

PAVING, STORM DRAIN, WATER  
AND SANITARY SEWER  
CONSTRUCTION PLANS  
for  
THE RESERVES AT MAGNOLIA  
1020 N. WILLOWWOOD STREET  
DENTON, TEXAS

OWNER

OPG MAGNOLIA PARTNER, LLC  
254 N. SANTA FE AVE., SUITE A  
SALINAS, KS 67401  
TEL: 78-212-0810  
email: aengstrom@overlandpg.com  
CONTACT: APRIL ENGSTROM

DEVELOPER

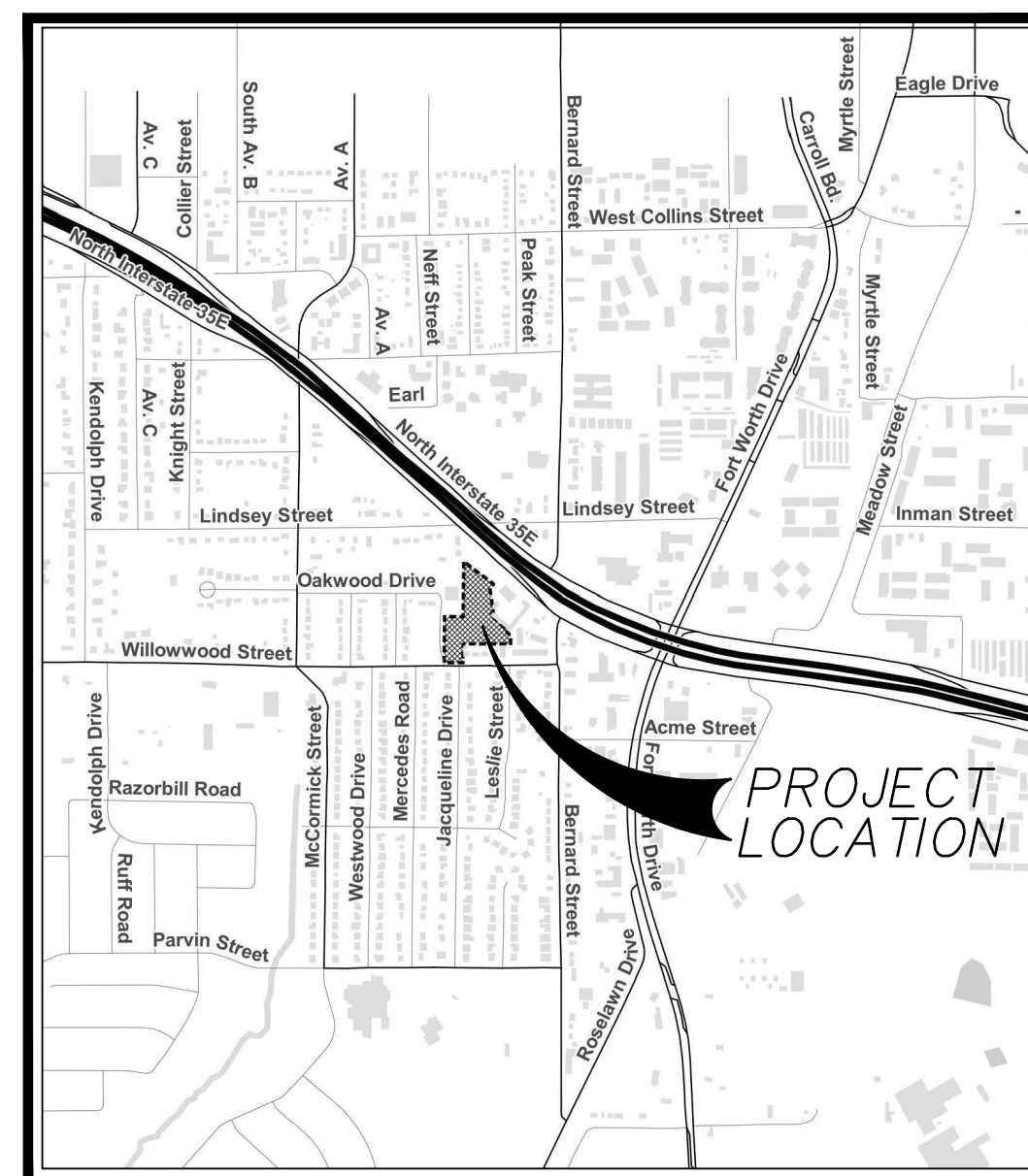
OVERLAND PROPERTY GROUP  
5341 W. 151st TERRACE  
LEAWOOD, KS 66224  
TEL: 785-212-0810  
email: aengstrom@overlandpg.com  
CONTACT: APRIL ENGSTROM

PREPARED BY:



civil engineering surveying landscape architecture planning  
tppls registration number: 1 - 2759  
tppls registration/license number: 10088000  
519 east border  
orlington, texas 76010  
817-469-1671  
fax: 817-274-8757  
www.mmatexas.com

CONTACT: ROB CRONIN, P.E.



VICINITY MAP

NO SCALE

SOURCE BENCHMARK:

A: CITY OF DENTON MONUMENT #2011 -  
3.5" ALUMINUM CAP ON ROD "2011" LOCATED AT  
JUNCTION OF FRAME ROAD NORTH OF CONCRETE CREEK  
RUNNING PARALLEL WITH MCKINNEY APPROXIMATELY 37.7'  
FROM POWER POLE TO THE WEST  
ELEV: 611.24'  
NAD83 TXNC (GRID)  
N: 7128266.50'  
E: 2389088.77'

BEARINGS & COORDINATES ARE GRID BASED ON THE  
"TEXAS COORDINATE SYSTEM OF 1983, NORTH CENTRAL  
ZONE" (2011), AS DETERMINED BY GPS OBSERVATIONS.  
THE CONVERGENCE ANGLE AT THIS POINT OF BEGINNING  
IS 0°44'22.0". ALL DISTANCES HAVE BEEN ADJUSTED TO  
SURFACE USING A COMBINED SCALE FACTOR OF  
1.0001526521 (0.999847371200).

SITE BENCHMARK:

BM #1 - "X" CUT IN SQUARE LOCATED ON THE  
NORTHWEST CORNER OF AN INLET OFF THE EAST BOUND  
SIDE OF WILLOWWOOD STREET AND APPROXIMATELY 42'  
WEST FROM THE CENTERLINE OF JACQUELINE DRIVE  
ELEV: 686.09'  
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BM #2 - "X" CUT IN SQUARE LOCATED APPROXIMATELY  
272' EAST FROM THE CENTERLINE OF MERCEDES ROAD  
AT THE END OF OAKWOOD DRIVE ON THE SOUTH SIDE ON  
THE CURB APPROXIMATELY 50' WEST OF THE CHURCH

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SHEET INDEX

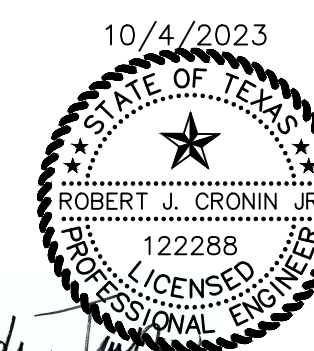
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C12.12	PUBLIC EROSION CONTROL DETAILS

DAT Approval

Development Services Department based  
upon recommendation from HR Green.  
All responsibility for the adequacy of these  
plans and for compliance with City of  
Denton specifications, standards, and  
codes remain with the engineer who  
prepared them. Review and approval of  
these plans by the City does not remove  
this responsibility. Deficiencies discovered  
prior to the final acceptance of public  
improvements will need to be corrected  
prior to Final Acceptance of the  
improvements.

October 20, 2023

THE DETAIL SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN  
SELECTED BY ME UNDER MY RESPONSIBLE SUPERVISION AS BEING  
APPLICABLE TO THIS PROJECT.



Ande Tugay



## GENERAL NOTES

1. THIS PROPERTY MAY BE SUBJECT TO CHARGES RELATED TO IMPACT FEES AND THE APPLICANT SHOULD CONTACT THE CITY OF DENTON REGARDING ANY APPLICABLE FEES DUE.
2. BEARINGS AND COORDINATES ARE GRID BASED ON THE "TEXAS COORDINATE SYSTEM OF 1983, NORTH CENTRAL ZONE" (2011) AS DETERMINED BY GPS OBSERVATIONS. THE CONVERGENCE ANGLE AT THE POINT OF BEGINNING IS 0°44'22.0". ALL DISTANCES HAVE BEEN ADJUSTED TO SURFACE USING A COMBINED SCALE FACTOR IS 1.0001536521.
3. VISIBILITY TRIANGLES SHALL BE PROVIDED AT ALL PUBLIC OR PRIVATE STREET INTERSECTION IN ACCORDANCE WITH CURRENT ORDINANCE. THE AREA BETWEEN TWO AND ONE-HALF FEET AND EIGHT FEET IN HEIGHT, MEASURED FROM THE GRADE OF THE STREET ADJACENT TO THE VISIBILITY TRIANGLE. SHRUBS IN THIS AREA MUST BE KEPT TRIMMED SO AS TO BE SHORTER THAN TWO AND ONE-HALF FEET TALL AND TREES ARE TO BE KEPT TRIMMED SO AS NOT TO HIDE THE SIDE OF THE ROAD.
4. NOTICE: SELLING A PORTION OF THIS ADDITION BY METES AND BOUNDS IS A VIOLATION OF CITY SUBDIVISION ORDINANCE AND STATE PLATTING STATUTES AND IS SUBJECT TO FINES AND WITHHOLDINGS OF UTILITIES AND BUILDING CERTIFICATES.
5. THE PURPOSE OF THIS PLAT IS TO CREATE ONE (1) MULTIFAMILY LOT FROM UNDEVELOPED TRACTS.
6. MINIMUM FINISHED FLOOR ELEVATION SHALL BE 690.50'.
7. BY SCALED MAP LOCATION, THE SUBJECT PROPERTY IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE ON THE SOUTHWEST SIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN, AND ZONE "X", AREAS OF 0.2% ANNUAL CHANCE FLOOD ACCORDING TO THE FLOOD INSURANCE RATE MAP NO. 4812IC03600, EFFECTIVE DATE APRIL 18, 2011.
8. ADEQUATE WATER AND WASTEWATER SERVICE WILL BE PROVIDED BY THE CITY OF DENTON.
9. THERE IS A TOTAL OF 1,054 INCHES dbh OF PROTECTED TREES PROPOSED TO BE PRESERVED ON THIS SITE. FUTURE LAND DISTURBING ACTIVITY, IF ANY, SHALL NOT IMPACT ANY/OR DAMAGED TREES. TREE PRESERVATION ON THE ACCOMPANYING PRESERVATION PLAN, IF PERMITS FOR CONSTRUCTION ACTIVITY SHALL BE REQUIRED FOR THIS PROPERTY. UNTIL REQUIRED TREE PROTECTION MEASURES PER SECTION 7.4.D OF THE DEVELOPMENT CODE OF THE CITY OF DENTON ARE IN PLACE.
10. PRIVATE IMPROVEMENTS CANNOT ENCROACH ONTO EXISTING PUBLIC OR PRIVATE EASEMENTS.

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8. ADEQUATE WATER AND WASTEWATER SERVICE WILL BE PROVIDED BY THE CITY OF DENTON.
9. THERE IS A TOTAL OF 1,054 INCHES dbh OF PROTECTED TREES PROPOSED TO BE PRESERVED ON THIS SITE. FUTURE LAND DISTURBING ACTIVITY, IF ANY, SHALL NOT IMPACT ANY OF REMAING TREES. TREE SURVEILLATION ON THE ACCOMPANYING PRESERVATION PLAN, AND PERMITS FOR CONSTRUCTION ACTIVITY SHALL BE REQUIRED FOR THE DEVELOPMENT. ONLY DURING TREE PROTECTION MEASURES PER SECTION 7.4.7 OF THE DEVELOPMENT CODE OF THE CITY OF DENTON ARE IN PLACE.
10. PRIVATE IMPROVEMENTS CANNOT ENCRATCH ONTO EXISTING PUBLIC OR PRIVATE EASEMENTS.

MMA PROJECT NO. 3597-00-02



1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LATEST EDITION OF THE CITY OF DENTON STANDARD CONSTRUCTION SPECIFICATION DOCUMENTS.
2. THE LOCATIONS OF ALL EXISTING UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM EXISTING PUBLIC RECORDS OR PROVIDED BY VARIOUS OWNERS OF THE FACILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFICATION OF VERTICAL AND HORIZONTAL LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION. SUCH VERIFICATION SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS. NOTIFY THE PROJECT INSPECTOR PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING UTILITIES.
3. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES WITH FACILITIES IN PROJECT AREA 48 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE WITH THE PROPER UTILITY COMPANIES TO RELOCATE, BRACE, AND SUPPORT ANY UTILITY IN CONFLICT WITH THE PROPOSED STRUCTURE OR CONSTRUCTION. ALL ASSOCIATED WORK SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS. ANY REPAIR TO THE DAMAGED EXISTING UTILITIES SHALL BE THE COST OF CONTRACTOR.
4. PUBLIC OR PRIVATE UTILITY LINES MAY EXIST THAT ARE NOT SHOWN ON THE CONSTRUCTION PLANS. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE INTEGRITY OF THESE LINES. SUCH WORK SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS.
5. A TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) PERMIT WILL BE REQUIRED WHEN ENTERING/CROSSING RIGHT-OF-WAY OF TXDOT. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING TXDOT 48 HOURS PRIOR TO CONSTRUCTION.
6. TRENCH SAFETY PLAN SHALL BE STAMPED, SIGNED, AND DATED BY A LICENSED PROFESSIONAL ENGINEER AND SUBMITTED TO THE PROJECT ENGINEER AND PUBLIC WORKS INSPECTOR BEFORE OR DURING PRE-CONSTRUCTION MEETING.
7. THREE COPIES OF "STORM WATER POLLUTION PREVENTION PLAN (SWPPP)" SEALED BY A LICENSED PROFESSIONAL ENGINEER SHALL BE SUBMITTED TO THE PROJECT ENGINEER AT LEAST 10 WORKING DAYS PRIOR TO CONSTRUCTION. A "NOTICE OF INTENT" (NOI) SHALL BE INCLUDED IN THE SUBMITTAL IF THE PROJECT IS 5 ACRES IN SIZE OR LARGER. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING A NOTICE OF TERMINATION (NOT) WITHIN 30 DAYS OF THE PROJECT COMPLETION.
8. A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO PUBLIC WORKS/TRANSPORTATION DEPARTMENT - TRANSPORTATION DIVISION FOR APPROVAL FOR ANY UTILITY AND STREET WORK THAT WILL CAUSE LANE CLOSURES. AT LEAST ONE LANE TRAFFIC SHALL BE MAINTAINED AT ALL TIMES. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AN APPROVED TRAFFIC CONTROL PLAN TO THE PROJECT INSPECTOR.
9. THE CONTRACTOR SHALL NOTIFY THE PROJECT INSPECTOR AT LEAST THREE (3) WORKING DAYS PRIOR TO CONSTRUCTION IN ORDER TO COORDINATE CONSTRUCTION, ADMINISTRATION, AND INSPECTION ACTIVITIES.
10. ALL WATER AND SANITARY SEWER WORK REQUIRED WITHIN THE PRIVATE PROPERTY SHALL BE PERFORMED BY A LICENSED PLUMBER. THE CONTRACTOR SHALL NOTIFY THE PROPERTY OWNER AND IMMEDIATELY COMMENCE SURFACE RESTORATION TO AN EQUAL OR BETTER CONDITION AFTER THE WATER AND SEWER WORK IS COMPLETE.
11. THE CONTRACTOR SHALL AVOID DAMAGING ANY EXISTING SPRINKLER SYSTEM THAT MAY BE IN THE CONSTRUCTION AREA. REMOVED OR DAMAGED SPRINKLER SYSTEM SHALL BE REPAIRED BY A LICENSED IRRIGATOR. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS.
12. THE CONTRACTOR SHALL AVOID DAMAGING ANY LANDSCAPING THAT MAY BE IN THE CONSTRUCTION AREA. REPLACING DAMAGED LANDSCAPING SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS UNLESS OTHERWISE INDICATED ON THE CONSTRUCTION PLAN OR BID PROPOSAL.
13. REMOVAL OF TREES AND OTHER EXISTING STRUCTURES SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS UNLESS OTHERWISE INDICATED ON THE CONSTRUCTION PLAN OR BID PROPOSAL OR APPROVED BY THE PROJECT INSPECTOR.
14. ALL TRENCHES SHALL BE BACKFILLED AT THE END OF EACH WORKING DAY. THE CONTRACTOR SHALL PROVIDE ALL FENCING AND/OR BARRICADES TO MAINTAIN PUBLIC SAFETY AROUND THE CONSTRUCTION AREA.
15. THE CONTRACTOR SHALL CLEAN UP DIRT AND DEBRIS IN THE PAVED AREAS TO ENSURE THE STREET IS IN DRIVABLE CONDITION AT THE END OF EACH WORKING DAY.
16. EXISTING MAIL BOXES SHALL BE PROTECTED AND MAIL SERVICE SHALL NOT BE INTERRUPTED.
17. ALL WATER AND SANITARY SEWER LINES USING DUCTILE IRON PIPE SHALL BE CLASS 350 UNLESS OTHERWISE SHOWN ON THE CONSTRUCTION PLANS OR BID ITEMS. ALL DUCTILE IRON PIPES SHALL BE WRAPPED BY POLYETHYLENE ENCASEMENT TO MEET ANSI/AWWA C105/A21.5 SPECIFICATIONS WITH A MINIMUM 8MIL THICKNESS.
18. ALL PIPE FITTINGS SHALL BE DUCTILE IRON AND RESTRAINED WITH BOTH CONCRETE BLOCKING AND MEGALUGS. ALL PIPE FITTINGS SHALL BE CONSIDERED SUBSIDIARY TO THE PIPE PRICES.
19. REMOVAL, SALVAGE, AND ABANDONMENT OF THE EXISTING WATER AND SEWER LINES SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS.
20. REMOVAL AND HAUL-OFF EXCESS CONSTRUCTION MATERIALS FROM THE CONSTRUCTION SITE SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS.
21. ALL EXISTING FENCES REMOVED OR DAMAGED BY CONSTRUCTION SHALL BE REPLACED OR RESTORED WITH SAME TYPE, STYLE, AND MATERIAL TO AN EQUAL OR BETTER CONDITION. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS UNLESS OTHERWISE INDICATED ON THE CONSTRUCTION PLAN OR BID PROPOSAL.
22. ALL TEMPORARY FENCES SHALL BE INSTALLED TO PROTECT PRIVATE PROPERTIES WHEN THE CONSTRUCTION WORK IS PERFORMED WITHIN THE EASEMENTS. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS UNLESS OTHERWISE INDICATED ON THE CONSTRUCTION PLAN OR BID PROPOSAL.

1. ALL WATER MAINS USING PVC PIPE SHALL BE IN COMPLIANCE WITH AWWA C900 AND DR-14.
2. UTILITY SAND MEETING THE REQUIREMENTS OF CITY OF DENTON SPECIFICATIONS 33.05.05 SECTION 2.2.A.1 SHALL BE USED FOR ALL WATER MAINS.
3. THERE SHALL BE A MINIMUM COVER OF FORTY-TWO INCHES (42") OVER THE WATER PIPE AS MEASURED FROM THE TOP OF THE PIPE TO THE EXISTING GROUND, OR THE PROPOSED FINISHED GRADES, WHICHEVER IS GREATER.
4. FIRE HYDRANTS SHALL BE PLACED A MINIMUM DISTANCE OF AND AS CLOSE TO 2 FEET BEHIND BACK OF CURB AS POSSIBLE. ALTERNATE LOCATIONS MUST BE APPROVED BY CITY OF DENTON WATER DISTRIBUTION.
5. WHEN REPLACING WATER SERVICES, ALL EXISTING WATER METER BOXES SHALL BE REPLACED AND THE METERS SHALL BE RELOCATED TO THREE FEET (3') BACK OF THE CURB OR AS SHOWN ON THE CONSTRUCTION PLANS.
6. ALL VALVE BOXES SHALL BE ADJUSTED UP TO THE FINISHED PAVEMENT GRADE. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS UNLESS OTHERWISE INDICATED ON THE CONSTRUCTION PLAN OR BID PROPOSAL.
7. NO WELDED OUTLET IS ALLOWED FOR THE DUCTILE IRON WATER LINE.

1. ALL SANITARY SEWER MAINS USING PVC PIPE SHALL BE SDR-26, HEAVY WALL, IN COMPLIANCE WITH ASTM D-3034 LATEST REVISION.
2. CRUSHED ROCK MEETING THE REQUIREMENTS OF CITY OF DENTON SPECIFICATIONS 33.05.05 SECTION 2.2.A.2 SHALL BE USED FOR ALL SANITARY SEWER MAINS.
3. THE CONTRACTOR SHALL ENSURE ALL THE EXISTING SEWER SERVICES THAT CAN BE RECONNECTED OR REROUTED TO THE NEW MAINS. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER ANY POTENTIAL CONFLICTS PRIOR TO CONSTRUCTION SO THE MODIFICATION CAN BE MADE IF NECESSARY.
4. THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION TELEVISION INSPECTION OF ALL THE EXISTING SEWER LINES TO BE ABANDONED OR REHABILITATED BY OTHER THAN OPEN CUT TO VERIFY THE SERVICE LOCATIONS AND LINE CONDITIONS. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS UNLESS OTHERWISE INDICATED ON THE CONSTRUCTION PLAN OR BID PROPOSAL.
5. MINIMUM LATERAL SIZE 6" IS REQUIRED FOR ANY DEVELOPMENT ABOVE SINGLE FAMILY RESIDENTIAL.
6. THE CONTRACTOR SHALL VERIFY THE EXISTING SANITARY SEWER SLOPE PRIOR TO MAKING CONNECTION. SLOPE OF THE NEW MAIN AND THE EXISTING MAIN SHALL MATCH UNLESS OTHERWISE INDICATED ON THE CONSTRUCTION PLAN. A REDUCER SHALL BE USED WHEN A LARGER SIZE LINE CONNECTS TO A SMALLER SIZE LINE.
7. THE CONTRACTOR SHALL VERIFY THE SIZE, ELEVATION, AND MATERIAL OF THE EXISTING LINE PRIOR TO ORDERING PREFABRICATED MANHOLE.
8. REWORK THE INVERT WHERE TYING INTO AN EXISTING MANHOLE.
9. BYPASS PUMP REQUIRED FOR PERFORMING CONSTRUCTION WORK SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS UNLESS OTHERWISE INDICATED ON THE CONSTRUCTION PLAN OR BID PROPOSAL. A BYPASS PUMPING PLAN MUST BE SUBMITTED AND APPROVED BY THE CITY OF DENTON PRIOR TO ANY BYPASS PUMPING OPERATIONS MAY TAKE PLACE.
10. ALL MANHOLE AND CLEANOUT SHALL BE ADJUSTED UP TO THE FINISHED PAVEMENT GRADE. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER BID ITEMS UNLESS OTHERWISE INDICATED ON THE CONSTRUCTION PLAN OR BID PROPOSAL.

ALL EXISTING UTILITY DATA IS PROVIDED FOR INFORMATION ONLY. ALTHOUGH THIS DATA IS SHOWN AS ACCURATELY AS POSSIBLE, THE CONTRACTOR IS CAUTIONED THAT THE OWNER AND THE ENGINEER NEITHER ASSUME NOR IMPLY ANY RESPONSIBILITY FOR THE ACCURACY OF THIS DATA. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE UTILITY AFFECTED AND VERIFY THESE LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION.

CALL TEXAS 811 OR OTHER  
UTILITY LOCATING SERVICES 48  
HOURS PRIOR TO  
CONSTRUCTION ACTIVITY. MMA  
INC. IS NOT RESPONSIBLE FOR  
KNOWING ALL EXISTING UTILITIES  
OR DEPICTING EXACT  
LOCATIONS OF UTILITIES ON  
DRAWINGS.



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

CITY OF DENTON MONUMENT #2011 -  
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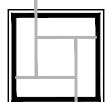
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E: 2383152.20'

BEARINGS & COORDINATE VALUES SHOWN HEREON ARE IN REFERENCE TO THE NAD83 - TEXAS COORDINATE SYSTEM - NORTH CENTRAL ZONE, 4202, BASED ON GPS OBSERVATIONS UTILIZING THE LEICA GPS REFERENCE NETWORK. ALL DISTANCES SHOWN HEREON WERE ADJUSTED TO SURFACE USING A COMBINED SCALE FACTOR OF 1.0001526521 (0.999847371200), BASE POINT OF 0,0,0.

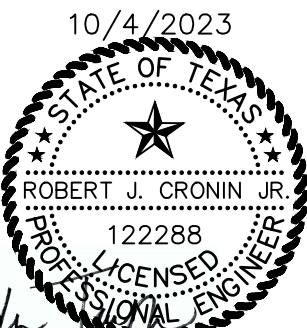
THE RESERVES AT MAGNOLIA  
DENTON, TEXAS

## GENERAL NOTES



m m a

civil engineering surveying landscape architecture planning  
tbpels registration number: 1 - 2759  
tbpels registration/license number: 10088000  
519 east border  
arlington, texas 76010  
817-469-1671  
fax: 817-274-8757  
www.mmatexas.com



PROJECT NUMBER:	3597-00-02
PROJECT MANAGER:	R. CRONIN
DRAWN BY:	G. SANCHEZ
CHECKED BY:	A. TAYLOR
ISSUE DATE:	10/4/2023

[illegible]

**SHEET CONTENT:**


## GENERAL NOTES

SHEET NO:

## C1.0



# DEMOLITION PLAN



**m|ma**

**civil engineering surveying landscape architecture planning**

tbpls registration number: f - 2759  
tbpls registration/license number: 10088000

519 east border  
arlington, texas 76010  
817-469-1671  
fax: 817-274-8757  
[www.m|ma.texas.com](http://www.m|ma.texas.com)

10/4/2023

STATE OF TEXAS

ROBERT J. CRONIN JR.

122288

LICENSED PROFESSIONAL ENGINEER

Ande [Signature]

PROJECT NUMBER:	3597-00-02
PROJECT MANAGER:	R. CRONIN
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REV.	DATE	DESCRIP.	BY

SHEET CONTENT:

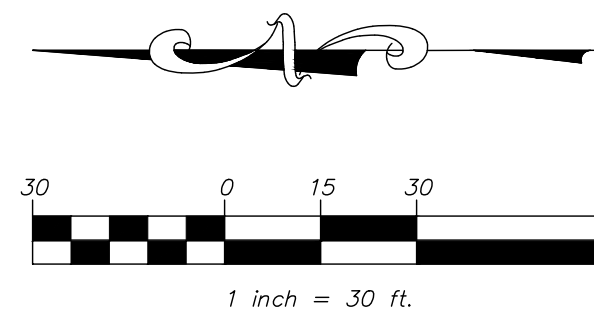
# DEMOLITION PLAN

SHEET NO:

C2.0

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MMA, INC.



<b><u>LEGEND:</u></b>	
REMOVE EXIST. CURB & GUTTER	
REMOVE EXIST. PAVEMENT	
REMOVE EXIST. GRAVEL	
REMOVE EX. FENCE	
REMOVE OVERHEAD ELEC.	

NOTES:

1. CONTRACTOR TO DISPOSE OF ALL DEMOLITION DEBRIS AT AN APPROVED DISPOSAL FACILITY.
2. CONTRACTOR IS RESPONSIBLE FOR LOCATING EXISTING UTILITIES AND PROTECTING THEM THROUGHOUT CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR SITE DEMOLITION.
4. ALL WASTE WATER AND SANITARY SEWER SERVICES TO BE ABANDONED SHALL BE DISCONNECTED AND CAPPED IN ACCORDANCE WITH JURISDICTIONAL REQUIREMENTS.
5. REF. TO SITE AND GRADING PLAN FOR CONSTRUCTION LIMITS.
6. CONTRACTOR TO MAINTAIN EXISTING DRAINAGE PATTERNS.

GENERAL UTILITY NOTES

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KNOWING ALL EXISTING UTILITIES  
OR DEPICTING EXACT  
LOCATIONS OF UTILITIES ON  
DRAWINGS.

48  
MA  
OR  
TIES

**811**<sup>®</sup>

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

SOURCE BENCHMARK:

CITY OF DENTON MONUMENT #2011 -  
3.5" ALUMINUM CAP ON ROD "2011" LOCATED AT JUNCTION  
OF FRAME ROAD NORTH OF CONCRETE CREEK RUNNING  
PARALLEL WITH MCKINNEY APPROXIMATELY 37.7' FROM  
POWER POLE TO THE WEST

A: 611.24'  
NAD83 TXNC (GRID)  
N: 7128266.50'  
E: 2389088.77'

SITE BENCHMARK:

BM #1 - "X" CUT IN SQUARE LOCATED ON THE NORTHWEST CORNER OF AN INLET OFF THE EAST BOUND SIDE OF WILLOWOOD STREET AND APPROXIMATELY 42' WEST FROM THE CENTERLINE OF JACQUELINE DRIVE

ELEV: 686.09'  
NAD83 TXNC (GRID)  
N: 7120793.43'  
E: 2383257.97'

BM #2 - "X" CUT IN SQUARE LOCATED APPROXIMATELY  
272' EAST FROM THE CENTERLINE OF MERCEDES ROAD AT  
THE END OF OAKWOOD DRIVE ON THE SOUTH SIDE ON THE  
CURB APPROXIMATELY 50' WEST OF THE CHURCH

ELEV: 688.85'  
NAD83 TXNC (GRID)  
N: 7121272.19'  
E: 2383152.20'

BEARINGS & COORDINATE VALUES SHOWN HEREON ARE IN  
REFERENCE TO THE NAD83 - TEXAS COORDINATE SYSTEM -  
NORTH CENTRAL ZONE, 4202, BASED ON GPS  
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TO SURFACE USING A COMBINED SCALE FACTOR OF  
1.0001526521 (0.999847371200), BASE POINT OF 0,0,0.

LESLIE ST

SOUTH PARK ADDITION  
CAB. A, SLIDE 197  
PRDCT

WILLOWWOOD ST

JACQUELINE DE

TAYLOR PARK  
SUBDIVISION  
CAB. A, SLIDE 54  
PRDCT

MERCED *RD*

CALLED 1.576 ACRES  
 B & K HOSPITALITY, INC.  
 DOC. No. 2004-82383  
 OPRDCT

CALLED 0.223 ACRES  
 LIM'S ASSET MANAGEMENT, LLC  
 DOC. No. 2007-138847  
 OPRDCT

125'x60' TRACT OF LAND  
THOMAS B. PRALLE & WIFE,  
MYRA K. PRALLE  
DOC. No. 1994-83917  
DDCT

CALLED 0.173 ACRES  
 TOMAS MARQUEZ AND WIFE,  
 MARIA R. MARQUEZ  
 DOC. No. 1996-50468  
 OBJECT

CALLED 0.17 ACRES  
 RODNEY EVANS  
 DOC. No. 2016-116951  
 QPRDCT

CALLED 0.172 ACRES  
 CASON CLAYTON CAGLE &  
 AMANDA MARIE CAGLE  
 DOC. No. 2011-28732  
 OPDCT

BLOCK D  
WYLIE H. BARNES ADDITION  
VOL. 2, PG. 65  
PRDCT

BLOCK E  
WYLIE H. BARNES ADDITION  
VOL. 2, PG. 65  
PRDCT

BLOCK C  
WYLIE H. BARNES ADDITION  
VOL. 2, PG. 65  
PRDCT

LOT 8R BLOCK C  
BARNES ADDITION  
DOC. No. 2014-271  
OPBDC

380 NORTH LLC  
DOC. No. 2021-207318  
OPRDCT

PARCEL 60  
FOR INTERSTATE HIGHWAY 35B  
CALLED 0.8208 ACRES  
STATE OF TEXAS  
DOC. No. 2014-67902  
OPRDC

S. RICHTER ADDITION  
CAB. O, PG. 128  
PRDCT

City of Denton  
Development Assistance Team  
Approved October 20, 2023

NOTED BY CARDER & COMPANY DATE: 06/09/07 11:47 AM DATA: 01/2007 00 001700 I used Download.com(1700) Contribute(1700) Download(1700) DEMONSTRATION DI AMI dove

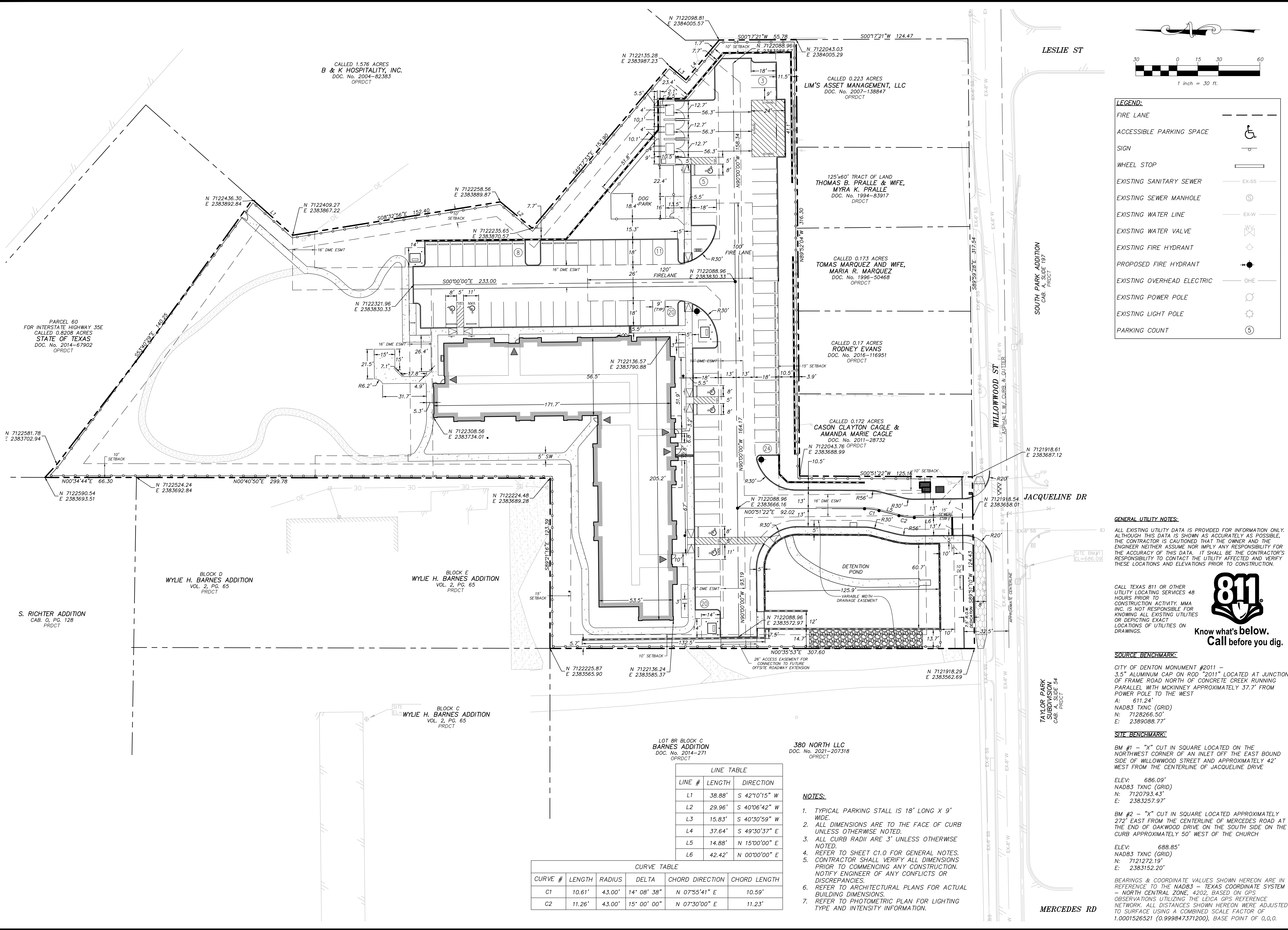












**LEGEND:**

FIRE LANE

ACCESSIBLE PARKING SPACE

SIGN

WHEEL STOP

EXISTING SANITARY SEWER

EXISTING SEWER MANHOLE

EXISTING WATER LINE

EXISTING WATER VALVE

EXISTING FIRE HYDRANT

PROPOSED FIRE HYDRANT

EXISTING OVERHEAD ELECTRIC

EXISTING POWER POLE

EXISTING LIGHT POLE

PARKING COUNT

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CALL TEXAS 811 OR OTHER UTILITY LOCATING SERVICES 48 HOURS PRIOR TO CONSTRUCTION ACTIVITY. MMA INC. IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES OR DEPICTING EXACT LOCATIONS OF UTILITIES ON DRAWINGS.

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LOT 8R BLOCK C  
BARNES ADDITION  
DOC. No. 2014-271  
OPRDC

LINE TABLE		
LINE #	LENGTH	DIRECTION
L1	38.88'	S 42°10'15" W
L2	29.96'	S 40°06'42" W
L3	15.83'	S 40°30'59" W
L4	37.64'	S 49°30'37" E
L5	14.88'	N 15°00'00" E
L6	42.42'	N 00°00'00" E

CURVE TABLE					
CURVE #	LENGTH	RADIUS	DELTA	CHORD DIRECTION	CHORD LENGTH
C1	10.61'	43.00'	14° 08' 38"	N 07°55'41" E	10.59'
C2	11.26'	43.00'	15° 00' 00"	N 07°30'00" E	11.23'

- NOTES:**
1. TYPICAL PARKING STALL IS 18' LONG X 9' WIDE.
  2. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
  3. ALL CURB RADII ARE 3' UNLESS OTHERWISE NOTED.
  4. REFER TO SHEET C1.0 FOR GENERAL NOTES.
  5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO COMMENCING ANY CONSTRUCTION. NOTIFY ENGINEER OF ANY CONFLICTS OR DISCREPANCIES.
  6. REFER TO ARCHITECTURAL PLANS FOR ACTUAL BUILDING DIMENSIONS.
  7. REFER TO PHOTOMETRIC PLAN FOR LIGHTING TYPE AND INTENSITY INFORMATION.

# THE RESERVES AT MAGNOLIA DENTON, TEXAS

## DIMENSION CONTROL PLAN

**mma**

civil engineering surveying landscape architecture planning

lppls registration number: 1 - 2759  
lppls registration/license number: 1008000  
519 east border  
arlington, texas 76010  
817-469-1671  
fax: 817-274-8757  
www.mmatexas.com

10/4/2023

STATE OF TEXAS

ROBERT J. CRONIN JR.

122288

LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER: 3597-00-02  
PROJECT MANAGER: R. CRONIN  
DRAWN BY: G. SANCHEZ  
CHECKED BY: A. TAYLOR  
ISSUE DATE: 10/4/2023

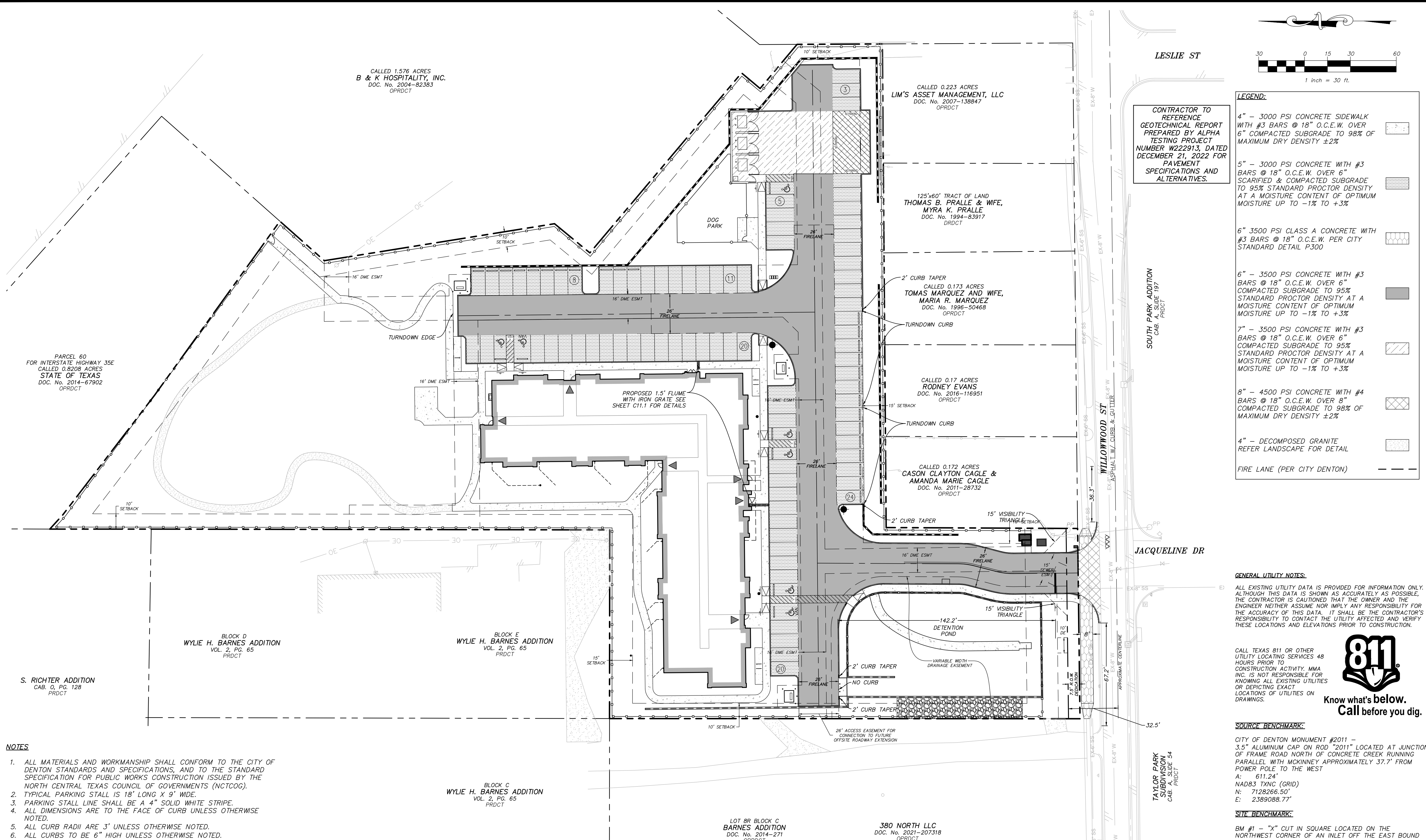
REV.	DATE	DESCRIP.	BY

## DIMENSION CONTROL PLAN

SHEET NO: C4.0

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1. ALL MATERIALS & WORKMANSHIP SHALL CONFORM TO THE CITY OF DENTON STANDARDS AND SPECIFICATIONS, AND TO THE STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION ISSUED BY THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS (NCTCOG).
2. TYPICAL PARKING STALL IS 18' LONG X 9' WIDE.
3. PARKING STALL LINE SHALL BE A 4" SOLID WHITE STRIPE.
4. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
5. ALL CURB RADII ARE 3' UNLESS OTHERWISE NOTED.
6. ALL CURBS TO BE 6" HIGH UNLESS OTHERWISE NOTED.
7. REFER TO SHEET C1.0 FOR GENERAL NOTES.
8. REFER TO SHEET C11.0 FOR PAVING DETAILS.
9. REFER TO SHEET C4.0 FOR ALL SITE DIMENSIONS.
10. REFER TO ARCHITECTURAL PLANS FOR ACTUAL BUILDING DIMENSIONS.
11. REFER TO ARCHITECTURE PLANS FOR ALL FENCING AND GATE SPECIFICATIONS.
12. FIRE LANES SHALL BE PROPERLY MARKED WITH A SIX INCH RED STRIPE WITH FOUR INCH WHITE LETTERS STATING "FIRE LANE NO PARKING" EVERY TWENTY-FIVE FEET ALONG THE ENTIRE LENGTH OF THE FIRE LANE. FIRE LANE MARKINGS SHALL BE ON THE VERTICAL SURFACE OF THE CURB WHEN A CURB IS PRESENT.
13. FIRE LANE ACCESS MUST BE COMPLETE AND FIRE HYDRANTS MUST BE APPROVED BY THE FIRE DEPARTMENT AND MUST BE IN-SERVICE PRIOR TO CONSTRUCTION PROGRESSING ABOVE FOUNDATION.
14. REFER TO PHOTOMETRIC PLAN FOR LIGHTING TYPE AND INTENSITY INFORMATION.
15. ALL UTILITIES, INCLUDING BUT NOT LIMITED TO ELECTRICAL, GAS, AND TELEPHONE SHALL BE PLACED UNDERGROUND.
16. ALL PRIVATE BARRIER FIVE RAMPS SHALL HAVE A DETECTABLE WARNING SURFACE (AKA TRUNCATED DOMES) THE FULL DEPTH AND WIDTH OF RAMP.

PAVING NOTES:

1. THE PAVING CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADJUSTMENT OF WATER AND SANITARY SEWER APPURTENANCES IN ACCORDANCE WITH THE STANDARD DETAILS AND SPECIFICATIONS OF THE CITY OF DENTON.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO COMMENCING ANY CONSTRUCTION. NOTIFY ENGINEER OF ANY CONFLICTS OR DISCREPANCIES.
3. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED.
4. CONCRETE SURFACE FINISHING SHALL BE SKID RESISTANT, A WHITE PIGMENTED LIQUID CURING COMPOUND SHALL BE UNIFORMLY SPRAYED ON THE CONCRETE IMMEDIATELY AFTER THE FINISHED OPERATION.
5. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A TRAFFIC CONTROL PLAN FOR ALL WORK IN THE PUBLIC RIGHT-OF-WAY.
6. CONTRACTOR SHALL PROVIDE ALL SAFETY DEVICES FOR THE PROTECTION OF THE PUBLIC.
7. CONCRETE PAVEMENT AND STRUCTURES SHALL BE BACKFILLED AS SOON AS POSSIBLE AFTER FORMS ARE REMOVED.
8. CONTRACTOR RESPONSIBLE FOR IRRIGATION AND FRANCHISE UTILITY SLEEVING. REFERENCE IRRIGATION PLAN FOR IRRIGATION SLEEVING DETAILS.
9. CONTRACTOR TO PROVIDE JOINTING PLAN FOR REVIEW & APPROVAL BY ENGINEER.
10. CONTRACTOR IS RESPONSIBLE FOR ENSURING GRADES ON ALL WALKS DO NOT EXCEED 2% CROSS SLOPE AND 5% LONGITUDINAL SLOPE. ADJUST GRADES AS NECESSARY.

11. EXPANSION JOINTS SHALL BE PLACED AT A MAXIMUM OF 400 FEET; AND ARE TO BE LOCATED AT STRUCTURES AND AT INTERSECTION PC'S & PT'S. (NCTCOG REINFORCED CONCRETE PAVEMENT JOINT STANDARD SPECIFICATION 303.5.4.)
12. A SLIP-FORM PAVING PLACEMENT METHOD SHALL BE USED FOR ALL CONCRETE STREET PAVING, WITH THE EXCEPTION OF IRREGULAR AREAS, OR AS APPROVED BY THE CITY ENGINEER. MACHINE POURED PAVING (CLASS P1 CONCRETE) SHALL HAVE A SLUMP RANGE FROM 1.5 TO 3 INCHES AND HAND POURED PAVING (CLASS P2 AND HES CONCRETE) SHALL HAVE A SLUMP RANGE FROM 3 TO 4 INCHES. FOR FIBER REINFORCED CONCRETE, SLUMP SHALL BE PERFORMED PRIOR TO ADDITION OF FIBERS. CLASS P CONCRETE, WITH AIR ENTRAINING ADMIXTURE, SHALL BE PROVIDED. CLASS P1 SHALL BE USED FOR MACHINE PAVED CONCRETE ROADWAYS AND ALLWAYS UNLESS OTHERWISE SPECIFIED IN THE DRAWINGS OR DIRECTED BY CITY. CLASS P2 CONCRETE SHALL BE PROVIDED FOR HAND POURED CONCRETE ROADWAYS, DRIVEWAYS, ALLWAYS AND ALL OTHER HAND POURED, VEHICULAR TRAFFICED CONCRETE PAVEMENT UNLESS OTHERWISE SPECIFIED IN THE DRAWINGS. (CITY SPECS)
13. THE CONCRETE MIX DESIGN SUBMITTAL SHALL CERTIFY THAT THE MATERIALS FOR THE DESIGN MIX MEET SECTION 03 00 00 1.6 OF THE CITY OF DENTON 2022 SPECIFICATIONS.

CONSTRUCTION JOINT NOTES:

DUMMYS JOINTS SHALL BE ONE OF THE FOLLOWING METHODS: SAWED, HAND-FORMED OR FORMED BY PREMOLDED FILLER. JOINT DEPTH SHOULD BE EQUAL TO ONE-FOURTH (1/4) OF THE SLAB THICKNESS. HAND-MADE JOINTS SHALL BE TO A MAXIMUM EDGE RADIUS OF ONE-FOURTH (1/4) INCH. SAWING OF JOINTS SHOULD BEGIN AS SOON AS THE CONCRETE HAS HARDENED SUFFICIENTLY TO PERMIT SAWING AND AVOID RAVELING. ALL JOINTS SHOULD BE COMPLETED BEFORE UNCONTROLLED SHRINKAGE CRACKING OCCURS. JOINTS SHALL BE CONTINUOUS ACROSS THE SLAB UNLESS INTERRUPTED BY FULL-DEPTH PREMOLDED JOINT FILLERS. JOINTS EXTENDED COMPLETELY THROUGH THE CURB. ALL JOINT OPENINGS SHALL BE CLEANED AND SEALED BEFORE OPENING PAVED AREA TO TRAFFIC.

LEGEND:

- 4" - 3000 PSI CONCRETE SIDEWALK  
WITH #3 BARS @ 18" O.C.E.W. OVER  
6" COMPACTED SUBGRADE TO 98% OF  
MAXIMUM DRY DENSITY  $\pm 2\%$
- 5" - 3000 PSI CONCRETE WITH #3  
BARS @ 18" O.C.E.W. OVER 6"  
SCARIFIED & COMPACTED SUBGRADE  
TO 95% STANDARD PROCTOR DENSITY  
AT A MOISTURE CONTENT OF OPTIMUM  
MOISTURE UP TO  $-1\%$  TO  $+3\%$
- 6" 3500 PSI CLASS A CONCRETE WITH  
#3 BARS @ 18" O.C.E.W. PER CITY  
STANDARD DETAIL P300
- 6" - 3500 PSI CONCRETE WITH #3  
BARS @ 18" O.C.E.W. OVER 6"  
COMPACTED SUBGRADE TO 95%  
STANDARD PROCTOR DENSITY AT A  
MOISTURE CONTENT OF OPTIMUM  
MOISTURE UP TO  $-1\%$  TO  $+3\%$
- 7" - 3500 PSI CONCRETE WITH #3  
BARS @ 18" O.C.E.W. OVER 6"  
COMPACTED SUBGRADE TO 95%  
STANDARD PROCTOR DENSITY AT A  
MOISTURE CONTENT OF OPTIMUM  
MOISTURE UP TO  $-1\%$  TO  $+3\%$
- 8" - 4500 PSI CONCRETE WITH #4  
BARS @ 18" O.C.E.W. OVER 8"  
COMPACTED SUBGRADE TO 98% OF  
MAXIMUM DRY DENSITY  $\pm 2\%$
- 4" - DECOMPOSED GRANITE  
REFER LANDSCAPE FOR DETAIL
- FIRE LANE (PER CITY DENTON)

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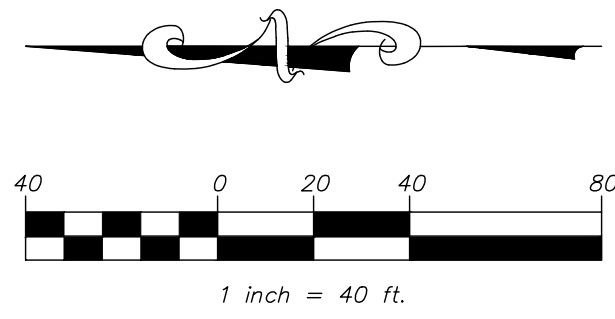
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LEGEND:	
EXISTING MAJOR CONTOUR	— -640—
EXISTING MINOR CONTOUR	— -641—
PROPOSED MINOR CONTOUR	— <b>640</b> —
PROPOSED MAJOR CONTOUR	— 641 —
FINISHED GRADE	• FG 630.00
FINISHED FLOOR ELEVATION	FF 630.0
PROPOSED TOP OF PAVEMENT	• TP 630.00
PROPOSED TOP OF CURB	• TC 630.00
PROPOSED GUTTER	• GT 630.00
PROPOSED TOP OF WALL	• TW 630.00
PROPOSED BOTTOM OF WALL	• BW 630.00
MATCH EXISTING	• NG 630.00±
PROPOSED RETAINING WALL	

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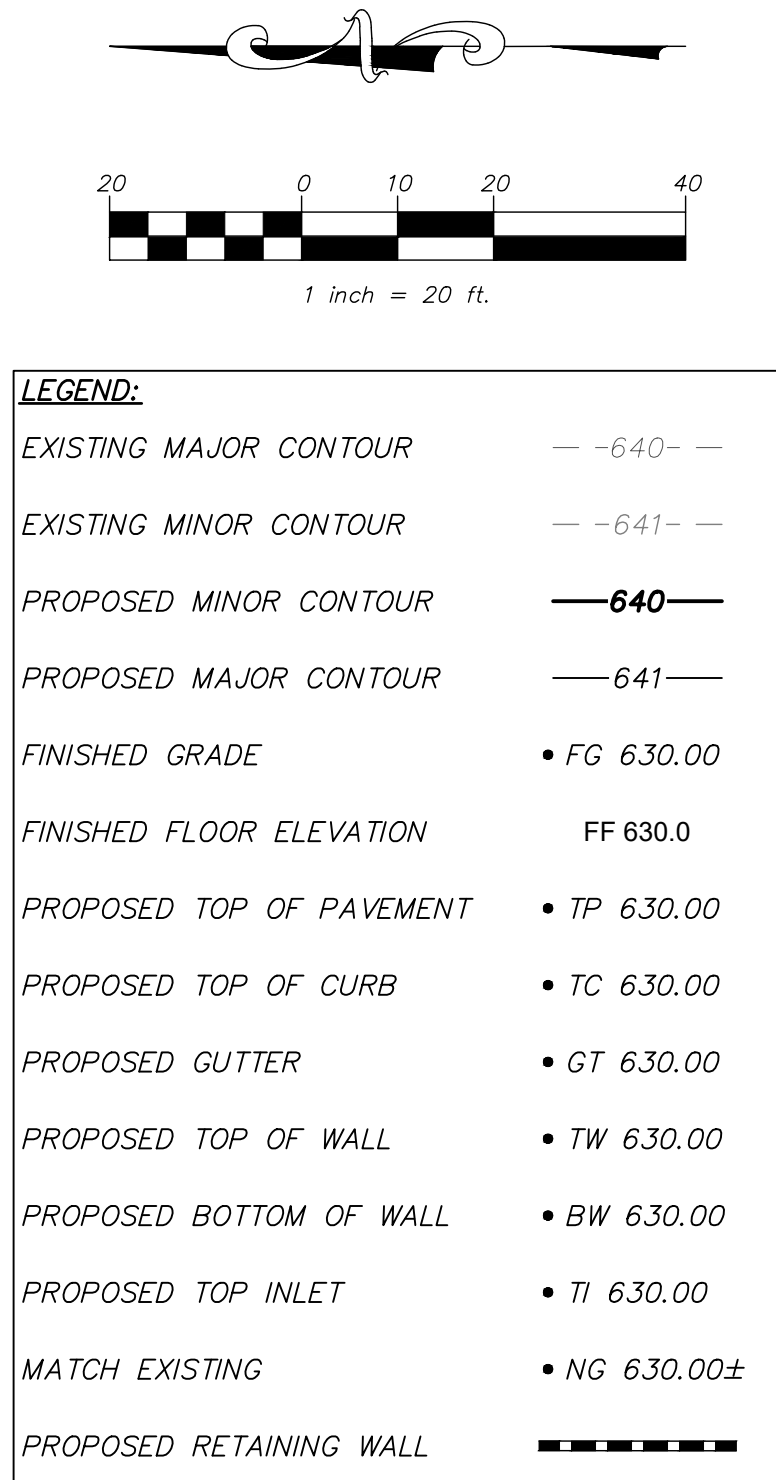
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GRADING NOTES

1. CLEARING AND GRUBBING SHALL CONSIST OF REMOVING ALL NATURAL AND ARTIFICIAL OBJECTIONABLE MATERIALS FROM THE PROJECT SITE.
2. ALL TREES, SHRUBS AND ALL SCRUB GROWTH SHALL BE CLEARED. ALL DEAD TREES, LOGS, STUMPS, RUBBISH OF ANY NATURE, AND OTHER SURFACE DEBRIS SHALL ALSO BE CLEARED.
3. THE CONTRACTOR WILL BE RESPONSIBLE FOR AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING CONSTRUCTION. THE CONTRACTOR SHALL, AT ALL TIMES, KEEP THE SITE OF THE WORK AND THE ADJACENT AREAS FREE FROM MATERIAL DEBRIS AND RUBBISH AS IS PRACTICABLE AND SHALL REMOVE SAME FROM ANY PORTION OF THE SITE.
4. UNSUITABLE MATERIAL, INCLUDING ALL ROCKS MEASURING LARGER THAN 6" IN THE LARGEST DIMENSION, REFUSE AND OTHER DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR. THE CONTRACTOR SHALL, ALSO, COMPLY WITH ALL APPLICABLE LAWS GOVERNING THE SPILLING OF DEBRIS WHILE TRANSPORTING TO A DISPOSAL SITE.
5. SIX (6") INCHES OF TOP SOIL SHALL BE PLACED ON ALL LANDSCAPE AREA AND PARKING ISLANDS.
6. POSITIVE DRAINAGE AWAY FROM BUILDING FOUNDATION MUST BE PROVIDED. CONTRACTOR TO ENSURE THERE IS NO PONDING AROUND FOUNDATION.
7. THE GRADES SHOWN ON THIS PLAN ARE TOP OF PAVEMENT UNLESS OTHERWISE NOTED.
8. SHOULD THE CONTRACTOR ENCOUNTER ANY UNUSUAL GEOLOGICAL CONDITIONS DURING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING GEOTECHNICAL ENGINEER AND REQUESTING SUPPLEMENTAL RECOMMENDATIONS.
9. TESTING IS REQUIRED AND SHALL BE PERFORMED BY A LABORATORY APPROVED BY THE ENGINEER/OWNER AND PAID FOR BY THE OWNER.
10. LIMIT CONSTRUCTION ACTIVITY TO IMPROVEMENT AREAS ONLY.
11. REFERENCE LANDSCAPE PLANS FOR TREE PROTECTION METHODS.
12. CONTRACTOR IS RESPONSIBLE FOR ENSURING GRADES ON ALL WALKS, SLOPE, 2% MINIMUM GRADE AND 5% LONGITUDINAL SLOPE, ADJUST GRADES AS NECESSARY.
13. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED.

PLOTTED BY: GABRIELA GONZALEZ DATE: 10/4/2023 11:49 AM PATH: P:\3597-00-02\700 Land Development\703 Construction Documents\Plot Sheets\OVERALL GRADING PLAN.dwg





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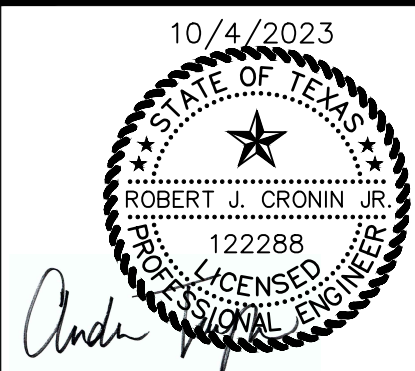
ELEV: 688.85'  
NAD83 TXNC (GRID)  
N: 7121272.19'  
E: 2383152.20'

BEARINGS & COORDINATE VALUES SHOWN HEREON ARE IN REFERENCE TO THE NAD83 - TEXAS COORDINATE SYSTEM - NORTH CENTRAL ZONE, 4202, BASED ON GPS OBSERVATIONS UTILIZING THE LEICA GPS REFERENCE NETWORK. ALL DISTANCES SHOWN HEREON WERE ADJUSTED TO SURFACE USING A COMBINED SCALE FACTOR OF 1.0001526521 (0.999847371200), BASE POINT OF 0,0,0.

THE RESERVES AT MAGNOLIA  
DENTON, TEXAS

---

GRADING PLAN



PROJECT NUMBER:	3597-00-02
PROJECT MANAGER:	R. CRONIN
DRAWN BY:	G. SANCHEZ
CHECKED BY:	A. TAYLOR
ISSUE DATE:	10/4/2023

REV.	DATE	DESCRIP.	E

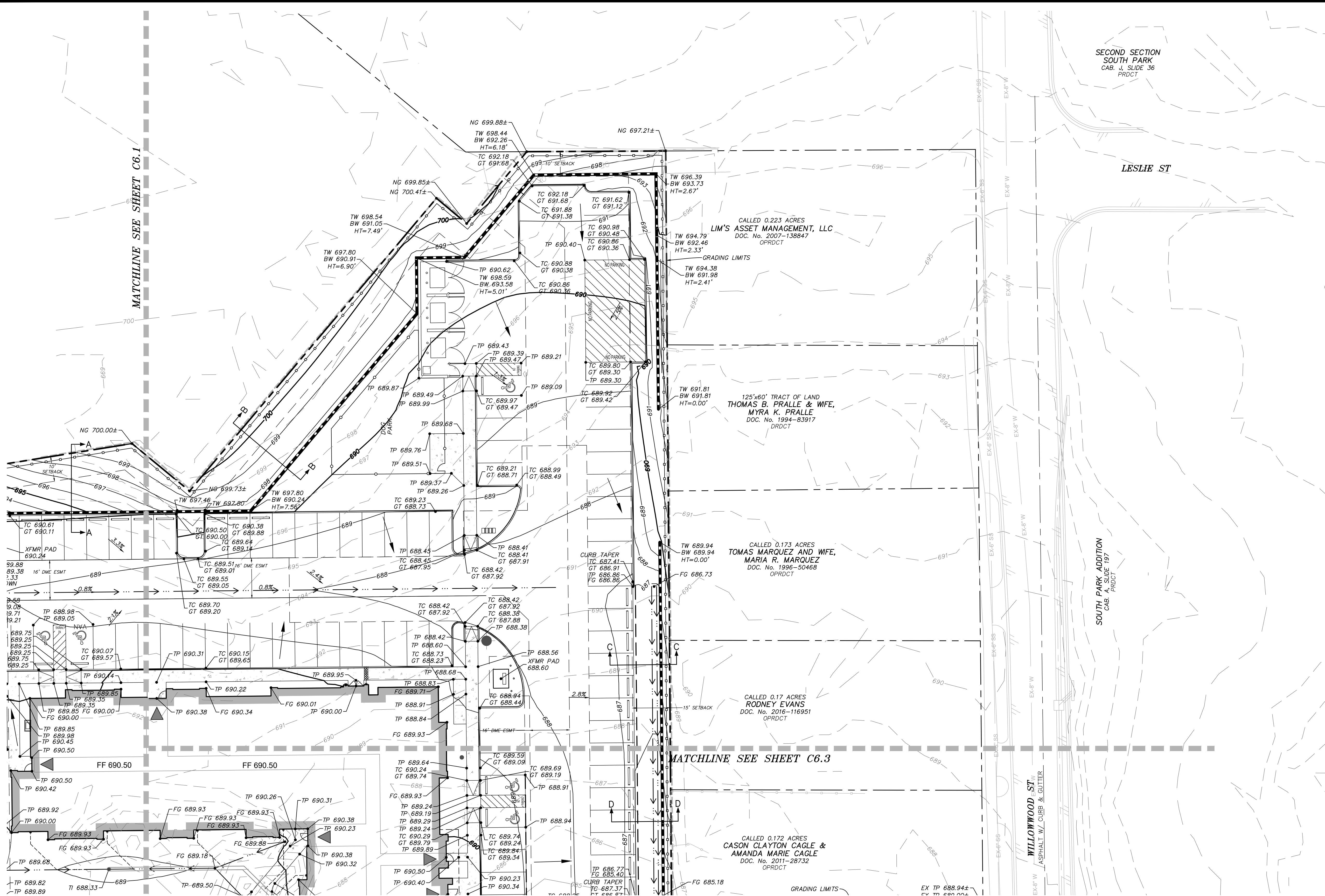
## GRADING PLAN

SHEET NO: **C6.1**



City of Denton  
Development Assistance Team  
Approved: 05/21/2023

PLOTTED BY: CARIELA GONZALEZ DATE: 04/02/2023 11:52 AM PATH: P:\3597-00-02\790 Land Development\03 Construction Documents\Drawings\Sheet\Grading PLAN.dwg



**LEGEND:**

EXISTING MAJOR CONTOUR	---640---
EXISTING MINOR CONTOUR	---641---
PROPOSED MINOR CONTOUR	---640---
PROPOSED MAJOR CONTOUR	---641---
FINISHED GRADE	• FG 630.00
FINISHED FLOOR ELEVATION	FF 630.0
PROPOSED TOP OF PAVEMENT	• TP 630.00
PROPOSED TOP OF CURB	• TC 630.00
PROPOSED GUTTER	• GT 630.00
PROPOSED TOP OF WALL	• TW 630.00
PROPOSED BOTTOM OF WALL	• BW 630.00
PROPOSED TOP INLET	• TI 630.00
MATCH EXISTING	• NG 630.00±
PROPOSED RETAINING WALL	-----

**GENERAL UTILITY NOTES:**

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CALL TEXAS 811 OR OTHER UTILITY LOCATING SERVICES 48 HOURS PRIOR TO CONSTRUCTION ACTIVITY. MMA, INC. IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES OR DEPICTING EXACT LOCATIONS OF UTILITIES ON DRAWINGS.

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

**SOURCE BENCHMARK:**

CITY OF DENTON MONUMENT #2011 - 3.5" ALUMINUM CAP ON ROD "2011" LOCATED AT JUNCTION OF FRAME ROAD NORTH OF CONCRETE CREEK RUNNING PARALLEL WITH MCKINNEY APPROXIMATELY 37.7' FROM POWER POLE TO THE WEST

A: 611.24'  
NAD83 TXNC (GRID)  
N: 7120793.43'  
E: 2389088.77'

**SITE BENCHMARK:**

BM #1 - "X" CUT IN SQUARE LOCATED ON THE NORTHWEST CORNER OF AN INLET OFF THE EAST BOUND SIDE OF WILLOWWOOD STREET AND APPROXIMATELY 42' WEST FROM THE CENTERLINE OF JACQUELINE DRIVE

ELEV: 686.09'  
NAD83 TXNC (GRID)  
N: 7120793.43'  
E: 2383257.97'

BM #2 - "X" CUT IN SQUARE LOCATED APPROXIMATELY 272' EAST FROM THE CENTERLINE OF MERCEDES ROAD AT THE END OF OAKWOOD DRIVE ON THE SOUTH SIDE ON THE CURB APPROXIMATELY 50' WEST OF THE CHURCH

ELEV: 688.85'  
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- GRADING NOTES**
- CLEARING AND GRUBBING SHALL CONSIST OF REMOVING ALL NATURAL AND ARTIFICIAL OBJECTIONABLE MATERIALS FROM THE PROJECT SITE.
  - ALL TREES, SHRUBS AND ALL SCRUB GROWTH SHALL BE CLEARED. ALL DEAD TREES, LOGS, STUMPS, RUBBISH OF ANY NATURE, AND OTHER SURFACE DEBRIS SHALL ALSO BE CLEARED.
  - THE CONTRACTOR WILL BE RESPONSIBLE FOR AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING CONSTRUCTION. THE CONTRACTOR SHALL, AT ALL TIMES, KEEP THE SITE OF THE WORK AND THE ADJACENT PREMISES AS FREE FROM MATERIAL, DEBRIS AND RUBBISH AS IS PRACTICABLE AND SHALL REMOVE SAME FROM ANY PORTION OF THE SITE.
  - UNSUITABLE MATERIAL, INCLUDING ALL ROCKS MEASURING LARGER THAN 6" IN THE LARGEST DIMENSION, REFUSE AND OTHER DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR. CONTRACTOR SHALL, ALSO, COMPLY WITH ALL APPLICABLE LAWS GOVERNING THE SPILLING OF DEBRIS WHILE TRANSPORTING TO A DISPOSAL SITE.
  - SIX (6") INCHES OF TOP SOIL SHALL BE PLACED ON ALL LANDSCAPE AREAS AND PARKING ISLANDS.
  - POSITIVE DRAINAGE AWAY FROM BUILDING FOUNDATION MUST BE PROVIDED. CONTRACTOR TO ENSURE THERE IS NO PONDING AROUND FOUNDATION.
  - THE GRADES SHOWN ON THIS PLAN ARE TOP OF PAVEMENT UNLESS OTHERWISE NOTED.
  - SHOULD THE CONTRACTOR ENCOUNTER ANY UNUSUAL GEOLOGICAL CONDITIONS DURING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING GEOTECHNICAL ENGINEER AND REQUESTING SUPPLEMENTAL RECOMMENDATIONS.
  - TESTING IS REQUIRED AND SHALL BE PERFORMED BY A LABORATORY APPROVED BY THE ENGINEER/OWNER AND PAID FOR BY THE OWNER.
  - LIMIT CONSTRUCTION ACTIVITY TO IMPROVEMENT AREAS ONLY.
  - REFERENCE LANDSCAPE PLANS FOR TREE PROTECTION METHODS.
  - CONTRACTOR IS RESPONSIBLE FOR ENSURING GRADES ON ALL WALKS DO NOT EXCEED 2% CROSS SLOPE AND 5% LONGITUDINAL SLOPE. ADJUST GRADES AS NECESSARY.
  - CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED.

1 SECTION B-B  
NOT TO SCALE

2 SECTION C-C  
NOT TO SCALE

THE RESERVES AT MAGNOLIA  
DENTON, TEXAS  
GRADING PLAN

**mma**  
civil engineering surveying landscape architecture planning  
ltpels registration number: 1 - 2759  
ltpels registration/license number: 10088000  
519 east border  
arlington, texas 76010  
817-469-1671  
fax: 817-274-8757  
www.mmatexas.com

10/4/2023  
STATE OF TEXAS  
ROBERT J. CRONIN JR.  
LICENSED PROFESSIONAL ENGINEER  
122288

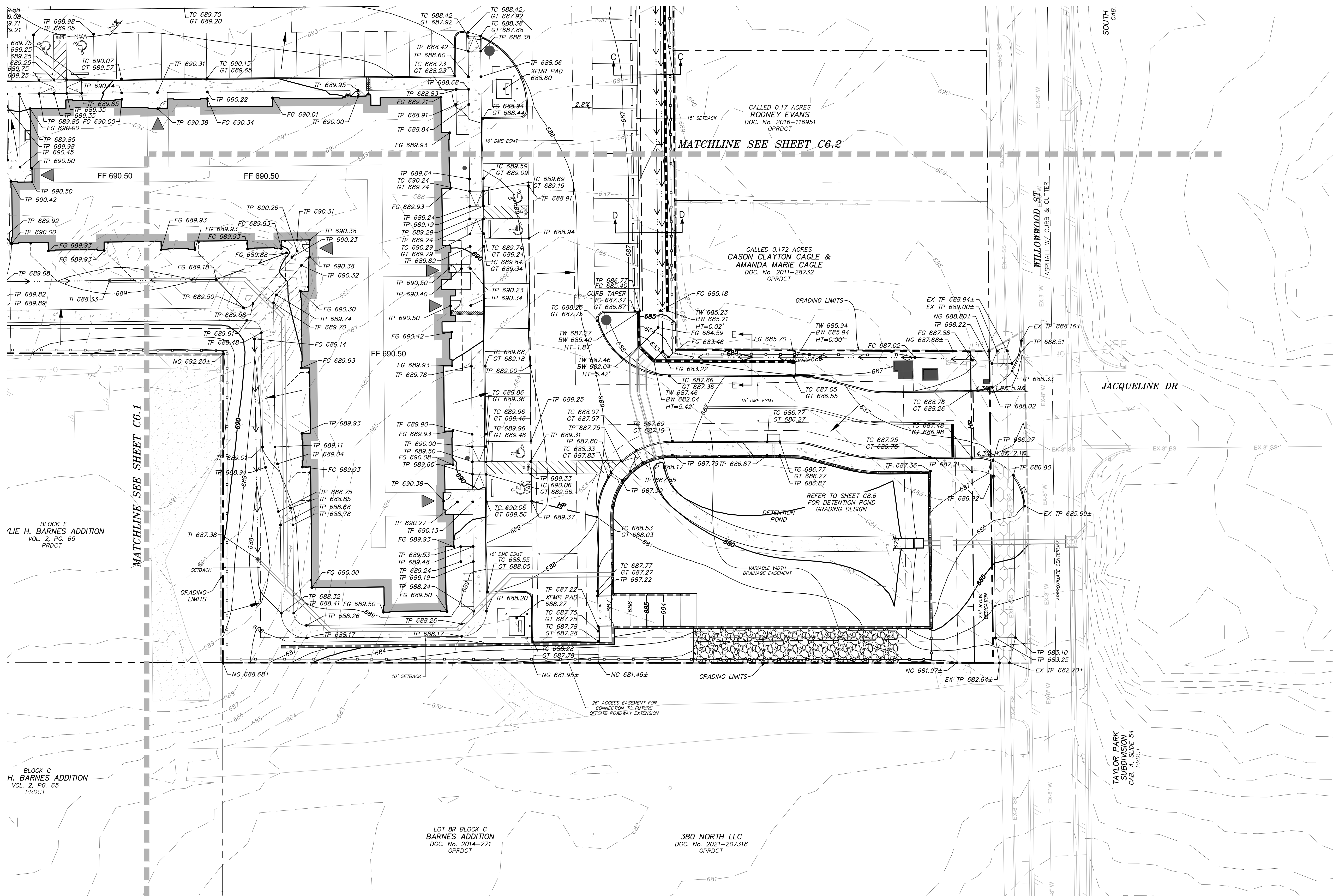
PROJECT NUMBER:	3597-00-02
PROJECT MANAGER:	R. CRONIN
DRAWN BY:	G. SANCHEZ
CHECKED BY:	A. TAYLOR
ISSUE DATE:	10/4/2023

REV.	DATE	DESCRIP.	BY

GRADING PLAN

SHEET NO:  
**C6.2**  
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**LEGEND:**

EXISTING MAJOR CONTOUR	---640---
EXISTING MINOR CONTOUR	---641---
PROPOSED MINOR CONTOUR	---640---
PROPOSED MAJOR CONTOUR	---641---
FINISHED GRADE	• FG 630.00
FINISHED FLOOR ELEVATION	FF 630.0
PROPOSED TOP OF PAVEMENT	• TP 630.00
PROPOSED TOP OF CURB	• TC 630.00
PROPOSED GUTTER	• GT 630.00
PROPOSED TOP OF WALL	• TW 630.00
PROPOSED BOTTOM OF WALL	• BW 630.00
PROPOSED TOP INLET	• TI 630.00
MATCH EXISTING	• NG 630.00±
PROPOSED RETAINING WALL	---

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**SITE BENCHMARK:**

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ELEV: 686.09'  
NAD83 TXNC (GRID)  
N: 7120793.43'  
E: 2383257.97'

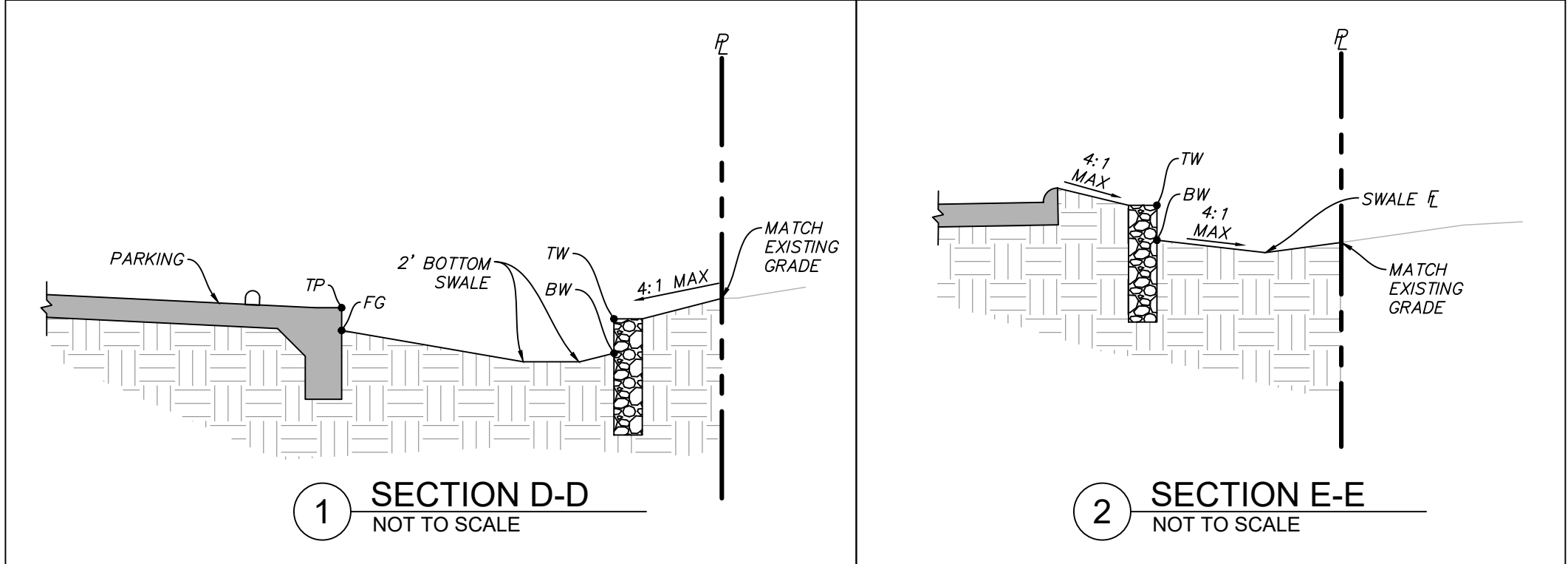
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ELEV: 688.85'  
NAD83 TXNC (GRID)  
N: 7121272.19'  
E: 2383152.20'

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**GRADING NOTES**

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THE RESERVES AT MAGNOLIA  
DENTON, TEXAS  
GRADING PLAN

**mma**  
civil engineering surveying landscape architecture planning  
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10/4/2023  
STATE OF TEXAS  
ROBERT J. CROMIN JR.  
122288  
LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER:	3597-00-02
PROJECT MANAGER:	R. CROMIN
DRAWN BY:	G. SANCHEZ
CHECKED BY:	A. TAYLOR
ISSUE DATE:	10/4/2023

REV.	DATE	DESCRIP.	BY

SHEET CONTENT:

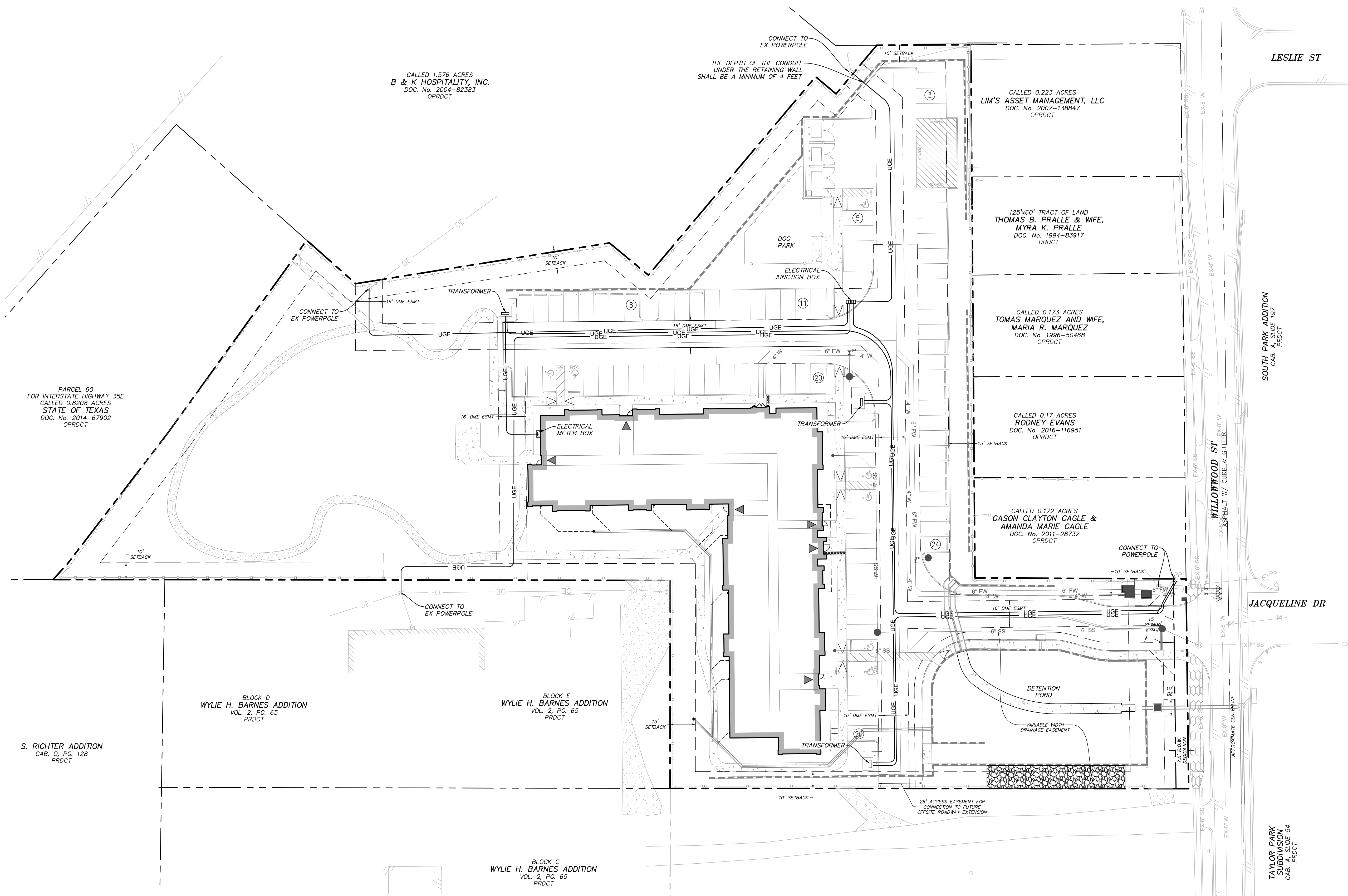
**GRADING PLAN**



NOTES:

1. MINIMUM COVER ON WATER PIPE SHALL BE 48" OVER THE WATER PIPE AS MEASURED FROM THE TOP OF THE PIPE TO THE EXISTING GROUND OR PROPOSED FINISHED GRADE, WHICHEVER IS GREATER.
2. FIRE HYDRANT ASSEMBLY SHALL INCLUDE HYDRANT, FITTINGS, AND 6" LEAD PIPE.
3. ALL FIRE LINES, SHALL BE SIZED AND INSTALLED BY A STATE OF TEXAS LICENSED FIRE SPRINKLER CONTRACTOR.
4. GENERAL CONTRACTOR SHALL PURCHASE AND INSTALL WATER METERS. METERS TO BE PURCHASED FROM CITY OF DENTON WATER DEPARTMENT.
5. MAINTAIN A MINIMUM SEPARATION OF 9 FEET BETWEEN WATER AND SEWER LINES.
6. SEE SHEET C11.0-C11.7 FOR WATER AND SANITARY SEWER DETAILS.
7. ALL PROPOSED CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF DENTON STANDARDS AND SPECIFICATIONS. A COPY OF THE CITY STANDARDS AND SPECIFICATIONS FOR USE ON THIS PROJECT MAY BE OBTAINED FROM THE CITY OF DENTON.
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10. TRENCH EXCAVATION FOR TRENCHES 5 FEET OR MORE IN DEPTH SHALL BE IN ACCORDANCE WITH ALL PROVISIONS OF PART 1926, SUBPART B - "EXCAVATIONS, TRENCHING AND SHORING OF THE OCCUPATIONAL SAFETY AND HEALTH'S STANDARDS AND INTERPRETATIONS". IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM TO THE ABOVE PROVISIONS AND PROVIDE NECESSARY TRENCH SAFETY PLANS TO THE CITY PRIOR TO RELEASE OF PLANS FOR CONSTRUCTION.
11. A TRENCH SAFETY PLAN AND A TRAFFIC SAFETY PLAN BOTH SEALED BY AN ENGINEER LICENSED IN THE STATE OF TEXAS WILL BE PROVIDED BY THE CONTRACTOR.
12. STATE LAW REQUIRES THE PRIVATE FIRE SERVICE UTILITIES AND UNDERGROUND SPRINKLER SYSTEM PIPING BE INSTALLED BY A CONTRACTOR LICENSED BY THE TEXAS COMMISSION OF FIRE PROTECTION TO INSTALL PRIVATE FIRE SERVICE UTILITIES. FLUSHING OF THE PIPING AND A HYDROSTATIC TEST IS TO BE WITNESSED BY THE FIRE DEPARTMENT PRIOR TO COVERING THE PIPING OR MAKING CONNECTION TO ANY ABOVEGROUND PIPING. A PERMIT ISSUED BY THE FIRE DEPARTMENT IS REQUIRED PRIOR TO STARTING WORK ON THE UTILITIES.
13. THE FIRE DEPARTMENT CONNECTION FOR THE SPRINKLER SYSTEM IS A 4" STORZ CONNECTION.
14. INSTALL CLEANOUTS REQUIRED BY PLUMBING CODE.
15. THE DEPTH OF CONDUIT UNDER THE RETAINING WALL SHALL BE A MINIMUM OF 4 FEET.



LEGEND:	
EXISTING SANITARY SEWER	EX-SS
EXISTING SEWER MANHOLE	SS
EXISTING WATER LINE	EX-W
EXISTING WATER VALVE	WV
EXISTING FIRE HYDRANT	FH
PROPOSED FIRE HYDRANT ASSEMBLY (INCLUDES ALL FITTINGS)	FHA
EXISTING OVERHEAD ELECTRIC	OHE
PROPOSED UNDERGROUND ELECTRIC	UGE
EXISTING POWER POLE	PP
EXISTING STORM LINE	EX-SL
EXISTING STORM INLET	SI
PROPOSED STORM LINE	SL
PROPOSED STORM INLET	SI
PROPOSED GATE VALVE	GV
PROPOSED WATER LINE	W
PROPOSED SEWER LINE	SS
PROPOSED SEWER MANHOLE	SS

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THE RESERVES AT MAGNOLIA  
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DME PLAN

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10/4/2023  
STATE OF TEXAS  
ROBERT J. CRONIN JR.  
122288  
LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER:	3597-00-02
PROJECT MANAGER:	R. CRONIN
DRAWN BY:	G. SANCHEZ
CHECKED BY:	A. TAYLOR
ISSUE DATE:	10/4/2023

REV.	DATE	DESCRIP.	BY

SHEET CONTENT:

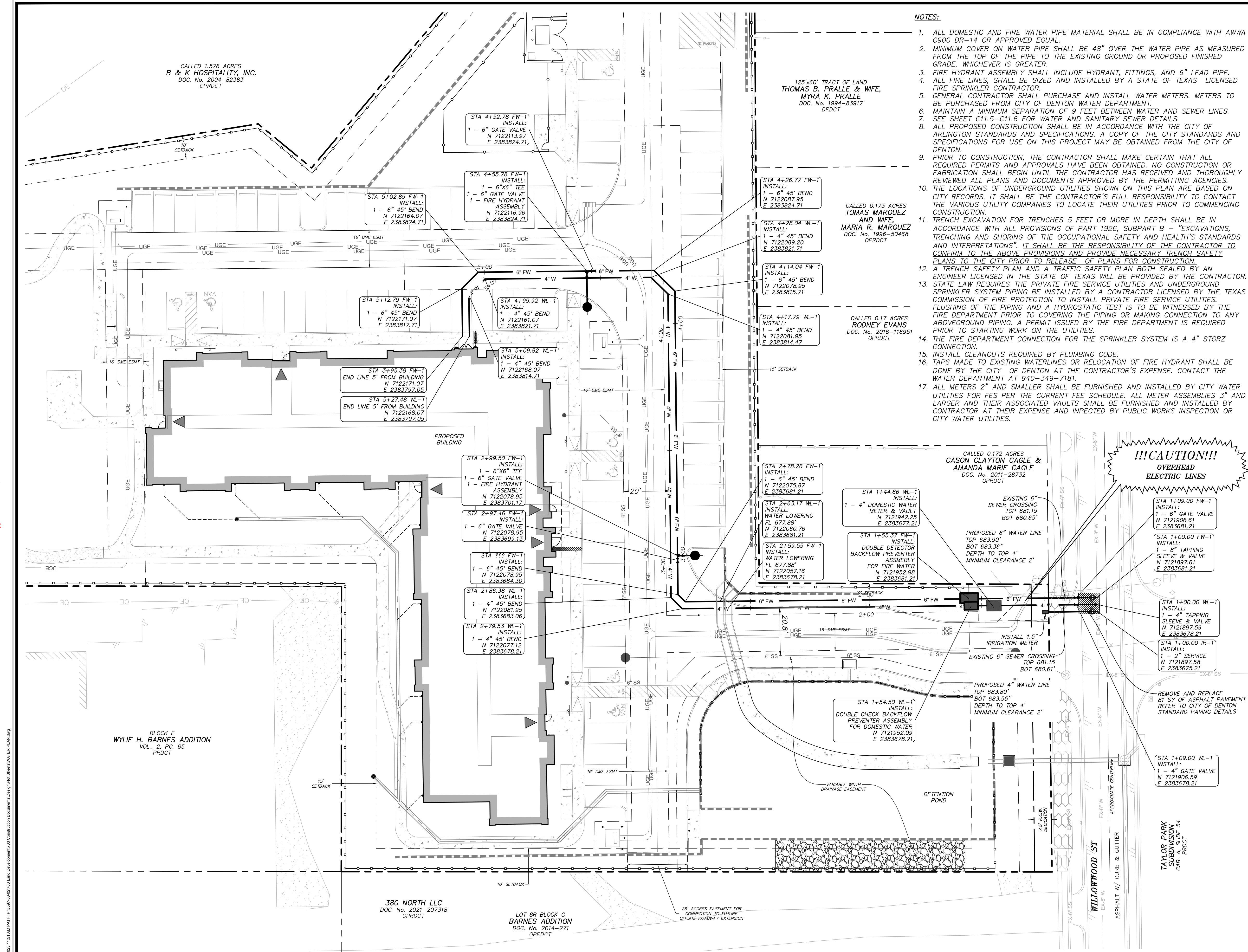
DME PLAN

SHEET NO:  
**C7.0**



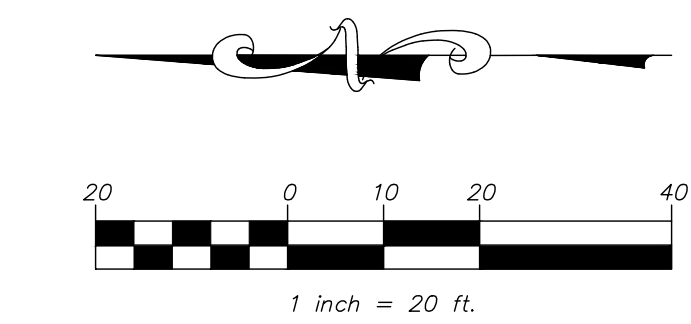
City of Denton  
Development Assistance Team  
Approved October 20, 2023

PLOTTED BY: GABRIELA GONZALEZ DATE: 10/02/2023 11:51 AM PATH: P:\3597-00\207318 Land Development\03 Construction Documents\Drawings\Sheet\WATER PLAN.dwg



NOTES:

1. ALL DOMESTIC AND FIRE WATER PIPE MATERIAL SHALL BE IN COMPLIANCE WITH AWWA C900 DR-14 OR APPROVED EQUAL.
2. MINIMUM COVER ON WATER PIPE SHALL BE 48" OVER THE WATER PIPE AS MEASURED FROM THE TOP OF THE PIPE TO THE EXISTING GROUND OR PROPOSED FINISHED GRADE, WHICHEVER IS GREATER.
3. FIRE HYDRANT ASSEMBLY SHALL INCLUDE HYDRANT, FITTINGS, AND 6" LEAD PIPE.
4. ALL FIRE LINES, SHALL BE SIZED AND INSTALLED BY A STATE OF TEXAS LICENSED FIRE SPRINKLER CONTRACTOR.
5. GENERAL CONTRACTOR SHALL PURCHASE AND INSTALL WATER METERS. METERS TO BE PURCHASED FROM CITY OF DENTON WATER DEPARTMENT.
6. MAINTAIN A MINIMUM SEPARATION OF 9 FEET BETWEEN WATER AND SEWER LINES.
7. SEE SHEET C11.5-C11.6 FOR WATER AND SANITARY SEWER DETAILS.
8. ALL PROPOSED CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF ARLINGTON STANDARDS AND SPECIFICATIONS. A COPY OF THE CITY STANDARDS AND SPECIFICATIONS FOR USE ON THIS PROJECT MAY BE OBTAINED FROM THE CITY OF DENTON.
9. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL MAKE CERTAIN THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND DOCUMENTS APPROVED BY THE PERMITTING AGENCIES.
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13. STATE LAW REQUIRES THE PRIVATE FIRE SERVICE UTILITIES AND UNDERGROUND SPRINKLER SYSTEM PIPING BE INSTALLED BY A CONTRACTOR LICENSED BY THE TEXAS COMMISSION OF FIRE PROTECTION TO INSTALL PRIVATE FIRE SERVICE UTILITIES.
14. THE FIRE DEPARTMENT CONNECTION FOR THE SPRINKLER SYSTEM IS A 4" STORZ CONNECTION.
15. INSTALL CLEANOUTS REQUIRED BY PLUMBING CODE.
16. TAPS MADE TO EXISTING WATERLINES OR RELOCATION OF FIRE HYDRANT SHALL BE DONE BY THE CITY OF DENTON AT THE CONTRACTOR'S EXPENSE. CONTACT THE WATER DEPARTMENT AT 940-349-7181.
17. ALL METERS 2" AND SMALLER SHALL BE FURNISHED AND INSTALLED BY CITY WATER UTILITIES FOR FES PER THE CURRENT FEE SCHEDULE. ALL METER ASSEMBLIES 3" AND LARGER AND THEIR ASSOCIATED VAULTS SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR AT THEIR EXPENSE AND INSPECTED BY PUBLIC WORKS INSPECTION OR CITY WATER UTILITIES.



LEGEND:

- EXISTING SANITARY SEWER — EX-SS —
- EXISTING SEWER MANHOLE — S —
- EXISTING WATER LINE — EX-W —
- EXISTING WATER VALVE — W —
- EXISTING FIRE HYDRANT — H —
- PROPOSED FIRE HYDRANT ASSEMBLY (INCLUDES ALL FITTINGS) — FH —
- EXISTING OVERHEAD ELECTRIC — OHE —
- PROPOSED UNDERGROUND ELECTRIC — UGE —
- EXISTING POWER POLE — P —
- EXISTING STORM LINE — S —
- EXISTING STORM INLET — SI —
- PROPOSED STORM LINE — S —
- PROPOSED STORM INLET — SI —
- PROPOSED GATE VALVE — G —
- PROPOSED WATER LINE — W —
- PROPOSED FIRE WATER LINE — FW —
- PROPOSED SEWER LINE — SS —
- PROPOSED SEWER MANHOLE — S —
- PROPOSED SEWER SERVICE — S —

!!!CAUTION!!!  
OVERHEAD  
ELECTRIC LINES

GENERAL UTILITY NOTES:

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CALL TEXAS 811 OR OTHER UTILITY LOCATING SERVICES 48 HOURS PRIOR TO CONSTRUCTION ACTIVITY. MMA INC. IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES OR DEPICTING EXACT LOCATIONS OF UTILITIES ON DRAWINGS.

SOURCE BENCHMARK:

CITY OF DENTON MONUMENT #2011 - 3.5" ALUMINUM CAP ON ROD "2011" LOCATED AT JUNCTION OF FRAME ROAD NORTH OF CONCRETE CREEK RUNNING PARALLEL WITH MCKINNEY APPROXIMATELY 37.7' FROM POWER POLE TO THE WEST  
A: 611.24'  
NAD83 TXNC (GRID)  
N: 7120266.50'  
E: 2389088.77'

SITE BENCHMARK:

BM #1 - "X" CUT IN SQUARE LOCATED ON THE NORTHWEST CORNER OF AN INLET OFF THE EAST BOUND SIDE OF WILLOWWOOD STREET AND APPROXIMATELY 42' WEST FROM THE CENTERLINE OF JACQUELINE DRIVE  
ELEV: 686.09'  
NAD83 TXNC (GRID)  
N: 7120793.43'  
E: 2383257.97'

ELEV: 688.85'  
NAD83 TXNC (GRID)  
N: 7121272.19'  
E: 2383152.20'

BEARINGS & COORDINATE VALUES SHOWN HEREON ARE IN REFERENCE TO THE NAD83 - TEXAS COORDINATE SYSTEM - NORTH CENTRAL ZONE, 4202, BASED ON GPS OBSERVATIONS UTILIZING THE LEICA GPS REFERENCE NETWORK. ALL DISTANCES SHOWN HEREON WERE ADJUSTED TO SURFACE USING A COMBINED SCALE FACTOR OF 1.0001526521 (0.999847371200), BASE POINT OF 0,0,0.

WATER DEMAND

Area No.	Land Use Type	Area/Count	Unit	Pop. Per Unit	Population	Ave. Daily Demand Per Capita (gpcd)	Avg Day Flow (gpm)	Max Day Factor	Design Flow (gpm)	Fire Flow (gpm)	Max Day Flow (MGD)	Max Day + Fire Flow (MGD)	Max Hour Factor	Max Hour Flow (gpm)	Max Hour Flow (MGD)
1	Multifamily (Units)	60	Units	2.5	150	170	17.71	2	35.42	1500.00	0.051	2.211	1.50	53.13	0.077
Totals						150	17.71	2.00	35.42	1500.00	2.211		1.50	2303.13	3.317

THE RESERVES AT MAGNOLIA  
DENTON, TEXAS

WATER PLAN

mma  
civil engineering surveying landscape architecture planning  
ltpels registration number: 1 - 2759  
ltpels registration/license number: 10088000  
519 east border  
arlington, texas 76010  
817-469-1671  
fax: 817-274-8757  
www.mmatexas.com

10/4/2023  
STATE OF TEXAS  
ROBERT J. CRONIN JR.  
122288  
LICENSED PROFESSIONAL ENGINEER

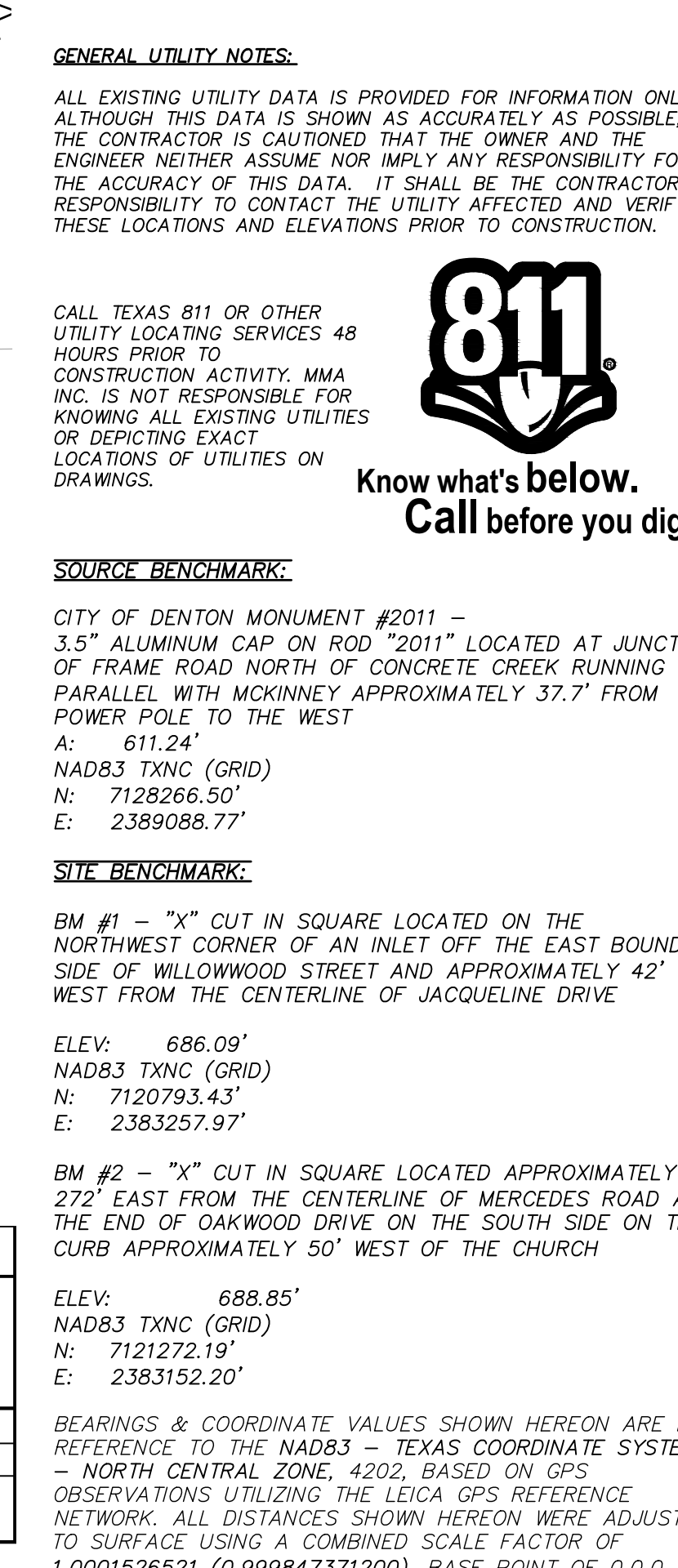
PROJECT NUMBER:	3597-00-02
PROJECT MANAGER:	R. CRONIN
DRAWN BY:	G. SANCHEZ
CHECKED BY:	A. TAYLOR
ISSUE DATE:	10/4/2023

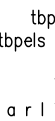

REV.	DATE	DESCRIP.	BY

WATER PLAN

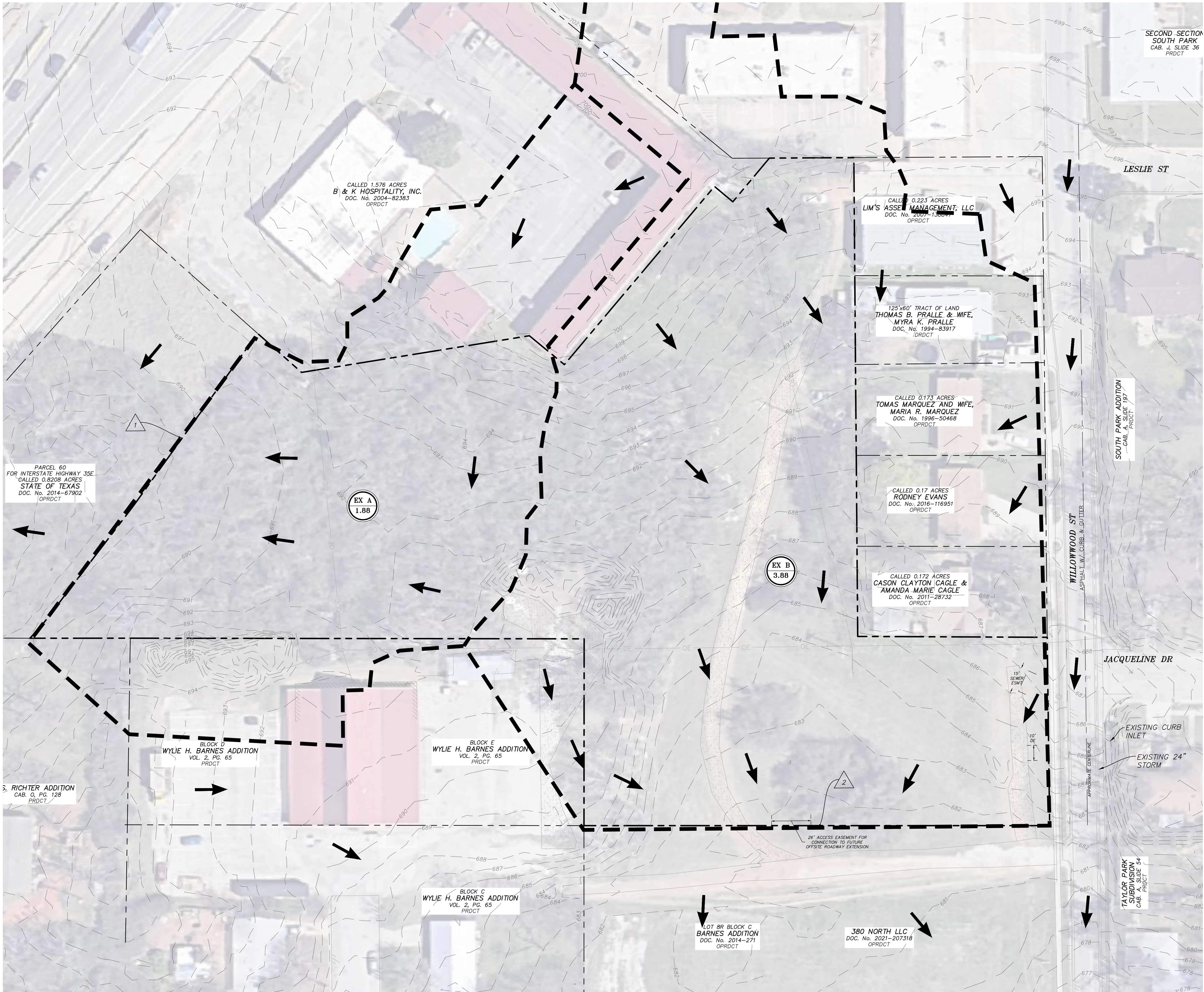
SHEET NO: C7.1  
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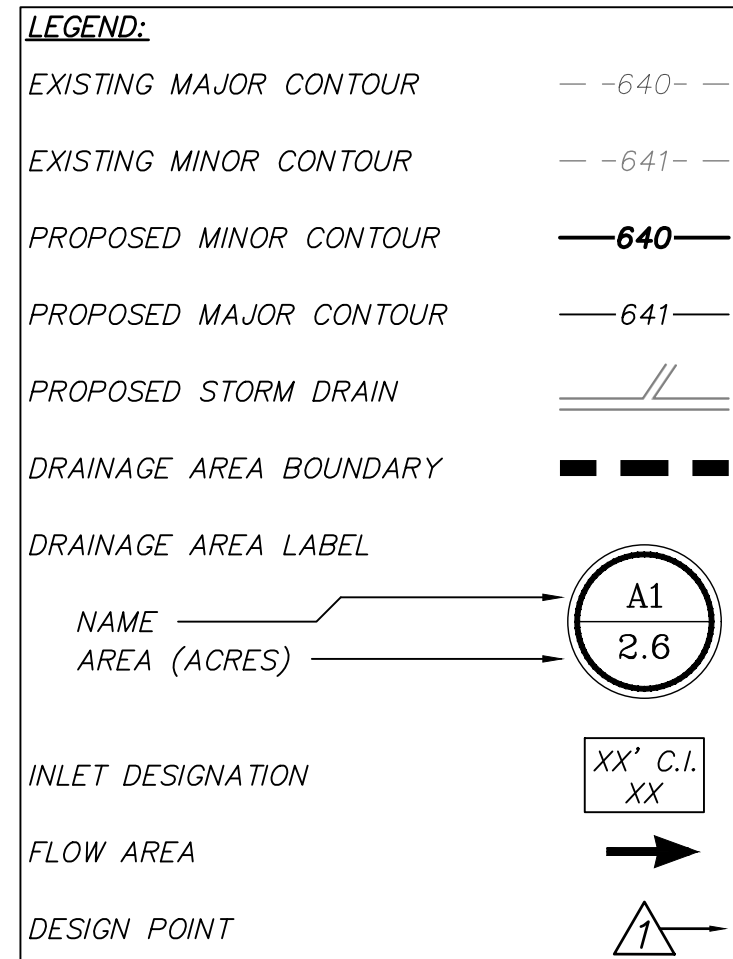


 <span style="font-size: 2em; font-weight: bold; margin-left: 10px;">mma</span> civil engineering    surveying    landscape architecture    planning			
ttps registration number: f - 2759 ttps registration/license number: 10088000  <p style="margin: 0; text-align: center;">519 east border orlington, texas 76010 817-469-1671 fax: 817-274-8757 www.mmatexas.com</p>			
<div style="text-align: center;">             10/4/2023      <i>Cronin [Signature]</i> </div>			
<b>PROJECT NUMBER:</b>		3597--00--02	
<b>PROJECT MANAGER:</b>		R. CRONIN	
<b>DRAWN BY:</b>		G. SANCHEZ	
<b>CHECKED BY:</b>		A. TAYLOR	
<b>ISSUE DATE:</b>		10/4/2023	
REV.	DATE	DESCRIP.	BY
SHEET CONTENT:			
<h1 style="margin: 0;">SANITARY SEWER PLAN</h1>			
SHEET NO:			
<h2 style="margin: 0;">C7.2</h2>			









- GENERAL UTILITY NOTES:**
- ALL EXISTING UTILITY DATA IS PROVIDED FOR INFORMATION ONLY. ALTHOUGH THIS DATA IS SHOWN AS ACCURATELY AS POSSIBLE, THE CONTRACTOR IS CAUTIONED THAT THE OWNER AND THE ENGINEER NEITHER ASSUME NOR IMPLY ANY RESPONSIBILITY FOR THE ACCURACY OF THIS DATA. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE UTILITY AFFECTED AND VERIFY THESE LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION.

SOURCE BENCHMARK:

CITY OF DENTON MONUMENT #2011 -  
3.5" ALUMINUM CAP ON ROD "2011" LOCATED AT JUNCTIO  
OF FRAME ROAD NORTH OF CONCRETE CREEK RUNNING  
PARALLEL WITH MCKINNEY APPROXIMATELY 37.7' FROM  
POWER POLE TO THE WEST  
A= 611.24'  
NAD83 TXNC (GRID)  
N: 7128266.50'  
E: 2389088.77'

ELEV: 686.09'  
NAD83 TXNC (GRID)  
N: 7120793.43'  
E: 2383257.97'

BM #2 - "X" CUT IN SQUARE LOCATED APPROXIMATELY 272' EAST FROM THE CENTERLINE OF MERCEDES ROAD AT THE END OF OAKWOOD DRIVE ON THE SOUTH SIDE ON THE CURB APPROXIMATELY 50' WEST OF THE CHURCH

ELEV: 688.85'  
NAD83 TXNC (GRID)  
N: 7121272.19'  
E: 2383152.20'

BEARINGS & COORDINATE VALUES SHOWN HEREON ARE IN REFERENCE TO THE NAD83 - TEXAS COORDINATE SYSTEM - NORTH CENTRAL ZONE, 4202, BASED ON GPS OBSERVATIONS UTILIZING THE LEICA GPS REFERENCE NETWORK. ALL DISTANCES SHOWN HEREON WERE ADJUSTED TO SURFACE USING A COMBINED SCALE FACTOR OF 1.0001526521 (0.999847371200), BASE POINT OF 0,0,0.

10/4/2023

STATE OF TEXAS

★ ★ ★ ★ ★

ROBERT J. CRONIN JR.

122288

LICENSED PROFESSIONAL ENGINEER

Ande

PROJECT NUMBER:	3597-00-02
PROJECT MANAGER:	R. CRONIN
DRAWN BY:	G. SANCHEZ
CHECKED BY:	A. TAYLOR
ISSUE DATE:	10/4/2023

[illegible]

# POST DEVELOPED DRAINAGE AREA MAP

SHEET NO: **C8.1**

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City of Denton  
Development Assistance Team  
Approved October 26, 2023

NOTES:

1. ALL DRAINAGE CALCULATIONS ON THIS SHEET ARE PERFORMED USING NRCS (SCS) METHODOLOGY. NO RATIONAL CALCULATIONS ARE UTILIZED FOR THE DETENTION POND PRE/POST COMPARISON.

EXISTING RUNOFF CALCULATIONS

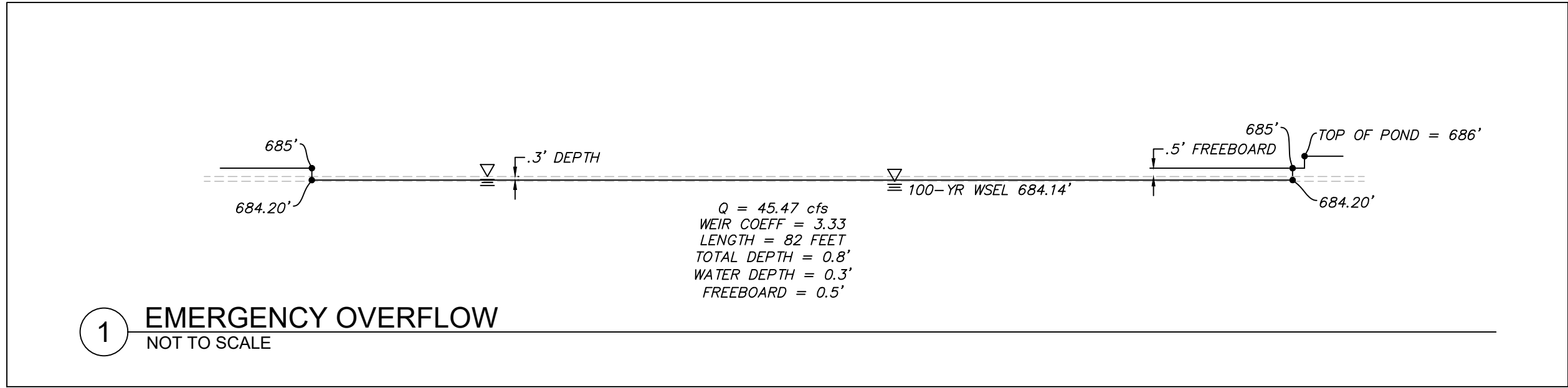
BASIN PARAMETERS					
Area Name	Area (ac.)	Base Composite CN	Percent Impervious	Composite Curve Number	Time of Concentration (min)
EX A (DP 1)	1.88	80	24.57	84.4	4.58
EX B (DP 2)	3.88	80	34.78	86.3	6.11

Segment Information					Sheet Flow			Shallow Flow		Channel Flow					Segment TOC (min)	Segment	DA
DA	Segment	Flow Type	Length	Slope (ft/ft)	Rainfall Depth 2yr24hr	Manning's Coefficient	Velocity (fps)	Surface Type	Velocity (fps)	Section Area	Wetted Perimeter	Manning's Coefficient	Velocity (fps)	Description			
EX A	1	Sheet Flow	50	0.0018	3.63	0.011	0.49							1.71	1	EX A	
EX A	2	Shallow Concentrated Flow	89	0.0034				Paved	1.19					1.25	2	EX A	
EX A	3	Shallow Concentrated Flow	295	0.0353				Unpaved	3.03					1.62	3	EX A	
EX B	1	Sheet Flow	50	0.0064	3.63	0.011	0.81							1.03	1	EX B	
EX B	2	Shallow Concentrated Flow	413	0.0171				Paved	2.66					2.59	2	EX B	
EX B	3	Shallow Concentrated Flow	462	0.0366				Unpaved	3.09					2.49	3	EX B	

PROPOSED RUNOFF CALCULATIONS

BASIN PARAMETERS					
Area Name	Area (ac.)	Base Composite CN	Percent Impervious	Composite Curve Number	Time of Concentration (min)
A	1.41	80	33.55	86	4.49
B1	2.83	80	71.26	92.8	7.5
B2	1.26	80	57.76	90.4	5.78
B3	0.25	80	28.14	85.1	5.12

Segment Information				Sheet Flow			Shallow Flow		Channel Flow					Segment TOC (min)	Segment	DA	
DA	Segment	Flow Type	Length	Slope (ft/ft)	Rainfall Depth 2yr24hr	Manning's Coefficient	Velocity (ft/s)	Surface Type	Velocity (ft/s)	Section Area	Wetted Perimeter	Manning's Coefficient	Velocity (ft/s)				Description
A	1	Sheet Flow	50	0.0018	3.63	0.011	0.49								1.71	1	A
A	2	Shallow Concentrated Flow	89	0.0034				Paved	1.19						1.25	2	A
A	3	Shallow Concentrated Flow	283	0.0367				Unpaved	3.09						1.53	3	A
B1	1	Sheet Flow	50	0.0064	3.63	0.011	0.81								1.03	1	B1
B1	2	Shallow Concentrated Flow	410	0.0165				Paved	2.61						2.62	2	B1
B1	3	Shallow Concentrated Flow	16	0.0775				Unpaved	4.49						0.06	3	B1
B1	4	Shallow Concentrated Flow	160	0.0284				Paved	3.43						0.78	4	B1
B1	5	Channel Flow	150	0.0284						0.284	5.9	0.04	0.83	Trapezoid channel, 2' bottom, 50:1;4:1 sides, .07' depth	3.01	5	B1
B2	1	Sheet Flow	50	0.0322	3.63	0.15	0.19								4.37	1	B2
B2	2	Shallow Concentrated Flow	93	0.0268				Unpaved	2.74						0.57	2	B2
B2	3	Channel Flow	325	0.01						1.77	4.71	0.012	6.44	18" HDPE pipe, flowing full	0.84	3	B2
B3	1	Sheet Flow	77	0.0514	3.63	0.15	0.25								5.12	1	B3



ANALYSIS POINT PRE/POST COMPARISON

Junction	Existing Discharge (cfs)			Proposed Discharge (cfs)			Difference		
	1-Yr	25-Yr	100-Yr	1-Yr	25-Yr	100-Yr	1-Yr	25-Yr	100-Yr
1	6.5	17.8	23.8	5.1	13.6	18.1	-1.4	-4.2	-5.6
2	13.8	36.6	48.7	12.5	35.9	48.1	-1.3	-0.7	-0.5

Detention Pond Results

Storm (year)	Peak Inflow (cfs)	Peak Outflow (cfs)	WSEL	Storage (cu-ft)	Freeboard
WQ		0.092	681.46	12481	4.54
1	16.44	11.88	683.11	8451	2.89
25	38.51	33.90	683.89	14130	2.11
100	50.10	45.47	684.14	16117	1.86
Outfall Structure	1-1.25" orifice (water quality) at FL elevation 679.9' and 8'-8" orifices at FL elevation 682' and 9" broad crested weir at elevation 683.20'				
Top of Pond	686				
Stage	Elevation	Total Storage (cu-ft)	Orifice Discharge (cfs)	Weir Discharge (cfs)	Total Discharge (cfs)
0	682.00	0	0.00	0.00	0.00
0.40	682.40	3076	1.60	0.00	1.60
0.80	682.80	6168	7.04	0.00	7.04
1.20	683.20	9071	12.52	0.00	12.52
1.60	683.60	11864	15.13	7.58	22.71
2.00	684.00	15002	17.36	21.44	38.80
2.20	684.20	16576	18.37	29.97	48.34
2.40	684.40	18154	19.33	39.40	58.73
2.60	684.60	19735	20.24	49.64	69.88
2.80	684.80	21320	21.12	60.65	81.77
3.00	685.00	22909	21.95	72.38	94.33
3.20	685.20	24501	22.76	84.77	107.53
3.40	685.40	26097	23.54	97.80	121.34
3.50	685.50	27696	23.92	104.54	128.46
3.80	685.80	29300	25.03	125.64	150.67
4.00	686.00	30906	25.74	140.42	166.16

Hydrograph Report

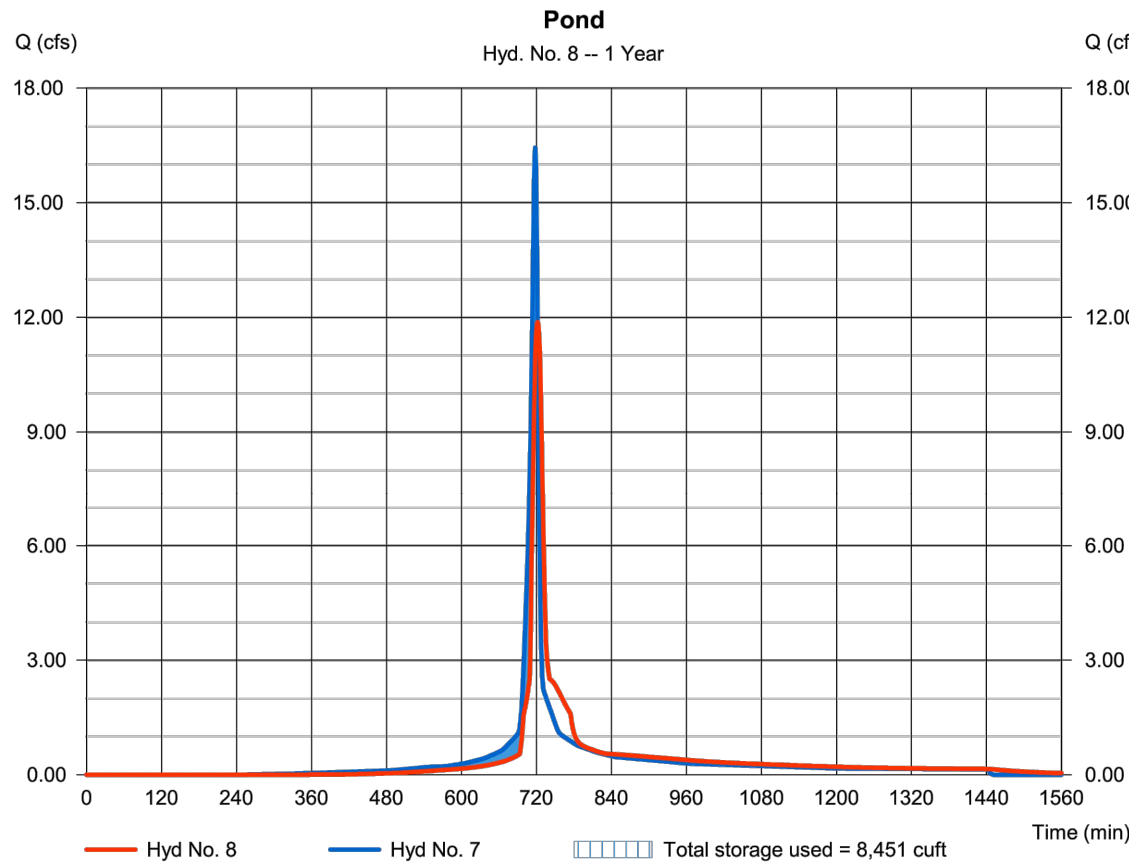
Hydroflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Monday, 05/15/2023

Hyd. No. 8

Pond

Hydrograph type	= Reservoir	Peak discharge	= 11.88 cfs
Storm frequency	= 1 yrs	Time to peak	= 722 min
Time interval	= 1 min	Hyd. volume	= 36,216 cuft
Inflow hyd. No.	= 7 - Pond Junction	Max. Elevation	= 683.11 ft
Reservoir name	= Adjusted Proposed	Max. Storage	= 8,451 cuft

Storage Indication method used.



Hydrograph Report

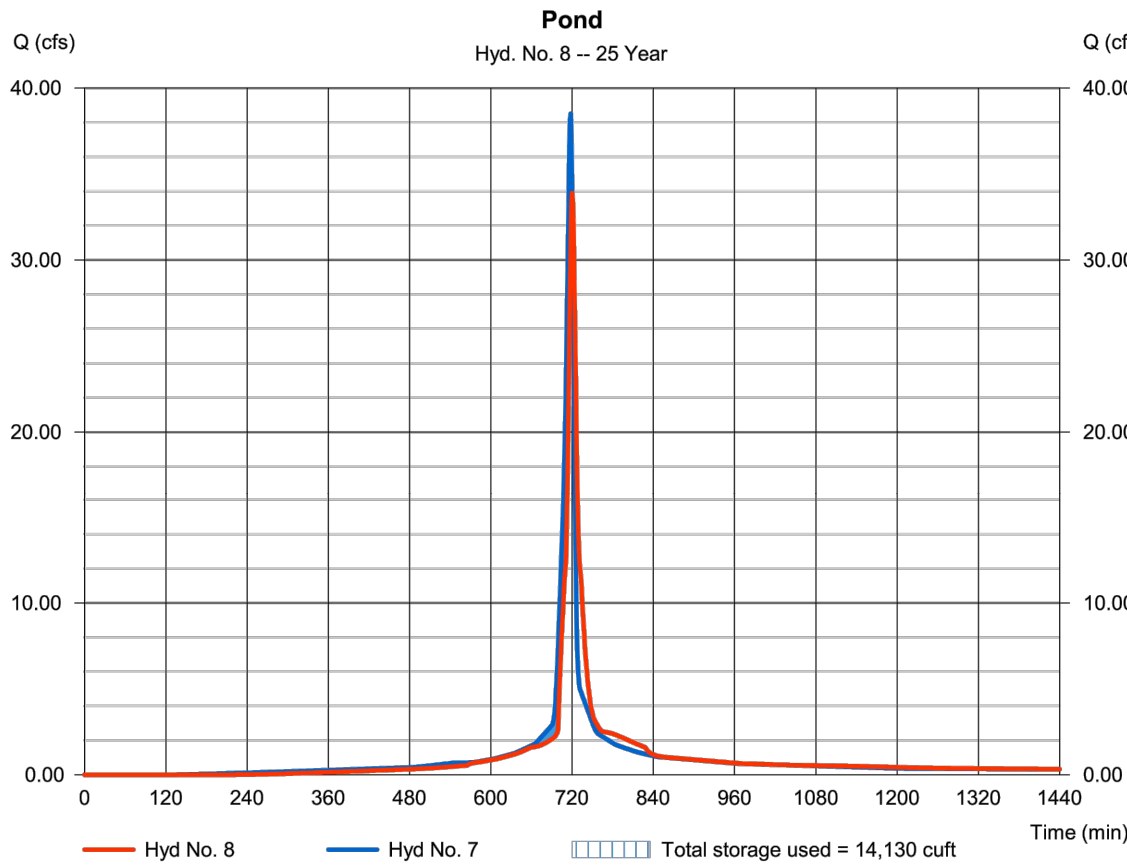
Hydroflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Monday, 05/15/2023

Hyd. No. 8

Pond

Hydrograph type	= Reservoir	Peak discharge	= 33.90 cfs
Storm frequency	= 25 yrs	Time to peak	= 720 min
Time interval	= 1 min	Hyd. volume	= 90,109 cuft
Inflow hyd. No.	= 7 - Pond Junction	Max. Elevation	= 683.89 ft
Reservoir name	= Adjusted Proposed	Max. Storage	= 14,130 cuft

Storage Indication method used.



Hydrograph Report

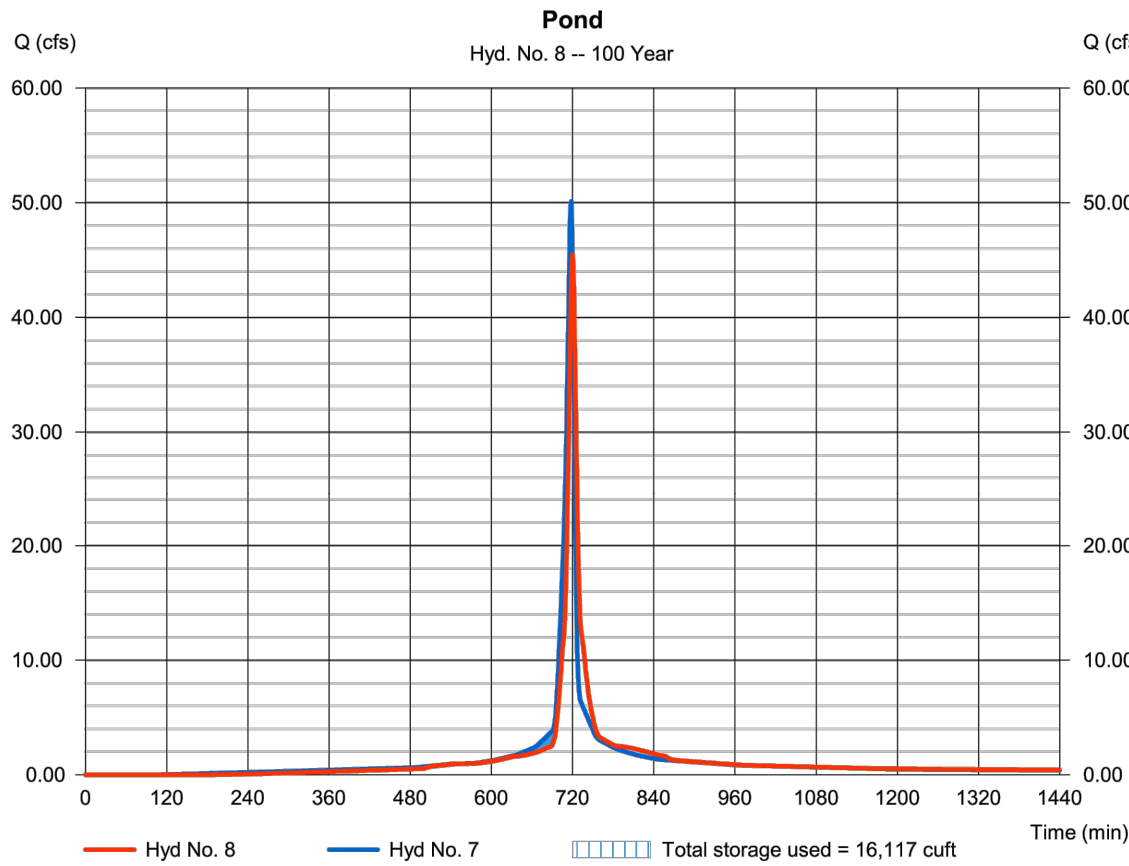
Hydroflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Monday, 05/15/2023

Hyd. No. 8

Pond

Hydrograph type	= Reservoir	Peak discharge	= 45.47 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 1 min	Hyd. volume	= 119,276 cuft
Inflow hyd. No.	= 7 - Pond Junction	Max. Elevation	= 684.14 ft
Reservoir name	= Adjusted Proposed	Max. Storage	= 16,117 cuft

Storage Indication method used.



THE RESERVES AT MAGNOLIA  
DENTON, TEXAS  
DETENTION CALCULATIONS

mima  
civil engineering surveying landscape architecture planning  
lpels registration number: 1 - 2759  
lpels registration/license number: 10088000  
519 east border  
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fax: 817-274-8757  
www.mimatex.com

10/4/2023  
STATE OF TEXAS  
ROBERT J. CRONIN JR.  
122288  
LICENSED PROFESSIONAL ENGINEER  
PROJECT NUMBER: 3597-00-02  
PROJECT MANAGER: R. CRONIN  
DRAWN BY: G. SANCHEZ  
CHECKED BY: A. TAYLOR  
ISSUE DATE: 10/4/2023

REV. DATE DESCRIP. BY  
SHEET CONTENT:

DETENTION  
CALCULATIONS

SHEET NO:  
C8.2  
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NOTES:  
1. RATIONAL METHOD CALCULATIONS ON THIS SHEET ARE USED FOR STORM SYSTEM CALCULATIONS ONLY

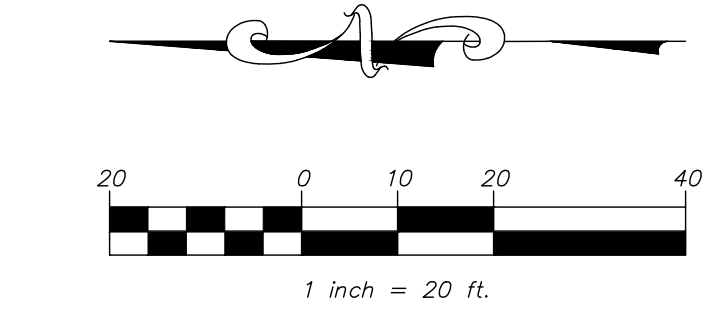
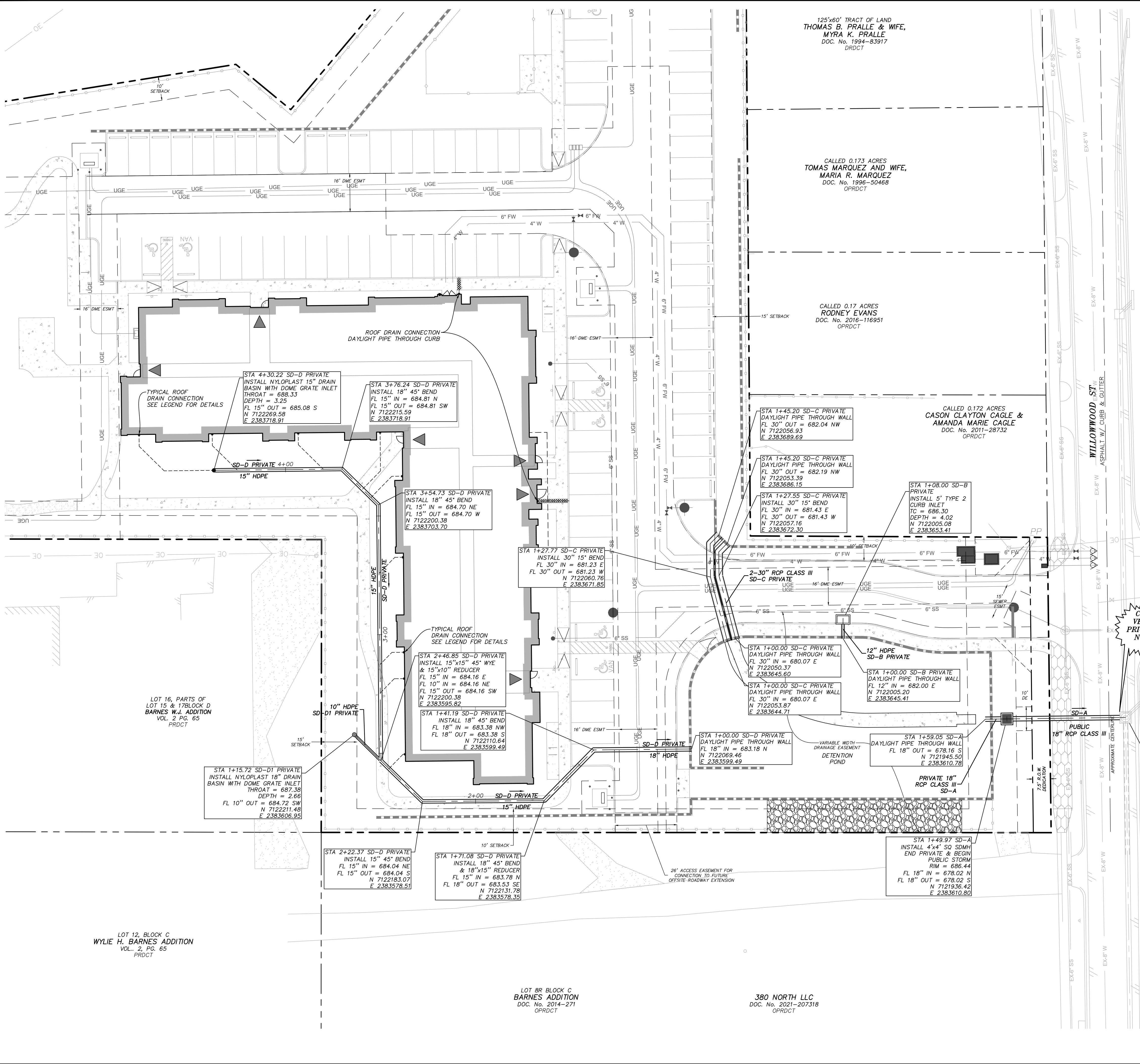
Reserves at Magnolia																					
PROPOSED CONDITIONS DRAINAGE AREA COMPUTATIONS																					
Area Name	Runoff Coef. "C"	AREA "A" (ac.)	Total "CA"	Time of Concentration (min)	Ca 2	C*Ca 2	I 2yr (in/hr)	Q 2yr (cfs)	Ca 5	C*Ca 5	I5 (in/hr)	Q5 (cfs)	Ca 25	C*Ca 25	I25 (in/hr)	Q25 (cfs)	Ca 100	C*Ca 100	I100 (in/hr)	Q100 (cfs)	COMMENTS
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
B1	0.77	2.83	2.17	10.00	1.00	0.77	4.32	9.35	1.00	0.77	5.57	12.07	1.10	0.84	7.70	18.34	1.25	0.96	9.45	25.56	TO PROP. CULVERT
B2	0.85	0.22	0.19	10.00	1.00	0.85	4.32	0.81	1.00	0.85	5.57	1.04	1.10	0.94	7.70	1.58	1.25	1.00	9.45	2.08	TO PROP. CURB INLET C1
B3	0.85	0.26	0.22	10.00	1.00	0.85	4.32	0.95	1.00	0.85	5.57	1.23	1.10	0.94	7.70	1.87	1.25	1.00	9.45	2.46	TO LANDSCAPE DRAINS
B4	0.85	0.18	0.15	10.00	1.00	0.85	4.32	0.66	1.00	0.85	5.57	0.85	1.10	0.94	7.70	1.30	1.25	1.00	9.45	1.70	ROOF DRAINS
B5	0.85	0.22	0.19	10.00	1.00	0.85	4.32	0.81	1.00	0.85	5.57	1.04	1.10	0.94	7.70	1.58	1.25	1.00	9.45	2.08	ROOF DRAINS
B6	0.85	0.13	0.11	10.00	1.00	0.85	4.32	0.48	1.00	0.85	5.57	0.62	1.10	0.94	7.70	0.94	1.25	1.00	9.45	1.23	TO LANDSCAPE DRAINS
B7	0.53	0.27	0.14	10.00	1.00	0.53	4.32	0.62	1.00	0.53	5.57	0.80	1.10	0.58	7.70	1.21	1.25	0.66	9.45	1.69	DETENTION POND

Reserves at Magnolia				
WEIGHTED C VALUE COMPUTATIONS				
AREA NAME	DESCRIPTION	AREA - A (AC.)	"C"	C*A
Area No.				WEIGHTED "C"
	B1 MULTIFAMILY HEAVY	1.2400	0.85	1.0540
	B1 COMMERCIAL HEAVY	0.7850	0.80	0.6280
	B1 SINGLE FAMILY (1/4 ACRE LOTS)	0.8050	0.60	0.4830
			-	-
			-	-
	TOTALS	2.8300		2.1650
Area No.				0.765
	B7 POND	0.1920	0.40	0.0768
	B7 MULTIFAMILY	0.0780	0.85	0.0663
			-	-
			-	-
	TOTALS	0.2700		0.1431
				0.530

Reserves at Magnolia Storm Hydraulic Calculations																																													
Line No.	Station		Pipe Length	Drainage Area No.	Area	Total Area	C	C <sub>u</sub> /C <sub>t</sub>	Increment C*C <sub>u</sub> *A	Total CA	Time of Concentration				IS	I (Design Below)	Q5	Q (Design Below)	Crown Overtop	Inlet Bypass	Q <sub>pipe</sub>	Pipe Size			Manning's 'n'	Pipe Capacity	S <sub>t</sub>	HGL		Head Loss Calculations								Entrance Control		Design HGL	Invert		Pipe Slope	T/C	Comments
	From	To									Inlet	Travel	Increment	Design								No.	Span	Dia/Height				D/S	U/S	V <sub>1</sub>	V <sub>2</sub>	V <sub>1</sub> <sup>2</sup> /2g	V <sub>2</sub> <sup>2</sup> /2g	K <sub>f</sub>	K <sub>f</sub> V <sub>1</sub> <sup>2</sup> /2g	H <sub>k</sub>	H <sub>wic</sub>	Control	From		To				
	ft	ft									min	min	min	min								in/hr	in/hr	cfs				cfs	cfs	cfs	ft	ft	ft/s	ft/s	ft	ft	ft	ft	ft		ft	ft			
	1	2	3	4	5	6	7a	7b	8	9	10	11	12	13	14	15	16	17	18a	18b	19	20a	20b	20c	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
SD-A															100		100																												
1	1+59.05	1+49.97	9.08	WQ		0.00	0.53	1.25		0.00	10.00	3.03	10.00	10.00	5.57	9.45	0.00	0.00			0.09	1		18	0.013	13.25	0.00%	679.10	679.10	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	FALSE	679.10	678.16	678.02	1.59%	682.00	Continuation From Another Line,Super Critical Flow
2	1+49.97	1+00.00	49.97			0.00	0.53	1.25		0.00	10.00	16.66	13.03	10.00	5.57	9.45	0.00	0.00			0.09	1		18	0.015	11.48	0.00%	679.00	679.00	0.05	0.05	0.00	0.00	1.00	0.00	0.10	0.00	FALSE	679.10	678.02	677.22	1.59%	686.43	Manhole on Main Line with no Branch	
SD-B															100		100																												
1	1+08.00	1+00.00	8.00	B2	0.22	0.22	0.85	1.25	0.22	0.22	10.00	0.11	10.00	10.00	5.57	9.45	1.23	2.08			2.08	1		18	0.013	19.65	0.04%	684.14	684.14	0.00	1.18	0.00	0.02	1.25	0.00	0.10	0.00	FALSE	684.24	682.28	682.00	3.50%	686.29	Inlet or Manhole at Beginning of Line	
SD-C															100		100																												
1	1+45.20	1+38.09	7.11	B1	2.83	2.83	0.77	1.25	2.71	2.71	10.00	0.05	10.00	10.00	5.57	9.45	15.09	25.56			25.56	2		30	0.015	155.11	0.05%	684.36	684.36	0.00	2.60	0.00	0.11	0.50	0.00	0.10	1.70	FALSE	684.46	682.19	681.92	4.76%	687.46	Inlet on Main Line,Super Critical Flow	
2	1+38.09	1+27.55	10.54			2.83				2.71	10.00	0.07	10.05	10.00	5.57	9.45	15.09	25.56			25.56	2		30	0.015	155.11	0.05%	684.25	684.26	2.60	2.60	0.11	0.11	0.35	0.04	0.10	0.00	FALSE	684.36	681.92	681.43	4.76%	688.01	Bend 45°	
3	1+27.55	1+00.00	27.55			2.83				2.71	10.00	0.18	10.12	10.00	5.57	9.45	15.09	25.56			25.56	2		30	0.015	155.11	0.05%	684.14	684.15	2.60	2.60	0.11	0.11	0.10	0.01	0.10	0.00	FALSE	684.25	681.43	680.07	4.76%	687.46	Bend 11.25°	
SD-D															100		100																												
1	4+30.22	3+76.24	53.98	B3 & B4	0.44	0.44	0.85	1.25	0.44	0.44	10.00	0.27	10.00	10.00	5.57	9.45	2.45	4.16			4.16	1		15	0.013	4.57	0.41%	687.30	687.52	0.00	3.39	0.00	0.18	1.25	0.00	0.22	1.30	FALSE	687.74	685.08	684.81	0.50%	688.33	Inlet or Manhole at Beginning of Line	
2	3+76.24	3+54.73	21.51			0.44				0.44	10.00	0.11	10.27	10.00	5.57	9.45	2.45	4.16			4.16	1		15	0.013	4.57	0.41%	687.11	687.20	3.39	3.39	0.18	0.18	0.35	0.06	0.10	0.00	FALSE	687.30	684.81	684.70	0.50%	689.48	Bend 45°	
3	3+54.73	2+46.85	107.88			0.44				0.44	10.00	0.53	10.38	10.00	5.57	9.45	2.45	4.16			4.16	1		15	0.013	4.57	0.41%	686.56	687.01	3.39	3.39	0.18	0.18	0.35	0.06	0.10	0.00	FALSE	687.11	684.70	684.16	0.50%	689.77	Bend 45°	
4	2+46.85	2+22.37	24.48	B5&B6	0.35	0.79	0.85	1.25	0.35	0.79	10.00	0.07	10.91	10.91	5.38	9.11	4.25	7.20			7.20	1		15	0.013	4.57	1.24%	685.86	686.16	3.39	5.87	0.18	0.54	0.75	0.14	0.40	0.00	FALSE	686.56	684.16	684.04	0.50%	688.46	45° Wye Connection or Cut-in	
5	2+22.37	1+71.08	51.29			0.79				0.79	10.00	0.15	10.98	10.91	5.38	9.11	4.25	7.20			7.20	1		15	0.013	4.57	1.24%	685.03	685.67	5.87	5.87	0.54	0.54	0.35	0.19	0.19	0.00	FALSE	685.86	684.04	683.78	0.50%	688.23	Bend 45°	
6	1+71.08	1+41.19	29.89			0.79				0.79	10.00	0.12	11.13	10.91	5.38	9.11	4.25	7.20			7.20	1		18	0.013	7.43	0.47%	684.67	684.81	5.87	4.07	0.54	0.26	0.35	0.19	0.10	0.00	FALSE	684.91	683.53	683.38	0.50%	688.23	Bend 45°	
7	1+41.19	1+00.00	41.19			0.79				0.79	10.00	0.17	11.25	10.91	5.38	9.11	4.25	7.20			7.20	1		18	0.013	7.43	0.47%	684.14	684.57	4.07	4.07	0.26	0.26	0.35	0.09	0.10	0.00	FALSE	684.67	683.38	683.18	0.50%	688.21	Bend 45°	
SD-D1															100		100																												
1	1+15.72	1+00.00	15.72	B6	0.13	0.13	0.85	1.25	0.13	0.13	10.00	0.12	10.00	10.00	5.57	9.45	0.72	1.23			1.23	1		10	0.013	4.15	0.32%	686.56	686.61	0.00	2.26	0.00	0.08	1.25	0.00	0.10	0.74	FALSE	686.71	684.72	684.16	3.58%	687.39	Inlet or Manhole at Beginning of Line	

Curb Inlet and Drop Inlet in Sump																								
Inlet No.	Area No.	Area (acres)	100-year Flow (cfs)	100-year Carryover Flow (cfs)	100 Crown Overtop (cfs)	100 Total Gutter Flow Qo (cfs)	5-year Flow (cfs)	5-year Carryover Flow (cfs)	5 Crown Overtop (cfs)	5 Total Gutter Flow Qo (cfs)	Max Depth of Gutter Flow Yo (ft.)	100-year Actual Depth of Gutter Flow Yo (ft.)	5-year Actual Depth of Gutter Flow Yo (ft.)	Depth of Depression (ft.)	Depth of Flow at Opening Y (ft.)	Capacity of Inlet Per Foot of Length Q/L (cfs/ft.)	Length of Inlet Opening L or P (ft)	Clogging (%)	Max Depth Capacity of Inlet Q (cfs)	100 Carry Over Into OverFlow (cfs)	100- year Percent Q Captured By Inlet	5-year Carry Over Into OverFlow (cfs)	5- year Percent Q Captured By Inlet	Notes
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
C1	B2	0.22	2.08			2.08				0.00	0.28	0.24	0.00		0.24	0.44	5	0	2.22	0	100	0	100	





- LEGEND:**
- PROPOSED STORM DRAIN
  - PROPOSED CURB INLET
  - PROPOSED LANDSCAPE DRAIN
  - 6" HDPE ROOF DRAIN CONNECTION @ 2% MINIMUM, IN CASES WHERE 2% CANNOT BE ACHIEVED, 8" @ 1% MINIMUM MUST BE INSTALLED

- NOTES:**
- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CITY OF DENTON STANDARD DETAILS AND SPECIFICATIONS.
  - REFER TO SHEETS C11.7-C11.8 FOR DETAILS.
  - ALL PIPE SHALL BE HDPE ADS-N12 OR APPROVED EQUAL UNLESS OTHERWISE STATED.
  - ALL WYE, BENDS, REDUCERS AND PIPE TO BE PREFABRICATED.
  - REFER TO SHEET C1.0 FOR GENERAL NOTES.
  - REFER TO SHEET C8.5 FOR STORM PROFILES.
  - DETENTION POND TO BE MAINTAINED BY THE PROPERTY OWNER.

**GENERAL UTILITY NOTES:**

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**SOURCE BENCHMARK:**

CITY OF DENTON MONUMENT #2011 - 3.5" ALUMINUM CAP ON ROD "2011" LOCATED AT JUNCTION OF FRAME ROAD NORTH OF CONCRETE CREEK RUNNING PARALLEL WITH MCKINNEY APPROXIMATELY 37.7' FROM POWER POLE TO THE WEST

A: 611.24'  
NAD83 TXNC (GRID)  
N: 7128266.50'  
E: 2389088.77'

**SITE BENCHMARK:**

BM #1 - "X" CUT IN SQUARE LOCATED ON THE NORTHWEST CORNER OF AN INLET OFF THE EAST BOUND SIDE OF WILLOWWOOD STREET AND APPROXIMATELY 42' WEST FROM THE CENTERLINE OF JACQUELINE DRIVE

ELEV: 686.09'  
NAD83 TXNC (GRID)  
N: 7120793.43'  
E: 2383257.97'

BM #2 - "X" CUT IN SQUARE LOCATED APPROXIMATELY 272' EAST FROM THE CENTERLINE OF MERCEDES ROAD AT THE END OF OAKWOOD DRIVE ON THE SOUTH SIDE ON THE CURB APPROXIMATELY 50' WEST OF THE CHURCH

ELEV: 688.85'  
NAD83 TXNC (GRID)  
N: 7121272.19'  
E: 2383152.20'

BEARINGS & COORDINATE VALUES SHOWN HEREON ARE IN REFERENCE TO THE NAD83 - TEXAS COORDINATE SYSTEM - NORTH CENTRAL ZONE, 4202, BASED ON GPS OBSERVATIONS UTILIZING THE LEICA GPS REFERENCE NETWORK. ALL DISTANCES SHOWN HEREON WERE ADJUSTED TO SURFACE USING A COMBINED SCALE FACTOR OF 1.0001526521 (0.999847371200), BASE POINT OF 0,0,0.

THE RESERVES AT MAGNOLIA  
DENTON, TEXAS  
STORM PLAN

**mma**  
civil engineering surveying landscape architecture planning  
tbpels registration number: 1 - 2759  
tbpels registration/license number: 10088000  
519 east border  
arlington, texas 76010  
817-469-1671  
fax: 817-274-8757  
www.mmatexas.com

10/4/2023  
STATE OF TEXAS  
ROBERT J. CRONIN JR.  
122288  
LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER:	3597-00-02
PROJECT MANAGER:	R. CRONIN
DRAWN BY:	G. SANCHEZ
CHECKED BY:	A. TAYLOR
ISSUE DATE:	10/4/2023

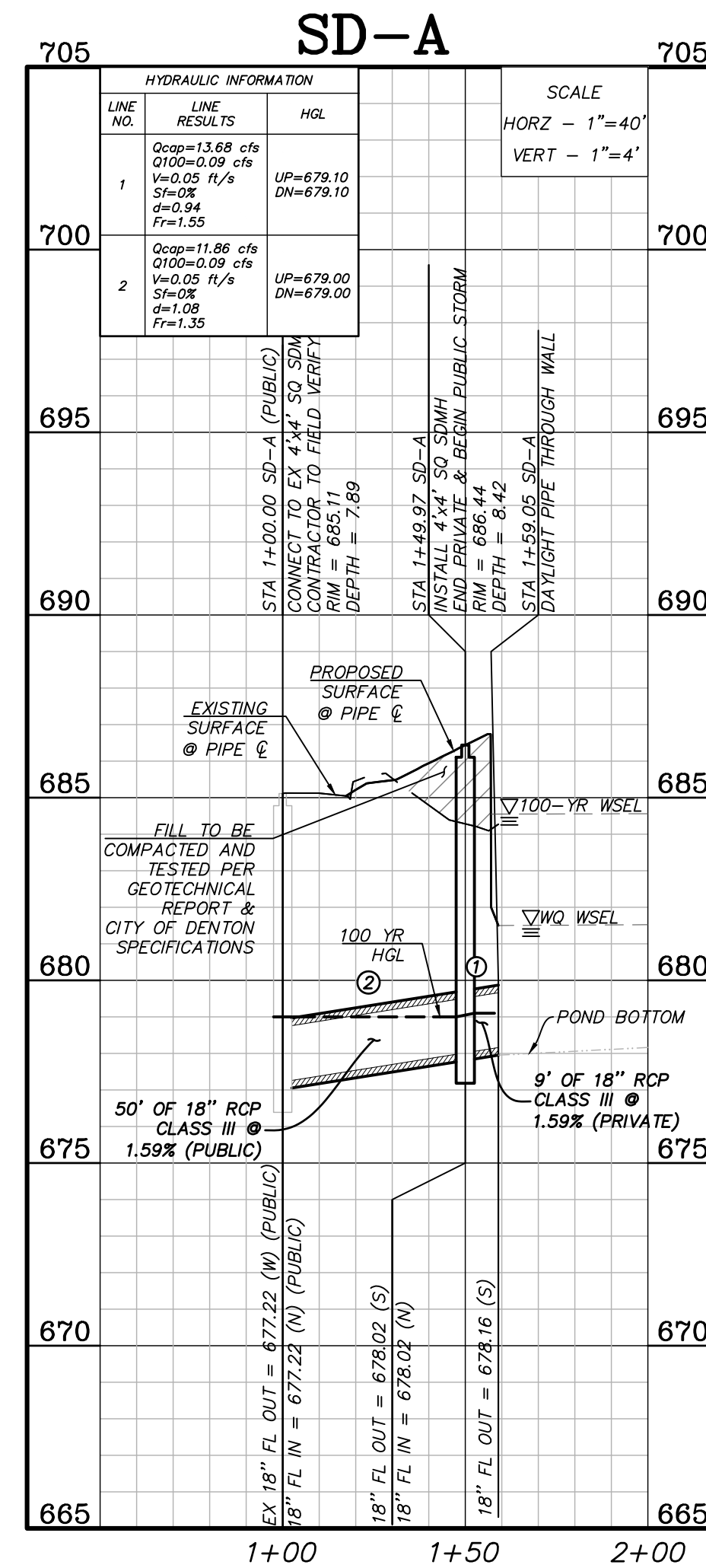
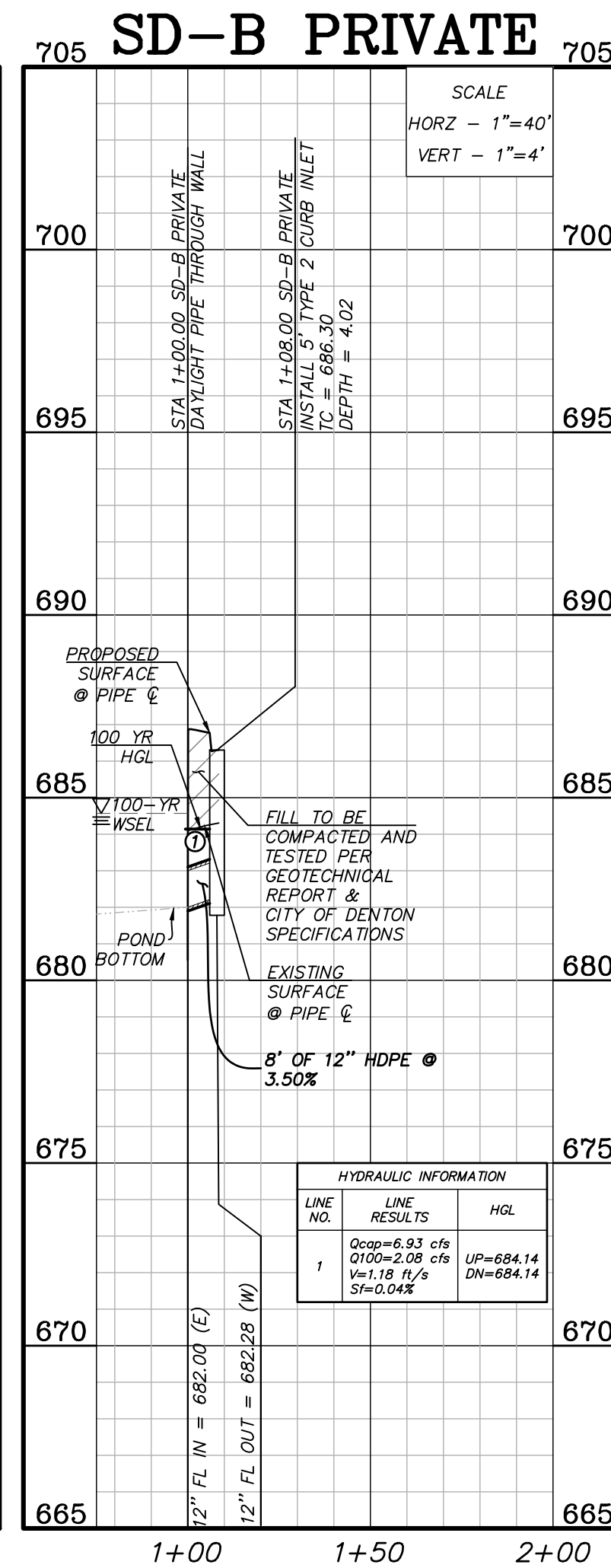
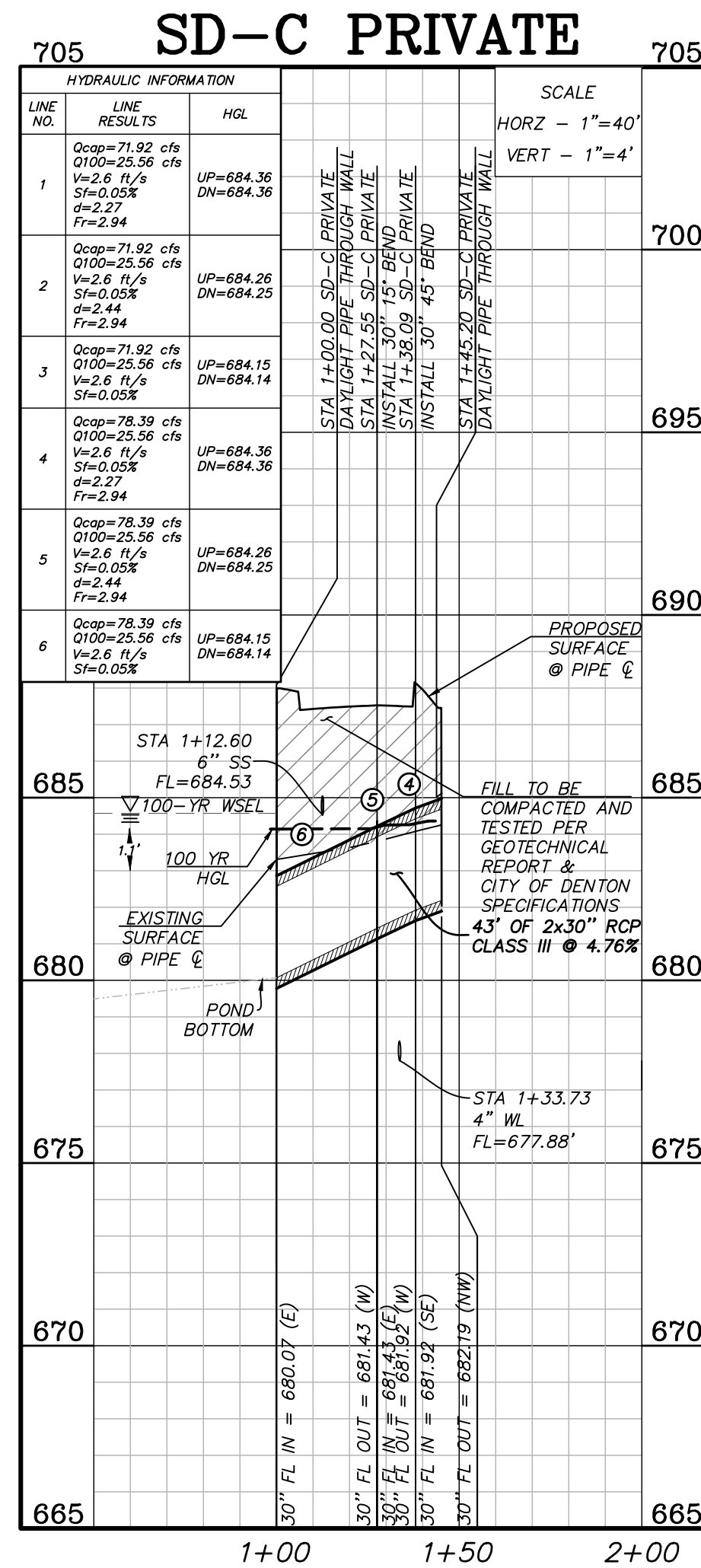
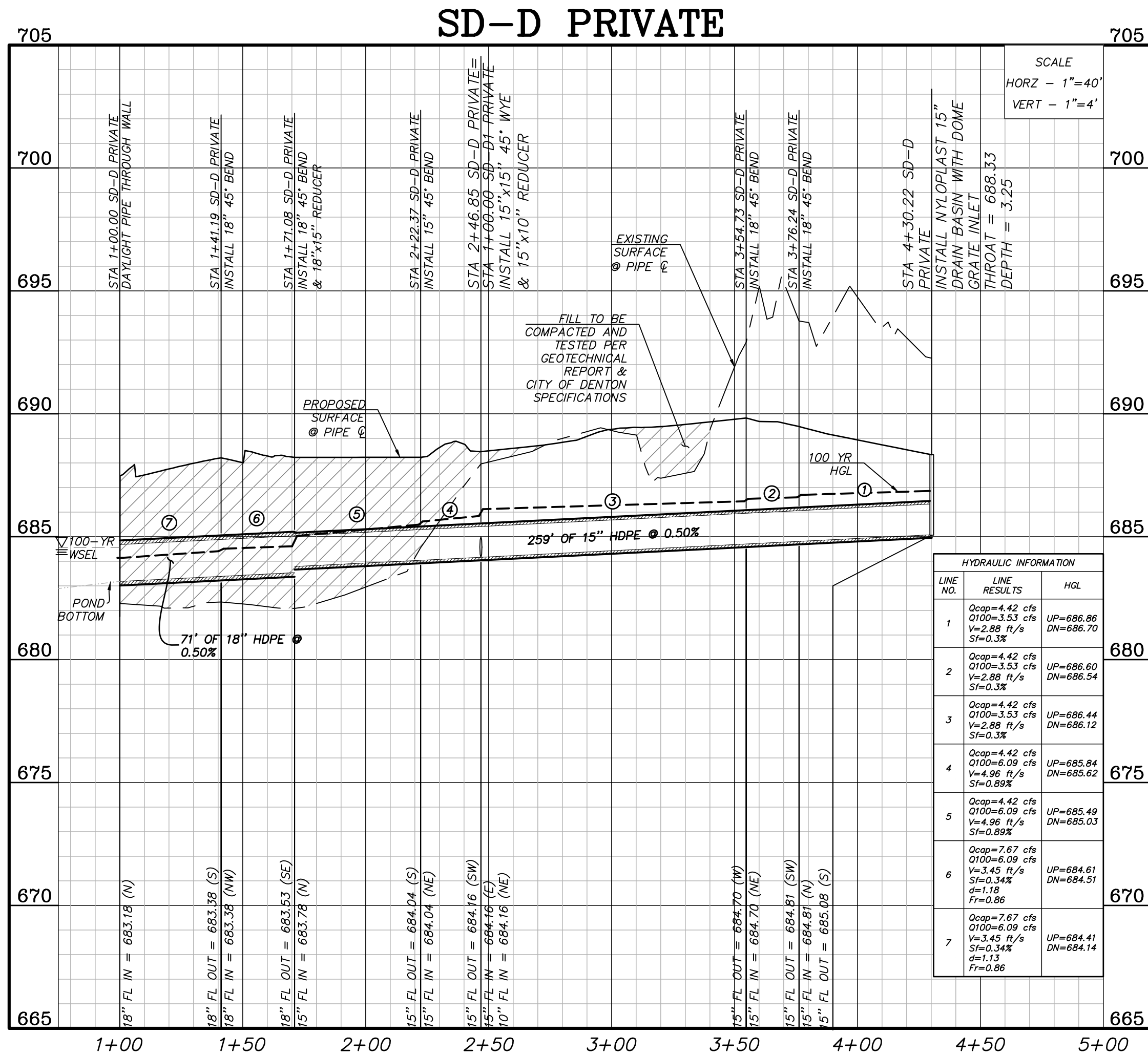
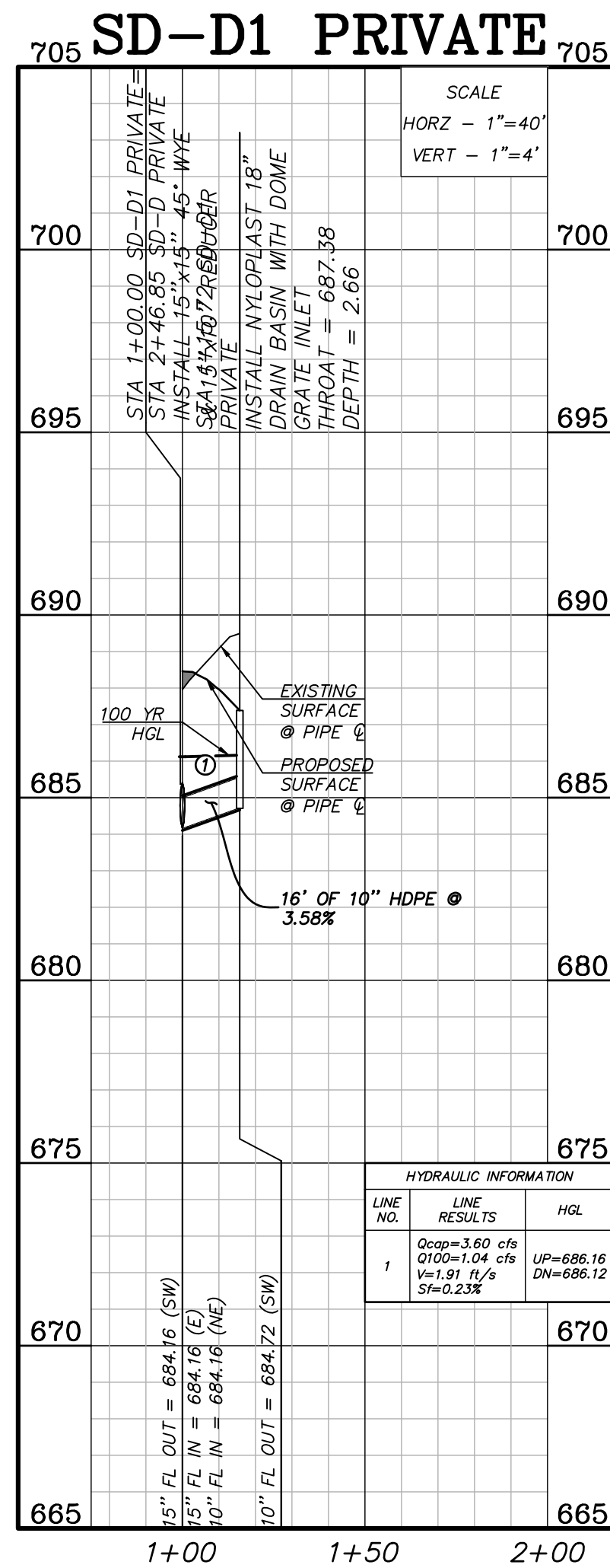
REV.	DATE	DESCRIP.	BY

STORM PLAN

SHEET NO:  
**C8.4**

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STORM PROFILES

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arlington, texas 76010  
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10/4/2023  
STATE OF TEXAS  
ROBERT J. CRONIN JR.  
122288  
LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER: 3597-00-02  
PROJECT MANAGER: R. CRONIN  
DRAWN BY: G. SANCHEZ  
CHECKED BY: A. TAYLOR  
ISSUE DATE: 10/4/2023

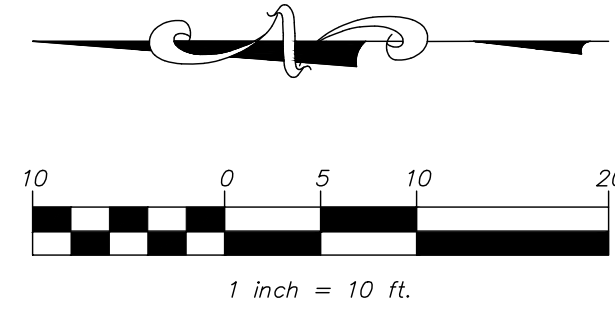
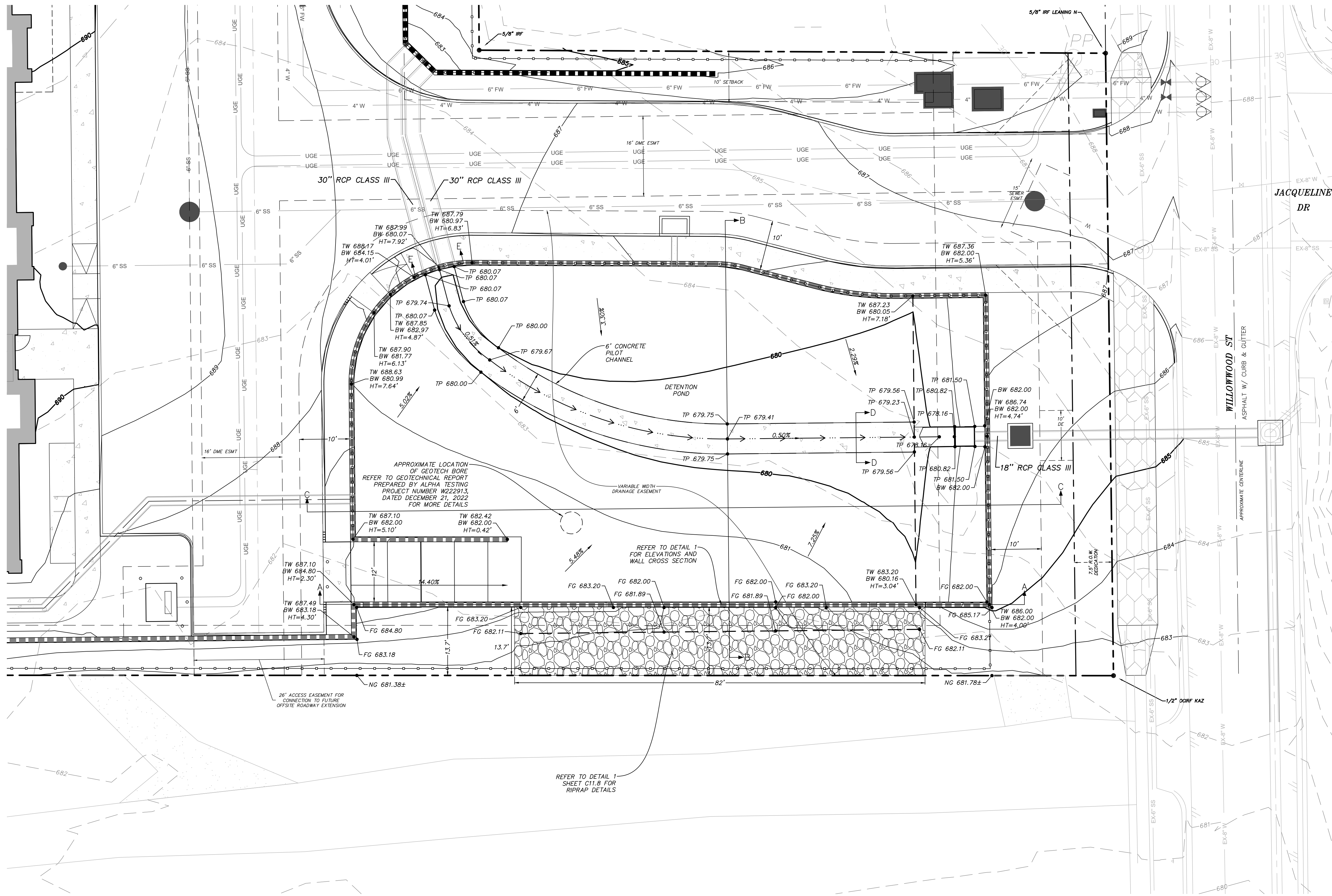
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STORM PROFILES

SHEET NO:  
**C8.5**

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**LEGEND:**

PROPOSED STORM DRAIN

PROPOSED CURB INLET

PROPOSED DROP INLET

PROPOSED LANDSCAPE DRAIN

- NOTES:**
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  4. ALL WYE, BENDS, REDUCERS AND PIPE TO BE PREFABRICATED.
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  6. REFER TO SHEET C8.5 FOR PROFILES.

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CALL TEXAS 811 OR OTHER UTILITY LOCATING SERVICES 48 HOURS PRIOR TO CONSTRUCTION ACTIVITY. MMA, INC. IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES OR DEPICTING EXACT LOCATIONS OF UTILITIES ON DRAWINGS.

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

**SOURCE BENCHMARK:**

CITY OF DENTON MONUMENT #2011 - 3.5" ALUMINUM CAP ON ROD "2011" LOCATED AT JUNCTION OF FRAME ROAD NORTH OF CONCRETE CREEK RUNNING PARALLEL WITH MCKINNEY APPROXIMATELY 37.7' FROM POWER POLE TO THE WEST

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817-469-1671  
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10/4/2023  
STATE OF TEXAS  
ROBERT J. CRONIN JR.  
122288  
LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER:	3597-00-02
PROJECT MANAGER:	R. CRONIN
DRAWN BY:	G. SANCHEZ
CHECKED BY:	A. TAYLOR
ISSUE DATE:	10/4/2023

REV.	DATE	DESCRIP.	BY

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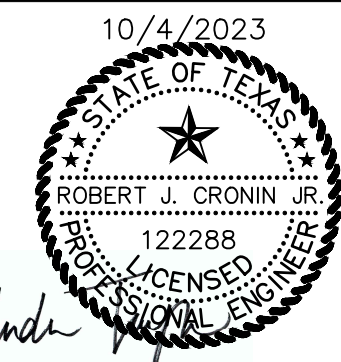
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POND DETAILS

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arlington, texas 76010  
817-469-1671  
fax: 817-274-8757  
www.mmatexas.com



PROJECT NUMBER: 3597-00-02  
PROJECT MANAGER: R. CRONIN  
DRAWN BY: G. SANCHEZ  
CHECKED BY: A. TAYLOR  
ISSUE DATE: 10/4/2023

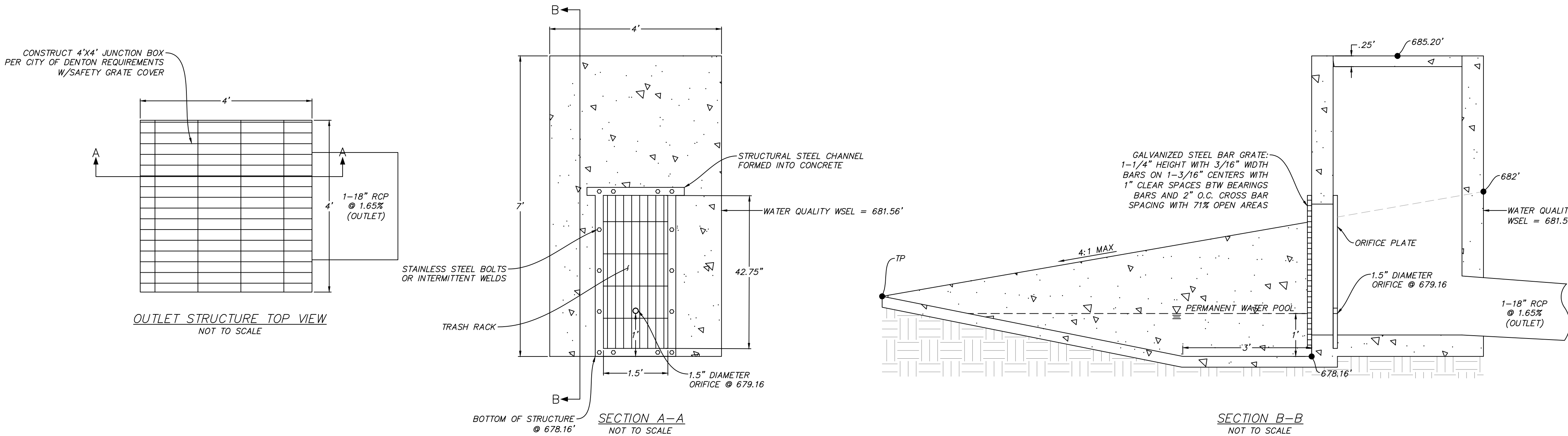
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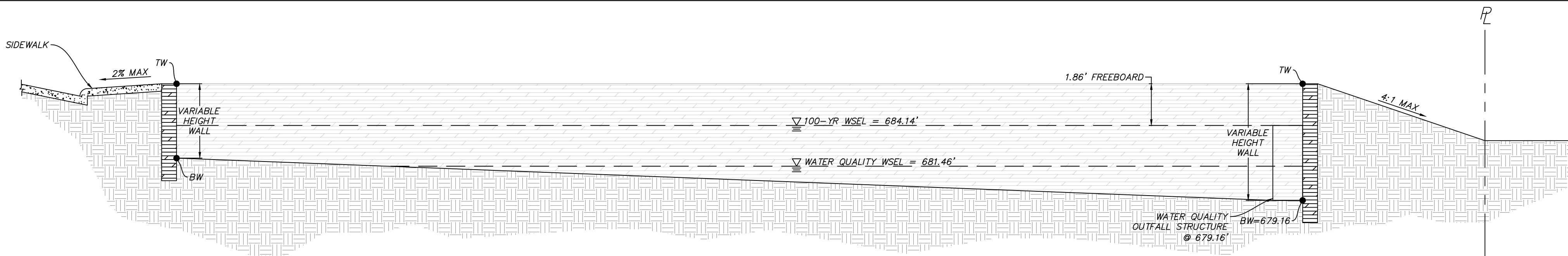
POND DETAILS

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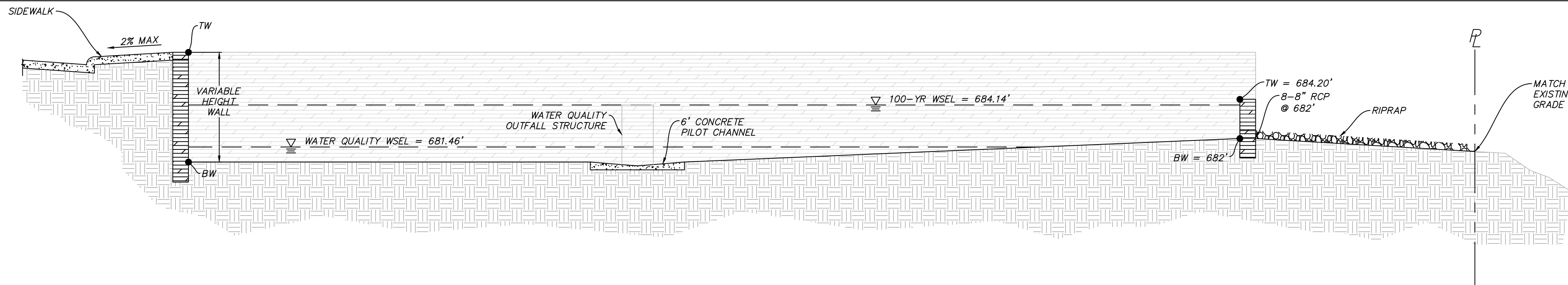
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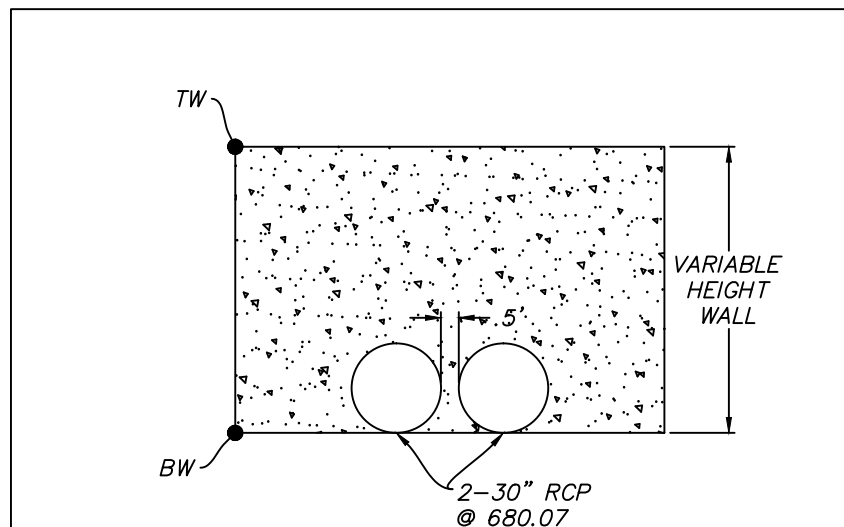
4 WATER QUALITY OUTLET STRUCTURE DETAIL  
NOT TO SCALE



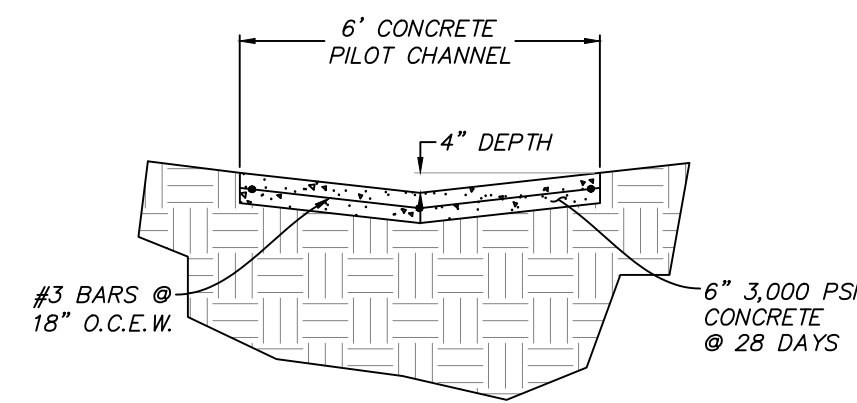
3 DETENTION POND SECTION C-C  
NOT TO SCALE



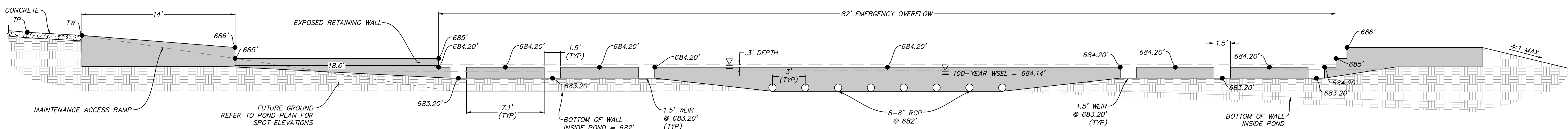
2 DETENTION POND SECTION B-B  
NOT TO SCALE



6 POND CULVERTS SECTION E-E  
NOT TO SCALE



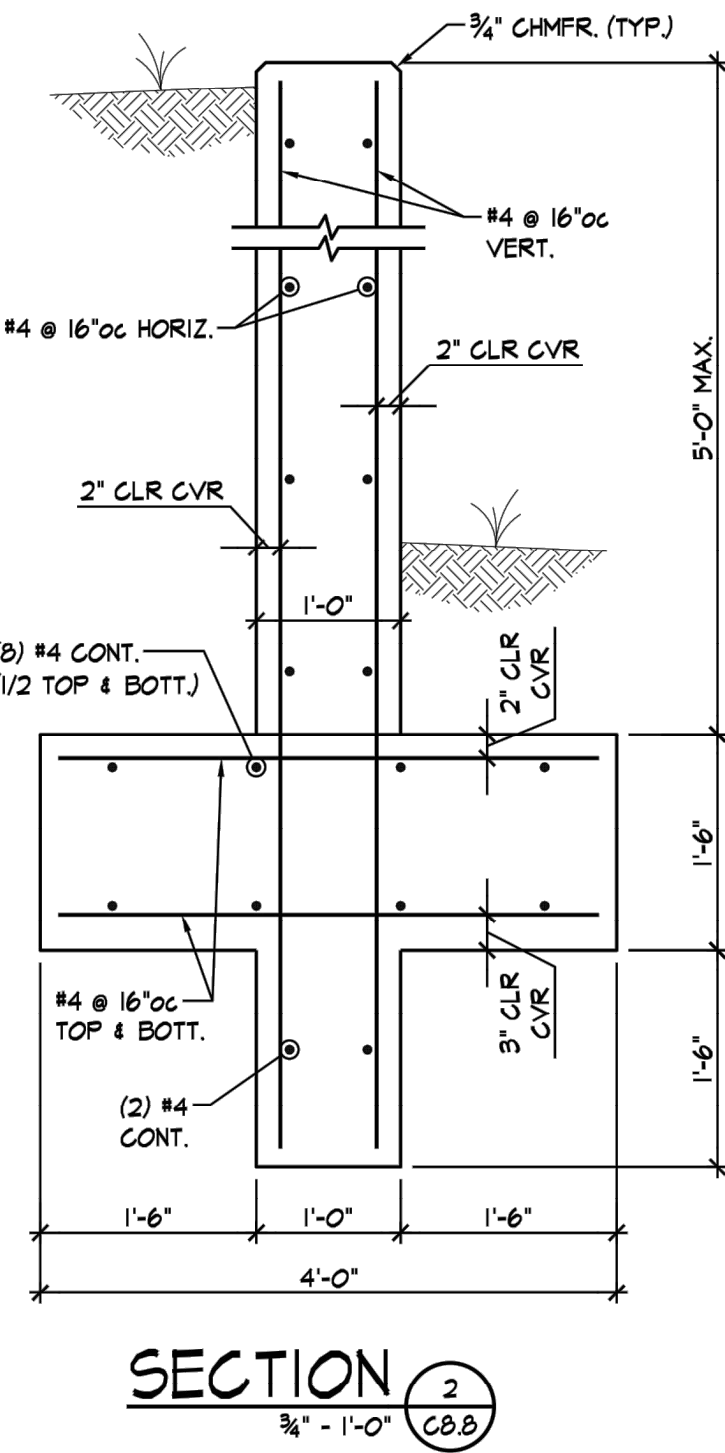
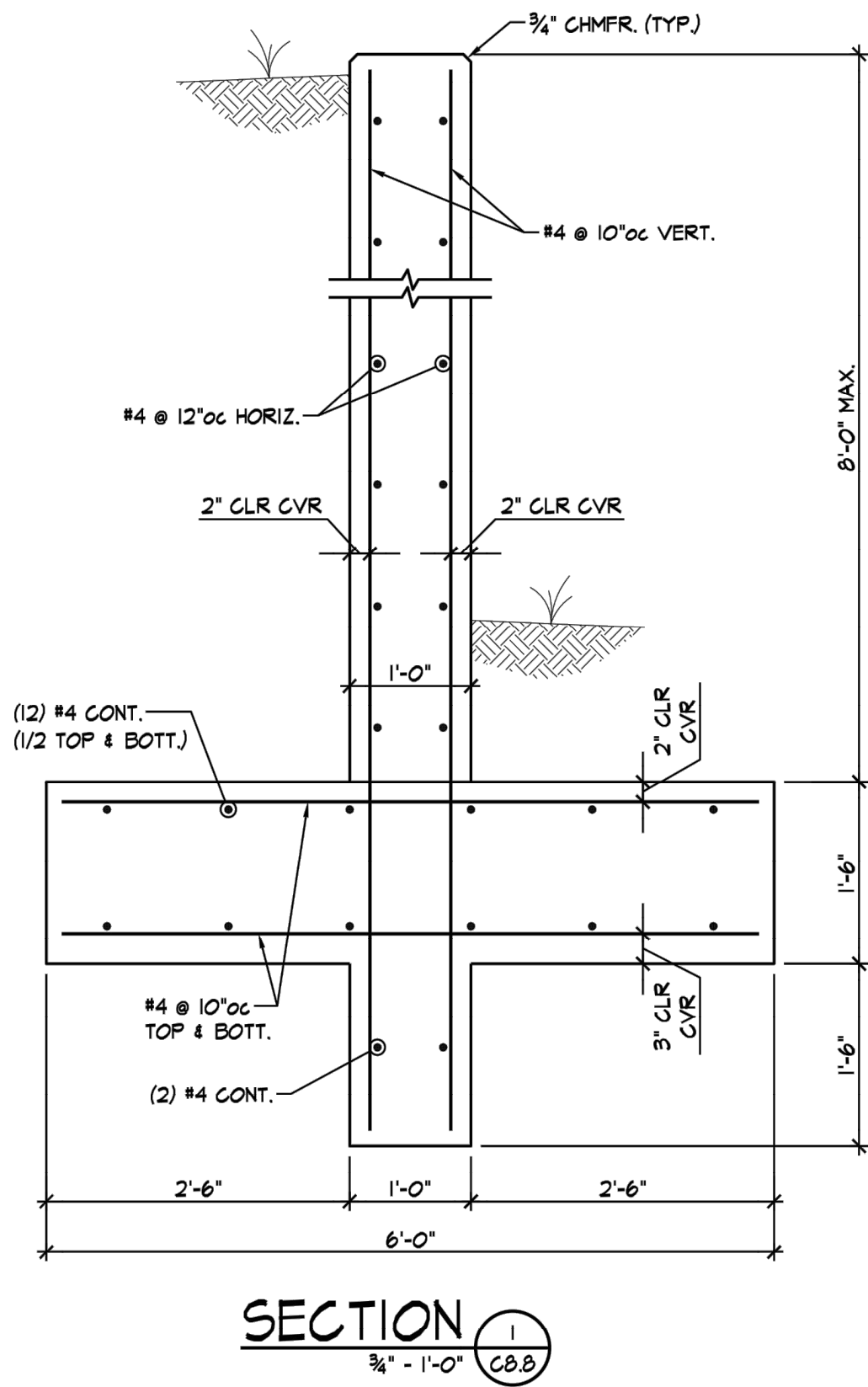
5 CONCRETE PILOT CHANNEL SECTION D-D  
NOT TO SCALE



1 POND OUTFALL SECTION A-A  
NOT TO SCALE



- I. GENERAL NOTES - RETAINING WALL
- Concrete:
- A. All concrete for foundations (walls and footings) shall develop minimum ultimate compressive design strength of 3500 psi in 28 days, but not less than 500 pounds of cement shall be used per cubic yard of concrete regardless of strengths obtained, not over 6 gallons of water per 100 pounds of cement and not over 4 inches of slump.
- B. The preceding minimum mix requirements may have water-reducing admixtures conforming to ASTM C494 added to the mix at manufacturer's dosage rates for improved workability.
- C. The preceding minimum mix requirements may have up to 15% maximum of the cement content replaced with an approved ASTM C618 Class C fly ash, provided the total minimum cementitious content is not reduced.
- D. Contractor shall verify that all concrete inserts, reinforcing and embedded items are correctly located and rigidly secured prior to concrete placement.
- E. No aluminum items shall be embedded in any concrete.
2. Reinforcing Steel:
- A. All reinforcing steel shall conform to the requirements of ASTM A615 or A106 grade 60 steel.
- B. Clear minimum coverage of concrete over reinforcing steel shall be as follows:
- |                               |    |
|-------------------------------|----|
| Concrete placed against earth | 3" |
| Formed concrete against earth | 2" |
| Paths                         | 2" |
- All coverage shall be nominal bar diameter minimum.
- C. At corners of all walls, supply corner bars (minimum 2'-6" in each direction or 48 bar diameters) in outside face of wall, matching size and spacing of horizontal bars.
- D. Bars marked continuous shall be lapped 48 bar diameters (3'-0" minimum) at splices.
- E. Accessories shall be as specified in latest edition of the ACI Detailing Handbook and the concrete Reinforcing Steel Institute Design Handbook. Maximum accessory spacing shall be 4'-0" on center, and all accessories on exposed surfaces are to have plastic coated feet.
- B. Foundations:
- A. The soil investigation was prepared by Alpha Testing, LLC, the report number is K222413 and their telephone number is 817-446-5600.
- B. Spread footings and continuous wall footings are designed to bear on soil capable of safely sustaining 1500 psi.
- C. Contractor shall provide for dewatering at excavations from either surface water or seepage.
- D. All foundation excavations shall be inspected by a qualified soil engineer, approved by the architect and/or structural engineer, prior to placement of steel or concrete. This inspection shall be at the owner's expense.



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RETAINING WALL DETAILS

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arlington, texas 76010  
817-469-1671  
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www.mimotexas.com

STATE OF TEXAS  
Michael John Falbe  
MICHAEL JOHN FALBE  
5/17/2023

Andre Tapp

PROJECT NUMBER: 3597-00-02  
PROJECT MANAGER: R. CRONIN  
DRAWN BY: J. FALBE  
CHECKED BY: M. FALBE  
ISSUE DATE: 5/16/2023

REV. DATE DESCRIP. BY

SHEET CONTENT:

RETAINING  
WALL DETAILS

SHEET NO: C8.8

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PARCEL 60,  
FOR INTERSTATE HIGHWAY 35E  
CALLED 0.8208 ACRES  
STATE OF TEXAS  
DOC. No. 2014-67902  
OPRDCT

CALLED 1.576 ACRES  
B & K HOSPITALITY, INC.  
DOC. No. 2004-82383  
OPRDCT

CALLED 0.223 ACRES  
LIM'S ASSET MANAGEMENT, LLC  
DOC. No. 2007-138847  
OPRDCT

125'x60' TRACT OF LAND  
THOMAS B. PRALLE & WIFE,  
MYRA K. PRALLE  
DOC. No. 1994-83917  
DRDCT

CALLED 0.173 ACRES  
TOMAS MARQUEZ AND WIFE,  
MARIA R. MARQUEZ  
DOC. No. 1996-50468  
OPRDCT

CALLED 0.17 ACRES  
RODNEY EVANS  
DOC. No. 2016-116951  
OPRDCT

CALLED 0.172 ACRES  
CASON CLAYTON CAGLE &  
AMANDA MARIE CAGLE  
DOC. No. 2011-28732  
OPRDCT

BLOCK E  
WYLIE H. BARNES ADDITION  
VOL. 2, PG. 65  
PRDCT

BLOCK C  
WYLIE H. BARNES ADDITION  
VOL. 2, PG. 65  
PRDCT

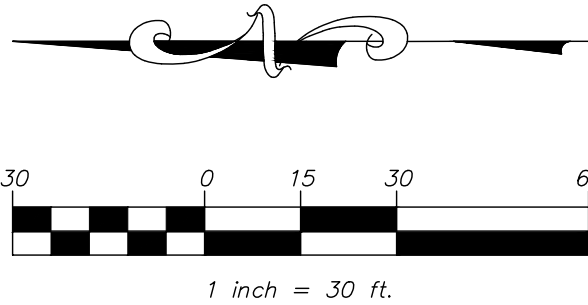
LOT 8R BLOCK C  
BARNES ADDITION  
DOC. No. 2014-271  
OPRDCT

LESLIE ST

WILLOWWOOD ST

JACQUELINE DR

TAYLOR PARK  
ADDITION  
CAB. A, SLIDE 54  
PRDCT



#### EROSION CONTROL NOTES

- OWNER: JONES GILLAM RENZ ARCHITECTS  
730 N NINTH STREET  
SALINA, KANSAS 67401  
MAGGIE GILLAM  
TEL: 785-827-0386  
EMAIL: mgillam@jgrarchitects.com
- CONTACT: PERIMETER EROSION CONTROL MEASURES MUST BE IN PLACE BEFORE STARTING ANY SOIL DISTURBING ACTIVITIES. STREET EXCAVATION TO BE PERFORMED AND EROSION CONTROL MEASURES IN PLACE BEFORE GRUBBING/LOT GRADING.
- SEDIMENT DISCHARGED OR TRACKED ON TO EXISTING PAVEMENT SHALL BE REMOVED DAILY.
- CONTRACTOR IS TO CONTAIN ALL RUNOFF FROM MATERIALS USED IN THE SUBGRADE STABILIZATION PROCESS.
- RETAIN FLOATABLE AND WIND BLOWN MATERIALS ON SITE BY STORING ALL TRASH AND BUILDING MATERIAL WASTE IN ENCLOSURES UNTIL PROPER DISPOSAL AT OFF-SITE FACILITIES. CHECK ADJACENT AREAS DAILY AND PICK UP CONSTRUCTION WASTE MATERIALS AND DEBRIS THAT HAVE BLOWN OR WASHED OFF SITE.
- PAVING CONTRACTOR TO INSTALL A PIT FOR TEMPORARY ON-SITE DISPOSAL OF CONCRETE WASTE FROM MIXING DRUMS AND CHUTES.
- INSPECT POLLUTION CONTROL MEASURES EVERY TWO WEEKS AND WITHIN 24 HOURS AFTER A STORM EVENT OF 1/2" OR MORE. REPAIR OR REPLACE DAMAGED MEASURES TO RETAIN SEDIMENT AND OTHER POLLUTANTS ON SITE. REPEATED FAILURE OF A CONTROL MEASURE REQUIRES INSTALLATION OF A MORE SUITABLE DEVICE TO PREVENT DISCHARGE OF POLLUTANTS.
- PERMANENTLY STABILIZE EXPOSED SOIL WITHIN AND ADJACENT TO THE SITE THAT IS DISTURBED BY VEHICLES, GRADING AND OTHER CONSTRUCTION ACTIVITIES. STABILIZATION IS OBTAINED WHEN THE SOIL IS COVERED BY A COMBINATION OF STRUCTURES, PAVING, AND PERENNIAL VEGETATION.
- INSTALL A LIQUID TIGHT BERMED AREA (LINER REQUIRED), OR OTHER SPILL PROTECTION MEASURE PER THE FIRE CODE FOR ANY TEMPORARY FUEL TANKS PLACED ON SITE DURING CONSTRUCTION.
- ALL CONTRACTORS TO MAINTAIN EXISTING EROSION CONTROL MEASURES IN PLACE.
- CONSTRUCTION ENTRANCE/EXIT TO BE LOCATED BY GRADING CONTRACTOR AND APPROVED BY OWNER.
- ALL GRADING TO CONFORM TO THE APPROVED GRADING PLAN FOR THE RESERVES AT MAGNOLIA.
- EROSION CONTROL MEASURES MAY ONLY BE PLACED IN FRONT OF INLETS OR IN CHANNELS, DRAINAGEWAYS OR BORROW DITCHES AT RISK OF CONTRACTOR. CONTRACTOR SHALL REMAIN LIABLE FOR ANY DAMAGE CAUSED BY THE MEASURES, INCLUDING FLOODING DAMAGE, WHICH MAY OCCUR DUE TO BLOCKED DRAINAGE. AT THE CONCLUSION OF ANY PROJECT, ALL CHANNELS, DRAINAGEWAYS AND BORROW DITCHES IN THE WORK ZONE SHALL BE DREGDED OF ANY SEDIMENT GENERATED BY THE PROJECT OR DEPOSITED AS A RESULT OF EROSION CONTROL MEASURES.
- SEE LANDSCAPE PLAN FOR SOD LOCATIONS.
- TOTAL DISTURBED AREA = 2.60 AC.
- FINAL STABILIZATION SHALL BE COMPLETED PRIOR TO TERMINATION OF COVERAGE UNDER THE CONSTRUCTION GENERAL PERMIT (FILING NOT). FINAL STABILIZATION MEASURES SHALL BE A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF AT LEAST 70 PERCENT OF THE NATIVE BACKGROUND VEGETATIVE COVER FOR ALL UNPAVED AREAS NOT COVERED BY STRUCTURES.

#### GENERAL UTILITY NOTES:

ALL EXISTING UTILITY DATA IS PROVIDED FOR INFORMATION ONLY. ALTHOUGH THIS DATA IS SHOWN AS ACCURATELY AS POSSIBLE, THE CONTRACTOR IS CAUTIONED THAT THE OWNER AND THE ENGINEER NEITHER ASSUME NOR IMPLY ANY RESPONSIBILITY FOR THE ACCURACY OF THIS DATA. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE UTILITY AFFECTED AND VERIFY THESE LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION.

CALL TEXAS 811 OR OTHER UTILITY LOCATING SERVICES 48 HOURS PRIOR TO CONSTRUCTION ACTIVITY. MMA, INC. IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES OR DEPICTING EXACT LOCATIONS OF UTILITIES ON DRAWINGS.



Know what's below.  
Call before you dig.

#### SOURCE BENCHMARK:

CITY OF DENTON MONUMENT #2011 - 3.5" ALUMINUM CAP ON ROD "2011" LOCATED AT JUNCTION OF FRAME ROAD NORTH OF CONCRETE CREEK RUNNING PARALLEL WITH MCKINNEY APPROXIMATELY 37.7' FROM POWER POLE TO THE WEST  
A: 611.24'  
NAD83 TXNC (GRID)  
N: 7128266.50'  
E: 2389088.71'

#### SITE BENCHMARK:

BM #1 - "X" CUT IN SQUARE LOCATED ON THE NORTHWEST CORNER OF AN INLET OFF THE EAST BOUND SIDE OF WILLOWWOOD STREET AND APPROXIMATELY 42' WEST FROM THE CENTERLINE OF JACQUELINE DRIVE  
ELEV: 686.09'  
NAD83 TXNC (GRID)  
N: 7120793.43'  
E: 2383257.97'

BM #2 - "X" CUT IN SQUARE LOCATED APPROXIMATELY 272' EAST FROM THE CENTERLINE OF MERCEDES ROAD AT THE END OF OAKWOOD DRIVE ON THE SOUTH SIDE ON THE CURB APPROXIMATELY 50' WEST OF THE CHURCH  
ELEV: 688.85'  
NAD83 TXNC (GRID)  
N: 7121272.19'  
E: 2383152.20'  
BEARINGS & COORDINATE VALUES SHOWN HEREON ARE IN REFERENCE TO THE NAD83 - TEXAS COORDINATE SYSTEM NORTH CENTRAL ZONE, 4202, BASED ON GPS OBSERVATIONS UTILIZING THE LEICA GPS REFERENCE NETWORK. ALL DISTANCES SHOWN HEREON WERE ADJUSTED TO SURFACE USING A COMBINED SCALE FACTOR OF 1.0001526521 (0.999847371200), BASE POINT OF 0,0,0.

#### CONSTRUCTION EROSION AND SEDIMENT CONTROL REQUIREMENT

ALL LAND DISTURBING ACTIVITIES MUST INCLUDE PROVISIONS FOR EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH THE DENTON DEVELOPMENT CODE, SUBCHAPTER 18 LAND DISTURBING ACTIVITIES, THE ISWM™ WATER QUALITY TECHNICAL MANUAL, THE ISWM CONSTRUCTION CONTROLS TECHNICAL MANUAL AND ISWM™ CONSTRUCTION CONTROLS TECHNICAL MANUAL.

- PHASED EROSION CONTROL PLANS ARE REQUIRED. PLANS MUST INCLUDE EXISTING AND PROPOSED CONTOURS.
- INITIAL GRADING PHASE.
- INDIVIDUAL LOT PHASE WITH BEHIND CURB CONTROLS.
- BEHIND THE CURB CONTROLS SHALL BE INSTALLS UPON COMPLETION OF STREET SEGMENTS.
- IDENTIFY AREAS OF PERMANENT INACTIVITY AND PROVIDE TIMELINE FOR VEGETATIVE STABILIZATION.

- DRAINAGE AREA MAPS AND CALCULATIONS ARE REQUIRED FOR THREE PHASES OF DEVELOPMENT. CALCULATIONS SHALL UTILIZE A 2 YEAR 24-HOUR STORM FOR THE DESIGN OF ANY HYDRAULIC COMPONENT OF THE EROSION CONTROL PLAN INCLUDING SEDIMENT BASINS, SWALES, CHANNELS, BERM HEIGHT, WEIR LENGTH OR ANY OTHER OUTLET OR CONVEYANCE STRUCTURE REQUIRED BY THE PLAN.

- EXISTING PRE-DEVELOPMENT CONDITIONS.
- MASS GRADED CONDITIONS PRIOR TO PUBLIC/PRIVATE INFRASTRUCTURE INSTALLATION STAGE.
- PROPOSED POST CONSTRUCTION CONDITIONS.

- SEDIMENT BASINS ARE REQUIRED WHEN DISTURBED AREAS OF 10 ACRES OR LARGER DISTURBED AREA ARE PART OF A COMMON DRAINAGE AREA AT ANY PHASE OF DEVELOPMENT.

- SEDIMENT BASIN MUST PROVIDE AT LEAST 3,600 CUBIC FEET OF STORAGE PER ACRE DRAINED UNTIL FINAL STABILIZATION OF THE SITE.
- DECENTRALIZED TREATMENT SUCH AS SEDIMENT TRAPS MAY BE USED INSTEAD OF SEDIMENT BASINS WHERE THE CALCULATIONS ARE PROVIDED DEMONSTRATING EQUIVALENT VOLUME TREATMENT.

- VEGETATIVE STABILIZATION IS REQUIRED FOR ALL PERMANENT AND TEMPORARY CHANNELS AND BASINS.

- EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs) DESIGN CRITERIA SHALL ADHERE TO THE MOST CURRENT VERSION OF THE ISWM™ CONSTRUCTION CONTROLS TECHNICAL MANUAL.

- LINEAR PROJECTS MAY INSTEAD FOLLOW TxDOT STANDARDS.
- PROPRIETARY EROSION OR SEDIMENT CONTROL DEVICES MAY BE UTILIZED WHEN:
  - INDEPENDENT PERFORMANCE DATA IS PROVIDED TO PROVE A DEMONSTRATED CAPABILITY OF MEETING STORMWATER MANAGEMENT EFFICIENCY EQUIVALENT TO ISWM™ METHODS

SYSTEM OR DEVICE MUST BE APPROPRIATE FOR USE IN NORTH CENTRAL TEXAS CONDITIONS.

#### CONSTRUCTION EROSION AND SEDIMENT CONTROL REQUIREMENT

SECTION 4.0 OF THIS MANUAL IDENTIFIES THE TECHNICAL MANUALS THAT GOVERN THE DESIGN AND CONSTRUCTION OF STORMWATER DRAINAGE SYSTEMS. THE STORMWATER DESIGN CRITERIA MANUAL UTILIZES THE MOST CURRENT VERSION OF THE FOLLOWING FOUR TECHNICAL MANUALS PRODUCED BY THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS (NCTCOG):

ISWM™ HYDROLOGY TECHNICAL MANUAL  
ISWM™ HYDRAULICS TECHNICAL MANUAL  
ISWM™ WATER QUALITY TECHNICAL MANUAL  
ISWM™ CONSTRUCTION CONTROLS TECHNICAL MANUAL

#### EROSION CONTROL INSTALLATION/PHASING LEGEND

\* CONSTRUCTION AND SUBSEQUENT EROSION CONTROL INSTALLATION MUST BE SEQUENCED AS WRITTEN BELOW.

MEASURE	BY	INSTALLED
CONST. ENTRY/EXIT	EXCAVATION CONTRACTOR	PRIOR TO EXCAVATION
INSTALL SILT FENCE	EXCAVATION CONTRACTOR	PRIOR TO EXCAVATION
INLET PROTECTION	UTILITY CONTRACTOR	IMMEDIATELY AFTER INLET CONSTRUCTION AND REMOVED AFTER ACCEPTANCE OF PUBLIC FACILITIES
CONCRETE TRUCK WASHOUT	GENERAL CONTRACTOR	PRIOR TO START OF CONSTRUCTION
WASTE ENCLOSURE	GENERAL CONTRACTOR	PRIOR TO START OF CONSTRUCTION
SANITARY FACILITIES	GENERAL CONTRACTOR	PRIOR TO START OF CONSTRUCTION
STONE OVERFLOW	EXCAVATION CONTRACTOR	PRIOR TO EXCAVATION ALONG SILT FENCE (PLACED AT EVERY 300' AND LOW POINTS)
ROCK CHECK DAM	EXCAVATION CONTRACTOR	IMMEDIATELY AFTER EXCAVATION
TREE PROTECTION	GENERAL CONTRACTOR	PRIOR TO START OF CONSTRUCTION

THE RESERVES AT MAGNOLIA  
DENTON, TEXAS

EROSION CONTROL PLAN

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tbpels registration number: 1 - 2759  
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519 east border  
orlington, Texas 76010  
817-469-1671  
fax: 817-274-8757  
www.mmatexas.com

10/4/2023  
STATE OF TEXAS  
ROBERT J. CRONIN JR.  
122288  
LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER: 3597-00-02  
PROJECT MANAGER: R. CRONIN  
DRAWN BY: G. SANCHEZ  
CHECKED BY: A. TAYLOR  
ISSUE DATE: 10/4/2023

REV.	DATE	DESCRIP.	BY

SHEET CONTENT:


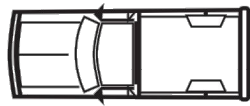





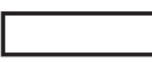

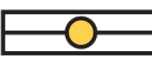













EROSION  
CONTROL PLAN

SHEET NO:

C9.0

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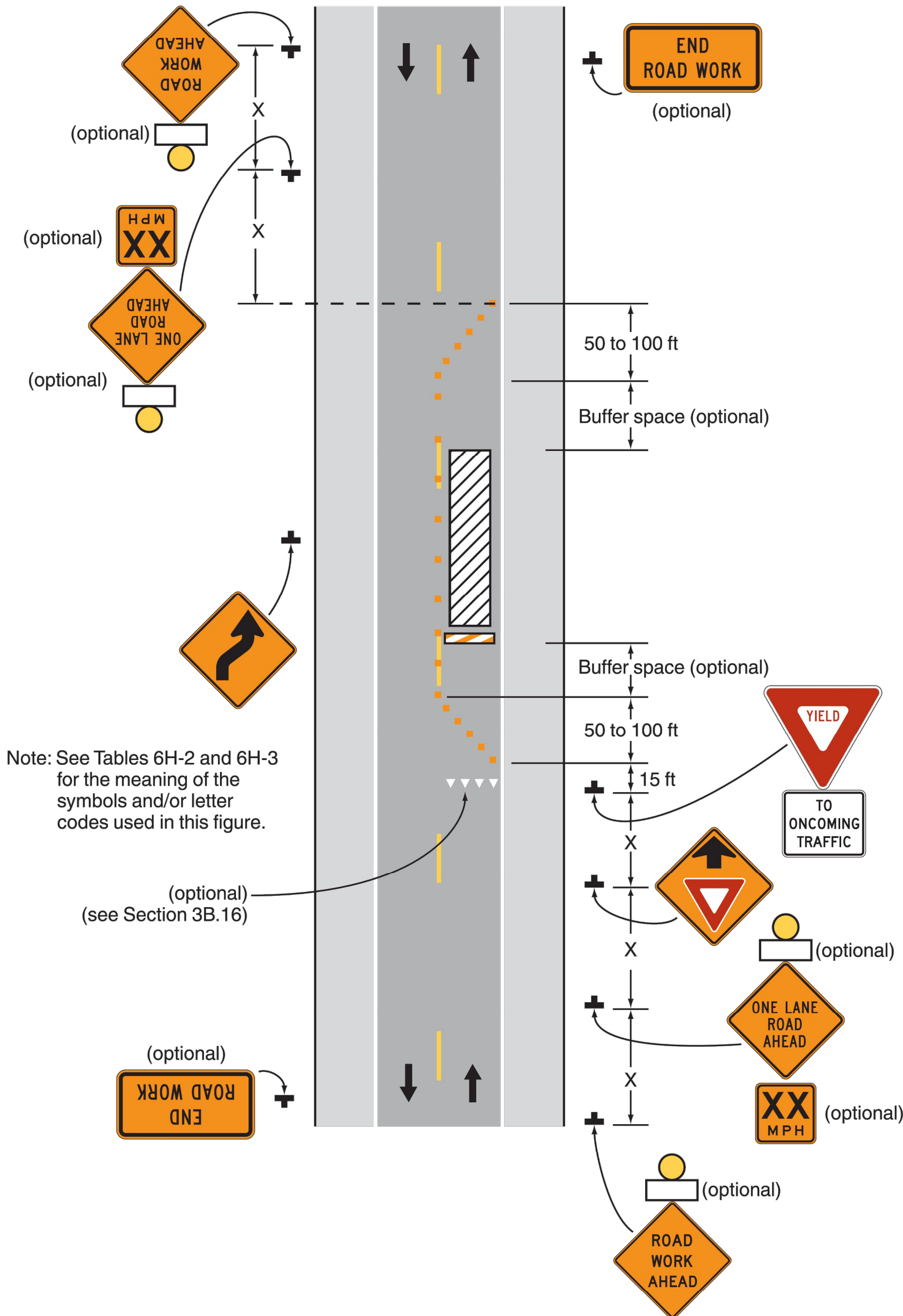
Table 6H-2. Meaning of Symbols on Typical Application Diagrams			
	Arrow board		Shadow vehicle
	Arrow board support or trailer (shown facing down)		Sign (shown facing left)
	Changeable message sign or support trailer		Surveyor
	Channelizing device		Temporary barrier
	Crash cushion		Temporary barrier with warning light
	Direction of temporary traffic detour		Traffic or pedestrian signal
	Direction of traffic		Truck-mounted attenuator
	Flagger		Type 3 barricade
	High-level warning device (Flag tree)		Warning light
	Longitudinal channelizing device		Work space
	Luminaire		Work vehicle
	Pavement markings that should be removed for a long-term project		

NOTES:  
FOR MORE INFORMATION REFER TO THE TXMUTCD  
MANUAL FOR DETAILS.

Notes for Figure 6H-11—Typical Application 11  
Lane Closure on a Two-Lane Road with Low Traffic Volumes

- Option:
- This TTC zone application may be used as an alternate to the TTC application shown in Figure 6H-10 (using flaggers) when the following conditions exist:
    - Vehicular traffic volume is such that sufficient gaps exist for vehicular traffic that must yield.
    - Road users from both directions are able to see approaching vehicular traffic through and beyond the worksite and have sufficient visibility of approaching vehicles.
  - The Type B flashing warning lights may be placed on the ROAD WORK AHEAD and the ONE LANE ROAD AHEAD signs whenever a night lane closure is necessary.
- Guidance:
- The location of the yield bar should be selected using the same considerations as those applying to a flagger station (See section 6E.08, paragraphs 01-03).

Figure 6H-11. Lane Closure on a Two-Lane Road with Low Traffic Volumes (TA-11)



THE RESERVES AT MAGNOLIA  
DENTON, TEXAS

TRAFFIC CONTROL PLAN

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817-469-1671  
fax: 817-274-8757  
www.mmatexas.com

10/4/2023  
STATE OF TEXAS  
ROBERT J. CRONIN JR.  
122288  
LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER: 3597-00-02  
PROJECT MANAGER: R. CRONIN  
DRAWN BY: G. SANCHEZ  
CHECKED BY: A. TAYLOR  
ISSUE DATE: 10/4/2023

REV.	DATE	DESCRIP.	BY

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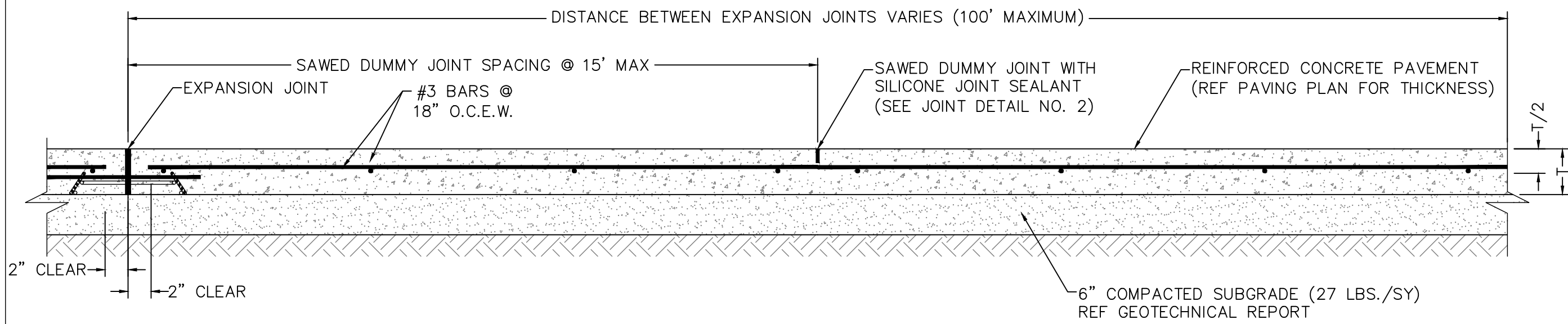
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CONTROL PLAN

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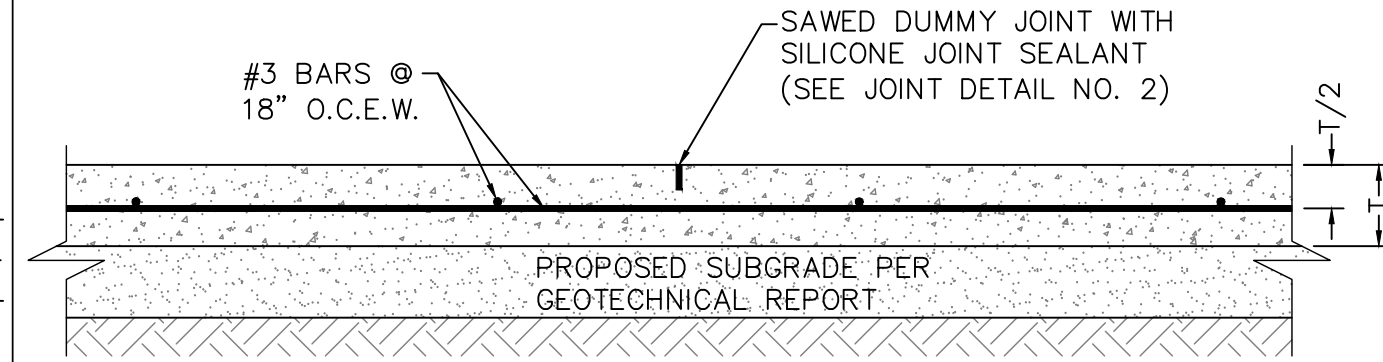


City of Denton  
Development Assistance Team  
Approved October 24, 2023

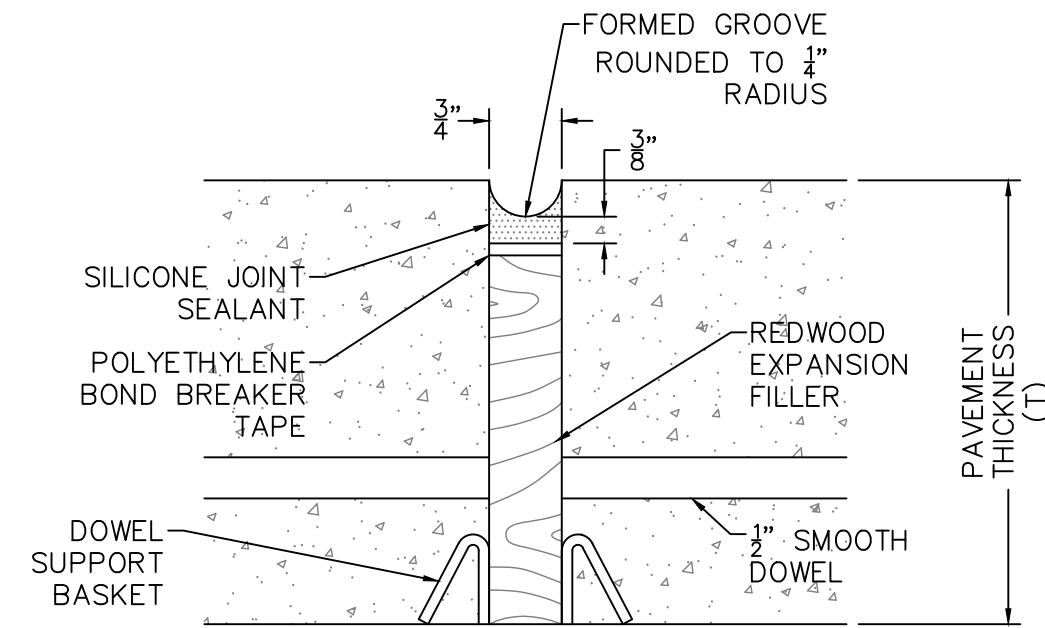
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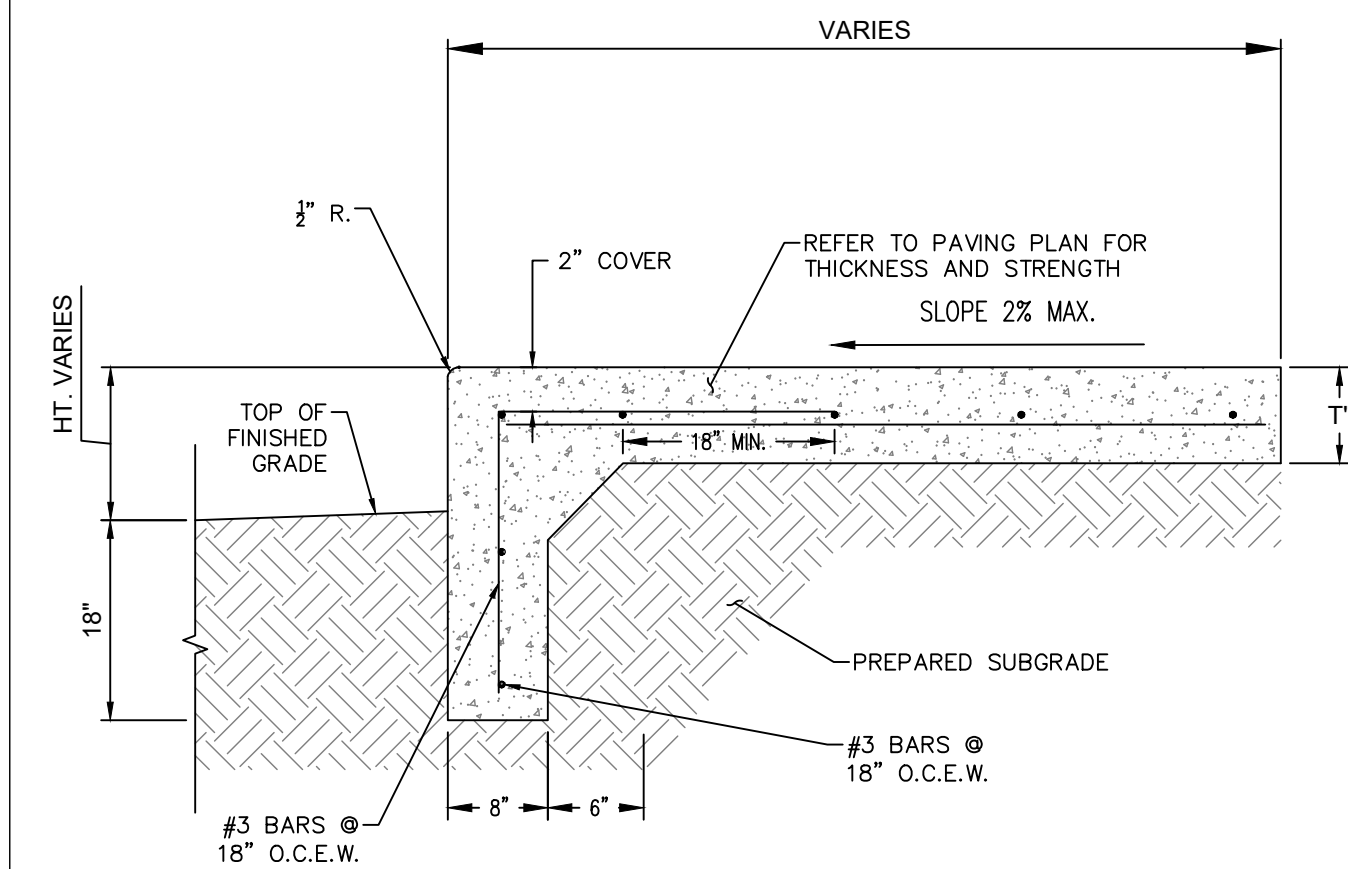
9 TYPICAL PAVING SECTION  
NOT TO SCALE



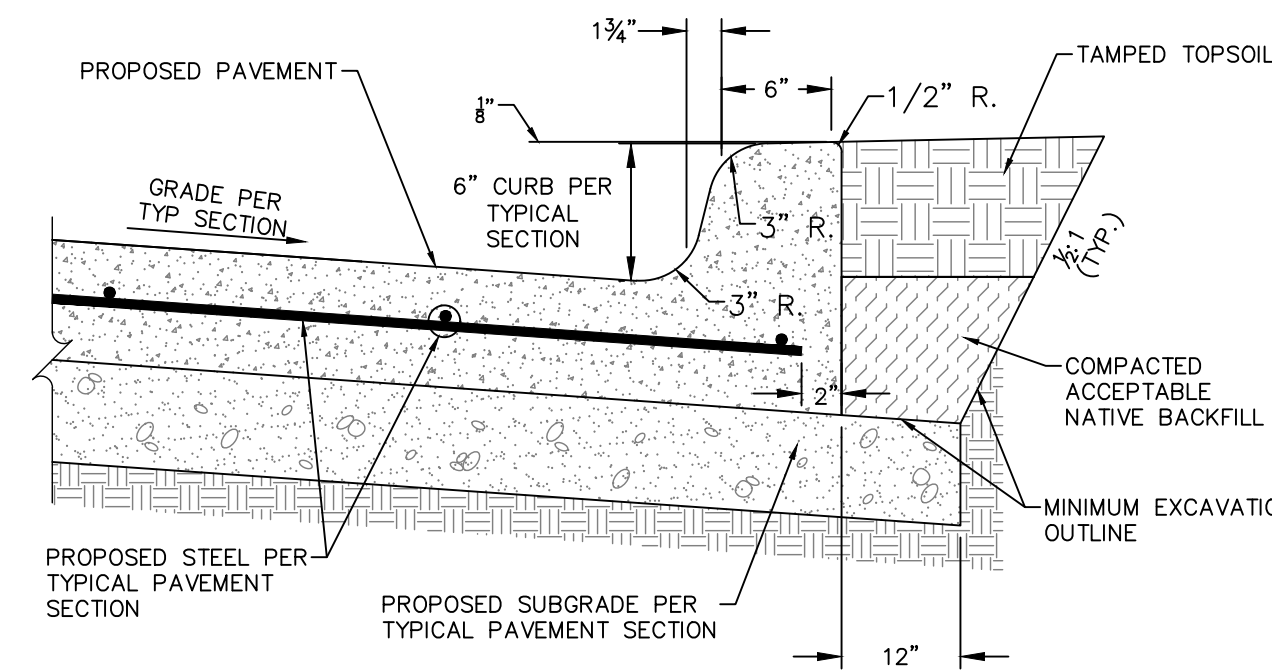
6 SAWED DUMMY JOINT  
NOT TO SCALE



3 JOINT DETAIL NO. 1  
NOT TO SCALE

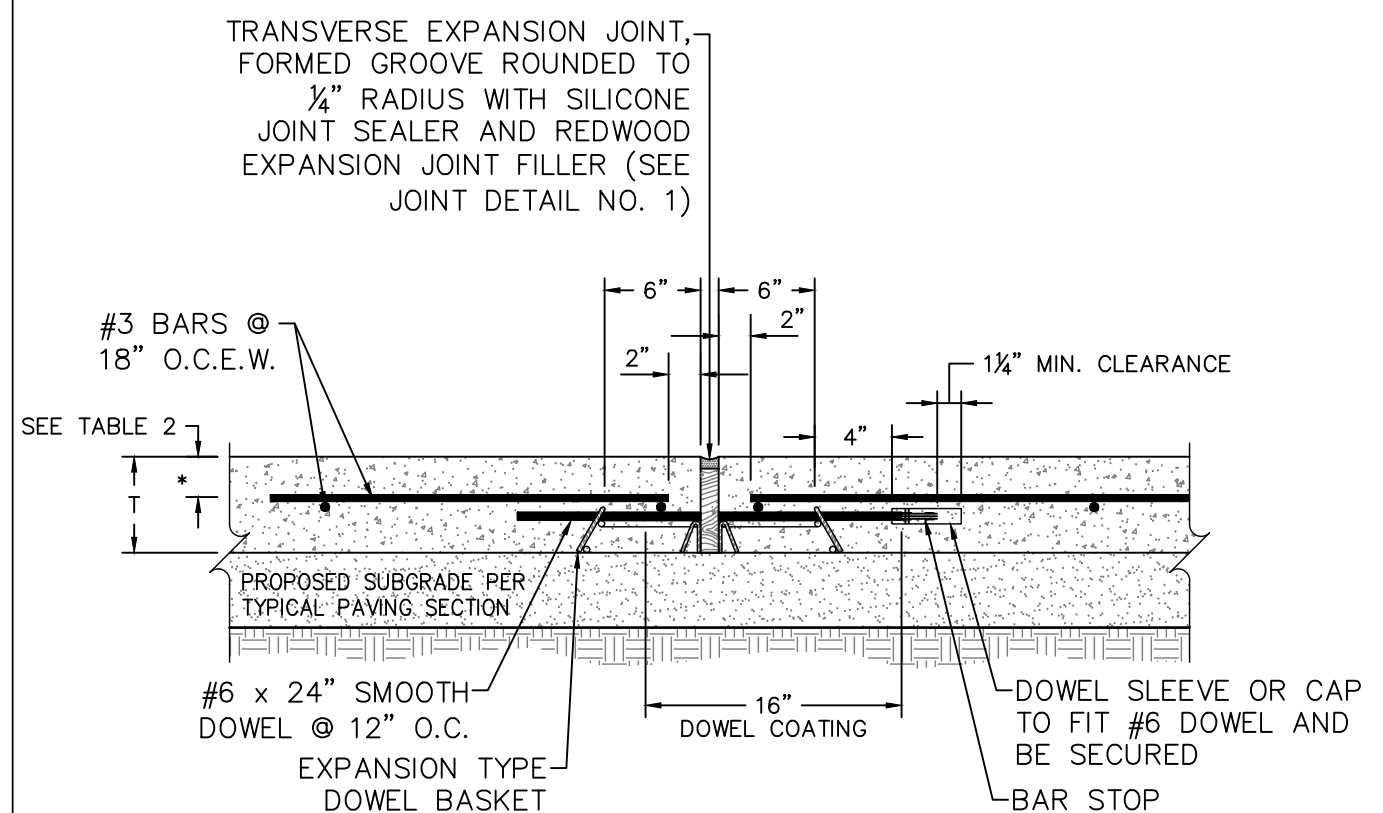


11 CONCRETE TURNDOWN EDGE DETAIL  
NOT TO SCALE

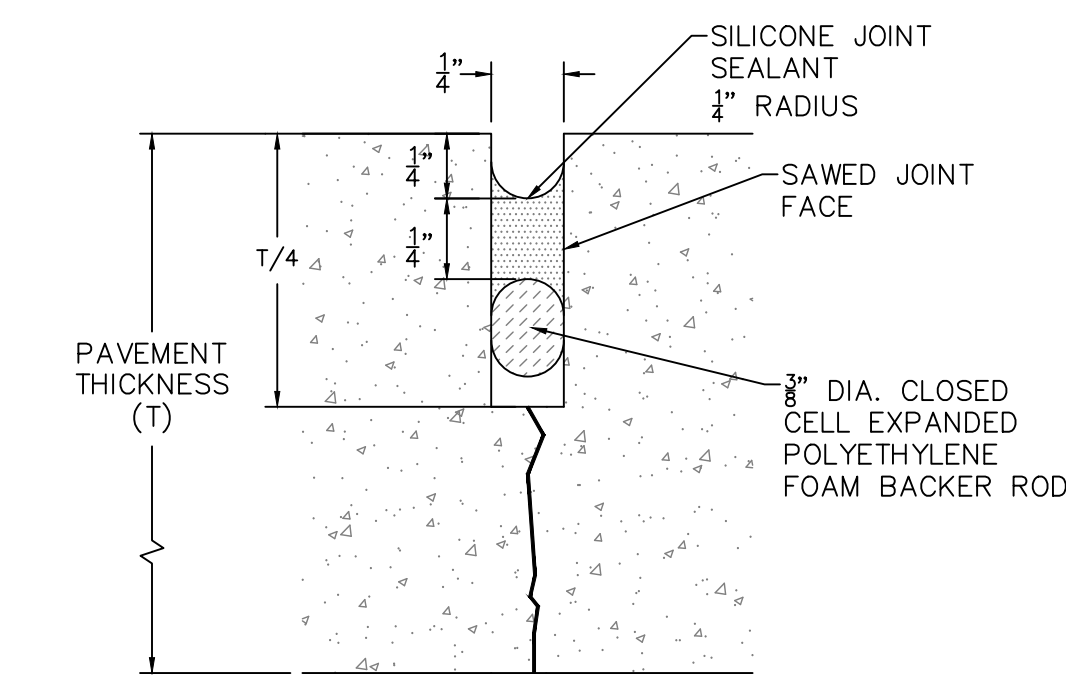


NOTES:  
1. MATCH STREET SAWED JOINTS FOR SAWED JOINTS IN CURB.

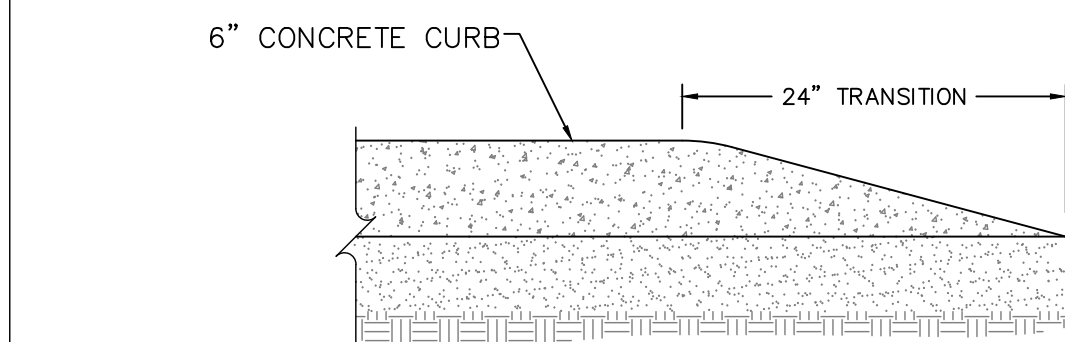
8 STANDARD MONOLITHIC CURB  
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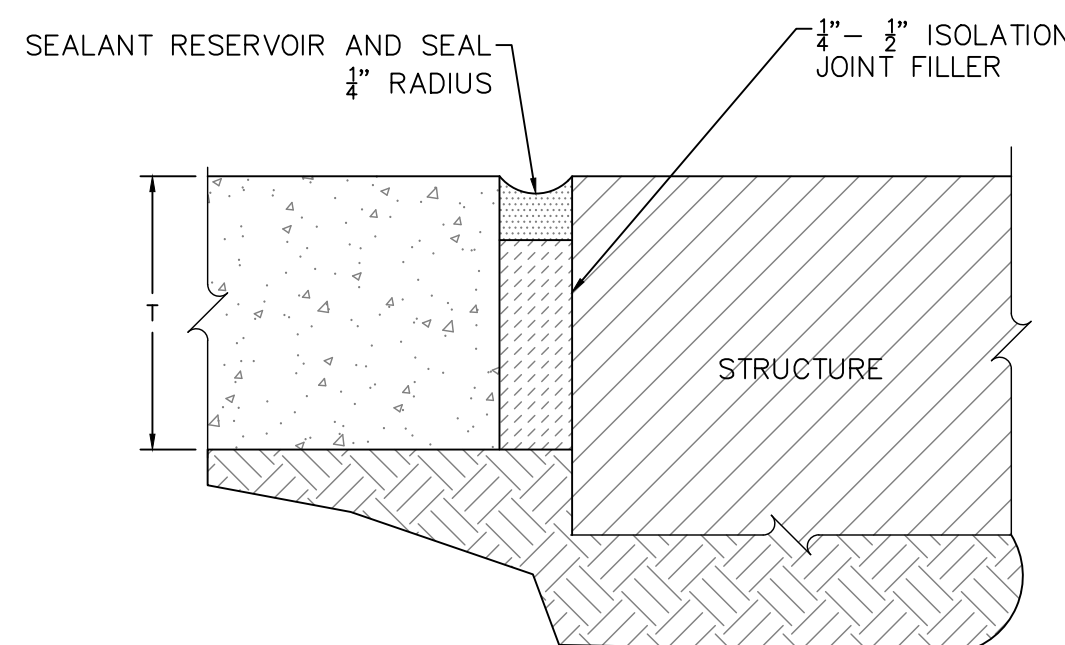
5 EXPANSION JOINT  
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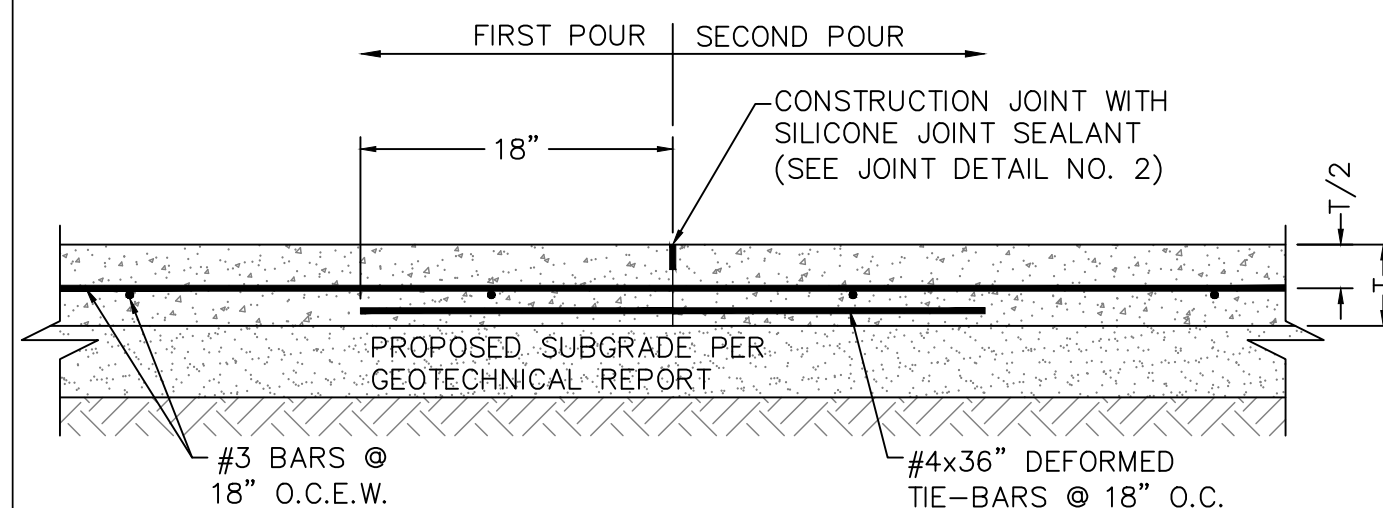
2 JOINT DETAIL NO. 2  
NOT TO SCALE



10 CURB TAPER  
NOT TO SCALE



7 ISOLATION JOINT  
NOT TO SCALE



4 CONSTRUCTION JOINT  
NOT TO SCALE

#### CONSTRUCTION NOTES

1. FOR DEFORMED BAR SPLICES, LAP BARS 40 DIAMETERS AND TIE.
2. FOR PAVEMENT THICKNESS "T" REFER TO PAVING PLAN.

TABLE 1 (SAWED DUMMY JOINT DEPTH)	
DIM T = PAVEMENT THICKNESS	DIM T/4 = JOINT DEPTH
5"	1 1/4"
6"	1 1/2"
7"	1 3/4"
8"	2"
9"	2 1/4"

TABLE 2 (PAVEMENT REINFORCING STEEL PLACEMENT)	
DIM T = PAVEMENT THICKNESS	* (CLEARANCE FROM FACE OF CONCRETE)
5"	2"
6"	2"
7"	2 1/2"
8"	2 3/4"
9"	3"

NOTE: ALL DOWELS TO BE PLACED AT T/2.

1 PAVING NOTES & TABLES  
NOT TO SCALE

THE RESERVES AT MAGNOLIA  
DENTON, TEXAS

PRIVATE PAVING DETAILS

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arlington, texas 76010  
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10/4/2023  
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LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER: 3597-00-02  
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DRAWN BY: G. SANCHEZ  
CHECKED BY: A. TAYLOR  
ISSUE DATE: 10/4/2023

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DETAILS

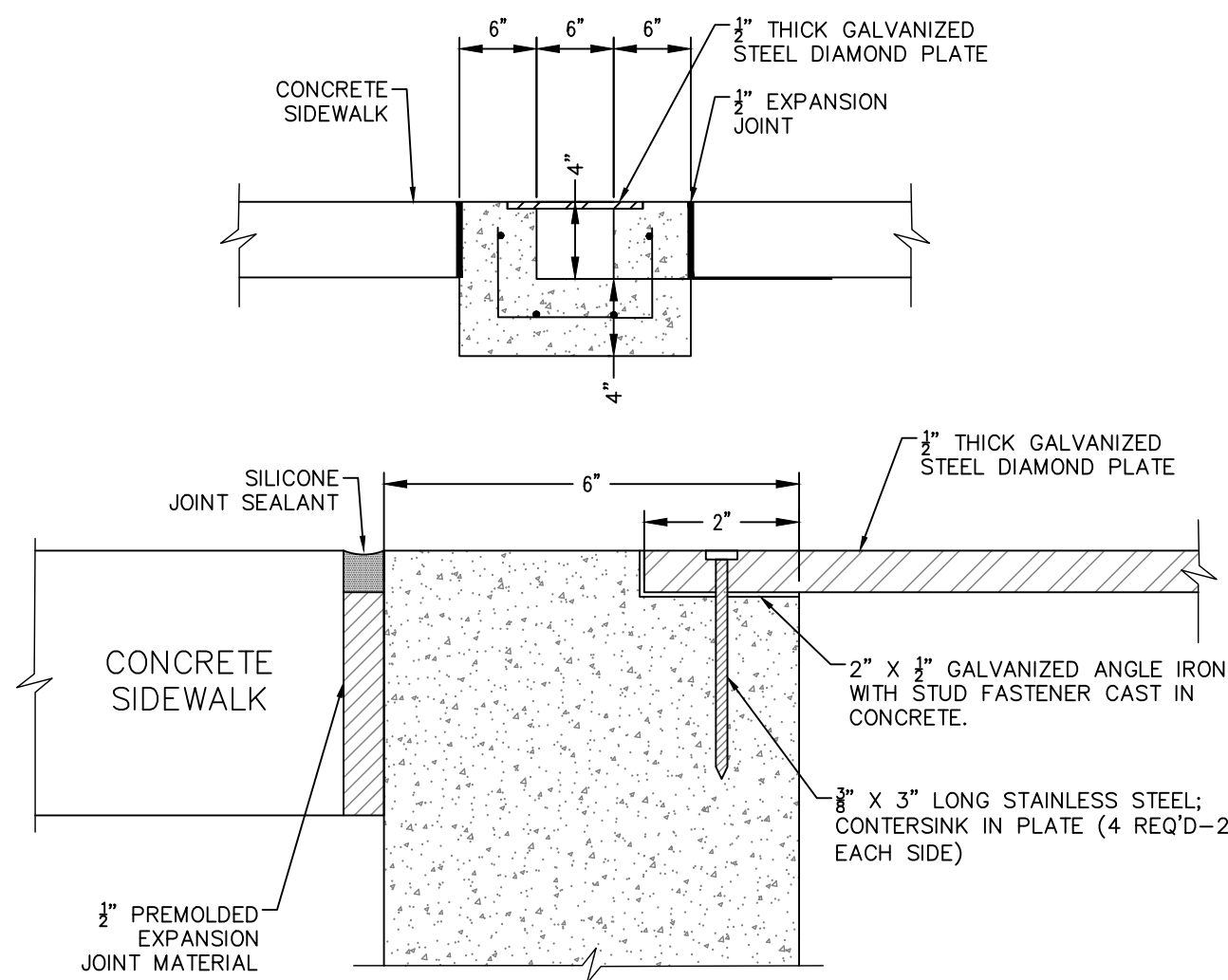
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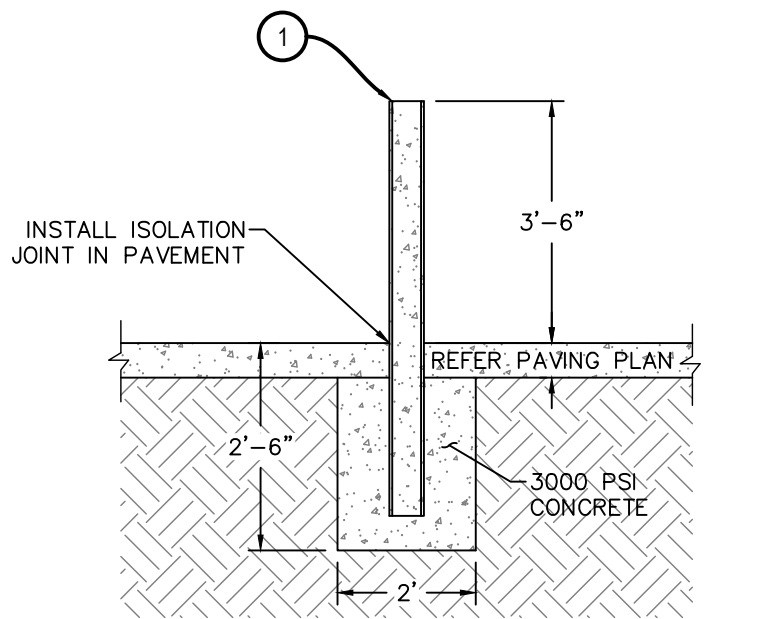


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Development Assistance Team  
Approved: 02/04/2023

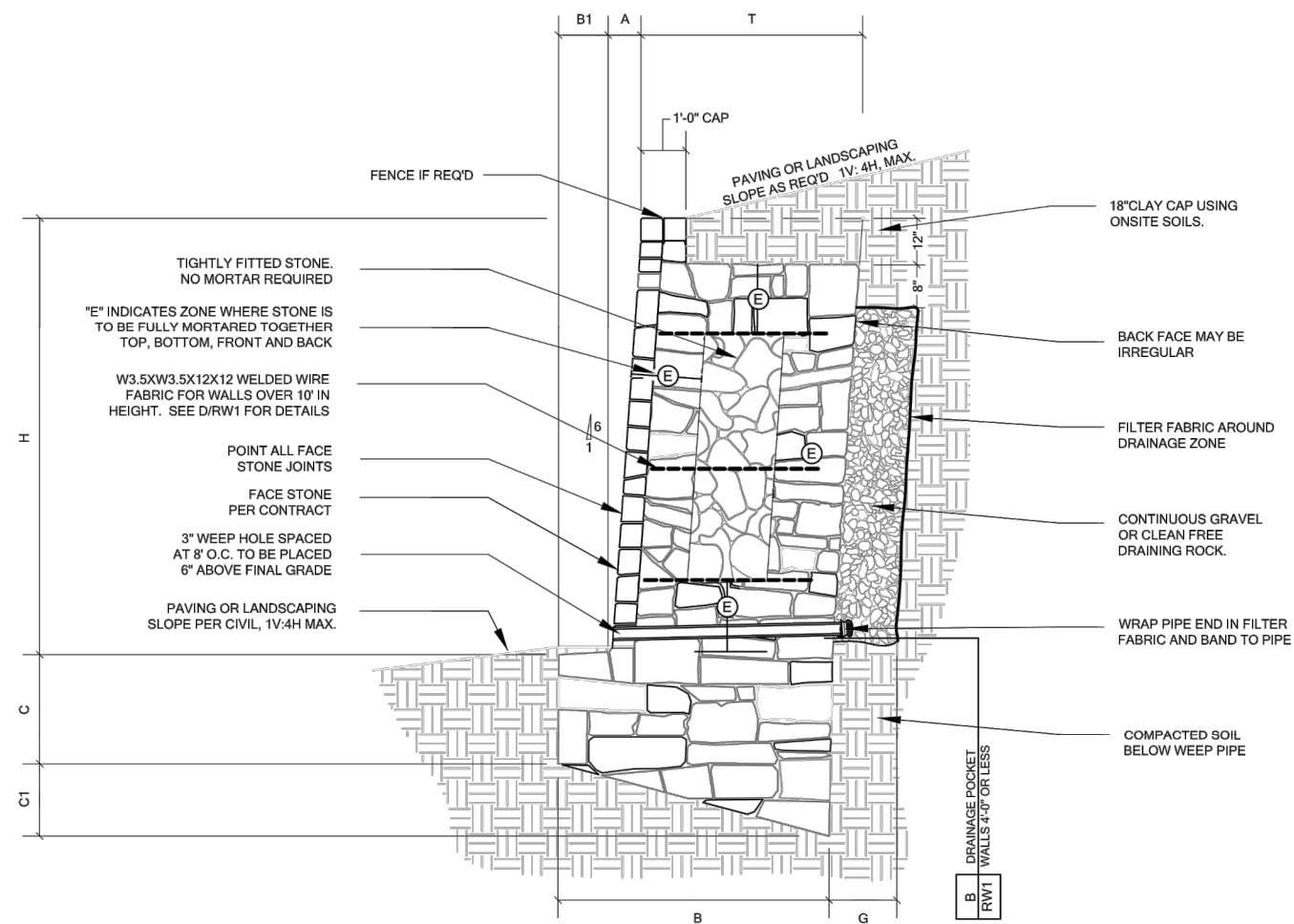
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7 DIAMOND PLATE CROSSING  
NOT TO SCALE



5 TYPICAL BOLLARD DETAIL  
NOT TO SCALE

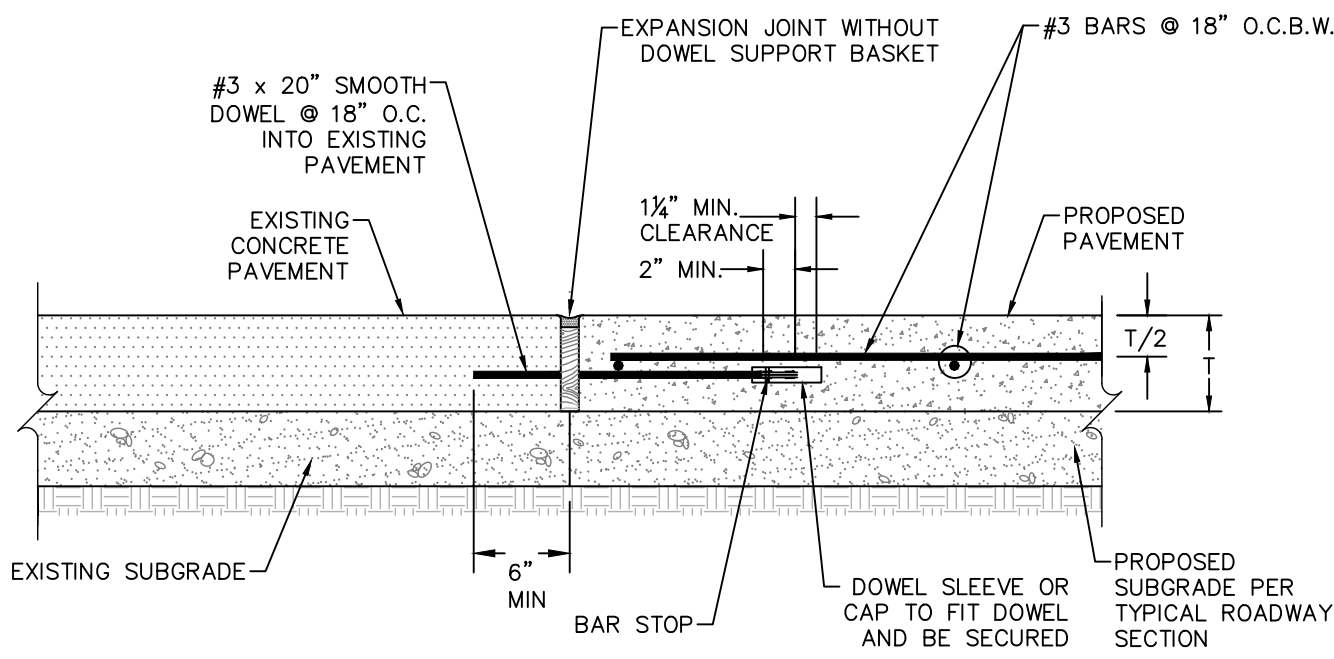


NOTES:  
1. STRUCTURAL ENGINEER TO VERIFY ALL FINAL DESIGN.

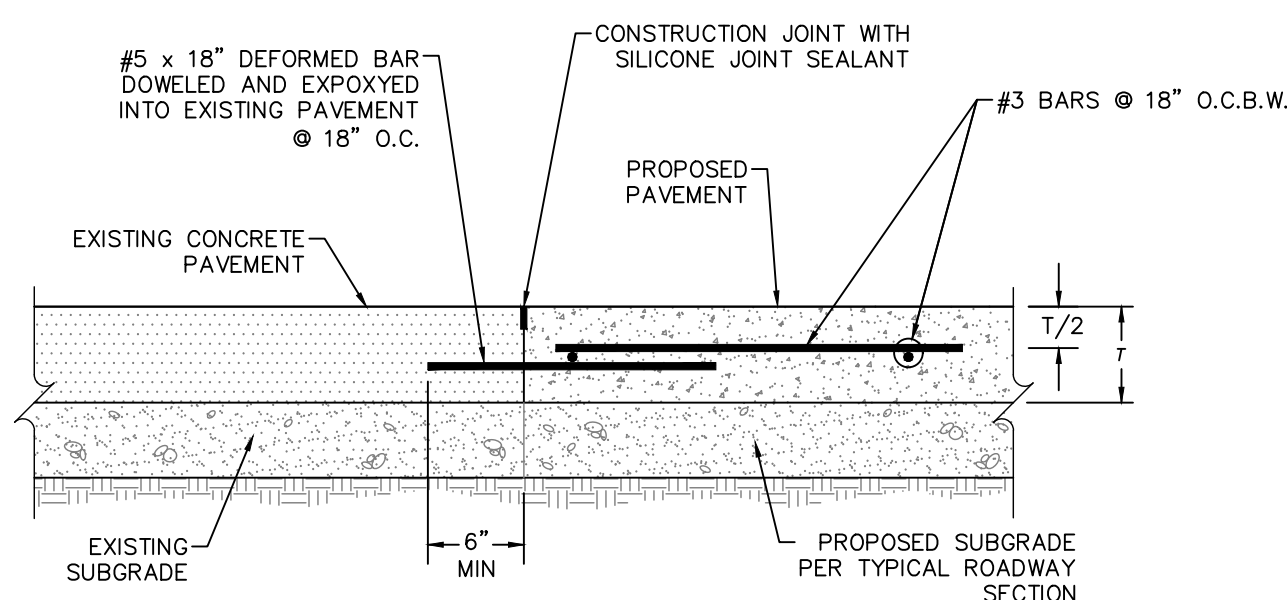
RW1/1 MASONRY WALL SCHEDULE - 2500 psf - 6V:1H BATTER										
BEARING CAPACITY ON NATURAL SOIL OR COMPACTED AND TESTED FILLS										
WALL HEIGHT	BASE WIDTH	TOE DEPTH (TOE)	BASE DEPTH (HEEL)	BATTER DEPTH (HEEL)	FULLY MORTARED ZONE	THICKNESS OF WALL	DRAINAGE ZONE THICKNESS	BEARING CAPACITY		
H	B	B1	C	C1	A	E	T	G		
1'-0"	1'-0"	0'-0"	0'-10"	0'-2"	0'-2"	FULLY	1'-0"	SEE B/RW1		
2'-0"	1'-3"	0'-0"	1'-0"	0'-3"	0'-4"	FULLY	1'-3"	SEE B/RW1		
3'-0"	1'-10"	0'-0"	0'-0"	0'-4"	0'-6"	FULLY	1'-10"	SEE B/RW1		
4'-0"	2'-2"	0'-0"	1'-3"	0'-5"	0'-8"	FULLY	2'-2"	SEE B/RW1		
5'-0"	2'-8"	0'-1"	1'-5"	0'-6"	0'-10"	0'-11"	2'-7"	0'-10"		
6'-0"	3'-2"	0'-2"	1'-8"	0'-7"	1'-0"	1'-0"	3'-0"	0'-10"		
7'-0"	3'-9"	0'-3"	2'-0"	0'-8"	1'-2"	1'-2"	3'-2"	1'-0"		
8'-0"	4'-8"	0'-5"	2'-3"	0'-10"	1'-4"	1'-4"	3'-11"	1'-2"		
9'-0"	5'-6"	1'-2"	2'-8"	0'-11"	1'-6"	1'-4"	4'-4"	1'-4"	2500 psf	
10'-0"	6'-3"	1'-5"	3'-0"	1'-1"	1'-8"	1'-7"	4'-10"	1'-6"		
11'-0"	7'-1"	1'-9"	3'-3"	1'-3"	1'-10"	1'-9"	5'-4"	1'-8"		
12'-0"	7'-8"	2'-0"	3'-6"	1'-4"	2'-0"	1'-11"	5'-8"	1'-10"		
13'-0"	8'-3"	2'-3"	3'-9"	1'-5"	2'-2"	2'-0"	6'-0"	2'-0"		
WALL DESIGN CRITERIA										
BEARING	SLOPE TOP	SLOPE BOT	ACTIVE PRESSURE	PASSIVE PRESSURE	COEFFICIENT OF FRICTION	SLOPE OF BACK OF WALL	SURCHARGE			
Q <sub>u</sub>	β	β <sub>1</sub>	Φ <sub>1</sub>	Φ <sub>2</sub>	α	q				
2500 psf	14.3 deg	14.3 deg	30 deg	30 deg	0.3	99.5 deg	0 psf			
FOOTING DEPTHS MAY BE TERMINATED 12" INTO SOIL UNFACED LIMESTONE CUT AT BASE OF RETAINING WALL, IF ENCOUNTERED										

RW1/1 MASONRY WALL W/ 6V:1H BATTER  
SCALE: N/T

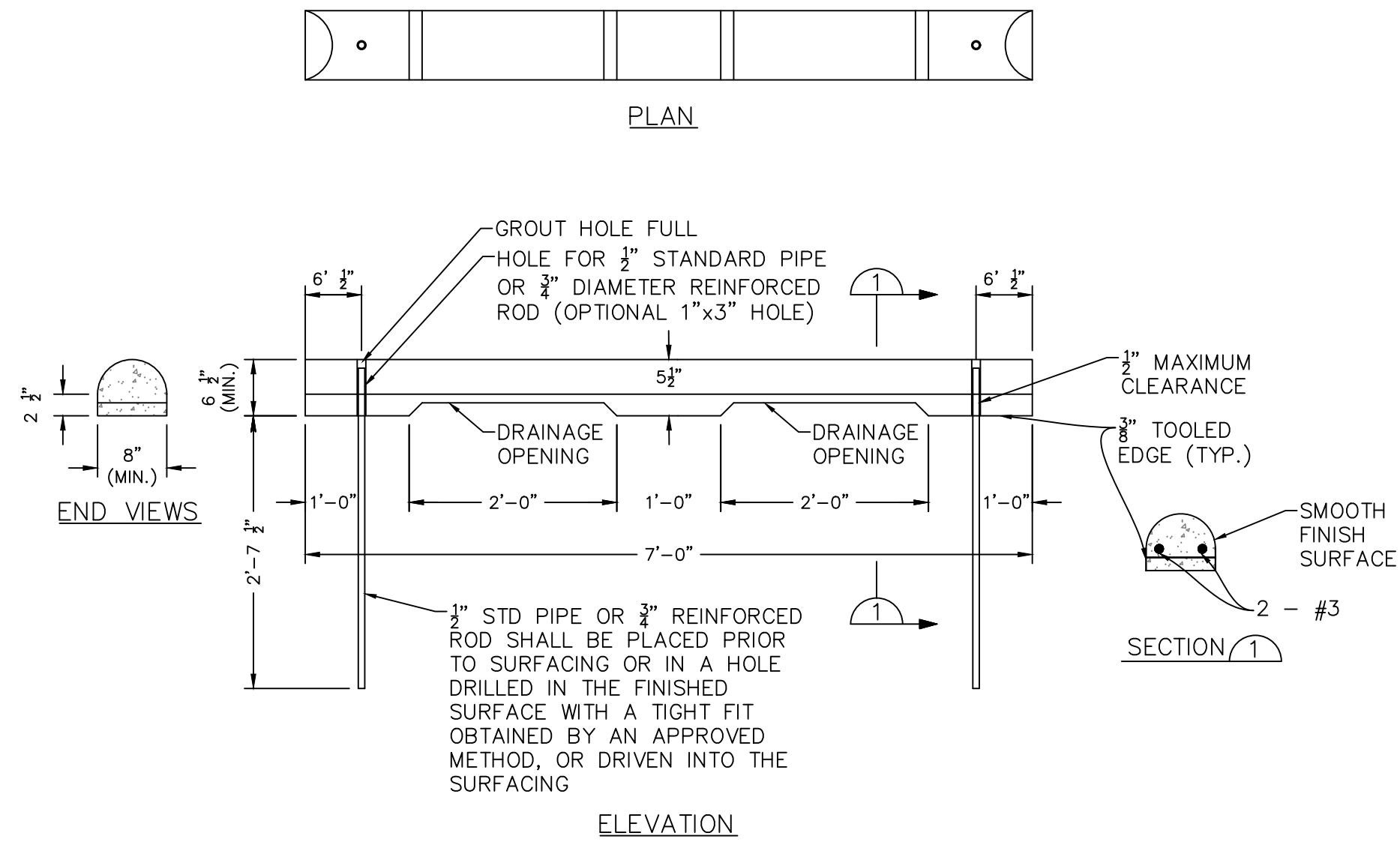
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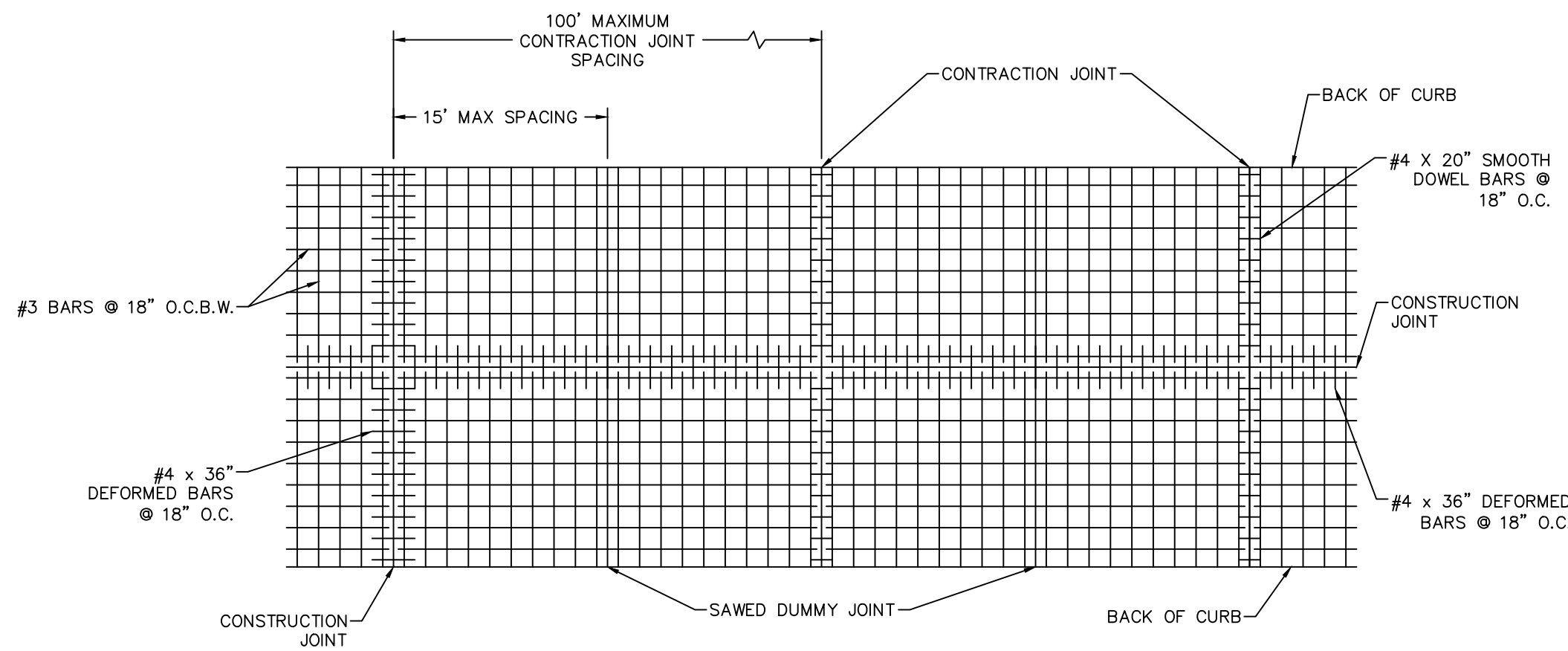
4 EXPANSION CONSTRUCTION JOINT  
(BETWEEN EXISTING AND PROPOSED PAVEMENT)  
NOT TO SCALE



3 CONSTRUCTION JOINT  
(BETWEEN EXISTING AND PROPOSED PAVEMENT)  
NOT TO SCALE



2 PRECAST CONCRETE WHEEL STOP DETAILS  
NOT TO SCALE



1 PAVEMENT STEEL REINFORCING GENERAL LAYOUT  
NOT TO SCALE

THE RESERVES AT MAGNOLIA  
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PRIVATE PAVING DETAILS

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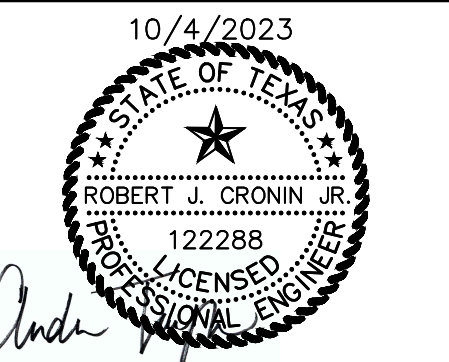
PROJECT NUMBER: 3597-00-02  
PROJECT MANAGER: R. CRONIN  
DRAWN BY: G. SANCHEZ  
CHECKED BY: A. TAYLOR  
ISSUE DATE: 10/4/2023

REV. DATE DESCRIP. BY  
SHEET CONTENT:

PRIVATE PAVING  
DETAILS

SHEET NO:  
C11.1  
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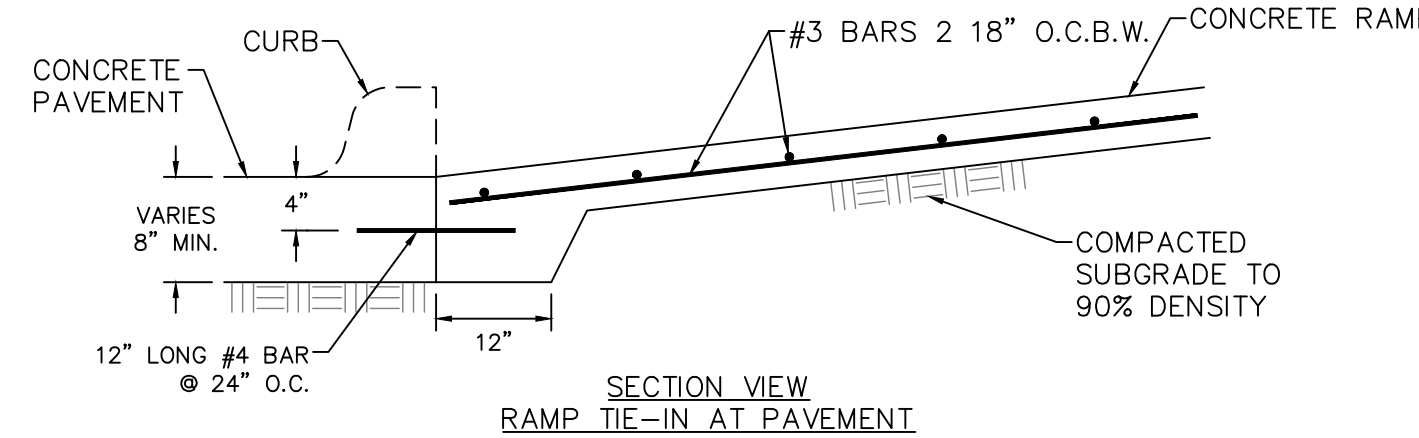
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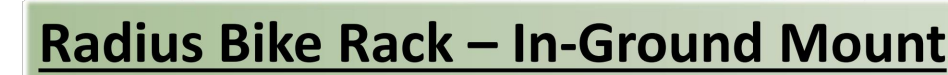
- NOTE:
1. TYPICALLY VAN SPACES SHALL BE 132" MINIMUM.
  2. EXCEPTION: VAN SPACES SHALL BE PERMITTED TO BE 96" WIDE MINIMUM WHERE THE ACCESS AISLE IS 96" WIDE MINIMUM.
  3. REFER TO NOTES ON DETAIL 3.
- 
- The diagram illustrates a standard van accessible parking space. It is a rectangular area with a total width of 16 feet, as indicated by the dimension line at the top labeled "16' MINIMUM SEE NOTE 2". This width is divided into three sections: two side sections, each 11 feet wide and labeled "11' TYP", and a central access aisle 5 feet wide and labeled "5' TYP". The side sections contain a wheelchair symbol inside a square, representing the van. The central access aisle is shaded with diagonal lines and labeled "NO PARKING" at the bottom. The length of the space is 18 feet, labeled on the right side. Key features include a "WHEEL STOP & ADA SIGN" at the front of the van space, a "4\" solid white stripe" along the top and bottom edges of the van space, and "ADA PARKING PAVEMENT MARKING" (a wheelchair symbol) in the center of the van space. The access aisle is bordered by a "4\" white stripe" on its outer edges. The stripe is specified as "2' C-C @ 45' TYP." (2-foot center-to-center spacing at a 45-degree angle). A note on the left specifies the "MINIMUM HEIGHT OF 12\" AND MIN STROKE WIDTH OF 2\" CENTERED WITHIN EACH ACCESS AISLE ADJACENT TO THE PARKING SPACE REFERENCE DETAIL 7".
- MINIMUM HEIGHT OF 12" AND MIN STROKE WIDTH OF 2" CENTERED WITHIN EACH ACCESS AISLE ADJACENT TO THE PARKING SPACE REFERENCE DETAIL 7
- WHEEL STOP & ADA SIGN
- 11' TYP
- 5' TYP
- 16' MINIMUM SEE NOTE 2
- 11' TYP
- 4" SOLID WHITE STRIPE
- ADA PARKING PAVEMENT MARKING
- NO PARKING
- VAN
- 18'
- 4" WHITE STRIPE  
2' C-C @ 45' TYP.
- 5
- TYPICAL VAN ACCESSIBLE PARKING DETAIL
- NOT TO SCALE

- ## 2 ADA PARKING PAVEMENT MARKING DETAIL



## 4 SIDEWALK DETAILS





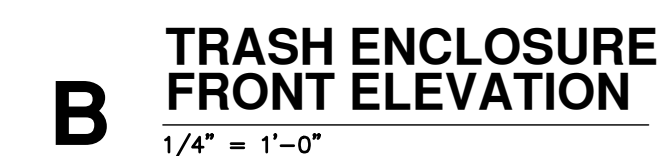
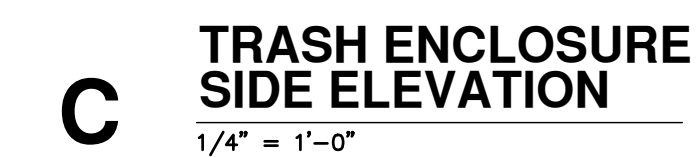
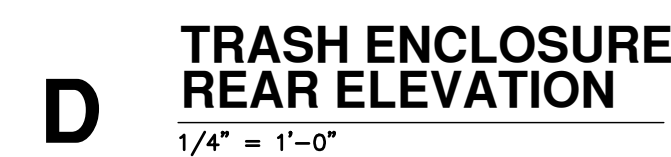
900br140-1



## H BIKE RACK



**G TRASH ENCLOURE SECTION**  
3/4" = 1'-0"

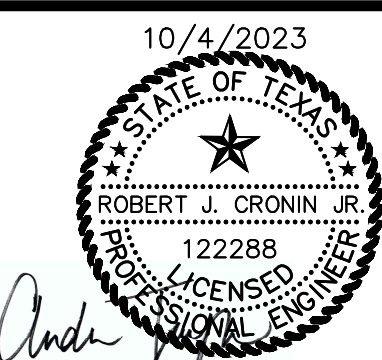


DO NOT CONSTRUCT ANY PART OF THE TRASH PAD, ENCLOSURE AND/OR ACCESS TO, UNTILL AFTER CONFIRMATION AND COORDINATION OF LOCAL TRASH SERVICE. DUE TO DIFFERENT TRASH COMPANIES, TRUCKS AND PICK-UP PROCESSES, CONFIRMATION OF THE TRASH SERVICE AND COORDINATION OF THE DESIGN AND LAYOUT OF THE PAD, ENCLOSURE AND ACCESS MUST BE COMPLETED.



THE RESERVES AT MAGNOLIA  
DENTON, TEXAS

## PRIVATE PAVING DETAILS



PROJECT NUMBER:	3597-00-02
PROJECT MANAGER:	R. CRONIN
DRAWN BY:	B. SHELTON
CHECKED BY:	A. TAYLOR
ISSUE DATE:	10/4/2023

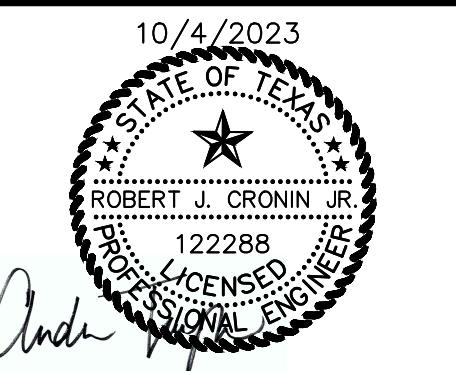
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SHEET CONTENT:			

## PRIVATE PAVING DETAILS

SHEET NO: **C11.3**

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[illegible]

## PRIVATE RAMP DETAILS

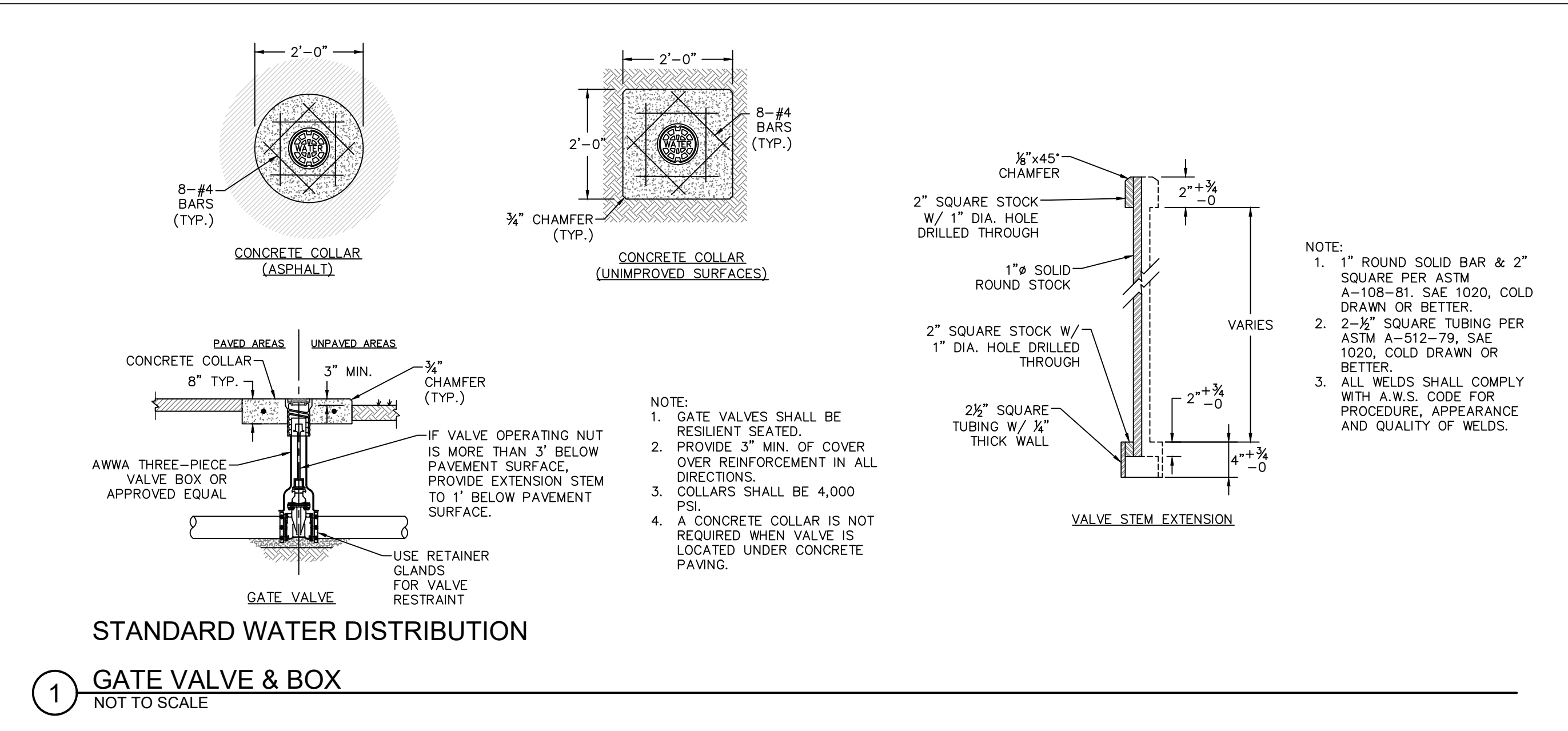
SHEET NO: **C11.4**

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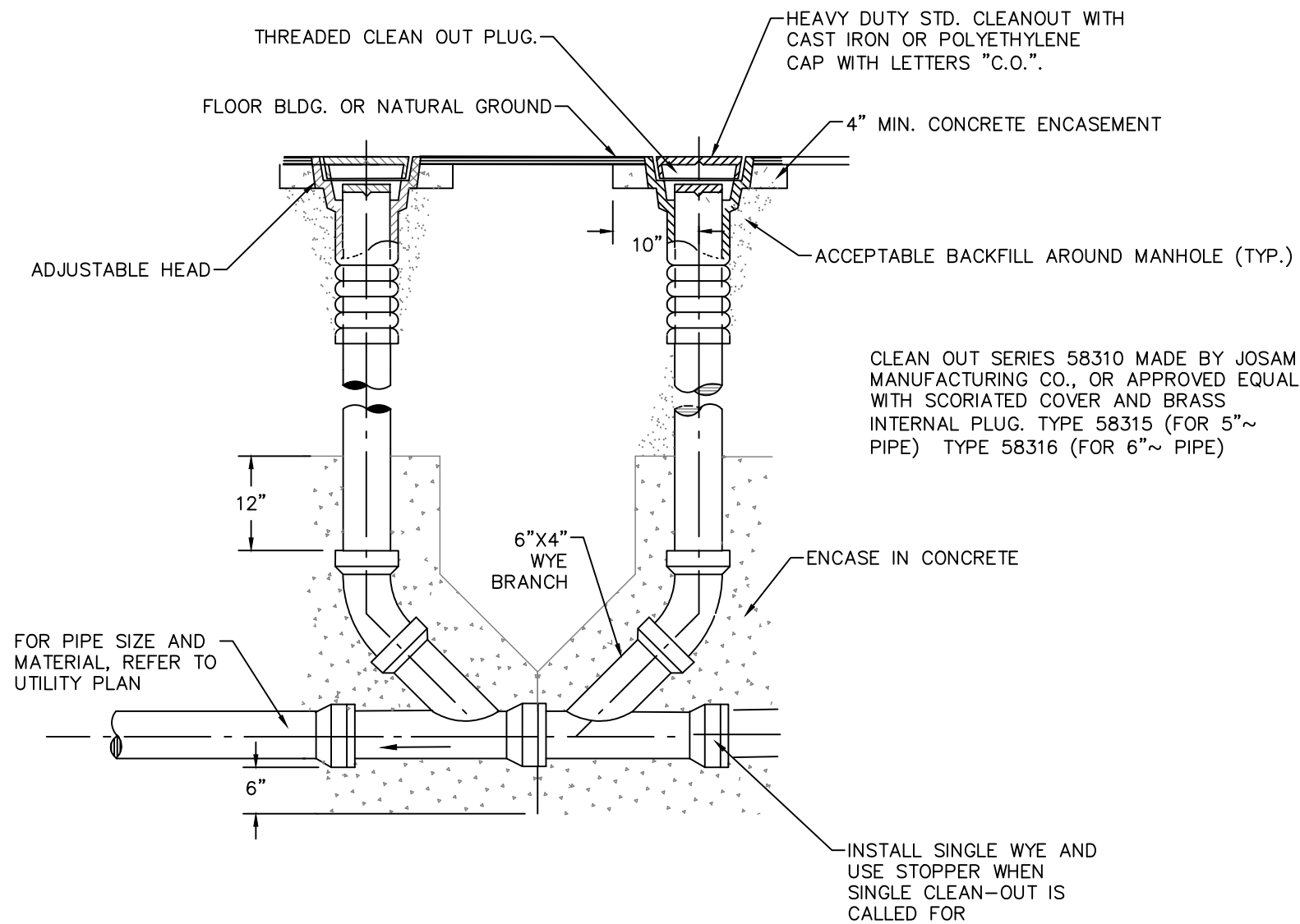




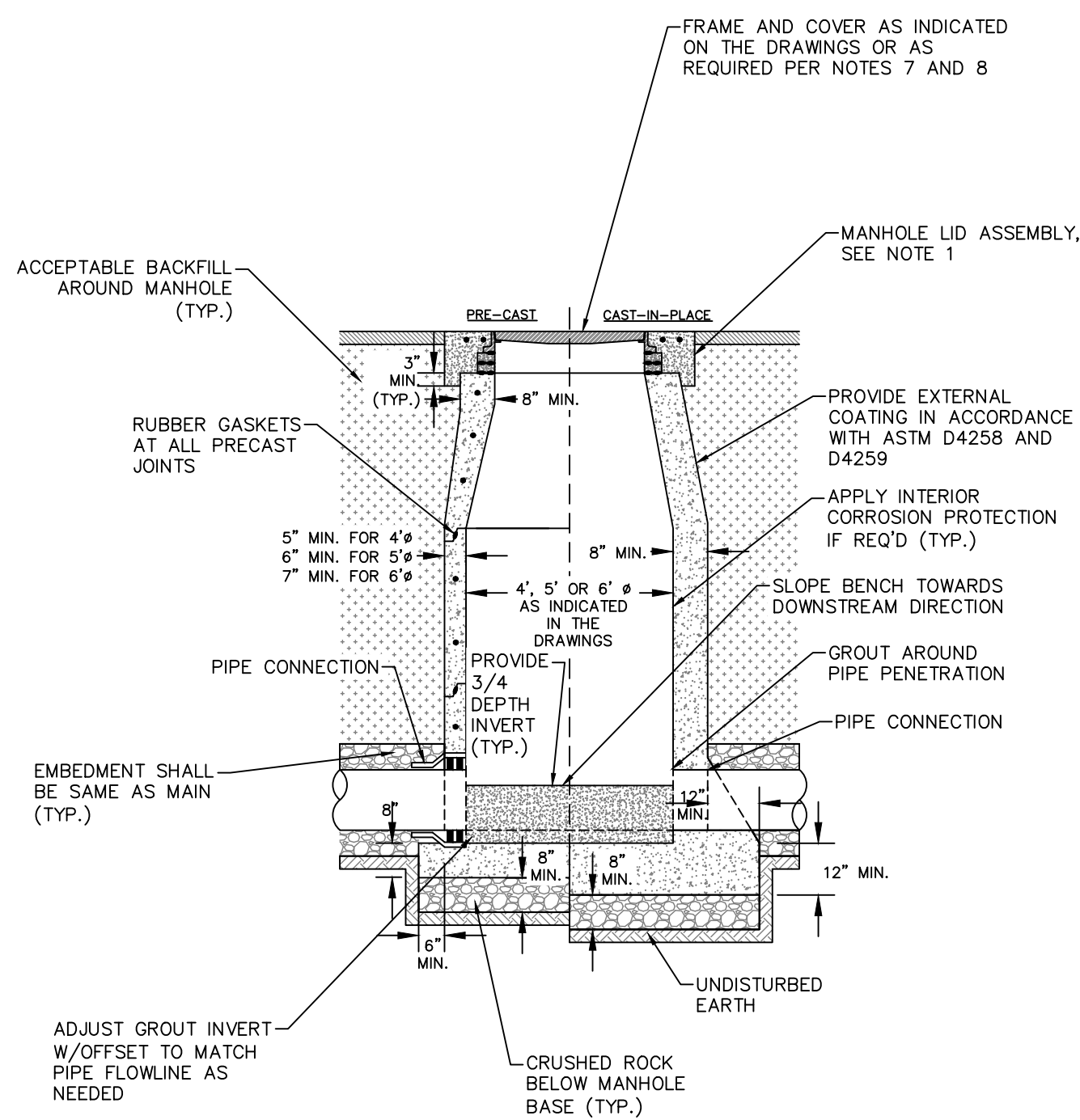
## PRIVATE WATER DETAILS







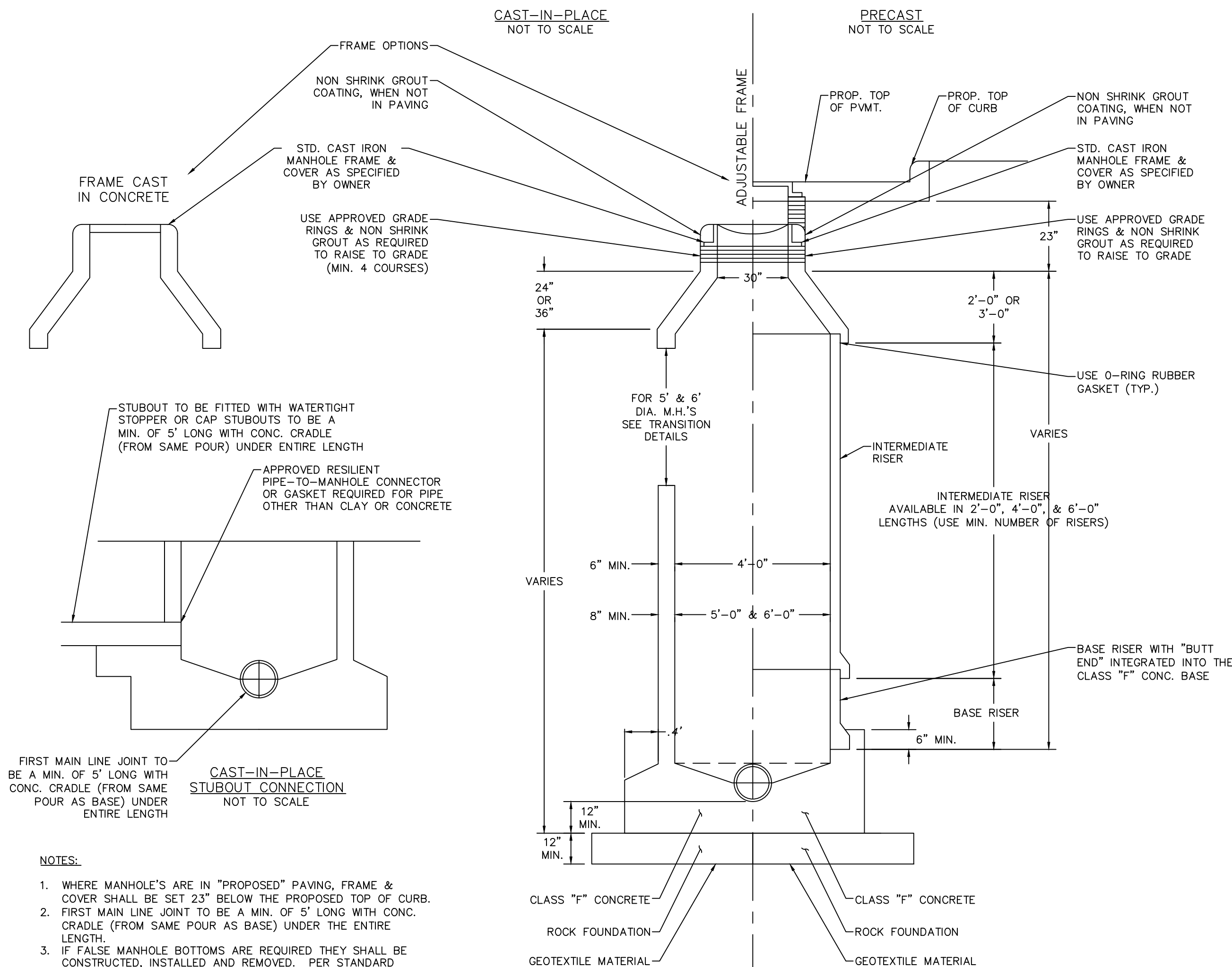
3 CLEAN OUT  
NOT TO SCALE



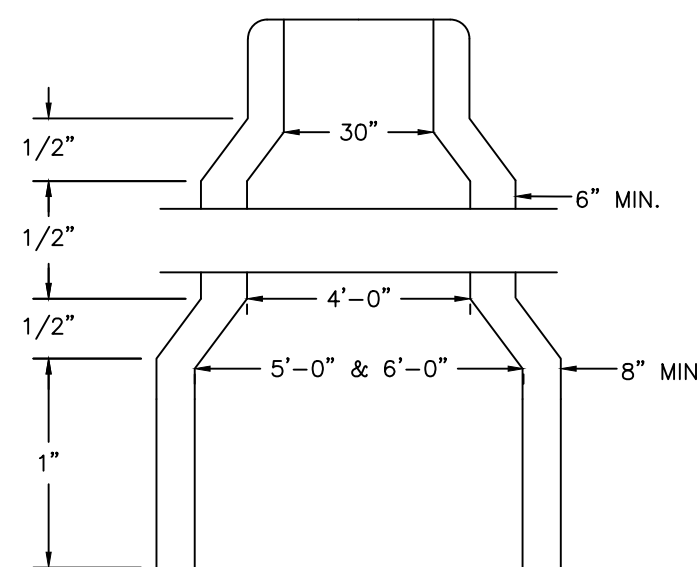
- NOTES:
- MANHOLE TOP SHALL BE PER MANHOLE LID ASSEMBLY DETAILS AS INDICATED IN THE DRAWINGS
  - FOR CAST-IN-PLACE MANHOLES, CURE FOR THREE DAYS BEFORE BACKFILLING AROUND STRUCTURE
  - IF SOIL CONDITIONS OR GROUND WATER PREVENT USE OF COARSE AGGREGATE BASE A 2-INCH MUD SLAB MAY BE SUBSTITUTED
  - PRE-CAST JOINTS SHALL CONFORM TO ASTM C478
  - UNLESS OTHERWISE INDICATED IN THE DRAWINGS, 4\"/>

2 STANDARD MANHOLE  
NOT TO SCALE

1 WASTEWATER MANHOLE LINE INTERSECTION  
NOT TO SCALE

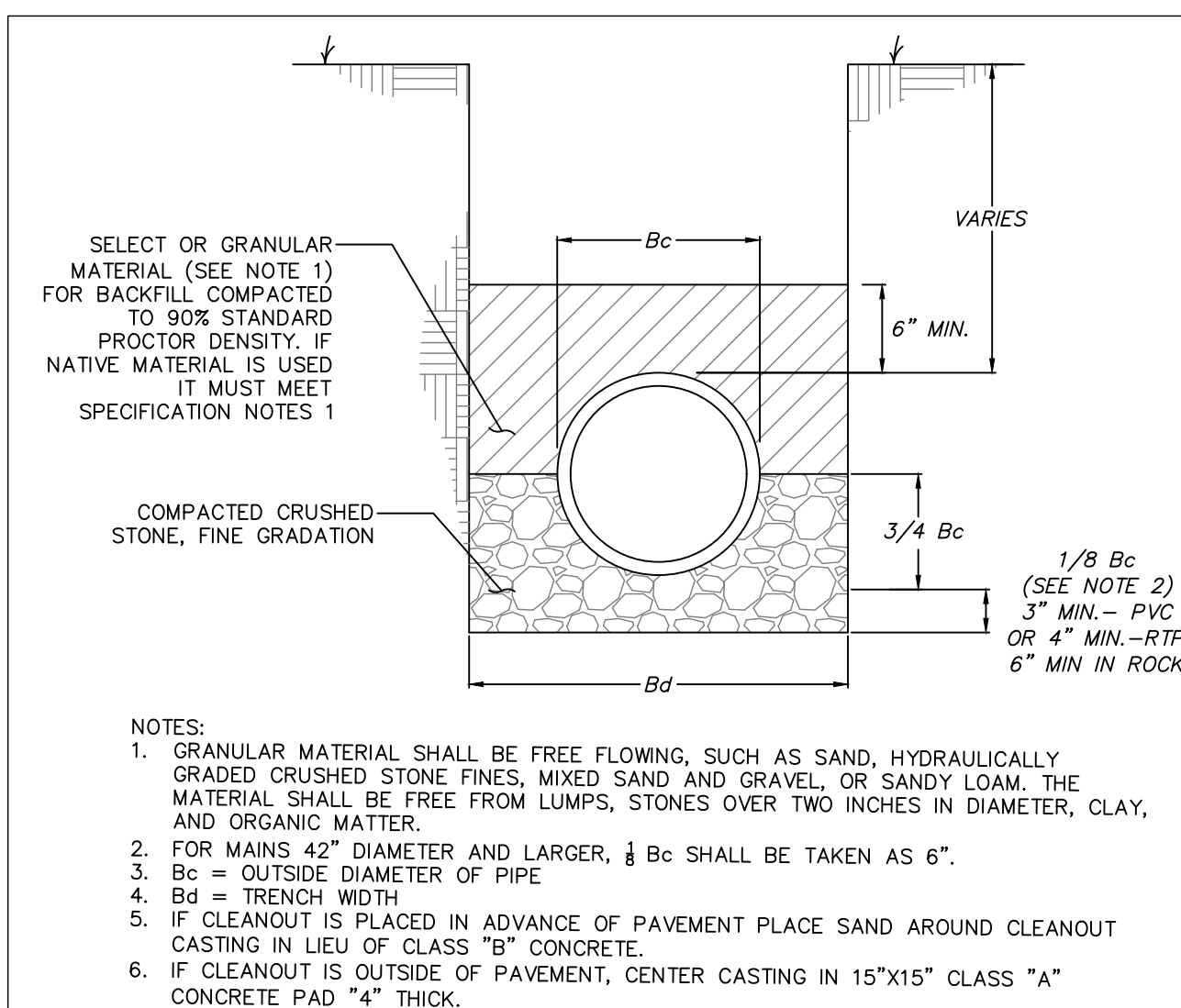
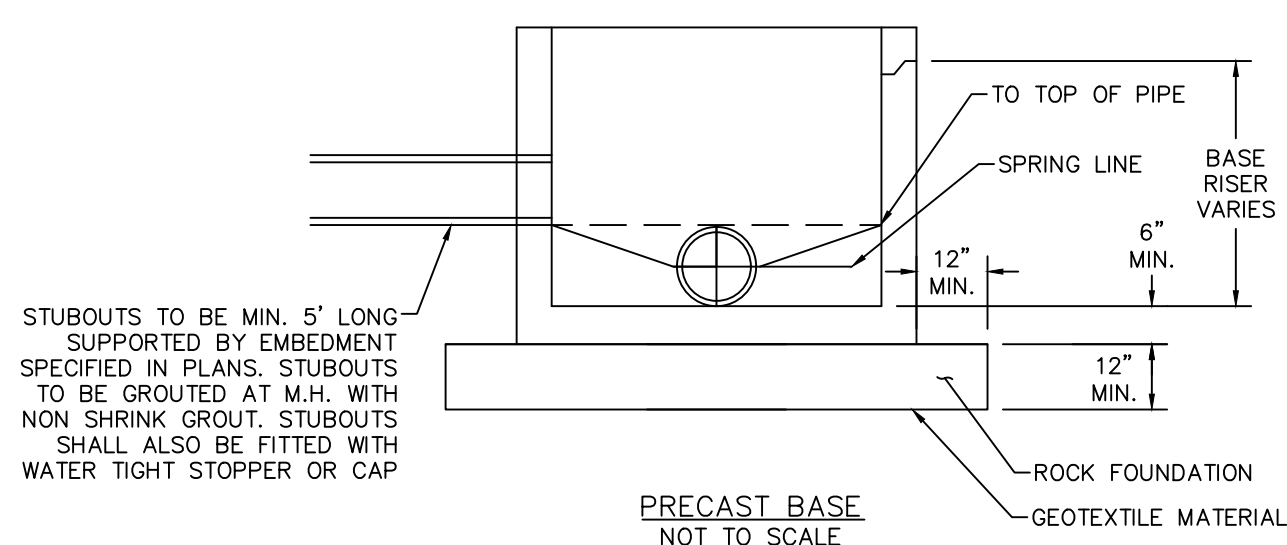


- NOTES:
- WHERE MANHOLE'S ARE IN "PROPOSED" PAVING, FRAME & COVER SHALL BE SET 23\"/>



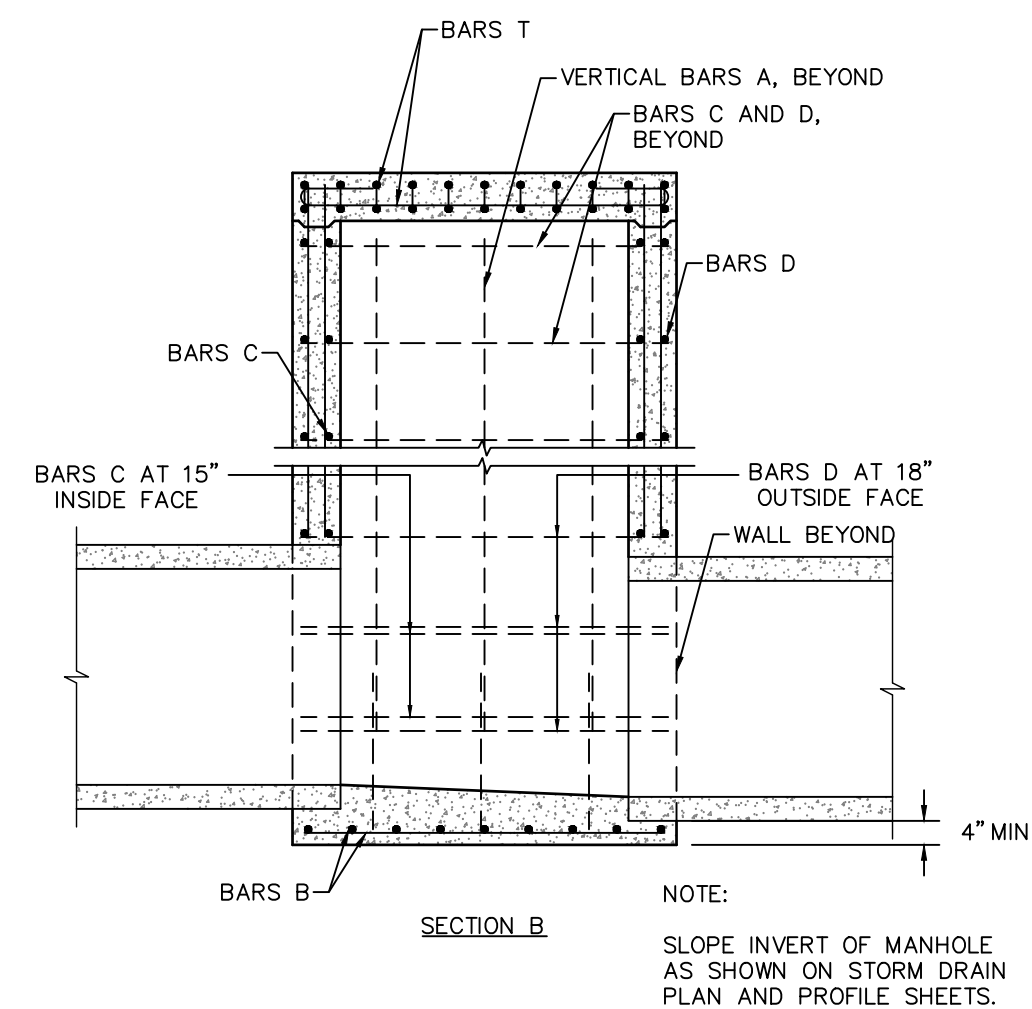
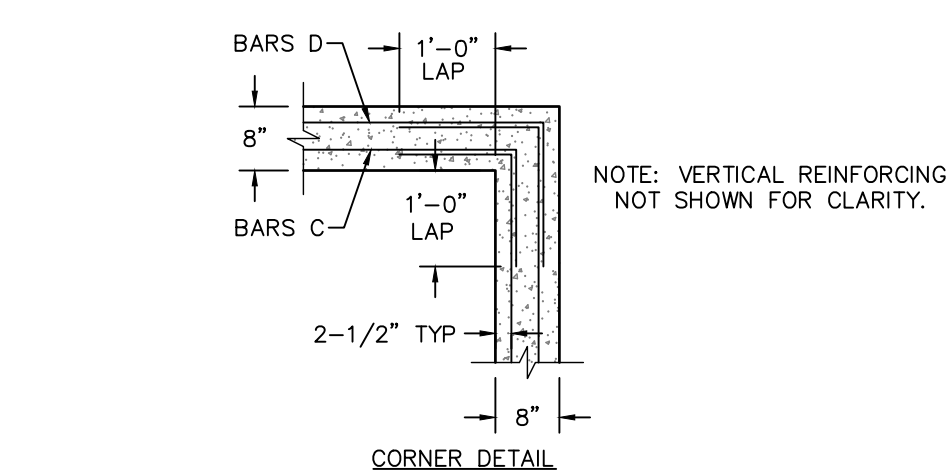
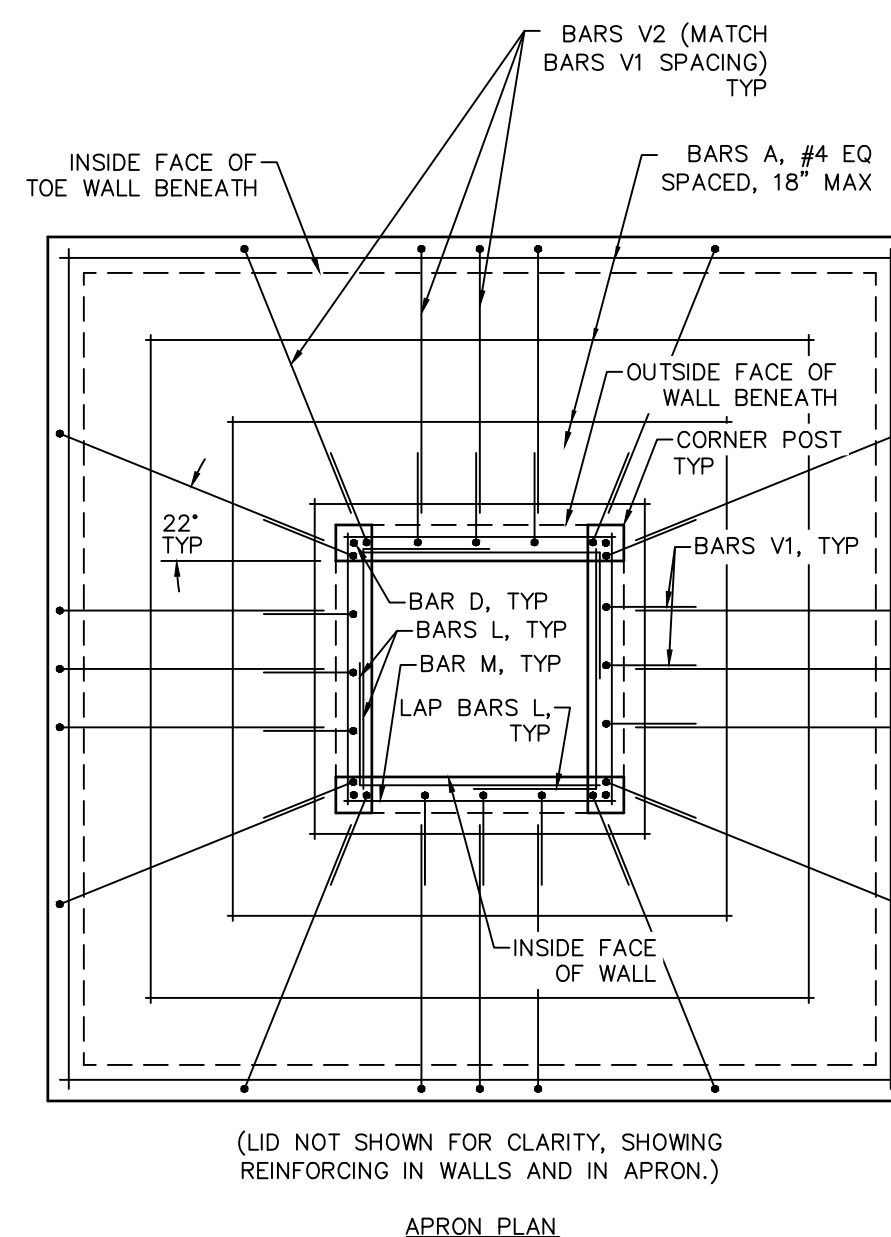
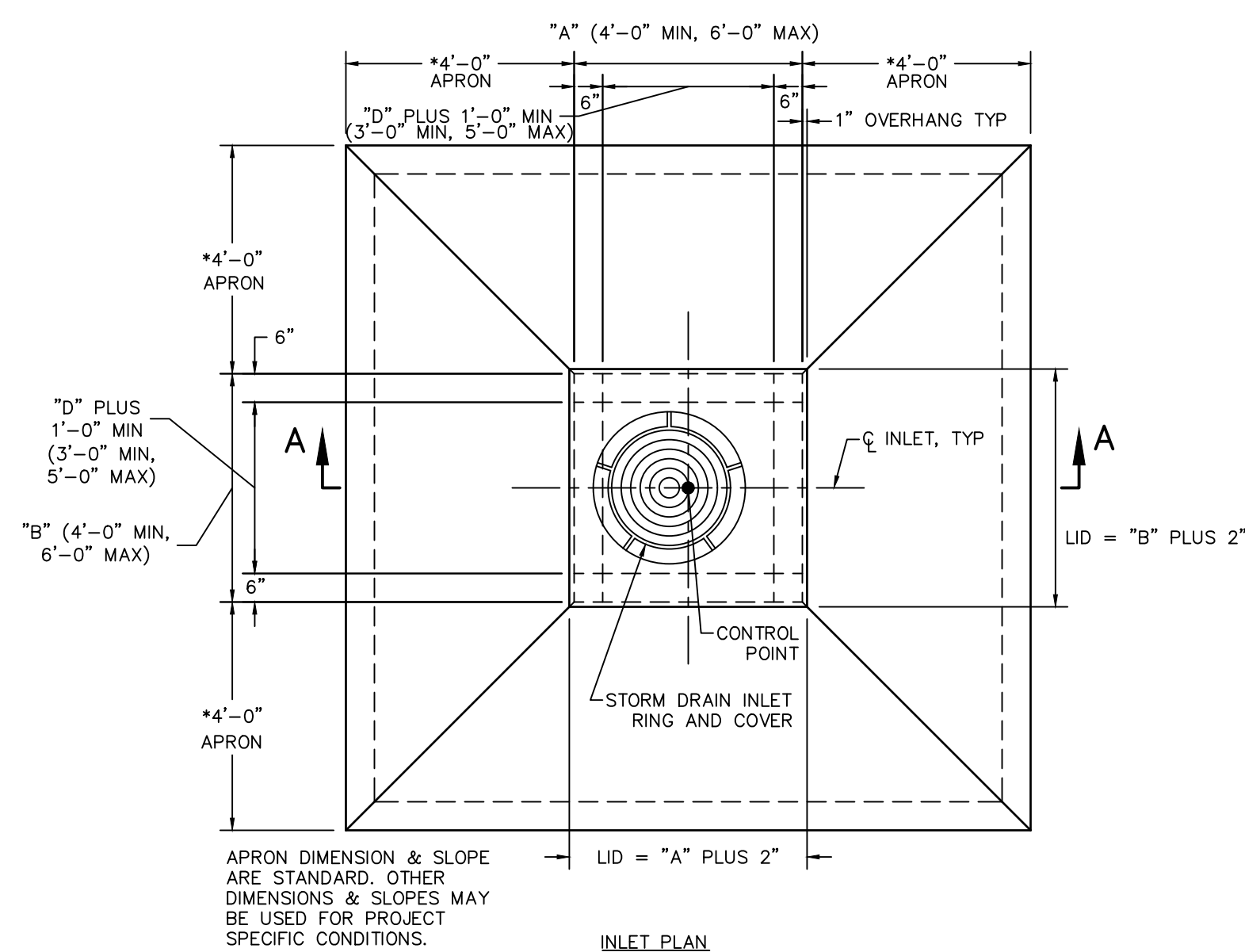
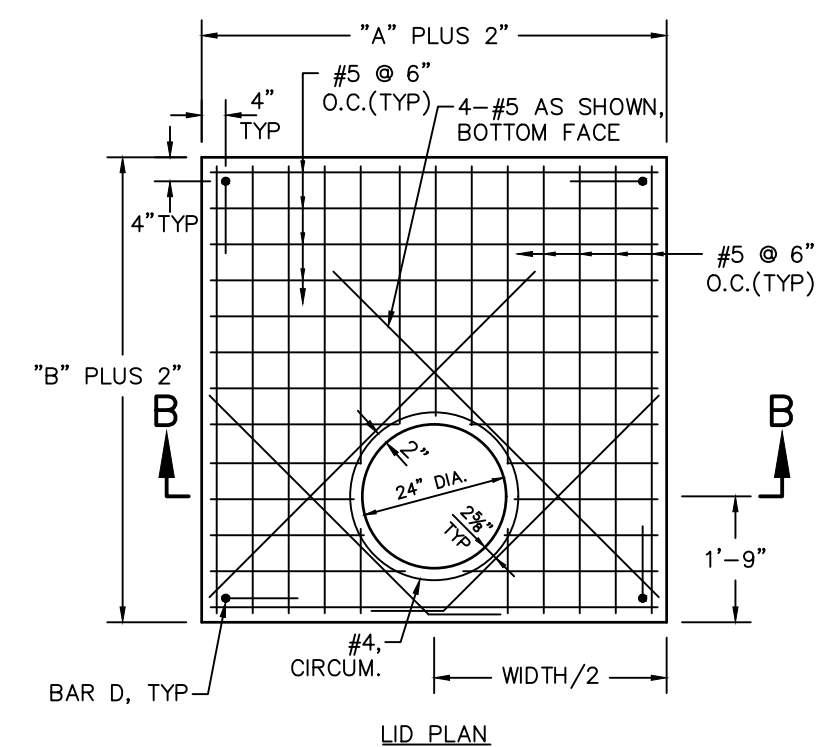
4 SEWER PVC LINE STANDARD EMBEDMENT  
NOT TO SCALE

5 PRE-CAST & CAST-IN-PLACE MANHOLE  
NOT TO SCALE



- NOTES:
- GRANULAR MATERIAL SHALL BE FREE FLOWING, SUCH AS SAND, HYDRAULICALLY GRADED CRUSHED STONE FINES, MIXED SAND AND GRAVEL, OR SANDY LOAM. THE MATERIAL SHALL BE FREE FROM LUMPS, STONES OVER TWO INCHES IN DIAMETER, CLAY, AND ORGANIC MATTER.
  - FOR MAINS 42\"/>

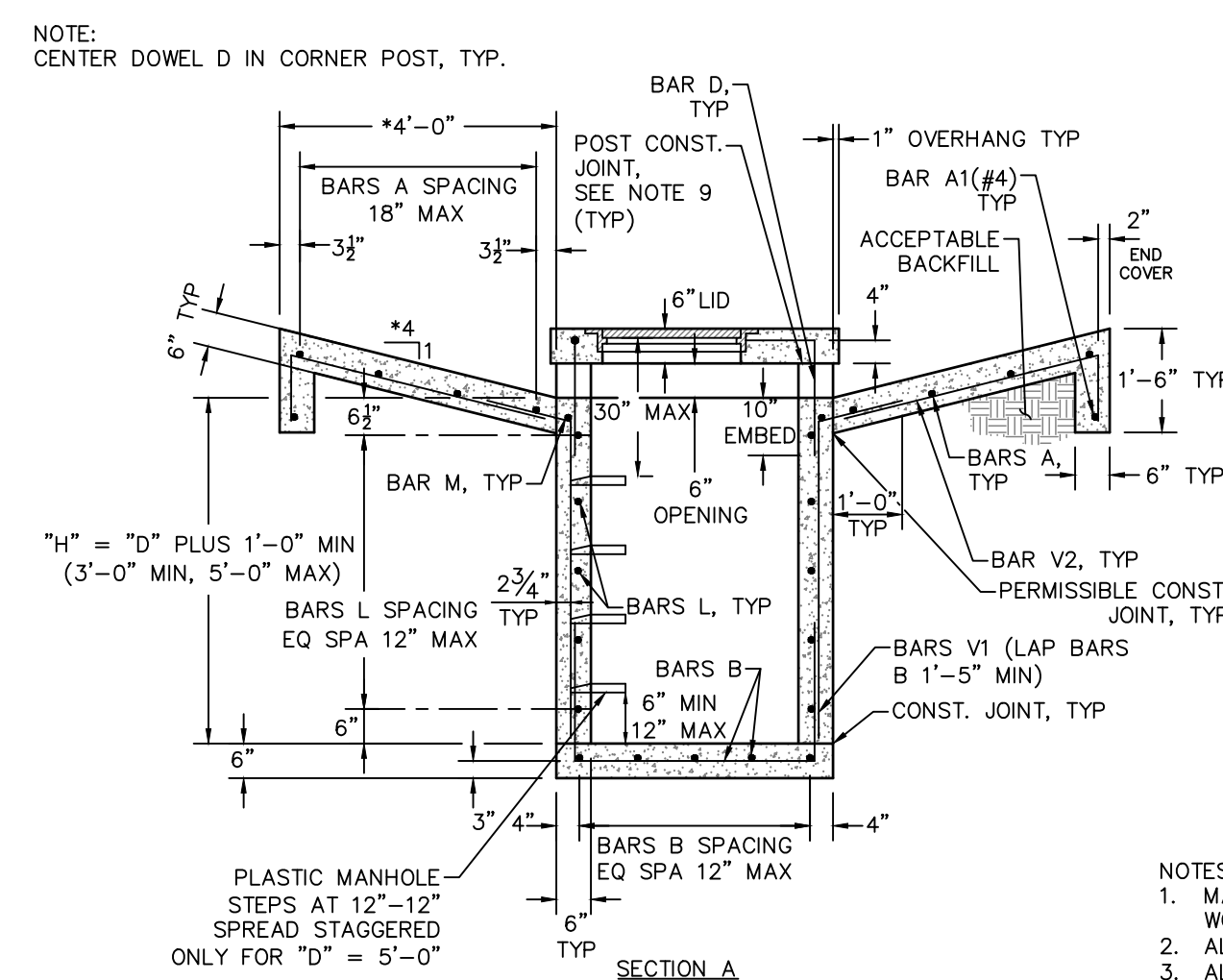




- NOTES:
1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH  $f'_c = 3,000$  PSI AT 28 DAYS.
  2. ALL REINFORCING STEEL SHALL BE GRADE 60.
  3. ALL REINFORCING STEEL SHALL HAVE MINIMUM 2" COVER TO CENTER OF BAR, UNLESS NOTED OTHERWISE.
  4. ALL DIMENSIONS RELATING TO REINFORCING ARE TO CENTER OF BARS.
  5. LOCATION OF STRUCTURE AS SHOWN IN PLANS REFERS TO CONTROL POINT SHOWN ON THIS DETAIL.
  6. FIELD CUT AND BEND BARS AS NECESSARY TO ACCOMMODATE STORM DRAIN PIPE PER TYPICAL MANHOLE PIPE PENETRATION DETAIL.
  7. MAXIMUM PIPE INSIDE DIAMETER FOR WALL PENETRATIONS.

JUNCTION BOX SIZE	DIAMETER
4' SQUARE	36"
5' SQUARE	48"
6' SQUARE	60"

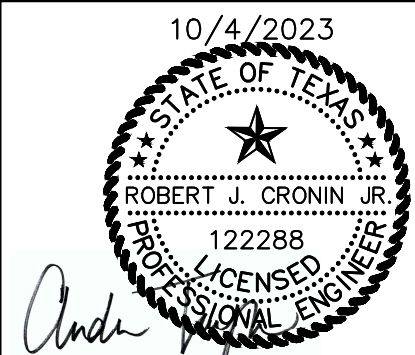
**NOTE TO DESIGNER:**  
FOR PIPE DIAMETERS OR BOX SECTION WIDTHS EXCEEDING 60", DESIGNER IS REQUIRED TO PROVIDE SPECIAL DETAIL.



- NOTES:
1. MATERIALS AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF CITY OF FORT WORTH STANDARD SPECIFICATION 33.49.20, CURB AND ROAD INLETS.
  2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH  $f_c = 3,000$  PSI AT 28 DAYS.
  3. ALL REINFORCING STEEL SHALL BE GRADE 60.
  4. ALL EXPOSED EDGES SHALL HAVE  $\frac{3}{4}$ " CHAMFER.
  5. ALL REINFORCING STEEL SHALL HAVE MINIMUM 2" COVER TO CENTER OF BAR, UNLESS NOTED OTHERWISE.
  6. ALL DIMENSIONS RELATING TO REINFORCING ARE TO CENTER OF BARS.
  7. LOCATION OF STRUCTURE AS SHOWN IN PLANS REFERS TO CONTROL POINT SHOWN ON THIS DETAIL.
  8. "D" EQUALS THE MAXIMUM INSIDE DIAMETER OF ANY PIPE ENTERING THE INLET (48" MAX).
  9. LID SHALL BE CONSTRUCTED LEVEL.
  10. APPROACH ANGLE OF ANY CONNECTED PIPES SHALL BE WITHIN 10° NORMAL OF INLET WALL.
  11. APPROACH SLOPE AND CURVATURE SHALL BE USED TO STAY WITHIN THIS LIMIT.
  12. INLET IS TO BE USED IN MEDIAN AND DITCHES AWAY FROM THE ROADWAY.

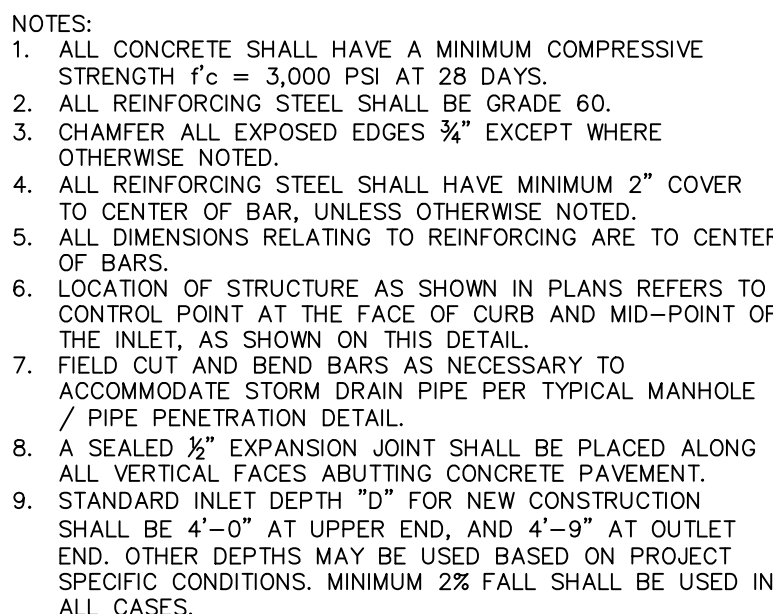
1 STANDARD DROP INLET WITH LID  
NOT TO SCALE





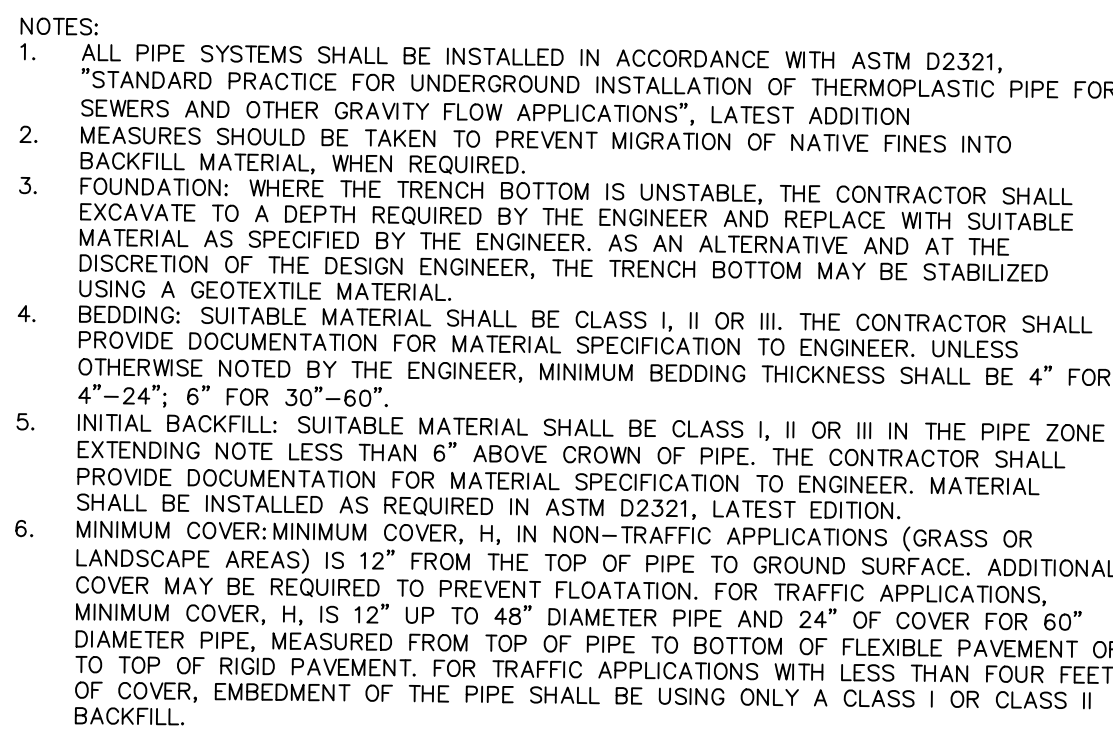
REV.	DATE	DESCRIP.	
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2 STORM HDPE DRAINAGE STANDARD EMBEDMENT  
NOT TO SCALE

BEDDING GRADATIONS	
6" THICKNESS OF RIPRAP	
SIEVE SIZE SQUARE MESH	PERCENT PASSING
3 INCH	100
1-½ INCH	55-100
¾ INCH	25-60
½ INCH	5-30
NO. 4	0-10



PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80'
60"	96"

PROP	CLASS I		CLASS II	
	COMPACT ED	DUMPED	95%	90%
4"	34	16	23	16
6"	40	19	27	19
8"	30	14	21	14
10"	34	16	23	16
12"	35	17	24	17
15"	37	18	25	18
18"	32	15	22	15
24"	27	13	19	13
30"	22	11	16	11
36"	26	12	18	12
42"	24	11	17	11
48"	23	11	16	11
60"	26	12	18	12

FILL HEIGHT TABLE GENERATED USING AASHTO SECTION 12,  
LOAD RESISTANCE FACTOR DESIGN (LRFD) PROCEDURE WITH  
THE FOLLOWING ASSUMPTIONS:  
NO HYDROSTATIC PRESSURE,  
UNIT WEIGHT OF SOIL ( $\gamma_s$ ) = 120 PCF

	SURFACE LIVE LOADING CONDITION	
PIPE DIAM.	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD)*
12" - 48"	12"	48"
60"	24"	60"

\* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER  
\*\* SEE BACKFILL REQUIREMENTS IN NOTE 6



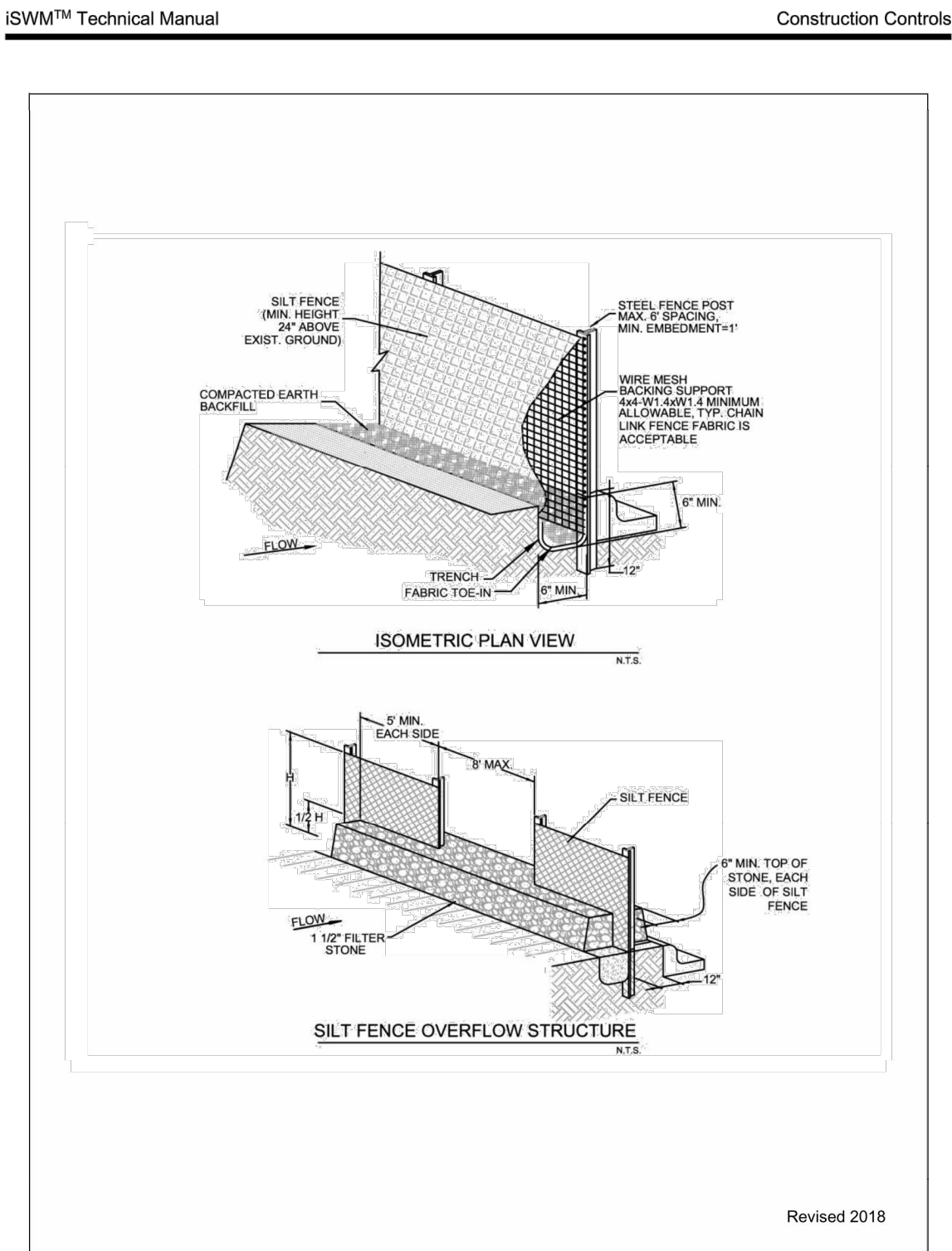


Figure 3.30 Schematics of Silt Fence

Silt Fence  
April 2010, Revised 9/2014

CC-154

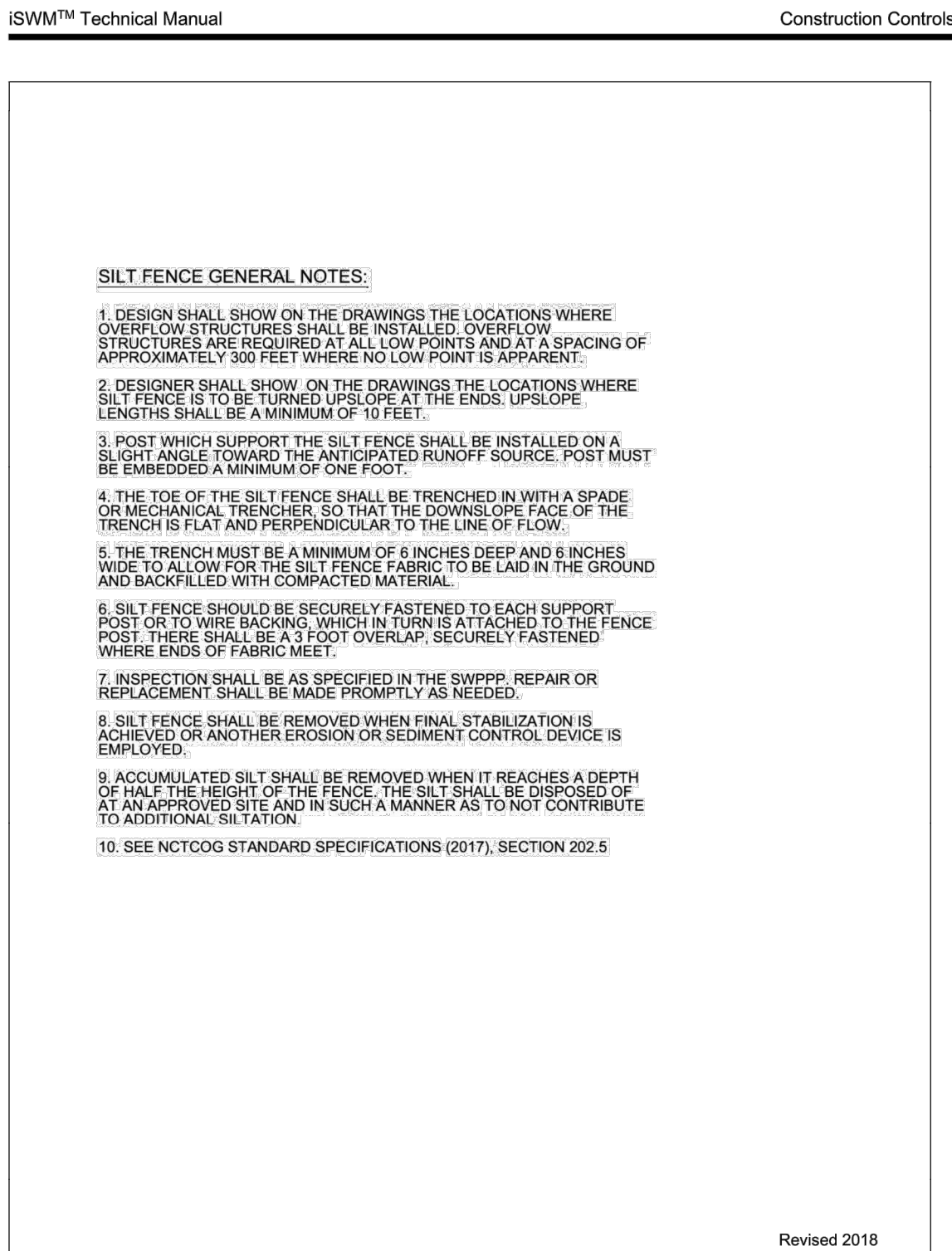


Figure 3.31 Silt Fence General Notes

Silt Fence  
April 2010, Revised 9/2014

CC-155

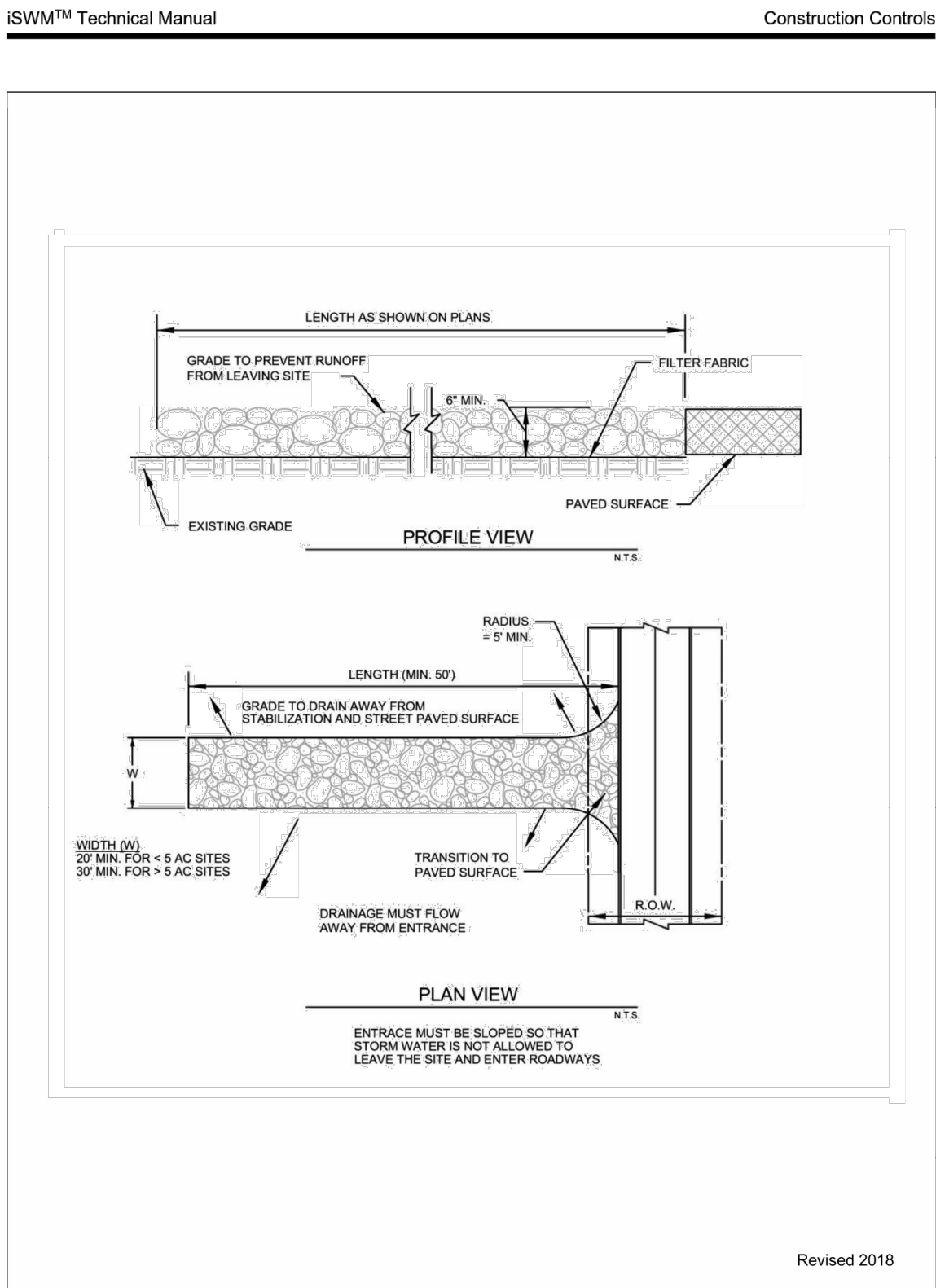


Figure 3.32 Schematics of Stabilized Construction Exit

Stabilized Construction Exit  
April 2010, Revised 9/2014

CC-159

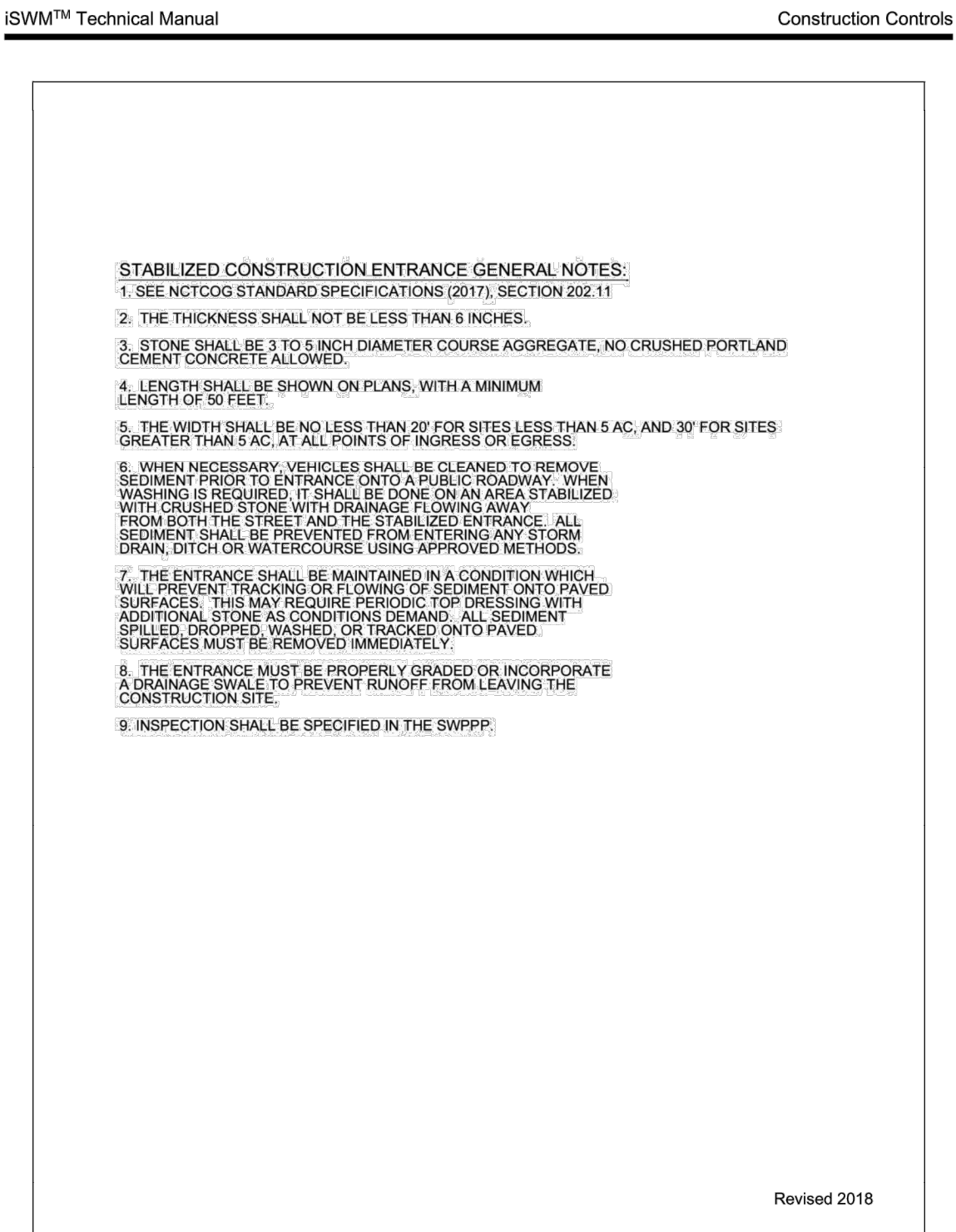


Figure 3.33 Stabilized Construction Entrance General Notes

Stabilized Construction Exit  
April 2010, Revised 9/2014

CC-160

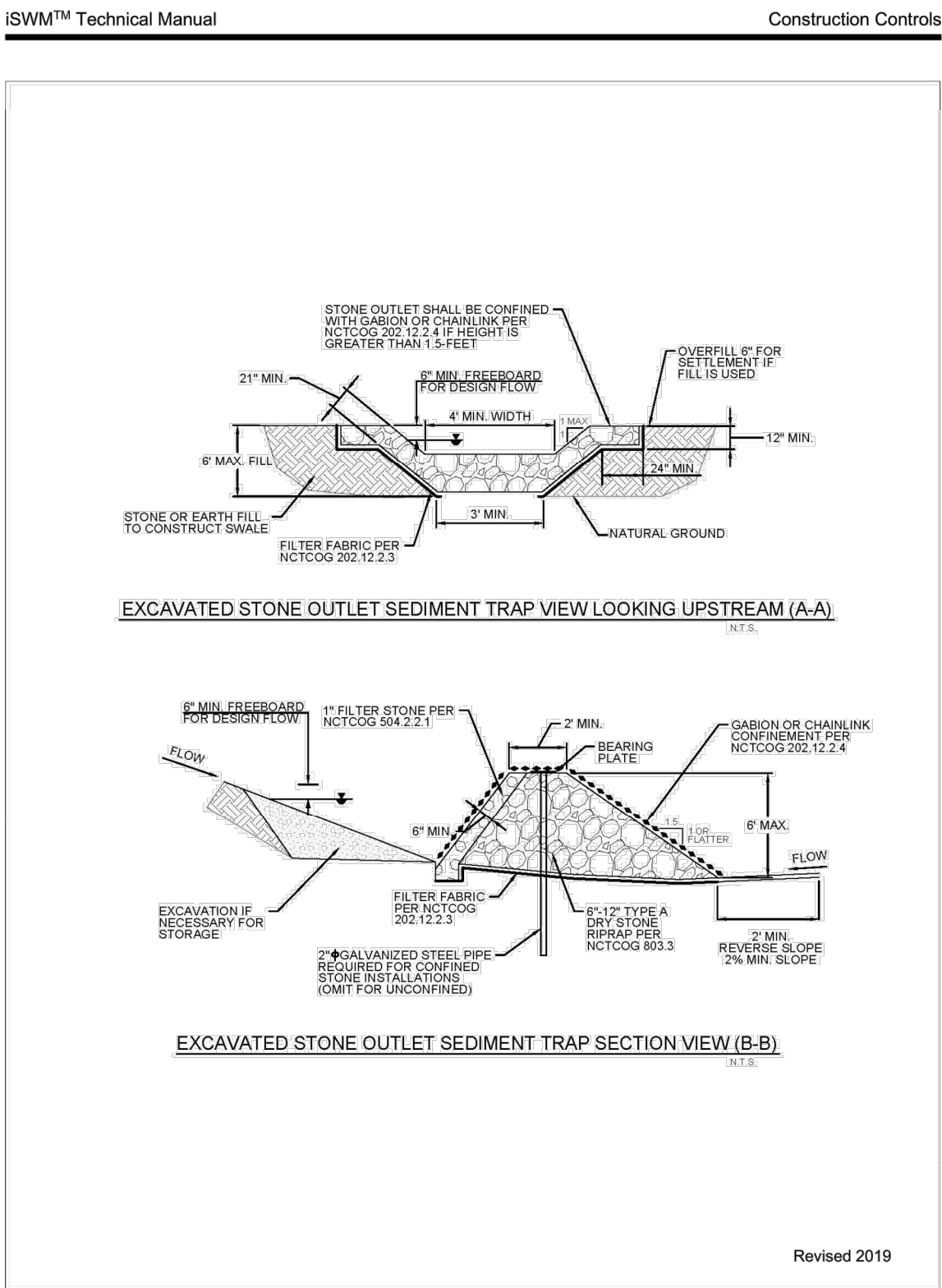


Figure 3.35 Schematics of Excavated Stone Outlet Sediment Trap

Stone Outlet Sediment Trap  
April 2010, Revised 9/2014

CC-165

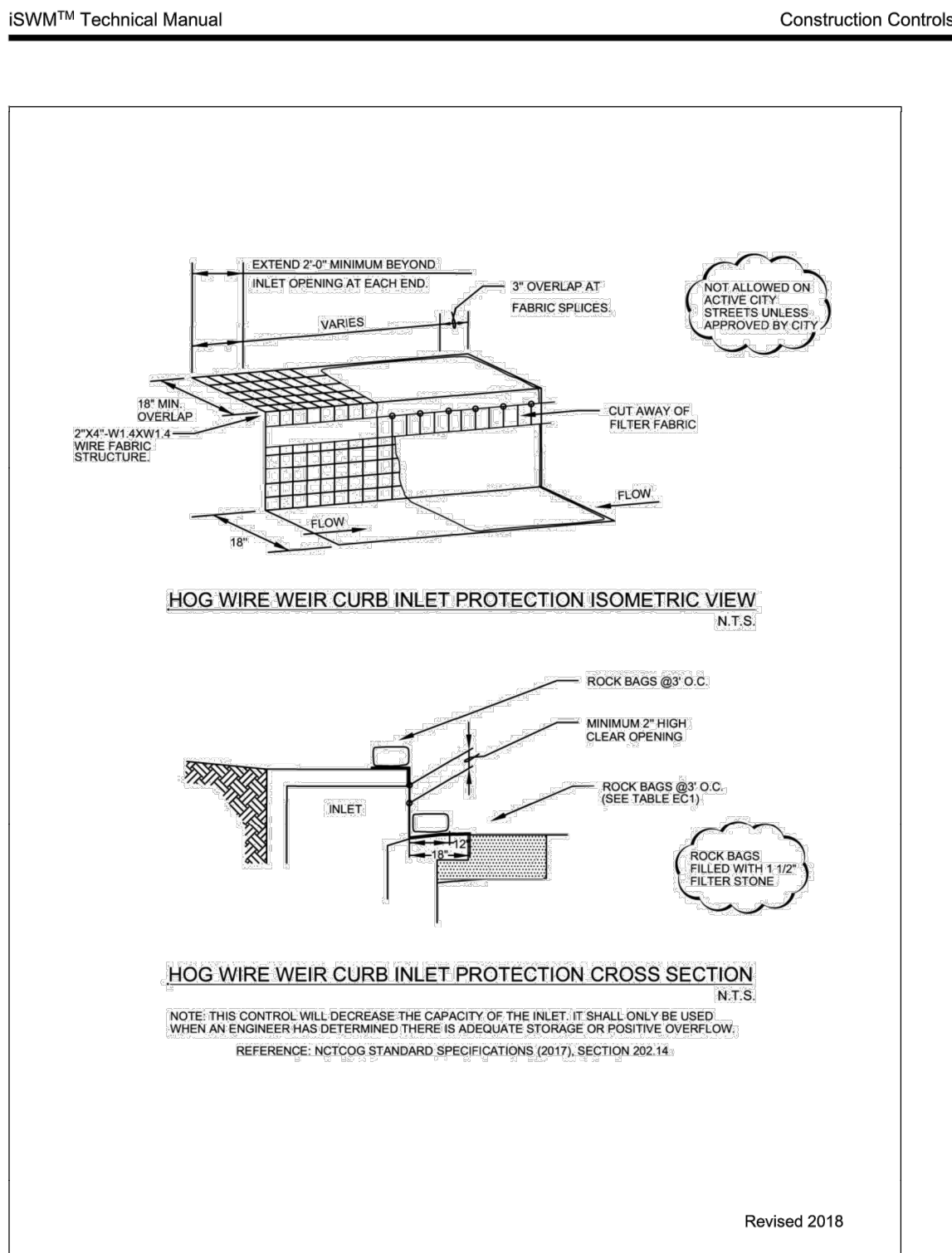


Figure 3.7 Schematics of Hog Wire Weir Curb Inlet Protection  
(Source: Modified from City of Round Rock Detail E-03)

Inlet Protection  
April 2010, Revised 9/2014

CC-94

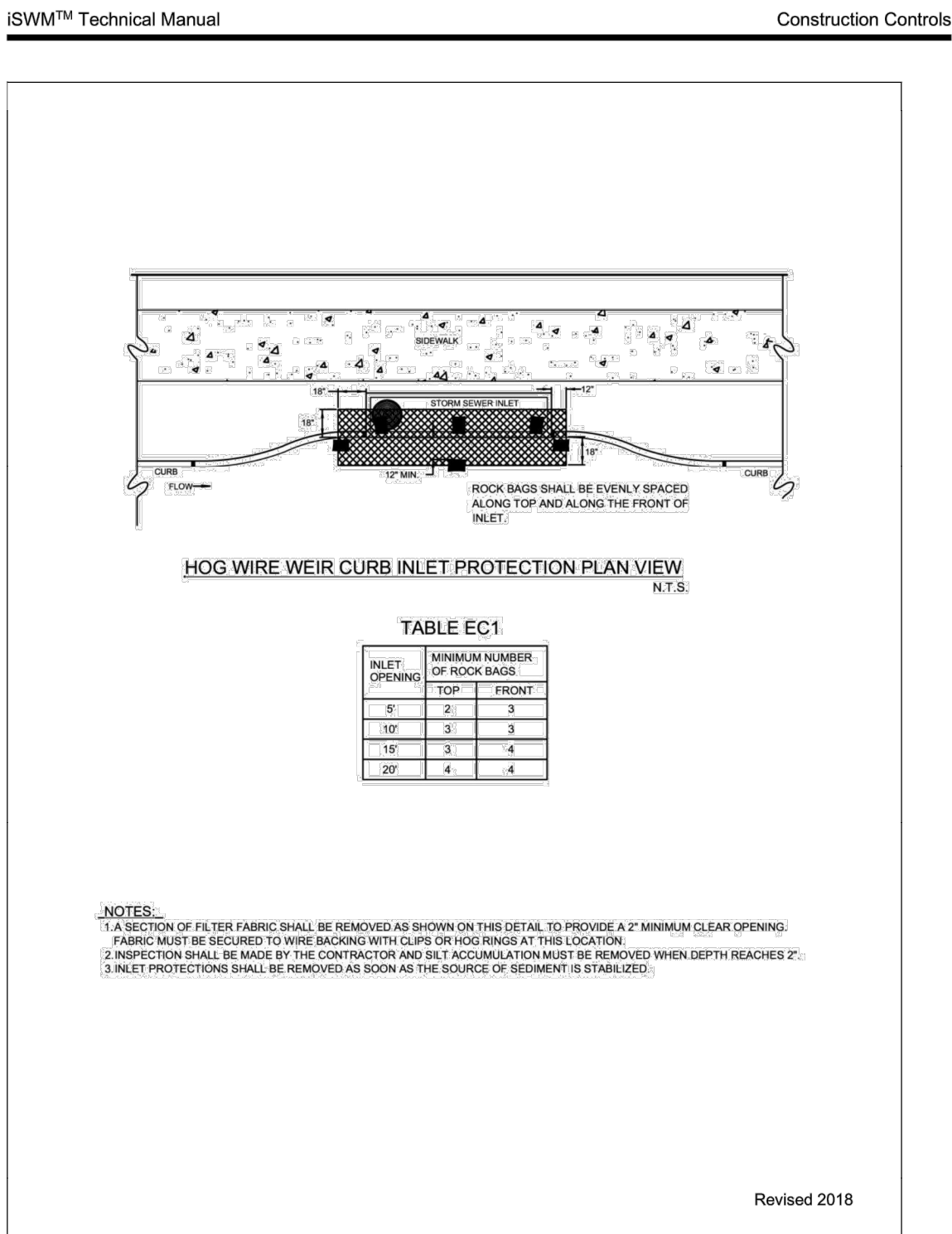


Figure 3.8 Hog Wire Weir Curb Inlet Protection

Inlet Protection  
April 2010, Revised 9/2014

CC-95

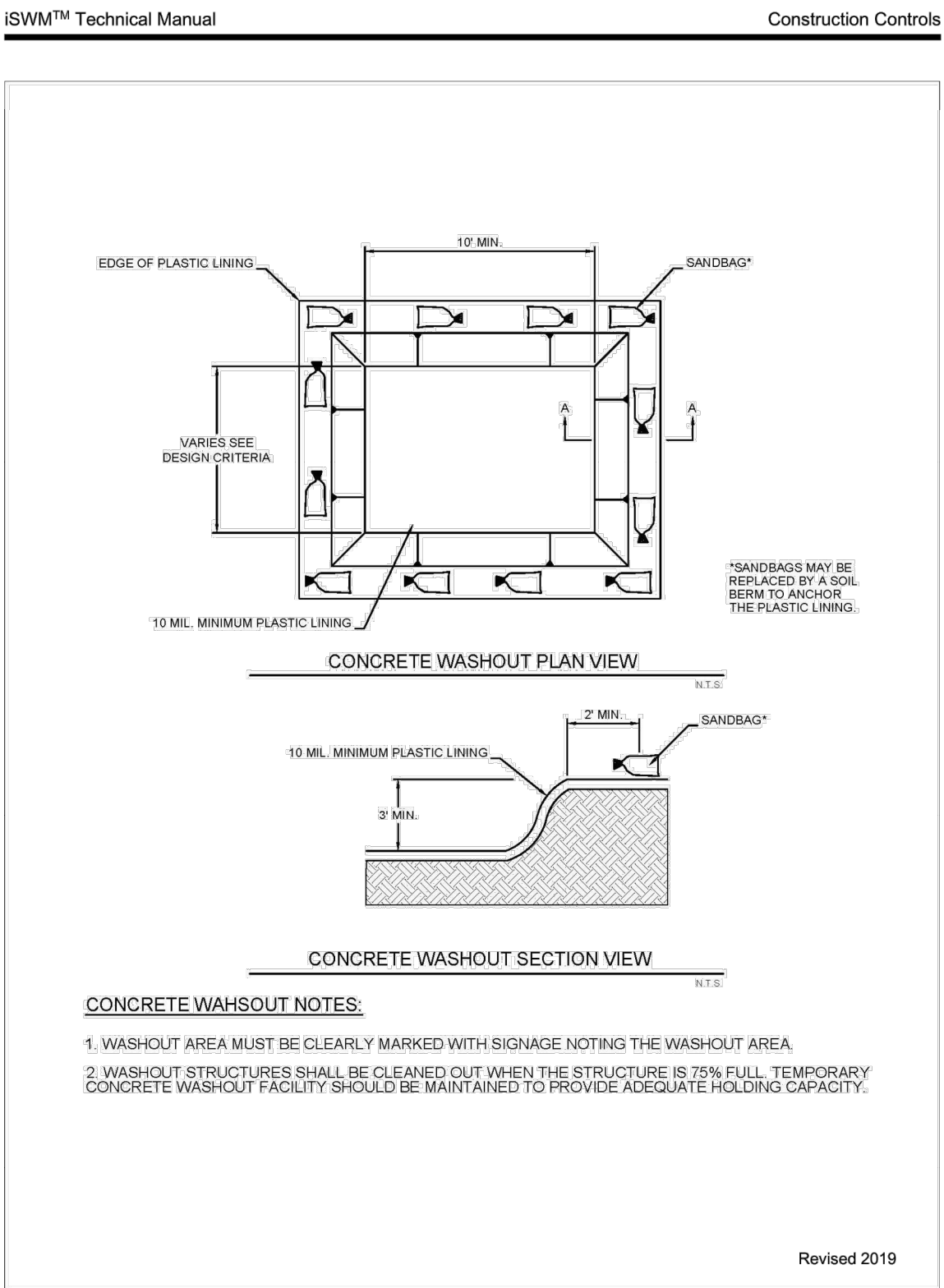


Figure 4.1 Schematics of Concrete Washout Containment

Concrete Waste Management  
April 2010, Revised 9/2014

CC-200

THE RESERVES AT MAGNOLIA  
DENTON, TEXAS

PRIVATE EROSION CONTROL DETAILS

**mma**  
civil engineering surveying landscape architecture planning  
lpels registration number: 1 - 2759  
lpels registration/license number: 10089000  
519 east border  
arlington, texas 76010  
817-469-1671  
fax: 817-274-8757  
www.mmatexas.com

10/4/2023  
STATE OF TEXAS  
ROBERT J. CRONIN JR.  
122288  
LICENSED PROFESSIONAL ENGINEER

PROJECT NUMBER: 3597-00-02  
PROJECT MANAGER: R. CRONIN  
DRAWN BY: G. SANCHEZ  
CHECKED BY: A. TAYLOR  
ISSUE DATE: 10/4/2023

REV.	DATE	DESCRIP.	BY

SHEET CONTENT:  
**PRIVATE  
EROSION  
CONTROL  
DETAILS**

SHEET NO:  
**C11.9**  
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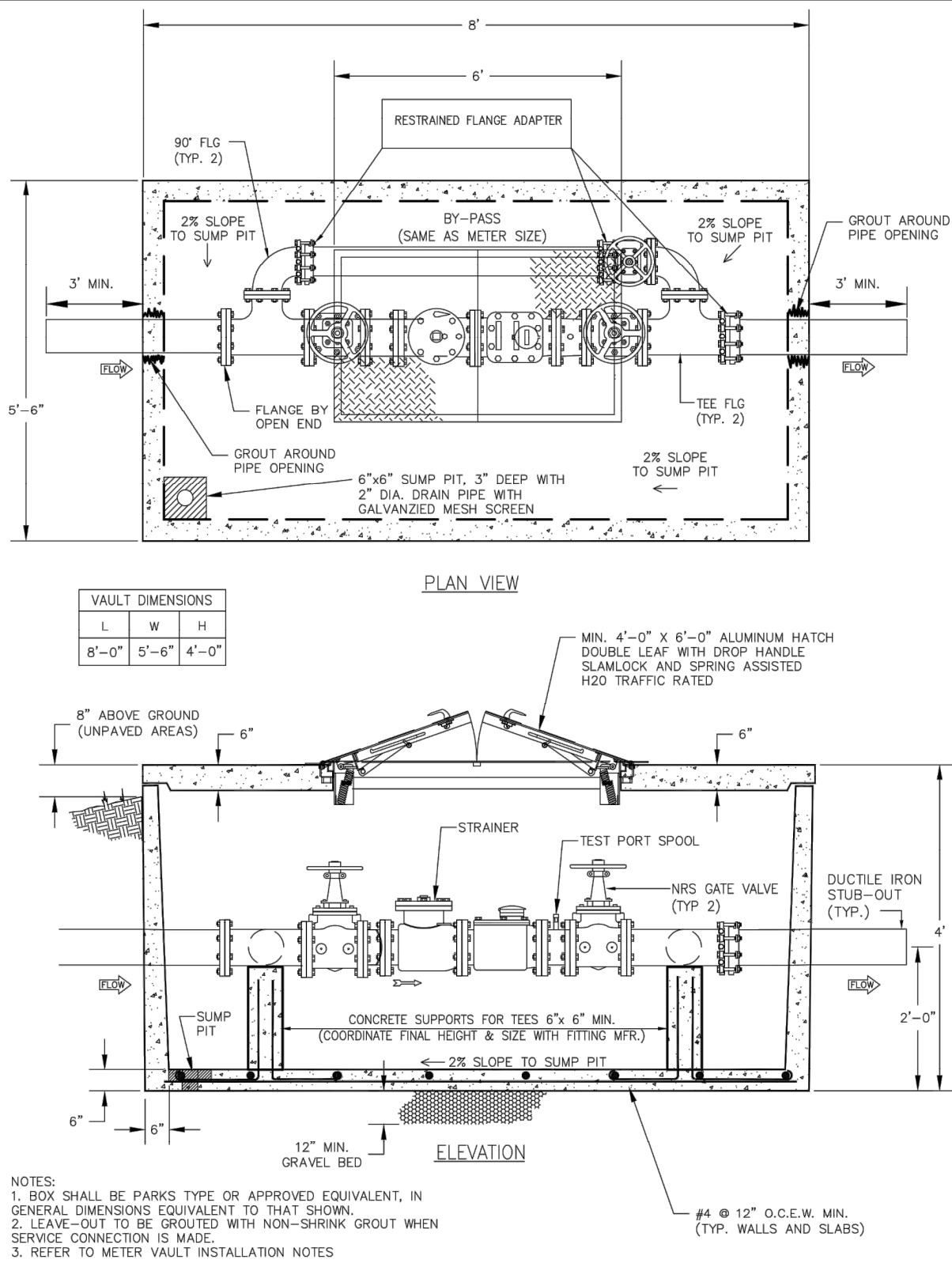


- METER VAULT INSTALLATION NOTES:
- PIPE, METER SIZE AND VAULT SHALL BE APPROVED BY THE WATER UTILITIES DEPARTMENT DURING REVIEW PROCESS.
  - PREFABRICATED OR POURED IN PLACE VAULTS SHALL HAVE PRE CAST-CLASS H OR POURED-CLASS S CONCRETE, REINFORCED WITH MINIMUM #4 O.C.E.W.
  - METER VAULT MUST BE LOCATED BEHIND CURB AND OUT OF VEHICLE/PEDESTRIAN TRAFFIC, IN THE WATER UTILITY EASEMENT OR PUBLIC R.O.W. EASEMENT OR R.O.W. AREA MUST ACCOMMODATE A MINIMUM 30' BEYOND EACH SIDE OF THE VAULT. METER VAULT TO BE PLACED IN A PROTECTED GRASSY AREA.
  - MAINLINE AND BYPASS VALVES WILL BE RESILIENT SEAT TYPE WITH CORROSION RESISTANT FUSION BONDED EPOXY COATING INSIDE AND OUT, NON-RISING STEM. ALL VALVES IN THE VAULT WILL HAVE HANDWHEELS. CUSTOMER VALVES SHALL BE LOCATED OUTSIDE OF VAULT AND EASEMENTS. ALL VALVES SHALL BE RIGHT-HAND TURN CLOSE.
  - ALL METERS SHALL BE EQUIPPED WITH ENCODER REGISTERS AND HAVE TOUCH PADS INSTALLED ON THE LID FOR READING PURPOSES. ALL METERS SHALL BE INSTALLED WITH STRAINERS ON THE INLET SIDE OF THE METER.
  - HATCH OPENING WILL BE 24" ALUMINUM DIAMOND PLATE COVER WITH EXTRUDED ALUMINUM FRAME. HATCH TO BE FURNISHED WITH TYPE 316 STAINLESS STEEL SNAP AND LOCK WITH BRASS HINGES.
  - ALL VAULTS OVER 4 FT. IN DEPTH SHALL HAVE A LADDER INSTALLED AND SECURED TO THE VAULT WALL AT HATCH ENTRY.
  - VAULT BEDDING SHALL BE GRADE 4 STANDARD CRUSHED AGGREGATE, 1 IN. SIEVE.
  - THE TOP OF METER VAULT SHALL BE SET AT AN ELEVATION SUCH THAT THE SURROUNDING GROUND SLOPES AWAY FROM THE VAULT.
  - FOR 3" METERS AND ABOVE ON PROJECTS ON WHICH THE CITY INSTALLS THE TAP IN THE MAINLINE AND STUBS OUT THE SERVICE LINE TO THE BACK OF CURB, THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ALL REMAINING PIPING FROM THE STUBOUT BEHIND THE CURB THROUGH THE VAULT.
  - FOR WATER METER INSTALLATIONS WHERE THE METER IS NOT EQUIPPED WITH AN INTEGRAL TEST PORT, A SEPARATE SPOOL PIECE WILL BE PROVIDED BETWEEN THE METER AND THE DOWNSTREAM GATE VALVE. THE SPOOL PIECE WILL BE EQUIPPED WITH A TEST PORT AND THREADED BRASS PLUG SIZED PER THE MANUFACTURER'S REQUIREMENTS OR AS FOLLOWS.
  - WHERE NOT SPECIFICALLY NOTED, ALL FLANGED PIPE SHALL BE DUCTILE IRON PIPE WITH DUCTILE IRON FLANGES THREADED ON.

METER SIZE	TEST PORT
3"	1 1/4"
4"	2"
6"	3"
>6"	3"

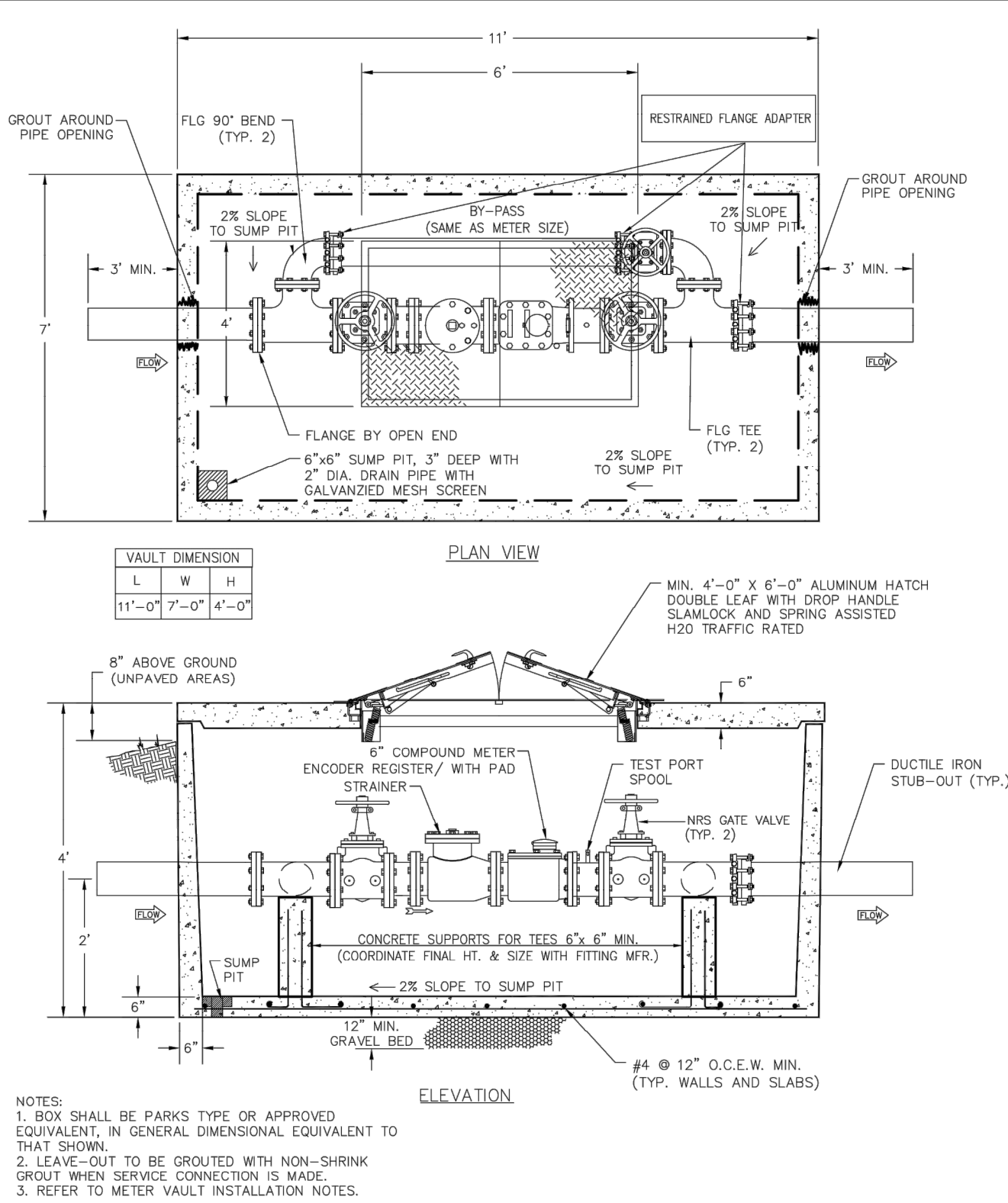
#### WATER VAULT INSTALLATION NOTES

W100



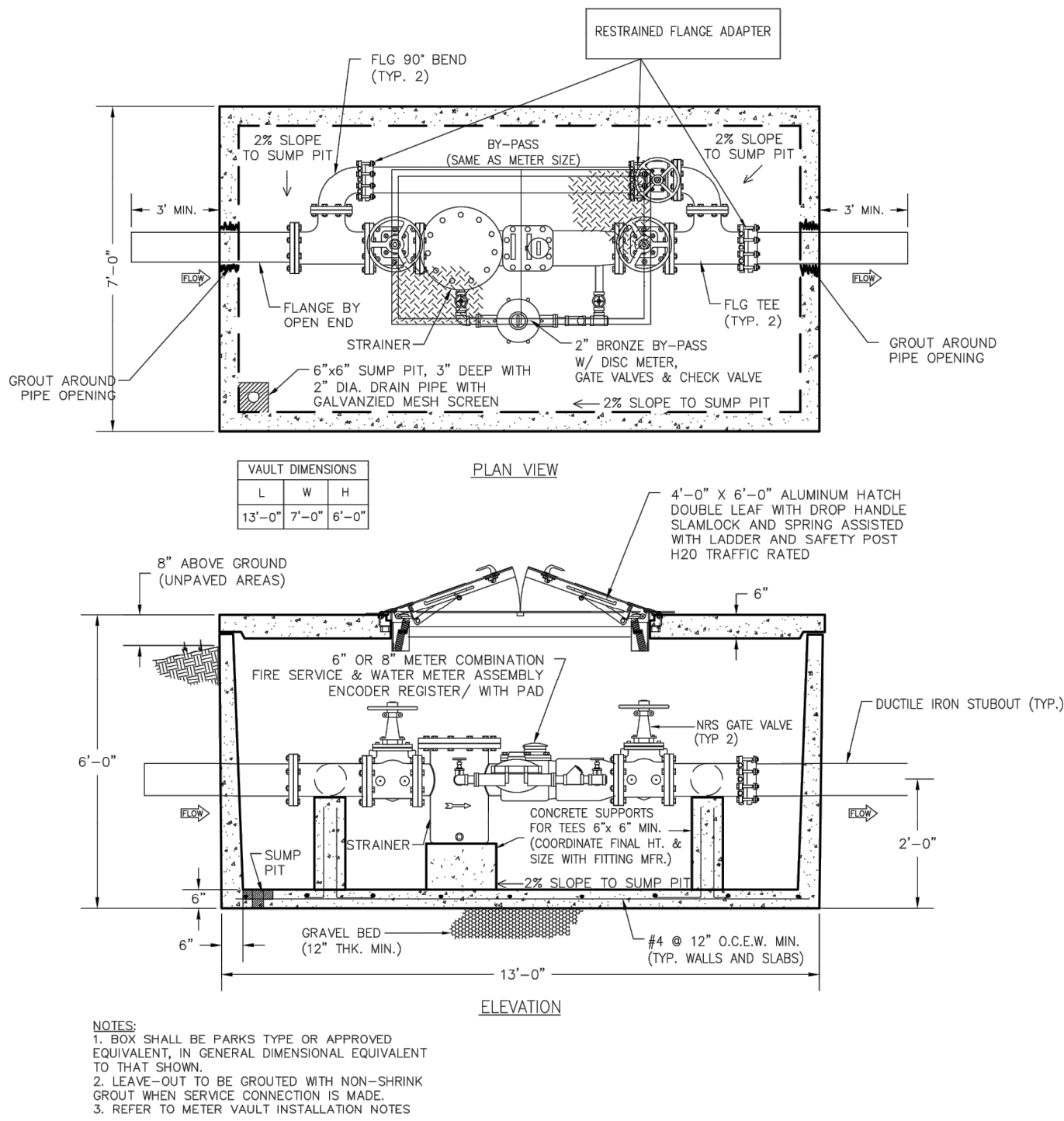
#### 3" AND 4" METER VAULTS

W101



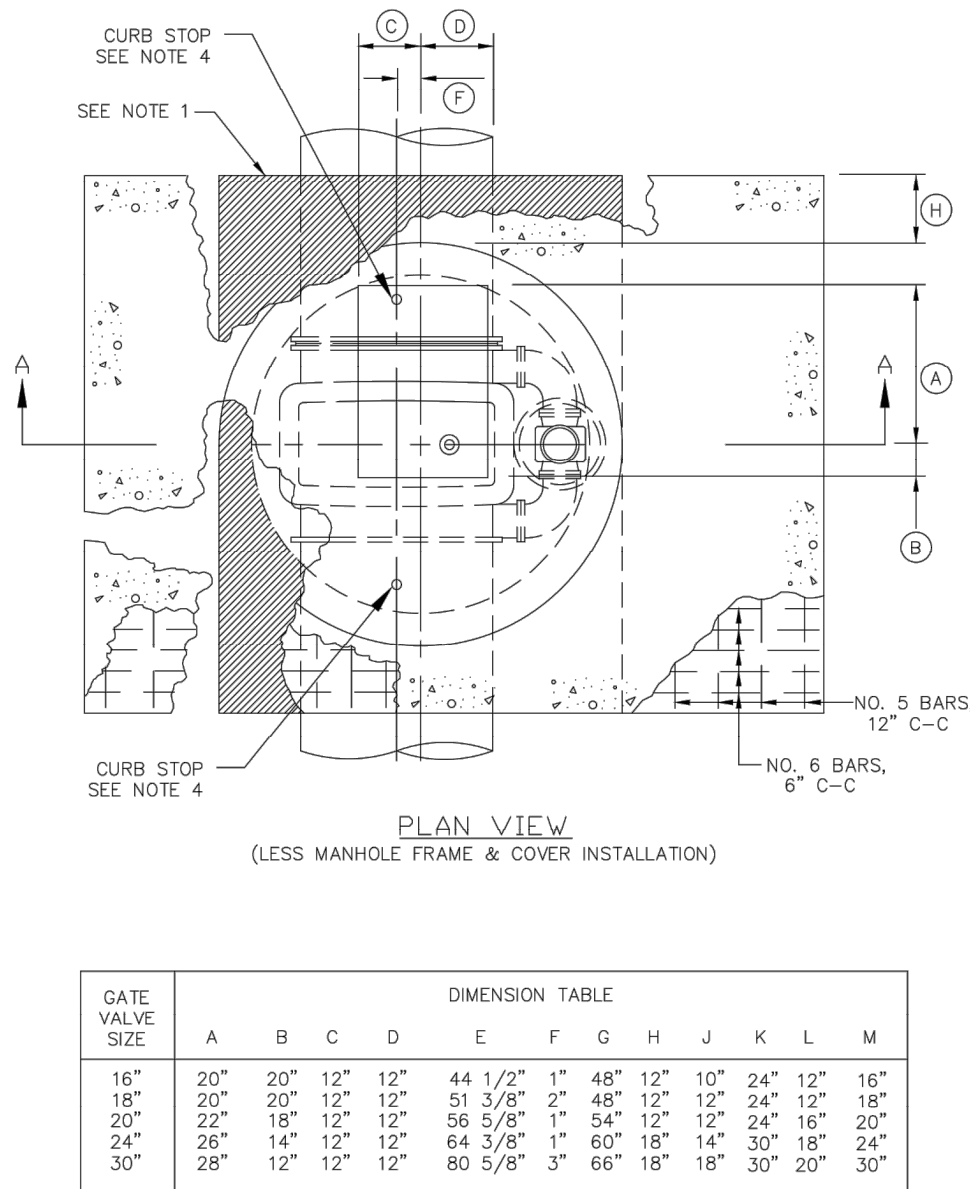
#### 6" METER VAULT

W102



#### 6" AND 8" FIRE SERVICE METER VAULTS

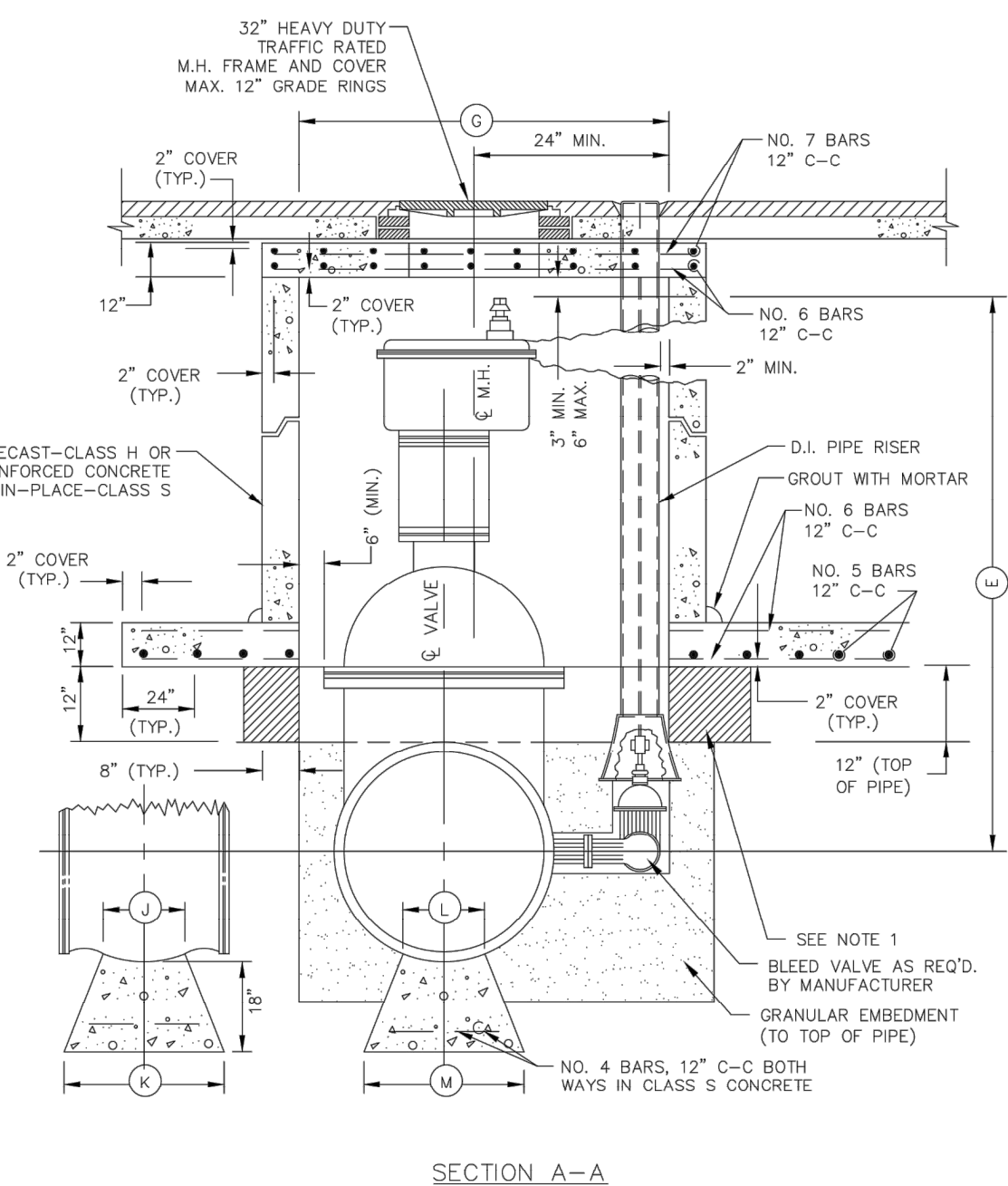
W103



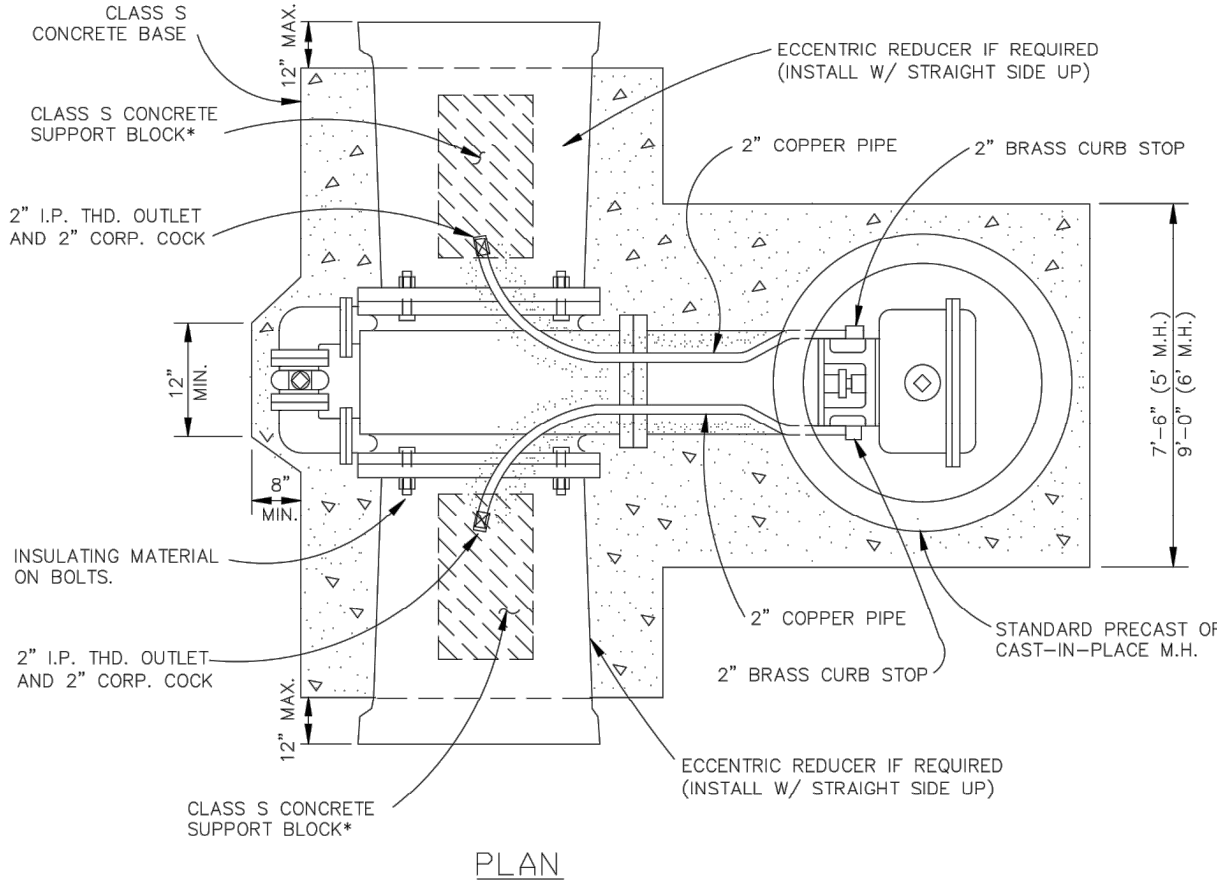
- NOTES:
- POLYURETHANE CUSHION PAD.
  - FOR 24" AND LARGER VALVES, PROVIDE SPUR GEAR AND VAULT.
  - FOR 30" AND LARGER VALVES, PROVIDE AND INTEGRALLY CAST BYPASS.
  - PROVED 2" CORPORATION AND CURB STOPS A MAX. OF 12" FROM EACH END OF GATE VALVE.

#### VAULT CONSTRUCTION VERTICAL GATE VALVE 24" AND LARGER

W104

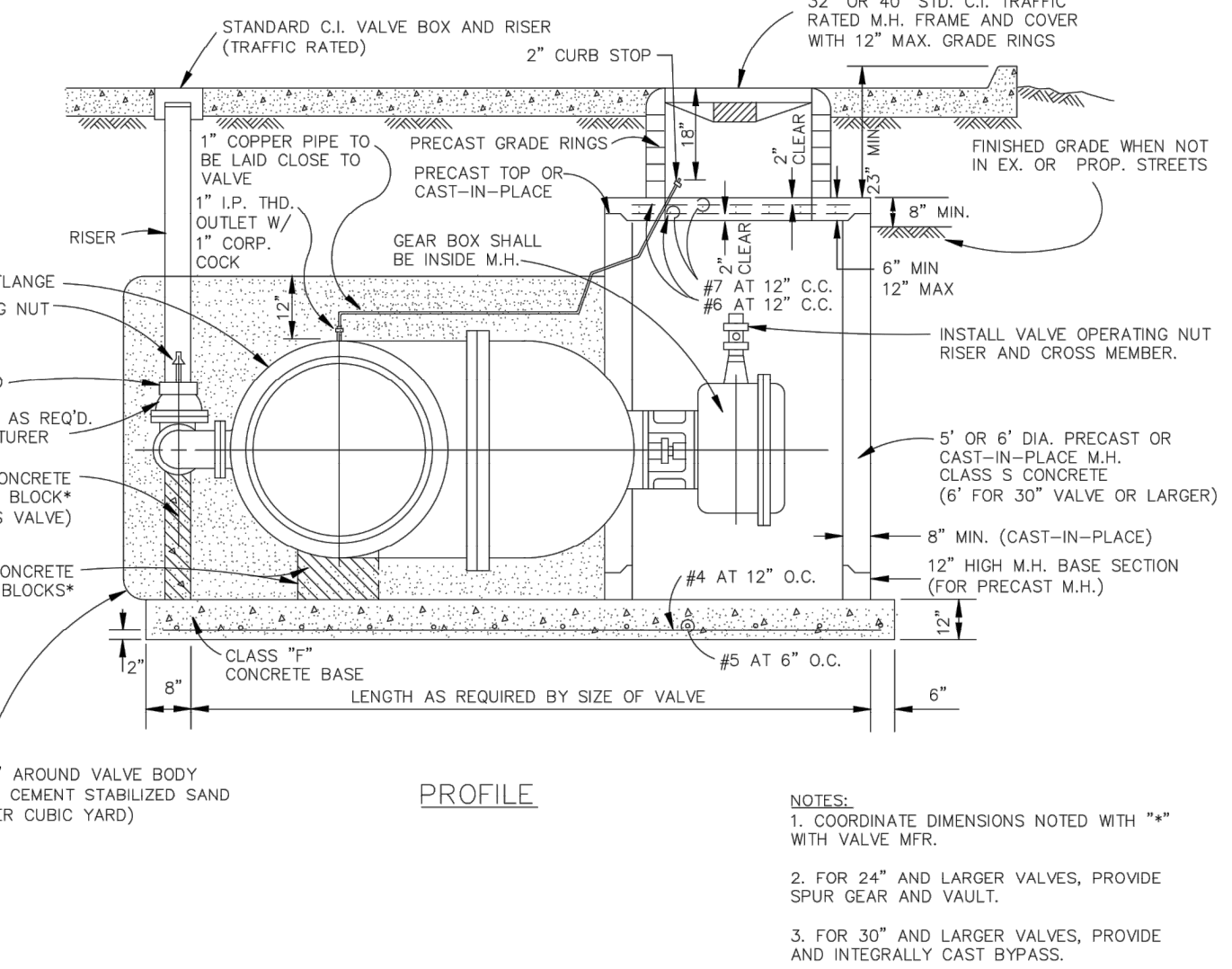


W105



#### VAULT CONSTRUCTION HORIZONTAL GATE VALVE 24" AND LARGER

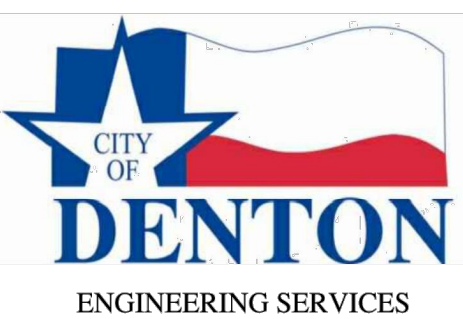
W106A



- NOTES:
- COORDINATE DIMENSIONS NOTED WITH "\*" WITH VALVE MFR.
  - FOR 24" AND LARGER VALVES, PROVIDE SPUR GEAR AND VAULT.
  - FOR 30" AND LARGER VALVES, PROVIDE AND INTEGRALLY CAST BYPASS.

W106B

ENTERED BY	PROJECT #	
DESIGNED BY	DATE	REVISION
CHECKED BY		
PROJ. ENGR.		
PATH	S:\water Engineering\Engr\Design\Projects\Standard Details\water details\Water Details Sheet 1-3.dwg	



## STANDARD DETAILS

### WATER DETAILS

DATE  
JAN. 2023

SHEET No.  
1 OF 24

SCALE

HOR 1"= N.T.S.

VER 1"= N/A

CERTIFICATION:  
THIS CITY OF DENTON STANDARD  
DETAIL SHEET IS AUTHORIZED FOR  
USE IN THIS PROJECT BY THE  
ENGINEER WHOSE SEAL APPEARS  
HEREON, AND WHO CERTIFIES THE  
CONTENT OF THE DETAILS AND NOTES  
HEREIN HAVE NOT BEEN ALTERED  
AND ASSUMES RESPONSIBILITY FOR  
APPROPRIATE USE OF THE  
STANDARDS WITHIN THIS SHEET.



W301

W401A

W401B

W501A

W501B

W501C

W601

W603

PIAZ13

PIAZ14

PIAZ15

PIAZ16

PIAZ17

ENTERED BY	PROJECT #	
DESIGNED BY	DATE	REVISION
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PROJ. ENGR.		
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# STANDARD DETAILS

## WATER DETAILS

DATE  
JAN. 2023

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SHEET No.  
2 OF 24

SCALE

HOR 1"= N.T.S.

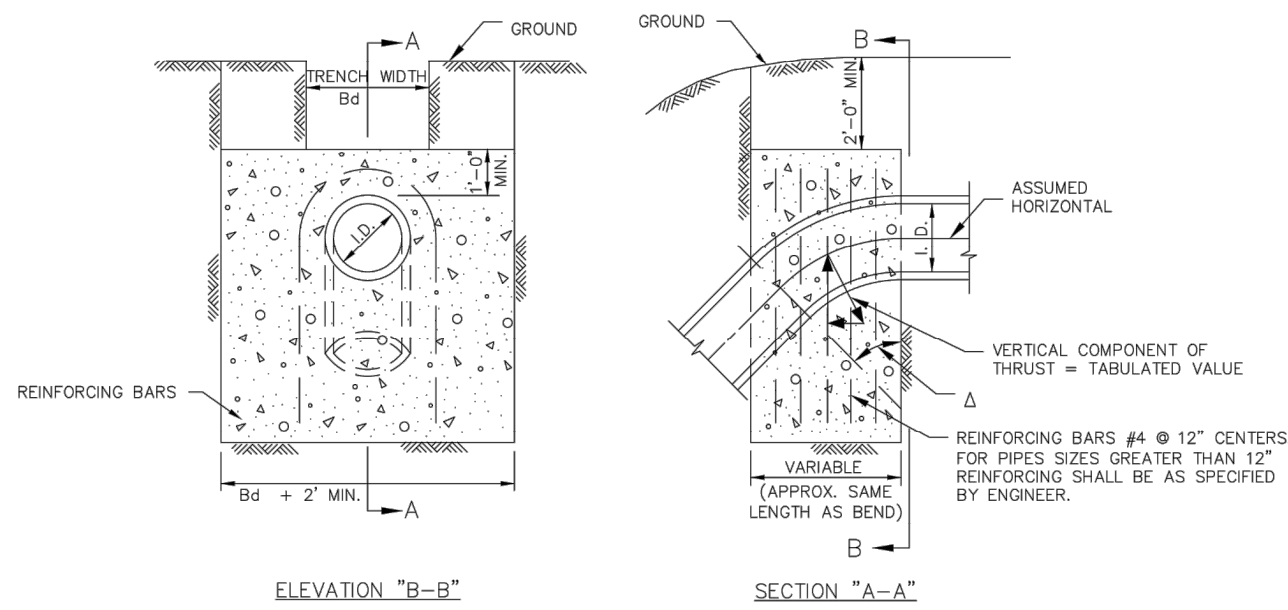
VER 1"= N/A

**CERTIFICATION:**  
THIS CITY OF DENTON STANDARD  
DETAIL SHEET IS AUTHORIZED FOR  
USE IN THIS PROJECT BY THE  
ENGINEER WHOSE SEAL APPEARS  
HEREON, AND WHO CERTIFIES THE  
CONTENT OF THE DETAILS AND NOTES  
HEREIN HAVE NOT BEEN ALTERED  
AND ASSUMES RESPONSIBILITY FOR  
APPROPRIATE USE OF THE  
STANDARDS WITHIN THIS SHEET.



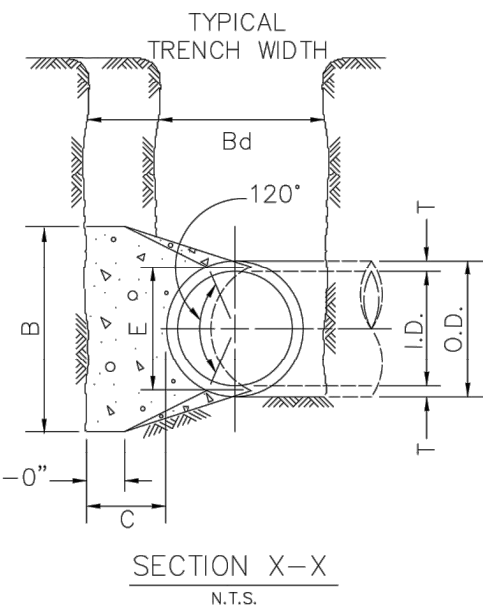
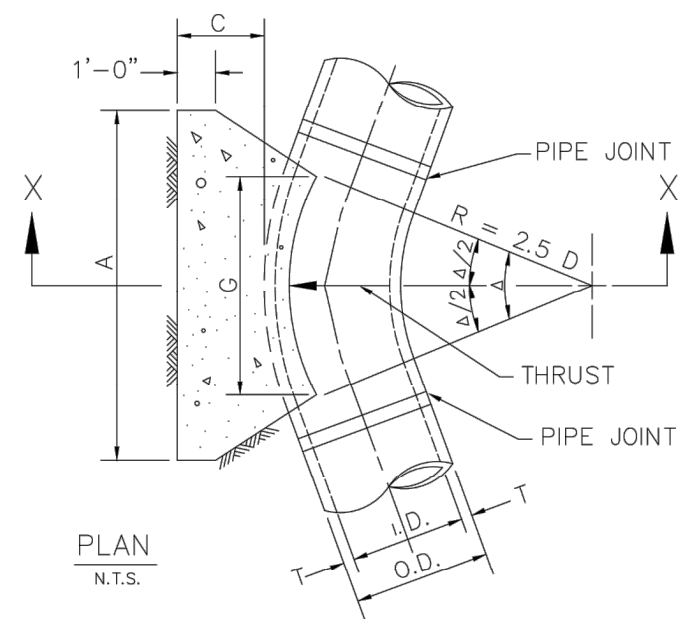
GENERAL NOTES FOR ALL THRUST BLOCKS:

1. RESTRAINED JOINTS SHALL BE REQUIRED FOR ALL WATER MAINS 16" AND LARGER. JOINT RESTRAINT SHALL BE DESIGNED TO ACCOMMODATE THE ENTIRE DESIGN LOAD AS INDICATED IN THE APPLICABLE PIPE MATERIAL SPECIFICATION. THRUST BLOCKING SHALL BE PROVIDED ON ALL FITTINGS AND DEAD-ENDS FOR PIPE 24" AND SMALLER.
2. CONCRETE FOR BLOCKING SHALL BE CLASS B.
3. ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200 PSI FOR DUCTILE IRON, P.V.C., AND 150 PSI FOR CONCRETE PIPE.
4. VOLUMES OF THRUST BLOCKS ARE NET VOLUMES OF CONCRETE TO BE FURNISHED. THE CORRESPONDING WEIGHT OF THE CONCRETE (CLASS B) IS EQUAL TO OR GREATER THAN THE VERTICAL COMPONENT OF THE THRUST ON THE VERTICAL BEND.
5. WALL THICKNESS (T) ASSUMED HERE FOR ESTIMATING PURPOSES ONLY.
6. THE SOIL BEARING PRESSURES ARE BASED ON 1,000 LBS./S.F. IN SOIL AND 2,000 LBS./S.F. IN ROCK.
7. POUR CONCRETE FOR BLOCK AGAINST UNDISTURBED EARTH.
8. DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD CONDITIONS AND AS DIRECTED BY THE CITY. THE VOLUME OF CONCRETE BLOCKING SHALL NOT BE LESS THAN SHOWN HERE.
9. USE POLYETHYLENE WRAP OR EQUAL AS BOND BREAKER BETWEEN CONCRETE AND BEND, TEE, OR PLUG.
10. CONCRETE SHALL NOT EXTEND BEYOND JOINTS.



Δ = 11.25°		Δ = 22.50°		Δ = 30°		Δ = 45°		Δ = 67.50°		Δ = 90°		Δ	
I.D. (IN.)	THRUST (TONS)	A (FT.)	B VOL. (C.Y.)	I.D. (IN.)	THRUST (TONS)	A (FT.)	B VOL. (C.Y.)	I.D. (IN.)	THRUST (TONS)	A (FT.)	B VOL. (C.Y.)	I.D. (IN.)	THRUST (TONS)
4,6.8	1.0	0.5	2.0	1.0	2.5	1.3	3.6	1.8	4.6	2.3	5.0	2.5	4.6,8
10,12	2.2	1.1	4.3	2.2	5.7	2.8	8.0	4.0	10.5	5.2	11.3	5.7	10,12
16,18	5.0	2.5	9.7	4.9	12.7	6.4	18.0	9.0	23.5	11.8	25.5	12.7	16,18
20	6.1	3.1	12.0	6.0	15.7	7.9	22.2	11.1	29.2	14.5	31.4	15.7	20
24	8.2	4.4	17.3	8.7	22.6	11.3	32.0	16.0	41.8	20.9	45.2	22.6	24

- NOTES:
1. EXTEND CONCRETE THRUST BLOCK HORIZONTALLY INTO UNDISTURBED SOIL 2' MIN. ON EACH SIDE.
  2. HORIZONTAL EXTENSION OF THRUST BLOCK MAY REQUIRE ADDITIONAL STEEL REINFORCEMENT. DETERMINATION TO BE MADE BY CITY ENGINEERING STAFF.



Δ = 11.25°		Δ = 22.50°		Δ = 30°		Δ = 45°		Δ = 67.50°		Δ = 90°	
I.D. (IN.)	THRUST (TONS)	A (FT.)	B VOL. (C.Y.)	I.D. (IN.)	THRUST (TONS)	A (FT.)	B VOL. (C.Y.)	I.D. (IN.)	THRUST (TONS)	A (FT.)	B VOL. (C.Y.)
4,6.8	0.4	1.0	1.0	1.5	0.1	1.0	1.0	0.1	4.6,8	0.8	2.0
10,12	0.6	2.2	1.5	1.5	0.1	1.0	1.5	0.1	10,12	1.1	4.4
16,18	0.8	5.0	2.0	2.5	0.3	1.5	2.0	0.2	16,18	1.6	9.9
20	0.9	6.2	2.0	3.5	0.4	1.5	3.0	0.3	20	1.8	12.3
24	1.1	8.9	3.0	3.5	0.5	1.5	3.0	0.3	24	2.2	17.7

TABLES OF DIMENSIONS AND QUANTITIES

Δ = 30°		Δ = 45°		Δ = 67.50°		Δ = 90°	
I.D. (IN.)	THRUST (TONS)	A (FT.)	B VOL. (C.Y.)	I.D. (IN.)	THRUST (TONS)	A (FT.)	B VOL. (C.Y.)
4,6.8	1.0	2.6	2.0	1.5	0.2	1.0	1.5
10,12	1.5	5.9	2.5	2.5	0.3	2.0	1.5
16,18	2.2	13.2	3.5	4.0	0.8	2.5	3.0
20	2.4	16.3	4.5	4.0	1.0	3.0	3.5
24	2.9	23.4	6.0	4.0	1.4	3.5	3.5

Δ = 67.50°		Δ = 90°	
I.D. (IN.)	THRUST (TONS)	A (FT.)	B VOL. (C.Y.)
4,6.8	2.1	5.8	3.0
10,12	3.1	12.6	5.5
16,18	4.7	28.3	7.5
20	5.2	34.9	9.0
24	6.2	50.3	11.5

TABLES OF DIMENSIONS AND QUANTITIES

THRUST BLOCK  
GENERAL NOTES

W700

VERTICAL THRUST BLOCK  
AT PIPE BEND

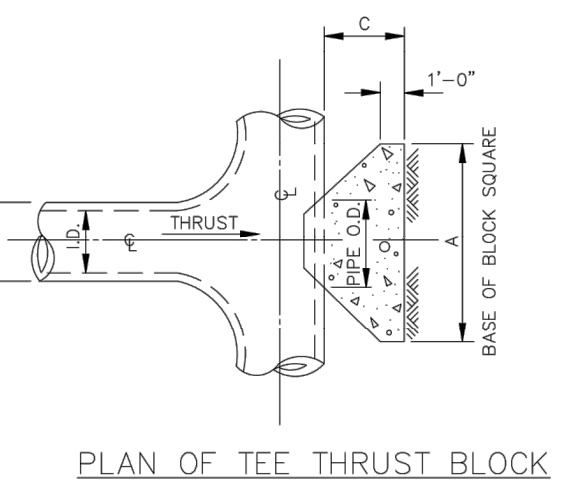
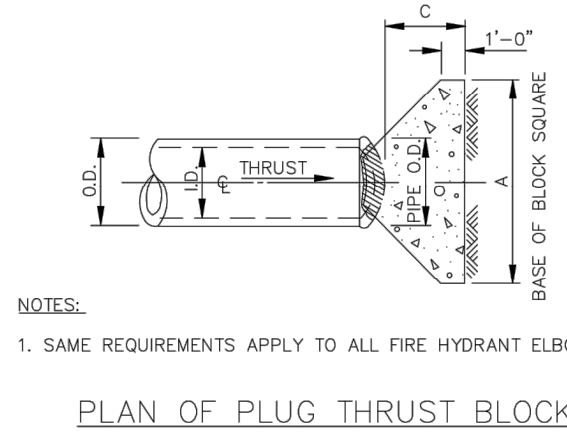
W701

- NOTES:
1. WHEN NOT IN PAVING OR WALK, A CLASS P1 CONCRETE PAD REINFORCED W/4" BARS AT 12" C-C EACH WAY, SHALL EXTEND A MINIMUM OF 2' AROUND THE M.H. AND SHALL BE A MINIMUM OF 3" THICK.
  2. VENT PIPE SIZE TO EQUAL OUTLET SIZE OF COMBINATION AIR VALVE.
  3. MINIMUM M.H. DIA. TO BE 6'-7' DIA. M.H. REQUIRED FOR VALVES 6" OR GREATER.
  4. FLANGED CONNECTION TO WATER PIPE SHALL BE IN ACCORDANCE WITH CITY OF DENTON SPEC. SECTION 13 14 30 ACCORDING TO PIPE MATERIAL TYPE.

W702A

HORIZONTAL THRUST BLOCK  
AT PIPE BEND

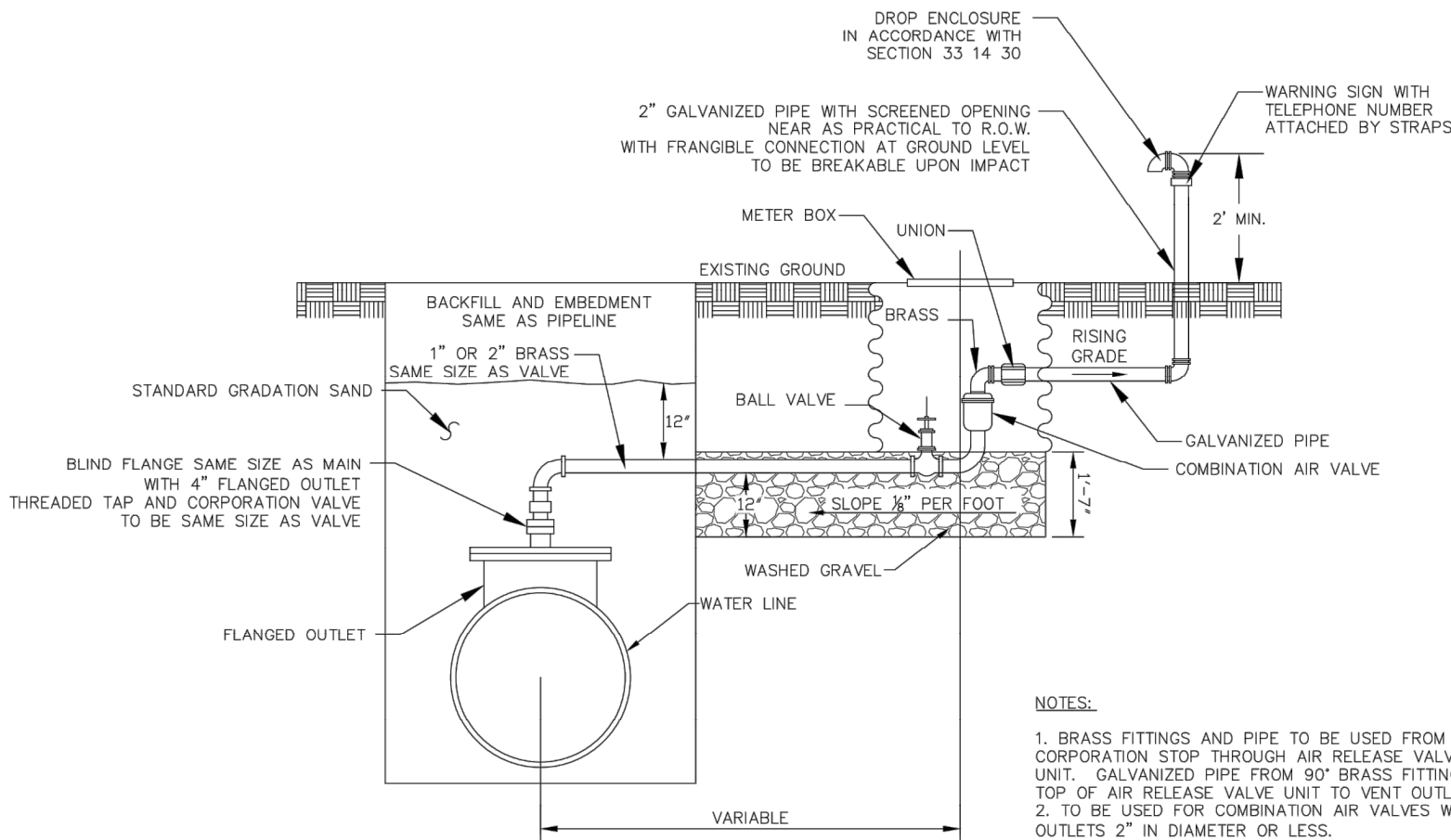
W702B



EARTH		ROCK	
I.D. (IN.)	THRUST (TONS)	A (FT.)	B VOL. (C.Y.)
4,6.8	5.1	1.5	2.0
10,12	11.3	1.5	3.5
16,18	25.5	2.0	5.5
20	31.5	2.0	6.0
24	45.2	2.5	7.0

HORIZONTAL THRUST BLOCK  
AT TEES AND PLUGS

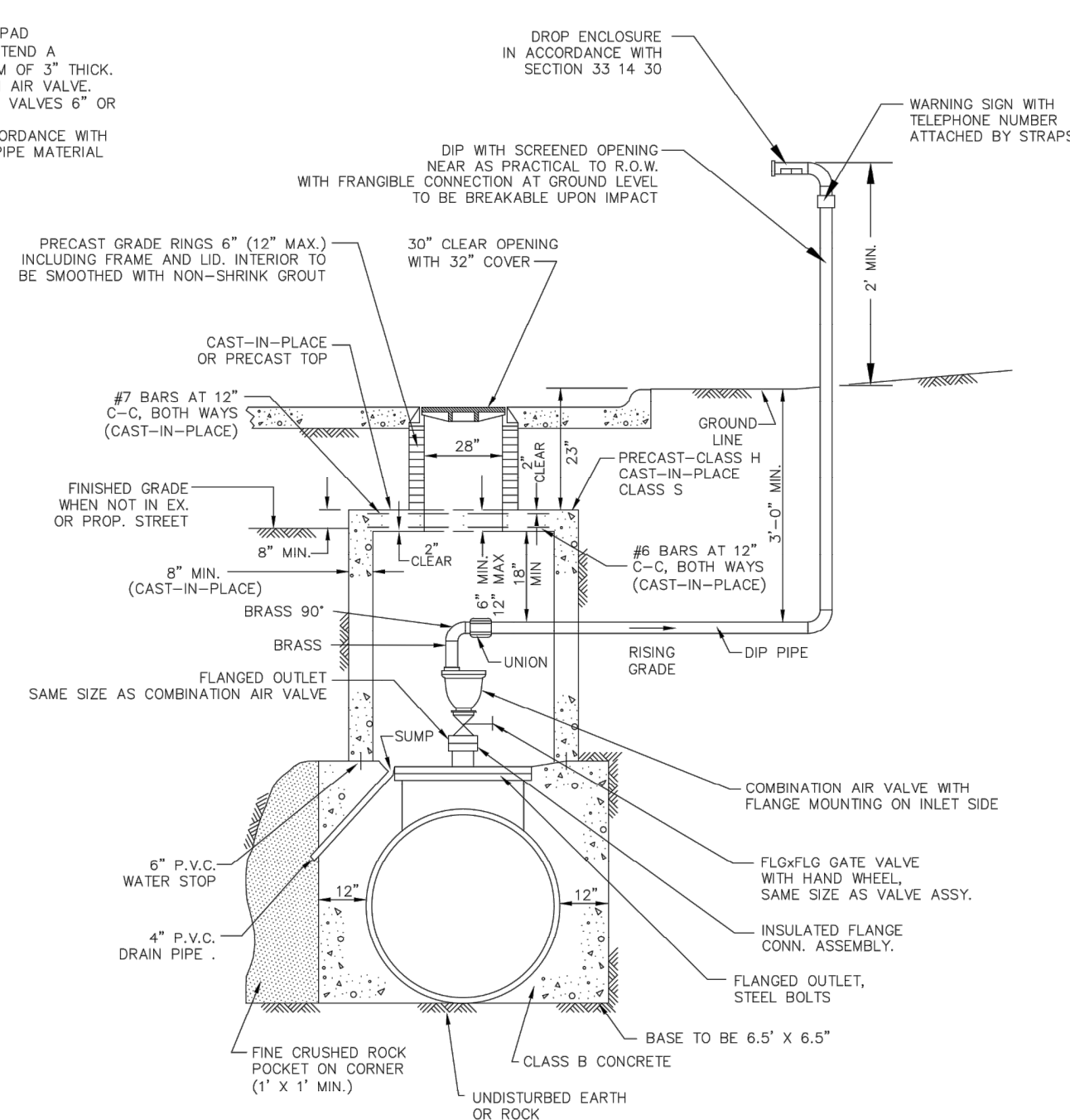
W703



- NOTES:
1. BRASS FITTINGS AND PIPE TO BE USED FROM CORPORATION STOP THROUGH AIR RELEASE VALVE UNIT. GALVANIZED PIPE FROM 90" BRASS FITTING ON TOP OF AIR RELEASE VALVE UNIT TO VENT OUTLET.
  2. TO BE USED FOR COMBINATION AIR VALVES WITH OUTLETS 2" IN DIAMETER OR LESS.
  3. VALVE ASSEMBLY TO BE CONSTRUCTED IN ACCORDANCE WITH PROVISIONS OF THE CITY OF DENTON SPEC. SECTION 13 14 30.

COMBINATION AIR VALVE  
ASSEMBLIES 1" AND 2"

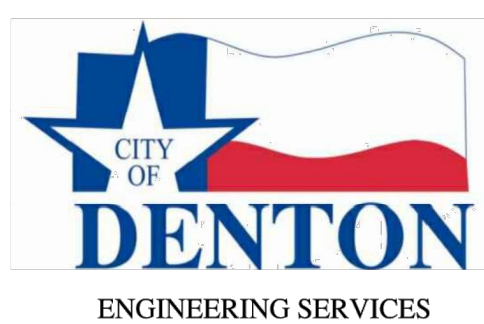
W801



COMBINATION AIR VALVE  
ASSEMBLIES 3" AND LARGER

W802

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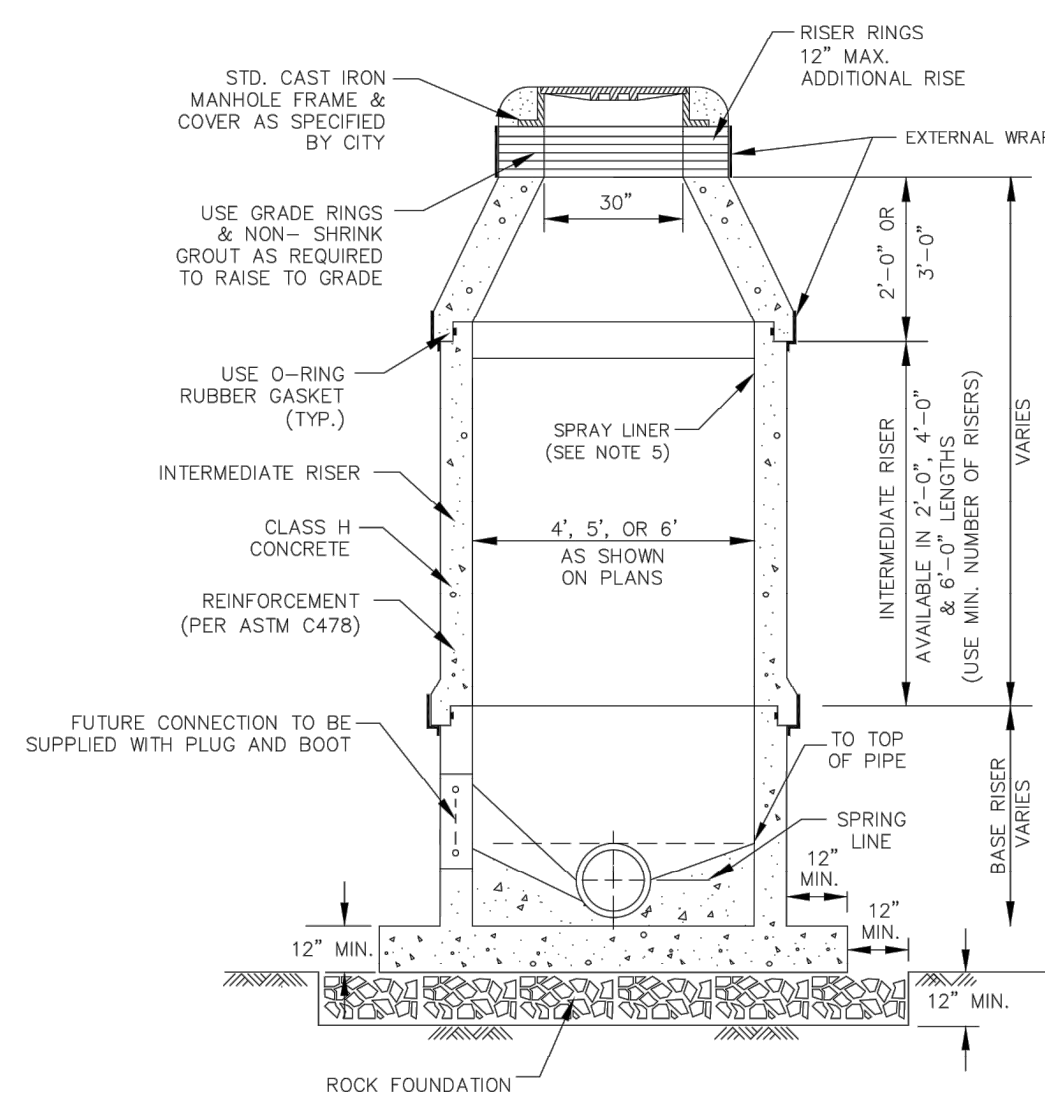


STANDARD DETAILS  
WATER DETAILS

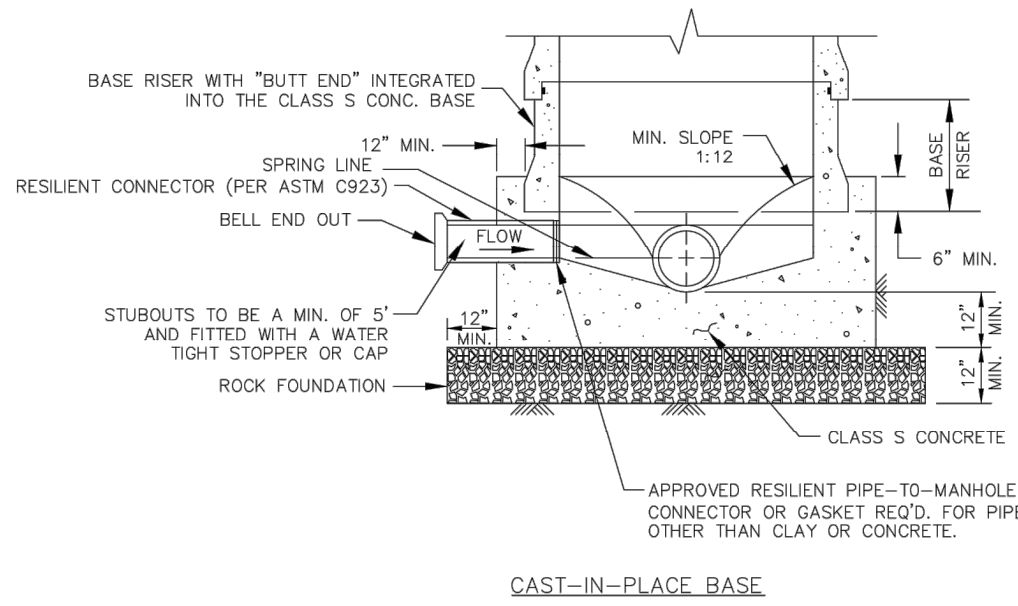
DATE	SCALE
JAN. 2023	HOR 1" = N.T.S.
SHEET No.	VER 1" = N/A
3 OF 24	

CERTIFICATION:  
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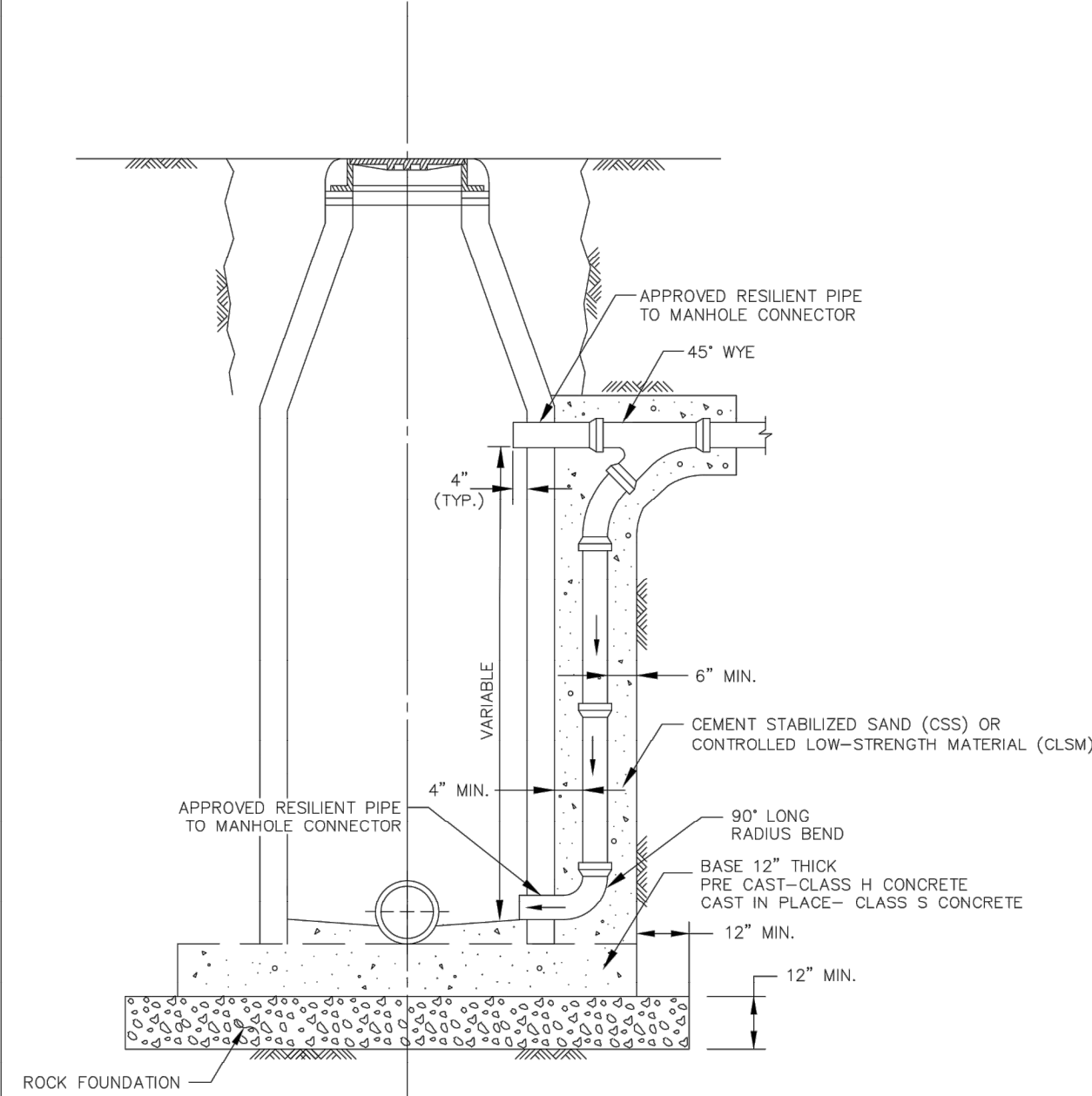




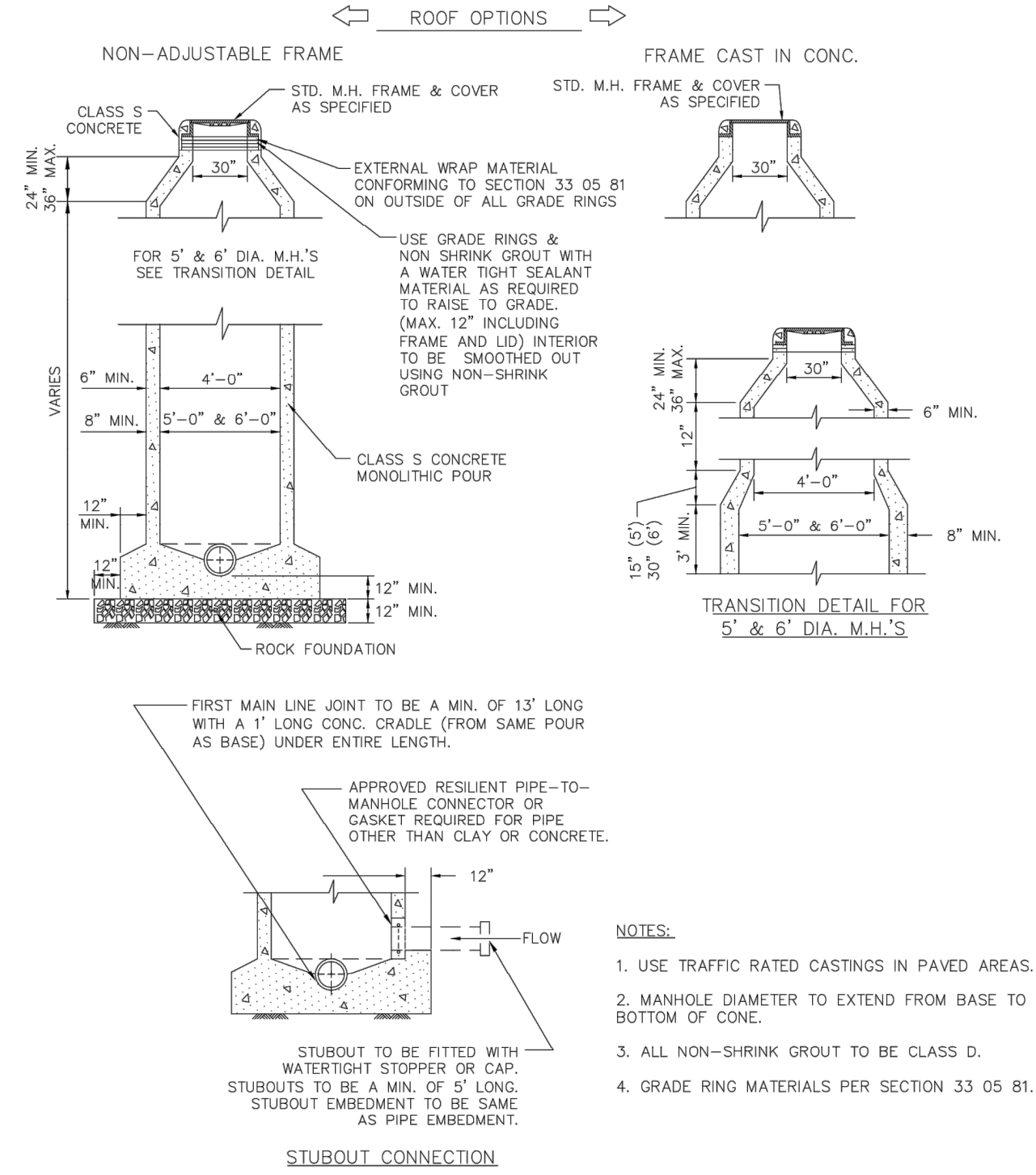
PRE-CAST MANHOLE  
WITH LINING



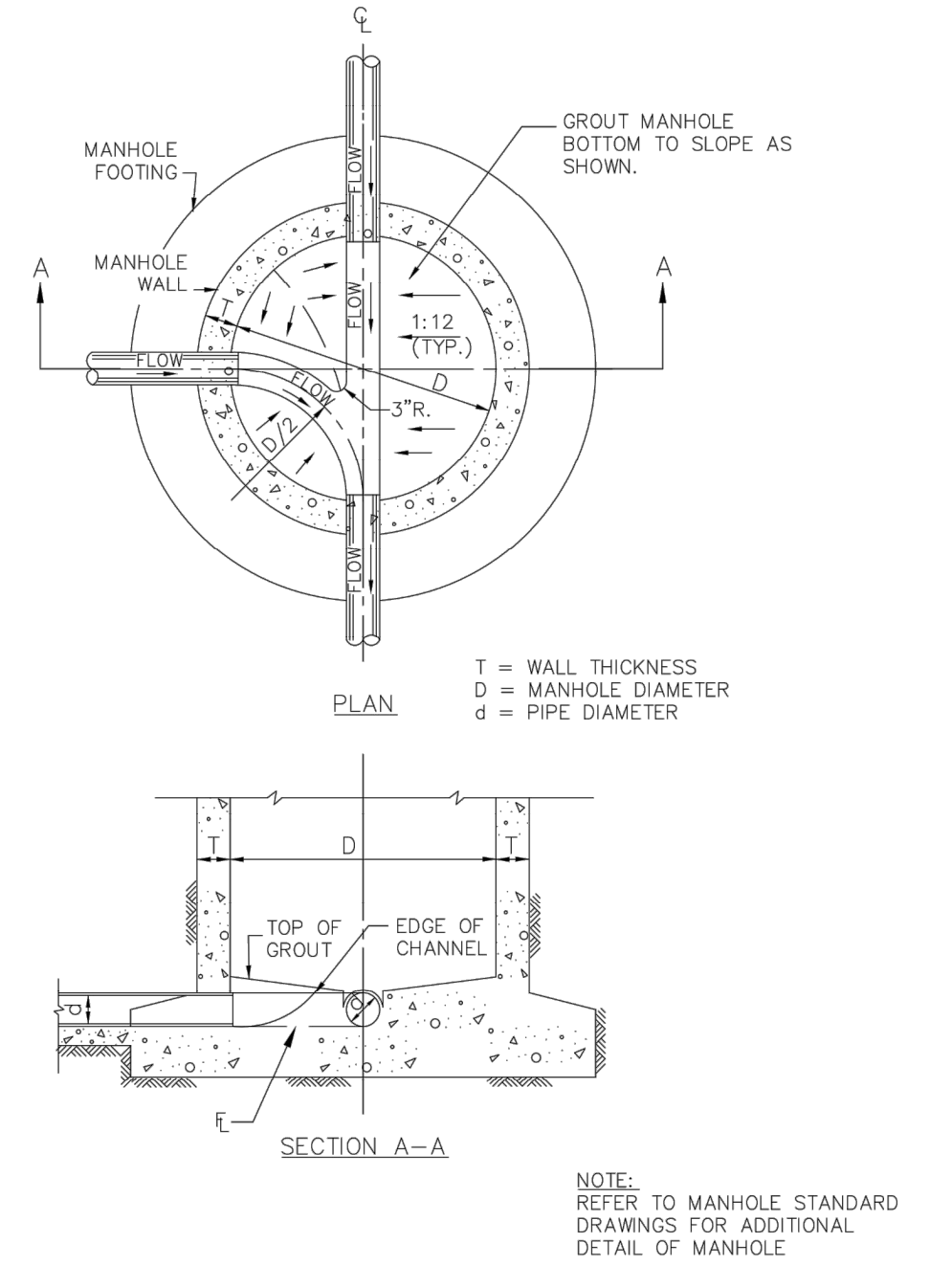
- NOTES:
1. USE TRAFFIC RATED CASTINGS IN PAVED AREAS.
  2. FIRST MAIN LINE JOINT TO BE 5' MIN. IN LENGTH.
  3. USE APPROVED GASKET OR SEALANT MATERIAL ON ALL JOINTS AND GRADE RINGS.
  4. ALL NON-SHRINK GROUT TO BE CLASS \"D\".
  5. LINER BY CITY APPROVED MANHOLE LINING COMPANIES ONLY PER SECTION 33.05.40.
  6. PRECAST MANHOLES REQUIRE A 360° EXTERNAL WRAP AT JOINT CONNECTIONS PER SECTION 33.05.62.
  7. GRADE RING MATERIAL PER SECTION 33.05.81.



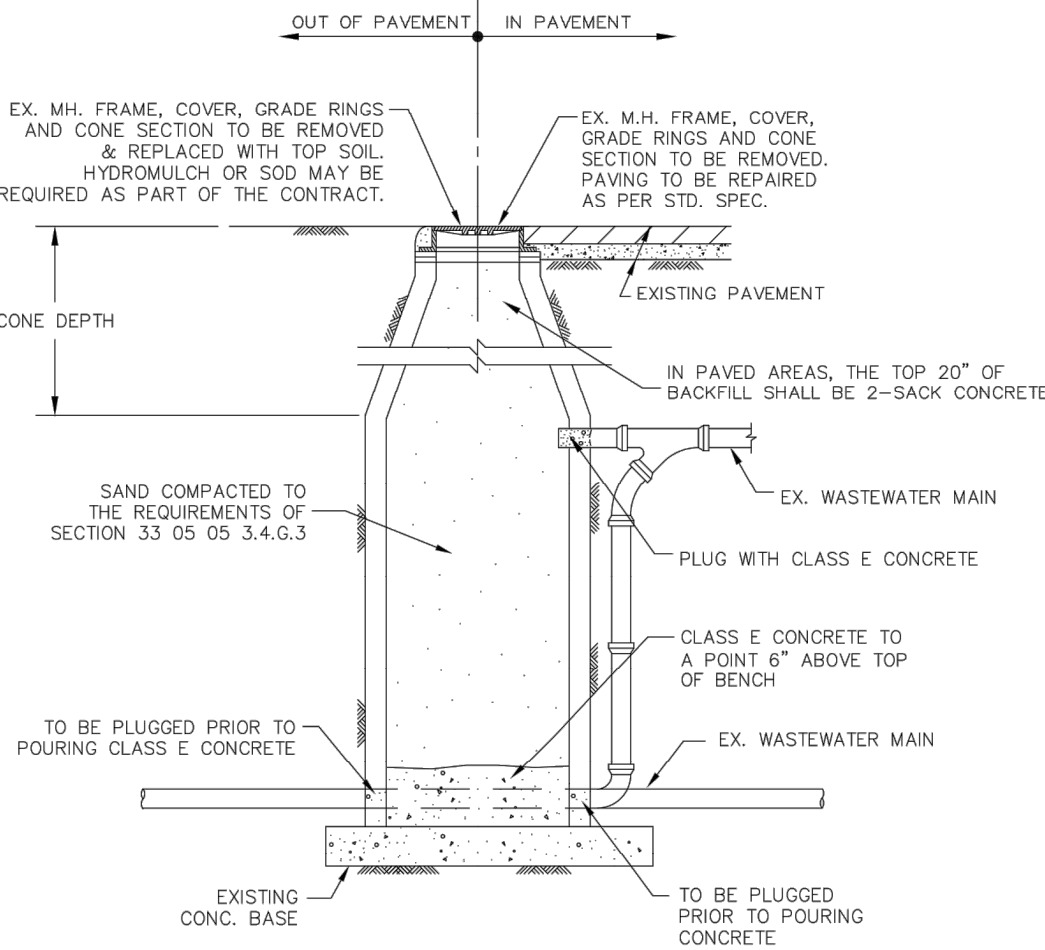
DROP MANHOLE



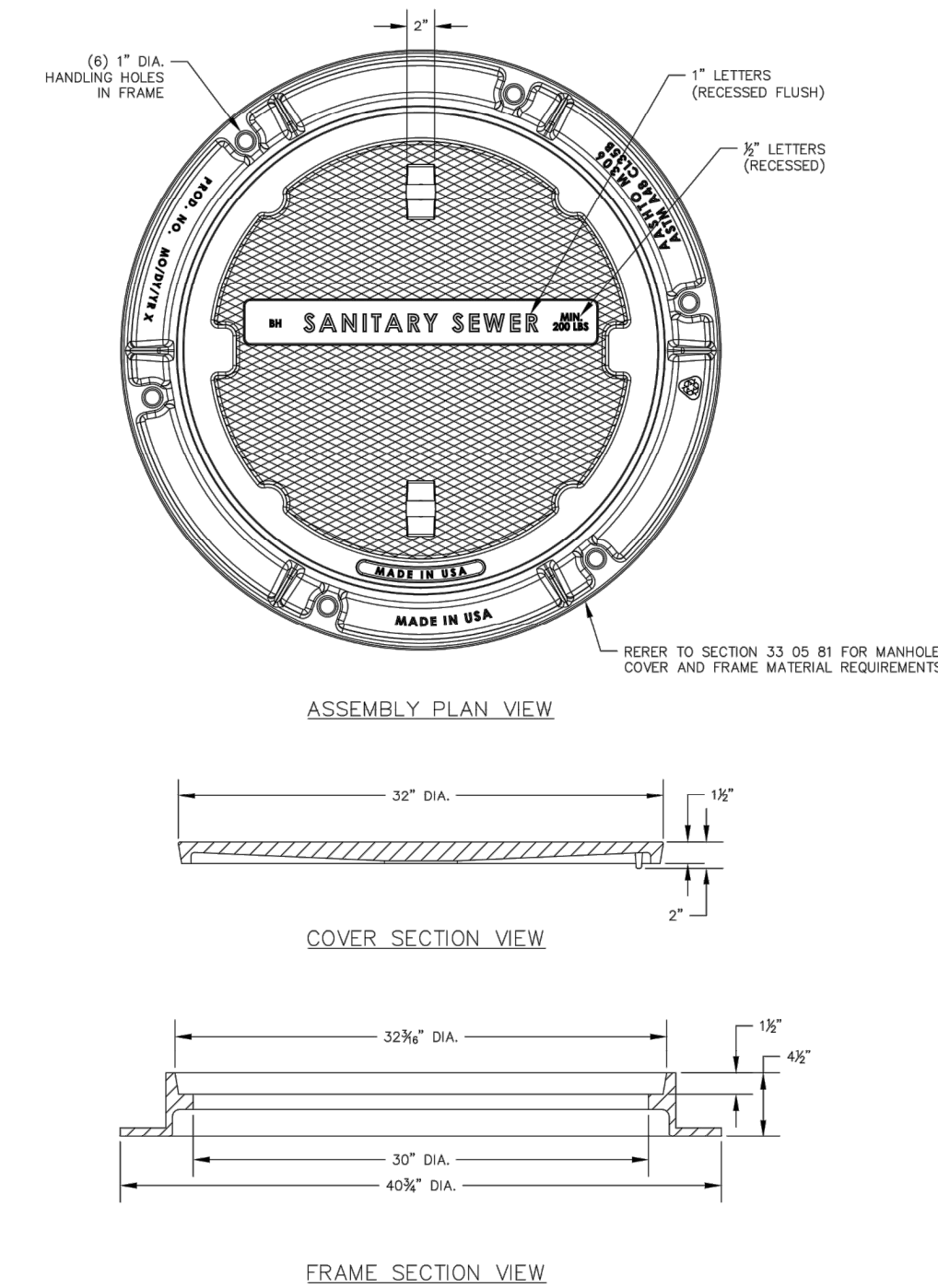
CAST-IN-PLACE  
MANHOLE



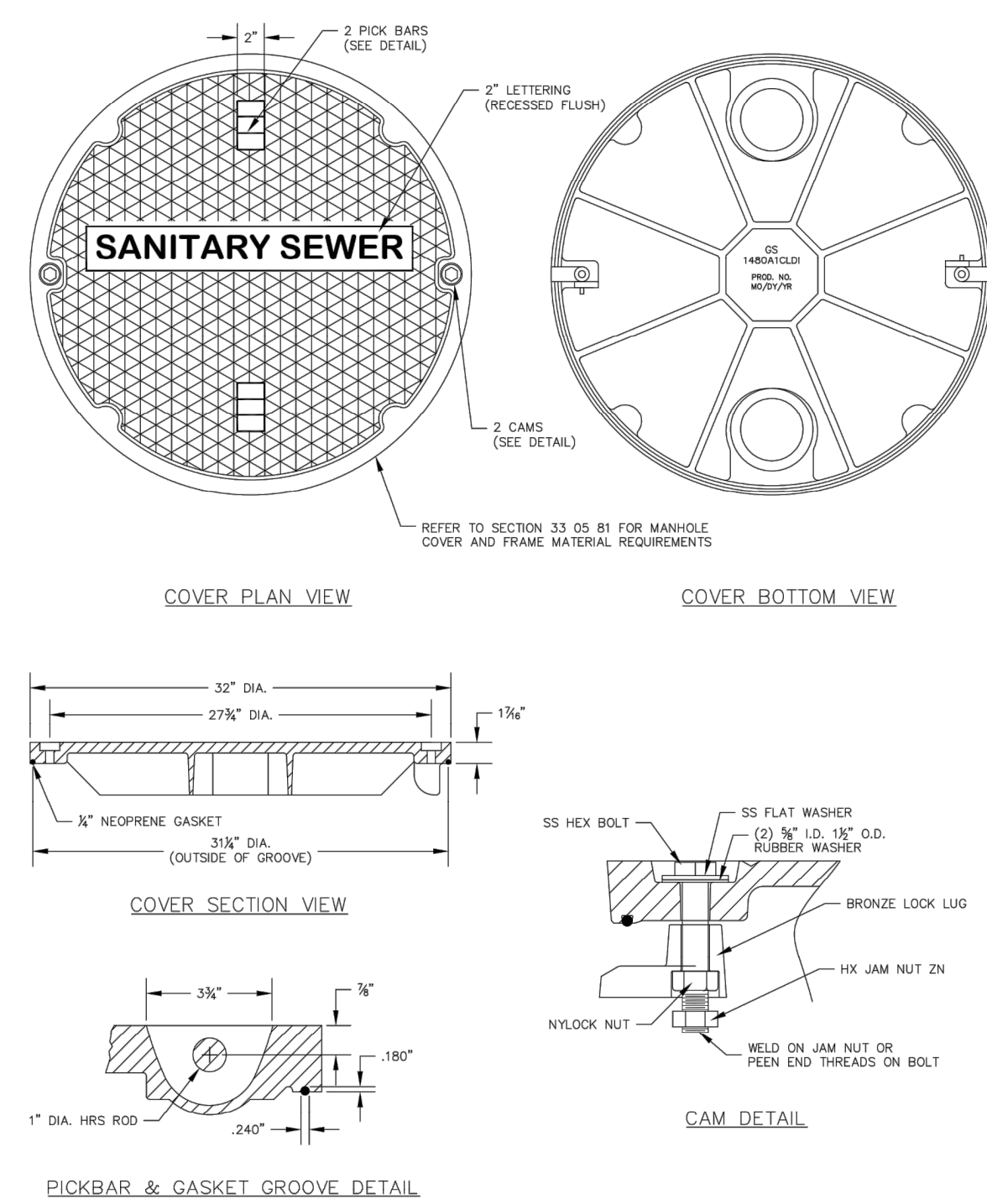
SEWERLINE INTERSECTION



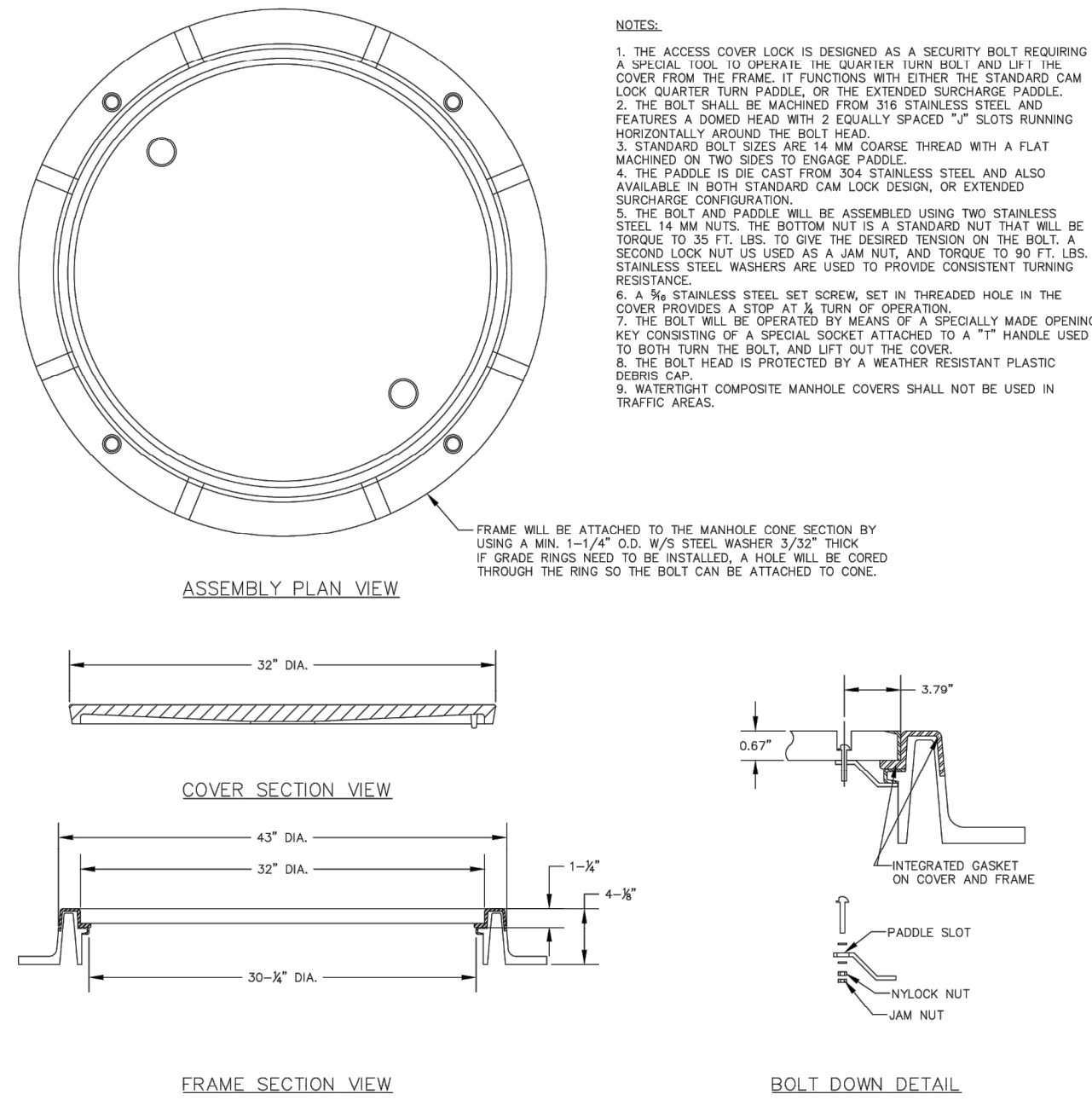
ABANDONMENT OF MANHOLE



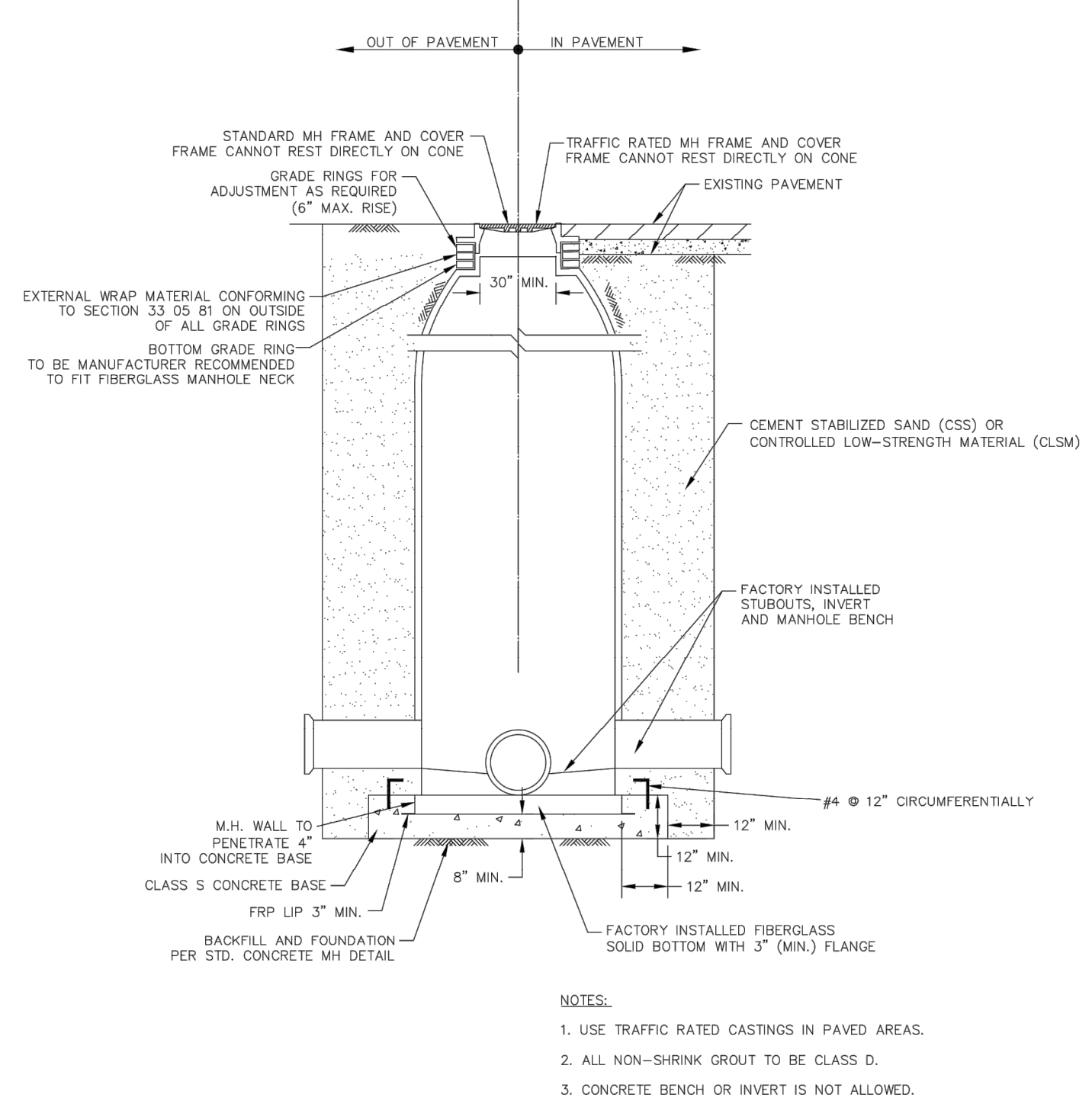
MANHOLE FRAME AND COVER



WATERTIGHT MANHOLE COVER  
WITH CAM LOCKS AND GASKET

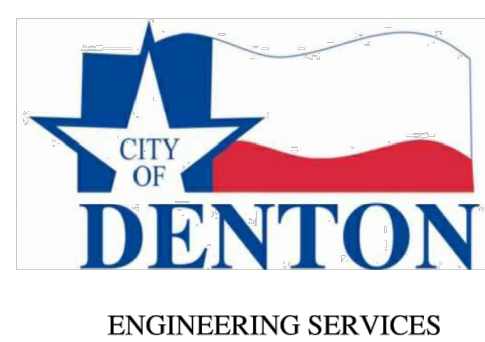


COMPOSITE WATERTIGHT  
MANHOLE COVER  
WITH CAM LOCKS AND GASKET



FIBERGLASS MANHOLE  
WITH STUBOUTS

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DESIGNED BY	DATE	REVISION
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# STANDARD DETAILS

## WASTEWATER DETAILS

DATE  
JAN. 2023

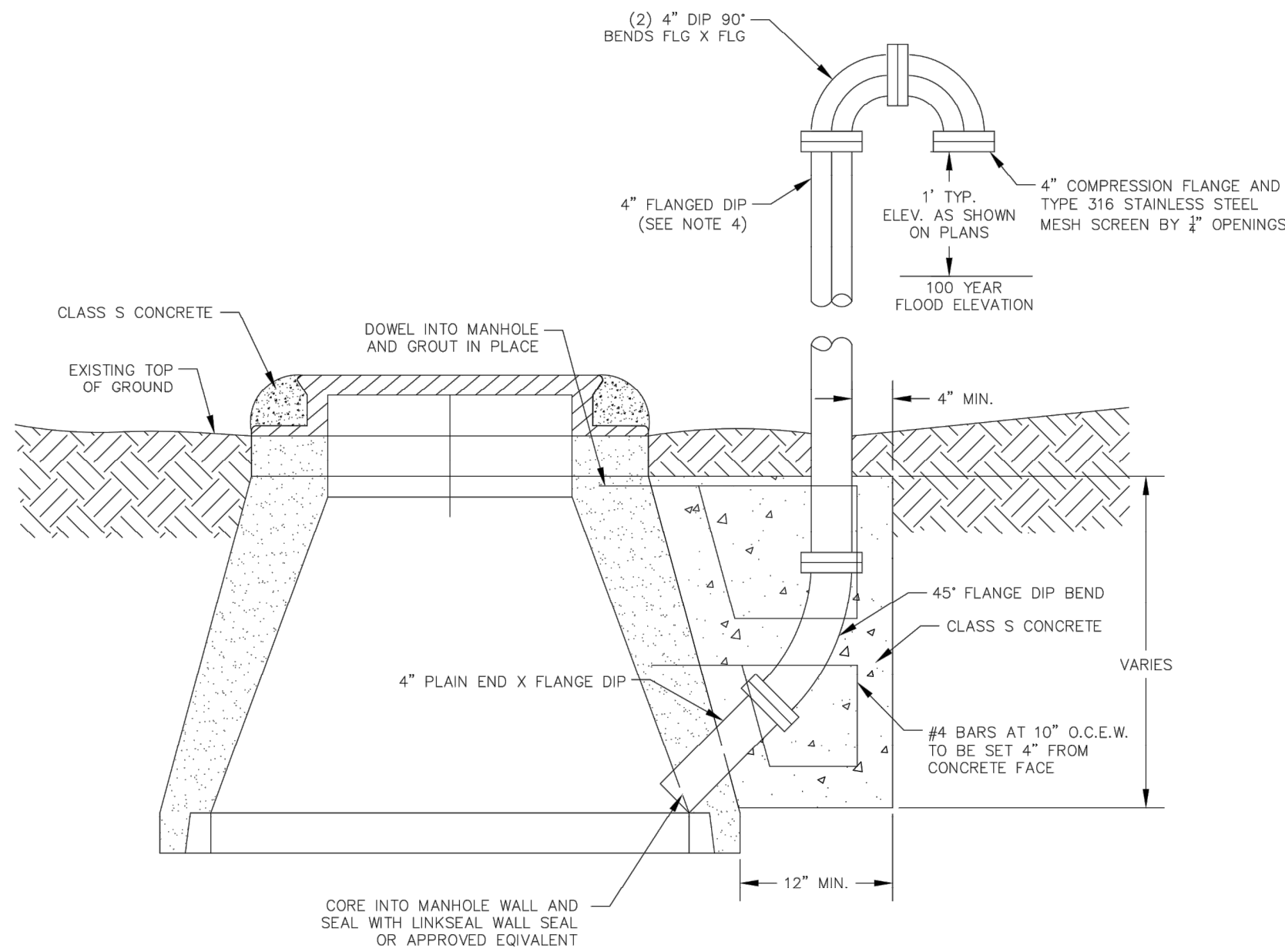
SHEET No.  
4 OF 24

SCALE

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VER 1"= N/A

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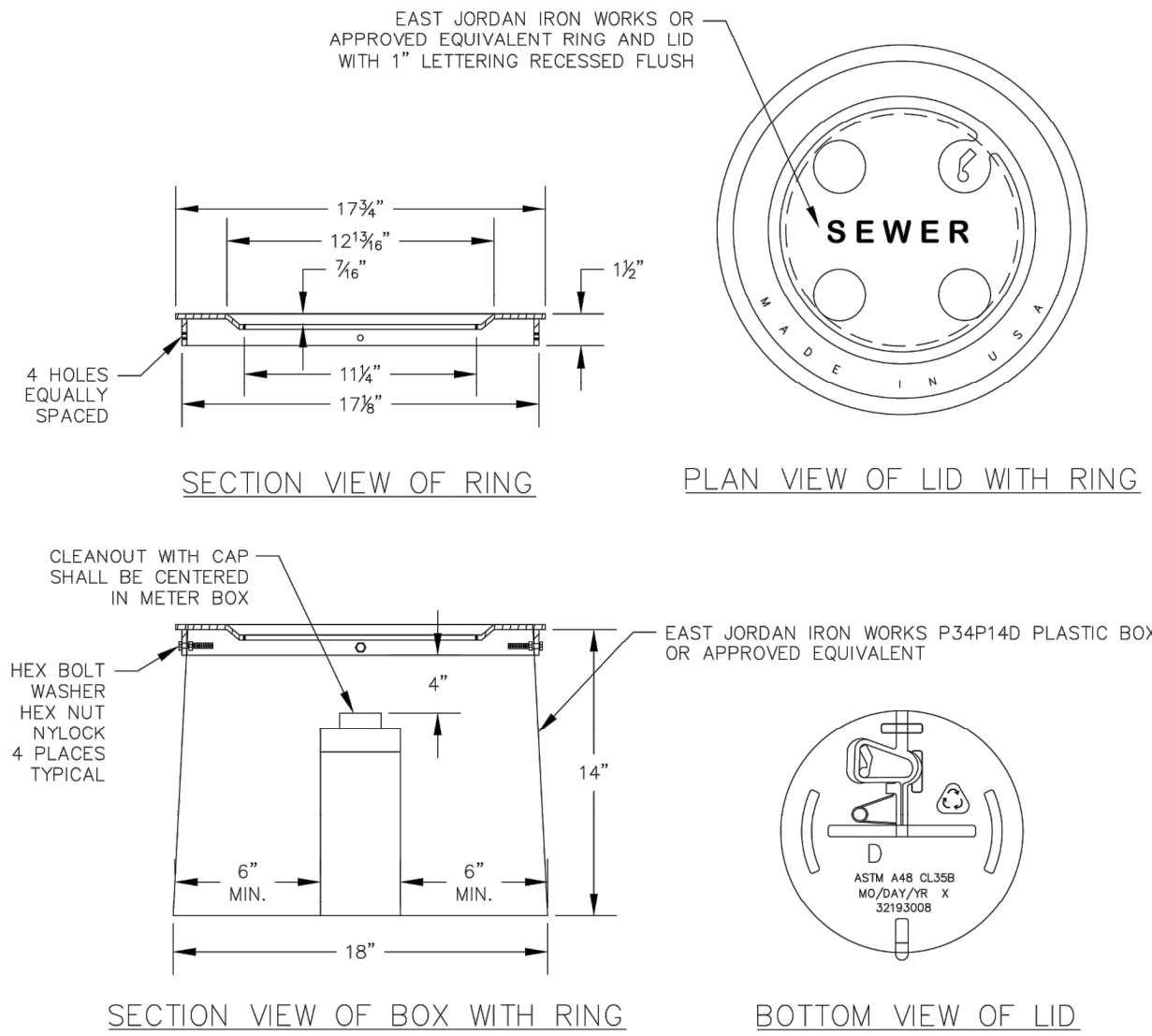




- NOTES:
1. DUCTILE IRON PIPE AND FITTINGS SHALL HAVE 40 MIL POLYETHYLENE INTERIOR COATING.
  2. ALL BOLTS AND NUTS TO BE TYPE 316 STAINLESS STEEL.
  3. FINISH COATING:
    - A. WIRE BRUSH TO REMOVE ALL DIRT AND CONC. AND TO ROUGH UP FINISH.
    - B. APPLY ONE PRIME COAT OF TNEPEC SERIES 37 CHEM PRIME (GRAY) TO 3 MILS DRY THICKNESS. GIVE SPECIAL ATTENTION TO CORNERS AND BOLTS.
    - C. APPLY ONE FINISH COAT OF TNEPEC SERIES 48-38 ALKOY ALUMINUM TO 2 MILS DRY THICKNESS.
  4. VENT PIPES TALLER THAN 6" TO BE 6" DUCTILE IRON PIPE AND FITTINGS.
  5. REFLECTIVE TAPE TO BE PLACED ON VENT 4.25 FEET ABOVE FINAL GRADE.

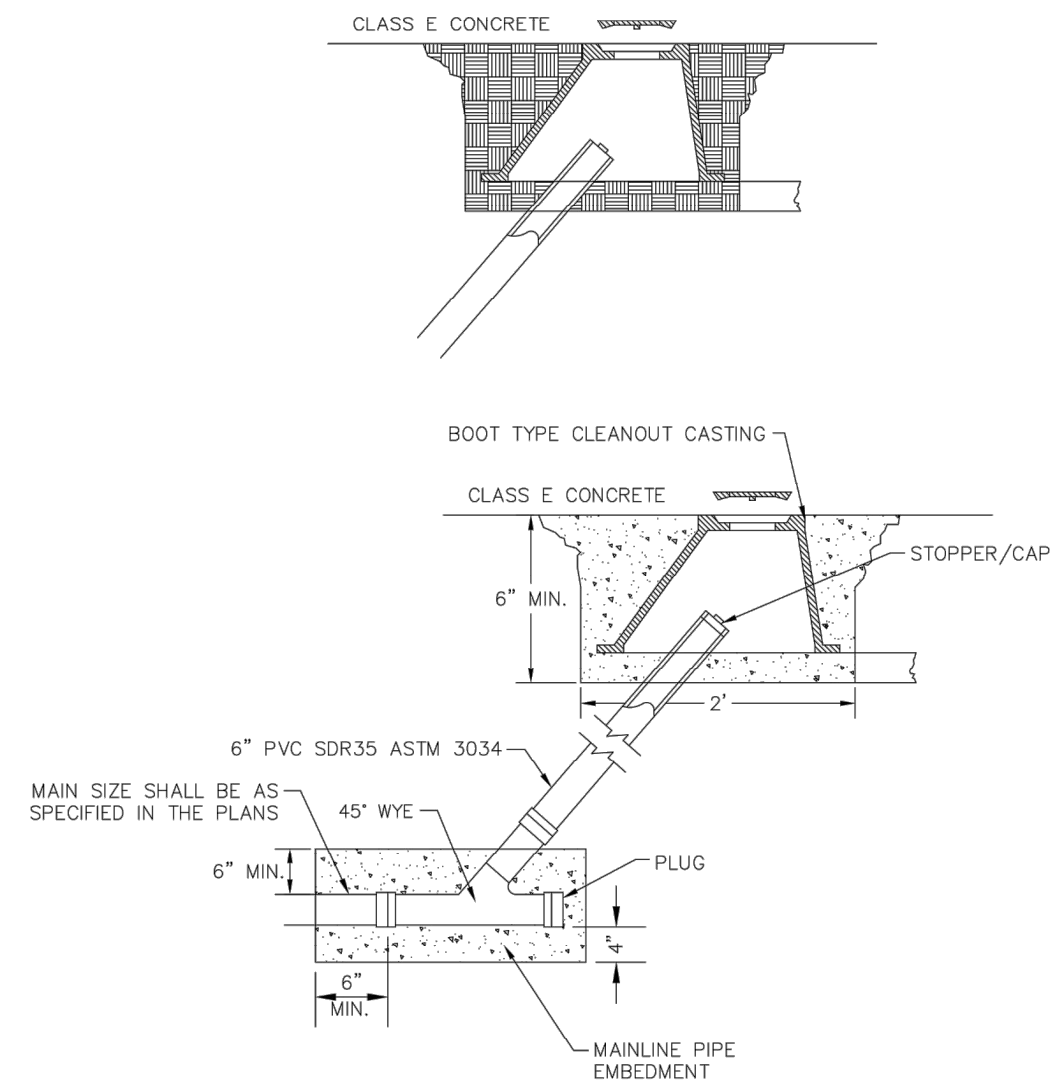
#### VENT MANHOLE

S108



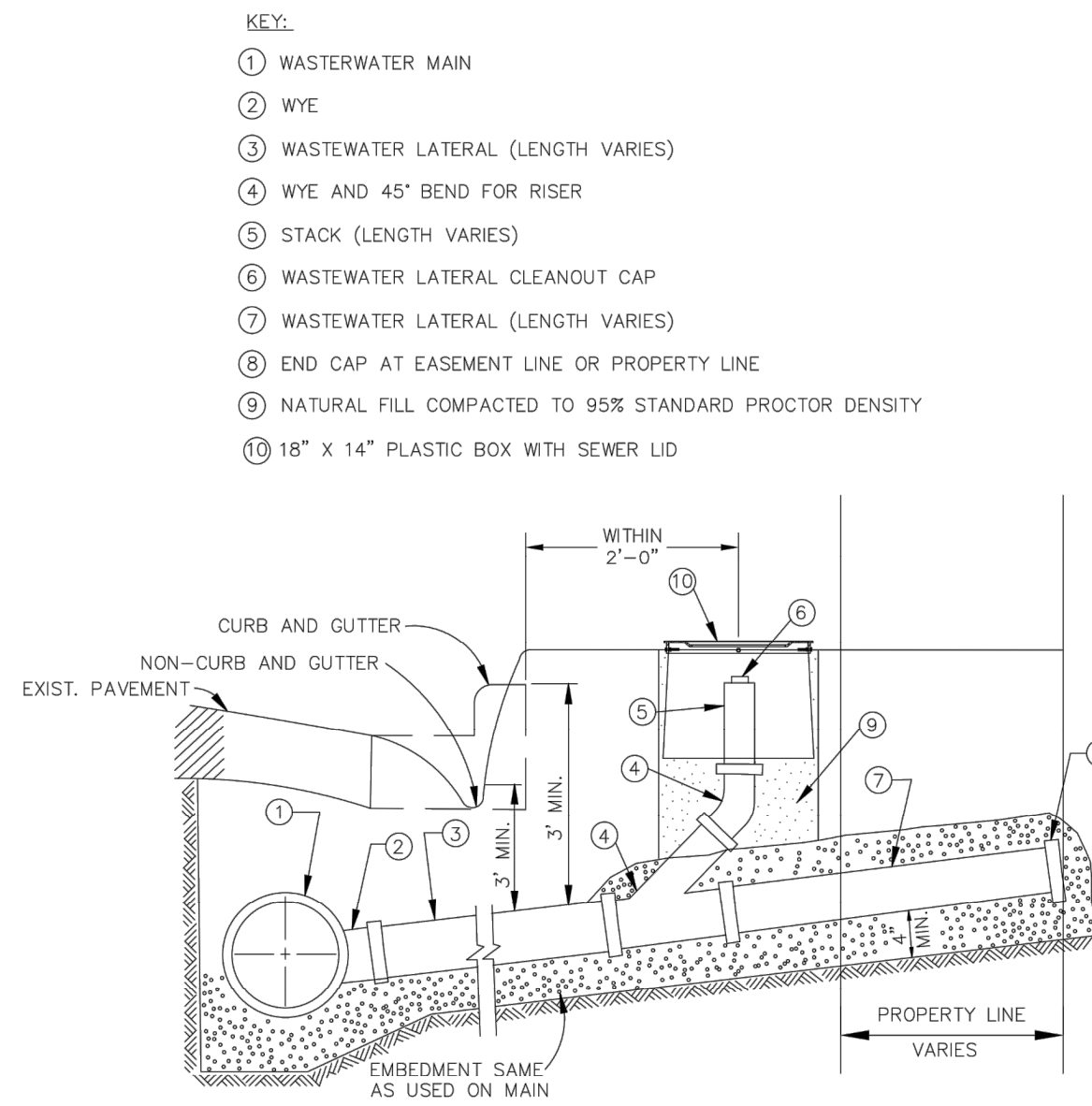
#### 18" X 14" PLASTIC BOX WITH SEWER LID

S201



#### SANITARY SEWER MAINLINE CLEANOUT

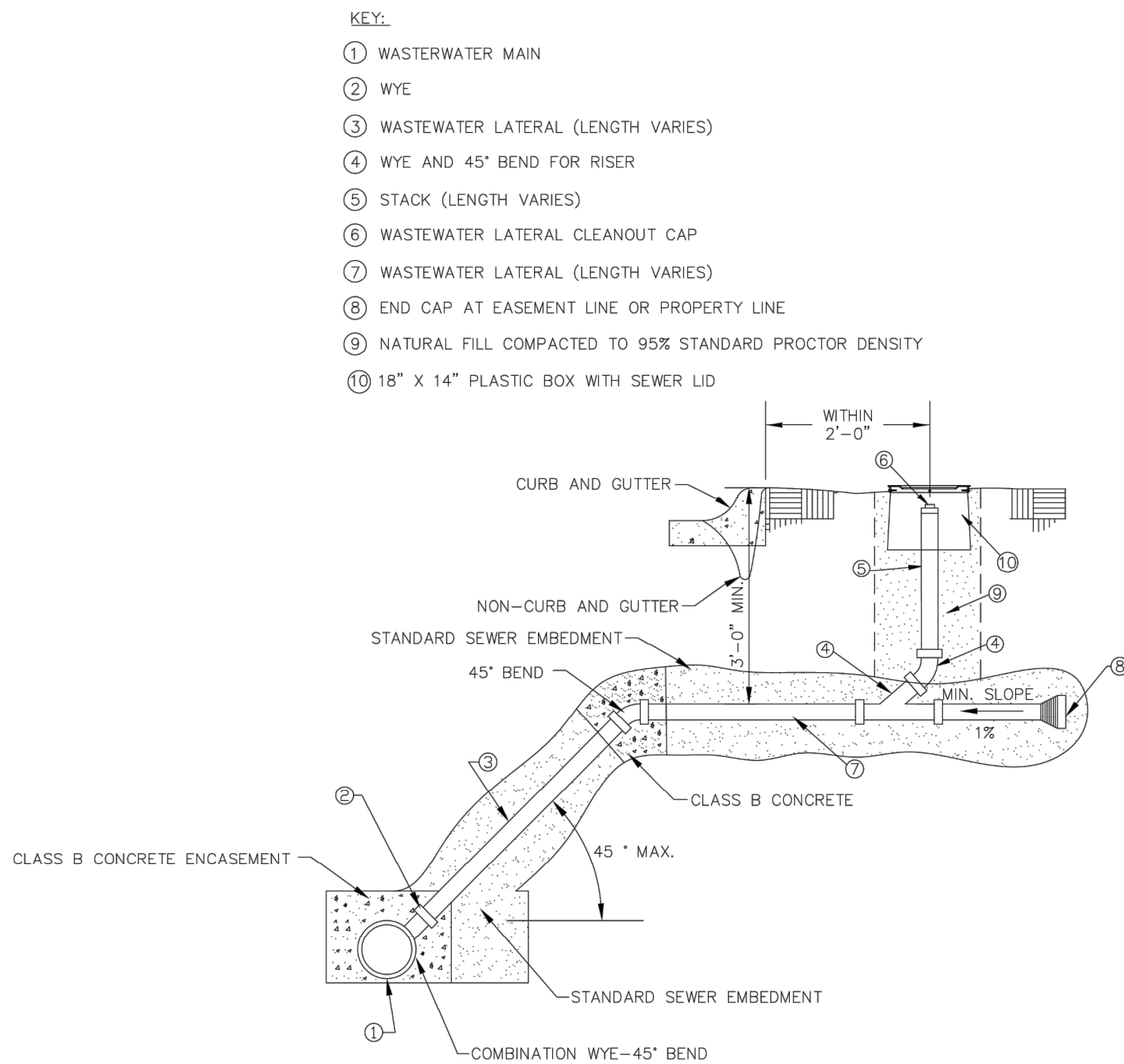
S402



- NOTES:
1. SERVICE TO BE INSTALLED IN ACCORDANCE WITH CITY OF DENTON SPEC. SECTION 33.31.16.
  2. SIZE OF SERVICE LINE PIPING AND FITTINGS PER PLANS OR CITY OF DENTON WATER & WASTEWATER CRITERIA MANUAL.
  3. SLOPE OF LATERAL TO BE 2% MINIMUM UNLESS INSTRUCTED OTHERWISE BY CITY.
  4. VERTICAL BENDS (22.5° MAX.) MAY BE USED TO CLEAR UNDERGROUND CONFLICTS.
  5. THE MAINLINE LATERAL CONNECTION TO AN EXISTING PRIVATE BUILDING LATERAL SHALL BE AS CLOSE TO THE PROPERTY LINE AS POSSIBLE.
  6. INSTALL STOPPER OR CAP AT PROPERTY OR EASEMENT LINE IF BUILDING LATERAL DOES NOT EXIST.
  7. THE CLEANOUT MAY NOT BE PLACED IN VEHICLE TRAFFIC AREAS, OR SIDEWALK WITHOUT APPROVAL BY THE WASTEWATER DEPARTMENT.
  8. FOR PAVED AREAS, A CAST IRON STACK AND CLEANOUT SHALL BE USED IN PLACE OF PVC PIPE, FITTINGS AND PLASTIC BOX. THE CAST IRON STACK AND CLEANOUT SHALL EXTEND THROUGH THE ENTIRE DEPTH OF THE PAVEMENT AND CONFORM TO ASTM A448 CLASS 35B STANDARDS.
  9. THE CLEANOUT SHALL BE CENTERED IN PLASTIC BOX.
  10. CENTER OF CLEANOUT TO BE LOCATED NO FURTHER THAN 2'-0" BEHIND BACK OF CURB. FOR UNCURBED STREETS, CLEANOUT TO BE LOCATED OUTSIDE OF THE DRAINAGE DITCH.
  11. PLUMBERS NOT ALLOWED TO CONNECT TO STACK, ONLY TO THE BOTTOM OF WYE.
  12. AN "S" SHALL BE ETCHED INTO THE CURB WHERE THE SERVICE LINE CROSSES THE CURB & GUTTER AND PAINTED GREEN.

#### SANITARY SEWER SERVICE WITH SINGLE CLEANOUT

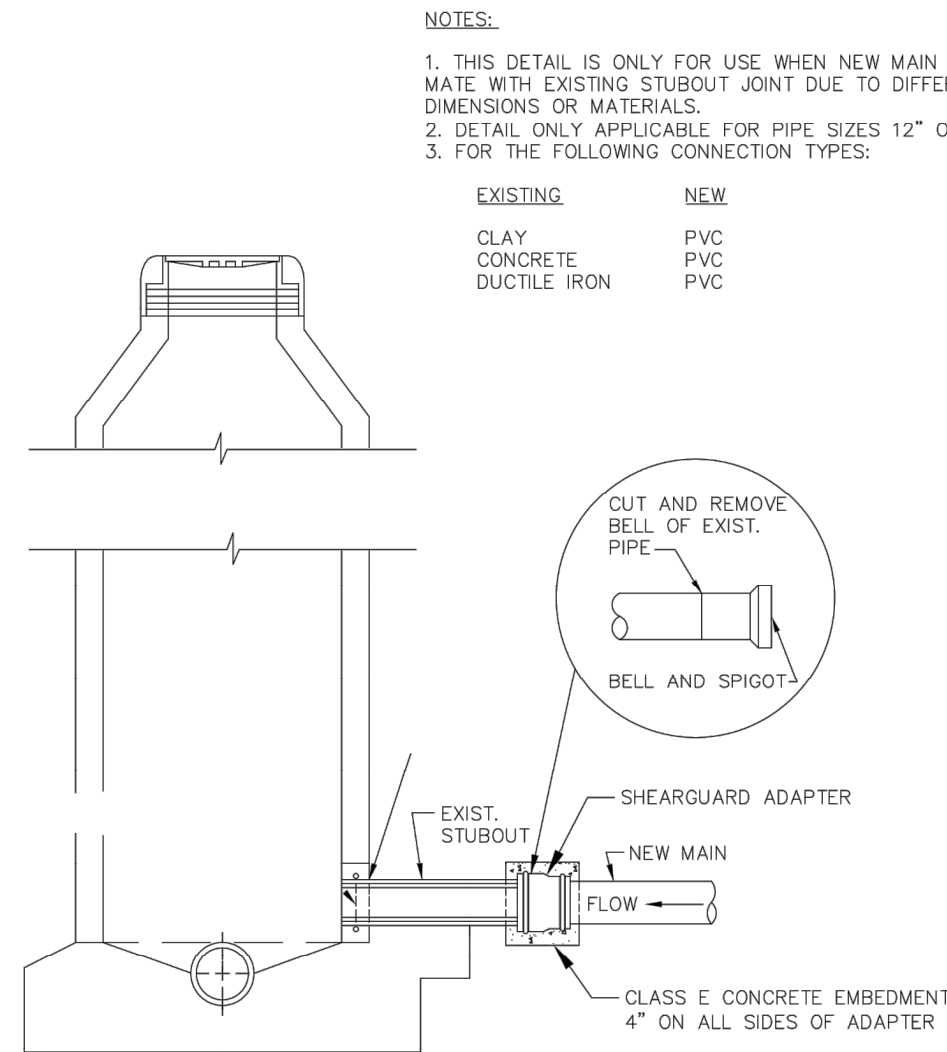
S403



- NOTES:
1. SERVICE TO BE INSTALLED IN ACCORDANCE WITH CITY OF DENTON SPEC. SECTION 33.31.16.
  2. SIZE OF SERVICE LINE PIPING AND FITTINGS PER PLANS OR CITY OF DENTON WATER & WASTEWATER CRITERIA MANUAL.
  3. SLOPE OF LATERAL TO BE 2% MINIMUM UNLESS INSTRUCTED OTHERWISE BY CITY.
  4. VERTICAL BENDS (22.5° MAX.) MAY BE USED TO CLEAR UNDERGROUND CONFLICTS.
  5. THE MAINLINE LATERAL CONNECTION TO AN EXISTING PRIVATE BUILDING LATERAL SHALL BE AS CLOSE TO THE PROPERTY LINE AS POSSIBLE.
  6. INSTALL STOPPER OR CAP AT PROPERTY OR EASEMENT LINE IF BUILDING LATERAL DOES NOT EXIST.
  7. THE CLEANOUT MAY NOT BE PLACED IN VEHICLE TRAFFIC AREAS, OR SIDEWALK WITHOUT APPROVAL BY THE WASTEWATER DEPARTMENT.
  8. FOR PAVED AREAS, A CAST IRON STACK AND CLEANOUT SHALL BE USED IN PLACE OF PVC PIPE, FITTINGS AND PLASTIC BOX. THE CAST IRON STACK AND CLEANOUT SHALL EXTEND THROUGH THE ENTIRE DEPTH OF THE PAVEMENT AND CONFORM TO ASTM A448 CLASS 35B STANDARDS.
  9. CONNECTION FITTING TO MAIN TO BE ENCASED IN CLASS B CONCRETE.
  10. THE CLEANOUT SHALL BE CENTERED IN PLASTIC BOX.
  11. CENTER OF CLEANOUT TO BE LOCATED NO FURTHER THAN 2'-0" BEHIND BACK OF CURB. FOR UNCURBED STREETS, CLEANOUT TO BE LOCATED OUTSIDE OF THE DRAINAGE DITCH.
  12. PLUMBERS NOT ALLOWED TO CONNECT TO STACK, ONLY TO THE BOTTOM OF WYE.
  13. AN "S" SHALL BE ETCHED INTO THE CURB WHERE THE SERVICE LINE CROSSES THE CURB & GUTTER AND PAINTED GREEN.

#### SANITARY SEWER SERVICE WITH SINGLE CLEANOUT 12' DEEP OR GREATER

S404



- NOTES:
1. THIS DETAIL IS ONLY FOR USE WHEN NEW MAIN WILL NOT MATE WITH EXISTING STUBOUT JOINT DUE TO DIFFERENT DIMENSIONS OR MATERIALS.
  2. DETAIL ONLY APPLICABLE FOR PIPE SIZES 12" OR LESS.
  3. FOR THE FOLLOWING CONNECTION TYPES:

EXISTING	NEW
CLAY	PVC
CONCRETE	PVC
DUCTILE IRON	PVC

#### SANITARY SEWER MAIN TIE-IN WITH STUBOUT OF DISSIMILAR SIZE OR TYPE

S405

ENTERED BY	PROJECT #	
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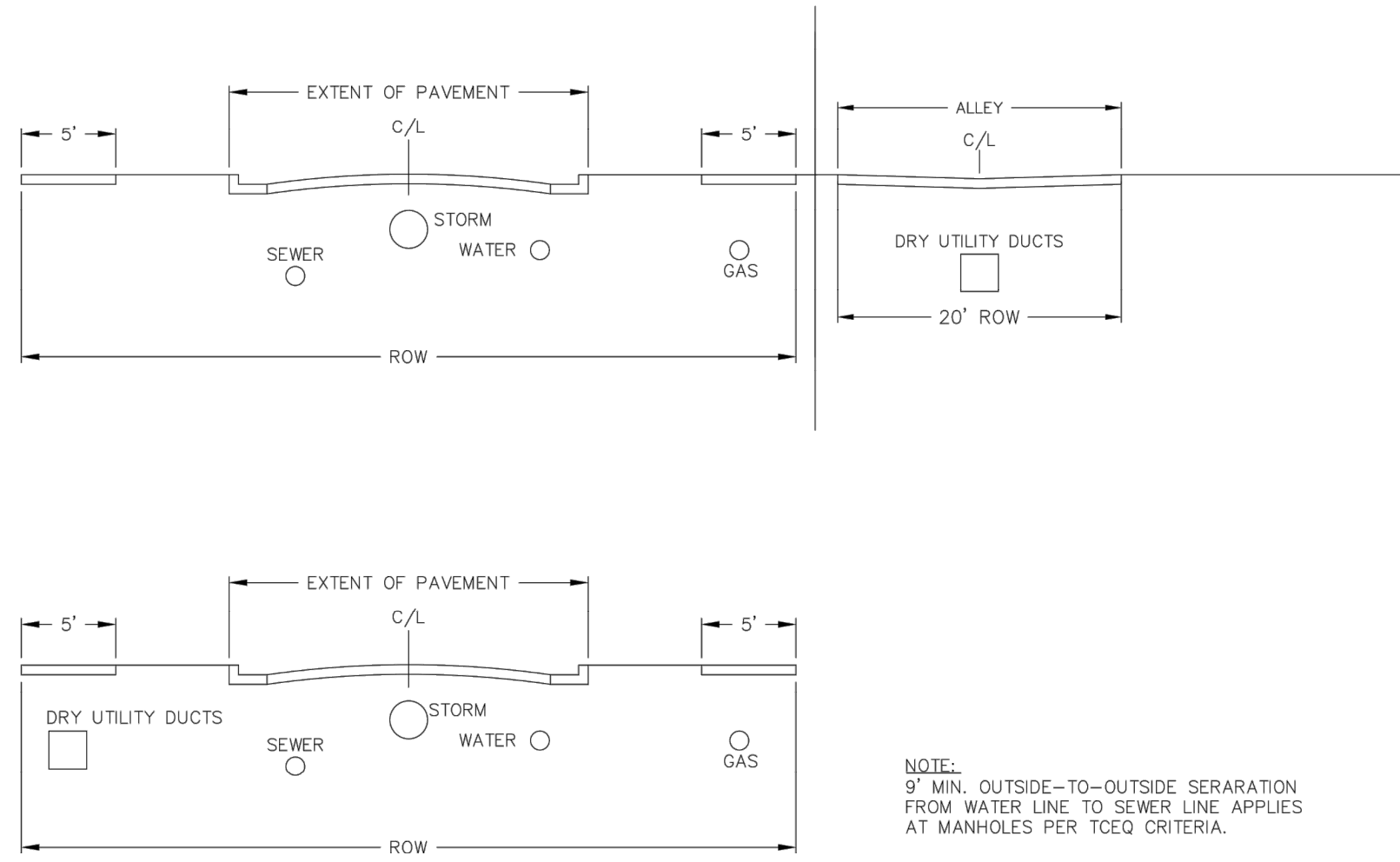


## STANDARD DETAILS

### WASTEWATER DETAILS

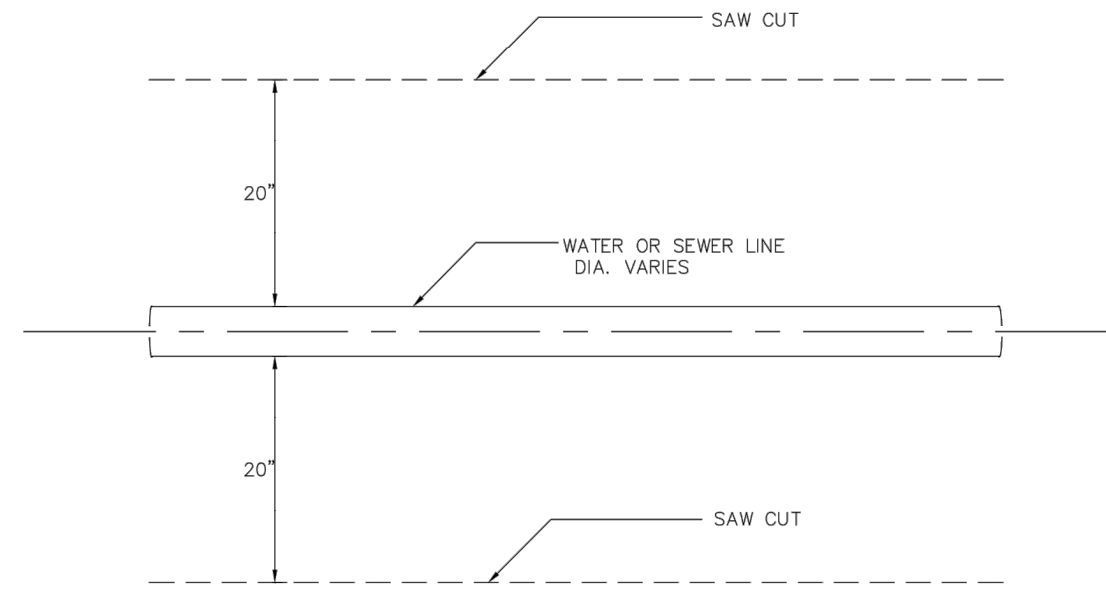
DATE JAN. 2023	SCALE HOR 1"= N.T.S. VER 1"= N/A	CERTIFICATION: THIS CITY OF DENTON STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS HEREON, AND WHO CERTIFIES THE CONTENT OF THE DETAILS AND NOTES HEREIN HAVE NOT BEEN ALTERED AND ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THE STANDARDS WITHIN THIS SHEET.
SHEET No. 5 OF 24		





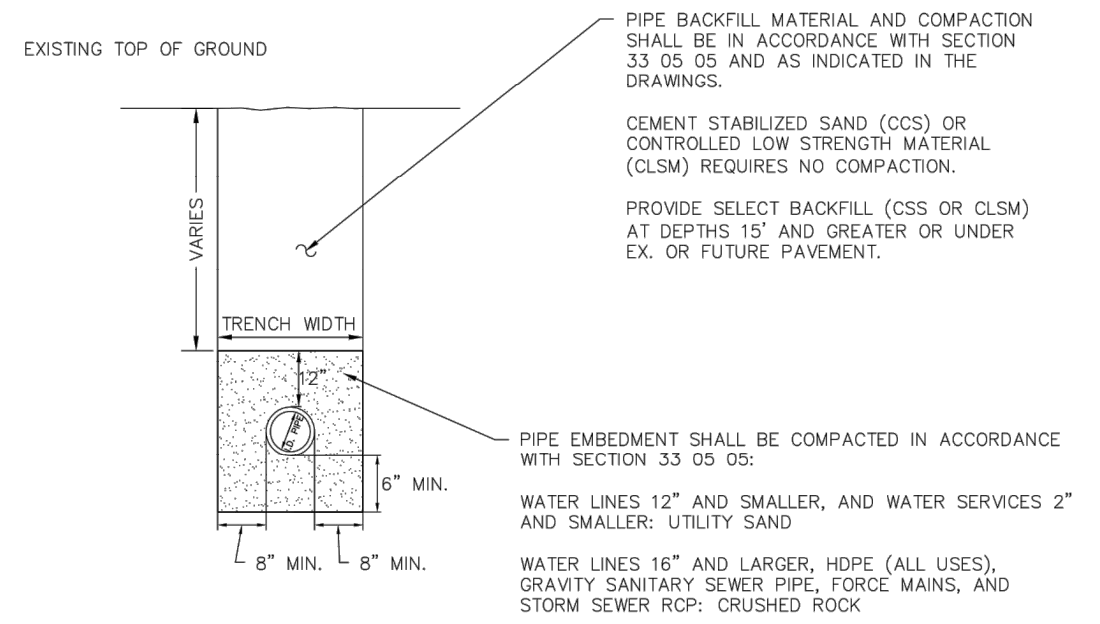
TYPICAL UTILITY PLACEMENTS

U101



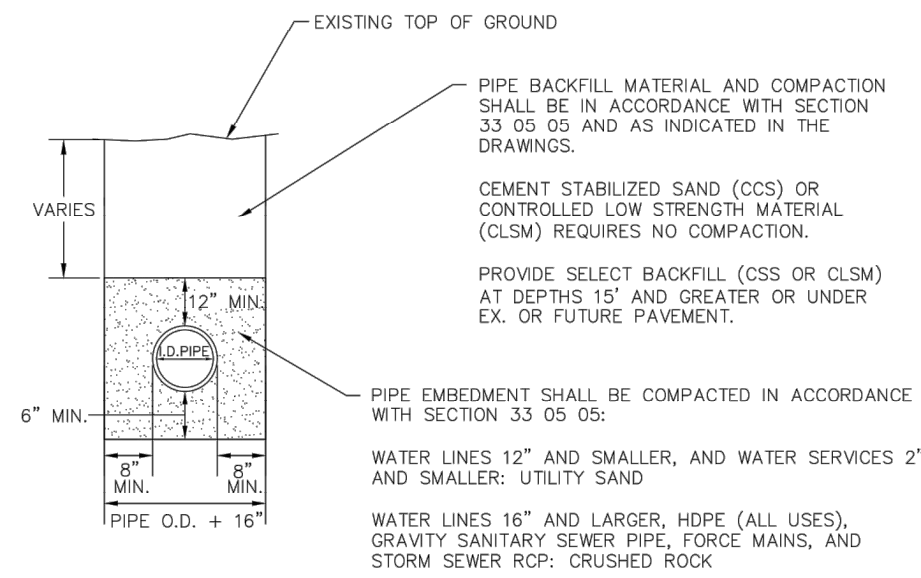
TYPICAL SAW-CUT

U102



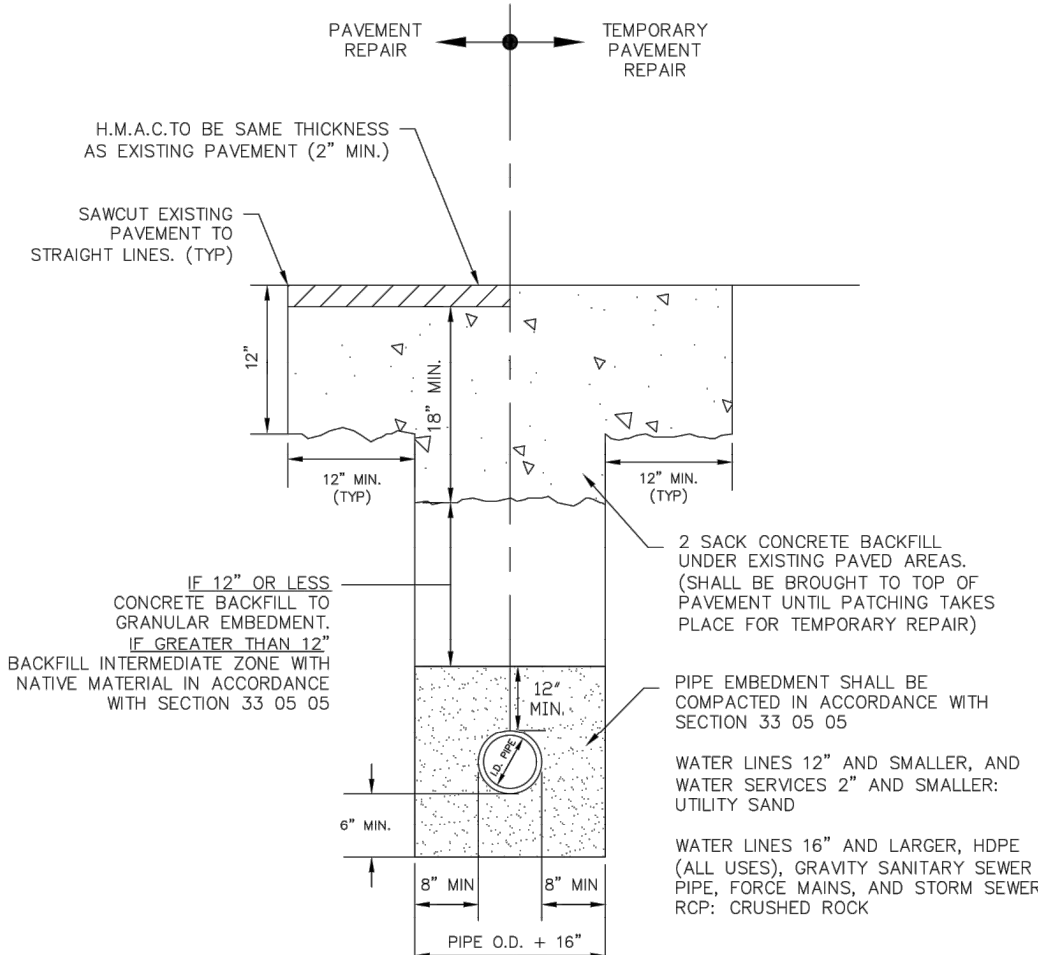
PROPOSED PAVEMENT TRENCH

U201



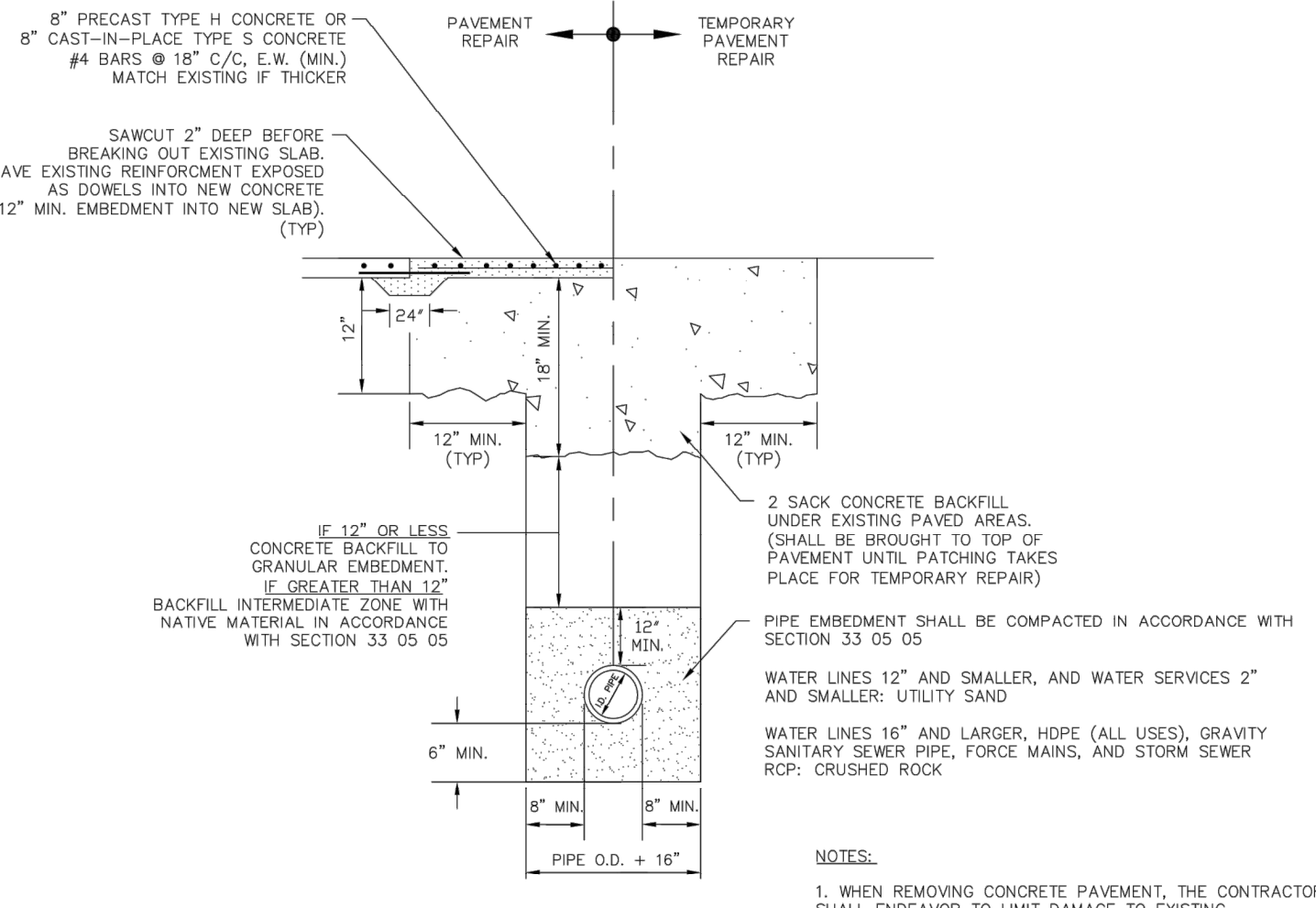
UNPAVED TRENCH

U202



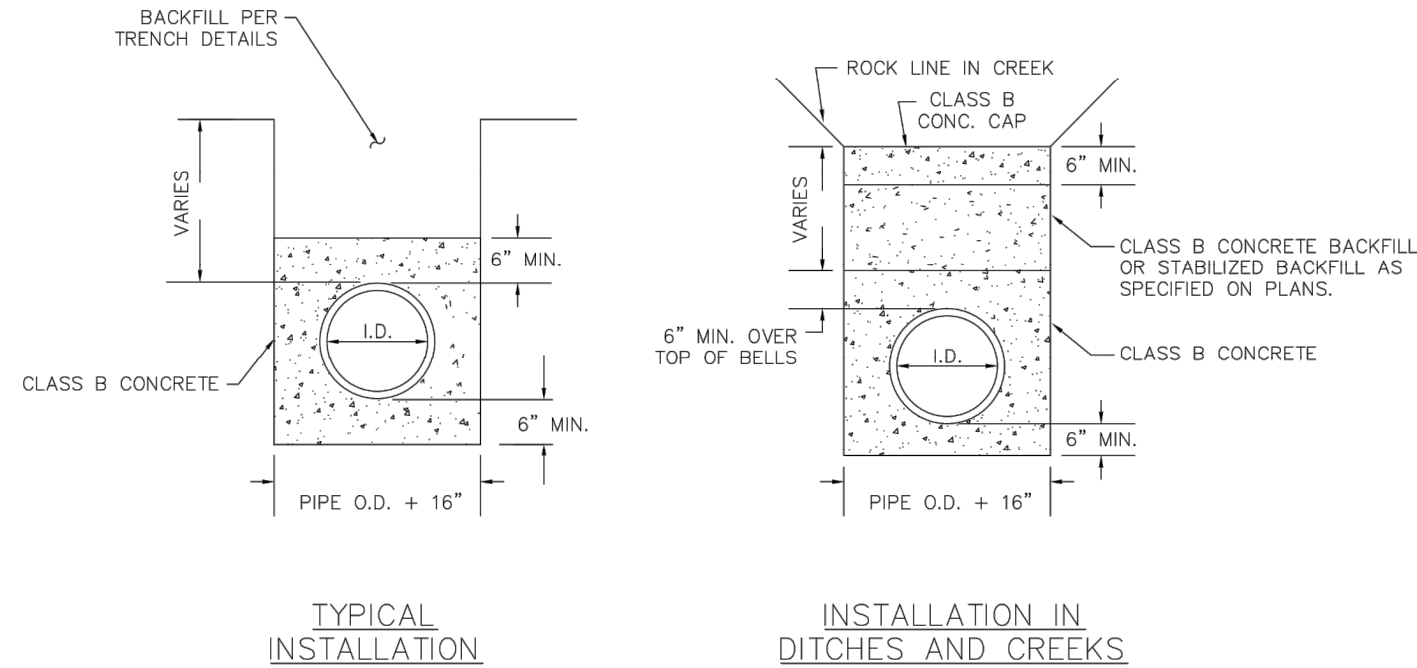
EXISTING PAVEMENT TRENCH AND REPAIR  
ASPHALT

U203A



EXISTING PAVEMENT TRENCH AND REPAIR  
CONCRETE

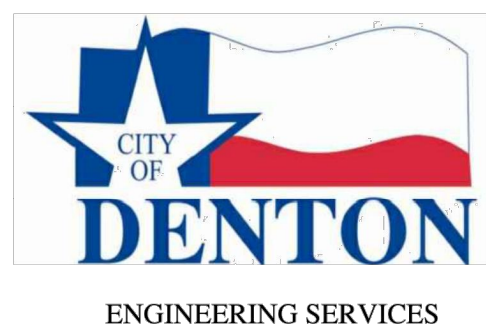
U203C



CONCRETE ENCASEMENT FOR UTILITY LINES

U204

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DESIGNED BY	DATE	REVISION
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## STANDARD DETAILS

WATER/WASTEWATER SHARED DETAILS

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JAN. 2023

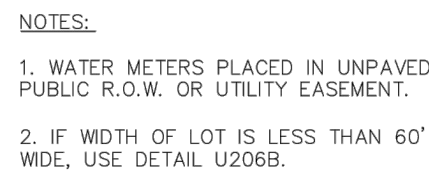
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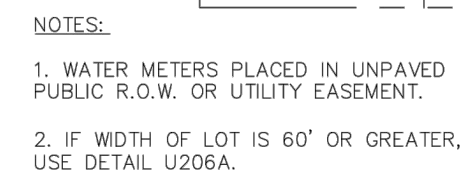
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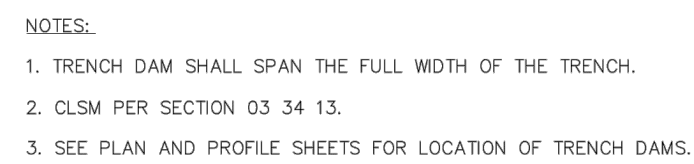




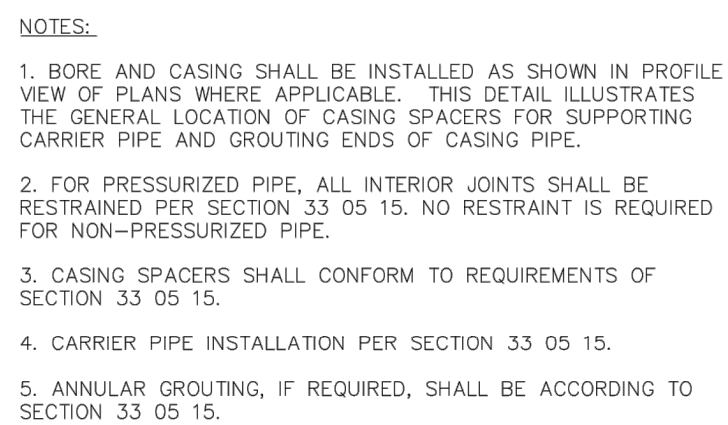
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U206B




U207



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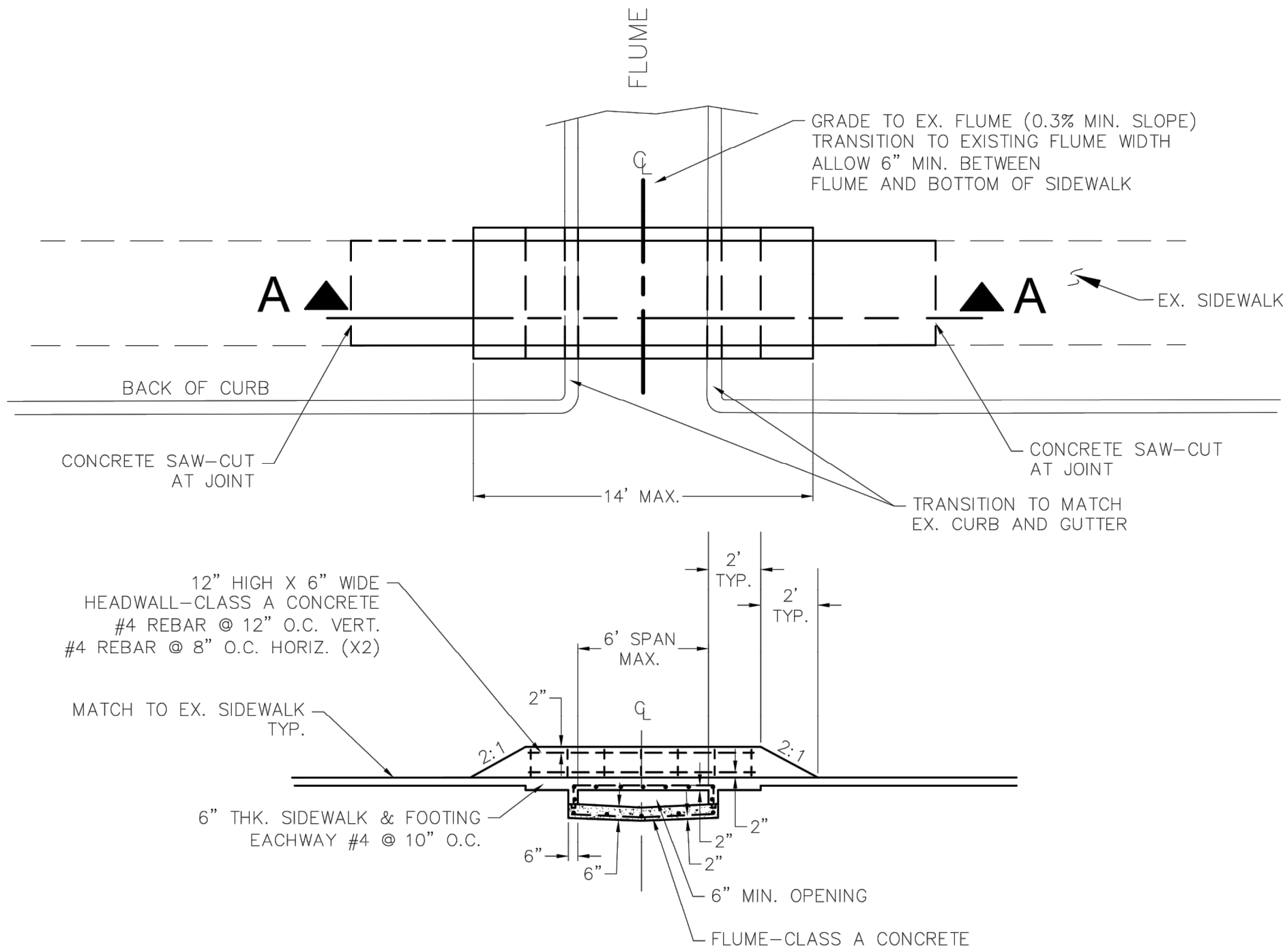
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**CITY OF  
DENTON**  
ENGINEERING SERVICES

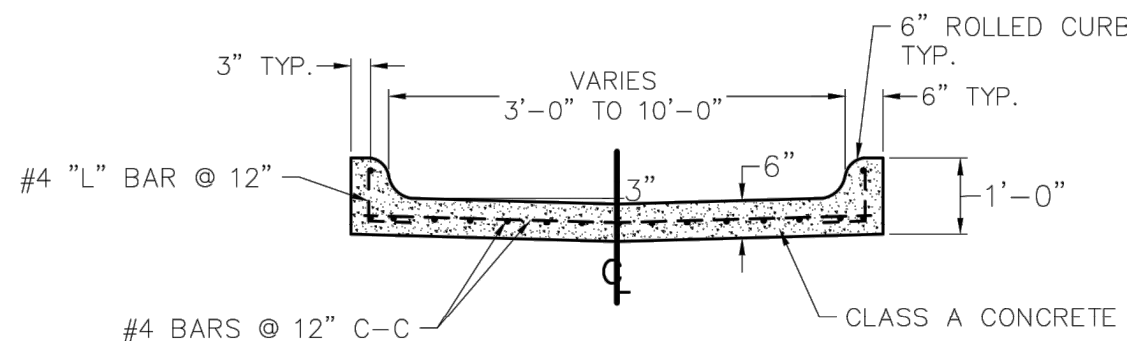
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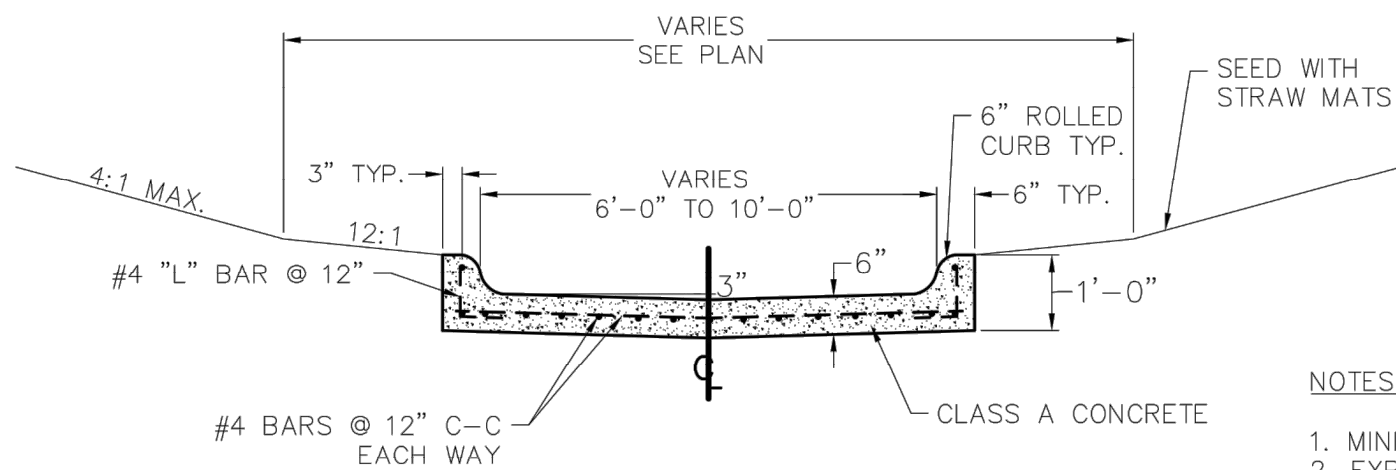
**A-A**  
**SIDEWALK SPANNING FLUME**

D101



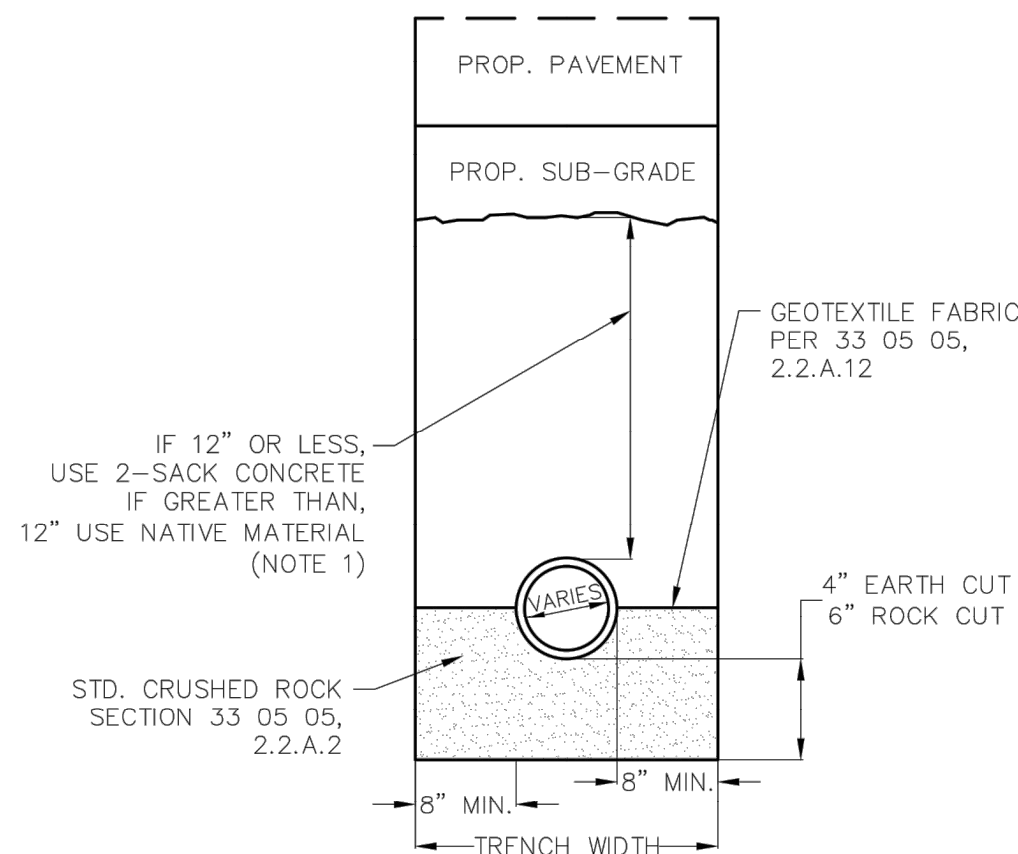
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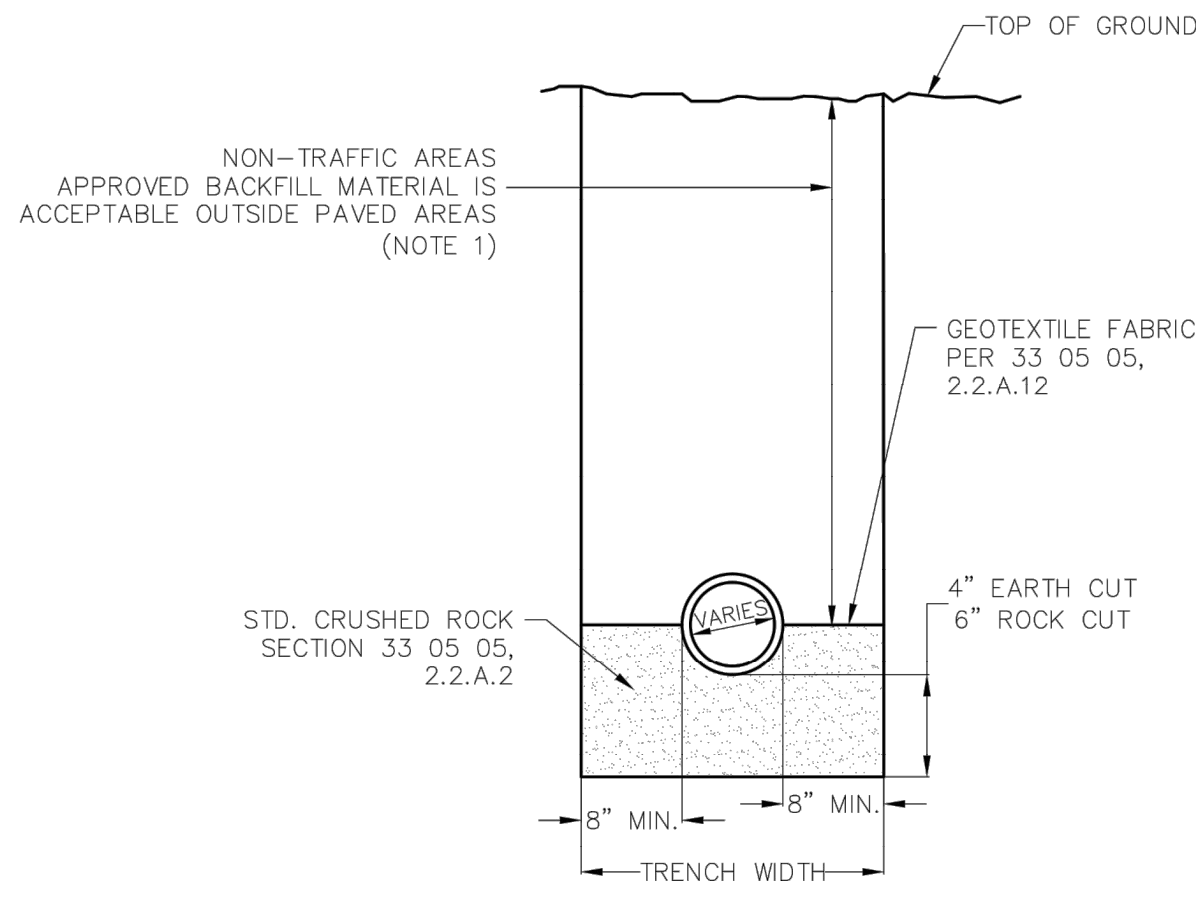
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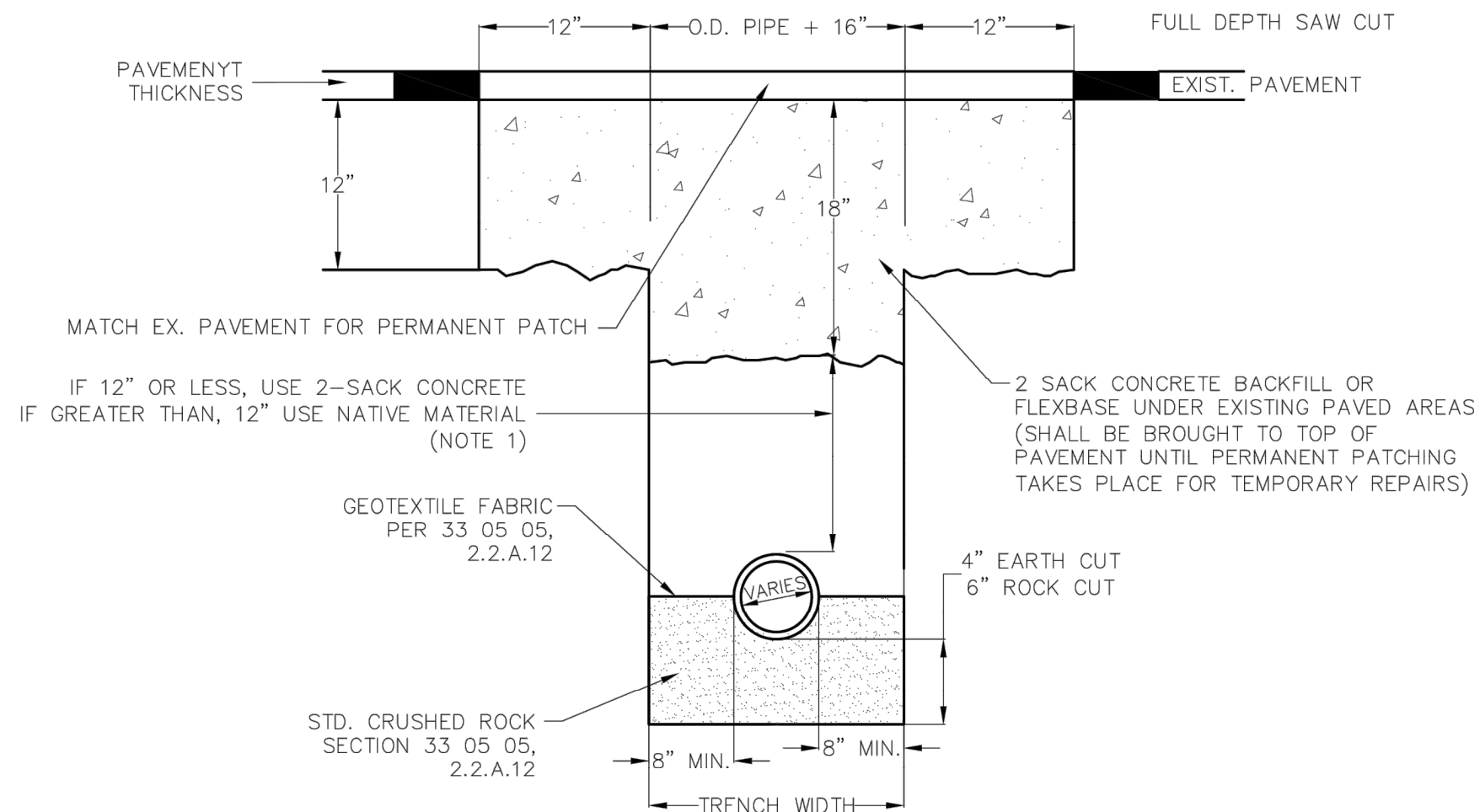
**PROPOSED PAVEMENT  
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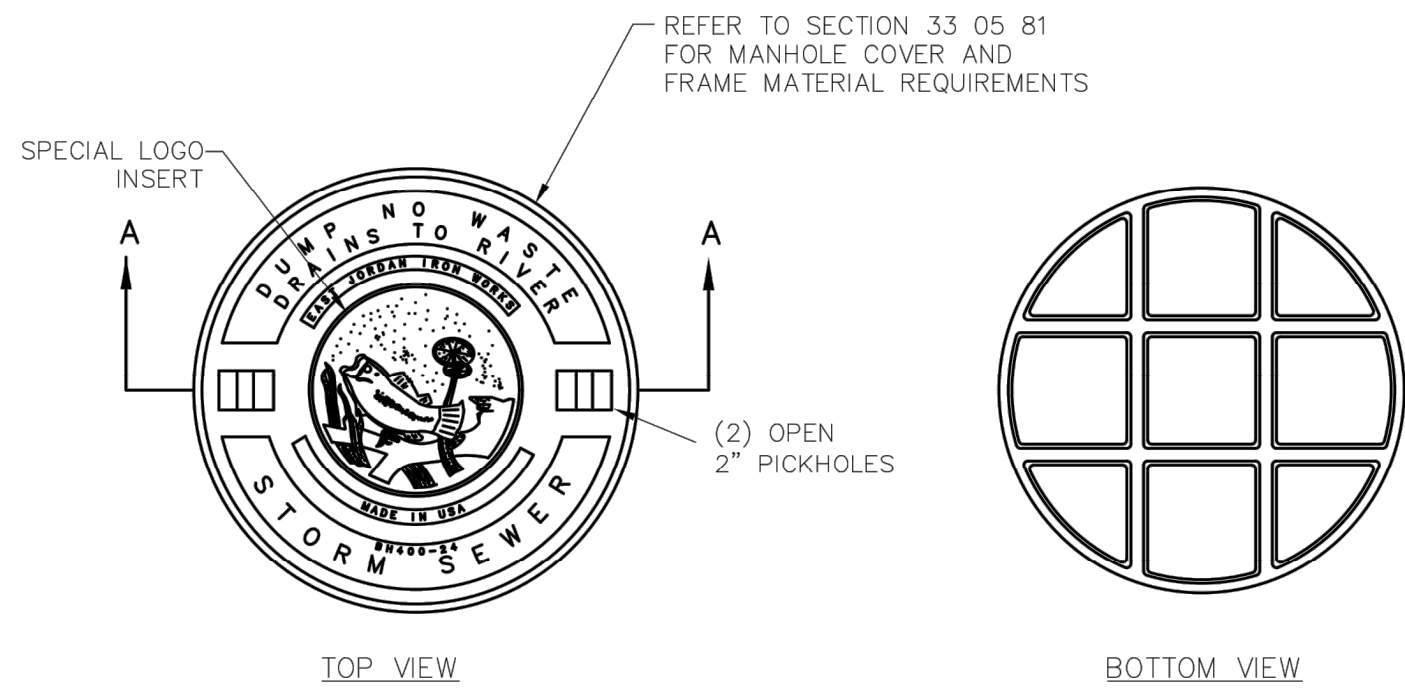
**UNPAVED  
STORM DRAIN BACKFILL**

D202



**EXISTING PAVEMENT  
STORM DRAIN BACKFILL**

D203



**SECTION A-A**

**M.H. RING DETAIL**

**STACK DETAIL**

**JUNCTION BOX, MANHOLE AND INLET COVER**

D106

**GENERAL NOTES:**

1. COMPACT BACKFILL MATERIAL IN ACCORDANCE WITH SECTION 33 05 05.
2. HEAVY DUTY MANHOLE COVERS ON JUNCTION BOXES AND MANHOLES ARE REQUIRED IN ALL VEHICLE TRAFFIC AREAS.
3. PIPES SHALL BE RCP CLASS III WITH 2' OR GREATER COVER, RCP CLASS IV WITH 1' TO 2' COVER AND RCP CLASS V WITH LESS THAN 1' COVER. SEE TABLE 1 SECTION 33 42 11.

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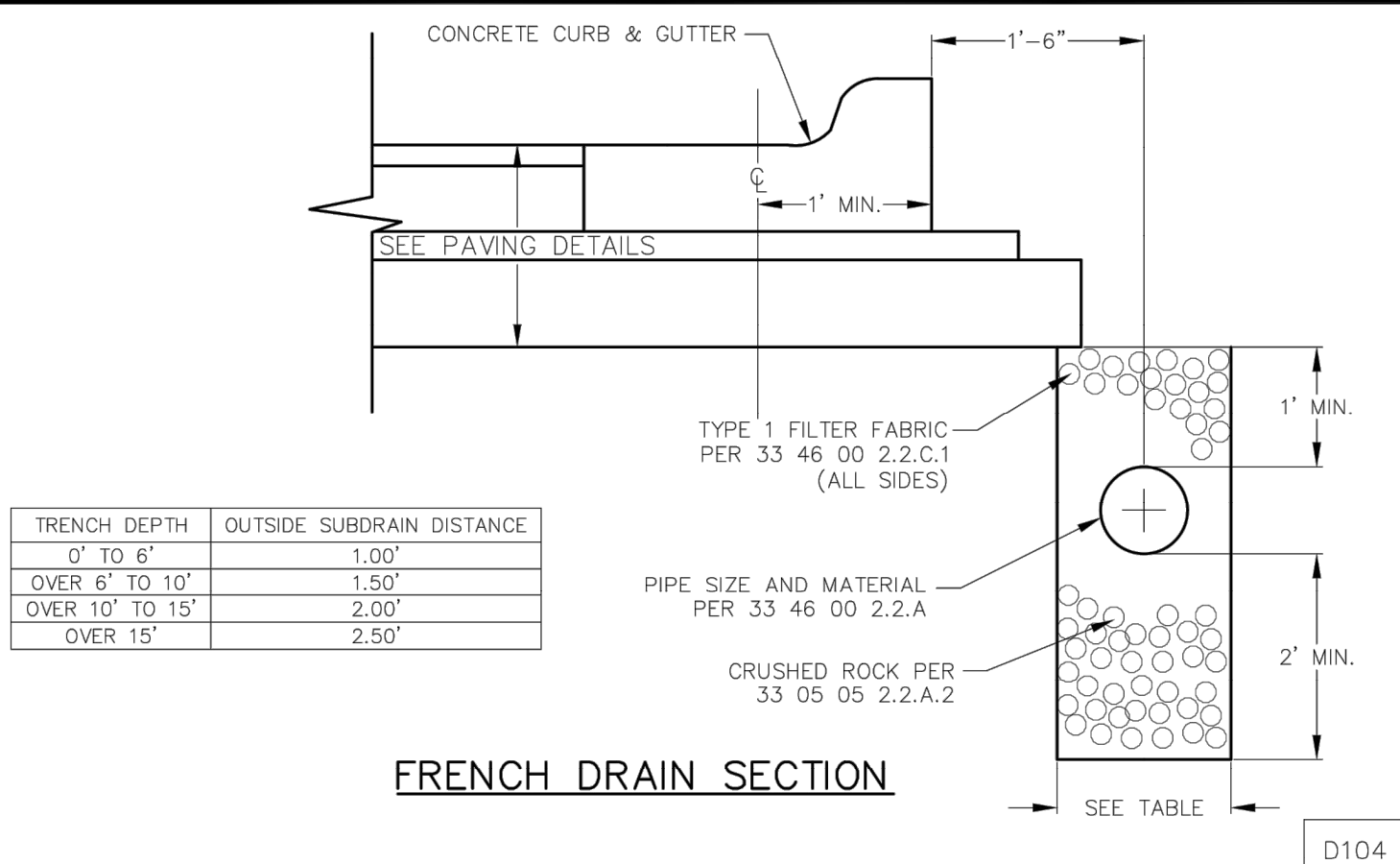
**STANDARD DETAILS**  
**STORM DRAINAGE DETAILS**

DATE  
JAN. 2023  
  
SHEET No.  
9 OF 24

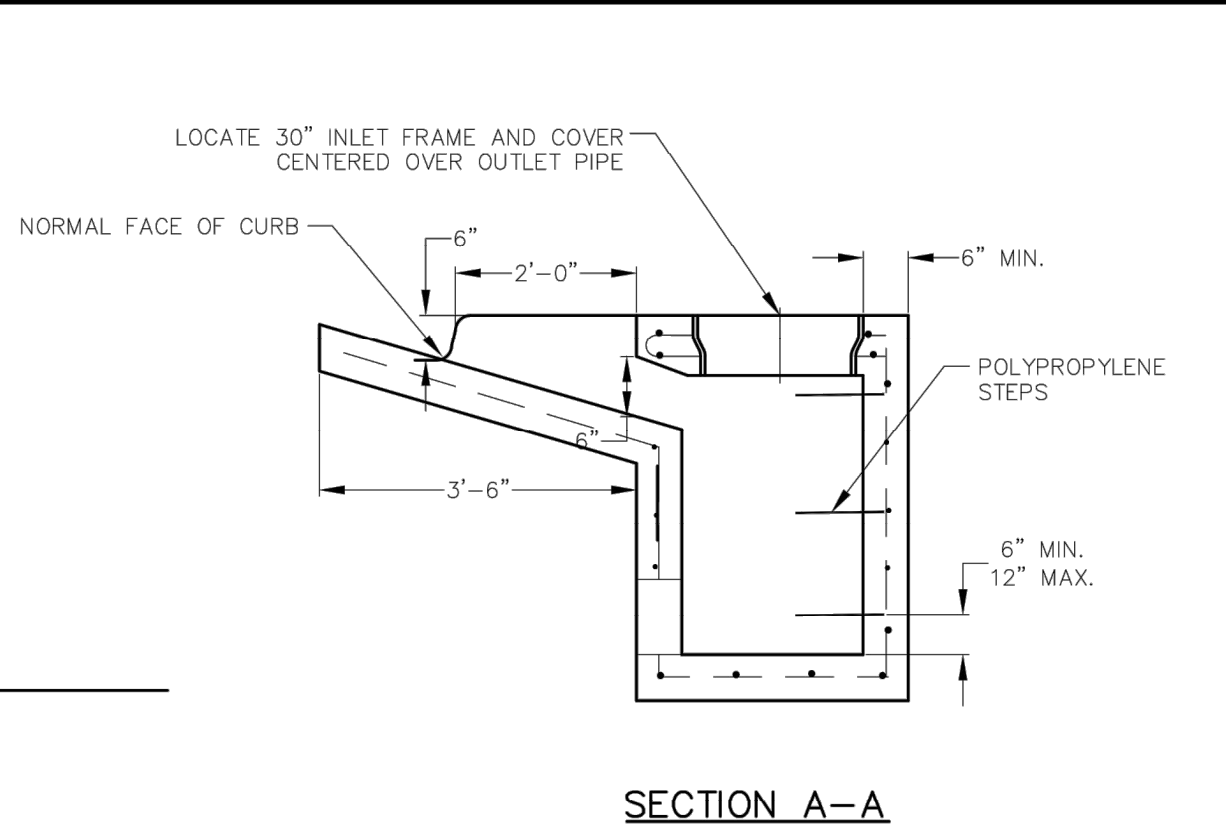
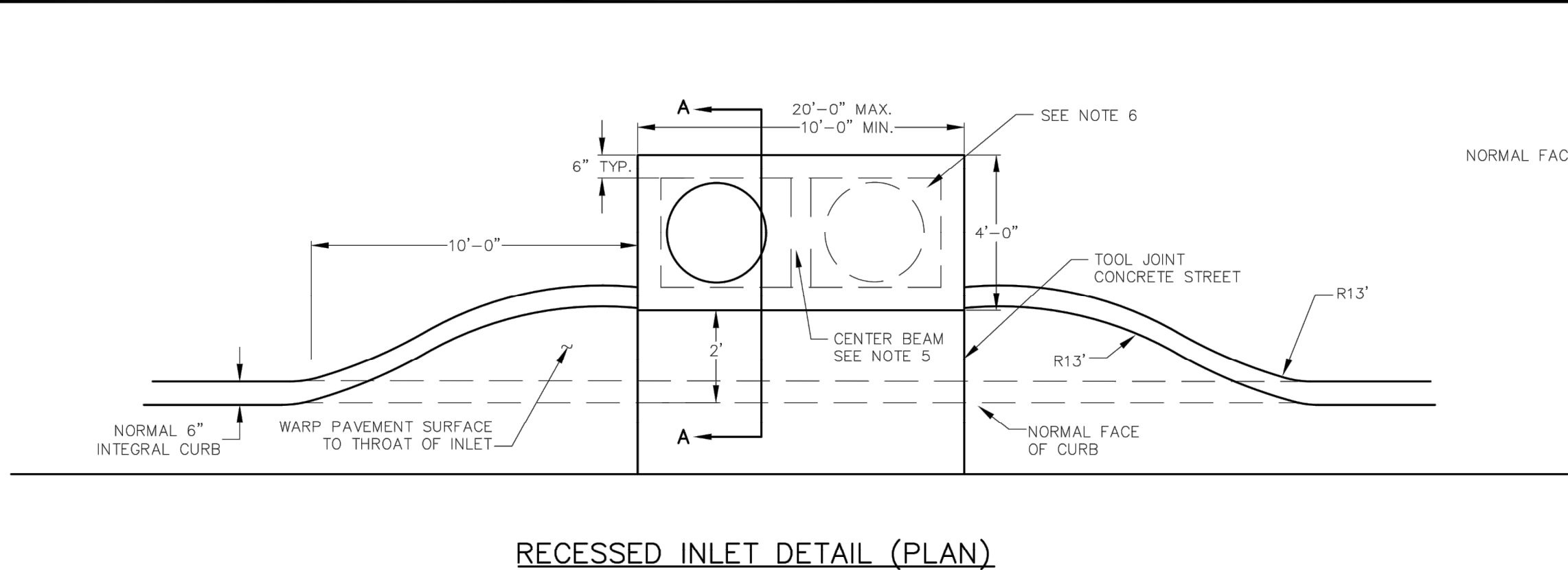
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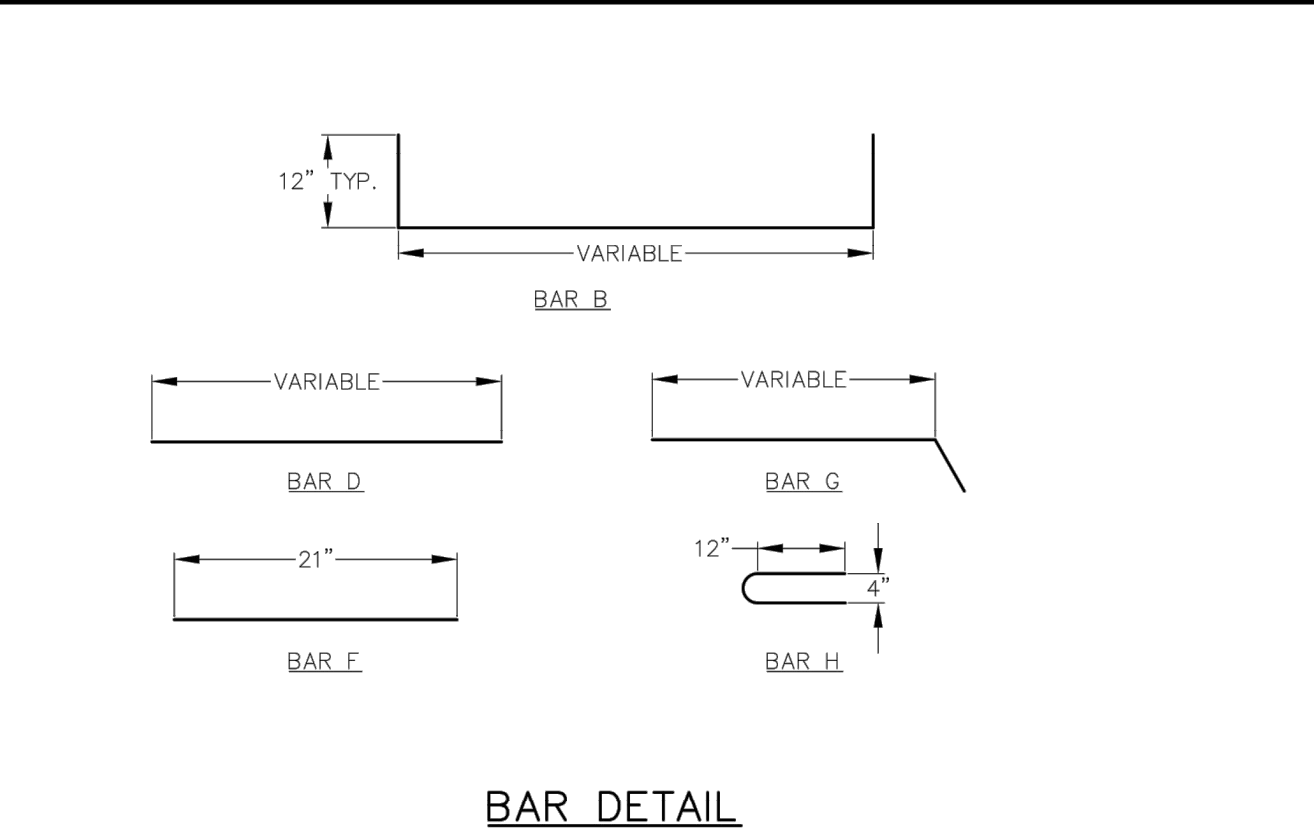




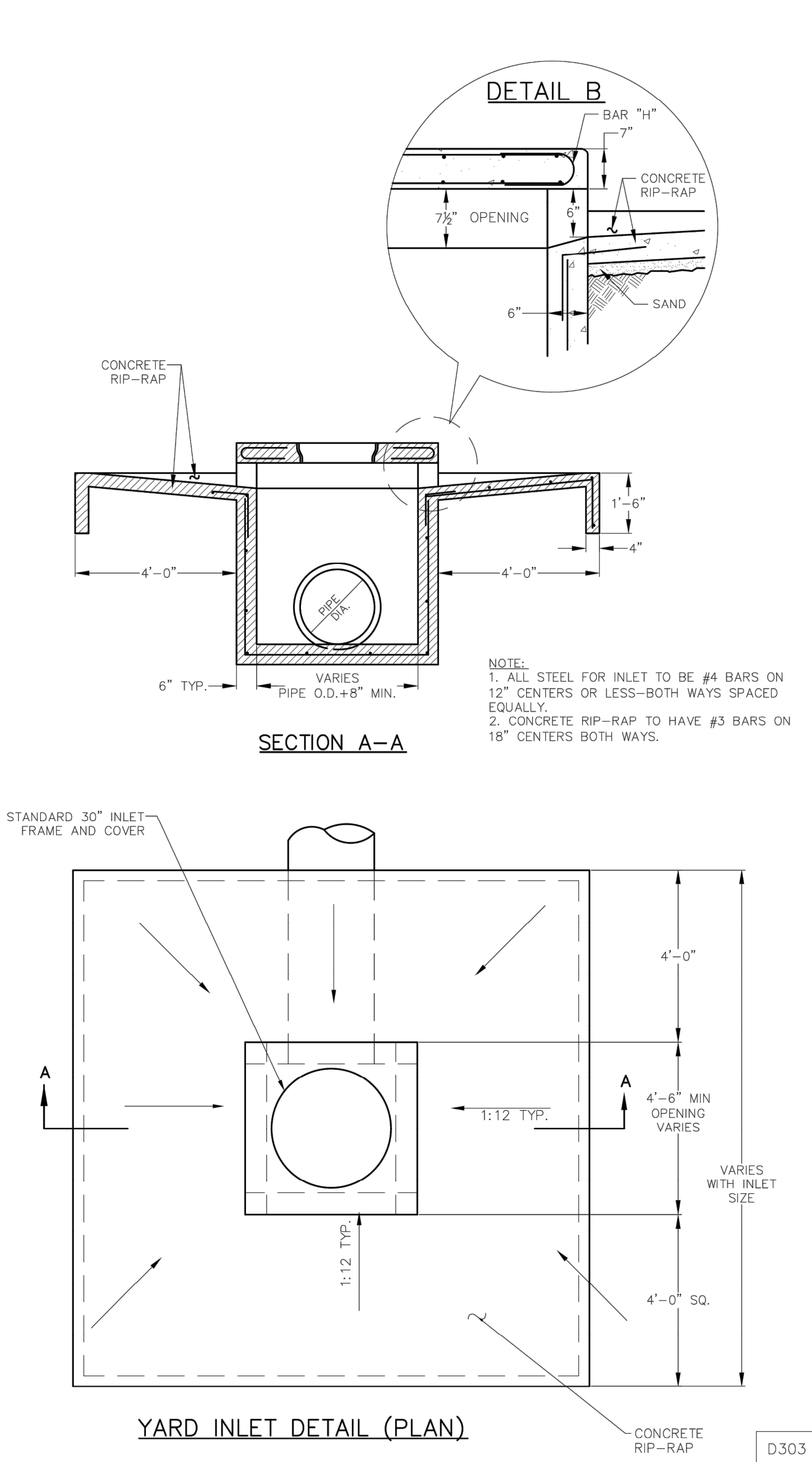
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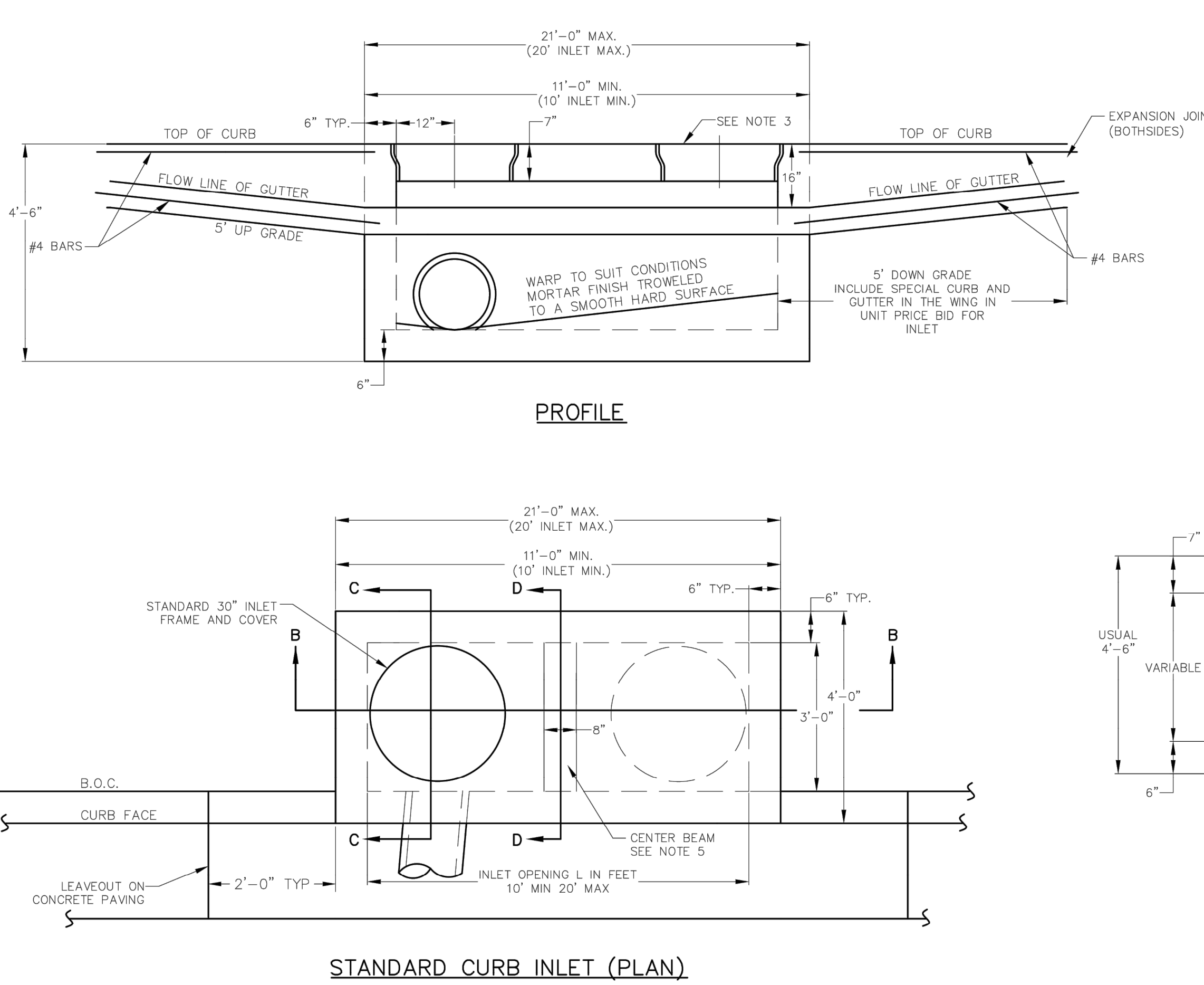
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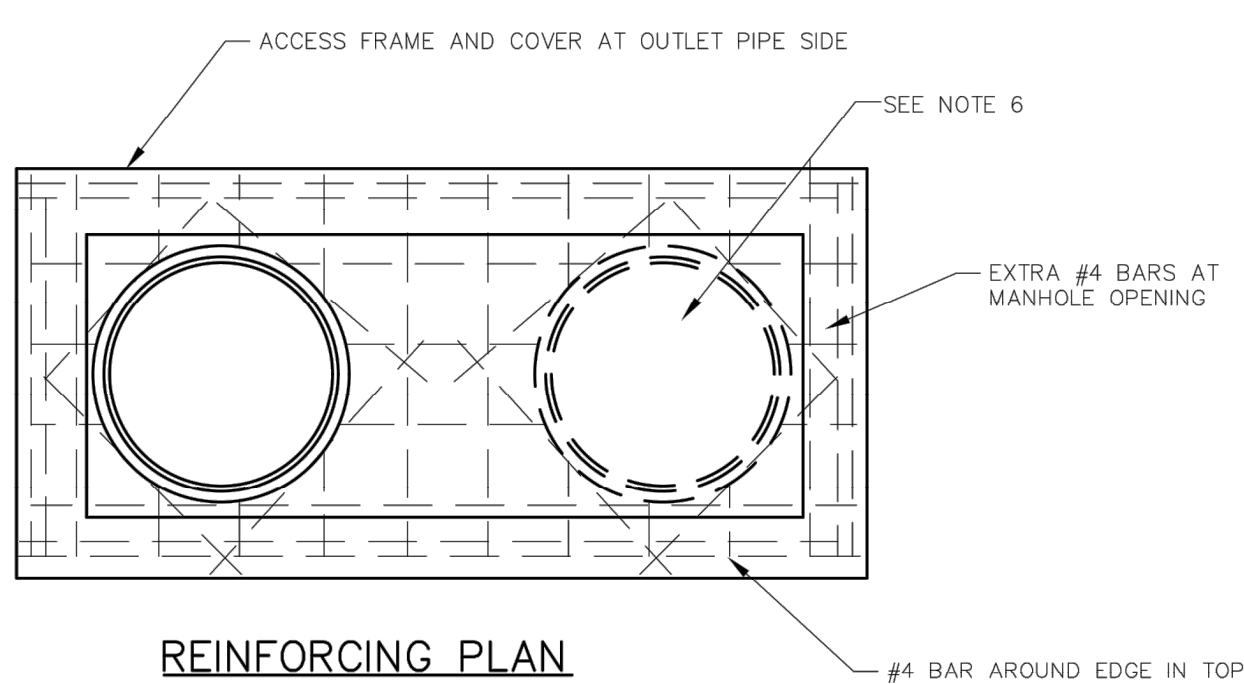
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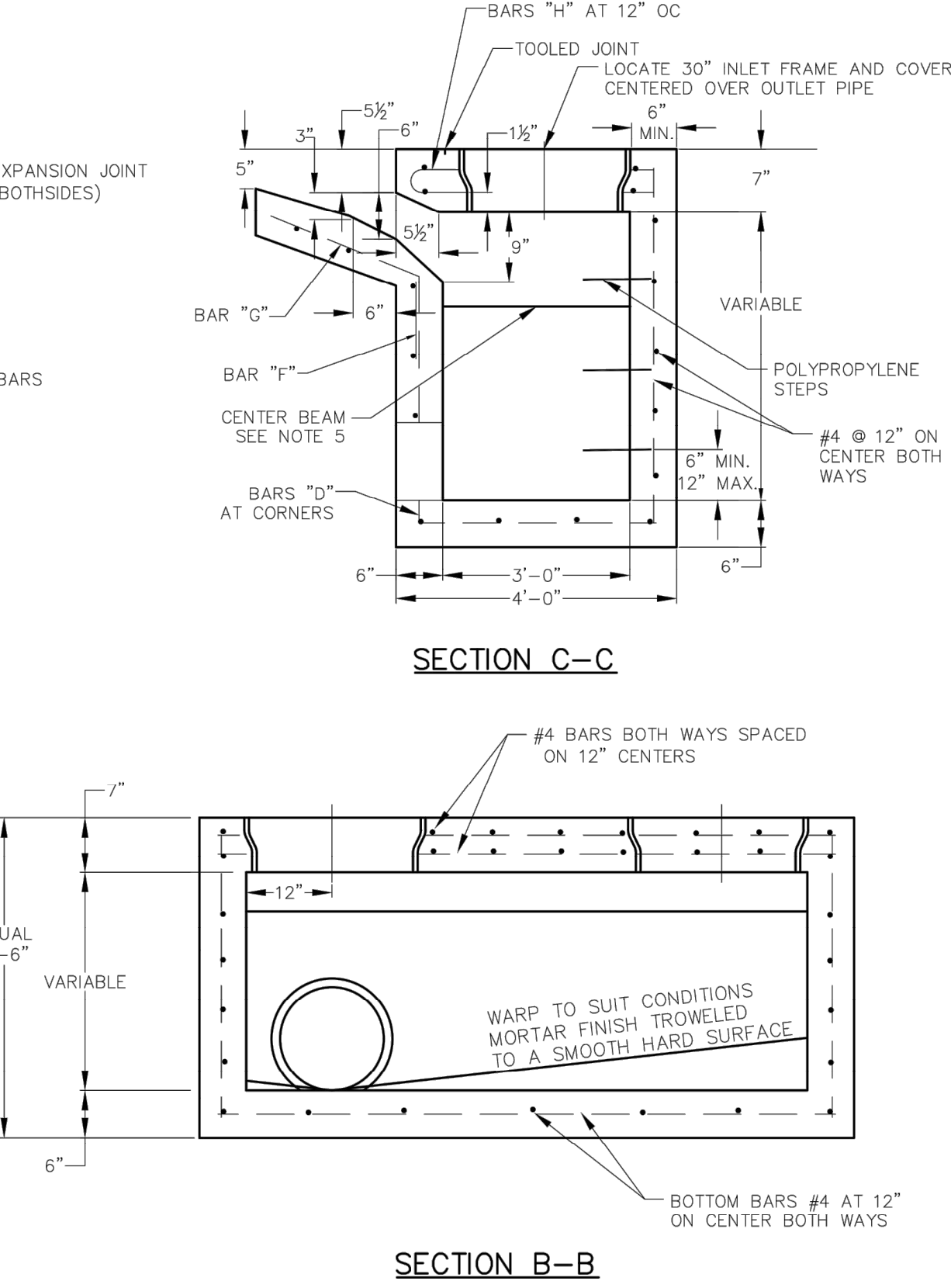
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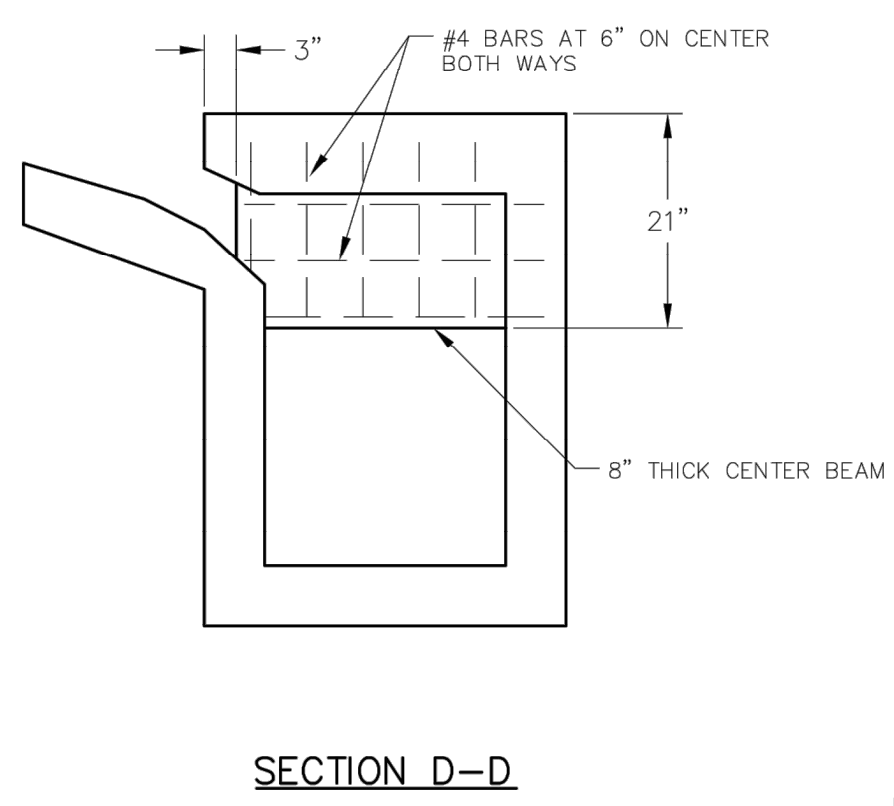
STANDARD CURB INLET (PLAN)



REINFORCING PLAN

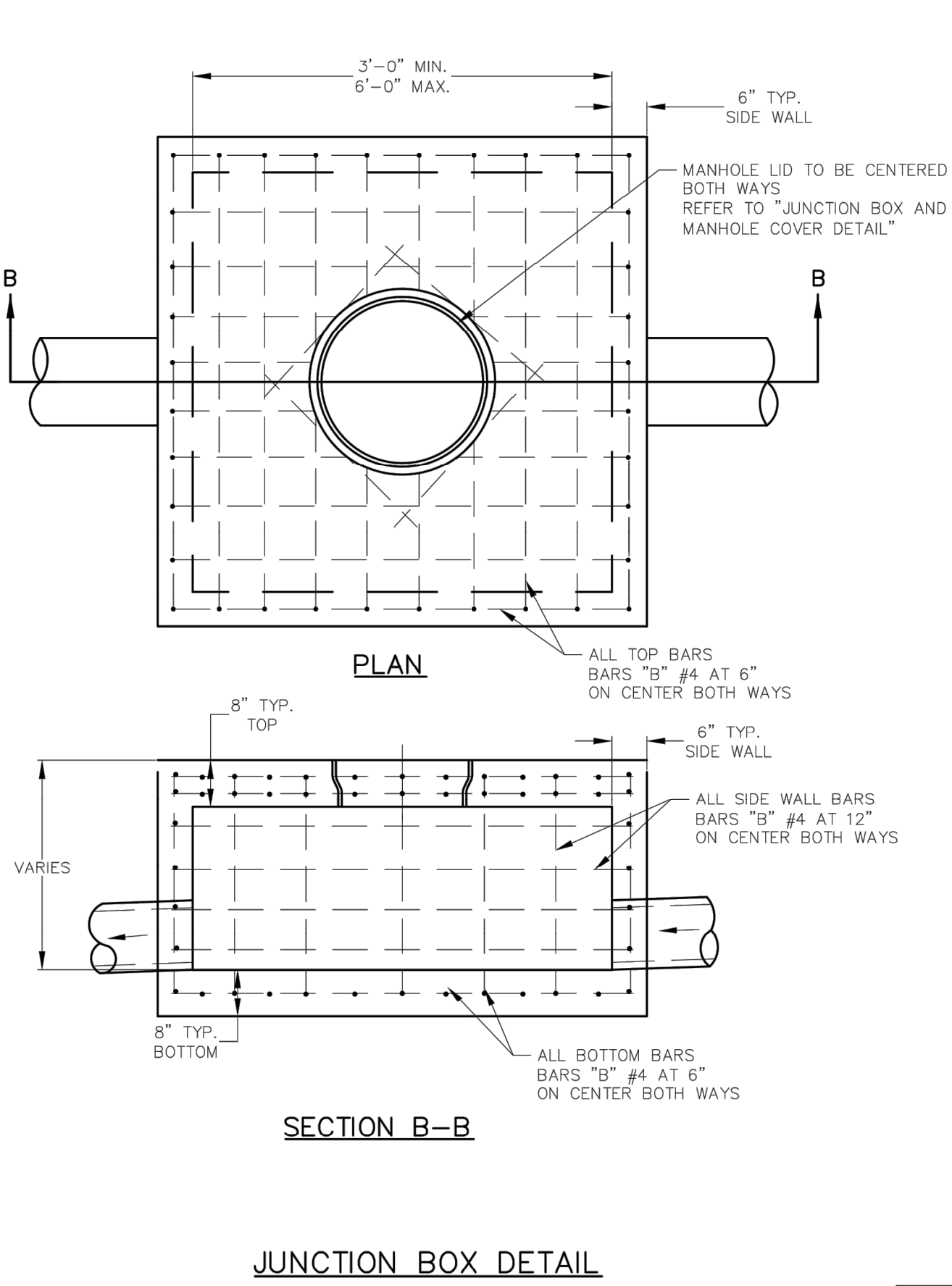


SECTION B-B



SECTION D-D

D302



SECTION B-B

JUNCTION BOX DETAIL

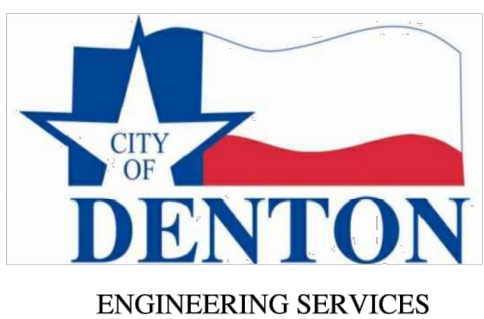
D304

GENERAL NOTES:

1. ALL STEEL REINFORCING BARS TO BE BAR D GRADE 60 #4 STEEL BARS ON 12" CENTER WHERE NOT SPECIFIED ON THE DETAIL.
2. ALL EXPOSED EDGES TO BE CHAMFERED  $\frac{3}{4}$ ".
3. TOOLED JOINT 6" FROM FACE OF INLET OPENING.
4. PROVIDE MINIMUM 2" CONCRETE COVER MEASURED FROM CENTER OF REINFORCEMENT.
5. ALL INLETS SHALL HAVE A CENTER BEAM POSITIONED AT THE MIDPOINT OF THE INLET.
6. INLETS OVER 10 FEET OPENING IN LENGTH SHALL HAVE TWO ACCESS COVERS.
7. ALL INLETS SHALL HAVE AT LEAST ONE FRAME AND COVER CENTERED OVER OUTLET PIPE.
8. ALL CAST IN PLACE CONCRETE SHALL BE CLASS S TABLE 2 03 00 00 AND ALL PRE-CAST CONCRETE SHALL BE CLASS H PER 33 42 33, 2.2.B
9. POLYPROPYLENE STEPS SHALL BE 12" WIDE AND 12" MAX. BETWEEN STEPS PER 33 42 33, 2.2.E.1 AND 3.4.D.
- CAST-IN-PLACE: CAST STEPS INTO INLET WALLS
- PRECAST: DRILL AND EPOXY OR GROUT STEPS INTO PLACE IN ACCORDANCE WITH MANUFACTURE'S RECOMMENDATIONS

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# STANDARD DETAILS

## STORM DRAINAGE DETAILS

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JAN. 2023

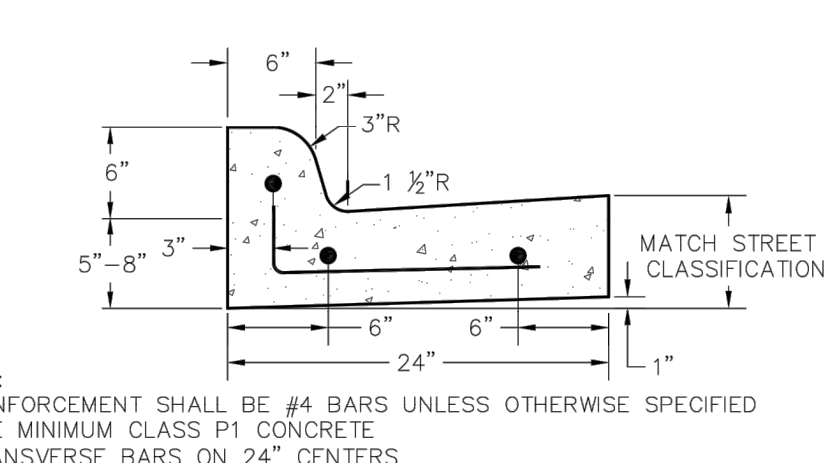
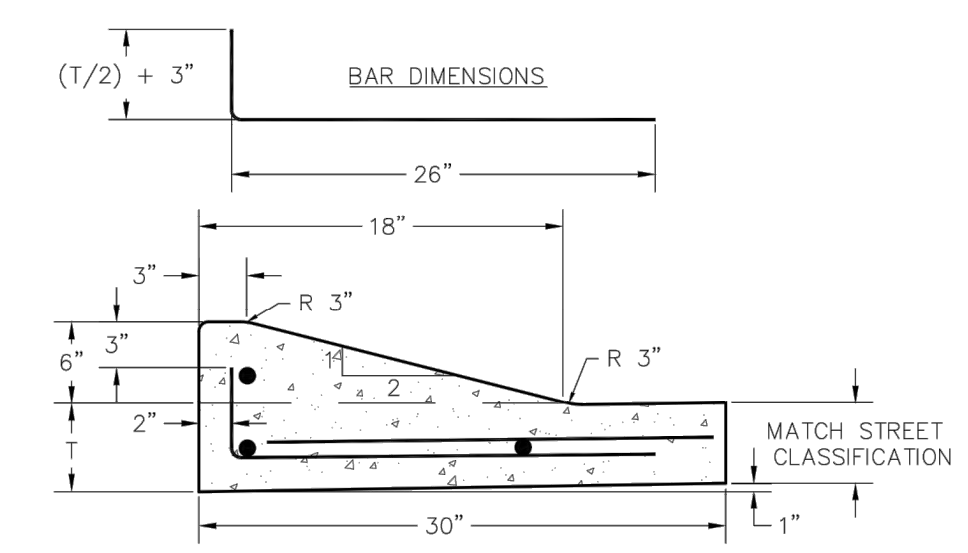
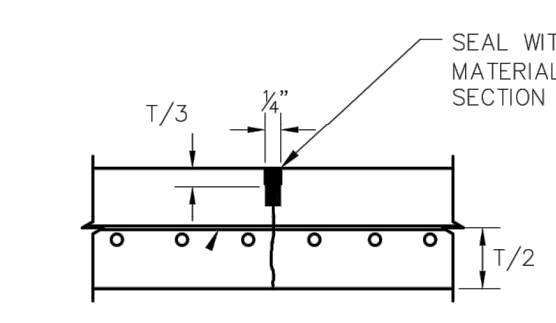
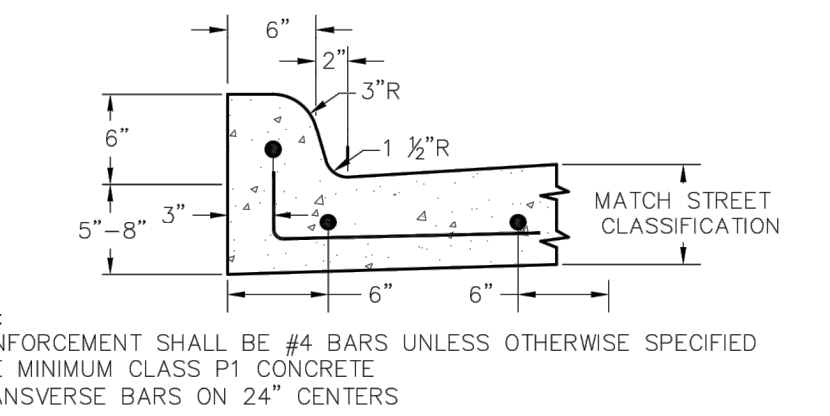
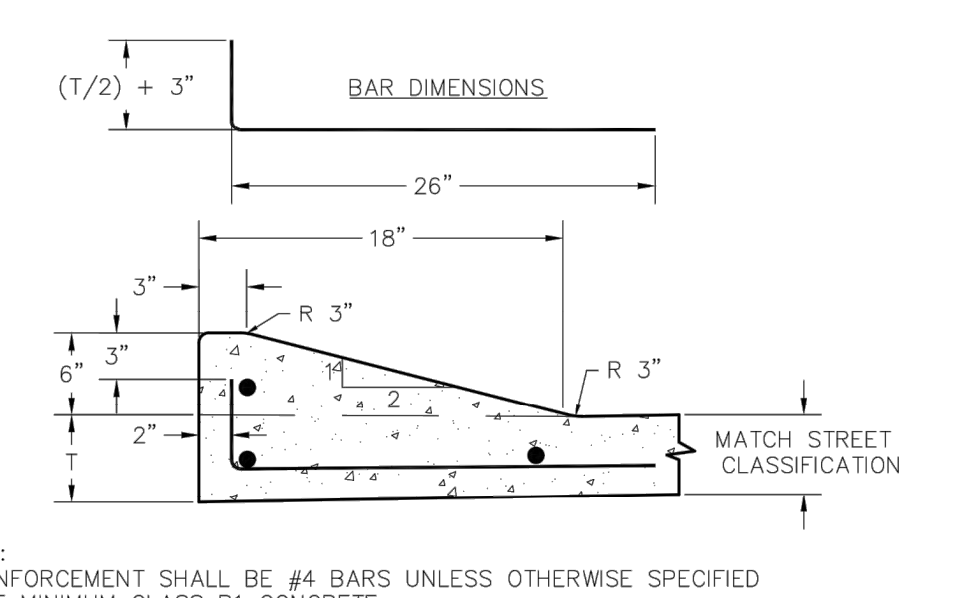
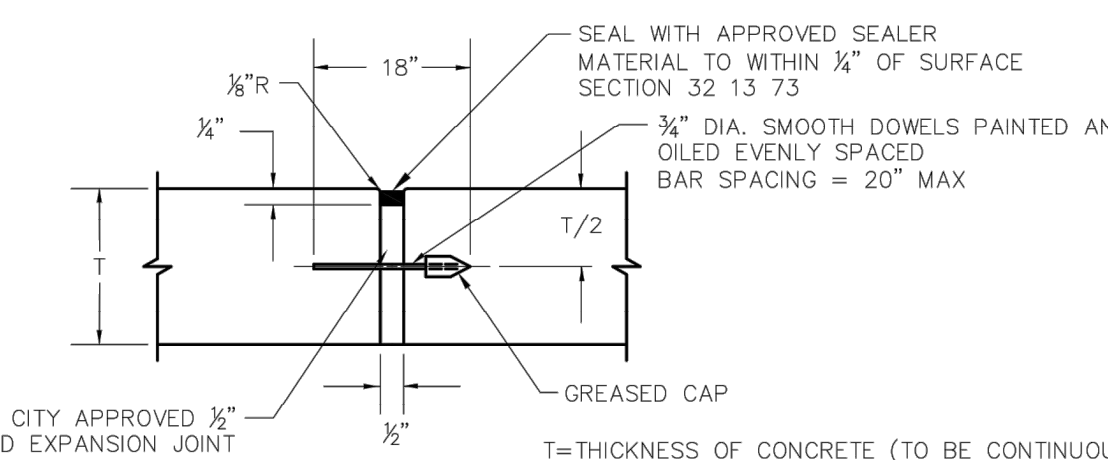
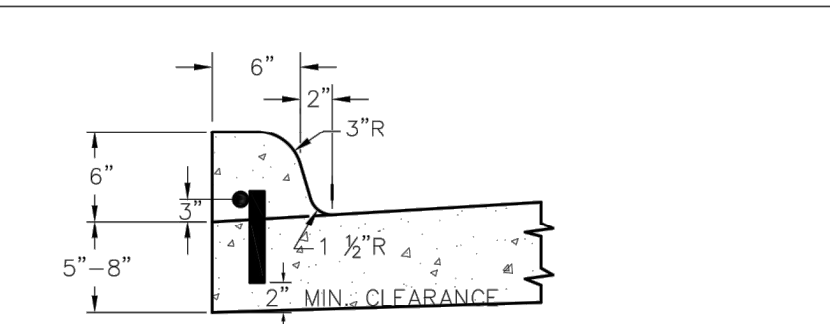
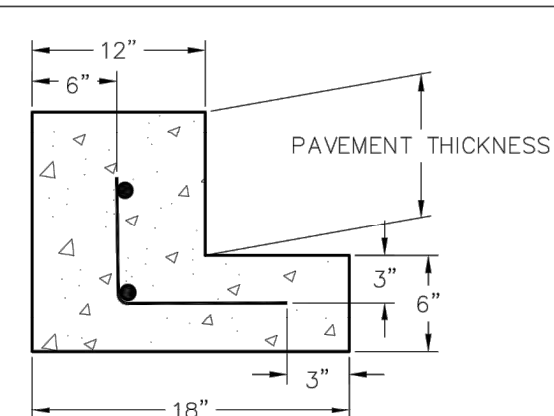
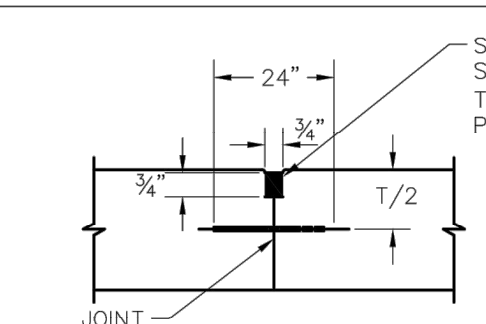
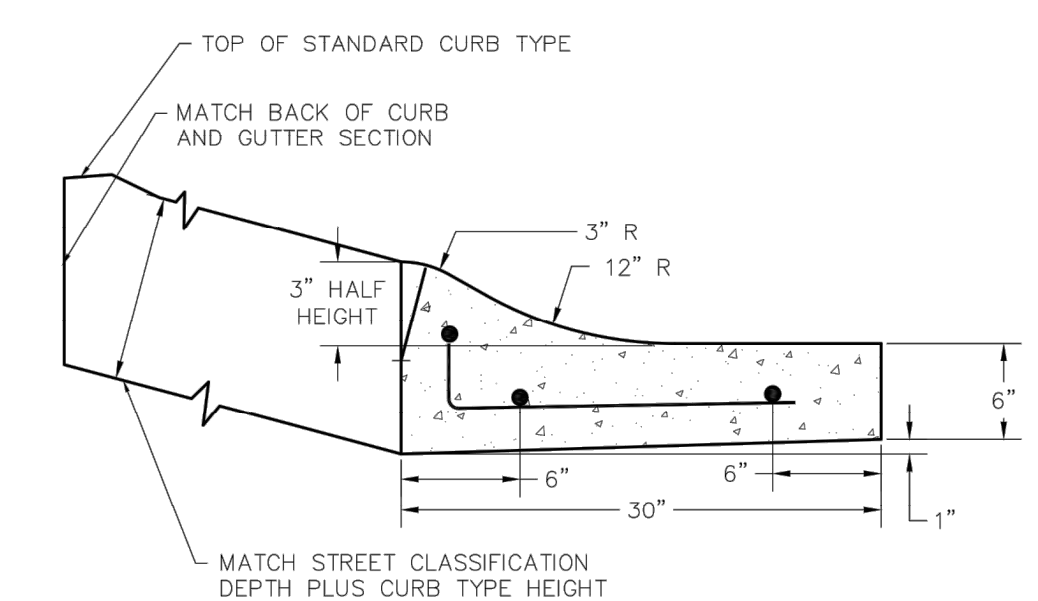
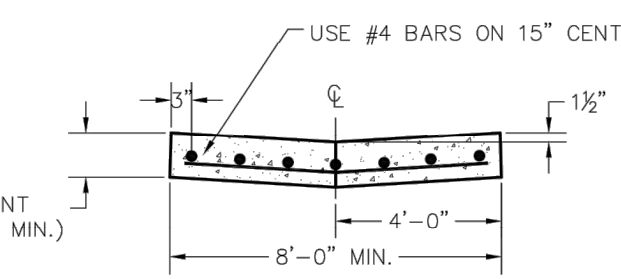
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 <p>NOTES: 1. REINFORCEMENT SHALL BE #4 BARS UNLESS OTHERWISE SPECIFIED 2. USE MINIMUM CLASS P1 CONCRETE 3. TRANSVERSE BARS ON 24" CENTERS</p>		<p>STANDARD CURB AND GUTTER SECTION WITH ASPHALT PAVING</p>	T201A	 <p>NOTES: 1. REINFORCEMENT SHALL BE #4 BARS UNLESS OTHERWISE SPECIFIED 2. USE MINIMUM CLASS P1 CONCRETE 3. TRANSVERSE BARS ON 24" CENTERS</p>		<p>SURMOUNTABLE CURB AND GUTTER SECTION WITH ASPHALT PAVING</p>	T204A	 <p>NOTE: 1. FOR PAVEMENT OUTSIDE AN INTERSECTION'S PC'S (a) TRANSVERSE/LATERAL SAWED JOINT SHALL BE PLACED EVERY 20' EXCEPT AT EXPANSION JOINT OR CONSTRUCTION JOINT (b) LONGITUDINAL SAWED JOINT SHALL BE PLACED AT CENTER OF PAVEMENT WHEN THERE IS NO CONSTRUCTION JOINT 2. FOR PAVEMENT INSIDE AN INTERSECTION'S PC'S, BOTH TRANSVERSE/LATERAL AS WELL AS LONGITUDINAL SAW JOINTS SHALL BE PLACED EVERY 20' OR AT AN AVERAGE AS CLOSE TO 20' AS REASONABLY POSSIBLE 3. SAW JOINT IS TO BE CONTINUOUS THROUGH CURB, WHERE APPLICABLE</p>		<p>SAWED JOINT FOR CONCRETE PAVEMENT</p>	T207	 <p>NOTES: 1. REINFORCEMENT SHALL BE #4 BARS UNLESS OTHERWISE SPECIFIED 2. USE MINIMUM CLASS P1 CONCRETE 3. TRANSVERSE BARS ON 24" CENTERS</p>		<p>STANDARD MONOLITHIC CURB AND GUTTER SECTION WITH CONCRETE PAVING</p>	T201C	 <p>NOTES: 1. REINFORCEMENT SHALL BE #4 BARS UNLESS OTHERWISE SPECIFIED 2. USE MINIMUM CLASS P1 CONCRETE 3. TRANSVERSE BARS ON 24" CENTERS</p>		<p>SURMOUNTABLE MONOLITHIC CURB AND GUTTER SECTION WITH CONCRETE PAVING</p>	T204C	 <p>NOTE: 1. TO BE PLACED AT THE PC'S OF AN INTERSECTION AND THEN EVERY 200' MAXIMUM THEREAFTER AWAY FROM THE INTERSECTION (EXCEPT AS NOTED) 2. IF THE LAST PROPOSED EXPANSION JOINT PRIOR TO THE NEXT INTERSECTION'S PC'S EXPANSION JOINT IS LESS THAN 50', THEN NO EXPANSION JOINT (THE LAST PANEL WILL BE GREATER THAN 200' BUT LESS THAN 250') 3. IF THE LAST PROPOSED EXPANSION JOINT PRIOR TO THE NEXT INTERSECTION'S PC'S EXPANSION JOINT IS 50' OR GREATER BUT LESS THAN 200', THEN PLACE THE LAST EXPANSION JOINT SUCH THAT EACH CONCRETE PANEL (ON EACH SIDE OF SAID EXPANSION JOINT) ARE EQUAL TO EACH OTHER (AND EACH IS LESS THAN 200')</p>		<p>EXPANSION JOINT FOR CONCRETE PAVEMENT</p>	T208	 <p>NOTES: 1. REINFORCEMENT SHALL BE #4 BARS UNLESS OTHERWISE SPECIFIED 2. VERTICAL DOWEL BARS SHALL BE 6" LONG ON 24" CENTERS 3. USE MINIMUM CLASS P1 CONCRETE 4. WHEN ATTACHING NEW CURB TO EXISTING CONCRETE, DRILL 3/4" DIA. HOLES INTO EXISTING CONCRETE. BLOW HOLES CLEAN AND SECURE REBAR OF CORRECT SIZE AS REQUIRED FOR PAVEMENT WITH EPOXY GROUT</p>		<p>CONCRETE PAVEMENT ALTERNATE CURB DOWELED CURB SECTION (UPON APPROVAL BY CITY ENGINEER)</p>	T202	 <p>NOTES: 1. USE MINIMUM CLASS P1 CONCRETE 2. PAVEMENT THICKNESS SHALL BE IN ACCORDANCE WITH TABLE ON "ASPHALT CONCRETE PAVING" STANDARD DETAIL SHEET PER STREET TYPE 3. REINFORCEMENT SHALL BE #4 BARS UNLESS OTHERWISE SPECIFIED 4. TRANSVERSE BARS ON 24" CENTERS</p>		<p>PORTLAND CEMENT CONCRETE EDGE RESTRAINT FOR RURAL/SUBURBAN ASPHALT STREET</p>	T205	 <p>NOTE: 1. FOR NEW ASPHALTIC CONCRETE PAVEMENT TO EXISTING ASPHALTIC CONCRETE PAVEMENT, REBAR IS NOT REQUIRED. 2. FOR NEW PORTLAND CEMENT CONCRETE TO EXISTING PORTLAND CEMENT CONCRETE, REBAR IS REQUIRED. 3. IF REBAR IS REQUIRED AS NOTED ABOVE: (a) DRILL, DOWEL AND EPOXY #3 REBAR INTO EXISTING PAVEMENT (b) #3 REBAR TO EXTEND A MINIMUM OF 12" INTO BOTH PAVEMENTS (c) #3 REBAR TO BE A MAXIMUM OF 18" ON CENTER</p>		<p>CONSTRUCTION JOINT</p>	T209	 <p>NOTES: 1. REINFORCEMENT SHALL BE #4 BARS UNLESS OTHERWISE SPECIFIED 2. USE MINIMUM CLASS P1 CONCRETE 3. TRANSVERSE BARS ON 24" CENTERS</p>		<p>SURMOUNTABLE TRAFFIC CALMING CURB AND GUTTER WITH TRANSITION TO FULL HEIGHT CURB</p>	T203	 <p>NOTES: 1. REFER TO CONC. PAVEMENT DETAIL SH. FOR JOINT DETAILS 2. CONCRETE SHALL BE MACHINE PLACED-CLASS P1 OR HAND PLACED-CLASS P2 3. #4 TRANSVERSE BARS ON 18" CENTERS</p>		<p>VALLEY GUTTER</p>	T206	<p>GENERAL NOTES:</p> <p>1. PAVEMENT DEPTH(S) INDICATED ARE MINIMUM AND MAY BE INCREASED UPON RECOMMENDATION OF ENGINEER OF RECORD. PAVEMENT DEPTH SHALL BE CONSISTENT FOR ALL APPLICABLE DETAILS.</p> <p>2. REBAR INDICATED ARE MINIMUM AND MAY BE INCREASED UPON RECOMMENDATION OF ENGINEER OF RECORD. REBAR SIZE SHALL BE CONSISTENT FOR ALL APPLICABLE DETAILS.</p>	
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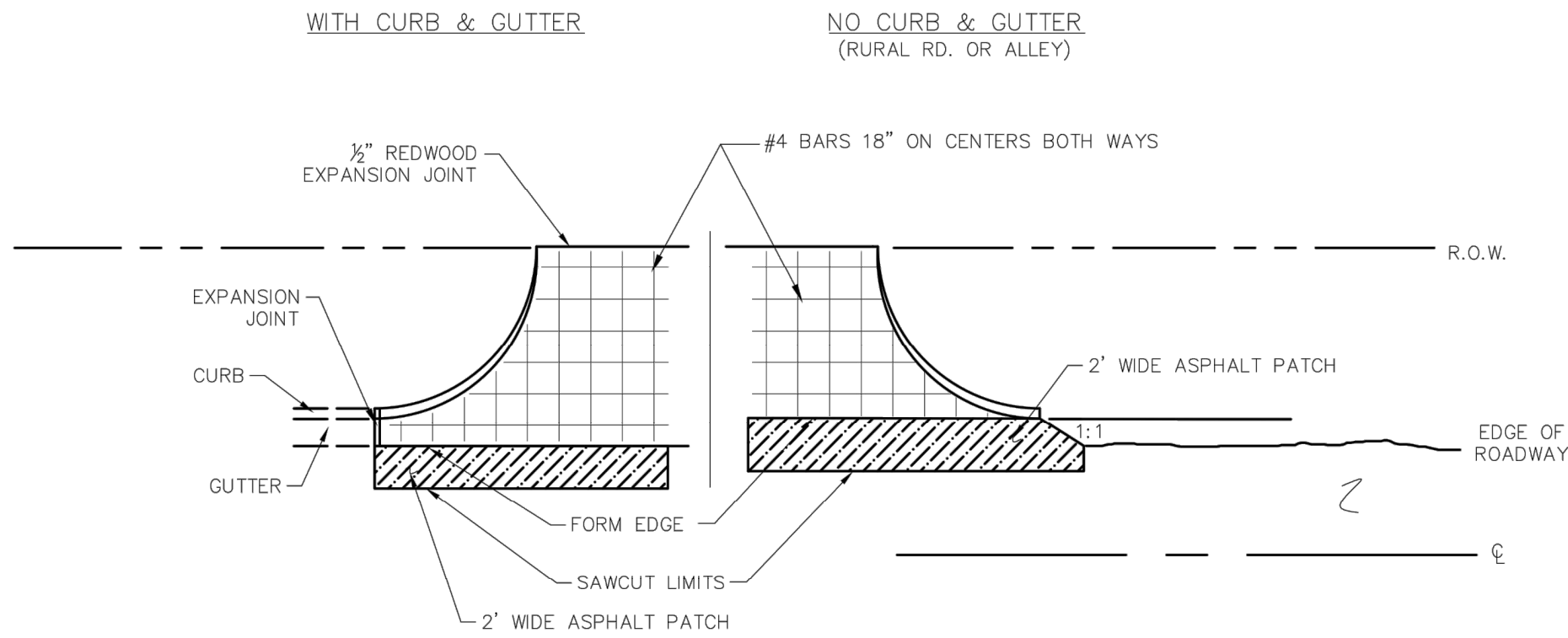
# STANDARD DETAILS

## CURB & GUTTER AND JOINT DETAILS

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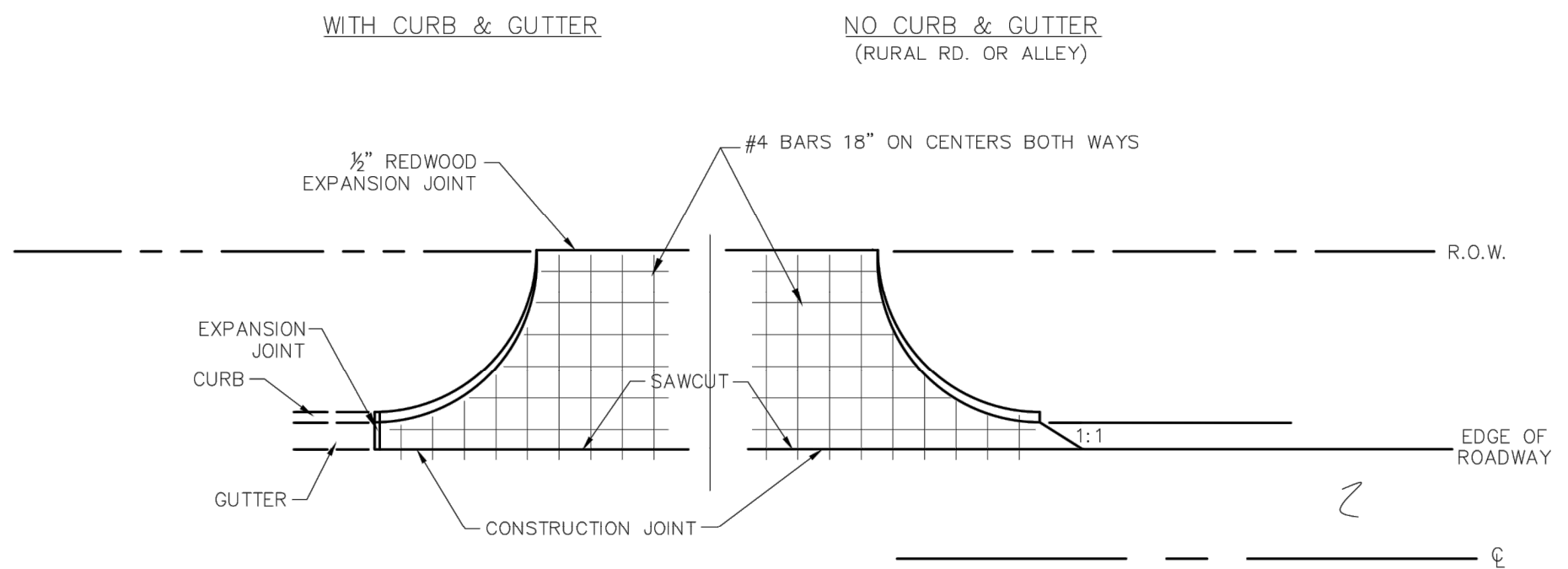
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STANDARD DRIVE APPROACH—REINFORCEMENT PLAN  
EXISTING ASPHALT STREET

T306A



STANDARD DRIVE APPROACH—REINFORCEMENT PLAN  
EXISTING CONCRETE STREET

T306C

STANDARD DRIVE APPROACH—DIMENSION TABLE

DRIVE APPROACH			
USE	WIDTH	RADIUS	MIN. THICKNESS*
SINGLE FAMILY & DUPLEX RESIDENTIAL	MIN. WIDTH = 12 FEET MAX. WIDTH = 20 FEET	5 FEET	6 INCHES
MULTI-FAMILY RESIDENTIAL	MIN. WIDTH = 24 FEET MAX. WIDTH = 38 FEET	10 TO 20 FEET	8 INCHES
COMMERCIAL & INDUSTRIAL	MIN. WIDTH = 30 FEET MAX. WIDTH = 38 FEET	20 TO 25 FEET	8 INCHES

1. THICKNESS AND REINFORCEMENT TO BE DESIGNED BY ENGINEER OF RECORD. MATERIAL TO BE CLASS P2 REINFORCED CONCRETE WITH A MINIMUM OF #4 BARS ON 18" CENTERS BOTH WAYS.  
2. ALL DESIGNS MUST MEET THE MINIMUM APPROVED REQUIREMENTS OF THE STANDARD DRIVE APPROACH DIMENSION TABLE.

GENERAL NOTES:

- NOTES:
- REFER TO SECTION 32 16 00 OF CITY OF DENTON SPECIFICATIONS FOR DRIVEWAY APPROACH REQUIREMENTS.
  - JOINTS ARE TO BE SAWED AS SOON AS THE SETTING OF THE CONCRETE WILL PERMIT WITHOUT SPALLING OR MARKING THE SLAB. AN APPROVED CURING COMPOUND SHALL BE APPLIED TO THE FINISHED SLAB PRIOR TO THE LOSS OF SURFACE MOISTURE AND NO LATER THAN 30 MIN. AFTER FINISHING OPERATIONS.
  - SUBGRADE FOR DRIVE APPROACH SHALL MATCH COMPACTION AND STABILIZATION REQUIREMENTS FOR ADJACENT ROADWAY CLASSIFICATION.
  - DRIVE APPROACH GREATER THAN 12' IN WIDTH SHALL HAVE A TOOLED JOINT PERPENDICULAR TO THE CURB LINE, FROM THE FRONT OF THE GUTTER TO THE BACK OF THE DRIVE APPROACH, AT THE MIDPOINT. DRIVE APPROACHES WITH A WIDTH GREATER THAN 24' SHALL HAVE TWO OR MORE PERPENDICULAR TOOLED JOINTS PLACED AT THE DIRECTION OF THE ENGINEER OF RECORD.
  - ALL JOINTS TO BE SEALED PER SPEC. SECTION 32 13 73.
  - DRIVE APPROACH SLOPE REQUIREMENTS ARE SPECIFIED IN SECTION 2.3 OF THE TRANSPORTATION CRITERIA MANUAL.
  - REMOVE AND REPLACE ALL CURB AND GUTTER WITHIN THE LIMITS OF CONSTRUCTION.
  - NEW CURB AND GUTTER SHALL BE POURED MONOLITHIC WITH THE DRIVE APPROACH.
  - FOR RESIDENTIAL DRIVE APPROACHES:
    - USE MINIMUM CLASS P2 CONCRETE; MIN. 6" DEPTH.
    - USE #4 BARS ON 18" CENTERS BOTH WAYS.
  - FOR ALL OTHER DRIVE APPROACHES, INCLUDING APARTMENTS.
    - USE MINIMUM CLASS P2 CONCRETE; MIN. 8" DEPTH.
    - USE #4 BARS ON 18" CENTERS, BOTH WAYS.
  - DRIVE APPROACH CONSTRUCTION WHICH EXTENDS PAST THE DRIVE APPROACH RADIUS SHALL HAVE A TRANSVERSE TOOLED JOINT AT THE RADIUS POINT AND AN EXPANSION JOINT AT THE POINT OF CONNECTION TO THE EXISTING OR PROPOSED CURB & GUTTER.
  - PAVEMENT DEPTHS INDICATED ARE MINIMUM AND MAYBE INCREASED UPON RECOMMENDATION OF ENGINEER OF RECORD—PAVEMENT DEPTH SHALL BE CONSISTENT FOR ALL APPLICABLE DETAILS.
  - BARS INDICATED ARE MINIMUM AND MAY BE INCREASED UPON RECOMMENDATION OF ENGINEER OF RECORD—REBAR SIZE SHALL BE CONSISTENT FOR ALL APPLICABLE DETAILS.
  - SEE DETAILS P500, P501, AND P502 FOR TIEING PROPOSED OR EXISTING SIDEWALK TO DRIVEWAY APPROACH.

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STANDARD DETAILS  
DRIVE APPROACH DETAILS

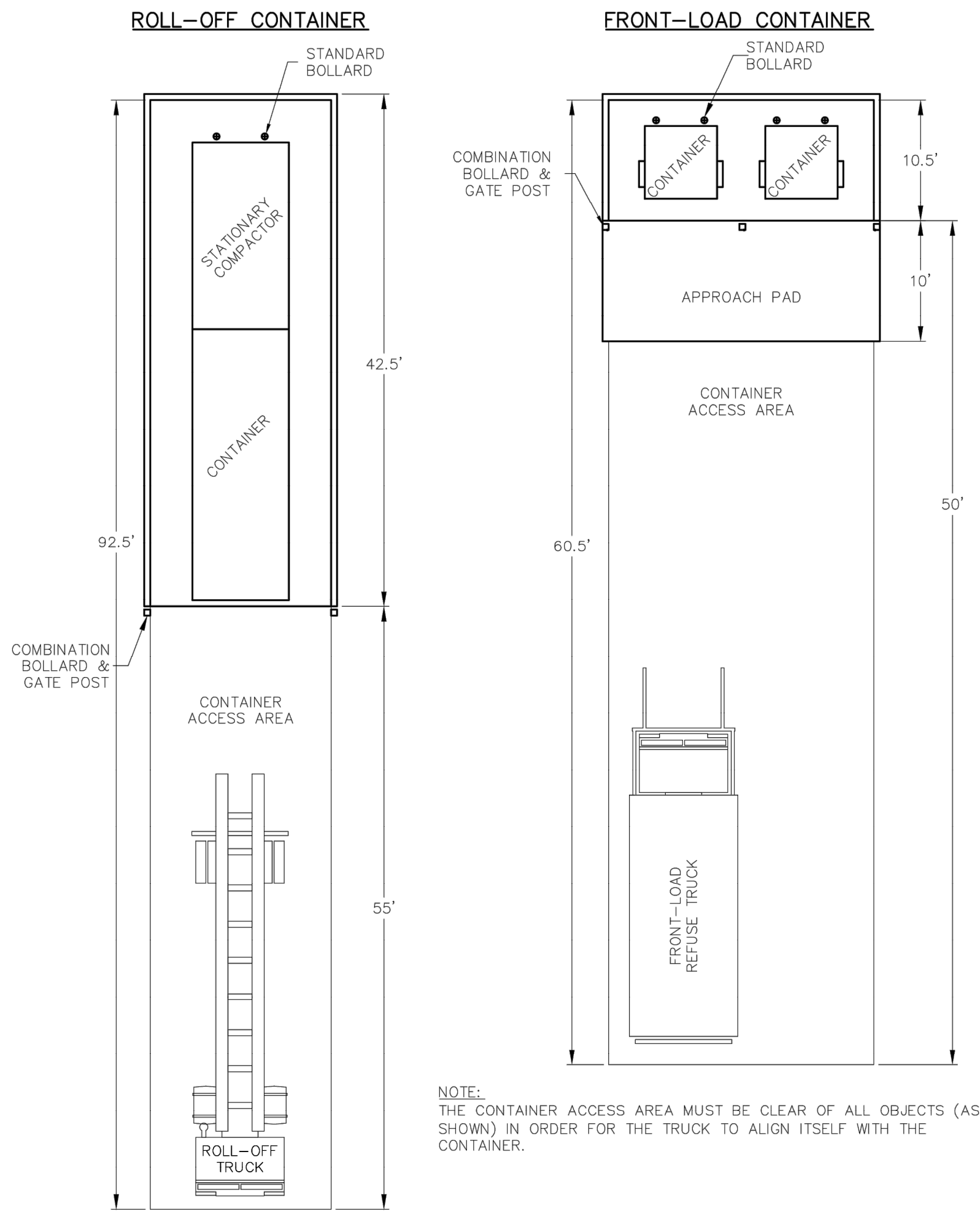
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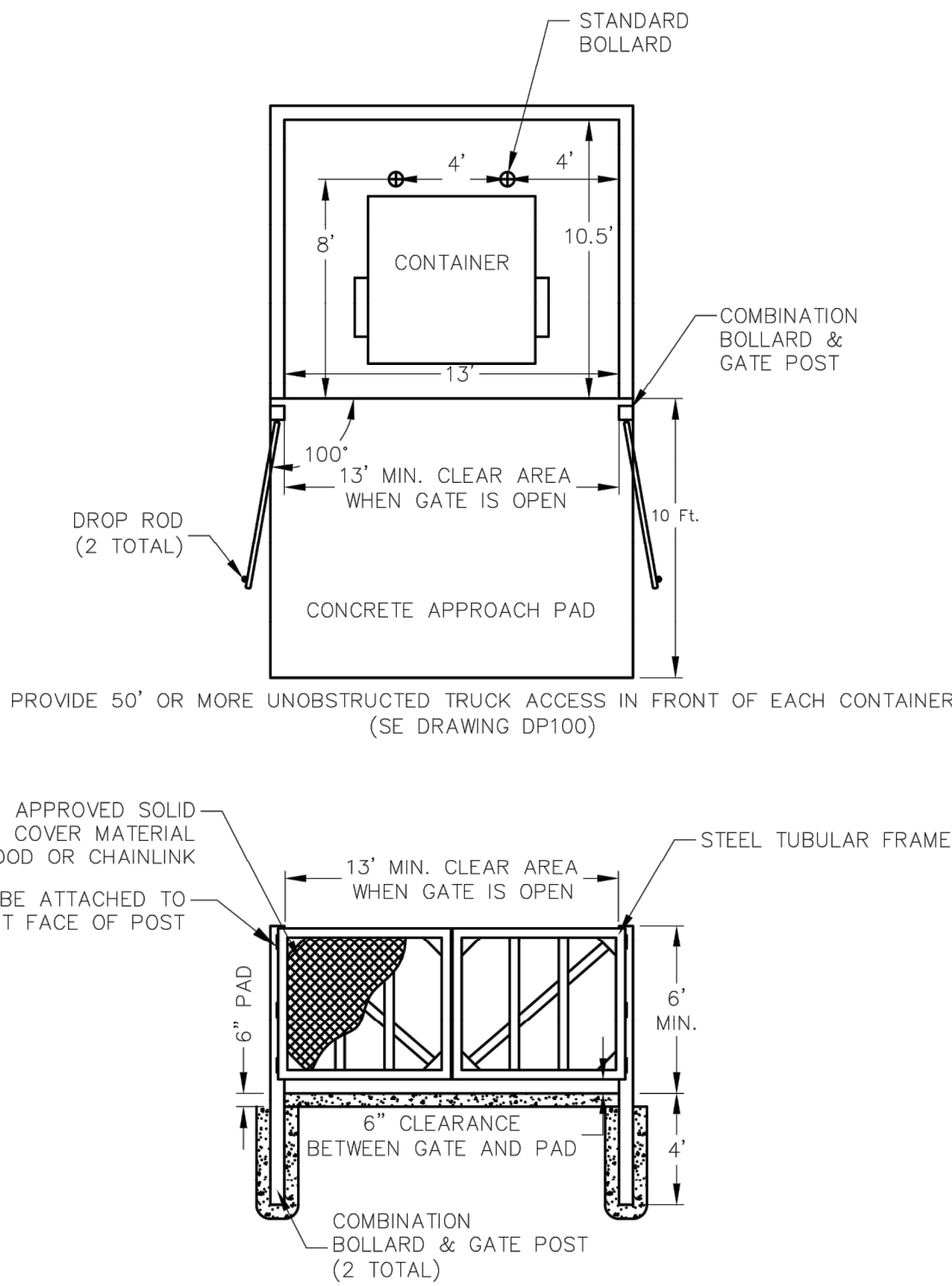
City of Denton  
Development Assistance Team  
Approved October 20, 2023

PLOTTED BY: GABRIELA GONZALEZ DATE: 10/20/2023 11:36 AM PATH: P:\309P-2612100-1 and Development\TDS Construction Documents\Design\PD Details\PUBLIC DETAILS.dwg



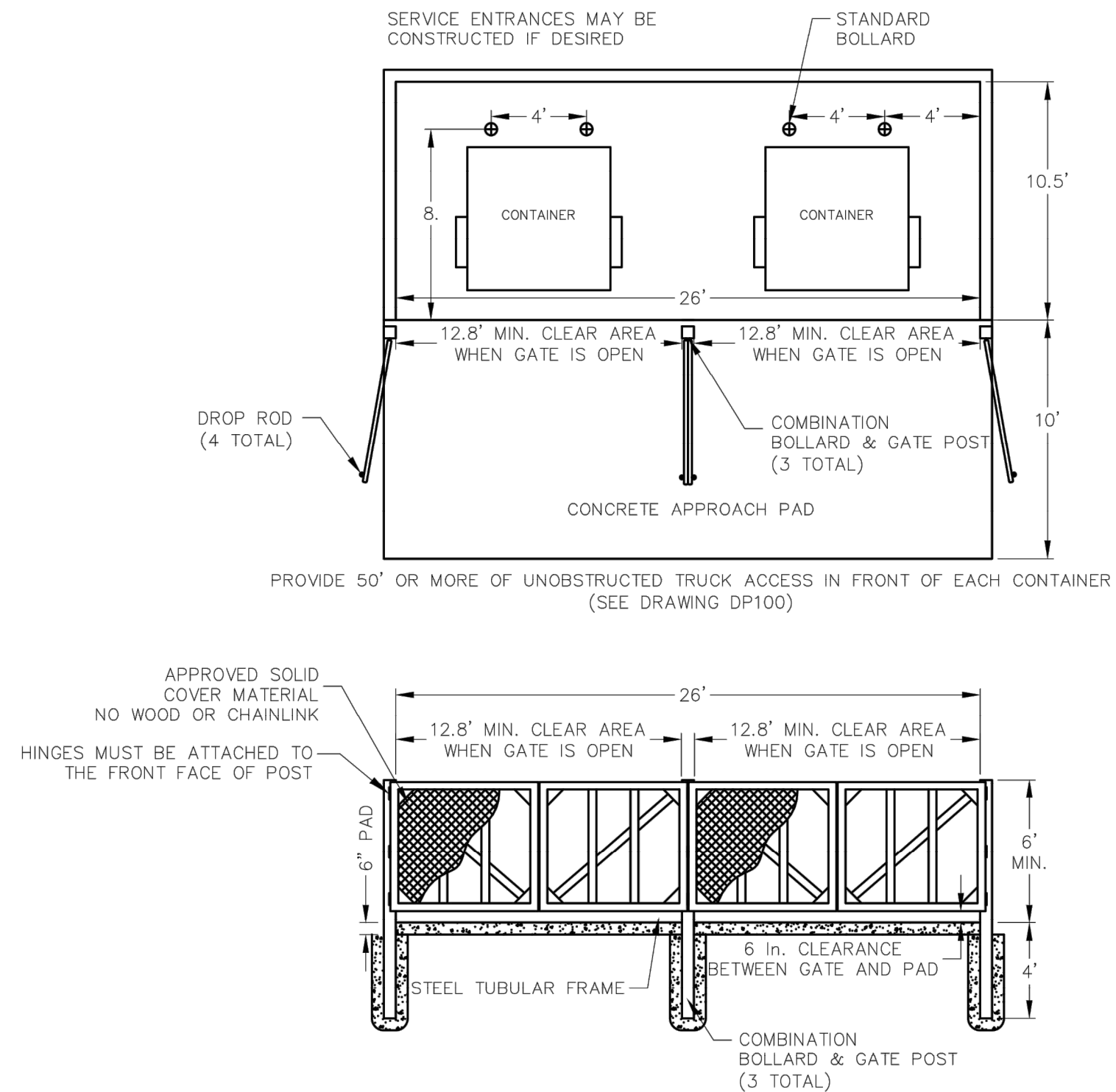
**FRONT-LOAD & ROLL-OFF  
TRUCK ACCESS REQUIREMENTS**

DP100



**CONTAINER ENCLOSURE WITH GATES  
13'x10.5' FRONT LOAD**

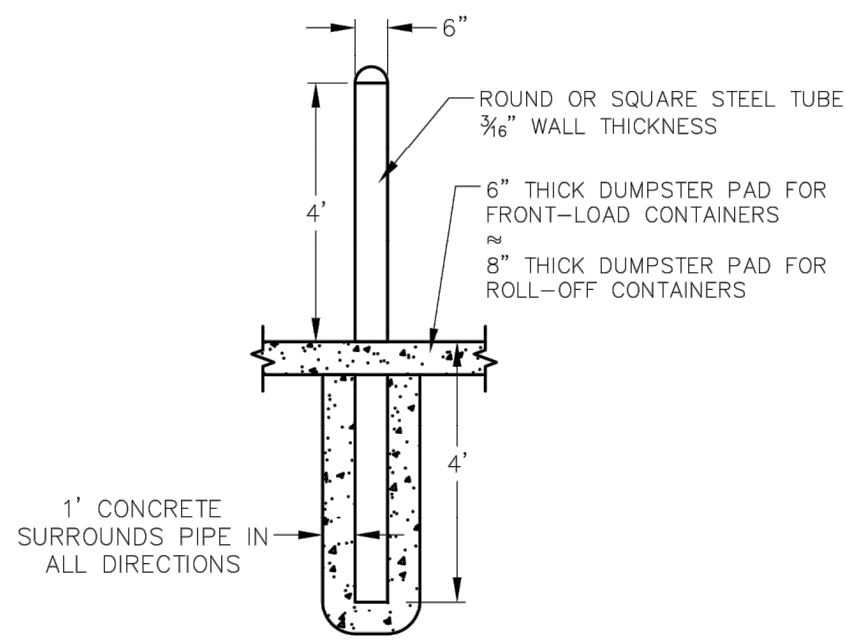
DP200



**CONTAINER ENCLOSURE WITH GATES  
26'x10.5' FRONT LOAD**

DP201

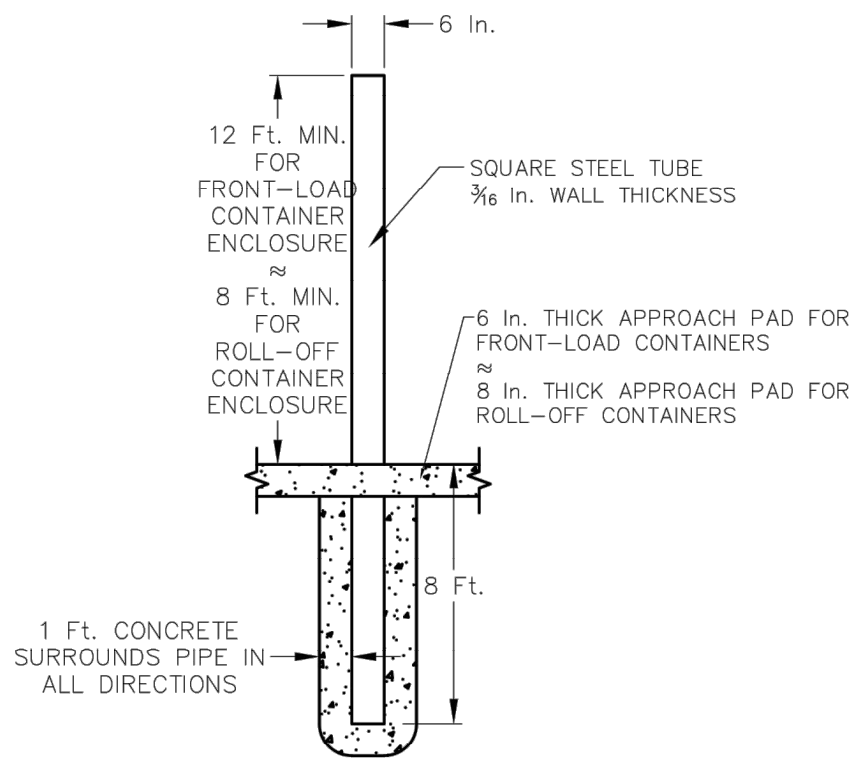
**STANDARD BOLLARD DETAIL  
(TO REAR OF CONTAINERS, INSIDE OF ENCLOSURES)**



**STANDARD BOLLARD  
AT INSIDE REAR OF ENCLOSURE**

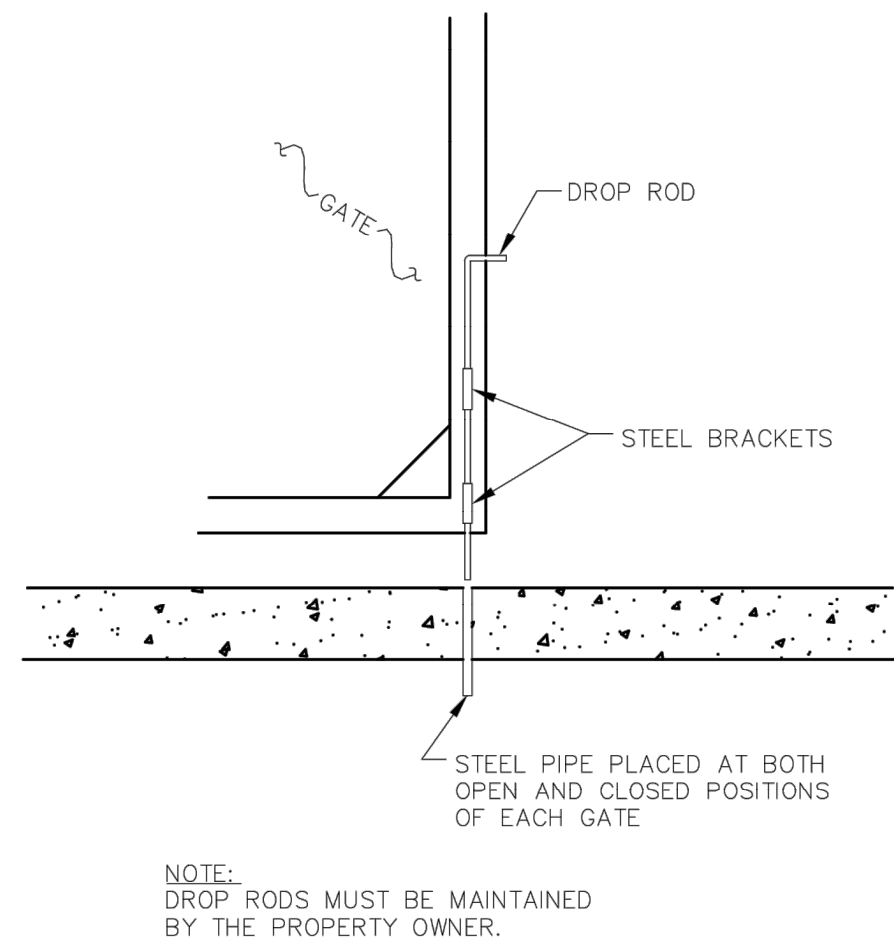
DP101

**COMBINATION BOLLARD & GATE POST DETAIL**



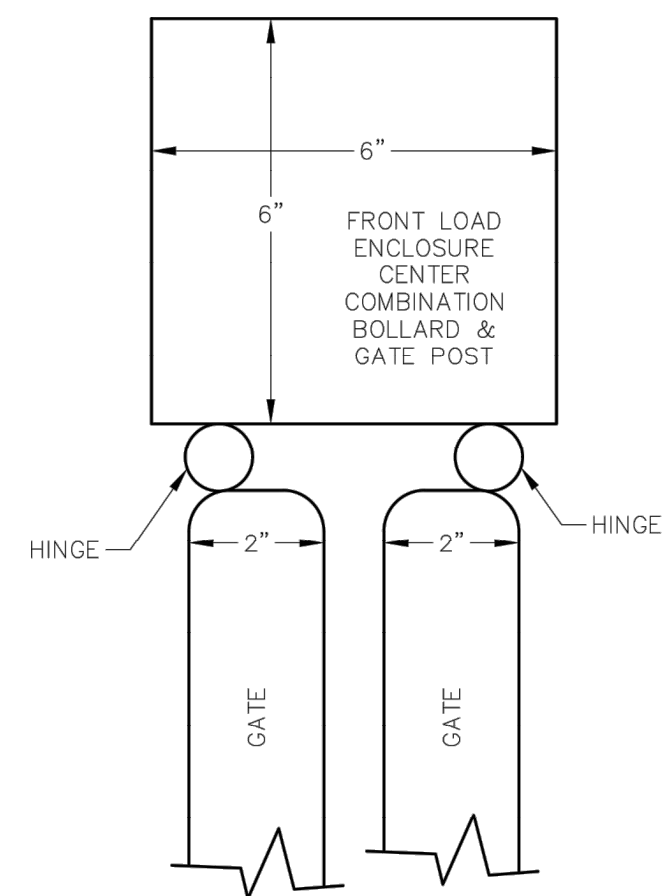
**COMBINATION BOLLARD  
AND GATE POST**

DP102



**DROP ROD**

DP103



**COMBINATION BOLLARD  
AND GATE MOUNTING DETAIL**

DP104

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PATH	S:\Water Engineering\Engr\Design\Projects\Standard Details\Solid Waste details\Solid Waste details.dwg	



# STANDARD DETAILS

## DUMPSTER PAD DETAILS

DATE  
JAN. 2023

SHEET No.  
22 OF 24

SCALE

HOR 1" = N.T.S.

VER 1" = N.T.S.

CERTIFICATION:  
THIS CITY OF DENTON STANDARD  
DETAIL SHEET IS AUTHORIZED FOR  
USE IN THIS PROJECT BY THE  
ENGINEER WHOSE SEAL APPEARS  
HEREON, AND WHO CERTIFIES THE  
CONTENT OF THE DETAILS AND NOTES  
HEREIN HAVE NOT BEEN ALTERED  
AND ASSUMES RESPONSIBILITY FOR  
APPROPRIATE USE OF THE  
STANDARDS WITHIN THIS SHEET.



City of Denton  
Development Assistance Team  
Approved October 20, 2023

PLOTTED BY: GABRIELA GONZALEZ DATE: 10/10/2023 11:56 AM PATH: P:\3399\2402\100 and Development\TDS Construction Documents\Design\TDS Details\PUBLIC DETAILS.dwg

DIVISION 1000 EROSION & SEDIMENT CONTROL

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NOTES:

1. The City is adopting use of the NCTCOG Erosion and Sedimentation Standard Detail Drawings referenced in the table above. The drawings can be found in the 4th Edition of the NCTCOG specifications, October 2004.
2. Modifications to the above referenced drawings may be considered for individual projects upon submittal by a registered Professional Engineer in the State of Texas and supporting documentation as to why the modification is being requested.

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PATH	S:\Water Engineering\Engr\Design\Projects\Standard Details\ISWM\Erosion and Sedimentation Control sht.24.dwg	



STANDARD DETAILS

EROSION & SEDIMENTATION CONTROL DETAILS

DATE	SCALE
JAN. 2023	
SHEET No.	HOR 1"= N.T.S. VER 1"= N.T.S.
24 OF 24	

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