

ORDINANCE NO. 5326

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF DENISON, TEXAS, ADOPTING UPDATED STANDARD CONSTRUCTION DETAILS; AMENDING CHAPTER 22 "SUBDIVISION REGULATIONS", ARTICLE IV "REQUIREMENTS FOR PUBLIC IMPROVEMENTS AND DESIGN", DIVISION 1 "ADEQUATE PUBLIC FACILITIES POLICY", SECTION 22-74 "CONFORMANCE TO PLANS AND INCORPORATION OF MANUALS" BY PROVIDING FOR THE INCORPORATION FO THE CITY'S STANDARD CONSTRUCTION DETAILS AND PUBLIC WORKS DESIGN MANUAL; PROVIDING FOR A PENALTY; PROVIDING FOR SAVINGS, REPEALING, AND SEVERABILITY CLAUSES; PROVIDING THAT THE MEETING AT WHICH THIS ORDINANCE WAS PASSED WAS AN OPEN MEETING IN COMPLIANCE WITH THE TEXAS OPEN MEETINGS ACT; AND PROVIDING FOR PUBLICATION AND AN EFFECTIVE DATE.

WHEREAS, the City of Denison, Texas (the "**City**") is a Home Rule Municipality acting under its Charter adopted by the electorate pursuant to Article XI, Section 5 of the Texas Constitution and Chapter 9 of the Texas Local Government Code; and

WHEREAS, the City Council of the City (the "**City Council**") has previously adopted standard construction details for public works projects, including a version adopted on March 10, 2023 by Ordinance No. 5281; and

WHEREAS, since the passage of Ordinance No. 5281, the City's public works department has updated the standard construction details, and recommends adoption of the updated version attached hereto as **Exhibit A**, and incorporated herein for all purposes; and

WHEREAS, the City desires to incorporate the standard construction details updated herein, and the Public Works Design Manual adopted by Ordinance 5280 on March 20, 2023 into the City's codified Subdivision Ordinance; and

WHEREAS, the City is authorized by Chapter 212 of the Texas Local Government Code to, after a public hearing on the matter, adopt rules governing subdivisions of land within the municipality's jurisdiction to promote the health, safety, morals, or general welfare of the municipality, and the safe, orderly, and healthful development of the municipality; and

WHEREAS, after holding a public hearing on December 4, 2023, the City Council finds it desirable and in the best interest of the health, safety, and general welfare of the citizens to update the City's standard construction details.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF DENISON, TEXAS:

Section 1. Incorporation of Premises. The above and foregoing premises are true and correct and are incorporated herein and made a part hereof for all purposes.

Section 2. Standard Construction Details Adopted. The City Council does hereby adopt the updated Standard Construction Details attached hereto as **Exhibit A** and repeal the earlier adopted versions.

Section 3. Amendment to Section 22-74. Chapter 22 “Subdivision Regulations”, Article IV “Requirements for Public Improvements and Design”, Division 1 “Adequate Public Facilities Policy”, Section 22-74 “Conformance to plans and incorporation of manuals”, subsection (b) is hereby amended to read as follows:

“(b) *Manuals incorporated.* The following construction and design manuals are incorporated herein by reference as if fully set forth: 1) Latest version of North Central Texas Council of Governments Standard Specifications for Public Works Construction (NCTCOG Standards); 2) Latest version of American Water Works Association Standards (AWWA); 3) Latest version of City’s Standard Construction Details; and 4) Latest version of City’s Public Works Design Manual.”

Section 4. Penalty. Any person, firm, corporation, or entity violating this Ordinance shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined pursuant to Section 1-12 of the City's Code of Ordinances. Each occurrence in violation of this Ordinance shall constitute a separate and distinct offense. Each day a violation of this Ordinance occurs constitutes a separate offense. The penal provisions imposed under this Ordinance shall not preclude the City from filing suit to enjoin the violation. The City retains all legal rights and remedies available to it pursuant to local, state, and federal law.

Section 5. Savings Clause. If any ordinance shall have any provisions in conflict with this Ordinance, or the provisions of the manuals adopted and incorporated herein, the stricter provisions shall apply. Any remaining portions of said ordinances shall remain in full force and effect.

Section 6. Severability. Should any section, subsection, sentence, clause, or phrase of this Ordinance be declared unconstitutional or invalid by a court of competent jurisdiction, it is expressly provided that any and all remaining portions of this Ordinance shall remain in full force and effect. The City hereby declares that it would have passed this Ordinance, and each section, subsection, sentence, clause, or phrase thereof irrespective of the fact that any one or more sections, subsections, sentences clauses and phrases be declared unconstitutional or invalid.

Section 7. Open Meeting. It is hereby officially found and determined that the meeting at which this Ordinance was passed was open to the public as required by law, and that public notice of the time, place, and purpose of said meeting was given, all as required by Section

551.042, Texas Government Code.

Section 8. Effective Date. This Ordinance shall become effective upon its passage and publication as may be required by law.


DULY PASSED AND APPROVED BY THE CITY COUNCIL OF THE CITY OF DENISON, TEXAS, on this the 4th day of December 2023.

APPROVED:



JANET GOTT, Mayor

ATTEST:



Christine Wallentine, City Clerk

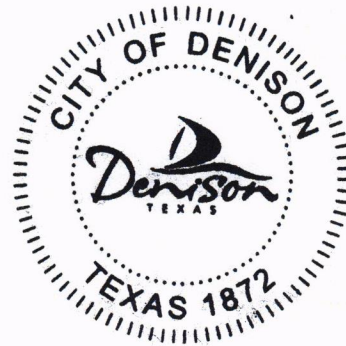


Exhibit A

Updated Standard Details

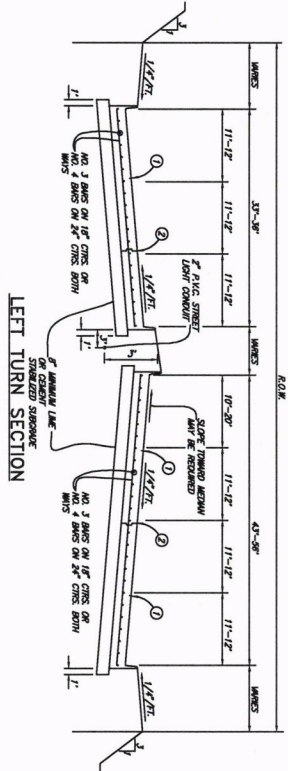
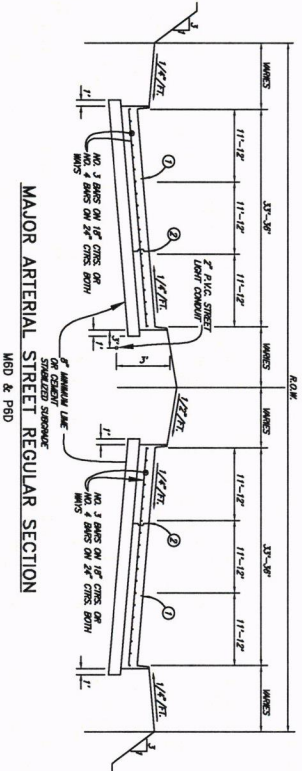
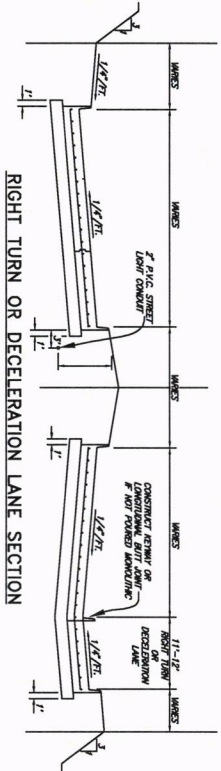
CITY OF DENISON, TEXAS

STANDARD CONSTRUCTION DETAILS

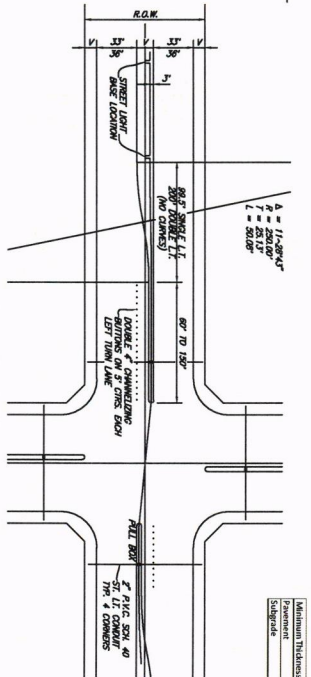
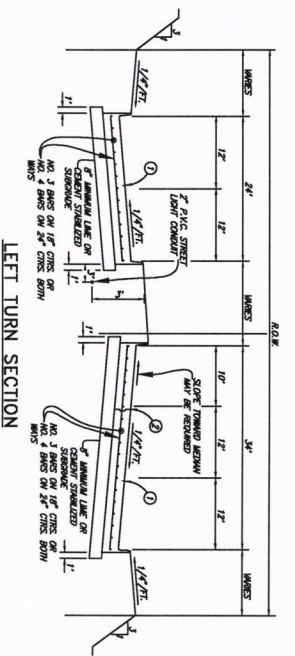
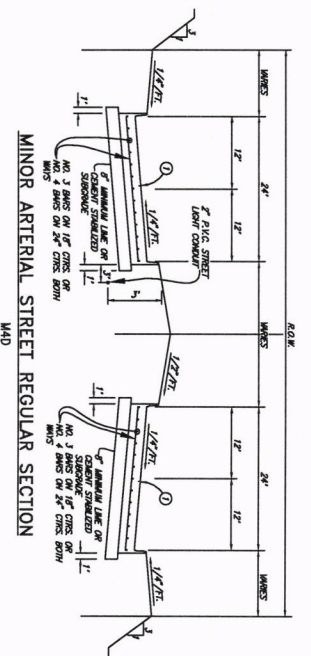


DECEMBER 04, 2023

SHEET NUM	SHEET TITLE	SHEET NUM	SHEET TITLE
0	COVER SHEET	24	SANITARY SEWER – AERIAL CROSSING
1	GENERAL NOTES	25	SANITARY SEWER – MANHOLES
2	PAVING – SECTIONS – MAJOR & MINOR ARTERIAL STREETS	26	SANITARY SEWER SERVICES
3	PAVING – SECTIONS – LOCAL STREETS	27	TYPICAL EMBEDMENT
4	PAVING – SECTIONS – LOCAL & COLLECTOR STREETS	28	THIN BRICK SCREENING WALL
5	PAVING DETAILS	29	BRICK SCREENING WALL – RETAINING WALL
6	PAVING DETAILS	30	CHAIN LINK FENCING
7	PAVING DETAILS	31	CHAIN LINK FENCING
8	PAVING – ALLEY – DRIVEWAYS	32	FARM FENCE – STEEL GATE
9	PAVING – ALLEY – DRIVEWAYS	33	WROUGHT IRON FENCING
10	PAVING – GEOMETRICS	34	WROUGHT IRON FENCING
11	CONCRETE FLUME – EROSION CONTROL	35	DUMPSTER DETAILS
12	PAVING – SIDEWALKS	36	DUMPSTER DETAILS
13	STORM SEWER – INLET	37	PIPE BOLLARD & I.T. DETAIL FOR GATE
14	STORM SEWER – INLET	38	TREE PROTECTION PLAN
15	STORM SEWER – INLET – DETAILS	39	JUNCTION BOX
16	CHANNELS – CONCRETE	40	GROUND MOUNTED STREET NAME BLADE & PROJECT SIGN DETAILS
17	CHANNELS – CONCRETE	41	TYPICAL HARD SURFACE INSTALLATION SIGN BASE DETAILS
18	WATER SERVICES – FIRE HYDRANT	42	GROUND MOUNTED STREET NAME BLADE (D3-1) DETAILS
19	WATER – VALVES	43	OVERHEAD STREET NAME BLADE (D3-1) DETAILS
20	METER VAULT	44	TYPICAL STREET NAME SIGN PLACEMENTS
21	METER VAULT	45	TRAFFIC SIGN BLANK DIMENSIONS
22	PRV VAULT AND AUTOMATIC FLUSH POINT	46	TYPICAL SCHOOL ZONE FLASHER ASSEMBLY
23	WATER – VALVES	47	FOUNDATION & FLASHER ASSEMBLY STANDARDS
		48	STREET LIGHT DETAILS



- LEGEND**
- ① - SHED LONGITUDINAL CURB AND ASPHALT
 - A - CONSTRUCTION JOINT FULL WIDTH
 - B - BELIEF IF WHEN PAVING IS 25 FT. WIDEN TO BE MOVED IN FUTURE
 - C - INSTALL CURB IF PAVING IS LESS THAN FULL WIDTH OF 33'-36" (LEBDED PLAN)



Minimum Thickness	Asphalt	Concrete	Local	Track/Lane	Finish	Underlay
Subgrade	12"	12"	12"	12"	12"	12"

NOTE:
LINE OR CURB SUBGRADE TO BE RECOMMENDED BY GEOTECHNICAL ENGINEER AND MUST BE APPROVED BY THE PUBLIC WORKS DIRECTOR.



CITY OF DENISON, TEXAS

STANDARD CONSTRUCTION DETAILS



DECEMBER 04, 2023

SHEET NUM	SHEET TITLE	SHEET NUM	SHEET TITLE
0	COVER SHEET	24	SANITARY SEWER – AERIAL CROSSING
1	GENERAL NOTES	25	SANITARY SEWER – MANHOLES
2	PAVING – SECTIONS – MAJOR & MINOR ARTERIAL STREETS	26	SANITARY SEWER SERVICES
3	PAVING – SECTIONS – LOCAL STREETS	27	TYPICAL EMBEDMENT
4	PAVING – SECTIONS – LOCAL & COLLECTOR STREETS	28	THIN BRICK SCREENING WALL
5	PAVING DETAILS	29	BRICK SCREENING WALL – RETAINING WALL
6	PAVING DETAILS	30	CHAIN LINK FENCING
7	PAVING DETAILS	31	CHAIN LINK FENCING
8	PAVING – ALLEY – DRIVEWAYS	32	FARM FENCE – STEEL GATE
9	PAVING – ALLEY – DRIVEWAYS	33	WROUGHT IRON FENCING
10	PAVING – GEOMETRICS	34	WROUGHT IRON FENCING
11	CONCRETE FLUME – EROSION CONTROL	35	DUMPSTER DETAILS
12	PAVING – SIDEWALKS	36	DUMPSTER DETAILS
13	STORM SEWER – INLET	37	PIPE BOLLARD & I.T. DETAIL FOR GATE
14	STORM SEWER – INLET	38	TREE PROTECTION PLAN
15	STORM SEWER – INLET – DETAILS	39	JUNCTION BOX
16	CHANNELS – CONCRETE	40	GROUND MOUNTED STREET NAME BLADE & PROJECT SIGN DETAILS
17	CHANNELS – CONCRETE	41	TYPICAL HARD SURFACE INSTALLATION SIGN BASE DETAILS
18	WATER SERVICES – FIRE HYDRANT	42	GROUND MOUNTED STREET NAME BLADE (D3-1) DETAILS
19	WATER – VALVES	43	OVERHEAD STREET NAME BLADE (D3-1) DETAILS
20	METER VAULT	44	TYPICAL STREET NAME SIGN PLACEMENTS
21	METER VAULT	45	TRAFFIC SIGN BLANK DIMENSIONS
22	PRV VAULT AND AUTOMATIC FLUSH POINT	46	TYPICAL SCHOOL ZONE FLASHER ASSEMBLY
23	WATER – VALVES	47	FOUNDATION & FLASHER ASSEMBLY STANDARDS
		48	STREET LIGHT DETAILS

GENERAL NOTES

- ALL MATERIALS MUST BE DOMESTICALLY SOURCED AND PRODUCED UNLESS OTHERWISE APPROVED BY THE PUBLIC WORKS DIRECTOR.
- PAVING NOTES**
- CONCRETE FOR ALL STREETS, ALLEYS, & DRIVEWAYS SHALL BE IN ACCORDANCE WITH NCTCOG CLASS 'C' CONCRETE (3,600 P.S.I. COMPRESSIVE STRENGTH @ 28 DAYS). DRIVEWAYS SHALL BE HAND POURED CONCRETE FOR ALL SIDEWALKS SHALL BE IN ACCORDANCE WITH REINFORCING STEEL SHALL BE DEFORMED BARS NO. 3 ON 18 INCH CENTERS OR NO. 4 BARS ON 24 INCH CENTERS UNLESS OTHERWISE NOTED IN THE DETAILS. REINFORCING SHALL BE IN BOTH DIRECTIONS ON CENTER. REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM 615, #16 AND #17.
- ALL REINFORCING STEEL SHALL BE TEG 4094L REINFORCING STEEL SHALL BE SET ON EXPANSION JOINTS SHALL BE MINIMUM 10 DIAMETERS.
- SAVED TRANSVERSE DUMMY JOINTS SHALL BE SPACED EVERY 20 FEET ON PAVING 8 INCHES OR THICKER AND EVERY 15 FEET FOR PAVING THICKNESS LESS THAN 8 INCHES SWING SECTION SHALL BE REMOVED AND LONGITUDINAL BUTT JOINTS CONSTRUCTED. THE SUBGRADE UNDER PAVEMENTS SHALL BE A MINIMUM OF 8 INCHES OF EITHER HYDRATED LIME OR CEMENT TREATED SUBGRADE, WITH OPTIMUM CONTENT AND COMPACTON REQUIREMENTS AS RECOMMENDED BY THE GEOTECHNICAL DESIGN AS WELL AS APPROVED BY THE PUBLIC WORKS DIRECTOR. CONCRETE SHALL BE PLACED IN 6" TO 8" LIFT DISTANCES. ALL TESTS SHALL BE COMPLETED BY AN INDEPENDENT LABORATORY APPROVED BY THE CITY AND PAID FOR BY THE CONTRACTOR.
- LIME TREATED SUBGRADE SHALL BE COMPACTED TO A DENSITY OF NOT LESS THAN 98 PERCENT OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D 698. MOISTURE CONTENT IN INDEPENDENT LABORATORY APPROVED BY THE CITY. ALL RESULTS SHALL BE PROVIDED TO THE CITY.
- LIME TRIMMINGS ARE NOT ACCEPTABLE FOR ANY USE.
- ALL FILL SHALL BE COMPACTED BY MECHANICAL METHODS. MAXIMUM LOOSE LIFT FOR COMPACTON SHALL BE 8 INCHES. ALL LIFTS SHALL BE TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH THE CITY. ALL TESTS SHALL BE PROVIDED TO THE CITY.
- ALL DISTURBED AREAS OF ROADWAY WORK SHALL HAVE GRASS ESTABLISHED IMMEDIATELY. GRASS SHALL MEET THE REQUIREMENTS OF ITEM 3.8, 3.9, 3.10 & 3.11 OF NCTCOG.
- ALL AREAS TO BE EXCAVATED OR FILLED SHALL HAVE EROSION CONTROL PLACED PRIOR TO THROUGHOUT THE PROJECT IN ACCORDANCE WITH NCTCOG ITEM 4.12.
- ALL SIDEWALKS SHALL INCLUDE BARRIER FREE RAMPS AT INTERSECTING STREETS, ALLEYS, DRIVEWAYS, ETC. BARRIER FREE RAMPS SHALL MEET CURRENT ADA REQUIREMENTS AND BE APPROVED BY THE TEXAS LICENSING BOARD.
- SIDEWALKS SHALL BE DOWNLED INTO PAVEMENT WHERE IT ABUTS DRIVEWAYS. REDWOOD JOINTS SHALL BE DOWNLED INTO PAVEMENT. ALL JOINTS SHALL BE DOWNLED INTO PAVEMENT.
- NO VEHICLES SHALL BE PERMITTED ON CONCRETE PAVEMENT WITHOUT APPROVAL FROM THE CITY. THE CITY WILL MAKE DETERMINATION BASED ON CONCRETE BREAK REPORT.
- SIDEWALKS REQUIRE 2-INCH SAND CUSHION ON SUBGRADE COMPACTED WITHIN 95% STANDARD PROCTOR DENSITY.
- STAIRS SHALL MEASURE PROTECTORS FROM FORMWORK. REMOVAL AND PROTECTORS MAY BE MADE AFTER THE POUR (O ADDRESS TOOLS).
- ENSURE THAT FLATWORK DOES NOT OBSCURE ABOVE-GROUND APPURTENANCES (I.E. VALVES, MH LIDS).
- EXPOSED AGGREGATE CONCRETE IS NOT ACCEPTABLE FOR SIDEWALK WITHIN PUBLIC SIDEWALKS SHALL BE 5" WIDE MINIMUM WIDTH.

LINED CHANNELS

- CONSTRUCTION JOINT SHOWN IN DETAILS FOR CONVENIENCE ONLY. MONOLITHIC CONSTRUCTION IS PREFERRED.
- ALL REINFORCING STEEL SHALL BE 3/8" DIAMETER AND SPACED 12" CENTER TO CENTER BOTHWAYS UNLESS OTHERWISE SPECIFIED.
- IF WOOD FORMS ARE USED WITH CONSTRUCTION JOINT, THEY SHALL BE TWO, 2"x4", AND SHALL NOT BE REMOVED UNTIL CONCRETE ON SIDEWALKS IS READY TO BE PLACED.
- CONCRETE IN LINED CHANNELS SHALL BE NOT OVER CLASS 'X' (MINIMUM 5,000 P.S.I.) CONCRETE.
- FLAT BOTTOM TO BE CONSTRUCTED WHEN CHANNEL WIDTH IS LESS THAN 12 FOOT.
- 3/4" CHAMFER ON ALL CONCRETE CORNERS.

STORM SEWER

- THE FLOOR OF THE EXCAVATION FOR INLET BOX MUST PROVIDE A FIRM, LEVEL BED FOR THE BASE SECTION TO REST UPON.
- SECTION TO REST UPON OF 1" DIAMETER MAXIMUM ROCK OR GRAVEL SHALL BE USED TO PREPARE THE BEDDING TO FINAL GRADE OR IN FIELD OF THIS. AT LEAST 6 INCHES OF 2-SACK CEMENT STABILIZED SAND SHALL BE USED TO PREPARE THE BEDDING TO GRADE. CEMENT STABILIZED-SAND SHALL BE ALLOWED TO SET BY KEEPING IT MOIST & PUMPED DRY.
- AFTER PIPE HAS BEEN Laid ON PROPER BEDDING, BACKFILLING TO COMMENCE WITH 8 MAXIMUM MAXIMUM LOOSE LIFT BEHIND CURB. MAXIMUM SIZE ROCK IN BACKFILL SHALL NOT EXCEED 4 INCHES IN DIAMETER.
- PRECAST INLETS MUST BE APPROVED BY THE CITY.
- CONCRETE TO BE MINIMUM 4,200 P.S.I. STANDARD AND RECESSED INLETS.
- LOOKING DEVICES IS REQUIRED ON ALL STORM SEWER LIDS.
- CONCRETE CAST-IN-PLACE INLETS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,200 PSI @ 28 DAYS.
- STORM DRAIN THE SHALL BE PLACED IN THE CENTER OF THE INLET. 2 INCHES FROM THE EDGE OF OPENING AS SHOWN IN THE DRAWING USE #200 CONSTRUCTION ADHESIVE FOR APPLICATION. (ITEMS 7506-1-14-1480-221-1713. METHOD: 2146472500. FAX: 214441-1221).
- EXISTING STORM SEWER PIPE AND/OR LATERALS SHALL BE LOCATED PRIOR TO SETTING OF CONSTRUCTING INLET BOXES. IF ADJUSTMENT IN GRADE OF LATERAL IS REQUIRED, A REVISED DESIGN BY THE ENGINEER OF RECORD SHALL BE SUBMITTED TO THE CITY FOR APPROVAL.
- REINFORCED CONCRETE PIPE CLASS IN MINIMUM.

SANITARY SEWER

- ALL SEWER LINES CROSSING POTABLE WATERLINES SHALL BE AS SHOWN IN THE PLANS AND MEET ALL SANITARY SEWER MAINS SHALL BE A MINIMUM OF 6" INSIDE DIAMETER. ALL SERVICE LINES SHALL BE A MINIMUM OF 4" INSIDE DIAMETER. PIPES 6 INCHES THROUGH 24 INCHES SHALL BE IN ACCORDANCE WITH ASTM D2084 WITH A MINIMUM SPIR OF 26.
- PIPES LARGER THAN 24 INCHES SHALL BE CCFRPP, CENTRICALLY CAST FIBER REINFORCED POLYMER MORAR PIPES OR APPROVED EQUIVALENTS OR AS DIRECTED BY THE PUBLIC WORKS DIRECTOR.
- MANHOLES SHALL BE CAST IN PLACE OR PRECAST. ALL MANHOLES SHALL BE WATER TIGHT. ALL RING AND COVERS SHALL INCLUDE AN INTERNAL CHIMNEY SEAL.
- ALL PIPE OPENINGS IN MANHOLES SHALL INCLUDE COUPLINGS WITH "O" RING RUBBER GASKETS. STUBBOUS OUT OF MANHOLES SHALL BE FITTED WITH A STOPPER AND CAP. STUBBOUS SHALL BE A MINIMUM 24 INCHES SHALL BE OF THE EXTERNAL TYPE.
- MANHOLES SHALL BE VENTED IN ACCORDANCE WITH TEGE REQUIREMENTS.
- ALL SANITARY SEWER PIPE SHALL BE TESTED (NCTCOG ITEM 6.2) AFTER CONSTRUCTION. TESTING SHALL INCLUDE PRESSURE TESTING, MANHOLE TEST (TEGE REQUIRED) AND COLOR TV INSPECTION. COLOR TV INSPECTION SHALL BE COMPLETED IN PRESENCE OF CITY REPRESENTATIVE AND THE INSPECTOR. MANHOLES SHALL BE VENTED TO THE CITY AT THE COMPLETION OF THE INSPECTION.
- MANHOLES SHALL BE VACUUM TESTED IN THE PRESENCE OF THE CITY REPRESENTATIVE.

WATER

- ALL WATER LINE CROSSINGS OF SANITARY SEWER LINES SHALL BE AS SHOWN IN THE PLANS AND MEET TEGE REQUIREMENTS.
- PIPES 12 INCHES IN DIAMETER AND SMALLER SHALL BE POLYVINYL CHLORIDE (P.V.C.) MEETING THE REQUIREMENTS OF AWWA C900 DR 18 OR DUCTILE IRON PIPE (D.I.P.) MEETING THE REQUIREMENTS OF AWWA C151 CLASS 50 PIPE. ALL D.I.P. SHALL BE WRAPPED WITH A POLYETHYLENE LINER.
- FOR PIPES LARGER THAN 12 INCHES IN DIAMETER, THE PIPE SHALL BE DUCTILE IRON PIPE (AWWA C151 CLASS 50) OR POLYVINYL CHLORIDE PIPE UP TO 18 INCHES MEETING THE REQUIREMENTS OF AWWA C905 - 235 P.S.I. RATED PIPE.
- ALL VALVES ON PIPES 12 INCHES AND SMALLER SHALL BE RESULTANT SEALED WEDGE VALVES (AWWA C909).
- BUTTERFLY VALVES (AWWA C594) OR WEDGE VALVES (AWWA C901).
- ALL VALVES ON PIPES 30 INCHES AND LARGER SHALL BE BUTTERFLY VALVES (AWWA C901).
- EMBEDMENT SHALL BE AS SHOWN IN THE PLANS. BACKFILL WITHIN THE LIMITS OF EXISTING AND PROPOSED PAVEMENT SHALL BE COMPACTED TO 95% STANDARD PROCTOR. OUTSIDE PAVEMENT (EXISTING OR PROPOSED) SHALL BE COMPACTED TO MINIMUM OF 95% STANDARD PROCTOR. ALL EXISTING AND PROPOSED PAVEMENT SHALL BE TESTED TO MEET TEGE REQUIREMENTS ITEM 6.7.3.
- WATER LINES SHALL BE PRESURE TESTED TO MEET TEGE REQUIREMENTS ITEM 6.7.3.
- ALL HORIZONTAL AND VERTICAL BENDS SHALL BE BLOCKED USING 3,000 PSI COMMERCIAL CONCRETE. NO HAND MIXING OF SAND CONCRETE SHALL BE PERFORMED ON SITE.
- ALL SADDLES SHALL BE WELDERHYWAY BR28 4"x6" SADDLES. FORD METER 202B DOUBLE STRAP BRASS SADDLE. OR APPROVED EQUIVALENT.

SCREENING WALLS


- CONCRETE MINIMUM COMPRESSIVE STRENGTH OF 3,000 P.S.I. @ 28 DAYS.
- REINFORCING STEEL SHALL BE DEFORMED BARS NO. 3 ON 18 INCH CENTERS OR NO. 4 BARS ON 24 INCH CENTERS UNLESS OTHERWISE NOTED IN THE DETAILS.
- MINIMUM 2" CLEARANCE FROM DESIGN - 20" P.S.I.F.
- PROVISIONS - COMPRESSIVE STRENGTH SHALL BE PRESCRIBED IN ITEM 2.3.8 SPECIAL PROVISIONS.
- MIND LOAD FOR DESIGN - 20" P.S.I.F.
- REINFORCING STEEL SHALL BE DEFORMED BARS NO. 3 ON 18 INCH CENTERS OR NO. 4 BARS ON 24 INCH CENTERS UNLESS OTHERWISE NOTED IN THE DETAILS.
- PROVIDE EXPANSION JOINTS AT 200 FEET CENTER MAXIMUM.
- EXPANSION JOINTS SHALL BE 6 FOOT MINIMUM WITH 3 FOOT MINIMUM W/TO BLUE MATERIAL. EXCEPT BLUE SHALL BE 6 FOOT MINIMUM WITH 3 FOOT MINIMUM W/TO BLUE MATERIAL.
- ALL EXPOSED CONCRETE SHALL BE CLASS 2 RUBBER FINISHED SURFACE.
- EXPANSION JOINTS SHALL BE 6 FOOT MINIMUM WITH 3 FOOT MINIMUM W/TO BLUE MATERIAL. EXCEPT BLUE SHALL BE 6 FOOT MINIMUM WITH 3 FOOT MINIMUM W/TO BLUE MATERIAL.
- MAXIMUM PLASTER SPACING 40 FEET.
- WALLS SHALL NOT BE PLACED IN THE VISIBILITY EQUIPMENT OR STREET RIGHT OF WAY.
- NEAREST ALLEY EDGE OR SIDEWALK GRADE, WHICHEVER IS THE HIGHER. THE COLOR OF THE WALL SHALL BE LIMITED TO EARTH-TONE COLORS, EXCLUDING GRAY, GREEN AND WHITE. THE COLOR OF THE WALL SHALL BE UNIFORM ON EACH SIDE OF A THROUGHOUT THE PROJECT. THE COLOR SHALL BE APPROVED BY THE CITY'S PUBLIC WORKS DEPARTMENT.
- FINISH OF THE WALL SHALL BE CONSISTENT ON ALL SURFACES.
- IF WROUGHT IRON FENCING IS TO BE UTILIZED ON REQUIRED SCREENING, ALL WROUGHT IRON MUST BE SOLID STOCK, NO TUBULAR STEEL WILL BE ALLOWED.
- ROW OF BRICKS & ANCHORED INTO THE COLUMNS FOR MASONRY SCREENING WALLS.

TRAFFIC SIGNS AND LIGHTING

- TRAFFIC SIGNS AND LIGHTING SHALL BE THE PROPERTY OF THE CITY OF DENISON. THROUGHOUT THE TERM OF THE CONTRACT, THE CONTRACTOR SHALL PROTECT THESE SIGNS SUCH THAT THEY ARE NOT DAMAGED IN THE COURSE OF CONSTRUCTION ACTIVITY.
- PRIOR TO THE START OF CONSTRUCTION ALL EXISTING SIGNS WITHIN THE AREA OF CONSTRUCTION SHALL BE IDENTIFIED AND DOCUMENTED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR THE IDENTIFICATION, SIGNIFICATION, REFLECTIVITY ADEQUACY, ETC. THE CONTRACTOR IS HELD ACCOUNTABLE FOR THESE SIGNS THROUGHOUT THE PROJECT AND AT THE COMPLETION OF THE PROJECT AND MONITORED AND OVERSEEN SIGNS SHALL USE ANSI STANDARD RD1529 ALUMINUM BLANKS.
- ALL BLANKS TO BE INSTALLED SHALL BE 505-168 ALUMINUM (ASTM B - 209).
- THE THICKNESS FOR ALL SIGN BLANKS IS 0.063" EXCEPT OVERHEAD STREET NAME BLANKS WHICH ARE 0.075" THICK.
- ALL HOLES SHALL BE 3/8" DIAMETER DRILLED OR PUNCHED AS SHOWN ON EACH BLANK DETAIL AND SHALL BE FREE OF BURRS AND /OR ROUGH EDGES.
- ALL SIGN FACE MATERIALS SHALL BE ASTM A996 TYPE M HULL CUBE PRISMATIC GRADE.
- REFLECTIVE SHEETING SHALL HAVE 7/8" DIAMETER HOLES DRILLED ON EACH END AND AFFIXED TOGETHER.
- REFLECTIVE SHEETING SHALL HAVE 7/8" DIAMETER HOLES DRILLED ON EACH END AND AFFIXED TOGETHER.
- SIGN BLANK CONNERS TO BE ENCHED. DRAGSTRONG FINISH PRIOR TO APPLICATION OF LETTERS.
- ALL LETTERS SHALL BE 3/4" HIGH AND 3/4" WIDE. LETTERS SHALL BE 3/4" HIGH AND 3/4" WIDE. LETTERS SHALL BE 3/4" HIGH AND 3/4" WIDE.
- ALL LETTERS SHALL BE 3/4" HIGH AND 3/4" WIDE. LETTERS SHALL BE 3/4" HIGH AND 3/4" WIDE.
- ALL LETTERS SHALL BE 3/4" HIGH AND 3/4" WIDE. LETTERS SHALL BE 3/4" HIGH AND 3/4" WIDE.
- ALL LETTERS SHALL BE 3/4" HIGH AND 3/4" WIDE. LETTERS SHALL BE 3/4" HIGH AND 3/4" WIDE.
- ALL LETTERS SHALL BE 3/4" HIGH AND 3/4" WIDE. LETTERS SHALL BE 3/4" HIGH AND 3/4" WIDE.
- ALL LETTERS SHALL BE 3/4" HIGH AND 3/4" WIDE. LETTERS SHALL BE 3/4" HIGH AND 3/4" WIDE.

DETAILS

- ALL DETAILS ARE NOT TO SCALE.
- SPECIAL DETAILS OR MODIFICATIONS TO THESE STANDARD DETAILS TO BE UTILIZED ON ANY GIVEN PROJECT SHALL BE SUBMITTED TO THE CITY FOR APPROVAL FOR USE.



CITY OF DENISON, TEXAS

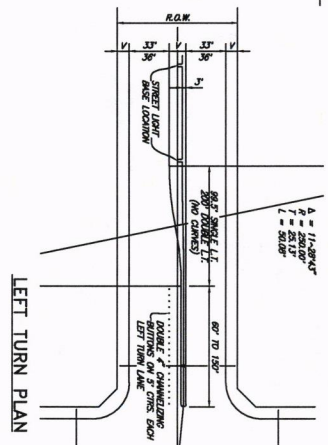
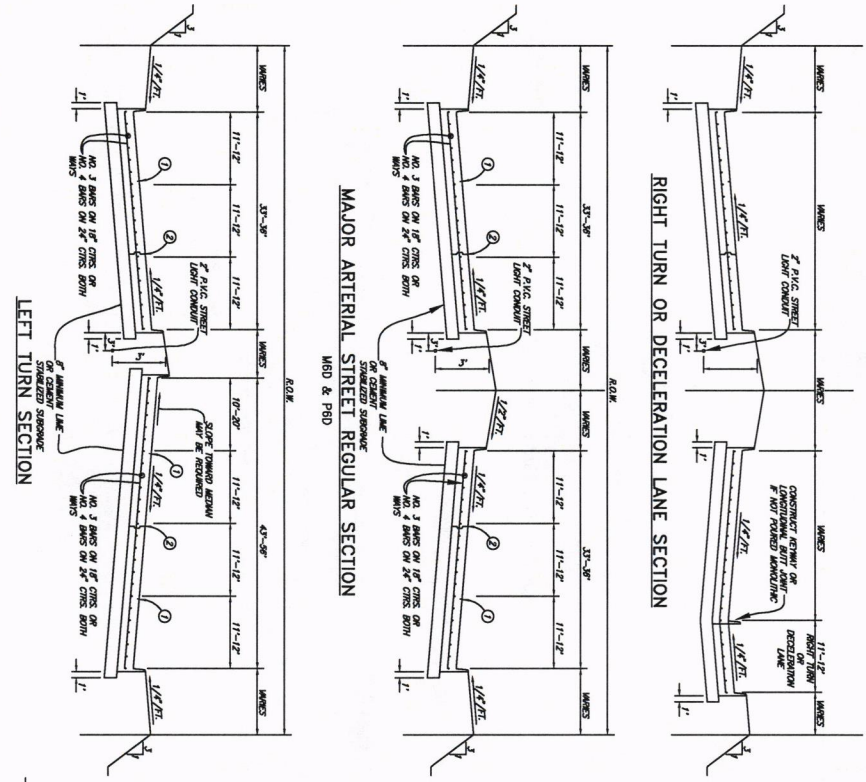
STANDARD CONSTRUCTION DETAILS

GENERAL NOTES

	FURT SCALE: 1/2"	FURT SCALE: 1/8"
DRAWN BY: <i>[Signature]</i>	DATE: December, 2023	SHEET NO. 1

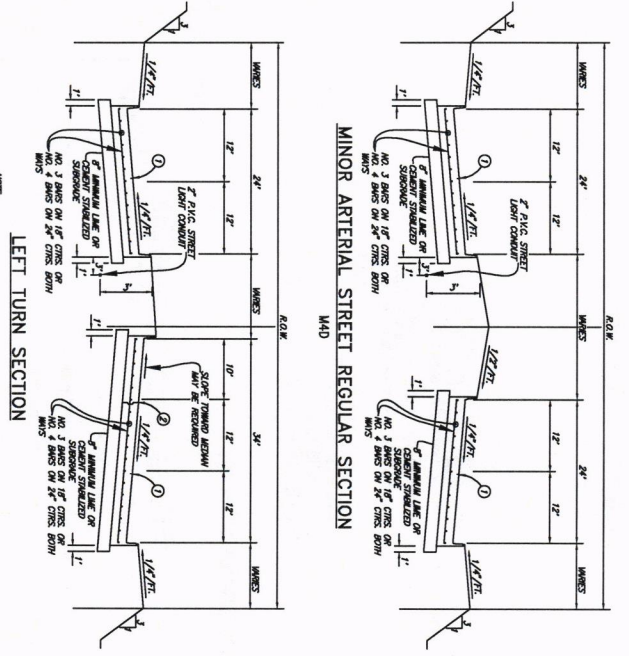


- LEGEND**
- ① - SAND LONGITUDINAL CURB / CURB / CURB
 - A - CONSTRUCTION JOINT (FILL WIDTH BY (O.D.) ALLOWED WHERE APPROVED)
 - ② - B. DETECT. IT WHEN PAVING IS 25 FT. WIDEN TO BE WIDENED IN FUTURE.
 - C. INSTALL CURB F. PAVING IS LESS THAN FILL WIDTH OF 35'-36" (LEHEND, PAVEN)

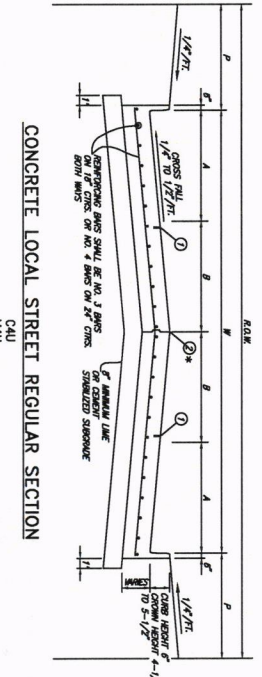
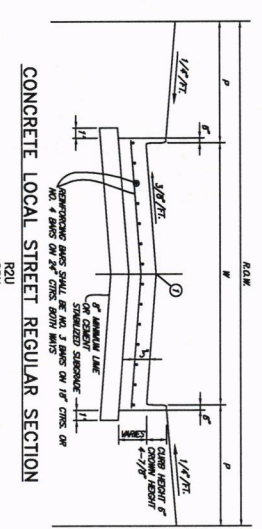


Minimum Thickness	Material	Colloidal	Level	Total Thickness	Finish	Individual
3"	1"	1"	1"	3"	3"	3"
3"	1"	1"	1"	3"	3"	3"
3"	1"	1"	1"	3"	3"	3"

NOTE:
FOR RETIRED TURN LANE AND MEDIAN OPENINGS, TWO ADDITIONAL ROWS OF CURBING ON BE PLACED AT END OF LANE TRANSITION.



NOTE:
LINE OR CEMENT SURGRADE TO BE RECOMMENDED BY GEOTECHNICAL ENGINEER AND MUST BE APPROVED BY THE PUBLIC WORKS DIRECTOR.



Material Thickness	Asphalt	Concrete	Local	Three Lane	Four Lane	Industrial
Pavement	3"	3"	6"	12"	6"	12"
Subgrade	5"	5"	5"	5"	5"	5"

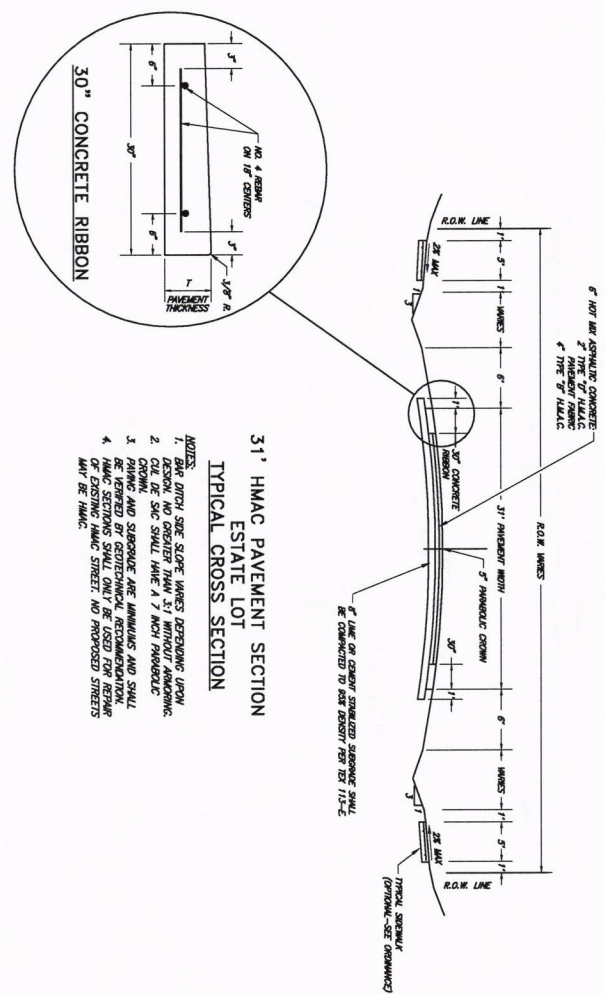
① - SAVED LONGITUDINAL DRAIN JOINT
 ② - IS ALLOWED WHERE APPROVED BY CITY

R2U, C2U, C4U, M4U & M5U PAVING SECTIONS SHALL HAVE A MINIMUM PAVEMENT THICKNESS OF 8 INCHES UNLESS THE GEOTECHNICAL ENGINEER RECOMMENDS OTHERWISE.

ROADWAY WIDTH (W)	TOTAL CROWN HEIGHT	MIN-POINT	1/4" POINT
28'	4"	2'-1/4"	1/4"
36'	5"	3'-3/8"	3/8"
44'	5"	3'-3/8"	3/8"

TABLE OF CROWN HEIGHTS AND ORDINATES FOR VARIOUS PARABOLIC SECTIONS

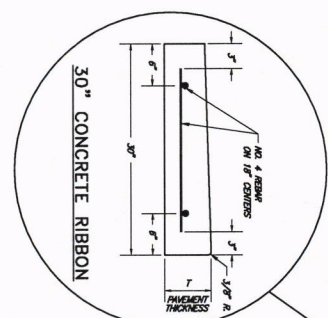
31'-TOW PAVEMENT MUST MEET CROWN ORDINATES AT CURVES, AT MID-POINTS & PARABOLIC POINTS ONLY TO BE CONSTRUCTED WITH SLOPE FROM CURVES



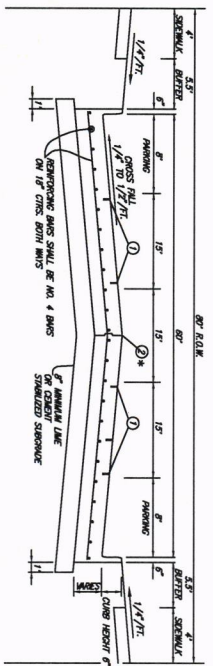
31' HMAC PAVEMENT SECTION
 ESTATE LOT
 TYPICAL CROSS SECTION

31' HMAC PAVEMENT SECTION
 LOCAL STREET
 TYPICAL CROSS SECTION

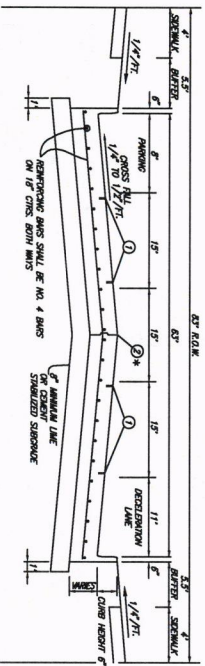
- NOTES:
- FOR 30" GUTTER DETAIL, SEE "SEPARATE CURB & GUTTER DETAIL"
 - CROWN, SEE SHALL HAVE A 7' HIGH PARABOLIC
 - PAVING AND SUBGRADE ARE LAMINATED AND SHALL BE REVERSED BY GEOTECHNICAL RECOMMENDATION.
 - PAVING AND SUBGRADE ARE LAMINATED AND SHALL BE REVERSED BY GEOTECHNICAL RECOMMENDATION.
- NOTE:
 LIME OR CEMENT SUBGRADE DESIGN TO BE RECOMMENDED BY GEOTECHNICAL ENGINEER AND MUST BE APPROVED BY THE PUBLIC WORKS DIRECTOR.



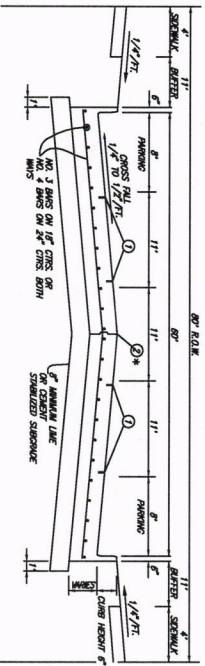
CITY OF DENISON, TEXAS
 STANDARD CONSTRUCTION DETAILS
 PAVING / SECTIONS / LOCAL STREETS



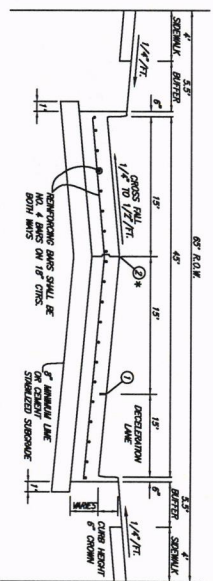
CONCRETE INDUSTRIAL STREET WITH PARKING SECTION



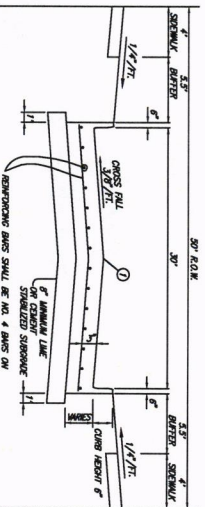
CONCRETE INDUSTRIAL STREET WITH DECELERATION LANE SECTION



MAJOR COLLECTOR WITH PARKING SECTION



CONCRETE INDUSTRIAL LOCAL STREET WITH RIGHT TURN DECELERATION LANE SECTION



CONCRETE INDUSTRIAL STREET REGULAR SECTION

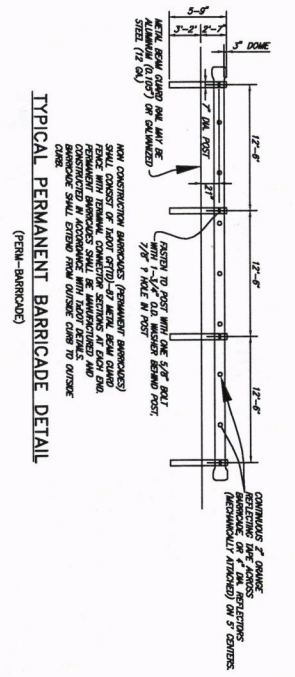
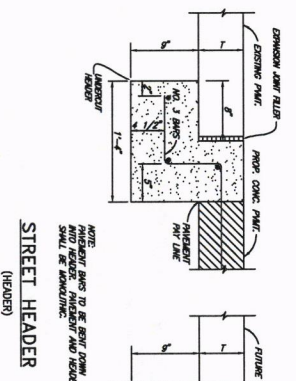
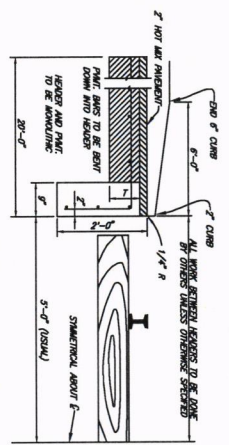
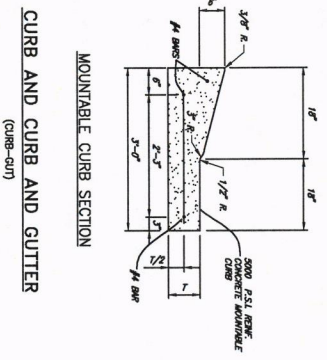
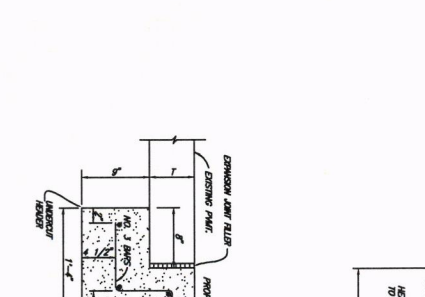
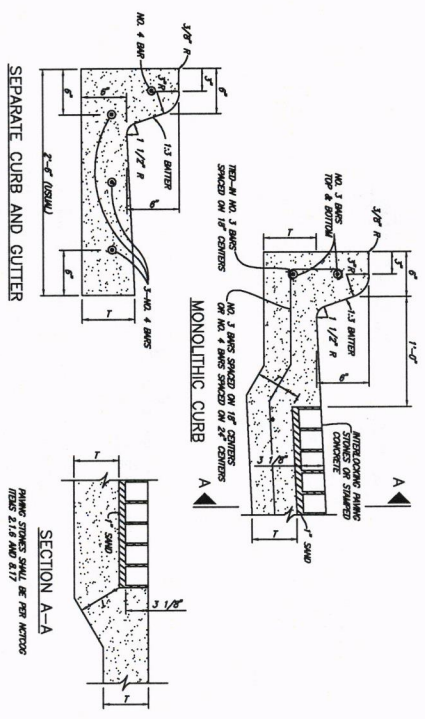
LEGEND

- ① - SAVED LONGITUDINAL DRAINAGE JOINT
- ② - IS ALLOWED WHERE APPROVED BY CITY

Material	Thickness	Amount	Schedule	Total	Trade Line	Trade Line	Horizontal
Pavement	8"	50'	30'	8"	5'	5'	8"
Subgrade	8"	50'	30'	8"	5'	5'	8"

NOTE:
 LIME OR CEMENT SUBGRADE DESIGN TO BE RECOMMENDED BY GEOTECHNICAL ENGINEER AND MUST BE APPROVED BY THE PUBLIC WORKS DIRECTOR.





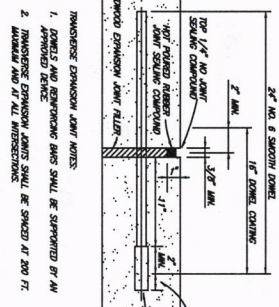
CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
PAVING / DETAILS

December, 2023
SHEET NO. 5



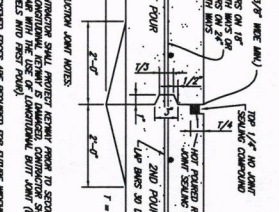
CHANGE ORDER NO. X
FIELD CHANGE
ADDITIONAL

TRANSVERSE EXPANSION JOINT (EXPANIT)



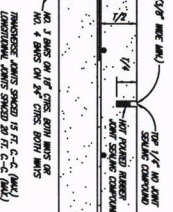
- TRANSVERSE EXPANSION JOINT NOTES:
1. DOWELS AND REINFORCING BARS SHALL BE SUPPORTED BY AN EXPANIT.
 2. TRANSVERSE EXPANSION JOINTS SHALL BE SPACED AT 200 FT. INTERVALS AND AT ALL INTERSECTIONS.

TRANSVERSE EXPANSION JOINT (CONSTRANT)

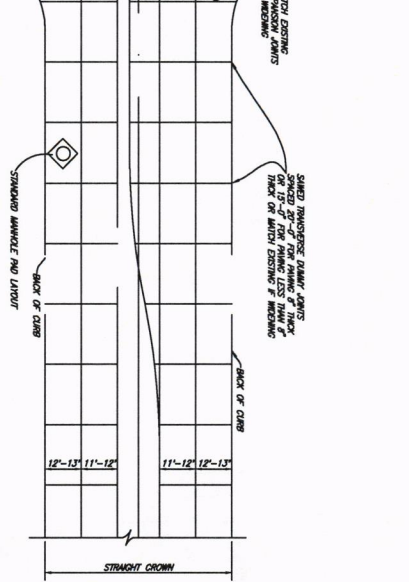


- CONSTRUCTION JOINT NOTES:
1. CONSTRUCTION SHALL PROTECT REINFORCING FROM SECOND POUR & CONSTRUCTION JOINTS SHALL BE PROTECTED BY CONSTRUCTION JOINT PILES.
 2. THICKNESS EDGES ARE REQUIRED FOR FUTURE REPAIRS ONLY.

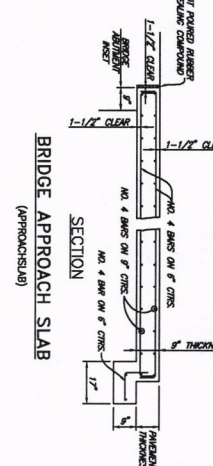
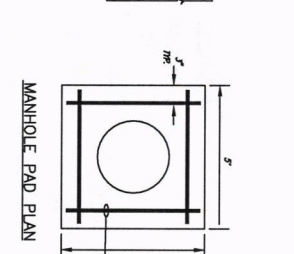
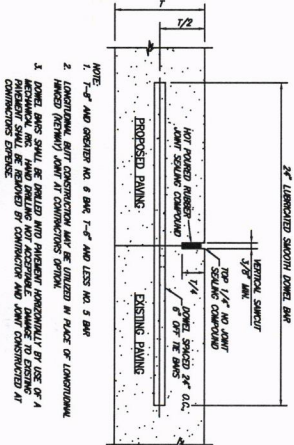
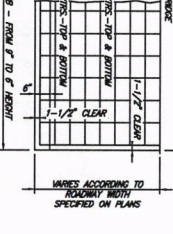
SAWED DUMMY JOINT (DOWELMANIT)



SPACING DIAGRAM FOR TRANSVERSE JOINTS (ROADWAYS AND ALLEYS) (JOINT-SPACING)

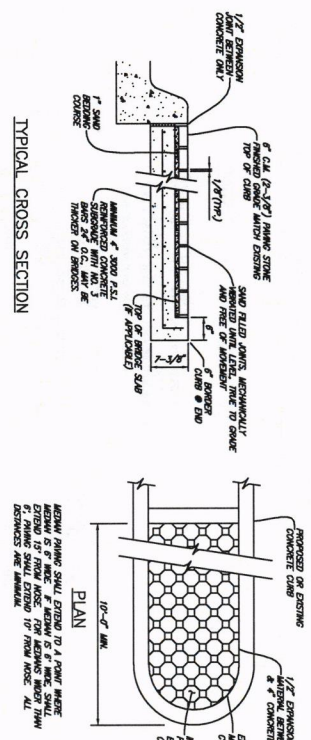


LONGITUDINAL BUTT JOINT (BUTTMANIT)

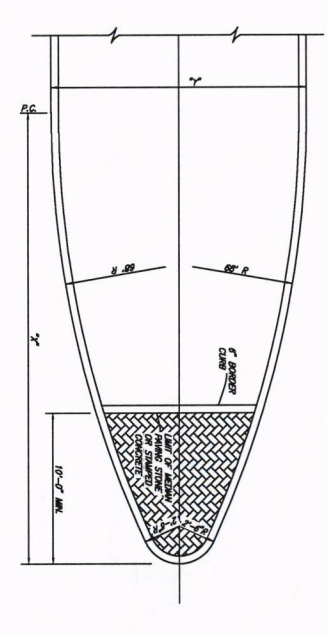


CITY OF DENISON, TEXAS

STANDARD CONSTRUCTION DETAILS
PAVING / DETAILS

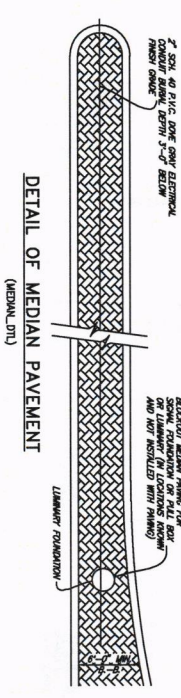


TYPICAL CROSS SECTION
 STAMPED CONCRETE OR INTERLOCKING PAVING STONE
 COLOR AND FINISH TO BE SELECTED BY CITY
 (MEDIAN STONE)



DETAIL OF NOSE FOR MEDIAN ISLAND
 DIMENSIONS OF MEDIAN NOSE

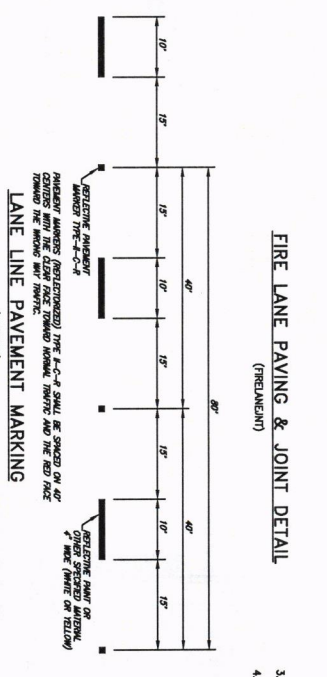
X = 13.00'	Y = 22.00'	X = 20.50'	Y = 14.00'
X = 18.00'	Y = 8.00'	X = 20.50'	Y = 17.00'
X = 18.00'	Y = 8.00'	X = 20.50'	Y = 20.00'
X = 20.42'	Y = 10.07'	X = 20.47'	Y = 24.00'



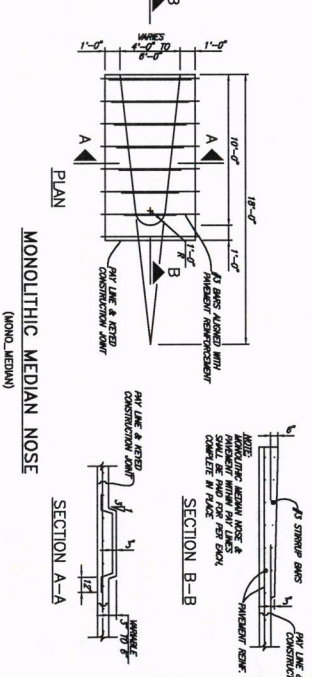
DETAIL OF MEDIAN PAVEMENT
 (MEDIAN DTY)

1. ALL FIRE LANES SHALL BE PAVED WITH A MINIMUM OF 8 INCHES OF 3000 P.S.I. CONCRETE REINFORCED WITH #3 REBAR PLACED ON 18 INCH CENTERS EACH WAY ON A 8 INCH LIME STABILIZED SUBGRADE. THE REBAR SHALL BE STABILIZED IN SPACED 18 INCHES PER APPROVED SPECIFICATIONS. IN SPACED 18 INCHES PER APPROVED SPECIFICATIONS. (15) SURFACE AREA TREATED TO A MINIMUM 8 INCH THICKNESS.
2. ALL FIRE LANES MAY BE PAVED WITH 8 INCHES OF 3000 P.S.I. CONCRETE (28 DAYS COMPRESSIVE STRENGTH) REINFORCED WITH #3 REBAR PLACED ON 18 INCH CENTERS EACH WAY ON A 8 INCH LIME STABILIZED SUBGRADE. THE REBAR SHALL BE STABILIZED IN SPACED 18 INCHES PER APPROVED SPECIFICATIONS. IN SPACED 18 INCHES PER APPROVED SPECIFICATIONS. (15) SURFACE AREA TREATED TO A MINIMUM 8 INCH THICKNESS.
3. ALL FIRE LANES SHALL BE PAVED WITH A MINIMUM OF 8 INCHES OF 3000 P.S.I. CONCRETE REINFORCED WITH #3 REBAR PLACED ON 18 INCH CENTERS EACH WAY ON A 8 INCH LIME STABILIZED SUBGRADE. THE REBAR SHALL BE STABILIZED IN SPACED 18 INCHES PER APPROVED SPECIFICATIONS. IN SPACED 18 INCHES PER APPROVED SPECIFICATIONS. (15) SURFACE AREA TREATED TO A MINIMUM 8 INCH THICKNESS.

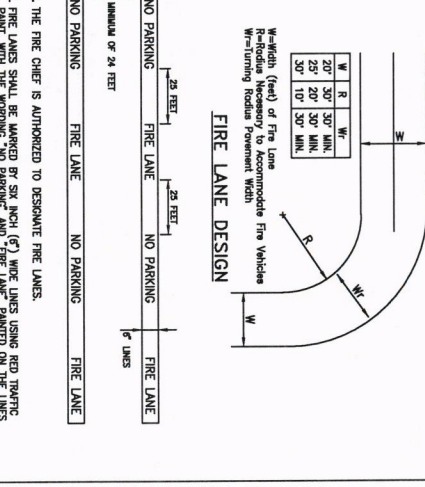
FIRE LANE PAVING & JOINT DETAIL
 (PRELIMINARY)



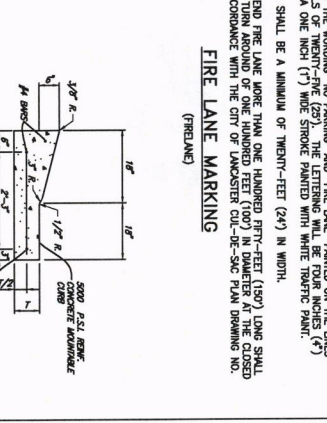
LANE LINE PAVEMENT MARKING
 (MARKING)



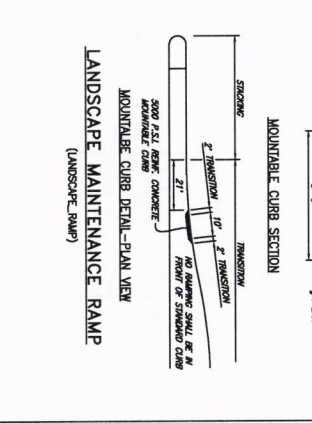
MONOLITHIC MEDIAN NOSE
 (MONO. MEDIAN)



FIRE LANE DESIGN

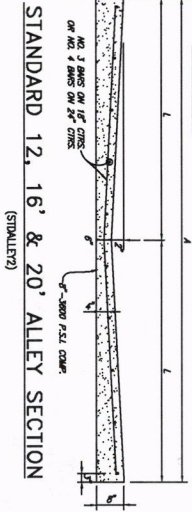


LANDSCAPE MAINTENANCE RAMP
 (LANDSCAPE RAMP)



STANDARD CONSTRUCTION DETAILS
 PAVING DETAILS

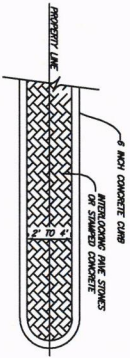
ALLEY WIDTH (A)	HALF WIDTH (U)
12'	6'
16'	8'
20'	10'



STANDARD 12, 16' & 20' ALLEY SECTION (STANDARD)

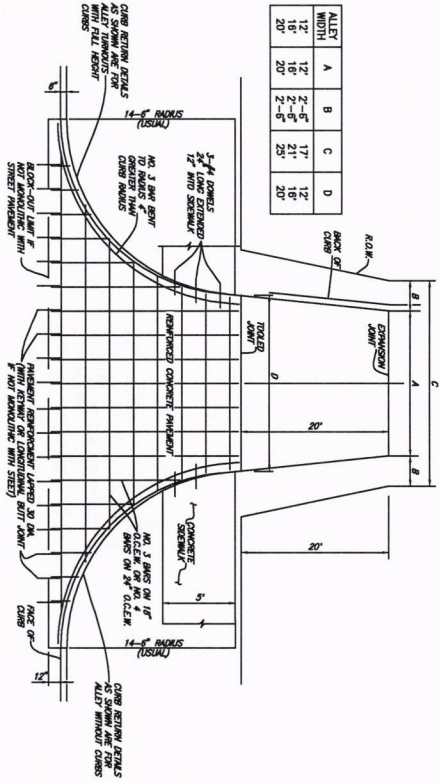


ALLEY SECTION WITH CURBS (STANDARD)

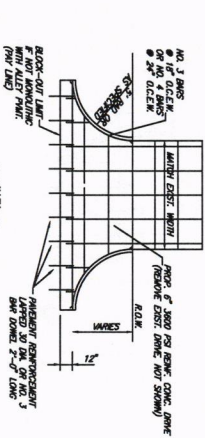


MEDIAN AT DRIVEWAYS SPLIT BY PROPERTY LINE (OPTION 1)

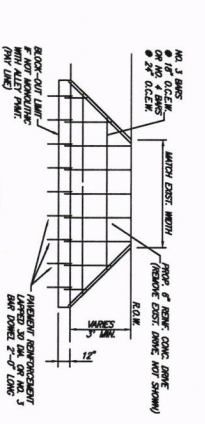
ALLEY WIDTH	A	B	C	D
12'	2'-6"	11'	12'	12'
16'	2'-6"	11'	16'	16'
20'	2'-6"	11'	20'	20'



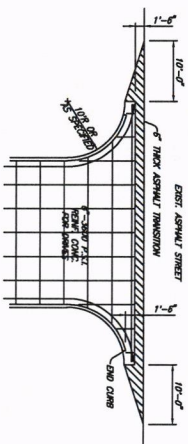
ALLEY RETURN DETAILS (OPTION 2)



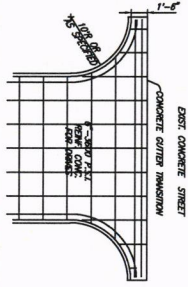
DRIVEWAY RETURN TO ALLEY WITH CURBS (OPTION 2)



STANDARD DRIVEWAY RETURN TO ALLEY (OPTION 2)



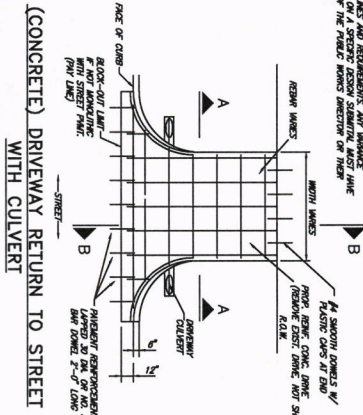
TYPICAL DRIVE OR STREET CONNECTION TO EXISTING ASPHALT STREET (OPTION 2)



TYPICAL DRIVE OR STREET CONNECTION TO EXISTING CONCRETE STREET (OPTION 2)

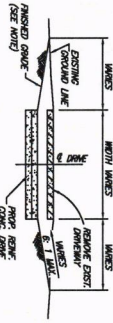
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
MIN. WIDTH	12' B-B	30' B-B	30' B-B
RADIUS	5'	30'	30'
MIN. THICKNESS	5"	6"	6"
REBAR	#3 BARS @ 18" O.C.	#4 BARS @ 18" O.C.	#4 BARS @ 12" O.C.

NOTE: DIMENSIONS SHALL BE HAND DRAWN. ALSO SEE SECTION 1 OF THE DESIGN PUBLIC WORKS DESIGN MANUAL FOR ADDITIONAL DIMENSIONAL REQUIREMENTS. ANY VARIANCE FROM THE APPROVAL OF THE PUBLIC WORKS DIVISION OF THEIR RESOLVE.

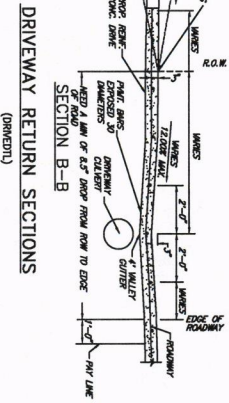


(CONCRETE) DRIVEWAY RETURN TO STREET WITH CURB

NOTE: FINISHED GRADING WITHIN THE R.O.W. SHALL BE PROHIBITIVELY SLOPED. FINISHED GRADING SHALL BE PROHIBITIVELY SLOPED TO THE R.O.W. AND FINISHED GRADING SHALL BE PROHIBITIVELY SLOPED TO ITS PRE-CONSTRUCTION APPEARANCE.



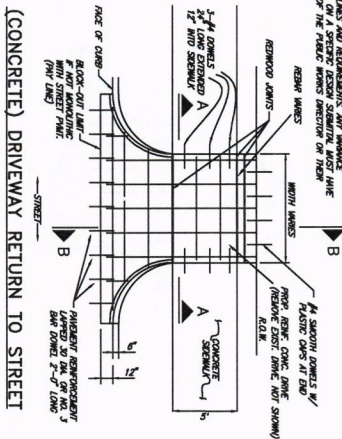
SECTION A-A



DRIVEWAY RETURN SECTIONS (OPENED)

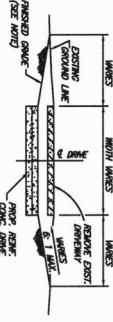
	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
MIN. WIDTH	12' B-B	30' B-B	30' B-B
RADIUS	5'	30'	30'
MIN. THICKNESS	5"	6"	6"
REBAR	#3 BARS @ 18" O.C.	#4 BARS @ 18" O.C.	#4 BARS @ 12" O.C.

NOTE: DIMENSIONS SHALL BE HAND DRAWN. ALSO SEE SECTION 1 OF THE DESIGN PUBLIC WORKS DESIGN MANUAL FOR ADDITIONAL DIMENSIONAL REQUIREMENTS. ANY VARIANCE FROM THE APPROVAL OF THE PUBLIC WORKS DIVISION OF THEIR RESOLVE.

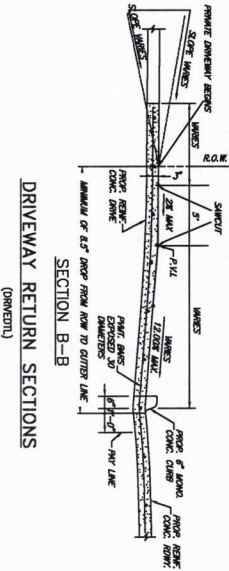


(CONCRETE) DRIVEWAY RETURN TO STREET

NOTE: FINISHED GRADING WITHIN THE R.O.W. SHALL BE PROHIBITIVELY SLOPED. FINISHED GRADING SHALL BE PROHIBITIVELY SLOPED TO THE R.O.W. AND FINISHED GRADING SHALL BE PROHIBITIVELY SLOPED TO ITS PRE-CONSTRUCTION APPEARANCE.



SECTION A-A



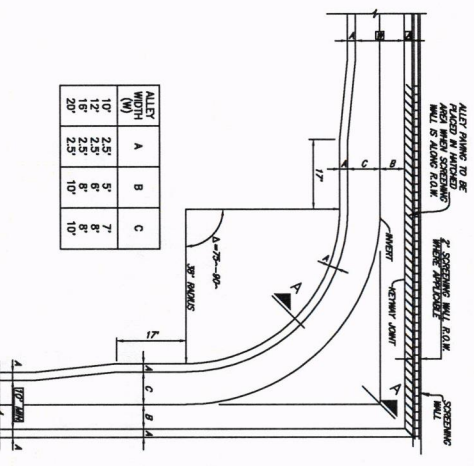
DRIVEWAY RETURN SECTIONS (OPENED)



CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
PAVING / ALLEY / DRIVEWAYS

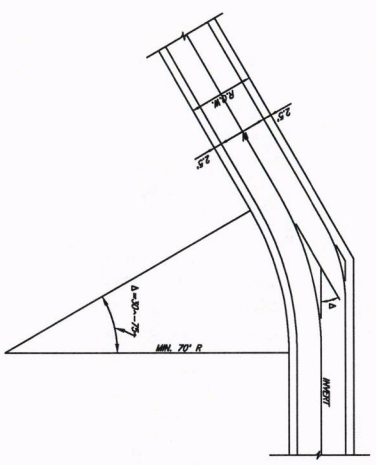
December, 2023

9

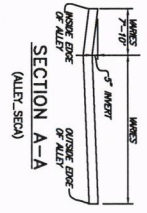


ALLEY WIDTH (W)	A	B	C
10'	2.5'	5'	7'
12'	2.5'	6'	8'
15'	2.5'	8'	10'
20'	2.5'	10'	10'

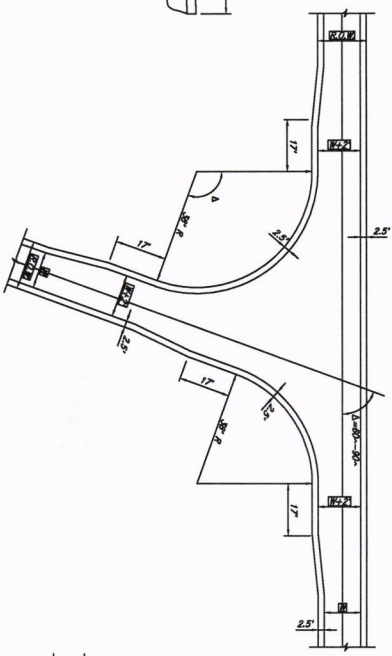
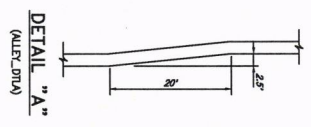
ALLEY TURN FOR $\Delta = 75^\circ-90^\circ$
(ALLEY_TURN)



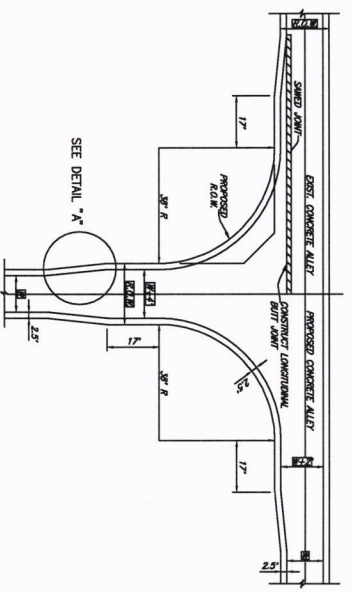
ALLEY TURN FOR $\Delta = 30^\circ-75^\circ$
(ALLEY_TURN)



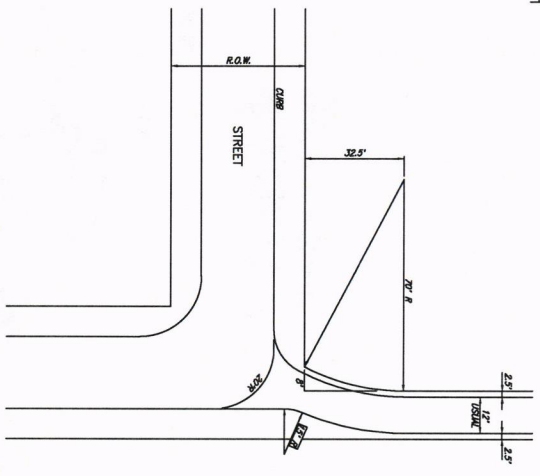
SECTION A-A
(ALLEY_SECT)



ALLEY TURN FOR $\Delta > 90^\circ$
(ALLEY_TURN)



ALLEY INTERSECTING ALLEY
(ALLEY_ALLEY)



ALLEY / STREET INTERSECTION
(ALLEY_ST)



CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
PAVING / GEOMETRICS

December, 2023

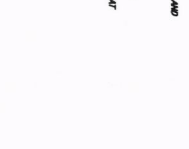
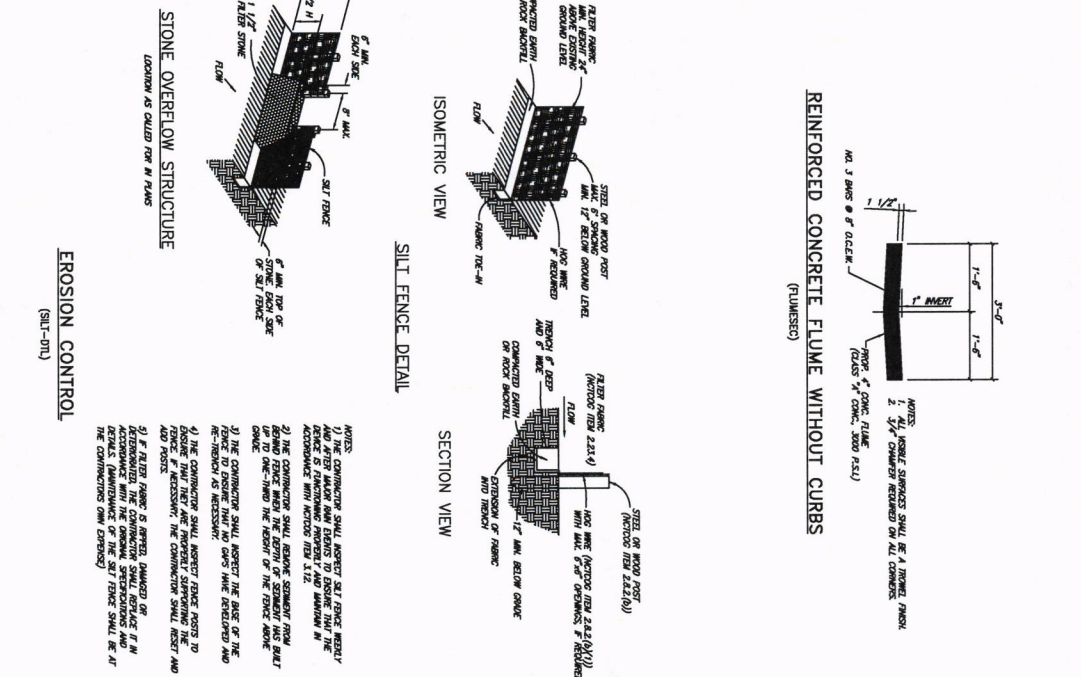
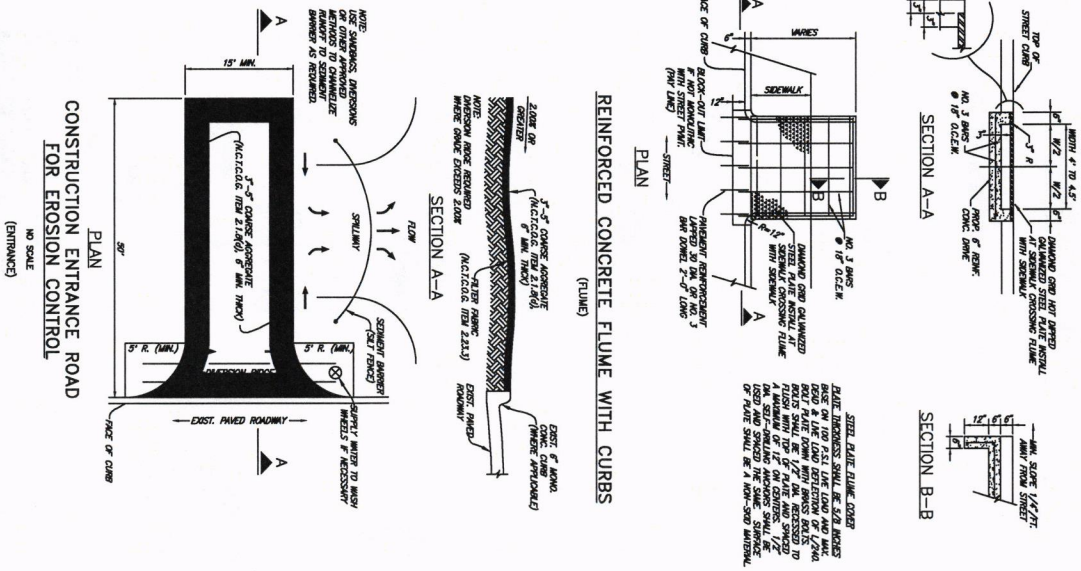
SHEET NO.
10



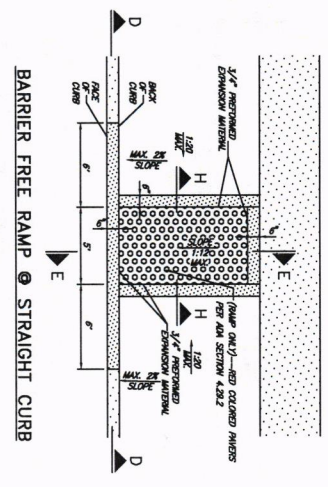
CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
CONCRETE FLUME / EROSION CONTROL

December, 2023

SHEET NO.
11

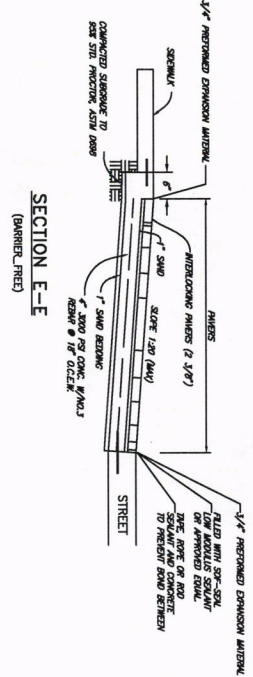


- NOTES:
- 1) THE CONTRACTOR SHALL INSPECT SILT FENCE BESETL
 - 2) THE CONTRACTOR SHALL INSPECT SILT FENCE BESETL
 - 3) THE CONTRACTOR SHALL INSPECT SILT FENCE BESETL
 - 4) THE CONTRACTOR SHALL INSPECT SILT FENCE BESETL
 - 5) THE CONTRACTOR SHALL INSPECT SILT FENCE BESETL
 - 6) THE CONTRACTOR SHALL INSPECT SILT FENCE BESETL
 - 7) THE CONTRACTOR SHALL INSPECT SILT FENCE BESETL
 - 8) THE CONTRACTOR SHALL INSPECT SILT FENCE BESETL
 - 9) THE CONTRACTOR SHALL INSPECT SILT FENCE BESETL
 - 10) THE CONTRACTOR SHALL INSPECT SILT FENCE BESETL



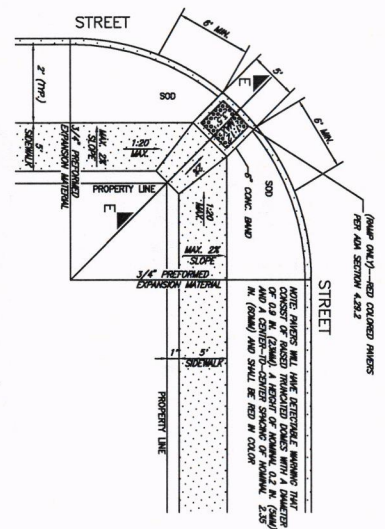
SECTION E-E
(BARRIER FREE)

SECTION H-H

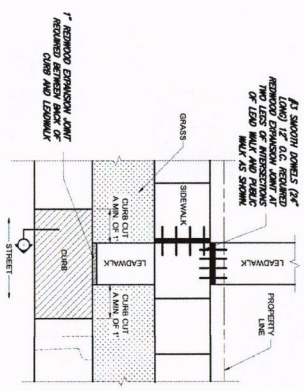
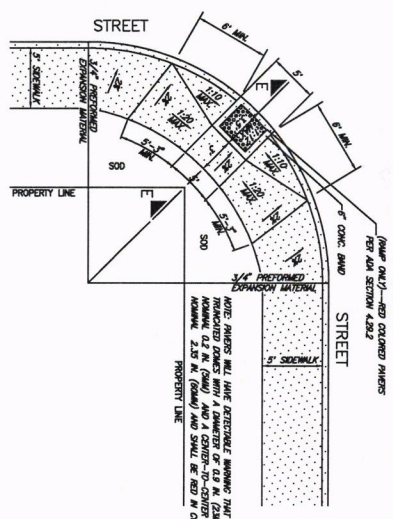


SECTION E-E
(BARRIER FREE)

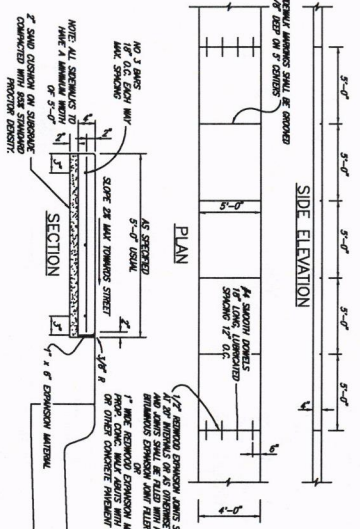
RAMP FOR 5 FOOT SIDEWALK AWAY FROM CURB



RAMP FOR 5 FOOT SIDEWALK NEXT TO CURB



SECTION H-H



REINFORCED CONCRETE SIDEWALK
(SIDEWALK)

REVISED: 12/4/23 - Additions

1/4\"/>

PLOT SCALE: 1:2

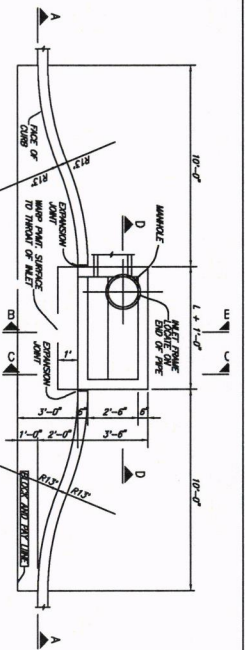
PLOT STYLE: monochrome.ctb PLOTTED BY: Cohen Samsone ON: 12/17/2023



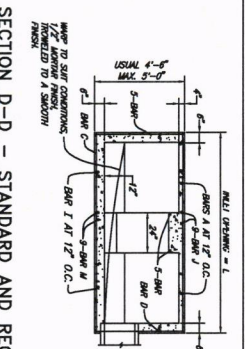
CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
PAVING / SIDEWALKS

December, 2023

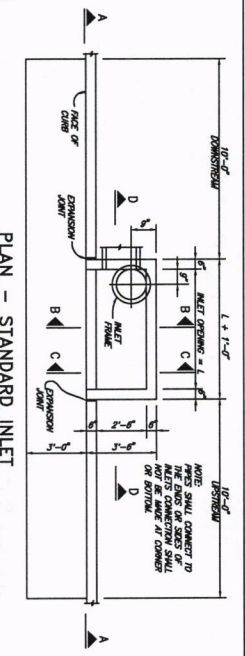
SHEET NO.
12



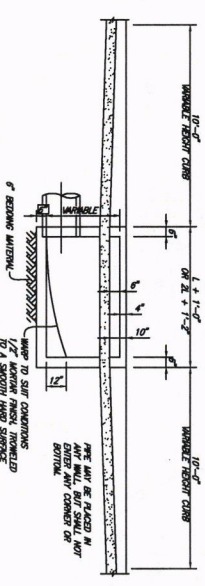
PLAN - RECESSED INLET (REC-NIT)



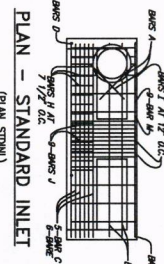
SECTION D-D - STANDARD AND RECESSED INLETS (SECT-A-1)



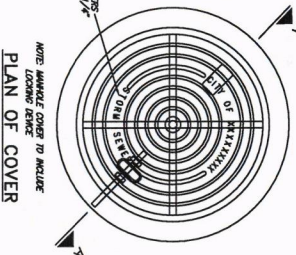
PLAN - STANDARD INLET (STINDIT)



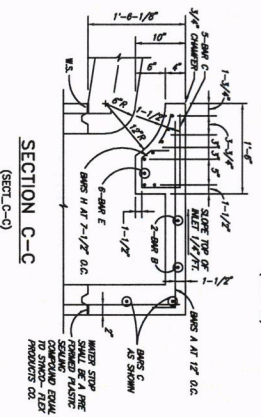
SECTION A-A-RECESSED AND STANDARD INLETS (PLAN-10)



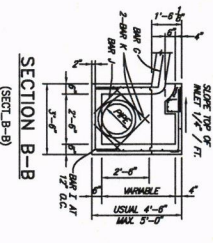
PLAN - STANDARD INLET (PLAN-STINDIT)



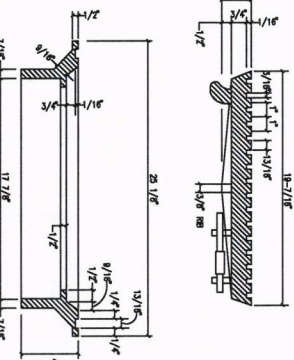
PLAN OF COVER



SECTION C-C (SECT-C-3)



SECTION B-B (SECT-B-8)



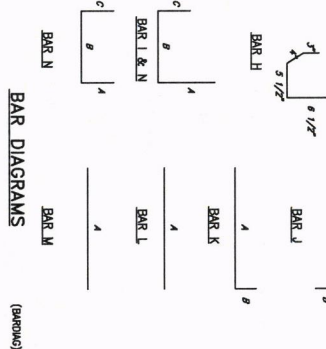
SECTION OF FRAME AND COVER SECTION A-A INLET FRAME AND COVER (MIL-COV)

REINFORCING STEEL SCHEDULE

DIMENSIONS SHOWN ARE FOR MAXIMUM SIZE INLETS

DIMENSIONS SHOWN ARE FOR MAXIMUM SIZE INLETS	INLET LENGTH THE 1/8 IN.	BAR DIMENSIONS	A	B	C
10	4	3	5-2"	0-3"	-
10	5	3	6-10"	-	-
10	6	3	8-10"	-	-
10	7	3	10-8"	0-8"	-
10	8	3	10-8"	0-8"	-
10	9	3	10-8"	0-8"	-
10	10	3	10-8"	0-8"	-
10	11	3	10-8"	0-8"	-
10	12	3	10-8"	0-8"	-
10	13	3	10-8"	0-8"	-
10	14	3	10-8"	0-8"	-
10	15	3	10-8"	0-8"	-
10	16	3	10-8"	0-8"	-
10	17	3	10-8"	0-8"	-
10	18	3	10-8"	0-8"	-
10	19	3	10-8"	0-8"	-
10	20	3	10-8"	0-8"	-
10	21	3	10-8"	0-8"	-
10	22	3	10-8"	0-8"	-
10	23	3	10-8"	0-8"	-
10	24	3	10-8"	0-8"	-
10	25	3	10-8"	0-8"	-
10	26	3	10-8"	0-8"	-
10	27	3	10-8"	0-8"	-
10	28	3	10-8"	0-8"	-
10	29	3	10-8"	0-8"	-
10	30	3	10-8"	0-8"	-

* SEE DRAWING FOR DIMENSIONS 10' INLETS



BAR DIAGRAMS (BARONS)

CITY OF DENISON, TEXAS

STANDARD CONSTRUCTION DETAILS
STORM SEWER / INLET

December, 2023

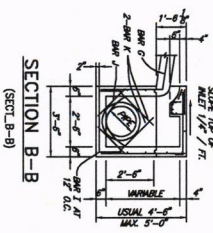
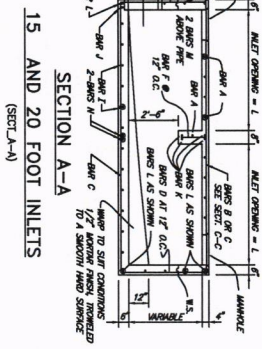
SHEET NO. 13



CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
STORM SEWER / INLET

December, 2023

SHEET NO.
14

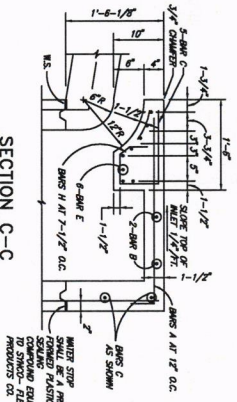


20 FOOT INLETS
(PLAN, 20)

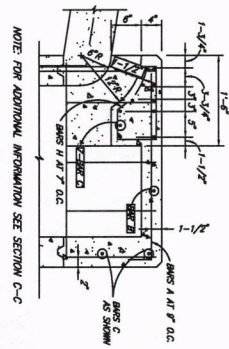
PLAN

NOTE: REINFORCING SHOWN IS CONSIDERED FOR REMAINERS OF REINFORCEMENT, SEE SECTIONS.

SECTION C-C
(SECT. C-C)



SECTION D-D
(SECT. D-D)



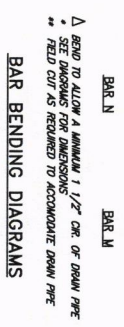
REINFORCING STEEL SCHEDULE

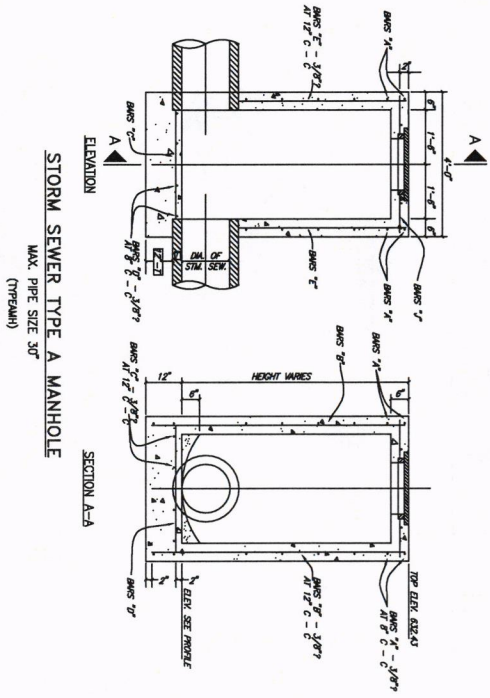
DOUBLE INLETS
DIMENSIONS SHOWN ARE FOR MAXIMUM SIZE INLETS

INLET SIZE (INCH)	BAR NO.	BAR NO. (1/8 IN.)	BAR DIMENSIONS
7.5 FT.	A	3	3-#4
7.5 FT.	B	3	3-#4
7.5 FT.	C	4	4-#4
7.5 FT.	D	4	4-#4
7.5 FT.	E	5	5-#4
7.5 FT.	F	5	5-#4
7.5 FT.	G	6	6-#4
7.5 FT.	H	6	6-#4
7.5 FT.	I	7	7-#4
7.5 FT.	J	7	7-#4
7.5 FT.	K	8	8-#4
7.5 FT.	L	8	8-#4
7.5 FT.	M	9	9-#4
7.5 FT.	N	9	9-#4
10 FT.	A	3	3-#4
10 FT.	B	3	3-#4
10 FT.	C	4	4-#4
10 FT.	D	4	4-#4
10 FT.	E	5	5-#4
10 FT.	F	5	5-#4
10 FT.	G	6	6-#4
10 FT.	H	6	6-#4
10 FT.	I	7	7-#4
10 FT.	J	7	7-#4
10 FT.	K	8	8-#4
10 FT.	L	8	8-#4
10 FT.	M	9	9-#4
10 FT.	N	9	9-#4

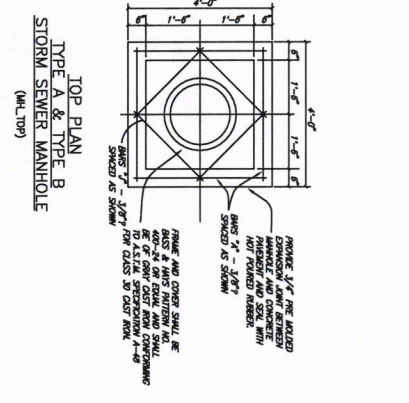
* SEE DRAWING FOR DIMENSIONS
** FIELD CUT AS REQUIRED TO ACCOMMODATE DOWN PIPE
*** FIELD CUT AS REQUIRED TO ACCOMMODATE DOWN PIPE

(BARLIST)

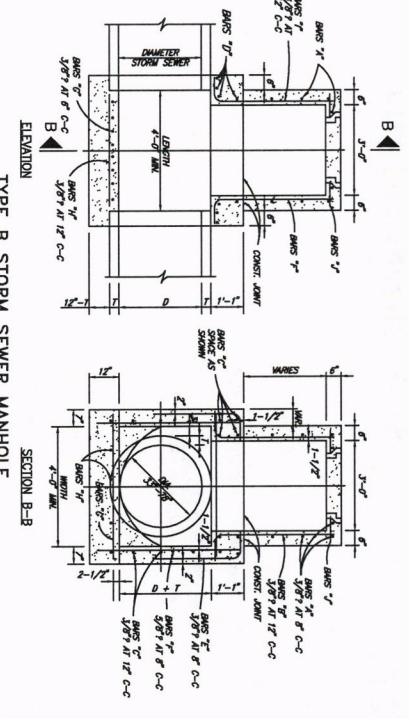




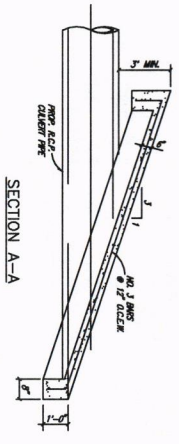
STORM SEWER TYPE A MANHOLE
MAX. PIPE SIZE 30"



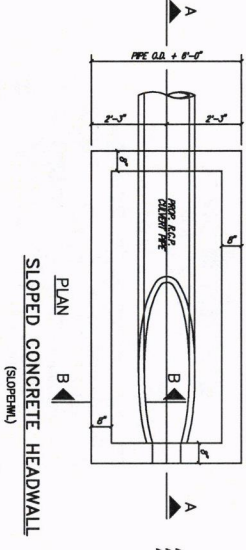
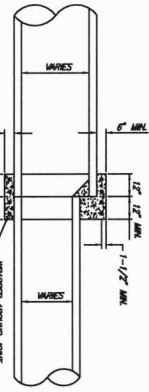
**TYPE A & TYPE B
STORM SEWER MANHOLE**
(4'-0" TOP)



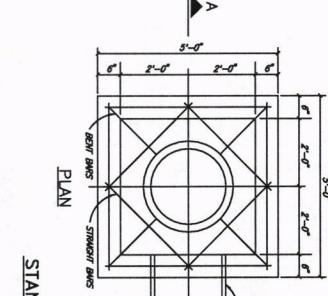
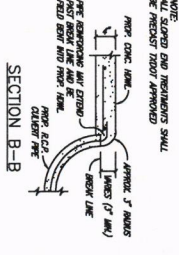
TYPE B STORM SEWER MANHOLE
MAX. PIPE SIZE 78"



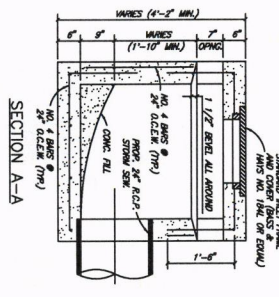
**DETAIL OF CONCRETE COLLAR
FOR R.C.P. OR R.C.A.P. CONNECTIONS**
INSIDE JOINT SHALL BE CONCRETE WORK
(CONCOCO)



SLOPED CONCRETE HEADWALL
(SLOPE=MIN)

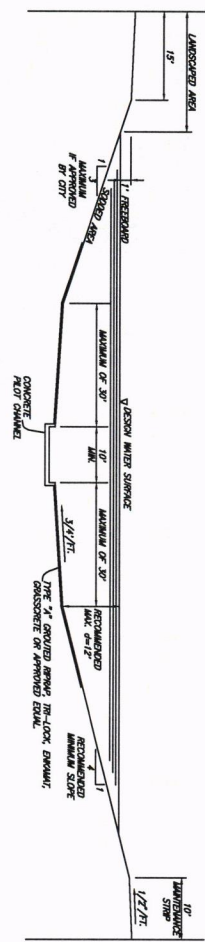


STANDARD DROP INLET
(DROPHLET)

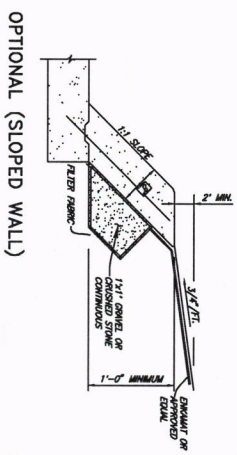


CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
STORM SEWER INLET / DETAILS

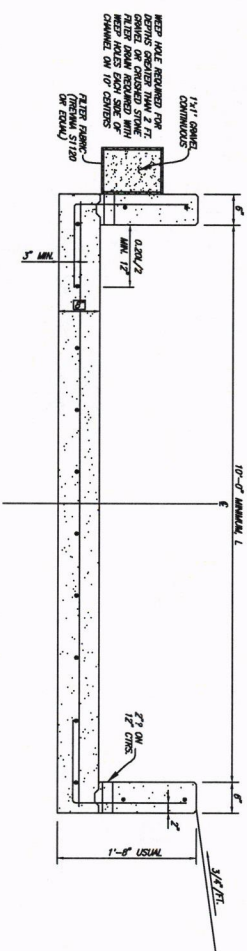
December, 2023
SHEET NO. 15



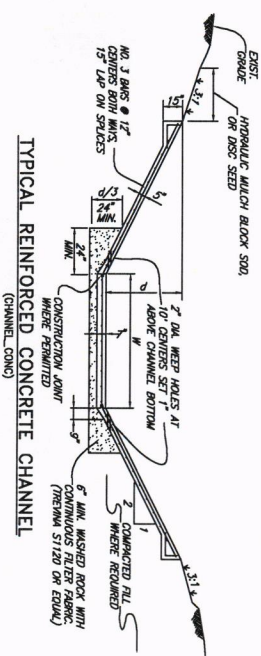
TYPICAL CHANNEL WITH REINFORCED CONCRETE LINED PILOT CHANNEL
(CHANNEL SECTION)



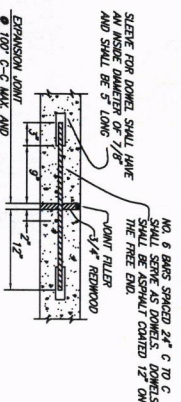
OPTIONAL (SLOPED WALL)



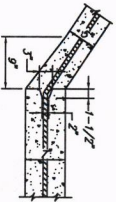
REINFORCED CONCRETE PILOT CHANNEL (VERTICAL WALL)
(CHANNEL PILOT)



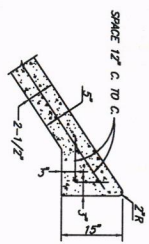
TYPICAL REINFORCED CONCRETE CHANNEL
(CHANNEL COMP)



TRANSVERSE EXPANSION JOINT



CONSTRUCTION JOINT
OPTIONAL
CONCRETE CHANNEL
(CHANNEL DITS)



SLAB EDGE - DETAIL "A"

GENERAL NOTES FOR LINED CHANNELS

1. CONSTRUCTION JOINT SHOWN FOR CONVENIENCE ONLY; MONOLITHIC CONSTRUCTION MAY BE USED.
2. ALL VISIBLE SURFACES SHALL BE A TROWEL FINISH.
3. ALL REINFORCING STEEL SHALL BE 3/8" DIA. AND SPACED 12" CENTER TO CENTER BOTH WAYS UNLESS OTHERWISE SPECIFIED.
4. IF WOOD FORMS ARE USED WITH CONSTRUCTION JOINT, THEY SHALL BE TWO, 2"x4" AND SHALL NOT BE REMOVED UNTIL CONCRETE ON SLOPES IS READY TO BE PLACED.
5. ALL CONCRETE IN LINED CHANNEL SHALL BE M2000 CLASS 2" (MIN. 3000 P.S.I.) CONCRETE.
6. FLAT BOTTOM TO BE CONSTRUCTED WHEN CHANNEL WIDTH IS LESS THAN 12" FOOT.
7. 3/4" CHAMFER ON ALL CONCRETE CORNERS. (GENL CHANNEL NOTE)



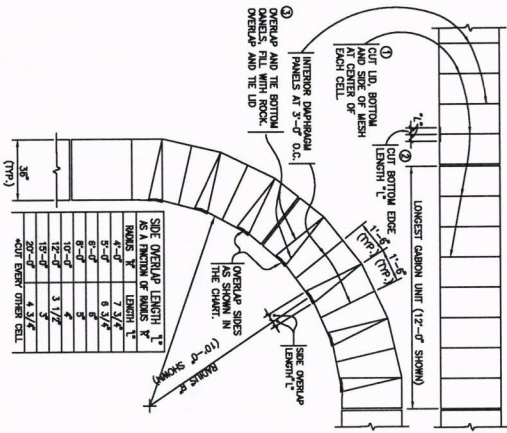


CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
CHANNELS / GABIONS

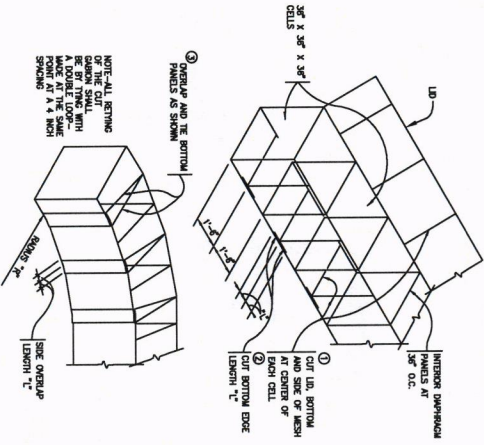
December, 2023

SHEET NO. 17

GABION RADIUS PROCEDURE

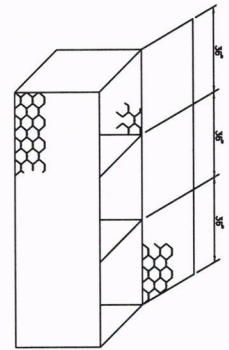


GABION RADIUS PROCEDURE (RADIIUS)



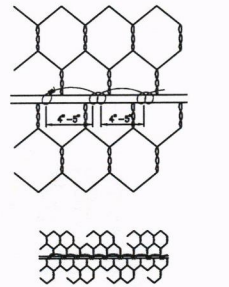
GABION CONTAINER

NOTE: ALL TIE WIRE SHALL BE CUT BUT SHALL BE KEPT IN A MANNER TO PRODUCE A CLOSED CELL WITH DETAILS

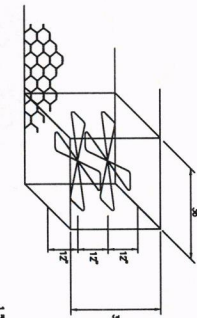


GABION TIE

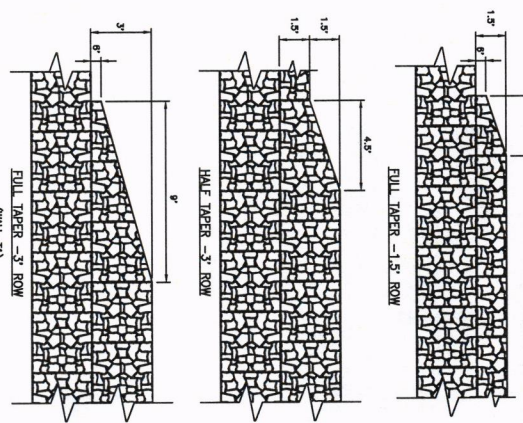
NOTE: ALL TIE WIRE OF GABIONS SHALL BE AS SHOWN



INNER TIE WIRE

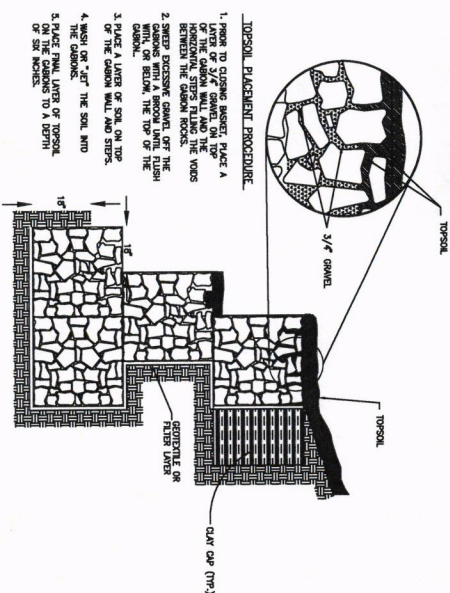


TAPERED WALL HEIGHT TRANSITION

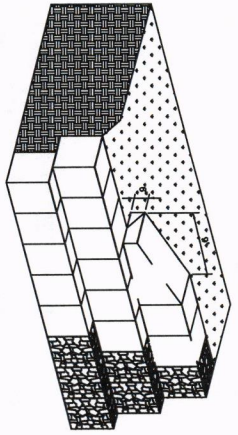


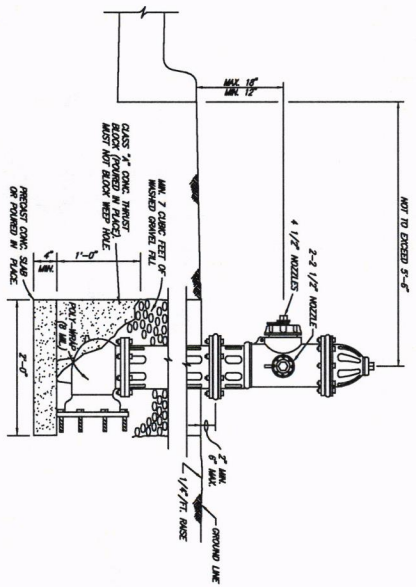
VEGETATED GABION WALL TOPSOIL PLACEMENT (VEG-WALL)

NOTE: DO NOT USE SHARP TOOLS WHEN SPREADING TOPSOIL ON GABIONS



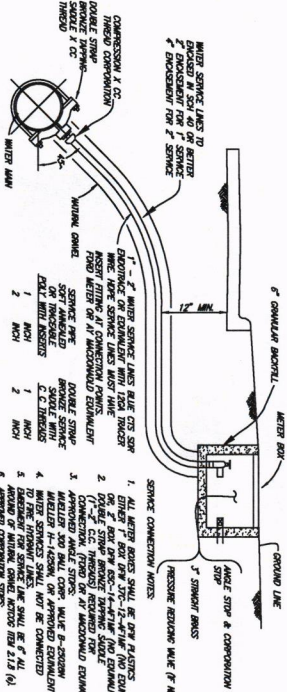
STANDARD TAPER FOR WALL HEIGHTS TRANSITIONS (TAPER-1)





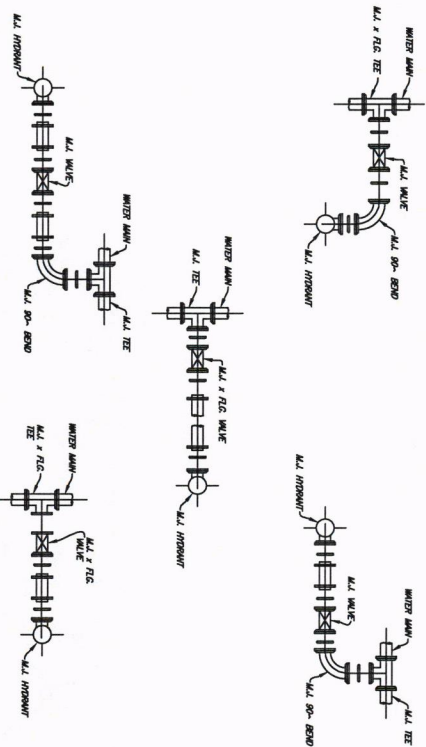
- FIRE HYDRANT NOTES:**
1. IN GENERAL, ALL FIRE HYDRANTS SHALL CONFORM TO ALL APPLICABLE SPECIFICATIONS FOR FIRE HYDRANTS FROM OREGONARY WATER WORKS SERVICE FOR WATER AND GAS. HYDRANTS SHALL BE 4-1/2" NIPPLES WITH OPERATING AND WITH A SHAFT APPROXIMATELY 7" HOSE DIAMETER.
 2. HYDRANTS SHALL BE PROVIDED BY THE CITY.
 3. HYDRANTS SHALL BE PROVIDED BY THE CITY.
 4. OPEN LEFT
 5. HOSE OPERATING HAT
 6. FIRE HYDRANT SHOULD BE ONE OF THE FOLLOWING SERVICE RATES (SEE SPEC & LATEST STANDS ARE REQUIRED):
CLASS A - LIGHT BLUE (RATED CAPACITY OF 1000 GPM OR GREATER)
CLASS B - GREEN (RATED CAPACITY OF 500 - 1000 GPM)
CLASS C - RED (RATED CAPACITY OF LESS THAN 500 GPM)

TYPICAL FIRE HYDRANT INSTALLATION (ELEVATION)

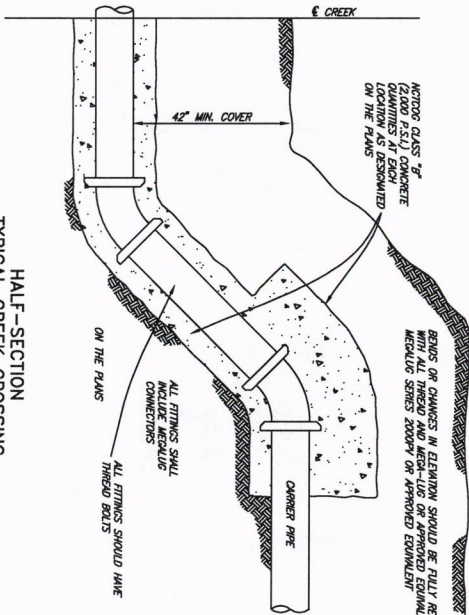


TYPICAL SERVICE CONNECTION WITH METER BOX (ELEVATION)

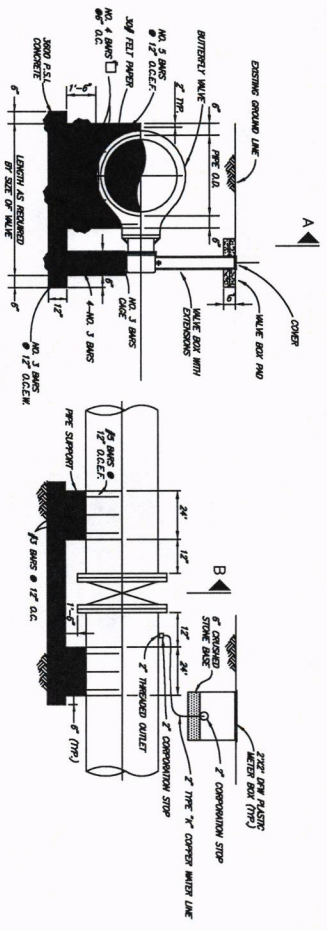
- SERVICE CONNECTION NOTES:**
1. ALL WATER SERVICES SHALL BE 6" IN DIAMETER.
 2. ALL WATER SERVICES SHALL BE 6" IN DIAMETER.
 3. ALL WATER SERVICES SHALL BE 6" IN DIAMETER.
 4. ALL WATER SERVICES SHALL BE 6" IN DIAMETER.
 5. ALL WATER SERVICES SHALL BE 6" IN DIAMETER.
 6. ALL WATER SERVICES SHALL BE 6" IN DIAMETER.
 7. ALL WATER SERVICES SHALL BE 6" IN DIAMETER.
 8. ALL WATER SERVICES SHALL BE 6" IN DIAMETER.
 9. ALL WATER SERVICES SHALL BE 6" IN DIAMETER.
 10. ALL WATER SERVICES SHALL BE 6" IN DIAMETER.



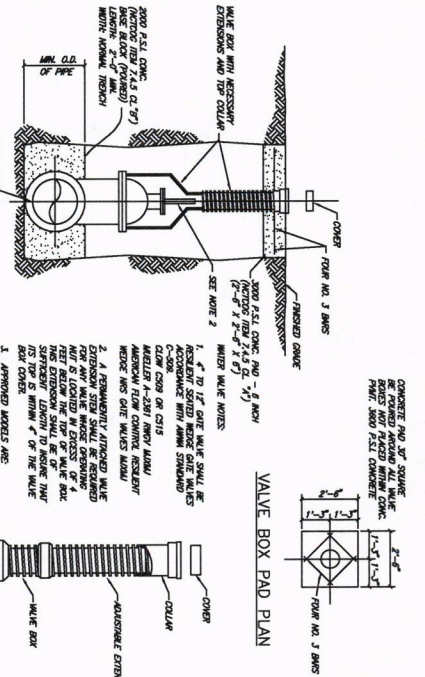
TYPICAL FIRE HYDRANT INSTALLATION PLANS (FH-PLANS)



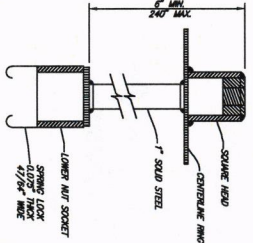
HALF-SECTION TYPICAL CREEK CROSSING (CREEK X)



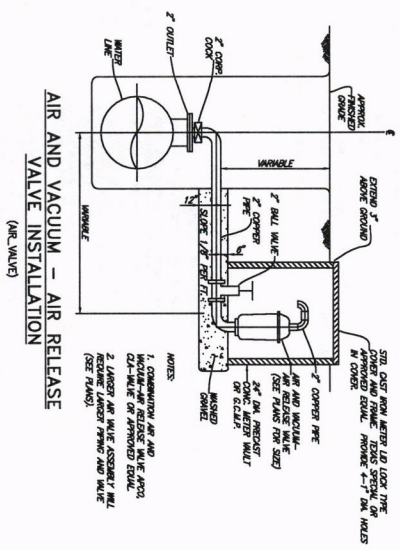
BUTTERFLY VALVE INSTALLATION
(B/WALVE)



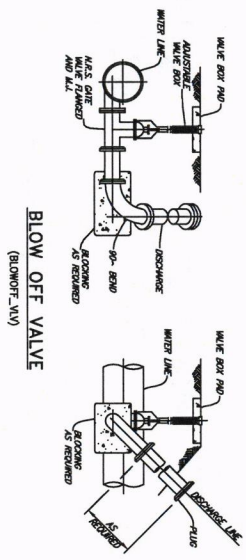
GATE VALVE INSTALLATION
(W/VALVE)



SPRING LOCK VALVE EXTENSION
(LOOK)



AIR AND VACUUM - AIR RELEASE VALVE INSTALLATION
(AIR VALVE)



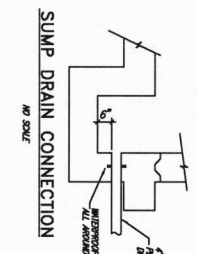
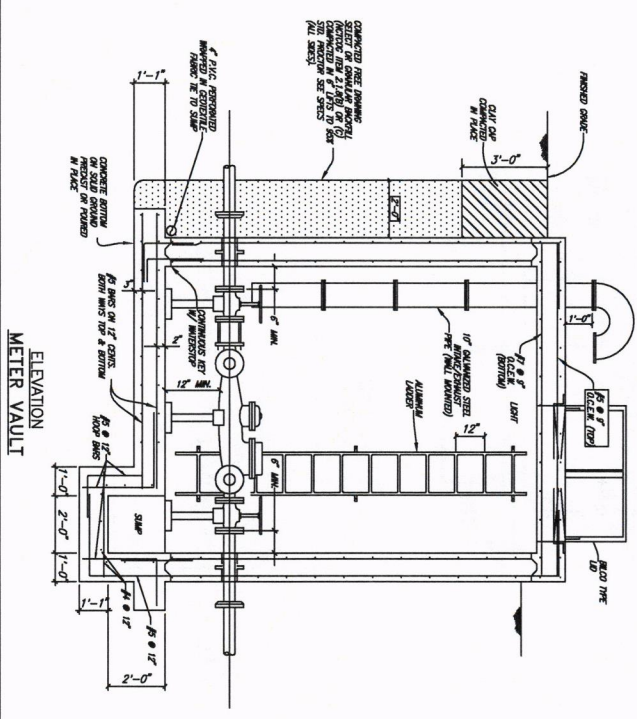
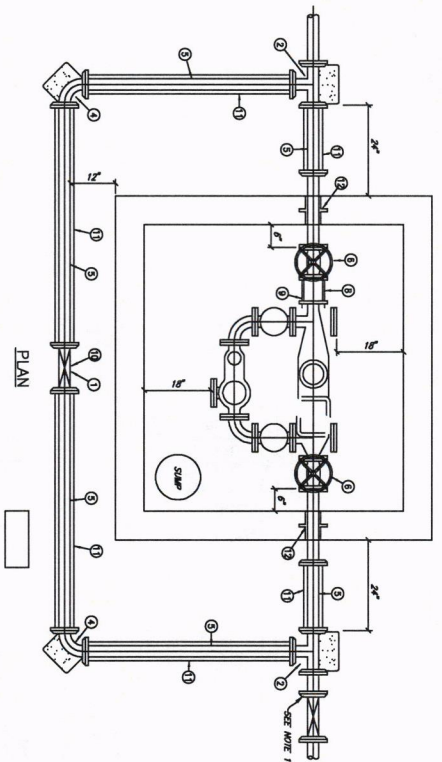
BLOW OFF VALVE
(BLOWOFF VALVE)



CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
WATER VALVES

December, 2023
SHEET NO.
19

- LEGEND**
- ① GATE VALVE - M.L. & M.L.
 - ② DL. TR. - M.L., M.L., M.L.
 - ③ DL. 90° BEND - M.L. & M.L.
 - ④ DL. PIPE - P.E. & P.E.
 - ⑤ O.L. & Y. VALVE - P.L. & P.L.
 - ⑥ FLANGED COUPLING ADAPTER
 - ⑦ DL. PIPE - P.L. & P.E. W/PIPE
 - ⑧ VALVE COVERS & LIDS
 - ⑨ ANCHORING ROSS
 - ⑩ WALL STAIRS - P.L. & M.L.



1. NOTIFY THE UTILITY OPERATIONS DEPARTMENT PRIOR TO CONSTRUCTION OF METER VAULT OR BY-PASS ASSEMBLY.
2. THE METER VAULT CAN BE EITHER POURED IN PLACE OR PRE-CAST. ALL WALLS EITHER POURED IN PLACE OR PRE-CAST, SHALL BE MONOLITHIC. NO SLABS OR EXTENSIONS WILL BE ALLOWED. CONCRETE SHALL BE OF THE 3,000 P.S.I., REINFORCED WITH #3 STEEL BARS ON 12" CENTERS EACH WAY, OR PAIRED ON 6" CENTERS WITH #3 STEEL BARS ON 12" CENTERS EACH WAY. ALL CONCRETE, REINFORCED WITH #3 STEEL BARS ON 6" CENTERS BOTH WAYS, THESE ARE MINIMUM SPECIFICATIONS.
3. THE BOTTOM OF THE VAULT SHALL BE 6" THICK, 3,000 P.S.I. CONCRETE REINFORCED WITH #3 STEEL BARS ON 12" CENTERS BOTH WAYS. A 4" WIDE x 12" DEEPER SLUMP SHALL BE INSTALLED UNDER THE SLAB. IF A CORNER OF THE BOTTOM OF THE VAULT IS TO BE USED, A CORNER OF SLUMP SHALL BE INSTALLED UNDER THE SLAB AND BARS TO BE USED. A CORNER OF SLUMP SHALL BE INSTALLED UNDER THE SLAB AND BARS TO BE USED. A CORNER OF SLUMP SHALL BE INSTALLED UNDER THE SLAB AND BARS TO BE USED.
4. THE VAULT SHALL NOT BE INSTALLED IN ANY CORNER OF MAPPING AREA AND MUST BE LOCATED IN A UTILITY EASEMENT DESIGNATED TO THE CITY. ALL PIPING INSIDE THE VAULT AND THE VAULT ITSELF MUST BE INSPECTED AND APPROVED BY THE UTILITY OPERATIONS DEPARTMENT.
5. THE VAULT LID SHALL BE BOLD TYPE 0-4-LD DESIGN LID. ANGLE FRAME IS 1/4" STEEL WITH STRAP ANCHORS SECURED TO THE EXTERIOR. THE LID IS 1/4" STEEL, 3" WIDE FROM THE PERIMETER. THE THICKNESS OF THE LID SHALL BE 5/8". THE LID SHALL BE PAINTED WITH 60-50 INCHES DEPTHED ALUMINUM PAINT OR APPROVED EQUAL.
6. ALL PIPING INSIDE THE VAULT SHALL BE BOLTED NON PIPE (MMA C15) WITH FLANGED FITTINGS. THE OUTSIDE OF THE PIPE SHALL BE PAINTED WITH 60-50 INCHES DEPTHED ALUMINUM PAINT OR APPROVED EQUAL. THE LID SHALL BE PAINTED WITH 60-50 INCHES DEPTHED ALUMINUM PAINT OR APPROVED EQUAL.
7. THE STRAINER, LETTER AND FLANGED ADAPTER COUPLING SHALL NOT BE INSTALLED UNTIL THE METER VAULT AND PIPING HAS BEEN APPROVED BY THE CITY ENGINEERING OFFICE PRIOR TO BEING INSTALLED.
8. THE MAIN LINE DATE VALVES SHALL BE RECESSED WIDE DESIGN, NON-MESSING STEEL VALVES WHICH HAVE RECEIVED FORMAL APPROVAL FROM THE CITY. ALL VALVES SHALL BE TOWARD BOTH ENDS AND HAVE HAND WHEELS.
9. CONSTRUCTION SHALL HAVE A CHOICE OF EITHER HAVING A LINK SEAL WALL SEWER MODEL WS-25-25-5 FOR 3" PIPING OR A LINK SEAL WALL SEWER MODEL WS-25-25-5 FOR 4" PIPING. THE WALL SEWER SHALL BE 14" HIGH FROM THE BOTTOM OF THE VAULT TO THE TOP OF THE VAULT. THE WALL SEWER SHALL BE 14" HIGH FROM THE BOTTOM OF THE VAULT TO THE TOP OF THE VAULT. THE WALL SEWER SHALL BE 14" HIGH FROM THE BOTTOM OF THE VAULT TO THE TOP OF THE VAULT. THE WALL SEWER SHALL BE 14" HIGH FROM THE BOTTOM OF THE VAULT TO THE TOP OF THE VAULT.
10. THE WALL SEWER SHALL BE 14" HIGH FROM THE BOTTOM OF THE VAULT TO THE TOP OF THE VAULT. THE WALL SEWER SHALL BE 14" HIGH FROM THE BOTTOM OF THE VAULT TO THE TOP OF THE VAULT. THE WALL SEWER SHALL BE 14" HIGH FROM THE BOTTOM OF THE VAULT TO THE TOP OF THE VAULT. THE WALL SEWER SHALL BE 14" HIGH FROM THE BOTTOM OF THE VAULT TO THE TOP OF THE VAULT.
11. THERE WILL BE A SOLID REINFORCED CONCRETE SUPPORT BLOCK UNDER EACH DATE VALVE.
12. MINIMUM DEPTH OF ANY VAULT SHALL BE 4'-6".
13. IF REVISIONS ARE NEEDED ON THE ACCESS LID, CONTRACTOR SHALL CONTACT UTILITY OPERATIONS DEPARTMENT FOR APPROVAL PRIOR TO IMPLEMENTATION OF REVISIONS.
14. SHUT OFF VALVE SHOULD BE PLACED OUTSIDE VAULT BOX ON THE CUSTOMER SIDE.

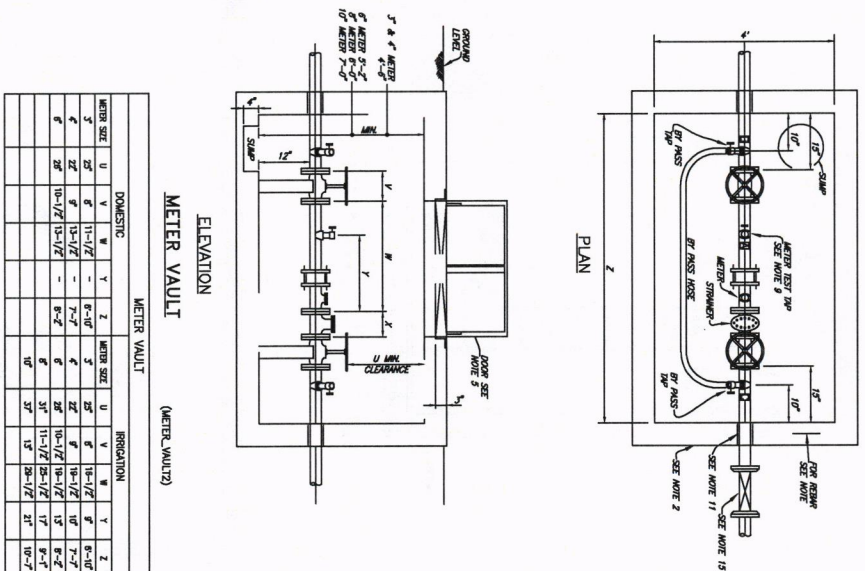


CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
METER VAULT

CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
METER VAULT

December, 2023

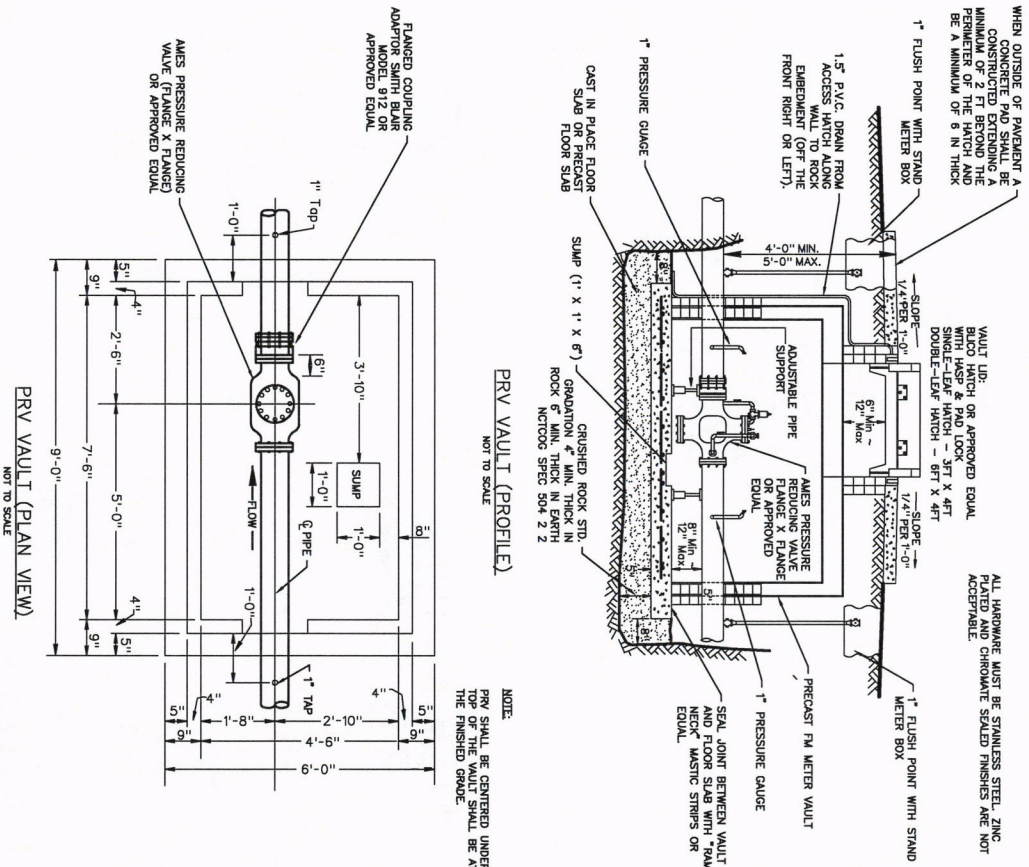
SHEET NO.
21



ELEVATION
METER VAULT
(METER VAULT2)

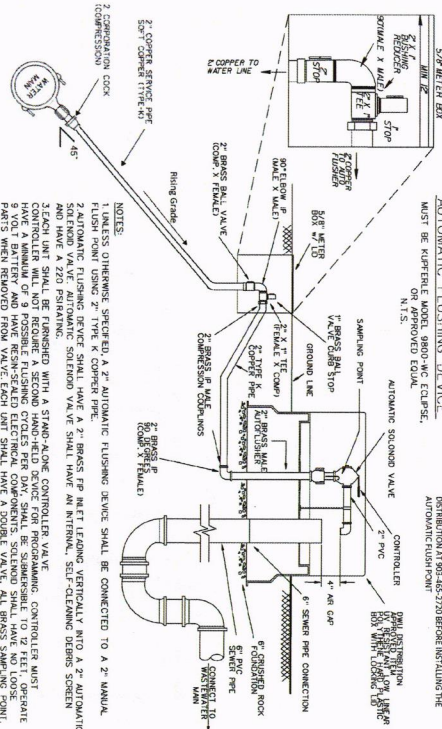
DOMESTIC		METER VAULT		IRREGATION	
METER SIZE	U	METER SIZE	U	METER SIZE	U
3"	6"	3"	6"	3"	6"
4"	8"	4"	8"	4"	8"
6"	12"	6"	12"	6"	12"
8"	16"	8"	16"	8"	16"
10"	20"	10"	20"	10"	20"
12"	24"	12"	24"	12"	24"
15"	30"	15"	30"	15"	30"
18"	36"	18"	36"	18"	36"
20"	40"	20"	40"	20"	40"
24"	48"	24"	48"	24"	48"
30"	60"	30"	60"	30"	60"
36"	72"	36"	72"	36"	72"
42"	84"	42"	84"	42"	84"
48"	96"	48"	96"	48"	96"
60"	120"	60"	120"	60"	120"

- 1. NOTIFY THE UTILITY OPERATIONS DEPARTMENT PRIOR TO CONSTRUCTION OF METER VAULT OR BR-PASS ASSEMBLY.
- 2. THE METER VAULT CAN BE EITHER ROUNDED IN PLACE OR PRE-FABRICATED. ALL WALLS EITHER ROUNDED IN PLACE OR PRE-FABRICATED SHALL BE 6" THICK-4000 P.S.I. REINFORCED WITH #4 STEEL BARS ON 12" CENTERS EACH WAY, OR ROUNDED IN PLACE VAULTS. PRE-FABRICATED VAULTS SHALL BE 6" THICK-4000 P.S.I. CONCRETE REINFORCED WITH #4 STEEL BARS ON 6" CENTERS BOTH WAYS. THESE ARE MINIMUM SPECIFICATIONS.
- 3. THE BOTTOM OF THE VAULT SHALL BE 6" THICK-3000 P.S.I. CONCRETE REINFORCED WITH #4 STEEL BARS ON 12" CENTERS OF THE WIDTH OF THE SLAB. A COURSE OF SAND SHALL BE INSTALLED UNDER THE SLAB IF A PRE-FABRICATED VAULT IS TO BE USED. A LAYER OF 3/4"-1/2" SAND SHALL BE INSTALLED BETWEEN THE WALLS AND BOTTOM SLAB.
- 4. THE VAULT SHALL NOT BE INSTALLED IN ANY ZONE OF PENNING AREA AND MUST BE LOCATED IN A WIDTH OF 24" FROM EITHER SIDE OF THE VAULT. THE VAULT SHALL BE APPROVED BY THE UTILITY OPERATIONS DEPARTMENT.
- 5. THE WALL IS SHALL BE BUILT TYPE 0-1 LEAF DESIGN. ANGLE IRON IS 1/2" STEEL WITH SHIP ANCHORS BOLTED TO THE EXTERIOR. THE LAY IS 1/2" STEEL DIAMOND PATTERN PLATE FINING ON TORSION BARS FOR EACH COURSE. THE WALLS SHALL BE REINFORCED WITH #4 STEEL BARS ON 12" CENTERS EACH WAY, AS SHOWN ON EACH END OF THE VAULT AND CENTERED TO MATCH ANY FROM THE WALL. ALL TIES SHALL BE 2" AND THE WALLS SHALL BE APPROVED BY THE UTILITY OPERATIONS DEPARTMENT.
- 6. ALL PIPING UNDER THE VAULT SHALL BE APPROVED BY THE UTILITY OPERATIONS DEPARTMENT. THE OUTSIDE DIMENSIONS OF THE VAULT SHALL BE WITHIN THE FOLLOWING RANGES: 6" PPE - 3.17' TO 3.67' 4" PPE - 4.17' TO 4.67' 6" PPE - 5.17' TO 5.67' 8" PPE - 6.17' TO 6.67' 10" PPE - 7.17' TO 7.67' 12" PPE - 8.17' TO 8.67' 15" PPE - 9.17' TO 9.67' 18" PPE - 10.17' TO 10.67' 20" PPE - 11.17' TO 11.67' 24" PPE - 13.17' TO 13.67' 30" PPE - 15.17' TO 15.67' 36" PPE - 17.17' TO 17.67' 42" PPE - 19.17' TO 19.67' 48" PPE - 21.17' TO 21.67' 60" PPE - 25.17' TO 25.67' 72" PPE - 29.17' TO 29.67' 84" PPE - 33.17' TO 33.67' 96" PPE - 37.17' TO 37.67' 108" PPE - 41.17' TO 41.67' 120" PPE - 45.17' TO 45.67' APPROVED BY THE UTILITY OPERATIONS DEPARTMENT.
- 7. THE STRUCKER, METERS AND FLANGED ADAPTER COMPANIES WILL BE PROVIDED AND INSTALLED BY THE CITY AT THE CONTRACTORS EXPENSE.
- 8. THE STRUCKER, METERS AND FLANGED ADAPTER COMPANIES SHALL NOT BE INSTALLED UNTIL THE METERS VAULT HAS BEEN APPROVED BY THE UTILITY OPERATIONS DEPARTMENT.
- 9. THE CONTRACTOR SHALL HAVE THE BR-PASS AND METERS TEST UP INSIDE THE VAULT. IF THE SERVICE IS TO BE USED STRICTLY AS A DOMESTIC OR DOMESTIC / IRRIGATION CONNECTION, UP A ON THIS DRAWING IS NOT TO BE USED. IF THE SERVICE IS TO BE USED FOR IRRIGATION, TWO PIPE DIMENSIONS DOWN-CENTRAL OF THE METERS, TIES B & C MUST BE MADE AT AN APPROPRIATE VERT ANGLE ON EACH END OF THE PIPE AND CENTERED TO MATCH ANY FROM THE WALL. ALL TIES SHALL BE 2" AND THE WALLS SHALL BE APPROVED BY THE UTILITY OPERATIONS DEPARTMENT.
- 10. THE MAIN LINE GATE VALVES SHALL BE RESIDENT MIDDLE DESIGN, NON-SHOULDER STEEL VALVES, WHICH HAVE RECEIVED FEDERAL APPROVAL FROM THE CITY. ALL VALVES SHALL BE FLANGED BOTH ENDS AND HAVE HAND WHEELS.
- 11. CONTRACTOR SHALL HAVE A CHOICE OF EITHER WANG A LINK SEAL WALL STEEL MODEL WS-9-26-5-8 FOR 3" PPE, MODEL WS-9-26-5-8 FOR 4" PPE, MODEL WS-10-36-5-8 FOR 6" PPE, MODEL WS-12-51-5-8 FOR 8" PPE, MODEL WS-15-51-5-8 FOR 10" PPE, MODEL WS-18-51-5-8 FOR 12" PPE, MODEL WS-24-51-5-8 FOR 15" PPE, MODEL WS-30-51-5-8 FOR 18" PPE, MODEL WS-36-51-5-8 FOR 20" PPE, MODEL WS-42-51-5-8 FOR 24" PPE, MODEL WS-48-51-5-8 FOR 30" PPE, MODEL WS-54-51-5-8 FOR 36" PPE, MODEL WS-60-51-5-8 FOR 42" PPE, MODEL WS-66-51-5-8 FOR 48" PPE, MODEL WS-72-51-5-8 FOR 54" PPE, MODEL WS-78-51-5-8 FOR 60" PPE, MODEL WS-84-51-5-8 FOR 66" PPE, MODEL WS-90-51-5-8 FOR 72" PPE, MODEL WS-96-51-5-8 FOR 78" PPE, MODEL WS-102-51-5-8 FOR 84" PPE, MODEL WS-108-51-5-8 FOR 90" PPE, MODEL WS-114-51-5-8 FOR 96" PPE, MODEL WS-120-51-5-8 FOR 102" PPE, MODEL WS-126-51-5-8 FOR 108" PPE, MODEL WS-132-51-5-8 FOR 114" PPE, MODEL WS-138-51-5-8 FOR 120" PPE, MODEL WS-144-51-5-8 FOR 126" PPE, MODEL WS-150-51-5-8 FOR 132" PPE, MODEL WS-156-51-5-8 FOR 138" PPE, MODEL WS-162-51-5-8 FOR 144" PPE, MODEL WS-168-51-5-8 FOR 150" PPE, MODEL WS-174-51-5-8 FOR 156" PPE, MODEL WS-180-51-5-8 FOR 162" PPE, MODEL WS-186-51-5-8 FOR 168" PPE, MODEL WS-192-51-5-8 FOR 174" PPE, MODEL WS-198-51-5-8 FOR 180" PPE, MODEL WS-204-51-5-8 FOR 186" PPE, MODEL WS-210-51-5-8 FOR 192" PPE, MODEL WS-216-51-5-8 FOR 198" PPE, MODEL WS-222-51-5-8 FOR 204" PPE, MODEL WS-228-51-5-8 FOR 210" PPE, MODEL WS-234-51-5-8 FOR 216" PPE, MODEL WS-240-51-5-8 FOR 222" PPE, MODEL WS-246-51-5-8 FOR 228" PPE, MODEL WS-252-51-5-8 FOR 234" PPE, MODEL WS-258-51-5-8 FOR 240" PPE, MODEL WS-264-51-5-8 FOR 246" PPE, MODEL WS-270-51-5-8 FOR 252" PPE, MODEL WS-276-51-5-8 FOR 258" PPE, MODEL WS-282-51-5-8 FOR 264" PPE, MODEL WS-288-51-5-8 FOR 270" PPE, MODEL WS-294-51-5-8 FOR 276" PPE, MODEL WS-300-51-5-8 FOR 282" PPE, MODEL WS-306-51-5-8 FOR 288" PPE, MODEL WS-312-51-5-8 FOR 294" PPE, MODEL WS-318-51-5-8 FOR 300" PPE, MODEL WS-324-51-5-8 FOR 306" PPE, MODEL WS-330-51-5-8 FOR 312" PPE, MODEL WS-336-51-5-8 FOR 318" PPE, MODEL WS-342-51-5-8 FOR 324" PPE, MODEL WS-348-51-5-8 FOR 330" PPE, MODEL WS-354-51-5-8 FOR 336" PPE, MODEL WS-360-51-5-8 FOR 342" PPE, MODEL WS-366-51-5-8 FOR 348" PPE, MODEL WS-372-51-5-8 FOR 354" PPE, MODEL WS-378-51-5-8 FOR 360" PPE, MODEL WS-384-51-5-8 FOR 366" PPE, MODEL WS-390-51-5-8 FOR 372" PPE, MODEL WS-396-51-5-8 FOR 378" PPE, MODEL WS-402-51-5-8 FOR 384" PPE, MODEL WS-408-51-5-8 FOR 390" PPE, MODEL WS-414-51-5-8 FOR 396" PPE, MODEL WS-420-51-5-8 FOR 402" PPE, MODEL WS-426-51-5-8 FOR 408" PPE, MODEL WS-432-51-5-8 FOR 414" PPE, MODEL WS-438-51-5-8 FOR 420" PPE, MODEL WS-444-51-5-8 FOR 426" PPE, MODEL WS-450-51-5-8 FOR 432" PPE, MODEL WS-456-51-5-8 FOR 438" PPE, MODEL WS-462-51-5-8 FOR 444" PPE, MODEL WS-468-51-5-8 FOR 450" PPE, MODEL WS-474-51-5-8 FOR 456" PPE, MODEL WS-480-51-5-8 FOR 462" PPE, MODEL WS-486-51-5-8 FOR 468" PPE, MODEL WS-492-51-5-8 FOR 474" PPE, MODEL WS-498-51-5-8 FOR 480" PPE, MODEL WS-504-51-5-8 FOR 486" PPE, MODEL WS-510-51-5-8 FOR 492" PPE, MODEL WS-516-51-5-8 FOR 498" PPE, MODEL WS-522-51-5-8 FOR 504" PPE, MODEL WS-528-51-5-8 FOR 510" PPE, MODEL WS-534-51-5-8 FOR 516" PPE, MODEL WS-540-51-5-8 FOR 522" PPE, MODEL WS-546-51-5-8 FOR 528" PPE, MODEL WS-552-51-5-8 FOR 534" PPE, MODEL WS-558-51-5-8 FOR 540" PPE, MODEL WS-564-51-5-8 FOR 546" PPE, MODEL WS-570-51-5-8 FOR 552" PPE, MODEL WS-576-51-5-8 FOR 558" PPE, MODEL WS-582-51-5-8 FOR 564" PPE, MODEL WS-588-51-5-8 FOR 570" PPE, MODEL WS-594-51-5-8 FOR 576" PPE, MODEL WS-600-51-5-8 FOR 582" PPE, MODEL WS-606-51-5-8 FOR 588" PPE, MODEL WS-612-51-5-8 FOR 594" PPE, MODEL WS-618-51-5-8 FOR 600" PPE, MODEL WS-624-51-5-8 FOR 606" PPE, MODEL WS-630-51-5-8 FOR 612" PPE, MODEL WS-636-51-5-8 FOR 618" PPE, MODEL WS-642-51-5-8 FOR 624" PPE, MODEL WS-648-51-5-8 FOR 630" PPE, MODEL WS-654-51-5-8 FOR 636" PPE, MODEL WS-660-51-5-8 FOR 642" PPE, MODEL WS-666-51-5-8 FOR 648" PPE, MODEL WS-672-51-5-8 FOR 654" PPE, MODEL WS-678-51-5-8 FOR 660" PPE, MODEL WS-684-51-5-8 FOR 666" PPE, MODEL WS-690-51-5-8 FOR 672" PPE, MODEL WS-696-51-5-8 FOR 678" PPE, MODEL WS-702-51-5-8 FOR 684" PPE, MODEL WS-708-51-5-8 FOR 690" PPE, MODEL WS-714-51-5-8 FOR 696" PPE, MODEL WS-720-51-5-8 FOR 702" PPE, MODEL WS-726-51-5-8 FOR 708" PPE, MODEL WS-732-51-5-8 FOR 714" PPE, MODEL WS-738-51-5-8 FOR 720" PPE, MODEL WS-744-51-5-8 FOR 726" PPE, MODEL WS-750-51-5-8 FOR 732" PPE, MODEL WS-756-51-5-8 FOR 738" PPE, MODEL WS-762-51-5-8 FOR 744" PPE, MODEL WS-768-51-5-8 FOR 750" PPE, MODEL WS-774-51-5-8 FOR 756" PPE, MODEL WS-780-51-5-8 FOR 762" PPE, MODEL WS-786-51-5-8 FOR 768" PPE, MODEL WS-792-51-5-8 FOR 774" PPE, MODEL WS-798-51-5-8 FOR 780" PPE, MODEL WS-804-51-5-8 FOR 786" PPE, MODEL WS-810-51-5-8 FOR 792" PPE, MODEL WS-816-51-5-8 FOR 798" PPE, MODEL WS-822-51-5-8 FOR 804" PPE, MODEL WS-828-51-5-8 FOR 810" PPE, MODEL WS-834-51-5-8 FOR 816" PPE, MODEL WS-840-51-5-8 FOR 822" PPE, MODEL WS-846-51-5-8 FOR 828" PPE, MODEL WS-852-51-5-8 FOR 834" PPE, MODEL WS-858-51-5-8 FOR 840" PPE, MODEL WS-864-51-5-8 FOR 846" PPE, MODEL WS-870-51-5-8 FOR 852" PPE, MODEL WS-876-51-5-8 FOR 858" PPE, MODEL WS-882-51-5-8 FOR 864" PPE, MODEL WS-888-51-5-8 FOR 870" PPE, MODEL WS-894-51-5-8 FOR 876" PPE, MODEL WS-900-51-5-8 FOR 882" PPE, MODEL WS-906-51-5-8 FOR 888" PPE, MODEL WS-912-51-5-8 FOR 894" PPE, MODEL WS-918-51-5-8 FOR 900" PPE, MODEL WS-924-51-5-8 FOR 906" PPE, MODEL WS-930-51-5-8 FOR 912" PPE, MODEL WS-936-51-5-8 FOR 918" PPE, MODEL WS-942-51-5-8 FOR 924" PPE, MODEL WS-948-51-5-8 FOR 930" PPE, MODEL WS-954-51-5-8 FOR 936" PPE, MODEL WS-960-51-5-8 FOR 942" PPE, MODEL WS-966-51-5-8 FOR 948" PPE, MODEL WS-972-51-5-8 FOR 954" PPE, MODEL WS-978-51-5-8 FOR 960" PPE, MODEL WS-984-51-5-8 FOR 966" PPE, MODEL WS-990-51-5-8 FOR 972" PPE, MODEL WS-996-51-5-8 FOR 978" PPE, MODEL WS-1002-51-5-8 FOR 984" PPE, MODEL WS-1008-51-5-8 FOR 990" PPE, MODEL WS-1014-51-5-8 FOR 996" PPE, MODEL WS-1020-51-5-8 FOR 1002" PPE, MODEL WS-1026-51-5-8 FOR 1008" PPE, MODEL WS-1032-51-5-8 FOR 1014" PPE, MODEL WS-1038-51-5-8 FOR 1020" PPE, MODEL WS-1044-51-5-8 FOR 1026" PPE, MODEL WS-1050-51-5-8 FOR 1032" PPE, MODEL WS-1056-51-5-8 FOR 1038" PPE, MODEL WS-1062-51-5-8 FOR 1044" PPE, MODEL WS-1068-51-5-8 FOR 1050" PPE, MODEL WS-1074-51-5-8 FOR 1056" PPE, MODEL WS-1080-51-5-8 FOR 1062" PPE, MODEL WS-1086-51-5-8 FOR 1068" PPE, MODEL WS-1092-51-5-8 FOR 1074" PPE, MODEL WS-1098-51-5-8 FOR 1080" PPE, MODEL WS-1104-51-5-8 FOR 1086" PPE, MODEL WS-1110-51-5-8 FOR 1092" PPE, MODEL WS-1116-51-5-8 FOR 1098" PPE, MODEL WS-1122-51-5-8 FOR 1104" PPE, MODEL WS-1128-51-5-8 FOR 1110" PPE, MODEL WS-1134-51-5-8 FOR 1116" PPE, MODEL WS-1140-51-5-8 FOR 1122" PPE, MODEL WS-1146-51-5-8 FOR 1128" PPE, MODEL WS-1152-51-5-8 FOR 1134" PPE, MODEL WS-1158-51-5-8 FOR 1140" PPE, MODEL WS-1164-51-5-8 FOR 1146" PPE, MODEL WS-1170-51-5-8 FOR 1152" PPE, MODEL WS-1176-51-5-8 FOR 1158" PPE, MODEL WS-1182-51-5-8 FOR 1164" PPE, MODEL WS-1188-51-5-8 FOR 1170" PPE, MODEL WS-1194-51-5-8 FOR 1176" PPE, MODEL WS-1200-51-5-8 FOR 1182" PPE, MODEL WS-1206-51-5-8 FOR 1188" PPE, MODEL WS-1212-51-5-8 FOR 1194" PPE, MODEL WS-1218-51-5-8 FOR 1200" PPE, MODEL WS-1224-51-5-8 FOR 1206" PPE, MODEL WS-1230-51-5-8 FOR 1212" PPE, MODEL WS-1236-51-5-8 FOR 1218" PPE, MODEL WS-1242-51-5-8 FOR 1224" PPE, MODEL WS-1248-51-5-8 FOR 1230" PPE, MODEL WS-1254-51-5-8 FOR 1236" PPE, MODEL WS-1260-51-5-8 FOR 1242" PPE, MODEL WS-1266-51-5-8 FOR 1248" PPE, MODEL WS-1272-51-5-8 FOR 1254" PPE, MODEL WS-1278-51-5-8 FOR 1260" PPE, MODEL WS-1284-51-5-8 FOR 1266" PPE, MODEL WS-1290-51-5-8 FOR 1272" PPE, MODEL WS-1296-51-5-8 FOR 1278" PPE, MODEL WS-1302-51-5-8 FOR 1284" PPE, MODEL WS-1308-51-5-8 FOR 1290" PPE, MODEL WS-1314-51-5-8 FOR 1296" PPE, MODEL WS-1320-51-5-8 FOR 1302" PPE, MODEL WS-1326-51-5-8 FOR 1308" PPE, MODEL WS-1332-51-5-8 FOR 1314" PPE, MODEL WS-1338-51-5-8 FOR 1320" PPE, MODEL WS-1344-51-5-8 FOR 1326" PPE, MODEL WS-1350-51-5-8 FOR 1332" PPE, MODEL WS-1356-51-5-8 FOR 1338" PPE, MODEL WS-1362-51-5-8 FOR 1344" PPE, MODEL WS-1368-51-5-8 FOR 1350" PPE, MODEL WS-1374-51-5-8 FOR 1356" PPE, MODEL WS-1380-51-5-8 FOR 1362" PPE, MODEL WS-1386-51-5-8 FOR 1368" PPE, MODEL WS-1392-51-5-8 FOR 1374" PPE, MODEL WS-1398-51-5-8 FOR 1380" PPE, MODEL WS-1404-51-5-8 FOR 1386" PPE, MODEL WS-1410-51-5-8 FOR 1392" PPE, MODEL WS-1416-51-5-8 FOR 1398" PPE, MODEL WS-1422-51-5-8 FOR 1404" PPE, MODEL WS-1428-51-5-8 FOR 1410" PPE, MODEL WS-1434-51-5-8 FOR 1416" PPE, MODEL WS-1440-51-5-8 FOR 1422" PPE, MODEL WS-1446-51-5-8 FOR 1428" PPE, MODEL WS-1452-51-5-8 FOR 1434" PPE, MODEL WS-1458-51-5-8 FOR 1440" PPE, MODEL WS-1464-51-5-8 FOR 1446" PPE, MODEL WS-1470-51-5-8 FOR 1452" PPE, MODEL WS-1476-51-5-8 FOR 1458" PPE, MODEL WS-1482-51-5-8 FOR 1464" PPE, MODEL WS-1488-51-5-8 FOR 1470" PPE, MODEL WS-1494-51-5-8 FOR 1476" PPE, MODEL WS-1500-51-5-8 FOR 1482" PPE, MODEL WS-1506-51-5-8 FOR 1488" PPE, MODEL WS-1512-51-5-8 FOR 1494" PPE, MODEL WS-1518-51-5-8 FOR 1500" PPE, MODEL WS-1524-51-5-8 FOR 1506" PPE, MODEL WS-1530-51-5-8 FOR 1512" PPE, MODEL WS-1536-51-5-8 FOR 1518" PPE, MODEL WS-1542-51-5-8 FOR 1524" PPE, MODEL WS-1548-51-5-8 FOR 1530" PPE, MODEL WS-1554-51-5-8 FOR 1536" PPE, MODEL WS-1560-51-5-8 FOR 1542" PPE, MODEL WS-1566-51-5-8 FOR 1548" PPE, MODEL WS-1572-51-5-8 FOR 1554" PPE, MODEL WS-1578-51-5-8 FOR 1560" PPE, MODEL WS-1584-51-5-8 FOR 1566" PPE, MODEL WS-1590-51-5-8 FOR 1572" PPE, MODEL WS-1596-51-5-8 FOR 1578" PPE, MODEL WS-1602-51-5-8 FOR 1584" PPE, MODEL WS-1608-51-5-8 FOR 1590" PPE, MODEL WS-1614-51-5-8 FOR 1596" PPE, MODEL WS-1620-51-5-8 FOR 1602" PPE, MODEL WS-1626-51-5-8 FOR 1608" PPE, MODEL WS-1632-51-5-8 FOR 1614" PPE, MODEL WS-1638-51-5-8 FOR 1620" PPE, MODEL WS-1644-51-5-8 FOR 1626" PPE, MODEL WS-1650-51-5-8 FOR 1632" PPE, MODEL WS-1656-51-5-8 FOR 1638" PPE, MODEL WS-1662-51-5-8 FOR 1644" PPE, MODEL WS-1668-51-5-8 FOR 1650" PPE, MODEL WS-1674-51-5-8 FOR 1656" PPE, MODEL WS-1680-51-5-8 FOR 1662" PPE, MODEL WS-1686-51-5-8 FOR 1668" PPE, MODEL WS-1692-51-5-8 FOR 1674" PPE, MODEL WS-1698-51-5-8 FOR 1680" PPE, MODEL WS-1704-51-5-8 FOR 1686" PPE, MODEL WS-1710-51-5-8 FOR 1692" PPE, MODEL WS-1716-51-5-8 FOR 1698" PPE, MODEL WS-1722-51-5-8 FOR 1704" PPE, MODEL WS-1728-51-5-8 FOR 1710" PPE, MODEL WS-1734-51-5-8 FOR 1716" PPE, MODEL WS-1740-51-5-8 FOR 1722" PPE, MODEL WS-1746-51-5-8 FOR 1728" PPE, MODEL WS-1752-51-5-8 FOR 1734" PPE, MODEL WS-1758-51-5-8 FOR 1740" PPE, MODEL WS-1764-51-5-8 FOR 1746" PPE, MODEL WS-1770-51-5-8 FOR 1752" PPE, MODEL WS-1776-51-5-8 FOR 1758" PPE, MODEL WS-1782-51-5-8 FOR 1764" PPE, MODEL WS-1788-51-5-8 FOR 1770" PPE, MODEL WS-1794-51-5-8 FOR 1776" PPE, MODEL WS-1800-51-5-8 FOR 1782" PPE, MODEL WS-1806-51-5-8 FOR 1788" PPE, MODEL WS-1812-51-5-8 FOR 1794" PPE, MODEL WS-1818-51-5-8 FOR 1800" PPE, MODEL WS-1824-51-5-8 FOR 1806" PPE, MODEL WS-1830-51-5-8 FOR 1812" PPE, MODEL WS-1836-51-5-8 FOR 1818" PPE, MODEL WS-1842-51-5-8 FOR 1824" PPE, MODEL WS-1848-51-5-8 FOR 1830" PPE, MODEL WS-1854-51-5-8 FOR 1836" PPE, MODEL WS-1860-51-5-8 FOR 1842" PPE, MODEL WS-1866-51-5-8 FOR 1848" PPE, MODEL WS-1872-51-5-8 FOR 1854" PPE, MODEL WS-1878-51-5-8 FOR 1860" PPE, MODEL WS-1884-51-5-8 FOR 1866" PPE, MODEL WS-1890-51-5-8 FOR 1872" PPE, MODEL WS-1896-51-5-8 FOR 1878" PPE, MODEL WS-1902-51-5-8 FOR 1884" PPE, MODEL WS-1908-51-5-8 FOR 1890" PPE, MODEL WS-1914-51-5-8 FOR 1896" PPE, MODEL WS-1920-51-5-8 FOR 1902" PPE, MODEL WS-1926-51-5-8 FOR 1908" PPE, MODEL WS-1932-51-5-8 FOR 1914" PPE, MODEL WS-1938-51-5-8 FOR 1920" PPE, MODEL WS-1944-51-5-8 FOR 1926" PPE, MODEL WS-1950-51-5-8 FOR 1932" PPE, MODEL WS-1956-51-5-8 FOR 1938" PPE, MODEL WS-1962-51-5-8 FOR 1944" PPE, MODEL WS-1968-51-5-8 FOR 1950" PPE, MODEL WS-1974-51-5-8 FOR 1956" PPE, MODEL WS-1980-51-5-8 FOR 1962" PPE, MODEL WS-1986-51-5-8 FOR 1968" PPE, MODEL WS-1992-51-5-8 FOR 1974" PPE, MODEL WS-1998-51-5-8 FOR 1980" PPE, MODEL WS-2004-51-5-8 FOR 1986" PPE, MODEL WS-2010-51-5-8 FOR 1992" PPE, MODEL WS-2016-51-5-8 FOR 1998" PPE, MODEL WS-2022-51-5-8 FOR 2004" PPE, MODEL WS-2028-51-5-8 FOR 2010" PPE, MODEL WS-2034-51-5-8 FOR 2016" PPE, MODEL WS-2040-51-5-8 FOR 2022" PPE, MODEL WS-2046-51-5-8 FOR 2028" PPE, MODEL WS-2052-51-5-8 FOR 2034" PPE, MODEL WS-2058-51-5-8 FOR 2040" PPE, MODEL WS-2064-51-5-8 FOR 2046" PPE, MODEL WS-2070-51-5-8 FOR 2052" PPE, MODEL WS-2076-51-5-8 FOR 2058" PPE, MODEL WS-2082-51-5-8 FOR 2064" PPE, MODEL WS-2088-51-5-8 FOR 2070" PPE, MODEL WS-2094-51-5-8 FOR 2076" PPE, MODEL WS-2100-51-5-8 FOR 2082" PPE, MODEL WS-2106-51-5-8 FOR 2088" PPE, MODEL WS-2112-51-5-8 FOR 2094" PPE, MODEL WS-2118-51-5-8 FOR 2100" PPE, MODEL WS-2124-51-5-8 FOR 2106" PPE, MODEL WS-2130-51-5-8 FOR 2112" PPE, MODEL WS-2136-51-5-8 FOR 2118" PPE, MODEL WS-2142-51-5-8 FOR 2124" PPE, MODEL WS-2148-51-5-8 FOR 2130" PPE, MODEL WS-2154-51-5-8 FOR 2136" PPE, MODEL WS-2160-51-5-8 FOR 2142" PPE, MODEL WS-2166-51-5-8 FOR 2148" PPE, MODEL WS-2172-51-5-8 FOR 2154" PPE, MODEL WS-2178-51-5-8 FOR 2160" PPE, MODEL WS-2184-51-5-8 FOR 2166" PPE, MODEL WS-2190-51-5-8 FOR 2172" PPE, MODEL WS-2196-51-5-8 FOR 2178" PPE, MODEL WS-2202-51-5-8 FOR 2184" PPE, MODEL WS-2208-51-5-8 FOR 2190" PPE, MODEL WS-2214-51-5-8 FOR 2196" PPE, MODEL WS-2220-51-5-8 FOR 2202" PPE, MODEL WS-2226-51-5-8 FOR 2208" PPE, MODEL WS-2232-51-5-8 FOR 2214" PPE, MODEL WS-2238-51-5-8 FOR 2220" PPE, MODEL WS-2244-51-5-8 FOR 2226" PPE, MODEL WS-2250-51-5-8 FOR 2232" PPE, MODEL WS-2256-51-5-8 FOR 2238" PPE, MODEL WS-2262-51-5-8 FOR 2244" PPE, MODEL WS-2268-51-5-8 FOR 2250" PPE, MODEL WS-2274-51-5-8 FOR 2256" PPE, MODEL WS-2280-51-5-8 FOR 2262" PPE, MODEL WS-2286-51-5-8 FOR 2268" PPE, MODEL WS-2292-51-5-8 FOR 2274" PPE, MODEL WS-2298-51-5-8 FOR 2280" PPE, MODEL WS-2304-51-5-8 FOR 2286" PPE, MODEL WS-2310-51-5-8 FOR 2292" PPE, MODEL WS-2316-51-5-8 FOR 2298" PPE, MODEL WS-2322-51-5-8 FOR 2304" PPE, MODEL WS-2328-51-5-8 FOR 2310" PPE, MODEL WS-2334-51-5-8 FOR 2316" PPE, MODEL WS-2340-51-5-8 FOR 2322" PPE, MODEL WS-2346-51-5-8 FOR 2328" PPE, MODEL WS-2352-51-5-8 FOR 2334" PPE, MODEL WS-2358-51-5-8 FOR 2340" PPE, MODEL WS-2364-51-5-8 FOR 2346" PPE, MODEL WS-2370-51-5-8 FOR 2352" PPE, MODEL WS-2376-51-5-8 FOR 2358" PPE, MODEL WS-2382-51-5-8 FOR 2364" PPE, MODEL WS-2388-51-5-8 FOR 2370" PPE, MODEL WS-2394-51-5-8 FOR 2376" PPE, MODEL WS-2400-51-5-8 FOR 2382" PPE, MODEL WS-2406-51-5-8 FOR 2388" PPE, MODEL WS-2412-51-5-8 FOR 2394" PPE, MODEL WS-2418-51-5-8 FOR 2400" PPE, MODEL WS-2424-51-5-8 FOR 2406" PPE, MODEL WS-2430-51-5-8 FOR 2412" PPE, MODEL WS-2436-51-5-8 FOR 2418" PPE, MODEL WS-2442-51-5-8 FOR 2424" PPE, MODEL WS-2448-51-5-8 FOR 2430" PPE, MODEL WS-2454-51-5-8 FOR 2436" PPE, MODEL WS-2460-51-5-8 FOR 2442" PPE, MODEL WS-2466-51-5-8 FOR 2448" PPE, MODEL WS-2472-51-5-8 FOR 2454" PPE, MODEL WS-2478-51-5-8 FOR 2460" PPE, MODEL WS-2484-51-5-8 FOR 2466" PPE, MODEL WS-2490-51-5-8 FOR 2472" PPE, MODEL WS-2496-51-5-8 FOR 2478" PPE, MODEL WS-2502-51-5-8 FOR 2484" PPE, MODEL WS-2508-51-5-8 FOR 2490" PPE, MODEL WS-2514



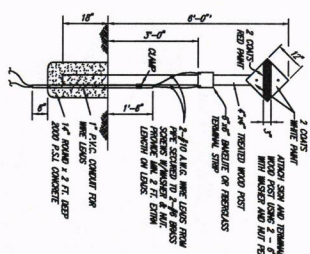
NOTE:
PRV SHALL BE CENTERED UNDER THE HATCH. THE TOP OF THE VAULT SHALL BE AT LEAST 6IN ABOVE THE FINISHED GRADE.

AUTOMATIC FLUSH POINT
NOT TO SCALE



NOTES:
1. UNLESS OTHERWISE SPECIFIED, A 2\"/>

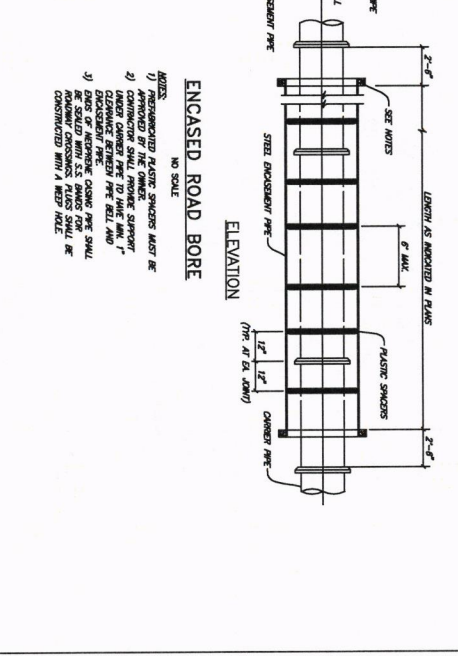
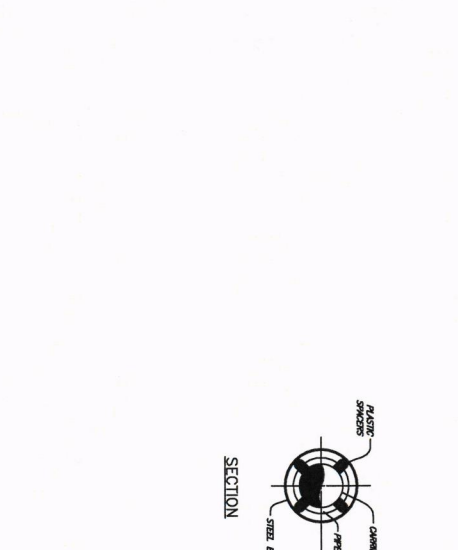
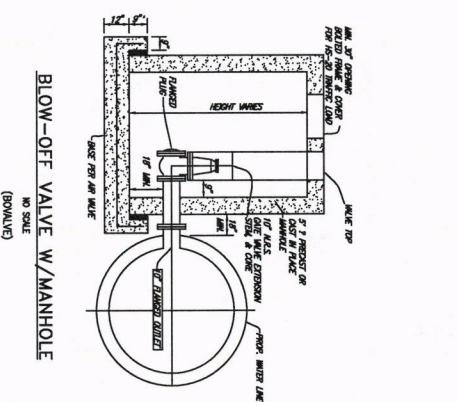
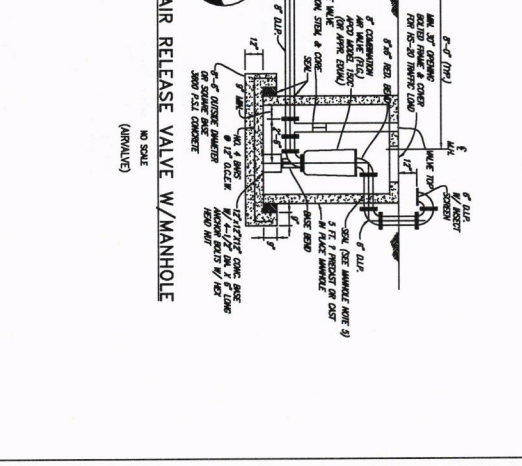
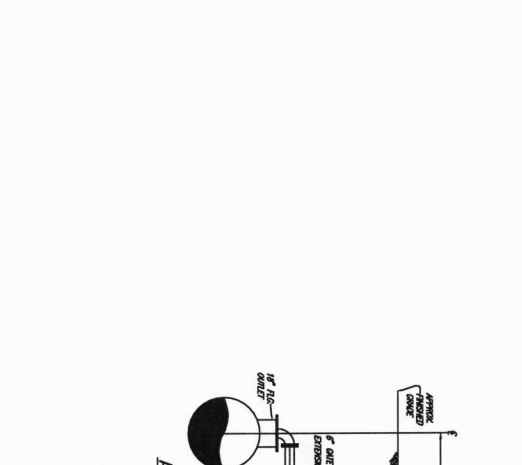
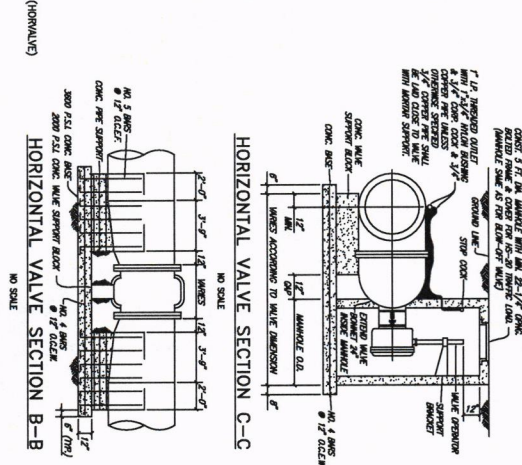
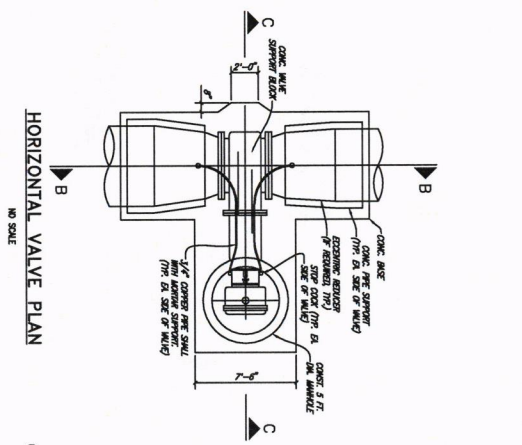
CATHODIC TEST STATION
NO SCALE
(CATHESES)



CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
PRV VAULT AND AUTOMATIC FLUSH POINT

December, 2023

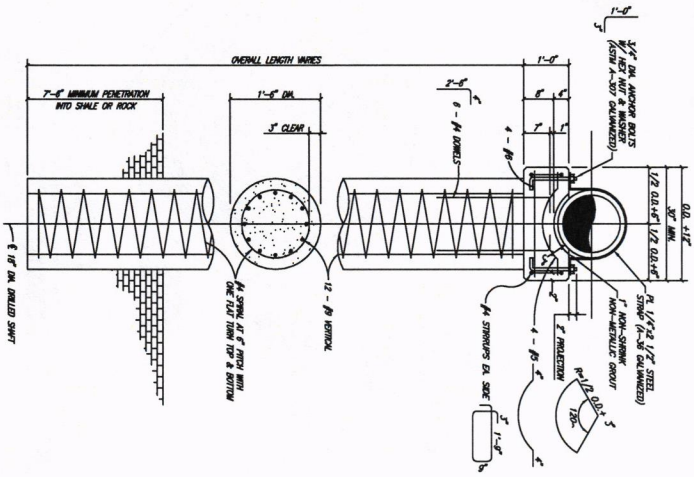
SHEET NO. 22



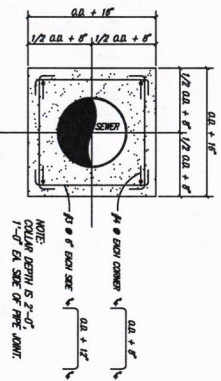
NOTES:

- 1) PRECONCRETE FACTOR SWAGERS MUST BE
- 2) CONCRETE SHALL PROVIDE SUFFICIENT
- 3) ENCASEMENT FOR THE 5 FT DIA. MANHOLE
- 4) ENCASEMENT FOR THE 5 FT DIA. MANHOLE
- 5) ENCASEMENT FOR THE 5 FT DIA. MANHOLE

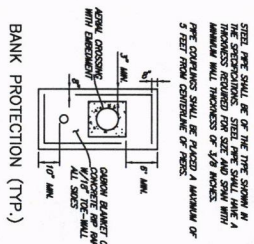
CHANGE ORDER NO. X FIELD CHANGE APPROVAL		CITY OF DENISON, TEXAS STANDARD CONSTRUCTION DETAILS WATER VALVES	December, 2023	SHEET NO. 23
--	--	---	----------------	------------------------



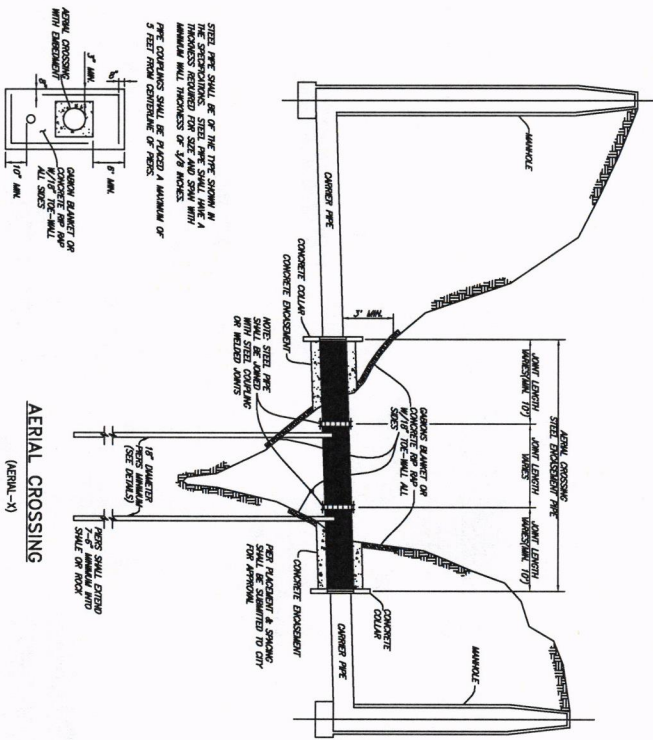
AERIAL CROSSING PIER & PIER CAP
(PIER)



AERIAL CROSSING CONCRETE COLLAR
(COLLAR)

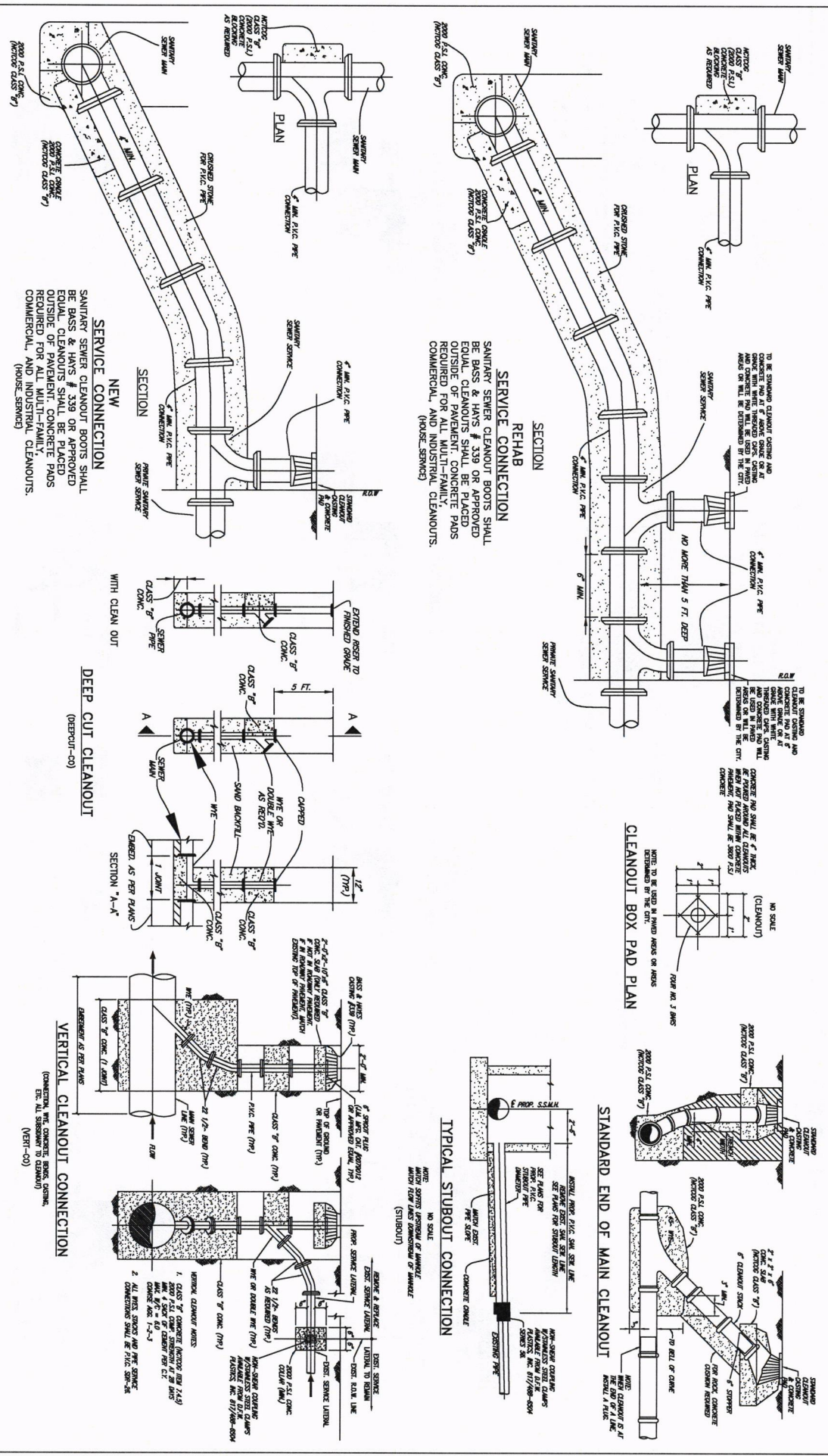
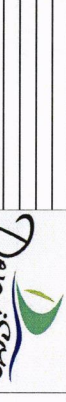


BANK PROTECTION (TYP.)



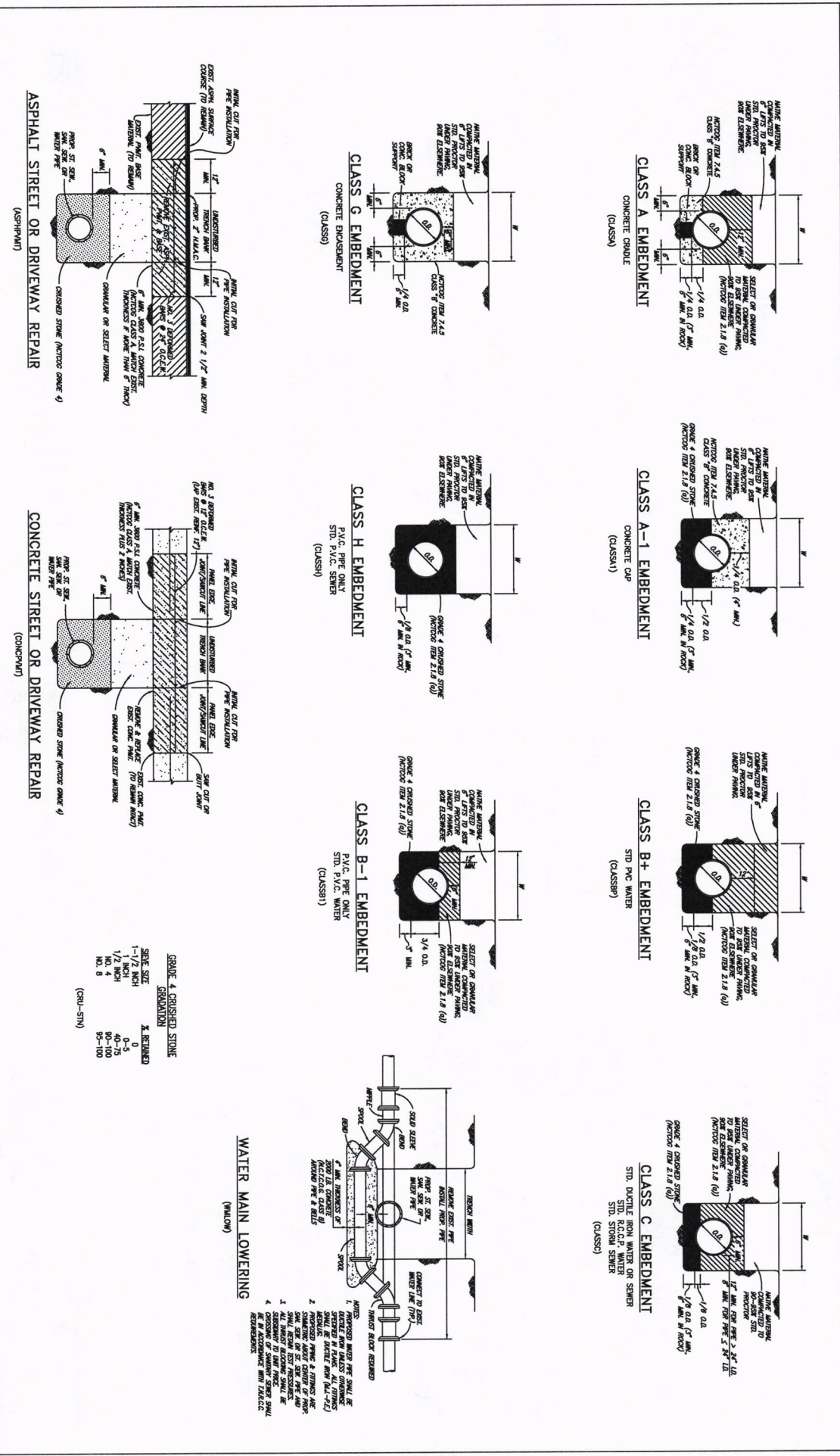
AERIAL CROSSING
(AERIAL-X)

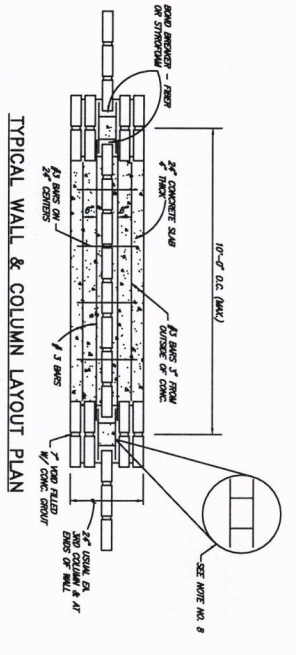
NOTE:
ENGINEERING DESIGN SHALL BE SUBMITTED TO CITY FOR APPROVAL FOR USE FOR EACH CROSSING. PIERS SHALL BE PLACED AT MAXIMUM SPAN DISTANCE AS DICTATED BY ENGINEER'S DESIGN. ENGINEER'S DESIGN SHALL BE BASED UPON GEOTECHNICAL REPORT RECOMMENDING PIER PLACEMENT.



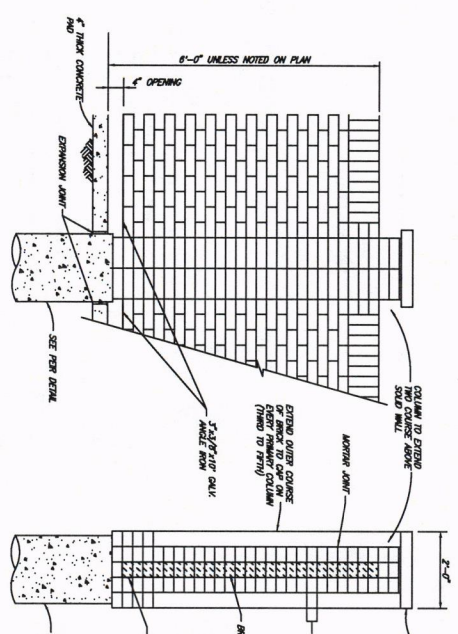
CITY OF DENISON, TEXAS

STANDARD CONSTRUCTION DETAILS TYPICAL EMBEDMENT



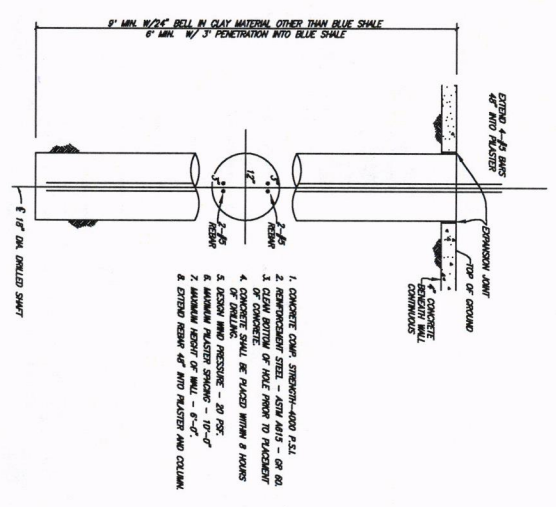


TYPICAL WALL & COLUMN LAYOUT PLAN

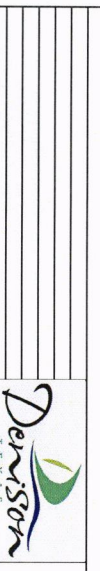


THIN WALL BRICK SCREENING WALL ELEVATION (BRICKTICE)

- NOTES:**
1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 P.S.I. AT 28 DAYS.
 2. REINFORCING STEEL SHALL BE NEW BILLET STEEL AS REQUIRED TO THE REQUIREMENTS OF ASTM A-615-60.
 3. CONCRETE FOR ANCHORED REINFORCING SHALL BE PLACED WITHIN 8 HOURS OF DRILLING REINFORCING.
 4. BRICK MASONRY SHALL BE AS SPECIFIED IN ITEM 2.1.05 OF THE SPECIAL PROVISIONS.
 5. MORTAR SHALL BE TYPE "S".
 6. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE RECOMMENDED PRACTICE FOR ENHANCED BRICK MASONRY - BRICK INSTITUTE OF AMERICA.
 7. USE #3 POLARIS 1-1/4" WIDE POLYMER LAMBER WITH ENDS OF POLARIS EXPOSED IN THE COLOR OF THE WALL. WALL SHOULD BE SET TO THE COLOR OF ENDS OF POLARIS.
 8. JOINTS SHALL BE RENOVED AS SHOWN BETWEEN EACH COURSE OF COLUMN BRICK.
 9. THE WALL SHALL BE A MINIMUM OF SIX FEET IN HEIGHT AS MEASURED FROM THE NEAREST ALIEN EDGE OR THE WALL SHALL BE SET TO THE COLOR OF ENDS OF POLARIS.
 10. 5/8"-DIAMETER ANCHORED REINFORCING SHALL BE ANCHORED INTO THE FOUNDATION AS SHOWN.



PIER DETAIL (MULTIPIER)



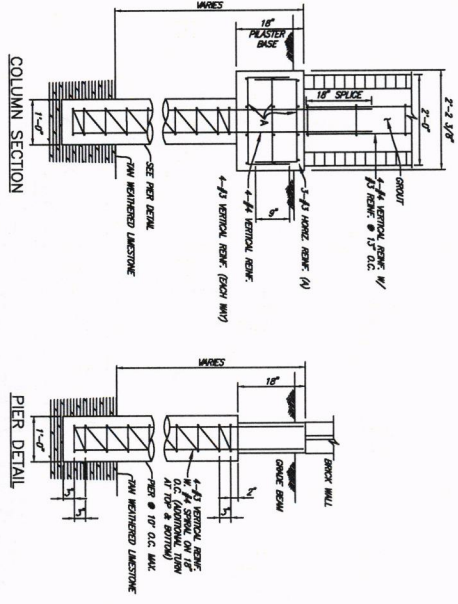
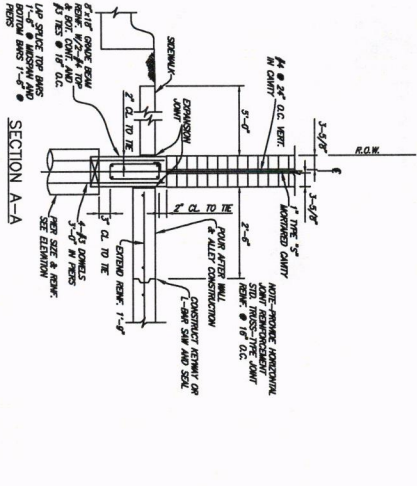
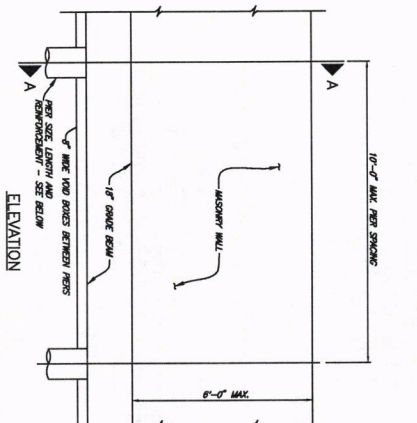


CITY OF DENISON, TEXAS
 STANDARD CONSTRUCTION DETAILS
 BRICK SCREENING WALL / RETAINING WALL

December, 2023
 SHEET NO. 29

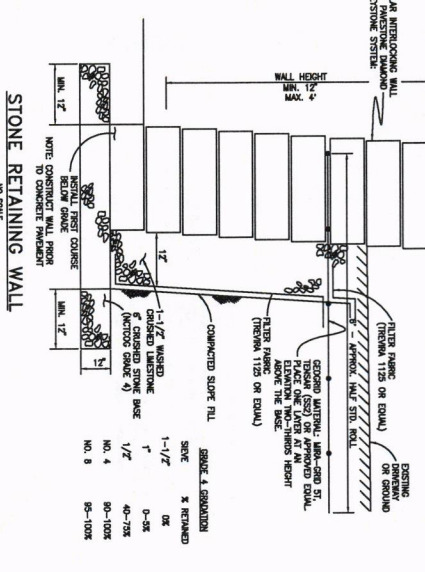
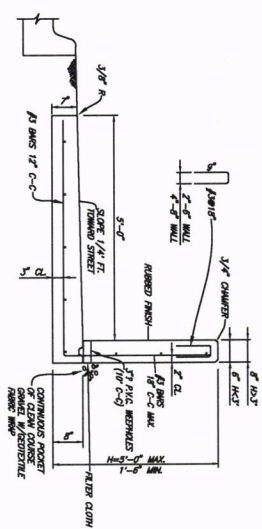
BRICK SCREENING WALL

1. 1 1/2" DIA. SWIFT EMBROIDERED MANILLA 3'-0" INTO BLUE SHALE
2. 1 1/2" DIA. SWIFT W/ 2 1/2" DIA. BALL W/ CLAN. RESULTING BEHAVING
3. STRESS IN 2.0 KIPS PER SQUARE FOOT.
4. SEE CHAPTER 101.9



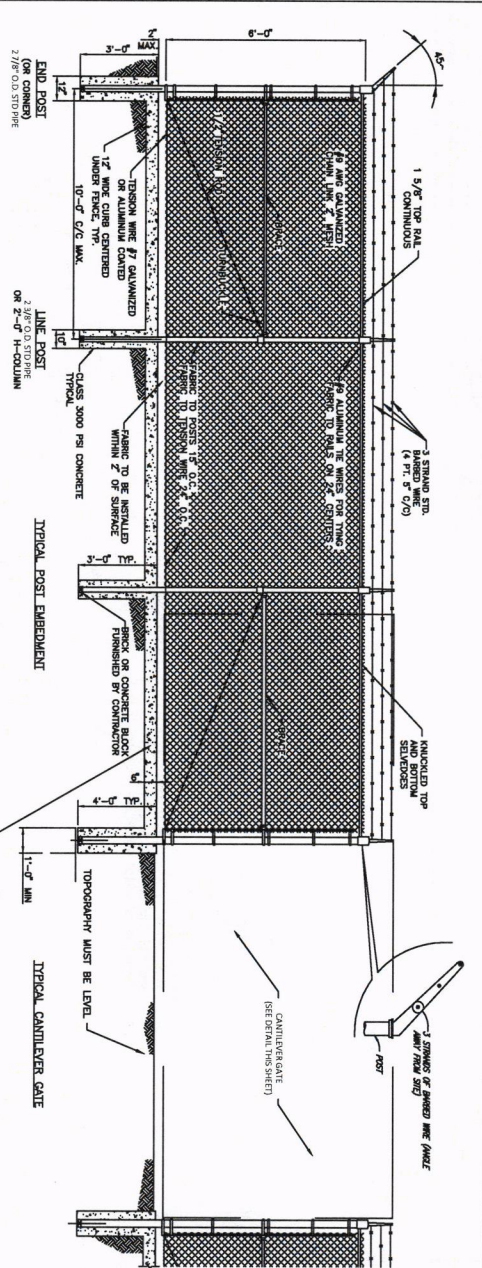
- GENERAL NOTES**
1. CONCRETE - MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I. AT 28 DAYS.
 2. REINFORCEMENT - ASTM A 36
 3. MASONRY - COMPRESSIVE STRENGTH SHALL BE AS PRESCRIBED IN ITEM 2.1.8 SPECIAL PROVISIONS.
 4. WIND LOAD - 20 P.S.F.
 5. PIER BEHAVING STRESS - SEE BRICK SCREENING WALL NOTES
 6. MORTAR - TYPE S.
 7. PROVIDE CONTROL JOINTS AT 20 FT.
 8. PROVIDE EXPANSION JOINTS AT 200 FT. CENTER MAXIMUM
 9. PROVIDE 1/4" DIA. BALL W/ 2 1/2" DIA. BALL W/ CLAN. OR OTHER MATERIAL EXCEPT BLUE SHALE W/ 1/4" DIA. BALL W/ CLAN. INTO BLUE SHALE
 10. ALL EXPOSED CONCRETE SHALL BE FINISHED FINISHED FINISH
 11. SPERMALUX ADHESIVE TO WALLS MUST BE 5'-0" MAX. WIDTH FROM ALL EDGES OF THE WALL (INCLUDING PLASTERS, ETC.)
 12. MAX. PASTER SPACING 40 FT.
 13. WALLS SHALL NOT BE PLACED IN THE ROBBERTY REGION OR SHEET PILE
 14. THE WALL SHALL BE A MINIMUM OF 3" FEET IN HEIGHT AS MEASURED FROM THE FINISH GRADE TO THE TOP OF THE WALL. THE WALL SHALL BE FINISHED WITH A FINISH AS SHOWN IN THE DRAWING. THE WALL SHALL BE FINISHED WITH A FINISH AS SHOWN IN THE DRAWING. THE WALL SHALL BE FINISHED WITH A FINISH AS SHOWN IN THE DRAWING.
 15. IF ANCHORAGE ROW SPACING IS TO BE UTILIZED ON REINFORCED SCREENING, ALL ANCHORAGE ROWS MUST BE SOLID STEEL, 3/8" THROUGH STEEL WILL BE ALLOWED.

TYPE 6 SIDEWALK RETAINING WALL
 (RETAINING WALL)

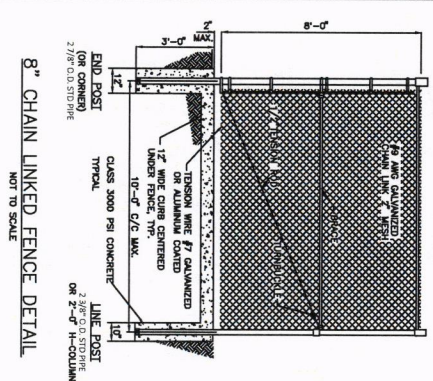


1. FOR RETAINING WALLS HIGHER THAN 30" A 42" HIGH RAILING OR GUARDRAIL IS REQUIRED WITH A BALUSTER SPACING OF NO MORE THAN 4'

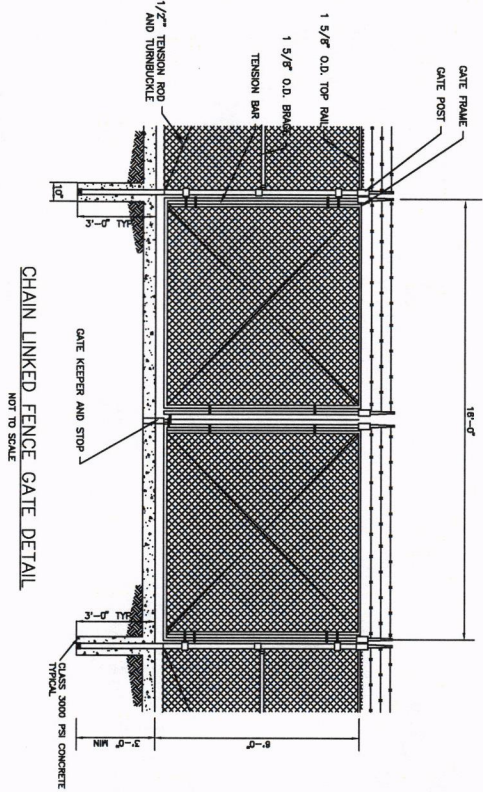
SIZE	% REMAINED
1-1/2"	0%
1"	0-5%
1/2"	40-75%
NO. 4	80-100%
NO. 8	90-100%



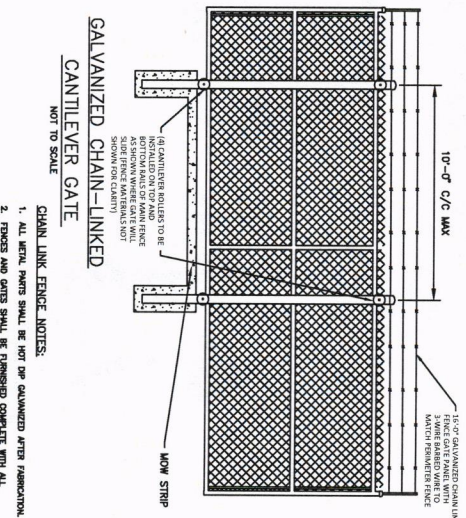
CHAIN LINKED FENCE DETAIL
NOT TO SCALE



8" CHAIN LINKED FENCE DETAIL
NOT TO SCALE



CHAIN LINKED FENCE GATE DETAIL
NOT TO SCALE

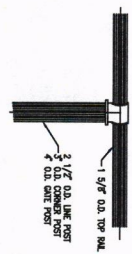


GALVANIZED CHAIN-LINKED
CANTILEVER GATE
NOT TO SCALE

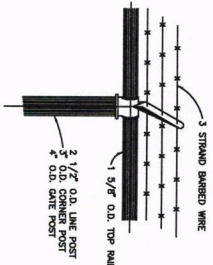
CHAIN LINK FENCE NOTES:

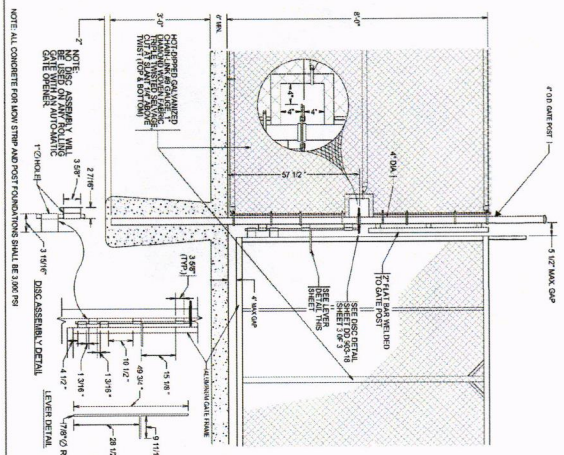
1. ALL METAL PARTS SHALL BE HOT DP GALVANIZED AFTER FABRICATION.
2. FENCES AND GATES SHALL BE FINISHED COMPLETE WITH ALL NECESSARY FINISHES AND HARDWARE AND ALL EXPOSED SURFACES SHALL BE MAINTENANCE STANDARD WHICH ALSO MEET THE REQUIREMENTS OF THIS DRAWING.
3. TOP GATES - SECTIONS OF FENCES, SLOPE ROPE AND TENSIONERS SHALL BE MAINTENANCE STANDARD WHICH ALSO MEET THE REQUIREMENTS OF THIS DRAWING.
4. CANTILEVER GATE GATE MUST BE APPROVED BY CITY OF DENISON FROM TO 5. CONTRACTOR MUST BE COMPLETED ON LOCAL ORDINANCE, MANUELS WITH SIGNING WITHIN OF THE DATE.
6. CONTRACTOR SHALL FINISH AND INSTALL AN AUTOMATIC GATE OPERATOR OR REMOTE CONTROL SYSTEM FOR ALL GATES.
7. FENCES SHALL BE FINISHED WITH FINISHED SECTION ON TOP OF GATE OR FINISH APPLIED AT THE TOP. ALL HOLLOW POSTS SHALL BE FINISHED WITH FINISHED SECTION ON TOP OF GATE OR FINISH APPLIED AT THE TOP. ALL HOLLOW POSTS SHALL BE FINISHED WITH FINISHED SECTION ON TOP OF GATE OR FINISH APPLIED AT THE TOP.
8. LATCH ASSEMBLY FOR SWING GATES, INCLUDING PLUNGE ROD, CATCH STOP AND LOCKING MECHANISM, SHALL BE PER MANUFACTURERS' RECOMMENDATIONS.
9. SPOUNGE ROP FOR ROLLBACK.
10. SPOUNGE ROP FOR ROLLBACK.
11. SPOUNGE ROP FOR ROLLBACK.

FENCE TOP
NO SCALE

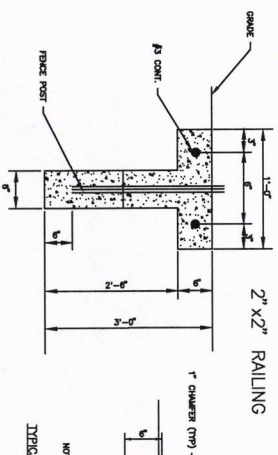


FENCE TOP
N.T.S.

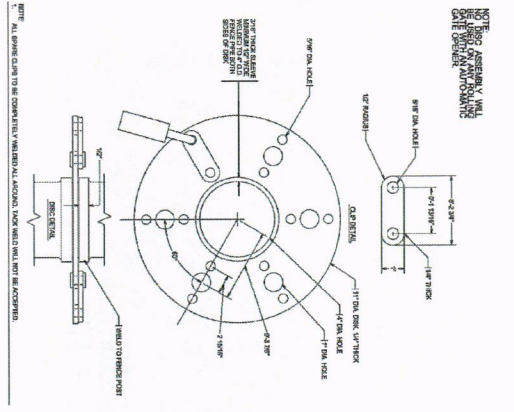




**HEAVY DUTY CANTILEVER SLIDE GATE
DETAIL**
NOT TO SCALE

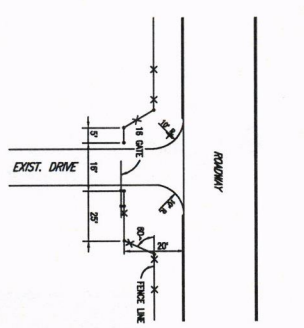


2" x 2" RAILING
FENCE MOW STRIP DETAIL
NOT TO SCALE

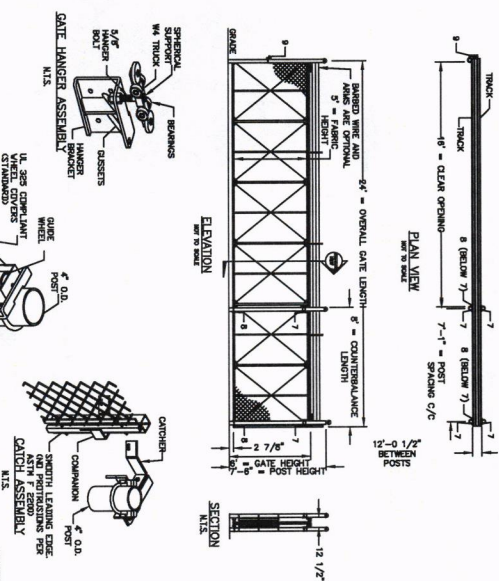


GATE HANGER ASSEMBLY
NOT TO SCALE

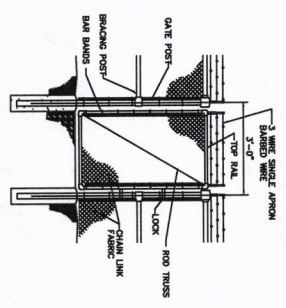
- NOTES:**
1. PROVIDE EXPANSION JOINTS AT MAXIMUM 117' O.C. AND AT INTERSECTIONS. PROVIDE SMOOTH CHORDS AT EQUAL SPACING. NOT TO EXCEED 5'-6" O.C. BRUSH FINISH. PROVIDE EXPANSION JOINT MATERIAL AGAINST ALL CURBS AND STRUCTURE.
 2. INSTALL TYPICAL MOW STRIP ALL AROUND UNPAVED METER WALLS, FENCES, AND MANHOLES.



20' SET BACK CANTILEVER FENCE GATE DETAIL
NOT TO SCALE



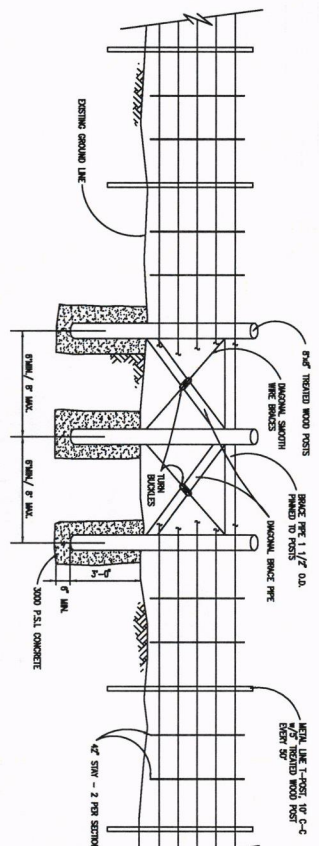
- NOTES:**
1. ALL FITTINGS STANDARDLY PROVIDED FOR 4' O.D. POSTS. OTHER SIZES AVAILABLE UPON REQUEST.
 2. BARB ARMS (FOR BARBED WIRE) INCLUDED FOR 6' GATE HEIGHT.
 3. GATE HEIGHT DOES NOT INCLUDE BARB ARMS OR BARB WIRE.



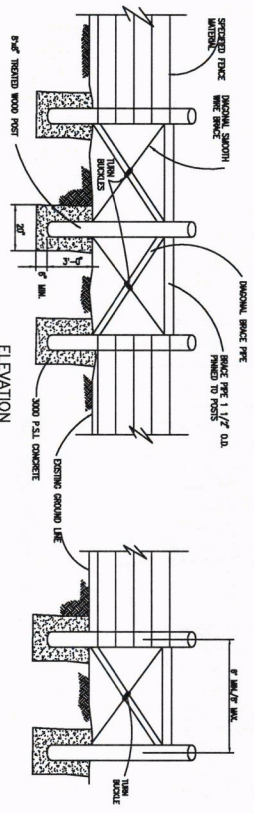
**CHAIN-LINKED PEDESTRIAN
GATE DETAIL**
NOT TO SCALE



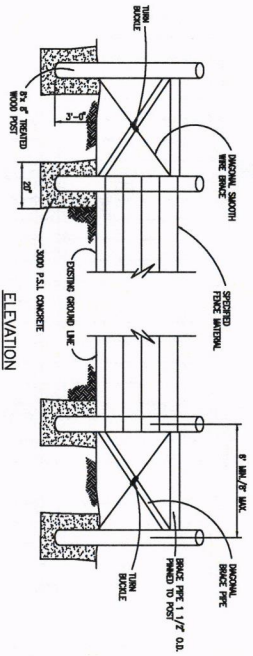
CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
CHAIN LINK FENCING



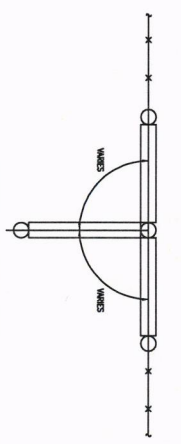
TYPE "B" FARM FENCE WITH
PULL POST UNIT
N.T.S.



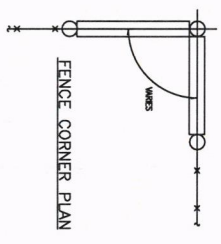
FENCE JUNCTION DETAIL
N.T.S.



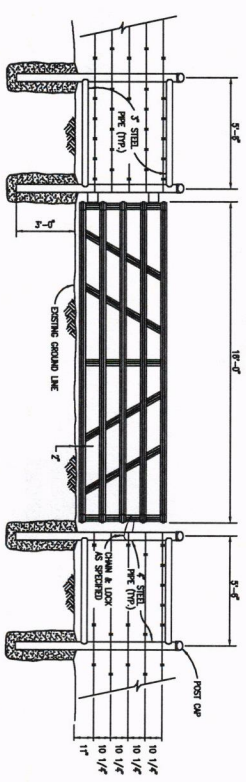
FENCE CORNER DETAIL
N.T.S.



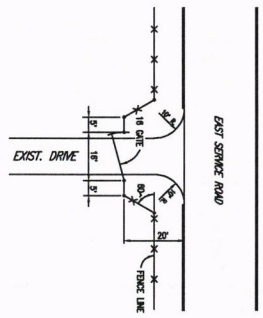
FENCE JUNCTION PLAN



FENCE CORNER PLAN



16' STEEL GATE DETAIL
N.T.S.



20' SET BACK FENCE DETAIL
N.T.S.

- GENERAL NOTES:
1. GATED WIRE SHALL BE TWO STRAND TWISTED NO. 12-1/2 AWG QUADRIWIRE STEEL WIRE WITH TWO POINT BARS OF NO. 14 WIRE GAUGE STEEL WIRE AND COVERED WITH 3/16" (0.1875") THICK SWAGE WIRE, PER SECTION A 121, CLASS 1.
 2. WOOD WIRE FENCE FABRICATORS WIRE SHALL BE OF A GOOD COMMERCIAL QUALITY OF STEEL. THE REQUIREMENTS OF ZINC-COATED (ALUMINUM) STEEL WIRE SHALL BE A MINIMUM NO. 10 WIRE GAUGE AND THE REQUIREMENTS OF WIRE AND SPECIAL STEEL SHALL BE NO. 12-1/2 AWG GAUGE.
 3. WIRE POSTS, BOLT CUTS, BRACES AND FITTINGS MAY BE GALVALUMATED OR GALVALUMATED WITH AN ALUMINUM FINISH. ALL POSTS AND BRACES NOT GALVALUMATED SHALL BE GALVALUMATED WITH AN ALUMINUM FINISH. ALL GALVALUMATED WIRE SHALL BE GALVALUMATED WITH AN ALUMINUM FINISH. ALL GALVALUMATED WIRE SHALL BE GALVALUMATED WITH AN ALUMINUM FINISH.
 4. WOOD POSTS SHALL BE SOUND AND STRONG AND FREE OF EXCESSIVE KNOTS. WOOD POSTS SHALL BE 6x6 TREATED WOOD POSTS. WOOD POSTS SHALL BE 6x6 TREATED WOOD POSTS. WOOD POSTS SHALL BE 6x6 TREATED WOOD POSTS.
 5. ALL POST LINES FOR WIRE FENCE SHALL BE LOCATED AT 200 FEET CENTER TO CENTER OF EXISTING FENCE. ALL POST LINES FOR WIRE FENCE SHALL BE LOCATED AT 200 FEET CENTER TO CENTER OF EXISTING FENCE. ALL POST LINES FOR WIRE FENCE SHALL BE LOCATED AT 200 FEET CENTER TO CENTER OF EXISTING FENCE.
 6. GATE FABRICATOR SHALL FINISH HINGES, BOLTS AND A SINKING AREA FOR EACH GATE.
 7. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3000 P.S.I. IN 28 DAYS.
 8. WIRE BRACE ASSEMBLY SHALL BE PLACED ON AFTER OF ALL CORNERS.
 9. METAL 1-POSTS (1/2" DIA.) TO BE GREEN WITH REFLECTIVE TOPS.
 10. FENCE REPLACEMENT SHALL BE "IN KIND".

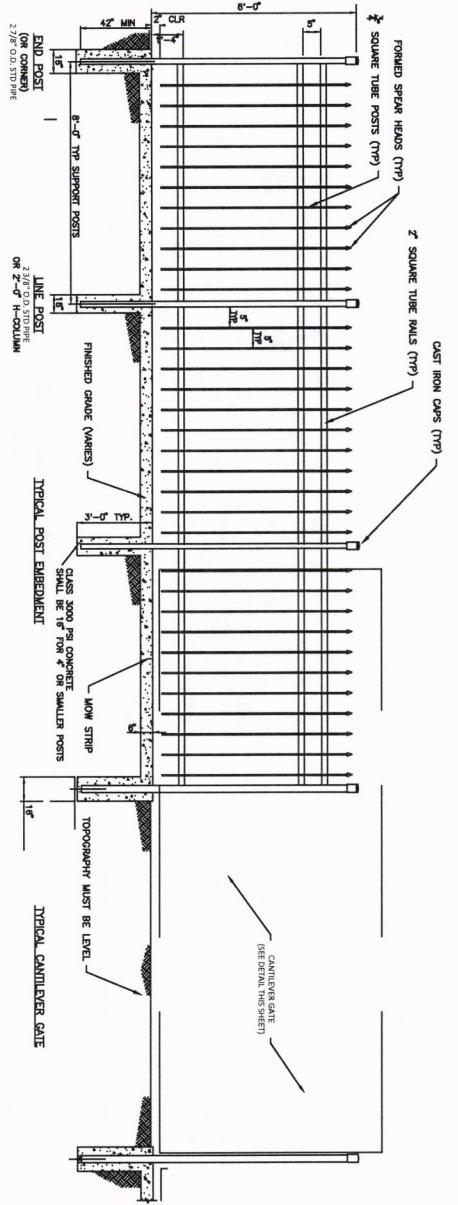
Denison
TEXAS

CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
FARM FENCE / STEEL GATE

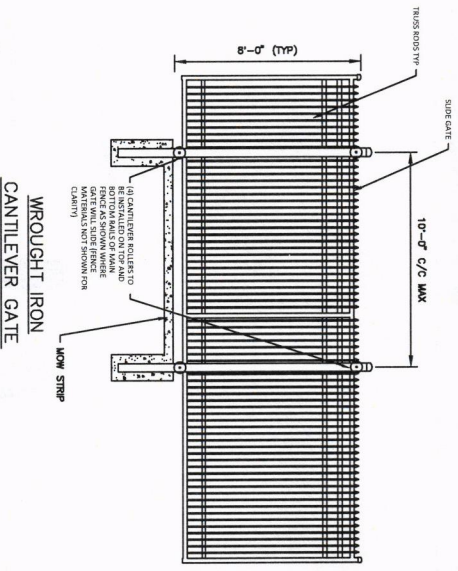
December, 2023

32

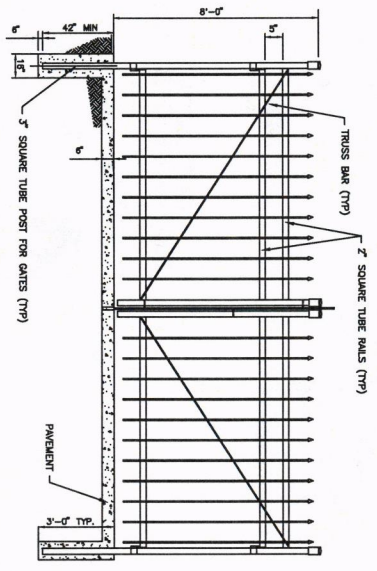
REVISED: 12/4/23 - Column Addition
 I:\Jobs\20210901.dwg denison design standards updated production drawing\denison-31.dwg
 PLOT SCALE: 1:2 PLOT STYLE: monochrome.ctb PLOTTED BY: Colton Stearns ON 12/1/23



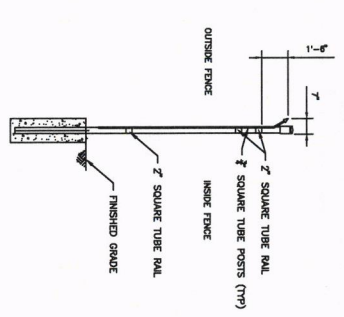
WROUGHT IRON FENCE DETAIL
 NOT TO SCALE



WROUGHT IRON CANTILEVER GATE
 NOT TO SCALE

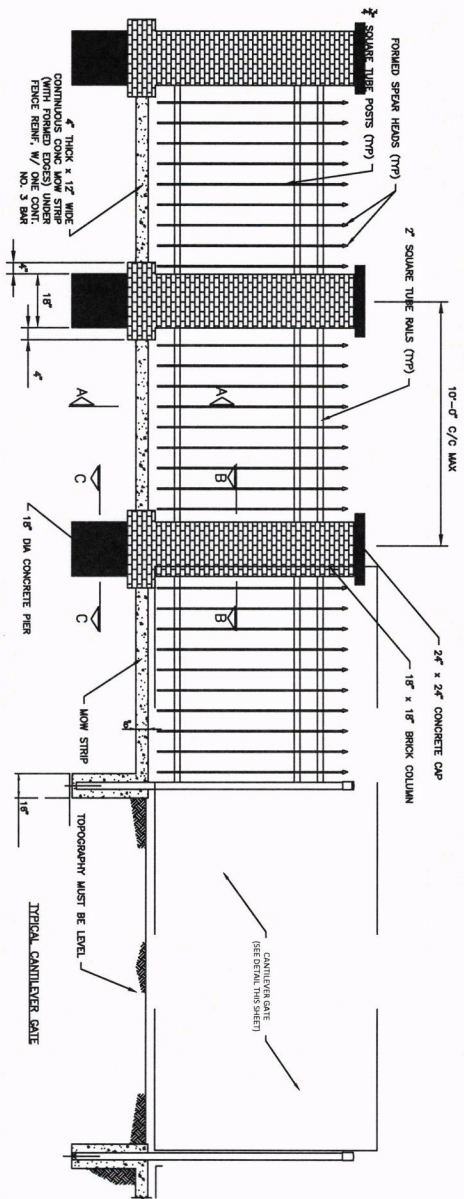


PRIVATE WROUGHT IRON SWING GATE
 DETAIL
 NOT TO SCALE



SIDE VIEW OF WROUGHT IRON FENCE
 NOT TO SCALE

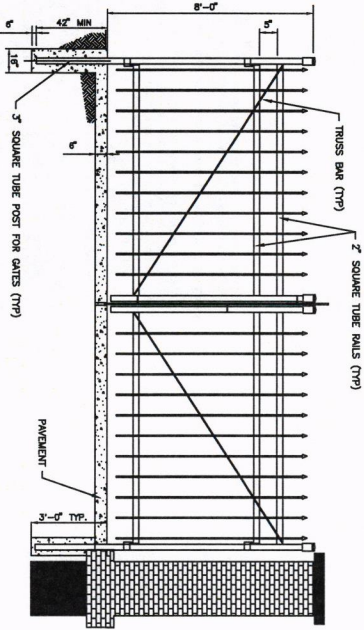
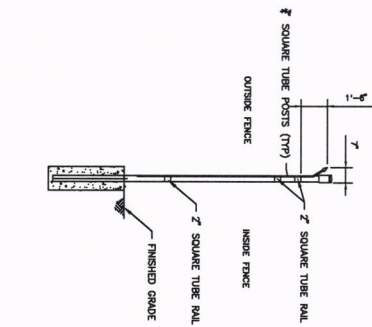
REVISION: 12/14/23 - Collaboration I:\Jobs\2021\0601\01\denison design standards update\production drawing\Denison-32.dwg	CITY OF DENISON, TEXAS STANDARD CONSTRUCTION DETAILS WROUGHT IRON FENCING	PLOT SCALE: 1:2 PLOT STYLE: monochrome.ctb PLOTTED BY: Caden Starnes ON 12/17/2023	SHEET NO. 33



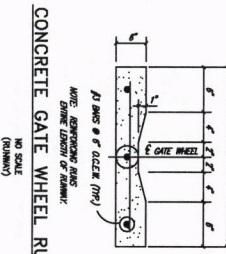
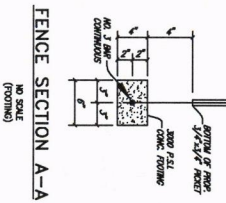
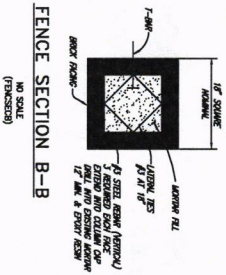
**WROUGHT IRON FENCE WITH BRICK
POSTS DETAIL**
NOT TO SCALE

1. STEP DOWN FENCE IS REQUIRED TO FOLLOW GRADE WHILE MAINTAINING
FLAT TOP SURFACE. SEE NOTES FOR ADDITIONAL REQUIREMENTS AND SHOWN DETAILS.

SIDE VIEW OF WROUGHT IRON FENCE
NOT TO SCALE

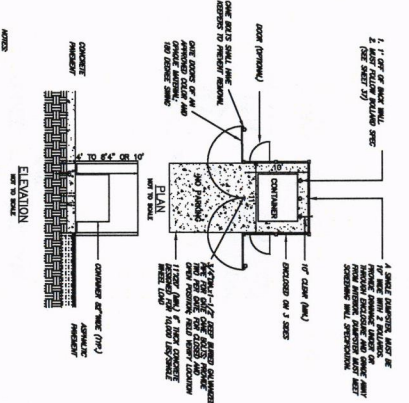


**WROUGHT IRON SWING GATE WITH BRICK
POSTS DETAIL**
NOT TO SCALE

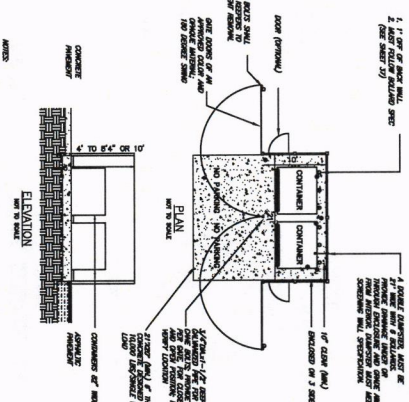


- DUMPSTER ENCLOSURES**
1. CHANGE CONTAINERS ARE REQUIRED TO BE SCREENED ON ALL SIDES, AND CONSTRUCTED SO AS TO BE ACCESSIBLE TO DOUBLE TRUCKS. PLYWOODS SCREENING MUST BE 1/2" THICK AND 4' HIGH. SCREENING SHALL BE 1/2" CLEAR OF THE ENCLOSURE AND THE MANUAL STANDINGS SHOULD BE FINISHED WITH THE REQUIREMENTS OF THE ZONING ORDINANCE AND THE MANUAL STANDINGS ADOPTED BY THE CITY.
 2. THE MANUAL HEIGHT OF THE SCREENING DEVICE FOR DOUBLE TRUCKS OR HEAVY CONTAINERS SHALL BE 10 FEET. THE MANUAL HEIGHT OF A SCREENING DEVICE IS 10 FEET.
 3. WHEN SITING A DUMPSTER ENCLOSURE ON A PROPERTY, APPLICANTS SHOULD CONSIDER THE LOCATION OF THE ENCLOSURE TO THE PROPERTY. ACCESS TO THE DUMPSTER, ACCESS TO (INCLUDING AT LEAST 50 FEET STRAIGHT FROM THE SCREENING DEVICE FOR BACKING FOR FRONT LOADING AND A 20' APPROACH AND DEPARTURE CLEARANCE FOR SIDE LOADING), AND OTHER USES OF THE SITE OR ADJACENT TO THE DUMPSTER, SHALL BE TAKEN INTO ACCOUNT. THE ENCLOSURE SHALL BE FINISHED WITH THE MANUAL STANDINGS AND SHALL BE 1/2" CLEAR FROM ALL ADJACENT AREAS. SCREENING SHALL BE 1/2" CLEAR OF THE ENCLOSURE. SCREENING GATES ARE REQUIRED TO BE SOLID METAL AND SCREEN THE DUMPSTER FROM VIEW WHEN CLOSED. GATES SHOULD SWING OUT TO AN ANGEL EQUALS FROM 180-DEGREES TO 90-DEGREES AT 90-DEGREES TO THE ENCLOSURE. GATES SHOULD ALSO SWING CLEAR OF ALL PRELIMINARY WALLS WHEN OPEN. ACCESS, GATES SHOULD ALSO SWING CLEAR OF ALL PRELIMINARY WALLS WHEN OPEN. SCREENING SHALL BE 1/2" CLEAR OF THE ENCLOSURE. SCREENING SHALL BE 1/2" CLEAR OF THE ENCLOSURE. SCREENING SHALL BE 1/2" CLEAR OF THE ENCLOSURE.
 4. SCREENING GATES ARE REQUIRED TO BE SOLID METAL AND SCREEN THE DUMPSTER FROM VIEW WHEN CLOSED. GATES SHOULD SWING OUT TO AN ANGEL EQUALS FROM 180-DEGREES TO 90-DEGREES AT 90-DEGREES TO THE ENCLOSURE. GATES SHOULD ALSO SWING CLEAR OF ALL PRELIMINARY WALLS WHEN OPEN. ACCESS, GATES SHOULD ALSO SWING CLEAR OF ALL PRELIMINARY WALLS WHEN OPEN. SCREENING SHALL BE 1/2" CLEAR OF THE ENCLOSURE. SCREENING SHALL BE 1/2" CLEAR OF THE ENCLOSURE. SCREENING SHALL BE 1/2" CLEAR OF THE ENCLOSURE.
 5. SCREENING (DUMPSTERS) IS REQUIRED AROUND SCREENING WALLS WHETHER THEY ARE CONCRETE OR METAL. SCREENING SHALL BE 1/2" CLEAR OF THE ENCLOSURE. SCREENING SHALL BE 1/2" CLEAR OF THE ENCLOSURE. SCREENING SHALL BE 1/2" CLEAR OF THE ENCLOSURE.
 6. FOR MORE INFORMATION ABOUT THE MANUAL STANDINGS FOR DUMPSTER ENCLOSURES, VISIT THE CITY OF DENISON WEBSITE AT WWW.DENISONTX.GOV.
 7. PROPERTY OWNER MUST CONTACT THE ENGINEERING SERVICES TO OBTAIN PROPER SIZE AND QUANTITY OF DUMPSTERS/CONTAINERS NEEDED TO ENSURE ADEQUATE STORAGE AND WASTE COLLECTION AND SERVICE NEEDS.

SINGLE CONTAINER DUMPSTER ENCLOSURE
NOT TO SCALE



DOUBLE CONTAINER DUMPSTER ENCLOSURE
NOT TO SCALE





 CHANGE ORDER NO. X

 FIELD CHANGE

 ADDENDUM

I:\data\20210826\01 denison design standards update\production\denison--M.dwg

 PLOT SCALE 1:2

 PLOT STYLE monochrome.ctb

 PLOTTED BY: Colleen Stennett ON 12/1/2023

CITY OF DENISON, TEXAS

 STANDARD CONSTRUCTION DETAILS

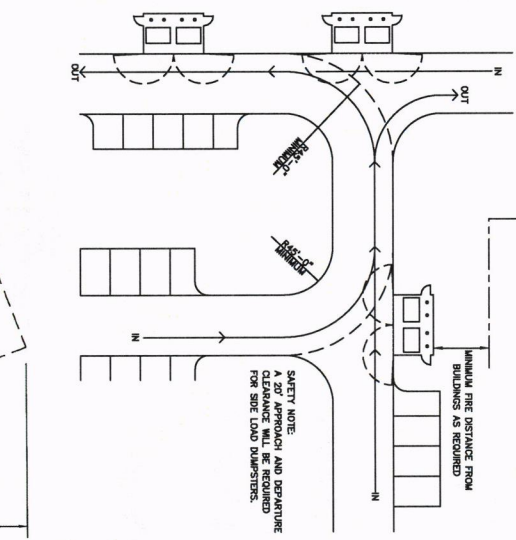
 DUMPSTER DETAILS

 December, 2023

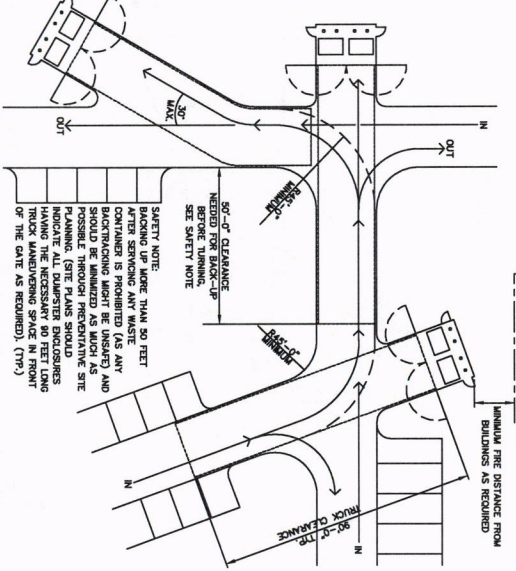
 SHEET NO.

35

SOLID WASTE VEHICLE OPERATION SCHEMATIC
TYPICAL ROUTE CONDITIONS AND TRUCK
MANEUVERING SPACE CLEARANCES
REQUIREMENTS (SIDE LOADING)
SCHEMATIC SITE PLAN



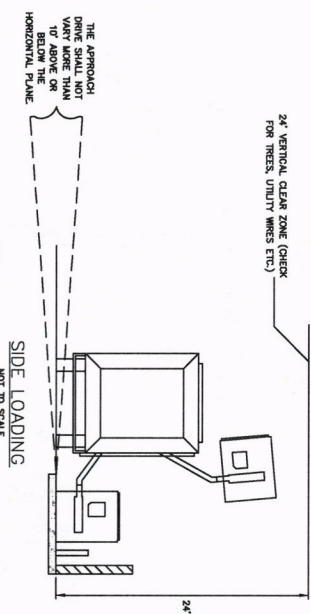
SOLID WASTE VEHICLE OPERATION SCHEMATIC
TYPICAL ROUTE CONDITIONS AND TRUCK
MANEUVERING SPACE CLEARANCES
REQUIREMENTS (FRONT LOADING)
SCHEMATIC SITE PLAN



SOLID WASTE VEHICLE OPERATION SCHEMATIC TYPICAL ROUTE CONDITIONS AND TRUCK MANEUVERING SPACE CLEARANCES REQUIREMENTS

- GENERAL NOTES:**
1. ALL CURBS ARE TO BE ALIGNED ON THE OUTSIDE OF ENCLOSURE WALLS. THE CURBS SHALL NOT INTERFERE WITH THE ROUTE OF THE SOLID WASTE COLLECTION VEHICLE.
 2. ALL SOLID WASTE COLLECTION ROUTES SHALL MEET ENGINEERING DESIGN CRITERIA (WADITS, TURNING RADIUS, ETC.). SITE SHALL BE DESIGNED TO PROVIDE SOLID WASTE COLLECTION VEHICLES WITH SUFFICIENT APPROACH AND DEPARTURE CLEARANCES AND TURN RADIUS WITHIN DRIVEWAY OR ROAD. OBSTRUCTIONS AS REQUIRED.
 3. ALL DUMPSTER DOORS MUST BE ALLOWED TO OPEN 180 DEGREES WITHOUT ANY OBSTRUCTIONS FROM BUILDINGS, CURBS, ETC.
 4. CURBS, DRIVE LAYOUT AND OPERATION CLEARANCES SHALL BE SUCH THAT SOLID WASTE COLLECTION VEHICLES WILL NOT NEED BACK UP MORE THAN 50 FEET TO EXIT THE SITE AFTER SERVING A DUMPSTER FOR FRONT LOADING. FOR SIDE LOADING, A 20' APPROACH AND DEPARTURE CLEARANCE WILL BE REQUIRED. TURNING OR BACKUP PROTECTIONS ARE TO DISALLOW THE SOLID WASTE COLLECTION VEHICLES FROM BACKING UP MORE THAN 50 FEET TO EXIT THE SITE AFTER SERVING A DUMPSTER FOR FRONT LOADING.
 5. ALL CURBS SHALL BE CLEAR OF ALL OBSTRUCTIONS: CURBS, WALLS, OVERHEAD WIRES, MANHOLES, ROOF EAVES, ETC.
 6. DUMPSTER ENCLASURES SHALL BE LOCATED IN SUCH A MANNER AS TO ALLOW THE COLLECTION VEHICLE TO TRAVEL THE SITE WITHOUT BACKTRACKING. MULTIPLE FACILITIES SHOULD BE LOCATED IN SEQUENCE TO ALLOW CONSECUTIVE SERVING ON ONE-WAY TRUCK ROUTE AS MUCH AS POSSIBLE.
 7. DUMPSTER ENCLASURES SHALL BE DESIGNED TO ALLOW THE COLLECTION VEHICLE TO TRAVEL THE ROUTE WITHOUT BACKTRACKING. MULTIPLE FACILITIES SHOULD BE LOCATED IN SEQUENCE TO ALLOW CONSECUTIVE SERVING ON ONE-WAY TRUCK ROUTE AS MUCH AS POSSIBLE.
 8. DUMPSTER ENCLASURES SHALL BE DESIGNED TO ALLOW THE COLLECTION VEHICLE TO TRAVEL THE ROUTE WITHOUT BACKTRACKING. MULTIPLE FACILITIES SHOULD BE LOCATED IN SEQUENCE TO ALLOW CONSECUTIVE SERVING ON ONE-WAY TRUCK ROUTE AS MUCH AS POSSIBLE.
 9. DUMPSTER ENCLASURES SHALL BE DESIGNED TO ALLOW THE COLLECTION VEHICLE TO TRAVEL THE ROUTE WITHOUT BACKTRACKING. MULTIPLE FACILITIES SHOULD BE LOCATED IN SEQUENCE TO ALLOW CONSECUTIVE SERVING ON ONE-WAY TRUCK ROUTE AS MUCH AS POSSIBLE.
 10. THE GENERAL MANEUVERING AND TRUCK MANEUVERING SPACE REQUIREMENTS ON DUMPSTER ENCLASURE DESIGN LAYOUT SIZE SHALL BE 24' VERTICAL CLEARANCE.

REAR VIEW

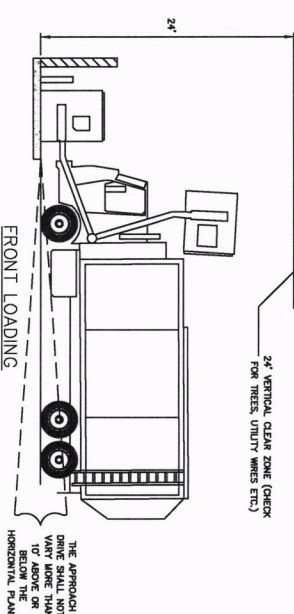


24' VERTICAL CLEAR ZONE (CHECK FOR WIRES, UTILITY WIRES ETC.)

THE APPROACH DRIVE SHALL NOT WANT MORE THAN 50 FEET BELOW THE HORIZONTAL PLANE.

NOTE: IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO OPEN GATES USED TO ENCLOSED CONTAINERS PRIOR TO COLLECTION. PROPERTY OWNER/TENANT IS RESPONSIBLE FOR MAINTAINING DUMPSTER ENCLASURES AND ADEQUATE ACCESS/ EGRESS. DUMPSTER PADS MAY NOT BE LOCATED IN RIGHT OF WAY OR FIRE LANES.

PLAN VIEW



24' VERTICAL CLEAR ZONE (CHECK FOR WIRES, UTILITY WIRES ETC.)

24' VERTICAL CLEAR ZONE (CHECK FOR WIRES, UTILITY WIRES ETC.)

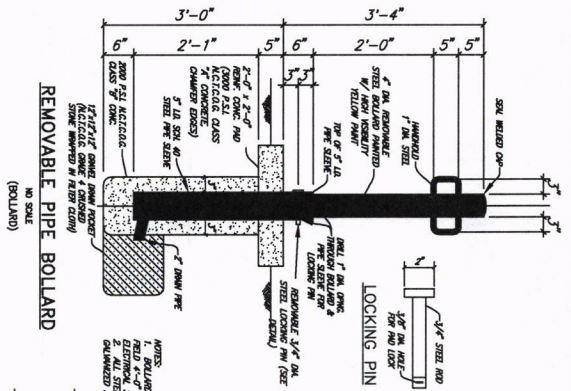
NOTE: IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO OPEN GATES USED TO ENCLOSED CONTAINERS PRIOR TO COLLECTION. PROPERTY OWNER/TENANT IS RESPONSIBLE FOR MAINTAINING DUMPSTER ENCLASURES AND ADEQUATE ACCESS/ EGRESS. DUMPSTER PADS MAY NOT BE LOCATED IN RIGHT OF WAY OR FIRE LANES.

CHANGE ORDER NO. X	
FIELD CHANGE	
REVISION	
DATE	
DESCRIPTION	

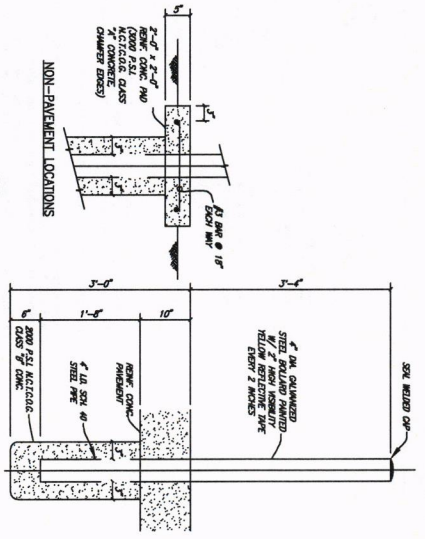


PROJECT: 14/4/23 - Columbia... DESIGN: 12/1/2023

PLAT SCALE: 1:2 PLAT STYLE: NEW-SEC-DB PLATTED BY: COLIN SHAWNE ON 12/1/2023



NOTE:
PIPE BOLLARDS SHALL BE LOCATED IN THE FIELD & NOT AT THE END OF THE DRIVEWAY. ALL STEEL SHALL BE NOT PAINTED UNLESS OTHERWISE SPECIFIED.



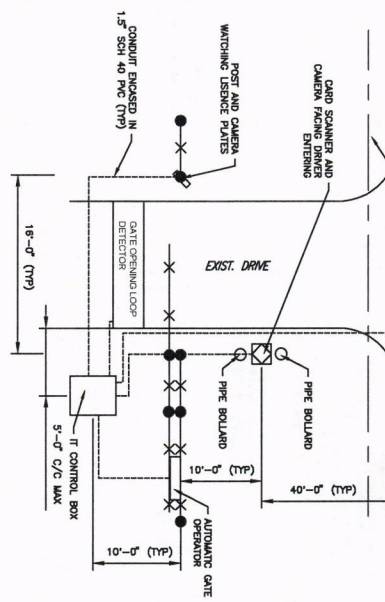
NOTE:
ALL STEEL SHALL BE NOT PAINTED UNLESS OTHERWISE SPECIFIED.



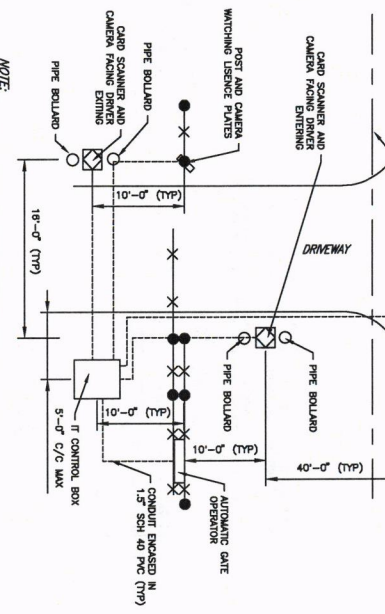
REMOVABLE PIPE BOLLARD
(NO SCALE)



PIPE BOLLARD
(NO SCALE)



I.T. SET UP FOR CANTILEVER FENCE
GATE DETAIL (PUBLIC)
NOT TO SCALE



I.T. SET UP FOR CANTILEVER FENCE
GATE DETAIL (PRIVATE)
NOT TO SCALE

NOTE:
A. CITY OF DENISON I.T. DEPARTMENT TO PROVIDE CAMERAS, CARDS/SCANNERS & I.T. CONTROL BOX

NOTE:
A. CITY OF DENISON I.T. DEPARTMENT TO PROVIDE CAMERAS, CARDS/SCANNERS & I.T. CONTROL BOX

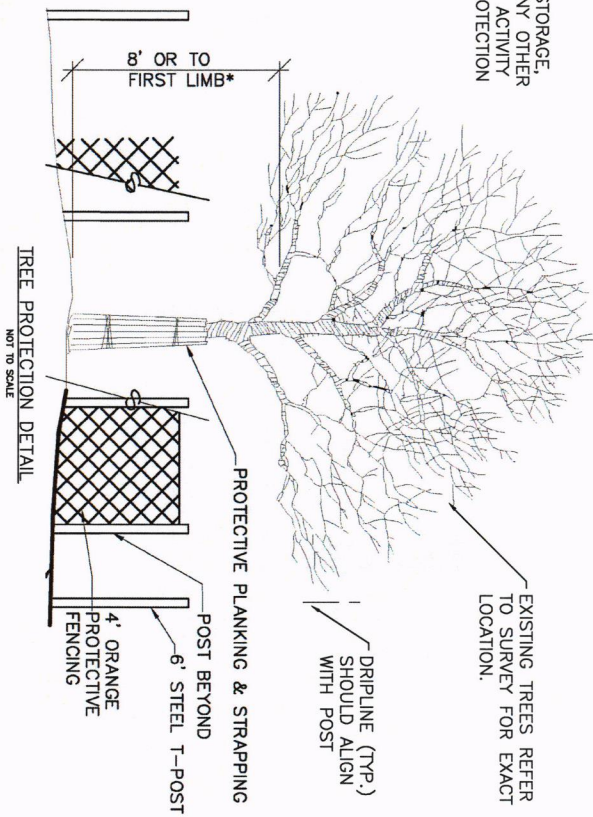


CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
PIPE BOLLARD AND I.T. DETAIL FOR GATE

December, 2023

SHEET NO. 37

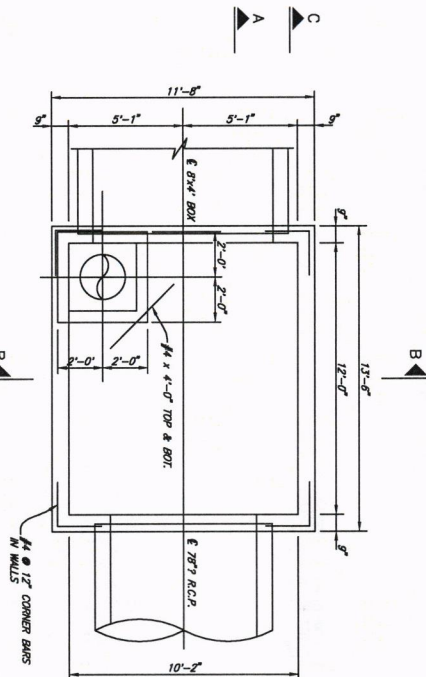
NO GRADING, STORAGE,
PARKING OR ANY OTHER
CONSTRUCTION ACTIVITY
WITHIN THE PROTECTION
FENCE



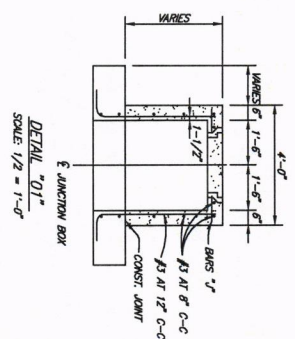
TREE PROTECTION DETAIL
NOT TO SCALE

- NOTE:
- A. ANY TREE REMOVAL MUST HAVE PRIOR APPROVAL BY LANDSCAPE ARCHITECT. REFER TO PLANNING PLAN FOR PLANT DEMO.
 - B. PRIOR TO GRADING, BRUSH REMOVAL, OR CONSTRUCTION, THE DEVELOPER SHALL CLEARLY TAG OR MARK ALL TREES TO BE PRESERVED.
 - C. THE DEVELOPER SHALL ERECT PROTECTIVE FENCING AROUND EACH TREE OR GROUP OF TREES TO PREVENT THE PLACEMENT OF DEBRIS OR FILL WITHIN THE ROOT PROTECTION ZONE. THE FENCE SHALL BE INSTALLED PRIOR TO THE RELEASE OF ANY PERMIT. IF THE PROTECTION FENCE IS FOUND REMOVED, DOWN, OR ALTERED AT ANY TIME DURING CONSTRUCTION PRIOR TO FINAL INSPECTION OR LANDSCAPE INSTALLATION, A STOP WORK ORDER MAY BE ISSUED.
 - D. DURING THE CONSTRUCTION PHASE OF DEVELOPMENT, THE DEVELOPER SHALL ESTABLISH A CONSTRUCTION ENTRANCE THAT AVOIDS PROTECTED TREES AND PROHIBIT CLEANING, PARKING, OR STORAGE OF EQUIPMENT OR MATERIALS UNDER THE CANOPY OF ANY TREE OR GROUP OF TREES BEING PRESERVED. THE DEVELOPER SHALL NOT ALLOW THE DISPOSAL OF ANY WASTE MATERIAL SUCH AS, BUT NOT LIMITED TO, PAINT, OIL, SOLVENTS, ASPHALT, CONCRETE, MORTAR, ETC. IN THE CANOPY AREA.
 - E. NO ATTACHMENTS OR WIRES OF ANY KIND, OTHER THAN THOSE OF A PROTECTIVE NATURE SHALL BE ATTACHED TO ANY TREE.
 - F. NO FILL OR EXCAVATION MAY OCCUR WITHIN THE DWP LINE OF A TREE TO BE PRESERVED UNLESS THERE IS A SPECIFIC APPROVED PLAN FOR USE OF TREE WELLS OR RETAINING WALLS. MAJOR CHANGES OF GRADE, SW (6) DITCHES OR GRADERS WILL REQUIRE ADDITIONAL MEASURES TO MAINTAIN PROPER OXYGEN AND WATER EXCHANGE WITH THE ROOTS.

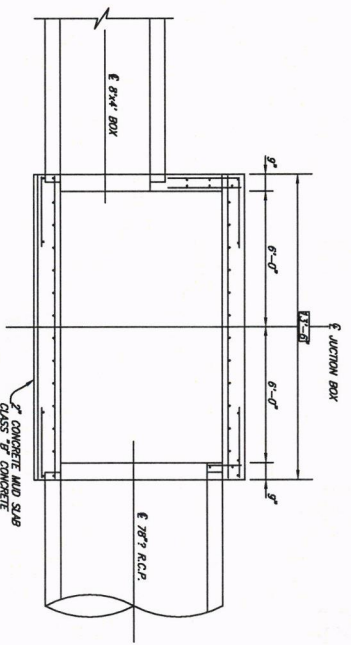




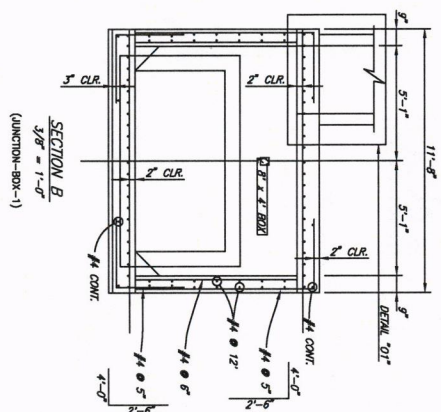
PLAN-JUNCTION BOX
3/8" = 1'-0"



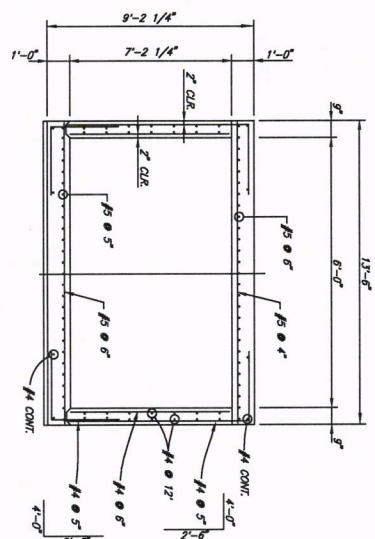
- NOTE:
1. CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF MICHIGAN STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
 2. CONCRETE SHALL BE CLASS "C" - 3,000 P.S.I.
 3. REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615, GRADE 60.
 4. FIELD CUT REINFORCING STEEL TO CLEAR PRECAST BOX AND R.C.P. BY 2".



SECTION A
3/8" = 1'-0"

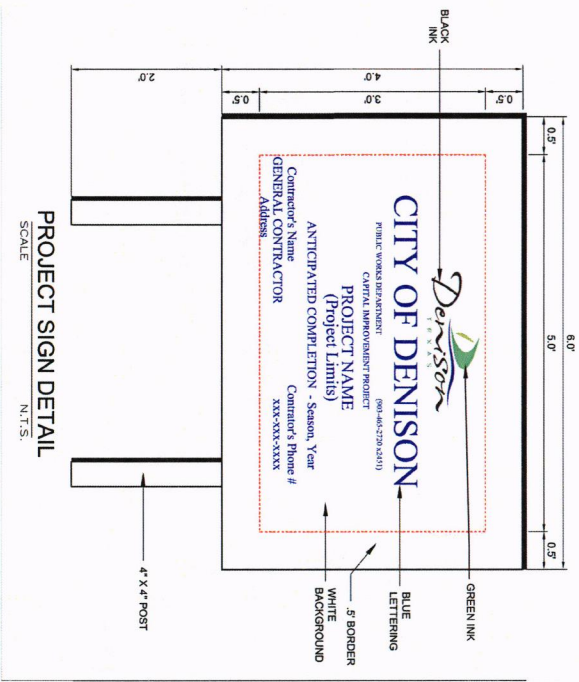


SECTION B
3/8" = 1'-0"
(JUNCTION-BOX-1)



SECTION C
3/8" = 1'-0"

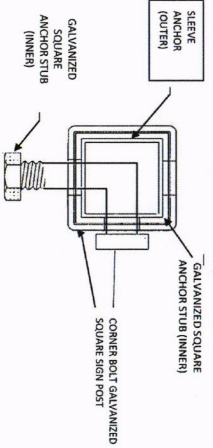
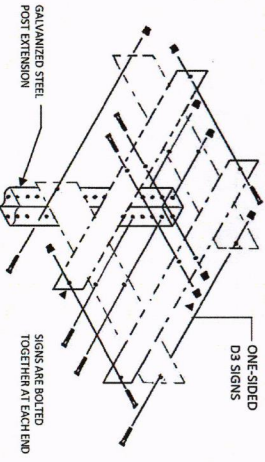




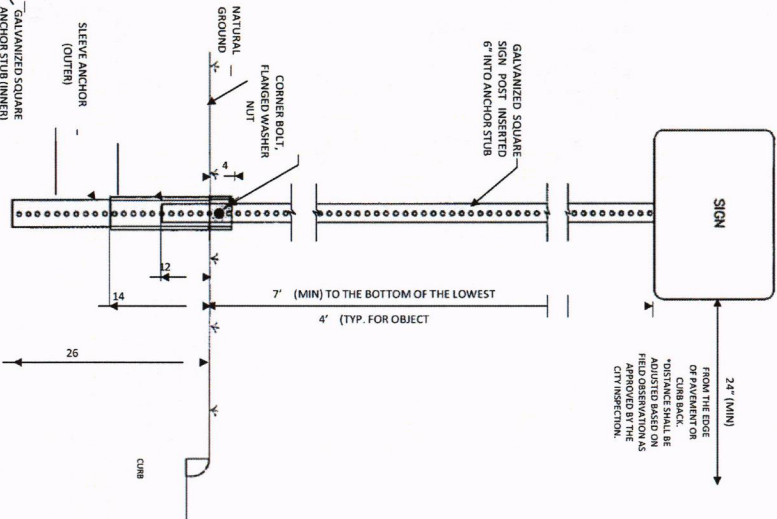
PROJECT SIGN DETAIL
SCALE: N.T.S.

Color Palette

	PMS 482 C100 M88 Y0 K20 R10 G28 B119		PMS 443 C21 M3 Y1 K2 R198 G211 B223		PMS 558 C05 M5 Y27 K15 R172 G164 B137
	PMS 497 C90 M13 Y68 K05 R137 G143 B 75		PMS 477 C22 M7 Y51 K22 R103 G188 B107		PMS 808 C05 M0 Y0 K100 R100 G00 B100



TYPICAL GROUND SIGN INSTALLATION
PERFORATED SQUARE METAL TUBING



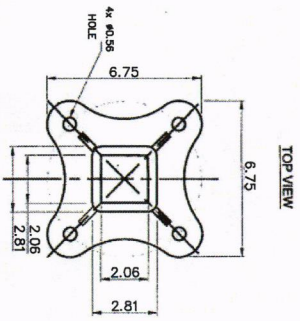
TYPICAL STOP SIGN AND
STREET NAME SIGN INSTALLATION

SLEEVE DETAILS

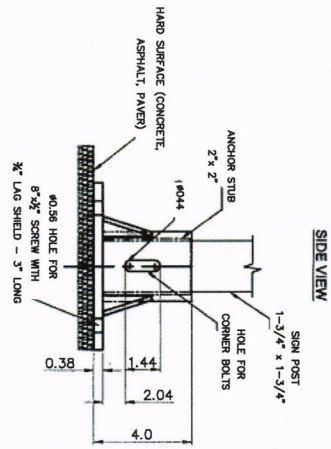
GALVANIZED SQUARE SIGN POST EXTENSION (PERFORATED)	1-1/2" x 1-1/2" (14 GAUGE)
GALVANIZED SQUARE SIGN POST (PERFORATED)	1-3/4" x 1-3/4" (14 GAUGE)
GALVANIZED SQUARE SIGN POST (PERFORATED) (INNER)	2" x 2" x 30" (14 GAUGE)
GALVANIZED SQUARE SIGN POST (PERFORATED) (OUTER)	2 3/4" x 2 3/4" x 18" (14 GAUGE)



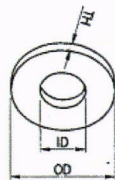
TYPICAL HARD SURFACE INSTALLATION GALVANIZED SIGN BASE
 (USED ONLY WHEN UNDERGROUND CONDITIONS PROHIBIT USE OF STANDARD ANCHOR SLEEVE
 - APPROVAL FROM PUBLIC WORKS DIRECTOR OR DESIGNER NEEDED PRIOR TO USE)



NOTES:
 1. HOT DIP GALVANIZE PER ASTM A-153
 2. ALL DIMENSIONS ARE IN INCHES



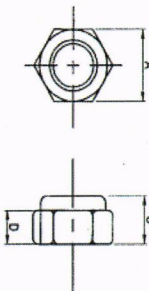
1/2" FLAT WASHERS, LOW CARBON, SAE ZINC PLATED



SAE FLAT WASHERS		OD		THICKNESS-TH	
SIZE	TOLERANCE	BASIC PLUS	MINUS	BASIC PLUS	MINUS
1/2	0.018	0.018	0.008	1.082	0.074

DIMENSIONS: ASME B18.21.1, TYPE A PLAIN WASHERS
 MATERIAL: CARBON STEEL
 FINISH: Fe/Zn 3MT PER ASTM F1941

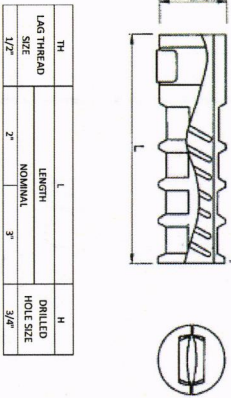
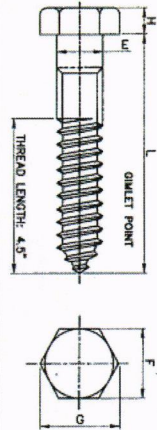
HEX NYLON INSERT LOCKNUTS (NE), GRADE 8, YELLOW ZINC PLATED



SIZE	THICKNESS	WIDTH ACROSS FLATS	HEIGHT
1/2	0.39	0.50	0.25

DIMENSIONS: ASME B18.21.1
 MATERIAL: CARBON STEEL, GRADE 8 PER ASME B18.16.8, NYLON *
 FINISH: YELLOW ZINC PLATED
 THREAD REQUIREMENTS: ASME B1.1 UNCLD UNG CLASS 2B

8" HEX LAG SCREWS, HOT DIPPED GALVANIZED



TH	L	H
LAG THREAD SIZE	LENGTH	DRILLED HOLE SIZE
1/2"	NOMINAL 3'	3/4"

DIAMETER	BODY DIAMETER	WIDTH ACROSS FLATS	WIDTH ACROSS CORNERS	HEIGHT	LENGTH
1/2"	0.515	0.682	0.725	0.25	8

MATERIAL: PER A307 GRADE A
 COATING: HOT DIP ZINC PER ASTM F2329 OR IN ACCORDANCE WITH CLASS C OF ASTM AND CLASS D FOR 3/8" DIAMETER OR LARGER



D3-1 STREET NAME SIGN EXAMPLES
(DIMENSIONS SHOWN ARE TYPICAL)

D3-1 STREET NAME SIGN

HEIGHT	9" SIGN BLANK (9.30" DESIGNED WITH FULL BLEED)
LENGTH	30" - 36" 42" OR 48"
THICKNESS	0.090"
SUBSTRATE	ALUMINUM ALLOY, 5052-H38 (ASTM B-209)
SIGN FACE MATERIAL	GREEN FILM OVER ASTM-D956 TYPE XI FULL CUBE PRISMATIC GRADE RETROREFLECTIVE SHEETING OR EQUIVALENT
SIGN FONT	CLEARVIEW/HWY 3W
COLOR	LETTERS - WHITE REFLECTIVE BACKGROUND - GREEN FILM

D3-1 STREET NAME SIGN DIMENSIONS

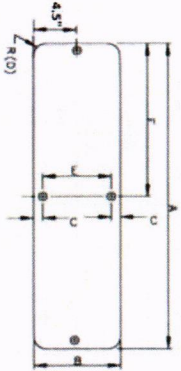
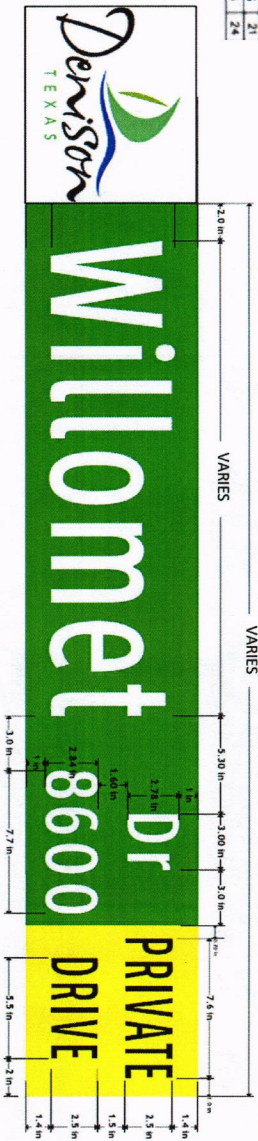
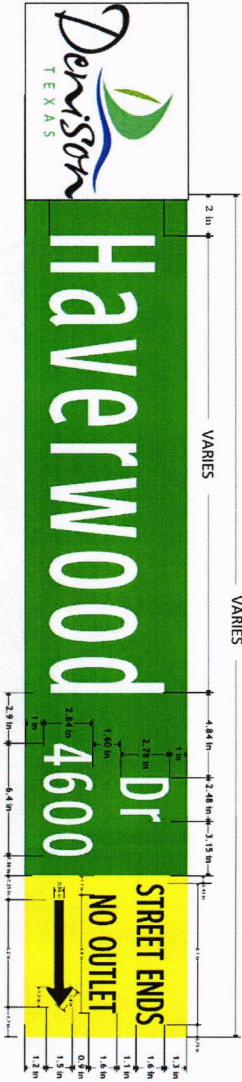
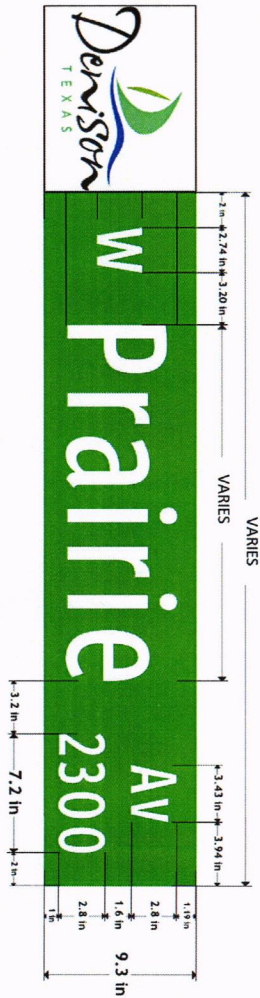


TABLE - D3 SIGN

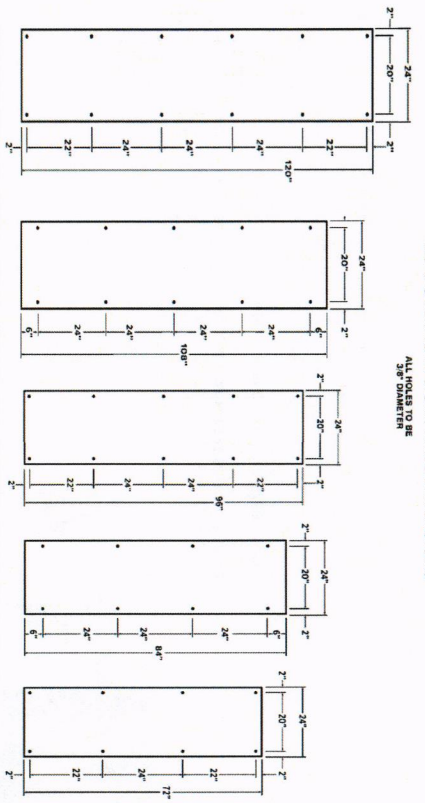
A	B	C	D	E	F
30	36	42	48	54	60
3	3	3	3	3	3
6	6	6	6	6	6
15	15	15	15	15	15
18	18	18	18	18	18
21	21	21	21	21	21
24	24	24	24	24	24

- NOTES:
1. TEXT SHALL START 2" FROM THE EDGE OF THE LOGO
 2. STREETNAME SHALL BE CENTRED AND 6" FONT SIZE
 3. 1" MIN. SPACE BETWEEN STREET NAME LETTERS
 4. SUFFIX AND BLOCK NUMBER MUST BE LOCATED 2" FROM STREET NAME AND 2" FROM THE RIGHT EDGE; SUFFIX AT TOP AND BLOCK NUMBER AT BOTTOM, 3" SPACE BETWEEN THEM.
 5. LETTERS AND/OR NUMBERS SPACES IN THE SUFFIX AND BLOCK NUMBER MUST BE 1.5" MIN.
 6. BLOCK NUMBER MUST HAVE 1" SPACE FROM THE BLADE EDGE
 7. ALL DIMENSIONS ARE IN INCHES.
 8. SIGN LENGTH WILL BE DICTATED BY THE NUMBER OF LETTERS IN THE NAME
 9. ALL STREETNAME SIGNS SHALL HAVE 1/4" DIAMETER HOLES DRILLED ON EACH END AND AFFIXED TOGETHER.



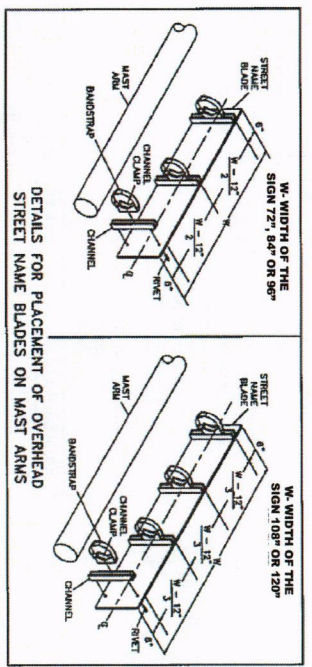
CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
GROUND MOUNTED STREET NAME BLADE (D3-1) DETAILS

D3-1 OVERHEAD SIGN PANEL DIMENSIONS



HEIGHT	24"
LENGTH	72", 84", 96", 108", or 120"
THICKNESS	0.100"
SUBSTRATE	ALUMINUM ALLOY, 5052-H38 (ASTM B-209)
SIGN FACE MATERIAL	GREEN FILM OVER ASTM-4956 TYPE XI FULL CURE PRISMATIC GRADE RETROREFLECTIVE SHEETING OR EQUIVALENT
SIGN FONT	CLEARVIEW HWY SW
COLOR	LETTERS - WHITE REFLECTIVE BACKGROUND - GREEN FILM

DETAILS FOR MOUNTING TRAFFIC SIGNS ON SIGNAL MAST ARMS AND POLES



NOTE: SIGN LENGTH WILL BE DICTATED BY THE NUMBER OF LETTERS IN THE NAME. THE HEIGHT SHALL BE 24"

D3-1 OVERHEAD STREET NAME SIGN EXAMPLES (DIMENSIONS SHOWN ARE TYPICAL)





CITY OF DENISON, TEXAS

STANDARD CONSTRUCTION DETAILS
OVERHEAD STREET NAME BLADE (D3-1) DETAILS

December, 2023

REVISED: 12/4/23 - Ordinance

I:\pds\202106\01 denison design standard update\production drawing\Denison-42.dwg

PLOT SCALE: 1:2

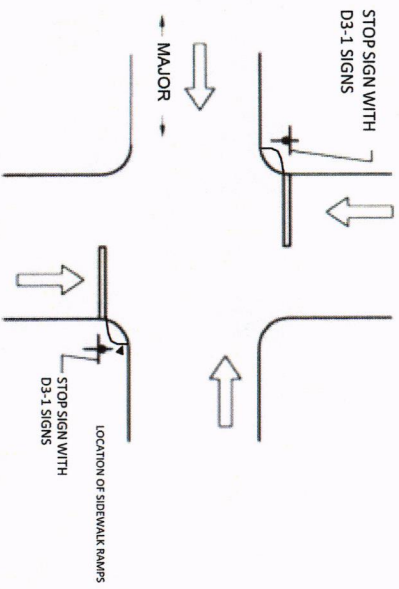
PLOT STYLE: non-dwgmads

PLTMD PR: Colin Shannon ON 12/17/2023

SHEET NO.

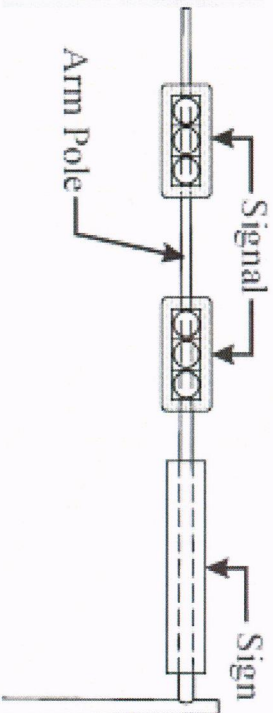
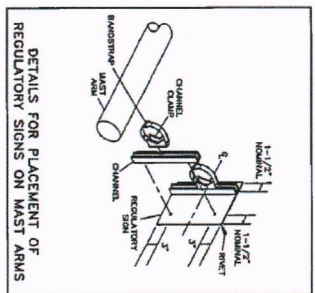
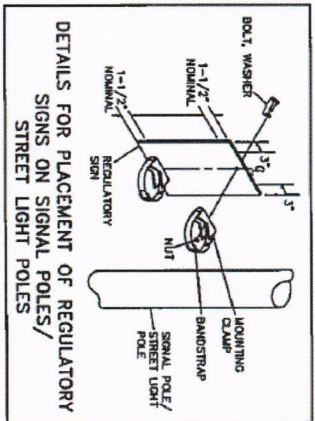
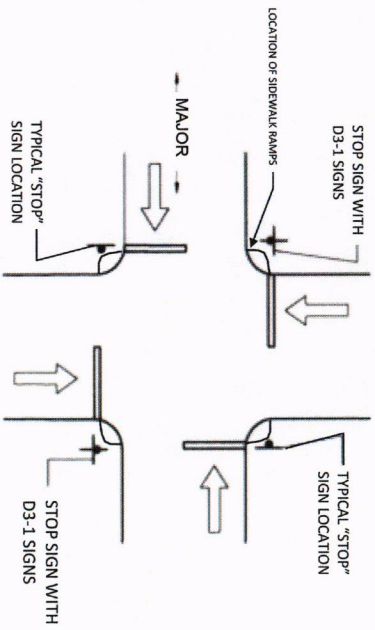
43

TWO-WAY STOP CONTROL INTERSECTION



**STOP SIGNS ARE TO BE INSTALLED IN ADVANCE OF CROSSWALK AND RAMP

ALL-WAY STOP CONTROL INTERSECTION



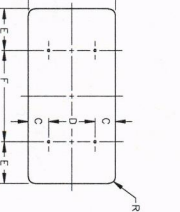
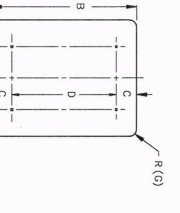
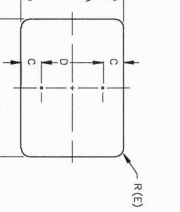
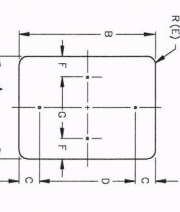
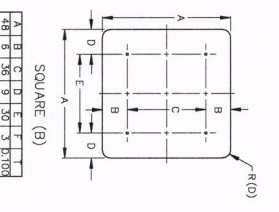
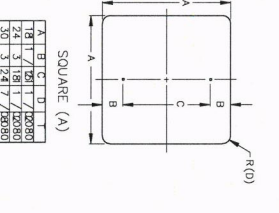
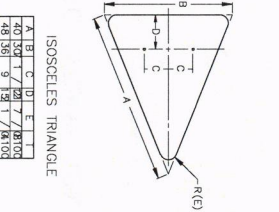
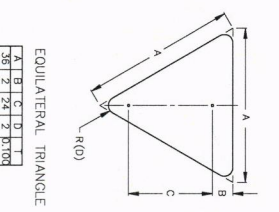
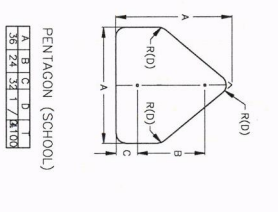
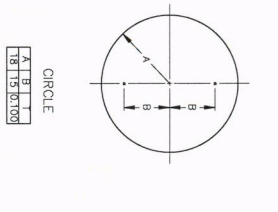
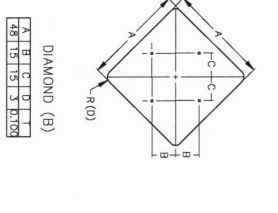
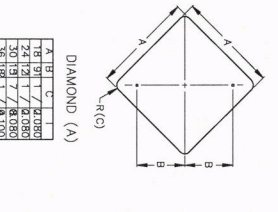
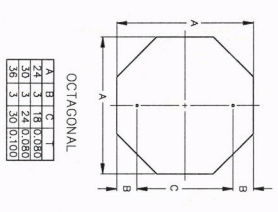
TYPICAL SIGN PLACEMENTS ON SIGNAL MAST ARMS



CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
TRAFFIC SIGN BLANK DIMENSIONS

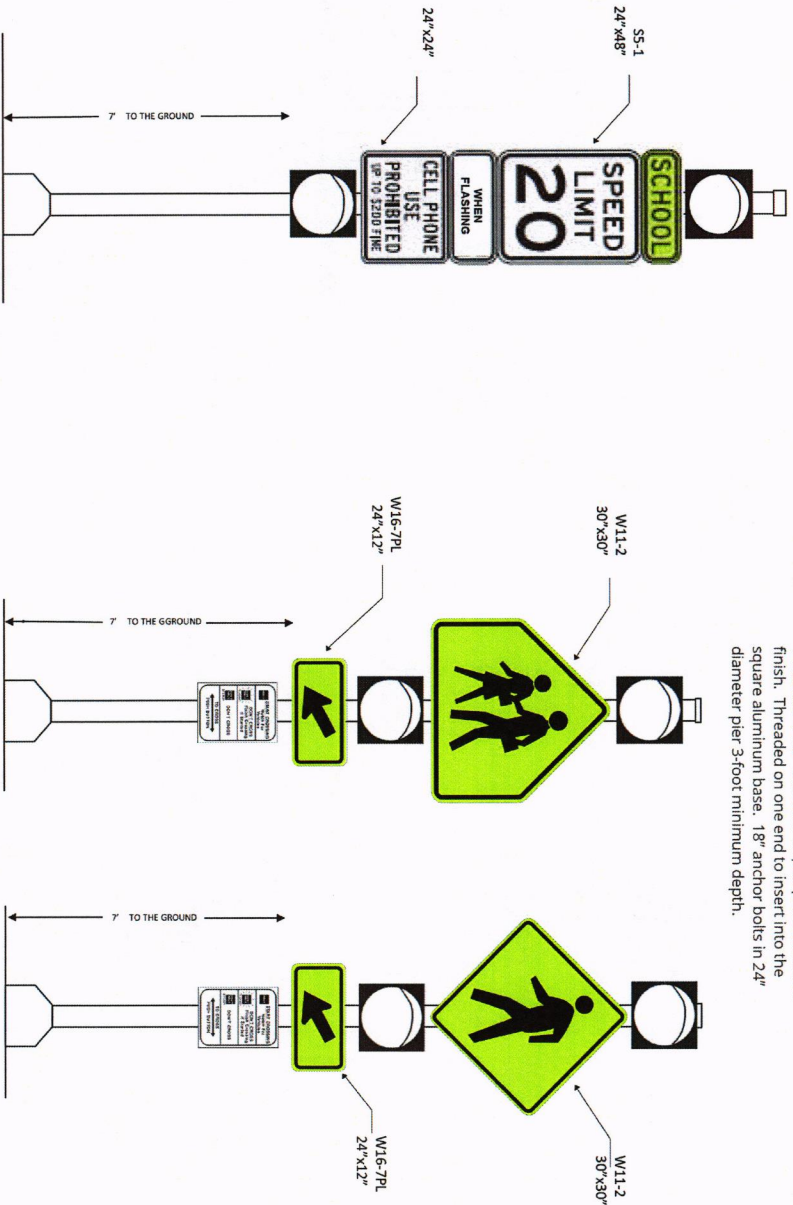
December, 2023

SHEET NO.
45



SCHOOL FLASHERS - FLASHING BEACONS

Poles are 4-1/2" O.D. with a spun pole aluminum finish. Threaded on one end to insert into the square aluminum base. 18" anchor bolts in 24" diameter pier 3-foot minimum depth.



*INSTALL A 12" WHITE TRANSVERSE LINE ACROSS THE FULL PAVEMENT WIDTH TO MARK EACH END OF ESTABLISHED REDUCED SCHOOL SPEED LIMIT WITHIN THE SCHOOL ZONE IN ACCORDANCE WITH TMUTCD SECTION 7C.03

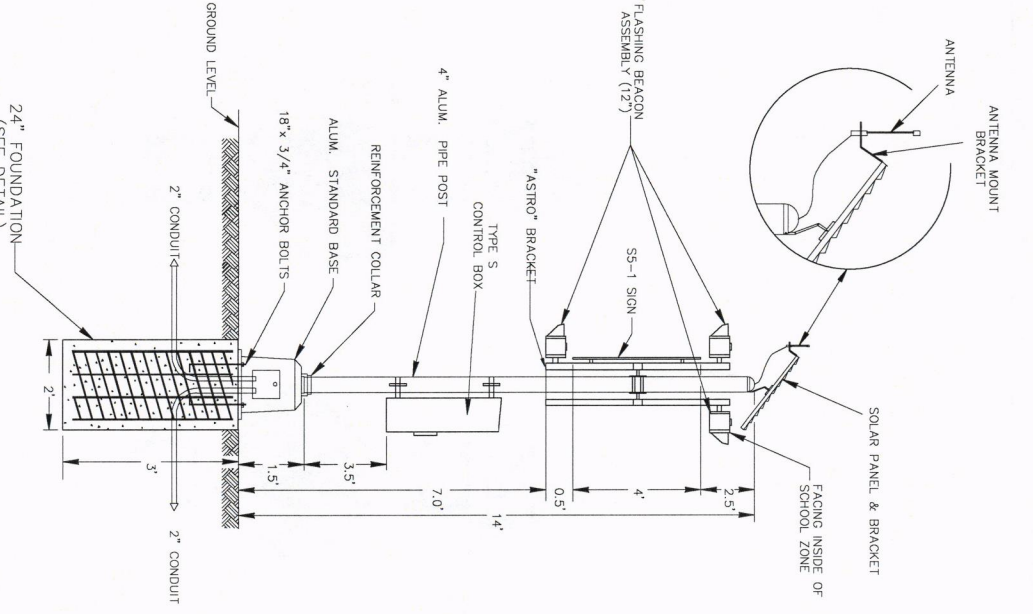
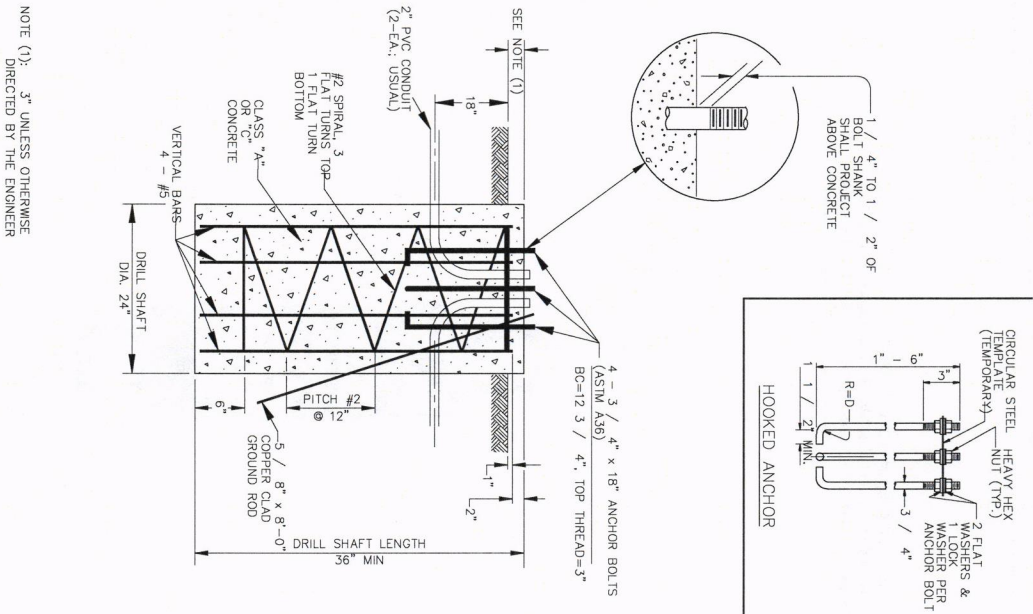
		CITY OF DENISON, TEXAS	
STANDARD CONSTRUCTION DETAILS TYPICAL SCHOOL ZONE FLASHER ASSEMBLY		December, 2023	
SHEET NO.		46	



CITY OF DENISON, TEXAS
STANDARD CONSTRUCTION DETAILS
FOUNDATION AND FLASHING ASSEMBLY STANDARDS

December, 2023

SHEET NO.
47



NOTE (1): 3" UNLESS OTHERWISE DIRECTED BY THE ENGINEER

<p>S5-2A (COSA) 24" x 9" R2-1 24" x 30"</p>	<p>S1-1 36" x 36" (DIAMOND GRADE FLOURESCENT YELLOW GREEN)</p>
<p>W16-17 30" x 18" (DIAMOND GRADE FLOURESCENT YELLOW GREEN)</p>	<p>S5-1 24" x 48" (HIGH INTENSITY WHITE)</p>
<p>AHEAD 36" x 20" (DIAMOND GRADE FLOURESCENT YELLOW GREEN)</p>	<p>ALL SIGNS SHALL COMPLY WITH STANDARD HIGHWAY SIGNS MANUAL, LATEST EDITION</p>

Street Light Options Post Top

Town And Country	Washington
20" Round Fiberglass Pole	15" Fixed Fiberglass Pole
Embedded Base	Embedded w/ Town Lake Base
LED	LED
HPS	HPS
100W	100W



Street Light Options Historical Specifications

Pole	Mounting Height	Color Available	Material	Base
American	11' or 14'	Black	Cast Aluminum	24" Diameter w/ 15" Bolt Circle
Central Park	12'	Black	Cast Iron	24" Diameter w/ 15" Bolt Circle
European	12' or 14'	Black	Cast Iron	24" Diameter w/ 15" Bolt Circle
Town	11' or 14'	Black	Cast Iron	24" Diameter w/ 15" Bolt Circle
Philadelphia*	16'	Black	Cast Aluminum	18" Diameter w/ 10 5/8" Bolt Circle

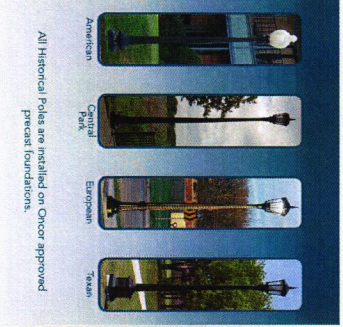
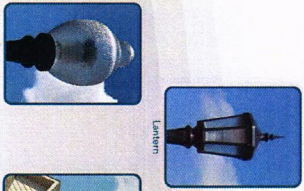
Luminaire	Light Source Options	Luminaire Size
Acorn	LED 0-55W HPS 100W	41" Tall x 16" Wide
Lantern	LED 0-55W HPS 100W	43.25" Tall x 16.125" Wide
Decorative Pendant*	LED 0-55W HPS 100W	38" Tall x 16" Wide

*The Pendant Luminaire and bracket arm can only be used with the Philadelphia style pole.



Street Light Options Historical Luminaire

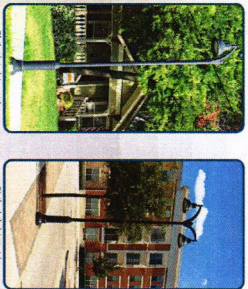
Historical luminaires are the high-end street light options offered by Onco. These luminaires are available in three different styles that can be mounted on any of the four available styles of Historical Poles.



All Historical Poles are installed on Onco approved Precast Foundations.

Street Light Options Historical Pole

Street Light Options Historical Pendant



The Historical Pendant Luminaire will be mounted 2 feet from the center of the pole and 17.5 inches above the height of the pole as shown in the "Historical Specifications" table.

Cobra Head Luminaire Embedded Base

