



**CITY OF AVON LAKE
PLANNING COMMISSION
150 Avon Belden Road
Avon Lake, Ohio 44012
(440) 930-4110**

**AGENDA
Tuesday, November 4, 2025
7:00 PM
City Council Chambers**

Voting Order

C. Raymond
G. Smith
M. Spaetzel
R. Haas
J. Leitch
H. Ma
S. Orille

ROLL CALL:

Mr. Haas, Mr. Leitch, Dr. Ma, Mr. Orille, Mrs. Raymond, Mr. Smith, Mayor Spaetzel, Director of Law Ebert, Engineer Howard, Community Development Director Esborn, and Planning and Zoning Manager La Rosa.

1. **APPROVAL OF OCTOBER 7, 2025, MEETING MINUTES
APPROVAL OF OCTOBER 7, 2025 WORK SESSION MINUTES**
2. **GENERAL CORRESPONDENCE/ANNOUNCEMENTS**
3. **COUNCIL REPORT**
4. **SWEARING IN PUBLIC COMMENTORS**
5. **NEW CASES**

Case No. CPC-25-17, Pulte Homes of Ohio, LLC, Major Subdivision, Improvement Plan for Harbor Crest Townhouse Subdivision No. 1 located at the southeast corner of Walker Road and Avon-Belden Road (State Route 83).

Applicable Code Sections: 1214.05: Major Subdivision and 1238: Subdivision Design Standards apply. Based on a recommendation from the Planning Commission to the City Council, this application will be placed on the City Council agenda at its next regularly scheduled meeting.

Case No. CPC-25-18, Pulte Homes of Ohio, LLC, Major Subdivision, Improvement Plan for Harbor Crest Townhouse Subdivision No. 2 located at the southeast corner of Walker Road and Avon-Belden Road (State Route 83).

Applicable Code Sections: 1214.05: Major Subdivision and 1238: Subdivision Design Standards apply. Based on a recommendation from the Planning Commission to the City Council, this application will be placed on the City Council agenda at its next regularly scheduled meeting.

6. **OTHER BUSINESS**

Appointment of Historic Preservation Commission Representation

7. **GENERAL PUBLIC COMMENT**
8. **ADJOURNMENT**

The next regular meeting of the Planning Commission is Tuesday, December 2, 2025.

MINUTES OF THE AVON LAKE
PLANNING COMMISSION MEETING
OCTOBER 7, 2025

A regular meeting of the Avon Lake Planning Commission was called to order on October 7, 2025, at 7:00 P.M. in Council Chambers with Chairperson Ma presiding.

ROLL CALL

Present for roll call were Mr. Haas, Dr. Ma, Mr. Leitch, Mr. Orille, Mrs. Raymond, Mr. Smith, Mayor Spaetzel, Director of Law Ebert, Community Development Director Esborn, and Planning & Zoning Manager LaRosa.

APPROVAL OF MINUTES

The minutes from the September 3, 2025, Planning Commission meeting were presented for approval.

Mr. Haas moved, and Mr. Leitch seconded to approve the September 3, 2025, meeting minutes as presented/amended. Motion carried (7-0).

GENERAL CORRESPONDENCE & ANNOUNCEMENTS

There were no announcements or correspondence presented.

COUNCIL REPORT

Mr. Smith reported that two items are on the City Council's upcoming agenda for third reading 1) the historic landmark designation for the red aircraft warning beacon formerly mounted atop the Avon Lake Power Plant Smokestack; and 2) Avon Center Estates No. 2, Phase 6 Improvement Plan.

SWEARING IN PUBLIC COMMENTERS

Director of Law Ebert administered the oath to all individuals wishing to speak before the Commission.

NEW CASES

Case No. CPC-25-16, Rotz Investments, LLC, Zoning Map Amendment for Parcel No. 04-00-006-135-071, located on the west side of Moore Road north of Walker Road, rezoning from B-2 General Business District to R-1A, Single-Family Residence District. Applicable Code Section 1214.02 Code Text and Map Amendment apply.

Mr. Jim Sayler of the Henry G. Reitz Engineering Company explained that the 2.4-acre parcel, with approximately 400 feet of frontage on Moore Road, has been unsuccessfully marketed for commercial use. Given the surrounding residential development and continued demand for single-family housing, the applicant is requesting rezoning to R-1A to allow for the potential creation of four single-family lots. He noted that the parcel depth varies between 250 and 300 feet, following

the alignment of Powdermaker Creek, and that the site is bordered by single-family residential uses to the north and east, with a small commercial parcel to the south also owned by Mr. Rotz. Mr. Sayler added that the proposed rezoning would be consistent with adjacent land uses and would not constitute spot zoning.

During the discussion, the Commission asked for clarification on several parts of the proposal, including the frontage length noted in staff comments, the parcel size and lot layout, and possible development patterns after rezoning. Mr. Sayler confirmed that the 2.38-acre parcel could support four 100-foot-wide lots and that future home construction would probably vary based on buyers but might include side-entry garages and deeper setbacks for privacy. Questions were raised about the existing drainage ditch near Powdermaker Creek, with the applicant confirming it is an outlet from the nearby commercial property and does not pose floodplain or wetland issues. It was further clarified that the lots will likely be sold individually once rezoning is approved.

Mr. Haas moved, and Mrs. Raymond seconded to recommend approval of Case No. CPC-25-16, Rotz Investments, LLC, Zoning Map Amendment for Parcel No. 04-00-006-135-071 located on the west side of Moore Road north of Walker Road, rezoning from B-2 General Business District to R-1A Single Family Residence District finding that the proposed zoning map amendment is consistent with the residential character of the surrounding area, provides an appropriate transition between adjacent land uses, and supports the goals of the Comprehensive Plan by maintaining a residential designation along Moore Road. Motion carried (7-0).

Mr. Sayler asked about the legislative process. It was clarified that the item would be introduced to the City Council on October 14, 2025, for first reading, and a public hearing will be required at a subsequent Council or Committee of the Whole meeting before final action.

OTHER BUSINESS

There were no other businesses presented.

GENERAL PUBLIC COMMENTS

No public comments were offered.

ADJOURNMENT

Mr. Hass moved, and Mayor Spaetzel seconded to adjourn the meeting at 7:16 pm. Motion carried (7-0).

Planning Commission
Chairperson Ma

Recording Secretary
Kelly La Rosa

MINUTES OF THE AVON LAKE
PLANNING COMMISSION WORK SESSION MEETING
OCTOBER 7, 2025

A work session of the Avon Lake Planning Commission was called to order on October 7, 2025, at 7:20 PM in Council Chambers with Chairperson Ma presiding.

ROLL CALL

Present for roll call were Mr. Haas, Dr. Ma, Mr. Leitch, Mr. Orille, Mrs. Raymond, Mr. Smith, Mayor Spaetzel, Director of Law Ebert, Community Development Director Esborn, and Planning & Zoning Manager La Rosa.

1. Elysium Café, Zoning Map Amendment

Iir Lama, the applicant and owner of Elysium Café, appeared to discuss the potential rezoning of two residential parcels immediately south of the café property, which would allow for additional parking and a planned restaurant expansion.

Mr. Lama began by describing the existing conditions of the property and his vision for the expansion. The café currently operates along Lake Road, near Fay Avenue, and an existing masonry building is located behind the main coffee shop on the same parcel. The applicant explained that this rear structure, which is currently vacant, could be converted into a small restaurant featuring a full kitchen, seating for approximately twenty guests inside, and an outdoor pergola or patio area accommodating an additional fifteen seats. He stated that the restaurant would serve handmade pasta and other Italian dishes, with an emphasis on fresh preparation and a relaxed dining experience.

Mr. Esborn explained that he and Mr. Page met with Mr. Lama and his architect, Gary Fischer, to discuss possible configurations for the site. Because the café's parking lot is limited, the applicant is considering acquiring two adjoining residential parcels to the south to use for expanded parking. However, those parcels are zoned R-1C Single-Family Residence District, so their use for commercial parking would require a rezoning. The purpose of this work session was to gauge whether the Planning Commission might be open to such a rezoning before the applicant proceeds with purchasing the lots.

Commission members expressed strong appreciation for the success of Elysium Café and the applicant's desire to reinvest in Avon Lake. Several members commented that the café has become a community asset and that expanding its offerings could enhance the local business environment.

Questions focused first on how the new restaurant would function in relation to the existing coffee shop. The applicant clarified that the two uses would operate on different schedules—coffee service primarily in the morning and afternoon, and restaurant service during evening hours, likely closing by 10:00 p.m. This would allow the two businesses to share parking without overlap in peak demand.

Members asked about potential impacts to the adjacent residence on Fay Avenue, particularly noise, lighting, and late-evening activity. The applicant responded that he plans to provide a substantial landscaped buffer of at least 20 feet between the parking area and the neighboring property, with additional plantings or fencing if necessary. He also noted that dumpster placement and service times would be carefully considered to minimize disturbance.

Commissioners then asked for details about the rear structure, including its condition and adaptability. The applicant said that the building is structurally sound, equipped with electrical and gas service, and suitable for renovation. Only a small two-car garage attached to the rear would be demolished to improve access and circulation.

A key point of discussion arose when several members questioned whether the café's expansion could be accomplished without purchasing or rezoning the two residential parcels. One commissioner suggested that the applicant and his architect revisit the overall site layout to determine whether existing space could be reorganized to meet parking and circulation needs within the current commercial property. Ideas included reconfiguring the parking lot, shifting the patio location, or removing decorative stone and landscaping areas to gain a usable parking surface.

The applicant was receptive to this feedback, agreeing to work with his architect to explore whether a redesign could achieve his goals while avoiding the need for a rezoning. Commissioners emphasized that keeping the project within the boundaries of the existing business-zoned parcel would help protect the residential character of Fay Avenue, reduce potential neighborhood concerns, and likely streamline future approvals.

Additional questions were raised regarding potential alcohol service. The applicant explained that the café's previous owner retained a wine license, which may be transferred, but that his current intent is limited to serving beer and wine.

Mr. Esborn clarified that if a rezoning is pursued, the B-1 General Business District would be the most appropriate and least intensive classification, limiting future commercial uses on the site. Furthermore, if the café property and any newly acquired parcels were consolidated, the parking lot would be considered an accessory use, eliminating the need for a conditional use permit.

The Commission concluded by expressing appreciation for the applicant's willingness to adapt the proposal based on feedback. The applicant agreed to review parking and layout alternatives with his architect and return with a refined concept.

2. Case No. CPC-25-15, Shire Glen Green Management LLC, Major Subdivision Preliminary Plat for Calvary Court Subdivision located northeast of the Lear Road and Krebs Road intersection.

Engineer Kevin Hoffman of Polaris Engineering and developer Ed Pavicic presented the concept for the 9.3-acre site located northeast of the intersection of Lear Road and Krebs Road. Mr. Hoffman explained that the property is currently zoned R-1A Single-Family Residence District, and the plan presented is consistent with that zoning. The proposed layout includes 14 single-family lots, each designed to meet or exceed minimum area and frontage requirements. Lots 4

through 14 are standard frontage lots along the new cul-de-sac, while Lots 1 through 3 are configured differently due to the site's shape and an existing driveway easement.

Mr. Hoffman noted that Lot 3 fronts directly on Krebs Road, while Lots 1 and 2 are accessed by a shared private drive that would also serve an adjacent property owner to the south. The purpose of the shared drive, he explained, is to limit the number of new curb cuts on Krebs Road and preserve traffic safety.

Mr. Hoffman also discussed coordination with Avon Lake Regional Water and the Service Department regarding utility connections. The City had requested looping the water line to Lear Road, which the applicant incorporated into the latest plan. The sanitary sewer extension remains under review, as a recent update from Avon Lake Regional Water indicated that a connection from Krebs Road may not provide adequate basement service due to elevation differences. The development team will continue coordinating with the City to identify the best routing option before formal submission.

Mr. Pavicic provided additional background on the project's evolution. He explained that he had previously attempted to acquire adjoining land to the north to allow for a larger subdivision or an additional road connection, but was unable to reach an agreement with the property owner. As a result, the proposed design maximizes the potential of the property while maintaining full code compliance.

Commission members generally agreed that the standard lots (4 through 14) were well designed, but several expressed concern about the configuration of Lots 1 through 3. Multiple members questioned whether the City's zoning code allows flag lots, noting that the code may prohibit them outright unless a variance is granted. Members also raised practical concerns about emergency access, garbage collection, and vehicle circulation on the shared private drive.

Law Director Ebert confirmed that flag lots are not permitted under the zoning code without a variance, and that the proposed layout would likely require additional review or redesign to comply.

Other commissioners asked how mail delivery and addressing would work for those lots, and whether the shared drive would be maintained through a homeowners' association (HOA). Mr. Hoffman replied that the development would include an HOA responsible for stormwater facilities and maintenance of the shared drive, and that the drive's width (20 feet) had been reviewed by the Fire Department to ensure sufficient emergency access.

The discussion then shifted to the site's wetlands, topography, and drainage. Mr. Hoffman confirmed that a wetland delineation had been completed and that the layout avoids the wetland area behind Lot 4. Detention would be provided through an on-site stormwater basin located near the northeast corner of the site.

Commissioners also discussed potential traffic and access issues. Mr. Haas asked whether the existing stub street from Schiller Court could eventually be extended to connect with the site. Mr. Pavicic said that while he had attempted to acquire the intervening parcel to allow that connection,

the property owner declined to sell, making such an extension infeasible at this time.

Mr. Hoffman reviewed specific lot frontages, noting that all standard lots meet the 100-foot minimum when measured at the rear setback line, even where curves created narrower frontage at the street.

Mr. Pavicic then introduced a broader idea for consideration: whether the project might be eligible for the city's Residential Planned Development (RPD) zoning option, which allows greater flexibility in lot layout, open space design, and community amenities. He explained that under the current R-1A zoning, the project yields 14 lots, but under an RPD framework, he could potentially add modest neighborhood features such as small parks or a clubhouse while maintaining overall low density. Staff responded that the RPD designation requires a minimum of 15 acres, though the Planning Commission has discretion to consider smaller parcels in medium- or high-density areas identified in the Comprehensive Land Use Plan. Because this property is designated as low-density residential, applying RPD standards would be difficult and might require both a zoning amendment and a variance. Several commissioners agreed that introducing a brand-new zoning tool on a small project might not be advisable, but they appreciated the applicant's willingness to explore creative planning approaches. Mr. Esborn recalled that a prior proposal for this same property, an assisted-living facility, had been denied several years earlier by the Zoning Board of Appeals after seeking a use variance.

Overall, the Commission supported ongoing refinement of the subdivision plan but highlighted the importance of resolving the flag lot issue, confirming utility service feasibility, and clarifying maintenance responsibilities for the private drive. The applicant agreed to continue coordinating with city staff and will submit an updated design that addresses the concerns raised.

3. SolSmart, NOPEC Cohort

Mr. Esborn explained that the SolSmart program, funded by the U.S. Department of Energy, helps cities evaluate and update their local codes to make solar energy installation easier for residents and businesses. As part of Avon Lake's participation, a team of technical reviewers from SolSmart, working through their national partners, conducted a comprehensive review of the City's Planning and Zoning Code to identify any provisions that might unintentionally limit solar energy use.

Mr. Esborn explained that the SolSmart reviewers analyzed the zoning code line by line, focusing on definitions, permitted uses, height limitations, and lot coverage standards related to solar installations. Their findings were compiled into a report prepared by Mrs. La Rosa, which was included in the meeting packet.

He told the Commission that this discussion served two purposes: first, to meet the program requirement of presenting the code review publicly, and second, to allow the Commission to react to the specific recommendations. The report identified several areas for improvement, including clarifying the definition of solar energy systems, exempting rooftop solar panels from height limits, and excluding ground-mounted systems from lot coverage requirements when they are installed over permeable ground. The reviewers also noted that Avon Lake's code currently does not contain

a process or standards for large-scale solar facilities, which could be added to create a clearer permitting pathway.

Mr. Esborn stated that his view was to treat the SolSmart review as an opportunity to learn how the city compares to other communities and to identify where Avon Lake might consider small adjustments in the future.

Commission members discussed the findings. One member asked how often the City receives applications for solar panels. Mr. Esborn responded that Building Official Austin Page has handled a few, but they are infrequent. Another commissioner asked whether any applications had been denied under the current code; Mr. Esborn said not to his knowledge.

Several commissioners noted that many of the recommendations appeared to concern topics not currently posing problems in Avon Lake. Mr. Orille remarked that some of the suggested changes seemed a little broad, while Mrs. Raymond observed that because technology evolves quickly, it might be better to leave the code somewhat flexible rather than making detailed changes now that could require future revisions. Mr. Smith agreed, pointing out that the zoning code had been comprehensively updated in 2022 and that reopening major sections may not be necessary at this point.

Mayor Spaetzel commented that much of the review aligns with Avon Lake's current practice simply because the code doesn't specifically prohibit solar installations. He said he does not see evidence that the City's current regulations are preventing residents or businesses from adding solar systems. Mr. Haas compared the situation to the City's prior discussion about backyard chickens, suggesting that Avon Lake should observe what similar communities do before adopting major changes. He also suggested focusing on the industrial districts first if solar use expands. Mr. Leitch asked about the practical value of participating in SolSmart, and Mr. Esborn responded that the primary benefit is having access to comparative data and best practices from other cities, as well as regular workshops and guidance on solar permitting. Mrs. Raymond followed by asking whether there was a tangible benefit to achieving SolSmart designation, such as funding or recognition. Mr. Esborn said the designation primarily serves as a benchmarking tool and does not currently include direct financial incentives.

The consensus of the Commission was to continue participating in the SolSmart program to gain information from peer communities, but to hold off on any zoning code amendments until there is a demonstrated need.

4. Historic Planning Commission, Appointment

Mr. Haas explained that the Planning Commission has one designated non-voting representative who serves on the Historic Preservation Commission. He currently holds that position, having stepped in following the passing of a former member who had been active in both architecture and historic preservation.

Mr. Haas described the work of the Historic Preservation Commission (HPC) as meaningful but manageable, noting that it meets approximately eight times per year, takes a short summer and

winter recess, and generally conducts efficient meetings lasting about an hour. The HPC primarily reviews applications from property owners seeking historic designation for homes identified on a county-generated list of structures built in the early 1900s or earlier. He said that while many of the most eligible properties have already been designated, the Commission continues to work with residents who express interest and partners with the Avon Lake Historical Society on preservation projects and artifact collection.

He added that serving on the HPC is an opportunity to learn about the city's history and stay connected with community preservation efforts. The workload is light, with minimal preparation time required for meetings.

Following Mr. Haas's summary, Mrs. Raymond volunteered to serve as the next Planning Commission representative on the Historic Preservation Commission once Mr. Haas's term concludes. Mr. Haas and other Commission members thanked her for volunteering.

Mr. Esborn and Mayor Spaetzel noted that staff will begin the process of identifying a replacement for Mr. Haas on the Planning Commission later this year, as his term is nearing completion. The group briefly discussed the typical appointment process, which includes public notice, submission of a letter of interest or résumé, and interviews conducted by the City Council.

With no further discussion, the meeting concluded.

Planning Commission
Chairperson Ma

Recording Secretary
Kelly La Rosa



HARBOR CREST TOWNHOUSE SUBDIVISION NO. 1 - IMPROVEMENT PLAN

Report

To: Avon Lake Planning Commission

From: Kelly La Rosa, Planning and Zoning Manager

Date: October 29, 2025

Re: Case No. CPC-25-17, Pulte Homes of Ohio, LLC, Major Subdivision, Improvement Plan for Harbor Crest Townhouse Subdivision No. 1 located at the southeast corner of Walker Road and Avon-Belden Road (State Route 83).

PROJECT OVERVIEW

Pulte Homes of Ohio, LLC, is seeking approval of the Improvement Plan for Harbor Crest Townhouse Subdivision No. 1, a 73-unit fee-simple townhouse development on approximately 9.35 acres to be constructed in two phases. The request follows the Planning Commission's recommendation on August 5, 2025, for Preliminary Plat approval, consistent with the rezoning adopted in April 2025.

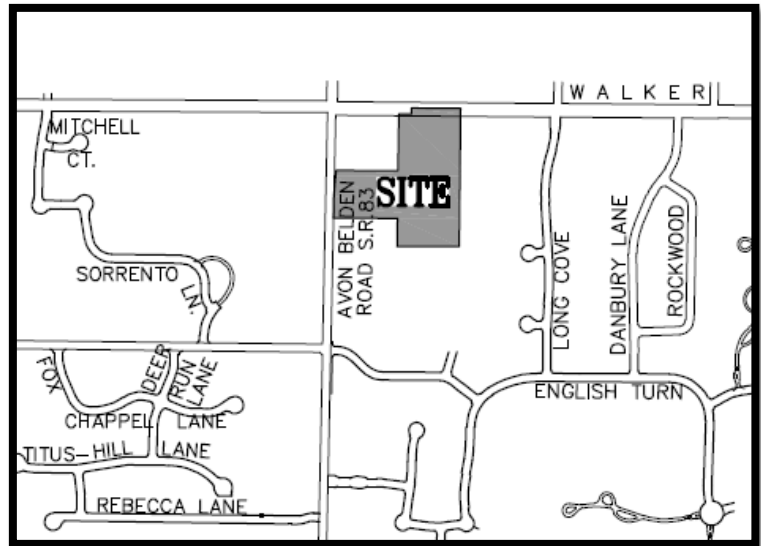


Figure 1: Vicinity Map

This phase establishes the physical and environmental infrastructure framework of grading, utilities, stormwater systems, and private street construction, necessary to initiate the residential development. The proposal demonstrates alignment with adopted municipal plans, including the Comprehensive Land Use Plan (CLUP) and the Master Thoroughfare Plan. It upholds the principle of ensuring development consistent with long-range community goals.



Planning Commission
Case No. CPC-25-17
Harbor Crest Subdivision No. 1
Site Plan Approval
October 29, 2025
Page 2 of 5

PROJECT DESCRIPTION

Owner: Pulte Homes of Ohio, LLC, 387 Medina Road, Medina

Applicant/Engineer: The Henry G. Rietz Engineering Co., 4214 Rocky River Dr., Cleveland

Location: The property is located at the southeast corner of Walker Road and Avon-Belden Road (State Route 83).

Approvals: The Planning Commission recommended rezoning the site to R-3 Multi-Family Residence on April 1, 2025, and later approved the Preliminary Plat on August 5, 2025.

Zoning: The site is zoned R-3 Multi-Family Residence.

Land Use: Townhouse residential use is permitted.

Density: The proposed density of 7.8 units per acre is within district standards.

Comprehensive Plan Alignment:

The Comprehensive Land Use Plan (CLUP) designates this area for Mixed Use and Single-Family Residential development, encouraging a blend of housing types that support a diverse and balanced community fabric. Although the site was subsequently rezoned to R-3 Multi-Family Residence, the proposed townhouse development remains compatible with the CLUP's Mixed-Use and Single-Family designations by introducing a compact, ownership housing form that complements adjacent single-family neighborhoods and promotes balanced residential growth.

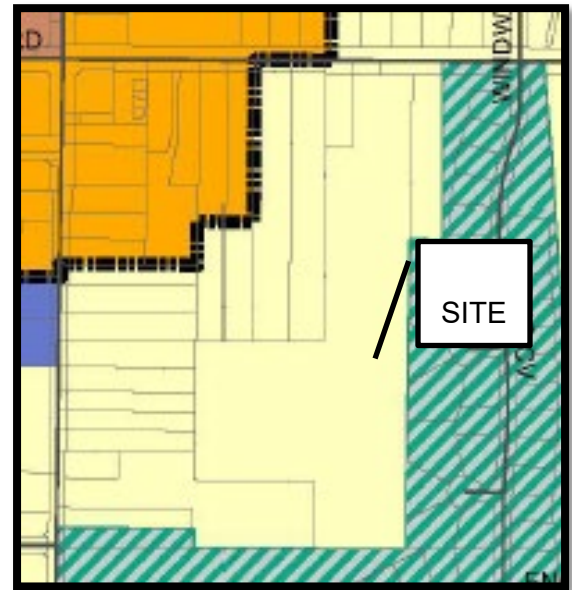


Figure 2: Excerpt from Avon Lake Zoning Map

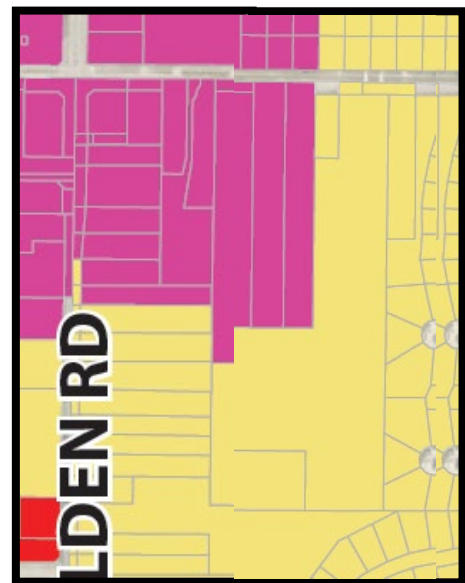


Figure 3: Excerpt from Avon Lake CLUP



Planning Commission
Case No. CPC-25-17
Harbor Crest Subdivision No. 1
Site Plan Approval
October 29, 2025
Page 3 of 5

Ownership and Maintenance:

In accordance with principles of long-term fiscal sustainability, all streets, open spaces, and shared facilities will be privately owned and maintained by the Homeowners Association (HOA), minimizing municipal maintenance obligations while ensuring coordinated management of common infrastructure.

APPLICABLE CODE SECTIONS

Section 1214.05: Major Subdivision

This section governs the review of major subdivisions, ensuring consistency with zoning regulations, thoroughfare planning, infrastructure requirements, and integration with existing documents.

Section 1238: Subdivision Design Standards

This section defines Subdivision Design Standards, including lot layout, block length, right-of-way configuration, utilities, sidewalks, landscaping, and connectivity.

PROJECT ANALYSIS

The submitted Improvement Plan has been evaluated for consistency with prior approvals, applicable zoning, and subdivision design standards. The proposed development consists of 73 fee-simple townhouse units arranged along new private streets, with each dwelling situated on its own lot. The site was rezoned to R-3 Multi-Family Residence in 2025, with the project density limited to the approved 73 units.

Consistent with conditions established during preliminary plat approval, the plan includes a dedicated left-turn lane for vehicles exiting onto Avon Belden Road, aligned with the existing bank entrance across the street. This improvement has been incorporated into the current submittal.

The Improvement Plan No. 1 reflects compliance with the City's subdivision regulations and the approved preliminary plat. Minor administrative adjustments may be required prior to final engineering sign-off, but the proposal remains consistent with all prior approvals and applicable development standards.



Planning Commission
Case No. CPC-25-17
Harbor Crest Subdivision No. 1
Site Plan Approval
October 29, 2025
Page 4 of 5

SUSTAINABILITY CONSIDERATIONS

The project demonstrates compliance with Avon Lake's stormwater management and water quality standards, employing best management practices recognized by the Ohio EPA. Key design features include stormwater retention basins to mitigate flooding and erosion, enhanced infiltration practices to promote groundwater recharge, and construction-phase sediment and waste controls to prevent off-site impacts. Following construction, permanent water quality basins provide continued treatment and contribute to long-term ecosystem health.

Development Review Committee

The Development Review Committee, including representatives from Community Development, Engineering, Building, Public Works, Avon Lake Regional Water, Fire, and Police, reviewed the Improvement Plan in accordance with § 1214.05. While departmental comments have been largely addressed, Engineering Department comments were received too late to allow for plan revisions before the meeting. As a result, those comments are not reflected in the current submittal but will be incorporated during the City Engineer's final approval process.

Additionally, a detailed landscape plan meeting City standards for buffering and overall site design shall be submitted to the Community Development Department for review and approval as part of the administrative follow-up process.

REVIEW AND RECOMMENDATION BY THE COMMISSION

To approve a major subdivision, the Commission's determination should address the following findings under §1214.05 of the Avon Lake Planning and Zoning Code.

The Commission must determine that:

- The major subdivision complies with all applicable provisions of this code;
- It does not conflict with other City regulations, plans, or policies;
- It is harmonious with the surrounding area and consistent with its intended character;
- It supports the Master Thoroughfare Plan and minimizes traffic congestion in public streets;
- It will not adversely affect public services;
- Review agency comments have been adequately considered and addressed; and
- It conforms to the approved preliminary Plat.

After reviewing the Improvement Plan, the Commission shall determine whether to return it to the applicant for revisions or to forward a recommendation to the City Council for approval, approval with conditions, or denial (with findings).



Planning Commission
Case No. CPC-25-17
Harbor Crest Subdivision No. 1
Site Plan Approval
October 29, 2025
Page 5 of 5

Potential Motions: The Commission must take formal action by motion. At least four affirmative votes are required for a recommendation of approval, or four negative votes for a recommendation of denial. The sample motion below is provided for reference and does not imply a recommendation or predetermined outcome.

I move to recommend to the City Council that Case No. CPC-25-17, submitted by Pulte Homes of Ohio LLC, Major Subdivision Improvement Plan for Harbor Crest Townhouse Subdivision No. 1, be approved, finding that the proposed subdivision complies with applicable zoning and subdivision regulations and serves the public interest, and will be subject to all Engineering Department comments being addressed to the satisfaction of the City Engineer.

SUBSEQUENT ACTION

Following the Planning Commission's recommendation, the Improvement Plan will be forwarded to the City Council for final consideration. If the Commission recommends denial, no further subdivision components may advance until an approval recommendation is issued.

ATTACHMENTS

- Final Improvement Plan Set (Revised)
- DRC Review Summary
- Application Materials

CPC-25-17

Planning Commission Application

Status: Active

Submitted On: 9/29/2025

Primary Location

32701 WALKER RD
AVON LAKE, OH 44012

Owner

WOODCRAFT PROPERTIES LTD
32741 WALKER RD AVON LAKE, OH
44012

Applicant

 James Sayler
 216-251-3033
 reitz@reitzeng.com
 4214 Rocky River Dr.
Cleveland, OH 44135

Property or Parcel Information

Zoning Classification

R-3

Present Use*

vacant

Type of Request*

Major Subdivision - Final Plat

General Description of Project*

Improvement Plans for two construction phases for the 73 unit townhouse project

Have you had your meeting with the Development Review Committee?*

Yes

Applicant Information

Applicant is the Property Owner or Property Owner's Designee.

Project Manager will be the person working closest with the plans and will be the main point of contact for the Planning Department's questions.

Applicant Role*

Subdivider

Applicant Name*

James Sayler

Address*

4214 Rocky River Dr.

City*

Cleveland

State*

OH

Zip*

44135

Phone*

216-251-3033

Email*

jts@reitzeng.com

Project Manager

James Sayler

Project Manager Phone

216-251-3033

Project Manager Email

jts@reitzeng.com

Property Owner Information

Name*

Woodcraft Prop. (& other Kopf entities)

Address*

420 Avon Belden Rd.

City*

Avon Lake

State*

OH

Zip*

44012

Phone*

440-933-6908

City Council Suspension/Emergency Request

New field

If three readings will be required, then suspension of the rule with an emergency clause will be requested so that construction may begin on the project with sufficient time to get the streets installed as soon as the 2026 spring paving season allows. The project has had sufficient time for review because it has already received two rounds of review by the administration and City Council in conjunction with the rezoning that was required as well as the approval of the Preliminary Subdivision Plat.

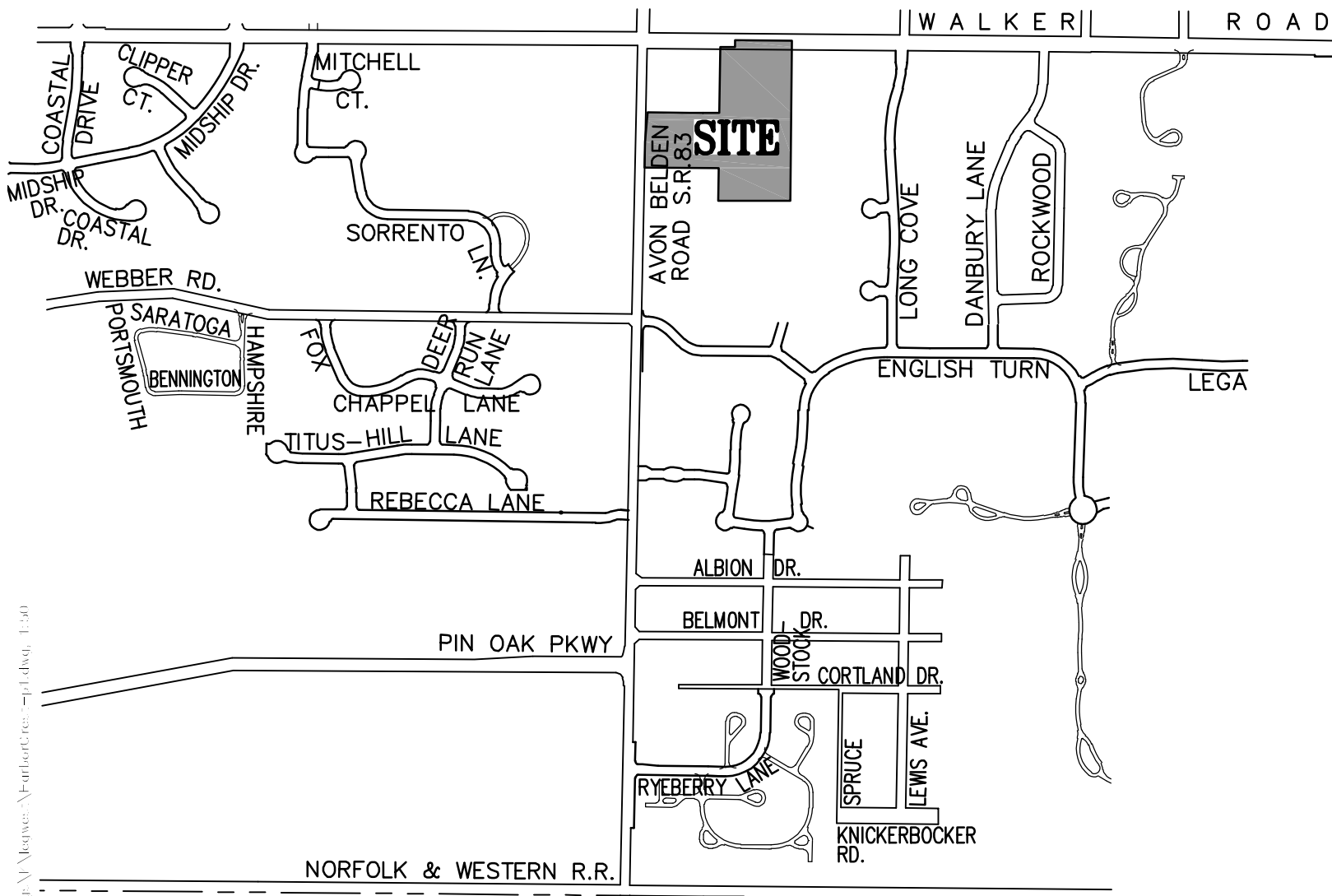
Signature

Applicant Signature*

✓ James Sayler
Sep 29, 2025

HARBOR CREST SUBDIVISION VICINITY MAP

BEING PART OF AVON TOWNSHIP SECTION NO. 17 NOW IN THE
CITY OF AVON LAKE, COUNTY OF LORAIN, STATE OF OHIO



Harbor Crest Townhomes

Applicant: Pulte Homes of Ohio

The Improvement Plans are being submitted as two construction phases for the proposed 73 townhouse project. The units will have fee simple footprint parcels abutting new private streets. The project land was granted a rezoning to R-3 with a density restriction to allow no more than the 73 units proposed. The plans are in compliance with the preliminary subdivision plat that was granted approval at the August 5, 2025 Planning Commission meeting. The plans include the condition of the approval that a left turn lane be provided for traffic exiting the project at Avon Belden Road that aligns with the entrance drive of the bank on the West side of Avon Belden Road.

The Henry G. Reitz Engineering Co.

by: James Sayler, President

Harbor Crest Townhomes

Applicant: Pulte Homes of Ohio

Sustainability Statement:

The project has been designed in accordance with Avon Lake storm water management and storm water quality standards to promote ecosystem health through flood and erosion reduction provided by a storm water retention basins, ground water replenishment provided through enhanced infiltration practices, sediment control and waste management strategies provided by construction site storm water management controls and post-construction water quality enhancements provided by water quality features included in the design of the water quality basins.

Zoning Review – Austin

Record No.CPC-25-17

Status On Hold

Became Active September 29, 2025

Assignee Austin Page

Due Date October 9, 2025

Primary Location

32701 WALKER RD
AVON LAKE, OH 44012

Owner

WOODCRAFT PROPERTIES LTD
32741 WALKER RD AVON LAKE, OH 44012

Applicant

 James Sayler
 216-251-3033
 reitz@reitzeng.com
 4214 Rocky River Dr.
Cleveland, OH 44135

Messages

Austin Page

October 8, 2025 at 1:39 pm

1. Add a note that all blocks are to be owned and maintained by HOA. 2. Add another note that the entrance/exit island to be maintained by HOA. 3. Please provide a plan depicting landscaping/buffering. Buffering is required where the property abuts single-family residential. Also depict any fencing throughout the development. 4. Depict/label proposed entrance signage.



BRAMHALL
ENGINEERING &
SURVEYING COMPANY

801 Moore Road • Avon, Ohio 44011 • 440/934-7878 • Fax 440/934-7879

Equal Opportunity • Affirmative Action Employer

October 28, 2025

Ted Esborn
Community Development Director
City of Avon Lake
150 Avon Belden Road
Avon Lake, Ohio 44012

Reference: Improvement Plans
Harbor Crest Townhouse Subdivision No. 1

Mr. Esborn:

On behalf of the City of Avon Lake we have reviewed the Improvement Plans submitted for Harbor Crest Townhouse Subdivision No. 1, as prepared by the Henry G. Reitz Engineering Company, and offer the following comments:

1. The Applicant will need to provide Autoturn Exhibits for Fire Truck movements at the Avon Belden Road (SR83) and Averi Lane intersection.
2. Concern with the location of the four (4) off-street parking spaces on Averi Lane near the S.R. 83 intersection. Could these spaces be moved west of Units 40 – 42?
3. Provide anti-seep collars or clay dams at all storm sewers discharging into the retention basin.
4. Provide Rock Channel protection type, size and dimensions at storm sewer discharge to retention basin.
5. Provide signage detail for handicap parking space.
6. Callout 18" storm sewer pipe, from basin outlet structure to proposed 2-3B inlet basin on S.R. 83, to be RCP.
7. Show proposed Stop Bar and Crosswalk at Averi Lane and S.R. 83 intersection.

8. The Stormwater Management Calculations and Storm Sewer Calculations are still under review and comments will be submitted under a separate letter.
9. See attached Stormwater Pollution Prevention Plan Checklist

If you have any questions, please call.

Sincerely,

BRAMHALL ENGINEERING & SURVEYING CO.
City of Avon Lake Consulting Engineers



Christopher L. Howard, P.E., CPESC
City Engineer



Storm Water Pollution Prevention Plan Checklist

City of Avon Lake

Project Name: Harbor Crest Townhouse Subdivision No. 1

SWP3 Reviewer: CLH

Date Reviewed: 10/28/25

Stormwater Pollution Prevention Review Checklist

	Review No. 1	Review No. 2	Review No. 3	Comments
Site Information				
Contact Information for Owner (Name, Phone Number, Address, and email)	√			
Contact Information for Site Operator (Name, Phone Number, Address, and email)	√			
Contact Information for Person Responsible for SWP3 Preparation and Modifications (Name, Phone Number, Address, and email)	√			
Title Sheet/Cover Page showing Project Title and Location	√			
Stormwater Pollution Prevention Plan Preparation Date	√			
Start and Stop Dates of Construction	X			
Description of the nature and type of construction	√			
Prior Land Use description	√			
Total Area of the Site	√			
Total Area of the Site to be Disturbed	√			
Area of Existing Impervious Area (Including Runoff Coefficient)	√			
Area of Proposed Imperious Area (Including Runoff Coefficient)	√			
Percent Increase of Imperviousness created by Project	√			
Soil Types present within Site Area (With Descriptions)	√			
List of Known Pollutant Discharge	√			
Description of onsite streams (e.g., prior channelization, bed instability or headcuts, channels on public maintenance, or natural channels).	N/A			
Name/Location of immediate receiving water and first subsequent receiving water. (If discharges to MS4 then list the ultimate discharge point of the MS4)	√			
Description and Rationalization of Post Construction BMP's (list existing post-construction BMP's if applicable)	√			
Post Construction Water Quality Calculations	√			
Grading and Stabilization Log	√			
SWP3 Amendment Log	√			
List of Contractors (including form/log for signatures)	√			
Implementation schedule that describes the sequence of major construction activities	√			
Ohio EPA NPDES Construction General Permit Number (If disturbed area is greater then 1 acre)	X			Required before starting construction.
List of all applicable Federal and State Permits	√			

Site Plans				
Limits of earth disturbing of the project	√			
Soil Type Boundary Limits	√			
Existing and Proposed Contours	√			
All wetlands, Riparian, and Flood Plain Limits (Including all conservation easements setbacks)	N/A			
Location of existing and planned buildings, roads, parking facilities and utilities	√			
Areas of Temporary and Permanent Stabilization	√			
Location of all Sediment Traps/Sediment Basins, including all storage volume calculations (Sediment Storage and Dewatering), and contributing drainage area	√			
Location of all Post Construction BMP's	√			
Design Details of Post Construction BMP's (including volume calculations, contributing drainage area,	√			
Location of all erosion and sediment control practices	√			
Areas designated for the storage or disposal of solid, sanitary, and toxic wastes (Including dumpster areas), areas designated for concrete truck washout, and areas for vehicle fueling	√			
Location of designated construction entrances where the vehicles will access the construction site	√			
Location of any areas of proposed floodplain fill, floodplain excavation, stream restoration or know temporary or permanent stream crossings	N/A			

Post-Construction Storm Water Management				
	Review No. 1	Review No. 2	Review No. 3	Comments
Maintenance Plans				
Has a long-term maintenance plan been developed or included in the SWP3 for maintenance of the structural post-construction BMP? <i>NOTE: The long-term maintenance plan must be developed and provided to the post-construction site operator.</i>	√			
Does the long-term maintenance plan include the following?				
(1) an entity designated for storm water inspection and maintenance responsibilities?	√			
(2) the routine and non-routine maintenance tasks to be undertaken?	√			
(3) a schedule for inspection and maintenance?	√			
(4) any necessary legally binding maintenance easements and agreements?	√			
(5) construction drawings or excerpts showing the facility plan view and profile, as well as details of the outlet(s)?	√			
(6) a map showing all access and maintenance easements?	√			
(7) a description of how pollutants will be removed and disposed of?	√			
Does the SWP3 include a structural post-construction BMP designed to release the water quality volume over a 24-hour to 48-hour time period?	√			
Calculation of Water Quality Volume (WQv)				
Is the calculation of the WQv shown? With correct values used for the following:	√			

OHC000005 – SWP3 Checklist

(a) runoff coefficient (R_v), where $R_v = 0.05 + 0.9i$ i = ratio of impervious surface	√			
(b) precipitation depth ($P = 0.9$ inches)?	√			
(c) and the drainage area (A) to the BMP?	√			
If the structural post-construction BMP will be used for sediment storage, does it include a sediment accumulation volume of at least 20% of the WQ_v ?	√			
If a regional storm water BMP will be used to meet the post-construction requirements, does it:				
(1) meet the design requirement for treating the WQ_v ?	N/A			
(2) have a legal agreement established with the BMP owner for long-term maintenance?	N/A			
Table 4a Do extended detention practices show an appropriate minimum drain time that shall not discharge more than the first half of the WQ_v in less than one-third of the drain time? <i>NOTE: Dry = 48 hr; Wet, wetland, permeable pavement, underground storage, and sand/media filtration min. 24, <72 hr.</i>	√			
Table 4a Do extended detention practices show appropriate design features? - Wetland and wet basins: permanent pool = 1 WQ_v - Dry, wet and wetland: sediment storage = 0.2 WQ_v - Dry: forebay and micro-pool or acceptable pretreatment and a protected outlet. Underground storage: acceptable pretreatment capable of $\geq 50\%$ TSS.	√			
Table 4b Do planned infiltrating practices show an appropriate maximum drain time? Note: Bioretention and infiltration basin ≤ 24 ; infiltration trench, permeable pavement and underground storage ≤ 48 hours.	N/A			
Table 4b Do planned infiltrating underground storage practices (for credit) show acceptable of pretreatment of $\geq 80\%$ TSS.	N/A			
Small Construction Activities ≤ 2 Acres If the SWP3 proposes to use an alternative BMP instead of a Table 4a or 4b practice,	N/A			
(1) does the SWP3 provide justification on why a standard BMP is infeasible and their use would prevent the project?	N/A			
(2) Is the alternative BMP acceptable to the local MS4 or jurisdiction?	N/A			
For construction of a previously developed area, was one of the following options used to as a post-construction practice:				
(a) 20% net reduction in the site's volumetric runoff coefficient?	N/A			
(b) a BMP sized to treat 20% of the WQ_v for the previously developed area using a standard BMP from Tables 4a or 4b?	N/A			
For construction involving both previously developed and undeveloped land, was equation 3 shown to calculate the WQ_v ? $WQ_v = 0.9\text{inches} * A * [(R_{v1} * 0.2) + (R_{v2} - R_{v1})]/12$	N/A			
If the SWP3 proposes to use runoff reduction methods to reduce the WQ_v or size of post-construction practices, are one of the following acceptable practices being used with appropriate credit? - Green Roof - Impervious Surface Disconnection - Rainwater Harvesting	N/A			

OHC000005 – SWP3 Checklist

• Bioretention Area/Cell • Infiltration Basin • Infiltration Trench • Permeable Pavement (Infiltration) • Underground Storage (Infiltration) • Grass Swale • Sheet Flow to Filter Strip Sheet Flow to Conservation Area				
Do practices meet Ohio EPA's Rainwater and Land Development Manual specifications?	√			

Additional Comments:

THE HENRY G. REITZ ENGINEERING CO.

Civil Engineers and Surveyors

James T. Sayler, P.E., P.S., *President*
Linda S. Rerko, *Sec.-Treas.*

4214 ROCKY RIVER DRIVE
CLEVELAND, OHIO 44135-1948

TELEPHONE: (216) 251-3033
EMAIL: reitz@reitzeng.com

October 29, 2025

Ms. Kelly LaRosa
Avon Lake Planning & Zoning Manager
150 Avon Belden Road
Avon Lake, OH 44012

Re: Harbor Crest Subdivision No. 1 Improvement Plans

Dear Ms. LaRosa:

The Improvement Plans have been revised in response to the comments received from the Zoning Department as noted below. In addition, revisions were made to the proposed mounding in response to an agreement reached with the adjacent commercial landowners to move mounding onto the 20' adjacent strip of land that is being added to the commercial parcels to bring them into compliance with setback regulations after the rezoning that was approved. The plans have been transmitted via the OpenGov online portal, and two sets of full-sized hard copies as well as 12 sets of reduced copies are also being delivered to your office.

1. A note was added to the lower left side of sheet 2 that indicates all common blocks are to be owned and maintained by the H.O.A.
2. A note was added to the lower left side of sheet 2 that indicates that the landscaped island at the entry is to be maintained by the H.O.A.
3. A landscape plan will be delivered to the City under separate cover.
4. The entrance sign depicted on sheet 2 was labeled and its details will be provided in the landscaping plan provided under separate cover.

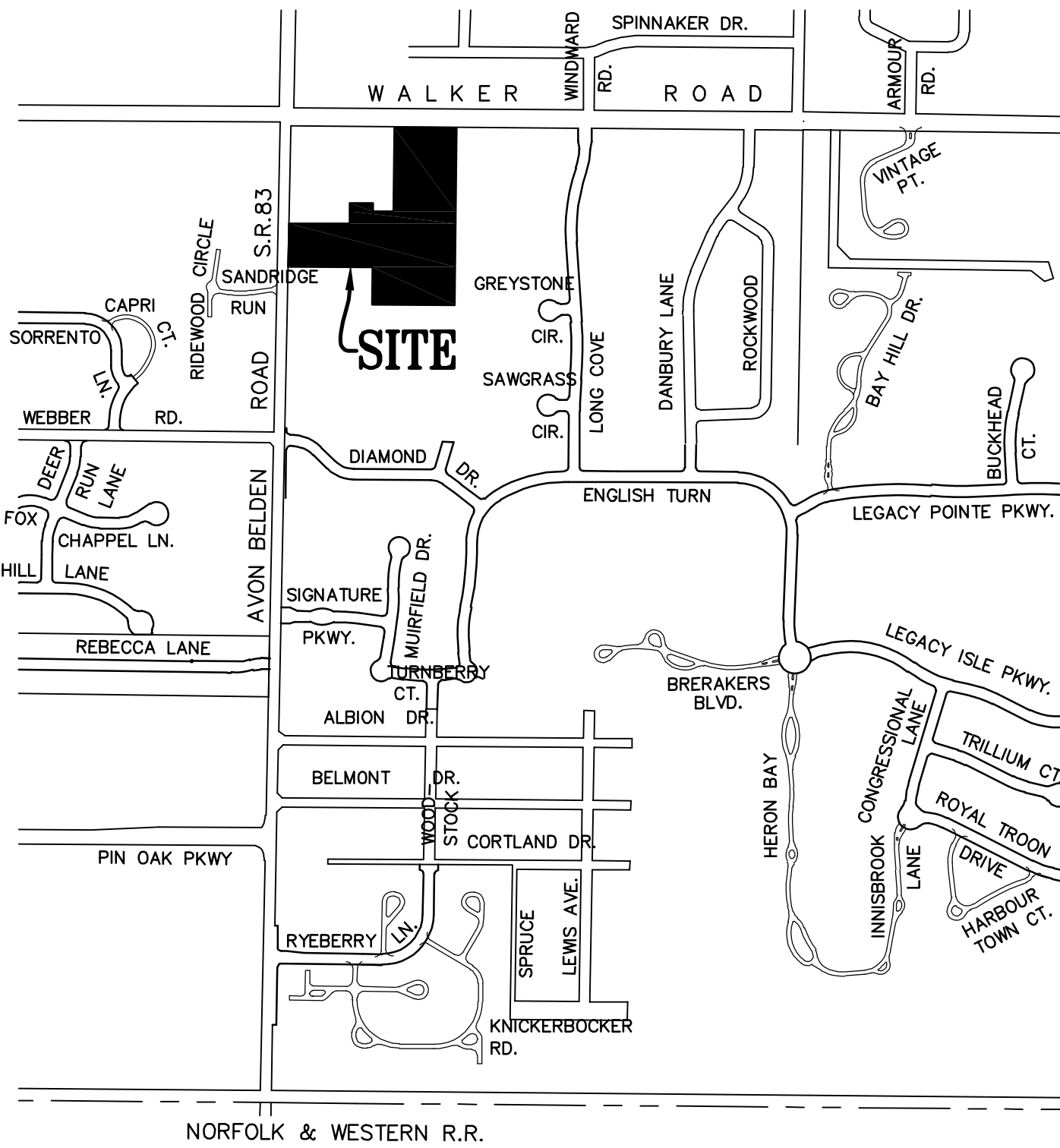
Very truly yours,
THE HENRY G. REITZ ENGINEERING CO.

By
James T. Sayler, President



IMPROVEMENT PLANS
FOR CONSTRUCTION PHASE 1
FOR 42 TOWNHOUSES
HARBOR CREST
TOWNHOUSE SUBDIVISION NO.1

BEING PART OF
ORIGINAL AVON TOWNSHIP SECTION NO. 17
ALL OF 11.8627 AC. CONSOLIDATED PARCEL #1 PER 7/28/25 REVISED SURVEY
CITY OF AVON LAKE, COUNTY OF LORAIN, STATE OF OHIO
O.U.P.S.# A-507-901-619 & -649



UTILITIES
THE FOLLOWING IS BELIEVED TO BE THE LIST OF UTILITY COMPANIES PROVIDING SERVICE TO PROJECT AREA

CITY OF AVON LAKE
STORMWATER
150 AVON BELDEN RD.
AVON LAKE, OHIO 44012

AVON LAKE REGIONAL WATER
SAN. SEWERS & WATER MAINS
201 MILLER ROAD
AVON LAKE, OHIO 44012

FIRST ENERGY
6886 MILLER ROAD
BRECKSVILLE, OHIO 44141

COLUMBIA GAS CO
7080 FRY RD.
MIDDLEBURG HTS, OH 44130

BRIGHTSPEED
F.K.A. CENTURYLINK
1730 W. 19TH. ST.
LORAIN, OHIO 44052

SPECTRUM
F.K.A. CHARTER COMM.
576 TERNES AVE.
ELYRIA, OHIO 44035

BREEZELINE
F.K.A. WIDE OPEN WEST
105 BLAZE IND. PKWY
BEREA, OHIO 44017

AVON LAKE REGIONAL WATER APPROVAL
THIS IS TO CERTIFY THAT THE POTABLE WATER AND SANITARY SEWER IMPROVEMENT PLANS FOR INFRASTRUCTURE HEREIN ARE HEREBY APPROVED BY:

JAROD LARSON, P.E., CESSWI
PROFESSIONAL ENGINEER

DATE

Distribution System Improvements (Potable Water)
Self Certification to Ohio EPA
PWSID: 4100911

These plans are approved for construction based upon the contract agreement between Avon Lake Regional Water and the Director of the Ohio EPA dated 03/22/16. And I hereby certify that the plans meet the requirements set forth in the Ohio Revised Code chapter 6109.07, Construction, Installation or Change of Public Water System and the Ohio Administrative Code Chapter 3745-91, Plans Approval. And are in conformance with the General Plan submitted as agreed to in said contract.

Date:

Jarod Larson, P.E., CESSWI
Professional Engineer

☐ APPROVED

SANITARY SEWER EXTENSIONS (Sewage Systems)
Self Certification to Ohio EPA
State of Ohio Permit No: 010013981
State NPDES Permit No: 3P0000034KD

These plans are approved based upon the contract agreement between Avon Lake Regional Water and the Director of the Ohio EPA dated 03/22/16. And I hereby certify that the plans meet the requirements set forth in the Ohio Revised Code chapter 6111.14, Construction, Installation or Change of Public Water System and the Ohio Administrative Code Chapter 3745-42, Plans Approval. And are in conformance with the General Plan submitted as agreed to in said contract. CONSTRUCTION CANNOT BEGIN UNTIL A PFI IS ISSUED BY THE Director of the Ohio EPA.

Date:

JAROD LARSON, P.E., CESSWI
PROFESSIONAL ENGINEER

☐ APPROVED

WATER P.T.I. _____

SANITARY P.T.I. _____

CITY APPROVALS:
THIS IS TO CERTIFY THAT THE PLANS HEREIN ARE HEREBY APPROVED BY: CITY ENGINEER, CHRISTOPHER L. HOWARD, P.E.

DEVELOPER:
PULTE HOMES
387 MEDINA ROAD
MEDINA, OHIO 44256
(330) 849-3564

THE HENRY G. REITZ ENGINEERING CO.

BY: _____, PRES.

DATE: _____

INDEX

TITLE SHEET	1
LAYOUT PLAN	2
GRADING PLAN	3
UTILITY PLAN	4
PLAN & PROFILE SHEET	5-9
RETENTION DETAILS	10
S.W.P.P.P.	11-12
PAVING & STORM DETAILS	13-14
SANITARY DETAILS	15-16
WATER DETAILS	17-21

BENCHMARK DATUM: NAVD88

GPS MON. 2002-07 AT #430 AVON BELDEN RD. 570' N. OF WALKER RD. = 623.06
TOP OF TOP NUT ON HYDRANT OPPOSITE #32741 WALKER RD. (TIRE CHOICE) = 626.81
TOP OF TOP NUT ON HYDRANT OPPOSITE #32681 WALKER RD. = 627.37
TOP OF TOP NUT ON HYDRANT AT 510 AVON-BELDEN RD. (TACO BELL) = 628.32
TOP OF TOP NUT ON HYDRANT OPPOSITE #549 AVON-BELDEN RD. = 628.51

CONSTRUCTION NOTES:

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF AVON LAKE STANDARDS AND AVON LAKE REGIONAL WATER (ALRW) ANY REFERENCE TO AN ODOT STANDARD AS SPECIFICALLY SHOWN HEREON REFERS TO THE LATEST EDITION OF "STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATIONS", INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS.
- CONTRACTOR SHALL FIELD VERIFY DIMENSIONS AND ELEVATIONS AS NOTED ON THE DRAWINGS. STAKING SHALL INCLUDE, BUT NOT BE LIMITED TO, CENTERLINE OF PAVEMENT, MONUMENT BOXES, STORM MANHOLES, STORM TEES, SANITARY MANHOLES, SANITARY WYES, WATER MAINS, WATER CORPORATIONS, HYDRANTS, ALL VALVES. ALL LONG SIDE LATERALS AT THE RIGHT-OF-WAY LINE, ALL LATERALS IN CURVED STREET AREAS AT THE RIGHT-OF-WAY LINES AND ALL LATERALS IN THE CUL-DE-SAC AREA. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY OF ANY INCONSISTENCIES BETWEEN THE DRAWINGS AND THE FIELD MEASUREMENTS.
- PRIOR TO EXCAVATION, THE CONTRACTOR SHALL CONTACT O.U.P.S. TO DETERMINE THE LOCATION OF ANY EXISTING UNDERGROUND UTILITIES NOT INDICATED ON THE PRINTS. IF UNCHARTED UTILITIES ARE ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY.
- ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN AND STORM WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.
- THE STORM SEWER 6" HOUSE CONNECTIONS SHALL BE P.V.C. ASTM D-3034, SDR-35 WITH D-3212 JOINTS. (SAME FOR 6" REAR YARD INLET LATERALS.)
- SANITARY SEWERS & SANITARY SEWER HOUSE CONNECTIONS SHALL BE P.V.C. PER ASTM D-3034, SDR-35 WITH D-3212 JOINTS. MIN. DIA. FOR THE PIPE SHALL BE 6", HYDROSTATIC TESTING TO MEET AVON LAKE REGIONAL WATER STANDARDS & MEET OR EXCEED ASTM C-969.
- ALL SANITARY SEWER PIPE SHALL BE GIVEN A LOW PRESSURE AIR TEST AS SOON AS POSSIBLE AFTER COMPLETION ACCORDING TO THE PROCEDURES OF ASTM F1417-92. THE TEST SHALL CONSIST OF THE PIPING HOLDING A 3.5 PSIG. AIR PRESSURE FOR A PERIOD OF FIVE (5) MINUTES. AFTER THE AIR TEST IS COMPLETED, AN EXFILTRATION TEST SHALL BE PERFORMED. THE MAXIMUM DISTANCE FOR EXFILTRATION TESTING SHALL BE 900 FEET. THE SEWERS AND MANHOLES SHALL BE FILLED WITH WATER TO A MINIMUM OF TWO (2) FEET BELOW THE TOP OF THE UPSTREAM MANHOLE. THE SANITARY SEWER AND ALL MANHOLES SHALL SOAK FOR A PERIOD OF 8 HOURS. MINIMUM AND THE WATER LEVEL SHALL REMAIN AT A CONSTANT HEIGHT. ANY OBSERVED FLUCTUATIONS (UP/DOWN) DUE TO AIR POCKETS SHALL VOID THE TEST TIME AND THE TEST SHALL BE RESTARTED. THE EXFILTRATION WILL BE MEASURED BY DETERMINING THE AMOUNT OF WATER REQUIRED TO MAINTAIN THE INITIAL WATER ELEVATION FOR FOUR (4) HOURS FROM THE START OF THE TEST. THE MAXIMUM ALLOWABLE LEAKAGE OUTWARD (EXFILTRATION) FOR ANY SANITARY SEWER SECTION TESTED IS 100 GALLONS PER INCH OF DIAMETER PER MILE OF PIPE PER 24 HOURS. AN ESTIMATE OF GROUND WATER ELEVATION IN THE SEWER TRENCH IS TO BE DETERMINED AND THE AIR TEST ADJUSTED ACCORDINGLY. SANITARY SEWER AND MANHOLES SHALL BE CLEANED PRIOR TO MANDREL TEST AND FLUSHED WITH A SEWER JET PRIOR TO BEING TELEVIEWED. THE CAMERA SHALL BE OF THE PAN-N-TILT TYPE AND TELEVIEWING SHALL INCLUDE VIEWING UP ALL HOUSE LATERALS WITH AUDIO NARRATIVE CALLING OUT ALL STOPPED LOCATIONS OR DEFECTS OBSERVED. THE REQUIRED MANDREL SIZE FOR 8" SANITARY SEWER DEFLECTION TESTING SHALL BE 7.28". IT HAS ALWAYS BEEN THE CITY'S INTENT TO ALLOW A MAXIMUM OF 5% DEFLECTION IN NEW SANITARY SEWER AND ACCORDING TO A.S.T.M. STANDARDS FOR 8" P.V.C. (3034 SDR-35) PIPE, THAT WOULD REQUIRE THE 7.28" MANDREL. ALRW HAS A MANDREL IN THAT SIZE AND IT SHALL BE USED IN ALL TESTING. THE TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES.
- ALL FLEXIBLE (P.V.C.) SANITARY SEWER PIPE SHALL BE DEFLECTION TESTED NOT LESS THAN 30 DAYS AFTER FINAL FULL BACKFILL HAS BEEN PLACED AND ALL PAVEMENT INSTALLED. THE DEFLECTION TEST SHALL BE RUN BY THE USE OF A MANDREL SUPPLIED BY ALRW PER "RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES" SECTION 33.85(c).
- NO BUILDINGS OR TREES TO BE INSTALLED IN EASEMENTS. CITY TO BE HELD FREE FROM REPAIR OF ANYTHING PLACED IN THE EASEMENT, EXCEPT GRASS.
- ALL HOUSE CONNECTION TRENCHES TO HAVE A 4 FOOT COMPACTED CLAY DAM EXTENDED TO THE FULL DEPTH AND WIDTH OF THE TRENCH AND PLACED AS SHOWN ON TYPICAL PAVEMENT SECTION.
- ELECTRIC CROSS-OVER CONDUITS SHALL BE 60 FEET MINIMUM LENGTH.
- NO GAS COMPANY, ELECTRIC COMPANY OR TELEPHONE COMPANY TRENCHING SHALL BE DONE WITHOUT CITY INSPECTORS PRESENT. MINIMUM 2.5' OUT-TO-OUT CLEARANCE TO WATER MAINS TO BE PROVIDED.
- THE PLANS FOR THE LOCATION OF GAS, ELECTRIC AND CABLE PRIVATE UTILITY INSTALLATIONS SHALL BE SUBMITTED TO CITY OF AVON LAKE PUBLIC WORKS DEPARTMENT (ALPW) AND ALRW FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. CONTACT ALRW AND/OR ALPW TO SCHEDULE ON-SITE INSPECTION WHEN ANY PRIVATE UTILITIES ARE INSTALLED WITHIN FIVE (5) FEET OF THE PUBLIC UTILITIES.
- A MINIMUM OF 35 PSIG. WATER SERVICE PRESSURE SHALL BE MAINTAINED TO THE CURB STOP DURING NORMAL OPERATING CONDITIONS.
- BOOSTER PUMPS ARE NOT PERMITTED ON WATER SERVICE CONNECTIONS BY ALRW.
- FULL SET OF AS BUILT PLANS IN PDF AND AUTOCAD FORMAT FILES SHALL BE REQUIRED FOR ALL SUBDIVISION IMPROVEMENTS.
- ANY WATER SERVICE CURB STOPS, METER VAULTS, SAN. SEWER CLEANOUTS OR FIRE HYDRANTS FOUND TO BE IN CONFLICT WITH A PROPOSED DRIVEWAY OR SIDEWALK LOCATION WILL BE REMOVED AND REINSTALLED. THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL RELOCATION COSTS.
- A MINIMUM 10 FOOT HORIZONTAL SEPARATION (MEASURED OUT-TO-OUT) CLEAR BETWEEN THE PROPOSED WATER LINE AND THE STORM SEWER SHALL BE MAINTAINED.
- A MINIMUM 10 FOOT HORIZONTAL SEPARATION (MEASURED OUT-TO-OUT) CLEAR BETWEEN THE PROPOSED WATER LINE AND THE SANITARY SEWER SHALL BE MAINTAINED.
- A MINIMUM 18" VERTICAL CLEARANCE (MEASURED OUT-TO-OUT) CLEAR BETWEEN THE PROPOSED WATER LINE AND THE STORM SEWER SHALL BE MAINTAINED.
- A MINIMUM 18" VERTICAL CLEARANCE (MEASURED OUT-TO-OUT) CLEAR BETWEEN THE PROPOSED WATER LINE AND THE SANITARY SEWER SHALL BE MAINTAINED.
- WATER MAINS AND SANITARY SEWER LINES OR FORCE MAINS SHALL BE SEPARATED BY MINIMUM CLEAR VERTICAL DISTANCE OF 18" AND HORIZONTAL DISTANCE OF 10'-0". WHEN THE ABOVE CAN NOT BE MAINTAINED, SEWER LINE SHALL BE CONCRETE ENCASED OR ENCLOSED WITHIN CLASS 52 D.I.P. FOR A DISTANCE OF 10'-0" EACH WAY FROM WATER LINE IF APPROVED BY ALRW.
- R.C.P. STORM SEWER MAINLINE PIPE SHALL MEET ODOT CMS 706.02 WITH MIN. 1' COVER: 12" & 15" R.C.P. STORM SEWER SHALL BE ASTM C-76 MINIMUM CLASS IV 18", 21" & 24" R.C.P. STORM SEWER SHALL BE ASTM C-76 MINIMUM CLASS III 27" & LARGER R.C.P. STORM SEWER SHALL BE ASTM C-76 MINIMUM, CLASS I
- H.D.P.E. STORM SEWER MAINLINE PIPE SHALL MEET ODOT CMS 707.33 WITH MINIMUM 1' COVER. DE-FLUCTION TESTING SHALL BE PERFORMED ON FLEXIBLE PIPE USED FOR THE MAINLINE SEWER. TESTING SHALL BE PERFORMED WITH A MANDREL OR OTHER MEANS ACCEPTABLE TO THE ENGINEER. THE MANDREL SHALL BE SIZED FOR 95% OF THE AVERAGE INSIDE DIAMETER OF THE CONDUIT. DEFLECTION TESTING SHALL TAKE PLACE NO SOONER THAN 30 DAYS AFTER INSTALLATION OF THE CONDUIT. ALL SECTION(S) WHICH FAIL SHALL BE REPLACED BY THE CONTRACTOR AT NO COST TO THE CITY.
- AFTER CONSTRUCTION BUT BEFORE FINAL ACCEPTANCE OF THE IMPROVEMENTS BY THE CITY, THE CONTRACTOR SHALL TELEVIEW THE MAINLINE STORM SEWER. THE SEWER SHALL BY HYDRAULICALLY CLEANED AND INLET BASINS CLEANED AS NECESSARY TO REMOVE ALL DEBRIS. THE SEWER SHALL BE TELEVIEWED USING A COLOR CAMERA WITH AN ON-SCREEN ELECTRONIC FOOTAGE COUNTER. THE CONTRACTOR SHALL PROVIDE A VIDEO FILE VIA HYPERLINK OR FLASH DRIVE, ALONG WITH A WRITTEN REPORT TO THE ENGINEER FOR REVIEW.
- IF ANY PART OF THE STORM SEWER FAILS TO PASS THE ABOVE TESTING PROCEDURES, THE CONTRACTOR SHALL REPAIR OR REPLACE ALL DEFECTIVE MATERIALS &/OR WORKMANSHIP AND THEN RE-TEST THE INSTALLATION FOR COMPLIANCE WITH THESE TESTING PROCEDURES AT HIS OWN COST.
- WATER CURB STOPS, METER VAULTS AND/OR SANITARY CLEANOUTS SHALL NOT BE PLACED IN SIDEWALK, DRIVEWAY OR STREET PAVEMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR RELOCATION OUTSIDE OF PAVEMENT LIMITS.

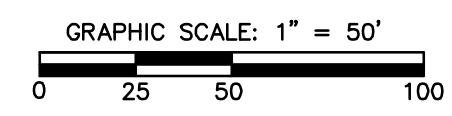
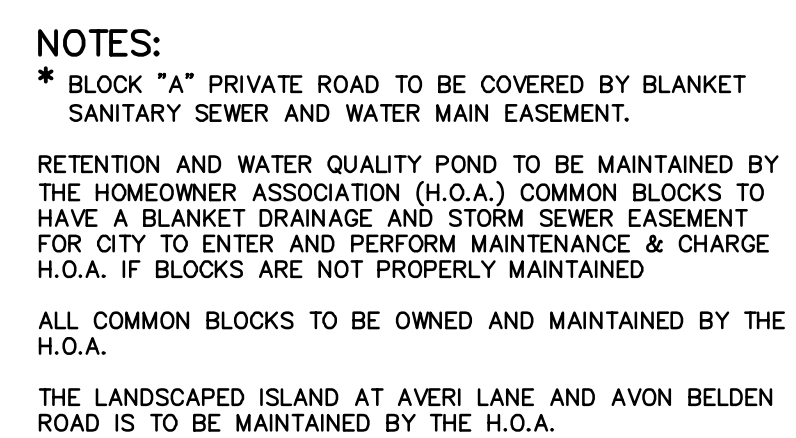
CITY OF AVON LAKE, AVON LAKE REGIONAL WATER, ANSI/AWWA, TEN STATE STANDARDS AND OHIO EPA DESIGN STANDARDS SHALL GOVERN OVER OHIO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS WHEN IN CONFLICT.

HARBOR CREST
TOWNHOUSE SUBD. NO. 1
IMPROVEMENT PLANS

THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

1 / 21
OCTOBER 2025

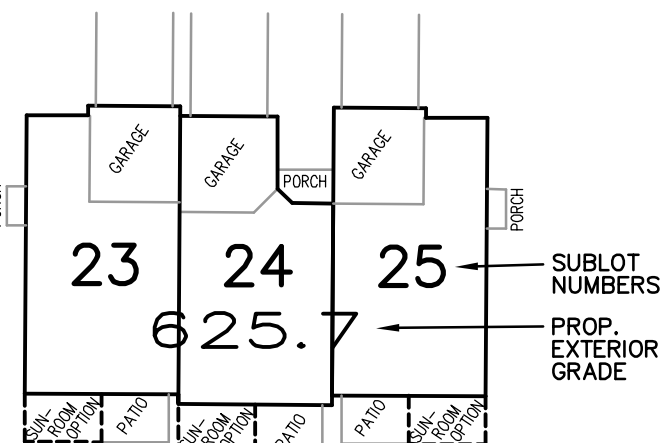
REVISIONS	REVISED PER ZONING DEPT. COMMENTS & MOVED MOUND INTO ADJ. EASEMENT
10/29/25	



**THE HENRY G. REITZ
ENGINEERING COMPANY**
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

BENCHMARKS DATUM: NAVD88
GPS MON. 2002-07 AT #430 AVON BELDEN RD. 570' N. OF WALKER RD. = 623.06
TOP OF TOP NUT ON HYDRANT OPPOSITE #32741 WALKER RD. (TIRE CHOICE) = 626.81
TOP OF TOP NUT ON HYDRANT OPPOSITE #32681 WALKER RD. = 627.37
TOP OF TOP NUT ON HYDRANT AT 510 AVON-BELDEN RD. (TACO BELL) = 628.32
TOP OF TOP NUT ON HYDRANT OPPOSITE #549 AVON-BELDEN RD. = 628.51

NOTE:
* BLOCK "A" PRIVATE ROAD TO BE COVERED BY BLANKET
SANITARY SEWER AND WATER MAIN EASEMENT.



LEGEND

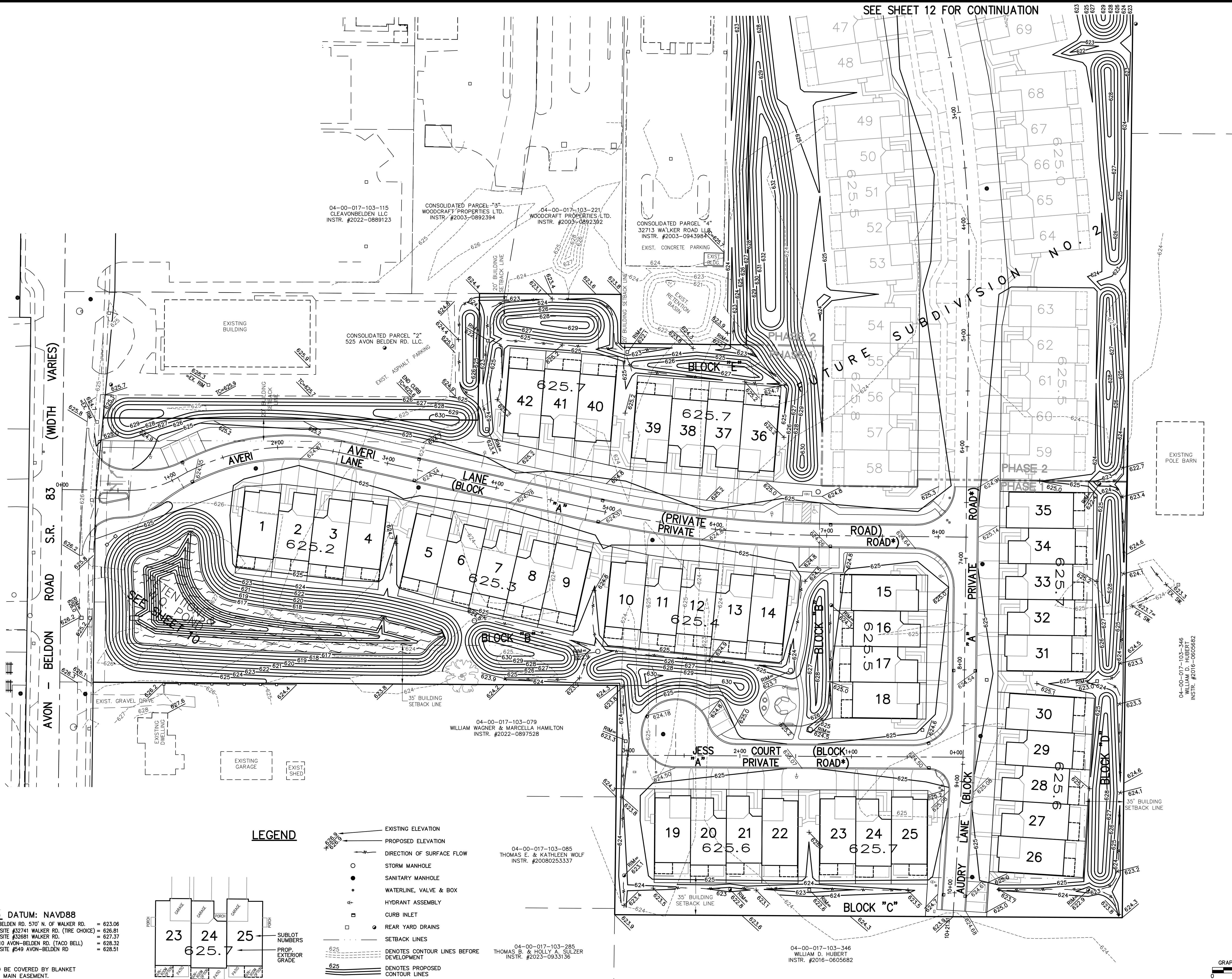
- EXISTING ELEVATION
- PROPOSED ELEVATION
- DIRECTION OF SURFACE FLOW
- STORM MANHOLE
- SANITARY MANHOLE
- WATERLINE, VALVE & BOX
- HYDRANT ASSEMBLY
- CURB INLET
- REAR YARD DRAINS
- SETBACK LINES
- DENOTES CONTOUR LINES BEFORE DEVELOPMENT
- DENOTES PROPOSED CONTOUR LINES

04-00-017-103-085
THOMAS E. & KATHLEEN WOLF
INSTR. #20080253337

04-00-017-103-285
THOMAS B. & HOLLY A. SULZER
INSTR. #2023-0933136

04-00-017-103-346
WILLIAM D. HUBERT
INSTR. #2016-0605682

GRAPHIC SCALE: 1" = 40'
0 40 80



SEE SHEET 12 FOR CONTINUATION

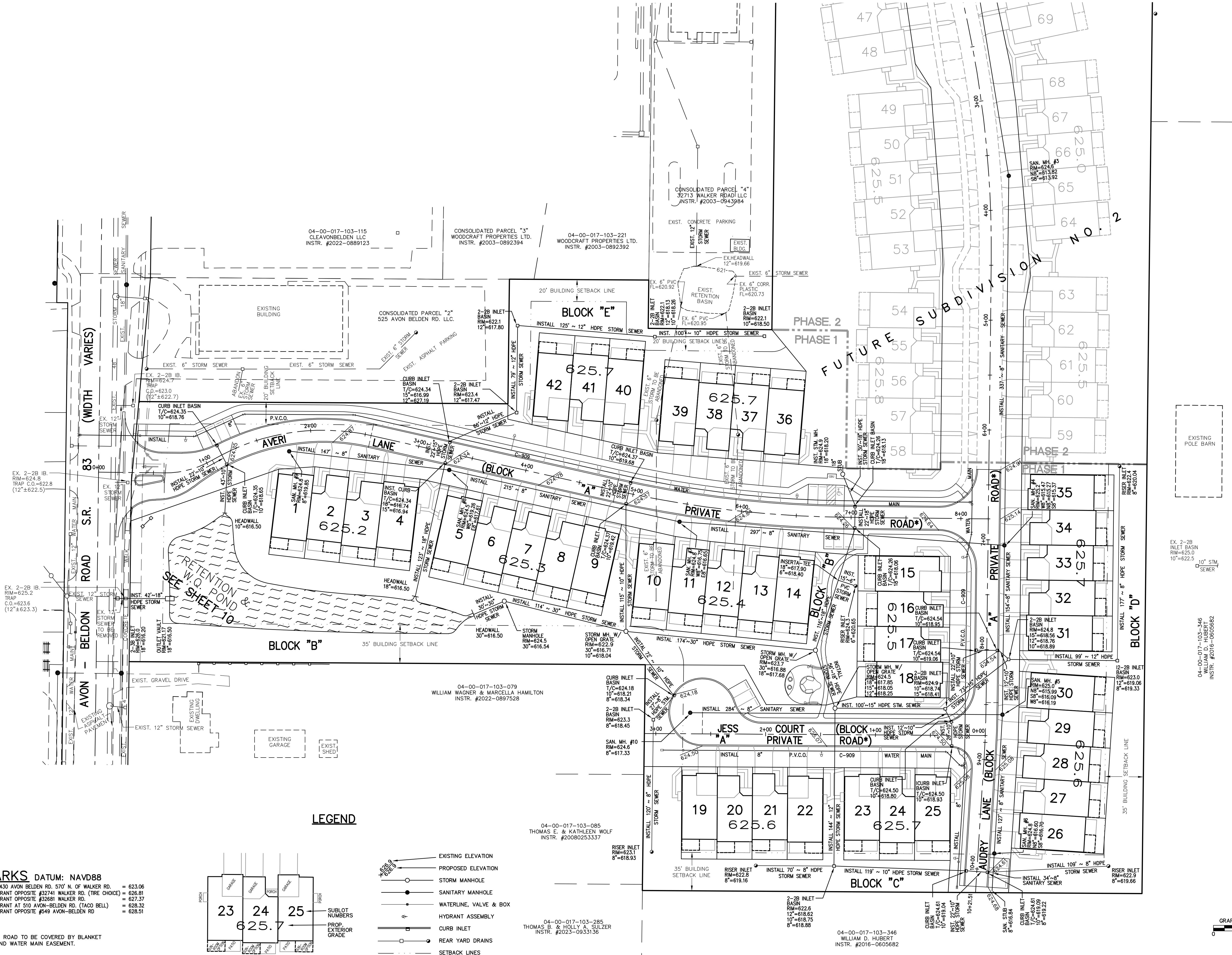
**HARBOR CREST
TOWNHOUSE SUBD. NO. 1
GRADING PLAN**

**THE HENRY G. REITZ
ENGINEERING COMPANY**
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

3 / 21
OCTOBER
2025

REVISIONS	
REVISED PER ZONING DEPT. COMMENTS & MOVED MOUND INTO ADJ. EASEMENT	
10/29/25	

SEE SHEET 5 FOR CONTINUATION



BENCHMARKS

DATUM: NAVD88

GPS MON. 2002-07 AT #430 AVON BELDEN RD. 570' N. OF WALKER RD.	= 623.06
TOP OF TOP NUT ON HYDRANT OPPOSITE #32741 WALKER RD. (TIRE CHOICE)	= 626.81
TOP OF TOP NUT ON HYDRANT OPPOSITE #32681 WALKER RD.	= 627.37
TOP OF TOP NUT ON HYDRANT AT 510 AVON-BELDEN RD. (TACO BELL)	= 628.32
TOP OF TOP NUT ON HYDRANT OPPOSITE #549 AVON-BELDEN RD.	= 628.51

NOTE:
* BLOCK "A" PRIVATE ROAD TO BE COVERED BY BLANKET
SANITARY SEWER AND WATER MAIN EASEMENT.

LEGEND

04-00-017-103-085
THOMAS E. & KATHLEEN WOLF
INSTR. #20080253337

04-00-017-103-285
THOMAS B. & HOLLY A. SULZER
INSTR. #2023-0933136

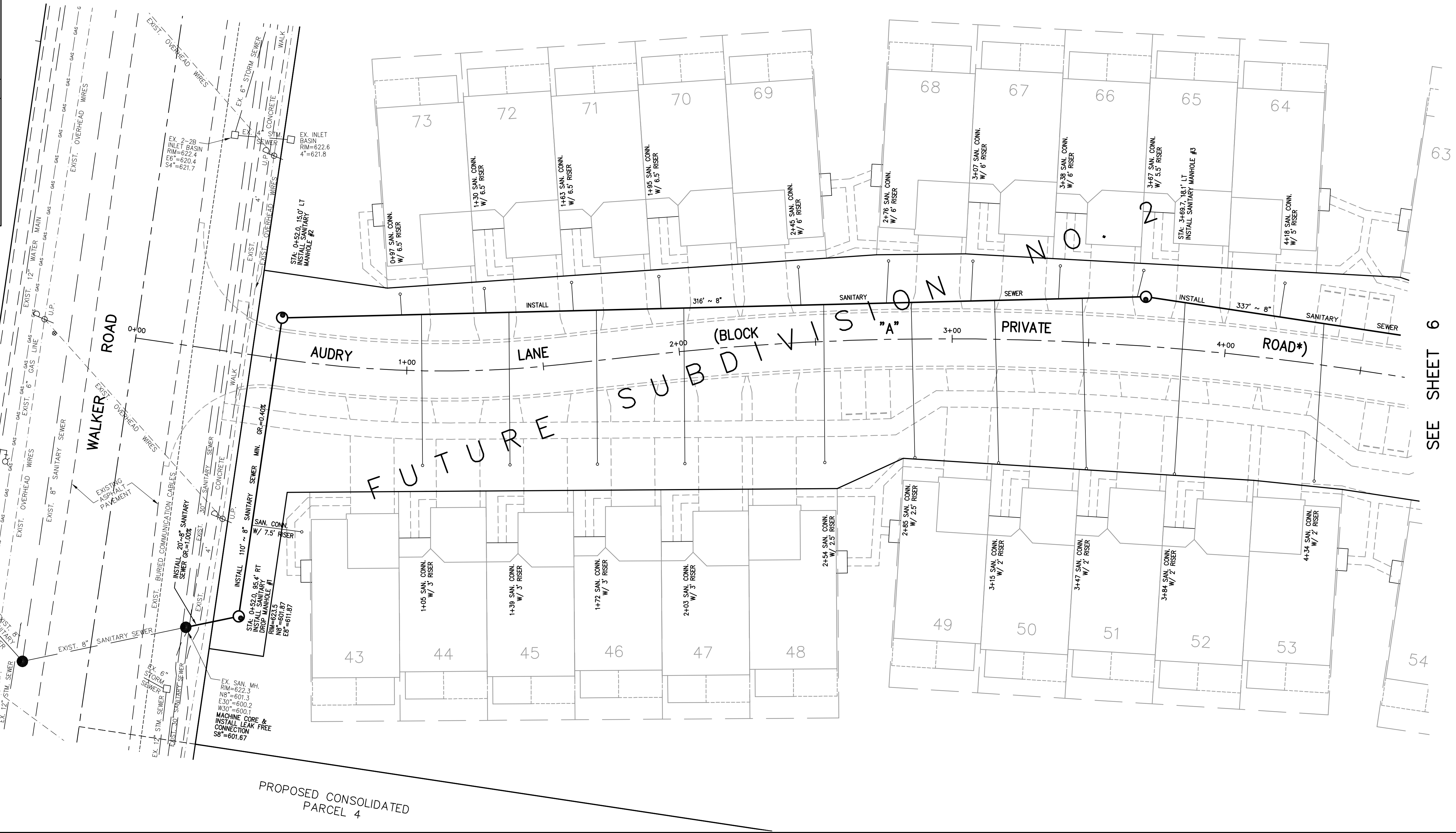
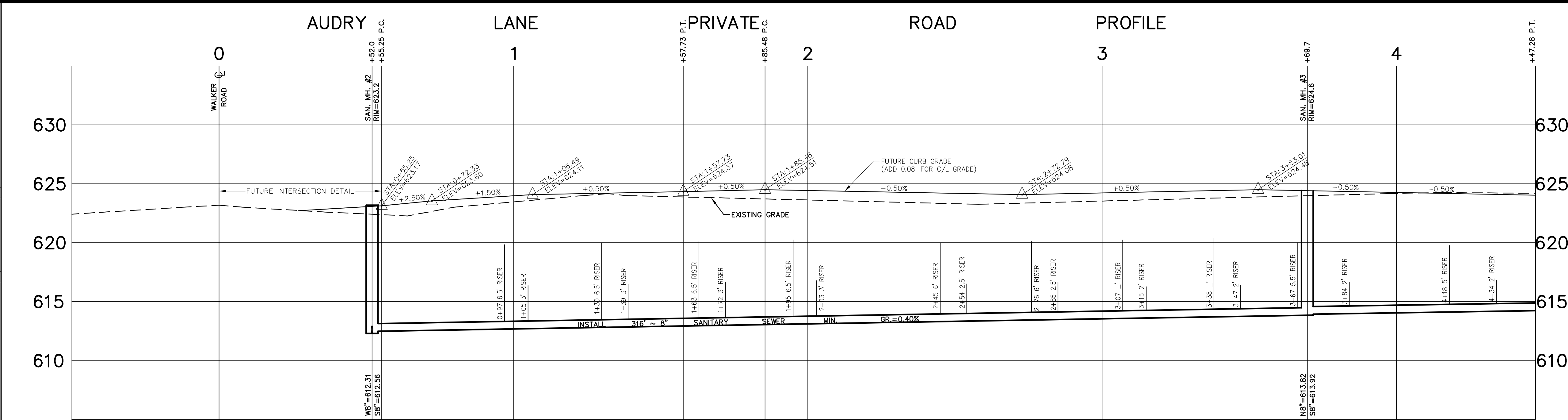
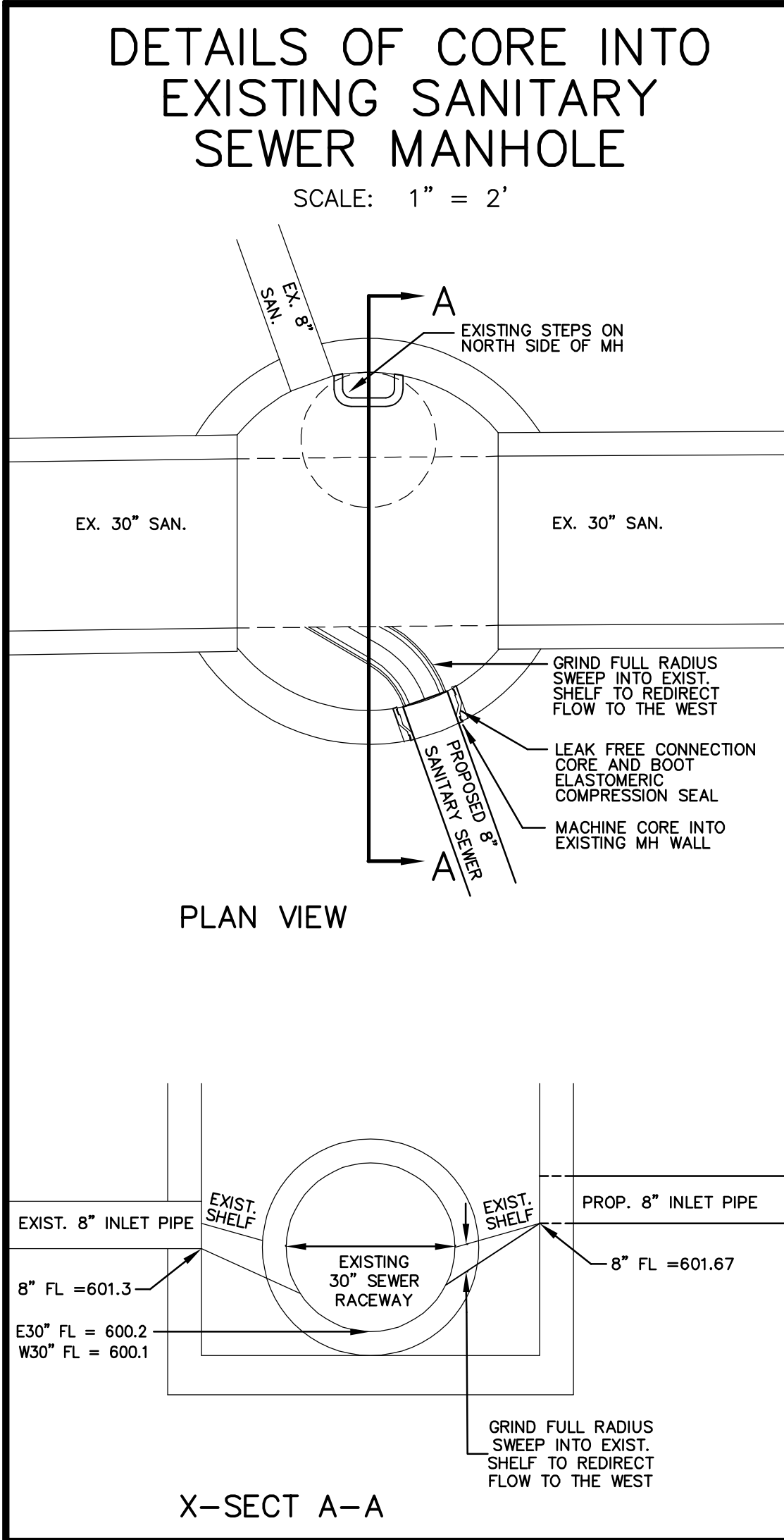
04-00-017-103-346
WILLIAM D. HUBERT
INSTR. #2016-0605682

HARBOR CREST
 TOWNHOUSE SUBD. NO. 1
 UTILITY PLAN

**THE HENRY G. REITZ
ENGINEERING COMPANY**
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

4
21
OCTOBER
2025

[illegible]

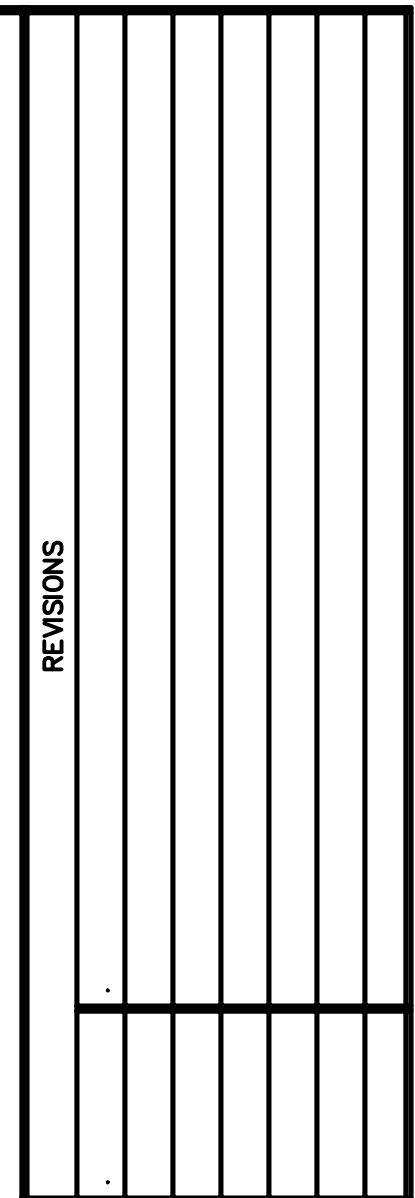


REVISIONS

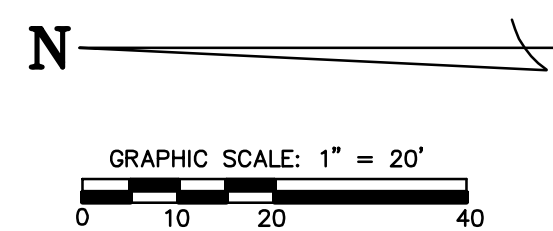
HARBOR CREST TOWNHOUSE SUBD. NO. 1 IMPROVEMENT PLANS

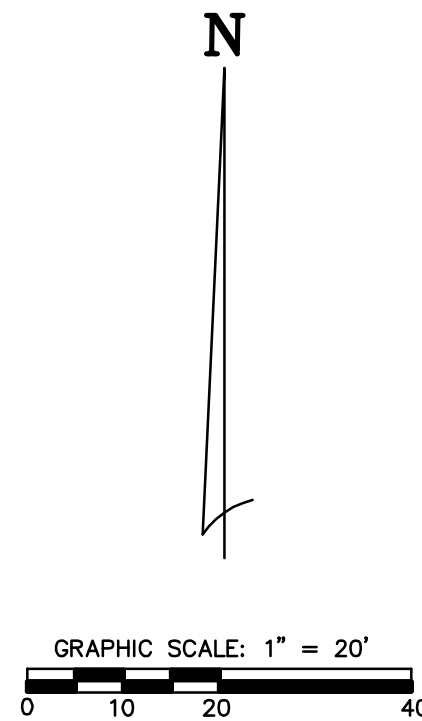
THE HENRY G. REITZ ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

5/21 OCTOBER 2025

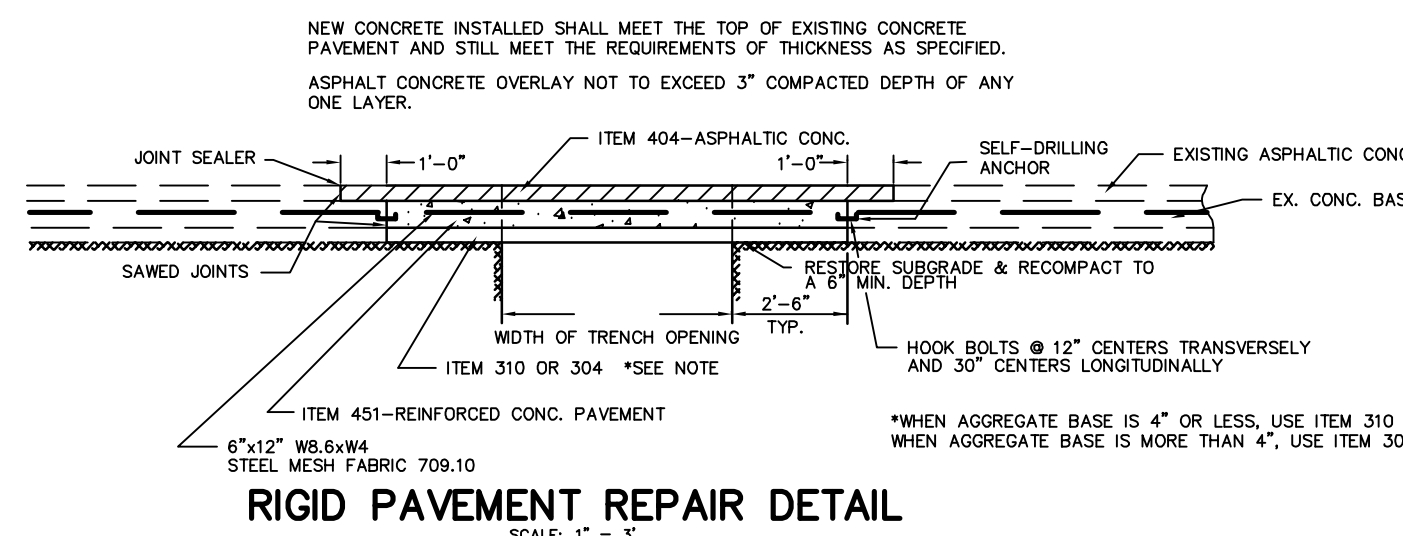
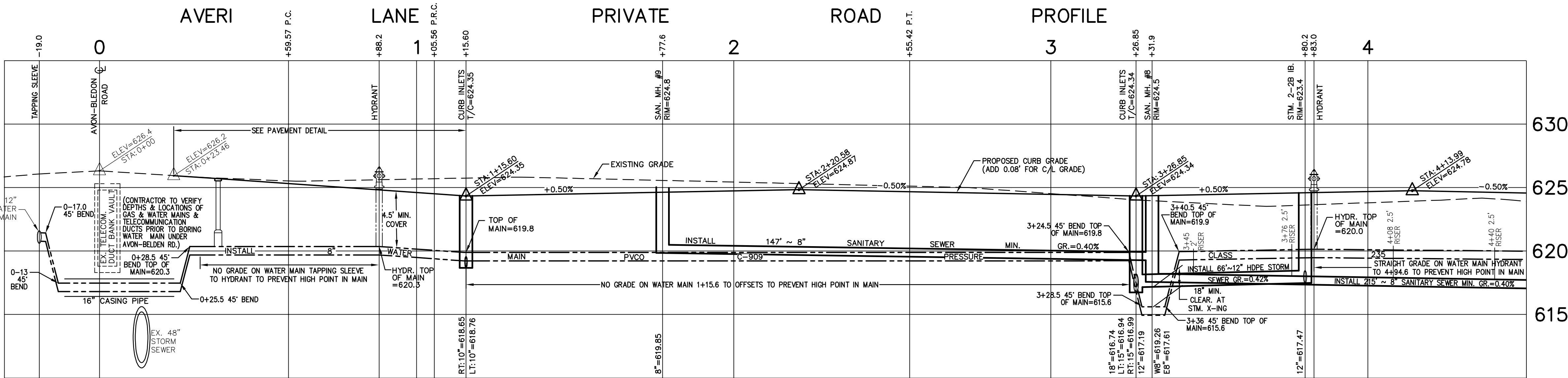


NOTE:
* BLOCK "A" PRIVATE STROAD REET TO BE COVERED BY BLANKET
SANITARY SEWER AND WATER MAIN EASEMENT.

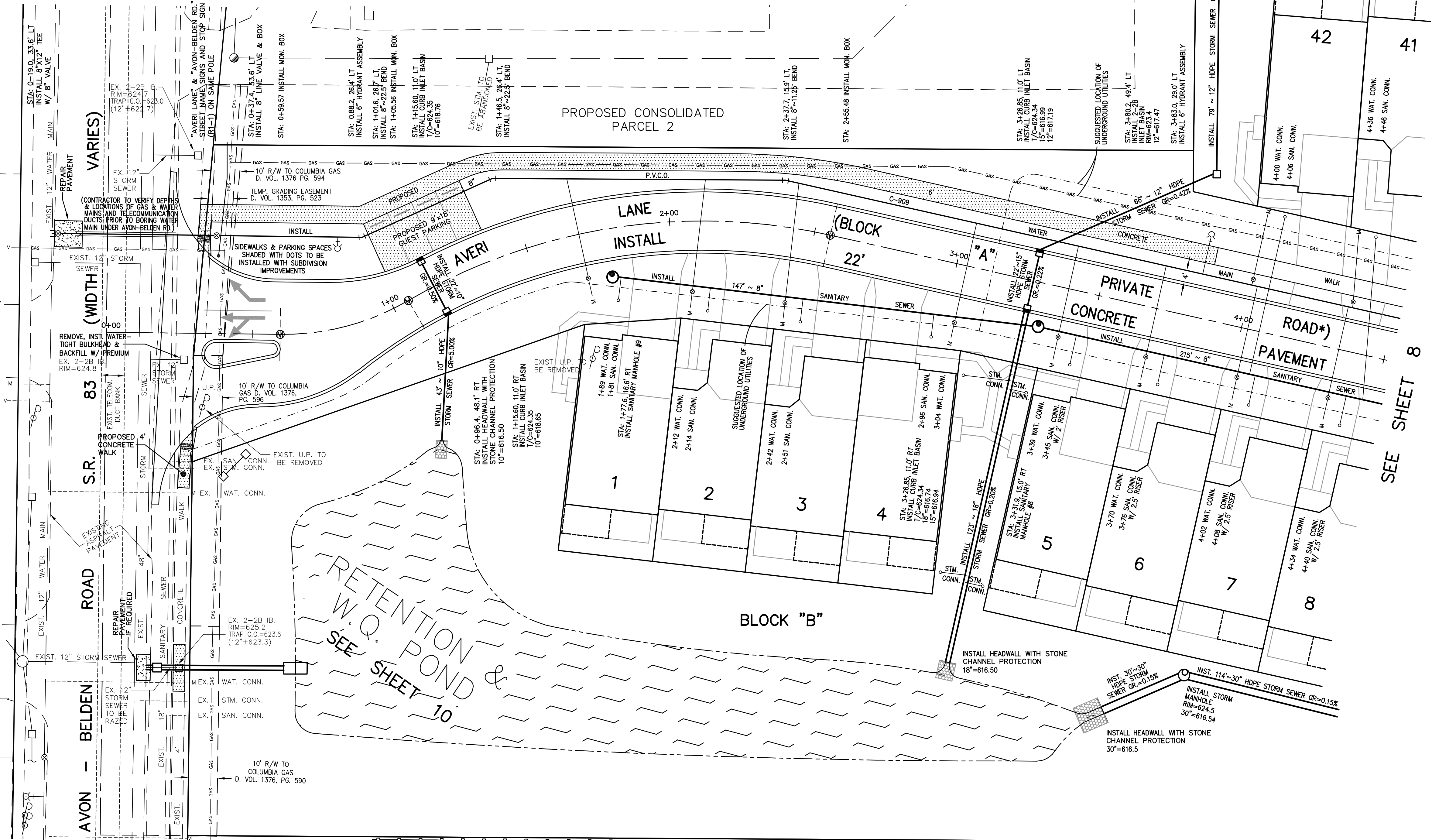
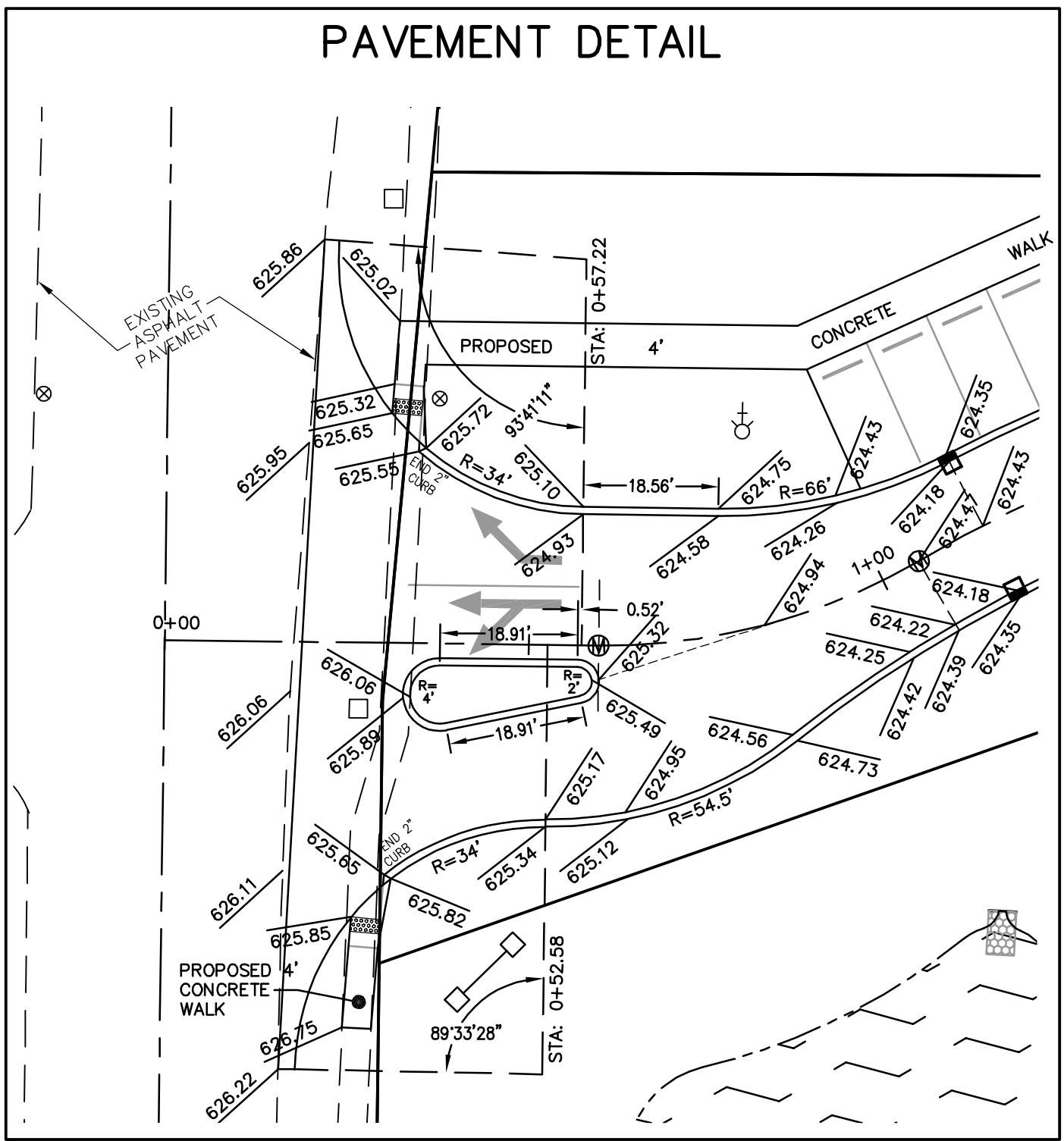




NOTE:
* BLOCK "A" PRIVATE ROAD TO BE COVERED BY BLANKET
SANITARY SEWER AND WATER MAIN EASEMENT.

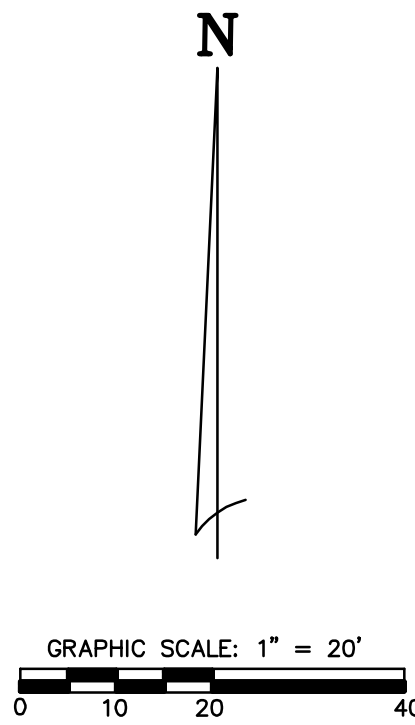


1. BACKFILL SHALL BE PLACED IN LAYERS NOT TO EXCEED 4 IN. THICKNESS (LOOSE DEPTH) BY USE OF MECHANICAL TAMPORS OR OTHER APPROVED MECHANICAL COMPACTORS. SUITABLE BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 603.08 TYPE "B" CONDUIT (OR TYPE "C" CONDUIT WHEN NOT UNDER PAVEMENT) OF THE O.D.O.T. CONSTRUCTION AND MATERIAL SPECIFICATIONS AND SHALL, TO THE EXTENT POSSIBLE, EXHIBIT THE SAME PHYSICAL PROPERTIES AS THE SOUND SUBGRADE MATERIAL ADJACENT TO THE TRENCH, UNLESS OTHERWISE SPECIFIED OR APPROVED BY THE ENGINEER.
2. EXISTING JOINTS SHALL BE PRESERVED OR RESTORED.
3. THICKNESS OF ITEM 451, 304, 310 AND ITEM 404 SHALL EQUAL EXISTING OR AS CALLED FOR ON THE PLANS.

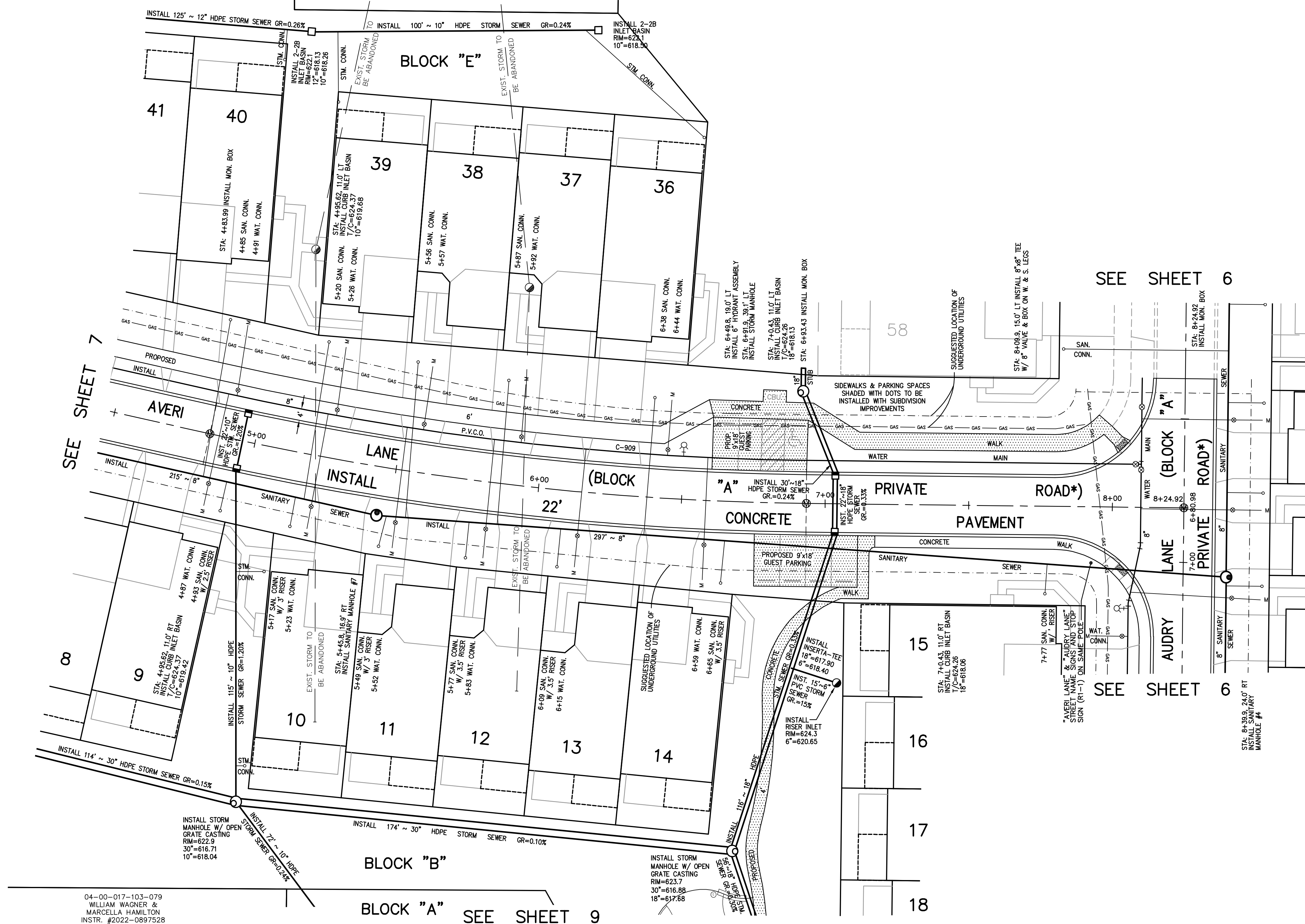
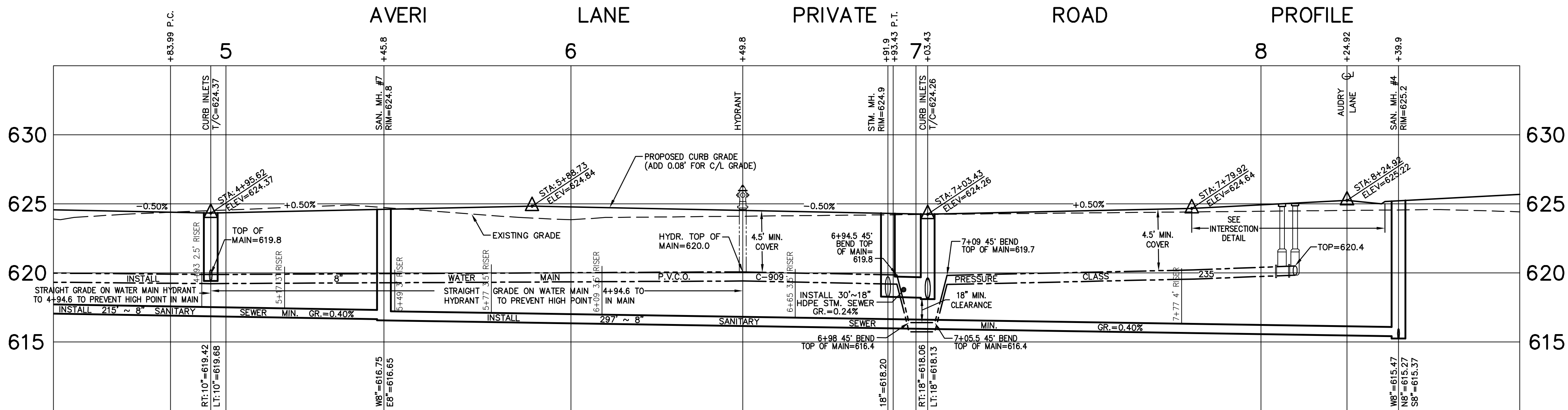
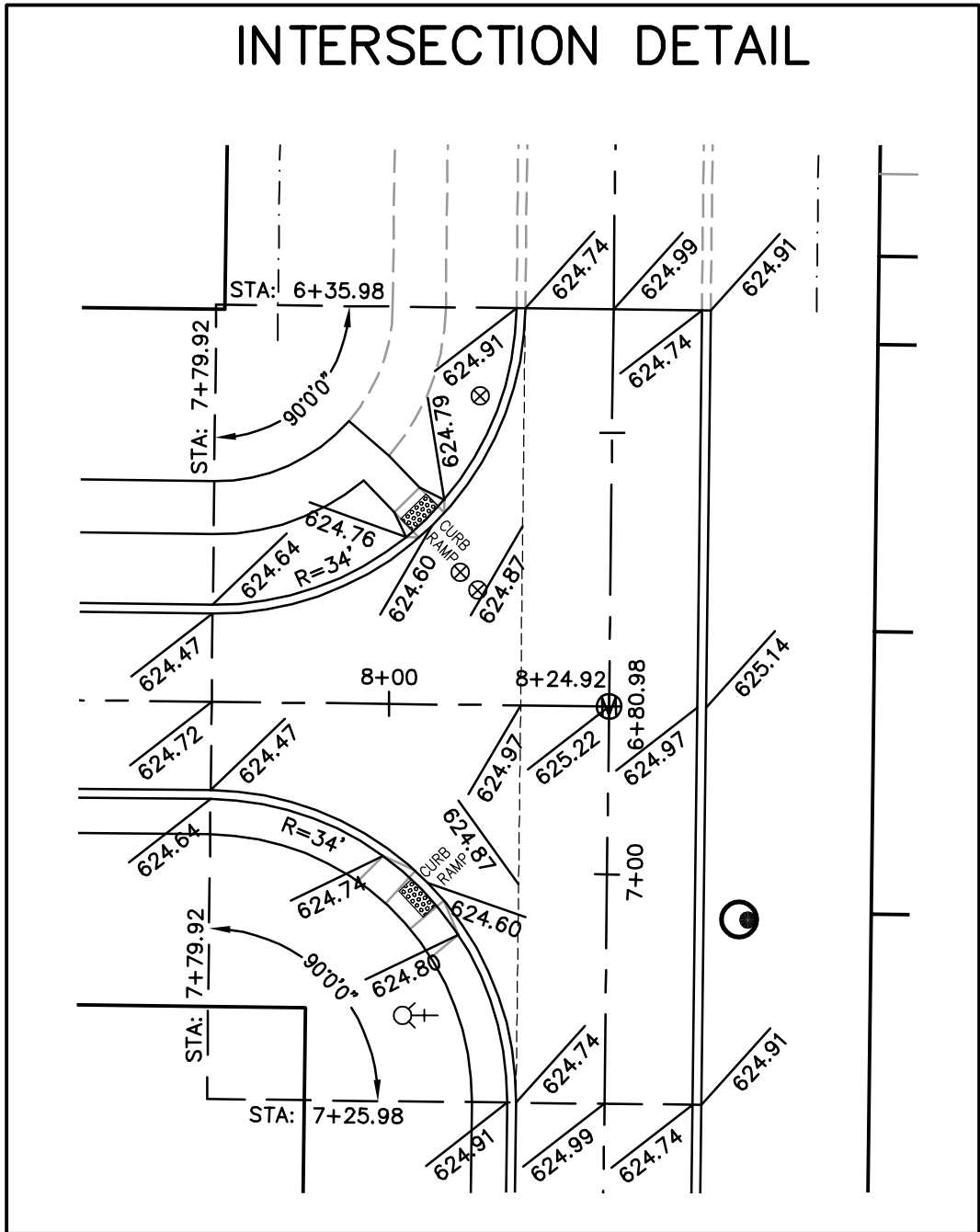


HARBOR CREST
TOWNHOUSE SUBD. NO. 1
IMPROVEMENT PLANS

THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM



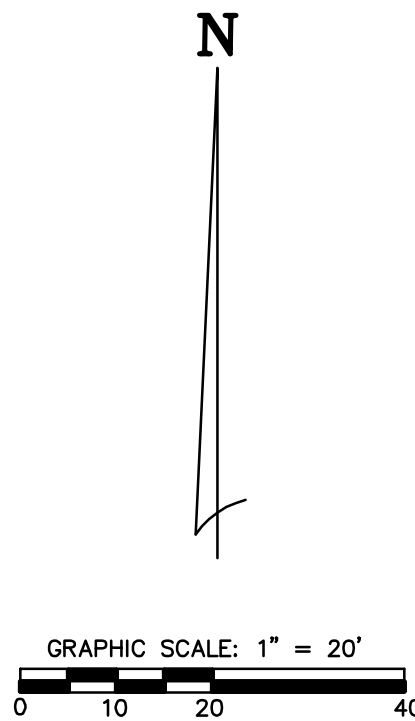
NOTE:
* BLOCK "A" PRIVATE ROAD TO BE COVERED BY BLANKET
SANITARY SEWER AND WATER MAIN EASEMENT.



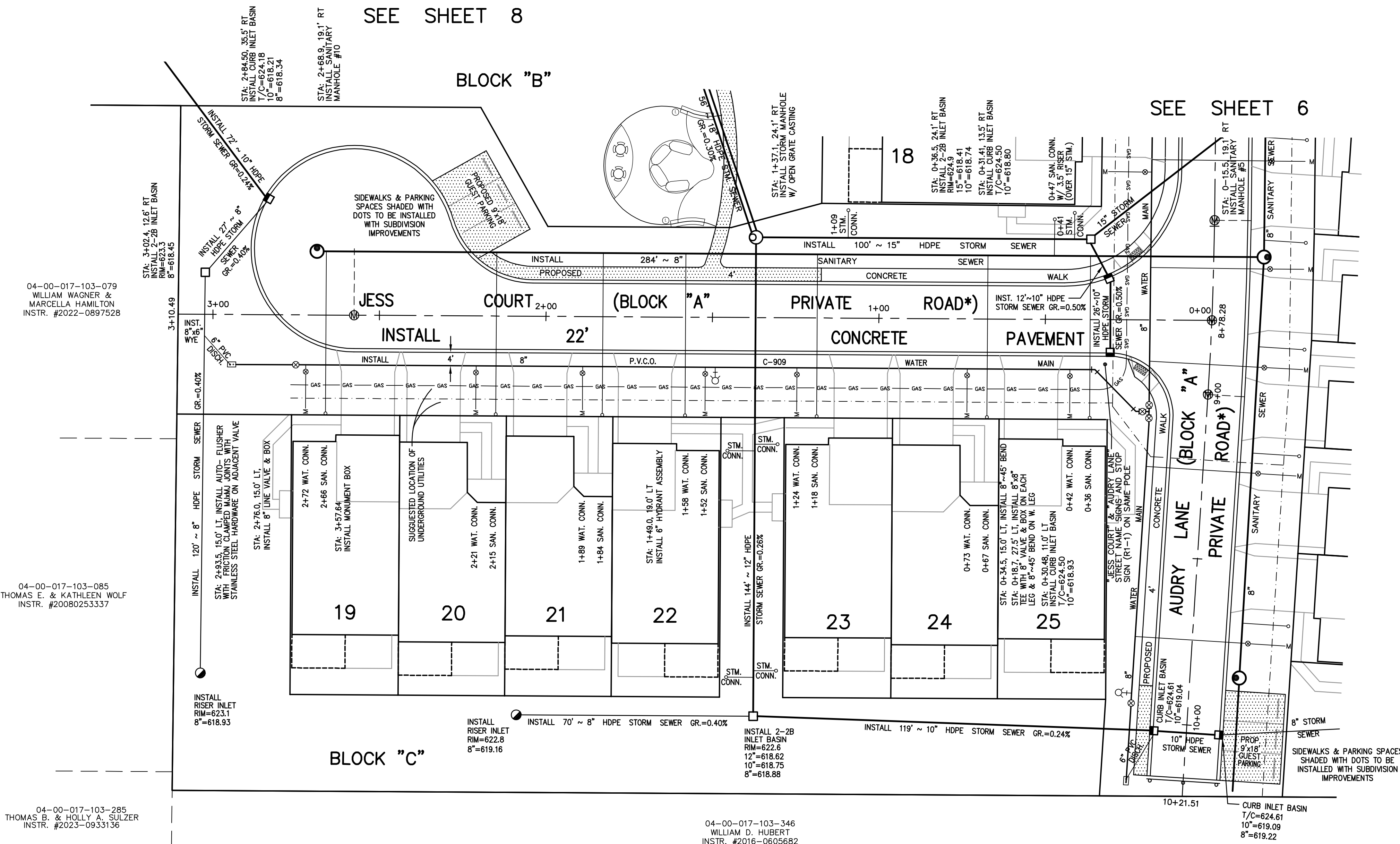
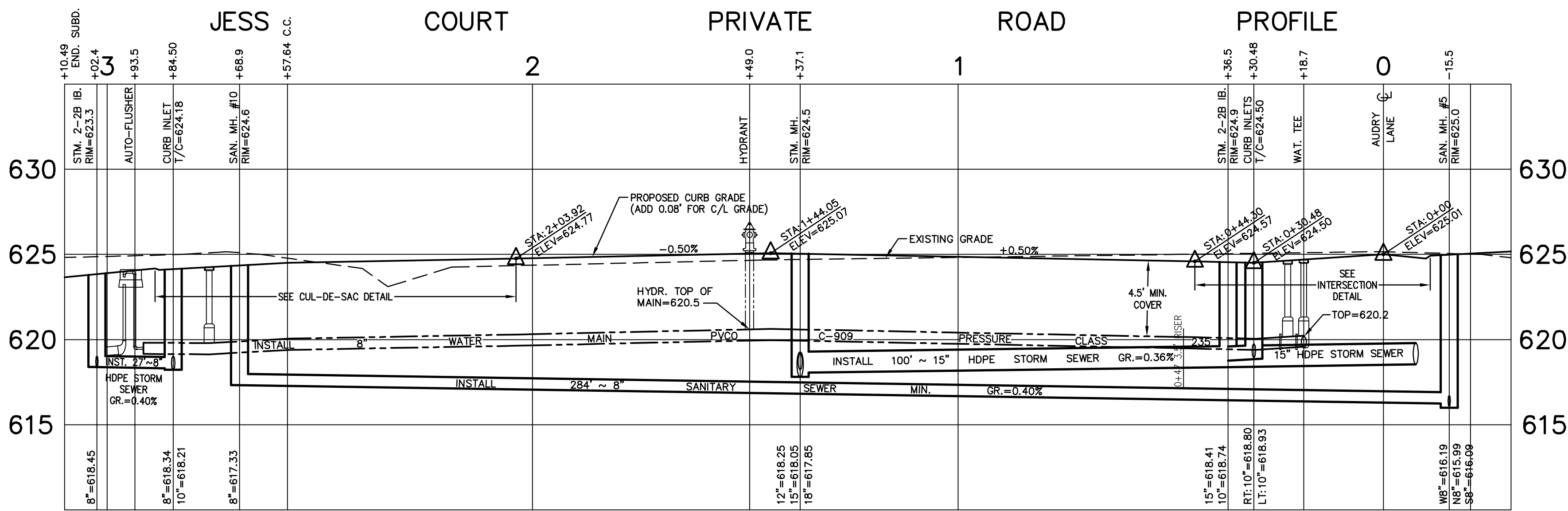
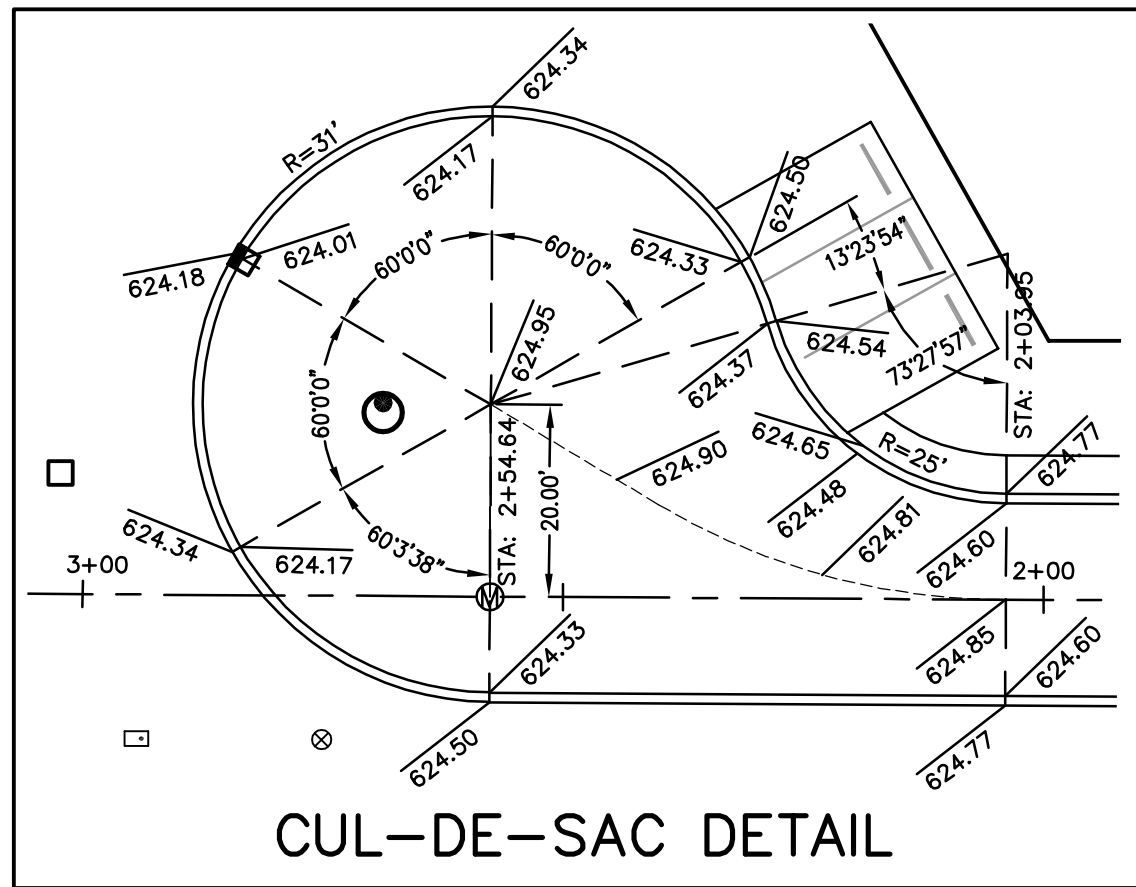
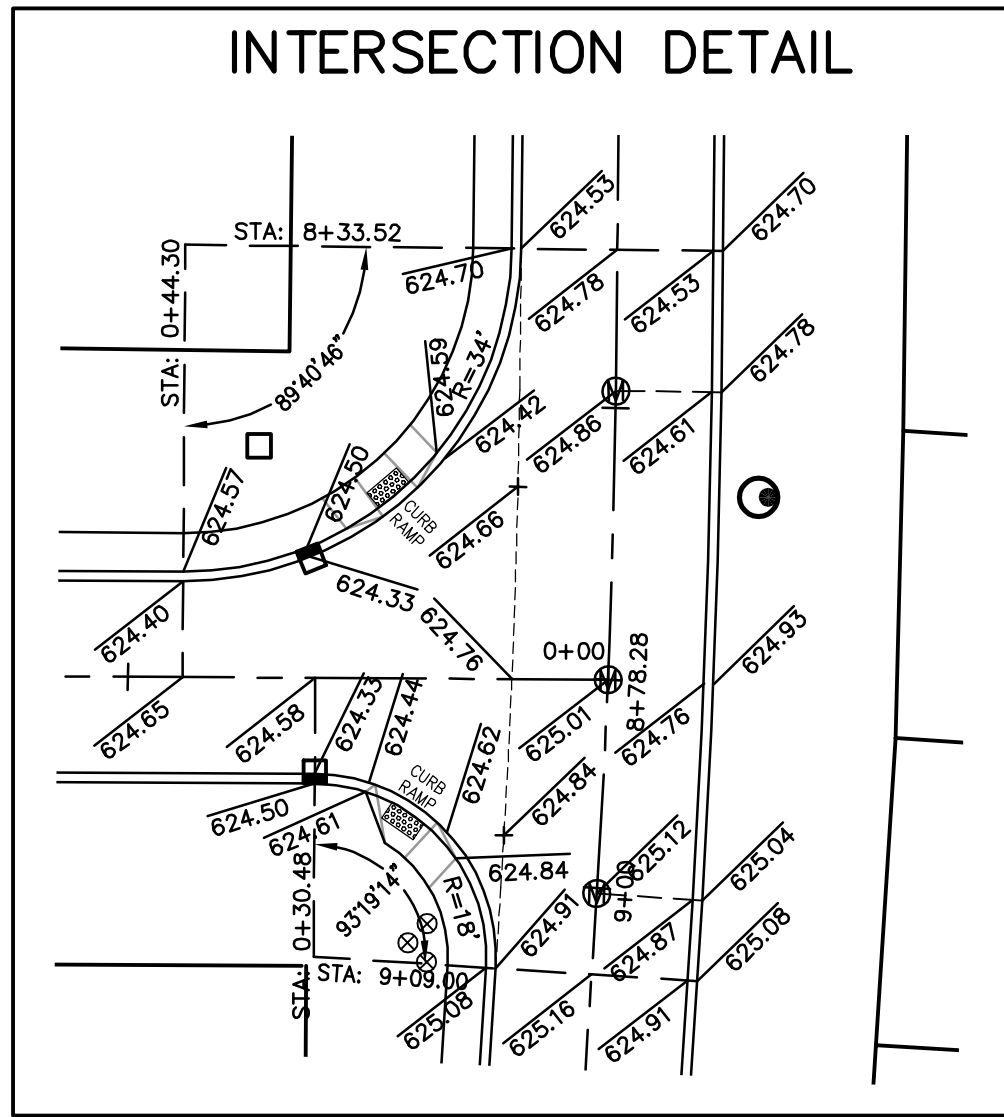
HARBOR CREST
TOWNHOUSE SUBD. NO. 1
IMPROVEMENT PLANS

THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

REVISIONS	
DATE	DESCRIPTION
10/28/2025	ADJUSTED INLET POSITION PER MOUND RELOCATION



NOTE:
* BLOCK "A" PRIVATE ROAD TO BE COVERED BY BLANKET
SANITARY SEWER AND WATER MAIN EASEMENT.



HARBOR CREST
TOWNHOUSE SUBD. NO. 1
IMPROVEMENT PLANS

THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

TITUS-PITTS-HILL OUTLET

VOLUMES ABOVE NORMAL WATER SURFACE				
ELEVATION (DATUM)	AREA (SQ. FT.)	AVE. AREA (SQ. FT.)	VOLUME INCREMENT (CU. FT.)	CUMUL. VOLUME (CU. FT.)
616.50	12,680	0	0	0
617.00	13,560	13,120	6,560	6,560
618.00	15,600	14,580	14,580	21,140
619.00	17,710	16,655	16,655	37,795
620.00	19,890	18,800	18,800	56,595
621.00	22,130	21,010	21,010	77,605
622.00	24,420	23,275	23,275	100,880
623.00	26,770	25,595	25,595	126,475
623.50	27,970	27,370	13,685	140,160

VOLUMES BELOW NORMAL WATER SURFACE				
ELEVATION (DATUM)	AREA (SQ. FT.)	AVE. AREA (SQ. FT.)	VOLUME INCREMENT (CU. FT.)	CUMUL. VOLUME (CU. FT.)
616.50	12,680	0	0	0
616.00	6,690	9,685	-4,843	-4,843
615.00	5,430	6,060	-6,060	-10,903
614.00	4,250	4,840	-4,840	-15,743
613.00	3,110	3,680	-3,680	-19,423
612.00	2,240	2,675	-2,675	-22,098
611.00	1,660	1,950	-1,950	-24,048
610.00	1,250	1,455	-1,455	-25,503
609.00	920	1,085	-1,085	-26,588

TEMPORARY SETTLING BASIN DESIGN CALCULATIONS

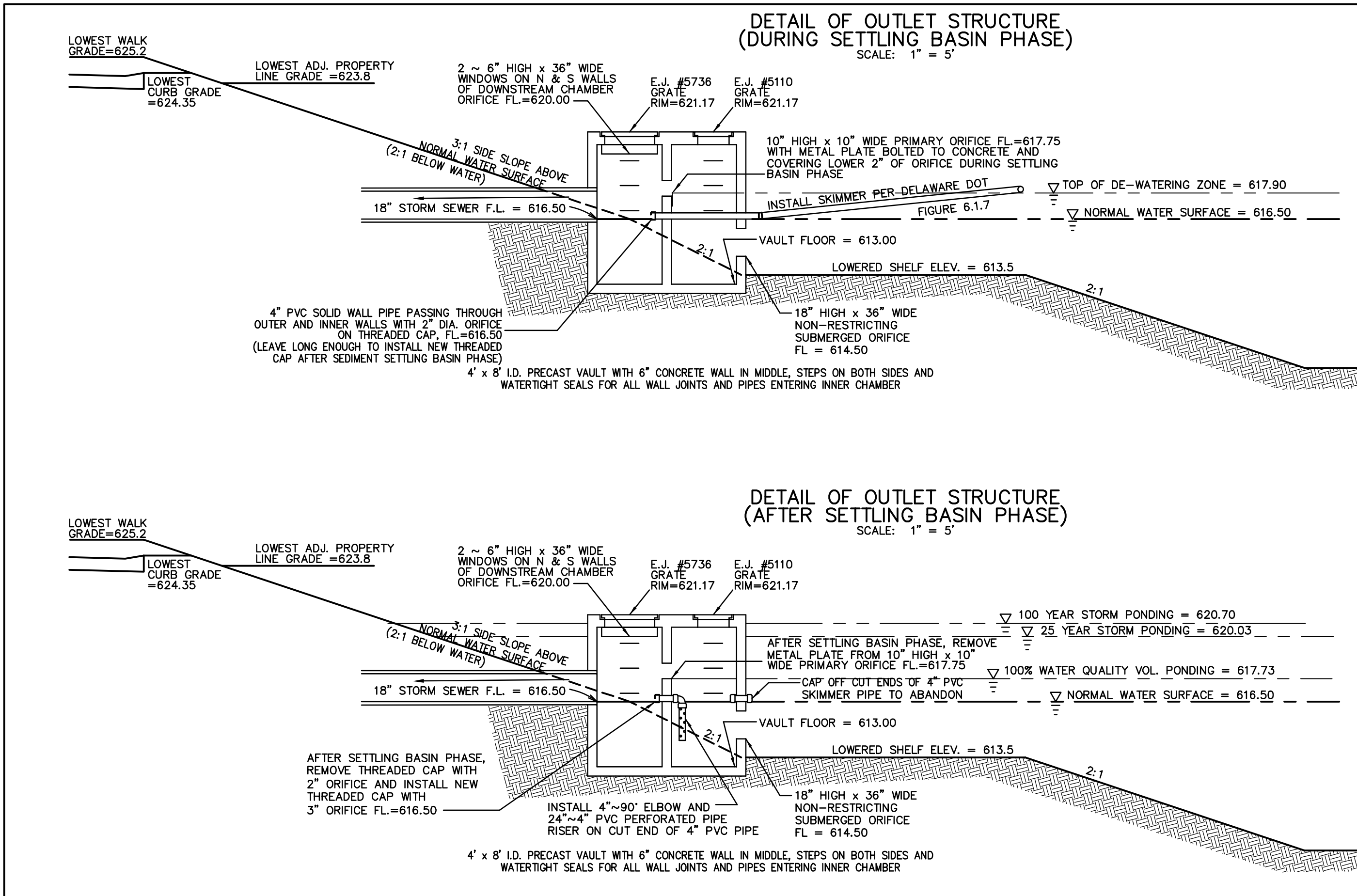
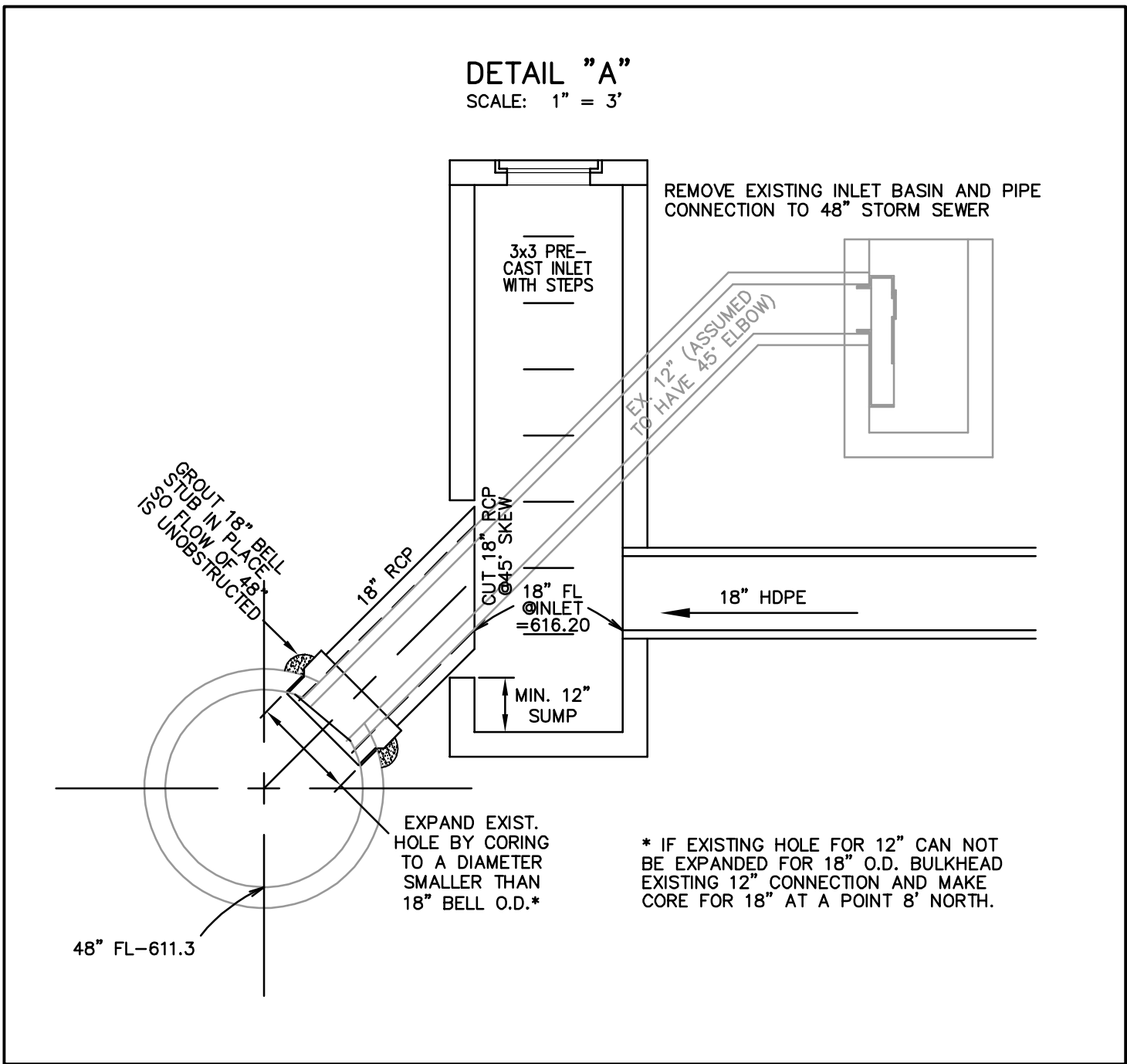
TOTAL TRIBUTARY AREA OF STORMWATER RUNOFF = 10.93 AC.
DEWATERING ZONE = (10.93 AC.) X (1,800 CF/AC.) = 19,674 CU. FT.
BASIN PONDING ELEV. AT 19,674 = 617.90
DEWATERING ZONE AVE. H = (617.90-616.50)/2 = 0.70'
AVE. DISCH. FOR DEWATERING ZONE:
 $Q = 19,674 \text{ CU. FT.} / (48 \text{ HR.} \times 3600 \text{ S/HR.}) = 0.1139 \text{ CFS.}$
ORIFICE AREA REQUIRED TO PROVIDE AVE DISCHARGE AT DEWATER AVE. H
 $= Q / 0.6 [64.4 (\text{AVE. H})^{0.5}] = 0.1139 / 0.6 [64.4 (0.70)^{0.5}] = 0.0283 \text{ S.F.} = 4.07 \text{ S.I.}$
USE 2" DIA. ROUND HOLE. A = 3.14 S.I.

DISTURBED AREA TRIBUTARY TO WATER QUALITY BASIN = 9.5 AC.
REQ. SEDIMENT STORAGE VOL. = (9.5 AC.) X (1,000 CF/AC.) = 9,500 CU. FT.
VOLUME BELOW NORMAL WATER SURFACE > REQ. STORAGE VOLUME: -OK-

WATER QUALITY VOLUME CALCULATIONS:

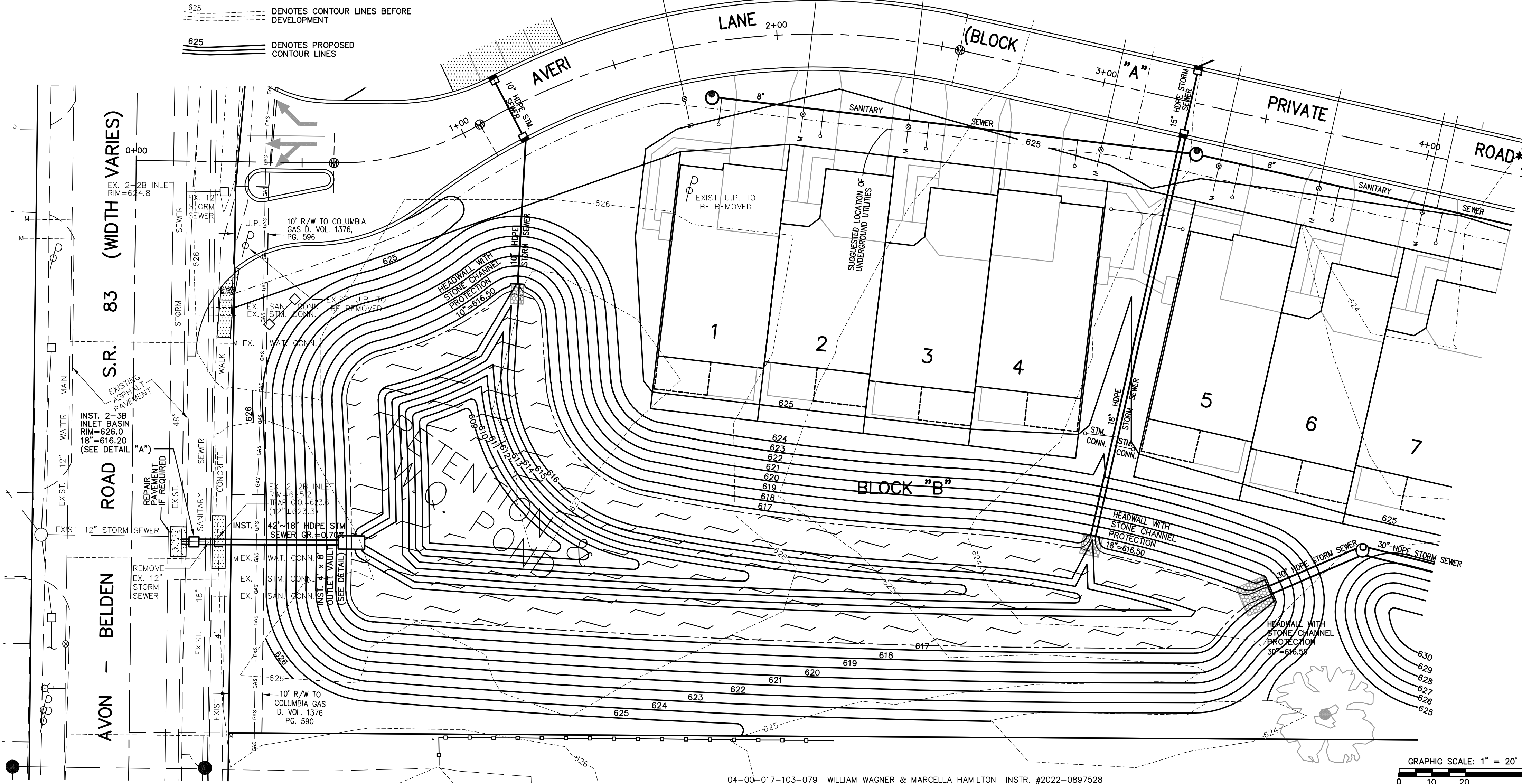
IMPERVIOUS AREAS AFTER DEVELOPMENT = 48%
(WEIGHTED AVE. OF % IMPERV. FROM EACH DRAINAGE SUB-AREA)
WATER QUALITY VOLUME REQUIRED:
 $RV = 0.05 + 0.9(\text{FRACTION IMPERV., AFTER DEV.})$
 $= 0.05 + 0.9(.48) = 0.482$
 $WQV = (RV)(\text{TOTAL AREA TRIB.})(0.90"/12")$
 $= (0.482)(10.93 \text{ AC.})(0.90"/12")$
 $= 0.3951 \text{ AC.-FT.} (X 43,560 = 17,210 \text{ CU. FT.})$

W.Q. BASIN CALCULATIONS:
(FROM VOLUMES ABOVE NORMAL WATER SURFACE TABLE ABOVE)
100% WATER QUALITY VOLUME (17,210 CU. FT.) OCCURS AT ELEVATION = 617.73
50% WATER QUALITY VOLUME (8,605 CU. FT.) OCCURS AT ELEVATION = 617.14
VOLUME BELOW NORMAL WATER SURFACE > 120% WATER QUALITY VOLUME (20,652 CU. FT.): -OK-
ORIFICE SIZE:
HEAD FOR WATER QUALITY ORIFICE AT 50% W.Q. VOLUME
 $= 617.14 - 623.00 - 0.12 = 0.52'$
AVE. DISCH. FOR 100% W. Q. VOLUME: Q
 $= 17,210 \text{ CU. FT.} / (24 \text{ HR.} \times 3600 \text{ S/HR.}) = 0.1992 \text{ CFS.}$
ORIFICE REQUIRED TO PROVIDE AVE DISCH. AT 1/2 WATER QUALITY RISE
 $A = Q / 0.6 [(64.4 H)^{0.5}] = 0.1992 / 0.6 [(64.4 \times 0.52)^{0.5}]$
 $= 0.0574 \text{ S.F.} = 8.26 \text{ SQ. IN.}$
USE 3" DIA. ROUND HOLE. A = 7.07 S.I.



LEGEND

625 DENOTES CONTOUR LINES BEFORE DEVELOPMENT
625 DENOTES PROPOSED CONTOUR LINES



HARBOR CREST
TOWNHOUSE SUBD. NO. 1
RETENTION DETAILS

THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

10/21
OCTOBER 2025

STORM SEWER DISCHARGE POINT

STORM WATER FROM THE SITE DISCHARGES IN THREE DIRECTIONS. THE MAJORITY OF THE DISCHARGE IS TRIBUTARY TO THE 48" MUNICIPAL STORM SEWER IN AVON BELDEN ROAD AND THE REMAINDER OF THE DISCHARGE IS TRIBUTARY TO THE HEADER DITCH THROUGH EITHER THE EXISTING LEGACY POINTE SUBD. #6 STORM SEWERS OR THE EXISTING WALKER ROAD STORM SEWERS.

REQUIRED CONSTRUCTION SEQUENCE FOR SEDIMENT CONTROL

AS PER CURRENT EPA REGULATIONS EROSION AND SEDIMENT CONTROL MUST BE INSTALLED AT TIME OF CLEARING OR PRIOR TO ANY EARTH DISTURBING ACTIVITY.

1. INSTALL PERIMETER SILT FENCING.
2. INSTALL CONSTRUCTION ENTRANCE WHERE INDICATED.
3. EXCAVATE WATER QUALITY PONDS WHICH ARE USED FOR SEDIMENT CONTROL IN ADDITION TO POST-CONSTRUCTION WATER QUALITY VOLUME.
4. CLEAR ALL WORK AREAS AND STRIP TOPSOIL.
5. ALL IMPROVEMENTS ON THIS SET OF DRAWINGS ARE TO BE COMPLETED AS ONE CONTINUOUS CONSTRUCTION OPERATION. A SECOND SUBDIVISION CONSTRUCTION PHASE IS BEING DESIGNED AND IS EXPECTED TO FOLLOW WITHIN A YEAR OF THESE IMPROVEMENTS AND IT WILL INCLUDE AN UPDATE TO THIS S.W.P.P.P.
6. ALL AREAS DISTURBED DURING GRADING, SEWER OR SWALE INSTALLATION TO BE SEED AS SOON AS INSTALLATION IS COMPLETE AND ALL AREAS DISTURBED DURING GRADING TO BE SEED AS SOON AS FINISHED GRADE IS REACHED. ANY AREA, INCLUDING TOPSOIL STOCKPILES, THAT WILL REMAIN DORMANT FOR TWENTY-ONE (21) DAYS SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OF THE MOST RECENT DISTURBANCE WITHIN THE AREA.
7. ROAD INLETS AND YARD DRAINS TO BE PROTECTED BY INSTALLING, CLEANING AND MAINTAINING FILTERS ON GRATES ("BLOCKSUM" OR APPROVED EQUAL).
8. ANY SEDIMENT LADEN GROUND WATER ENCOUNTERED DURING EXCAVATION AND/OR TRENCHING SHALL BE TREATED PRIOR TO DISCHARGE.
9. ALL SEDIMENT CONTROL MEASURES TO BE CLEANED AND MAINTAINED IN GOOD WORKING ORDER THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL VEGETATION HAS BEEN ESTABLISHED.
10. SEDIMENT CONTROL FOR INDIVIDUAL BUILDING CONSTRUCTION TO BE PROVIDED AT EACH BUILDING SITE BY MAINTAINING FILTERS ON STREET INLETS AND REAR YARD DRAINS ACCORDING TO PAGE 14 OF THE ATTACHED 8.5" x 11" PAGES OF THE S.W.P.P.P.
11. INSPECTION OF ALL SEDIMENT CONTROL MEASURES IS TO BE CARRIED OUT AS REQUIRED BY THE E.P.A., N.P.D.E.S. PERMIT DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO MAINTAIN RECORDS OF THE CONDITION OF THE CONTROL MEASURES AS WELL AS THEIR EFFECTIVENESS AND ANY NECESSARY CORRECTIVE ACTIONS. INSPECTIONS ARE TO BE MADE AT LEAST ONCE A WEEK AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH OF RAIN. WEEKLY REPORTS ARE TO BE SUBMITTED TO THE CITY AND MAINTAINED UNTIL THE AREAS DISTURBED HAVE BEEN RE-VEGETATED AND THE SUBDIVISION IS COMPLETED. FAILURE TO PROPERLY MAINTAIN SEDIMENT CONTROLS CAN RESULT IN WORK BEING STOPPED AND/OR FINES AS PERMITTED.
12. ANY VARIANCE FROM SEQUENCE OF CONSTRUCTION DESCRIBED ON THIS SHEET MUST BE REVIEWED AND APPROVED BY THE CITY ENGINEERING DEPARTMENT PRIOR TO CONSTRUCTION.
13. AFTER BUILD-OUT OF ALL RESIDENTIAL BUILDINGS AND ESTABLISHMENT OF PERMANENT VEGETATION, OBSERVE POND FLOOR ELEVATIONS AND DREDGE IF LESS THAN 60% OF THE DESIGN VOLUME REMAINS BELOW WATER SURFACE. POND OUTLET VAULTS TO BE CONVERTED FROM SETTLING BASIN PHASE TO PERMANENT WATER QUALITY FUNCTIONING PER DETAIL ON SHEET 10/24 OF THE IMPROVEMENT PLAN SET.

MAINTENANCE

THE HOMEOWNERS ASSOCIATION WILL BE RESPONSIBLE FOR ALL INSPECTION AND MAINTENANCE OF THE POST-CONSTRUCTION STORM WATER MANAGEMENT SYSTEM ACCORDING TO THE FOLLOWING SCHEDULE:
WEEKLY: MOW AREA AROUND PONDS AND CLEAN ACCUMULATED TRASH AND DEBRIS.
PAYING SPECIAL ATTENTION TO THE POND OUTLET STRUCTURES AND THE HEADWALLS.
YEARLY: INSPECT POND BANKS FOR EROSION AND REPAIR AS NEEDED. REMOVE WOODY INVASIVE VEGETATION, CHECK FOR ADEQUATE VEGETATIVE COVER AND MONITOR SEDIMENT ACCUMULATION.
3-5 YEARS: MONITOR SEDIMENT ACCUMULATION UNDER POND NORMAL POOL LEVELS AND REMOVE WHEN SILT OCCUPIES 40% OF POND DEPTH. MONITOR STONE CHANNEL PROTECTION AT HEADWALLS AND REPLACE OR REPLENISH AS REQUIRED TO PREVENT BARE SOIL EXPOSURE IN HIGH FLOW AREAS.

INSPECTIONS

INSPECTION OF ALL SEDIMENT CONTROL MEASURES IS TO BE CARRIED OUT AS REQUIRED BY THE E.P.A., N.P.D.E.S. PERMIT DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO MAINTAIN RECORDS OF THE CONDITION OF THE CONTROL MEASURES AS WELL AS THEIR EFFECTIVENESS AND ANY NECESSARY CORRECTIVE ACTIONS. INSPECTIONS ARE TO BE MADE AT LEAST ONCE A WEEK AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH OF RAIN. WEEKLY REPORTS ARE TO BE SUBMITTED TO THE CITY AND MAINTAINED UNTIL THE AREAS DISTURBED HAVE BEEN RE-VEGETATED AND THE SUBDIVISION IS COMPLETED. FAILURE TO PROPERLY MAINTAIN SEDIMENT CONTROLS CAN RESULT IN WORK BEING STOPPED AND/OR FINES AS PERMITTED.

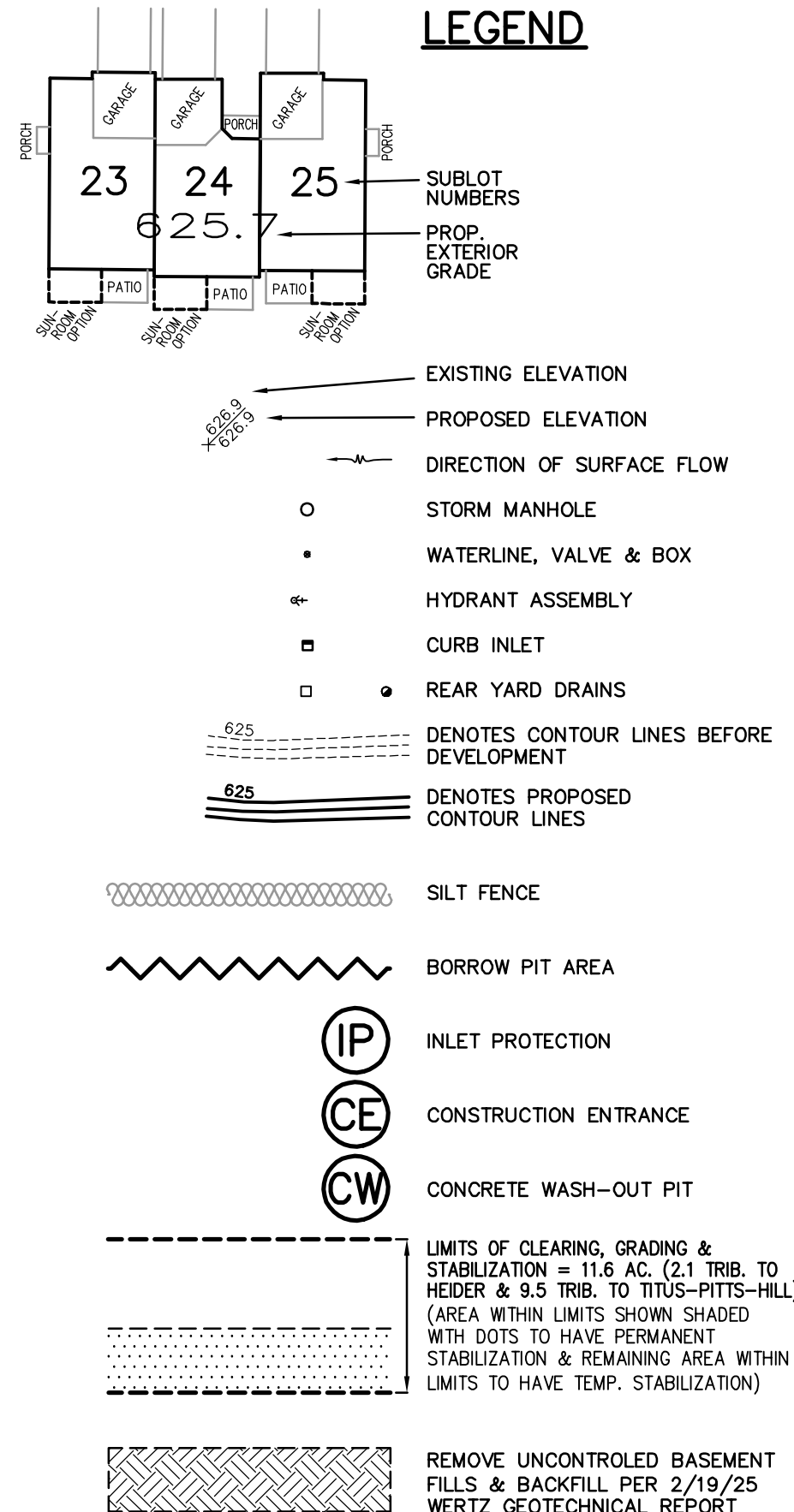
POST-CONSTRUCTION RUNOFF CONTROL METHODS

THIS PLAN HAS BEEN DESIGNED TO PROVIDE PERMANENT POST-CONSTRUCTION STORM WATER POLLUTION CONTROL UTILIZING THE FOLLOWING CONTROLS:

• THE PRIMARY METHOD OF STORM WATER POLLUTION CONTROL WILL BE THE ESTABLISHMENT OF PERMANENT, DENSE, VIGOROUS VEGETATION CONSISTING OF KENTUCKY BLUEGRASS, CREEPING RED FESCUE, AND WHITE DUTCH CLOVER, OR APPROVED EQUAL, TO INCREASE INFILTRATION, ALLOW SETTLING OF SEDIMENT, AND REDUCE PEAK FLOWS DURING STORM EVENTS.

• STORMWATER DETENTION PROVIDED FOR THIS AREA REDUCES THE PEAK RATES OF STORMWATER RUNOFF TO LESS THAN THE PRE-DEVELOPMENT CONDITIONS AND THEREBY INCREASES THE OPPORTUNITY FOR INFILTRATION.

LEGEND



S.W.P.P.P. PREPARED BY
THE HENRY G. REITZ ENGINEERING CO.
BY: JAMES I. SAYLER, P.E., VICE PRES.
(216) 251-3033, REITZ@REITZENG.COM

DUTY TO INFORM
THE PERMITEE SHALL INFORM ALL CONTRACTORS AND SUBCONTRACTORS WHO WILL BE INVOLVED IN THE IMPLEMENTATION OF THE SWPPP OF THE TERMS AND CONDITIONS OF THE GENERAL PERMIT

CONTRACTOR RESPONSIBLE FOR S.W.P.P.P.

BY: _____

S.W.P.P.P. APPROVED BY CITY OF AVON LAKE

BY: _____

REQUIRED SEQUENCE FOR MASS GRADING

- 1) AFTER CLEARING AND STUMPING THE WORK AREAS, PUSH TOPSOIL INTO WINDROWS UNTIL BORROW PITS ARE EXCAVATED. (±12,900 CU. YD. FROM STREETS & BUILDING PADS & ±1,700 CU. YD. FROM BORROW PIT AREA)
- 2) UNDERCUT UNCONTROLLED FILL WITHIN FOOTPRINTS OF RAZED STRUCTURES WITH AN OVER DIG OF 10' BEYOND THE FOUNDATION LIMITS AND SIDE EARTH EMBANKMENTS SLOPED AT 1:1 WHERE THEY ARE UNDERNEATH PROPOSED STREET AND BUILDING PAD LOCATIONS.
- 3) PLACE AND COMPACT STREET AND BUILDING PADS FILLS TO SUBGRADE ELEVATION (WITH ALLOWANCE FOR FUTURE PLACEMENT OF TRENCH AND PAVEMENT SLOT SPOILS) WITH CLAY FROM: THE AVON-BELDEN RD. POND EXCAVATION (±5,700 CU. YD.) THE WALKER RD. POND & ADJ. BORROW PIT EXCAVATION (±3,700 CU. YD.) BORROW PIT BEHIND UNITS 43-58 (±4,500 CU. YD.) BORROW PIT BEHIND UNITS 40-42 (±700 CU. YD.)
- 4) BACKFILL BORROW PITS WITH SHALE FROM BOTTOM OF BASIN EXCAVATIONS (±600 CU. YD.), UNSUITABLE MATERIAL FROM FORMER BASEMENT FILLS AND FROM THE WINDROWED TOPSOIL.
- 5) PLACE FOOTER SPOILS FROM THE TOWNHOMES AS THEY ARE BUILT TO FILL REAR AND SIDE YARDS UP TO FINISH GRADE AND IN MOUNDS.

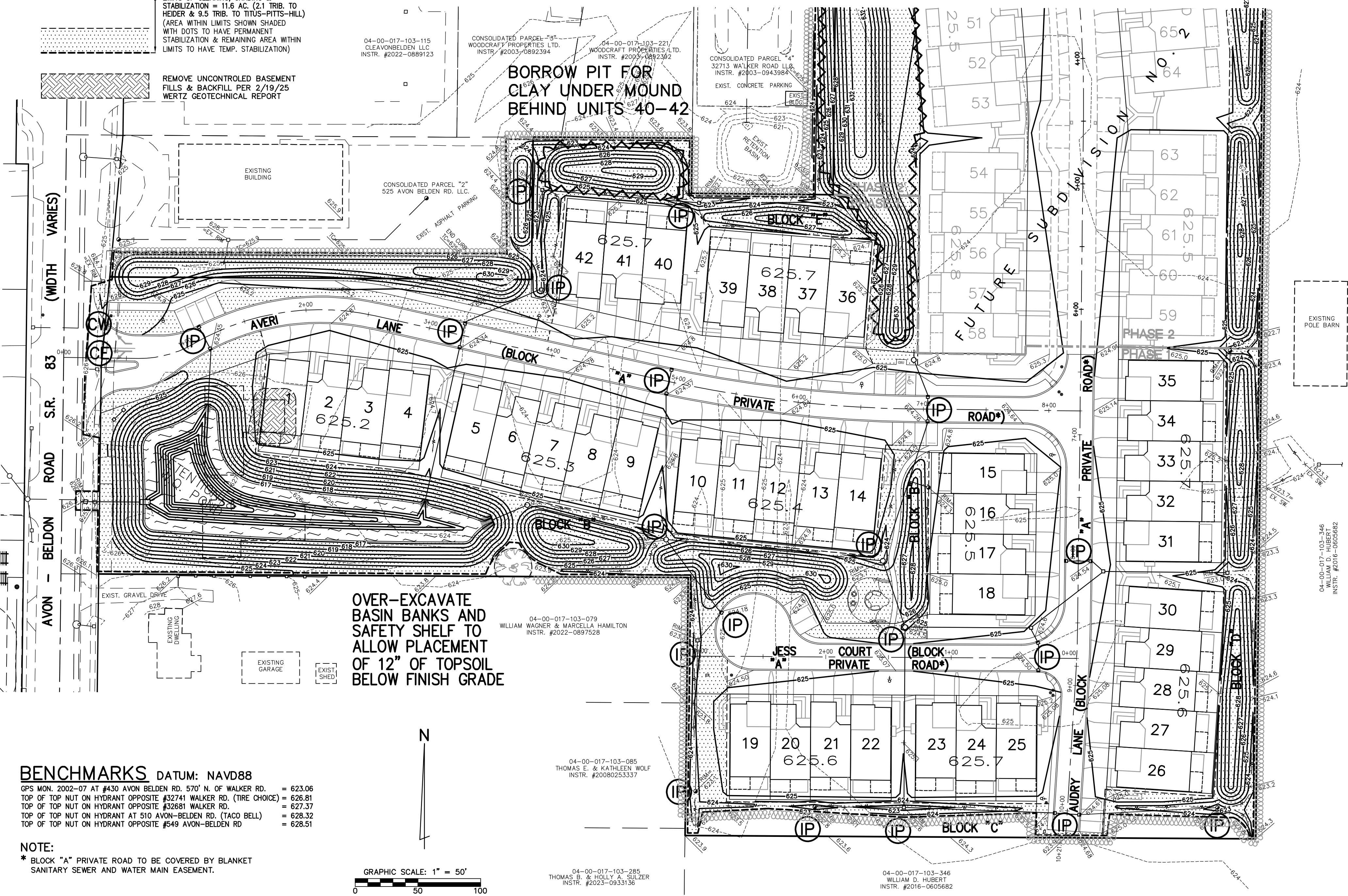
PRIMARY CONTACT INFORMATION:

JON KLUTTS
PULTE GROUP, LAND DEVELOPMENT MANAGER
387 MEDINA ROAD, SUITE 1700
MEDINA, OH 44256
216-219-1828
JONATHAN.KLUTTS@PULTEGROUP.COM

CONTRACTOR INFORMATION:

NAME: _____
COMPANY: _____
ADDRESS: _____
PHONE #: _____
EMAIL: _____

ESTIMATED CONSTRUCTION PERIOD:
START DATE: FEB. 2026
COMPLETION DATE: DEC. 2027

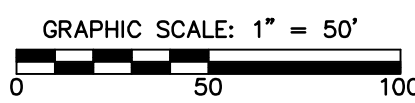


BENCHMARKS DATUM: NAVD88

GPS MON. 2002-07 AT #430 AVON BELDEN RD. 570' N. OF WALKER RD. = 623.06
TOP OF TOP NUT ON HYDRANT OPPOSITE #32741 WALKER RD. (TIRE CHOICE) = 626.81
TOP OF TOP NUT ON HYDRANT OPPOSITE #32681 WALKER RD. = 627.37
TOP OF TOP NUT ON HYDRANT AT 510 AVON-BELDEN RD. (TACO BELL) = 628.32
TOP OF TOP NUT ON HYDRANT OPPOSITE #649 AVON-BELDEN RD. = 628.51

NOTE:

* BLOCK "A" PRIVATE ROAD TO BE COVERED BY BLANKET SANITARY SEWER AND WATER MAIN EASEMENT.

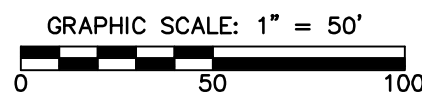


HARBOR CREST
TOWNHOUSE SUBD. NO. 1
SWPPP SITE PLAN

THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

11/21
OCTOBER 2025

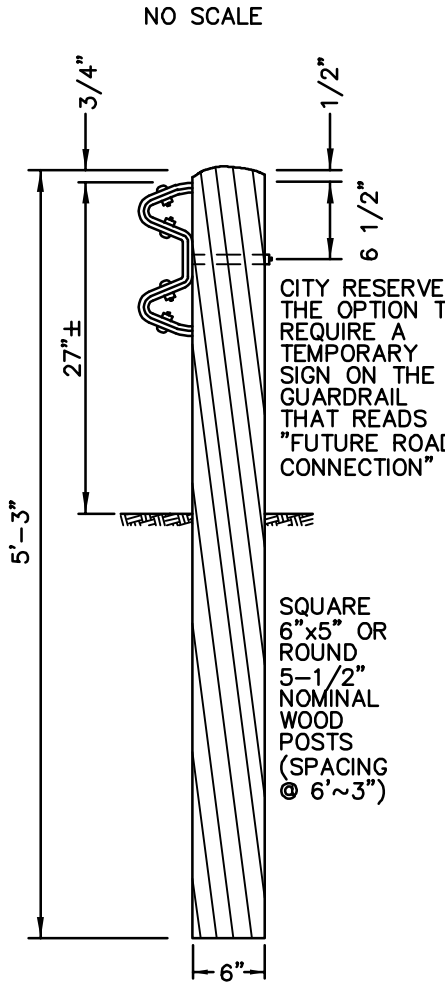
REVISIONS
10/29/2025
ADDED BORROW PITS & MASS GRADING INFO & MOVED MOUND INTO ADJ. EASEMENT



12/21
OCTOBER
2025

[illegible]

GUARD RAIL DETAIL



STREET NAME & STOP SIGN SPECIFICATIONS

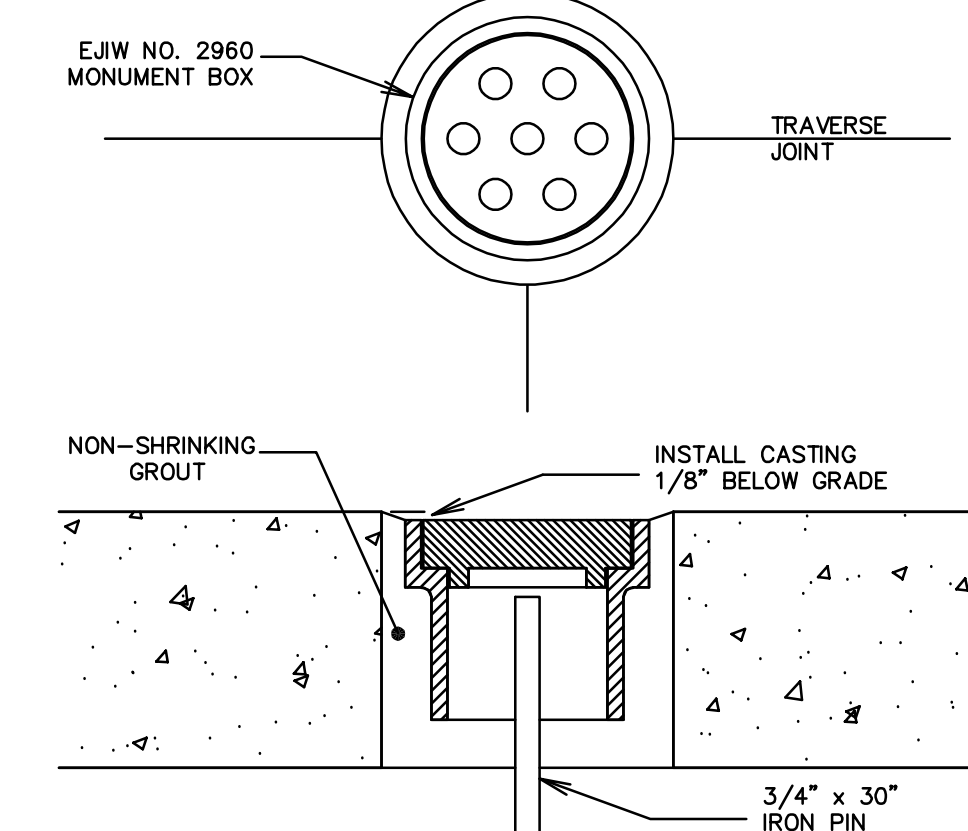
STREET NAME AND STOP SIGNS TO HAVE 13 GAGE GALVANIZED SQUARE POSTS, 14" IN LENGTH AND PLACED 3" IN GROUND. STOP SIGNS TO BE 30" DIAMOND GRADE. IF INTERSECTION IS AT A MAIN ROAD DIAMOND GRADE IS RECOMMENDED. INSTALL BOTTOM OF SIGN 7" ABOVE GROUND. STREET NAME SIGNS TO HAVE 9" ALUMINUM BLADE, 6" LETTERS, DOUBLE-SIDED, DIAMOND GRADE AND WHITE ON GREEN. POST CAP FLAT BRACKET IS 12". CROSS PIECE FLAT BRACKET IS 12". BOLTS ARE TO BE VANDAL PROOF.

PAVEMENT AT STORM M.H.s

SEE ALRW-SAN-28 DETAIL ON FOLLOWING SHEET FOR PAVEMENT BOX-OUT DETAILS IF M.H. CASTING IS INSIDE PAVEMENT LIMITS. CASTING SHALL BE MIN. 12" FROM EDGE IF IT IS NEAR THE EDGE OF PAVEMENT.

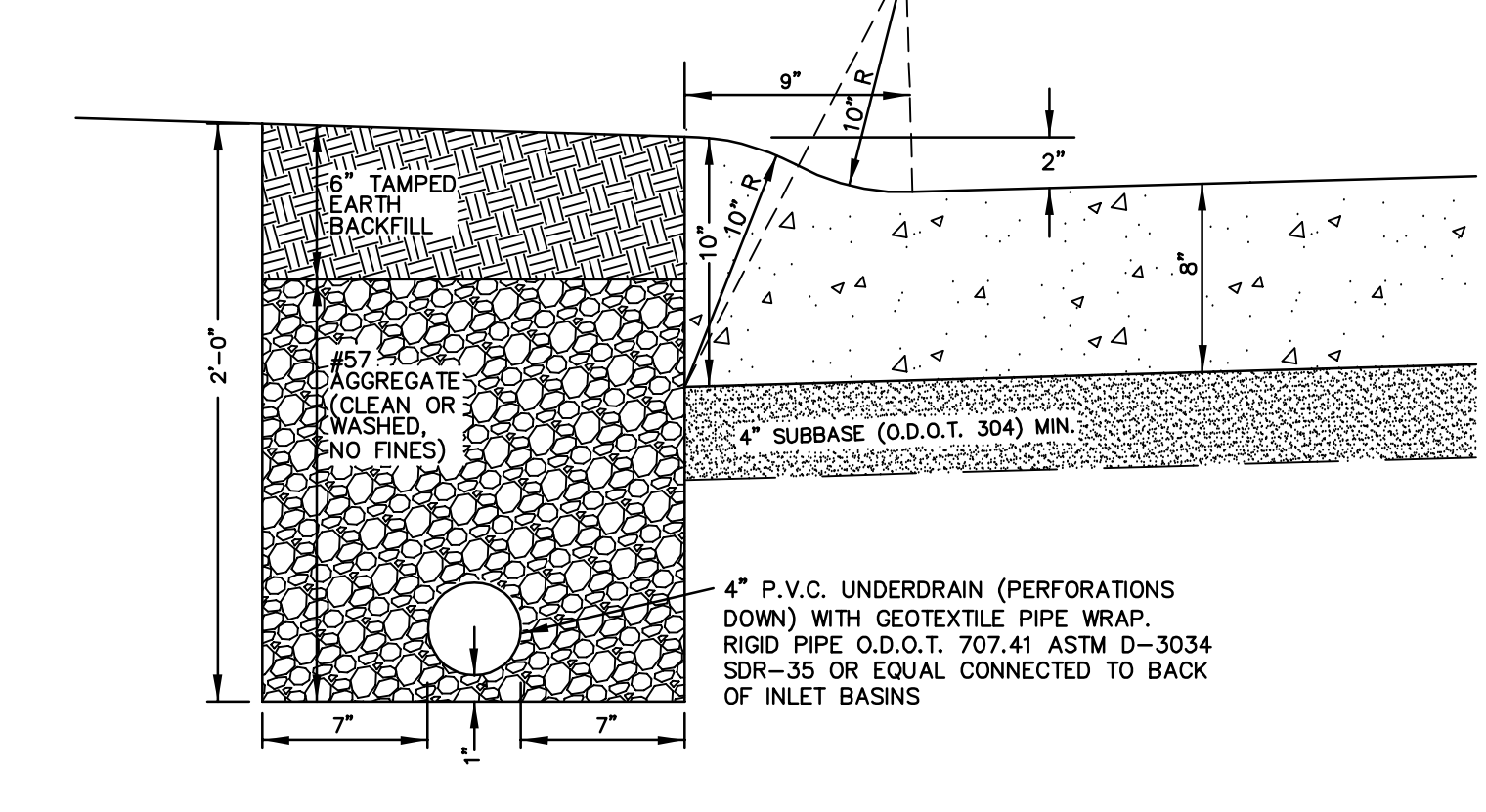
MONUMENT BOX

SCALE: 1" = 6"

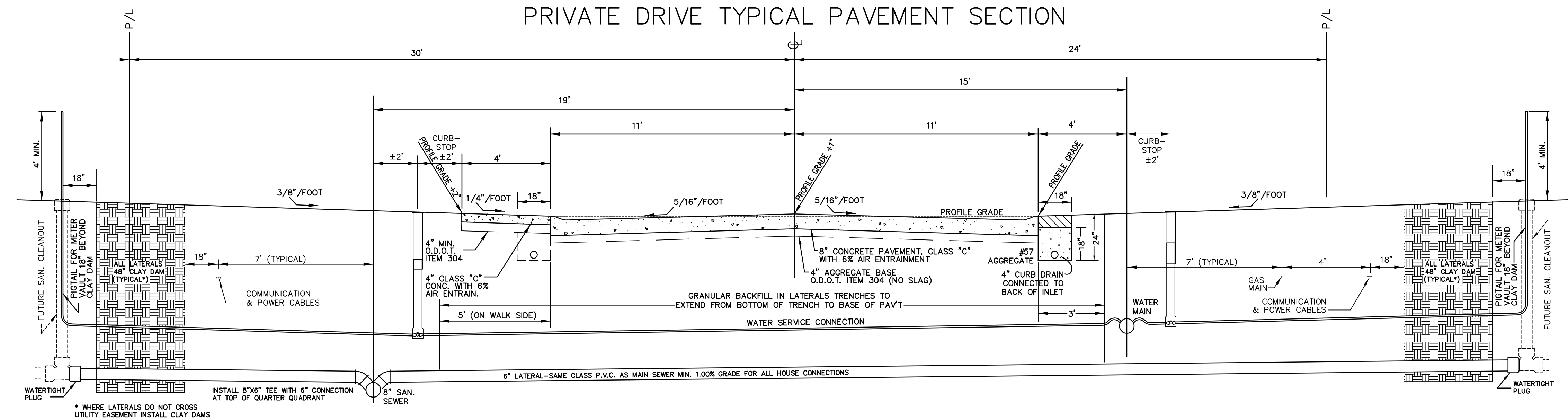


PRIVATE DRIVE 2" CURB & UNDERDRAIN DETAIL

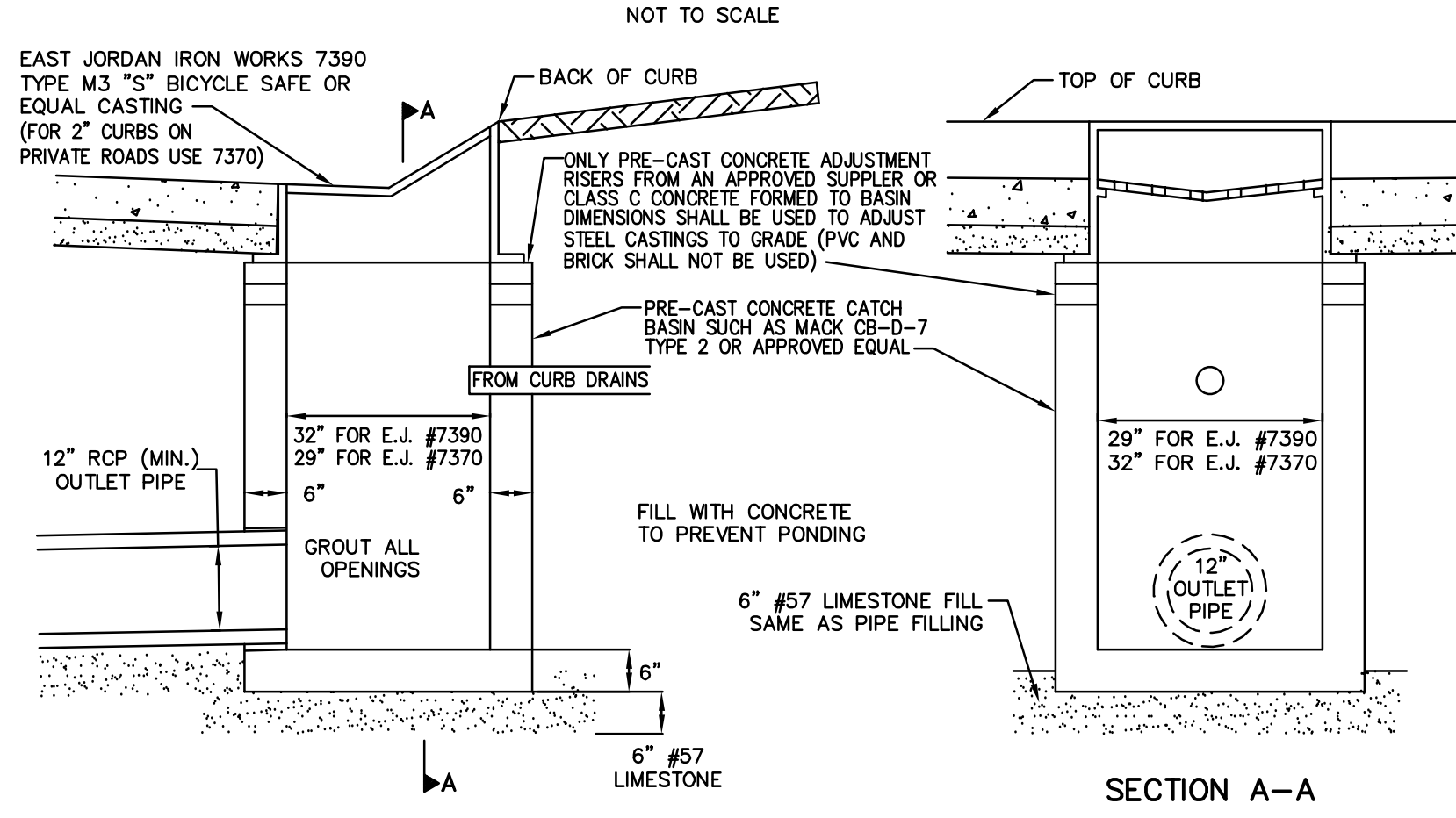
NOT TO SCALE



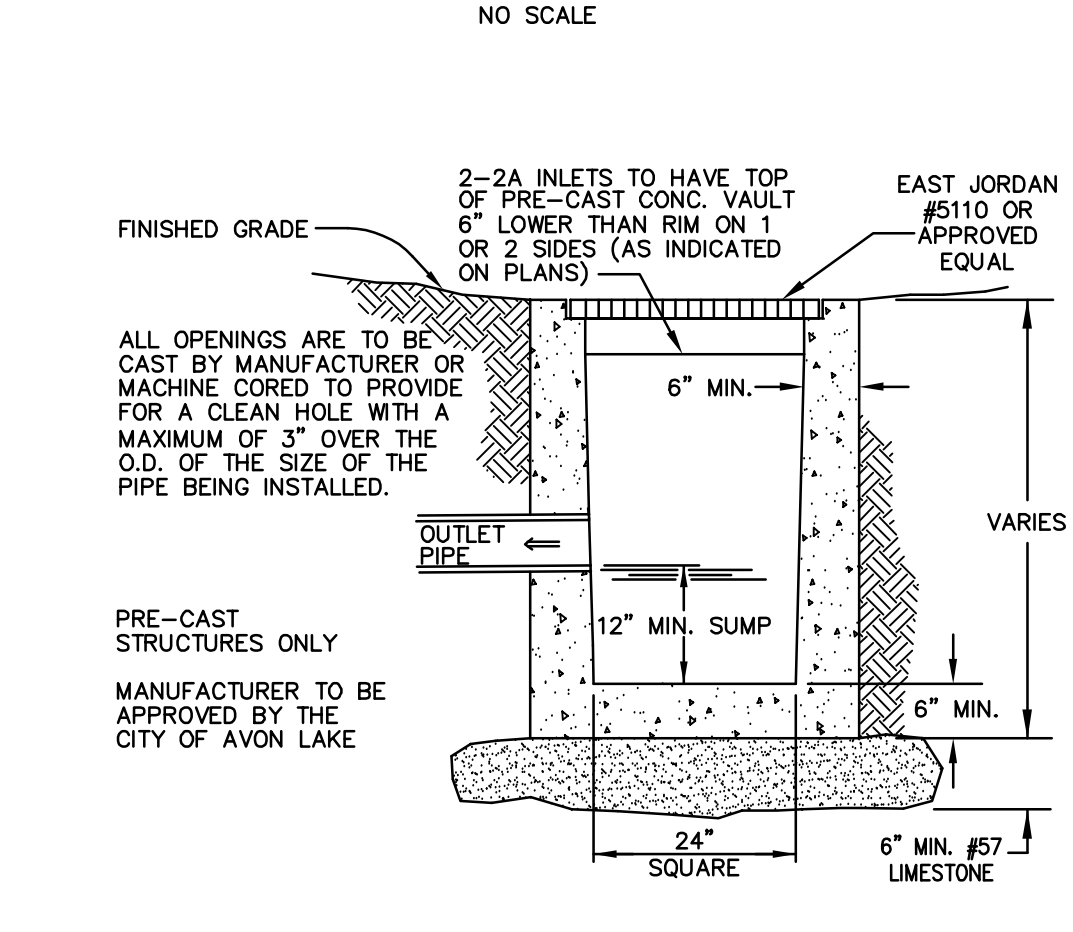
PRIVATE DRIVE TYPICAL PAVEMENT SECTION



CURB INLET BASIN DETAIL

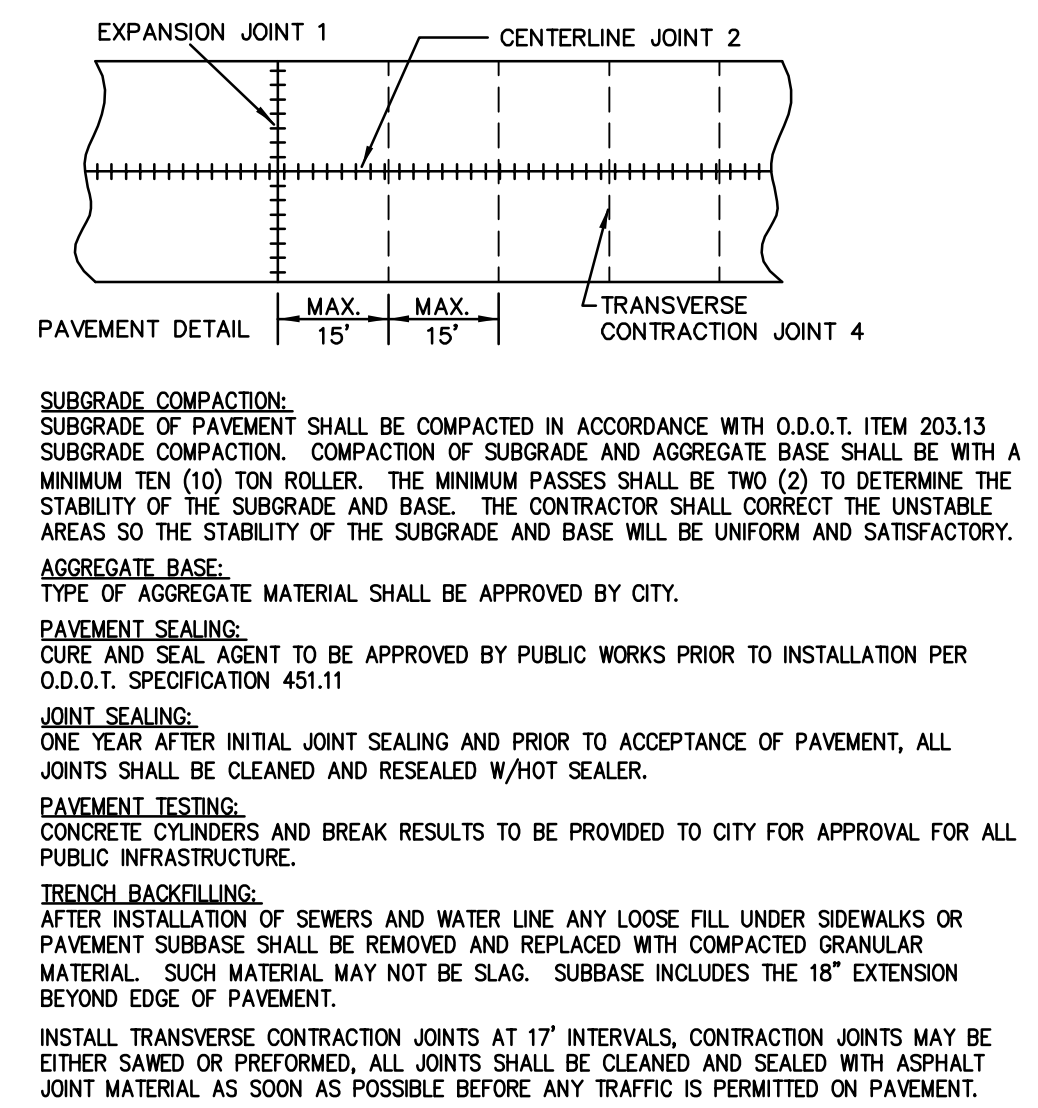
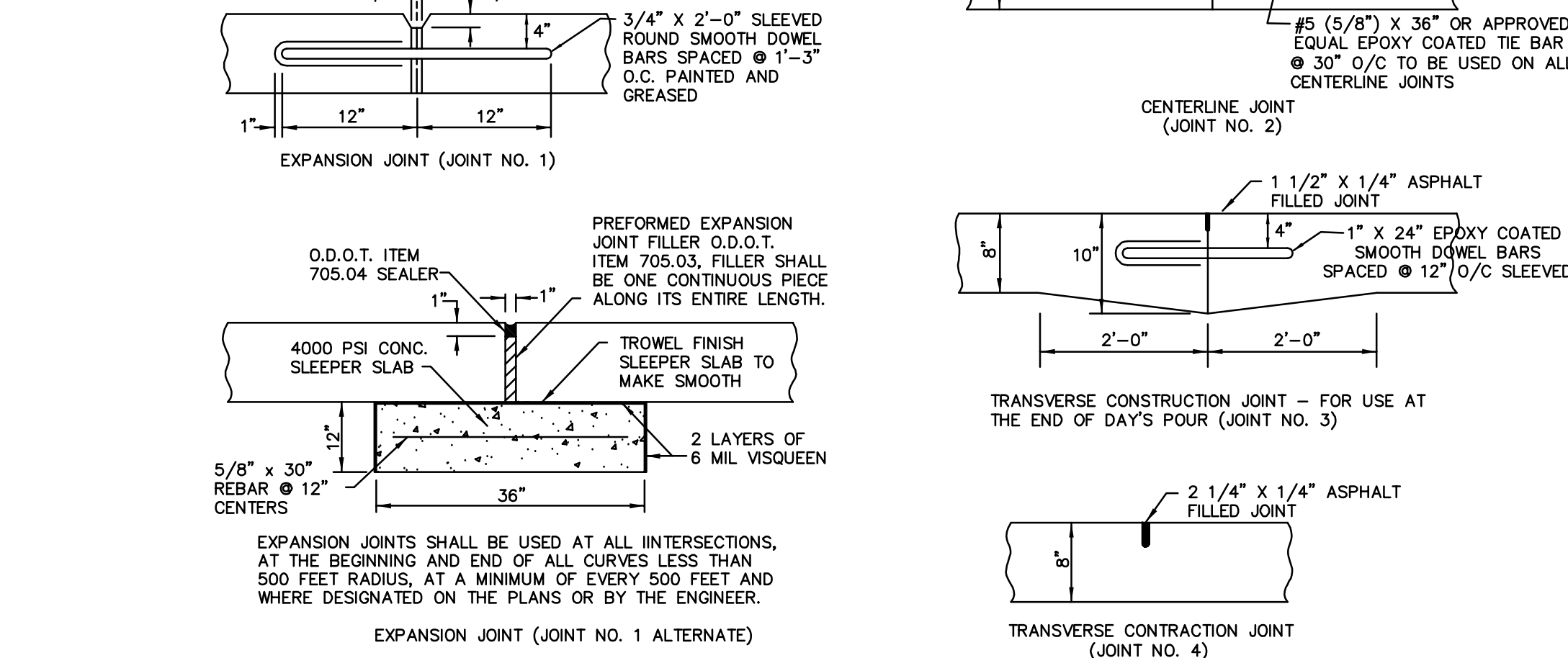


2-2A & 2-2B INLET DETAIL



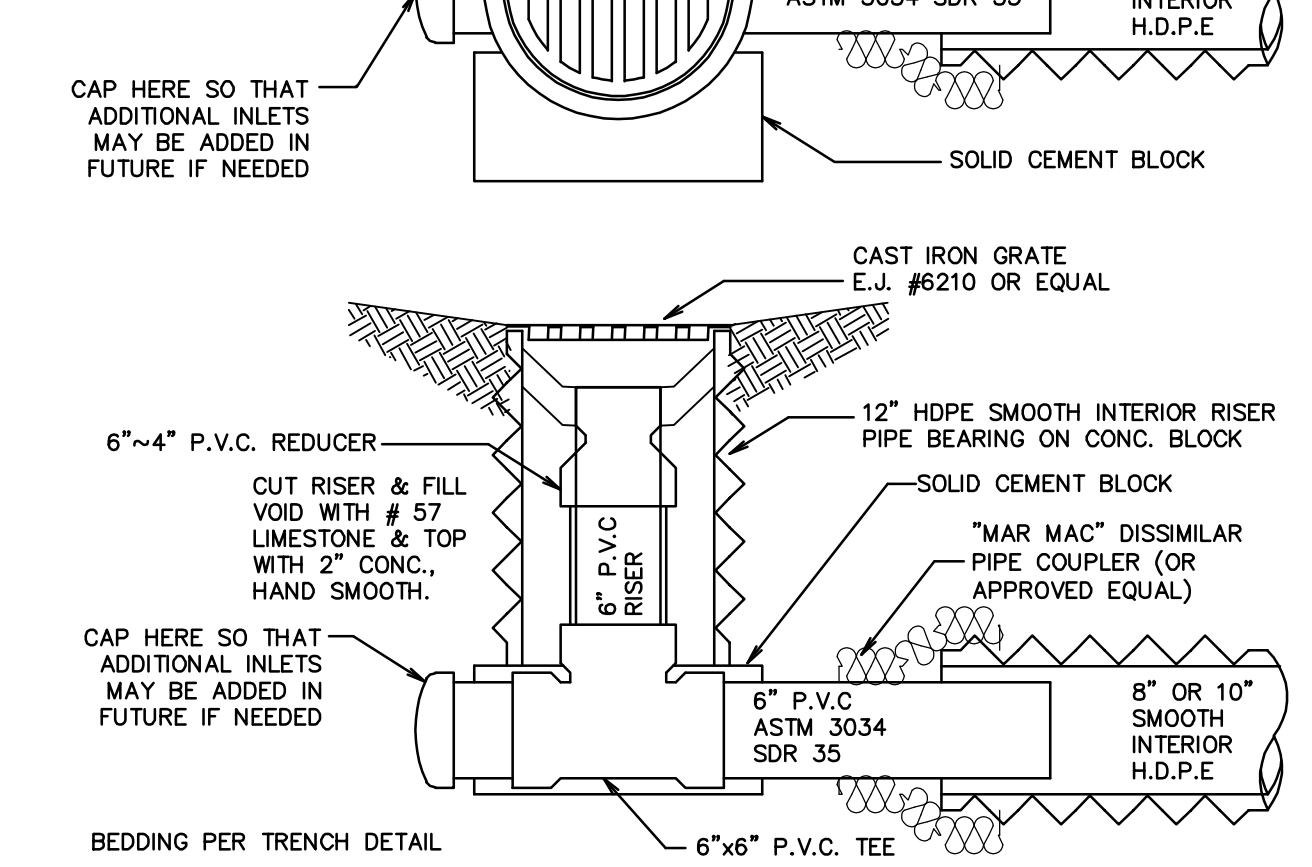
PAVEMENT JOINT DETAILS

(NO SCALE)



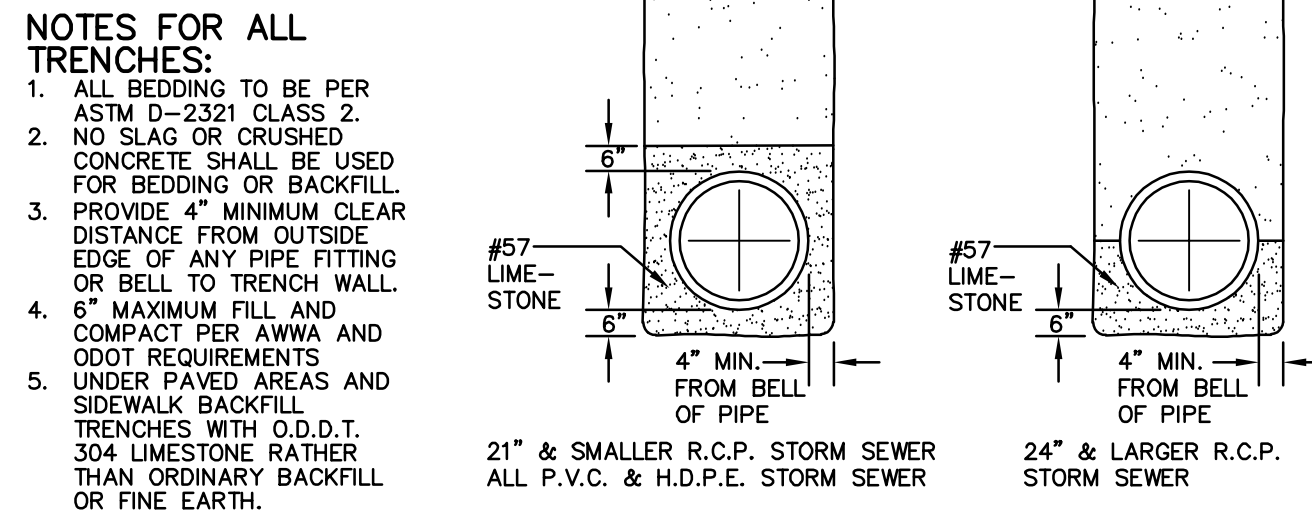
PVC RISER INLET DETAIL

SCALE: 1" = 1'



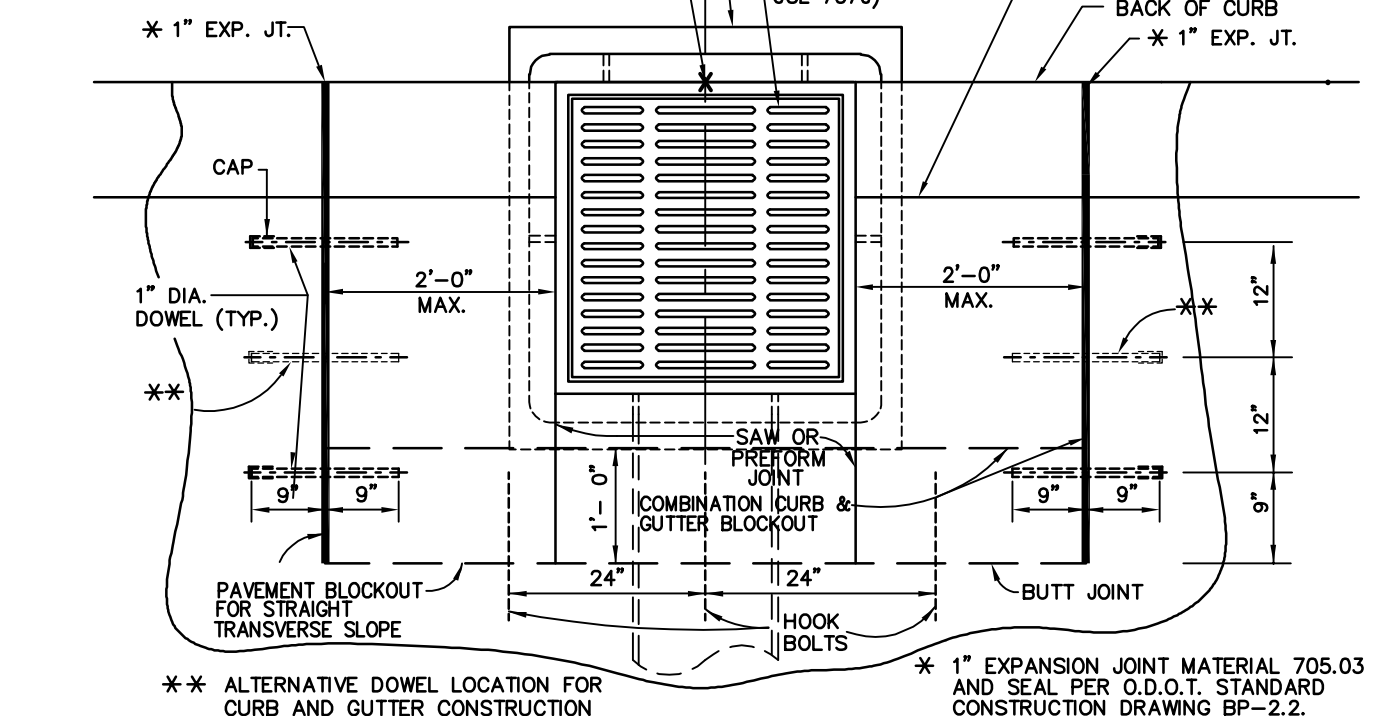
TRENCH DETAILS

(NO SCALE)



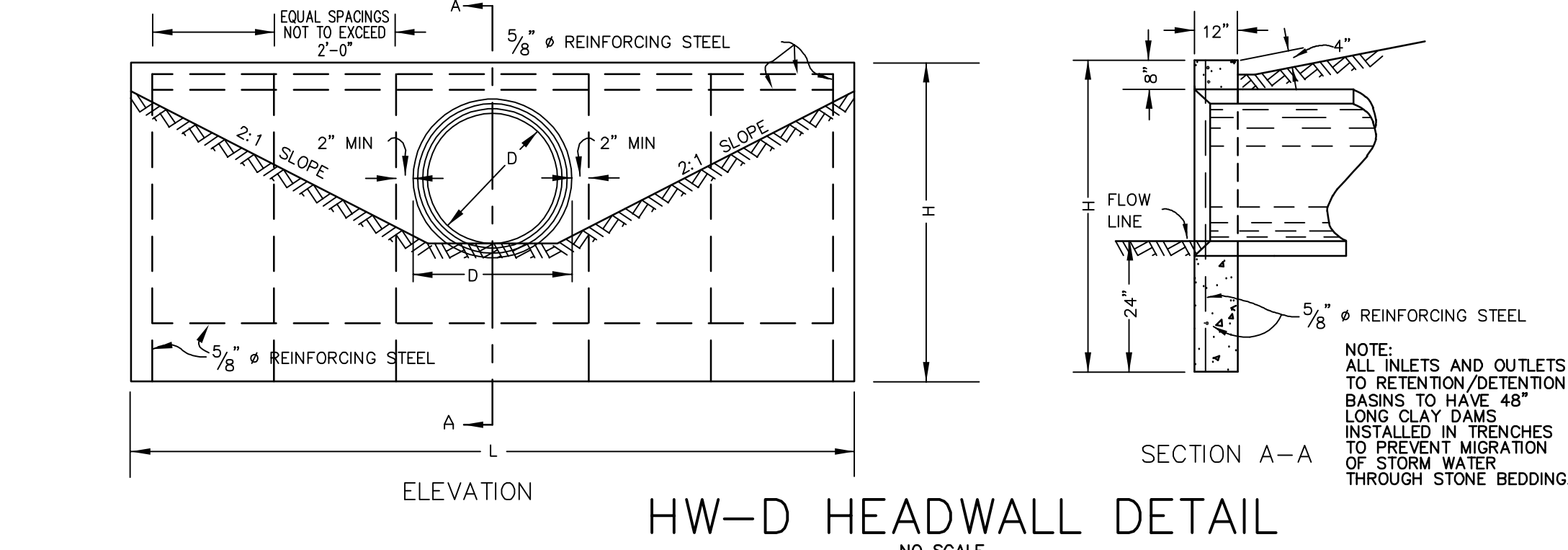
CATCH BASIN & PAVEMENT JOINTS DETAIL

(NO SCALE)



HW-D HEADWALL DETAIL

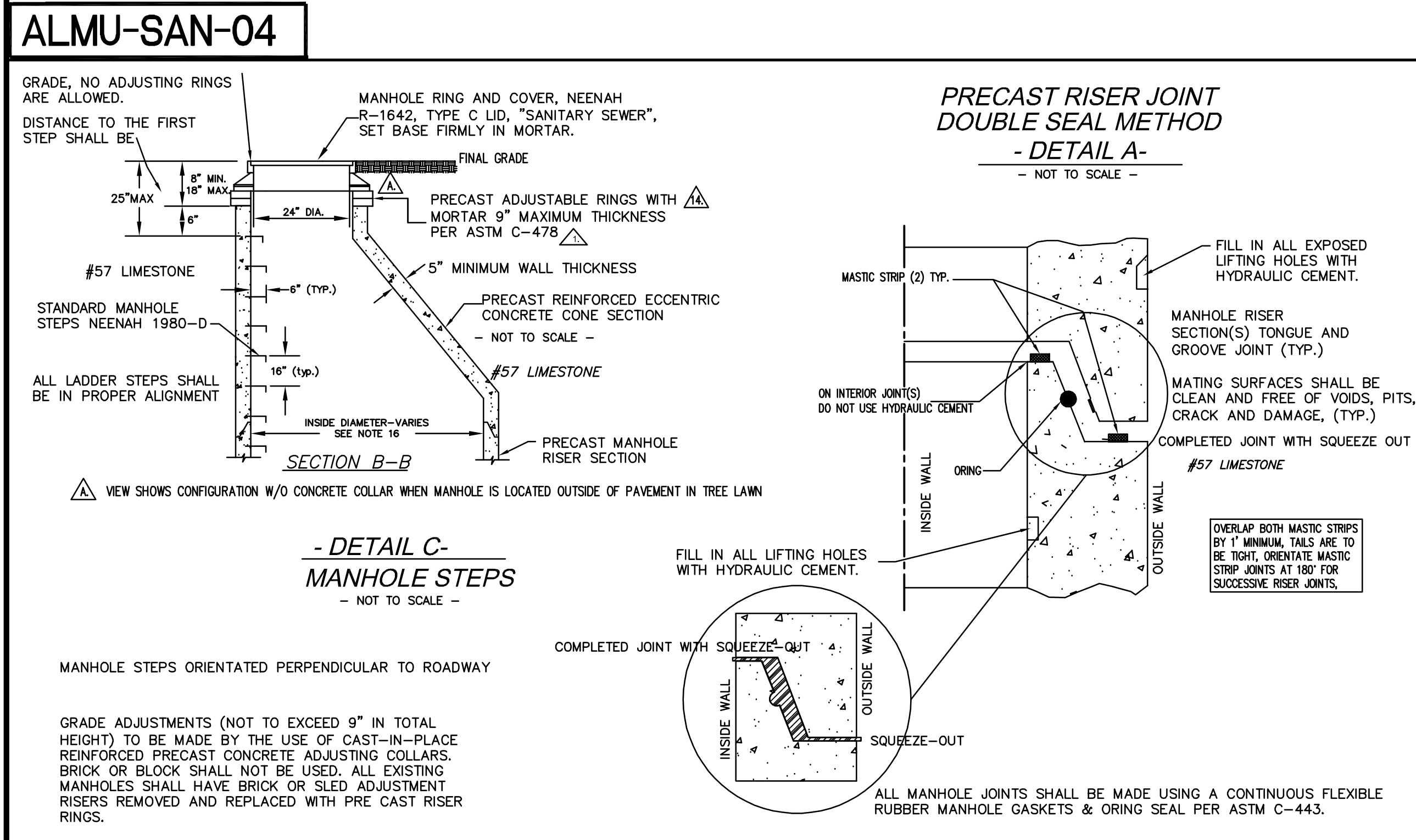
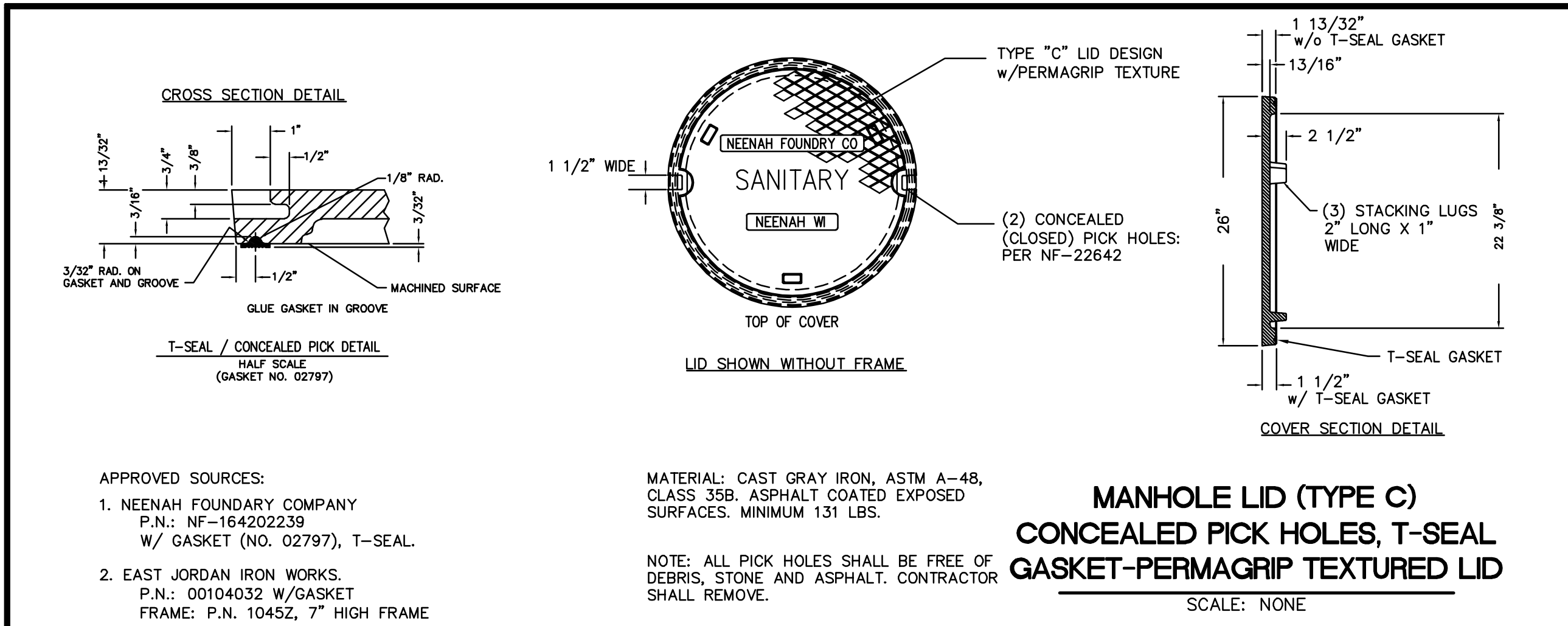
NO SCALE



DIMENSIONS				QUANTITIES ONE HEADWALL	
DIAMETER	L	H		CONCRETE CU. YDS.	WEIGHT TONS
8"	3'-6"	4'-2"		0.54	1.09
10"	3'-9"	4'-4"		0.57	1.16
12"	4'-0"	4'-6"		0.60	1.22
15"	5'-0"	4'-9"		0.78	1.58
18"	5'-9"	5'-0"		0.93	1.88
21"	6'-9"	5'-3"		1.13	2.29
24"	7'-6"	5'-6"		1.32	2.67
27"	8'-6"	5'-9"		1.55	3.14
30"	9'-3"	6'-0"		1.73	3.51
36"	11'-0"	6'-6"		2.22	4.50

HARBOR CREST TOWNHOUSE SUBD. NO. 1 DETAIL SHEET

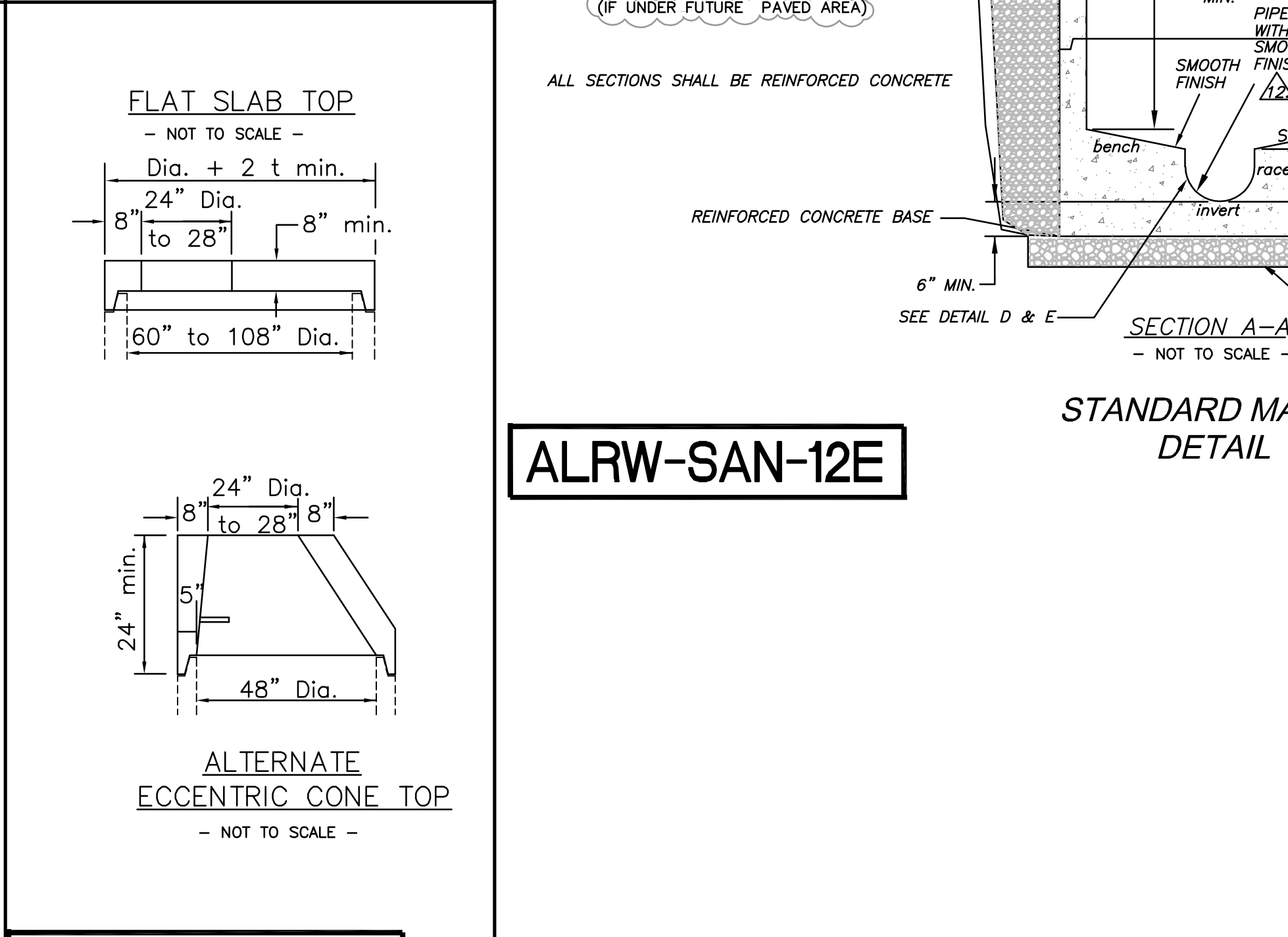
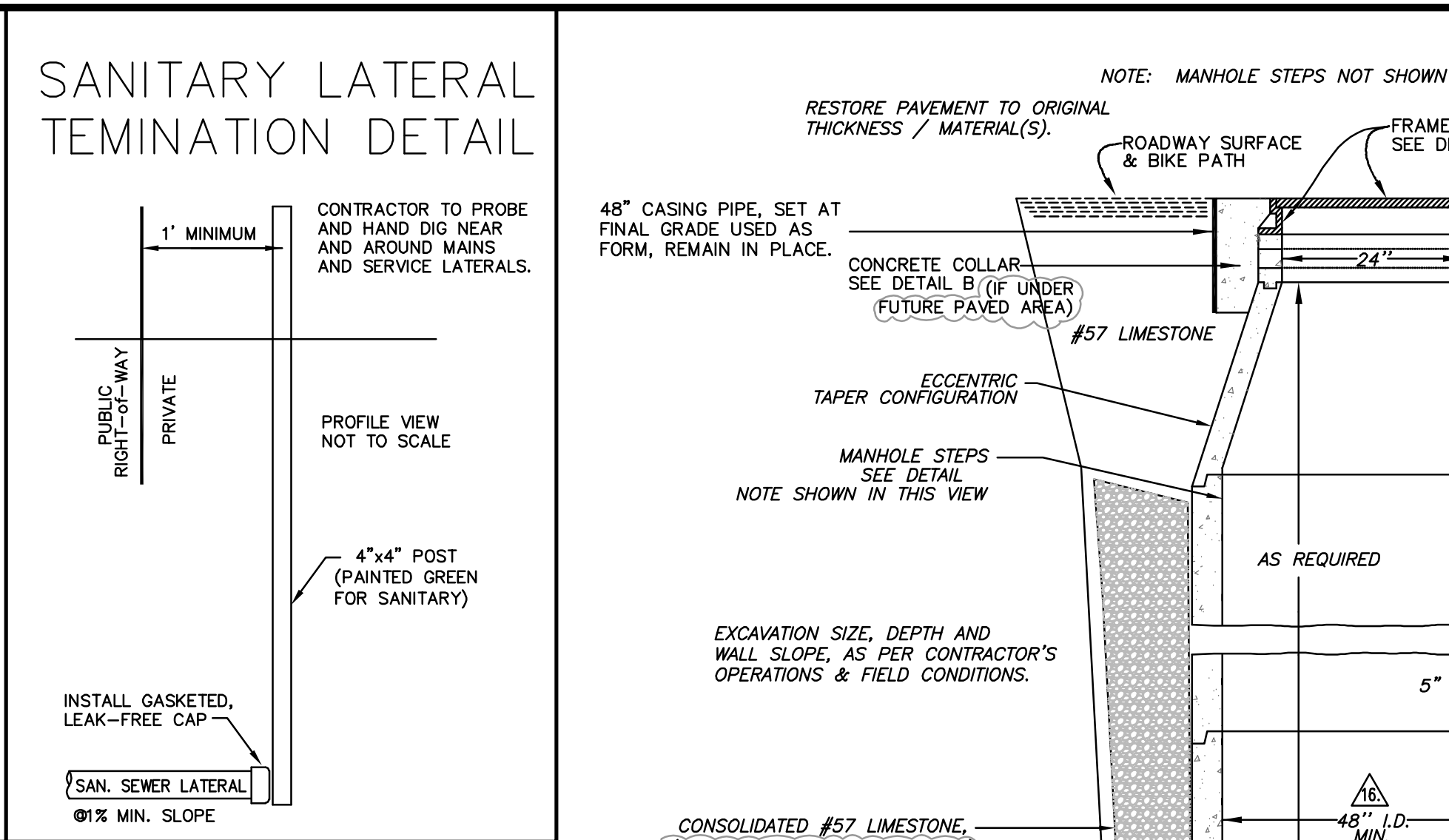
THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM



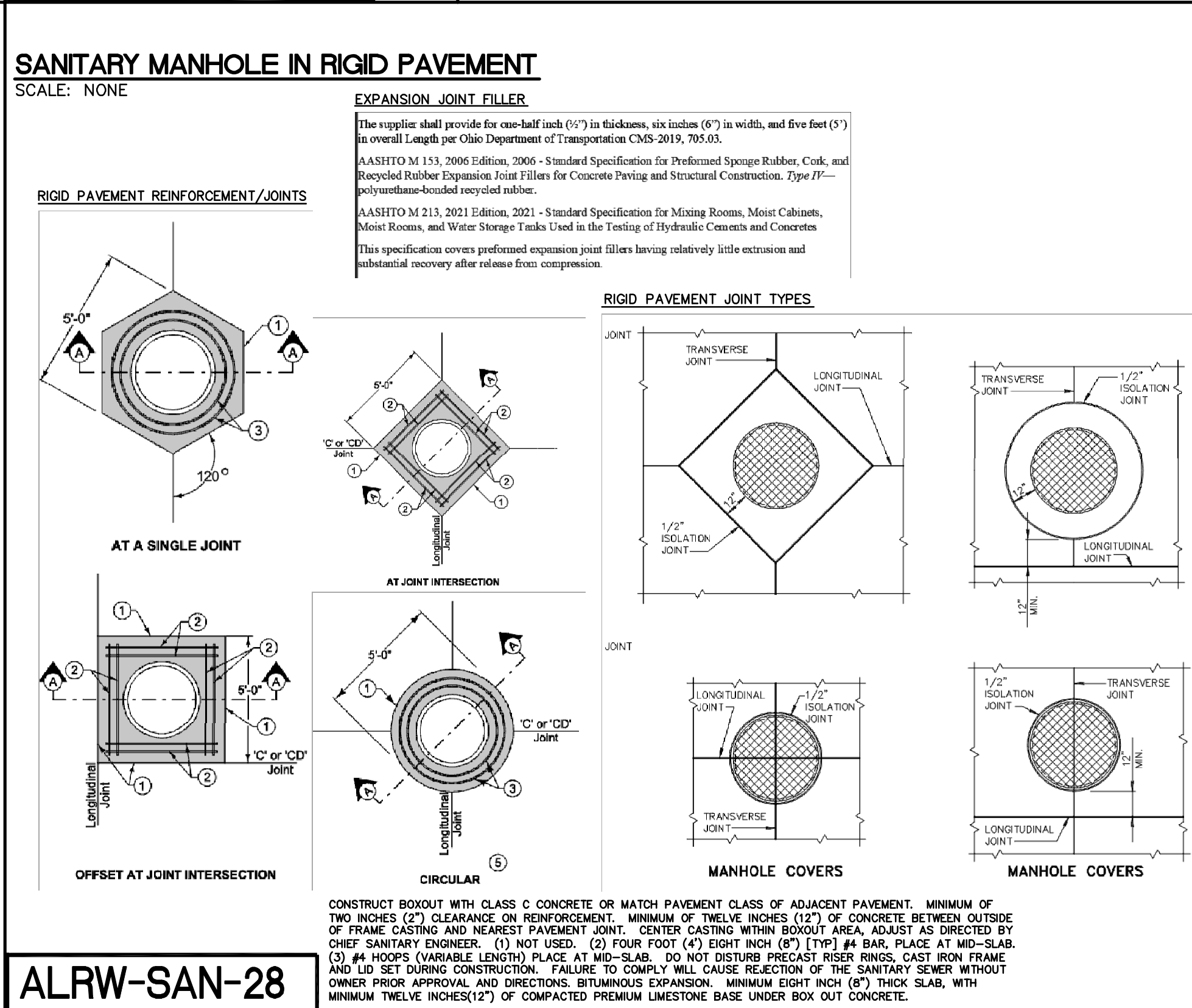
ALRW-SAN-12D

- NOTES:**
- ALL PRECAST MANHOLE COMPONENTS SHALL CONFORM TO ASTM C-478, LATEST REVISION, ADDENDUM AND PRINTING, FOR SANITARY SEWER APPLICATIONS.
 - VERTICALLY AND HORIZONTALLY ALIGN MANHOLE RACEWAY WITH ALL OF THE PIPE INVERTS. CONSTRUCT WATERIGHT CONNECTION TO MANHOLE WITH CORE AND BOOT ELASTOMERIC COUPLERS OR A.L.M.U. APPROVED EQUAL.
 - PRECAST MANHOLE SECTIONS, OTHER THAN GRADE RINGS, SHALL BE JOINED WITH FLEXIBLE PLASTIC GASKET MATERIAL SUCH AS "RAM-NEK" OR A.L.M.U. APPROVED EQUAL AS PER MANUFACTURER'S RECOMMENDATIONS, AS SHOWN IN PLAN DETAILS.
 - EXCAVATION SHALL BE AS NEARLY VERTICAL AS POSSIBLE (SHEET AND SHORE IF SOIL CONDITIONS REQUIRE), IN EXISTING STREET SECTIONS, ALLEY SECTIONS, PARKING LOTS AND CONFINED AREAS, SUCH AS LIMITED EASEMENTS OR ADJACENT STRUCTURES. EXCAVATION THRU AN EXISTING TRENCH LINE AND EXISTING SANITARY SEWER TO BE REPLACED, DEPENDING UPON PROJECT LOCATION.
 - MANHOLE PRECAST SECTION LENGTHS SHALL BE ARRANGED TO FIT THE REQUIRED DEPTH, AS DETERMINED BY THE SUPPLIER, MINIMIZE NUMBER OF JOINTS. OWNER'S APPROVAL IS REQUIRED PRIOR TO ORDERING.
 - NO SEWER LINE PIPE DIAMETERS OF LESS THAN 8" IN DIAMETER SHALL BE CONNECTED TO THE MANHOLE OR SERVICE LATERALS.
 - MANHOLE BASES SHALL BE PRECAST REINFORCED CONCRETE SET ON 6" MINIMUM THICKNESS OF PREMIUM #57 LESTMONE, MECHANICALLY CONSOLIDATED.
 - MATCH PIPE INVERTS TO MANHOLE INVERTS WHERE PIPES CONNECT TO MANHOLE BASE.
 - ALL MANHOLES, JOINTS AND CONNECTIONS SHALL BE 100% WATERIGHT.
 - CIRCUMSTANCES MAY REQUIRE THE NEED FOR SPECIAL TYPES OF TOP OF MANHOLE CONFIGURATIONS SUCH AS FLAT TOP, ABOVE GROUND, ETC. AS DIRECTED BY A.L.M.U. DETAILED PLANS OF ANY SPECIAL TOP OF MANHOLE CONFIGURATIONS AND ASSOCIATED COLLARS MUST BE APPROVED BY A.L.M.U., IF NOT SHOWN IN THE PLANS.
 - IN UNPAVED AREAS, IT SHALL BE NECESSARY TO SET THE MANHOLE RIM APPROXIMATELY 1 INCH ABOVE THE SURROUNDING AREA. INSTALL A 3 INCH THICK RING OF CONCRETE, TAPERED AT A 3:1 SLOPE, FROM THE TOP OF RIM, OUTSIDE EDGE TO THE BOTTOM OF THE CAST IRON FRAME.
 - MANHOLE LIDS SHALL NOT BE LOCATED IN GUTTER PANS, CURB RETURNS, UNLESS OTHERWISE APPROVED BY A.L.M.U., SPECIAL SEALING FEATURES ARE REQUIRED, AND APPROVAL BY A.L.M.U.
 - ALL GRADE RING JOINTS ARE TO BE GROUTED WITH NON-SHRINK GROUT HAVING THE FOLLOWING CHARACTERISTICS: 3000 PSI MIN. COMPRESSIVE STRENGTH AT 28 DAYS, MIN. 6 SACKS OF CEMENT PER CUBIC YARD AND SLUMP AT 1 TO 4 INCHES. ALL MATERIAL SHALL CONFORM TO ALMU STANDARDS AND PER ASTM C-478.
 - ALL GRADE RINGS SHALL BE PORTLAND CEMENT CONCRETE. PVC GRADE RINGS ARE NOT ALLOWED, PER ASTM C-478.
- MANHOLE DIAMETER SHALL BE: 4" FOR ALL PIPE 18" INSIDE DIAMETER OR SMALLER AND 5" FOR ALL PIPES 21"-36" INSIDE DIAMETER. DIAMETER SPECIFIED SHALL BE FOR THE ENTIRE VERTICAL STACK, UP TO THE ECCENTRIC CONE.**
- IF ANY PIPE IS LARGER THAN 36" INSIDE DIAMETER, A SPECIALLY DESIGNED MANHOLE SHALL BE USED. ALL SPECIAL MANHOLE CONFIGURATIONS SHALL BE APPROVED BY A.L.M.U. FIRST.**
- REMOVE ALL CONSTRUCTION DEBRIS, SOIL, MUD, RESIDUAL(S) FROM MANHOLE AND PIPES BY HIGH PRESSURE WATER JETTING AND VACUUM BEFORE C.C.T.V..**
- ALL PIPE OPENINGS TO NEW MANHOLES SHALL BE EITHER CAST-IN-PLACE OR PRE-FORMED AND PIPE OPENINGS TO EXISTING MANHOLES SHALL BE CORE DRILLED (ENCASEMENT, WALL AND ENTIRE BENCH) AS REQUIRED.**
- A RESILIENT WATER TIGHT FLEXIBLE CONNECTOR SHALL BE USED TO JOINT INLET AND OUTLET PIPES TO THE MANHOLE, SUCH AS PRICE BROTHERS COMPANY KOR-N-SEAL OR A.L.M.U. APPROVED EQUAL PER ASTM C-923.**
- DO NOT USE GROUT OR CONCRETE AT RISER'S INTERNAL JOINTS.**
- NO GROUT OR CONCRETE SHALL BE PLACED AROUND THE CONNECTOR ON THE OUTSIDE OF THE MANHOLE, NOR AROUND THE CONNECTOR ON THE INSIDE OF THE MANHOLE, WHERE THE PIPE CONNECTS TO THE MANHOLE BASE. FOR PIPE CONNECTIONS ABOVE THE MANHOLE BASE, NO GROUT OR CONCRETE SHALL BE PLACED AROUND NEITHER THE INSIDE NOR THE OUTSIDE OF THE ENTIRE CIRCUMFERENCE OF THE CONNECTOR.**
- PROVIDE A MINIMUM 0.05 FOOT IN-OUT DROP FOR STRAIGHT RUNS AND 0.1 FOOT IN-OUT DROP FOR ANGLE RUNS ACROSS THE MANHOLE TROUGH.**
- WHEN CONNECTING TO AN EXISTING MANHOLE, PIPE HOLE & INVERT SHALL BE CORE DRILLED THROUGH (WALL AND BENCH).**
- MANHOLES WITH A DEPTH FROM TOP OF CASTING TO INVERT WHICH IS LESS THAN OR EQUAL TO 6" SHALL HAVE FLAT TOP RISER SECTION WITH AN ECCENTRIC OPENING.**
- WHEN CONSTRUCTING MANHOLE OVER AN EXISTING MAIN, SUPPORT PIPE(S) WITH CONCRETE BLOCK AND POUR BASE AS SHOWN. REMOVE TOP 1/2 OF MAIN PIPE AND FORM SIDE CHANNEL(S) AS DIRECTED BY A.L.M.U..**
- ALL CHANNELIZATION OF MANHOLE BASES SHALL BE COVERED BY A RIGID MATERIAL DURING CONSTRUCTION OF ROAD SURFACES TO PREVENT FOREIGN MATERIALS FROM ENTERING SYSTEM**
- ALL SANITARY MANHOLES SHALL CONFORM TO OHIO DEPARTMENT OF TRANSPORTATION (O.D.O.T.) STANDARD MANHOLE 3, LOAD RATING AND AS LISTED IN THE BID SPECIFICATION AND AS SHOWN ON THE PLAN PAGES.**
- ALL CORED HOLES INTO SANITARY MANHOLES SHALL BE AT LEAST 1.0" MINIMUM CLEARANCE FROM ANY PRECAST RISER JOINT AND/OR INTERNAL APERTURENANCES. CORING LOCATION MAY VARY DEPENDING UPON THE LOCATION OF THE LADDER STEPS. ANY ADDITIONAL HARDWARE, INTERNAL EXTERNAL MODIFICATIONS, PIPING, FITTINGS, TOOLS, EQUIPMENT, LABOR AND MATERIAL SHALL BE INCIDENTAL TO THE UNIT COST BID COMPLETE TO INSTALL INTERNAL SANITARY MANHOLE DROP COMPLETE, TESTED AND ACCEPTED BY A.L.M.U..**

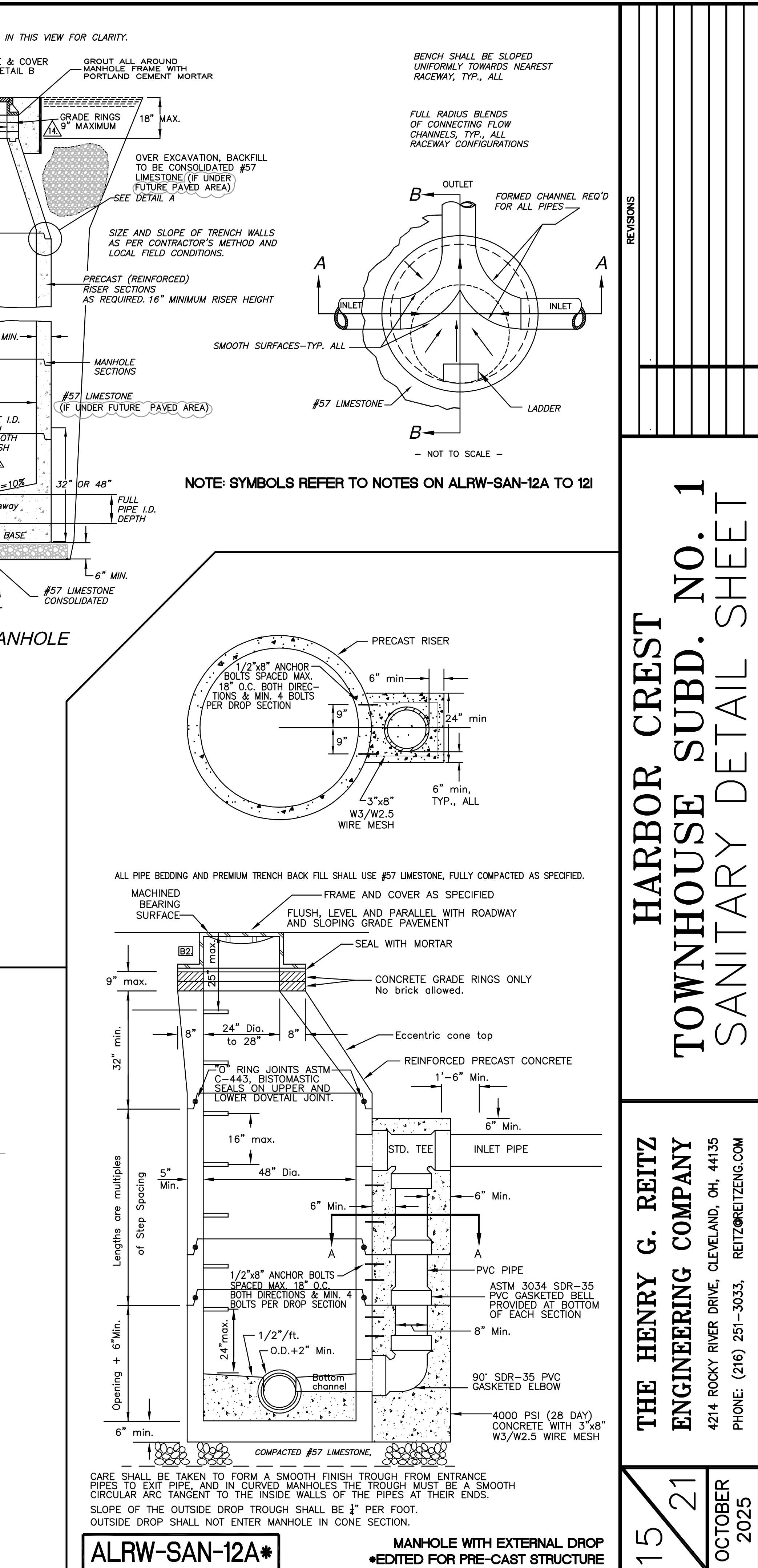
ALMU-SAN-12I

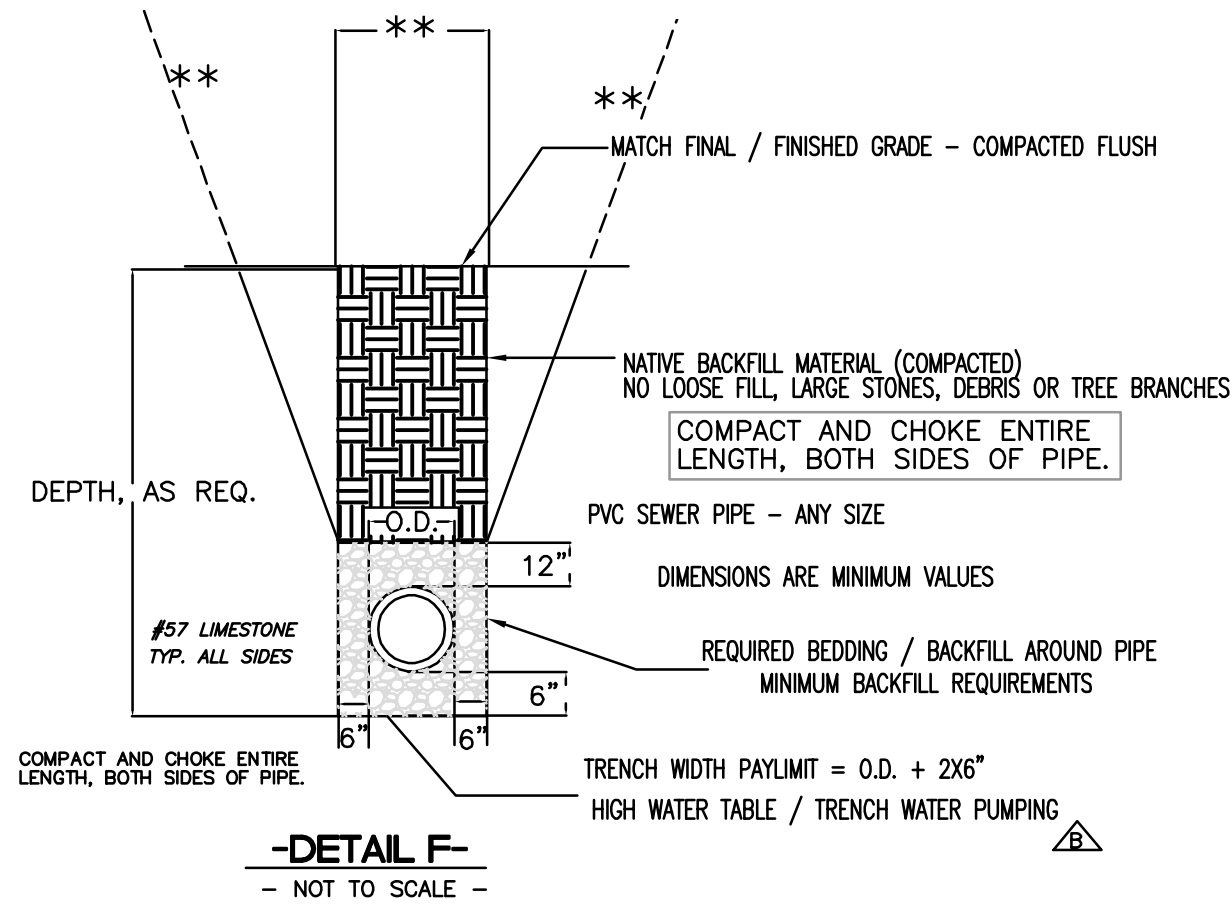


ALRW-SAN-12F



ALRW-SAN-28



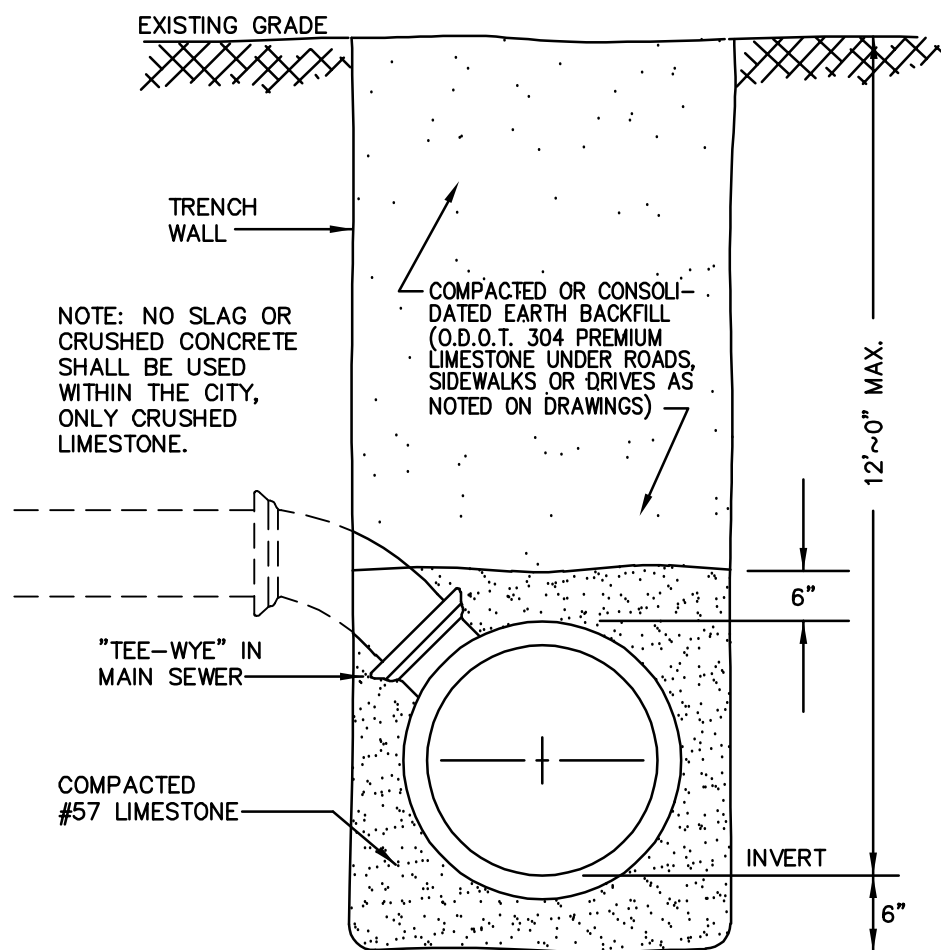


-ELEVATION VIEW, TYPICAL-
SANITARY / STORM SEWER TRENCH BACKFILL & BEDDING DETAIL

THIS DETAIL APPLIES TO OUTSIDE OF PUBLIC RIGHT-OF WAY
DOES NOT APPLY TO UNDER ROADS, SIDEWALKS, DRIVEWAYS
AND / OR PRIVATE PAVED AREAS.

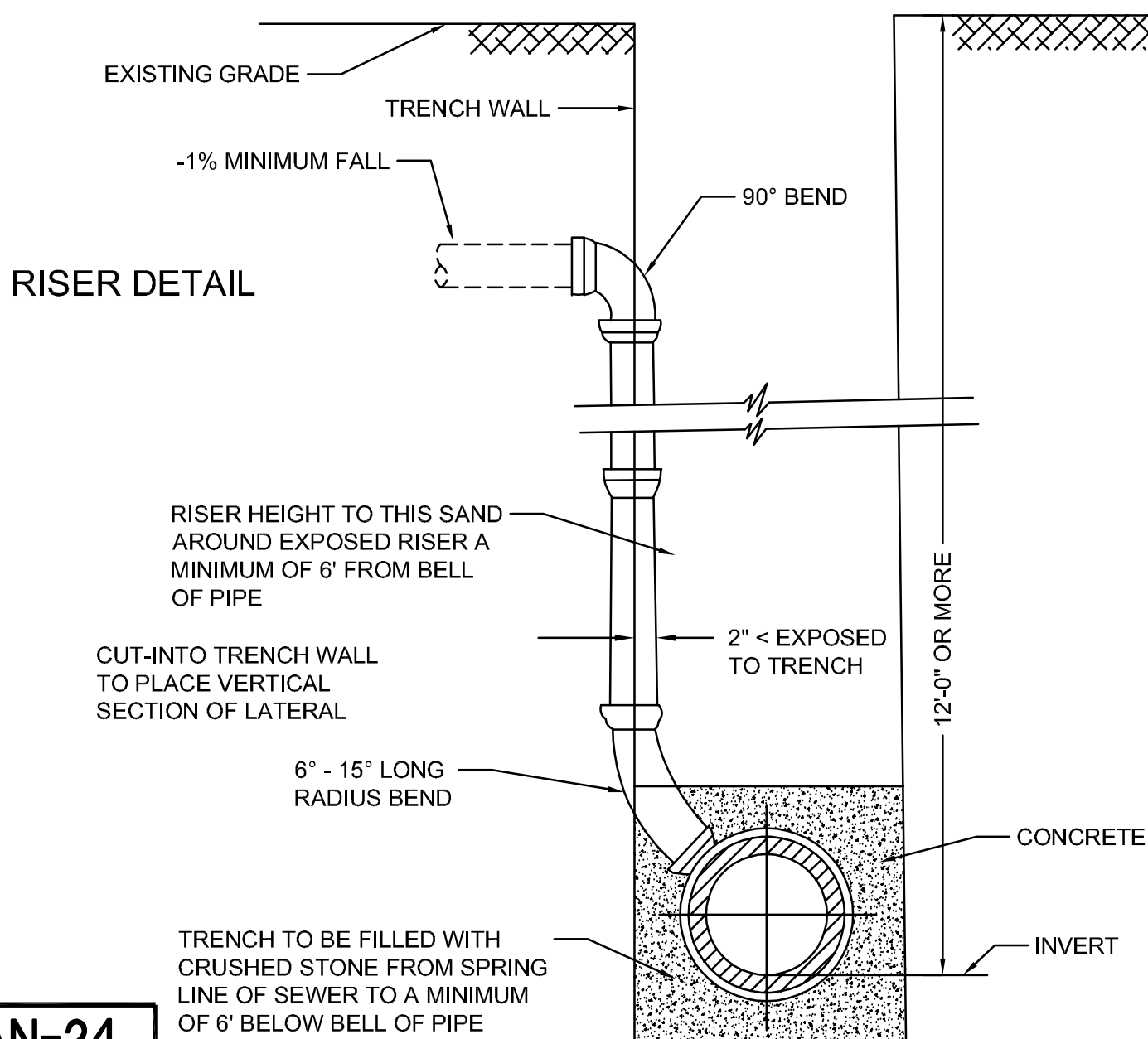
ALMU-SAN-03A

** = TRENCH WIDTH, WALL SLOPE, SUPPORT, PROTECTION, SUPPORT, TRENCH WATER
AS DETERMINED BY THE CONTRACTOR OPERATIONS AND/ OR SOIL/ FIELD CONDITIONS.

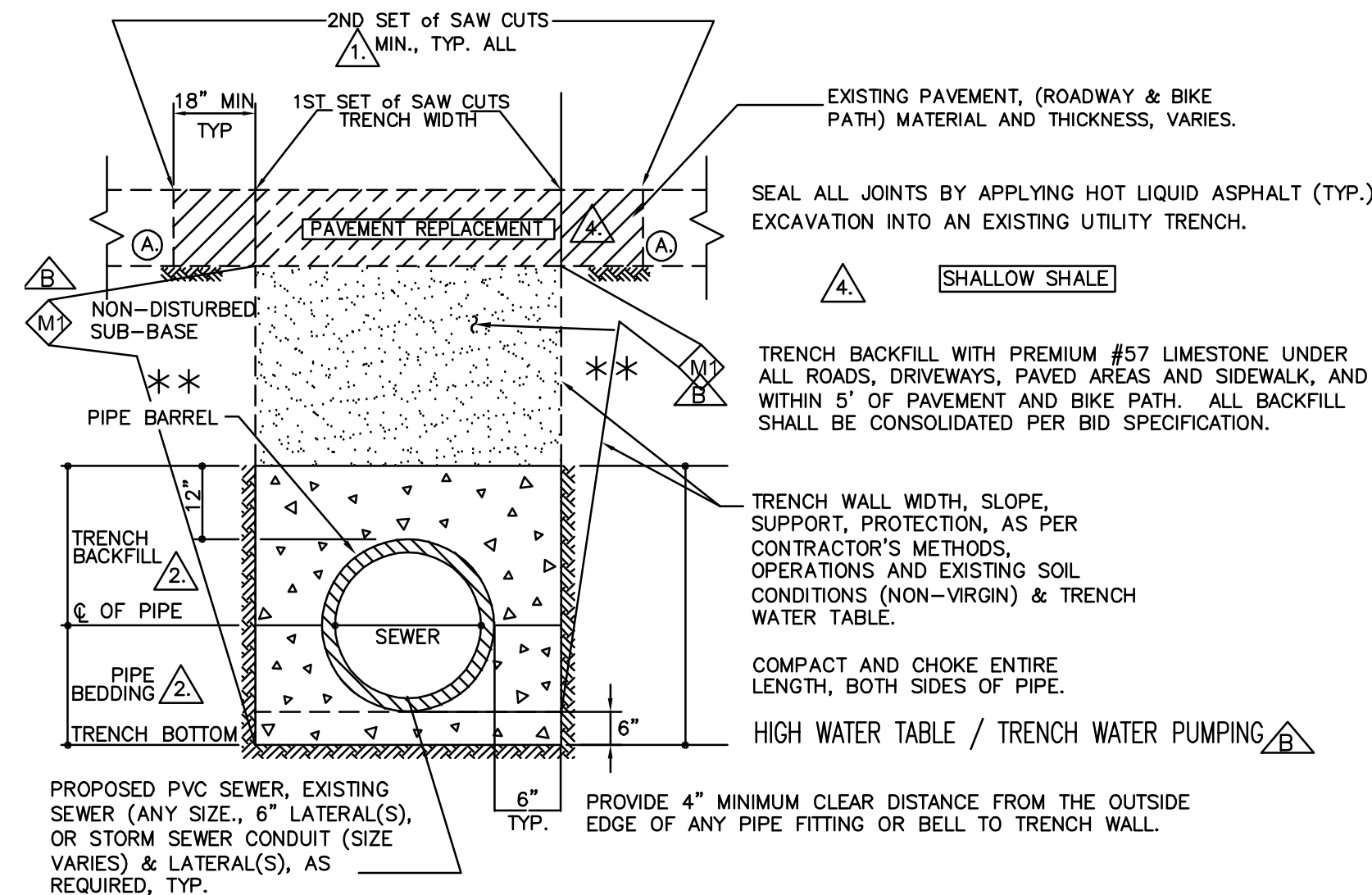


SANITARY WYE DETAIL

SANITARY LATERAL CONNECTION FOR DEEP EXCAVATION (>= 12' OR MORE)



ALMU-SAN-24



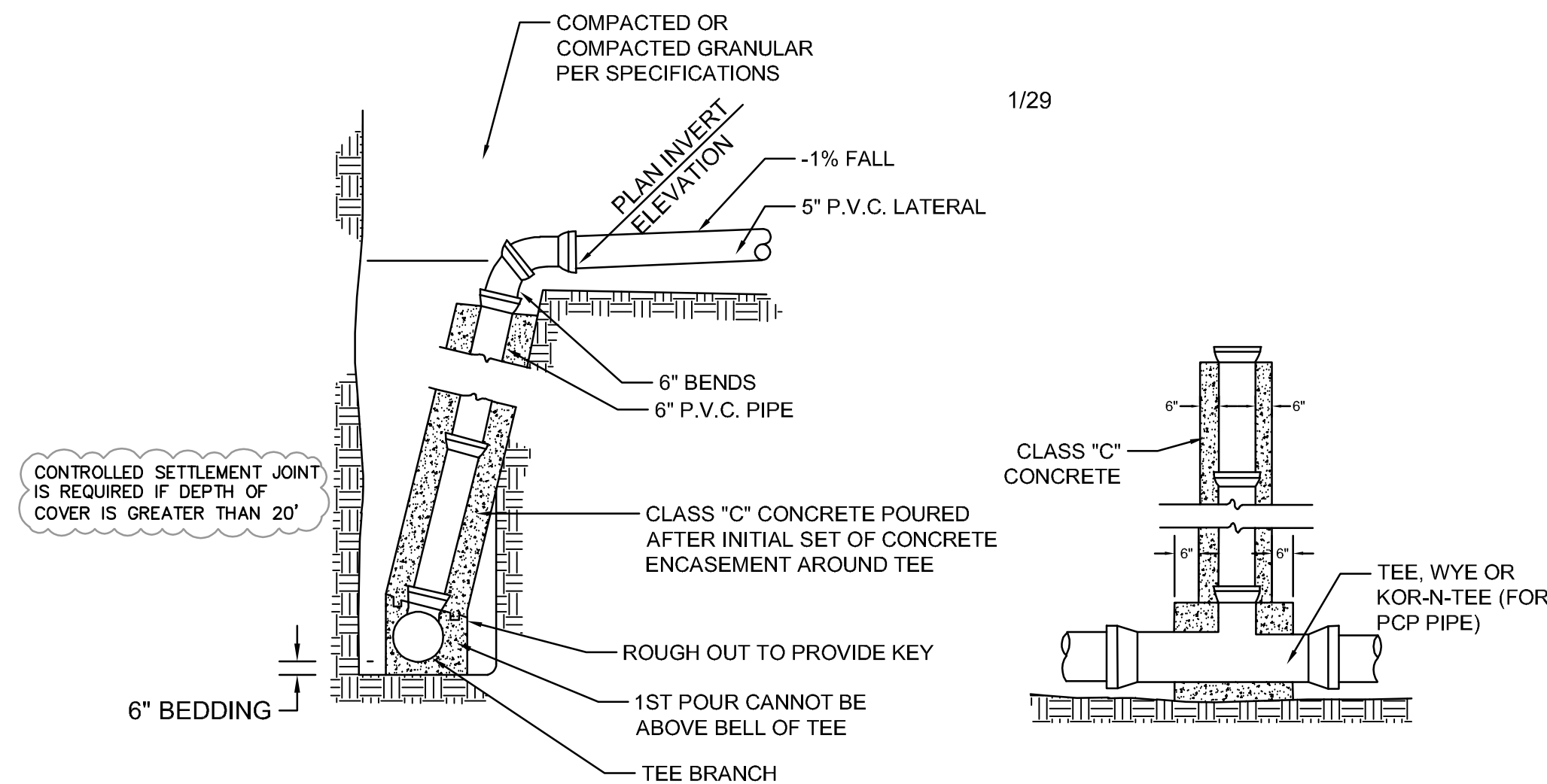
THE SECONDARY (2ND) PAVEMENT CUT BACKS
SHALL START AT THE PROJECTED INTERSECTION OF
EACH TRENCH WALL WITH LOCAL PAVEMENT.

- DETAIL D -

SANITARY SEWER PIPE INSTALLATION-TRENCH DETAIL
+ MANHOLE REMOVAL, INCLUDE LATERALS + STORM SEWERS

SCALE: (NONE): OPEN CUT TRENCH IN PUBLIC RIGHT-OF-WAY, UNDER EXISTING PAVEMENT,
ROADS, SIDEWALKS, DRIVEWAYS AND / OR PROVATE PAVED AREAS.

ALMU-SAN-03B



SANITARY LATERAL CONNECTION FOR DEEP EXCAVATION (>= 12' OR MORE)

ALMU-SAN-23

REVISIONS

HARBOR CREST
TOWNHOUSE SUBD. NO. 1
SANITARY DETAIL SHEET

THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

16/21
OCTOBER
2025

GENERAL

- 1. ALL MATERIALS, COMPONENTS, WATER MAIN, AND APPURTENANCES SHALL CONFORM TO AND BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION, VERSION, OR EDITION OF AWWA, ASCE, OEPA, ODOT, AND/OR ALRW STANDARDS.
- 2. MATERIALS SHALL ONLY BE APPROVED "AS EQUAL" BY ALRW.
- 3. ALL PIPE AND APPURTENANCES SHALL BE NSF-61 CERTIFIED FOR USE WITH POTABLE WATER.
- 4. ALL BURIED FASTENERS SHALL BE STAINLESS STEEL.

PIPE

- 1. ALL NEW 4", 6", 8", & 12" WATER MAIN PIPE SHALL BE MOLECULARLY-ORIENTED POLY VINYL CHLORIDE (PVC) PER ANSI/AWWA C909, LATEST REVISION, PRESSURE CLASS 235 PSIG, CAST-IRON OUTSIDE DIAMETER (CIOD), AND BLUE IN COLOR.
- 2. FOR NEW WATER MAINS GREATER THAN 12", ALL PIPE SHALL BE POLY VINYL CHLORIDE (PVC) PER ANSI/AWWA C900, LATEST REVISION, PRESSURE CLASS 235 PSIG, CAST-IRON OUTSIDE DIAMETER (CIOD), AND BLUE IN COLOR.
- 3. FOR NEW WATER MAINS SMALLER THAN 4", ALL PIPE SHALL BE POLYETHYLENE PER ANSI/AWWA C901, LATEST REVISION, PRESSURE CLASS 250 PSIG, COPPER TUBE SIZE (CTS), AND BLUE IN COLOR.
- 4. ALL WATER MAIN TO BE DIRECTIONALLY DRILLED SHALL BE CERTA-LOK OR EAGLE-LOC POLY VINYL CHLORIDE (PVC) PER ANSI/AWWA C900, LATEST REVISION, PRESSURE CLASS 235 psig, CAST-IRON OUTSIDE DIAMETER (CIOD), AND BLUE IN COLOR.

HYDRANTS & AUTOFLUSHERS

- 1. ALL FIRE HYDRANTS SHALL BE A MUELLER SUPER-CENTURION A423 WITH TWO 2-1/2" HOSE PORTS WITH STANDARD CITY THREADS AND ONE 5-1/4" STORZ PUMPER NOZZLE PER AWWA C502, LATEST REVISION. ALL HYDRANTS SHALL BE PAINTED YELLOW WITH A WHITE BONNET.
- 2. ALL AUTOMATIC FLUSHING UNITS SHALL BE MUELLER HG-4.

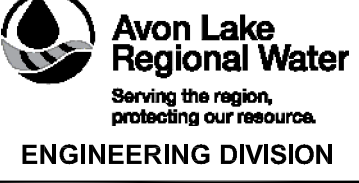
VALVES

- 1. ALL MAIN LINE VALVES SHALL BE MUELLER RESILIENT WEDGE STYLE GATE VALVES CONFORMING TO ANSI/AWWA C-509, LATEST REVISION. VALVES SHALL HAVE A NON-RISING-STEM AND SHALL OPEN LEFT-HANDED (COUNTER CLOCKWISE). ALL FASTENERS SHALL BE STAINLESS STEEL.
- 2. ALL VALVE BOXES SHALL BE COATED CAST IRON, TWO-PIECE ADJUSTABLE, WITH "WATER" IMPRINTED ON THE LID.

ISSUED: 03/29/2024
REVISED: 07/23/2024
DRAWING NO.
ALRW-WAT-001.1

BY: JRG
BY: JAL

STANDARD WATERLINE
MATERIAL NOTES



Avon Lake
Regional Water
Serving the region,
protecting our resource.
ENGINEERING DIVISION

FITTINGS & MECHANICAL JOINTS

- 1. ALL DUCTILE IRON FITTINGS SHALL BE IN ACCORDANCE WITH ANSI/AWWA C153, LATEST REVISION. FITTINGS SHALL BE CEMENT-LINED IN ACCORDANCE TO AWWA C-104, LATEST REVISION.
- 2. ALL PUSH-ON AND MECHANICAL JOINTS SHALL CONFORM TO ANSI/AWWA C111/A21, LATEST REVISION.
- 3. ALL MECHANICAL JOINTS SHALL CONFORM TO AWWA C153, LATEST REVISION. DUCTILE IRON (D.I.) FITTINGS, VALVES, TEES & REDUCERS SHALL BE "MEGA-LUG" MECHANICALLY RESTRAINED JOINTS (M.J.x M.J.) WITH STAINLESS STEEL FASTENERS.
- 4. ALL MECHANICAL JOINT RESTRAINS SHALL BE EBBA IRON SERIES 19MJ00 OR SIGMA ONE-LOK FOR C909 PVC0 WITH SPLIT SERRATED RESTRAINT RINGS.

POLY-WRAP

- 1. ALL POLYETHYLENE ENCASEMENTS SHALL CONFORM TO ANSI/AWWA C105/A21.5, LATEST REVISIONS. ENCASEMENTS SHALL BE BLUE IN COLOR.

WATER SERVICES

- 1. ALL WATER SERVICE TAP SADDLES SHALL BE STAINLESS STEEL WITH A RUBBER GASKET.
- 2. ALL COPPER SHALL BE SOFT DRAWN TYPE K WITH A MINIMUM WORKING PRESSURE OF 75 PSI PER ASTM B88.
- 3. ALL METER VAULTS SHALL BE OF PLASTIC CONSTRUCTION WITH CUTOUTS FOR PASSAGE OF PIPES.
- 4. ALL CURB STOP BOXES SHALL BE MUELLER H-1030 WITH STAINLESS STEEL RODS.
- 5. ALL CORPORATION STOPS SHALL BE BALL-VALVE TYPE, MUELLER B-25000N.
- 6. CURB STOPS SHALL BE BALL-VALVE TYPE, MUELLER B-25204N.
- 7. SERVICE LINES CAPS SHALL USE A MUELLER H15452N COUPLER & MUELLER H-10035N PLUG.

ISSUED: 03/29/2024
REVISED: 07/23/2024
DRAWING NO.
ALRW-WAT-001.2

BY: JRG
BY: JAL

STANDARD WATERLINE
MATERIAL NOTES



Avon Lake
Regional Water
Serving the region,
protecting our resource.
ENGINEERING DIVISION

GENERAL

- 1. THE PROPOSED WATER MAIN SHALL BE INSTALLED IN ACCORDANCE WITH ANSI/AWWA C600 & C605, LATEST REVISIONS, AND ALRW RULES & REGULATIONS SCHEDULE F-I.
- 2. ALL WORK ON THE PUBLIC WATER DISTRIBUTION SYSTEM, OR WATER MAINS TO BECOME PART OF THE PUBLIC WATER DISTRIBUTION SYSTEM, SHALL BE UNDER THE DIRECT SUPERVISION OF AN ALRW FIELD REPRESENTATIVE.
- 3. ALL PIPE LENGTHS AND DISTANCES INDICATED ARE APPROXIMATE AND FOR GENERAL REFERENCE INFORMATION ONLY.
- 4. THE MINIMUM COVER OVER THE PROPOSED WATER LINE AT FINAL GRADE SHALL BE 4.5 FEET, MEASURED FROM THE THE TOP OF THE PIPE TO FINAL GRADE.
- 5. A MINIMUM OF FIVE FEET (5') UNDISTURBED EARTH FROM THE FACE OF THE POLE TO THE TRENCH WALL MUST BE MAINTAINED OR THE POLE MUST BE HELD BY THE EFFECTED UTILITY. THE COST OF HOLDING THE POLE SHALL BE PAID FOR BY CONTRACTOR. CONTRACTOR SHALL VERIFY MINIMUM CLEARANCE WITH THE RESPECTIVE OVERHEAD UTILITY DURING THE BIDDING PROCESS.
- 6. A ONE (1) YEAR WARRANTY, COMMENCING FROM ACCEPTANCE OF THE WATER MAIN AND DATE OF PLACEMENT INTO SERVICE, SHALL BE PROVIDED BY THE CONTRACTOR TO ALRW FOR THE WATER MAIN, SERVICE CONNECTION AND APPURTENANCES FOR WORK PERFORMED BY THE CONTRACTOR SHOULD ANY LEAKS, COMPONENT FAILURE OR BLOCKAGE, AND ALL REPAIRS THAT ARE REQUIRED DUE TO DEFECTIVE MATERIAL OR POOR WORKMANSHIP.
- 7. THE CONTRACTOR SHALL BE REQUIRED TO FURNISH ACTUAL FIELD MEASUREMENTS OF THE WATER MAIN DURING INSTALLATION INCLUDING DEPTH FROM GRADE TO TOP OF PIPE, LOCATION OF CORPORATIONS, INSTALLED LENGTHS AND CHANGE IN ALIGNMENTS. THE FORM SHALL BE IN A NEAT AND CLEAR MARKUP IN RED INK ON A FULL SIZE SET OF PROJECT PLANS.
- 8. THE CONTRACTOR SHALL EXPECT NUMEROUS LOCATIONS ALONG THE EXISTING WATER MAIN WHERE PREVIOUS REPAIRS HAVE BEEN MADE TO THE MAIN BY ALRW. THEREFORE NON-VIRGIN SOIL CONDITIONS, TRENCH WATER AND AGGREGATE BACK FILL SHALL BE EXPECTED.

TESTING

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING WATER MAIN AND APPURTENANCES THEREOF WHEN CONNECTING THE NEW WATER MAIN FOR THE HYDROSTATIC TEST. ALL REPAIRS TO DAMAGED EXISTING FACILITIES SHALL BE MADE BY THE CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, TO THE SATISFACTION OF ALRW.
- 2. ALL NEWLY INSTALLED VALVING AND FIRE HYDRANTS AND WATER VALVING SHALL BE FULLY CLOSED PRIOR TO ANY LINE FILLING OR TESTING.

ISSUED: 03/29/2024
REVISED:
DRAWING NO.
ALRW-WAT-002.1

BY:
BY:

STANDARD WATERLINE
INSTALLATION NOTES



Avon Lake
Regional Water
Serving the region,
protecting our resource.
ENGINEERING DIVISION

PIPE

- 1. THE CONTRACTOR SHALL UTILIZE #57 PREMIUM LIMESTONE FOR ALL PIPE BEDDING, CHOKED ON BOTH SIDES OF THE PIPE FOR THE ENTIRE LENGTH, AND CONSOLIDATED TO PROPERLY SUPPORT THE WATER LINE. FOR WATER MAINS 12" DIAMETER AND SMALLER, #8 PREMIUM LIMESTONE MAY BE USED IN LIEU OF #57.
- 2. DEFLECT PROPOSED WATER MAINS ONLY PER MANUFACTURER'S SPECIFICATIONS.
- 3. THE CONTRACTOR SHALL REMOVE THE EXISTING WATER MAIN AND APPURTENANCES AS REQUIRED DURING INSTALLATION OF THE PROPOSED WATER MAIN. EXISTING WATER MAINS AND APPURTENANCES NOT REMOVED SHALL BE ABANDONED IN PLACE UNLESS OTHERWISE DIRECTED.
- 4. CONTRACTOR SHALL MITIGATE POTENTIAL SEWER LATERAL CROSSING CLEARANCE CONFLICTS WITH THE PROPOSED WATER MAIN BY LEAVING AT LEAST FIVE (5) FULL PIPE STICKS OF TRENCH OPEN, THUS ALLOWING THE CONTRACTOR AMPLE LENGTH TO VERTICALLY DEFLECT (+/-) THE PROPOSED WATER MAIN PER MANUFACTURER'S RECOMMENDATIONS FOR DEFLECTION.
- 5. TRENCH DE-WATERING EQUIPMENT SHALL BE READILY AVAILABLE AND ON SITE NEAR THE CURRENT WORK TO DE-WATER THE TRENCH IF REQUIRED BY GROUND CONDITIONS. THE OPEN END OF THE NEWLY INSTALLED WATER MAIN SHALL BE BLOCKED WITH A WATER-TIGHT PLUG TO PREVENT EXCAVATION MATERIAL OR CONTAMINATION FROM ENTERING THE NEWLY INSTALLED PIPE SECTION. THE CONTRACTOR SHALL INSTALL A WATER-TIGHT PIPE PLUG INTO THE OPEN END OF THE LAST STICK INSTALLED THAT DAY.
- 6. ALL NEW COPPER SERVICE SECTIONS SHALL BE 100% FREE OF KINKS, BENDS, OR REDUCED CROSS SECTIONAL AREA AS A RESULT OF FIELD FORMING OPERATIONS, CONNECTION BY MECHANICAL FLARING.

FIRE HYDRANTS & VALVES

- 1. THE OPERATION OF ANY PUBLIC VALVE OR HYDRANT, OR THE ALTERATION OF ANY PART OF THE EXISTING WATER SYSTEM, BY CONTRACTORS OR THEIR EMPLOYEES IS PROHIBITED WITHOUT THE SUPERVISION OF AN ALRW FIELD REPRESENTATIVE.
- 2. NEW FIRE HYDRANTS SHALL BE FREE OF DIRT, RUST AND MARKS. CAP CHAIN CABLES SHALL BE INSTALLED. FINAL GRADE TO ALLOW FULL ROTATION OF HYDRANT WRENCH AND BAG ALL NEW HYDRANTS NOT IN SERVICE. THE NEW FIRE HYDRANT SHALL BE SET THAT THE FRANGIBLE FLANGE IS FLUSH OR ABOVE FINAL GRADE, AS APPROVED BY A.L.R.W. THE UNIT BID PRICE SHALL INCLUDE THE NECESSARY RISER SECTION WITH RISER KIT HARDWARE, AS REQUIRED TO ACHIEVE THE CORRECT HEIGHT, AT NO ADDITIONAL COST TO THE OWNER.
- 3. RESILIENT WEDGE GATE VALVES SHALL BE INSTALLED WITH FRICTION CLAMP ASSEMBLIES, LUGS, ALL THREADED RODS, WASHERS, NUTS, AND T-BOLTS/NUTS, ALL OF WHICH SHALL BE STAINLESS STEEL . ASPHALT COAL TAR DUC-LUGS & FRICTION CLAMP ASSEMBLIES.
- 4. FOR EACH VALVE CONTRACTOR SHALL INSTALL NEW TWO-PIECE CAST IRON VALVE BOX WITH LID STAMPED "WATER".

ISSUED: 03/29/2024
REVISED:
DRAWING NO.
ALRW-WAT-002.2

BY:
BY:

STANDARD WATERLINE
INSTALLATION NOTES



Avon Lake
Regional Water
Serving the region,
protecting our resource.
ENGINEERING DIVISION

TIE-INS

- 1. PRIOR TO ANY DISRUPTION OF WATER SERVICE, THE CONTRACTOR SHALL COORDINATE WITH ALRW FOR THE NOTIFICATION OF RESIDENTS.
- 2. DURING TIE-INS CONTRACTOR SHALL INSTALL ALL NEW RESILIENT WEDGE GATE VALVE ASSEMBLIES AT ALL SIDE STREET / MAIN TIE-IN POINTS FIRST.
- 3. AT ALL TIE-IN LOCATIONS, PROVIDE FOR SUFFICIENT DE-WATERING PITS AND PUMPING AT THE NEW RESILIENT WEDGE GATE VALVE ATTACHMENT TO EXISTING WATER MAINS. ALRW SHALL DIRECT ALL WORK IN REGARDS TO CUTTING IN NEW RESILIENT WEDGE GATE VALVES. IF A TEMPORARY BYPASS WATER MAIN IS UTILIZED, THIS WORK SHALL BE PERFORMED FIRST AFTER ALL OF THE TEMPORARY WATER MAIN IS INSTALLED AND PLACED INTO SERVICE PRIOR TO ANY EXCAVATION OR INSTALLATION OF NEW WATER MAIN.
- 4. AT ALL TIE-IN LOCATIONS, INSTALL 2" SAMPLING BLOW OFF TAPS WITH CORP ASSEMBLIES PER ALRW STANDARD **ALRW-WAT-010**.
- 5. FOR TIE-INS & REPAIRS, DISINFECT ALL PIPE AND APPURTENANCES BY SWABBING WITH A 65% HTH SOLUTION AND FLUSHING WITH PORTABLE WATER, PRIOR TO INSTALLATION, AS DIRECTED BY ALRW.
- 6. THE CONTRACTOR SHALL SCHEDULE ALL FLUSHING, BACTERIA TESTING, PRESSURE TESTING, AND BACTERIA CHECK SAMPLE TESTING WITH ALRW. A FORTY-EIGHT (48) HOUR MINIMUM NOTICE IS REQUIRED FOR ALL SCHEDULING. THE COSTS FOR LABOR, MATERIAL AND EQUIPMENT TO SUCCESSFULLY ACCOMPLISH THE TESTS SHALL BE INCIDENTAL TO THE UNIT BID COSTS OF THE WATER MAIN COMPLETELY INSTALLED AND ACCEPTED BY ALRW.
- 7. CONTRACTOR SHALL COORDINATE WITH ALRW TO SCHEDULE ALL WATER MAIN TIE-INS. ALRW SHALL DIRECT ALL OPERATIONS DURING THE TIE-IN, PRIOR TO THE MAIN LINE EXCAVATION / INSTALLATION.

FITTINGS

- 1. ALL JOINTS AT FITTINGS SHALL BE "MEGA-LUG" MECHANICAL RESTRAINED JOINTS (M.JxM.J) WITH STAINLESS STEEL FASTENERS. MECHANICAL JOINT PER AWWA C153, LATEST REVISION
- 2. ALL METALLIC FITTINGS AND APPURTENANCES SHALL BE DOUBLE POLY-WRAPPED AND CINCHED TIGHT WITH PLASTIC ZIP TIES OR DOUBLE-WRAPPED WITH POLY-WRAP TAPE. THERE SHALL BE NO LOOSE PORTIONS OF THE POLY-WRAP. D
- 3. ALL COUPLINGS SHALL BE CENTERED OVER THE ENDS OF BOTH PIPE SECTIONS.
- 4. PIPE AND / OR FITTINGS & APPURTENANCES MAY NEED TO BE ROTATED IN HORIZONTAL AND / OR VERTICAL PLANE FOR ALIGNMENT/ CONNECTION PURPOSES. CONTRACTOR SHALL EXCAVATE OVER EXISTING WATER MAINS TO DETERMINE TYPE OF FITTINGS, JOINTS, ELEVATIONS, ORIENTATIONS, LOCATIONS, ANGLE OF ROTATION TO DETERMINE THE REQUIRED HARDWARE NEEDED TO COMPLETE THE TASK. CONTRACTOR SHALL COORDINATE ALL RECONNECTIONS TO EXISTING ACTIVE WATER MAINS WITH ALRW 48 HOURS IN ADVANCE.

ISSUED: 03/29/2024
REVISED:
DRAWING NO.
ALRW-WAT-002.3

BY: JRG
BY:

STANDARD WATERLINE
INSTALLATION NOTES



Avon Lake
Regional Water
Serving the region,
protecting our resource.
ENGINEERING DIVISION

DRIVEWAYS, SIDEWALKS, & PAVEMENT

- 1. THE PRE-CONSTRUCTION VIDEO TAPING SHALL INCLUDE DETAILED VIDEO OF ALL PAVEMENT DISTRESS LOCATIONS ALONG THE PROJECT SIDE WITH WHITE PAINTED HASH MARKS TO DELINEATE CRACKS.
- 2. THE CONTRACTOR SHALL NOT BLOCK OR HINDER ACCESS TO RESIDENTIAL DRIVEWAYS WITH EQUIPMENT OR ANY DELIVERED MATERIAL.
- 3. THE CONTRACTOR SHALL MAINTAIN ALL VEHICULAR AND PEDESTRIAN TRAFFIC AND MAINTAIN MINIMUM SIGHT DISTANCE AROUND ALL CONSTRUCTION EQUIPMENT OPERATIONS AND MATERIAL.
- 4. CONTRACTOR TO USE A RUBBER WHEEL BACK HOE OR RUBBER TRACK MIN-EXCAVATOR IN LIEU OF A STEEL TRACKED MACHINE WITH STEEL PLATE PROTECTION TO PREVENT DAMAGE TO THE EXISTING ASPHALT PAVEMENT. CONTRACTOR SHALL BE HELD 100% ACCOUNTABLE FOR ANY AND / OR ALL PAVEMENT DAMAGE AS A RESULT OF HIS EQUIPMENT AND / OR HIS SUBCONTRACTORS.
- 5. THE CONTRACTOR SHALL USE 4000 PSI HIGH EARLY CONCRETE (24 HOUR SET-OPEN TO TRAFFIC) WITH STEEL WIRE REINFORCEMENT ON ALL CONCRETE DRIVEWAY APRON REPLACEMENTS.
- 6. COMPLETELY SEAL WITH APPROVED LIQUID ASPHALT TACK COAT MATERIAL ALL EXPOSED JOINTS, ASPHALT SURFACES AND METAL SURFACES THAT WILL COME INTO CONTACT WITH THE NEW ASPHALT PAVEMENT REPAIR. ALL PAVEMENT CUTS SHALL BE SAW CUT CLEAN AND TRUE.

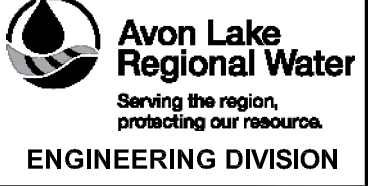
RESTORATION

- 1. SOIL REPLACEMENT FOR RESTORATION SHALL EXCLUDE DEBRIS SUCH AS STICKS, STONES, CONSTRUCTION MATERIAL AND DEAD GRASS.
- 2. TREE LAWN RESTORATION SHALL INCLUDE RESTORATION OF ALL EXISTING DRAINAGE SWALE(S) WITHIN THE PROJECT LIMIT, WATER MAIN SIDE, FOR SLOPE, GRADE, FLOW DIRECTION AND RE-GRADE OF AREA TO INSURE SIDEWALK SLOPES TO SWALE AND PAVEMENT E.O.P. SLOPES TO SWALE. THE CONTRACTOR SHALL REMOVE ANY AND ALL EXISTING HIGH SPOTS WITHIN THE PROJECT LIMITS BETWEEN THE SIDEWALK AND E.O.P..
- 3. THE CONTRACTOR SHALL REINSTALL ALL SLOPED (DEPRESSED) DRIVEWAY APRONS TO THEIR ORIGINAL SLOPE, GRADE AND ELEVATION TO FACILITATE STORM WATER DRAINAGE. PRE-CONSTRUCTION ELEVATION MEASUREMENTS ARE REQUIRED PRIOR TO ANY DISTURBANCE.
- 4. CONTRACTOR SHALL REPAIR ALL DAMAGED C.M.P DRIVEWAY PIPES AND INSURE ALL ENDS ARE FULL BORE DIAMETER OPEN AND CLEANED OUT FROM CONSTRUCTION DEBRIS AND SOIL. RE-GRADE ALL SWALES TO MATCH POST CONSTRUCTION FLOW PROFILE, SLOPE AND DIRECTION BETWEEN DRIVEWAYS. THE CONTRACTOR SHALL TAKE ELEVATION SHOTS FOR EACH DRIVEWAY PIPE, PRIOR TO DISTURBANCE AND SECONDLY AFTER INSTALLATION AS A QUALITY CONTROL CHECK TO INSURE THE INSTALLED PIPE IS AT THE CORRECT ELEVATION. ADJUSTMENTS IN ELEVATION MAYBE REQUIRED TO FACILITATE PROPER DRAINAGE IN LIEU OF PRE CONSTRUCTION ELEVATION OF INVERT

ISSUED: 03/29/2024
REVISED:
DRAWING NO.
ALRW-WAT-002.4

BY: JRG
BY:

STANDARD WATERLINE
INSTALLATION NOTES



Avon Lake
Regional Water
Serving the region,
protecting our resource.
ENGINEERING DIVISION

INCIDENTALS

- 1. THE COSTS FOR LABOR, MATERIAL TOOLS, AND EQUIPMENT TO REMOVE AND REINSTALL ANY TRAFFIC CONTROL POST/SIGN IN CONFLICT WITH THE EXCAVATION SHALL BE SHALL BE INCIDENTAL TO THE UNIT COST BID OF THAT PARTICULAR BID ITEM BEING INSTALLED/PERFORMED.
- 2. THE CONTRACTOR SHALL LOCATE ALL IN-GROUND LAWN SPRINKLER SYSTEMS AND INVISIBLE PET FENCES BY CONTACT WITH THE RESPECTIVE RESIDENTS WITHIN THE PROJECT LIMITS THAT MAY BE EFFECTED BY THE CONSTRUCTION OPERATIONS. ANY DAMAGE TO LAWN SPRINKLERS OR INVISIBLE FENCES SHALL BE REPAIRED AND COSTS BORNE BY THE CONTRACTOR.
- 3. CONTRACTOR SHALL EXPECT A DENSE, THICK AND DEEP ROOT SYSTEM WITHIN THE TREE LAWN AREA WHERE MATURE TREES ARE PRESENT. THE COST FOR LABOR, EQUIPMENT AND MATERIAL TO EXCAVATE THRU THESE AREAS SHALL BE INCIDENTAL TO THE UNIT BID COST OF THE WATER MAIN INSTALLED, TESTED AND ACCEPTED.
- 4. ALL REQUIRED WORK TO INSTALL THE PROPOSED WATER MAIN INCLUDING MATERIALS, LABOR, TOOLS, EQUIPMENT, AND PERMITS, WHETHER INDICATED IN THESE PLANS OR FOUND IN THE BID SPECIFICATION AND CONTRACT DOCUMENTS, AND BASED UPON THE CONTRACTOR'S FIELD SITE INSPECTION, SHALL BE INCLUDED IN THE UNIT COST OF WATER MAIN INSTALLED COMPLETE, TESTED, AND ACCEPTED BY THE OWNER.
- 5. INSTALLATION OF ALL JOINTS, FITTINGS, SPECIALS, CLOSURE, COUPLING(S), APPURTENANCES, SLEEVES, TIE RODS, ANCHOR TEES, AND JOINTING AND GASKETING MATERIALS REQUIRED TO COMPLETE THE WATER LINE INSTALLATION SHALL BE CONSIDERED INCIDENTAL AND INCLUDED IN THE UNIT BID PRICES OF THAT PARTICULAR BID ITEM BEING INSTALLED/PERFORMED.
- 6. THE UNDERGROUND UTILITIES INDICATED WITHIN THE PROJECT LIMITS ARE SHOWN ACCORDING TO INFORMATION FURNISHED BY THE RESPECTIVE UTILITIES CONCERNED. THEIR ACCURACY, LOCATION, DEPTH, SIZE, ORIENTATION, SLOPE, ABOVE GROUND FEATURES, AND APPURTENANCES ARE NOT GUARANTEED BY REPRESENTATION ON THE PLAN SHEETS. THEREFORE, THE UTILITIES SHALL BE VERIFIED AND/OR RECHECKED OR ESTABLISHED BEFORE ANY TYPE OF UNDERGROUND EXCAVATION BEGINS OR IS ATTEMPTED BY THE CONTRACTOR. UNDERGROUND EXCAVATION FOR ITEMS CONTAINED WITHIN THIS PROJECT SHALL INCLUDE ROD PROBING AND / OR CHECKING EXCAVATION DEPTH, HAND DIGGING AS REQUIRED OR AS DIRECTED BY EACH UTILITY COMPANY CONCERNED AND TEMPORARY SUPPORT OF SERVICE(S) AS NECESSARY. THE UNIT COST FOR EACH OF THESE ACTIVITIES SHALL BE INCIDENTAL TO THE UNIT COST BID OF THAT PARTICULAR BID ITEM BEING INSTALLED/PERFORMED. UTILITIES SHOWN ARE APPROXIMATE, AND WERE DERIVED FROM UTILITY COMPANY RECORDS, VARIOUS PLANS PREPARED BY OTHERS, AND FIELD MEASUREMENTS WHEN POSSIBLE. CONTRACTOR SHALL CONTACT THE OHIO UTILITIES PROTECTION SERVICE AT 1-800-362-2764 BEFORE ATTEMPTING EXCAVATION. IF INCLUDED, THE CONTRACTOR SHALL THOROUGHLY REVIEW ATTACHED REFERENCE SHEETS FOR ADDITIONAL UNDER GROUND UTILITIES THAT ARE WITHIN THE PROJECT AREA. THE LOCATION(S) SHALL BE CALLED IN A MINIMUM OF TWO (2) WEEKS PRIOR TO ANY PLANNED EXCAVATION TO MITIGATE ANY UNDERGROUND CONFLICTS.
- 7. THE FIELD LOCATION OF THE EXISTING WATER MAIN, LATERAL SERVICE CONNECTIONS, AND ALL OTHER UNDERGROUND UTILITIES WITHIN THE PROJECT WORK LIMITS ARE BASED UPON RECORD DRAWING(S) THAT HAVE BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS, WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ALRW ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE RECORD DRAWINGS OR FOR ANY ERRORS AND/OR OMISSIONS THAT MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT OF INCORRECT INFORMATION PROVIDED TO THE DEPARTMENT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT FIELD VERIFICATION OF ITS ACCURACY. NO REPRESENTATION OR GUARANTEE OF ACCURACY ARE GRANTED OR MADE, NOR IS ANY RESPONSIBILITY FOR RELIANCE THEREON ASSUMED. IN NO EVENT SHALL ALRW BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, LOSS OF ANTICIPATED PROFITS OR BENEFITS ARISING OUT OF OR RELIANCE ON SAID INFORMATION.

ISSUED: 03/29/2024
REVISED:
DRAWING NO.
ALRW-WAT-002.5

BY: JRG
BY:

STANDARD WATERLINE
INSTALLATION NOTES



Avon Lake
Regional Water
Serving the region,
protecting our resource.
ENGINEERING DIVISION

- 1. ALL WORK SHALL COMPLY WITH THE 10 STATES STANDARDS RECOMMENDED STANDARDS FOR WATERWORKS AND ALL APPLICABLE AWWA, ANSI, OHIO EPA, AND ALRW STANDARDS, LATEST REVISIONS.
- 2. ALL DISINFECTION MEANS AND METHODS SHALL CONFORM TO ANSI/AWWA C651, LATEST REVISION.
- 3. ALL CHLORINE SHALL BE GRANULATED, NO CHLORINE TABLETS SHALL BE USED.
- 4. THE CONTRACTOR SHALL GIVE A MINIMUM OF FORTY-EIGHT (48) HOURS NOTICE PRIOR TO EACH TASK REQUIRED FOR THE INSTALLATION & TESTING OF THE WATER LINE. THE CONTRACTOR SHALL COORDINATE ALL WATER LINE WORK WITH ALRW. DISTRIBUTION AND COLLECTION OF ALRW SHALL BE CONTACTED AND CAN BE REACHED AT (440) 933-6226.
- 5. THE CONTRACTOR SHALL CUT-IN & INSTALL THE PROPOSED RESILIENT WEDGE GATE VALVES WITH THE TWO (2) INCH COPPER FLUSH FITTINGS FIRST PRIOR TO REMOVING THE EXISTING WATER MAIN AT ALL TIE-IN POINTS.
- 6. DURING TIE-INS AND REPAIRS, ALL PIPES, VALVES, AND APPURTENANCES SHALL BE THOROUGHLY DISINFECTED WITH 60% HTH SOLUTION BY SWABBING UNDER THE DIRECT SUPERVISION OF ALRW.
- 7. UPON COMPLETION OF THE PROPOSED WATER MAIN, THE CONTRACTOR SHALL HAVE ALRW FILL THE LINE AND ALLOW A MINIMUM OF TWENTY-FOUR (24) HOURS FOR CHLORINE CONTACT TIME FOR DISINFECTION. AFTER THE DISINFECTION PERIOD, THE CONTRACTOR SHALL HAVE ALRW PERFORM A LONG FLUSH AND A SHORT FLUSH WITH SAMPLES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PLACING OF ALL HOSES FOR FLUSHING.
- 8. AFTER ALRW HAS DETERMINED THE FLUSHING SAMPLES TO BE ACCEPTABLE, THE CONTRACTOR SHALL PERFORM A HYDROSTATIC PRESSURE TEST OF THE NEW WATER MAIN. THE PRESSURE TEST SHALL BE AT 150 PSIG FOR FOUR (4) HOURS WITH A 5 PSIG DROP ALLOWED BEFORE MAKE-UP WATER MUST BE USED. THE ALLOWABLE MAKE UP WATER SHALL BE DETERMINED BY:

$$\text{MAKEUP WATER (GAL/HR)} = \frac{S \times D \times \sqrt{P}}{148,000}$$

$$S = \text{LENGTH OF PIPE TESTED (FEET)}$$
$$D = \text{DIAMETER OF PIPE (INCHES)}$$
$$P = \text{TEST PRESSURE (PSIG)}$$

FAILURE OF THE TEST SHALL RESULT IN A RESTART OF THE FOUR HOUR TESTING PERIOD.

- 9. AFTER A SUCCESSFUL HYDROSTATIC TEST, THE CONTRACTOR SHALL PERFORM ALL SERVICE TAPS AND INSTALL ALL SERVICE LINES. ONCE ALL SERVICE LINES ARE INSTALLED, A VISUAL LEAK CHECK SHALL BE PERFORMED AT ALL SERVICE LINE JOINTS UNDER SYSTEM PRESSURE.
- 10. AFTER SUCCESSFUL COMPLETION OF THE HYDROSTATIC TEST AND VISUAL LEAK CHECK, ALRW SHALL PERFORM A BACTERIA CHECK SAMPLE.
- 11. ALL DISINFECTION SAMPLING POINTS SHALL BE LEFT EXPOSED DURING BACKFILLING UNTIL BACTERIA TESTING, PRESSURE TESTING, AND BACTERIA CHECK TESTING IS COMPLETED AND APPROVED BY ALRW. AFTER TESTING IS COMPLETED, COUPLINGS AND CORPORATION STOPS SHALL BE LEFT IN PLACE ON THE WATER MAIN WITH A ONE FOOT (1') EXTENSION OF THE TWO INCH (2") COPPER TUBING CRIMPED AND FOLDED TWICE OVER AND HAMMERED FLAT.

ISSUED: 03/29/2024
REVISED: 07/23/2024
DRAWING NO.
ALRW-WAT-003.1

BY: JRG
BY: JAL

STANDARD WATERLINE
TESTING NOTES



Avon Lake
Regional Water
Serving the region,
protecting our resource.
ENGINEERING DIVISION

1.

ALL NEW WATER MAIN INSTALLATIONS SHALL INCLUDE THE INSTALLATION OF TRACER WIRE, JUNCTIONS, CONNECTIONS, AND TEST PORTS ON ALL PVC C900, PVCO (C909) AND HDPE PLASTIC (POLYMER) WATER MAINS. 14 AWG GAUGE OR THICKER INSULATED COPPER WIRE SHALL BE INSTALLED AND ALL COSTS FOR MATERIALS, TOOLS, LABOR AND EQUIPMENT ARE INCIDENTAL TO THE UNIT COSTS PER LINEAR FOOT OF WATER MAIN (ANY SIZE) INSTALLED COMPLETE. TESTED AND ACCEPTED BY THE OWNER. TAKE CARE TO PROTECT THE WIRE INSULATION. WIRE SHALL BE APPROVED FOR DIRECT BURIAL USE.

2.

TRACER WIRE FOR DIRECT BURY INSTALLATIONS SHALL BE #14 AWG COPPER CLAD STEEL WIRE AS MANUFACTURED BY COPPERHEAD INDUSTRIES, #14 AWG SOLID COPPER WIRE WITH 30 MIL HIGH MOLECULAR WEIGHT POLYETHYLENE INSULATION AS MANUFACTURED BY AGAVE WIRE LTD, OR OWNER APPROVED EQUAL.

3.

TRACER WIRE FOR WATER MAINS INSTALLED BY DIRECTIONAL BORING SHALL BE #12 OR #10 AWG COPPER CLAD STEEL WIRE AS MANUFACTURED BY COPPERHEAD INDUSTRIES, OR OWNER APPROVED EQUAL.

4.

TRACER WIRE TEST STATIONS SHALL BE BLUE TRI-VIEW PLASTIC MARKERS BY RHINO W/TEST SCREWS - 4 FT U-CHANNEL POSTS.

5.

DIRECT BURY WIRE NUTS SHALL BE DRYCONN DIRECT BURY WIRE NUT (10444) MANUFACTURED BY KING INNOVATION, DBY-6 OR DBR-6 AS MANUFACTURED BY 3M, OR OWNER APPROVED EQUAL. DIRECT BURY LUGS SHALL BE DRYCONN DIRECT BURY LUG AS MANUFACTURED BY KING INNOVATION OR OWNER APPROVED EQUAL.

6.

TRACER WIRE SHALL BE ACCESSIBLE AT ALL VALVE BOX TOP SECTIONS, INCLUDING FIRE HYDRANT WATCH VALVES. BRING TRACER WIRE TO SURFACE AT EVERY CURB BOX, METER VAULT, BLUE PLASTIC MARKER WITH TRACER WIRE CONNECTORS, DEAD END HYDRANTS, AND AS CALLED OUT IN THE DRAWINGS. TRACER WIRE SHALL BE BROUGHT TO THE SURFACE AT LEAST EVERY ONE THOUSAND (1,000) FEET. TAKE CARE NOT TO DAMAGE THE WIRE COATING. REPAIR DAMAGED COATING WITH ELECTRICAL TAPE. DO NOT WRAP THE TRACER WIRE AROUND STEPS OR ANY OTHER PLACE WHERE A PERSON COULD TRIP ON THE WIRE.

7.

TRACER WIRE SHALL BE BROUGHT UP IN A PVC CONDUIT AT ALL DEAD ENDS OF MAIN FIRE HYDRANTS WITHOUT A VALVE AND AT HYDRANTS OF A NON-TYPICAL HYDRANT BRANCH (I.E. DOG-LEGGED HYDRANT BRANCH). TRACER WIRE SHALL BE BROUGHT TO THE SURFACE ACCORDING TO PLAN DETAIL. NOTE LOCATION OF PVC CONDUIT IN RELATION TO THE HYDRANT (I.E. NORTH, EAST, SOUTH OR WEST) ON AS-BUILT DRAWINGS. TRACER WIRE CONNECTION AT TEE OR BRANCH POINT TO BE MADE WITH DRYCONN 3-WAY DIRECT BURY LUG STYLE CONNECTOR OR OWNER APPROVED EQUIVALENT.

8.

TRACER WIRE IN BLUE PLASTIC PIPE LINE MARKER WHEN BRINGING THE TRACER WIRE UP IN A BLUE PLASTIC PIPE LINE MARKER. INSTALL THE TRACER WIRE ACCORDING TO PLANS, SPECIFICATIONS, MANUFACTURER'S RECOMMENDATIONS AND/OR AS DIRECTED BY THE OWNER. BURY A FOUR FOOT U-CHANNEL POST TWO FEET IN THE GROUND. RUN THE TRACER WIRE UP THROUGH THE MARKER AND SLIDE THE BLUE PLASTIC MARKER OVER THE POST. BURY THE BOTTOM SIX INCHES OF THE MARKER. CONNECT THE TRACER WIRE TO THE BRASS CONNECTING SCREWS AND LABEL THE SCREWS WITH A PERMANENT MARKER AS SHOWN. NOTE LOCATION OF TRACER WIRE PIPELINE MARKER ON AS-BUILT DRAWINGS. NOTE: IF A MARKER IS USED ONLY TO MARK THE MAIN LOCATION AND NOT BRING UP THE TRACER WIRE, USE THE BLUE MARKERS WITHOUT THE TRACER WIRE CONNECTORS.

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-004.1

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

1.

VALVE BOX SHALL BE ADJUSTED TO THE FINISHED GRADE PRIOR TO PLACEMENT OF CONCRETE.

2.

USE DEEP SKIRTED LID (4" OR MORE) TYPE, SLIDING ADJUSTABLE CAST IRON VALVE BOX C.I. MIN 30,000 P.S.I. GROUND BELOW THE CONCRETE RISER PAD TO BE COMPACTED 95% MAXIMUM DENSITY.

3.

GROUND BELOW THE CONCRETE RISER PAD TO BE COMPACTED 95% MAXIMUM DENSITY.

4.

CUT RISER PIPE TO LENGTH IN FIELD. CAUTION: IF EXISTING RISER IS ASBESTOS-CEMENT PIPE (ACP) FOLLOW OSHA GUIDELINES FOR WORKING WITH ACP.

5.

#5 REINFORCING STEEL HOOP EQUALLY CENTERED HORIZONTALLY & VERTICALLY.

6.

WATER VALVE EXTENSIONS SHALL BE INSTALLED WHEN THE DIMENSION FROM FINISH GRADE TO THE TOP OF THE OPERATING NUT EXCEEDS 5 FEET.

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-041.1

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

9.

TRACER WIRE CONNECTIONS JOINING ENDS OF TRACER WIRE: CONNECTIONS INTO EXISTING TRACER WIRE, CONNECTIONS INTO TRACER WIRE USED DURING WATER MAIN BORES, CONNECTIONS BETWEEN ONE SPOOL OF TRACER WIRE TO ANOTHER, AND OTHER SIMILAR CONNECTIONS SHALL BE MADE USING A DIRECT BURY WIRE NUT. WHEN CONNECTING TRACER WIRE ENDS TOGETHER, STRIP 5/8" OF INSULATION FROM THE END OF EACH WIRE. INSERT THE TWO ENDS FIRMLY INTO THE DIRECT BURY WIRE NUT. TWIST THE WIRE NUT CLOCKWISE WHILE PUSHING THE WIRES FIRMLY INTO THE NUT. DO NOT OVER TORQUE. TIE THE WIRES IN A KNOT AS SHOWN. JOINING TRACER WIRE - BRANCH TO MAIN: CONNECTIONS OF TRACER WIRE AT TEES, CROSSES, AND AT LOCATIONS WHERE THE TRACER WIRE WILL BE BROUGHT TO THE SURFACE SHALL BE CONDUCTED USING A DIRECT BURY LUG.

10.

TRACER WIRE SHALL BE INSTALLED IN A CONTINUOUS FASHION. INSTALL TRACER WIRE ON TOP OF WATER MAIN AND SECURE TO MAIN EVERY FIVE (5) FEET WITH TAPE AS DIRECTED.

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-004.2

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

CROSS OVER DETAIL

SCALE: NONE

1.

WATER MAINS AND SANITARY SEWER LINES OR FORCE MAINS SHALL BE SEPARATED BY MINIMUM CLEAR VERTICAL DISTANCE OR 18" AND HORIZONTAL DISTANCE OR 10'-0". WHEN THE ABOVE CAN NOT BE MAINTAINED, SEWER LINE SHALL BE CONCRETE ENCASED OR CLASS S2 D.I.P. USED A DISTANCE OR 10'-0" EACH WAY FROM WATER LINE.

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-020.1

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

NOTES:

1. VALVE BOX SHALL BE ADJUSTED TO THE FINISHED GRADE PRIOR TO PLACEMENT OF CONCRETE.

2. USE DEEP SKIRTED LID (4" OR MORE) TYPE, SLIDING ADJUSTABLE CAST IRON VALVE BOX C.I. MIN 30,000 P.S.I. GROUND BELOW THE CONCRETE RISER PAD TO BE COMPACTED 95% MAXIMUM DENSITY.

3. GROUND BELOW THE CONCRETE RISER PAD TO BE COMPACTED 95% MAXIMUM DENSITY.

4. CUT RISER PIPE TO LENGTH IN FIELD. CAUTION: IF EXISTING RISER IS ASBESTOS-CEMENT PIPE (ACP) FOLLOW OSHA GUIDELINES FOR WORKING WITH ACP.

5. #5 REINFORCING STEEL HOOP EQUALLY CENTERED HORIZONTALLY & VERTICALLY.

6. WATER VALVE EXTENSIONS SHALL BE INSTALLED WHEN THE DIMENSION FROM FINISH GRADE TO THE TOP OF THE OPERATING NUT EXCEEDS 5 FEET.

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-041.1

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

REPLACEMENT SECTION, TIE-IN OR MAIN EXTENSION
DETAIL OF CAST IRON LINE VALVE + BOX

SCALE: NONE

STANDARD VALVE WITH SAMPLING POINTS

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-010.1

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

CONCRETE PAVEMENT REPLACEMENT

NOTES:

1. ALL TRENCHES IN THE ROADWAY OR UNDER PAVEMENT, DRIVEWAYS, OR SIDEWALKS SHALL BE BACKFILLED WITH 10% PREMIUM LIMESTONE AND MECHANICALLY COMPACTED/CONSOLIDATED USING A VIBRATORY PLATE TAISER IN 12" LIFTS. NO BLAST FURNACE SLAG OR CRUSHED CONCRETE SHALL BE USED UNLESS AUTHORIZED BY THE OWNER.

2. TRENCH WIDTH, SUPPORT, AND PROTECTION AS DETERMINED BY THE CONTRACTOR'S OPERATIONS AND/OR SOIL AND FIELD CONDITIONS.

3. ALL EXISTING PAVEMENT EDGES SHALL BE NEAT, CLEAN, AND SQUARE PRIOR TO PAVEMENT REPLACEMENT. FINAL CUTBACK WIDTH SHALL BE AS DETERMINED BY THE OWNER BASED UPON THE LIMIT OF COLLATERAL DAMAGE CAUSED BY THE UTILITY WORK. FINAL CUTBACKS SHALL NOT BE PERFORMED UNTIL ALL UTILITY WORK IS COMPLETE.

4. IMMEDIATELY PRIOR TO PAVEMENT REPLACEMENT IN ASPHALT ROADS, A BITUMINOUS LIQUID TACK COAT SHALL BE APPLIED UNIFORMLY TO 100% OF THE SURROUNDING ASPHALT PAVEMENT.

5. IF TRAFFIC IS TO CROSS TRENCH PRIOR TO PAVEMENT REPLACEMENT, TRENCH SHALL BE BROUGHT TO GRADE WITH COMPACTED/CONSOLIDATED LIMESTONE AND COVERED WITH STEEL PLATES. PLATES SHALL EXTEND AT LEAST 8' BEYOND THE TRENCH LIMITS.

6. COLD-PATCH ASPHALT SHALL ONLY BE USED FOR TEMPORARY REPAIRS. NO PERMANENT REPAIRS WITH COLD-PATCH ASPHALT SHALL BE PERMITTED.

7. ALL PAVEMENT REPAIRS SHALL BE INSPECTED BY THE OWNER'S REPRESENTATIVE, A FORTY-EGHT HOUR (48 HR) NOTICE IS REQUIRED FOR ALL INSPECTIONS.

8. ANY EXCAVATION UNDER EXISTING WATER MAIN(S) SHALL USE LSM-100 UP TO PIPE SPRING LINE. WRAP MAIN WITH POLY-WRAP AND TIE.

9. THIS DETAIL SHALL APPLY TO ANY WATER MAINS UNDER OR WITHIN 24" OF ANY PAVEMENT.

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-031.2

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

WATER MAIN CONNECTION
SIDE STREET TIE-IN DETAIL
ASSEMBLY INSTALLATION

SCALE: NONE/SPECIFIC ORIENTATION: NONE

STANDARD WATERLINE TRENCHES UNDER PAVEMENT

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-012.1

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

** = TRENCH WIDTH, WALL SLOPE, SUPPORT, AND PROTECTION AS DETERMINED BY THE CONTRACTOR'S OPERATIONS AND/OR SOIL AND FIELD CONDITIONS.

PROVIDE 4" OF NEW TOPSOIL IN GRASS AREAS, ROLLED TO 3" FINAL THICKNESS MINIMUM.

ANY EXCAVATION UNDER EXISTING WATER MAIN(S) SHALL USE LSM-100 UP TO PIPE SPRING LINE. WRAP MAIN WITH POLYWRAP AND TIE.

NO BLAST FURNACE SLAG OR CRUSHED CONCRETE SHALL BE USED AS PIPE BEDDING AND / OR BACKFILL.

THIS DETAIL SHALL NOT APPLY TO TRENCHES LOCATED UNDER OR WITHIN 24" OF ANY PAVEMENT.

STANDARD WATERLINE TRENCH NOT UNDER PAVEMENT

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-030.1

Avon Lake Regional Water

Serving the region, protecting our resources.

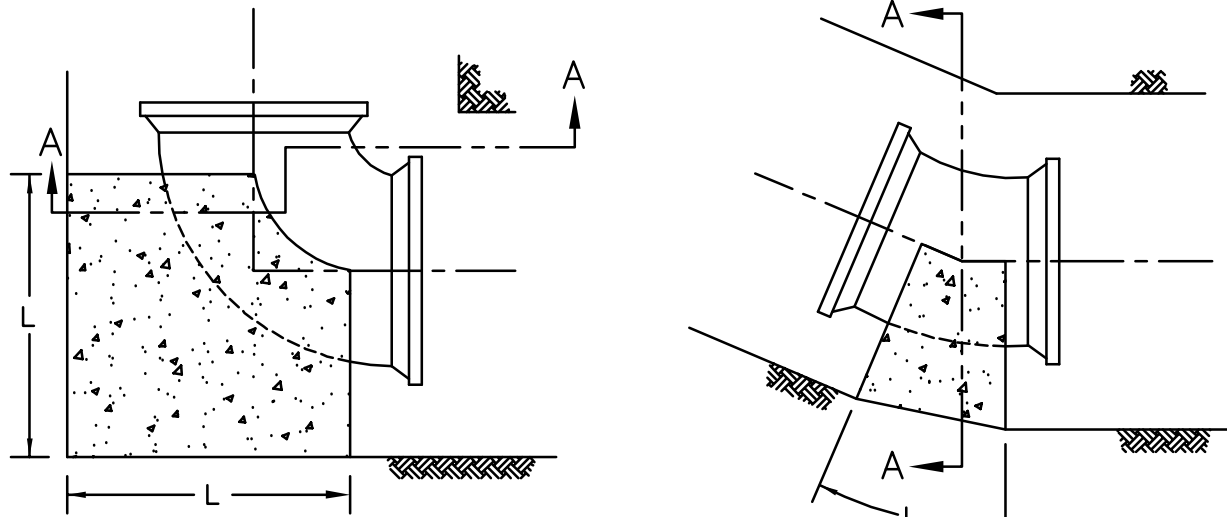
ENGINEERING DIVISION

REVISIONS

HARBOR CREST
TOWNHOUSE SUBD. NO. 1
WATER DETAIL SHEET

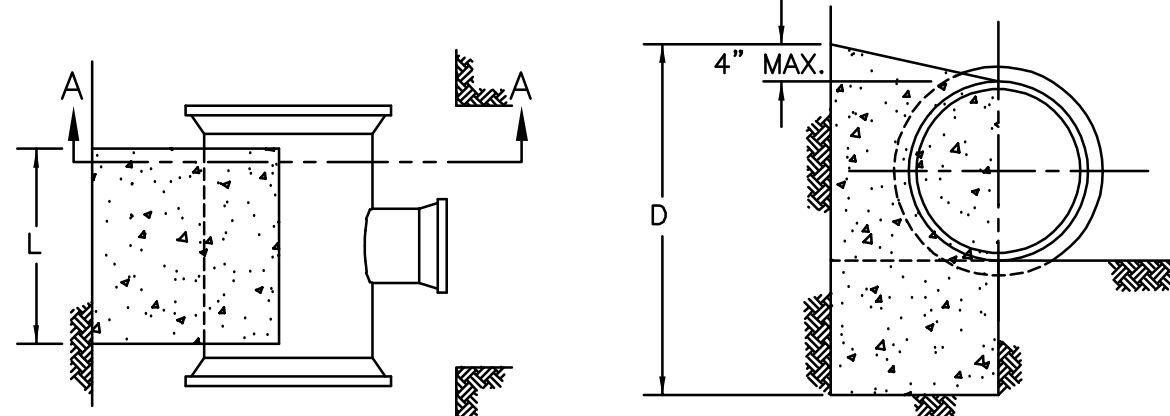
THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

18
21
OCTOBER
2025



90° BENDS

BENDS LESS THAN 90°



TEES

SECTION A-A

CONCRETE BLOCKING FOR HORIZONTAL BENDS AND TEES

- SCALE: NONE
1. BLOCKING DESIGNED FOR 3000 POUNDS PER SQUARE FOOT SOIL BEARING AND 150 POUNDS PER SQUARE INCH INTERNAL PRESSURE.
 2. PROVIDE CONCRETE REINFORCEMENT AS DIRECTED BY THE ENGINEER.
 3. THESE SAME DIMENSIONS WILL BE USED FOR SHORT BODY FITTINGS.

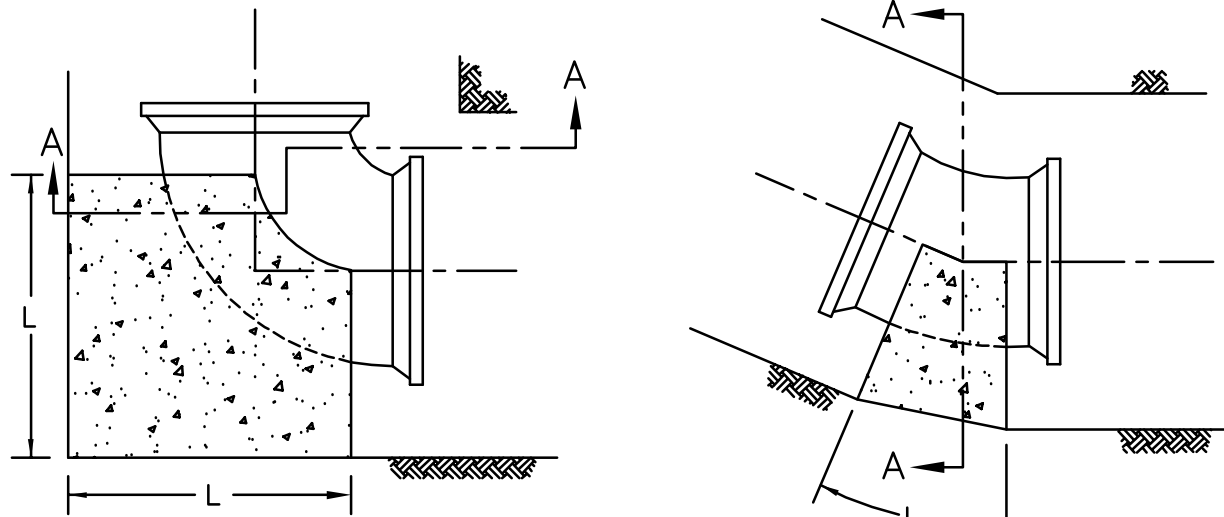
ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-070.1

CONCRETE THRUST BLOCK REQUIREMENTS



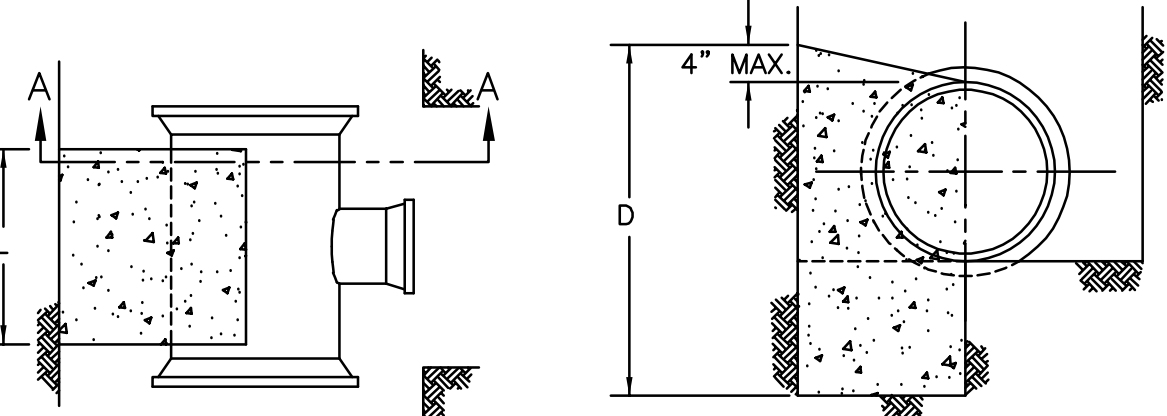
SIZE OF PIPE	DEGREE OF BEND						RUN	BRANCH											
	11 1/4"	12 1/2"	14"	16"	18"	20"		6"	8"	10"	12"	14"	16"	18"	20"	22"	24"	26"	28"
6"	12	6	12	8	20	12	18	13											
8"	12	9	16	16	24	13	25	18	8"	18	13	23	18						
12"	15	13	22	18	36	30	32	30	12"	18	13	23	18	38	24				
16"	18	21	32	27	36	39	41	39	16"	14	16	20	20	36	25	49	32		
20"	25	24	30	32	49	45	50	50	20"	11	21	18	22	35	26	46	34	60	42
24"	27	30	39	42	60	54	58	61	24"	9	25	15	27	30	30	42	38	54	46
30"																		50	52
36"																		60	63

NOTE: ALL FITTINGS SHALL USE MEGA-LUG RESTRAINTS WITH CONCRETE THRUST BLOCKING.



90° BENDS

BENDS LESS THAN 90°



TEES

SECTION A-A

CONCRETE BLOCKING FOR HORIZONTAL BENDS AND TEES

- SCALE: NONE
1. BLOCKING DESIGNED FOR 3000 POUNDS PER SQUARE FOOT SOIL BEARING AND 150 POUNDS PER SQUARE INCH INTERNAL PRESSURE.
 2. PROVIDE CONCRETE REINFORCEMENT AS DIRECTED BY THE ENGINEER.
 3. THESE SAME DIMENSIONS WILL BE USED FOR SHORT BODY FITTINGS.

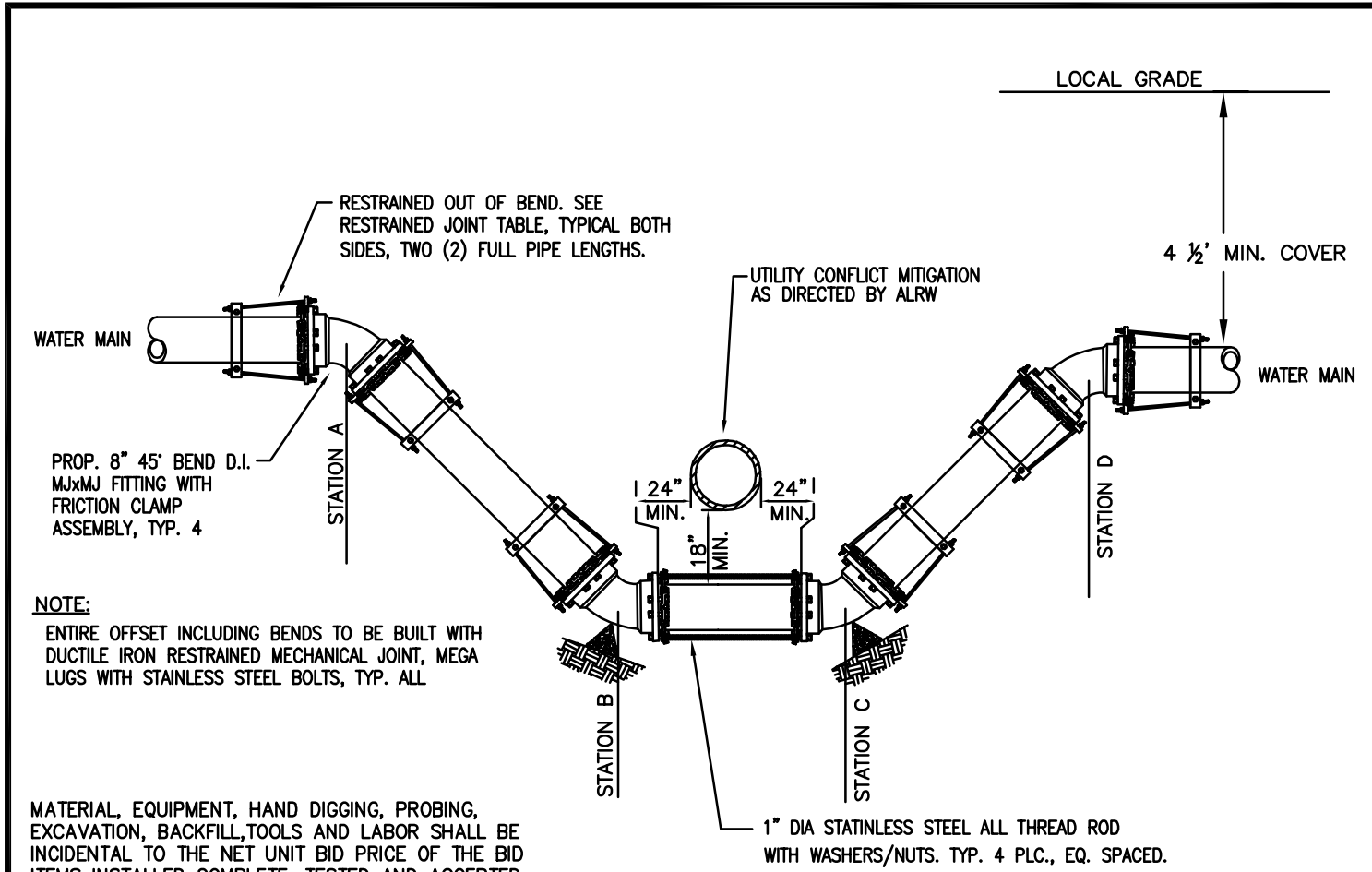
ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-070.1

CONCRETE THRUST BLOCK REQUIREMENTS



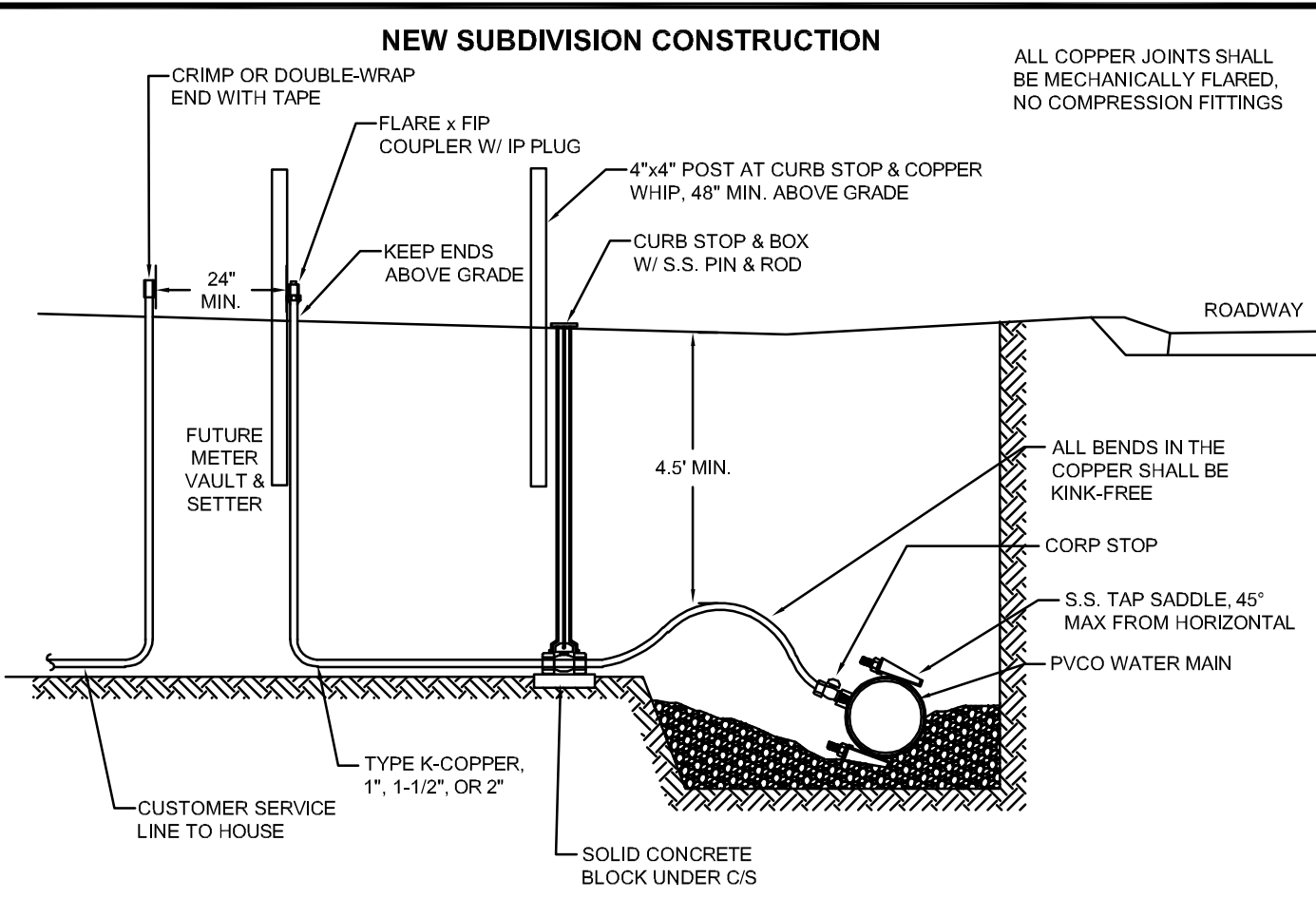
SIZE OF PIPE	DEGREE OF BEND						RUN	BRANCH											
	11 1/4"	12 1/2"	14"	16"	18"	20"		6"	8"	10"	12"	14"	16"	18"	20"	22"	24"	26"	28"
6"	12	6	12	8	20	12	18	13											
8"	12	9	16	16	24	13	25	18	8"	18	13	23	18						
12"	15	13	22	18	36	30	32	30	12"	18	13	23	18	38	24				
16"	18	21	32	27	36	39	41	39	16"	14	16	20	20	36	25	49	32		
20"	25	24	30	32	49	45	50	50	20"	11	21	18	22	35	26	46	34	60	42
24"	27	30	39	42	60	54	58	61	24"	9	25	15	27	30	30	42	38	54	46
30"																		50	52
36"																		60	63

NOTE: ALL FITTINGS SHALL USE MEGA-LUG RESTRAINTS WITH CONCRETE THRUST BLOCKING.



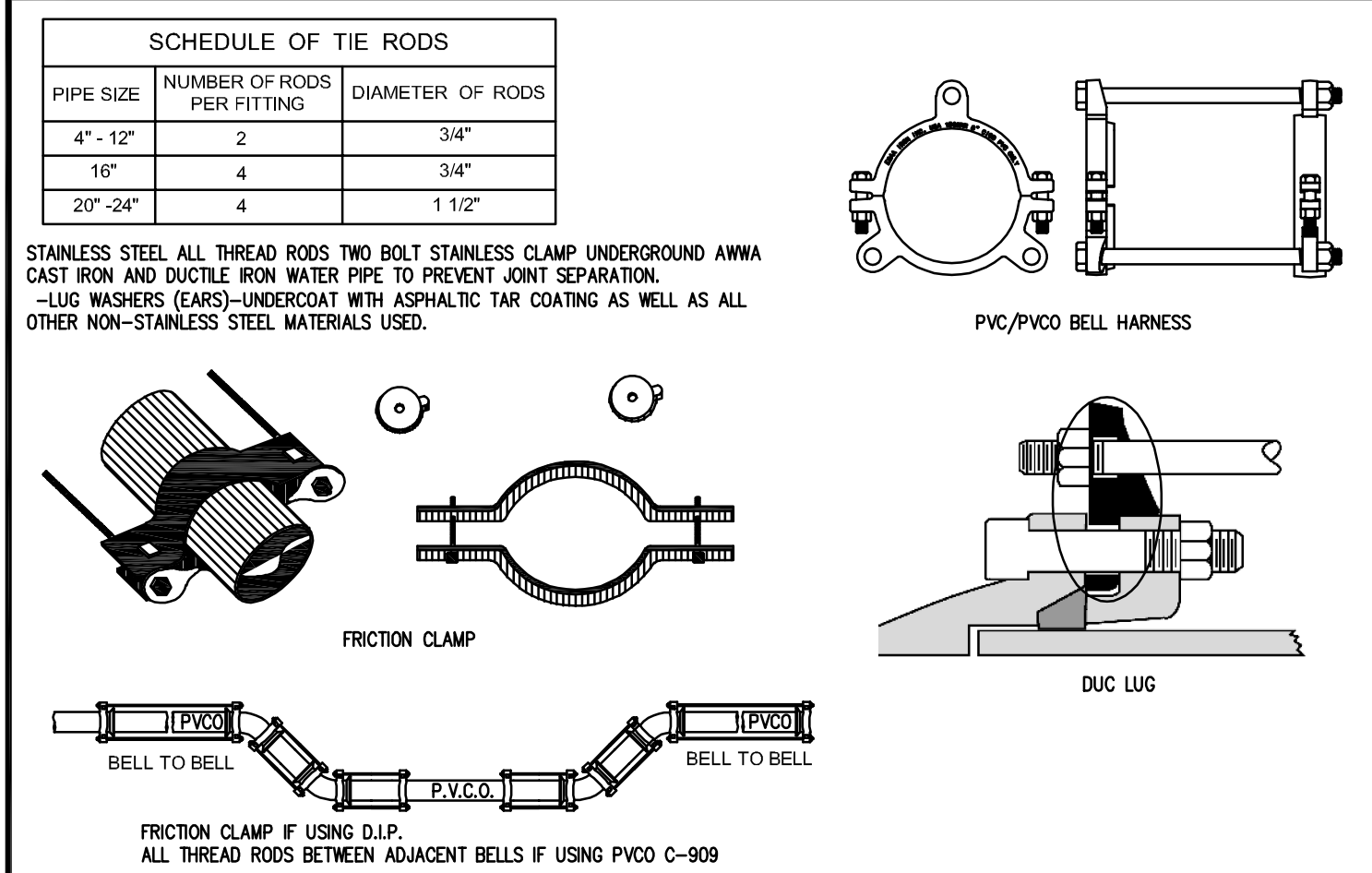
ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-080.1

STANDARD WATERLINE VERTICAL OFFSET



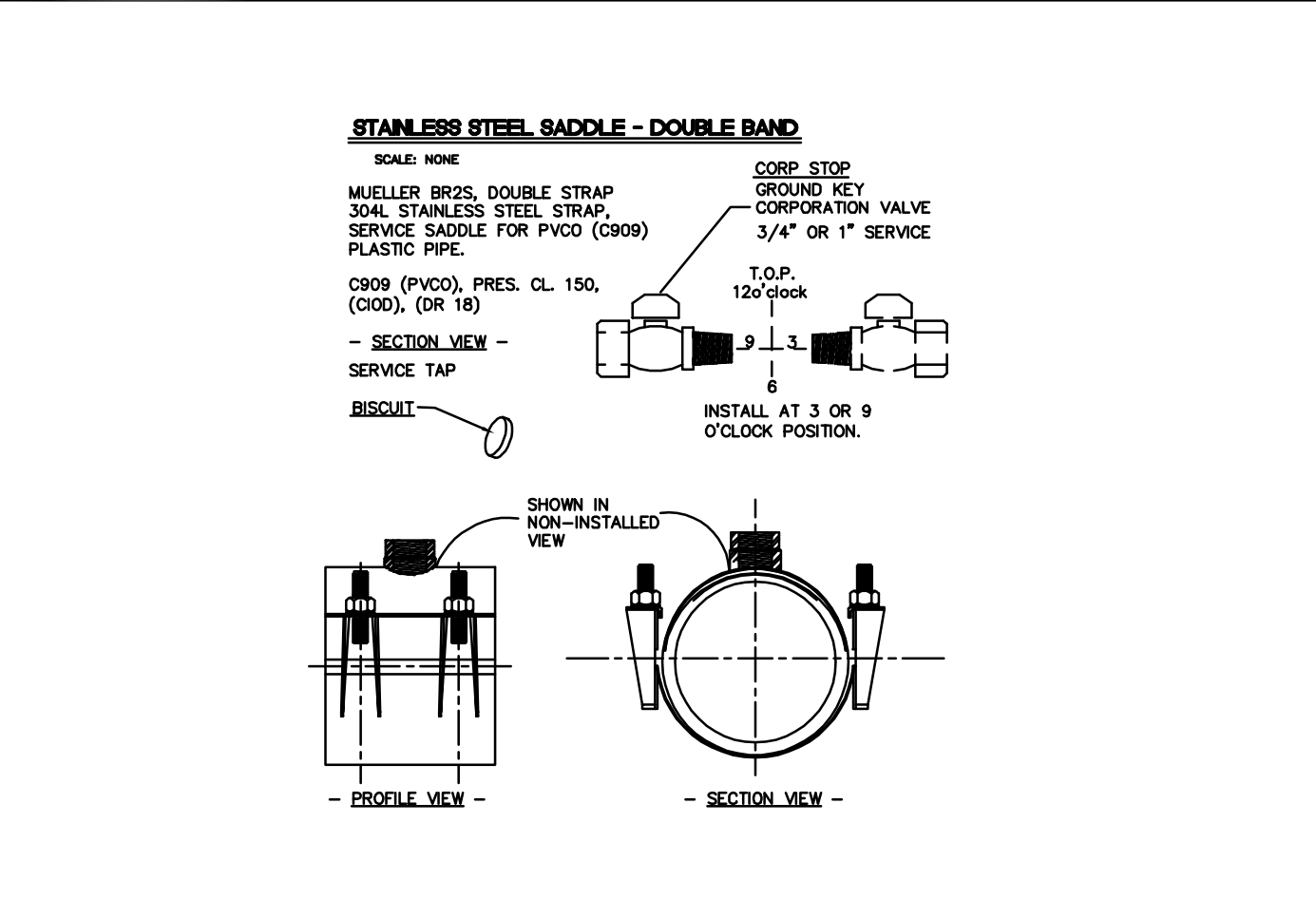
ISSUED: 07/23/2024 BY: JAL
REVISED: BY:
DRAWING NO.
ALRW-WAT-110.2

STANDARD NEW WATER SERVICE CONNECTION FOR SERVICES 2\"/>



ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-081.1

RESTRAINED JOINT METHODS



ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-112.1

STANDARD TAP SADDLE & CORP STOP



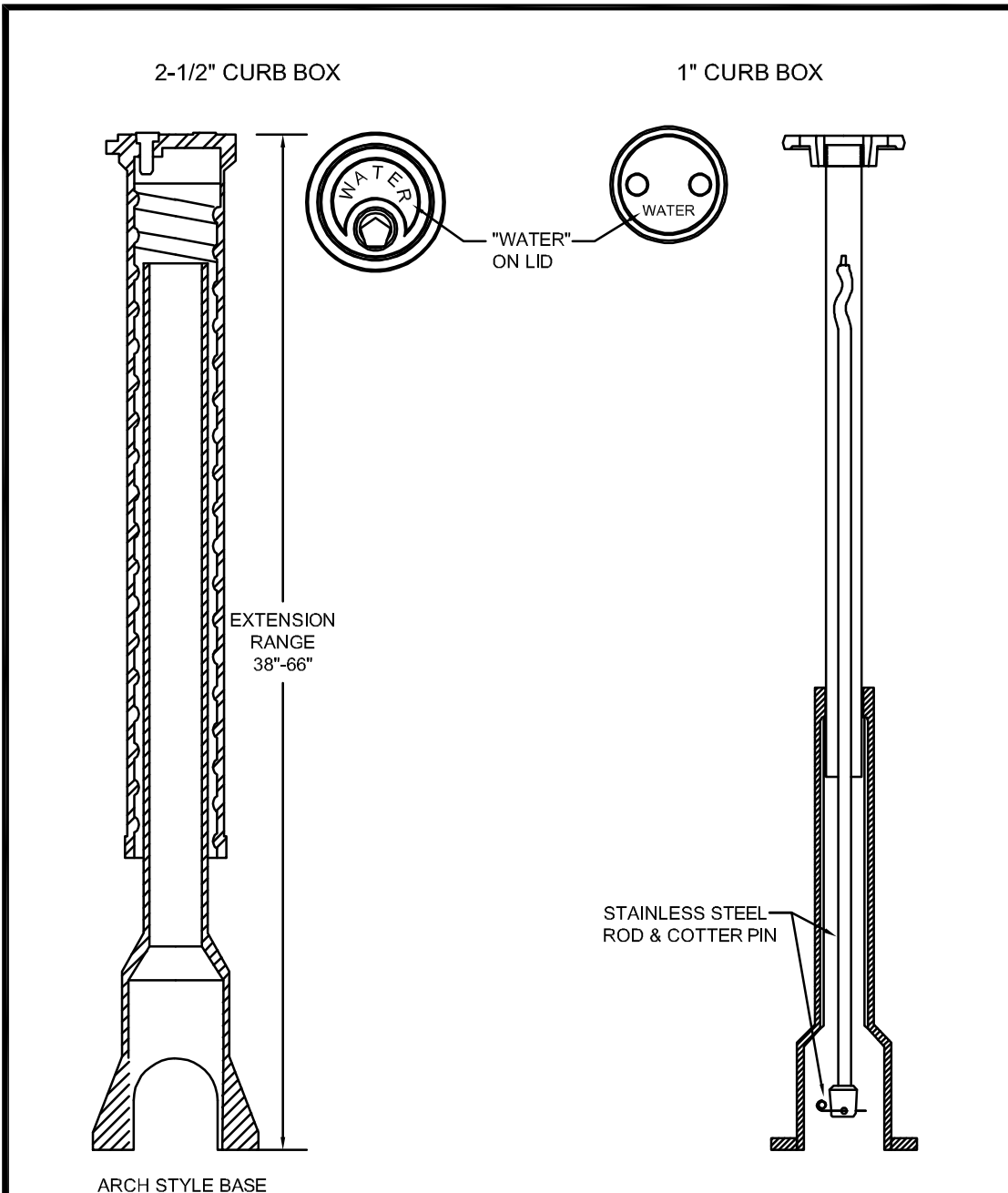
RESTRAINED LENGTHS FOR PVC / PCVO PIPE												
MAIN PIPE SIZE	HORIZ. BENDS			TEES			REDUCERS			PLUGS		
	60"	45"	22.5"	SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH	SIZE
36	106	44	21	K36	K30	K24	K18	K36	K24	K20	257	
30	93	39	19	K30	K24	K18	K12	K24	K18	K12	222	
24	79	33	16	K24	K18	K12	K6	K18	K12	K6	185	
20	68	29	14	K20	K15	K12	K6	K15	K12	K6	159	
16	57	24	12	K16	K12	K6	K6	K12	K6	K6	131	
12	45	19	9	K12	K6	K6	K6	K6	K6	K6	102	
10	39	16	8	K10	K6	K6	K6	K6	K6	K6	87	
8	33	14	7	K8	K6	K6	K6	K6	K6	K6	72	
6	25	11	5	K6	K4	K4	K4	K4	K4	K4	55	
4	18	8	4	K4	K4	K4	K4	K4	K4	K4	39	

NOTE: TABLE FOR DUCTILE IRON PIPE TRIMMED OUT OF DETAIL DRAWING TO SAVE SPACE

1. PIPE SIZES ARE GIVEN IN INCHES. RESTRAINED LENGTHS ARE GIVEN IN FEET.
2. RESTRAIN TO NEXT FULL JOINT BEYOND GIVEN LENGTH.
3. RESTRAIN 11.25' BENDS 50% OF LENGTH FOR 22.5' BENDS.
4. ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.
5. PIPE ADJACENT TO IN-LINE VALVES 10' AND SMALLER SHALL BE RESTRAINED FOR 20' ON EACH SIDE, INCLUDING THE VALVE-TO-PIPE CONNECTION. ALL PIPE ADJACENT TO IN-LINE VALVES 12' AND LARGER SHALL BE RESTRAINED FOR A DISTANCE X OF REQUIRED PLUG (DEAD END) LENGTH ON EACH SIDE, INCLUDING THE VALVE-TO-PIPE CONNECTION.
6. LENGTHS SHOWN ARE FOR A TEST PRESSURE OF 150 PSIG.
7. RESTRAINED LENGTHS FOR TEES REPRESENTS LENGTH ON BRANCH. RESTRAINED LENGTHS FOR REDUCERS REPRESENTS LENGTH ON LARGE END OF REDUCER.
8. RESTRAINED LENGTHS ARE TO BE USED FOR POTABLE WATER.
9. THE RESTRAINED LENGTHS SHOWN IN THESE TABLES ARE BASED ON THE USE OF LIGHTLY COMPACTED CLEAN SAND WITH AT LEAST A 95% COARSE PARTICLE CONTENT. ACTUAL SOIL CONDITIONS MUST BE DETERMINED BY THE ENGINEER OF RECORD AND THE RESTRAINED LENGTHS MODIFIED ACCORDINGLY. SAFETY FACTOR OF 1.5:1 TO BE CALCULATED WITH AN "SM" SOIL TYPE AND TRENCH TYPE "3".

ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-081.2

RESTRAINED JOINT METHODS



ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-113.1

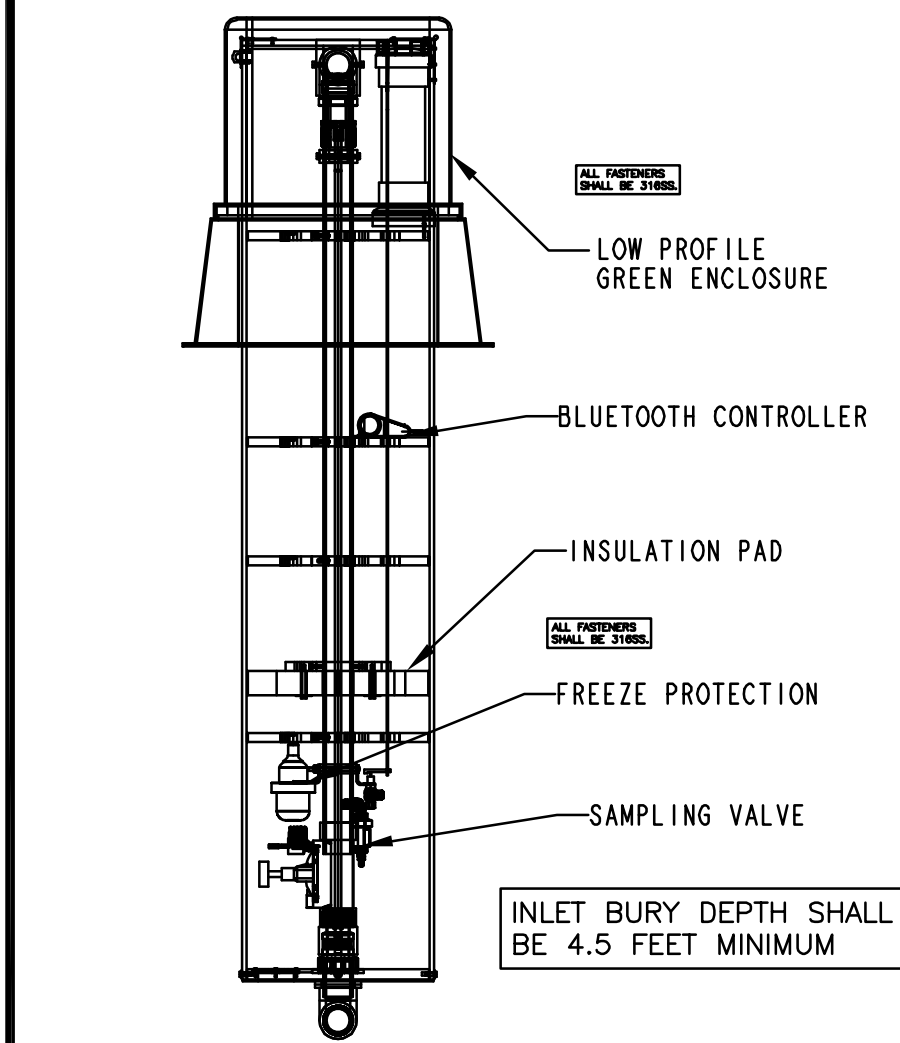
STANDARD CURB STOP BOXES



HARBOR CREST TOWNHOUSE SUBD. NO. 1 WATER DETAIL SHEET

THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

19/21
OCTOBER
2025



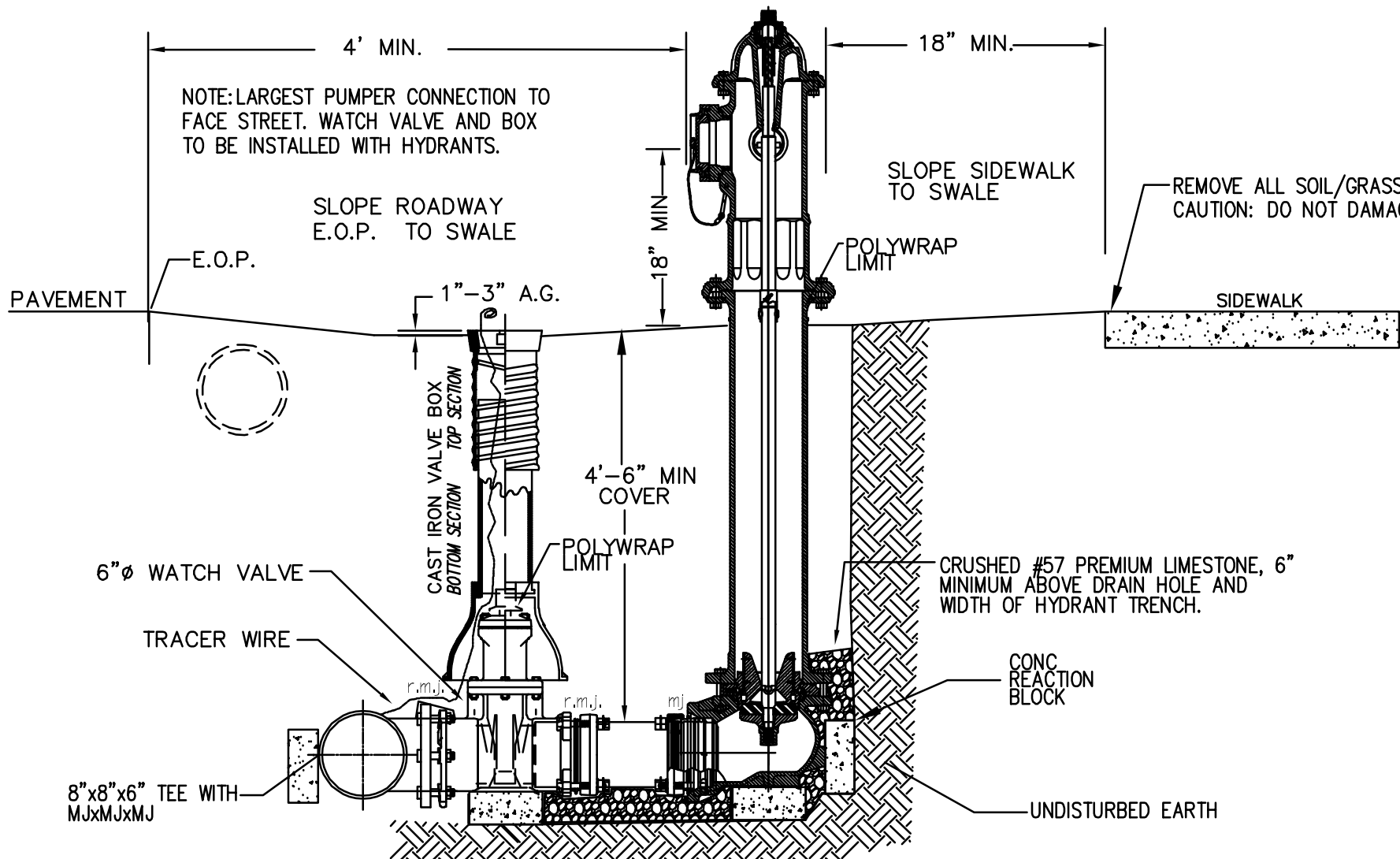
ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-060.1

END OF LINE AUTOMATIC FLUSHING UNIT



ALL HYDRANTS SHALL BE MUELLER CENTURION A-423 WITH (2) 2-1/2" HOSE NOZZLES + (1) 5-1/4" STORZ PORT STEAMER NOZZLE. 2-1/2" PORTS SHALL BE NATIONAL STANDARD THREAD.

FINISH PAINT REQUIREMENTS:
BARREL: PRATT & LAMBERT, TECH-GARD MAINTENANCE GLOSS ENAMEL SAFETY YELLOW #E140 SHERWIN-WILLIAMS, INDUSTRIAL & MARINE ENAMEL B54 SERIES SAFETY YELLOW SW4084
BONNET: PRATT & LAMBERT, TECH-GARD MAINTENANCE GLOSS ENAMEL SAFETY WHITE #S4500 SHERWIN WILLIAMS, ALL SURFACE ENAMEL A11 SERIES ULTRA WHITE LRV 88%



ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-050.1

STANDARD FIRE HYDRANT INSTALLATION



- NOTES:
- ALL JOINTS SHALL BE M.J x M.J. (MEGA-LUG).
 - LENGTH OF SWIVEL ADAPTER SHALL BE BASED UPON FIELD CONDITIONS, 18" MINIMUM TOTAL LENGTH.
 - THRUST BLOCKING SHALL BE SOLID CONCRETE BLOCKS OR FORMED & CAST IN PLACE. HARDWOOD PRESSURE-TREATED WEDGES SHALL BE USED AS REQUIRED.
 - HYDRANT & WATCH VALVE SHALL BE INSTALLED VERTICALLY UP, PLUMB, SQUARE, & TRUE.
 - HYDRANTS SHALL HAVE A 10' MINIMUM CLEARANCE TO ANY DRIVEWAY AND A 4' UNOBSTRUCTED CLEARANCE AROUND FIRE HYDRANT AND WATCH VALVE.
 - ADJUST WATCH VALVE & FIRE HYDRANT LOCATION AS REQUIRED BASED UPON FIELD CONDITIONS AND OWNER'S CONCURRENCE.
 - ALL DUCTILE IRON SHALL BE ENCASED IN POLY-WRAP.
 - HYDRANTS SHALL BE AT LEAST 4' OFF THE EDGE OF ROADWAY PAVEMENT AND 18" OFF THE SIDEWALK.

Auto-Flusher End of Line Fire Hyd., Flush to adjacent Storm Sewer

An automatic water distribution flushing hydrant system shall be installed at the end of the water main's end fire hydrant, to allow for frequent maintenance flushing operations in order to maintain water quality.

HYDRO-GUARD PERMANENT FLUSHING SYSTEM-Fully Automatic, manufactured by Mueller Company, (PN: HG4ABL2BRN060LPLG), for this Cold Climate applications with freeze protection. Model HG4-direct flush to storm sewer, with an air-gap backflow prevention feature shall be provided. Programming shall be blue tooth style controller (KR-BL), Inlet port size of 2". No Lead Brass pipe materials and a sixty inch (60") minimum bury depth are required. Include a low profile, green in color enclosure. The automatic water distribution flushing equipment to be supplied under this specification shall be the Hydro-Guard Long Neck Sub-Surface Discharge Unit (HG4) as manufactured by Mueller Company and Pressure testing shall be performed against the curb stop by the Contractor.

To Include four (4) schedule 80 steel pipe Bollards, four feet (4') burial depth and four feet (4') exposed height installed with concrete footings and filled with Portland cement 3000 psi class c concrete and inside of pipe and domed with a radius upward as to allow rain water runoff. One (1) coat of primer and two (2) coats of epoxy Federal safety/traffic yellow is required at the locations indicated on the plan sheet, field adjust as directed, for permanent installation(s).

Valve, valve box and cover, extension stem and restrained joint fittings, complete in place, tested and accepted by the Owner. Programmable as to frequency, duration and events each day with a 100 - 250 gpm water main flow flow rate.

The equipment shall be connected to a water distribution line as required by the plans or standard installation detail. The self-contained unit is designed for automatic flushing of the water distribution line through the opening of a control valve that is an integral part of the unit. This equipment shall be (Fully programmable) capable of being programmed to activate when chlorine or chloramine residual levels fall below acceptable standards determined by the operator/end-user and/or be capable of being programmed to flush up to 10 times daily on the days desired in 1 minute to 24 hours increments (on a continually rotating 7-day cycle). All programming shall be accomplished by means of an integrated telemetry based PLC with proprietary programming logic that will consistently analyze the water quality readings taken by the integrated chlorine (total or free) analyzer. The system will be powered by nine volt (9V) battery with an additional 9V Alkaline backup battery (Fully charged batteries shall be supplied with the unit).

The two-way communication (SCADA compatible) remote telemetry based automated flushing and water quality management equipment to be supplied under this specification shall be Hydro-Guard® as manufactured by the Mueller Company or Owner approved equivalent.

Integral Piping and Control Valve, the piping and control valve components shall include the following: The unit's internal 2-inch control valve shall be capable of being activated by a 24VAC solenoid. The control valve shall be a globe valve type design capable of passing sand and other debris up to 5/8" in diameter without obstructing the valve's throat. The unit's standard internal and external piping shall be no lead brass. The unit's internal piping and control valve shall have an operational rating of 200 psi (where consistent pressures range above 110 psi it is recommended that a Pressure Reducing Valve be utilized ahead of the automatic flushing system for the protection of the device and its critical components). Internal piping and control valve shall be capable of being removed from the housing by means of a flange coupling allowing for quick disassembly, permitting easy maintenance and repairs. The control valve shall be constructed of a non-corrosive glass-reinforced nylon, or equal, and shall be fitted with stainless steel hardware. The valve shall be of the type that can be easily rebuilt.

Be secured and water-resistant. Use an integrated 24-volt solenoid to operate the control valve that directly turns into a 2-inch control valve.

De-chlorination for dump flush water to storm sewer, a tablet feeder designed to accommodate eight (8) sodium sulfite or ascorbic acid tablets shall be installed on the unit. A portion of the water being flushed shall be directed through the tablet feeder in the creation of a concentrated solution of the dechlorinating agent. The directly treated, concentrated solution shall be introduced to the non-directly treated discharge on the device's splash plate resulting in a homogenous mixture effectively treating the entire discharge. Depending upon the level of neutralization required, as many as five tablet feeders may be installed on a single flushing device.

Prior to the installation, the drainage patterns for the intended installation location shall be viewed to ensure that any discharged water will not create hazardous conditions for pedestrian or vehicular traffic. The selected location's drainage pattern shall also permit discharged water to flow away from the automatic flushing valve or be absorbed by the surrounding soil as prevent pooling.

Remove debris that might create uneven pressure on the unit from the bottom of the hole. Compact the bottom of the hole to minimize settling after installation.

Install a 12" lift of non-compacted #57 premium limestone bedding material into the bottom of the hole, 12" below the unit for drain and also running a six inch (6") drain pipe to storm sewer.

Backfill the hole around the automatic flushing valve with clean fill #57 stone. Backfilling shall be accomplished in 6" lifts. Use a level to ensure the unit is level after each lift.

The automatic flushing valve shall be disinfected in accordance with ALRW and AWWA standards.

HG4, subsurface discharge unit, requires handheld TBOS-II programming.

The automatic flushing assembly shall be paid for at the contract bid price per each which shall include the cost of all labor, materials, equipment and incidentals required to complete the installation of the automatic flushing valve, furnishing flushing device, piping, tees, fittings, valves, and any other appurtenances, two inch (2") corporation, copper piping and fittings, valve box, frame and cover, ball valve and of delivering, handling, excavation, flush pipe conduit to storm sewer and assembly bottom drain pipe to storm sewer, sheeting, backfilling, dewatering, restoring of the surface, drain to storm sewer and all material or work necessary to install the unit complete in place at the depth specified on the plans. Testing shall be included in the piping test.

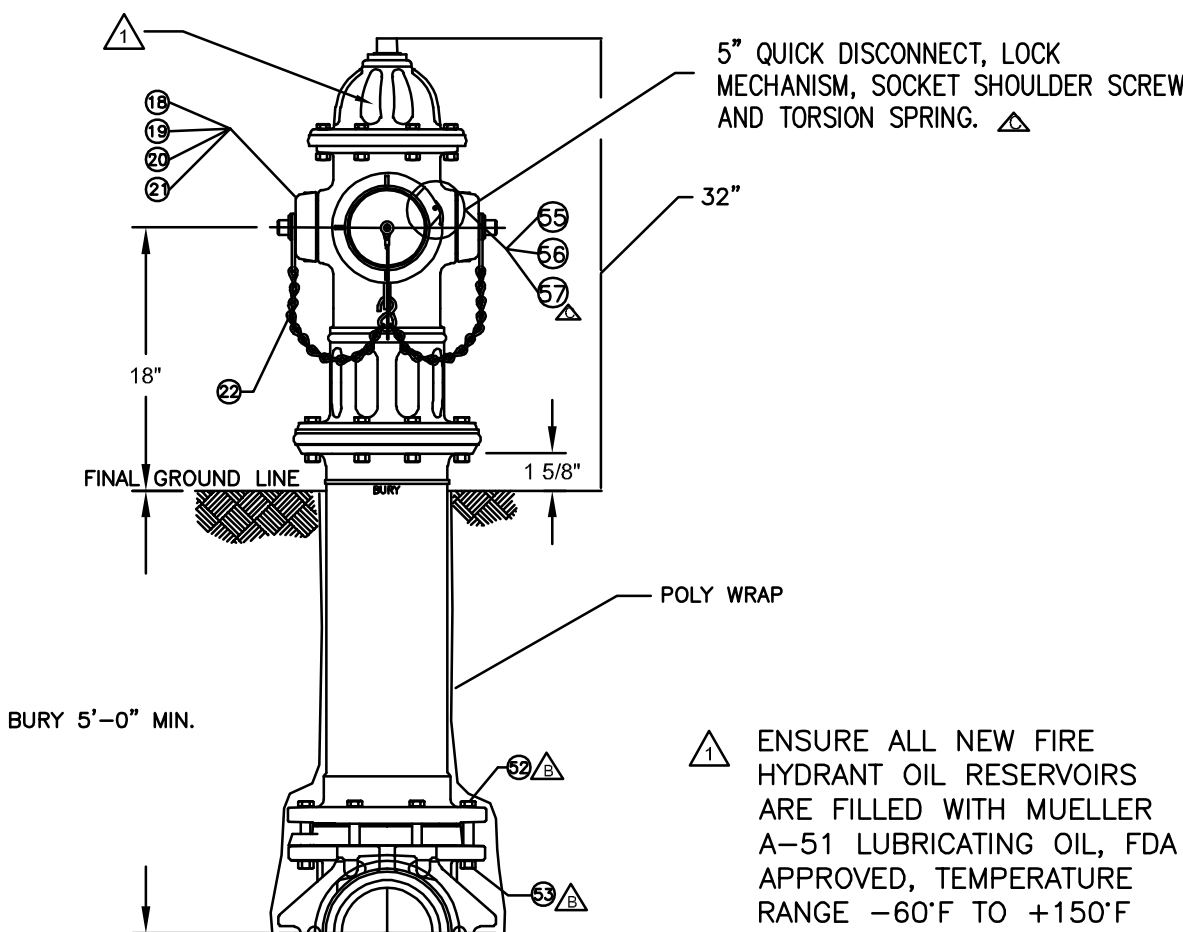
ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-060.2

END OF LINE AUTOMATIC FLUSHING UNIT



MUELLER CENTURION A-423 3-WAY WITH (2)- 2 1/2" HOSE NOZZLES + (1)-5 1/4" STORZ PORT STEAMER PUMPER NOZZLE PER AWWA C502, LATEST EDITION

CONTRACTOR SHALL COVER (BAG) ALL INACTIVE FIRE HYDRANTS AND SHALL CONTACT/COORDINATE IN SERVICE / OUT-OF-SERVICE FIRE HYDRANTS NOTIFICATION WITH THE AVON LAKE FIRE DEPARTMENT PRIOR TO LEAVING THE JOB SITE THAT DAY. AVON LAKE FIRE DEPARTMENT 440-933-2121 440-933-8305. DO NOT LEAVE MESSAGE CONTRACTOR SHALL BE REQUIRED TO TALK TO ACTUAL LIVE OPERATOR.



DWG. FH 133

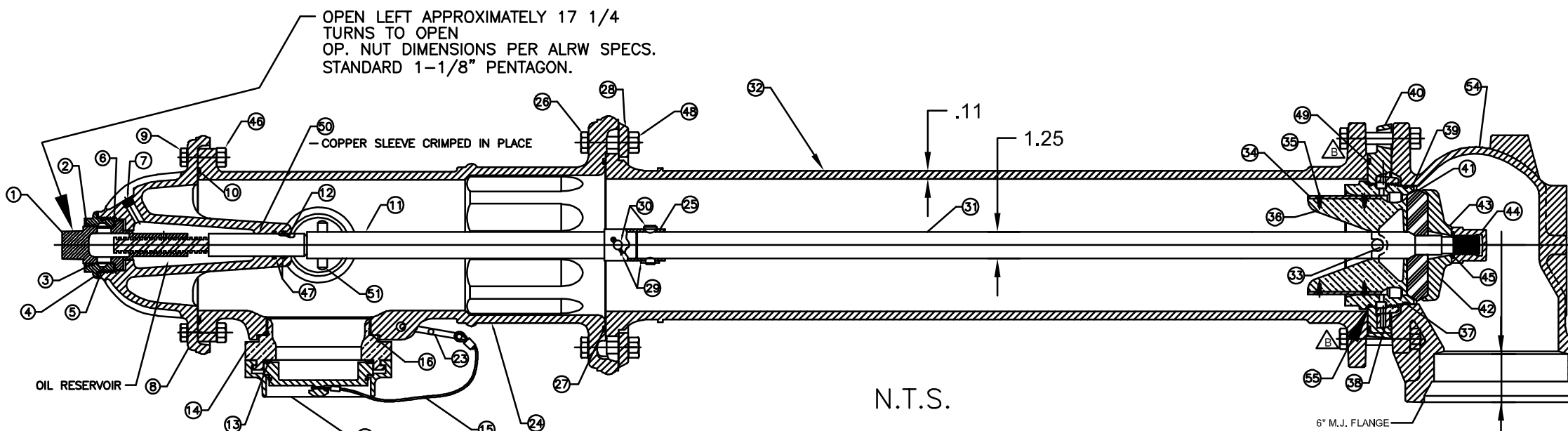
ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-052.1

5 1/4" A423 SUPER CENTURION "250" W/ TWO HOSE NOZZLES & ONE PUMPER NOZZLE - 250 P.S.I. W.P.- 500 P.S.I. TEST, 1997 STYLE. FOR USED IN THE CITY OF AVON LAKE, LORAIN COUNTY, OHIO

ITEM	DESCRIPTION	QTY	MATERIAL	ASTM	ITEM	DESCRIPTION	QTY	MATERIAL	ASTM
1	OPERATING NUT	1	BRONZE	B-56	23	SAFETY FLANGE COUPLING	1	SWISS STEEL	A-100
2	WIPER RING	1	RUBBER	D-2000	24	UPPER BARREL	1	STEEL	CLASS B
3	HOLD DOWN NUT O-RING	1	RUBBER	D-2000	25	SAFETY FLANGE COUPLING	1	SWISS STEEL	A-100
4	HOLD DOWN NUT	1	STEEL	A-307	26	SAFETY FLANGE COUPLING	1	STEEL	A-307
5	BONNET O-RING	1	RUBBER	D-2000	27	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
6	ANTI-FRICTION WASHER	1	CELCON	GN-100	28	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
7	OIL FILLER PLUG	1	BRASS	B-16	29	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
8	BONNET	1	CAST IRON	A-126	30	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
9	HEX BOLT	8	STEEL	A-307	31	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
10	UPPER STEM O-RING	1	STEEL	A-578	32	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
11	UPPER STEM	1	RUBBER	D-2000	33	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
12	STEM O-RING	1	RUBBER	D-2000	34	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
13	STEM O-RING	1	RUBBER	D-2000	35	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
14	5" STORZ PUMPER NOZZLE	1	SWISS STEEL	A-276	36	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
15	STORZ CAP CABLE	1	SWISS STEEL	A-276	37	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
16	PUMPER NOZZLE O-RING	1	RUBBER	D-2000	38	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
17	5" STORZ PUMPER CAP	1	ALUMINUM	B-56	39	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
18	HOSE NOZZLE O-RING	2	RUBBER	D-2000	40	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
19	HOSE NOZZLE O-RING	2	RUBBER	D-2000	41	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
20	HOSE NOZZLE O-RING	2	RUBBER	D-2000	42	SAFETY FLANGE COUPLING	1	RUBBER	D-2000
21	HOSE NOZZLE O-RING	2	RUBBER	D-2000	43	SAFETY FLANGE COUPLING	1	RUBBER	D-2000

SEE CAT. RECORD FOR RESPECTIVE PARTS OR SUB. ASSY'S LUBRICATION SHALL BE FDA APPROVED FOOD GRADE LUBRICANT.

SEE TABLE 5 1/4" A423 SUPER CENTURION W/ M/J SHOE ASSEMBLY & STORZ CONNECTION



MUELLER SUPER CENTURION 250 A423 FIRE HYDRANT



THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

HARBOR CREST
TOWNHOUSE SUBD. NO. 1
WATER DETAIL SHEET

2021
OCTOBER 2025



HARBOR CREST TOWNHOUSE SUBDIVISION NO. 2 - IMPROVEMENT PLAN

Report

To: Avon Lake Planning Commission

From: Kelly La Rosa, Planning and Zoning Manager

Date: October 29, 2025

Re: Case No. CPC-25-18, Pulte Homes of Ohio, LLC, Major Subdivision, Improvement Plan for Harbor Crest Townhouse Subdivision No. 2 located at the southeast corner of Walker Road and Avon-Belden Road (State Route 83).

PROJECT OVERVIEW

Pulte Homes of Ohio, LLC, requests Planning Commission approval for the Harbor Crest Townhouse Subdivision No. 2, representing the second and final phase of construction for a 73-unit fee-simple townhouse development on approximately 9.35 acres.

Phase 1 established infrastructure for the northern portion of the project, including 31 townhouse units, internal private streets, and the stormwater management basin.

Phase 2 completes the subdivision improvements by extending utilities, roadways, and drainage infrastructure to serve the remaining 42 townhouse units located along Audry Lane within the approved preliminary subdivision.

This phase is consistent with the rezoning and preliminary plat approvals previously granted by the Planning Commission and City Council (August 5, 2025), and adheres to the site's approved density restriction of no more than 73 total units

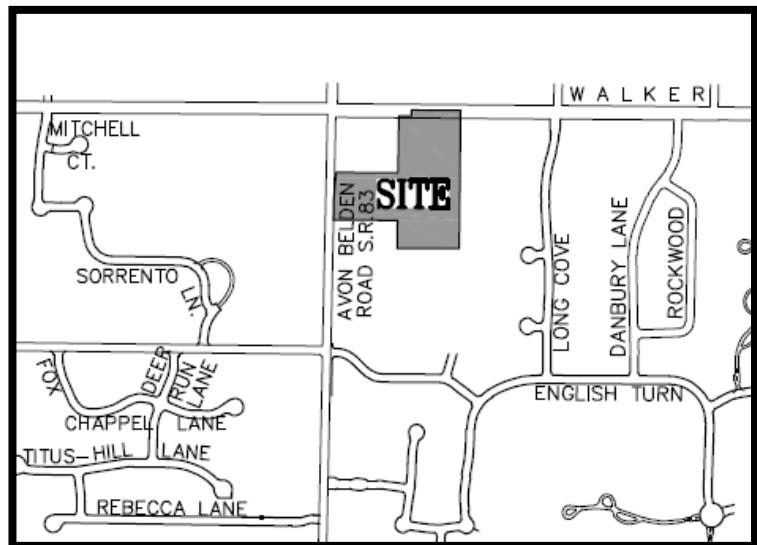


Figure 1: Vicinity Map



Planning Commission
Case No. CPC-25-18
Harbor Crest Subdivision No. 2
Site Plan Approval
October 29, 2025
Page 2 of 5

PROJECT DESCRIPTION

Owner: Pulte Homes of Ohio, LLC, 387 Medina Road, Medina

Applicant/Engineer: The Henry G. Rietz Engineering Co., 4214 Rocky River Dr., Cleveland

Location: The property is located at the southeast corner of Walker Road and Avon-Belden Road (State Route 83).

Approvals: The Planning Commission recommended rezoning the site to R-3 Multi-Family Residence on April 1, 2025, and later approved the Preliminary Plat on August 5, 2025.

Zoning: The site is zoned R-3 Multi-Family Residence.

Land Use: Townhouse residential use is permitted.

Density: The proposed density of 7.8 units per acre is within district standards.

Comprehensive Plan Alignment:

The Comprehensive Land Use Plan (CLUP) designates this area for Mixed Use and Single-Family Residential development, encouraging a blend of housing types that support a diverse and balanced community fabric. Although the site was subsequently rezoned to R-3 Multi-Family Residence, the proposed townhouse development remains compatible with the CLUP's Mixed-Use and Single-Family designations by introducing a compact, ownership housing form that complements adjacent single-family neighborhoods and promotes balanced residential growth.

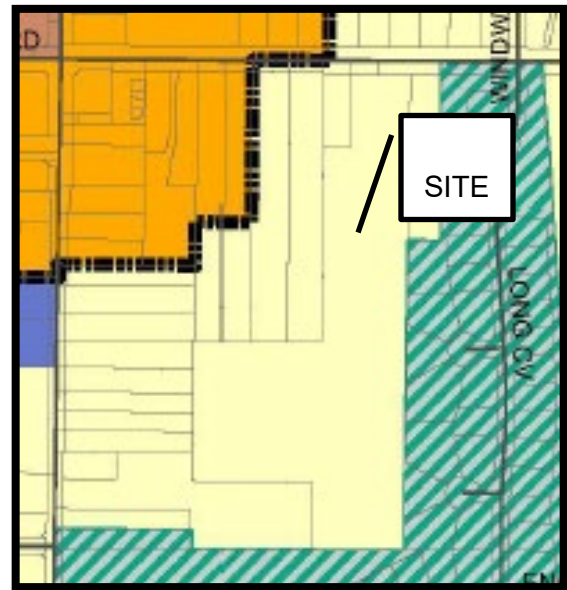


Figure 2: Excerpt from Avon Lake Zoning Map

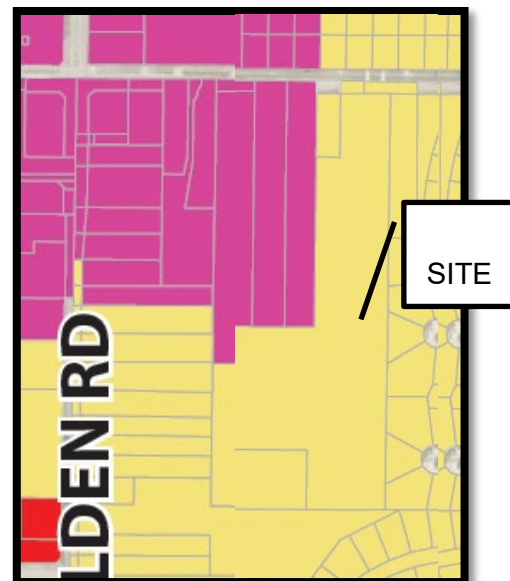


Figure 3: Excerpt from Avon Lake CLUP



Planning Commission
Case No. CPC-25-18
Harbor Crest Subdivision No. 2
Site Plan Approval
October 29, 2025
Page 3 of 5

Ownership and Maintenance:

In accordance with principles of long-term fiscal sustainability, all streets, open spaces, and shared facilities will be privately owned and maintained by the Homeowners Association (HOA), minimizing municipal maintenance obligations while ensuring coordinated management of common infrastructure.

APPLICABLE CODE SECTIONS

Section 1214.05: Major Subdivision

This section governs the review of major subdivisions, ensuring consistency with zoning regulations, thoroughfare planning, infrastructure requirements, and integration with existing documents.

Section 1238: Subdivision Design Standards

This section defines Subdivision Design Standards, including lot layout, block length, right-of-way configuration, utilities, sidewalks, landscaping, and connectivity.

PROJECT ANALYSIS

Phase 2 of the Harbor Crest Townhouse Subdivision continues development of the approved 73-unit, fee-simple townhouse community on private streets, with each dwelling situated on its own parcel. The site was rezoned to R-3 Multi-Family Residence in 2025, with the overall project density limited to 73 units as previously approved.

The Improvement Plan No. 2 demonstrates compliance with City subdivision regulations and reflects all conditions established during preliminary and Phase 1 approvals. Minor administrative adjustments may be required before final engineering sign-off, but the proposal remains consistent with applicable design and development standards.

SUSTAINABILITY CONSIDERATION

The project continues to meet Avon Lake's stormwater management and water quality requirements, utilizing best management practices consistent with Ohio EPA standards. Stormwater retention basins mitigate flooding and erosion, enhanced infiltration promotes groundwater recharge, and sediment controls prevent off-site impacts during construction. Post-construction water quality basins will provide ongoing treatment, supporting long-term environmental performance and ecosystem health.



Planning Commission
Case No. CPC-25-18
Harbor Crest Subdivision No. 2
Site Plan Approval
October 29, 2025
Page 4 of 5

Development Review Committee

The Development Review Committee, including representatives from Community Development, Engineering, Building, Public Works, Avon Lake Regional Water, Fire, and Police, reviewed the Improvement Plan in accordance with § 1214.05. While departmental comments have been largely addressed, Engineering Department comments were received too late to allow for plan revisions before the meeting. As a result, those comments are not reflected in the current submittal but will be incorporated during the City Engineer's final approval process.

Additionally, a detailed landscape plan meeting City standards for buffering and overall site design shall be submitted to the Community Development Department for review and approval as part of the administrative follow-up process.

REVIEW AND RECOMMENDATION BY THE COMMISSION

To approve a major subdivision, the Commission must determine that the Improvement Plan meets all applicable standards as outlined in Section 1214.05 of the Avon Lake Planning and Zoning Code.

The Commission must determine that:

- The major subdivision complies with all applicable provisions of this code;
- It does not conflict with other City regulations, plans, or policies;
- It is harmonious with the surrounding area and consistent with its intended character;
- It supports the Master Thoroughfare Plan and minimizes traffic congestion in public streets;
- It will not adversely affect public services;
- Review agency comments have been adequately considered and addressed; and
- It conforms to the approved preliminary Plat.

After reviewing the Improvement Plan, the Commission shall determine whether to return it to the applicant for revisions or to forward a recommendation to the City Council for approval, approval with conditions, or denial (with findings).

Potential Motions: The Commission must take formal action by motion. At least four affirmative votes are required for a recommendation of approval, or four negative votes for a recommendation of denial. The sample motion below is provided for reference and does not imply a recommendation or predetermined outcome.



Planning Commission
Case No. CPC-25-18
Harbor Crest Subdivision No. 2
Site Plan Approval
October 29, 2025
Page 5 of 5

I move to recommend to the City Council that Case No. CPC-25-18, submitted by Pulte Homes of Ohio LLC, Major Subdivision Improvement Plan for Harbor Crest Townhouse Subdivision No. 2, be approved, finding that the proposed subdivision complies with applicable zoning and subdivision regulations and serves the public interest, and will be subject to all Engineering Department comments being addressed to the satisfaction of the City Engineer.

SUBSEQUENT ACTION

Following the Planning Commission recommendation, the Improvement Plan will be forwarded to the City Council for final review and action. If the Planning Commission recommends denial, the applicant may not proceed with the related components of the subdivision until recommendations for approval are issued.

ATTACHMENTS

- Final Improvement Plan Set (Revised)
- DRC Review Summary
- Application Materials



CPC-25-18

Planning Commission Application

Status: Active

Submitted On: 10/13/2025

Primary Location

32701 WALKER RD
AVON LAKE, OH 44012

Owner

WOODCRAFT PROPERTIES LTD
32741 WALKER RD AVON LAKE, OH
44012

Applicant

 James Sayler
 216-251-3033
 reitz@reitzeng.com
 4214 Rocky River Dr.
Cleveland, OH 44135

Property or Parcel Information

Zoning Classification

r-3

Present Use*

vacant

Type of Request*

Major Subdivision - Final Plat

General Description of Project*

Improvement Plans for second construction phases for 31 units of the 73 total number of units in the development

Have you had your meeting with the Development Review Committee?*

Yes

Applicant Information

Applicant is the Property Owner or Property Owner's Designee.

Project Manager will be the person working closest with the plans and will be the main point of contact for the Planning Department's questions.

Applicant Role*

Subdivider

Applicant Name*

James Sayler

Address*

4214 Rocky River Drive

City*

Cleveland

State*

OH

Zip*

44135

Phone*

216-251-3033

Email*

jts@reitzeng.com

Project Manager

James Sayler

Project Manager Phone

216-251-3033

Project Manager Email

jts@reitzeng.com

Property Owner Information

Name*

Woodcraft Prop. (& other Kopf entities)

Address*

420 Avon Belden Rd.

City*

Avon Lake

State*

OH

Zip*

44012

Phone*

440-933-6908

City Council Suspension/Emergency Request

New field

Signature

Applicant Signature*

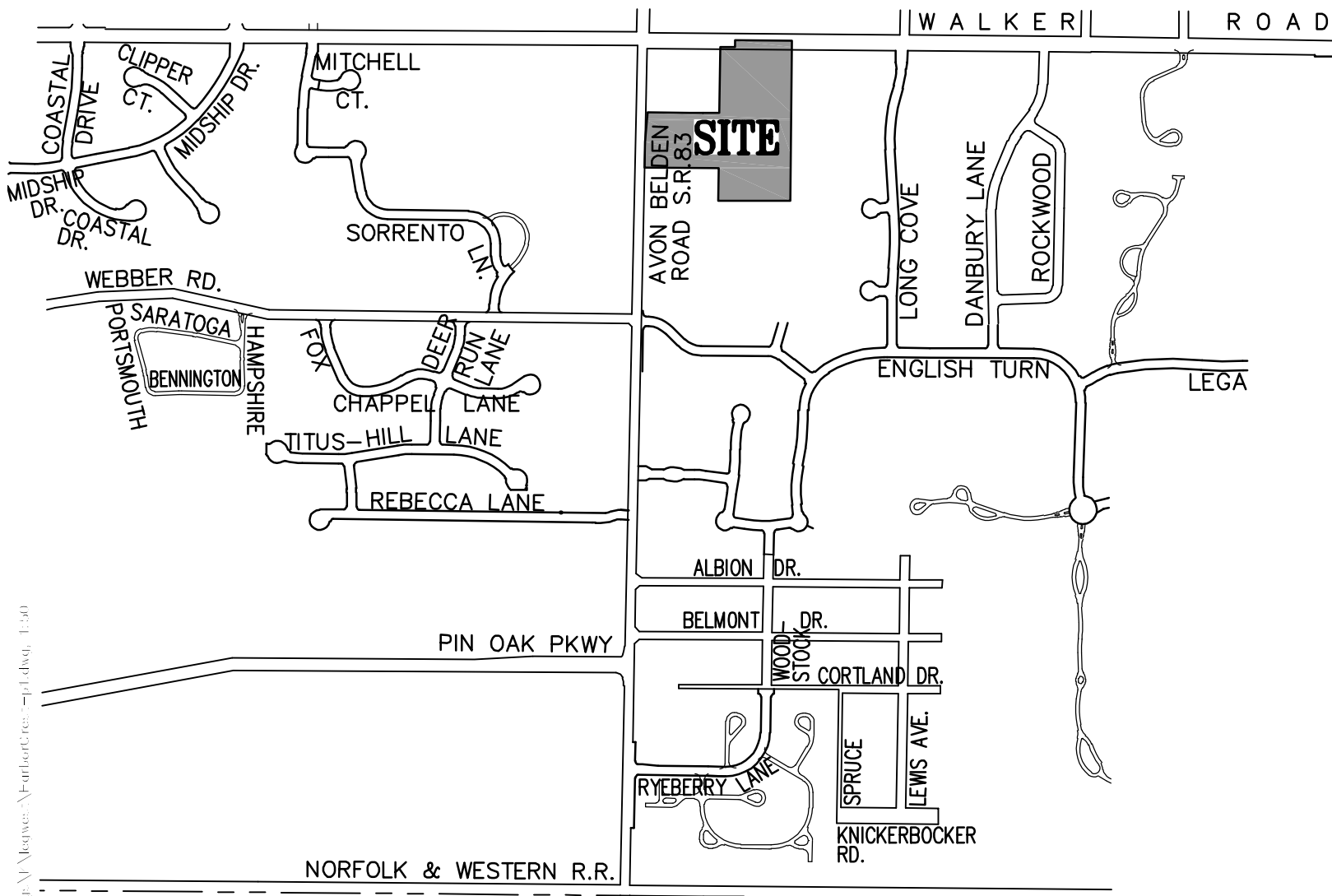


James Sayler

Oct 13, 2025

HARBOR CREST SUBDIVISION VICINITY MAP

BEING PART OF AVON TOWNSHIP SECTION NO. 17 NOW IN THE
CITY OF AVON LAKE, COUNTY OF LORAIN, STATE OF OHIO



Harbor Crest Townhomes

Applicant: Pulte Homes of Ohio

The Improvement Plans are being submitted as two construction phases for the proposed 73 townhouse project. The units will have fee simple footprint parcels abutting new private streets. The project land was granted a rezoning to R-3 with a density restriction to allow no more than the 73 units proposed. The plans are in compliance with the preliminary subdivision plat that was granted approval at the August 5, 2025 Planning Commission meeting. The plans include the condition of the approval that a left turn lane be provided for traffic exiting the project at Avon Belden Road that aligns with the entrance drive of the bank on the West side of Avon Belden Road.

The Henry G. Reitz Engineering Co.

by: James Sayler, President

Harbor Crest Townhomes

Applicant: Pulte Homes of Ohio

Sustainability Statement:

The project has been designed in accordance with Avon Lake storm water management and storm water quality standards to promote ecosystem health through flood and erosion reduction provided by a storm water retention basins, ground water replenishment provided through enhanced infiltration practices, sediment control and waste management strategies provided by construction site storm water management controls and post-construction water quality enhancements provided by water quality features included in the design of the water quality basins.

Zoning Review – Austin

Record No.CPC-25-18

Status On Hold

Became Active October 14, 2025

Assignee Austin Page

Due Date October 24, 2025

Primary Location

32701 WALKER RD
AVON LAKE, OH 44012

Owner

WOODCRAFT PROPERTIES LTD
32741 WALKER RD AVON LAKE, OH 44012

Applicant

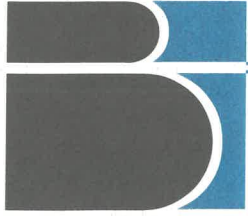
 James Sayler
 216-251-3033
 reitz@reitzeng.com
 4214 Rocky River Dr.
Cleveland, OH 44135

Messages

Austin Page

October 24, 2025 at 2:26 pm

1. Application states phase 2 while the plan set title says phase 1. Then all of the grading plans, utility plans, etc. are for phase 2. Assuming just the plan set title is wrong? Because per the layout plan, phase 2 is what connects into Walker Rd.
 2. What is the plan for landscaping the required buffering? Please provide a plan.
 3. Provide typical parking space detail or label the dimensions on some of the spaces.
 4. As stated with previous submissions, Units 73 and 43 should have their northern facades mimic a frontage as they abut Walker Road. Similar to what had been done in Port Side and others.
-



BRAMHALL
ENGINEERING &
SURVEYING COMPANY

801 Moore Road • Avon, Ohio 44011 • 440/934-7878 • Fax 440/934-7879

Equal Opportunity • Affirmative Action Employer

October 28, 2025

Ted Esborn
Community Development Director
City of Avon Lake
150 Avon Belden Road
Avon Lake, Ohio 44012

Reference: Improvement Plans
Harbor Crest Townhouse Subdivision No. 2

Mr. Esborn:

On behalf of the City of Avon Lake we have reviewed the Improvement Plans submitted for Harbor Crest Townhouse Subdivision No. 2, as prepared by the Henry G. Reitz Engineering Company, and offer the following comments:

1. The Applicant will need to provide Autoturn Exhibits for Fire Truck movements at the Walker Road and Audry Lane intersection.
2. Confirm with ALRW that the proposed mounding over the sanitary sewer, along Walker Road, is acceptable.
3. Provide anti-seep collars or clay dams at all storm sewers discharging into the water quality basin.
4. Provide Rock Channel protection type, size and dimensions at storm sewer discharge to water quality basin.
5. Provide additional existing grades along Walker Road for proposed 15" storm sewer installation.
6. Provide Stop Bar and Crosswalk at Audry Lane and Walker Road intersection.
7. At the existing storm manhole on Walker Road remove the existing 30" stub and connect the proposed 15" storm sewer to the existing structure.
8. The Stormwater Management Calculations and Storm Sewer Calculations are still under review and any comments will be submitted under a separate letter.

9. See attached Stormwater Pollution Prevention Plan Checklist.

If you have any questions, please call.

Sincerely,

BRAMHALL ENGINEERING & SURVEYING CO.
City of Avon Lake Consulting Engineers



Christopher L. Howard, P.E., CPESC
City Engineer



Storm Water Pollution Prevention Plan Checklist

City of Avon Lake

Project Name: Harbor Crest Townhouse Subdivision No. 2

SWP3 Reviewer: CLH

Date Reviewed: 10/28/25

Stormwater Pollution Prevention Review Checklist

	Review No. 1	Review No. 2	Review No. 3	Comments
Site Information				
Contact Information for Owner (Name, Phone Number, Address, and email)	√			
Contact Information for Site Operator (Name, Phone Number, Address, and email)	√			
Contact Information for Person Responsible for SWP3 Preparation and Modifications (Name, Phone Number, Address, and email)	√			
Title Sheet/Cover Page showing Project Title and Location	√			
Stormwater Pollution Prevention Plan Preparation Date	√			
Start and Stop Dates of Construction	X			
Description of the nature and type of construction	√			
Prior Land Use description	√			
Total Area of the Site	√			
Total Area of the Site to be Disturbed	√			
Area of Existing Impervious Area (Including Runoff Coefficient)	√			
Area of Proposed Imperious Area (Including Runoff Coefficient)	√			
Percent Increase of Imperviousness created by Project	√			
Soil Types present within Site Area (With Descriptions)	√			
List of Known Pollutant Discharge	√			
Description of onsite streams (e.g., prior channelization, bed instability or headcuts, channels on public maintenance, or natural channels).	N/A			
Name/Location of immediate receiving water and first subsequent receiving water. (If discharges to MS4 then list the ultimate discharge point of the MS4)	√			
Description and Rationalization of Post Construction BMP's (list existing post-construction BMP's if applicable)	√			
Post Construction Water Quality Calculations	√			
Grading and Stabilization Log	√			
SWP3 Amendment Log	√			
List of Contractors (including form/log for signatures)	√			
Implementation schedule that describes the sequence of major construction activities	√			
Ohio EPA NPDES Construction General Permit Number (If disturbed area is greater then 1 acre)	X			Required before starting construction.
List of all applicable Federal and State Permits	√			

Site Plans				
Limits of earth disturbing of the project	√			
Soil Type Boundary Limits	√			
Existing and Proposed Contours	√			
All wetlands, Riparian, and Flood Plain Limits (Including all conservation easements setbacks)	N/A			
Location of existing and planned buildings, roads, parking facilities and utilities	√			
Areas of Temporary and Permanent Stabilization	√			
Location of all Sediment Traps/Sediment Basins, including all storage volume calculations (Sediment Storage and Dewatering), and contributing drainage area	√			
Location of all Post Construction BMP's	√			
Design Details of Post Construction BMP's (including volume calculations, contributing drainage area,	√			
Location of all erosion and sediment control practices	√			
Areas designated for the storage or disposal of solid, sanitary, and toxic wastes (Including dumpster areas), areas designated for concrete truck washout, and areas for vehicle fueling	√			
Location of designated construction entrances where the vehicles will access the construction site	√			
Location of any areas of proposed floodplain fill, floodplain excavation, stream restoration or know temporary or permanent stream crossings	N/A			

Post-Construction Storm Water Management				
	Review No. 1	Review No. 2	Review No. 3	Comments
Maintenance Plans				
Has a long-term maintenance plan been developed or included in the SWP3 for maintenance of the structural post-construction BMP? <i>NOTE: The long-term maintenance plan must be developed and provided to the post-construction site operator.</i>	√			
Does the long-term maintenance plan include the following?				
(1) an entity designated for storm water inspection and maintenance responsibilities?	√			
(2) the routine and non-routine maintenance tasks to be undertaken?	√			
(3) a schedule for inspection and maintenance?	√			
(4) any necessary legally binding maintenance easements and agreements?	√			
(5) construction drawings or excerpts showing the facility plan view and profile, as well as details of the outlet(s)?	√			
(6) a map showing all access and maintenance easements?	√			
(7) a description of how pollutants will be removed and disposed of?	√			
Does the SWP3 include a structural post-construction BMP designed to release the water quality volume over a 24-hour to 48-hour time period?	√			
Calculation of Water Quality Volume (WQv)				
Is the calculation of the WQv shown? With correct values used for the following:	√			

OHC000005 – SWP3 Checklist

(a) runoff coefficient (R_v), where $R_v = 0.05 + 0.9i$ i = ratio of impervious surface	√			
(b) precipitation depth ($P = 0.9$ inches)?	√			
(c) and the drainage area (A) to the BMP?	√			
If the structural post-construction BMP will be used for sediment storage, does it include a sediment accumulation volume of at least 20% of the WQ_v ?	√			
If a regional storm water BMP will be used to meet the post-construction requirements, does it:				
(1) meet the design requirement for treating the WQ_v ?	N/A			
(2) have a legal agreement established with the BMP owner for long-term maintenance?	N/A			
Table 4a Do extended detention practices show an appropriate minimum drain time that shall not discharge more than the first half of the WQ_v in less than one-third of the drain time? <i>NOTE: Dry = 48 hr; Wet, wetland, permeable pavement, underground storage, and sand/media filtration min. 24, <72 hr.</i>	√			
Table 4a Do extended detention practices show appropriate design features? - Wetland and wet basins: permanent pool = 1 WQ_v - Dry, wet and wetland: sediment storage = 0.2 WQ_v - Dry: forebay and micro-pool or acceptable pretreatment and a protected outlet. Underground storage: acceptable pretreatment capable of $\geq 50\%$ TSS.	√			
Table 4b Do planned infiltrating practices show an appropriate maximum drain time? Note: Bioretention and infiltration basin ≤ 24 ; infiltration trench, permeable pavement and underground storage ≤ 48 hours.	N/A			
Table 4b Do planned infiltrating underground storage practices (for credit) show acceptable of pretreatment of $\geq 80\%$ TSS.	N/A			
Small Construction Activities ≤ 2 Acres If the SWP3 proposes to use an alternative BMP instead of a Table 4a or 4b practice,	N/A			
(1) does the SWP3 provide justification on why a standard BMP is infeasible and their use would prevent the project?	N/A			
(2) Is the alternative BMP acceptable to the local MS4 or jurisdiction?	N/A			
For construction of a previously developed area, was one of the following options used to as a post-construction practice:				
(a) 20% net reduction in the site's volumetric runoff coefficient?	N/A			
(b) a BMP sized to treat 20% of the WQ_v for the previously developed area using a standard BMP from Tables 4a or 4b?	N/A			
For construction involving both previously developed and undeveloped land, was equation 3 shown to calculate the WQ_v ? $WQ_v = 0.9 \text{ inches} * A * [(R_{v1} * 0.2) + (R_{v2} - R_{v1})]/12$	N/A			
If the SWP3 proposes to use runoff reduction methods to reduce the WQ_v or size of post-construction practices, are one of the following acceptable practices being used with appropriate credit? - Green Roof - Impervious Surface Disconnection - Rainwater Harvesting	N/A			

OHC000005 – SWP3 Checklist

• Bioretention Area/Cell • Infiltration Basin • Infiltration Trench • Permeable Pavement (Infiltration) • Underground Storage (Infiltration) • Grass Swale • Sheet Flow to Filter Strip Sheet Flow to Conservation Area				
Do practices meet Ohio EPA's Rainwater and Land Development Manual specifications?	√			

Additional Comments:

THE HENRY G. REITZ ENGINEERING CO.

Civil Engineers and Surveyors

James T. Sayler, P.E., P.S., *President*
Linda S. Rerko, *Sec.-Treas.*

4214 ROCKY RIVER DRIVE
CLEVELAND, OHIO 44135-1948

TELEPHONE: (216) 251-3033
EMAIL: reitz@reitzeng.com

October 29, 2025

Ms. Kelly LaRosa
Avon Lake Planning & Zoning Manager
150 Avon Belden Road
Avon Lake, OH 44012

Re: Harbor Crest Subdivision No. 2 Improvement Plans

Dear Ms. LaRosa:

The Improvement Plans have been revised in response to the comments received from the Zoning Department as noted below. In addition, revisions were made to the proposed mounding in response to an agreement reached with the adjacent commercial landowners to move mounding onto the 20' adjacent strip of land that is being added to the commercial parcels to bring them into compliance with setback regulations after the rezoning that was approved. The plans have been transmitted via the OpenGov online portal, and two sets of full-sized hard copies as well as 12 sets of reduced copies are also being delivered to your office.

1. The second line of the title on the top of sheet 1 was corrected to indicate that it is the second construction phase.
2. A landscape plan will be delivered to the City under separate cover.
3. The guest parking space dimensions were shown on sheet 2 and they were added to sheets 5 and 6.
4. The end units are a new model that Pulte hasn't built in Avon Lake yet that has side entries so that the facades that face Walker Road will have even more architectural detailing that those in Port Side.

Very truly yours,
THE HENRY G. REITZ ENGINEERING CO.

By
James T. Sayler, President



IMPROVEMENT PLANS
FOR CONSTRUCTION PHASE 2
FOR 31 TOWNHOUSES
HARBOR CREST
TOWNHOUSE SUBDIVISION NO. 2
BEING PART OF

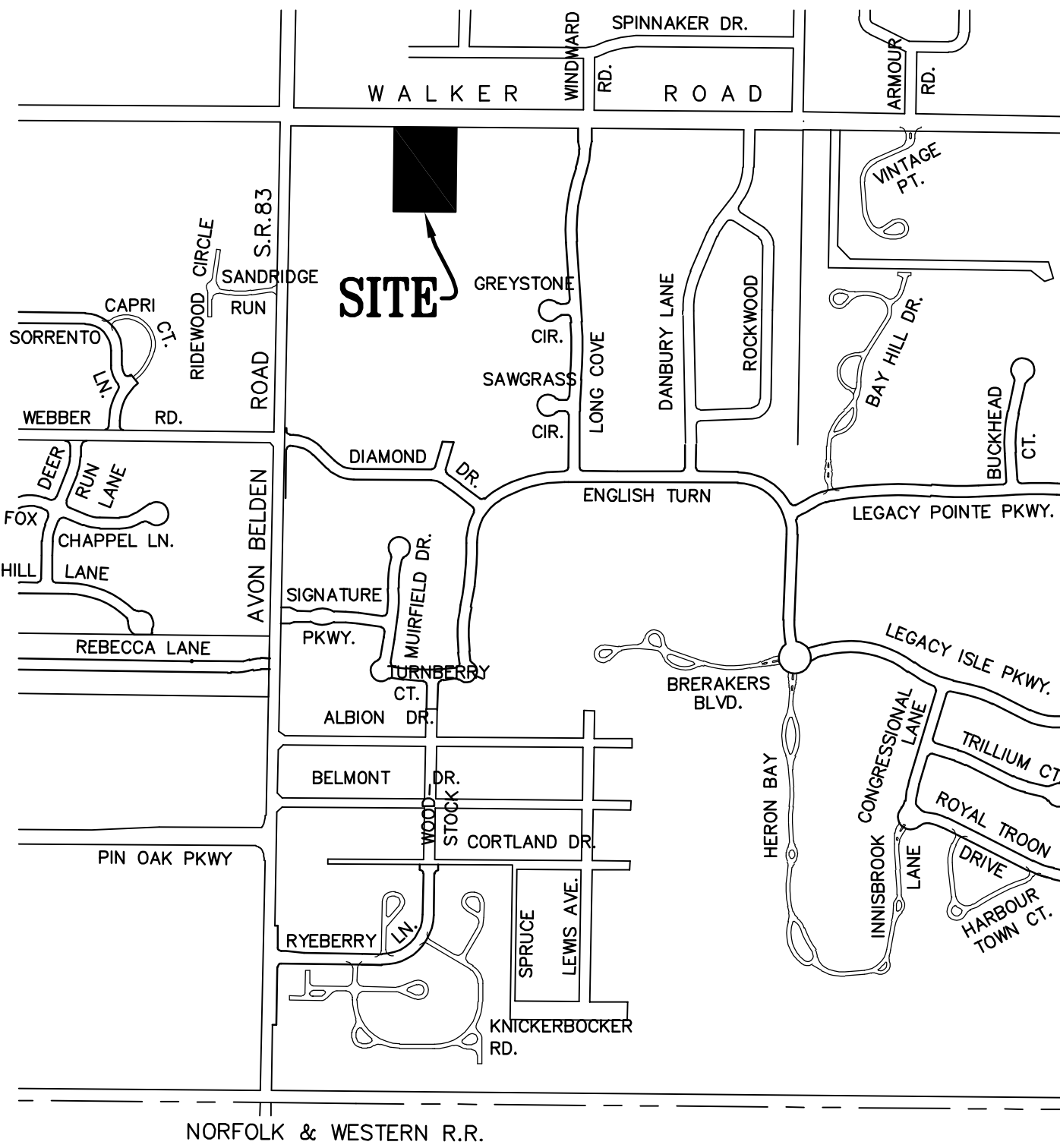
ORIGINAL AVON TOWNSHIP SECTION NO. 17
ALL OF 11.8627 AC. CONSOLIDATED PARCEL #1 PER 7/28/25 REVISED SURVEY
CITY OF AVON LAKE, COUNTY OF LORAIN, STATE OF OHIO
O.U.P.S.# A-507-901-619 & -649



CONSTRUCTION NOTES:

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF AVON LAKE STANDARDS AND AVON LAKE REGIONAL WATER (ALRW) ANY REFERENCE TO AN ODOT STANDARD AS SPECIFICALLY SHOWN HEREON REFERS TO THE LATEST EDITION OF "STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATIONS", INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS.
- CONTRACTOR SHALL FIELD VERIFY DIMENSIONS AND ELEVATIONS AS NOTED ON THE DRAWINGS. STAKING SHALL INCLUDE, BUT NOT BE LIMITED TO, CENTERLINE OF PAVEMENT, MONUMENT BOXES, STORM MANHOLES, STORM TEES, SANITARY MANHOLES, SANITARY WYES, WATER MAINS, WATER CORPORATIONS, HYDRANTS, ALL VALVES. ALL LONG SIDE LATERALS AT THE RIGHT-OF-WAY LINE, ALL LATERALS IN CURVED STREET AREAS AT THE RIGHT-OF-WAY LINES AND ALL LATERALS IN THE CUL-DE-SAC AREA. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY OF ANY INCONSISTENCIES BETWEEN THE DRAWINGS AND THE FIELD MEASUREMENTS.
- PRIOR TO EXCAVATION, THE CONTRACTOR SHALL CONTACT O.U.P.S. TO DETERMINE THE LOCATION OF ANY EXISTING UNDERGROUND UTILITIES NOT INDICATED ON THE PRINTS. IF UNCHARTED UTILITIES ARE ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY.
- ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN AND STORM WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.
- THE STORM SEWER 6" HOUSE CONNECTIONS SHALL BE P.V.C. ASTM D-3034, SDR-35 WITH D-3212 JOINTS. (SAME FOR 6" REAR YARD INLET LATERALS.)
- SANITARY SEWERS & SANITARY SEWER HOUSE CONNECTIONS SHALL BE P.V.C. PER ASTM D-3034, SDR-35 WITH D-3212 JOINTS. MIN. DIA. FOR THE PIPE SHALL BE 6", HYDROSTATIC TESTING TO MEET AVON LAKE REGIONAL WATER STANDARDS & MEET OR EXCEED ASTM C-969.
- ALL SANITARY SEWER PIPE SHALL BE GIVEN A LOW PRESSURE AIR TEST AS SOON AS POSSIBLE AFTER COMPLETION ACCORDING TO THE PROCEDURES OF ASTM F1417-92. THE TEST SHALL CONSIST OF THE PIPING HOLDING A 3.5 PSIG. AIR PRESSURE FOR A PERIOD OF FIVE (5) MINUTES. AFTER THE AIR TEST IS COMPLETED, AN EXFILTRATION TEST SHALL BE PERFORMED. THE MAXIMUM DISTANCE FOR EXFILTRATION TESTING SHALL BE 900 FEET. THE SEWERS AND MANHOLES SHALL BE FILLED WITH WATER TO A MINIMUM OF TWO (2) FEET BELOW THE TOP OF THE UPSTREAM MANHOLE. THE SANITARY SEWER AND ALL MANHOLES SHALL SOAK FOR A PERIOD OF 8 HOURS. MINIMUM AND THE WATER LEVEL SHALL REMAIN AT A CONSTANT HEIGHT. ANY OBSERVED FLUCTUATIONS (UP/DOWN) DUE TO AIR POCKETS SHALL VOID THE TEST TIME AND THE TEST SHALL BE RESTARTED. THE EXFILTRATION WILL BE MEASURED BY DETERMINING THE AMOUNT OF WATER REQUIRED TO MAINTAIN THE INITIAL WATER ELEVATION FOR FOUR (4) HOURS FROM THE START OF THE TEST. THE MAXIMUM ALLOWABLE LEAKAGE OUTWARD (EXFILTRATION) FOR ANY SANITARY SEWER SECTION TESTED IS 100 GALLONS PER INCH OF DIAMETER PER MILE OF PIPE PER 24 HOURS. AN ESTIMATE OF GROUND WATER ELEVATION IN THE SEWER TRENCH IS TO BE DETERMINED AND THE AIR TEST ADJUSTED ACCORDINGLY. SANITARY SEWER AND MANHOLES SHALL BE CLEANED PRIOR TO MANDREL TEST AND FLUSHED WITH A SEWER JET PRIOR TO BEING TELEVIEWED. THE CAMERA SHALL BE OF THE PAN-N-TILT TYPE AND TELEVIEWING SHALL INCLUDE VIEWING UP ALL HOUSE LATERALS WITH AUDIO NARRATIVE CALLING OUT ALL STOPPED LOCATIONS OR DEFECTS OBSERVED. THE REQUIRED MANDREL SIZE FOR 8" SANITARY SEWER DEFLECTION TESTING SHALL BE 7.28". IT HAS ALWAYS BEEN THE CITY'S INTENT TO ALLOW A MAXIMUM OF 5% DEFLECTION IN NEW SANITARY SEWER AND ACCORDING TO A.S.T.M. STANDARDS FOR 8" P.V.C. (3034 SDR-35) PIPE, THAT WOULD REQUIRE THE 7.28" MANDREL. ALRW HAS A MANDREL IN THAT SIZE AND IT SHALL BE USED IN ALL TESTING. THE TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES.
- ALL FLEXIBLE (P.V.C.) SANITARY SEWER PIPE SHALL BE DEFLECTION TESTED NOT LESS THAN 30 DAYS AFTER FINAL FULL BACKFILL HAS BEEN PLACED AND ALL PAVEMENT INSTALLED. THE DEFLECTION TEST SHALL BE RUN BY THE USE OF A MANDREL SUPPLIED BY ALRW PER "RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES" SECTION 33.85(c).
- NO BUILDINGS OR TREES TO BE INSTALLED IN EASEMENTS. CITY TO BE HELD FREE FROM REPAIR OF ANYTHING PLACED IN THE EASEMENT, EXCEPT GRASS.
- ALL HOUSE CONNECTION TRENCHES TO HAVE A 4 FOOT COMPACTED CLAY DAM EXTENDED TO THE FULL DEPTH AND WIDTH OF THE TRENCH AND PLACED AS SHOWN ON TYPICAL PAVEMENT SECTION.
- ELECTRIC CROSS-OVER CONDUITS SHALL BE 60 FEET MINIMUM LENGTH.
- NO GAS COMPANY, ELECTRIC COMPANY OR TELEPHONE COMPANY TRENCHING SHALL BE DONE WITHOUT CITY INSPECTORS PRESENT. MINIMUM 2.5' OUT-TO-OUT CLEARANCE TO WATER MAINS TO BE PROVIDED.
- THE PLANS FOR THE LOCATION OF GAS, ELECTRIC AND CABLE PRIVATE UTILITY INSTALLATIONS SHALL BE SUBMITTED TO CITY OF AVON LAKE PUBLIC WORKS DEPARTMENT (ALPW) AND ALRW FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. CONTACT ALRW AND/OR ALPW TO SCHEDULE ON-SITE INSPECTION WHEN ANY PRIVATE UTILITIES ARE INSTALLED WITHIN FIVE (5) FEET OF THE PUBLIC UTILITIES.
- A MINIMUM OF 35 PSIG. WATER SERVICE PRESSURE SHALL BE MAINTAINED TO THE CURB STOP DURING NORMAL OPERATING CONDITIONS.
- BOOSTER PUMPS ARE NOT PERMITTED ON WATER SERVICE CONNECTIONS BY ALRW.
- FULL SET OF AS BUILT PLANS IN PDF AND AUTOCAD FORMAT FILES SHALL BE REQUIRED FOR ALL SUBDIVISION IMPROVEMENTS.
- ANY WATER SERVICE CURB STOPS, METER VAULTS, SAN. SEWER CLEANOUTS OR FIRE HYDRANTS FOUND TO BE IN CONFLICT WITH A PROPOSED DRIVEWAY OR SIDEWALK LOCATION WILL BE REMOVED AND REINSTALLED. THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL RELOCATION COSTS.
- A MINIMUM 10 FOOT HORIZONTAL SEPARATION (MEASURED OUT-TO-OUT) CLEAR BETWEEN THE PROPOSED WATER LINE AND THE STORM SEWER SHALL BE MAINTAINED.
- A MINIMUM 10 FOOT HORIZONTAL SEPARATION (MEASURED OUT-TO-OUT) CLEAR BETWEEN THE PROPOSED WATER LINE AND THE SANITARY SEWER SHALL BE MAINTAINED.
- A MINIMUM 18" VERTICAL CLEARANCE (MEASURED OUT-TO-OUT) CLEAR BETWEEN THE PROPOSED WATER LINE AND THE STORM SEWER SHALL BE MAINTAINED.
- A MINIMUM 18" VERTICAL CLEARANCE (MEASURED OUT-TO-OUT) CLEAR BETWEEN THE PROPOSED WATER LINE AND THE SANITARY SEWER SHALL BE MAINTAINED.
- WATER MAINS AND SANITARY SEWER LINES OR FORCE MAINS SHALL BE SEPARATED BY MINIMUM CLEAR VERTICAL DISTANCE OF 18" AND HORIZONTAL DISTANCE OF 10'-0". WHEN THE ABOVE CAN NOT BE MAINTAINED, SEWER LINE SHALL BE CONCRETE ENCASED OR ENCLOSED WITHIN CLASS 52 D.I.P. FOR A DISTANCE OF 10'-0" EACH WAY FROM WATER LINE IF APPROVED BY ALRW.
- R.C.P. STORM SEWER MAINLINE PIPE SHALL MEET ODOT CMS 706.02 WITH MIN. 1' COVER: 12" & 15" R.C.P. STORM SEWER SHALL BE ASTM C-76 MINIMUM CLASS IV 18", 21" & 24" R.C.P. STORM SEWER SHALL BE ASTM C-76 MINIMUM CLASS III 27" & LARGER R.C.P. STORM SEWER SHALL BE ASTM C-76 MINIMUM, CLASS I
- H.D.P.E. STORM SEWER MAINLINE PIPE SHALL MEET ODOT CMS 707.33 WITH MINIMUM 1' COVER. DEFLECTION TESTING SHALL BE PERFORMED ON FLEXIBLE PIPE USED FOR THE MAINLINE SEWER. TESTING SHALL BE PERFORMED WITH A MANDREL OR OTHER MEANS ACCEPTABLE TO THE ENGINEER. THE MANDREL SHALL BE SIZED FOR 95% OF THE AVERAGE INSIDE DIAMETER OF THE CONDUIT. DEFLECTION TESTING SHALL TAKE PLACE NO SOONER THAN 30 DAYS AFTER INSTALLATION OF THE CONDUIT. ALL SECTION(S) WHICH FAIL SHALL BE REPLACED BY THE CONTRACTOR AT NO COST TO THE CITY.
- AFTER CONSTRUCTION BUT BEFORE FINAL ACCEPTANCE OF THE IMPROVEMENTS BY THE CITY, THE CONTRACTOR SHALL TELEVIEW THE MAINLINE STORM SEWER. THE SEWER SHALL BE HYDRAULICALLY CLEANED AND INLET BASINS CLEANED AS NECESSARY TO REMOVE ALL DEBRIS. THE SEWER SHALL BE TELEVIEWED USING A COLOR CAMERA WITH AN ON-SCREEN ELECTRONIC FOOTAGE COUNTER. THE CONTRACTOR SHALL PROVIDE A VIDEO FILE VIA HYPERLINK OR FLASH DRIVE, ALONG WITH A WRITTEN REPORT TO THE ENGINEER FOR REVIEW.
- IF ANY PART OF THE STORM SEWER FAILS TO PASS THE ABOVE TESTING PROCEDURES, THE CONTRACTOR SHALL REPAIR OR REPLACE ALL DEFECTIVE MATERIALS &/OR WORKMANSHIP AND THEN RE-TEST THE INSTALLATION FOR COMPLIANCE WITH THESE TESTING PROCEDURES AT HIS OWN COST.
- WATER CURB STOPS, METER VAULTS AND/OR SANITARY CLEANOUTS SHALL NOT BE PLACED IN SIDEWALK, DRIVEWAY OR STREET PAVEMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR RELOCATION OUTSIDE OF PAVEMENT LIMITS.

CITY OF AVON LAKE, AVON LAKE REGIONAL WATER, ANSI/AWWA, TEN STATE STANDARDS AND OHIO EPA DESIGN STANDARDS SHALL GOVERN OVER OHIO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS WHEN IN CONFLICT.



UTILITIES
THE FOLLOWING IS BELIEVED TO BE THE LIST OF UTILITY COMPANIES PROVIDING SERVICE TO PROJECT AREA

CITY OF AVON LAKE
STORMWATER
150 AVON BELDEN RD.
AVON LAKE, OHIO 44012

AVON LAKE REGIONAL WATER
SAN. SEWERS & WATER MAINS
201 MILLER ROAD
AVON LAKE, OHIO 44012

FIRST ENERGY
6896 MILLER ROAD
BRECKSVILLE, OHIO 44141

COLUMBIA GAS CO
7080 FRY RD.
MIDDLEBURG HTS, OH 44130

BRIGHTSPEED
F.K.A. CENTURYLINK
1730 W. 19TH. ST.
LORAIN, OHIO 44052

SPECTRUM
F.K.A. CHARTER COMM.
576 TERNES AVE.
ELYRIA, OHIO 44035

BREEZELINE
F.K.A. WIDE OPEN WEST
105 BLAZE IND. PKWY
BEREA, OHIO 44017

AVON LAKE REGIONAL WATER APPROVAL

THIS IS TO CERTIFY THAT THE POTABLE WATER AND SANITARY SEWER IMPROVEMENT PLANS FOR INFRASTRUCTURE HEREIN ARE HEREBY APPROVED BY:

JAROD LARSON, P.E., CESSWI
PROFESSIONAL ENGINEER

DATE

WATER P.T.I. _____

SANITARY P.T.I. _____

CITY APPROVALS:

THIS IS TO CERTIFY THAT THE PLANS HEREIN ARE HEREBY APPROVED BY: CITY ENGINEER, CHRISTOPHER L. HOWARD, P.E.



DEVELOPER:

PULTE HOMES
387 MEDINA ROAD
MEDINA, OHIO 44256
(330) 849-3564

AS-BUILT CERTIFICATION

ALL UTILITIES, PAVEMENT AND OTHER WORK ON THIS PROJECT HAVE BEEN COMPLETED IN CONFORMITY TO THE PLANS APPROVED BY THE CITY OF AVON LAKE PLANNING COMMISSION ON _____

BY _____
THE HENRY G. REITZ ENGINEERING CO. DATE _____

INDEX

TITLE SHEET	1
LAYOUT PLAN	2
GRADING PLAN	3
UTILITY PLAN	4
PLAN & PROFILE SHEET	5-6
W.Q. & STM. OUTLET DETAIL	7
S.W.P.P.P.	8
PAVING & STORM DETAILS	9-10
WATER DETAILS	11-14

BENCHMARK DATUM: NAVD88

GPS MON. 2002-07 AT #430 AVON BELDEN RD. 570' N. OF WALKER RD. = 623.06
TOP OF TOP NUT ON HYDRANT OPPOSITE #32741 WALKER RD. (TIRE CHOICE) = 626.81
TOP OF TOP NUT ON HYDRANT OPPOSITE #32681 WALKER RD. = 627.37
TOP OF TOP NUT ON HYDRANT AT 510 AVON-BELDEN RD. (TACO BELL) = 628.32
TOP OF TOP NUT ON HYDRANT OPPOSITE #549 AVON-BELDEN RD. = 628.51

THE HENRY G. REITZ ENGINEERING CO.

BY: _____, PRES.

DATE: _____

HARBOR CREST
TOWNHOUSE SUBD. NO. 2
IMPROVEMENT PLANS

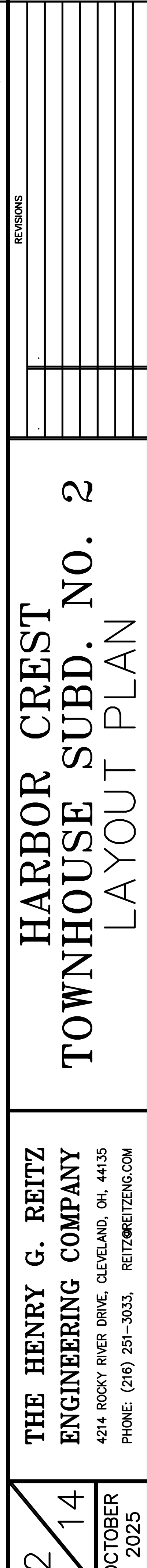
THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

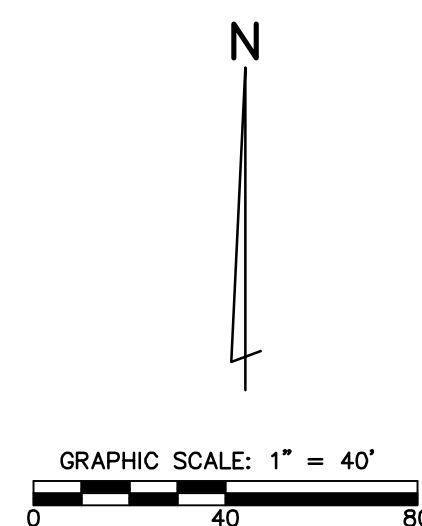
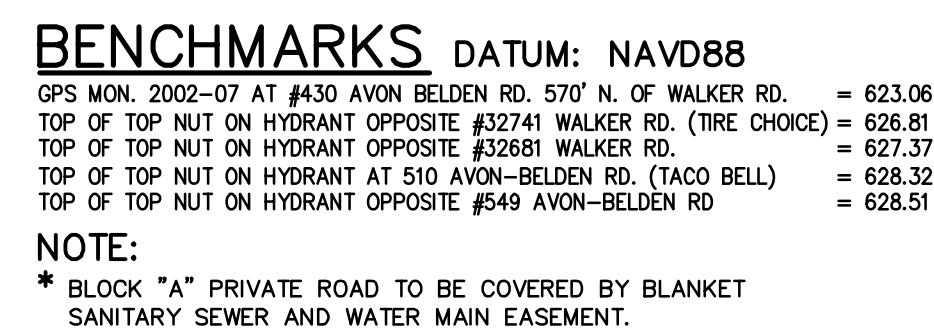
1
14
OCTOBER
2025

REVISIONS

REVISED PER ZONING DEPT. COMMENTS & MOVED MOUND INTO ADJ. EASEMENT

10/29/25

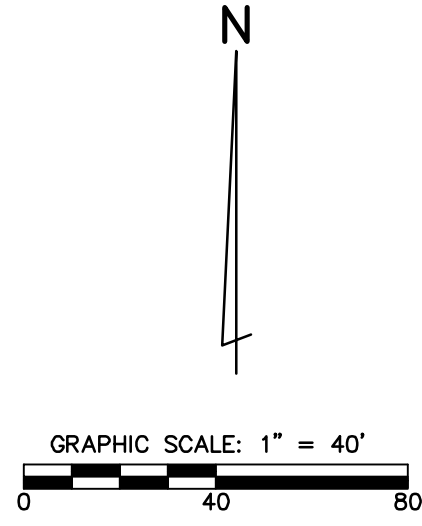
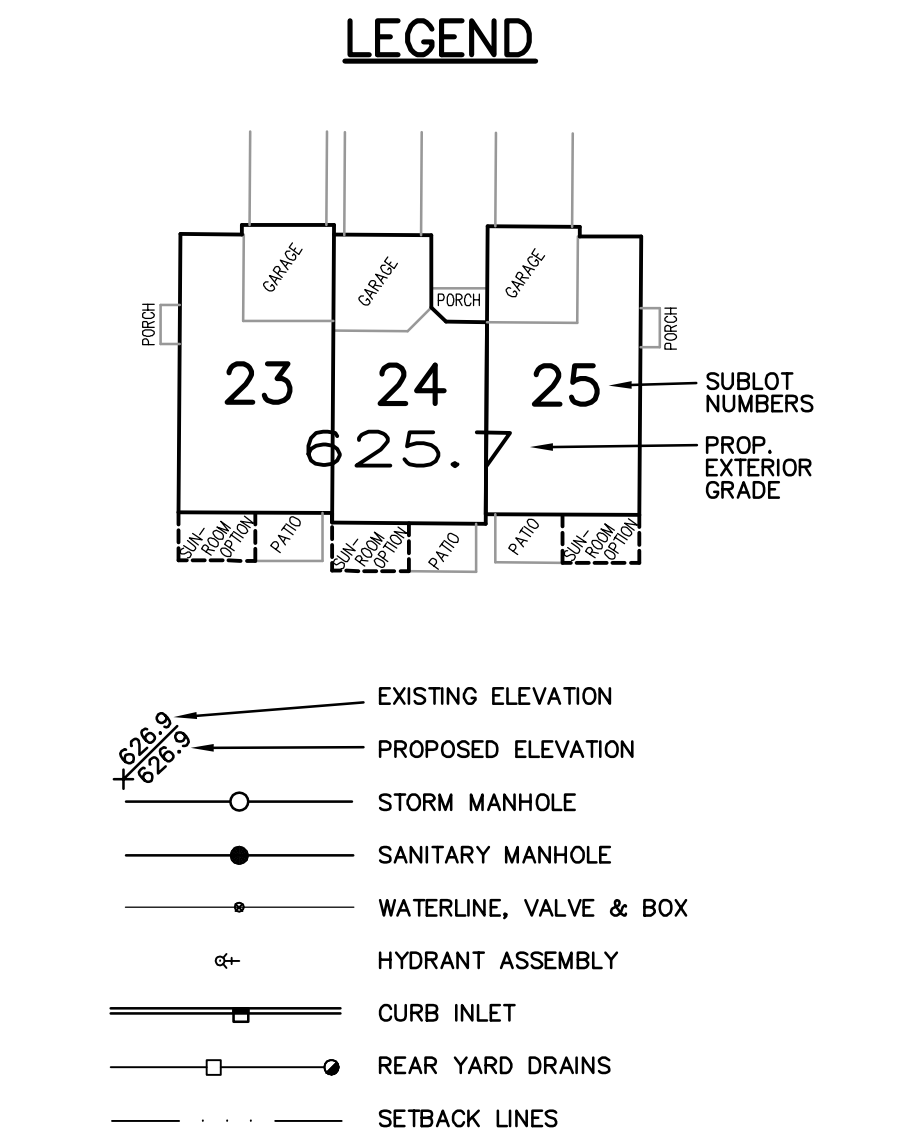
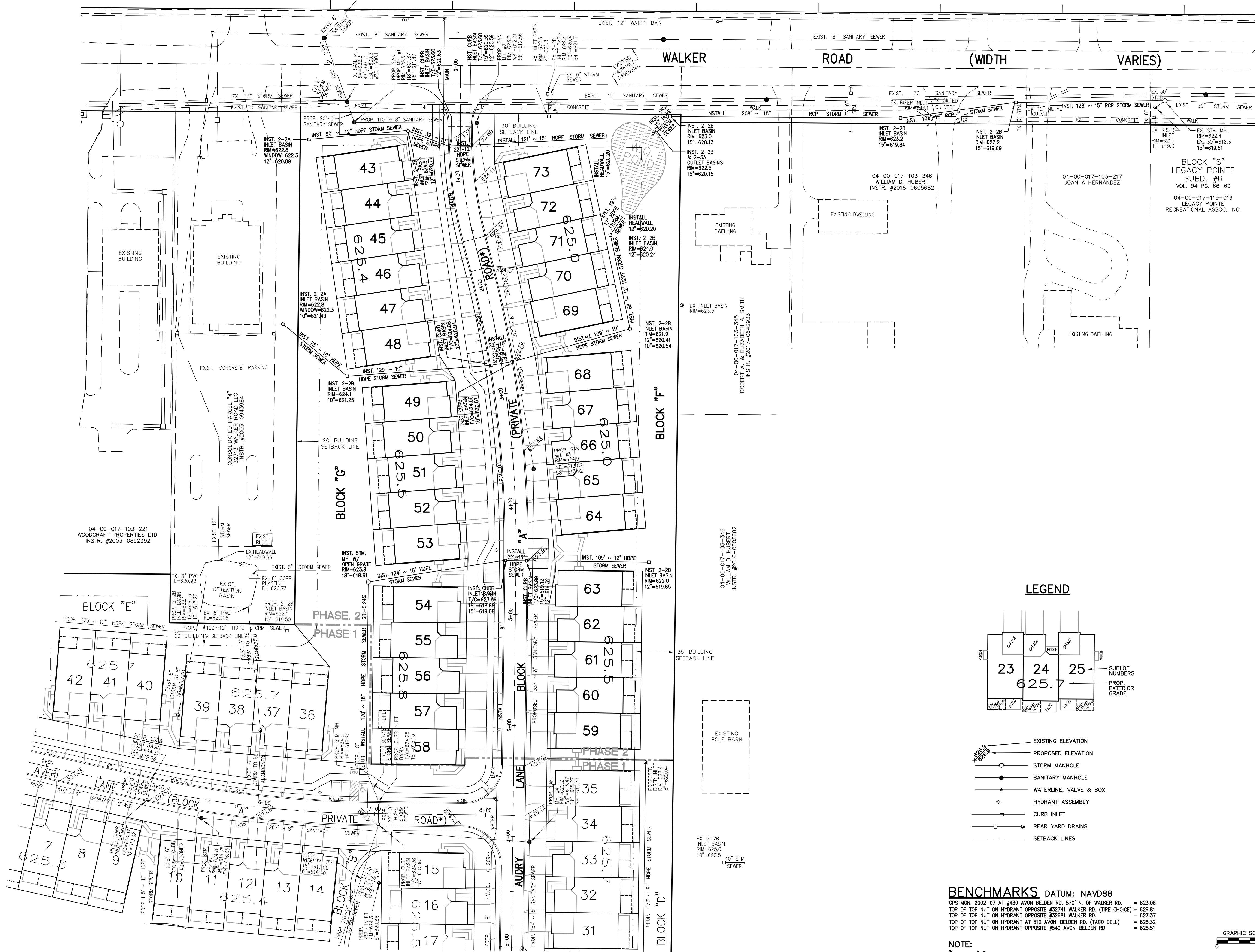




**THE HENRY G. REITZ
ENGINEERING COMPANY**
44214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

3/14
OCTOBER
2025

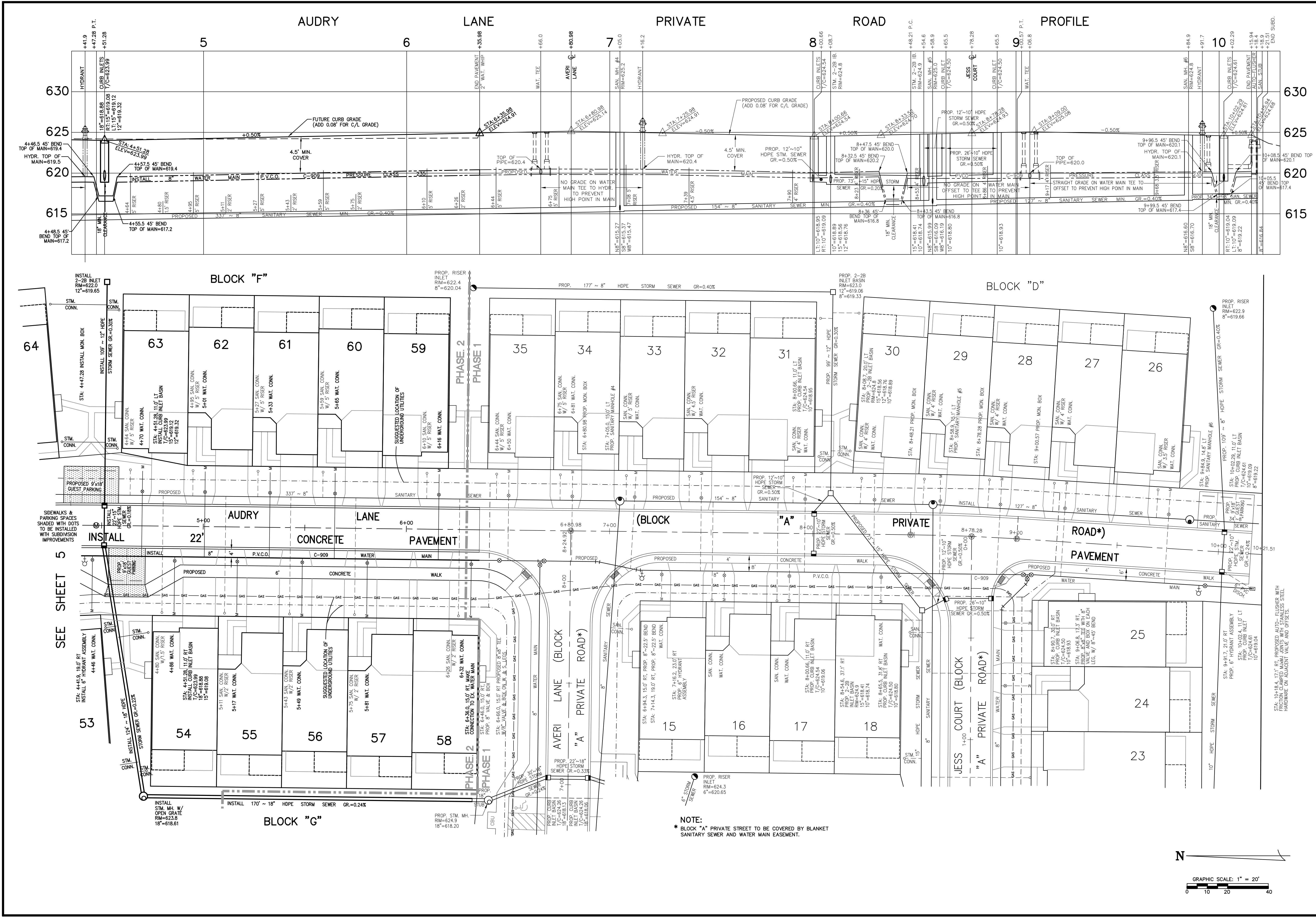
[illegible]



HARBOR CREST
TOWNHOUSE SUBD. NO. 2
UTILITY PLAN

THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

REVISIONS
10/29/25
REVISED PER ZONING DEPT. COMMENTS & MOVED MOUND INTO ADJ. EASEMENT



REVISIONS	
NO.	DESCRIPTION
1	REVISED PER ZONING DEPT. COMMENTS & MOVED MOUND INTO ADJ. EASEMENT
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	
53	
54	
55	
56	
57	
58	
59	
60	
61	
62	
63	
64	
65	
66	
67	
68	
69	
70	
71	
72	
73	
74	
75	
76	
77	
78	
79	
80	
81	
82	
83	
84	
85	
86	
87	
88	
89	
90	
91	
92	
93	
94	
95	
96	
97	
98	
99	
100	

HARBOR CREST TOWNHOUSE SUBD. NO. 2 IMPROVEMENT PLANS

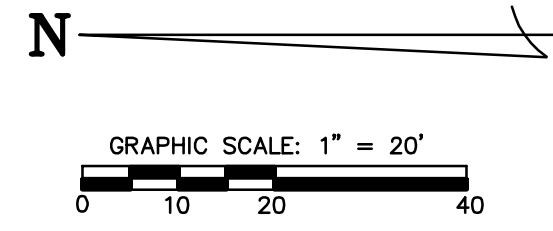
THE HENRY G. REITZ
ENGINEERING COMPANY

4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

6

14

OCTOBER
2025



STORM SEWER DISCHARGE POINT
STORM WATER FROM THE PHASE 2 OF THE PROJECT DISCHARGES TO THE HEIDER DITCH THROUGH THE EXISTING WALKER ROAD STORM SEWERS.

REQUIRED CONSTRUCTION SEQUENCE FOR SEDIMENT CONTROL
AS PER CURRENT EPA REGULATIONS EROSION AND SEDIMENT CONTROL MUST BE INSTALLED AT TIME OF CLEARING OR PRIOR TO ANY EARTH DISTURBING ACTIVITY.

1. INSTALL PERIMETER SILT FENCING.
2. INSTALL CONSTRUCTION ENTRANCE WHERE INDICATED.
3. WATER QUALITY POND EXCAVATED DURING PHASE 1 IS USED FOR SEDIMENT CONTROL IN ADDITION TO POST-CONSTRUCTION WATER QUALITY VOLUME.
4. CLEAR ALL WORK AREAS AND STRIP TOPSOIL.
5. ALL IMPROVEMENTS ON THIS SET OF DRAWINGS ARE TO BE COMPLETED AS ONE CONTINUOUS CONSTRUCTION OPERATION. A SECOND SUBDIVISION CONSTRUCTION PHASE IS BEING DESIGNED AND IS EXPECTED TO FOLLOW WITHIN A YEAR OF THESE IMPROVEMENTS AND IT WILL INCLUDE AN UPDATE TO THIS S.W.P.P.P.
6. ALL AREAS DISTURBED DURING GRADING, SEWER OR SWALE INSTALLATION TO BE SEEDED AS SOON AS INSTALLATION IS COMPLETE AND ALL AREAS DISTURBED DURING GRADING TO BE SEEDED AS SOON AS FINISHED GRADE IS REACHED. ANY AREA, INCLUDING TOPSOIL STOCKPILES, THAT WILL REMAIN DORMANT FOR TWENTY-ONE (21) DAYS SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OF THE MOST RECENT DISTURBANCE WITHIN THE AREA.
7. ROAD INLETS AND YARD DRAINS TO BE PROTECTED BY INSTALLING, CLEANING AND MAINTAINING FILTERS ON GRATES ("BLOCKSUM" OR APPROVED EQUAL).
8. ANY SEDIMENT LADEN GROUND WATER ENCOUNTERED DURING EXCAVATION AND/OR TRENCHING SHALL BE TREATED PRIOR TO DISCHARGE.
9. ALL SEDIMENT CONTROL MEASURES TO BE CLEANED AND MAINTAINED IN GOOD WORKING ORDER THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL VEGETATION HAS BEEN ESTABLISHED.
10. SEDIMENT CONTROL FOR INDIVIDUAL BUILDING CONSTRUCTION TO BE PROVIDED AT EACH BUILDING SITE BY MAINTAINING FILTERS ON STREET INLETS AND REAR YARD DRAINS ACCORDING TO PAGE 14 OF THE ATTACHED 8.5" x 11" PAGES OF THE S.W.P.P.P.
11. INSPECTION OF ALL SEDIMENT CONTROL MEASURES IS TO BE CARRIED OUT AS REQUIRED BY THE E.P.A., N.P.D.E.S. PERMIT DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO MAINTAIN RECORDS OF THE CONDITION OF THE CONTROL MEASURES AS WELL AS THEIR EFFECTIVENESS AND ANY NECESSARY CORRECTIVE ACTIONS. INSPECTIONS ARE TO BE MADE AT LEAST ONCE A WEEK AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH OF RAIN. WEEKLY REPORTS ARE TO BE SUBMITTED TO THE CITY AND MAINTAINED UNTIL THE AREAS DISTURBED HAVE BEEN RE-VEGETATED AND THE SUBDIVISION IS COMPLETED. FAILURE TO PROPERLY MAINTAIN SEDIMENT CONTROLS CAN RESULT IN WORK BEING STOPPED AND/OR FINES AS PERMITTED.
12. ANY VARIANCE FROM SEQUENCE OF CONSTRUCTION DESCRIBED ON THIS SHEET MUST BE REVIEWED AND APPROVED BY THE CITY ENGINEERING DEPARTMENT PRIOR TO CONSTRUCTION.
13. AFTER BUILD-OUT OF ALL RESIDENTIAL BUILDINGS AND ESTABLISHMENT OF PERMANENT VEGETATION, OBSERVE POND FLOOR ELEVATIONS AND DREDGE IF LESS THAN 60% OF THE DESIGN VOLUME REMAINS BELOW WATER SURFACE. POND OUTLET VAULTS TO BE CONVERTED FROM SETTLING BASIN PHASE TO PERMANENT WATER QUALITY FUNCTIONING PER DETAILS ON SHEET 10/24 OF THE PHASE 1 IMPROVEMENT PLAN SET AND SHEET 7/14 OF THE PHASE 2 IMPROVEMENT PLAN SET.

MAINTENANCE
THE HOMEOWNERS ASSOCIATION WILL BE RESPONSIBLE FOR ALL INSPECTION AND MAINTENANCE OF THE POST-CONSTRUCTION STORM WATER MANAGEMENT SYSTEM ACCORDING TO THE FOLLOWING SCHEDULE:
WEEKLY: MOW AREA AROUND PONDS AND CLEAN ACCUMULATED TRASH AND DEBRIS PAYING SPECIAL ATTENTION TO THE POND OUTLET STRUCTURES AND THE HEADWALLS.
YEARLY: INSPECT POND BANKS FOR EROSION AND REPAIR AS NEEDED. REMOVE WOODY INVASIVE VEGETATION, CHECK FOR ADEQUATE VEGETATIVE COVER AND MONITOR SEDIMENT ACCUMULATION.
3-5 YEARS: MONITOR SEDIMENT ACCUMULATION UNDER POND NORMAL POOL LEVELS AND REMOVE WHEN SILT OCCUPIES 40% OF POND DEPTH. MONITOR STONE CHANNEL PROTECTION AT HEADWALLS AND REPLACE OR REPLENISH AS REQUIRED TO PREVENT BARE SOIL EXPOSURE IN HIGH FLOW AREAS.

INSPECTIONS
INSPECTION OF ALL SEDIMENT CONTROL MEASURES IS TO BE CARRIED OUT AS REQUIRED BY THE E.P.A., N.P.D.E.S. PERMIT DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO MAINTAIN RECORDS OF THE CONDITION OF THE CONTROL MEASURES AS WELL AS THEIR EFFECTIVENESS AND ANY NECESSARY CORRECTIVE ACTIONS. INSPECTIONS ARE TO BE MADE AT LEAST ONCE A WEEK AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH OF RAIN. WEEKLY REPORTS ARE TO BE SUBMITTED TO THE CITY AND MAINTAINED UNTIL THE AREAS DISTURBED HAVE BEEN RE-VEGETATED AND THE SUBDIVISION IS COMPLETED. FAILURE TO PROPERLY MAINTAIN SEDIMENT CONTROLS CAN RESULT IN WORK BEING STOPPED AND/OR FINES AS PERMITTED.

POST-CONSTRUCTION RUNOFF CONTROL METHODS
THIS PLAN HAS BEEN DESIGNED TO PROVIDE PERMANENT POST-CONSTRUCTION STORM WATER POLLUTION CONTROL UTILIZING THE FOLLOWING CONTROLS:

•THE PRIMARY METHOD OF STORM WATER POLLUTION CONTROL WILL BE THE ESTABLISHMENT OF PERMANENT, DENSE, VIGOROUS VEGETATION CONSISTING OF KENTUCKY BLUEGRASS, CREEPING RED FESCUE, AND WHITE DUTCH CLOVER, OR APPROVED EQUAL, TO INCREASE INFILTRATION, ALLOW SETTling OF SEDIMENT, AND REDUCE PEAK FLOWS DURING STORM EVENTS.

•STORMWATER DETENTION PROVIDED FOR THIS AREA REDUCES THE PEAK RATES OF STORMWATER RUNOFF TO LESS THAN THE PRE-DEVELOPMENT CONDITIONS AND THEREBY INCREASES THE OPPORTUNITY FOR INFILTRATION.

S.W.P.P.P. PREPARED BY
THE HENRY G. REITZ ENGINEERING CO.
BY: JAMES T. SAYLER, P.E., VICE PRES.
(216) 251-3033, REITZ@REITZENG.COM

CONTRACTOR RESPONSIBLE FOR S.W.P.P.P.

BY: _____

DUTY TO INFORM
THE PERMITEE SHALL INFORM ALL CONTRACTORS AND SUBCONTRACTORS WHO WILL BE INVOLVED IN THE IMPLEMENTATION OF THE SWPPP OF THE TERMS AND CONDITIONS OF THE GENERAL PERMIT

S.W.P.P.P. APPROVED BY CITY OF AVON LAKE

BY: _____

CORRECTIVE ACTION LOG

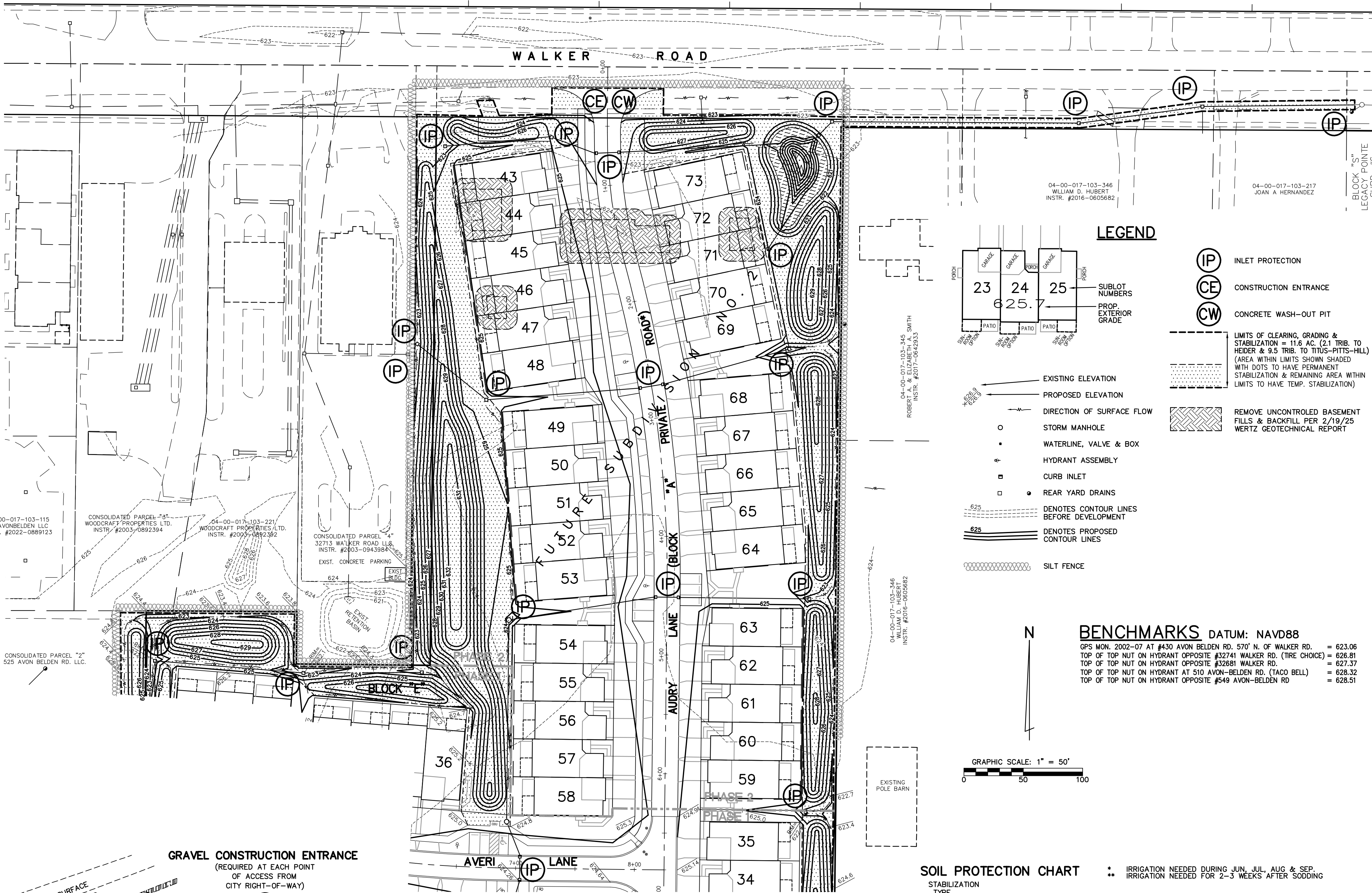
INSPECTION DATE	INSPECTOR NAME(S)	DESCRIPTION OF BMP DEFICIENCY	CORRECTIVE ACTION NEEDED (INCLUDING PLANNED DATE/RESPONSIBLE PERSON)	DATE ACTION TAKEN/RESPONSIBLE PERSON

AMENDMENT LOG

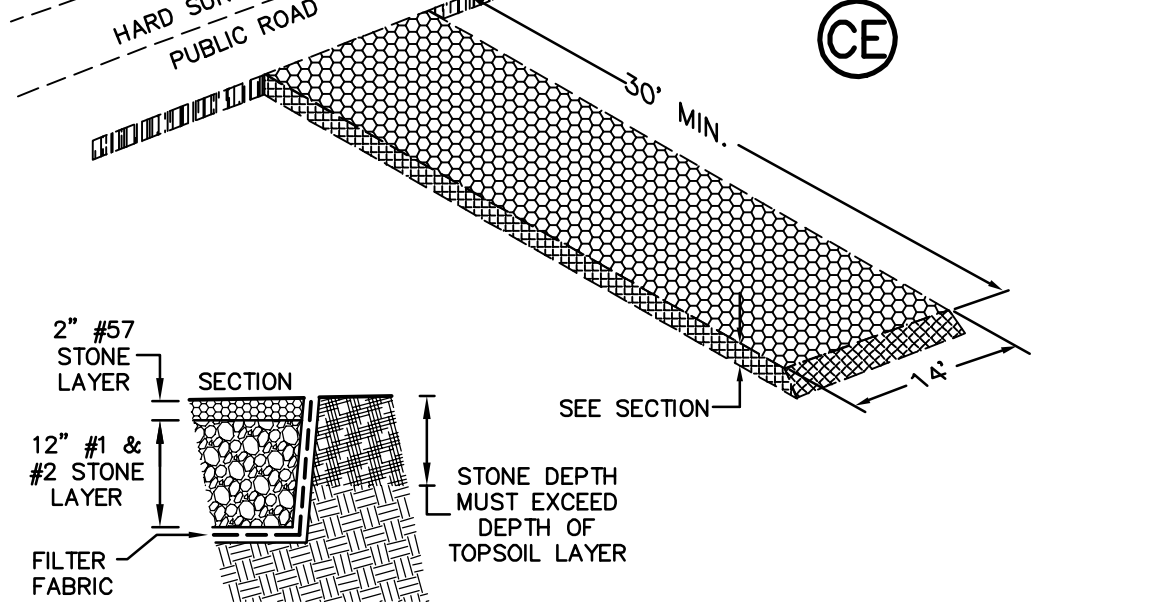
AMENDMENT NO.	DESCRIPTION OF THE AMENDMENT	DATE OF AMENDMENT	PREPARED BY: (NAME(S) AND TITLE)

GRADING AND STABILIZATION ACTIVITIES LOG

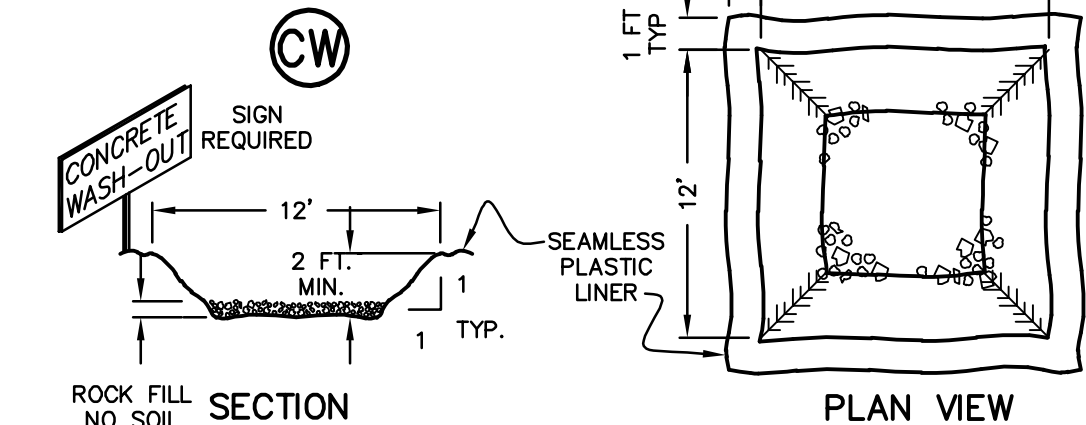
DATE GRADING ACTIVITY INITIATED	DESCRIPTION OF GRADING ACTIVITY	DATE GRADING ACTIVITY CEASED (INDICATE TEMP OR PERMANENT)	DATE WHEN STABILIZATION MEASURES ARE INITIATED	DESCRIPTION OF STABILIZATION MEASURE AND LOCATION



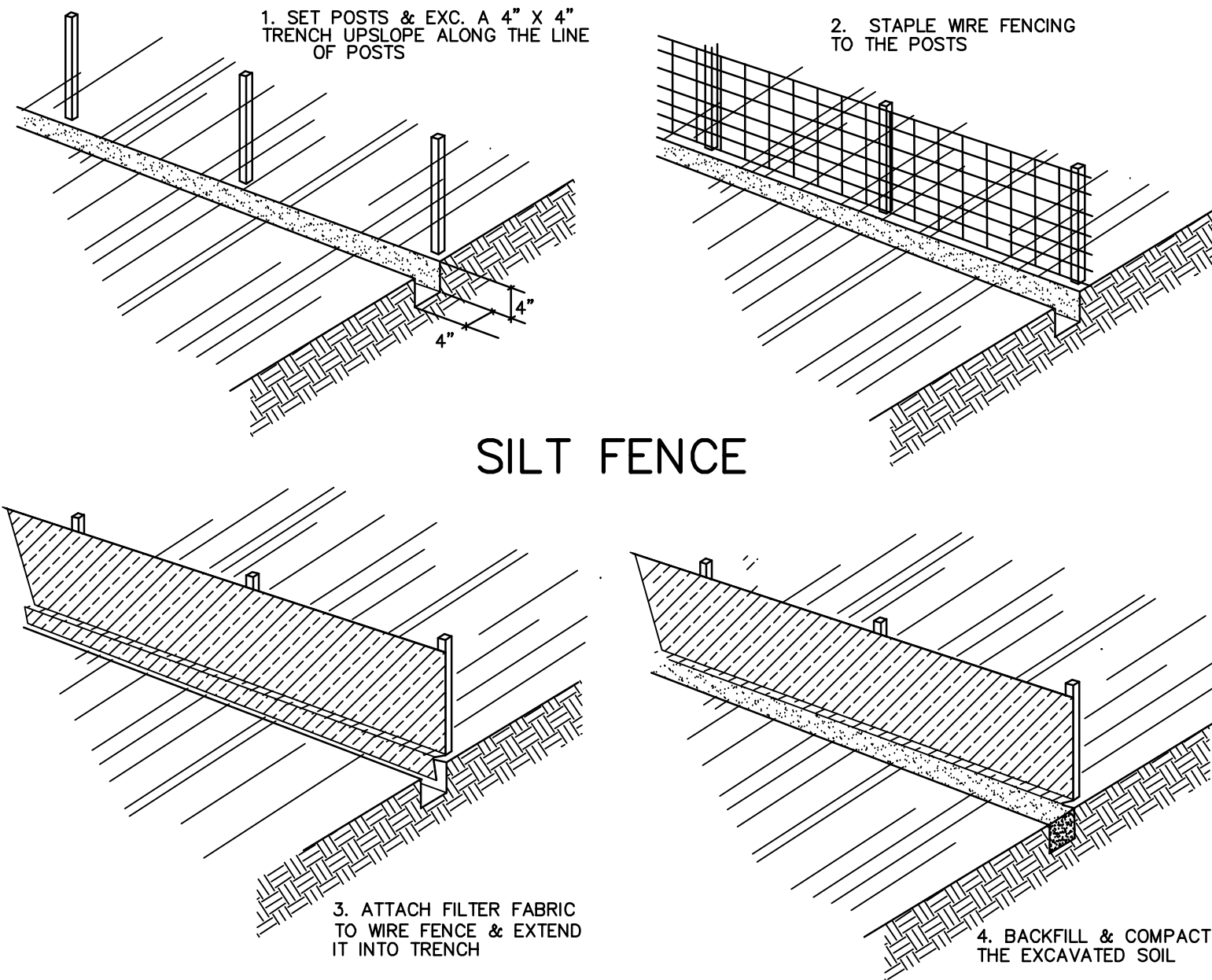
GRAVEL CONSTRUCTION ENTRANCE
(REQUIRED AT EACH POINT OF ACCESS FROM CITY RIGHT-OF-WAY)



CONCRETE WASH-OUT PIT



SILT FENCE

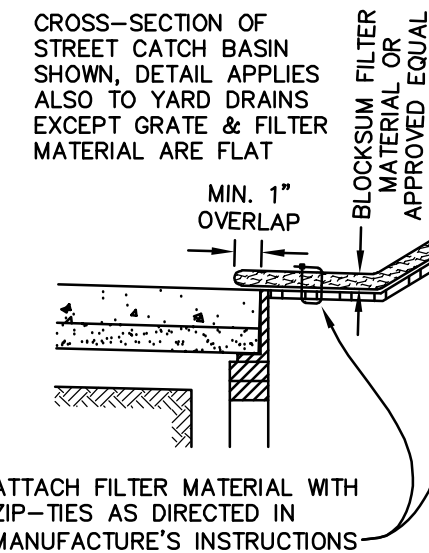


SOIL PROTECTION CHART

STABILIZATION TYPE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PERMANENT SEEDING	A	A	A	A	A	A	A	A	A	A	A	A
DORMANT SEEDING	B	B	B	B	B	B	B	B	B	B	B	B
TEMPORARY SEEDING	C	C	C	C	C	C	C	C	C	C	C	C
SODDING	E	E	E	E	E	E	E	E	E	E	E	E
MULCHING	F	F	F	F	F	F	F	F	F	F	F	F

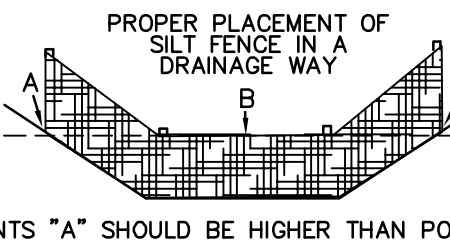
INLET PROTECTION

REQUIRED AT ALL NEW STREET INLET BASINS AND YARD DRAINS (AND ON EXISTING INLETS WHERE SPECIFIED)



FUEL STORAGE AREA NOTE:

THE CONTRACTOR DOES NOT ANTICIPATE THE NEED TO HAVE ONSITE FUEL STORAGE. ALL FUEL WILL BE BROUGHT TO THE SITE IN TRUCK MOUNTED TANKS AS NEEDED.



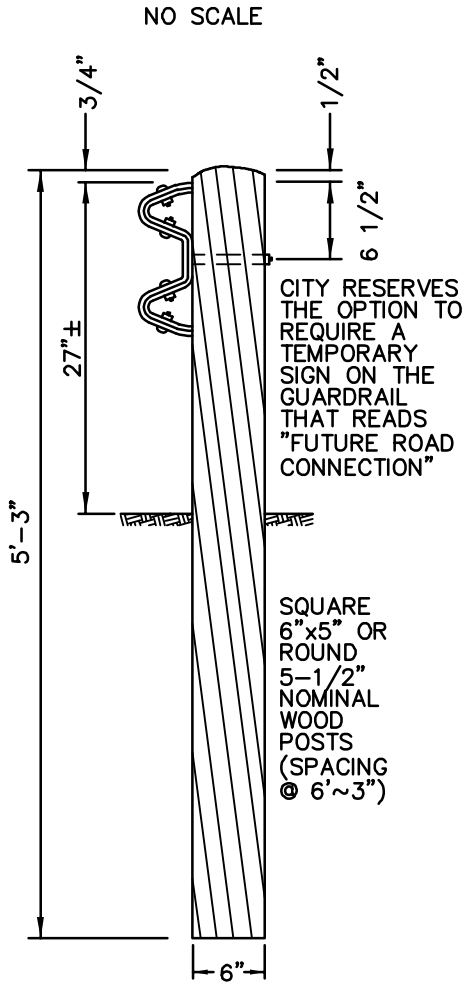
HARBOR CREST TOWNHOUSE SUBD. NO. 2 SWPPP SITE PLAN

THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

8/14
OCTOBER 2025

REVISIONS	REVISED PER ZONING DEPT. COMMENTS & MOVED MOUND INTO ADJ. EASEMENT
10/29/25	

GUARD RAIL DETAIL NO SCALE



STREET NAME & STOP SIGN SPECIFICATIONS

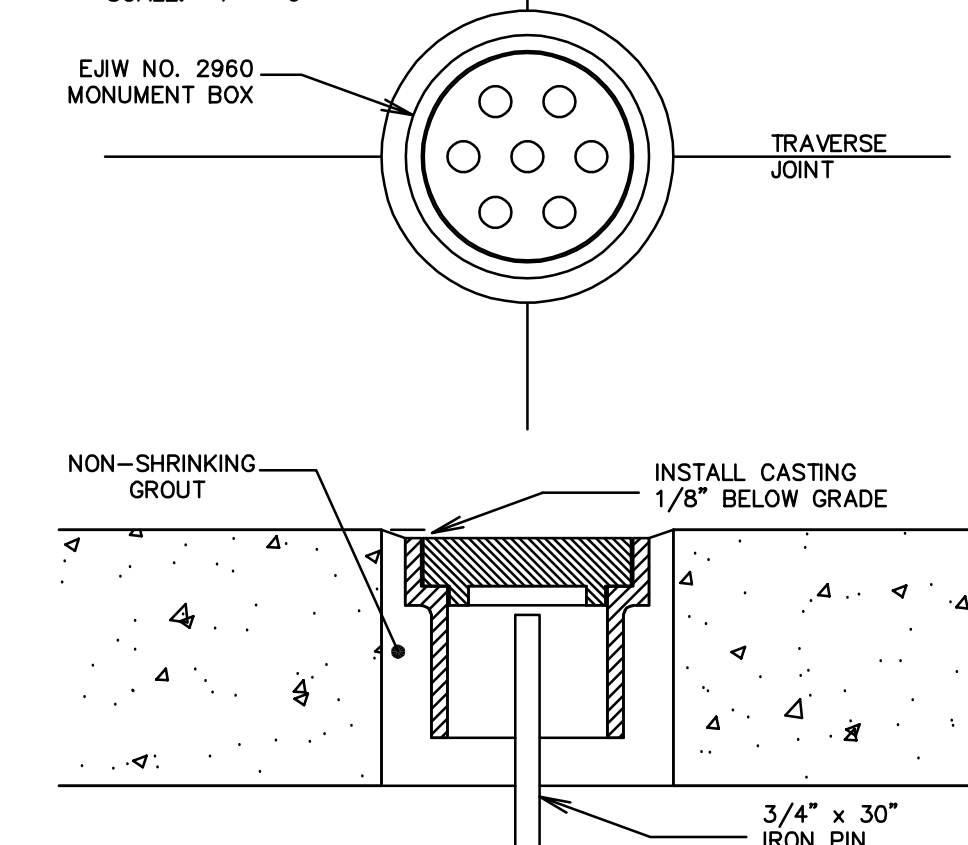
STREET NAME AND STOP SIGNS TO HAVE 13 GAGE GALVANIZED SQUARE POSTS, 14" IN LENGTH AND PLACED 3" IN GROUND. STOP SIGNS TO BE 30" DIAMOND GRADE. IF INTERSECTION IS AT A MAIN ROAD DIAMOND GRADE IS RECOMMENDED. INSTALL BOTTOM OF SIGN 7" ABOVE GROUND. STREET NAME SIGNS TO HAVE 9" ALUMINUM BLADE, 6" LETTERS, DOUBLE-SIDED, DIAMOND GRADE AND WHITE ON GREEN. POST CAP FLAT BRACKET IS 12". CROSS PIECE FLAT BRACKET IS 12". BOLTS ARE TO BE VANDAL PROOF.

PAVEMENT AT STORM M.H.s

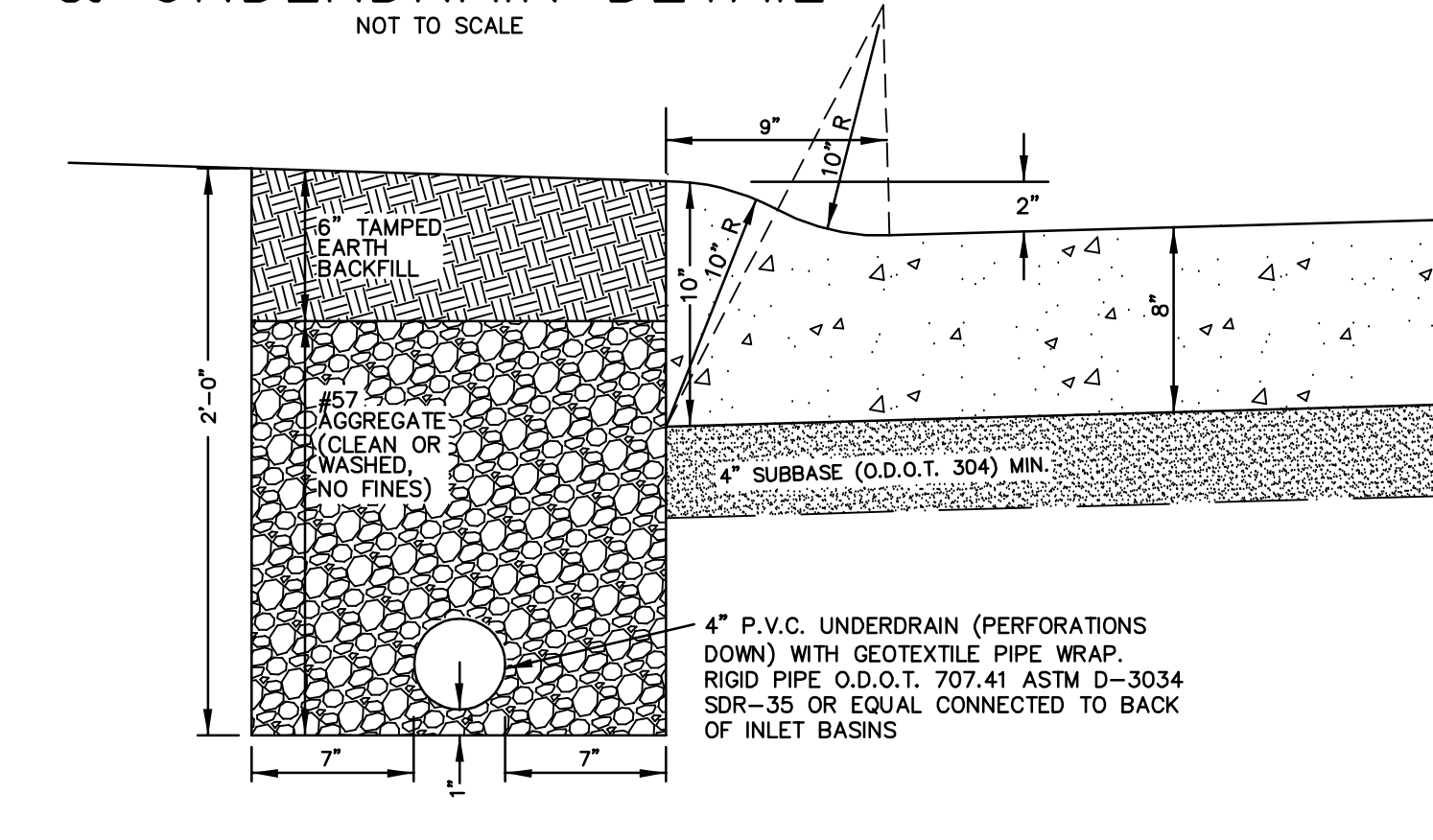
SEE ALRW-SAN-28 DETAIL ON FOLLOWING SHEET FOR PAVEMENT BOX-OUT DETAILS IF M.H. CASTING IS INSIDE PAVEMENT LIMITS. CASTING SHALL BE MIN. 12" FROM EDGE IF IT IS NEAR THE EDGE OF PAVEMENT.

MONUMENT BOX

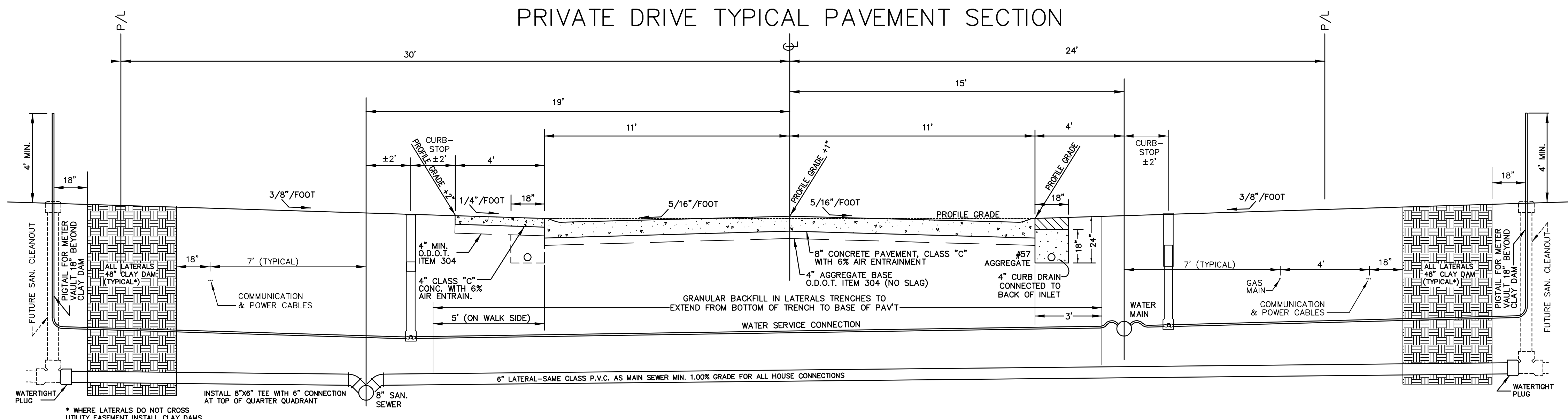
SCALE: 1" = 6"



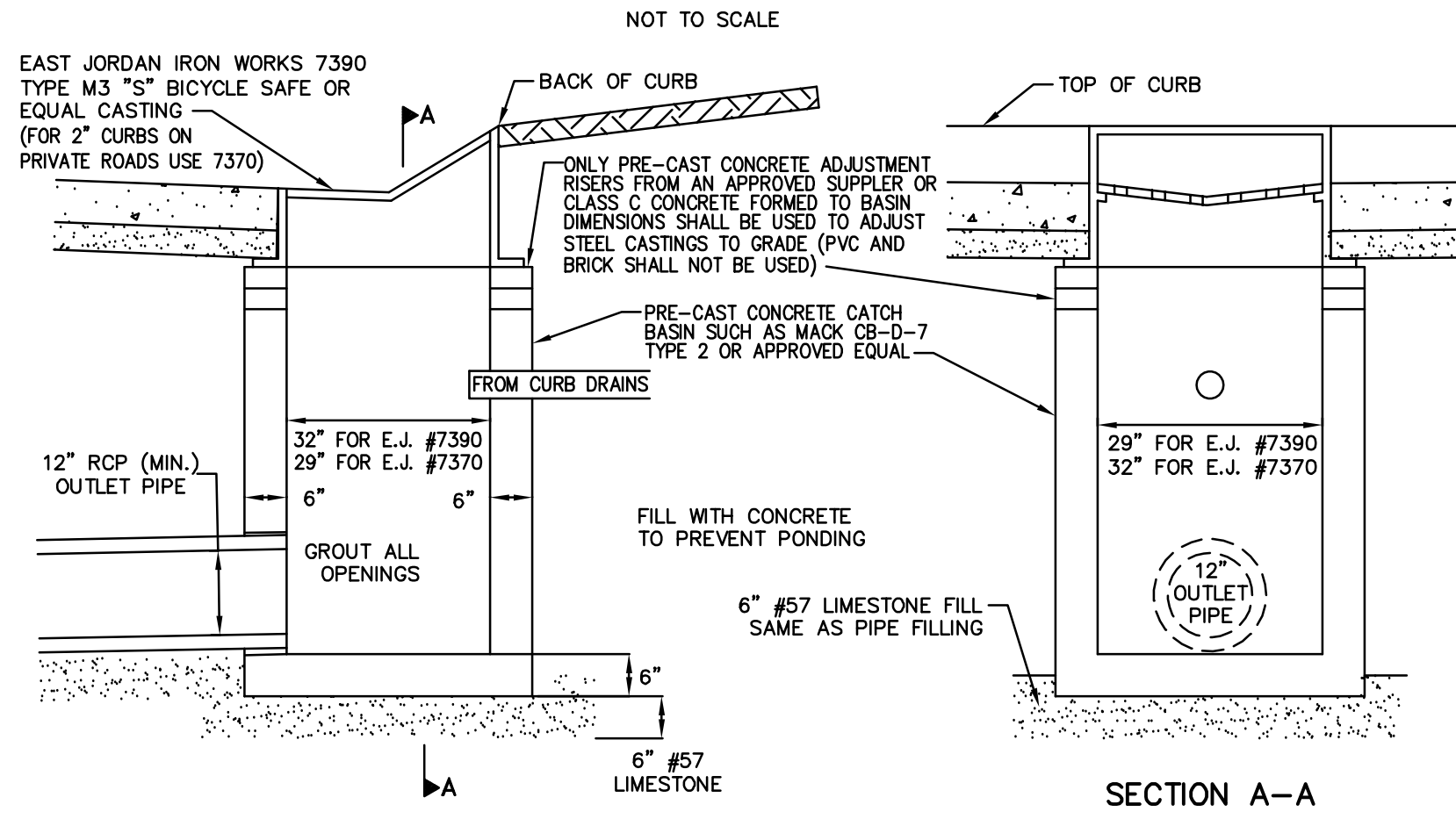
PRIVATE DRIVE 2" CURB & UNDERDRAIN DETAIL NOT TO SCALE



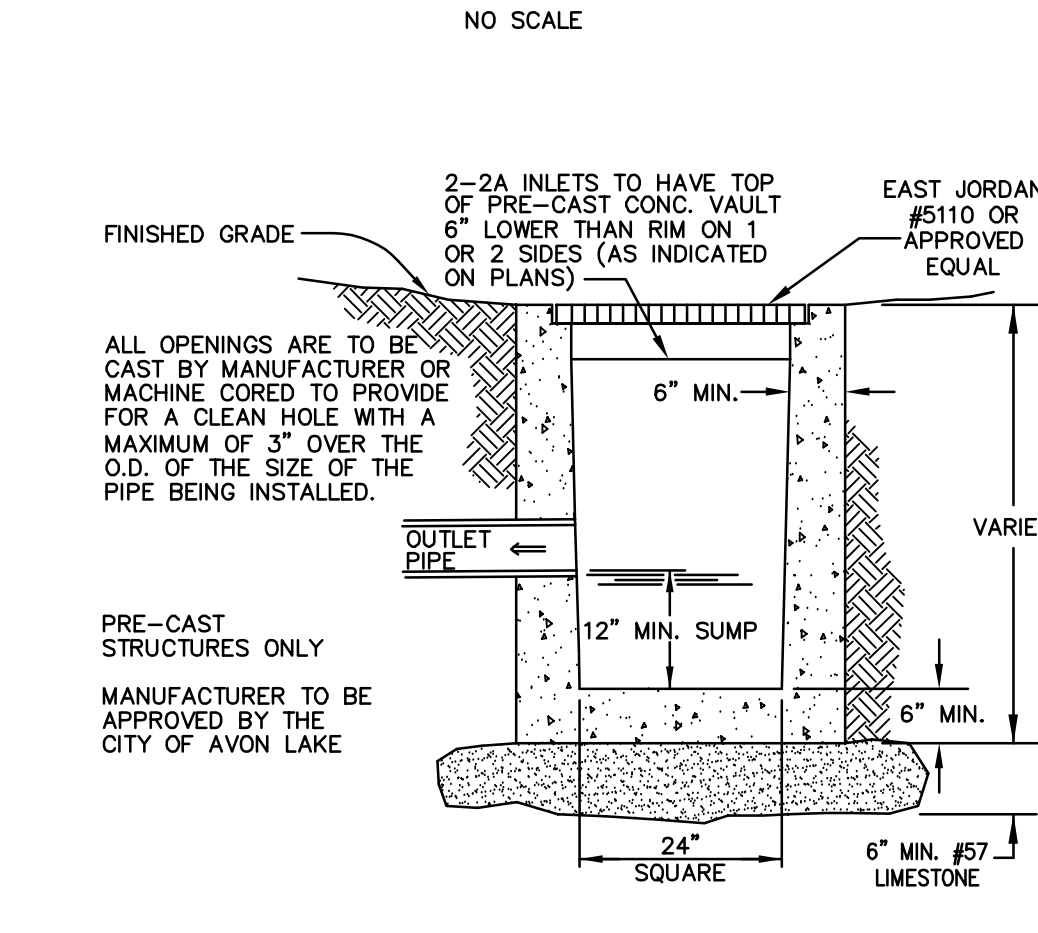
PRIVATE DRIVE TYPICAL PAVEMENT SECTION



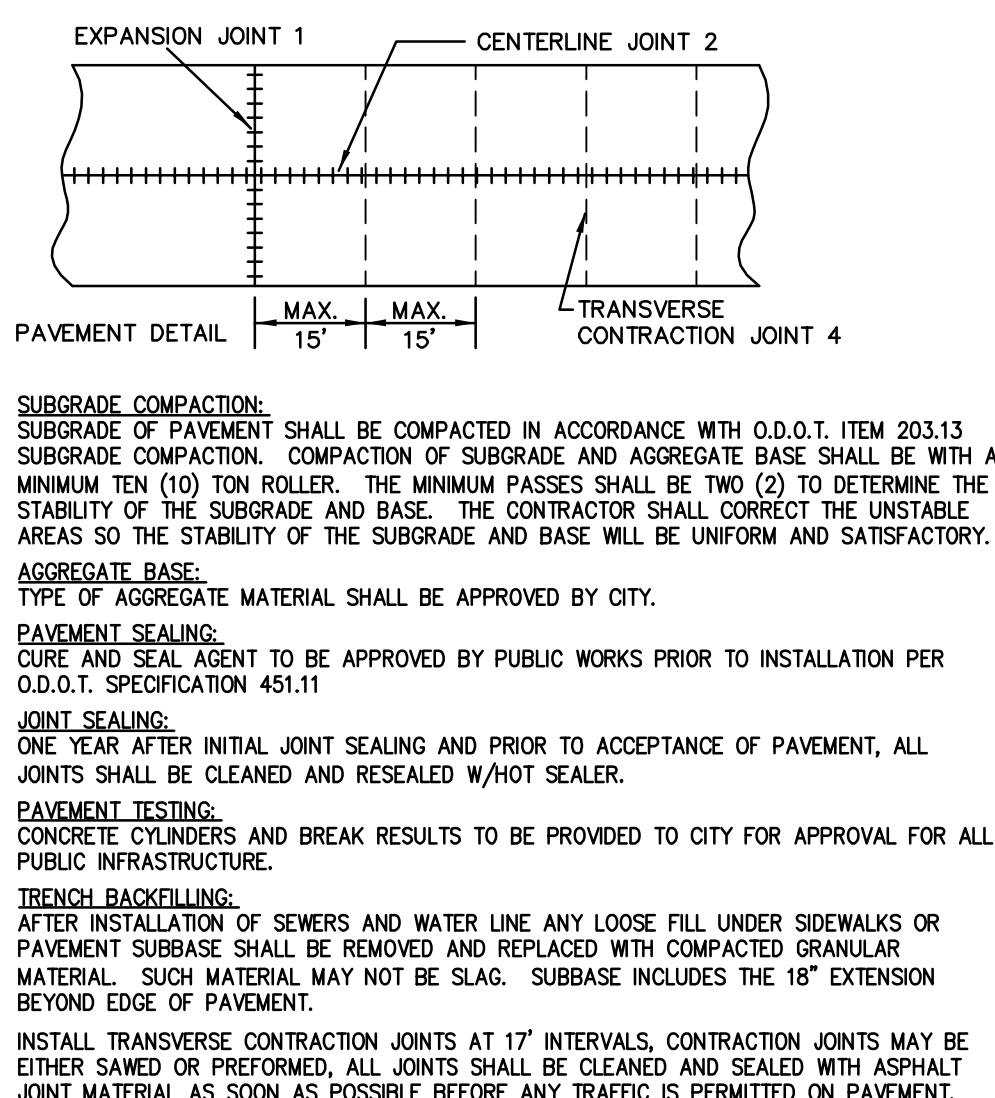
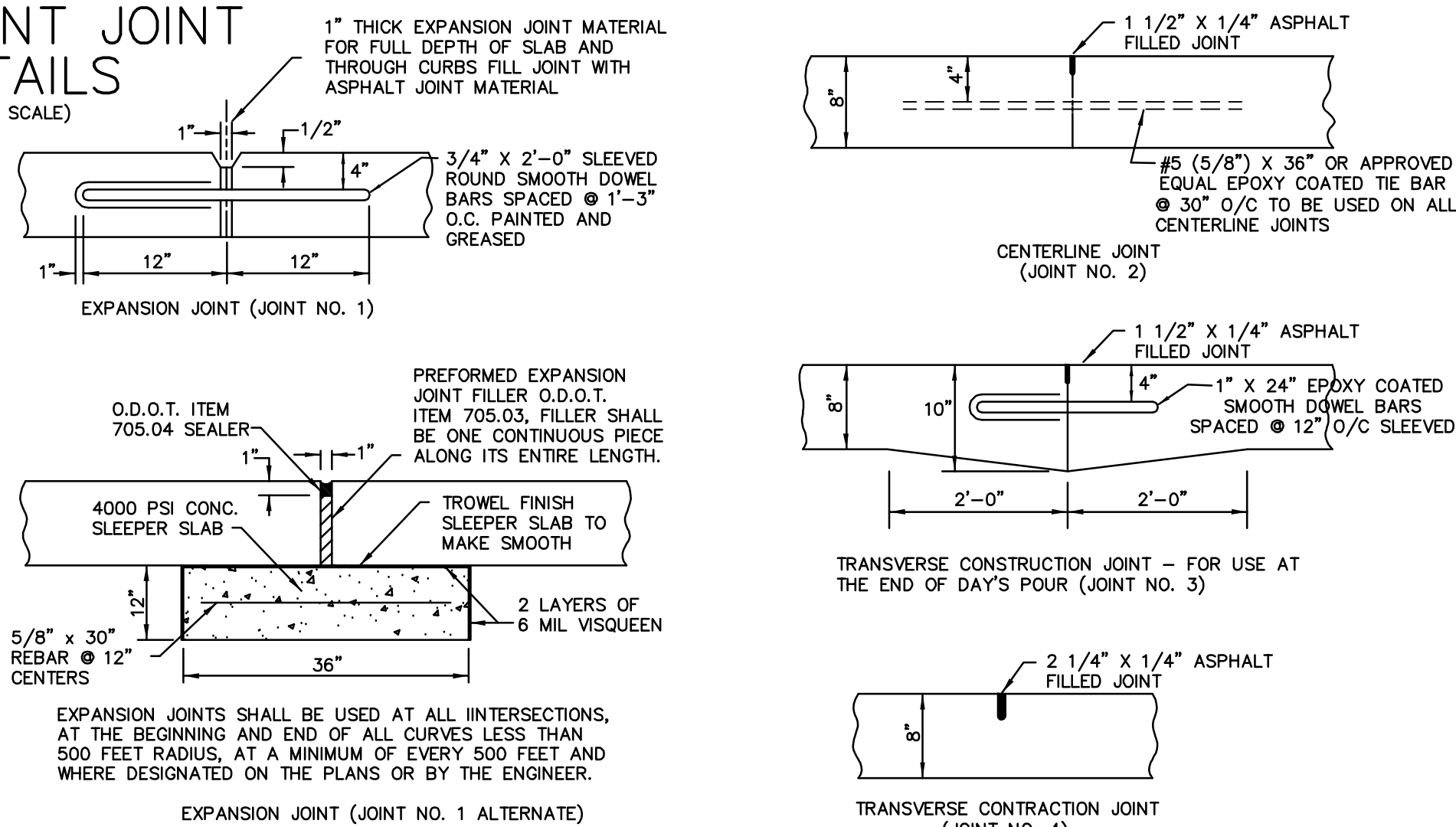
CURB INLET BASIN DETAIL NOT TO SCALE



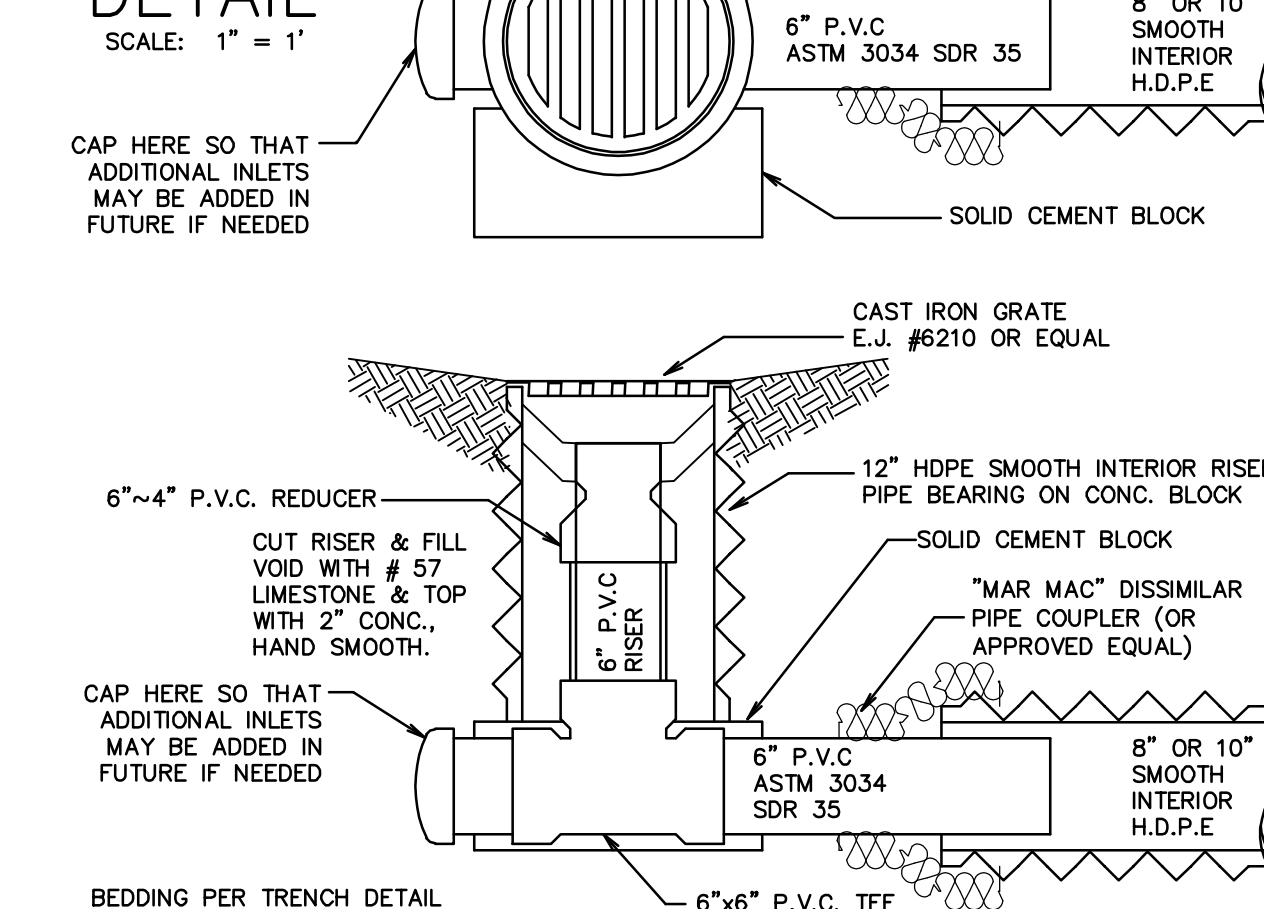
2-2A & 2-2B INLET DETAIL NO SCALE



PAVEMENT JOINT DETAILS (NO SCALE)

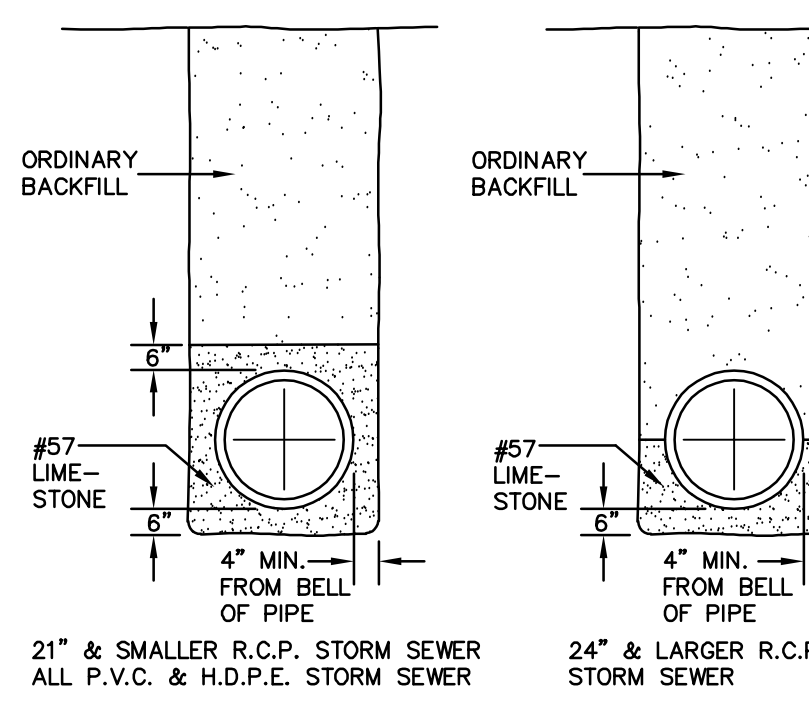


PVC RISER INLET DETAIL SCALE: 1" = 1'

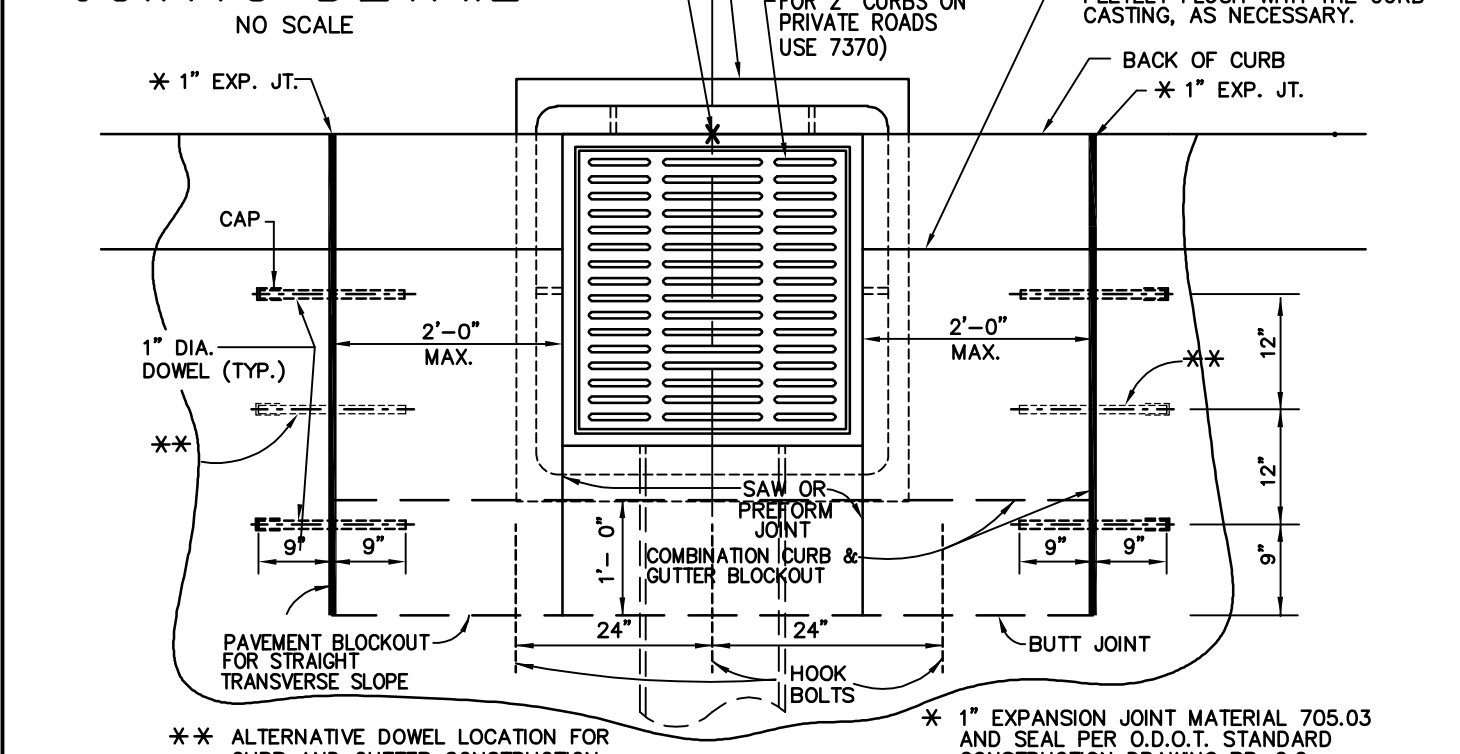


TRENCH DETAILS (NO SCALE)

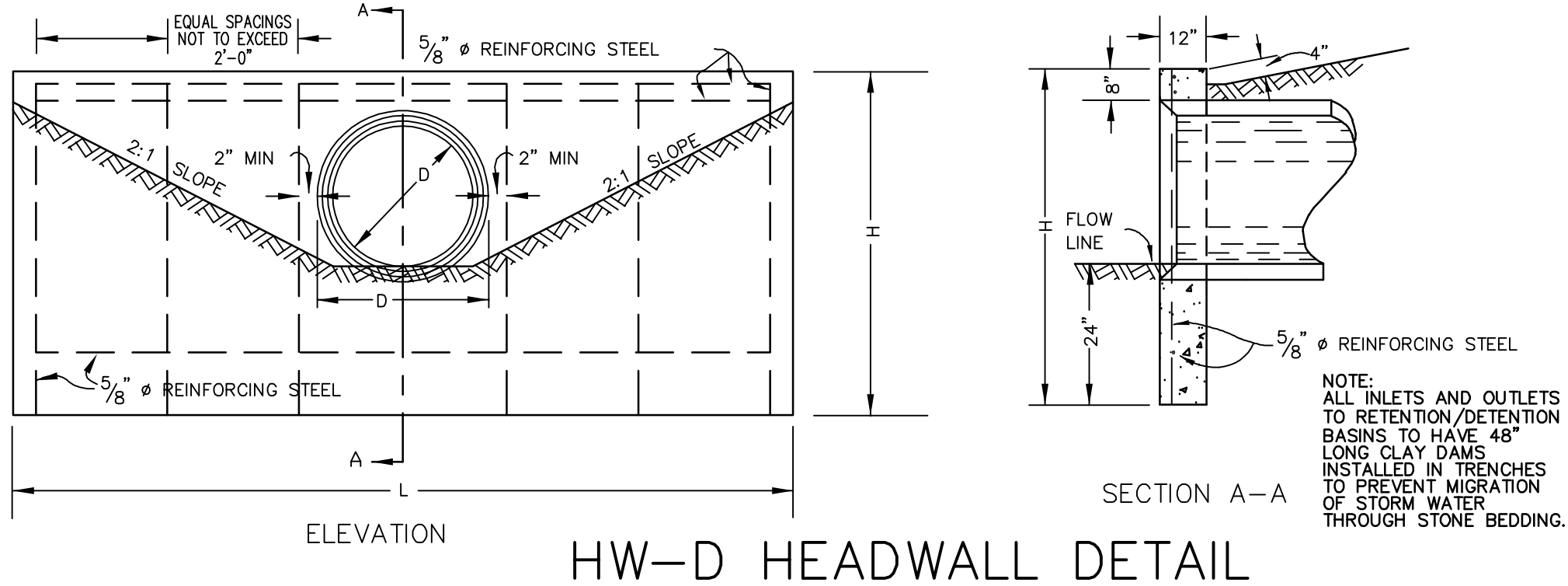
- NOTES FOR ALL TRENCHES:
1. ALL BEDDING TO BE PER ASTM D-2321 CLASS 2.
 2. NO SLAG OR CRUSHED CONCRETE SHALL BE USED FOR BEDDING OR BACKFILL.
 3. PROVIDE 4" MINIMUM CLEAR DISTANCE FROM OUTSIDE EDGE OF ANY PIPE FITTING OR BELL TO TRENCH WALL.
 4. 6" MAXIMUM FILL AND COMPACT PER AWWA AND ODOT REQUIREMENTS UNDER PAVED AREAS AND SIDEWALK BACKFILL TRENCHES WITH O.D.D.T. 304 LIMESTONE RATHER THAN ORDINARY BACKFILL OR FINE EARTH.



CATCH BASIN & PAVEMENT JOINTS DETAIL NO SCALE



HW-D HEADWALL DETAIL NO SCALE

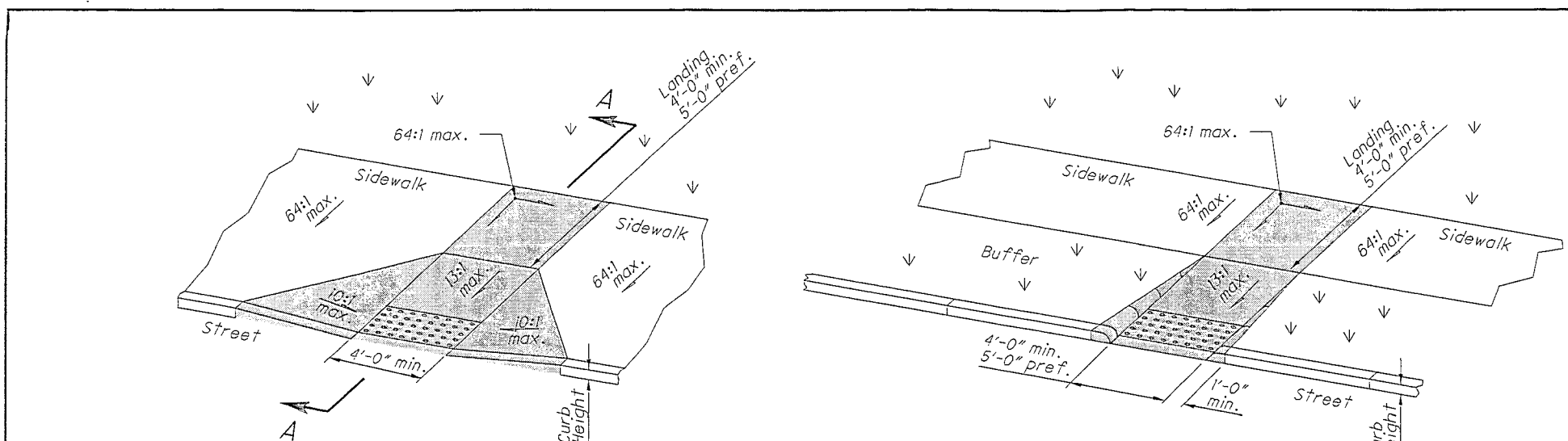


REVISIONS

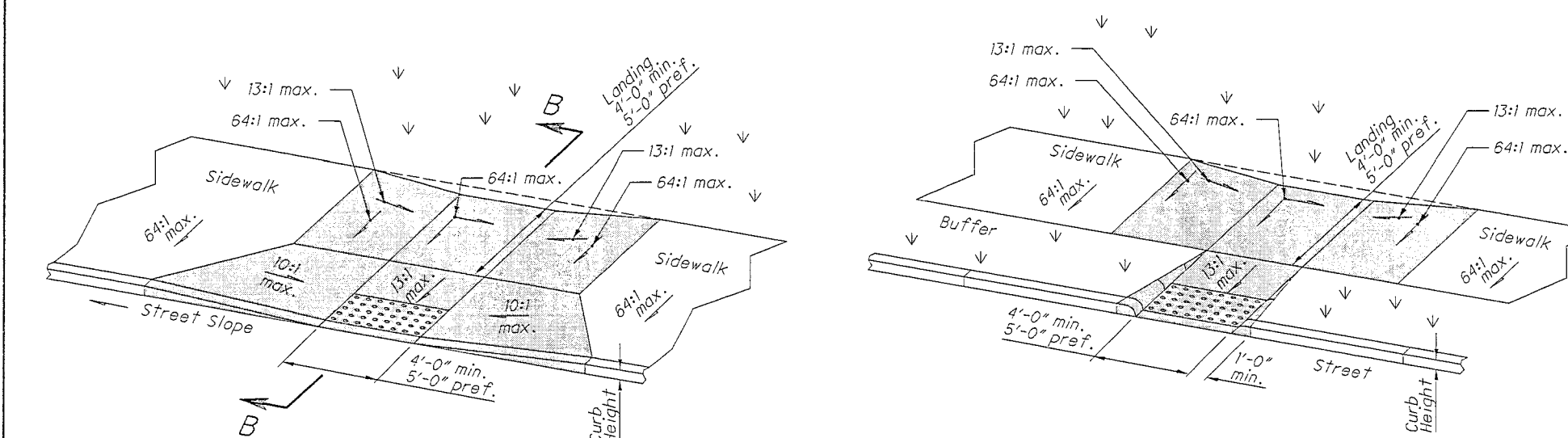
HARBOR CREST
TOWNHOUSE SUBD. NO. 2
DETAIL SHEET

THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

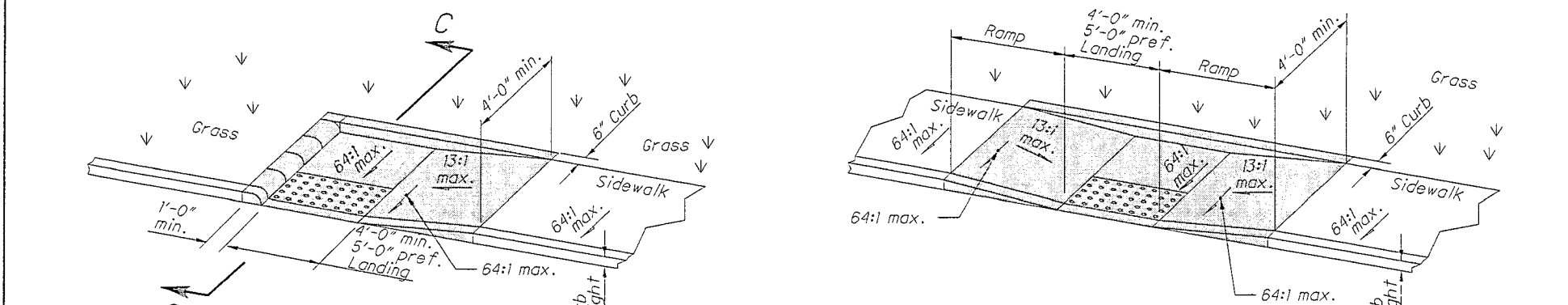
9
14
OCTOBER
2025



Type A1 (Perpendicular with flared sides) Type A2 (Perpendicular with returned curb)
PERPENDICULAR CURB RAMP DETAILS



Type C1 (Combined with flared sides) Type C2 (Combined with returned curb)
COMBINED CURB RAMP DETAILS



Type B1 (Single sided Parallel) Type B2 (Double sided Parallel)
PARALLEL CURB RAMP DETAILS

NOTES CONTINUED

The running slope of the curb ramp shall be a 13:1 maximum or flatter. In existing sidewalks, where the maximum ramp slope is not feasible due to site constraints (e.g., utility poles or vaults, right-of-way limits) it may be reduced as follows:
A) 10:1 for a max. rise of 5'.
B) 8:1 for a max. rise of 2'.
C) 6:1 over a max. run of 2'-0" for historic areas where a flatter slope is not feasible.

To prevent chasing the grade indefinitely, the transition from existing sidewalk to the shaded curb ramp area is not required to exceed 15 feet in length.
While ramps may be skewed to the crosswalk, the entire lower landing area must fall within the crosswalk that the ramp serves and cannot be located in the traveled lane of opposing traffic.
The counter slope of the gutter or street at the foot of a curb ramp, landing, or blended transition shall be 20:1 or flatter.

The bottom edge of the ramp shall change planes perpendicular to the landing.

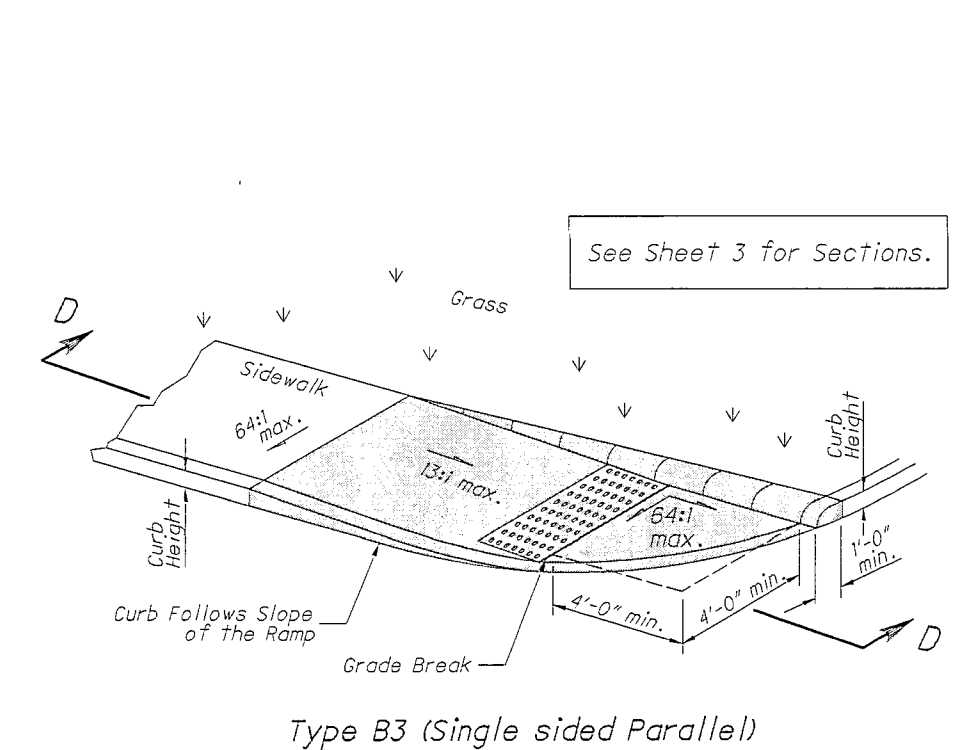
The edge of the curb shall be flush with the edge of the adjacent pavement and gutter and surface slopes that meet grade breaks shall also be flush. Ramp landings shall be 4' min. x 4' min. with a 64:1 or flatter cross slope and running slope.

DETECTABLE WARNINGS: Install Detectable Warnings on each curb ramp with approved materials, as shown on Sheet 3. Install these proprietary products as per manufacturer's written instructions.

DRAINAGE: Contractor is to ensure the base of each constructed curb ramp allows for proper drainage, without exceeding allowable cross slope or ramp slopes. Vertical change in level exceeding 1/8" between the 1) pavement and gutter, and 2) gutter and ramp, are not allowed.

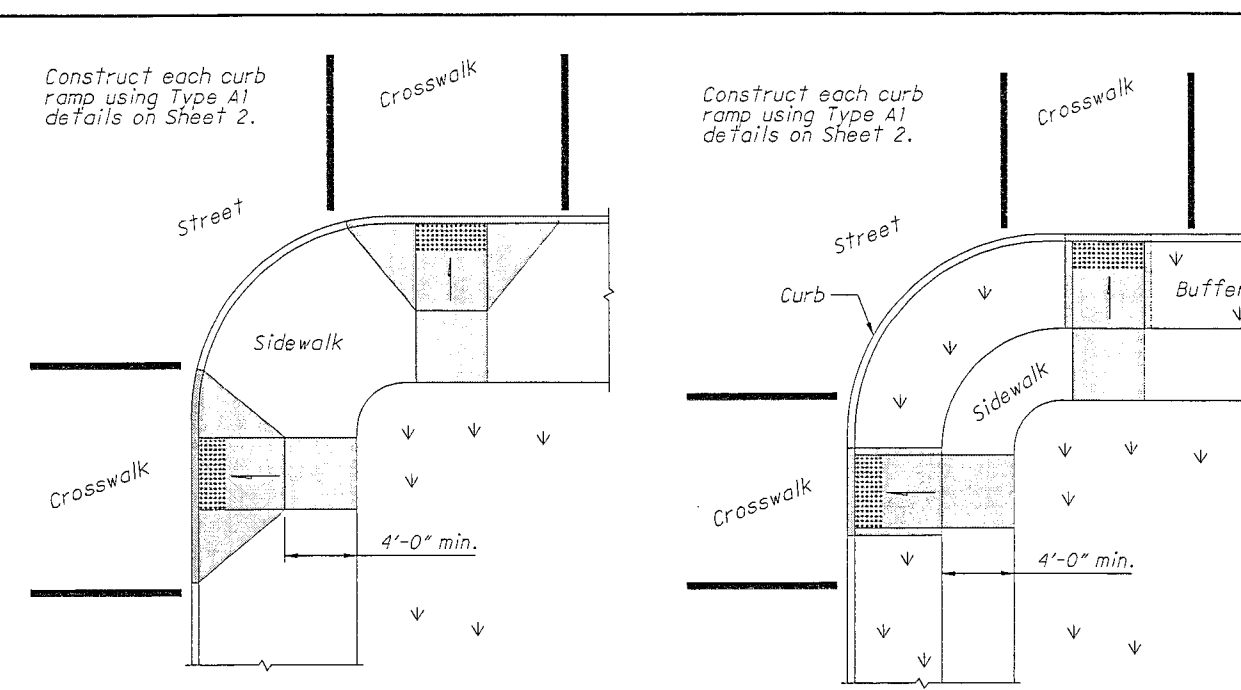
SURFACE TEXTURES: Texture concrete surfaces by coarse brooming transverse to the ramp slopes to be rougher than the adjacent work.
JOINTS: Provide expansion joints in the curb ramp as extensions of walk joints, any consistent with Item 608.03 requirements for a new concrete walk. Provide a 1/2" from 705.03 expansion joint filler around the edge of ramps built in existing concrete walks. Lines shown on this drawing indicate the ramp edges and slope changes, and do not necessarily indicate joint lines.

See Sheet 3 For Sections.

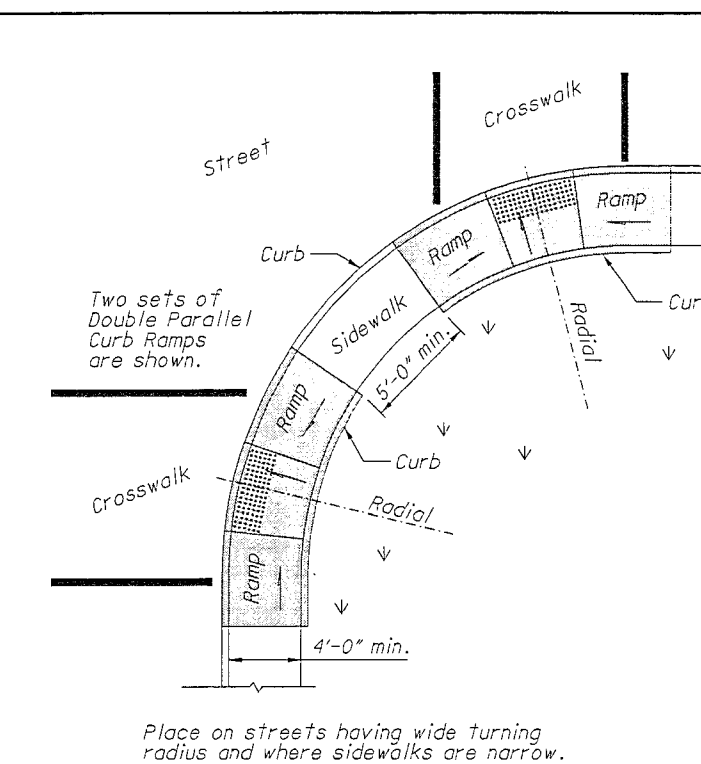


Type B3 (Single sided Parallel)

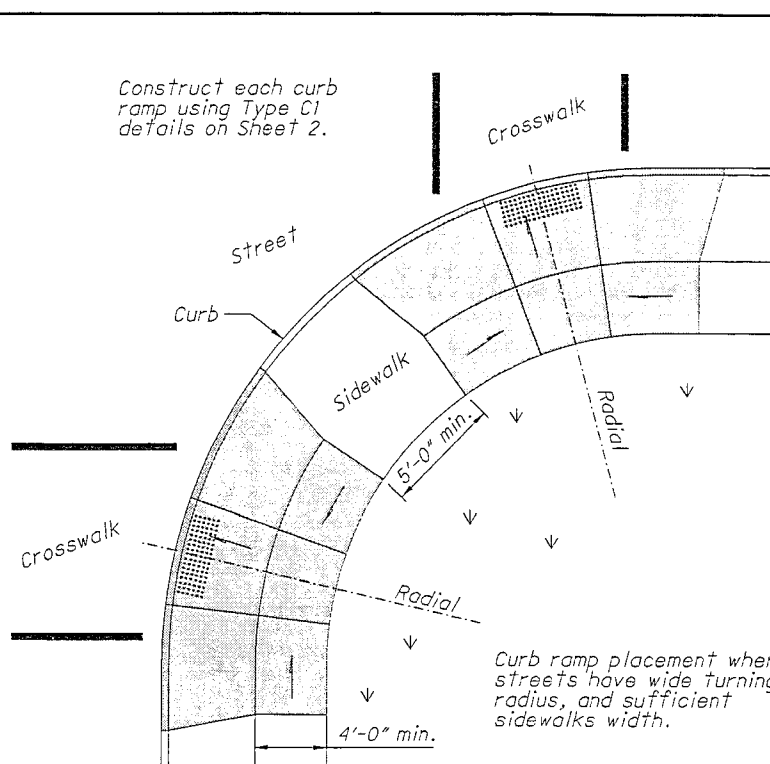
REVISION DATE: 1-21-2022
STATE OF OHIO DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAY ENGINEERING
Brenton Bogard
D. Fisher
OFFICE OF ROADWAY ENGINEERING
NEW CURB RAMP (with Detectable Warnings)
BP-7.1
THIS DRAWING REPLACES BP-7.1 DATED 7-20-2018.



PERPENDICULAR CURB RAMP



PARALLEL CURB RAMP



COMBINATION CURB RAMP

NOTES

GENERAL: This drawing shows curb ramp types and placement examples for curb ramp construction, including the installation of detectable warnings.

Curb ramp types are shown on Sheet 2 and include Perpendicular, Parallel, and Combined types as specified to be constructed in the locations shown on the project plans.

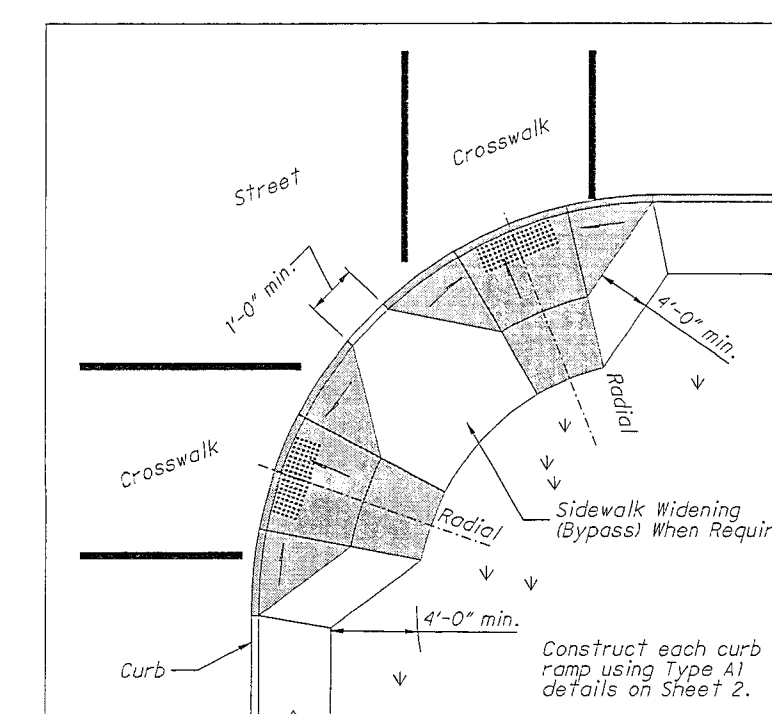
Curb ramps added to an existing intersection or walk should be individually detailed on the project plans to assure that the design is appropriate for site constraints and all items can be constructed to ADA standards. The contractor may adjust the placement of curb ramps if existing field conditions warrant with the approval of the Engineer.

PAYMENTS: Measure and pay for the ramp area within the shaded limits of this drawing as Item 608 Curb Ramp, Square Foot. This includes the cost of any curb or gutter and gutter, detectable warnings, landing areas and any additional materials, installation, grading, forming, and finishing required within the shaded area.

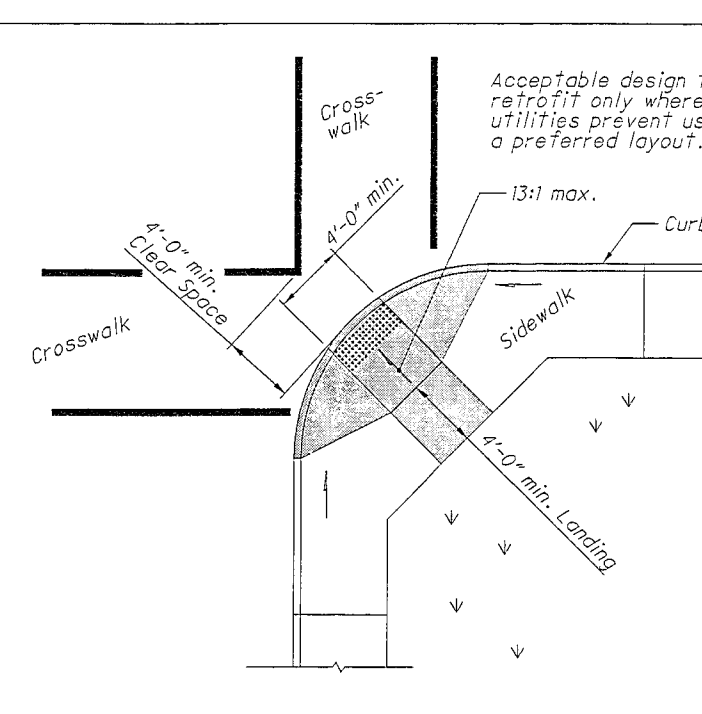
Work beyond the shaded ramp/landing area is paid for as curb (608) and walk (608). Removal of existing curb, walk or existing curb ramps are paid under Item 202.

For at-grade crossing locations where only detectable warnings are required in order to achieve ADA compliance, measure and pay for the strip of detectable warnings as Item 608 Detectable Warning, Square Foot. The work to cast the files in place will also require removal of existing pavement (Item 202) to the nearest joint, or if no joint exists, a minimum of 4 feet.

PREFERRED CONSTRUCTION PLACEMENT



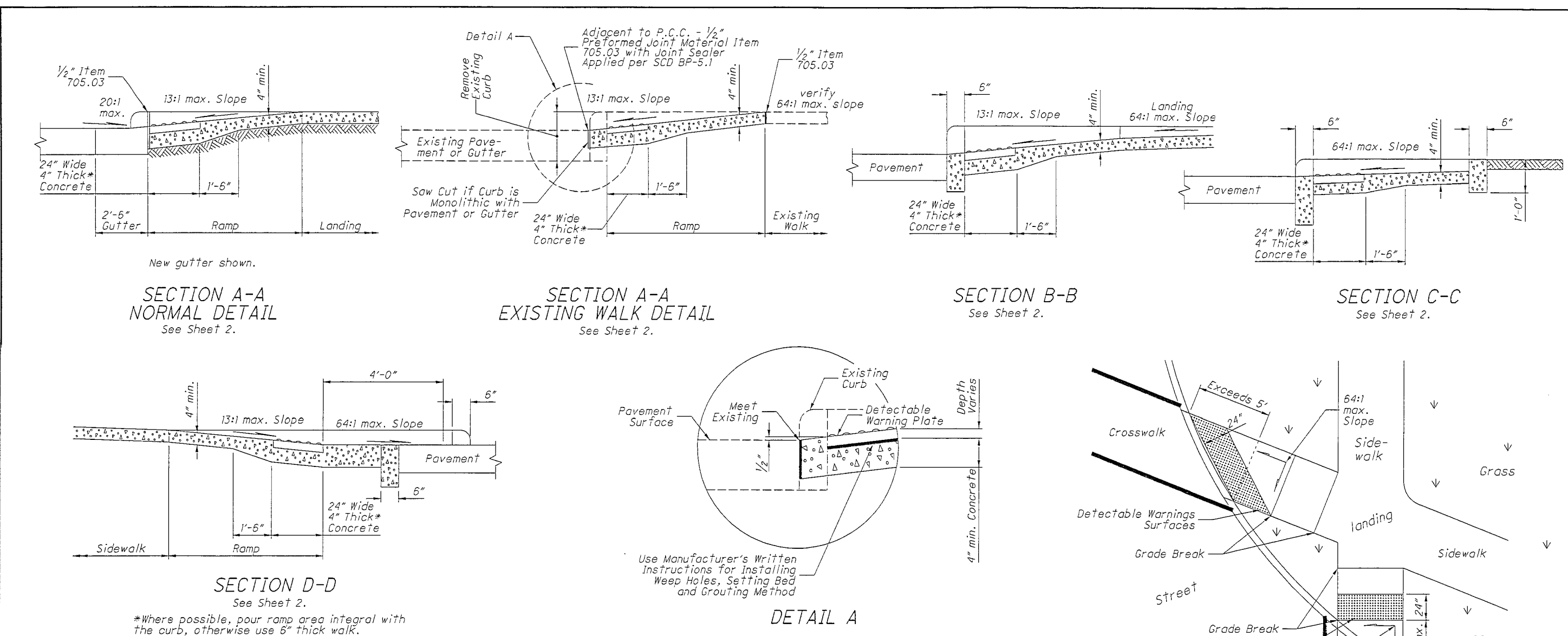
PERPENDICULAR RAMP



DIAGONAL RAMP (Type D)

ACCEPTABLE CONSTRUCTION PLACEMENT

REVISION DATE: 1-21-2022
STATE OF OHIO DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAY ENGINEERING
Brenton Bogard
D. Fisher
OFFICE OF ROADWAY ENGINEERING
NEW CURB RAMP (with Detectable Warnings)
BP-7.1
THIS DRAWING REPLACES BP-7.1 DATED 7-20-2018.



DETECTABLE WARNINGS NOTES

GENERAL: Detectable warnings are a distinctive surface pattern of truncated domes which are detectable by cane or underfoot to alert people with vision impairments of their approach to streets and hazardous drop-offs.

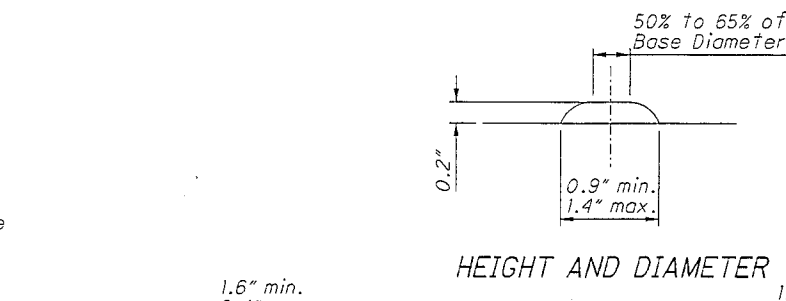
PLACEMENT: Detectable warnings are to be installed at any location where pedestrians might cross paths with vehicular traffic lanes, such as the base of curb ramps or at blended curbs. A 24" strip of domes is to be installed for the full width of the ramp or walk. Typical street corner placement locations are shown on Sheet 1.

Some detectable warning products require a concrete border for proper installation. The concrete border should not exceed 2" where the back of curb edge is tooled to provide a radius. The border dimension should be measured from the end of the radius.

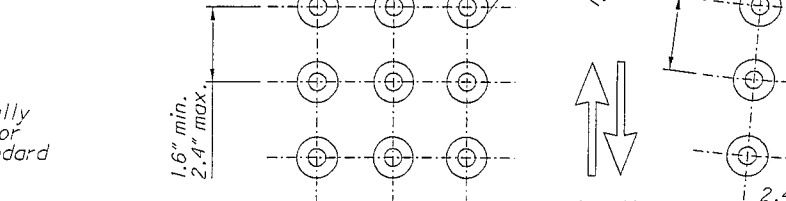
The depth of concrete underneath detectable warning products shall be a minimum of 4". See DETAIL 1.

ALIGNMENT: Truncated domes should be aligned with the primary direction of the ramp as shown on the DETECTABLE WARNING ALIGNMENT Detail. Normally the detectable warnings should be flush with the back of the curb, but for skewed conditions see DETECTABLE WARNING ALIGNMENT Detail. For non-standard layouts, detectable warning materials may have to be mitered and placed segmentally.

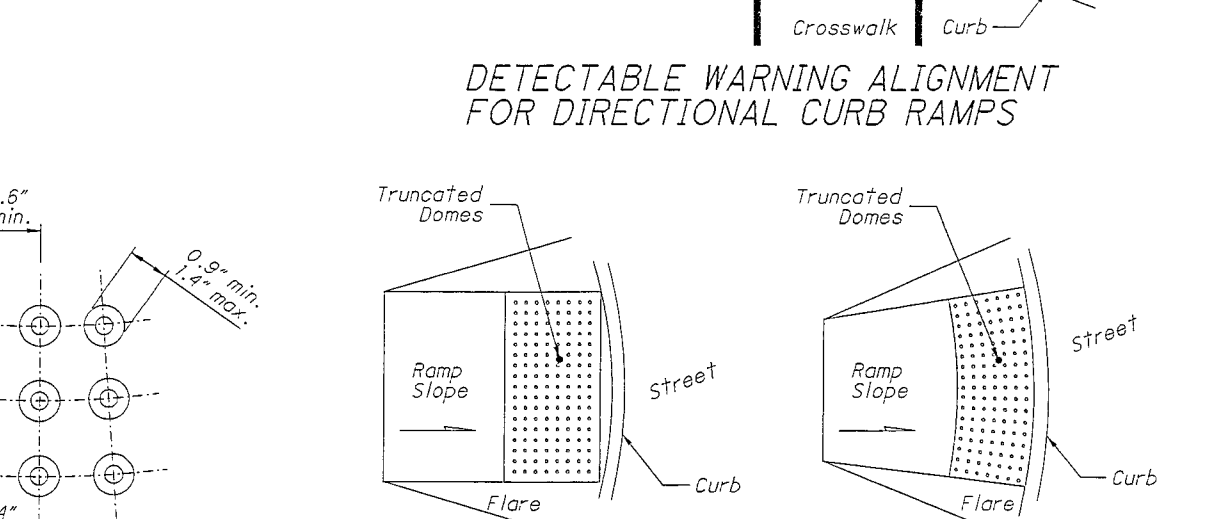
PRODUCTS & COLORS: Color of the detectable warnings should contrast with surrounding concrete walk and ramp. Black is not an acceptable color. Approved products and guidance on color may be found on the Office of Roadway Engineering Services Detectable Warnings Approved List. Install products as per manufacturer's printed instructions.



DETAIL A

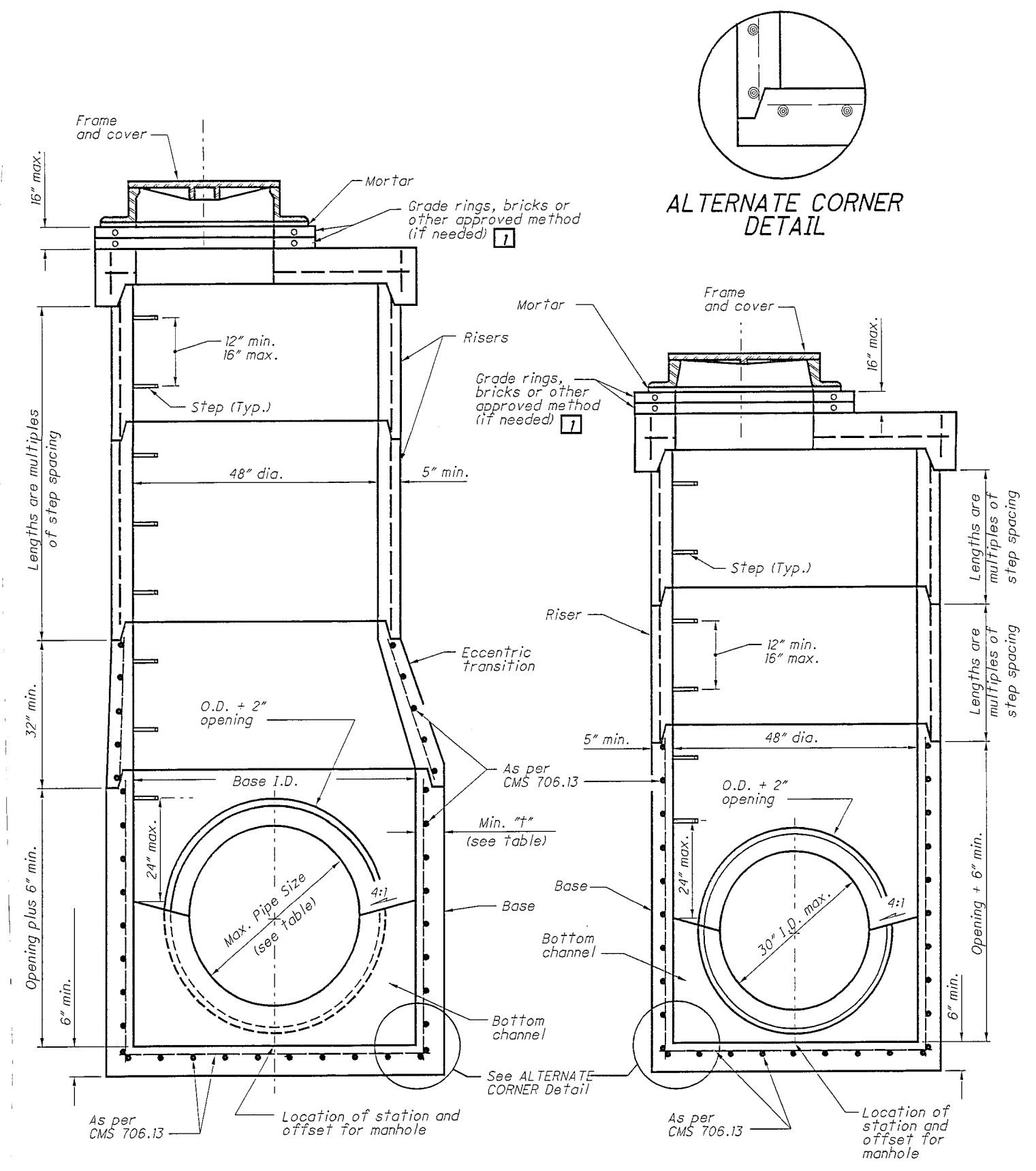


HEIGHT AND DIAMETER



DOMES ALIGNMENT ON RADIUSED CURB

REVISION DATE: 1-21-2022
STATE OF OHIO DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAY ENGINEERING
Brenton Bogard
D. Fisher
OFFICE OF ROADWAY ENGINEERING
NEW CURB RAMP (with Detectable Warnings)
BP-7.1
THIS DRAWING REPLACES BP-7.1 DATED 7-20-2018.



60" to 108" PRECAST BASE
SEE TABLE FOR MAXIMUM PIPE SIZES
48" PRECAST BASE
FOR 30" AND SMALLER PIPE

SECTION VIEWS OF REINFORCED PRECAST MANHOLES

NOTES

GENERAL: With normal soil and site conditions, this standard precast manhole may be used for any required manhole depth.

Cost and assembly sections of the precast manhole with either all tongue or all groove ends up. Lift holes may be provided in each section for handling.

TOP: Provide a flat slab for this section unless an eccentric cone is specified.

TRANSITION (OR REDUCER): This section can be either eccentric cone or flat slab.

BASE: Manhole No. 3 is shown with a monolithic floor and riser which may be cast in one or two operations. A permissible alternate is to cast and ship the floor and barrel separately. Provide openings for inlet and outlet pipes, either when the unit is cast or later, to meet project requirements. Bottom channels may be formed of concrete, metal, or plastic. The base or field constructed as shown on.

RISER SECTIONS: Openings for 18" and spaller inlet pipes may be either prefabricated or cut in the field providing the sides of the pipe of the springs do not project into the manhole.

CONNECTIONS: Connections between precast manhole sections and pipes on sanitary sewers may be sealed with resilient connectors conforming to ASTM C 823.

JOINT SEAL: Furnish resilient seal between precast manhole sections on sanitary sewers and flexible gasket joints per CMS 705.13.

OPENINGS: Ensure pipe openings are the O.D. of the pipe being supplied plus 2" when fabricated or field cut. Fill any voids per CMS 511.

MATERIALS: Provide materials for bases and other precast sections, including reinforcement not specified here, that meet the requirements of CMS 705.13.

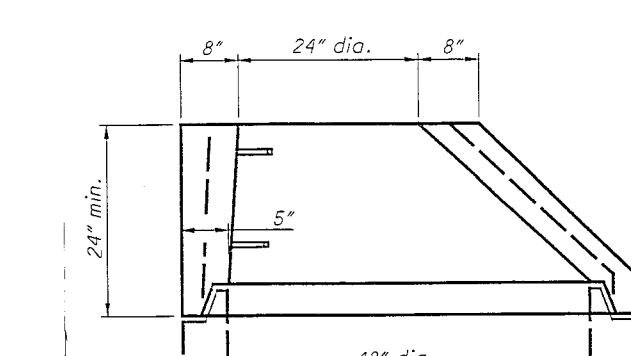
DROP PIPE: When specified on the plans, construct drop pipe as shown on SCD MP-2.

STEPS, FRAMES AND COVERS: Meet the requirements shown on SCD MH-1.

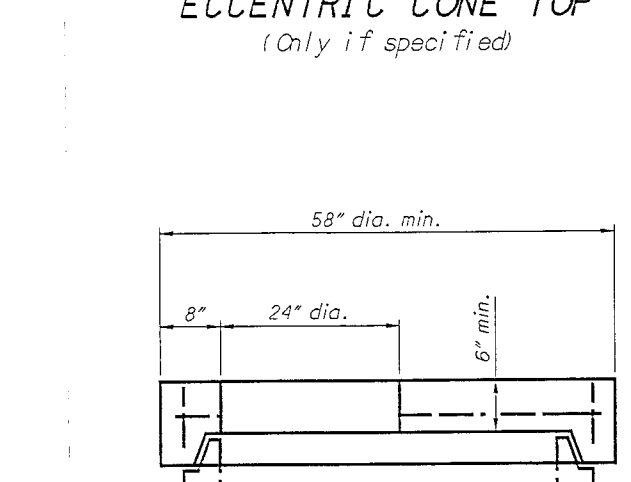
TOP SLAB REBAR: Use epoxy coated reinforcing steel within the top slab.

LEGEND
[] Reconstruction to grade only. Approved materials are kept on file by the Office of Materials Management.

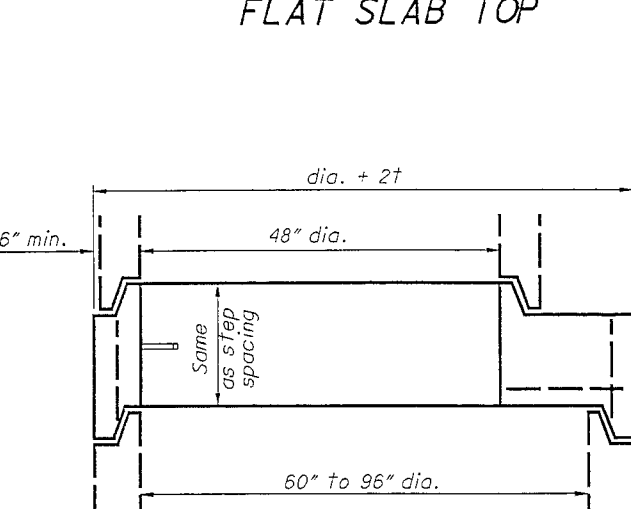
MAXIMUM PIPE SIZES		
BASE I.D.	MIN. 4"	MAX. PIPE SIZE
60"	5"	36"
72"	6"	48"
84"	7"	54"
90"	7 1/2"	60"
96"	8"	66"
108"	9"	72"



ALTERNATE ECCENTRIC CONE TOP
(Only if specified)



FLAT SLAB TOP



FLAT SLAB TRANSITION

HARBOR CREST TOWNHOUSE SUBD. NO. 2 DETAIL SHEET

THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH. 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

10/14
OCTOBER 2025

DRAWING: MH-3
STANDARD HYDRAULIC CONSTRUCTION DRAWING
MANHOLE No. 3
OFFICE OF HYDRAULICS ENGINEERING
M. Cozzoli
STATE OF OHIO DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAY ENGINEERING
Jeffery E. Syar

1. ALL MATERIALS, COMPONENTS, WATER MAIN, AND APPURTENANCES SHALL CONFORM TO AND BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION, VERSION, OR EDITION OF AWWA, ASCE, OEPa, ODOT, AND/OR ALRW STANDARDS.
2. MATERIALS SHALL ONLY BE APPROVED "AS EQUAL" BY ALRW.
3. ALL PIPE AND APPURTENANCES SHALL BE NSF-61 CERTIFIED FOR USE WITH POTABLE WATER.
4. ALL BURIED FASTENERS SHALL BE STAINLESS STEEL.

1. ALL NEW 4", 6", 8", & 12" WATER MAIN PIPE SHALL BE MOLECULARLY-ORIENTED POLY VINYL CHLORIDE (PVC) PER ANSI/AWWA C909, LATEST REVISION, PRESSURE CLASS 235 PSIG, CAST-IRON OUTSIDE DIAMETER (CIOD), AND BLUE IN COLOR.
2. FOR NEW WATER MAINS GREATER THAN 12", ALL PIPE SHALL BE POLY VINYL CHLORIDE (PVC) PER ANSI/AWWA C909, LATEST REVISION, PRESSURE CLASS 235 PSIG, CAST-IRON OUTSIDE DIAMETER (CIOD), AND BLUE IN COLOR.
3. FOR NEW WATER MAINS SMALLER THAN 4", ALL PIPE SHALL BE POLYETHYLENE PER ANSI/AWWA C901, LATEST REVISION, PRESSURE CLASS 250 PSIG, COPPER TUBE SIZE (CTS), AND BLUE IN COLOR.
4. ALL WATER MAIN TO BE DIRECTIONALLY DRILLED SHALL BE CERTA-LOK OR EAGLE-LOC POLY VINYL CHLORIDE (PVC) PER ANSI/AWWA C909, LATEST REVISION, PRESSURE CLASS 235 psig, CAST-IRON OUTSIDE DIAMETER (CIOD), AND BLUE IN COLOR.

1. ALL FIRE HYDRANTS SHALL BE A MUELLER SUPER-CENTURION A423 WITH TWO 2-1/2" HOSE PORTS WITH STANDARD CITY THREADS AND ONE 5-1/4" STORZ PUMPER NOZZLE PER AWWA C502, LATEST REVISION. ALL HYDRANTS SHALL BE PAINTED YELLOW WITH A WHITE BONNET.
2. ALL AUTOMATIC FLUSHING UNITS SHALL BE MUELLER HG-4.

1. ALL MAIN LINE VALVES SHALL BE MUELLER RESILIENT WEDGE STYLE GATE VALVES CONFORMING TO ANSI/AWWA C-509, LATEST REVISION. VALVES SHALL HAVE A NON-RISING-STEM AND SHALL OPEN LEFT-HANDED (COUNTER CLOCKWISE). ALL FASTENERS SHALL BE STAINLESS STEEL.
2. ALL VALVE BOXES SHALL BE COATED CAST IRON, TWO-PIECE ADJUSTABLE, WITH "WATER" IMPRINTED ON THE LID.



**Avon Lake
Regional Water**
Serving the region,
protecting our resource.
ENGINEERING DIVISION

1. ALL DUCTILE IRON FITTINGS SHALL BE IN ACCORDANCE WITH ANSI/AWWA C153, LATEST REVISION. FITTINGS SHALL BE CEMENT-LINED IN ACCORDANCE TO AWWA C-104, LATEST REVISION.
2. ALL PUSH-ON AND MECHANICAL JOINTS SHALL CONFORM TO ANSI/AWWA C111/A21, LATEST REVISION.
3. ALL MECHANICAL JOINTS SHALL CONFORM TO AWWA C153, LATEST REVISION. DUCTILE IRON (D.I.) FITTINGS, VALVES, TEES & REDUCERS SHALL BE "MEGA-LUG" MECHANICALLY RESTRAINED JOINTS (M.J.x M.J.) WITH STAINLESS STEEL FASTENERS.
4. ALL MECHANICAL JOINT RESTRAINS SHALL BE EBBA IRON SERIES 19M300 OR SIGMA ONE-LOK FOR C909 PVC/C WITH SPLIT SERRATED RESTRAINT RINGS.

1. ALL POLYETHYLENE ENCASEMENTS SHALL CONFORM TO ANSI/AWWA C105/A21.5, LATEST REVISIONS. ENCASEMENTS SHALL BE BLUE IN COLOR.

1. ALL WATER SERVICE TAP SADDLES SHALL BE STAINLESS STEEL WITH A RUBBER GASKET.
2. ALL COPPER SHALL BE SOFT DRAWN TYPE K WITH A MINIMUM WORKING PRESSURE OF 75 PSI PER ASTM B88.
3. ALL METER VAULTS SHALL BE OF PLASTIC CONSTRUCTION WITH CUTOUTS FOR PASSAGE OF PIPES.
4. ALL CURB STOP BOXES SHALL BE MUELLER H-1030 WITH STAINLESS STEEL RODS.
5. ALL CORPORATION STOPS SHALL BE BALL-VALVE TYPE, MUELLER B-25000N.
6. CURB STOPS SHALL BE BALL-VALVE TYPE, MUELLER B-25204N.
7. SERVICE LINES CAPS SHALL USE A MUELLER H15452N COUPLER & MUELLER H-10035N PLUG.



**Avon Lake
Regional Water**
Serving the region,
protecting our resource.
ENGINEERING DIVISION

1. THE PROPOSED WATER MAIN SHALL BE INSTALLED IN ACCORDANCE WITH ANSI/AWWA C600 & C605, LATEST REVISIONS, AND ALRW RULES & REGULATIONS SCHEDULE F-1.
2. ALL WORK ON THE PUBLIC WATER DISTRIBUTION SYSTEM, OR WATER MAINS TO BECOME PART OF THE PUBLIC WATER DISTRIBUTION SYSTEM, SHALL BE UNDER THE DIRECT SUPERVISION OF AN ALRW FIELD REPRESENTATIVE.
3. ALL PIPE LENGTHS AND DISTANCES INDICATED ARE APPROXIMATE AND FOR GENERAL REFERENCE INFORMATION ONLY.
4. THE MINIMUM COVER OVER THE PROPOSED WATER LINE AT FINAL GRADE SHALL BE 4.5 FEET, MEASURED FROM THE TOP OF THE PIPE TO FINAL GRADE.
5. A MINIMUM OF FIVE FEET (5') UNDISTURBED EARTH FROM THE FACE OF THE POLE TO THE TRENCH WALL MUST BE MAINTAINED OR THE POLE MUST BE HELD BY THE EFFECTED UTILITY. THE COST OF HOLDING THE POLE SHALL BE PAID FOR BY CONTRACTOR. CONTRACTOR SHALL VERIFY MINIMUM CLEARANCE WITH THE RESPECTIVE OVERHEAD UTILITY DURING THE BIDDING PROCESS.
6. A ONE (1) YEAR WARRANTY, COMMENCING FROM ACCEPTANCE OF THE WATER MAIN AND DATE OF PLACEMENT INTO SERVICE, SHALL BE PROVIDED BY THE CONTRACTOR TO ALRW FOR THE WATER MAIN, SERVICE CONNECTION AND APPURTENANCES FOR WORK PERFORMED BY THE CONTRACTOR SHOULD ANY LEAKS, COMPONENT FAILURE OR BLOCKAGE, AND ALL REPAIRS THAT ARE REQUIRED DUE TO DEFECTIVE MATERIAL OR POOR WORKMANSHIP.
7. THE CONTRACTOR SHALL BE REQUIRED TO FURNISH ACTUAL FIELD MEASUREMENTS OF THE WATER MAIN DURING INSTALLATION INCLUDING DEPTH FROM GRADE TO TOP OF PIPE, LOCATION OF CORPORATIONS, INSTALLED LENGTHS AND CHANGE IN ALIGNMENTS. THE FORM SHALL BE IN A NEAT AND CLEAR MARKUP IN RED INK ON A FULL SIZE SET OF PROJECT PLANS.
8. THE CONTRACTOR SHALL EXPECT NUMEROUS LOCATIONS ALONG THE EXISTING WATER MAIN WHERE PREVIOUS REPAIRS HAVE BEEN MADE TO THE MAIN BY ALRW. THEREFORE NON-VIRGIN SOIL CONDITIONS, TRENCH WATER AND AGGREGATE BACK FILL SHALL BE EXPECTED.

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING WATER MAIN AND APPURTENANCES THEREOF WHEN CONNECTING THE NEW WATER MAIN FOR THE HYDROSTATIC TEST. ALL REPAIRS TO DAMAGED EXISTING FACILITIES SHALL BE MADE BY THE CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, TO THE SATISFACTION OF ALRW.
2. ALL NEWLY INSTALLED VALVING AND FIRE HYDRANTS AND WATER VALVING SHALL BE FULLY CLOSED PRIOR TO ANY LINE FILLING OR TESTING.



**Avon Lake
Regional Water**
Serving the region,
protecting our resource.
ENGINEERING DIVISION

1. THE CONTRACTOR SHALL UTILIZE #57 PREMIUM LIMESTONE FOR ALL PIPE BEDDING, CHOKED ON BOTH SIDES OF THE PIPE FOR THE ENTIRE LENGTH, AND CONSOLIDATED TO PROPERLY SUPPORT THE WATER LINE. FOR WATER MAINS 12" DIAMETER AND SMALLER, #8 PREMIUM LIMESTONE MAY BE USED IN LIEU OF #57.
2. DEFLECT PROPOSED WATER MAINS ONLY PER MANUFACTURER'S SPECIFICATIONS.
3. THE CONTRACTOR SHALL REMOVE THE EXISTING WATER MAIN AND APPURTENANCES AS REQUIRED DURING INSTALLATION OF THE PROPOSED WATER MAIN. EXISTING WATER MAINS AND APPURTENANCES NOT REMOVED SHALL BE ABANDONED IN PLACE UNLESS OTHERWISE DIRECTED.
4. CONTRACTOR SHALL MITIGATE POTENTIAL SEWER LATERAL CROSSING CLEARANCE CONFLICTS WITH THE PROPOSED WATER MAIN BY LEAVING AT LEAST FIVE (5) FULL PIPE STICKS OF TRENCH OPEN, THUS ALLOWING THE CONTRACTOR AMPLE LENGTH TO VERTICALLY DEFLECT (+/-) THE PROPOSED WATER MAIN PER MANUFACTURER'S RECOMMENDATIONS FOR DEFLECTION.
5. TRENCH DE-WATERING EQUIPMENT SHALL BE READILY AVAILABLE AND ON SITE NEAR THE CURRENT WORK TO DE-WATER THE TRENCH IF REQUIRED BY GROUND CONDITIONS. THE OPEN END OF THE NEWLY INSTALLED WATER MAIN SHALL BE BLOCKED WITH A WATER-TIGHT PLUG TO PREVENT EXCAVATION MATERIAL OR CONTAMINATION FROM ENTERING THE NEWLY INSTALLED PIPE SECTION. THE CONTRACTOR SHALL INSTALL A WATER-TIGHT PIPE PLUG INTO THE OPEN END OF THE LAST STICK INSTALLED THAT DAY.
6. ALL NEW COPPER SERVICE SECTIONS SHALL BE 100% FREE OF KINKS, BENDS, OR REDUCED CROSS SECTIONAL AREA AS A RESULT OF FIELD FORMING OPERATIONS, CONNECTION BY MECHANICAL FLANGING.

1. THE OPERATION OF ANY PUBLIC VALVE OR HYDRANT, OR THE ALTERATION OF ANY PART OF THE EXISTING WATER SYSTEM, BY CONTRACTORS OR THEIR EMPLOYEES IS PROHIBITED WITHOUT THE SUPERVISION OF AN ALRW FIELD REPRESENTATIVE.
2. NEW FIRE HYDRANTS SHALL BE FREE OF DIRT, RUST AND MARKS. CAP CHAIN CABLES SHALL BE INSTALLED. FINAL GRADE TO ALLOW FULL ROTATION OF HYDRANT WRENCH AND BAG ALL NEW HYDRANTS NOT IN SERVICE. THE NEW FIRE HYDRANT SHALL BE SUCH THAT THE FRANGIBLE FLANGE IS FLUSH OR ABOVE FINAL GRADE, AS APPROVED BY A.L.R.W. THE UNIT BID PRICE SHALL INCLUDE THE NECESSARY RISER SECTION WITH RISER KIT HARDWARE, AS REQUIRED TO ACHIEVE THE CORRECT HEIGHT, AT NO ADDITIONAL COST TO THE OWNER.
3. RESILIENT WEDGE GATE VALVES SHALL BE INSTALLED WITH FRICTION CLAMP ASSEMBLIES, LUGS, ALL THREADED RODS, WASHERS, NUTS, AND T-BOLTS/NUTS. ALL OF WHICH SHALL BE STAINLESS STEEL . ASPHALT COAL TAR DUC-LUGS & FRICTION CLAMP ASSEMBLIES.
4. FOR EACH VALVE CONTRACTOR SHALL INSTALL NEW TWO-PIECE CAST IRON VALVE BOX WITH LID STAMPED "WATER".



**Avon Lake
Regional Water**
Serving the region,
protecting our resource.
ENGINEERING DIVISION

1. PRIOR TO ANY DISRUPTION OF WATER SERVICE, THE CONTRACTOR SHALL COORDINATE WITH ALRW FOR THE NOTIFICATION OF RESIDENTS.
2. DURING TIE-INS CONTRACTOR SHALL INSTALL ALL NEW RESILIENT WEDGE GATE VALVE ASSEMBLIES AT ALL SIDE STREET / MAIN TIE-INS POINTS FIRST.
3. AT ALL TIE-IN LOCATIONS, PROVIDE FOR SUFFICIENT DE-WATERING PITS AND PUMPING AT THE NEW RESILIENT WEDGE GATE VALVE ATTACHMENT TO EXISTING WATER MAINS. ALRW SHALL DIRECT ALL WORK IN REGARDS TO CUTTING IN NEW RESILIENT WEDGE GATE VALVES. IF A TEMPORARY BYPASS WATER MAIN IS UTILIZED, THIS WORK SHALL BE PERFORMED FIRST AFTER ALL OF THE TEMPORARY WATER MAIN IS INSTALLED AND PLACED INTO SERVICE PRIOR TO ANY EXCAVATION OR INSTALLATION OF NEW WATER MAIN.
4. AT ALL TIE-IN LOCATIONS, INSTALL 2" SAMPLING BLOW OFF TAPS WITH CORP ASSEMBLIES PER ALRW STANDARD **ALRW-WAT-010**.
5. FOR TIE-INS & REPAIRS, DISINFECT ALL PIPE AND APPURTENANCES BY SWABING WITH A 65% HTH SOLUTION AND FLUSHING WITH PORTABLE WATER, PRIOR TO INSTALLATION, AS DIRECTED BY ALRW.
6. THE CONTRACTOR SHALL SCHEDULE ALL FLUSHING, BACTERIA TESTING, PRESSURE TESTING, AND BACTERIA CHECK SAMPLE TESTING WITH ALRW. A FORTY-EIGHT (48) HOUR MINIMUM NOTICE IS REQUIRED FOR ALL SCHEDULING. THE COSTS FOR LABOR, MATERIAL AND EQUIPMENT TO SUCCESSFULLY COMPLETE THE TESTS SHALL BE INCIDENTAL TO THE UNIT BID COSTS OF THE WATER MAIN COMPLETELY INSTALLED AND ACCEPTED BY ALRW.
7. CONTRACTOR SHALL COORDINATE WITH ALRW TO SCHEDULE ALL WATER MAIN TIE-INS. ALRW SHALL DIRECT ALL OPERATIONS DURING THE TIE-IN, PRIOR TO THE MAIN LINE EXCAVATION / INSTALLATION

1. ALL JOINTS AT FITTINGS SHALL BE "MEGA-LUG" MECHANICAL RESTRAINED JOINTS (MxMxM) WITH STAINLESS STEEL FASTENERS. MECHANICAL JOINT PER AWWA C153. LATEST REVISION
2. ALL METALLIC FITTINGS AND APPURTENANCES SHALL BE DOUBLE POLY-WRAPPED AND CINCHED TIGHT WITH PLASTIC ZIP TIES OR DOUBLE-WRAPPED WITH POLY-WRAP TAPE. THERE SHALL BE NO LOOSE PORTIONS OF THE POLY-WRAP. D
3. ALL COUPLINGS SHALL BE CENTERED OVER THE ENDS OF BOTH PIPE SECTIONS.
4. PIPE AND / OR FITTINGS & APPURTENANCES MAY NEED TO BE ROTATED IN HORIZONTAL AND / OR VERTICAL PLANE FOR ALIGNMENT/ CONNECTION PURPOSES. CONTRACTOR SHALL EXCAVATE OVER EXISTING WATER MAINS TO DETERMINE TYPE OF FITTINGS, JOINTS, ELEVATIONS, ORIENTATIONS, LOCATIONS, ANGLE OF ROTATION TO DETERMINE THE REQUIRED HARDWARE NEEDED TO COMPLETE THE TASK. CONTRACTOR SHALL COORDINATE ALL RECONNECTIONS TO EXISTING ACTIVE WATER MAINS WITH ALRW 48 HOURS IN ADVANCE.



**Avon Lake
Regional Water**
Serving the region,
protecting our resource.
ENGINEERING DIVISION

1. THE PRE-CONSTRUCTION VIDEO TAPING SHALL INCLUDE DETAILED VIDEO OF ALL PAVEMENT DISTRESS LOCATIONS ALONG THE PROJECT SIDE WITH WHITE PAINTED HASH MARKS TO DELINEATE CRACKS.
2. THE CONTRACTOR SHALL NOT BLOCK OR HINDER ACCESS TO RESIDENTIAL DRIVEWAYS WITH EQUIPMENT OR ANY DELIVERED MATERIAL.
3. THE CONTRACTOR SHALL MAINTAIN ALL VEHICULAR AND PEDESTRIAN TRAFFIC AND MAINTAIN MINIMUM SIGHT DISTANCE AROUND ALL CONSTRUCTION EQUIPMENT OPERATIONS AND MATERIAL.
4. CONTRACTOR TO USE A RUBBER WHEEL BACK HOE OR RUBBER TRACK MINI-EXCAVATOR IN LIEU OF A STEEL TRACKED MACHINE WITH STEEL PLATE PROTECTION TO PREVENT DAMAGE TO THE EXISTING ASPHALT PAVEMENT. CONTRACTOR SHALL BE HELD 100% ACCOUNTABLE FOR ANY AND / OR ALL PAVEMENT DAMAGE AS A RESULT OF HIS EQUIPMENT AND / OR HIS SUBCONTRACTORS.
5. THE CONTRACTOR SHALL USE 4000 PSI HIGH EARLY CONCRETE (24 HOUR SET-OPEN TO TRAFFIC) WITH STEEL WIRE REINFORCEMENT ON ALL CONCRETE DRIVEWAY APRON REPLACEMENTS.
6. COMPLETELY SEAL WITH APPROVED LIQUID ASPHALT TACK COAT MATERIAL ALL EXPOSED JOINTS, ASPHALT SURFACES AND METAL SURFACES THAT WILL COME INTO CONTACT WITH THE NEW ASPHALT PAVEMENT REPAIR. ALL PAVEMENT CUTS SHALL BE SAW CUT CLEAN AND TRUE.

1. SOIL REPLACEMENT FOR RESTORATION SHALL EXCLUDE DEBRIS SUCH AS STICKS, STONES, CONSTRUCTION MATERIAL AND DEAD GRASS.
2. TREE LAWN RESTORATION SHALL INCLUDE RESTORATION OF ALL EXISTING DRAINAGE SWALE(S) WITHIN THE PROJECT LIMIT, WATER MAIN SIDE, FOR SLOPE, GRADE, FLOW DIRECTION AND RE-GRADE OF AREA TO INSURE SIDEWALK SLOPES TO SWALE AND PAVEMENT E.O.P. SLOPES TO SWALE. THE CONTRACTOR SHALL REMOVE ANY AND ALL EXISTING HIGH SPOTS WITHIN THE PROJECT LIMITS BETWEEN THE SIDEWALK AND E.O.P..
3. THE CONTRACTOR SHALL REINSTALL ALL SLOPED (DEPRESSED) DRIVEWAY APRONS TO THEIR ORIGINAL SLOPE, GRADE AND ELEVATION TO FACILITATE STORM WATER DRAINAGE, PRE-CONSTRUCTION ELEVATION MEASUREMENTS ARE REQUIRED PRIOR TO ANY DISTURBANCE.
4. CONTRACTOR SHALL REPAIR ALL DAMAGED C.M.P DRIVEWAY PIPES AND INSURE ALL ENDS ARE FULL BORE DIAMETER OPEN AND CLEANED OUT FROM CONSTRUCTION DEBRIS AND SOIL. RE-GRADE ALL SWALES TO MATCH POST CONSTRUCTION FLOW PROFILE, SLOPE AND DIRECTION BETWEEN DRIVEWAYS. THE CONTRACTOR SHALL TAKE ELEVATION SHOTS FOR EACH DRIVEWAY PIPE, PRIOR TO DISTURBANCE AND SECONDLY AFTER INSTALLATION AS A QUALITY CONTROL CHECK TO INSURE THE INSTALLED PIPE IS AT THE CORRECT ELEVATION. ADJUSTMENTS IN ELEVATION MAYBE REQUIRED TO FACILITATE PROPER DRAINAGE IN LIEU OF PRE CONSTRUCTION ELEVATION OF INVERT



**Avon Lake
Regional Water**
Serving the region,
protecting our resource.
ENGINEERING DIVISION

1. THE COSTS FOR LABOR, MATERIAL, TOOLS, AND EQUIPMENT TO REMOVE AND REINSTALL ANY TRAFFIC CONTROL POST/SIGN IN CONFLICT WITH THE EXCAVATION SHALL BE INCIDENTAL TO THE UNIT COST BID OF THAT PARTICULAR BID ITEM BEING INSTALLED/PERFORMED.
2. THE CONTRACTOR SHALL LOCATE ALL IN-GROUND LAWN SPRINKLER SYSTEMS AND INVISIBLE PET FENCES BY CONTACT WITH THE RESPECTIVE RESIDENTS WITHIN THE PROJECT LIMITS THAT MAY BE EFFECTED BY THE CONSTRUCTION OPERATIONS. ANY DAMAGE TO LAWN SPRINKLERS OR INVISIBLE FENCES SHALL BE REPAIRED AND COSTS BORNE BY THE CONTRACTOR.
3. CONTRACTOR SHALL EXPECT A DENSE, THICK AND DEEP ROOT SYSTEM WITHIN THE TREE LAWN AREA WHERE MATURE TREES ARE PRESENT. THE COST FOR LABOR, EQUIPMENT AND MATERIAL TO EXCAVATE THRU THESE AREAS SHALL BE INCIDENTAL TO THE UNIT BID COST OF THE WATER MAIN INSTALLED, TESTED AND ACCEPTED.
4. ALL REQUIRED WORK TO INSTALL THE PROPOSED WATER MAIN INCLUDING MATERIALS, LABOR, TOOLS, EQUIPMENT, AND PERMITS, WHETHER INDICATED ON THESE PLANS OR FOUND IN THE BID SPECIFICATION AND CONTRACT DOCUMENTS, AND BASED UPON THE CONTRACTORS FIELD SITE INSPECTION, SHALL BE INCLUDED IN THE UNIT COST OF WATER MAIN INSTALLED COMPLETE, TESTED, AND ACCEPTED BY THE OWNER.
5. INSTALLATION OF ALL JOINTS, FITTINGS, SPECIALS, CLOSURE, COUPLING(S), APPURTENANCES, SLEEVES, TEES, ANCHOR TEES, AND JOINTING AND GASKETING MATERIALS REQUIRED TO COMPLETE THE WATER LINE INSTALLATION SHALL BE CONSIDERED INCIDENTAL AND INCLUDED IN THE UNIT BID PRICES OF THAT PARTICULAR BID ITEM BEING INSTALLED/PERFORMED.
6. THE UNDERGROUND UTILITIES INDICATED WITHIN THE PROJECT LIMITS ARE SHOWN ACCORDING TO INFORMATION FURNISHED BY THE RESPECTIVE UTILITIES CONCERNED. THEIR ACCURACY, LOCATION, DEPTH, SIZE, ORIENTATION, SLOPE, ABOVE GROUND FEATURES, AND APPURTENANCES ARE NOT GUARANTEED BY REPRESENTATION ON THE PLAN SHEETS. THEREFORE, THE UTILITIES SHALL BE VERIFIED AND/OR RECHECKED OR ESTABLISHED BEFORE ANY TYPE OF UNDERGROUND EXCAVATION BEGINS OR IS ATTEMPTED BY THE CONTRACTOR. UNDERGROUND EXCAVATION FOR ITEMS CONTAINED WITHIN THIS PROJECT SHALL INCLUDE ROD PROBING AND / OR CHECKING EXCAVATION DEPTH, HAND DIGGING AS REQUIRED OR AS DIRECTED BY EACH UTILITY COMPANY CONCERNED AND TEMPORARY SUPPORT OF SERVICE(S) AS NECESSARY. THE UNIT COST FOR EACH OF THESE ACTIVITIES SHALL BE INCIDENTAL TO THE UNIT COST BID OF THAT PARTICULAR BID ITEM BEING INSTALLED/PERFORMED. UTILITIES SHOWN ARE APPROXIMATE, AND WERE DERIVED FROM UTILITY COMPANY RECORDS. VARIOUS PLANS PREPARED BY OTHERS, AND FIELD MEASUREMENTS WHEN POSSIBLE. CONTRACTOR SHALL CONTACT THE OHIO UTILITIES PROTECTION SERVICE AT 1-800-362-2764 BEFORE ATTEMPTING EXCAVATION. IF INCLUDED, THE CONTRACTOR SHALL THOROUGHLY REVIEW ATTACHED REFERENCE SHEETS FOR ADDITIONAL UNDERGROUND UTILITIES THAT ARE WITHIN THE PROJECT AREA. THE LOCATION(S) SHALL BE CALLED IN A MINIMUM OF TWO (2) WEEKS PRIOR TO ANY PLANNED EXCAVATION TO MITIGATE ANY UNDERGROUND CONFLICTS.
7. THE FIELD LOCATION OF THE EXISTING WATER MAIN, LATERAL SERVICE CONNECTIONS, AND ALL OTHER UNDERGROUND UTILITIES WITHIN THE PROJECT WORK LIMITS ARE BASED UPON RECORD DRAWINGS(S) THAT HAVE BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS, WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ALRW ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE RECORD DRAWINGS OR FOR ANY ERRORS AND/OR OMISSIONS THAT MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT OF INCORRECT INFORMATION PROVIDED TO THE DEPARTMENT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT FIELD VERIFICATION OF ITS ACCURACY, AND TO OBTAIN REPRESENTATION OR WARRANTY OF ACCURACY FROM THE GROUP OR INDIVIDUALS WHOSE RESPONSIBILITY FOR RELIANCE THIS ASSUMED THAT THEY SHALL BE ABLE TO MAKE A DIRECT, INDEPENDENT, AND/OR INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, LOSS OF ANTICIPATED PROFITS OR BENEFITS ARISING OUT OF OR RELIANCE ON SAID INFORMATION.



**Avon Lake
Regional Water**
Serving the region,
protecting our resource.
ENGINEERING DIVISION

1. ALL WORK SHALL COMPLY WITH THE 10 STATES STANDARDS RECOMMENDED STANDARDS FOR WATERWORKS AND ALL APPLICABLE AWWA, ANSI, OHIO EPA, AND ALRW STANDARDS, LATEST REVISIONS.
2. ALL DISINFECTION MEANS AND METHODS SHALL CONFORM TO ANSI/AWWA C651, LATEST REVISION.
3. ALL CHLORINE SHALL BE GRANULATED, NO CHLORINE TABLETS SHALL BE USED.
4. THE CONTRACTOR SHALL GIVE A MINIMUM OF FORTY- EIGHT (48) HOURS NOTICE PRIOR TO EACH TASK REQUIRED FOR THE INSTALLATION & TESTING OF THE WATER LINE. THE CONTRACTOR SHALL COORDINATE ALL WATER LINE WORK WITH ALRW. DISTRIBUTION AND COLLECTION OF ALRW SHALL BE CONTACTED AND CAN BE REACHED AT (440) 933-6226.
5. THE CONTRACTOR SHALL CUT-IN & INSTALL THE PROPOSED RESILIENT WEDGE GATE VALVES WITH THE TWO (2) INCH COPPER FLUSH FITTINGS FIRST PRIOR TO REMOVING THE EXISTING WATER MAIN AT ALL TIE-IN POINTS.
6. DURING TIE-INS AND REPAIRS, ALL PIPES, VALVES, AND APPURTENANCES SHALL BE THOROUGHLY DISINFECTED WITH 60% HTH SOLUTION BY SWABING UNDER THE DIRECT SUPERVISION OF ALRW.
7. UPON COMPLETION OF THE PROPOSED WATER MAIN, THE CONTRACTOR SHALL HAVE ALRW FLIT THE LINE AND ALLOW A MINIMUM OF TWENTY-FOUR (24) HOURS FOR CHLORINE CONTACT TIME FOR DISINFECTION. AFTER THE DISINFECTION PERIOD, THE CONTRACTOR SHALL HAVE ALRW PERFORM A LONG FLUSH AND A SHORT FLUSH WITH SAMPLES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PLACING OF ALL HOSES FOR FLUSHING.
8. AFTER ALRW HAS DETERMINED THE FLUSHING SAMPLES TO BE ACCEPTABLE, THE CONTRACTOR SHALL PERFORM A HYDROSTATIC PRESSURE TEST OF THE NEW WATER MAIN. THE PRESSURE TEST SHALL BE AT 150 PSIG FOR FOUR (4) HOURS WITH A 5 PSIG DROP ALLOWED BEFORE MAKE-UP WATER MUST BE USED. THE ALLOWABLE MAKE UP WATER SHALL BE DETERMINED BY:

FAILURE OF THE TEST SHALL RESULT IN A RESTART OF THE FOUR HOUR TESTING PERIOD.

9. AFTER A SUCCESSFUL HYDROSTATIC TEST, THE CONTRACTOR SHALL PERFORM ALL SERVICE TAPS AND INSTALL ALL SERVICE LINES. ONCE ALL SERVICE LINES ARE INSTALLED, A VISUAL LEAK CHECK SHALL BE PERFORMED AT ALL SERVICE LINE JOINTS UNDER SYSTEM PRESSURE.
10. AFTER SUCCESSFUL COMPLETION OF THE HYDROSTATIC TEST AND VISUAL LEAK CHECK, ALRW SHALL PERFORM A BACTERIA CHECK SAMPLE.
11. ALL DISINFECTION SAMPLING POINTS SHALL BE LEFT EXPOSED DURING BACKFILLING UNTIL BACTERIA TESTING, PRESSURE TESTING, AND BACTERIA CHECK TESTING IS COMPLETED AND APPROVED BY THE CITY. AFTER COMPLETED, COUPLING THE CORPORATION STOPS SHALL BE LEFT IN PLACE ON THE WATER MAIN WITH A ONE FOOT (1') EXTENSION OF THE TWO INCH (2") COPPER TUBING CRIMPED AND FOLDED TWICE OVER AND HAMMERED FLAT.



**Avon Lake
Regional Water**
Serving the region,
protecting our resource.
ENGINEERING DIVISION

1.

ALL NEW WATER MAIN INSTALLATIONS SHALL INCLUDE THE INSTALLATION OF TRACER WIRE, JUNCTIONS, CONNECTIONS, AND TEST PORTS ON ALL PVC C900, PVCO (C909) AND HDPE PLASTIC (POLYMER) WATER MAINS. 14 AWG GAUGE OR THICKER INSULATED COPPER WIRE SHALL BE INSTALLED AND ALL COSTS FOR MATERIALS, TOOLS, LABOR AND EQUIPMENT ARE INCIDENTAL TO THE UNIT COSTS PER LINEAR FOOT OF WATER MAIN (ANY SIZE) INSTALLED COMPLETE, TESTED AND ACCEPTED BY THE OWNER. TAKE CARE TO PROTECT THE WIRE INSULATION. WIRE SHALL BE APPROVED FOR DIRECT BURIAL USE.

2.

TRACER WIRE FOR DIRECT BURY INSTALLATIONS SHALL BE #14 AWG COPPER CLAD STEEL WIRE AS MANUFACTURED BY COPPERHEAD INDUSTRIES, #14 AWG SOLID COPPER WIRE WITH 30 MIL HIGH MOLECULAR WEIGHT POLYETHYLENE INSULATION AS MANUFACTURED BY AGAVE WIRE LTD, OR OWNER APPROVED EQUAL.

3.

TRACER WIRE FOR WATER MAINS INSTALLED BY DIRECTIONAL BORING SHALL BE #12 OR #10 AWG COPPER CLAD STEEL WIRE AS MANUFACTURED BY COPPERHEAD INDUSTRIES, OR OWNER APPROVED EQUAL.

4.

TRACER WIRE TEST STATIONS SHALL BE BLUE TRI-VIEW PLASTIC MARKERS BY RHINO W/TEST SCREWS - 4 FT U-CHANNEL POSTS.

5.

DIRECT BURY WIRE NUTS SHALL BE DRYCONN DIRECT BURY WIRE NUT (10444) MANUFACTURED BY KING INNOVATION, DBY-6 OR DBR-6 AS MANUFACTURED BY 3M, OR OWNER APPROVED EQUAL. DIRECT BURY LUGS SHALL BE DRYCONN DIRECT BURY LUG AS MANUFACTURED BY KING INNOVATION OR OWNER APPROVED EQUAL.

6.

TRACER WIRE SHALL BE ACCESSIBLE AT ALL VALVE BOX TOP SECTIONS, INCLUDING FIRE HYDRANT WATCH VALVES. BRING TRACER WIRE TO SURFACE AT EVERY CURB BOX, METER VAULT, BLUE PLASTIC MARKER WITH TRACER WIRE CONNECTORS, DEAD END HYDRANTS, AND AS CALLED OUT IN THE DRAWINGS. TRACER WIRE SHALL BE BROUGHT TO THE SURFACE AT LEAST EVERY ONE THOUSAND (1,000) FEET. TAKE CARE NOT TO DAMAGE THE WIRE COATING. REPAIR DAMAGED COATING WITH ELECTRICAL TAPE. DO NOT WRAP THE TRACER WIRE AROUND STEPS OR ANY OTHER PLACE WHERE A PERSON COULD TRIP ON THE WIRE.

7.

TRACER WIRE SHALL BE BROUGHT UP IN A PVC CONDUIT AT ALL DEAD ENDS OF MAIN FIRE HYDRANTS WITHOUT A VALVE AND AT HYDRANTS OF A NON-TYPICAL HYDRANT BRANCH (I.E. DOG-LEGGED HYDRANT BRANCH). TRACER WIRE SHALL BE BROUGHT TO THE SURFACE ACCORDING TO PLAN DETAIL. NOTE LOCATION OF PVC CONDUIT IN RELATION TO THE HYDRANT (I.E. NORTH, EAST, SOUTH OR WEST) ON AS-BUILT DRAWINGS. TRACER WIRE CONNECTION AT TEE OR BRANCH POINT TO BE MADE WITH DRYCONN 3-WAY DIRECT BURY LUG STYLE CONNECTOR OR OWNER APPROVED EQUIVALENT.

8.

TRACER WIRE IN BLUE PLASTIC PIPE LINE MARKER WHEN BRINGING THE TRACER WIRE UP IN A BLUE PLASTIC PIPE LINE MARKER, INSTALL THE TRACER WIRE ACCORDING TO PLANS, SPECIFICATIONS, MANUFACTURER'S RECOMMENDATIONS AND/OR AS DIRECTED BY THE OWNER. BURY A FOUR FOOT U-CHANNEL POST TWO FEET IN THE GROUND, RUN THE TRACER WIRE UP THROUGH THE MARKER AND SLIDE THE BLUE PLASTIC MARKER OVER THE POST. BURY THE BOTTOM SIX INCHES OF THE MARKER. CONNECT THE TRACER WIRE TO THE BRASS CONNECTING SCREWS AND LABEL THE SCREWS WITH A PERMANENT MARKER AS SHOWN. NOTE LOCATION OF TRACER WIRE PIPELINE MARKER ON AS-BUILT DRAWINGS. NOTE: IF A MARKER IS USED ONLY TO MARK THE MAIN LOCATION AND NOT BRING UP THE TRACER WIRE, USE THE BLUE MARKERS WITHOUT THE TRACER WIRE CONNECTORS.

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-004.1

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

1.

VALVE BOX SHALL BE ADJUSTED TO THE FINISHED GRADE PRIOR TO PLACEMENT OF CONCRETE.

2.

USE DEEP SKIRTED LID (4" OR MORE) TYPE, SLIDING ADJUSTABLE CAST IRON VALVE BOX C.I. MIN 30,000 P.S.I. GROUND BELOW THE CONCRETE RISER PAD TO BE COMPACTED 95% MAXIMUM DENSITY.

3.

GROUND BELOW THE CONCRETE RISER PAD TO BE COMPACTED 95% MAXIMUM DENSITY.

4.

CUT RISER PIPE TO LENGTH IN FIELD. CAUTION: IF EXISTING RISER IS ASBESTOS-CEMENT PIPE (ACP) FOLLOW OSHA GUIDELINES FOR WORKING WITH ACP.

5.

#5 REINFORCING STEEL HOOP EQUALLY CENTERED HORIZONTALLY & VERTICALLY.

6.

WATER VALVE EXTENSIONS SHALL BE INSTALLED WHEN THE DIMENSION FROM FINISH GRADE TO THE TOP OF THE OPERATING NUT EXCEEDS 5 FEET.

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-041.1

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

9.

TRACER WIRE CONNECTIONS JOINING ENDS OF TRACER WIRE: CONNECTIONS INTO EXISTING TRACER WIRE, CONNECTIONS INTO TRACER WIRE USED DURING WATER MAIN BORES, CONNECTIONS BETWEEN ONE SPOOL OF TRACER WIRE TO ANOTHER, AND OTHER SIMILAR CONNECTIONS SHALL BE MADE USING A DIRECT BURY WIRE NUT. WHEN CONNECTING TRACER WIRE ENDS TOGETHER, STRIP 5/8" OF INSULATION FROM THE END OF EACH WIRE. INSERT THE TWO ENDS FIRMLY INTO THE DIRECT BURY WIRE NUT. TWIST THE WIRE NUT CLOCKWISE WHILE PUSHING THE WIRES FIRMLY INTO THE NUT. DO NOT OVER TORQUE. TIE THE WIRES IN A KNOT AS SHOWN. JOINING TRACER WIRE - BRANCH TO MAIN: CONNECTIONS OF TRACER WIRE AT TEES, CROSSES, AND AT LOCATIONS WHERE THE TRACER WIRE WILL BE BROUGHT TO THE SURFACE SHALL BE CONDUCTED USING A DIRECT BURY LUG.

10.

TRACER WIRE SHALL BE INSTALLED IN A CONTINUOUS FASHION. INSTALL TRACER WIRE ON TOP OF WATER MAIN AND SECURE TO MAIN EVERY FIVE (5) FEET WITH TAPE AS DIRECTED.

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-004.2

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

CROSS OVER DETAIL

SCALE: NONE

1.

WATER MAINS AND SANITARY SEWER LINES OR FORCE MAINS SHALL BE SEPARATED BY MINIMUM CLEAR VERTICAL DISTANCE OR 18" AND HORIZONTAL DISTANCE OR 10'-0". WHEN THE ABOVE CAN NOT BE MAINTAINED, SEWER LINE SHALL BE CONCRETE ENCASED OR CLASS S2 D.I.P. USED A DISTANCE OR 10'-0" EACH WAY FROM WATER LINE.

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-020.1

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

NOTES:

1. VALVE BOX SHALL BE ADJUSTED TO THE FINISHED GRADE PRIOR TO PLACEMENT OF CONCRETE.

2. USE DEEP SKIRTED LID (4" OR MORE) TYPE, SLIDING ADJUSTABLE CAST IRON VALVE BOX C.I. MIN 30,000 P.S.I. GROUND BELOW THE CONCRETE RISER PAD TO BE COMPACTED 95% MAXIMUM DENSITY.

3. GROUND BELOW THE CONCRETE RISER PAD TO BE COMPACTED 95% MAXIMUM DENSITY.

4. CUT RISER PIPE TO LENGTH IN FIELD. CAUTION: IF EXISTING RISER IS ASBESTOS-CEMENT PIPE (ACP) FOLLOW OSHA GUIDELINES FOR WORKING WITH ACP.

5. #5 REINFORCING STEEL HOOP EQUALLY CENTERED HORIZONTALLY & VERTICALLY.

6. WATER VALVE EXTENSIONS SHALL BE INSTALLED WHEN THE DIMENSION FROM FINISH GRADE TO THE TOP OF THE OPERATING NUT EXCEEDS 5 FEET.

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-041.1

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

REPLACEMENT SECTION, TIE-IN OR MAIN EXTENSION
DETAIL OF CAST IRON LINE VALVE + BOX

SCALE: NONE

STANDARD VALVE WITH SAMPLING POINTS

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-010.1

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

CONCRETE PAVEMENT REPLACEMENT

NOTES:

1. ALL TRENCHES IN THE ROADWAY OR UNDER PAVEMENT, DRIVEWAYS, OR SIDEWALKS SHALL BE BACKFILLED WITH 10% PREMIUM LIMESTONE AND MECHANICALLY COMPACTED/CONSOLIDATED USING A VIBRATORY PLATE TAPPER IN 12" LIFTS. NO BLAST FURNACE SLAG OR CRUSHED CONCRETE SHALL BE USED UNLESS AUTHORIZED BY THE OWNER.

2. TRENCH WIDTH, SUPPORT, AND PROTECTION AS DETERMINED BY THE CONTRACTOR'S OPERATIONS AND/OR SOIL AND FIELD CONDITIONS.

3. ALL EXISTING PAVEMENT EDGES SHALL BE NEAT, CLEAN, AND SQUARE PRIOR TO PAVEMENT REPLACEMENT. FINAL CUTBACK WIDTH SHALL BE AS DETERMINED BY THE OWNER BASED UPON THE LIMIT OF COLLATERAL DAMAGE CAUSED BY THE UTILITY WORK. FINAL CUTBACKS SHALL NOT BE PERFORMED UNTIL ALL UTILITY WORK IS COMPLETE.

4. IMMEDIATELY PRIOR TO PAVEMENT REPLACEMENT IN ASPHALT ROADS, A BITUMINOUS LIQUID TACK COAT SHALL BE APPLIED UNIFORMLY TO 100% OF THE SURROUNDING ASPHALT PAVEMENT.

5. IF TRAFFIC IS TO CROSS TRENCH PRIOR TO PAVEMENT REPLACEMENT, TRENCH SHALL BE BROUGHT TO GRADE WITH COMPACTED/CONSOLIDATED LIMESTONE AND COVERED WITH STEEL PLATES. PLATES SHALL EXTEND AT LEAST 8' BEYOND THE TRENCH LIMITS.

6. COLD-PATCH ASPHALT SHALL ONLY BE USED FOR TEMPORARY REPAIRS. NO PERMANENT REPAIRS WITH COLD-PATCH ASPHALT SHALL BE PERMITTED.

7. ALL PAVEMENT REPAIRS SHALL BE INSPECTED BY THE OWNER'S REPRESENTATIVE, A FORTY-EGHT HOUR (48 HR) NOTICE IS REQUIRED FOR ALL INSPECTIONS.

8. ANY EXCAVATION UNDER EXISTING WATER MAIN(S) SHALL USE LSM-100 UP TO PIPE SPRING LINE. WRAP MAIN WITH POLY-WRAP AND TIE.

9. THIS DETAIL SHALL APPLY TO ANY WATER MAINS UNDER OR WITHIN 24" OF ANY PAVEMENT.

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-031.2

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

WATER MAIN CONNECTION
SIDE STREET TIE-IN DETAIL
ASSEMBLY INSTALLATION

SCALE: NONE/SPECIFIC ORIENTATION: NONE

STANDARD WATERLINE TRENCHES UNDER PAVEMENT

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-012.1

Avon Lake Regional Water

Serving the region, protecting our resources.

ENGINEERING DIVISION

** = TRENCH WIDTH, WALL SLOPE, SUPPORT, AND PROTECTION AS DETERMINED BY THE CONTRACTOR'S OPERATIONS AND/OR SOIL AND FIELD CONDITIONS.

PROVIDE 4" OF NEW TOPSOIL IN GRASS AREAS, ROLLED TO 3" FINAL THICKNESS MINIMUM.

ANY EXCAVATION UNDER EXISTING WATER MAIN(S) SHALL USE LSM-100 UP TO PIPE SPRING LINE. WRAP MAIN WITH POLYWRAP AND TIE.

NO BLAST FURNACE SLAG OR CRUSHED CONCRETE SHALL BE USED AS PIPE BEDDING AND / OR BACKFILL.

THIS DETAIL SHALL NOT APPLY TO TRENCHES LOCATED UNDER OR WITHIN 24" OF ANY PAVEMENT.

ISSUED: 03/29/2024

BY: JRG

REVISED:

BY:

DRAWING NO.

ALRW-WAT-030.1

Avon Lake Regional Water

Serving the region, protecting our resources.

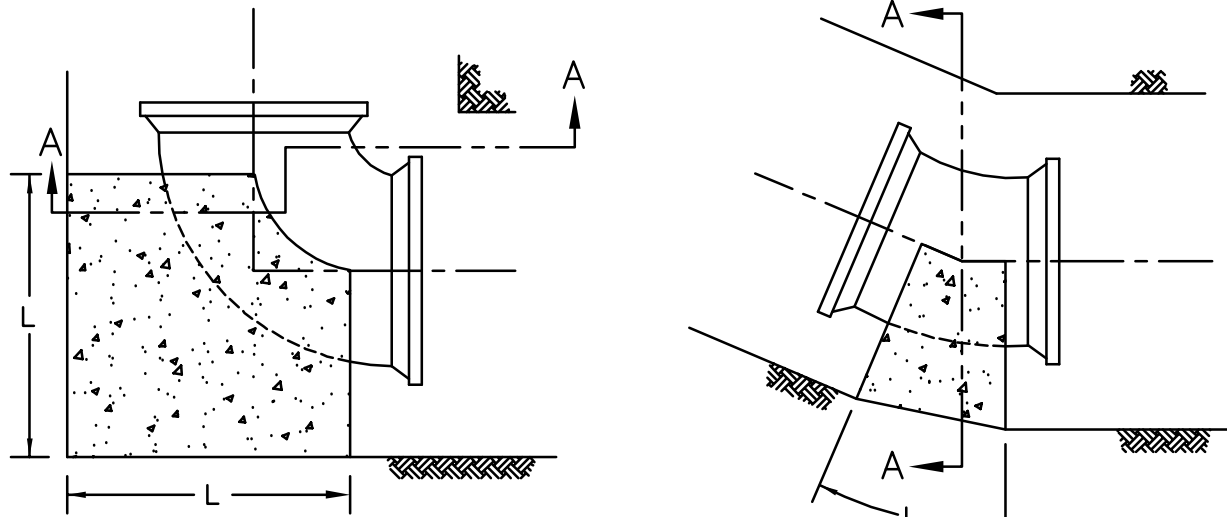
ENGINEERING DIVISION

HARBOR CREST
TOWNHOUSE SUBD. NO. 2
WATER DETAIL SHEET

THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

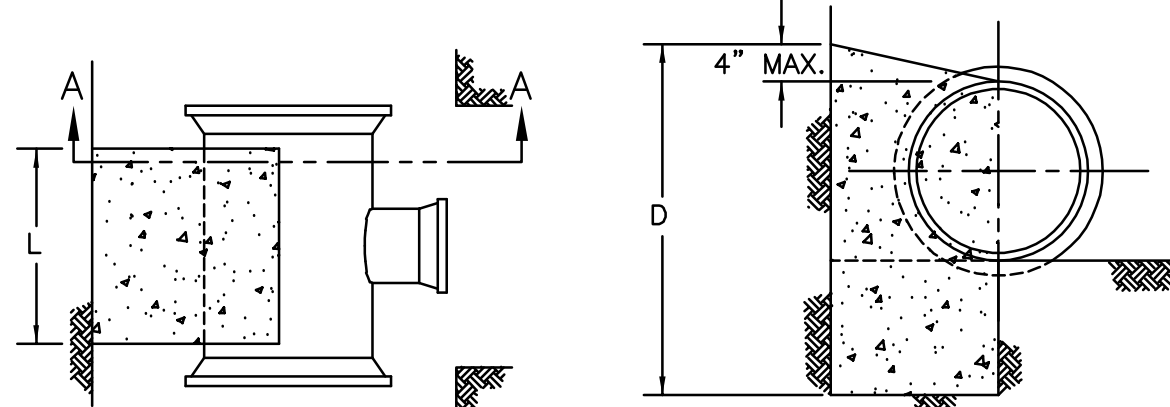
12/14
OCTOBER 2025

REVISIONS



90° BENDS

BENDS LESS THAN 90°



TEES

SECTION A-A

CONCRETE BLOCKING FOR HORIZONTAL BENDS AND TEES

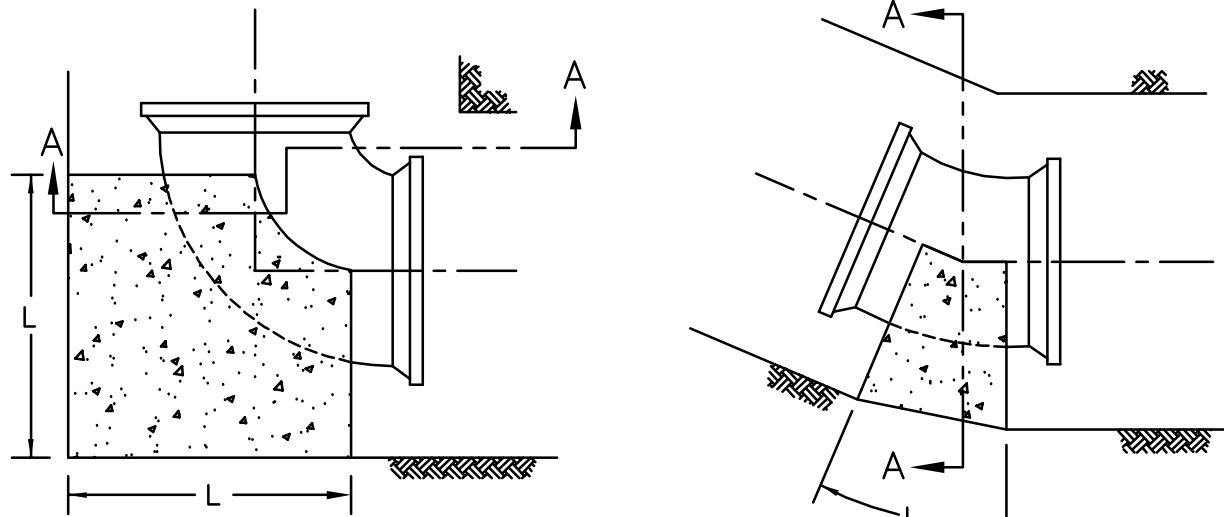
- SCALE: NONE
1. BLOCKING DESIGNED FOR 3000 POUNDS PER SQUARE FOOT SOIL BEARING AND 150 POUNDS PER SQUARE INCH INTERNAL PRESSURE.
 2. PROVIDE CONCRETE REINFORCEMENT AS DIRECTED BY THE ENGINEER.
 3. THESE SAME DIMENSIONS WILL BE USED FOR SHORT BODY FITTINGS.

SIZE OF PIPE	DEGREE OF BEND						RUN	BRANCH											
	11 1/4"	12 1/2"	14"	16"	18"	20"		6"	8"	10"	12"	14"	16"	18"	20"	22"	24"	26"	28"
6"	12	6	12	8	20	12	18	13											
8"	12	9	16	16	24	13	25	18	8"	18	13	23	18						
12"	15	13	22	18	36	30	32	30	12"	18	13	23	18	38	24				
16"	18	21	32	27	36	39	41	39	16"	14	16	20	20	36	25	49	32		
20"	25	24	30	32	49	45	50	50	20"	11	21	18	22	35	26	46	34	60	42
24"	27	30	39	42	60	54	58	61	24"	9	25	15	27	30	30	42	38	54	46
30"																			
36"																			

NOTE: ALL FITTINGS SHALL USE MEGA-LUG RESTRAINTS WITH CONCRETE THRUST BLOCKING.

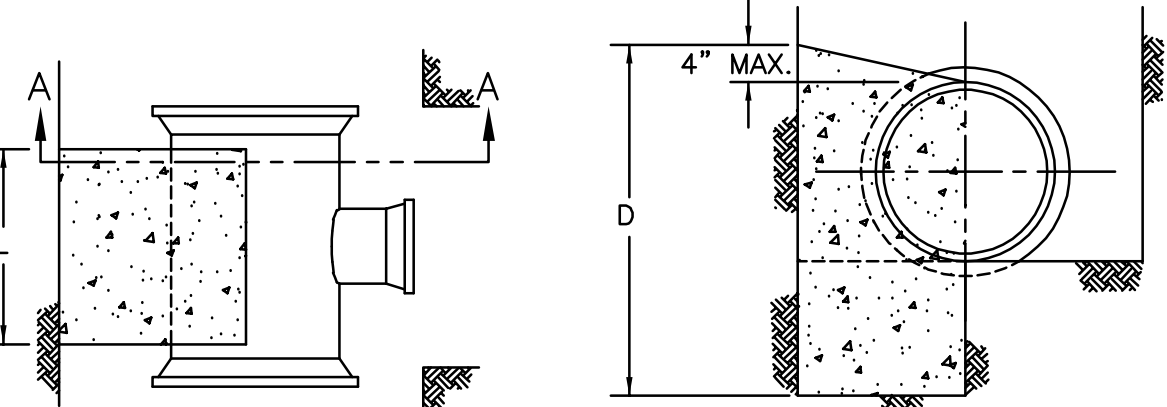
ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-070.1

CONCRETE THRUST BLOCK REQUIREMENTS



90° BENDS

BENDS LESS THAN 90°



TEES

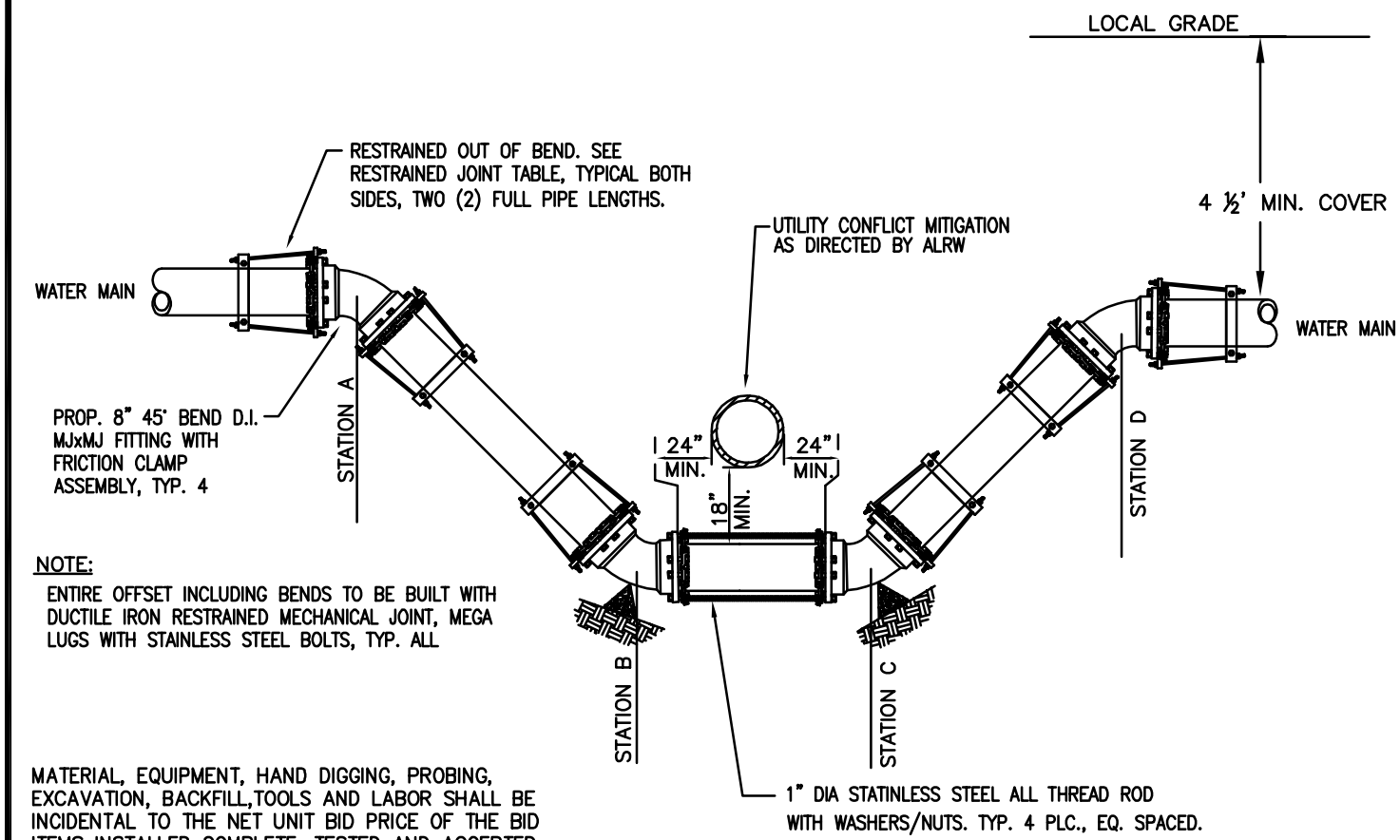
SECTION A-A

CONCRETE BLOCKING FOR HORIZONTAL BENDS AND TEES

- SCALE: NONE
1. BLOCKING DESIGNED FOR 3000 POUNDS PER SQUARE FOOT SOIL BEARING AND 150 POUNDS PER SQUARE INCH INTERNAL PRESSURE.
 2. PROVIDE CONCRETE REINFORCEMENT AS DIRECTED BY THE ENGINEER.
 3. THESE SAME DIMENSIONS WILL BE USED FOR SHORT BODY FITTINGS.

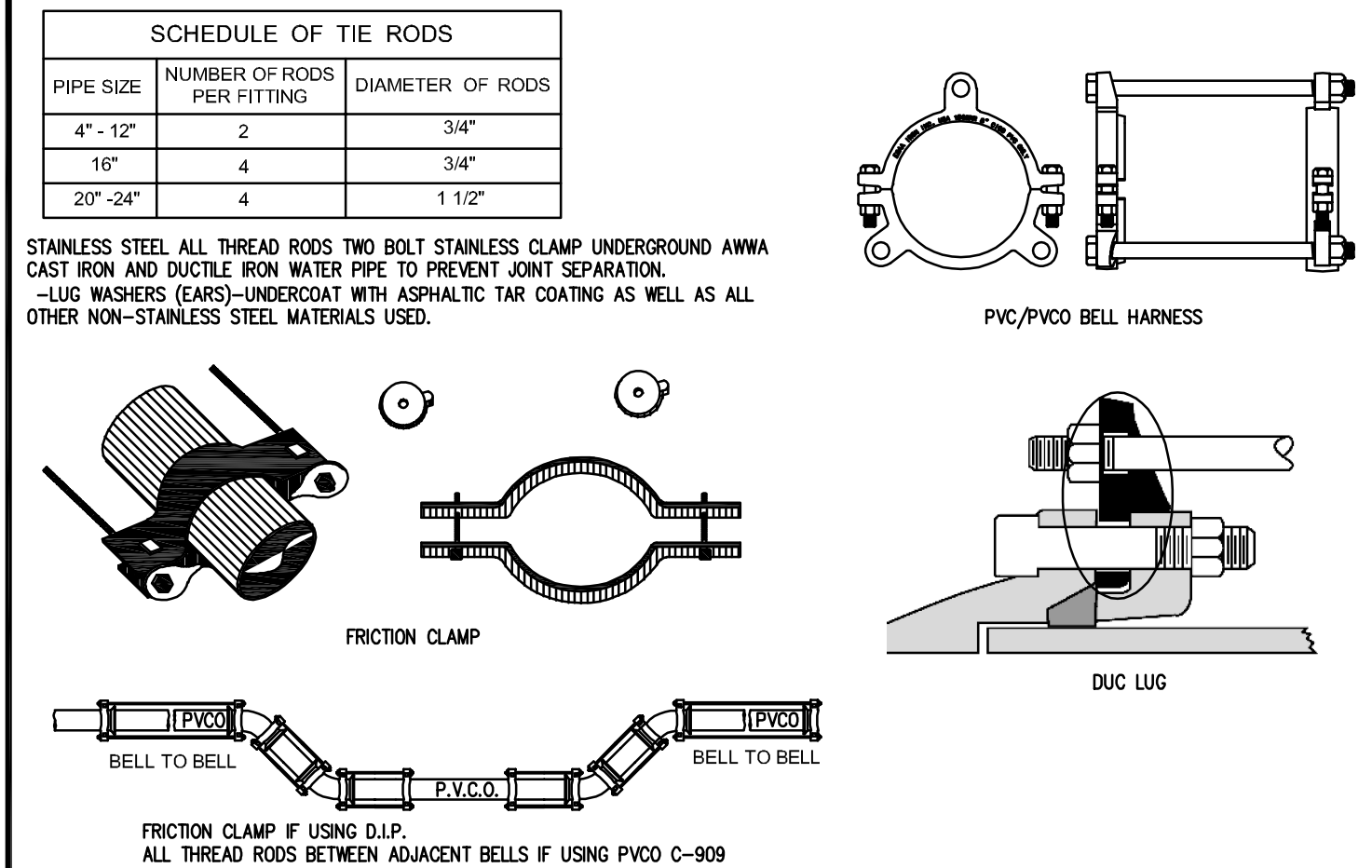
ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-070.1

CONCRETE THRUST BLOCK REQUIREMENTS



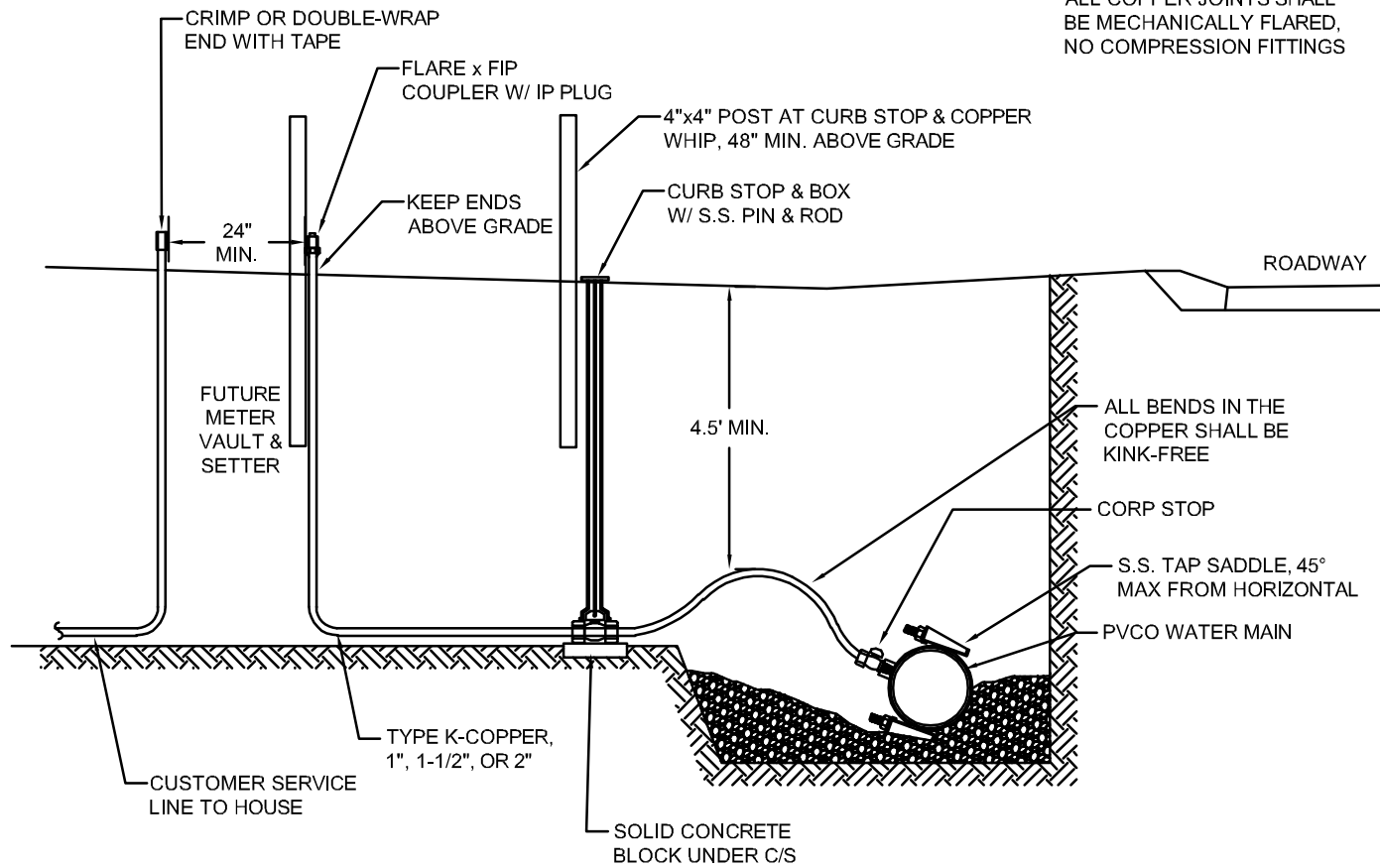
ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-080.1

STANDARD WATERLINE VERTICAL OFFSET



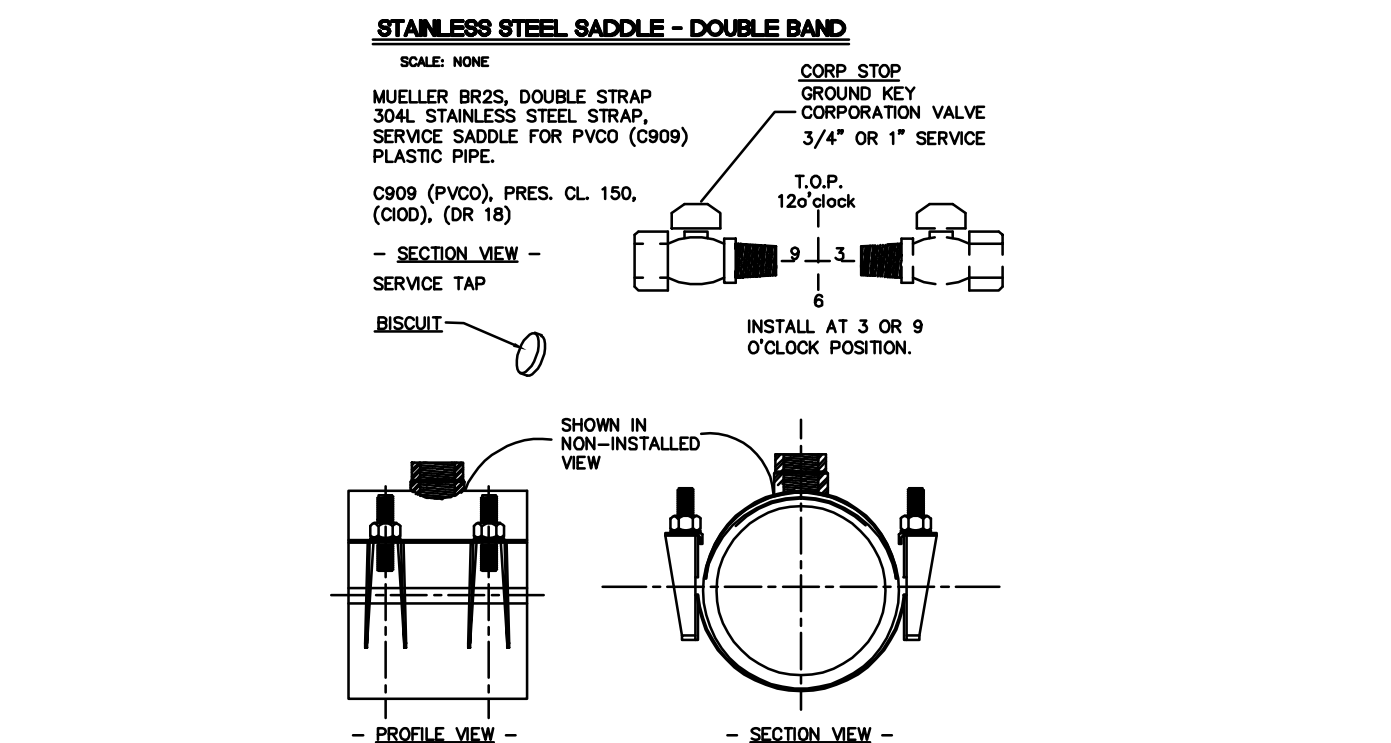
ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-081.1

RESTRAINED JOINT METHODS



ISSUED: 07/23/2024 BY: JAL
REVISED: BY:
DRAWING NO.
ALRW-WAT-110.2

STANDARD NEW WATER SERVICE CONNECTION FOR SERVICES 2\"/>



ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-112.1

STANDARD TAP SADDLE & CORP STOP



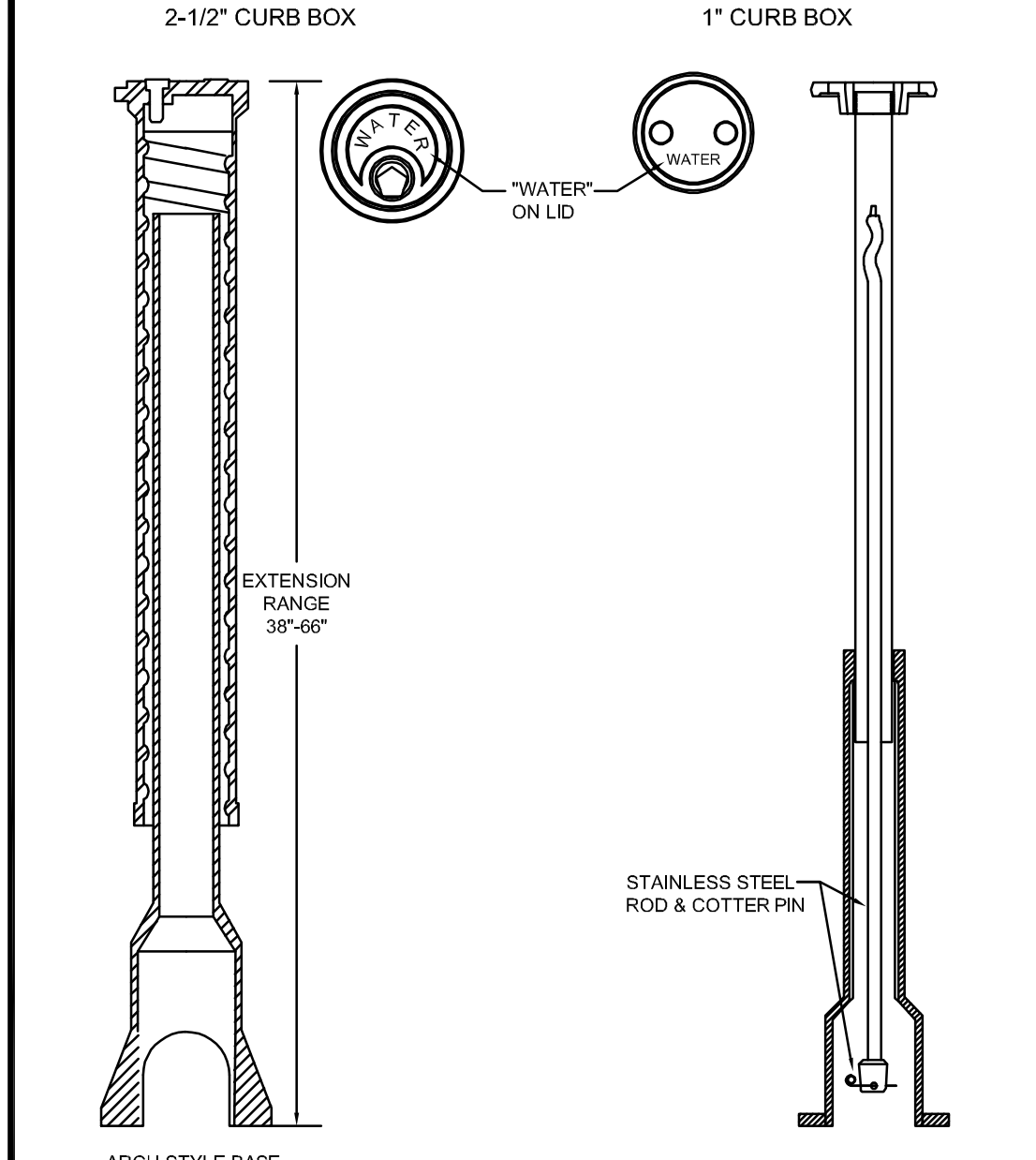
RESTRAINED LENGTHS FOR PVC / PVCO PIPE											
MAIN PIPE SIZE	HORIZ. BENDS			TEES			REDUCERS			PLUGS	
	60"	45"	22.5"	SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH
36	106	44	21	K36	K30	K24	K18	K36	K24	K20	257
30	93	39	19	K30	K24	K18	K12	K30	K24	K18	222
24	79	33	16	K24	K18	K12	K6	K24	K18	K12	185
20	68	29	14	K20	K15	K12	K6	K20	K15	K12	159
16	57	24	12	K16	K12	K10	K6	K16	K12	K10	131
12	45	19	9	K12	K10	K8	K6	K12	K10	K8	102
10	39	16	8	K10	K8	K6	K4	K10	K8	K6	87
8	33	14	7	K8	K6	K4	K3	K8	K6	K4	72
6	25	11	5	K6	K4	K3	K2	K6	K4	K3	55
4	18	8	4	K4	K3	K2	K1	K4	K3	K2	39

NOTE: TABLE FOR DUCTILE IRON PIPE TRIMMED OUT OF DETAIL DRAWING TO SAVE SPACE

1. PIPE SIZES ARE GIVEN IN INCHES. RESTRAINED LENGTHS ARE GIVEN IN FEET.
2. RESTRAIN TO NEXT FULL JOINT BEYOND GIVEN LENGTH.
3. RESTRAIN 11.25' BENDS 50% OF LENGTH FOR 22.5' BENDS.
4. ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.
5. PIPE ADJACENT TO IN-LINE VALVES 10' AND SMALLER SHALL BE RESTRAINED FOR 20' ON EACH SIDE, INCLUDING THE VALVE-TO-PIPE CONNECTION. ALL PIPE ADJACENT TO IN-LINE VALVES 12' AND LARGER SHALL BE RESTRAINED FOR A DISTANCE X OF REQUIRED PLUG (DEAD END) LENGTH ON EACH SIDE, INCLUDING THE VALVE-TO-PIPE CONNECTION.
6. LENGTHS SHOWN ARE FOR A TEST PRESSURE OF 150 PSIG.
7. RESTRAINED LENGTHS FOR TEES REPRESENTS LENGTH ON BRANCH. RESTRAINED LENGTHS FOR REDUCERS REPRESENTS LENGTH ON LARGE END OF REDUCER.
8. RESTRAINED LENGTHS ARE TO BE USED FOR POTABLE WATER.
9. THE RESTRAINED LENGTHS SHOWN IN THESE TABLES ARE BASED ON THE USE OF LIGHTLY COMPACTED CLEAN SAND WITH AT LEAST A 95% COARSE PARTICLE CONTENT. ACTUAL SOIL CONDITIONS MUST BE DETERMINED BY THE ENGINEER OF RECORD AND THE RESTRAINED LENGTHS MODIFIED ACCORDINGLY. SAFETY FACTOR OF 1.5:1 TO BE CALCULATED WITH AN "SM" SOIL TYPE AND TRENCH TYPE "3".

ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-081.2

RESTRAINED JOINT METHODS



ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO.
ALRW-WAT-113.1

STANDARD CURB STOP BOXES



HARBOR CREST TOWNHOUSE SUBD. NO. 2 WATER DETAIL SHEET

THE HENRY G. REITZ ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM

13/14
OCTOBER 2025



CARRIER PIPE SIZE	STEEL CASING (MINØ)	MIN. WALL THICKNESS
2" OR LESS	4"	.188
2.5"	4"	.188
3"	6"	.188
4"	12"	.188
6"	12"	.344
8"	16"	.375
10"	20"	.407
12"	24"	.469
14"	27"	.505
16"	30"	.505
18"	30"	.505
20"	36"	.595
24"	36"	.595
30"	42"	.625
36"	48"	.688
42"	60"	.844
48"	72"	.844

ANTI CORROSIVE COATING THICKNESS:
CASING - 8 MILLS - INSIDE/OUTSIDE
COLD TAR EPOXY OR BITUMINOUS ASPHALT



- NOTES:
- ALL JOINTS SHALL BE M.J x M.J. (MEGA-LUG).
 - LENGTH OF SWIVEL ADAPTER SHALL BE BASED UPON FIELD CONDITIONS, 18" MINIMUM TOTAL LENGTH.
 - THRUST BLOCKING SHALL BE SOLID CONCRETE BLOCKS OR FORMED & CAST IN PLACE. HARDWOOD PRESSURE-TREATED WEDGES SHALL BE USED AS REQUIRED.
 - HYDRANT & WATCH VALVE SHALL BE INSTALLED VERTICALLY UP, PLUMB, SQUARE, & TRUE.
 - HYDRANTS SHALL HAVE A 10" MINIMUM CLEARANCE TO ANY DRIVEWAY AND A 4' UNOBSTRUCTED CLEARANCE AROUND FIRE HYDRANT AND WATCH VALVE.
 - ADJUST WATCH VALVE & FIRE HYDRANT LOCATION AS REQUIRED BASED UPON FIELD CONDITIONS AND OWNER'S CONCURRENCE.
 - ALL DUCTILE IRON SHALL BE ENCASED IN POLY-WRAP.
 - HYDRANTS SHALL BE AT LEAST 4' OFF THE EDGE OF ROADWAY PAVEMENT AND 18" OFF THE SIDEWALK.

ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO. ALRW-WAT-090.1

ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO. ALRW-WAT-050.1

CONTRACTOR SHALL COVER (BAG) ALL INACTIVE FIRE HYDRANTS AND SHALL CONTACT/COORDINATE IN SERVICE / OUT-OF-SERVICE FIRE HYDRANTS NOTIFICATION WITH THE AVON LAKE FIRE DEPARTMENT PRIOR TO LEAVING THE JOB SITE THAT DAY. AVON LAKE FIRE DEPARTMENT 440-933-2121 440-933-8305. DO NOT LEAVE MESSAGE CONTRACTOR SHALL BE REQUIRED TO TALK TO ACTUAL LIVE OPERATOR.



ITEM	DESCRIPTION	QTY	MATERIAL	ASTM	ITEM	DESCRIPTION	QTY	MATERIAL	ASTM
1	OPERATING NUT	1	BRONZE	B-56	22	CAP CHAIN	3	STEEL	A-36
2	WIPER RING	1	RUBBER	D-2000	23	CHAIN HOOK	1	STEEL	A-36
3	HOLD DOWN NUT	1	RUBBER	D-2000	24	UPPER BARREL	1	CAST IRON	A-126
4	HOLD DOWN NUT	1	RUBBER	D-2000	25	SAFETY STEM COUPLING	1	SWISS STEEL	A-126
5	HOSE NOZZLE O-RING	1	RUBBER	D-2000	26	SAFETY FLANGE BOLT	8	STEEL	A-36
6	ANTI-FRICTION WASHER	1	CELCON	GR-1117	27	SAFETY FLANGE NUT	8	STEEL	A-36
7	OIL FILLER PLUG	1	BRASS	B-16	28	SAFETY FLANGE O-RING	1	RUBBER	D-2000
8	BONNET	1	CAST IRON	A-126	29	SAFETY FLANGE O-RING	1	RUBBER	D-2000
9	HEX BOLT	8	STEEL	A-36	30	SAFETY FLANGE O-RING	1	RUBBER	D-2000
10	TOP UPPER BARREL O-RING	1	RUBBER	D-2000	31	SAFETY FLANGE O-RING	1	RUBBER	D-2000
11	UPPER STEM O-RING	1	STEEL	A-36	32	SAFETY FLANGE O-RING	1	RUBBER	D-2000
12	STEM O-RING	1	RUBBER	D-2000	33	SAFETY FLANGE O-RING	1	RUBBER	D-2000
13	STEM O-RING	1	RUBBER	D-2000	34	SAFETY FLANGE O-RING	1	RUBBER	D-2000
14	5\"/>								

SEE CAT. RECORD FOR RESPECTIVE PARTS OR SUB. ASSYS LUBRICATION SHALL BE FDA APPROVED FOOD GRADE LUBRICANT.



NOTE: SIZE AND STYLE OF OPERATING NUT, SHOE SIZE, AND THREADING OF NOZZLES IS PER ALRW SPECS.

SEE TABLE
5 1/4\"/>

ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO. ALRW-WAT-052.1

ISSUED: 03/29/2024 BY: JRG
REVISED: BY:
DRAWING NO. ALRW-WAT-052.1

CONTRACTOR SHALL COVER (BAG) ALL INACTIVE FIRE HYDRANTS AND SHALL CONTACT/COORDINATE IN SERVICE / OUT-OF-SERVICE FIRE HYDRANTS NOTIFICATION WITH THE AVON LAKE FIRE DEPARTMENT PRIOR TO LEAVING THE JOB SITE THAT DAY. AVON LAKE FIRE DEPARTMENT 440-933-2121 440-933-8305. DO NOT LEAVE MESSAGE CONTRACTOR SHALL BE REQUIRED TO TALK TO ACTUAL LIVE OPERATOR.

THE HENRY G. REITZ
ENGINEERING COMPANY
4214 ROCKY RIVER DRIVE, CLEVELAND, OH, 44135
PHONE: (216) 251-3033, REITZ@REITZENG.COM