



AGENDA
REGULAR MEETING OF THE
WINDSOR HEIGHTS
PLANNING AND ZONING COMMISSION
Wednesday, September 6, 2023 - 5:30 PM
WINDSOR HEIGHTS COUNCIL CHAMBERS - 1133 66th ST
ZOOM LINK: <https://us02web.zoom.us/j/7832856334> MEETING ID:
851 7150 9104

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: 6300 Hickman Road (Silverstar Car Wash)**
 - A. Staff Report and Application Materials
6. **Consideration of Site Plan: 1105 73rd Street (B-Bop)**
 - A. Staff Report and Application Materials
7. **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.



Real People. Real Solutions.

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: 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.

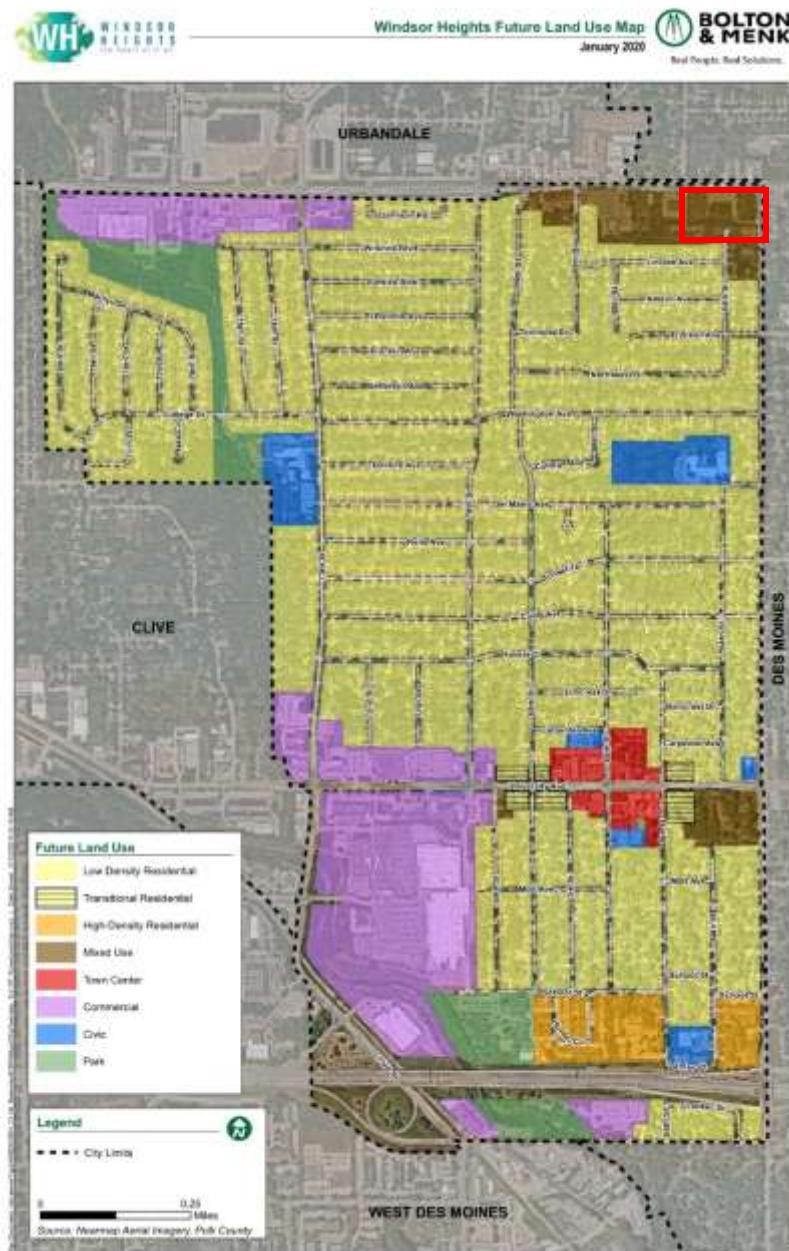


Figure 1: Current Future Land Use Map

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.”

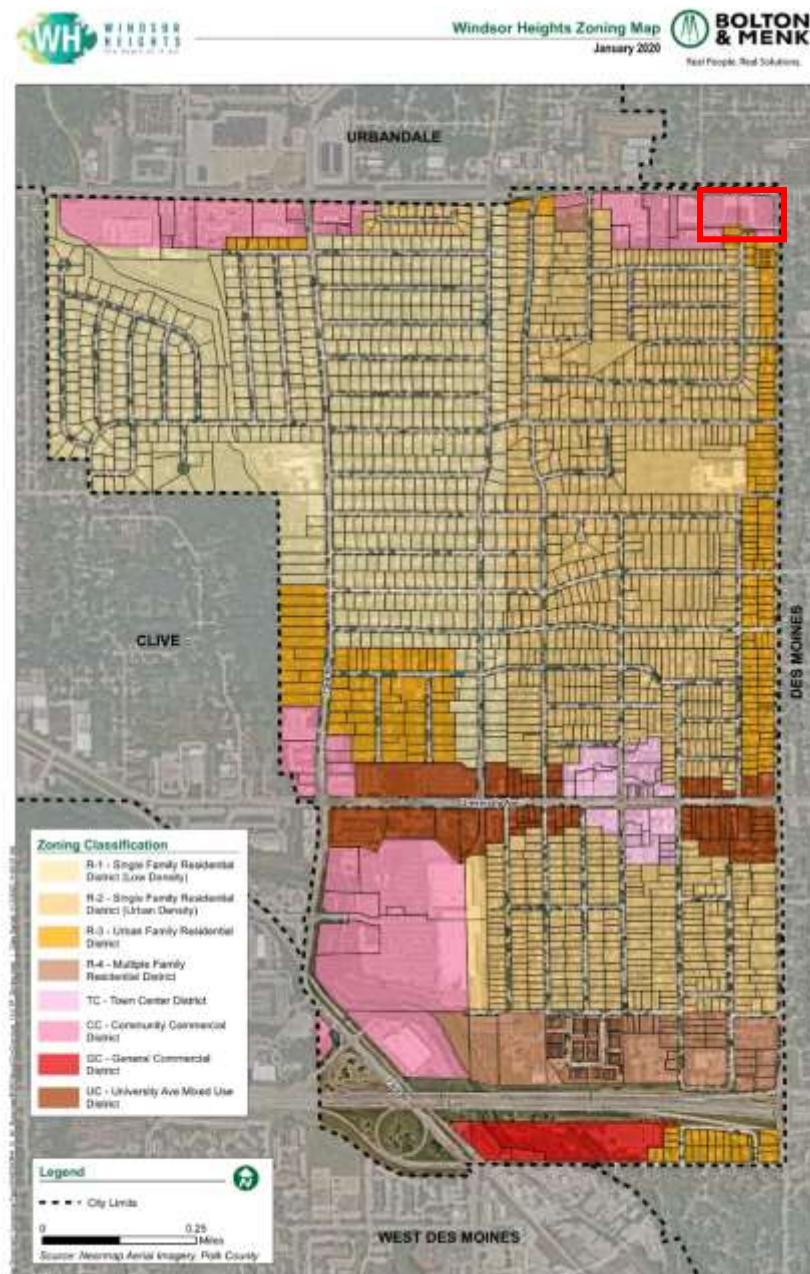


Figure 2: Current Zoning Map

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

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:**Application Approval**

- Approved**
- Denied**

Planner or Authorized Representative

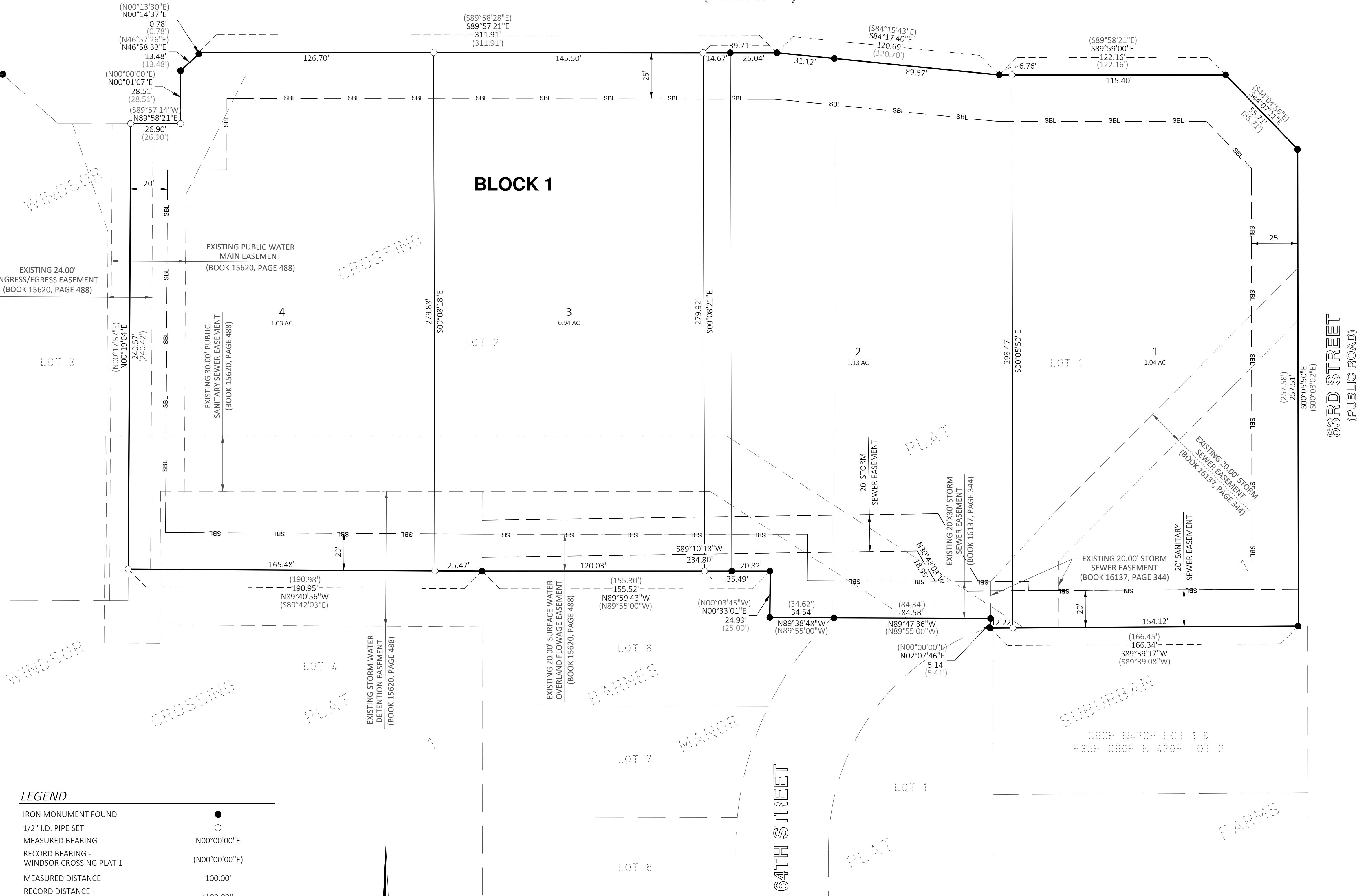
Date

**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

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

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

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

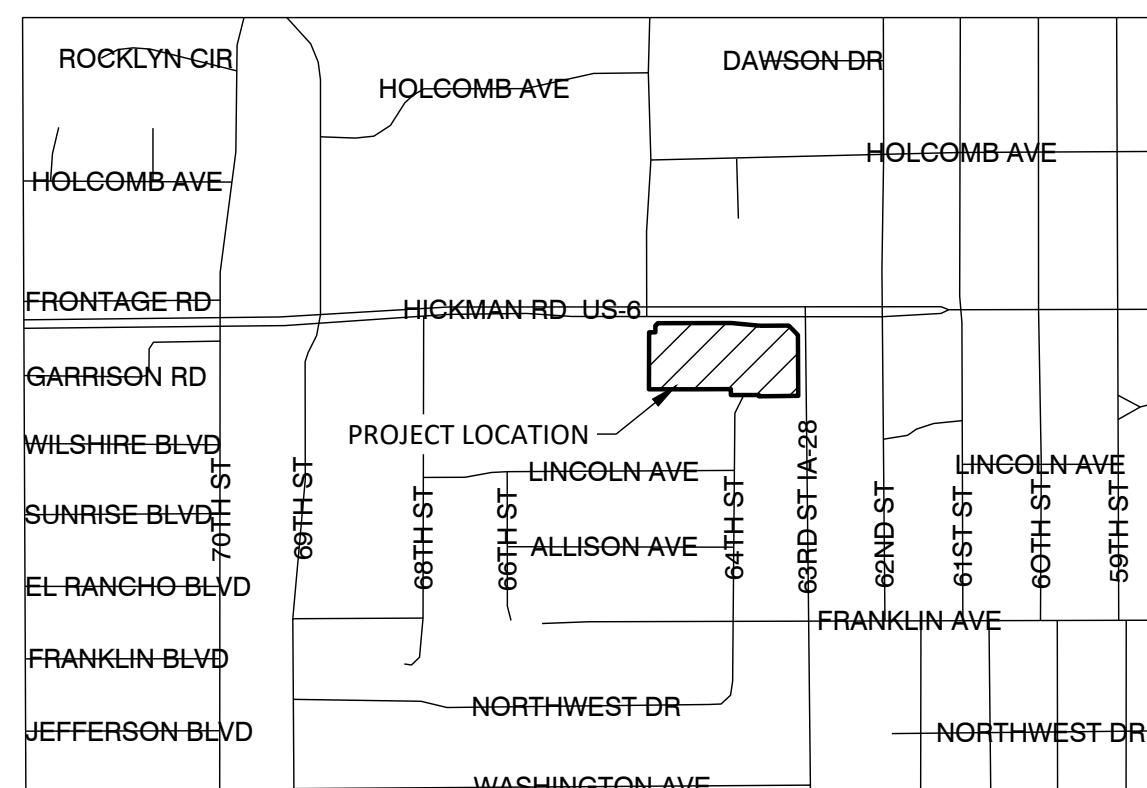
FIELD WORK COMPLETED:
May 24-25, 2023

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

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**





CITY OF WINDSOR HEIGHTS
1145 66TH St, Suite 1,
Windsor Heights, IA 50324
Phone (515)279-3662
Fax (515) 279-3664

**APPLICATION FOR
DEVELOPMENT REVIEW
SITE PLAN/SITE PLAN AMENDMENT**

APPLICANT INFORMATION

APPLICANT NAME & EMAIL Midwest Fidelity Partners	PROJECT ADDRESS	
ADDRESS 1610 S. Minnesota Avenue	LOT #	SUBDIVISION
CITY, STATE, ZIP Sioux Falls, SD 57105	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.	
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

Dan Nelson

1/19/2023

Date

DEVELOPMENT TEAM

Project Manager

Stan Hanson

Address

3900 W. Technology Circle, Suite 8, Sioux Falls SD 58106

Phone
605-271-0378

Fax
605

E-Mail Address
sthanson@houstoneng.com

Attorney/Other

Address

Phone

Fax

E-Mail Address

Submitted Accepted

Traffic Study (as required by City Engineer)

Site Survey

Dimension Plan

Grading Plan

Utility Plan

Landscape Plan

Drainage Report

Architectural Plans

Lighting Plans

Name & Address of All Properties
within 200 ft

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:

Application Approval

- Approved**
- Denied**

Planner or Authorized Representative

Date

SITE PLAN SUBMITTAL REQUIREMENTS FOR DEVELOPMENT REVIEW

The complexity of the proposed construction will dictate whether all of the items below are needed for a complete submittal. If there are any questions as to which items are needed, please contact the City Administrator prior to submitting.

Site Survey - All of the existing site features, including property lines (including metes and bounds), rights-of-way, streets, buildings and structures, driveways and parking lots, public and private sidewalks, landscaping, utilities, topography, easements (including book and page) and legal description should be provided either on a separate Site Survey sheet or included within one of the other plan sheets.

In the case of a Site Plan Amendment, the extent of the site survey should cover the area of proposed construction and the adjoining areas that may be impacted by the proposed improvements. For example, if new hard surface area is included, the existing storm intakes (rim and inverts), storm sewer pipe (size and slope), and detention areas (control structure and volume) should be included in the site survey.

Dimension Plan - All proposed improvements should be accurately shown to scale and dimensioned. Additionally, narrative information such as property owner, legal description, vicinity sketch, construction schedule, property zoning, benchmark, required setbacks, parking counts, site characteristics/impervious surface calculations, and Windsor Heights standard notes should be included.

Grading Plan - Existing and proposed topography should be provided at a maximum interval of 2-feet. Additional spot elevation detail should be provided for finished floor elevations of all structures, retaining walls (top and bottom elevations), along handicapped routes of access (route and ramp grades), curb lines of minimum sloped parking and drive areas and drainage swales with minimum slopes.

Additionally, any site that is located within the Floodplain will need to list the 100-year flood elevation based on the latest adopted FIRM. All proposed building within the Floodplain will need to be elevated to at least 1-foot above the 100-year flood elevation.

Utility Plans - Existing and proposed utilities should be accurately shown in plan view and should identify all of the following: structure type, casting type, rim elevation, invert elevation, pipe material, pipe size, and pipe slope.

If the proposed utility improvements are intended to be public, a plan and profile will be required.

A fire hydrant radius map will need to be provided which demonstrates that all of the building is contained within a 250-foot radius of a hydrant. Usually large buildings may require additional coverage.

Landscape Plan - Existing and proposed landscape features should be accurately shown (trees, shrubbery and ground covers) and appropriately labeled (size and type). Open space calculations and resulting landscaping requirements should be listed (street trees, open space trees, buffer trees).

Foundation plantings, screening materials (headlights, mechanical units, dumpster enclosures), bio-retention areas and other decorative features such as monument signs, flag poles, fountains, patios and bike racks should be detailed.

Drainage Report - The project drainage report in accordance with the Iowa Stormwater Management Manual will need to be provided for all new construction projects. The drainage report should include the following: site characteristics, post development analysis, stormwater conveyance, stormwater management and supporting drawings and calculations.

A full drainage report will be required for most Site Plan Amendments unless the Community Development Director determines that the scale and scope of the project is minor enough to not have a negative impact on the existing storm sewer system.

Architectural Plans - A preliminary floor plan (including at least an indication of building dimension, exits and mechanical rooms) will need to be provided. Additionally, elevation drawings of all sides of the proposed construction will need to be provided (elevation drawings should include representation of all roof mounted mechanical units and anticipated screening materials). It is recommended that a colored rendering be provided (at a minimum, the elevation drawings should include notes on the materials and colors).

Lighting Plan - All proposed lighting (pole lights, building lights, up-lights, canopy lights) should be indicated on the dimension and/or architectural plans. A manufacturer's cut sheet including pole and fixture type, wattage and shielding should be provided.

A site photometric plan will need to be provided for all new construction projects. At a minimum, the plan should include all fixtures, provide the max./min./avg. light levels across the site, and represent the anticipated foot-candle levels at the property lines.

Traffic Study - Project should not reduce the existing level of traffic service on adjacent streets. Compensating improvements will be required to mitigate impact on street system operations. At the discretion of the City Engineer, a traffic impact study may be required as part of the site plan submittal.

Name & Address - of all properties within 200 feet shall be provided in a reproducible electronic format in order to provide mailings for public notices.

CONSTRUCTION PLANS FOR 6300 HICKMAN RD SILVERSTAR CARWASH

WINDSOR HEIGHTS, IOWA

JULY, 2023

LEGAL:

PARCEL 2016-24 BEING ALL OF LOT 1 AND PART OF LOT 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, AS SHOWN ON THE PLAT OF SURVEY RECORDED AUGUST 16, 2016, IN BOOK 16137 PAGE 344.

LEGEND:

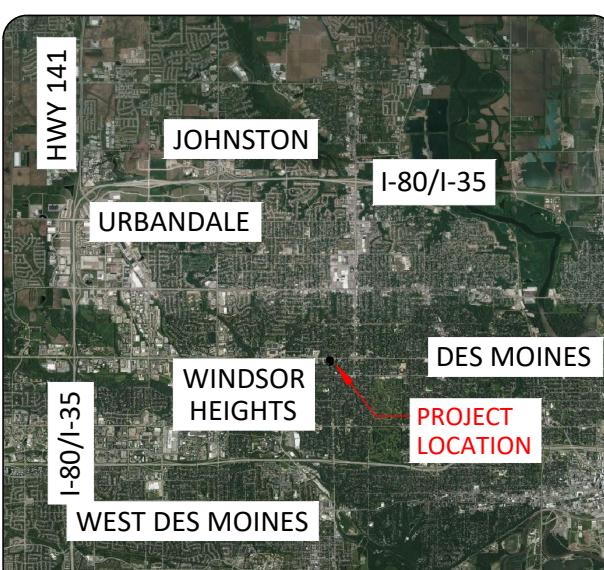
C1.0-C1.1	TOPOGRAPHIC SURVEY
C2.0-C2.1	DEMOLITION PLAN
C2.2	TRAIL TRAFFIC CONTROL
C3.0-C3.1	SS UTILITY PLAN
C3.2-C3.3	STS & H2O UTILITY PLAN
C4.0-C4.1	GRADING PLAN
C5.0-C5.1	SITE PLAN
C6.0-C6.12	DETAILS
C7.0-C7.1	EROSION CONTROL PLAN
C7.2-C7.3	EROSION CONTROL DETAILS
C8.0	LANDSCAPE PLAN
C8.1	LANDSCAPE NOTES AND DETAILS

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



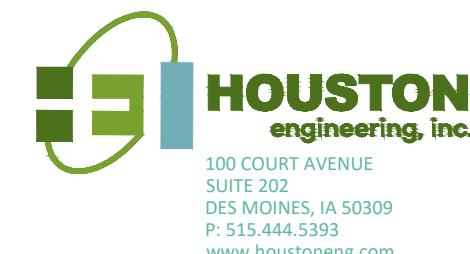
VICINITY MAP



LOCATION MAP



MIDWEST FIDELITY PARTNERS, LLC
1610 S. MINNESOTA AVENUE
SIOUX FALLS, SD 57105
PHONE: 605-691-3814 EMAIL: dan@mfp.llc



GOVERNING STANDARDS:

MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 2009 EDITION. THIS SPECIFICATION INCLUDES THE SHAPES, COLORS, AND FONTS USED IN ROAD MARKINGS AND SIGNS. ALL TRAFFIC CONTROL DEVICES MUST CONFORM TO THESE STANDARDS.

GOVERNING SPECIFICATIONS:

CONSTRUCTION SPECIFICATIONS FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH MOST CURRENT EDITION OF SUDAS, SHALL APPLY TO ALL STANDARD DRAWINGS CURRENTLY IN EFFECT AND OTHER CONTRACT PROVISIONS SUBMITTED HEREIN:

UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION, AS-BUILT MAPS AS PROVIDED BY MUNICIPALITIES OR UTILITY COMPANIES, AND/OR EXISTING DRAWINGS. THERE IS NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN INDICATE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. NOR IS THERE A GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY RESULT FROM THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.

ZONING: C, COMMERCIAL

i. MINIMUM LOT AREA:	7,200 SQFT
ii. MINIMUM LOT WIDTH:	60 FEET
iii. FRONT YARD SETBACK:	25 FEET
iv. SIDE YARD SETBACK:	25 FEET
vi. REAR YARD SETBACK:	20 FEET

95%
NOT FOR CONSTRUCTION

h:\UBN\10900\10904\10904_0017\a 6300 hickman rd\CAD\Plans\10904-0017 - topo.dwg-C:\0 TOPOGRAPHIC SURVEY-8/18/2023 4:20 PM-(vandenbos)

WESTOVER BLVD

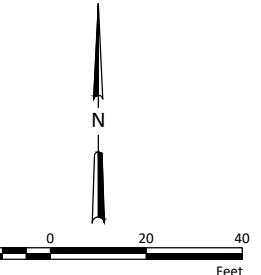
HICKMAN ROAD

LEGEND

STANDARD CURB & GUTTER	=====
PRIVATE NATURAL GAS	— G —
PRIVATE FIBER OPTIC	— FO —
PRIVATE OVERHEAD POWER	— OHP —
PRIVATE UNDERGROUND ELECTRICAL	— UGE —
PRIVATE WATER MAIN	— W —
PRIVATE SANITARY SEWER MAIN	— SS —
PRIVATE STORM SEWER MAIN	— STS —
PROPERTY LINE	—
BUILDING SET BACK LINE	— BSBL — BSBL —
THICKENED EDGE SIDEWALK	— - - - -
IRON MONUMENT FOUND	●
IRON MONUMENT SET	○
SANITARY MANHOLE	SS
STORM MANHOLE	ST
FIRE HYDRANT	○
GATE VALVE	☒
STORM INLET	□
AIR CONDITIONING UNIT	☒
GAS METER	☒
TRANSFORMER	☒
DECIDUOUS TREE	○
BUILDING	■■■■■
EXISTING ROADWAY	□□□□□

COORDINATE SYSTEM: NAD83 IOWA STATE PLANE SYSTEM, SOUTH ZONE, US FOOT

THE UNDERGROUND UTILITIES HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION, AS-BUILT MAPS AS PROVIDED BY MUNICIPALITIES OR UTILITY COMPANIES, AND/OR EXISTING DRAWINGS. THERE IS NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRIZE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED, NOR IS THERE A GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ANY AND ALL EXISTING UTILITIES. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY RESULT FROM ITS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UTILITIES.

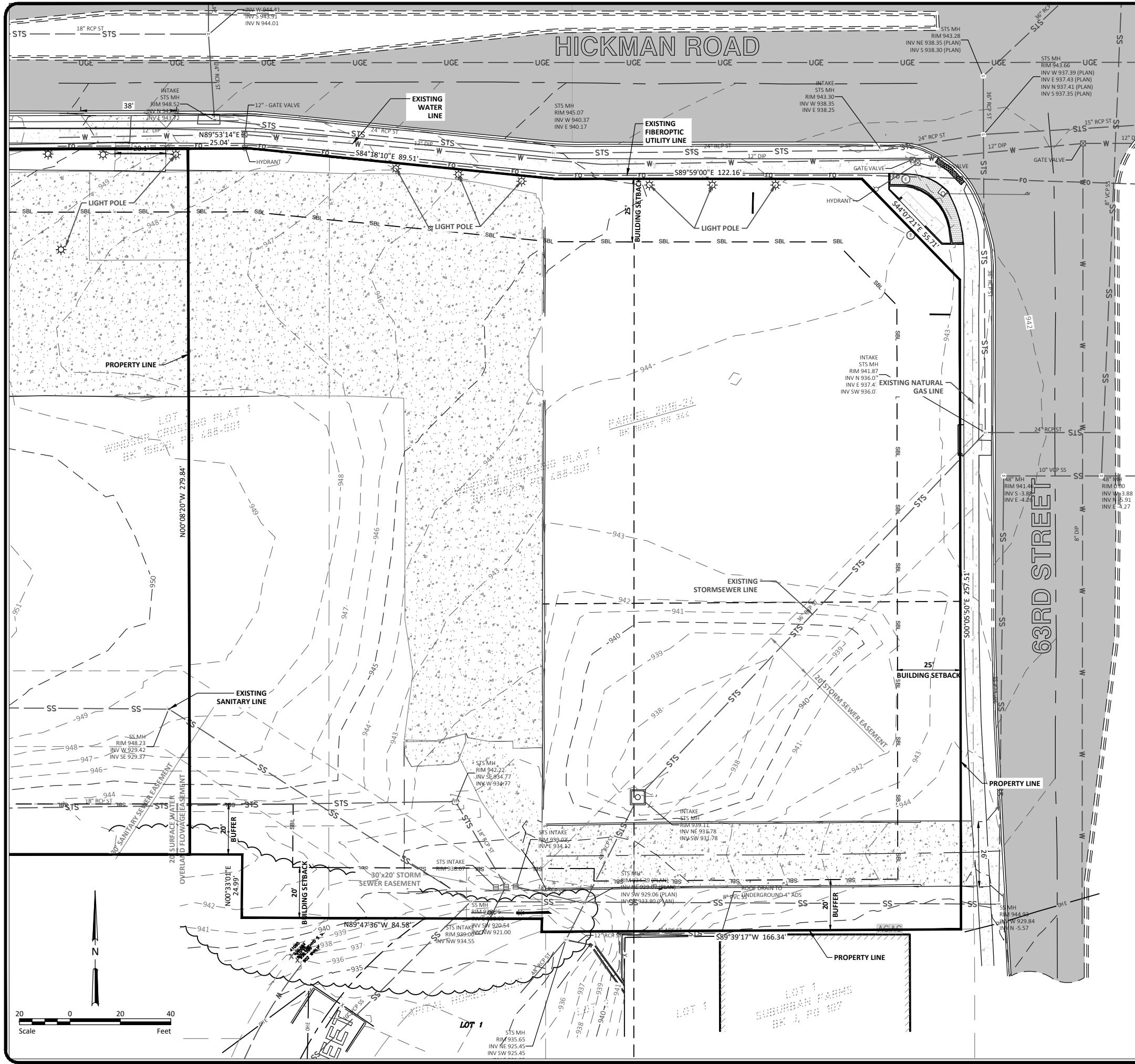


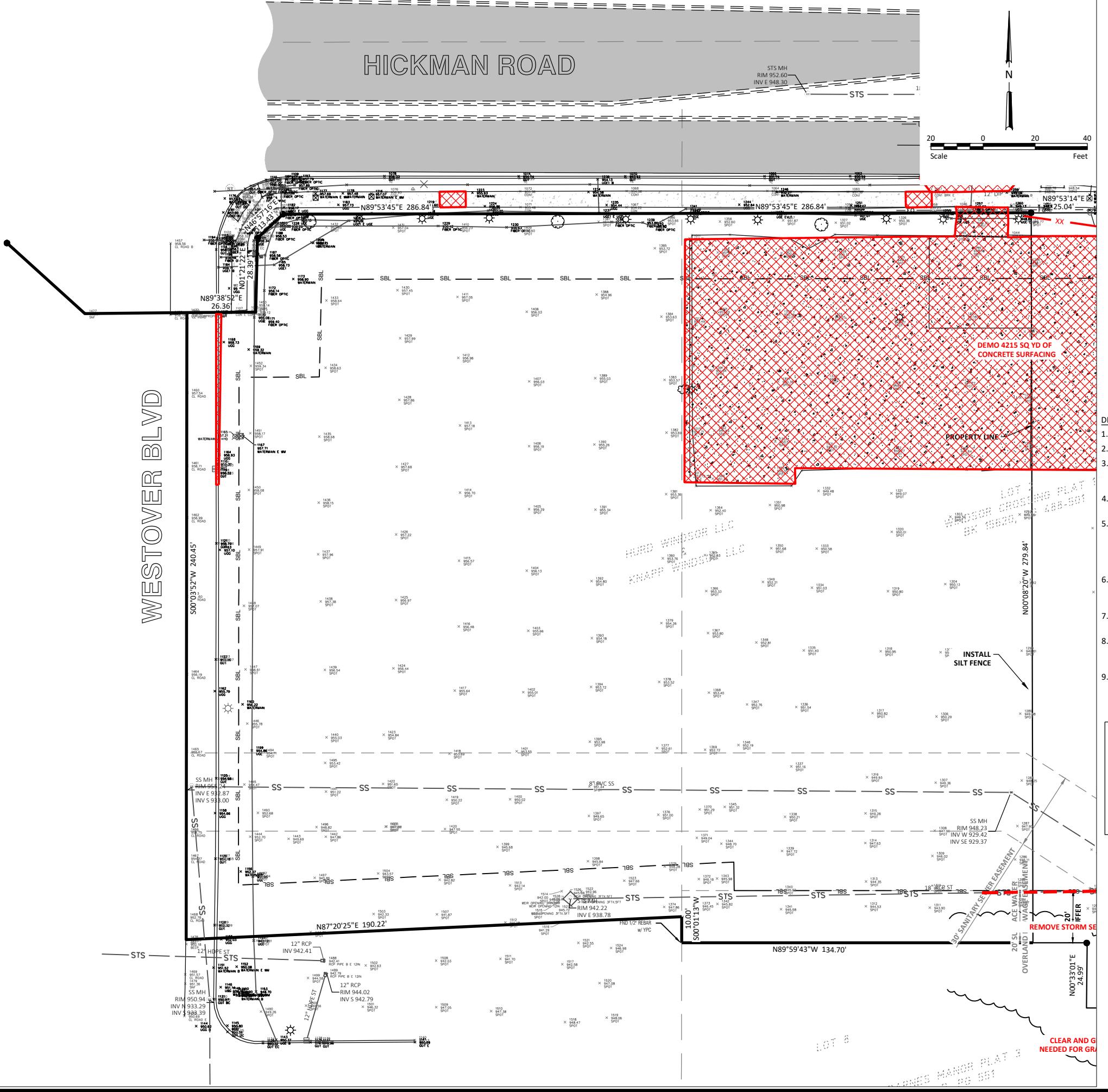
SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA
DOORROAD PUBLIC SURVEY

SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA
TOPOGRAPHIC SURVEY

10 of 10

10 of 10





LEGEND

STANDARD CURB & GUTTER	====
PRIVATE NATURAL GAS	— G —
PRIVATE FIBER OPTIC	— FO —
PRIVATE OVERHEAD POWER	— OHP —
PRIVATE UNDERGROUND ELECTRICAL	— UGE —
PRIVATE WATER MAIN	— W —
PRIVATE SANITARY SEWER MAIN	— SS —
PRIVATE STORM SEWER MAIN	— STS —
PROPERTY LINE	— STS —
BUILDING SET BACK LINE	— BSBL — BSBL —
THICKENED EDGE SIDEWALK	— - - - -
IRON MONUMENT FOUND	●
IRON MONUMENT SET	○
SANITARY MANHOLE	SR
STORM MANHOLE	ST
FIRE HYDRANT	○
GATE VALVE	□
STORM INLET	■
AIR CONDITIONING UNIT	AC
GAS METER	GM
TRANSFORMER	T
DECIDUOUS TREE	○
BUILDING	■
EXISTING ROADWAY	—
DEMOLITION	■
REMOVE STORM SEWER	— - - - -
REMOVE STRUCTURE	XXX

DEMOLITION NOTES:

1. PRE-EXISTING BUILDING FOUNDATIONS AND FOOTINGS SHALL BE REMOVED IN THEIR ENTIRETY.
2. TYPICAL CLEAR AND GRUB FOR EACH TREE REMOVAL.
3. EXISTING GAS UTILITIES TO BE DISCONNECTED AT THE MAIN LINE BY UTILITY COMPANY. CONTRACTOR SHALL VERIFY THE LINES HAVE BEEN DISCONNECTED PRIOR TO BEGINNING CONSTRUCTION AND OR DEMOLITION.
4. ALL EXISTING UTILITIES SHALL BE REMOVED IN ACCORDANCE WITH THE CITY OF WINDSOR HEIGHTS'S CONSTRUCTION SPECIFICATIONS.
5. EXISTING WATER SERVICES SHALL BE SHUT OFF AND CUT AT THE CORP STOP AT THE WATERMAIN. CONTRACTOR SHALL REMOVE AND REPLACE THE MINIMUM AMOUNT OF EXISTING PAVEMENT, AND CURB AND GUTTER AS NECESSARY TO PERFORM THE WORK. CUTTING OF PANELS SHALL NOT BE ALLOWED, ONLY FULL PANELS WILL BE ALLOWED TO BE DEMOLISHED. CONTRACTOR SHALL MATCH EXISTING PAVEMENT SECTION FOR STREET PATCH.
6. EXISTING SEWER SERVICES CALLED OUT TO BE REMOVED SHALL BE REMOVED AS CLOSE AS POSSIBLE TO THE STREET AND CAPPED. SERVICES TO BE REMOVED/ABANDONED PER CITY OF WINDSOR HEIGHTS STANDARD SPECIFICATIONS.
7. CITY OF WINDSOR HEIGHTS STAFF SHALL INSPECT ALL UTILITY TERMINATIONS PRIOR TO BACKFILL OF TRENCH.
8. WORK IN THE RIGHT-OF-WAY SHALL REQUIRE A TRAFFIC CONTROL PLAN THAT MEETS ALL MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) REQUIREMENTS. THIS PLAN IS REQUIRED BEFORE ANY PERMITS TO WORK IN THE RIGHT-OF-WAY WILL BE ISSUED.
9. SANITARY SEWER AND WATER SERVICES FOR THE EXISTING BUILDING SHOWN ON THE PLANS WERE LOCATED BASED ON CITY UTILITY TAP RECORDS AND SHOULD BE CONSIDERED APPROXIMATE. CONTRACTOR SHALL FIELD LOCATE LINES CALLED OUT FOR REMOVAL/ABANDONMENT.

THE UNDERGROUND UTILITIES HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION, AS-BUILT MAPS AS PROVIDED BY MUNICIPALITIES OR UTILITY COMPANIES, AND/OR EXISTING DRAWINGS. THERE IS NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRIZE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED, NOR IS THERE A GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ANY AND ALL EXISTING UTILITIES. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY RESULT FROM ITS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UTILITIES.

SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA

DEMOLITION PLAN



Drawn By

JLV

Checked By

SMH

Date

7/24/2023

Scale

As Shown

Project No.

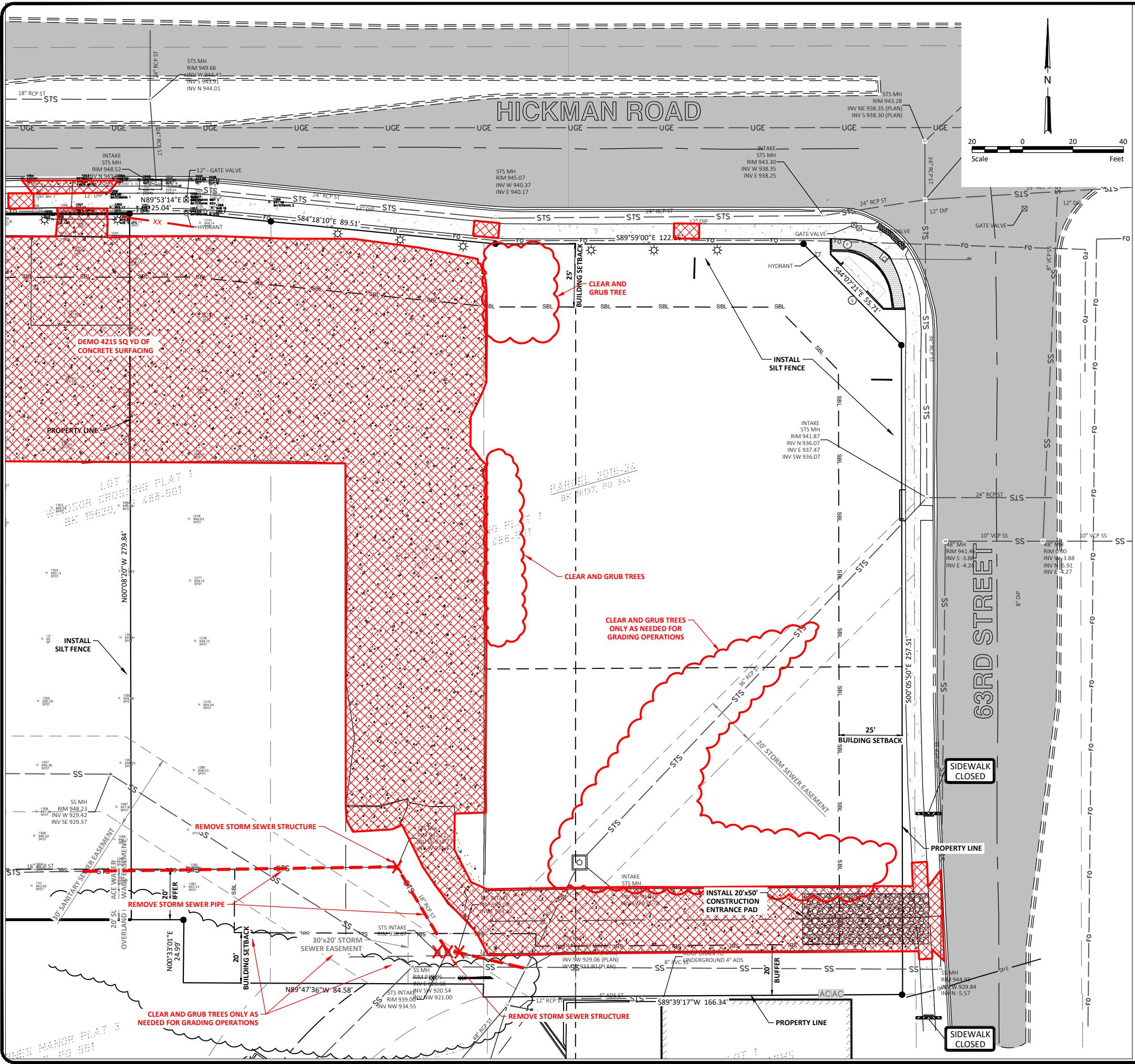
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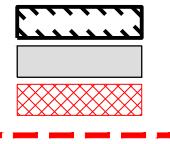


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LEGEND

STANDARD CURB & GUTTER	====
PRIVATE NATURAL GAS	— G —
PRIVATE FIBER OPTIC	— FO —
PRIVATE OVERHEAD POWER	— OHP —
PRIVATE UNDERGROUND ELECTRICAL	— UGE —
PRIVATE WATER MAIN	— W —
PRIVATE SANITARY SEWER MAIN	— SS —
PRIVATE STORM SEWER MAIN	— STS —
PROPERTY LINE	— STS —
BUILDING SET BACK LINE	— BSBL — BSBL —
THICKENED EDGE SIDEWALK	— — — — —
IRON MONUMENT FOUND	●
IRON MONUMENT SET	○
SANITARY MANHOLE	○
STORM MANHOLE	○
FIRE HYDRANT	○
GATE VALVE	○
STORM INLET	○
AIR CONDITIONING UNIT	○
GAS METER	○
TRANSFORMER	○
DECIDUOUS TREE	○
BUILDING	— ■ —
EXISTING ROADWAY	— ■ —
DEMOLITION	— ■ —
REMOVE STORM SEWER	— ■ —
REMOVE STRUCTURE	— ■ —



DEMOLITION NOTES:

1. PRE-EXISTING BUILDING FOUNDATIONS AND FOOTINGS SHALL BE REMOVED IN THEIR ENTIRETY.
2. TYPICAL CLEAR AND GRUB FOR EACH TREE REMOVAL.
3. EXISTING GAS UTILITIES TO BE DISCONNECTED AT THE MAIN LINE BY UTILITY COMPANY. CONTRACTOR SHALL VERIFY THE LINES HAVE BEEN DISCONNECTED PRIOR TO BEGINNING CONSTRUCTION AND OR DEMOLITION.
4. ALL EXISTING UTILITIES SHALL BE REMOVED IN ACCORDANCE WITH THE CITY OF WINDSOR HEIGHTS'S CONSTRUCTION SPECIFICATIONS.
5. EXISTING WATER SERVICES SHALL BE SHUT OFF AND CUT AT THE CORP STOP AT THE WATERMAIN. CONTRACTOR SHALL REMOVE AND REPLACE THE MINIMUM AMOUNT OF EXISTING PAVEMENT, AND CURB AND GUTTER AS NECESSARY TO PERFORM THE WORK. CUTTING OF PANELS SHALL NOT BE ALLOWED, ONLY FULL PANELS WILL BE ALLOWED TO BE DEMOLISHED. CONTRACTOR SHALL MATCH EXISTING PAVEMENT SECTION FOR STREET PATCH.
6. EXISTING SEWER SERVICES CALLED OUT TO BE REMOVED SHALL BE REMOVED AS CLOSE AS POSSIBLE TO THE STREET AND CAPPED. SERVICES TO BE REMOVED/ABANDONED PER CITY OF WINDSOR HEIGHTS STANDARD SPECIFICATIONS.
7. CITY OF WINDSOR HEIGHTS STAFF SHALL INSPECT ALL UTILITY TERMINATIONS PRIOR TO BACKFILL OF TRENCH.
8. WORK IN THE RIGHT-OF-WAY SHALL REQUIRE A TRAFFIC CONTROL PLAN THAT MEETS ALL MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) REQUIREMENTS. THIS PLAN IS REQUIRED BEFORE ANY PERMITS TO WORK IN THE RIGHT-OF-WAY WILL BE ISSUED.
9. SANITARY SEWER AND WATER SERVICES FOR THE EXISTING BUILDING SHOWN ON THE PLANS WERE LOCATED BASED ON CITY UTILITY TAP RECORDS AND SHOULD BE CONSIDERED APPROXIMATE. CONTRACTOR SHALL FIELD LOCATE LINES CALLED OUT FOR REMOVAL/ABANDONMENT.

THE UNDERGROUND UTILITIES HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION, AS-BUILT MAPS AS PROVIDED BY MUNICIPALITIES OR UTILITY COMPANIES, AND/OR EXISTING DRAWINGS. THERE IS NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRIZE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED, NOR IS THERE A GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ANY AND ALL EXISTING UTILITIES. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY RESULT FROM ITS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UTILITIES.

SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA

DEMOLITION PLAN

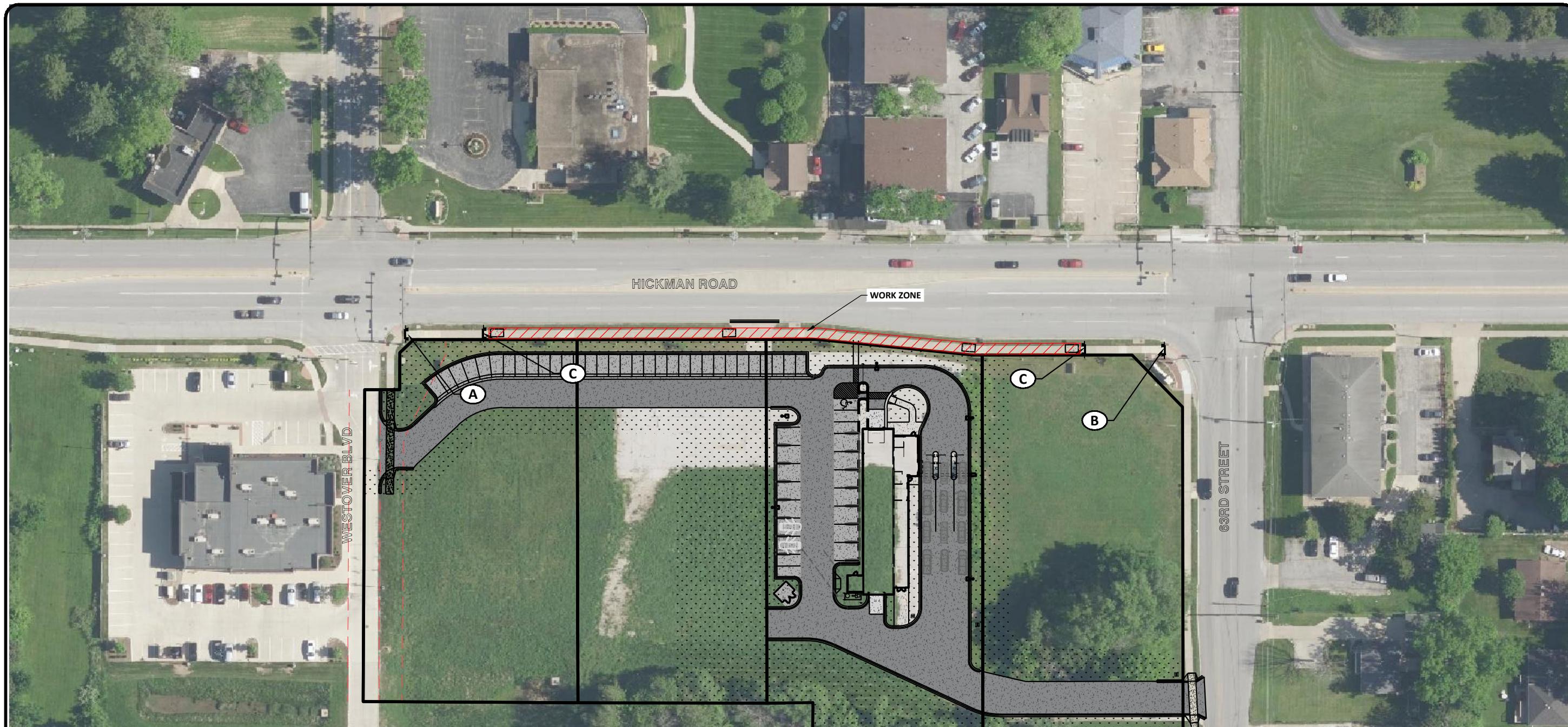


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7/24/2023
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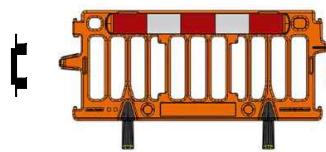
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Page 1 of 1
File Name: 10904-00117 - Traffic Control.dwg-C2.2 TRAIL TRAFFIC CONTROL-8/18/2023 4:21 PM-(vandenbos)



PEDESTRIAN BARRIER (IMAGE VIA OXFORD PLASTICS)

TRAFFIC CONTROL NOTES:

TRAFFIC CONTROL NOTED:

1. ALL SIGNING AND TRAFFIC CONTROL SHALL CONFORM WITH THE LATEST VERSION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. CONTRACTOR SHALL ENSURE CONFLICTING SIGNAGE NEAR OR WITHIN THE WORK ZONE IS COVERED.
3. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL TRAFFIC CONTROL DEVICES THROUGHOUT THE PROJECT AT ALL TIMES IN ACCORDANCE WITH THE PLANS AND THE LATEST EDITION OF THE MUTCD.



SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA

RAIL TRAFFIC CONTROL

The logo for the City of Houston, featuring a stylized green and blue graphic element above the word "HOUSTON" in a bold, sans-serif font.

Drawn By

JLV

Checked By

SMH

Date

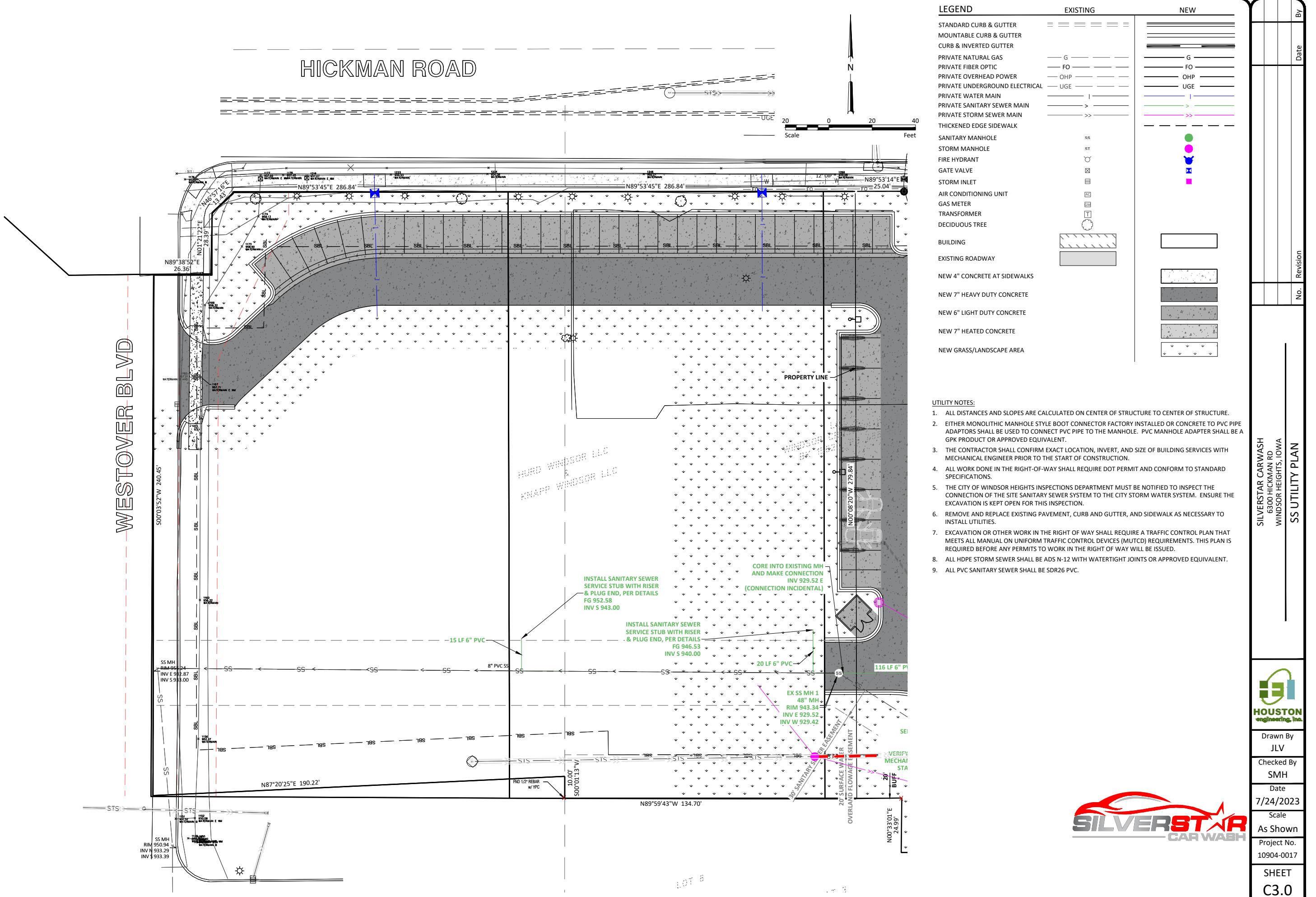
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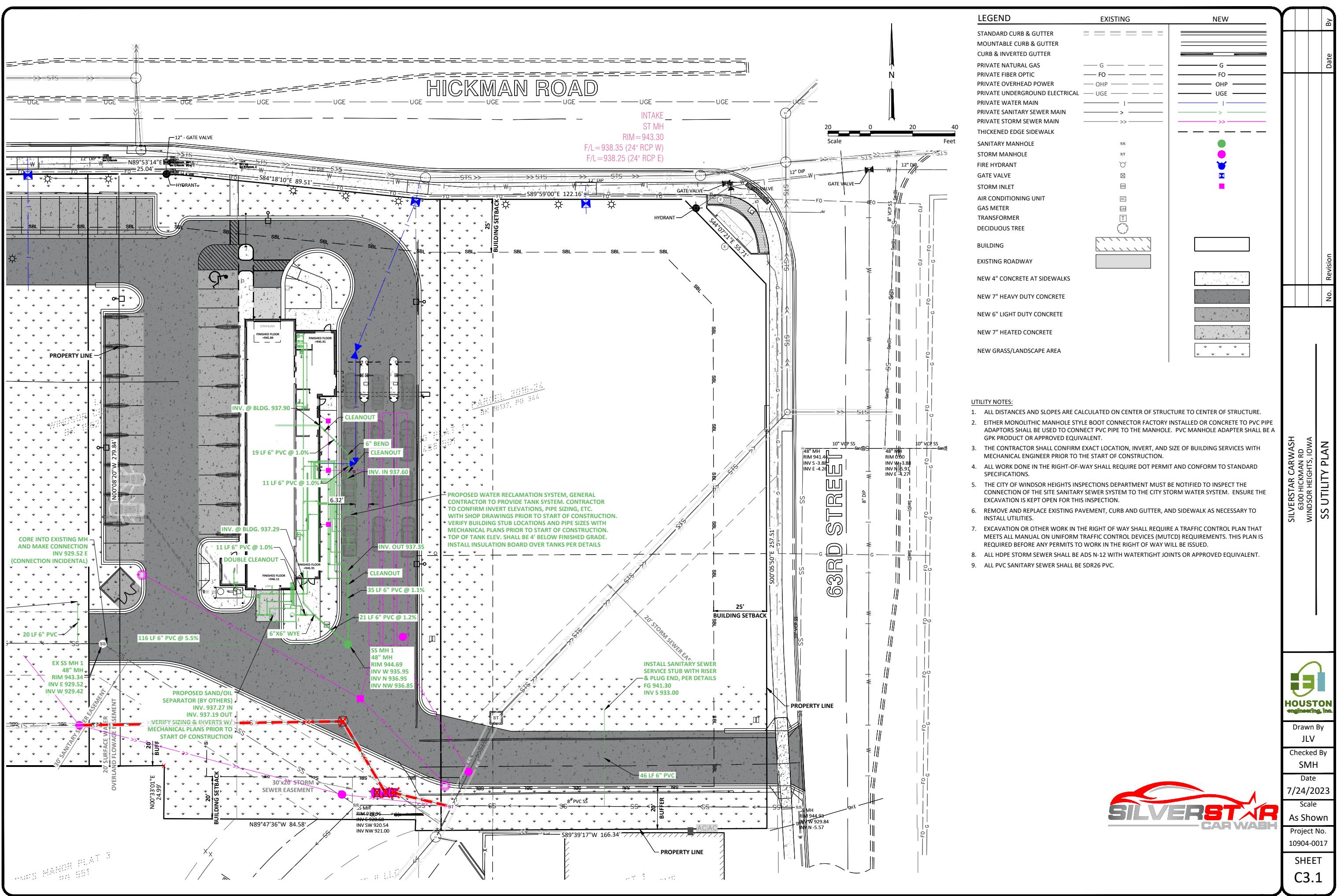
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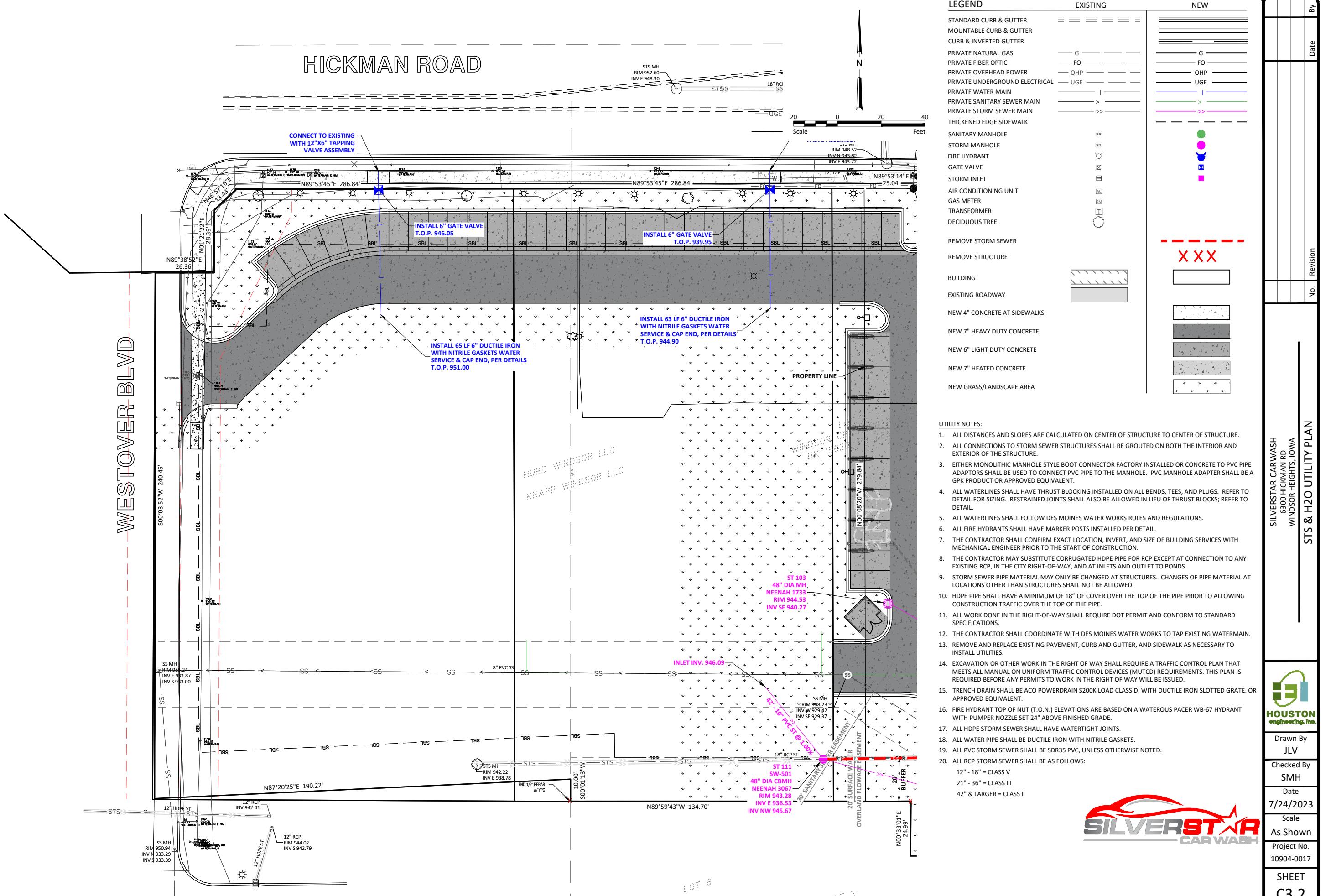
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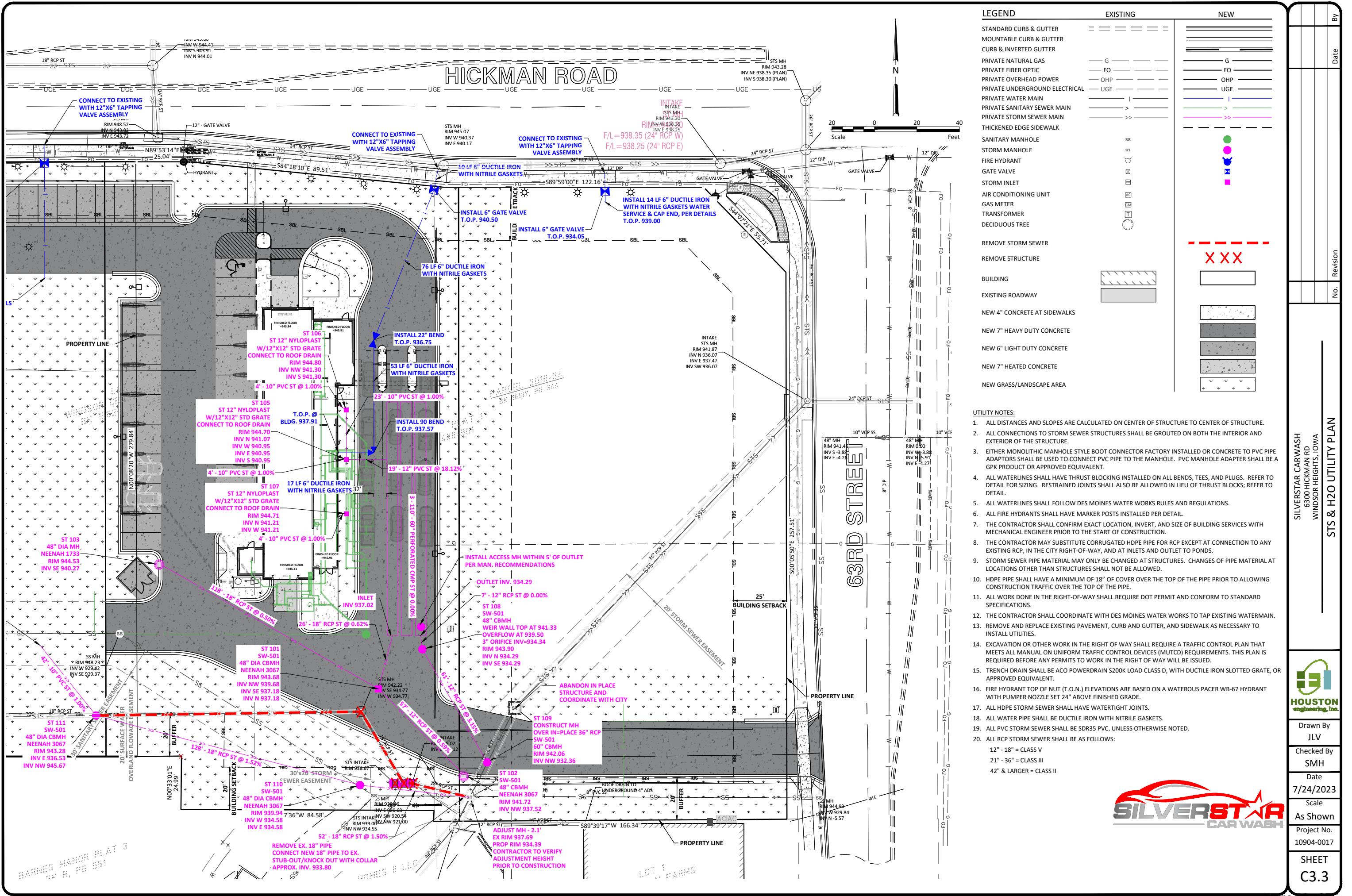
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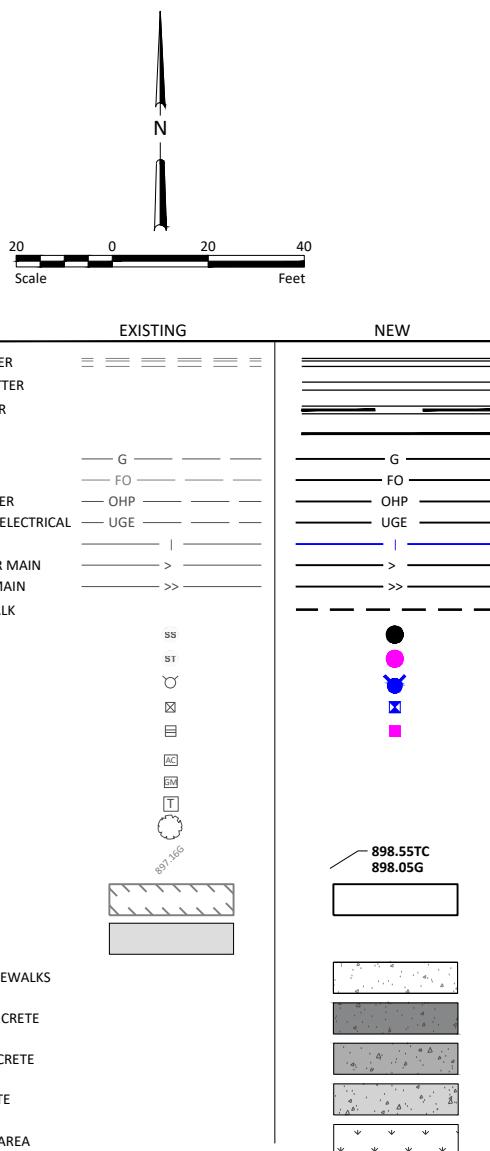
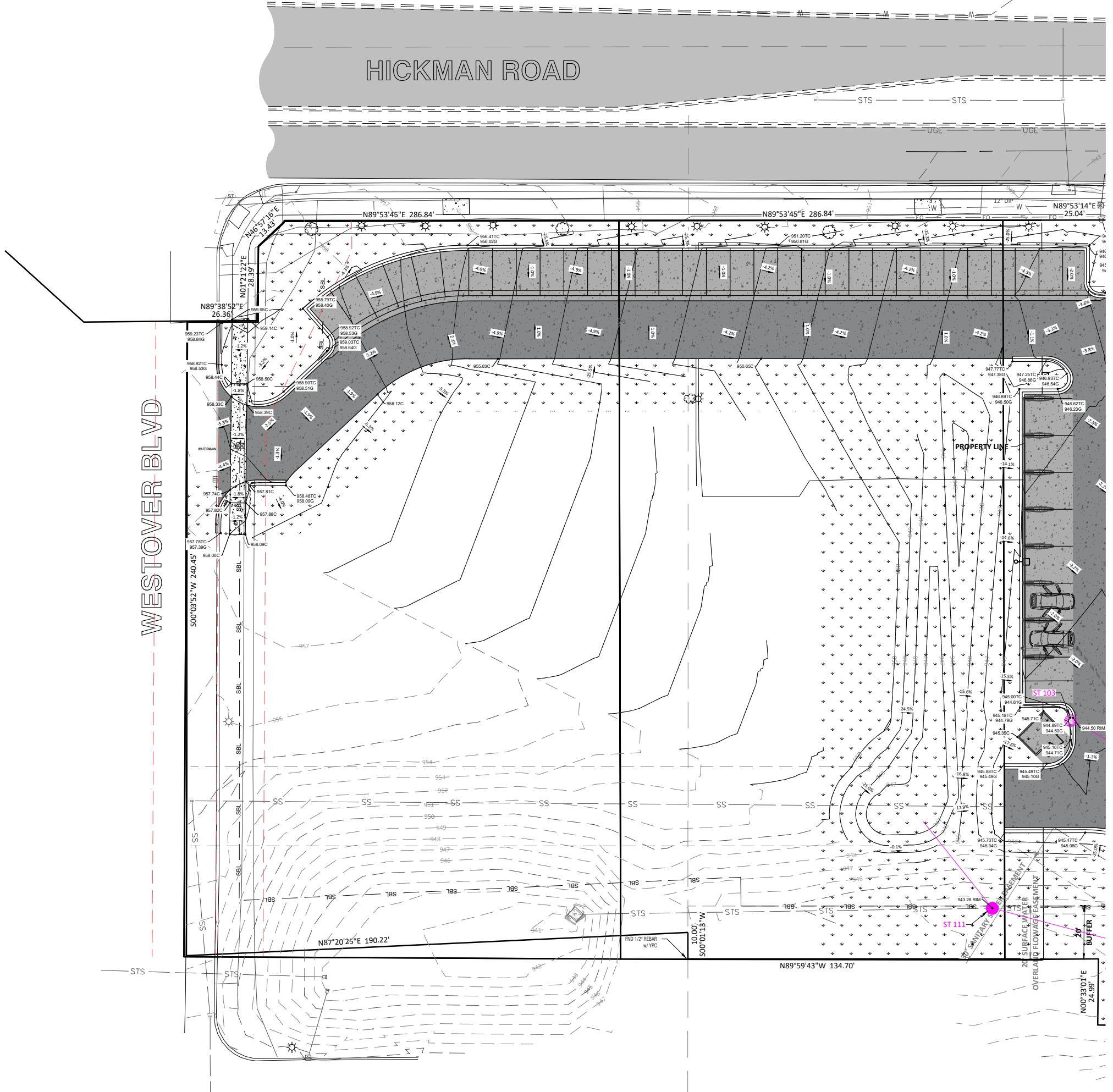
Page 19 of 75











SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA

GRADING PLAN

 HOUSTON

Drawn By
J.V

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SMH

Date

7/24/2023

As Shown

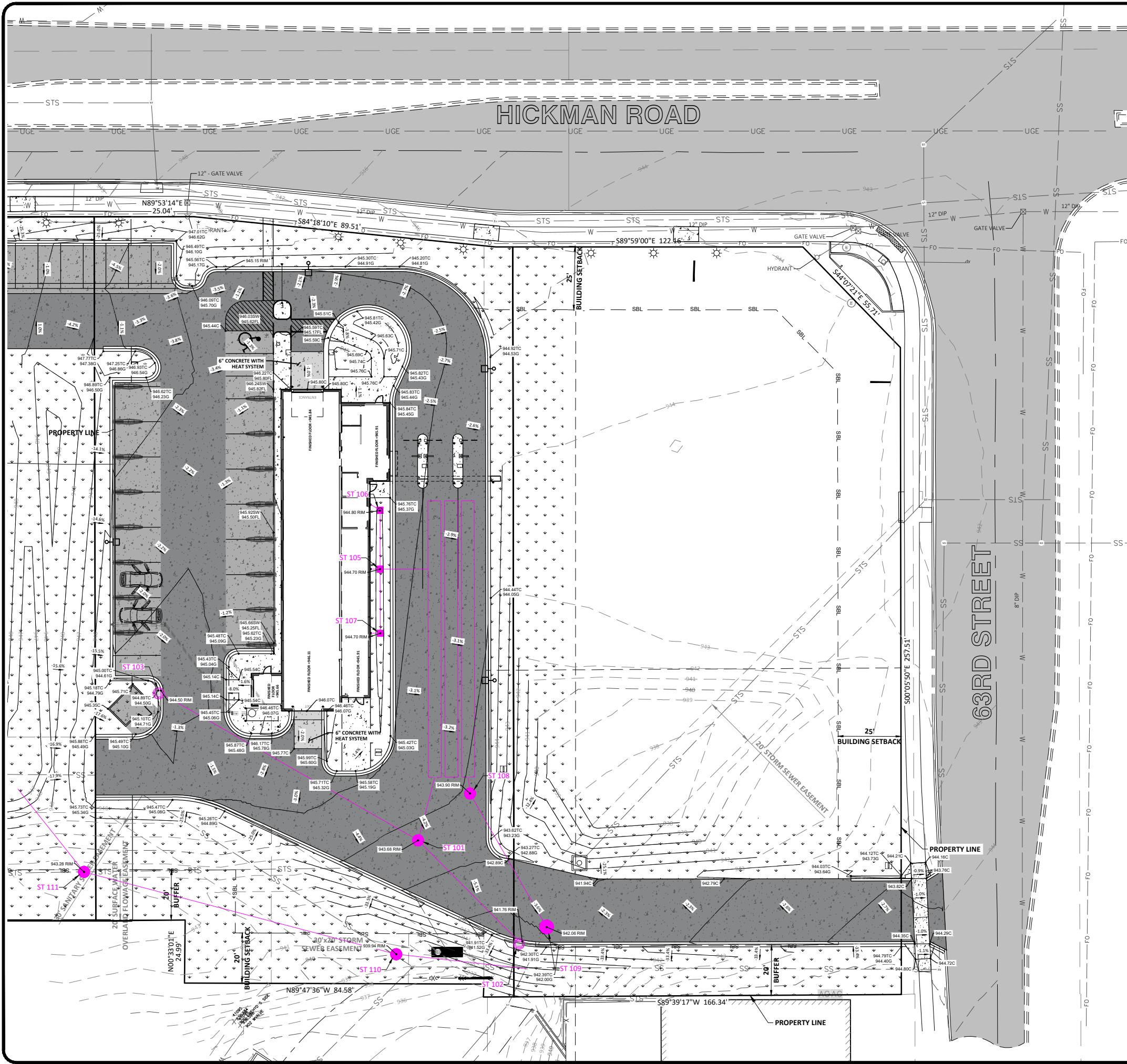
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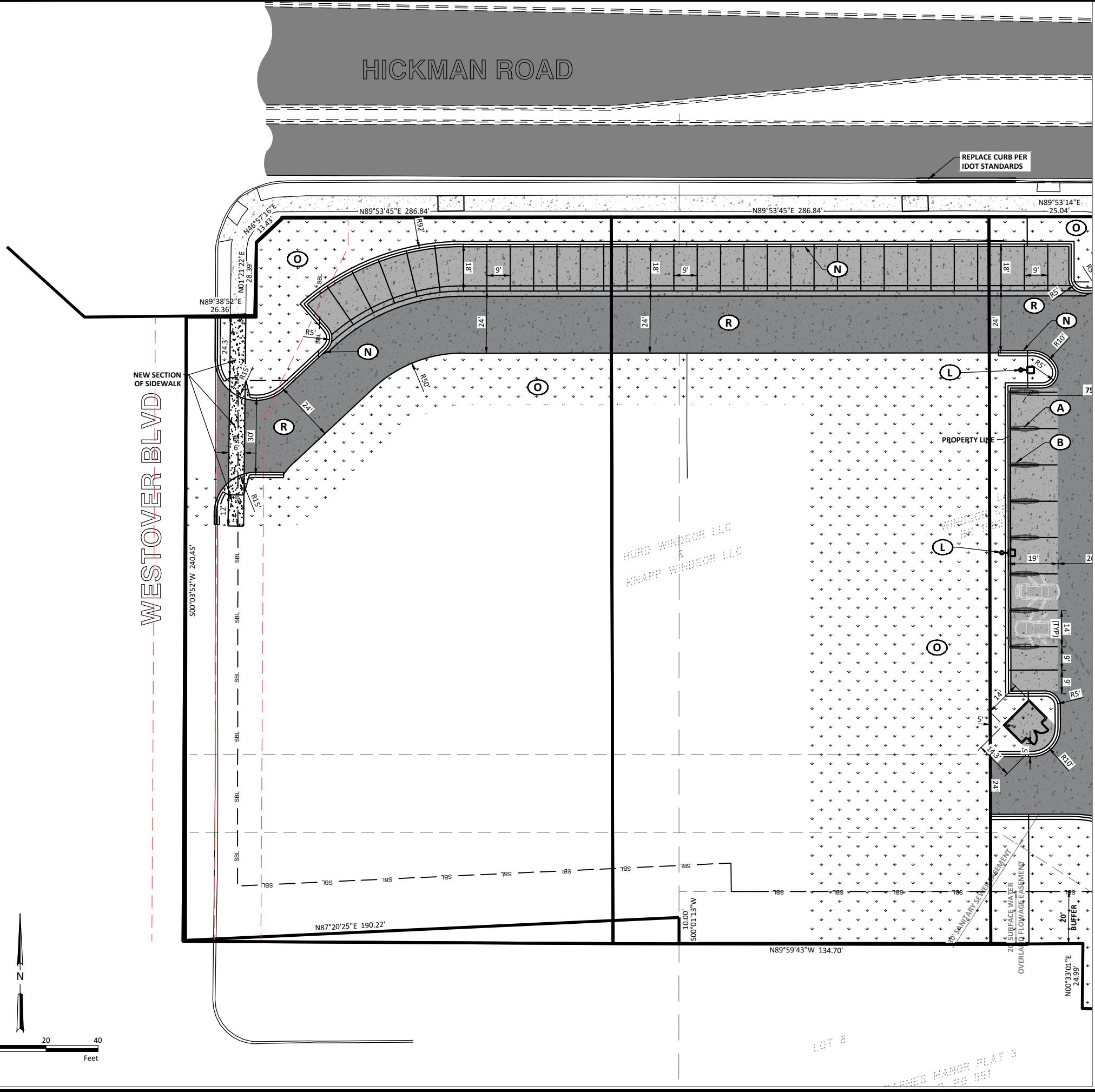
LEGEND		EXISTING	NEW
STANDARD CURB & GUTTER		==	==
MONTABLE CURB & GUTTER		==	==
CURB & INVERTED GUTTER		==	==
BREAKLINE			
PRIVATE NATURAL GAS	G		
PRIVATE FIBER OPTIC	FO		
PRIVATE OVERHEAD POWER	OHP		
PRIVATE UNDERGROUND ELECTRICAL	UGE		
PRIVATE WATER MAIN	I		
PRIVATE SANITARY SEWER MAIN	>		
PRIVATE STORM SEWER MAIN	>>		
THICKENED EDGE SIDEWALK			
SANITARY MANHOLE	SS		
STORM MANHOLE	ST		
FIRE HYDRANT	Hydrant		
GATE VALVE	Gate Valve		
STORM INLET	SI		
AIR CONDITIONING UNIT	AC		
GAS METER	GM		
TRANSFORMER	T		
DECIDUOUS TREE			
SPOT ELEVATION			
BUILDING			
EXISTING ROADWAY			
NEW 4" CONCRETE AT SIDEWALKS			
NEW 7" HEAVY DUTY CONCRETE			
NEW 6" LIGHT DUTY CONCRETE			
NEW 7" HEATED CONCRETE			
NEW GRASS/LANDSCAPE AREA			

GRADING NOTES:

1. ALL SIDEWALKS SHALL HAVE A MAXIMUM 2% CROSS SLOPE AND LONGITUDINAL SLOPE OF 5% EXCEPT CURB RAMPS WHICH SHALL HAVE A MAXIMUM SLOPE OF 1:12; REFER TO DETAIL.
2. ALL CURB RAMPS SHALL HAVE DETECTABLE WARNING PANELS INSTALLED.
3. ALL WORK DONE IN THE RIGHT-OF-WAY SHALL CONFORM TO THE CITY OF WINDSOR HEIGHTS STANDARD SPECIFICATIONS.
4. ALL HANDICAPPED STALLS SHALL HAVE SIGNING INSTALLED PER DETAILS.
5. ALL HANDICAPPED STALLS SHALL BE STRIPED PER DETAIL.
6. EXCAVATION OR OTHER WORK IN THE RIGHT OF WAY SHALL REQUIRE A TRAFFIC CONTROL PLAN THAT MEETS ALL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) REQUIREMENTS. THIS PLAN IS REQUIRED BEFORE ANY PERMITS TO WORK IN THE RIGHT OF WAY WILL BE ISSUED.
7. BUILDING HAS MULTIPLE FINISHED FLOOR ELEVATIONS. REFER TO ARCHITECTURAL & STRUCTURAL PLANS FOR DETAILS.
8. FINISHED FLOOR ELEVATION AT NORTH TUNNEL ENTRANCE SHALL BE AT 945.84 MINIMUM PER GRADING PLAN.
9. BUILDING FINISH FLOOR ELEVATION SHOWN (100'0" ARCHITECTURAL ELEVATION) IS THAT OF THE LOBBY & MECHANICAL ROOM AREAS. FINISH FLOOR OF THE TUNNEL VARIES FROM ENTRANCE TO EXIT. TUNNEL FLOOR SHALL SLOPE UP FROM ENTRANCE AT A RATE OF $\frac{1}{4}$ " PER FEE TOWARDS THE TUNNEL EXIT. TUNNEL EXIT FEE SHALL BE 946.11.

	SILVERSTAR CARWASH
	6300 HICKMAN RD
	WINDSOR HEIGHTS, IOWA
	GRADING PLAN
Drawn By	JLV
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Scale	As Shown
Project No.	10904-0017
Sheet	C4.1





LEGEND	
STANDARD CURB & GUTTER	EXISTING
MOUNTABLE CURB & GUTTER	NEW
CURB & INVERTED GUTTER	
PRIVATE NATURAL GAS	G
PRIVATE FIBER OPTIC	FO
PRIVATE OVERHEAD POWER	OHP
PRIVATE UNDERGROUND ELECTRICAL	UGE
PRIVATE WATER MAIN	W
PRIVATE SANITARY SEWER MAIN	SS
PRIVATE STORM SEWER MAIN	STS
THICKENED EDGE SIDEWALK	
SANITARY MANHOLE	ST
STORM MANHOLE	SM
FIRE HYDRANT	HY
GATE VALVE	GV
STORM INLET	SI
AIR CONDITIONING UNIT	AC
GAS METER	GM
TRANSFORMER	TR
DECIDUOUS TREE	DT
BUILDING	BLDG
EXISTING ROADWAY	RDWY
NEW 4" CONCRETE AT SIDEWALKS	
NEW 7" HEAVY DUTY CONCRETE	
NEW 6" LIGHT DUTY CONCRETE	
NEW 6" LIGHT DUTY VALLEY GUTTER	
NEW 7" HEATED CONCRETE	
NEW GRASS/LANDSCAPE AREA	

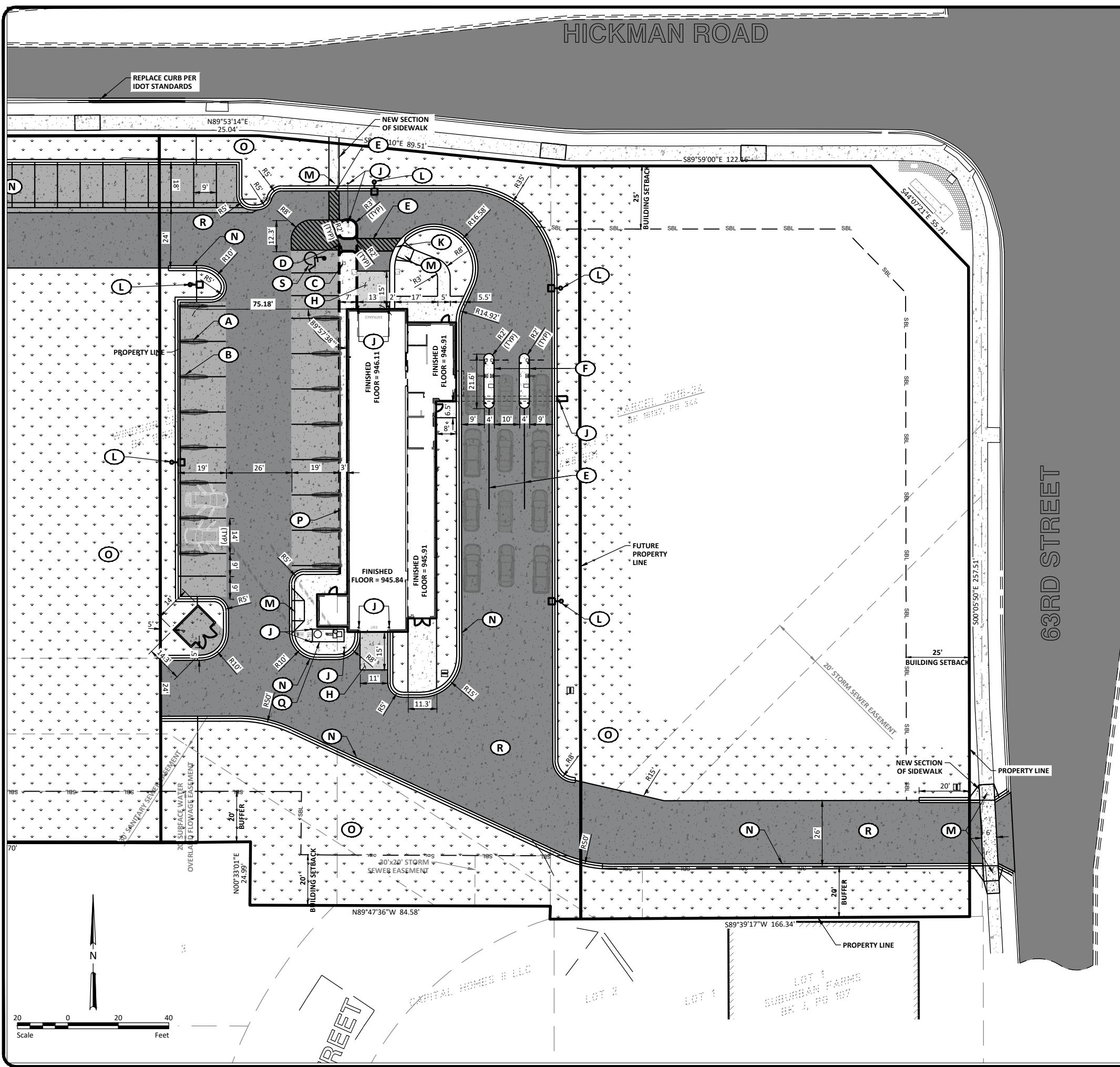
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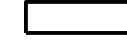
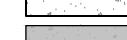
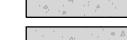
1. ALL WORK DONE IN THE RIGHT OF WAY SHALL CONFORM TO THE CITY OF WINDSOR HEIGHTS STANDARD SPECIFICATIONS.
2. ALL HANDICAPPED STALLS SHALL HAVE SIGNING INSTALLED PER DETAIL.
3. HANDICAPPED STALLS SHALL BE STRIPED PER DETAIL.
4. SLOPE IN HANDICAP LOADING/UNLOADING ZONES SHALL NOT EXCEED 2% CROSS SLOPE AND ON ANY HANDICAP ACCESSIBLE ROUTE SHALL NOT EXCEED 2%.
5. ALL CURB RAMPS SHALL HAVE DETECTABLE WARNING PANELS INSTALLED.
6. ALL MANHOLES AND STORM SEWER INLETS LOCATED IN THE PAVEMENT SHALL HAVE CONCRETE COLLARS INSTALLED PER THE DETAILS.
7. ALL DISTANCES SHOWN ARE TO BACK OF CURB.
8. EXCAVATION OR OTHER WORK IN THE RIGHT OF WAY SHALL REQUIRE A TRAFFIC CONTROL PLAN THAT MEETS ALL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) REQUIREMENTS. THIS PLAN IS REQUIRED BEFORE ANY PERMITS TO WORK IN THE RIGHT OF WAY WILL BE ISSUED.
9. ALL SIGNING SHALL CONFORM WITH THE CURRENT VERSION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

KEYNOTES:

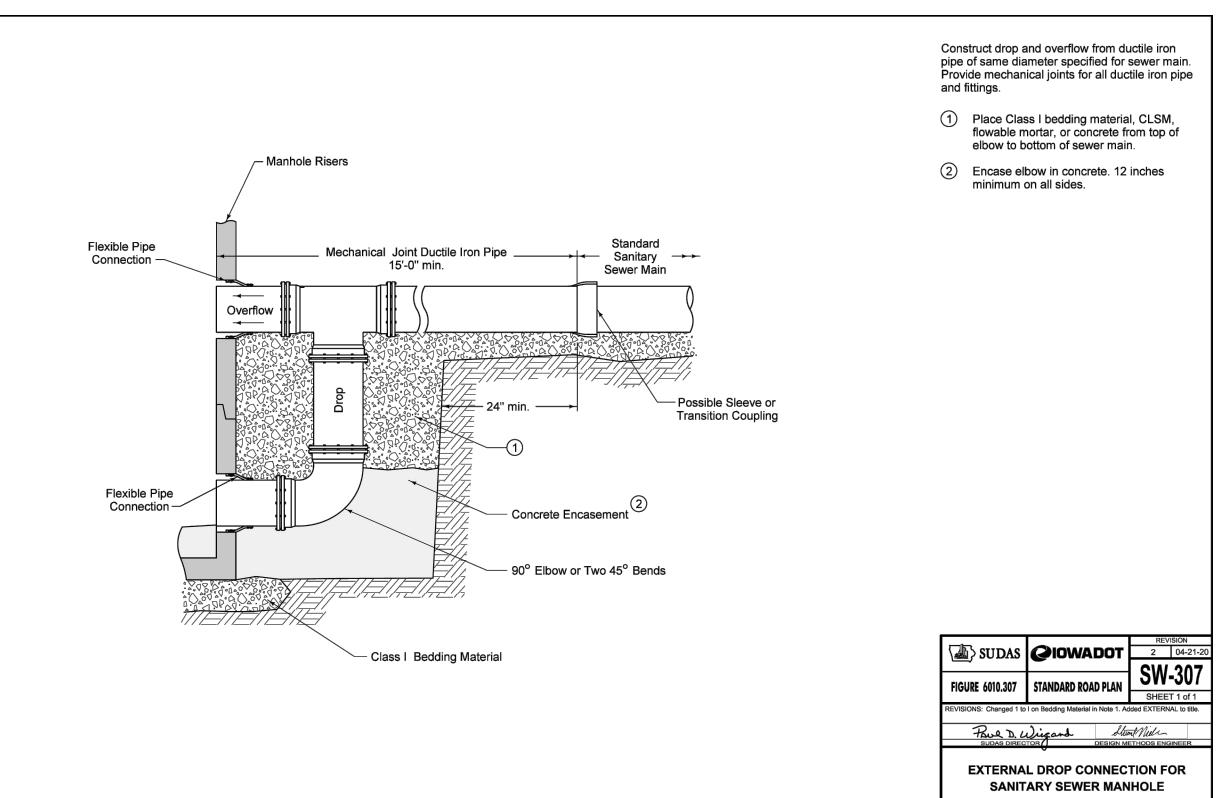
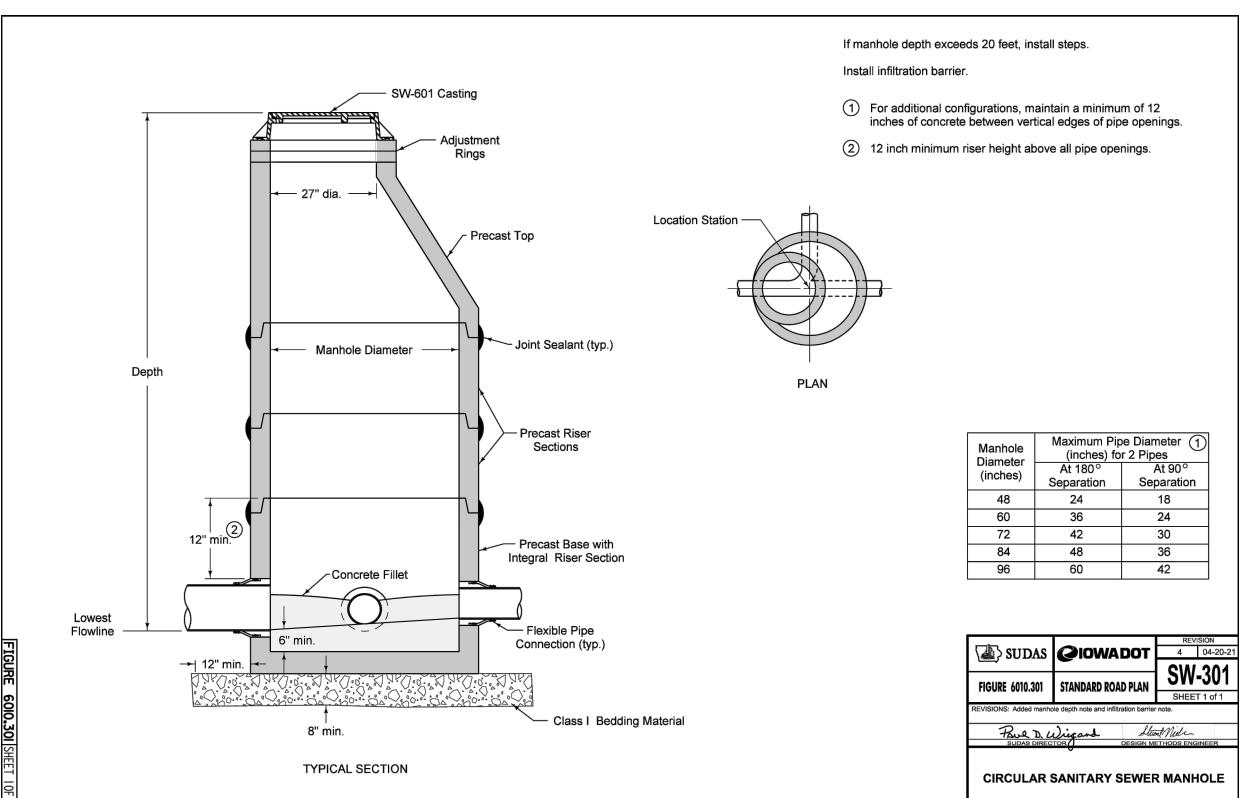
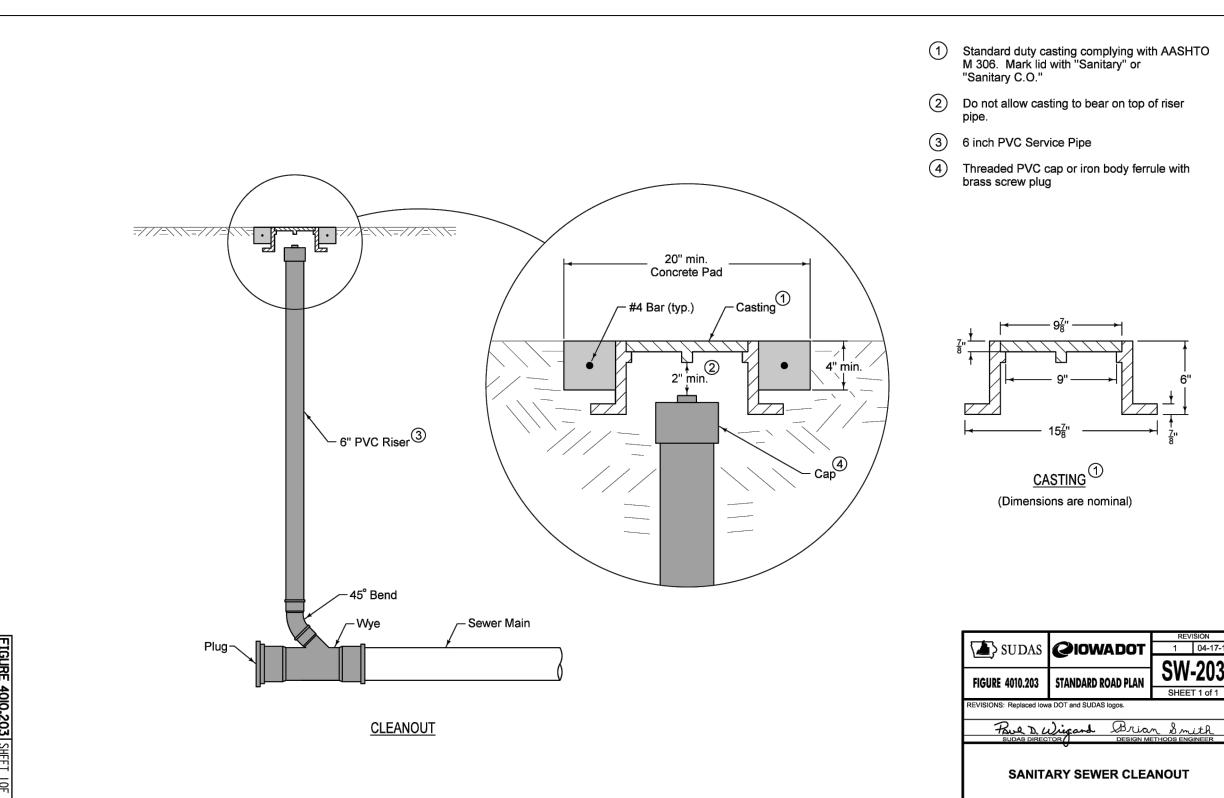
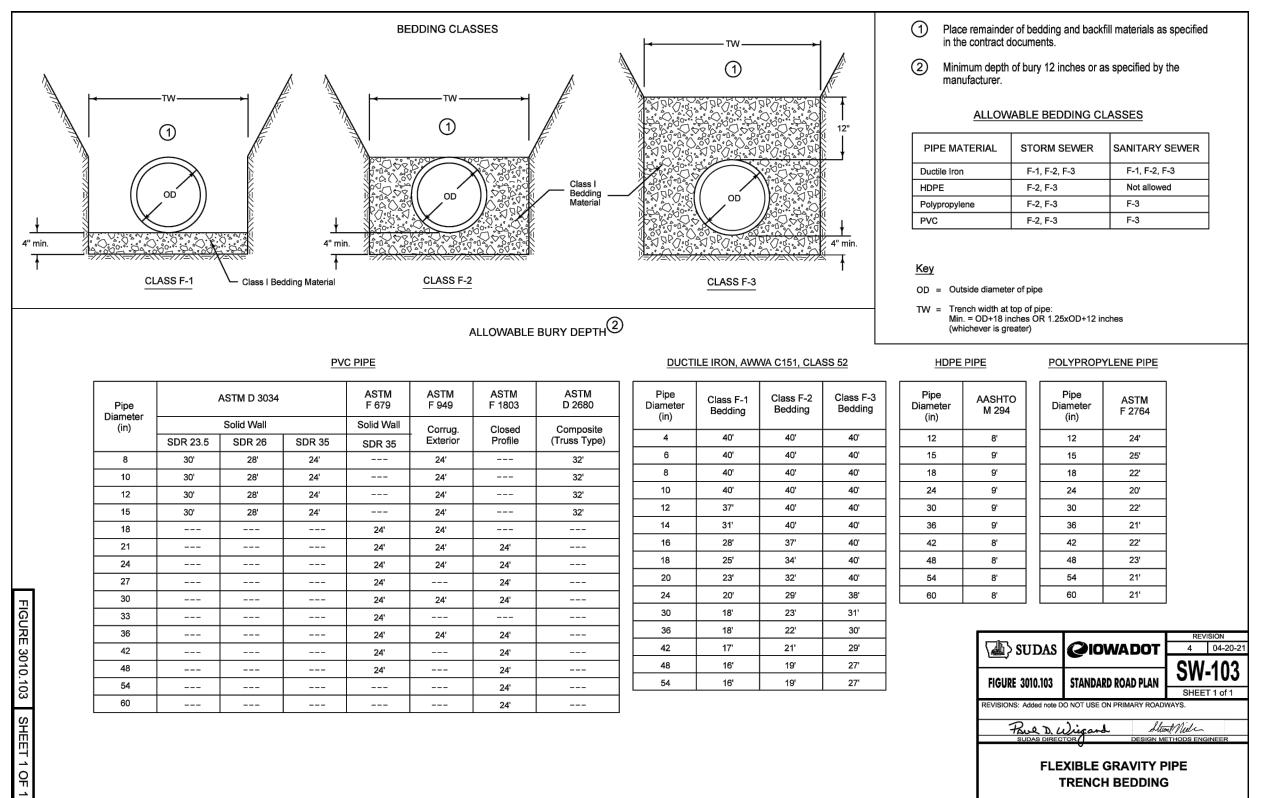
- (A) VACUUM SYSTEM, REFER TO PLANS AND DETAILS (BY OTHERS) FOR EXACT SIZE AND LOCATION.
- (B) CONCRETE FOUNDATION FOR VACUUM POST, INSTALL ISOLATION JOINT AT FOUNDATION PER DETAILS.
- (C) HANDICAPPED SIGN AT 1'-0" BEHIND EDGE OF SIDEWALK, PER DETAILS.
- (D) DROPPED SIDEWALK AT HANDICAPPED ACCESS AISLE.
- (E) 4" WHITE PAINTED MARKINGS.
- (F) RAISED ISLAND SECTION, CONTRACTOR SHALL COORDINATE INSTALLATION OF ALL CONDUITS, FOOTINGS, AND STRUCTURES IN PROPOSED ISLANDS. ISLAND SECTION TO BE POURED SEPARATELY FROM PAVEMENT SECTION AND INSTALL ISOLATION JOINT AROUND ISLAND SECTION.
- (H) 8" HEATED CONCRETE, SEE DETAILS.
- (J) BOLLARD, SEE DETAILS.
- (K) RIBBON CURB.
- (L) LIGHT POLE - SEE LIGHTING PLAN
- (M) INSTALL CURB RAMP PER DETAILS.
- (N) MOUNTABLE CURB AND GUTTER.
- (O) LAWN AREA, SEE LANDSCAPING PLANS
- (P) INTEGRAL CONCRETE SIDEWALK - SEE DETAILS
- (Q) VACUUM PRODUCER, SEE DETAILS
- (R) NEW CONCRETE
- (S) ADA SYMBOL PER LOCAL ZONING REQUIREMENTS. PAINT COLOR: SILVERSTAR RED





LEGEND	EXISTING	NEW				
STANDARD CURB & GUTTER	=====	=====				
OUNTABLE CURB & GUTTER						
CURB & INVERTED GUTTER						
PRIVATE NATURAL GAS	G	G				
PRIVATE FIBER OPTIC	FO	FO				
PRIVATE OVERHEAD POWER	OHP	OHP				
PRIVATE UNDERGROUND ELECTRICAL	UGE	UGE				
PRIVATE WATER MAIN	W	W				
PRIVATE SANITARY SEWER MAIN	SS	SS				
PRIVATE STORM SEWER MAIN	STS	STS				
THICKENED EDGE SIDEWALK		---				
SANITARY MANHOLE	SS					
STORM MANHOLE	ST	●				
FIRE HYDRANT	○	●				
GATE VALVE	☒	☒				
STORM INLET	□	■				
AIR CONDITIONING UNIT	AC					
GAS METER	GM					
TRANSFORMER	T					
DECIDUOUS TREE						
BUILDING						
EXISTING ROADWAY						
NEW 4" CONCRETE AT SIDEWALKS						
NEW 7" HEAVY DUTY CONCRETE						
NEW 6" LIGHT DUTY CONCRETE						
NEW 6" LIGHT DUTY VALLEY GUTTER						
NEW 7" HEATED CONCRETE						
NEW GRASS/LANDSCAPE AREA						
NING NOTES:						
ALL WORK DONE IN THE RIGHT OF WAY SHALL CONFORM TO THE CITY OF WINDSOR HEIGHTS STANDARD SPECIFICATIONS.						
ALL HANDICAPPED STALLS SHALL HAVE SIGNING INSTALLED PER DETAIL.						
HANDICAPPED STALLS SHALL BE STRIPED PER DETAIL.						
SLOPE IN HANDICAP LOADING/UNLOADING ZONES SHALL NOT EXCEED 2% CROSS SLOPE AND ON ANY HANDICAP ACCESSIBLE ROUTE SHALL NOT EXCEED 2%.						
ALL CURB RAMPS SHALL HAVE DETECTABLE WARNING PANELS INSTALLED.						
ALL MANHOLES AND STORM SEWER INLETS LOCATED IN THE PAVEMENT SHALL HAVE CONCRETE COLLARS INSTALLED PER THE DETAILS.						
ALL DISTANCES SHOWN ARE TO BACK OF CURB.						
EXCAVATION OR OTHER WORK IN THE RIGHT OF WAY SHALL REQUIRE A TRAFFIC CONTROL PLAN THAT MEETS ALL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) REQUIREMENTS. THIS PLAN IS REQUIRED BEFORE ANY PERMITS TO WORK IN THE RIGHT OF WAY WILL BE ISSUED.						
ALL SIGNING SHALL CONFORM WITH THE CURRENT VERSION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).						
KEYNOTES:						
A	VACUUM SYSTEM, REFER TO PLANS AND DETAILS (BY OTHERS) FOR EXACT SIZE AND LOCATION.					
B	CONCRETE FOUNDATION FOR VACUUM POST, INSTALL ISOLATION JOINT AT FOUNDATION PER DETAILS.					
C	HANDICAPPED SIGN AT 1'-0" BEHIND EDGE OF SIDEWALK, PER DETAILS.					
D	DROPPED SIDEWALK AT HANDICAPPED ACCESS AISLE.					
E	4" WHITE PAINTED MARKINGS.					
F	RAISED ISLAND SECTION, CONTRACTOR SHALL COORDINATE INSTALLATION OF ALL CONDUITS, FOOTINGS, AND STRUCTURES IN PROPOSED ISLANDS. ISLAND SECTION TO BE POURED SEPARATELY FROM PAVEMENT SECTION AND INSTALL ISOLATION JOINT AROUND ISLAND SECTION.					
H	8" HEATED CONCRETE, SEE DETAILS.					
J	BOLLARD, SEE DETAILS.					
K	RIBBON CURB.					
L	LIGHT POLE - SEE LIGHTING PLAN					
M	INSTALL CURB RAMP PER DETAILS.					
N	OUNTABLE CURB AND GUTTER.					
O	AWN AREA, SEE LANDSCAPING PLANS					
P	TEGRAL CONCRETE SIDEWALK - SEE DETAILS					
Q	VACUUM PRODUCER, SEE DETAILS					
R	NEW CONCRETE					
S	ADA SYMBOL PER LOCAL ZONING REQUIREMENTS. PAINT COLOR: SILVERSTAR RED					
						
SILVERSTAR CARWASH 6300 HICKMAN RD WINDSOR HEIGHTS, IOWA						
SITE PLAN						
Drawn By JLV						
Checked By SMH						
Date 7/24/2023						
Scale As Shown						
Project No. 10904-0017						
SHEET C5.1						





SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA

HOUSTON
engineering inc.

Drawn By
JLV

Checked By
SMH

Date
7/24/2023

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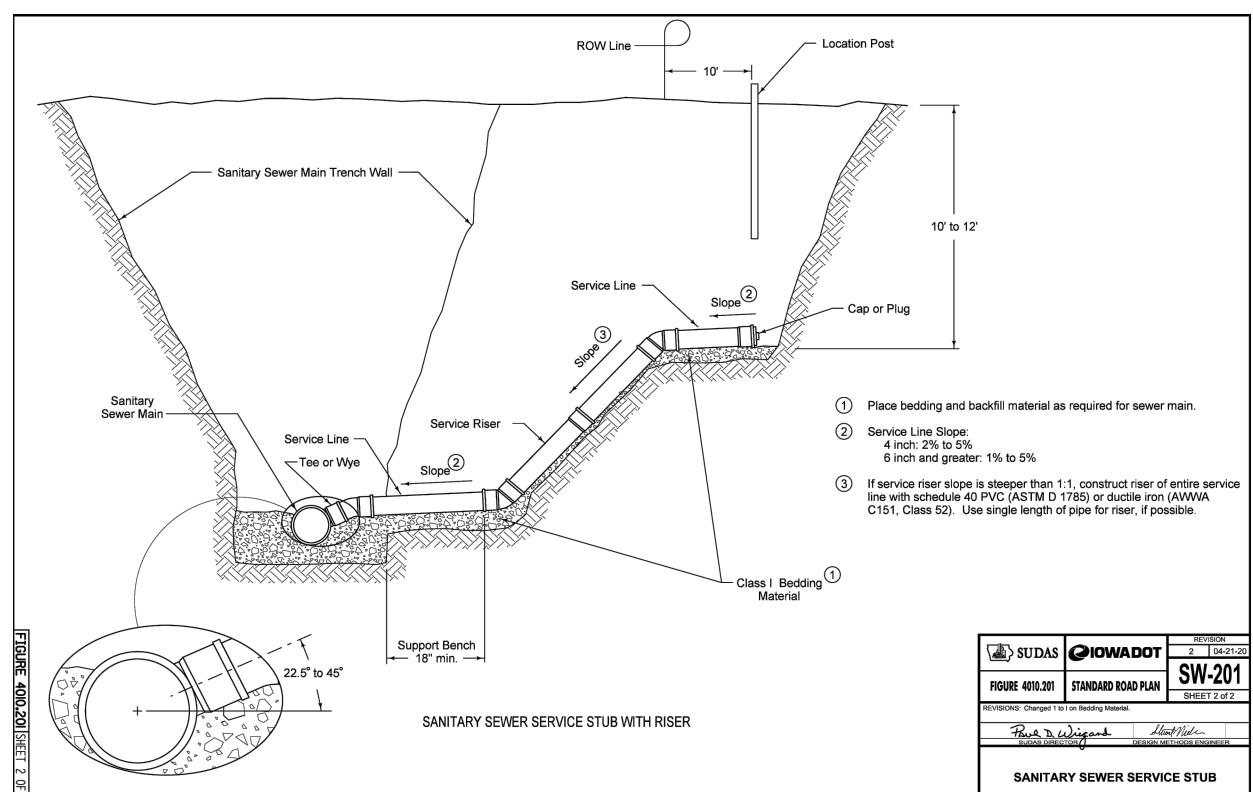
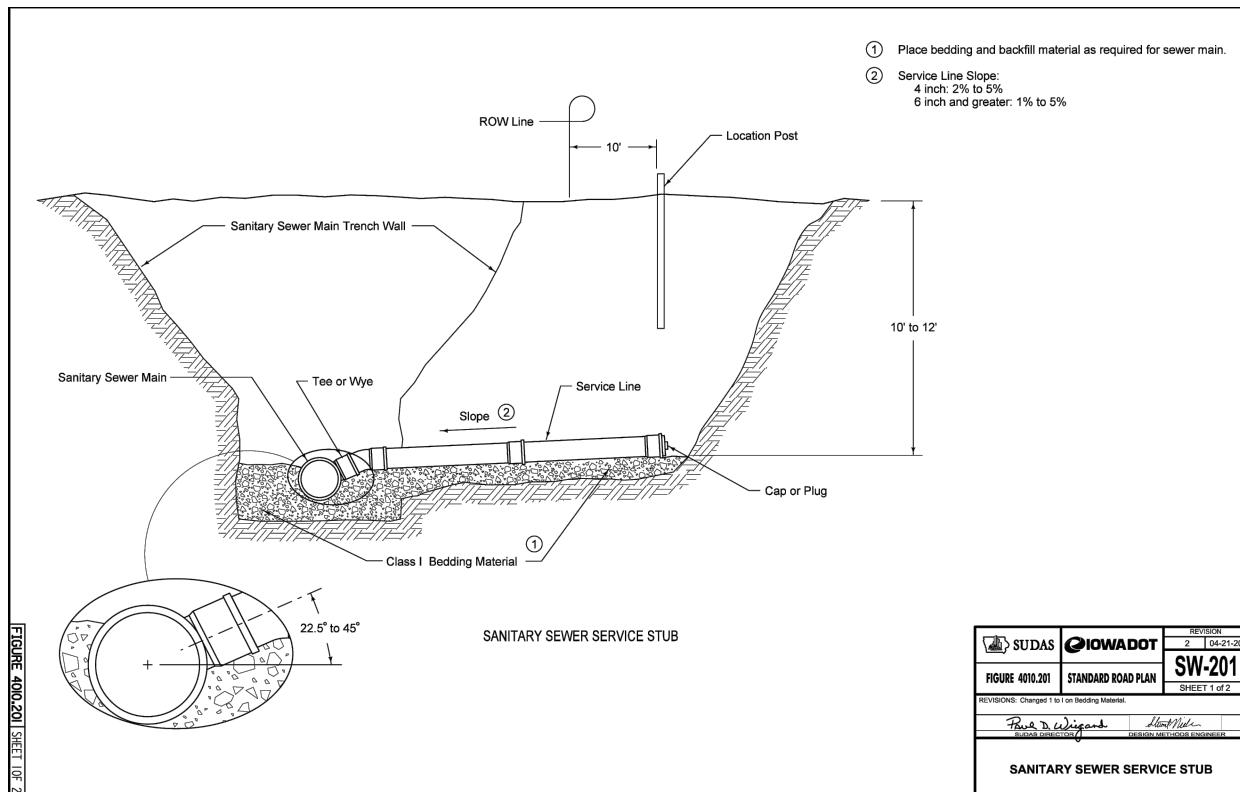
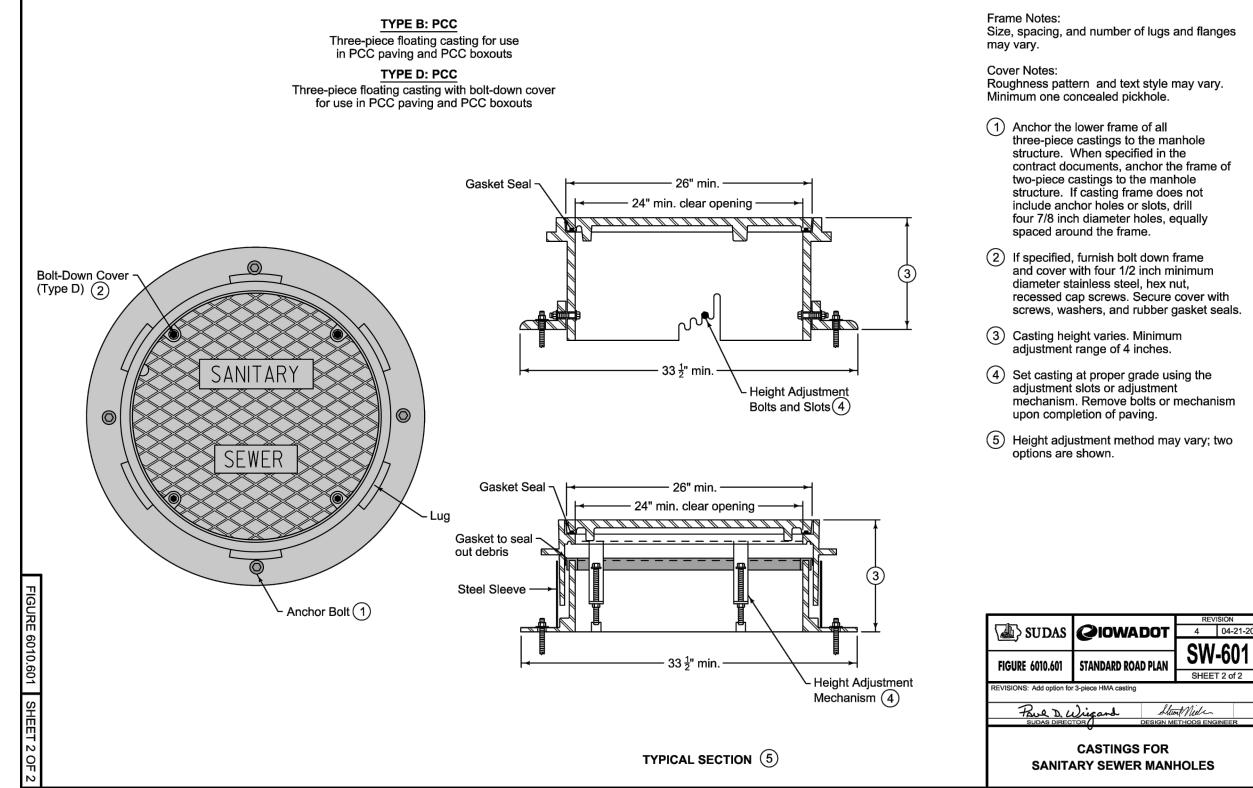
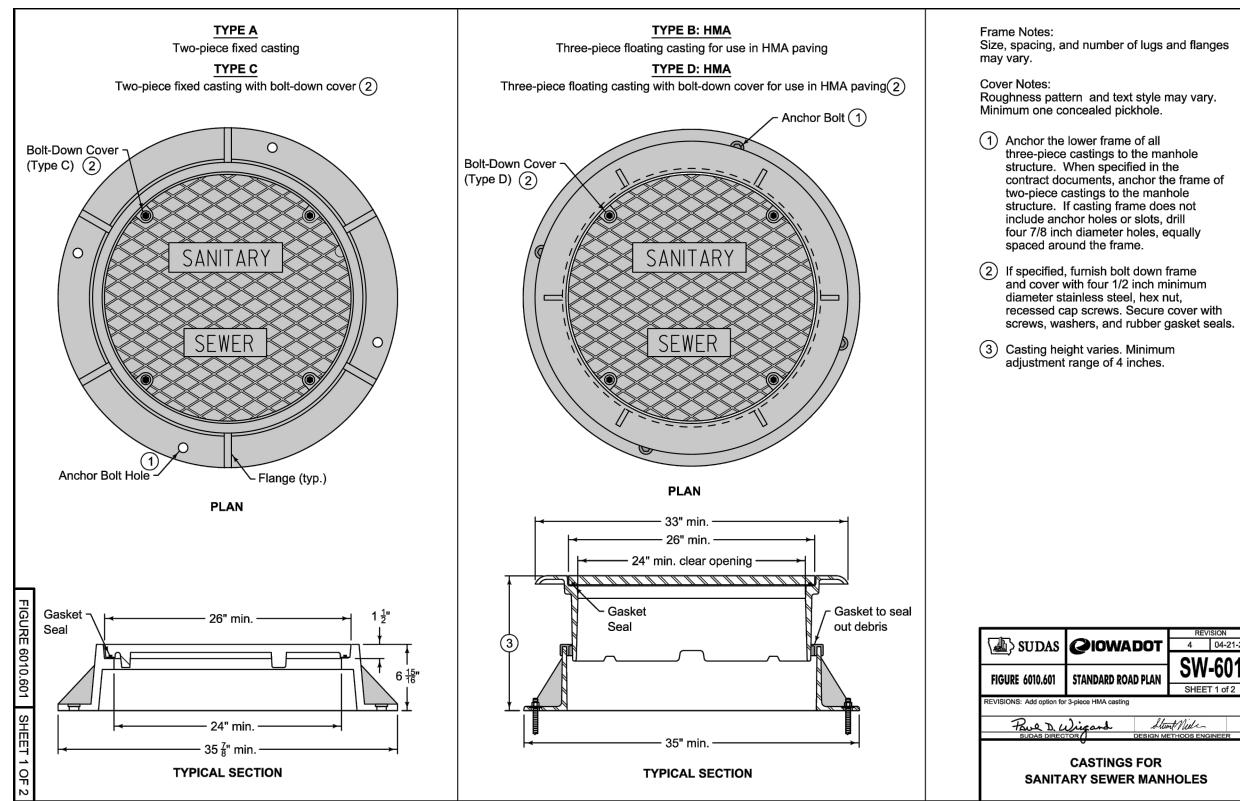
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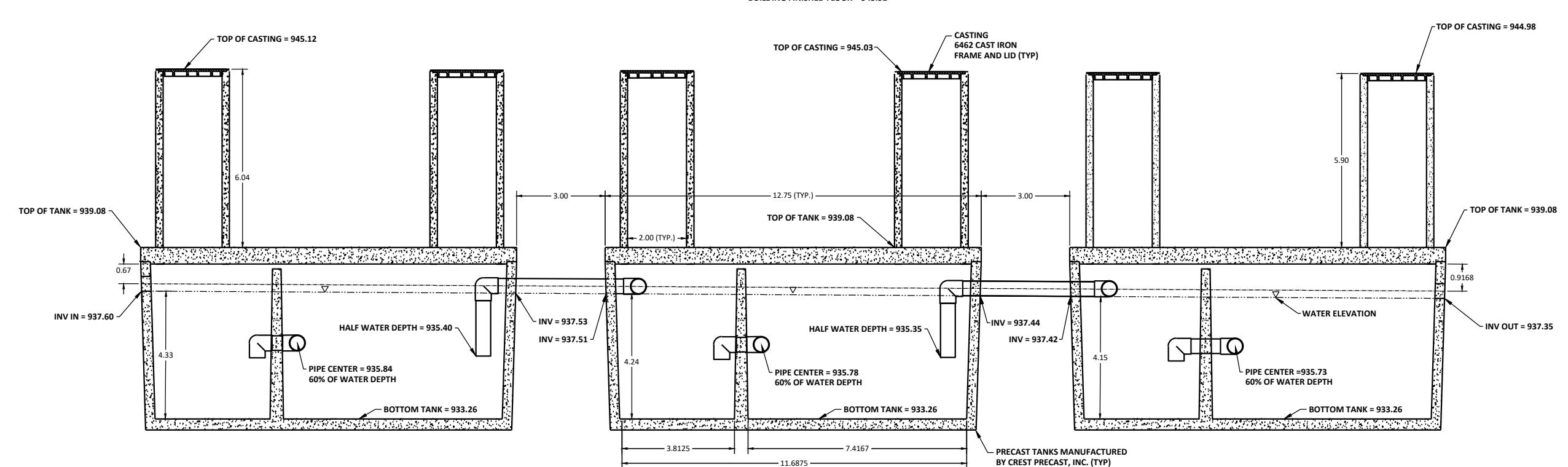
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RECLAIM TANK DETAIL

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SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA

DETAILS



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JLV

Checked By
SMH

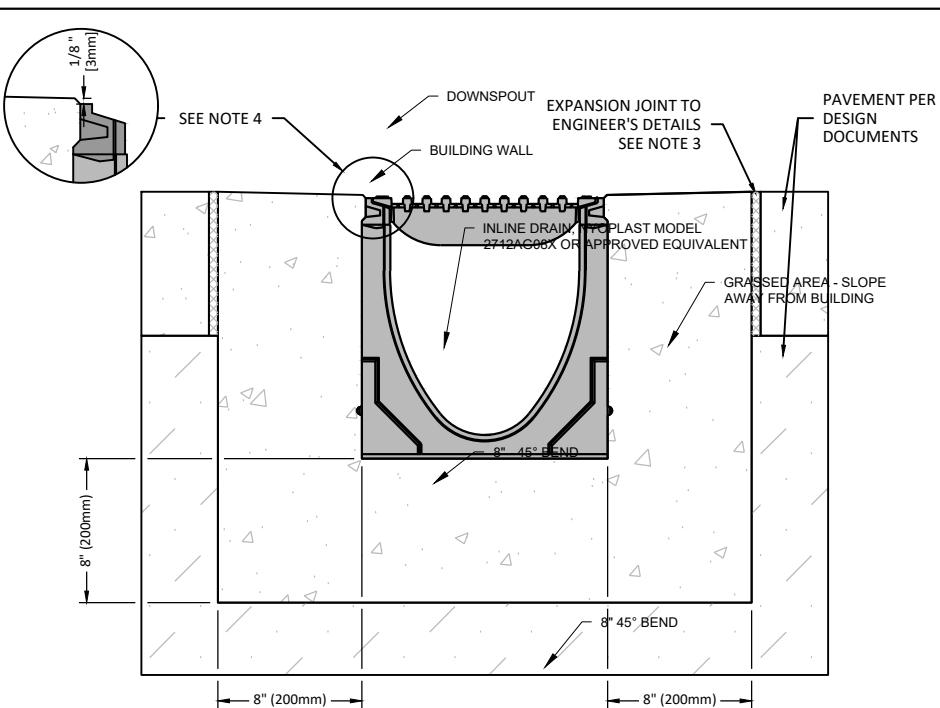
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NOTES:

1. IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS. *ENGINEERING ADVICE MAY BE REQUIRED.*
2. MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL AND CONCRETE SURROUND. *ENGINEERING ADVICE MAY BE REQUIRED.*
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" [3mm] ABOVE THE TOP OF THE CHANNEL EDGE.
5. CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.
6. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.

SPECIFICATION CLAUSE

S300K POWERBRAIN - LOAD CLASS D

CENER

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE
POLYMER CONCRETE S200K CHANNEL SYSTEM WITH
DUCTILE IRON EDGE RAILS AS MANUFACTURED BY
100 TONNITE PRODUCTS, INC.

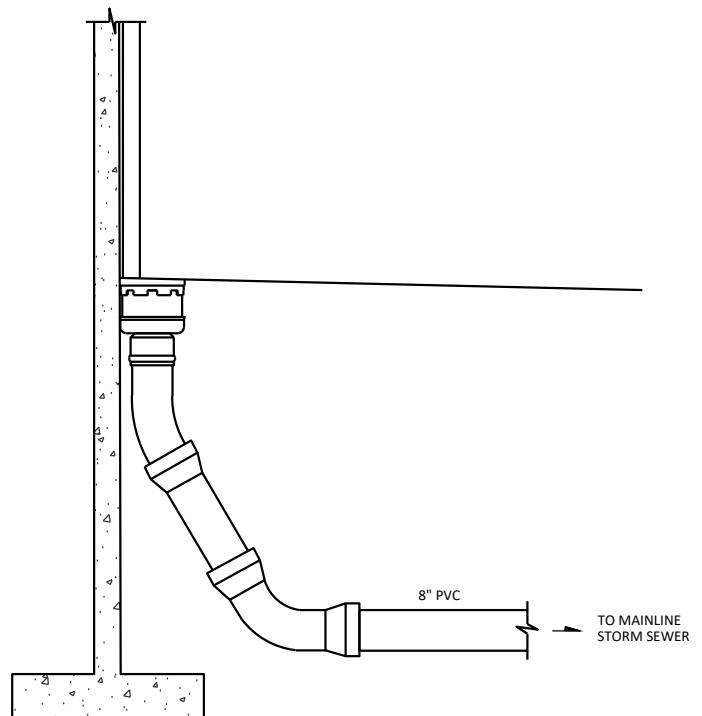
1

MATERIALS
CHANNELS SHALL BE MANUFACTURED FROM
POLYESTER RESIN POLYMER CONCRETE WITH AN
INTEGRALLY CAST-IN DUCTILE IRON EDGE RAIL.
MINIMUM PROPERTIES OF POLYMER CONCRETE WILL
BE AS FOLLOWS:
COMPRESSIVE STRENGTH: 14,000 PSI
FLEXURAL STRENGTH: 4,000 PSI
TENSILE STRENGTH: 1,500 PSI
WATER ABSORPTION: 0.07%
FROST PROOF YES
DILUTE ACID AND ALKALI RESISTANT YES
B117 SALT SPRAY TEST COMPLIANT YES

THE SYSTEM SHALL BE 8" (200mm) NOMINAL INTERNAL WIDTH WITH A 10.2" (260mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

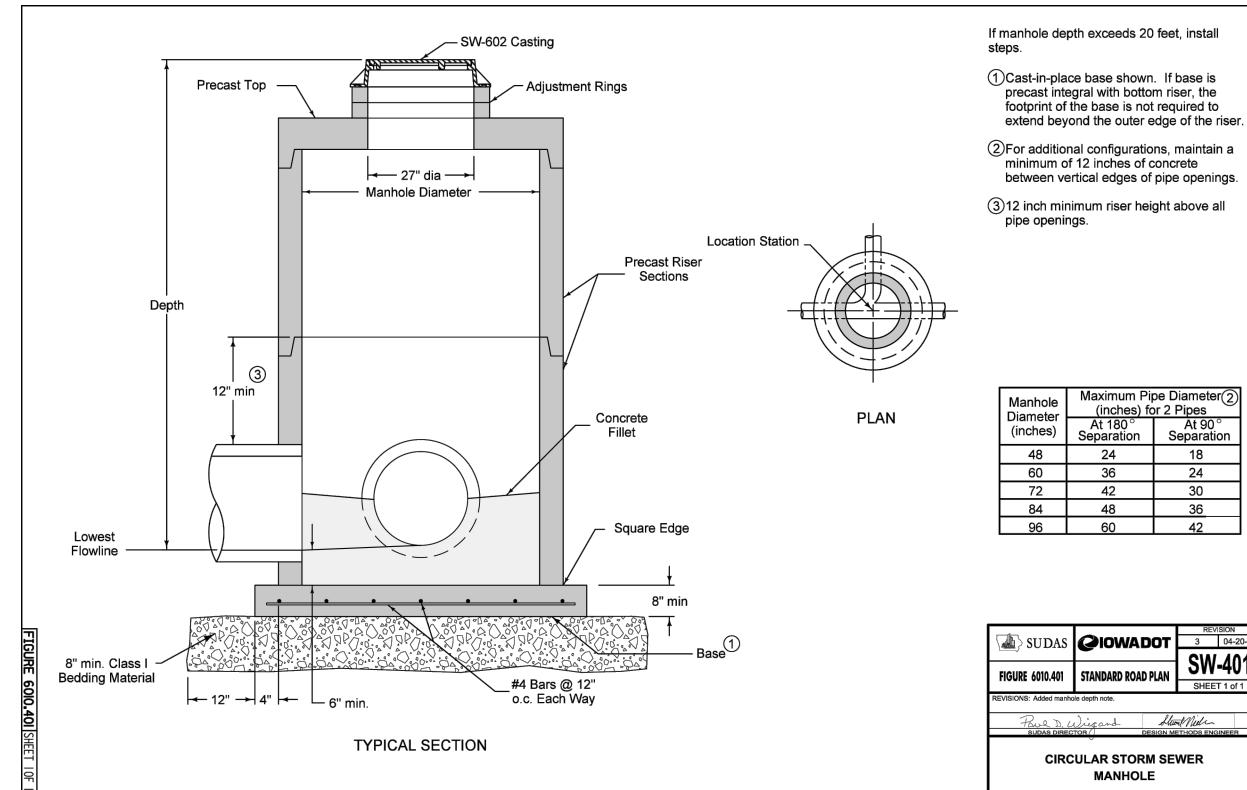
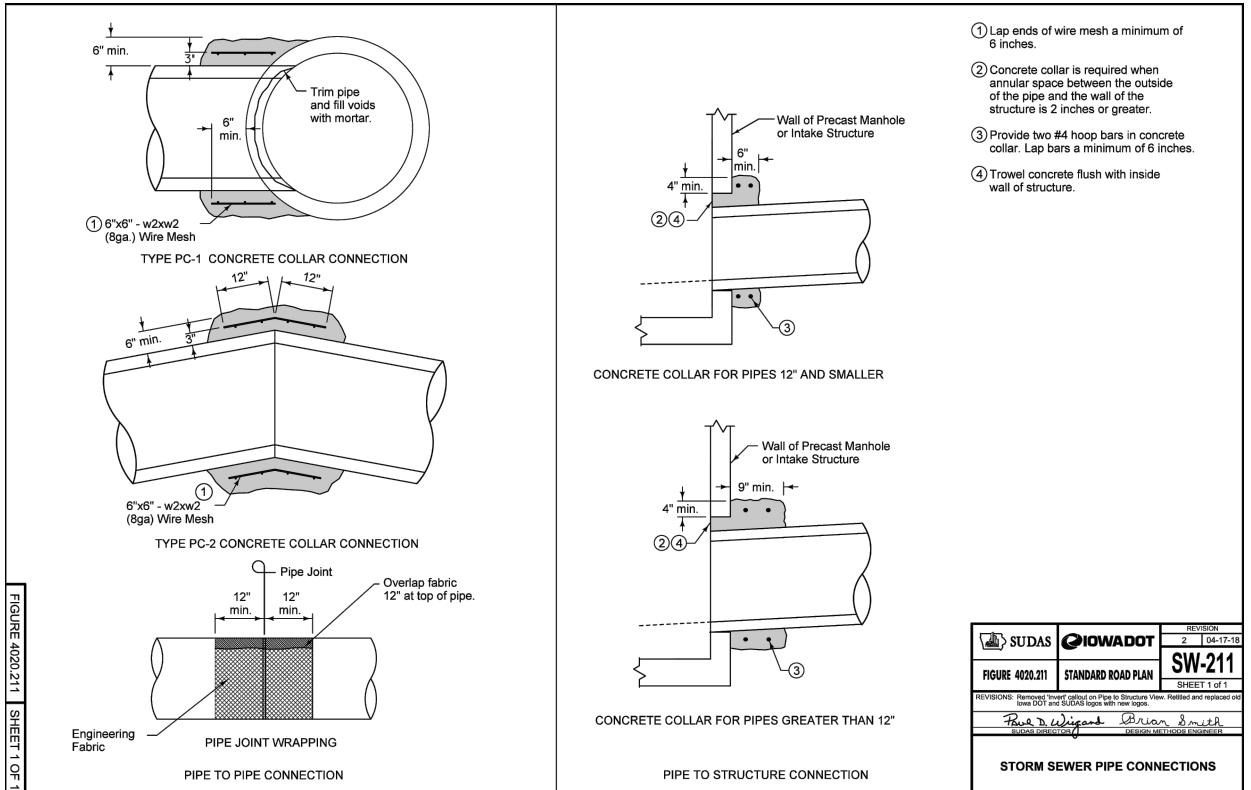
CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE APPROPRIATE TO MEET THE SYSTEM LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING 'POWERLOK' BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.



NOTE:

VERIFY EXACT LOCATIONS WITH
ARCHITECTURAL DRAWING, I.E.
DOWNSPOUT LOCATIONS

DOWNSPOUT INLETS



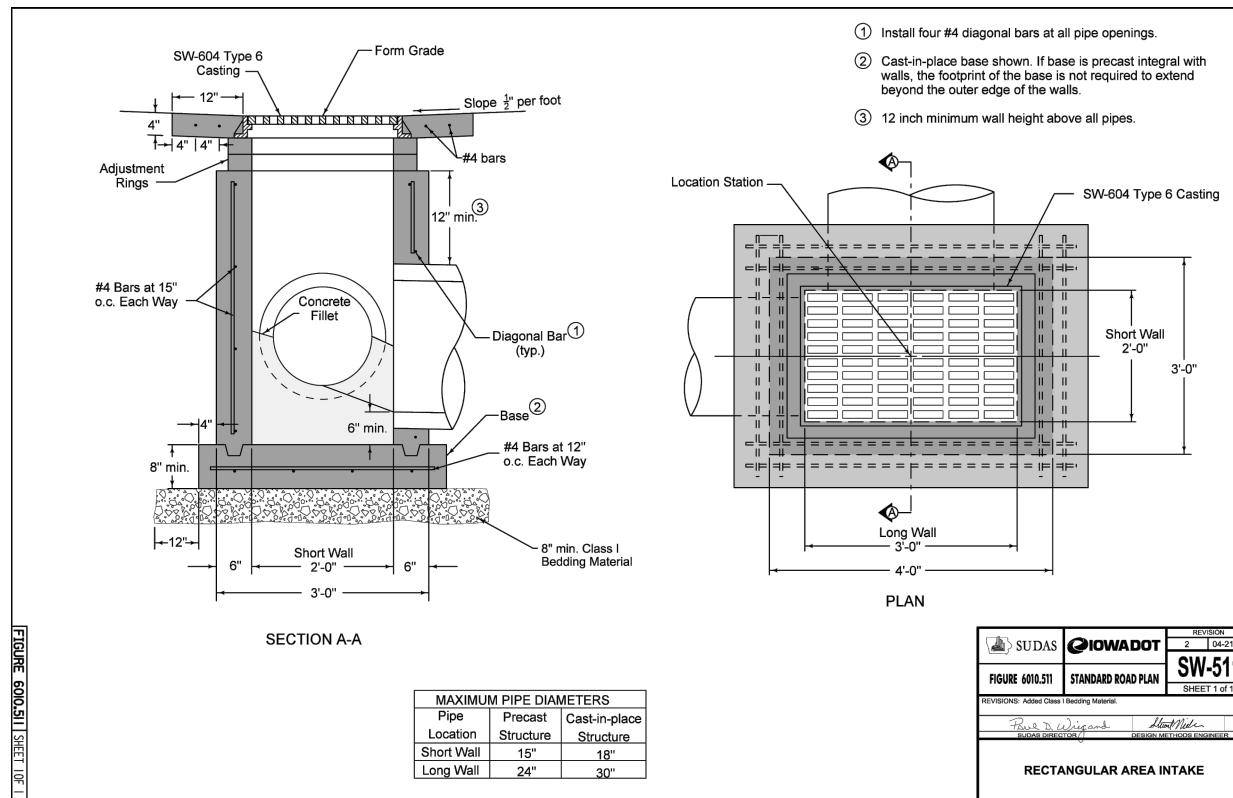


FIGURE 600.51 SHEET 1 OF 1

REVISION 2 04-21-20

FIGURE 6010.511 STANDARD ROAD PLAN

SW-511

SHEET 1 of 1

REVISIONS: Added Class I Bedding Material.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 4 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 3

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 7 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 3 of 3

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 10 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 12 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 14 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 16 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 18 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 20 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 22 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 24 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 26 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 28 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 30 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 32 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 34 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 36 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 38 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT

REVISION 40 04-21-20

FIGURE 6010.602 STANDARD ROAD PLAN

SW-602

SHEET 1 of 1

REVISIONS: Add option for 3-piece HMA casting.

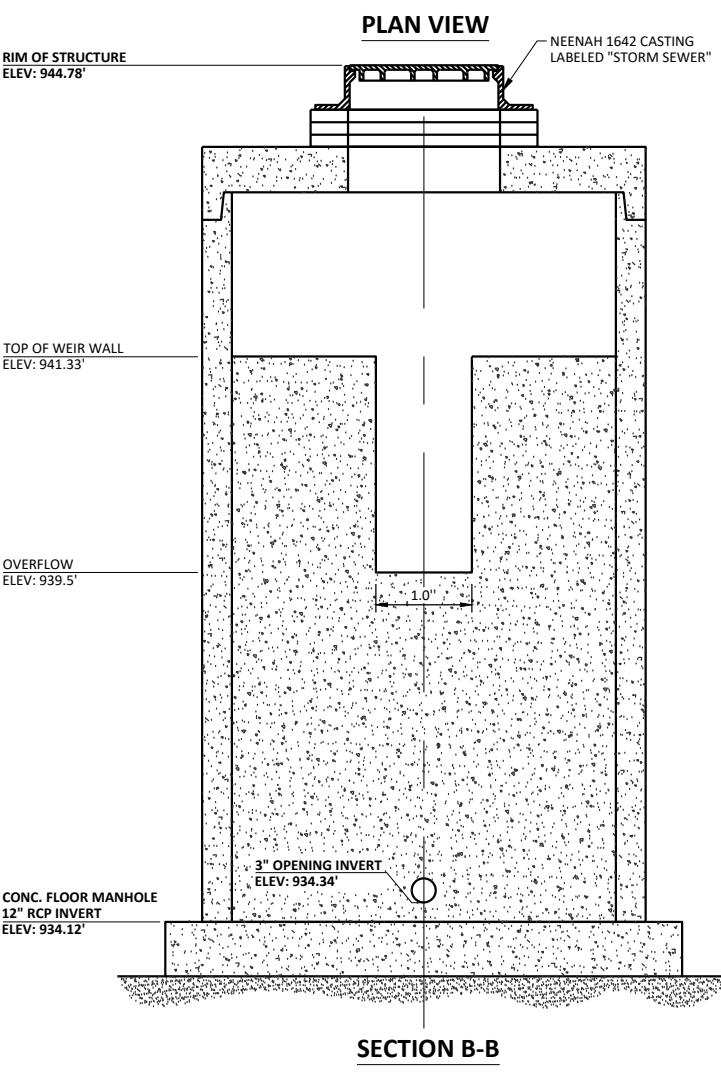
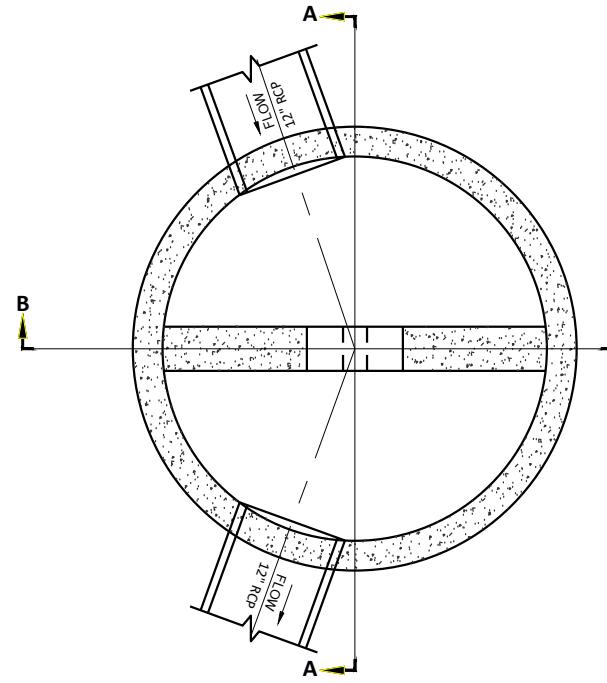
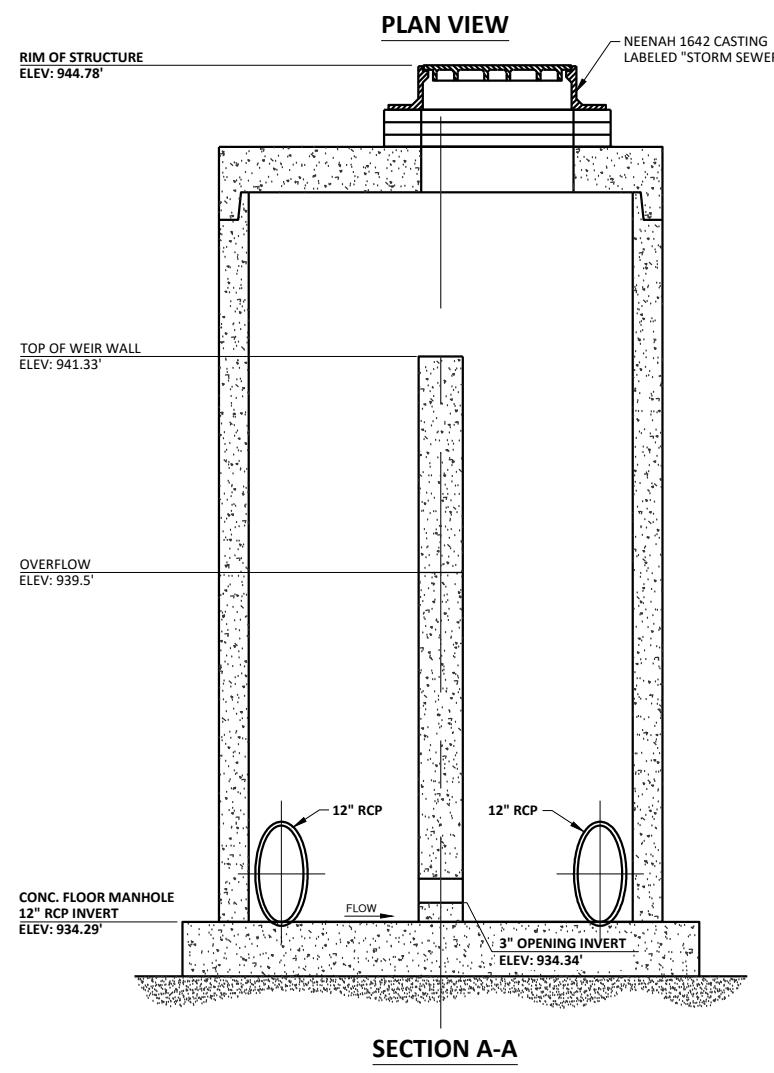
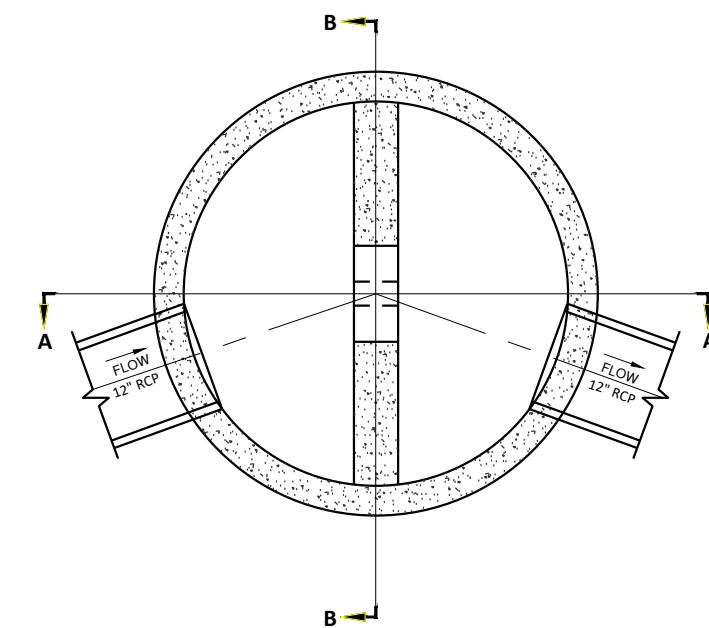
Paul D. Wigand

Horten Nelson

DESIGN METHODS ENGINEER

SUDAS

IOWADOT



48" CBMH DETAIL - STRUCTURE STMH 108

1:1 SCALE

NOTES:

1. PRECAST CONCRETE MANHOLE AND BASE SECTIONS SHALL MEET THE REQUIREMENTS OF ASTM C-478 WITH "O" RING RUBBER GASKET JOINTS.
2. PRECAST TOP SLAB SHALL BE DESIGNED FOR AASHTO HS-25 HIGHWAY LOADING PLUS DEAD LOAD.
3. CONCRETE OR MORTAR IN KNOCK-OUTS AND ABOVE THE MANHOLE FLOOR SHALL MEET THE REQUIREMENTS OF ASTM C 270 AND MNDOT 2506.2B.
4. NON-SHRINK GROUT SHALL MEET THE REQUIREMENTS OF ASTM C 1107.
5. FRAME GUIDES, INVERT AND STOP LOGS SHALL BE 6061-T6 ALUMINUM.
6. FASTENERS, NUTS AND BOLTS SHALL BE STAINLESS STEEL, TYPE 304, ASTM A276.
7. THE CONTRACTOR SHALL PROVIDE 10-EACH, 6-INCH HIGH, ALUMINUM STOP LOGS.

STAINLESS STEEL ANCHOR BOLT NOTES:

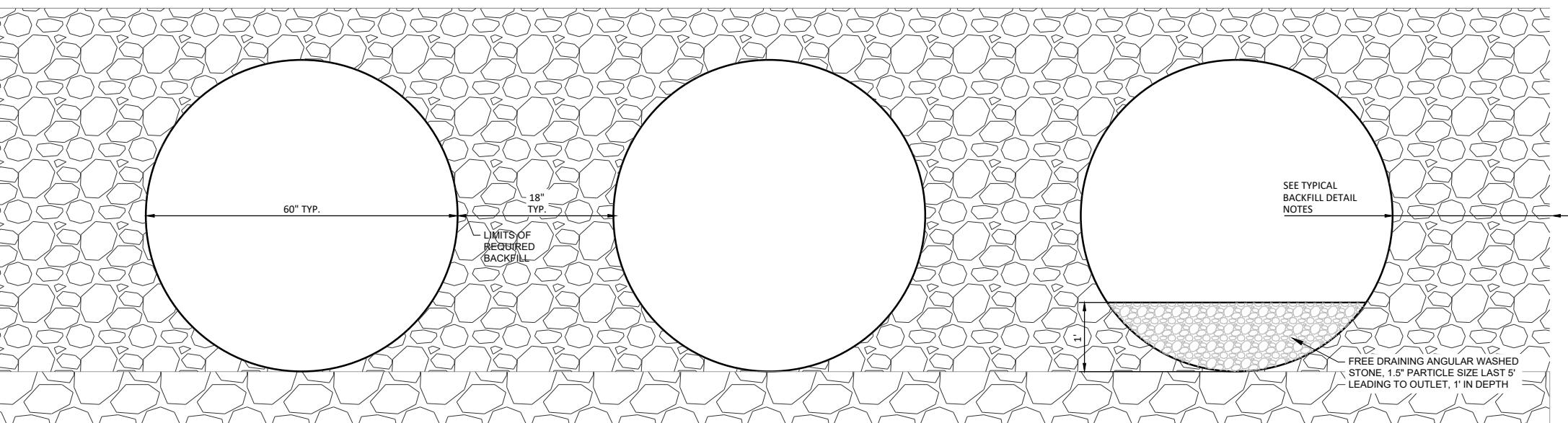
1. ALL ANCHOR BOLTS SHALL BE STAINLESS STEEL STUD ANCHORS AND HAVE A MINIMUM DIAMETER OF 1/2-INCH.
2. ANCHOR HOLES SHALL BE DRILLED TO PROPER DEPTHS AND DIAMETERS AS PER MANUFACTURER'S RECOMMENDATIONS AND CLEANED FREE OF CONCRETE DUST USING AIR HOSE.
3. "RED HEAD EPOXY" OR OTHER ENGINEER APPROVED EPOXY ADHESIVE SHALL BE PLACED IN HOLE PRIOR TO SETTING ANCHORS. CONTRACTOR WILL USE EPOXY IN EVERY LOCATION OF STAINLESS STEEL ANCHOR BOLTS.
4. ANCHOR NUTS SHALL BE TIGHTENED TO MANUFACTURER'S RECOMMENDED TORQUE SPECIFICATION.

SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA

DETAILS



Drawn By
JLV
Checked By
SMH
Date
7/24/2023
Scale
As Shown
Project No.
10904-0017
SHEET
C6.5

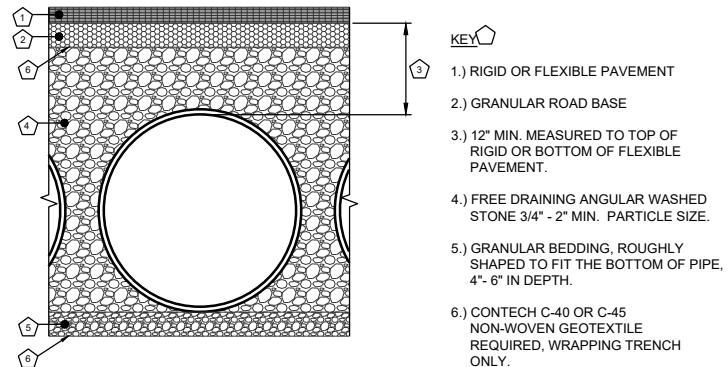
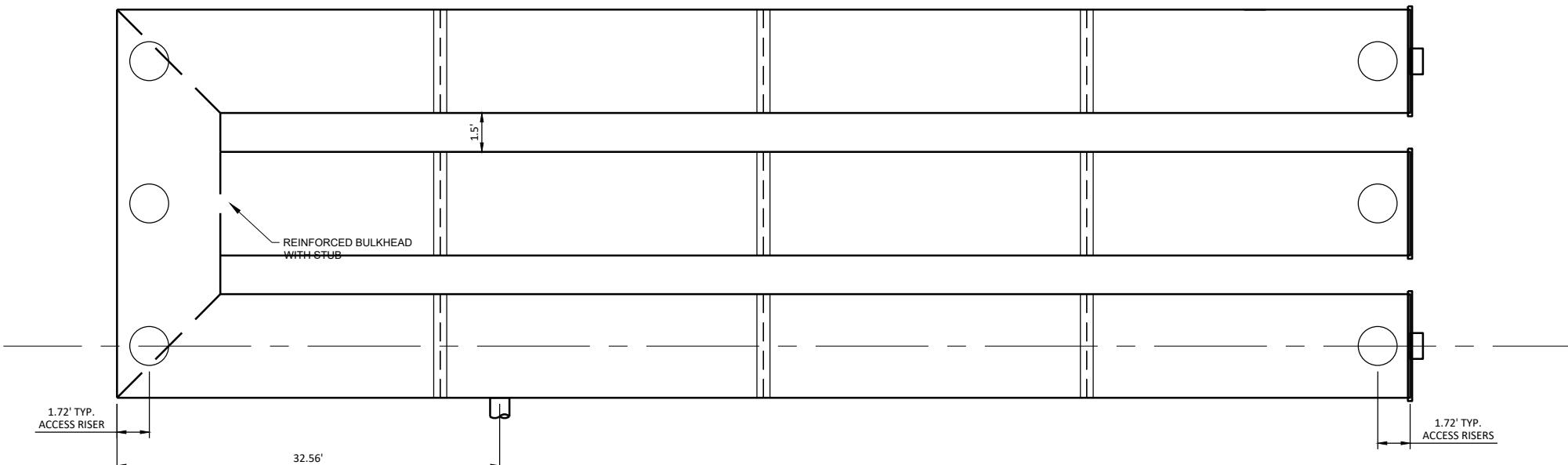


TYPICAL SECTION VIEW

NOT TO SCALE

UNDERGROUND STORMWATER STORAGE SYSTEM

NOT TO SCALE



FOUNDATION/BEDDING PREPARATION
PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE ENGINEER. ONCE THE FOUNDATION PREPARATION IS COMPLETE, THE 4 INCHES OF A WELL-GRADED GRANULAR MATERIAL SHALL BE PLACED AS THE BEDDING.

TESTING SHALL BE COMPLETED TO VERIFY THAT INFILTRATION RATES EXCEED 0.45 IN/HR. CONTRACTOR SHALL NOTIFY THE CITY IN ADVANCE OF TESTING AND PROVIDE RESULTS TO CITY PRIOR TO CHAMBER INSTALLATION. IF INFILTRATION RATES DO NOT MEET OR EXCEED 0.45 IN/HR. THE ENGINEER AND CITY SHALL BE NOTIFIED. SOIL AMENDMENTS (SANDY BACKFILL) UP TO 5' IN DEPTH MAY BE REQUIRED WHERE UNSUITABLE INFILTRATION RATES EXISTS.

BACKFILL
THE BACKFILL MATERIAL SHALL BE FREE-DRAINING ANGULAR WASHED STONE 3/4" - 2" PARTICLE SIZE. MATERIAL SHALL BE PLACED IN 8"-10" MAXIMUM LIFTS. MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL- SLICING, RODDING, AIR-TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS. COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND THE PROJECT ENGINEER OR HIS REPRESENTATIVE IS SATISFIED WITH THE LEVEL OF COMPACTION. INADEQUATE COMPACTION CAN LEAD TO EXCESSIVE DEFLECTIONS WITHIN THE SYSTEM AND SETTLEMENT OF THE SOILS OVER THE SYSTEM. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO-LIFT DIFFERENTIAL BETWEEN THE SIDES OF ANY PIPE IN THE SYSTEM AT ALL TIMES DURING THE BACKFILL PROCESS. BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON ANY PIPES IN THE SYSTEM.

EQUIPMENT USED TO PLACE AND COMPACT THE BACKFILL SHALL BE OF A SIZE AND TYPE SO AS NOT TO DISTORT, DAMAGE, OR DISPLACE THE PIPE. ATTENTION MUST BE GIVEN TO PROVIDING ADEQUATE MINIMUM COVER FOR SUCH EQUIPMENT, AND MAINTAINING BALANCED LOADING ON ALL PIPES IN THE SYSTEM, DURING ALL SUCH OPERATIONS.

OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS. REFER TO TYPICAL BACKFILL DETAIL FOR MATERIAL REQUIRED.

BACKFILL DETAIL NOT TO SCALE

NOTE: IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, A GEOMEMBRANE BARRIER IS RECOMMENDED WITH THE SYSTEM. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.

SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA



Drawn By

JLV

Checked By

SMH

Date

7/24/2023

Scale

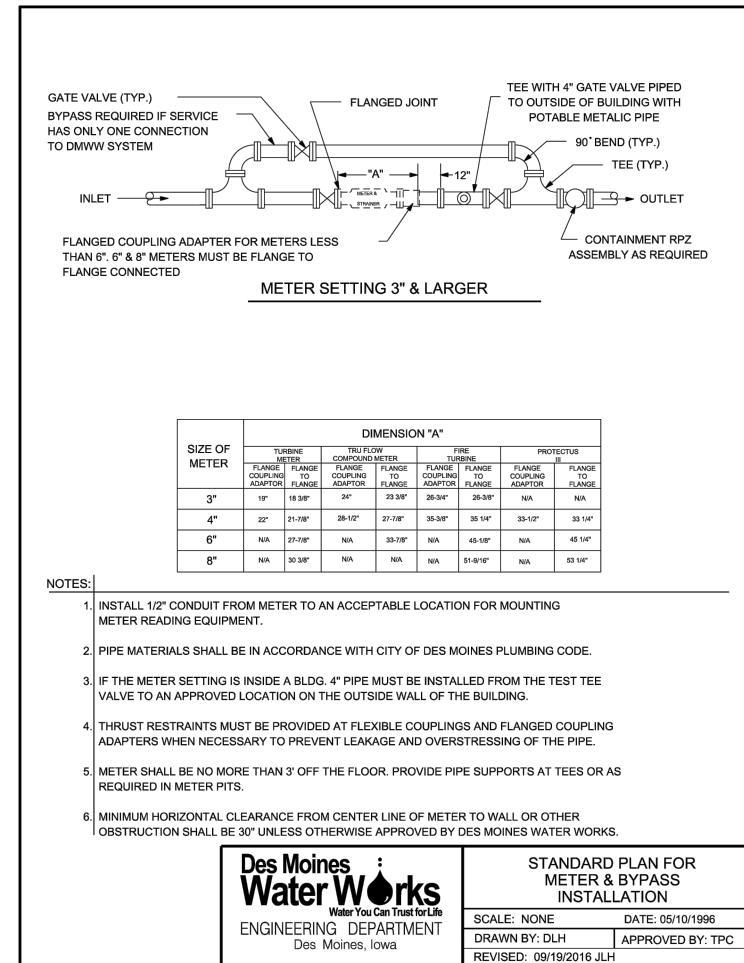
As Shown

Project No.

10904-0017

SHEET

C6.6

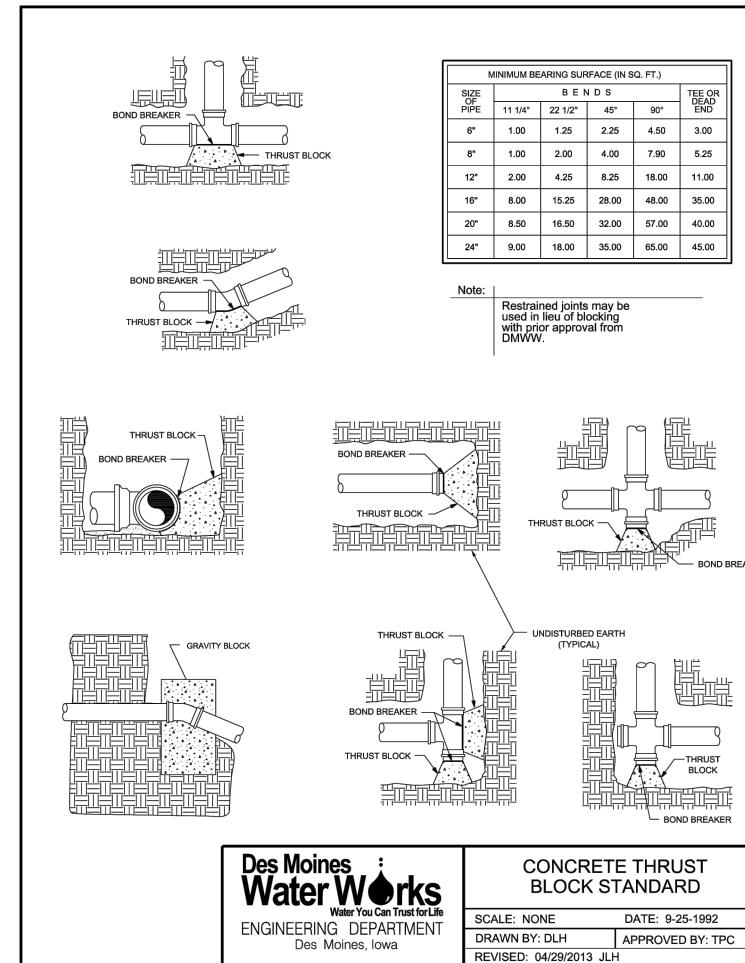


Des Moines Water Works
Water You Can Trust for Life
ENGINEERING DEPARTMENT
Des Moines, Iowa

STANDARD PLAN FOR
METER & BYPASS
INSTALLATION

SCALE: NONE DATE: 05/10/1996
DRAWN BY: DLH APPROVED BY: TPC
REVISED: 09/19/2016 JLH

512-21
FIGURE 21

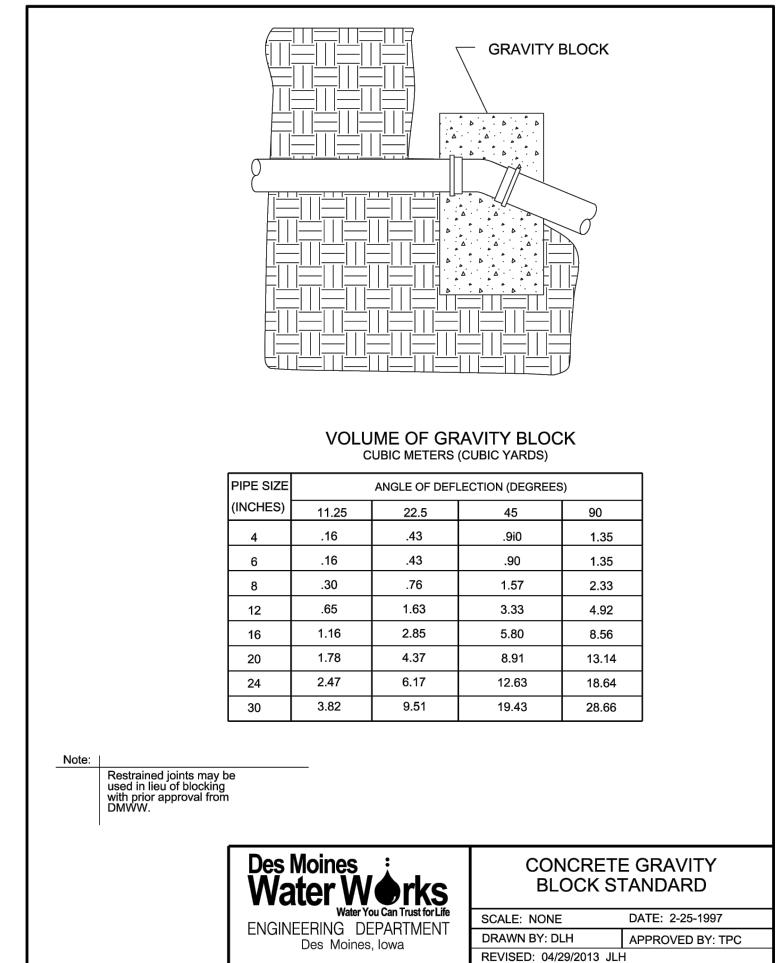


Des Moines Water Works
Water You Can Trust for Life
ENGINEERING DEPARTMENT
Des Moines, Iowa

CONCRETE THRUST
BLOCK STANDARD

SCALE: NONE DATE: 9-25-1992
DRAWN BY: DLH APPROVED BY: TPC
REVISED: 04/29/2013 JLH

512-23
FIGURE 23

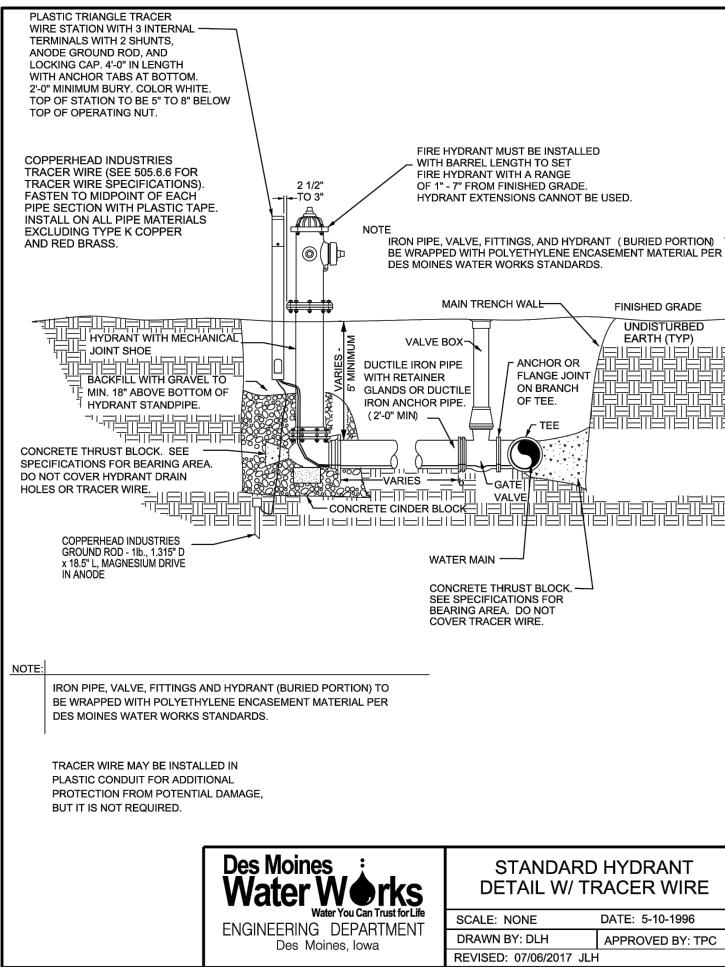


Des Moines Water Works
Water You Can Trust for Life
ENGINEERING DEPARTMENT
Des Moines, Iowa

CONCRETE GRAVITY
BLOCK STANDARD

SCALE: NONE DATE: 2-25-1997
DRAWN BY: DLH APPROVED BY: TPC
REVISED: 04/29/2013 JLH

512-23A
FIGURE 23A

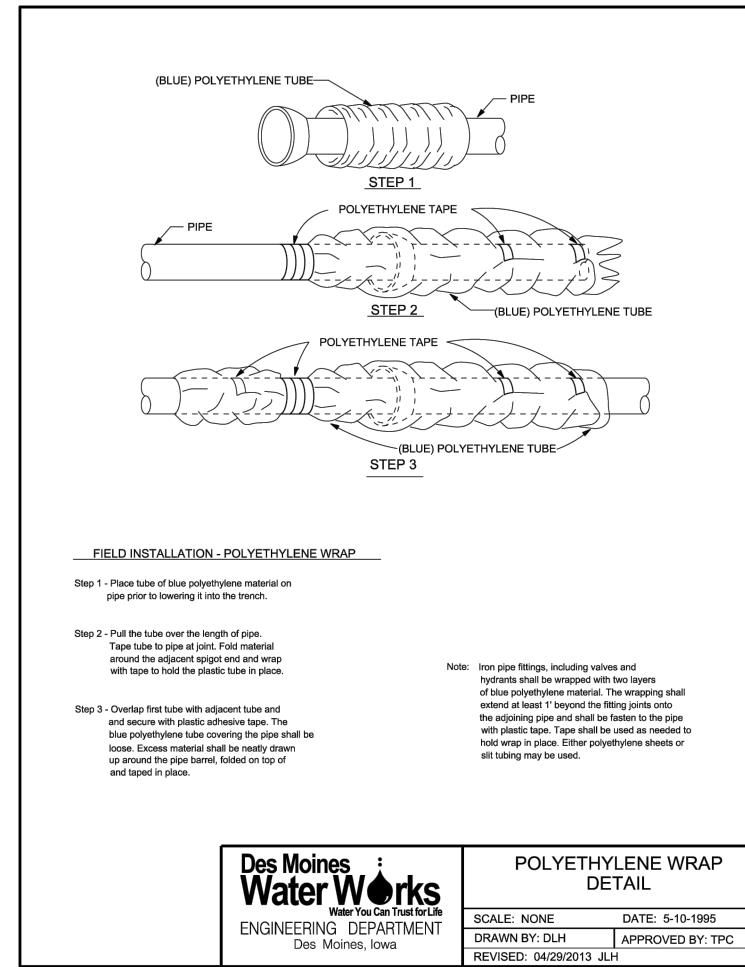


Des Moines Water Works
Water You Can Trust for Life
ENGINEERING DEPARTMENT
Des Moines, Iowa

STANDARD HYDRANT
DETAIL W/ TRACER WIRE

SCALE: NONE DATE: 5-10-1996
DRAWN BY: DLH APPROVED BY: TPC
REVISED: 07/06/2017 JLH

512-24
FIGURE 24

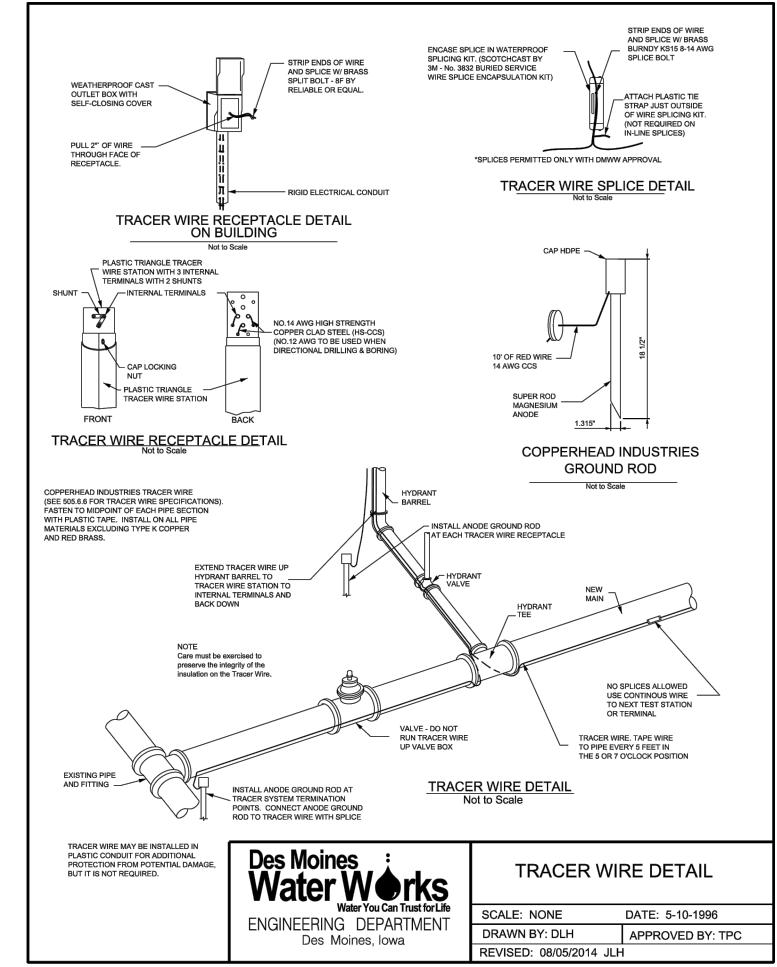


Des Moines Water Works
Water You Can Trust for Life
ENGINEERING DEPARTMENT
Des Moines, Iowa

POLYETHYLENE WRAP
DETAIL

SCALE: NONE DATE: 5-10-1995
DRAWN BY: DLH APPROVED BY: TPC
REVISED: 04/29/2013 JLH

512-25
FIGURE 25



Des Moines Water Works
Water You Can Trust for Life
ENGINEERING DEPARTMENT
Des Moines, Iowa

TRACER WIRE DETAIL

SCALE: NONE DATE: 5-10-1996
DRAWN BY: DLH APPROVED BY: TPC
REVISED: 08/05/2014 JLH

512-26
FIGURE 26

SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA

DETAILS

HOUSTON
engineering inc.

Drawn By
JLV

Checked By
SMH

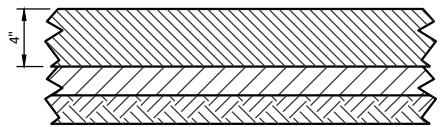
Date
7/24/2023

Scale
As Shown

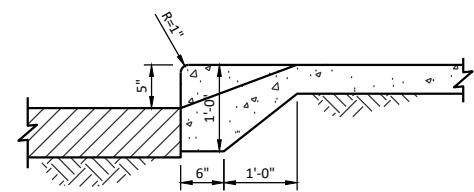
Project No.
10904-0017

Sheet
C6.7

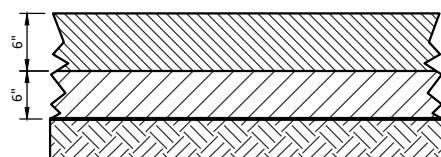
Page 35 of 75



SIDEWALK
NOT TO SCALE

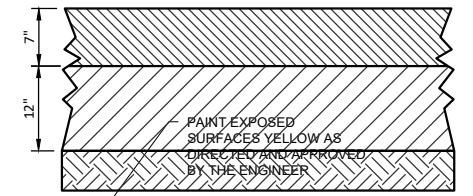


SIDEWALK WITH THICKENED EDGE
NOT TO SCALE



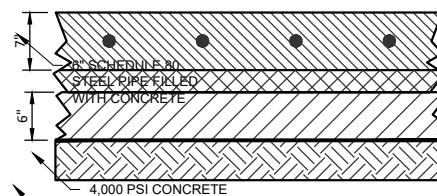
6" CONCRETE PAVEMENT
NOT TO SCALE

SCARIFY AND RECOMPACT A MINIMUM OF 12" OF SUBGRADE TO A MINIMUM OF 95% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698)



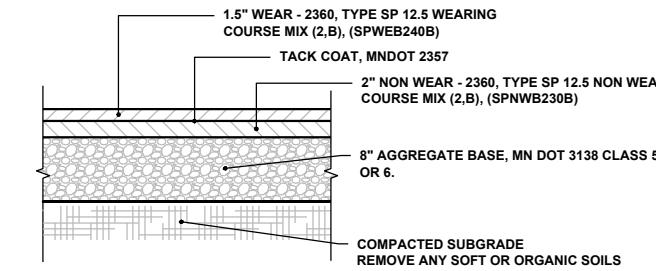
7" CONCRETE PAVEMENT
NOT TO SCALE

SCARIFY AND RECOMPACT A MINIMUM OF 12" OF SUBGRADE TO A MINIMUM OF 95% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698)



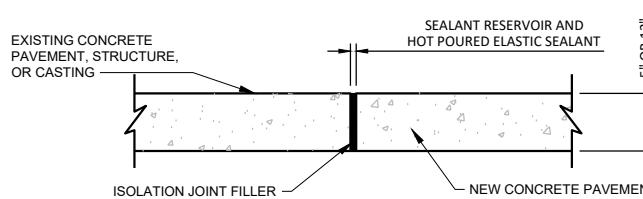
7" HEATED CONCRETE PAVEMENT
NOT TO SCALE

1/4" x 4" STEEL PLATE WELDED TO BOTTOM
2" SCHEDULE 40 STEEL PIPE FILLED WITH CONCRETE



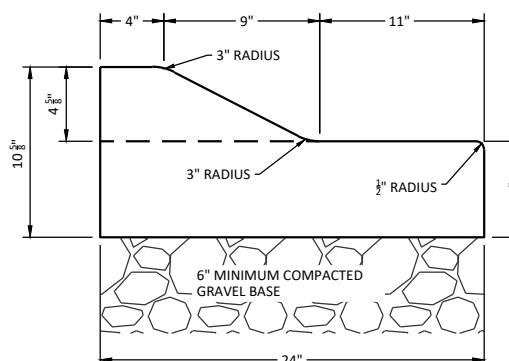
ASPHALT PAVEMENT

NOT TO SCALE



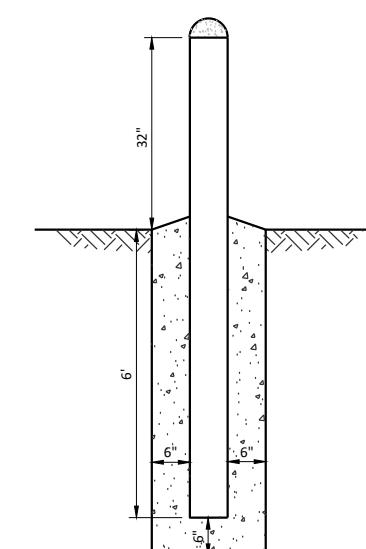
ISOLATION JOINT

NOT TO SCALE



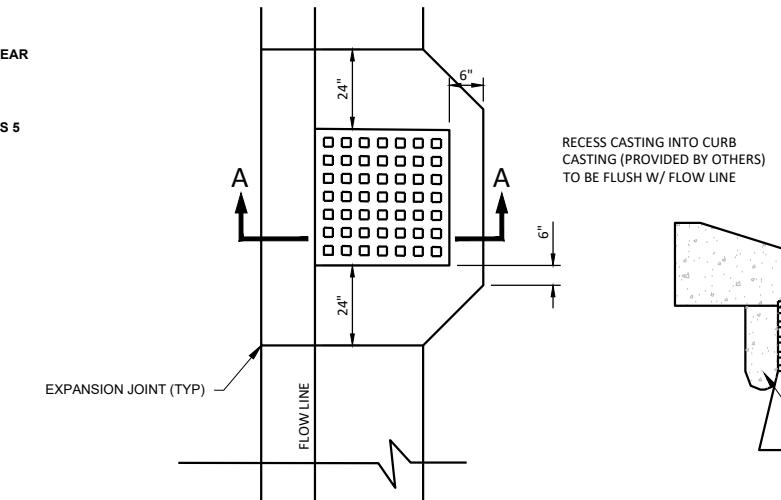
ROLL TIP-OUT CURB AND GUTTER

NOT TO SCALE



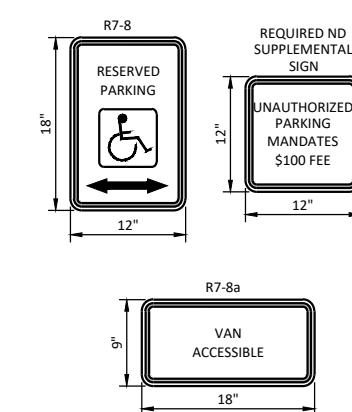
BOLLARD DETAIL

NOT TO SCALE



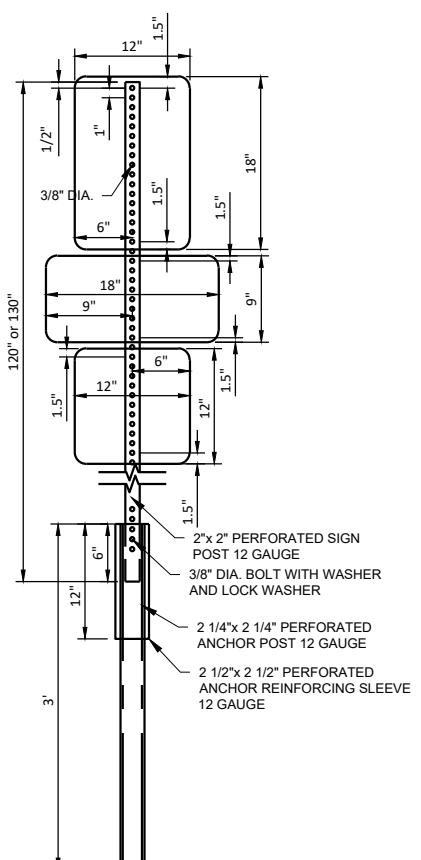
MOUNTABLE CURB & GUTTER AT CATCH BASIN

NOT TO SCALE



NOTE:

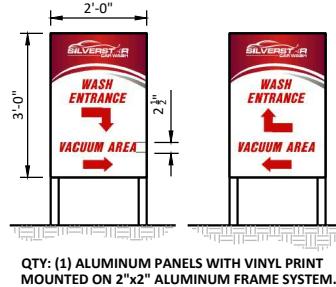
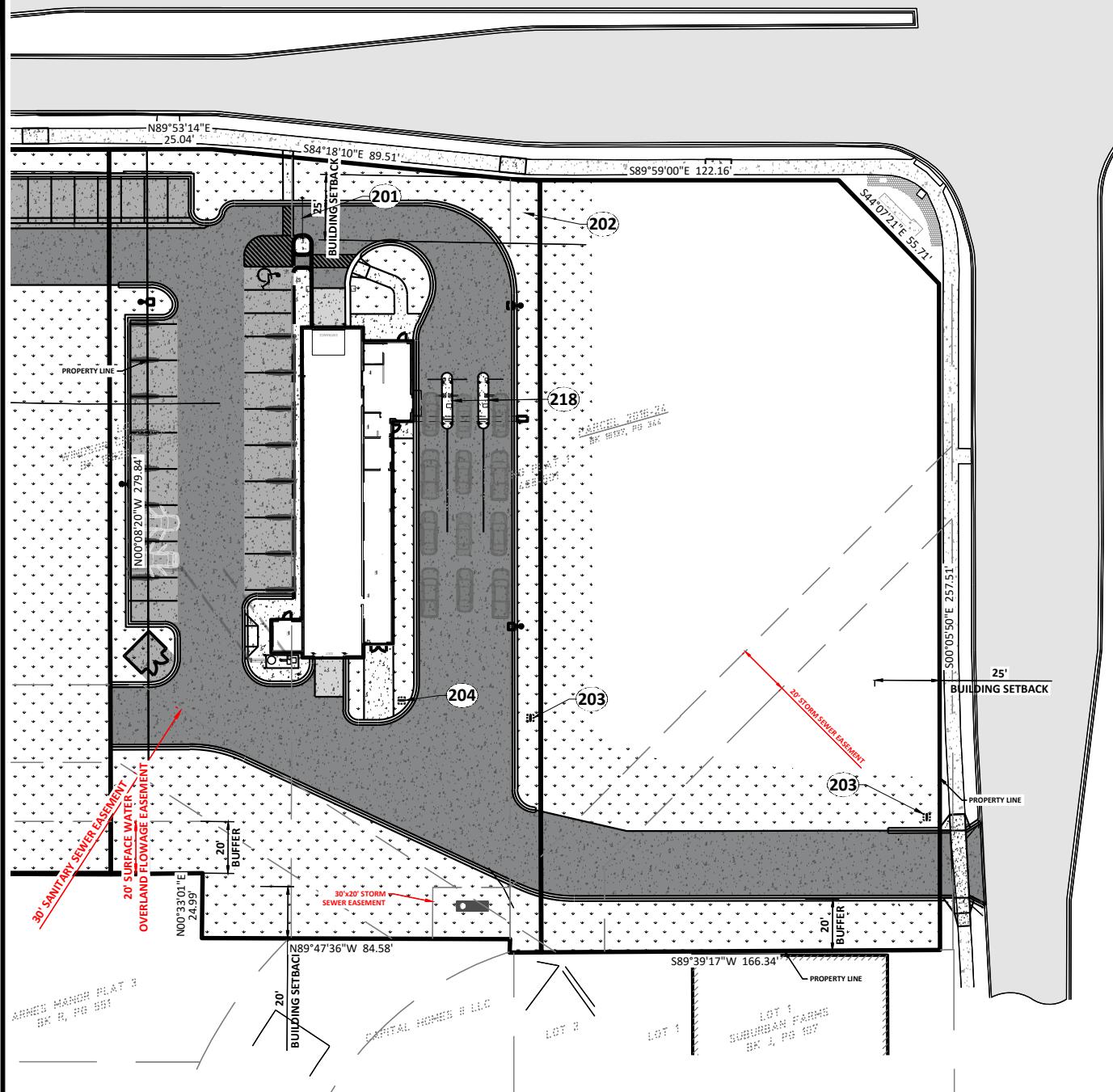
1. ALL HOLES TO BE PUNCHED FOR 3/8" BOLTS.
2. BOTTOM OF LOWEST SIGN TO BE MIN 7' FROM GROUND.
3. ALL SIGNS SHALL CONFORM TO 2004 EDITION STANDARD HIGHWAY SIGNS AND CURRENT VERSION OF MUTCD.
4. R7-8A TO BE USED WHERE APPLICABLE.



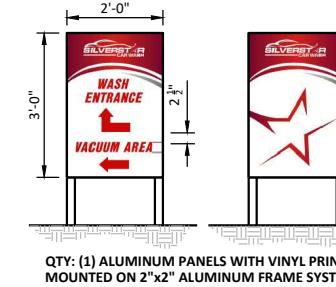
HANDICAPPED PARKING SIGN DETAIL

NOT TO SCALE





203 SERVICE ROAD DIRECTIONAL SIGN

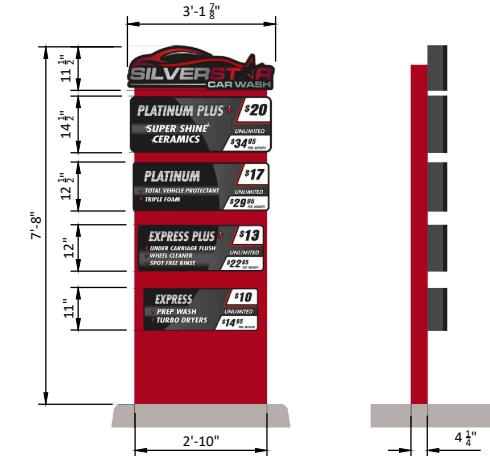


QTY: (1) ALUMINUM PANELS WITH VINYL PRINT
MOUNTED ON 2"x2" ALUMINUM FRAME SYSTEM.

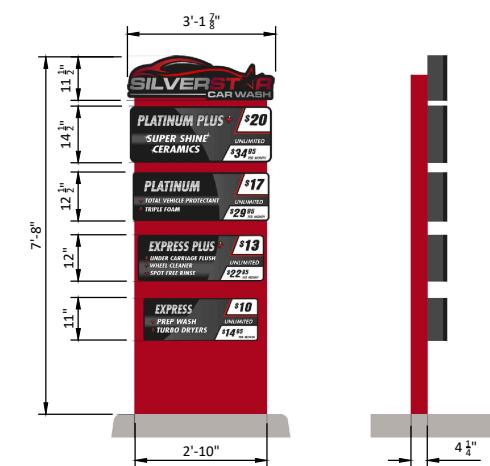


204 WASH TUNNEL DIRECTIONAL SIGN

QTY: (1) ALUMINUM PANELS WITH VINYL PRINT
MOUNTED ON 2"x2" ALUMINUM FRAME SYSTEM.



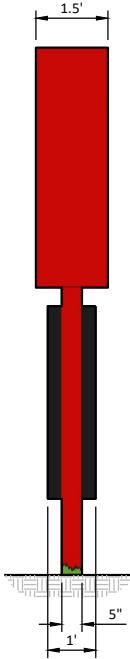
205 MENU SIGN



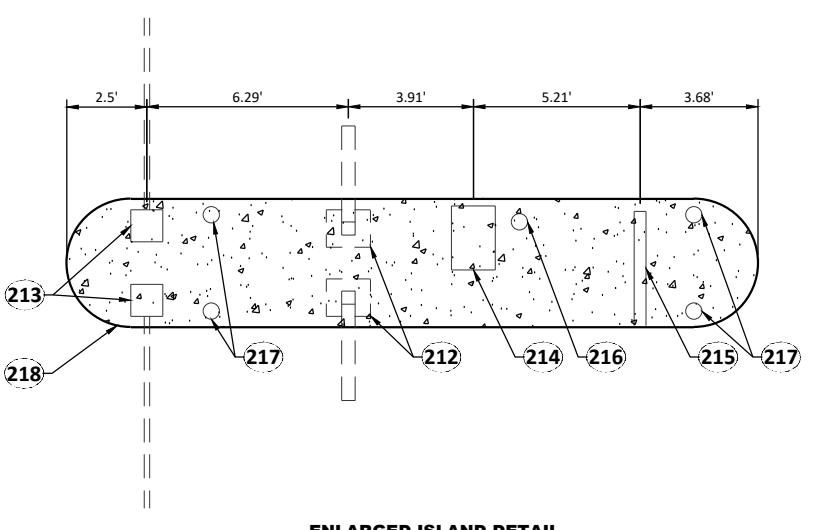
205 MENU SIGN



202 MONUMENT SIGN



205 BUILDING FACADE SIGNS



ENLARGED ISLAND DETAIL

PLAN NOTES

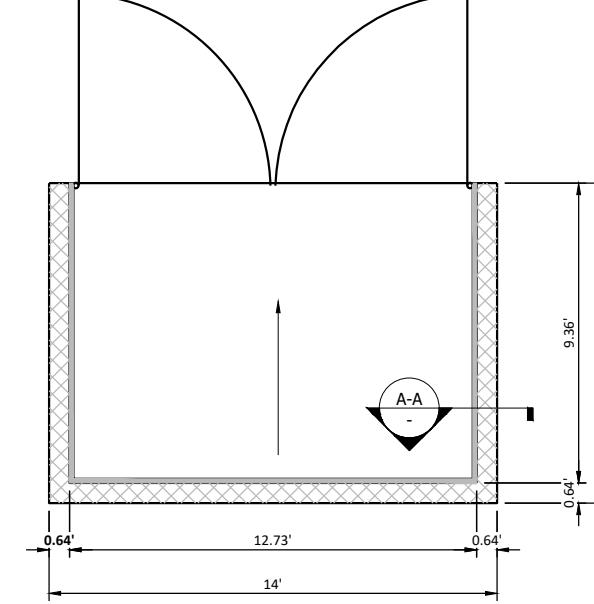
- 201 COATED CHAIN, RED.
- 202 MONUMENT SIGN.
- 203 DIRECTIONAL SIGN.
- 204 WASH TUNNEL DIRECTIONAL SIGN.
- 205 BUILDING FACADE SIGN.
- 212 RFID TRUSS.
- 213 GATE. SEE EQUIPMENT PLANS.
- 214 AUTO PAY STATION. SEE EQUIPMENT PLAN.
- 215 MENU SIGN. SEE EQUIPMENT PLANS.
- 216 6" DIAMETER CONCRETE FILLED PIPE BOLLARD. INSTALL PREFAB BOLLARD COVER. VERIFY COLOR WITH ARCHITECT.
- 217 24" HIGH - 6" DIAMETER CONCRETE FILLED PIPE BOLLARD. INSTALL PREFAB BOLLARD COVER. VERIFY COLOR WITH ARCHITECT.
- 218 Poured CONCRETE ISLAND. SEE DETAIL 5/A1.0. SEE CIVIL PLANS.

SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA

DETAILS

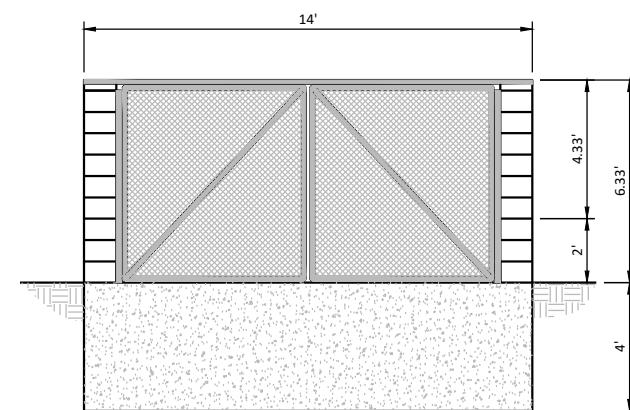


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JLV
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SMH
Date
7/24/2023
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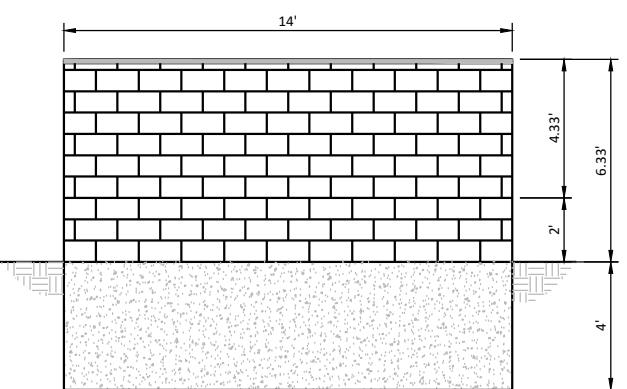
1 TE-PLAN VIEW

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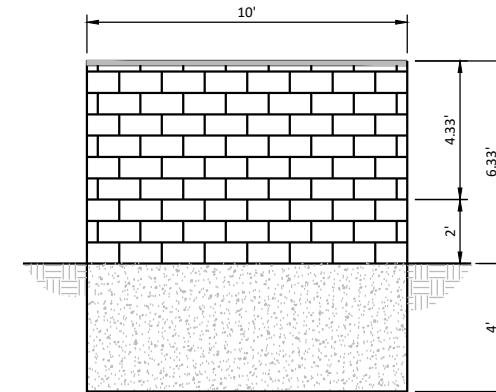
2 TE-FRONT ELEVATION

Scale: 1/4" = 1'-0"



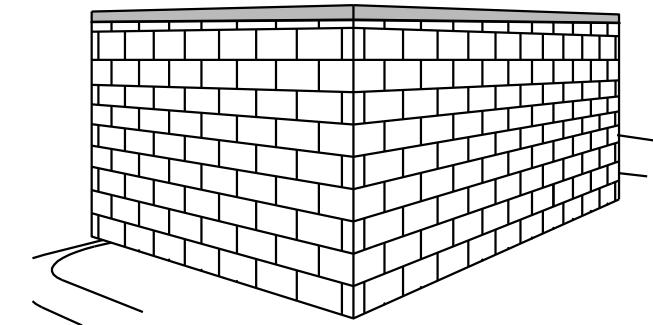
3 TE-REAR ELEVATION

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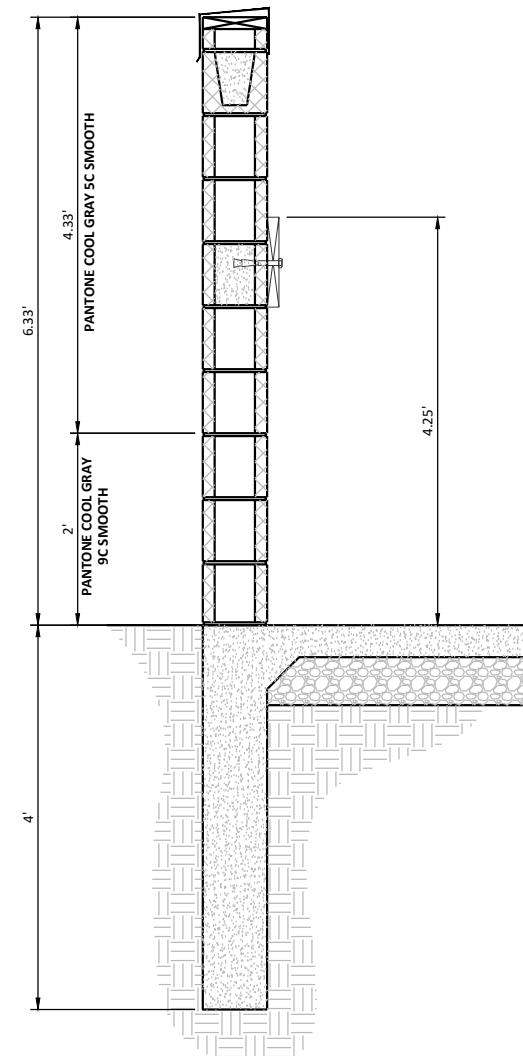
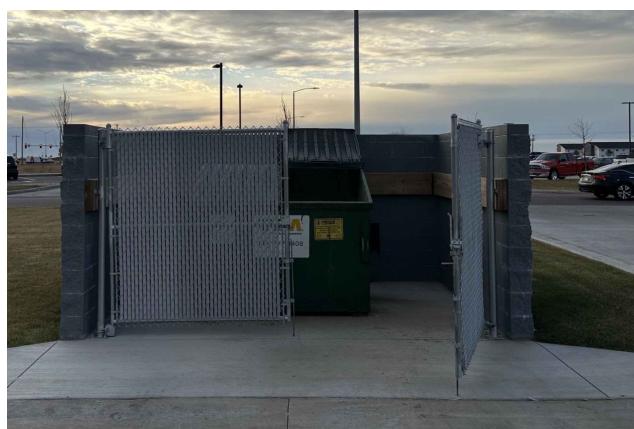
4 TE-SIDE ELEVATIONS

Scale:



5 TE-PERSPECTIVE VIEW

Scale:



A SECTION A-A

PLAN NOTES

- 300 GRANULAR FILL PER SOILS REPORT.
- 301 PREFINISHED METAL KEEPER FOR PARAPET CAP.
- 302 2x BLOCKING FOR PARAPET CAP ATTACHMENT.
- 303 PREFINISHED METAL PARAPET CAP. MATCH RED PAINT.
- 304 6" THICK POURED CONCRETE SLAB.
- 305 2x12 CEDAR BUMPER WITH ANCHOR BOLTS @ 16" O.C. GROUT CMU CORES FULL AT BUMPER LOCATION. VERIFY MOUNTING HEIGHT PER TRASH CONTAINER.
- 306 8" CMU BOND BEAM.
- 307 8x8x16 CMU WITH HORIZONTAL REINFORCEMENT @ 16" O.C. PAINT EXTERIOR OF TRASH ENCLOSURE TO MATCH BUILDING.
- 308 VINYL CLAD CHAIN LINK GATES WITH SLATS. INSTALL ADA COMPLIANT ROLLER AND LATCH.
- 309 8x4x16 CMU CAP.
- 310 CONCRETE POURED FOUNDATION WALL, SEE STRUCTURAL

SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA

DETAILS



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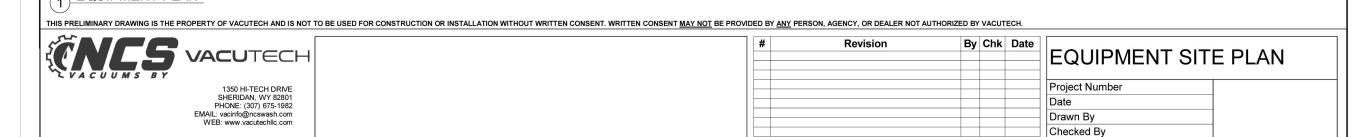
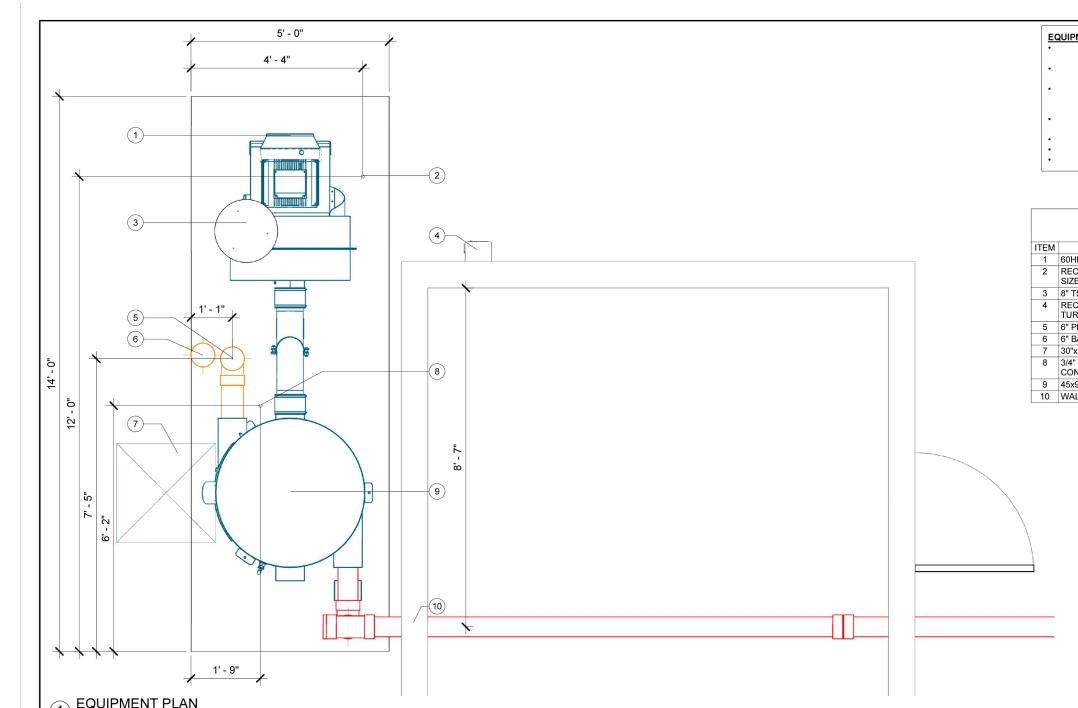
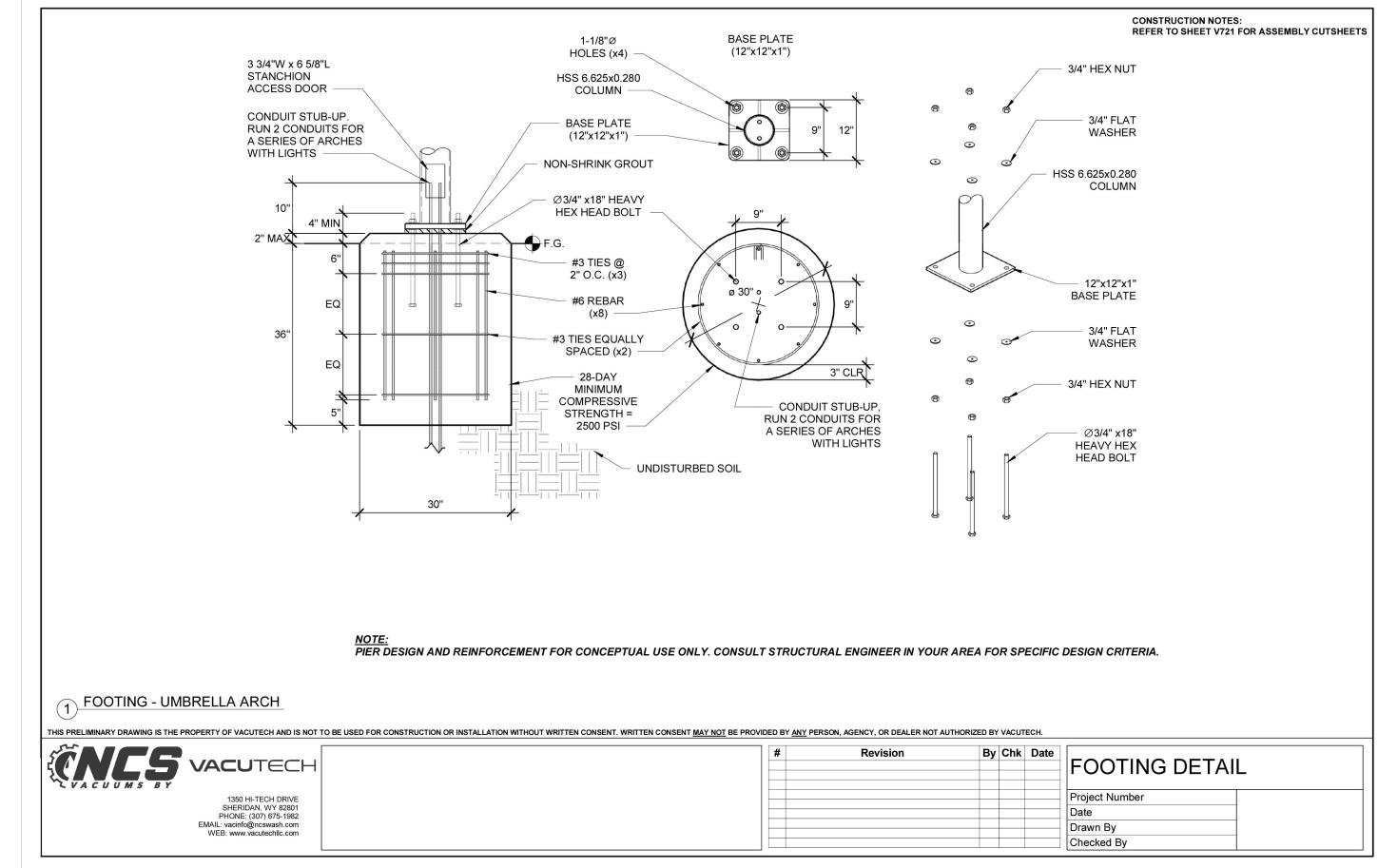
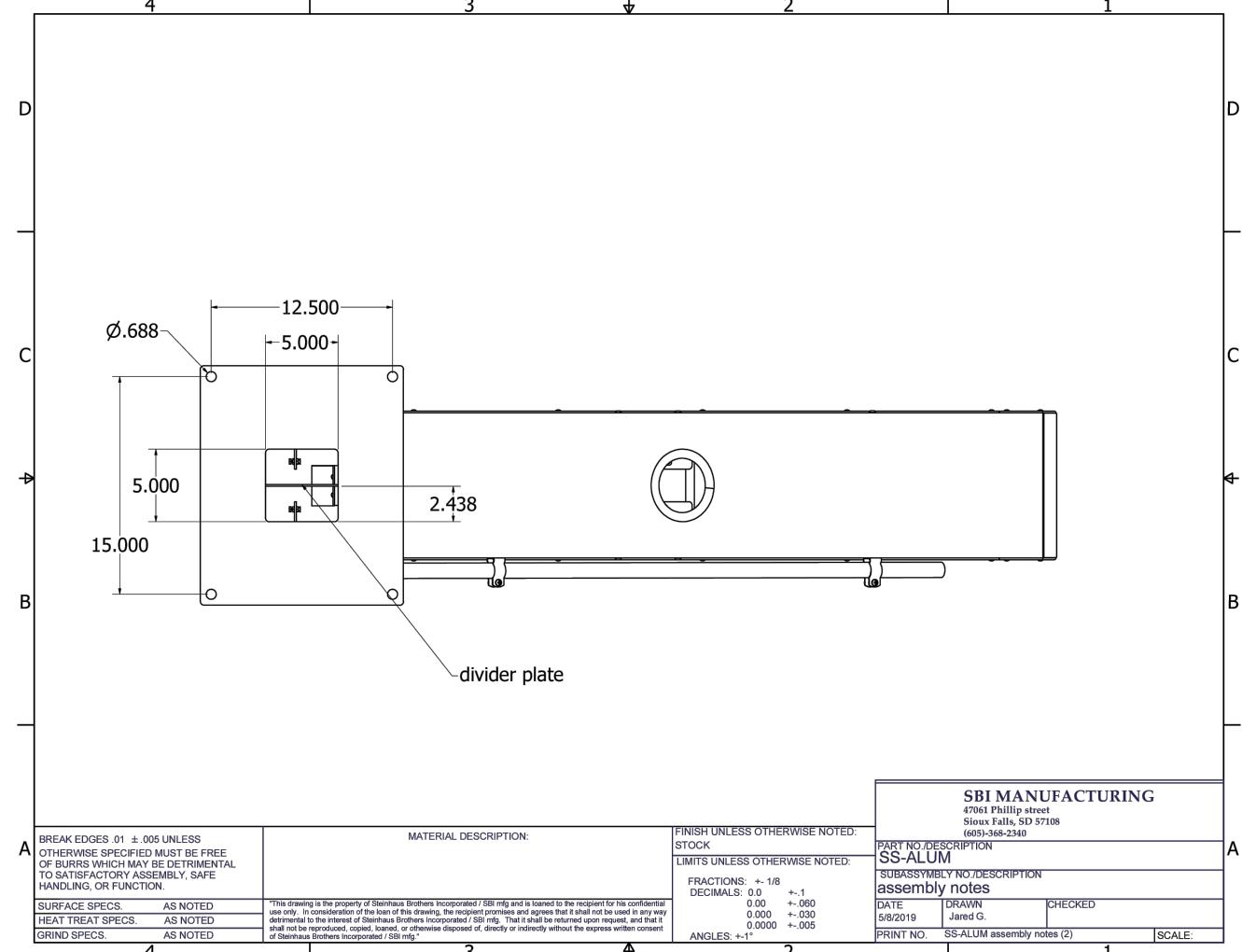
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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of _____.

NAME _____
License No. XXXXX

MM-DD-YY
Date

HEI NO. 10904-0017



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SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA

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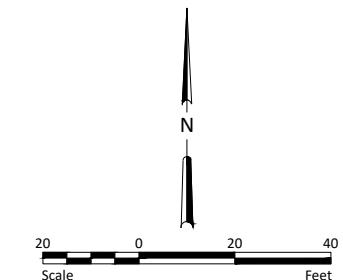
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EROSION CONTROL LEGEND	
SILT FENCE	XX XX
INLET PROTECTION	— - -
BIOROLL	— - -
CONSTRUCTION ENTRANCE	[Image]

EROSION AND SEDIMENT CONTROL QUANTITY SUMMARY AND BMP SCHEDULE		
DESCRIPTION	UNITS	QUANTITY
SEEDING & MULCH	ACRE	1.17
EROSION CONTROL BLANKET, CAT. 3*	SY	500
SILT FENCE	LF	1755

*EROSION BLANKET TO BE INSTALLED AT LOCATIONS SPECIFIED BY ENGINEER



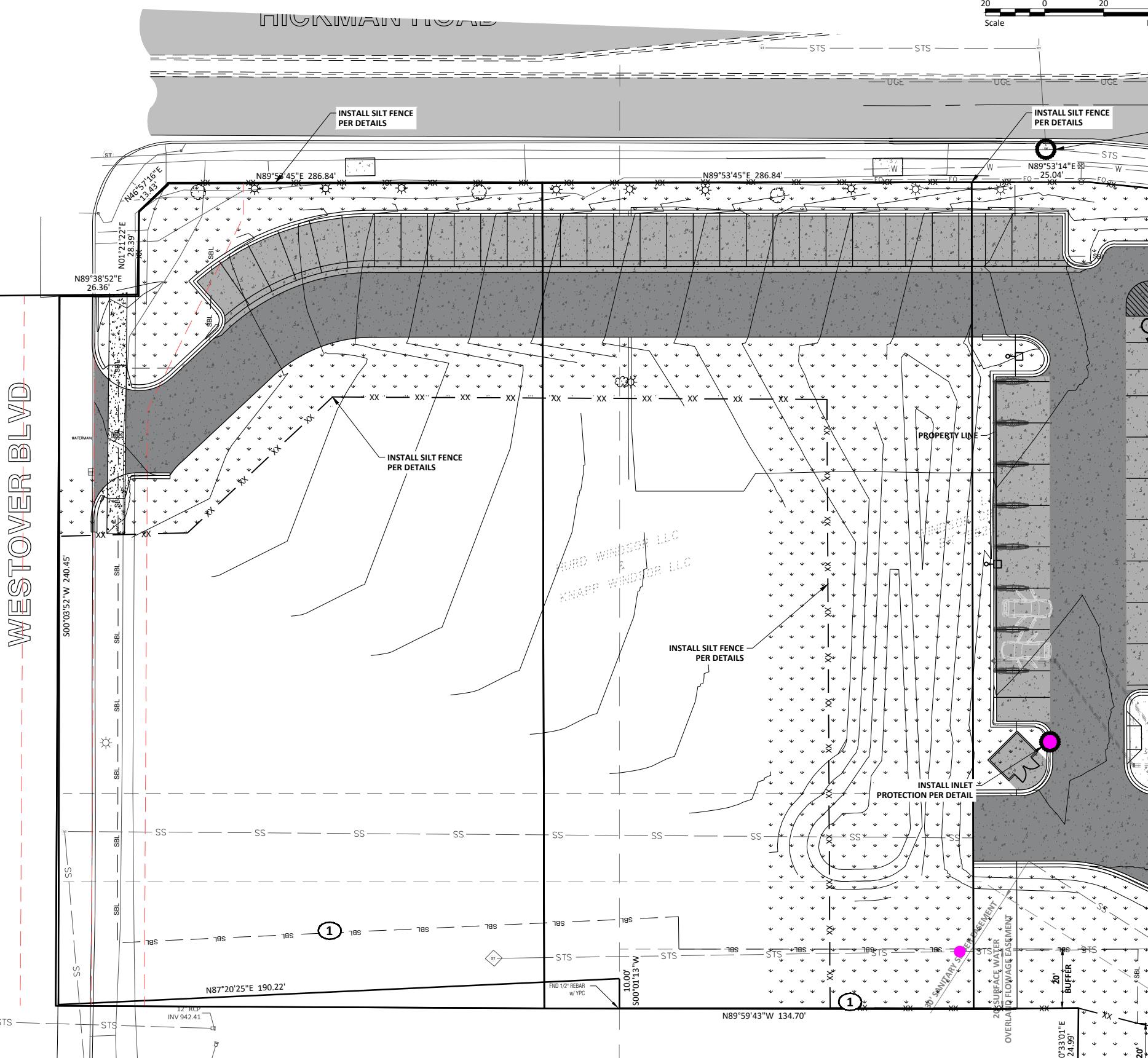
LEGEND	EXISTING	NEW
STANDARD CURB & GUTTER	— — — —	— — — —
MOUNTABLE CURB & GUTTER	— — — —	— — — —
CURB & INVERTED GUTTER	— — — —	— — — —
PRIVATE NATURAL GAS	G — — —	G — — —
PRIVATE FIBER OPTIC	FO — — —	FO — — —
PRIVATE OVERHEAD POWER	OHP — — —	OHP — — —
PRIVATE UNDERGROUND ELECTRICAL	UGE — — —	UGE — — —
PRIVATE WATER MAIN	W — — —	W — — —
PRIVATE SANITARY SEWER MAIN	SS — — —	SS — — —
PRIVATE STORM SEWER MAIN	STS — — —	STS — — —
THICKENED EDGE SIDEWALK	— — — —	— — — —
SANITARY MANHOLE	SS	SS
STORM MANHOLE	ST	ST
FIRE HYDRANT	○	○
GATE VALVE	☒	☒
STORM INLET	■	■
AIR CONDITIONING UNIT	AC	AC
GAS METER	GM	GM
TRANSFORMER	T	T
DECIDUOUS TREE	— — — —	— — — —
BUILDING	[Image]	[Image]
EXISTING ROADWAY	[Image]	[Image]
NEW 4" CONCRETE AT SIDEWALKS	[Image]	[Image]
NEW 7" HEAVY DUTY CONCRETE	[Image]	[Image]
NEW 6" LIGHT DUTY CONCRETE	[Image]	[Image]
NEW 7" HEATED CONCRETE	[Image]	[Image]
NEW GRASS/LANDSCAPE AREA	[Image]	[Image]

SWPPP NOTES:

1. THE CONTRACTOR SHALL INSTALL INLET PROTECTION AND ROCK CONSTRUCTION ENTRANCE PRIOR TO BEGINNING SITE WORK.
2. THE CONTRACTOR SHALL INSTALL PERIMETER CONTROL AROUND DISTURBED AREAS AND LIMIT ACCESS TO THE ROCK CONSTRUCTION ENTRANCE.
3. THE CONTRACTOR SHALL INSTALL TEMPORARY SOIL STABILIZATION MEASURES SUCH AS COVER CROPS, EROSION CONTROL BLANKETS, MULCH, ETC. AS NEEDED WHEN AREAS ARE NOT ACTIVELY BEING WORKED AND WILL NOT BE DISTURBED FOR A PERIOD OF GREATER THAN 14 DAYS. THIS INCLUDES STOCKPILED SOIL.
4. IF SITE WORK OR GRADING ACTIVITIES ARE STOPPED OVER THE WINTER DUE TO COLD WEATHER THE CONTRACTOR SHALL PROVIDE TEMPORARY SOIL STABILIZATION MEASURES PRIOR TO STOPPING WORK DUE TO COLD WEATHER.
5. THE CONTRACTOR SHALL PROVIDE TEMPORARY OR PERMANENT SOIL STABILIZATION TO AREAS THAT HAVE BEEN FINISH GRADED WITHIN 7 DAYS OF THE COMPLETION OF WORK.
6. STORM SEWER INLETS WILL BE PROTECTED AT ALL TIMES WITH APPROPRIATE INLET PROTECTION AND SHALL BE INSTALLED PRIOR TO DISTURBANCE IN THAT AREA.
7. MULTIPLE APPLICATIONS OF TEMPORARY SOIL STABILIZATION MEASURES SHOULD BE ANTICIPATED BY THE CONTRACTOR.
8. TEMPORARY MULCHING AND PERMANENT SEEDING SHALL CONFORM TO SUDAS STANDARD SPECIFICATIONS. AREAS TO BE SEADED SHALL BE SEADED WITH SUDAS SECTION 9010 TYPE B SEED MIXTURE AND BONDED FIBER MATRIX (BMF) MULCH PER .
9. THE CONTRACTOR SHALL MINIMIZE SITE DISTURBANCE AND PHASE THE CONSTRUCTION TO MINIMIZE THE AMOUNT OF OPEN DISTURBED SOIL AS PRACTICAL.
10. THIS PLAN SHOWS THE TYPE AND GENERAL PLACEMENT OF SEDIMENT AND EROSION CONTROL MEASURES. NOT EXACT PLACEMENT.
11. THE CONTRACTOR SHALL MODIFY THE SWPPP AS NEEDED TO PREVENT DISCHARGE OF SEDIMENT FROM THE SITE, THIS INCLUDES DUST, RUNOFF FROM THE CONCRETE WASH WATER, AND RUNOFF FROM SAW CUTTING OF CONCRETE.
12. THE CONTRACTOR SHALL MAINTAIN AND UPDATE THE SWPPP AS NEEDED TO ENSURE THAT THE SITE CONDITIONS MATCH WHAT IS SHOWN ON THE SWPPP DOCUMENTS.
13. TYPE C INLET PROTECTION INSTALLED IN THE RIGHT OF WAY SHALL BE WIMCO, LANGE IPD, FLEXSTORM, OR APPROVED EQUIVALENT PER SUDAS STANDARD SPECIFICATIONS.
14. EXCAVATION OR OTHER WORK IN THE RIGHT OF WAY SHALL REQUIRE A TRAFFIC CONTROL PLAN THAT MEETS ALL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) REQUIREMENTS. THIS PLAN IS REQUIRED BEFORE ANY PERMITS TO WORK IN THE RIGHT OF WAY WILL BE ISSUED. A PERMIT IS REQUIRED FOR WORK IN DOT ROADWAYS.

KEYNOTES:

① TOPSOIL WILL NEED TO INCLUDE 2" COMPOST & TILLED INTO THE SOIL PROFILE TO A DEPTH OF 8 INCHES.



SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA

EROSION CONTROL PLAN



Drawn By

JLV

Checked By

SMH

Date

7/24/2023

Scale

As Shown

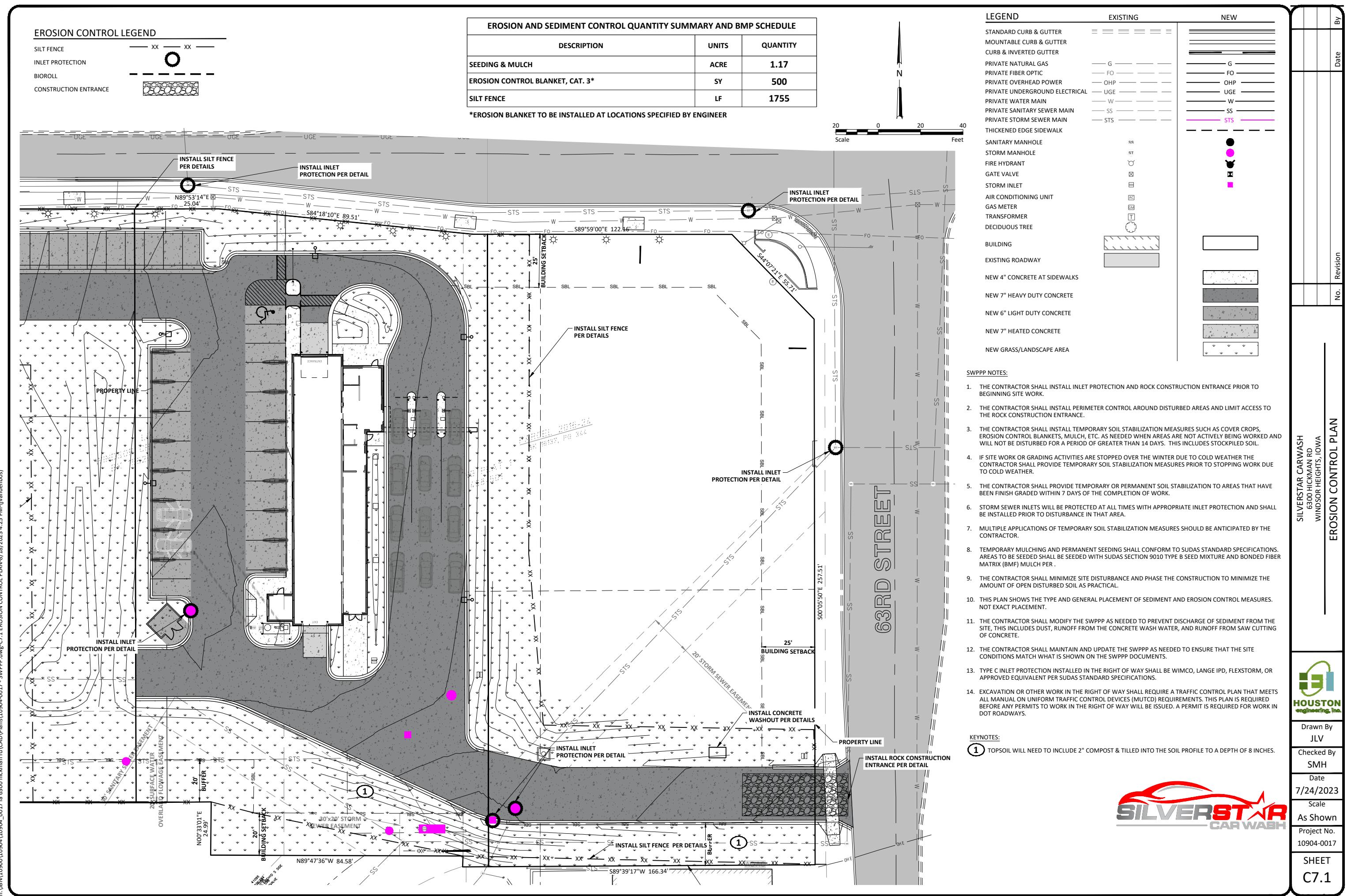
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STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

THE IOWA DEPARTMENT OF NATURAL RESOURCES GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY ISSUED ON MARCH 1, 2023 SHALL APPLY FOR THIS PROJECT THROUGH FEBRUARY 28, 2028.

GENERAL CONSTRUCTION ACTIVITY INFORMATION

1. PROJECT NAME: SILVERSTAR CARWASH
2. PROJECT LOCATION: 6300 HICKMAN RD WINDSOR HEIGHTS, IA

COORDINATES: 41.61451, 93.70417
CITY OR TOWNSHIP: WINDSOR HEIGHTS
STATE: IA ZIP CODE: 50324 COUNTY: POLK

3. DESCRIBE THE CONSTRUCTION ACTIVITY:

THE PROJECT CONSISTS OF DEMOLITION OF EXISTING STRUCTURES AND PAVEMENT AND VEGETATION, AND CONSTRUCTING NEW PAVEMENT, UTILITIES AND A CARWASH STRUCTURE.

PROJECT AREAS

TOTAL AREA TO BE DISTURBED (ACRES): 1.14
PRE-CONSTRUCTION IMPERVIOUS SURFACE (ACRES): 0.59
POST-CONSTRUCTION IMPERVIOUS SURFACE (ACRES): 1.07
TOTAL NEW IMPERVIOUS SURFACE (ACRES): 0.48



CONTACT INFORMATION

PROJECT OWNER: MIDWEST FIDELITY PARTNERS, LLC

ADDRESS: 1610 S. MINNESOTA AVE.

SIOUX FALLS, SD 57105

CONTACT: DAN NELSON

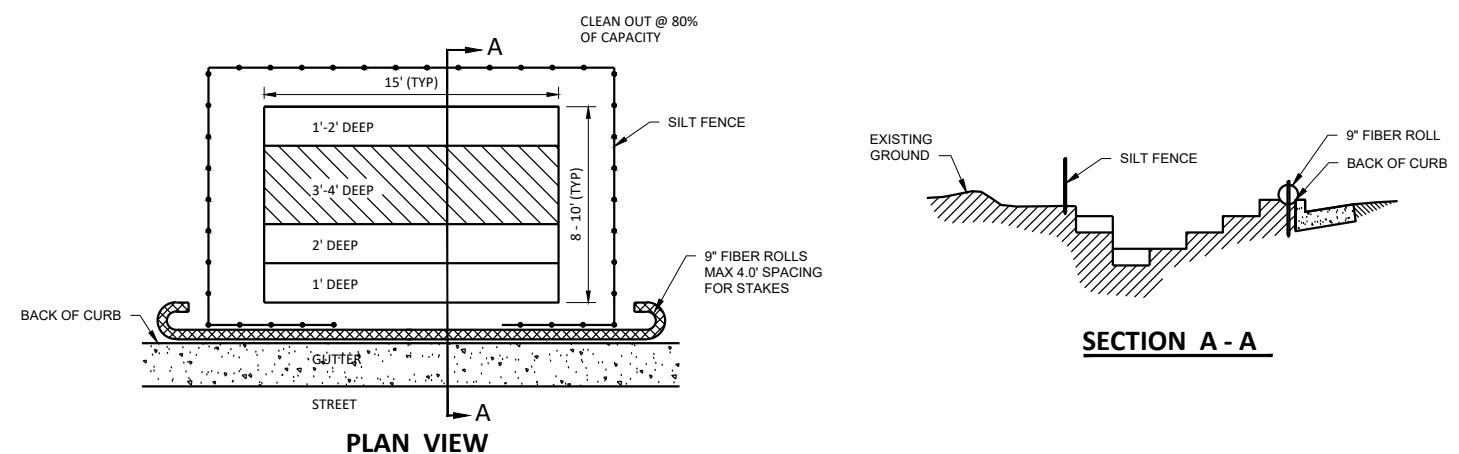
EMAIL: DAN@MFP.LLC.COM

CONTRACTOR: HEGG CONSTRUCTION

DESIGN OF CONSTRUCTION SWPPP

DESIGN OF CONSTRUCTION SWPPP COMPLETED BY:

STAN HANSON
HOUSTON ENGINEERING, INC.
100 COURT AVE, SUITE 202
DES MOINES IA 50309
PHONE: (515) 444-5393
FAX: (402) 932-6940
STHANSON@HOUSTONENG.COM



CONCRETE WASHOUT

NOT TO SCALE

EROSION AND SEDIMENT CONTROL NOTES:

1. NO EARTHWORK OPERATIONS SHALL BEGIN PRIOR TO ALL TEMPORARY PERIMETER EROSION AND SEDIMENT CONTROL MEASURES BEING INSTALLED.
2. THIS SWPPP SCHEMATIC SITE MAP SHOWS INITIAL LOCATIONS OF PROPOSED CONTROLS BASED ON FINAL PROPOSED SITE CONDITIONS. THROUGHOUT CONSTRUCTION, ADDITIONAL CONTROLS MAY BE NECESSARY BASED ON CHANGING SITE CONDITIONS. THE CONTRACTOR SHALL KEEP AN AMENDED COPY OF THE POLLUTION PREVENTION SITE MAP UPDATED TO REFLECT CURRENT SITE CONDITIONS WITH CHANGES IN EROSION AND SEDIMENT CONTROLS NOTED.
3. TEMPORARY SANITARY FACILITIES SHALL BE STAKED DOWN OR OTHERWISE SECURED TO PREVENT OVERTURNING. WASTE COLLECTION AREAS SHALL BE COVERED OR SECURED IN A MANNER TO PREVENT BLOWING OF TRASH OR DEBRIS. LOCATE THESE FACILITIES AWAY FROM STORM INLETS, CONCENTRATED FLOW PATHS, STREAMS OR THE SITE PERIMETER. CONTRACTOR SHALL NOTE LOCATION OF SUCH FACILITIES ON THE AMENDED COPY OF THIS SITE POLLUTION PREVENTION PLAN MAP.
4. DAILY CLEANUP OPERATIONS, TRASH COLLECTION, GOOD HOUSEKEEPING AND OTHER ITEMS NECESSARY TO PREVENT OFF-SITE TRACKING, DEBRIS BEING CARRIED OFF-SITE AND POLLUTION OF RECEIVING WATERS OR OTHER STORM WATER CONTAMINATION SHALL BE COMPLETED BY THE CONTRACTOR AND SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT WORK.
5. STABILIZED CONSTRUCTION ENTRANCES (SCE) SHALL BE PROVIDED AT ALL ACCESS POINTS TO THE CONSTRUCTION SITE. ENGINEERING FABRIC MATERIAL SUDAS SECTION 9040 SHALL BE INSTALLED BELOW ALL CONSTRUCTION ENTRANCES. ENTRANCE SHALL BE AT LEAST 75 FEET IN LENGTH AND 16 FEET IN WIDTH. LOCATIONS OF CONSTRUCTION ENTRANCES ARE APPROXIMATE AND SHALL BE FIELD LOCATED. ANY SEDIMENT TRACKED OR DEPOSITED ON OFF-SITE PAVED SURFACES SHALL BE REMOVED WITHIN 24 HOURS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR STREET SWEEPING AND/OR SCRAPING TO REMOVE ANY ACCUMULATED SEDIMENT FROM OFF-SITE PAVED SURFACES.
6. IF EQUIPMENT MUST CROSS AN EXISTING CURBLINE, PROTECT CURBLINE WITH ASPHALT FILLET WITH ENGINEERING FABRIC UNDERLayment DURING CONSTRUCTION. REMOVE FILLET AFTER CONSTRUCTION IS COMPLETE.
7. ALL STORM DRAIN INLETS WITHIN THE PROJECT LIMITS AND IN THE IMMEDIATE VICINITY OF THE SITE SHALL HAVE SEDIMENT PROTECTION MEASURES. THIS INCLUDES INLETS AFFECTED BY SEDIMENT TRACKED FROM THE SITE.
8. VEGETATIVE BUFFERS SHALL HAVE A MINIMUM WIDTH OF 25 FEET FOR EVERY 125 FEET OF DISTURBED AREA THAT DRAINS TO THE BUFFER. FOR EACH ADDITIONAL 5 FEET OF DISTURBANCE, AN ADDITIONAL 1 FOOT OF BUFFER MUST BE ADDED. THE BUFFER SHALL HAVE A MAXIMUM 5 PERCENT SLOPE AND CONCENTRATED FLOWS TO THE BUFFER SHALL BE MINIMIZED.
9. VEGETATIVE BUFFER SHALL CONSIST OF DENSE GRASS VEGETATION 3 TO 12 INCHES TALL WITH UNIFORM COVERAGE OVER 90 PERCENT OF THE BUFFER. NO MORE THAN 10 PERCENT OF THE BUFFER MAY CONSIST OF WOODY VEGETATION.
10. PROVIDE TEMPORARY STABILIZATION FOR DISTURBED AREAS WITHIN SITE WHERE NO ADDITIONAL GRADING OR CONSTRUCTION ACTIVITIES ARE EXPECTED FOR AT LEAST 14 DAYS. REFER TO SUDAS SECTION 9040 AND PROJECT SPECIFICATIONS FOR STABILIZATION METHODS.
11. FIBER ROLLS OR SILT FENCE SHALL BE INSTALLED ON ALL DISTURBED AREAS WITH SLOPES STEEPER THAN 3:1 AND LENGTHS GREATER THAN 75 FEET. ANY SLOPE EXHIBITING RILLS, SIGNIFICANT EROSION, OR EVIDENCE OF CONCENTRATED FLOW SHALL BE REGRADED TO PLAN GRADES AND FIBER ROLLS OR OTHER TEMPORARY EROSION CONTROL MEASURE INSTALLED TO PREVENT FUTURE EROSION.
12. SEDIMENT ACCUMULATED BEHIND FIBER ROLLS AND SILT FENCE SHALL BE REMOVED WHEN IT REACHES 1/3 THE HEIGHT OF THE FIBER ROLL OR SILT FENCE. ANY INEFFECTIVE (DECOMPOSED, TORN, COLLAPSED) FIBER ROLLS OR SILT FENCE SHALL BE REPLACED IMMEDIATELY.
13. WATTLES SHALL BE 9" HEIGHT UNLESS NOTED OTHERWISE.
14. ALL TEMPORARY OR PERMANENT DRAINAGE DITCHES, SWALES, OR STORM SEWER DISCHARGE POINTS SHALL HAVE THEIR NORMAL WETTED PERIMETER STABILIZED WITHIN 200 LINEAL FEET OF THE PROPERTY EDGE OR POINT OF DISCHARGE TO A SURFACE WATER. STABILIZATION SHALL BE ACCOMPLISHED BY THE USE OF EROSION CONTROL BLANKETS, SODDING, APPLICATION OF RIPRAP, OR OTHER METHOD OF STABILIZATION.
15. ALL TEMPORARY OR PERMANENT DRAINAGE DITCHES, SWALES, OR STORM SEWER DISCHARGE POINTS SHALL BE STABILIZED WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER, INCLUDING STORM SEWER SYSTEMS.
16. TEMPORARY SOIL STOCKPILES SHALL BE SURROUNDED BY SILT FENCE OR OTHER EFFECTIVE SEDIMENT CONTROLS, AND SHALL NOT BE PLACED IN SURFACE WATERS, INCLUDING STORMWATER CONVEYANCES SUCH AS CURB AND GUTTER SYSTEMS, OR CONDUITS AND DITCHES UNLESS THERE IS A BYPASS IN PLACE FOR THE STORMWATER. PLACE PERIMETER SEDIMENT CONTROLS AROUND STOCKPILES (25-50 FEET FROM TOE OF STOCKPILE) TO ALLOW FOR EQUIPMENT MOVEMENT AND SEDIMENT COLLECTION.
17. DEWATERING OR BASIN DRAINAGE RELATED TO CONSTRUCTION SHALL BE DISCHARGED TO A TEMPORARY OR PERMANENT SEDIMENTATION BASIN. IF THE WATER CANNOT BE DISCHARGED TO A TEMPORARY OR PERMANENT SEDIMENTATION BASIN, IT SHALL BE TREATED WITH ONE OF THE DEWATERING STRUCTURES SHOWN. ALL WATER FROM DEWATERING OR BASIN DRAINING ACTIVITIES MUST BE DISCHARGED IN A MANNER THAT DOES NOT CAUSE NUISANCE CONDITIONS, EROSION IN RECEIVING CHANNELS OR ON DOWNSLOPE PROPERTIES, OR INUNDATION IN WETLANDS CAUSING SIGNIFICANT ADVERSE IMPACT TO THE WETLAND.
18. CONTRACTOR SHALL INSTALL, MAINTAIN AND REMOVE A CONCRETE WASHOUT AREA THROUGHOUT THE DURATION OF PAVING ACTIVITIES AND OTHER CONCRETE WORK. USE A ROLLAWAY SYSTEM AS PER SUDAS SECTION 11040. INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS TO COMPLETE, MAINTAIN AND REMOVE ALONG WITH COLLECTED WASTE UPON COMPLETION OF CONSTRUCTION. INCLUDE

PROPER DISPOSAL OF COLLECTED MATERIALS. CONTRACTOR SHALL NOTE LOCATION OF SUCH FACILITIES ON THE AMENDED COPY OF THIS SITE POLLUTION PREVENTION PLAN MAP.

19. DEWATERING IS LIMITED TO STORMWATER AND GROUNDWATER THAT MAY COLLECT ON SITE, AND THE FOLLOWING ALLOWABLE NON-STORMWATER SOURCES: FIRE-FIGHTING, FIRE HYDRANT FLUSHING, POTABLE WATER LINE FLUSHING, INFREQUENT BUILDING AND EQUIPMENT WASH DOWN WITHOUT DETERGENTS, UNCONTAMINATED FOUNDATION DRAINS, SPRINGS, LAWN WATERING, AND AIR CONDITIONING CONDENSATE. THE OPERATION MUST NOT LEAD TO SEDIMENT DEPOSITS WITHIN STORM SEWERS, DITCHES, AND SURFACE WATERS. THE OPERATION MUST NOT CAUSE OR POTENTIALLY CAUSE A VISIBLE PLUME IN A SURFACE WATER.
20. TEMPORARY SEDIMENTATION BASINS SHALL BE PROVIDED WHEN 10 OR MORE ACRES OF DISTURBED AREA DRAIN TO A COMMON LOCATION. THE BASIN MUST BE PROVIDED PRIOR TO RUNOFF LEAVING THE SITE OR ENTERING SURFACE WATERS.

21. ANY SEDIMENT ACCUMULATION IN SURFACE WATERS, INCLUDING DRAINAGEWAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS, SHALL BE REMOVED AND THE AREA STABILIZED WHERE SEDIMENT REMOVAL RESULTS IN EXPOSED SOILS. THE REMOVAL AND STABILIZATION MUST TAKE PLACE IMMEDIATELY, BUT NO MORE THAN 7 DAYS AFTER THE DISCOVERY UNLESS PRECLUDED BY LEGAL, REGULATORY, OR PHYSICAL ACCESS CONSTRAINTS. ALL REASONABLE EFFORTS MUST BE USED TO OBTAIN ACCESS. ONCE ACCESS IS OBTAINED, REMOVAL AND STABILIZATION MUST TAKE PLACE IMMEDIATELY, BUT NO MORE THAN 7 DAYS LATER. THE CONTRACTOR IS RESPONSIBLE FOR CONTRACTING ALL OF THE APPROPRIATED AUTHORITIES AND RECEIVING THE APPLICABLE PERMITS PRIOR TO CONDUCTING ANY WORK.
22. TEMPORARY EROSION AND SEDIMENT CONTROLS IN ADDITION TO THOSE SHOWN ON THE PLANS SHALL BE INSTALLED IF DEEMED NECESSARY OR AT THE DIRECTION OF THE ENGINEER/OWNER'S REPRESENTATIVE.

23. REMOVE ALL TEMPORARY SYNTHETIC, STRUCTURAL, NON-BiodeGRADABLE EROSION AND SEDIMENT CONTROL DEVICES AFTER THE SITE HAS UNDERGONE FINAL STABILIZATION AND PERMANENT VEGETATION HAS BEEN ESTABLISHED. MINIMUM VEGETATION ESTABLISHMENT IS 70% COVER. MAINTAIN ALL TEMPORARY EROSION CONTROL DEVICES UNTIL 70% ESTABLISHED COVER IS ACHIEVED.
24. STORMWATER CONTROLS ARE EXPECTED TO WITHSTAND AND FUNCTION PROPERLY UP TO A TWO-YEAR, 24-HOUR PRECIPITATION EVENT. VISIBLE EROSION AND/OR OFF-SITE SEDIMENT DEPOSITS SHOULD BE MINIMAL.
25. SLOPES EXCEEDING 6% SHALL BE ROUGHENED AS PER LOCAL OR PROJECT SPECIFICATIONS.

FINAL STABILIZATION

1. ALL SOIL-DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND A UNIFORM PERENNIAL VEGETATIVE COVER WITH A MINIMUM DENSITY OF 70 PERCENT OF THE NATIVE COVER FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES OR EQUIVALENT PERMANENT STABILIZATION MEASURES (SUCH AS THE USE OF RIPRAP, GABIONS, OR GEOTEXTILES) HAVE BEEN ACHIEVED.
2. FOR SOIL-DISTURBING ACTIVITIES ON LAND USED FOR AGRICULTURAL PURPOSES, FINAL STABILIZATION MAY BE ACCOMPLISHED BY RETURNING THE DISTURBED LAND TO ITS PRE-DISTURBANCE AGRICULTURAL USE. AREAS DISTURBED THAT WERE NOT PREVIOUSLY USED FOR AGRICULTURAL ACTIVITIES, SUCH AS BUFFER STRIPS IMMEDIATELY ADJACENT TO WATERS OF THE STATES, AND AREAS NOT BEING RETURNED TO THEIR PRE-DISTURBANCE AGRICULTURAL USE MUST MEET THE FINAL STABILIZATION CRITERIA ABOVE.
3. FINAL STABILIZATION HAS BEEN ACHIEVED WHEN THE ABOVE CRITERIA HAS BEEN MET AND:
 - 3.1 ALL DRAINAGE DITCHES CONSTRUCTED TO DRAIN WATER FROM THE SITE FOLLOWING CONSTRUCTION HAVE BEEN STABILIZED TO PREVENT EROSION.
 - 3.2 ALL TEMPORARY, SYNTHETIC, AND STRUCTURAL EROSION AND SEDIMENT CONTROLS HAVE BEEN REMOVED.
 - 3.3 ANY ACCUMULATED SEDIMENT HAS BEEN REMOVED FROM ALL STORMWATER CONVEYANCES AND BASINS USED FOR PERMANENT WATER QUALITY MANAGEMENT. ANY REMOVED SEDIMENT THAT EXPOSES SOIL MUST BE STABILIZED TO PREVENT EROSION.

INSPECTION AND MONITORING

1. A COPY OF THE COMPLETED AND SIGNED NOTICE OF INTENT, COVERAGE LETTER FROM THE IOWA DNR, STORMWATER POLLUTION PREVENTION PLAN (SWPPP), SITE INSPECTION RECORDS, AND THE GENERAL PERMIT SHALL BE KEPT ON SITE DURING CONSTRUCTION. IF NO REASONABLE ON-SITE LOCATION IS AVAILABLE, THE DOCUMENTS MAY BE RETAINED AT A READILY AVAILABLE ALTERNATIVE LOCATION. ALL RECORDS SHALL BE RETAINED FOR A PERIOD OF THREE YEARS AFTER THE SUBMISSION OF THE NOTICE OF TERMINATION.
2. THE CONTRACTOR SHALL PROVIDE AT LEAST ONE INDIVIDUAL PRESENT ON THE PERMITTED PROJECT SITE (OR AVAILABLE TO THE PROJECT SITE IN 72 HOURS) THAT IS TRAINED BY LOCAL, STATE, OR FEDERAL AGENCIES; PROFESSIONAL ORGANIZATIONS, OR OTHER ENTITIES WITH EXPERTISE IN EROSION PREVENTION, SEDIMENT CONTROL, OR PERMANENT STORMWATER MANAGEMENT. THE INDIVIDUAL SHALL BE KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPS) AND SHALL BE FAMILIAR WITH THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS.
3. INSPECTION SHALL BE PERFORMED BY, OR UNDER THE DIRECTION OF, THE PERMITTEE AT LEAST ONCE EVERY 7 CALENDAR DAYS.
4. ALL INSPECTION AND MAINTENANCE CONDUCTED DURING CONSTRUCTION SHALL BE RECORDED IN WRITING AND THESE RECORDS SHALL BE RETAINED. RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY SHALL INCLUDE:
 - 4.1 DATE AND TIME OF INSPECTION.
 - 4.2 NAME OF PERSON(S) CONDUCTING INSPECTIONS.
 - 4.3 FINDINGS OF INSPECTIONS, INCLUDING RECOMMENDATIONS FOR CORRECTIVE ACTIONS.
 - 4.4 CORRECTIVE ACTIONS TAKEN (INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES).
 - 4.5 DOCUMENTATION THAT THE SWPPP PLAN HAS BEEN AMENDED WHEN SUBSTANTIAL CHANGES ARE MADE TO THE EROSION AND SEDIMENT CONTROLS OR OTHER BMPS IN RESPONSE TO INSPECTIONS.
5. INSPECTIONS SHALL INCLUDE THE FOLLOWING:
 - 5.1 ALL EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE SWPPP MUST BE INSPECTED TO ENSURE THEY ARE OPERATING CORRECTLY AND IN SERVICABLE CONDITIONS.
 - 5.2 SURFACE WATERS, DRAINAGE DITCHES, AND CONVEYANCE SYSTEMS, INCLUDING STORM SEWER, MUST BE INSPECTED FOR SEDIMENT DEPOSITS AND/OR VISIBLE PLUMES.
 - 5.3 EXIT POINTS FROM THE CONSTRUCTION SITE ONTO PAVED SURFACES MUST BE INSPECTED FOR SEDIMENT BEING TRACKED BY VEHICLES OR EQUIPMENT.
 - 5.4 VEGETATIVE BUFFERS MUST BE INSPECTED FOR PROPER DISTRIBUTION OF FLOWS, SEDIMENT ACCUMULATION, AND SIGNS OF RILL FORMATION.
6. EROSION AND SEDIMENT CONTROLS FOUND IN NEED OF MAINTENANCE BETWEEN INSPECTIONS NEED TO BE REPAIRED OR SUPPLEMENTED WITH APPROPRIATE MEASURES WITHIN 72 HOURS OF DISCOVERY.

SCHEDULE OF EROSION CONTROL ACTIVITIES

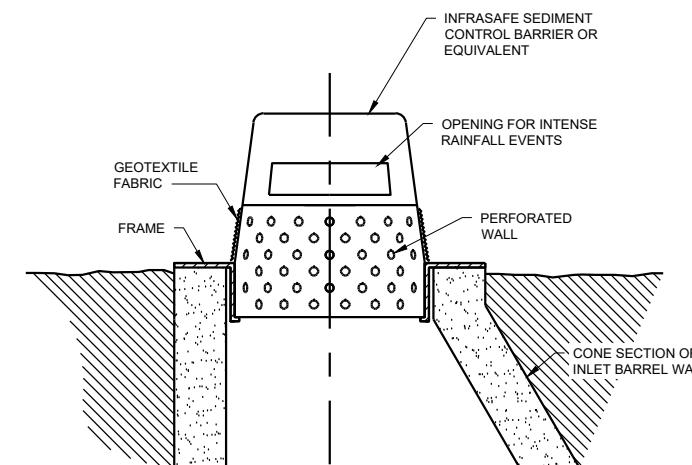
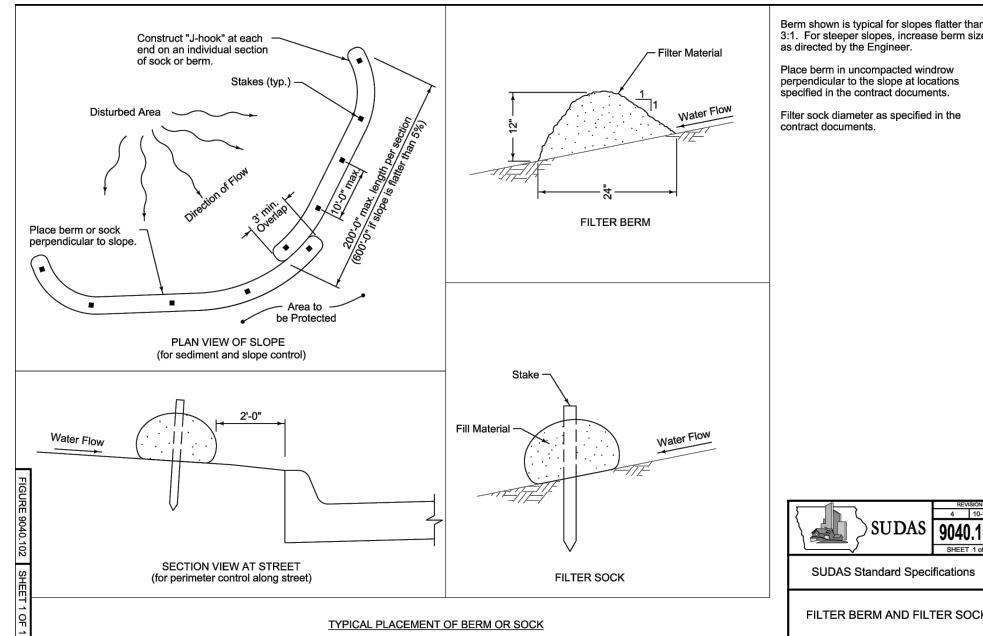
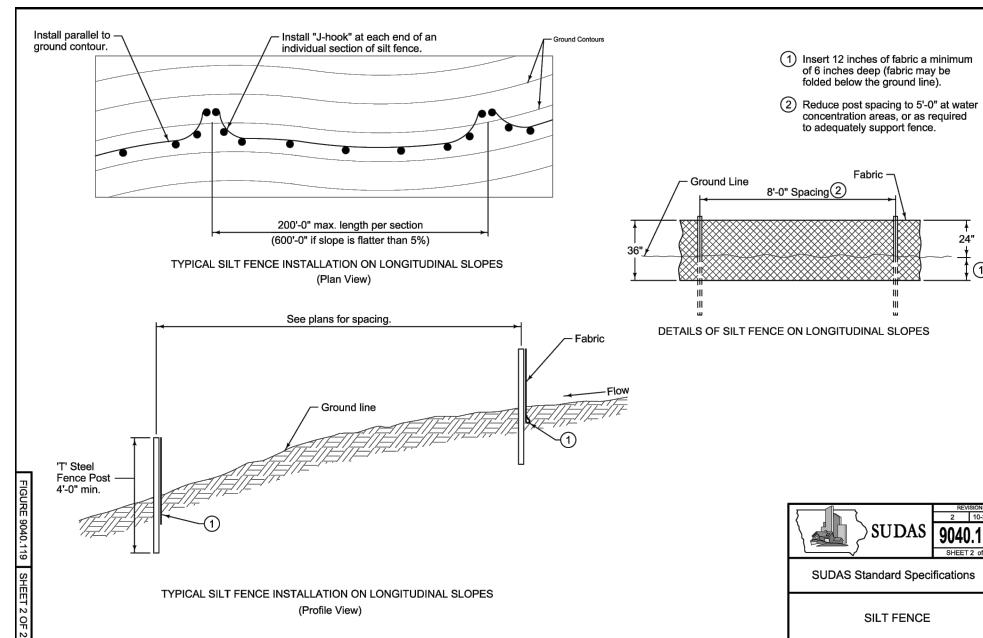
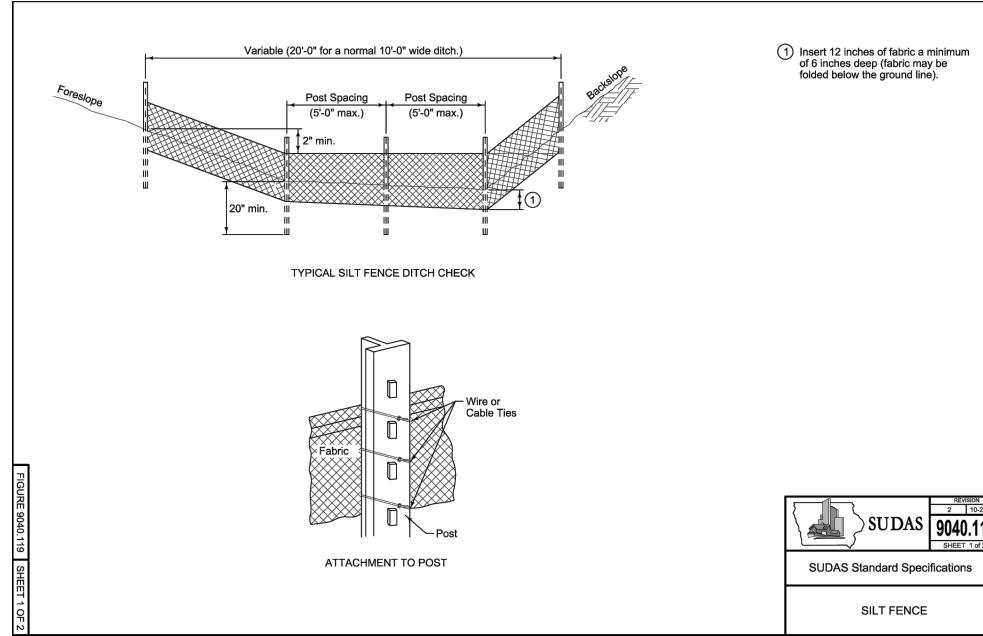
1. INSTALL PERIMETER CONTROL INCLUDING SILT FENCE AND CONSTRUCTION ENTRANCE
2. COMPLETE SITE GRADING
3. SURROUND INFILTRATION BASINS WITH SILT FENCE OR BIO-LOGS TO PREVENT CLOGGING
4. INSTALL INLET PROTECTION WITH STORMSEWER
5. STABILIZE SOIL WITHIN 14 DAY OF INACTIVITY.

SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA

EROSION CONTROL DETAILS


HOUSTON
Engineering Inc.

Drawn By
JLV
Checked By
SMH
Date
7/24/2023
Scale
As Shown
Project No.
10904-0017
SHEET
C7.2

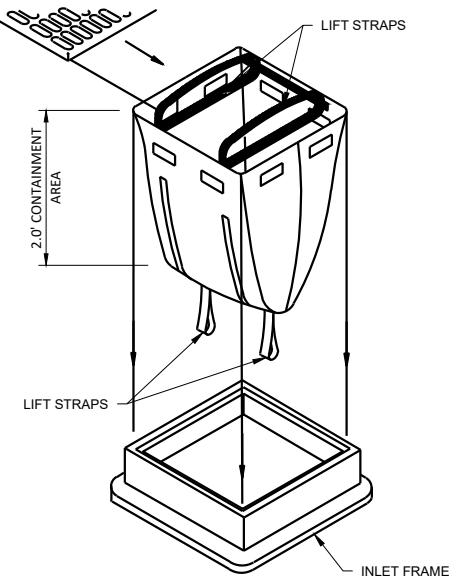


NOTES

1. ALTERNATIVE INLET PROTECTION DEVICES MAY BE ALLOWED SUBJECT TO ENGINEER'S APPROVAL.
2. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN TO INSURE THAT SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO INLET. ANY MATERIAL FALLING INTO INLET SHALL BE IMMEDIATELY REMOVED.
3. ANY INLET PROTECTION USED SHALL BE EQUIPPED WITH AN EMERGENCY OVERFLOW TO MINIMIZE THE THREAT OF STREET FLOODING DURING AN INTENSE RAINFALL EVENT.

INLET PROTECTION - TYPE B

NOT TO SCALE



INSTALLATION

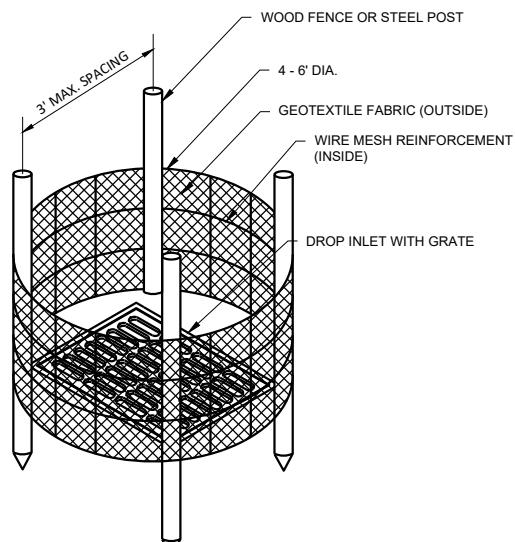
1. REMOVE THE INLET GRATE.
2. STAND THE GRATE UPRIGHT. INSTALL THE GRATE BETWEEN THE LIFTING HANDLES.
3. PLACE THE BAG IN THE INLET & LOWER THE BAG AND GRATE USING THE LIFTING STRAPS.

MAINTENANCE

1. CHECK BAG REGULARLY & AFTER RAIN EVENTS. IF THE BAG IS FILLED WITH $\frac{1}{2}$ OF ITS CAPACITY WITH SEDIMENT, EMPTY THE BAG.
2. REMOVE DEBRIS AROUND THE INLET GRATE PRIOR TO REMOVING BAG.
3. USE THE LIFT HANDLES TO REMOVE THE BAG AND USE THE HANDLES ON THE BOTTOM TO EMPTY BAG.

NOTES

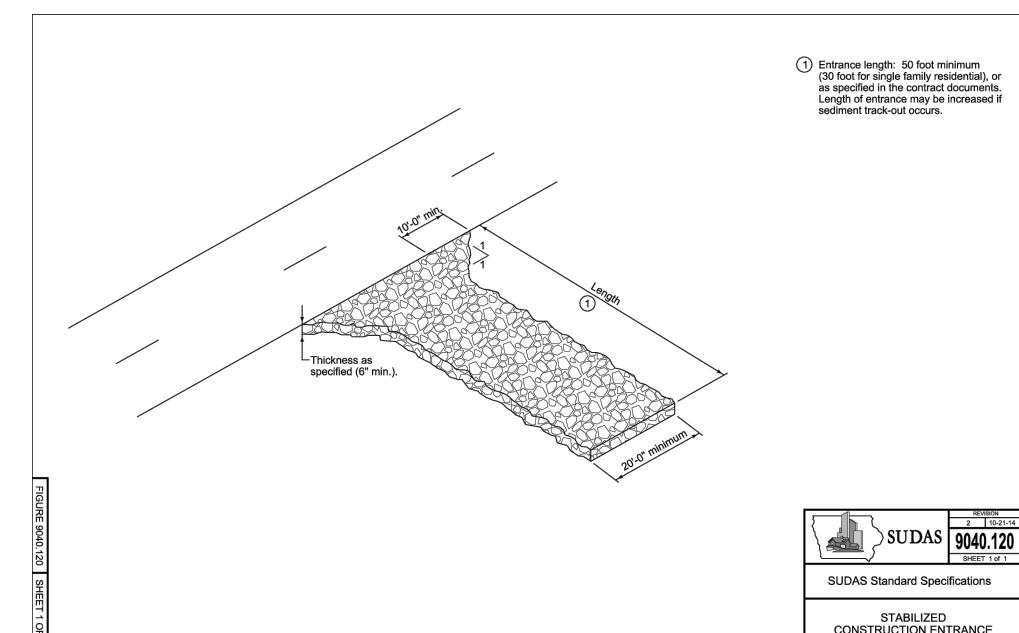
1. ALTERNATIVE INLET PROTECTION DEVICES MAY BE ALLOWED SUBJECT TO ENGINEER'S APPROVAL.
2. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN TO INSURE THAT SEDIMENT DOES NOT FALL INTO INLET. ANY MATERIAL FALLING INTO INLET SHALL BE IMMEDIATELY REMOVED.
3. ANY INLET PROTECTION USED SHALL BE EQUIPPED WITH AN EMERGENCY OVERFLOW TO MINIMIZE THE THREAT OF STREET FLOODING DURING AN INTENSE RAINFALL EVENT.
4. THIS STYLE MAY BE USED ONLY IN THE PROPERTY LINES. TYPE C INSTALLED IN RIGHT OF WAY SHALL CONFORM WITH SUDAS STANDARD SPECIFICATIONS AND BE FROM WIMCO, LANGE IPD, FLEXSTORM, OR APPROVED EQUIVALENT.

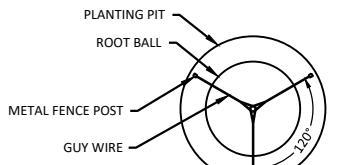


INLET PROTECTION - TYPE C

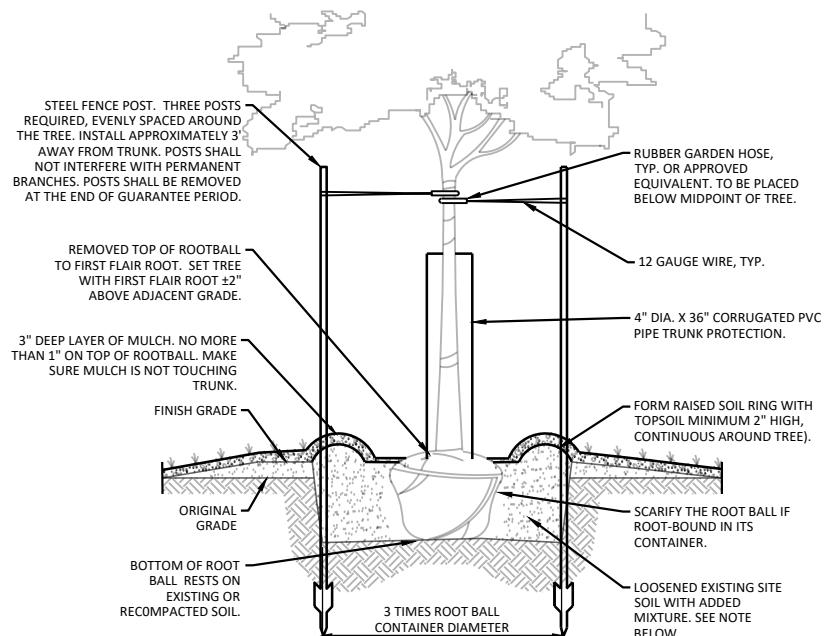
NOT TO SCALE

(1) Entrance length: 50 foot minimum (30 foot for single family residential), or as specified in the contract documents. Length of entrance may be increased if sediment track-out occurs.





STAKING DIAGRAM



NOTES:

1. REMOVE TOP OR ROOTBALL, ADVANTAGEOUS ROOTS AND FIBROUS LOCATED ABOVE FLARE ROOTS TO DETERMINE PROPER PLANTING DEPTH.
2. TREE STAKING IS NOT PREFERRED BUT TO BE USED AS A LAST RESORT ON WINDY SITES. INSTALL TWO OF THE THREE STAKES AND GUY WIRES ON THE UPHILL SIDE OF THE TREE.
3. DO NOT DAMAGE MAIN ROOTS OR DESTROY ROOT BALL WHEN INSTALLING TREE STAKES.
4. WATER THOROUGHLY AFTER INSTALLATION.
5. REMOVE GUY WIRES AND TIES AFTER 6 MONTHS OR AT THE DIRECTION OF THE LANDSCAPE ARCHITECT.
6. TREE SHALL STAND PLUMB.
7. SOIL MIX: 1 PART ORGANIC MATERIAL, 1 PART SAND AND 2 PARTS TOPSOIL.
8. REMOVE ALL TAGS, ROPE, WIRE BASKETS AND CONTAINERS.
9. CLEAN TRUNK TO HEIGHT SPECIFIED AND PAINT WOUNDS WITH APPROVED DRESSING COMPOUND.

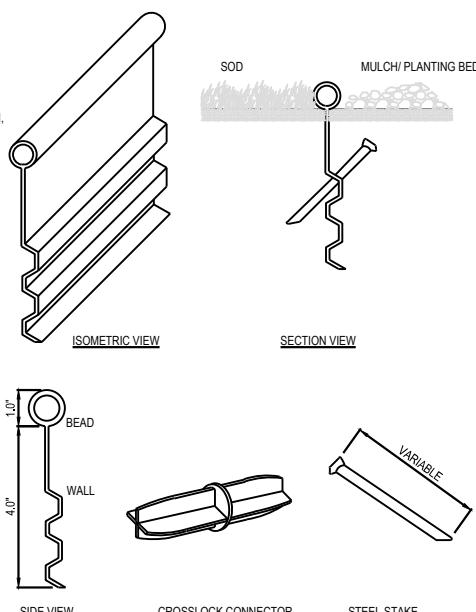
TREE PLANTING

NO SCALE

MATERIAL:

PURE POLYETHYLENE WITH 3.5% - 4% CARBON BLACK CONCENTRATE ADDED FOR UV STABILIZATION, MDPE WITH A MELT FACTOR UNDER 2

APPROXIMATE DIMENSIONS:
HEIGHT: 5 INCH
LENGTH: 20 FT
THICKNESS: .09 TO .105 INCHES



NOTES:

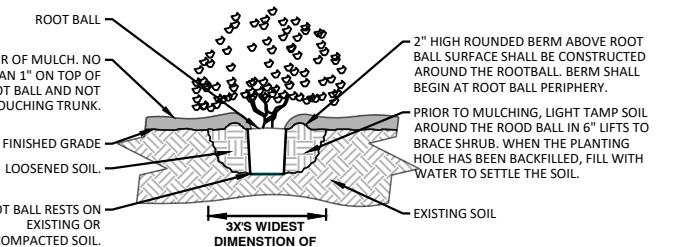
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWING.
3. HIS DRAWING IS A TYPICAL DETAIL FOR THE INSTALLATION OF POLY EDGING.

TYPICAL POLY EDGING DETAIL

NOT TO SCALE

IRRIGATION NOTES

1. IRRIGATION CONTRACTOR TO PROVIDE IRRIGATION SYSTEM ON A DESIGN/BUILD ARRANGEMENT FOR AREA NOTED ON THE PLAN. CONTRACTOR TO PREPARE DESIGN DRAWINGS AND SUBMIT FOR APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
2. IRRIGATION CONTRACTOR TO CONFIRM ADEQUATE PRESSURE EXISTS TO OPERATE SYSTEM PRIOR TO INSTALLATION.
3. IRRIGATION CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY LOCATION OF POC. CONTRACTOR TO NOTIFY OWNER'S REPRESENTATIVE OF ANY ISSUES.
4. IRRIGATION CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES AND TAKE ALL PRECAUTIONS NOT TO DAMAGE OR DISTURB SUCH IMPROVEMENTS. COORDINATE WITH GENERAL CONTRACTOR AS NECESSARY.
5. IRRIGATION CONTRACTOR SHALL ARRANGE FOR AND PAY FOR ANY NECESSARY PERMITS AND/OR INSPECTIONS AS REQUIRED BY LOCAL AGENCIES OR ORDINANCES RELATED TO THE IRRIGATION INSTALLATION FOR THIS PROJECT.
6. INSTALL ALL COMPONENTS OF IRRIGATION SYSTEM TO MANUFACTURER'S SPECIFICATIONS. FLUSH ALL LINES BEFORE INSTALLING NOZZLES.
7. ALL BACKFLOW DEVICES TO BE INSTALLED PER LOCAL CODE REQUIREMENTS.
8. ALL PVC PIPING UNDER CONTINUOUS PRESSURE SHALL BE CLASS 200 PVC PIPE. ALL OTHER PVC SHALL BE CLASS 160 PVC.
9. CONTROL WIRE SHALL BE SOLID COPPER WIRE U.L. APPROVED FOR DIRECT BURIAL IN GROUND. MINIMUM GAUGE - #14 (#12 FOR RUNS OVER 2000') OR AS OTHERWISE SPECIFIED. DECODER WIRE SHALL BE JACKETED. GROUND WIRE (WHERE APPLICABLE) SHALL BE WHITE.
10. 24VAC WIRE SPLICING WILL BE DIRECT BURIAL SPLICE KIT AS MANUFACTURED BY 3M, SPECIFICALLY DBY-6 & DBR-6. UTILIZE GB LIQUID ELECTRICAL TAPE ON CONNECTIONS PRIOR TO PLACING WIRE NUT.
11. LEAVE 18 INCHES OF ADDITIONAL WIRE AT EACH VALVE LOCATION. ROLL WIRE INTO COIL AT EACH LOCATION.
12. INSTALL RAIN SENSORS ON VERTICAL SURFACES, COORDINATE WITH OWNER'S REPRESENTATIVE AS TO FINAL LOCATION OF RAIN SENSOR, MOISTURE SENSORS, WEATHER STATIONS AND OTHER ADDITIONAL SENSORS.
13. IRRIGATION CONTRACTOR TO COORDINATE WITH OWNER'S REPRESENTATIVE AS TO FINAL LOCATION OF THE CONTROLLER. ELECTRICAL POWER TO BE INSTALLED TO WITHIN FIVE (5) FEET OF THE CONTROLLER LOCATION. COORDINATE WITH ELECTRICAL CONTRACTOR AS NECESSARY.
14. IRRIGATION SYSTEM TO BE OPERATIONAL BEFORE PLANTING MATERIALS MAY BE INSTALLED IN PLANTING BEDS.
15. ALL VALVES, QUICK COUPLERS AND WIRE SPLICES SHALL BE LOCATED IN VALVE WITH LABELED COVERS AND BURIED FLUSH WITH GRADE.
16. SLEEVING IS REQUIRED UNDER ALL WALKS AND ROADWAYS. SLEEVES SHALL EXTEND A MINIMUM OF 18" BEYOND END OF WALK/ROADWAY AND BE MARKED. WIRES SHALL BE CONTAINED IN A SEPARATE, 1 1/2" (MIN) SLEEVE.
17. WINTERIZATION OF THE IRRIGATION SYSTEM SHALL BE AS PER MANUFACTURER'S SPECIFICATIONS.

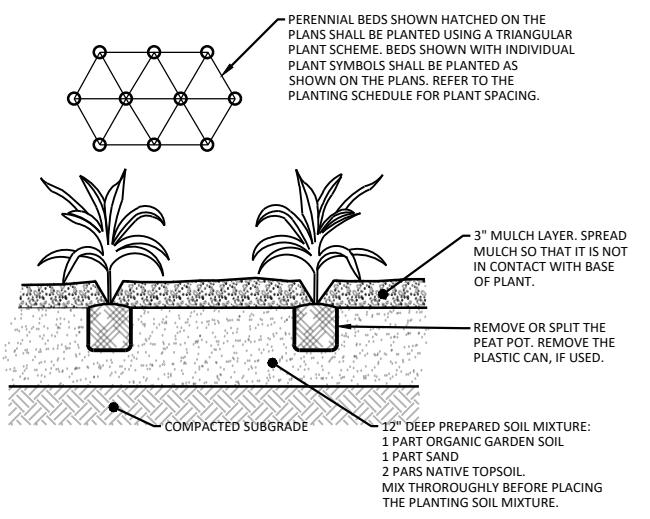


NOTES:

1. SCARIFY THE ROOT BALL IF ROOT-BOUND IN ITS CONTAINER.
2. WHERE SHRUBS APPEAR IN BED AREAS, 3" OF MULCH SHALL BE SPREAD OVER THE ENTIRE AREA WITHIN THE BED EDGE AS INDICATED ON THE PLANS.
3. DO NOT PRUNE BEFORE ACCEPTANCE.
4. REMOVE BURLAP FROM TOP THIRD OF ROOT BALL OR CAREFULLY REMOVE THE PLASTIC CONTAINER, IF ONE IS USED.
5. IF EXISTING SOIL IS NOT ACCEPTABLE, BACKFILL WITH SOIL MIXTURE AS FOLLOWS: 1 PART COMPOSTED GARDEN SOIL - 1 PART SAND - 2 PARTS NATIVE TOPSOIL.

SHRUB PLANTING

NO SCALE



PERENNIAL PLANTING

NO SCALE

PLANTING NOTES

PERMITS:

1. THE LANDSCAPE CONTRACTOR SHALL OBTAIN ANY NECESSARY PERMITS, LICENSES, ETC. AND SHALL GIVE ALL NOTICES AND COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, CODES, RULES AND REGULATIONS DURING THE COURSE OF THE INSTALLATION OF THIS PROJECT.

PREPARATION AND PLANTING:

2. ALL PLANTING BEDS TO RECEIVE 1 1/2" RIVER ROCK MULCH. MULCH TO BE INSTALLED TO 3" DEPTH OVER 5 OZ. WOVEN WEED BARRIER FABRIC UNLESS OTHERWISE INDICATED ON THE PLANTING DETAILS.

3. ALL TREES IN LAWN AREAS TO HAVE 5' DIAMETER RING WITH 3" DEEP 1 1/2" RIVER ROCK MULCH OVER 5 OZ. WOVEN WEED BARRIER FABRIC UNLESS OTHERWISE INDICATED ON THE PLANTING DETAILS. KEEP MULCH 6" AWAY FROM TRUNK.

4. ALL PLANTING BEDS AND TREE RINGS TO BE EDGED WITH 5" POLY EDGING OR APPROVED EQUAL. EDGING TYPE SUBSTITUTIONS TO BE APPROVED BY OWNER'S REPRESENTATIVE.

5. NEW TREE PLANTINGS TO BE STAKED PER PLANTING DETAILS.

6. DIMENSIONS LISTED FOR HEIGHTS, SPREAD AND TRUNK SPECIFICATIONS ON THE PLANT MATERIAL SCHEDULE ARE THE MINIMUM REQUIRED SIZE OF EACH PLANT.

7. NO SUBSTITUTIONS AS TO TYPE, SIZE, OR SPACING OF PLANT MATERIALS SPECIFIED ON THIS PLAN MAY BE MADE WITHOUT THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

8. PRE-EMERGENT HERBICIDE SHALL BE APPLIED TO ALL PLANTING BEDS IMMEDIATELY PRIOR TO PLACEMENT OF MULCH FOR WEED CONTROL.

9. ALL DISTURBED AREAS OF THE SITE ARE TO BE SEEDED AND/OR SODDED IN ACCORDANCE WITH THE PLANS. ANY AREAS DISTURBED BY CONTRACTOR OUTSIDE OF PROJECT LIMITS TO BE RESTORED TO ORIGINAL CONDITIONS.

10. NO EXCAVATION OR PLANTING PIT SHALL BE LEFT OPEN OVERNIGHT.

11. ALL PLANT MATERIALS TO BE NURSERY GROWN AND TO COMPLY WITH THE AMERICAN STANDARD FOR NURSERY STOCK FOR SIZE AND QUALITY.

12. ALL PLANTS SHALL HAVE A WELL-FORMED HEAD WITH MINIMUM CALIPER, HEIGHT AND SPREAD OF THE SIDE BRANCHES AS SHOWN ON THE PLANT LIST. TRUNKS SHALL BE UNDAMAGED AND SHAPE SHALL BE TYPICAL OF THE SPECIES.

13. MEASUREMENT OF CONIFER HEIGHT SHALL INCLUDE NOT MORE THAN FIFTY PERCENT (50%) OF THIS YEAR'S VERTICAL GROWTH (TOP CANDLE).

14. THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO REFUSE ANY PLANT MATERIAL OR ANY DEFECTIVE WORKMANSHIP.

15. NO MATERIAL SHALL BE PLANTED BEFORE FINISH GRADING HAS BEEN COMPLETED.

16. DO NOT PLANT WHEN TEMPERATURE IS BELOW 35 DEGREES FAHRENHEIT, EXCEED 90 DEGREES FAHRENHEIT, SUSTAINED WIND EXCEEDING 25 MPH, GROUND IS SATURATED, GROUND IS FROZEN AND/OR OTHER ENVIRONMENTAL CONDITIONS THAT ARE NOT CONDUCIVE TO TREE PLANTING.

17. DO NOT ALLOW TREES TO DRY-OUT BEFORE THEY CAN BE PLANTED. KEEP TREES, INCLUDING ROOTBALLS, COOL AND MOIST UNTIL PLANTED.

18. PLANT TREES SUCH THAT FIRST FLARE ROOT IS 1" TO 2" ABOVE SURROUNDING GRADE.

19. REMOVE FROM SITE ALL DEBRIS ASSOCIATED WITH INSTALLATION ACTIVITIES. CLEAN SIDEWALKS, ROADS, ADJACENT LAWN AREAS AS NECESSARY TO KEEP THE SITE CLEAN AT ALL TIMES.

CONTRACTOR REQUIREMENTS:

20. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO CONFIRM ALL MATERIAL QUANTITIES. IN THE EVENT OF A DISCREPANCY, THE QUANTITIES SHOWN ON THE PLAN SHALL TAKE PRECEDENCE OVER THE MATERIAL SCHEDULE.

21. THE LANDSCAPE CONTRACTOR IS TO VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN, REPAIR ANY DAMAGE ACCORDING TO LOCAL STANDARDS AND AT CONTRACTOR'S EXPENSE. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY.

22. THE LANDSCAPE CONTRACTOR WILL BE RESPONSIBLE FOR STAKING AND LAYOUT OF PLANTINGS ON THIS PROJECT. THE OWNER'S REPRESENTATIVE SHALL BE ADVISED WHEN STAKES ARE READY FOR INSPECTION ON VARIOUS PLANTING AREAS. ALL LAYOUT WORK SHALL BE INSPECTED AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO OPENING ANY PLANT PITS.

23. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO VERIFY THAT EACH EXCAVATED TREE OR SHRUB PIT WILL PERCOLATE (DRAIN) PRIOR TO ADDING TOPSOIL AND INSTALLING TREES OR SHRUBS. THE CONTRACTOR SHALL FILL THE BOTTOM OF SELECTED HOLES WITH SIX INCHES OF WATER. THIS WATER SHOULD PERCOLATE OUT WITHIN A 24-HOUR PERIOD. THE OWNER'S REPRESENTATIVE SHALL VERIFY ACCURACY AND EFFECT OF PERCOLATION TESTING. IF THE SOIL AT A GIVEN AREA DOES NOT DRAIN PROPERLY, A PVC DRAIN OR GRAVEL SUMP SHALL BE INSTALLED OR THE PLANTING RELOCATED.

24. SHOULD THE LANDSCAPE CONTRACTOR ENCOUNTER UNSATISFACTORY SURFACE OR OTHER SUBSURFACE DRAINAGE CONDITIONS, SOIL DEPTH, LATENT SOILS, HARD PAN, STEAM OF OTHER UTILITY LINES OR OTHER CONDITIONS THAT WILL JEOPARDIZE THE HEALTH AND VIGOR OF THE PLANTS, HE MUST ADVISE THE LANDSCAPE ARCHITECT IN WRITING OF THE CONDITIONS PRIOR TO INSTALLING THE PLANTS. OTHERWISE THE LANDSCAPE CONTRACTOR WARRANTS THAT THE PLANTING AREAS ARE SUITABLE PROPER GROWTH AND DEVELOPMENT OF THE PLANTS TO BE INSTALLED.

25. LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT WHEN THE PLANT MATERIALS ARE AVAILABLE AT THE JOB SITE FOR REVIEW BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION

26. SEED DISTURBED LAWN AREAS AND AREA AROUND TREE PLANTING NOT COVERED WITH WOOD MULCH. SEED BY IMPORTING TOPSOIL TO FILL DEPRESSIONS, RAKE LEVEL, OVERSEED AND RAKE-IN MULCH.

MAINTENANCE AND WARRANTY:

27. TREES STAKES TO REMAIN IN-PLACE FOR 2 FULL GROWING SEASONS. CONTRACTOR TO REMOVE STAKES AT END OF SECOND SEASON AND BEFORE WINTER.

28. MAINTAIN AND WARRANTY TREES FOR 1-YEAR. MAINTAIN BY REGULAR WATERING, WEED CONTROL, STRAIGHTENING OF TREES AND STAKES, TIGHTENING OF TREE TIES, PRUNING, PEST/RODENT/DEER CONTROL, AND AS ADDITIONALLY REQUIRED.

29. TREES THAT DIE (HAVE LESS THAN 50% CANOPY) DURING THE WARRANTY PERIOD TO BE REMOVED IMMEDIATELY. REPLACEMENT TREES TO BE PLANTED DURING SPRING OR FALL PLANTING PERIODS AND MAINTAINED AND WARRANTED FOR 1 ADDITIONAL YEAR FROM DATE OF REPLACEMENT PLANTING.

30. IF WATERING OPTIONS ARE NOT AVAILABLE ON SITE, LANDSCAPE CONTRACTOR TO INSTALL 20-GALLON WATERING BAG FOR 2-YEAR WARRANTY PERIOD AND WATER TREES USING WATERING BAG. REMOVE WATERING BAGS BEFORE WINTER AND REPLACE WITH PVC TREE TRUNK PROTECTION. RE-INSTALL WATERING BAG THE FOLLOWING SPRING IF APPLICABLE TO COMPLETE THE WARRANTY REQUIREMENT. REMOVE WATERING BAGS UPON COMPLETION OF TREE WARRANTY.



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Landscape Architect under the laws of the State of Iowa.

NAME
License No. XXXXX

MM-DD-YY
Date

SILVERSTAR CARWASH
6300 HICKMAN RD
WINDSOR HEIGHTS, IOWA

LANDSCAPE NOTES & DETAILS

HOUSTON
engineering, inc.

Drawn By
JJJ

Checked By
JJJ

Date
7/24/2023

Scale
As Shown

Project No.
10904-0017

Sheet
C8.1

Page 46 of 75



Real People. Real Solutions.

430 E Grand Avenue
Suite 101
Des Moines, IA 50309

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

STAFF REPORT

Date: September 6, 2023
To: Windsor Heights Planning and Zoning Commission
From: Trey Rouse
Subject: Site Plan: 6300 Hickman Road (Silverstar Car Wash)

General Information

Applicant: Stan Hanson
3900 W Technology Circle, Suite 8
Sioux Falls, SD 58106
Property Owner: Midwest Fidelity Partners - Dan Nelson
1610 S Minnesota Avenue
Sioux Falls, SD 57105
Proposed Use: Car Wash
Zoning: CC (Community Commercial District)
Location: 6300 Hickman Road

Summary

The applicant, Stan Hanson, on behalf of Dan Nelson, is requesting a site plan for the 2.07-acre lot. The site plan for the project shows the construction of a 1,199 sq.ft building with 51 parking spaces being provided. There are no existing structures or buildings on the site and no demolition is required. The submitted application materials are attached to this report.

Existing Conditions

The 2.07-acre parcel is in the CC – Community Commercial zoning district. The parcel is currently not in any form of use.

Background

November 14, 2022: Initial pre-application meeting.
January 20, 2023: Completeness review.
January 20, 2023: 1st submittal of documents for site plan.
March 24, 2023: 2nd submittal with revised documents for site plan.
July 24, 2023: 3rd submittal with revised documents for site plan.
August 21, 2023: 4th Submittal with revised documents for site plan.

Adjacent Land Use

Direction	Zoning	Use
North	N/A (Outside of Windsor Heights Limits)	N/A
South	Community Commercial (CC)/Urban Family Residential (R-3)	Residential
East	N/A (Outside of Windsor Heights Limits)	N/A
West	Community Commercial (CC)	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.”

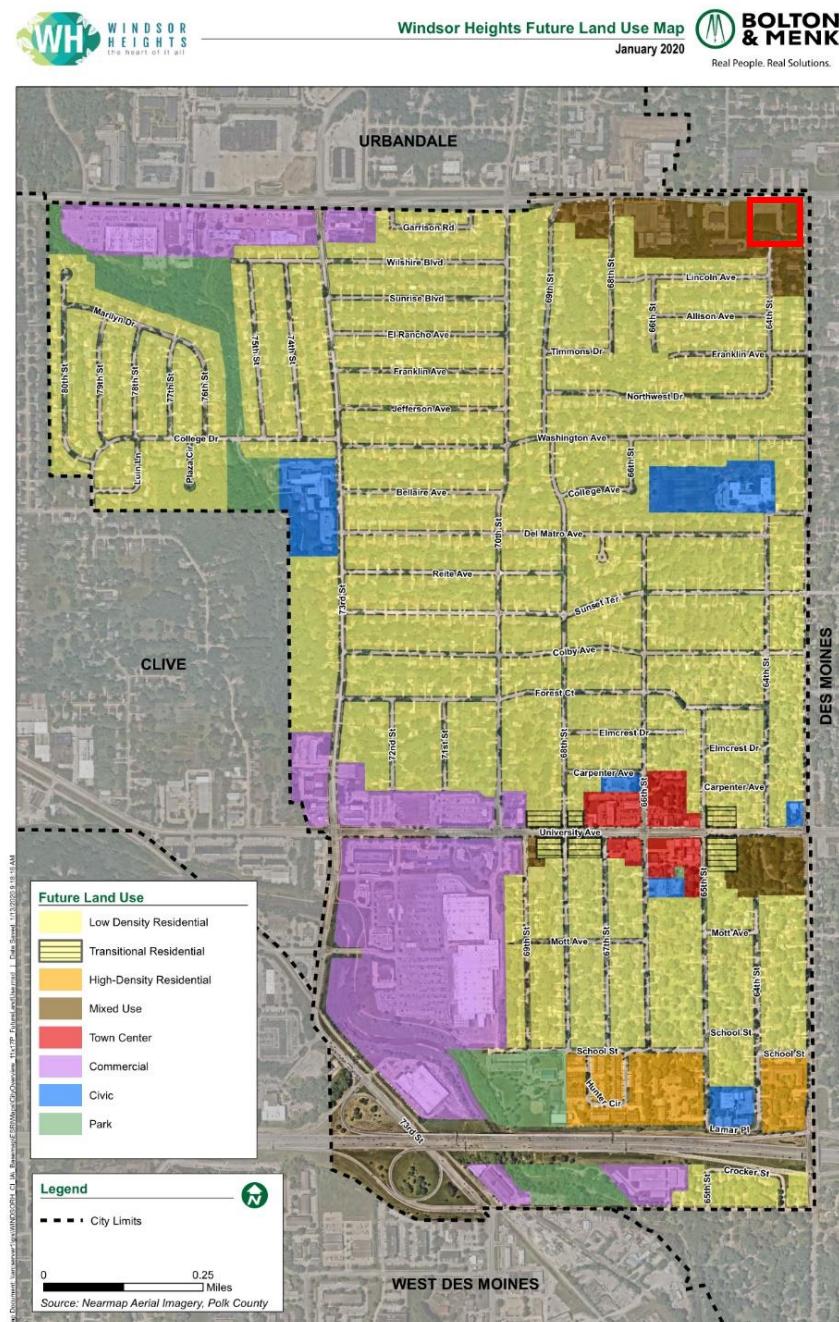


Figure 1: Current Future Land Use Map

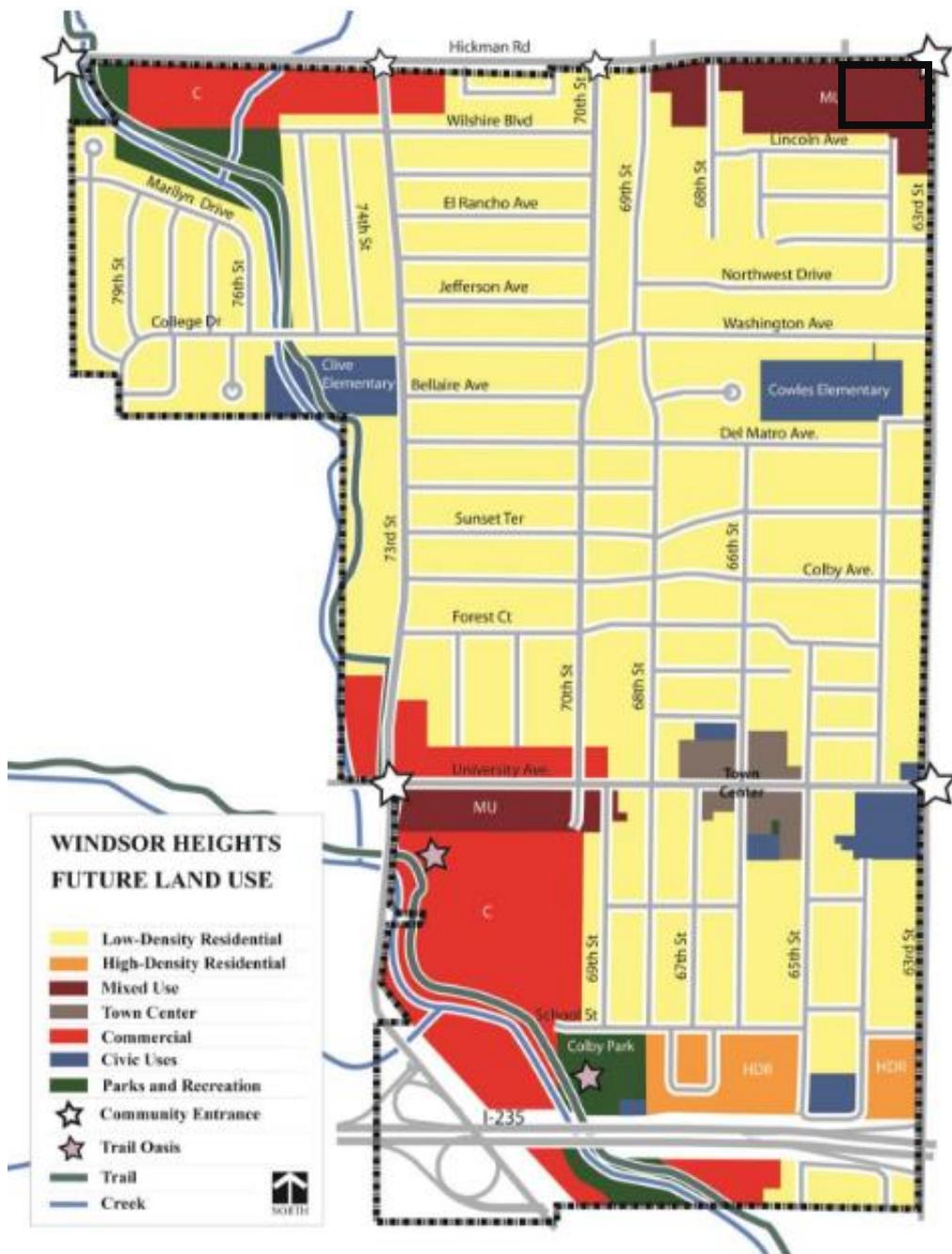


Figure 2: Windsor Heights' 2017 Comprehensive Plan's Future Land Use Map

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.”

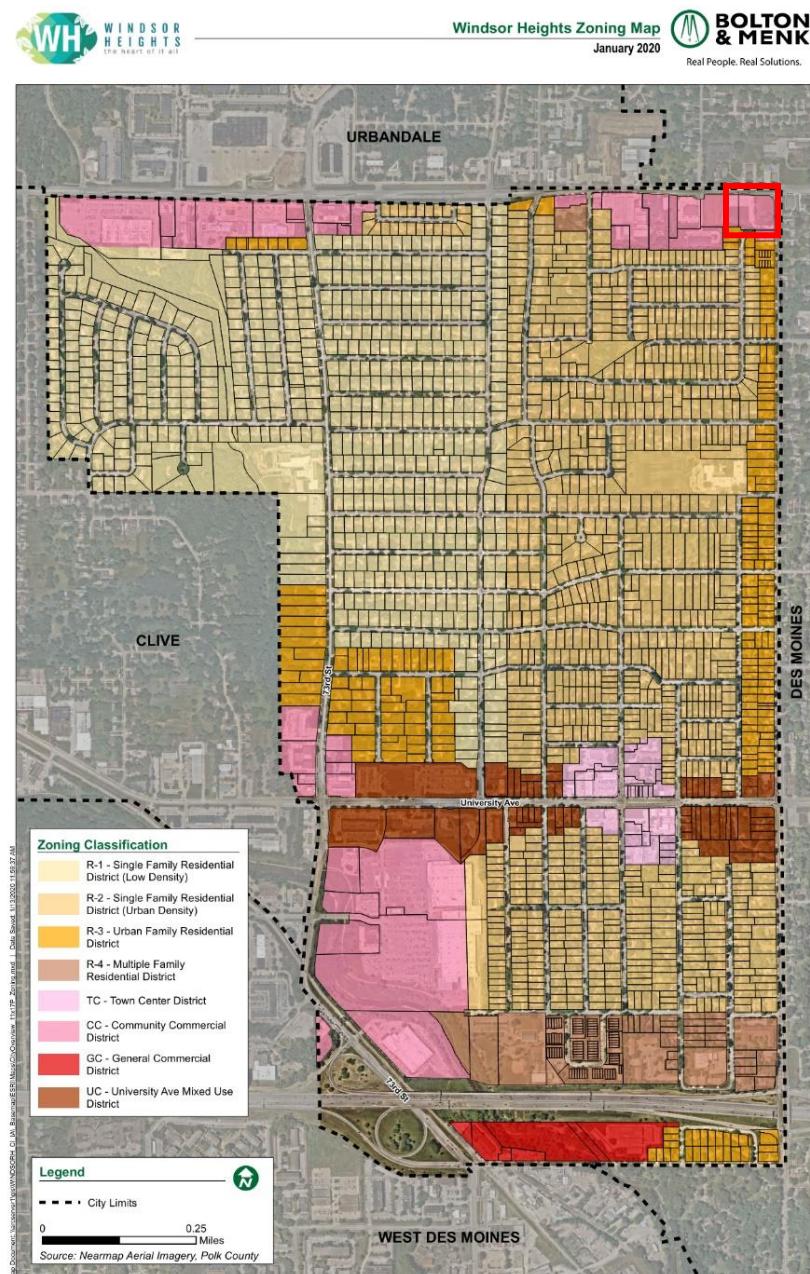


Figure 3: Current Zoning Map

Recommendation

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

Conditions:

1. All of the following conditions will be met, reviewed by the city department assigned, and deemed complete before approval of the site plan and before any development can take place.
 - a. General
 - i. Signature of Engineer and Surveyor on Final Plans.
 - ii. All comments listed below are addressed.
 - iii. Concurrent approval of the Board of Adjustments approved conditional use permit.
 - iv. Approval of signs and utility from Safe Building.
 - v. Approval of streets and access from IDOT.
 - vi. Revision of site plan application in accordance with the comment letter.
 - vii. City Council approval of site plan.
 - b. Engineering Department
 - i. Completion and submission of a Lighting Plan based upon requirements of Chapter 170
 1. Compliance with Dark-Sky Requirements within Lighting Plan
 - c. Fire Department
 - i. Need to include the address numbers on the 202 – Monument Sign per code requirement.
 1. The address can either be placed on the North end of the tunnel OR on the 202-monument sign.
 - ii. Need to place address with street name “6300 Hickman” on the 203 – Service Road Directional Sign located at the entrance off of 63rd Street.
 - d. Des Moines Water Works
 - i. Stubs are not allowed; Each large service will require a Large Tap Application to be submitted to DMWW for review & approval.
 - ii. Existing main 12” DI water main with cathodic protection. Tap location will need to be adjusted if it falls within the location of a sacrificial anode. Replacement of anodes/test stations will be required for any damages caused by construction. See GIS screen shot below for approximate locations.
 - iii. Tapping valve will be connected directly to the existing water main via tapping sleeve.

- iv. Any existing services associated with this property will need to be cut at the main.
- v. Large Tap application attached, to be submitted to DMWW for review & approval.
- vi. No trees planted within 10' of valve or fire hydrant.
- vii. Current standard detail attached.

Attachments

- 1. Application Materials (as submitted)



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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.”

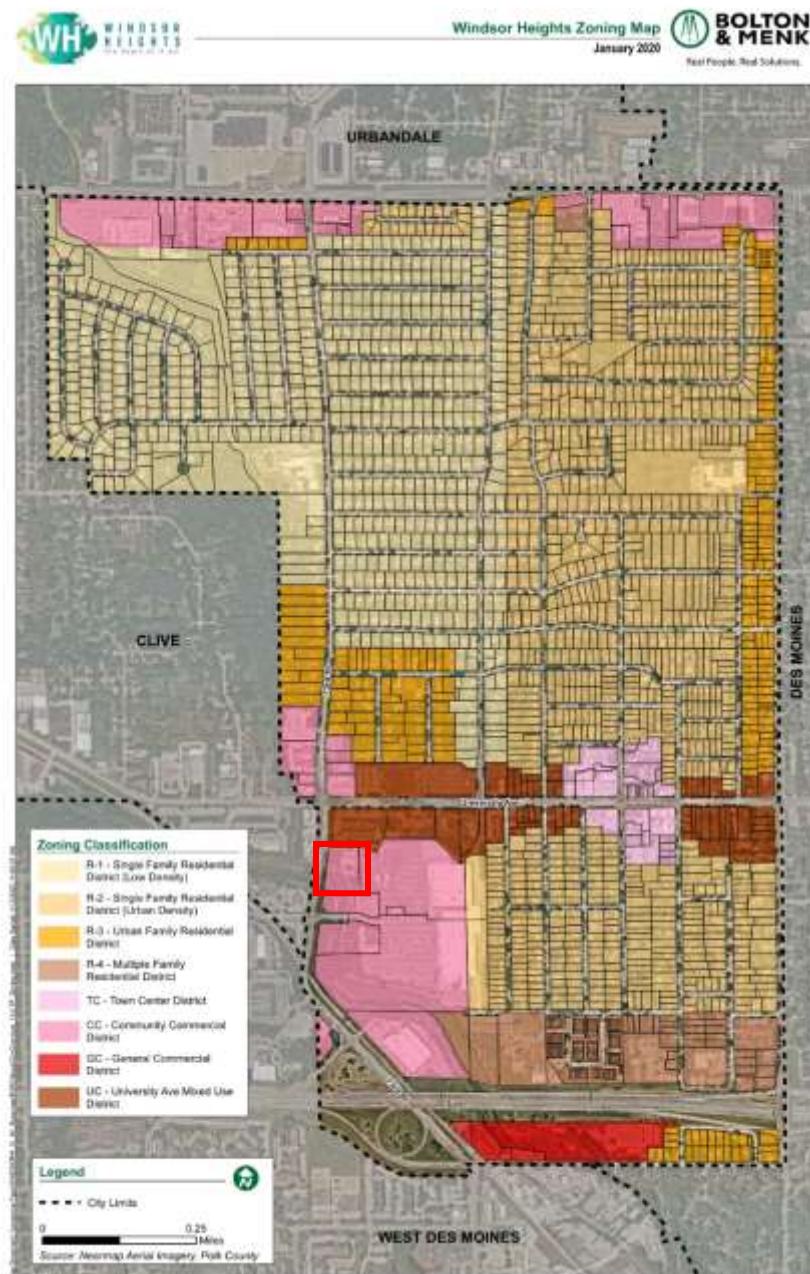


Figure 3: Current Zoning Map

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



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.

PROFESSIONAL LAND SURVEYOR
IOWA
19968

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.

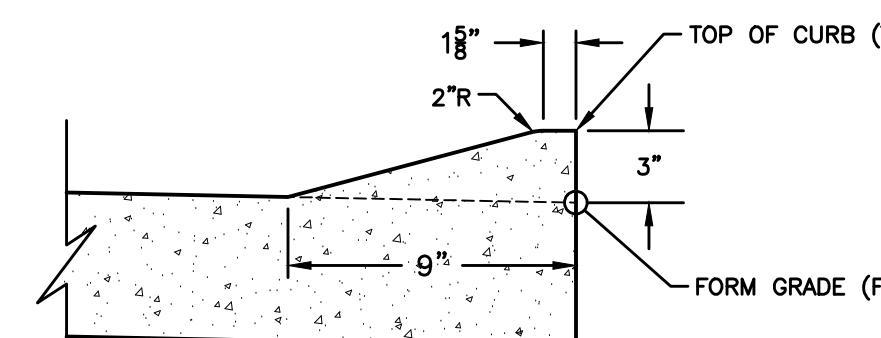
JEFFREY J. NESMK, P.E.

PROFESSIONAL ENGINEER
IOWA
23810

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**

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

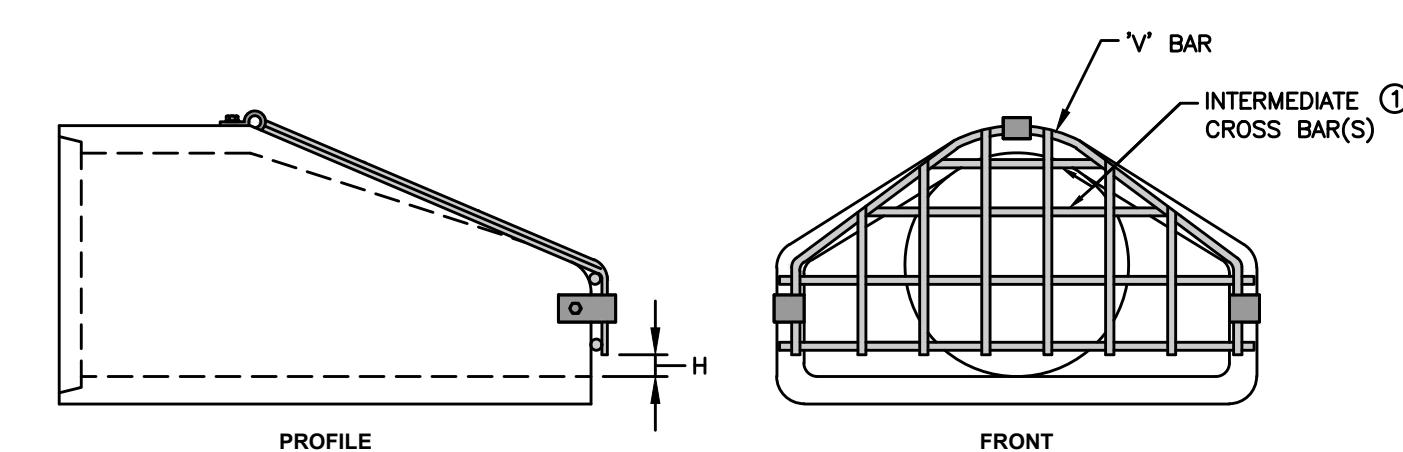
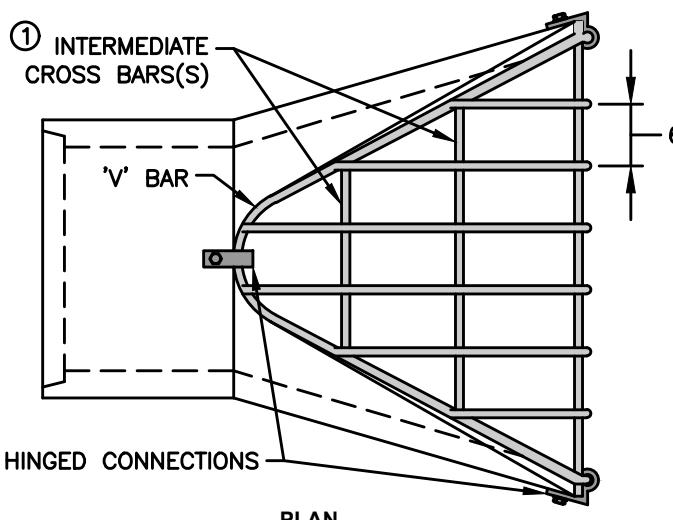


9
INTEGRAL 3" ROLLED CURB
ISPOT ELEVATION REFERENCE

NOT TO SCALE

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

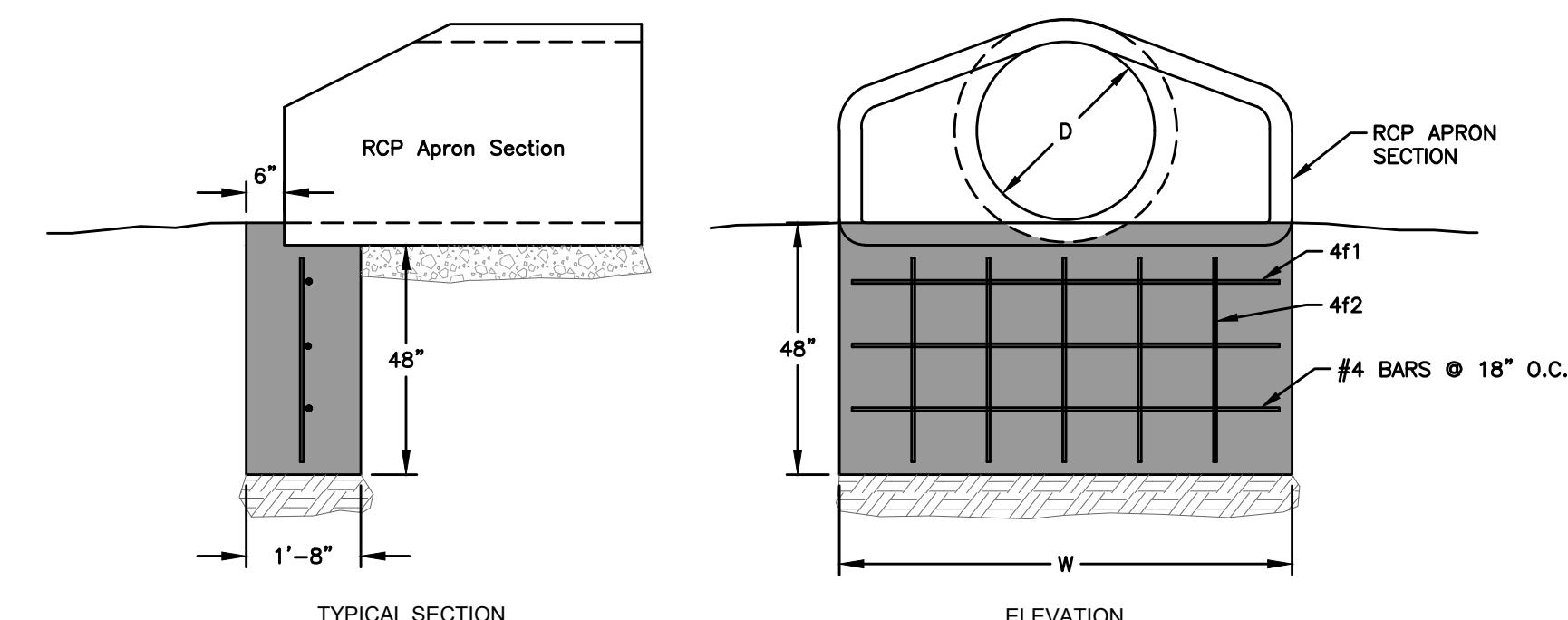
① ALL GUARDS MUST INCLUDE AT LEAST ONE INTERMEDIATE CROSS BAR. IF PIPE DIAMETER, OR EQUIVALENT DIAMETER, IS 60 INCHES OR GREATER, USE TWO INTERMEDIATE CROSS BARS EQUALLY SPACED.



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

BAR SIZES
PIPE SIZE (DIA. IN. & INCH.)
H (INCH.)
BOLT BAR SIZE
ROUND
12"- 24"
27"- 48"
54"- 89"
up to 24" eq
30" to 48"
54" to 72"
up to 24" eq
30" to 48"
54" to 60"

BOLT LENGTH = PIPE WALL THICKNESS + 2"

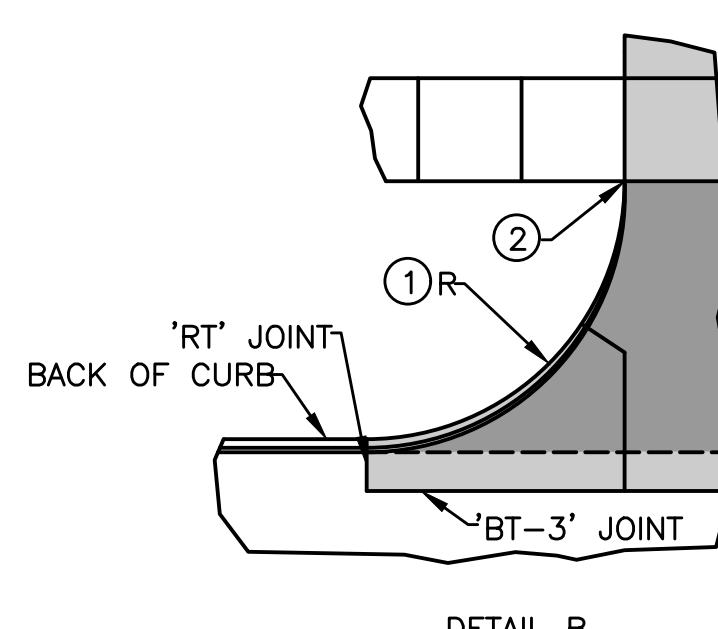


REINFORCING BAR LIST						
D	W	Mark	Size	Length	Count	
12"	2'-4"	4f1	4	2'-0"	3	
		4f2	4	3'-8"	2	
15"	2'-10 1/2"	4f1	4	2'-6 1/2"	3	
		4f2	4	3'-8"	2	
18"	3'-5"	4f1	4	3'-1"	3	
		4f2	4	3'-8"	3	
24"	4'-6"	4f1	4	4'-2"	3	
		4f2	4	3'-8"	3	
30"	5'-7"	4f1	4	5'-3"	3	
		4f2	4	3'-8"	4	
36"	6'-8"	4f1	4	6'-4"	3	
		4f2	4	3'-8"	5	
42"	7'-3"	4f1	4	6'-11"	3	
		4f2	4	3'-8"	5	

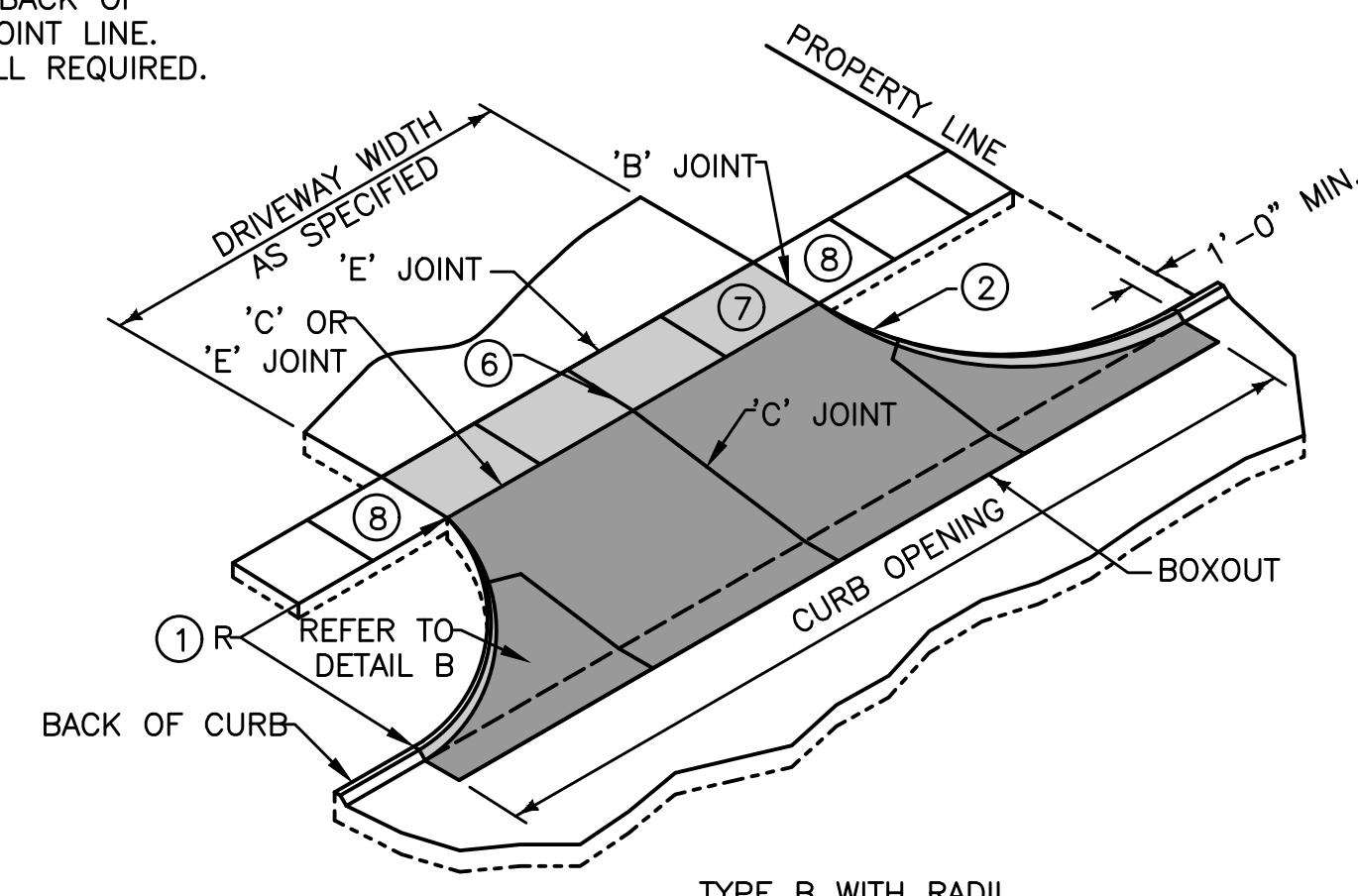
4
RCP APRON SECTION FOOTING

NOT TO SCALE

- ① DRIVEWAY RADIUS (R). RESIDENTIAL: 10 FOOT MINIMUM, 15 FOOT MAXIMUM. COMMERCIAL AND INDUSTRIAL: AS SPECIFIED IN THE CONTRACT DOCUMENTS.
- ② TRANSITION THE CURB HEIGHT TO 0 INCHES AT END OF TAPER/RADIUS OR AT THE FRONT EDGE OF SIDEWALK. DO NOT EXTEND RAISED CURB CROSS SIDEWALK.
- ③ PAVEMENT THICKNESS. RESIDENTIAL: 6 INCHES MINIMUM. COMMERCIAL AND INDUSTRIAL: 7 INCHES MINIMUM.
- ④ SIDEWALK THICKNESS THROUGH DRIVEWAY TO MATCH THICKNESS OF DRIVEWAY.
- ⑤ IF LONGITUDINAL JOINT IS LOCATED 48 INCHES OR LESS FROM THE BACK OF CURB, EXTEND BOXOUT TO JOINT LINE. FULL DEPTH SAW CUT IS STILL REQUIRED.

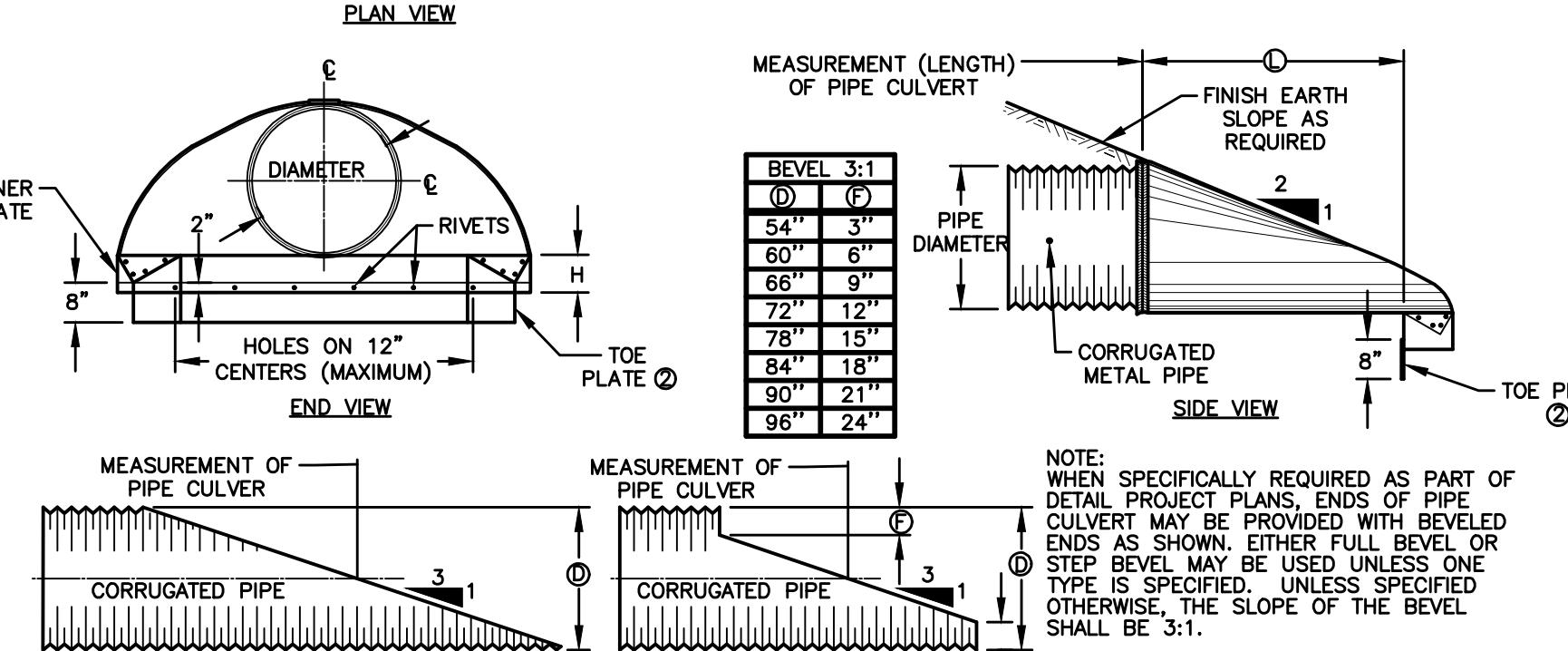
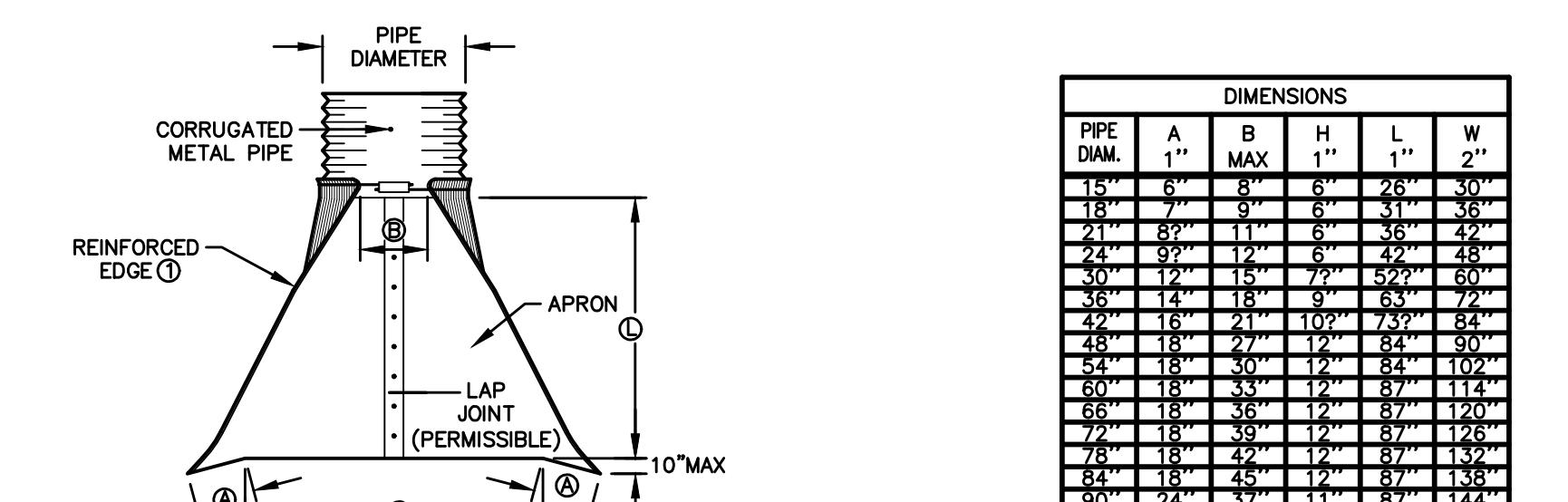


- ⑥ FOR ALLEYS, INVERT THE PAVEMENT CROWN 2% TOWARD THE CENTER OF THE ALLEY.
- ⑦ TARGET CROSS SLOPE OF 1.5% WITH A MAXIMUM CROSS SLOPE OF 2.0%. IF SPECIFIED IN THE CONTRACT DOCUMENTS, CONSTRUCT THE SIDEWALK THROUGH THE DRIVEWAY 5 FEET WIDE TO SERVE AS A PASSING SPACE.
- ⑧ IF CROSS SLOPE OF ADJACENT SIDEWALK PANEL EXCEEDS 2.0%, REMOVE AND REPLACE TO TRANSITION FROM EXISTING SIDEWALK TO SIDEWALK THROUGH DRIVEWAY. IF THE ELEVATION CHANGE REQUIRES A CURB RAMP, COMPLY WITH FIGURE 7030.205; VERIFY NEED FOR DETECTABLE WARNING PANEL WITH ENGINEER.



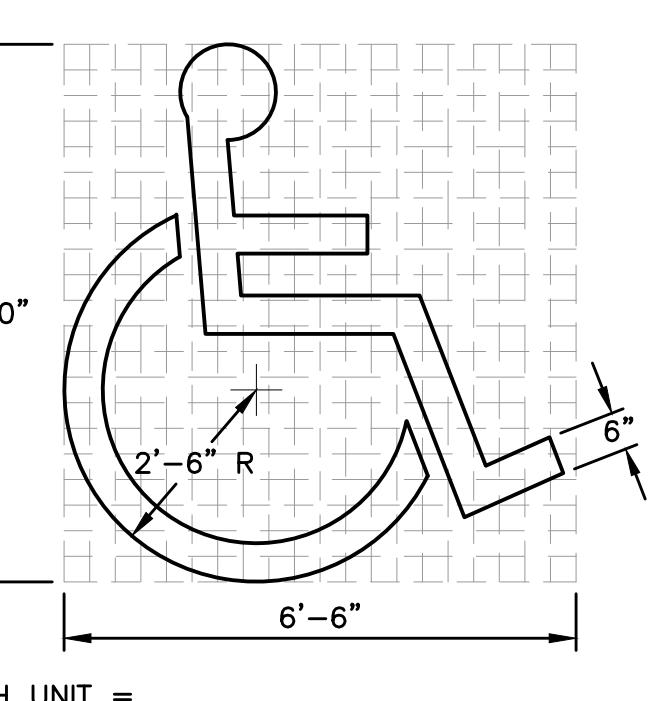
5
CONCRETE DRIVEWAY TYPE B

NOT TO SCALE



1
CORRUGATED METAL PIPE APRON

NOT TO SCALE

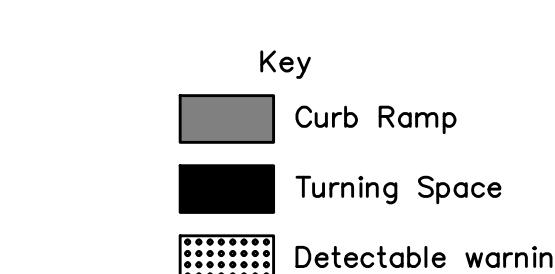
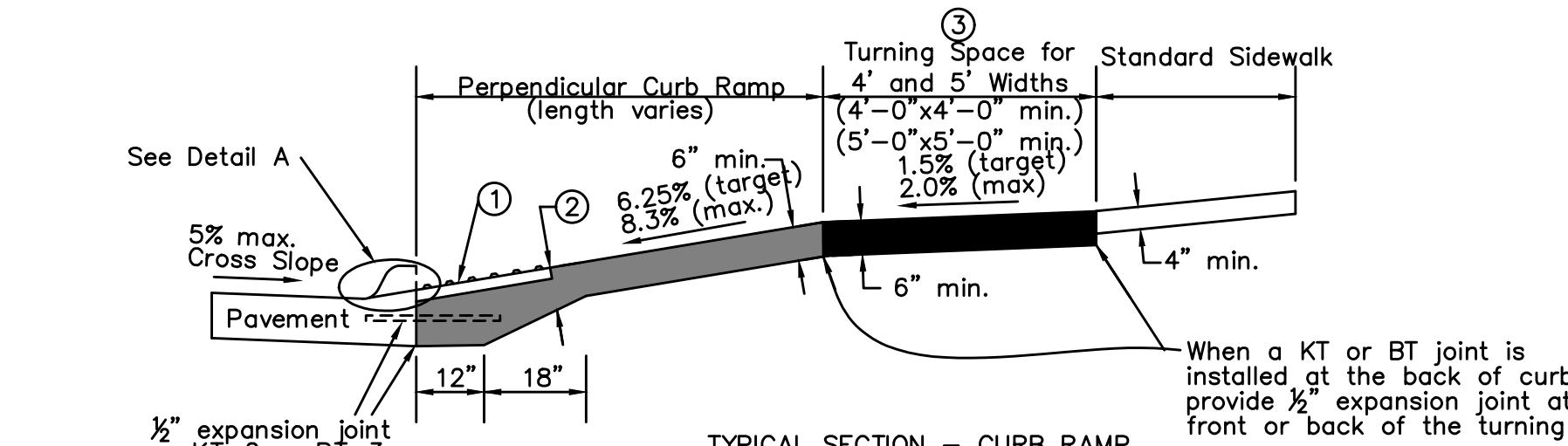


2
ADA SIGNAGE DETAILS

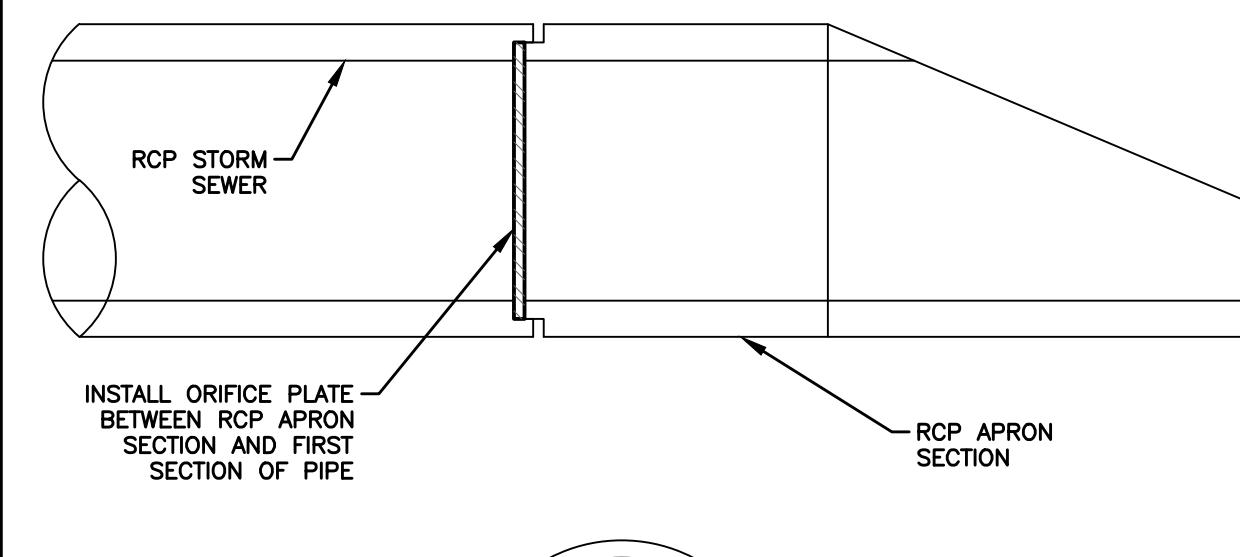
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3
GENERAL SIDEWALK AND CURB RAMP DETAILS

NOT TO SCALE

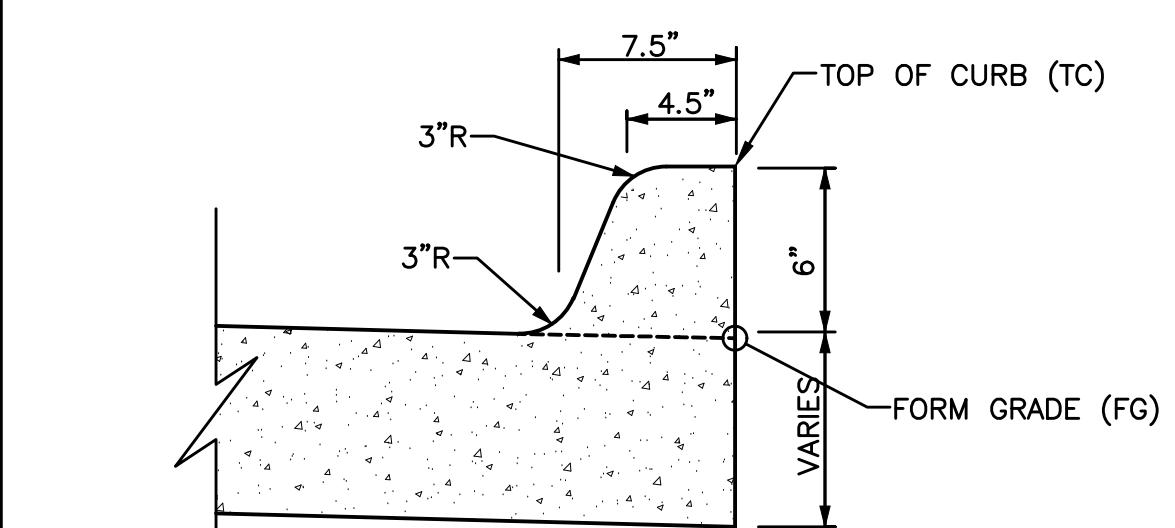


- ① Provide a minimum 2 foot width of detectable warning surfaces in the direction of pedestrian travel across the full width of the curb ramp or turning space, exclusive of curbs or flares.
- ② Provide a minimum of 6 inches of concrete below the detectable warning panel.
- ③ Target slope of 1.5% with maximum slope perpendicular to the travel directions of 2.0%.



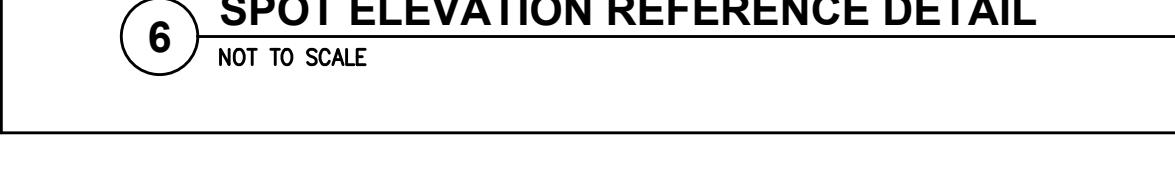
7
ORIFICE PLATE

NOT TO SCALE



6
INTEGRAL 6" STANDARD CURB AND
SPOT ELEVATION REFERENCE DETAIL

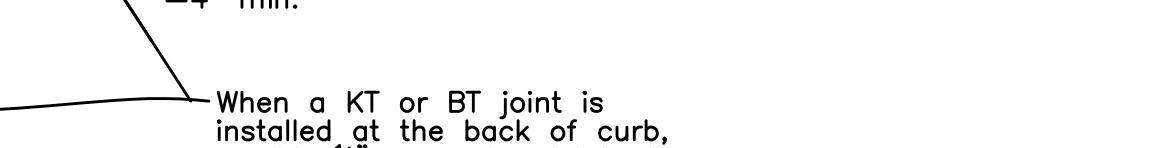
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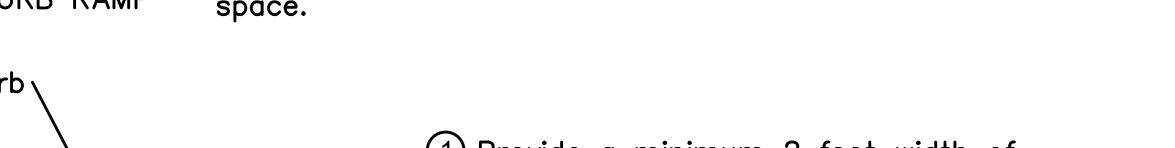
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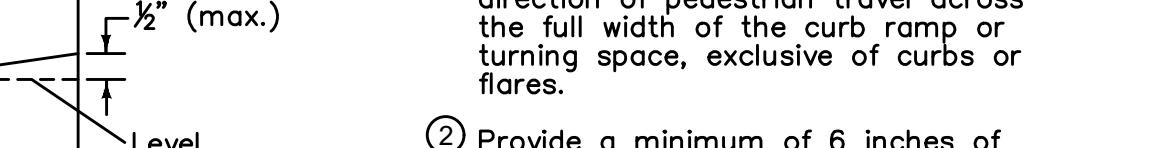
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NOT TO SCALE



NOT TO SCALE



NOT TO SCALE



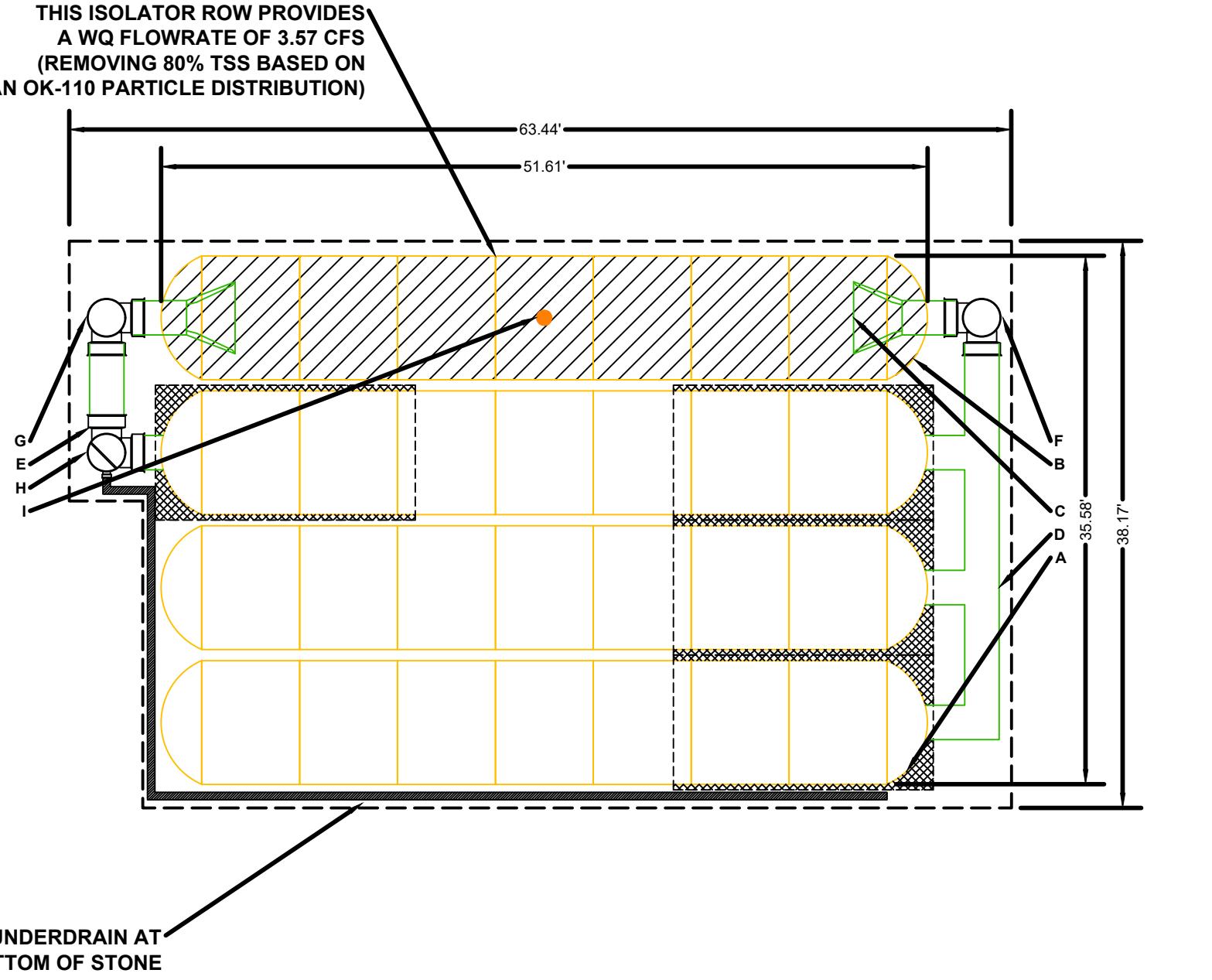
NOT TO SCALE

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	2.26"		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 BEARING CAPACITY. 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 COMPACTION 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.

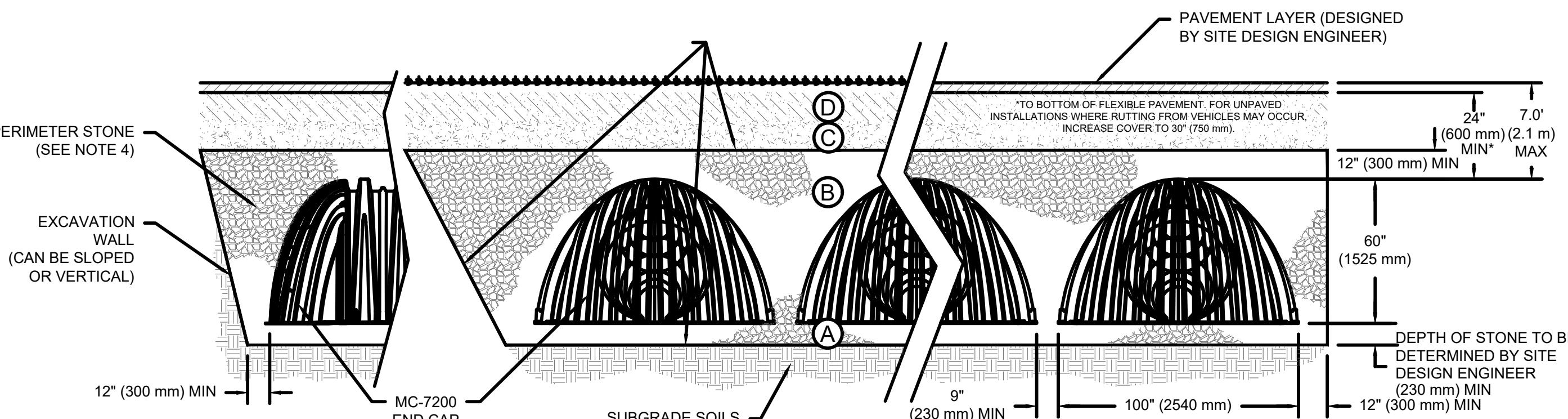
CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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-SHAPE 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

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WINDSOR HEIGHTS, IOWA

CSA

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STORMTECH

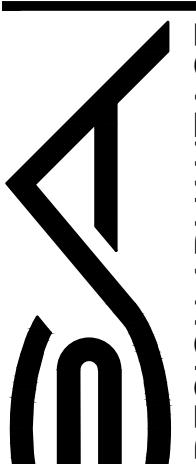
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STORMTECH

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

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

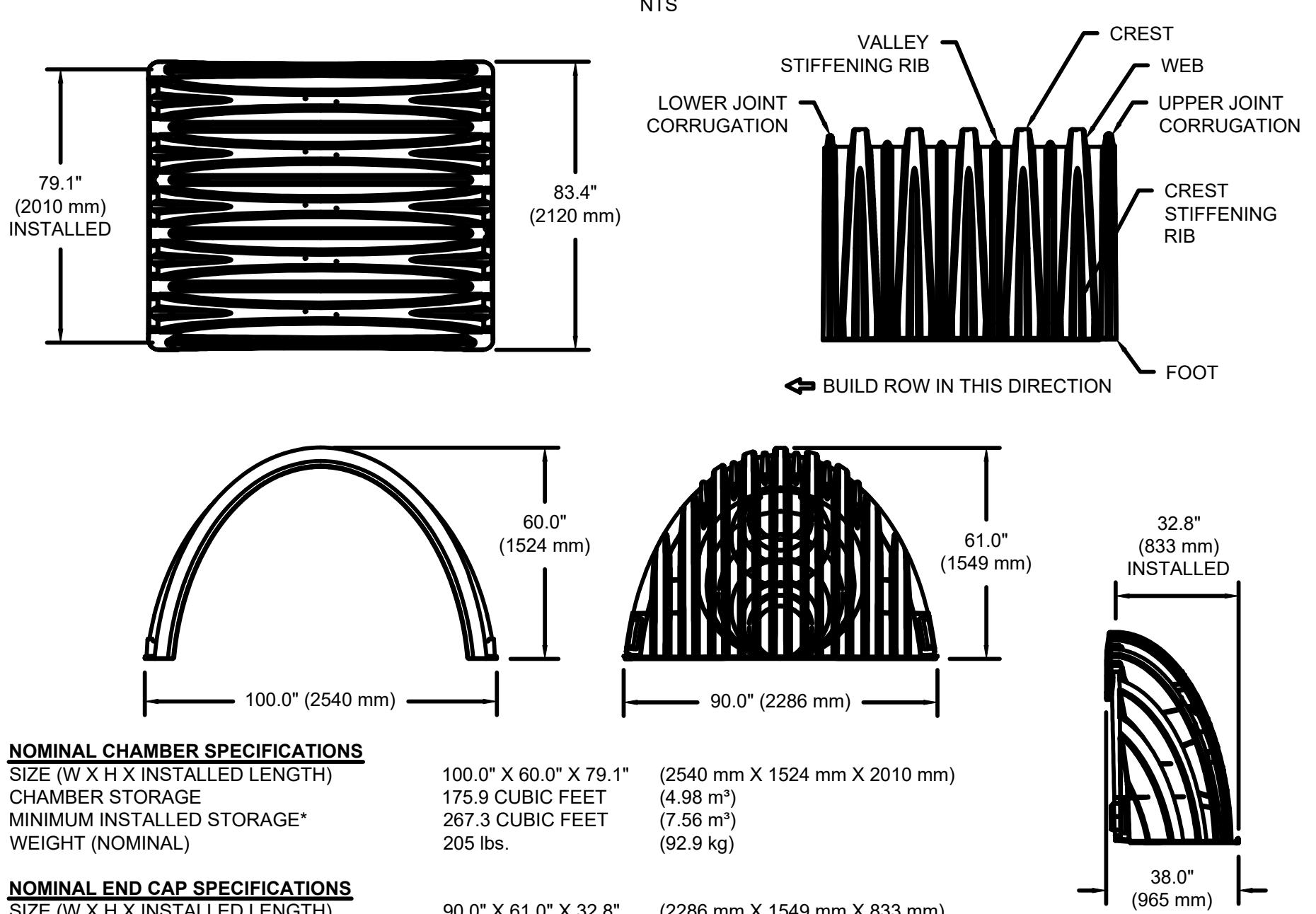


B-BOP'S
DETAILS

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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)

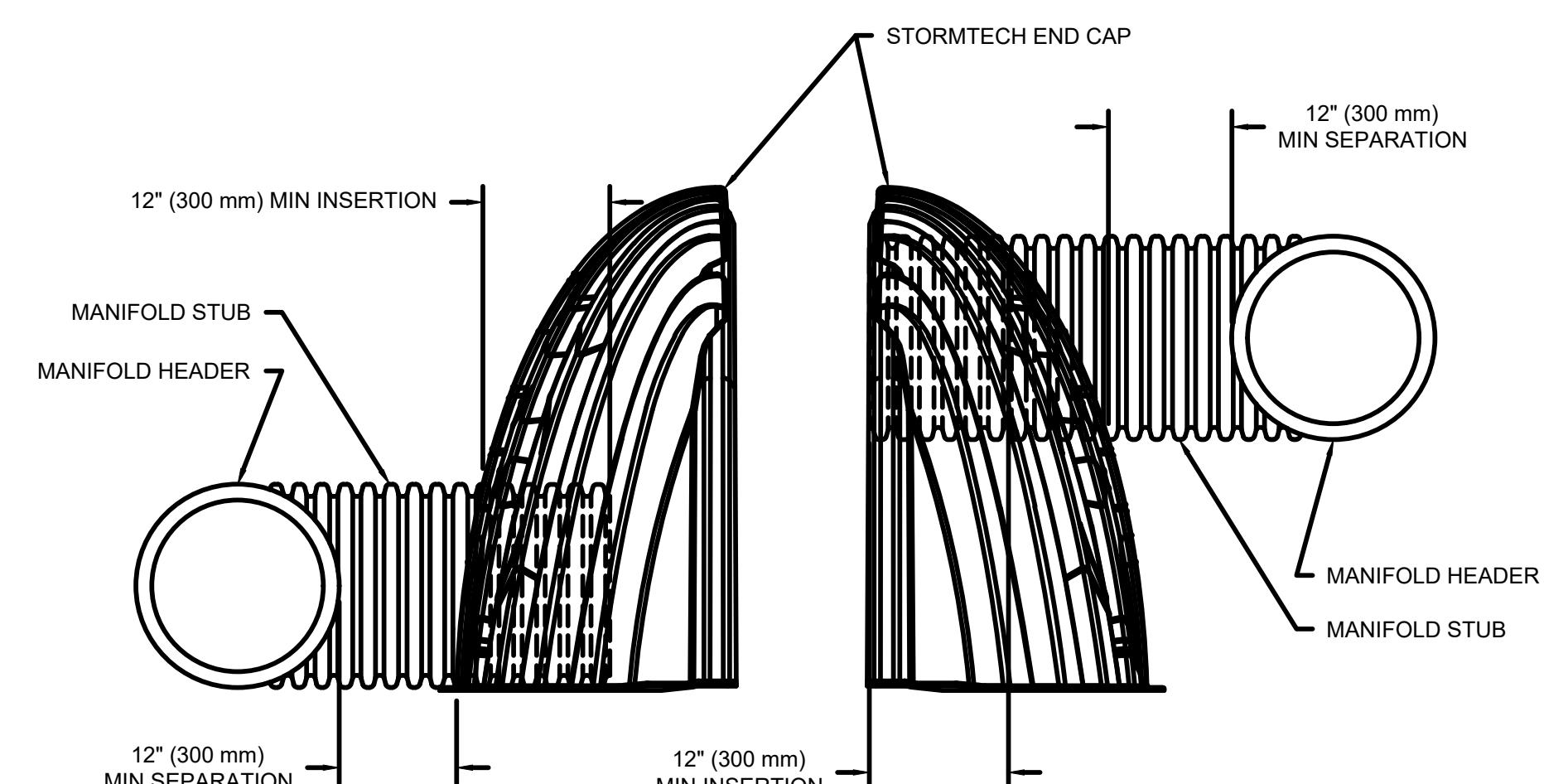
*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

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.

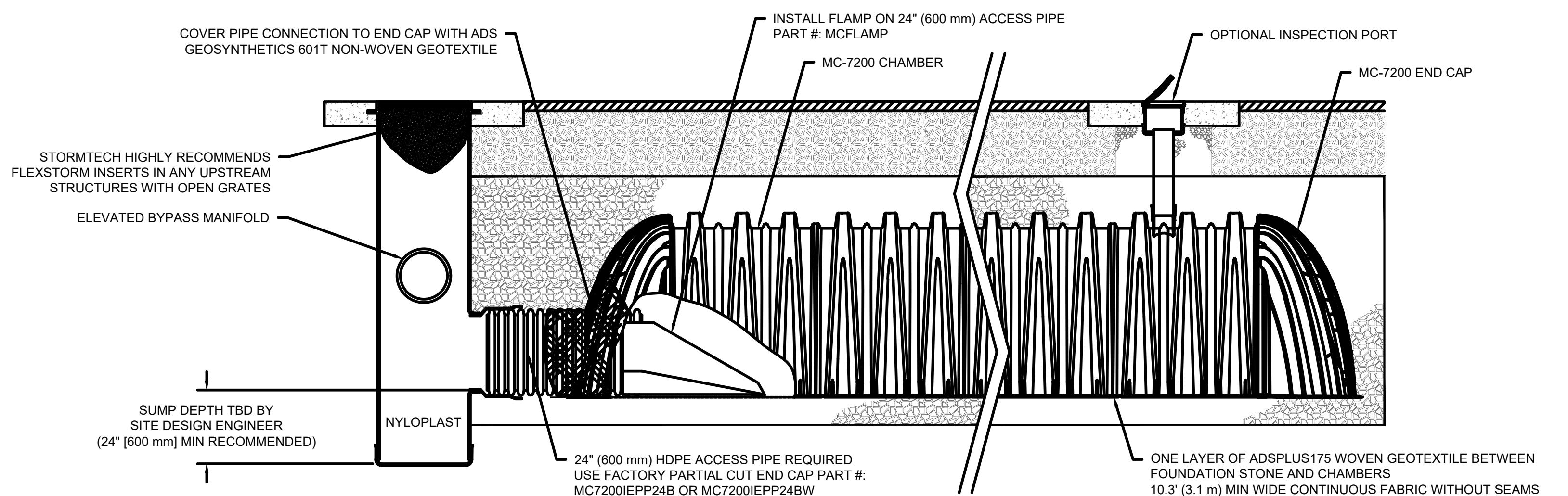
MC-SERIES END CAP INSERTION DETAIL



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

MC-7200 ISOLATOR ROW PLUS DETAIL

NTS



INSPECTION & MAINTENANCE

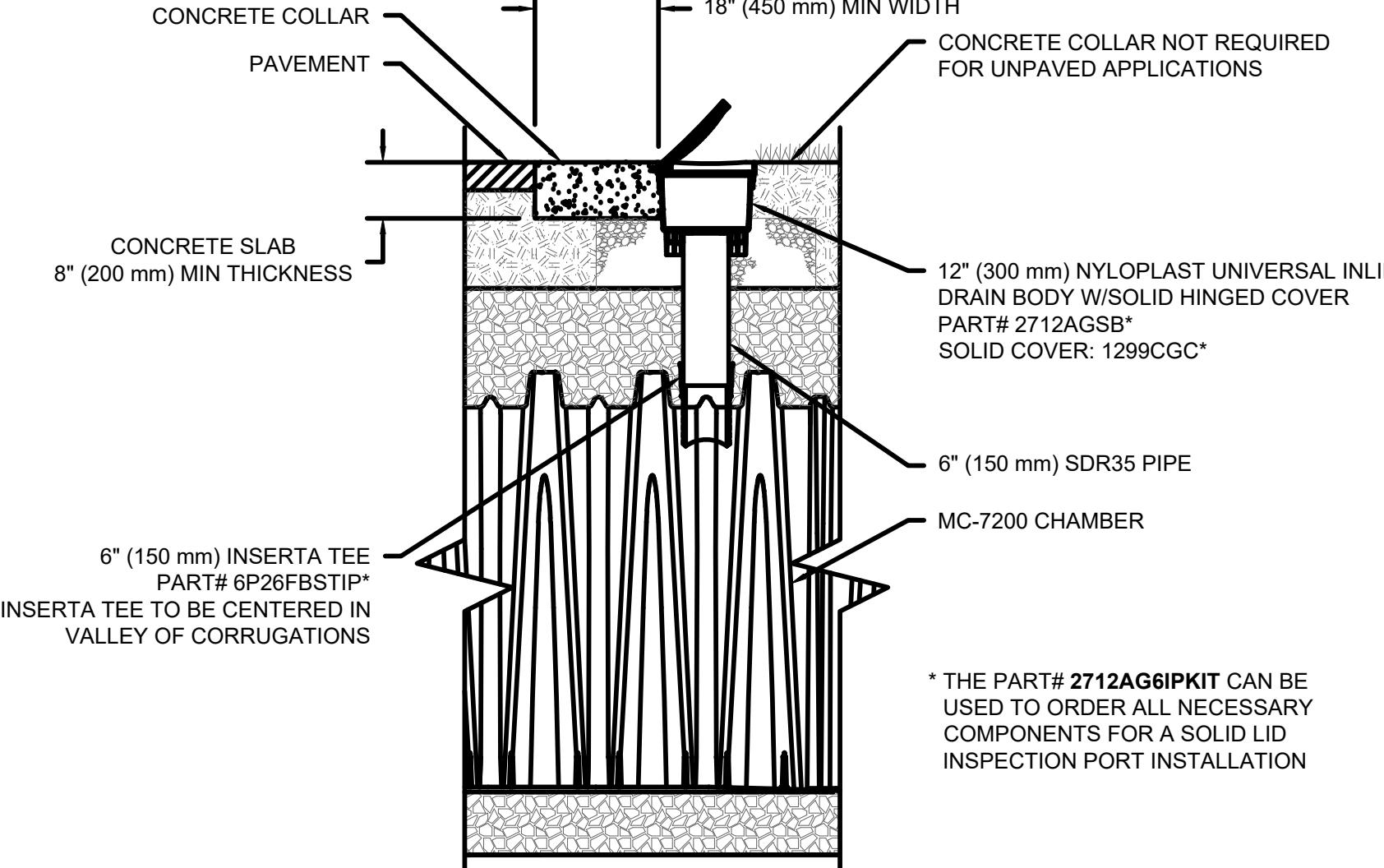
- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
 - A. INSPECTION PORTS (IF PRESENT)
 - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
 - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
 - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
 - A.4. LOWER 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.

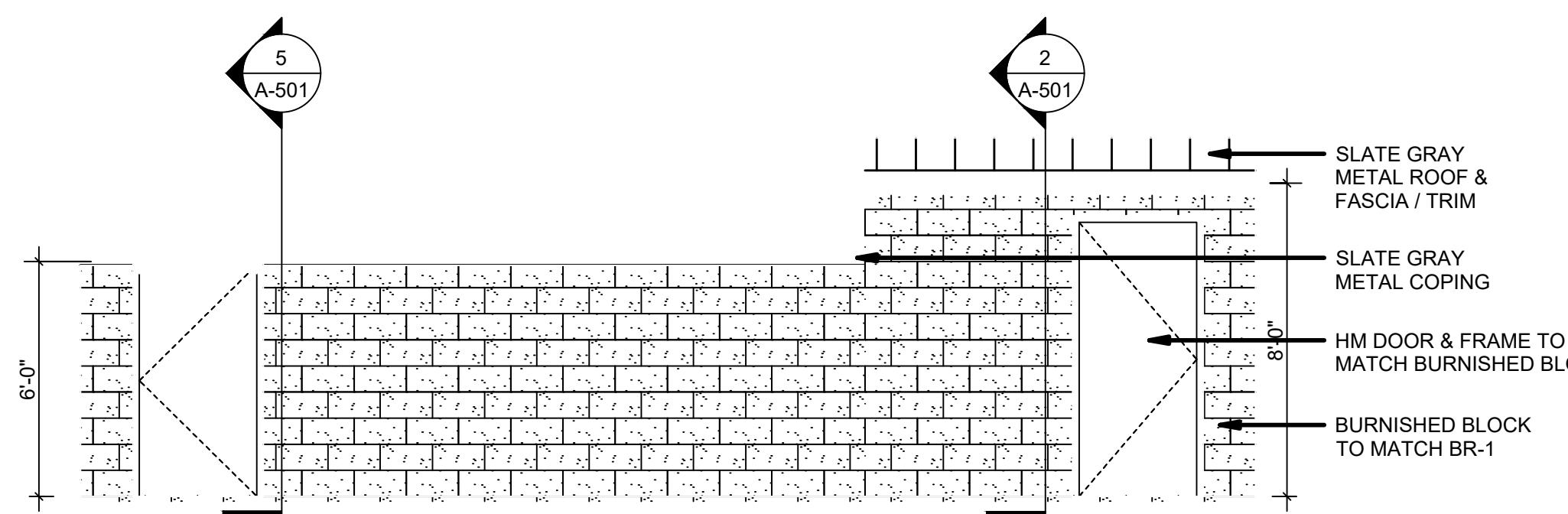
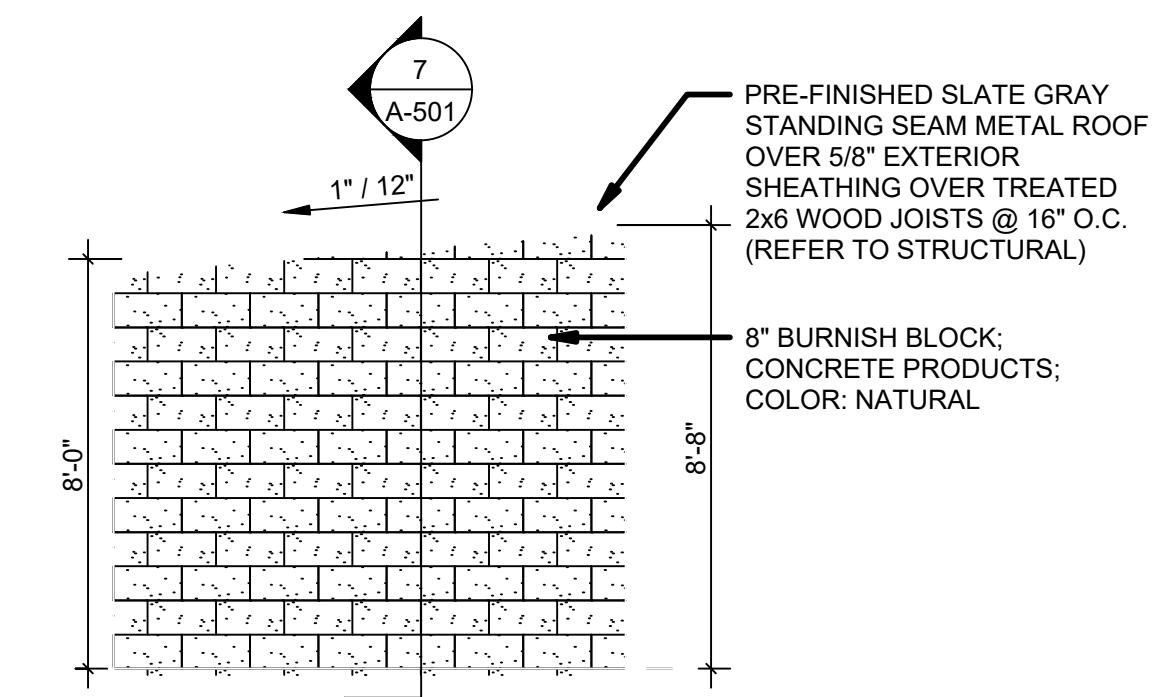
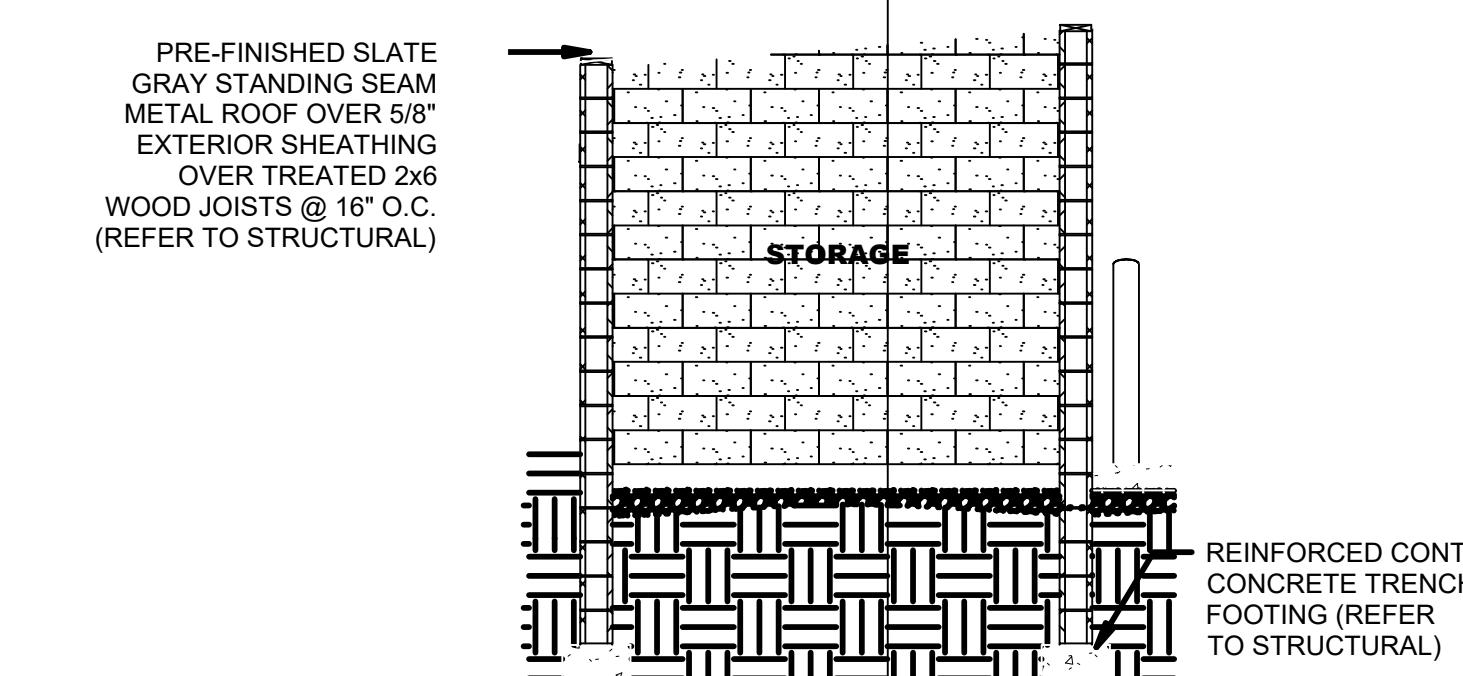
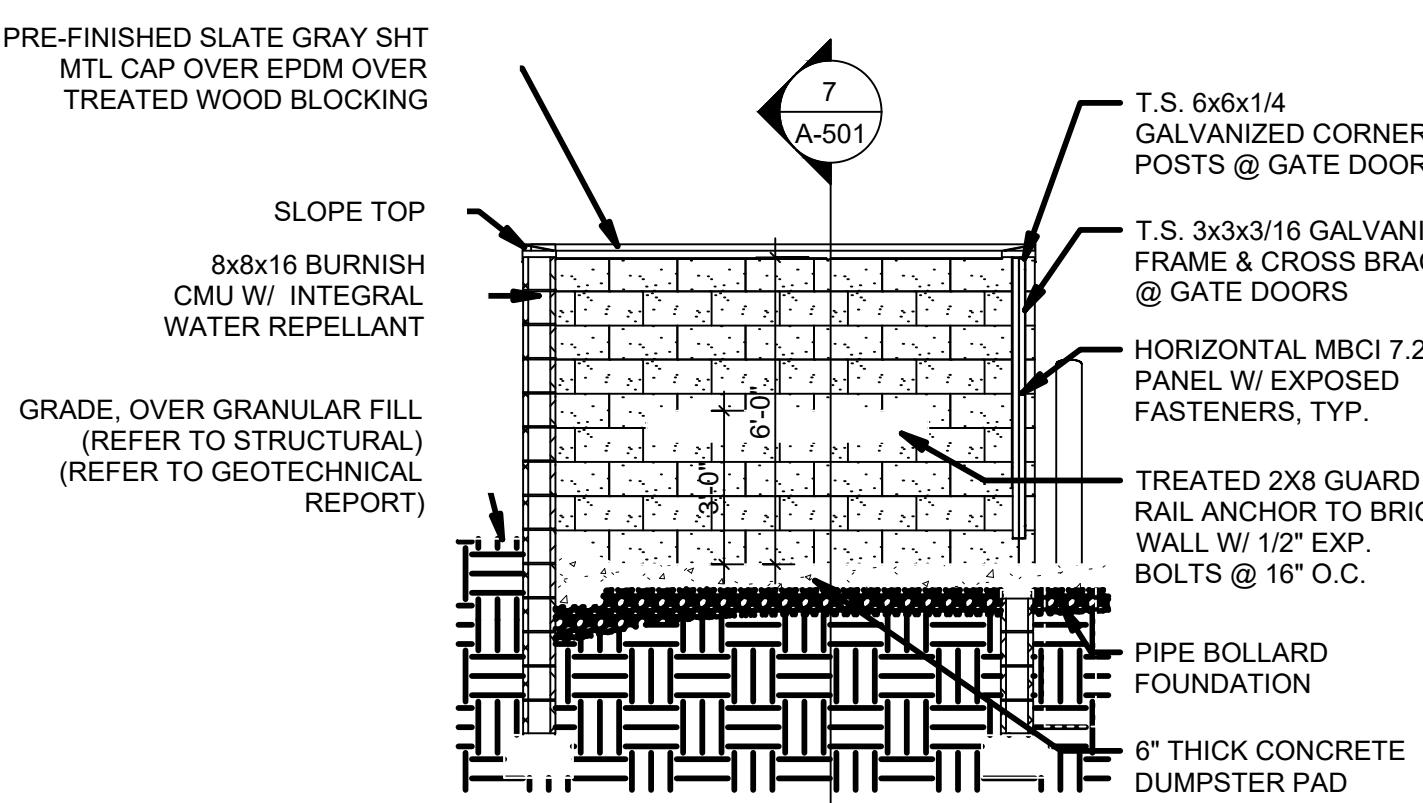
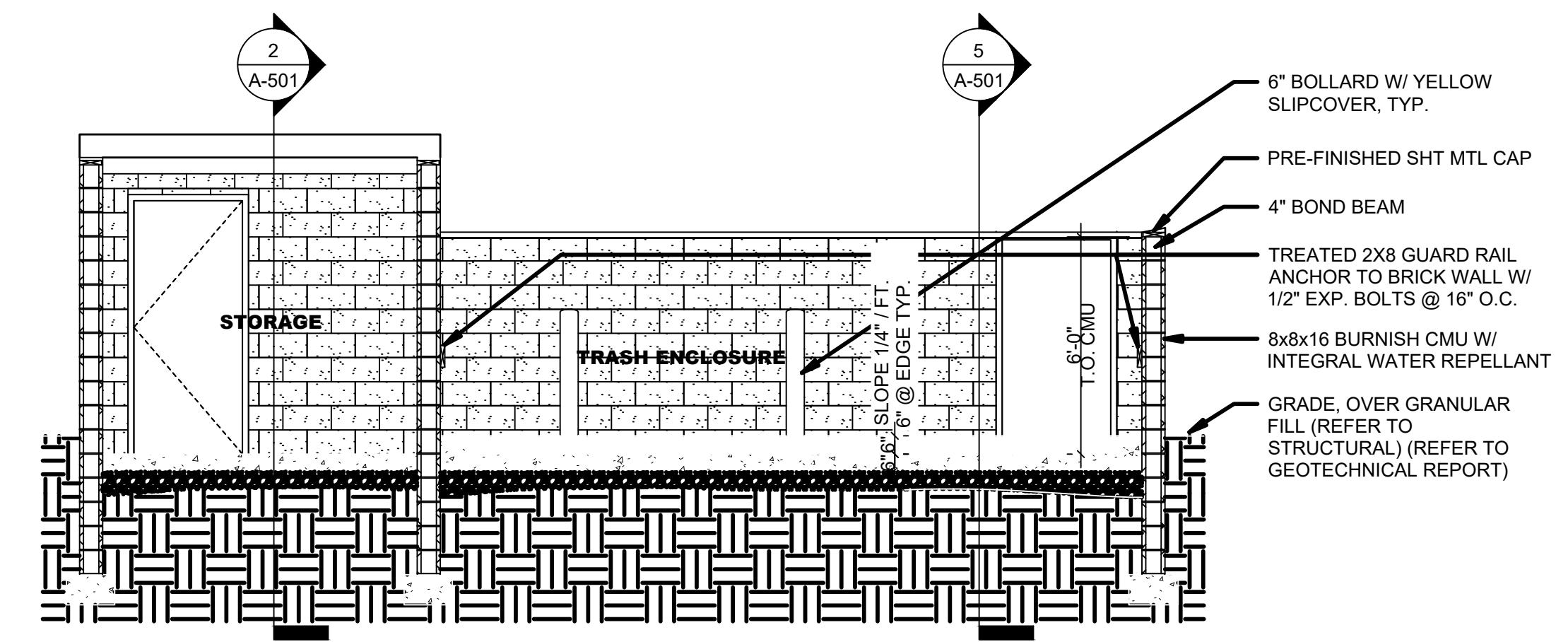
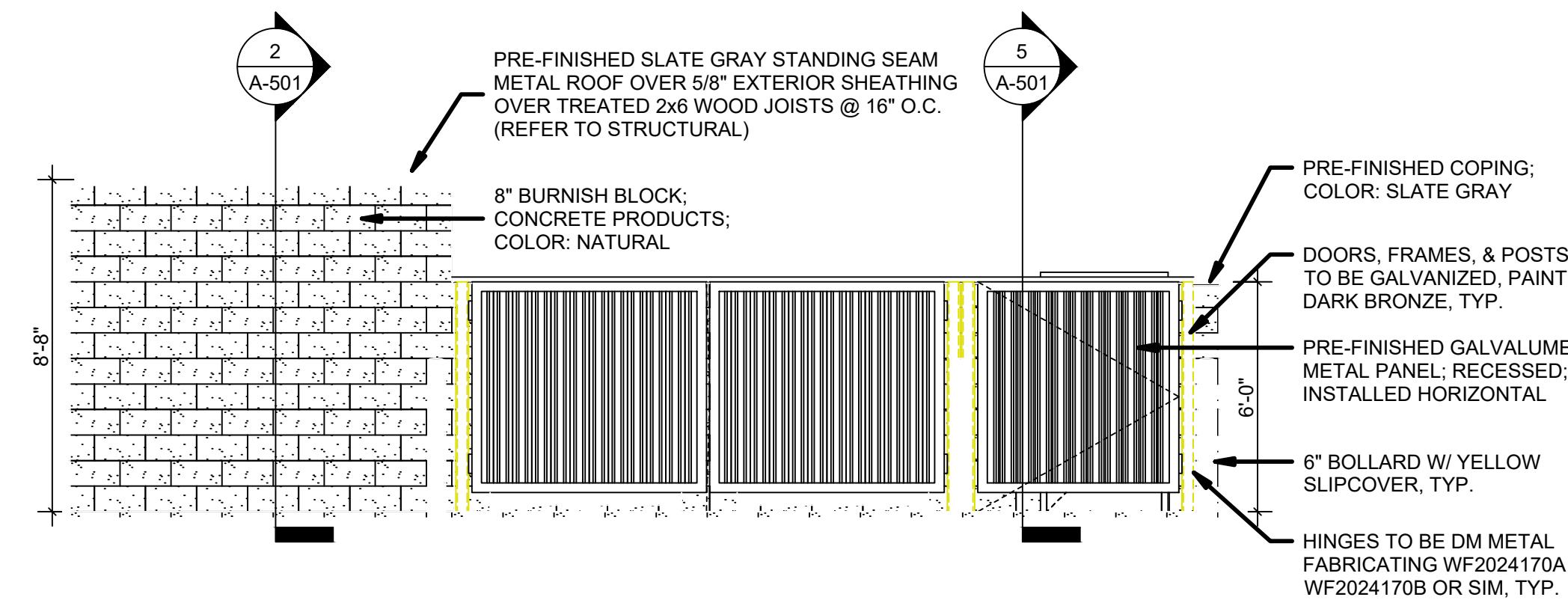
NOTES

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 6" (150 mm) INSPECTION PORT DETAIL

NTS

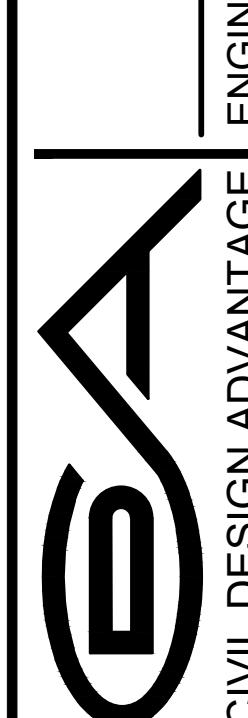




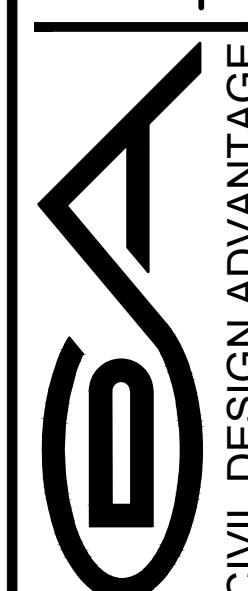
B-BOP'S DETAILS

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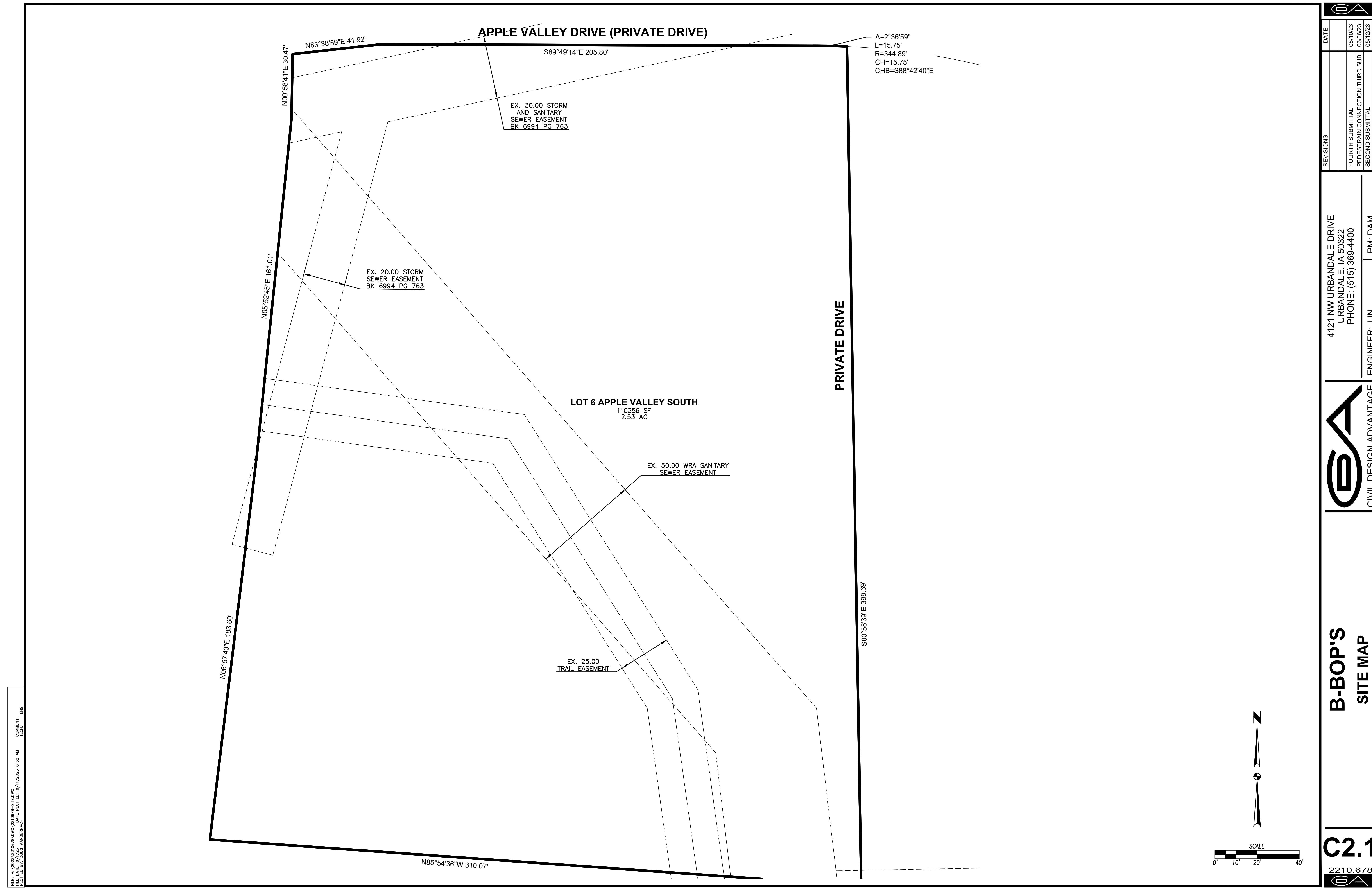
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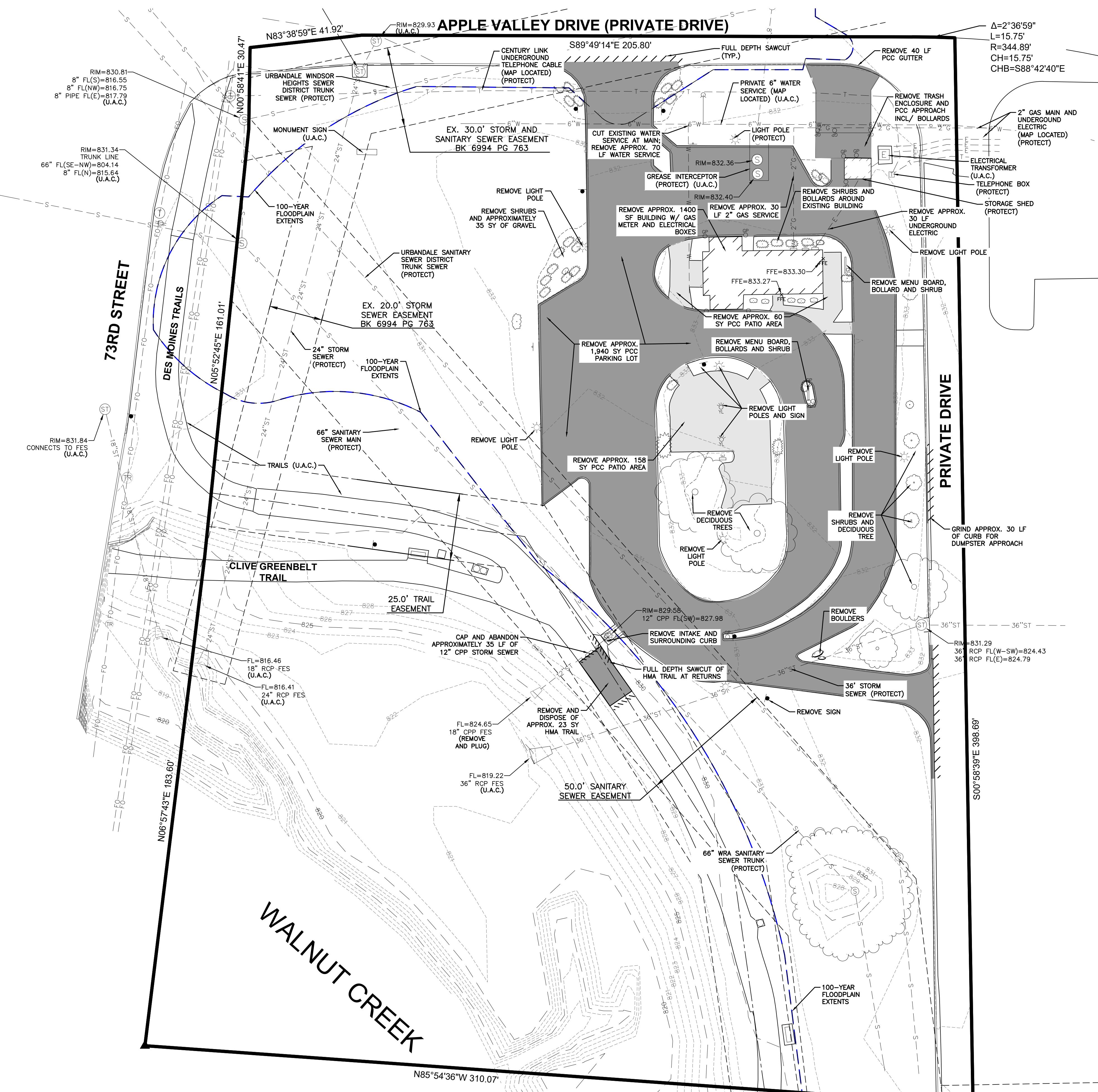


4121 NW URBANDALE DRIVE
URBANDALE, IA 50322
PHONE: (515) 369-4400



CIVIL DESIGN ADVANTAGE
WINDSOR HEIGHTS, IOWA





DEMOLITION NOTES

1. PRIOR TO ANY WORK AT THE SITE, CONTRACTOR SHALL EXAMINE ANY APPLICABLE DRAWINGS AVAILABLE FROM THE OWNER OR ENGINEER AND CONSULT WITH OWNER'S PERSONNEL AND UTILITY COMPANY REPRESENTATIVES. NO COMPENSATION WILL BE ALLOWED FOR DAMAGE FROM FAILURE TO COMPLY WITH THIS REQUIREMENT.
2. PRIOR TO DEMOLITION, CONTRACTOR SHALL NOTIFY IN WRITING (48 HRS NOTICE) THE FOLLOWING:
 - A. CITY
 - B. APPROPRIATE UTILITY COMPANIES
 - C. OWNER
 - D. CIVIL DESIGN ADVANTAGE
 - E. ARCHITECT
3. DO NOT DISTURB EXISTING UTILITIES UNLESS OTHERWISE NOTED. COORDINATE REMOVAL OR ABANDONMENT OF ALL UTILITIES WITH THE APPROPRIATE UTILITY SUPPLIER AND REGULATORY AGENCIES.
4. PROTECT EXISTING UTILITIES THAT ARE TO REMAIN. THE LOCATIONS OF ALL UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM EXISTING RECORDS. THE EXACT LOCATION AND ELEVATION OF ALL UTILITIES MUST BE DETERMINED BY THE CONTRACTOR. IT SHALL BE THE DUTY OF THE CONTRACTOR TO ASCERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLAN MAY BE PRESENT.
5. BACKFILL ALL EXCAVATIONS WITH COHESIVE MATERIAL COMPAKTED TO 95% MAXIMUM STANDARD PROCTOR DRY DENSITY AND MOISTURE RANGE OF OPTIMUM MOISTURE TO 4% ABOVE OPTIMUM MOISTURE. TESTING OF BACKFILL TO BE BY A GEOTECHNICAL ENGINEER EMPLOYED BY THE OWNER. IN THE EVENT OF A TEST FAILURE, ANY RETESTING SHALL BE PAID FOR BY THE CONTRACTOR.
6. FIELD VERIFY EXISTING GRADES AND LOCATION OF EXISTING UTILITIES, CONDUIT, LINES, POLES, TREES, PAVING, BUILDING AND OTHER SITE FEATURES PRIOR TO DEMOLITION AND IMMEDIATELY INFORM THE ENGINEER AND/OR OWNER OF ANY DISCREPANCIES.
7. DEMOLITION NOTES AS SHOWN ON THE PLAN ARE NOT ALL INCLUSIVE. CONTRACTOR TO ABANDON IN PLACE OR REMOVE AND DISPOSE OF ALL EXISTING SITE IMPROVEMENTS ABOVE AND BELOW GROUND TO COMPLY WITH THE GENERAL INTENT OF THIS DOCUMENT.
8. ALL CONSTRUCTION/DEMOLITION DEBRIS SHALL BE DISPOSED OF OFFSITE IN FULL COMPLIANCE WITH CURRENT ENVIRONMENTAL REGULATIONS.
9. CONSTRUCTION LIMITS SHALL BE CONFINED TO THE SITE BOUNDARY AS NOTED. ANY DAMAGE TO PROPERTIES OUTSIDE THE SITE BOUNDARY SHALL BE AT THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. ALL WORK SHALL BE IN ACCORDANCE WITH OSHA STANDARDS. NOTHING INDICATED ON THE DRAWINGS SHALL RELIEVE THE CONTRACTOR FROM COMPLYING WITH ANY APPROPRIATE SAFETY REGULATIONS.

B-BOP'S TOPOGRAPHIC AND DEMOLITION PLAN

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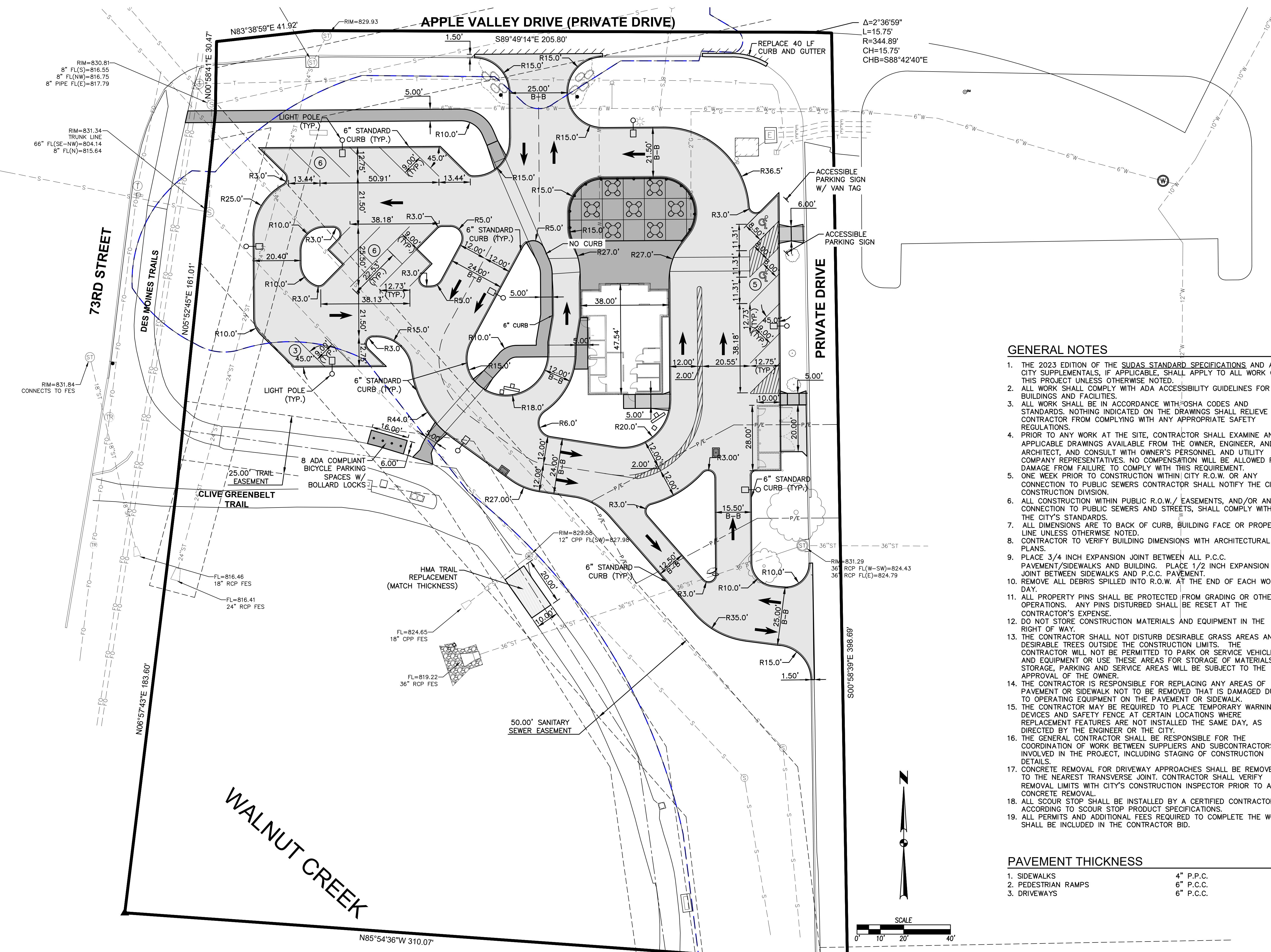
ENGINEER

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GENERAL NOTES

1. THE 2023 EDITION OF THE SUDAS STANDARD SPECIFICATIONS AND ALL CITY SUPPLEMENTS, IF APPLICABLE, SHALL APPLY TO ALL WORK ON THIS PROJECT UNLESS OTHERWISE NOTED.
2. ALL WORK SHALL COMPLY WITH ADA ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES.
3. ALL WORK SHALL BE IN ACCORDANCE WITH ~~OSHA~~ CODES AND STANDARDS. NOTHING INDICATED ON THE DRAWINGS SHALL RELIEVE THE CONTRACTOR FROM COMPLYING WITH ANY APPROPRIATE SAFETY REGULATIONS.
4. PRIOR TO ANY WORK AT THE SITE, CONTRACTOR SHALL EXAMINE ANY APPLICABLE DRAWINGS AVAILABLE FROM THE OWNER, ENGINEER, AND/OR ARCHITECT, AND CONSULT WITH OWNER'S PERSONNEL AND UTILITY COMPANY REPRESENTATIVES. NO COMPENSATION WILL BE ALLOWED FOR DAMAGE FROM FAILURE TO COMPLY WITH THIS REQUIREMENT.
5. ONE WEEK PRIOR TO CONSTRUCTION WITHIN CITY R.O.W. OR ANY CONNECTION TO PUBLIC SEWERS CONTRACTOR SHALL NOTIFY THE CITY'S CONSTRUCTION DIVISION.
6. ALL CONSTRUCTION WITHIN PUBLIC R.O.W./ EASEMENTS, AND/OR ANY CONNECTION TO PUBLIC SEWERS AND STREETS, SHALL COMPLY WITH THE CITY'S STANDARDS.
7. ALL DIMENSIONS ARE TO BACK OF CURB, BUILDING FACE OR PROPERTY LINE UNLESS OTHERWISE NOTED.
8. CONTRACTOR TO VERIFY BUILDING DIMENSIONS WITH ARCHITECTURAL PLANS.
9. PLACE 3/4 INCH EXPANSION JOINT BETWEEN ALL P.C.C. PAVEMENT/SIDEWALKS AND BUILDING. PLACE 1/2 INCH EXPANSION JOINT BETWEEN SIDEWALKS AND P.C.C. PAVEMENT.
10. REMOVE ALL DEBRIS SPILLED INTO R.O.W. AT THE END OF EACH WORK DAY.
11. ALL PROPERTY PINS SHALL BE PROTECTED FROM GRADING OR OTHER OPERATIONS. ANY PINS DISTURBED SHALL BE RESET AT THE CONTRACTOR'S EXPENSE.
12. DO NOT STORE CONSTRUCTION MATERIALS AND EQUIPMENT IN THE RIGHT OF WAY.
13. THE CONTRACTOR SHALL NOT DISTURB DESIRABLE GRASS AREAS AND DESIRABLE TREES OUTSIDE THE CONSTRUCTION LIMITS. THE CONTRACTOR WILL NOT BE PERMITTED TO PARK OR SERVICE VEHICLES AND EQUIPMENT OR USE THESE AREAS FOR STORAGE OF MATERIALS. STORAGE, PARKING AND SERVICE AREAS WILL BE SUBJECT TO THE APPROVAL OF THE OWNER.
14. THE CONTRACTOR IS RESPONSIBLE FOR REPLACING ANY AREAS OF PAVEMENT OR SIDEWALK NOT TO BE REMOVED THAT IS DAMAGED DUE TO OPERATING EQUIPMENT ON THE PAVEMENT OR SIDEWALK.
15. THE CONTRACTOR MAY BE REQUIRED TO PLACE TEMPORARY WARNING DEVICES AND SAFETY FENCE AT CERTAIN LOCATIONS WHERE REPLACEMENT FEATURES ARE NOT INSTALLED THE SAME DAY, AS DIRECTED BY THE ENGINEER OR THE CITY.
16. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF WORK BETWEEN SUPPLIERS AND SUBCONTRACTORS INVOLVED IN THE PROJECT, INCLUDING STAGING OF CONSTRUCTION DETAILS.
17. CONCRETE REMOVAL FOR DRIVEWAY APPROACHES SHALL BE REMOVED TO THE NEAREST TRANSVERSE JOINT. CONTRACTOR SHALL VERIFY REMOVAL LIMITS WITH CITY'S CONSTRUCTION INSPECTOR PRIOR TO ANY CONCRETE REMOVAL.
18. ALL SCOUR STOP SHALL BE INSTALLED BY A CERTIFIED CONTRACTOR ACCORDING TO SCOUR STOP PRODUCT SPECIFICATIONS.
19. ALL PERMITS AND ADDITIONAL FEES REQUIRED TO COMPLETE THE WORK SHALL BE INCLUDED IN THE CONTRACTOR BID.

PAVEMENT THICKNESS

PAVEMENT THICKNESS	
1. SIDEWALKS	4" P.P.C.
2. PEDESTRIAN RAMPS	6" P.C.C.
3. DRIVEWAYS	6" P.C.C.

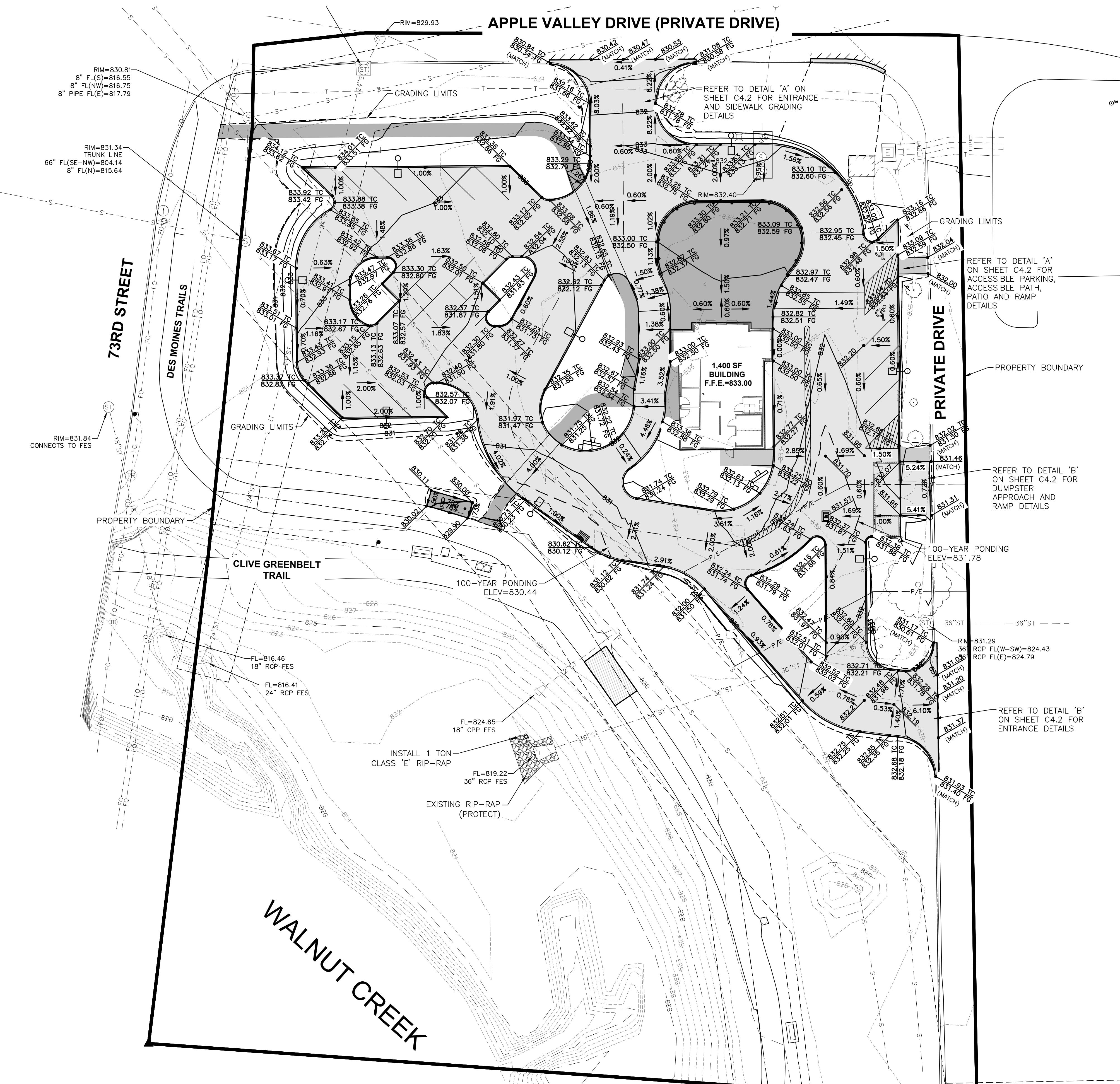
B-BOP'S DIMENSION PLAN

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

CIV

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

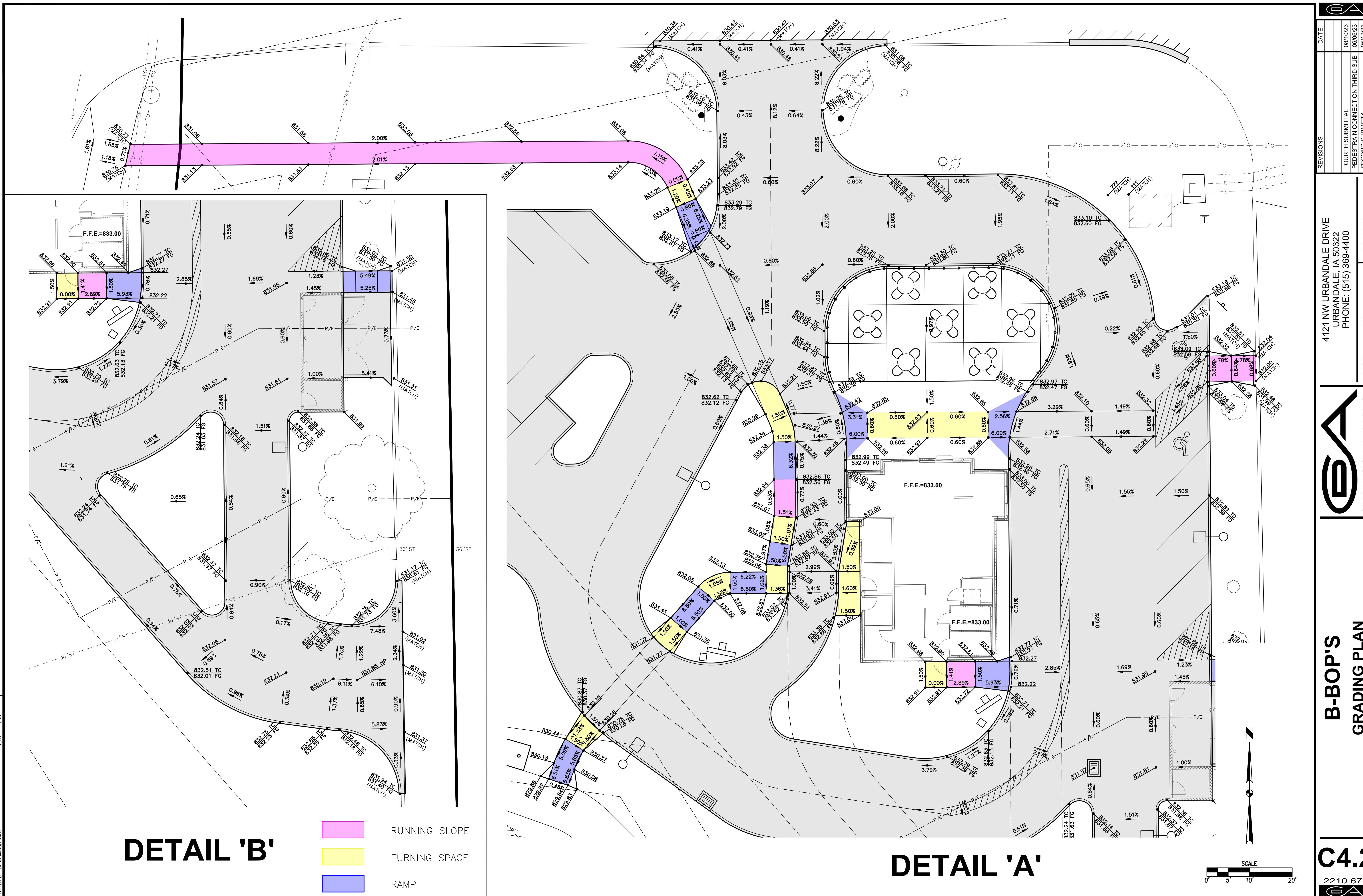
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GA

Page 7

Page A



DETAIL 'B'

-  RUNNING SLOPES
-  TURNING SPOTS
-  RAMP

DETAIL 'A'

B-BOP'S GRADING PLAN

C4.2

CIV

2111 NW URBANDALE DRIVE
URBANDALE, IA 50322
PHONE: (515) 369-4400

FOURTH SUBMITTA
PEDESTRAIN CONN
SECOND SUBMITTA

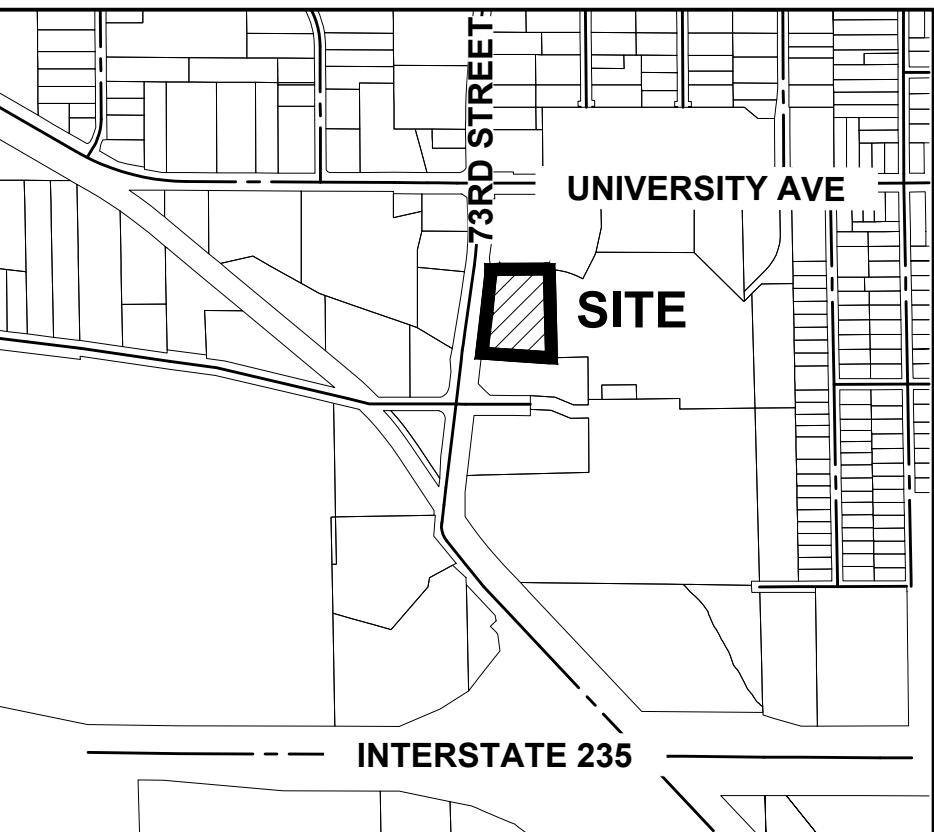
The logo consists of the letters 'GA' in a bold, white, sans-serif font. The 'G' is enclosed in an oval shape. Below the logo is a standard linear barcode.

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

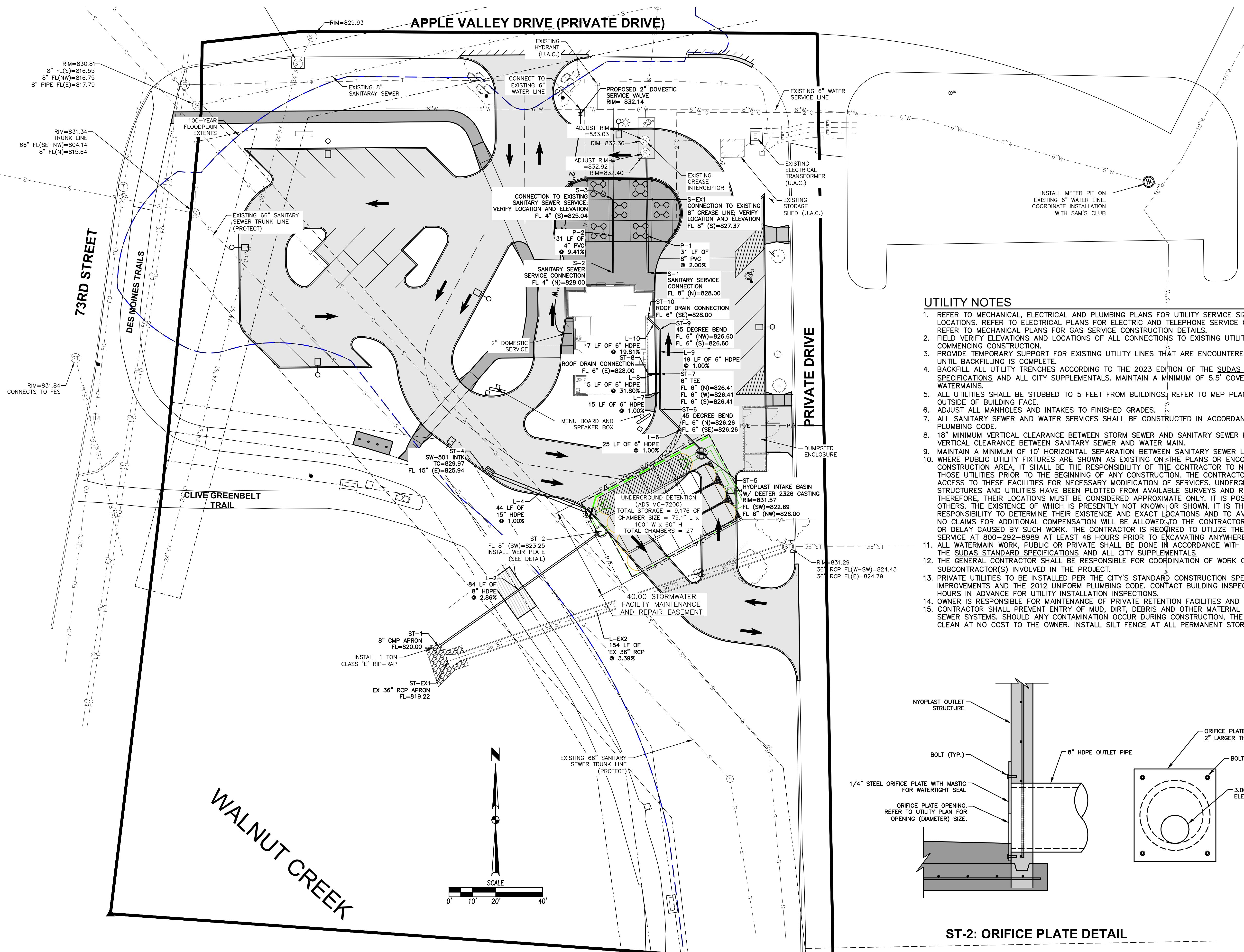
0.94 ACRES
 3,372 CU FT
 130 CU FT
 4,235 CU FT
 4,365 CU FT

SWPPP LEGEND

DRAINAGE ARROW	
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	

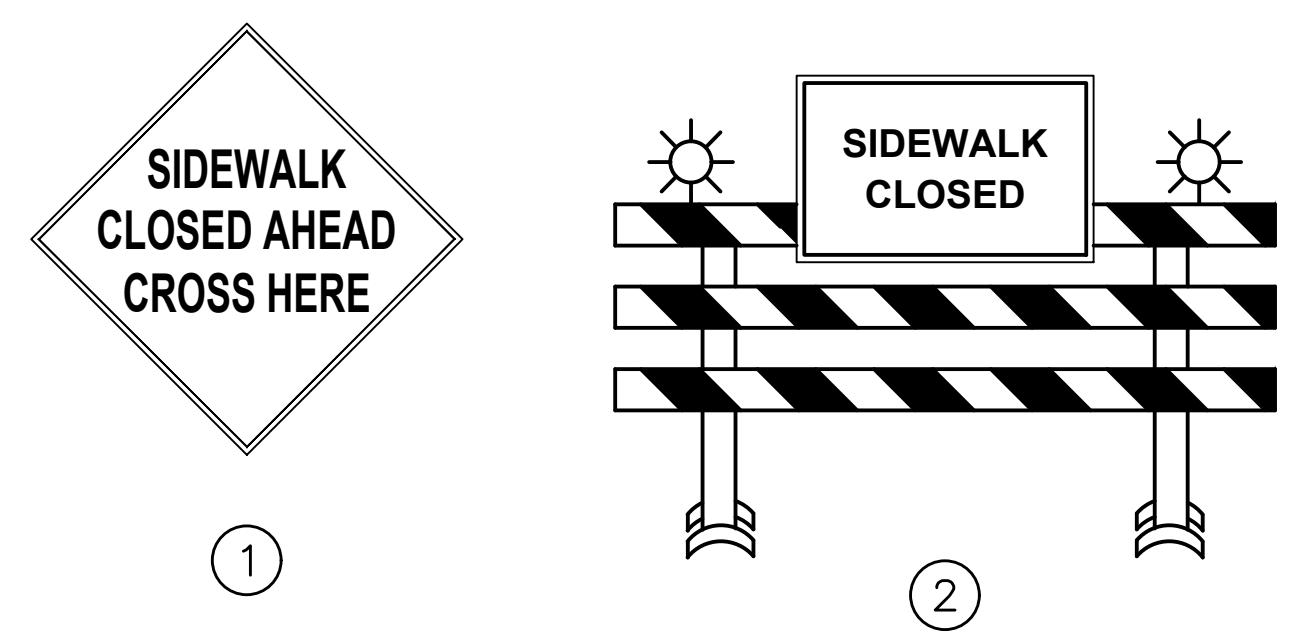


REVISIONS	DATE
FOURTH SUBMITTAL	08/10/23
PEDESTRAIN CONNECTION THIRD SUB	06/06/23
SECOND SUBMITTAL	06/12/23
FIRST SUBMITTAL	12/12/22





SIGN LEGEND



SIDEWALK CLOSURE NOTES

TRAIL CONSTRUCTION IS TO BE CARRIED OUT IN SUCH A WAY THAT ONE THROUGH ROUTE IS AVAILABLE AS SHOWN IN THE EXHIBIT TO THE LEFT.

B-BOP'S TRAIL CLOSURE PLAN



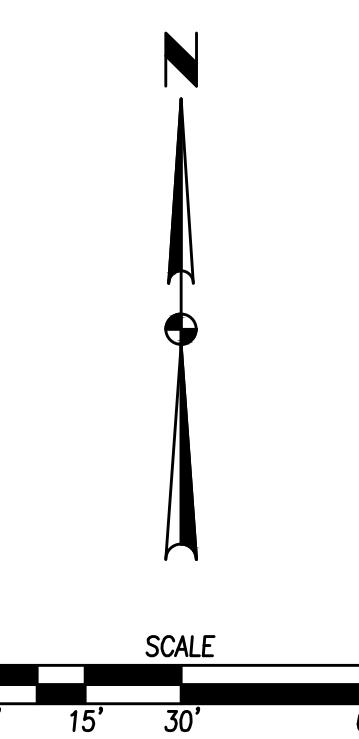
4121 NW URBANDALE DRIVE
URBANDALE, IA 50322
PHONE: (515) 369-4400

ENGINEER: JUN PM: DAM

C7.1

2210.678

REVISIONS	DATE
	08/16/23
FOURTH SUBMITTAL	08/06/23
PEDESTRIAN CONNECTION THIRD SUB	06/12/23
SECOND SUBMITTAL	05/12/23
FIRST SUBMITTAL	12/16/22



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

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

PM: DAM
ENGINEER: JUN

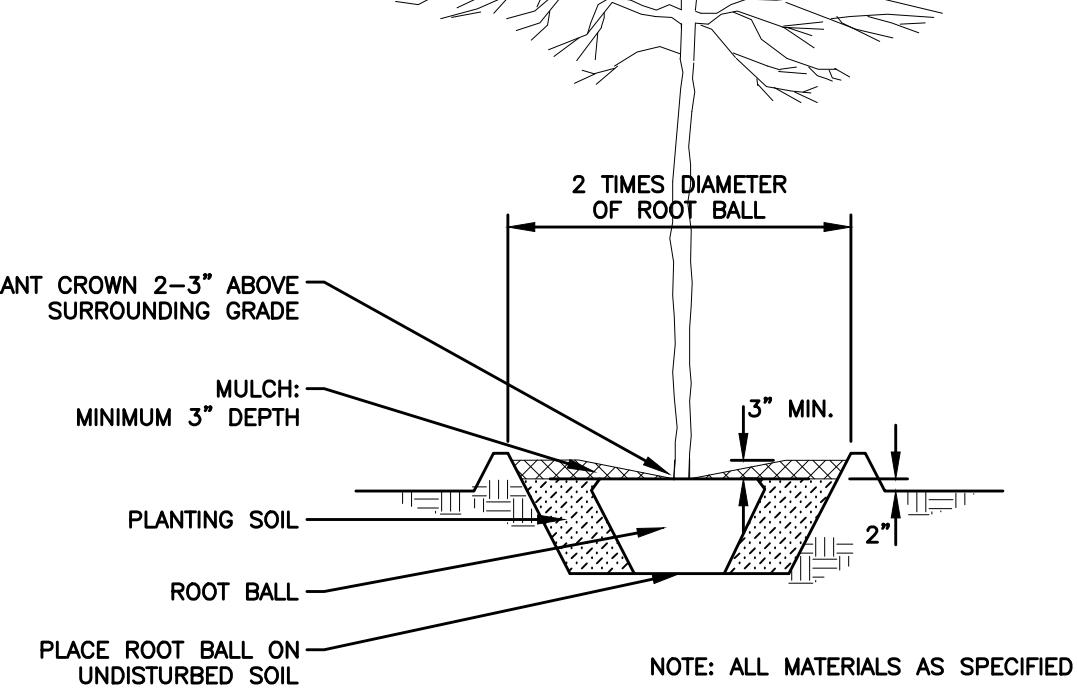
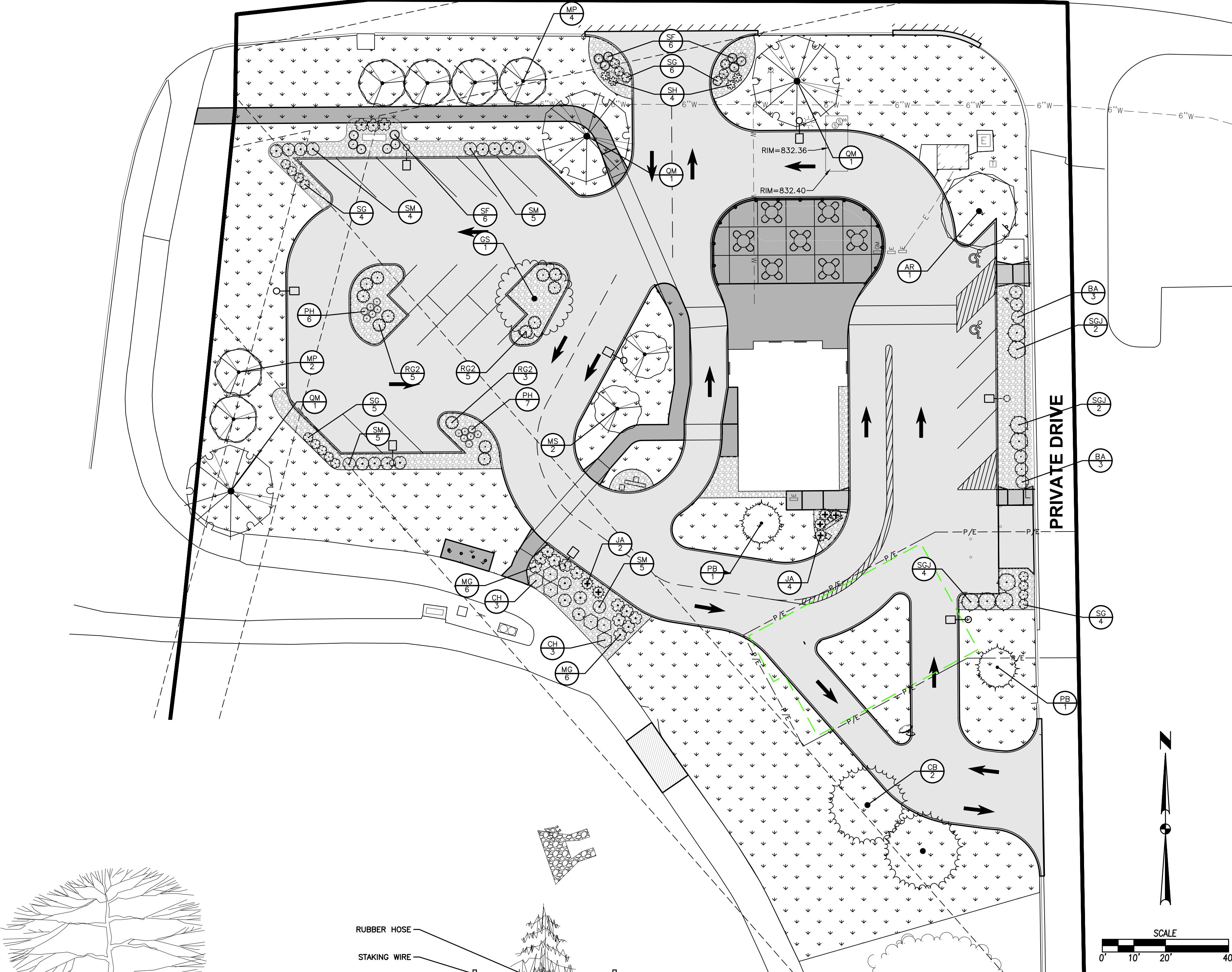
CDI
CIVIL DESIGN ADVANTAGE

WINDSOR HEIGHTS, IOWA

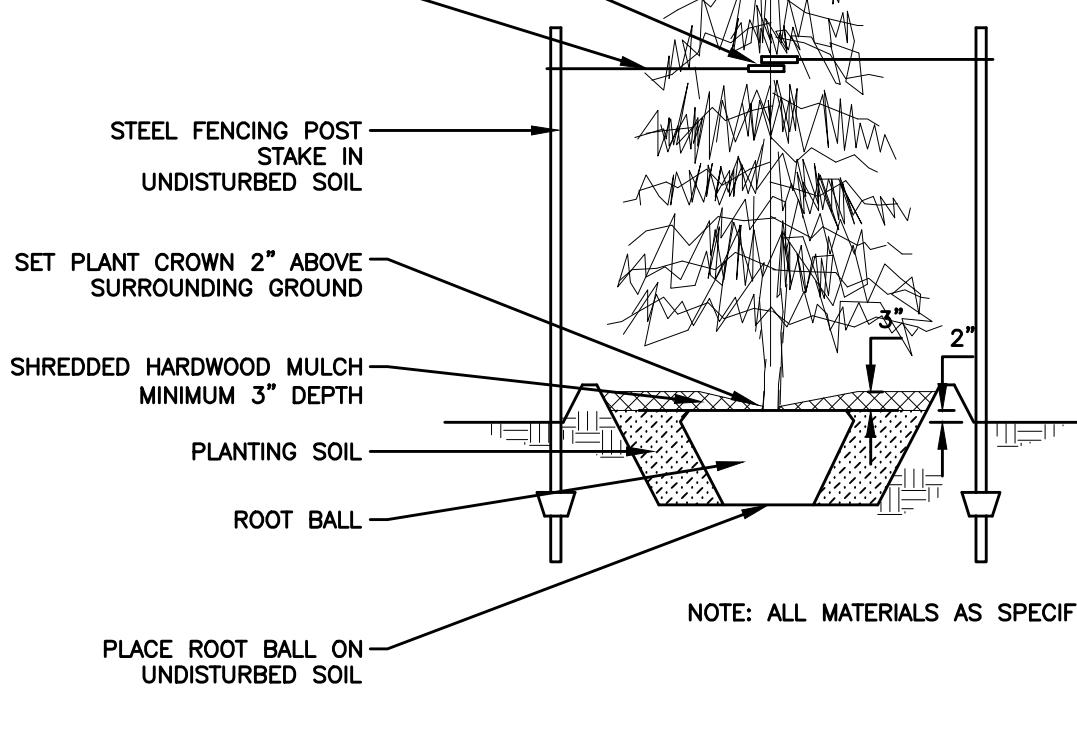
B-BOP'S LANDSCAPE PLAN

C8.1
2210.678

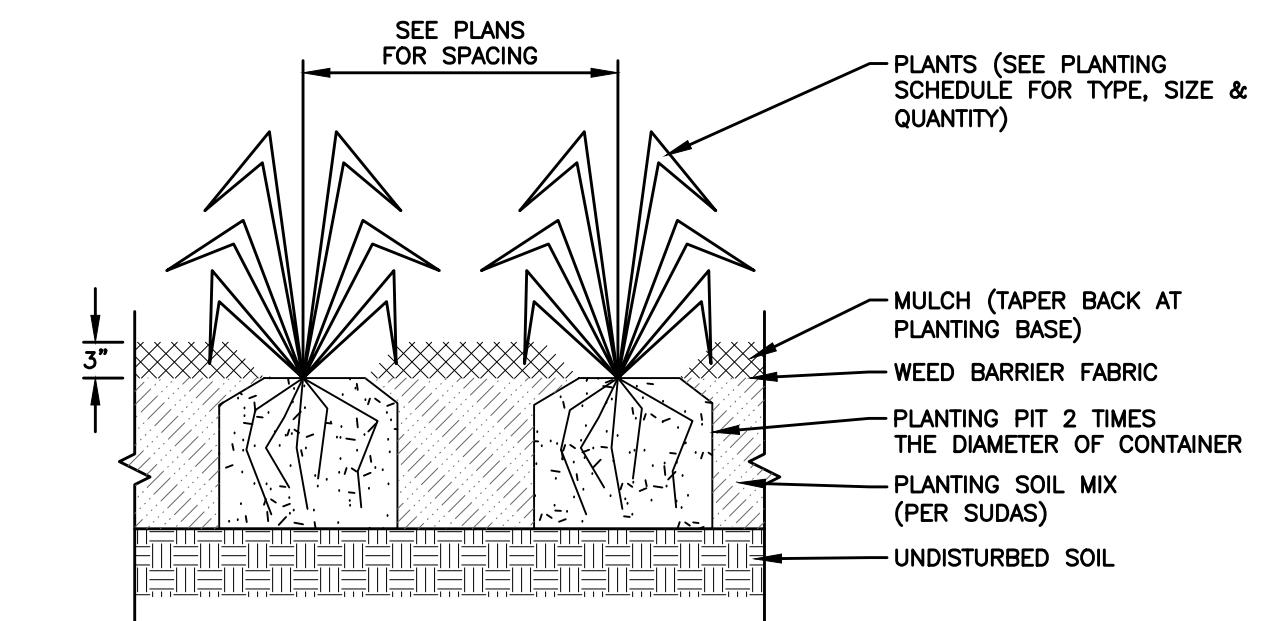
APPLE VALLEY DRIVE (PRIVATE DRIVE)



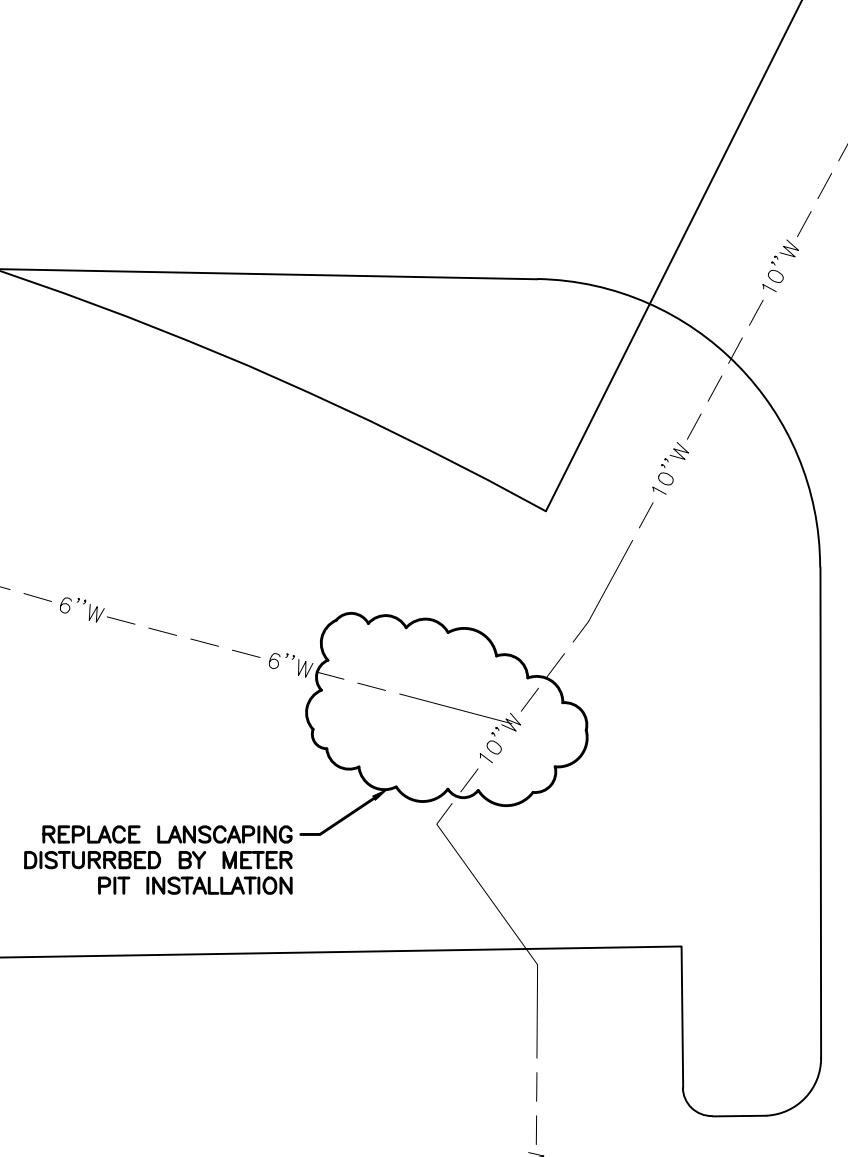
DECIDUOUS TREE PLANTING



CONIFEROUS TREE PLANTING



SHRUB PLANTING

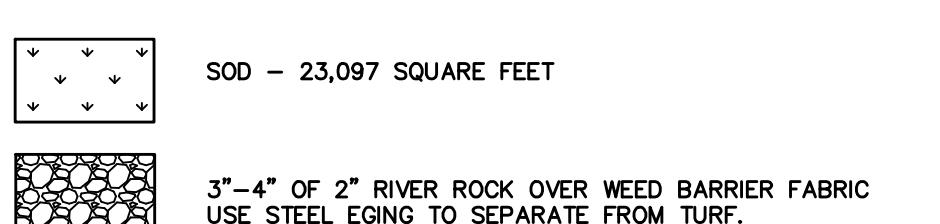


LANDSCAPE NOTES

- LOCATE ALL UTILITIES BEFORE ANY PLANTING BEGINS.
- THE 2023 EDITION OF THE SUDAS STANDARD SPECIFICATIONS AND ALL CITY SUPPLEMENTS, 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				
	QTY	COMMON NAME	BOTANICAL NAME	CONDITION AND SIZE
EVERGREEN TREES	2	Colorado Blue Spruce	Picea pungens glauca	B&B, 6' HEIGHT
CB	2	Black Hills Spruce	Picea glauca densata	B&B, 6' HEIGHT
ORNAMENTAL TREES	6	Prairifire Crabapple	Malus x 'Prairifire'	B&B, 1.5" CALIPER
MP	6	Spring Snow Crabapple	Malus x 'Spring Snow'	B&B, 1.5" CALIPER
OVERSTORY TREES	1	Red Maple	Acer rubrum	B&B, 1.5" CALIPER
AR	1	Ivory Halo Dogwood	Cornus alba 'Bailhalo' TM	5 GAL
GS	1	Skyline Honey Locust	Gleditsia triacanthos inermis 'Skyline'	5 GAL
QM	3	Burr Oak	Quercus macrocarpa	B&B, 2" CALIPER
SHRUBS	6	Japanese Barberry	Berberis thunbergii 'Aurea'	5 GAL
BA	6	Ivy Halo Dogwood	Cornus alba 'Bailhalo' TM	5 GAL
CH	6	Arcadia Juniper	Juniperus sabina 'Arcadia'	5 GAL
MG	15	Maiden Grass	Misanthus 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