

CONSTRUCTION PLANS

FOR

4649 HIGHWAY 276

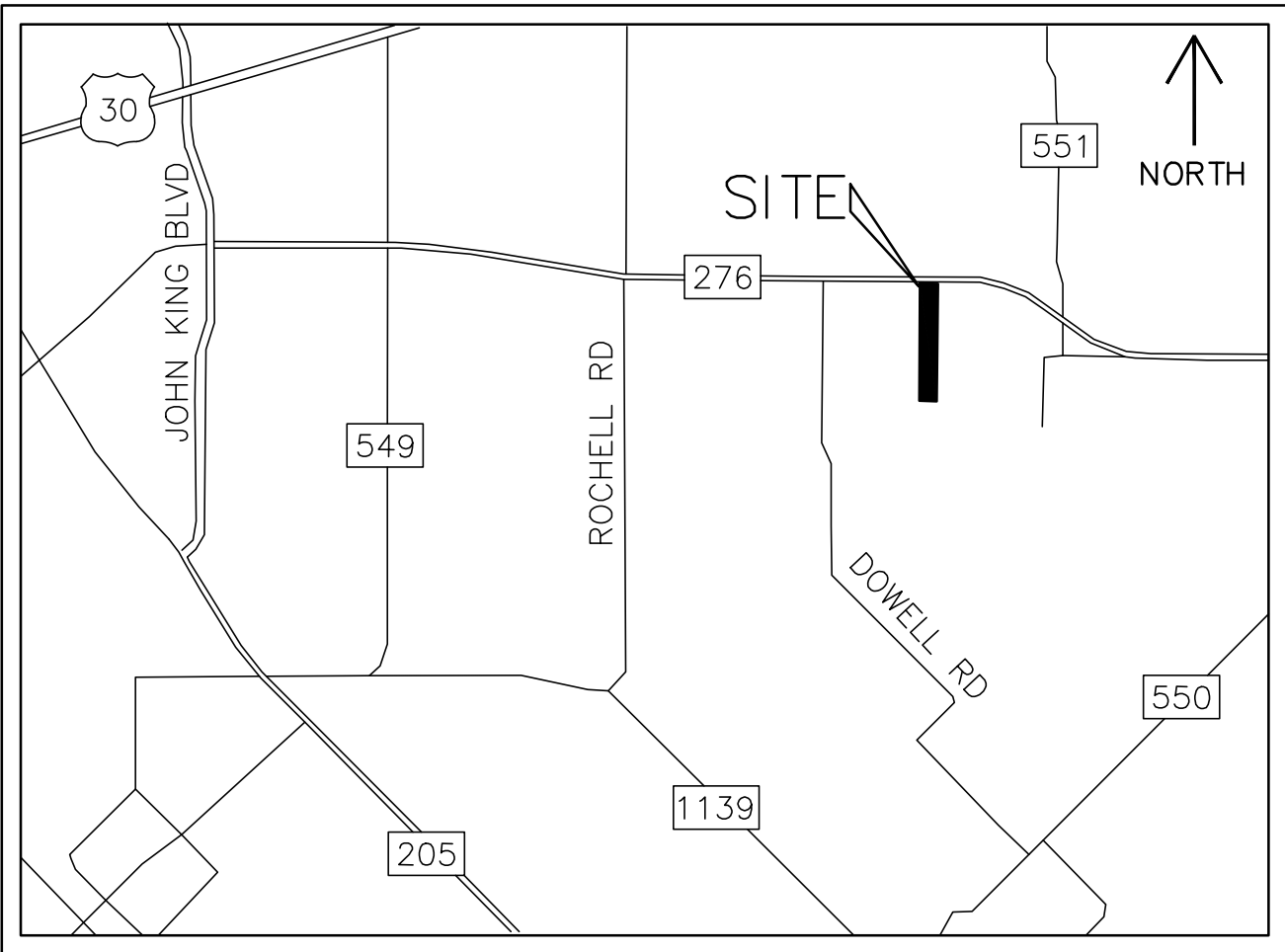
STORAGE FACILITY

AN ADDITION TO THE
CITY OF ROCKWALL, TEXAS

VALK 276 ADDITION,
LOT 1, BLOCK A
J.H. BAILEY SURVEY, ABSTRACT NO. 34 & 44

DRAWING INDEX

	COVER SHEET
	PLAT
SP	SITE PLAN
	GENERAL NOTES (1 OF 2)
	GENERAL NOTES (2 OF 2)
C1.0	EXISTING CONDITIONS PLAN
C2.0	DEMOLITION PLAN
C3.0	PAVING PLAN
C4.0	DIMENSION CONTROL PLAN
C5.0	GRADING PLAN
C6.0	EXISTING DRAINAGE AREA MAP
C7.0	REGIONAL DRAINAGE AREA MAP
C8.0	PROPOSED DRAINAGE AREA MAP
C8.1	INLET CALCULATIONS
C9.0	DETENTION PLAN (N)
C9.1	DETENTION CALCULATIONS (N)
C10.0	DETENTION PLAN (MID)
C10.1	DETENTION CALCULATIONS (MID)
C11.0	DETENTION PLAN (S)
C11.1	DETENTION CALCULATIONS (S)
C12.0	STORM SEWER PLAN
C12.1	STORM PROFILE
C12.2	STORM PROFILE
C12.3	STORM CALCULATIONS
C13.0	STORM FLUME PLAN
C13.1	FLUME SPREADER PLAN
C14.0	WATER AND WASTEWATER PLAN
C15.0	EROSION CONTROL PLAN
C16.0	PUBLIC DETAILS 1
C16.1	PUBLIC DETAILS 2
C17.0	DETAILS (PRIVATE) 1
C17.1	DETAILS (PRIVATE) 2
	LANDSCAPE PLANS



VICINITY MAP
MAP ID: 4-5 N.T.S.

PROBABLE START OF CONSTRUCTION:
MAY 2023

SURVEYOR:
BLUE SKY SURVEYING
11015 MIDWAY ROAD
DALLAS, TX 75229
PH: (214) 358-4500

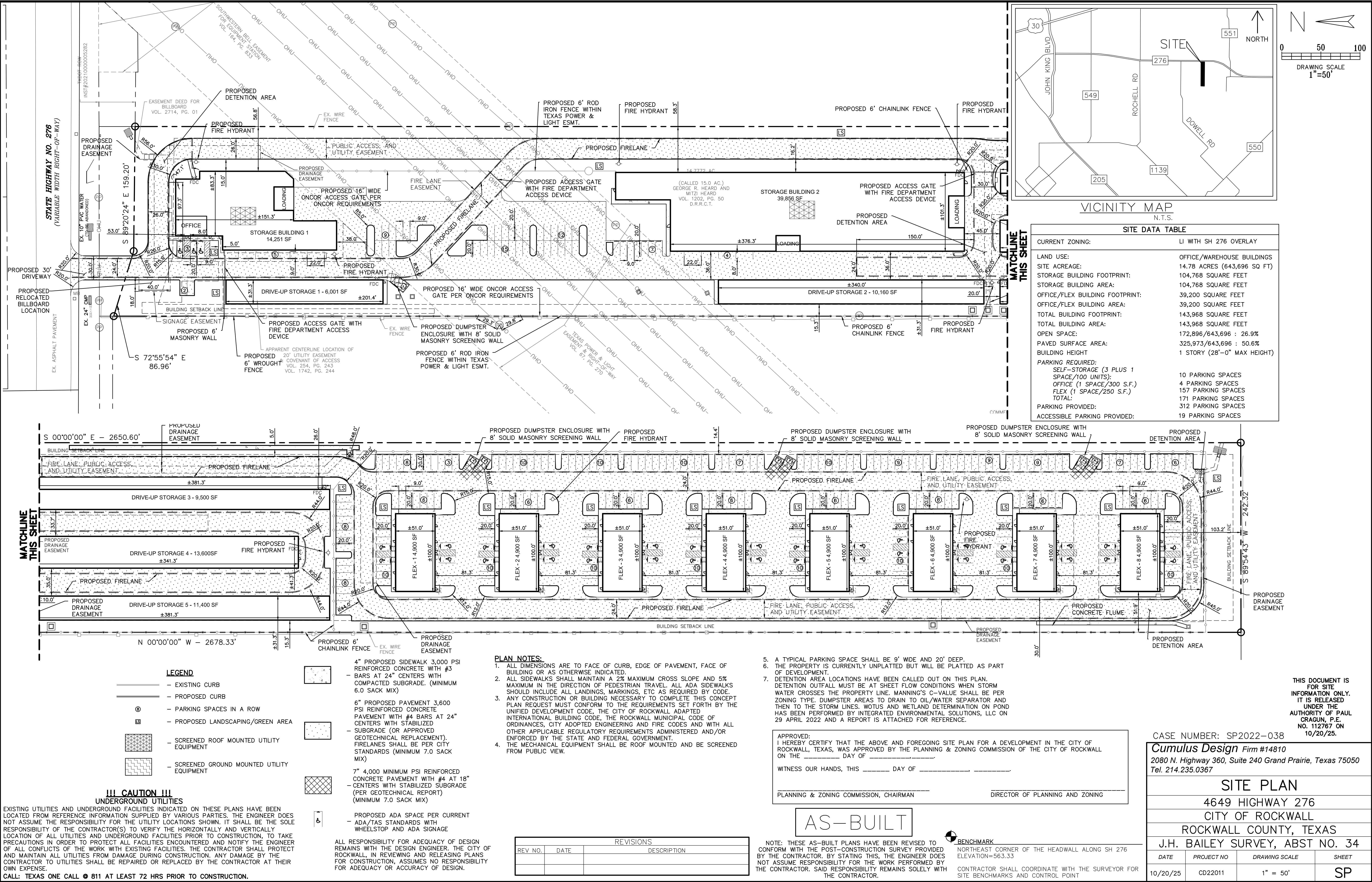
OWNER:
DON VALK
230 O'CONNOR RIDGE,
SUITE 115
IRVING, TX 75038
PH: (214) 808-6867
CONTACT: DON VALK

DEVELOPER:
PLATINUM CONSTRUCTION
1450 TL TOWNSEND DR,
STE 100
ROCKWALL, TX 75032
PH: (214) 668-6907
CONTACT: RONALD VALK

ENGINEER:
CUMULUS DESIGN, INC.
FIRM NUMBER: 14810
2080 NORTH HIGHWAY 360, SUITE 240
GRAND PRAIRIE, TEXAS 75050
PH: (214) 235-0367
CONTACT: PAUL CRAGUN



4649 HIGHWAY 276 – CITY OF ROCKWALL, TEXAS



GENERAL ITEMS

1. All construction shall conform to the requirements set forth in the City of Rockwall’s Engineering Department’s “Standards of Design and Construction” and the "Standard Specifications for Public Works Construction" by the North Texas Central Council of Governments, 5th edition amended by the City of Rockwall. The CONTRACTOR shall reference the latest City of Rockwall standard details provided in the Rockwall Engineering Departments "Standards of Design and Construction" manual for details not provided in these plans. The CONTRACTOR shall possess one set of the NCTCOG Standard Specifications and Details and the City of Rockwall's "Standards of Design and Construction" manual on the project site at all times
2. Where any conflicting notes, details or specifications occur in the plans the City of Rockwall General Construction Notes, Standards, Details and Specifications shall govern unless detail or specification is more strict.
3. The City of Rockwall Engineering Departments “Standards of Design and Construction” can be found online at: <http://www.rockwall.com/engr.asp>
4. All communication between the City and the CONTRACTOR shall be through the Engineering Construction Inspector and City Engineer or designated representative only. It is the responsibility of the CONTRACTOR to contact the appropriate department for inspections that do not fall under this approved engineering plan set.
5. Prior to construction, CONTRACTOR shall have in their possession all necessary permits, plans, licenses, etc.
6. The CONTRACTOR shall have at least one original stamped and signed set of approved engineering plans and specifications on-site and in their possession at all times. A stop work order will be issued if items are not on-site. Copies of the approved plans will not be substituted for the required original “approved plans to be on-site”.
7. All material submittals, concrete batch designs and shop drawings required for City review and approval shall be submitted by the CONTRACTOR to the City sufficiently in advance of scheduled construction to allow no less than 10 business days for review and response by the City.
8. All site dimensions are referenced to the face of curb or edge of pavement unless otherwise noted.
9. The City requires ten (10%) percent-two (2) year maintenance bond for paving, paving improvements, water systems, wastewater systems, storm sewer systems including detention systems, and associated fixtures and structures which are located within the right-of-ways or defined easements. The two (2) year maintenance bond is to state “from date of City acceptance” as the starting time.
10. A review of the site shall be conducted at twenty (20) months into the two (2) year maintenance period. The design engineer or their designated representative and the CONTRACTOR shall be present to walk the site with the City of Rockwall Engineering Inspection personnel.

EROSION CONTROL & VEGETATION

1. The CONTRACTOR or developer shall be responsible, as the entity exercising operational control, for all permitting as required by the Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ). This includes, but is not limited to, preparation of the Storm Water Pollution Prevention Plan (SWPPP), the Construction Site Notice (CSN), the Notice of Intent (NOI), the Notice of Termination (NOT) and any Notice of Change (NOC) and is required to pay all associated fees
2. Erosion control devices as shown on the erosion control plan for the project shall be installed prior to the start of land disturbing activities.
3. All erosion control devices are to be installed in accordance with the approved plans, specifications and Storm Water Pollution Prevention Plan (SWPPP) for the project. Erosion control devices shall be placed and in working order prior to start of construction. Changes are to be reviewed and approved by the design engineer and the City of Rockwall prior to implementation.
4. If the Erosion Control Plans and Storm Water Pollution Prevention Plan (SWPPP) as approved cannot appropriately control erosion and off-site sedimentation from the project, the erosion control plan and/or the SWPPP is required to be revised and any changes reported to the Texas Commission on Environmental Quality (TCEQ), when applicable.
5. All erosion control devices shall be inspected weekly by the CONTRACTOR and after all major rain events, or more frequently as dictated in the project Storm Water Pollution Prevention Plan (SWPPP). CONTRACTOR shall provide copies of inspection’s reports to the engineering inspection after each inspection.
6. The CONTRACTOR shall not dispose of waste and any materials into streams, waterways or floodplains. The CONTRACTOR shall secure all excavation at the end of each day and dispose of all excess materials.
7. CONTRACTOR shall take all available precautions to control dust. CONTRACTOR shall control dust by sprinkling water or other means as approved by the City Engineer.
8. CONTRACTOR shall establish grass and maintain the seeded area, including watering, until a “Permanent Stand of Grass” is obtained at which time the project will be accepted by the City. A “Stand of Grass” (not winter rye or weeds) shall consist of 75% to 80% coverage of all disturbed areas and a minimum of one-inch (1”) in height as determined by the City. No bare spots will be allowed. Re-seeding will be required in all washed areas and areas that don’t grow.
9. All City right-of-ways shall be sodded if disturbed. No artificial grass is allowed in any City right-of-way and/or easements.
10. All adjacent streets/alleys shall be kept clean at all times
11. CONTRACTOR shall keep construction site clean at all times, immediately contain all debris and trash, all debris and trash shall be removed at the end of each work day, and all vegetation on the construction site 10- inches or taller in height must be cut immediately.
12. Suspension of all construction activities for the project will be enforced by the City if any erosion control requirements are not meet. Work may commence after deficiency has been rectified.
13. During construction of the project, all soil stockpiles and borrow areas shall be stabilized or protected with sediment trapping measures. The CONTRACTOR is responsible for the temporary protection and permanent stabilization of all soil stockpiles on-site as well as borrow areas and soil intentionally transported from the project site.
14. Where construction vehicles access routes intersect paved or public roads/alleys, construction entrances shall be installed to minimize the transport of sediment by vehicular tracking onto paved surfaces. Where sediment is transferred onto paved or public surfaces, the surface shall be immediately cleaned. Sediment shall be

removed from the surface by shoveling or sweeping and transported to a sediment disposal area. Pavement washing shall be allowed only after sediment is removed in this manner.

15. All drainage inlets shall be protected from siltation, ineffective or unmaintained protection devices shall be immediately replaced and the inlet and storm system cleaned. Flushing is not an acceptable method of cleaning.
16. During all dewatering operations, water shall be pumped into an approved filtering device prior to discharge into a receiving outlet.

TRAFFIC CONTROL

1. All new Detouring or Traffic Control Plans are required to be submitted to the City for review and approval a minimum of 21 calendar days prior to planned day of implementation.
2. When the normal function of the roadway is suspended through closure of any portion of the right-of-way, temporary construction work zone traffic control devices shall be installed to effectively guide the motoring public through the area. Consideration for road user safety, worker safety, and the efficiency of road user flow is an integral element of every traffic control zone.
3. All traffic control plans shall be prepared and submitted to the Engineering Department in accordance with the standards identified in Part VI of the most recent edition of the TMUTCD. Lane closures will not occur on roadways without an approval from the Rockwall Engineering Department and an approved traffic control plan. Traffic control plans shall be required on all roadways as determined by the City Engineer or the designated representative.
4. All traffic control plans must be prepared, signed, and sealed by an individual that is licensed as a professional engineer in the State of Texas. All traffic control plans and copies of work zone certification must be submitted for review and approval a minimum of three (3) weeks prior to the anticipated temporary traffic control.
5. The CONTRACTOR executing the traffic control plan shall notify all affected property owners two (2) weeks prior to any the closures in writing and verbally.
6. Any deviation from an approved traffic control plan must be reviewed by the City Engineer or the designated representative. If an approved traffic control plan is not adhered to, the CONTRACTOR will first receive a verbal warning and be required to correct the problem immediately. If the deviation is not corrected, all construction work will be suspended, the lane closure will be removed, and the roadway opened to traffic.
7. All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time at the end of the workday, all temporary traffic control devices that are no longer appropriate shall be removed or covered. The first violation of this provision will result in a verbal warning to the construction foreman. Subsequent violations will result in suspension of all work at the job site for a minimum of 48 hours. All contractors working on City funded projects will be charged one working day for each 24 hour closure.
8. Lane closures on any major or minor arterial will not be permitted between the hours of 6:00 am to 9:00 am and 3:30 pm to 7:00 pm. Where lane closures are needed in a school area, they will not be permitted during peak hours of 7:00 am – 9:00 am and 3:00 pm to 5:00 pm. Closures may be adjusted according to the actual start-finish times of the actual school with approval by the City Engineer. The first violation of this provision will result in a verbal warning to the construction foreman. Subsequent violations will result in suspension of all work at the job site for a minimum of 48 hours. All contractors working on City funded projects will be charged one working day for each 24 hour closure of a roadway whether they are working or not.
9. No traffic signs shall be taken down without permission from the City.
10. No street/roadway will be allowed to be fully closed.

UTILITY LINE LOCATES

1. It is the CONTRACTOR’s responsibility to notify utility companies to arrange for utility locates at least 48 hours prior to beginning construction. The completeness and accuracy of the utility data shown on the plans is not guaranteed by the design engineer or the City. The CONTRACTOR is responsible for verifying the depth and location of existing underground utilities proper to excavating, trenching, or drilling and shall be required to take any precautionary measures to protect all lines shown and .or any other underground utilities not on record or not shown on the plans.
2. The CONTRACTOR shall be responsible for damages to utilities
3. CONTRACTOR shall adjust all City of Rockwall utilities to the final grades.
4. All utilities shall be placed underground.
5. CONTRACTOR shall be responsible for the protection of all existing main lines and service lines crossed or exposed by construction operations. Where existing mains or service lines are cut, broken or damaged, the CONTRACTOR shall immediately make repairs to or replace the entire service line with same type of original construction or better. The City of Rockwall can and will intervene to restore service if deemed necessary and charge the CONTRACTOR for labor, equipment, material and loss of water if repairs aren’t made in a timely manner by the CONTRACTOR.
6. The City of Rockwall (City utilities) is not part of the Dig Tess or Texas one Call – 811 – line locate system. All City of Rockwall utility line locates are to be scheduled with the City of Rockwall Service Center. 972-771-7730. A 48-hour advance notice is required for all non-emergency line locates.
7. Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
 - a. No more than 500 linear feet of trench may be opened at one time.
 - b. Material used for backfilling trenches shall be properly compacted to 95% standard density in order to minimize erosion, settlement, and promote stabilization that the geotechnical engineer recommends.
 - c. Applicable safety regulations shall be complied with.
11. This plan details pipes up to 5 feet from the building. Refer to the building plans for building connections. CONTRACTOR shall supply and install pipe adapters as necessary.
12. All underground lines shall be installed, inspected, and approved prior to backfilling.
13. All concrete encasement shall have a minimum of 28 days compressive strength at 3,000 psi (min. 5.5 sack mix).

WATER LINE NOTES

1. The CONTRACTOR shall maintain existing water service at all times during construction.
2. Proposed water lines shall be AWWA C900-16 PVC Pipe (blue in color) for all sizes, DR 14 (PC 305) for pipeline sizes 12-inch and smaller, and DR 18 (PC 235) for 14-inch and larger water pipelines unless otherwise shown on water plan and profiles sheets. Proposed water lines shall be constructed with minimum cover of 4 feet for 6-inch through 8-inch, 5 feet for 12-inch through 18-inch and 6 feet for 20-inch and larger.
3. Proposed water line embedment shall be NCTCOG Class 'B-3' as amended by the City of Rockwall's engineering standards of design and construction manual.
4. CONTRACTOR shall coordinate the shutting down of all water lines with the City of Rockwall Engineering Inspector and Water Department. The City shall operate all water valves. Allow 5 business days from the date of notice to allow City personnel time to schedule a shut down. Two additional days are required for the CONTRACTOR to notify residents in writing of the shut down after the impacted area has been identified. Water shut downs impacting businesses during their normal operation hours is not allowed. CONTRACTOR is required to coordinate with the Rockwall Fire Department regarding any fire watch requirements as well as any costs incurred when the loss of fire protection to a structure occurs.
5. CONTRACTOR shall furnish and install gaskets on water lines between all dissimilar metals and at valves (both existing and proposed).
6. All fire hydrants and valves removed and salvaged shall be returned to the City of Rockwall Municipal Service Center.
7. Blue EMS pads shall be installed at every change in direction, valve, curb stop and service tap on the proposed water line and every 250'.
8. All water valve hardware and valve extensions, bolts, nuts and washers shall be 316 stainless steel.
9. All fire hydrants bolts, nuts and washers that are buried shall be 316 stainless steel.
10. Abandoned water lines to remain in place shall be cut and plugged and all void spaces within the abandoned line shall be filled with grout, flowable fill or an expandable permanent foam product. Valves to be abandoned in place shall have any extensions and the valve box removed and shall be capped in concrete.
11. All fire hydrants will have a minimum of 5 feet of clearance around the appurtenance including but not limited to parking spaces and landscaping.
12. All joints are to be megalug joints with thrust blocking.
13. Water and sewer mains shall be kept 10 feet apart (parallel) or when crossing 2 feet vertical clearance.
14. CONTRACTOR shall maintain a minimum of 4 feet of cover on all water lines.
15. All domestic and irrigation services are required to have a testable backflow device with a double check valve installed per the City of Rockwall regulations at the property line and shown on plans.

WASTEWATER LINE NOTES

1. The CONTRACTOR shall maintain existing wastewater service at all times during construction.
2. Wastewater line for 4-inch through 15-inch shall be Green PVC – SDR 35 (ASTM D3034) [less 10 ft cover] and SDR 26 (ASTM D3034) [10 ft or more cover]. For 18-inch and lager wastewater line shall be Green PVC – PS 46 (ASTM F679) [less 10 ft cover] and PS 115 (ASTM F679) [10 ft or more cover]. No services will be allowed on a sanitary sewer line deeper than 10 feet.
3. Proposed wastewater line embedment shall be NCTCOG Class 'H' as amended by the City of Rockwall's public works standard design and construction manual.
4. Green EMS pads shall be installed at every 250’, manhole, clean out and service lateral on proposed wastewater lines.
5. CONTRACTOR shall CCTV all existing wastewater lines that are to be abandoned to ensure that all laterals are accounted for and transferred to proposed wastewater lines prior to abandonment.
6. All abandoned wastewater and force main lines shall be cut and plugged and all void spaces within the abandoned line shall be filled with grout, flowable fill or an expandable permanent foam product.
7. Existing manholes and cleanouts not specifically called to be relocated shall be adjusted to match final grades.
8. All wastewater pipes and public services shall be inspected by photographic means (television and DVD) prior to final acceptance and after franchise utilities are installed. The CONTRACTOR shall furnish a DVD to the Engineering Construction Inspector for review. Pipes shall be cleaned prior to TV inspection of the pipes. Any sags, open joints, cracked pipes, etc. shall be repaired or removed by the CONTRACTOR at the CONTRACTOR’s expense. A television survey will be performed as part of the final testing in the twentieth (20th) month of the maintenance period.
9. All manholes (public or private) shall be fitted with inflow prevention. The inflow prevention shall conform to the measures called out in standard detail R-5031.
10. All new or existing manholes being modified shall have corrosion protection being Raven Liner 405 epoxy coating, ConShield, or approved equal.. Consheild must have terracotta color dye mixed in the precast and cast-in-place concrete. Where connections to existing manholes are made the CONTRACTOR shall rehab manhole as necessary and install a 125 mil thick coating of Raven Liner 405 or approved equal.
11. All new or existing manholes that are to be placed in pavement shall be fitted with a sealed (gasketed) rim and cover to prevent inflow.
12. If an existing wastewater main or trunk line is called out to be replaced in place a wastewater bypassing pump plan shall be required and submitted to the Engineering Construction Inspector and City Engineer for approval prior to implementation. Bypass pump shall be fitted with an auto dialer and conform to the City’s Noise Ordinance. Plan shall be to the City sufficiently in advance of scheduled construction to allow no less than 10 business days for review and response by the City.
13. CONTRACTOR shall maintain a minimum of 4 feet of cover on all wastewater lines.

	GENERAL CONSTRUCTION NOTES Sheet 1 of 2 October 2020	
	CITY OF ROCKWALL ENGINEERING DEPARTMENT	385 S. Goliad Rockwall, Texas 75087
		P (972) 771-7746 F (972) 771-7748

DEMOLITION, REMOVAL, DISPOSAL AND EXCAVATION NOTES

1. All pavements to be removed and replaced shall be saw cut to full depth along neat squared lines shown in the plans.
2. Proposed concrete pavement shall be constructed with longitudinal butt construction joints at all connections to existing concrete pavement.
3. All public concrete pavement to be removed and replaced shall be full panel replacement, 1-inch thicker and on top of 6-inch thick compacted flexbase.
4. No excess excavated material shall be deposited in low areas or along natural drainage ways without written permission from the affected property owner and the City of Rockwall. No excess excavation shall be deposited in the City Limits without a permit from the City of Rockwall. If the CONTRACTOR places excess materials in these areas without written permission, the CONTRACTOR will be responsible for all damages resulting from such fill and shall remove the material at their own cost.

PAVING AND GRADING

1. All detention systems are to be installed and verified for design compliance along with the associated storm sewer and outflow structures, prior to the start of any paving operations (including building foundations). Erosion protection shall be placed at the pond outflow structures, silt fence along the perimeter of the pond along with any of the associated erosion BMPs noted on the erosion control plan, and the sides and bottom of the detention system shall have either sod or anchored seeded curlex installed prior to any concrete placement.
2. All paving roadway, driveways, fire lanes, drive-isles, parking, dumpster pads, etc. sections shall have a minimum thickness, strength, reinforcement, joint type, joint spacing and subgrade treatment shall at a minimum conform to the City standards of Design and Construction and table below.

Street/Pavement Type	Minimum Thickness (inches)	Streng th 28- Day (psi)	Minimum Cement (sacks / CY)		Steel Reinforcement	
			Machine placed	Hand Placed	Bar #	Spacing (O.C.E.W.)
Arterial	10"	3,600	6.0	6.5	#4 bars	18"
Collector	8"	3,600	6.0	6.5	#4 bars	18"
Residential	6"	3,600	6.0	6.5	#3 bars	24"
Alley	7"-5"-7"	3,600	6.0	6.5	#3 bars	24"
Fire Lane	6"	3,600	6.0	6.5	#3 bars	24"
Driveways	6"	3,600	6.0	6.5	#3 bars	24"
Barrier Free Ramps	6"	3,600	N/A	6.5	#3 bars	24"
Sidewalks	4"	3,000	N/A	5.5	#3 bars	24"
Parking Lot/Drive Aisles	5"	3,000	5.0	5.5	#3 bars	24"
Dumpster Pads	7"	3,600	6.0	6.5	#3 bars	24"

3. Reinforcing steel shall be tied (100%). Reinforcing steel shall be set on plastic chairs. Bar laps shall be minimum 30 diameters. Sawed transverse dummy joints shall be spaced every 15 feet or 1.25 time longitudinal butt joint spacing whichever is less. Sawing shall occur within 5 to 12 hours after the pour, including sealing. Otherwise, the section shall be removed and longitudinal butt joint constructed.
4. No sand shall be allowed under any paving.
5. All concrete mix design shall be submitted to the City for review and approval prior to placement.
6. Fly ash may be used in concrete pavement locations provided that the maximum cement reduction does not exceed 20% by weight per C.Y. of concrete. The fly ash replacement shall be 1.25 lbs. per 1.0 lb. cement reduction.
7. All curb and gutter shall be integral (monolithic) with the pavement.
8. All fill shall be compacted by sheep's foot roller to a minimum 95% standard proctor. Maximum loose lift for compaction shall be 8 inches. All lifts shall be tested for density by an independent laboratory. All laboratory compaction reports shall be submitted to the City Engineering Construction Inspector once results are received. All reports will be required prior to final acceptance.
9. All concrete compression tests and soil compaction/density tests are required to be submitted to the City's Engineering Inspector immediately upon results.
10. All proposed sidewalks shall include barrier free ramps at intersecting streets, alleys, etc. Barrier free ramps (truncated dome plate in Colonial or brick red color) shall meet current City and ADA requirements and be approved by the Texas Department of Licensing and Regulation (TDLR).
11. All public sidewalks shall be doweled into pavement where it abuts curbs and driveways. Expansion joint material shall be used at these locations.
12. All connection of proposed concrete pavement to existing concrete pavement shall include a longitudinal butt joint as the load transfer device. All longitudinal butt joints shall be clean, straight and smooth (not jagged in appearance)
13. Cracks formed in concrete pavement shall be repaired or removed by the CONTRACTOR at the City's discretion. CONTRACTOR shall replace existing concrete curbs, sidewalk, paving, a gutters as indicated on the plans and as necessary to connect to the existing infrastructure, including any damage caused by the CONTRACTOR.
14. All residential lots will require individual grading plans submitted during the building permit process that correspond with the engineered grading and drainage area plans.
15. Approval of this plan is not an authorization to grade adjacent properties when the plans or field conditions warrant off-site grading. Written permission must be obtained and signed from the affected property owner(s) and temporary construction easements may be required. The written permission shall be provided to the City as verification of approval by the adjacent property owner(s). Violation of this requirement will result in suspension of all work at the job site until issue has been rectified.
16. All cut or fill slopes of non-paved areas shall be a maximum of 4:1 and minimum of 1%.
17. CONTRACTOR agrees to repair any damage to property and the public right-of-way in accordance with the City Standards of Design and Construction.
18. CONTRACTOR shall protect all monuments, iron pins/rods, and property corners during construction.
19. CONTRACTOR shall ensure positive drainage so that runoff will drain by gravity flow to new or existing drainage inlets or sheet flow per these approved plans.

DRAINAGE / STORM SEWER NOTES

1. The CONTRACTOR shall maintain drainage at all times during construction. Ponding of water in streets, drives, trenches, etc. will not be allowed. Existing drainage ways shall not be blocked or removed unless explicitly stated in the plans or written approval is given by the City.
2. All structural concrete shall be 4200 psi compressive strength at 28 days minimum 7.0 sack mix, air entrained, unless noted otherwise. Fly ash shall not be allowed in any structural concrete.
3. Proposed storm sewer embedment shall be NCTCOG Class 'B' as amended by the City of Rockwall's Engineering Department Standards of Design and Construction Manual.
4. All public storm pipe shall be a minimum of 18-inch reinforced concrete pipe (RCP), Class III, unless otherwise noted.
5. All storm pipe entering structures shall be grouted to assure connection at the structure is watertight.
6. All storm structures shall have a smooth uniform poured mortar invert from invert in to invert out.
7. All storm sewer manholes in paved areas shall be flush with the paving grade, and shall have traffic bearing ring and covers.
8. All storm sewer pipes and laterals shall be inspected by photographic means (television and DVD) prior to final acceptance and after franchise utilities are installed. The CONTRACTOR shall furnish a DVD to the Engineering Construction Inspector for review. Pipes shall be cleaned prior to TV inspection of the pipes. Any sags, open joints, cracked pipes, etc. shall be repaired or removed by the CONTRACTOR at the CONTRACTOR's expense. A television survey will be performed as part of the final testing in the twentieth (20th) month of the maintenance period.

RETAINING WALLS

1. All retaining walls, regardless of height, will be reviewed and approved by the City Engineering Department
2. All retaining walls (including foundation stem walls), regardless of height, will be constructed of rock/stone/brick or rock/stone/brick faced. No smooth concrete walls are allowed. Wall materials shall be the same for all walls on the project.
3. All portions, including footings, tie-backs, and drainage backfill, of the wall shall be on-site and not encroach into any public easements or right-of-way. The entire wall shall be in one lot and shall not be installed along a lot line.
4. All walls 3 feet and taller will be designed and signed/sealed by a registered professional engineer in the State of Texas. The wall design engineer is required to inspect the wall construction and supply a signed/sealed letter of wall construction compliance to the City of Rockwall along with wall as-builts prior to City Engineering acceptance.
5. No walls are allowed in detention easements. A variance to allow retaining walls in a detention easement will require approval by the Planning and Zoning Commission with appeals being heard by the City Council.

FINAL ACCEPTANCE AND RECORD DRWINGS/AS-BUILTS

1. Final Acceptance shall occur when all the items on the Checklist for Final Acceptance have been completed and signed-off by the City. An example of the checklist for final acceptance has been included in the Appendix of the Standards of Design and Construction. Items on the checklist for final acceptance will vary per project and additional items not shown on the check list may be required.
2. After improvements have been constructed, the developer shall be responsible for providing to the City "As Built" or "Record Drawings". The Design Engineer shall furnish all digital files of the project formatted in Auto Cad 14, or 2000 format or newer and Adobe Acrobat (.pdf) format with a CD-ROM disk or flash drive. The disk or drive shall include a full set of plans along with any landscaping, wall plans, and details sheets.
3. Submit 1-set of printed drawings of the "Record Drawings" containing copies of all sheets to the Engineering Construction Inspector for the project. The printed sheets will be reviewed by the inspector PRIOR to producing the "Record Drawing" digital files on disk or flash drive. This will allow any revisions to be addressed prior to producing the digital files.
4. Record Drawing Disk drawings shall have the Design Engineers seal, signature and must be stamped and dated as "Record Drawings" or "As Built Drawings" on all sheets.
5. The City of Rockwall will not accept any Record Drawing disk drawings which include a disclaimer. A disclaimer shall not directly or indirectly state or indicate that the design engineer or the design engineer's surveyor/surveyors did not verify grades after construction, or that the Record Drawings were based solely on information provided by the construction contractor/contractors. Any Record Drawings which include like or similar disclaimer verbiage will not be accepted by the City of Rockwall.
6. Example of Acceptable Disclaimer: "To the best of our knowledge ABC Engineering, Inc., hereby states that this plan is As-Built. This information provided is based on surveying at the site and information provided by the contractor."



GENERAL CONSTRUCTION NOTES

Sheet 2 of 2

October 2020

CITY OF ROCKWALL

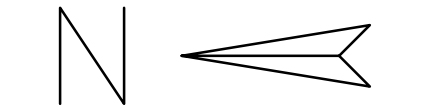
ENGINEERING DEPARTMENT

385 S. Goliad

Rockwall, Texas 75087

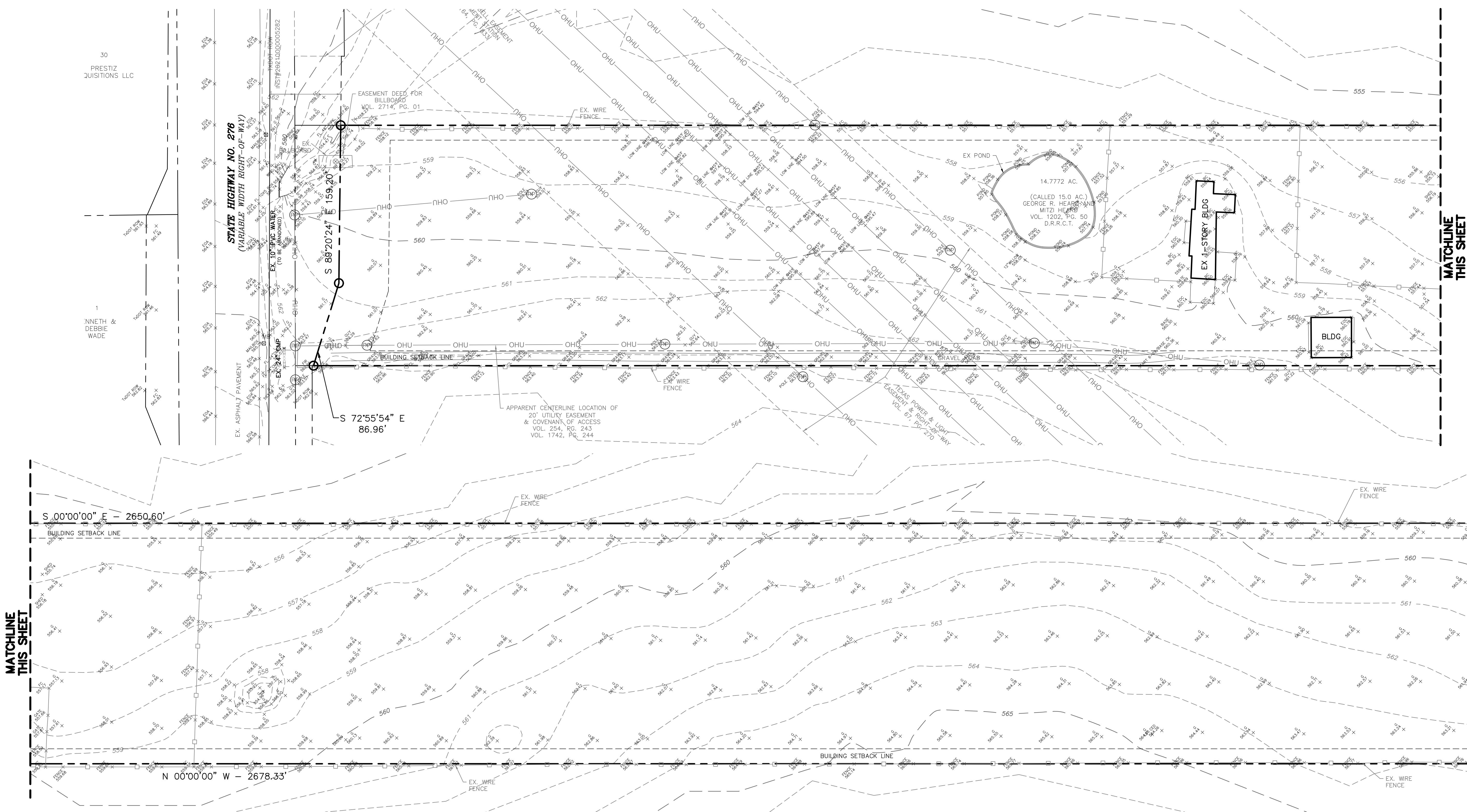
P (972) 771-7746

F (972) 771-7748



0 50 100
DRAWING SCALE
1"=50'

- LEGEND**
- EXISTING CURB
 - 671
 - EXISTING CONTOUR
 - 671.7
 - EXISTING SPOT ELEVATION
 - EXISTING STORM
 - PROPERTY LINE



MATCHLINE
THIS SHEET

MATCHLINE
THIS SHEET

CONTOUR DATA SHOWN ON THIS PLAN WAS PROVIDED BY THE OWNER THROUGH A TOPOGRAPHIC SURVEY CONDUCTED BY BLUE SKY SURVEYING IN APRIL 2022. OFFSITE TOPOGRAPHIC DATA SHOWN WAS RETRIEVED FROM DFW MAPS ON 08/30/2022.

THIS DOCUMENT IS FOR SITE INFORMATION ONLY. IT IS RELEASED UNDER THE AUTHORITY OF PAUL CRAGUN, P.E. NO. 112767 ON 10/20/25.

Cumulus Design Firm #14810
2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
Tel. 214.235.0367

EXISTING CONDITIONS PLAN

4649 HIGHWAY 276

CITY OF ROCKWALL

ROCKWALL COUNTY, TEXAS

J.H. BAILEY SURVEY, ABST NO. 34

DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	1" = 50'	C1.0

III CAUTION III UNDERGROUND UTILITIES

EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION SUPPLIED BY VARIOUS PARTIES. THE ENGINEER DOES NOT ASSUME THE RESPONSIBILITY FOR THE UTILITY LOCATIONS SHOWN. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR(S) TO VERIFY THE HORIZONTALLY AND VERTICALLY LOCATION OF ALL UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION, TO TAKE PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED AND NOTIFY THE ENGINEER OF ALL CONFLICTS OF THE WORK WITH EXISTING FACILITIES. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL UTILITIES FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGE BY THE CONTRACTOR TO UTILITIES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.

CALL: TEXAS ONE CALL ☎ 811 AT LEAST 72 HRS PRIOR TO CONSTRUCTION.

ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

REVISIONS		
REV NO.	DATE	DESCRIPTION

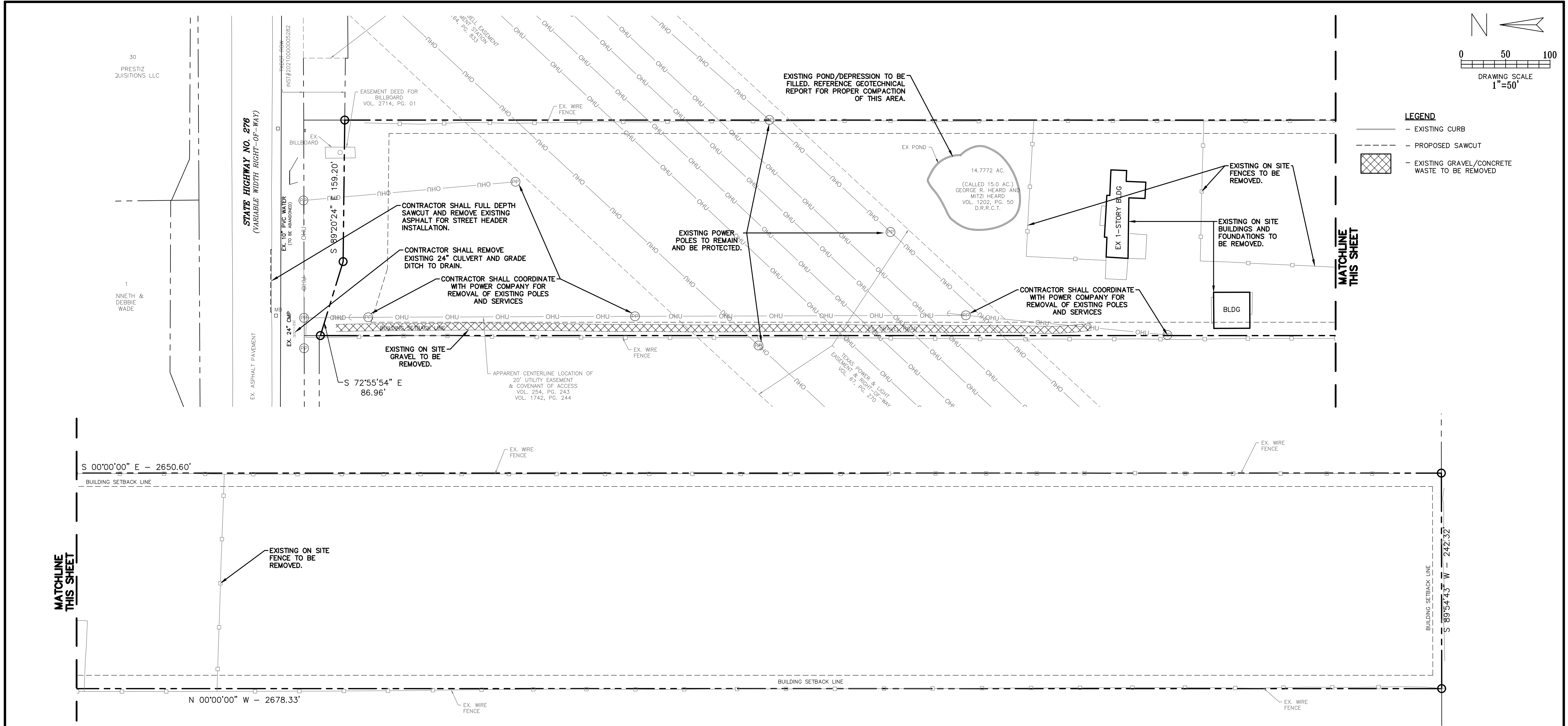
AS-BUILT

NOTE: THESE AS-BUILT PLANS HAVE BEEN REVISED TO CONFORM WITH THE POST-CONSTRUCTION SURVEY PROVIDED BY THE CONTRACTOR. BY STATING THIS, THE ENGINEER DOES NOT ASSUME RESPONSIBILITY FOR THE WORK PERFORMED BY THE CONTRACTOR. SAID RESPONSIBILITY REMAINS SOLELY WITH THE CONTRACTOR.



NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33

CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT



DEMOLITION NOTES:

1. NOTIFY AFFECTED UTILITY COMPANIES BEFORE STARTING WORK AND COMPLY WITH THEIR REQUIREMENTS.
2. OWNER/DESIGN TEAM ASSUMES NO RESPONSIBILITY FOR ACTUAL CONDITIONS OF AREAS TO BE DEMOLISHED. CONTACT ARCHITECT/ENGINEER SHOULD CONFLICTS ARISE.
3. PERFORM WORK IN MANNER TO ELIMINATE HAZARDS TO PERSONS OR PROPERTY AND AVOID INTERFERENCE WITH ADJACENT AREAS, UTILITIES, AND STRUCTURES.
4. PROVIDE AND MAINTAIN TEMPORARY BARRICADES, FENCES, WARNING SIGNS, GUARDRAILS, WARNING LIGHTS AS REQUIRED PER O.S.H.A., CITY, AND ALL OTHER APPLICABLE STANDARDS.
5. PROTECT EXISTING STRUCTURES, LANDSCAPING MATERIALS, AND APPURTENANCES WHICH ARE NOT BEING DEMOLISHED AND REPAIR ANY DAMAGE TO PREVIOUS CONDITIONS OR BETTER.
6. CONTRACTOR TO BE RESPONSIBLE FOR ALL REQUIRED PERMITS.
7. CEASE DEMOLITION OPERATIONS IMMEDIATELY IF ADJACENT STRUCTURES OR UTILITIES APPEAR TO BE IN DANGER. CONDUCT SAFETY OPERATIONS AS NECESSARY. DO NOT RESUME DEMOLITION OPERATIONS UNTIL DIRECTED TO DO SO BY THE CITY AND/OR OWNER.
8. SURFACES ARE TO BE BROUGHT TO PLANNED ELEVATION AS SOON AS REASONABLE PER DESIGN PLANS. ALWAYS PROVIDE POSITIVE DRAINAGE.
9. ALL MATERIALS REMOVED SHALL BE DISPOSED OF OFFSITE IN A LEGAL MANNER.
10. CONTRACTOR SHALL PROTECT AND BRACE (IF NEEDED) ALL EXISTING AND ANY PROPOSED POWER POLES DURING DEMOLITION & CONSTRUCTION OPERATIONS. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES FOR POWER POLE RELOCATIONS.
11. THE CONTRACTOR (INCLUDING SUB CONTRACTORS) WILL BE RESPONSIBLE FOR COORDINATING WITH ALL OF THE APPROPRIATE UTILITY COMPANIES FOR THE LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.
12. REFER TO LANDSCAPE PLAN FOR TREES TO REMAIN OR TO BE REMOVED (IF ANY).
13. EXISTING INLETS SHALL BE CLEANED OF ALL DEBRIS DURING AND AFTER CONSTRUCTION.
14. CONTRACTOR SHALL INSTALL, ADJUST AND REMOVE ANY SECURITY/CONSTRUCTION FENCING PER OWNER'S REPRESENTATIVES DIRECTION.
15. ALL SAWCUT LINES ARE SHOWN FOR GENERAL REPRESENTATION ONLY AND MAY VARY DEPENDING ON EXISTING FIELD CONDITIONS OF PAVEMENT JOINTS PER THE DIRECTIONS OF THE CITY INSPECTOR.
16. CONTRACTOR SHALL COORDINATE ON STREET PAVEMENT CUTS WITH TXDOT FOR UTILITY INSTALLATION/DEMOLITION.
17. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL AS NEEDED FOR ANY WORK IN THE RIGHT OF WAY.

CAUTION

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CALL: TEXAS ONE CALL @ 811 AT LEAST 72 HRS PRIOR TO CONSTRUCTION.

REVISIONS

REV NO.	DATE	DESCRIPTION

AS-BUILT

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LEGEND

- EXISTING CURB
- PROPOSED SAWCUT
- EXISTING GRAVEL/CONCRETE WASTE TO BE REMOVED

DEMOLITION PLAN

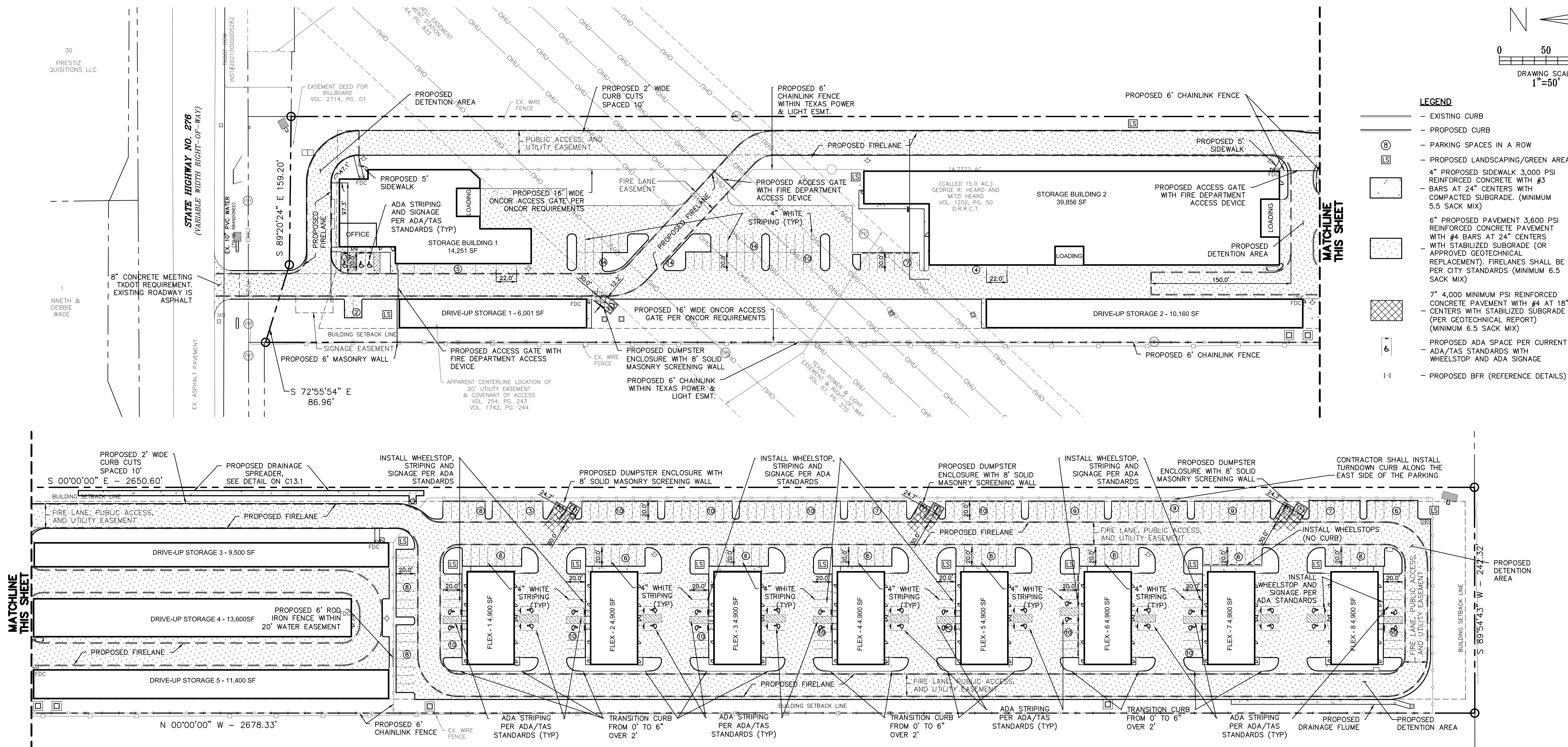
4649 HIGHWAY 276

CITY OF ROCKWALL

ROCKWALL COUNTY, TEXAS

J.H. BAILEY SURVEY, ABST NO. 34

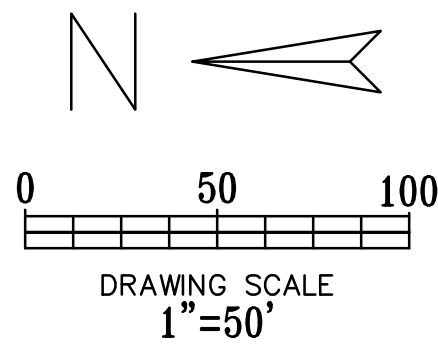
DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	1" = 50'	C2.0



DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	1" = 50'	C3.0

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LEGEND

- EXISTING CURB
— PROPOSED CURB
- - - PROPOSED FIRE LANE

STATE HIGHWAY NO. 276
(VARIABLE WIDTH RIGHT-OF-WAY)

EX. ASPHALT PAVEMENT

EX. 10" PVC WATER
PIPE (ABANDONED)

INST#2021000005282

EASEMENT DEED FOR
BILLBOARD
VOL. 2714, PG. 01

OFFICE

LOADING

DRIVE-UP STORAGE 1 - 6,001 SF
±201.4'

DRIVE-UP STORAGE 2 - 10,160 SF
±340.0'

DRIVE-UP STORAGE 3 - 9,500 SF
±380.7'

DRIVE-UP STORAGE 4 - 13,600SF
±341.3'

DRIVE-UP STORAGE 5 - 11,400 SF
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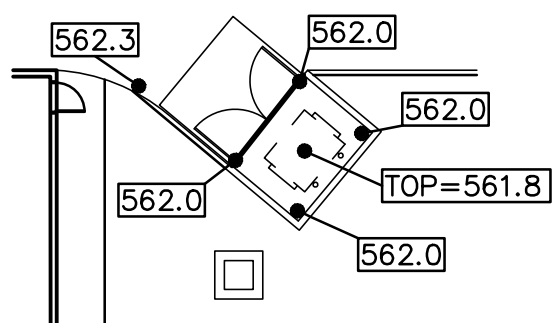
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-  - EXISTING CURB
-  - PROPOSED CURB
-  - EXISTING CONTOUR
-  - PROPOSED CONTOUR
-  - PROPOSED RIDGE
-  - DIRECTIONAL FLOW
-  - PROPOSED SPOT ELEVATION



DUMPSTER DETAIL #1
N.T.S.

STATE HIGHWAY NO. 276
(VARIABLE WIDTH RIGHT-OF-WAY)

- EASEMENT DEED FOR
BILLBOARD
VOL. 2714 PG. 01

EX. WIRE
FENCE — —

(CALLED 15.0 AC.)
GEORGE R. HEARD AND
MITZI HEARD
VOL. 1202, PG. 50
D.R.R.C.T.

$$\boxed{FF=560.7}$$

20' UTILITY EASEMENT
& COVENANT OF ACCESS
VOL 254 PG 243

— REFERENCE
DUMPS
DETAIL

NOTE:
OVERHEAD UTILITIES ACROSS
SITE. CONTRACTOR SHALL
COMPLY WITH ALL CLEARANCES
AND SAFETY PROCEDURES
WHILE WORKING AROUND AND
UNDER POWER LINES, POLE,
AND ANY OTHER ELEMENT.

MATCHLINE THIS SHEET

11:00'00" E = 2650.60

REFERENCE
DUMPSTER
DETAIL #2

REFERENCE
DUMPSTER
DETAIL #3

REFERENCE
DUMPSTER
DETAIL #4

FF-559.8-561.7

$$\text{FF} = 559.8 - 561.5$$
$$\text{FF} = 559.8 - 561.8$$

S 89°54'43" W - 242.32

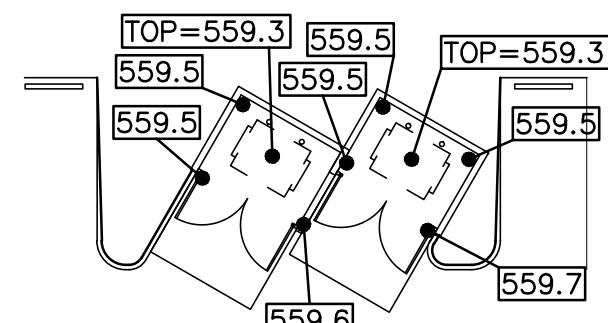
CONTRACTOR SHALL GRADE CROSS
SLOPES 4(H):1(V) MAX OR FLATTER

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THESE PLANS AND CITY STANDARDS AND SPECIFICATIONS. ALL CONSTRUCTION SHALL ALSO IN THE ACCORDANCE WITH THE NORTH CENTRAL TEXAS STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.

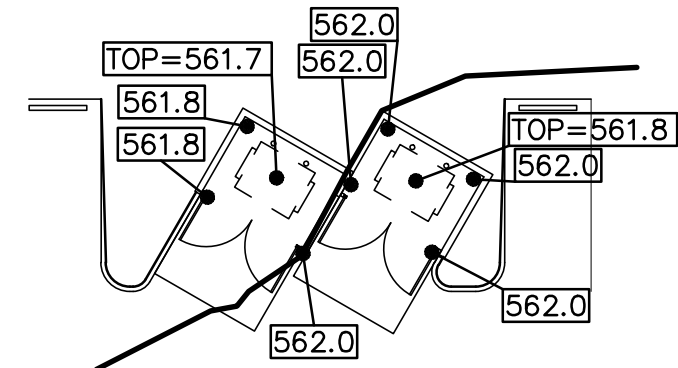
2. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL MAKE CERTAIN THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS APPROVED BY ALL OF THE PERMITTING AUTHORITIES.
3. BARRICADING, TRAFFIC CONTROL, AND PROJECT SIGNS SHALL CONFORM TO TEXAS DEPARTMENT OF TRANSPORTATION STANDARDS AND CURRENT MUTCD STANDARDS.

4. THE LOCATION OF ALL EXISTING UTILITIES SHOWN ARE BASED ON FIELD SURVEYS AND LOCAL UTILITY COMPANY RECORDS. IT SHALL BE THE CONTRACTOR'S FULL RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES TO LOCATE THEIR UTILITIES PRIOR TO STARTING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES IS TO BE REPAIRED AT CONTRACTOR'S EXPENSE.
5. CONTRACTOR SHALL VERIFY ALL EXISTING AND RIM ELEVATIONS PRIOR TO CONSTRUCTION.
6. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND/OR ESTABLISH A BENCHMARK PRIOR TO CONSTRUCTION.
7. EROSION CONTROLS SHALL BE IN PLACE PRIOR TO THE DISTURBANCE OF ANY EXISTING UPGRADE.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINED TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY STANDARDS, TEXAS STATE LAW, AND O.H.S.A. STANDARDS FOR ALL EXCAVATION.
9. ALL EARTHWORK OPERATIONS SHALL CONFORM TO THE RECOMMENDATIONS PER THE GEOTECHNICAL REPORT.

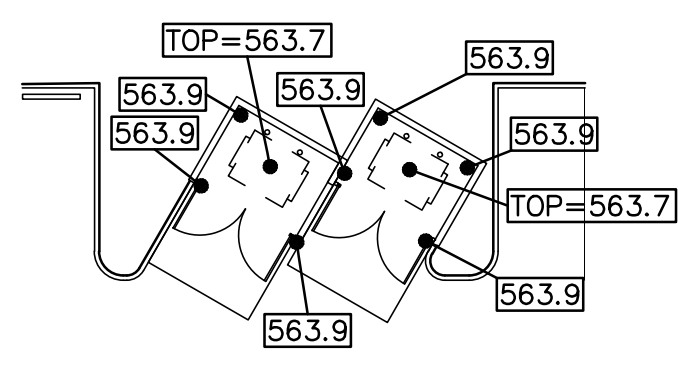
10. DRAINAGE SHOULD BE MAINTAINED AWAY FROM THE FOUNDATIONS, BOTH DURING AND AFTER CONSTRUCTION.
11. ALL SIDEWALKS SHALL MAINTAIN A 2% MINIMUM CROSS SLOPE AND A MAXIMUM 5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
12. SLOPE IN HANDICAP PARKING AREAS SHALL NOT EXCEED 2% IN ANY DIRECTION.
13. SLOPE IN NON-PAVED AREA SHALL NOT EXCEED 4:1.
14. CROSSLLOPE OF PEDESTRIAN ROUTE DRIVES (BETWEEN BARRIER FREE RAMPS) SHALL NOT EXCEED 2% FOR A WIDTH THAT AT LEAST MATCHES THE SIDEWALK AT EACH LOCATION.
15. NO GRADING OR PAVING WORK SHALL BE DONE ON ANY ADJACENT PROPERTY WITHOUT WRITTEN CONSENT FROM THE OWNER.
16. RETAINING WALLS AND SCREENING WALLS REQUIRE SEPARATE PERMITS PRIOR TO CONSTRUCTION.



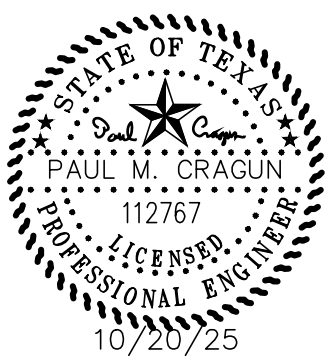
DUMPSTER DETAIL #2
N.T.S.



DUMPSTER DETAIL #3
N.T.S.



DUMPSTER DETAIL #4
N.T.S.



Cumulus Design Firm #14810
2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
Tel. 214.235.0367

GRADING PLAN

4649 HIGHWAY 276

CITY OF ROCKWALL

ROCKWALL COUNTY, TEXAS
J.H. BAILEY SURVEY, ABST NO. 34

DATE	PROJECT NO	DRAWING SCALE	SHEET
0/20/25	CD22011	1" = 50'	C5.0

!!! CAUTION !!!
UNDERGROUND UTILITIES

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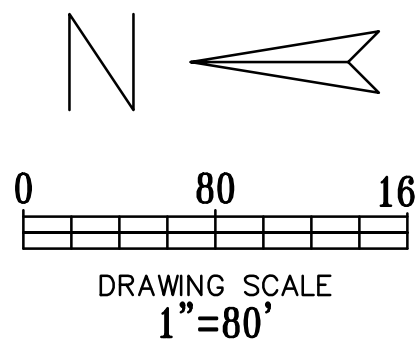
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REVISIONS		
REV NO.	DATE	DESCRIPTION

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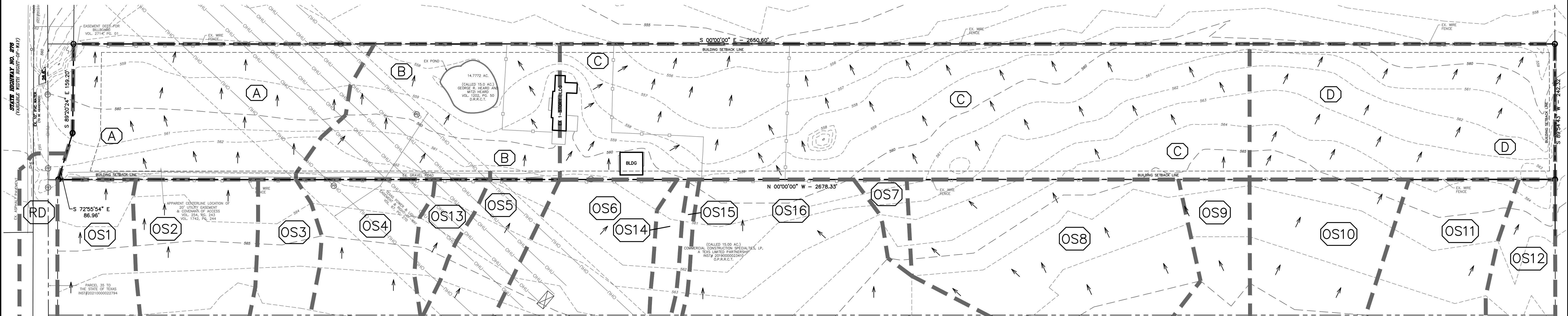
BENCHMARK
NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33
CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR
SITE BENCHMARKS AND CONTROL POINT

AS-BUILT



LEGEND

- 669 --- - EXISTING CONTOUR
--- - EXISTING CURB
--- - EXISTING STORM
--- - DRAINAGE AREA DIVIDE
→ - DIRECTIONAL FLOW ARROW



DRAINAGE CRITERIA

$Q = C \cdot I \cdot A$
 $t_c = 10/20 \text{ min.}$
 $C = 0.35/0.90$

(X) ← AREA DESCRIPTION

COMPOSITE C CALCULATIONS:

OS1:
IMPERVIOUS AREA (0.9)=59159.1086 SF (1.36 ACRES)
PERVIOUS AREA (0.35)=27885.0358 SF (0.64 ACRES)
 $C_c = ((1.36 \cdot 0.9) + (0.64 \cdot 0.35)) / (1.36 + 0.64) = 0.724$

OS2:
IMPERVIOUS AREA (0.9)=84845.8464 SF (1.95 ACRES)
PERVIOUS AREA (0.35)=33963.9390 SF (0.78 ACRES)
 $C_c = ((1.95 \cdot 0.9) + (0.78 \cdot 0.35)) / (1.95 + 0.78) = 0.743$

OS3:
IMPERVIOUS AREA (0.9)=35626.1369 SF (0.82 ACRES)
PERVIOUS AREA (0.35)=244.1552 SF (0.01 ACRES)
 $C_c = ((0.82 \cdot 0.9) + (0.01 \cdot 0.35)) / (0.82 + 0.01) = 0.893$

OS4:
IMPERVIOUS AREA (0.9)=99037.6267 SF (2.27 ACRES)
PERVIOUS AREA (0.35)=23424.5402 SF (0.54 ACRES)
 $C_c = ((2.27 \cdot 0.9) + (0.54 \cdot 0.35)) / (2.27 + 0.54) = 0.794$

OS5:
IMPERVIOUS AREA (0.9)=33953.3932 SF (0.78 ACRES)
PERVIOUS AREA (0.35)=9018.1673 SF (0.21 ACRES)
 $C_c = ((0.78 \cdot 0.9) + (0.21 \cdot 0.35)) / (0.78 + 0.21) = 0.783$

OS6:
IMPERVIOUS AREA (0.9)=157238.7179 SF (3.61 ACRES)
PERVIOUS AREA (0.35)=411619.6819 SF (9.45 ACRES)
 $C_c = ((3.61 \cdot 0.9) + (9.45 \cdot 0.35)) / (3.61 + 9.45) = 0.502$

III CAUTION III
UNDERGROUND UTILITIES

EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION SUPPLIED BY VARIOUS PARTIES. THE ENGINEER DOES NOT ASSUME THE RESPONSIBILITY FOR THE UTILITY LOCATIONS SHOWN. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR(S) TO VERIFY THE HORIZONTALLY AND VERTICALLY LOCATION OF ALL UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION, TO TAKE PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED AND NOTIFY THE ENGINEER OF ALL CONFLICTS OF THE WORK WITH EXISTING FACILITIES. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL UTILITIES FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGE BY THE CONTRACTOR TO UTILITIES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
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EXISTING DRAINAGE DATA CHART													
DRAINAGE ID	AREA (SQ. FT.)	AREA (AC.)	C	T _c (min)	I ₅ (in/hr)	I ₁₀ (in/hr)	I ₂₅ (in/hr)	I ₁₀₀ (in/hr)	Q ₅ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)	COMMENT
A	115633.10	2.65	0.35	20.0	4.9	5.9	6.6	8.3	4.6	5.5	6.1	7.7	DRAINS TO THE EAST OF PROPERTY
B	96551.20	2.22	0.35	20.0	4.9	5.9	6.6	8.3	3.8	4.6	5.1	6.4	DRAINS TO THE EAST OF PROPERTY
C	299094.72	6.87	0.35	20.0	4.9	5.9	6.6	8.3	11.8	14.2	15.9	19.9	DRAINS TO THE EAST OF PROPERTY
D	132417.51	3.04	0.35	20.0	4.9	5.9	6.6	8.3	5.2	6.3	7.0	8.8	DRAINS TO THE EAST OF PROPERTY
TOTAL SITE	643696.54	14.78							25.3	30.5	34.1	42.9	TOTAL SITE STORMWATER FLOW
OS1	87044.14	2.00	0.72	10.0	6.1	7.1	8.3	9.8	8.8	10.3	12.0	14.2	DRAINS TO DRAINAGE AREA "B1"
OS2	118809.79	2.73	0.74	10.0	6.1	7.1	8.3	9.8	12.4	14.4	16.8	19.9	DRAINS TO DRAINAGE AREA "E"
OS3	35870.29	0.82	0.89	10.0	6.1	7.1	8.3	9.8	4.5	5.2	6.1	7.2	DRAINS TO DRAINAGE AREA "E"
OS4	122462.17	2.81	0.73	10.0	6.1	7.1	8.3	9.8	12.5	14.5	16.9	20.0	DRAINS TO DRAINAGE AREA "F1"
OS5	42971.56	0.99	0.78	10.0	6.1	7.1	8.3	9.8	4.7	5.5	6.4	7.6	DRAINS TO DRAINAGE AREA "L1"
OS6	72969.47	1.68	0.77	10.0	6.1	7.1	8.3	9.8	7.9	9.2	10.7	12.7	DRAINS TO DRAINAGE AREA "L1"
OS7	8781.38	0.20	0.90	10.0	6.1	7.1	8.3	9.8	1.1	1.3	1.5	1.8	DRAINS TO DRAINAGE AREA "L4"
OS8	158049.17	3.63	0.35	10.0	6.1	7.1	8.3	9.8	7.7	9.0	10.5	12.4	DRAINS TO DRAINAGE AREA "Q"
OS9	64042.26	1.47	0.35	10.0	6.1	7.1	8.3	9.8	3.1	3.7	4.3	5.0	DRAINS TO DRAINAGE AREA "Q"
OS10	92871.32	2.13	0.35	20.0	4.9	5.9	6.6	8.3	3.7	4.4	4.9	6.2	DRAINS TO DRAINAGE AREA "S"
OS11	134646.66	3.09	0.35	20.0	4.9	5.9	6.6	8.3	5.3	6.4	7.1	9.0	DRAINS TO DRAINAGE AREA "V"
OS12	79822.69	1.83	0.35	20.0	4.9	5.9	6.6	8.3	3.1	3.8	4.2	5.3	DRAINS TO DRAINAGE AREA "Z"
OS13	15349.45	0.35	0.90	10.0	6.1	7.1	8.3	9.8	1.9	2.3	2.6	3.1	DRAINS TO DRAINAGE AREA "F2"
OS14	89977.96	2.07	0.41	10.0	6.1	7.1	8.3	9.8	5.2	6.1	7.1	8.4	DRAINS TO DRAINAGE AREA "L2"
OS15	64978.60	1.49	0.39	10.0	6.1	7.1	8.3	9.8	3.6	4.1	4.8	5.7	DRAINS TO DRAINAGE AREA "L3"
OS16	340967.12	7.83	0.49	10.0	6.1	7.1	8.3	9.8	23.3	27.2	31.8	37.5	DRAINS TO DRAINAGE AREA "L4"
RD	42337.70	0.97	0.90	10.0	6.1	7.1	8.3	9.8	5.3	6.2	7.3	8.6	DRAINS TO PROPOSED CULVERT
TOTAL OFFSITE	1018340.92	23.38							114.2	133.4	155.2	184.5	

NOTE: CITY OF ROCKWALL STANDARDS OF DESIGN AND CONSTRUCTION OCTOBER 2019 WAS USED FOR RUNOFF COEFFICIENTS AND INTENSITY VALUES. A WEIGHTED RUNOFF COEFFICIENT HAS BEEN CALCULATED FOR DRAINAGE AREA OS1, OS2, OS3, OS4, OS5, AND OS6, SINCE DIFFERENT LAND TYPES ARE CONTRIBUTING TO A DISCHARGE DESIGN POINT.

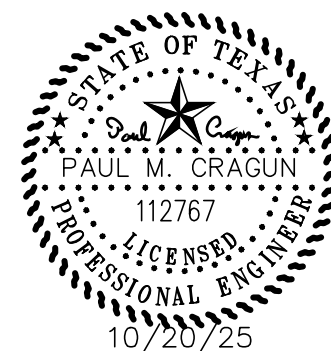
AS-BUILT

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BENCHMARK

NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33

CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT



Cumulus Design Firm #14810

2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
Tel. 214.235.0367

EXISTING DRAINAGE AREA MAP

4649 HIGHWAY 276

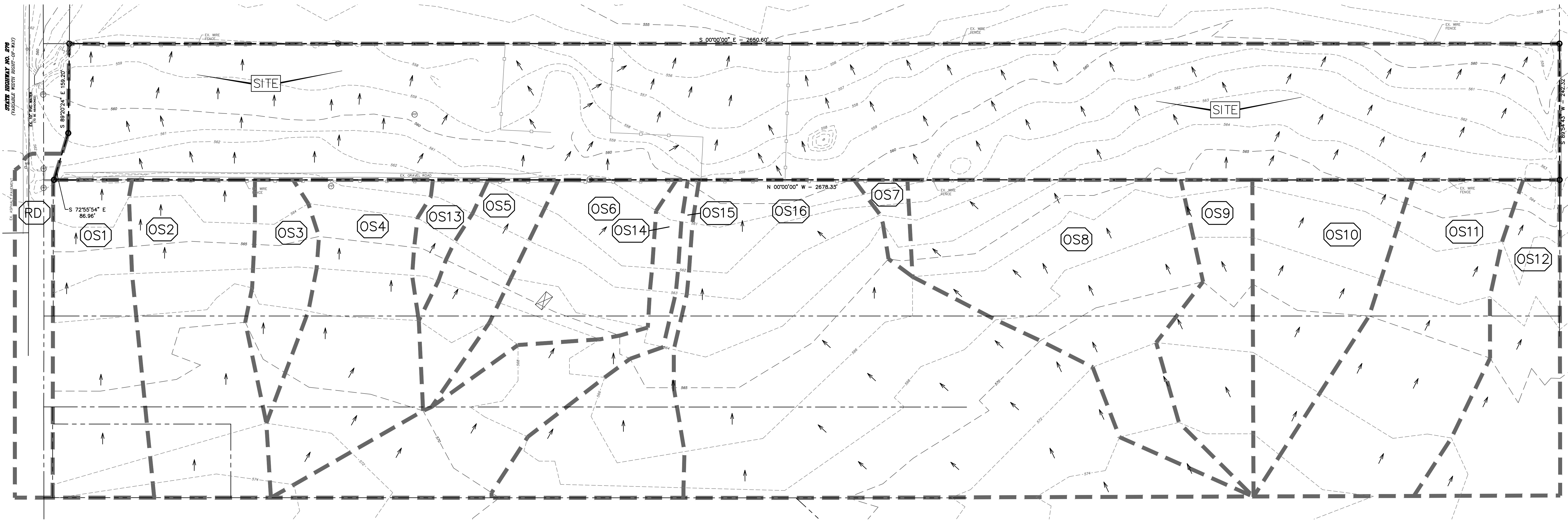
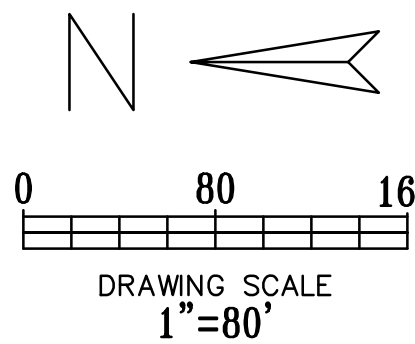
CITY OF ROCKWALL

ROCKWALL COUNTY, TEXAS

J.H. BAILEY SURVEY, ABST NO. 34

DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	1" = 80'	C6.0

NOTE: OFFSITE TOPO DATA WAS RETRIEVED FROM WWW.DWFMAPS.COM ON 8/30/2022.



DRAINAGE CRITERIA
 $Q=C*I*A$
 $t_c=10-20$ min.
 $C=0.35/0.90$

(X) — AREA DESCRIPTION

LEGEND

- 669 — — EXISTING CONTOUR
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DRAINAGE DATA CHART													
DRAINAGE ID	AREA (SQ. FT.)	AREA (AC.)	C	T _c (min)	I ₅ (in/hr)	I ₁₀ (in/hr)	I ₂₅ (in/hr)	I ₁₀₀ (in/hr)	Q ₅ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)	COMMENT
OS1	87044.14	2.00	0.72	10.0	6.1	7.1	8.3	9.8	8.8	10.3	12.0	14.2	DRAINS TO DRAINAGE AREA "B1"
OS2	118809.79	2.73	0.74	10.0	6.1	7.1	8.3	9.8	12.4	14.4	16.8	19.9	DRAINS TO DRAINAGE AREA "E"
OS3	35870.29	0.82	0.89	10.0	6.1	7.1	8.3	9.8	4.5	5.2	6.1	7.2	DRAINS TO DRAINAGE AREA "E"
OS4	122462.17	2.81	0.73	10.0	6.1	7.1	8.3	9.8	12.5	14.5	16.9	20.0	DRAINS TO DRAINAGE AREA "F1"
OS5	42971.56	0.99	0.78	10.0	6.1	7.1	8.3	9.8	4.7	5.5	6.4	7.6	DRAINS TO DRAINAGE AREA "L1"
OS6	72969.47	1.68	0.77	10.0	6.1	7.1	8.3	9.8	7.9	9.2	10.7	12.7	DRAINS TO DRAINAGE AREA "L1"
OS7	8781.38	0.20	0.90	10.0	6.1	7.1	8.3	9.8	1.1	1.3	1.5	1.8	DRAINS TO DRAINAGE AREA "L4"
OS8	158049.17	3.63	0.35	10.0	6.1	7.1	8.3	9.8	7.7	9.0	10.5	12.4	DRAINS TO DRAINAGE AREA "Q"
OS9	64042.26	1.47	0.35	10.0	6.1	7.1	8.3	9.8	3.1	3.7	4.3	5.0	DRAINS TO DRAINAGE AREA "Q"
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OS16	340967.12	7.83	0.49	10.0	6.1	7.1	8.3	9.8	23.3	27.2	31.8	37.5	DRAINS TO DRAINAGE AREA "L4"
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REVISIONS		
REV NO.	DATE	DESCRIPTION

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NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
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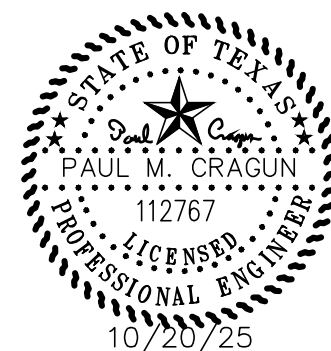
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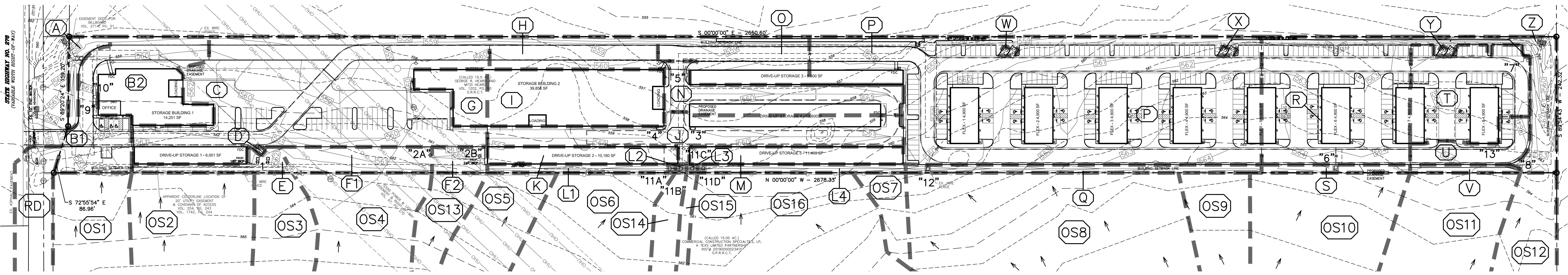
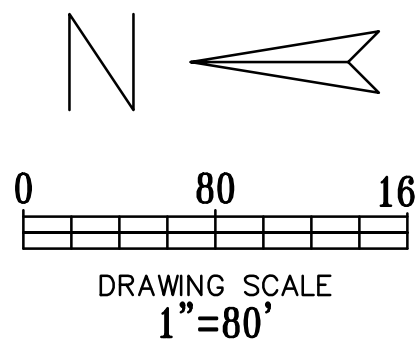
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Cumulus Design Firm #14810
2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
Tel. 214.235.0367

REGIONAL DRAINAGE AREA MAP			
4649 HIGHWAY 276			
CITY OF ROCKWALL			
ROCKWALL COUNTY, TEXAS			
J.H. BAILEY SURVEY, ABST NO. 34			
DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	1" = 80'	C7.0



LEGEND

- 669 - - EXISTING CONTOUR
- - - - - EXISTING CURB
- - - - - EXISTING STORM
- - - - - DRAINAGE AREA DIVIDE
- - - - - DIRECTIONAL FLOW ARROW

DRAINAGE CRITERIA

- Q=C*I*A
- t_c=10 min.
- C=0.9
- (X) - AREA DESCRIPTION

PROPOSED DRAINAGE DATA CHART

DRAINAGE ID	AREA (SQ. FT.)	AREA (AC.)	C	T _c (min)	I ₅ (in/hr)	I ₁₀ (in/hr)	I ₂₅ (in/hr)	I ₁₀₀ (in/hr)	Q ₅ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)	COMMENT
A	4438.62	0.10	0.90	10.0	6.1	7.1	8.3	9.8	0.6	0.7	0.8	0.9	DRAINS EAST TO EXISTING ROADSIDE DITCH
B1	14081.05	0.32	0.90	10.0	6.1	7.1	8.3	9.8	1.8	2.1	2.4	2.9	DRAINS EAST TO INLET #9 AND #10, THEN TO (N) DETENTION SYSTEM
B2	28606.34	0.66	0.90	10.0	6.1	7.1	8.3	9.8	3.6	4.2	4.9	5.8	DRAINS EAST TO TO ADJACENT PROPERTY
C	103407.42	2.37	0.90	10.0	6.1	7.1	8.3	9.8	13.0	15.2	17.7	20.9	DRAINS EAST TO ADJACENT PROPERTY
D	236.60	0.01	0.90	10.0	6.1	7.1	8.3	9.8	0.0	0.0	0.0	0.0	DRAINS TO DUMPSTER INLET
E	6096.73	0.14	0.90	10.0	6.1	7.1	8.3	9.8	0.8	0.9	1.0	1.2	DRAINS PARTIALLY TO INLET #1 THEN TO (N) DETENTION SYSTEM
F1	12037.85	0.28	0.90	10.0	6.1	7.1	8.3	9.8	1.5	1.8	2.1	2.4	DRAINS PARTIALLY TO INLET #2A THEN TO (MID) DETENTION SYSTEM, OVERFLOW TO INLET #2B
F2	4551.97	0.10	0.90	10.0	6.1	7.1	8.3	9.8	0.6	0.7	0.8	0.9	DRAINS PARTIALLY TO INLET #2B THEN TO (MID) DETENTION SYSTEM
G	8715.15	0.20	0.90	10.0	6.1	7.1	8.3	9.8	1.1	1.3	1.5	1.8	ROOF DRAINS EAST TO DRAINAGE AREA C
H	17575.74	0.40	0.90	10.0	6.1	7.1	8.3	9.8	2.2	2.6	3.0	3.6	DRAINS EAST TO ADJACENT PROPERTY
I	31916.62	0.73	0.90	10.0	6.1	7.1	8.3	9.8	4.0	4.7	5.5	6.5	ROOF DRAINS EAST TO DRAINAGE AREA H
J	35893.19	0.82	0.90	10.0	6.1	7.1	8.3	9.8	4.5	5.3	6.2	7.3	DRAINS TO CURB INLET #3 AND #4 THEN TO (MID) DETENTION SYSTEM
K	10652.66	0.24	0.90	10.0	6.1	7.1	8.3	9.8	1.3	1.6	1.8	2.2	ROOF DRAINS EAST TO DRAINAGE AREA J
L1	5136.35	0.12	0.90	10.0	6.1	7.1	8.3	9.8	0.6	0.8	0.9	1.0	DRAINS SOUTH TO INLET #11A, THEN TO (MID) DETENTION SYSTEM, OVERFLOW TO INLET #11B
L2	306.68	0.01	0.90	10.0	6.1	7.1	8.3	9.8	0.0	0.0	0.1	0.1	DRAINS TO INLET #1B, THEN TO (MID) DETENTION SYSTEM
L3	306.67	0.01	0.90	10.0	6.1	7.1	8.3	9.8	0.0	0.0	0.1	0.1	DRAINS TO INLET #11C, THEN TO (MID) DETENTION SYSTEM, OVERFLOW TO INLET #11B
L4	5681.83	0.13	0.90	10.0	6.1	7.1	8.3	9.8	0.7	0.8	1.0	1.2	DRAINS NORTH TO INLET #11D, THEN TO (MID) DETENTION SYSTEM, OVERFLOW TO INLET #11C
M	11948.44	0.27	0.90	10.0	6.1	7.1	8.3	9.8	1.5	1.8	2.0	2.4	ROOF DRAINS EAST TO DRAINAGE AREA J
N	24914.44	0.57	0.90	10.0	6.1	7.1	8.3	9.8	3.1	3.7	4.3	5.0	DRAINS NORTH TO INLET #5
O	20652.11	0.47	0.90	10.0	6.1	7.1	8.3	9.8	2.6	3.0	3.5	4.2	DRAINS EAST TO ADJACENT PROPERTY
P	159059.80	3.65	0.90	10.0	6.1	7.1	8.3	9.8	20.0	23.3	27.3	32.2	DRAINS EAST TO ADJACENT PROPERTY
Q	9149.36	0.21	0.90	10.0	6.1	7.1	8.3	9.8	1.2	1.3	1.6	1.9	DRAINS NORTH TO INLET #12, THEN TO (MID) DETENTION SYSTEM
R	60440.43	1.39	0.90	10.0	6.1	7.1	8.3	9.8	7.6	8.9	10.4	12.2	DRAINS EAST TO ADJACENT PROPERTY
S	3814.11	0.09	0.90	10.0	6.1	7.1	8.3	9.8	0.5	0.6	0.7	0.8	DRAINS TO INLET #6
T	33327.07	0.77	0.90	10.0	6.1	7.1	8.3	9.8	4.2	4.9	5.7	6.7	DRAINS EAST TO INLET #7
U	10555.09	0.24	0.90	10.0	6.1	7.1	8.3	9.8	1.3	1.5	1.8	2.1	DRAINS EAST TO INLET #13
V	2753.84	0.06	0.90	10.0	6.1	7.1	8.3	9.8	0.3	0.4	0.5	0.6	DRAINS SOUTHEAST TO INLET #8
W	463.75	0.01	0.90	10.0	6.1	7.1	8.3	9.8	0.1	0.1	0.1	0.1	DRAINS TO DUMPSTER INLET
X	463.75	0.01	0.90	10.0	6.1	7.1	8.3	9.8	0.1	0.1	0.1	0.1	DRAINS TO DUMPSTER INLET
Y	463.75	0.01	0.90	10.0	6.1	7.1	8.3	9.8	0.1	0.1	0.1	0.1	DRAINS TO DUMPSTER INLET
Z	16048.56	0.37	0.90	10.0	6.1	7.1	8.3	9.8	2.0	2.4	2.8	3.2	DRAINS TO EAST TO EXISTING LOWPOINT
TOTAL SITE	643696.54	14.78							81.1	94.4	110.4	130.3	

NOTE: CITY OF ROCKWALL STANDARDS OF DESIGN AND CONSTRUCTION OCTOBER 2019 WAS USED FOR RUNOFF COEFFICIENTS AND INTENSITY VALUES.

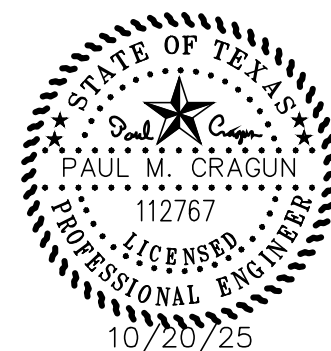
THERE IS THREE PROPOSED DETENTION SYSTEMS THAT CAPTURE AND DETAIN MOSTLY OFFSITE RUNOFF. THE PROPOSED ONSITE RUNOFF WILL MOSTLY BYPASS THE DETENTION AND SURFACE FLOW FROM THE PROPERTY IN A NON-CONCENTRATED MANNER TO MATCH EXISTING CONDITIONS.

100-YR. COMPARISON TABLE:

EXISTING SITE & OFFSITE PASSTHROUGH PEAK RUNOFF: 217.5 CFS

PROPOSED SITE & OFFSITE PASSTHROUGH PEAK RUNOFF BEFORE DETENTION: 304.9 CFS

ACTUAL PROPOSED SITE & OFFSITE PASSTHROUGH PEAK RUNOFF AFTER DETENTION: 198.8 CFS



Cumulus Design Firm #14810

2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
Tel. 214.235.0367

PROPOSED DRAINAGE AREA MAP

4649 HIGHWAY 276

CITY OF ROCKWALL

ROCKWALL COUNTY, TEXAS

J.H. BAILEY SURVEY, ABST NO. 34

DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	1" = 80'	C8.0

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REVISIONS

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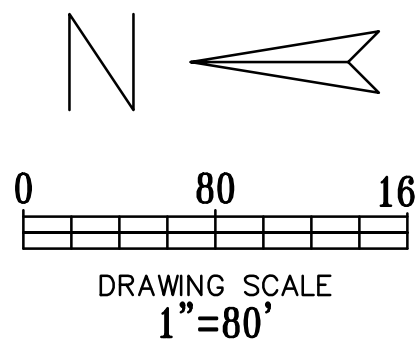
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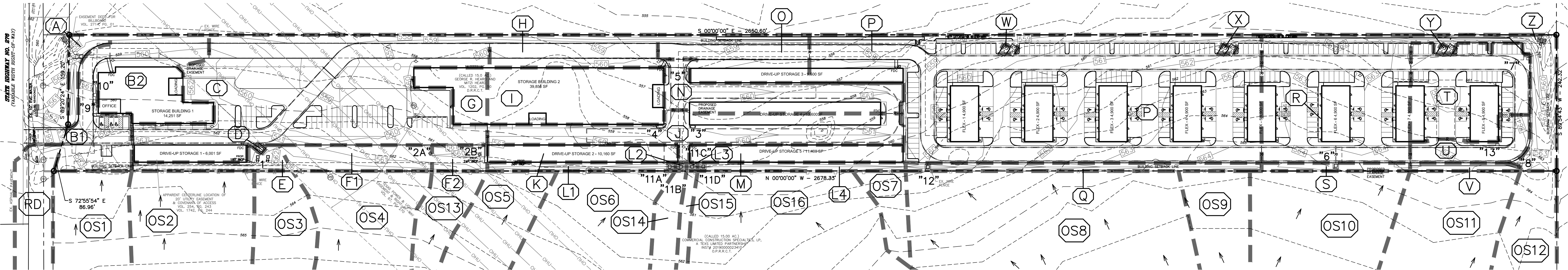
BENCHMARK

NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33

CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT



- LEGEND**
- 669 --- - EXISTING CONTOUR
 - --- - EXISTING CURB
 - - - - - EXISTING STORM
 - █ █ █ █ █ - DRAINAGE AREA DIVIDE
 - - DIRECTIONAL FLOW ARROW



INLET CALCULATIONS

Inlet ID	Location				Design Freq.	Area Runoff						Upstream Bypass C*A	Total Gutter Flow Qa	Gutter Flow												Inlets Capacity										Inlet By-pass				
	Alignment	Station	Offset	C		Area ID	Time of Concentration Tc	Intensity I	Area A	Runoff Q	Thoroughfare Type			On-Grade/Sag	Manning's n	Long Slope S	Crown Type	Cross Slope Sx	Depression		Ponding Width/Spread		Depth of Gutter Flow		Max. Allowable Flow based on Max. Allowable Ponding Width Qallow gutter	Depressed Gutter Section		Section Beyond Depression		Conveyance		Ratio of Depression Flow to Total Flow Eo	Equivalent Cross Slope Se	Inlet Length		Inlet Capacity Qc	Flow Qypass	C*A	Bypass To Inlet ID	Remarks
																			Depth a	Width W	(allow) Tallow	(actual) Tactual	(actual) Yallow	(actual) Yactual		Area Aw	Wetter Perimeter	Area Ao	Wetter Perimeter	Depression Section	Section Beyond Depression			Required Lreq'd	Actual Lactual					
				(yr)		(min)	(in/hr)	(acres)	(cfs)	(acres)			(ft/ft)		(ft/ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(ft²)	(ft)	(ft²)	(ft)	(ft)				(ft)	(ft)	(cfs)	(cfs)					
#1	Line C	1+15.9		100	0.9, 0.74, 0.89	E, OS2, OS3	10	9.8	3.69	28.30	0.00	28.30		Sag	0.0175	0.005	NA	0.01	0.5	2	N/A	45.86	N/A	0.46	N/A	0.907	2.07	9.618	43.860	44.50	297.01	0.13	0.04	29.52	32	34.93	0.00	0.00	N/A	2-4'x4' Wye
#2	Line D	1+20.3		100	0.9, 0.79	F, OS4	10	9.8	3.19	25.30	0.00	25.30		Sag	0.0175	0.02	NA	0.03	0.5	2	N/A	17.06	N/A	0.51	N/A	0.994	2.08	3.404	15.065	51.63	107.24	0.32	0.11	22.37	24	26.19	0.00	0.00	N/A	2-3'x3' Wye
#3	Lat E2	1+31.9		100	0.9	J, M	10	9.8	0.76	6.70	0.00	6.70		On-Grade	0.0175	0.02	Straight	0.01	0.5	2	N/A	20.61	N/A	0.21	N/A	0.402	2.07	1.731	18.605	11.47	30.17	0.28	0.08	21.46	5	1.85	4.85	0.50	4	5' Curb
#4	Lat E3	1+17.6		100	0.9	J, K	10	9.8	0.58	5.12	0.50	9.97		Sag	0.0175	0.01	Straight	0.02	0.5	2	N/A	17.66	N/A	0.35	N/A	0.686	2.07	2.451	15.657	27.90	60.47	0.32	0.10	8.66	10	12.76	0.00	0.00	N/A	10' Curb
#5	Lat E1	1+09.0		100	0.9	N	10	9.8	0.57	5.03	0.00	5.03		Sag	0.0175	0.005	Straight	0.005	0.5	2	N/A	37.00	N/A	0.18	N/A	0.365	2.06	3.062	34.996	9.76	51.24	0.16	0.05	2.58	5	6.99	0.00	0.00	N/A	5' Curb
#6	Line G	1+16.6		100	0.9, 0.35	S, OS10	10, 20	9.8, 8.3	2.22	6.98	0.00	6.98		Sag	0.0175	0.005	NA	0.01	0.5	2	N/A	27.13	N/A	0.27	N/A	0.533	2.07	3.158	25.133	18.32	67.28	0.21	0.06	16.00	20	21.83	0.00	0.00	N/A	5'x5' Wye
#7	Line L	1+16.1		100	0.9	T	10	9.8	0.77	6.79	0.00	6.79		Sag	0.0175	0.005	Straight	0.02	0.5	2	N/A	17.41	N/A	0.35	N/A	0.676	2.07	2.375	15.412	27.24	57.98	0.32	0.10	4.75	5	6.99	0.00	0.00	N/A	5' Curb
#8	Line I	1+05.5		100	0.9, 0.35	V, OS11	10, 20	9.8, 8.3	3.15	9.51	0.00	9.51		Sag	0.0175	0.01	NA	0.02	0.5	2	N/A	17.34	N/A	0.35	N/A	0.674	2.07	2.355	15.345	27.06	57.31	0.32	0.10	15.07	12	13.10	0.00	0.00	N/A	3'x3' Wye
#9	Line	1+00.0		100	0.9, 0.74	B, OS1	10	9.8	2.76	20.82	0.00	20.82		On-Grade	0.0175	0.015	Straight	0.01	0.5	2	N/A	33.26	N/A	0.33	N/A	0.655	2.07	4.886	31.262	25.87	120.40	0.18	0.05	39.66	10	11.06	9.76	1.00	10	10' Curb
#10	Line	1+00.0		100	0.9, 0.74	B, OS1	10	9.8	2.76	20.82	1.00	9.76		On-Grade	0.0175	0.015	Straight	0.01	0.5	2	N/A	25.03	N/A	0.25	N/A	0.491	2.07	2.653	23.034	15.98	53.32	0.23	0.07	11.23	15	15.13	0.00	0.00	N/A	10' Curb
#11	Line	1+00.0		100	0.9, 0.78, 0.50, 0.90	L, OS5, OS6, OS7	10	9.8	14.51	75.90	0.00	75.90		Sag	0.0175	0.005	NA	0.01	0.5	2	N/A	66.39	N/A	0.66	N/A	1.318	2.07	20.730	64.390	82.90	826.89	0.09	0.03	45.45	80	87.31	0.00	0.00	N/A	4-5'x5' Wye
#12	Line F	1+51.4		100	0.9, 0.35	Q, OS8, OS9	10	9.8	5.31	14.80	0.00	14.80		Sag	0.0175	0.005	NA	0.01	0.5	2	N/A	35.96	N/A	0.36	N/A	0.709	2.07	5.768	33.963	29.52	150.18	0.16	0.05	22.23	20	21.83	0.00	0.00	N/A	1-5'x5' Wye
#13	Line M	1+05.6		100	0.9	U	10	9.8	0.24	2.12	0.00	2.12		Sag	0.0175	0.005	Straight	0.02	0.5	2	N/A	11.25	N/A	0.22	N/A	0.430	2.07	0.855	9.246	12.79	14.84	0.46	0.14	5.03	5	6.99	0.00	0.00	N/A	5' Curb

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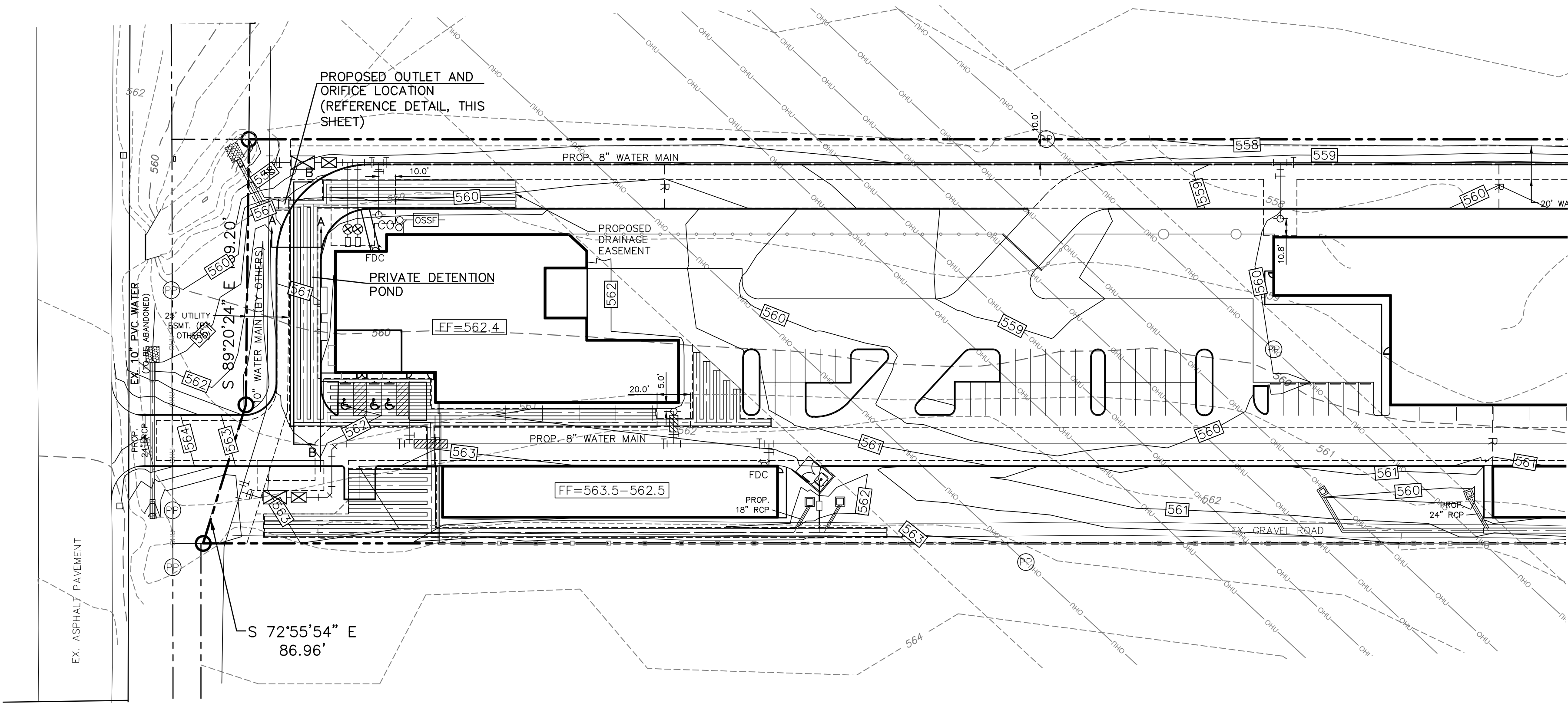
AS-BUILT

BENCHMARK
NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33
CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT

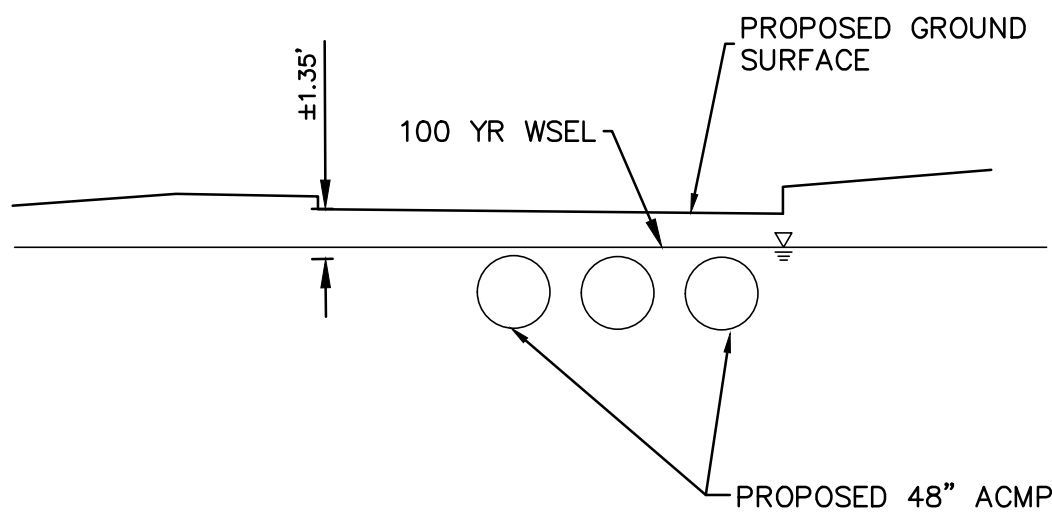
Cumulus Design Firm #14810
2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
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INLET CALCULATIONS
4649 HIGHWAY 276
CITY OF ROCKWALL
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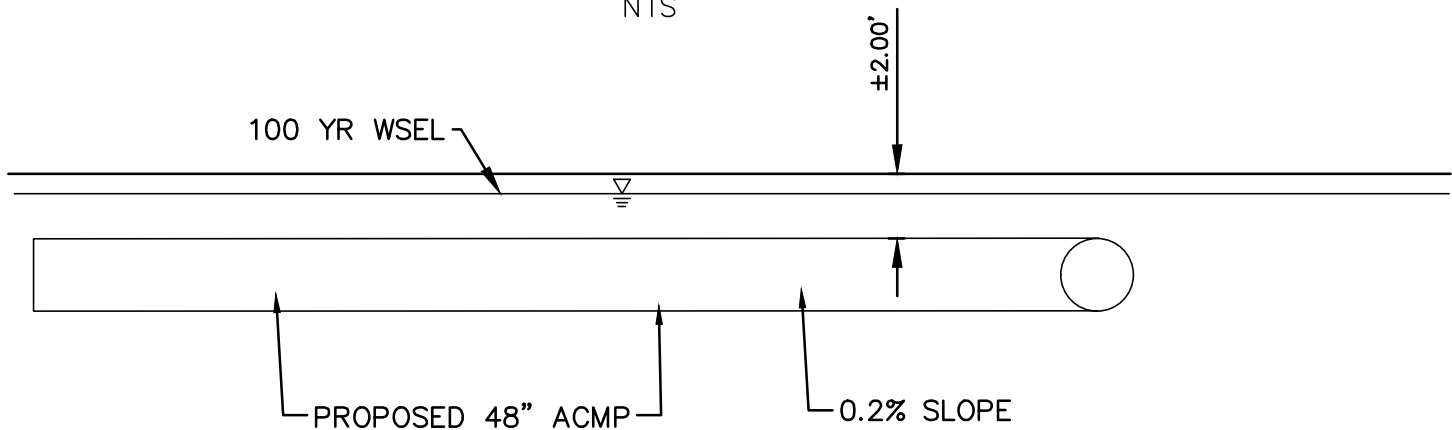
DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	1" = 80'	C8.1



SECTION A-A
NTS



SECTION B-B
NTS



MAINTENANCE NOTES:

- ACCESS TO THE DETENTION AREA IS PROVIDED THROUGH HATCHES AND CLEANOUTS FOR MAINTENANCE AND INSPECTION AS NEEDED.
- THE ORIFICES SHALL BE CHECKED YEARLY AND ANY DEBRIS OR SEDIMENT REMOVED FROM THE ORIFICE.
- NO PUMPS ARE PROPOSED FOR THE PROPOSED DETENTION POND. THE SCOPE OF MAINTENANCE WILL BE TO COLLECT TRASH/DEBRIS CAUGHT IN THE ORIFICE. THE ENTIRE SYSTEM SHOULD BE CHECKED BIENNIALY AND SEDIMENT BUILDUP REMOVED WHEN IT EXCEEDS 4".

DRAINAGE NOTES:

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE CITY'S STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS EXCEPT AS NOTED HEREIN OR APPROVED BY THE CITY.
- DURING THE CONSTRUCTION OF THE STORM AND DETENTION POND IMPROVEMENTS, ANY INTERPRETATION OF THE CITY'S STANDARD DETAILS AND SPECIFICATIONS MUST BE APPROVED BY THE DIRECTOR OF PUBLIC WORKS OR THEIR DESIGNEE BEFORE ANY CONSTRUCTION INVOLVING THAT DECISION COMMENCES. ASSUMPTIONS ABOUT WHAT THESE DECISIONS MIGHT BE WHICH ARE MADE DURING THE BIDDING PHASE WILL HAVE NO BEARING ON THE DECISION.
- THE DETENTION SYSTEM FUNCTIONS BY USING TWO ORIFICE OPENINGS. THE STORMWATER ENTERS THE DETENTION SYSTEM BY FLOWING INTO THE SITE INLETS.
- THE WATER SURFACE ELEVATION WAS DETERMINED BY USING THE HYDROCAD SOFTWARE. THE DRAINAGE DATA, OUTLET CONTROLS AND THE UNDERGROUND SYSTEM INFORMATION WAS INSERTED INTO THE MODEL. THE MODEL WAS COMPUTED TO DETERMINE THE WSEL AND THE OUTFLOW INFORMATION. ADJUSTMENTS WERE MADE TO THE OUTLET CONTROLS AND THE VOLUME OF WATER STORAGE TO ALLOW FOR PROPER DETENTION.

DETENTION POND DATA										
STORM EVENT (YEAR)	EXISTING RUNOFF (INCLUDING OFFSITE) (CFS)	PROPOSED SITE RUNOFF (INCLUDING OFFSITE) (CFS)	DETENTION SYSTEM WATER SURFACE ELEVATION (FT)	RELEASE FROM 17" ORIFICE (CFS)	RELEASE FROM 12" ORIFICE (CFS)	MAX RELEASE RATE FROM DETENTION (CFS)	BYPASS FLOW FROM THE SITE (CFS)	TOTAL RELEASE FROM THE SITE (CFS)	DETENTION VOLUME PROVIDED (CF)	NET RUNOFF CHANGE (PROP-EX) (CFS)
100	52.3	74.8	560.3	16.7	4.7	21.4	29.4	50.9	32986	-1.5
25	43.7	63.3	558.5	13.3	0.3	13.6	24.9	38.5	26386	-5.2
10	37.8	54.2	557.9	12.1	0.0	12.1	21.3	33.4	22173	-4.3
5	32.2	46.6	557.5	11.0	0.0	11.0	18.3	29.3	18017	-2.9

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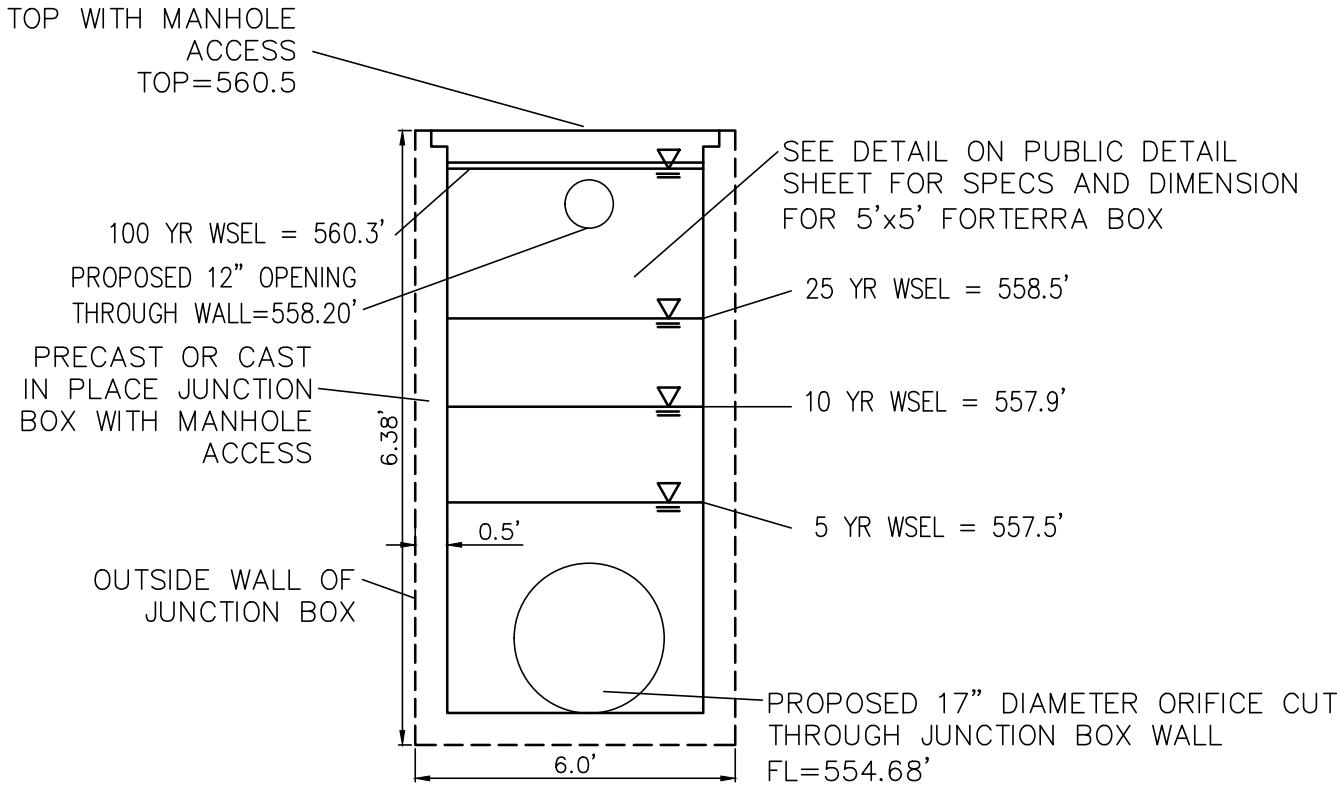
BENCHMARK	
NORTHEAST CORNER OF THE HEADWALL ALONG SH 276 ELEVATION=563.33	
CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT	

LEGEND

- EXISTING CURB
- PROPOSED CURB
- PROPOSED STORM PIPE
- EXISTING CONTOUR
- PROPOSED CONTOUR

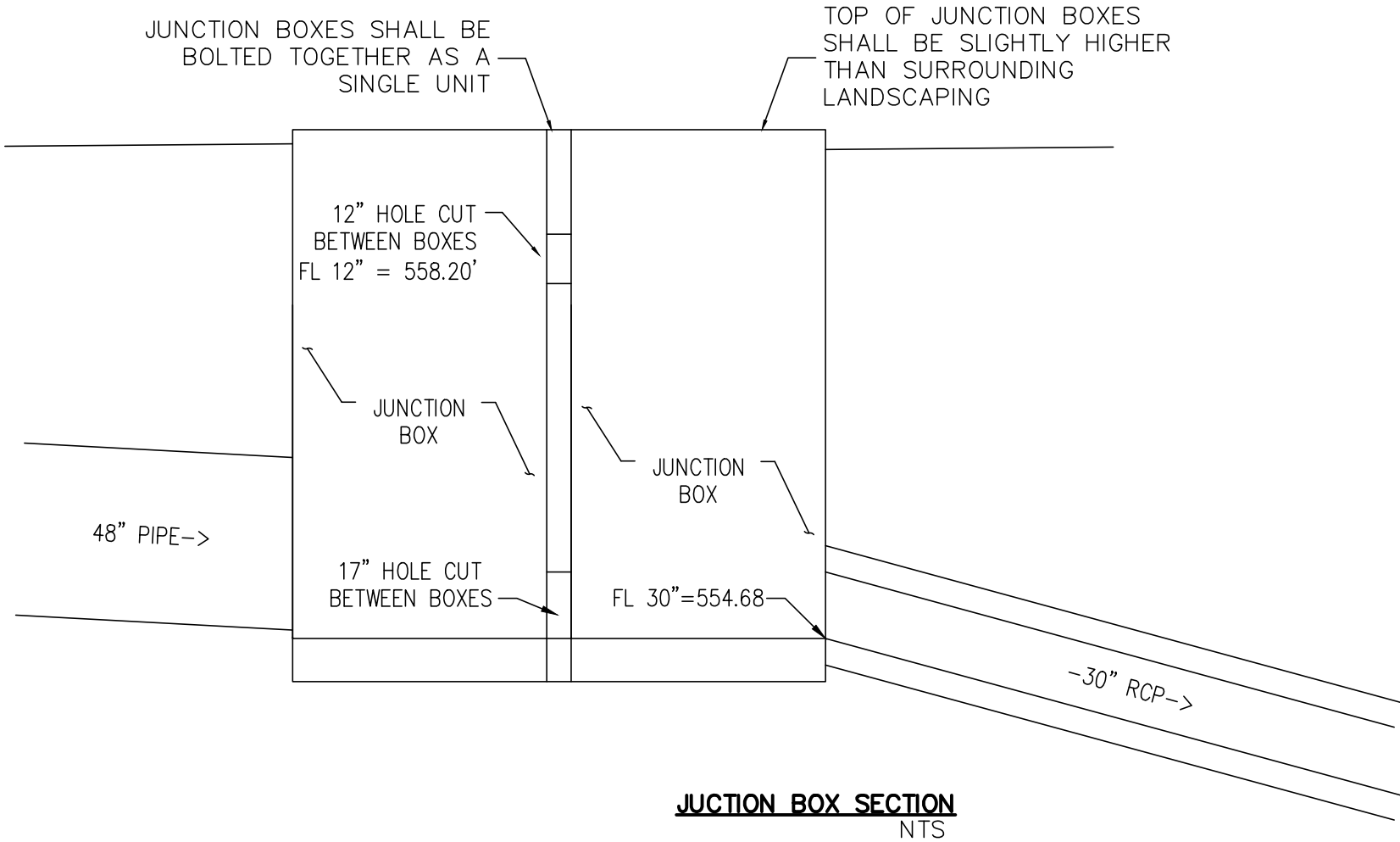
GENERAL DETENTION POND DATA

Elevation (feet)	Storage (cubic-feet)	Primary (cfs)
554.7	0	0.0
554.9	50	0.2
555.1	305	0.8
555.3	795	1.7
555.5	1601	2.8
555.7	2,736	4.1
555.9	4,078	5.3
556.1	5,574	6.3
556.3	7,187	7.2
556.5	8,890	7.9
556.7	10,661	8.6
556.9	12,480	9.3
557.1	14,328	9.9
557.3	16,190	10.4
557.5	18,046	11.0
557.7	19,880	11.5
557.9	21,674	12.0
558.1	23,406	12.5
558.3	25,054	12.9
558.5	26,586	13.7
558.7	27,954	14.7
558.9	29,058	15.8
559.1	29,906	16.9
559.3	30,621	17.9
559.5	31,258	18.7
559.7	31,836	19.5
559.9	32,342	20.2
560.1	32,754	20.9
560.3	33,014	21.5

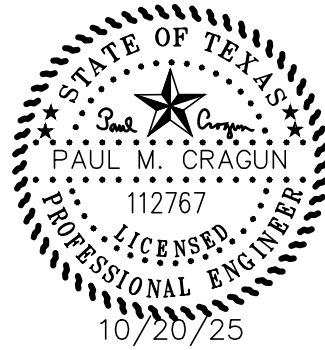


ORIFICE CONTROL DETAIL
NTS

NOTE:
ORIFICE EQUATION $Q=C*A*(2*g*H)^{0.5}$
WAS USED FOR THE DETENTION POND
CALCULATIONS WITH A C VALUE OF 0.6.



JUNCTION BOX SECTION
NTS



Cumulus Design Firm #14810
2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
Tel. 214.235.0367

DETENTION PLAN (N)

4649 HIGHWAY 276

CITY OF ROCKWALL

ROCKWALL COUNTY, TEXAS

J.H. BAILEY SURVEY, ABST NO. 34

DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	1" = 50'	C9.0

100 Year Storm Existing Conditions

Site Areas: A, B1, B2, C, D, E, G

C: 0.35
T : 20 Min
I'': 8.3 In/Hr
Area: 3.80 Acres
Q'': 11.04 CFS

Offsite Areas: OS1, OS2, OS3

C(offsite): 0.72-0.89
T : 10 Min
I'': 9.8 In/Hr
Area: 5.55 Acres
Q'': 41.30 CFS

Total Runoff: 52.34 CFS

100 Year Storm Post Construction Conditions

Site Areas: B1, E

C: 0.90
T : 10 Min
I'': 9.8 In/Hr
Area: 0.46 Acres
Q'': 4.09 CFS

Bypass Areas: A, B2, C, D, G

C(site): 0.9
T : 10 Min
I'': 9.8 In/Hr
Area: 3.34 Acres
Q'': 29.44 CFS

Offsite Areas: OS1, OS2, OS3

C(offsite): 0.72-0.89
T : 10 Min
I'': 9.8 In/Hr
Area: 5.55 Acres
Q'': 41.30 CFS

Total Runoff: 45.39 CFS

Total Runoff: 74.83 CFS
Allowed Release (-Bypass): 22.90 CFS

Developed + Offsite				Allowed		
Duration (Min)	Intensity (In/Hr)	Flow (CFS)	Inflow (CF)	Outflow (CF)	Storage (CF)	Storage (Acre-Ft)
10	9.80	45.15	27,088	13,741	13,348	0.31
15	9.00	41.46	37,316	17,176	20,140	0.46
20	8.30	38.24	45,885	20,611	25,273	0.58
30	6.90	31.79	57,217	27,482	29,736	0.68
40	5.80	26.72	64,128	34,352	29,776	0.68
50	5.00	23.03	69,103	41,222	27,881	0.64
60	4.50	20.73	74,631	48,093	26,539	0.61
70	4.00	18.43	77,396	54,963	22,433	0.51
80	3.70	17.05	81,818	61,833	19,985	0.46
90	3.50	16.12	87,070	68,704	18,366	0.42
100	3.40	15.66	93,980	75,574	18,406	0.42
110	3.20	14.74	97,297	82,445	14,853	0.34

Note: The referenced in this sheet are from the proposed drainage area map.

10 Year Storm Existing Conditions

Site Areas: A, B1, B2, C, D, E, G

C: 0.35
T : 20 Min
I'': 5.9 In/Hr
Area: 3.80 Acres
Q'': 7.85 CFS

Offsite Areas: OS1, OS2, OS3

C(offsite): 0.72-0.89
T : 10 Min
I'': 7.1 In/Hr
Area: 5.55 Acres
Q'': 29.90 CFS

Total Runoff: 37.75 CFS

10 Year Storm Post Construction Conditions

Site Areas: B1, E

C: 0.90
T : 10 Min
I'': 7.1 In/Hr
Area: 0.46 Acres
Q'': 2.96 CFS

Bypass Areas: A, B2, C, D, G

C(site): 0.9
T : 10 Min
I'': 7.1 In/Hr
Area: 3.34 Acres
Q'': 21.33 CFS

Offsite Areas: OS1, OS2, OS3

C(offsite): 0.72-0.89
T : 10 Min
I'': 7.1 In/Hr
Area: 5.55 Acres
Q'': 29.90 CFS

Total Runoff: 32.86 CFS

Total Runoff: 54.19 CFS
Allowed Release (-Bypass): 16.42 CFS

Developed + Offsite				Allowed		
Duration (Min)	Intensity (In/Hr)	Flow (CFS)	Inflow (CF)	Outflow (CF)	Storage (CF)	Storage (Acre-Ft)
10	7.10	32.71	19,625	9,852	9,774	0.22
15	6.50	29.94	26,950	12,315	14,636	0.34
20	5.90	27.18	32,617	14,778	17,839	0.41
30	4.80	22.11	39,803	19,704	20,100	0.46
40	4.00	18.43	44,226	24,629	19,597	0.45
50	3.50	16.12	48,372	29,555	18,817	0.43
60	3.00	13.82	49,754	34,481	15,273	0.35
70	2.80	12.90	54,177	39,407	14,770	0.34
80	2.60	11.98	57,494	44,333	13,161	0.30
90	2.50	11.52	62,193	49,259	12,934	0.30
100	2.40	11.06	66,339	54,185	12,154	0.28
110	2.30	10.60	69,932	59,111	10,822	0.25

Note: The referenced in this sheet are from the proposed drainage area map.

!!! CAUTION !!!
UNDERGROUND UTILITIES

EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION SUPPLIED BY VARIOUS PARTIES. THE ENGINEER DOES NOT ASSUME THE RESPONSIBILITY FOR THE UTILITY LOCATIONS SHOWN. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR(S) TO VERIFY THE HORIZONTALLY AND VERTICALLY LOCATION OF ALL UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION, TO TAKE PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED AND NOTIFY THE ENGINEER OF ALL CONFLICTS OF THE WORK WITH EXISTING FACILITIES. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL UTILITIES FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGE BY THE CONTRACTOR TO UTILITIES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.

CALL: TEXAS ONE CALL ☎ 811 AT LEAST 72 HRS PRIOR TO CONSTRUCTION.

ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

REVISIONS		
REV NO.	DATE	DESCRIPTION

25 Year Storm Existing Conditions

Site Areas: A, B1, B2, C, D, E, G

C: 0.35
T : 20 Min
I'': 6.6 In/Hr
Area: 3.80 Acres
Q'': 8.78 CFS

Offsite Areas: OS1, OS2, OS3

C(offsite): 0.72-0.89
T : 10 Min
I'': 8.3 In/Hr
Area: 5.55 Acres
Q'': 34.90 CFS

Total Runoff: 43.68 CFS

25 Year Storm Post Construction Conditions

Site Areas: B1, E

C: 0.90
T : 10 Min
I'': 8.3 In/Hr
Area: 0.46 Acres
Q'': 3.46 CFS

Bypass Areas: A, B2, C, D, G

C(site): 0.9
T : 10 Min
I'': 8.3 In/Hr
Area: 3.34 Acres
Q'': 24.94 CFS

Offsite Areas: OS1, OS2, OS3

C(offsite): 0.72-0.89
T : 10 Min
I'': 8.3 In/Hr
Area: 5.55 Acres
Q'': 34.90 CFS

Total Runoff: 38.36 CFS

Total Runoff: 63.30 CFS
Allowed Release (-Bypass): 18.75 CFS

Developed + Offsite				Allowed		
Duration (Min)	Intensity (In/Hr)	Flow (CFS)	Inflow (CF)	Outflow (CF)	Storage (CF)	Storage (Acre-Ft)
10	8.30	38.24	22,942	11,248	11,695	0.27
15	7.50	34.55	31,096	14,059	17,037	0.39
20	6.60	30.41	36,486	16,871	19,615	0.45
30	5.50	25.34	45,608	22,495	23,113	0.53
40	4.60	21.19	50,860	28,119	22,741	0.52
50	4.00	18.43	55,283	33,743	21,540	0.49
60	3.50	16.12	58,047	39,366	18,680	0.43
70	3.30	15.20	63,851	44,990	18,861	0.43
80	3.10	14.28	68,550	50,614	17,937	0.41
90	2.90	13.36	72,144	56,238	15,906	0.37
100	2.70	12.44	74,631	61,861	12,770	0.29
110	2.50	11.52	76,013	67,485	8,528	0.20

Note: The referenced in this sheet are from the proposed drainage area map.

5 Year Storm Existing Conditions

Site Areas: A, B1, B2, C, D, E, G

C: 0.35
T : 20 Min
I'': 4.9 In/Hr
Area: 3.80 Acres
Q'': 6.52 CFS

Offsite Areas: OS1, OS2, OS3

C(offsite): 0.72-0.89
T : 10 Min
I'': 6.1 In/Hr
Area: 5.55 Acres
Q'': 25.70 CFS

Total Runoff: 32.22 CFS

5 Year Storm Post Construction Conditions

Site Areas: B1, E

C: 0.90
T : 10 Min
I'': 6.1 In/Hr
Area: 0.46 Acres
Q'': 2.54 CFS

Bypass Areas: A, B2, C, D, G

C(site): 0.9
T : 10 Min
I'': 6.1 In/Hr
Area: 3.34 Acres
Q'': 18.33 CFS

Offsite Areas: OS1, OS2, OS3

C(offsite): 0.72-0.89
T : 10 Min
I'': 6.1 In/Hr
Area: 5.55 Acres
Q'': 25.70 CFS

Total Runoff: 28.24 CFS

Total Runoff: 46.57 CFS
Allowed Release (-Bypass): 13.89 CFS

Developed + Offsite				Allowed		
Duration (Min)	Intensity (In/Hr)	Flow (CFS)	Inflow (CF)	Outflow (CF)	Storage (CF)	Storage (Acre-Ft)
10	6.10	28.10	16,861	8,336	8,525	0.20
15	5.50	25.34	22,804	10,420	12,384	0.28
20	4.90	22.57	27,088	12,504	14,584	0.33
30	4.10	18.89	33,999	16,672	17,327	0.40
40	3.40	15.66	37,592	20,840	16,752	0.38
50	2.80	12.90	38,698	25,008	13,690	0.31
60	2.60	11.98	43,120	29,176	13,944	0.32
70	2.40	11.06	46,437	33,344	13,093	0.30
80	2.30	10.60	50,860	37,512	13,348	0.31
90	2.10	9.67	52,242	41,680	10,562	0.24
100	1.90	8.75	52,518	45,848	6,670	0.15
110	1.80	8.29	54,730	50,016	4,713	0.11

Note: The referenced in this sheet are from the proposed drainage area map.

AS-BUILT

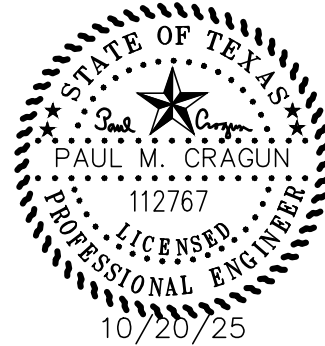
NOTE: THESE AS-BUILT PLANS HAVE BEEN REVISED TO CONFORM WITH THE POST-CONSTRUCTION SURVEY PROVIDED BY THE CONTRACTOR. BY STATING THIS, THE ENGINEER DOES NOT ASSUME RESPONSIBILITY FOR THE WORK PERFORMED BY THE CONTRACTOR. SAID RESPONSIBILITY REMAINS SOLELY WITH THE CONTRACTOR.



BENCHMARK

NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33

CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT



Cumulus Design Firm #14810

2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
Tel. 214.235.0367

DETENTION CALCULATIONS (N)

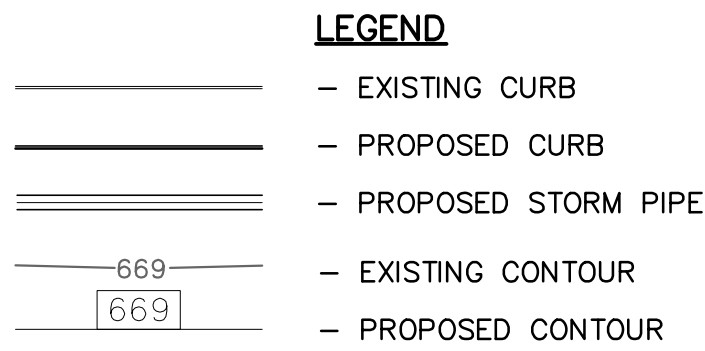
4649 HIGHWAY 276

CITY OF ROCKWALL

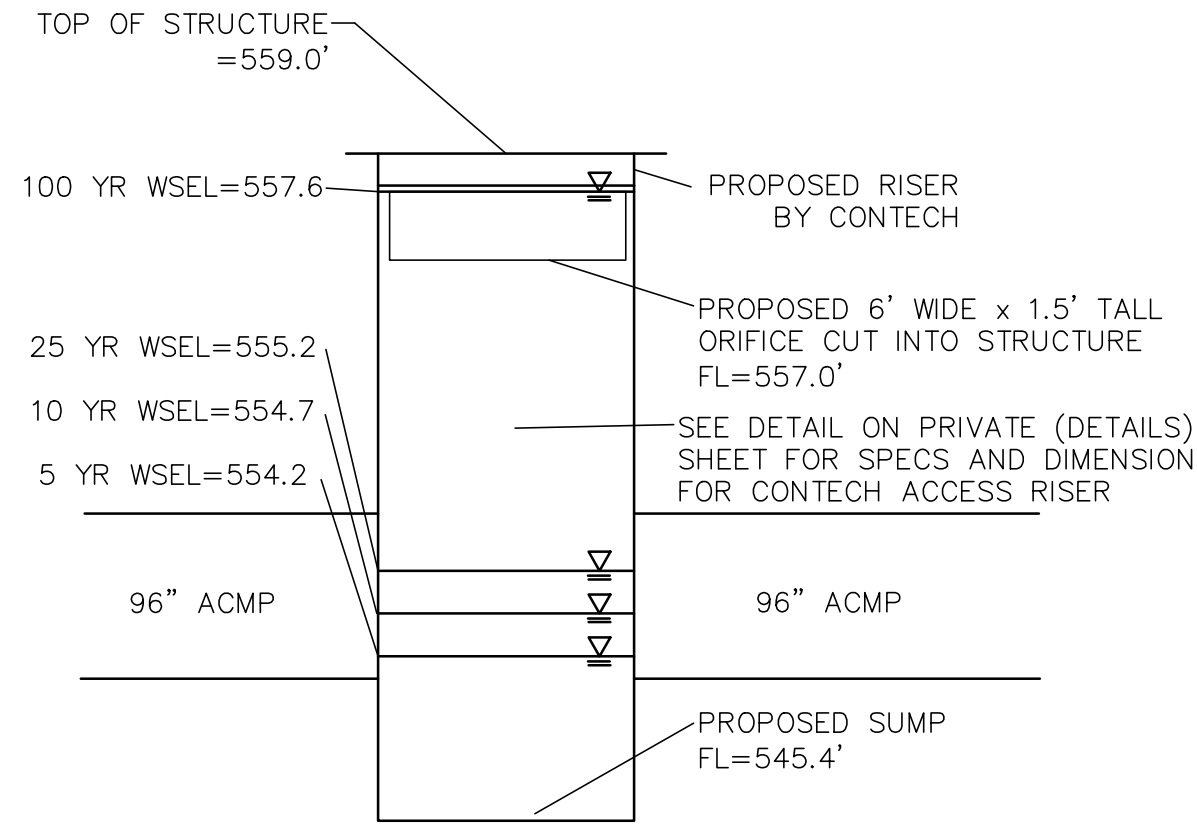
ROCKWALL COUNTY, TEXAS

J.H. BAILEY SURVEY, ABST NO. 34

DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	N.T.S	C9.1



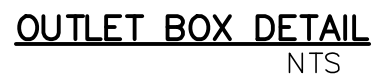
Elevation (feet)	Storage (cubic-feet)	Primary (cfs)
547.4	0	0.0
547.7	4	32.0
548.0	8	32.0
548.3	11	32.0
548.6	15	32.0
548.9	19	32.0
549.2	23	32.0
549.5	34	32.0
549.8	255	32.0
550.1	818	32.0
550.4	1,717	32.0
550.7	3,261	32.0
551.0	5,259	32.0
551.3	7,572	32.0
551.6	10,129	32.0
551.9	12,885	32.0
552.2	15,802	32.0
552.5	18,850	32.0
552.8	22,010	32.0
553.1	25,275	32.0
553.4	28,617	32.0
553.7	32,008	32.0
554.0	35,427	32.0
554.3	38,856	32.0
554.6	42,277	64.0
554.9	45,669	64.0
555.2	49,007	64.0
555.5	52,263	64.0
555.8	55,409	64.0
556.1	58,411	64.0
556.4	61,235	64.0
556.7	63,838	64.0
557.0	66,173	64.0
557.3	68,192	67.2
557.6	69,743	73.1
557.9	70,780	80.8
558.2	71,432	89.8
558.5	71,600	100.1
558.8	71,606	108.2



NOTE:
ORIFICE EQUATION $Q=C*A*(2*G*H)^{(0.5)}$
WAS USED FOR THE DETENTION POND
CALCULATIONS WITH A C VALUE OF 0.6.

THE PUMPS AND CONTROLS OF THE DETENTION POND SHALL BE DESIGN-BUILD AND SHALL MEET THE REQUIREMENTS OF THE CITY OF ROCKWALL (AS APPLICABLE). THE DESIGNER SHOULD CONTACT THE CIVIL ENGINEER OR STAFF AT 214-235-0367 PRIOR TO COMMENCING DESIGN TO OBTAIN ALL RELEVANT INFORMATION REGARDING FLOWS AND ELEVATIONS NEEDED FOR THE DESIGN.

THE PUMPS NEEDED FOR THE OUTLET BOX WILL BE REQUIRED TO REMOVE APPROXIMATELY 32 CFS EACH ($\pm 14,361$ GAL/MIN) AND A HEAD OF AT LEAST 15'.



1. THE TOP STEP SHALL BE 15" FROM THE ACCESS MANHOLE. STEPS SHALL BE 15" CENTERS VERTICALLY AND STAGGERED ON 12" CENTERS.
2. ALL CONCRETE SHALL BE 4500 PSI CONCRETE AND SHALL BE WITHIN 3" TO 5" SLUMP.

1. ACCESS TO THE DETENTION AREA IS PROVIDED THROUGH HATCHES AND CLEANOUTS FOR MAINTENANCE AND INSPECTION AS NEEDED.

2. THE ORIFICES SHALL BE CHECKED YEARLY AND ANY DEBRIS OR SEDIMENT REMOVED FROM THE ORIFICE.

3. NO PUMPS ARE PROPOSED FOR THE PROPOSED DETENTION POND. THE SCOPE OF MAINTENANCE WILL BE TO COLLECT TRASH/DEBRIS CAUGHT IN THE ORIFICE. THE ENTIRE SYSTEM SHOULD BE CHECKED BIENNIALLY AND SEDIMENT BUILDUP REMOVED WHEN IT EXCEEDS 4".

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE CITY'S STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS EXCEPT AS NOTED HEREIN OR APPROVED BY THE CITY.

2. DURING THE CONSTRUCTION OF THE STORM AND DETENTION POND IMPROVEMENTS, ANY INTERPRETATION OF THE CITY'S STANDARD DETAILS AND SPECIFICATIONS MUST BE APPROVED BY THE DIRECTOR OF PUBLIC WORKS OR THEIR DESIGNEE BEFORE ANY CONSTRUCTION INVOLVING THAT DECISION COMMENCES. ASSUMPTIONS ABOUT WHAT THESE DECISIONS MIGHT BE WHICH ARE MADE DURING THE BIDDING PHASE WILL HAVE NO BEARING ON THE DECISION.

3. THE DETENTION SYSTEM FUNCTIONS BY USING ONE ORIFICE OPENING AND TWO PUMPS. THE STORMWATER ENTERS THE DETENTION SYSTEM BY FLOWING INTO THE SITE INLETS.

4. THE WATER SURFACE ELEVATION WAS DETERMINED BY USING THE HYDROCAD SOFTWARE. THE DRAINAGE DATA, OUTLET CONTROLS AND THE UNDERGROUND SYSTEM INFORMATION WAS INSERTED INTO THE MODEL. THE MODEL WAS COMPUTED TO DETERMINE THE WSEL AND THE OUTFLOW INFORMATION. ADJUSTMENTS WERE MADE TO THE OUTLET CONTROLS AND THE VOLUME OF WATER STORAGE TO ALLOW FOR PROPER DETENTION.

!!! CAUTION !!!
UNDERGROUND UTILITIES

EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION SUPPLIED BY VARIOUS PARTIES. THE ENGINEER DOES NOT ASSUME THE RESPONSIBILITY FOR THE UTILITY LOCATIONS SHOWN. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION, TO TAKE PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED AND NOTIFY THE ENGINEER OF ALL CONFLICTS OF THE WORK WITH EXISTING FACILITIES. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL UTILITIES FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGE BY THE CONTRACTOR TO UTILITIES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.

ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN
REMAINS WITH THE DESIGN ENGINEER. THE CITY OF
ROCKWALL, IN REVIEWING AND RELEASING PLANS
FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY
FOR ADEQUACY OR ACCURACY OF DESIGN.

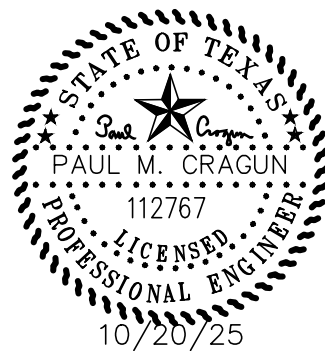
REVISIONS		
REV NO.	DATE	DESCRIPTION

NOTE: THESE AS-BUILT PLANS HAVE BEEN REVISED TO CONFORM WITH THE POST-CONSTRUCTION SURVEY PROVIDED BY THE CONTRACTOR. BY STATING THIS, THE ENGINEER DOES NOT ASSUME RESPONSIBILITY FOR THE WORK PERFORMED BY THE CONTRACTOR. SAID RESPONSIBILITY REMAINS SOLELY WITH THE CONTRACTOR.

 BENCHMARK

NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33

CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR
SITE BENCHMARKS AND CONTROL POINT



Cumulus Design Firm #14810

2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
Tel. 214.235.0367

DETENTION PLAN (MID)

4649 HIGHWAY 276

CITY OF ROCKWALL

ROCKWALL COUNTY, TEXAS

J.H. BAILEY SURVEY, ABST NO. 34			
DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	1" = 50'	C10.0

100 Year Storm Existing Conditions

Site Areas: F, H, I, J, K, L, M, N, O, P, Q, W, X

C: 0.35
T : 20 Min
I'': 8.3 In/Hr
Area: 8.05 Acres
Q'': 23.39 CFS

100 Year Storm Post Contruction Conditions

Site Areas: F, J, K, L, M, N, Q

C: 0.90
T : 10 Min
I'': 9.8 In/Hr
Area: 2.77 Acres
Q'': 24.41 CFS

Bypass Areas: H, I, O, P, W, X

C(site): 0.9
T : 10 Min
I'': 9.8 In/Hr
Area: 5.28 Acres
Q'': 46.60 CFS

Offsite Areas: OS4, OS5, OS6, OS7, OS8, OS9

C(offsite): 0.35-0.9
T : 10 Min
I'': 9.8 In/Hr
Area: 22.16 Acres
Q'': 112.56 CFS

Offsite Areas: OS4, OS5, OS6, OS7, OS8, OS9

C(offsite): 0.35-0.9
T : 10 Min
I'': 9.8 In/Hr
Area: 22.16 Acres
Q'': 112.56 CFS

The existing release from the site and offsite is 135.95 CFS. The bypass from the site is being proposed as sheetflow to match existing sheetflow conditions. The bypass from the site and offsite is 46.60 CFS, which allows for a maximum release from the detention system of 89.35 cfs

Total Runoff: 135.95 CFS

Total Runoff: 136.97 CFS

Total Runoff: 183.57 CFS
Allowed Release (-Bypass): 89.35 CFS

Developed + Offsite				Allowed		
Duration (Min)	Intensity (In/Hr)	Flow (CFS)	Inflow (CF)	Outflow (CF)	Storage (CF)	Storage (Acre-Ft)
10	9.80	136.98	82,186	53,611	28,575	0.66
15	9.00	125.80	113,216	67,014	46,202	1.06
20	8.30	116.01	139,213	80,417	58,797	1.35
30	6.90	96.44	173,597	107,222	66,375	1.52
40	5.80	81.07	194,563	134,028	60,535	1.39
50	5.00	69.89	209,659	160,833	48,825	1.12
60	4.50	62.90	226,431	187,639	38,792	0.89
70	4.00	55.91	234,818	214,444	20,373	0.47
80	3.70	51.72	248,236	241,250	6,986	0.16
90	3.50	48.92	264,170	268,056	-3,886	-0.09
100	3.40	47.52	285,136	294,861	-9,725	-0.22
110	3.20	44.73	295,199	321,667	-26,467	-0.61

Note: The referenced in this sheet are from the proposed drainage area map.

10 Year Storm Existing Conditions

Site Areas: F, H, I, J, K, L, M, N, O, P, Q, W, X

C: 0.35
T : 20 Min
I'': 5.9 In/Hr
Area: 8.05 Acres
Q'': 16.63 CFS

10 Year Storm Post Contruction Conditions

Site Areas: F, J, K, L, M, N, Q

C: 0.90
T : 10 Min
I'': 7.1 In/Hr
Area: 2.77 Acres
Q'': 17.69 CFS

Bypass Areas: H, I, O, P, W, X

C(site): 0.9
T : 10 Min
I'': 7.1 In/Hr
Area: 5.28 Acres
Q'': 33.76 CFS

Offsite Areas: OS4, OS5, OS6, OS7, OS8, OS9

C(offsite): 0.35-0.9
T : 10 Min
I'': 7.1 In/Hr
Area: 22.16 Acres
Q'': 81.80 CFS

Offsite Areas: OS4, OS5, OS6, OS7, OS8, OS9

C(offsite): 0.35-0.9
T : 10 Min
I'': 7.1 In/Hr
Area: 22.16 Acres
Q'': 81.80 CFS

The existing release from the site and offsite is 98.43 CFS. The bypass from the site is being proposed as sheetflow to match existing sheetflow conditions. The bypass from the site and offsite is 33.76 CFS, which allows for a maximum release from the detention system of 64.67 cfs

Total Runoff: 98.43 CFS

Total Runoff: 99.49 CFS

Total Runoff: 133.25 CFS
Allowed Release (-Bypass): 64.67 CFS

Developed + Offsite				Allowed		
Duration (Min)	Intensity (In/Hr)	Flow (CFS)	Inflow (CF)	Outflow (CF)	Storage (CF)	Storage (Acre-Ft)
10	7.10	99.24	59,543	38,800	20,743	0.48
15	6.50	90.85	81,767	48,500	33,267	0.76
20	5.90	82.47	98,959	58,200	40,759	0.94
30	4.80	67.09	120,763	77,600	43,163	0.99
40	4.00	55.91	134,182	97,000	37,181	0.85
50	3.50	48.92	146,761	116,400	30,361	0.70
60	3.00	41.93	150,954	135,800	15,154	0.35
70	2.80	39.14	164,372	155,200	9,172	0.21
80	2.60	36.34	174,436	174,600	-164	0.00
90	2.50	34.94	188,693	194,000	-5,307	-0.12
100	2.40	33.55	201,272	213,400	-12,128	-0.28
110	2.30	32.15	212,175	232,800	-20,626	-0.47

Note: The referenced in this sheet are from the proposed drainage area map.

III CAUTION !!!
UNDERGROUND UTILITIES

EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION SUPPLIED BY VARIOUS PARTIES. THE ENGINEER DOES NOT ASSUME THE RESPONSIBILITY FOR THE UTILITY LOCATIONS SHOWN. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR(S) TO VERIFY THE HORIZONTALLY AND VERTICALLY LOCATION OF ALL UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION, TO TAKE PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED AND NOTIFY THE ENGINEER OF ALL CONFLICTS OF THE WORK WITH EXISTING FACILITIES. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL UTILITIES FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGE BY THE CONTRACTOR TO UTILITIES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
CALL: TEXAS ONE CALL ☎ 811 AT LEAST 72 HRS PRIOR TO CONSTRUCTION.

ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

REVISIONS		
REV NO.	DATE	DESCRIPTION

25 Year Storm Existing Conditions

Site Areas: F, H, I, J, K, L, M, N, O, P, Q, W, X

C: 0.35
T : 20 Min
I'': 6.6 In/Hr
Area: 8.05 Acres
Q'': 18.60 CFS

25 Year Storm Post Contruction Conditions

Site Areas: F, J, K, L, M, N, Q

C: 0.90
T : 10 Min
I'': 8.3 In/Hr
Area: 2.77 Acres
Q'': 20.68 CFS

Bypass Areas: H, I, O, P, W, X

C(site): 0.9
T : 10 Min
I'': 8.3 In/Hr
Area: 5.28 Acres
Q'': 39.46 CFS

Offsite Areas: OS4, OS5, OS6, OS7, OS8, OS9

C(offsite): 0.35-0.9
T : 10 Min
I'': 8.3 In/Hr
Area: 22.16 Acres
Q'': 95.60 CFS

Offsite Areas: OS4, OS5, OS6, OS7, OS8, OS9

C(offsite): 0.35-0.9
T : 10 Min
I'': 8.3 In/Hr
Area: 22.16 Acres
Q'': 95.60 CFS

The existing release from the site and offsite is 114.20 CFS. The bypass from the site is being proposed as sheetflow to match existing sheetflow conditions. The bypass from the site and offsite is 39.46 CFS, which allows for a maximum release from the detention system of 74.73 cfs

Total Runoff: 114.20 CFS

Total Runoff: 116.28 CFS

Total Runoff: 155.74 CFS
Allowed Release (-Bypass): 74.73 CFS

Developed + Offsite				Allowed		
Duration (Min)	Intensity (In/Hr)	Flow (CFS)	Inflow (CF)	Outflow (CF)	Storage (CF)	Storage (Acre-Ft)
10	8.30	116.01	69,607	44,840	24,767	0.57
15	7.50	104.83	94,346	56,050	38,296	0.88
20	6.60	92.25	110,700	67,260	43,440	1.00
30	5.50	76.87	138,375	89,680	48,694	1.12
40	4.60	64.30	154,309	112,100	42,208	0.97
50	4.00	55.91	167,727	134,520	33,207	0.76
60	3.50	48.92	176,113	156,941	19,173	0.44
70	3.30	46.12	193,725	179,361	14,364	0.33
80	3.10	43.33	207,981	201,781	6,201	0.14
90	2.90	40.53	218,884	224,201	-5,317	-0.12
100	2.70	37.74	226,431	246,621	-20,189	-0.46
110	2.50	34.94	230,625	269,041	-38,416	-0.88

Note: The referenced in this sheet are from the proposed drainage area map.

5 Year Storm Existing Conditions

Site Areas: F, H, I, J, K, L, M, N, O, P, Q, W, X

C: 0.35
T : 20 Min
I'': 4.9 In/Hr
Area: 8.05 Acres
Q'': 13.81 CFS

5 Year Storm Post Contruction Conditions

Site Areas: F, J, K, L, M, N, Q

C: 0.90
T : 10 Min
I'': 6.1 In/Hr
Area: 2.77 Acres
Q'': 15.20 CFS

Bypass Areas: H, I, O, P, W, X

C(site): 0.9
T : 10 Min
I'': 6.1 In/Hr
Area: 5.28 Acres
Q'': 29.00 CFS

Offsite Areas: OS4, OS5, OS6, OS7, OS8, OS9

C(offsite): 0.35-0.9
T : 10 Min
I'': 6.1 In/Hr
Area: 22.16 Acres
Q'': 70.20 CFS

Offsite Areas: OS4, OS5, OS6, OS7, OS8, OS9

C(offsite): 0.35-0.9
T : 10 Min
I'': 6.1 In/Hr
Area: 22.16 Acres
Q'': 70.20 CFS

The existing release from the site and offsite is 84.01 CFS. The bypass from the site is being proposed as sheetflow to match existing sheetflow conditions. The bypass from the site and offsite is 29.00 CFS, which allows for a maximum release from the detention system of 55.00 cfs

Total Runoff: 84.01 CFS

Total Runoff: 85.40 CFS

Total Runoff: 114.40 CFS
Allowed Release (-Bypass): 55.00 CFS

Developed + Offsite				Allowed		
Duration (Min)	Intensity (In/Hr)	Flow (CFS)	Inflow (CF)	Outflow (CF)	Storage (CF)	Storage (Acre-Ft)
10	6.10	85.26	51,157	33,002	18,155	0.42
15	5.50	76.87	69,187	41,253	27,935	0.64
20	4.90	68.49	82,186	49,503	32,683	0.75
30	4.10	57.31	103,152	66,004	37,148	0.85
40	3.40	47.52	114,054	82,505	31,549	0.72
50	2.80	39.14	117,409	99,007	18,402	0.42
60	2.60	36.34	130,827	115,508	15,319	0.35
70	2.40	33.55	140,891	132,009	8,882	0.20
80	2.30	32.15	154,309	148,510	5,799	0.13
90	2.10	29.35	158,502	165,011	-6,509	-0.15
100	1.90	26.56	159,341	181,512	-22,171	-0.51
110	1.80	25.16	166,050	198,013	-31,963	-0.73

Note: The referenced in this sheet are from the proposed drainage area map.



Cumulus Design Firm #14810
2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
Tel. 214.235.0367

DETENTION CALCULATIONS (MID)

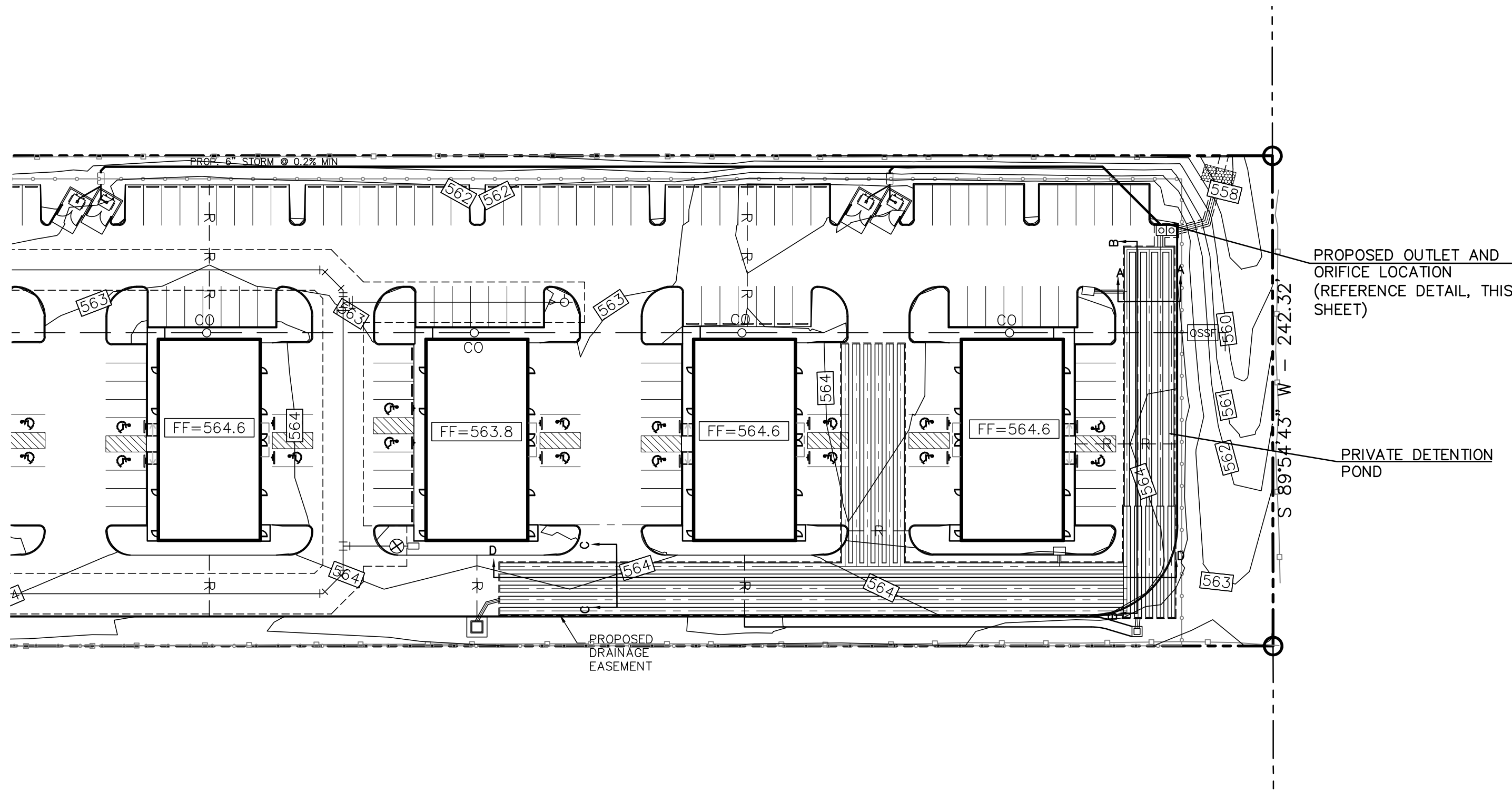
4649 HIGHWAY 276

CITY OF ROCKWALL

ROCKWALL COUNTY, TEXAS

J.H. BAILEY SURVEY, ABST NO. 34

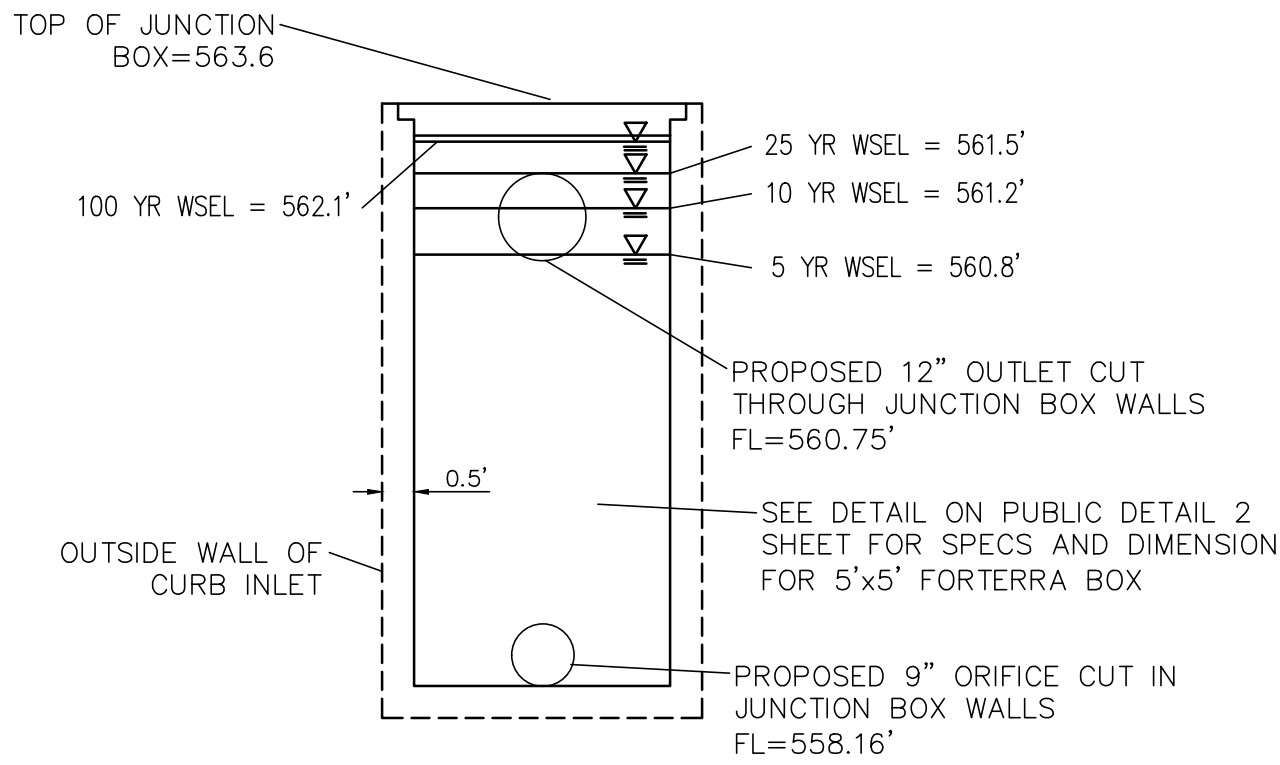
DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	N.T.S	C10.1



- LEGEND**
- EXISTING CURB
 - PROPOSED CURB
 - PROPOSED STORM PIPE
 - 669 — EXISTING CONTOUR
 - 669 — PROPOSED CONTOUR

GENERAL DETENTION POND DATA

Elevation (feet)	Storage (cubic-feet)	Primary (cfs)
558.16	0	0.0
558.26	7	0.0
558.36	37	0.1
558.46	100	0.3
558.56	190	0.5
558.66	321	0.8
558.76	510	1.0
558.86	760	1.2
558.96	1,086	1.4
559.06	1,516	1.5
559.16	2,061	1.7
559.26	2,707	1.8
559.36	3,450	1.9
559.46	4,288	2.1
559.56	5,211	2.2
559.66	6,197	2.3
559.76	7,234	2.4
559.86	8,313	2.5
559.96	9,426	2.5
560.06	10,565	2.6
560.16	11,725	2.7
560.26	12,900	2.8
560.36	14,083	2.9
560.46	15,268	3.0
560.56	16,448	3.0
560.66	17,614	3.1
560.76	18,751	3.2
560.86	19,856	3.3
560.96	20,939	3.5
561.06	22,012	3.8
561.16	23,072	4.1
561.26	24,114	4.5
561.36	25,134	4.9
561.46	26,129	5.4
561.56	27,092	5.8
561.66	28,018	6.2
561.76	28,901	6.5
561.86	29,732	6.8
561.96	30,501	7.1
562.06	31,190	7.4
562.16	31,777	7.7
562.26	32,269	7.9
562.36	32,663	8.1
562.46	32,949	8.4
562.56	33,138	8.6
562.66	33,261	8.8
562.76	33,335	9.0
562.86	33,369	9.2



ORIFICE CONTROL DETAIL (SECTION A-A) NTS

NOTE:
ORIFICE EQUATION $Q=C*A*(2*G*H)^{0.5}$
WAS USED FOR THE DETENTION POND
CALCULATIONS WITH A C VALUE OF 0.6.

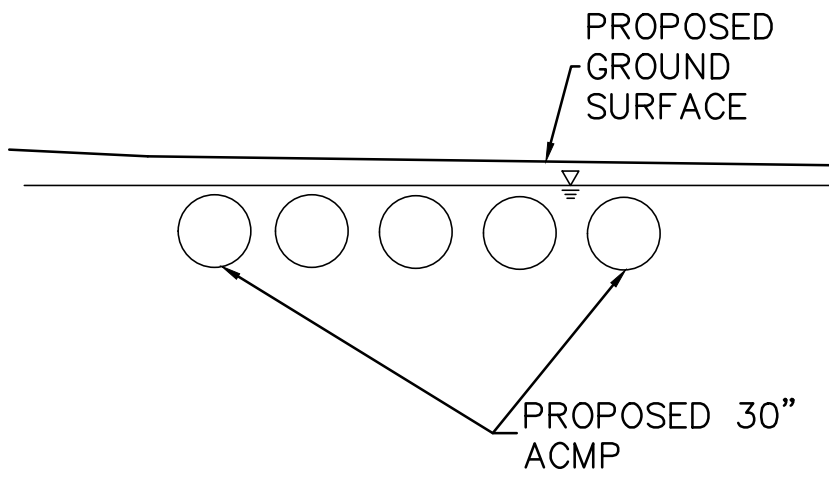
MAINTENANCE NOTES:

1. ACCESS TO THE DETENTION AREA IS PROVIDED THROUGH HATCHES AND CLEANOUTS FOR MAINTENANCE AND INSPECTION AS NEEDED.
2. THE ORIFICES SHALL BE CHECKED YEARLY AND ANY DEBRIS OR SEDIMENT REMOVED FROM THE ORIFICE.
3. NO PUMPS ARE PROPOSED FOR THE PROPOSED DETENTION POND. THE SCOPE OF MAINTENANCE WILL BE TO COLLECT TRASH/DEBRIS CAUGHT IN THE ORIFICE. THE ENTIRE SYSTEM SHOULD BE CHECKED BIENNIALLY AND SEDIMENT BUILDUP REMOVED WHEN IT EXCEEDS 4".

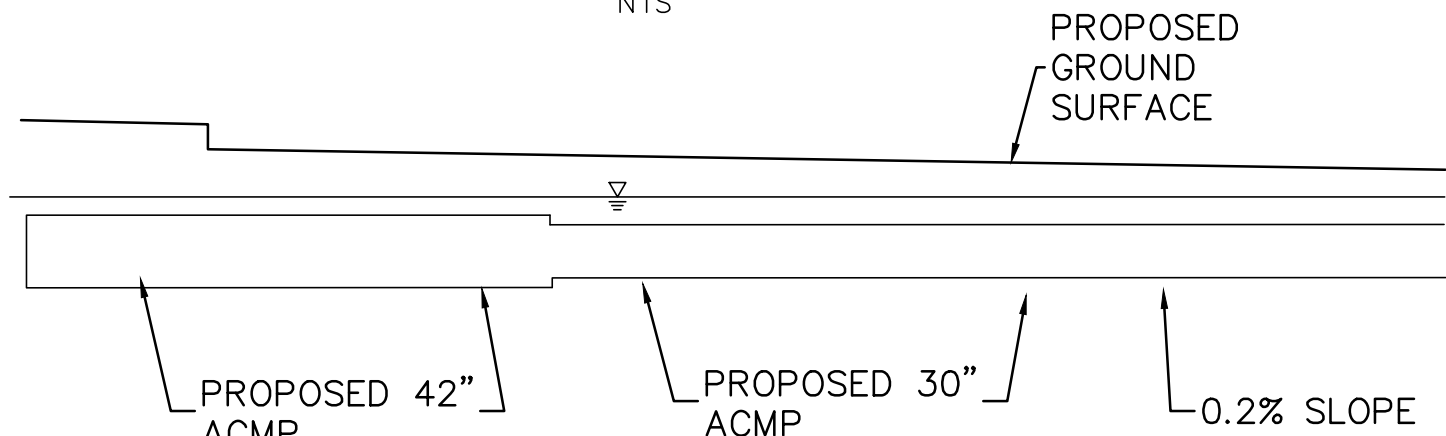
DRAINAGE NOTES:

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE CITY'S STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS EXCEPT AS NOTED HEREIN OR APPROVED BY THE CITY.
2. DURING THE CONSTRUCTION OF THE STORM AND DETENTION POND IMPROVEMENTS, ANY INTERPRETATION OF THE CITY'S STANDARD DETAILS AND SPECIFICATIONS MUST BE APPROVED BY THE DIRECTOR OF PUBLIC WORKS OR THEIR DESIGNEE BEFORE ANY CONSTRUCTION INVOLVING THAT DECISION COMMENCES. ASSUMPTIONS ABOUT WHAT THESE DECISIONS MIGHT BE WHICH ARE MADE DURING THE BIDDING PHASE WILL HAVE NO BEARING ON THE DECISION.
3. THE DETENTION SYSTEM FUNCTIONS BY USING TWO ORIFICE OPENINGS. THE STORMWATER ENTERS THE DETENTION SYSTEM BY FLOWING INTO THE SITE INLETS.
4. THE WATER SURFACE ELEVATION WAS DETERMINED BY USING THE HYDROCAD SOFTWARE. THE DRAINAGE DATA, OUTLET CONTROLS AND THE UNDERGROUND SYSTEM INFORMATION WAS INSERTED INTO THE MODEL. THE MODEL WAS COMPUTED TO DETERMINE THE WSEL AND THE OUTFLOW INFORMATION. ADJUSTMENTS WERE MADE TO THE OUTLET CONTROLS AND THE VOLUME OF WATER STORAGE TO ALLOW FOR PROPER DETENTION.

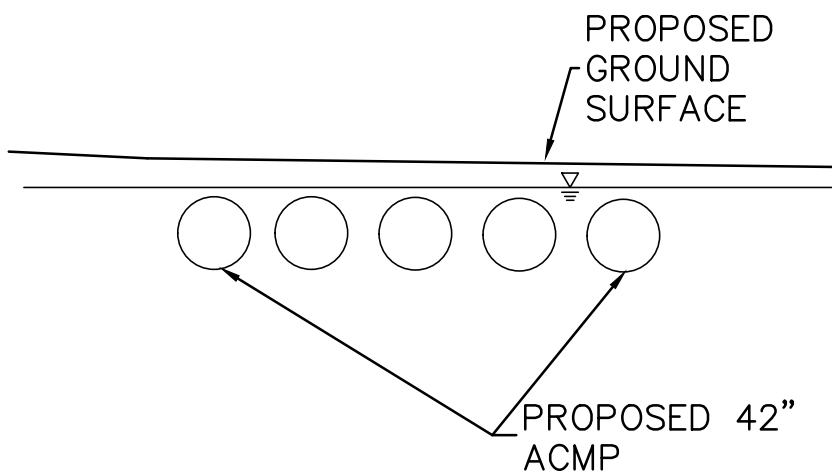
SECTION A-A NTS



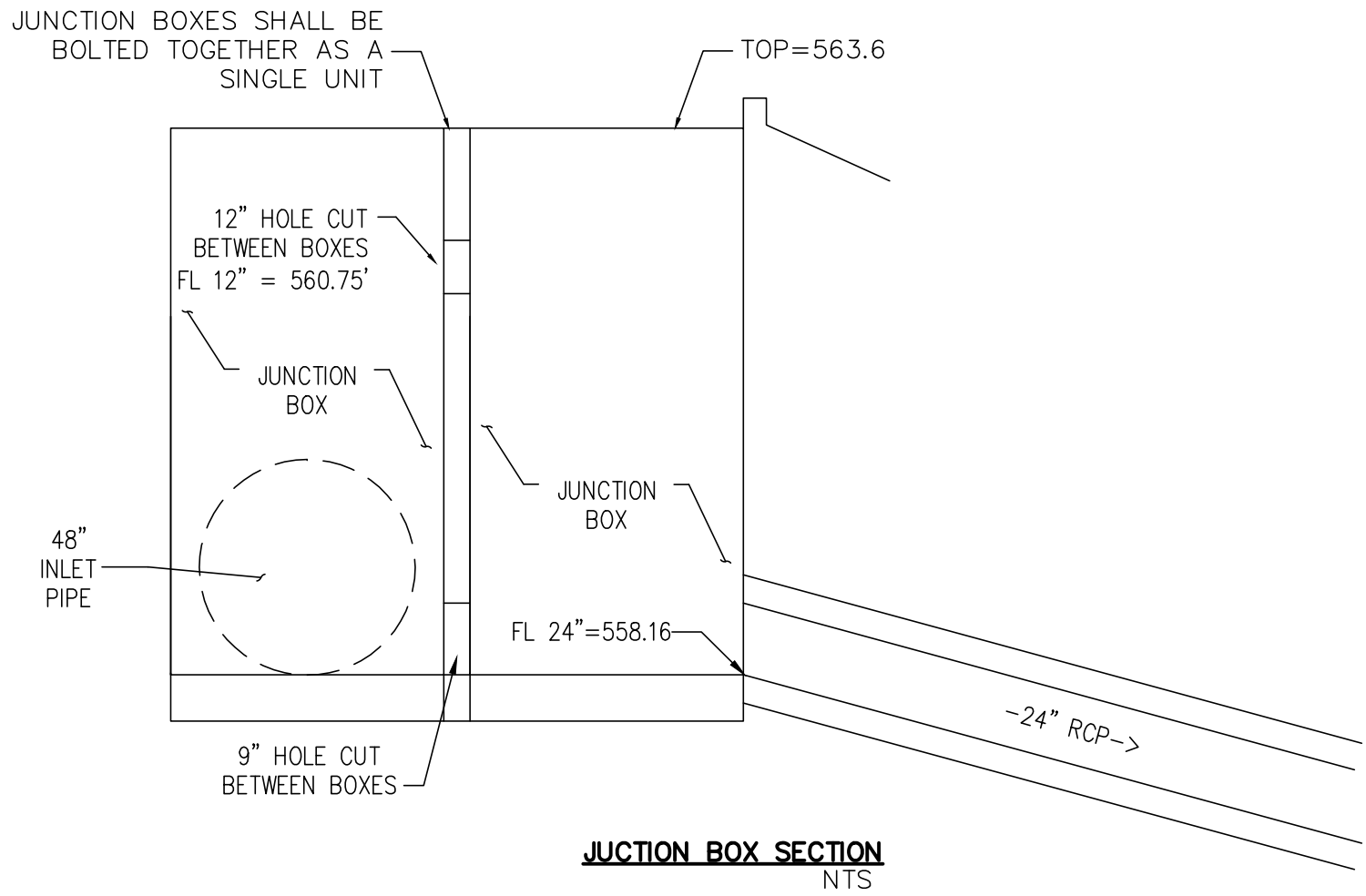
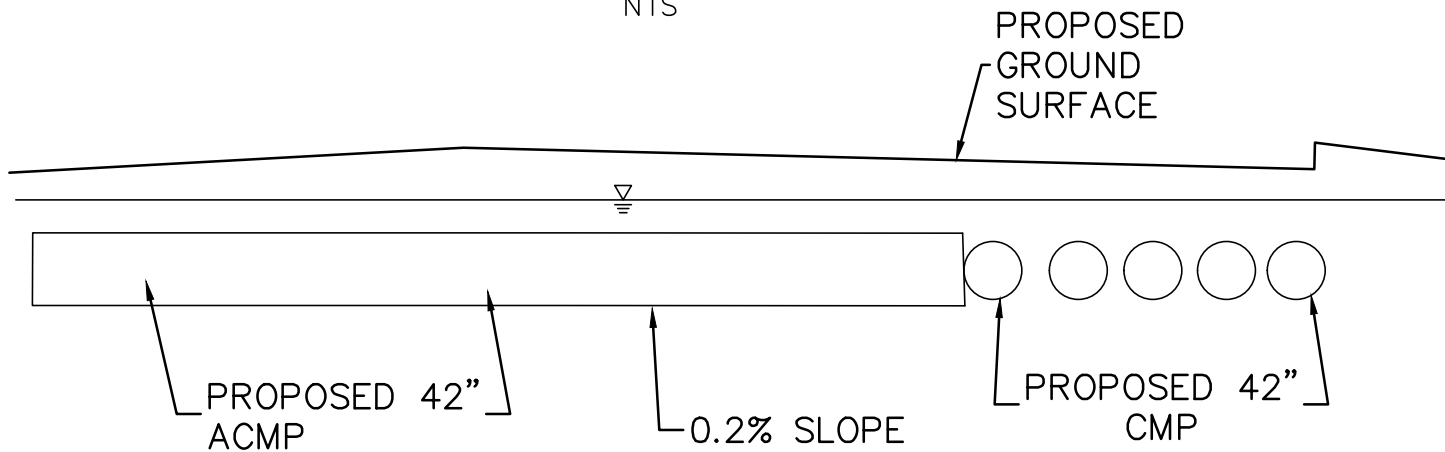
SECTION B-B NTS



SECTION C-C NTS



SECTION D-D NTS



JUNCTION BOX SECTION NTS

DETENTION POND DATA										
STORM EVENT (YEAR)	EXISTING RUNOFF (INCLUDING OFFSITE) (CFS)	PROPOSED SITE RUNOFF (INCLUDING OFFSITE) (CFS)	DETENTION SYSTEM WATER SURFACE ELEVATION (FT)	RELEASE FROM 9" ORIFICE (CFS)	RELEASE FROM 12" DIAMETER ORIFICE (CFS)	MAX RELEASE RATE FROM DETENTION (CFS)	BYPASS FLOW FROM THE SITE (CFS)	TOTAL RELEASE FROM THE SITE (CFS)	DETENTION VOLUME PROVIDED (CF)	CHANGE IN RUNOFF (CFS)
100	29.0	46.3	562.1	4.0	3.6	7.6	20.9	28.5	31686	-0.5
25	23.0	40.6	561.5	3.7	1.8	5.5	17.4	22.9	26461	0.0
10	20.6	33.3	561.2	3.5	0.9	4.4	15.1	19.4	23796	-1.2
5	17.1	28.2	560.8	3.2	0.0	3.2	12.8	16.0	18669	-1.1

III CAUTION III
UNDERGROUND UTILITIES

EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION SUPPLIED BY VARIOUS PARTIES. THE ENGINEER DOES NOT ASSUME THE RESPONSIBILITY FOR THE UTILITY LOCATIONS SHOWN. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR(S) TO VERIFY THE HORIZONTALLY AND VERTICALLY LOCATION OF ALL UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION, TO TAKE PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED AND NOTIFY THE ENGINEER OF ALL CONFLICTS OF THE WORK WITH EXISTING FACILITIES. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL UTILITIES FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGE BY THE CONTRACTOR TO UTILITIES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.

CALL: TEXAS ONE CALL @ 811 AT LEAST 72 HRS PRIOR TO CONSTRUCTION.

ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

REVISIONS		
REV NO.	DATE	DESCRIPTION

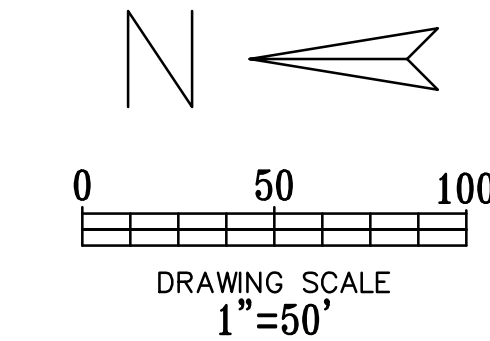
AS-BUILT

NOTE: THESE AS-BUILT PLANS HAVE BEEN REVISED TO CONFORM WITH THE POST-CONSTRUCTION SURVEY PROVIDED BY THE CONTRACTOR. BY STATING THIS, THE ENGINEER DOES NOT ASSUME RESPONSIBILITY FOR THE WORK PERFORMED BY THE CONTRACTOR. SAID RESPONSIBILITY REMAINS SOLELY WITH THE CONTRACTOR.

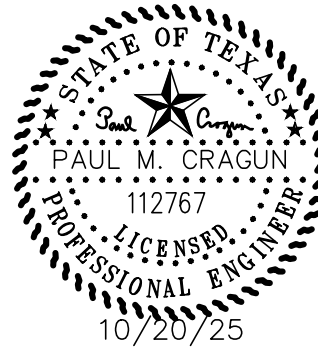


NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33

CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT



DRAWING SCALE
1"=50'



Cumulus Design Firm #14810
2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
Tel. 214.235.0367

DETENTION PLAN (S)

4649 HIGHWAY 276

CITY OF ROCKWALL

ROCKWALL COUNTY, TEXAS

J.H. BAILEY SURVEY, ABST NO. 34

DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	1" = 50'	C11.0

100 Year Storm Existing Conditions

Site Areas: R, S, T, U, V, Y, Z

C: 0.35
T: 20 Min
I: 8.3 In/Hr
Area: 2.92 Acres
Q: 8.50 CFS

100 Year Storm Post Contruction Conditions

Site Areas: S, T, U, V

C: 0.90
T: 10 Min
I: 9.8 In/Hr
Area: 1.16 Acres
Q: 10.22 CFS

Bypass Areas: OS12, R, Y, Z

C(site): 0.9
T: 10 Min
I: 9.8 In/Hr
Area: 1.77 Acres
Q: 20.90 CFS

Offsite Areas: OS10, OS11, OS12

C(offsite): 0.35
T: 20 Min
I: 8.3 In/Hr
Area: 7.06 Acres
Q: 20.50 CFS

Offsite Areas: OS10, OS11

C(offsite): 0.35
T: 20 Min
I: 8.3 In/Hr
Area: 5.22 Acres
Q: 15.17 CFS

The existing release from the site and offsite is 28.99 CFS. The bypass from the site is being proposed as sheetflow to match existing sheetflow conditions. The bypass from the site and offsite is 20.90 CFS, which allows for a maximum release from the detention system of 8.09 cfs

Total Runoff: 28.99 CFS

Total Runoff: 25.39 CFS

Total Runoff: 46.29 CFS

Allowed Release (-Bypass): 8.09 CFS

Developed + Offsite			Allowed			
Duration (Min)	Intensity (In/Hr)	Flow (CFS)	Inflow (CF)	Outflow (CF)	Storage (CF)	Storage (Acre-Ft)
10	9.80	25.39	15,233	4,853	10,380	0.24
20	8.30	21.27	25,518	7,279	18,239	0.42
30	6.90	17.80	32,031	9,706	22,325	0.51
40	5.80	15.19	36,447	12,132	24,314	0.56
50	5.00	13.44	40,314	14,559	25,756	0.59
60	4.50	12.00	43,211	16,985	26,225	0.60
70	4.00	10.93	45,920	19,412	26,508	0.61
80	3.70	10.26	49,224	21,838	27,386	0.63
90	3.50	9.86	53,264	24,265	29,000	0.67
100	3.40	9.39	56,363	26,691	29,672	0.68
110	3.20	8.36	55,194	29,118	26,077	0.60
120	2.75	6.52	46,963	31,544	15,419	0.35
180	2.00	4.46	48,181	46,103	2,078	0.05
360	1.30	1.36	29,269	89,779	-60,510	-1.39

Note: The referenced in this sheet are from the proposed drainage area map.

10 Year Storm Existing Conditions

Site Areas: R, S, T, U, V, Y, Z

C: 0.35
T: 20 Min
I: 5.9 In/Hr
Area: 2.92 Acres
Q: 6.04 CFS

10 Year Storm Post Contruction Conditions

Site Areas: S, T, U, V

C: 0.90
T: 10 Min
I: 7.1 In/Hr
Area: 1.16 Acres
Q: 7.40 CFS

Bypass Areas: OS12, R, Y, Z

C(site): 0.9
T: 10 Min
I: 7.1 In/Hr
Area: 1.77 Acres
Q: 15.07 CFS

Offsite Areas: OS10, OS11, OS12

C(offsite): 0.35
T: 20 Min
I: 5.9 In/Hr
Area: 7.06 Acres
Q: 14.60 CFS

Offsite Areas: OS10, OS11

C(offsite): 0.35
T: 20 Min
I: 5.9 In/Hr
Area: 5.22 Acres
Q: 10.80 CFS

The existing release from the site and offsite is 20.64 CFS. The bypass from the site is being proposed as sheetflow to match existing sheetflow conditions. The bypass from the site and offsite is 15.07 CFS, which allows for a maximum release from the detention system of 5.57 cfs

Total Runoff: 20.64 CFS

Total Runoff: 18.20 CFS

Total Runoff: 33.27 CFS

Allowed Release (-Bypass): 5.57 CFS

Developed + Offsite			Allowed			
Duration (Min)	Intensity (In/Hr)	Flow (CFS)	Inflow (CF)	Outflow (CF)	Storage (CF)	Storage (Acre-Ft)
10	7.10	18.19	10,912	3,340	7,572	0.17
20	5.90	14.92	17,910	5,010	12,899	0.30
30	4.80	12.32	22,168	6,680	15,488	0.36
40	4.00	10.57	25,363	8,351	17,012	0.39
50	3.50	9.13	27,398	10,021	17,377	0.40
60	3.00	8.25	29,685	11,691	17,994	0.41
70	2.80	7.67	32,221	13,361	18,860	0.43
80	2.60	7.28	34,946	15,031	19,915	0.46
90	2.50	6.99	37,764	16,701	21,063	0.48
100	2.40	6.71	40,237	18,371	21,866	0.50
110	2.30	5.87	38,747	20,041	18,706	0.43
120	1.90	4.54	32,687	21,712	10,975	0.25
180	1.40	2.92	31,555	31,732	-177	0.00
360	0.80	0.83	18,012	61,794	-43,782	-1.01

Note: The referenced in this sheet are from the proposed drainage area map.

25 Year Storm Existing Conditions

Site Areas: R, S, T, U, V, Y, Z

C: 0.35
T: 20 Min
I: 6.6 In/Hr
Area: 2.92 Acres
Q: 6.76 CFS

25 Year Storm Post Contruction Conditions

Site Areas: S, T, U, V

C: 0.90
T: 10 Min
I: 8.3 In/Hr
Area: 1.16 Acres
Q: 8.65 CFS

Bypass Areas: OS12, R, Y, Z

C(site): 0.9
T: 10 Min
I: 8.3 In/Hr
Area: 1.77 Acres
Q: 17.43 CFS

Offsite Areas: OS10, OS11, OS12

C(offsite): 0.35
T: 20 Min
I: 6.6 In/Hr
Area: 7.06 Acres
Q: 16.20 CFS

Offsite Areas: OS10, OS11

C(offsite): 0.35
T: 20 Min
I: 6.6 In/Hr
Area: 5.22 Acres
Q: 14.50 CFS

The existing release from the site and offsite is 22.96 CFS. The bypass from the site is being proposed as sheetflow to match existing sheetflow conditions. The bypass from the site and offsite is 17.43 CFS, which allows for a maximum release from the detention system of 5.53 cfs

Total Runoff: 22.96 CFS

Total Runoff: 23.15 CFS

Total Runoff: 40.58 CFS

Allowed Release (-Bypass): 5.53 CFS

Developed + Offsite			Allowed			
Duration (Min)	Intensity (In/Hr)	Flow (CFS)	Inflow (CF)	Outflow (CF)	Storage (CF)	Storage (Acre-Ft)
10	8.30	20.72	12,430	3,316	9,114	0.21
20	6.60	16.93	20,321	4,974	15,347	0.35
30	5.50	14.14	25,456	6,632	18,824	0.43
40	4.60	12.11	29,057	8,290	20,767	0.48
50	4.00	10.57	31,703	9,948	21,755	0.50
60	3.50	9.68	34,851	11,606	23,245	0.53
70	3.30	9.11	38,249	13,264	24,985	0.57
80	3.10	8.53	40,957	14,922	26,035	0.60
90	2.90	7.96	42,977	16,580	26,397	0.61
100	2.70	7.38	44,307	18,238	26,069	0.60
110	2.50	6.44	42,536	19,896	22,640	0.52
120	2.10	5.30	38,136	21,554	16,582	0.38
180	1.70	3.51	37,894	31,502	6,391	0.15
360	0.95	0.99	21,389	61,347	-39,958	-0.92

Note: The referenced in this sheet are from the proposed drainage area map.

5 Year Storm Existing Conditions

Site Areas: R, S, T, U, V, Y, Z

C: 0.35
T: 20 Min
I: 4.9 In/Hr
Area: 2.92 Acres
Q: 5.02 CFS

5 Year Storm Post Contruction Conditions

Site Areas: S, T, U, V

C: 0.90
T: 10 Min
I: 6.1 In/Hr
Area: 1.16 Acres
Q: 6.36 CFS

Bypass Areas: OS12, R, Y, Z

C(site): 0.9
T: 10 Min
I: 6.1 In/Hr
Area: 1.77 Acres
Q: 12.84 CFS

Offsite Areas: OS10, OS11, OS12

C(offsite): 0.35
T: 20 Min
I: 4.9 In/Hr
Area: 7.06 Acres
Q: 12.10 CFS

Offsite Areas: OS10, OS11

C(offsite): 0.35
T: 20 Min
I: 4.9 In/Hr
Area: 5.22 Acres
Q: 9.00 CFS

The existing release from the site and offsite is 17.12 CFS. The bypass from the site is being proposed as sheetflow to match existing sheetflow conditions. The bypass from the site and offsite is 12.84 CFS, which allows for a maximum release from the detention system of 4.27 cfs

Total Runoff: 17.12 CFS

Total Runoff: 15.36 CFS

Total Runoff: 28.20 CFS

Allowed Release (-Bypass): 4.27 CFS

Developed + Offsite			Allowed			
Duration (Min)	Intensity (In/Hr)	Flow (CFS)	Inflow (CF)	Outflow (CF)	Storage (CF)	Storage (Acre-Ft)
10	6.10	15.32	9,190	2,565	6,625	0.15
20	4.90	12.60	15,123	3,847	11,276	0.26
30	4.10	10.49	18,880	5,130	13,750	0.32
40	3.40	8.66	20,790	6,412	14,378	0.33
50	2.80	7.67	23,015	7,695	15,320	0.35
60	2.60	7.10	25,551	8,977	16,574	0.38
70	2.40	6.71	28,166	10,260	17,906	0.41
80	2.30	6.24	29,935	11,542	18,392	0.42
90	2.10	5.66	30,576	12,825	17,751	0.41
100	1.90	5.27	31,626	14,107	17,519	0.40
110	1.80	4.80	31,688	15,390	16,298	0.37
120	1.60	3.86	27,803	16,672	11,130	0.26
180	1.20	2.49	26,934	24,367	2,567	0.06
360	0.68	0.71	15,310	47,452	-32,142	-0.74

Note: The referenced in this sheet are from the proposed drainage area map.

III CAUTION III

UNDERGROUND UTILITIES

EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION SUPPLIED BY VARIOUS PARTIES. THE ENGINEER DOES NOT ASSUME THE RESPONSIBILITY FOR THE UTILITY LOCATIONS SHOWN. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR(S) TO VERIFY THE HORIZONTALLY AND VERTICALLY LOCATION OF ALL UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION, TO TAKE PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED AND NOTIFY THE ENGINEER OF ALL CONFLICTS OF THE WORK WITH EXISTING FACILITIES. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL UTILITIES FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGE BY THE CONTRACTOR TO UTILITIES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE.

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REVISIONS		
REV NO.	DATE	DESCRIPTION

AS-BUILT

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BENCHMARK

NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33

CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT

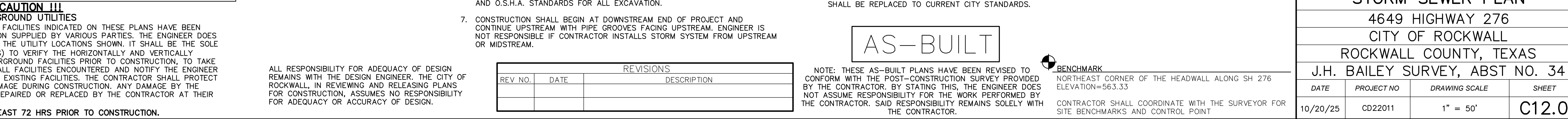
STATE OF TEXAS
PAUL M. CRAGUN
112767
LICENSED PROFESSIONAL ENGINEER
10/20/25

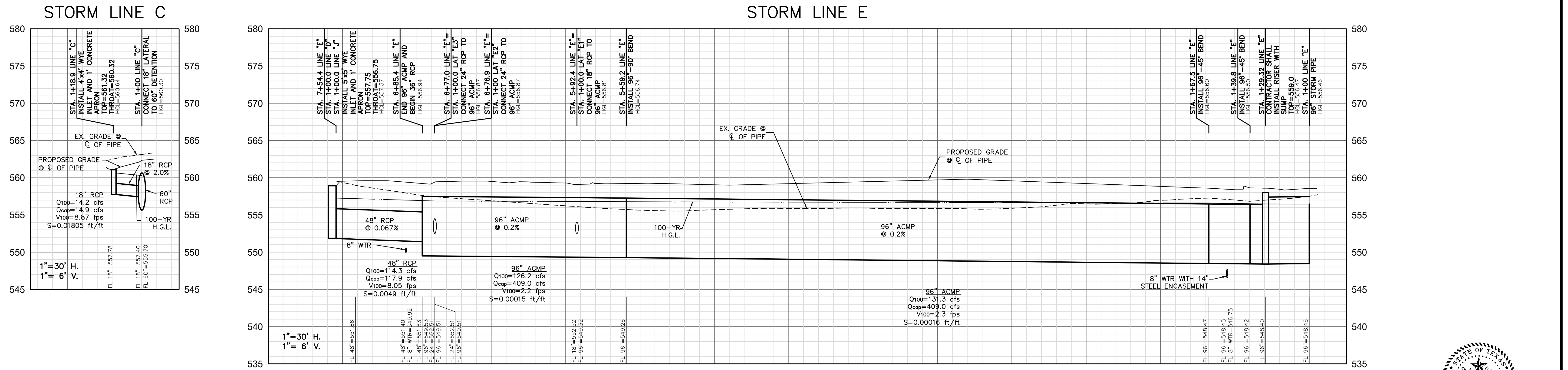
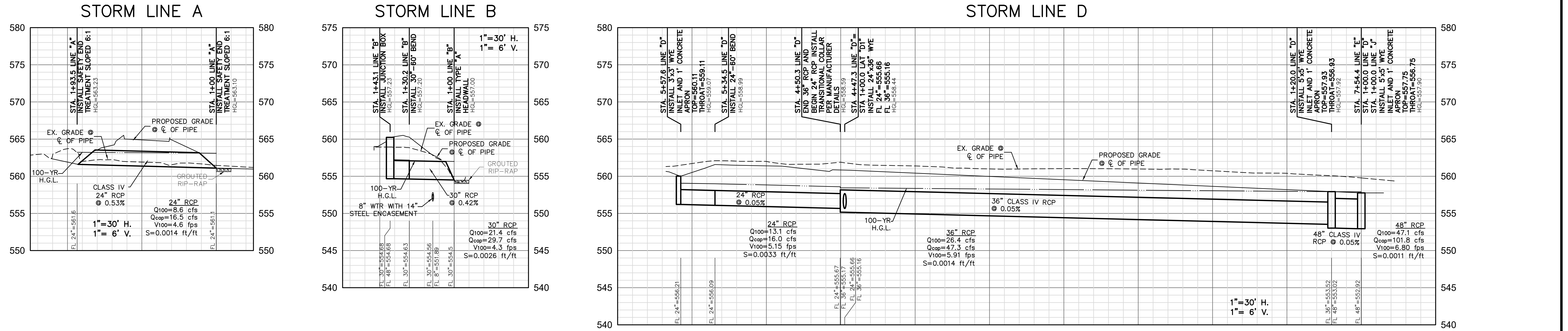
Cumulus Design Firm #14810
2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
Tel. 214.235.0367

DETENTION CALCULATIONS (S)

4649 HIGHWAY 276
CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS
J.H. BAILEY SURVEY, ABST NO. 34

DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	N.T.S	C11.1





!!! CAUTION !!!
UNDERGROUND UTILITIES

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CALL: TEXAS ONE CALL @ 811 AT LEAST 72 HRS PRIOR TO CONSTRUCTION.

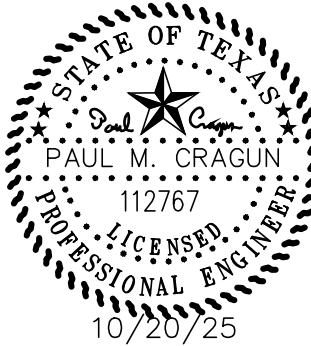
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REVISIONS		
REV NO.	DATE	DESCRIPTION

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BENCHMARK
NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33

CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT

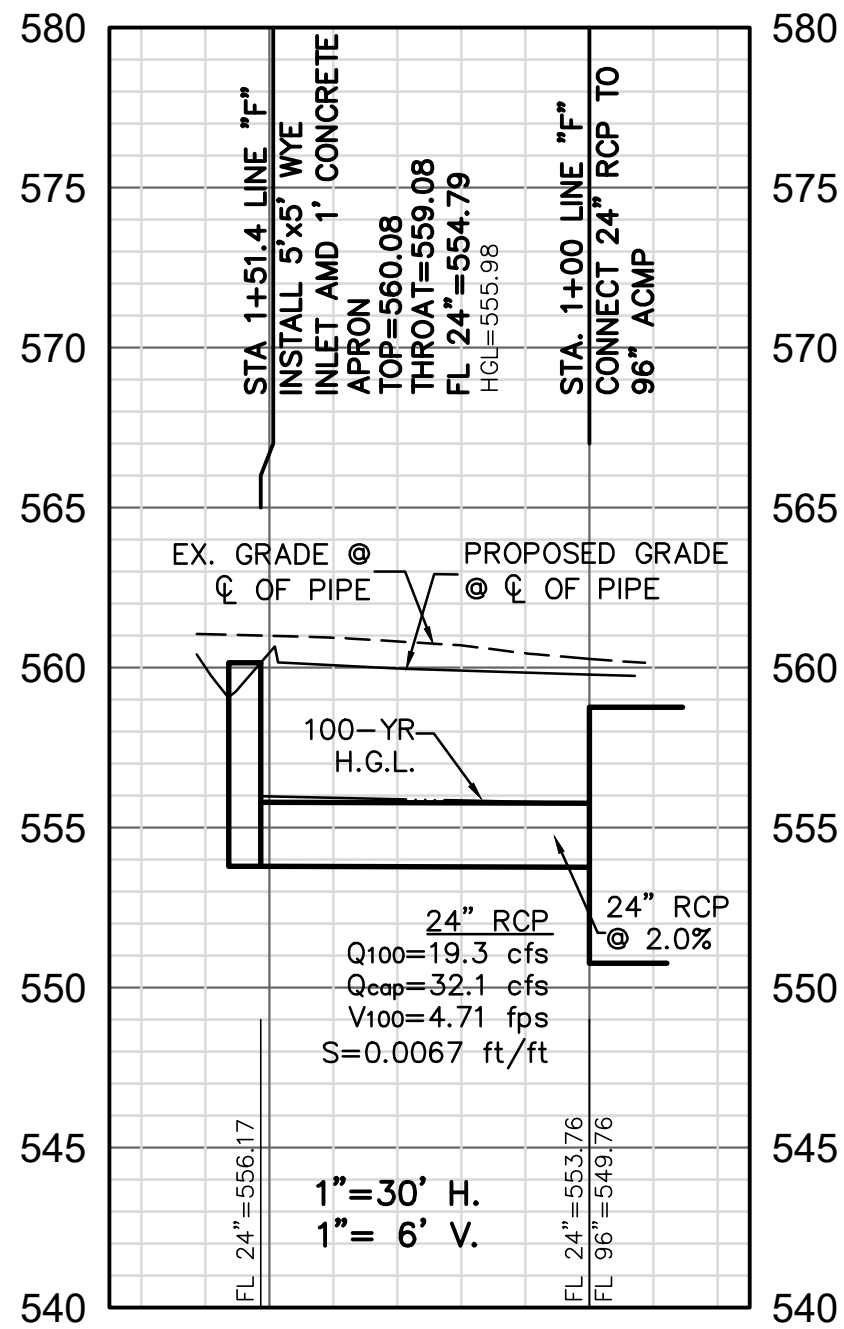


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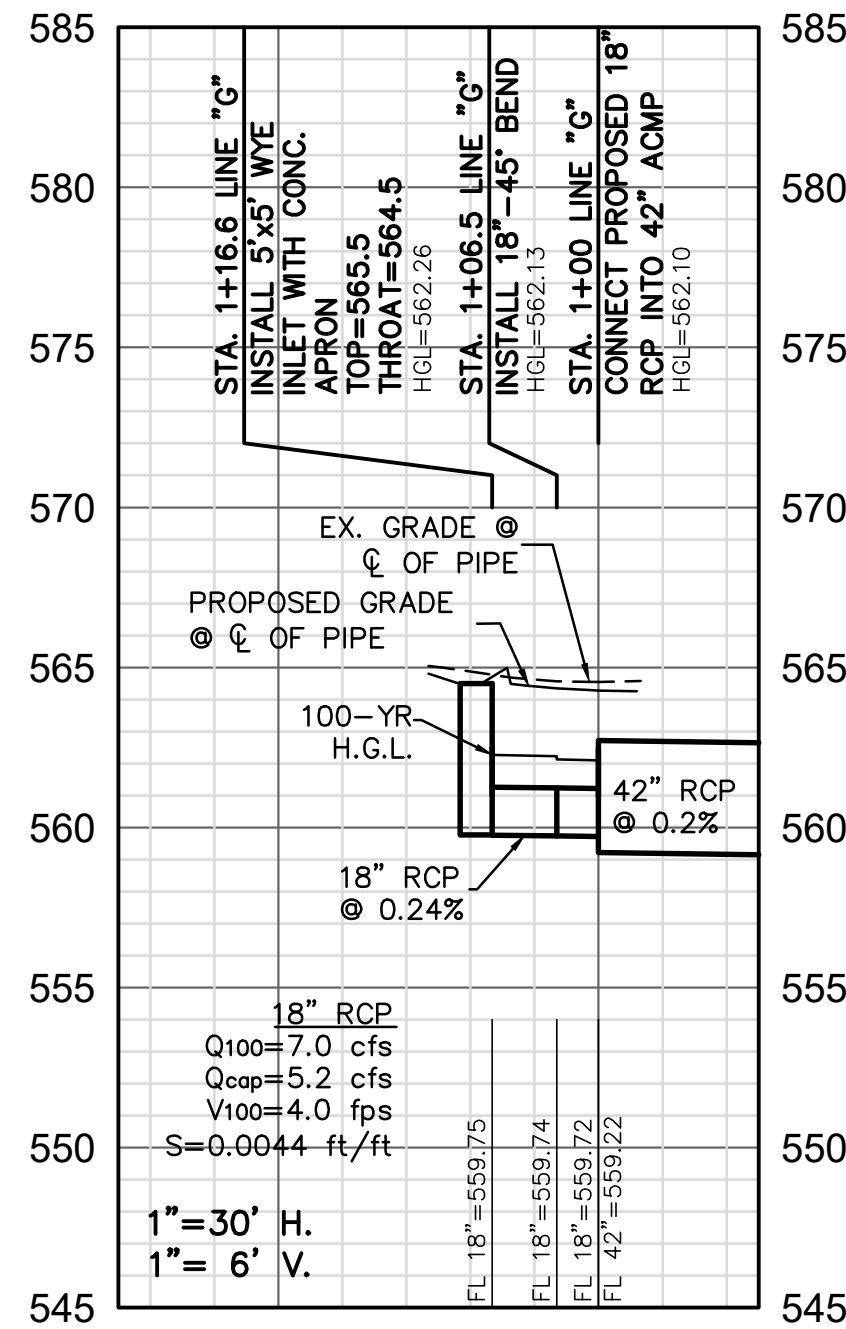
STORM PROFILE
4649 HIGHWAY 276
CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS
J.H. BAILEY SURVEY, ABST NO. 34

DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011		C12.1

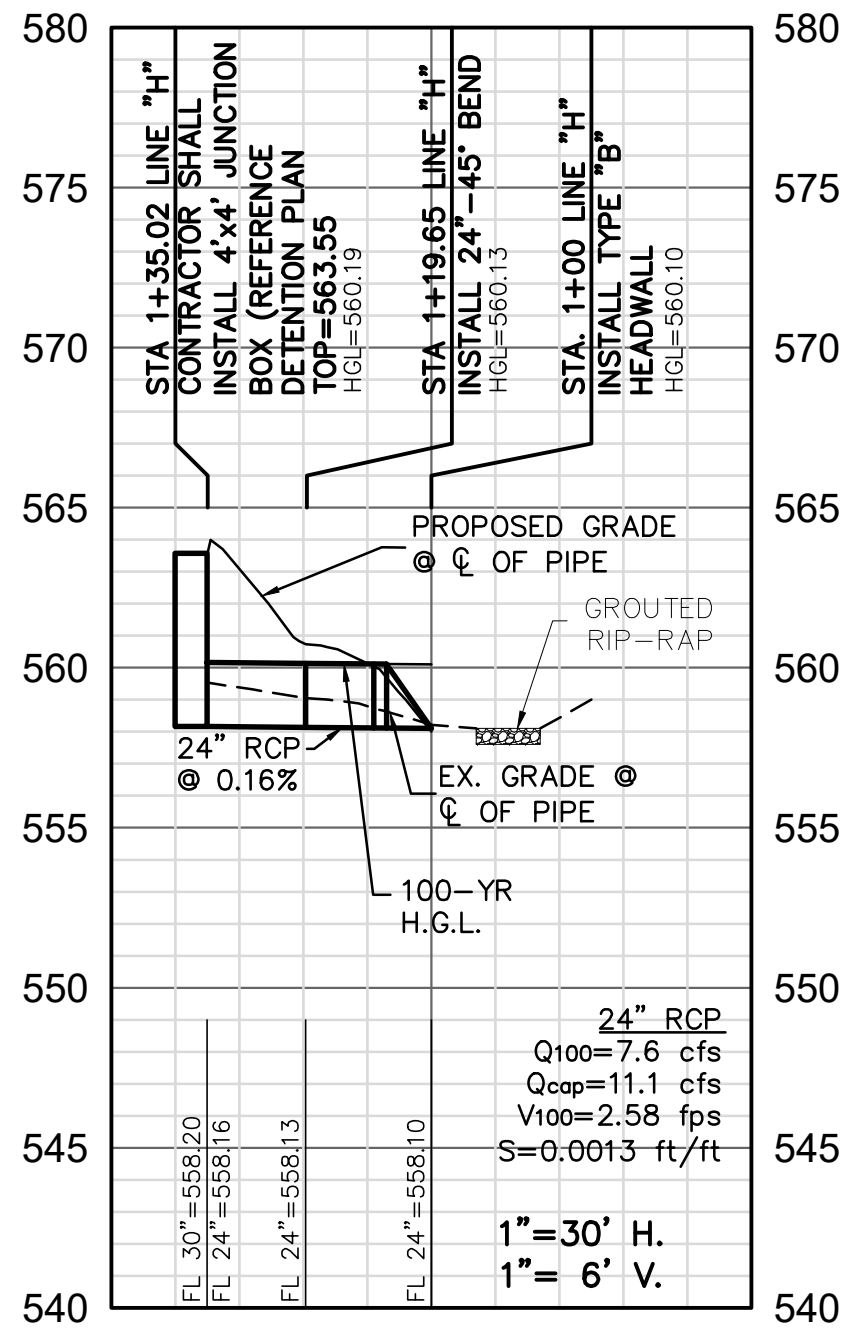
STORM LINE F



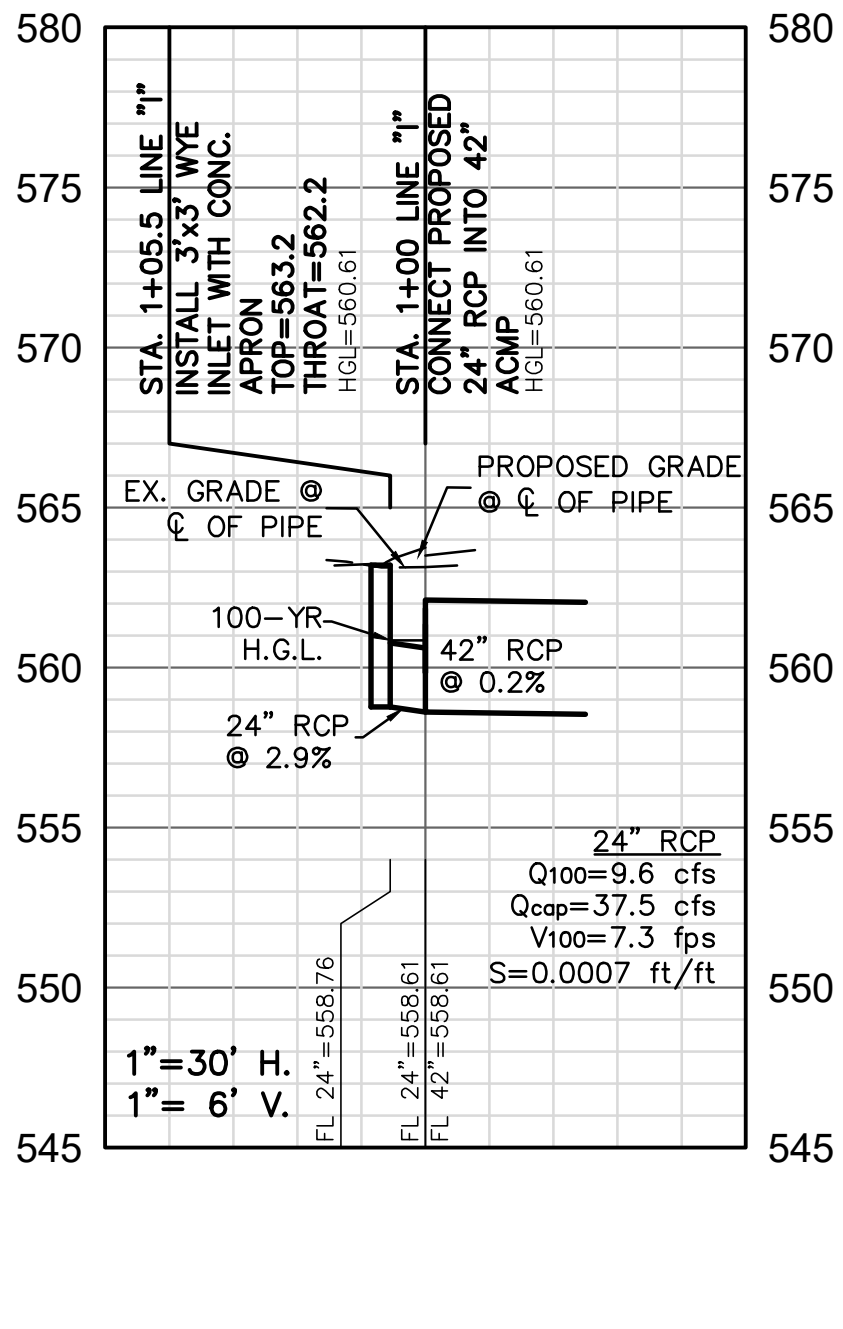
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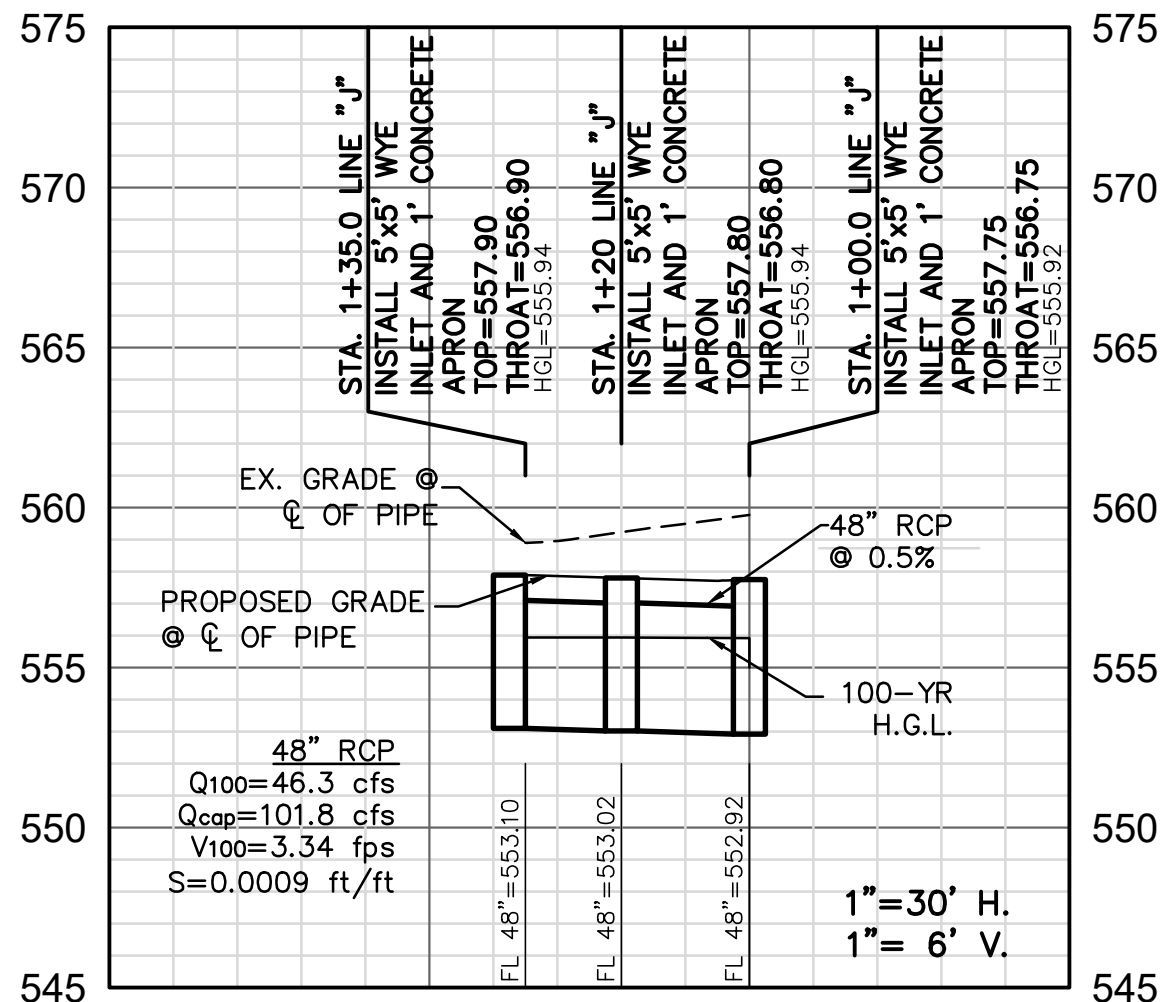
STORM LINE H



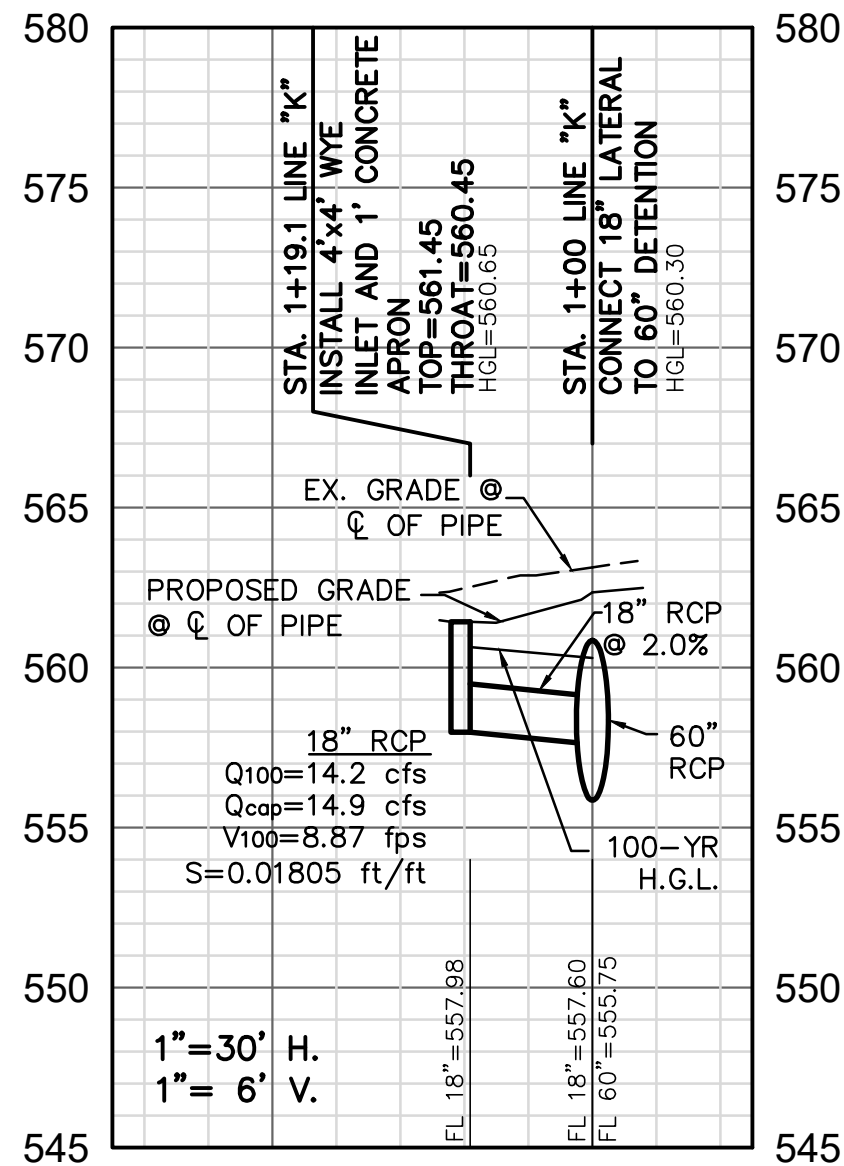
STORM LINE I



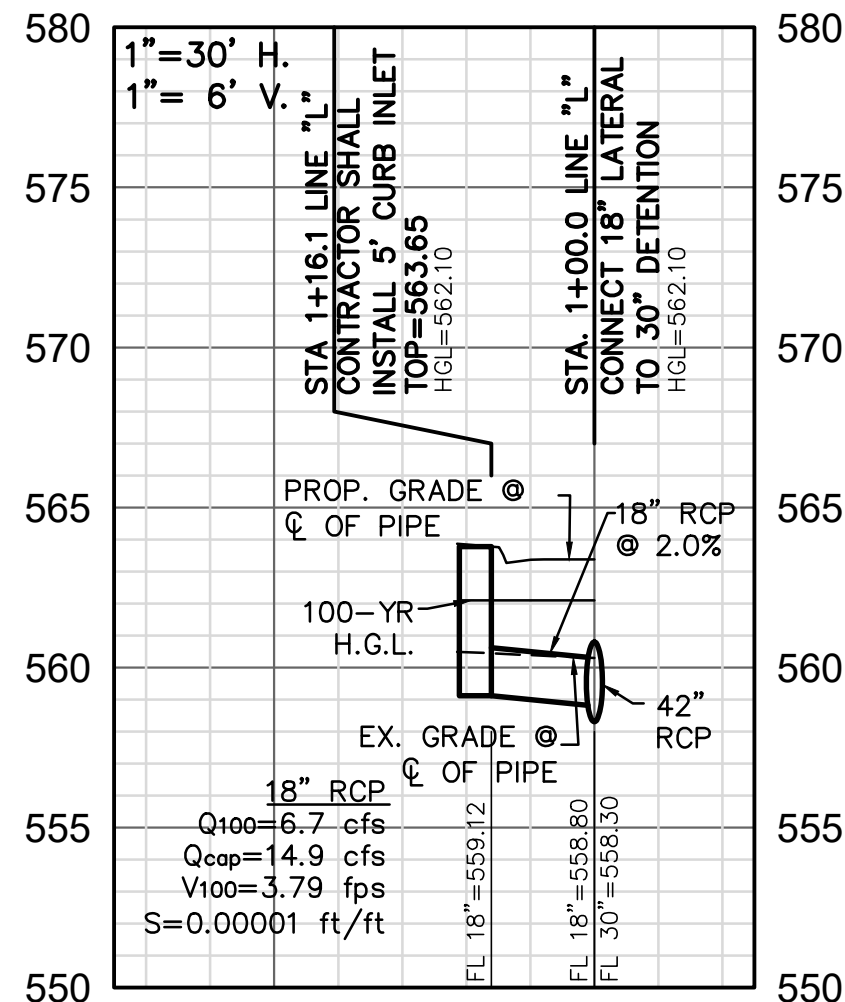
STORM LINE J



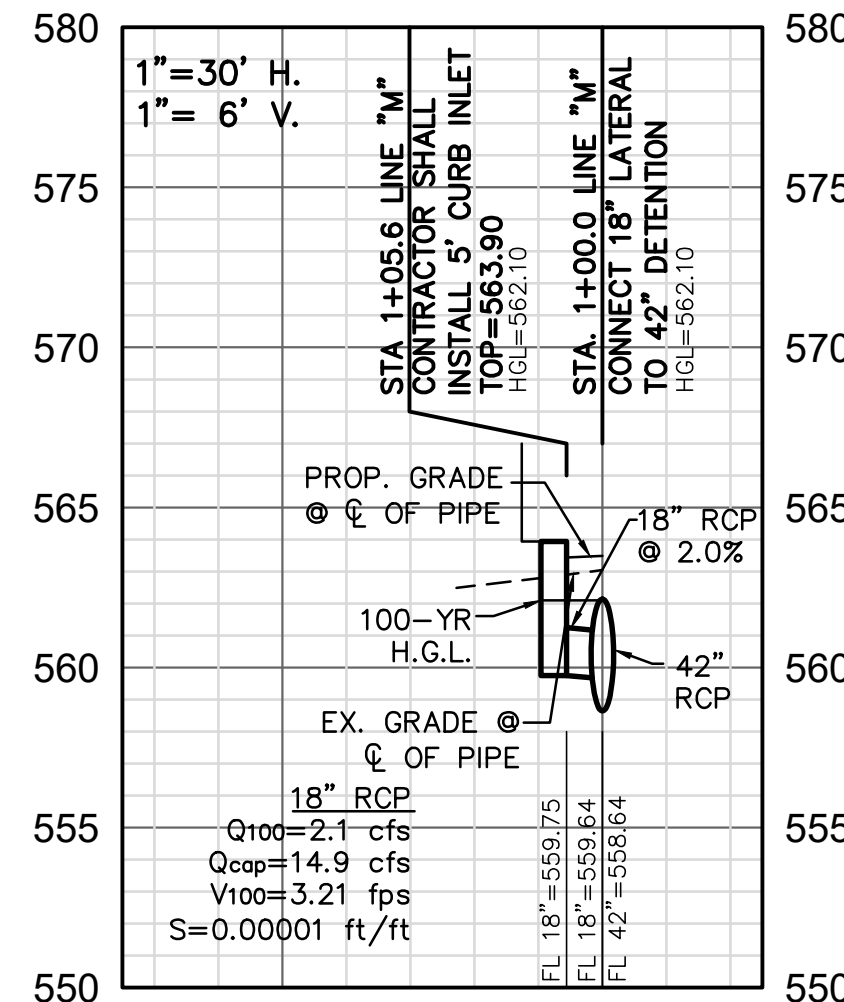
STORM LINE K



STORM LINE L



STORM LINE M



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REVISIONS		
REV NO.	DATE	DESCRIPTION

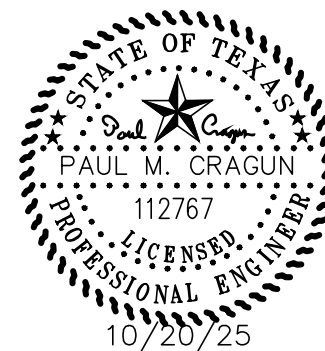
AS-BUILT

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BENCHMARK

NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33

CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT

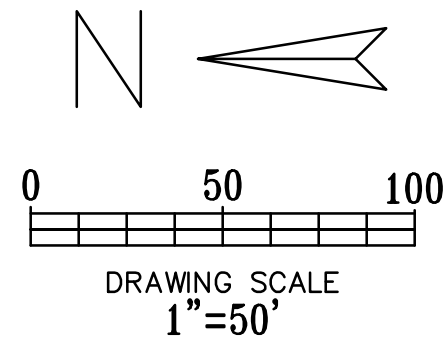


Cumulus Design Firm #14810
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Tel. 214.235.0367

STORM PROFILE			
4649 HIGHWAY 276			
CITY OF ROCKWALL			
ROCKWALL COUNTY, TEXAS			
J.H. BAILEY SURVEY, ABST NO. 34			
DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011		C12.2

	Collection Point		Pipe Length (ft)	Number of Barrels	Pipe Size (in)	Box Size		Type	Area (ft²)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Manning's n	Flowline Elevations		Slope (ft/ft)	Drainage Area	Incremental Drainage Area		Accumulated (C*A)	Up Stream (Tc)	Design Year	Storm Frequency	Intensity (in/hr)	Runoff (cfs)	Conduit Capacity (CFS)	Partial Flow	Velocity (ft/sec)	Time in Conduit (min)	Friction Slope (ft/ft)	Friction Headloss (ft)	Hydraulic Grade Line		Headloss Calculations			Design HGL	Top of Curb Elevation	HGL Depth Below (T/C)	Remarks				
Line "A"	1+00.0	1+93.5	93.5	1	24	Span (ft)	Rise (ft)	RCP	3.14	6.28	0.5	0.013	Downstream	Upstream	0.0053	RD	Area (acres)	Runoff "C"	Incremental (C*A)	0.87	10	100	9.8	8.6	16.59	Yes	2.74	0.57	0.0014	0.13	Downstream (ft)	Upstream (ft)	V1²/2g (ft)	V2²/2g (ft)	Junction Type	Coefficient (Kj)	Head-Loss (HL)	0.0015	565.6	2.37			
System ID	Collection Point	Downstream	Upstream	Pipe Length (ft)	Number of Barrels	Pipe Size (in)	Span (ft)	Rise (ft)	Type	Area (ft²)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Manning's n	Downstream	Upstream	Slope (ft/ft)	Drainage Area	Area (acres)	Runoff "C"	Incremental (C*A)	Accumulated (C*A)	Up Stream (Tc)	Design Year	Storm Frequency	Intensity (in/hr)	Runoff (cfs)	Conduit Capacity (CFS)	Partial Flow	Velocity (ft/sec)	Time in Conduit (min)	Friction Slope (ft/ft)	Friction Headloss (ft)	Downstream (ft)	Upstream (ft)	V1²/2g (ft)	V2²/2g (ft)	Junction Type	Coefficient (Kj)	Head-Loss (HL)	Design HGL	Top of Curb Elevation	HGL Depth Below (T/C)	Remarks
Line"B"	1+00.0	1+30.2	30.2	1	30			RCP	4.91	7.85	0.625	0.013	554.50	554.63	0.0042					NA	NA	10	100	9.8	21.4	26.65	Yes	4.30	0.12	0.0027	0.08	557.00	557.08	0.29	0.29	60" Bend	0.43	0.12	0.0066	560.5	3.42		
Line"B"	1+30.2	1+43.1	12.9	1	30			RCP	4.91	7.85	0.625	0.013	554.63	554.68	0.0042	Detention	NA	NA	NA	NA	NA	10	100	9.8	21.4	26.65	Yes	4.30	0.05	0.0027	0.03	557.20	557.23	0.29	0.29	Junction Box	0.55	0.36	0.0031	560.5	3.27		
System ID	Collection Point	Downstream	Upstream	Pipe Length (ft)	Number of Barrels	Pipe Size (in)	Span (ft)	Rise (ft)	Type	Area (ft²)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Manning's n	Downstream	Upstream	Slope (ft/ft)	Drainage Area	Area (acres)	Runoff "C"	Incremental (C*A)	Accumulated (C*A)	Up Stream (Tc)	Design Year	Storm Frequency	Intensity (in/hr)	Runoff (cfs)	Conduit Capacity (CFS)	Partial Flow	Velocity (ft/sec)	Time in Conduit (min)	Friction Slope (ft/ft)	Friction Headloss (ft)	Downstream (ft)	Upstream (ft)	V1²/2g (ft)	V2²/2g (ft)	Junction Type	Coefficient (Kj)	Head-Loss (HL)	Design HGL	Top of Curb Elevation	HGL Depth Below (T/C)	Remarks
Line"C"	1+00.0	1+18.9	18.9	1	18			RCP	1.77	4.71	0.375	0.013	557.40	557.78	0.0200	E, OS2, OS3	1.85	0.78	1.45	1.45	1.45	10	100	9.8	14.2	14.90	Yes	8.87	0.04	0.0181	0.34	560.30	560.64	1.22	1.22	Wye Inlet	1.25	1.53	0.0212	561.32	0.68		
System ID	Collection Point	Downstream	Upstream	Pipe Length (ft)	Number of Barrels	Pipe Size (in)	Span (ft)	Rise (ft)	Type	Area (ft²)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Manning's n	Downstream	Upstream	Slope (ft/ft)	Drainage Area	Area (acres)	Runoff "C"	Incremental (C*A)	Accumulated (C*A)	Up Stream (Tc)	Design Year	Storm Frequency	Intensity (in/hr)	Runoff (cfs)	Conduit Capacity (CFS)	Partial Flow	Velocity (ft/sec)	Time in Conduit (min)	Friction Slope (ft/ft)	Friction Headloss (ft)	Downstream (ft)	Upstream (ft)	V1²/2g (ft)	V2²/2g (ft)	Junction Type	Coefficient (Kj)	Head-Loss (HL)	Design HGL	Top of Curb Elevation	HGL Depth Below (T/C)	Remarks
Line"D"	1+00.0	1+20.0	20.0	1	48			RCP	12.57	12.57	1	0.013	552.92	553.02	0.0050	OS5, OS6, L1	2.79	0.78	2.17	4.88	4.88	10	100	9.8	47.1	101.84	Yes	3.75	0.09	0.0011	0.02	557.90	557.92	0.22	0.20	Wye Inlet	0.05	0.01	0.0016	559.6	1.68		
Line"D"	1+20.0	4+47.3	327.3	1	36			RCP	7.07	9.42	0.75	0.013	555.52	555.16	0.0050	OS13, F2	0.45	0.90	0.41	2.71	2.71	10	100	9.8	26.4	47.29	Yes	3.58	1.52	0.0016	0.51	557.93	558.40	0.20	0.05	Junction	0.05	0.04	0.0016	559.6	1.20	*Includes Bypass Flows	
Line"D"	4+47.3	4+50.3	3.0	1	36			RCP	7.07	9.42	0.75	0.013	555.16	555.17	0.0050				2.30	2.30	2.30	10	100	9.8	13.1*	47.29	Yes	1.85	0.03	0.0004	0.00	558.44	558.44	0.05	0.27	Pipe Size Change	0.00	0.15	0.0504	561.1	2.66	*Remainer Bypass to 2B	
Line"D"	4+50.3	5+34.5	84.2	1	24			RCP	3.14	6.28	0.5	0.013	551.17	556.09	0.0050				2.30	2.30	2.30	10	100	9.8	13.1*	16.04	Yes	4.17	0.34	0.0033	0.28	558.59	558.87	0.27	0.27	60" Bend	0.43	0.12	0.0047	561.1	2.23	*Remainer Bypass to 2B	
Line"D"	5+34.5	5+57.6	23.0	1	24			RCP	3.14	6.28	0.5	0.013	556.09	556.21	0.0050	OS4, F1	3.09	0.75	2.30	2.30	2.30	10	100	9.8	13.1*	16.04	Yes	4.17	0.09	0.0033	0.08	558.99	559.07	0.27	0.27	Wye Inlet	1.25	0.34	0.26	561.1	2.03	*Remainer Bypass to 2B	
System ID	Collection Point	Downstream	Upstream	Pipe Length (ft)	Number of Barrels	Pipe Size (in)	Span (ft)	Rise (ft)	Type	Area (ft²)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Manning's n	Downstream	Upstream	Slope (ft/ft)	Drainage Area	Area (acres)	Runoff "C"	Incremental (C*A)	Accumulated (C*A)	Up Stream (Tc)	Design Year	Storm Frequency	Intensity (in/hr)	Runoff (cfs)	Conduit Capacity (CFS)	Partial Flow	Velocity (ft/sec)	Time in Conduit (min)	Friction Slope (ft/ft)	Friction Headloss (ft)	Downstream (ft)	Upstream (ft)	V1²/2g (ft)	V2²/2g (ft)	Junction Type	Coefficient (Kj)	Head-Loss (HL)	Design HGL	Top of Curb Elevation	HGL Depth Below (T/C)	Remarks
Lat"D1"	1+00.0	1+21.9	21.9	1	24			RCP	3.14	6.28	0.5	0.013	555.66	555.77	0.0050	OS13, F2	0.45	0.90	0.41	0.41	0.41	10	100	9.8	13.3*	16.04	Yes	3.88	0.09	0.0034	0.08	558.44	558.50	0.23	0.23	Wye Inlet	1.25	0.29	0.0162	560.5	2.00	*Includes Bypass Runoff	
System ID	Collection Point	Downstream	Upstream	Pipe Length (ft)	Number of Barrels	Pipe Size (in)	Span (ft)	Rise (ft)	Type	Area (ft²)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Manning's n	Downstream	Upstream	Slope (ft/ft)	Drainage Area	Area (acres)	Runoff "C"	Incremental (C*A)	Accumulated (C*A)	Up Stream (Tc)	Design Year	Storm Frequency	Intensity (in/hr)	Runoff (cfs)	Conduit Capacity (CFS)	Partial Flow	Velocity (ft/sec)	Time in Conduit (min)	Friction Slope (ft/ft)	Friction Headloss (ft)	Downstream (ft)	Upstream (ft)	V1²/2g (ft)	V2²/2g (ft)	Junction Type	Coefficient (Kj)	Head-Loss (HL)	Design HGL	Top of Curb Elevation	HGL Depth Below (T/C)	Remarks
Line"E"	1+00.0	1+29.3	29.3	1	96			ACMP	50.27	25.13	2	0.013	548.46	548.40	0.0020					13.39	13.39	10	100	9.8	131.3	408.99	Yes	2.35	0.21	0.0002	0.01	556.46	556.47	0.09	0.09	Junction Box	0.05	0.0	0.0004	559.1	2.63		
Line"E"	1+29.3	1+39.8	10.5	1	96			ACMP	50.27	25.13	2	0.013	548.40	548.42	0.0020					13.39	13.39	10	100	9.8	131.3	408.99	Yes	2.35	0.07	0.0002	0.00	556.47	556.47	0.09	0.09	45" Bend	0.37	0.03	0.0032	559.0	2.53		
Line"E"	1+39.8	1+67.5	27.7	1	96			ACMP	50.27	25.13	2	0.013	548.42	548.47	0.0020					13.39	13.39	10	100	9.8	131.3	408.99	Yes	2.35	0.20	0.0002	0.01	556.50	556.51	0.09	0.09	45" Bend	0.37	0.03	0.0014	558.9	2.39		
Line"E"	1+67.5	5+59.2	391.7	1	96			ACMP	50.27	25.13	2	0.013	548.47	549.26	0.0020					13.39	13.39	10	100	9.8	131.3	408.99	Yes	2.35	2.78	0.0002	0.08	556.54	556.62	0.09	0.08	90" Bend	0.50	0.04	0.0003	559.0	2.38		
Line"E"	5+59.2	5+92.4	33.2	1	96			ACMP	50.27	25.13	2	0.013	549.26	549.32	0.0020	N	0.57	0.90	0.51	13.39	13.39	10	100	9.8	131.3	408.99	Yes	2.30	0.24	0.0002	0.01	556.66	556.67	0.08	0.08	Junction	1.00	0.08	0.0026	559.8	3.13		
Line"E"	5+92.4	6+76.9	84.5	1	96			ACMP	50.27	25.13	2	0.013	549.32	549.51	0.0020	M	0.27	0.90	0.26	12.88	12.88	10	100	9.8	126.2	408.99	Yes	2.25	0.63	0.0002	0.02	556.75	556.76	0.08	0.06	Junction	1.00	0.06	0.0009	559.6	2.84		
Line"E"	6+76.9	6+77.0	0.1	1	96			ACMP	50.27	25.13	2	0.013	549.51	549.51	0.0020	K, J	1.06	0.90	0.95	12.62	12.62	10	100	9.8	123.7	408.99	Yes	2.01	0.00	0.0002	0.00	556.83	556.83	0.06	0.06	Junction	1.00	0.06	0.6296	559.6	2.77		
Line"E"	6+77.0	6+85.4	8.4	1	96			ACMP	50.27	25.13	2	0.013	549.51	549.53	0.0020					11.66	11.66	10	100	9.8	114.3	408.99	Yes	2.01	0.07	0.0002	0.00	556.89	556.89	0.06	1.01	Pipe Size Change	1.00	0.05	0.0058	559.6	2.71		
Line"E"	6+85.4	7+54.4	69.0	1	48			ACMP	12.57	12.57	1	0.013	551.40	551.86	0.0067	Lines J and D, OS14, L2	18.07	0.65	11.66	11.66	11.66	10	100	9.8	114.3	117.89	Yes	8.05	0.14	0.0063	0.43	556.94	557.37	1.01	1.01	Wye Inlet	1.25	1.26	0.82	559.6	2.23		
System ID	Collection Point	Downstream	Upstream	Pipe Length (ft)	Number of Barrels	Pipe Size (in)	Span (ft)	Rise (ft)	Type	Area (ft²)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Manning's n	Downstream	Upstream	Slope (ft/ft)	Drainage Area	Area (acres)	Runoff "C"	Incremental (C*A)	Accumulated (C*A)	Up Stream (Tc)	Design Year	Storm Frequency	Intensity (in/hr)	Runoff (cfs)	Conduit Capacity (CFS)	Partial Flow	Velocity (ft/sec)	Time in Conduit (min)	Friction Slope (ft/ft)	Friction Headloss (ft)	Downstream (ft)	Upstream (ft)	V1²/2g (ft)	V2²/2g (ft)	Junction Type	Coefficient (Kj)	Head-Loss (HL)	Design HGL	Top of Curb Elevation	HGL Depth Below (T/C)	Remarks
Line"F"	1+00.0	1+51.4	51.4	1	24			RCP	3.14	6.28	0.5	0.013	553.76	554.79	0.0200	Q, OS8, OS9	5.31	0.37	1.96	1.96	1.96	10	100	9.8	19.3	32.08	Yes	4.71	0.18	0.0072	0.37	555.76	555.98	0.34	0.34	Wye Inlet	1.25	0.43	0.0126	560.5	4.52		
System ID	Collection Point	Downstream	Upstream	Pipe Length (ft)	Number of Barrels	Pipe Size (in)	Span (ft)	Rise (ft)	Type	Area (ft²)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Manning's n	Downstream	Upstream	Slope (ft/ft)	Drainage Area	Area (acres)	Runoff "C"	Incremental (C*A)	Accumulated (C*A)	Up Stream (Tc)	Design Year	Storm Frequency	Intensity (in/hr)	Runoff (cfs)	Conduit Capacity (CFS)	Partial Flow	Velocity (ft/sec)	Time in Conduit (min)	Friction Slope (ft/ft)	Friction Headloss (ft)	Downstream (ft)	Upstream (ft)	V1²/2g (ft)	V2²/2g (ft)	Junction Type	Coefficient (Kj)	Head-Loss (HL)	Design HGL	Top of Curb Elevation	HGL Depth Below (T/C)	Remarks
Line"G"	1+00.0	1+06.5	6.5	1	18			RCP	1.77	4.71	0.375	0.013	559.72	559.74	0.0030					0.71	0.71	10	100	9.8	7.0	5.77	No	3.96	0.03	0.0044	0.03	562.10	562.13	0.24	0.24	45" Bend	0.37	0.09	0.0182	565.5	3.37		
Line"G"	1+06.5	1+16.6	10.1	1	18			RCP	1.77	4.71	0.375	0.013	559.74	559.75	0.0010	S, OS10	2.22	0.32	0.71	0.71	0.71	10	100	9.8	7.0	3.33	No	3.96	0.04	0.0044	0.04	562.22	562.26	0.24	0.24	Wye Inlet	1.25	0.30	0.0347	565.5	3.24		
System ID	Collection Point	Downstream	Upstream	Pipe Length (ft)	Number of Barrels	Pipe Size (in)	Span (ft)	Rise (ft)	Type	Area (ft²)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Manning's n	Downstream	Upstream	Slope (ft/ft)	Drainage Area	Area (acres)	Runoff "C"	Incremental (C*A)	Accumulated (C*A)	Up Stream (Tc)	Design Year	Storm Frequency	Intensity (in/hr)	Runoff (cfs)	Conduit Capacity (CFS)	Partial Flow	Velocity (ft/sec)	Time in Conduit (min)	Friction Slope (ft/ft)	Friction Headloss (ft)	Downstream (ft)	Upstream (ft)	V1²/2g (ft)	V2²/2g (ft)	Junction Type	Coefficient (Kj)	Head-Loss (HL)	Design HGL	Top of Curb Elevation	HGL Depth Below (T/C)	Remarks
Line"H"	1+00.0	1+19.6	19.6	1	24			RCP	3.14	6.28	0.5	0.013	558.10	558.13	0.0016							10</																					

OPEN CHANNEL CALCULATIONS																			
CROSS SECTION	CHANNEL TYPE	FLOW "Q" (c.f.s.)	ROUGHNESS COEFFICIENT "n"	SLOPE "S" (ft./ft.)	S ^{0.5}	Q x n / 1.486 x S ^{0.5}	WIDTH "b" (ft.)	DEPTH "d" (ft.)	DEPTH "d" (100-YR)	SIDE SLOPE	AREA "A" (sq.ft.)	WETTED PERIMETER "WP" (ft.)	HYDRAULIC RADIUS "R"	R ^{2/3}	AxR ^{2/3}	VELOCITY (CAP)	VELOCITY (100-YR)	VELOCITY HEAD V ² /2g (ft.)	REMARKS
K-K	TYPE III	1.78	0.013	0.010	0.100	0.16	5	0.25	0.09	0.001	0.63	5.02	0.12	0.25	0.16	2.85	1.40	0.13	
L-L	TYPE III	1.78	0.013	0.010	0.100	0.16	5	0.25	0.30	0.001	0.63	5.02	0.12	0.25	0.16	2.85	2.87	0.13	

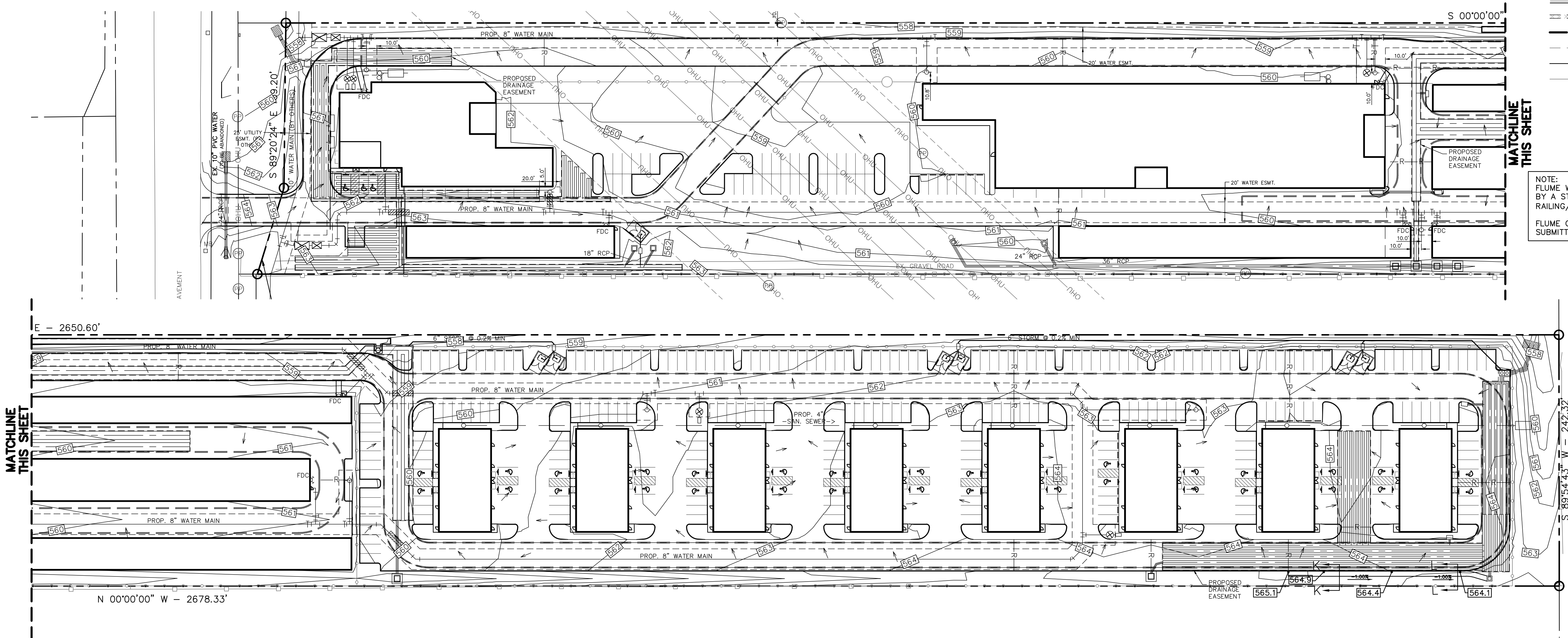


LEGEND

- EXISTING CURB
- PROPOSED CURB
- PROPOSED STORM PIPE
- EXISTING STORM PIPE
- PROPOSED WASTEWATER PIPE
- EXISTING WASTEWATER PIPE
- PROPOSED WATER PIPE
- EXISTING WATER PIPE
- TW - TOP WALL ELEVATION OF FLUME SIDE
- TF - ELEVATION SURFACE OF FLUME

NOTE: FLUME WALLS GREATER THAN 2 FT SHALL BE DESIGNED BY A STRUCTURAL ENGINEER, INCLUDING SAFETY RAILING/FALL PROTECTION.

FLUME CONSTRUCTION DETAILS NOT INCLUDED WITH THIS SUBMITTAL.



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- SEE WATER AND SANITARY SEWER PLAN FOR ADDITIONAL INFORMATION RELATED TO OTHER UTILITY CONSTRUCTION.
- ALL TRENCH BACKFILL FOR PUBLIC STORM SEWER SHALL BE COMPACTED AS REQUIRED BY THE CITY.
- REFERENCE LANDSCAPE AND ARCHITECTURAL PLANS FOR ADDITIONAL STORM DRAINAGE DETAILS.
- DURING THE REMOVAL OF EXISTING INLETS, CONTRACTOR SHALL PROTECT AND REUSE EXISTING STORM LATERALS. ANY DAMAGED SECTIONS OF STORM PIPE, SHALL BE REPLACED TO CURRENT CITY STANDARDS.
- ALL WALLS SHALL HAVE AN APPEARANCE OF ROCK OR STONE FACADE.

!!! CAUTION !!!
UNDERGROUND UTILITIES

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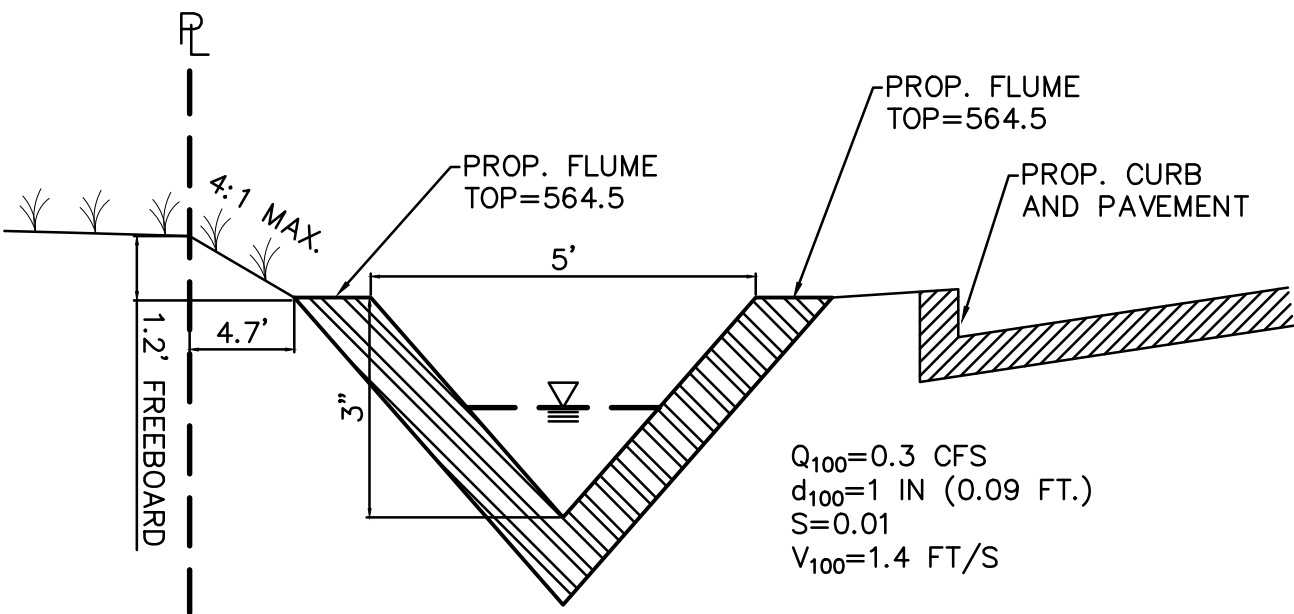
CALL: TEXAS ONE CALL ☎ 811 AT LEAST 72 HRS PRIOR TO CONSTRUCTION.

GENERAL NOTES:

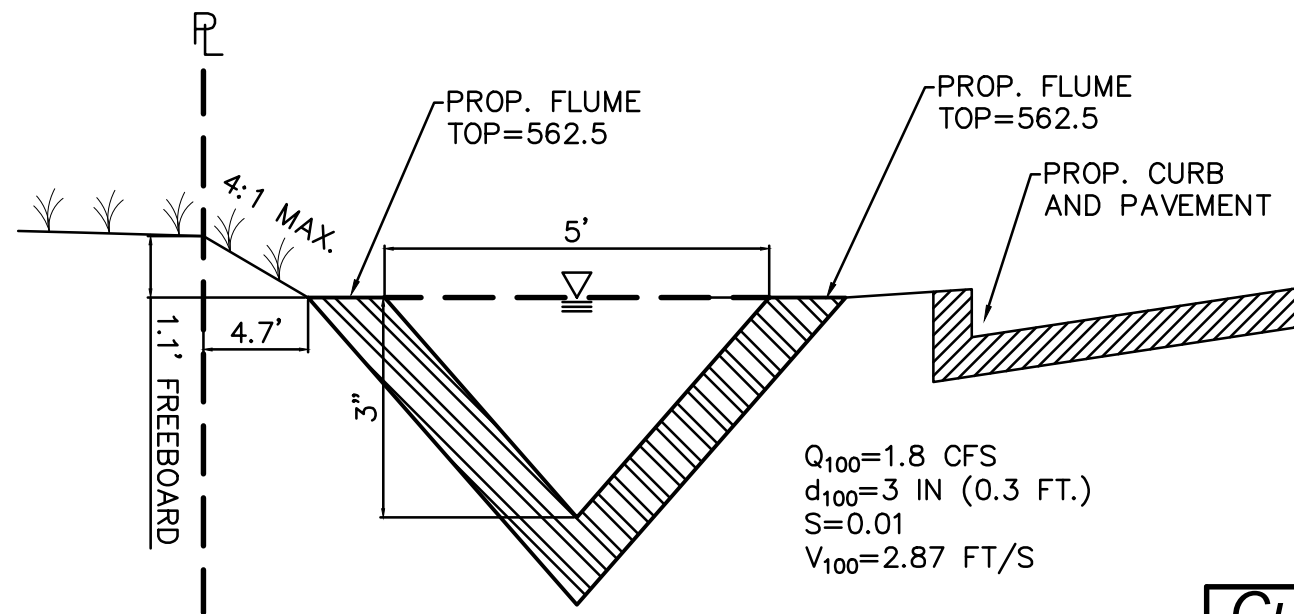
- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE CITY'S STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS EXCEPT AS NOTED HEREIN OR APPROVED BY THE CITY.
- ALL PRIVATE STORM SEWER PIPE 15" AND SMALLER SHALL BE SDR-35 PVC, ADS N-12 DRAINAGE PIPE OR APPROVED EQUAL. IN GENERAL, ALL STORM SEWER PIPE 18" AND LARGER SHALL BE IN CLASS III RCP OR AS INDICATED ON THE PLAN. ALL PIPE IN THE RIGHT OF WAY SHALL BE RCP.
- ALL DRAINAGE STRUCTURES (INCLUDING FLUME) SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4200 PSI (7.0 SACK) AT 28 DAYS (NO FLY ASH ALLOWED).
- ALL PRECAST BOX CULVERTS, DRAINAGE STRUCTURES AND RCP WILL REQUIRE A CERTIFICATION FROM THE MANUFACTURER THAT THE PRODUCT MEETS THE DESIGN REQUIREMENTS AND 28 DAY COMPRESSIVE STRENGTH.
- CONTRACTOR SHALL HAVE A TRENCH SAFETY PLAN AND A TRAFFIC CONTROL PLAN (IF REQUIRED) AT THE TIME OF PRE-CONSTRUCTION MEETING.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY STANDARDS, TEXAS STATE LAW, AND O.S.H.A. STANDARDS FOR ALL EXCAVATION.
- CONSTRUCTION SHALL BEGIN AT DOWNSTREAM END OF PROJECT AND CONTINUE UPSTREAM WITH PIPE GROOVES FACING UPSTREAM. ENGINEER IS NOT RESPONSIBLE IF CONTRACTOR INSTALLS STORM SYSTEM FROM UPSTREAM OR MIDSTREAM.
- CONTRACTOR SHALL PROTECT ALL PUBLIC UTILITIES IN THE CONSTRUCTION OF THIS PROJECT.

ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

REVISIONS		
REV NO.	DATE	DESCRIPTION



SECTION K-K



SECTION L-L

AS-BUILT

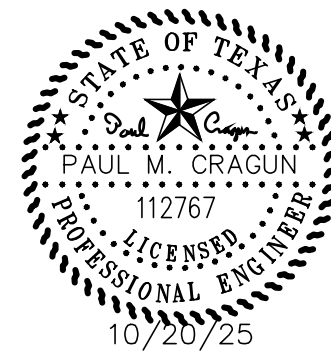
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BENCHMARK

NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33

CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT



Cumulus Design Firm #14810
2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
Tel. 214.235.0367

STORM FLUME PLAN

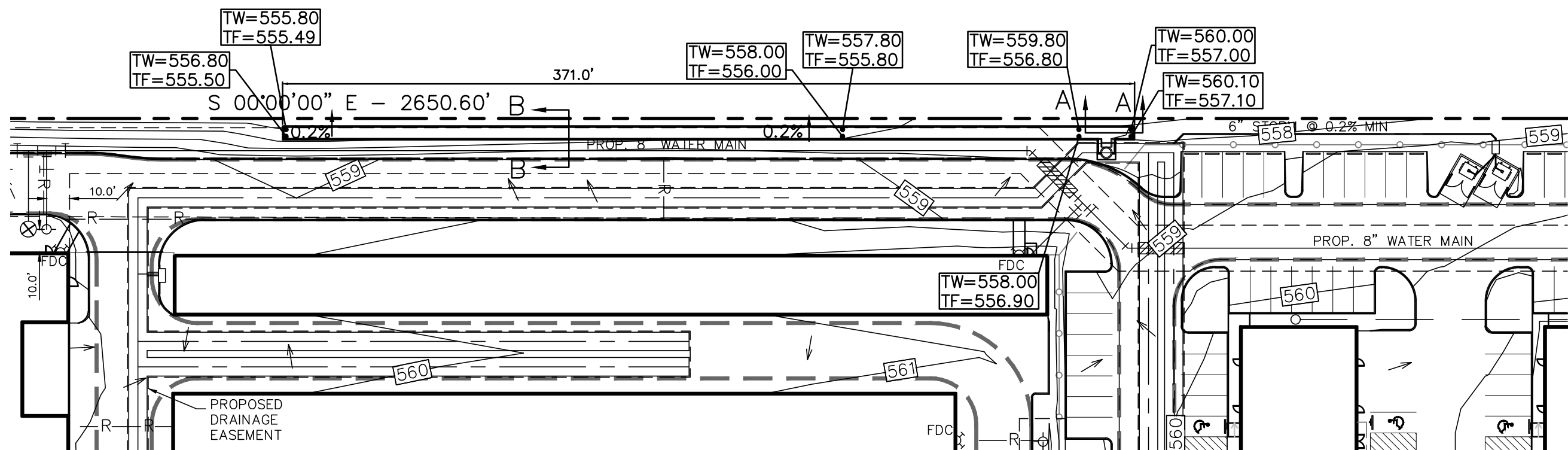
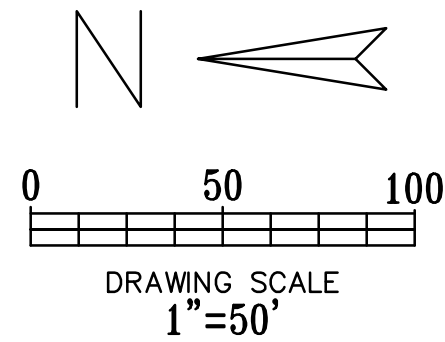
4649 HIGHWAY 276

CITY OF ROCKWALL

ROCKWALL COUNTY, TEXAS

J.H. BAILEY SURVEY, ABST NO. 34

DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	1" = 50'	C13.0

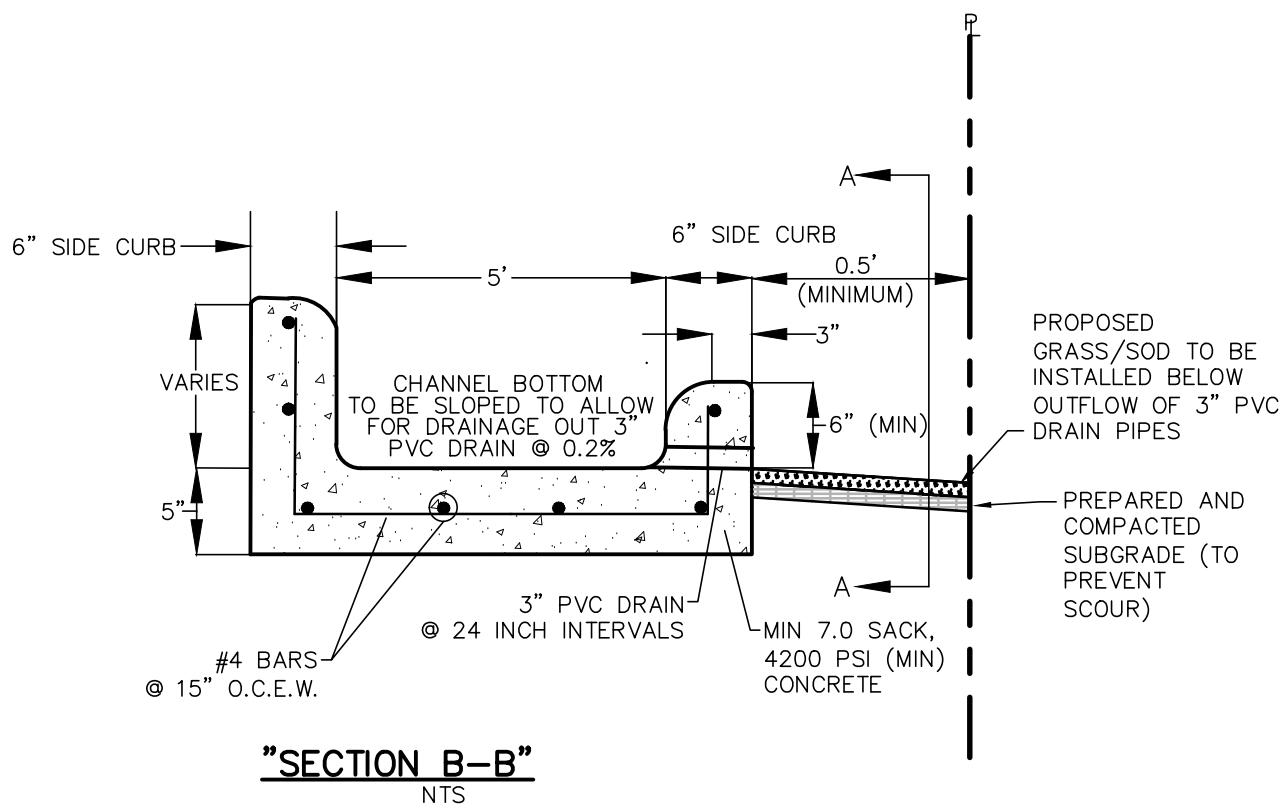
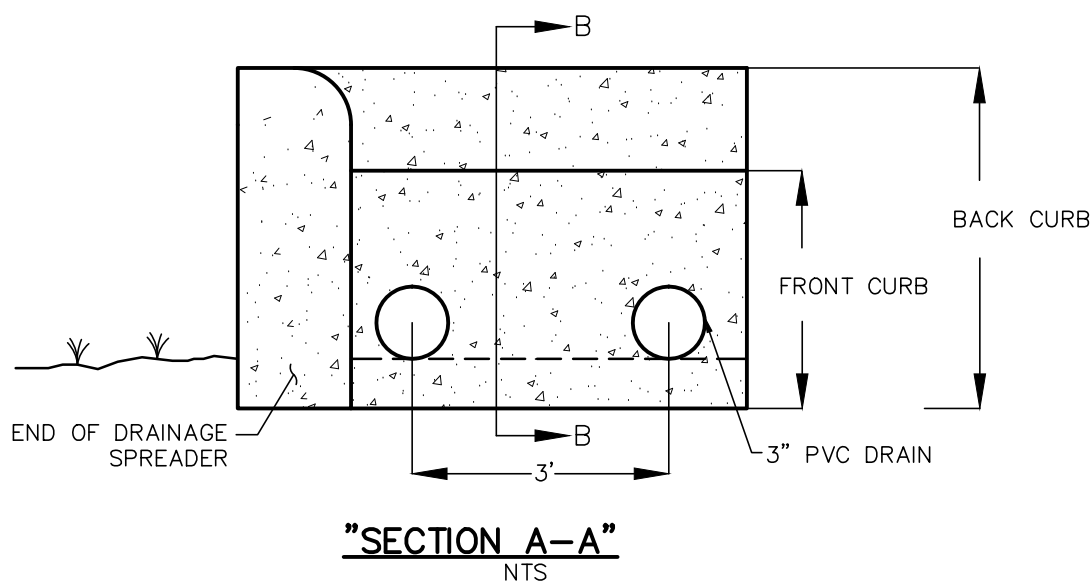


LEGEND

- EXISTING CURB
- PROPOSED CURB
- PROPOSED STORM PIPE
- EXISTING STORM PIPE
- PROPOSED WASTEWATER PIPE
- EXISTING WASTEWATER PIPE
- PROPOSED WATER PIPE
- EXISTING WATER PIPE
- TW - TOP WALL ELEVATION OF FLUME SIDE
- TF - ELEVATION SURFACE OF FLUME

GENERAL NOTES:

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DRAINAGE SPREADER DETAILS

!!! CAUTION !!!
UNDERGROUND UTILITIES

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REVISIONS		
REV. NO.	DATE	DESCRIPTION

AS-BUILT

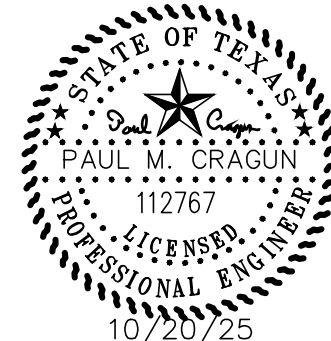
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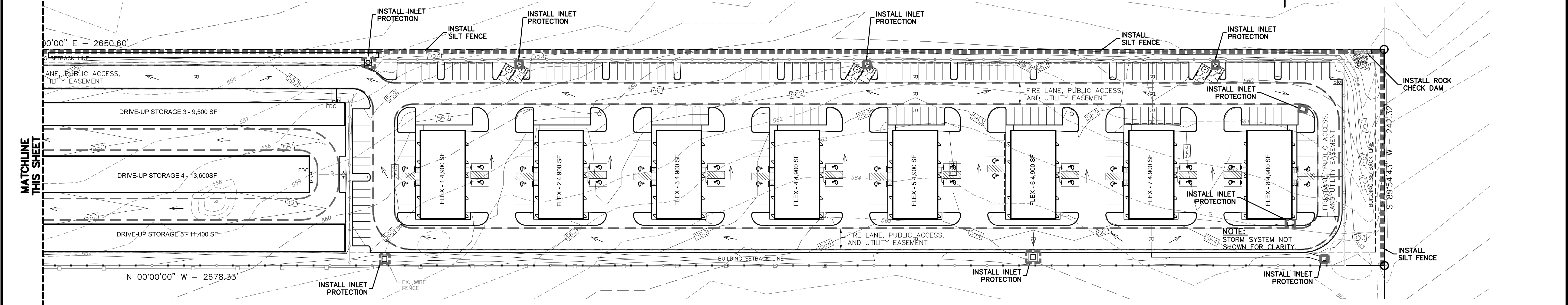
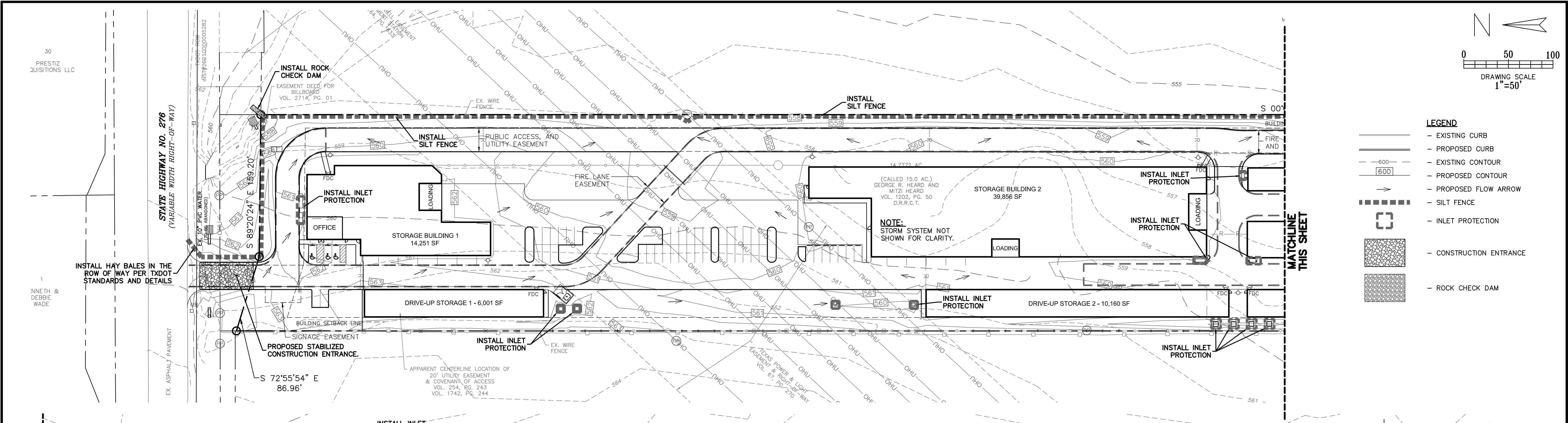
BENCHMARK

NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33

CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT



Cumulus Design Firm #14810 2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050 Tel. 214.235.0367			
FLUME SPREADER PLAN			
4649 HIGHWAY 276			
CITY OF ROCKWALL			
ROCKWALL COUNTY, TEXAS			
J.H. BAILEY SURVEY, ABST NO. 34			
DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	1" = 50'	C13.1



GENERAL NOTES:

1. EROSION CONTROL DEVICES AS SHOWN ON THE EROSION CONTROL PLAN FOR THE PROJECT SHALL BE INSTALLED PRIOR TO THE START OF THE LAND DISTURBING ACTIVITIES ON THE PROJECT.
2. ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS FOR THE PROJECT.
3. IF THE EROSION CONTROL PLAN AS APPROVED CANNOT CONTROL EROSION AND OFF-SITE SEDIMENT FROM THE PROJECT THE EROSION CONTROL PLAN WILL BE REQUIRED TO BE REVISED AND/OR ADDITIONAL EROSION CONTROL DEVICES WILL BE REQUIRED ON SITE.
4. IF OFF-SITE SOIL BORROW OR SPOIL SITES ARE USED IN CONJUNCTION WITH THIS PROJECT, THIS INFORMATION SHALL BE DISCLOSED AND SHOWN ON THE EROSION CONTROL PLAN. THESE AREAS SHALL BE STABILIZED WITH PERMANENT GROUND COVER PRIOR TO FINAL APPROVAL OF THE PROJECT.
5. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE STORM WATER POLLUTION AND PREVENTION PLAN (SWPPP) IF REQUIRED.
6. ALL EROSION CONTROL IN THE TXDOT R.O.W SHALL BE PER TXDOT STANDARDS AND DETAILS. AT NO TIMES SHALL INLET PROTECTION OBSTRUCT THE DRIVING LANES.
7. CITY WILL NOT ACCEPT THE PROJECT OR RELEASE TCO/CO UNTIL 75%-80% OF ALL DISTURBED AREA IS COVERED WITH GRASS (NOT WINTER RYE OR WEEDS) THAT IS A MINIMUM 1" TALL.
8. ALL RIGHT-OF-WAYS MUST BE SODDED PRIOR TO CITY ACCEPTANCE AND TCO/CO.

TOTAL SITE AREA=14.77 ACRES
TOTAL DISTURBED AREA=±14.77 ACRES

CONSTRUCTION SCHEDULE & PHASING PLAN:

PHASE 1-GRADING
PHASE 2-UTILITY INSTALLATION
PHASE 3-PAVING/BUILDING
PHASE 4-SOIL STABILIZATION/LANDSCAPING

PHASE	CONSTRUCTION ACTIVITIES	BMP UTILIZED
1	PAVEMENT SUBSURFACE GRADING, UTILITY TRENCHING	SILT FENCE, TRIANGULAR SEDIMENT DIKE STABILIZED CONSTRUCTION ENTRANCE
2	PAVEMENT INSTALLATION, INSTALLING UTILITIES	SILT FENCE, TRIANGULAR SEDIMENT DIKE, INLET PROTECTION, SOD STABILIZED CONSTRUCTION ENTRANCE
3	FINAL GRADING AND BACKFILL	SILT FENCE, TRIANGULAR SEDIMENT DIKE, INLET PROTECTION, SOD STABILIZED CONSTRUCTION ENTRANCE
4	CONSTRUCTION COMPLETION	SOD, REMOVE BMPS

AS-BUILT

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BENCHMARK
NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33
CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT

REVISIONS		
REV NO.	DATE	DESCRIPTION

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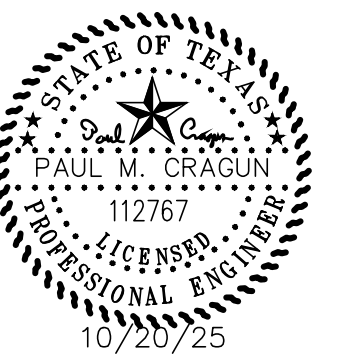
SURVEYOR:
BLUE SKY SURVEYING & MAPPING
11015 MIDWAY ROAD
DALLAS, TX 75229
PH: (214) 358-4500

OWNER:
DONALD VALK
4649 HWY 276
ROCKWALL, TX 75032
PH: (972) 722-2590
CONTACT: HELLEN BYRD

ENGINEER:
CUMULUS DESIGN, INC.
FIRM NUMBER: 14810
PO BOX 2119
EULESS, TEXAS 76039
PH: (214) 235-0367
CONTACT: PAUL CRAGUN

III CAUTION III
UNDERGROUND UTILITIES

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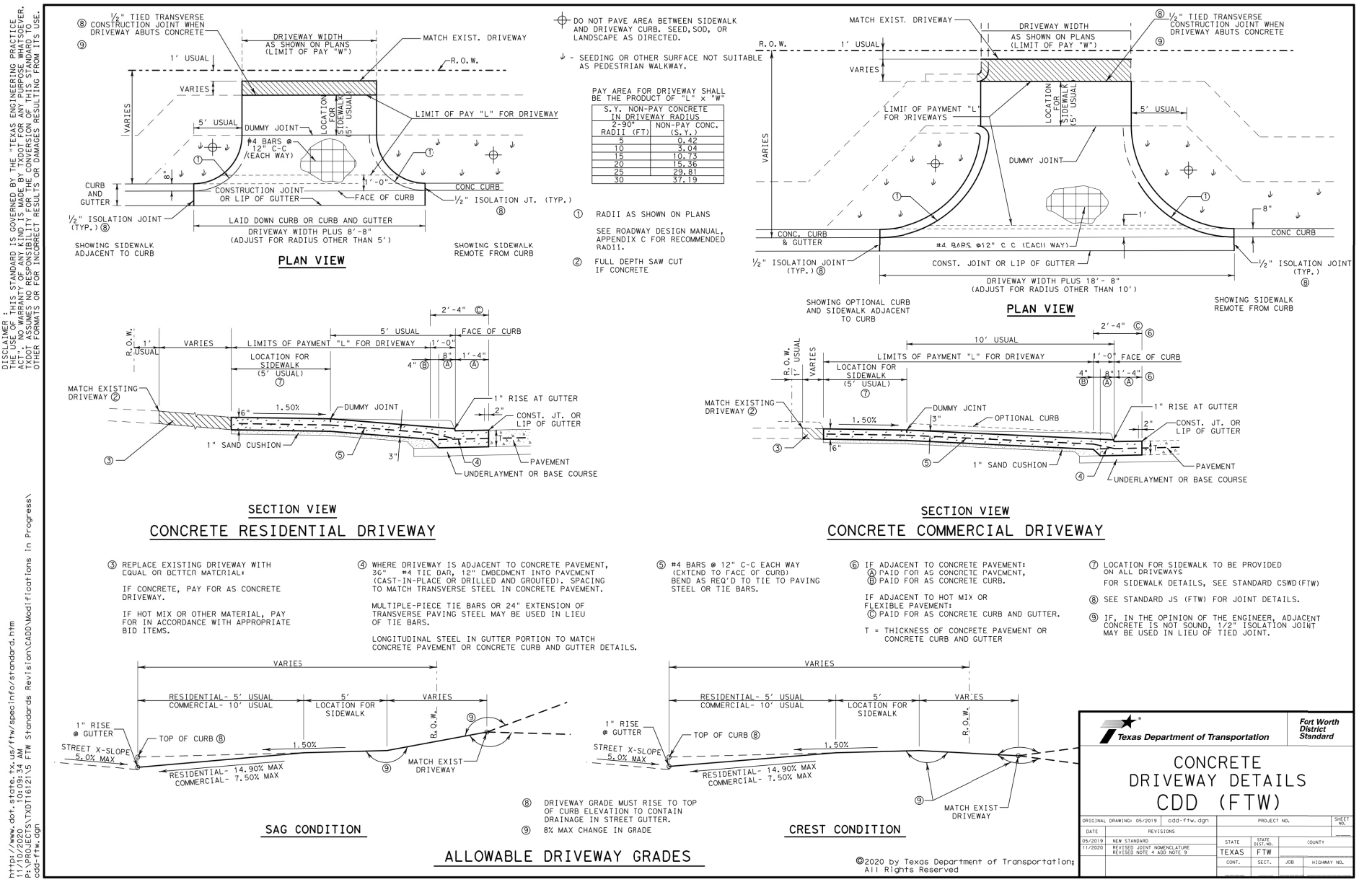
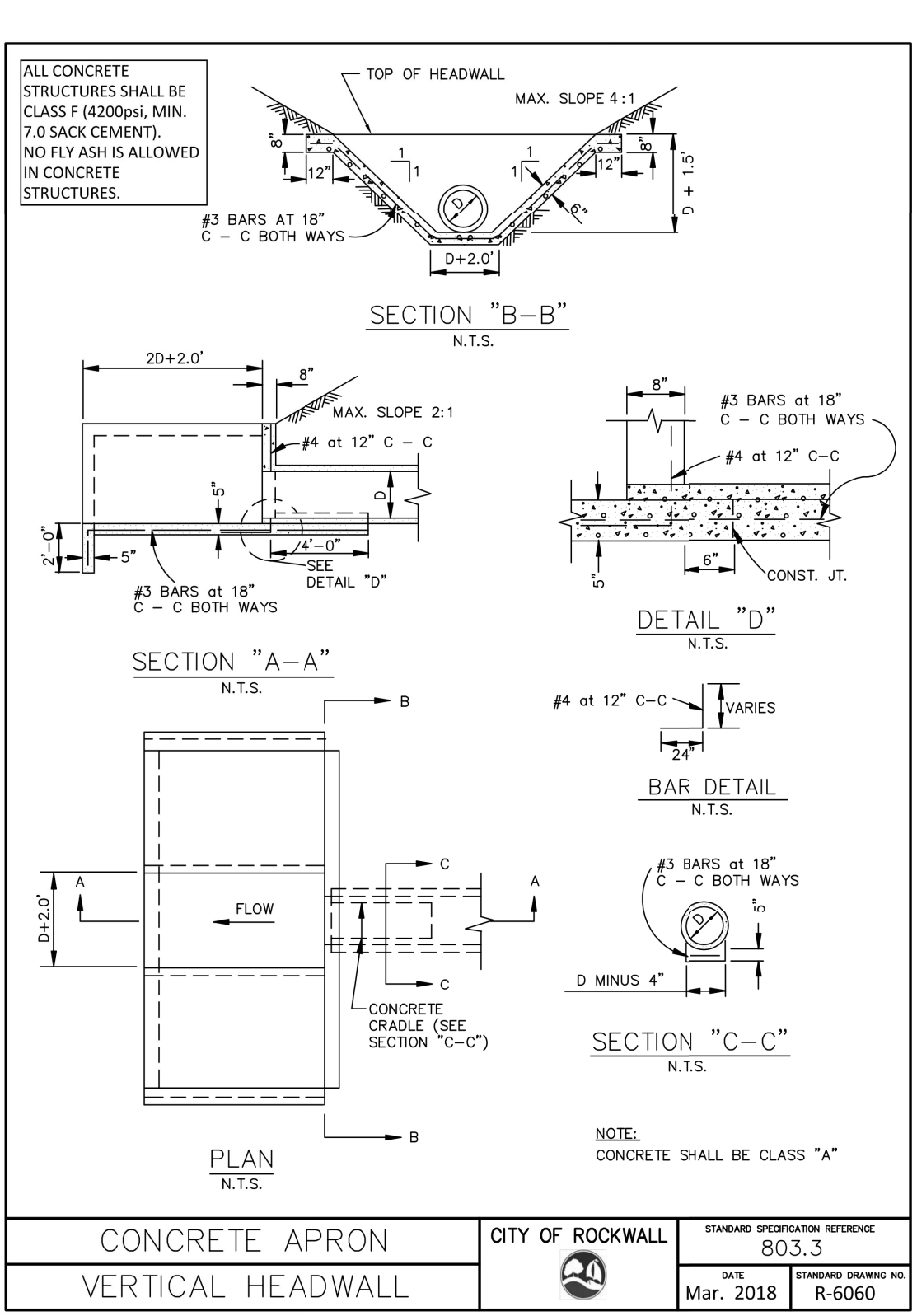
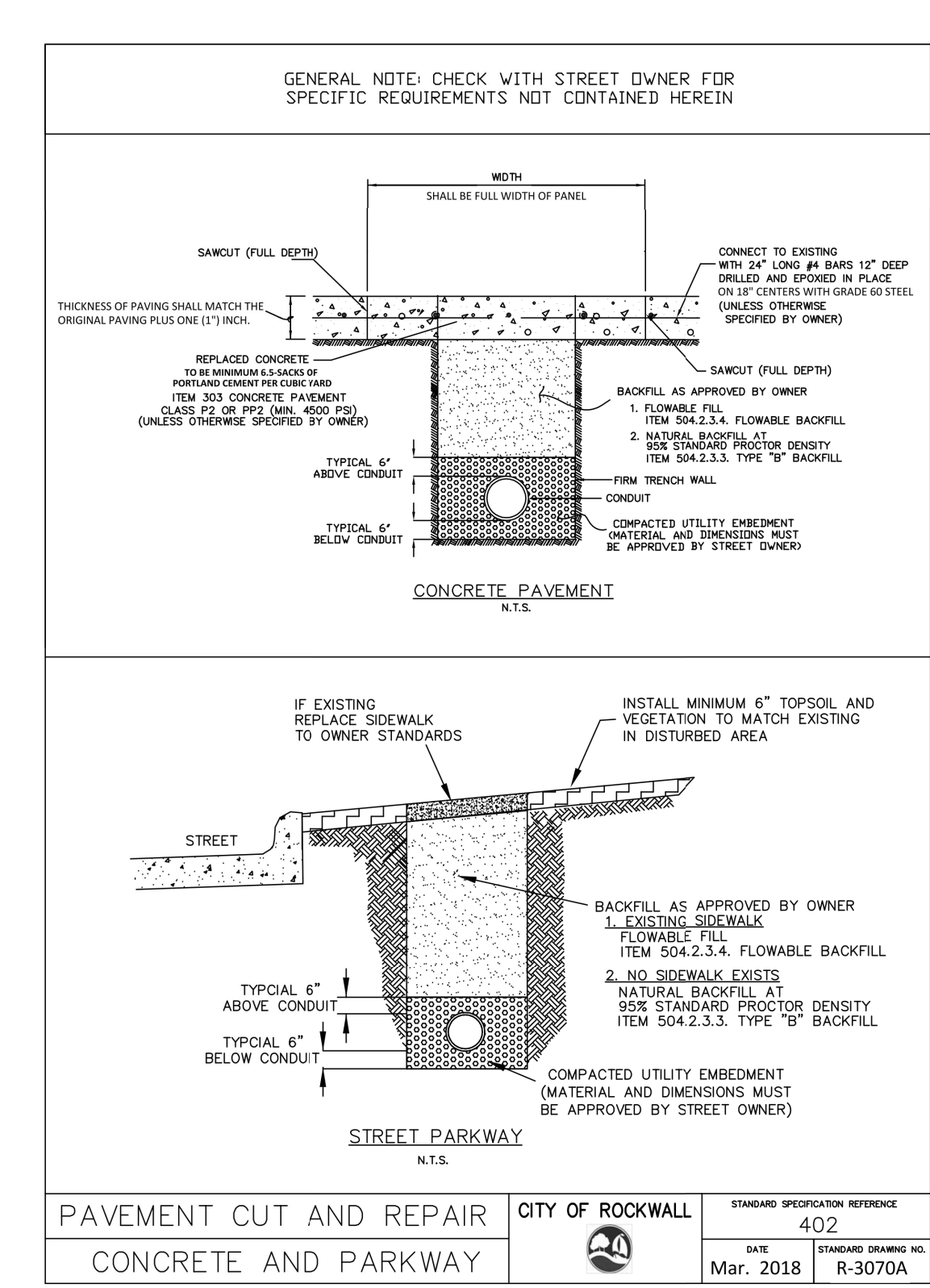
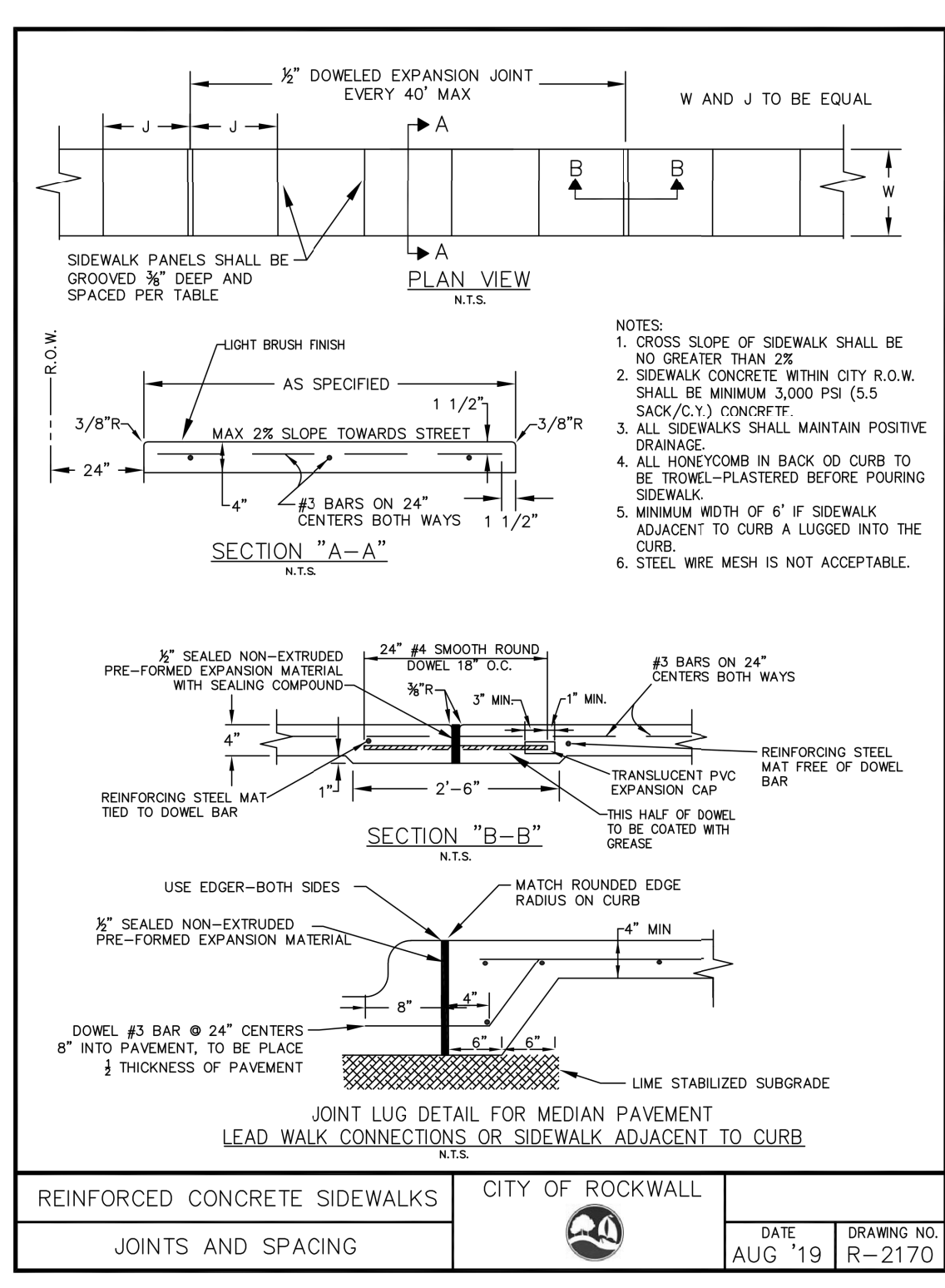
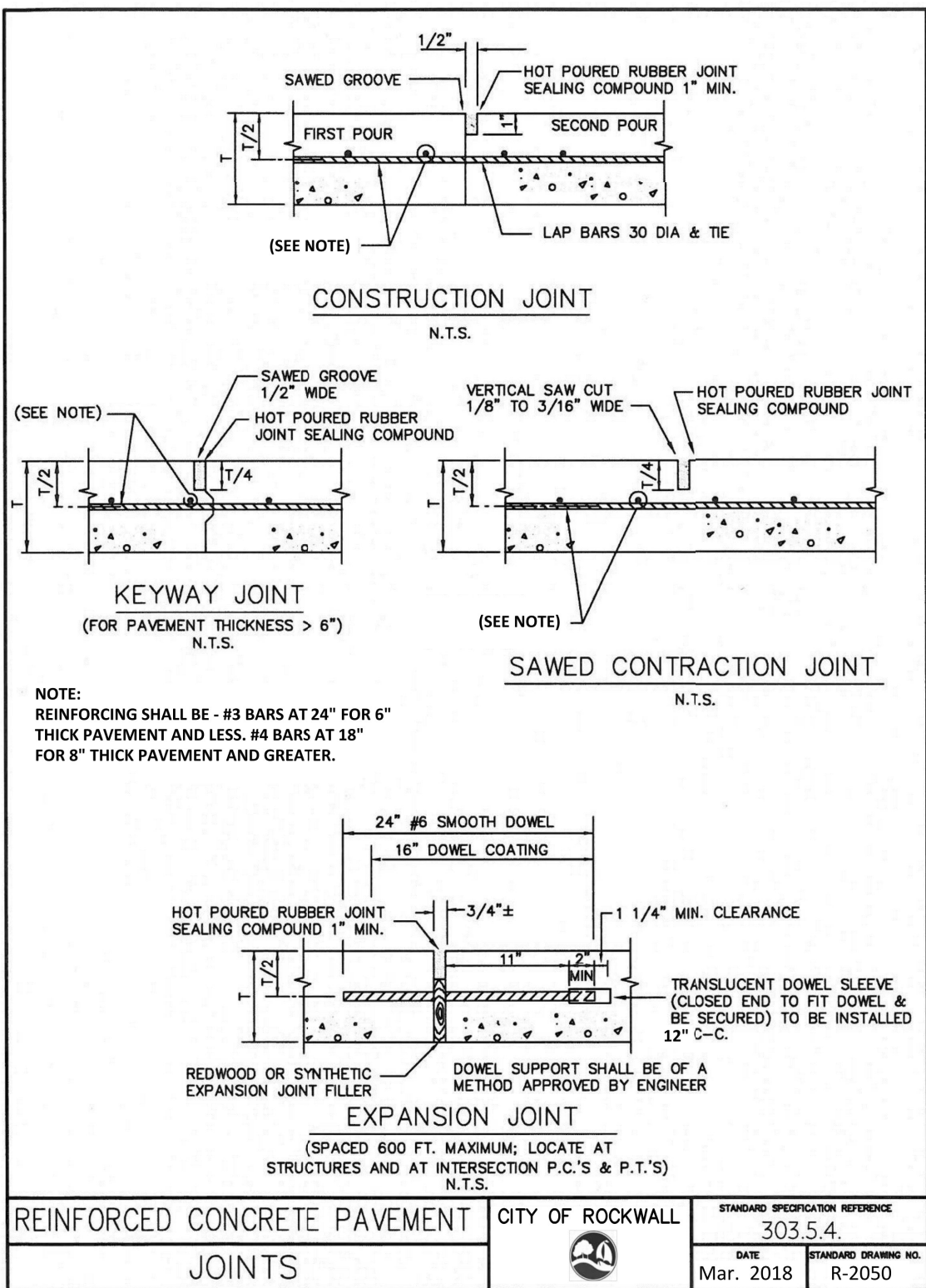


Cumulus Design Firm #14810
2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
Tel. 214.235.0367

EROSION CONTROL PLAN

4649 HIGHWAY 276
CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS
J.H. BAILEY SURVEY, ABST NO. 34

DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	1" = 50'	C15.0

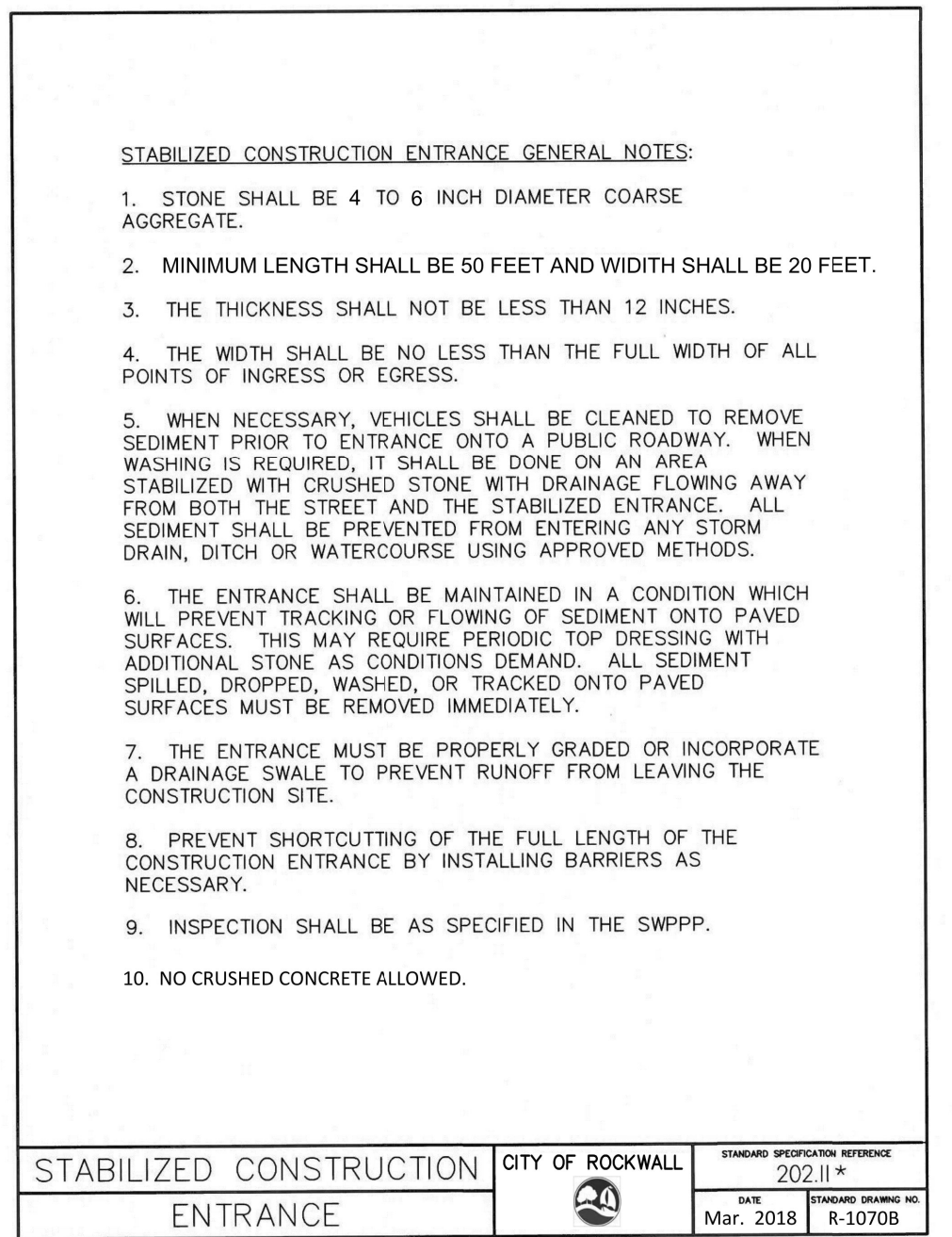
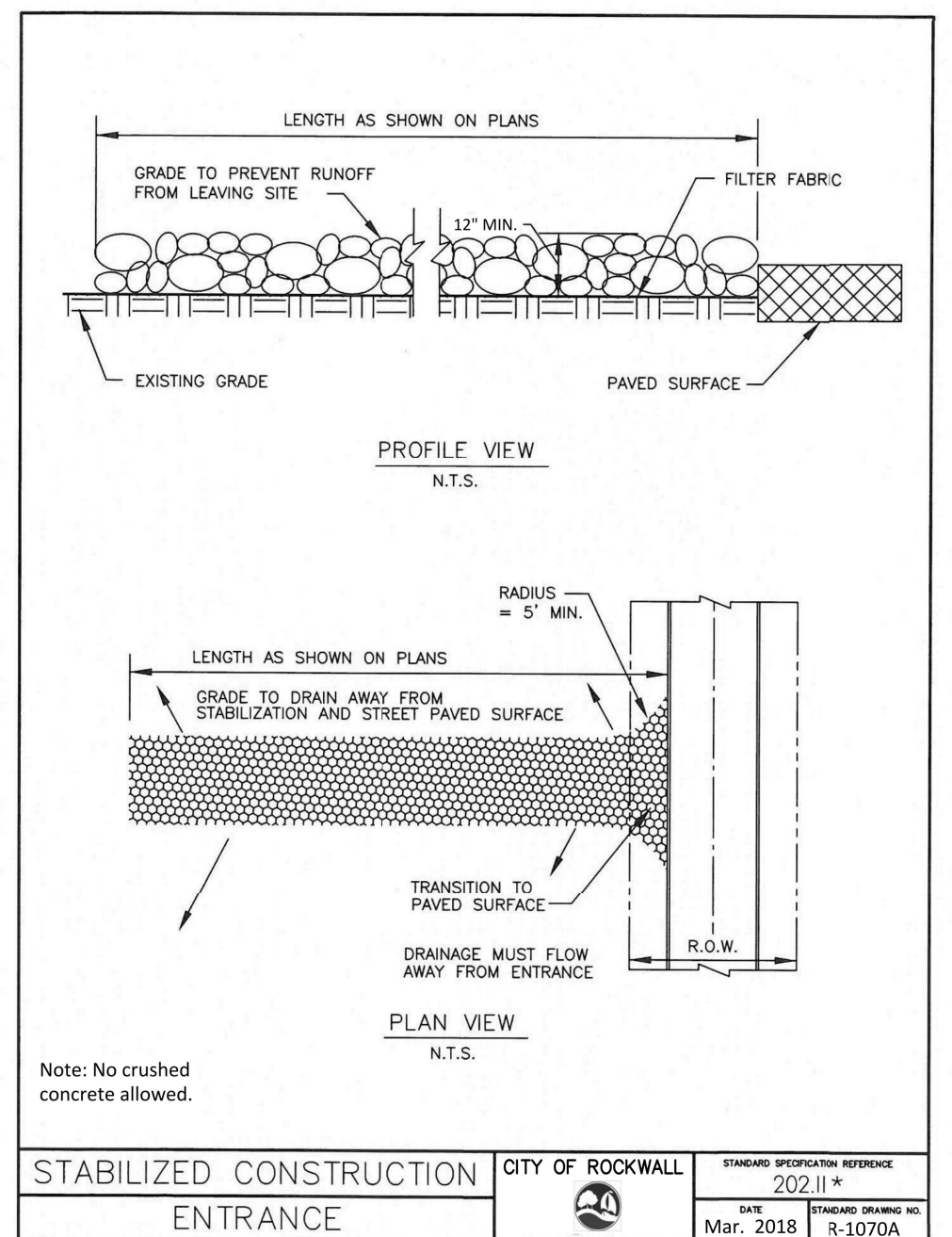
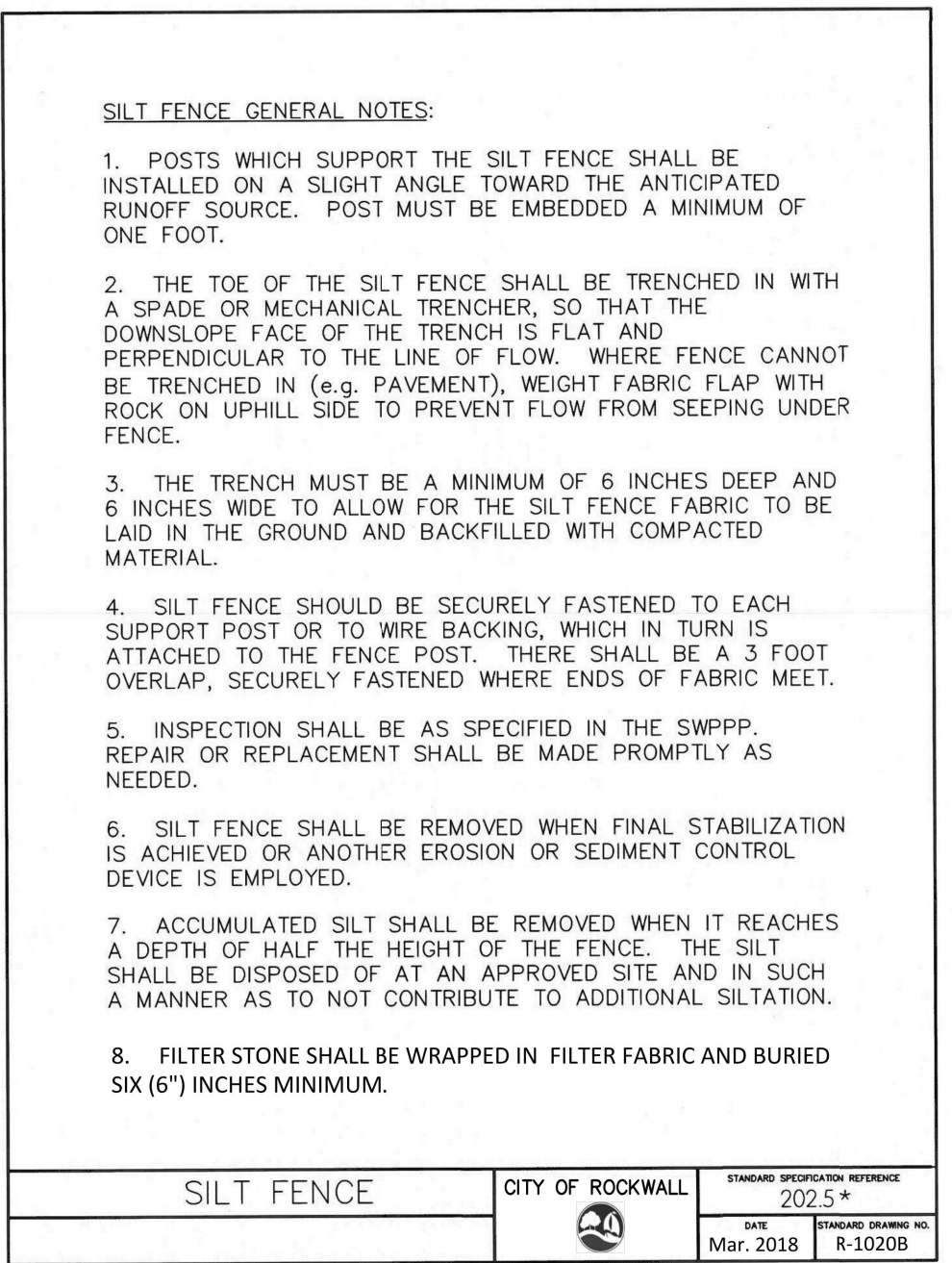
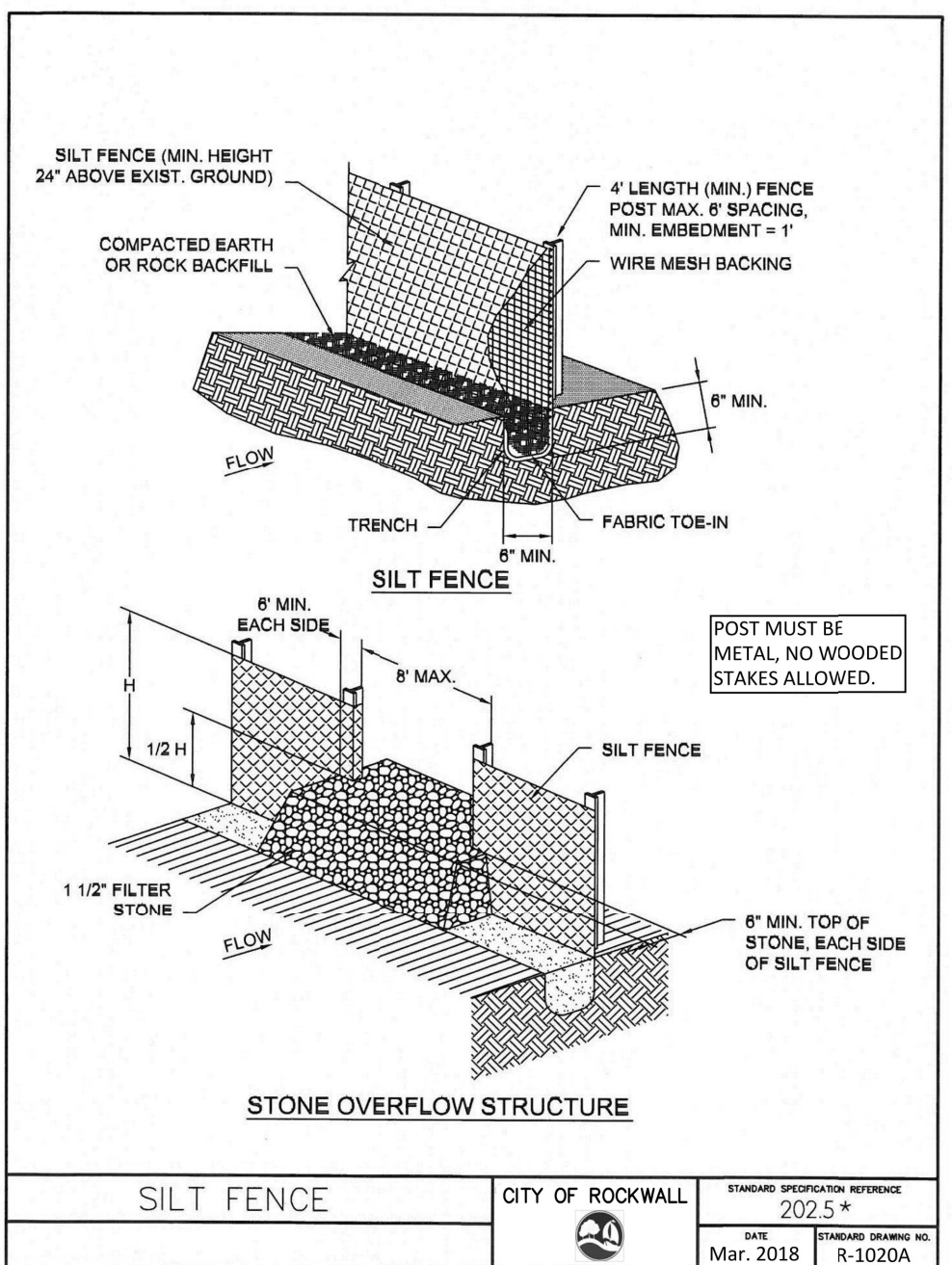
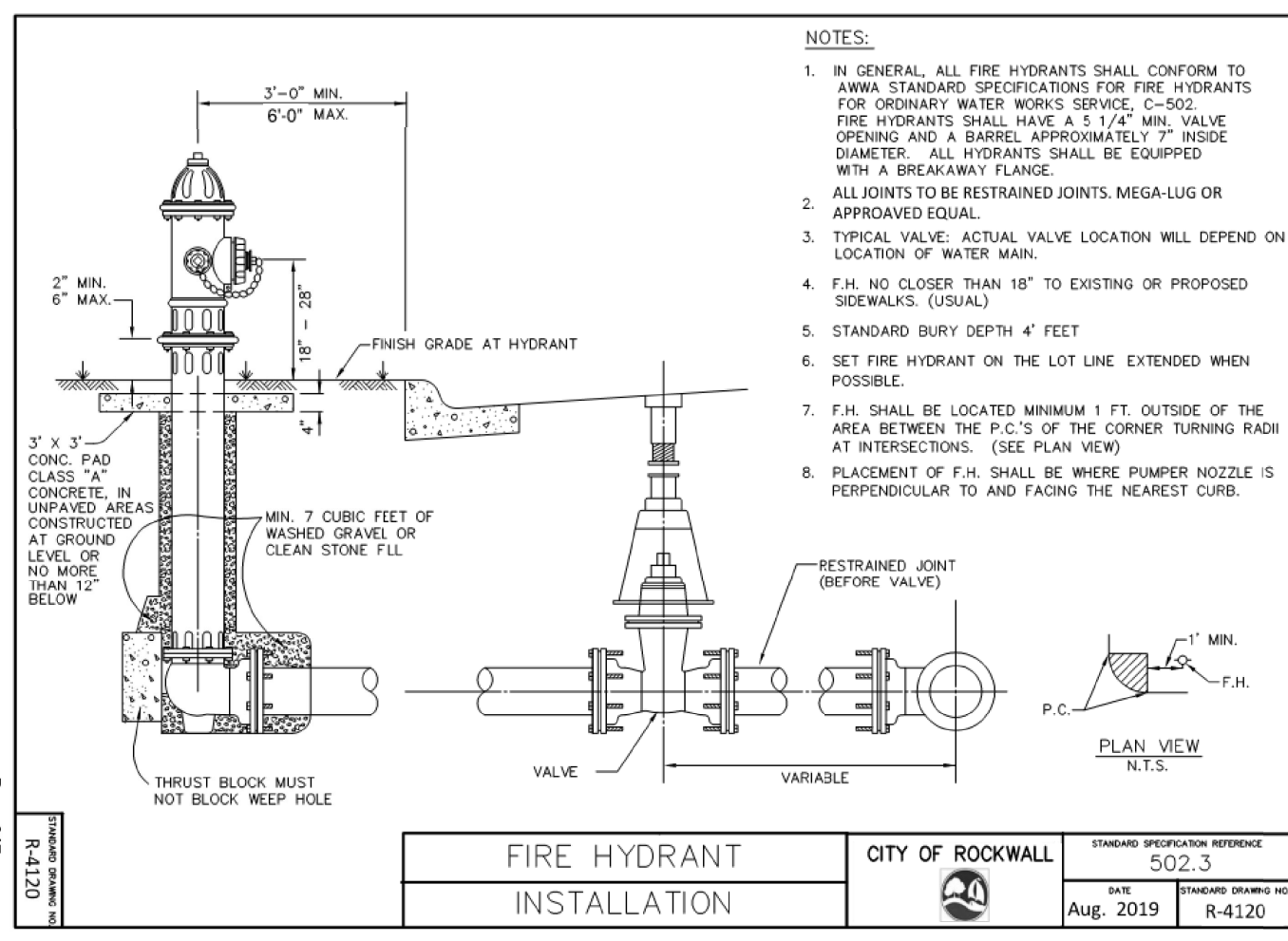
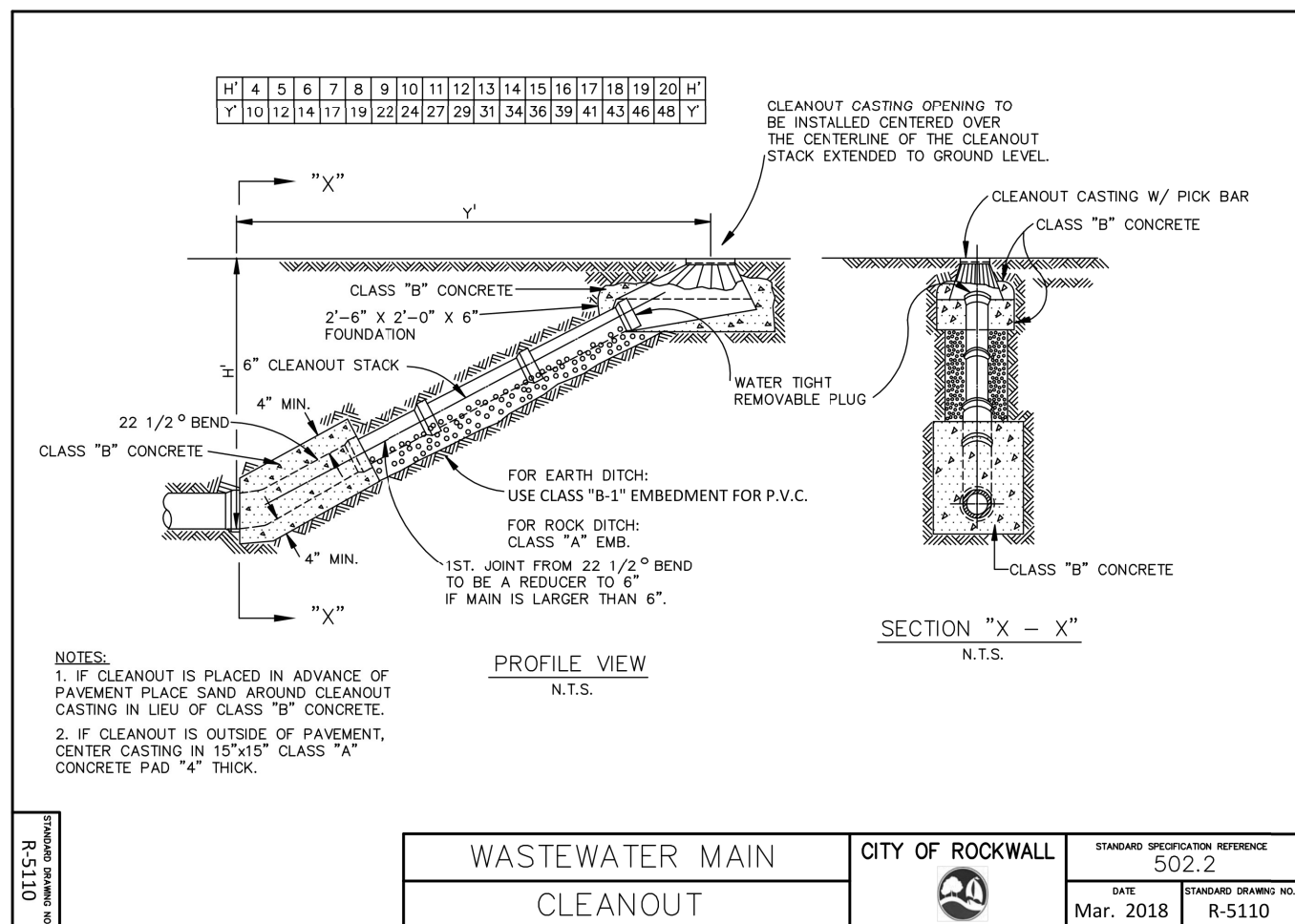
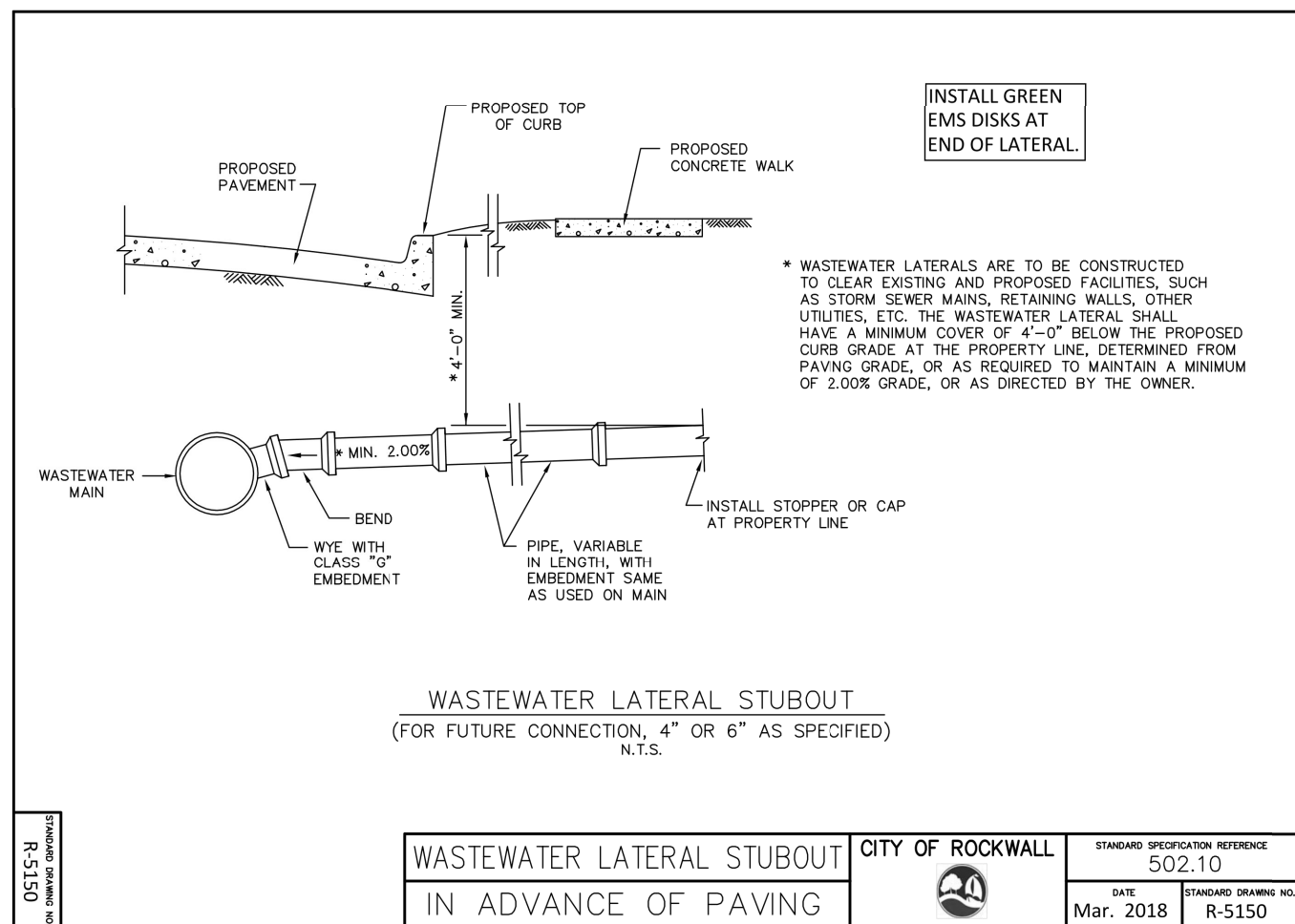
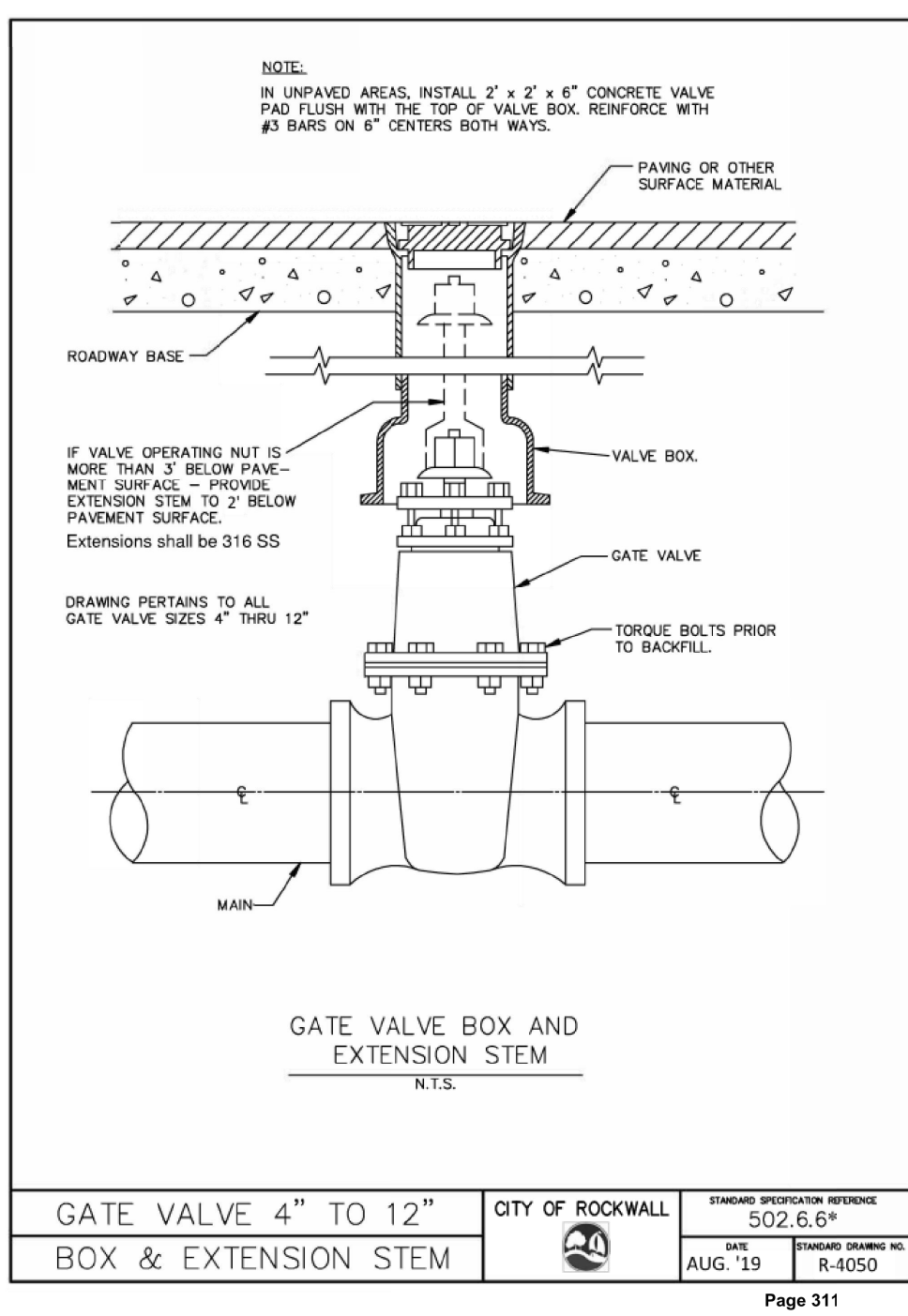
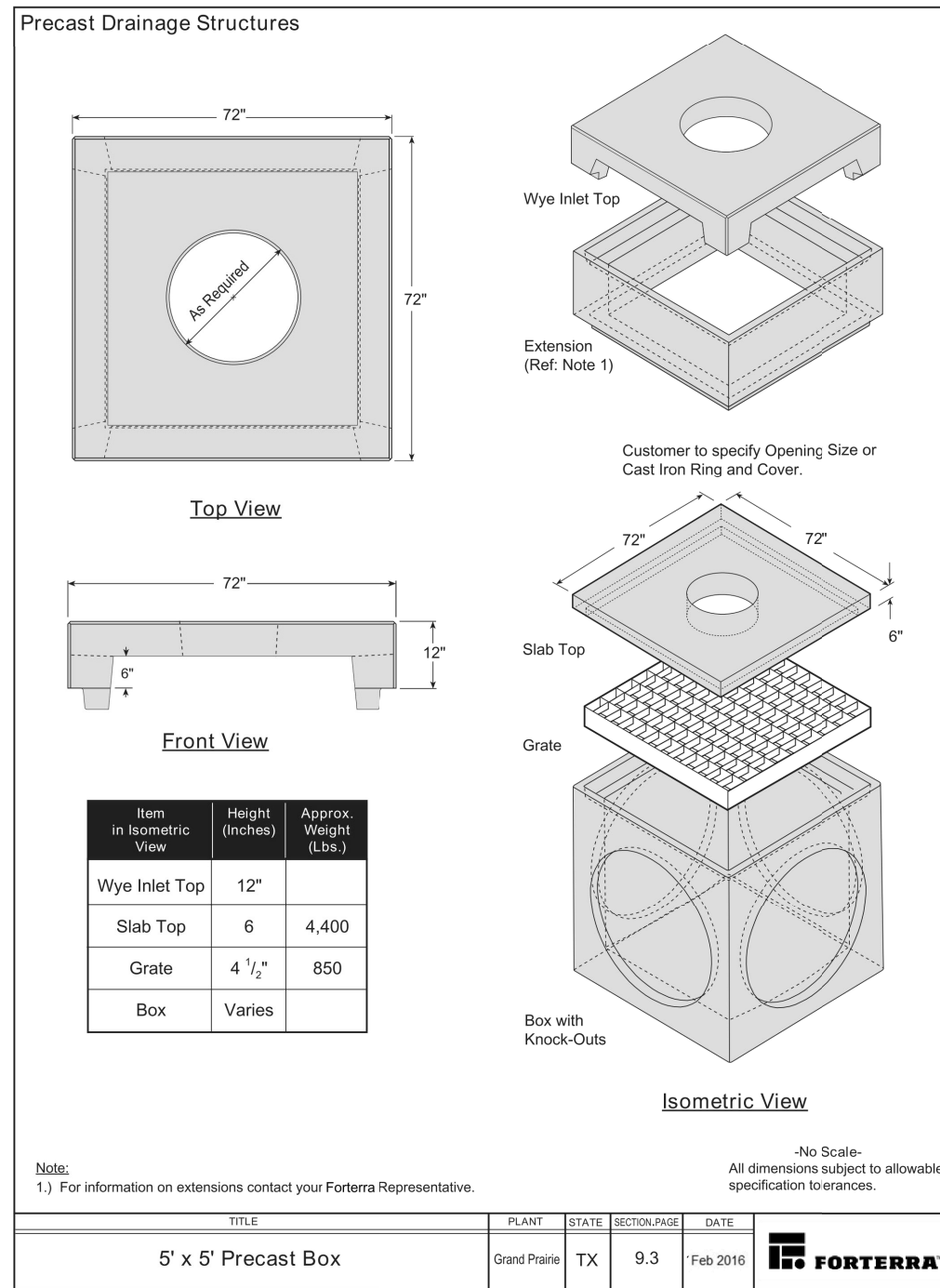
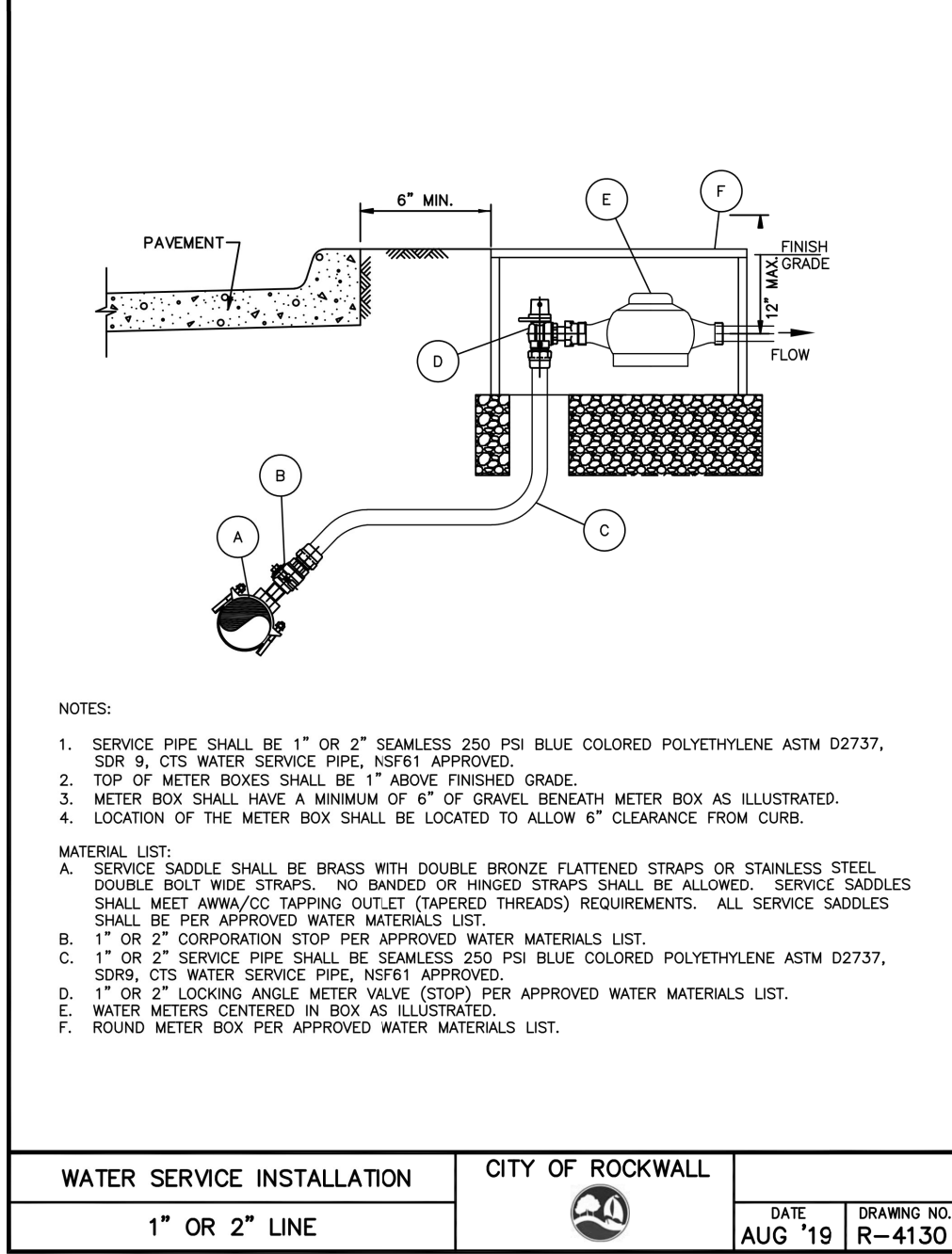
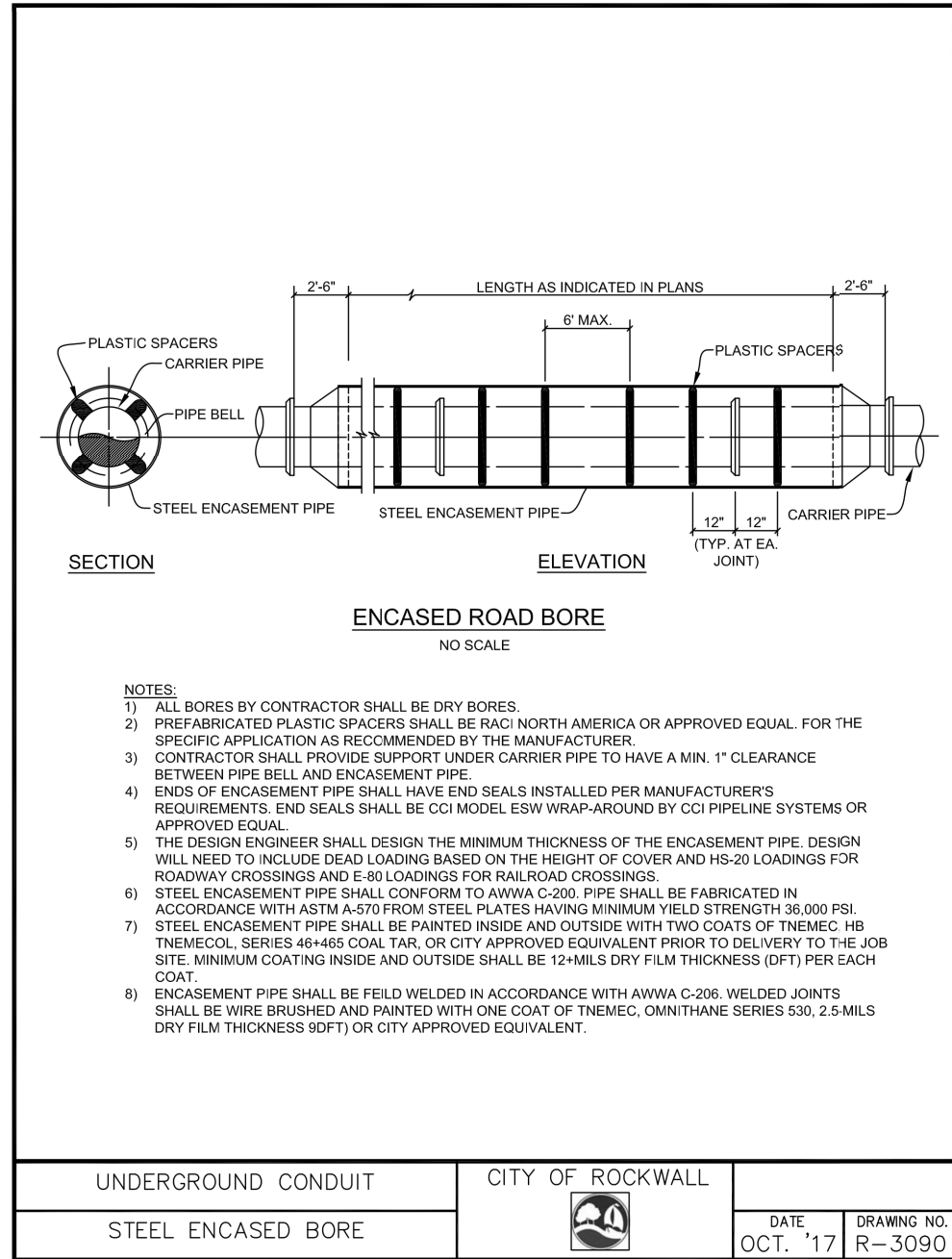
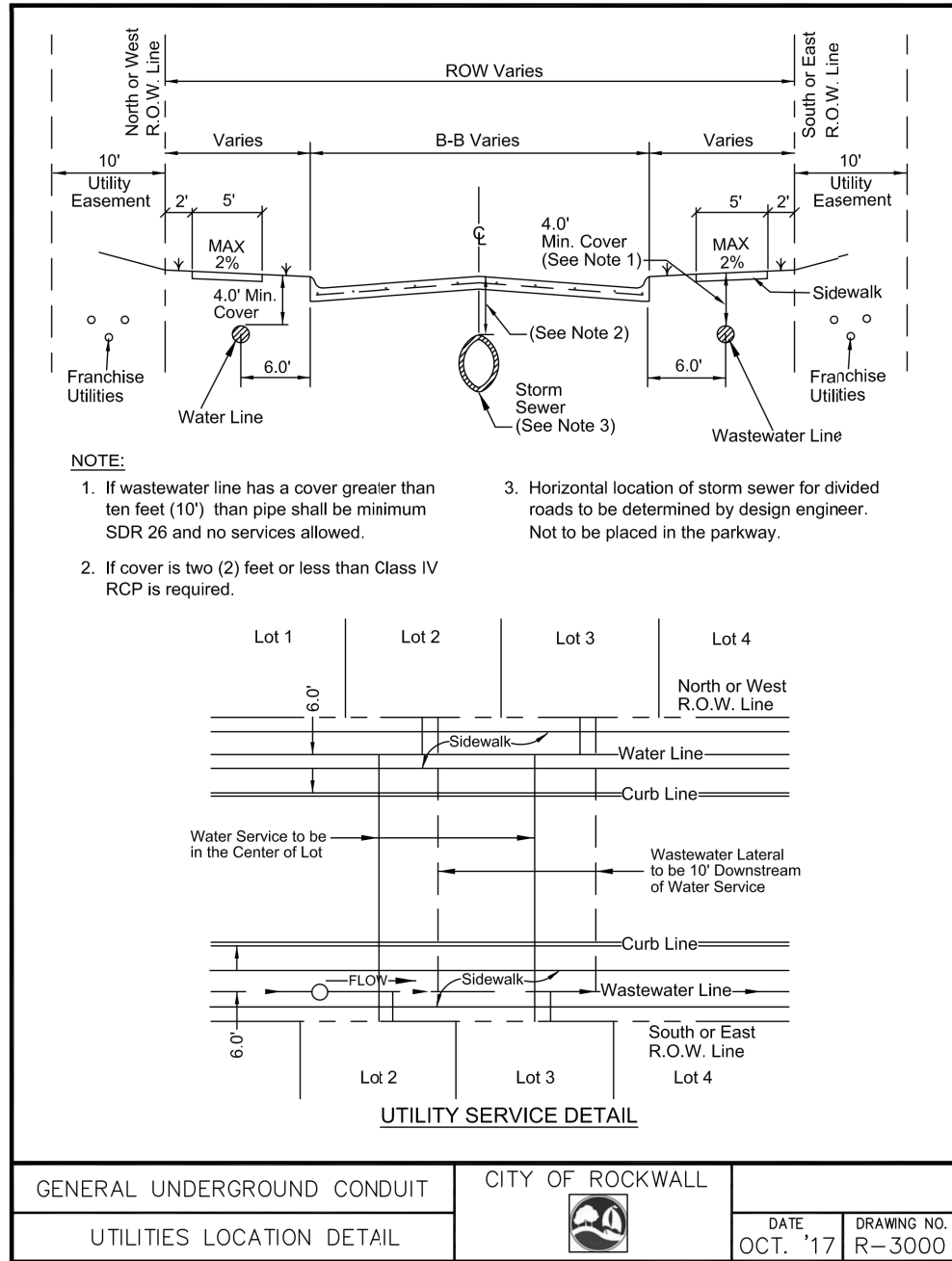


NOTE: THESE AS-BUILT PLANS HAVE BEEN REVISED TO CONFORM WITH THE POST-CONSTRUCTION SURVEY PROVIDED BY THE CONTRACTOR. BY STATING THIS, THE ENGINEER DOES NOT ASSUME RESPONSIBILITY FOR THE WORK PERFORMED BY THE CONTRACTOR. SAID RESPONSIBILITY REMAINS SOLELY WITH THE CONTRACTOR.

10/20/25	CD22011	N.T.S.	C16.C
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REVISIONS		
REV NO.	DATE	DESCRIPTION

CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR
SITE BENCHMARKS AND CONTROL POINT



AS-BUILT

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Cumulus Design Firm #14810
2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050
Tel. 214.235.0367

PUBLIC DETAILS 2

4649 HIGHWAY 276

CITY OF ROCKWALL

ROCKWALL COUNTY, TEXAS

J.H. BAILEY SURVEY, ABST NO. 34

DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	N.T.S.	C16.1



NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33

CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT

ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

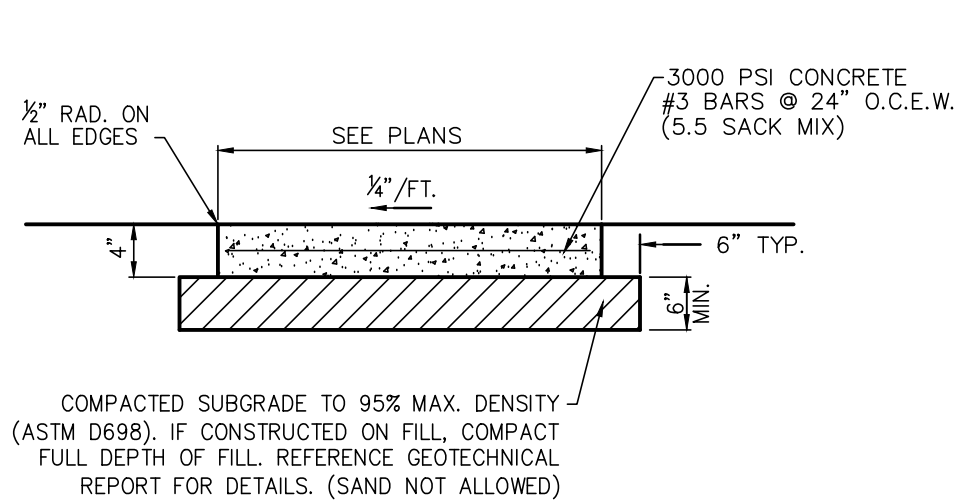
REV NO.	DATE	DESCRIPTION

*Section 11 Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. Public Works Construction Standards North Central Texas, Fifth Edition.

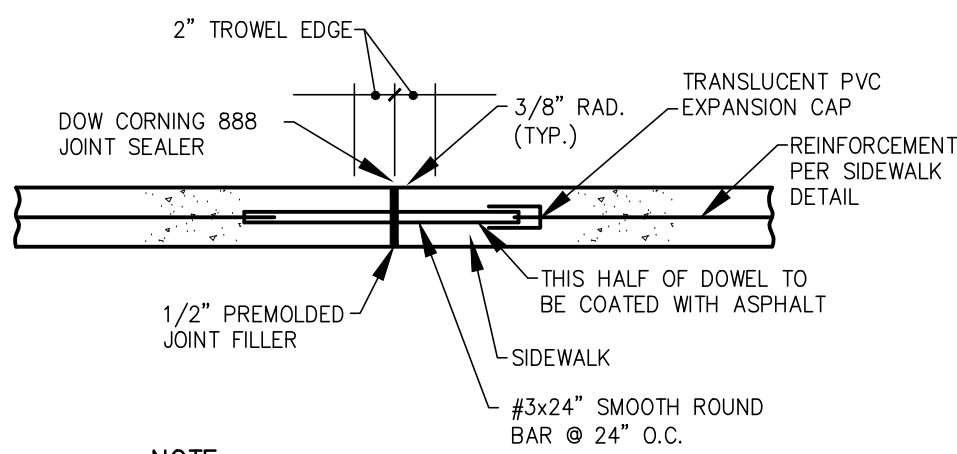
*Section 11 Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. Public Works Construction Standards North Central Texas, Fifth Edition.

*Section 11 Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. Public Works Construction Standards North Central Texas, Fifth Edition.

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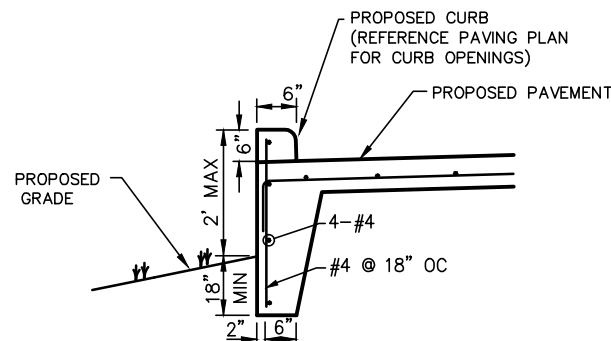


SIDEWALK CROSS-SECTION



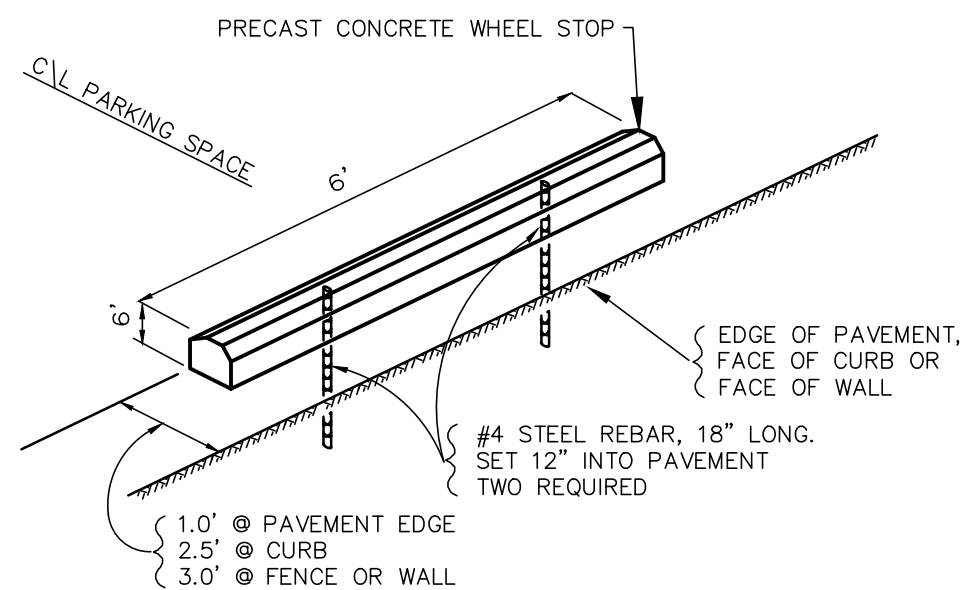
NOTE:
1. EXPANSION JOINTS TO BE SPACED AT 30' OR ADJACENT TO PAVEMENT EXPANSION JOINTS

EXPANSION JOINT
N.T.S.

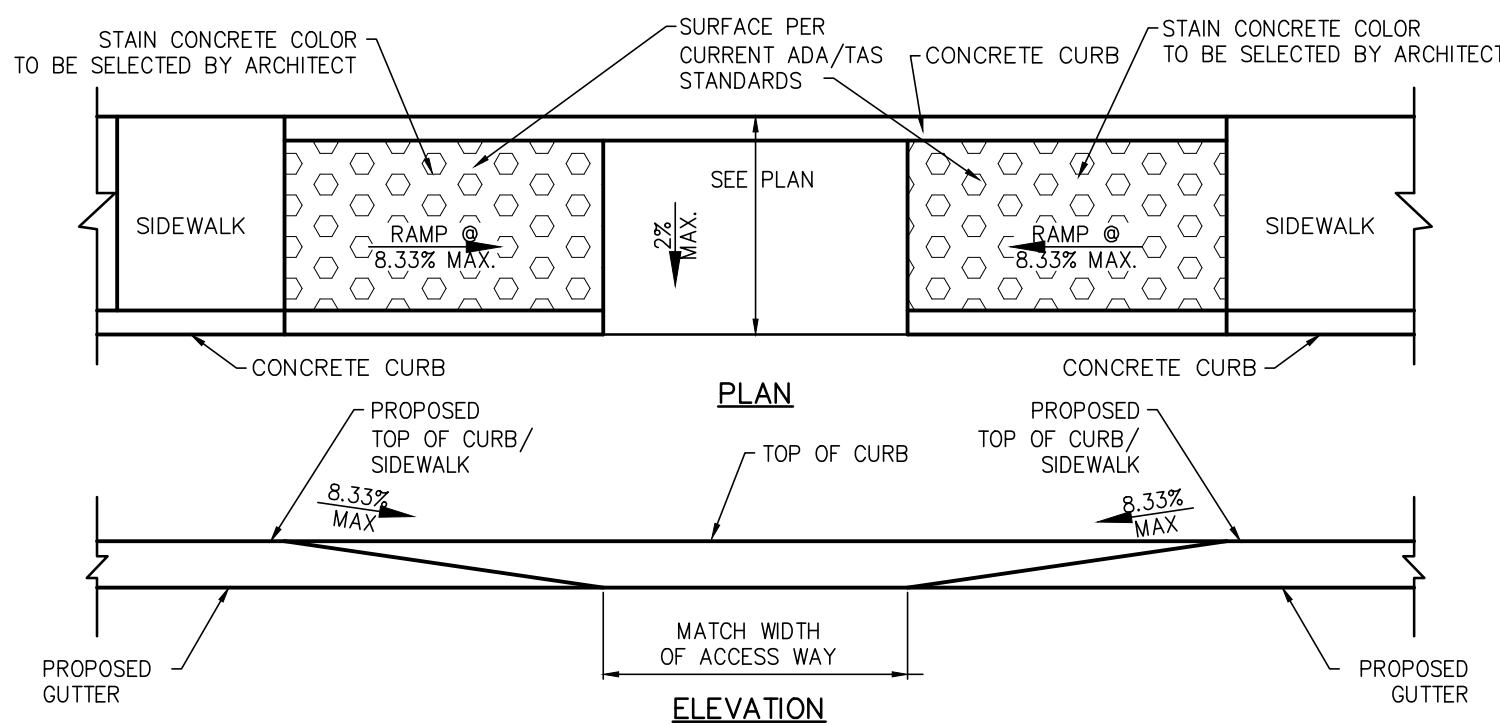


TURN DOWN CURB DETAIL
N.T.S.

NOTES:
1. ANYTHING OVER 18" WILL NEED TO BE ROCK OR STONE OR LOOK ROCK/STONE FACED.

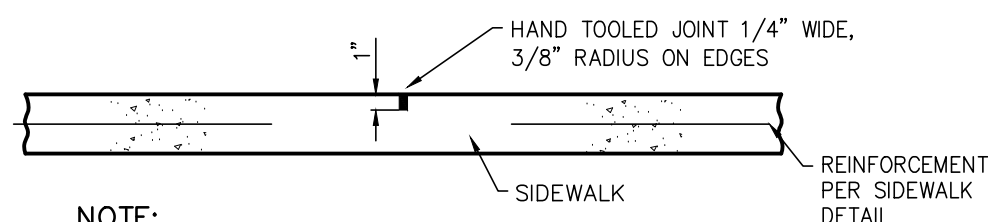


WHEEL STOP DETAIL
N.T.S.



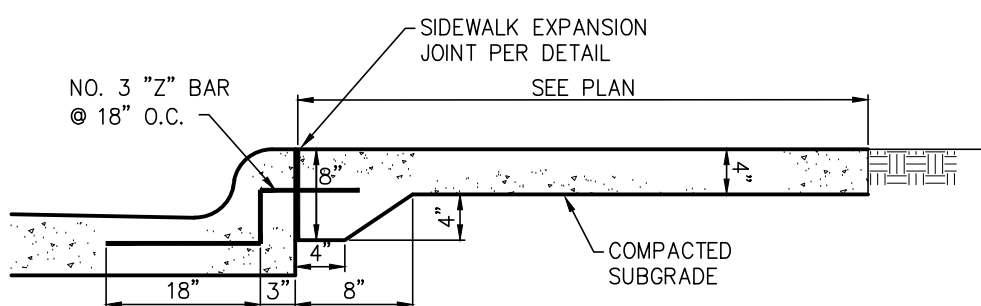
PRIVATE BARRIER FREE RAMP
ALONG HANDICAP PARKING
N.T.S.

NOTES:
1. ON SITE BARRIER FREE RAMPS TO BE COLORED TO CONTRAST WITH THE ADJACENT SIDEWALKS. COLOR TO BE CHOSEN BY ARCHITECT/OWNER.
2. ON SITE BFR'S TO HAVE A SURFACE THAT COMPLIES WITH CURRENT ADA/TAS STANDARDS.
3. CROSS SLOPES ON ALL BARRIER FREE RAMPS SHALL NOT EXCEED 2.0%
4. GROOVES ON RAMP SHALL BE HAND TOOLED, NOT SAWCUT.



NOTE:
1. CONTRACTION JOINTS TO BE SPACED AT 5'.

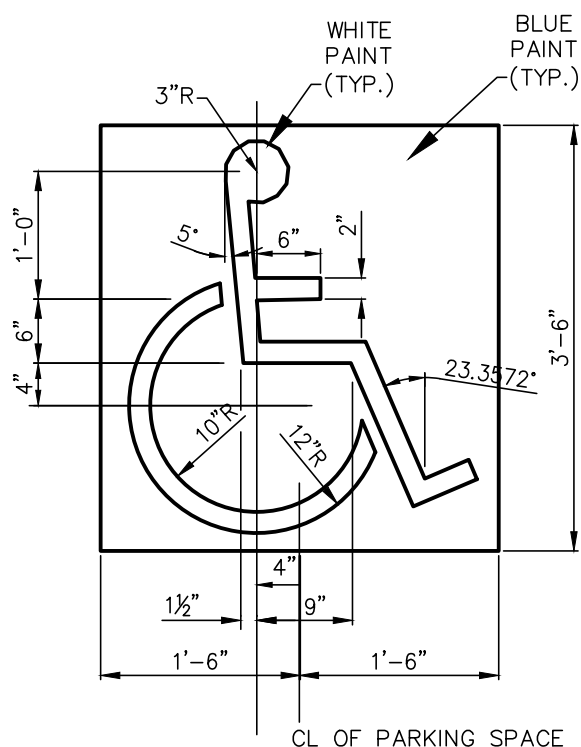
CONTRACTION JOINT
N.T.S.



NOTES:
1. ALL HONEYCOMB IN BACK OF CURB TO BE TROWEL-PLASTERED BEFORE POURING SIDEWALK.
2. LUG MAY BE FORMED BY SHAPING SUBGRADE TO APPROXIMATE DIMENSIONS SHOWN.
3. SIDEWALK TO BE CLASS 'A' CONCRETE UNLESS OTHERWISE SPECIFIED.

JOINT DETAIL FOR SIDEWALK
ADJACENT TO CURB
N.T.S.

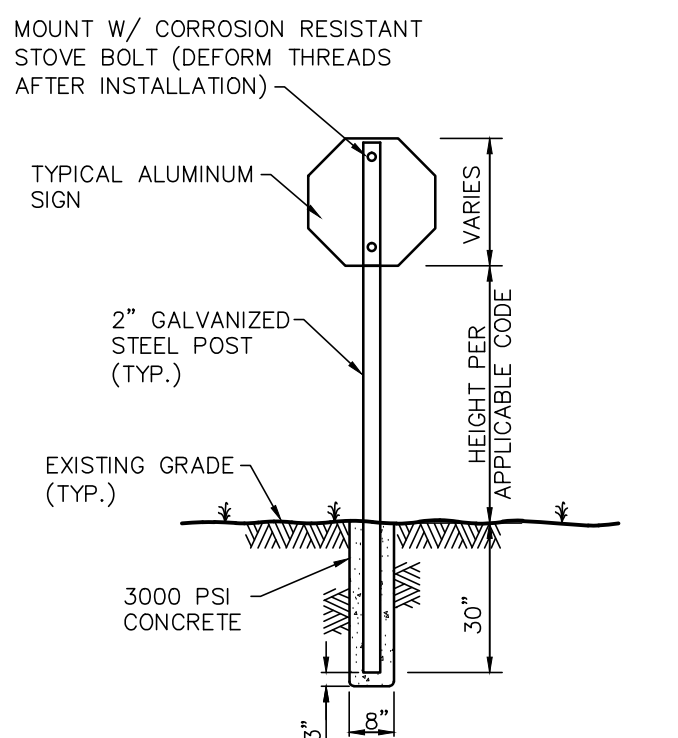
PRIVATE SIDEWALK DETAILS



ACCESSIBLE PARKING SYMBOL DETAIL
N.T.S.

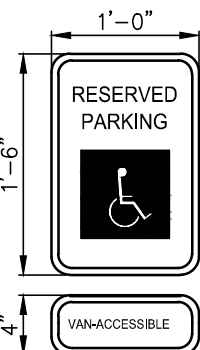
NOTE:
CONTRACTOR SHALL USE CURRENT ADA/TAS REQUIRED MARKINGS/SIGNAGE FOR THE CONSTRUCTION OF THIS SITE.

NOTE:
DETAILS ON THIS SHEET ARE PRIVATE. ALL WORK WITHIN PUBLIC EASEMENTS OR RIGHT-OF-WAY SHALL BE PER CITY (OR STATE, IF APPLICABLE) STANDARD DETAILS. THE CONTRACTOR IS REQUIRED TO HAVE ON-SITE, AT ALL TIMES, A COPY OF THE CITY'S CONSTRUCTION DETAILS.



TYPICAL SIGNAGE MOUNTING DETAIL
N.T.S.

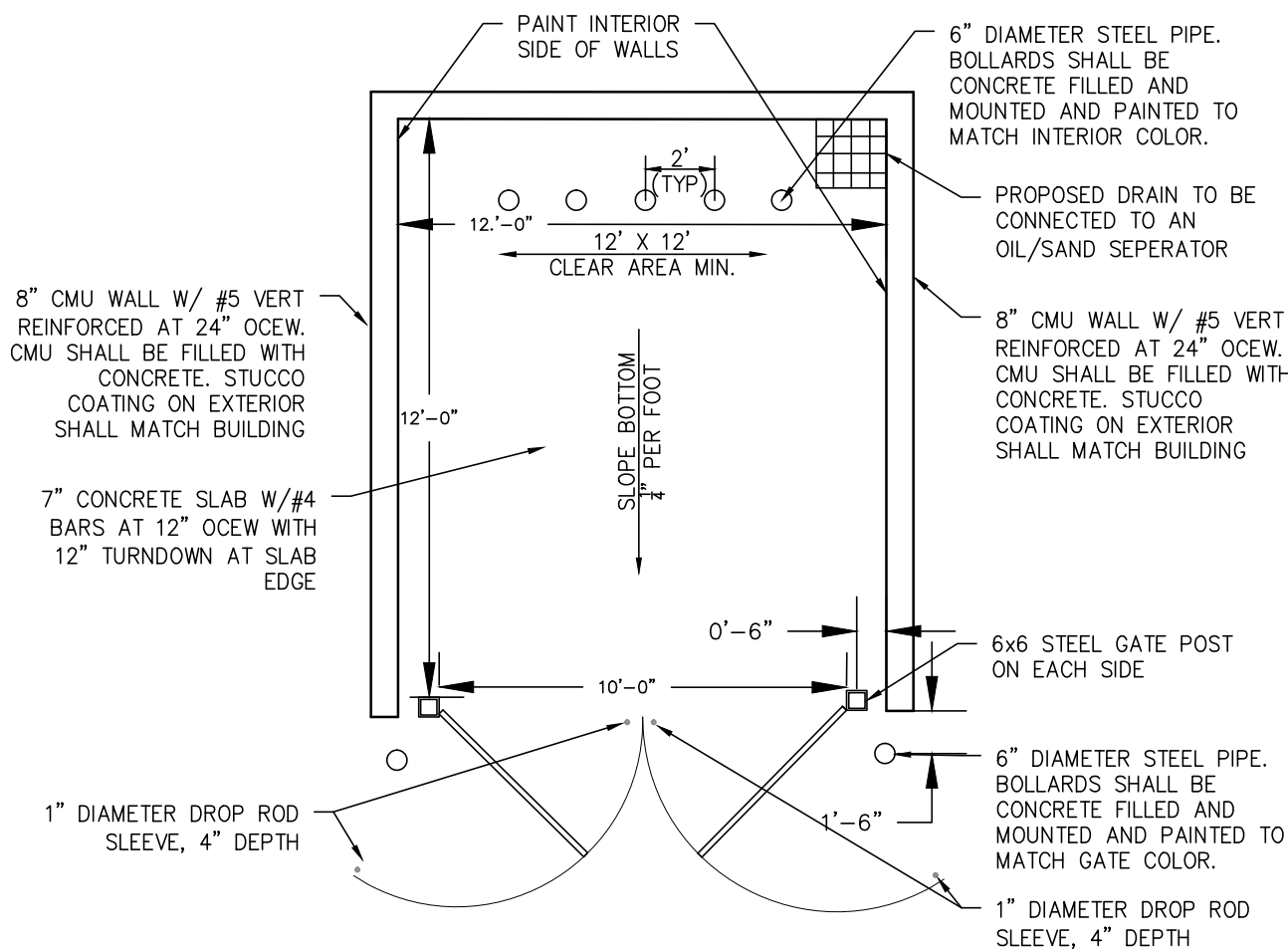
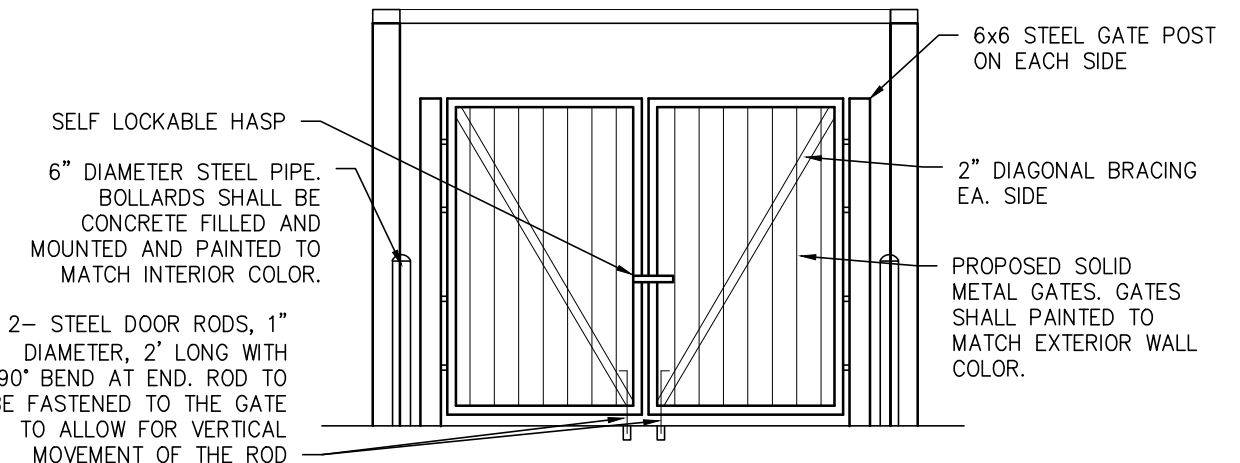
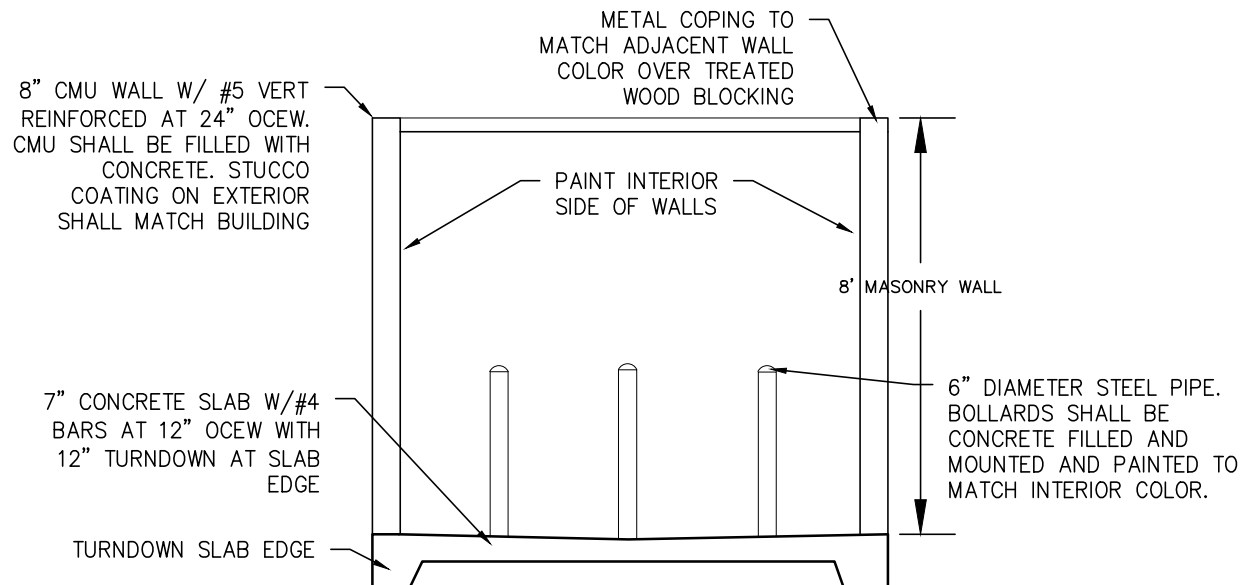
PRIVATE SIGNAGE DETAILS



COLORS:
LETTERS AND BORDER- GREEN
SYMBOL ON BLUE BACKGROUND
SIGN BACKGROUND-WHITE

NOTES:
1. SPACING BETWEEN LETTERS, COLORS, AND PROCESSES SHALL CONFORM STANDARD HIGHWAY AND SIGN DESIGNS FOR TEXAS.
2. INSTALL WHERE INDICATED ON PLANS.
3. VAN-ACCESSIBLE SIGNAGE ON VAN SPACES ONLY.

ACCESSIBLE SIGNAGE DETAIL
N.T.S.



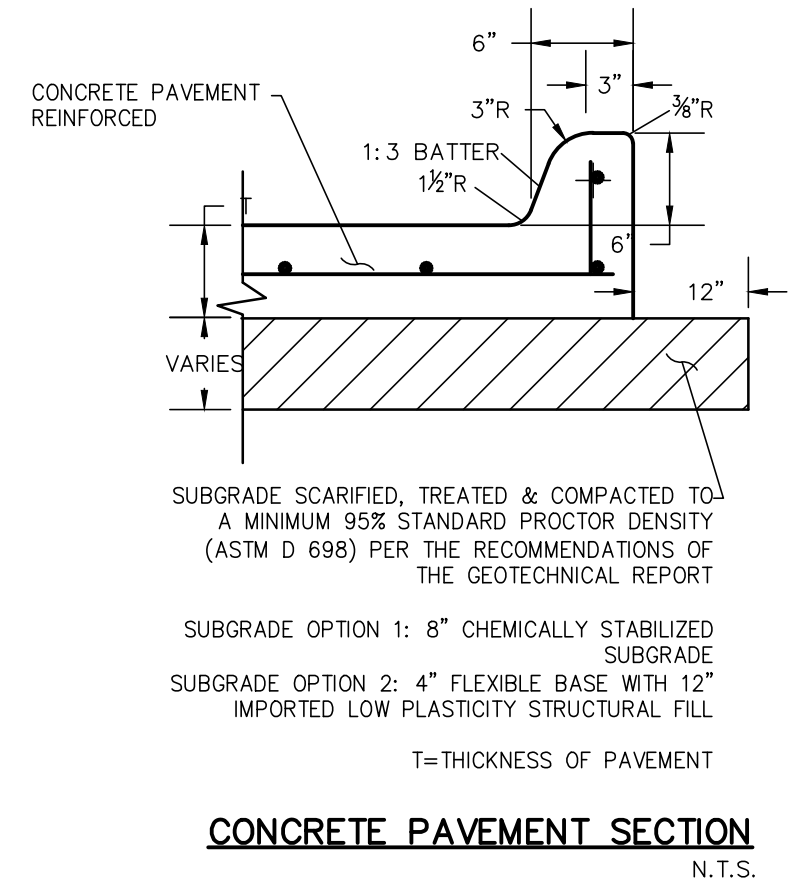
DUMPSTER DETAILS

REVISIONS		
REV NO.	DATE	DESCRIPTION

AS-BUILT

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BENCHMARK
NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33
CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT



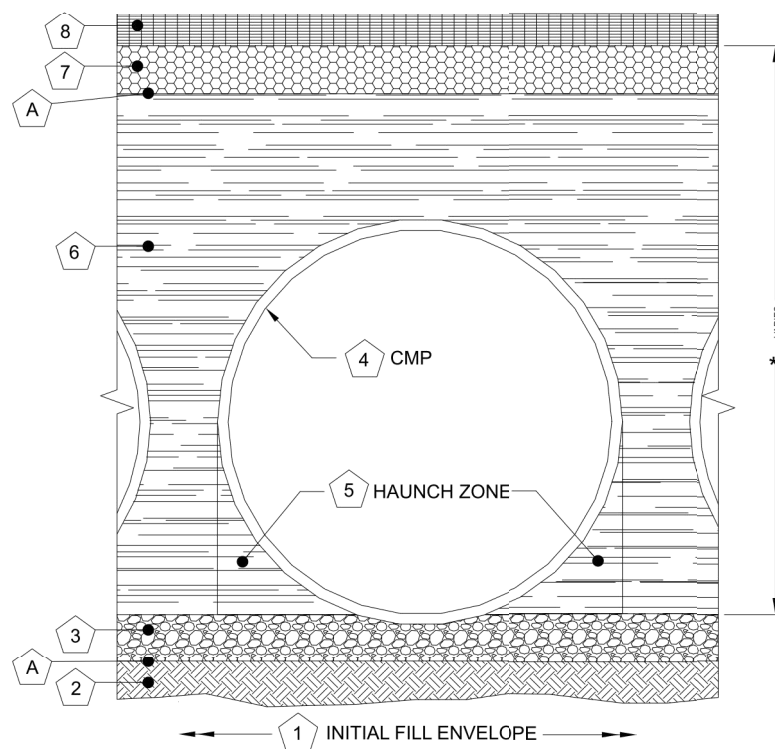
CONCRETE PAVEMENT SECTION
N.T.S.

PRIVATE PAVEMENT DETAILS



Cumulus Design Firm #14810 2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050 Tel. 214.235.0367			
DETAILS (PRIVATE) 1			
4649 HIGHWAY 276			
CITY OF ROCKWALL			
ROCKWALL COUNTY, TEXAS			
J.H. BAILEY SURVEY, ABST NO. 34			
DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	N.T.S.	C17.0

C:\CONTECH\DRAWINGS\DET-CMP-ACCESS RISER W-SUMP.dwg 10/20/2025 10:02 AM



DETENTION SYSTEMS - CMP DETENTION / CMP DRAINAGE			
Material Location	Description	Material Designation	Designation
8	Rigid or Flexible Pavement (if applicable)		
7	Road Base (if applicable)		
6	Geotextile Layer	Non-Woven Geotextile	CONTECH C-40 or C-45
6	Backfill	Well graded granular material which may contain small amounts of silt or clay.	AASHTO M 145-A-1, A-2, A-3, 3,357, 4,467, 5, 56, 57
3	Bedding Stone	Well graded granular bedding material maximum particle size of 3"	AASHTO M 83, 26.3 & 1 / 26.5.3 Bedding info.
A	Geotextile Layer	Non-Woven Geotextile	CONTECH C-40 or C-45

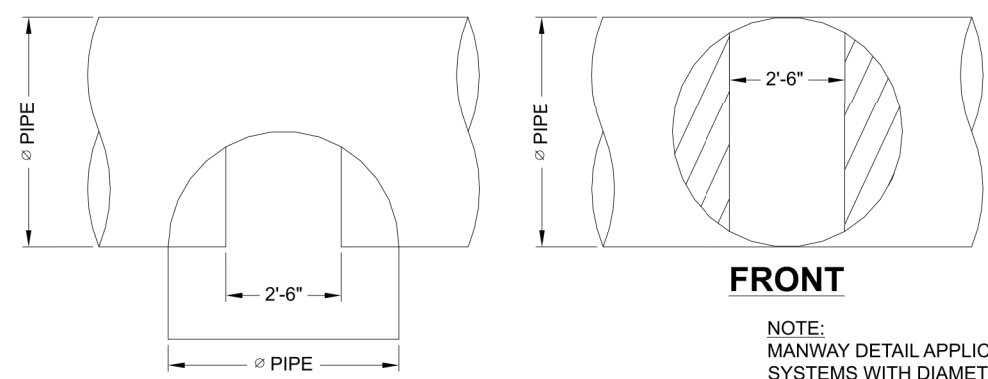
* Note: Backfill using controlled low-strength material (CLSM, "trash fill" or "flowable fill") when the spacing between the pipes will not allow for placement and adequate compaction of the backfill.

- MINIMUM WIDTH DEPENDS ON SITE CONDITIONS AND ENGINEERING JUDGEMENT
- FOUNDATION/BEDDING PREPARATION
- PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE ENGINEER.
- HAUNCH ZONE MATERIAL SHALL BE PLACED AND UNIFORMLY COMPACTED WITHOUT SOFT SPOTS.

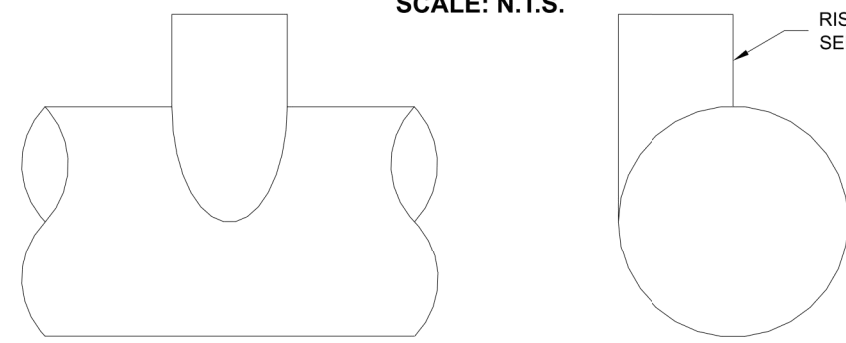
BACKFILL

WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO (2) LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE DETENTION SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON THE PIPE.

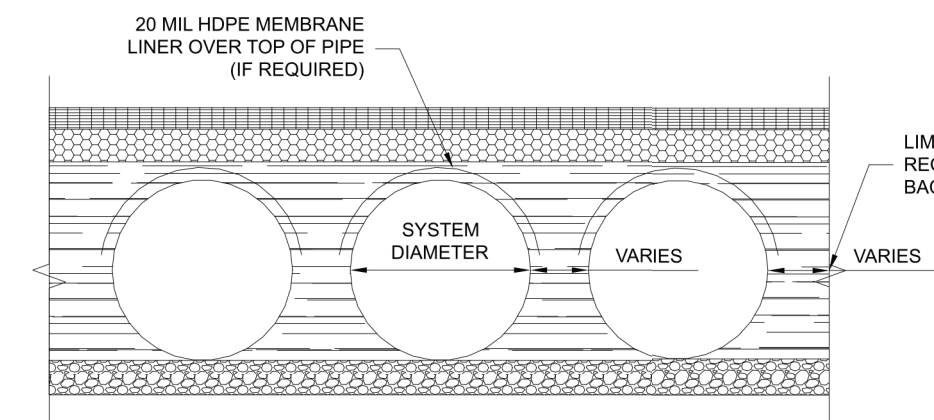
OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.



FRONT
TYPICAL MANWAY DETAIL
SCALE: N.T.S.



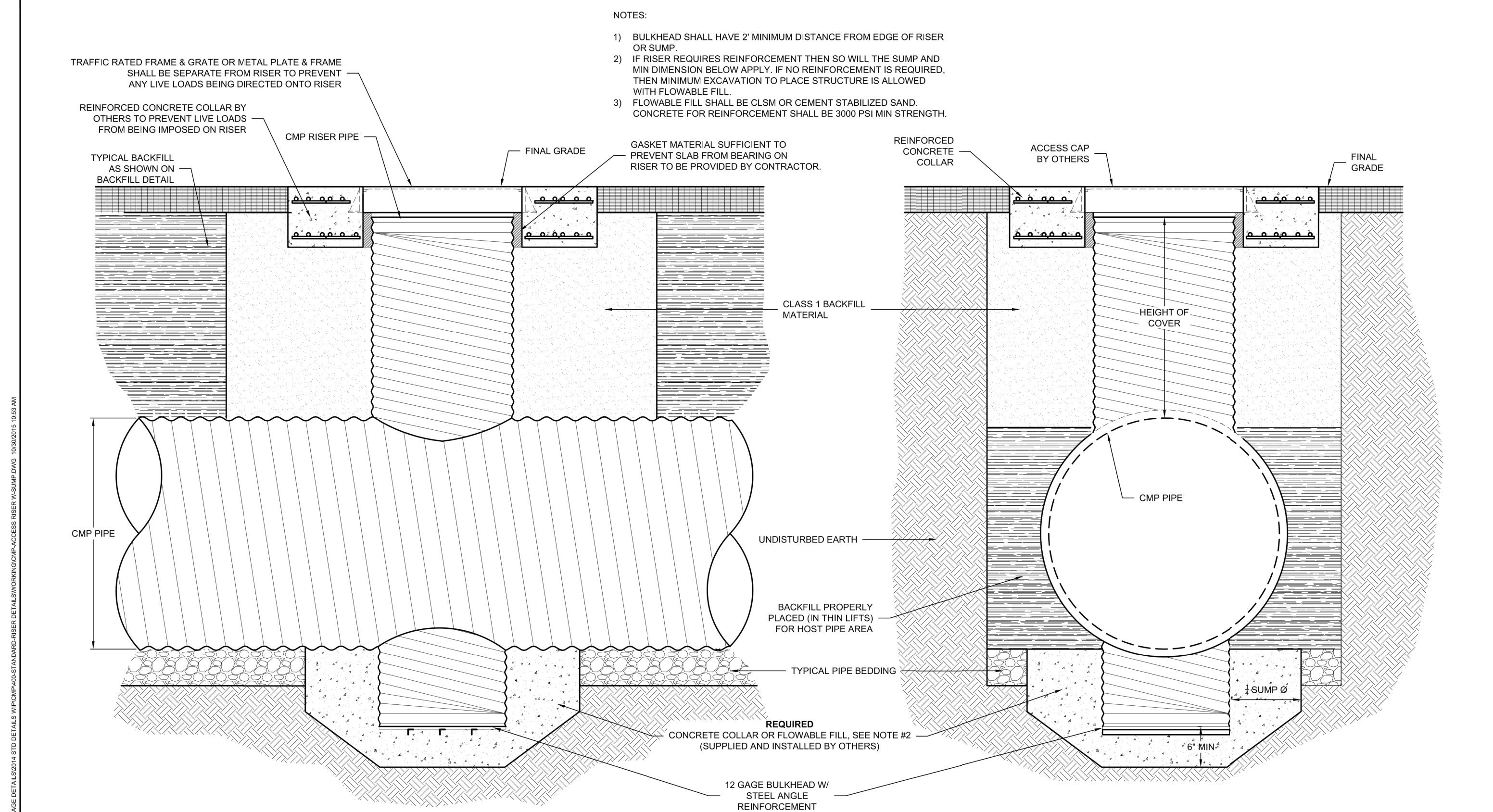
ELEVATION
TYPICAL RISER DETAIL
SCALE: N.T.S.



TYPICAL SECTION VIEW
LINER OVER ROWS
SCALE: N.T.S.

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

PROJECT NO.:	SEQ. NO.:	DATE:
18001	27089	2/29/2023
DESIGNED:	DRAWN:	
DYO	DYO	
CHECKED:	APPROVED:	
DYO	DYO	
SHEET NO.:		1



REVISION	DATE	DESCRIPTION
1	2/29/2023	DESIGNED
2	2/29/2023	DRAWN
3	2/29/2023	CHECKED
4	2/29/2023	APPROVED

CONTECH	ENGINEERED SOLUTIONS LLC	www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45399	800-338-1122	513-645-7000
513-645-7993 FAX		



422 - CMP
STANDARD ACCESS RISER
w-SUMP

CMP-ACCESS RISER W-SUMP			
SCALE:	N/A	DATE DRAWN:	3-28-14
REV #	01	REV DATE:	8-06-14
DRAWING TYPE:			

AS-BUILT

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BENCHMARK
NORTHEAST CORNER OF THE HEADWALL ALONG SH 276
ELEVATION=563.33
CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR SITE BENCHMARKS AND CONTROL POINT



Cumulus Design Firm #14810			
2080 N. Highway 360, Suite 240 Grand Prairie, Texas 75050			
Tel. 214.235.0367			
DETAILS (PRIVATE) 2			
4649 HIGHWAY 276			
CITY OF ROCKWALL			
ROCKWALL COUNTY, TEXAS			
J.H. BAILEY SURVEY, ABST NO. 34			
DATE	PROJECT NO	DRAWING SCALE	SHEET
10/20/25	CD22011	N.T.S.	C17.1