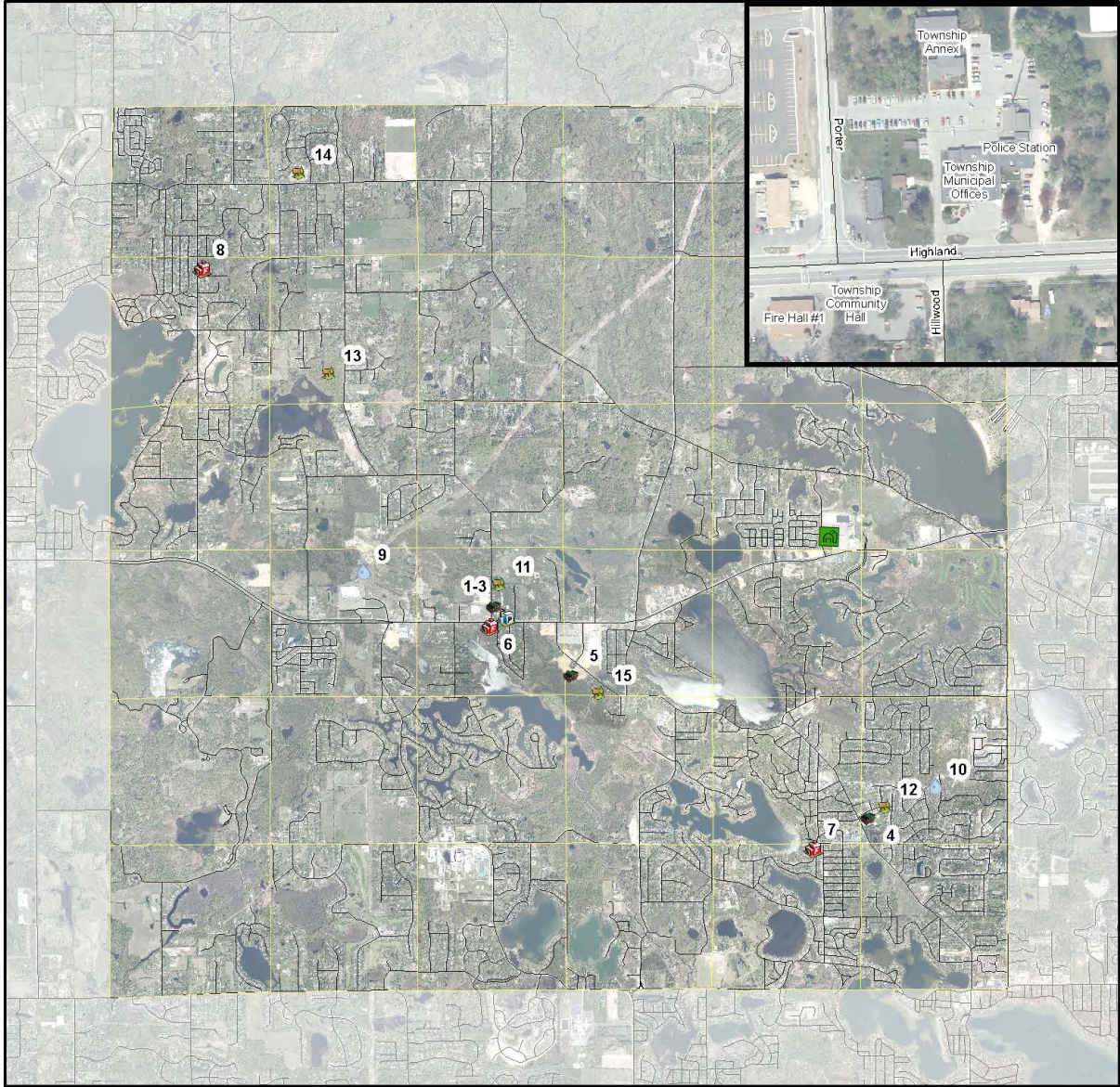
Size: 57 acres

Description: Undeveloped; development anticipated 2022-2024



White Lake Charter Township

FIGURE 2-1



White Lake Charter Township



Existing Facilities

- | | | | |
|--------------------------------|--------------------------|-------------------------------|---------------------|
| | Public Facilities | | Water Towers |
| 1 - Township Municipal Offices | | 9 - Water Tower #1 | |
| 2 - Community Hall | | 10 - Water Tower #2 | |
| 3 - Township Annex | | | |
| 4 - Dublin Community Center | | Township Parks | |
| 5 - Civic Center Property | 11 - Judy Hawley Park | 12 - Ferdinand C. Vetter Park | |
| | Fire Stations | 13 - Bloomer Park | |
| 6 - Fire Hall #1 | | 14 - Hidden Pines Park | |
| 7 - Fire Hall #2 | | 15 - Stanley Park | |
| 8 - Fire Hall #3 | | Fisk Farm | |
| | Police Station | | |



3. Executive Summary

Stakeholders

The level of input from the stakeholders has greatly contributed toward the formulation of the CIP. Project profiles consisting of the Project Application Form, the Project Cost Detail Form, and the Project Rating Form were received from Parks and Recreation, Senior Center, Police Department, Fire Protection, Facilities, and Water and Sewer Departments. Though some of the information received will require further detail, it is the most current information available until future refinements are made to the project profile.

Project Histories

Just as important as tracking current and future projects is cataloging the past accomplishments of the Capital Improvement Plan. Located in the back of the plan is a Project Histories Summary Table. This table illustrates those past projects that have been completed or canceled. Some projects are changed over time, the original project number may be dropped and new project numbers and created in its place. The Project Histories Summary can be used to track the priorities of the Township over time and can help track overall investment in the community based on geographic regions.

2021 Project Histories

Capital improvements, outlined in the 2021-2026 CIP, completed during 2021:

- BP-0008 Triangle Trail Development Design

3. Executive Summary

Projects

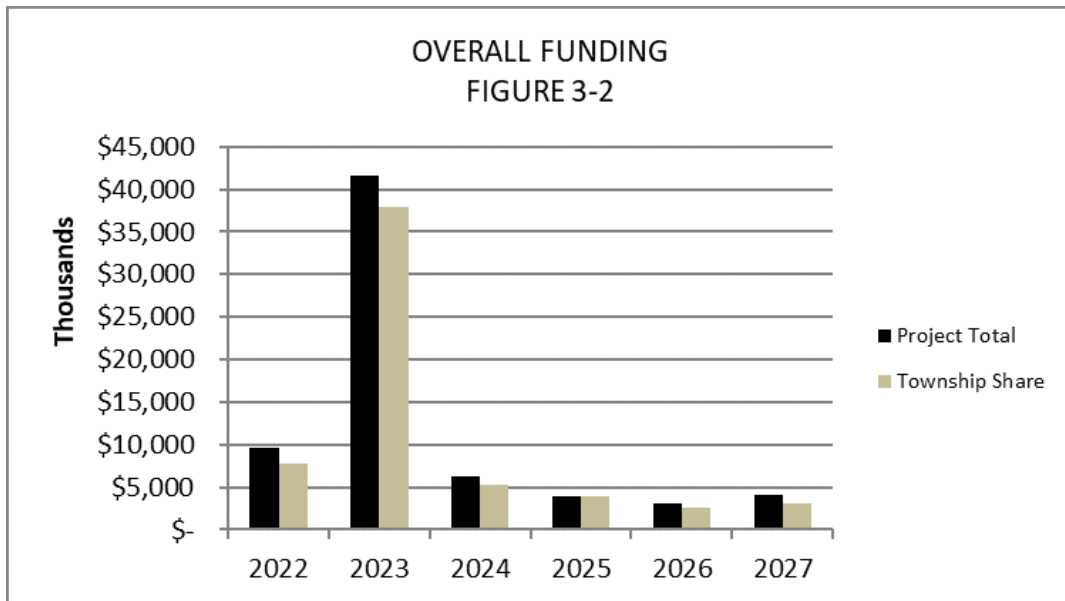
Review of the Project Summary Worksheet (found in the Appendix of this report) indicates that there are several individual projects located in the same geographic area. There are potential cost savings that can be realized by combining projects. At a minimum, mobilization, traffic control, and restoration are just some of the potential cost savings achieved by combining projects for construction. The potential grouping of projects are identified in Figure 3-1 below:

FIGURE 3-1	
Location	Project Labels
M-59, Teggerdine east 0.3 miles	BP-0003 and PK-0006
Bogie Lake Road, Huron Valley Schools to M-59	BP-0006 and SS-0003

If the funding and timing of these projects can be orchestrated, the savings are significant. The exact savings cannot be determined until a detailed project costing and analysis of the common scope between the projects is performed. Also, in the future other projects such as new facilities can be studied to determine if combining operations can realize a cost savings. Other benefits include providing a list of projects in advance in order to help establish the need for grants and funding opportunities.

Funding

This CIP has many projects that are unfunded. The limitations of funding will likely cause projects to be delayed, deferred or cancelled. Each project has a potential funding source and many are dependent on a contribution from the Township’s General Fund (GF). Many projects list funding sources from State and Federal grant programs, but those grants have not yet been secured. The following chart depicts the relationship between total project costs, and the Township’s share of those costs. Additional revenue for projects that are not completely funded by the Township will come from grants and other funding sources.



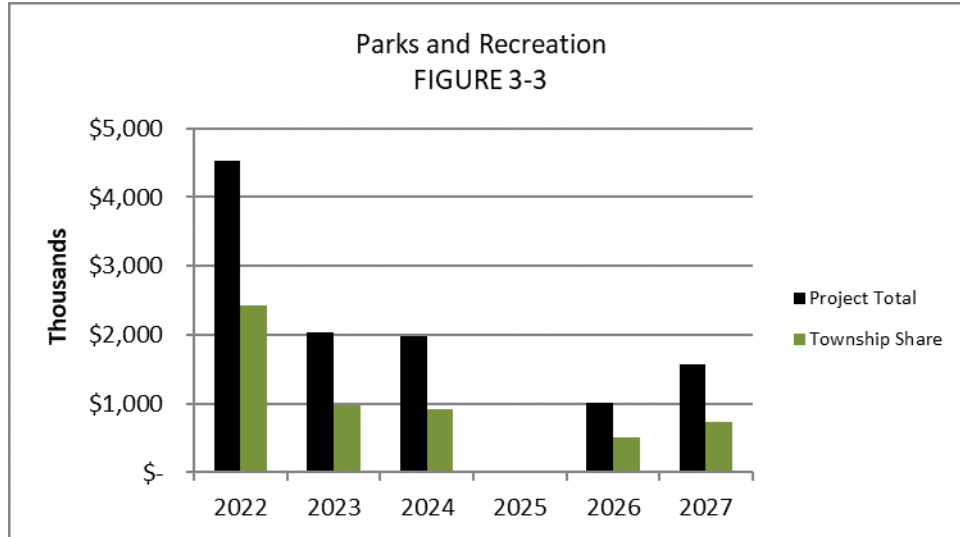
The Township’s General Fund balance at the end of fiscal year 2020 is about \$10.4 million. As indicated in Figure 3-2 above, the General Fund balance is inadequate to support the Township’s share of the CIP.

Funding Components

In the following section, each of the funds shown on the Project Summary Worksheet are graphed and reported as part of the CIP with the exception of the projects listed under Internal Services.

Parks and Recreation

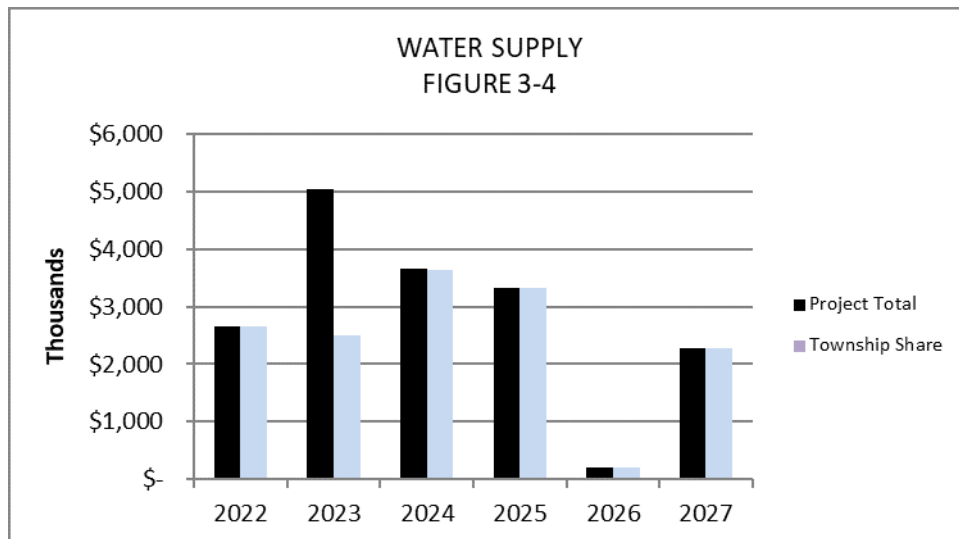
The Parks and Recreation Fund has a fund balance of about \$658,645 as shown in the 2020 Comprehensive Annual Financial Report (CAFR). This fund balance along with a Michigan Natural Resources Land and Water Conservation Grant will be used to leverage park improvement projects.



Careful budgeting of the Parks and Recreation fund will allow the level of service and maintenance of the Township's current and future park facilities to occur until additional parks funding can be established.

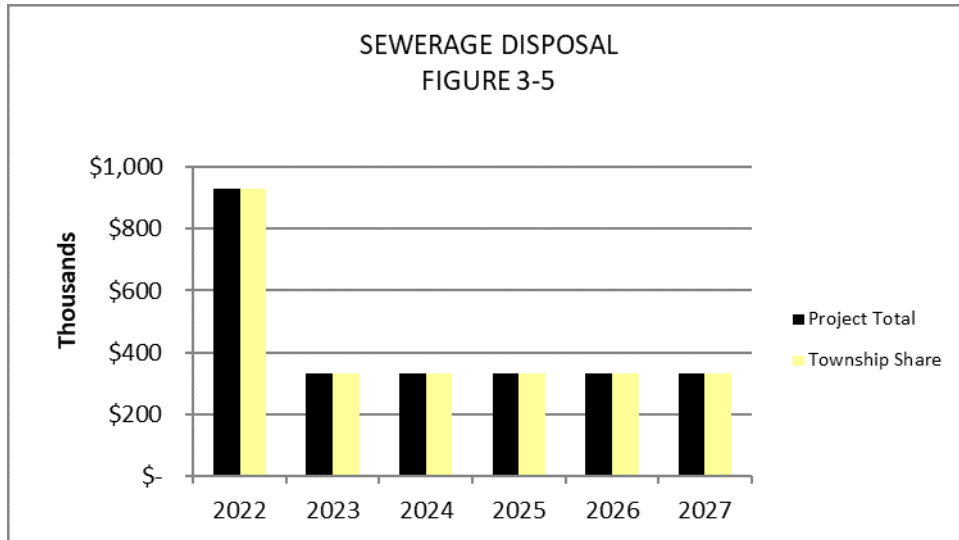
Water Supply Fund

The Water Supply Fund (WF) is an enterprise fund that is not dependent on support from the General Fund. The Water Supply Fund (WF) has a balance of \$4.99 Million as of the close of 2020. Several projects in this program area are funded using the Drinking Water Revolving Fund supplemented by the Water Supply Fund balance.



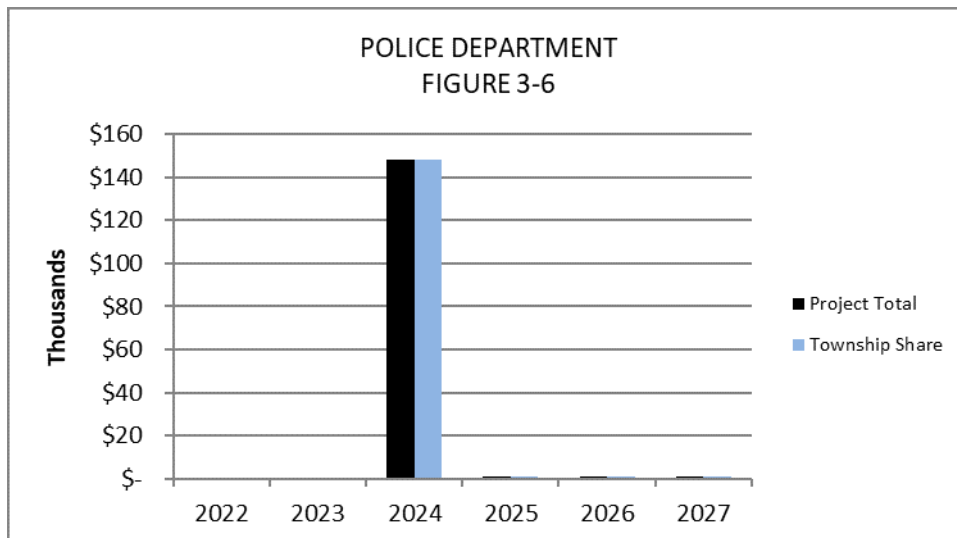
Sewerage Disposal System

Development of Sewer has been done either by private development or special assessment districts (SAD’s). The Township has a Sewer Maintenance Fund with \$879,218 as of 2020.



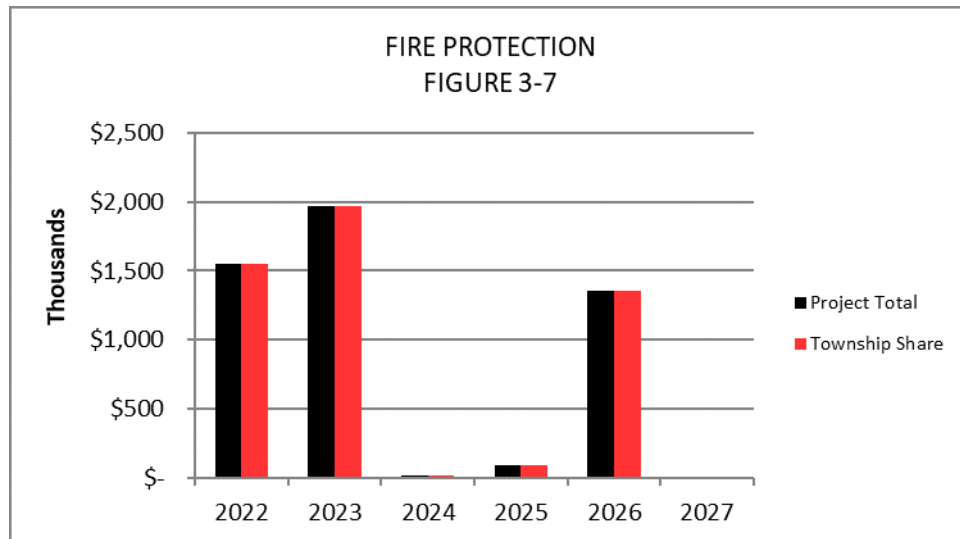
Police Department

The 2020 CAFR reports a balance of \$4.6 million in the Police Fund. The Police Department is currently funded by a Township Millage.



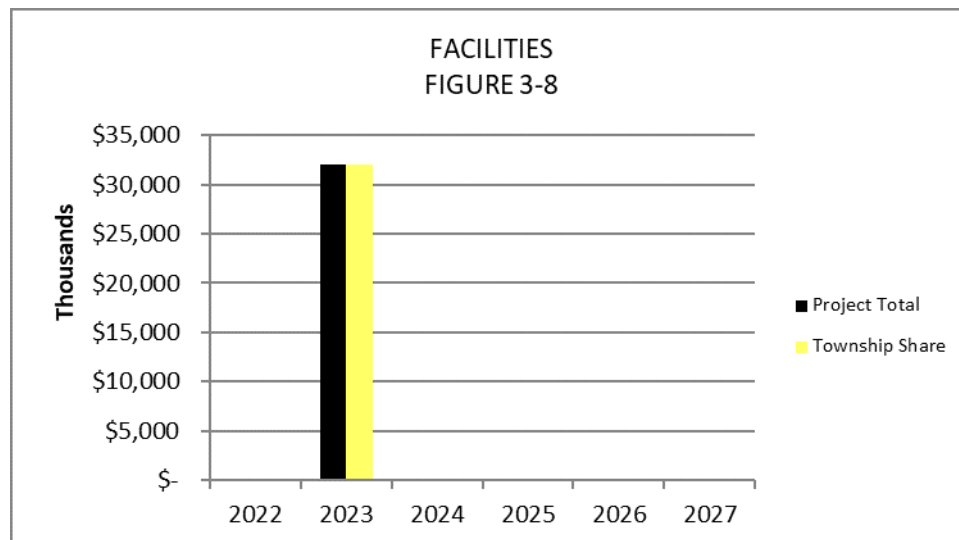
Fire Protection

The Fire Protection Fund has a balance of \$6.6 million as reported in the 2020 CAFR. The Fire Protection Fund is supported solely through millage money.



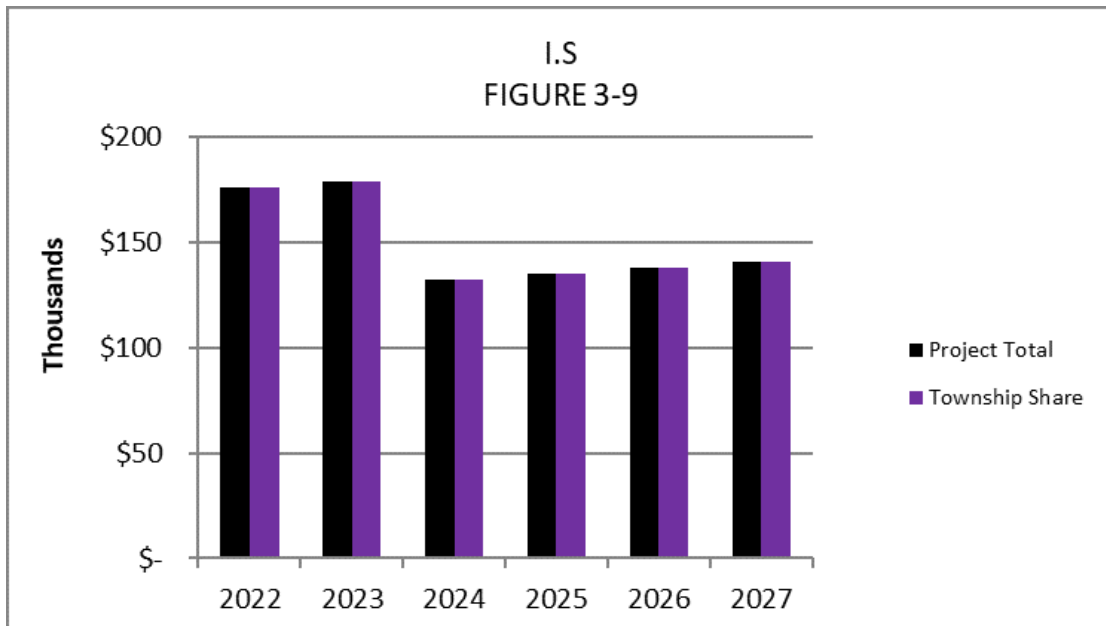
Facilities

The Township Civic Center district will have a new Public Safety Headquarters that will cost approximately \$18-20 million dollars. Also, a new Civic Center Building to replace the current Township Office at an approximate cost of \$10-12 million dollars. This money will come from the Capital Projects Fund, and the issuance of bonds. The Township currently has approximately \$1.9 million dollars available for a new Township Municipal Complex in a Building Fund listed in the 2020 CAFR.



Internal Services

The Internal Services used to support the operating departments are included in the CIP due to their costs that are in excess of \$50,000. Because these services are collected as a charge back to the operating departments, there is no special fund involved.



4. CIP Components

The components of the Capital Improvement Plan have been compiled and reported by the following seven program areas, each representing a stakeholder in the CIP.

Section 4a. Facilities

- FA-0006 Public Safety Headquarters
- FA-0007 Township Civic Building
- FA-0008 Township Hall Genset

Section 4b. Fire Protection

- FD-0002 - Fire Station 2 Replacement
- FD-0006 - Fire Ladder Truck
- FD-0008 - Fire Tanker Truck
- FD-0009 - Fire Station 3 Improvement
- FD-0016 - Cardiac Monitors (2)
- FD-0017 - Structural Firefighting Gear (27)
- FD-0018 - Ambulance Replacement (2)

Section 4c. Internal Services

- IS-0002 - Fleet Vehicles (excluding Fire)
- IS-0003 - Document Management Program

Section 4d. Parks and Recreation

- BP-0002 - M-59 Pathway (Phase I)
- BP-0003 - M-59 Pathway (Phase II)
- BP-0004 - M-59 Pathway (Phase III)
- BP-0005 - Union Lake Rd. Pathway
- BP-0006 - Bogie Lake Rd. Pathway
- PK-0002 - Four Seasons Trail (Phase I)
- PK-0003 - Four Seasons Trail (Phase II)
- PK-0004 - Four Seasons Trail (Phase III)
- PK-0006 - Oxbow / M-59 Park
- PK-0008 - Hidden Pines Park
- PK-0009 - Teggerdine Trail Design
- PK-0010 - Bloomer Park (Phase II)
- PK-0011 - Community / Central Park
- PK-0012 - Stanley Park
- BP-0009 - Triangle Trail Development

Section 4e. Police Department

- PD-0002 - Mobile Command Center

Section 4f. Sanitary Sewer Disposal System

- SS-0005 - Western Outlet Sanitary Extension Phase 2
- SS-0006 - Pump Station at Lakeland High school
- SS-0007 - Upgrades & Equipment Replacement of Meijer Pump Station
- SS-0008 - Upgrades & Equipment Replacement of 7 Sanitary Sewage Pump Stations
- SS-0009 - SCADA Equipment to Monitor Sanitary Sewage Pump Stations (8)
- SS-0010 - Shotwell Gravity Sewer Rehabilitation

Section 4g. Water Supply System

- WS-0004 - Twin Lakes Well Replacement and Upgrades
- WS-0008 - Aspen Meadows Iron Filtration
- WS-0010 - SCADA Tower Replacement and GENSET
- WS-0011 - Water Main Extension Bogie Lake Road (M-59 to Cedar Island)
- WS-0012 - 6 - Inch Diameter Water Main Replacement
- WS-0015 - Twin Lakes I Well House Updates
- WS-0017 - Interconnection of High Pressure Districts (Elizabeth Lake Road)
- WS-0018 - Residual Chlorine Analyzers at Water Towers
- WS-0019 - Residential and Commercial Meter Replacement with AMR System
- WS-0021 - Repaint Water Tower 1
- WS-0022 - Repaint Water Tower 2
- WS-0023 - Backhoe Machine

Funding Sources Abbreviations

Building Authority	BA
Fire Protection Fund	FPF
General Fund	GF
Federal Housing and Urban Development	HUD
Michigan Dept. of Transportation Enhancement Grant	MDOT-EG
Michigan Natural Resources Trust Fund Grant	MNRTFG
Michigan Safe Routes to School Program	MSRSP
Parks & Recreation - Special Township Revenue Fund	P&RF
Police Department Fund	PDF
Road Commission Tri-Party Program	RCOCTP
Special Assessment District	SAD
Sewer Fund (Township Enterprise Fund)	SF
State Revolving Fund	SRF
United States Dept. of Transportation	USDOT
Drinking Water Revolving Fund	DWRF
Water Supply Fund (Township Enterprise Fund)	WF

4a. CIP Components - Facilities

Overview

Facilities play an important role in providing an environment that is conducive to supporting the various operating departments that provide services directly to the residents in the Township. Facilities can be new building projects, building renovations, building expansions or the cost of services to support the existing buildings if this cost is significant.

Identification of significant costs to support existing building operations is an important tool in determining the cost effectiveness of operating existing public buildings.

Funding for supporting existing Facilities is normally derived by either a charge back to the budgets from the operating departments or done as a direct operating cost to General Fund.

Funding for new Facilities can be accomplished by a building authority. The Township has a legally established Building Authority that would be the governing body to finance and construct any new public buildings in the Township.

On the following page, each of the Facilities projects are listed along with their cost and funding sources.

CHARTER TOWNSHIP OF WHITE LAKE CAPITAL IMPROVEMENTS PLAN PROJECT SUMMARY FACILITIES (FA)							
PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FA-0006	Public Safety Headquarters	New Construction	110	Grant, GF, Bond Issue, PDF, FPF	\$18,000,000 +/-	\$18,000,000 +/-	\$--

Project Description

This building project is for the construction of a combined Police and Fire Headquarters Building to be located on Elizabeth Lake Road. The project cost includes the 40,000 square foot building and the associated site work.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FA-0007	Township Civic Building	New Construction	96	Grant, GF, Bond Issue	\$10,000,000 +/-	\$10,000,000 +/-	\$--

Project Description

The Township Civic Building will replace the 70 year Township Office Building (circa 1949) with a modern facility that will accommodate the Township's current needs. The building will be approximately 30,000 square feet.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FA-0008	Township Hall Genset	New Equipment	97	GF,PDF, FPF	\$100,000	\$100,000	\$--

Project Description

Recent events left the Township's 911 services inoperable due to power failures as the current generator is undersized to serve the Township Offices/Police Department.

4b. CIP Components - Fire Protection

Overview

Fire Protection provides a variety of vital services to Township residents. Fire Protection facilities are provided at several locations within the Township. In the CIP, new Fire Protection facilities, new Fire Protection equipment, and new Fire Protection vehicles are included under this section.

Fire Protection is principally funded by a Township Millage. Potential sources of funding for projects are the Fire Protection Fund balance, bond issue, or grants. Another possibility would be to use the Township's Building Authority to finance new fire stations.

On the following pages, each of the Fire Protection projects are listed along with their cost and potential funding sources.

CHARTER TOWNSHIP OF WHITE LAKE
CAPITAL IMPROVEMENTS PLAN
PROJECT SUMMARY
FIRE PROTECTION (FD)

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0002	Fire Station 2 Replacement	New Construction	140	Grant, Bond Issue, BA	\$4,000,000	\$4,000,000	\$--

Project Description
Construct a satellite fire station with living quarters and three bays.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0006	Fire Ladder Truck	New Equipment	108	FPF	\$900,000	\$900,000	\$--

Project Description
100-foot fire-fighting ladder truck.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0008	Fire Tanker Truck	New Equipment	120	FPF	\$500,000	\$500,000	\$--

Project Description
Replacement of 1997 Pierce Dash tanker truck.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0009	Fire Station 3 Improvement	New Construction	112	Grant, Bond Issue, BA, GF	\$1,000,000	\$1,000,000	\$--

Project Description
Restoration and Addition to the existing Fire Station 3.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0016	Cardiac Monitors (2)	New Equipment	84	FPF	\$70,000	\$70,000	\$--

Project Description
Purchase of two (2) Cardiac Monitors.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0017	Structural Firefighting Gear (27 sets)	New Equipment	102	FPF	\$70,000	\$70,000	\$--

Project Description
Structural Firefighting Gear.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
FD-0018	Ambulance Replacement (2 existing units)	New Equipment	112	FPF	\$440,000	\$440,000	\$--

Project Description
Replacement of two (2) transport units / ambulances.



4c. CIP Components - Internal Services

Overview

Internal Services play an important role in supporting the various operating departments that provide services directly to the residents in the Township. While Internal Services in itself is not a “project,” the cost of this internal support is significant and bears inclusion as part of the CIP. Internal Services in this CIP are defined as computer networks, geographic information service (GIS), document storage, communications, and fleet vehicles.

There is no dedicated fund for Internal Services. Funding for Internal Services is normally derived by a charge back to the budgets from the operating departments that use or are supported by these services.

On the following page, each of the Internal Services projects are listed along with their cost and funding sources.

CHARTER TOWNSHIP OF WHITE LAKE
CAPITAL IMPROVEMENTS PLAN
PROJECT SUMMARY
INTERNAL SERVICES (IS)

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
IS-0002	Fleet	New Equipment	80	PD / GF	\$ 783,000	\$ 783,000	\$--

Project Description
Replacement of cars and trucks (except Fire Department) on an annual basis to systematize the vehicle replacement process. Estimates are for a combination of three (3) cars and two (2) trucks each year, for a total of six (6) years.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
IS-0003	Document Management Program	Equipment / Professional Services	90	GF	\$100,000	\$100,000	\$--

Project Description
Project includes providing Township Departments with the necessary software and hardware needed to continue digitizing the Township's document files. Project also includes funding for contracting with private firms to help expediate the process.

4d. CIP Components - Parks & Recreation

Overview

The Parks and Recreation Master Plan outlines a variety of services to Township residents. Parks and Recreation is principally funded by a non-major special revenue fund. Potential funding for projects can be from Parks and Recreation fund balance, grants such as Michigan Department of Natural Resources Trust Fund, County based tri-party funding, Michigan Safe Routes to School Program, Michigan Department of Transportation Enhancement Grant, Federal Housing and Urban Development.

On the following pages, each of the Parks and Recreation projects are listed along with their cost and potential funding sources.

CHARTER TOWNSHIP OF WHITE LAKE
CAPITAL IMPROVEMENTS PLAN
PROJECT SUMMARY
PARKS AND RECREATION (BP and PK)

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
BP-0002	M-59 Pathway (Phase I)	Rehabilitation	98	MDOT-EG; P&RF	\$454,000	\$154,000	\$300,000

Project Description
An important, long term, high-priority objective is the development of a Township-wide system of pathways connected to the regional network. Renovation of the M-59 pathway is an essential element that will connect future north-south routes, for example, Bogie Lake Pathway to the Four Seasons Trail.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
BP-0003	M-59 Pathway (Phase II)	Rehabilitation	98	MDOT-EG; P&RF	\$453,000	\$153,000	\$300,000

Project Description
An important, long term, high-priority objective is the development of a Township-wide system of pathways connected to the regional network. Renovation of the M-59 pathway is an essential element that will connect future north-south routes, for example, Bogie Lake Pathway to the Four Seasons Trail.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
BP-0004	M-59 Pathway (Phase III)	Rehabilitation	98	MDOT-EG; P&RF	\$452,000	\$152,000	\$300,000

Project Description
An important, long term, high-priority objective is the development of a Township-wide system of pathways connected to the regional network. Renovation of the M-59 pathway is an essential element that will connect future north-south routes, for example, Bogie Lake Pathway to the Four Seasons Trail.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
BP-0005	Union Lake Road Pathway	Rehabilitation	98	MNRTFG; RCOCTP; P&RF	\$597,000	\$347,000	\$250,000

Project Description
The Union Lake Road corridor is the area of White Lake that contains the highest density of residential development in the Township. A pathway along the corridor is critical to provide residents with safe, non-motorized access to the homes, churches, schools, parks, retail, and other places in the area.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
BP-0006	Bogie Lake Road Pathway	New Construction	83	MDOT-EG; P&RF; MSRSP	\$1,303,000	\$703,000	\$600,000

Project Description

An important, long term, high-priority objective is the development of a Township wide system of pathways connected to the regional network. This pathway provides the north-south connection from M-59 (north) to the Township’s southern boundary and connects a complex of 3 schools to neighborhoods throughout the length of the corridor.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0002	Four Seasons Trail (Phase I)	New Construction	67	MNRTFG; P&RF; USDOT	\$305,000	\$155,000	\$150,000

Project Description

An important, long-term, high-priority objective is the development of a Township-wide pathways system. The ITC Corridor Four Seasons Trail provides a critical link between Pontiac Lake State Recreation Area and Highland Lake State Recreation Area, via the M-59 trailway. This route is included in the Oakland County Greenways Plan and should include state and regional financial participation. Construction of the trailway is expected to occur over several years.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0003	Four Seasons Trail (Phase II)	New Construction	67	MNRTFG; P&RF; USDOT	\$154,000	\$54,000	\$100,000

Project Description

An important, long-term, high-priority objective is the development of a Township-wide pathways system. The ITC Corridor Four Seasons Trail provides a critical link between Pontiac Lake State Recreation Area and Highland Lake State Recreation Area, via the M-59 trailway. This route is included in the Oakland County Greenways Plan and should include state and regional financial participation. Construction of the trailway is expected to occur over several years.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0004	Four Seasons Trail (Phase III)	New Construction	67	MNRTFG; P&RF; USDOT	\$153,000	\$53,000	\$100,000

Project Description

An important, long-term, high-priority objective is the development of a Township-wide pathways system. The ITC Corridor Four Seasons Trail provides a critical link between Pontiac Lake State Recreation Area and Highland Lake State Recreation Area, via the M-59 trailway. This route is included in the Oakland County Greenways Plan and should include state and regional financial participation. Construction of the trailway is expected to occur over several years.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0006	Oxbow/M-59 Park	New Construction	51	MDOT-EG; P&RF; MSRSP	\$964,000	\$464,000	\$500,000

Project Description

Expansion of recreational land is critical to meet the needs of both existing and future residents, especially as vacant land becomes scarcer and the Township’s population continues to grow. This mini-park site is anticipated to serve as a rest stop and possibly a trailhead along the M-59 Pathway.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0008	Hidden Pines Park Phase II	New Construction	80	MNRTFG; P&RF, Passport Grant	\$389,000	\$224,000	\$165,000

Project Description

This property would be further developed using the Hidden Pines Park Master Plan that was completed in 2012. Improvements would include a playground as well as other park amenities.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0009	Teggerdine Trail Development Design	New Construction	78	MNRTFG, P&RF	\$150,000	\$150,000	-

Project Description

The Teggerdine Road Pathway would connect M-59 in the south to Indian Springs Metro Park in the north. This pathway would provide access at certain points to the Pontiac Lake Recreation Area. This pathway would connect to regional pathways through Indian Springs Metro Park, and through the potential development of a trail inside of the ITC transmission corridor in White Lake.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0010	Bloomer Park Phase II	New Construction	60	MNRTFG, P&RF	\$305,000	\$105,000	\$200,000

Project Description

With the completion of Bloomer Park's Phase I redevelopment in 2013 the Township seeks to complete the restoration of the northern half of the park. The second phase of development would include completing the improved pathway network and providing other park amenities including park benches.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0011	Community / Central Park	Land Acquisition & New Construction	80	MDOT-EG; P&RF; MSRSP	\$600,000	\$250,000	\$350,000

Project Description

Expansion of recreational land is critical to meet the needs of both existing and future residents, especially as vacant land becomes scarcer and the Township's population continues to grow. This mini-park site is anticipated to serve as a rest stop and possibly a trailhead along the M-59 Pathway.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PK-0012	Stanley Park	New Construction	91	MNRTFG; P&RF; GF; Donations	\$3,250,000	\$1,750,000	\$1,500,000

Project Description

Expansion of recreational land is critical to meet the needs of both existing and future residents, especially as vacant land becomes scarcer and the Township's population continues to grow. This property is unique with frontage on Brendel Lake and location adjacent to the future Township Civic Center.

4e. CIP Components - Police Department

Overview

The Township Police Department provides a variety of vital services to Township residents. The costs of operations and the demand for services create financial circumstances that are difficult to predict. In this CIP, special police equipment is listed as projects. Standard police cars are included as Internal Services under Fleet.

Police Department operations are funded by a major special revenue fund. Potential funding for projects can be from Police Fund balance, grants such as Homeland Security, drug forfeitures. The Police also have a four year operating millage that will collect until the end of 2021.

On the following page, each of the Police Department projects are listed along with their cost and potential funding sources.

CHARTER TOWNSHIP OF WHITE LAKE CAPITAL IMPROVEMENTS PLAN PROJECT SUMMARY POLICE DEPARTMENT (PD)							
PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
PD-0002	Mobile Command Center	New Equipment	65	Grants; Drug Forfeitures	\$151,000	\$151,000	\$--
<p><u>Project Description</u> A Mobile Command Center is a vehicle-based police facility, usually built around a motor home chassis. It allows command officers to provide on-scene command and control of large scale events or catastrophes.</p>							

4f. CIP Components - Sanitary Sewerage Disposal System

Overview

Sanitary Sewerage Disposal Systems do not currently provide service to all Township residents. Sewerage Disposal Systems that do exist are operated by the Water Resources Commissioner for Oakland County.

The Township does not have a Sanitary Sewerage Disposal Enterprise Fund listed in the 2019 Comprehensive Annual Financial Report (CAFR). The CAFR does list a General Sewer Fund as a non-major special revenue fund for the Township.

Potential sources of funding for projects are the General Sewer Fund, Special Assessment District (SAD), State Revolving Fund (SRF) loan program or contributions from General Fund.

On the following page, each of the Sanitary Sewerage Disposal projects are listed along with their cost and potential funding sources.

CHARTER TOWNSHIP OF WHITE LAKE
CAPITAL IMPROVEMENTS PLAN
PROJECT SUMMARY
Sanitary Sewer (SS)

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
SS-0005	Western Outlet Sanitary Extension Phase Two	New Construction	80	SAD, SRF	\$2,240,000	\$2,240,000	\$--

Project Description
The proposed project will provide public force main sewer from the HVS Lakeland Campus north to M-59. The scope of the project will include the placement of 12" HDD directionally drilled pressure sewer (force main) with related appurtenances, pipe rework within the temporary diversion district, traffic control, pavement replacement, and restoration.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
SS-0006	Pump Station at Lakeland	New Construction	110	SAD, SRF	\$500,000	\$500,000	\$--

Project Description
Installation of intermediate booster pumping station on sanitary sewer force main consisting of two submersible pumps and building housing controls and generator.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
SS-0007	Meijer Pump Station Upgrade/ Replacement	Rehabilitation	130	SAD, SRF	\$250,000	\$250,000	\$--

Project Description
Replacement of pumping equipment, controls, and addition of VFD's (Variable Frequency Drive). VFD's will provide better system control and operational cost savings.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
SS-0008	Sanitary Sewer Pump Stations (7)	Rehabilitation	139	SAD, SRF	\$350,000	\$350,000	\$--

Project Description
Replacement of pumping equipment, controls, and addition of VFD's (Variable Frequency Drive). VFD's will provide better system control and operational cost savings.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
SS-0009	SCADA Equipment for Pump Stations	New Construction	143	SAD, SRF	\$200,000	\$200,000	\$--

Project Description
Upgrade SCADA at eight sanitary sewage pump stations to provide the Township real time data for operation, alarms, and control.

CHARTER TOWNSHIP OF WHITE LAKE CAPITAL IMPROVEMENTS PLAN PROJECT SUMMARY Sanitary Sewer (SS)							
PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
SS-0010	Shotwell Gravity Rehabilitation	Rehabilitation	137	SAD, SRF	\$350,000	\$350,000	\$--
<p><u>Project Description</u> Reline nine hundred (900') feet of gravity sewer line along Shotwell, and replace manhole structures as needed.</p>							

4g. CIP Components - Water Supply System

Overview

The Municipal Water Supply System that is owned and operated by the Township and administered by the Water Department does not provide service to all Township residents. The Municipal Water Supply System derives its water from underground aquifers and is used for fire protection and domestic consumption. Many areas of the Township currently operate with private wells as their source of potable water supply.

The Township has a Water Enterprise Fund listed in the 2019 Comprehensive Annual Financial Report (CAFR). This Water Fund is managed by the Township Water Department.

Potential sources of funding for Water Supply projects are the Water Fund balance, Drinking Water Revolving Fund (DWRP), revenue bonds, special assessment districts (SAD's), or contributions from General Fund.

On the following page, each of the Water Supply projects are listed along with their cost and potential funding sources.

CHARTER TOWNSHIP OF WHITE LAKE
CAPITAL IMPROVEMENTS PLAN
PROJECT SUMMARY
WATER SUPPLY (WS)

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0004	Twin Lakes I Well Replacement and Upgrades	Rehabilitation	126	DWRF, WF	\$423,675	\$407,675	\$16,000

Project Description
The Township proposes to install a new well and pump at Twin Lakes I well site to replace the smaller capacity well at the site. This will require discussion with the MDEQ water bureau, site investigation using test/production well(s) to evaluate aquifer capacities, engineering design, permitting, identifying funding sources, contract administration and construction.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0008	Aspen Meadows Iron Filtration and Sewer Connection	New Construction	125	DWRF	\$5,500,000	\$5,500,000	\$--

Project Description
The Township proposes to install a new iron filtration and sewer connection at Aspen Meadows well site. The iron filtration will help reduce iron and manganese at the lower used well house (about 6% of total water pumped) and second highest iron amount.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0010	SCADA Tower Replacement and GENSET	Rehabilitation	80	WF, DWRF	\$52,000	\$52,000	\$--

Project Description
Replace Supervisory Control and Data Acquisition (SCADA) Tower at Water Office with a new tower, romex cable, new cement pad with anchors and locate at least 170 feet to the east on Highland Road. The current tower is twenty five years old and is oxidizing at the bolts and bottom tower brackets. The current tower is near the end of its life cycle. Also, the Water Department will need to upgrade the onsite gen set to backup the SCADA system.

CHARTER TOWNSHIP OF WHITE LAKE CAPITAL IMPROVEMENTS PLAN PROJECT SUMMARY WATER SUPPLY (WS)							
PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0011	Water Main Extension Bogie Lake Road (M-59 to Cedar Island)	New Construction	90	WF,DWRF	\$3,750,000	\$3,750,000	\$--

Project Description
 12-Inch Diameter Water Main Extension along Bogie Lake Road from M-59 to the south to Cedar Island Road or Lakeland High School Campus bolts and bottom tower brackets. The current tower is near the end of its life cycle. Also, the Water Department will need to upgrade the onsite gen set to backup the SCADA system.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0012	6-Inch Water Main Replacement (9,000ft)	Rehabilitation	114	WF, DWRF	\$2,275,000	\$2,275,000	\$--

Project Description
 Replace 6-inch diameter water main in Colony Heights, Twin Lakes Village, and Suburban Knolls for better system pressures and fire flows.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0015	Twin Lakes Well House Upgrades	Rehabilitation	108	WF, DWRF	\$1,000,000	\$1,000,000	\$--

Project Description
 Update controls, piping, and instrumentation to allow efficient operation of the Twin Lakes well house.

CHARTER TOWNSHIP OF WHITE LAKE
CAPITAL IMPROVEMENTS PLAN
PROJECT SUMMARY
WATER SUPPLY (WS)

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0017	High Pressure Districts Elizabeth Lake Road	New Construction	90	WF, DWRF	\$3,125,000	\$3,125,000	\$--

Project Description

The interconnect will allow the high pressure district to utilize both elevated towers for storage at Aspen Meadows and Village Acres well houses for water supply. This will increase system reliability.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0018	Residual Chlorine Analyzer for Water Towers	New Construction	146	WF, DWRF	\$50,000	\$50,000	\$--

Project Description

Residual Chlorine Analyzers will allow monitoring of water quality both in an out of the Townships water towers. It will allow adjustments of chlorine feed rates to maintain minimum chlorine residuals throughout the water system as required by regulations.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0019	Meter Replacement	Rehabilitation	82	WF, DWRF	\$1,000,000	\$1,000,000	\$--

Project Description

The water system meters in older subdivisions are reaching or exceeding their useful life. As meters age they deteriorate and develop inaccuracies in readings. Replacing meters will provide homeowners with the proper readings and provide accurate billing of water usage.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0021	Repaint Water Tower 1	Rehabilitation	127	WF, DWRF	\$150,000	\$150,000	\$--

Project Description

Exterior overcoat polyurethane paint. Dry interior partial repaint

CHARTER TOWNSHIP OF WHITE LAKE
CAPITAL IMPROVEMENTS PLAN
PROJECT SUMMARY
WATER SUPPLY (WS)

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0022	Repaint Water Tower 2	Rehabilitation	127	WF, DWRF	\$152,000	\$152,000	\$--

Project Description
Exterior overcoat polyurethane paint. Dry interior partial repaint.

PROJECT NUMBER	PROJECT TITLE	CATEGORY	RATING	FUNDING	PROJECT COST	TOWNSHIP SHARE	OTHER FUNDS
WS-0023	Backhoe Machine	New Equipment	74	WF, DWRF	\$100,000	\$100,000	\$--

Project Description
Purchase a Backhoe Machine to assist in day to day department operations.



Appendix

Excerpt from the Michigan Planning Enabling Act of 2008:

**MICHIGAN PLANNING ENABLING ACT (EXCERPT)
Act 33 of 2008**

**125.3865 Capital improvements program of public structures and improvements;
preparation; basis.**

Sec. 65.

(1) To further the desirable future development of the local unit of government under the master plan, a planning commission, after adoption of a master plan, shall annually prepare a capital improvements program of public structures and improvements, unless the planning commission is exempted from this requirement by charter or otherwise. If the planning commission is exempted, the legislative body either shall prepare and adopt a capital improvements program, separate from or as a part of the annual budget, or shall delegate the preparation of the capital improvements program to the chief elected official or a nonelected administrative official, subject to final approval by the legislative body. The capital improvements program shall show those public structures and improvements, in the general order of their priority, that in the commission's judgment will be needed or desirable and can be undertaken within the ensuing 6-year period. The capital improvements program shall be based upon the requirements of the local unit of government for all types of public structures and improvements. Consequently, each agency or department of the local unit of government with authority for public structures or improvements shall upon request furnish the planning commission with lists, plans, and estimates of time and cost of those public structures and improvements.

(2) Any township may prepare and adopt a capital improvement program. However, subsection (1) is only mandatory for a township if the township, alone or jointly with 1 or more other local units of government, owns or operates a water supply or sewage disposal system.

History: 2008, Act 33, Eff. Sept. 1, 2008

Charter Township of White Lake Capital Improvement Plan – Project Application

Project Title: [Click here to enter text.](#)
Program Area: [Choose an item.](#)
Prepared By: [Click here to enter text.](#)
Date Prepared: [Click here to enter a date.](#)
CIP ID #: [Click here to enter text.](#)

Project Description: Provide a brief (1-2 paragraph) description of project:

[Click here to enter text.](#)

Planning Context: Is the project part of an Adopted Program, Policy or Plan?

Yes or No

[Choose an item.](#) If yes, identify Program, Policy or Plan

[Click here to enter text.](#)

List the adopted program or policy, and how this project directly or indirectly meets these objectives:

[Click here to enter text.](#)

Planning Context: Is the Township Legally Obligated to perform this service? (E.G. Federal or State Law, Consent Judgment, etc.)

Yes or No

[Choose an item.](#)

If yes, please describe Township’s Obligation:

[Click here to enter text.](#)

Schedule: Estimated project beginning and ending dates. If project will take several years to complete, fill out Form 2. If applicable, be sure to include any work done in prior years, including studies or other planning:

[Click here to enter text.](#)

Coordination: Please identify if this project is dependant upon one or more other CIP projects, and describe what the relationship is:

[Click here to enter text.](#)

Project Priority: Low, Medium, High

[Choose an item.](#) Priority within Program Area

[Choose an item.](#) Priority for the Township

Capital Improvement Plan – Project Application

Prior Approval: Is this project included the prior year’s budget?
Has this project been approved by the Township Board, Commission or Authority?

Yes or No
Choose an item.
If Yes, Choose an item.

Total Estimated Cost: In today’s dollars (Amount shown here should agree with total on Form 2)

Click here to enter text.
List all funding options available for this project.

Click here to enter text.

Recommended funding option(s) to be used? (i.e: Operating Revenues, Grants, Fund Balance, Bond Issue etc...)

Click here to enter text.

Basis of Cost Estimate: Please check the following

Choose an item.

Impacts. Describe potential loss of service, benefit or opportunity if the project is not included in the C.I.P.

Click here to enter text.

Project ID Category

CHARTER TOWNSHIP OF WHITE LAKE
Capital Improvement Plan
Project Cost Detail

Project Construction Components	Prior Year	Budget Year	Budget Year 2	Budget Year 3	Budget Year 4	Budget Year 5	Budget Year 6	Totals	TWP Share
Preliminary Engineering								\$ -	-
Right of Way or Easement Services								\$ -	-
Land Acquisition								\$ -	-
Geotechnical Engineering								\$ -	-
Environmental Services								\$ -	-
Contractor payments								\$ -	-
Construction Engineering								\$ -	-
Depreciable equipment or facilities								\$ -	-
Post Construction Monitoring								\$ -	-
Finance Costs								\$ -	-
Other Construction Costs								\$ -	-
Total Construction Cost	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Operating Costs									
Contracted Services								0	
Staff								0	
Routine Maintenance								0	
Utilities, Insurance, Communication								0	
Other								0	
Total Operating Cost	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Project Cost	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

10/5/2009

WLT_Project Costing Form template template

CHARTER TOWNSHIP OF WHITE LAKE Capital Improvement Plan Project Evaluation Form		Project ID		
Rater Name:	Score Range	Rater Score	Weight	Total Points
1. Contribution to Health, Safety & Welfare			5	0
Eliminates a known hazard (accident history)	5			
Eliminates a potential hazard	4			
Materially contributes	3			
Minimally contributes	1			
No impact	0			
2. Project Needed to Comply with Local, State or Federal Law				5
Yes	5			
No	0			
3. Project Conforms to Adopted Program, Policy or Plan			4	0
Project is consistent with adopted City Council policy or plan	5			
Project is consistent with Administrative policy	3			
No policy / plan in place	0			
4. Project Remediates as Existing or Projected Deficiency			3	0
Completely Remedy Problem	5			
Partially Remedy Problem	3			
No	0			
5. Will Project Upgrade Facilities			3	0
Rehabilitates / upgrades existing facility	5			
Replaces existing facility	3			
New facility	1			
6. Contributes to Long-term Needs of Community			2	0
More than 30 years	5			
21 - 30 years	4			
11 - 20 years	3			
4 - 10 years	2			
3 years or less	1			
7. Annual Impact on Operating Costs Compared to Operating Costs assuming the project proceeds			2	0
Net Cost Savings	5			
No Change	4			
Minimal increase (>\$25,000)	3			
Moderate Increase (\$25,000 - \$100,000)	2			
Major Increase (>\$100,000)	1			
8. Annual Impact on Operating Costs Compared to Operating Costs assuming the project does not proceed				2
Major Impact (> \$100,000)	5			
Moderate Impact (\$50,000 - \$100,000)	3			
Minor Impact (\$25,000-\$50,000)	2			
Minimal Impact (< \$25,000)	1			
None	0			
9. Service Area of Project				2
Regional	5			
Township-Wide	4			
Several neighborhoods	3			
One neighborhood or less	1			
10. Department Priority			2	0
High	5			
Medium	3			
Low	1			
11. Project Delivers Level of Service Desired by Community			2	0
High	5			
Medium	3			
Low	1			



Project Number	Project Title	Category	Rating	Potential Funding Sources	Summary		To Date		Budget Year 2022		Budget Year 2023		Budget Year 2024		Budget Year 2025		Budget Year 2026		Budget Year 2027		Remarks		
					Project Total	Township Share	Other Funding	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total		Township Share	
PARKS & RECREATION	BP-0002	M-59 Pathway (Phase I)	Rehabilitation	98	MDOT-EG, P&RF	\$ 455,000	\$ 155,000	\$ 300,000	\$ -	\$ -	\$ 450,000	\$ 150,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	MDOT-EG Funding (\$300,000)	
	BP-0003	M-59 Pathway (Phase II)	Rehabilitation	98	MDOT-EG, P&RF	\$ 454,000	\$ 154,000	\$ 300,000	\$ -	\$ -	\$ 32,000	\$ 32,000	\$ 418,000	\$ 118,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	MDOT-EG Funding (\$300,000)
	BP-0004	M-59 Pathway (Phase III)	Rehabilitation	98	MDOT-EG, P&RF	\$ 453,000	\$ 153,000	\$ 300,000	\$ -	\$ -	\$ -	\$ -	\$ 32,000	\$ 32,000	\$ 418,000	\$ 118,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	MDOT-EG Funding (\$300,000)
	BP-0005	Union Lake Road Pathway	New Construction	98	MNRTFG, RCOCTP, P&RF	\$ 598,000	\$ 348,000	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ 45,000	\$ 45,000	\$ 550,000	\$ 300,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	MNRTFG & RCOCTP Funding (\$250,000)
	BP-0006	Bogge Lake Road Pathway	New Construction	83	MDOT-EG, P&RF, MSRSP	\$ 1,474,000	\$ 874,000	\$ 600,000	\$ -	\$ -	\$ 1,020,000	\$ 670,000	\$ 450,000	\$ 200,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	MDOT-EG & MSRSP Funding (\$600,000)
	PK-0002	Four Seasons Trail (Phase I)	New Construction	67	MNRTFG, P&RF, USDOT	\$ 455,000	\$ 155,000	\$ 300,000	\$ -	\$ -	\$ 450,000	\$ 150,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	MNRTFG Funding (\$300,000)
	PK-0003	Four Seasons Trail (Phase II)	New Construction	67	MNRTFG, P&RF, USDOT	\$ 455,000	\$ 180,000	\$ 275,000	\$ -	\$ -	\$ 450,000	\$ 175,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	MNRTFG Funding (\$275,000)
	PK-0004	Four Seasons Trail (Phase III)	New Construction	67	MNRTFG, P&RF, USDOT	\$ 254,000	\$ 104,000	\$ 150,000	\$ -	\$ -	\$ -	\$ -	\$ 250,000	\$ 100,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	MNRTFG Funding (\$150,000)
	PK-0006	OxbowM-59 Park	New Construction	51	MDOT-EG, P&RF, MSRSP	\$ 964,000	\$ 464,000	\$ 500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 389,000	\$ 220,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	MNRTFG & MSRSP Funding (\$175,000)
	PK-0008	Hidden Pines Park Development	New Construction	80	MNRTFG, P&RF	\$ 389,000	\$ 224,000	\$ 165,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 389,000	\$ 220,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	MNRTFG & MSRSP Funding (\$175,000)
	PK-0009	Tepperdine Trail Development Design	New Construction	78	MNRTFG, P&RF	\$ 150,000	\$ 150,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	PK-0010	Bloomer Park Phase II Development	New Construction	60	MNRTFG, P&RF	\$ 304,000	\$ 104,000	\$ 200,000	\$ -	\$ -	\$ -	\$ -	\$ 300,000	\$ 100,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	MNRTFG Funding (\$200,000)
	PK-0011	Community / Central Park	New Construction	80	MNRTFG, P&RF	\$ -	\$ -	\$ 350,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	PK-0012	Stanley Park	New Construction	91	MNRTFG, P&RF, GF, Donations	\$ 3,250,000	\$ 1,750,000	\$ 1,500,000	\$ -	\$ -	\$ 1,250,000	\$ 750,000	\$ -	\$ -	\$ 1,000,000	\$ 500,000	\$ -	\$ -	\$ 1,000,000	\$ 500,000	\$ -	\$ -	\$ -
BP-0009	Triangle Trail Development	New Construction	96	Grant(s), P&RF	\$ 607,500	\$ 507,500	\$ 100,000	\$ -	\$ -	\$ 607,500	\$ 507,500	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	
Subtotals					\$ 10,262,500	\$ 5,322,500	\$ 5,290,000	\$ -	\$ -	\$ 4,259,500	\$ 2,434,500	\$ 2,038,000	\$ 969,000	\$ 1,977,000	\$ 927,000	\$ 11,000	\$ 11,000	\$ 1,011,000	\$ 511,000	\$ 1,575,000	\$ 725,000		
WATER SUPPLY	WS-0004	Twin Lakes I Well House Upgrades	Rehabilitation	126	DWRF, WF	\$ 423,675	\$ 407,675	\$ 16,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 408,675	\$ 392,675	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	
	WS-0008	Aspen Meadows Ion Filtration and Sewer connection	Rehabilitation	87	DWRF, WF	\$ 5,500,000	\$ 5,500,000	\$ -	\$ -	\$ -	\$ 1,000,000	\$ 1,000,000	\$ 2,500,000	\$ 2,500,000	\$ 2,000,000	\$ 2,000,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000
	WS-0010	SCADA Tower Replacement and GENSET	Rehabilitation	82	WF, DWRF	\$ 52,000	\$ 52,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 52,000	\$ 52,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	WS-0011	Water Main Extension Bogie Lake (M-59 to Cedar Island)	New Construction	90	DWRF, WF	\$ 3,750,000	\$ 3,750,000	\$ -	\$ -	\$ -	\$ 1,400,000	\$ 1,400,000	\$ 2,346,000	\$ 2,346,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000
	WS-0012	6-inch diameter Water Main Replacement (9,100 ft.)	Rehabilitation	114	DWRF, WF	\$ 2,275,000	\$ 2,275,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,275,000	\$ 2,275,000
	WS-0015	Twin Lakes I Well House Upgrades	Rehabilitation	108	DWRF, WF	\$ 1,000,000	\$ 1,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,000,000	\$ 1,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	WS-0017	Interconnection of High Pressure Districts (Elizabeth Lake Road)	New Construction	90	DWRF, WF	\$ 3,125,000	\$ 3,125,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,125,000	\$ 3,125,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	WS-0018	Residual Chlorine Analyzers @ both Towers	New Construction	146	DWRF, WF	\$ 50,000	\$ 50,000	\$ -	\$ -	\$ -	\$ 50,000	\$ 50,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	WS-0019	Residential and Commercial Meter Replacement w/ AMR System	Rehabilitation	82	DWRF, WF	\$ 1,000,000	\$ 1,000,000	\$ -	\$ -	\$ -	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	
	WS-0021	Repaint Water Tower 1	Rehabilitation	127	DWRF, WF	\$ 150,000	\$ 150,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 150,000	\$ 150,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WS-0022	Repaint Water Tower 2	Rehabilitation	127	DWRF, WF	\$ 152,000	\$ 152,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 152,000	\$ 152,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
WS-0023	Backhoe Machine	New Equipment	74	DWRF, WF	\$ 100,000	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 98,000	\$ 98,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	
Subtotals					\$ 14,904,675	\$ 12,342,675	\$ 16,000	\$ -	\$ -	\$ 2,650,000	\$ 2,650,000	\$ 5,046,000	\$ 2,500,000	\$ 3,661,675	\$ 3,645,675	\$ 3,336,000	\$ 3,336,000	\$ 211,000	\$ 211,000	\$ 2,287,000	\$ 2,287,000		
SANITARY	SS-0005	Western Outlet Sanitary Extension, Phase II	New Construction	87	SAD, SRF	\$ 948,000	\$ 948,000	\$ -	\$ -	\$ -	\$ 928,000	\$ 928,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	
	SS-0006	Pump Station at Lakeland High School (when necessary)	New Construction	110	SAD, SRF	\$ 500,000	\$ 500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 125,000	\$ 125,000	\$ 125,000	\$ 125,000	\$ 125,000	\$ 125,000	\$ 125,000	\$ 125,000	\$ 125,000	\$ 125,000	
	SS-0007	Upgrades & Equipment Replacement of Meijer Pump Station	Rehabilitation	130	SAD, SRF	\$ 250,000	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 62,500	\$ 62,500	\$ 62,500	\$ 62,500	\$ 62,500	\$ 62,500	\$ 62,500	\$ 62,500	\$ 62,500	\$ 62,500	
	SS-0008	Upgrades & Equipment Replacement of 7 Sanitary Sewage Pump Stations	Rehabilitation	143	SAD, SRF	\$ 350,000	\$ 350,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	\$ 87,500	
	SS-0009	SCADA Equipment to Monitor Sanitary Sewage Pump Stations (x8)	New Construction	143	SAD, SRF	\$ 200,000	\$ 200,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	
SS-0010	Showell Gravity Sewer Rehabilitation	Rehabilitation	137	SAD, SRF	\$ 350,000	\$ 350,000	\$ -	\$ -	\$ -	\$ 350,000	\$ 350,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Subtotals					\$ 2,598,000	\$ 2,598,000	\$ -	\$ -	\$ -	\$ 928,000	\$ 928,000	\$ 330,000	\$ 330,000	\$ 330,000	\$ 330,000	\$ 330,000	\$ 330,000	\$ 330,000	\$ 330,000	\$ 330,000	\$ 330,000	\$ 330,000	
P. D.	PD-0002	Mobile Command Center	New Equipment	65	Grants, Drug Forfeitures	\$ 151,000	\$ 151,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 148,000	\$ 148,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000
Subtotals					\$ 151,000	\$ 151,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 148,000	\$ 148,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000
FIRE	FD-0002	Fire Station No 2 Replacement	New Construction	140	Grant, Bond Issue, BA	\$ 2,001,000	\$ 2,001,000	\$ -	\$ -	\$ -	\$ 50,000	\$ 50,000	\$ 1,900,000	\$ 1,900,000	\$ 17,000	\$ 17,000	\$ 17,000	\$ 17,000	\$ 17,000	\$ 17,000	\$ 17,000	\$ 17,000	
	FD-0006	Fire Ladder Truck	New Equipment	108	FPF	\$ 900,000	\$ 900,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 900,000	
	FD-0008	Fire Tanker Truck	New Equipment	120	FPF	\$ 500,000	\$ 500,000	\$ -	\$ -	\$ -	\$ 500,000	\$ 500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	FD-0009	Fire Station No 3 Improvement	New Construction	112	Grant, Bond Issue, BA, GF	\$ 1,000,000	\$ 1,000,000	\$ -	\$ -	\$ -	\$ 1,000,000	\$ 1,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	FD-0016	Cardiac Monitors (x2)	New Equipment	84	FPF	\$ 70,000	\$ 70,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 70,000	\$ 70,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	FD-0017	Structural Firefighting Gear (27 sets)	New Equipment	102	FPF	\$ 70,000	\$ 70,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 70,000	\$ 70,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	FD-0018	Ambulance Replacement (2 existing units)	New Equipment	112	FPF	\$ 440,000	\$ 440,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 440,000	\$ 440,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotals					\$ 4,981,000	\$ 4,981,000	\$ -	\$ -	\$ -	\$ 1,550,000	\$ 1,550,000	\$ 1,970,000	\$ 1,970,000	\$ 17,000	\$ 17,000	\$ 87,000	\$ 87,000	\$ 1,357,000	\$ 1,357,000	\$ 1,357,000	\$ 1,357,000	
FACILITIES	FA-0006	Public Safety Headquarters	New Construction	110	Grant, Bond Issue, PDF, FPF, GF	\$ 20,020,000	\$ 20,020,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 20,000,000	\$ 20,000,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	
	FA-0007	Township Civic Building	New Construction	96	Grant, GF, Bond Issue	\$ 12,020,000	\$ 12,020,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 12,000,000	\$ 12,000,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,00					

PROJECT HISTORY

Project Number	Project Title	Category	Rating	Potential Funding Sources	Summary		To Date		Budget Year 2011		Budget Year 2012		Budget Year 2013		Budget Year 2014		Budget Year 2015		Budget Year 2016		Budget Year 2017		Remarks		
					Project Total	Township Share	Other Funding	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total		Township Share	
PARKS & RECREATION	BP-0001	M-59 Pathway, Across the Huron River (North)	New Construction	99	HUD Grant (\$147,000); P&RF	\$ 201,300	\$ 54,300	\$ 147,000	\$ 19,800	\$ 19,800	\$ 62,500	\$ 15,500	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	Project Cancelled for new location		
	PK-0001	Bloomer Park Redevelopment	Rehabilitation	72	MNRTFG; P&RF	\$ 444,000	\$ 94,000	\$ 350,000			\$ 30,000	\$ 30,000	\$ 407,500	\$ 57,500	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	Completed project		
	BP-0007	M-59 Pathway, Across the Huron River (North)	New Construction	99	HUD Grant (\$147,000); P&RF	\$ 226,660	\$ 39,830	\$ 147,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Completed project	
WATER SUPPLY	WS-0001	Mid-East M-59 and Cranberry Meadows Water	New Construction	124	DWRF, WF	\$ 1,481,000	\$ 890,000	\$ 591,000	\$ 192,000	\$ 115,000	\$ 258,000	\$ 155,000	\$ -	\$ -	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	Completed project		
	WS-0002	Huronale Booster Pump Station	New Construction	96	DWRF, WF	\$ 257,000	\$ 155,000	\$ 102,000	\$ 40,000	\$ 24,000	\$ -	\$ -	\$ -	\$ -	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	Completed project		
	WS-0003	East M-59 and Pontiac Lake Road Water Main	New Construction	105	DWRF, WF	\$ 872,000	\$ 524,000	\$ 348,000	\$ 112,000	\$ 67,000	\$ -	\$ -	\$ -	\$ -	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	Completed project		
	WS-0005	Update the Auto Meter Read System	Rehabilitation	124	WF	\$ 50,000	\$ 50,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Completed project	
	WS-0009	Hydrant Standardization	Rehabilitation	125	WF, FPF	\$ 50,000	\$ 50,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Project reduced in scope and value; deleted from CIP	
	WS-0013	VFD Installation on seven Well Pumps	Rehabilitation	123	DWRF, WF	\$ 140,000	\$ 140,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Completed project	
WS-0014	SCADA System Updates at seven sites	Rehabilitation	146	DWRF, WF	\$ 52,500	\$ 52,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Completed project		
SEWER	SS-0001	M-59 East Sanitary Sewer	New Construction	101	SRF, SF	\$ 223,000	\$ 223,000	\$ -	\$ 16,000	\$ 16,000	\$ -	\$ -	\$ -	\$ -	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	Completed project		
	SS-0002	M-59 Mid-East	New Construction	99	SRF, SF	\$ 148,000	\$ 148,000	\$ -	\$ 10,000	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	Completed project		
	SS-0003	Western Outlet Sanitary Extension, Phase I	New Construction	87	SAD, SRF	\$ 978,015	\$ 978,015	\$ -	\$ -	\$ -	\$ 25,000	\$ 25,000	\$ 928,015	\$ 928,015	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	Completed project		
	SS-0004	Infrastructure Geospatial Mapping	Prof. Services	112	WF, SF, GF	\$ 80,000	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Project Removed	
FIRE	FD-0003	Fire Station No3 Replacement	New Construction	140	Grant, Bond Issue, BA	\$ 1,351,000	\$ 1,351,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,300,000	\$ 1,300,000	\$ 17,000	\$ 17,000	\$ 17,000	\$ 17,000	\$ 17,000	\$ 17,000	\$ 17,000	Replaced with FD-0009; Addition to existing Fire Station		
	FD-0004	Fire Station No1 Replacement	New Construction	110	Grant, Bond Issue, BA	\$ 3,131,000	\$ 3,131,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,000,000	\$ 3,000,000	\$ 17,000	\$ 17,000	\$ 38,000	\$ 38,000	\$ 38,000	\$ 38,000	\$ 38,000	\$ 38,000	Project Replaced with FA-0005	
	FD-0005	Fire Pumper Truck (x3)	New Equipment	108	FPF	\$ 1,694,000	\$ 1,694,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,680,000	\$ 1,680,000	\$ 7,000	\$ 7,000	\$ 7,000	\$ 7,000	\$ 7,000	\$ 7,000	Completed project	
	FD-0007	Fire Pumper Truck	New Equipment	108	FPF	\$ 439,000	\$ 439,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 425,000	\$ 425,000	\$ 7,000	\$ 7,000	\$ 7,000	\$ 7,000	\$ 7,000	\$ 7,000	Project Removed. Combined with FD-0005	
	FD-0010	Ambulances (2 each) , medium duty	New Equipment	117	FPF	\$ 346,000	\$ 346,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 320,000	\$ 320,000	\$ 8,000	\$ 8,000	\$ 9,000	\$ 9,000	\$ 9,000	\$ 9,000	\$ 9,000	\$ 9,000	Completed project	
	FD-0012	Administrative Vehicles (x2)	New Equipment	80	FPF, GF	\$ 60,000	\$ 60,000	\$ -	\$ 60,000	\$ (60,000)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Completed project
	FD-0013	Rescue 1 Refurbishment	Rehabilitation	143	FPF	\$ 175,000	\$ 175,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Completed project
	FACILITIES	FA-0001	Multi-Purpose Operation Building	New Construction	99	GF, Bond Issue, BA	\$ 12,000,000	\$ 12,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 500,000	\$ 500,000	\$ 5,000,000	\$ 5,000,000	\$ 6,500,000	\$ 6,500,000	\$ -	\$ -	\$ -	\$ -	Project on-hold being replaced with FA-0004
		FA-0002	New Township Library	New Construction		GF, Bond Issue, BA																			
		FA-0003	Senior Center Building Addition	New Construction	80	GF, Bond Issue, BA																			
FA-0004		Township Hall Renovations	Rehabilitation	107	GF, Bond Issue, BA	\$ 7,000,000	\$ 7,000,000																	Project Replaced with FA-0007	
FD-0001	New Police Building	New Construction	103	Grant, Bond Issue, BA																				Project Replaced with FA-0006	
IS	IS-0001	Digitized Documents (Storage & Retrieval)	Internal Services	80	GF	\$ 80,000	\$ 80,000	\$ -	\$ -	\$ -	\$ 10,000	\$ 10,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	Project reduced in scope and value; deleted from CIP	
	IS-0003	Senior Shuttle Bus	New Equipment	93	GF, Grant, Donations	\$ 130,000	\$ 130,000	\$ -	\$ -	\$ -	\$ 10,000	\$ 10,000	\$ 11,000	\$ 11,000	\$ 12,000	\$ 12,000	\$ 13,000	\$ 13,000	\$ 14,000	\$ 14,000	\$ 13,000	\$ 13,000	\$ 14,000	\$ 14,000	

- Abbreviations
- Building Authority BA
 - Drinking Water Revolving Fund DWRF
 - Fire Protection Fund FPF
 - General Fund GF
 - Federal Housing and Urban Development HUD
 - Michigan Dept of Transportation Enhancement Grant MDOT-EG
 - Michigan Natural Resources Trust Fund grant MNRTFG
 - Michigan Safe Routes to Schools Program MSRSP
 - Parks & Recreation - Special Township Revenue Fund P&RF
 - Road Commission Tri-party Program RCOCTP
 - Special Assessment District SAD
 - Sewer Fund (Township Enterprise Fund) SF
 - State Revolving Fund SRF
 - United States Department of Transportation USDOT
 - Water Fund Township (Enterprise Fund) WF

PROJECT HISTORY

Project Number	Project Title	Category	Rating	Potential Funding Sources	Summary			To Date		Budget Year 2018		Budget Year 2019		Budget Year 2020		Budget Year 2021		Budget Year 2022		Budget Year 2023		Budget Year 2024		Budget Year 2025		Budget Year 2026		Status	
					Project Total	Township Share	Other Funding	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share	Project Total	Township Share		Project Total
PARKS & RECREATION	PK-007	Brendel Lake Campground Acquisition	51	MNRTFG; P&RF	\$ 1,372,400	\$ 483,000	\$ 889,400	\$ -	\$ -	\$ -	\$ -	\$ 1,372,400	\$ 483,000	\$ -	\$ -	\$ -	\$ -	\$ 300,000	\$ 117,000	\$ 250,000	\$ 57,000	\$ 150,000	\$ 57,000					Project Completed (MNRTFG)	
	PK-005	Brendel Lake Property Acquisition	58	MNRTFG; P&RF	\$ 700,000	\$ 231,000	\$ 469,000																					Replaced by PK-007	
	BP-008	Triangle Trail Development Design	96	Grant (\$50,000); P&RF	\$ 55,000	\$ 5,000	\$ 50,000								\$ 55,000	\$ 5,000												Project Completed	
WATER SUPPLY	WS-0016	Hillview Well House Upgrades	108	DWRF, WF	\$ 400,000	\$ 400,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 400,000	\$ 400,000														Project Completed	
	WS-0020	Twin Lakes II Well House Upgrades	127	DWRF, WF	\$ 178,000	\$ 178,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 170,000	\$ 170,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000				Project Completed	
	WS-007	Additional Tank No. 1 Feed	71	WF	\$ 90,000	\$ 90,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,000	\$ 8,000	\$ 82,000	\$ 82,000									Project Removed
SANITARY					\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
					\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
					\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
P.D.																													
FIRE PROTECTION	FD-001	Fire Station Land Acquisition	113	Grant, Bond Issue, BA	\$ 500,000	\$ 500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 500,000	\$ 500,000														Project Removed	
	FD-011	SCBA Replacement	137	FPF, Grant	\$ 856,000	\$ 856,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 350,000	\$ 350,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000			\$ 500,000	\$ 500,000						Project Completed	
	FD-012	Administrative Vehicles (x2)	80	FPF, GF	\$ 60,000	\$ 60,000	\$ -	\$ 60,000	\$ (60,000)	\$ 60,000	\$ 60,000	\$ 60,000																	
	FD-013	Rescue One Refurbishment	143	FPF, GF	\$ 60,000	\$ 60,000	\$ -	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000																	
	FD-014	Rescue Air Boat	75	FPF, GF	\$ 100,000	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 100,000	\$ 100,000													Project Removed
	FD-015	Fire Station No 3 Transporting Unit / Ambulance	112	FPF	\$ 220,000	\$ 220,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 220,000	\$ 220,000												Project Removed
FACILITIES	FA-005	Municipal Facilities (All Departments)	107	GF, Bond Issue, Grant	\$ 20,325,000	\$ 20,325,000	\$ -	\$ -	\$ -	\$ 175,000	\$ 175,000	\$ 20,000,000	\$ 20,000,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	Replaced by FA-006 & FA-007	
I.S.					\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		

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