



AGENDA
REGULAR MEETING OF THE
WINDSOR HEIGHTS
PLANNING AND ZONING COMMISSION

Wednesday, August 23, 2023 - 5:30 PM

WINDSOR HEIGHTS COUNCIL CHAMBERS - 1133 66th ST
ZOOM LINK: <https://us02web.zoom.us/j/7832856334> MEETING ID:
783 285 6334

- 1. Call to Order**
- 2. Approval of Agenda**
- 3. Approval of the Minutes:**
 - A. Approve Minutes of the Planning and Zoning Commission Meeting on July 19, 2023**
- 4. Consideration of Preliminary Plat: 6300 Hickman Avenue**
 - A. Staff Report and Application Materials**
- 5. Consideration of Site Plan: 1105 73rd Street (B-Bop)**
 - A. Staff Report and Application Materials**
- 6. Adjourn**

*It is possible that members, including a quorum of members of the City Council and other committees may be present. No City business will be discussed outside of this agenda.

City of Windsor Heights Planning and Zoning Commission Meeting Minutes

Wednesday, July 19, 2023 - 5:30 PM

WINDSOR HEIGHTS COUNCIL CHAMBERS - 1133 66th ST

ZOOM MEETING ID: 783 285 6334 (<https://us02web.zoom.us/j/7832856334>)

1. Call to Order

Chair Geoff Wood called the meeting to order at 5:34 PM. Present: Bob Bishop, David Ferree, Geoffrey Wood, Georgie Libbie, and Donna Mueller. Absent: Diane Foss and Tyler Holtorf

2. Approval of Agenda

Motion by Donna Mueller to approve. Seconded by Georgie Libbie. Motion passed 5-0.

3. Approval of the Minutes:

Motion by Georgie Libbie to approve. Seconded by Dave Ferree. Motion passed 5-0.

A. Consideration of the Planning and Zoning Commission Meeting Minutes on May 24, 2023

B. Consideration of the Planning and Zoning Commission Meeting Minutes on June 8, 2023

4. Public Hearing:

A. Public Hearing - Zoning Ordinance Amendment for Chapter 165 - 177

Motion by Dave Ferree to open the Public Hearing at 5:39 PM. Seconded by Bob Bishop. Motion Passed 5-0. Wyatt Archer presented the proposed code amendments. No public comments. Motion by Donna Mueller to close the Public Hearing at 5:48 PM. Seconded by Georgie Libbie. Motion passed 5-0.

B. Consideration of Zoning Ordinance Amendment for Chapter 165 -177

Motion by Donna Mueller to recommend the proposed amendments to City Council. Seconded by Dave Ferree. Motion passed 4-1. Bob Bishop voted in opposition.

C. Public Hearing - Zoning Ordinance Amendment for Chapter 180

Motion by Dave Ferree to open the Public Hearing at 5:54 PM. Seconded by Bob Bishop. Motion Passed 5-0. Wyatt Archer presented the proposed code amendments. No public comments. Motion by Donna Mueller to close the Public Hearing at 5:57 PM. Seconded by Georgie Libbie. Motion passed 5-0.

D. Consideration of Zoning Ordinance Amendment for Chapter 180

Motion by Bob Bishop to recommend the proposed amendments to City Council. Seconded by Donna Mueller. Motion passed 5-0.

5. Adjourn

Motion by Dave Ferree to adjourn the meeting at 6:16 PM. Seconded by Bob Bishop. Motion passed 5-0.



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430 E Grand Avenue
Suite 101
Des Moines, IA 50309

Ph: (515) 259-9190
Fax: (515) 233-4430
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STAFF REPORT

Date: August 23, 2023
To: Windsor Heights Planning and Zoning Commission
From: Wyatt Archer, AICP
Subject: Preliminary Plat: 6300 Hickman Avenue

General Information

Applicant: Houston Engineering – Stan Hanson
3900 W. Technology Circle, Suite 8
Sioux Falls, SD 58106
Property Owner: Midwest Fidelity Partners
1610 S. Minnesota Ave.
Sioux Falls, SD 57105
Zoning: CC (Community Commercial District)
Location: 6300 Hickman Road

Summary

The applicant, Stan Hanson, on behalf of Midwest Fidelity Partners, is requesting a preliminary plat for the 4.13 acre tract centering on 6300 Hickman Avenue, to be subdivided into four parcels. Staff has completed a review of the preliminary plat. Once a preliminary plat and construction plans have been approved, a final plat will be submitted for review. The submitted application materials are attached to this report.

Existing Conditions

The 4.13 acre tract is in the CC – Community Commercial zoning district. The tract is currently vacant, with portions of the tract previously being used for a gas station. A conditional use permit for Auto Services has been approved at 6300 Hickman.

Background

March 1, 2023: Conditional use permit for auto services issued for 6300 Hickman.
July 12, 2023: 1st submittal of documents for preliminary plat.
August 8, 2023: 2nd submittal with revised documents for preliminary plat.

Applicable Code Sections

The City of Windsor Heights does not have a subdivision ordinance. The submitted documents adhere to all state requirements.

Adjacent Land Use

Direction	Zoning	Use
North	N/A (outside Windsor Height limits)	Commercial
South	Community Commercial (CC), Urban Family Residential (R-3), Single Family Residential (Urban Density) (R-2)	Commercial & Residential
East	N/A (outside Windsor Height limits)	Residential
West	Community Commercial	Commercial

Zoning Bulk Regulations

Category	Bulk Regulation
Lot Area	7,200 sq.ft.
Lot Width	60ft
Front Yard Setback	25ft
Side Yard Setback	25ft
Rear Yard Setback	20ft

Utilities

Utilities will be provided by MidAmerican Energy, Urbandale-Windsor Heights Sanitary District, and Des Moines Water Works.

Easements

All proposed easements have been indicated on the preliminary plat.

Future Land Use Map

The future land use map should be used as guidance for areas throughout the City. The map identifies this location as mixed use, which is defined on page 40 of the 2017 Comprehensive Plan. “Mixed Use. This area encourages combinations of limited commercial, office, and residential uses.” The comprehensive plan also identifies the corner of Hickman and 63rd as one of the Community Entrances as seen in the comprehensive plan’s future land use map.

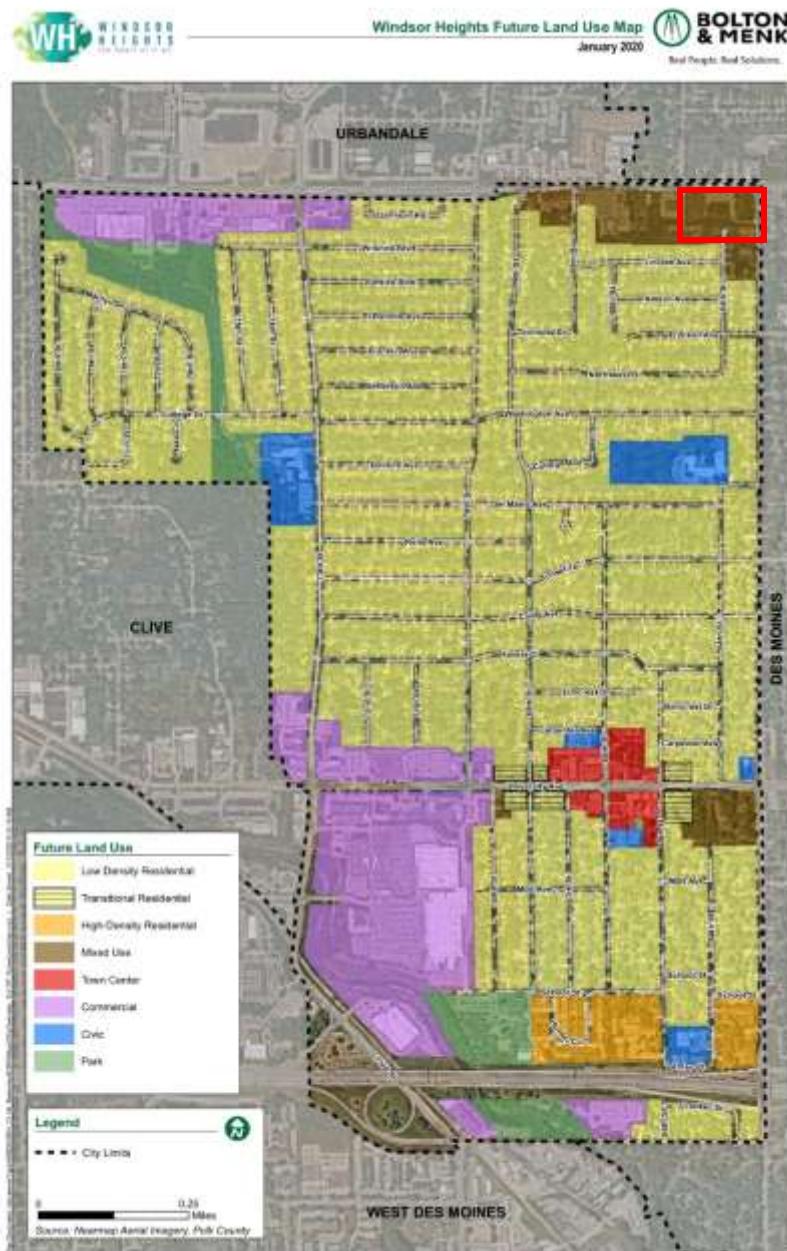


Figure 1: Current Future Land Use Map

Zoning Map

The parcels are currently zoned for Community Commercial which is defined in [Table 168-1 Purposes of Zoning Districts](#) as “This district is intended for commercial facilities which serve the needs of markets ranging from several neighborhoods to the overall region. While allowed commercial and office uses are generally compatible with nearby residential areas, traffic and operating characteristics may have more negative effects on residential neighborhoods than those permitted in the O District. CC Districts are appropriate at major intersections, at the junction of several neighborhoods, or at substantial commercial sub-centers.”

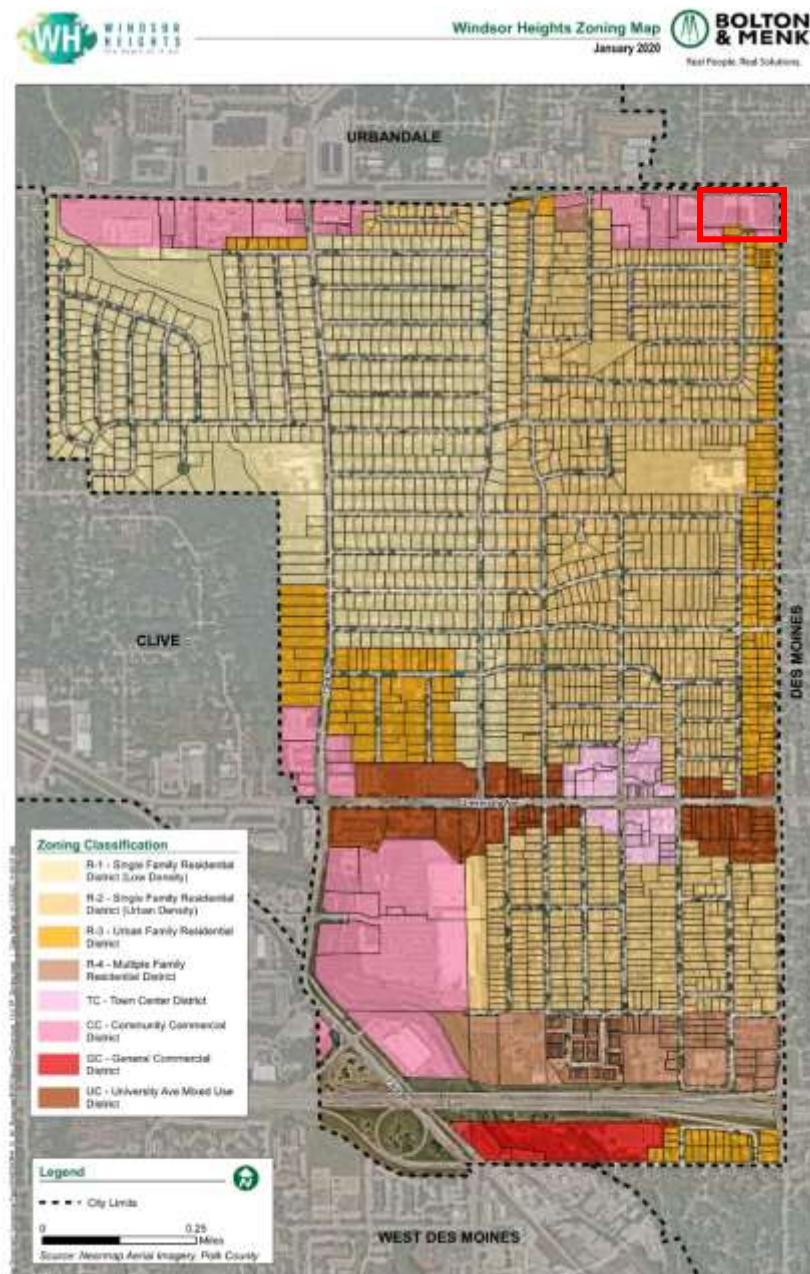


Figure 2: Current Zoning Map

Recommendation

All proposed lots meet the minimum requirements of the zoning ordinance, and the preliminary plat is in general conformance with state code. **The staff recommends approval of the Preliminary Plat.**

Attachments

1. Application Materials (as submitted)



Send the completed permit application and supporting documents to Justin Ernst from Bolton & Menk at Justin.Ernst@bolton-menk.com or call 515-259-9190 x2786.

APPLICATION FOR PRELIMINARY PLAT

APPLICANT INFORMATION

APPLICANT NAME & EMAIL

Dan Nelson

ADDRESS

1610 S. Minnesota Ave.

CITY, STATE, ZIP

Sioux Falls, SD 57105

PHONE

605-361-3557

FAX**Acceptance of Applicant**

I, the undersigned, certify that the information on this application to the best of my knowledge, is true and correct. I further certify that I have a legal interest in the property in question, and/or that I am legally able to represent all other persons or entities with interest in this property.

In addition to the application fee, I understand I am responsible for all development review costs invoiced on a Monthly basis for services performed by City staff or City consultants on my behalf.

Dan Nelson

Print Applicant's Name

Dan Nelson

7/11/2023

Applicant's Signature

Date

DEVELOPMENT TEAM

Project Manager

Stan Hanson

Address

3900 W. Technology Cir Ste 8, Sioux Falls SD 58106

Phone

605-271-0378

Fax

E-Mail Address

sthanson@houstoneng.com

Attorney/Other**Address****Phone**

Fax

E-Mail Address**Application Approval**

- Approved**
- Denied**

DATE SUBMITTED

July 11, 2023

PROJECT TITLE

Silverstar Addition

PROJECT ADDRESS

6322 & 6300 Hickman Rd

LOT #

1 & 2

SUBDIVISION

Windsor Crossing Plat 1

Please provide seven copies (24"x36" maximum) of all plans and one copy of the project drainage report. In addition, a digital copy (.pdf format preferred) of all plan sheets and drainage report shall be provided.

In order for a submittal to be determined as complete, the following basic information should be provided:

Submitted Accepted

Traffic Study (as required by City Engineer)

Site Survey

Dimension Plan

Grading Plan

Utility Plan

Landscape Plan

Drainage Report

Architectural Plans

For additional detail on the type of information necessary for each of the items above can be found on the back of this form or by contacting the City Administrator.

Additional Information:

Planner or Authorized Representative

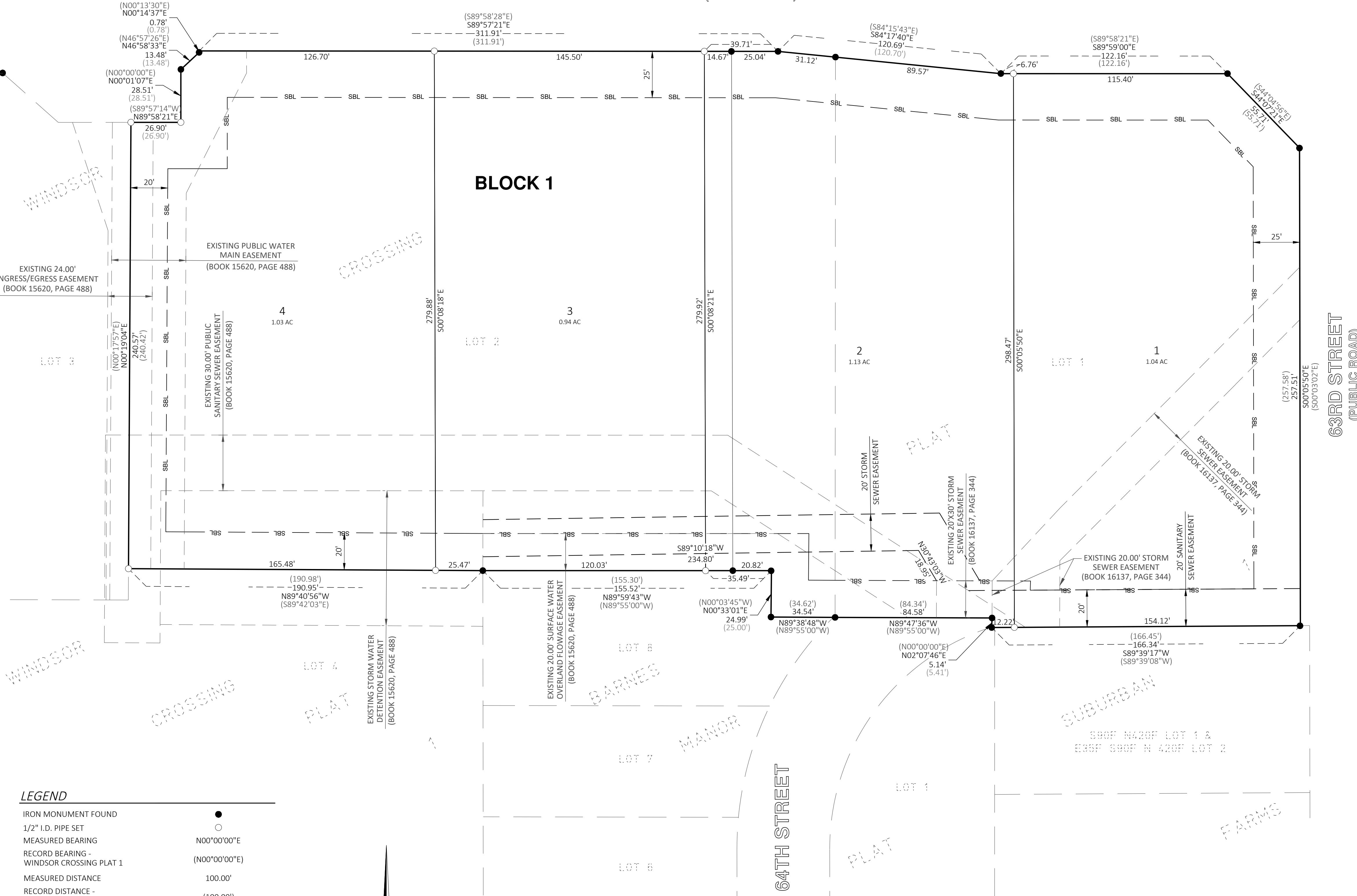
Date

**PRELIMINARY PLAT SUBMITTAL REQUIREMENTS
FOR DEVELOPMENT REVIEW**

- Name and address of owner/developer, consultant(s), engineer, and surveyor
- Name of subdivision, revision date, north arrow, and scale
- Legal description and acreage
- Vicinity sketch
- Plat boundary
- Zoning district
- Setbacks and buffers with dimensions
- Lot lines with dimensions and acreage
- Lot numbering
- Existing buildings, streets, utilities, easements and right-of-way
- Location and name(s) of adjacent property owners, excluding subdivided property
- Existing and proposed site grading. Please inventory of all existing trees of 6-inch caliper and greater
- Easements for public utilities, access, railroads, underground utilities, pedestrian facilities, and others as required
- Location, names and pavement widths of all existing and proposed streets, proposed right-of-way
- Proposed utility services, line sizes, easements and off-site sources of service for water, sanitary sewer, storm water, and overland flowage.
- Stormwater Management Design Plan and Stormwater calculations.
- Flood Insurance Rate Map designation(s), panel number and date
- Boundary of 100-year floodplain and of floodway with improvements in place
- Identify areas dedicated for public use (right-of-way, schools, parks, trails, etc.)
- Any other information the City finds necessary to determine the impact the proposed subdivision will have on the health, safety, and welfare of property in the City and its residents.

**PRELIMINARY PLAT OF
SILVERSTAR ADDITION
CITY OF WINDSOR HEIGHTS
POLK COUNTY, IOWA**

**HICKMAN ROAD / US HWY NO. 6
(PUBLIC ROAD)**



OWNER OF RECORD (PARCEL 2016-24):
IA10 Windsor Heights, LLC
1610 S Minnesota Ave
Sioux Falls, SD 57105

OWNER OF RECORD (PARCEL):
Hurd Windsor, LLC
2000 Fuller Road
West Des Moines, IA 50265

FIELD WORK COMPLETED:
May 24-25, 2023

LAND SURVEYOR:
James A. Schlieman
Houston Engineering, Inc.
1401 21st Avenue North
Fargo, North Dakota 58102
(701) 237-5065

ENGINEER:
Stan Hanson
Houston Engineering, Inc.
100 Court Avenue, Suite 202
Des Moines, Iowa 50309
444-5393

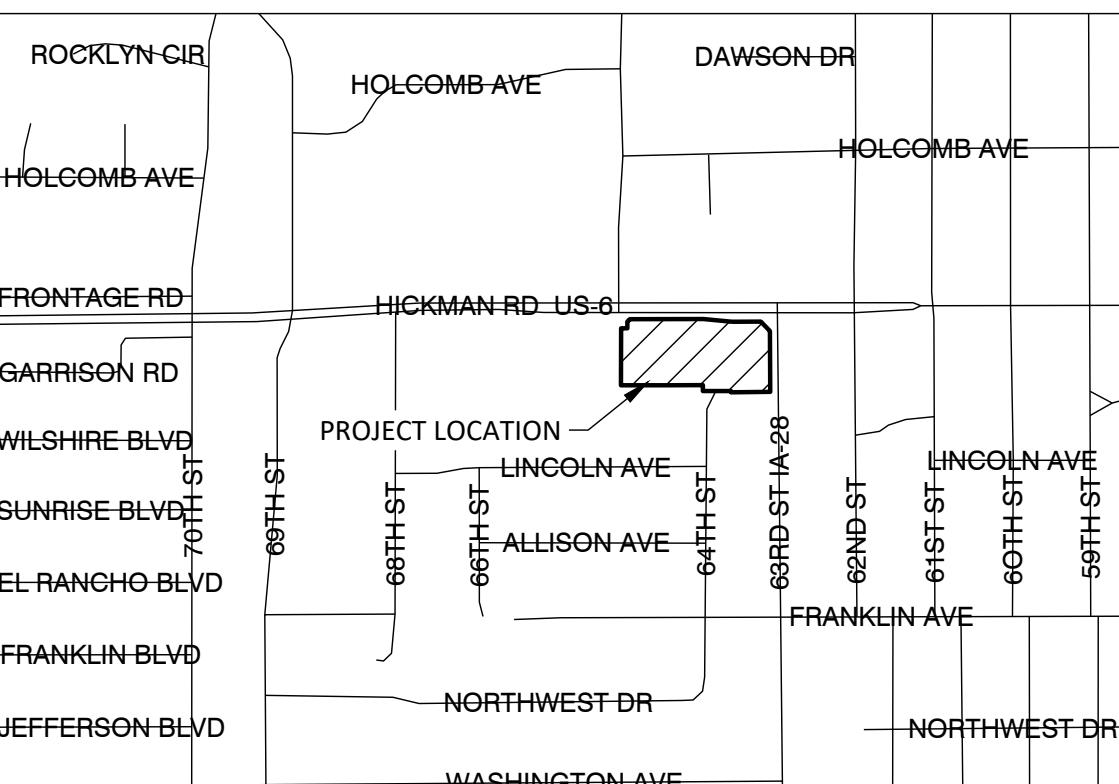
JURISDICTION:
City of Windsor Heights, Polk County, Iowa

FLOOD ZONE:
(Zone X) 0.2% annual chance flood hazard, areas of 1% annual chance flood with average depth less than one foot with drainage areas of less than one square mile.
Panel# 19153C0327F
Effective date February 1, 2019

ZONE INFORMATION:
District (C) Commercial
Front yard setback 25'
Side yard setback 25'
Rear yard setback 20'

UTILITY DISTRICTS:
Mediacom
Centurylink
Midamerican-Elec
Midamerican-Gas
City of Des Moines Traffic
City of Des Moines Sewer
City of Des Moines Water Works
Metro Fibernet LLC
Iowa Communications Network
City of Windsor Heights

VICINITY MAP
NOT TO SCALE



LEGAL DESCRIPTION:
Lots 1 and 2 of Windsor Crossing Plat 1, an Official Plat, now included in and forming a part of the City of Windsor Heights, Polk County, Iowa.
Said tract of land contains 4.130 acres, more or less.

I hereby certify that this land surveying document was prepared and the related survey work was performed by me or under my direct personal supervision and that I am a duly licensed Professional Land Surveyor under the laws of the State of Iowa.

James A. Schlieman
License number 28025
My license renewal date is December 31, 2024.
Pages or sheets covered by this seal: THIS SHEET





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430 E Grand Avenue
Suite 101
Des Moines, IA 50309

Ph: (515) 259-9190
Fax: (515) 233-4430
Bolton-Menk.com

STAFF REPORT

Date: August 23, 2023
To: Windsor Heights Planning and Zoning Commission
From: Wyatt Archer, AICP
Subject: Site Plan: 1105 73rd Street (B-Bop)

General Information

Applicant: Civil Design Advantage – Doug Mandernach
4121 NW Urbandale Drive
Urbandale, IA 50322
Property Owner: John Ferguson
2900 100th Street Suite #302
Urbandale, Iowa 50322
Proposed Use: Fast food establishment
Zoning: CC (Community Commercial District)
Location: 1105 73rd Street

Summary

The applicant, Doug Mandernach, on behalf of John Ferguson, is requesting a site plan for the 2.53 acre lot. The site plan for the project shows the construction of a 1,568 sq.ft building with 20 parking spaces being provided. All of the existing structures and improvements on the site will be demolished as part of the project. The submitted application materials are attached to this report.

Existing Conditions

The 2.53 acre parcel is in the CC – Community Commercial zoning district. The parcel is currently an existing and active B-Bop location.

Background

September 1, 2022: Initial preapplication meeting.
May 25, 2023: Completeness review.
June 7, 2023: 1st submittal of documents for site plan.
July 14, 2023: 2nd submittal with revised documents for site plan.
August 11, 2023: 3rd submittal with revised documents for site plan.

Adjacent Land Use

Direction	Zoning	Use
North	University Avenue Mixed Use District (UC)	Commercial
South	Community Commercial (CC)	Commercial & Park Uses
East	Community Commercial (CC)	Commercial
West	N/A (outside Windsor Height limits)	Commercial

Zoning Bulk Regulations

Category	CC
Lot Area	7,200 sq.ft.
Lot Width	60ft
Front Yard Setback	25ft
Side Yard Setback	25ft
Rear Yard Setback	20ft

Future Land Use Map

The future land use map should be used as guidance for areas throughout the City. The map identifies this location as mixed use, which is defined on page 40 of the 2017 Comprehensive Plan. “Commercial. Commercial and office uses that are typically more auto-oriented.”

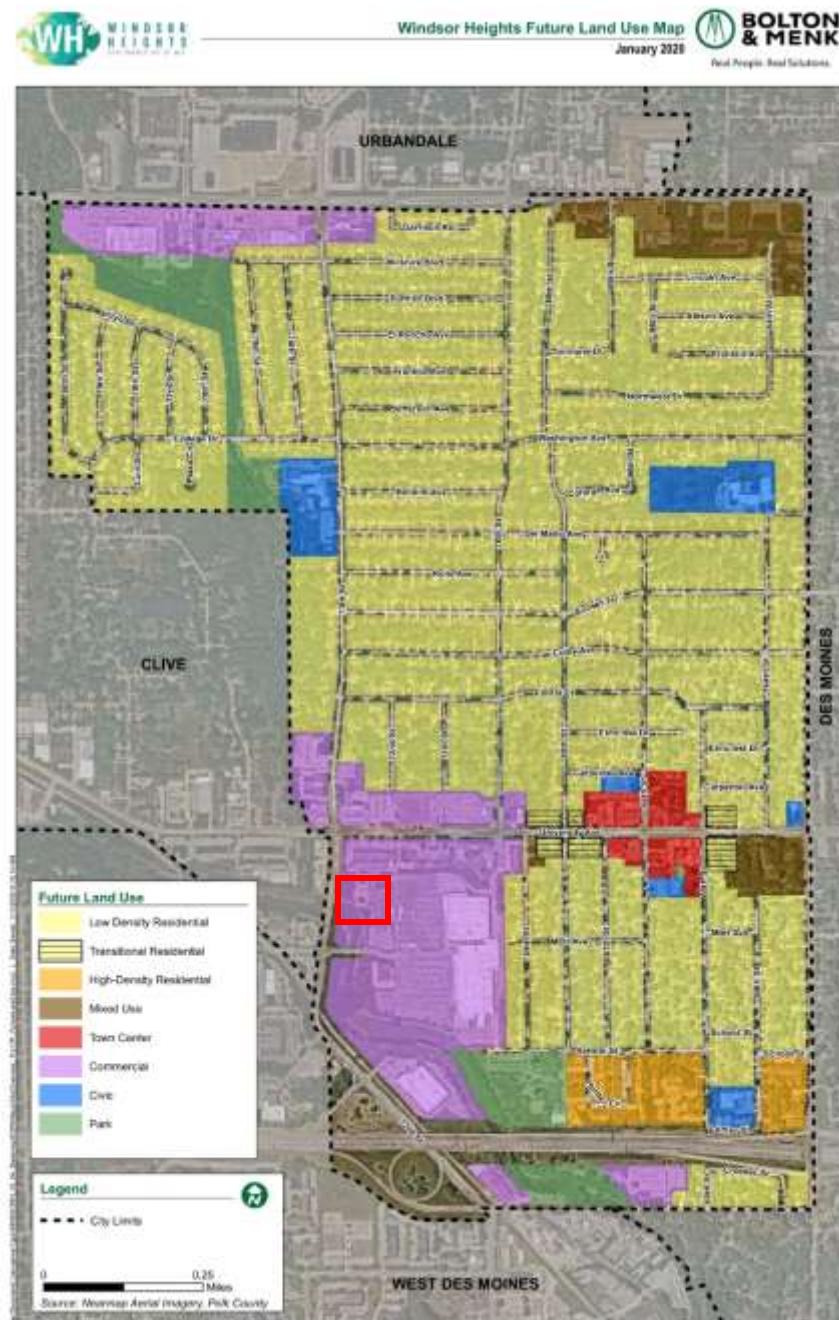


Figure 1: Current Future Land Use Map

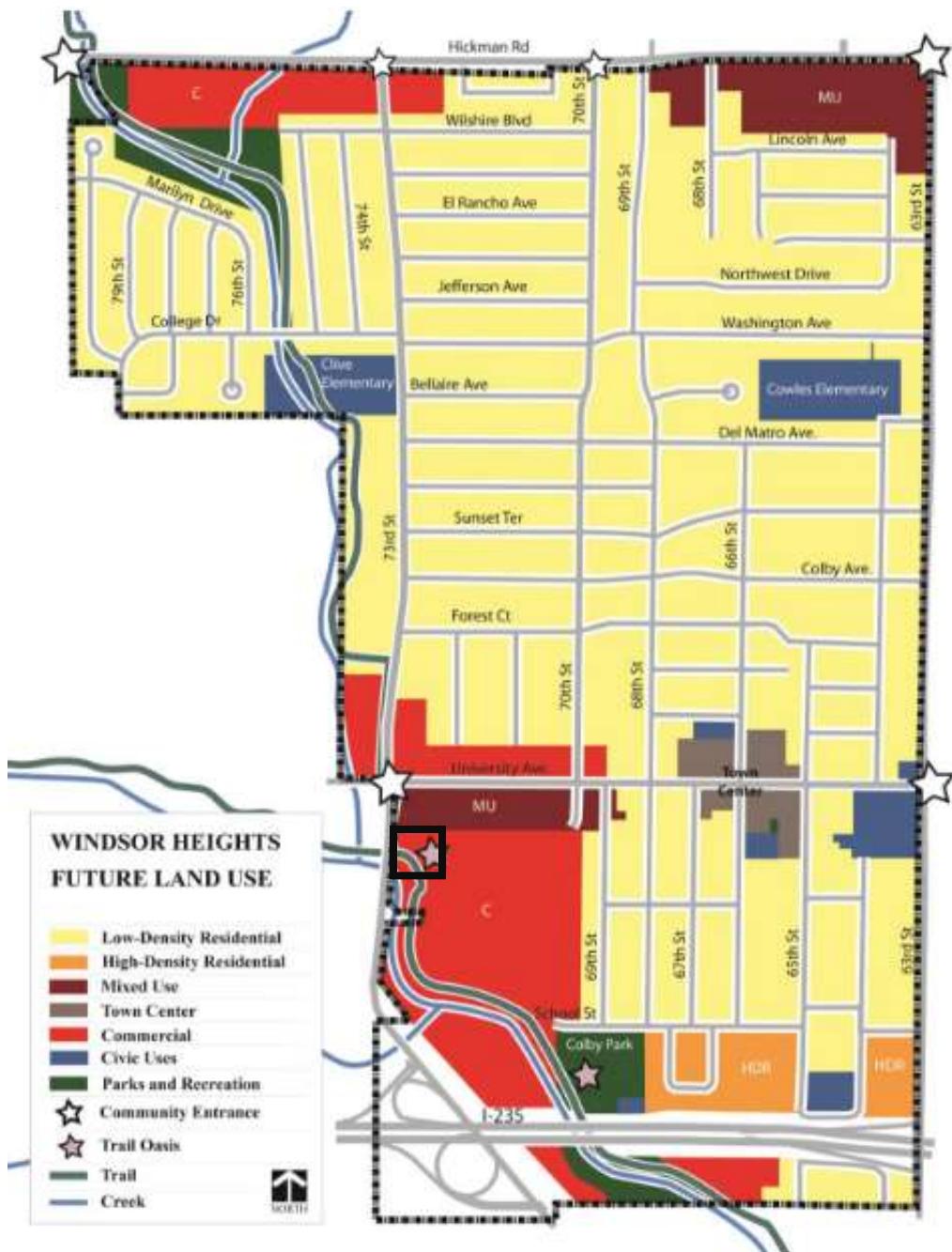


Figure 2: Windsor Heights' 2017 Comprehensive Plan's Future Land Use Map

Zoning Map

The parcels are currently zoned for Community Commercial which is defined in [Table 168-1 Purposes of Zoning Districts](#) as “This district is intended for commercial facilities which serve the needs of markets ranging from several neighborhoods to the overall region. While allowed commercial and office uses are generally compatible with nearby residential areas, traffic and operating characteristics may have more negative effects on residential neighborhoods than those permitted in the O District. CC Districts are appropriate at major intersections, at the junction of several neighborhoods, or at substantial commercial sub-centers.”

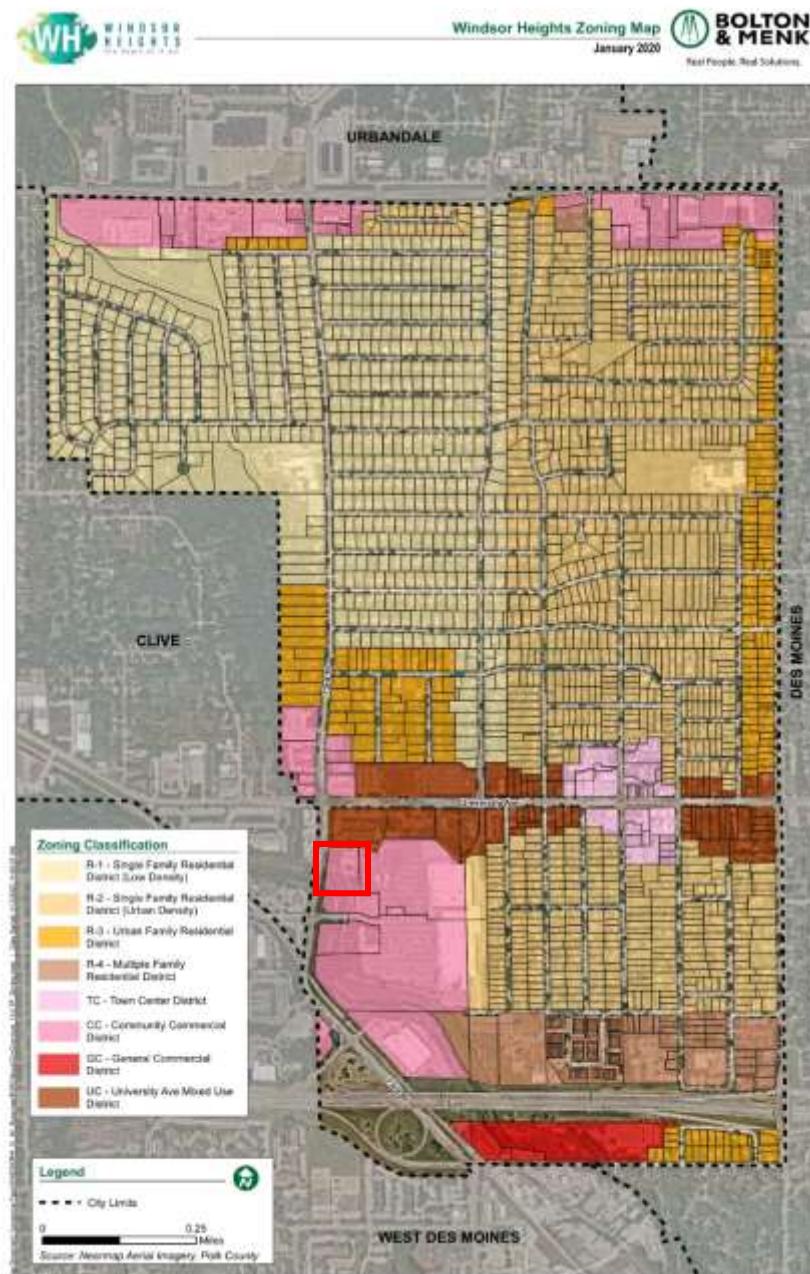


Figure 3: Current Zoning Map

Recommendation

All proposed lots meet the minimum requirements of the zoning ordinance. **The staff recommends approval of the site plan.**

Attachments

1. Application Materials (as submitted)



Send the completed permit application and supporting documents to Rose Schroder from Bolton & Menk at Rose.Schroder@bolton-menk.com or call 515-259-9190.

APPLICATION FOR DEVELOPMENT REVIEW SITE PLAN/SITE PLAN AMENDMENT

APPLICANT INFORMATION	
APPLICANT NAME & EMAIL John Ferguson jferg23@gmail.com	
ADDRESS 2900 100th street suite #302	
CITY, STATE, ZIP Urbandale, Iowa 50322	
PHONE <u>515-238-6966</u>	
FAX	
 Acceptance of Applicant	
I, the undersigned, certify that the information on this application to the best of my knowledge, is true and correct. I further certify that I have a legal interest in the property in question, and/or that I am legally able to represent all other persons or entities with interest in this property.	
In addition to the application fee, I understand I am responsible for all development review costs invoiced on a Monthly basis for services performed by City staff or City consultants on my behalf.	
 DEVELOPMENT TEAM	
Project Manager Doug Mandernach, Civil Design Advantage	
Address 4121 NW Urbandale, Drive	
Phone 515-369-4400	Fax 515-369-4410
E-Mail Address Dougm@cda-eng.com	
Attorney/Other	
Address	
Phone	Fax
E-Mail Address	
Application Approval	
<input type="checkbox"/> Approved <input type="checkbox"/> Denied	

DATE SUBMITTED

6-7-2023

PROJECT TITLE

B-Bop's

PROJECT ADDRESS

1105 73rd St, Windsor Heights, IA 50324

LOT #
6

SUBDIVISION
Apple Valley South

Please provide seven copies (24"x36" maximum) of all plans and one copy of the project drainage report. In addition, a digital copy (.pdf format preferred) of all plan sheets and drainage report shall be provided.

In order for a submittal to be determined as complete, the following basic information should be provided:

Submitted Accepted

Traffic Study (as required by City Engineer)	<input type="checkbox"/>	<input type="checkbox"/>
Site Survey	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Plan	<input type="checkbox"/>	<input type="checkbox"/>
Grading Plan	<input type="checkbox"/>	<input type="checkbox"/>
Utility Plan	<input type="checkbox"/>	<input type="checkbox"/>
Landscape Plan	<input type="checkbox"/>	<input type="checkbox"/>
Drainage Report	<input type="checkbox"/>	<input type="checkbox"/>
Architectural Plans	<input type="checkbox"/>	<input type="checkbox"/>
Lighting Plans	<input type="checkbox"/>	<input type="checkbox"/>
Name & Address of All Properties within 200 ft	<input type="checkbox"/>	<input type="checkbox"/>

For additional detail on the type of information necessary for each of the items above can be found on the back of this form or by contacting the City Administrator.

Additional Information:

Planner or Authorized Representative

Date

SITE PLAN FOR:

B-BOP'S

WINDSOR HEIGHTS, IOWA

VICINITY MAP

NOT TO SCALE



WINDSOR HEIGHTS, IOWA

OWNER

COLBY WEST UNIVERSITY TRUST
WAL-MART PROPERTY TAX DEPARTMENT
PO BOX 8050
BENTONVILLE, AR 72716-0555

APPLICANT

B-BOP'S INC.
CONTACT: BOB JOHNSON
939 OFFICE PARK RD # 333
WEST DES MOINES, IA 50265
PH. (515) 221-3202

ENGINEER

CIVIL DESIGN ADVANTAGE, LLC
4121 NW URBANDALE DRIVE
URBANDALE, IA 50322
CONTACT: DOUG MANDERNACH
EMAIL: DOUGM@CDA-ENG.COM
PH: (515) 369-4400

SURVEYOR

CIVIL DESIGN ADVANTAGE, LLC
4121 NW URBANDALE DRIVE
URBANDALE, IA 50322
CONTACT: CHARLIE MCGLOTHLEN
EMAIL: CHARLIE@CDA-ENG.COM
PH. (515) 369-4400

ARCHITECT

SIMONSON + ASSOCIATES ARCHITECTS LLC
1717 INGERSOLL AVE, SUITE 117
DES MOINES, IA 50309
PH: (515) 440-5626

SUBMITTAL DATES

FIRST SUBMITTAL: 12/19/2022
SECOND SUBMITTAL: 05/12/2023
THIRD SUBMITTAL: 06/06/2023
FOURTH SUBMITTAL: 08/10/2023

LEGAL DESCRIPTION

LOT 6 APPLE VALLEY SOUTH

ZONING

CC - COMMUNITY COMMERCIAL DISTRICT

PROJECT SITE ADDRESS

1105 73RD STREET
WINDSOR HEIGHTS, IA 50324

EXISTING/ PROPOSED USE

FAST FOOD ESTABLISHMENT

DEVELOPMENT SUMMARY

AREA: 2.53 ACRES (110,356 SF)

ZONING: CC

SETBACKS:

FRONT: 25-FOOT SETBACK
SIDE: 25-FOOT SETBACK
REAR: 20-FOOT SETBACK

OPEN SPACE CALCULATION:

TOTAL SITE:	= 110,356 (2.53 AC.)
BUILDING	= 1,568 SF
PARKING AREAS	= 4,446 SF
DRIVEWAYS	= 20,214 SF
SIDEWALK	= 1,356 SF
PATIO	= 1,350 SF
EXISTING PRIVATE DRIVES	= 8,166 SF
EXISTING TRAIL	= 4,444 SF
OPEN SPACE PROVIDED	= 68,812 SF (62.4%)

PERVIOUS CALCULATIONS:

PERVIOUS AREA:	68,812 SF (62.4%)
IMPERVIOUS AREA:	41,544 SF (37.6%)

PARKING:

TOTAL REQUIRED	= 1 SPACE/50 SF CUSTOMER SERVICE AREA
	= 350 SF/50 SF
	= 7 SPACES
TOTAL PROVIDED	= 20 SPACES

ACCESSIBLE SPACES REQUIRED = 2 SPACES

ACCESSIBLE SPACES PROVIDED = 2 SPACES

DATE OF SURVEY

11/02/2022

BENCHMARKS

- CITY OF CLIVE BM #1. MONUMENT AT THE NORTHEAST CORNER OF THE INTERSECTION BETWEEN NW 75TH STREET AND UNIVERSITY AVENUE.
ELEV=828.19
- CDA SET BM: TOP OF THE WEST LIGHT POLE BASE ON THE SOUTH SIDE OF APPLE VALLEY ROAD AND +/- 100 FEET NORTHEAST OF THE EXISTING B-BOP'S BUILDING.
ELEV=836.67

CONSTRUCTION SCHEDULE

ANTICIPATED START DATE = 07/01/2023
ANTICIPATED FINISH DATE = 07/01/2024

INDEX OF SHEETS

NO.	DESCRIPTION
C0.1	COVER SHEET
C1.1-C1.3	DETAILS
C2.1	SITE MAP
C2.2	TOPOGRAPHIC AND DEMOLITION PLAN
C3.1	DIMENSION PLAN
C3.2	PAVEMENT MARKING/SIGNAGE PLAN
C4.1-C4.2	GRADING PLAN
C5.1	EROSION AND SEDIMENT CONTROL PLAN
C6.1	UTILITY PLAN
C7.1	TRAIL CLOSURE PLAN
C8.1	LANDSCAPE PLAN

GENERAL LEGEND

PROPOSED	EXISTING
PROPERTY BOUNDARY	SANITARY MANHOLE
SECTION LINE	WATER VALVE BOX
CENTER LINE	FIRE HYDRANT
RIGHT OF WAY	WATER CURB STOP
BUILDING SETBACK	WELL
PERMANENT EASEMENT	STORM SEWER MANHOLE
TEMPORARY EASEMENT	STORM SEWER SINGLE INTAKE
TYPE SW-501 STORM INTAKE	STORM SEWER DOUBLE INTAKE
TYPE SW-502 STORM INTAKE	FLARED END SECTION
TYPE SW-503 STORM INTAKE	DECIDUOUS TREE
TYPE SW-505 STORM INTAKE	CONIFEROUS TREE
TYPE SW-506 STORM INTAKE	DECIDUOUS SHRUB
TYPE SW-512 STORM INTAKE	CONIFEROUS SHRUB
TYPE SW-513 STORM INTAKE	ELECTRIC POWER POLE
TYPE SW-401 STORM MANHOLE	GUY ANCHOR
TYPE SW-402 STORM MANHOLE	STREET LIGHT
FLARED END SECTION	POWER POLE W/ TRANSFORMER
TYPE SW-301 SANITARY MANHOLE	UTILITY POLE W/ LIGHT
STORM/SANITARY CLEANOUT	ELECTRIC BOX
WATER VALVE	ELECTRIC TRANSFORMER
FIRE HYDRANT ASSEMBLY	ELECTRIC MANHOLE OR VAULT
SIGN	TRAFFIC SIGN
DETECTABLE WARNING PANEL	TELEPHONE JUNCTION BOX
WATER CURB STOP	TELEPHONE MANHOLE/VAULT
SANITARY SEWER	TELEPHONE POLE
SANITARY SERVICE	GAS VALVE BOX
STORM SEWER	CABLE TV JUNCTION BOX
STORM SERVICE	CABLE TV MANHOLE/VAULT
WATERMAIN WITH SIZE	MAIL BOX
WATER SERVICE	BENCHMARK
SAWCUT (FULL DEPTH)	SOIL BORING
SILT FENCE	UNDERGROUND TV CABLE
USE AS CONSTRUCTED	GAS MAIN
FINISHED FLOOR ELEVATION	FIBER OPTIC



1-800-292-8989 | www.iowaonecall.com

UTILITY WARNING

ANY UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY AND RECORDS OBTAINED BY THIS SURVEYOR. THE SURVEYOR MAKES NO GUARANTEE THAT THE UTILITIES SHOWN COMprise ALL THE UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION SHOWN.

THE PROJECT REQUIRES AN IOWA NPDES PERMIT #2 AND CITY OF WINDSOR HEIGHTS GRADING PERMIT. CIVIL DESIGN ADVANTAGE WILL PROVIDE THE PERMITS AND THE INITIAL STORM WATER POLLUTION PREVENTION PLAN (SWPPP) FOR THE CONTRACTORS USE DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR UPDATING THE SWPPP THROUGHOUT CONSTRUCTION AND MEETING LOCAL, STATE AND FEDERAL REQUIREMENTS.

ALL CONSTRUCTION MATERIALS, DUMPSTERS, DETACHED TRAILERS OR SIMILAR ITEMS ARE PROHIBITED ON PUBLIC STREETS OR WITHIN THE PUBLIC R.O.W.

THE 2023 EDITION OF THE SUDAS STANDARD SPECIFICATIONS, THE PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG) AND ALL CITY SUPPLEMENTS, IF APPLICABLE, SHALL APPLY TO ALL WORK ON THIS PROJECT UNLESS OTHERWISE NOTED.



CIVIL DESIGN ADVANTAGE

4121 NW URBANDALE DRIVE, URBANDALE, IA 50322

PH: (515) 369-4400

PROJECT NO. 2210.678

I HEREBY CERTIFY THAT THIS LAND SURVEYING DOCUMENT WAS PREPARED AND THE RELATED SURVEY WORK WAS PERFORMED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF IOWA.

MATTHEW J. THOMAS, P.L.S.

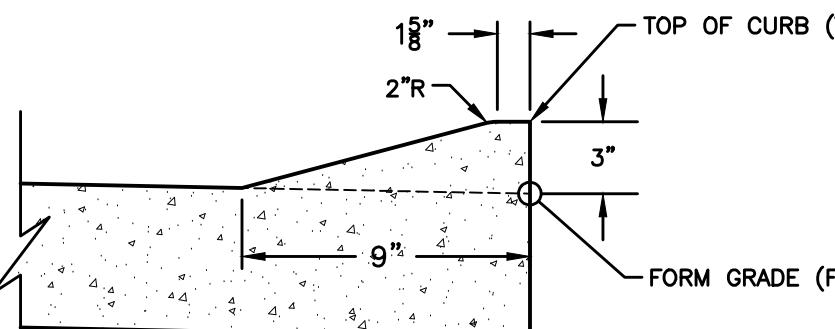
LICENSE NUMBER 19968
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2023
PAGES OR SHEETS COVERED BY THIS SEAL:
SHEET C2.1-C2.2

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

JEFFREY J. NESMK, P.E.

LICENSE NUMBER 23810
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2024
PAGES OR SHEETS COVERED BY THIS SEAL:
SHEETS C0.1-C6.1

**PRELIMINARY
NOT FOR CONSTRUCTION**

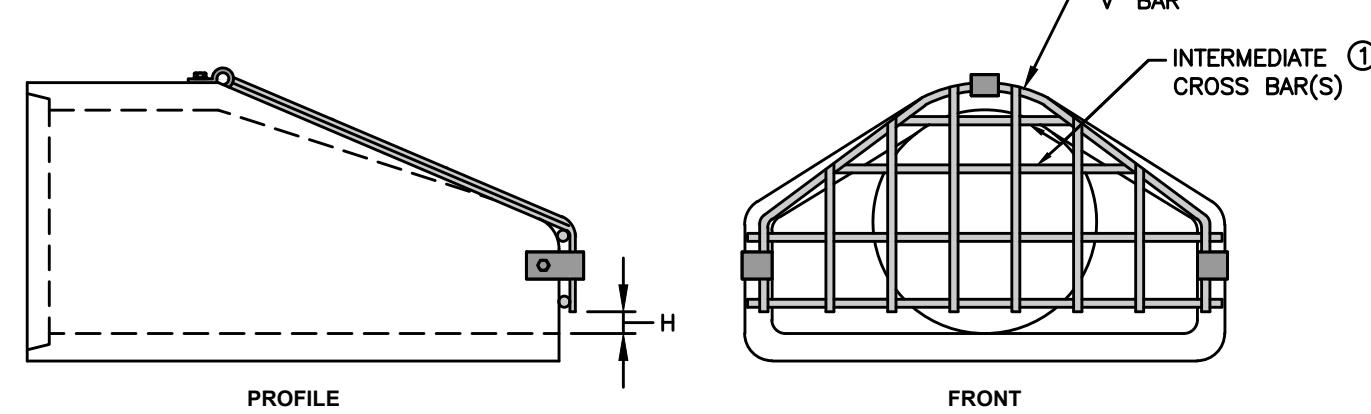
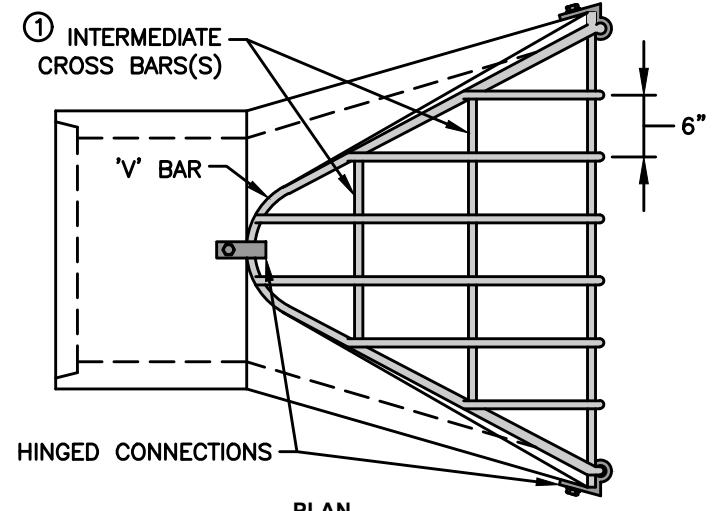


INTEGRAL 3" ROLLED CURB ISPOT ELEVATION REFERENCE

9 NOT TO SCALE

PROVIDE GUARD DIMENSIONS TO FIT WITH TYPE OF APRON PROVIDED. ENSURE 'V' BAR COMPLETELY RESTS ON APRON.

① ALL GUARDS MUST INCLUDE AT LEAST ONE INTERMEDIATE CROSS BAR. IF PIPE DIAMETER, OR EQUIVALENT DIAMETER, IS 60 INCHES OR GREATER, USE TWO INTERMEDIATE CROSS BARS EQUALLY SPACED.



ROUND		ARCH		ELLIPTICAL	
PIPE SIZE	H	EQUIVALENT DIAMETER	H	EQUIVALENT DIAMETER	H
12"	2 ¹ / ₂ "	18" to 24"	4"	18"	3"
15"	3"	30" to 36"	5"	24"	4"
18" - 24"	4"	42" to 54"	6"	30" to 36"	5"
27" - 36"	5"	60" to 72"	7"	42" to 54"	6"
42" - 54"	6"			60"	7"
60" - 72"	7"				
78" - 90"	8"				

BAR SIZES					
	PIPE SIZE (DIA. or EQUIV.)	HOLE DIA. REQ'D.	BOLT DIA.	BAR SIZE	
ROUND ARCH ELLiptical	12" - 24"	$\frac{3}{8}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	
	27" - 48"	$\frac{7}{16}$ "	$\frac{3}{8}$ "	1"	
	54" - 90"	$1\frac{1}{16}$ "	1"	$1\frac{1}{4}$ "	
	up to 24" eq.	$\frac{3}{8}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	
	30" to 48"	$\frac{7}{16}$ "	$\frac{3}{8}$ "	1"	
	54" to 72"	$1\frac{1}{16}$ "	1"	$1\frac{1}{4}$ "	
	up to 24" eq.	$\frac{3}{8}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	
	30" to 48"	$\frac{7}{16}$ "	$\frac{3}{8}$ "	1"	
	54" to 60"	$1\frac{1}{16}$ "	1"	$1\frac{1}{4}$ "	
BOLT LENGTH = PIPE WALL THICKNESS + $\frac{1}{2}$ "					

REVISIONS _____
FOURTH SUB
PEDESTRAIN
SECOND SUB
FIRST SUBM

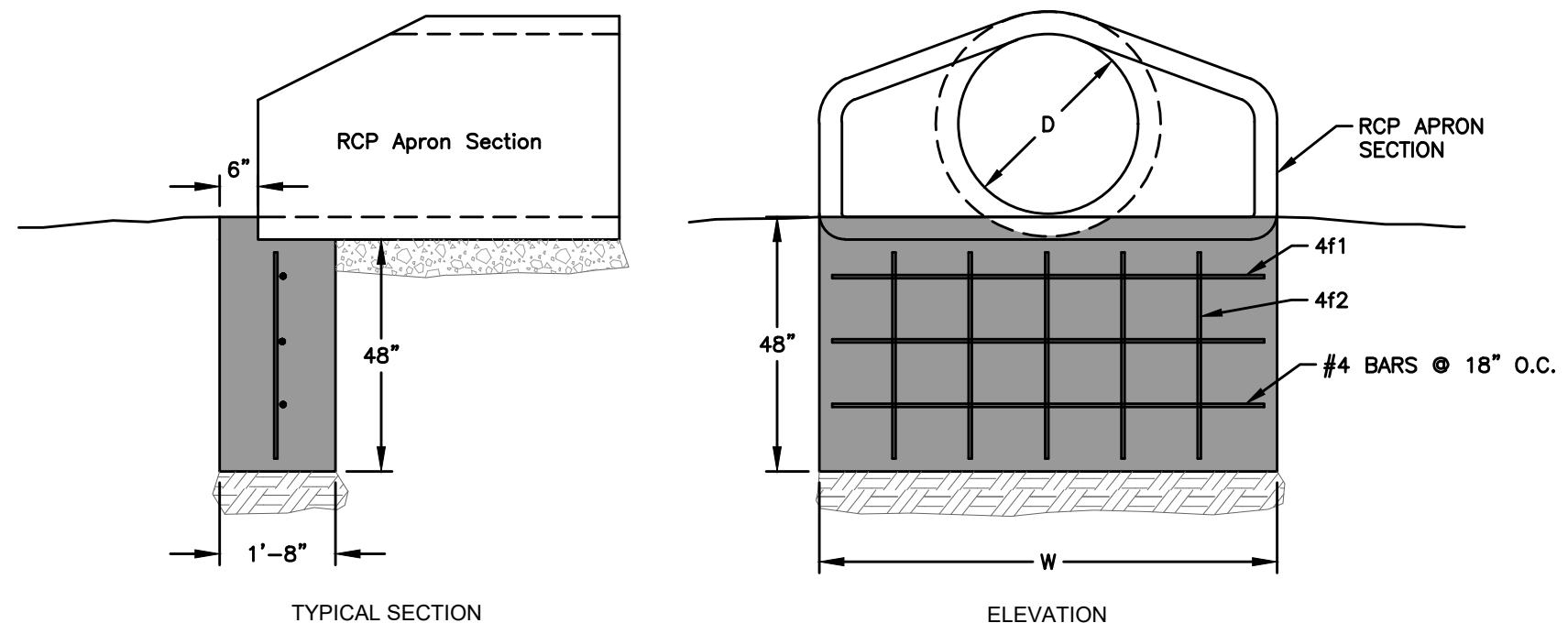
1121 NW URBANDALE DRIVE
URBANDALE, IA 50322
PHONE: (515) 369-4400

88

WINDSOR HEIGHTS, IOWA

3-BOP'S DETAILED

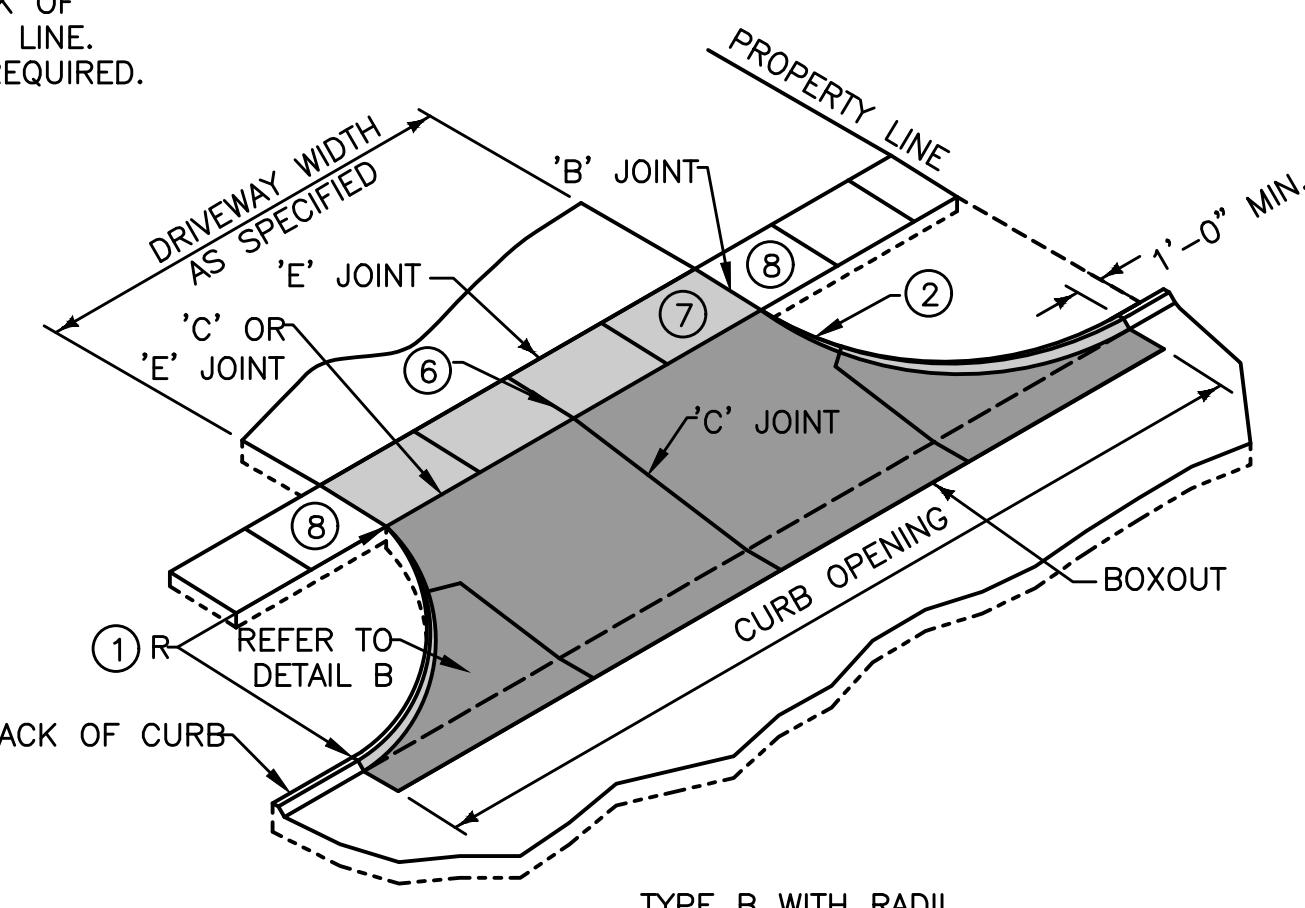
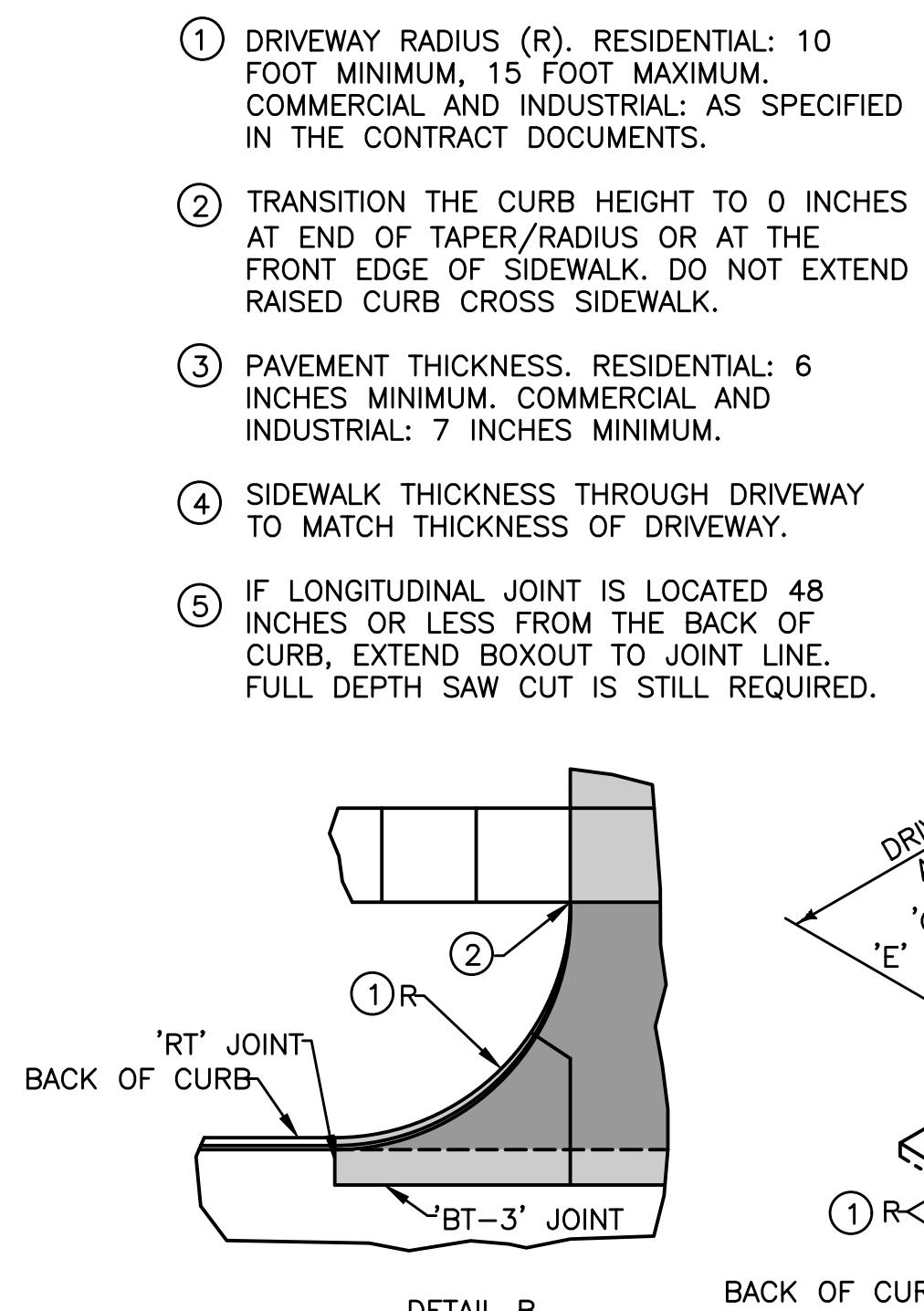
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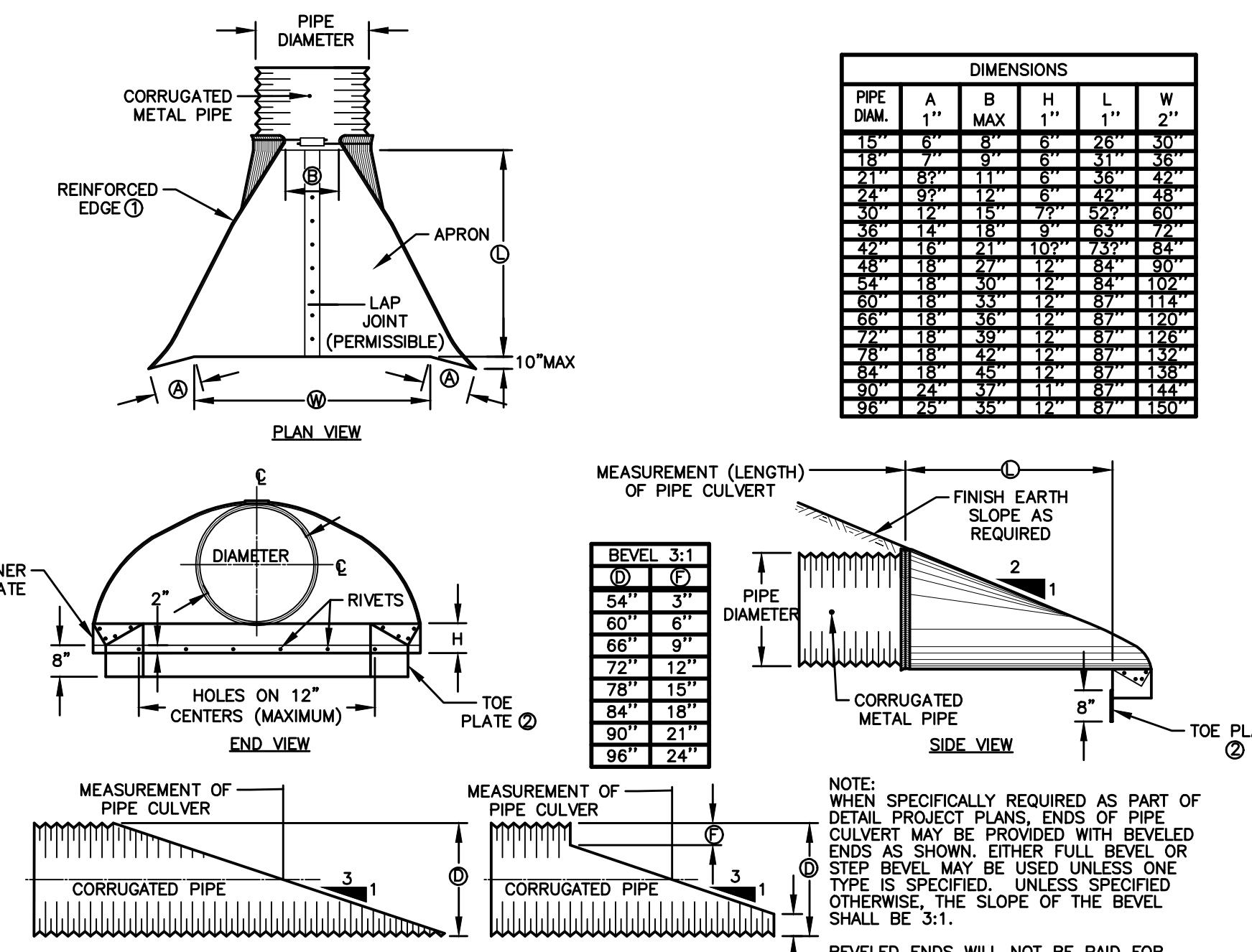
REINFORCING BAR LIST

ALUMINUM BAR LIST						
D	W	Mark	Size	Length	Count	
12"	2'-4"	4f1	4	2'-0"	3	
		4f2	4	3'-8"	2	
15"	2'-10 1/2"	4f1	4	2'-6 1/2"	3	
		4f2	4	3'-8"	2	
18"	3'-5"	4f1	4	3'-1"	3	
		4f2	4	3'-8"	3	
24"	4'-6"	4f1	4	4'-2"	3	
		4f2	4	3'-8"	3	
30"	5'-7"	4f1	4	5'-3"	3	
		4f2	4	3'-8"	4	
36"	6'-8"	4f1	4	6'-4"	3	
		4f2	4	3'-8"	5	
42"	7'-3"	4f1	4	6'-11"	3	
		4f2	4	3'-8"	5	
48"	7'-10"	4f1	4	7'-6"	3	
		4f2	4	3'-8"	6	
54"	8'-5"	4f1	4	8'-1"	3	
		4f2	4	3'-8"	6	
60"	8'-11"	4f1	4	8'-7"	3	
		4f2	4	3'-8"	6	
66"	8'-11"	4f1	4	8'-7"	3	
		4f2	4	3'-8"	6	
72"	10'-0"	4f1	4	9'-8"	3	
		4f2	4	3'-8"	7	
78"	10'-7"	4f1	4	10'-3"	3	
		4f2	4	3'-8"	7	
84"	11'-1"	4f1	4	10'-9"	3	
		4f2	4	3'-8"	8	

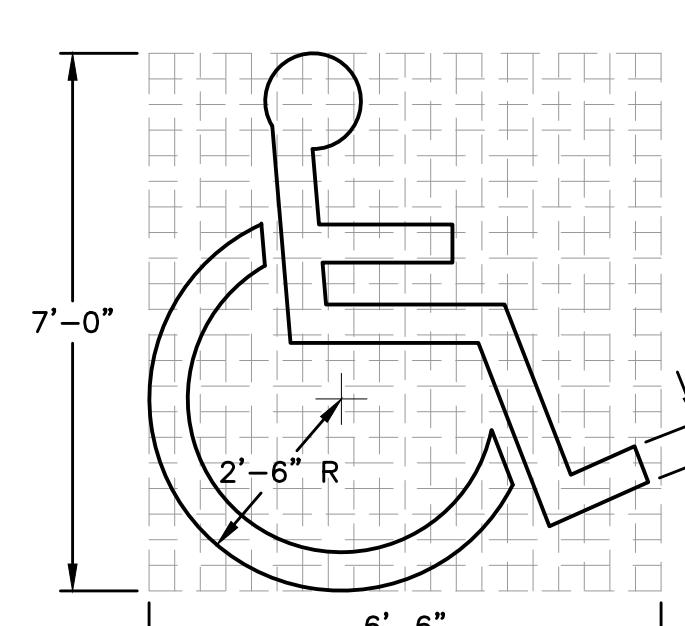
4 RCP APRON SECTION FOOTING



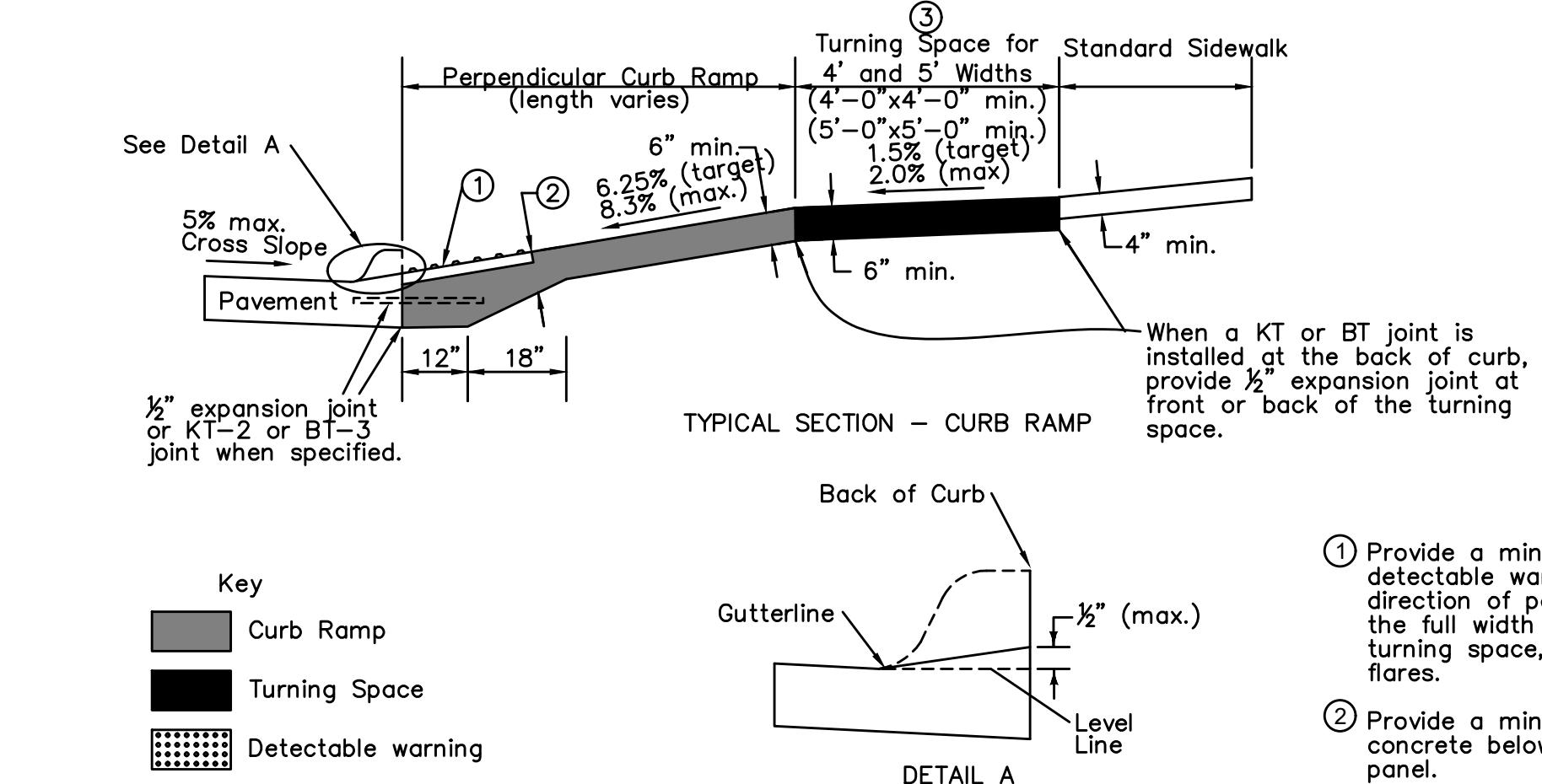
5 CONCRETE DRIVEWAY TYPE B



1 CORRUGATED METAL PIPE APRON



2 ADA SIGNAGE DETAILS



GENERAL SIDEWALK AND CURB RAMP DETAILS

- ① Provide a minimum 2 foot width of detectable warning surfaces in the direction of pedestrian travel across the full width of the curb ramp or turning space, exclusive of curbs or

flares.

② Provide a minimum of 6 inches of concrete below the detectable warning panel.

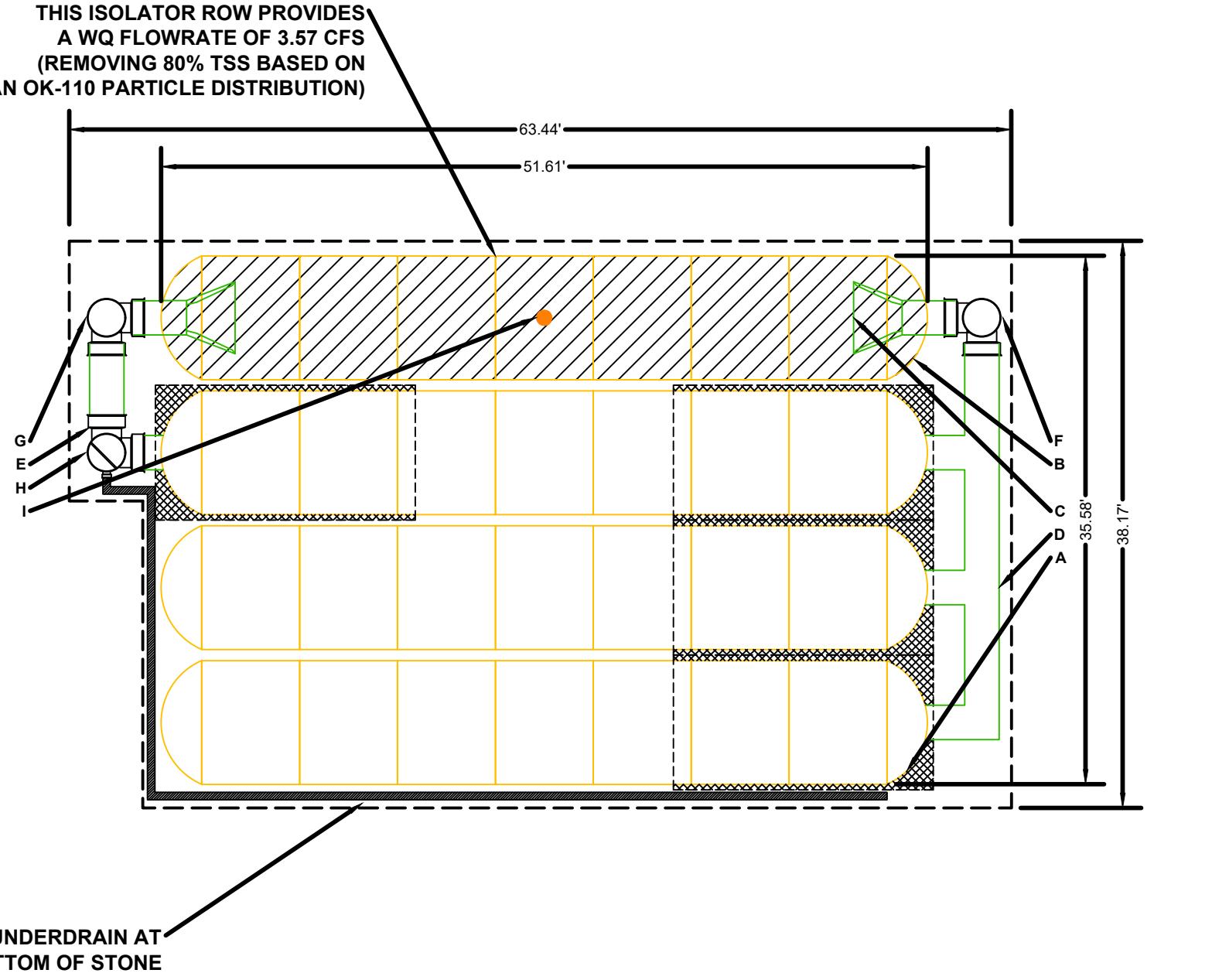
③ Target slope of 1.5% with maximum slope perpendicular to the travel directions of 2.0%

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW	PROPOSED LAYOUT
PREFABRICATED END CAP	A	24" TOP PARTIAL CUT END CAP, PART#: MC7200I/EPP24T / TYP OF ALL 24" TOP CONNECTIONS	23.05"		28 STORMTECH MC-7200 CHAMBERS
PREFABRICATED END CAP	B	24" BOTTOM PARTIAL CUT END CAP, PART#: MC7200I/EPP24B / TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	22.26"		8 STORMTECH MC-7200 END CAPS
FLAMP	C	INSTALL FLAMP ON 24" ACCESS PIPE / PART#: MCFLAMP (TYP 2 PLACES)			12 STONE ABOVE (in)
MANIFOLD	D	24" x 24" TOP MANIFOLD, ADS N-12	23.05"		9 STONE BELOW (in)
MANIFOLD	E	24" x 24" TOP MANIFOLD, ADS N-12	23.05"		40 STONE VOID
NYLOPLAST (INLET W/ ISO PLUS ROW)	F	30" DIAMETER (24.00" SUMP MIN)		28.5 CFS IN	INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)
NYLOPLAST (INLET W/ ISO PLUS ROW)	G	30" DIAMETER (24.00" SUMP MIN)		9.5 CFS IN	9408 SYSTEM AREA (SF)
NYLOPLAST (OUTLET)	H	30" DIAMETER (DESIGN BY ENGINEER)		7.0 CFS OUT	2320 SYSTEM PERIMETER (ft)
INSPECTION PORT	I	6" SEE DETAIL			203.2

CONCEPTUAL ELEVATIONS:

MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	836.00
MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	831.75
MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	831.25
MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	831.00
TOP OF STONE:	830.00
TOP OF MC-7200 CHAMBER:	829.00
24" x 24" TOP MANIFOLD INVERT:	825.92
24" x 24" TOP MANIFOLD INVERT:	825.92
24" ISOLATOR ROW PLUS INVERT:	824.19
24" ISOLATOR ROW PLUS INVERT:	824.19
24" BOTTOM CONNECTION INVERT:	824.19
BOTTOM OF MC-7200 CHAMBER:	824.00
BOTTOM OF STONE:	823.25

6" SEE DETAIL



NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE DESIGN OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLDS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THE CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR SOIL TYPES. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE IN SITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS RECEIVED.
- NOT FOR CONSTRUCTION:** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-7200 CHAMBER SYSTEM

- STORMTECH MC-7200 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH MC-7200 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONE SHOOTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEALED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM - 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
- INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
- STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.
- STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH MC-7200 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
- THE USE OF EQUIPMENT OVER MC-7200 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-7200 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

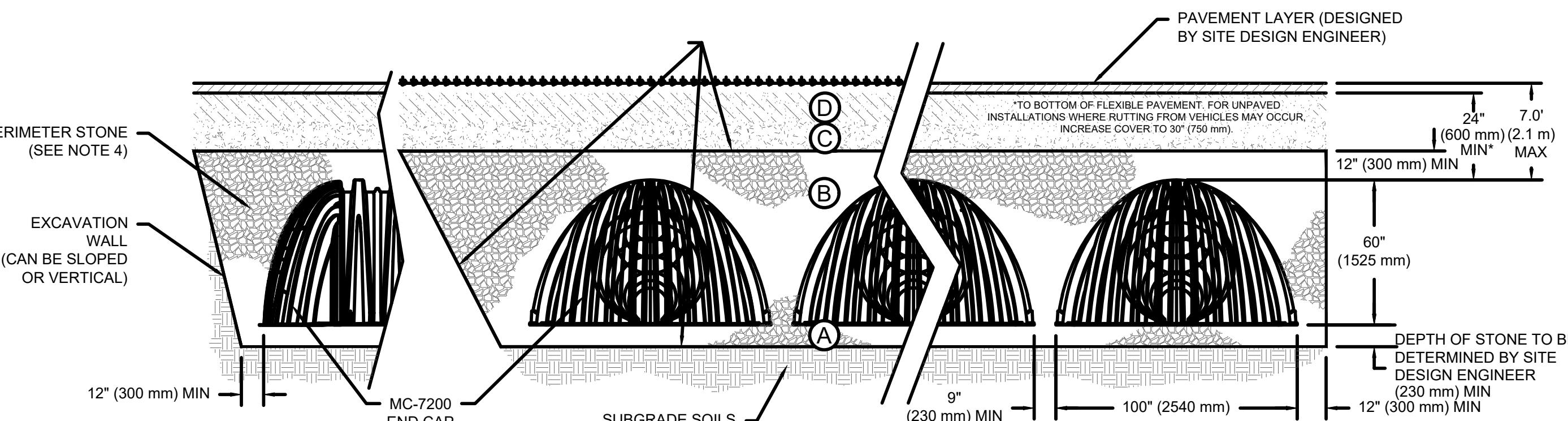
CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

ACCEPTABLE FILL MATERIALS: STORMTECH MC-7200 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACITION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE.	AASHTO M145 ¹ A-1, A-2-4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 ¹ 3, 4
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 ¹ 3, 4

PLEASE NOTE:

- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERS WITH A VIBRATORY COMPACTOR.
- WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
- MC-7200 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

MC-7200 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH MC-7200.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED, UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

B-BOP'S
DETAILS

C1.2
2210.678

WINDSOR HEIGHTS, IOWA

4121 NW URBANDALE DRIVE
URBANDALE, IA 50322
PHONE: (515) 369-4400

PM: DAM

ENGINEER: JUN

REVISIONS

DATE

08/10/23

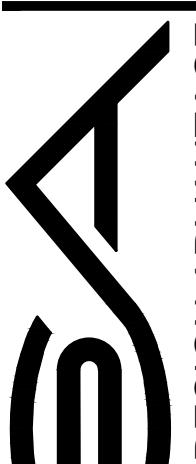
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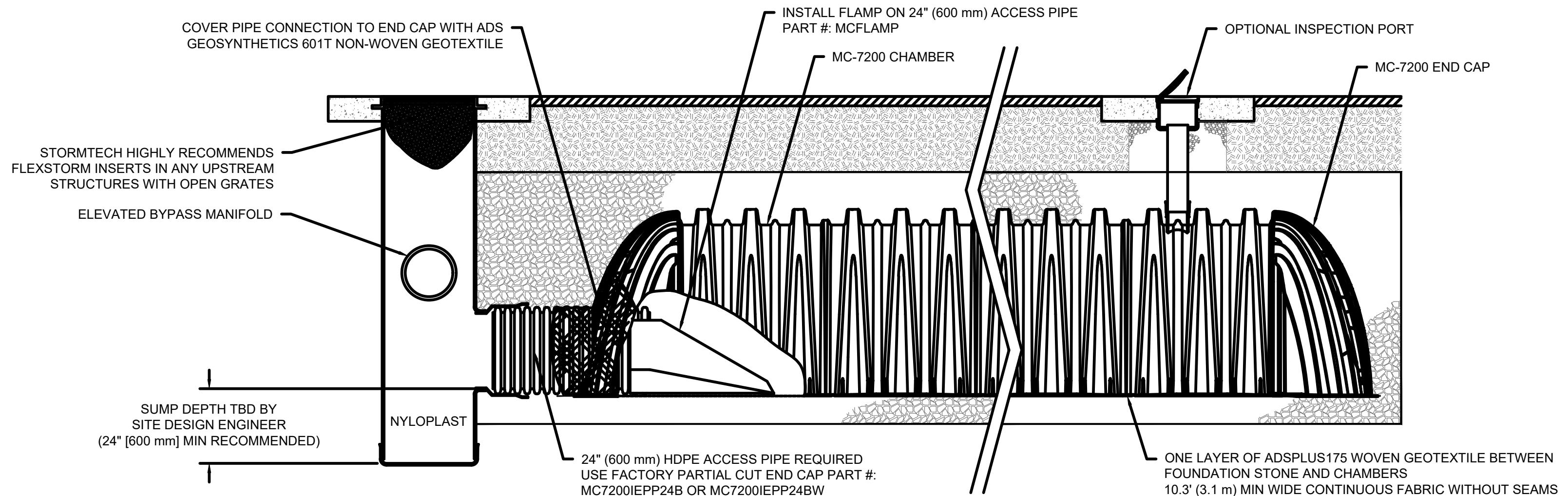
12/10/22

DATE	08/10/23
REVISIONS	
FOURTH SUBMITTAL	06/06/23
PEDESTRIAN CONNECTION THIRD SUB	05/12/23
SECOND SUBMITTAL	
FIRST SUBMITTAL	12/10/22

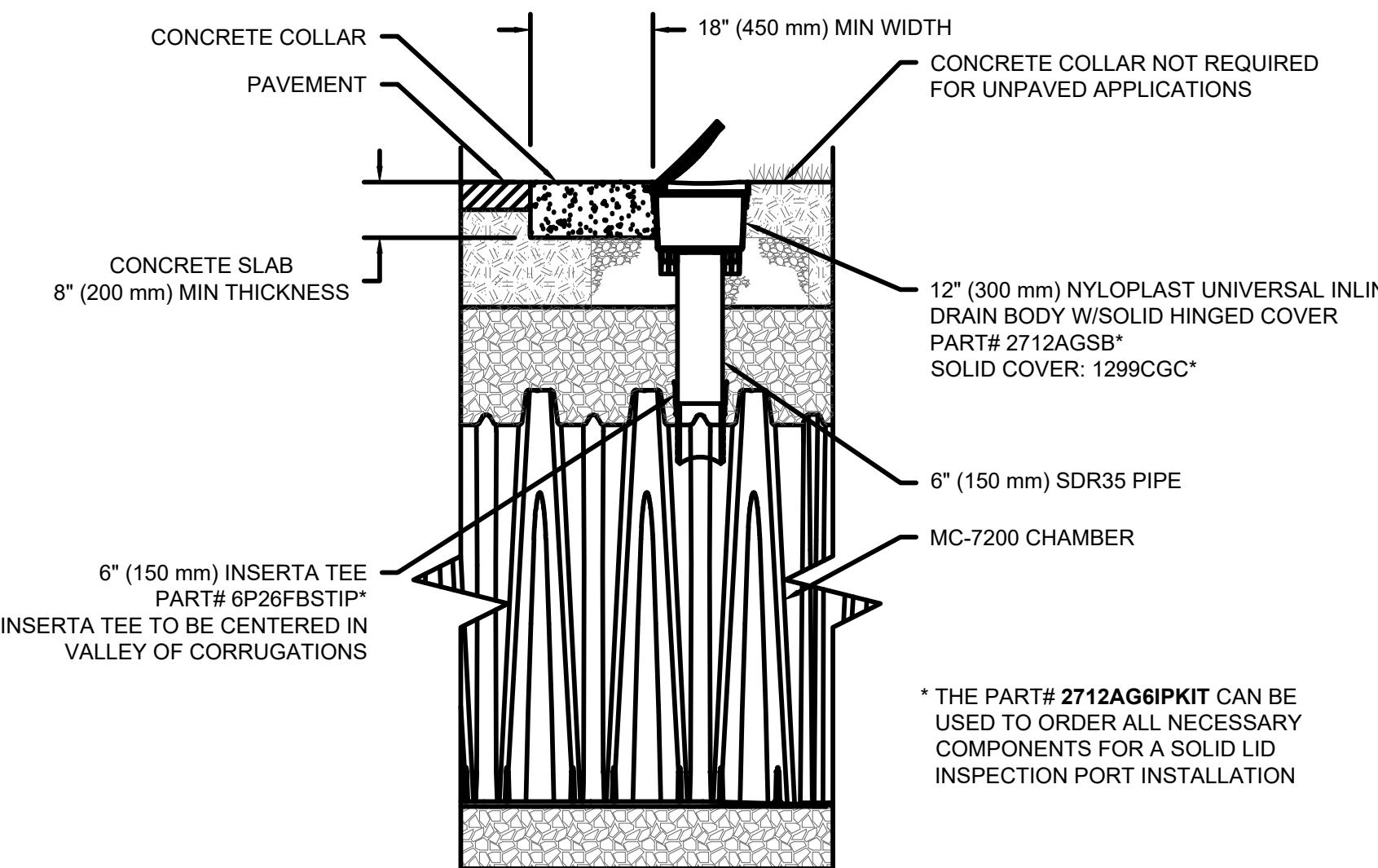
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URBANDALE, IA 50322
PHONE: (515) 369-4400



CIVIL DESIGN ADVANTAGE
WINDSOR HEIGHTS, IOWA



MC-7200 ISOLATOR ROW PLUS DETAIL
NTS



MC-7200 6" (150 mm) INSPECTION PORT DETAIL
NTS

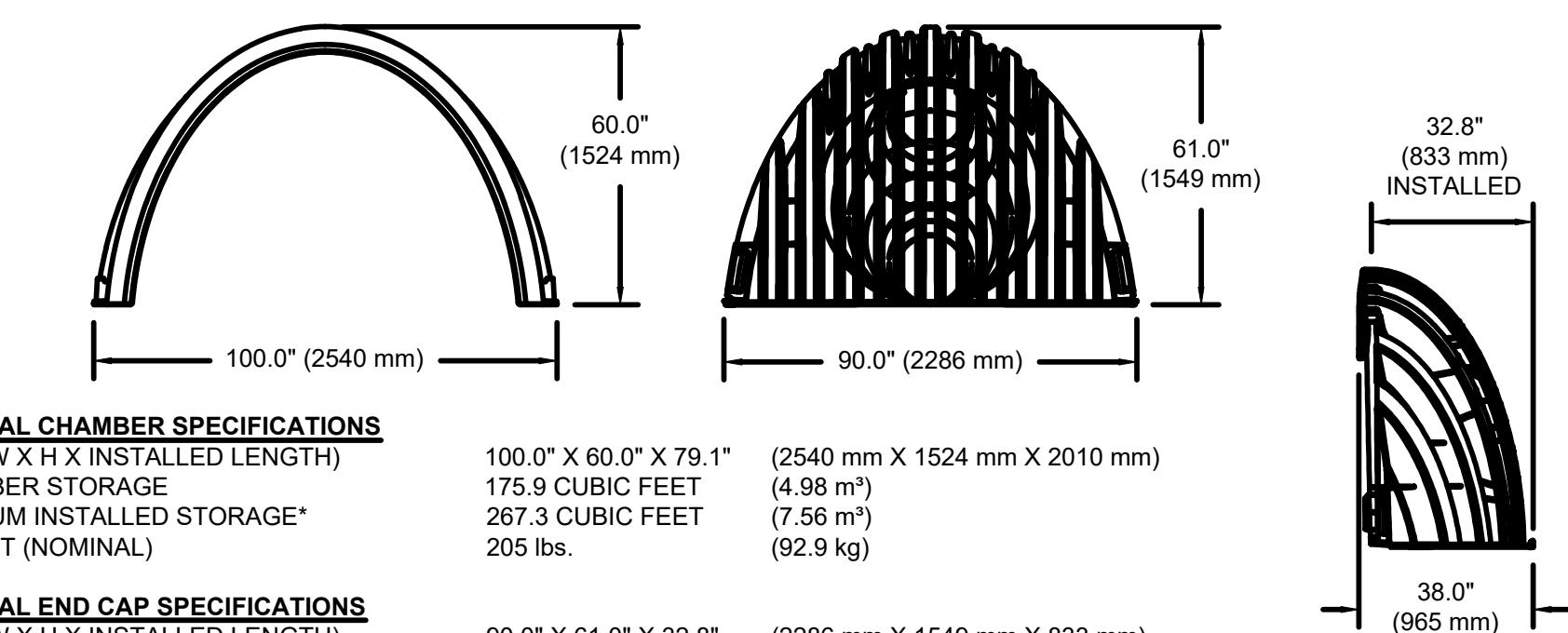
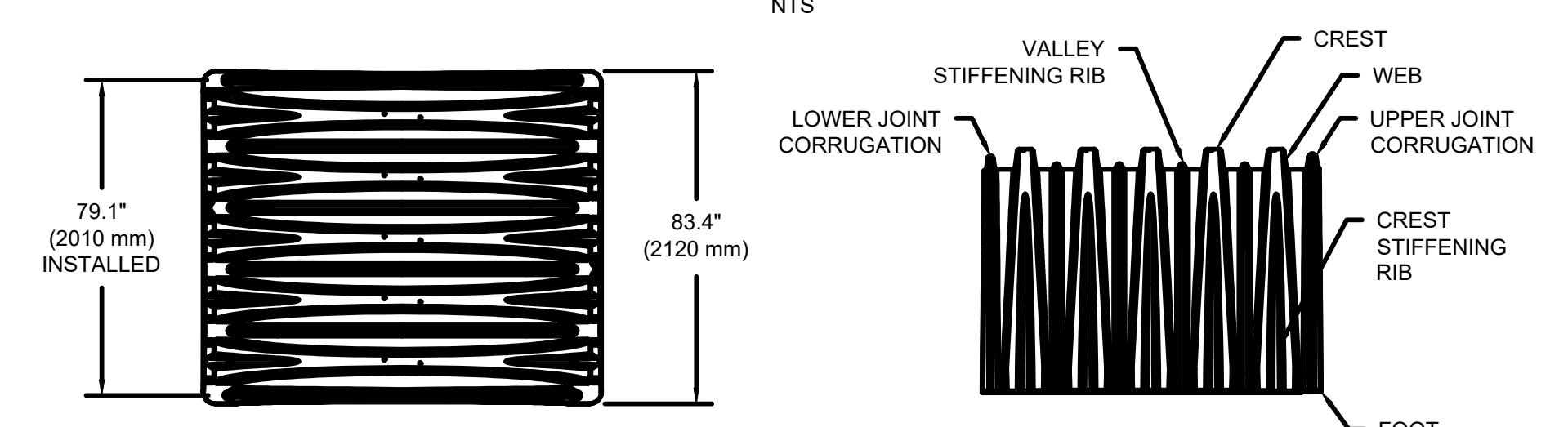
INSPECTION & MAINTENANCE

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

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

MC-7200 TECHNICAL SPECIFICATION



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)
CHAMBER STORAGE
MINIMUM INSTALLED STORAGE*
WEIGHT (NOMINAL)

100.0" X 60.0" X 79.1" (2540 mm X 1524 mm X 2010 mm)
175.9 CUBIC FEET (4.98 m³)
267.3 CUBIC FEET (7.56 m³)
205 lbs. (92.9 kg)

NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)
END CAP STORAGE
MINIMUM INSTALLED STORAGE*
WEIGHT (NOMINAL)

90.0" X 61.0" X 32.8" (2286 mm X 1549 mm X 833 mm)
39.5 CUBIC FEET (1.12 m³)
115.3 CUBIC FEET (3.26 m³)
90 lbs. (40.8 kg)

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

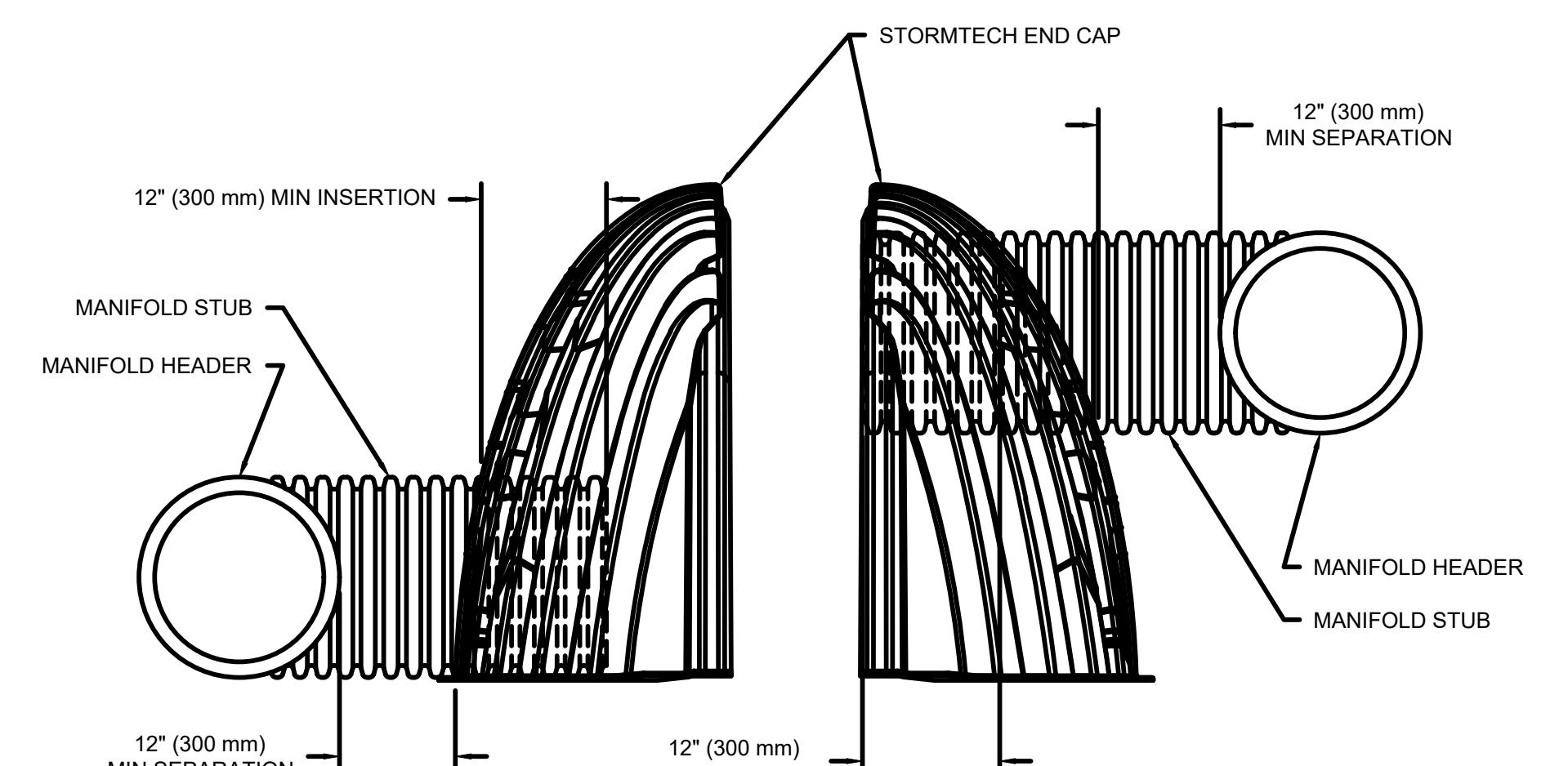
PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC7200IEPP06T	6" (150 mm)	42.54" (1081 mm)	---
MC7200IEPP06B		---	0.86" (22 mm)
MC7200IEPP08T	8" (200 mm)	40.50" (1029 mm)	---
MC7200IEPP08B		---	1.01" (26 mm)
MC7200IEPP10T	10" (250 mm)	38.37" (975 mm)	---
MC7200IEPP10B		---	1.33" (34 mm)
MC7200IEPP12T	12" (300 mm)	35.69" (907 mm)	---
MC7200IEPP12B		---	1.55" (39 mm)
MC7200IEPP15T	15" (375 mm)	32.72" (831 mm)	---
MC7200IEPP15B		---	1.70" (43 mm)
MC7200IEPP18T	18" (450 mm)	29.36" (746 mm)	---
MC7200IEPP18B		---	1.97" (50 mm)
MC7200IEPP18BW		---	2.26" (57 mm)
MC7200IEPP24T	24" (600 mm)	23.05" (585 mm)	---
MC7200IEPP24B		---	3.25" (83 mm)
MC7200IEPP24BW		---	3.55" (90 mm)
MC7200IEPP30BW	30" (750 mm)	---	2.95" (75 mm)
MC7200IEPP36BW	36" (900 mm)	---	3.25" (83 mm)
MC7200IEPP42BW	42" (1050 mm)	---	3.55" (90 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL.

CUSTOM PREFABRICATED INVERTS ARE AVAILABLE UPON REQUEST.
INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-42" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-7200 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

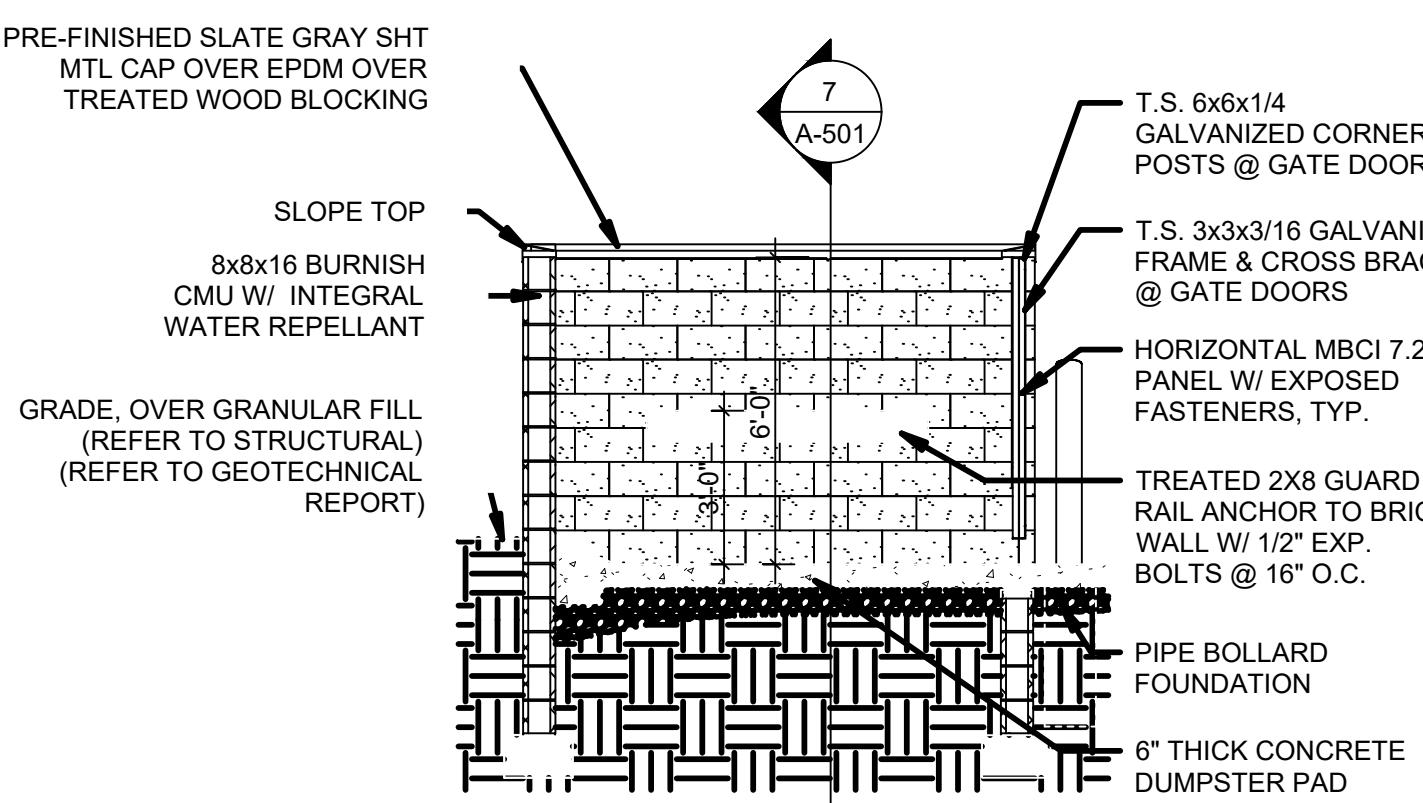
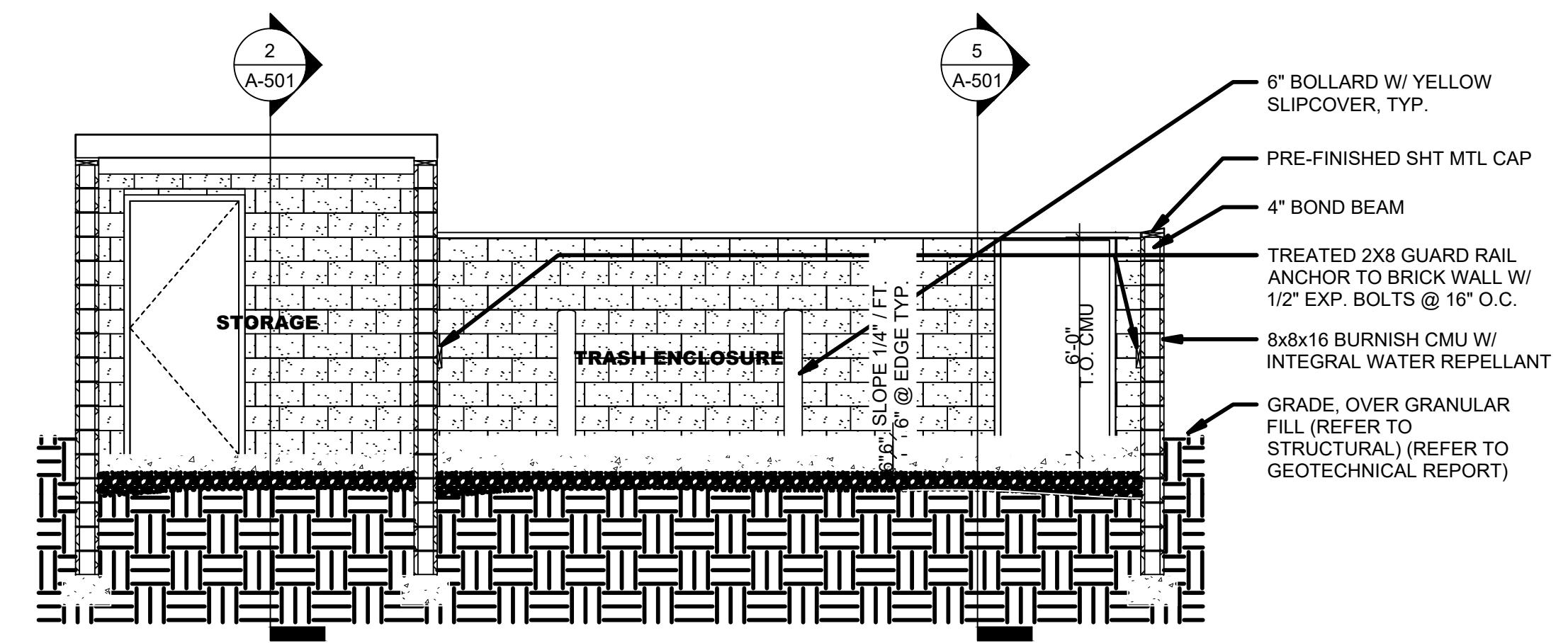
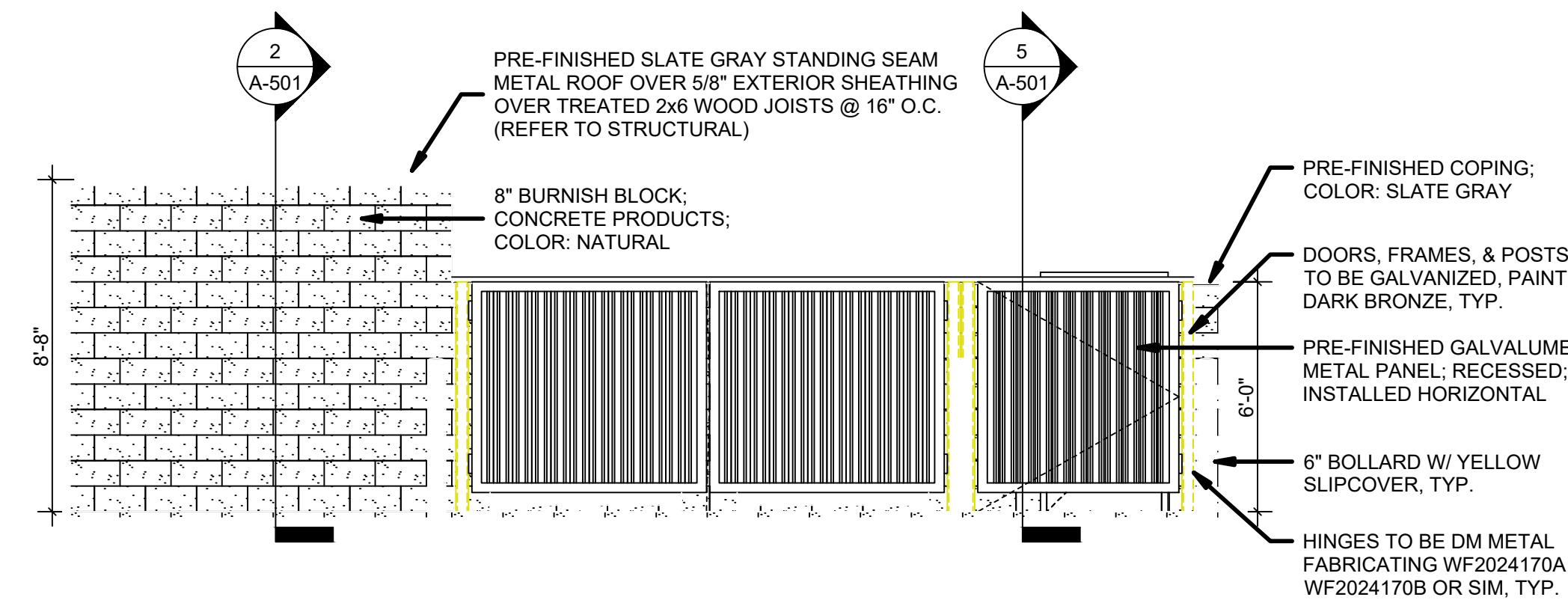
MC-SERIES END CAP INSERTION DETAIL



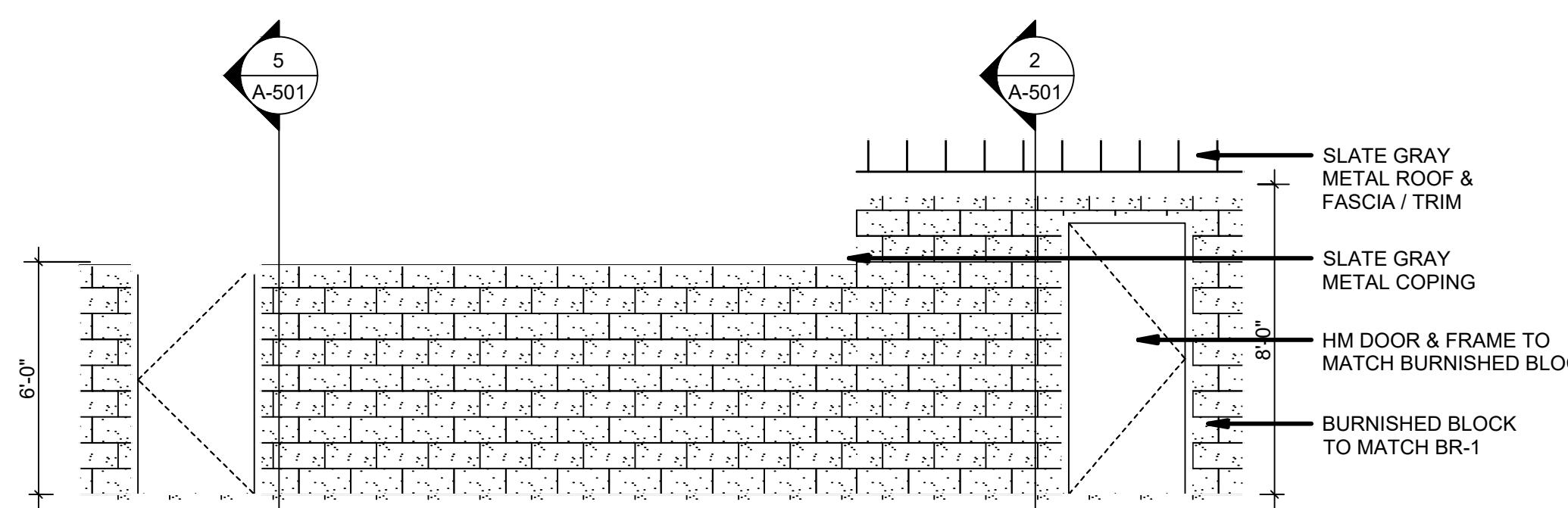
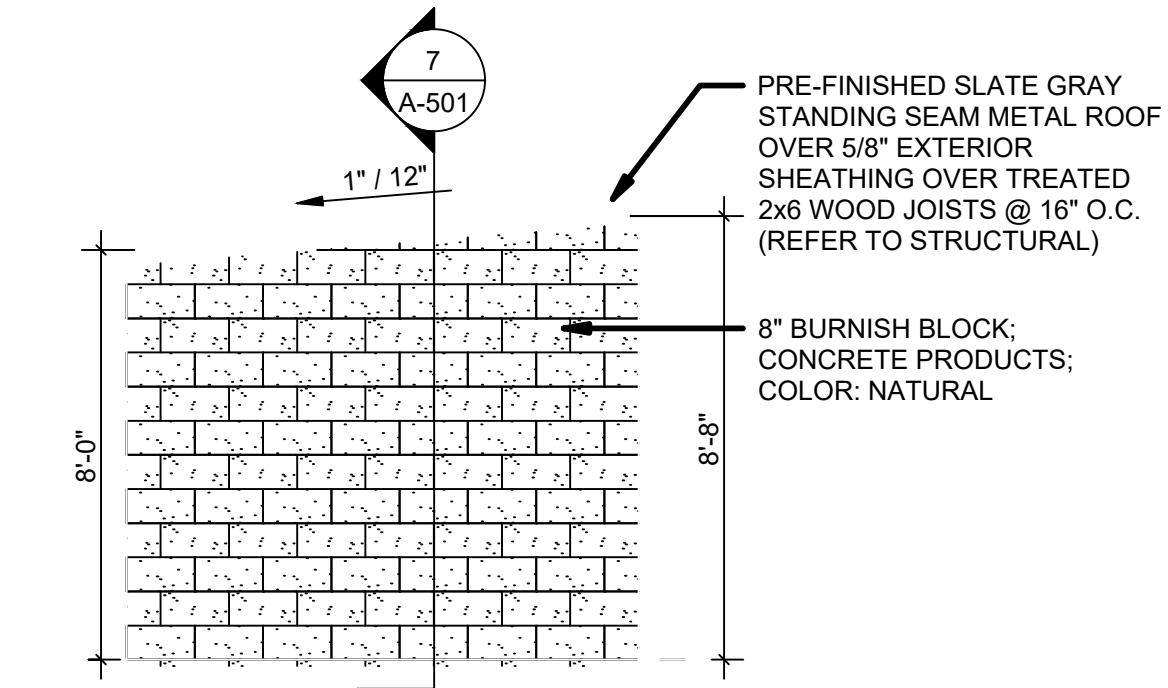
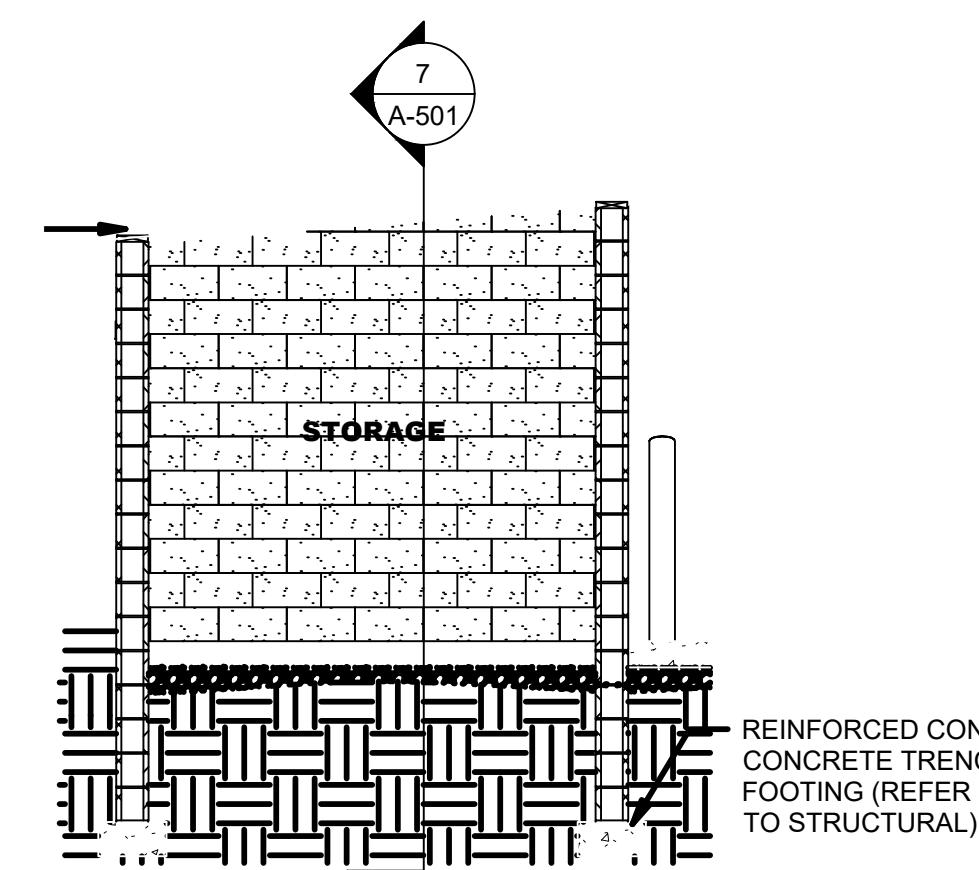
NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

B-BOP'S DETAILS

C1.3
2210.678



PRE-FINISHED SLATE GRAY STANDING SEAM METAL ROOF OVER 5/8" EXTERIOR SHEATHING OVER TREATED 2x6 WOOD JOISTS @ 16" O.C. (REFER TO STRUCTURAL)



B-BOP'S DETAILS

C1.4

2210.678

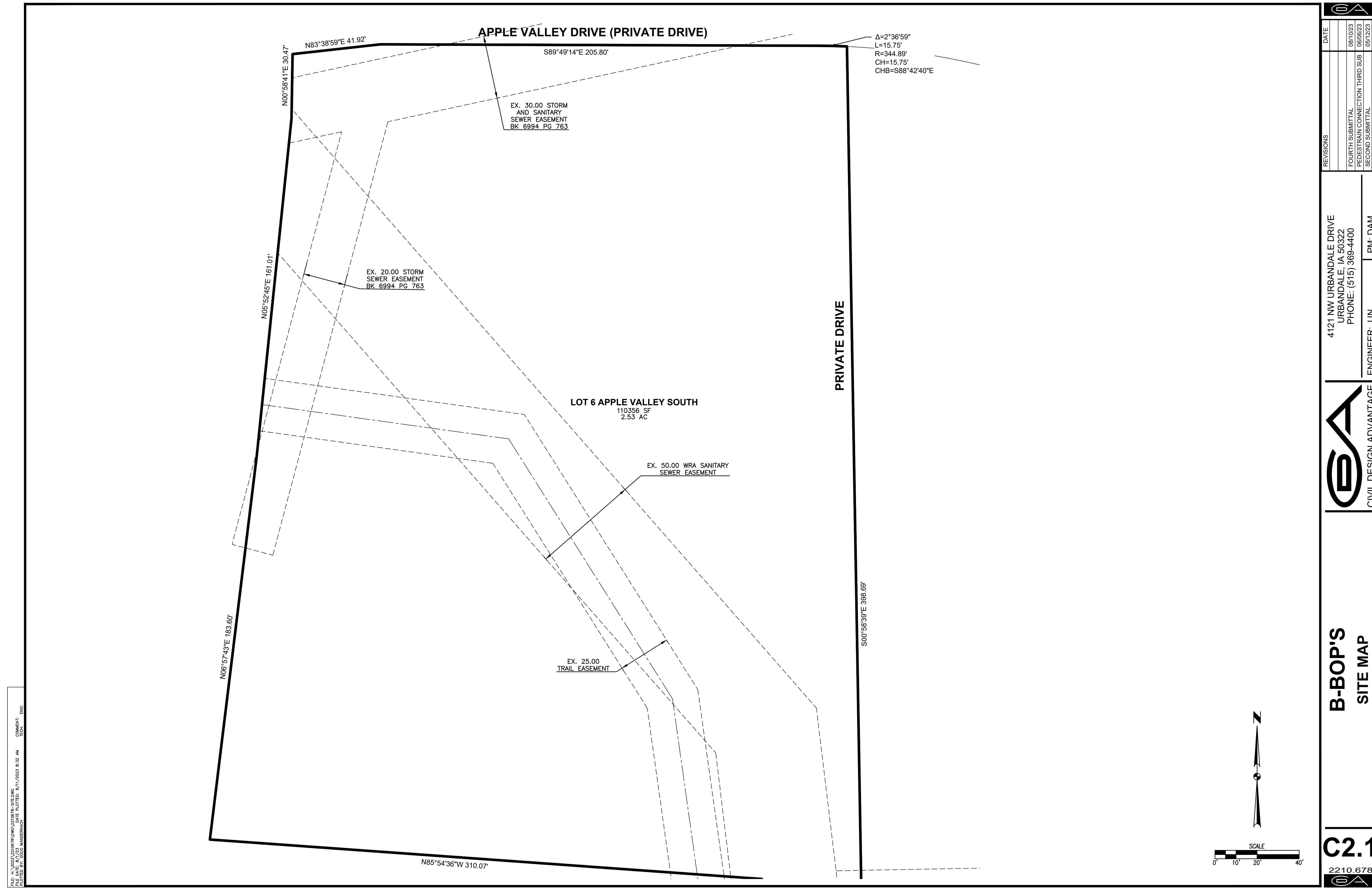
4121 NW URBANDALE DRIVE
URBANDALE, IA 50322
PHONE: (515) 369-4400

PM: DAM
ENGINEER: JUN
CIVIL DESIGN ADVANTAGE

WINDSOR HEIGHTS, IOWA

EA

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REVISIONS	DATE
FOURTH SUBMITTAL	08/10/23
PEDESTRIAN CONNECTION THIRD SUB	06/06/23
SECOND SUBMITTAL	05/12/23
FIRST SUBMITTAL	12/19/22

4121 NW URBANDALE DRIVE
URBANDALE, IA 50322
PHONE: (515) 369-4400

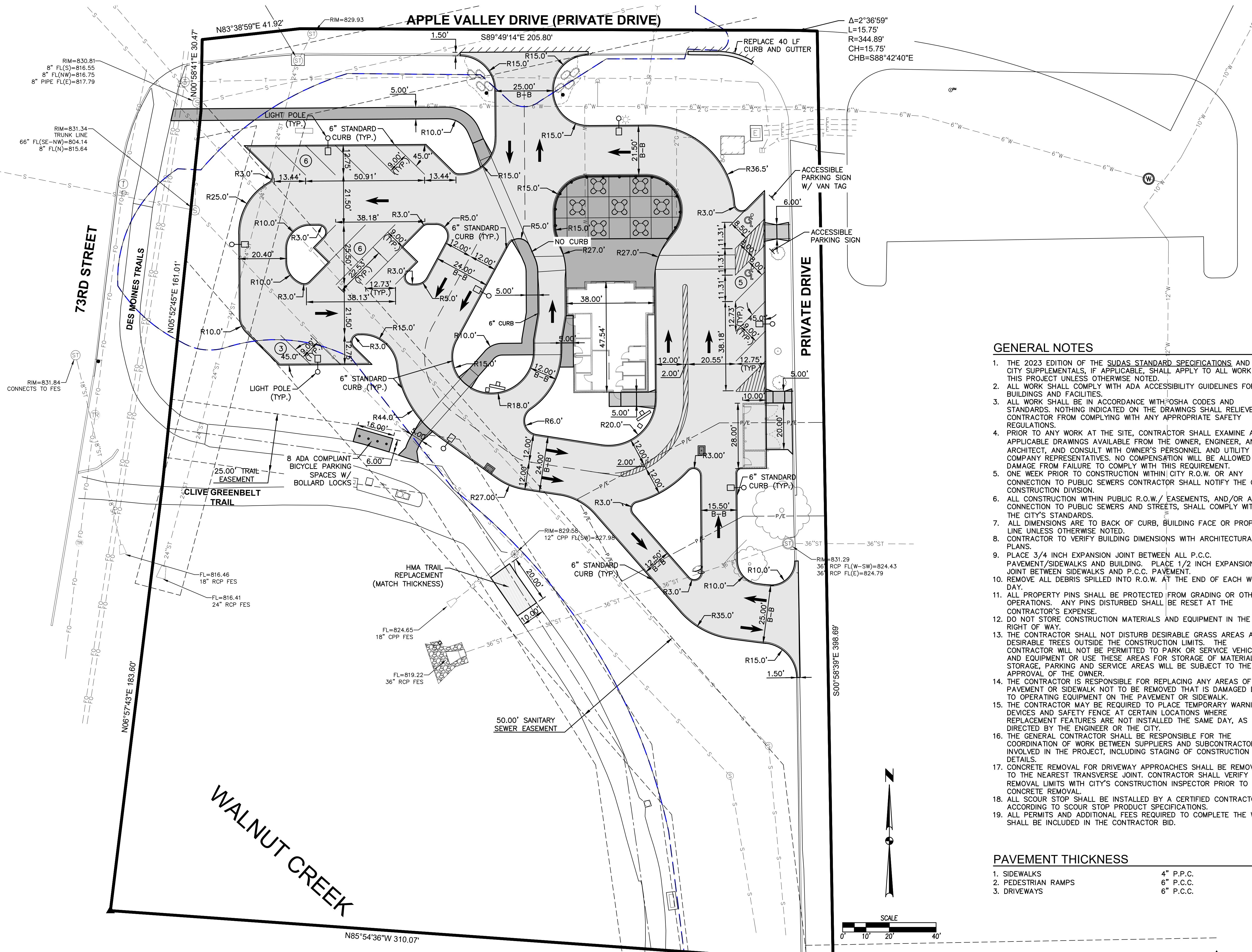
B-A
CIVIL DESIGN ADVANTAGE

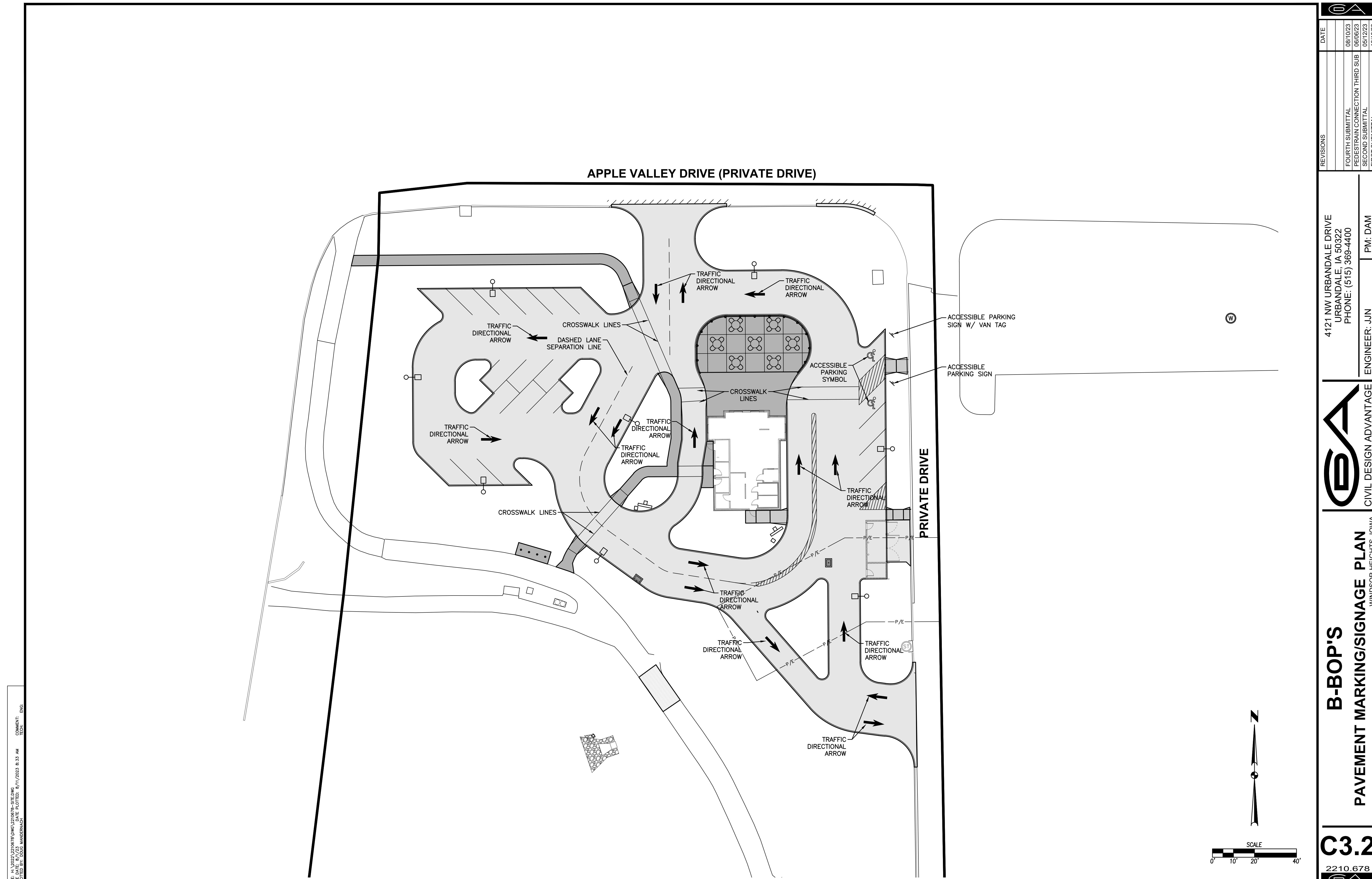
B-BOP'S DIMENSION PLAN

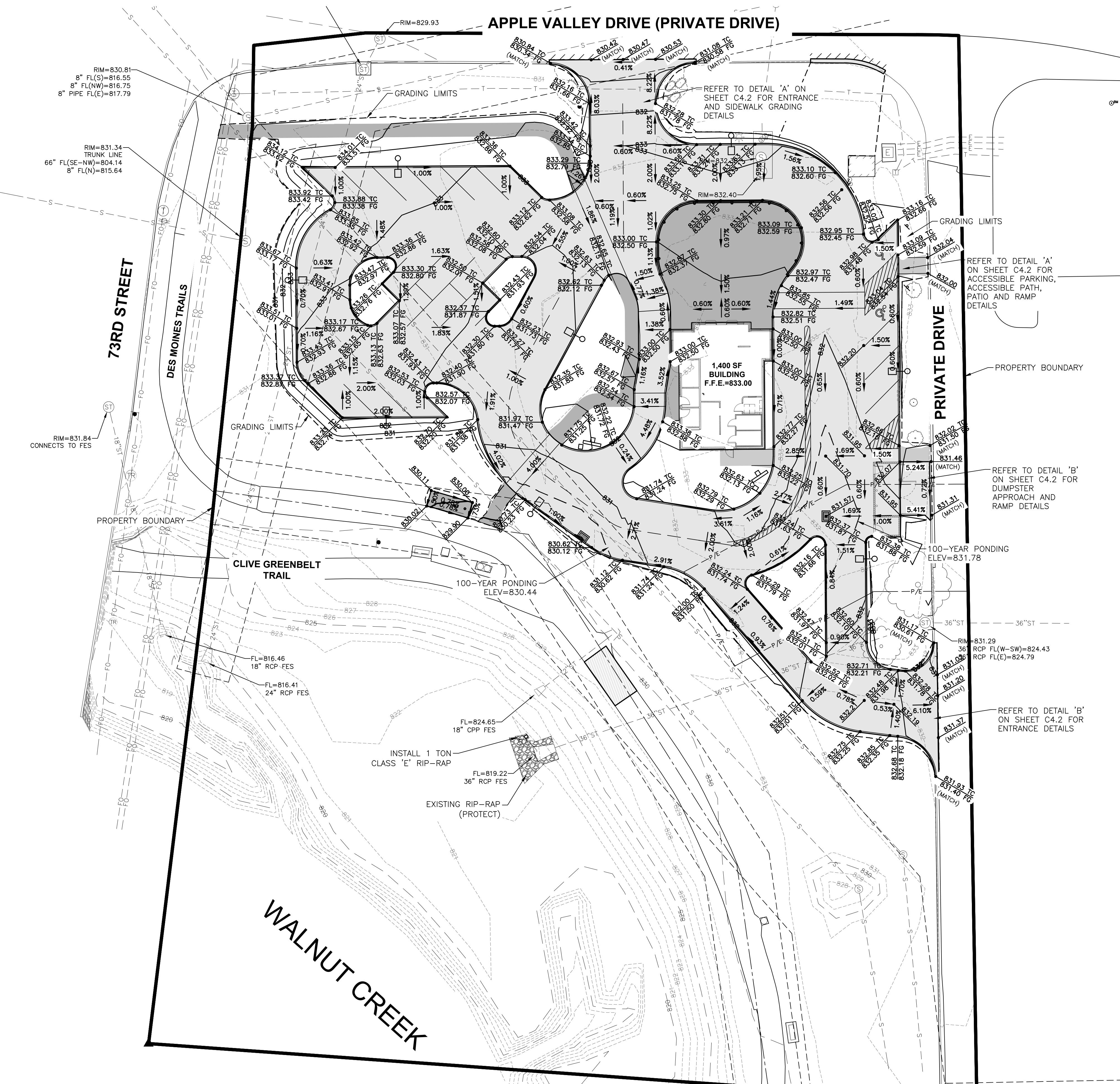
WINDSOR HEIGHTS, IOWA

C3.1

2210.678







GRADING NOTES

1. PRIOR TO ANY GRADING, A COPY OF THE NPDES PERMIT SHALL BE PROVIDED TO THE CITY'S BUILDING DIVISION.
2. CONTRACTOR SHALL STRIP ALL DELETERIOUS MATERIAL. THE TOP 6" OF TOPSOIL IS TO BE STOCKPILED AND RESPREAD AFTER GRADING IS COMPLETE. CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A SUITABLE TOPSOIL STOCKPILE SITE.
3. EXCAVATION SHALL BE IN ACCORDANCE WITH THE 2023 EDITION OF THE SUDAS STANDARD SPECIFICATIONS AND ALL CITY SUPPLEMENTALS, IF APPLICABLE,
4. MATCH EXISTING GRADES AT PROPERTY LINES AND/OR CONSTRUCTION LIMITS.
5. ALL SPOT ELEVATIONS ARE FORM GRADE (FG) OR TOP OF FINISHED SURFACES UNLESS OTHERWISE NOTED.
6. SITE SHALL BE GRADED TO PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDINGS.
7. SLOPES IN PAVEMENT SHALL BE UNIFORM TO AVOID PONDING.
8. THE CONTRACTOR SHALL CONFINE HIS GRADING OPERATIONS TO WITHIN THE CONSTRUCTION LIMITS AND EASEMENTS SHOWN ON THE PLANS. ANY DAMAGE TO PROPERTIES OUTSIDE THE SITE BOUNDARY SHALL BE AT THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
9. THE CONTRACTOR SHALL APPLY NECESSARY MOISTURE CONTROL TO THE CONSTRUCTION AREA AND HAUL ROADS TO PREVENT THE SPREAD OF DUST.
10. REFER TO SEPARATE STORM WATER POLLUTION PREVENTION PLAN FOR DETAILS ON EROSION CONTROL.
11. FINAL FINISH GRADING TO BE APPROVED BY THE ARCHITECT AND CIVIL ENGINEER. MATCH EXISTING GRADES AT THE INTERFACE OF NEW AND EXISTING GRADES OR PAVING.
12. SIDEWALKS:
MAINTAIN 1% MINIMUM AND 5% MAXIMUM LONGITUDINAL SLOPES ON ALL PAVED WALKWAYS. ALL WALKS TO HAVE 2.0% MAXIMUM TRANSVERSE SLOPE IN THE DIRECTION OF NATURAL DRAINAGE. SAW CUT JOINTS AS SOON AS CONCRETE HAS SET. SAW CUTS TO BE 1/8" TO 1/4" WIDE; DEPTH: LONGITUDINAL T/3, TRANSVERSE T/4.
13. THE GRADING OF THE DETENTION FACILITY, INSTALLATION OF THE STORM SEWER SYSTEM (IF APPLICABLE), AND THE INSTALLATION OF THE ORIFICE PLATE (IF APPLICABLE) SHALL BE COMPLETED AND FUNCTIONAL PRIOR TO ANY INCREASE IN IMPERVIOUS SURFACES WITHIN THE SITE OR THE PREVIOUSLY MENTIONED ITEMS SHALL BE GRADED/INSTALLED AS SOON AS PRACTICAL.

SOIL MANAGEMENT PLAN

REFER TO THE SOIL MANAGEMENT PLAN FOR DETAILS REGARDING SOIL QUALITY RESTORATION. METHOD 4 FROM THE ISWMM C5-S6 WILL BE USED FOR SOIL QUALITY RESTORATION. THE PROCEDURE IS AS FOLLOWS:

- i. TOPSOIL USED FOR SQR MUST MEET THE DEFINITION OF TOPSOIL FOUND IN PART F. "DESIGN PROCEDURES" FOUND ABOVE.
- ii. SITE SOILS SHOULD BE STRIPPED AND STOCKPILED IN AN APPROVED LOCATION IDENTIFIED IN THE SMP. THE SMP SHOULD IDENTIFY THE DEPTH OF THE TOPSOIL LAYER TO BE STRIPPED AND REPLACED. STRIPPING AND STOCKPILING SHOULD OCCUR BEFORE OTHER SITE GRADING OR CONSTRUCTION ACTIVITIES ARE INITIATED TO KEEP TOPSOIL SEPARATE FROM LOWER HORIZON SOILS.
- iii. SOIL STOCKPILES SHOULD BE PROTECTED BY APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES, IDENTIFIED WITHIN THE SWPPP.
- iv. RESPREAD THE TOPSOIL AFTER ALL GRADING AND TRENCHING ACTIVITIES IN THE AREA HAVE BEEN COMPLETED. IF SQR IS COMPLETED PRIOR TO CONSTRUCTION, THE TOPSOIL MATERIAL SHOULD BE STRIPPED PRIOR TO SAID CONSTRUCTION AND RESPREAD AS NECESSARY TO AVOID EXCESSIVE COMPACTION AND SO THE TOPSOIL WILL REMAIN ON THE SURFACE AFTER CONSTRUCTION IS COMPLETED.
- v. REMOVE LARGE CLODS, ROOTS, LITTER, STONES LARGER THAN 1 INCH (1/2 INCH FOR RESIDENTIAL LAWNS) AND OTHER UNDESIRABLE MATERIAL. AFTER RESPREAD, AVOID PLACEMENT OF BASEMENT SPOILS, FILL, OTHER MATERIALS OR HEAVY EQUIPMENT ON THE RESTORED AREA.
- vi. PERFORM TILLAGE AS NECESSARY TO ADDRESS EXCESSIVE COMPACTION. DO NOT TILL WET SOILS.

CONTRACTOR SHALL AMEND SOILS IN ALL PROPOSED GREEN SPACE AREAS TO 8% ORGANIC MATTER THROUGH COMPOST AMENDMENT PRIOR TO TOPSOIL RESPREAD.

REFER TO THE EROSION AND SEDIMENT CONTROL PLAN ON SHEET C5.1 FOR LOCATIONS AND QUANTITY OF AMENDED SOILS.

B-BOP'S GRADING PLAN

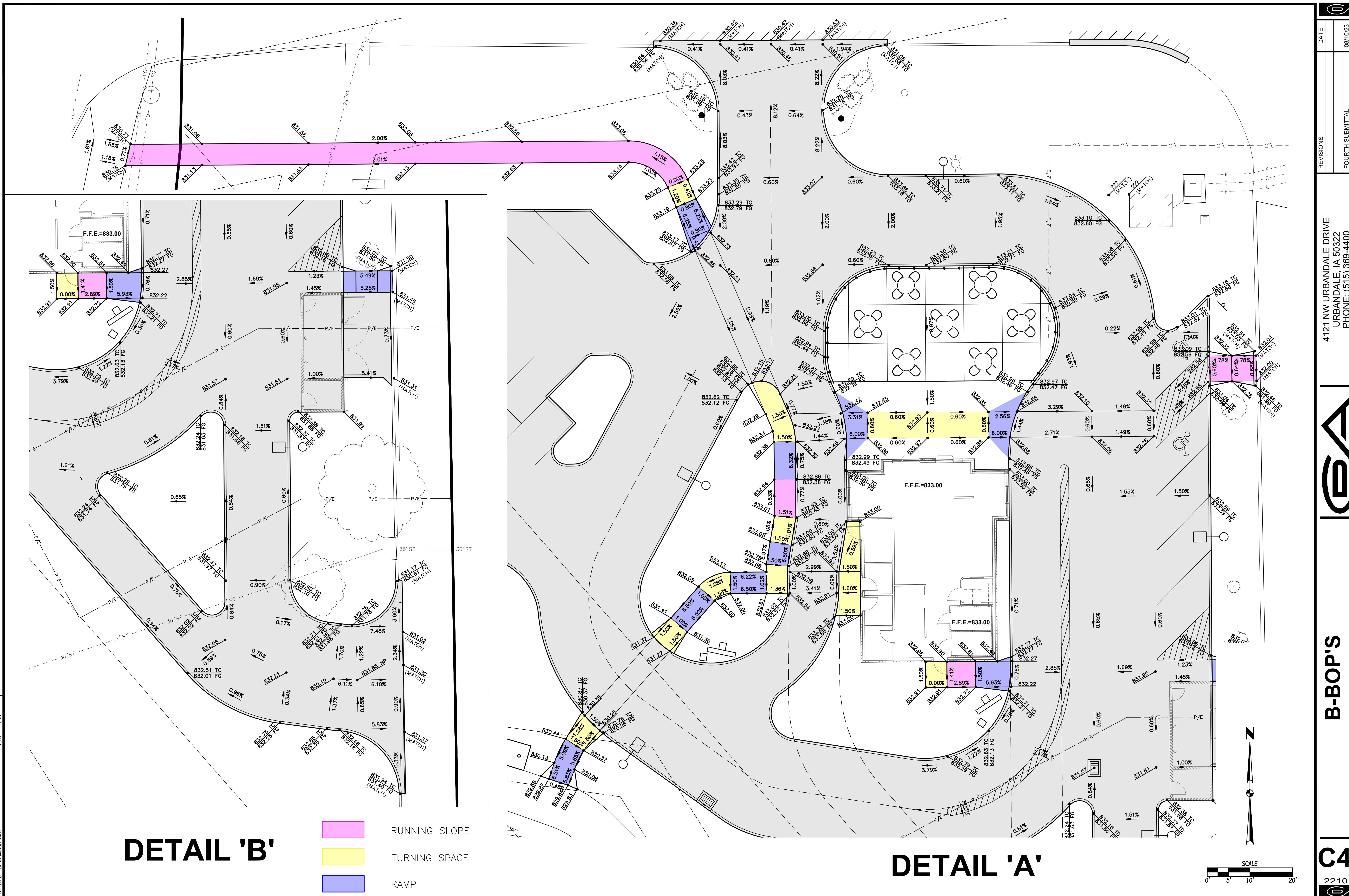
C4.1

2210.678

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Page 6

Page 2



DETAIL 'B'

The diagram consists of three colored rectangles arranged vertically. The top rectangle is pink and is labeled 'RUNNING SLOPES'. The middle rectangle is yellow and is labeled 'TURNING SPACES'. The bottom rectangle is blue and is labeled 'RAMP'.

DETAIL 'A'

B-BOP'S GRADING PLAN

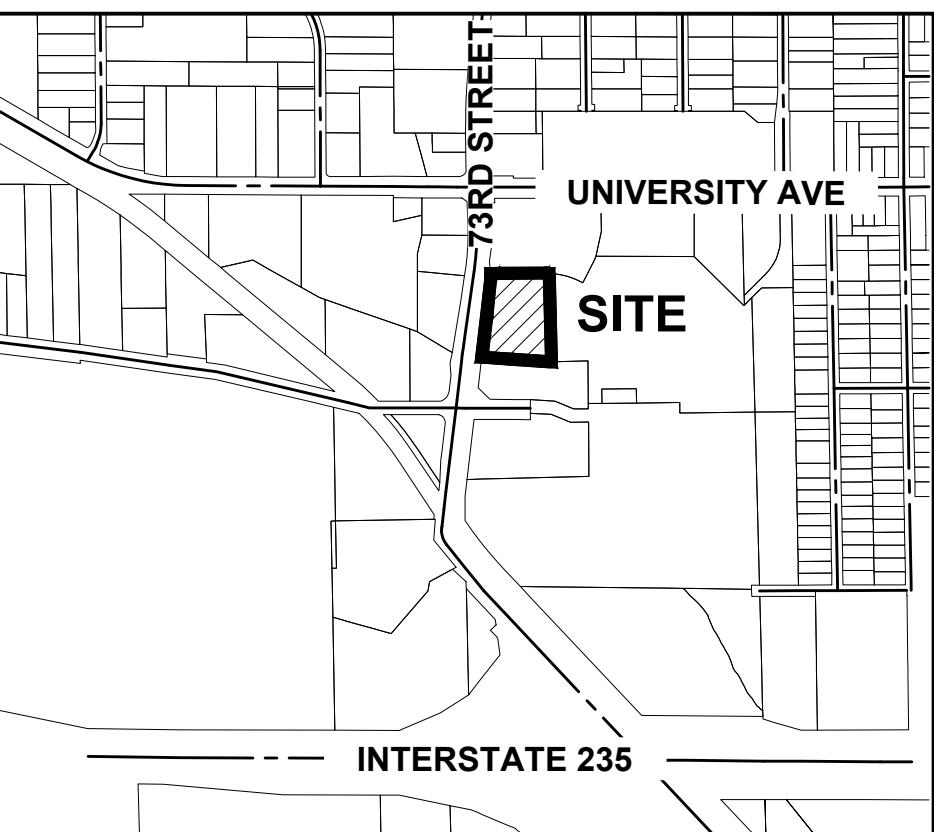
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B-BOP'S WINDSOR HEIGHTS

EROSION AND SEDIMENT CONTROL PLAN

VICINITY MAP

NOT TO SCALE



WINDSOR HEIGHTS, IOWA

STABILIZATION QUANTITIES

ITEM NO.	ITEM	UNIT	TOTAL
1	SILT FENCE	LF	941
2	FILTER SOCK	LF	65
3	SEEDING, FERTILIZING, AND MULCHING	AC	0.35
4	INLET PROTECTION DEVICES	EA	4
5	CONCRETE WASHOUT PIT	EA	1
6	COMPOST AMENDED SOILS	SY	1,280

NOTES:

1. IF DEWATERING IS NEEDED FOR ANY REASON, DISCHARGE OF WATER OFFSITE IS TO CONFORM WITH THE GENERAL PERMIT #2 REQUIREMENT.
2. DISTURBED AREAS SHALL BE TEMPORARILY SEEDED OR MULCHED IMMEDIATELY WHENEVER CLEARING, GRADING, EXCAVATING, OR OTHER EARTH DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS.
3. STORM SEWERS AND DRAINAGE WAYS SHALL BE PROTECTED FROM CONCRETE SLURRY PRODUCED BY SAWCUTTING AND CONCRETE GRINDING.

DISCHARGE POINT SUMMARY

DISCHARGE POINT #1 DIRECTLY TO WALNUT CREEK
 TOTAL AREA DISTURBED TO DISCHARGE POINT
 STORAGE VOLUME REQUIRED (# OF ACRES*3600 CU FT)
 VOLUME PROVIDED IN FILTER SOCK (65 LF @ 2.0 CU FT/LF OF SOCK)
 VOLUME PROVIDED IN SILT FENCE (941 LF @ 4.5 CU FT/LF OF FENCE)
 TOTAL VOLUME PROVIDED

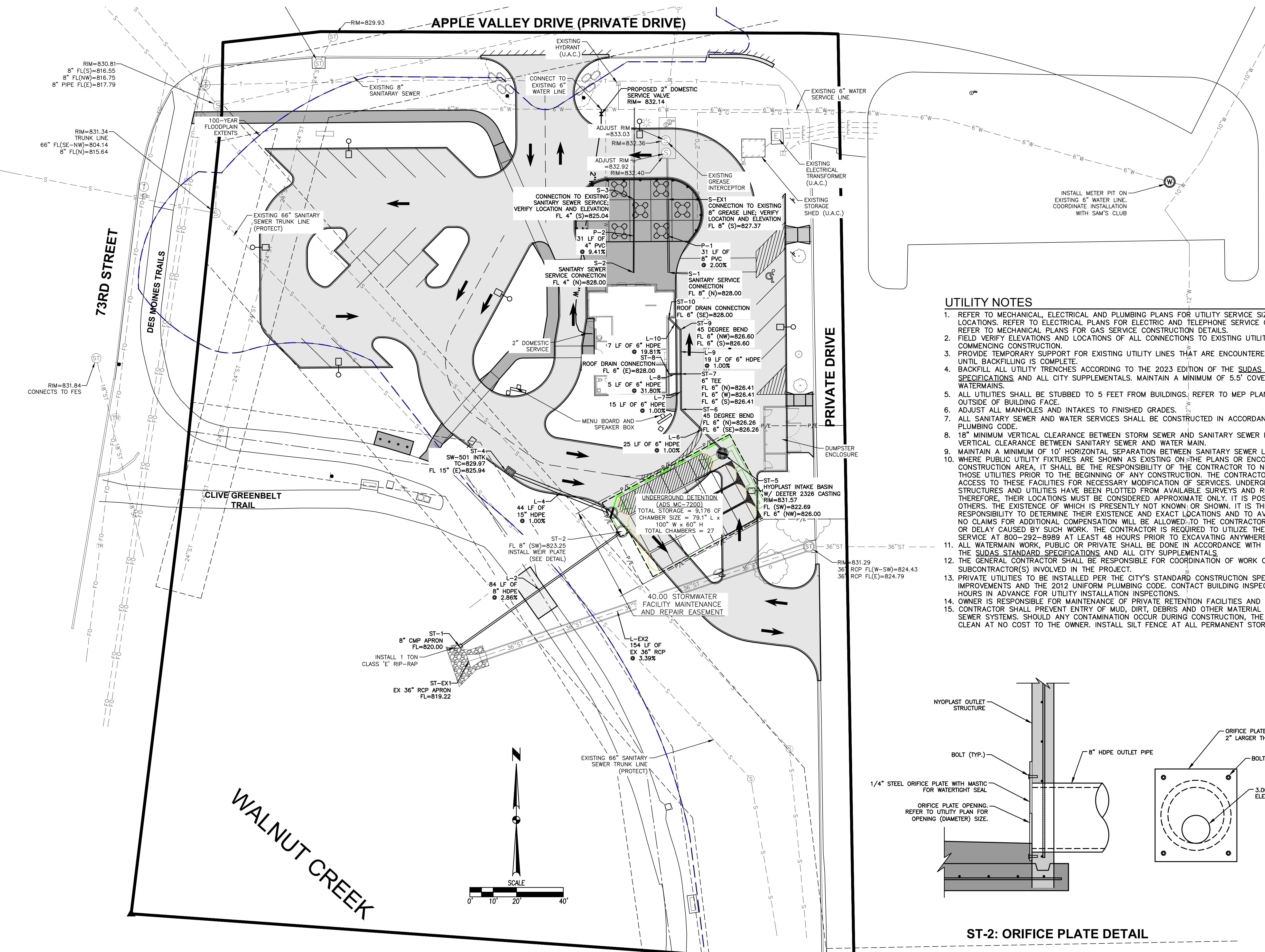
0.94 ACRES
 3,372 CU FT
 130 CU FT
 4,235 CU FT
 4,365 CU FT

SWPPP LEGEND

DRAINAGE ARROW		XX %
GRADING LIMITS		
FILTER SOCK		
SILT FENCE		
INLET PROTECTION		
PORTABLE RESTROOM		
CONCRETE WASHOUT PIT		
AREA TO BE SEEDED		
UNDISTURBED AREA		
RIP-RAP		
GRAVEL ENTRANCE		
STAGING AREA		



REVISIONS	DATE
REVISIONS	DATE
FOURTH SUBMITTAL	08/10/23
PEDESTRIAN CONNECTION THIRD SUB	06/06/23
SECOND SUBMITTAL	05/12/23
FIRST SUBMITTAL	12/15/22



B-BOP'S UTILITY PLAN

C6.1

21 NW URBANDALE DRIVE
URBANDALE, IA 50322
PHONE: (515) 369-4400

4121 N
UR
PHC

A large, bold, black letter 'S' is oriented vertically. A small, solid black circle is positioned inside the loop of the letter 'S', centered horizontally.

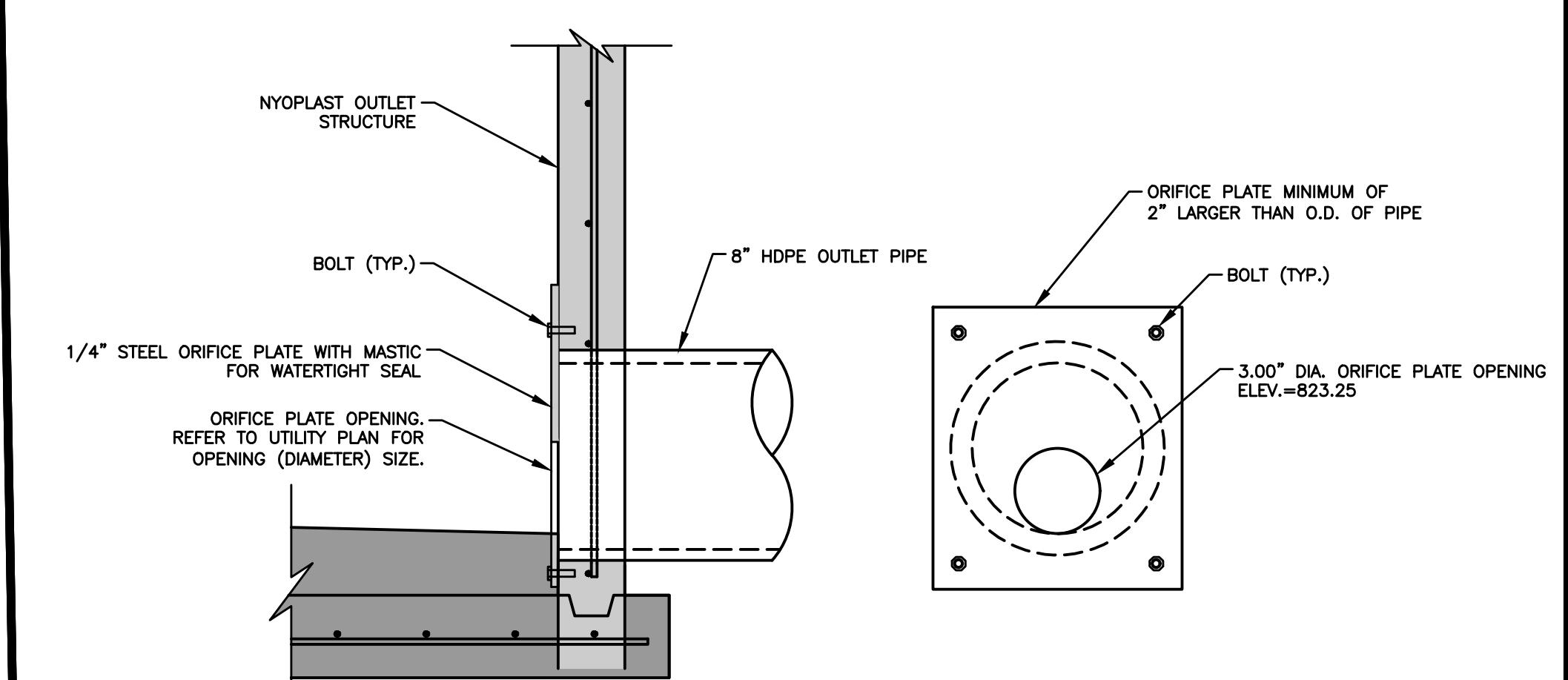
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B-BOP'S אָנָּה תִּשְׁעַטְתִּי

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C6.
2210.6

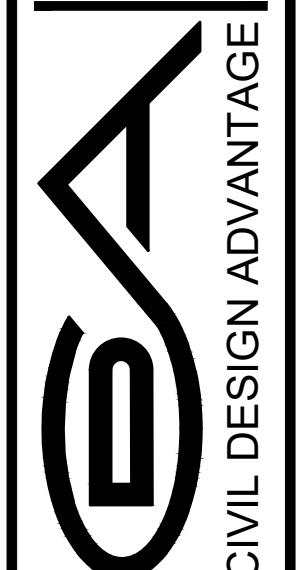
UTILITY NOTES

1. REFER TO MECHANICAL, ELECTRICAL AND PLUMBING PLANS FOR UTILITY SERVICE SIZES AND EXACT LOCATIONS. REFER TO ELECTRICAL PLANS FOR ELECTRIC AND TELEPHONE SERVICE CONSTRUCTION DETAILS. REFER TO MECHANICAL PLANS FOR GAS SERVICE CONSTRUCTION DETAILS.
2. FIELD VERIFY ELEVATIONS AND LOCATIONS OF ALL CONNECTIONS TO EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION.
3. PROVIDE TEMPORARY SUPPORT FOR EXISTING UTILITY LINES THAT ARE ENCOUNTERED DURING CONSTRUCTION UNTIL BACKFILLING IS COMPLETE.
4. BACKFILL ALL UTILITY TRENCHES ACCORDING TO THE 2023 EDITION OF THE SUDAS STANDARD SPECIFICATIONS AND ALL CITY SUPPLEMENTALS. MAINTAIN A MINIMUM OF 5.5' COVER OVER ALL WATERMAINS.
5. ALL UTILITIES SHALL BE STUBBED TO 5 FEET FROM BUILDINGS. REFER TO MEP PLANS FOR DESIGN FROM 5' OUTSIDE OF BUILDING FACE.
6. ADJUST ALL MANHOLES AND INTAKES TO FINISHED GRADES.
7. ALL SANITARY SEWER AND WATER SERVICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY'S PLUMBING CODE.
8. 18" MINIMUM VERTICAL CLEARANCE BETWEEN STORM SEWER AND SANITARY SEWER PIPES. 18" MINIMUM VERTICAL CLEARANCE BETWEEN SANITARY SEWER AND WATER MAIN.
9. MAINTAIN A MINIMUM OF 10' HORIZONTAL SEPARATION BETWEEN SANITARY SEWER LINES AND WATER MAINS.
10. WHERE PUBLIC UTILITY FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THOSE UTILITIES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL AFFORD ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS. THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATIONS AND TO AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK. THE CONTRACTOR IS REQUIRED TO UTILIZE THE UTILITY ONE-CALL SERVICE AT 800-292-8989 AT LEAST 48 HOURS PRIOR TO EXCAVATING ANYWHERE ON THE PROJECT.
11. ALL WATERMAIN WORK, PUBLIC OR PRIVATE SHALL BE DONE IN ACCORDANCE WITH THE 2023 EDITION OF THE SUDAS STANDARD SPECIFICATIONS AND ALL CITY SUPPLEMENTALS
12. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF WORK OF ALL SUBCONTRACTOR(S) INVOLVED IN THE PROJECT.
13. PRIVATE UTILITIES TO BE INSTALLED PER THE CITY'S STANDARD CONSTRUCTION SPECIFICATIONS FOR PUBLIC IMPROVEMENTS AND THE 2012 UNIFORM PLUMBING CODE. CONTACT BUILDING INSPECTION A MINIMUM OF 24 HOURS IN ADVANCE FOR UTILITY INSTALLATION INSPECTIONS.
14. OWNER IS RESPONSIBLE FOR MAINTENANCE OF PRIVATE RETENTION FACILITIES AND PRIVATE UTILITIES.
15. CONTRACTOR SHALL PREVENT ENTRY OF MUD, DIRT, DEBRIS AND OTHER MATERIAL INTO NEW AND EXISTING SEWER SYSTEMS. SHOULD ANY CONTAMINATION OCCUR DURING CONSTRUCTION, THE CONTRACTOR SHALL CLEAN AT NO COST TO THE OWNER. INSTALL SILT FENCE AT ALL PERMANENT STORM SEWER INLETS.



ST-2: ORIFICE PLATE DETAIL

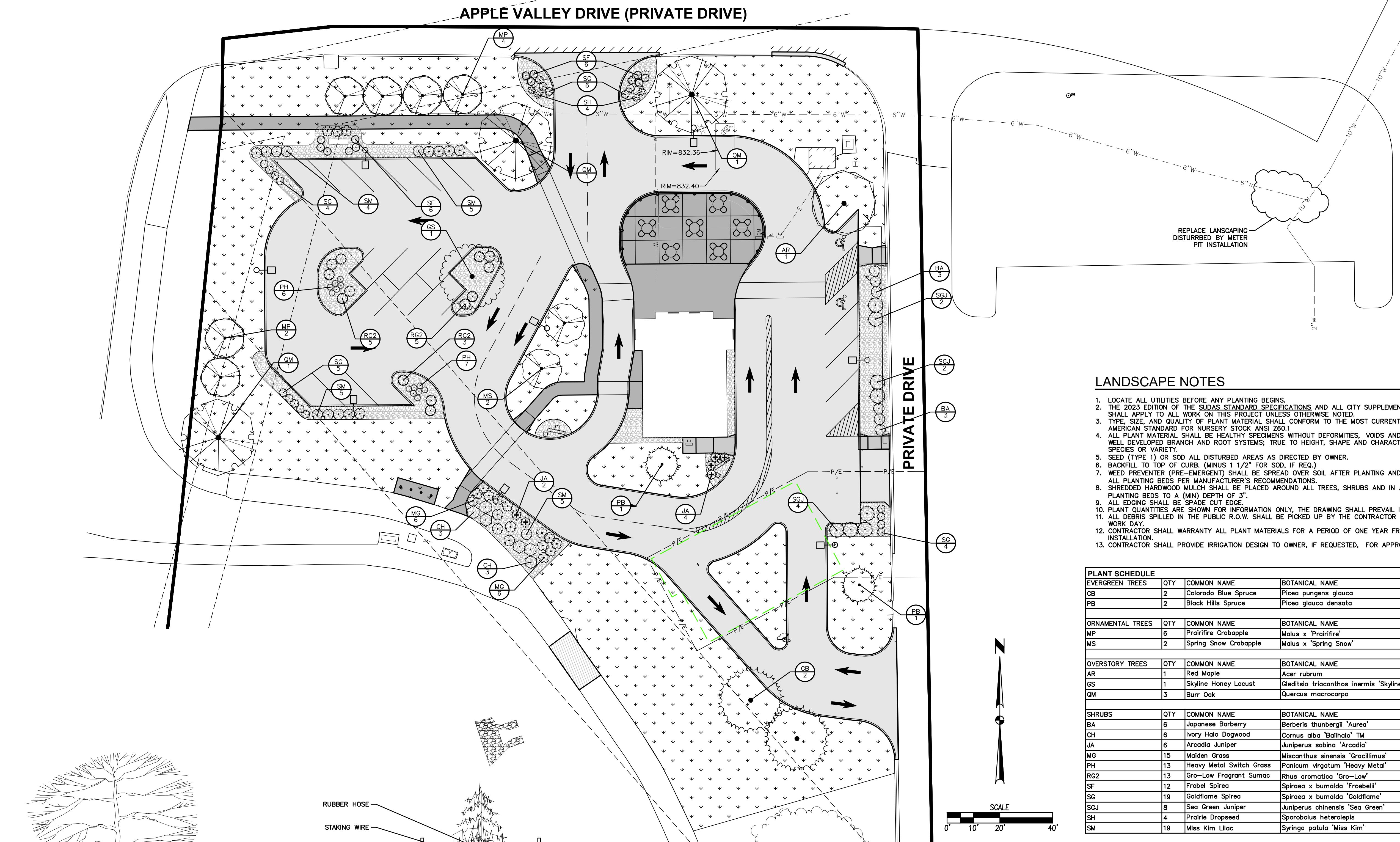
REVISIONS	DATE
	08/10/23
FOURTH SUBMITTAL	06/06/23
PEDESTRIAN CONNECTION THIRD SUB	05/12/23
SECOND SUBMITTAL	05/12/23
FIRST SUBMITTAL	12/10/22



WINDSOR HEIGHTS, IOWA

B-BOP'S LANDSCAPE PLAN

C8.1
2210.678
CDA



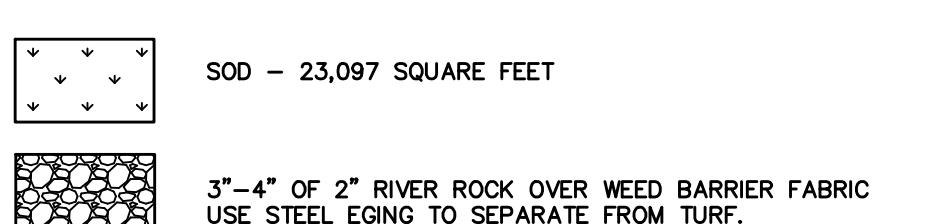
LANDSCAPE NOTES

- LOCATE ALL UTILITIES BEFORE ANY PLANTING BEGINS.
- THE 2023 EDITION OF THE SUDAS STANDARD SPECIFICATIONS AND ALL CITY SUPPLEMENTALS, IF APPLICABLE, SHALL APPLY TO ALL WORK ON THIS PROJECT UNLESS OTHERWISE NOTED.
- TYPE, SIZE, AND QUALITY OF PLANT MATERIAL SHALL CONFORM TO THE MOST CURRENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK ANSI Z60.1
- ALL PLANT MATERIAL SHALL BE HEALTHY SPECIMENS WITHOUT DEFORMITIES, Voids AND OPEN SPACES, WITH WELL DEVELOPED BRANCH AND ROOT SYSTEMS; TRUE HEIGHT, SHAPE AND CHARACTER OF GROWTH OF THE SPECIES OR VARIETY.
- SET (TYPE 1) OR SOD ALL DISTURBED AREAS AS DIRECTED BY OWNER.
- BACKFILL TO TOP OF CURB (MINUS 1 1/2" FOR SOD, IF REQ.)
- WEED PREVENTER (PRE-EMERGENT) SHALL BE SPREAD OVER SOIL AFTER PLANTING AND BEFORE MULCHING IN ALL PLANTING BEDS PER MANUFACTURER'S RECOMMENDATIONS.
- SHREDDED HARDWOOD MULCH SHALL BE PLACED AROUND ALL TREES, SHRUBS AND IN ALL PLANTING BEDS TO A (MIN) DEPTH OF 3".
- ALL EDGING SHALL BE SPADE CUT EDGE.
- PLANT QUANTITIES ARE SHOWN FOR INFORMATION ONLY, THE DRAWING SHALL PREVAIL IF ANY CONFLICTS ARISE.
- ALL DEBRIS SPILLED IN THE PUBLIC R.O.W. SHALL BE PICKED UP BY THE CONTRACTOR AT THE END OF EACH WORK DAY.
- CONTRACTOR SHALL WARRANTY ALL PLANT MATERIALS FOR A PERIOD OF ONE YEAR FROM DATE OF INSTALLATION.
- CONTRACTOR SHALL PROVIDE IRRIGATION DESIGN TO OWNER, IF REQUESTED, FOR APPROVAL.

PLANT SCHEDULE

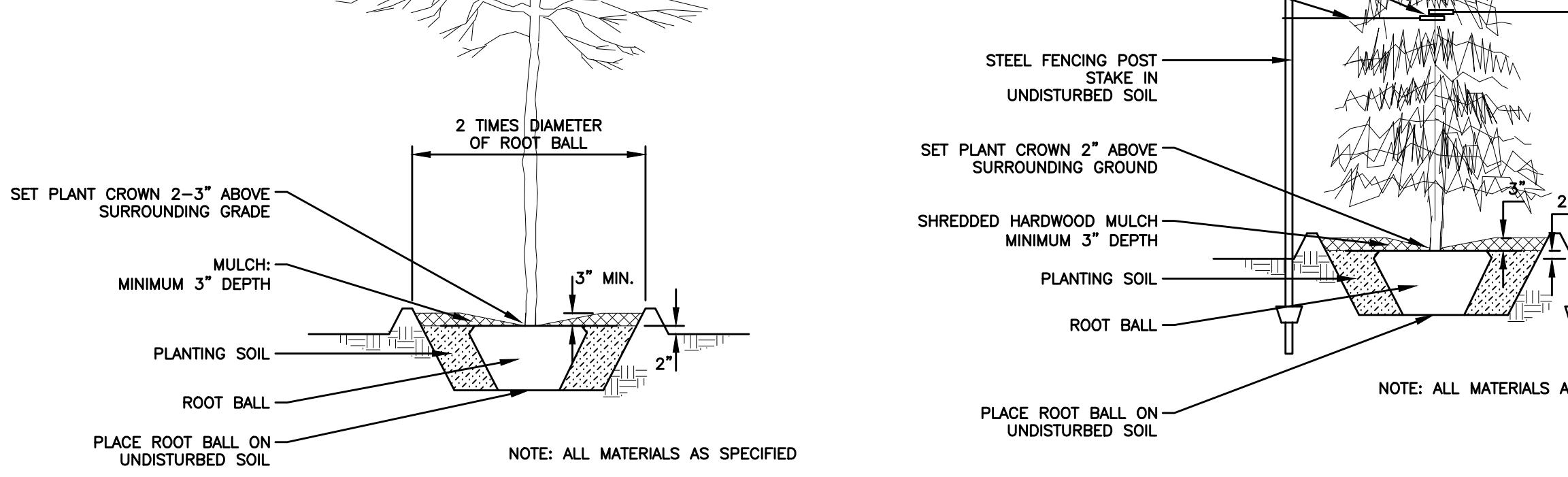
EVERGREEN TREES	QTY	COMMON NAME	BOTANICAL NAME	CONDITION AND SIZE
CB	2	Colorado Blue Spruce	Picea pungens glauca	B&B, 6' HEIGHT
PB	2	Black Hills Spruce	Picea glauca densata	B&B, 6' HEIGHT
ORNAMENTAL TREES	QTY	COMMON NAME	BOTANICAL NAME	CONDITION AND SIZE
MP	6	Prairifire Crabapple	Malus x 'Prairifire'	B&B, 1.5" CALIPER
MS	2	Spring Snow Crabapple	Malus x 'Spring Snow'	B&B, 1.5" CALIPER
OVERSTORY TREES	QTY	COMMON NAME	BOTANICAL NAME	CONDITION AND SIZE
AR	1	Red Maple	Acer rubrum	B&B, 1.5" CALIPER
GS	1	Skyline Honey Locust	Gleditsia triacanthos inermis 'Skyline'	B&B, 1.5" CALIPER
QM	3	Burr Oak	Quercus macrocarpa	B&B, 2" CALIPER
SHRUBS	QTY	COMMON NAME	BOTANICAL NAME	CONDITION AND SIZE
BA	6	Japanese Barberry	Berberis thunbergii 'Aurea'	5 GAL
CH	6	Ivory Halo Dogwood	Cornus alba 'Bailhalo' TM	5 GAL
JA	6	Arcadia Juniper	Juniperus sabina 'Arcadia'	5 GAL
MG	15	Maiden Grass	Misachthys sinensis 'Gracillimus'	3 GAL
PH	13	Heavy Metal Switch Grass	Panicum virgatum 'Heavy Metal'	3 GAL
RG2	13	Gro-Low Fragrant Sumac	Rhus aromatica 'Gro-Low'	5 GAL
SF	12	Frobel Spirea	Spirea x bumalda 'Frobelii'	3 GAL
SG	19	Goldflame Spirea	Spirea x bumalda 'Goldflame'	3 GAL
SGJ	8	Sea Green Juniper	Juniperus chinensis 'Sea Green'	5 GAL
SH	4	Prairie Dropseed	Sporobolus heterolepis	1 GAL
SM	19	Miss Kim Lilac	Syringa patula 'Miss Kim'	5 GAL

LEGEND



LANDSCAPE CALCULATIONS

MINIMUM SPACING OF TREES ALONG STREETS	
MINIMUM OF ONE TREE FOR EVERY 50 FEET OF PERIMETER LENGTH.	
PERIMETER LENGTH ALONG 53RD STREET	= 158 LINEAR FEET
PERIMETER LENGTH ALONG APPLE VALLEY DRIVE	= 250 LINEAR FEET
TOTAL LENGTH ALONG PERIMETER	= 408 LINEAR FEET
REQUIRED TREES ALONG PERIMETER	= 8 TREES
PROVIDED TREES ALONG PERIMETER	= 8 TREES



DECIDUOUS TREE PLANTING

CONIFEROUS TREE PLANTING

SHRUB PLANTING