Exhibit A

COLLIN COUNTY, TEXAS

KCS COORDINATION SUBMITTAL

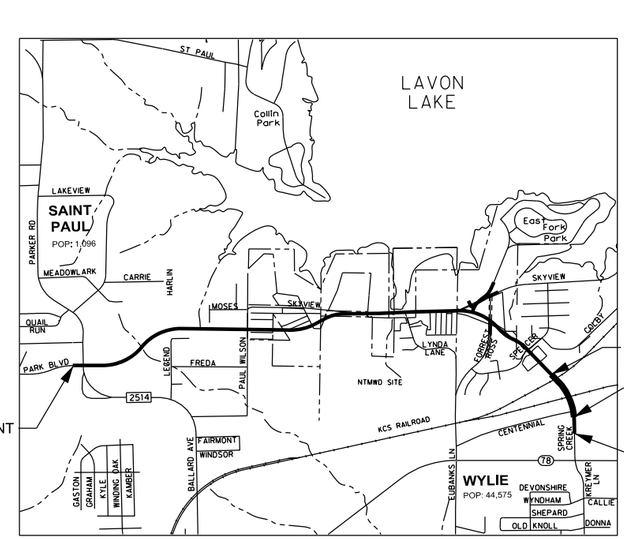
PARK BOULEVARD EXTENSION

DESIGN SPEED:
PARK BLVD - 45 MPH
SKYVIEW DR. - 30 MPH
RESIDENTIAL - 25 MPH

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION-NORTH CENTRAL TEXAS FOURTH EDITION WITH CURRENT AMENDMENTS AND SPECIAL PROVISIONS AS ADOPTED BY THE CITY WYLIE, SHALL GOVERN ON THIS PROJECT.

DESIGN LIMITS:
FROM PARKER RD TO SPRING CREEK PKWY
TOTAL LENGTH = 14,121 FT = 2.67 MILES
ROADWAY LENGTH = 12,821 FT = 2.43 MILES
BRIDGE LENGTH = 1,300 FT = 0.25 MILES

CONSTRUCT FOUR LANE MAJOR THOROUGHFARE ON NEW AND EXISTING LOCATION CONSISTING OF GRADING, DRAINAGE, STRUCTURES, CONCRETE & ASPHALT PAVEMENTS, SIGNING, AND PAVEMENT MARKINGS.



SCALE
N.T.S.

BEGIN PROJECT ALIGNMENT
STA 158+00.00

BEGIN BRIDGE
STA 280+08.00

END BRIDGE
STA 293+08.00

END PROJECT ALIGNMENT
STA 298+21.00

EQUATIONS: NONE EXCEPTIONS: NONE RAILROADS: KCS

NOTE:
THIS PLAN SET IS PREPARED FOR THE PURPOSE OF FINAL DESIGN ACCEPTANCE BY KCS FOR THE STRUCTURES, ROADWAY, & DRAINAGE IMPROVEMENTS FOR PARK BLVD. EXTENSION IN WYLIE, TEXAS. THIS PLAN SET IS NOT INTENDED FOR BIDDING OR CONSTRUCTION.

COLLIN COUNTY

Prepared by:
HALFF ASSOCIATES, INC.

Project Manager

Date:

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by Donald Adam Kane, PE#107449 on 03-18-22. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act. TBPELS Engineering Firm #F-312

"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

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MARCH 2022

35192 - PARK BOULEVARD - 100% SUBMITTAL

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STANDARDS

TCP STANDARDS

- BC(1 thru 12)-21
- TCP(1-3)-18
- TCP(2-1)-18
- TCP(2-3)-18
- WZ(RCD)-13
- WZ(STPM)-13

PAVING & RETAINING WALL STANDARDS

- CITY OF WYLIE PAVING DETAILS
- NTMWD FENCE SPECIFICATION
- CITY OF WYLIE WATER DETAILS
- OMIT
- BED-14
- GF(31)-19
- GF(31)DAT-19
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- GF(31)MS-19
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- RW(EM)
- RW(MSE)
- RW(MSE)DD (MOD)
- RW(TRF)
- SGT(12S)31-18
- WF(2)-10

BRIDGE STANDARDS

- BAS-C
- BMCS
- BRSM
- BS-EJCP
- CLF-RO
- CRJ-ITB
- CRR
- FD
- IGD
- IGEB
- IGMS
- IGND
- IGTS
- MEBR (C)
- PCP
- PCP-FAB
- PCP(O)
- PCP(O)-FAB
- PMDF
- SEJ-M
- TYPE C221

STANDARDS CONT.

DRAINAGE STANDARDS

- CITY OF WYLIE DRAINAGE DETAILS
- CH-PW-S
- TYPE PR11 - PED RAIL
- PW
- SCC-8
- SCC-MD
- SCP-4
- SCP-5
- SCP-7
- SCP-10
- SCP-MD
- SETB-CD
- SETP-CD
- SRR

EROSION CONTROL STANDARDS

- EC(1-3)-16
- EC(9)-16

SIGNING & STRIPING STANDARDS

- PM(1-3)-20
- SMD(GEN)-08
- SMD(SLIP-1 thru 3)-08
- SMD(TWT)-08

STATE OF TEXAS
DONALD ADAM KANE
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PARK BOULEVARD EXTENSION

COLLIN COUNTY

SHEET INDEX

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DRAWN: TMW	DATE: 9/30/2021	DESIGNED: AK	DATE: 9/30/2021
CHECKED: AK	DATE: 9/30/2021	SCALE: N.T.S.	

CONTRACT No. 35192

SHEET 2 OF 488 | SI-01

PAVING NOTES

1. CONCRETE FOR ALL STREETS AND PRIVATE DEVELOPMENTS SHALL BE IN ACCORDANCE WITH NCTCOG, FOURTH EDITION OR AS AMENDED CLASS "C" CONCRETE (SIX SACK 3,600 P.S.I.) ITEM 303.3.4.2(a) AND ITEM 303.5.6.2 HAND.

2. REINFORCING STEEL SHALL BE DEFORMED BARS NO. 3 ON 18 INCH CENTERS OR NO. 4 BARS ON 24 INCH CENTERS. REINFORCING SHALL BE IN BOTH DIRECTIONS ON CENTER. REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM 615, 616 AND 617.
3. ALL REINFORCING STEEL SHALL BE TIED (100%). REINFORCING STEEL SHALL BE SET ON PLASTIC CHAIRS. BAR LAPS SHALL BE MINIMUM 30 DIAMETERS. NO STEEL SHALL BE PLACED UNTIL THE SUBGRADE HAS BEEN TESTED AND PASSED.

4. EXPANSION JOINTS SHALL BE SPACED EVERY 600 FEET, AT ALL INTERSECTIONS AND CHANGES IN DIRECTION OF PAVING. ALLEYS SHALL HAVE A MINIMUM OF TWO EXPANSION JOINTS.

5. SAWED TRANSVERSE DUMMY JOINTS SHALL BE SPACED EVERY 15 FEET OR 1.25 TIMES LONGITUDINAL JOINT SPACING WHICHEVER IS LESS. SAWING SHALL OCCUR WITHIN 5 TO 12 HOURS AFTER THE POUR INCLUDING SEALING.

6. SUBGRADE UNDER PAVEMENTS SHALL BE A MINIMUM OF 7 INCHES OF LIME TREATED SUBGRADE. ONLY HYDRATED LIME SHALL BE UTILIZED. OPTIMUM LIME SHALL BE APPLIED. OPTIMUM LIME CONTENT SHALL BE DETERMINED DURING THE EXCAVATION BY THE USE OF A LIME SERIES TEST. LIME SERIES TEST SHALL BE TAKEN ALONG THE EXCAVATION AT ALL CHANGES IN SOIL AND A MINIMUM OF 300 FEET. LIME SERIES SHALL BE COMPLETED BY AN INDEPENDENT LABORATORY APPROVED BY THE CITY. 41#/SY MAY BE USED IN LIEU OF LIME SERIES TESTING. SUBGRADE SHALL BE COVERED WITH PAVING WITHIN 14 DAYS OR SUBGRADE SHALL BE REWORKED AND RETESTED.

7. LIME TREATED SUBGRADE SHALL BE COMPACTED TO A DENSITY OF NOT LESS THAN 95 PERCENT OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D 698. MOISTURE CONTENT SHALL BE WITHIN −2 TO +4 OF OPTIMUM. DENSITY TEST RESULTS SHALL BE COMPLETED BY AN INDEPENDENT LABORATORY APPROVED BY THE CITY. ALL RESULTS SHALL BE PROVIDED TO THE CITY. SUBGRADE TESTING SHALL BE IN ACCORDANCE WITH NCTCOG ITEM 303.5.1 SUBGRADE.

8. LIME TRIMMINGS ARE NOT ACCEPTABLE FOR ANY USE.

9. ALL FILL SHALL BE COMPACTED BY MECHANICAL METHODS. MAXIMUM LOOSE LIFT FOR COMPACTION SHALL BE 8 INCHES. ALL LIFTS SHALL BE TESTED FOR DENSITY BY AN INDEPENDENT LABORATORY APPROVED BY THE CITY. DENSITY REQUIREMENT SHALL BE AS SHOWN ON THE PLANS FOR THE TYPE OF MATERIAL CALLED FOR IN THE PLANS.

10. ALL DISTURBED AREAS OF ROADWAY WORK SHALL HAVE GRASS ESTABLISHED IMMEDIATELY. GRASS SHALL MEET THE REQUIREMENTS OF ITEM 202, LANDSCAPING, OF NCTCOG SPECIFICATIONS, FOURTH EDITION OR AS AMENDED.

11. ALL AREAS TO BE EXCAVATED OR FILLED SHALL HAVE EROSION CONTROL PLACED PRIOR TO COMMENCING EARTHWORK. EROSION CONTROL DEVICES SHALL BE MAINTAINED THROUGHOUT THE PROJECT IN ACCORDANCE WITH NCTCOG ITEM 201, FOURTH EDITION OR AS AMENDED.

12. ALL SIDEWALKS SHALL BE 5' WIDE AND INCLUDE BARRIER FREE RAMPS AT INTERSECTING STREETS, ALLEYS, DRIVEWAYS, ETC. BARRIER FREE RAMPS SHALL MEET CURRENT ADA REQUIREMENTS, BE INSTALLED BY THE DEVELOPER AND MEET THE TEXAS DEPT. OF LICENSING REGULATIONS.

13. SIDEWALKS SHALL BE DOWELED INTO PAVEMENT WHERE IT ABUTS DRIVEWAYS. EXPANSION JOINT MATERIAL SHALL BE USED AT THESE LOCATIONS.

14. NO VEHICLES SHALL BE PERMITTED ON CONCRETE PAVEMENT WITHOUT APPROVAL FROM THE CITY. THE CITY WILL MAKE DETERMINATION BASED ON CONCRETE BREAK REPORT.

15. CONCRETE MIX DESIGN SHALL BE SUBMITTED FOR REVIEW PRIOR TO PRECONSTRUCTION MEETING. REVISE THE FIRST PARAGRAPH OF NCTCOG SPEC. 303.2.1.3 COARSE AGGREGATE TO READ "CRUSHED LIMESTONE SHALL CONSTITUTE 100% OF THE COARSE AGGREGATE.
16. ALL PAVING FOR PARKING SHALL BE MIN. 5" THICK 3,600 P.S.I. CONCRETE SUBJECT TO CITY ENGINEER APPROVAL.
17. ALL AREAS NOT UNDER PAVING, INCLUDING ALL FRANCHISE UTILITY EASEMENTS, SHALL BE COMPACTED TO A DENSITY OF NOT LESS THAN 92 PERCENT OF THE MAXIMUM DENSITY.
18. CONCRETE PLANTS SHALL CONFORM TO TXDOT 1993 EDITION ITEMS 520 AND 522.
19. ANY CURB AND/OR STREET SECTION REMOVED FOR THE CONSTRUCTION OF A PRIVATE DRIVEWAY SHALL NOT BE REMOVED PRIOR TO 7 DAYS OF CONSTRUCTION OF THE DRIVEWAY. IF THE DRIVEWAY IS NOT CONSTRUCTED WITHIN THIS TIME FRAME AND EXCAVATION HAS BEEN MADE, EXCAVATION SHALL BE REPLACED UNTIL SUCH TIME CONSTRUCTION COMMENCES.
20. MAXIMUM TEMPERATURE OF THE CONCRETE FOR PLACEMENT SHALL BE 95° F AS SPECIFIED IN TXDOT 2004 EDITION ITEM 360.4 PARAGRAPH 6.4 TEMPERATURE RESTRICTIONS.
21. PAVING EQUIPMENT REQUIRED SHALL BE AS SPECIFIED IN TXDOT 2004 EDITION UNDER ITEM 360.3
22. WATER INJECTION OF SUBGRADE BY CITY ENGINEER APPROVAL ONLY.
23. SUBGRADE UNDER FIRE LANES SHALL MEET THE PAVING SUBGRADE REQUIREMENTS OR ONE ADDITIONAL INCH OF CONCRETE MAY BE USED.
24. SUBGRADE UNDER PARKING AREAS SHALL BE DETERMINDED BY A GEOTECH REPORT.

LINED CHANNELS

1. CONSTRUCTION JOINT SHOWN IN DETAILS FOR CONVENIENCE ONLY, MONOLITHIC CONSTRUCTION MAY BE USED.

2. ALL VISIBLE SURFACES SHALL BE A TROWEL FINISH.

3. ALL REINFORCING STEEL SHALL BE 3/8" DIAMETER AND SPACED 12" CENTER TO CENTER BOTH WAYS UNLESS OTHERWISE SPECIFIED.

4. IF WOOD FORMS ARE USED WITH CONSTRUCTION JOINT, THEY SHALL BE TWO, 2"x4", AND SHALL NOT BE REMOVED UNTIL CONCRETE ON SLOPES IS READY TO BE PLACE.

5. ALL CONCRETE IN LINED CHANNEL SHALL BE NCTCOG CLASS "A" (MINIMUM 3,000 P.S.I.) CONCRETE.

6. FLAT BOTTOM TO BE CONSTRUCTED WHEN CHANNEL WIDTH IS LESS THAN 12 FOOT.
7. 3/4" CHAMFER ON ALL CONCRETE CORNERS.

STORM SEWER

1. THE FLOOR OF THE EXCAVATION FOR INLET BOX MUST PROVIDE A FIRM, LEVEL BED FOR THE BASE SECTION TO REST UPON.
2. A MINIMUM OF 6 INCHES OF 1" DIAMETER (MAXIMUM) ROCK OR GRAVEL SHALL BE USED TO PREPARE THE BEDDING TO FINAL GRADE OR IN LIEU OF THIS, AT LEAST 6 INCHES OF 2−SACK CEMENT STABILIZED SAND SHALL BE USED TO PREPARE THE BEDDING TO GRADE. CEMENT STABILIZED−SAND SHALL BE ALLOWED TO SET BY KEEPING HOLE PUMPED DRY.
3. AFTER PIPE HAS BEEN LAID ON PROPER BEDDING, BACKFILLING TO COMMENCE WITH 8" MAXIMUM LOOSE LIFTS MECHANICALLY COMPACTED TO 95% STANDARD PROCTOR UNDER ROADWAY OR 12" MAXIMUM LOOSE LIFT BEHIND CURB. MAXIMUM SIZE ROCK IN BACKFILL SHALL NOT EXCEED 4 INCHES IN DIAMETER.
4. PRECAST INLETS MUST BE APPROVED BY THE CTY.
5. CONCRETE TO BE MINIMUM 4,200 P.S.I.
6. LOCKING DEVICE IS REQUIRED ON ALL STORM SEWER LIDS.
7. "NO DUMPING" WARNING PLAQUE TO BE INSTALLED ON ALL STANDARD AND RECESSED INLETS.
8. CONCRETE CAST−IN−PLACE INLETS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,200 P.S.I. @ 28 DAYS.
9. DELETED
10. EXISTING STORM SEWER PIPE AND/ OR LATERALS SHALL BE LOCATED PRIOR TO SETTING OR CONSTRUCTING INLET BOXES. IF ADJUSTMENT IN GRADE OF LATERAL IS REQUIRED, A REVISED DESIGN BY THE ENGINEER OF RECORD SHALL BE SUBMITTED TO THE CITY FOR APPROVAL.
11. REINFORCED CONCRETE PIPE CLASS III IS APPROVED WITHIN THE CITY.
12. COLOR TV INSPECTION SHALL BE COMPLETED ON THE STORM SEWER IN THE PRESENCE OF CITY REPRESENTATIVE AND THE ORIGINAL MEDIA SHALL BE GIVEN TO THE CITY AT THE COMPLETION OF THE INSPECTION.
13. YOUR ATTENTION IS DIRECTED TO SUBDIVISION ORDINANCE SECTION 5.9.C STORM DRAINAGE AND WATER QUALITY CONTROLS. IN THE ELEVENTH MONTH OF THE SECOND YEAR OF THE REQUIRED TWO−YEAR MAINTENANCE BOND, THE DEVELOPER SHALL BE RESPONSIBLE FOR REMOVING ANY SIGNIFICANT BUILD−UP OF SEDIMENT OR DEBRIS FROM DRAINAGE IMPROVEMENTS WITH EXCEPTIONS AS DESIGNATED. THE FUNDING SHALL BE BORNE BY THE DEVELOPER AND SHALL BE ACCOMPLISHED BY COLOR TV INSPECTION IN THE PRESENCE OF A CITY REPRESENTATIVE AND THE ORIGINAL MEDIA SHALL BE GIVEN TO THE CITY AT THE COMPLETION OF THE INSPECTION.

SANITARY SEWER

1. ALL SEWER LINES CROSSING POTABLE WATERLINES SHALL BE AS SHOWN IN THE PLANS AND MEET TCEQ REQUIREMENTS.
2. PIPES 8 INCHES THROUGH 15 INCHES SHALL BE IN ACCORDANCE WITH ASTM D3034 WITH A MINIMUM SDR OF 35 OR ASTM D3350 AND DE 345434 C.
3. PIPES LARGER THAN 12 INCHES THROUGH 48 NCHES SHALL BE IN ACCORDANCE WITH ASTM STANDARDS F679, F794, F949 AND D3350/ DE 345434 C.
4. MANHOLES SHALL BE PRECAST. ALL MANHOLES SHALL BE WATER TIGHT. PRECAST MANHOLES SHALL HAVE JOINTS SEALED. ALL RING AND COVERS SHALL INCLUDE AN INTERNAL CHIMNEY SEAL.
5. ALL PIPE OPENINGS IN MANHOLES SHALL INCLUDE COUPLINGS WITH "O" RING RUBBER GASKETS.
6. STUBOUTS OUT OF MANHOLES SHALL BE FITTED WITH A STOPPER AND CAP. STUBOUTS SHALL BE A MINIMUM OF 5 FEET FROM MANHOLE AND BE SUPPORTED BY A CONCRETE CRADLE.
7. ALL DROP MANHOLES SHALL BE OF THE EXTERNAL TYPE.
8. MANHOLES SHALL BE VENTED IN ACCORDANCE WITH TCEQ REQUIREMENTS.
9. ALL SANITARY SEWER PIPE SHALL BE TESTED (NCTCOG ITEM 507.5) AFTER CONSTRUCTION. TESTING SHALL INCLUDE PRESSURE TESTING, MANDREL TEST (TCEQ REQUIRED) AND COLOR TV INSPECTION. COLOR TV INSPECTION SHALL BE COMPLETED IN PRESENCE OF CITY REPRESENTATIVE AND THE ORIGINAL MEDIA SHALL BE GIVEN TO THE CITY AT THE COMPLETION OF THE INSPECTION. SEWER SHALL BE RE−INSPECTED AFTER INSTALLATION OF FRANCHISE UTILITIES. AIR TEST ONLY.
10. MANHOLES SHALL BE VACUUM TESTED IN THE PRESENCE OF THE CITY REPRESENTATIVE.
11. NO END−OF−LINE CLEANOUTS WILL BE ALLOWED. TERMINATE SEWER LINES WITH A MANHOLE.

ILLUMINATION

1. STREET LIGHT FOUNDATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH TXU ELECTRIC DETAIL AND NOTES FOR 25' OR 30' MOUNTING HEIGHT ROUND STEEL POLE.
2. PROVIDE SQUARE CONCRETE MOW STRIP 18" FROM OUTSIDE OF POLE TO CORNER USING 3,000 P.S.I. CONCRETE WITH #3 BARS @ 18" AND ½" EXPANSION JOINT.
3. SUBDIVISION STREET LIGHTING TO CONFORM TO THE ZONING ORDINANCE. "DECORATIVE STREET LIGHTING SHALL BE PROVIDED ALONG RESIDENTIAL STREETS THROUGHOUT ALL RESIDENTIAL DEVELOPMENTS, PROVIDING LOW ILLUMINATION WITH SOLAR CONTROLS ON DECORATIVE POLES WITH SPACING RANGING FROM 250 FEET TO 350 FEET BETWEEN LIGHTS PLACED ON ALTERNATING SIDES OF THE STREET. A STREET LIGHTING PLAN MUST BE SUMITTED TO THE CITY ENGINEER FOR APPROVAL. THE CITY ENGINEER IS AUTHORIZED TO ALTER THE DISTANCE REQUIREMENT IF NEEDED IN AN EFFORT TO ACHIEVE THE BEST LIGHTING ARRANGEMENT POSSIBLE."

DETAILS

SPECIAL DETAILS OR MODIFICATIONS TO THESE STANDARD DETAILS TO BE UTILIZED ON ANY GIVEN PROJECT SHALL BE SUBMITTED TO THE CITY FOR APPROVAL FOR USE.

STREET SIGN SPECIFICATIONS:

STREET NAME SIGNS FOR ALL INTERSECTIONS BY THE CONSTRUCTION OF A SUBDIVISION SHALL BE FURNISHED AND INSTALLED BY THE DEVELOPER. THE INSTALLATION OF THE STREET SIGNS MUST BE PRIOR TO THE FINAL ACCEPTANCE OF THE SUBDIVISION. THE LEGEND SHALL CONTAIN THE NAME OF THE STREET, ANY SUFFIX AS DESIGNATED ON THE PLAT, AND THE BLOCK NUMBER AS ASSIGNED BY THE CITY. THE SIGN FACE SHALL BE HIP PRISMATIC WHITE W/BLUE EC FILM WITH CITY LOGO. THE SIGN PLATE SHALL BE 9 INCHES TALL AND 0.080 INCHES THICK FLAT BLADE ALUMINUM DRILLED. THE STREET NAME SHALL BE 6 INCH UPPER CASE LETTERS. THE SUFFIX AND BLOCK LETTERS SHALL BE 3 INCHES. ALL LETTERS SHALL BE WHITE. THE SIGNS SHALL BE MOUNTED ON A 2 INCH BY 12 FOOT SQUARE POST WITH A 2.25 INCH BY 36 INCH SQUARE GROUND ANCHOR AND 2.5 INCH BY 18 INCH SLEEVE. THE ANCHOR POST SHALL BE DRIVEN INTO THE GROUND AT A DEPTH OF 30 INCHES. THE STREET NAME SHALL BE MOUNTED 10 FEET FROM THE TOP OF THE CURB MEASURED TO THE BOTTOM OF THE LOWEST SIGN. SIGNS SHALL BE MOUNTED ON SQUARE POSTS USING DRIVE RIVETS, WASHER, SPACE AND CHERRY MATE RIVETS TO ATTACH ENDS OF SIGN TOGETHER.

WATER

1. ALL WATER LINE CROSSINGS OF SANITARY SEWER LINES SHALL BE AS SHOWN IN THE PLANS AND MEET TCEQ REQUIREMENTS.
2. PIPES 12 INCHES IN DIAMETER AND SMALLER SHALL BE POLYVINYL CHLORIDE (P.V.C.) MEETING THE REQUIREMENTS OF AWWA C900 DR 18 OR DUCTILE IRON PIPE (D.I.P.) MEETING THE REQUIREMENTS OF AWWA C 151 CLASS 50 PIPE. ALL D.I.P. SHALL BE WRAPPED WITH A POLYETHYLENE LINER.
3. FOR PIPES LARGER THAN 12 INCHES IN DIAMETER, THE PIPE SHALL BE REINFORCED CONCRETE CYLINDER PIPE (AWWA C301 OR AWWA C303), DUCTILE IRON PIPE (AWWA C151 CLASS 50) OR POLYVINYL CHLORIDE PIPE UP TO 18 INCHES MEETING THE REQUIREMENTS OF AWWA C905 − 235 P.S.I. RATED PIPE.
4. ALL VALVES ON PIPES 12 INCHES AND SMALLER SHALL BE RESILIENT SEALED WEDGE VALVES (AWWA C509).
5. ALL VALVES ON PIPES LARGER THAN 12 INCHES BUT SMALLER THAN 30 INCHES SHALL BE BUTTERFLY VALVES (AWWA C504) OR WEDGE VALVES (AWWA C509).
6. ALL VALVES ON PIPES 30 INCHES AND LARGER SHALL BE BUTTERFLY VALVES (AWWA C504).
7. EMBEDMENT SHALL BE AS SHOWN IN THE PLANS. BACKFILL WITHIN THE LIMITS OF EXISTING AND PROPOSED PAVEMENT SHALL BE COMPACTED TO 95% STANDARD PROCTOR. OUTSIDE PAVEMENT (EXISTING OR PROPOSED) SHALL BE COMPACTED TO MINIMUM OF 92% STANDARD PROCTOR. ALL COMPACTION SHALL BE BY MECHANICAL METHODS.
8. WATER LINES SHALL BE PRESSURE TESTED IN ACCORDANCE WITH NCTCOG ITEM 506. ALL WATER LINES SHALL BE SWABBED IN THE PRESENCE OF THE INSPECTOR PRIOR TO BACKFILLING.
9. ALL HORIZONTAL AND VERTICAL BENDS SHALL BE BLOCKED.
10. ALL FITTINGS SHALL INCLUDE MEGALUG CONNECTORS.
11. ALL FIRE HYDRANTS SHALL BE INSTALLED WITH A 24" x 24" SQUARE REINFORCED CONCRETE PAD.
12. ALL WATER LINES SHALL BE SWABBED IN THE PRESENCE OF THE INSPECTOR PRIOR TO BACKFULL.

SCREENING WALLS

1. CONCRETE − MINIMUM COMPRESSIVE STRENGTH OF 3,000 P.S.I. @ 28 DAYS.

2. REINFORCEMENT − ASTM A−36.

3. MASONRY − COMPRESSIVE STRENGTH SHALL BE PRESCRIBED IN ITEM 2.3.6 SPECIAL PROVISIONS.

4. WIND LOAD FOR DESIGN − 20 P.S.F.

5. PIER BEARING STRESSES − SEE BRICK SCREENING WALL NOTES.

6. MORTAR − TYPE "S".

7. PROVIDE CONTROL JOINTS AT 50 FEET.

8. PROVIDE EXPANSION JOINTS AT 200 FEET CENTER MAXIMUM.

9. PROVIDE PIER WITH MINIMUM 9 FOOT W/ 24 INCH DIAMETER BELL IN CLAY OR OTHER MATERIAL EXCEPT BLUE SHALE, 6 FOOT MINIMUM WITH 3 FOOT MINIMUM INTO BLUE SHALE.

10. ALL EXPOSED CONCRETE SHALL BE CLASS 2 RUBBED FINISHED SURFACE.

11. SIDEWALKS ADJACENT TO WALLS MUST BE 5−FOOT MINIMUM WIDTH FROM ALL PORTIONS OF THE WALL (INCLUDING PILASTERS, COLUMNS, ETC.).

12. MAXIMUM PILASTER SPACING 40 FEET.

13. WALLS SHALL NOT BE PLACED IN THE VISIBILITY EASEMENT OR STREET RIGHT OF WAY.

14. THE WALL SHALL BE A MINIMUM OF EIGHT FEET IN HEIGHT AS MEASURED FROM THE NEAREST ALLEY EDGE OR SIDEWALK GRADE, WHICHEVER IS THE HIGHER. THE COLOR OF THE WALL SHALL BE LIMITED TO EARTH−TONE COLORS, EXCLUDING GRAY, GREEN AND WHITE. THE COLOR OF THE WALL SHALL BE UNIFORM ON EACH SIDE OF A THOROUGHFARE FOR THE ENTIRE LENGTH BETWEEN INTERSECTING THOROUGHFARES, UNLESS OTHERWISE APPROVED BY THE CITY'S PUBLIC WORKS DEPARTMENT. THE FINISH OF THE WALL SHALL BE CONSISTENT ON ALL SURFACES.

15. IF WROUGHT IRON FENCING IS TO BE UTILIZED ON REQUIRED SCREENING, ALL WROUGHT IRON MUST BE SOLID STOCK, NO TUBULAR STEEL WILL BE ALLOWED.

NO.	REVISION	BY	DATE
6	REVISED PAVING NOTES	JCH	6/30/14
5	ADD PAVING NOTE 21	JCH	7/08/09
4	ADD STORM SEWER NOTE 13	JCH	9/19/08
3	ADD PAVING NOTE 20 AND REVISE NOTE 12 & 15	JCH	8/08/08
2	ADD PAVING NOTE 19	JCH	9/12/07
1	DELETE STORM SEWER PARAGRAPH NO. 9	JCH	5/10/07
0	ADD STREET SIGN SPECIFICATIONS & ILLUMINATION REQUIREMENTS	JCH	1/5/07
	REVISE PAVING NOTES NO. 1 & 5	JCH	5/16/06

CITY OF WYLIE, TEXAS

STANDARD CONSTRUCTION DETAILS

GENERAL NOTES

DATE: APRIL, 2005 — SHEET STD−00_R

NOTES

1. THESE GENERAL NOTES ARE CITY OF WYLIE STANDARDS AND SHALL NOT SUPERSEDE REQUIREMENTS NOTED ELSEWHERE IN THE PLANS. IN THE CASE OF CONFLICTS, THE MORE EXPENSIVE AND/OR MORE STRINGENT REQUIREMENT SHALL APPLY.

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

CITY OF WYLIE
GENERAL NOTES

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DRAWN: TMW DATE: 9/30/2021 — DESIGNED: AK DATE: 9/30/2021
CHECKED: AK DATE: 9/30/2021 — SCALE: N.T.S.

CONTRACT No. 35192

SHEET 3 OF 488 — GNTS-01

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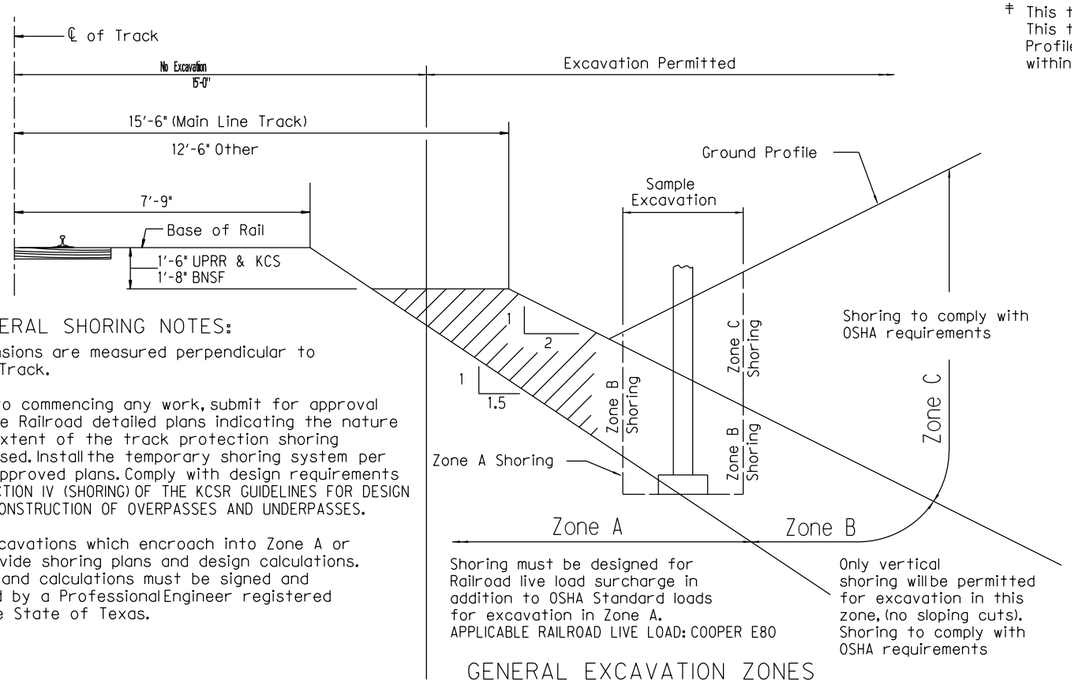

GENERAL EXCAVATION ZONES

GENERAL SHORING NOTES:

1. All dimensions are measured perpendicular to ℄ of Track.
2. Prior to commencing any work, submit for approval by the Railroad detailed plans indicating the nature and extent of the track protection shoring proposed. Install the temporary shoring system per the approved plans. Comply with design requirements in SECTION IV (SHORING) OF THE KCSR GUIDELINES FOR DESIGN AND CONSTRUCTION OF OVERPASSES AND UNDERPASSES.
3. For excavations which encroach into Zone A or B, provide shoring plans and design calculations. Plans and calculations must be signed and sealed by a Professional Engineer registered in the State of Texas.

GENERAL SHORING REQUIREMENTS ‡

RAILROAD GENERAL NOTES:

1. Railroad review and approval of shoring, erection, demolition, and falsework is required. Allow a minimum of four weeks for the review and approval of each submittal.
2. The proposed grade separation project shall not increase the quantity and/or characteristics of the flow in the Railroad's ditches and/or drainage structures. In the rare event that a grade separation project will increase the quantity and/or characteristics of flow in such elements, such a design must be reviewed and approved by the Railroad.
3. Verify the elevation of the existing top-of-rail profile before beginning construction. Bring all discrepancies to the attention of the Railroad prior to construction.
4. Submit a proposed method of erosion and sediment control for approval by the Railroad.
5. Design and construct all shoring systems that impact the Railroad's operations and/or support the Railroad's embankment per current Railroad Guidelines for Temporary Shoring.
6. Comply with Railroad Demolition Guidelines for all demolitions within the Railroad's right of way and/or demolition that may impact the Railroad's tracks or operations.
7. Design erection methods over the Railroad's right of way to cause no interruption to the Railroad's operation, enabling the track(s) to remain open to traffic per the Railroad's requirements. Coordinate construction work windows with the Railroad's Designated Representative.
8. Design all construction phasing that may impact the Railroad operations to cause no interruption to the Railroad's operations, enabling the track(s) to remain open to traffic per the Railroad's requirements. Coordinate construction work windows with the Railroad's Designated Representative.
9. Comply with minimum construction clearances for falsework outlined in the Railroad's Guidelines.
10. Verify all permanent clearances before project closing.
11. For Railroad coordination please refer to Sheets 2 and 3 and the TxDOT Standard Specifications.

‡ This table is primarily required for overpass projects. This table is not required for underpass projects if the provided Plan and Profile sheets indicate this information at a minimum of every 100 ft and within bounds including 1500 ft before and after the limits of trackwork.

TABLE OF TOP OF RAIL PROFILE ‡

(STATIONS INCREASE WITH MILEPOST INCREASE)

	MAIN LINE			
	ALIGNMENT: LEFT RAIL		ALIGNMENT: RIGHT RAIL	
	100' STATIONS	ELEVATION	100' STATIONS	ELEVATION
1000' PRIOR TO PROJECT	0+00	DATA FLD	0+00	DATA FLD
	1+00	DATA FLD	1+00	DATA FLD
	2+00	DATA FLD	2+00	DATA FLD
	3+00	DATA FLD	3+00	DATA FLD
	4+00	DATA FLD	4+00	DATA FLD
	5+00	DATA FLD	5+00	DATA FLD
	6+00	DATA FLD	6+00	DATA FLD
	7+00	DATA FLD	7+00	DATA FLD
	8+00	DATA FLD	8+00	DATA FLD
	9+00	DATA FLD	9+00	DATA FLD
WITHIN PROJECT	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
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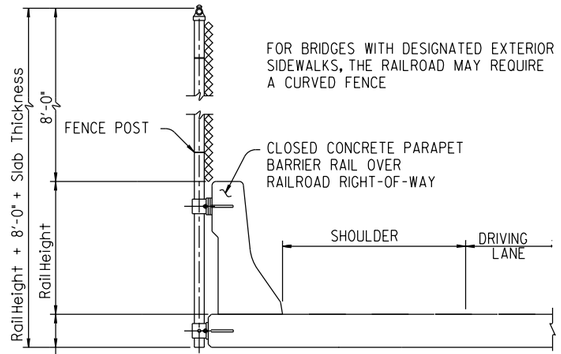
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
1000' AFTER PROJECT	⬓ 10+00	DATA FLD	⬓ 10+00	DATA FLD
	11+00	DATA FLD	11+00	DATA FLD
	12+00	DATA FLD	12+00	DATA FLD
	13+00	DATA FLD	13+00	DATA FLD
	14+00	DATA FLD	14+00	DATA FLD
	15+00	DATA FLD	15+00	DATA FLD
	16+00	DATA FLD	16+00	DATA FLD
	17+00	DATA FLD	17+00	DATA FLD
	18+00	DATA FLD	18+00	DATA FLD
	19+00	DATA FLD	19+00	DATA FLD
	20+00	DATA FLD	20+00	DATA FLD

⬓ ± EXISTING TRACK STA. 10+00
= ± CONSTRUCTION STA. XX+XX

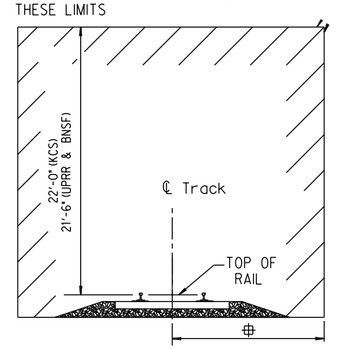
FOR THE FOLLOWING INFORMATION PLEASE REFER TO THE PLAN AND ELEVATION DRAWINGS OF THE BRIDGE PLANS. THE PLAN AND ELEVATION DRAWINGS SHALL SHOW ALL REQUIRED INFORMATION PER KCSR GUIDELINES FOR THE DESIGN AND CONSTRUCTION OF OVERPASSES AND UNDERPASSES

1. Centerline of bridge and/or centerline of project.
2. Track layout and limits of Railroad right of way with respect to centerline of main lines.
3. Future tracks, access roadways and existing tracks as main line, siding, spur, etc.
4. Point of minumum vertical clearance and distance, Measured perpendicular, from the centerline of nearest track.
5. Horizontal clearance at right angle from centerline of nearest existing or future track to the face of obstruction such as substructure above grade.
6. Horizontal clearance at right angle from centerline of nearest existing or future track to the face of nearest foundation below grade.
7. Horizontal spacing at right angle between centerlines of existing and/or future tracks.
8. Limits of shoring and minimum distance at right angle from centerline of nearest track.
9. All existing facilities and utilities and their proposed relocation, if required.
10. Toe of riprap or earth slope and/or limits of retaining wall.
11. Existing and proposed contours. (not required if the existing groundlines or drainage characteristics in Railroad ROW will not be altered).
12. Railroad Milepost and direction of increasing Milepost.
13. Direction of flow for all drainage systems within project limits.
14. Limits of barrier rail and fence with respect to centerline of track.
15. Depth of foundation below bottom of tie. (for footings only)
16. Top and bottom of pier protection wall elevation relative to top of rail elevation.
17. Controlling dimensions of drainage ditches and/or drainage structures.
18. Top of rail elevations for all tracks.
19. Minimum permanent vertical clearance above top of high rail to the lowest point under the bridge.
20. Existing and proposed groundline & roadway profile.
21. Type of riprap slope paving.
22. Location of deck drains.
23. Total width of superstructure.
24. Width of shoulder and/or sidewalk.



TYPICAL FENCE ON BARRIER DETAIL

ONLY REQUIRED ON OVERPASSES IF SHOWN ON BRIDGE LAYOUT. (AREAS WITH PEDESTRIANS ON BRIDGE, RAIL YARDS, OR HISTORY OF VANDALISM)



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

(NORMAL TO RAILROAD)
15'-0"(UPRR),(BNSF)and14'-0" (KCS)

GENERAL NOTES:

Design and Construction for Railroad Projects shall be in accordance with the AREMA Manual for Railway Engineering and Kansas City Southern Guidelines for the Design and Construction of Overpasses and Underpasses, and the TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges AS APPLICABLE TO THE RAILROAD COMPANY INVOLVED.

See BNSF/UPRR Guidelines for Grade Seperation Projects Plan No. 711100 and TxDOT Railroad Fence Details Sheet for additional information. A curved top fence extending 8'-0" above top of sidewalk is acceptable only where there is a traffic rail between roadway and sidewalk.

See Kansas City Southern Guidelines for the Design and Construction of Overpasses and Underpasses for corresponding BNSF/UPRR sheets referenced.

Texas Department of Transportation | Rail Division

RAILROAD REQUIREMENTS FOR BRIDGE CONSTRUCTION

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PART 1 - GENERAL

1.01 DESCRIPTION

This project includes construction work within the right of way and/or properties of the Railroad Company and adjacent to its tracks, wire lines and other facilities. These sheets describe the minimum special requirements for coordination with the Railroad when working upon, over or under Railroad Right of Way or when impacting current or future railroad operations. Coordinate with the Railroad while performing the work outlined herein, and afford the same cooperation with the Railroad as with Collin County. Complete all submittals and work in accordance with TxDOT Standard Specifications, Railroad Guidelines and AREMA recommendations as modified by these minimum special requirements or as directed in writing by the Railroad Designated Representative.

For purposes of this project, the Railroad Designated Representative is the person or persons designated by the Railroad Manager of Industry and Public Projects to handle specific tasks related to the project.

Michael Martin
Manager of Public Projects
The Kansas City Southern Railway Company
427 West 12th Street, Kansas City, MO 64105
Office: 816.983.1138
Email: mmartin@kcsouthern.com

1.02 REQUEST FOR INFORMATION / CLARIFICATION

Submit Requests for Information ("RFI") involving work within any Railroad Right of Way to the Collin County Engineer. The Collin County Engineer will submit the RFI to the Railroad Designated Representative for review and approval for RFI's corresponding to work within Railroad Right of Way. Allow six (6) weeks total time for review and approval, which includes four (4) weeks for review and approval by the Railroad.

1.03 PLANS / SPECIFICATIONS

Collin County has received written Railroad approval of the plans and specifications for this project. Any revisions or changes in the plans after award of the Contract must have the approval of Collin County and the Railroad.

PART 2 - UTILITIES AND FIBER OPTIC

Construct all utility installations in accordance with current AREMA recommendations, Railroad, Collin County and owning utility specifications and requirements. Railroad general guidelines can be found on the Railroad's website or by contacting the Railroad Designated Representative.

PART 3 - CONSTRUCTION

3.01 GENERAL

A. Perform all work in compliance with all applicable Railroad, FRA (Federal Railway Administration) and TxDOT rules and regulations. Arrange and conduct work in a manner that does not endanger or interfere with the safe operation of the tracks and property of the Railroad and the traffic moving on such tracks, or the wires, signals and other property of the Railroad, its tenants or licensees, at or in the vicinity of the Work. The safe operation of Railroad's train movements takes precedence over any work to be performed by the Contractor. The Contractor is responsible for train delay cost and lost revenue claims due to any delays or interruption of train operations resulting from Contractor's construction or other activities.

B. Construction activities within 25 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 25 feet of the operations track(s) do not allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.

C. Provide track protection for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail. When not in use, keep Contractor's machinery and materials at least 50 feet from the Railroad's nearest track.

D. Vehicular crossings of railroad track are allowed only at existing crossings, or haul road crossings developed with railroad approval.

E. The Contractor is also advised that new railroad facilities within the project may be built by the Railroad. If applicable, these facilities are delineated in the plans. Be aware of the limits of responsibilities and coordinate efforts with the Railroad and Collin County.

3.02 RAILROAD OPERATIONS

A. Trains and/or equipment are expected on any track, at any time, in either direction. Become familiar with the train schedules in this location and structure bid assuming intermittent track windows in this period, as defined in Paragraph B that follows.

B. All railroad tracks within and adjacent to the contract site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. Railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. Coordinate and schedule the work so that construction activities do not interfere with railroad operations.

C. Coordinate work windows with Collin County and the Railroad's Designated Representative. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:

1. Conditional Work Window: A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and/or adjacent to the railroad tracks within 25 feet of the nearest track, a railroad flag person will be required. At the direction of the Railroad's flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the Railroad Designated Representative, from the tracks). Conditional Work Windows are available for the Project.

2. Absolute Work Window: An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame, the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window, the railroad tracks and/or signals must be completely operational for train operations and all Railroad, Public Utilities Commission (PUC) and FRA requirements, codes and regulations for operational tracks must be satisfied. In the situation where the operating tracks and/or signals have been affected, the Railroad will perform inspections of the work prior to placing that track back into service. A railroad flag person will be required for construction activities requiring an Absolute Work Window. Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for Railroad review.

3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

A. Do not perform any work within Railroad Right of Way without a valid executed Right of Entry Agreement if required on this project. Obtain Railroad Right of Entry Permit by contacting:
Denise Case
Permit Manager
JLL - Rail Practice Group
4200 Buckingham Road, Suite 110, Fort Worth, TX 76155
Phone: (817) 230-2614
Email: Denise.Case@am.jll.com
OR apply online at: https://kcspermit.jllrpg.com

B. Give advance notice to the Railroad as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over Railroad Right of Way and observe the Railroad's rules and regulations with respect thereto.

C. Perform all work upon Railroad Right of Way in a manner to avoid interference with or endanger the operations of the Railroad. Whenever work may affect the operations or safety of trains, submit the work method to the Railroad Designated Representative for approval. Approval does not relieve the Contractor from liability. Do not commence any work which requires flagging service or inspection service until the flagging protection required by the Railroad is available at the job site. See Section 3.18 for railroad flagging requirements.

D. Make requests in writing for both Absolute and Conditional Work Windows, at least 30 days in advance of any work. Include in the written request:
1. Exactly what the work entails.
2. The days and hours that work will be performed.
3. The exact location of work, and proximity to the tracks.
4. The type of window requested and the amount of time requested.
5. The designated contact person.

Provide a written confirmation notice to the Railroad at least 48 hours before commencing work in connection with approved work windows when work is within 25 feet of nearest rail. Perform all work in accordance with previously approved work plans.

E. Make provisions to protect operations and property of the Railroad should a condition arising from, or in connection with the work, require immediate and unusual action. If in the judgment of the Railroad Designated Representative such provisions are insufficient, the Railroad Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the Railroad or Collin County. The Railroad or Collin County shall have the right to order the Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the Railroad Designated Representative, the Contractor's operations could endanger railroad operations. In the event of such an order, immediately notify Collin County of the order.

3.04 INSURANCE

Do not begin work upon or over Railroad Right of Way until furnishing the Railroad with the insurance policies, binders, certificates and endorsements required by the "Contractor's Right of Entry Agreement", and until the Railroad Designated Representative has advised Collin County that such insurance is in accordance with the Agreement.

3.05 RAILROAD SAFETY ORIENTATION

A. Complete the Railroad's course "Orientation for Contractor's Safety", and maintain current registration prior to working on the Railroad's property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

"UPRR,BNSF,KCS/TEXMEX will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information."

B. Know and follow the "Contractor's Right of Entry Agreement" EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

3.06 COOPERATION

The Railroad will cooperate with Contractor so that work may be conducted in an efficient manner, and will cooperate with Contractor in enabling use of Railroad Right of Way in performing the work.

3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES

Abide by the following minimum temporary clearances during the course of construction:
A. 15' - 0" (BNSF)(UPRR), and 14' - 0" (KCS) horizontal from centerline of track
B. 22' - 0" (KCS) and 21' - 6" (UPRR & BNSF) vertically above top of rail.

For construction clearance less than listed above, obtain local Railroad Operating Unit review and approval.

3.08 APPROVAL OF REDUCED CLEARANCES

A. Maintain minimum track clearances during construction as specified in Section 3.07.

B. Submit any proposed infringement on the specified minimum clearances to the Railroad Designated Representative through Collin County at least 30 days in advance of the work. Do not proceed with such infringement without written approval by the Railroad Designated Representative.

C. Do not commence work involving an approved infringement until receiving written assurance from the Railroad Designated Representative that arrangements have been made for any necessary flagging service.

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Texas Department of Transportation | Rail Division

RAILROAD REQUIREMENTS FOR FOR BRIDGE CONSTRUCTION

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3.09 CONSTRUCTION AND AS-BUILT SUBMITTALS

A. Provide Collin County submittals for construction materials and procedures as outlined below and indicated in TxDOT Standard Specifications.

B. The tables below provide the Railroad's minimum submittal requirements for the construction items noted. Submittal requirements are in addition to those specified elsewhere in these bid documents. The review times indicated below represent the total time, including the Railroad's required four (4) weeks.

C. Collin County will forward relevant submittals to the Railroad Manager of Industry and Public Projects unless otherwise directed by the Railroad. Collin County and the Engineer of Record will review and include comments prior to forwarding to the Railroad. Submit items in Table 1 for both railroad overpass and underpass projects, as applicable. Submit items in Table 2 for railroad underpass projects only.

TABLE 1 - RAILROAD SUBMITTAL REQUIREMENTS FOR OVERPASS & UNDERPASS PROJECTS

ITEM	DESCRIPTION	SETS	REVIEW TIME
1	Shoring design and details	6	6 weeks
2	Falsework design and details	6	6 weeks
3	Drainage design provisions	6	6 weeks
4	Erection diagrams and sequence	6	6 weeks
5	Demolition diagram and sequence	6	6 weeks

TABLE 2 - RAILROAD SUBMITTAL REQUIREMENTS FOR UNDERPASS PROJECTS

ITEM	DESCRIPTION	SETS	NOTES	REVIEW TIME
1	Shop drawings	6	Steel and Concrete members	6 weeks
2	Bearings	6	For all structures	6 weeks
3	Concrete Mix Designs	6	For all structures	6 weeks
4	Rebar & Strand certifications	6	For superstructure only	6 weeks
5	28 day concrete strength	6	For superstructure only	6 weeks
6	Waterproofing material certifications and installation procedure	6	Waterproofing & protective boards	6 weeks
7	Structural steel certifications	6	All fracture critical members & other members requiring improved notch toughness	6 weeks
8	Fabrication and Test reports	6	All fracture critical members & other members requiring improved notch toughness	6 weeks
9	Welding Procedures and Welder Certification	6	AWS requirements	6 weeks
10	Foundation Construction Reports or Notes	6	Pile driving, drilled shaft construction, bearing pressure test reports for spread footings	6 weeks
11	Compaction testing reports for backfill at abutments	6	Must meet 95% maximum dry density, Modified Procter ASTM D1557	6 weeks

D. Collin County shall submit As-Built Records to the Railroad when Collin County has processed the final project plans. These records shall consist of the following items:

Overpass Projects

1. Electronic files of all structure design drawings with as constructed modifications shown, in Microstation J or Acrobat .PDF format.
2. Hard copies of all structure design drawings with as constructed modifications shown.

Underpass Projects

1. Electronic files of all structure design drawings with as constructed modifications shown, in Microstation J or Acrobat .PDF format.
2. Hard copies of all structure design drawings with as constructed modifications shown.
3. Final approved copies of shop drawings for concrete and steel members.
4. Foundation Construction Reports
5. Compaction testing reports for backfill at abutments

3.10 APPROVAL OF DETAILS

Submit details of the construction affecting Railroad's tracks and property not already included in the Contract Plans to the Railroad Designated Representative through Collin County for the Railroad's review and written approval before such work is undertaken. Allow a total six (6) weeks for review and approval of these submittals, which includes the Railroad's four (4) week review time.

3.11 MAINTENANCE OF RAILROAD FACILITIES

A. Maintain all ditches and drainage structures free of silt or other obstructions resulting from Contractor's operations. Repair eroded areas and any other damage within Railroad Right of Way and repair any other damage to the property of the Railroad, or its tenants.

B. Perform all such maintenance and repair of damages due to the Contractor's operations at Contractor's expense.

C. Submit a proposed method of erosion control for review by the Railroad prior to beginning any grading on the Project Site. Comply with all applicable local, state and federal regulations when developing and implementing such erosion control.

3.12 SITE INSPECTIONS BY RAILROAD'S DESIGNATED REPRESENTATIVE

A. In addition to the office reviews of construction submittals, site inspections may be performed by the Railroad Designated Representative at significant points during construction, including the following if applicable:
1. Pre-construction meetings.
2. Pile driving/drilling of caissons or drilled shafts.
3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
4. Erection of precast concrete or steel bridge superstructure.
5. Placement of waterproofing (prior to placing ballast on bridge deck).
6. Completion of the bridge structure.

B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.

C. Provide a detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to Collin County for submittal to the Railroad Designated Representative for review prior to commencement of work. Include the anticipated dates when the above listed events will occur. Update this schedule for the above listed events as necessary and each month at a minimum to allow the Railroad to schedule site inspections.

3.13 RAILROAD REPRESENTATIVES

Railroad representatives, conductors, or watch person will be provided by the Railroad, at expense of Collin County, to protect Railroad's facilities, property and movements of its trains or engines. In general, the Railroad will furnish such personnel or other protective services as follows:

A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from nearest rail of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.

B. For any excavation below elevation of track subgrade if, in the opinion of the Railroad Designated Representative, track or other railroad facilities may be subject to settlement or movement.

C. During any clearing, grubbing, excavation or grading in proximity to Railroad's facilities, which, in the opinion of the Railroad Designated Representative, may endanger railroad facilities or operations.

D. During any contractor's operations when, in the opinion of the Railroad Designated Representative, Railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.

E. Arrange with the Railroad Designated Representative to provide the adequate number of flag persons to accomplish the work.

3.14 WALKWAYS REQUIRED

Maintain along the outer side of each exterior track of multiple operated track, and on each side of single operated track, an unobstructed continuous space suitable for trainman's use in walking along trains, extending to a line not less than twelve feet (12') from centerline of track. Remove any temporary impediments to walkways and track drainage encroachments or obstructions allowed during work hours before the close of each work day. Construct walkways with railings over open excavation areas when in close proximity of track. Do not violate allowable clearances of these railings to centerline of track: 8' - 6" horizontally for tangent track or 9' - 6" horizontally for curved track.

3.15 COMMUNICATIONS AND SIGNAL LINES

If required, the Railroad will rearrange its communications and signal lines, its grade crossing warning devices, train signals and tracks, and facilities that are in use and maintained by the Railroad's forces in connection with its operation at expense of Collin County. This work by the Railroad, will be done by its own forces and it is not a part of the Work under this Contract.

3.16 TRAFFIC CONTROL

Coordinate any operations that control traffic across or around railroad facilities with the Railroad Designated Representative.

3.17 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK

A. Take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of TxDOT, OSHA, AREMA and Railroad "Guidelines for Temporary Shoring".

B. The project plans indicate whether there are fiber optic lines or other such telecommunications systems that require consideration. Regardless, contact the necessary call center to determine if such cable systems are present:

KCS 1-800-344-8377
Texas One Call, a 24 hour number
48 hrs notice required, excluding weekends and holidays
OR
Michael Martin
Manager of Public Projects
The Kansas City Southern Railway Company
427 West 12th Street, Kansas City, MO 64105
Office: 816.983.1138
Email: mmartin@kcsouthern.com

If a telecommunications system is buried anywhere on or near Railroad's property, coordinate with Collin County, the Railroad and the Telecommunication Company(ies) to arrange for relocation or protective measures prior to beginning work on or near railroad property. Refer to the project General Notes for additional information.

C. Projects involving a boring or jack and bore operation under track such as drainage pipes or culverts and utilities require an installation plan reviewed and approved by the Railroad and Collin County prior to proceeding with such construction. A railroad inspector and contractor-assisted monitoring of ground and track movement is required to maintain safe passage of rail traffic. Stop installation and do not allow passage of trains if movements in excess of 1/4 inch vertical or horizontal is detected in the tracks. Immediately repair the damage to the satisfaction of Collin County and the Railroad before proceeding.

3.18 RAILROAD FLAGGING

Per the RIGHT OF ENTRY agreement for flagging, notify the Railroad Representative at least 10 working days in advance of Contractor work and at least 30 working days in advance of any Contractor work in which any person or equipment will be within 25 feet of nearest rail or as specified in the Contractor Right of Entry (CROE).

3.19 CLEANING OF RIGHT-OF-WAY

When work is complete, remove all tools, implements, and other materials brought into Railroad Right of Way and leave the Right of Way in a clean and presentable condition to the satisfaction of Collin County and the Railroad.

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RAILROAD REQUIREMENTS FOR BRIDGE CONSTRUCTION

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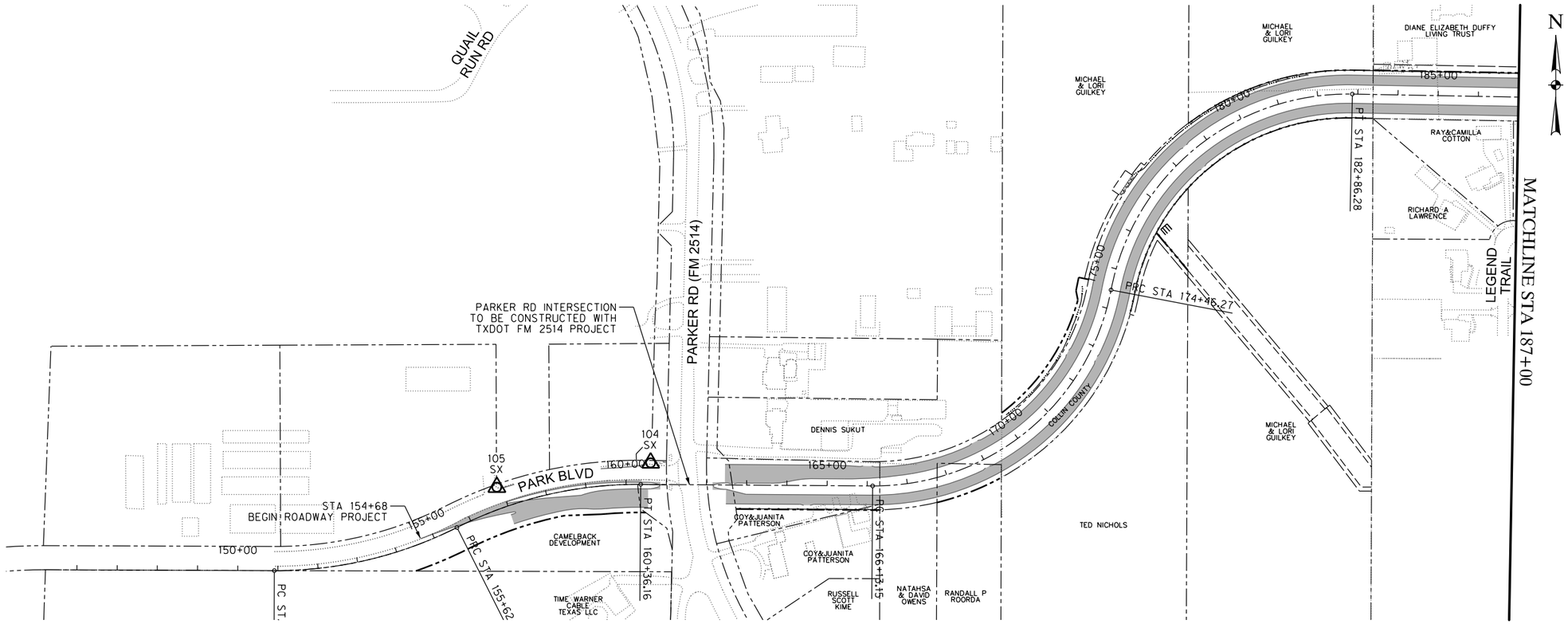


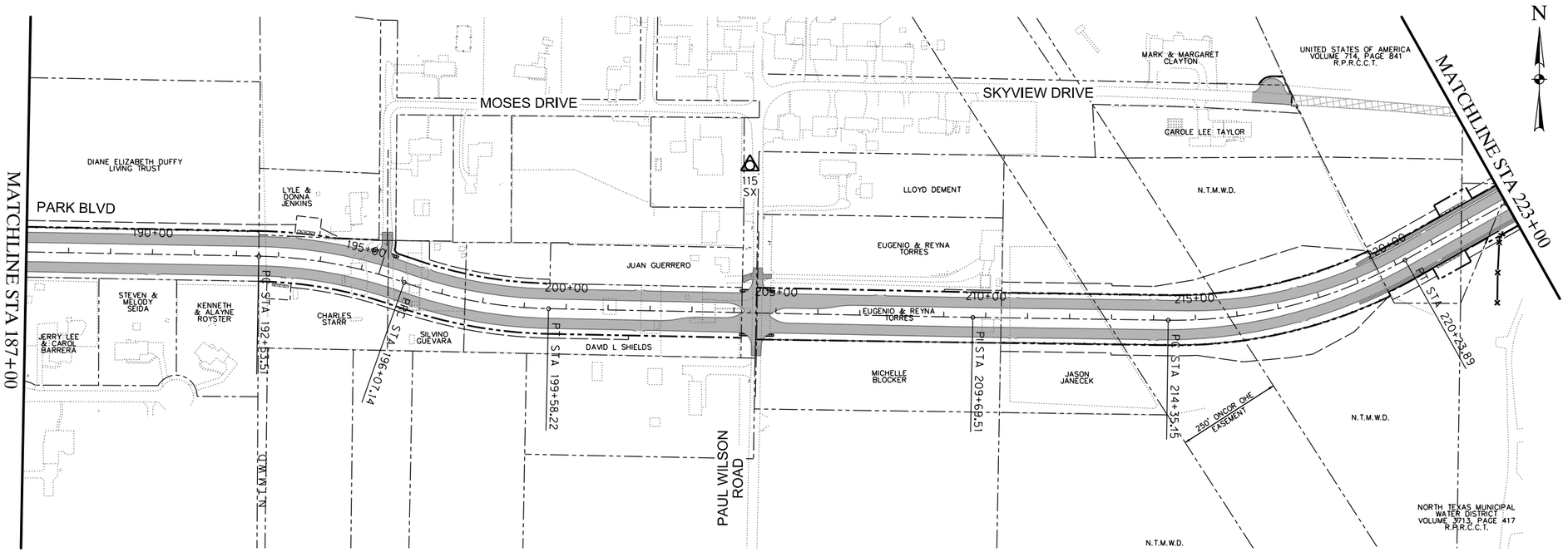
LEGEND

- CONTROL POINT
- PROPOSED R.O.W/OUTGRANT ESMT.
- EXIST. ACCESS/OUTGRANT ESMT.
- PROPOSED ACCESS ESMT.
- EXIST. PROPERTY LINE
- PROP. RETAINING WALL
- PROP. PROJECT PAVING
- PROP. BRIDGE
- FENCING TO BE MAINTAINED/ INSTALLED TO SECURE PERIMETERS OF USACE AND NTMWD PROPERTIES

SURVEY CONTROL TABLE				
PT. NO.	DESC.	NORTH	EAST	ELEV.
104	SX	7064342.771	2567240.723	562.08
105	SX	7064282.242	2566858.165	561.54
115	SMN	7065459.082	2571123.776	557.41
125	SMN	7065248.879	2574832.823	517.10
126	SX	7064347.382	2577447.512	531.51
127	SMN	7065652.851	2576156.635	535.76
128	SX	7063066.136	2578170.222	532.98
129	SX	7063781.635	2578128.266	534.54
379	SX	7065412.034	2573671.035	534.89
380	SX	7065916.811	2573671.175	535.52
SX: SET "X-CUT" IN CONCRETE				
SMN: SET MAG NAIL				

NOTES:

1. THE BASIS OF BEARING IS THE TEXAS STATE PLANE COORDINATE SYSTEM, NORTH CENTRAL ZONE NORTH AMERICAN DATUM OF 1983, COORDINATES AND DISTANCES SHOWN HERON ARE SURFACE ADJUSTED USING A COMBINED SCALE FACTOR OF 1.00015271. GPS TIES WERE MADE TO CITY OF WYLIE MONUMENTS CM1 & CM3 AS A HORIZONTAL CHECK. NO ADJUSTMENT WAS REQUIRED.



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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

PROJECT LAYOUT
BEGIN TO STA 223+00

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	AK	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	1"=300'	

CONTRACT No. 35192

SHEET 11 OF 488 | PLSI-01

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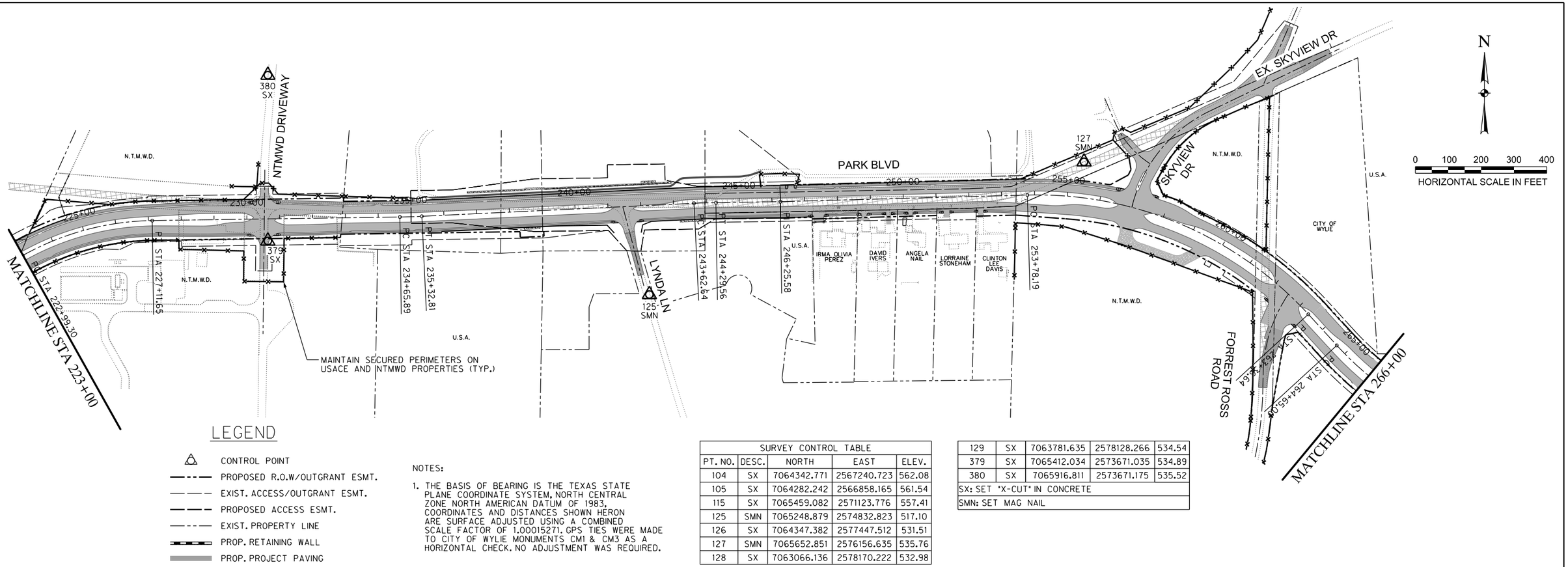


LEGEND

- CONTROL POINT
- PROPOSED R.O.W/OUTGRANT ESMT.
- EXIST. ACCESS/OUTGRANT ESMT.
- PROPOSED ACCESS ESMT.
- EXIST. PROPERTY LINE
- PROP. RETAINING WALL
- PROP. PROJECT PAVING
- PROP. BRIDGE
- FENCING TO BE MAINTAINED/ INSTALLED TO SECURE PERIMETERS OF USACE AND NTMWD PROPERTIES

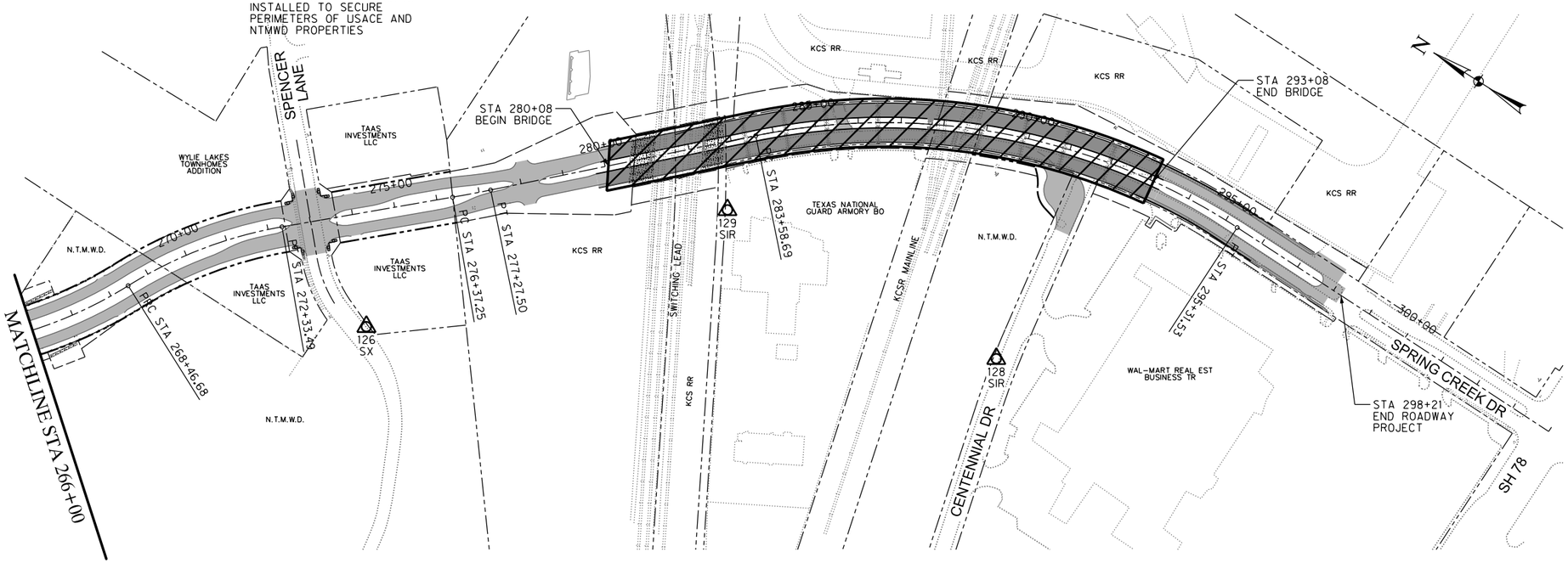
NOTES:

1. THE BASIS OF BEARING IS THE TEXAS STATE PLANE COORDINATE SYSTEM, NORTH CENTRAL ZONE NORTH AMERICAN DATUM OF 1983. COORDINATES AND DISTANCES SHOWN HERON ARE SURFACE ADJUSTED USING A COMBINED SCALE FACTOR OF 1.00015271. GPS TIES WERE MADE TO CITY OF WYLIE MONUMENTS CM1 & CM3 AS A HORIZONTAL CHECK. NO ADJUSTMENT WAS REQUIRED.

SURVEY CONTROL TABLE				
PT. NO.	DESC.	NORTH	EAST	ELEV.
104	SX	7064342.771	2567240.723	562.08
105	SX	7064282.242	2566858.165	561.54
115	SX	7065459.082	2571123.776	557.41
125	SMN	7065248.879	2574832.823	517.10
126	SX	7064347.382	2577447.512	531.51
127	SMN	7065652.851	2576156.635	535.76
128	SX	7063066.136	2578170.222	532.98
129	SX	7063781.635	2578128.266	534.54
379	SX	7065412.034	2573671.035	534.89
380	SX	7065916.811	2573671.175	535.52

SX: SET "X-CUT" IN CONCRETE

SMN: SET MAG NAIL



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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

PROJECT LAYOUT
STA 223+00 TO END

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: TMW DATE: 9/30/2021 DESIGNED: AK DATE: 9/30/2021
CHECKED: AK DATE: 9/30/2021 SCALE: 1"=300'

CONTRACT No. 35192

SHEET 12 OF 488 PLSI-02

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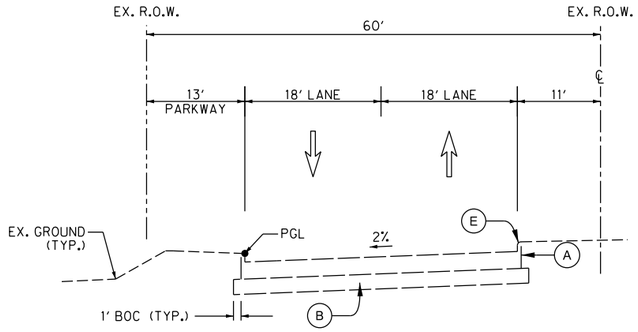
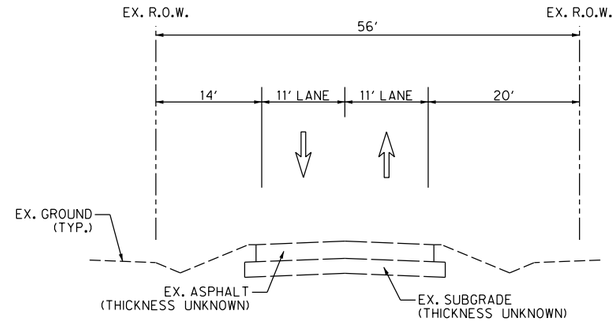
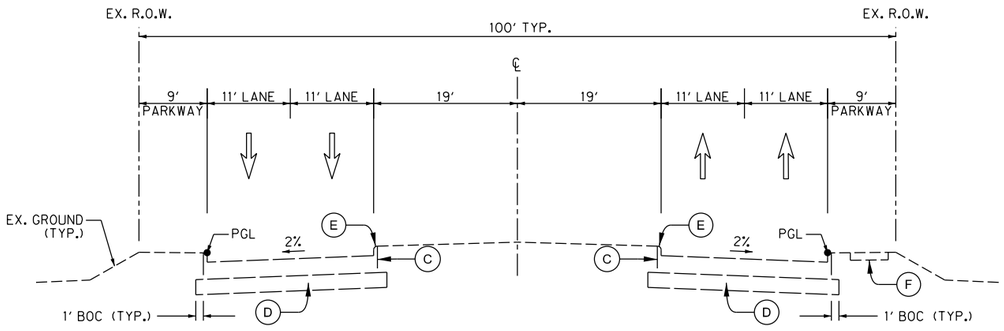


EXISTING PARK BOULEVARD



EXISTING SKYVIEW DRIVE



EXISTING SPRING CREEK PKWY

LEGEND

- EXISTING PAVEMENT SECTION
- PROPOSED PAVEMENT SECTION
- EXISTING TRAFFIC LANE
- PROPOSED TRAFFIC LANE
- (A) 8'' 3500 PSI REINFORCED CONCRETE PAVEMENT
- (B) 7'' LIME STABILIZED SUBGRADE
- (C) 8'' 3500 PSI REINFORCED CONCRETE PAVEMENT
- (D) 6'' LIME STABILIZED SUBGRADE
- (E) 6'' CONCRETE MONOLITHIC CURB
- (F) 4' WIDE REINFORCED CONCRETE SIDEWALK

NOTES:

1. REFER TO RTWL SHEETS FOR LIMITS OF MSE RETAINING WALLS.
2. ALL DIMENSIONS TO FACE OF CURB EXCEPT AS NOTED OTHERWISE.

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

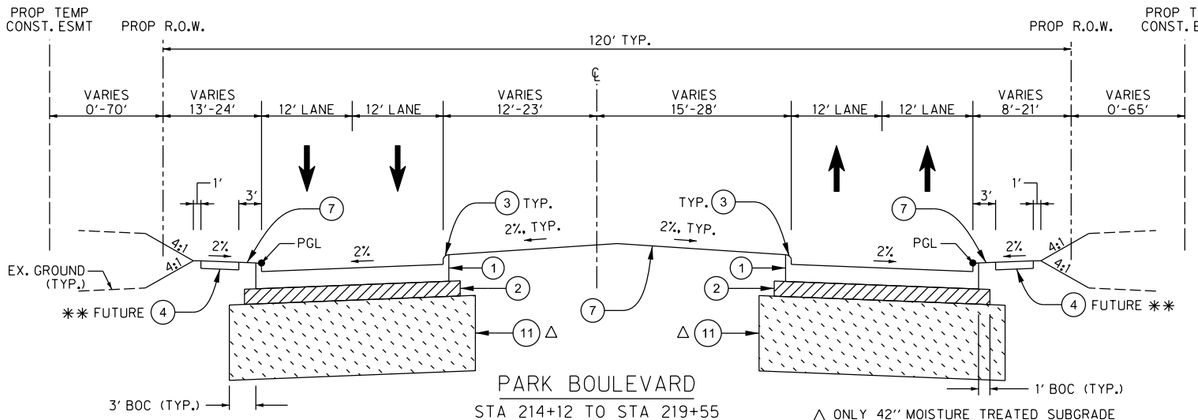
PARK BLVD
ROADWAY TYPICAL SECTIONS

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	AK	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	N.T.S.	

CONTRACT No. 35192

SHEET 13 OF 488 | TYP-01

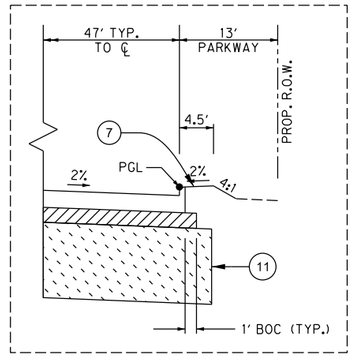


PARK BOULEVARD

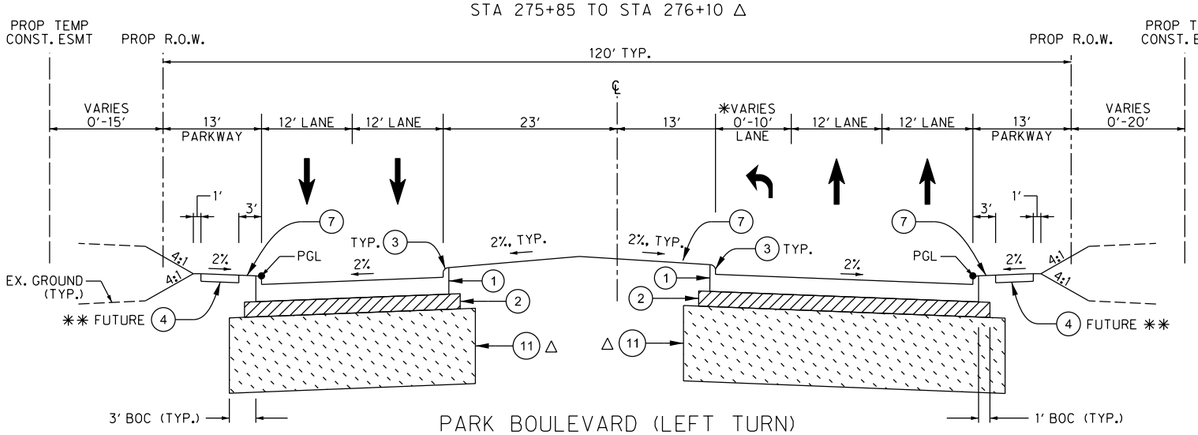
STA 214+12 TO STA 219+55
STA 223+57 TO STA 228+67
STA 232+31 TO STA 232+84
STA 259+43 TO STA 260+00
STA 260+00 TO STA 262+00 △
STA 275+85 TO STA 276+10 △

△ ONLY 42'' MOISTURE TREATED SUBGRADE REQUIRED FOR THESE STATION RANGES

** PROP. SIDEWALK
WB - STA 219+13 TO STA 257+00 (8 FT WIDE)
EB - STA 218+84 TO STA 253+41



LOCATIONS WITH FUTURE SIDEWALK, GRADING SHALL FOLLOW THIS SECTION.



PARK BOULEVARD (LEFT TURN)

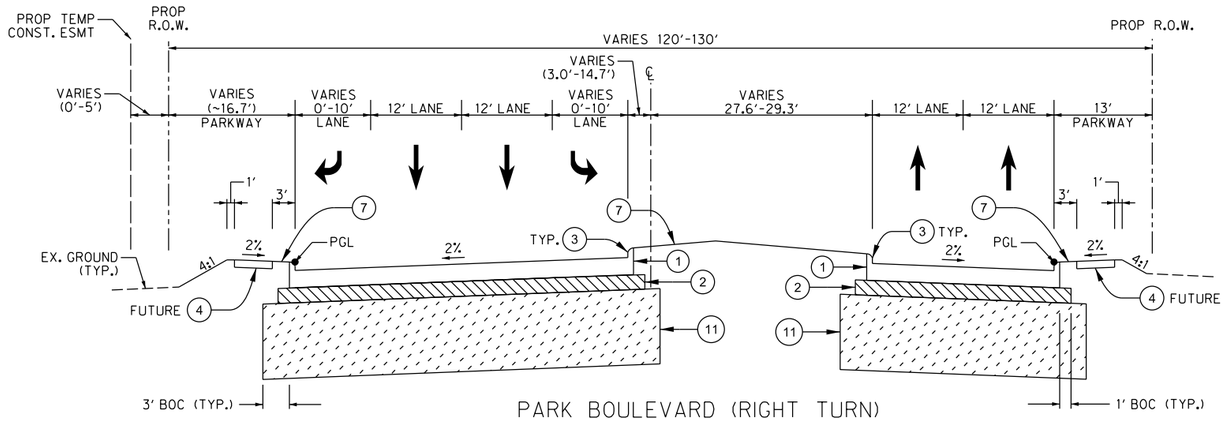
STA 202+20 TO STA 206+89
STA 228+67 TO STA 232+31
STA 254+60 TO STA 257+42
STA 262+00 TO STA 265+00 △
STA 270+53 TO STA 275+45 △
STA 276+10 TO STA 279+91 △□

*(LEFT TURN LANE IS NOT CONTINOUS AND ALSO OCCURS ON WB SIDE)

△ ONLY 42'' MOISTURE TREATED SUBGRADE REQUIRED FOR THESE STATION RANGES

□ OCCURS IN KCS ROADWAY EASEMENT AREA, PGL TRANSITIONS TO 39' OFF PARK ℄

** PROP. SIDEWALK
WB - STA 219+13 TO STA 257+00 (8 FT WIDE)
EB - STA 218+84 TO STA 253+41



PARK BOULEVARD (RIGHT TURN)

STA 257+42 TO STA 259+43

LEGEND

- EXISTING PAVEMENT SECTION
- PROPOSED PAVEMENT SECTION
- EXISTING TRAFFIC LANE
- PROPOSED TRAFFIC LANE
- (1) 9'' JOINTED REINFORCED CONCRETE PAVEMENT (#4 BARS @ 18'')
- (2) 8'' LIME STABILIZED SUBGRADE (#/SY ALLOWANCE)
- (3) 6'' CONCRETE MONOLITHIC CURB
- (4) 5' WIDE- 5'' THICK, 3,000 PSI REINF. CONC. SIDEWALK (#3 BARS @ 18'' CENTER)
- (5) PROP. MSE RETAINING WALL (SEE NOTE 1)
- (6) PROP. C221 TRAFFIC RAIL WITH 8' HIGH CHAIN LINK FENCE (TOTAL HEIGHT = 10'-8'')
- (7) 4'' TOPSOIL W/ BUFFALO GRASS SEEDING OR SOD
- (8) 8' WIDE- 6"THICK, 3,000 PSI REINF. CONC. SIDEWALK (#3 BARS @ 18'' CENTER)
- (9) PROP. COMBINATION C221 RAIL
- (10) 8.0' HIGH GROUND MOUNTED CHAIN LINK FENCE
- (11) 54'' MOISTURE TREATED SUBGRADE (SEE NOTE 4)
- (12) 42'' MOISTURE TREATED SUBGRADE (SEE NOTE 4)
- (13) 8'' ASPHALT PAVEMENT (6'' TYPE B / 2'' TYPE D OVERLAY)
- (14) 6' WIDE- 5'' THICK, 3,000 PSI REINF. CONC. SIDEWALK (#3 BARS @ 18'' CENTER)
- (15) 8'' FLEX BASE, GRADE 1

NOTES:

1. REFER TO RETAINING WALL SHEETS FOR LIMITS OF MSE RETAINING WALLS AND GEOTEXTILE/ SELECT MATERIAL REQUIREMENTS. CONTRACTOR WILL BE PAID FOR M.T.S. WITHIN THE MSE SELECT MATERIAL ZONE IN ACCORDANCE WITH TYPICAL DIMENSIONS SHOWN.
2. ALL DIMENSIONS TO FACE OF CURB UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL OMIT LIME STABILIZED SUBGRADE AND MOISTURE TREATED SUBGRADE AT ALL DRIVEWAYS.
4. ALL EXCAVATION FOR MOISTURE TREATED SUBGRADE (M.T.S.) SHALL BE SUBSIDIARY TO M.T.S. EMBANKMENT PAY ITEM.
5. SPECIAL EARTHWORK PAY ITEM PROVISIONS ARE AS FOLLOWS:
   -EXCAVATION AND EMBANKMENT WILL BE PAID FOR BETWEEN EXISTING GROUND AND FINISHED GRADE/SUBGRADE WITH NO ADJUSTMENTS FOR TOPSOIL SALVAGING AND PLACEMENT
   -ACCEPTABLE TOPSOIL WILL BE PAID FOR WHETHER SALVAGED OR IMPORTED BY SY.
   -SPOIL AND EXCESS MATERIAL DISPOSAL SHALL BE SUBSIDIARY TO EMBANKMENT BID ITEMS PROVIDED.

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

PARK BLVD
ROADWAY TYPICAL SECTIONS

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN: TMW	DATE: 9/30/2021	DESIGNED: AK	DATE: 9/30/2021
CHECKED: AK	DATE: 9/30/2021	SCALE: N.T.S.	

CONTRACT No. 35192

SHEET 17 OF 488 TYP-05

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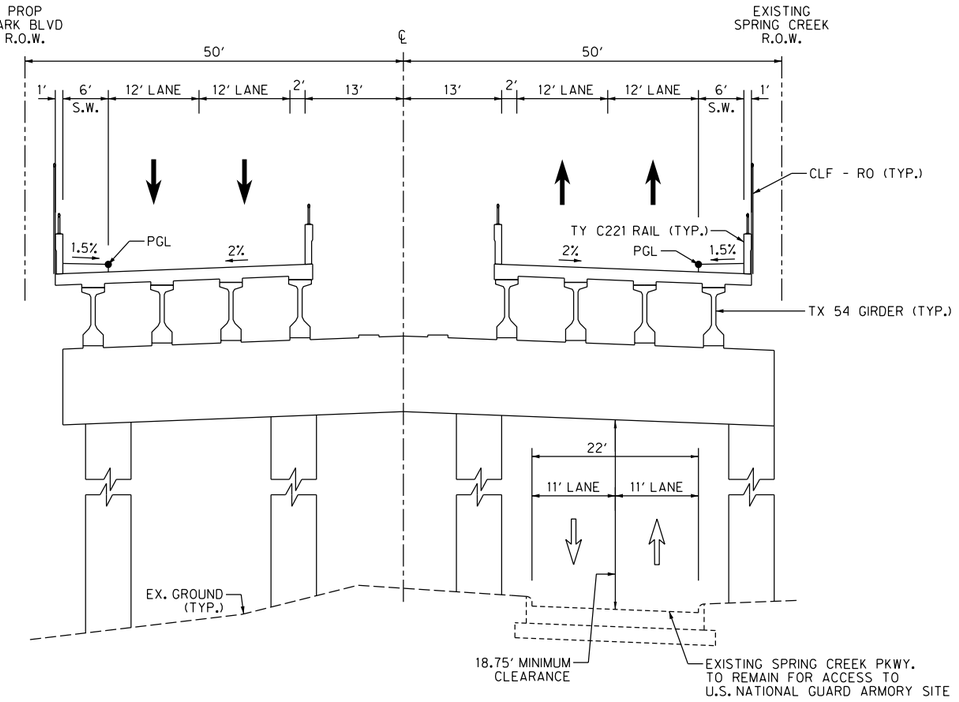
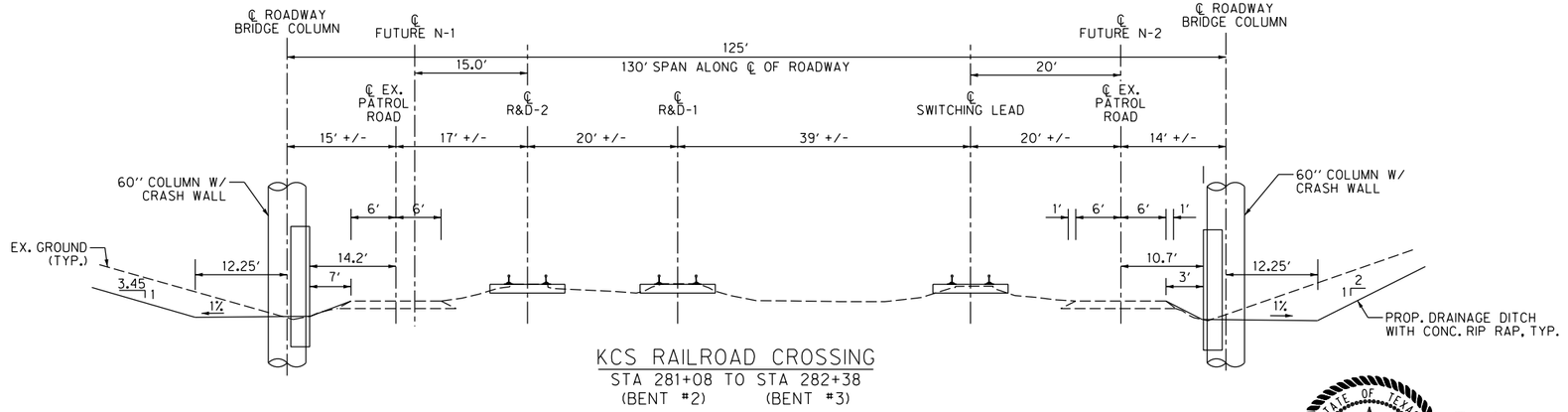


PARK BOULEVARD

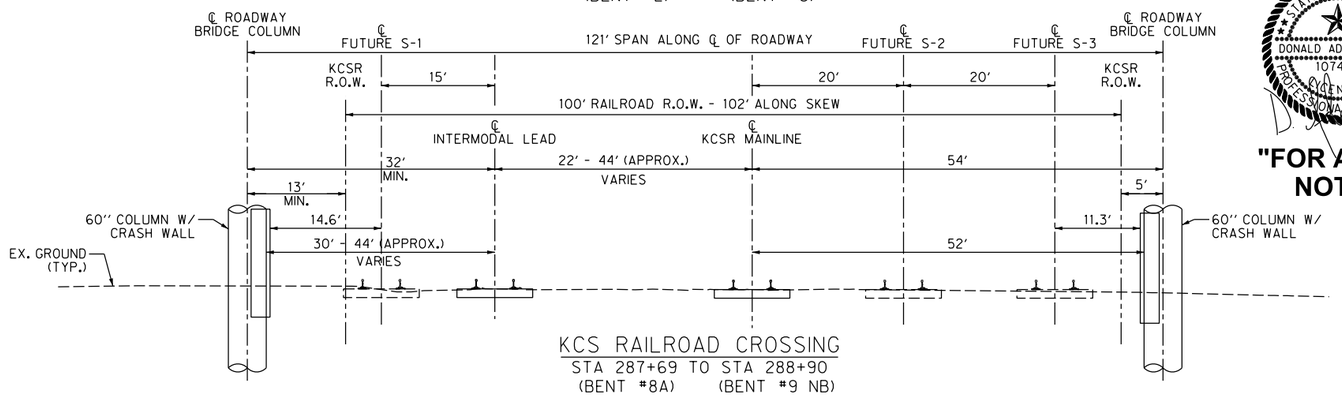
STA 282+80 TO STA 289+86



KCS RAILROAD CROSSING

STA 281+08 TO STA 282+38

(BENT #2) (BENT #3)



KCS RAILROAD CROSSING

STA 287+69 TO STA 288+90

(BENT #8A) (BENT #9 NB)

LEGEND

- EXISTING PAVEMENT SECTION
- PROPOSED PAVEMENT SECTION
- EXISTING TRAFFIC LANE
- PROPOSED TRAFFIC LANE
- (1) 9″ JOINTED REINFORCED CONCRETE PAVEMENT (#4 BARS @ 18″)
- (2) 8″ LIME STABILIZED SUBGRADE (#/SY ALLOWANCE)
- (3) 6″ CONCRETE MONOLITHIC CURB
- (4) 5′ WIDE- 5″ THICK, 3,000 PSI REINF. CONC. SIDEWALK (#3 BARS @ 18″ CENTER)
- (5) PROP. MSE RETAINING WALL (SEE NOTE 1)
- (6) PROP. C221 TRAFFIC RAIL WITH 8′ HIGH CHAIN LINK FENCE (TOTAL HEIGHT = 10′-8″)
- (7) 4″ TOPSOIL W/ BUFFALO GRASS SEEDING OR SOD
- (8) 8′ WIDE- 6″THICK, 3,000 PSI REINF. CONC. SIDEWALK (#3 BARS @ 18″ CENTER)
- (9) PROP. COMBINATION C221 RAIL
- (10) 8.0′ HIGH GROUND MOUNTED CHAIN LINK FENCE
- (11) 54″ MOISTURE TREATED SUBGRADE (SEE NOTE 4)
- (12) 42″ MOISTURE TREATED SUBGRADE (SEE NOTE 4)
- (13) 8″ ASPHALT PAVEMENT (6″ TYPE B / 2″ TYPE D OVERLAY)
- (14) 6′ WIDE- 5″ THICK, 3,000 PSI REINF. CONC. SIDEWALK (#3 BARS @ 18″ CENTER)
- (15) 8″ FLEX BASE, GRADE 1

NOTES:

1. REFER TO RETAINING WALL SHEETS FOR LIMITS OF MSE RETAINING WALLS AND GEOTEXTILE/ SELECT MATERIAL REQUIREMENTS. CONTRACTOR WILL BE PAID FOR M.T.S. WITHIN THE MSE SELECT MATERIAL ZONE IN ACCORDANCE WITH TYPICAL DIMENSIONS SHOWN.
2. ALL DIMENSIONS TO FACE OF CURB UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL OMIT LIME STABILIZED SUBGRADE AND MOISTURE TREATED SUBGRADE AT ALL DRIVEWAYS.
4. ALL EXCAVATION FOR MOISTURE TREATED SUBGRADE (M.T.S.) SHALL BE SUBSIDIARY TO M.T.S. EMBANKMENT PAY ITEM.
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   -ACCEPTABLE TOPSOIL WILL BE PAID FOR WHETHER SALVAGED OR IMPORTED BY SY.
   -SPOIL AND EXCESS MATERIAL DISPOSAL SHALL BE SUBSIDIARY TO EMBANKMENT BID ITEMS PROVIDED.

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

PARK BLVD
ROADWAY TYPICAL SECTIONS

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	AK	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	N.T.S.	

CONTRACT No. 35192

SHEET 21 OF 488 TYP-09

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SPECIAL REQUIREMENTS:

NTMWD

- CONTRACTOR SHALL PROMPTLY COMPLETE GRADING, SLOPE VEGETATION AND PERMANENT FENCING AT SOUTH R.O.W. LINE ALONG ALL NTMWD FRONTAGE.
- CONTRACTOR SHALL COORDINATE WITH NTMWD TO MAINTAIN EXISTING SECURED PERIMETER FOR PLANT FACILITIES AT ALL TIMES AND PROVIDE GATES, TEMPORARY FENCING AND/OR SECURITY MEASURES PER NTMWD ACCESS REQUIREMENTS.
- CONTRACTOR TO NOTIFY NTMWD 72 HOURS BEFORE ANY TRAFFIC SHIFTS. CONTRACTOR SHALL MAINTAIN NTMWD ACCESS ACROSS EXISTING SKYVIEW AND PROPOSED PARK BLVD AT ALL TIMES.
- CONTRACTOR SHALL MAINTAIN CONTINUOUS LONGITUDINAL ACCESS ALONG ALL NTMWD EASEMENTS CROSSING THE PROJECT AND WORK AREAS.
- NTMWD SHALL HAVE THE RIGHT TO ACCESS THE PROJECT SITE AT REASONABLE TIMES DURING CONSTRUCTION ACTIVITIES TO DISCUSS THE PROPOSED WORK WITH COLLIN COUNTY STAFF AND/OR ITS CONTRACTOR, AND FOR THE PURPOSE OF DESIGN, CONSTRUCTION AND INSPECTION ACTIVITIES; PROVIDED, HOWEVER, THAT IN THE EVENT OF AN EMERGENCY, NTMWD SHALL HAVE IMMEDIATE ACCESS TO THE PROJECT SITE.
- COLLIN COUNTY AND/OR ITS CONTRACTOR SHALL NOTIFY, IN WRITING, NTMWD'S INSPECTION STAFF 48 HOURS IN ADVANCE OF ANY SITE INSPECTION. SUCH NOTICE SHALL INCLUDE BOTH THE SCOPE OF INSPECTION(S) AND DATE WORK WILL BE READY TO INSPECT.
- COLLIN COUNTY SHALL UTILIZE A NTMWD PREQUALIFIED FENCE CONTRACTOR TO MODIFY THE NORTHWEST CORNER OF THE WATER TREATMENT PLANT III AND PLANT IV LAGOON AREA SECURITY FENCE UNDER THE PROJECT. NTMWD SHALL PROVIDE COLLIN COUNTY WITH AT LEAST TWO APPROVED SUBCONTRACTORS THAT COLLIN COUNTY CAN HIRE TO PERFORM THE SECURITY FENCE WORK DESCRIBED HEREIN. THE WORK INCLUDES INSTALLATION OF NEW CHAIN-LINK FENCE WITH 3-STRAND BARBED WIRE, CORNER POST AND IN-INLINE POSTS, DOUBLE SWING TRAFFIC GATE, GRAVEL DRIVEWAYS AND CONCRETE MOW STRIP WITH #4 STEEL REINFORCEMENT AND ASSOCIATED APPURTENANCES.
- NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED HEREIN, COLLIN COUNTY SHALL PAY NTMWD FOR ANY AND ALL DAMAGE CAUSED BY COLLIN COUNTY OR ITS CONTRACTORS TO NTMWD'S LINES DURING THE CONSTRUCTION ACTIVITIES CONTEMPLATED HEREIN, INCLUDING BUT NOT LIMITED TO ANY CONSULTING AND REMEDIATION WORK NECESSARY TO ADDRESS ANY CHEMICAL SPILLS IF A CHEMICAL PIPELINE IS DAMAGED. NTMWD SHALL AND TO THE EXTENT IS ABLE, UPON COLLIN COUNTY'S REQUEST, ASSIST COLLIN COUNTY AND ITS CONTRACTORS IN LOCATING THE NTMWD LINES.
- ALL NTMWD PIPELINES MUST BE LOCATED BY VACUUM EXCAVATION, HAND EXCAVATION OR OTHER NON-DESTRUCTIVE METHOD PRIOR TO ROAD CONSTRUCTION.

USACE

- CONTRACTOR SHALL COORDINATE WITH TTPA & USACE TO ACCOMMODATE REVISED TRAIL ALIGNMENT BETWEEN STA 243+00 AND STA 245+70, IF IMPLEMENTED BY TTPA.
- CONTRACTOR SHALL PROTECT EXISTING TREES WITHIN GRADING LIMITS AS DIRECTED BY THE ENGINEER. ABSOLUTELY NO DISTURBANCE OF ALL VEGETATION OUTSIDE TEMPORARY CONSTRUCTION EASEMENT AND OUTGRANT LIMITS.
- CONTRACTOR TO MAINTAIN SAFE PUBLIC ACCESS TO EXISTING USACE PARK AND FISH LOT #3 FOR LAKE LAVON FISHING ACCESS.

KCS RAILROAD

- CONTRACTOR SHALL NOT CONSTRUCT PARK BLVD. BRIDGE DRILL SHAFTS THAT CONFLICT WITH CENTENNIAL DRIVE/SPRING CREEK PARKWAY CONSTRUCTION AND RELATED TRAFFIC CONTROL OPERATIONS UNTIL CENTENNIAL DRIVE IMPROVEMENTS ARE COMPLETE AND OPEN TO TRAFFIC.
- CONTRACTOR SHALL USE CASING WHEN DRILLING SHAFTS ADJACENT TO RAILROAD TRACKS (BENTS 2, 3, 8A, 8B, AND 9) FOR FULL LENGTH OF SHAFT PLACEMENT.
- CONTRACTOR MUST CONTAIN ALL BRIDGE DRAINAGE RUNOFF DURING CONSTRUCTION OF PARK BLVD BRIDGE. CONTRACTOR MAY NOT DISCHARGE ANY RUNOFF OVER THE RAILROAD TRACKS DURING CONSTRUCTION.
- CONTRACTOR SHALL INSTALL CRASH WALLS ON BENTS 2 AND 3 (ENTIRE LENGTH).
- CONTRACTOR SHALL INSTALL CRASH WALLS ON BENT 8A AND NB SIDE OF BENT 9.
- CONTRACTOR SHALL REGRADE EXISTING TOPOGRAPHY WHERE NECESSARY TO MAINTAIN POSTIVE DRAINAGE AWAY FROM RAILROAD TRACKS.
- CONTRACTOR SHALL NOT DISTURB EXISTING KCS CROSSINGS AND EQUIPMENT CABINETS ALONG SPRING CREEK PKWY.
- CONTRACTOR SHALL NOT IMPACT EXISTING KCS ACCESS ROADS.

TEXAS NATIONAL GUARD ARMORY

- CONTRACTOR SHALL MAINTAIN ACCESS TO ARMORY DRIVEWAY LOCATIONS AT ALL TIMES AND ACCESS SHALL BE CAPABLE OF ALLOWING 18' HIGH LOADS AND USE EXISTING RAILWAY CROSSING LOCATION.
- CONTRACTOR MAY ASK FOR EXCEPTIONS TO ACCESS REQUIREMENTS BY DIRECTLY COORDINATING WITH AND RECEIVING WRITTEN APPROVAL OF THE ARMORY COMMANDER. EXCEPTIONS ARE LIKELY TO BE LIMITED TO SHORT TERM (10 DAYS OR LESS) WAIVERS ON CLEARANCE, DRIVEWAY CLOSURE, TEMPORARY ROADWAY DETOURS AND PAVEMENT WIDTH REDUCTIONS.
- CONTRACTOR MUST COMPLETE THE EB/SB BRIDGE SUBSTRUCTURE, INCLUDING ARMORY RELATED PAVEMENT IMPROVEMENTS AND UTILITY WORK PRIOR TO BEGINNING CONSTRUCTION OF NB/WB BRIDGE SUBSTRUCTURE, INCLUDING DRILLED SHAFTS.

PEREZ PROPERTY ALONG EX. SKYVIEW

- CONTRACTOR MUST COORDINATE LOCATION OF NEW DRIVEWAY LOCATION WITH PROPERTY OWNER.
- CONTRACTOR SHALL COORDINATE REMOVAL OF CURRENT DRIVEWAYS AND SALVAGING OF EXISTING FENCE/GATES WITH PROPERTY OWNER PRIOR TO COMMENCING CONSTRUCTION.
- CONTRACTOR MUST GIVE PROPERTY OWNER 30 DAYS ADVANCE NOTICE TO MOVE THE EXISTING FENCE/GATES (BY THE OWNER) BEFORE THE CONTRACTOR CAN REMOVE OR RELOCATE THE EXISTING FENCE/GATES.
- CONTRACTOR MUST MAINTAIN ACCESS TO PEREZ PROPERTY AT ALL TIMES, AND COORDINATE TEMPORARY FENCING MEASURES (AS REQUIRED) TO MAINTAIN A SECURED PERIMETER TO THE PEREZ PROPERTY AT ALL TIMES.

NOTES:

1. ALL COSTS ASSOCIATED WITH REQUIREMENTS AND COORDINATION DESCRIBED ON THIS SHEET, INCLUDING BUT NOT LIMITED TO: DETOUR ROADWAY MATERIALS (NOT SHOWN IN TRAFFIC CONTROL LAYOUT SHEETS), TRAFFIC CONTROL DEVICES, TEMPORARY SECURITY MEASURES AND/OR FLAG MEN SHALL BE SUBSIDIARY TO TRAFFIC HANDLING AND BARRICADES. NO SEPARATE PAY ITEM.
2. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL MAILBOXES AFFECTED BY PROJECT CONSTRUCTION ACTIVITIES AS REQUIRED BY THE USPS TO PROVIDE UNINTERRUPTED MAIL SERVICE.
3. TEMPORARY WORK ZONE REMOVABLE MARKINGS LABELED AS SOLID LINES SHALL BE DONE WITH TABS PER TXDOT STANDARD WZ(STPM)-13. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND REPLACING ALL STRIPING/TABS FOR THE DURATION OF THE PROJECT.

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

TRAFFIC CONTROL PLAN
SPECIAL REQUIREMENTS

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	AK	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	N.T.S.	

CONTRACT No. 35192

SHEET 23 OF 488 | TCP-01

SUGGESTED CONSTRUCTION SEQUENCE:

INSTALL ADVANCED WARNING SIGNS AND TRAFFIC CONTROL IN COMPLIANCE WITH TXDOT STANDARDS, TEXAS MUTCD, AND AS APPROVED BY THE CITY.

PHASE 1

GENERALLY, CONSTRUCT ALL UTILITIES AND PAVEMENT THAT DO NOT INTERFERE WITH EXISTING TRAFFIC OPERATIONS.

- MAINTAIN EXISTING TRAFFIC OPERATIONS ON PARK BLVD, PARKER RD, PAUL WILSON RD, NTMWD DRIVEWAY AND FORREST ROSS ROADWAYS.
- CONSTRUCT ALL UTILITIES AND PAVEMENT FROM BEGINNING OF THE PROJECT AT PARKER ROAD TO END OF THE PROJECT AT SPRING CREEK PKWY PROVIDED THOSE WORK ELEMENTS DO NOT INTERFERE WITH EXISTING TRAFFIC OPERATIONS ON THE ROADWAYS LISTED ABOVE.
- CLOSE SKYVIEW DR FROM EAST OF THE NTMWD DRIVEWAY THROUGH IRMA PEREZ PROPERTY. DETOUR TRAFFIC WEST AND EAST OF SKYVIEW CLOSURE THROUGH N BALLARD AVE, E BROWN ST, SH 78 AND FORREST ROSS RD TO REACH OPPOSITE END OF SKYVIEW DR.
- REMOVE SKYVIEW DRIVE PAVEMENT BETWEEN NTMWD DRIVEWAY AND THE IRMA PEREZ PROPERTY. MAINTAIN ACCESS TO THE EXISTING NTMWD DRIVEWAYS FROM SKYVIEW DR. VIA PAUL WILSON RD.
- REMOVE LYNDA LANE PAVEMENT AND RECONSTRUCT WITH CONNECTION TO PARK BLVD.
- IN 2 SUB-PHASES (1A & 1B) CONSTRUCT ALL UTILITIES AND PAVEMENT FOR SPENCER LANE.
    - PHASE 1A: CONSTRUCT PAVEMENT FOR SPENCER LANE BEFORE STA 273+00. MAINTAIN TWO-WAY TRAFFIC ACCESS AT ALL TIMES.
    - PHASE 1B: CONSTRUCT PAVEMENT FOR SPENCER LANE AFTER STA 273+00. MAINTAIN TWO-WAY TRAFFIC ACCESS AT ALL TIMES.
- DETOUR TRAFFIC ON NB SPRING CREEK BLVD THROUGH SH 78 AND EUBANKS LANE TO REACH CENTENNIAL DRIVE.
- IN 2 SUB-PHASES (1A & 1B) CONSTRUCT CUL-DE-SAC AND PAVEMENT CONNECTION FOR CENTENNIAL DRIVE AT SPRING CREEK PKWY.
    - PHASE 1A: CONSTRUCT CUL-DE-SAC FOR CENTENNIAL DRIVE. SAWCUT AND REMOVE WEST CURB OF SPRING CREEK PKWY AND CONSTRUCT PAVEMENT CONNECTION OF CENTENNIAL DRIVE CUL-DE-SAC AND SPRING CREEK PKWY. MAINTAIN TWO-WAY TRAFFIC ACCESS TO THE ARMORY AT ALL TIMES.
    - PHASE 1B: CONSTRUCT REMAINING PAVEMENT CONNECTION FOR CENTENNIAL DRIVE. SAWCUT AND REMOVE EX. SPRING CREEK PKWY PAVEMENT AS NECESSARY TO CONSTRUCT EAST CURB AND GUTTER ON CENTENNIAL DRIVE. MAINTAIN TWO-WAY TRAFFIC ACCESS TO THE ARMORY AT ALL TIMES.

PHASE 2

CONSTRUCT ALL UTILITIES AND PAVEMENT FOR PAUL WILSON RD AND REMAINDER OF PARK BLVD BETWEEN LYNDA LN AND PROPOSED SKYVIEW.

- CONSTRUCT NORTH CURB OF PARK BLVD WEST OF PARKER RD.
- IN 2 SUB-PHASES (2A & 2B) CONSTRUCT ALL UTILITIES AND PAVEMENT FOR PAUL WILSON ROAD.
    - PHASE 2A: CONSTRUCT PAVEMENT FOR PAUL WILSON ROAD BEFORE STA 204+55. CONSTRUCT TEMPORARY ASPHALT PAVEMENT TO MAINTAIN TWO-WAY TRAFFIC ON PAUL WILSON ROAD AT ALL TIMES.
    - PHASE 2B: CONSTRUCT REMAINING PAVEMENT FOR PAUL WILSON ROAD AFTER STA 204+55. CONSTRUCT TEMPORARY ASPHALT PAVEMENT TO MAINTAIN TWO-WAY TRAFFIC ON PAUL WILSON ROAD AT ALL TIMES.
- CONSTRUCT EB PARK BLVD PAVEMENT IN FRONT OF HOUSES ON SKYVIEW DR (STA 247+25 TO 253+00).
- DETOUR TRAFFIC FROM HOUSES ON SKYVIEW DRIVE (STA 247+25 TO 253+00) TO EXISTING FORREST ROSS VIA NEWLY CONSTRUCTED EB PARK BLVD PAVEMENT EAST OF STA 253+00. CONSTRUCT TEMPORARY ASPHALT PAVEMENT AT SKYVIEW AND FORREST ROSS TO MAINTAIN ACCESS TO THESE HOUSES AT ALL TIMES.
- CONSTRUCT TEMPORARY ASPHALT CROSSOVER BETWEEN WB AND EB PARK BLVD NEAR STA 253+00, AND TEMPORARY ASPHALT CONNECTION TO SKYVIEW NEAR THE NTMWD DRIVE TO MAINTAIN ACCESS TO NTMWD FACILITIES AT ALL TIMES.

PHASE 3

CONSTRUCT ALL UTILITIES AND PAVEMENT FOR PROPOSED SKYVIEW DR AT FORREST ROSS AND TTPA DRIVEWAY.

- DETOUR TRAFFIC WB ON EX. SKYVIEW DRIVE THROUGH SPENCER LANE TO REACH FORREST ROSS.
- DETOUR TRAFFIC SB ON EAST FORK PARK ENTRANCE ONTO FORREST ROSS ONLY.
- IN 2 SUB-PHASES (3A & 3B) CONSTRUCT ALL UTILITIES AND PAVEMENT FOR SKYVIEW DRIVE.
    - PHASE 3A: REMOVE SKYVIEW DR PAVEMENT BETWEEN SKYVIEW STA 2+90 TO 6+00 AND STA 6+70 TO 9+00. CONSTRUCT ALL UTILITIES AND PAVEMENT IN THIS AREA. CONSTRUCT TEMPORARY ASPHALT PAVEMENT TO MAINTAIN TWO-WAY TRAFFIC ACCESS ALONG EAST FORK PARK ENTRANCE/FORREST ROSS AT ALL TIMES.
    - PHASE 3A: CONSTRUCT PAVEMENT FOR THE TTPA DRIVEWAY.
    - PHASE 3B: REMOVE REMAINING EX. SKYVIEW DR PAVEMENT BETWEEN STA 6+00 TO 6+70 AND CONSTRUCT ALL UTILITIES AND PAVEMENT IN THIS AREA. CONSTRUCT TEMPORARY ASPHALT PAVEMENT TO MAINTAIN TWO-WAY TRAFFIC ACCESS AT ALL TIMES.

PHASE 4

CONSTRUCT ALL UTILITIES AND PAVEMENT FOR PROPOSED NTMWD DRIVEWAYS, FORREST ROSS AND REMAINDER OF PARK BLVD.

- CONSTRUCT CUL-DE-SAC ON SKYVIEW DRIVE APPROXIMATELY 1100 FEET EAST OF INTERSECTION WITH PAUL WILSON ROAD.
- REMOVE EX. SKYVIEW DR. PAVEMENT BETWEEN NEW SKYVIEW DR. CUL-DE-SAC AND NTMWD DRIVEWAY.
- IN 2 SUB-PHASES (4A & 4B) CONSTRUCT ALL UTILITIES AND PAVEMENT FOR NTMWD DRIVEWAY.
    - PHASE 4A: CONSTRUCT PAVEMENT FOR NTMWD DRIVEWAY BEFORE STA 230+53. CONSTRUCT TEMPORARY ASPHALT PAVEMENT TO MAINTAIN ACCESS AT ALL TIMES ALONG NTMWD DRIVEWAYS AND EX. SKYVIEW DR ASPHALT CONNECTION TO NEWLY CONSTRUCTED PARK BLVD PAVEMENT.
    - PHASE 4B: CONSTRUCT PAVEMENT FOR NTMWD DRIVEWAY AFTER STA 230+53. CONSTRUCT TEMPORARY ASPHALT PAVEMENT TO MAINTAIN ACCESS AT ALL TIMES.
- DETOUR TRAFFIC WB ON SKYVIEW DRIVE AND EB ON PARK BLVD THROUGH SPENCER LANE TO REACH FORREST ROSS.
- DETOUR TRAFFIC EB ON LYNDA LANE AND NB ON FORREST ROSS THROUGH SPENCER LANE TO REACH SKYVIEW DR.
- DETOUR TRAFFIC SB ON EAST FORK PARK ENTRANCE ONTO EB SKYVIEW DR AND THROUGH SPENCER LANE TO REACH FORREST ROSS.
- REMOVE FORREST ROSS PAVEMENT SOUTH OF SKYVIEW DR TO FORREST ROSS STA 4+00. CONSTRUCT ALL REMAINING UTILITIES AND PAVEMENT FOR FORREST ROSS AND PARK BLVD.

NOTES:

1. ALL COSTS ASSOCIATED WITH REQUIREMENTS AND COORDINATION DESCRIBED ON THIS SHEET, INCLUDING BUT NOT LIMITED TO: DETOUR ROADWAY MATERIALS (NOT SHOWN IN TRAFFIC CONTROL LAYOUT SHEETS), TRAFFIC CONTROL DEVICES, TEMPORARY SECURITY MEASURES AND/OR FLAG MEN SHALL BE SUBSIDIARY TO TRAFFIC HANDLING AND BARRICADES. NO SEPARATE PAY ITEM.
2. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL MAILBOXES AFFECTED BY PROJECT CONSTRUCTION ACTIVITIES AS REQUIRED BY THE USPS TO PROVIDE UNINTERRUPTED MAIL SERVICE.
3. TEMPORARY WORK ZONE REMOVABLE MARKINGS LABELED AS SOLID LINES SHALL BE DONE WITH TABS PER TXDOT STANDARD WZ(STPM)-13. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND REPLACING ALL STRIPING/TABS FOR THE DURATION OF THE PROJECT.
4. CONTRACTOR SHALL MAKE NTMWD AWARE OF ANY CHANGES TO THE TRAFFIC CONTROL SEQUENCE OR TRAFFIC CONTROL PLAN.

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

TRAFFIC CONTROL PLAN
SUGGESTED SEQUENCE NARRATIVE

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	AK	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	N.T.S.	

CONTRACT No. 35192

SHEET 24 OF 488 TCP-02

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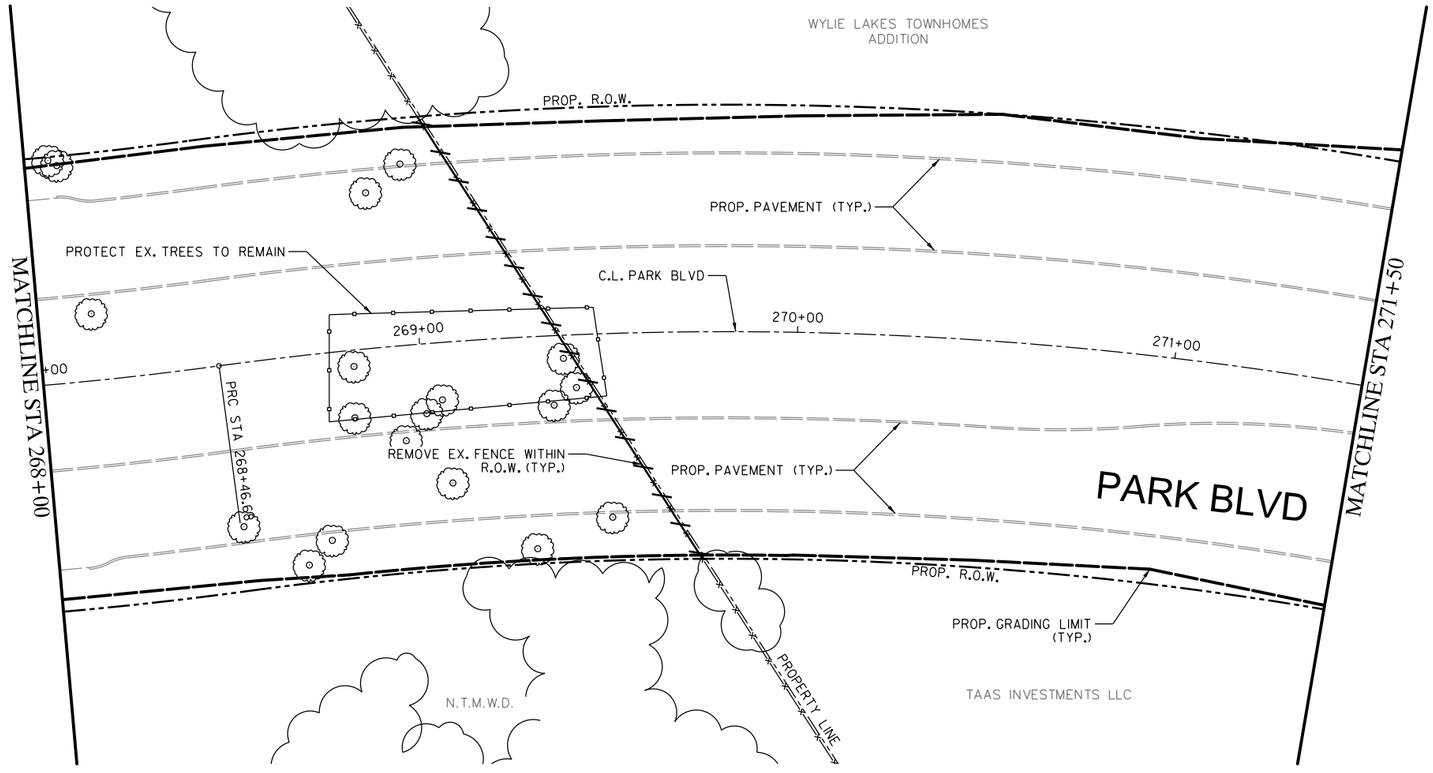

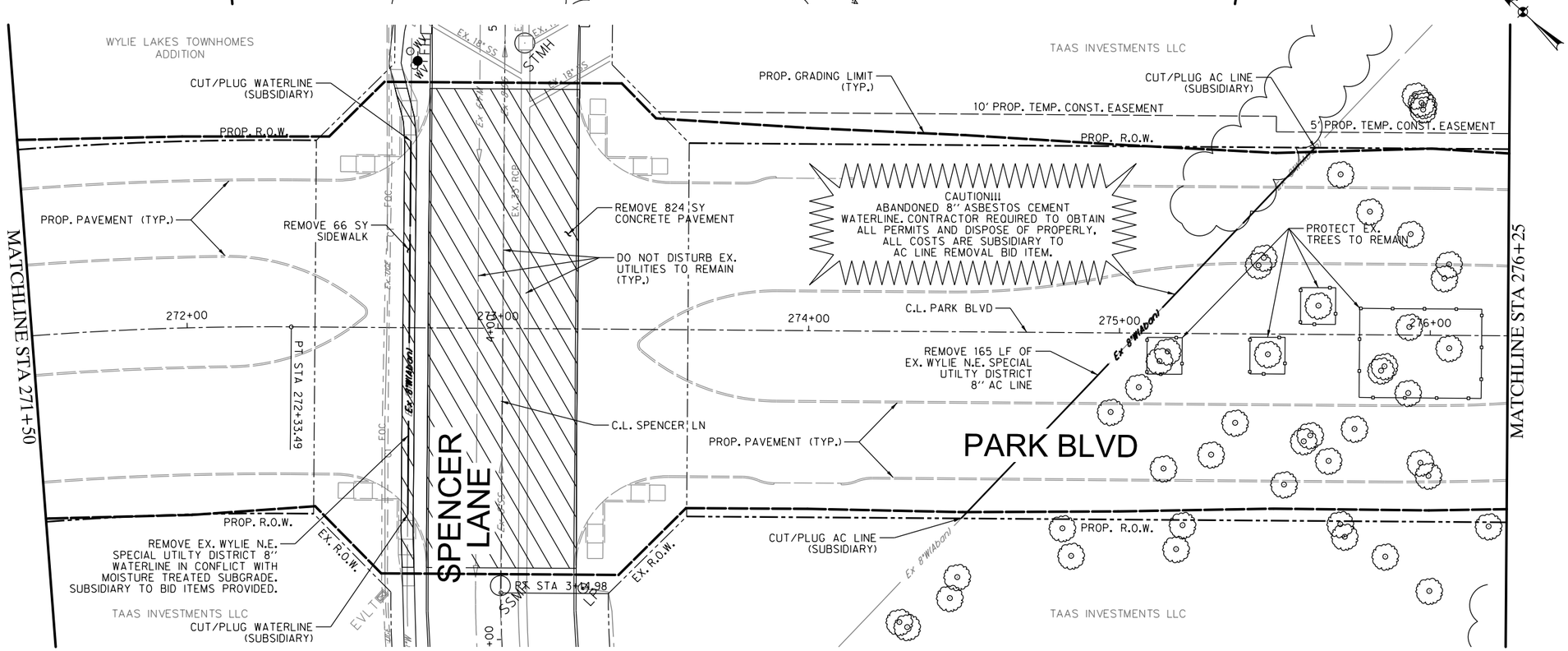

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HORIZONTAL SCALE IN FEET

LEGEND

- FULL DEPTH CONCRETE PAVEMENT/ SIDEWALK TO BE SAWCUT AND REMOVED, INCLUDING CURB AND BASE MATERIALS
- FULL DEPTH ASPHALT PAVEMENT TO BE SAWCUT AND REMOVED, INCLUDING BASE MATERIALS
- FENCE TO BE REMOVED
- EXISTING GUARD RAIL
- XXXXXXXXX STORM DRAIN TO BE REMOVED
- SURVEYED TREES (>8" DIA.) SEE NOTE 8
- WOODED AREAS TO BE CLEARED WITHIN CONSTRUCTION LIMITS

NOTES:

1. ITEMS ON THIS SHEET THAT ARE LABELED WITH A QUANTITY AND UNIT OF MEASURE ARE A SEPARATE PAY ITEM. ALL OTHER ITEMS ARE SUBSIDIARY TO "GENERAL SITE PREPARATION" UNLESS OTHERWISE NOTED.
2. CONTRACTOR TO MAINTAIN EXISTING SECURED PERIMETERS ON NTMWD AND USACE PROPERTIES. TEMPORARY FENCING SHALL MATCH EXISTING FENCE CHARACTERISTICS. SEE PROJECT LAYOUT FOR DESIGNATED AREAS AND TCP SPECIAL REQUIREMENTS FOR ADDITIONAL INFORMATION.
3. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
4. REMOVAL WORK MUST BE DONE IN PHASES/STAGES. REFER TO TRAFFIC CONTROL PLAN FOR CONSTRUCTION SEQUENCE.
5. REFER TO SIGNING & PAVEMENT MARKING LAYOUT FOR EXISTING SIGN REMOVAL AND/OR RELOCATIONS.
6. ALL EXISTING FRANCHISE UTILITY APPURTENANCES IN CONFLICT WITH PROPOSED CONSTRUCTION TO BE RELOCATED AND/OR ADJUSTED BY OTHERS. CONTRACTOR TO COORDINATE AND PROVIDE INTERIM PROTECTION AS NECESSARY. ABANDONED FRANCHISE UTILITIES IN CONFLICT WITH THE PROPOSED WORK SHALL BE REMOVED AND CAPPED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER. ALL WORK TO COMPLY WITH THIS NOTE IS SUBSIDIARY TO "GENERAL SITE PREPARATION" UNLESS OTHERWISE NOTED.
7. REFER TO PAVING PLANS AND ROADWAY GRADING AND DRIVEWAY LAYOUT PLANS FOR DETAILED DIMENSIONS.
8. ALL TREES LOCATED BETWEEN THE ROADWAY AND PROJECT CONSTRUCTION GRADING LIMIT LINE SHALL BE REMOVED UNLESS NOTED TO REMAIN.

EXISTING UTILITY LOCATIONS SHOWN ARE GENERALLY SCHEMATIC IN NATURE AND MAY NOT ACCURATELY REFLECT THE SIZE AND LOCATION OF EACH PARTICULAR UTILITY. SOME UTILITY LINES MAY NOT BE SHOWN. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ACTUAL FIELD LOCATION AND PROTECTION OF EXISTING UTILITIES, WHETHER SHOWN OR NOT. CONTRACTOR SHALL ALSO ASSUME RESPONSIBILITY FOR REPAIRS TO EXISTING UTILITIES, WHETHER SHOWN OR NOT, DAMAGED BY CONTRACTOR'S ACTIVITIES. DIFFERENCES IN HORIZONTAL OR VERTICAL LOCATION OF EXISTING UTILITIES SHALL NOT BE A BASIS FOR ADDITIONAL COMPENSATION.

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

SITE PREPARATION AND REMOVAL PLAN
STA 268+00 TO STA 276+25

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: TMW	DATE: 9/30/2021	DESIGNED: AK	DATE: 9/30/2021
CHECKED: AK	DATE: 9/30/2021	SCALE: 1"=40'	

CONTRACT No. 35192

SHEET 54 OF 488 RP-15

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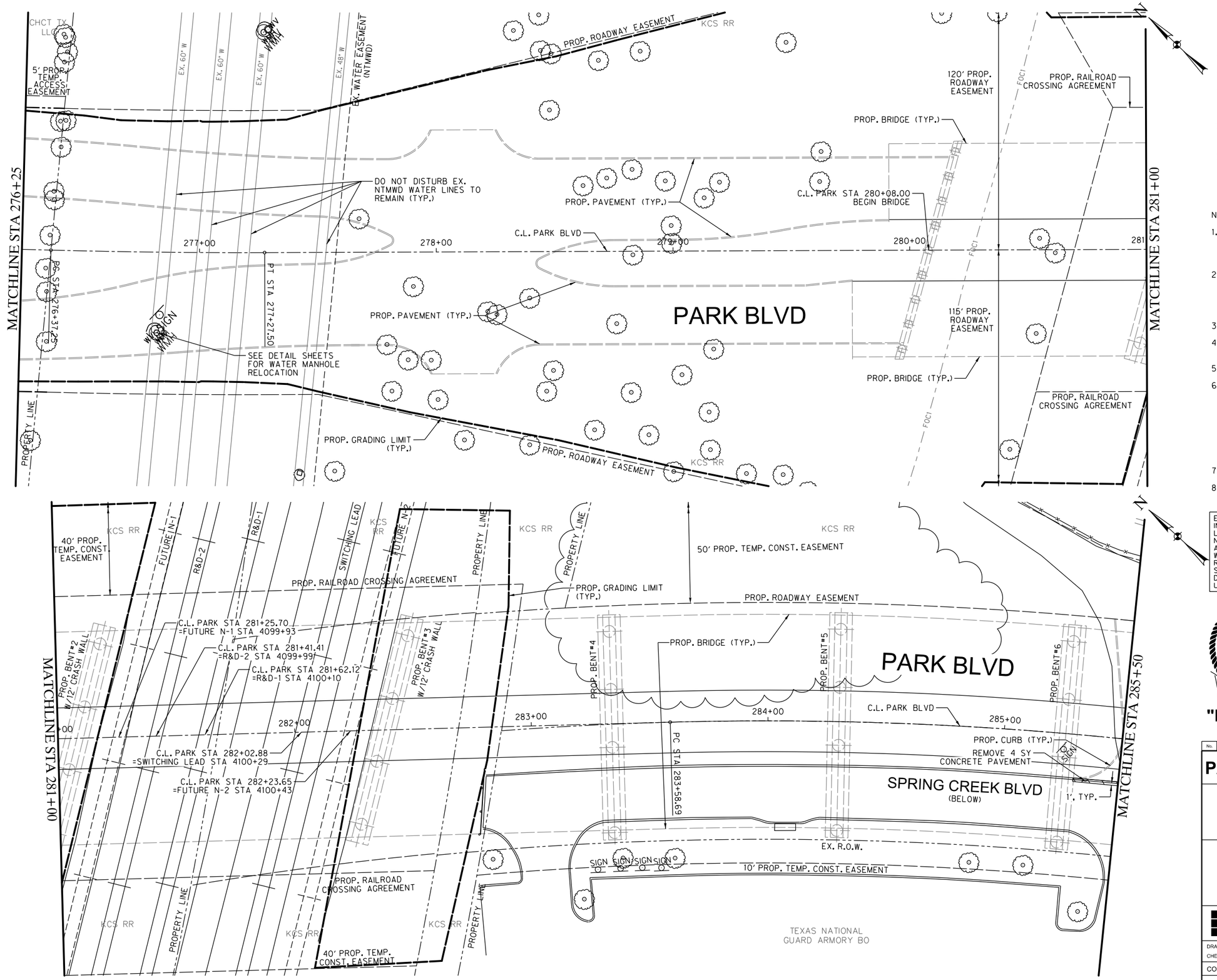

LEGEND

- FULL DEPTH CONCRETE PAVEMENT/ SIDEWALK TO BE SAWCUT AND REMOVED, INCLUDING CURB AND BASE MATERIALS
- FULL DEPTH ASPHALT PAVEMENT TO BE SAWCUT AND REMOVED, INCLUDING BASE MATERIALS
- FENCE TO BE REMOVED
- EXISTING GUARD RAIL
- STORM DRAIN TO BE REMOVED
- SURVEYED TREES (>8" DIA.) SEE NOTE 8
- WOODED AREAS TO BE CLEARED WITHIN CONSTRUCTION LIMITS

NOTES:

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2. CONTRACTOR TO MAINTAIN EXISTING SECURED PERIMETERS ON NTMWD AND USACE PROPERTIES. TEMPORARY FENCING SHALL MATCH EXISTING FENCE CHARACTERISTICS. SEE PROJECT LAYOUT FOR DESIGNATED AREAS AND TCP SPECIAL REQUIREMENTS FOR ADDITIONAL INFORMATION.
3. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
4. REMOVAL WORK MUST BE DONE IN PHASES/STAGES. REFER TO TRAFFIC CONTROL PLAN FOR CONSTRUCTION SEQUENCE.
5. REFER TO SIGNING & PAVEMENT MARKING LAYOUT FOR EXISTING SIGN REMOVAL AND/OR RELOCATIONS.
6. ALL EXISTING FRANCHISE UTILITY APPURTENANCES IN CONFLICT WITH PROPOSED CONSTRUCTION TO BE RELOCATED AND/OR ADJUSTED BY OTHERS. CONTRACTOR TO COORDINATE AND PROVIDE INTERIM PROTECTION AS NECESSARY. ABANDONED FRANCHISE UTILITIES IN CONFLICT WITH THE PROPOSED WORK SHALL BE REMOVED AND CAPPED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER. ALL WORK TO COMPLY WITH THIS NOTE IS SUBSIDIARY TO "GENERAL SITE PREPARATION" UNLESS OTHERWISE NOTED.
7. REFER TO PAVING PLANS AND ROADWAY GRADING AND DRIVEWAY LAYOUT PLANS FOR DETAILED DIMENSIONS.
8. ALL TREES LOCATED BETWEEN THE ROADWAY AND PROJECT CONSTRUCTION GRADING LIMIT LINE SHALL BE REMOVED UNLESS NOTED TO REMAIN.

EXISTING UTILITY LOCATIONS SHOWN ARE GENERALLY SCHEMATIC IN NATURE AND MAY NOT ACCURATELY REFLECT THE SIZE AND LOCATION OF EACH PARTICULAR UTILITY. SOME UTILITY LINES MAY NOT BE SHOWN. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ACTUAL FIELD LOCATION AND PROTECTION OF EXISTING UTILITIES, WHETHER SHOWN OR NOT. CONTRACTOR SHALL ALSO ASSUME RESPONSIBILITY FOR REPAIRS TO EXISTING UTILITIES, WHETHER SHOWN OR NOT, DAMAGED BY CONTRACTOR'S ACTIVITIES. DIFFERENCES IN HORIZONTAL OR VERTICAL LOCATION OF EXISTING UTILITIES SHALL NOT BE A BASIS FOR ADDITIONAL COMPENSATION.

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

SITE PREPARATION AND REMOVAL PLAN
STA 276+25 TO STA 285+50

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

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CHECKED:	AK	DATE: 9/30/2021	SCALE:	1"=40'	

CONTRACT No. 35192

SHEET 55 OF 488 | RP-16

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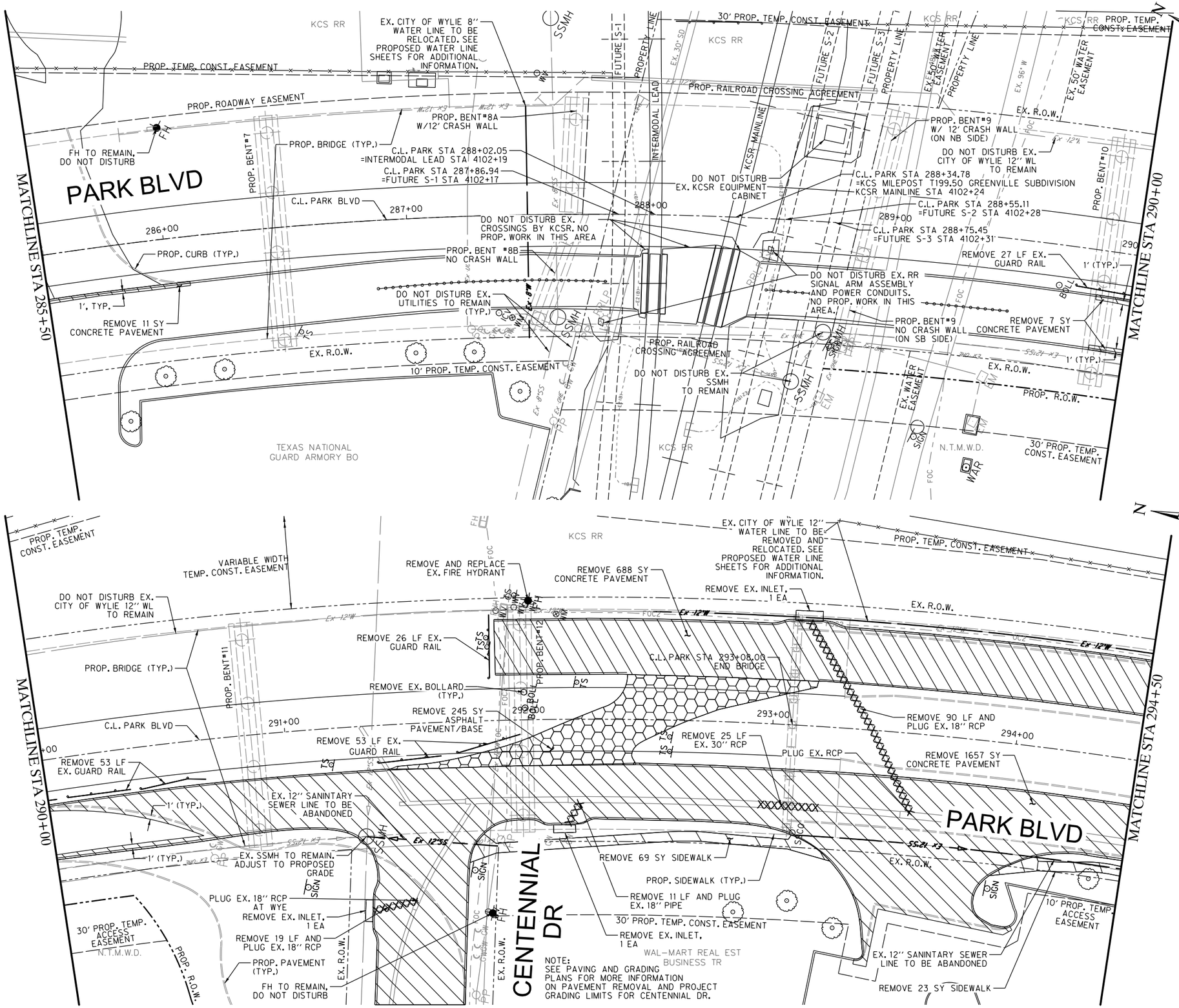

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HORIZONTAL SCALE IN FEET

LEGEND

- FULL DEPTH CONCRETE PAVEMENT/ SIDEWALK TO BE SAWCUT AND REMOVED, INCLUDING CURB AND BASE MATERIALS
- FULL DEPTH ASPHALT PAVEMENT TO BE SAWCUT AND REMOVED, INCLUDING BASE MATERIALS
- FENCE TO BE REMOVED
- EXISTING GUARD RAIL
- STORM DRAIN TO BE REMOVED
- SURVEYED TREES (>8" DIA.) SEE NOTE 8
- WOODED AREAS TO BE CLEARED WITHIN CONSTRUCTION LIMITS

NOTES:

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2. CONTRACTOR TO MAINTAIN EXISTING SECURED PERIMETERS ON NTMWD AND USACE PROPERTIES. TEMPORARY FENCING SHALL MATCH EXISTING FENCE CHARACTERISTICS. SEE PROJECT LAYOUT FOR DESIGNATED AREAS AND TCP SPECIAL REQUIREMENTS FOR ADDITIONAL INFORMATION.
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5. REFER TO SIGNING & PAVEMENT MARKING LAYOUT FOR EXISTING SIGN REMOVAL AND/OR RELOCATIONS.
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7. REFER TO PAVING PLANS AND ROADWAY GRADING AND DRIVEWAY LAYOUT PLANS FOR DETAILED DIMENSIONS.
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STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

SITE PREPARATION AND REMOVAL PLAN
STA 285+50 TO STA 294+50

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

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CHECKED: AK	DATE: 9/30/2021	SCALE: 1"=40'	

CONTRACT No. 35192

SHEET 56 OF 488 | RP-17

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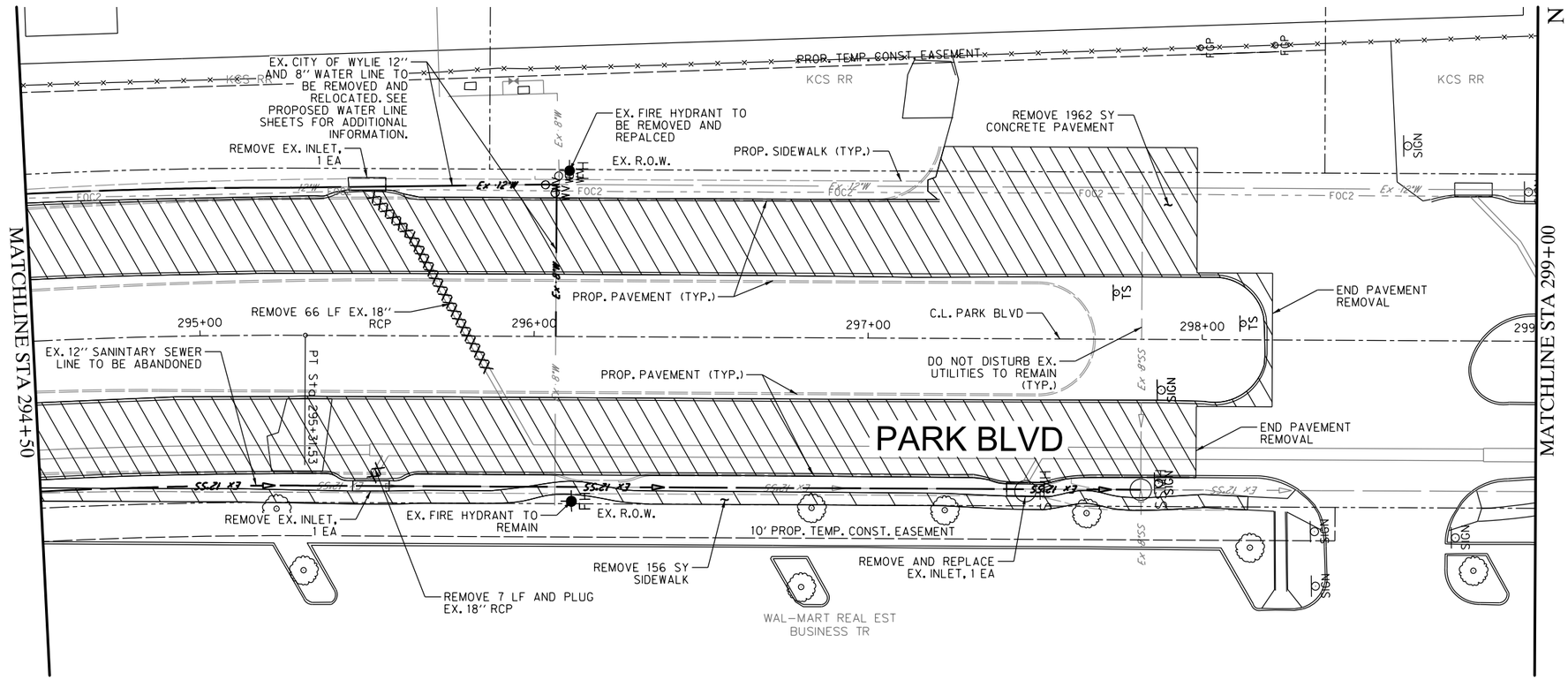

LEGEND

- FULL DEPTH CONCRETE PAVEMENT/ SIDEWALK TO BE SAWCUT AND REMOVED, INCLUDING CURB AND BASE MATERIALS
- FULL DEPTH ASPHALT PAVEMENT TO BE SAWCUT AND REMOVED, INCLUDING BASE MATERIALS
- FENCE TO BE REMOVED
- EXISTING GUARD RAIL
- XXXXXXXXX STORM DRAIN TO BE REMOVED
- SURVEYED TREES (>8" DIA.) SEE NOTE 8
- WOODED AREAS TO BE CLEARED WITHIN CONSTRUCTION LIMITS

NOTES:

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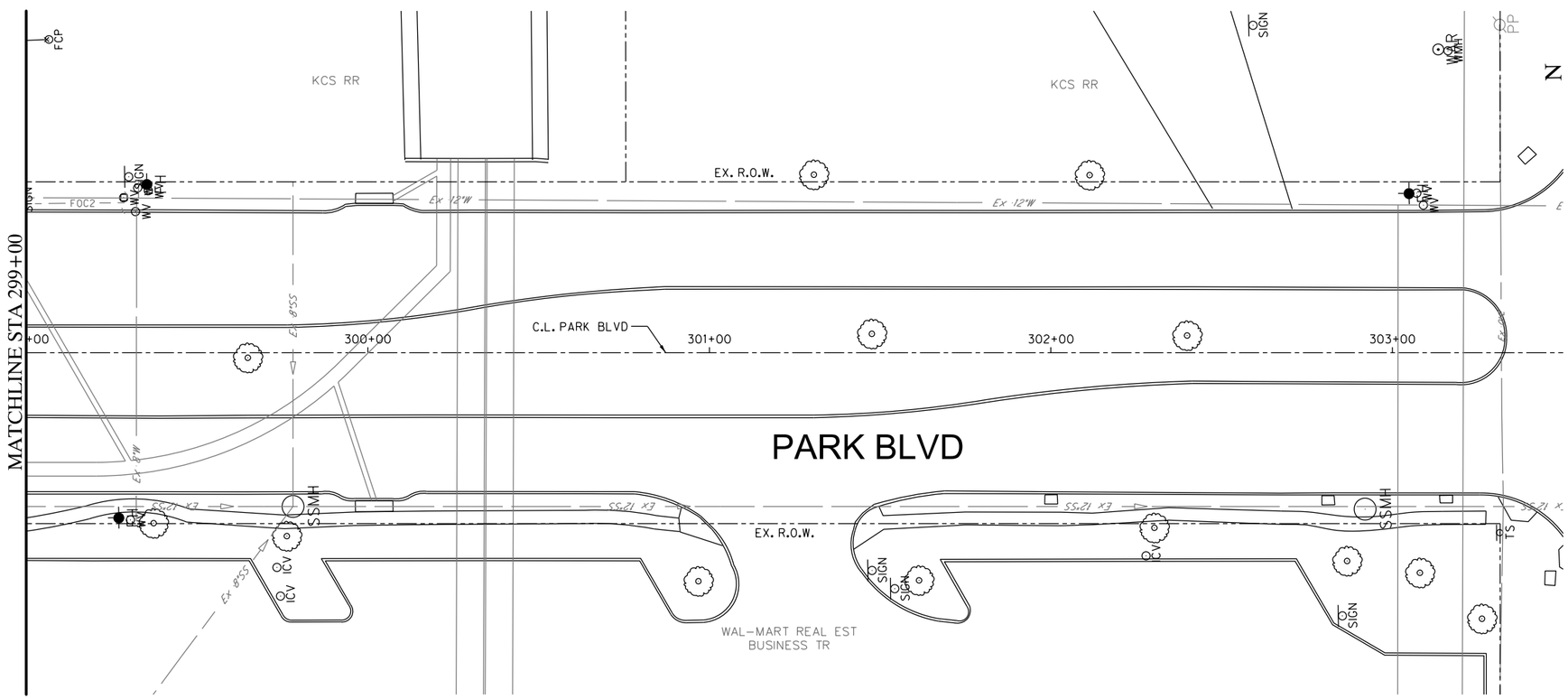
2. CONTRACTOR TO MAINTAIN EXISTING SECURED PERIMETERS ON NTMWD AND USACE PROPERTIES. TEMPORARY FENCING SHALL MATCH EXISTING FENCE CHARACTERISTICS. SEE PROJECT LAYOUT FOR DESIGNATED AREAS AND TCP SPECIAL REQUIREMENTS FOR ADDITIONAL INFORMATION.
3. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
4. REMOVAL WORK MUST BE DONE IN PHASES/STAGES. REFER TO TRAFFIC CONTROL PLAN FOR CONSTRUCTION SEQUENCE.
5. REFER TO SIGNING & PAVEMENT MARKING LAYOUT FOR EXISTING SIGN REMOVAL AND/OR RELOCATIONS.
6. ALL EXISTING FRANCHISE UTILITY APPURTENANCES IN CONFLICT WITH PROPOSED CONSTRUCTION TO BE RELOCATED AND/OR ADJUSTED BY OTHERS. CONTRACTOR TO COORDINATE AND PROVIDE INTERIM PROTECTION AS NECESSARY. ABANDONED FRANCHISE UTILITIES IN CONFLICT WITH THE PROPOSED WORK SHALL BE REMOVED AND CAPPED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER. ALL WORK TO COMPLY WITH THIS NOTE IS SUBSIDIARY TO "GENERAL SITE PREPARATION" UNLESS OTHERWISE NOTED.
7. REFER TO PAVING PLANS AND ROADWAY GRADING AND DRIVEWAY LAYOUT PLANS FOR DETAILED DIMENSIONS.
8. ALL TREES LOCATED BETWEEN THE ROADWAY AND PROJECT CONSTRUCTION GRADING LIMIT LINE SHALL BE REMOVED UNLESS NOTED TO REMAIN.

EXISTING UTILITY LOCATIONS SHOWN ARE GENERALLY SCHEMATIC IN NATURE AND MAY NOT ACCURATELY REFLECT THE SIZE AND LOCATION OF EACH PARTICULAR UTILITY. SOME UTILITY LINES MAY NOT BE SHOWN. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ACTUAL FIELD LOCATION AND PROTECTION OF EXISTING UTILITIES, WHETHER SHOWN OR NOT. CONTRACTOR SHALL ALSO ASSUME RESPONSIBILITY FOR REPAIRS TO EXISTING UTILITIES, WHETHER SHOWN OR NOT, DAMAGED BY CONTRACTOR'S ACTIVITIES. DIFFERENCES IN HORIZONTAL OR VERTICAL LOCATION OF EXISTING UTILITIES SHALL NOT BE A BASIS FOR ADDITIONAL COMPENSATION.



STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by Donald Adam Kane, PE#107449 on 03-18-22. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act. TBPELS Engineering Firm #F-312

"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

SITE PREPARATION AND REMOVAL PLAN
STA 294+50 TO END

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	AK	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	1"=40'	

CONTRACT No. 35192

SHEET 57 OF 488

RP-18

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CL-PARK

Chain CL-PARK contains:
CLPARK01 CUR CL-PARK-1 CUR CL-PARK-2 CUR CL-PARK-3 CUR CL-PARK-4 CUR CL-PARK-5-
CUR CL-PARK-6 CLPARK02 CUR CL-PARK-7 CUR CL-PARK-8 CUR CL-PARK-9 CUR CL-PARK-1-
0 CLPARK03 CUR CL-PARK-11 CUR CL-PARK-12 CUR CL-PARK-13 CUR CL-PARK-14 CUR CL-P-
ARK-15 CLPARK04

Beginning chain CL-PARK description

Point CLPARK01 N 7,064,076.85 E 2,565,726.27 Sta 145+12.85

Course from CLPARK01 to PC CL-PARK-1 S 89° 47' 46.69" E Dist 578.33

Curve Data

Curve CL-PARK-1					
P.I. Station	153+31.11	N	7,064,073.94	E	2,566,544.52
Delta =	26° 59' 03.54" (LT)				
Degree =	5° 43' 46.48"				
Tangent =	239.93				
Length =	470.97				
Radius =	1,000.00				
External =	28.38				
Long Chord =	466.62				
Mid. Ord. =	27.60				
P.C. Station	150+91.17	N	7,064,074.79	E	2,566,304.59
P.T. Station	155+62.14	N	7,064,182.05	E	2,566,758.72
C.C.		N	7,065,074.79	E	2,566,308.15
Back = S	89° 47' 46.69" E				
Ahead = N	63° 13' 09.77" E				
Chord Bear = N	76° 42' 41.54" E				

Curve Data

Curve CL-PARK-2					
P.I. Station	158+03.69	N	7,064,290.89	E	2,566,974.36
Delta =	27° 09' 34.23" (RT)				
Degree =	5° 43' 46.48"				
Tangent =	241.55				
Length =	474.02				
Radius =	1,000.00				
External =	28.76				
Long Chord =	469.60				
Mid. Ord. =	27.96				
P.C. Station	155+62.14	N	7,064,182.05	E	2,566,758.72
P.T. Station	160+36.16	N	7,064,289.29	E	2,567,215.91
C.C.		N	7,063,289.31	E	2,567,209.30
Back = N	63° 13' 09.77" E				
Ahead = S	89° 37' 16.00" E				
Chord Bear = N	76° 47' 56.89" E				

Course from PT CL-PARK-2 to PC CL-PARK-3 S 89° 37' 16.00" E Dist 576.99

Curve Data

Curve CL-PARK-3					
P.I. Station	171+12.67	N	7,064,282.17	E	2,568,292.39
Delta =	79° 33' 24.50" (LT)				
Degree =	9° 32' 57.47"				
Tangent =	499.52				
Length =	833.12				
Radius =	600.00				
External =	180.72				
Long Chord =	767.78				
Mid. Ord. =	138.89				
P.C. Station	166+13.15	N	7,064,285.47	E	2,567,792.88
P.T. Station	174+46.27	N	7,064,772.80	E	2,568,386.18
C.C.		N	7,064,885.46	E	2,567,796.85
Back = S	89° 37' 16.00" E				
Ahead = N	10° 49' 19.50" E				
Chord Bear = N	50° 36' 01.75" E				

Curve Data

Curve CL-PARK-4					
P.I. Station	179+51.65	N	7,065,269.20	E	2,568,481.07
Delta =	80° 12' 56.26" (RT)				
Degree =	9° 32' 57.47"				
Tangent =	505.39				
Length =	840.02				
Radius =	600.00				
External =	184.48				
Long Chord =	773.07				
Mid. Ord. =	141.10				
P.C. Station	174+46.27	N	7,064,772.80	E	2,568,386.18
P.T. Station	182+86.28	N	7,065,260.05	E	2,568,986.38
C.C.		N	7,064,660.15	E	2,568,975.51
Back = N	10° 49' 19.50" E				
Ahead = S	88° 57' 44.23" E				
Chord Bear = N	50° 55' 47.64" E				

Course from PT CL-PARK-4 to PC CL-PARK-5 S 88° 57' 44.23" E Dist 967.23

Curve Data

Curve CL-PARK-5					
P.I. Station	194+31.87	N	7,065,239.30	E	2,570,131.77
Delta =	18° 25' 10.77" (RT)				
Degree =	5° 12' 31.35"				
Tangent =	178.35				
Length =	353.63				
Radius =	1,100.00				
External =	14.37				
Long Chord =	352.11				
Mid. Ord. =	14.18				
P.C. Station	192+53.51	N	7,065,242.53	E	2,569,953.44
P.T. Station	196+07.14	N	7,065,179.89	E	2,570,299.94
C.C.		N	7,064,142.71	E	2,569,933.52
Back = S	88° 57' 44.23" E				
Ahead = S	70° 32' 33.46" E				
Chord Bear = S	79° 45' 08.84" E				

Curve Data

Curve CL-PARK-6					
P.I. Station	197+84.18	N	7,065,120.92	E	2,570,466.87
Delta =	18° 17' 10.97" (LT)				
Degree =	5° 12' 31.35"				
Tangent =	177.04				
Length =	351.07				
Radius =	1,100.00				
External =	14.16				
Long Chord =	349.59				
Mid. Ord. =	13.98				
P.C. Station	196+07.14	N	7,065,179.89	E	2,570,299.94
P.T. Station	199+58.22	N	7,065,117.30	E	2,570,643.88
C.C.		N	7,066,217.07	E	2,570,666.36
Back = S	70° 32' 33.46" E				
Ahead = S	88° 49' 44.43" E				
Chord Bear = S	79° 41' 08.94" E				

Course from PT CL-PARK-6 to CLPARK02 S 88° 49' 44.43" E Dist 1,011.29

Point CLPARK02 N 7,065,096.63 E 2,571,654.96 Sta 209+69.51

Course from CLPARK02 to PC CL-PARK-7 S 89° 10' 44.27" E Dist 465.64

Curve Data

Curve CL-PARK-7					
P.I. Station	217+36.49	N	7,065,085.64	E	2,572,421.86
Delta =	30° 07' 04.57" (LT)				
Degree =	5° 06' 56.50"				
Tangent =	301.34				
Length =	588.74				
Radius =	1,120.00				
External =	39.83				
Long Chord =	581.98				
Mid. Ord. =	38.46				
P.C. Station	214+35.15	N	7,065,089.96	E	2,572,120.55
P.T. Station	220+23.89	N	7,065,233.10	E	2,572,684.66
C.C.		N	7,066,209.85	E	2,572,136.60
Back = S	89° 10' 44.27" E				
Ahead = N	60° 42' 11.16" E				
Chord Bear = N	75° 45' 43.44" E				

Course from PT CL-PARK-7 to PC CL-PARK-8 N 60° 42' 11.16" E Dist 275.41

Curve Data

Curve CL-PARK-8					
P.I. Station	225+09.82	N	7,065,470.88	E	2,573,108.44
Delta =	28° 27' 54.48" (RT)				
Degree =	6° 54' 11.18"				
Tangent =	210.52				
Length =	412.35				
Radius =	830.00				
External =	26.28				
Long Chord =	408.12				
Mid. Ord. =	25.48				
P.C. Station	222+99.30	N	7,065,367.87	E	2,572,924.84
P.T. Station	227+11.65	N	7,065,473.94	E	2,573,318.94
C.C.		N	7,064,644.03	E	2,573,330.99
Back = N	60° 42' 11.16" E				
Ahead = N	89° 10' 05.64" E				
Chord Bear = N	74° 56' 08.40" E				

Course from PT CL-PARK-8 to PC CL-PARK-9 N 89° 10' 05.64" E Dist 754.24

Curve Data

Curve CL-PARK-9					
P.I. Station	234+99.36	N	7,065,485.37	E	2,574,106.56
Delta =	1° 55' 01.68" (LT)				
Degree =	2° 51' 53.24"				
Tangent =	33.46				
Length =	66.92				
Radius =	2,000.00				
External =	0.28				
Long Chord =	66.92				
Mid. Ord. =	0.28				
P.C. Station	234+65.89	N	7,065,484.89	E	2,574,073.10
P.T. Station	235+32.81	N	7,065,486.98	E	2,574,139.99
C.C.		N	7,067,484.68	E	2,574,044.07
Back = N	89° 10' 05.64" E				
Ahead = N	87° 15' 03.95" E				
Chord Bear = N	88° 12' 34.79" E				

Course from PT CL-PARK-9 to PC CL-PARK-10 N 87° 15' 03.95" E Dist 829.83

Curve Data

Curve CL-PARK-10					
P.I. Station	243+96.10	N	7,065,528.38	E	2,575,002.28
Delta =	1° 55' 01.68" (RT)				
Degree =	2° 51' 53.24"				
Tangent =	33.46				
Length =	66.92				
Radius =	2,000.00				
External =	0.28				
Long Chord =	66.92				
Mid. Ord. =	0.28				
P.C. Station	243+62.64	N	7,065,526.78	E	2,574,968.86
P.T. Station	244+29.56	N	7,065,528.87	E	2,575,035.74
C.C.		N	7,063,529.08	E	2,575,064.78
Back = N	87° 15' 03.95" E				
Ahead = N	89° 10' 05.64" E				
Chord Bear = N	88° 12' 34.80" E				

Course from PT CL-PARK-10 to CLPARK03 N 89° 10' 05.64" E Dist 196.02

Point CLPARK03 N 7,065,531.71 E 2,575,231.74 Sta 246+25.58

Course from CLPARK03 to PC CL-PARK-11 N 88° 28' 28.68" E Dist 752.61

Curve Data

Curve CL-PARK-11					
P.I. Station	258+88.97	N	7,065,565.34	E	2,576,494.69
Delta =	49° 01' 52.14" (RT)				
Degree =	5° 06' 56.50"				
Tangent =	510.78				
Length =	958.45				
Radius =	1,120.00				
External =	110.97				
Long Chord =	929.47				
Mid. Ord. =	100.97				
P.C. Station	253+78.19	N	7,065,551.75	E	2,575,984.09
P.T. Station	263+36.64	N	7,065,188.72	E	2,576,839.73
C.C.		N	7,064,432.14	E	2,576,013.90
Back = N	88° 28' 28.68" E				
Ahead = S	42° 29' 39.18" E				
Chord Bear = S	67° 00' 35.25" E				

Course from PT CL-PARK-11 to PC CL-PARK-12 S 42° 29' 39.18" E Dist 128.36

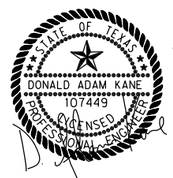
Curve Data

Curve CL-PARK-12					
P.I. Station	266+58.19	N	7,064,951.63	E	2,577,056.94
Delta =	21° 52' 06.67" (LT)				
Degree =	5° 43' 46.48"				
Tangent =	193.19				
Length =	381.68				
Radius =	1,000.00				
External =	18.49				
Long Chord =	379.37				
Mid. Ord. =	18.15				
P.C. Station	264+65.00	N	7,065,094.07	E	2,576,926.44
P.T. Station	268+46.68	N	7,064,868.04	E	2,577,231.11
C.C.		N	7,065,769.59	E	2,577,663.79
Back = S	42° 29' 39.18" E				
Ahead = S	64° 21' 45.85" E				
Chord Bear = S	53° 25' 42.52" E				

Curve Data

Curve CL-PARK-13					
P.I. Station	270+42.53	N	7,064,783.30	E	2,577,407.69
Delta =	22° 09' 45.96" (RT)				
Degree =	5° 43' 46.48"				
Tangent =	195.85				
Length =	386.81				
Radius =	1,000.00				
External =	19.00				
Long Chord =	384.41				
Mid. Ord. =	18.64				
P.C. Station	268+46.68	N	7,064,868.04	E	2,577,231.11
P.T. Station	272+33.49	N	7,064,638.21	E	2,577,539.25
C.C.		N	7,063,966.49	E	2,576,798.44
Back = S	64° 21' 45.85" E				
Ahead = S	42° 11' 59.89" E				
Chord Bear = S	53° 16' 52.87" E				

Course from PT CL-PARK-13 to PC CL-PARK-14 S 42° 11' 59.89" E Dist 403.75



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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

HORIZONTAL ALIGNMENT DATA

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: TMW DATE: 9/30/2021 DESIGNED: AK DATE: 9/30/2021
CHECKED: AK DATE: 9/30/2021 SCALE: N.T.S.

CONTRACT No. 35192

SHEET 62 OF 488 HA-01

CL-PARK CONTINUED

			Curve Data			

Curve CL-PARK-14						
P.I. Station		276+82.38	N	7,064,305.67	E	2,577,840.77
Delta	=	1° 43' 25.76"	(LT)			
Degree	=	1° 54' 35.49"				
Tangent	=	45.13				
Length	=	90.26				
Radius	=	3,000.00				
External	=	0.34				
Long Chord	=	90.26				
Mid. Ord.	=	0.34				
P.C. Station		276+37.25	N	7,064,339.10	E	2,577,810.46
P.T. Station		277+27.50	N	7,064,273.16	E	2,577,872.08
C.C.			N	7,066,354.27	E	2,580,032.87
Back	= S	42° 11' 59.89"	E			
Ahead	= S	43° 55' 25.65"	E			
Chord Bear	= S	43° 03' 42.77"	E			

Course from PT CL-PARK-14 to PC CL-PARK-15 S 43° 55' 25.65" E Dist 631.19

			Curve Data			

Curve CL-PARK-15						
P.I. Station		289+76.93	N	7,063,373.25	E	2,578,738.81
Delta	=	44° 47' 56.55"	(RT)			
Degree	=	3° 49' 10.99"				
Tangent	=	618.24				
Length	=	1,172.84				
Radius	=	1,500.00				
External	=	122.41				
Long Chord	=	1,143.19				
Mid. Ord.	=	113.18				
P.C. Station		283+58.69	N	7,063,818.54	E	2,578,309.94
P.T. Station		295+31.53	N	7,062,755.08	E	2,578,729.37
C.C.			N	7,062,777.99	E	2,577,229.54
Back	= S	43° 55' 25.65"	E			
Ahead	= S	0° 52' 30.90"	W			
Chord Bear	= S	21° 31' 27.37"	E			

Course from PT CL-PARK-15 to CLPARK04 S 0° 52' 30.90" W Dist 868.47

Point CLPARK04 N 7,061,886.71 E 2,578,716.10 Sta 304+00.00

==========
Ending chain CL-PARK description

PROPOSED MOSES DRIVE

Chain CL-MOSES contains:
85 CUR CL-MOSES-1 86

Beginning chain CL-MOSES description
==========

Point 85 N 7,065,199.48 E 2,570,238.90 Sta 1+00.00

Course from 85 to PC CL-MOSES-1 N 17° 36' 11.19" E Dist 53.30

			Curve Data			

Curve CL-MOSES-1						
P.I. Station		1+68.37	N	7,065,264.64	E	2,570,259.57
Delta	=	17° 08' 01.87"	(LT)			
Degree	=	57° 17' 44.81"				
Tangent	=	15.06				
Length	=	29.90				
Radius	=	100.00				
External	=	1.13				
Long Chord	=	29.79				
Mid. Ord.	=	1.12				
P.C. Station		1+53.30	N	7,065,250.28	E	2,570,255.02
P.T. Station		1+83.21	N	7,065,279.70	E	2,570,259.70
C.C.			N	7,065,280.52	E	2,570,159.70
Back	= N	17° 36' 11.19"	E			
Ahead	= N	0° 28' 09.32"	E			
Chord Bear	= N	9° 02' 10.26"	E			

Course from PT CL-MOSES-1 to 86 N 0° 28' 09.32" E Dist 216.79

Point 86 N 7,065,496.49 E 2,570,261.47 Sta 4+00.00

==========
Ending chain CL-MOSES description

PAUL WILSON ROAD

Chain CL-PAULWIL contains:
321 322

Beginning chain CL-PAULWIL description
==========

Point 321 N 7,064,907.189 E 2,571,136.501 Sta 3+00.00

Course from 321 to 322 N 1° 10' 15.57" E Dist 400.000

Point 322 N 7,065,307.106 E 2,571,144.675 Sta 7+00.00

==========
Ending chain CL-PAULWIL description

NTMWD DRIVEWAY

Chain CL-NTMWD contains:
35 36

Beginning chain CL-NTMWD description
==========

Point 35 N 7,065,628.880 E 2,573,661.759 Sta 3+50.00

Course from 35 to 36 S 0° 36' 31.02" W Dist 500.000

Point 36 N 7,065,128.908 E 2,573,656.448 Sta 8+50.00

==========
Ending chain CL-NTMWD description

LYNDA LANE

Chain CL-LYNDA contains:
81 82

Beginning chain CL-LYNDA description
==========

Point 81 N 7,065,516.49 E 2,574,751.79 Sta 1+00.00

Course from 81 to 82 S 14° 58' 04.30" E Dist 250.00

Point 82 N 7,065,274.97 E 2,574,816.36 Sta 3+50.00

==========
Ending chain CL-LYNDA description

PROPOSED SKYVIEW DRIVE

Chain CL-SKYVIEW contains:
5000 CUR CL-SKYVIEW-1 5001

Beginning chain CL-SKYVIEW description
==========

Point 5000 N 7,065,514.45 E 2,576,302.03 Sta 1+00.00

Course from 5000 to PC CL-SKYVIEW-1 N 14° 54' 26.01" E Dist 9.99

			Curve Data			

Curve CL-SKYVIEW-1						
P.I. Station		3+12.69	N	7,065,719.98	E	2,576,356.75
Delta	=	49° 28' 08.14"	(RT)			
Degree	=	13° 01' 18.37"				
Tangent	=	202.70				
Length	=	379.89				
Radius	=	440.00				
External	=	44.44				
Long Chord	=	368.20				
Mid. Ord.	=	40.37				
P.C. Station		1+09.99	N	7,065,524.11	E	2,576,304.60
P.T. Station		4+89.89	N	7,065,807.64	E	2,576,539.51
C.C.			N	7,065,410.91	E	2,576,729.79
Back	= N	14° 54' 26.01"	E			
Ahead	= N	64° 22' 34.15"	E			
Chord Bear	= N	39° 38' 30.08"	E			

Course from PT CL-SKYVIEW-1 to 5001 N 64° 22' 34.15" E Dist 437.60

Point 5001 N 7,065,996.89 E 2,576,934.07 Sta 9+27.49

==========
Ending chain CL-SKYVIEW description

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by Donald Adam Kane, PE#107449 on 03-18-22. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act. TBPELS Engineering Firm #F-312

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PARK BOULEVARD EXTENSION

COLLIN COUNTY

HORIZONTAL ALIGNMENT DATA

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
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TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	AK	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	N.T.S.	

CONTRACT No. 35192

SHEET 63 OF 488 HA-02

EAST FORK PARK ENTRANCE

Chain E FORK PARK contains:
5500 5501

Beginning chain E FORK PARK description

Point 5500	N	7,065,885.57	E	2,576,701.97	Sta	1+00.00

Course from 5500 to 5501 N 23° 40' 01.64" E Dist 569.38

Point 5501	N	7,066,407.06	E	2,576,930.54	Sta	6+69.38

Ending chain E FORK PARK description

TTPA DRIVEWAY

Chain CL-TTPA-DRWY contains:
CUR CL-TTPA-DRWY-1

Beginning chain CL-TTPA-DRWY description

Curve Data

Curve CL-TTPA-DRWY-1						
P.I. Station		1+86.28	N	7,065,693.15	E	2,576,285.57
Delta	=	34° 15' 12.02"	(RT)			
Degree	=	20° 27' 46.00"				
Tangent	=	86.28				
Length	=	167.39				
Radius	=	280.00				
External	=	12.99				
Long Chord	=	164.91				
Mid. Ord.	=	12.42				
P.C. Station		1+00.00	N	7,065,646.88	E	2,576,358.40
P.T. Station		2+67.39	N	7,065,772.39	E	2,576,251.42
C.C.			N	7,065,883.21	E	2,576,508.55
Back	= N	57° 34' 12.61"	W			
Ahead	= N	23° 19' 00.59"	W			
Chord Bear	= N	40° 26' 36.60"	W			

Ending chain CL-TTPA-DRWY description

PROPOSED FORREST ROSS ROAD

Chain CL-FORREST-RO contains:
CUR CL-FORREST-RO-1 CUR CL-FORREST-RO-2

Beginning chain CL-FORREST-RO description

Curve Data

Curve CL-FORREST-RO-1						
P.I. Station		2+30.40	N	7,065,142.58	E	2,576,705.27
Delta	=	33° 00' 56.36"	(LT)			
Degree	=	13° 01' 18.37"				
Tangent	=	130.40				
Length	=	253.54				
Radius	=	440.00				
External	=	18.92				
Long Chord	=	250.05				
Mid. Ord.	=	18.14				
P.C. Station		1+00.00	N	7,065,250.28	E	2,576,778.79
P.T. Station		3+53.54	N	7,065,012.22	E	2,576,702.30
C.C.			N	7,065,002.19	E	2,577,142.18
Back	= S	34° 19' 16.99"	W			
Ahead	= S	1° 18' 20.63"	W			
Chord Bear	= S	17° 48' 48.81"	W			

Course from PT CL-FORREST-RO-1 to PC CL-FORREST-RO-2 S 1° 18' 20.63" W Dist 60.87

Curve Data

Curve CL-FORREST-RO-2						
P.I. Station		8+98.85	N	7,064,467.05	E	2,576,689.87
Delta	=	49° 32' 04.53"	(RT)			
Degree	=	5° 27' 24.27"				
Tangent	=	484.44				
Length	=	907.77				
Radius	=	1,050.00				
External	=	106.37				
Long Chord	=	879.76				
Mid. Ord.	=	96.58				
P.C. Station		4+14.41	N	7,064,951.36	E	2,576,700.91
P.T. Station		13+22.18	N	7,064,161.13	E	2,576,314.24
C.C.			N	7,064,975.29	E	2,575,651.18
Back	= S	1° 18' 20.63"	W			
Ahead	= S	50° 50' 25.16"	W			
Chord Bear	= S	26° 04' 22.89"	W			

Ending chain CL-FORREST-RO description

SPENCER LANE

Chain CL-SPENCER contains:
CUR CL-SPENCER-1 84

Beginning chain CL-SPENCER description

Curve Data

Curve CL-SPENCER-1						
P.I. Station		2+58.20	N	7,064,491.55	E	2,577,478.89
Delta	=	21° 57' 35.03"	(RT)			
Degree	=	19° 05' 54.94"				
Tangent	=	58.21				
Length	=	114.98				
Radius	=	300.00				
External	=	5.59				
Long Chord	=	114.28				
Mid. Ord.	=	5.49				
P.C. Station		2+00.00	N	7,064,439.17	E	2,577,453.52
P.T. Station		3+14.98	N	7,064,530.65	E	2,577,522.01
C.C.			N	7,064,308.41	E	2,577,723.53
Back	= N	25° 50' 25.09"	E			
Ahead	= N	47° 48' 00.12"	E			
Chord Bear	= N	36° 49' 12.60"	E			

Course from PT CL-SPENCER-1 to 2001 N 47° 48' 00.12" E Dist 285.02

Point 2001	N	7,064,722.10	E	2,577,733.16	Sta	6+00.00

Ending chain CL-SPENCER description

SPRING CREEK PARKWAY

Chain CL-SPRCRK contains:
323 CUR CL-SPRCRK-1

Beginning chain CL-SPRCRK description

Point 323	N	7,061,954.265	E	2,578,717.133	Sta	0+00.00

Course from 323 to PC CL-SPRCRK-1 N 0° 52' 30.90" E Dist 800.906

Curve Data

Curve CL-SPRCRK-1						
P.I. Station		14+19.15	N	7,063,373.247	E	2,578,738.811
Delta	=	44° 47' 56.55"	(LT)			
Degree	=	3° 49' 10.99"				
Tangent	=	618.241				
Length	=	1,172.836				
Radius	=	1,500.000				
External	=	122.412				
Long Chord	=	1,143.188				
Mid. Ord.	=	113.176				
P.C. Station		8+00.91	N	7,062,755.078	E	2,578,729.367
P.T. Station		19+73.74	N	7,063,818.543	E	2,578,309.936
C.C.			N	7,062,777.992	E	2,577,229.542
Back	= N	0° 52' 30.90"	E			
Ahead	= N	43° 55' 25.65"	W			
Chord Bear	= N	21° 31' 27.37"	W			

Ending chain CL-SPRCRK description

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

HORIZONTAL ALIGNMENT DATA

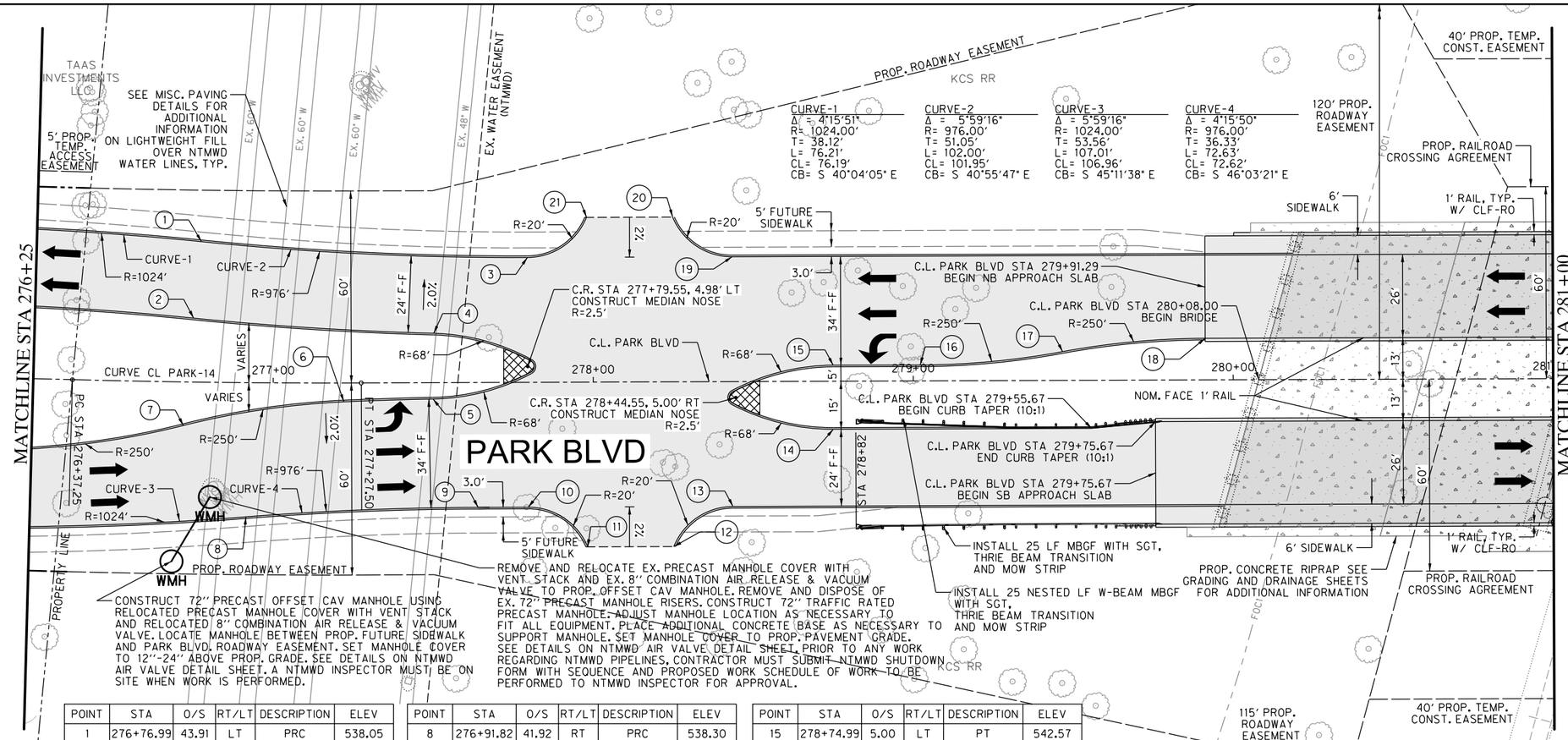
HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	TMW	DATE:	9/30/2021	DESIGNED:	AK	DATE:	9/30/2021
CHECKED:	AK	DATE:	9/30/2021	SCALE:	N.T.S.		

CONTRACT No. 35192

SHEET 64 OF 488

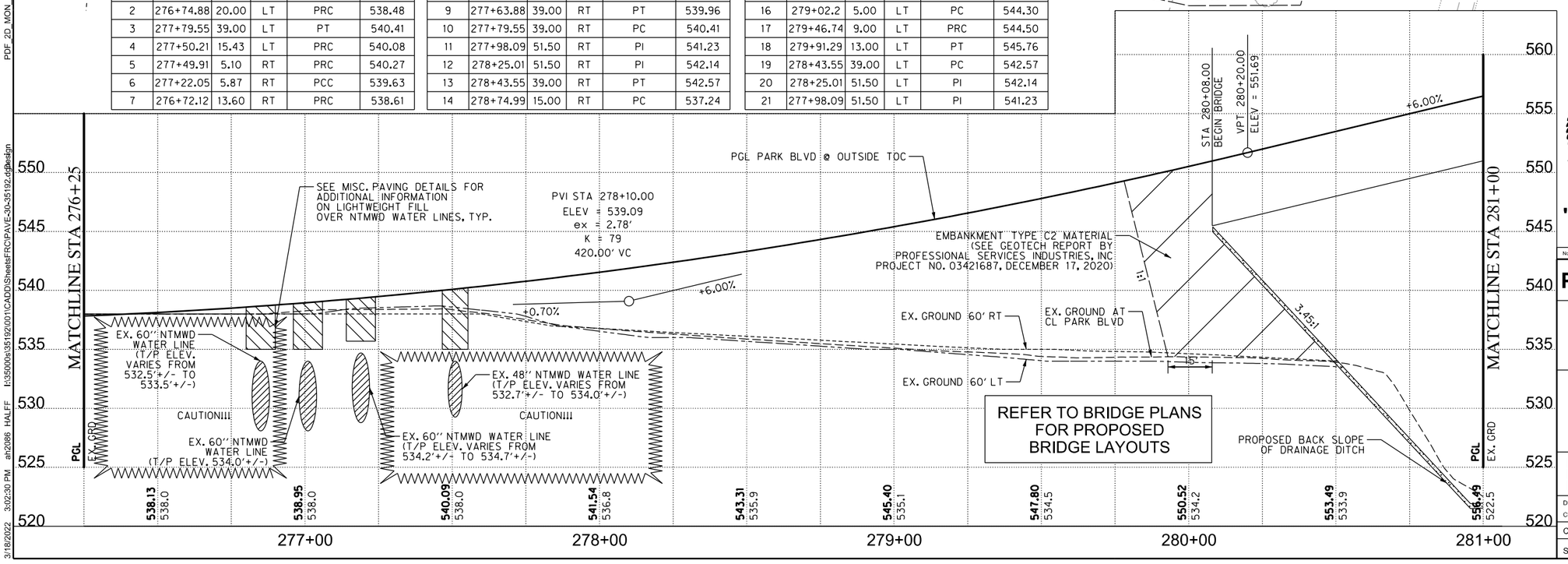
HA-03

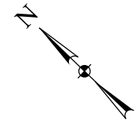


POINT	STA	O/S	RT/LT	DESCRIPTION	ELEV
1	276+76.99	43.91	LT	PRC	538.05
2	276+74.88	20.00	LT	PRC	538.48
3	277+79.55	39.00	LT	PT	540.41
4	277+50.21	15.43	LT	PRC	540.08
5	277+49.91	5.10	RT	PRC	540.27
6	277+22.05	5.87	RT	PCC	539.63
7	276+72.12	13.60	RT	PRC	538.61

POINT	STA	O/S	RT/LT	DESCRIPTION	ELEV
8	276+91.82	41.92	RT	PRC	538.30
9	277+63.88	39.00	RT	PT	539.96
10	277+79.55	39.00	RT	PC	540.41
11	277+98.09	51.50	RT	PI	541.23
12	278+25.01	51.50	RT	PI	542.14
13	278+43.55	39.00	RT	PT	542.57
14	278+74.99	15.00	RT	PC	537.24

POINT	STA	O/S	RT/LT	DESCRIPTION	ELEV
15	278+74.99	5.00	LT	PT	542.57
16	279+02.2	5.00	LT	PC	544.30
17	279+46.74	9.00	LT	PRC	544.50
18	279+91.29	13.00	LT	PT	545.76
19	278+43.55	39.00	LT	PC	542.57
20	278+25.01	51.50	LT	PI	542.14
21	277+98.09	51.50	LT	PI	541.23





0 10 20 30 40
HORIZONTAL SCALE IN FEET
0 2.5 5 7.5 10
VERTICAL SCALE IN FEET

LEGEND

- PROPOSED CURB/SIDEWALK
- EXISTING TOPOGRAPHY
- PROPOSED CONCRETE RIPRAP
- PROPOSED STONE RIPRAP
- PROPOSED REINFORCED CONCRETE PAVEMENT
- PROPOSED MEDIAN PAVING STONE
- 5" HMAC TYPE D ON 9" FLEX BASE
- PROPOSED STORM DRAIN/INLET
- EXISTING TRAFFIC LANE
- PROPOSED TRAFFIC LANE
- FUTURE TRAFFIC LANE
- SAWCUT/ PAVEMENT REMOVAL LIMIT
- PROP. GUARD RAIL
- PROP. RETAINING WALL
- PROP. FENCE

NOTES:

1. ALL DIMENSIONS AND STATION/OFFSETS ARE TO FACE OF CURB OR FACE OF RAIL UNLESS NOTED OTHERWISE.
2. PROPOSED PEDESTRIAN RAMPS SHALL BE TXDOT TY 7 UNLESS OTHERWISE NOTED.
3. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
4. CONTRACTOR SHALL OMIT SUBGRADE REPLACEMENT AND/OR MOISTURE TREATMENT AT UTILITY CROSSING LOCATIONS AS DIRECTED BY THE ENGNIEER.
5. CONTRACTOR SHALL MATCH EXISTING PAVEMENT ELEVATIONS & CROSS SLOPES AT CONNECTIONS TO EXISTING PAVEMENT.
6. ALL CONTROL POINT ELEVATIONS ARE TOP OF PAVEMENT UNLESS NOTED OTHERWISE.

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

PAVING PLAN/PROFILE
STA 276+25 TO STA 281+00

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	PTS	DATE: 9/30/2021	DESIGNED:	DS	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	1"=40'	

CONTRACT No. 35192

SHEET 94 OF 488 PAVE-30

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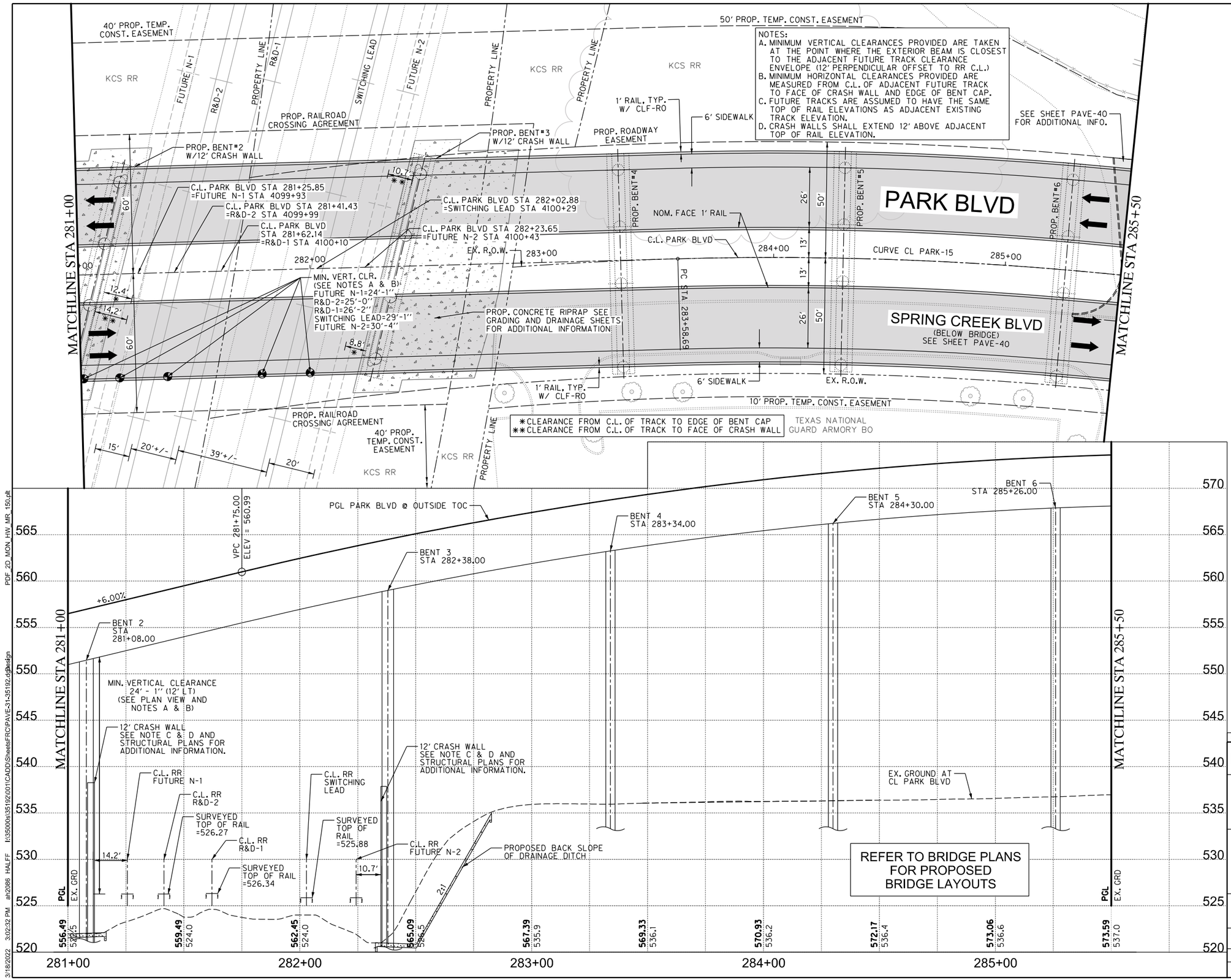

LEGEND

- PROPOSED CURB/SIDEWALK
- EXISTING TOPOGRAPHY
- PROPOSED CONCRETE RIPRAP
- PROPOSED STONE RIPRAP
- PROPOSED REINFORCED CONCRETE PAVEMENT
- PROPOSED MEDIAN PAVING STONE
- 5'' HMAC TYPE D ON 9'' FLEX BASE
- PROPOSED STORM DRAIN/INLET
- EXISTING TRAFFIC LANE
- PROPOSED TRAFFIC LANE
- FUTURE TRAFFIC LANE
- SAWCUT/ PAVEMENT REMOVAL LIMIT
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- PROP. RETAINING WALL
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NOTES:

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No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

PAVING PLAN/PROFILE
STA 281+00 TO STA 285+50

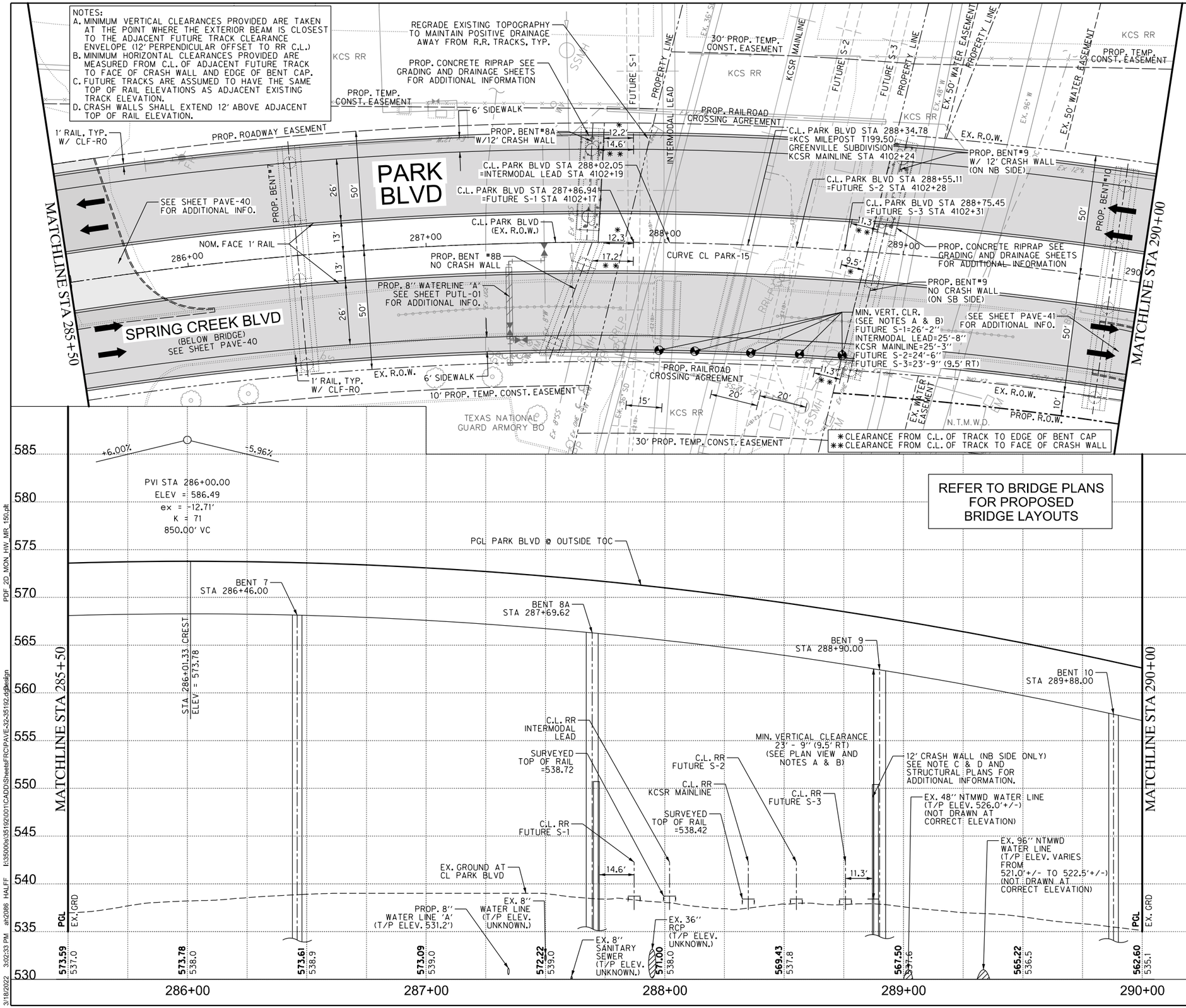
HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	PTS	DATE: 9/30/2021	DESIGNED:	DS	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	1"=40'	

CONTRACT No. 35192

SHEET 95 OF 488 | PAVE-31

NOTES:
A. MINIMUM VERTICAL CLEARANCES PROVIDED ARE TAKEN AT THE POINT WHERE THE EXTERIOR BEAM IS CLOSEST TO THE ADJACENT FUTURE TRACK CLEARANCE ENVELOPE (12' PERPENDICULAR OFFSET TO RR C.L.)
B. MINIMUM HORIZONTAL CLEARANCES PROVIDED ARE MEASURED FROM C.L. OF ADJACENT FUTURE TRACK TO FACE OF CRASH WALL AND EDGE OF BENT CAP.
C. FUTURE TRACKS ARE ASSUMED TO HAVE THE SAME TOP OF RAIL ELEVATIONS AS ADJACENT EXISTING TRACK ELEVATION.
D. CRASH WALLS SHALL EXTEND 12' ABOVE ADJACENT TOP OF RAIL ELEVATION.



0 10 20 30 40
HORIZONTAL SCALE IN FEET
0 2.5 5 7.5 10
VERTICAL SCALE IN FEET

LEGEND

- PROPOSED CURB/SIDEWALK
- EXISTING TOPOGRAPHY
- PROPOSED CONCRETE RIPRAP
- PROPOSED STONE RIPRAP
- PROPOSED REINFORCED CONCRETE PAVEMENT
- PROPOSED MEDIAN PAVING STONE
- 5" HMAC TYPE D ON 9" FLEX BASE
- PROPOSED STORM DRAIN/INLET
- EXISTING TRAFFIC LANE
- PROPOSED TRAFFIC LANE
- FUTURE TRAFFIC LANE
- SAWCUT/ PAVEMENT REMOVAL LIMIT
- PROP. GUARD RAIL
- PROP. RETAINING WALL
- PROP. FENCE

NOTES:

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2. PROPOSED PEDESTRIAN RAMPS SHALL BE TXDOT TY 7 UNLESS OTHERWISE NOTED.
3. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
4. CONTRACTOR SHALL OMIT SUBGRADE REPLACEMENT AND/OR MOISTURE TREATMENT AT UTILITY CROSSING LOCATIONS AS DIRECTED BY THE ENGNIEER.
5. CONTRACTOR SHALL MATCH EXISTING PAVEMENT ELEVATIONS & CROSS SLOPES AT CONNECTIONS TO EXISTING PAVEMENT.
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LICENSED PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

PAVING PLAN/PROFILE
STA 285+50 TO STA 290+00

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	PTS	DATE: 9/30/2021	DESIGNED:	DS	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	1"=40'	

CONTRACT No. 35192

SHEET 96 OF 488

PAVE-32

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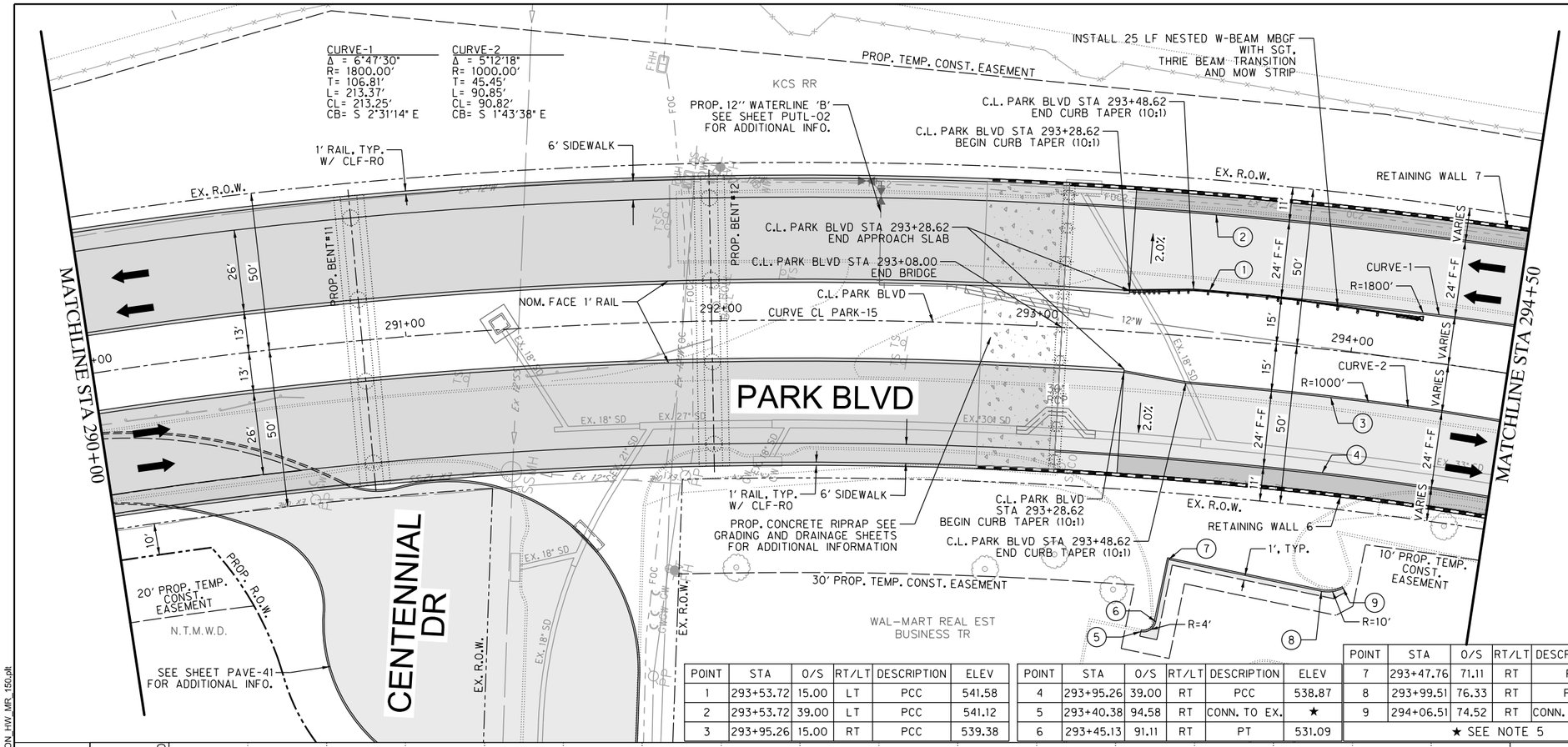
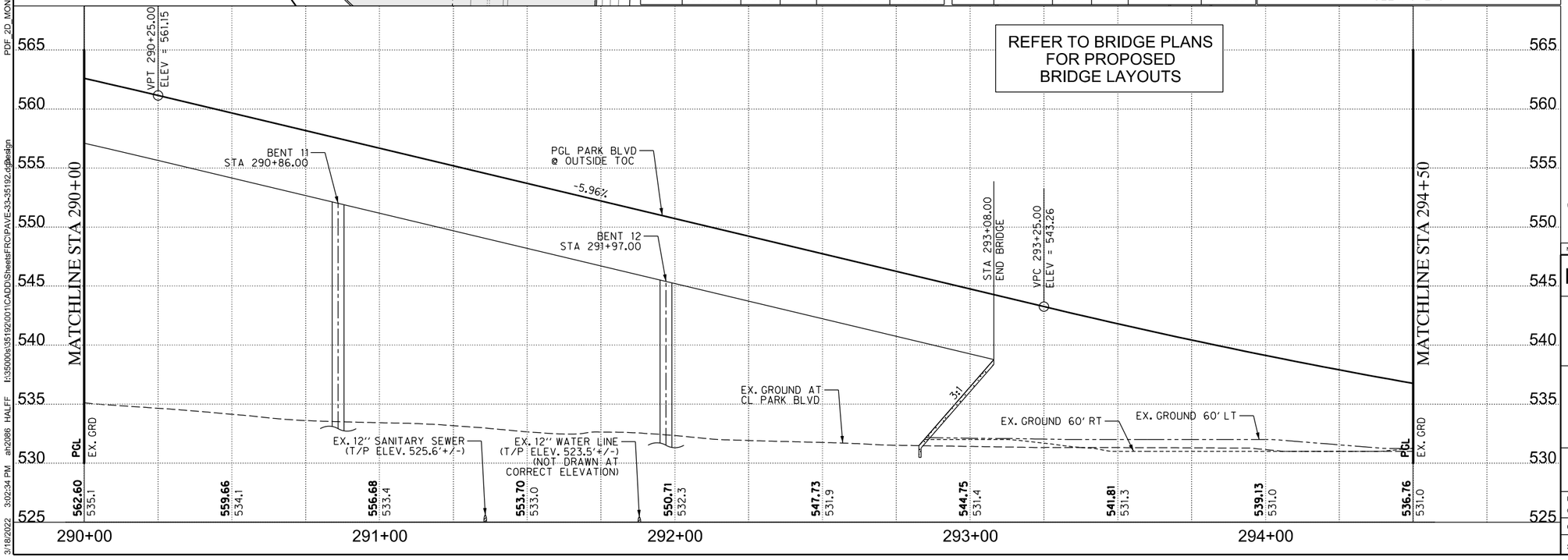
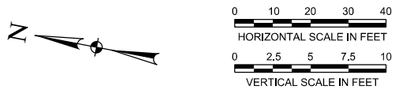


POINT	STA	O/S	RT/LT	DESCRIPTION	ELEV
1	293+53.72	15.00	LT	PCC	541.58
2	293+53.72	39.00	LT	PCC	541.12
3	293+95.26	15.00	RT	PCC	539.38
4	293+95.26	39.00	RT	PCC	538.87
5	293+40.38	94.58	RT	CONN. TO EX.	★
6	293+45.13	91.11	RT	PT	531.09
7	293+47.76	71.11	RT	PI	531.42
8	293+99.51	76.33	RT	PC	531.13
9	294+06.51	74.52	RT	CONN. TO EX.	★

★ SEE NOTE 5





LEGEND

- PROPOSED CURB/SIDEWALK
- EXISTING TOPOGRAPHY
- PROPOSED CONCRETE RIPRAP
- PROPOSED STONE RIPRAP
- PROPOSED REINFORCED CONCRETE PAVEMENT
- PROPOSED MEDIAN PAVING STONE
- 5" HMAC TYPE D ON 9" FLEX BASE
- PROPOSED STORM DRAIN/INLET
- EXISTING TRAFFIC LANE
- PROPOSED TRAFFIC LANE
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- SAWCUT/ PAVEMENT REMOVAL LIMIT
- PROP. GUARD RAIL
- PROP. RETAINING WALL
- PROP. FENCE

NOTES:

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STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

PAVING PLAN/PROFILE
STA 290+00 TO STA 294+50

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	PTS	DATE:	9/30/2021	DESIGNED: DS	DATE: 9/30/2021
CHECKED:	AK	DATE:	9/30/2021	SCALE: 1"=40'	

CONTRACT No. 35192

SHEET 97 OF 488

PAVE-33

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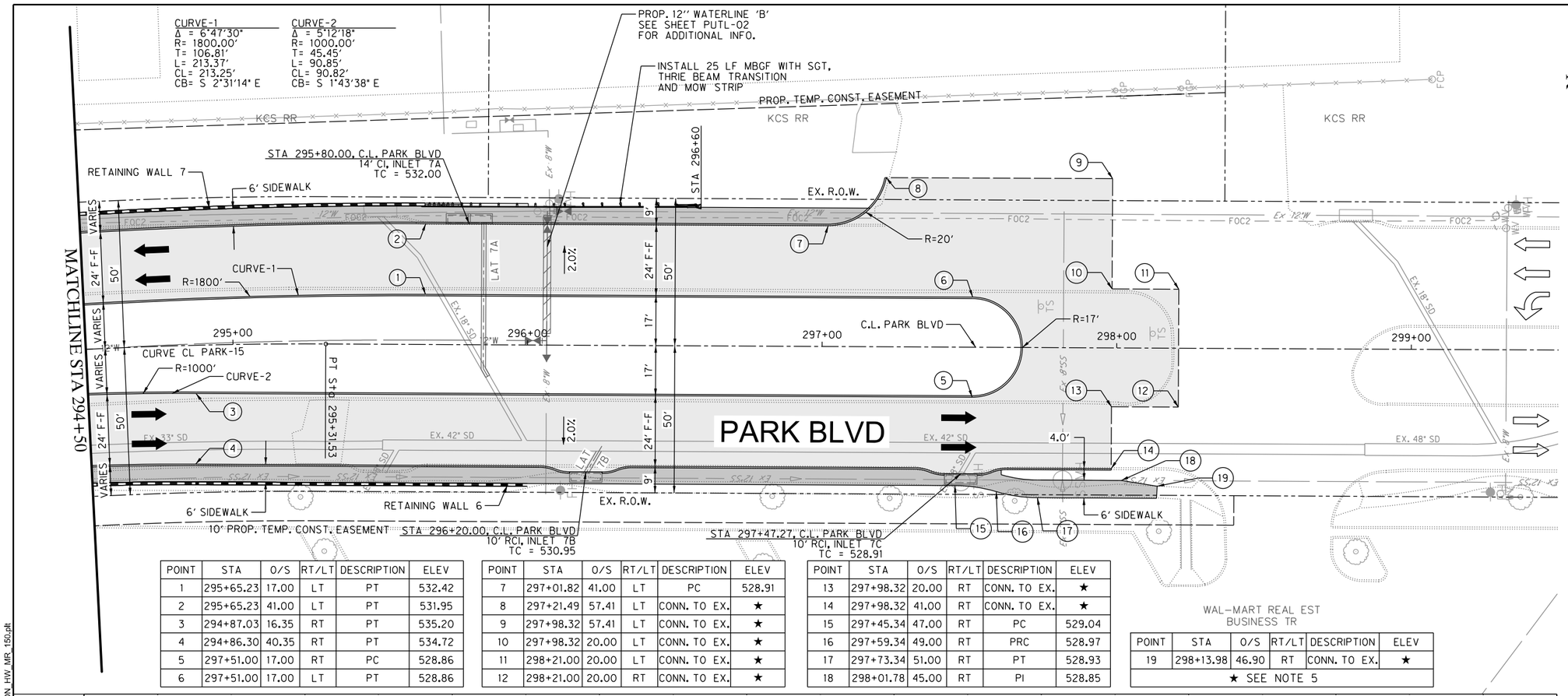
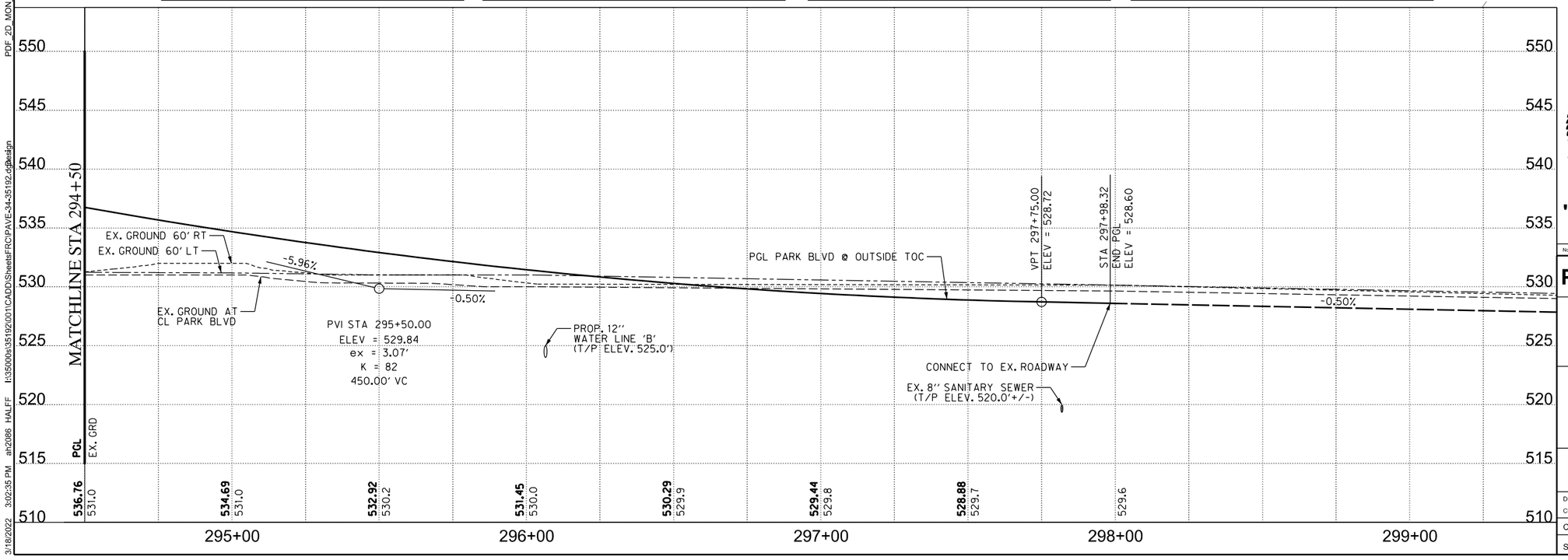


POINT	STA	O/S	RT/LT	DESCRIPTION	ELEV
1	295+65.23	17.00	LT	PT	532.42
2	295+65.23	41.00	LT	PT	531.95
3	294+87.03	16.35	RT	PT	535.20
4	294+86.30	40.35	RT	PT	534.72
5	297+51.00	17.00	RT	PC	528.86
6	297+51.00	17.00	LT	PT	528.86

POINT	STA	O/S	RT/LT	DESCRIPTION	ELEV
7	297+01.82	41.00	LT	PC	528.91
8	297+21.49	57.41	LT	CONN. TO EX.	★
9	297+98.32	57.41	LT	CONN. TO EX.	★
10	297+98.32	20.00	LT	CONN. TO EX.	★
11	298+21.00	20.00	LT	CONN. TO EX.	★
12	298+21.00	20.00	RT	CONN. TO EX.	★

POINT	STA	O/S	RT/LT	DESCRIPTION	ELEV
13	297+98.32	20.00	RT	CONN. TO EX.	★
14	297+98.32	41.00	RT	CONN. TO EX.	★
15	297+45.34	47.00	RT	PC	529.04
16	297+59.34	49.00	RT	PRC	528.97
17	297+73.34	51.00	RT	PT	528.93
18	298+01.78	45.00	RT	PI	528.85

POINT	STA	O/S	RT/LT	DESCRIPTION	ELEV
19	298+13.98	46.90	RT	CONN. TO EX.	★
★ SEE NOTE 5					



0 10 20 30 40
HORIZONTAL SCALE IN FEET
0 2.5 5 7.5 10
VERTICAL SCALE IN FEET

LEGEND

- PROPOSED CURB/SIDEWALK
- EXISTING TOPOGRAPHY
- PROPOSED CONCRETE RIPRAP
- PROPOSED STONE RIPRAP
- PROPOSED REINFORCED CONCRETE PAVEMENT
- PROPOSED MEDIAN PAVING STONE
- 5" HMAC TYPE D ON 9" FLEX BASE
- PROPOSED STORM DRAIN/INLET
- EXISTING TRAFFIC LANE
- PROPOSED TRAFFIC LANE
- FUTURE TRAFFIC LANE
- SAWCUT/ PAVEMENT REMOVAL LIMIT
- PROP. GUARD RAIL
- PROP. RETAINING WALL
- PROP. FENCE

NOTES:

1. ALL DIMENSIONS AND STATION/OFFSETS ARE TO FACE OF CURB OR FACE OF RAIL UNLESS NOTED OTHERWISE.
2. PROPOSED PEDESTRIAN RAMPS SHALL BE TXDOT TY 7 UNLESS OTHERWISE NOTED.
3. REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
4. CONTRACTOR SHALL OMIT SUBGRADE REPLACEMENT AND/OR MOISTURE TREATMENT AT UTILITY CROSSING LOCATIONS AS DIRECTED BY THE ENGNIEER.
5. CONTRACTOR SHALL MATCH EXISTING PAVEMENT ELEVATIONS & CROSS SLOPES AT CONNECTIONS TO EXISTING PAVEMENT.
6. ALL CONTROL POINT ELEVATIONS ARE TOP OF PAVEMENT UNLESS NOTED OTHERWISE.

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

PAVING PLAN/PROFILE
STA 294+50 TO END

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	PTS	DATE: 9/30/2021	DESIGNED:	DS	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	1"=40'	

CONTRACT No. 35192

SHEET 98 OF 488 PAVE-34

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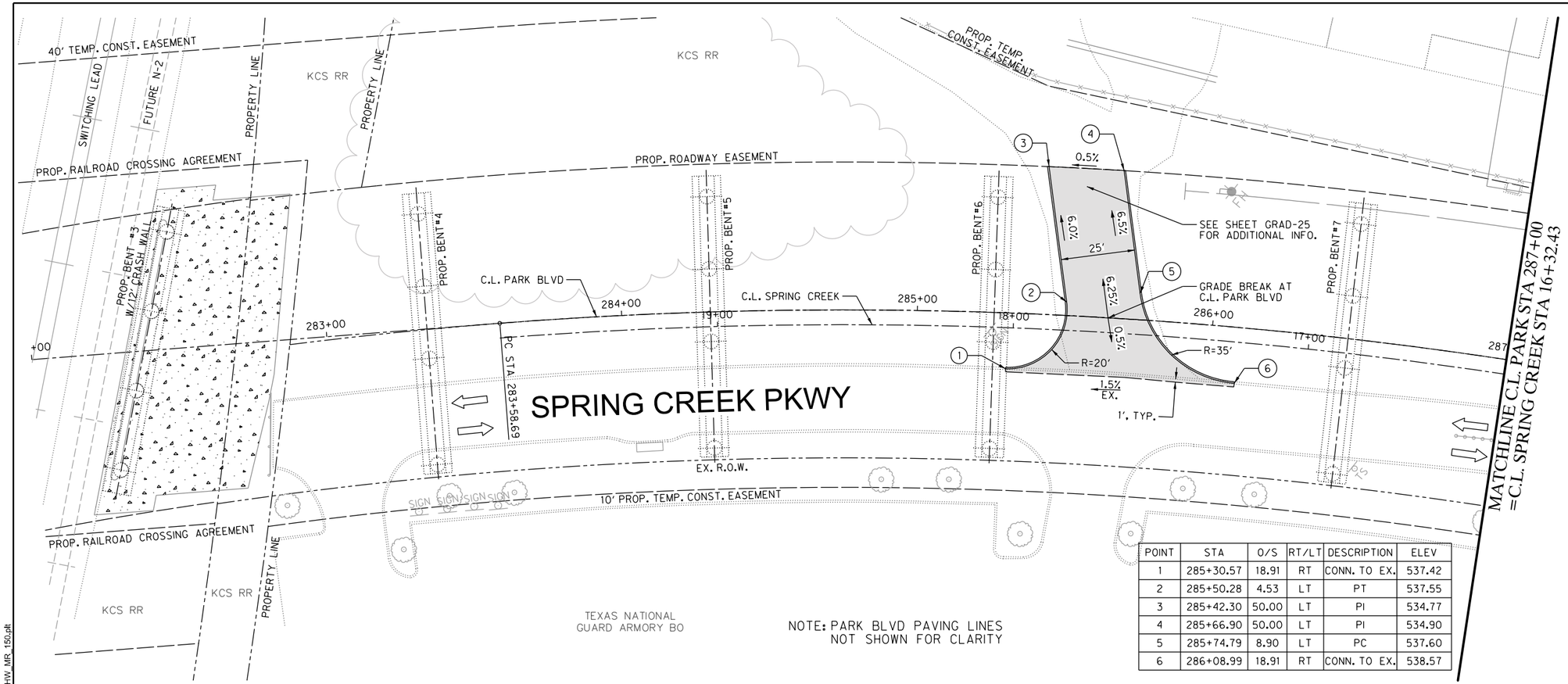
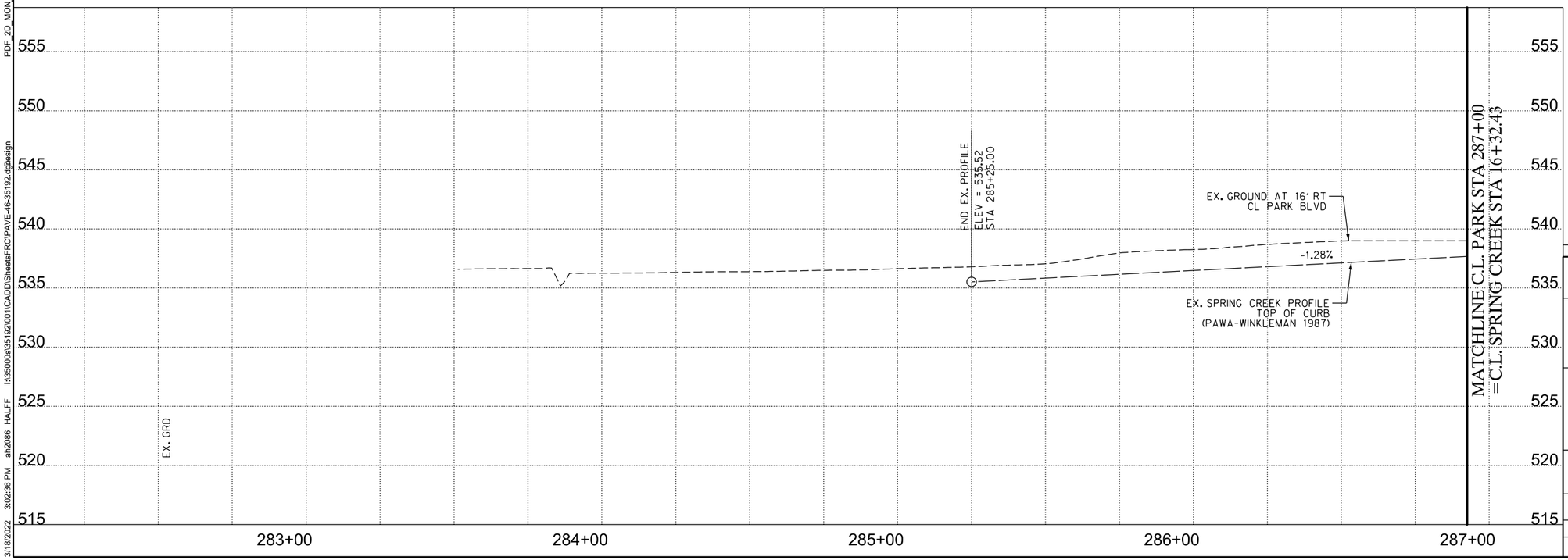


NOTE: PARK BLVD PAVING LINES NOT SHOWN FOR CLARITY

POINT	STA	O/S	RT/LT	DESCRIPTION	ELEV
1	285+30.57	18.91	RT	CONN. TO EX.	537.42
2	285+50.28	4.53	LT	PT	537.55
3	285+42.30	50.00	LT	PI	534.77
4	285+66.90	50.00	LT	PI	534.90
5	285+74.79	8.90	LT	PC	537.60
6	286+08.99	18.91	RT	CONN. TO EX.	538.57



0 10 20 30 40
HORIZONTAL SCALE IN FEET
0 2.5 5 7.5 10
VERTICAL SCALE IN FEET

LEGEND

- PROPOSED CURB/SIDEWALK
- EXISTING TOPOGRAPHY
- PROPOSED CONCRETE RIPRAP
- PROPOSED STONE RIPRAP
- PROPOSED REINFORCED CONCRETE PAVEMENT
- PROPOSED MEDIAN PAVING STONE
- 5'' HMAC TYPE D ON 9'' FLEX BASE
- PROPOSED STORM DRAIN/INLET
- EXISTING TRAFFIC LANE
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- PROP. GUARD RAIL
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STATE OF TEXAS
DONALD ADAM KANE
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No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

SPRING CREEK PKWY PAVING PLAN/PROFILE
BEGIN TO STA 287+00

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	PTS	DATE: 9/30/2021	DESIGNED:	DS	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	1"=40'	

CONTRACT No. 35192

SHEET 104 OF 488 | PAVE-40

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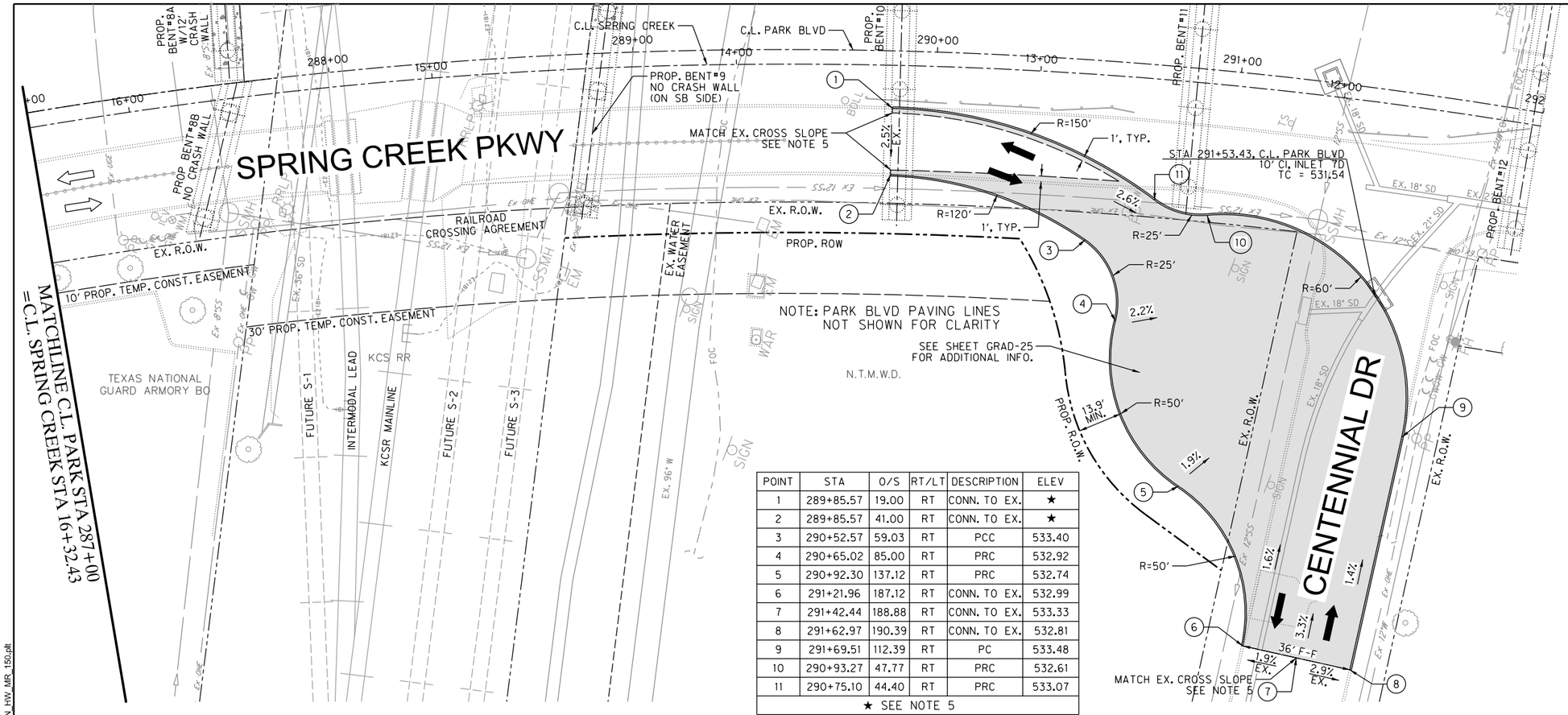
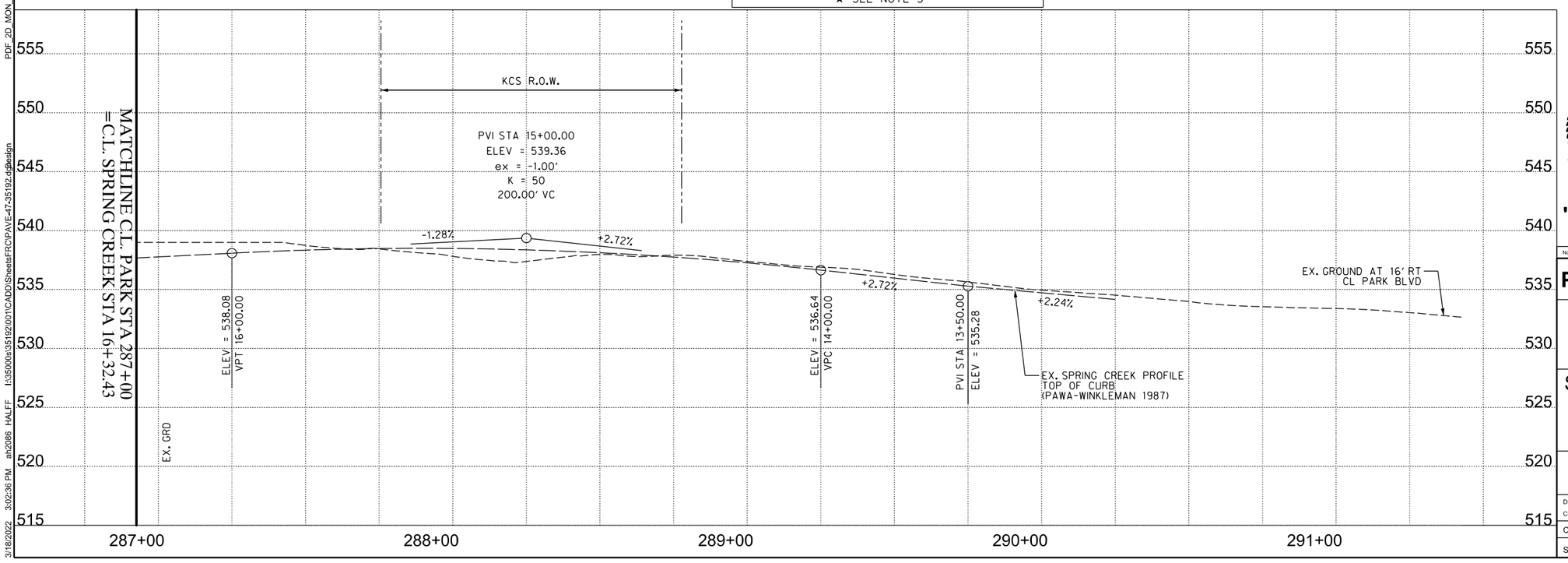


POINT	STA	O/S	RT/LT	DESCRIPTION	ELEV
1	289+85.57	19.00	RT	CONN. TO EX.	★
2	289+85.57	41.00	RT	CONN. TO EX.	★
3	290+52.57	59.03	RT	PCC	533.40
4	290+65.02	85.00	RT	PRC	532.92
5	290+92.30	137.12	RT	PRC	532.74
6	291+21.96	187.12	RT	CONN. TO EX.	532.99
7	291+42.44	188.88	RT	CONN. TO EX.	533.33
8	291+62.97	190.39	RT	CONN. TO EX.	532.81
9	291+69.51	112.39	RT	PC	533.48
10	290+93.27	47.77	RT	PRC	532.61
11	290+75.10	44.40	RT	PRC	533.07

★ SEE NOTE 5



0 10 20 30 40
HORIZONTAL SCALE IN FEET
0 2.5 5 7.5 10
VERTICAL SCALE IN FEET

LEGEND

- PROPOSED CURB/SIDEWALK
- EXISTING TOPOGRAPHY
- PROPOSED CONCRETE RIPRAP
- PROPOSED STONE RIPRAP
- PROPOSED REINFORCED CONCRETE PAVEMENT
- PROPOSED MEDIAN PAVING STONE
- 5'' HMAC TYPE D ON 9'' FLEX BASE
- PROPOSED STORM DRAIN/INLET
- EXISTING TRAFFIC LANE
- PROPOSED TRAFFIC LANE
- FUTURE TRAFFIC LANE
- SAWCUT/ PAVEMENT REMOVAL LIMIT
- PROP. GUARD RAIL
- PROP. RETAINING WALL
- PROP. FENCE

NOTES:

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STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

SPRING CREEK/CENTENNIAL DR PAVING PLAN/PROFILE
STA 287+00 TO END

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: PTS	DATE: 9/30/2021	DESIGNED: DS	DATE: 9/30/2021
CHECKED: AK	DATE: 9/30/2021	SCALE: 1"=40'	

CONTRACT No. 35192

SHEET 105 OF 488 | PAVE-41

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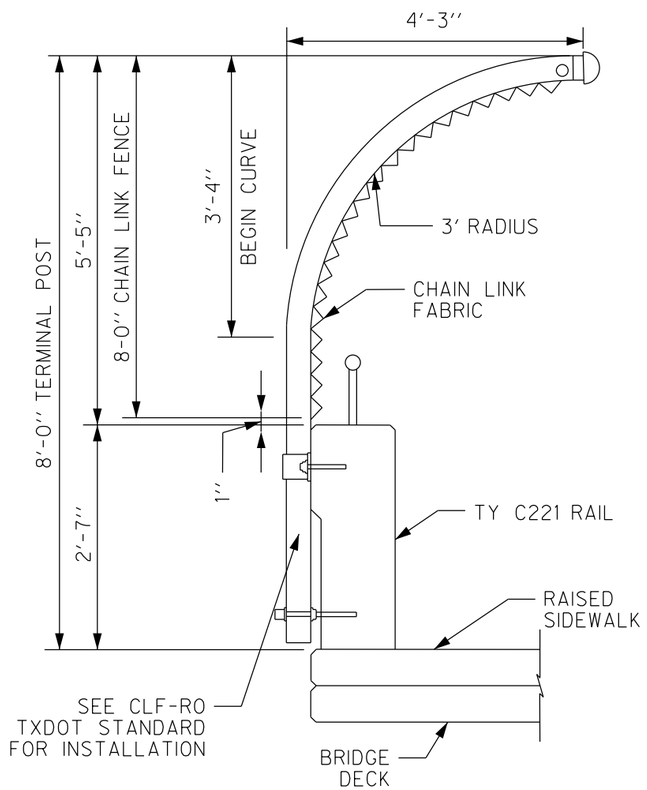


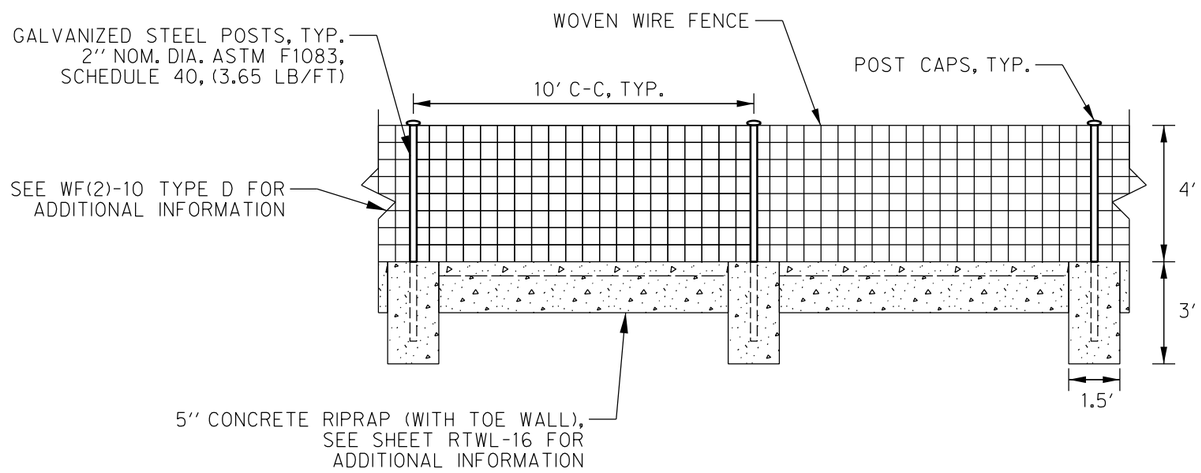
THE CONTRACTOR SHALL INSTALL CURVED FENCE ON THE OUTERMOST EDGES OF THE PARK BLVD. BRIDGE (WHERE SIDEWALKS ARE PRESENT) FOR THE FOLLOWING LIMITS:

NB: C.L. PARK STA 281+10 TO 282+65
C.L. PARK STA 287+60 TO 289+10

SB: C.L. PARK STA 280+85 TO 282+40
C.L. PARK STA 287+55 TO 288+95

BRIDGE CURVED CHAIN LINK FENCE DETAIL

SCALE: NOT TO SCALE



TYPE 'E' FENCE DETAIL

SCALE: NOT TO SCALE

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

MISC. FENCE DETAILS

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

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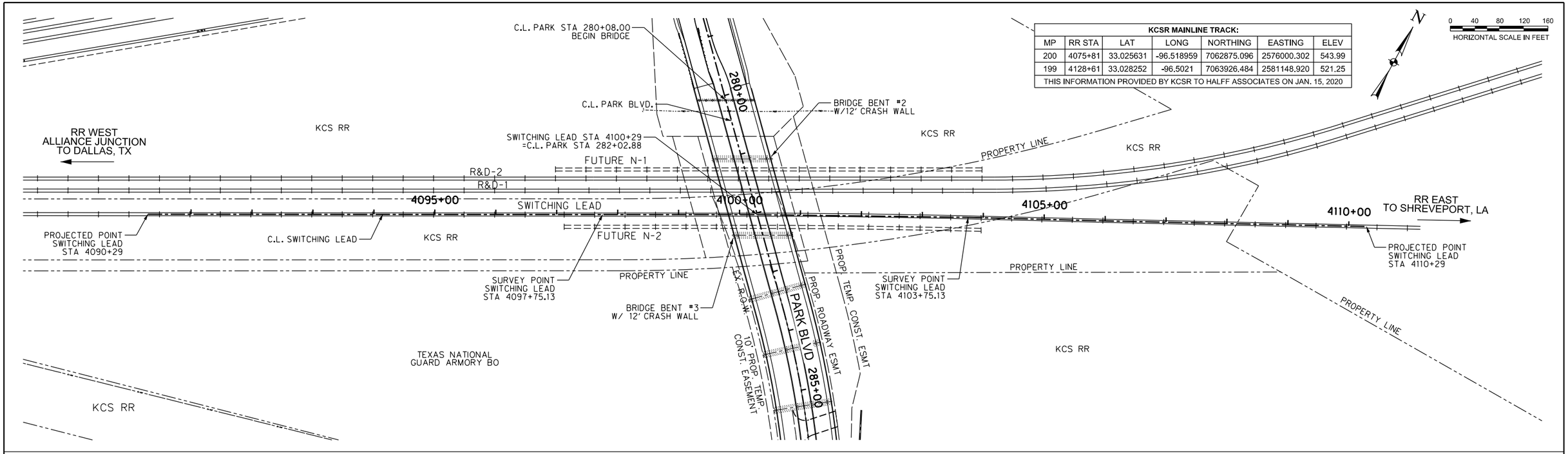
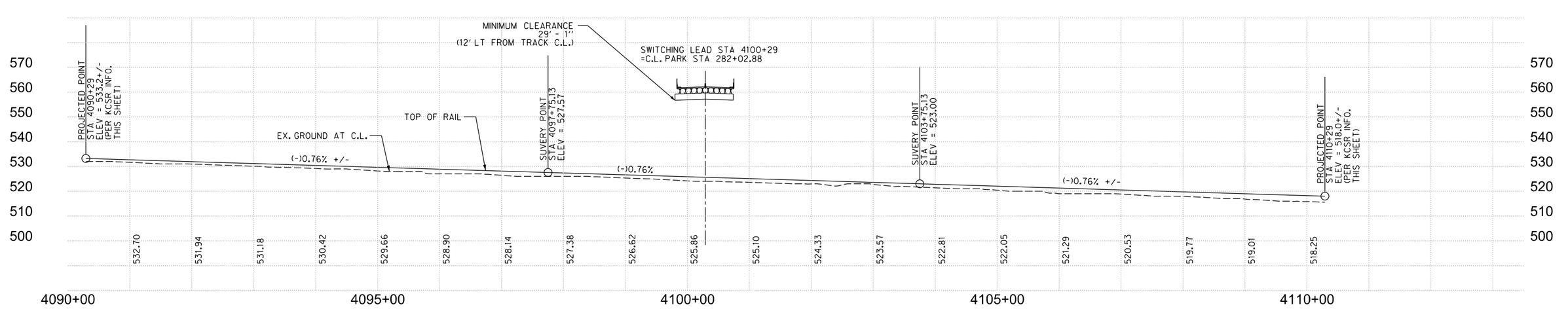
CHECKED:	AK	DATE: 9/30/2021	SCALE:	N.T.S.	

CONTRACT No. 35192

SHEET 112 OF 488 PAVD-02



KCSR MAINLINE TRACK:						
MP	RR STA	LAT	LONG	NORTHING	EASTING	ELEV
200	4075+81	33.025631	-96.518959	7062875.096	2576000.302	543.99
199	4128+61	33.028252	-96.5021	7063926.484	2581148.920	521.25
THIS INFORMATION PROVIDED BY KCSR TO HALFF ASSOCIATES ON JAN. 15, 2020						



SWITCHING LEAD

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

RAILROAD PROFILE

SWITCHING LEAD

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN: _____ DATE: _____ DESIGNED: _____ DATE: _____
CHECKED: _____ DATE: _____ SCALE: _____

CONTRACT No. _____

SHEET 115 OF 488 RRPF-01

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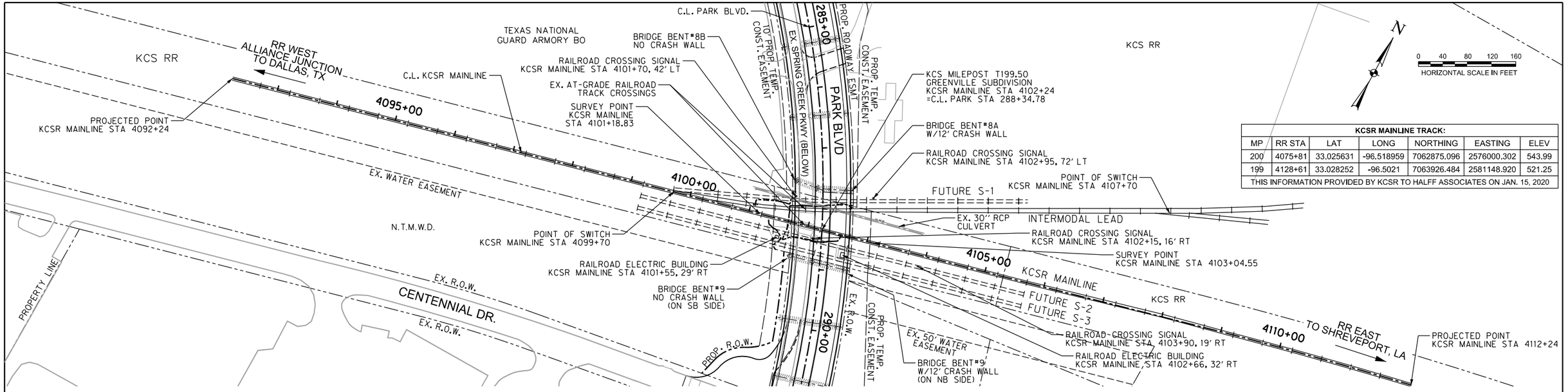
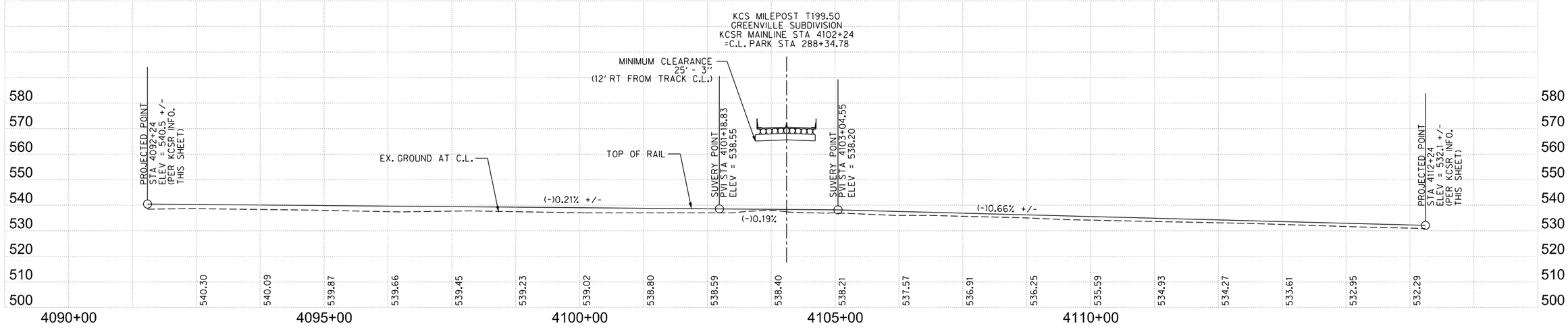


KCSR MAINLINE TRACK:

MP	RR STA	LAT	LONG	NORTHING	EASTING	ELEV
200	4075+81	33.025631	-96.518959	7062875.096	2576000.302	543.99
199	4128+61	33.028252	-96.5021	7063926.484	2581148.920	521.25

THIS INFORMATION PROVIDED BY KCSR TO HALFF ASSOCIATES ON JAN. 15, 2020



KCSR MAINLINE

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

RAILROAD PROFILE

KCSR MAINLINE

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: _____ DATE: _____ DESIGNED: _____ DATE: _____
CHECKED: _____ DATE: _____ SCALE: _____

CONTRACT No. _____

SHEET 116 OF 488 RRPF-02

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED
PROFESSIONAL ENGINEER

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0 10 20 30 40
HORIZONTAL SCALE IN FEET

N

MATCHLINE STA 276+25

MATCHLINE STA 281+50

PARK BLVD

C.L. PARK STA 281+35.85, 98.00' LT
FL = 520.3 +/-

PROP. RAILROAD CROSSING AGREEMENT

120' PROP. ROADWAY EASEMENT

SEE STORM SHEETS FOR ADDITIONAL INFO. ON CONCRETE RIPRAP

CHCT TX LLC

5' PROP. TEMP. CONST. EASEMENT

EX. WATER EASEMENT

PROP. ROADWAY EASEMENT

KCS RR

40' PROP. TEMP. CONST. EASEMENT

FUTURE N-1

C.L. PARK STA 281+07.90, 46.00' LT
FL = 520.65

PROP. BENT #2 W-12 CRASH WALL

GRADE BREAK

C.L. PARK BLVD

C.L. PARK STA 280+08.00
BEGIN BRIDGE

277+00

278+00

279+00

280+00

281+00

PC STA 276+37.25

PT STA 277+27.50

STA 279+82

RELOCATE EXISTING DRAINAGE DITCH BEHIND BENT, MAINTAIN POSITIVE DRAINAGE

INSTALL 25 LF MBGF WITH SGT. THRIE BEAM TRANSITION AND MOW STRIP

INSTALL 25 NESTED LF W-BEAM MBGF WITH SGT. THRIE BEAM TRANSITION AND MOW STRIP

C.L. PARK STA 280+82.70, 46.00' RT
FL = 521.20

PROPERTY LINE

PROP. ROADWAY EASEMENT

KCS RR

115' PROP. ROADWAY EASEMENT

C.L. PARK STA 280+81.45, 99.00' RT
FL = 521.5 +/-

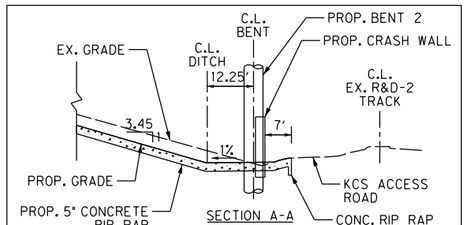
PROP. RAILROAD CROSSING AGREEMENT

LEGEND

510	MAJOR CONTOUR LINE
510	MINOR CONTOUR LINE
510	EXISTING MAJOR CONTOUR LINE
510	EXISTING MINOR CONTOUR LINE
	PROPOSED RETAINING WALL
	PROPOSED CURB/SIDEWALK
	SAWCUT/PAVEMENT REMOVAL LIMIT

NOTES:

1. REFER TO PAVING PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL ALIGNMENT INFORMATION INCLUDING ROADWAY DIMENSIONS, SPOT ELEVATIONS AND CROSS SLOPES.
2. REFER TO CULVERT LAYOUT SHEETS FOR CULVERT HEADWALL AND OUTFALL CHANNEL GRADING DETAILS.
3. REFER TO BARRIER FREE RAMP DETAILS FOR RAMP GRADING REQUIREMENTS AND SLOPE LIMITATIONS. ADJUST TYPICAL GRADING CONTOURS SHOWN AS APPROVED BY ENGINEER.



TOTAL Q100=27.6 CFS
NORMAL DEPTH=0.72'
V=2.08 FPS
(N=0.040, S=0.0057 FT/FT)

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

GRADING PLAN
STA 276+25 TO STA 281+50

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	AK	DATE: 9/30/2021
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CONTRACT No. 35192

SHEET 123 OF 488 GRAD-16

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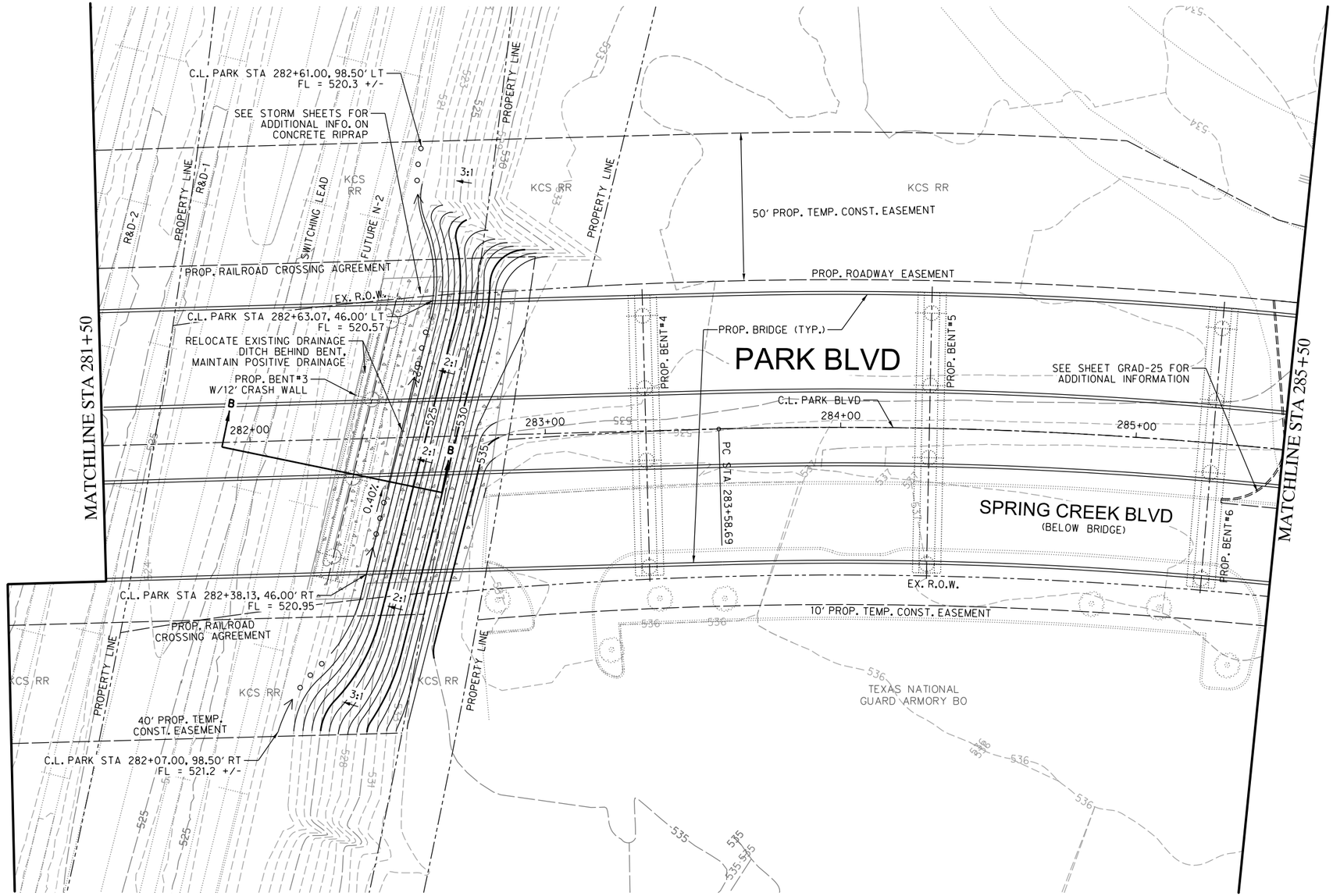
GRAD-16-35192.dgn 3/18/2022 3:02:42 PM



0 10 20 30 40
HORIZONTAL SCALE IN FEET

N

LEGEND

510	MAJOR CONTOUR LINE
510	MINOR CONTOUR LINE
510	EXISTING MAJOR CONTOUR LINE
510	EXISTING MINOR CONTOUR LINE
	PROPOSED RETAINING WALL
	PROPOSED CURB/SIDEWALK
	SAWCUT/PAVEMENT REMOVAL LIMIT

NOTES:
1. REFER TO PAVING PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL ALIGNMENT INFORMATION INCLUDING ROADWAY DIMENSIONS, SPOT ELEVATIONS AND CROSS SLOPES.
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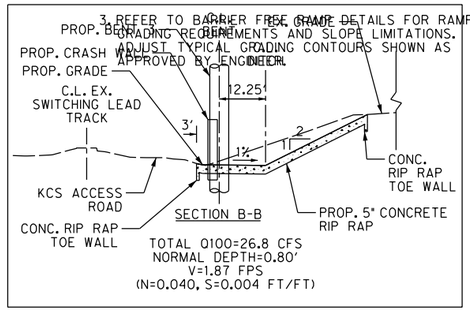

STATE OF TEXAS
DONALD ADAM KANE
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LICENSED PROFESSIONAL ENGINEER

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No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

GRADING PLAN
STA 281+50 TO STA 285+50

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	AK	DATE: 9/30/2021
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CONTRACT No. 35192

SHEET 124 OF 488 GRAD-17

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0 10 20 30 40
HORIZONTAL SCALE IN FEET

LEGEND

—510—	MAJOR CONTOUR LINE
—510—	MINOR CONTOUR LINE
- -510- -	EXISTING MAJOR CONTOUR LINE
- -510- -	EXISTING MINOR CONTOUR LINE
▬ ▬ ▬	PROPOSED RETAINING WALL
———	PROPOSED CURB/SIDEWALK
— — —	SAWCUT/PAVEMENT REMOVAL LIMIT

NOTES:

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No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

GRADING PLAN
STA 285+50 TO STA 294+50

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: TMW	DATE: 9/30/2021	DESIGNED: AK	DATE: 9/30/2021
CHECKED: AK	DATE: 9/30/2021	SCALE: 1"=40'	

CONTRACT No. 35192

SHEET 125 OF 488 — GRAD-18

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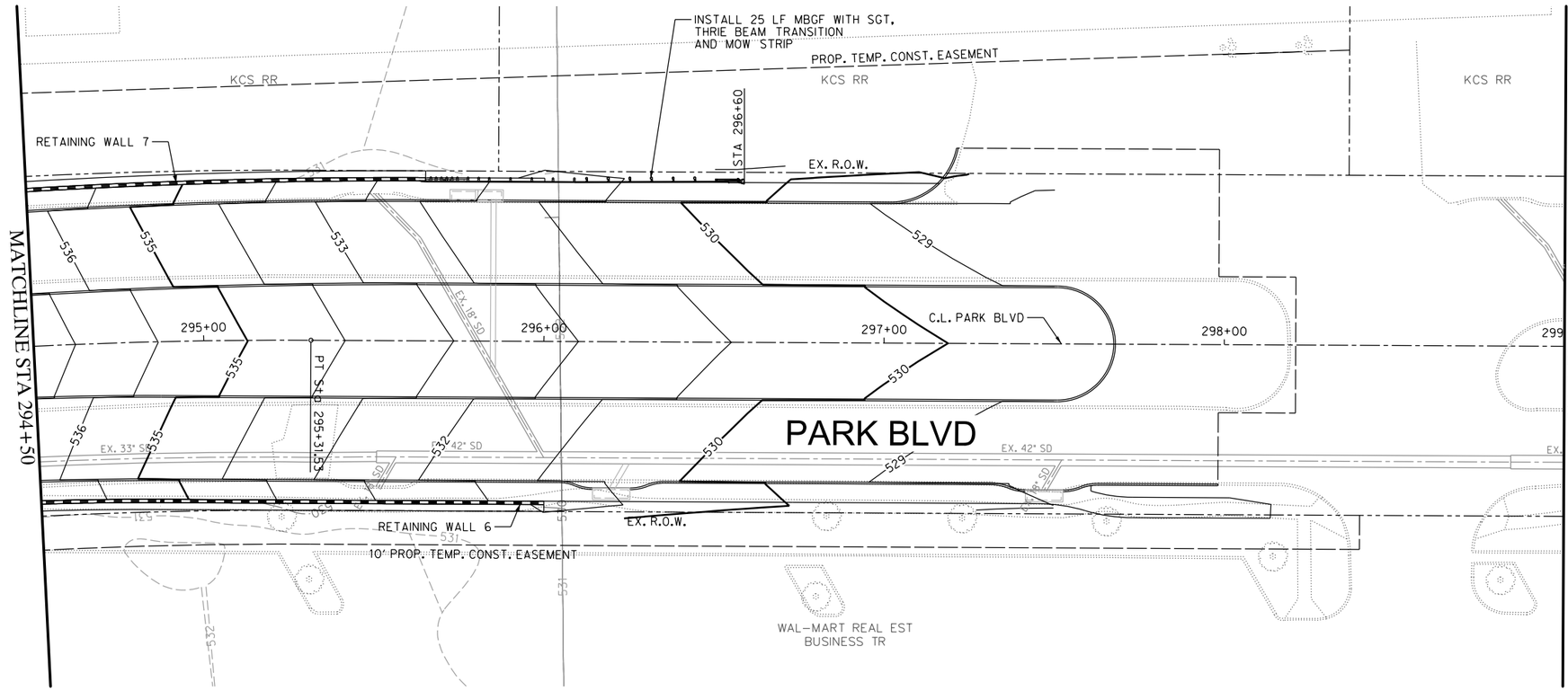

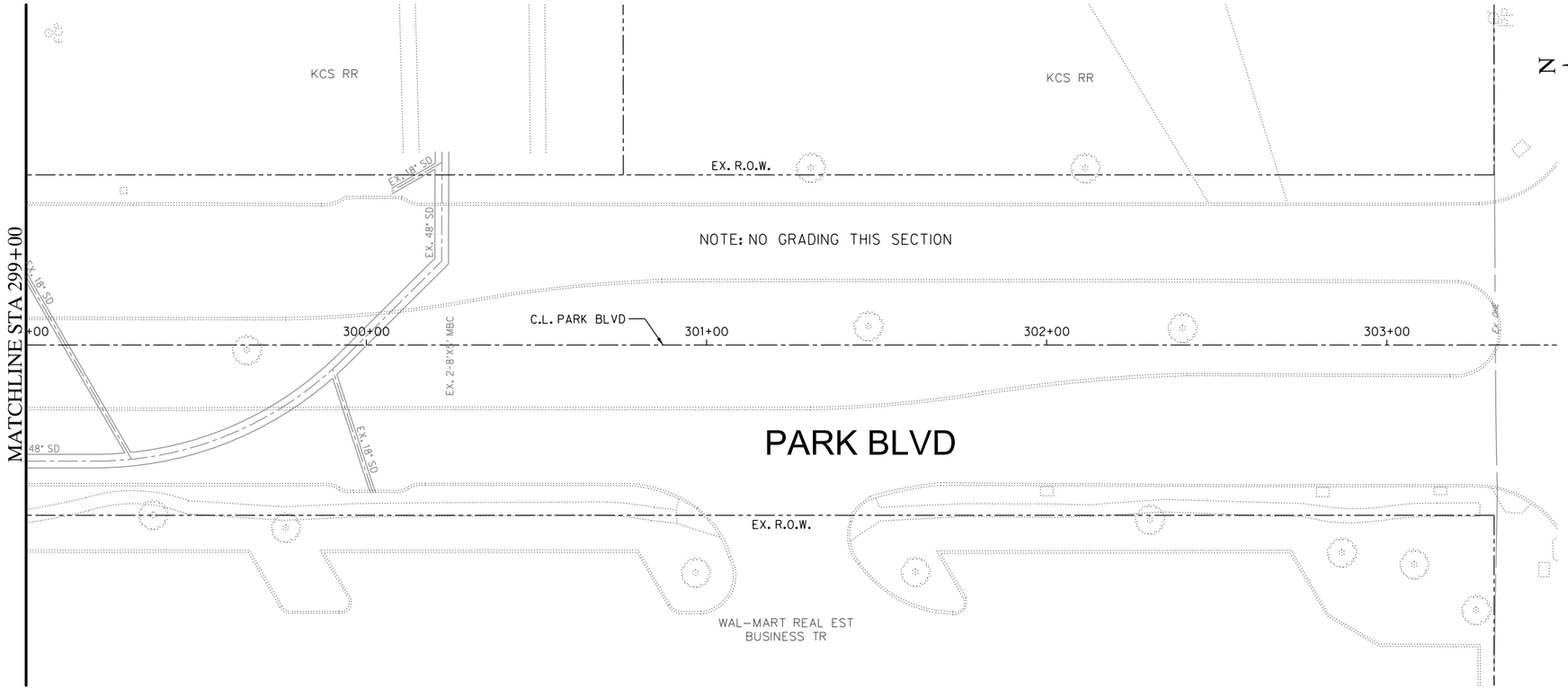

0 10 20 30 40
HORIZONTAL SCALE IN FEET

LEGEND

- 510 — MAJOR CONTOUR LINE
- 510 — MINOR CONTOUR LINE
- 510 — EXISTING MAJOR CONTOUR LINE
- 510 — EXISTING MINOR CONTOUR LINE
- PROPOSED RETAINING WALL
- PROPOSED CURB/SIDEWALK
- SAWCUT/PAVEMENT REMOVAL LIMIT

NOTES:

1. REFER TO PAVING PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL ALIGNMENT INFORMATION INCLUDING ROADWAY DIMENSIONS, SPOT ELEVATIONS AND CROSS SLOPES.
2. REFER TO CULVERT LAYOUT SHEETS FOR CULVERT HEADWALL AND OUTFALL CHANNEL GRADING DETAILS.
3. REFER TO BARRIER FREE RAMP DETAILS FOR RAMP GRADING REQUIREMENTS AND SLOPE LIMITATIONS. ADJUST TYPICAL GRADING CONTOURS SHOWN AS APPROVED BY ENGINEER.

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED
PROFESSIONAL ENGINEER

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No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

GRADING PLAN
STA 294+50 TO END

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

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CONTRACT No. 35192

SHEET 126 OF 488 — GRAD-19

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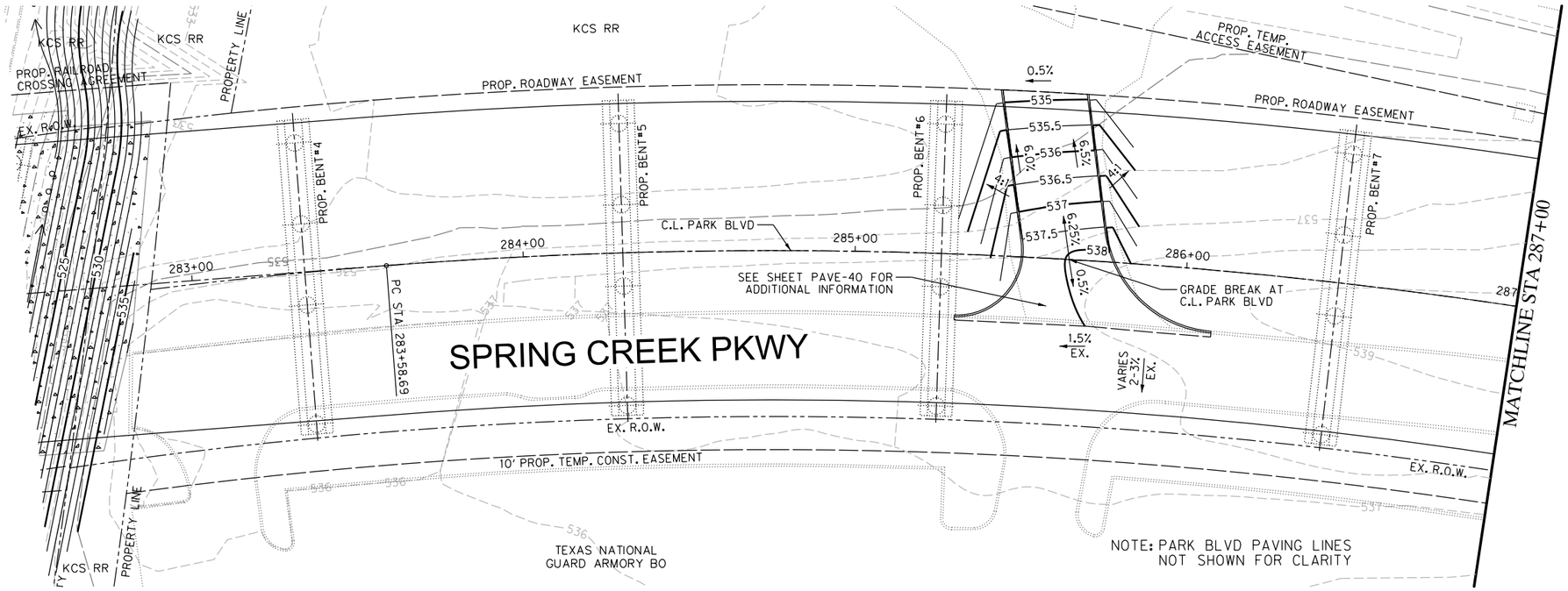

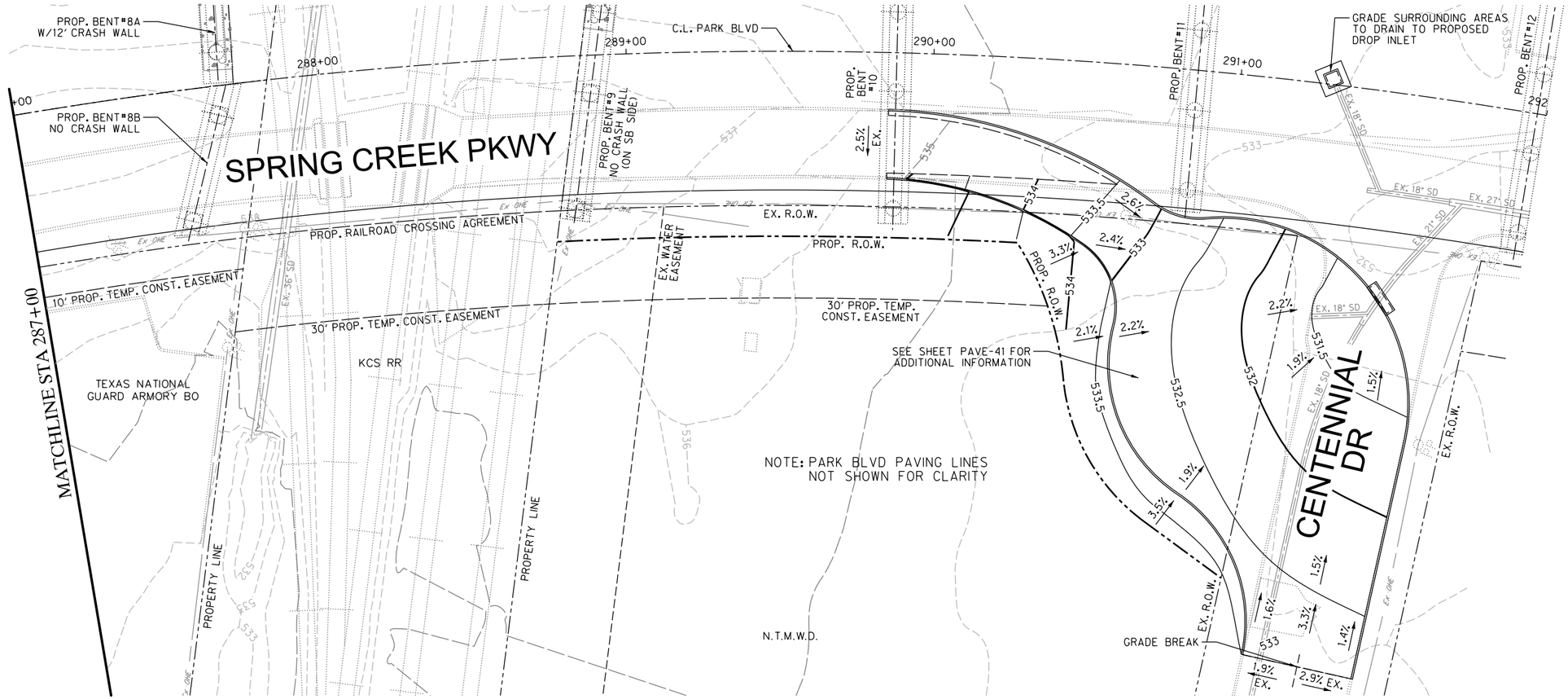

0 10 20 30 40
HORIZONTAL SCALE IN FEET
0 2.5 5 7.5 10
VERTICAL SCALE IN FEET

LEGEND

510	MAJOR CONTOUR LINE
510	MINOR CONTOUR LINE
510	EXISTING MAJOR CONTOUR LINE
510	EXISTING MINOR CONTOUR LINE
	PROPOSED RETAINING WALL
	PROPOSED CURB/SIDEWALK
	SAWCUT/PAVEMENT REMOVAL LIMIT

NOTES:

1. REFER TO PAVING PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL ALIGNMENT INFORMATION INCLUDING ROADWAY DIMENSIONS, SPOT ELEVATIONS AND CROSS SLOPES.
2. REFER TO CULVERT LAYOUT SHEETS FOR CULVERT HEADWALL AND OUTFALL CHANNEL GRADING DETAILS.
3. REFER TO BARRIER FREE RAMP DETAILS FOR RAMP GRADING REQUIREMENTS AND SLOPE LIMITATIONS. ADJUST TYPICAL GRADING CONTOURS SHOWN AS APPROVED BY ENGINEER.

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED PROFESSIONAL ENGINEER

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No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

GRADING PLAN
SPRING CREEK PKWY

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

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CONTRACT No. 35192

SHEET 132 OF 488 GRAD-25

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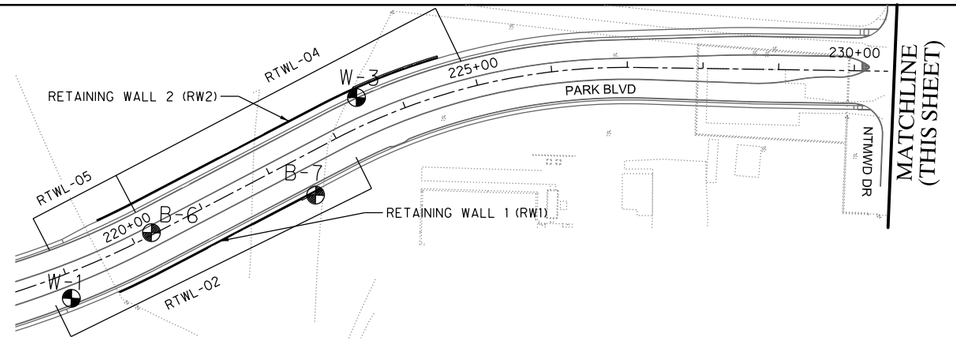

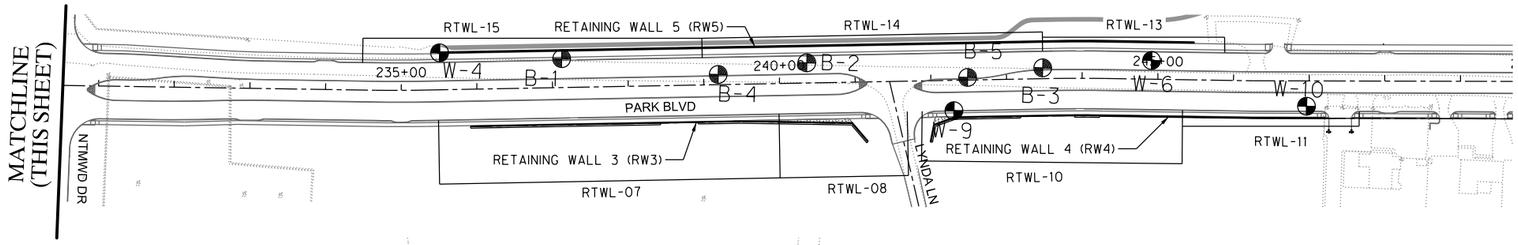

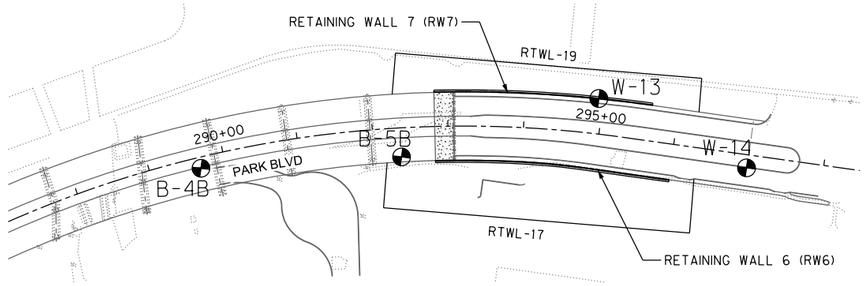

0 50 100 150 200
HORIZONTAL SCALE IN FEET

LEGEND

RTWL-XX RETAINING WALL SHEET

BOREHOLES LOCATION

ID	STATION	OFFSET	NORTHING	EASTING	ELEVATION
B-1	237+12.46	32.53' LT	7065528.09	2574317.86	509.75
B-2	240+36.22	21.09' LT	7065532.19	2574641.80	509.37
B-3	243+47.76	8.68' LT	7065534.74	2574953.58	509.47
B-4	239+18.91	7.85' LT	7065513.34	2574525.26	509.29
B-5	242+48.36	2.18' RT	7065519.12	2574854.82	509.53
B-6	220+26.12	2.85' LT	7065236.67	2572685.21	516.39
B-7	222+41.35	53.61' RT	7065292.76	2572900.54	520.65
W-1	218+95.59	32.48' RT	7065146.90	2572581.97	536.20
W-3	223+46.88	36.93' LT	7065423.13	2572950.78	516.05
W-4	235+51.66	48.94' LT	7065536.76	2574156.47	512.61
W-6	244+91.43	24.71' LT	7065554.47	2575097.25	507.23
W-9	242+29.78	40.01' RT	7065480.44	2574838.07	503.62
W-10	246+96.63	33.49' RT	7065500.13	2575303.66	514.65
W-13	294+94.50	46.62' LT	7062792.55	2578776.10	531.04
W-14	296+99.41	17.34' RT	7062587.48	2578709.47	529.66
B-4B	289+67.07	14.50' RT	7063302.72	2578619.27	536.30
B-5B	292+36.59	38.43' RT	7063041.60	2578667.14	531.59

NOTE:

FOR BOREHOLES B1-B7, W1-W14 & B4B-B5B: BOREHOLE DATA PROVIDED BY PROFESSIONAL SERVICES INDUSTRIES, INC. PROJECT NO. 03421687, DECEMBER 17, 2020.

TABLE A
MSE WALL MATERIALS FOR RETAINING WALLS RW1 AND RW2
(FOR WALLS SUBJECT TO INUNDATION)

MATERIAL TYPE	FILL LOCATION	FRICTION ANGLE (DEGREES)	COHESION (PSF)
TXDOT ITEM 423 TYPE AS, BS OR DS	RETAINED OR REINFORCED ZONE	34	0
TXDOT ITEM 132 TYPE C	RETAINED ZONE ONLY	30	0

TABLE B
MSE WALL MATERIALS FOR RETAINING WALLS RW3, RW4 AND RW5
(FOR WALLS SUBJECT TO INUNDATION)

MATERIAL TYPE	FILL LOCATION	FRICTION ANGLE (DEGREES)	COHESION (PSF)
TXDOT ITEM 423 TYPE DS	RETAINED OR REINFORCED ZONE	34	0
TXDOT ITEM 132 TYPE C	RETAINED ZONE ONLY	30	0

TABLE C
MSE WALL MATERIALS FOR RETAINING WALLS RW6, AND RW7
(FOR WALLS NOT SUBJECT TO INUNDATION)

MATERIAL TYPE	FILL LOCATION	FRICTION ANGLE (DEGREES)	COHESION (PSF)
TXDOT ITEM 423 TYPE AS OR BS	RETAINED OR REINFORCED ZONE	34	0
TXDOT ITEM 132 TYPE C	RETAINED ZONE ONLY	30	0

NOTE:

1. INFORMATION IN TABLES A, B AND C HAS BEEN PROVIDED BY PROFESSIONAL SERVICES INDUSTRIES, INC. PROJECT NO. 03421687, DECEMBER 05, 2019, TO PROVIDE SOIL STRENGTH PARAMETERS FOR THE DESIGN OF THE SPECIFIED WALLS. THIS INFORMATION IS BASED ON BORING INFORMATION AVAILABLE AT THE TIME OF PLAN PRODUCTION. BORING INFORMATION HAS BEEN SHOWN ON THIS SHEET AND SHEETS BORE-01 TO BORE-04.
2. IN ADDITION TO HORIZONTAL FILTER FABRIC REQUIREMENTS IN ITEM 423, PLACE VERTICAL FILTER FABRIC BETWEEN REINFORCED ZONE AND RETAINED ZONE WHEN DS AND C BACKFILLS ARE USED.
3. RETAINED SOIL WILL BE PAID FOR AS EMBANKMENT TYPE B IN ACCORDANCE WITH STD RW (EM). ALL COSTS FOR IMPROVEMENT OF SOIL IN RETAINED ZONE ARE SUBSIDIARY TO RETAINING WALL.

RETAINING WALL GENERAL NOTES

1. ALL RETAINING WALLS ARE PROPOSED TO BE MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH TXDOT SPECIFICATION ITEM 423.
2. BACKFILL FOR MSE RETAINING WALLS SHALL BE SELECT MATERIAL MEETING THE SPECIFICATIONS IN TABLES A, B AND C. SEE WALL DETAILS ON RW(MSE)DD (MOD) STANDARD DETAIL FOR LIMITS OF RETAINED ZONE MATERIAL.
3. BACKFILL PARTICLES LARGER THAN 1/4" INCH SHALL BE ANGULAR OR CRUSHED. ROUNDED ROCK OR GRAVEL WILL NOT BE ALLOWED.
4. CEMENT STABILIZED BACKFILL WILL NOT BE PERMITTED, EXCEPT AS SHOWN ON PLANS.
5. PRIOR TO PLACEMENT OF RETAINING WALL SELECT BACKFILL, THE CONTRACTOR SHALL COMPACT THE FOUNDATION SOIL BELOW THE LIMITS OF THE RETAINING WALL SELECT BACKFILL IN ACCORDANCE WITH ITEM 423. CONTRACTOR SHALL PERFORM PROOF ROLLING OF FOUNDATION SOIL BELOW THE LIMITS OF THE WALL SELECT BACKFILL IN ACCORDANCE WITH ITEM 216, "PROOF ROLLING." PROOF ROLLING SHALL BE PAID FOR AT THE UNIT PRICE BID PER HOUR PER ITEM 216. REMOVE AND REPLACE ANY UNSTABLE, NONUNIFORM OR UNSUITABLE FOUNDATION SOIL IDENTIFIED THROUGH PROOF ROLLING. IMPORTED REPLACEMENT FOUNDATION SOIL SHALL BE CLEAN SOILS CLASSIFIED AS CL, CH, SM, SC, SP, SP-SM, OR GC THAT ARE FREE OF DEBRIS, RUBBLE, ORGANICS OR DELETERIOUS MATERIALS AND SHOULD HAVE A PLASTICITY INDEX EQUAL OR LESS THAN 30. REMOVAL AND REPLACEMENT OF UNSTABLE, NONUNIFORM OR UNSUITABLE FOUNDATION SOIL SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 423. THE MATERIALS SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY (MDD) DETERMINED IN ACCORDANCE WITH TEX-114-E. THE MOISTURE CONTENT OF THE COMPACTED FILL SHOULD BE IN THE RANGE OF THE OPTIMUM MOISTURE CONTENT (OMC) TO THREE PERCENT ABOVE THE OMC (+0% TO +3%)AS DETERMINED BY TEX-114-E.
6. GRADES SHOULD BE SLOPED AWAY FROM THE FOUNDATION SO AS TO PROVIDE POSITIVE DRAINAGE AT BOTTOM OF WALL. FOR SOME SECTIONS OF RETAINING WALLS THIS MAY REQUIRE FILL UP TO 0.5' AT THE BASE OF THE WALL. SEE RETAINING WALL TYPCIAL SECTIONS ON RETAINING WALL SHEETS AND GRADING PLANS FOR APPLICABLE SECTIONS.
7. MECHANICALLY STABILIZED EARTH (MSE) WALL SHALL BE DESIGNED BY CONTRACTOR AND SIGNED/SEALED DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL SUBMIT CALCULATIONS FOR BEARING, SLIDING, OVERTURNING AND ECENTRICITY BASED ON THE ACTUAL MATERIALS USED IN THE WALL AND USING RECOMMENDED PROPERTIES FOR EXISTING SOILS AS LISTED IN THE PROJECT REPORT NO. 03421687 PREPARED BY PROFESSIONAL SERVICES INDUSTRIES, INC. DATED DEC. 05, 2019.
8. BOTTOM OF WALL (TOP OF LEVELING PAD) AND WALL PAY LIMITS SHALL BE AS SHOWN IN WALL ELEVATION DRAWINGS AND IN NO CASE LESS THAN 2'-0" MINIMUM BELOW FINISHED GRADE (2' EMBEDMENT).
9. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL VERIFY THE PRESENCE, LOCATION AND DEPTH OF ALL UTILITIES IN THE VICINITY OF WALLS PRIOR TO SUBMITTING SHOP DRAWING DESIGNS.
10. CONTRACTOR SHALL NOT CLEAR ANY 6" DIAMETER OR GREATER TREES WITHIN TEMPORARY ACCESS EASEMENT LIMITS ON USACE PROPERTY. THIS AREA IS NOT INTENDED FOR EQUIPMENT ACCESS. CONTRACTOR MAY PRUNE CONFLICTING BRANCHES AND REMOVE TREES ALONG R.O.W. LINE AS APPROVED BY THE ENGINEER.
11. ALL WALL PANELS SHALL BE CONSTRUCTED WITH FRACTURED FIN FORM LINER TO BE APPROVED BY THE ENGINEER. NOT LESS THAN 1/2 INCH RELIEF.

STATE OF TEXAS
DENNIS D. SATRE
115901
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

RETAINING WALLS
LOCATION MAP/GENERAL NOTES

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

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CONTRACT No. 35192

SHEET 133 OF 488 RTWL-01

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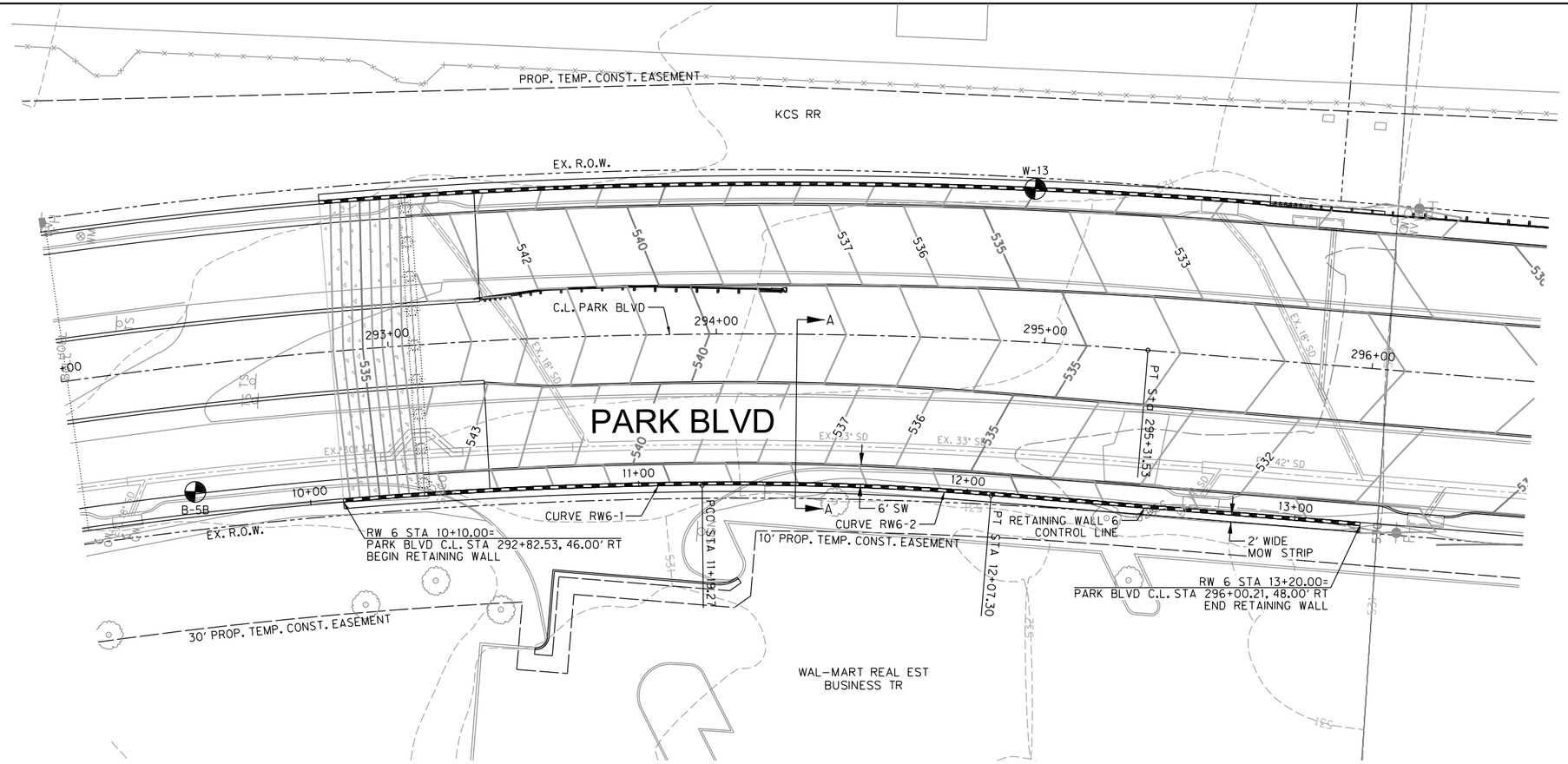

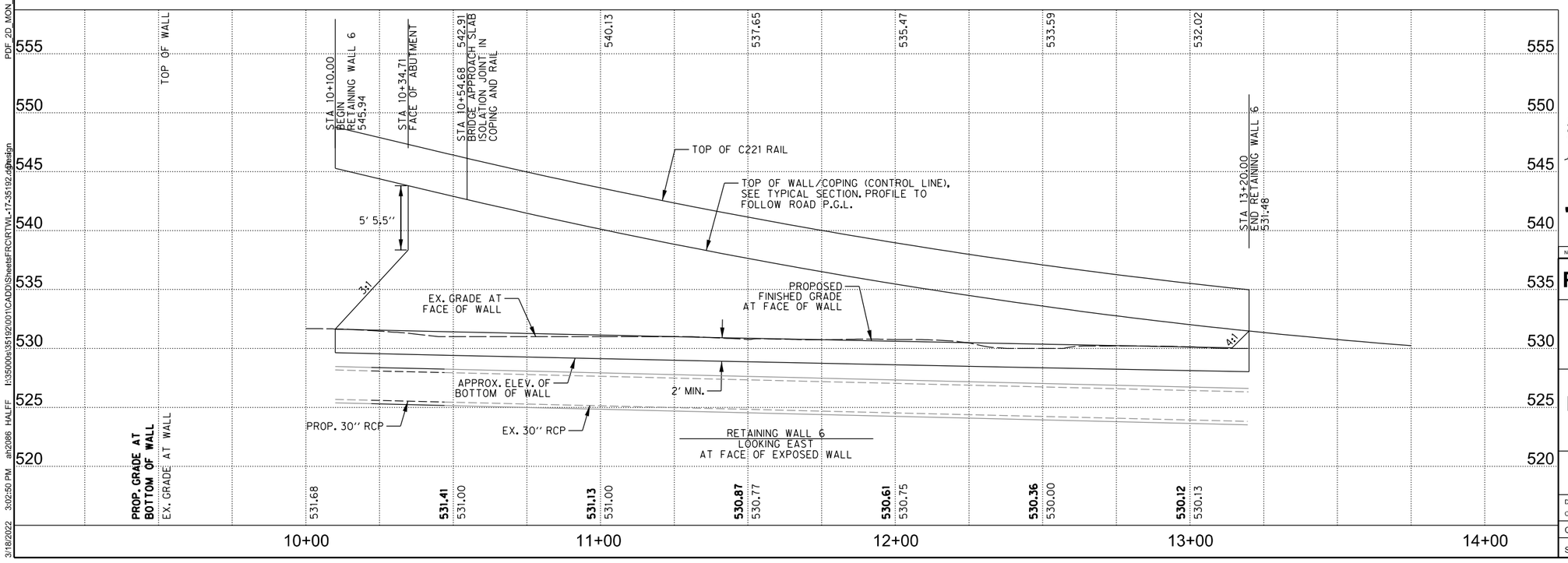

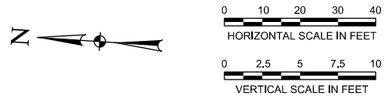

LEGEND

- PROPOSED STONE RIPRAP
- PROPOSED CONCRETE RIPRAP
- PROPOSED STORM DRAIN/INLET
- PROP. GUARD RAIL
- PROP. RETAINING WALL
- PROP. FENCE
- BORE HOLE LOCATION

NOTES:

1. ALL DIMENSIONS AND STATION/OFFSETS ARE TO FACE OF CURB OR FACE OF RAIL UNLESS NOTED OTHERWISE.

CAUTION!!!
EXISTING UTILITIES IN THE AREA. UTILITIES LOCATION SHOWN ARE SCHEMATIC IN NATURE AND MAY NOT ACCURATELY REFLECT SIZE, HORIZONTAL, AND/OR VERTICAL LOCATION. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION PRIOR TO BEGINNING CONSTRUCTION. CONTACT AFFECTED UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION IN THIS AREA. (1-800-DIG-TESS)

STATE OF TEXAS
DENNIS D. SATRE
71590
LICENSED
PROFESSIONAL ENGINEER

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No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

RETAINING WALL PLAN/PROFILE
RETAINING WALL 6

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

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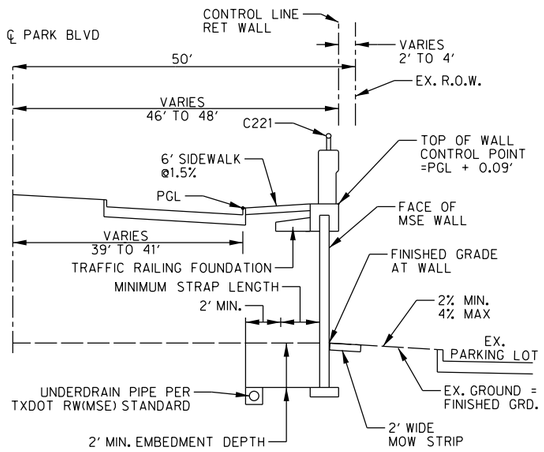
CONTRACT No. 35192

SHEET 149 OF 488 | RTWL-17



SECTION A-A

N.T.S.

RETAINING WALL 6 STA 10+10.00 TO 13+20.00

RETAINING WALL 6

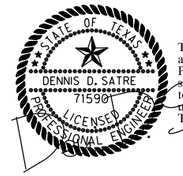
hain H_WALL6 contains:
 CUR H_WALL6-1 CUR H_WALL6-2 470

Beginning chain H_WALL6 description

```
                                        Curve Data
                                       *----------*
Curve H_WALL6-1
P.I.  Station                  10+64.66  N       7,062,942.273  E       2,578,675.265
Delta          =        4° 18' 21.59" (RT)
Degree         =        3° 56' 26.03"
Tangent        =               54.663
Length         =              109.274
Radius         =            1,454.000
External       =                1.027
Long Chord     =              109.248
Mid. Ord.      =                1.026
P.C.  Station                  10+10.00  N       7,062,996.316  E       2,578,667.057
P.T.  Station                  11+19.27  N       7,062,887.767  E       2,578,679.392
C.C.                                     N       7,062,777.992  E       2,577,229.542
Back           = S    8° 38' 09.13" E
Ahead          = S    4° 19' 47.54" E
Chord Bear     = S    6° 28' 58.34" E

                                        Curve Data
                                       *----------*
Curve H_WALL6-2
P.I.  Station                  11+63.32  N       7,062,843.847  E       2,578,682.717
Delta          =        5° 12' 18.45" (RT)
Degree         =        5° 54' 46.36"
Tangent        =               44.045
Length         =               88.030
Radius         =              969.000
External       =                1.001
Long Chord     =               88.000
Mid. Ord.      =                0.999
P.C.  Station                  11+19.27  N       7,062,887.767  E       2,578,679.392
P.T.  Station                  12+07.30  N       7,062,799.807  E       2,578,682.044
C.C.                                     N       7,062,814.608  E       2,577,713.158
Back           = S    4° 19' 47.54" E
Ahead          = S    0° 52' 30.90" W
Chord Bear     = S    1° 43' 38.32" E

Course from PT H_WALL6-2 to 470 S 0° 52' 30.90" W Dist 112.698

Point 470              N    7,062,687.122 E    2,578,680.323 Sta      13+20.00

================================================================================
Ending chain H_WALL6 description
```

NOTES

1. REFER TO RETAINING WALL LOCATION MAP SHEET FOR WALL BACKFILL REQUIREMENTS.



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No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

RETAINING WALL PLAN/PROFILE
RETAINING WALL 6 DETAILS

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

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CONTRACT No. 35192

SHEET 150 OF 488 RTWL-18

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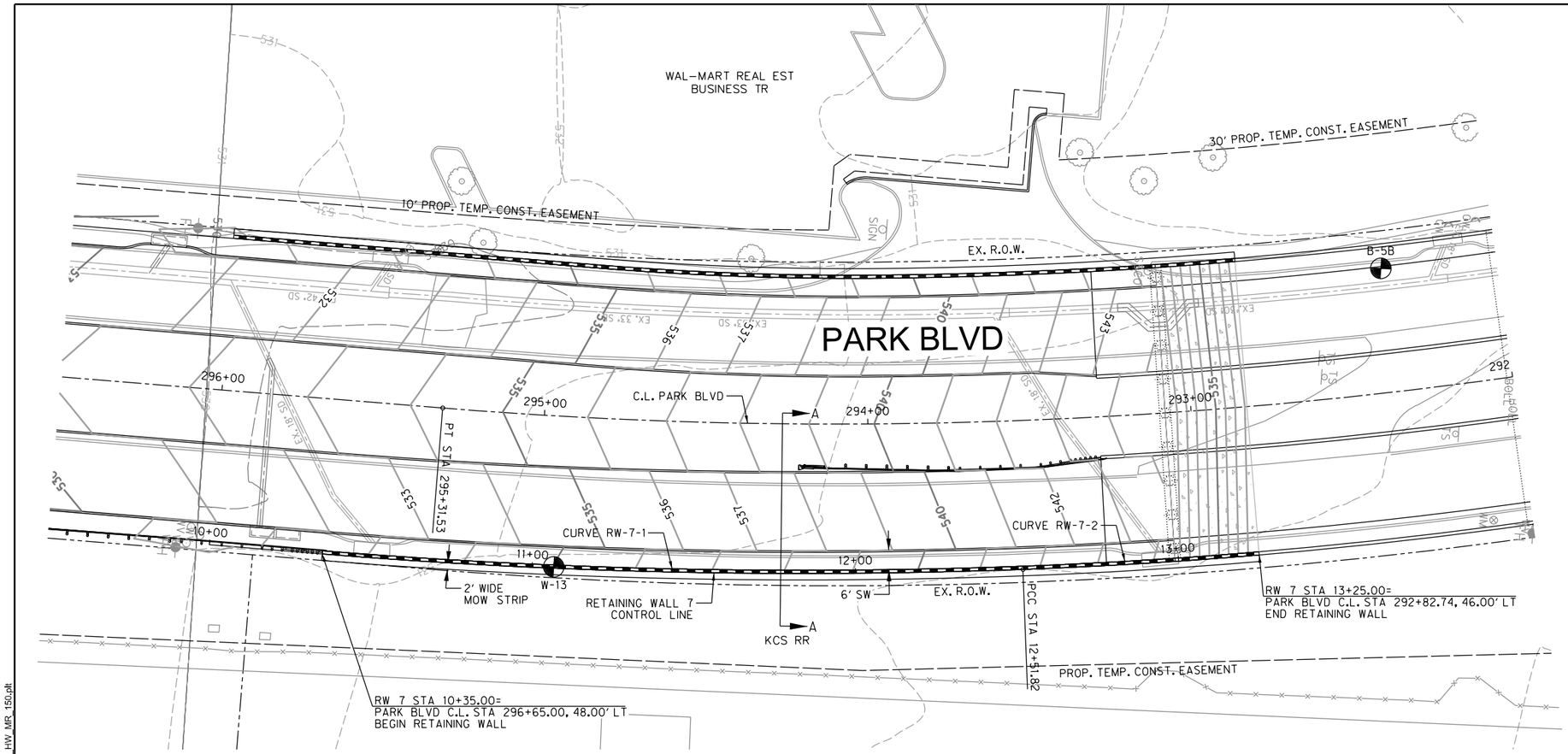

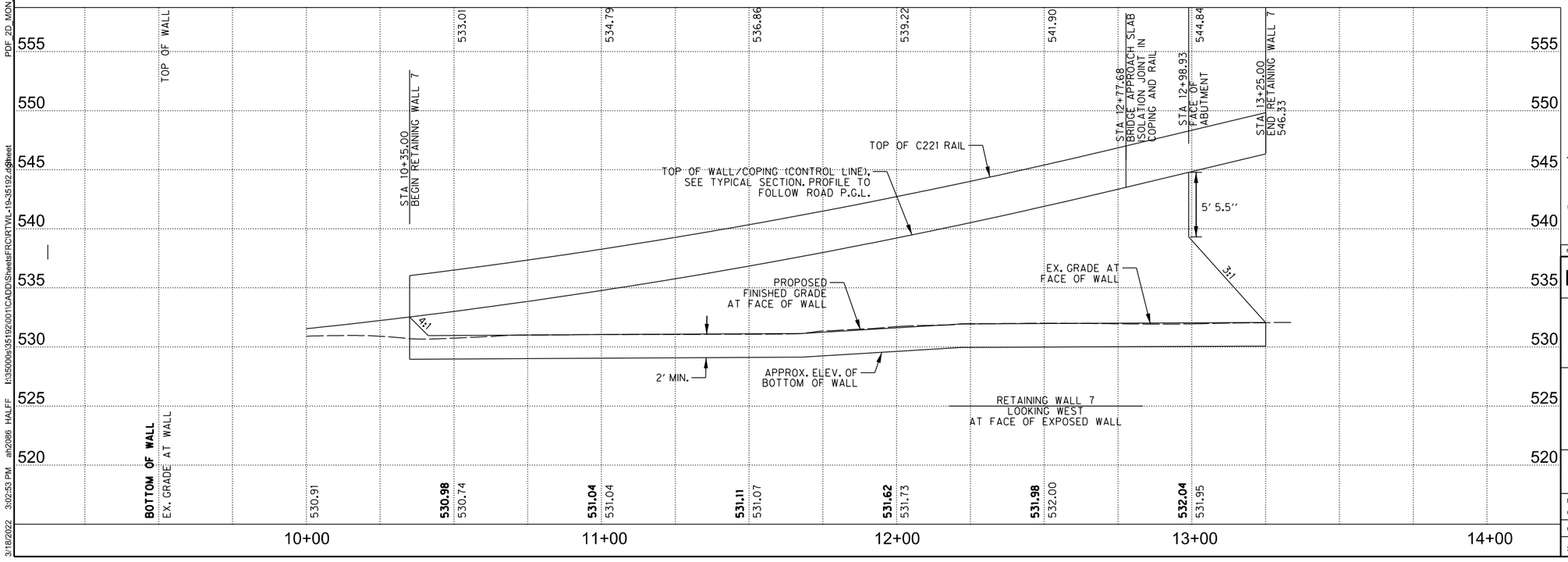

0 10 20 30 40
HORIZONTAL SCALE IN FEET

0 2.5 5 7.5 10
VERTICAL SCALE IN FEET

LEGEND

- PROPOSED STONE RIPRAP
- PROPOSED CONCRETE RIPRAP
- PROPOSED STORM DRAIN/INLET
- PROP. GUARD RAIL
- PROP. RETAINING WALL
- PROP. FENCE
- BORE HOLE LOCATION

NOTES:

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STATE OF TEXAS
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PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

RETAINING WALL PLAN/PROFILE
RETAINING WALL 7

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN: TMW	DATE: 9/30/2021	DESIGNED: AK	DATE: 9/30/2021		
CHECKED: AK	DATE: 9/30/2021	SCALE: 1"=40'			

CONTRACT No. 35192

SHEET 151 OF 488 RTWL-19

PDF 2D_MON_HW_MR_150.plt
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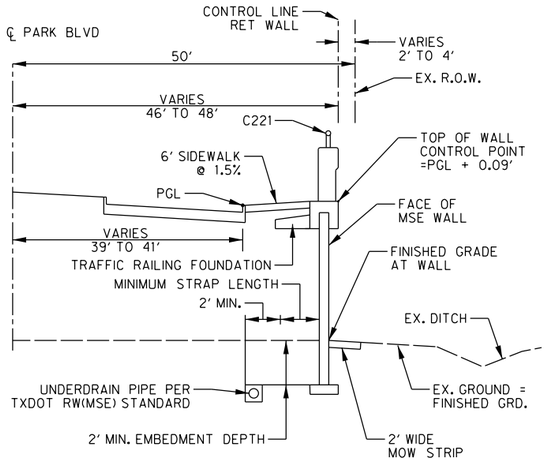
3/18/2022
RTWL-19-35192.dgn 3/18/2022 3:02:53 PM



SECTION A-A

N.T.S.

RETAINING WALL 7 STA 10+35.00 TO 13+25.00

RETAINING WALL 7

Chain H_WALL7 contains:
CUR H_WALL7-1 CUR H_WALL7-2

Beginning chain H_WALL7 description

			Curve Data			
Curve H_WALL7-1						
P.I. Station		11+43.53	N	7,062,829.396	E	2,578,778.494
Delta	=	6° 47' 04.58" (LT)				
Degree	=	3° 07' 45.15"				
Tangent	=	108.535				
Length	=	216.815				
Radius	=	1,831.000				
External	=	3.214				
Long Chord	=	216.689				
Mid. Ord.	=	3.208				
P.C. Station		10+35.00	N	7,062,720.874	E	2,578,776.850
P.T. Station		12+51.82	N	7,062,937.353	E	2,578,767.306
C.C.			N	7,062,748.614	E	2,576,946.060
Back	= N	0° 52' 05.02" E				
Ahead	= N	5° 54' 59.55" W				
Chord Bear	= N	2° 31' 27.26" W				

			Curve Data			
Curve H_WALL7-2						
P.I. Station		12+88.41	N	7,062,973.756	E	2,578,763.534
Delta	=	2° 42' 43.97" (LT)				
Degree	=	3° 42' 21.84"				
Tangent	=	36.598				
Length	=	73.183				
Radius	=	1,546.000				
External	=	0.433				
Long Chord	=	73.176				
Mid. Ord.	=	0.433				
P.C. Station		12+51.82	N	7,062,937.353	E	2,578,767.306
P.T. Station		13+25.00	N	7,063,009.940	E	2,578,758.043
C.C.			N	7,062,777.992	E	2,577,229.542
Back	= N	5° 54' 59.55" W				
Ahead	= N	8° 37' 43.52" W				
Chord Bear	= N	7° 16' 21.54" W				

Ending chain H_WALL7 description

NOTES

1. REFER TO RETAINING WALL LOCATION MAP SHEET FOR WALL BACKFILL REQUIREMENTS.

STATE OF TEXAS
DENNIS D. SATRE
71590
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

RETAINING WALL PLAN/PROFILE
RETAINING WALL 7 DETAILS

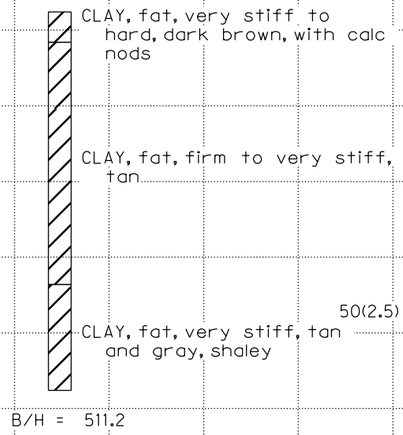
HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: TMW DATE: 9/30/2021 | DESIGNED: AK DATE: 9/30/2021
CHECKED: AK DATE: 9/30/2021 | SCALE: N.T.S.

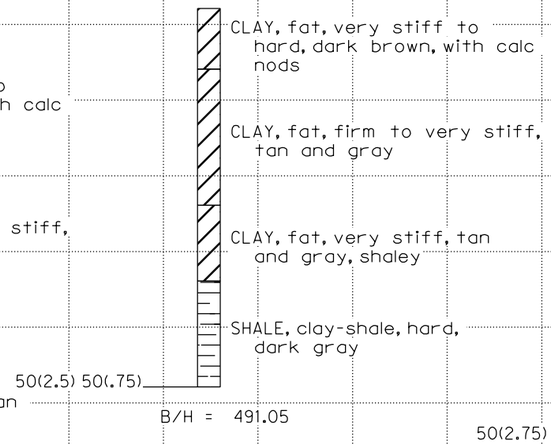
CONTRACT No. 35192

SHEET 152 OF 488 | RTWL-20

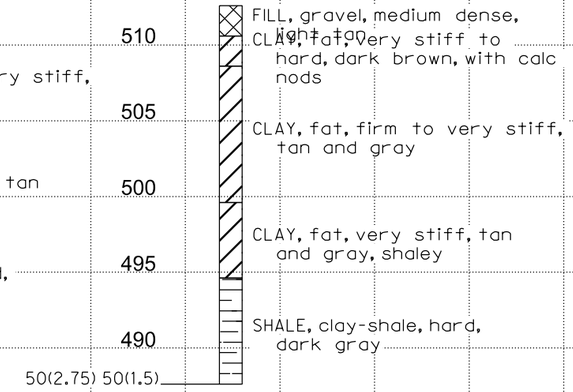
TEST HOLE NO. W-1
STA 218+95.59, 32.48' RT
EL 536.20



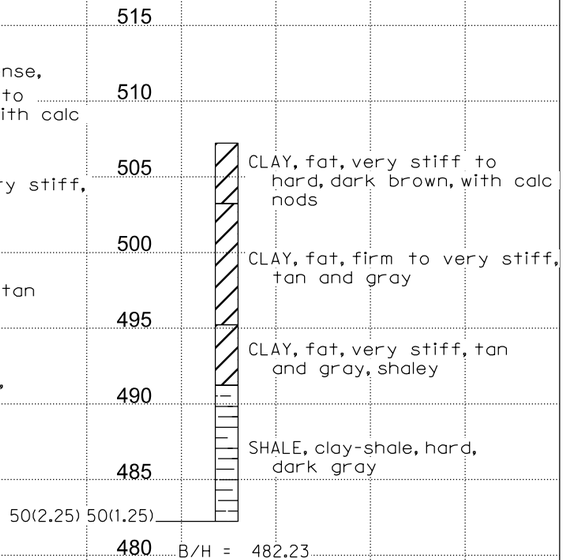
TEST HOLE NO. W-3
STA 223+46.88, 36.93' LT
EL 516.05



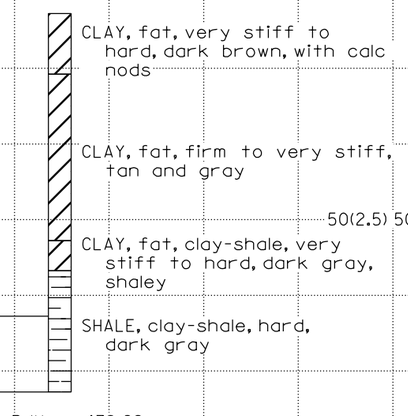
TEST HOLE NO. W-4
STA 235+51.66, 48.94' LT
EL 512.61



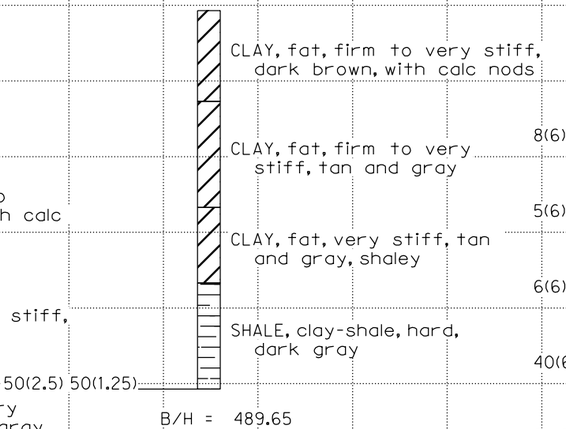
TEST HOLE NO. W-6
STA 244+91.43, 24.71' LT
EL 507.23



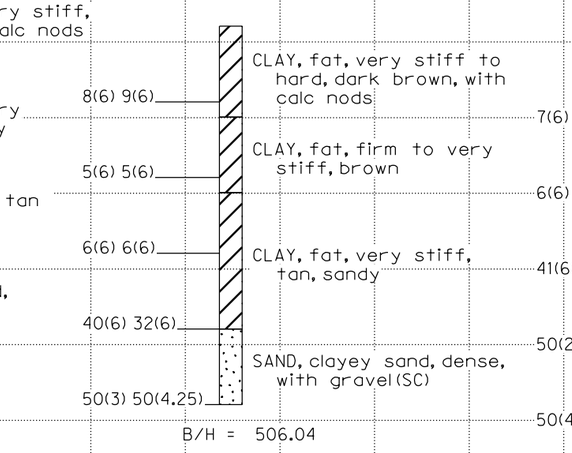
TEST HOLE NO. W-9
STA 242+29.78, 40.01' RT
EL 503.62



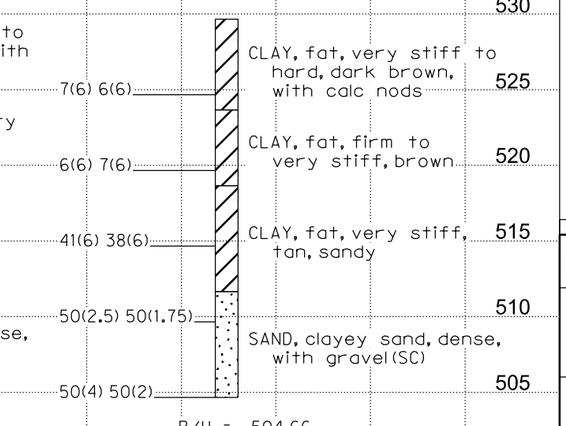
TEST HOLE NO. W-10
STA 246+96.63, 33.49' RT
EL 514.65



TEST HOLE NO. W-13
STA 294+94.50, 46.62' LT
EL 531.04

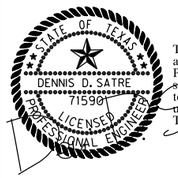


TEST HOLE NO. W-14
STA 296+99.41, 17.34' RT
EL 529.66



NOTE:

1. BOREHOLE INFORMATION PROVIDED BY PROFESSIONAL SERVICES INDUSTRIES, INC. PROJECT NO. 03421687, DECEMBER 17, 2020.



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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

SOIL BORE LOGS

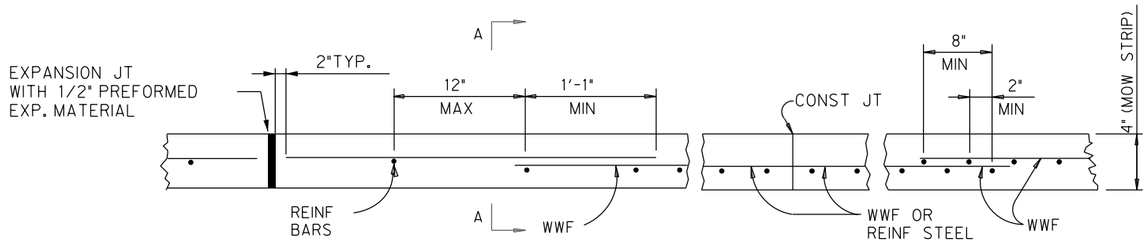
HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

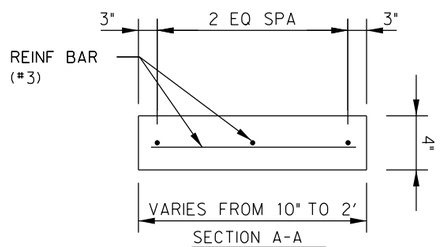
DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	AK	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:		

CONTRACT No. 35192

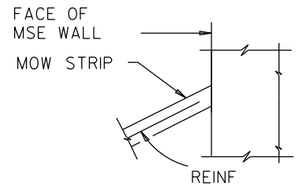
SHEET 154 OF 488

BORE-02





SECTION A-A
(REINF BAR SHOWN)



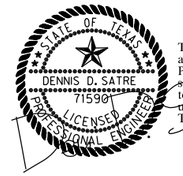
NOTE: REINFORCING BARS SHALL BE #3 @ 18" SPA. C-C. WELDED WIRE FABRIC SHALL BE 6X6-W2.9XW2.9. COMBINATIONS OF WWF AND REINFORCING BARS MAY BE USED IF BOTH ARE PERMITTED. LAP SPLICES SHALL BE A MINIMUM OF 6 INCHES, MEASURED FROM THE TRANSVERSE WIRE OF WWF, AND THE ENDS OF THE REINFORCING BARS.

MOW STRIP DETAILS OF WWF, REINF AND CONST. JOINTS

MOW STRIP NOTES

1. MOW STRIP CONCRETE SHALL BE CLASS B.
2. REINFORCING OTHER THAN THAT SHOWN MAY BE USED BY SUBSTITUTING REINFORCEMENT OF EQUAL OR GREATER UNIT CROSS SECTIONAL AREA. THE MAXIMUM REINFORCING SPACING SHALL BE 18 INCHES.
3. CONSTRUCTION JOINTS OR GROOVED JOINTS EXTENDING THE FULL MOW STRIP WIDTH SHALL BE AT INTERVALS OF APPROXIMATELY 20 FEET UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. UNLESS SPECIFIED ELSEWHERE IN THE PLANS TO BE ONLY REINFORCING BARS, THE MOW STRIP REINFORCING MAY BE COMPOSED OF REINFORCING BARS, WELDED WIRE FABRIC, OR ANY SUITABLE COMBINATION OF BOTH TYPES.
5. TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN THE MOW STRIP AT MSE WALL EXPANSION JOINTS AS PRACTICAL.

CONCRETE MOW STRIP AT MSE WALL



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No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

RETAINING WALL
MOW STRIP DETAILS

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: TMW	DATE: 9/30/2021	DESIGNED: AK	DATE: 9/30/2021
CHECKED: AK	DATE: 9/30/2021	SCALE:	

CONTRACT No. 35192

SHEET 157 OF 488 | RTWLD-01

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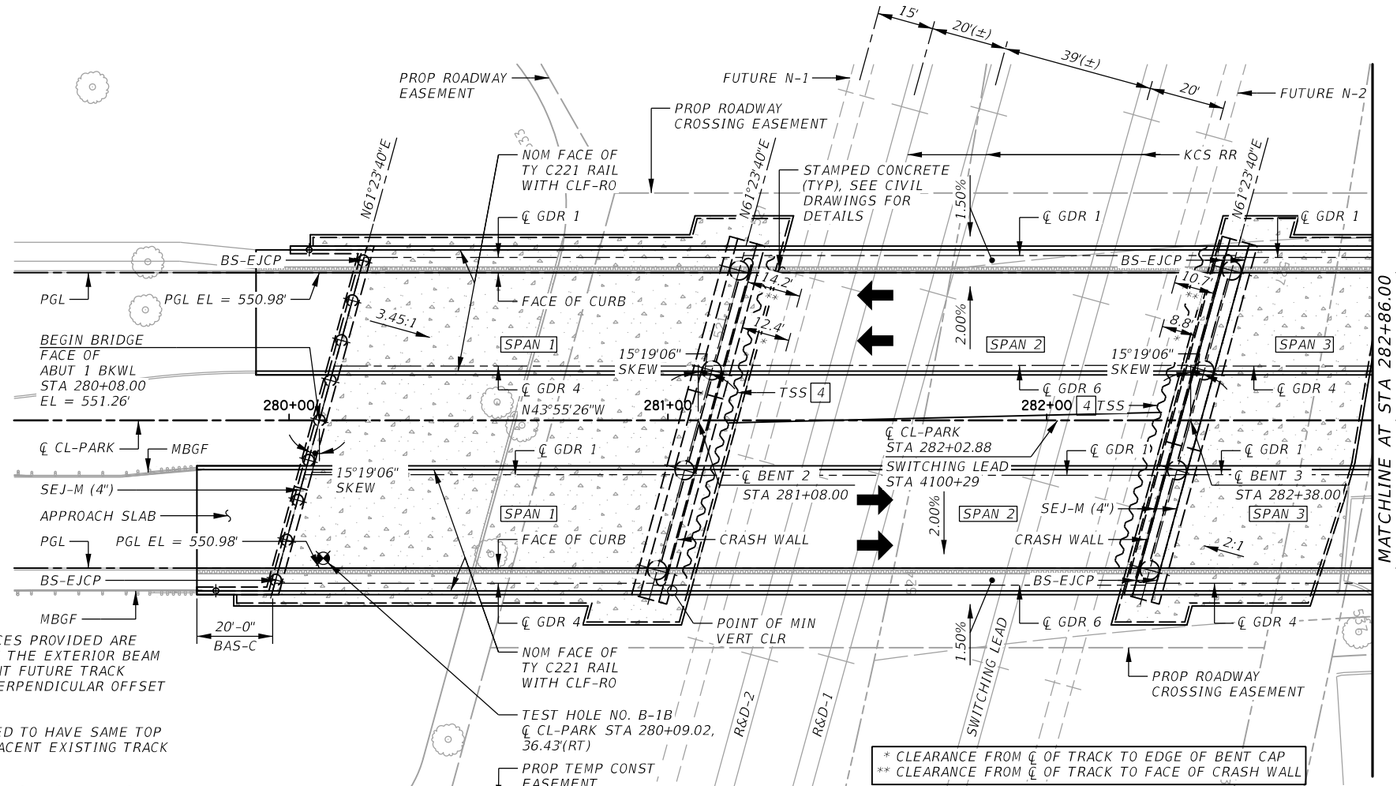
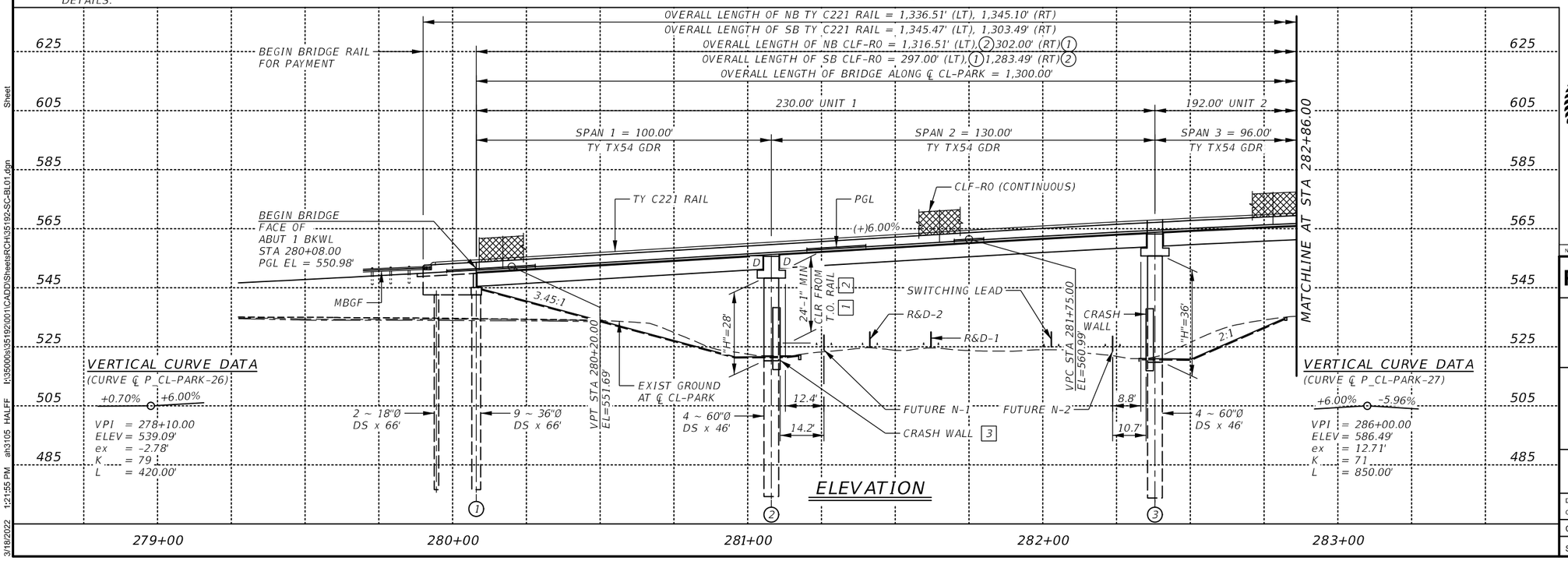


PLAN

* CLEARANCE FROM ℄ OF TRACK TO EDGE OF BENT CAP
** CLEARANCE FROM ℄ OF TRACK TO FACE OF CRASH WALL

1. MINIMUM VERTICAL CLEARANCES PROVIDED ARE TAKEN AT THE POINT WHERE THE EXTERIOR BEAM IS CLOSEST TO THE ADJACENT FUTURE TRACK CLEARANCE ENVELOPE (12' PERPENDICULAR OFFSET TO RR C.L.).
2. FUTURE TRACKS ARE ASSUMED TO HAVE SAME TOP OF RAIL ELEVATIONS AS ADJACENT EXISTING TRACK ELEVATION.
3. CRASH WALLS SHALL EXTEND 12' ABOVE ADJACENT TOP OF RAIL ELEVATION.
4. SEE BRIDGE CRASH WALL MISC DETAILS FOR TSS DETAILS.



ELEVATION

(1) OVER SPANS 2 AND 8.
(2) INCLUDES CURVED CHAIN LINK FENCE OVER SPANS 2 AND 8.

VERTICAL CURVE DATA
(CURVE ℄ P_CL-PARK-26)

+0.70% +6.00%

VPI = 278+10.00
ELEV = 539.09'
ex = -2.78'
K = 79
L = 420.00'

VERTICAL CURVE DATA
(CURVE ℄ P_CL-PARK-27)

+6.00% -5.96%

VPI = 286+00.00
ELEV = 586.49'
ex = 12.71'
K = 71
L = 850.00'

0 20 40 60
SCALE IN FEET

GENERAL NOTES:

1. PARK BLVD BRIDGE DESIGNED PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION (2017) WITH INTERIMS.
2. BRIDGE SUBSTRUCTURE DESIGNED IN ACCORDANCE WITH THE AUGUST 2020 KANSAS CITY SOUTHERN GUIDELINES FOR THE DESIGN AND CONSTRUCTION OF RAILROAD OVERPASSES AND UNDERPASSES.
3. TEST HOLE DATA PROVIDED BY INTERTEK-PSI, PROJECT NO. 03421687. SEE BORING SHEETS FOR DRILLING LOG INFORMATION.
4. CONTRACTOR SHALL LOCATE ALL UTILITIES AND INFORM ENGINEER IN WRITING OF ANY CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
5. "D" DENOTES CAPS WITH DOWELS D AND SLOTTED HOLES AT EXTERIOR GIRDER ENDS.
6. SAW-CUT GROOVING OF THE BRIDGE DECK AND APPROACH SLABS IS REQUIRED. BROOM FINISH IS REQUIRED FOR SIDEWALK.
7. THE H VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. CONTRACTOR IS RESPONSIBLE FOR CALCULATING THE ACTUAL COLUMN HEIGHT BASED ON FIELD CONDITIONS.
8. SEE IGEB SOLE PLATE DETAILS. SOLE PLATES SHALL BE ADDED FOR GIRDERS ON SPANS 1-3, AND 9-12.
9. SEE BRSM FOR SIDEWALK DETAILS.
10. SEE MISC. FENCE DETAILS SHEET FOR CURVED CHAIN LINK FENCE DETAILS.

FOUNDATION NOTES:

1. ALL DRILLED SHAFTS AT ABUTMENTS AND BENTS ARE DESIGNED FOR COMBINED SKIN FRICTION AND POINT BEARING.
2. FOUND DRILLED SHAFTS AT THE ELEVATION SHOWN OR DEEPER AS NECESSARY TO PENETRATE DARK GRAY SHALE FOR THE FOLLOWING MINIMUM DEPTHS:
   ABUTMENTS ~ 7.0 FT.
   BENTS 2-5 ~ 10 FT
   BENT 6 ~ 18 FT
   BENT 7 ~ 23 FT
   BENT 8 ~ 21 FT
   BENT 9 ~ 19 FT
   BENT 10 ~ 16 FT
   BENTS 11 AND 12 ~ 7 FT

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE LAYOUT
KCS RAILROAD OVERPASS

1 OF 4

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	CPM	DATE: 3/18/2022	DESIGNED:	CKH	DATE: 3/18/2022
CHECKED:	ESC	DATE: 3/18/2022	SCALE:	1" = 40'-0"	

CONTRACT No.

SHEET 158 OF 488

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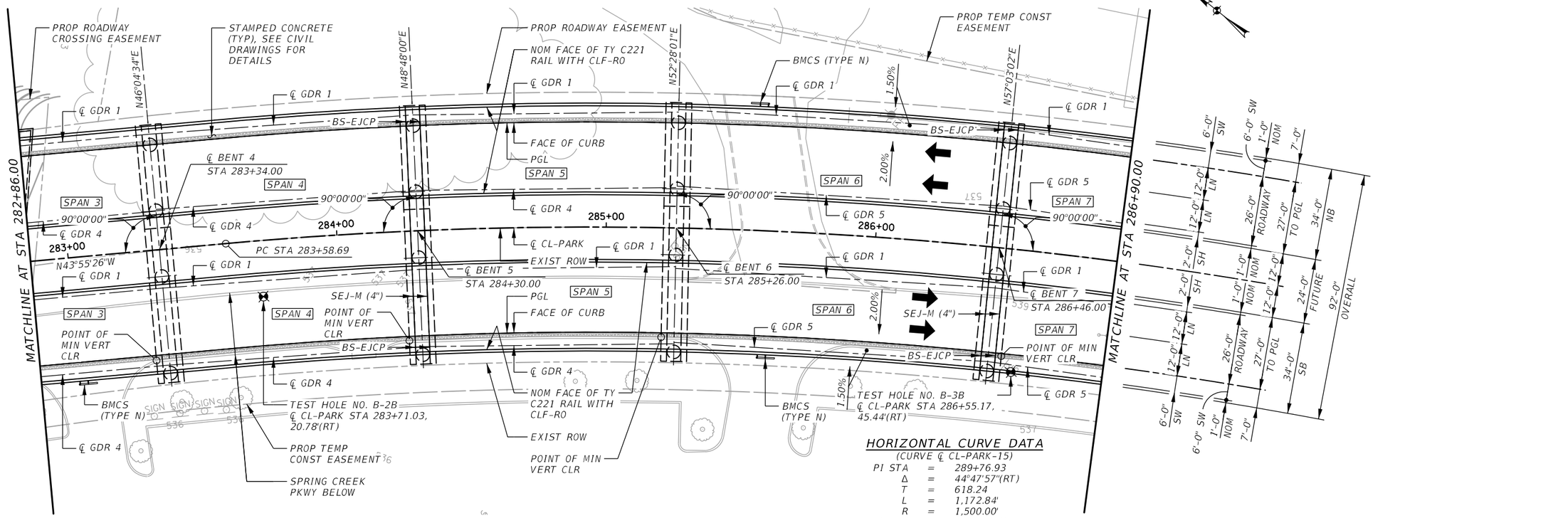


PLAN

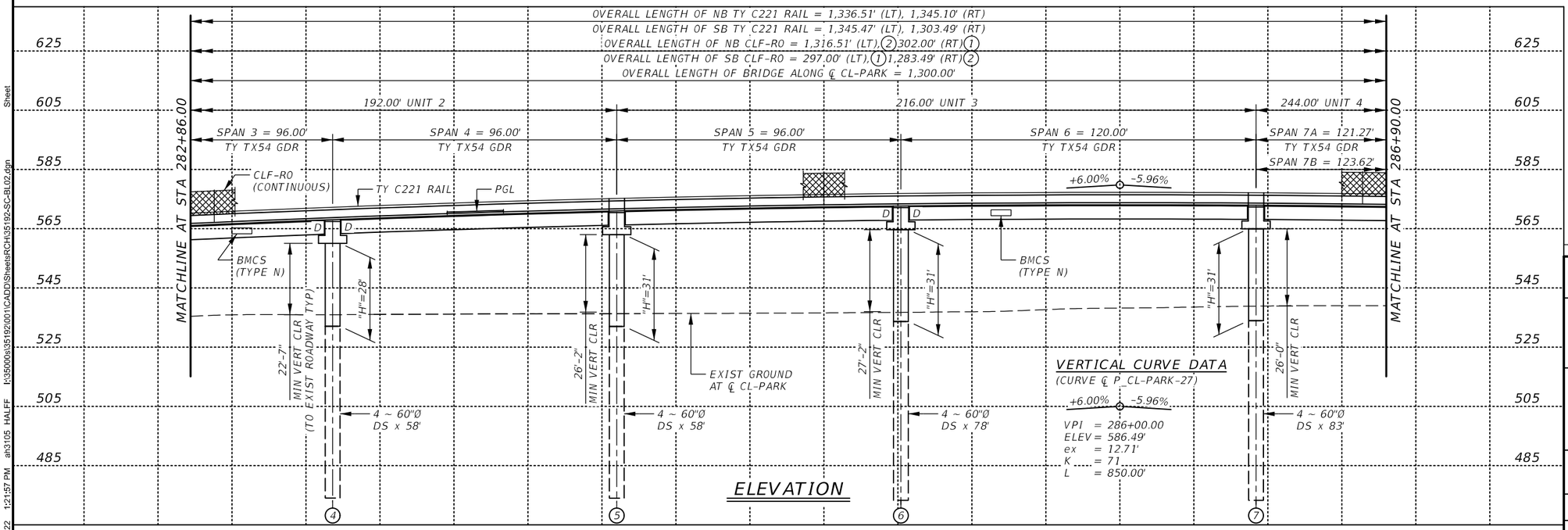
HORIZONTAL CURVE DATA

(CURVE ℄ CL-PARK-15)

PI STA	=	289+76.93
Δ	=	44°47'57"(RT)
T	=	618.24
L	=	1,172.84'
R	=	1,500.00'
PC STA	=	283+58.69
PT STA	=	295+31.53
PC BRG	=	S43°55'26"E
PT BRG	=	S00°52'31"W

(1) OVER SPANS 2 AND 8.

(2) INCLUDES CURVED CHAIN LINK FENCE OVER SPANS 2 AND 8.



ELEVATION

VERTICAL CURVE DATA

(CURVE ℄ P_CL-PARK-27)

+6.00% -5.96%

VPI = 286+00.00
ELEV = 586.49'
ex = 12.71'
K = 71
L = 850.00'

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE LAYOUT
KCS RAILROAD OVERPASS

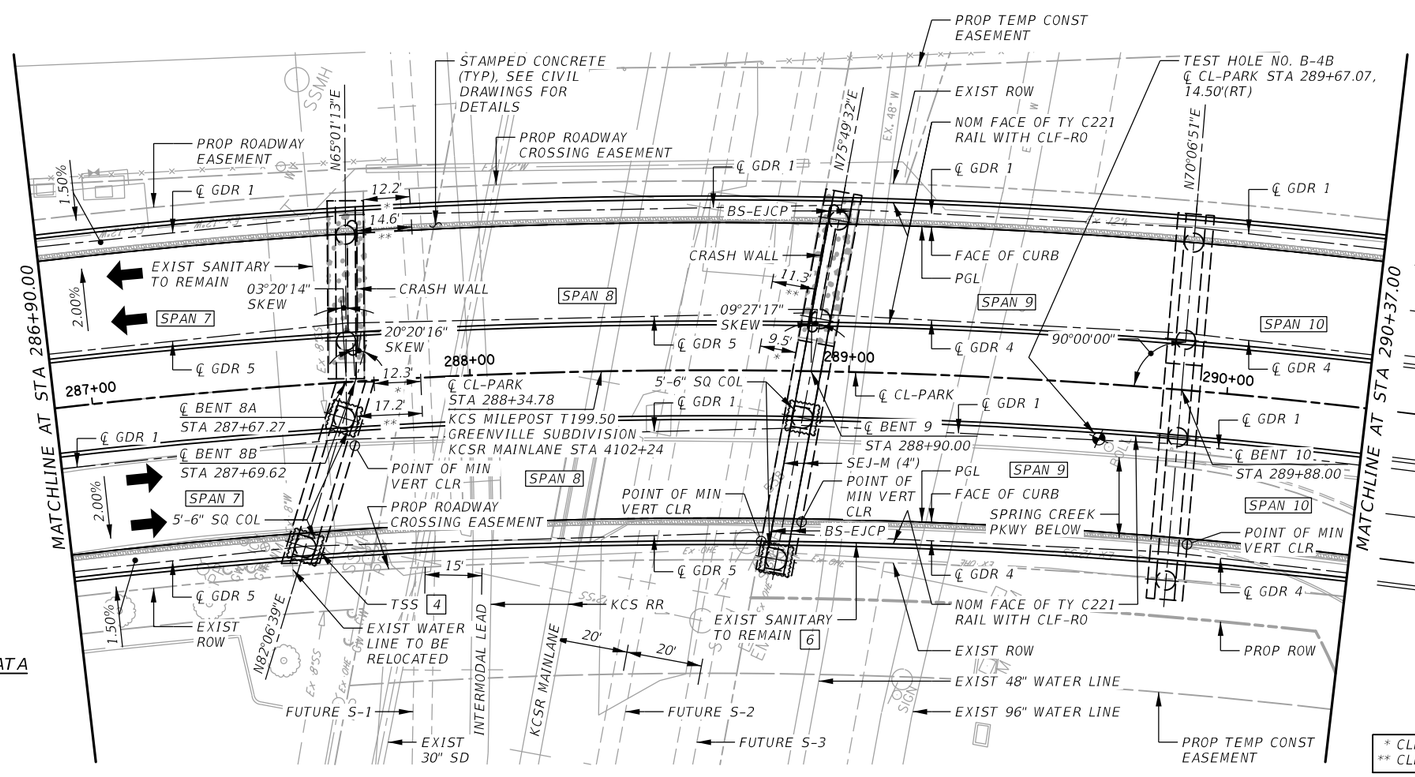
2 OF 4

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

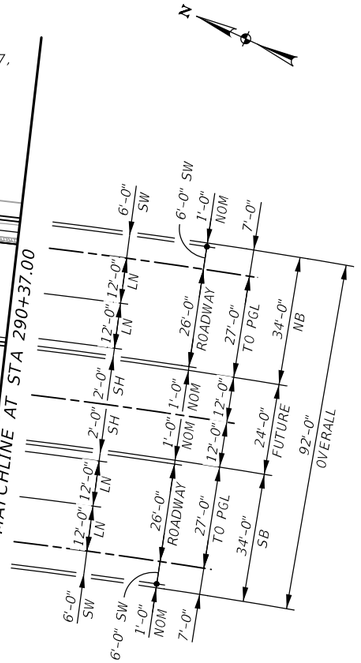
DRAWN:	CPM	DATE:	3/18/2022	DESIGNED: CKH	DATE: 3/18/2022
CHECKED:	ESC	DATE:	3/18/2022	SCALE: 1" = 40'-0"	

CONTRACT No.

SHEET 159 OF 488



PLAN



0 20 40 60
SCALE IN FEET

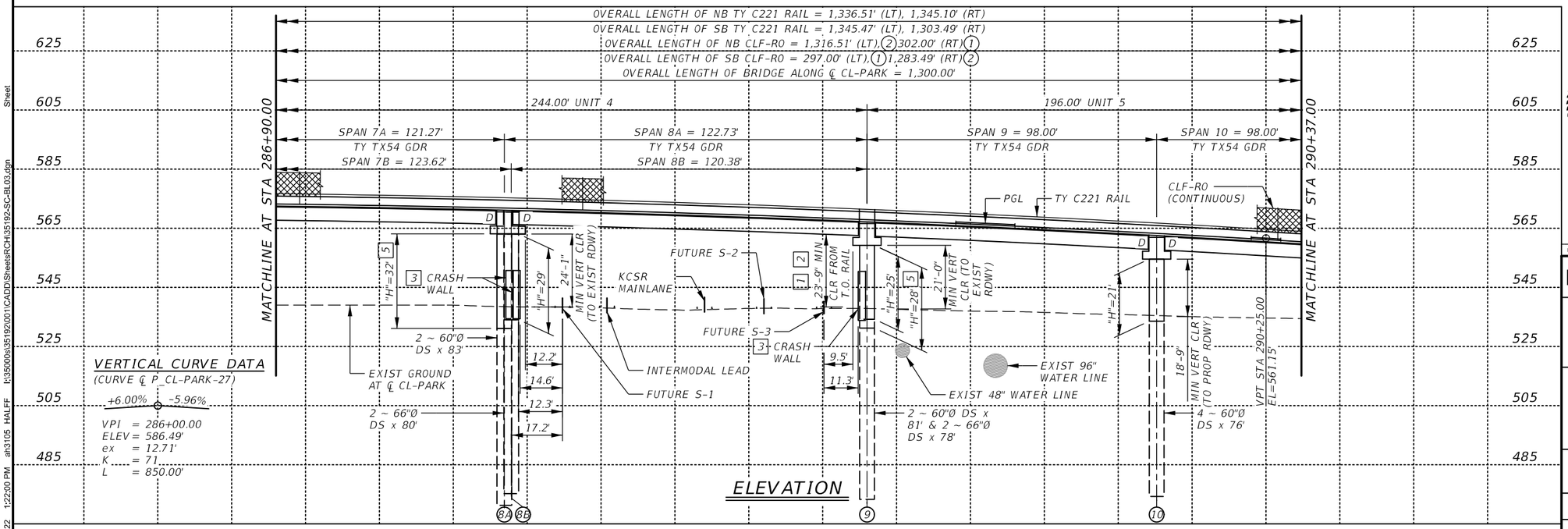
1. MINIMUM VERTICAL CLEARANCES PROVIDED ARE TAKEN AT THE POINT WHERE THE EXTERIOR BEAM IS CLOSEST TO THE ADJACENT FUTURE TRACK CLEARANCE ENVELOPE (12' PERPENDICULAR OFFSET TO RR C.L.).
2. FUTURE TRACKS ARE ASSUMED TO HAVE SAME TOP OF RAIL ELEVATIONS AS ADJACENT EXISTING TRACK ELEVATION.
3. CRASH WALLS SHALL EXTEND 12' ABOVE ADJACENT TOP OF RAIL ELEVATION.
4. SEE COLUMN DETAILS SHEET FOR TSS DETAILS. TSS IS FOR 4 ~ (5'-6" x 5'-6") SQUARE COLUMNS ONLY ON BENTS 8 AND 9.
5. SQUARE COLUMNS.
6. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONFLICTS WITH THE EXISTING SANITARY SEWER PRIOR TO BEGINNING ANY STEEL FABRICATION FOR STRUCTURAL ELEMENTS.

* CLEARANCE FROM ℄ OF TRACK TO EDGE OF BENT CAP
** CLEARANCE FROM ℄ OF TRACK TO FACE OF CRASH WALL

(1) OVER SPANS 2 AND 8.
(2) INCLUDES CURVED CHAIN LINK FENCE OVER SPANS 2 AND 8.

HORIZONTAL CURVE DATA
(CURVE ℄ CL-PARK-15)

PI STA	=	289+76.93
Δ	=	44°47'57"(RT)
T	=	618.24
L	=	1,172.84'
R	=	1,500.00'
PC STA	=	283+58.69
PT STA	=	295+31.53
PC BRG	=	S43°55'26"E
PT BRG	=	S00°52'31"W



ELEVATION

VERTICAL CURVE DATA
(CURVE ℄ P_CL-PARK-27)

+6.00% -5.96%

VPI = 286+00.00
ELEV = 586.49'
ex = 12.71'
K = 71
L = 850.00'

MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE LAYOUT
KCS RAILROAD OVERPASS

3 OF 4

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM	DATE: 3/18/2022	DESIGNED: CKH	DATE: 3/18/2022
CHECKED: ESC	DATE: 3/18/2022	SCALE: 1" = 40'-0"	

CONTRACT No.

SHEET 160 OF 488

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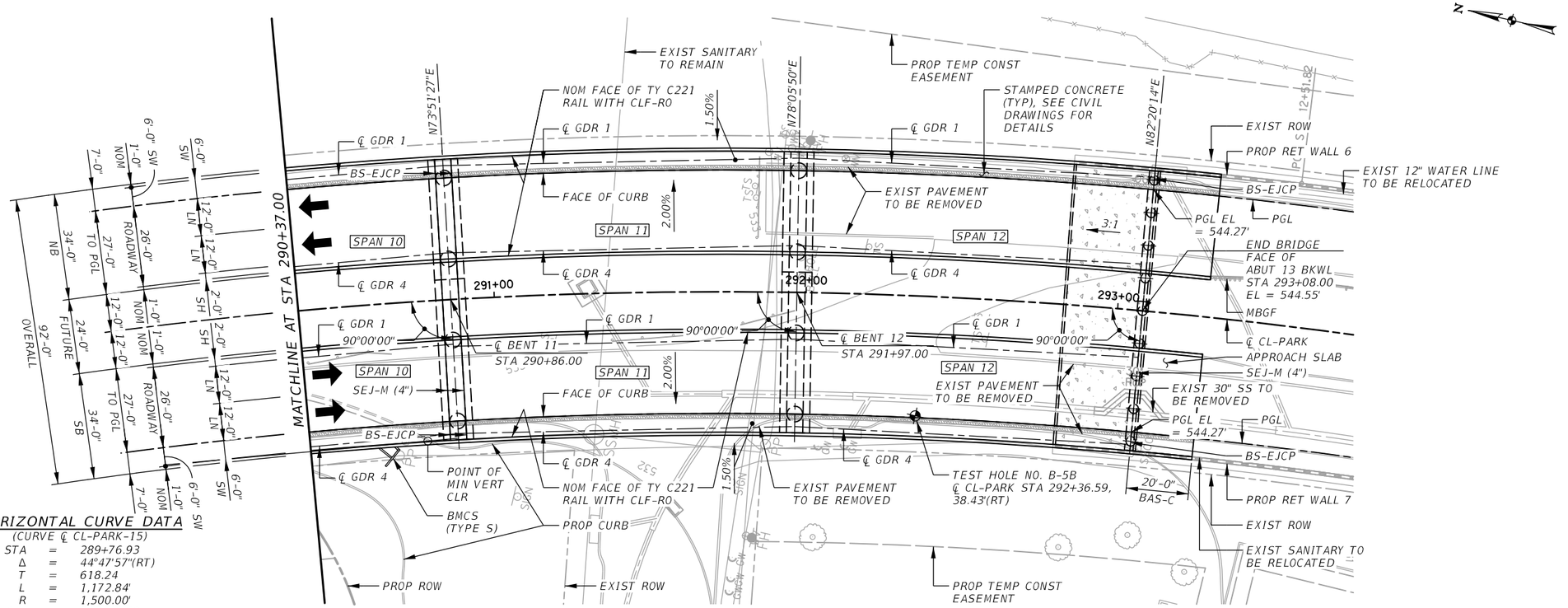


HORIZONTAL CURVE DATA

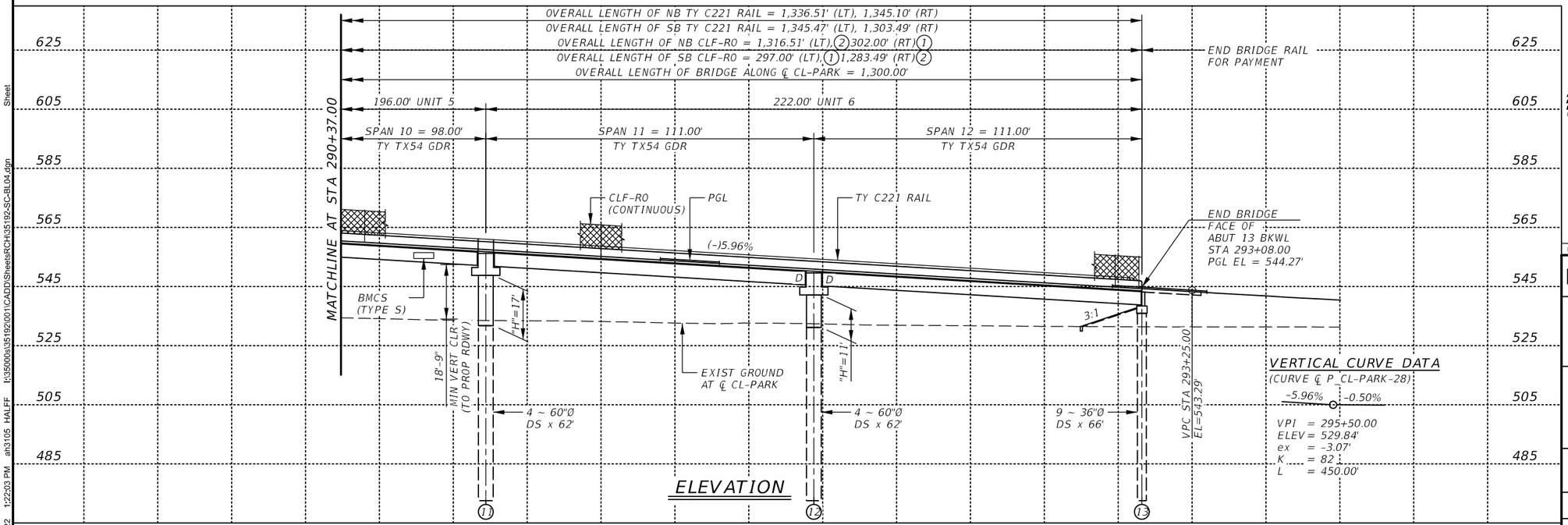
(CURVE ℄ CL-PARK-15)

PI STA	=	289+76.93
Δ	=	44°47'57"(RT)
T	=	618.24
L	=	1,172.84'
R	=	1,500.00'
PC STA	=	283+58.69
PT STA	=	295+31.53
PC BRG	=	S43°55'26"E
PT BRG	=	S00°52'31"W

PLAN

(1) OVER SPANS 2 AND 8.

(2) INCLUDES CURVED CHAIN LINK FENCE OVER SPANS 2 AND 8.



ELEVATION

VERTICAL CURVE DATA

(CURVE ℄ P_CL-PARK-28)

-5.96% -0.50%

VPI = 295+50.00
ELEV = 529.84'
ex = -3.07'
K = 82
L = 450.00'

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE LAYOUT
KCS RAILROAD OVERPASS

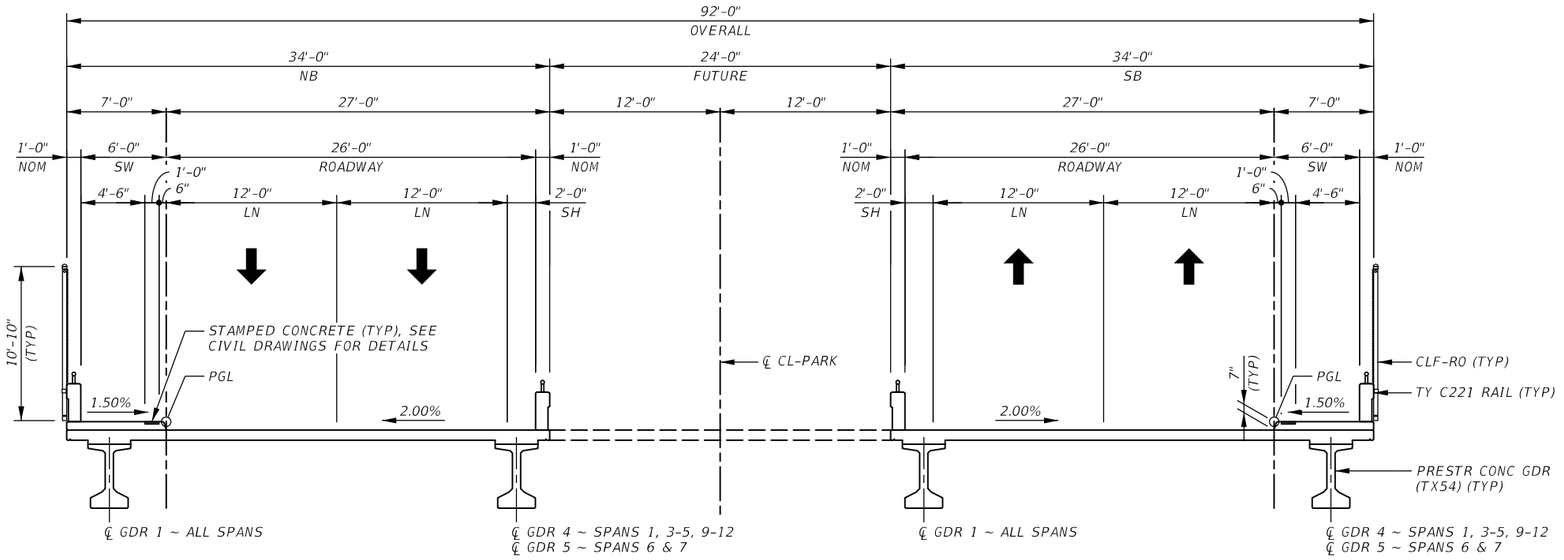
4 OF 4

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 SCALE: 1" = 40'-0"

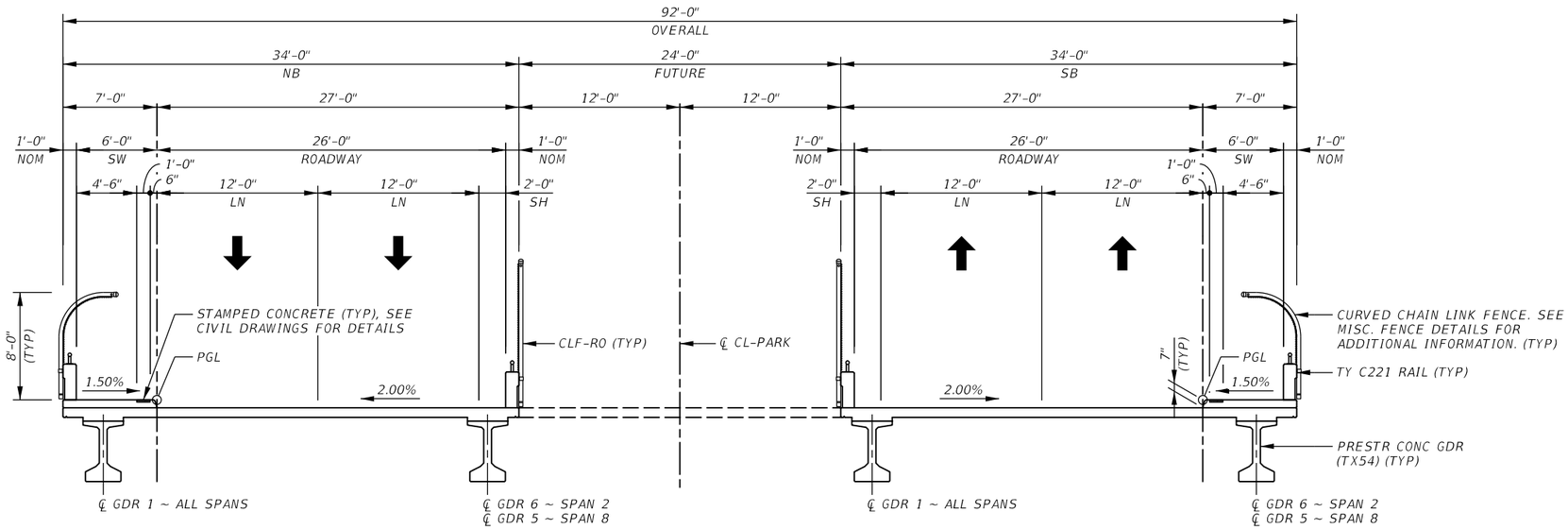
CONTRACT No.

SHEET 161 OF 488



TYPICAL SECTION

(SPANS 1, 3-7, 9-12)



TYPICAL SECTION

(SPANS 2 & 8)

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
TYPICAL SECTION
KCS RAILROAD OVERPASS

1 OF 1

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	CPM	DATE: 3/18/2022	DESIGNED:	CKH	DATE: 3/18/2022
CHECKED:	ESC	DATE: 3/18/2022	SCALE:	3/32" = 1'-0"	

CONTRACT No.

SHEET 162 OF 488

SUMMARY OF ESTIMATED QUANTITIES

BID ITEM DESCRIPTION / BRIDGE ELEMENT	403	416	416	416	416	420	420	420	420	422	422	422	425	428	442	450	450	454	514	644	644
	6001	6001	6004	6008	6009	6014	6032	6040	6050	6002	6014	6016	6039	6001	6007	6031	6119	6018	6019	6064	6065
	TEMP SPL SHORING	DRILL SHAFT (18" DIA)	DRILL SHAFT (36" DIA)	DRILL SHAFT (60" DIA)	DRILL SHAFT (66" DIA)	CL "C" CONC (HPC) (ABUT)	CL "C" CONC (HPC) (MASS PLACEMENT (CAP)	CL "C" CONC (HPC) (MASS PLACEMENT (COL)	CL "S" CONC (HPC) (CRASHWALL	REINF CONC SLAB (HPC) (CL "S")	CL "S" CONC (HPC) (1) (BRIDGE SDWLK)	CL "S" CONC (HPC) (BAS)	PRESTR CONC GIRDER (Tx54)	PENETRAT CONC SURF TREAT (2)	STR STL (MISC) (NON (BS-EJCP)	RAIL (HPC) (C221)	RAIL (3) CLF-RO	SEALED EXPANSION JOINT (4 IN) (SEJ-M)	PERM CTB (SGL SLOPE) (TY 1) (42)(HPC)	BRIDGE MOUNTED CLEARANCE SIGN (TYPE N)	BRIDGE MOUNTED CLEARANCE SIGN (TYPE S)
	SF	LF	LF	LF	LF	CY	CY	CY	CY	SF	SF	CY	LF	SY	LB	LF	LF	LF	LF	EA	EA
2 - ABUTMENTS		132	1,188			108.4															
11 - INTERIOR BENTS	1,628			2,604	316		1,984.2	893.3	389.6												
6 - PCG UNITS										84,430	18,834	140.0	11,083.98	9,294	1,950	5,330.6	3,199.0	805	3,199.0	3	1
TOTAL	1,628	132	1,188	2,604	316	108.4	1,984.2	893.3	389.6	84,430	18,834	140.0	11,083.98	9,294	1,950	5,330.6	3,199.0	805	3,199.0	3	1

(1) INCLUDED SIDEWALK ON APPROACH SLABS.

(2) INCLUDED SIDEWALKS, THE INSIDE FACES OF SIDEWALK CURBS, BRIDGE DECK AND APPROACH SLABS.

(3) INCLUDED CURVED CHAIN LINK FENCE.

BEARING SEAT ELEVATIONS (NB)

			GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4	GIRDER 5	GIRDER 6
ABUT	1	(FWD)	545.346	545.381	545.416	545.452		
BENT	2	(BK)	551.059	551.093	551.127	551.161		
		(FWD)	551.508	551.528	551.549	551.570	551.591	551.611
BENT	3	(BK)	558.501	558.537	558.573	558.609	558.644	558.679
		(FWD)	558.959	559.021	559.083	559.144		
BENT	4	(BK)	562.304	562.496	562.687	562.878		
		(FWD)	562.662	562.848	563.035	563.222		
BENT	5	(BK)	565.405	565.591	565.777	565.963		
		(FWD)	565.575	565.762	565.949	566.136		
BENT	6	(BK)	567.119	567.305	567.491	567.678		
		(FWD)	567.174	567.317	567.459	567.602	567.745	
BENT	7	(BK)	567.418	567.560	567.703	567.845	567.988	
		(FWD)	567.373	567.516	567.658	567.801	567.943	
BENT	8	(BK)	565.623	565.775	565.928	566.080	566.232	
		(FWD)	565.456	565.608	565.760	565.911	566.063	
BENT	9	(BK)	561.529	561.718	561.908	562.098	562.288	
		(FWD)	561.174	561.422	561.670	561.919		
BENT	10	(BK)	557.143	557.330	557.518	557.706		
		(FWD)	556.676	556.861	557.047	557.232		
BENT	11	(BK)	551.331	551.519	551.707	551.895		
		(FWD)	550.870	551.055	551.241	551.426		
BENT	12	(BK)	544.672	544.860	545.048	545.235		
		(FWD)	544.251	544.437	544.622	544.807		
ABUT	13	(BK)	537.899	538.086	538.273	538.460		

BEARING SEAT ELEVATIONS (SB)

			GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4	GIRDER 5	GIRDER 6
ABUT	1	(FWD)	544.991	544.649	544.307	543.966		
BENT	2	(BK)	550.690	550.342	549.993	549.645		
		(FWD)	551.135	550.923	550.712	550.501	550.289	550.078
BENT	3	(BK)	558.269	558.069	557.870	557.670	557.470	557.269
		(FWD)	558.746	558.421	558.094	557.767		
BENT	4	(BK)	562.878	562.687	562.496	562.304		
		(FWD)	563.233	563.041	562.850	562.659		
BENT	5	(BK)	565.970	565.779	565.587	565.395		
		(FWD)	566.147	565.956	565.766	565.575		
BENT	6	(BK)	567.686	567.495	567.303	567.112		
		(FWD)	567.750	567.612	567.475	567.338	567.200	
BENT	7	(BK)	567.993	567.855	567.718	567.581	567.443	
		(FWD)	567.947	567.809	567.672	567.534	567.397	
BENT	8	(BK)	566.339	566.260	566.180	566.100	566.020	
		(FWD)	566.160	566.082	566.005	565.927	565.849	
BENT	9	(BK)	562.499	562.409	562.319	562.229	562.139	
		(FWD)	562.126	562.000	561.875	561.750		
BENT	10	(BK)	557.719	557.529	557.339	557.149		
		(FWD)	557.237	557.045	556.852	556.660		
BENT	11	(BK)	551.908	551.719	551.529	551.339		
		(FWD)	551.416	551.228	551.040	550.852		
BENT	12	(BK)	545.235	545.049	544.864	544.679		
		(FWD)	544.798	544.610	544.422	544.234		
ABUT	13	(BK)	538.460	538.274	538.087	537.901		

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE ESTIMATED QUANTITIES & BEARING SEAT ELEVATION
KCS RAILROAD OVERPASS

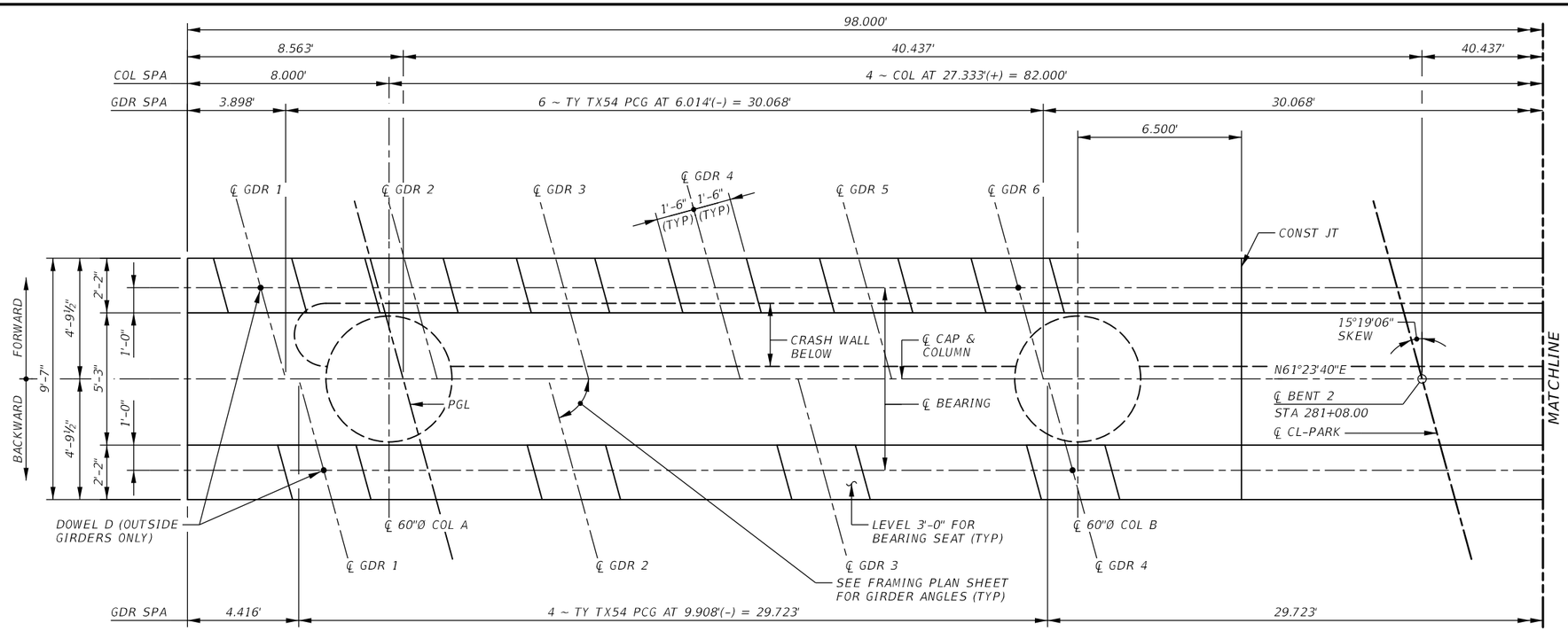
1 OF 1

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

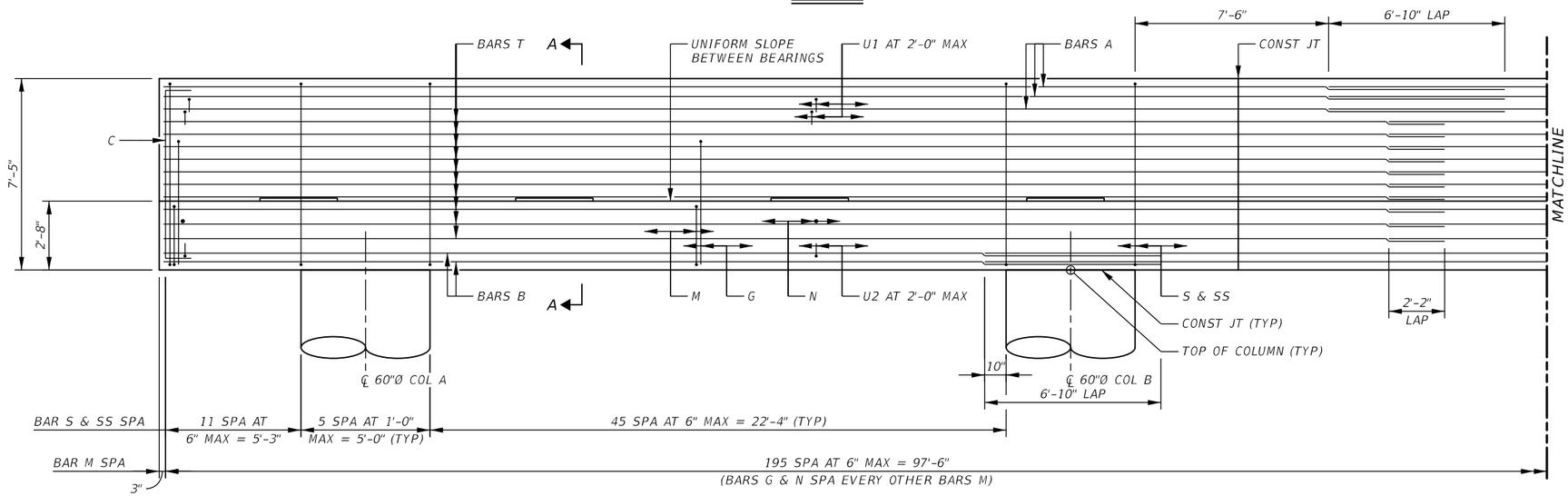
DRAWN: CPM DATE: 3/18/2022 | DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 | SCALE: NTS

CONTRACT No.

SHEET 163 OF 488



PLAN



ELEVATION

GENERAL NOTES:

1. DESIGNED PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (2017) AND INTERIM SPECIFICATIONS THERETO. DESIGNED PER AREMA MANUAL (2021) FOR CRASH WALL.
2. CONCRETE STRENGTH $f'c$ = 3,600 PSI.
3. THE PRICE BID PER FOOT OF DRILLED SHAFT SHALL INCLUDE THE REINFORCING EXTENDING FROM THE SHAFT INTO THE CAP.
4. SPIRAL STEEL SHALL HAVE ONE AND A HALF EXTRA TURN AT THE TOP, BOTTOM, AND AT SPLICES.
5. ALL CAP, COLUMN AND DRILLED SHAFT REINFORCING SHALL BE GRADE 60 STEEL.
6. THE BEARING SEATS SHALL RECEIVE A WOOD FLOAT FINISH.
7. SEE COLUMN DETAIL SHEET FOR FOUNDATION DETAILS AND NOTES.
8. SEE BENT DETAILS SHEET FOR BENT SECTION AND BAR DETAILS.
9. CALCULATED DRILLED SHAFT FOUNDATION LOAD = 670 TONS/SHAFT
10. SEE BRIDGE CRASH WALL DETAILS SHEET FOR ADDITIONAL DETAILS AND NOTES.
11. CONTRACTOR MUST USE CASING WHEN DRILLING SHAFTS ADJACENT TO RR TRACKS FOR FULL LENGTH OF SHAFT.

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
BENT 2 DETAILS
KCS RAILROAD OVERPASS

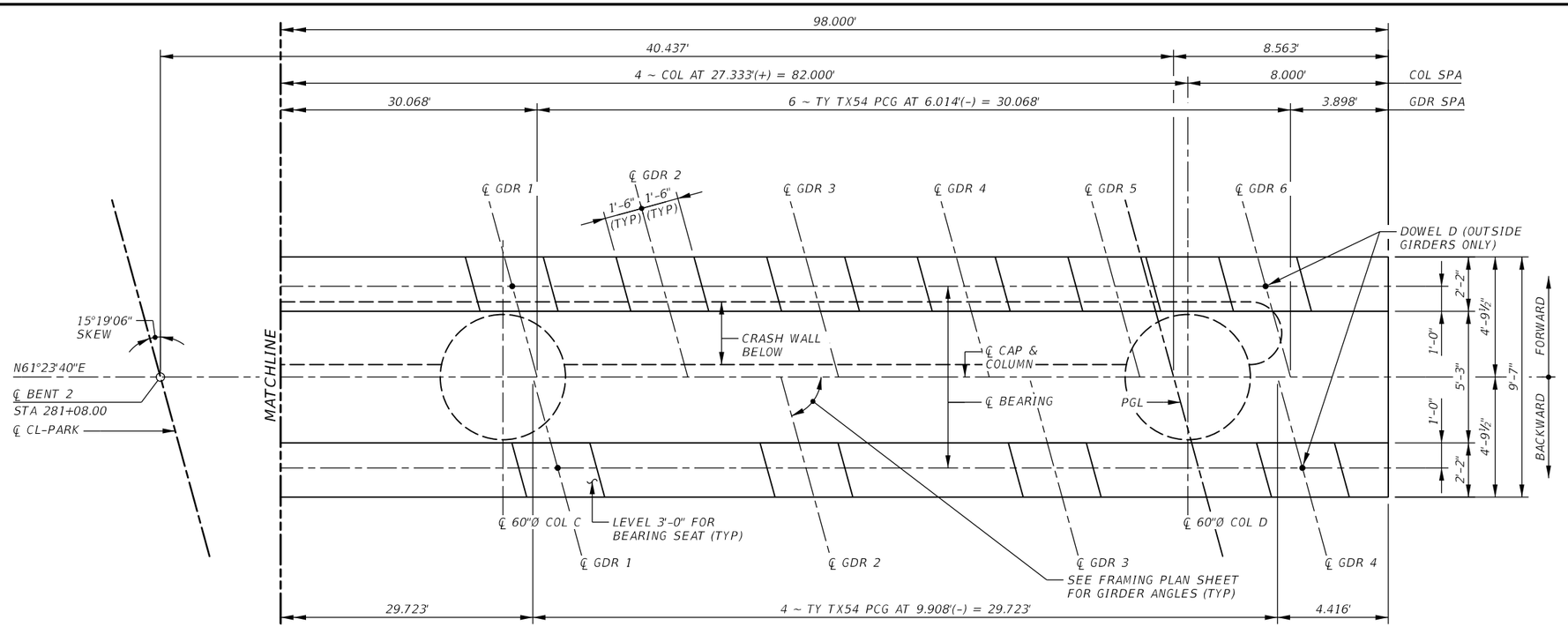
1 OF 2

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

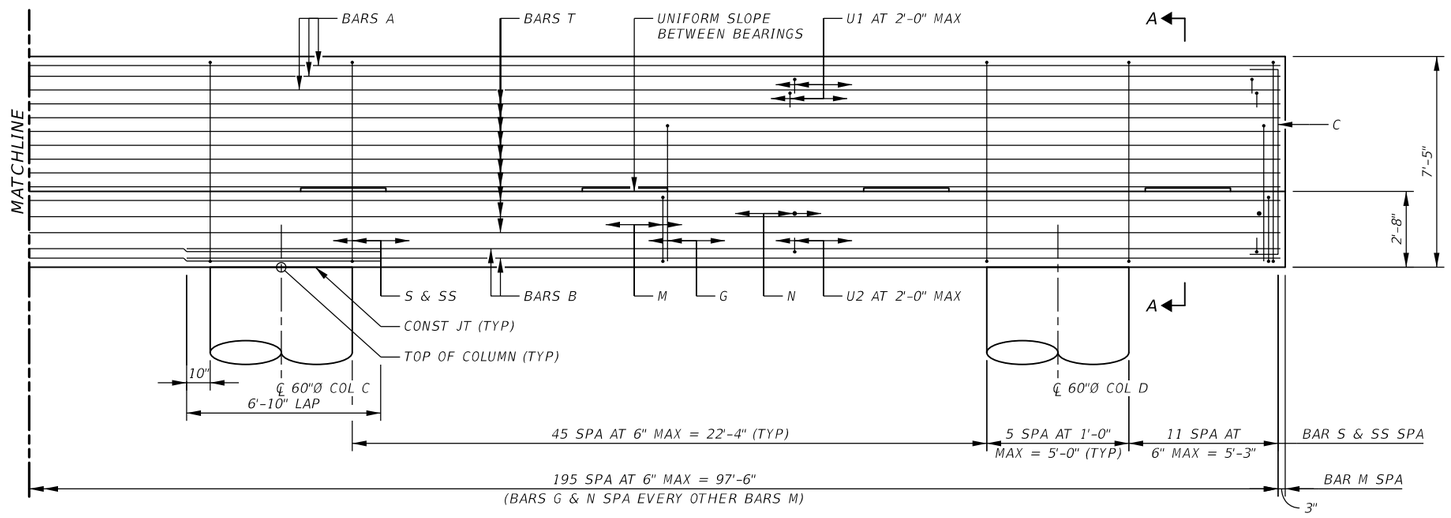
DRAWN:	CPM	DATE: 3/18/2022	DESIGNED:	CKH	DATE: 3/18/2022
CHECKED:	ESC	DATE: 3/18/2022	SCALE:	3/16" = 1'-0"	

CONTRACT No.

SHEET 170 OF 488



PLAN



ELEVATION

BAR SCHEDULE ~ ONE CAP

	BAR	TYPE	NO.	SIZE	LENGTH	WEIGHT
(2)	A	St	26	#11	104'-6"	14,436
(3)	B	St	30	#11	111'-4"	17,746
	C	Bt	4	#5	8'-6"	36
	D	St	8	#9	1'-8"	46
	G	Bt	99	#5	12'-10"	1,326
	M	Bt	196	#6	24'-10"	7,311
	N	Bt	99	#6	9'-3"	1,376
	S	Bt	178	#6	25'-8"	6,863
	SS	Bt	178	#6	21'-7"	5,771
(4)	T	St	24	#5	99'-10"	2,500
	U1	Bt	98	#4	5'-10"	382
	U2	Bt	49	#4	10'-2"	333
(1)	TOTAL REINFORCING STEEL				LB	58,126
	CL C CONC (HPC) (CAP)				CY	183.3

(1) FOR CONTRACTOR'S INFORMATION ONLY.

(2) INCLUDES 1 ~ 6'-10" LAP.

(3) INCLUDES 2 ~ 6'-10" LAP.

(4) INCLUDES 1 ~ 2'-2" LAP.

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
	DRILL SHAFT (60 IN)	FT	184
	CL C CONC (HPC) (CAP)	CY	183.3
(1)	REINF STEEL	LB	58126

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
BENT 2 DETAILS
KCS RAILROAD OVERPASS

2 OF 2

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM	DATE: 3/18/2022	DESIGNED: CKH	DATE: 3/18/2022
CHECKED: ESC	DATE: 3/18/2022	SCALE: 3/16" = 1'-0"	

CONTRACT No.

SHEET 171 OF 488

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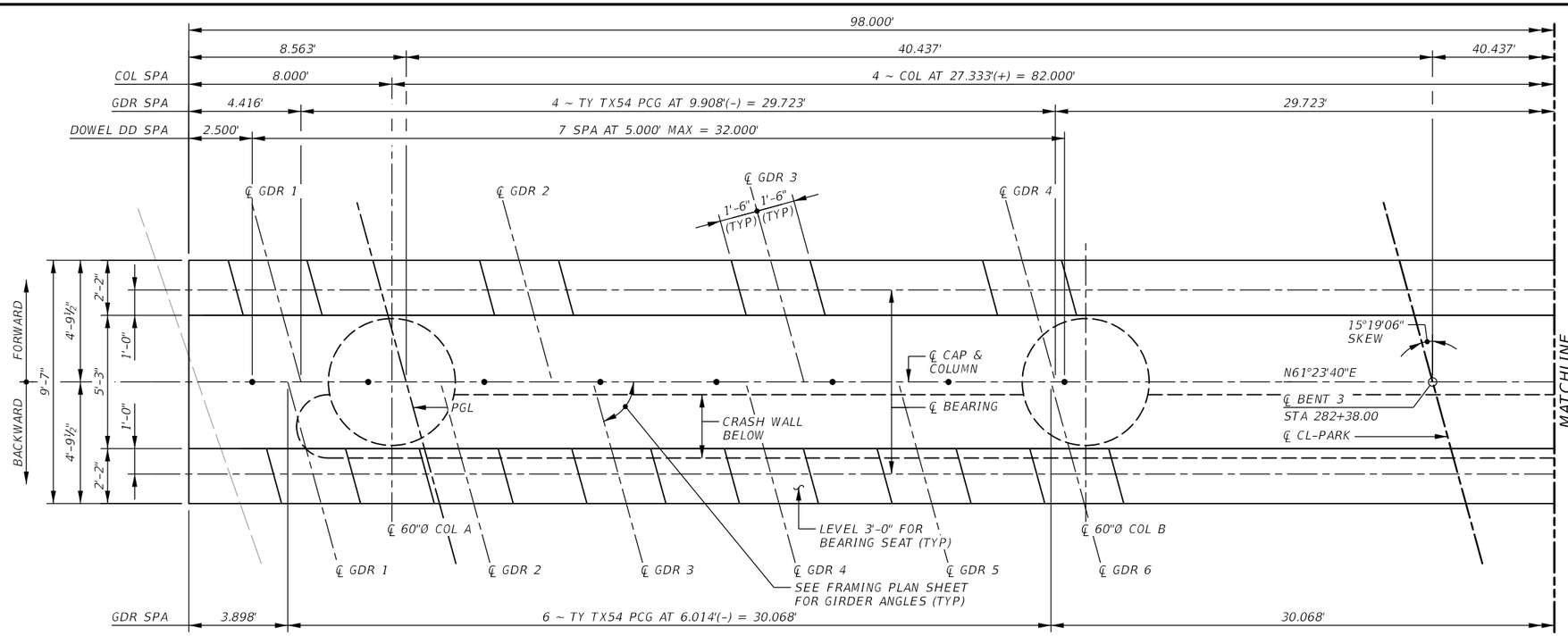
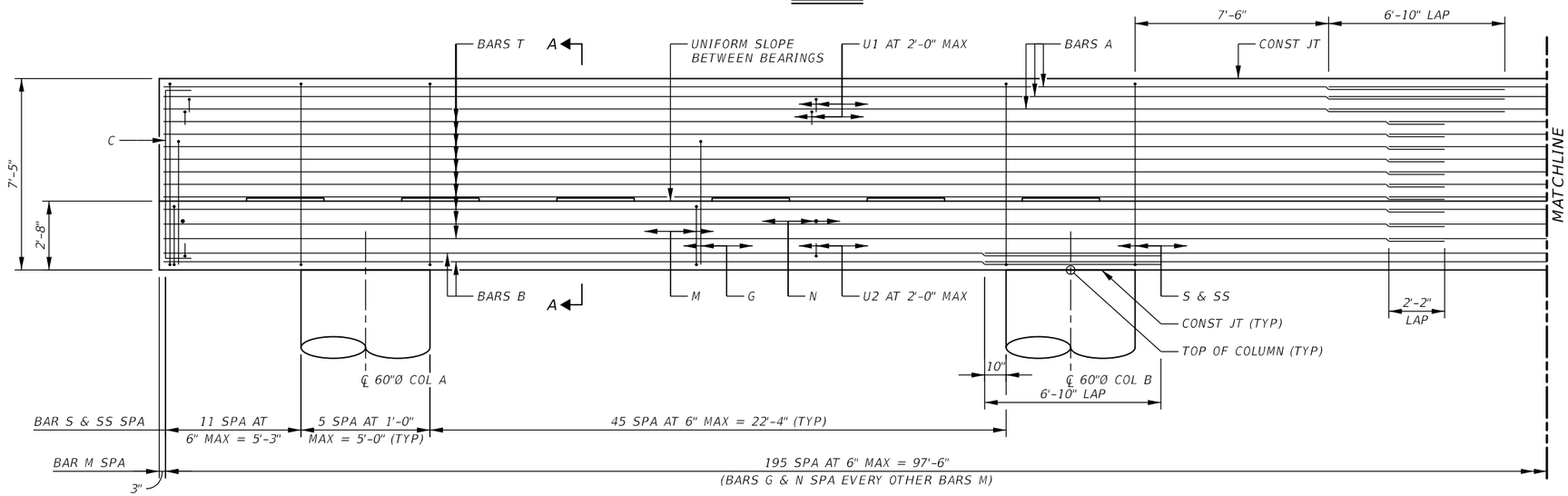


PLAN



ELEVATION

GENERAL NOTES:

1. DESIGNED PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (2017) AND INTERIM SPECIFICATIONS THERETO. DESIGNED PER AREMA MANUAL (2021) FOR CRASH WALL.
2. CONCRETE STRENGTH f'_c = 3,600 PSI.
3. THE PRICE BID PER FOOT OF DRILLED SHAFT SHALL INCLUDE THE REINFORCING EXTENDING FROM THE SHAFT INTO THE CAP.
4. SPIRAL STEEL SHALL HAVE ONE AND A HALF EXTRA TURN AT THE TOP, BOTTOM, AND AT SPLICES.
5. ALL CAP, COLUMN AND DRILLED SHAFT REINFORCING SHALL BE GRADE 60 STEEL.
6. THE BEARING SEATS SHALL RECEIVE A WOOD FLOAT FINISH.
7. SEE COLUMN DETAIL SHEET FOR FOUNDATION DETAILS AND NOTES.
8. SEE BENT DETAILS SHEET FOR BENT SECTION AND BAR DETAILS.
9. CALCULATED DRILLED SHAFT FOUNDATION LOAD = 670 TONS/SHAFT
10. SEE BRIDGE CRASH WALL DETAILS SHEET FOR ADDITIONAL DETAILS AND NOTES.
11. CONTRACTOR MUST USE CASING WHEN DRILLING SHAFTS ADJACENT TO RR TRACKS FOR FULL LENGTH OF SHAFT.

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
BENT 3 DETAILS
KCS RAILROAD OVERPASS

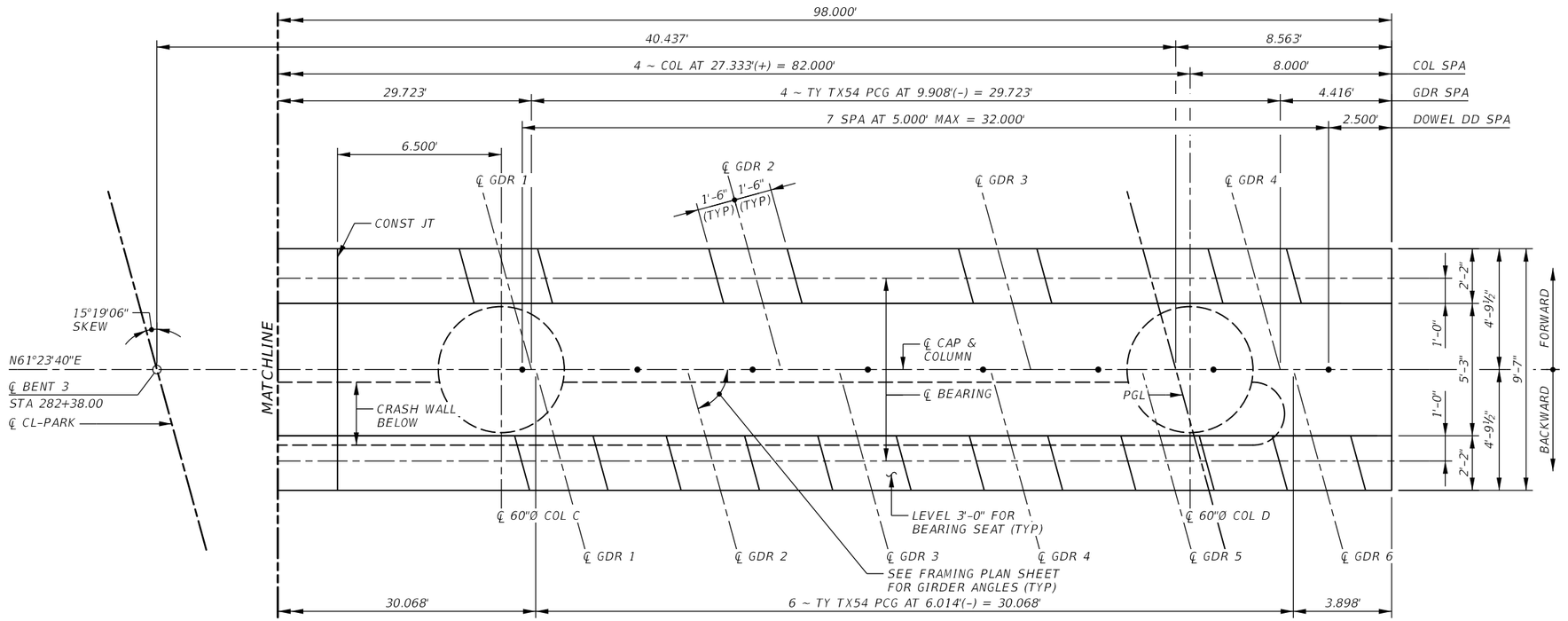
1 OF 2

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	CPM	DATE: 3/18/2022	DESIGNED:	CKH	DATE: 3/18/2022
CHECKED:	ESC	DATE: 3/18/2022	SCALE:	3/16" = 1'-0"	

CONTRACT No.

SHEET 172 OF 488



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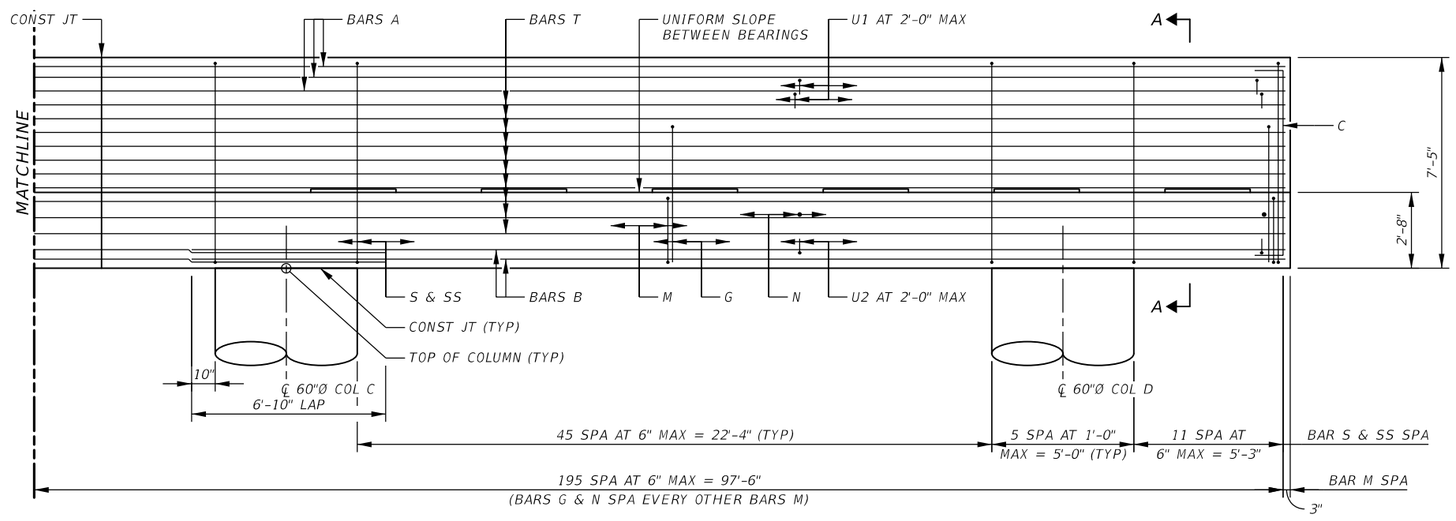

ELEVATION

BAR SCHEDULE ~ ONE CAP

	BAR	TYPE	NO.	SIZE	LENGTH	WEIGHT
(2)	A	St	26	#11	104'-6"	14,436
(3)	B	St	30	#11	111'-4"	17,746
	C	Bt	4	#5	8'-6"	36
	DD	St	16	#11	1'-6"	128
	G	Bt	99	#5	12'-10"	1,326
	M	Bt	196	#6	24'-10"	7,311
	N	Bt	99	#6	9'-3"	1,376
	S	Bt	178	#6	25'-8"	6,863
	SS	Bt	178	#6	21'-7"	5,771
(4)	T	St	24	#5	99'-10"	2,500
	U1	Bt	98	#4	5'-10"	382
	U2	Bt	49	#4	10'-2"	333
(1)	TOTAL REINFORCING STEEL				LB	58,208
	CL C CONC (HPC) (CAP)				CY	183.3

(1) FOR CONTRACTOR'S INFORMATION ONLY.

(2) INCLUDES 1 ~ 6'-10" LAP.

(3) INCLUDES 2 ~ 6'-10" LAP.

(4) INCLUDES 1 ~ 2'-2" LAP.

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
	DRILL SHAFT (60 IN)	FT	184
	CL C CONC (HPC) (CAP)	CY	183.3
(1)	REINF STEEL	LB	58208

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
BENT 3 DETAILS
KCS RAILROAD OVERPASS

2 OF 2

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 | DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 | SCALE: 3/16" = 1'-0"

CONTRACT No.

SHEET 173 OF 488

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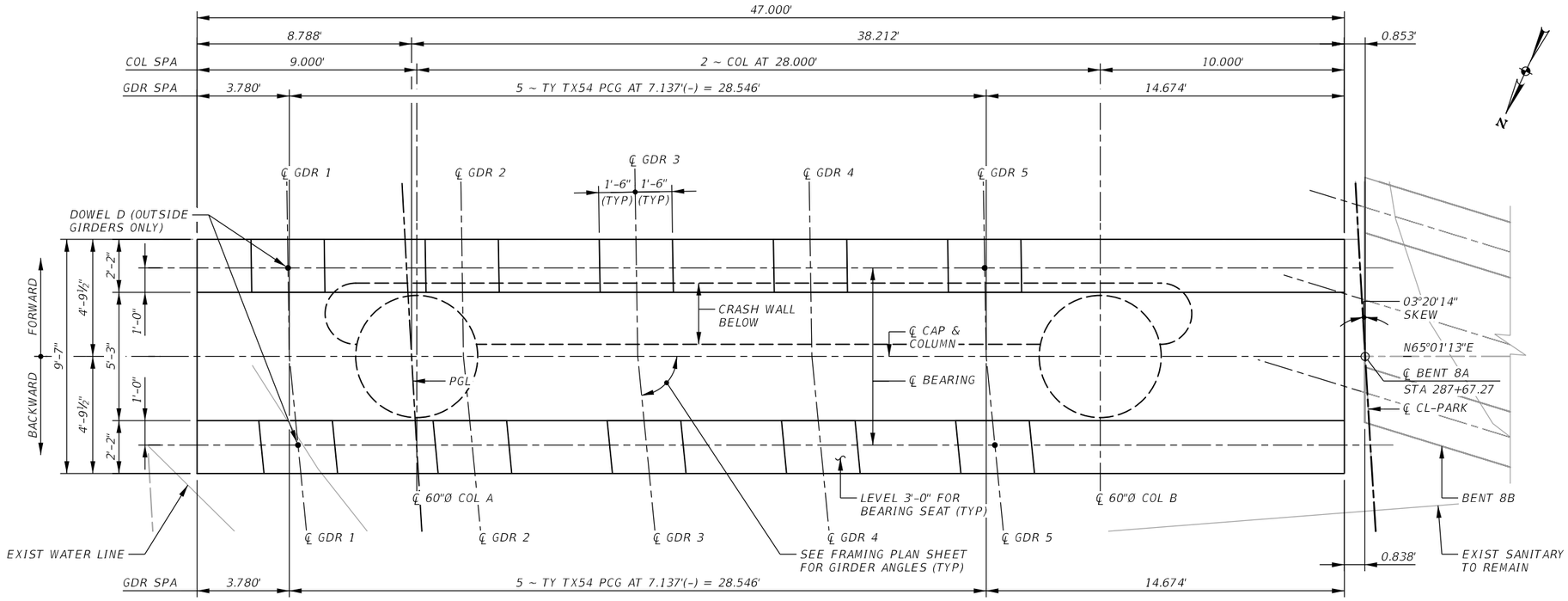
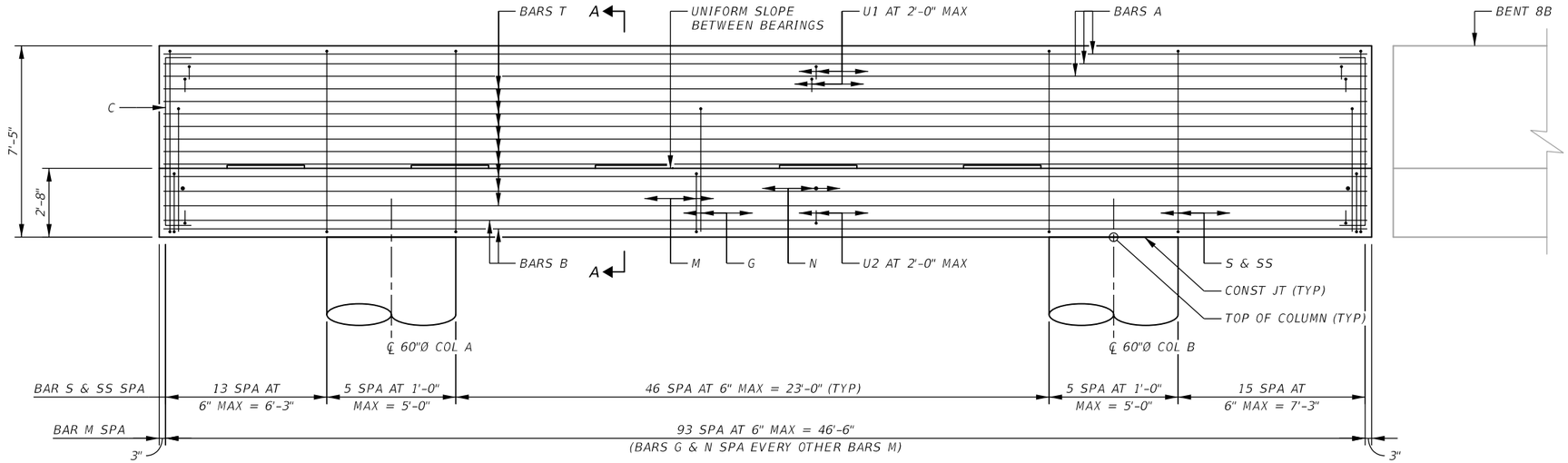


PLAN



ELEVATION

GENERAL NOTES:

1. DESIGNED PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (2017) AND INTERIM SPECIFICATIONS THERETO. DESIGNED PER AREMA MANUAL (2021) FOR CRASH WALL.
2. CONCRETE STRENGTH f'c = 3,600 PSI.
3. THE PRICE BID PER FOOT OF DRILLED SHAFT SHALL INCLUDE THE REINFORCING EXTENDING FROM THE SHAFT INTO THE CAP.
4. SPIRAL STEEL SHALL HAVE ONE AND A HALF EXTRA TURN AT THE TOP, BOTTOM, AND AT SPLICES.
5. ALL CAP, COLUMN AND DRILLED SHAFT REINFORCING SHALL BE GRADE 60 STEEL.
6. THE BEARING SEATS SHALL RECEIVE A WOOD FLOAT FINISH.
7. SEE COLUMN DETAIL SHEET FOR FOUNDATION DETAILS AND NOTES.
8. SEE BENT DETAILS SHEET FOR BENT SECTION AND BAR DETAILS.
9. CALCULATED DRILLED SHAFT FOUNDATION LOAD = 800 TONS/SHAFT
10. SEE BRIDGE CRASH WALL DETAILS SHEET FOR ADDITIONAL DETAILS AND NOTES.
11. CONTRACTOR MUST USE CASING WHEN DRILLING SHAFTS ADJACENT TO RR TRACKS FOR FULL LENGTH OF SHAFT.

BAR SCHEDULE ~ ONE CAP

BAR	TYPE	NO.	SIZE	LENGTH	WEIGHT
A	St	26	#11	46'-8"	6,447
B	St	30	#11	46'-8"	7,439
C	Bt	4	#5	8'-6"	36
D	St	4	#9	1'-8"	23
G	Bt	48	#5	12'-10"	643
M	Bt	94	#6	24'-10"	3,507
N	Bt	48	#6	9'-3"	667
S	Bt	85	#6	25'-8"	3,277
SS	Bt	85	#6	21'-7"	2,756
T	St	24	#5	46'-8"	1,169
U1	Bt	48	#4	5'-10"	188
U2	Bt	24	#4	10'-2"	163
(1) TOTAL REINFORCING STEEL				LB	26,315
CL C CONC (HPC) (CAP)				CY	87.9

(1) FOR CONTRACTOR'S INFORMATION ONLY.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
DRILL SHAFT (60 IN)	FT	166
CL C CONC (HPC) (CAP)	CY	87.9
(1) REINF STEEL	LB	26315

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
BENT 8A DETAILS
KCS RAILROAD OVERPASS

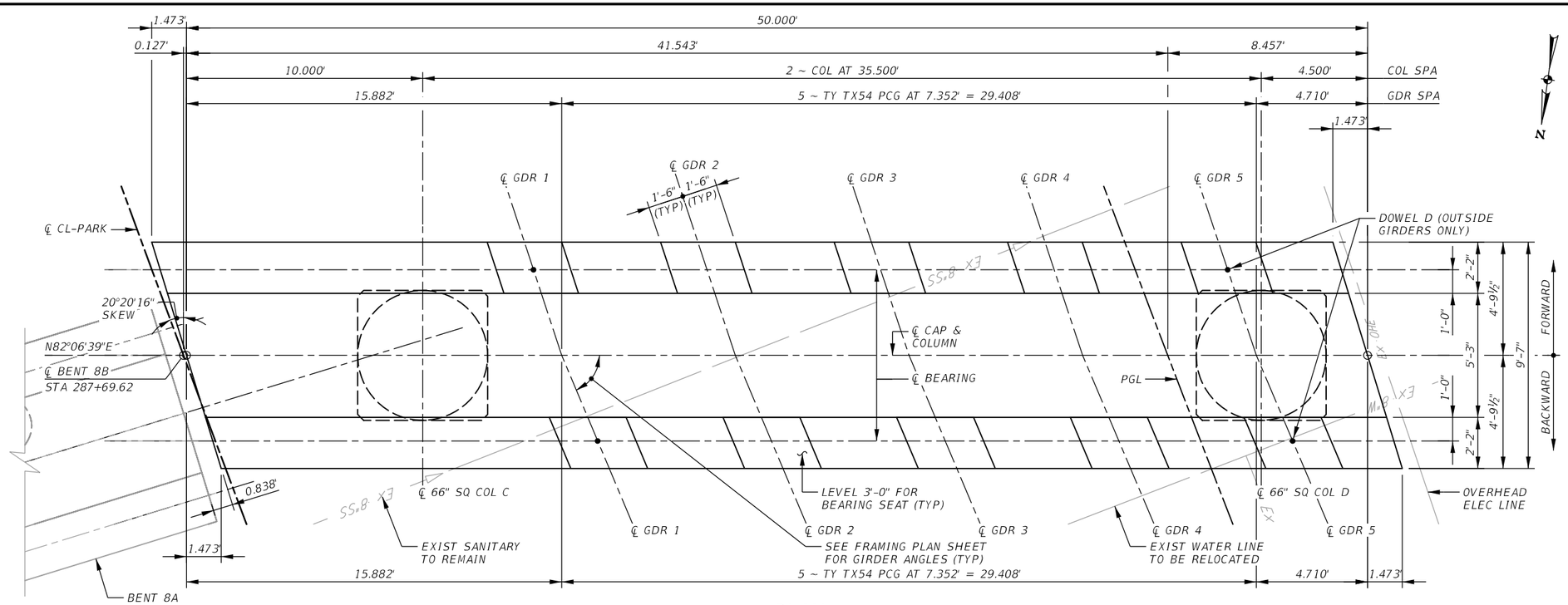
1 OF 1

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 | DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 | SCALE: 3/16" = 1'-0"

CONTRACT No.

SHEET 182 OF 488



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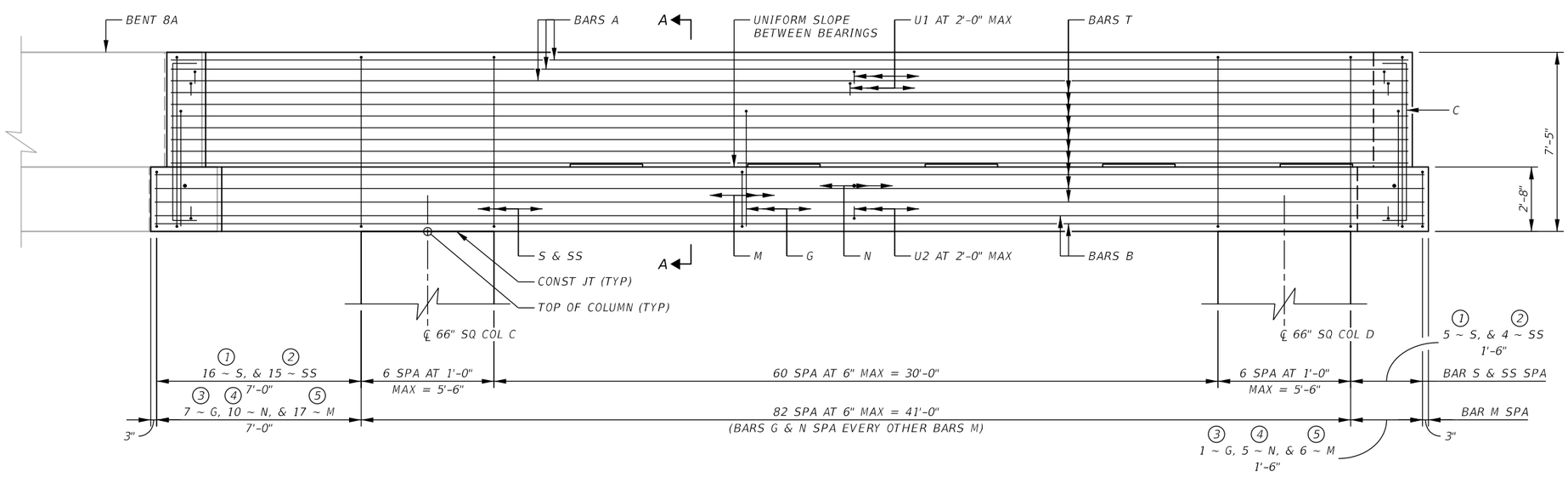

ELEVATION

(1) INCLUDES S1-3
(2) INCLUDES SS1-2
(3) INCLUDES G1
(4) INCLUDES N1-4
(5) INCLUDES M1-5

GENERAL NOTES:

1. DESIGNED PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (2017) AND INTERIM SPECIFICATIONS THERETO. DESIGNED PER AREMA MANUAL (2021) FOR CRASH WALL.
2. CONCRETE STRENGTH $f'c$ = 3,600 PSI.
3. THE PRICE BID PER FOOT OF DRILLED SHAFT SHALL INCLUDE THE REINFORCING EXTENDING FROM THE SHAFT INTO THE CAP.
4. SPIRAL STEEL SHALL HAVE ONE AND A HALF EXTRA TURN AT THE TOP, BOTTOM, AND AT SPLICES.
5. ALL CAP, COLUMN AND DRILLED SHAFT REINFORCING SHALL BE GRADE 60 STEEL.
6. THE BEARING SEATS SHALL RECEIVE A WOOD FLOAT FINISH.
7. SEE COLUMN DETAIL SHEET FOR FOUNDATION DETAILS AND NOTES.
8. SEE SHEET 2 OF 2 FOR CORNER DETAILS.
9. SEE BENT DETAILS SHEET FOR BENT SECTION AND BAR DETAILS.
10. CALCULATED DRILLED SHAFT FOUNDATION LOAD = 800 TONS/SHAFT
11. CONTRACTOR MUST USE CASING WHEN DRILLING SHAFTS ADJACENT TO RR TRACKS FOR FULL LENGTH OF SHAFT.

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
BENT 8B DETAILS
KCS RAILROAD OVERPASS

1 OF 2

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM	DATE: 3/18/2022	DESIGNED: CKH	DATE: 3/18/2022
CHECKED: ESC	DATE: 3/18/2022	SCALE: 3/16" = 1'-0"	

CONTRACT No.

SHEET 183 OF 488

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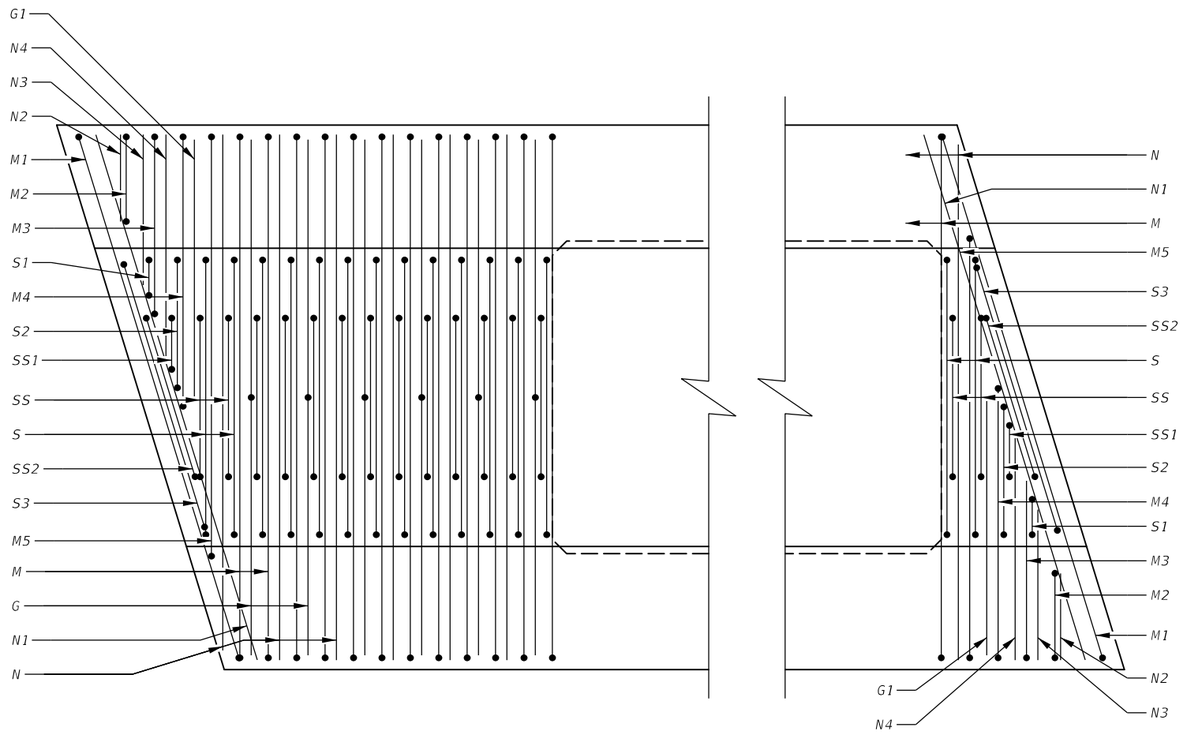


BAR SCHEDULE ~ ONE CAP

BAR	TYPE	NO.	SIZE	LENGTH	WEIGHT
A	St	26	#11	49'-8"	6,861
B	St	30	#11	49'-8"	7,917
C	Bt	4	#5	8'-6"	36
D	St	4	#9	1'-8"	23
G	Bt	48	#5	12'-10"	643
G1	St	2	#5	6'-5"	14
M	Bt	96	#6	24'-10"	3,581
M1-5avg	Bt	10	#6	18'-1"	272
N	Bt	49	#6	9'-3"	681
N1-4	Bt	8	#6	4'-11"	60
S	Bt	86	#6	25'-8"	3,316
S1-3avg	Bt	6	#6	22'-6"	203
SS	Bt	86	#6	21'-7"	2,788
SS1-2avg	Bt	4	#6	20'-9"	125
T	St	24	#5	49'-8"	1,244
U1	Bt	50	#4	5'-10"	195
U2	Bt	25	#4	10'-2"	170
(1) TOTAL REINFORCING STEEL				LB	28,129
CL C CONC (HPC) (CAP)				CY	93.5

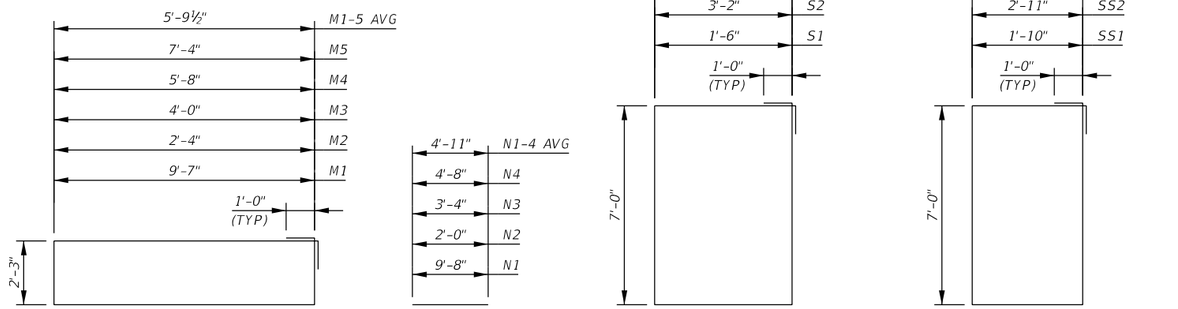
(1) FOR CONTRACTOR'S INFORMATION ONLY.

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
	DRILL SHAFT (66 IN)	FT	160
	CL C CONC (HPC) (CAP)	CY	93.5
(1)	REINF STEEL	LB	28129

CAP END DETAIL

SCALE: ⅜" = 1'-0"



BARS M1-5 | BARS N1-4 | BARS S1-3 | BARS SS1-2

STATE OF TEXAS
CHONG KUK HONG
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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
BENT 8B DETAILS
KCS RAILROAD OVERPASS

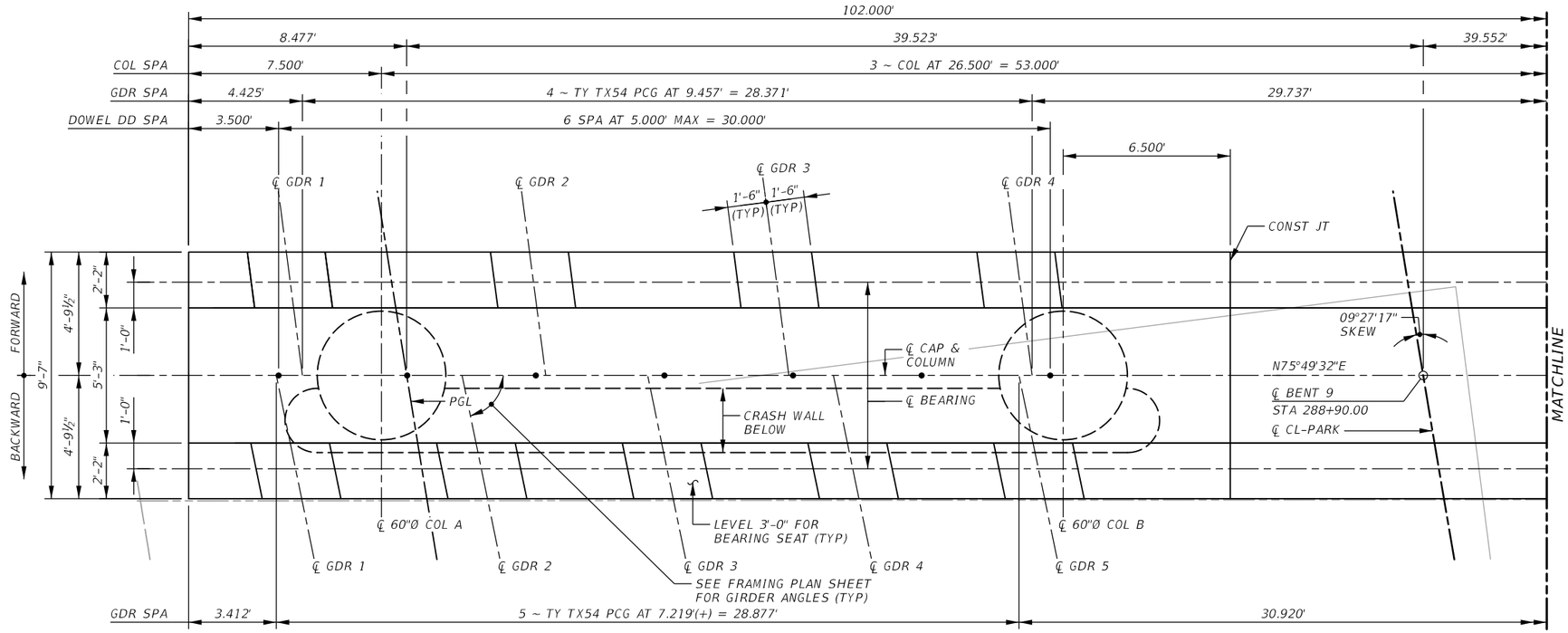
2 OF 2

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

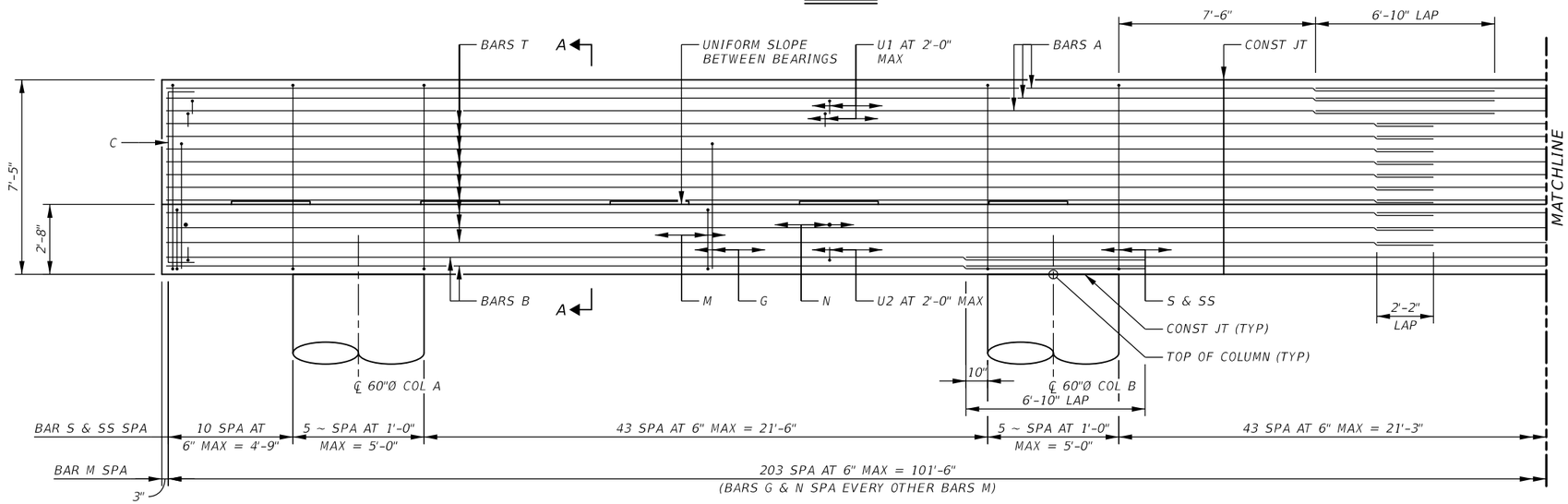
DRAWN: CPM DATE: 3/18/2022 | DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 | SCALE: 3/8" = 1'-0"

CONTRACT No.

SHEET 184 OF 488



PLAN



ELEVATION

N

GENERAL NOTES:

1. DESIGNED PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (2017) AND INTERIM SPECIFICATIONS THERETO. DESIGNED PER AREMA MANUAL (2021) FOR CRASH WALL.
2. CONCRETE STRENGTH f'_c = 3,600 PSI.
3. THE PRICE BID PER FOOT OF DRILLED SHAFT SHALL INCLUDE THE REINFORCING EXTENDING FROM THE SHAFT INTO THE CAP.
4. SPIRAL STEEL SHALL HAVE ONE AND A HALF EXTRA TURN AT THE TOP, BOTTOM, AND AT SPLICES.
5. ALL CAP, COLUMN AND DRILLED SHAFT REINFORCING SHALL BE GRADE 60 STEEL.
6. THE BEARING SEATS SHALL RECEIVE A WOOD FLOAT FINISH.
7. SEE COLUMN DETAIL SHEET FOR FOUNDATION DETAILS AND NOTES.
8. SEE BENT DETAILS SHEET FOR BENT SECTION AND BAR DETAILS.
9. CALCULATED DRILLED SHAFT FOUNDATION LOAD = 770 TONS/SHAFT
10. SEE BRIDGE CRASH WALL DETAILS SHEET FOR ADDITIONAL DETAILS AND NOTES.
11. CONTRACTOR MUST USE CASING WHEN DRILLING SHAFTS ADJACENT TO RR TRACKS FOR FULL LENGTH OF SHAFT.

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
BENT 9 DETAILS
KCS RAILROAD OVERPASS

1 OF 2

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	CPM	DATE: 3/18/2022	DESIGNED:	CKH	DATE: 3/18/2022
CHECKED:	ESC	DATE: 3/18/2022	SCALE:	3/16" = 1'-0"	

CONTRACT No.

SHEET 185 OF 488

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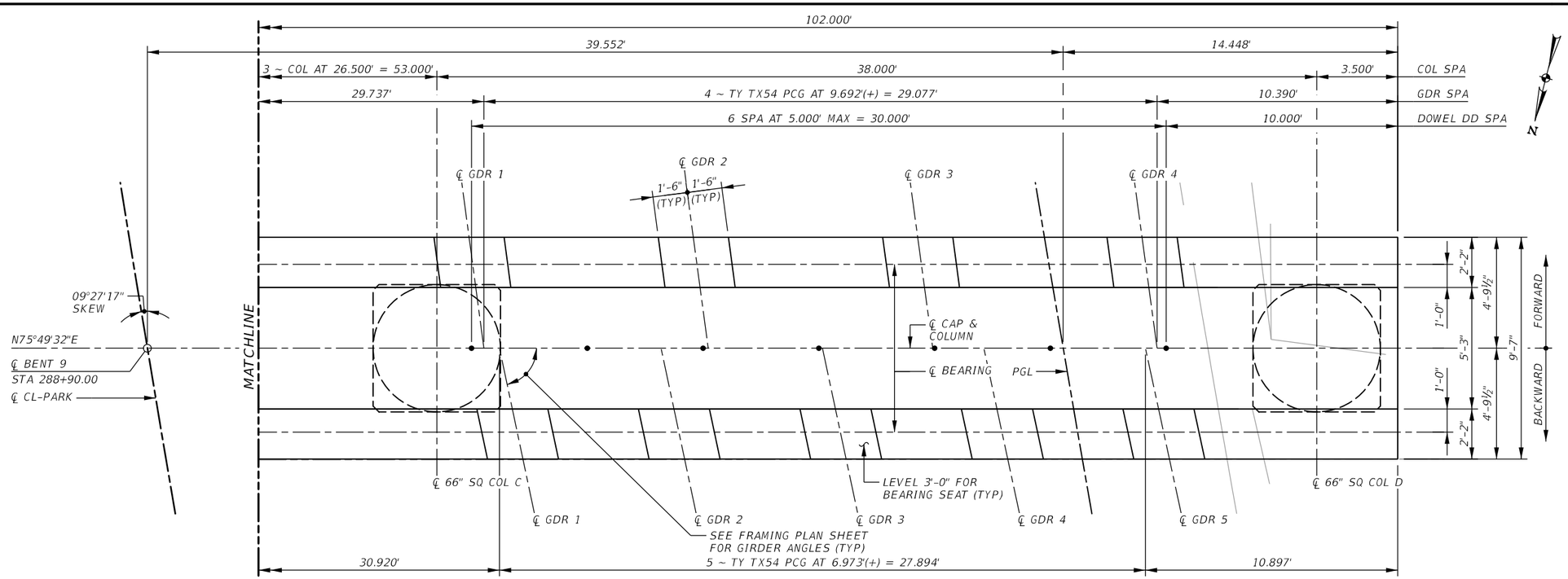

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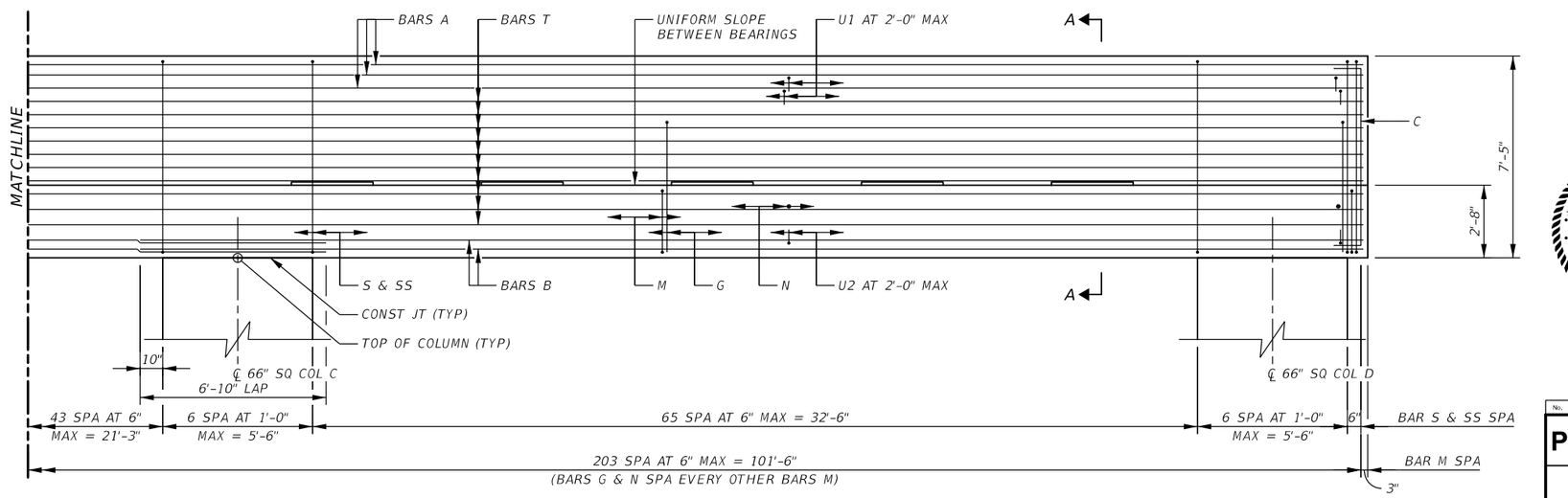

ELEVATION

BAR SCHEDULE ~ ONE CAP

	BAR	TYPE	NO.	SIZE	LENGTH	WEIGHT
(2)	A	St	26	#11	108'-6"	14,988
(3)	B	St	30	#11	115'-4"	18,383
	C	Bt	4	#5	8'-6"	36
	DD	St	14	#11	1'-6"	112
	G	Bt	103	#5	12'-10"	1,379
	M	Bt	204	#6	24'-10"	7,610
	N	Bt	103	#6	9'-3"	1,432
	S	Bt	185	#6	25'-8"	7,132
	SS	Bt	185	#6	21'-7"	5,998
(4)	T	St	24	#5	103'-10"	2,600
	U1	Bt	102	#4	5'-10"	398
	U2	Bt	51	#4	10'-2"	347
(1)	TOTAL REINFORCING STEEL				LB	60,415
	CL C CONC (HPC) (CAP)				CY	190.8

(1) FOR CONTRACTOR'S INFORMATION ONLY.

(2) INCLUDES 1 ~ 6'-10" LAP.

(3) INCLUDES 2 ~ 6'-10" LAP.

(4) INCLUDES 1 ~ 2'-2" LAP.

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
	DRILL SHAFT (60 IN)	FT	162
	DRILL SHAFT (66 IN)	FT	156
	CL C CONC (HPC) (CAP)	CY	190.8
(1)	REINF STEEL	LB	60415

STATE OF TEXAS
CHONG KUK HONG
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LICENSED PROFESSIONAL ENGINEER

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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
BENT 9 DETAILS
KCS RAILROAD OVERPASS

2 OF 2

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 | DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 | SCALE: 3/16" = 1'-0"

CONTRACT No.

SHEET 186 OF 488

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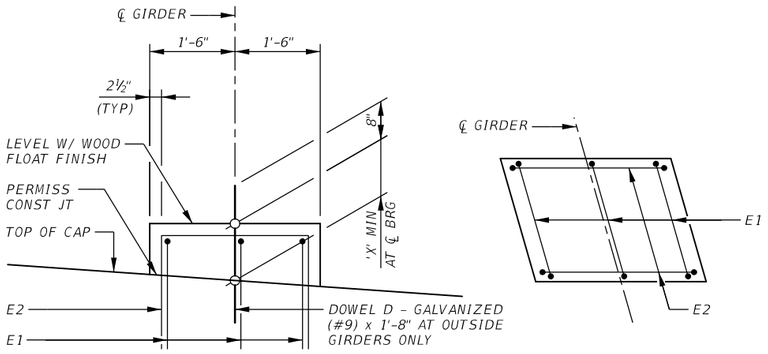
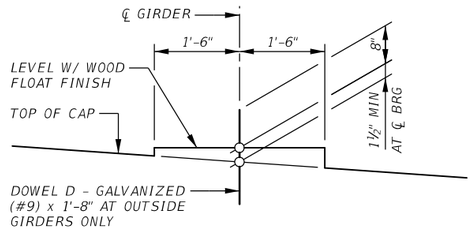


BEARING PEDESTAL DETAIL

(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD)



BEARING SEAT DETAIL

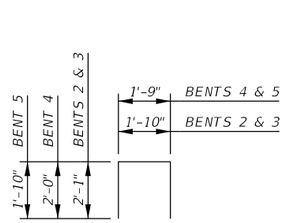
(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD)

FORWARD BEARING SEAT/PEDESTAL

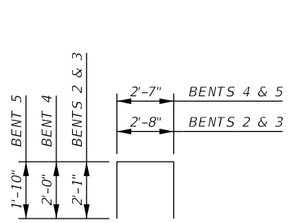
BENT NO.	TYPE	"X" (in)	BARS E1 - #5			BARS E2 - #5		
			NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
2	Pedestal	6 ⅞	3	6'-0"	19	3	6'-10"	22
3	Pedestal	7	3	6'-0"	19	3	6'-10"	22
4	Pedestal	5 ¾	3	5'-9"	18	3	6'-7"	21
5	Pedestal	3 ⅞	3	5'-5"	17	3	6'-3"	20
6	Seat	2 ⅜	-	-	-	-	-	-
7	Seat	1 ½	-	-	-	-	-	-
8	Seat	1 ½	-	-	-	-	-	-
9	Seat	1 ½	-	-	-	-	-	-
10	Seat	1 ½	-	-	-	-	-	-
11	Seat	1 ½	-	-	-	-	-	-
12	Seat	1 ½	-	-	-	-	-	-

BACKWARD BEARING SEAT/PEDESTAL

BENT NO.	TYPE	"X" (in)	BARS E1 - #5			BARS E2 - #5		
			NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
2	Seat	1 ½	-	-	-	-	-	-
3	Seat	1 ½	-	-	-	-	-	-
4	Seat	1 ½	-	-	-	-	-	-
5	Seat	1 ½	-	-	-	-	-	-
6	Seat	1 ½	-	-	-	-	-	-
7	Seat	2	-	-	-	-	-	-
8	Pedestal	3 ½	3	5'-5"	17	3	6'-3"	20
9	Pedestal	6	3	5'-9"	18	3	6'-7"	21
10	Pedestal	7 ⅛	3	5'-11"	19	3	6'-9"	22
11	Pedestal	7	3	5'-11"	19	3	6'-9"	22
12	Pedestal	6 ⅞	3	5'-11"	19	3	6'-9"	22

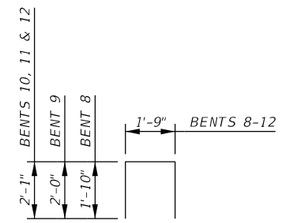


BARS E1

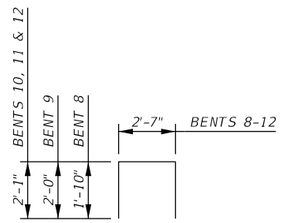


BARS E2

FORWARD



BARS E1



BARS E2

BACKWARD

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.
REINFORCING BAR DIMESNIONS SHOWN ARE OUT-TO-OUT OF BAR.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
NB PEDESTAL DETAILS
KCS RAILROAD OVERPASS

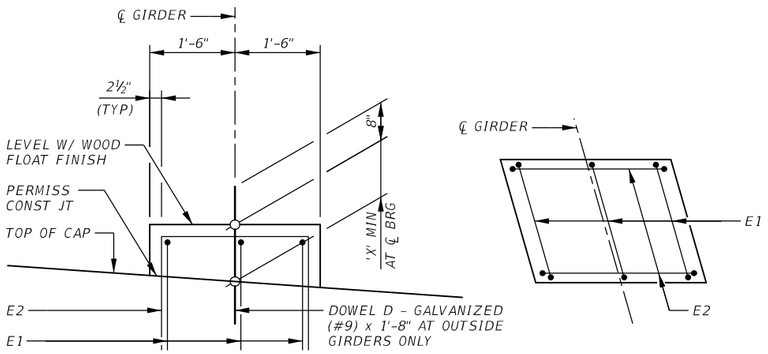
1 OF 1

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	CPM	DATE: 3/18/2022	DESIGNED:	CKH	DATE: 3/18/2022
CHECKED:	ESC	DATE: 3/18/2022	SCALE:	NTS	

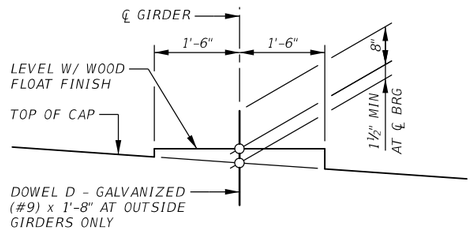
CONTRACT No.

SHEET 193 OF 488



BEARING PEDESTAL DETAIL

(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD)



BEARING SEAT DETAIL

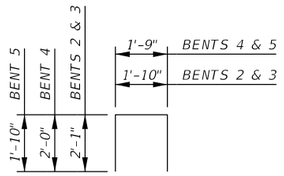
(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD)

FORWARD BEARING SEAT/PEDESTAL

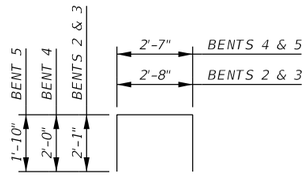
BENT NO.	TYPE	"X" (in)	BARS E1 - #5			BARS E2 - #5		
			NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
2	Pedestal	6 ⅞	3	6'-0"	19	3	6'-10"	22
3	Pedestal	7 ¼	3	6'-0"	19	3	6'-10"	22
4	Pedestal	5 ¾	3	5'-9"	18	3	6'-7"	21
5	Pedestal	3 ⅜	3	5'-5"	17	3	6'-3"	20
6	Seat	2 ⅜	-	-	-	-	-	-
7	Seat	1 ½	-	-	-	-	-	-
8	Seat	1 ½	-	-	-	-	-	-
9	Seat	1 ½	-	-	-	-	-	-
10	Seat	1 ½	-	-	-	-	-	-
11	Seat	1 ½	-	-	-	-	-	-
12	Seat	1 ½	-	-	-	-	-	-

BACKWARD BEARING SEAT/PEDESTAL

BENT NO.	TYPE	"X" (in)	BARS E1 - #5			BARS E2 - #5		
			NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
2	Seat	1 ½	-	-	-	-	-	-
3	Seat	1 ½	-	-	-	-	-	-
4	Seat	1 ½	-	-	-	-	-	-
5	Seat	1 ½	-	-	-	-	-	-
6	Seat	1 ½	-	-	-	-	-	-
7	Seat	2	-	-	-	-	-	-
8	Pedestal	3 ⅜	3	5'-6"	18	3	6'-5"	21
9	Pedestal	6 ⅛	3	5'-9"	18	3	6'-7"	21
10	Pedestal	7 ⅜	3	6'-1"	20	3	6'-11"	22
11	Pedestal	7 ¼	3	5'-11"	19	3	6'-9"	22
12	Pedestal	6 ¾	3	5'-11"	19	3	6'-9"	22

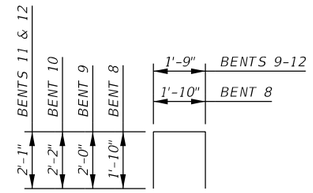


BARS E1

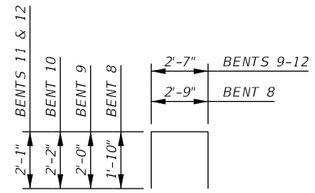


BARS E2

FORWARD



BARS E1



BARS E2

BACKWARD

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.
REINFORCING BAR DIMESNIONS SHOWN ARE OUT-TO-OUT OF BAR.

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
SB PEDESTAL DETAILS
KCS RAILROAD OVERPASS

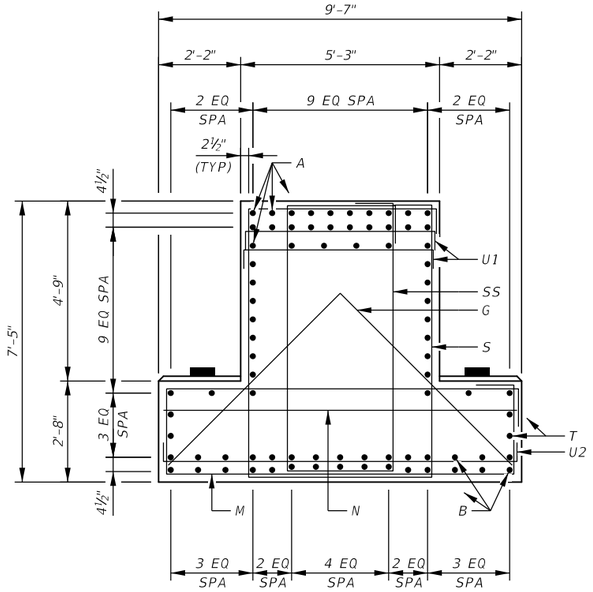
1 OF 1

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 | DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 | SCALE: NTS

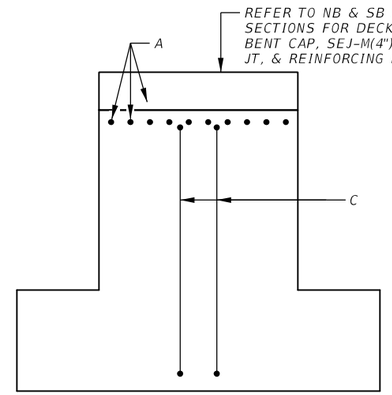
CONTRACT No.

SHEET 194 OF 488



SECTION A-A

SCALE: ¼" = 1'-0"

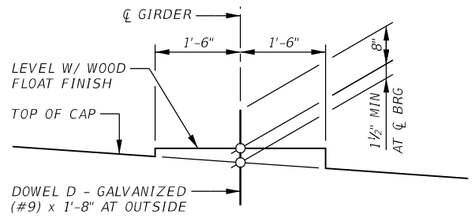


END VIEW

SCALE: ¼" = 1'-0"

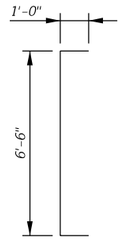
GENERAL NOTES:

1. SEE IGMS FOR ADDITIONAL DETAILS.
2. SEE SHEET 5 OF 5 OF NB AND SB DECK SECTIONS FOR PAY ITEM.

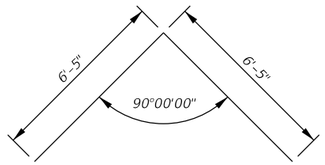


BEARING SEAT DETAIL

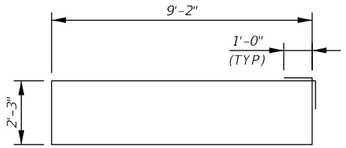
(BEARING SURFACE MUST BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING PAD)
(SEE IGEB FOR SOLE PLATE DETAILS ON BENTS 2, 3, 4 (BACKWARD), 9 (FORWARD), 10, 11, & 12)



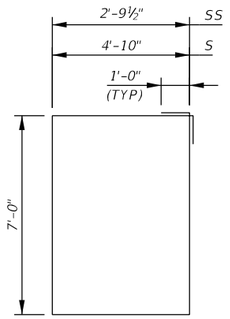
BARS C



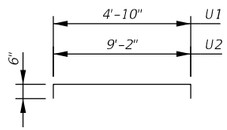
BARS G



BARS M



BARS S & SS



BARS U1 & U2

MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
BENT DETAILS
KCS RAILROAD OVERPASS

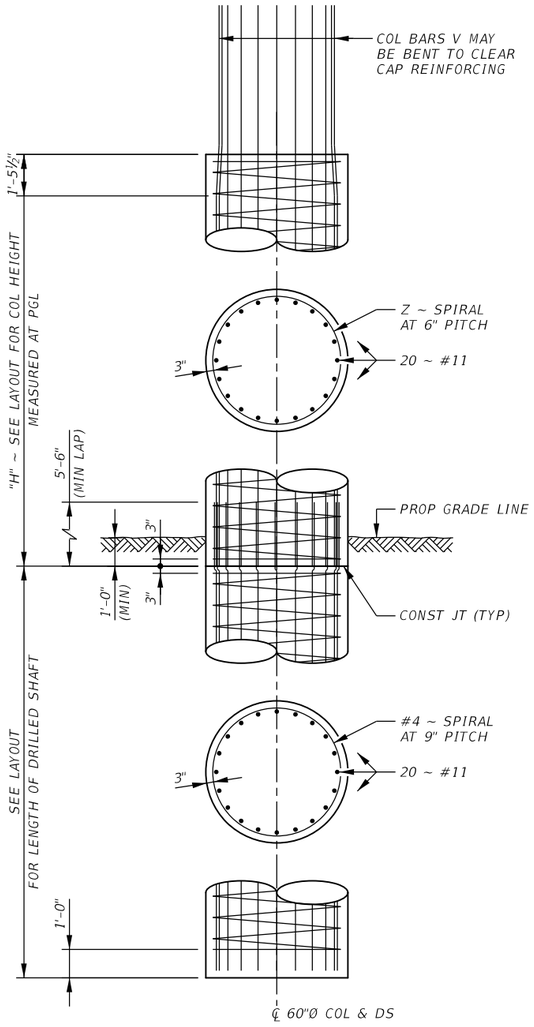
1 OF 1

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 | DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 | SCALE: AS NOTED

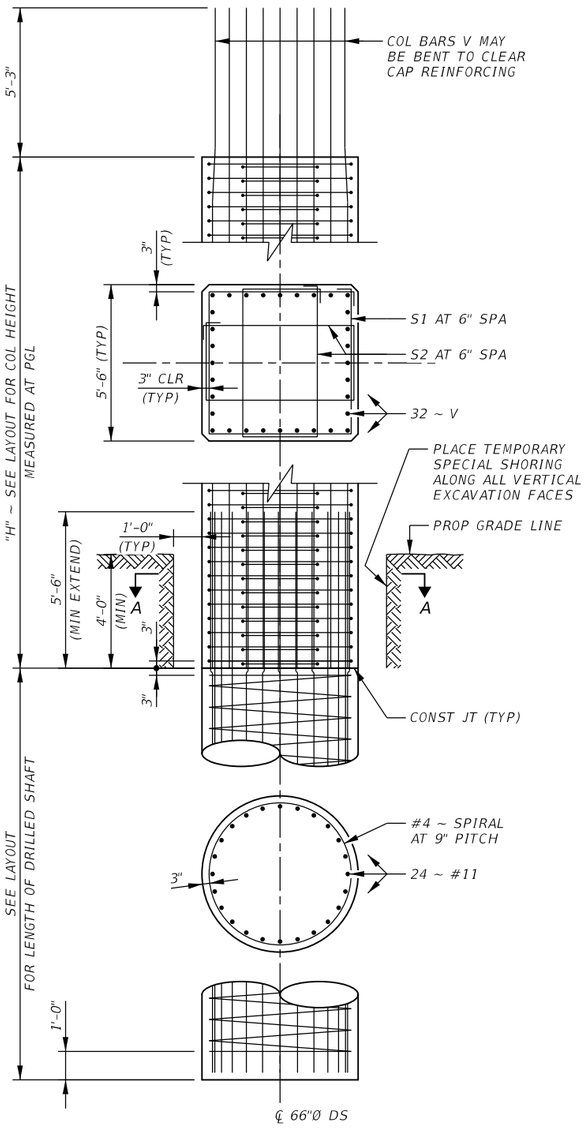
CONTRACT No.

SHEET 195 OF 488



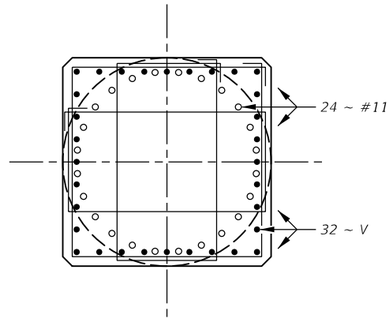
COL & DS ELEVATION

SCALE: 3/16" = 1'-0"



COL & DS ELEVATION

SCALE: 3/16" = 1'-0"



SECTION A-A

SCALE: ¼" = 1'-0"

ROUND COLUMN SCHEDULE ~ ONE COLUMN

"H"	BARS V~20~#11		BARS Z~#4 SPIRAL		EST QUANT~1 COL REINF STEEL	EST QUANT~1 COL CLASS C CONC
FT	LENGTH	WEIGHT	LENGTH	WEIGHT	LB	CY
10	15'-3"	1,621	319'	214	1,835	7.2
11	16'-3"	1,727	347'	232	1,959	7.9
16	21'-3"	2,259	489'	327	2,586	11.6
17	22'-3"	2,365	517'	346	2,711	12.3
20	25'-3"	2,684	602'	403	3,087	14.5
21	26'-3"	2,790	630'	421	3,211	15.2
24	29'-3"	3,109	715'	478	3,587	17.4
25	30'-3"	3,215	743'	497	3,712	18.1
28	33'-3"	3,534	828'	554	4,088	20.3
29	34'-3"	3,640	856'	572	4,212	21.0
30	35'-3"	3,746	885'	592	4,338	21.8
31	36'-3"	3,852	913'	610	4,462	22.5
35	40'-3"	4,277	1026'	686	4,963	25.4
36	41'-3"	4,384	1054'	705	5,089	26.1
37	42'-3"	4,490	1083'	724	5,214	26.9

ADJUST SPIRAL Z LENGTH BY 14.1 FT. AND BARS V LENGTH BY 0.5 FT. FOR EACH 0.5 FT. VARIATION IN "H" VALUE.
ADJUST ESTIMATED QUANTITY OF CONCRETE FOR EACH COLUMN BY 0.4 CY FOR EACH 0.5 FT. VARIATION IN "H" VALUE.
ADJUST ESTIMATED QUANTITY OF REINFORCING STEEL FOR EACH COLUMN BY 62.6 LB. FOR EACH 0.5 FT VARIATION IN "H" VALUE.

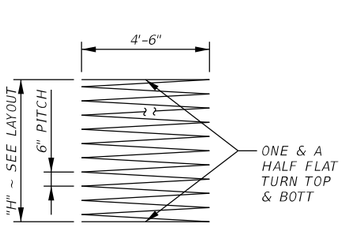
SQUARE COLUMN SCHEDULE ~ ONE COLUMN

"H"	BARS V~24~#11		BARS S1~#5 ~ 21'-0		BARS S2~#5 ~ 16'-3		EST QUANT~1 COL REINF STEEL	EST QUANT~1 COL CLASS C CONC
FT	LENGTH	WEIGHT	No.	WEIGHT	No.	WEIGHT	LB	CY
22	27'-3"	3,475	44	964	88	1,491	5,930	24.6
23	28'-3"	3,603	46	1,008	92	1,559	6,170	25.8
24	29'-3"	3,730	48	1,051	96	1,627	6,408	26.9
25	30'-3"	3,858	50	1,095	100	1,695	6,648	28.0
26	31'-3"	3,985	52	1,139	104	1,763	6,887	29.1
27	32'-3"	4,113	54	1,183	108	1,830	7,126	30.3
28	33'-3"	4,240	56	1,227	112	1,898	7,365	31.4
29	34'-3"	4,368	58	1,270	116	1,966	7,604	32.5
30	35'-3"	4,495	60	1,314	120	2,034	7,843	33.6
31	36'-3"	4,623	62	1,358	124	2,102	8,083	34.7
32	37'-3"	4,750	64	1,402	128	2,169	8,321	35.9
33	38'-3"	4,878	66	1,446	132	2,237	8,561	37.0

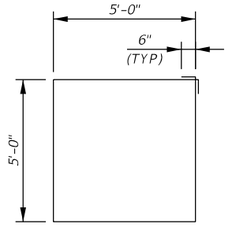
ADJUST S1 LENGTH BY 21.0 FT., S2 LENGTH BY 32.5 FT. AND BARS V LENGTH BY 0.5 FT. FOR EACH 0.5 FT. VARIATION IN "H" VALUE.
ADJUST ESTIMATED QUANTITY OF CONCRETE FOR EACH COLUMN BY 0.56 CY FOR EACH 0.5 FT. VARIATION IN "H" VALUE.
ADJUST ESTIMATED QUANTITY OF REINFORCING STEEL FOR EACH COLUMN BY 119.6 LB. FOR EACH 0.5 FT VARIATION IN "H" VALUE.

GENERAL NOTES:

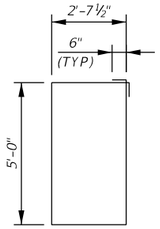
1. DESIGNED PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (2017) AND INTERIM SPECIFICATIONS THERETO. DESIGNED PER AREMA MANUAL (2021) FOR CRASH WALL.
2. CONCRETE STRENGTH f'c = 3,600 PSI.
3. SPIRAL STEEL SHALL HAVE ONE AND A HALF EXTRA TURN AT THE TOP, BOTTOM, AND AT SPLICES.
4. ALL COLUMN AND DRILLED SHAFT REINFORCING SHALL BE GRADE 60 STEEL.
5. THE PRICE BID PER FOOT OF COLUMN SHALL INCLUDE THE REINFORCING EXTENDING FROM THE COLUMN INTO THE CAP.
6. THE PRICE BID PER FOOT OF DRILLED SHAFT SHALL INCLUDE THE REINFORCING EXTENDING FROM THE SHAFT INTO COLUMN.



BARS Z



BARS S1



BARS S2

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE COLUMN DETAILS
KCS RAILROAD OVERPASS

1 OF 1

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 SCALE: AS NOTED
CONTRACT No.
SHEET 196 OF 488

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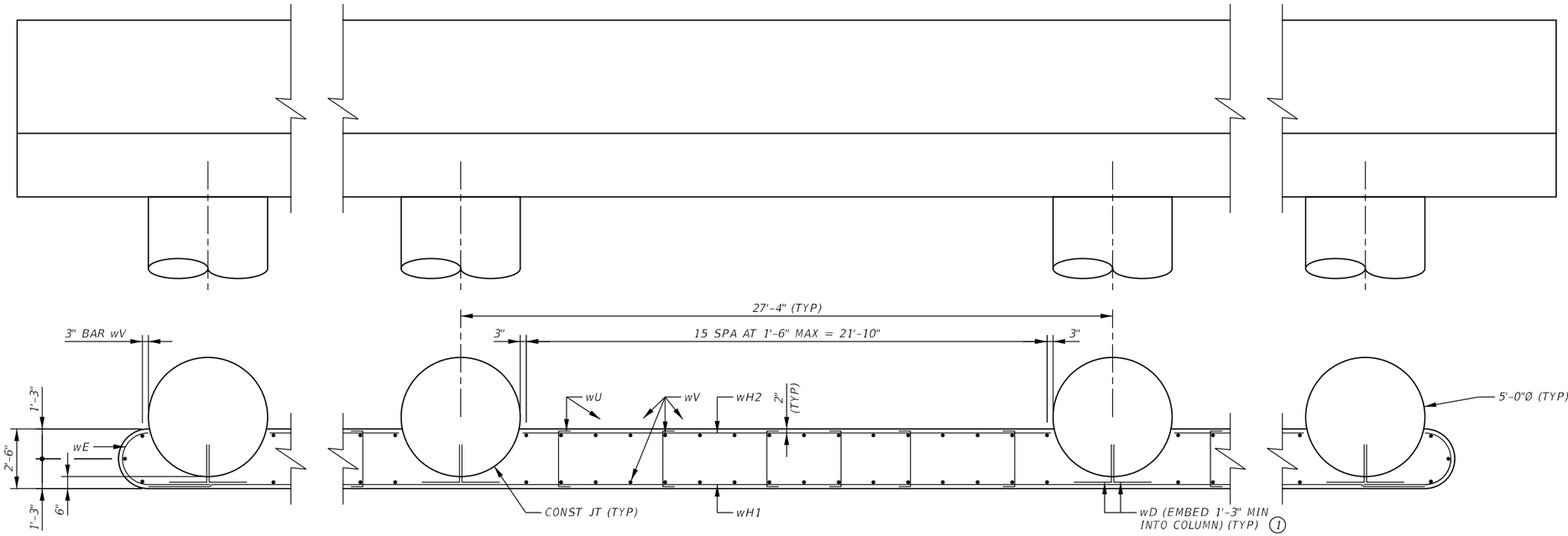
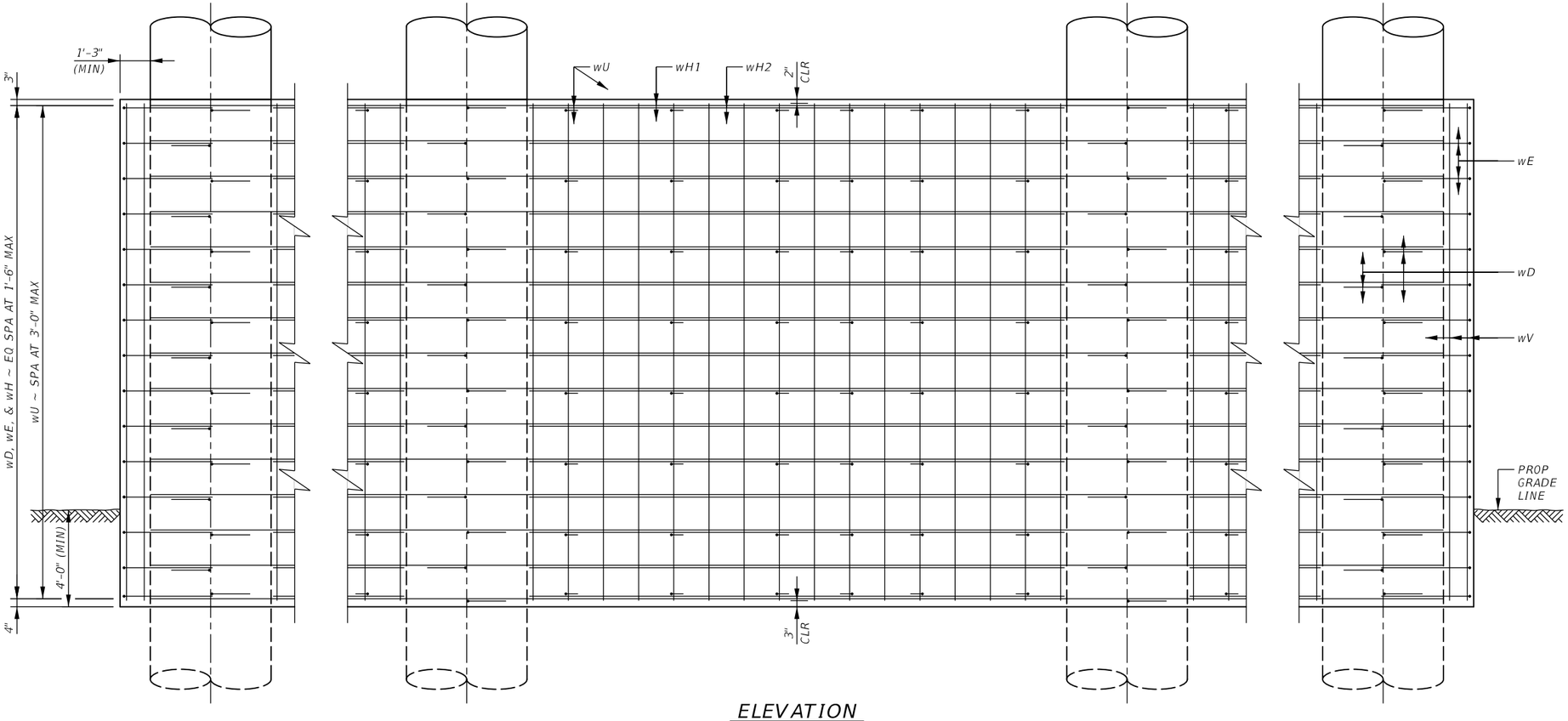


PLAN



ELEVATION

GENERAL NOTES:

1. CONCRETE STRENGTH f'c = 3,600 PSI.
2. ALL REINFORCING SHALL BE GRADE 60 STEEL.
3. SEE CRASH WALL MISC. DETAILS SHEET FOR ADDITIONAL INFORMATION ON CRASH WALL DIMENSIONS.

(1) AT CONTRACTOR'S OPTION, BARS wD MAY BE PLACED WITH THE COLUMN OR MAY BE ATTACHED USING AN ADHESIVE ANCHORAGE SYSTEM WITH THE ANCHORAGE END SLOPED AT 1:6 INTO COLUMN.

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE CRASH WALL DETAILS AT BENTS 2-3
KCS RAILROAD OVERPASS

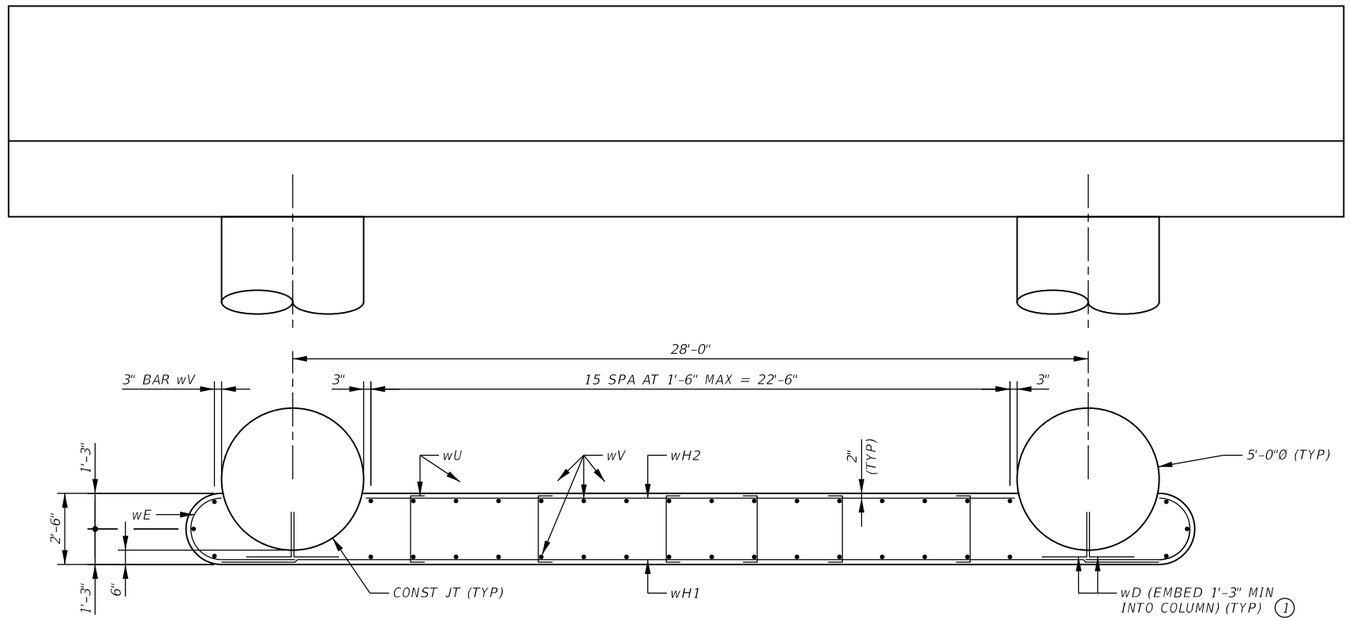
1 OF 1

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM	DATE: 3/18/2022	DESIGNED: CKH	DATE: 3/18/2022
CHECKED: ESC	DATE: 3/18/2022	SCALE: 3/16" = 1'-0"	

CONTRACT No.

SHEET 197 OF 488



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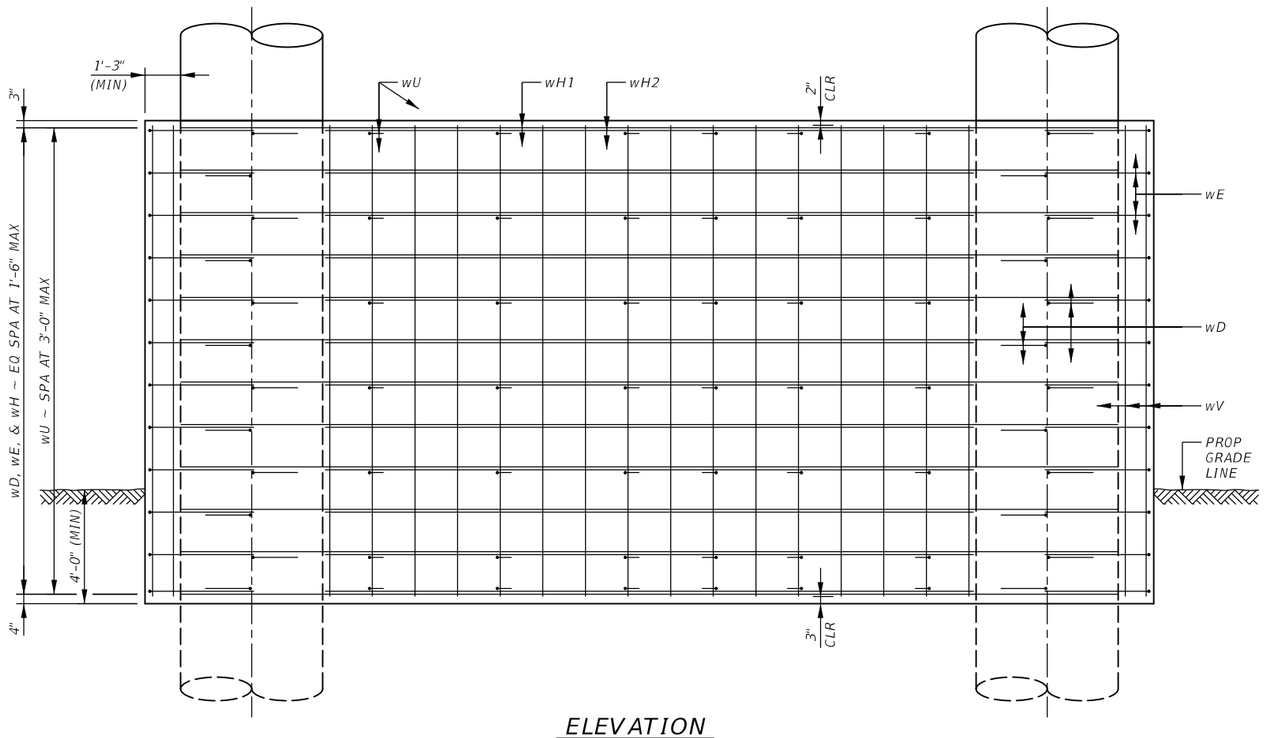

ELEVATION

GENERAL NOTES:

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2. ALL REINFORCING SHALL BE GRADE 60 STEEL.
3. SEE CRASH WALL MISC. DETAILS SHEET FOR ADDITIONAL INFORMATION ON CRASH WALL DIMENSIONS.

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STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY, TEXAS

BRIDGE CRASH WALL DETAILS AT BENT 8A
KCS RAILROAD OVERPASS

1 OF 1

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
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FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 | DESIGNED: CKH DATE: 3/18/2022
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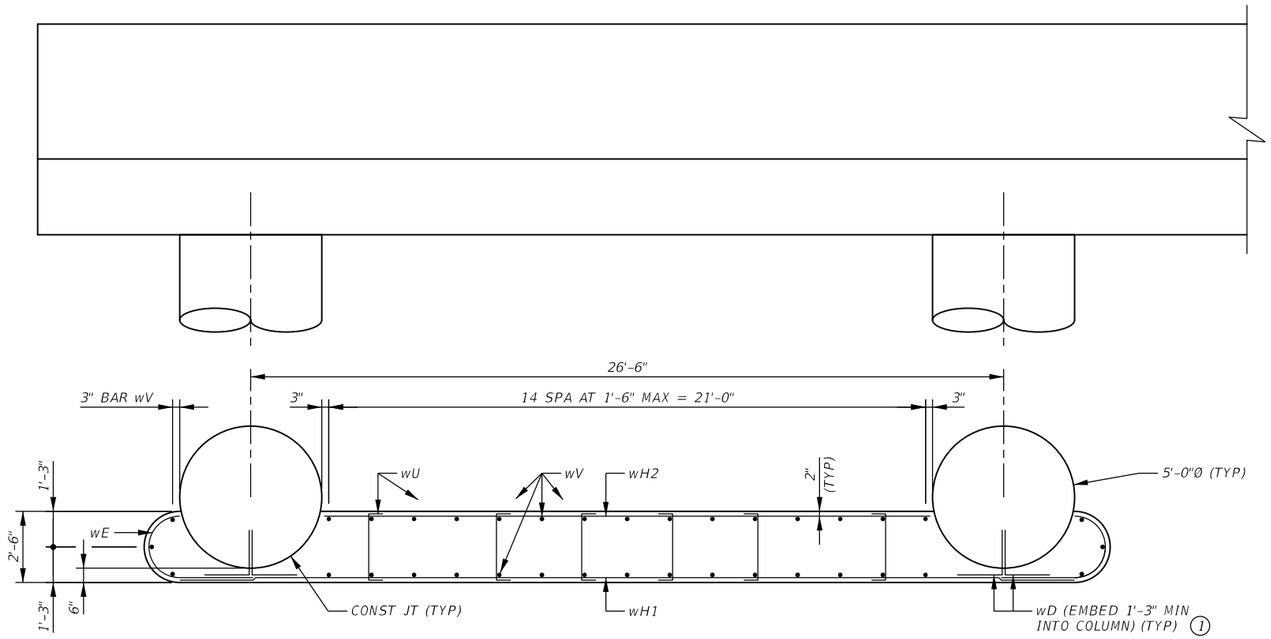
CONTRACT No.

SHEET 198 OF 488



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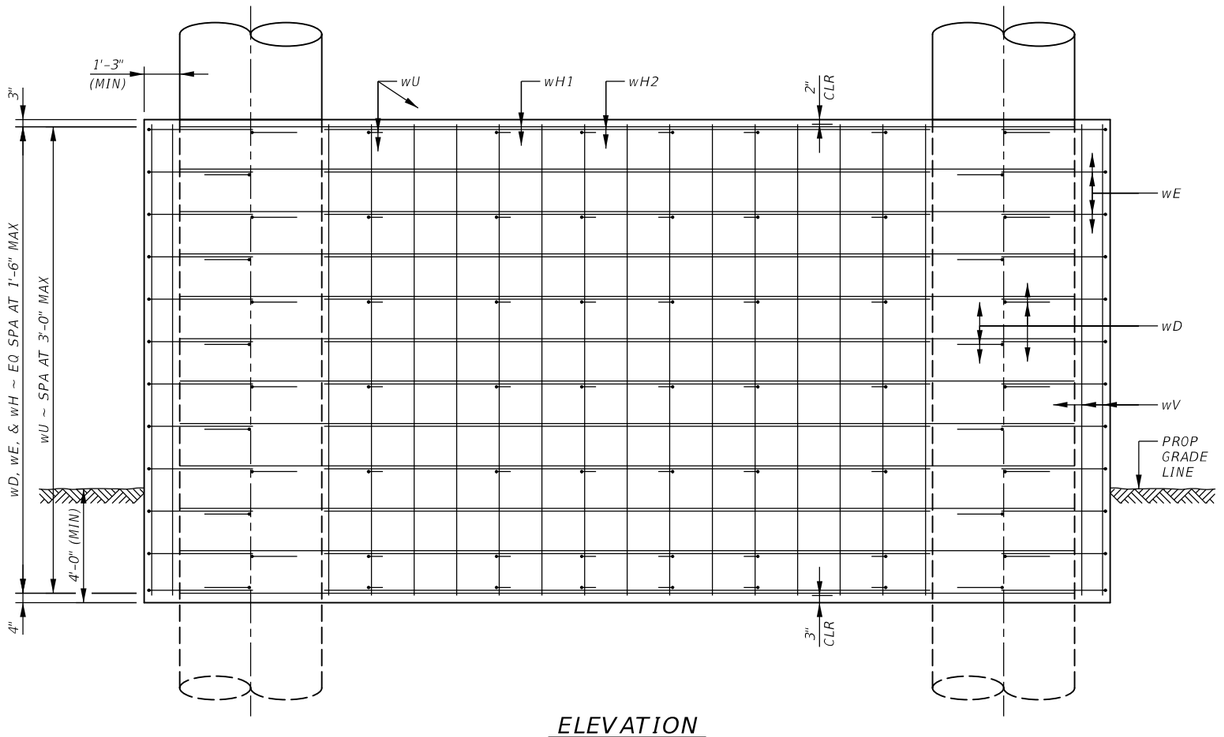

ELEVATION

GENERAL NOTES:

1. CONCRETE STRENGTH f'c = 3,600 PSI.
2. ALL REINFORCING SHALL BE GRADE 60 STEEL.
3. SEE CRASH WALL MISC. DETAILS SHEET FOR ADDITIONAL INFORMATION ON CRASH WALL DIMENSIONS.

(1) AT CONTRACTOR'S OPTION, BARS wD MAY BE PLACED WITH THE COLUMN OR MAY BE ATTACHED USING AN ADHESIVE ANCHORAGE SYSTEM WITH THE ANCHORAGE END SLOPED AT 1:6 INTO COLUMN.

STATE OF TEXAS
CHONG KUK HONG
80621
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"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE CRASH WALL DETAILS AT BENT 9
KCS RAILROAD OVERPASS

1 OF 1

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 | DESIGNED: CKH DATE: 3/18/2022
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CONTRACT No.

SHEET 199 OF 488

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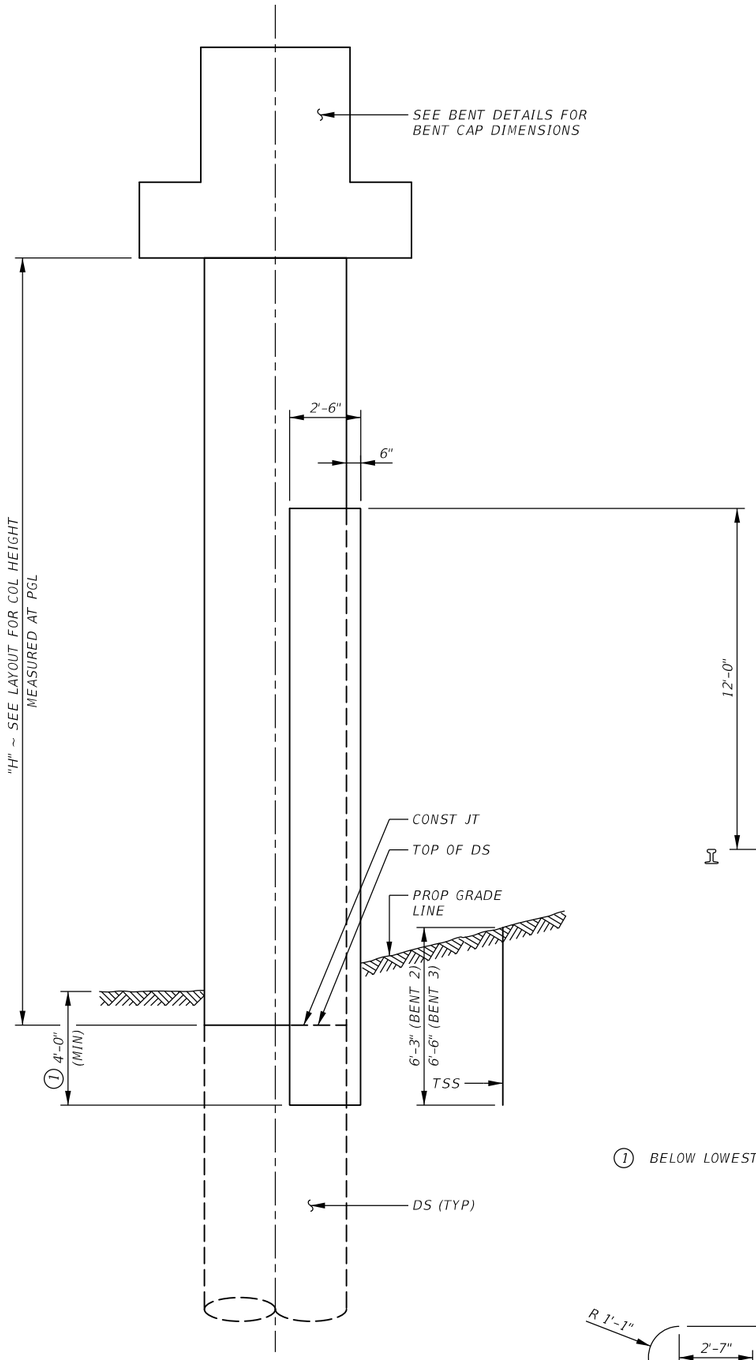


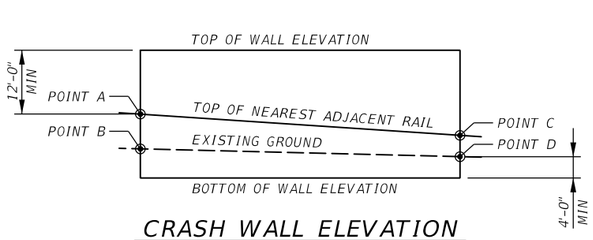
TYPICAL SECTION

BENT 2					
WEST SIDE			EAST SIDE		
DESCRIPTION	ELEV.	LENGTH (FT.)	DESCRIPTION	ELEV.	LENGTH (FT.)
TOP OF CRASH WALL	538.3		TOP OF CRASH WALL	538.3	
TOP OF RAIL (POINT A)	526.3		TOP OF RAIL (POINT C)	525.5	
HEIGHT OF WALL ABOVE RAIL		12	HEIGHT OF WALL ABOVE RAIL		12.8
EXISTING GROUND (POINT B)	521.3		EXISTING GROUND (POINT D)	520.6	
BOTTOM OF CRASH WALL	516.6		BOTTOM OF CRASH WALL	516.6	
HEIGHT OF WALL BELOW GROUND		4.7	HEIGHT OF WALL BELOW GROUND		4

BENT 3					
WEST SIDE			EAST SIDE		
DESCRIPTION	ELEV.	LENGTH (FT.)	DESCRIPTION	ELEV.	LENGTH (FT.)
TOP OF CRASH WALL	537.9		TOP OF CRASH WALL	537.9	
TOP OF RAIL (POINT A)	525.9		TOP OF RAIL (POINT C)	525.1	
HEIGHT OF WALL ABOVE RAIL		12	HEIGHT OF WALL ABOVE RAIL		12.8
EXISTING GROUND (POINT B)	521.1		EXISTING GROUND (POINT D)	520.6	
BOTTOM OF CRASH WALL	516.6		BOTTOM OF CRASH WALL	516.6	
HEIGHT OF WALL BELOW GROUND		4.5	HEIGHT OF WALL BELOW GROUND		4

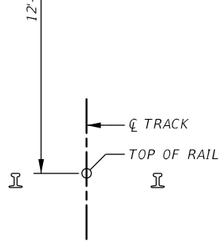
BENT 8A					
WEST SIDE			EAST SIDE		
DESCRIPTION	ELEV.	LENGTH (FT.)	DESCRIPTION	ELEV.	LENGTH (FT.)
TOP OF CRASH WALL	550.5		TOP OF CRASH WALL	550.5	
TOP OF RAIL (POINT A)	538.5		TOP OF RAIL (POINT C)	538	
HEIGHT OF WALL ABOVE RAIL		12	HEIGHT OF WALL ABOVE RAIL		12.5
EXISTING GROUND (POINT B)	538		EXISTING GROUND (POINT D)	536.6	
BOTTOM OF CRASH WALL	532.6		BOTTOM OF CRASH WALL	532.6	
HEIGHT OF WALL BELOW GROUND		5.4	HEIGHT OF WALL BELOW GROUND		4

BENT 9 (NB SIDE)					
WEST SIDE			EAST SIDE		
DESCRIPTION	ELEV.	LENGTH (FT.)	DESCRIPTION	ELEV.	LENGTH (FT.)
TOP OF CRASH WALL	550.4		TOP OF CRASH WALL	550.4	
TOP OF RAIL (POINT A)	538.4		TOP OF RAIL (POINT C)	538.3	
HEIGHT OF WALL ABOVE RAIL		12	HEIGHT OF WALL ABOVE RAIL		12.1
EXISTING GROUND (POINT B)	537.3		EXISTING GROUND (POINT D)	535.6	
BOTTOM OF CRASH WALL	531.6		BOTTOM OF CRASH WALL	531.6	
HEIGHT OF WALL BELOW GROUND		5.7	HEIGHT OF WALL BELOW GROUND		4



CRASH WALL ELEVATION

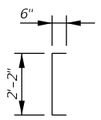
*CONTRACTOR MUST VERIFY ALL ELEVATIONS PROVIDED IN THE TABLES AND NOTIFY ENGINEER OF ANY DISCREPANCIES. CONTRACTOR MUST ALSO SUBMIT TEMPORARY SPECIAL SHORING DESIGNS FOR USE IN BOTTOM OF CRASH WALL CONSTRUCTION THAT ARE SIGNED AND SEALED BY A LICENCED TEXAS PE. THESE ITEMS MUST BE COMPLETED PRIOR TO BEGINNING ANY WORK RELATED TO THE CRASH WALLS.



1 BELOW LOWEST SURROUNDING GRADE.

BARS wE

BARS wD



BARS wU

BAR SCHEDULE ~ AT BENT 2 OR 3

	BAR	TYPE	NO.	SIZE	LENGTH	WEIGHT
	wD	Bt	60	#6	3'-2"	286
	wE	Bt	30	#6	6'-0"	271
3	wH1	St	15	#6	89'-10"	2,024
	wH2	St	45	#6	22'-0"	1,487
	wU	Bt	144	#4	3'-2"	305
	wV	St	102	#6	20'-8"	3,167
1 2	TOTAL REINFORCING STEEL				LB	7,540
2	CL C CONC (HPC) (CRASH WALL)				CY	150.2

1 FOR CONTRACTOR'S INFORMATION ONLY.

2 QUANTITIES ARE BASED ON 21' TALL CRASH WALLS FOR BENTS 2 AND 3. ADJUST TOTAL REINFORCING AND CL CONC (HPC) ACCORDINGLY.

3 INCLUDES 1 ~ 2'-10" LAP.

BAR SCHEDULE ~ AT BENT 8

BAR	TYPE	NO.	SIZE	LENGTH	WEIGHT
wD	Bt	24	#6	3'-2"	115
wE	Bt	24	#6	6'-0"	217
wH1	St	12	#6	33'-0"	595
wH2	St	12	#6	22'-8"	409
wU	Bt	42	#4	3'-2"	89
wV	St	38	#6	16'-8"	952
1 2 TOTAL REINFORCING STEEL				LB	2,377
2 CL C CONC (HPC) (CRASH WALL)				CY	45.8

1 FOR CONTRACTOR'S INFORMATION ONLY.

2 QUANTITIES ARE BASED ON 17' TALL CRASH WALL FOR BENT 2 8A. ADJUST TOTAL REINFORCING AND CL CONC (HPC) ACCORDINGLY.

BAR SCHEDULE ~ AT BENT 9

BAR	TYPE	NO.	SIZE	LENGTH	WEIGHT
wD	Bt	24	#6	3'-2"	115
wE	Bt	24	#6	6'-0"	217
wH1	St	12	#6	31'-6"	568
wH2	St	12	#6	21'-2"	382
wU	Bt	42	#4	3'-2"	89
wV	St	38	#6	16'-8"	952
1 2 TOTAL REINFORCING STEEL				LB	2,323
2 CL C CONC (HPC) (CRASH WALL)				CY	43.4

1 FOR CONTRACTOR'S INFORMATION ONLY.

2 QUANTITIES ARE BASED ON 17' TALL CRASH WALL FOR BENTS 9. ADJUST TOTAL REINFORCING AND CL CONC (HPC) ACCORDINGLY.

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE CRASH WALL
MISC DETAILS
KCS RAILROAD OVERPASS

1 OF 1

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 SCALE: 3/16" = 1'-0"

CONTRACT No.

SHEET 200 OF 488

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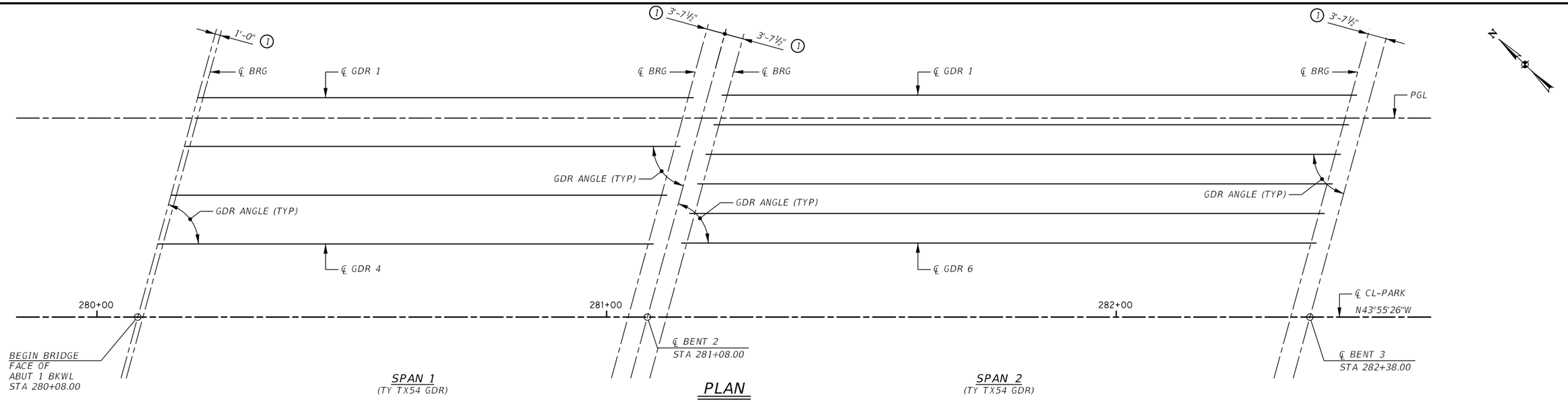


PLAN

(1) SEE STANDARD IGEB FOR ORIENTATION OF DIMENSION.

(2) GIRDER LENGTHS SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE.

GIRDER REPORT

GIRDER REPORT, SPAN 1

	HORIZONTAL DISTANCE C-C BENT	E-E GDR.	C-C BRG.	TRUE LENGTH (2) BOT. GDR. FLG.	GIRDER SLOPE	DEFLECTIONS A	B
GIRDER 1	100.000	96.760	95.205	96.928	0.059	0.061	0.085
GIRDER 2	100.000	96.760	95.205	96.928	0.059	0.074	0.104
GIRDER 3	100.000	96.760	95.205	96.928	0.059	0.074	0.104
GIRDER 4	100.000	96.760	95.205	96.928	0.059	0.056	0.078
	TOTAL	387.040					

GIRDER REPORT, SPAN 2

	HORIZONTAL DISTANCE C-C BENT	E-E GDR.	C-C BRG.	TRUE LENGTH (2) BOT. GDR. FLG.	GIRDER SLOPE	DEFLECTIONS A	B
GIRDER 1	130.000	124.038	122.483	124.235	0.056	0.115	0.162
GIRDER 2	130.000	124.038	122.483	124.236	0.057	0.124	0.174
GIRDER 3	130.000	124.038	122.483	124.237	0.057	0.124	0.174
GIRDER 4	130.000	124.038	122.483	124.238	0.057	0.124	0.174
GIRDER 5	130.000	124.038	122.483	124.239	0.057	0.124	0.174
GIRDER 6	130.000	124.038	122.483	124.239	0.057	0.115	0.162
	TOTAL	744.229					

BENT REPORT

ABUT NO. 1 (N 61°23'40" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 44.584 L

		GIRDER SPACE (ABUT BKWL)	GIRDER ANGLE D	M	S
SPAN 1	GIRDER 1	0.000	74	40	54
	GIRDER 2	9.908	74	40	54
	GIRDER 3	9.908	74	40	54
	GIRDER 4	9.908	74	40	54
	TOTAL	29.723			

BENT NO. 2 (N 61°23'40" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 44.584 L

		GIRDER SPACE (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 1	GIRDER 1	0.000	74	40	54
	GIRDER 2	9.908	74	40	54
	GIRDER 3	9.908	74	40	54
	GIRDER 4	9.908	74	40	54
	TOTAL	29.723			

BENT NO. 2 (N 61°23'40" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 45.102 L

		GIRDER SPACE (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 2	GIRDER 1	0.000	74	40	54
	GIRDER 2	6.014	74	40	54
	GIRDER 3	6.014	74	40	54
	GIRDER 4	6.014	74	40	54
	GIRDER 5	6.014	74	40	54
	GIRDER 6	6.014	74	40	54
	TOTAL	30.068			

BENT NO. 3 (N 61°23'40" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 45.102 L

		GIRDER SPACE (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 2	GIRDER 1	0.000	74	40	54
	GIRDER 2	6.014	74	40	54
	GIRDER 3	6.014	74	40	54
	GIRDER 4	6.014	74	40	54
	GIRDER 5	6.014	74	40	54
	GIRDER 6	6.014	74	40	54
	TOTAL	30.068			

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
NB FRAMING PLAN
KCS RAILROAD OVERPASS

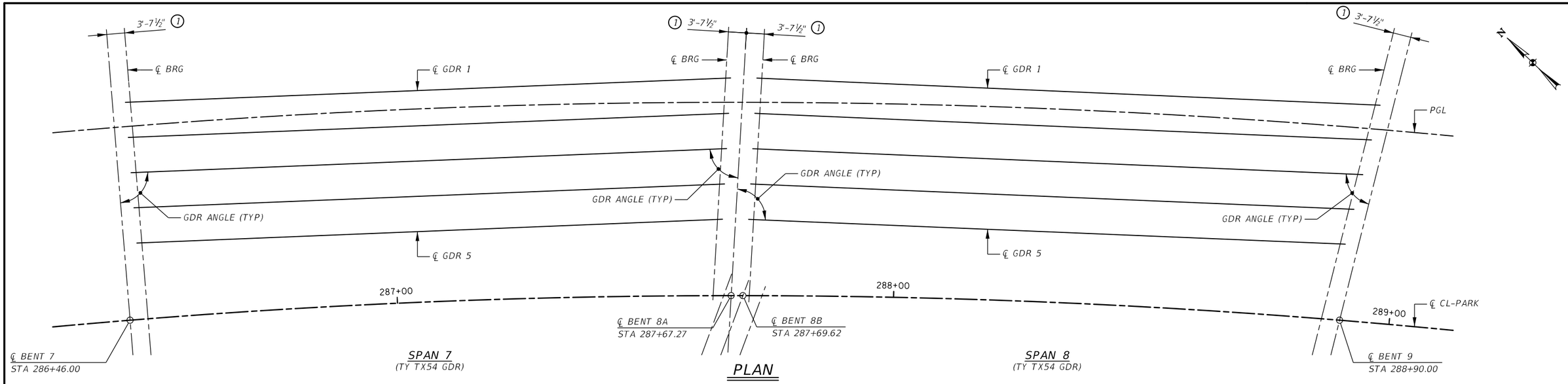
1 OF 6

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 SCALE: 1" = 20'-0"

CONTRACT No.

SHEET 201 OF 488



SPAN 7
(TY TX54 GDR)

SPAN 8
(TY TX54 GDR)

PLAN

(1) SEE STANDARD IGEB FOR ORIENTATION OF DIMENSION.

(2) GIRDER LENGTHS SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE.

GIRDER REPORT

GIRDER REPORT, SPAN 7

	HORIZONTAL DISTANCE C-C BENT	E-E GDR.	C-C BRG.	TRUE LENGTH (2) BOT. GDR. FLG.	GIRDER SLOPE	DEFLECTIONS A	B
GIRDER 1	127.357	121.591	120.086	121.603	-0.014	0.130	0.182
GIRDER 2	126.366	120.600	119.095	120.612	-0.014	0.135	0.190
GIRDER 3	125.375	119.609	118.104	119.621	-0.014	0.131	0.184
GIRDER 4	124.384	118.618	117.113	118.630	-0.015	0.127	0.178
GIRDER 5	123.393	117.627	116.122	117.639	-0.015	0.104	0.146
TOTAL		598.043					

GIRDER REPORT, SPAN 8

	HORIZONTAL DISTANCE C-C BENT	E-E GDR.	C-C BRG.	TRUE LENGTH (2) BOT. GDR. FLG.	GIRDER SLOPE	DEFLECTIONS A	B
GIRDER 1	131.049	125.239	123.723	125.300	-0.031	0.147	0.206
GIRDER 2	129.697	123.886	122.370	123.947	-0.031	0.152	0.213
GIRDER 3	128.344	122.533	121.017	122.594	-0.031	0.145	0.203
GIRDER 4	126.992	121.180	119.664	121.240	-0.031	0.138	0.194
GIRDER 5	125.639	119.827	118.311	119.887	-0.032	0.112	0.157
TOTAL		612.666					

BENT REPORT

BENT NO. 7 (N 57°03'02" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 44.000 L

	GIRDER SPACE (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 7 GIRDER 1	0.000	87	38	11
GIRDER 2	7.125	87	38	38
GIRDER 3	7.125	87	39	05
GIRDER 4	7.125	87	39	32
GIRDER 5	7.125	87	40	01
TOTAL	28.500			

BENT NO. 8 (N 65°01'13" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 44.073 L

	GIRDER SPACE (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 7 GIRDER 1	0.000	84	23	38
GIRDER 2	7.137	84	23	11
GIRDER 3	7.137	84	22	44
GIRDER 4	7.137	84	22	16
GIRDER 5	7.137	84	21	48
TOTAL	28.547			

BENT NO. 8 (N 65°01'13" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 44.073 L

	GIRDER SPACE (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 8 GIRDER 1	0.000	89	11	24
GIRDER 2	7.137	89	09	41
GIRDER 3	7.137	89	07	56
GIRDER 4	7.137	89	06	09
GIRDER 5	7.137	89	04	20
TOTAL	28.547			

BENT NO. 9 (N 75°49'32" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 44.588 L

	GIRDER SPACE (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 8 GIRDER 1	0.000	78	23	05
GIRDER 2	7.219	78	21	23
GIRDER 3	7.219	78	19	38
GIRDER 4	7.219	78	17	51
GIRDER 5	7.219	78	16	02
TOTAL	28.877			

STATE OF TEXAS
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MARCH 18, 2022.

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No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
NB FRAMING PLAN
KCS RAILROAD OVERPASS

4 OF 6

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

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CONTRACT No.

SHEET 204 OF 488

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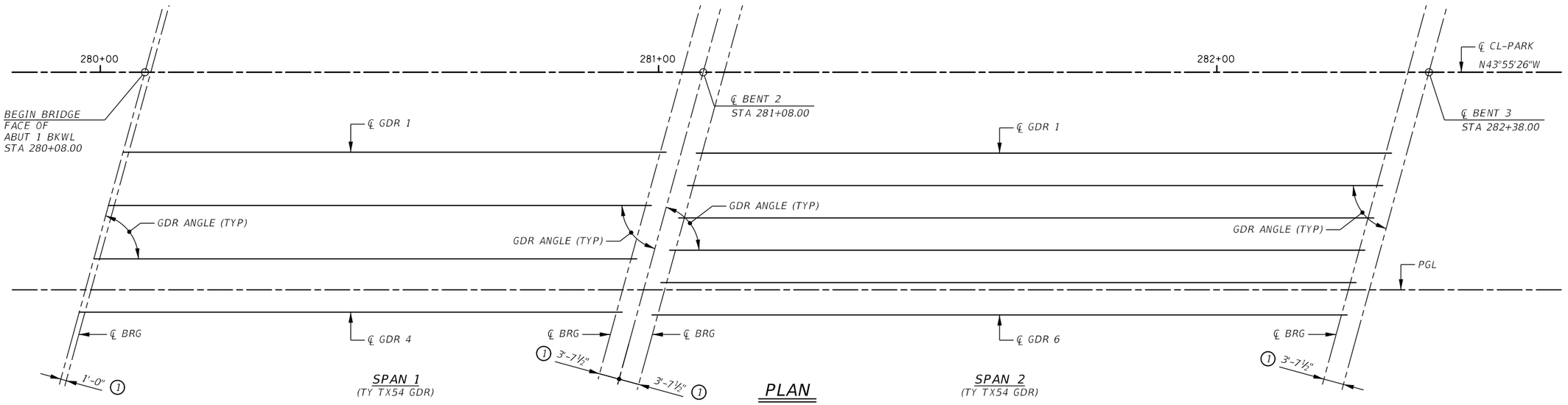

PLAN

① SEE STANDARD IGEB FOR ORIENTATION OF DIMENSION.

② GIRDER LENGTHS SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE.

GIRDER REPORT

GIRDER REPORT, SPAN 1

	HORIZONTAL DISTANCE C-C BENT	E-E GDR.	C-C BRG.	TRUE LENGTH ② BOT. GDR. FLG.	GIRDER SLOPE	DEFLECTIONS A	B
GIRDER 1	100.000	96.760	95.205	96.928	0.059	0.061	0.085
GIRDER 2	100.000	96.760	95.205	96.927	0.059	0.061	0.104
GIRDER 3	100.000	96.760	95.205	96.927	0.059	0.061	0.104
GIRDER 4	100.000	96.760	95.205	96.926	0.059	0.061	0.078
	TOTAL	387.040					

GIRDER REPORT, SPAN 2

	HORIZONTAL DISTANCE C-C BENT	E-E GDR.	C-C BRG.	TRUE LENGTH ② BOT. GDR. FLG.	GIRDER SLOPE	DEFLECTIONS A	B
GIRDER 1	130.000	124.038	122.483	124.243	0.058	0.115	0.162
GIRDER 2	130.000	124.038	122.483	124.244	0.058	0.124	0.174
GIRDER 3	130.000	124.038	122.483	124.245	0.058	0.124	0.174
GIRDER 4	130.000	124.038	122.483	124.245	0.058	0.124	0.174
GIRDER 5	130.000	124.038	122.483	124.246	0.058	0.124	0.174
GIRDER 6	130.000	124.038	122.483	124.246	0.058	0.115	0.162
	TOTAL	744.229					

BENT REPORT

ABUT NO. 1 (N 61°23'40" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 14.861 R

		GIRDER SPACE (ABUT BKWL)	GIRDER ANGLE D	M	S
SPAN 1	GIRDER 1	0.000	74	40	54
	GIRDER 2	9.908	74	40	54
	GIRDER 3	9.908	74	40	54
	GIRDER 4	9.908	74	40	54
	TOTAL	29.723			

BENT NO. 2 (N 61°23'40" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 14.861 R

		GIRDER SPACE (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 1	GIRDER 1	0.000	74	40	54
	GIRDER 2	9.908	74	40	54
	GIRDER 3	9.908	74	40	54
	GIRDER 4	9.908	74	40	54
	TOTAL	29.723			

BENT NO. 2 (N 61°23'40" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 15.034 R

		GIRDER SPACE (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 2	GIRDER 1	0.000	74	40	54
	GIRDER 2	6.014	74	40	54
	GIRDER 3	6.014	74	40	54
	GIRDER 4	6.014	74	40	54
	GIRDER 5	6.014	74	40	54
	GIRDER 6	6.014	74	40	54
	TOTAL	30.068			

BENT NO. 3 (N 61°23'40" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 15.034 R

		GIRDER SPACE (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 2	GIRDER 1	0.000	74	40	54
	GIRDER 2	6.014	74	40	54
	GIRDER 3	6.014	74	40	54
	GIRDER 4	6.014	74	40	54
	GIRDER 5	6.014	74	40	54
	GIRDER 6	6.014	74	40	54
	TOTAL	30.068			

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

MARCH 18, 2022.

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PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
SB FRAMING PLAN
KCS RAILROAD OVERPASS

1 OF 6

HALFF
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CONTRACT No.

SHEET 207 OF 488

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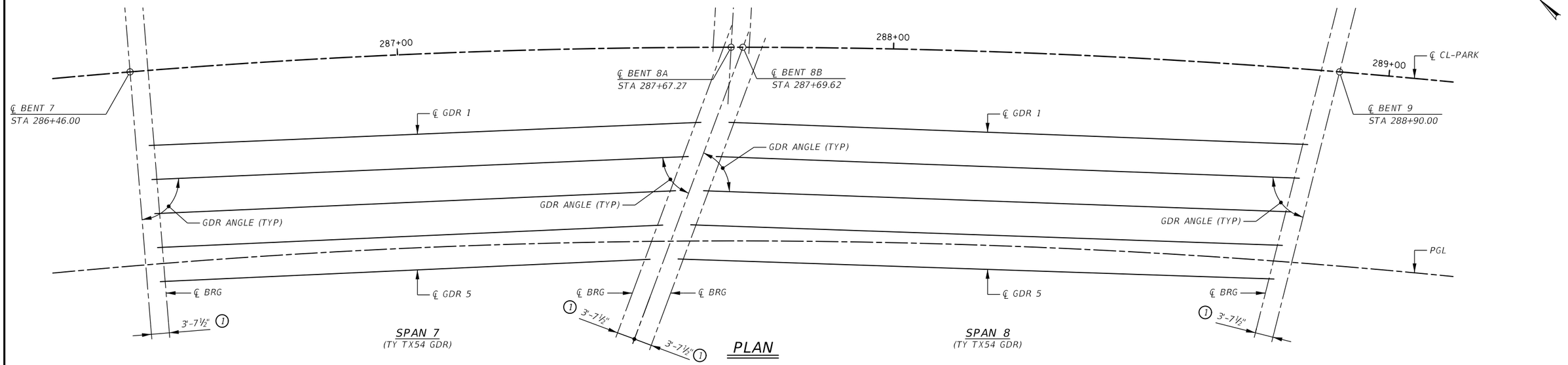

PLAN

1. SEE STANDARD IGEB FOR ORIENTATION OF DIMENSION.
2. GIRDER LENGTHS SHOWN ARE BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE.

GIRDER REPORT

GIRDER REPORT, SPAN 7

	HORIZONTAL DISTANCE C-C BENT	E-E GDR.	C-C BRG.	TRUE LENGTH (2) BOT. GDR. FLG.	GIRDER SLOPE	DEFLECTIONS A	B
GIRDER 1	116.790	110.794	109.229	110.805	-0.015	0.100	0.141
GIRDER 2	113.670	107.673	106.108	107.684	-0.014	0.082	0.115
GIRDER 3	110.550	104.551	102.987	104.562	-0.014	0.073	0.102
GIRDER 4	107.430	101.430	99.865	101.441	-0.014	0.064	0.090
GIRDER 5	104.310	98.309	96.744	98.319	-0.014	0.048	0.068
	TOTAL	522.757					

GIRDER REPORT, SPAN 8

	HORIZONTAL DISTANCE C-C BENT	E-E GDR.	C-C BRG.	TRUE LENGTH (2) BOT. GDR. FLG.	GIRDER SLOPE	DEFLECTIONS A	B
GIRDER 1	122.207	116.243	114.687	116.300	-0.031	0.121	0.170
GIRDER 2	123.064	117.097	115.541	117.155	-0.031	0.115	0.162
GIRDER 3	123.921	117.952	116.395	118.010	-0.031	0.119	0.167
GIRDER 4	124.778	118.807	117.250	118.865	-0.031	0.122	0.171
GIRDER 5	125.635	119.662	118.104	119.720	-0.031	0.110	0.155
	TOTAL	589.762					

BENT REPORT

BENT NO. 7 (N 57°03'02" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 15.000 R

	GIRDER SPACE (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 7 GIRDER 1	0.000	87	44	47
GIRDER 2	6.875	87	47	35
GIRDER 3	6.875	87	50	32
GIRDER 4	6.875	87	53	39
GIRDER 5	6.875	87	56	58
TOTAL	27.500			

BENT NO. 8 (N 82°06'39" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 16.008 R

	GIRDER SPACE (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 7 GIRDER 1	0.000	67	11	36
GIRDER 2	7.352	67	08	49
GIRDER 3	7.352	67	05	52
GIRDER 4	7.352	67	02	44
GIRDER 5	7.352	66	59	26
TOTAL	29.408			

BENT NO. 8 (N 82°06'39" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 16.008 R

	GIRDER SPACE (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 8 GIRDER 1	0.000	71	48	19
GIRDER 2	7.352	71	43	49
GIRDER 3	7.352	71	39	23
GIRDER 4	7.352	71	35	00
GIRDER 5	7.352	71	30	41
TOTAL	29.408			

BENT NO. 9 (N 75°49'32" E)
DISTANCE BETWEEN STATION LINE AND GIRDER 1 15.209 R

	GIRDER SPACE (C.L. BENT)	GIRDER ANGLE D	M	S
SPAN 8 GIRDER 1	0.000	78	05	26
GIRDER 2	6.973	78	00	56
GIRDER 3	6.973	77	56	30
GIRDER 4	6.973	77	52	07
GIRDER 5	6.973	77	47	48
TOTAL	27.894			

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
SB FRAMING PLAN
KCS RAILROAD OVERPASS

4 OF 6

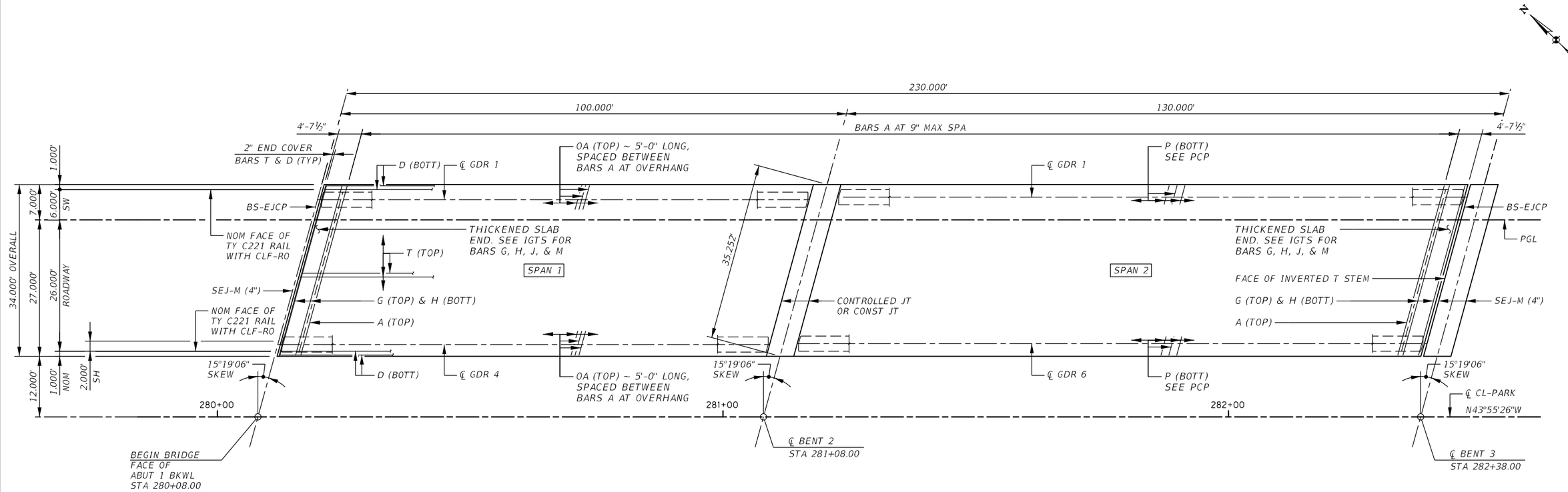
HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 | DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 | SCALE: 1" = 20'-0"

CONTRACT No.

SHEET 210 OF 488

35192-SC-SB-FP07-01.dgn 3/18/2022 1:22:30 PM



PLAN

GENERAL NOTES:

1. ALL CONCRETE SHALL BE CLASS S, CONCRETE STRENGTH f'c = 4000 PSI
2. FOR GIRDER BEARING PAD, MISC. SLAB AND THICKENED SLAB END DETAILS NOT SHOWN SEE BRSM, IGD, IGEB, IGMS, IGND AND IGTS STANDARDS.
3. SEE PMDF STANDARD FOR DETAILS AND QUANTITY ADJUSTMENTS IF THIS OPTION IS USED.
4. FOR SEALED EXPANSION JOINT DETAILS NOT SHOWN, SEE SEJ-M STANDARD. FOR SEJ-M QUANTITIES NOT SHOWN SEE ESTIMATED QUANTITIES SHEET.
5. DEFORMED WELDED WIRE REINFORCEMENT (WWR) (ASTM A1064) OF EQUAL SIZE AND SPACING MAY BE SUBSTITUTED FOR BARS A, D, OA, P OR T UNLESS NOTED OTHERWISE. PROVIDE THE SAME LAPS AS REQUIRED FOR REINFORCING BARS.
6. FOR RAIL DETAILS NOT SHOWN SEE TRAFFIC RAIL TYPE C221 WITH CLF-RO.
7. FOR GIRDER LAYOUTS SEE FRAMING PLAN SHEETS.
8. ALL REINFORCING SHALL BE GRADE 60 STEEL.
9. PROVIDE BAR LAPS, WHERE REQUIRED, AS FOLLOWS:
   EPOXY COATED ~ #4 = 2'-5"
10. COVER DIMENSIONS ARE CLEAR DIMENSIONS UNLESS NOTED OTHERWISE.

STATE OF TEXAS
CHONG KUK HONG
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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
NB DECK DETAILS
KCS RAILROAD OVERPASS

1 OF 6

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
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TBPE FIRM #F-312

DRAWN: CPM	DATE: 3/18/2022	DESIGNED: CKH	DATE: 3/18/2022
CHECKED: ESC	DATE: 3/18/2022	SCALE: 1" = 20'-0"	

CONTRACT No.

SHEET 213 OF 488

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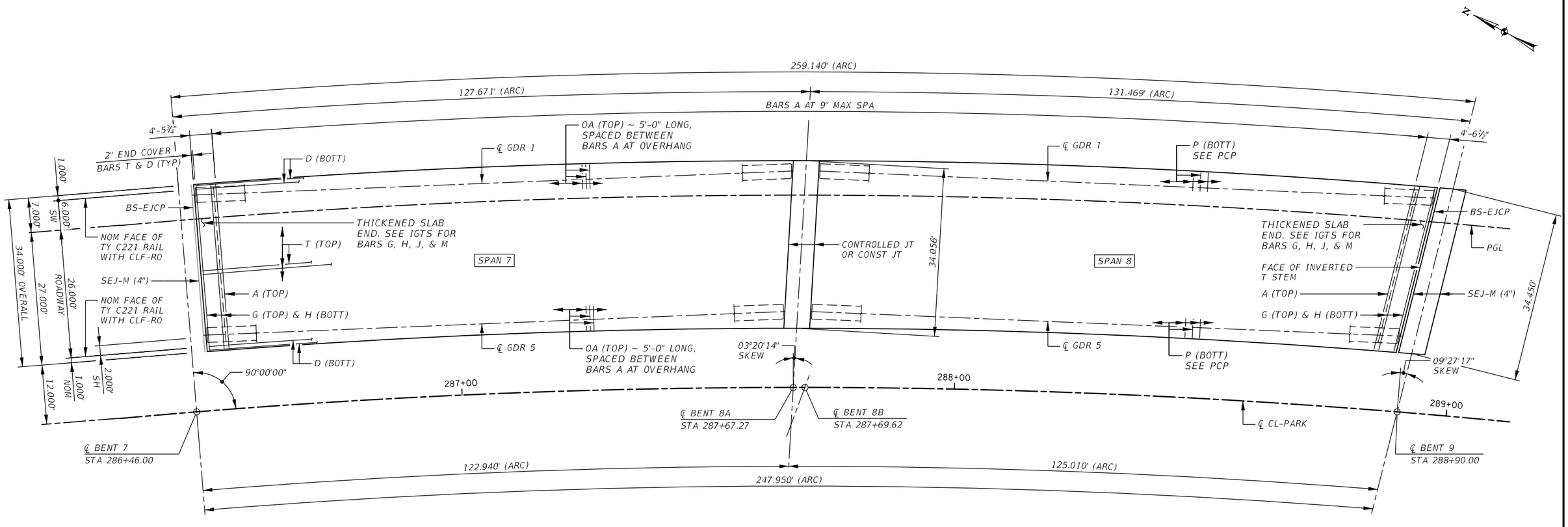

PLAN

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
NB DECK DETAILS
KCS RAILROAD OVERPASS

4 OF 6

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN: CPM	DATE: 3/18/2022	DESIGNED: CKH	DATE: 3/18/2022
CHECKED: ESC	DATE: 3/18/2022	SCALE: 1" = 20'-0"	

CONTRACT No.

SHEET 216 OF 488

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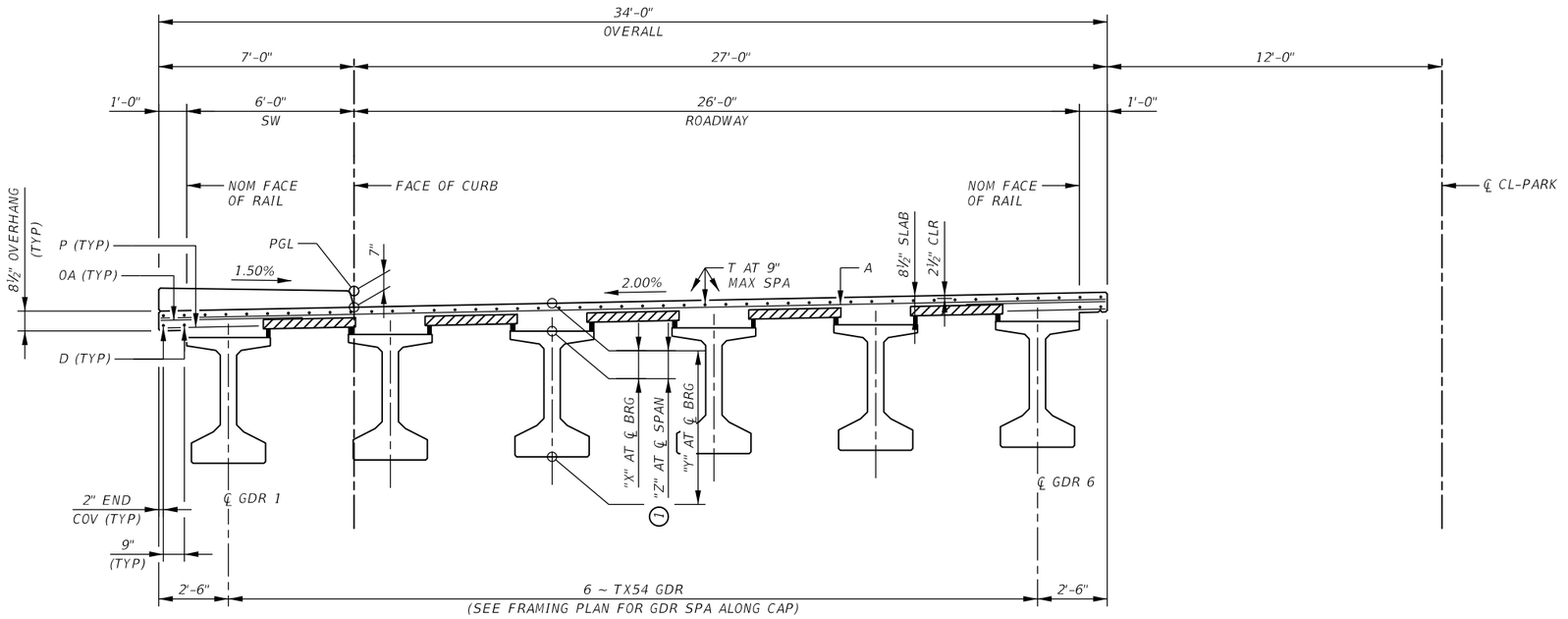

(1) THEORETICAL DIMENSION.

TYPICAL TRANSVERSE SECTION
SPAN 2

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED
PROFESSIONAL ENGINEER

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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
NB DECK SECTION
KCS RAILROAD OVERPASS

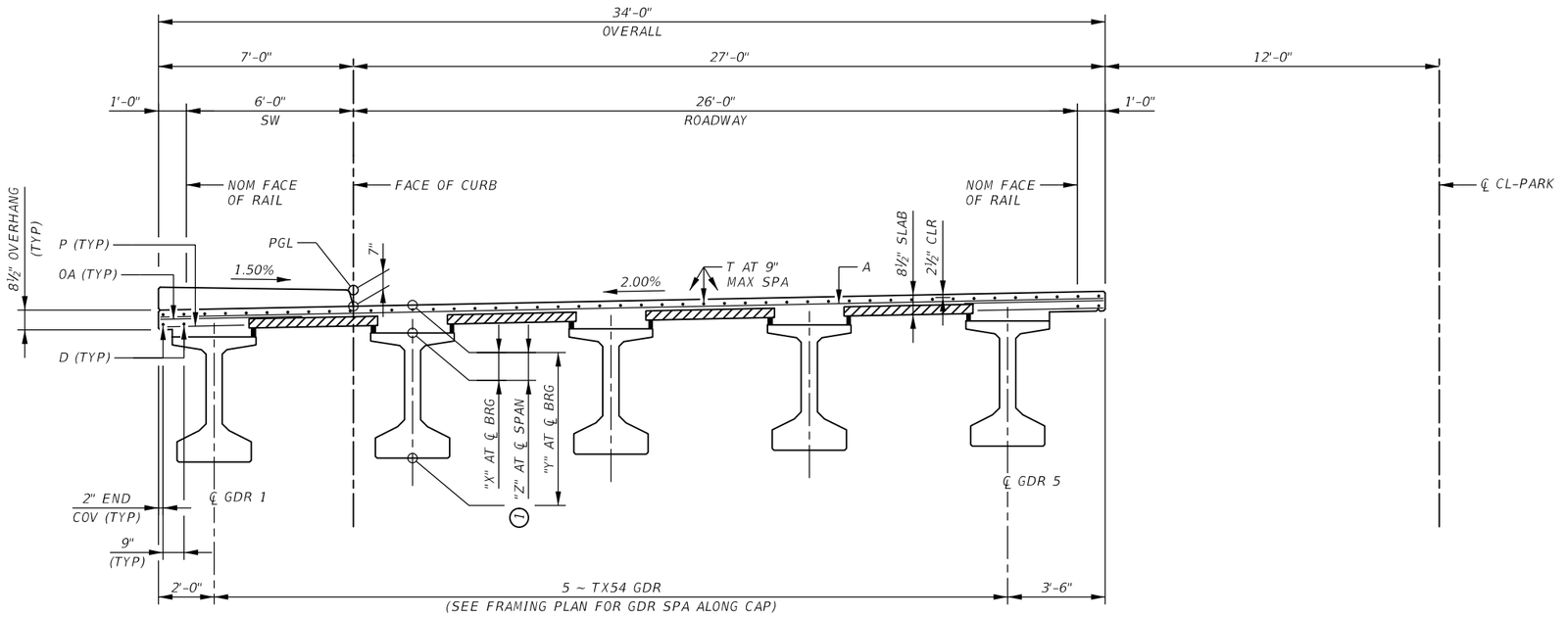
2 OF 5

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 | DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 | SCALE: 3/16" = 1'-0"

CONTRACT No.

SHEET 220 OF 488



(1) THEORETICAL DIMENSION.

TYPICAL TRANSVERSE SECTION SPANS 6-8

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
NB DECK SECTION
KCS RAILROAD OVERPASS

4 OF 5

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 | DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 | SCALE: 3/16" = 1'-0"

CONTRACT No.

SHEET 222 OF 488

TABLE OF SECTION DEPTHS (5)

SPAN NO.	GIRDER NO.	"X" AT C.L. BRG	"Y" AT C.L. BRG	"Z" AT (1) C.L. SPAN
1	1	1'-0"	5'-6"	10 ⅜"
	2 & 3	1'-0"	5'-6"	10 ⅛"
	4	1'-0"	5'-6"	10 ½"
2	1 - 3	1'-0"	5'-6"	1'-0"
	4 & 5	1'-0"	5'-6"	11 ⅛"
	6	1'-0"	5'-6"	11 ⅜"
3	1	11"	5'-5"	10 ½"
	2 - 4	11"	5'-5"	10 ¾"
4	1	11"	5'-5"	11 ⅛"
	2 & 3	11"	5'-5"	11 ¼"
	4	11"	5'-5"	11"
5	1	11"	5'-5"	11 ⅛"
	2 & 3	11"	5'-5"	11 ¼"
	4	11"	5'-5"	11"
6	1	11"	5'-5"	11 ⅜"
	2 - 4	11"	5'-5"	11 ¾"
	5	11"	5'-5"	11 ⅜"
7	1 & 3	11"	5'-5"	1'-0 ⅛"
	2	11"	5'-5"	1'-0 ¼"
	4	11"	5'-5"	1'-0"
	5	11"	5'-5"	11 ⅜"
8	1 & 2	11"	5'-5"	1'-0 ⅛"
	3	11"	5'-5"	1'-0"
	4	11"	5'-5"	1'-0 ⅜"
	5	11"	5'-5"	11 ⅛"
9	1 - 4	11"	5'-5"	11"
	2	11"	5'-5"	11 ⅛"
	3	11"	5'-5"	11"
10	1	1'-0"	5'-6"	10 ⅛"
	2 & 3	1'-0"	5'-6"	11"
	4	1'-0"	5'-6"	10 ⅜"
11	1	1'-0 ½"	5'-6 ½"	10 ½"
	2 & 3	1'-0 ½"	5'-6 ½"	10 ⅝"
	4	1'-0 ½"	5'-6 ½"	10"
12	1	1'-0 ½"	5'-6 ½"	10 ⅜"
	2 & 3	1'-0 ½"	5'-6 ½"	10 ¾"
	4	1'-0 ½"	5'-6 ½"	10 ⅛"

ESTIMATED QUANTITIES

	ITEM	UNIT	SPAN 1	SPAN 2	SPAN 3	SPAN 4	SPAN 5	SPAN 6	SPAN 7	SPAN 8	SPAN 9	SPAN 10	SPAN 11	SPAN 12	TOTAL
	REINF CONC SLAB (HPC) (CL S)	SF	3,307	4,235	2,812	3,132	3,149	3,980	4,076	4,174	3,053	3,218	3,668	3,758	42,563
(2)	PRESTR CONC GIRDER (Tx54)	LF	387.71	745.42	329.47	366.62	368.40	582.97	598.11	612.97	357.48	377.10	430.18	440.70	5,597.14
	CL S CONC (HPC) (SDWLK)	SF	898	910	591	686	691	864	890	916	656	705	799	947	9,554
(4) (3)	REINF STL	LB	7,607	9,740	6,468	7,204	7,242	9,155	9,374	9,601	7,021	7,401	8,437	8,643	97,894

BAR TABLE

BAR	SIZE
A	#4
D	#4
G	#4
H	#4
J	#4
M	#4
OA	#5
P	#4
T	#4

(1) THEORETICAL DIMENSION.

(2) QUANTITIES SHOWN ARE FOR BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE.

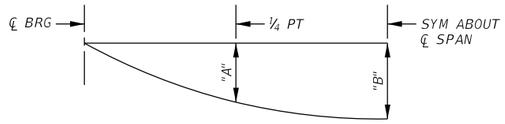
(3) CONTRACTOR'S INFORMATION ONLY.

(4) REINFORCING STEEL WEIGHT IS CALCULATED USING AN APPROXIMATE FACTOR OF 2.3 LBS/SF FOR SLAB.

(5) SEE PCP HAUNCH REINFORCING AND SPECIAL GRADING DETAILS FOR ALL AREAS WHERE MEASURED HAUNCH EXCEEDS 3½".

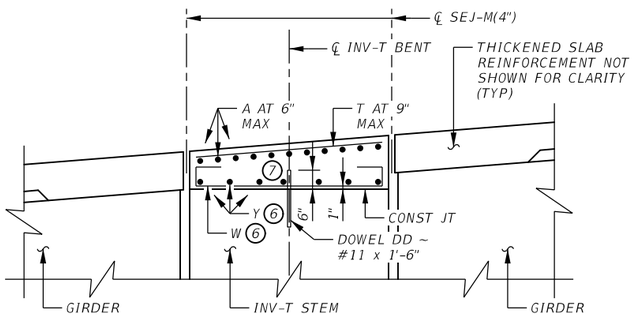
(6) SEE IGMS FOR REINFORCING DETAILS.

(7) ADDITIONAL REINFORCED CONCRETE DEPTH OVER CAP IS SUBSIDIARY TO DECK SURFACE AREA PAY ITEM.

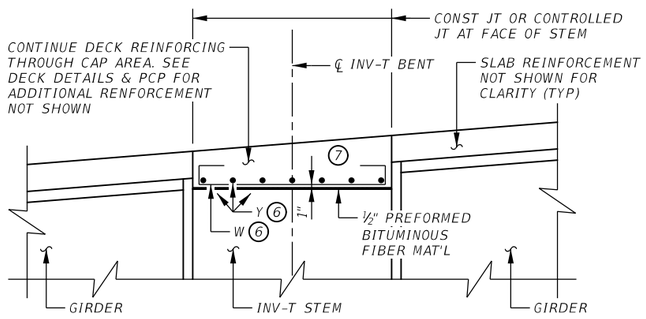


DEAD LOAD DEFLECTION DIAGRAM

DEFLECTIONS SHOWN ARE DUE TO CIP CONCRETE SLAB ONLY (EC = 5,000 KSI). CALCULATED DEFLECTIONS SHOWN ARE THEORETICAL AND ACTUAL DEFLECTIONS MAY BE LESS. DEFLECTIONS SHALL BE ADJUSTED BASED ON FIELD OBSERVATIONS.
(FOR DEAD LOAD DEFLECTIONS SEE FRAMING PLANS.)



SHOWING EXPANSION JOINTS



SHOWING CONST JTS OR CONTROLLED JTS

REINFORCEMENT OVER INV-T BENTS

STATE OF TEXAS
CHONG KUK HONG
80621
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MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
NB DECK SECTION
KCS RAILROAD OVERPASS

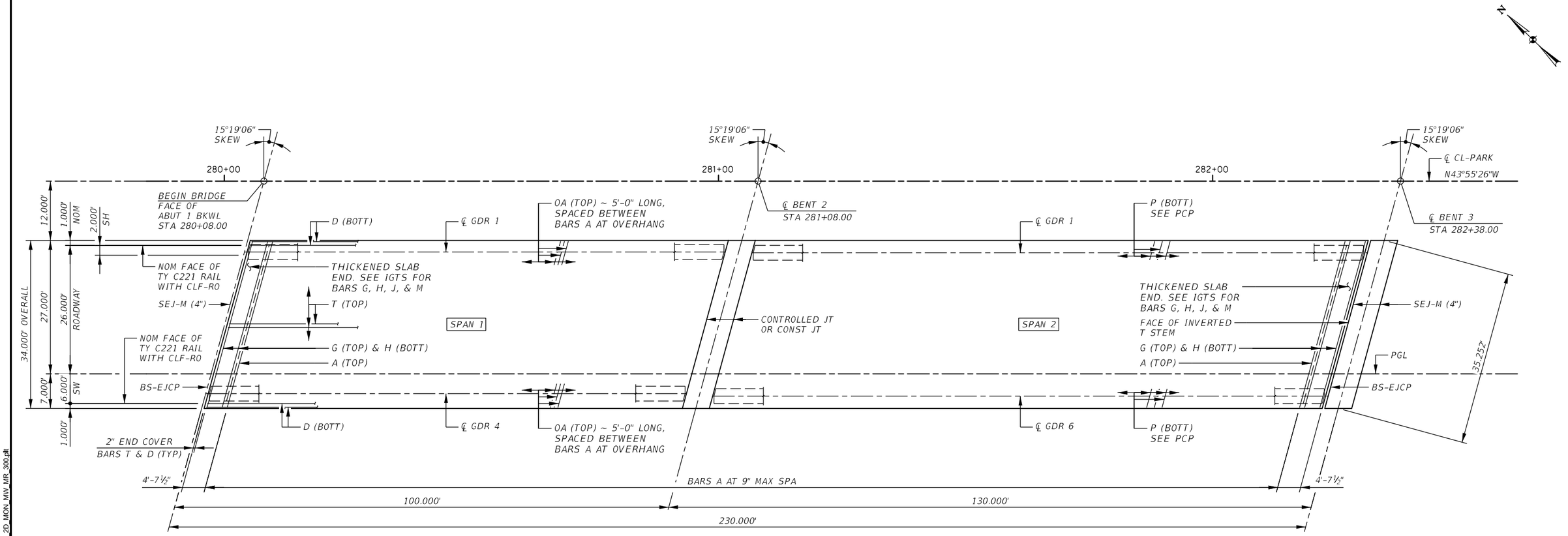
5 OF 5

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 | DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 | SCALE: 1/4" = 1'-0"

CONTRACT No.

SHEET 223 OF 488



PLAN

GENERAL NOTES:

1. ALL CONCRETE SHALL BE CLASS S, CONCRETE STRENGTH f'c = 4000 PSI
2. FOR GIRDER BEARING PAD, MISC. SLAB AND THICKENED SLAB END DETAILS NOT SHOWN SEE BRSM, IGD, IGEB, IGMS, IGND AND IGTS STANDARDS.
3. SEE PMDF STANDARD FOR DETAILS AND QUANTITY ADJUSTMENTS IF THIS OPTION IS USED.
4. FOR SEALED EXPANSION JOINT DETAILS NOT SHOWN, SEE SEJ-M STANDARD. FOR SEJ-M QUANTITIES NOT SHOWN SEE ESTIMATED QUANTITIES SHEET.
5. DEFORMED WELDED WIRE REINFORCEMENT (WWR) (ASTM A1064) OF EQUAL SIZE AND SPACING MAY BE SUBSTITUTED FOR BARS A, D, 0A, P OR T UNLESS NOTED OTHERWISE. PROVIDE THE SAME LAPS AS REQUIRED FOR REINFORCING BARS.
6. FOR RAIL DETAILS NOT SHOWN SEE TRAFFIC RAIL TYPE C221 WITH CLF-RO.
7. FOR GIRDER LAYOUTS SEE FRAMING PLAN SHEETS.
8. ALL REINFORCING SHALL BE GRADE 60 STEEL.
9. PROVIDE BAR LAPS, WHERE REQUIRED, AS FOLLOWS:
   EPOXY COATED ~ #4 = 2'-5"
10. COVER DIMENSIONS ARE CLEAR DIMENSIONS UNLESS NOTED OTHERWISE.

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
SB DECK DETAILS
KCS RAILROAD OVERPASS

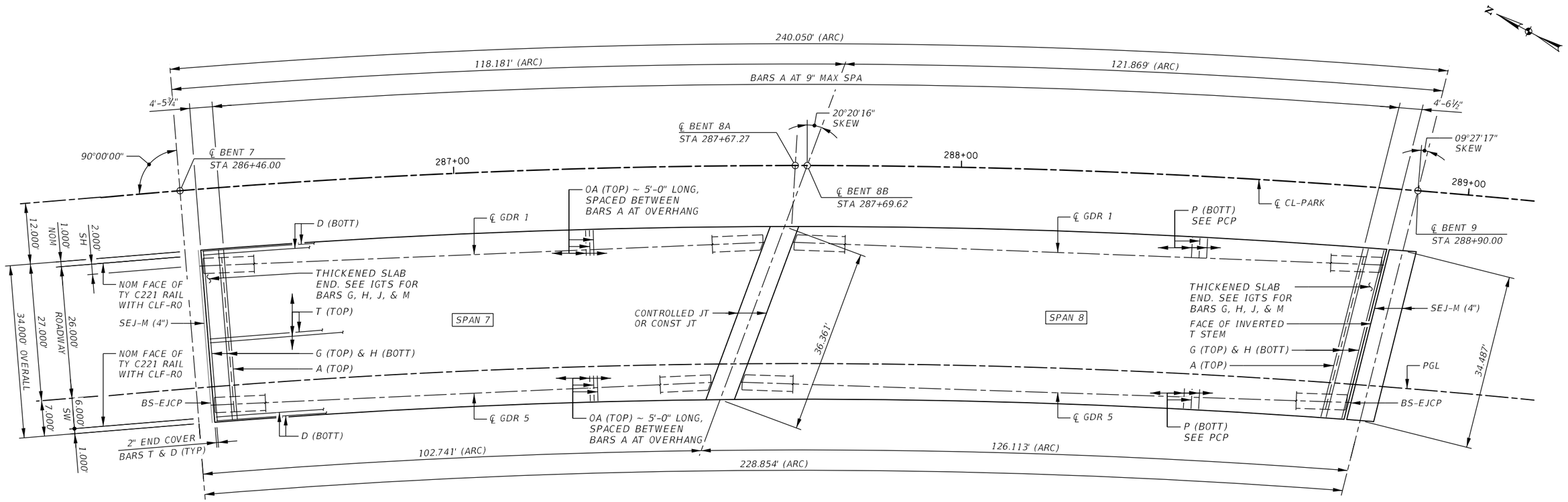
1OF 6

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN: CPM	DATE: 3/18/2022	DESIGNED: CKH	DATE: 3/18/2022
CHECKED: ESC	DATE: 3/18/2022	SCALE: 1" = 20'-0"	

CONTRACT No.

SHEET 224 OF 488



PLAN

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
SB DECK DETAILS
KCS RAILROAD OVERPASS

4 OF 6

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
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FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM	DATE: 3/18/2022	DESIGNED: CKH	DATE: 3/18/2022
CHECKED: ESC	DATE: 3/18/2022	SCALE: 1" = 20'-0"	

CONTRACT No.

SHEET 227 OF 488

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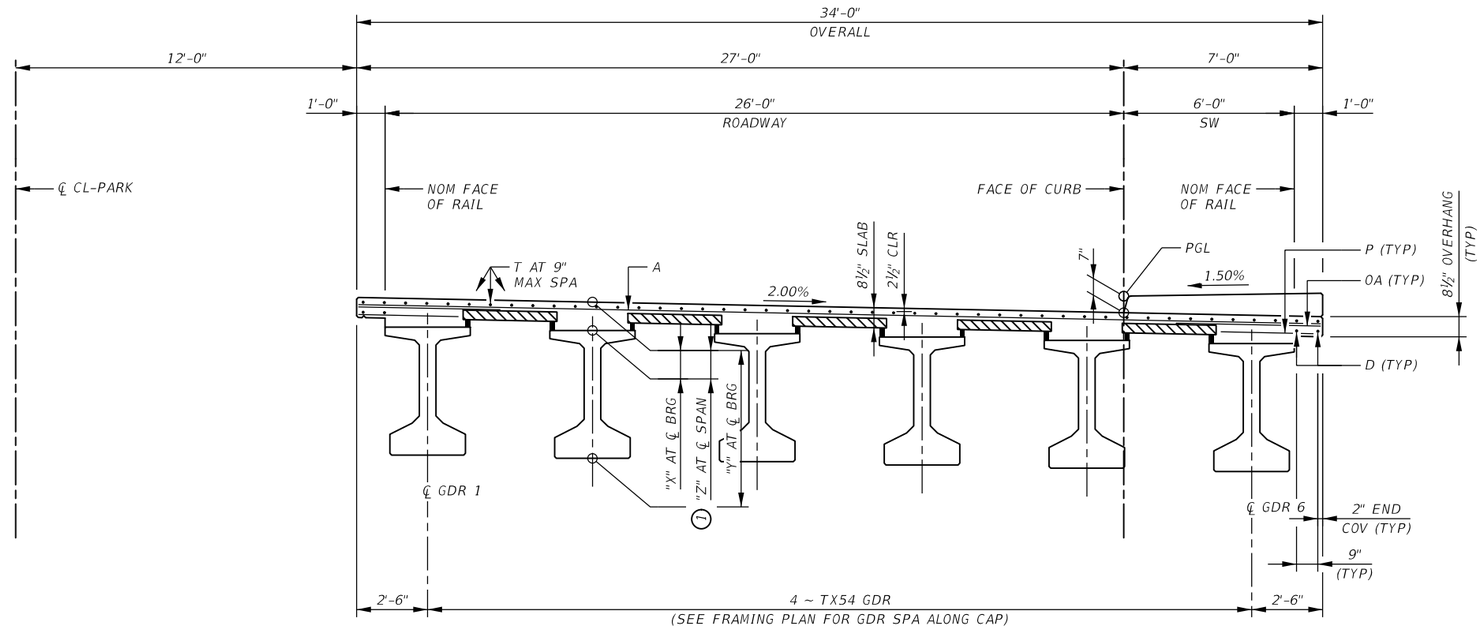
35192-SC-SB-DD07-01.dgn 3/18/2022 1:22:37 PM



1 THEORETICAL DIMENSION.

TYPICAL TRANSVERSE SECTION
SPAN 2

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
SB DECK SECTION
KCS RAILROAD OVERPASS

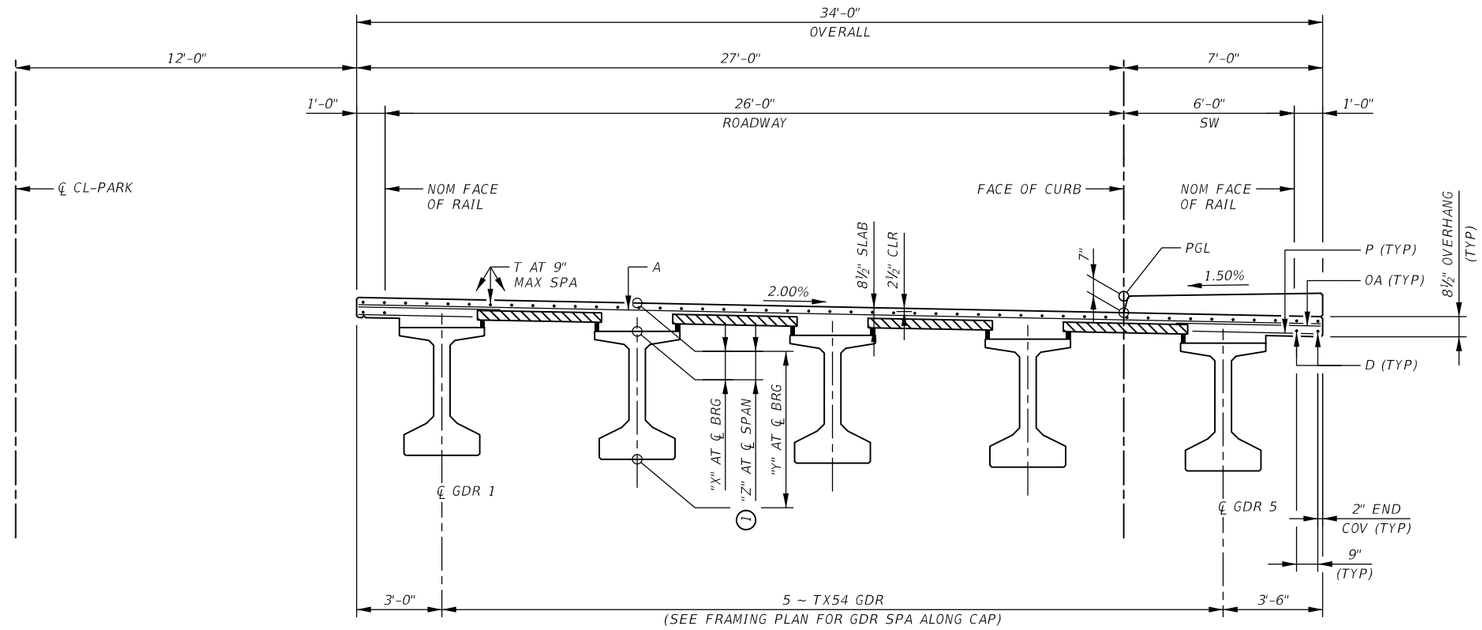
2 OF 5

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 | DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 | SCALE: 3/16" = 1'-0"

CONTRACT No.

SHEET 231 OF 488



(1) THEORETICAL DIMENSION.

TYPICAL TRANSVERSE SECTION
SPANS 6-8

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
SB DECK SECTION
KCS RAILROAD OVERPASS

3 OF 5

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN:	CPM	DATE: 3/18/2022	DESIGNED:	CKH	DATE: 3/18/2022
CHECKED:	ESC	DATE: 3/18/2022	SCALE:	3/16" = 1'-0"	

CONTRACT No.

SHEET 232 OF 488

35192-SC-SB-DS03.dgn 3/18/2022 1:22:39 PM

TABLE OF SECTION DEPTHS (5)

SPAN NO.	GIRDER NO.	"X" AT C.L. BRG	"Y" AT C.L. BRG	"Z" AT (1) C.L. SPAN
1	1	1'-0"	5'-6"	10 1/8"
	2 & 3	1'-0"	5'-6"	10 1/4"
	4	1'-0"	5'-6"	9 7/8"
2	1 - 3	1'-0"	5'-6"	11 1/4"
	4 & 5	1'-0"	5'-6"	11 1/8"
	6	1'-0"	5'-6"	10 7/8"
3	1	11"	5'-5"	10 1/2"
	2	11"	5'-5"	11"
	3 & 4	11"	5'-5"	11 1/8"
4	1	11"	5'-5"	10 5/8"
	2 & 3	11"	5'-5"	10 3/4"
	4	11"	5'-5"	10 1/2"
5	1 & 4	11"	5'-5"	10 5/8"
	2 & 3	11"	5'-5"	10 7/8"
6	1	11"	5'-5"	11 1/4"
	2 - 4	11"	5'-5"	11"
	5	11"	5'-5"	10 3/4"
7	1	11"	5'-5"	11 1/2"
	2	11"	5'-5"	11"
	3	11"	5'-5"	10 7/8"
	4	11"	5'-5"	10 5/8"
	5	11"	5'-5"	10 3/8"
8	1 & 2	11"	5'-5"	11 1/2"
	3 & 5	11"	5'-5"	11 3/8"
	4	11"	5'-5"	11 3/4"
9	1	11"	5'-5"	10 3/4"
	2 & 3	11"	5'-5"	11 1/8"
	4	11"	5'-5"	10 1/8"
10	1	1'-0"	5'-6"	10 3/8"
	2 & 3	1'-0"	5'-6"	10 1/2"
	4	1'-0"	5'-6"	10 1/4"
11	1	1'-0 1/2"	5'-6 1/2"	10 1/8"
	2 & 3	1'-0 1/2"	5'-6 1/2"	10 1/4"
	4	1'-0 1/2"	5'-6 1/2"	9 3/4"
12	1	1'-0 1/2"	5'-6 1/2"	10 1/4"
	2 & 3	1'-0 1/2"	5'-6 1/2"	10 3/8"
	4	1'-0 1/2"	5'-6 1/2"	9 7/8"

ESTIMATED QUANTITIES

	ITEM	UNIT	SPAN 1	SPAN 2	SPAN 3	SPAN 4	SPAN 5	SPAN 6	SPAN 7	SPAN 8	SPAN 9	SPAN 10	SPAN 11	SPAN 12	TOTAL
	REINF CONC SLAB (HPC) (CL S)	SF	3,307	4,235	3,352	3,039	3,022	3,823	3,577	4,036	3,252	3,089	3,523	3,612	41,867
(2)	PRESTR CONC GIRDER (Tx54)	LF	387.71	745.47	392.37	355.66	353.64	559.57	522.81	590.10	380.85	362.05	413.04	423.57	5,486.85
	CL S CONC (HPC) (SDWLK)	SF	847	910	753	658	653	816	730	880	716	667	755	895	9,280
(4) (3)	REINF STL	LB	7,607	9,740	7,710	6,989	6,952	8,792	8,228	9,282	7,480	7,105	8,102	8,307	96,294

BAR TABLE

BAR	SIZE
A	#4
D	#4
G	#4
H	#4
J	#4
M	#4
OA	#5
P	#4
T	#4

(1) THEORETICAL DIMENSION.

(2) QUANTITIES SHOWN ARE FOR BOTTOM GIRDER FLANGE LENGTHS WITH ADJUSTMENTS MADE FOR GIRDER SLOPE.

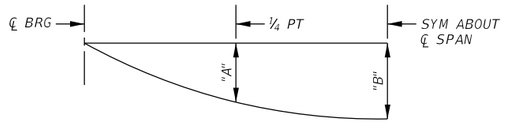
(3) CONTRACTOR'S INFORMATION ONLY.

(4) REINFORCING STEEL WEIGHT IS CALCULATED USING AN APPROXIMATE FACTOR OF 2.3 LBS/SF FOR SLAB.

(5) SEE PCP HAUNCH REINFORCING AND SPECIAL GRADING DETAILS FOR ALL AREAS WHERE MEASURED HAUNCH EXCEEDS 3½".

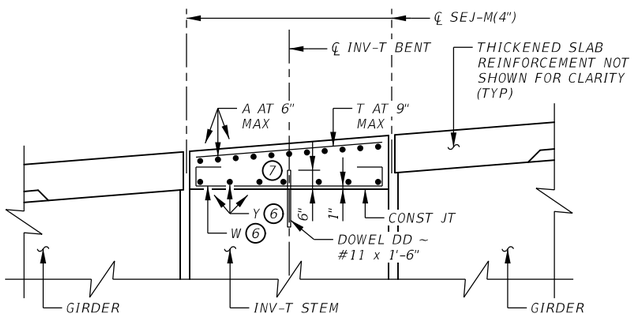
(6) SEE IGMS FOR REINFORCING DETAILS.

(7) ADDITIONAL REINFORCED CONCRETE DEPTH OVER CAP IS SUBSIDIARY TO DECK SURFACE AREA PAY ITEM.

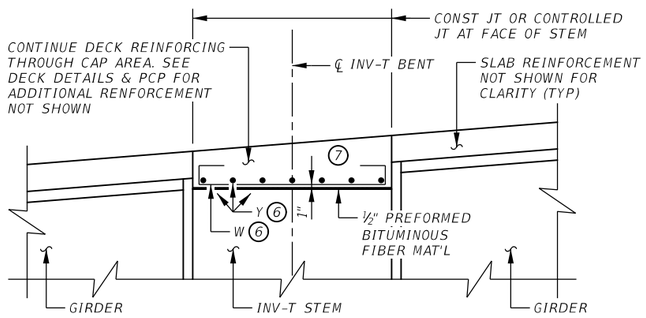


DEAD LOAD DEFLECTION DIAGRAM

DEFLECTIONS SHOWN ARE DUE TO CIP CONCRETE SLAB ONLY (EC = 5,000 KSI). CALCULATED DEFLECTIONS SHOWN ARE THEORETICAL AND ACTUAL DEFLECTIONS MAY BE LESS. DEFLECTIONS SHALL BE ADJUSTED BASED ON FIELD OBSERVATIONS.
(FOR DEAD LOAD DEFLECTIONS SEE FRAMING PLANS.)



SHOWING EXPANSION JOINTS



SHOWING CONST JTS OR CONTROLLED JTS

REINFORCEMENT OVER INV-T BENTS

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

MARCH 18, 2022.

"NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

BRIDGE
SB DECK SECTION
KCS RAILROAD OVERPASS

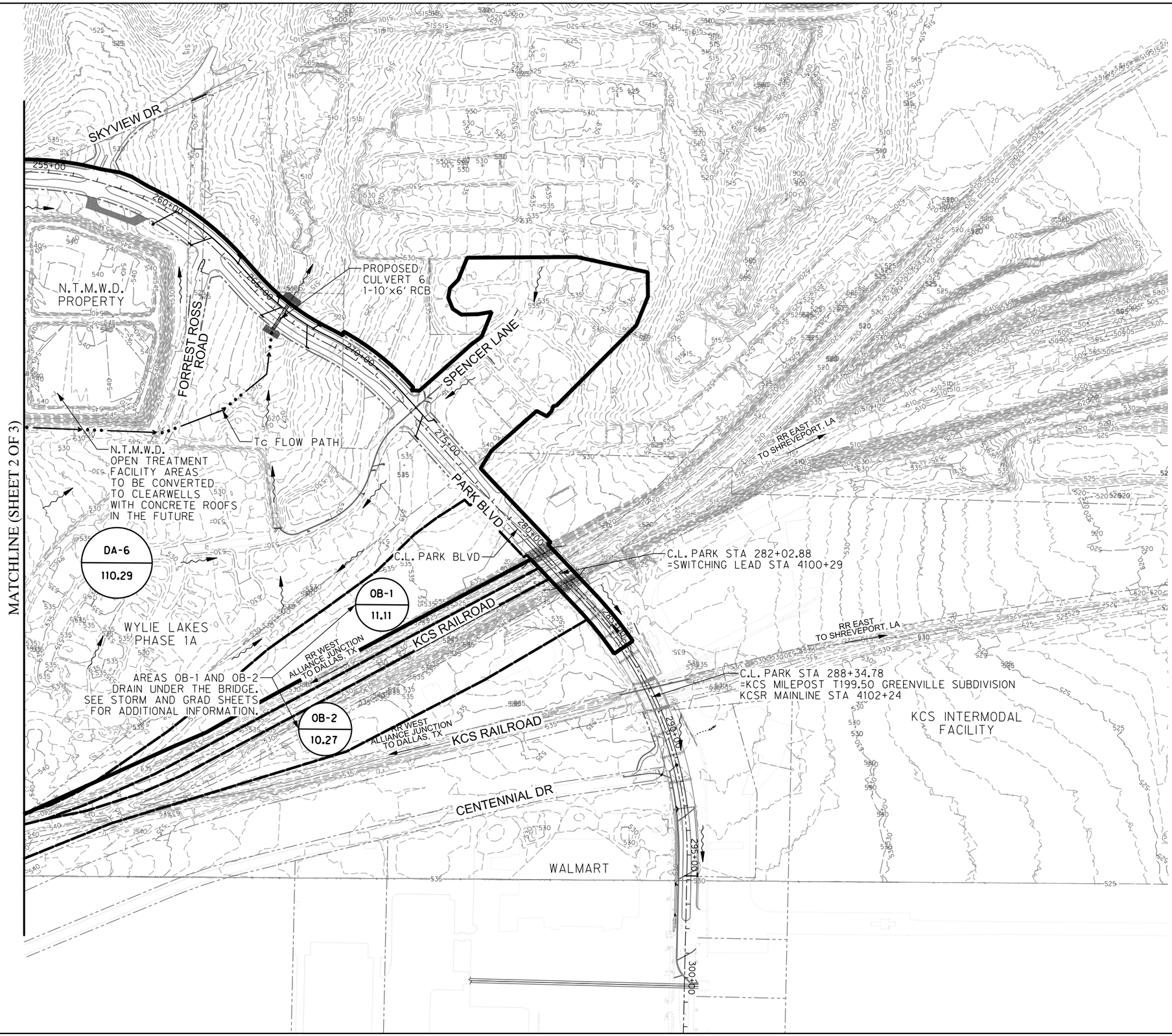
5 OF 5

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: CPM DATE: 3/18/2022 DESIGNED: CKH DATE: 3/18/2022
CHECKED: ESC DATE: 3/18/2022 SCALE: 1/4" = 1'-0"

CONTRACT No.

SHEET 234 OF 488



N

0 100 200 300 400
HORIZONTAL SCALE IN FEET

LEGEND:

- MAJOR DRAINAGE DIVIDE
- MINOR DRAINAGE DIVIDE
- 510 EXISTING CONTOUR
- DA-1 / 15.1 — DRAINAGE AREA NAME / AREA IN ACRES
- DIRECTION OF FLOW

NOTES:

1. RAINFALL INTENSITIES BASED ON TECHINCAL MEMORANDUM NWS HYDRO-35 DATED, JUNE, 1977 AND TECHNICAL PAPER NO. 40 DATED, MAY, 1961.
2. N.T.M.W.D. OPEN TREATMENT FACILITY AREAS ARE EXCLUDED FROM DRAINAGE AREAS.

C-VALUES ARE BASED ON WEIGHTED COMPUTATION USING THE FOLLOWING LAND USE VALUES:

RESIDENTIAL = 0.60
ROADWAY = 0.90
ROADWAY W/15' BUFFER= 0.80
ROADWAY W/30' BUFFER= 0.75
PASTURE = 0.40
INDUSTRIAL = 0.90
WOODS = 0.30
RAILROAD AREA = 0.50

DA NAME	AREA (ac)	C	Tc (min)	INTENSITY (in/hr)	Q100 (cfs)
DA-6	110.29	0.66	18	7.00	511.03
	50.07	0.60			
	30.67	0.90			
	10.99	0.40			
	9.02	0.30			
	5.29	0.90			

DA NAME	AREA (ac)	C	Tc (mln)	INTENSITY (In/hr)	Q100 (cfs)
OB-1	11.11	0.35	20.00	7.00	27.61
	3.05	0.50			
	8.06	0.30			
OB-2	10.27	0.37	11.11	7.00	26.79
	2.62	0.90			
	7.65	0.50			

STATE OF TEXAS
THAMIR M. WEAVER
138236
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by Thamir Michael Weaver, PE#138236 on 03-18-22. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act. TBPELS Engineering Firm #F-312

"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

DRAINAGE AREA MAP
OFFSITE

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: TMW DATE: 9/30/2021 DESIGNED: BB DATE: 9/30/2021
CHECKED: TMW DATE: 9/30/2021 SCALE: 1"=400'

CONTRACT No. 35192

SHEET 237 OF 488 DMAP-03

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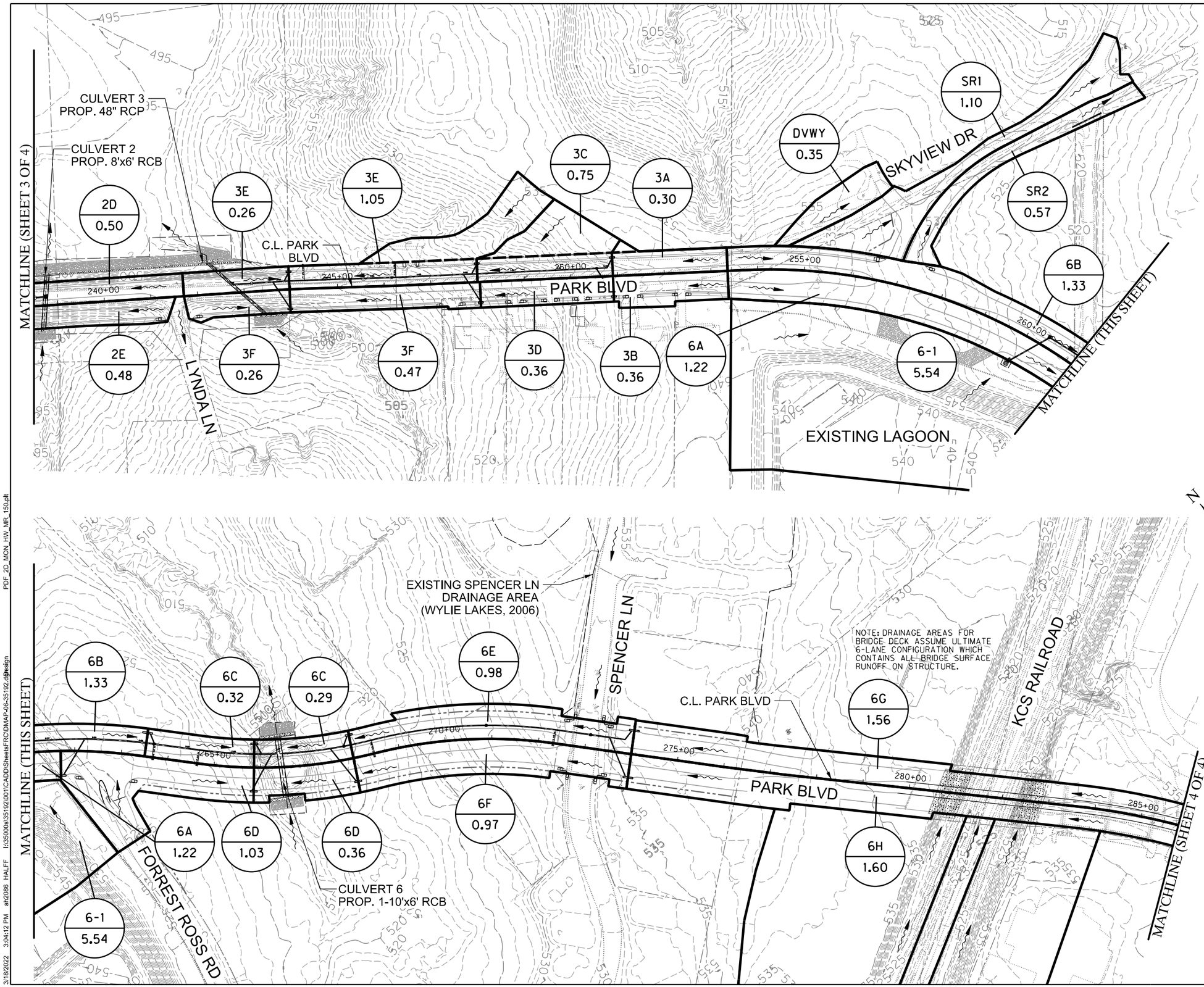

NOTES:

1. RAINFALL INTENSITIES BASED ON TECHINCAL MEMORANDUM NWS HYDRO-35 DATED, JUNE, 1977 AND TECHNICAL PAPER NO. 40 DATED, MAY, 1961.
2. N.T.M.W.D. OPEN TREATMENT FACILITY AREAS EXCLUDED FROM DRAINAGE AREAS.
3. ROADWAY DRAINAGE C VALUES USED:
   BOUNDARY AT R.O.W. : C=0.9
   BOUNDARY 15' OFF R.O.W. : C=0.80
   BOUNDARY 30' OFF R.O.W. : C=0.75
4. OFFSITE ONTO ROADWAY C VALUES USED:
   INSIDE R.O.W. : C=0.9
   BUFFER STRIP: C=0.3
   RESIDENTIAL: C=0.6
   COMMERCIAL: C=0.9

STATE OF TEXAS
THAMIR M. WEAVER
138236
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

DRAINAGE AREA MAP
ROADWAY

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	BB	DATE: 9/30/2021
CHECKED:	TMW	DATE: 9/30/2021	SCALE:	1"=200'	

CONTRACT No. 35192

SHEET 240 OF 488 DMAP-06

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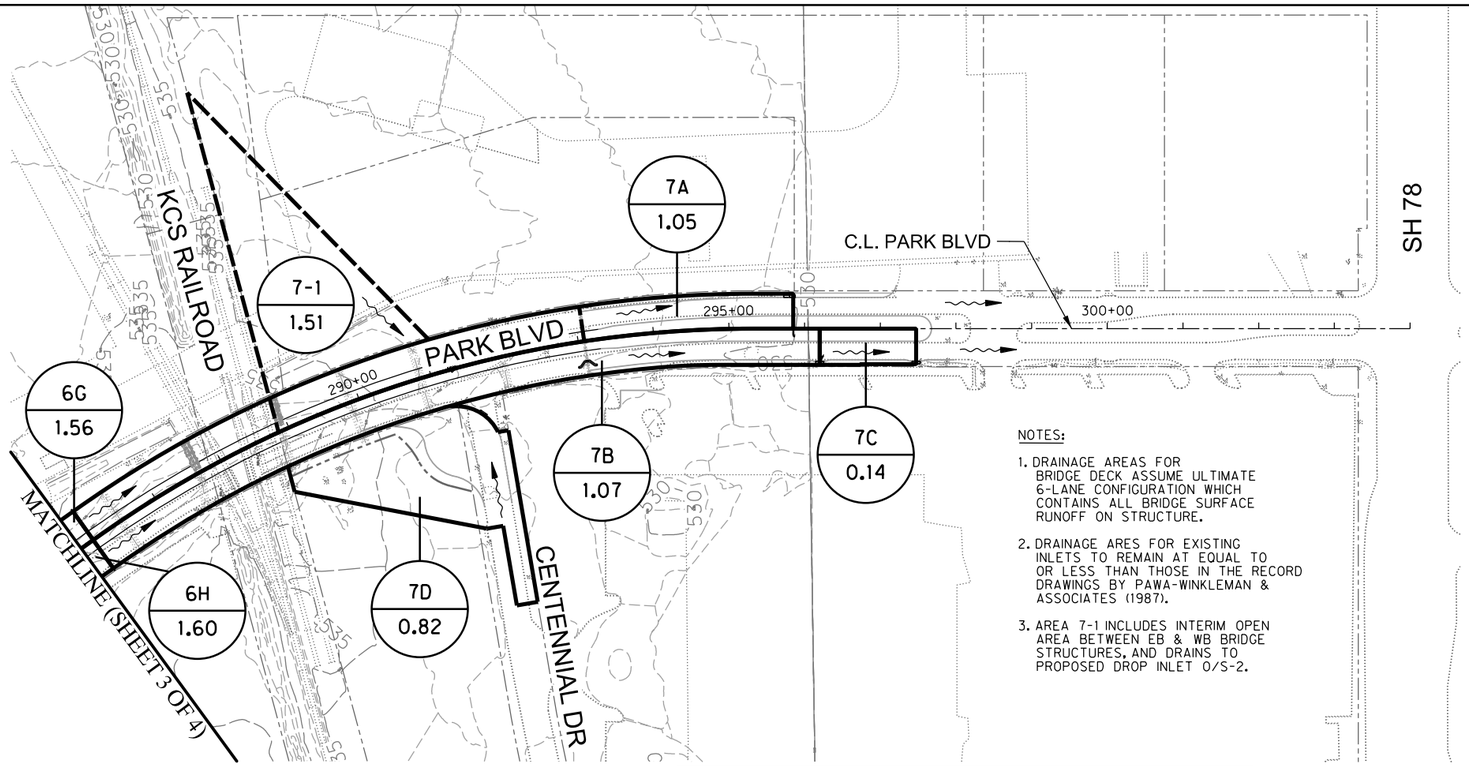

NOTES:

1. DRAINAGE AREAS FOR BRIDGE DECK ASSUME ULTIMATE 6-LANE CONFIGURATION WHICH CONTAINS ALL BRIDGE SURFACE RUNOFF ON STRUCTURE.
2. DRAINAGE ARES FOR EXISTING INLETS TO REMAIN AT EQUAL TO OR LESS THAN THOSE IN THE RECORD DRAWINGS BY PAWA-WINKLEMAN & ASSOCIATES (1987).
3. AREA 7-1 INCLUDES INTERIM OPEN AREA BETWEEN EB & WB BRIDGE STRUCTURES, AND DRAINS TO PROPOSED DROP INLET O/S-2.

0 50 100 150 200
HORIZONTAL SCALE IN FEET

LEGEND

- DRAINAGE DIVIDE
- DRAINAGE SUB-DIVIDE
- DA-1 — DRAINAGE AREA NAME
- 15.1 — AREA IN ACRES
- DIRECTION OF FLOW

NOTES:

1. RAINFALL INTENSITIES BASED ON TECHINCAL MEMORANDUM NWS HYDRO-35 DATED, JUNE, 1977 AND TECHNICAL PAPER NO. 40 DATED, MAY, 1961.
2. N.T.M.W.D. OPEN TREATMENT FACILITY AREAS EXCLUDED FROM DRAINAGE AREAS.
3. ROADWAY DRAINAGE C VALUES USED:
   BOUNDARY AT R.O.W. : C=0.9
   BOUNDARY 15' OFF R.O.W. : C=0.80
   BOUNDARY 30' OFF R.O.W. : C=0.75
4. OFFSITE ONTO ROADWAY C VALUES USED:
   INSIDE R.O.W. : C=0.9
   BUFFER STRIP: C=0.3
   RESIDENTIAL: C=0.6
   COMMERCIAL: C=0.9

Drainage Area	Tc (min)	I100 (in/hr)	Area (acres)	Runoff Coeff. C	Q100 (cfs)
4A	10	8.74	0.39	0.90	3.1
4B	10	8.74	0.78	0.75	5.1
4C	10	8.74	1.59	0.71	9.9
4D	10	8.74	0.96	0.76	6.4
4E	10	8.74	0.80	0.80	5.6
4F	10	8.74	1.18	0.79	8.2
4G	10	8.74	1.10	0.80	7.7
4H	10	8.74	1.36	0.75	9.0
4J	10	8.74	1.14	0.80	7.9
5A	10	8.74	1.40	0.80	9.8
5B	10	8.74	1.35	0.80	9.4
5C	10	8.74	0.99	0.87	7.6
5D	10	8.74	1.04	0.85	7.7
5E	10	8.74	0.71	0.90	5.6
5F	10	8.74	0.91	0.80	6.4
5G	15	7.52	1.44	0.67	7.3
5H	10	8.74	0.49	0.90	3.9

Drainage Area	Tc (min)	I100 (in/hr)	Area (acres)	Runoff Coeff. C	Q100 (cfs)
1A	10	8.74	1.33	0.65	7.6
1B	10	8.74	1.33	0.67	7.8
1C	10	8.74	0.75	0.90	5.9
1D	10	8.74	0.86	0.72	5.4
1E	10	8.74	0.69	0.75	4.5
1F	10	8.74	0.81	0.75	5.3
1G	10	8.74	0.83	0.75	5.5
1H	10	8.74	0.96	0.70	6.5
1J	10	8.74	1.00	0.90	6.8
1K	10	8.74	0.62	0.80	4.4
1L	10	8.74	0.67	0.80	4.7
2A	10	8.74	1.85	0.81	13.1
2B	10	8.74	0.84	0.90	6.6
2C	10	8.74	0.58	0.81	4.1
2D	10	8.74	0.87	0.90	6.9
2E	10	8.74	0.76	0.90	6.0
3A	10	8.74	0.30	0.88	2.3
3B	10	8.74	0.36	0.90	2.9
3C	10	8.74	0.75	0.73	4.8
3D	10	8.74	0.36	0.90	2.8
3E	10	8.74	1.31	0.80	9.1
3F	10	8.74	0.73	0.90	5.7

Drainage Area	Tc (min)	I100 (in/hr)	Area (acres)	Runoff Coeff. C	Q100 (cfs)
DVWY	10	8.74	0.35	0.30	0.9
SR1	10	8.74	1.10	0.61	5.9
SR2	10	8.74	0.57	0.67	3.3
6A	10	8.74	1.22	0.90	9.6
6B	10	8.74	1.33	0.90	10.4
6C	10	8.74	0.61	0.90	4.8
6D	10	8.74	1.39	0.80	9.7
6E	10	8.74	0.98	0.85	7.3
6F	10	8.74	0.97	0.80	6.8
6G	10	8.74	1.56	0.87	11.9
6H	10	8.74	1.60	0.86	12.0
7A	10	8.74	1.05	0.90	8.3
7B	10	8.74	1.07	0.90	8.4
7C	10	8.74	0.14	0.90	1.1
7D	10	8.74	0.82	0.53	3.8

STATE OF TEXAS
THAMIR M. WEAVER
138236
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

DRAINAGE AREA MAP
ROADWAY

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: TMW DATE: 9/30/2021 DESIGNED: BB DATE: 9/30/2021
CHECKED: TMW DATE: 9/30/2021 SCALE: 1"=200'

CONTRACT No. 35192

SHEET 241 OF 488 DMAP-07

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CURB INLETS ON GRADE

INLET			Design Storm Frequency	AREA RUNOFF Q=CIA									Carry-Over from U/S Inlet	Total Gutter Flow	Pvmt. Cross Slope	Gutter Capacity at Full Curb	Gutter Slope	Actual Depth of Gutter Flow	Max. Spread of Water	Inlet Depression	Depth of Flow at Inlet	Required Length of Curb Inlet	Selected Inlet		Carry-Over to D/S Inlet	Carry-Over Inlet Target
No.	Location	Top of Curb Elevation		Time of Conc.	Intensity	Area 1	Runoff Coeff. 1	Area 2	Runoff Coeff. 2	Combined Runoff Coeff.	Total Area	Gutter Flow											Length	Type		
				Tc	I	A1	C1	A2	C2	C	A	Q		Qt	Sx		S	Y	T	H2	H1 = Y + H2	Lr	Ll			
	STA		(years)	(min)	(in/hr)	(acres)		(acres)			(acres)	(cfs)	(cfs)	(cfs)	(ft/ft)	(cfs)	(ft/ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)		(cfs)	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
4A	162+65	559.49	100	10	8.74	0.39	0.90	0.00	0.00	0.90	0.39	3.1	0.0	3.1	0.02	36.5	0.021	0.20	9.9	0.33	0.53	6.2	6	II	0.1	4C
4B	164+50	554.63	100	10	8.74	0.58	0.80	0.20	0.60	0.75	0.78	5.1	0.0	5.1	0.02	46.4	0.0339	0.22	10.9	0.33	0.55	10.0	14	II	0.0	4E
4C	166+00	551.69	100	10	8.74	0.60	0.90	0.99	0.60	0.71	1.59	9.9	0.1	10.0	0.02	26.4	0.011	0.35	17.3	0.33	0.68	15.7	20	II	0.0	4D
4D	169+00	548.46	100	10	8.74	0.52	0.90	0.44	0.60	0.76	0.96	6.4	0.0	6.4	0.02	22.5	0.008	0.31	15.6	0.33	0.64	10.6	14	II	0.0	4F
4E	169+00	549.20	100	10	8.74	0.80	0.80	0.00	0.00	0.80	0.80	5.6	0.0	5.6	0.02	22.5	0.008	0.30	14.9	0.33	0.63	9.6	10	II	0.0	4G
5A	190+00	528.81	100	10	8.74	1.40	0.80	0.00	0.00	0.80	1.40	9.8	0.0	9.8	0.02	56.3	0.05	0.26	13.0	0.33	0.59	17.8	20	II	0.0	5C
5B	190+00	528.81	100	10	8.74	1.35	0.80	0.00	0.00	0.80	1.35	9.4	0.0	9.4	0.02	56.3	0.05	0.26	12.8	0.33	0.59	17.2	20	II	0.0	5D
5E	196+50	528.43	100	10	8.74	0.71	0.90	0.00	0.00	0.90	0.71	5.6	0.0	5.6	0.02	59.1	0.055	0.21	10.3	0.33	0.54	11.1	14	II	0.0	5C
5F	196+50	528.43	100	10	8.74	0.91	0.80	0.00	0.00	0.80	0.91	6.4	0.0	6.4	0.02	59.1	0.055	0.22	10.9	0.33	0.55	12.5	14	II	0.0	5D
5G	201+75	552.08	100	15	7.52	0.72	0.75	0.72	0.60	0.67	1.44	7.3	0.0	7.3	0.02	59.1	0.055	0.23	11.4	0.33	0.56	14.0	14	II	0.0	5E
5H	201+75	552.08	100	10	8.74	0.49	0.90	0.00	0.00	0.90	0.49	3.9	0.0	3.9	0.02	59.1	0.055	0.18	9.0	0.33	0.51	8.1	14	II	0.0	5F
1A	207+50	554.12	100	10	8.74	0.46	0.75	0.88	0.60	0.65	1.33	7.6	0.0	7.6	0.0200	17.8	0.0050	0.36	18.1	0.33	0.69	11.7	14	II	0.0	1B
1B	210+65	552.54	100	10	8.74	0.65	0.75	0.68	0.60	0.67	1.33	7.8	0.0	7.8	0.0200	17.8	0.0050	0.37	18.3	0.33	0.70	11.9	14	II	0.0	1D
1C	210+65	552.54	100	10	8.74	0.75	0.90	0.00	0.00	0.90	0.75	5.9	0.0	5.9	0.0200	17.8	0.0050	0.33	16.5	0.33	0.66	9.6	10	II	0.0	1E
1D	214+00	546.89	100	10	8.74	0.69	0.75	0.17	0.60	0.72	0.86	5.4	0.0	5.4	0.0200	61.7	0.0600	0.20	10.0	0.33	0.53	10.9	10	II	0.4	1F
1E	214+00	544.89	100	10	8.74	0.69	0.75	0.00	0.00	0.75	0.69	4.5	0.0	4.5	0.0200	61.7	0.0600	0.19	9.4	0.33	0.52	9.3	10	II	0.0	1G
1F	217+50	528.18	100	10	8.74	0.81	0.75	0.00	0.00	0.75	0.81	5.3	0.4	5.7	0.0200	61.7	0.0600	0.20	9.9	0.33	0.53	10.6	14	II	0.0	1H
1G	217+50	528.18	100	10	8.74	0.83	0.75	0.00	0.00	0.75	0.83	5.5	0.0	5.5	0.0200	61.7	0.0600	0.20	10.1	0.33	0.53	11.0	14	II	0.0	1J
1K	223+75	525.62	100	10	8.74	0.62	0.80	0.00	0.00	0.80	0.62	4.4	0.0	4.4	0.0200	47.8	0.0360	0.20	10.2	0.33	0.53	8.7	10	II	0.0	1H
1L	223+75	525.62	100	10	8.74	0.67	0.80	0.00	0.00	0.80	0.67	4.7	0.0	4.7	0.0200	47.8	0.0360	0.21	10.5	0.33	0.54	9.3	10	II	0.0	1J
2A	233+00	520.41	100	10	8.74	0.71	0.90	1.14	0.75	0.81	1.85	13.1	0.0	13.1	0.0200	51.0	0.0410	0.30	15.0	0.33	0.63	22.2	20	II	1.3	2C
2B	234+00	516.31	100	10	8.74	0.84	0.90	0.00	0.00	0.90	0.84	6.6	0.0	6.6	0.0200	51.0	0.0410	0.23	11.6	0.33	0.56	12.6	14	II	0.0	2D
2C	235+00	512.84	100	10	8.74	0.23	0.90	0.35	0.75	0.81	0.58	4.1	1.3	5.4	0.0200	51.0	0.0410	0.19	9.7	0.33	0.52	8.4	10	II	0.0	2E
3A	250+90	534.15	100	10	8.74	0.28	0.90	0.02	0.60	0.88	0.30	2.3	0.0	2.3	0.0200	54.9	0.0475	0.15	7.6	0.33	0.48	5.1	10	II	0.0	3C
3B	250+90	534.15	100	10	8.74	0.36	0.90	0.00	0.00	0.90	0.36	2.9	0.0	2.9	0.0200	54.9	0.0475	0.17	8.3	0.33	0.50	6.1	10	II	0.0	3D
3C	248+00	520.57	100	10	8.74	0.33	0.90	0.42	0.60	0.73	0.75	4.8	0.0	4.8	0.0200	54.9	0.0475	0.20	10.0	0.33	0.53	9.7	10	II	0.0	3C
3D	248+05	520.81	100	10	8.74	0.36	0.90	0.00	0.00	0.90	0.36	2.8	0.0	2.8	0.0200	54.9	0.0475	0.16	8.2	0.33	0.49	6.1	10	II	0.0	3D
6A	261+70	523.44	100	10	8.74	1.22	0.90	0.00	0.00	0.90	1.22	9.6	0.0	9.6	0.0200	35.6	0.0200	0.31	15.3	0.33	0.64	16.2	20	II	0.0	6D
6B	263+50	519.95	100	10	8.74	1.33	0.90	0.00	0.00	0.90	1.33	10.4	0.0	10.4	0.0200	35.6	0.0200	0.32	15.8	0.33	0.65	17.3	20	II	0.0	6C
6E	268+00	519.70	100	10	8.74	0.98	0.85	0.00	0.00	0.85	0.98	7.3	0.0	7.3	0.0200	47.8	0.036	0.25	12.3	0.33	0.58	13.5	14	II	0.0	6C
6F	268+00	519.70	100	10	8.74	0.97	0.80	0.00	0.00	0.80	0.97	6.8	0.0	6.8	0.0200	47.8	0.036	0.24	12.0	0.33	0.57	12.7	14	II	0.0	6D
6G	274+00	534.76	100	10	8.74	0.40	0.80	1.16	0.90	0.87	1.56	11.9	0.0	11.9	0.0200	37.0	0.0216	0.33	16.4	0.33	0.66	19.4	20	II	0.0	6E
6H	274+00	534.76	100	10	8.74	0.60	0.80	0.99	0.90	0.86	1.60	12.0	0.0	12.0	0.0200	37.0	0.0216	0.33	16.4	0.33	0.66	19.6	20	II	0.0	6F
7A	295+80	532.00	100	10	8.74	1.05	0.90	0.00	0.00	0.90	1.05	8.3	0.0	8.3	0.0200	17.8	0.0050	0.38	18.8	0.33	0.71	12.5	14	II	0.0	EX. INLET
7B	296+20	530.95	100	10	8.74	1.07	0.90	0.00	0.00	0.90	1.07	8.4	0.0	8.4	0.0200	17.8	0.0050	0.38	18.9	0.33	0.71	12.6	14	II	1.8	7C
7C	297+47.27	528.91	100	10	8.74	0.14	0.90	0.00	0.00	0.90	0.14	1.1	1.8	2.8	0.0200	17.8	0.0050	0.18	8.8	0.33	0.51	2.3	0.0		0.0	EX. INLET
7D	291+53.43	531.54	100	10	8.74	0.51	0.30	0.31	0.90	0.53	0.82	3.8	0.0	3.8	0.0200	17.8	0.0050	0.28	14.0	0.33	0.61	4.0	0.0		0.0	EX. INLET

SKYVIEW DR.

INLET			Design Storm Frequency (years)	AREA RUNOFF Q=CIA					Carry-Over from U/S Inlet (cfs)	Total Gutter Flow (cfs)	Pvmt. Cross Slope Sx (ft/ft)	Gutter Capacity at Full Curb (cfs)	Gutter Slope S (ft/ft)	Actual Depth of Gutter Flow Y (feet)
No.	Location	Top of Curb Elevation		Time of Conc. (min)	Intensity I (In/hr)	Runoff Coeff. C	Area (acres)	Q (cfs)						
1	2		3	4	5	6	7	8	9	10		11	12	
DVWY	N/A		100	10	8.74	0.3	0.35	0.9	0.0	0.9	0.0263	30.3	0.0250	0.13
SR1	N/A		100	10	8.74	0.61	1.1	5.9	0.0	5.9	0.0263	30.3	0.0250	0.27
SR2	N/A		100	10	8.74	0.67	0.57	3.3	0.0	3.3	0.0263	30.3	0.0250	0.22

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

DROP INLETS

Inlet	On-grade or sag	Drainage Area		Runoff Coefficient (C)	Design Frequency	Time to Inlet	Intensity	Area Flow (Q)	Upstream Bypass	Total Flow (Qt)	Depth of Flow (d)	Opening Width	Opening Length	Perimeter (P)	Weir Coeff. (Cw)	Orifice Coeff. (Co)	Qiw	Qio	Type of flow	Design Q100 Intercept.	Collect All?
		No.	Area		yrs	min	in/hr	cfs	cfs	cfs	ft	ft	ft	ft	constant	constant	cfs	cfs		cfs	
LINE 6																					
O/S-1	sag	6-1	3.22	0.40	100	10.00	8.74	11.24	0.00	11.24	0.60	4.00	4.00	16	3	0.67	22.48	33.41	Weir	22.48	**YES**
LINE 7																					
O/S-2	sag	7-1	1.51	0.90	100	10.00	8.74	11.86	0.00	11.86	0.63	4.00	4.00	16	3	0.67	23.73	34.01	Weir	23.73	**YES**

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

INLET CALCULATIONS

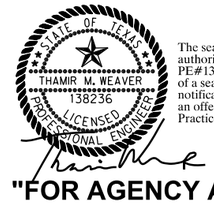
HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: TMW DATE: 9/30/2021 DESIGNED: BB DATE: 9/30/2021
CHECKED: TMW DATE: 9/30/2021 SCALE: N.T.S.

CONTRACT No. 35192

SHEET 243 OF 488 SDCALC-02

NAME (LINE/LAT)	RUNOFF COLLECTION POINT		DISTANCE BETWEEN COLLECTION POINTS	CUMULATIVE DRAINAGE AREA	INCREMENTAL DRAINAGE AREA		TOTAL CA	TIME OF CONCENT RATION (MINUTES)	DESIGN STORM FREQUENCY (YEARS)	INTENSITY (IN/HR)	DESIGN DISCHARGE Q_{RPE} (CFS)	SELECTED STORM SEWER SIZE		Pipe Slope S_o	Hydraulic Slope S	VELOCITY IN SEWER	VELOCITY HEAD	HYDRAULIC GRADIENT ELEVATIONS		Head Loss Coefficients		Head Loss at Design Point	HGL at Design Point	Soffit Elevation		INLET/ TOP ELEV.
	INLET OR MANHOLE				AREA	CA						DIA or SPAN (In or Ft)	RISE (Ft)			V (FPS)	$V_{22}/2g$ (ft)	UP STREAM	DOWN STREAM	Inlet/ Bend	Wye or MH			Up Stream	Down Stream	
	UPSTREAM STATION	DOWNSTREAM STATION																								
LINE 3																										
INLET 3A	9+26.71	9+03.04	23.67	0.30	0.30	0.26	0.26	10.00	97	8.74	2.31	18		0.0488	0.00048	1.31	0.03	530.01	529.99	1.25		0.03	PF	531.15	529.99	534.15
60 DEG BEND	9+03.04	8+79.95	23.09	0.30	0.00	0.00	0.26	10.30	98	8.67	2.29	18		0.0488	0.00047	1.29	0.03	528.88	528.87	0.45		0.01	PF	529.99	528.87	533.53
MH & LAT 3B	8+79.95	6+13.04	266.91	0.66	0.36	0.32	0.59	10.60	99	8.59	5.05	24		0.0450	0.00050	1.61	0.04	516.99	516.86		0.35	0.03	PF	528.87	516.86	532.53
WYE LAT 3C	6+13.04	5+94.95	18.09	1.41	0.75	0.55	1.14	13.37	100	7.92	8.99	24		0.0400	0.00158	2.86	0.13	516.16	516.13		0.60	0.10	PF	516.86	516.13	519.87
WYE LAT 3D	5+94.95	4+41.66	153.29	1.77	0.36	0.32	1.46	13.47	100	7.89	11.52	24		0.0400	0.00259	3.67	0.21	510.40	510.00		0.60	0.13	PF	516.13	510.00	519.01
MH	4+41.66	2+11.24	230.42	1.77	0.00	0.00	1.46	14.17	100	7.72	11.27	24		0.0150	0.00248	3.59	0.20	507.21	506.64		0.95	0.00	PF	509.50	506.04	513.29
WYE LAT 3E	2+11.24	1+86.85	24.39	3.08	1.31	1.04	2.50	15.24	100	7.49	18.73	24		0.0150	0.00685	5.96	0.55	506.21	506.04		0.60	0.43	506.64	506.04	505.68	510.26
WYE LAT 3F	1+86.85	1+41.66	45.19	3.81	0.73	0.66	3.16	15.31	100	7.48	23.63	24		0.0150	0.01091	7.52	0.88	505.49	505.00		0.60	0.55	506.04	505.68	505.00	510.33
SWT UNIT	1+41.66	1+00.00	41.66	3.81	0.00	0.00	3.16	15.41	100	7.47	23.59	24		0.1714	0.01087	7.51	0.88	499.98	499.53		0.00	0.75	PF	503.50	496.36	510.66
CULVERT 3	1+00.00											48				10.44	1.69	498.36			0.60	1.17	499.53			516.92
LINE 3 LATERALS																										
LAT 3B	1+69.86	1+00.00	69.86	0.36	0.36	0.32	0.32	10.00	100	8.74	2.83	18		0.0363	0.00073	1.61	0.04	528.67	528.62	1.25	0.60	0.02	PF	531.15	528.62	534.15
LAT 3C	1+23.67	1+00.00	23.67	0.75	0.75	0.55	0.55	10.00	100	8.74	4.79	18		0.0408	0.00208	2.86	0.13	516.65	516.61	1.25	0.60	0.06	PF	517.57	516.61	520.57
LAT 3D	1+69.86	1+00.00	69.86	0.36	0.36	0.32	0.32	10.00	100	8.74	2.83	18		0.0276	0.00073	3.67	0.21	515.93	515.88	1.25	0.60	0.19	PF	517.81	515.88	520.81
LAT 3E	1+21.33	1+00.00	21.33	1.31	1.31	1.04	1.04	10.00	104	8.74	9.09	18		0.0748	0.00749	5.96	0.55	506.67	506.51	1.25	0.60	0.31	PF	507.39	505.79	510.39
LAT 3F	1+67.88	1+00.00	67.88	0.73	0.73	0.66	0.66	10.00	108	8.74	5.74	18		0.0289	0.00299	7.52	0.88	506.48	506.27	1.25	0.60	0.78	PF	507.39	505.43	510.39
LINE 6-A																										
DROP INLET	8+07.19	7+00.56	106.63	5.54	5.54	3.36	3.36	10.00	100	8.74	29.35	24		0.0156	0.01683	9.34	1.36	524.78	522.98	0.00		0.00	524.78	522.75	521.08	525.75
MH & 60 BEND	7+00.56	5+20.24	180.32	5.54	0.00	0.00	3.36	10.19	100	8.69	29.19	24		0.0156	0.01665	9.29	1.34	522.35	519.34	0.00		0.64	522.98	521.08	518.26	524.57
WYE LAT 6A	5+20.24	3+70.09	150.15	6.77	1.22	1.10	4.46	10.51	100	8.61	38.42	30		0.0156	0.00878	7.83	0.95	519.20	517.88	0.00		0.15	519.34	518.26	515.92	522.40
MH & LAT 6B	3+70.09	1+39.69	230.40	8.09	1.33	1.06	5.52	10.83	100	8.54	47.08	30		0.0186	0.01318	9.59	1.43	516.78	513.75	0.00		1.10	517.88	515.92	511.64	519.45
WYE LAT 6C	1+39.69	1+17.87	21.82	8.70	0.61	0.55	6.06	11.23	100	8.44	51.18	36		0.0186	0.00589	7.24	0.81	513.75	513.62	0.00		0.00	513.75	511.64	511.23	516.73
WYE LAT 6D	1+17.87	1+11.87	6.00	10.08	1.38	1.10	7.17	11.28	100	8.43	60.41	36		0.0186	0.00820	8.55	1.13	512.97	512.92	0.00		0.65	513.62	511.23	511.12	516.84
30 DEG BEND	1+11.87	1+00.00	11.87	10.08	0.00	0.00	7.17	11.30	100	8.42	60.39	36		0.0186	0.00820	8.54	1.13	512.69	512.60	0.20		0.23	512.92	511.12	510.90	516.84
CULVERT 6	1+00.00											10	6			8.52	1.13	512.15			0.60	0.45	512.60			516.92
LINE 6-B																										
INLET 6G	8+69.63	8+45.96	23.67	1.56	1.56	1.36	1.36	10.00	100	8.74	11.88	18		0.0198	0.01278	6.72	0.70	531.79	531.49	1.25		0.88	532.85	531.76	531.29	534.76
60 BEND	8+45.96	8+12.47	33.49	1.56	0.00	0.00	1.36	10.06	100	8.73	11.86	18		0.0198	0.01274	6.71	0.70	531.17	530.75	0.45		0.31	531.67	531.29	530.63	534.19
WYE LAT 6H	8+12.47	7+71.51	40.96	3.16	1.60	1.37	2.73	10.14	100	8.71	23.80	24		0.0198	0.01107	7.58	0.89	530.28	529.82		0.60	0.47	530.93	530.63	529.82	534.19
MH	7+71.51	5+46.79	224.72	3.16	0.00	0.00	2.73	10.23	100	8.68	23.74	24		0.0160	0.01101	7.56	0.89	528.70	526.23		0.25	0.66	530.01	529.82	526.23	533.72
MH	5+46.79	2+37.21	309.58	3.16	0.00	0.00	2.73	10.73	100	8.56	23.41	24		0.0350	0.01071	7.45	0.86	521.23	517.92		0.95	0.02	PF	526.23	515.39	529.31
MH & LAT 6E	2+37.21	2+08.28	28.93	4.14	0.98	0.83	3.57	11.42	100	8.39	29.93	24		0.0398	0.01750	9.53	1.41	516.81	516.30		0.35	1.11	517.92	515.39	514.24	519.28
WYE LAT 6F	2+08.28	1+00.00	108.28	5.11	0.97	0.77	4.34	11.47	100	8.38	36.37	24		0.0398	0.02585	11.58	2.08	515.07	512.27		0.60	1.24	516.30	514.24	509.93	518.47
CULVERT 6	1+00.00											10	6			8.52	1.13	512.18			0.50	0.09	512.27			516.92
LINE 6 LATERALS																										
LAT 6A	1+89.21	1+00.00	89.21	1.22	1.22	1.10	1.10	10.00	100	8.74	9.63	18		0.0294	0.00841	7.83	0.95	518.52	517.76	1.25	0.60	0.68	521.20	520.39	517.76	523.39
LAT 6B	1+23.67	1+00.00	23.67	1.33	1.33	1.06	1.06	10.00	100	8.74	9.22	18		0.0647	0.00771	9.59	1.43	523.81	523.63	1.25	0.35	1.28	518.77	516.95	515.42	519.95
LAT 6C	1+23.75	1+00.00	23.75	0.61	0.61	0.55	0.55	10.00	100	8.74	4.80	18		0.0822	0.00209	7.24	0.81	510.94	510.89	1.25	0.60	0.75	514.68	512.84	510.89	516.84
LAT 6D	1+89.52	1+00.00	89.52	1.38	1.38	1.10	1.10	10.00	100	8.74	9.65	18		0.0375	0.00844	8.55	1.13	511.24	510.48	1.25	0.60	0.86	515.16	513.84	510.48	516.84
LAT 6E	1+23.75	1+00.00	23.75	0.98	0.98	0.83	0.83	10.00	100	8.74	7.27	18		0.0656	0.00479	9.53	1.41	515.25	515.14	1.25	0.35	1.32	518.57	516.70	515.14	519.70
LAT 6F	1+89.55	1+00.00	89.55	0.97	0.97	0.77	0.77	10.00	100	8.74	6.76	18		0.0303	0.00414	11.58	2.08	514.36	513.99	1.25	0.60	1.95	517.67	516.70	513.99	519.70
LAT 6H	1+90.64	1+00.00	90.64	1.60	1.60	1.37	1.37	10.00	100	8.74	12.02	18		0.0152	0.01309	7.58	0.89	531.57	530.38	1.25	0.35	0.64	533.18	531.76	530.38	534.76



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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

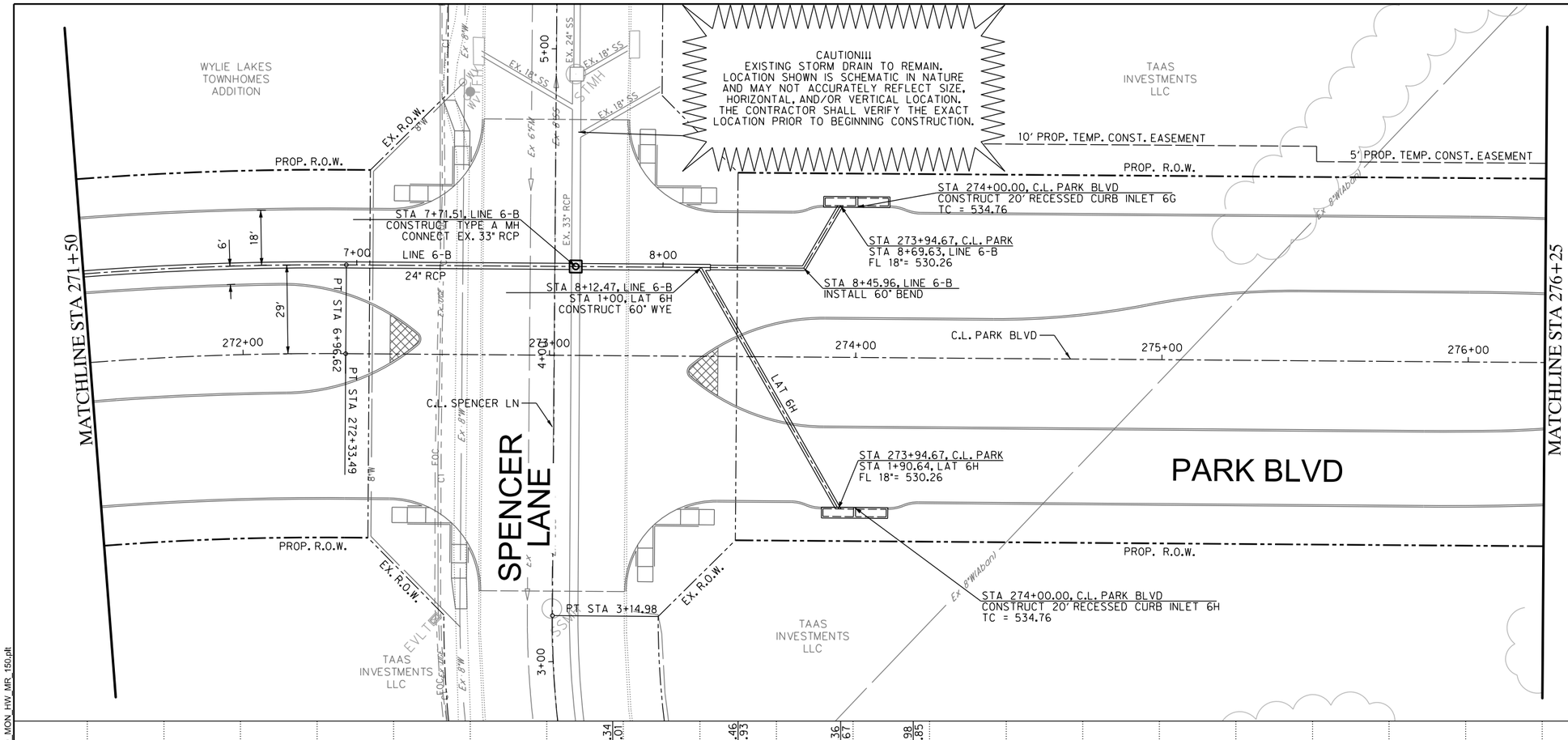
HYDRAULIC CALCULATIONS

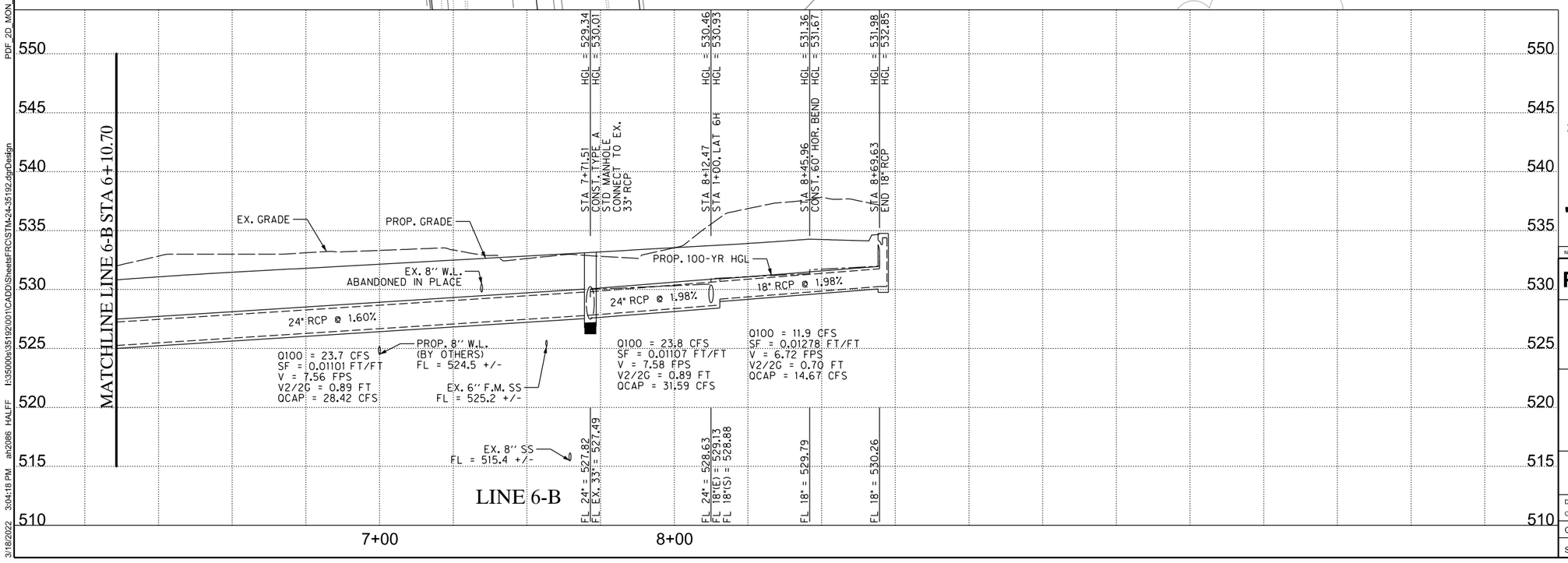
HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

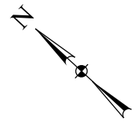
DRAWN: TMW DATE: 9/30/2021 DESIGNED: BB DATE: 9/30/2021
CHECKED: TMW DATE: 9/30/2021 SCALE: N.T.S.

CONTRACT No. 35192

SHEET 246 OF 488 SDCALC-05







LEGEND

- PROPOSED STORM DRAIN
- EX. 42" RCP — EXIST. STORM DRAIN
- PROPOSED R.O.W/OUTGRANT ESMT.
- EXIST. PROPERTY LINE
- PROP. EASEMENT
- EXIST. EASEMENT
- PROP. RETAINING WALL
- PROPOSED PROTECTION STONE RIPRAP
- PROPOSED CONCRETE RIPRAP

NOTES:

1. ALL DIMENSIONS TO FACE OF CURB UNLESS NOTED OTHERWISE.
2. ALL PROPOSED STORM DRAIN LINES ARE CLASS III AND 18" RCP UNLESS OTHERWISE NOTED.
3. ALL PIPE BEDDING SHALL BE CLASS B UNLESS OTHERWISE NOTED. SHAPED SUBGRADE OPTIONS WILL NOT BE ALLOWED.
4. REFER TO ROADWAY GRADING PLANS AND CULVERT LAYOUT SHEETS FOR PROPOSED GRADING AROUND HEADWALLS, INLETS, DITCHES AND OTHER DRAINAGE FEATURES.
5. FOR CURB INLETS 14' OR GREATER CONTRACTOR SHALL NOT CONSTRUCT SUPPORT WALL ABOVE LATERAL CONNECTION.
6. ALL LATERAL AND TRUNK LINE WYE CONNECTIONS ARE 60° UNLESS NOTED OTHERWISE. MANHOLE POSITION SHOULD BE ADJUSTED TO AVOID PIPES INTERSECTING MANHOLE CORNERS.
7. PIPE SIZE CHANGES OCCUR 3 LINEAR FEET UPSTREAM OF WYE CONNECTION. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY ADJUSTMENTS.
8. CONTRACTOR SHALL USE FILTER FABRIC ON ALL PROTECTION STONE RIPRAP PER TXDOT STANDARD SRR.
9. WHEN STORM DRAIN IS LOCATED WITHIN THE SUBGRADE TREATMENT DEPTH, CONTRACTOR SHALL COMPLETE ALL EARTHWORK MANIPULATION TO A POINT 12" ABOVE THE TOP OF PIPE ELEVATION AND THEN INSTALL PIPE WITH EQUIVALENT BACKFILL PROPERTIES.

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

DRAINAGE PLAN/PROFILE
STA 271+50 TO STA 276+25

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	TMW	DATE: 9/30/2021
CHECKED:	TMW	DATE: 9/30/2021	SCALE:	1"=40'	

CONTRACT No. 35192

SHEET 276 OF 488 — STM-24

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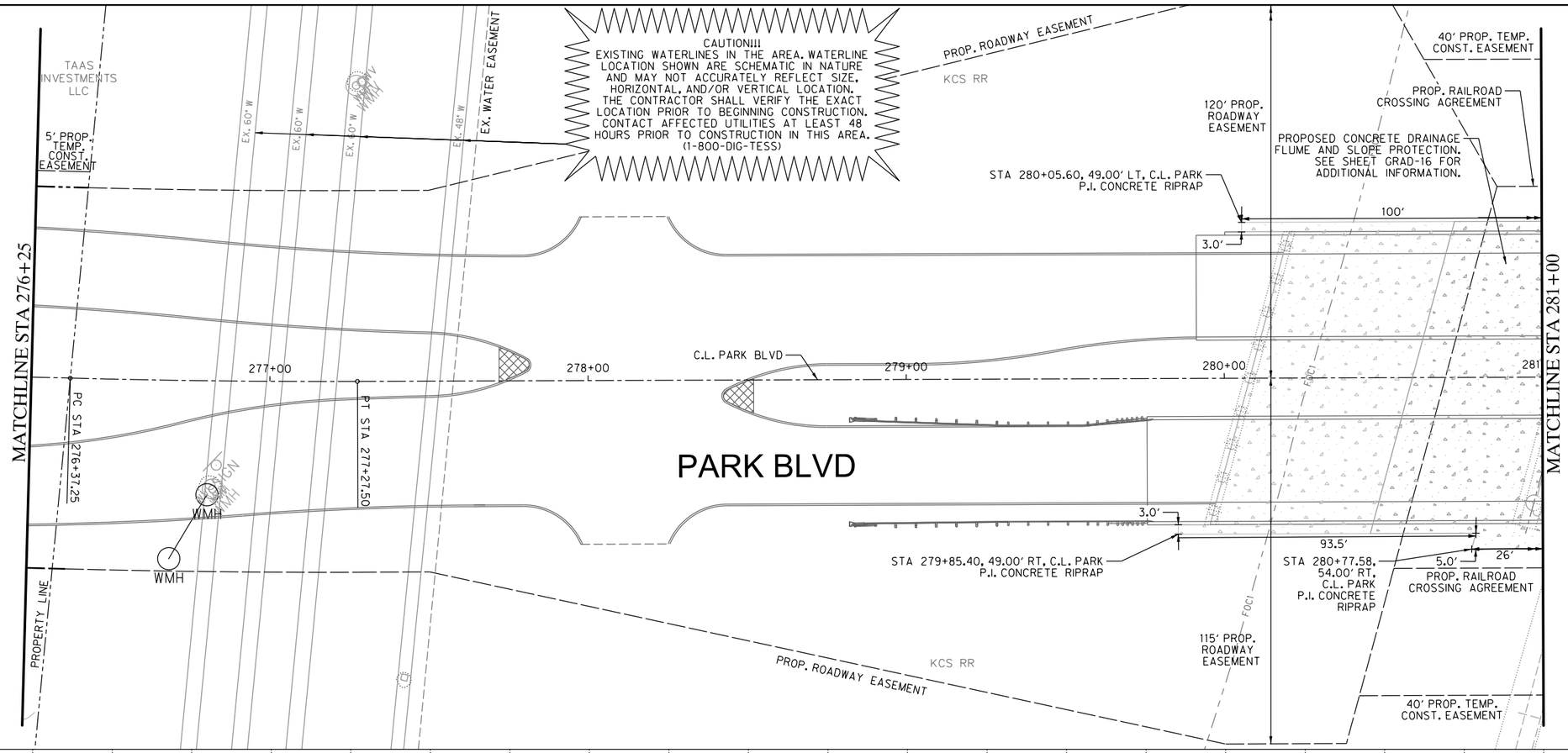

N

0 10 20 30 40
HORIZONTAL SCALE IN FEET

0 2.5 5 7.5 10
VERTICAL SCALE IN FEET

LEGEND

- PROPOSED STORM DRAIN
- EX. 42" RCP — EXIST. STORM DRAIN
- PROPOSED R.O.W/OUTGRANT ESMT.
- EXIST. PROPERTY LINE
- PROP. EASEMENT
- EXIST. EASEMENT
- PROP. RETAINING WALL
- PROPOSED PROTECTION STONE RIPRAP
- PROPOSED CONCRETE RIPRAP

NOTES:

1. ALL DIMENSIONS TO FACE OF CURB UNLESS NOTED OTHERWISE.
2. ALL PROPOSED STORM DRAIN LINES ARE CLASS III AND 18" RCP UNLESS OTHERWISE NOTED.
3. ALL PIPE BEDDING SHALL BE CLASS B UNLESS OTHERWISE NOTED. SHAPED SUBGRADE OPTIONS WILL NOT BE ALLOWED.
4. REFER TO ROADWAY GRADING PLANS AND CULVERT LAYOUT SHEETS FOR PROPOSED GRADING AROUND HEADWALLS, INLETS, DITCHES AND OTHER DRAINAGE FEATURES.
5. FOR CURB INLETS 14' OR GREATER CONTRACTOR SHALL NOT CONSTRUCT SUPPORT WALL ABOVE LATERAL CONNECTION.
6. ALL LATERAL AND TRUNK LINE WYE CONNECTIONS ARE 60" UNLESS NOTED OTHERWISE. MANHOLE POSITION SHOULD BE ADJUSTED TO AVOID PIPES INTERSECTING MANHOLE CORNERS.
7. PIPE SIZE CHANGES OCCUR 3 LINEAR FEET UPSTREAM OF WYE CONNECTION. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY ADJUSTMENTS.
8. CONTRACTOR SHALL USE FILTER FABRIC ON ALL PROTECTION STONE RIPRAP PER TXDOT STANDARD SRR.
9. WHEN STORM DRAIN IS LOCATED WITHIN THE SUBGRADE TREATMENT DEPTH, CONTRACTOR SHALL COMPLETE ALL EARTHWORK MANIPULATION TO A POINT 12" ABOVE THE TOP OF PIPE ELEVATION AND THEN INSTALL PIPE WITH EQUIVALENT BACKFILL PROPERTIES.

NO DRAINAGE PROFILES THIS SHEET

STATE OF TEXAS
THAMIR M. WEAVER
138236
LICENSED PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

DRAINAGE PLAN/PROFILE
STA 276+25 TO STA 281+00

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	TMW	DATE: 9/30/2021
CHECKED:	TMW	DATE: 9/30/2021	SCALE:	1"=40'	

CONTRACT No. 35192

SHEET 277 OF 488 — STM-25

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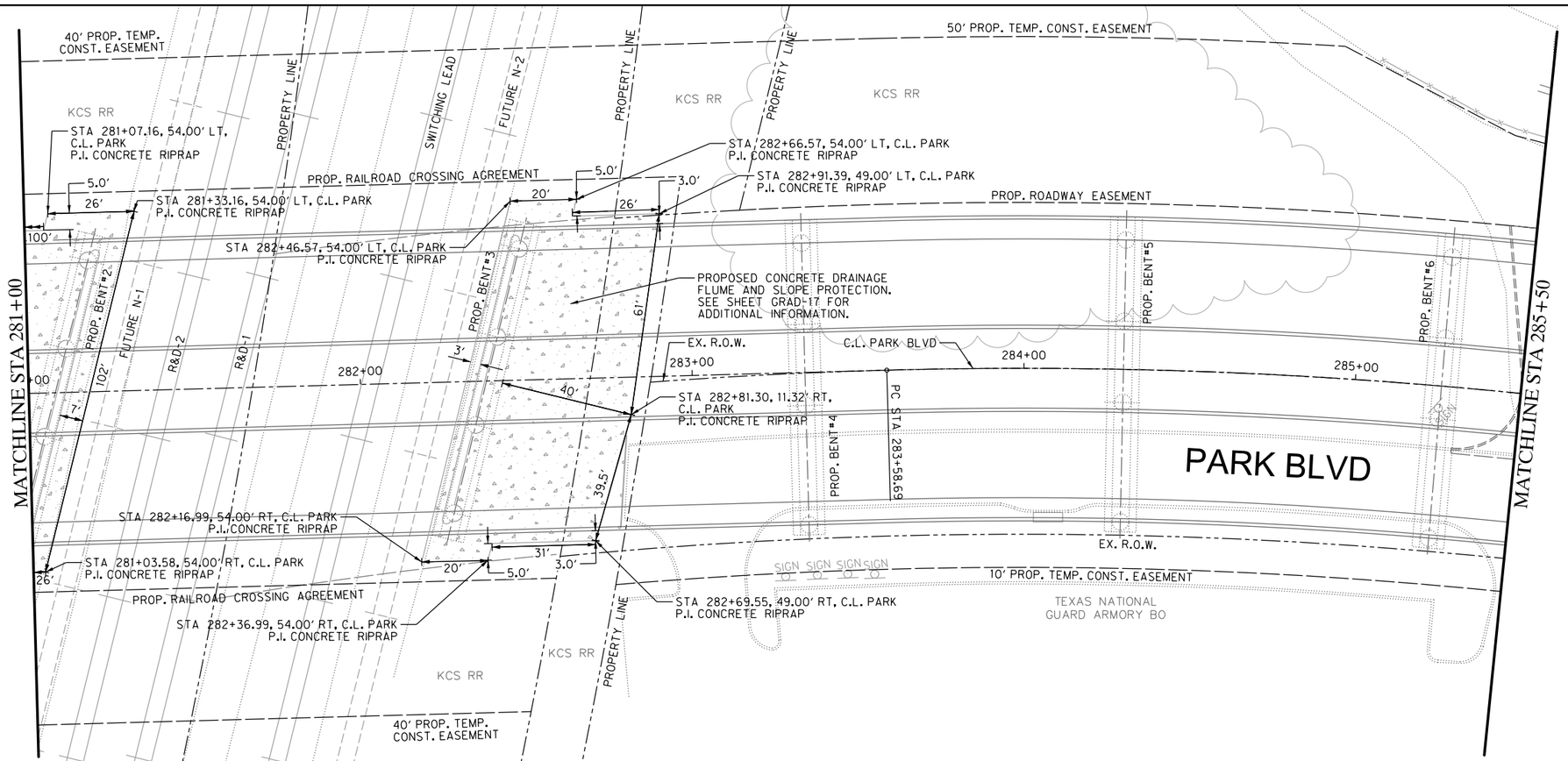

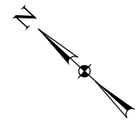

LEGEND

- PROPOSED STORM DRAIN
- EX. 42" RCP — EXIST. STORM DRAIN
- PROPOSED R.O.W/OUTGRANT ESMT.
- EXIST. PROPERTY LINE
- PROP. EASEMENT
- EXIST. EASEMENT
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- PROPOSED CONCRETE RIPRAP

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

DRAINAGE PLAN/PROFILE
STA 281+00 TO STA 285+50

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	TMW	DATE: 9/30/2021
CHECKED:	TMW	DATE: 9/30/2021	SCALE:	1"=40'	

CONTRACT No. 35192

SHEET 278 OF 488 — STM-26

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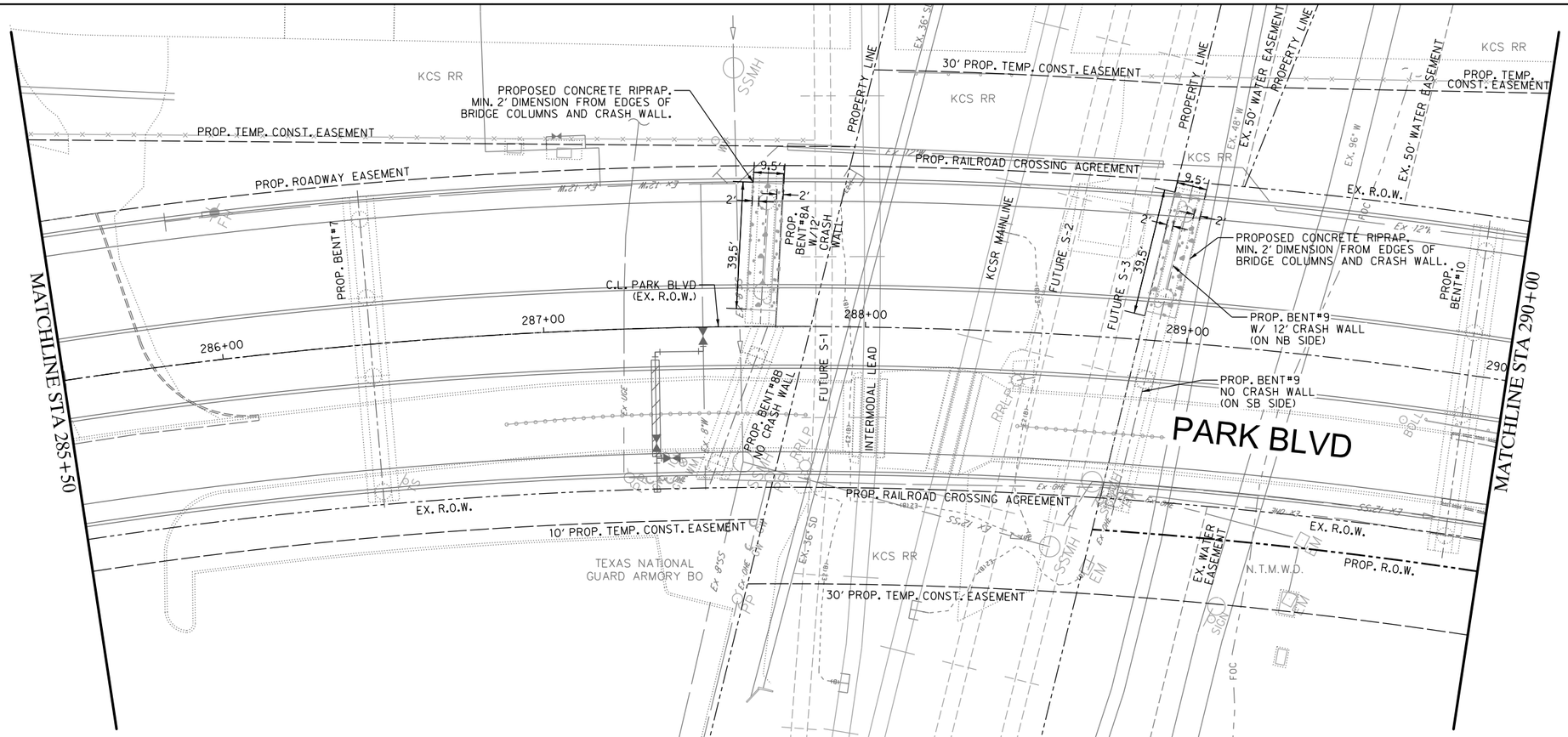

NO DRAINAGE PROFILES THIS SHEET

0 10 20 30 40
HORIZONTAL SCALE IN FEET
0 2.5 5 7.5 10
VERTICAL SCALE IN FEET

LEGEND

- PROPOSED STORM DRAIN
- EX. 42" RCP — EXIST. STORM DRAIN
- PROPOSED R.O.W/OUTGRANT ESMT.
- EXIST. PROPERTY LINE
- PROP. EASEMENT
- EXIST. EASEMENT
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- PROPOSED CONCRETE RIPRAP

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STATE OF TEXAS
THAMIR M. WEAVER
138236
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

DRAINAGE PLAN/PROFILE
STA 285+50 TO STA 290+00

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	TMW	DATE: 9/30/2021
CHECKED:	TMW	DATE: 9/30/2021	SCALE:	1"=40'	

CONTRACT No. 35192

SHEET 279 OF 488 — STM-27

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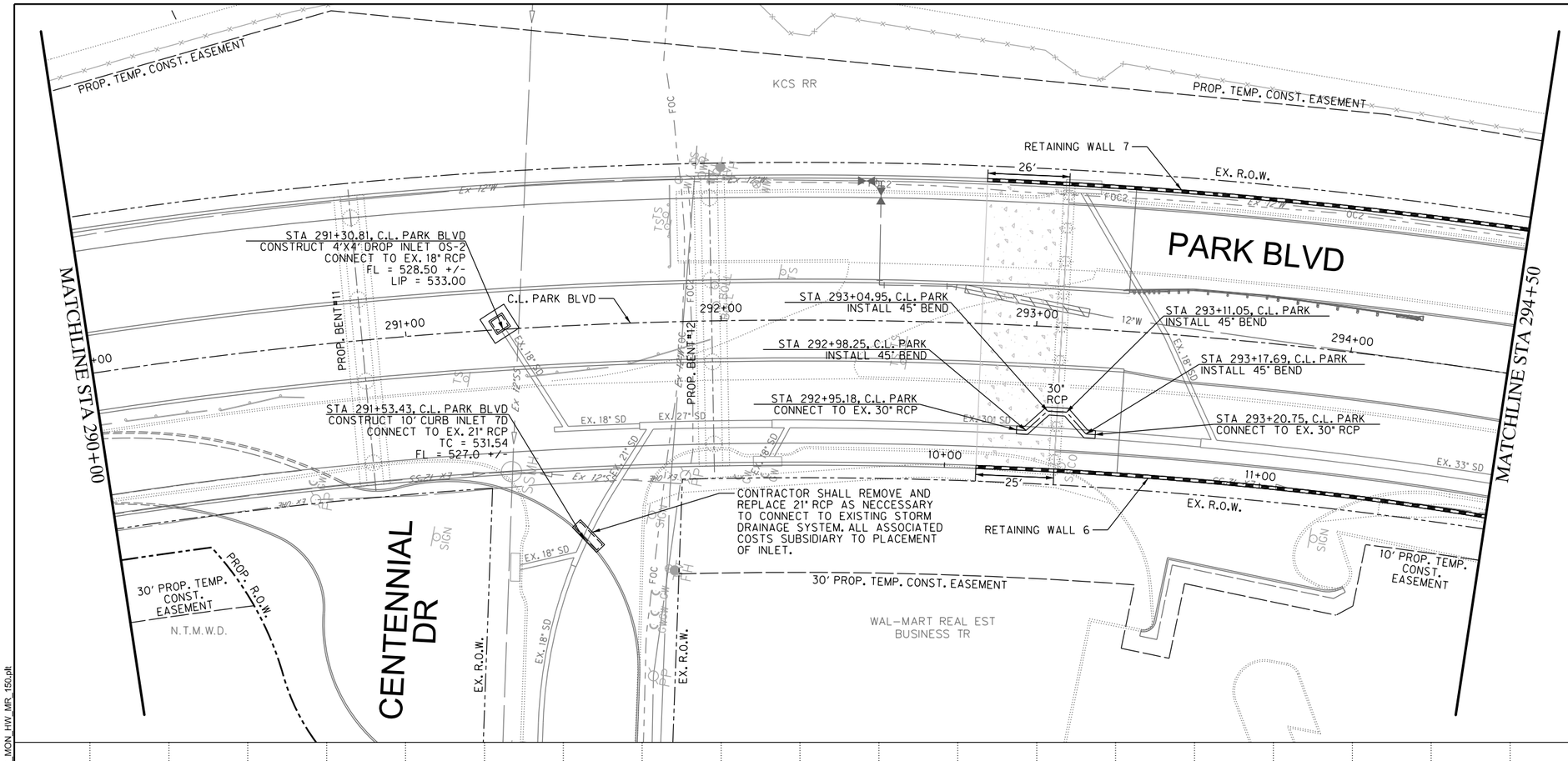

0 10 20 30 40
HORIZONTAL SCALE IN FEET
0 2.5 5 7.5 10
VERTICAL SCALE IN FEET

LEGEND

- PROPOSED STORM DRAIN
- EX. 42" RCP — EXIST. STORM DRAIN
- PROPOSED R.O.W/OUTGRANT ESMT.
- EXIST. PROPERTY LINE
- PROP. EASEMENT
- EXIST. EASEMENT
- PROP. RETAINING WALL
- PROPOSED PROTECTION STONE RIPRAP
- PROPOSED CONCRETE RIPRAP

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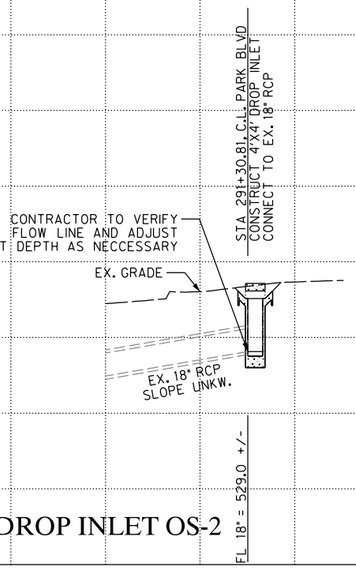

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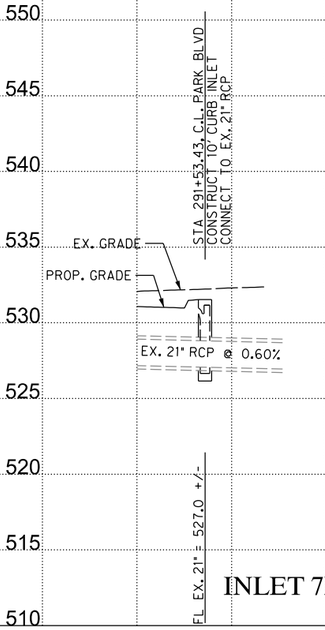

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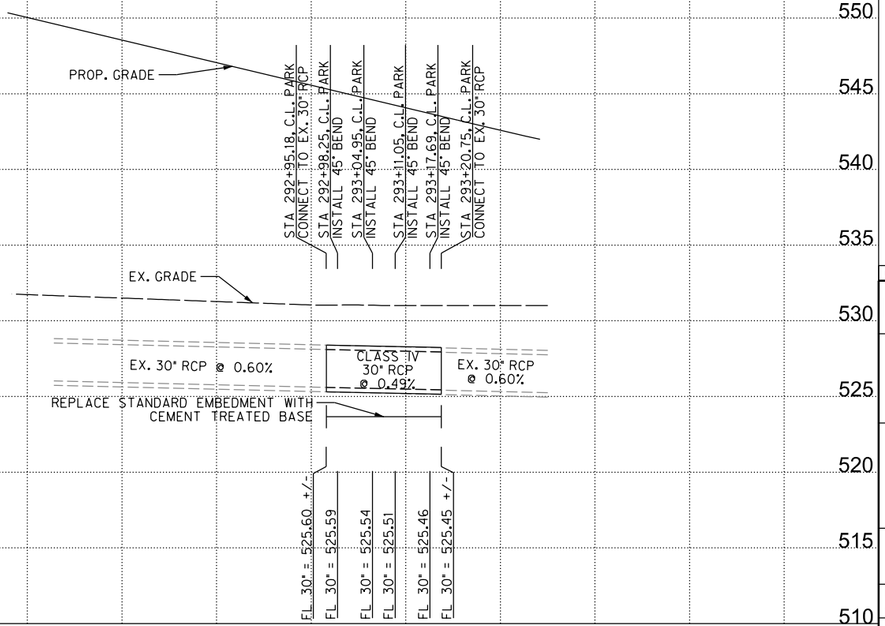

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THAMIR M. WEAVER
138236
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

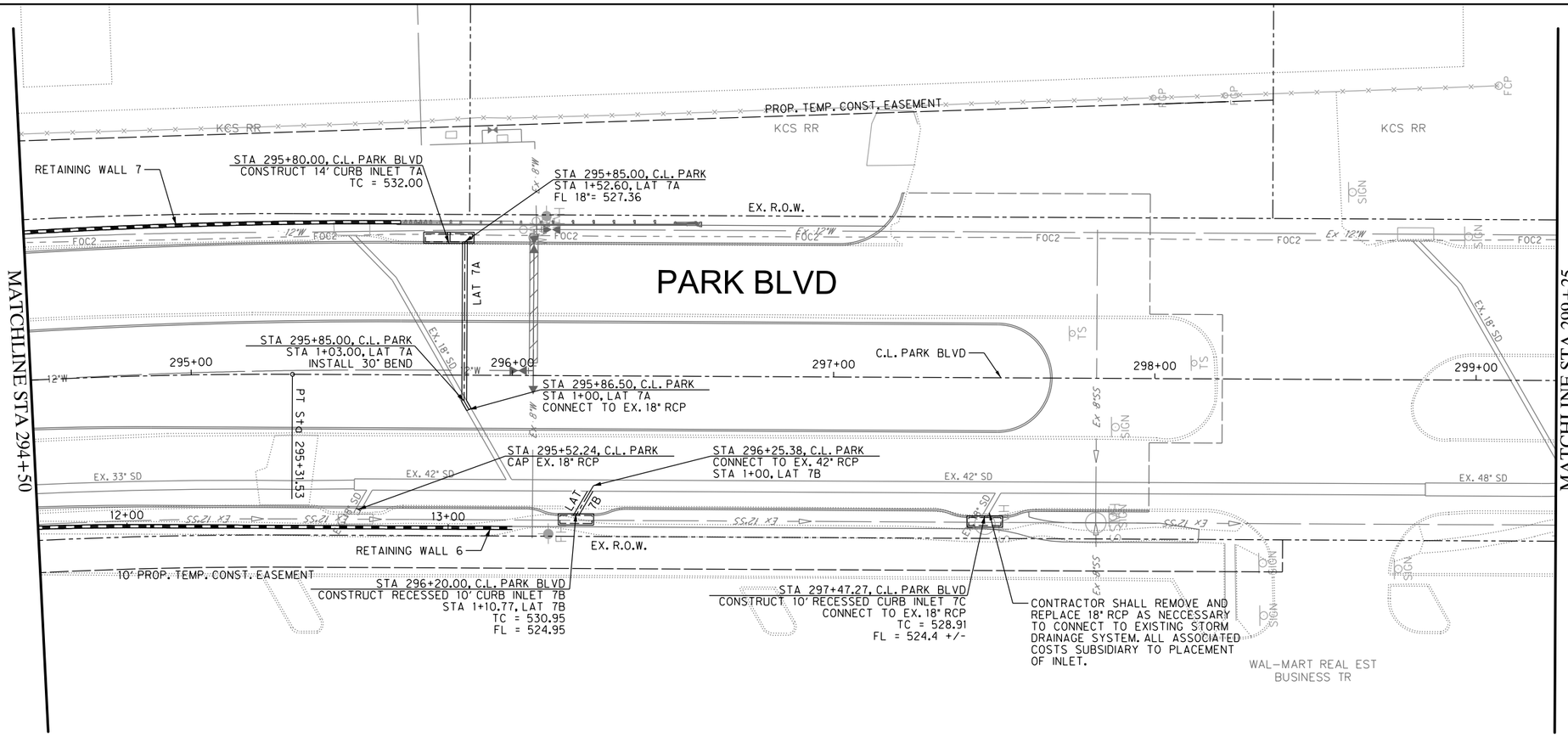
DRAINAGE PLAN/PROFILE
STA 290+00 TO STA 294+50

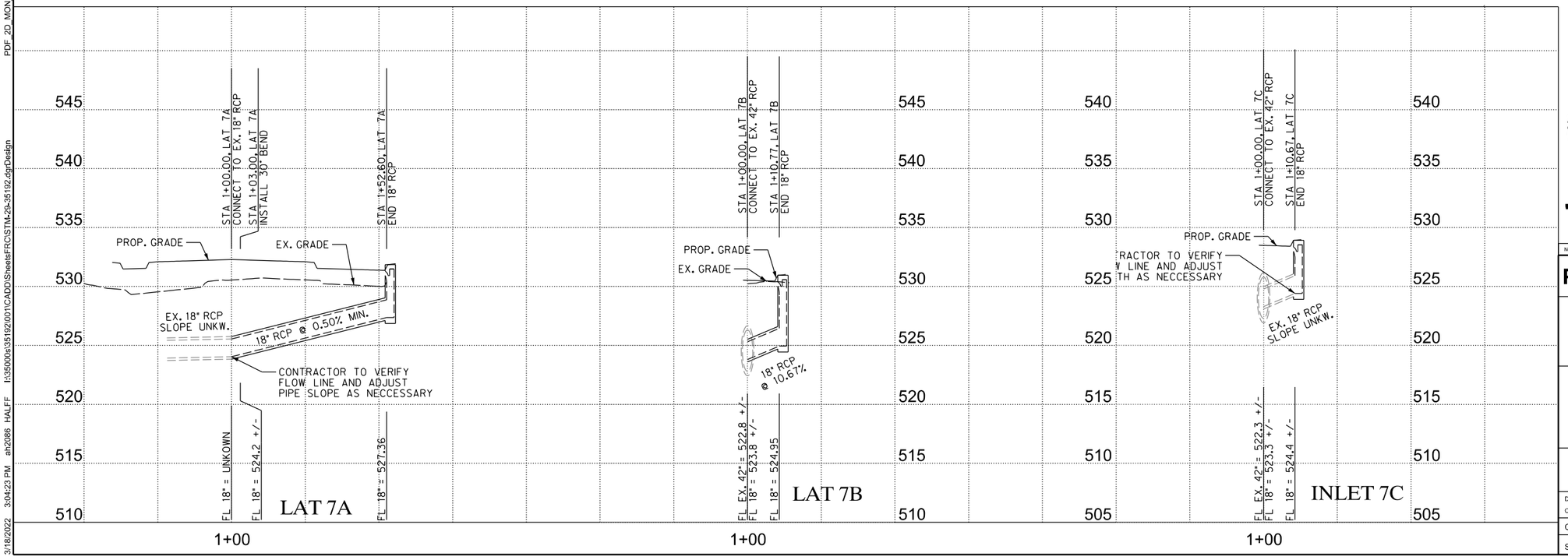
HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	TMW	DATE: 9/30/2021
CHECKED:	TMW	DATE: 9/30/2021	SCALE:	1"=40'	

CONTRACT No. 35192

SHEET 280 OF 488 — STM-28





0 10 20 30 40
HORIZONTAL SCALE IN FEET
0 2.5 5 7.5 10
VERTICAL SCALE IN FEET

LEGEND

- PROPOSED STORM DRAIN
- EXIST. STORM DRAIN (EX. 42" RCP)
- PROPOSED R.O.W/OUTGRANT ESMT.
- EXIST. PROPERTY LINE
- PROP. EASEMENT
- EXIST. EASEMENT
- PROP. RETAINING WALL
- PROPOSED PROTECTION STONE RIPRAP
- PROPOSED CONCRETE RIPRAP

NOTES:

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STATE OF TEXAS
THAMIR M. WEAVER
138236
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

DRAINAGE PLAN/PROFILE
STA 294+50 TO STA 299+25

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	TMW	DATE: 9/30/2021
CHECKED:	TMW	DATE: 9/30/2021	SCALE:	1"=40'	

CONTRACT No. 35192

SHEET 281 OF 488 STM-29

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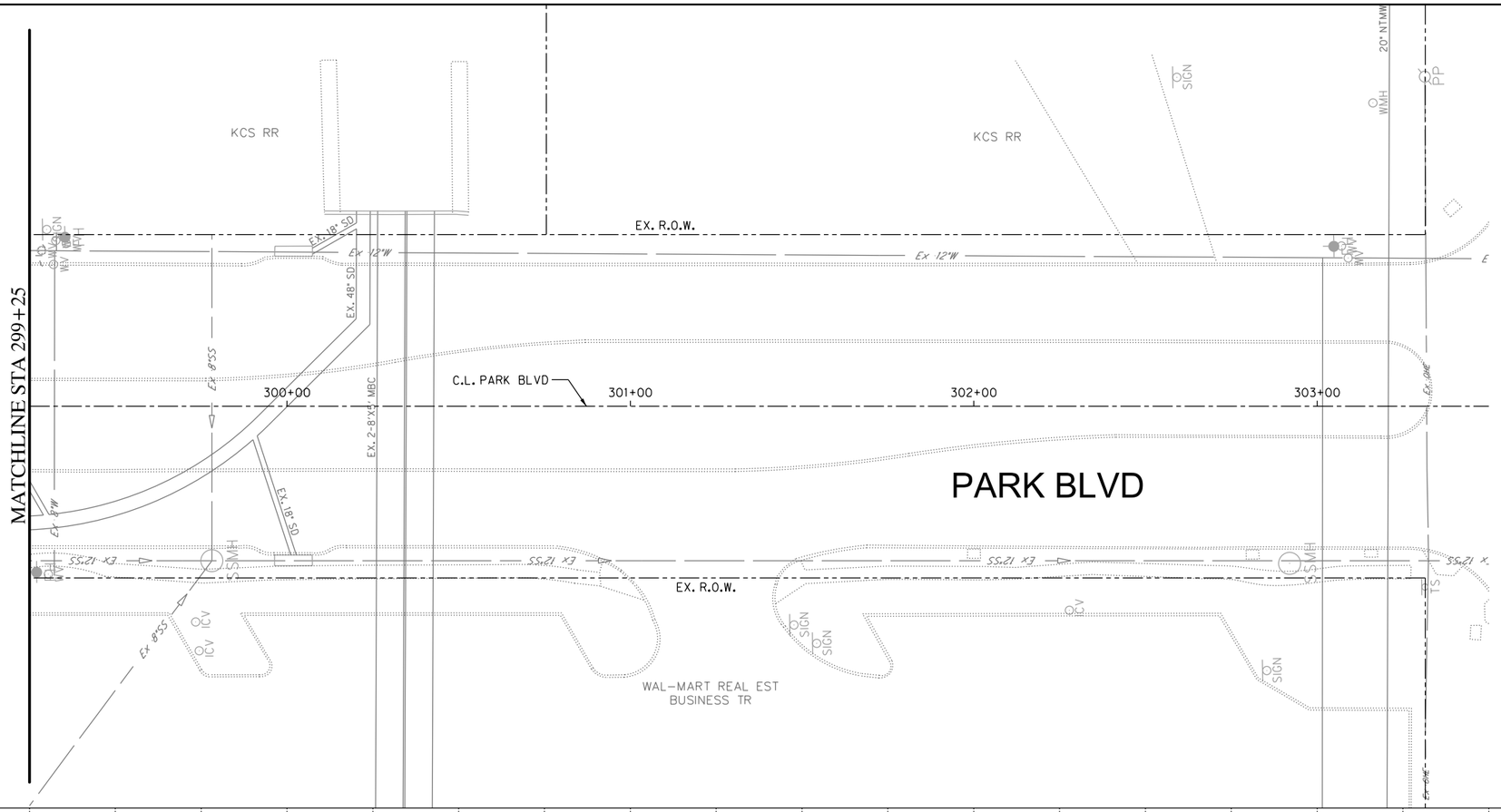

NO DRAINAGE PROFILES THIS SHEET

N

0 10 20 30 40
HORIZONTAL SCALE IN FEET
0 2.5 5 7.5 10
VERTICAL SCALE IN FEET

LEGEND

- PROPOSED STORM DRAIN
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STATE OF TEXAS
THAMIR M. WEAVER
138236
LICENSED
PROFESSIONAL ENGINEER

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"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

DRAINAGE PLAN/PROFILE
STA 299+25 TO END

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	TMW	DATE: 9/30/2021
CHECKED:	TMW	DATE: 9/30/2021	SCALE:	1"=40'	

CONTRACT No. 35192

SHEET 282 OF 488 STM-30

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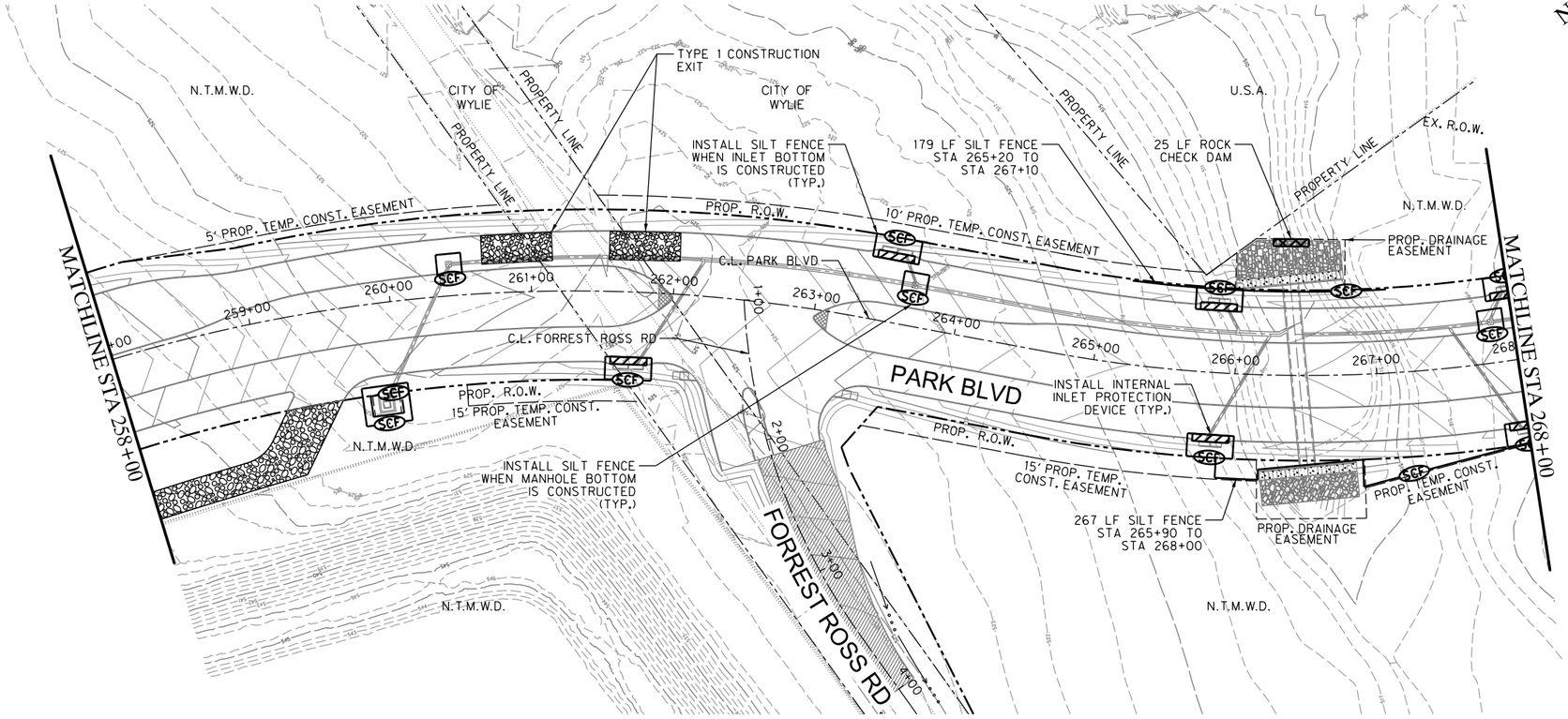

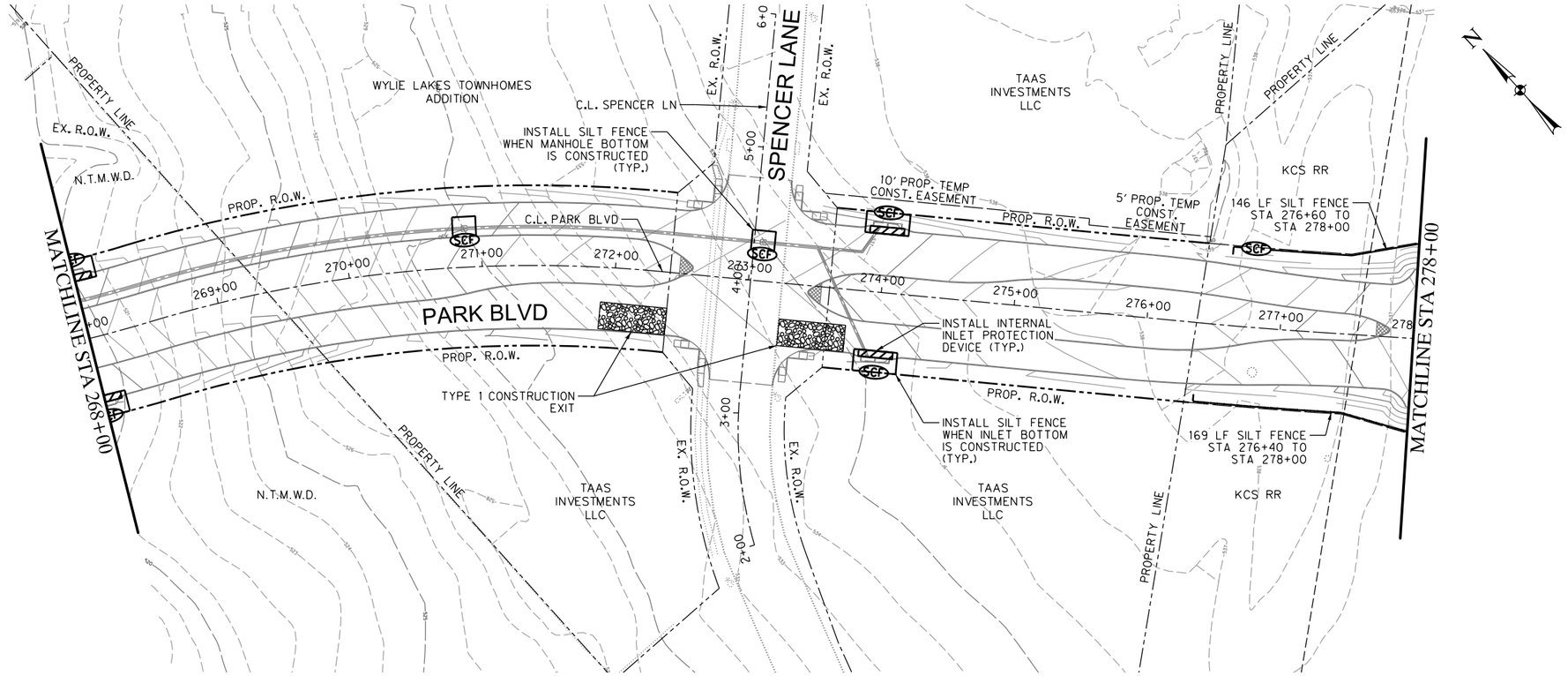

0 25 50 75 100
HORIZONTAL SCALE IN FEET

LEGEND

- SILT FENCE
- SOD/SEEDING LIMTS
- INLET PROTECTION DEVICE
- ROCK CHECK DAM
- SOIL RETENTION BLANKET
- TYPE 1 CONSTRUCTION EXIT

NOTES:

1. ALL DIMENSIONS AND STATION/OFFSETS ARE TO FACE OF CURB UNLESS OTHERWISE STATED IN PLANS. SILT FENCE QUANTITIES ARE APPROXIMATE.
2. INLET PROTECTION DEVICES SHALL NOT BE INSTALLED UNLESS AND UNTIL DIRECTED BY THE ENGINEER.
3. EXACT LOCATION OF STABILIZED CONSTRUCTION EXITS SHALL BE AS APPROVED BY THE ENGINEER.
4. CONTRACTOR SHALL REMOVE ALL DIRT DAILY FROM ROADWAY SURFACES OPEN TO TRAFFIC BY HAND METHODS OR BY SWEEPING AS APPROVED BY THE ENGINEER.
5. CONTRACTOR SHALL INSTALL PERMANENT HEADWALLS, END TREATMENTS, APRONS, AND RIPRAP IN CONJUNCTION WITH CULVERT AND AREA DRAIN INLETS TO MINIMIZE TEMPORARY EROSION.

STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED PROFESSIONAL ENGINEER

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No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

EROSION CONTROL LAYOUT

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	AK	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	1"=100'	

CONTRACT No. 35192

SHEET 305 OF 488 SW3P-06

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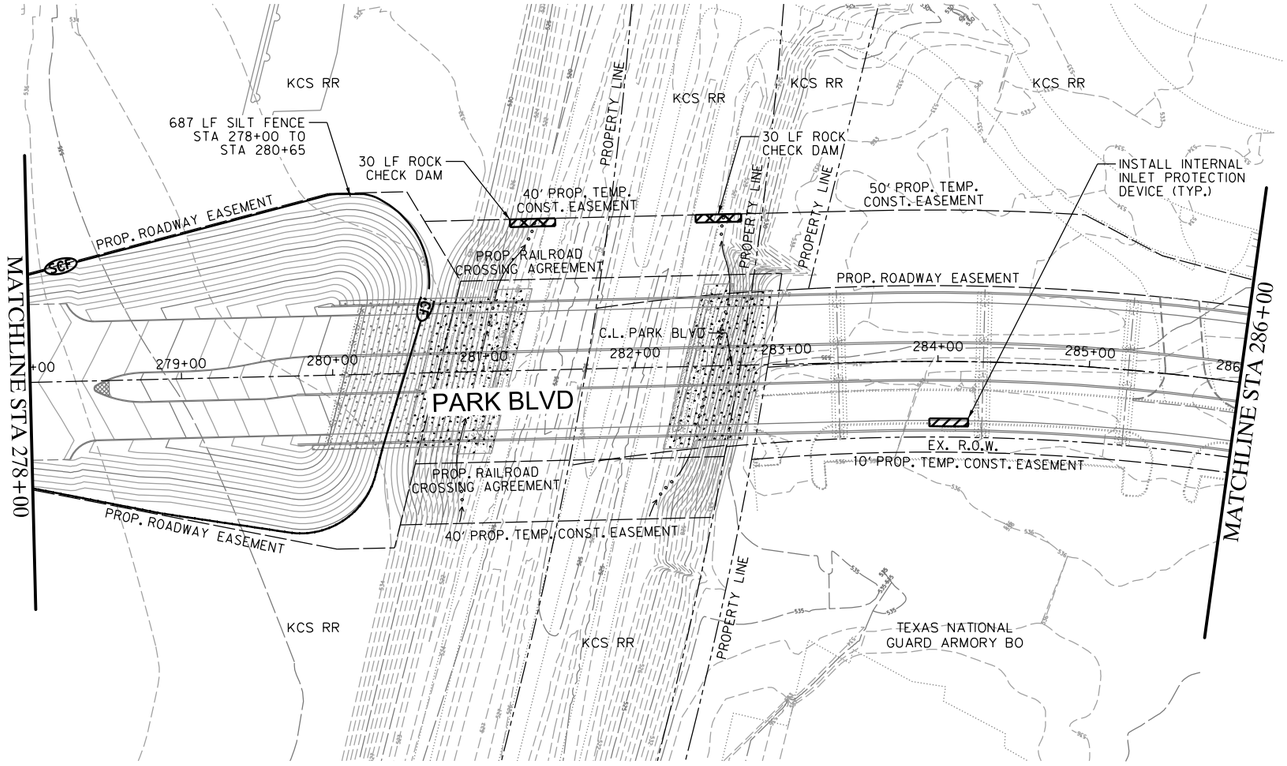

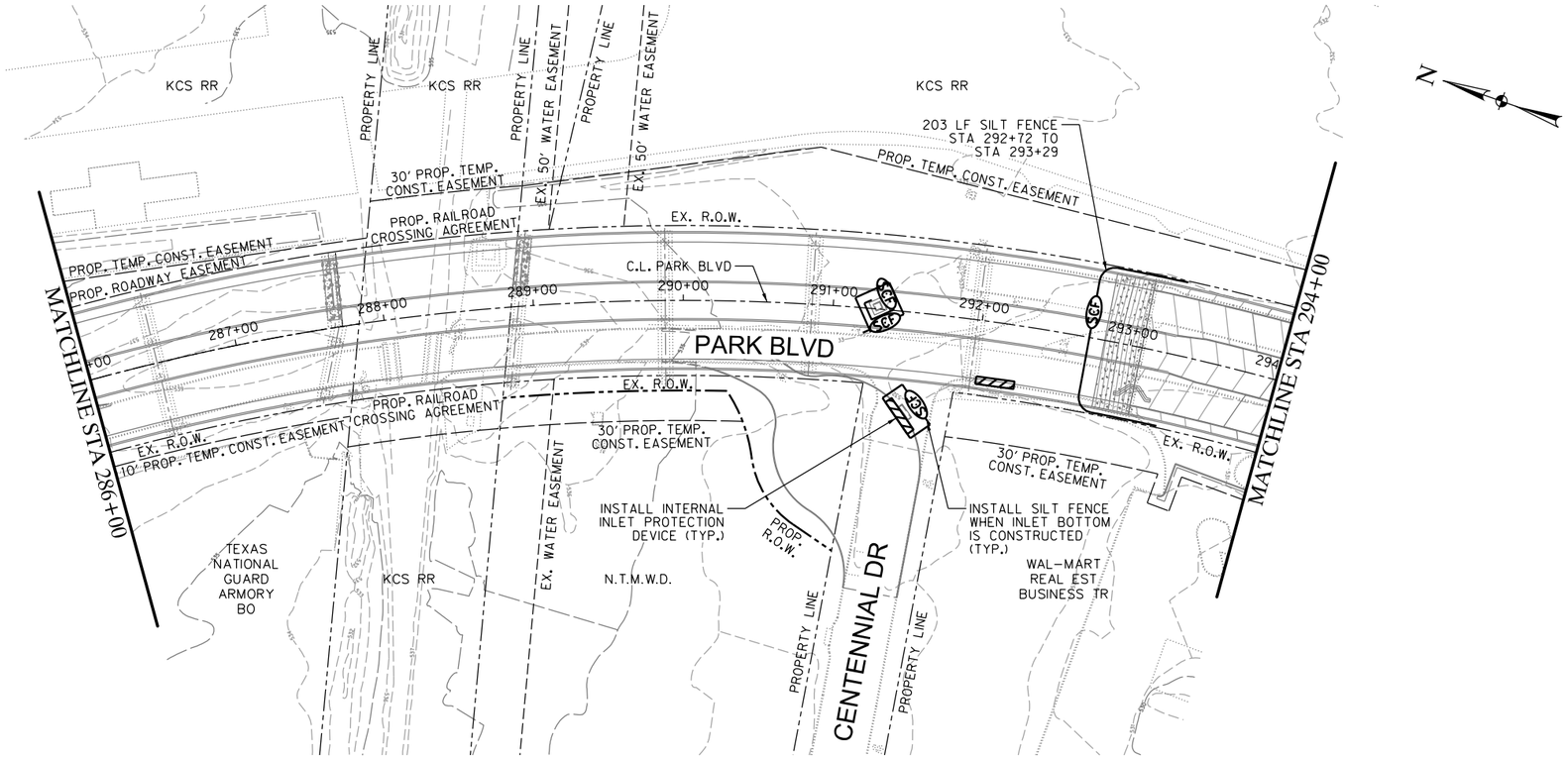

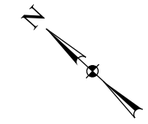

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HORIZONTAL SCALE IN FEET

LEGEND

- SCF — SILT FENCE
- SOD/SEEDING LIMTS
- INLET PROTECTION DEVICE
- ROCK CHECK DAM
- SOIL RETENTION BLANKET
- TYPE 1 CONSTRUCTION EXIT

NOTES:

1. ALL DIMENSIONS AND STATION/OFFSETS ARE TO FACE OF CURB UNLESS OTHERWISE STATED IN PLANS. SILT FENCE QUANTITIES ARE APPROXIMATE.
2. INLET PROTECTION DEVICES SHALL NOT BE INSTALLED UNLESS AND UNTIL DIRECTED BY THE ENGINEER.
3. EXACT LOCATION OF STABILIZED CONSTRUCTION EXITS SHALL BE AS APPROVED BY THE ENGINEER.
4. CONTRACTOR SHALL REMOVE ALL DIRT DAILY FROM ROADWAY SURFACES OPEN TO TRAFFIC BY HAND METHODS OR BY SWEEPING AS APPROVED BY THE ENGINEER.
5. CONTRACTOR SHALL INSTALL PERMANENT HEADWALLS, END TREATMENTS, APRONS, AND RIPRAP IN CONJUNCTION WITH CULVERT AND AREA DRAIN INLETS TO MINIMIZE TEMPORARY EROSION.

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No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

EROSION CONTROL LAYOUT

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	AK	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	1"=100'	

CONTRACT No. 35192

SHEET 306 OF 488 SW3P-07

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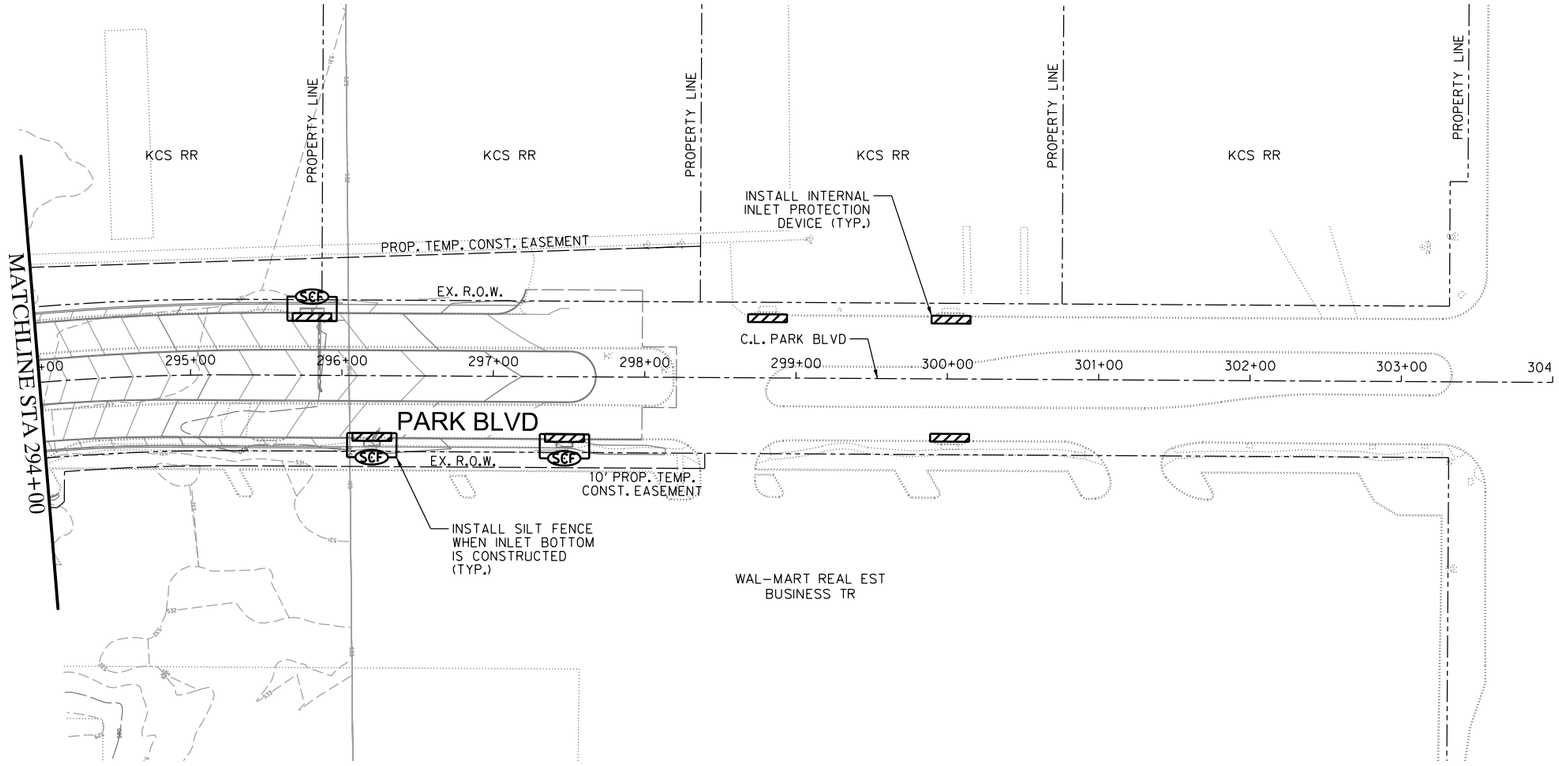

0 25 50 75 100
HORIZONTAL SCALE IN FEET

LEGEND

- SILT FENCE
- SOD/SEEDING LIMTS
- INLET PROTECTION DEVICE
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STATE OF TEXAS
DONALD ADAM KANE
107449
LICENSED
PROFESSIONAL ENGINEER

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PARK BOULEVARD EXTENSION

COLLIN COUNTY

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FRISCO, TX 75034-8641
TEL (214) 618-4570
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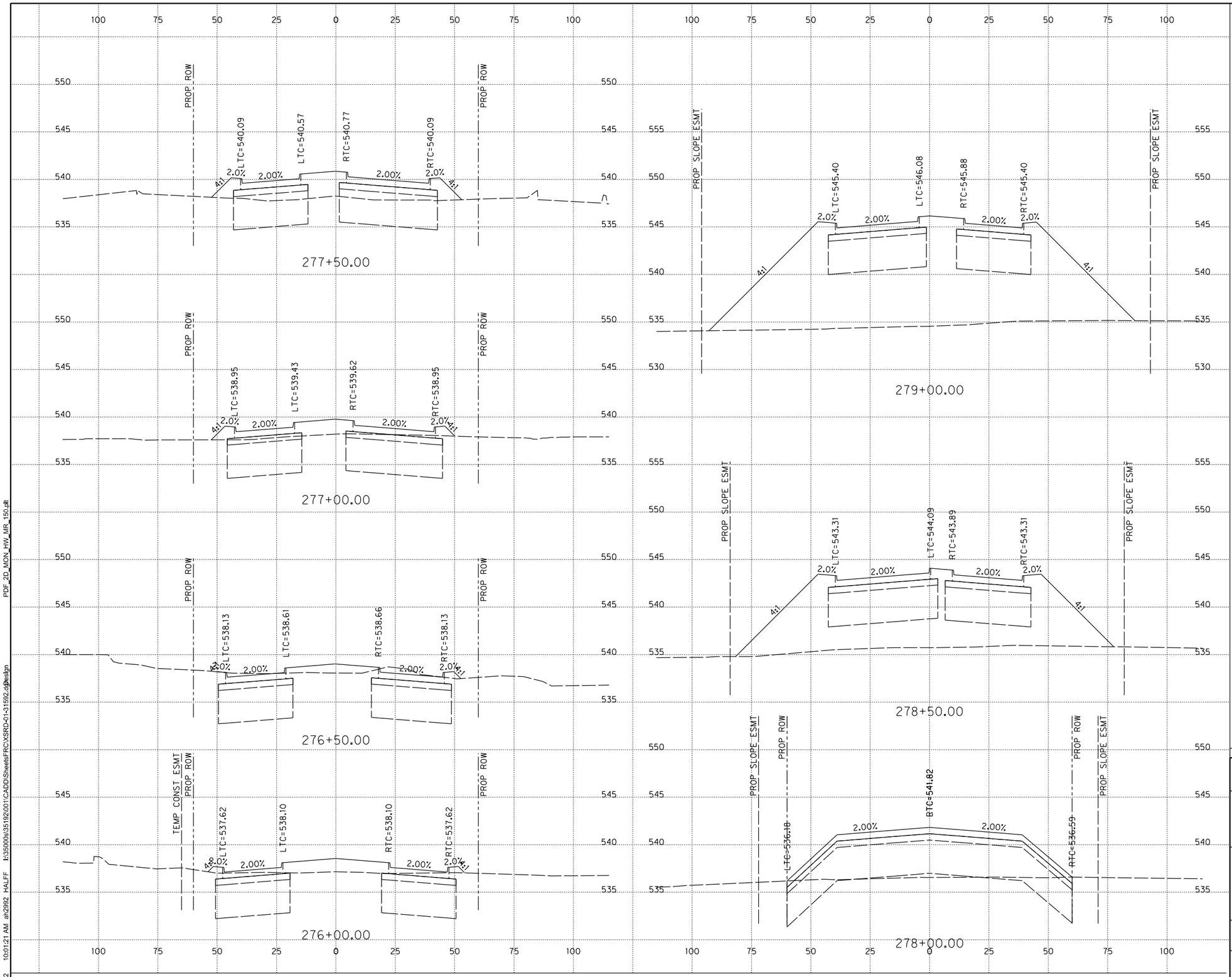
DRAWN:	TMW	DATE: 9/30/2021	DESIGNED:	AK	DATE: 9/30/2021
CHECKED:	AK	DATE: 9/30/2021	SCALE:	1"=100'	

CONTRACT No. 35192

SHEET 307 OF 488 SW3P-08



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HORIZONTAL SCALE IN FEET
0 2.5 5 7.5 10 15
VERTICAL SCALE IN FEET

STATE OF TEXAS
MICHAEL M. LESH
83317
LICENSED PROFESSIONAL ENGINEER

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PARK BOULEVARD EXTENSION

COLLIN COUNTY, TEXAS

ROADWAY CROSS SECTIONS

38 OF 52

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN	MML	DATE	2/3/2022	DESIGNED	MML	DATE	2/3/2022
CHECKED	HAI	DATE	2/3/2022	SCALE	1"=20' H, 1"=5'V		

CONTRACT NO. 35192 SHEET OF

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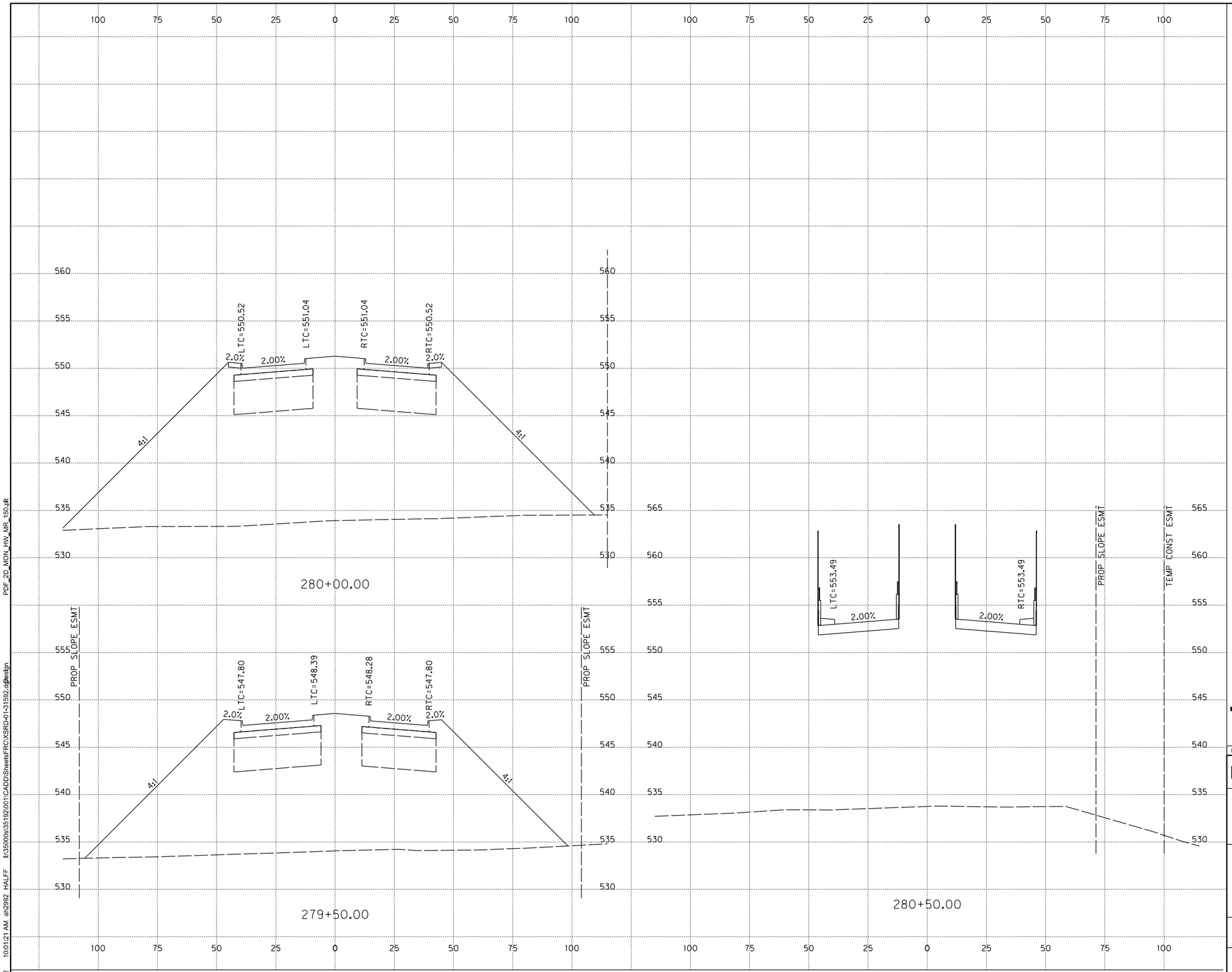

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PARK BOULEVARD EXTENSION

COLLIN COUNTY

ROADWAY CROSS SECTIONS

39 OF 52

HALFF
3803 PARKWOOD BLVD, SUITE 800
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FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN	MML	DESIGNED	MML
DATE	2/3/2022	DATE	2/3/2022
CHECKED	HAI	SCALE	1"=20' H, 1"=5'V
DATE	2/3/2022		

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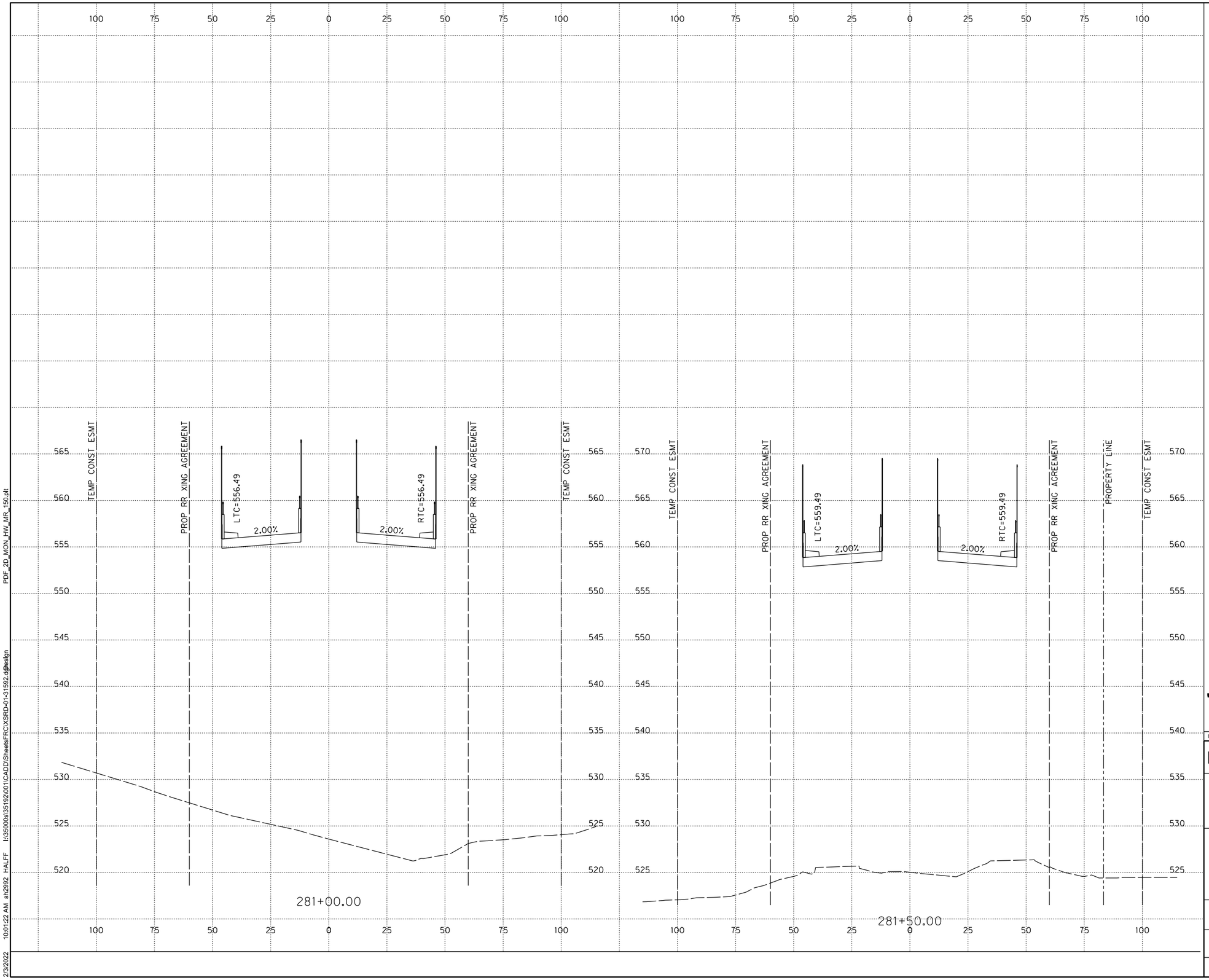

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PARK BOULEVARD EXTENSION

COLLIN COUNTY

ROADWAY CROSS SECTIONS

40 OF 52

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3803 PARKWOOD BLVD, SUITE 800
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DRAWN MML DATE 2/3/2022 DESIGNED MML DATE 2/3/2022
CHECKED HAI DATE 2/3/2022 SCALE 1"=20' H, 1"=5'V

CONTRACT NO. 35192 SHEET ___ OF ___

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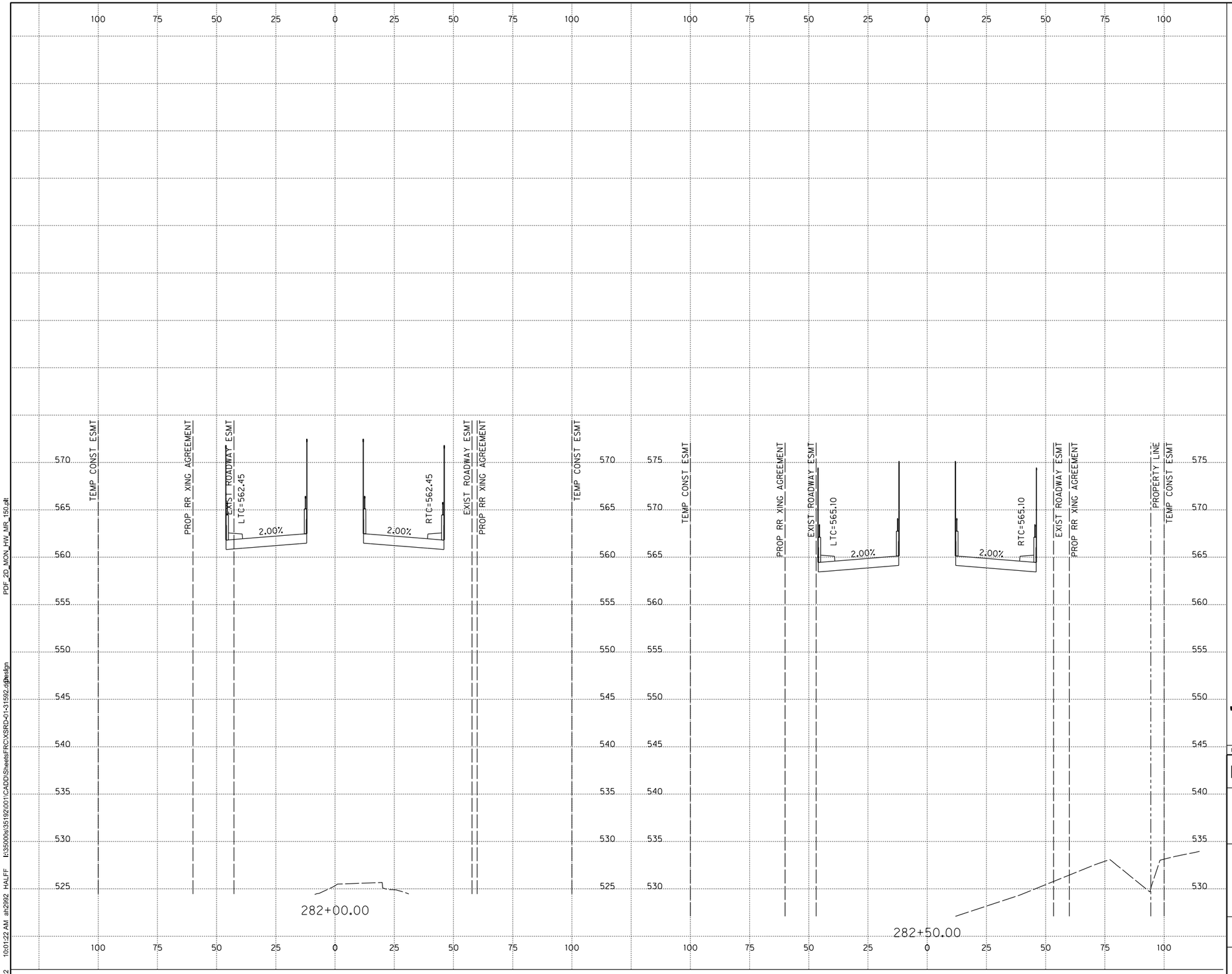

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HORIZONTAL SCALE IN FEET
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VERTICAL SCALE IN FEET

STATE OF TEXAS
MICHAEL M. LESH
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PROFESSIONAL ENGINEER

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PARK BOULEVARD EXTENSION

COLLIN COUNTY

ROADWAY CROSS SECTIONS

41 OF 52

HALFF
3803 PARKWOOD BLVD, SUITE 800
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CHECKED	HAI	DATE 2/3/2022	SCALE 1"=20' H, 1"=5'V

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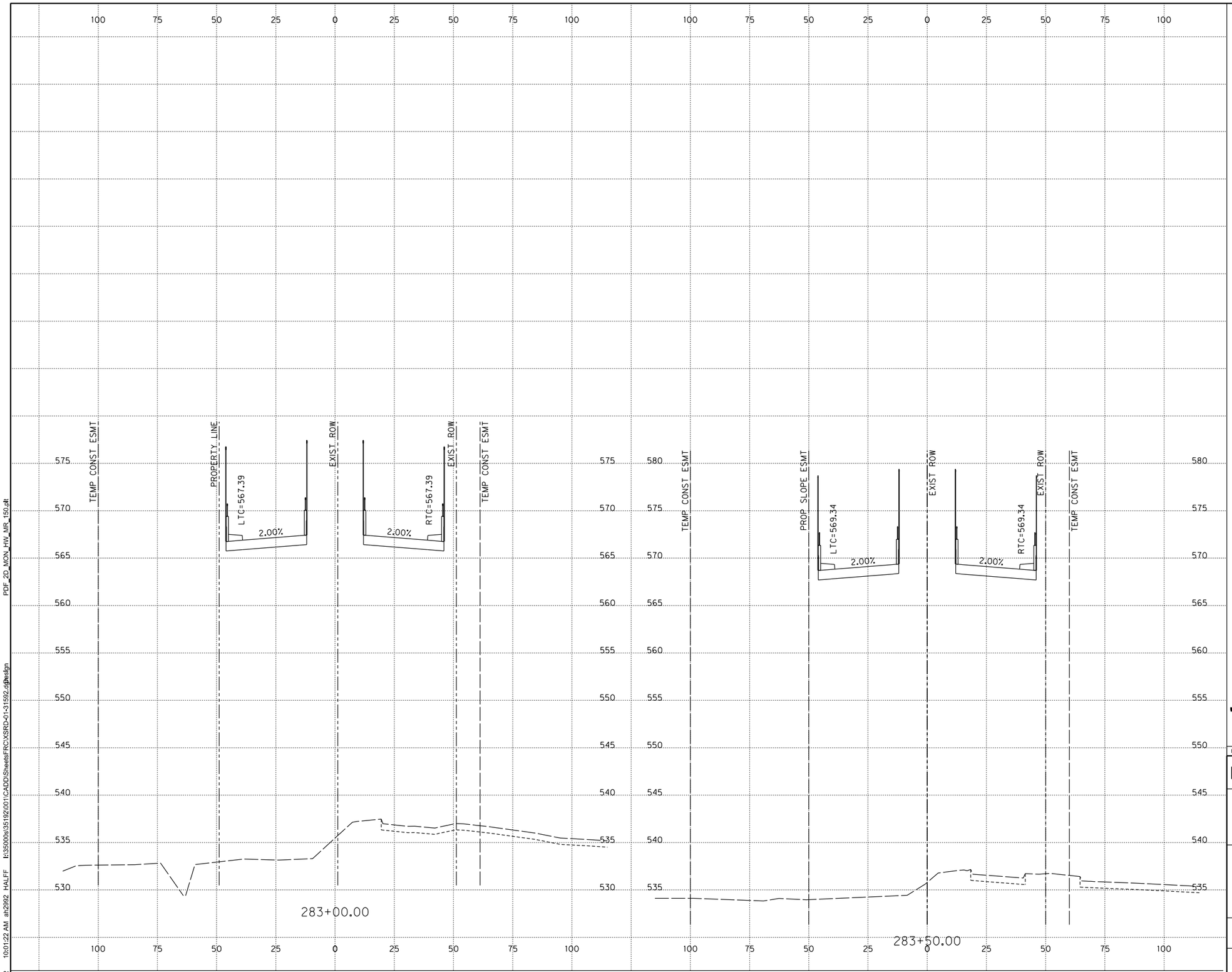

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PARK BOULEVARD EXTENSION

COLLIN COUNTY

ROADWAY CROSS SECTIONS

42 OF 52

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
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TBPE FIRM #F-312

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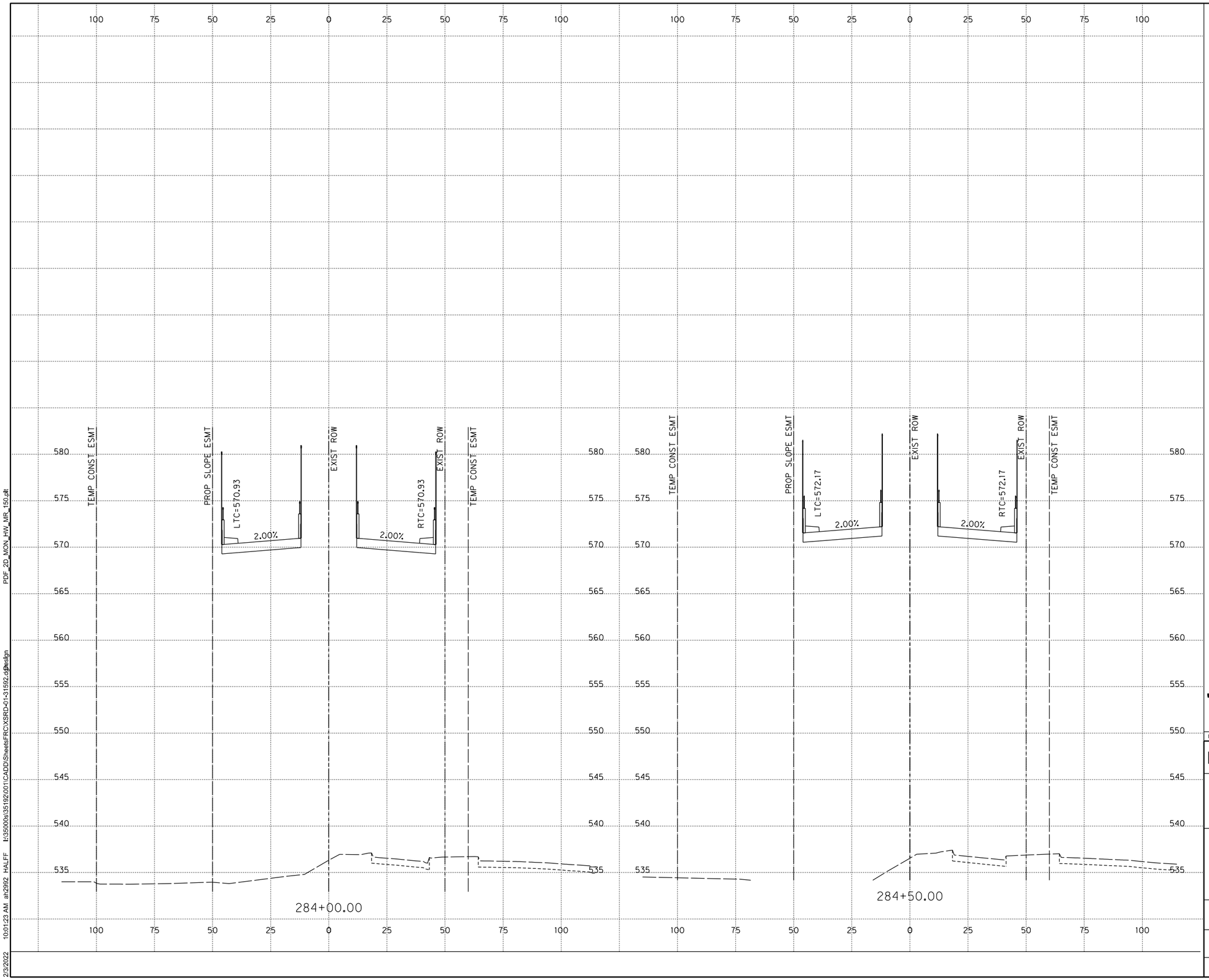

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HORIZONTAL SCALE IN FEET
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STATE OF TEXAS
MICHAEL M. LESH
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PARK BOULEVARD EXTENSION

COLLIN COUNTY

ROADWAY CROSS SECTIONS

43 OF 52

HALFF
3803 PARKWOOD BLVD. SUITE 800
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TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN	MML	DATE	2/3/2022	DESIGNED MML	DATE 2/3/2022
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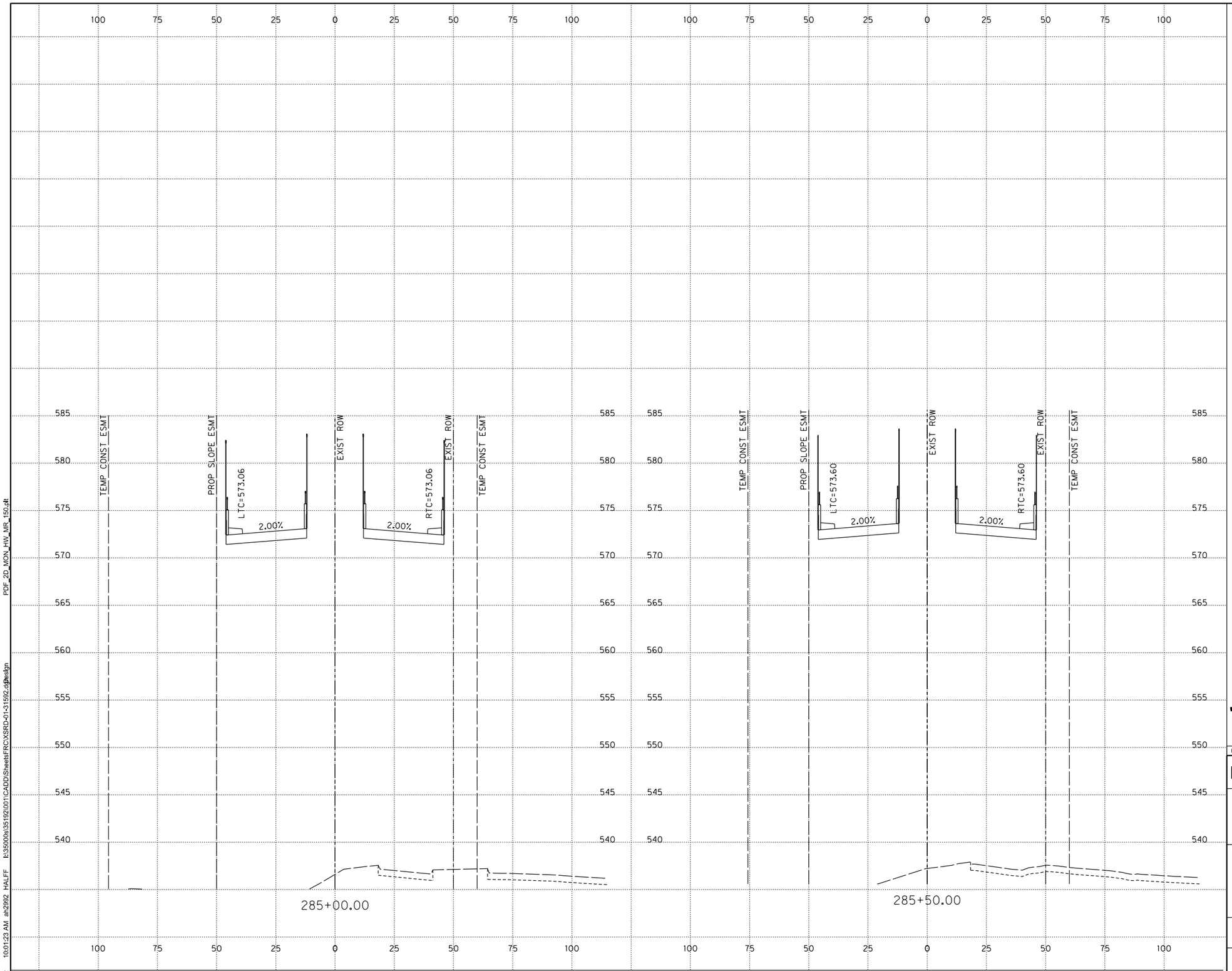

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NO.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

ROADWAY CROSS SECTIONS

44 OF 52

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN	MML	DATE	2/3/2022	DESIGNED	MML	DATE	2/3/2022
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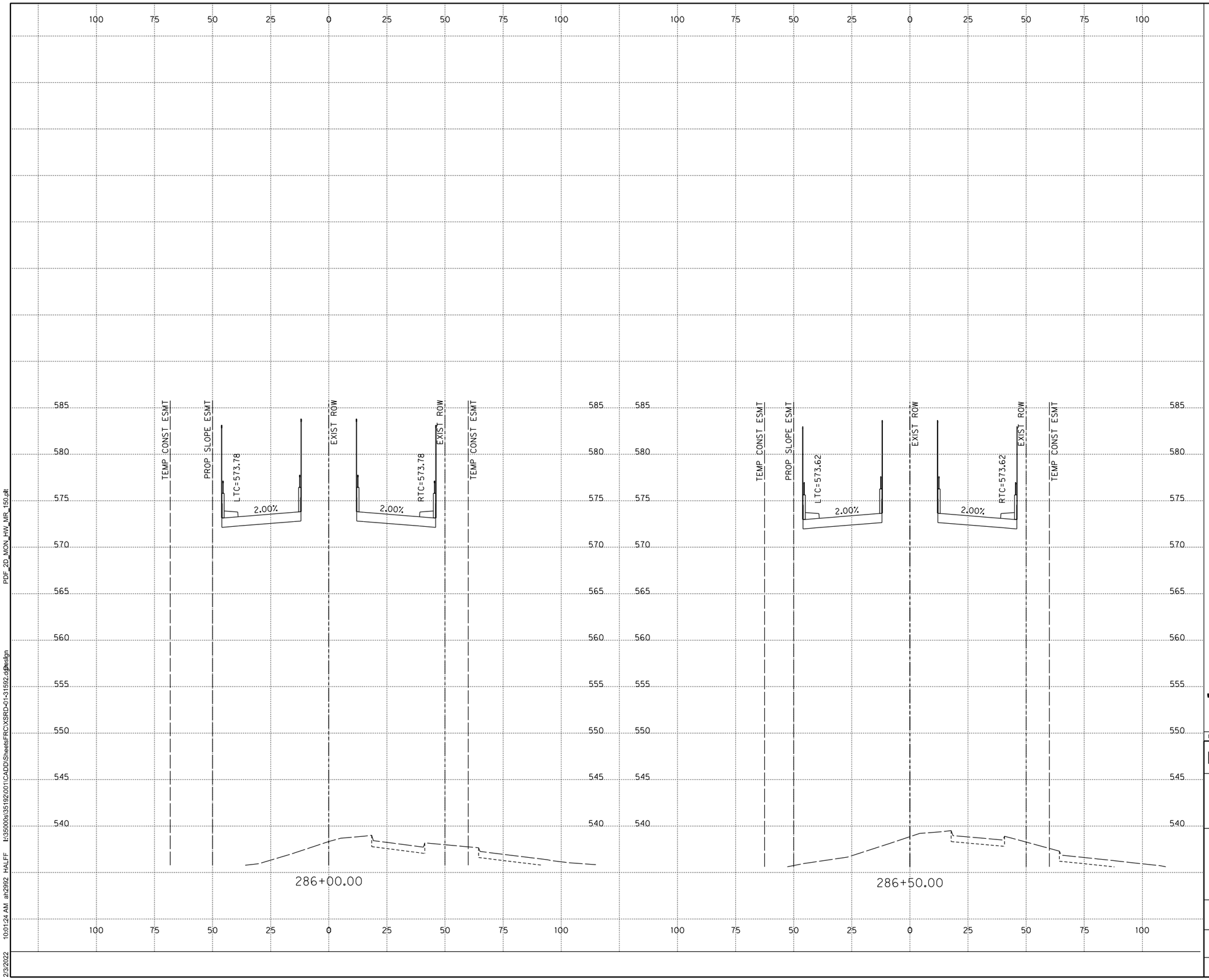

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STATE OF TEXAS
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PARK BOULEVARD EXTENSION

COLLIN COUNTY

ROADWAY CROSS SECTIONS

45 OF 52

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN	MML	DATE 2/3/2022	DESIGNED	MML	DATE 2/3/2022
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CONTRACT NO. 35192 SHEET ___ OF ___

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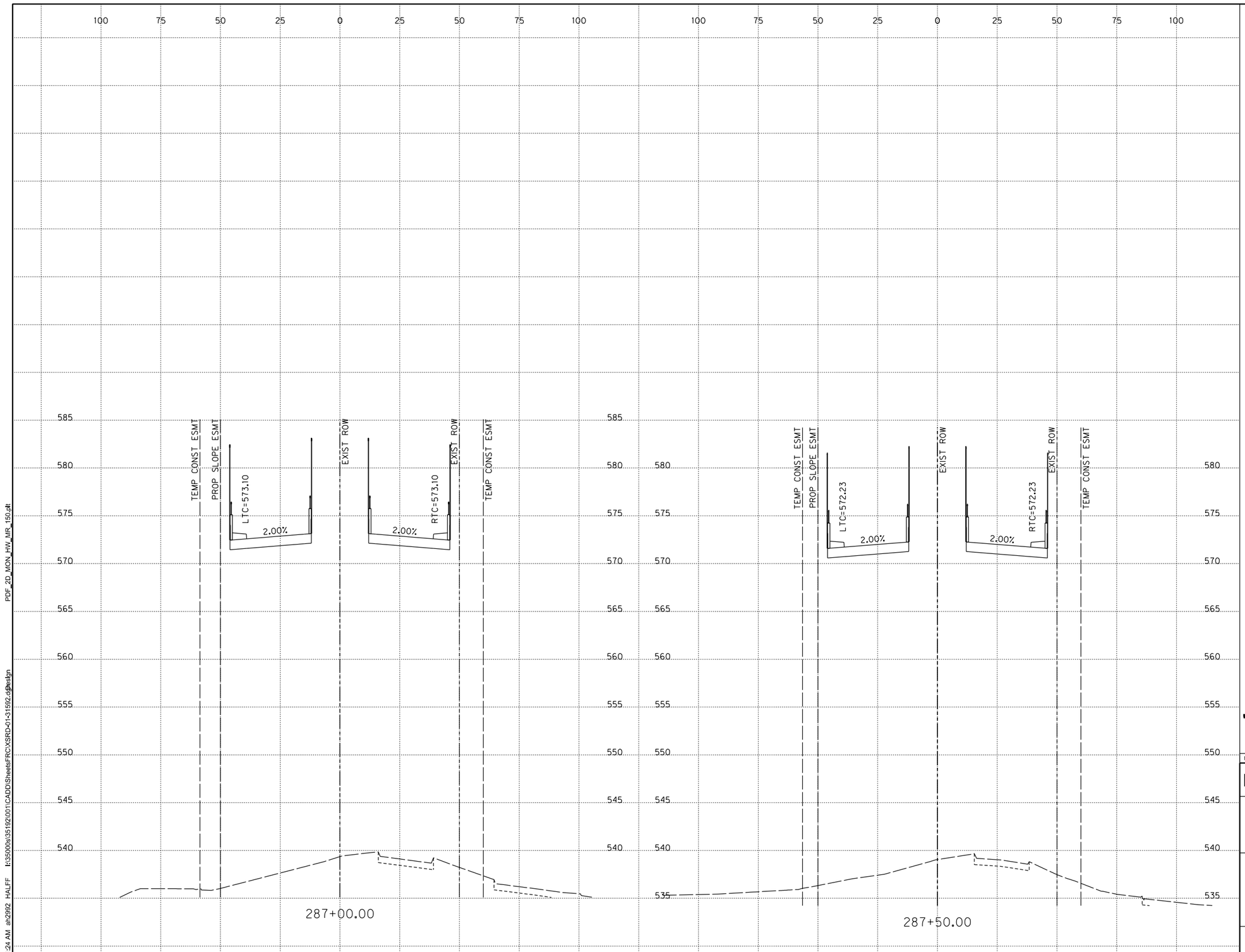

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PARK BOULEVARD EXTENSION

COLLIN COUNTY

ROADWAY CROSS SECTIONS

46 OF 52

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN MML	DATE 2/3/2022	DESIGNED MML	DATE 2/3/2022
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CONTRACT NO. 35192 SHEET ___ OF ___

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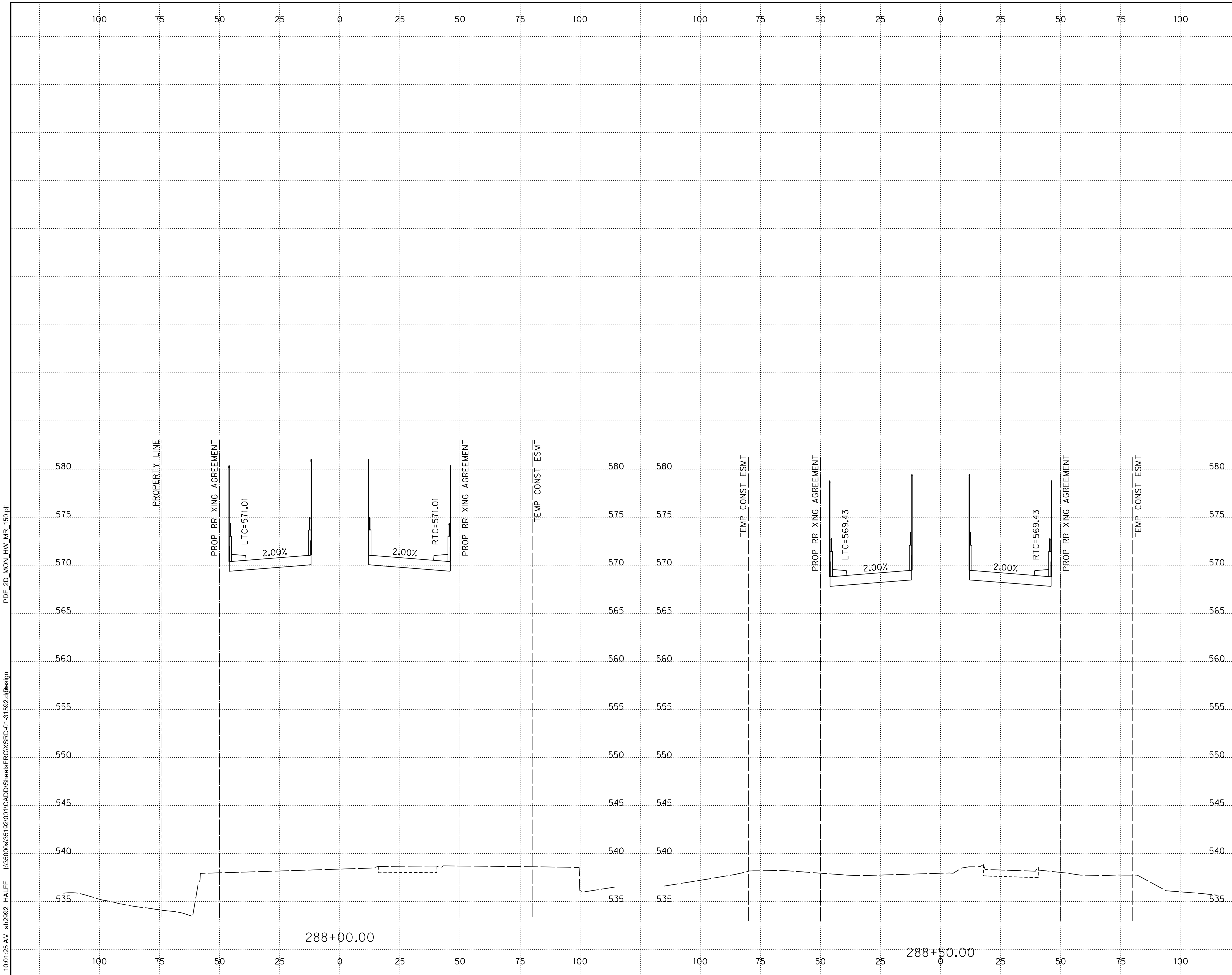

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VERTICAL SCALE IN FEET

STATE OF TEXAS
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PARK BOULEVARD EXTENSION

COLLIN COUNTY

ROADWAY CROSS SECTIONS

47 OF 52

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
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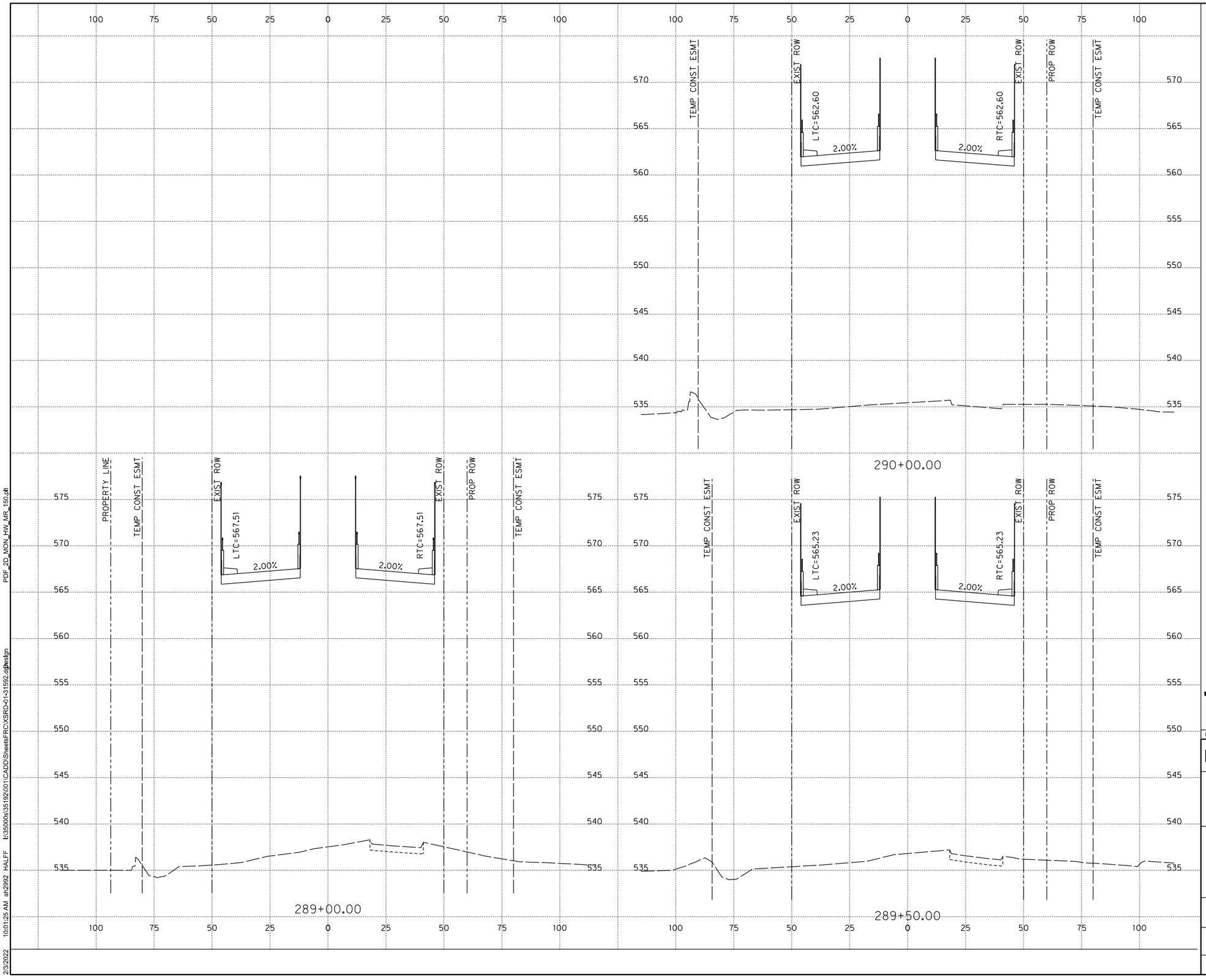

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PARK BOULEVARD EXTENSION

COLLIN COUNTY

ROADWAY CROSS SECTIONS

48 OF 52

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

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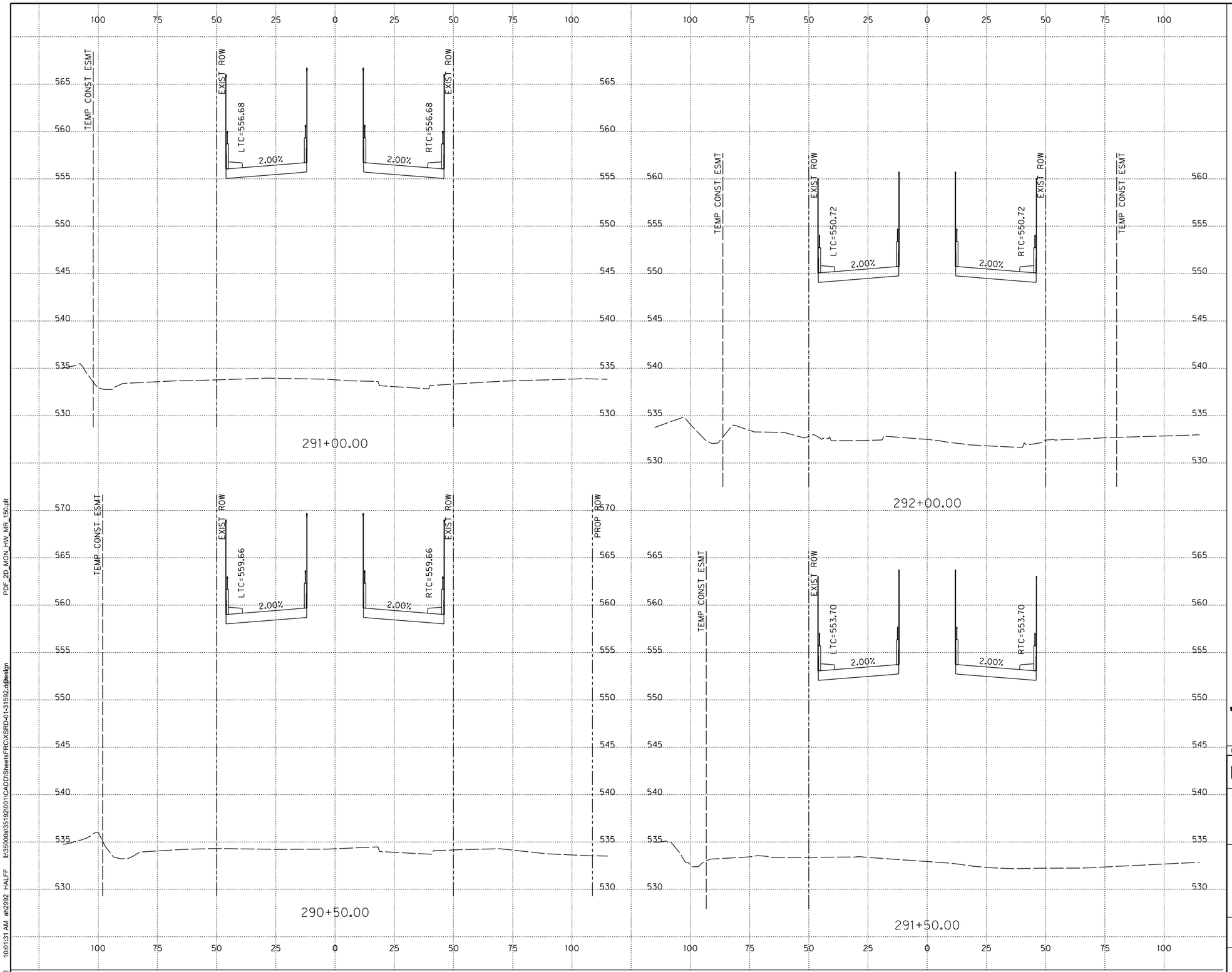

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COLLIN COUNTY

ROADWAY CROSS SECTIONS

49 OF 52

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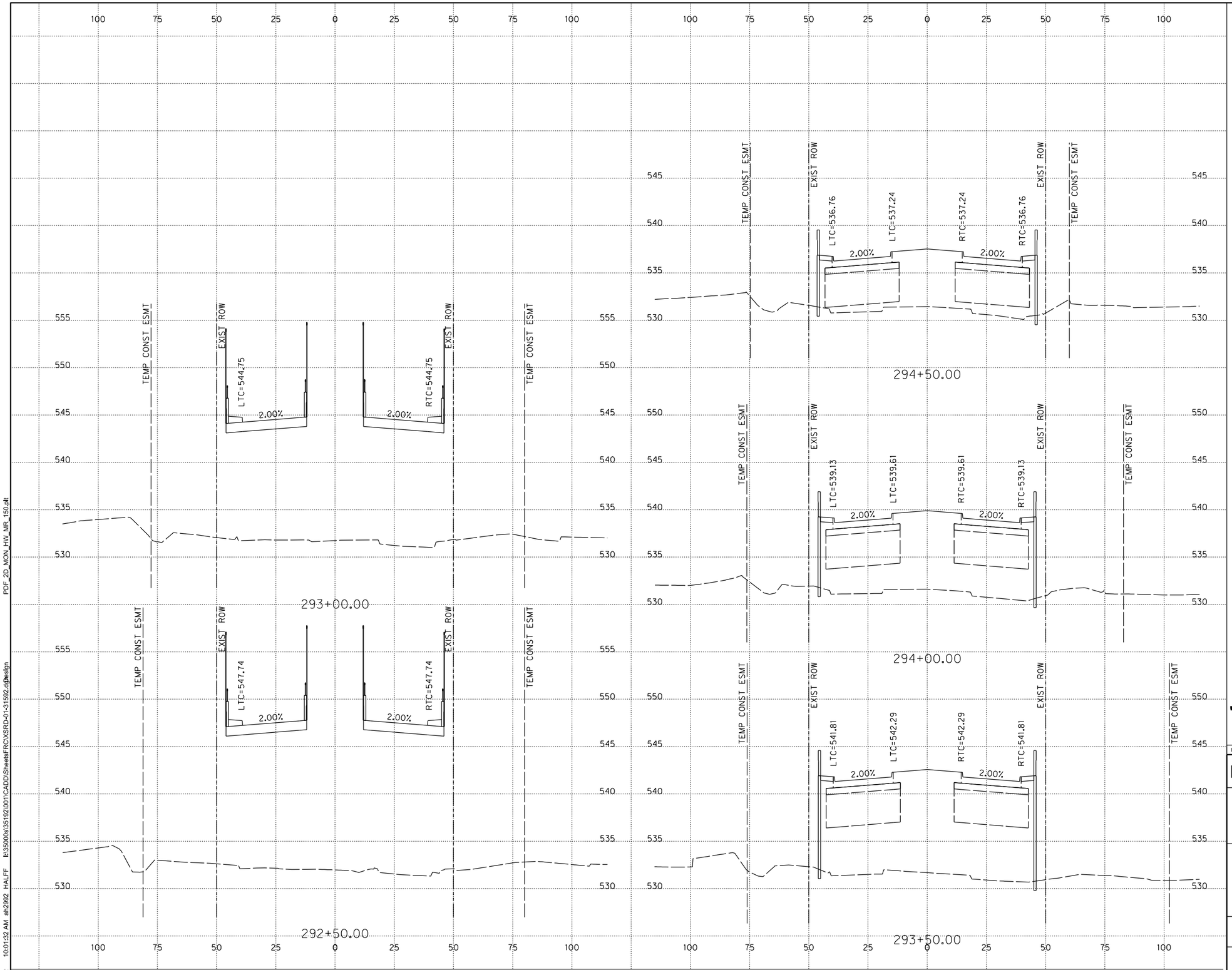

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Michael M. Lesh

"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

NO.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

ROADWAY CROSS SECTIONS

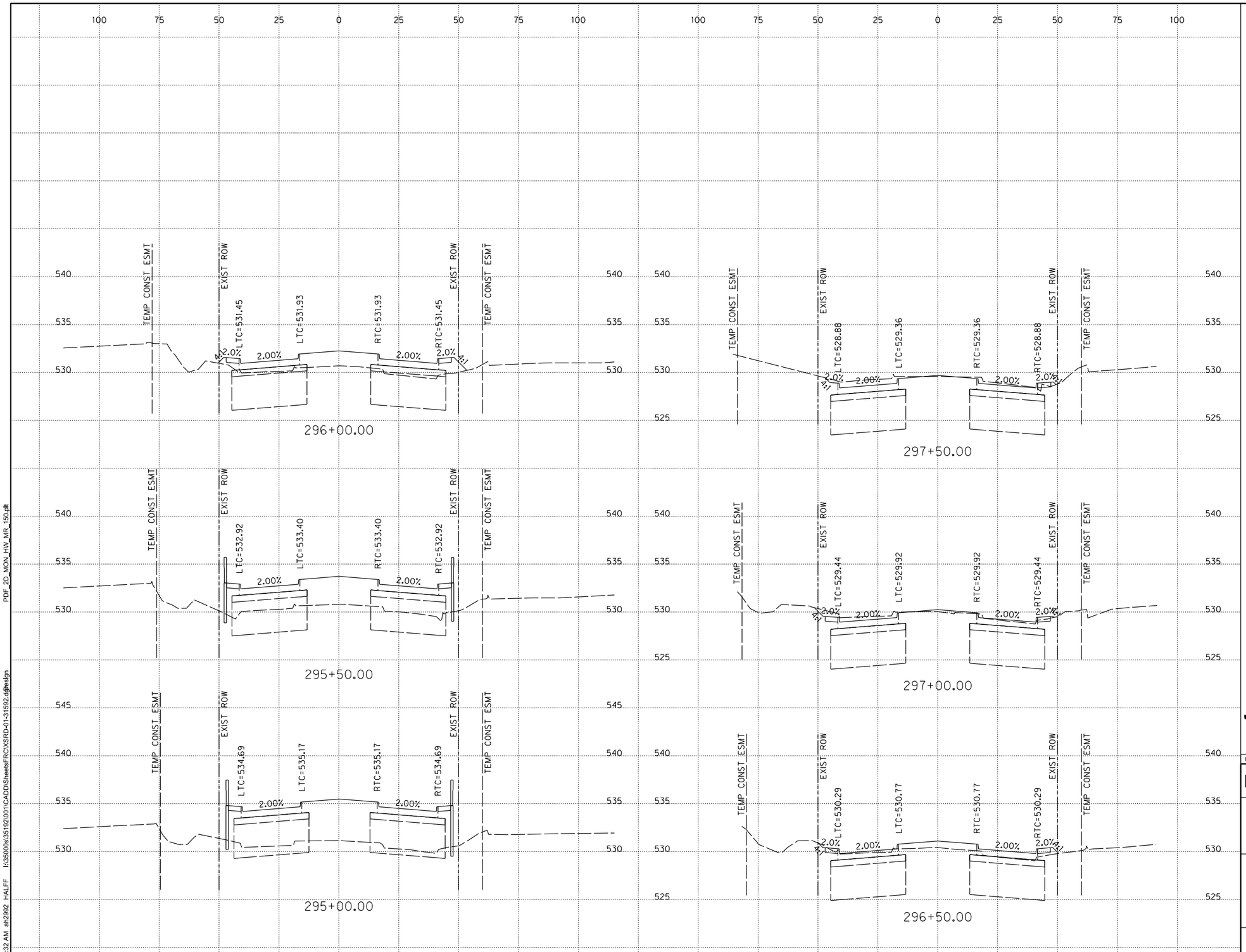
50 OF 52

HALFF
3803 PARKWOOD BLVD. SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN	MML	DATE	2/3/2022	DESIGNED	MML	DATE	2/3/2022
CHECKED	HAI	DATE	2/3/2022	SCALE	1"=20' H, 1"=5'V		

CONTRACT NO. 35192 SHEET ___ OF ___

2/3/2022 10:01:32 AM



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HORIZONTAL SCALE IN FEET
0 2.5 5 7.5 10 15
VERTICAL SCALE IN FEET

STATE OF TEXAS
MICHAEL M. LESH
83317
LICENSED
PROFESSIONAL ENGINEER

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Michael M. Lesh

"FOR AGENCY APPROVAL ONLY NOT FOR CONSTRUCTION"

NO.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

ROADWAY CROSS SECTIONS

51 OF 52

HALFF
3803 PARKWOOD BLVD, SUITE 800
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TEL (214) 618-4570
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DRAWN MML DATE 2/3/2022 DESIGNED MML DATE 2/3/2022
CHECKED HAI DATE 2/3/2022 SCALE 1"=20' H, 1"=5'V

CONTRACT NO. 35192 SHEET ___ OF ___

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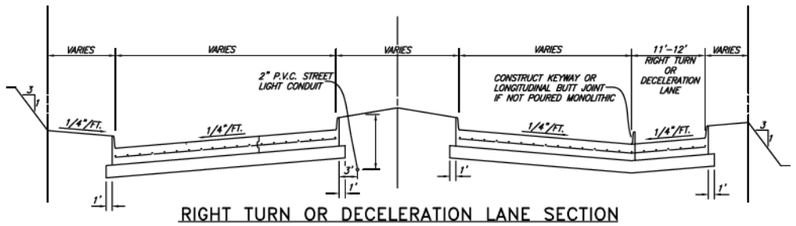
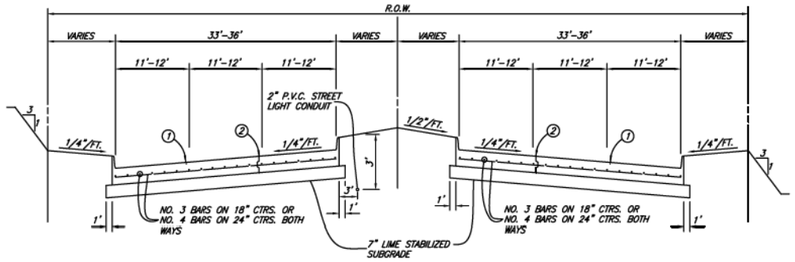
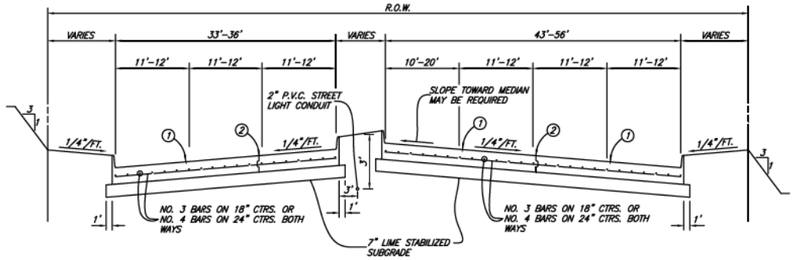


RIGHT TURN OR DECELERATION LANE SECTION



REGULAR SECTION



LEFT TURN SECTION

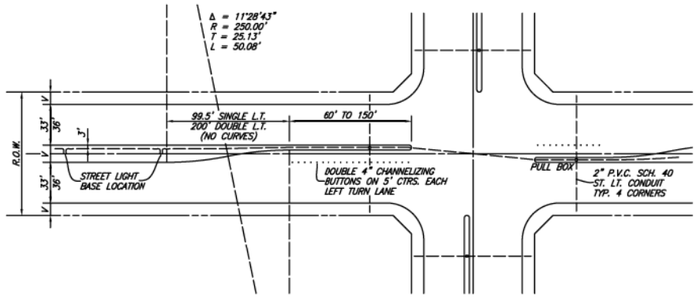
LEGEND

① – SAWED LONGITUDINAL DUMMY JOINT

A. CONSTRUCTION JOINT (FULL WIDTH PVMT. IS ALLOWED WHERE APPROVED BY CITY).

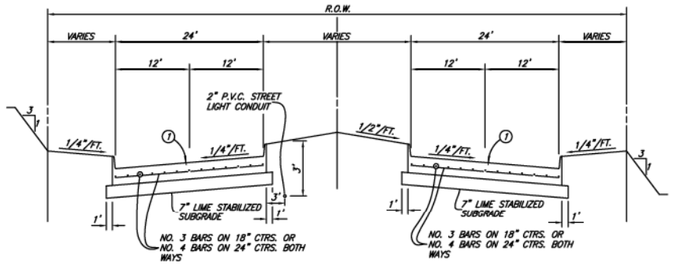
② – B. DELETE IT WHEN PAVING IS 25 FT. WIDTH TO BE WIDENED IN FUTURE.

C. INSTALL CURB IF PAVING IS LESS THAN FULL WIDTH OF 33'–36'.

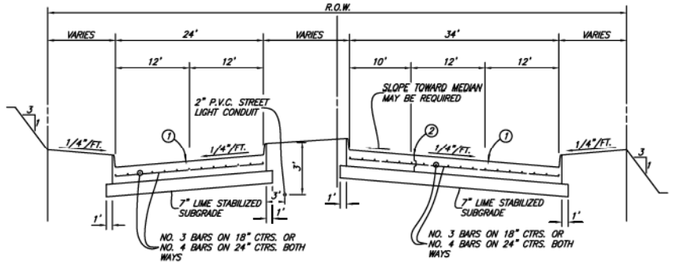


LEFT TURN PLAN

NOTE:
SIDEWALKS SHALL BE INCLUDED IN ALL STREET RIGHT-OF-WAYS. LOCATION AS DETERMINED BY THE CITY.



REGULAR SECTION



LEFT TURN SECTION

NOTE:
FOR RETROFIT TURN LANES AND MEDIAN OPENINGS. TWO ADDITIONAL INCHES OF CONCRETE CAN BE PLACED IN LIEU OF LIME STABILIZATION.

M60, P60, M4D SECTIONS SHALL HAVE MINIMUM PAVEMENT THICKNESS OF 8 INCHES.

NO.	REVISION	BY	DATE

CITY OF WYLIE, TEXAS

STANDARD CONSTRUCTION DETAILS

PAVING / SECTIONS

DATE: APRIL, 2005

SHEET STD-01_R

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

CITY OF WYLIE
TYPICAL SECTIONS

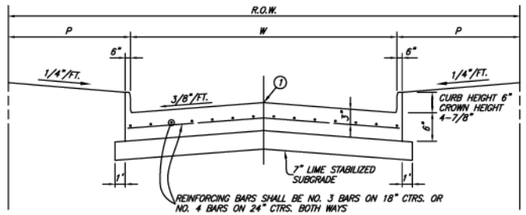
HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN: TMW DATE: 9/30/2021 DESIGNED: AK DATE: 9/30/2021
CHECKED: AK DATE: 9/30/2021 SCALE: N.T.S.

CONTRACT No. 35192

SHEET 383 OF 488 DETL-01

DETL-01-35192.dgn 2/3/2022 2:49:34 PM



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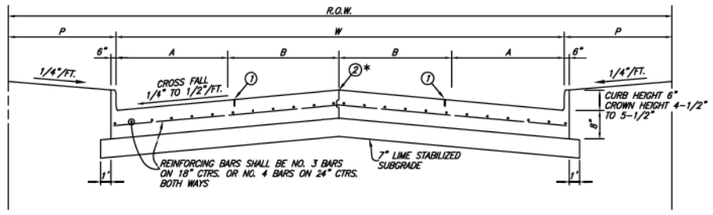
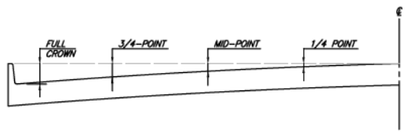


REGULAR SECTION

LEGEND

① – SAWED LONGITUDINAL DUMMY JOINT

② – CONSTRUCTION JOINT. (FULL WIDTH PVMT. IS ALLOWED WHERE APPROVED BY CITY)

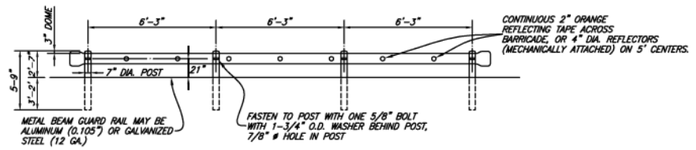


ROADWAY WIDTH (W)	TOTAL CROWN HEIGHT	3/4 POINT	MID-POINT	1/4 POINT
26'	4"	2-1/4"	1"	1/4"
36'	6"	3-3/8"	1-1/2"	3/8"
44'	6"	3-3/8"	1-1/2"	3/8"

TABLE OF CROWN HEIGHTS AND ORDINATES
FOR VARIOUS PARABOLIC SECTIONS

SLIP-FORM PAVEMENT MUST MEET CROWN GRADES AT GUTTERS, AT MID-POINTS & ℄

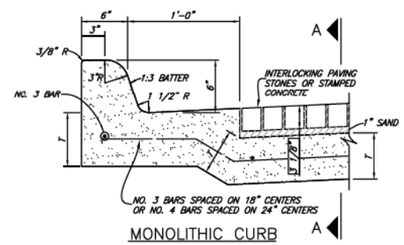
PARABOLIC ROADS ONLY TO BE CONSTRUCTED WITH SLIP FORM PAVERS



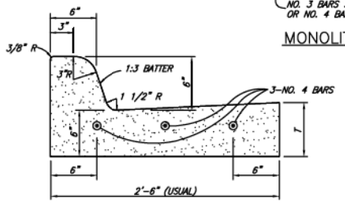
NON CONSTRUCTION BARRICADES (PERMANENT BARRICADES) SHALL CONSIST OF TxDOT MBCF-034 METAL BEAM GUARD FENCE WITH TERMINAL CONNECTOR SECTIONS AT EACH END. PERMANENT BARRICADES SHALL BE MANUFACTURED AND CONSTRUCTED IN ACCORDANCE WITH TxDOT DETAILS. BARRICADE SHALL EXTEND FROM OUTSIDE CURB TO OUTSIDE CURB.

TYPICAL PERMANENT BARRICADE DETAIL

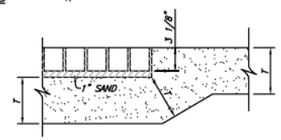
RESIDENTIAL (TYPE E & E-1) STREETS SHALL HAVE A MINIMUM PAVEMENT THICKNESS OF 6". ALL OTHERS SHALL BE 8" MIN.



MONOLITHIC CURB



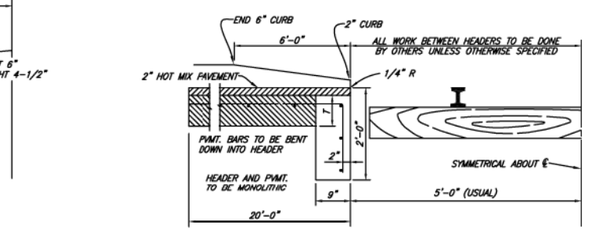
SEPARATE CURB AND GUTTER



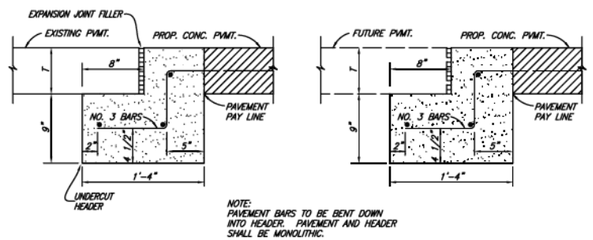
SECTION A-A

PAVING STONES SHALL BE PER NCTCOG ITEMS 2.3.7 AND 5.8 OF SPECIAL PROVISIONS

CURB AND CURB AND GUTTER

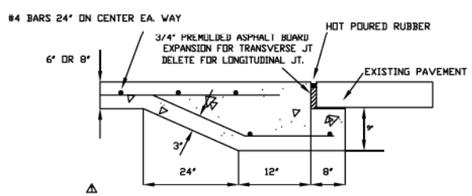


RAIL HEADER



NOTE:
PAVEMENT BARS TO BE BENT DOWN INTO HEADER. PAVEMENT AND HEADER SHALL BE MONOLITHIC.

STREET HEADER



⚠ ALTERNATE TRANSVERSE AND LONGITUDINAL UNDERCUT STREET HEADER TIE TO EXIST PVMT

NTS

NOTES:

1. STREET HEADERS WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED SUBSIDIARY WORK TO CONCRETE PAVEMENT.

NO.	REVISION	BY	DATE
⚠	ADD ALTERNATE UNDERCUT HEADER	JCH	04/18/07

CITY OF WYLIE, TEXAS

STANDARD CONSTRUCTION DETAILS

PAVING / SECTIONS / DETAILS

DATE: APRIL, 2005

SHEET STD-02_R

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

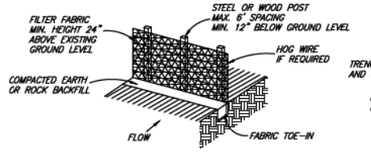
CITY OF WYLIE
TYPICAL SECTIONS DETAILS

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

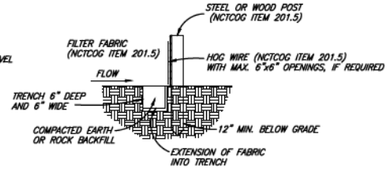
DRAWN: TMW DATE: 9/30/2021 DESIGNED: AK DATE: 9/30/2021
CHECKED: AK DATE: 9/30/2021 SCALE: N.T.S.

CONTRACT No. 35192

SHEET 384 OF 488 DETL-02

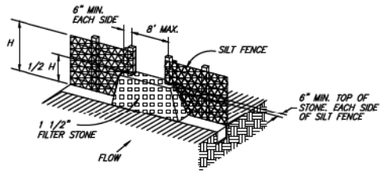


ISOMETRIC VIEW



SECTION VIEW

SILT FENCE DETAIL



STONE OVERFLOW STRUCTURE

LOCATION AS CALLED FOR IN PLANS

NOTES:
1) THE CONTRACTOR SHALL INSPECT SILT FENCE WEEKLY AND AFTER MAJOR RAIN EVENTS TO ENSURE THAT THE DEVICE IS FUNCTIONING PROPERLY AND MAINTAIN IN ACCORDANCE WITH NCTCOG ITEM 201.

2) THE CONTRACTOR SHALL REMOVE SEDIMENT FROM BEHIND FENCE WHEN THE DEPTH OF SEDIMENT HAS BUILT UP TO ONE-THIRD THE HEIGHT OF THE FENCE ABOVE GRADE.

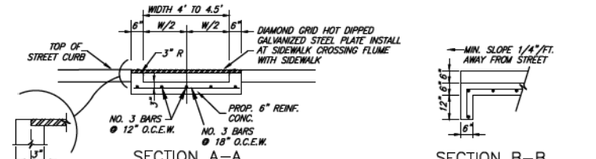
3) THE CONTRACTOR SHALL INSPECT THE BASE OF THE FENCE TO ENSURE THAT NO GAPS HAVE DEVELOPED AND RE-TRENCH AS NECESSARY.

4) THE CONTRACTOR SHALL INSPECT FENCE POSTS TO ENSURE THAT THEY ARE PROPERLY SUPPORTING THE FENCE. IF NECESSARY, THE CONTRACTOR SHALL RESET AND ADD POSTS.

5) IF FILTER FABRIC IS RIPPED, DAMAGED OR DETERIORATED, THE CONTRACTOR SHALL REPLACE IT IN ACCORDANCE WITH THE ORIGINAL SPECIFICATIONS AND DETAILS. (MAINTENANCE OF THE SILT FENCE SHALL BE AT THE CONTRACTORS OWN EXPENSE)

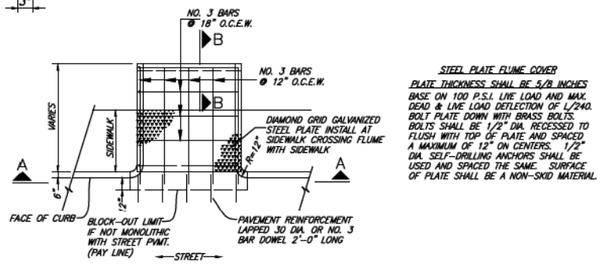
6)

EROSION CONTROL



SECTION A–A

SECTION B–B

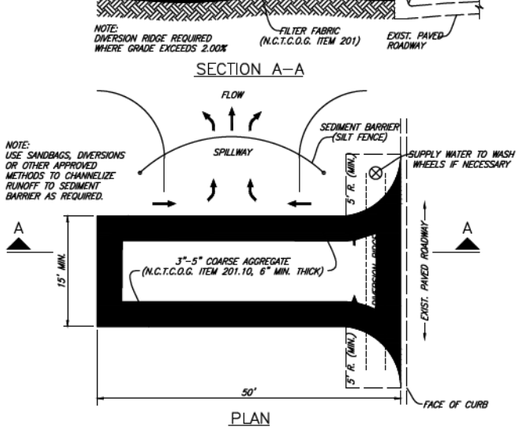


PLAN

STEEL PLATE FLUME COVER

PLATE THICKNESS SHALL BE 5/8 INCHES BASE ON 100 P.S.I. LIVE LOAD AND MAX. DEAD & LIVE LOAD DEFLECTION OF L/240. BOLT PLATE DOWN WITH BRASS BOLTS. BOLTS SHALL BE 1/2" DIA. RECESSED TO FLUSH WITH TOP OF PLATE AND SPACED A MAXIMUM OF 12" ON CENTERS. 1/2" DIA. SELF-DRILLING ANCHORS SHALL BE USED AND SPACED THE SAME. SURFACE OF PLATE SHALL BE A NON-SKID MATERIAL.

REINFORCED CONCRETE FLUME WITH CURBS



SECTION A–A

PLAN

CONSTRUCTION ENTRANCE ROAD
FOR EROSION CONTROL

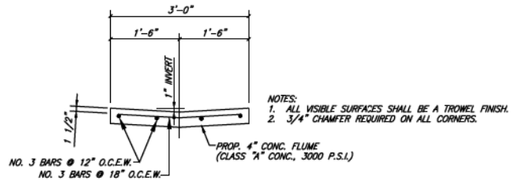
NO SCALE

⚠ CONSTRUCTION NOTES:
1) THE ENTRANCE SHALL BE MAINTAINED TO PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE DRESSING WITH ADDITIONAL STONE AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2) WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE INTO PUBLIC RIGHT-OF-WAY. WASHING SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT CONTROLLING STRUCTURE. USE SAND BAGS, GRAVEL, BOARDS OR OTHER APPROVED METHODS TO PREVENT SEDIMENT FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE.

3) ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.

4) ALL SAWING FOR PAVING SHALL BE VACUUMED TO REMOVE ALL SLURRY AND CONCRETE DUST FROM AREA.



NOTES:
1. ALL VISIBLE SURFACES SHALL BE A TROWEL FINISH.
2. 3/4" CHAMFER REQUIRED ON ALL CORNERS.

REINFORCED CONCRETE FLUME WITHOUT CURBS

NO.	REVISION	BY	DATE
2	ADDED NOTE 4 TO CONSTRUCTION NOTES	JCH	07/07/14
1	ADD ENTRANCE CONSTRUCTION NOTES	JCH	06/07/06

CITY OF WYLIE, TEXAS

STANDARD CONSTRUCTION DETAILS

PAVING / DETAILS / EROSION

DATE: APRIL, 2005

SHEET STD-07_R

No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

CITY OF WYLIE
EROSION DETAILS

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095 TBPE FIRM #F-312

DRAWN: TMW DATE: DESIGNED: AK DATE:
CHECKED: AK DATE: SCALE: N.T.S.

CONTRACT No. 35192

SHEET OF DETL-06

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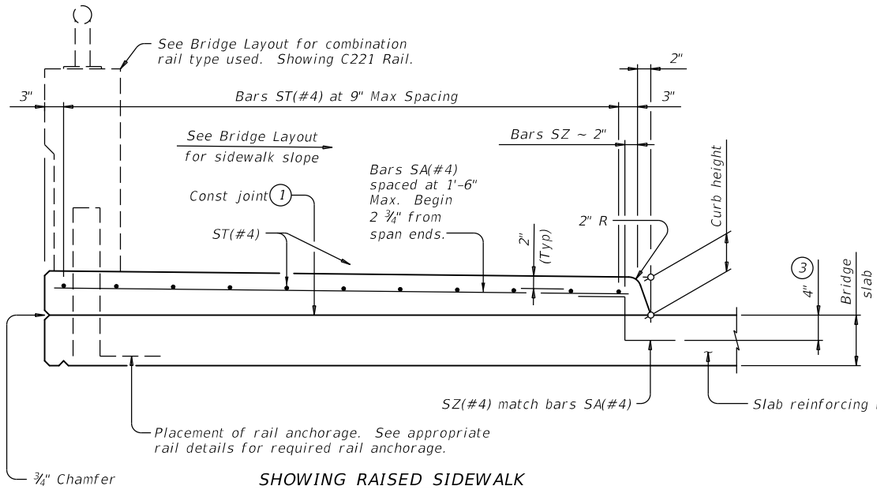
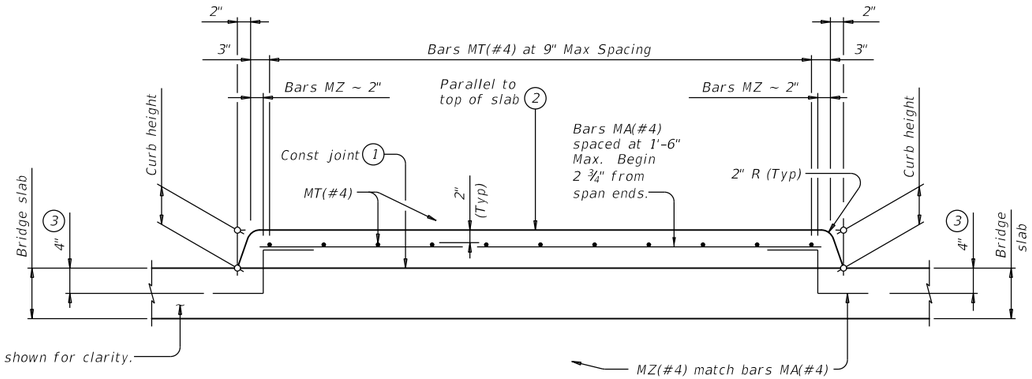


SHOWING RAISED SIDEWALK



SHOWING RAISED MEDIAN

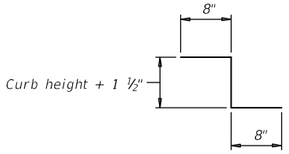
TYPICAL TRANSVERSE SECTIONS

See Span Details for dimensions not shown.

(1) Provide broom finish to top of bridge slab where raised sidewalk or raised median area is defined.

(2) Unless noted otherwise on the span details.

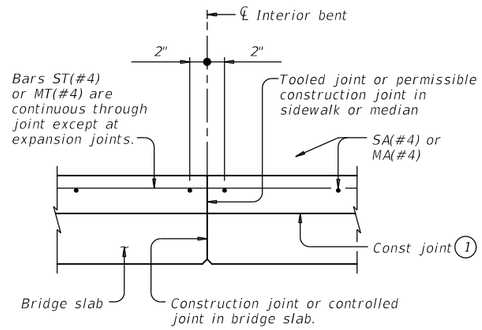
(3) Bars may rest on top of PCPs.



BARS SZ(#4) AND MZ(#4)

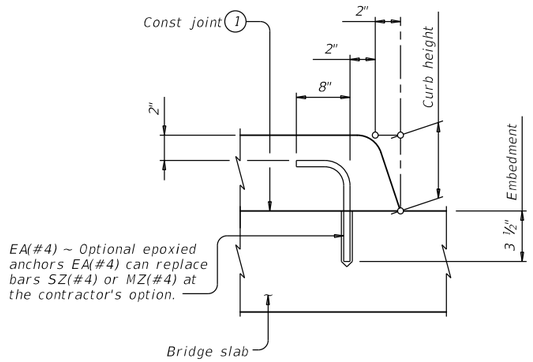
APPROVED SLIP RESISTANT PLATE	
Product	Manufacturer Website
Algrip™, Steel	www.algrip.com
Mebac® #3, Steel	www.harscoikg.com
SlipNOT® Grade 2, Steel	www.slipnot.com

Provide drain cover plates fabricated with a product from this list. No exceptions are permitted.



LONGITUDINAL SECTION AT INTERIOR BENT

At bents with expansion joints, provide an open joint in the sidewalk/median matching the deck's joint width.



OPTIONAL EPOXY ANCHORS

Embed EA(#4) bar into concrete with a Type III (Class C, D, E, or F) epoxy meeting the requirements of DMS-6100, "Epoxies and Adhesives". Follow manufacturer's directions for installing the epoxied anchor bars.

MATERIAL NOTES:

Provide the same concrete required for the bridge deck, Class S or Class S (HPC) concrete.

Provide Grade 60 reinforcing steel. Deformed welded wire reinforcement (WWR) meeting ASTM A1064 of equivalent size and spacing may be substituted for bars SA, ST, MA, and MT.

Provide epoxy coat or galvanize reinforcement if bridge deck reinforcement is required to be epoxy coated or galvanized.

Provide hot-dip galvanize slip resistant steel plate after fabrication in accordance with Item 445, "Galvanizing".

Chamfer or round edges approximately 1/16" prior to galvanizing.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

Provide the following bar or wire lap lengths when required:
- Uncoated, 1'-7" Min
- Coated, 2'-5" Min

Submittal and approval of drain cover plate shop drawings is not required if fabrication is accordance with these details.

Raised sidewalks will be paid under Item 422 by the SF of Bridge Sidewalk or Bridge Sidewalk (HPC). Raised medians will be paid under Item 422 by the SF of Bridge Median or Bridge Median (HPC).

Payment for drain cover plates will be by the pound of "Structural Steel (Misc Non-Bridge)" as per Item 442, "Metal for Structures". Weight of one drain cover plate is 48 plf.

DESIGNER NOTES:

These details do not apply for longitudinal grades exceeding 5 percent.

Cover dimensions are clear dimensions, unless noted otherwise.

Reinforcing bar dimensions shown are out-to-out of bar.

Texas Department of Transportation

Bridge Division Standard

BRIDGE RAISED SIDEWALK AND MEDIAN DETAILS

BRSM

FILE: brsmste1-19.dgn	DN: JMH	CK: TxDOT	DW: JTR	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				420

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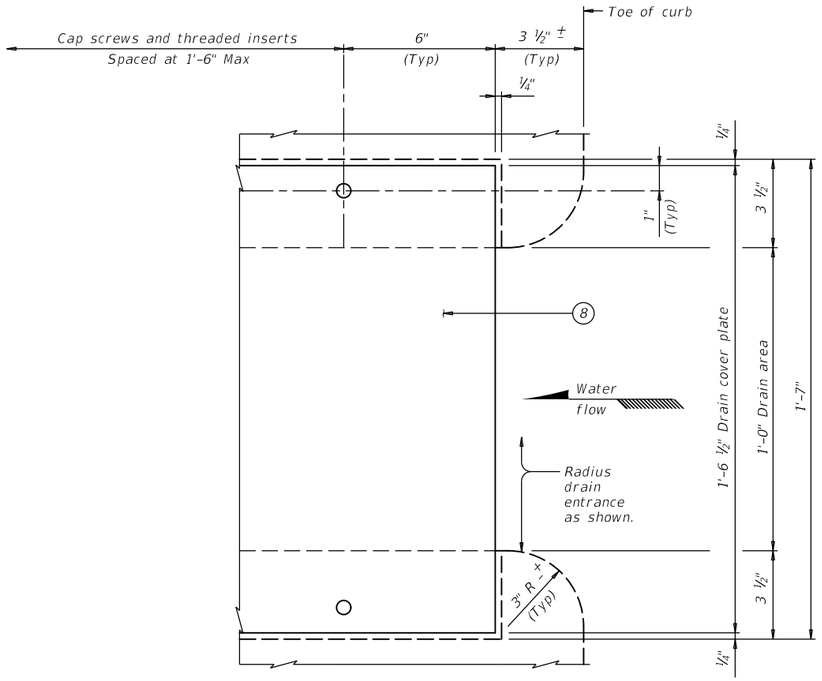
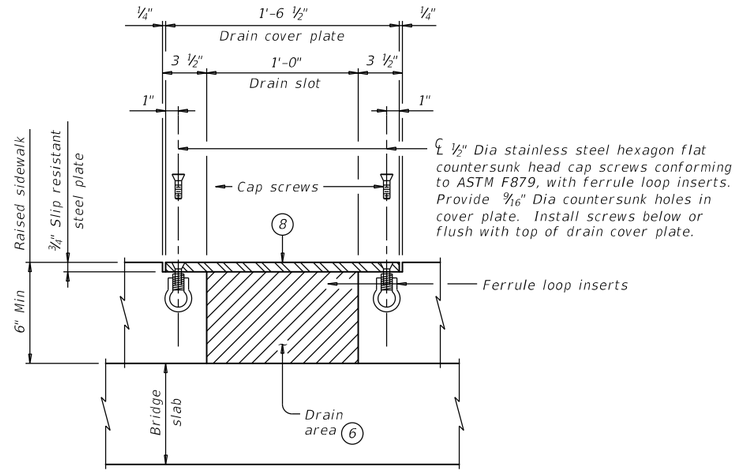
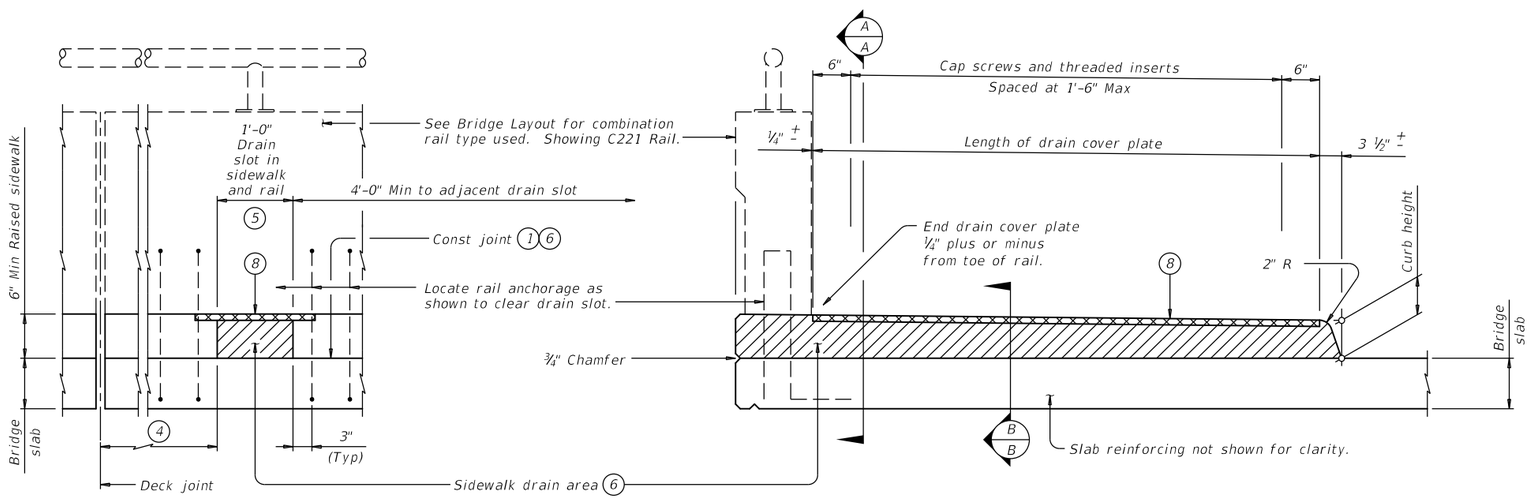


PARTIAL PLAN CURB DRAIN



SECTION B-B

Reinforcing not shown for clarity.



SECTION A-A

SHOWING RAISED SIDEWALK WITH DRAIN SLOT

OPTIONAL DRAIN DETAILS (7)

(1) Provide broom finish to top of bridge slab where raised sidewalk or raised median area is defined.

(4) 3'-0" Min at deck expansion joints, deck construction joints or controlled joints, rail intermediate wall joints or from face of substructure.

(5) For rail Type C1W, center drain slots between posts.

(6) Steel trowel top surface of bridge deck in drain locations.

(7) Provide sidewalk drains where shown elsewhere on the plans or as directed by the Engineer. Do not place drains over railroad tracks, lower roadways, or sidewalks. Place drain and cover plate perpendicular to toe of rail.

(8) Drain cover plate (PL ⅜ x 18 ½ slip resistant steel plate). Install flush with top of sidewalk.

Texas Department of Transportation

Bridge Division Standard

BRIDGE RAISED SIDEWALK AND MEDIAN DETAILS

BRSM

FILE: brsmstel-19.dgn	DN: JMH	CK: TxDOT	DW: JTR	CK: TxDOT
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	DIST	COUNTY		SHEET NO.
				421

DATE:
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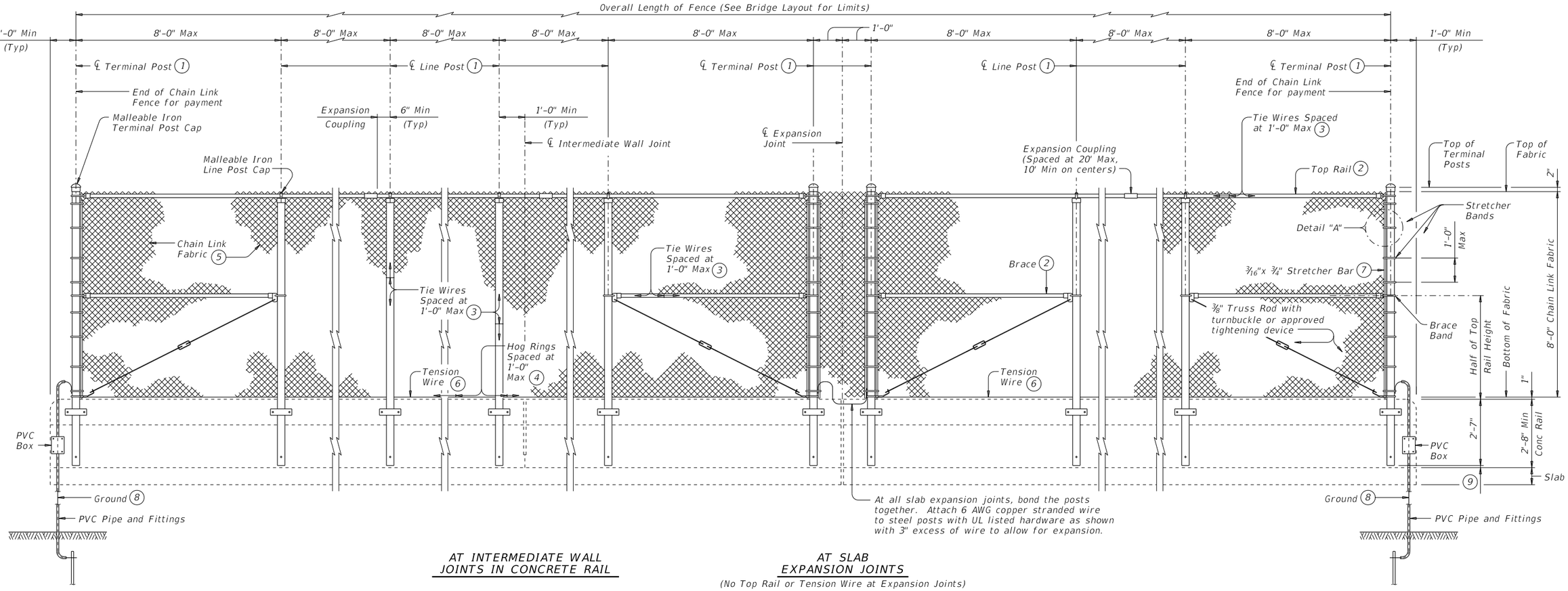
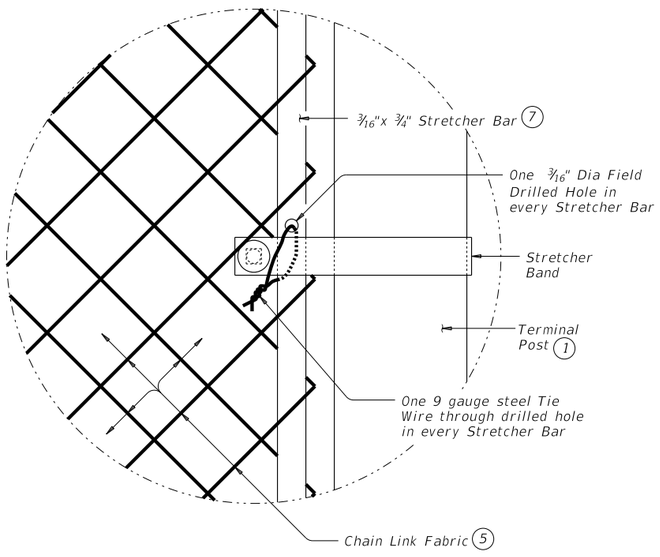


AT INTERMEDIATE WALL JOINTS IN CONCRETE RAIL

AT SLAB EXPANSION JOINTS
(No Top Rail or Tension Wire at Expansion Joints)

OUTSIDE ELEVATION OF CHAIN LINK FENCE



DETAIL "A"

(1) HSS 3.500 x 0.216 ASTM A1085 or A500 Gr B.

(2) HSS 1.660 x 0.140 ASTM A500 Gr B or A53 Gr B.

(3) 9 gauge steel Tie Wires attach chain link fabric to HSS.

(4) 9 gauge steel Hog Rings attach chain link fabric to tension wire.

(5) 9 gauge steel Chain Link Fabric, 2" Mesh, knuckle selvage top and bottom.

(6) 7 gauge steel Tension Wire.

(7) Contractor must field drill one 3/16" Dia hole in every stretcher bar and use a 9 gauge steel tie wire to tie one stretcher band and chain link fabric together. Locate drilled hole for tie wire at approximate mid-height of fence.

(8) Ground terminal post at the beginning and end of fence and down the nearest bent. Attach 6 AWG copper stranded wire to steel post with UL listed hardware and run other end of copper stranded wire to 3/8" Dia minimum copper-clad steel rod 8 ft in length. Install ground rod as per Item 550 and this sheet. The 6 AWG copper stranded wire must run through 1/2" Schedule 40 PVC pipe, fittings and PVC box attached to the back of rail.

(9) Dimension varies on rail types and superstructure type. T551, T221 and C221 Rails = 1" with no overlay, T222 Rail and SSTR Rail = 5" with no overlay, increased 2" for overlay. On bridges with significant beam camber variable length in dimension may be anticipated.

Texas Department of Transportation

Bridge Division Standard

8 FT CHAIN LINK FENCE FOR RAILROAD OVERPASS

CLF-RO

FILE: rlstd032-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
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REVISIONS				
	DIST	COUNTY		SHEET NO.

DATE:
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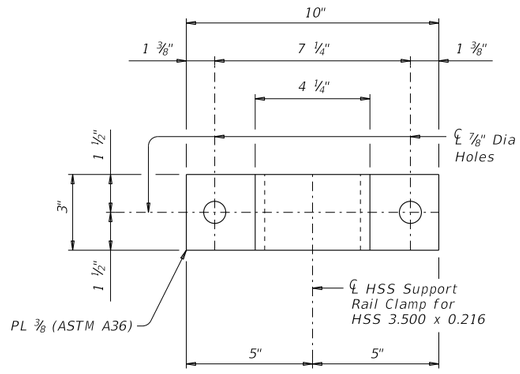
(1) HSS 3.500 x 0.216 ASTM A1085 or A500 Gr B.

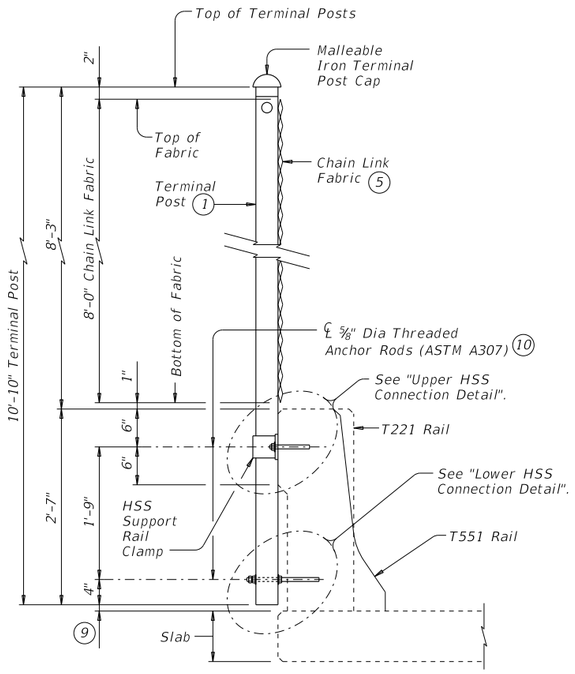
(5) 9 gauge steel Chain Link Fabric, 2" Mesh, knuckle selvage top and bottom.

(9) Dimension varies on rail types and superstructure type. T551, T221 and C221 Rails = 1" with no overlay, T222 Rail and SSTR Rail = 5" with no overlay, increased 2" for overlay. On bridges with significant beam camber variable length in dimension may be anticipated.

(10) See "Material Notes" for threaded anchor rod information.

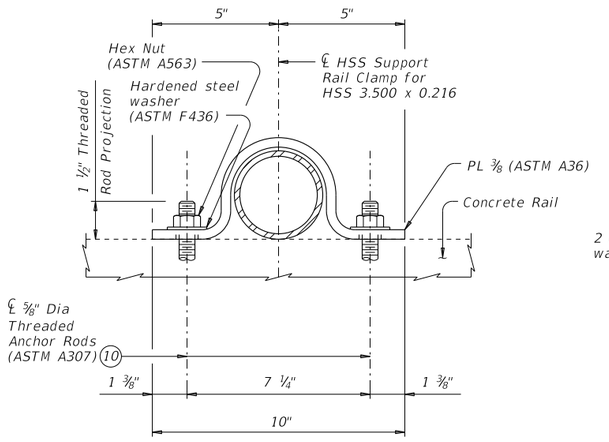


PIPE SUPPORT
RAIL CLAMP ELEVATION



CHAIN LINK FENCE SECTION

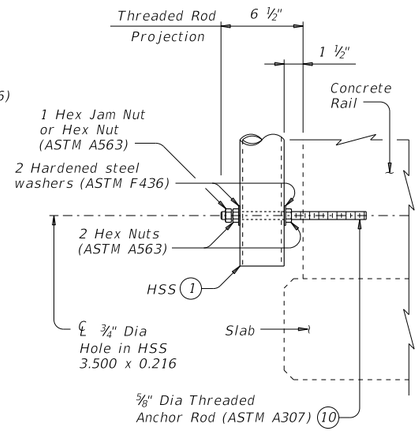
(Showing Terminal Post on a T551 or T221 Rail, Line Post, T222 Rail and SSTR Rail similar.)



HSS SUPPORT
RAIL CLAMP ASSEMBLY

UPPER HSS
CONNECTION DETAIL

(Dimensions may vary according to Manufacturer's specifications.)



LOWER HSS
CONNECTION DETAIL

(Showing Terminal Post or Line Post)

CONSTRUCTION NOTES:

Chain link fence post must be plumb unless otherwise approved.

Test adhesive anchors in accordance with Item 450.3.3, "Tests". Test 3 anchors per 100 anchors installed. Perform corrective measures to provide adequate capacity if any of the tests do not meet the required test load. Repair damage from testing as directed.

MATERIAL NOTES:

All Chain Link Fence materials must conform to standard specifications, Item "Chain Link Fence" unless shown otherwise.

Galvanize all steel components unless noted otherwise.

Provide ASTM A1085, A500 Gr B for HSS 3.500 x 0.216. Provide ASTM A500 Gr B or A53 Gr B for HSS 1.660 x 0.140.

Provide ASTM A36 for steel plates.

Anchor bolts must be ⅝" Dia ASTM A307 Gr A fully threaded rods. Hex nuts must conform to ASTM A563 requirements. Embed fully threaded rods into parapet wall with a Type III, Class C, D, E, or F anchor adhesive. Minimum adhesive anchor embedment depth is 5". Anchor adhesive chosen must be able to achieve a factored bond strength in tension of 6 kips each anchor (edge distance and anchor spacing must be accounted for). Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

GENERAL NOTES:

This sheet must be used with a concrete Traffic or Combination Rail. Rails that can be used with this sheet are T551, SSTR, T221, T222, and C221 Rails. Chain link fence details shown on this standard are adequate for all speeds. If used, optional side slot drains shown on rail standards must not be any closer than 6" from chain link post to edge of side slot drains.

This railing cannot be used on bridges with expansion joints providing more than 5" movement.

Payment for materials, fabrication, and installation of this assembly are to be included in unit price bid in accordance with Item 450, "Rail (CLF-RO)".

Approximate weight of fence = 20 plf.

Texas Department of Transportation

Bridge Division Standard

8 FT CHAIN LINK FENCE FOR RAILROAD OVERPASS

CLF-RO

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REVISIONS				
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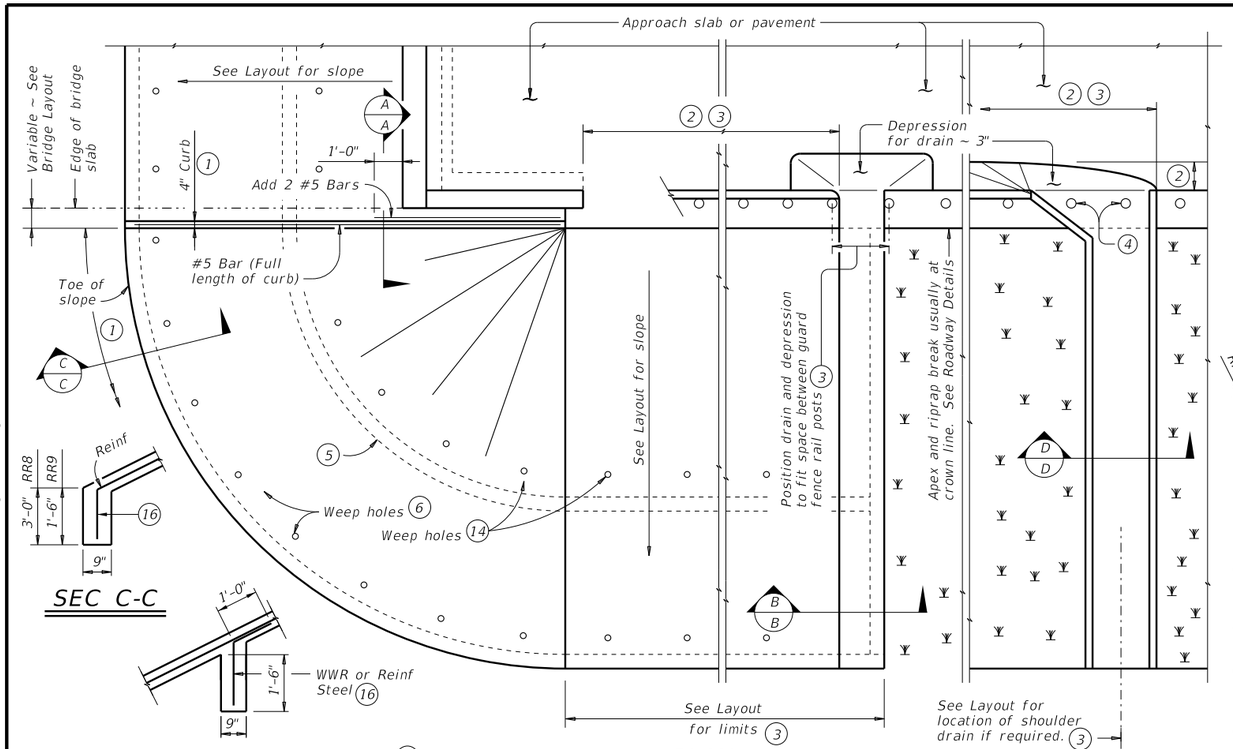
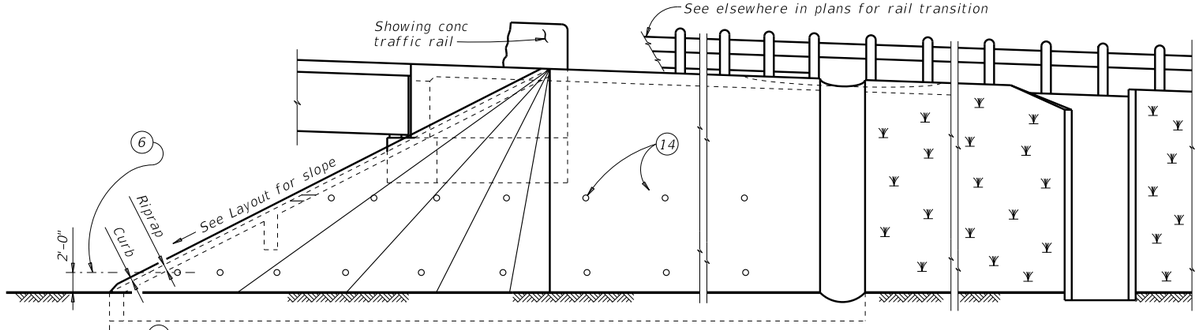


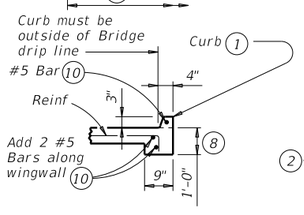
PLAN

SEC C-C

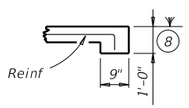
INTERMEDIATE TOEWALL (5)



ELEVATION

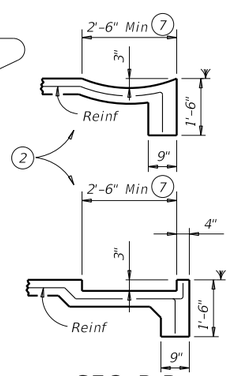


SEC A-A



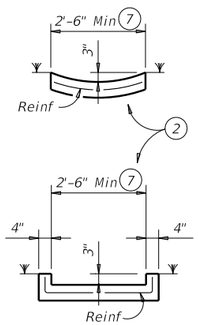
SEC B-B

(No drain)



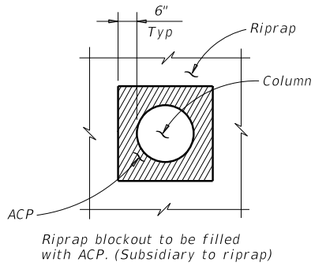
SEC B-B

(Shoulder drain integral with riprap)



SEC D-D

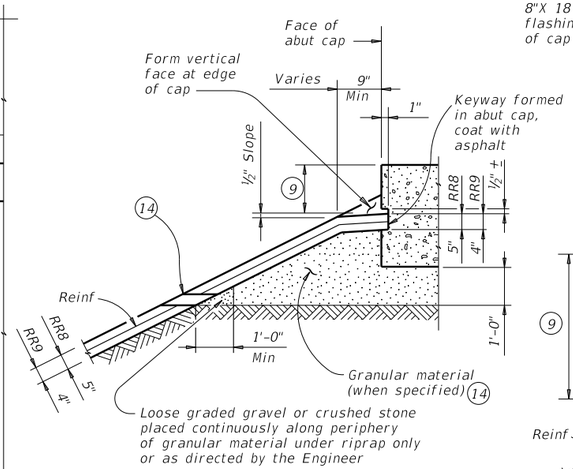
(Shoulder drain)



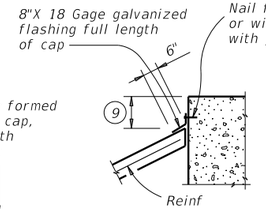
Riprap blockout to be filled with ACP. (Subsidiary to riprap)

RIPRAP DETAIL AT COLUMNS

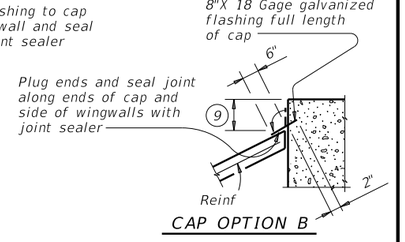
(As directed by the Engineer)



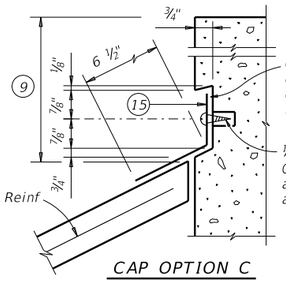
SHOWING KEYWAY OPTION



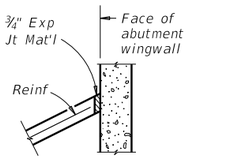
CAP OPTION A



CAP OPTION B

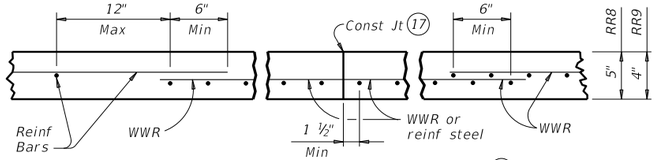


CAP OPTION C



SECT THRU RIPRAP AT WINGWALL (12)

SECTIONS THRU RIPRAP AT CAP (11)



REINFORCEMENT DETAILS (13)

See General Notes for optional synthetic fiber reinforcement.

1. When riprap is shown extended around header on layout, extend slab and toewall as shown and eliminate 4" curb.
2. Limits and configuration of drains and depressions are as shown elsewhere in plans or as directed by the Engineer.
3. Location of shoulder drain must consider limitations imposed by rail transition. Do not locate shoulder drains at expansion joints between approach slab and concrete pavement.
4. See details elsewhere in plans for installation of guard fence posts through concrete riprap.
5. Provide intermediate toewall only when designated elsewhere in the plans or included in the specifications.
6. Provide lower level of 2" Dia weep holes at 10' c-c backed by 1 CF packet of gravel and galvanized hardware cloth at all locations unless directed by the Engineer to eliminate.
7. Use wider or other drain configurations if shown elsewhere in plans or if directed by the Engineer.
8. Wall extension may be reduced or modified if approved by the Engineer. Increase wall extension to 1'-6" whenever the optional intermediate toewall is called for in the plans.
9. Top of cap to top of riprap dimension varies as directed by the Engineer. Should be 9" Min for beam/slab type bridges and 1'-6" for slab span, box beam, or slab beam bridges.
10. #5 bars shown are required even when synthetic fiber reinforcing option is selected.
11. Provide sealing option for joint between the face of cap and riprap as designated by the Engineer or as shown elsewhere on plans.
12. Flashing (shown in Cap Option A) may be used at wingwall in addition to Exp Jt Mat'l if shown on plans or directed by the Engineer.
13. Provide #3 reinforcing bars at 18" Spa c-c. Provide Welded Wire Reinforcement (WWR) as 6x6-D2.9xD2.9 or D3xD3. Combinations of WWR and reinforcing bars may be used if both are permitted. Use lap splices of a minimum 6 inches, measured from the transverse wire of WWR, and the ends of reinforcing bars.
14. If granular material is specified, provide upper level of 2" Dia weep holes at 10' c-c backed by galvanized hardware cloth.
15. 8" x 18 Gage Galv Sheet Metal
16. Provide WWR or #3 bars, with 1'-0" extension into slope.
17. WWR or reinforcing steel is continuous through riprap construction joints. Provide WWR or reinforcing steel that extends 1'-1" minimum into adjacent riprap on each side of construction joint even if synthetic reinforcing fiber is utilized.

FOR CONTRACTOR'S INFORMATION ONLY:
5" of RR8 = 0.015 CY/SF
4" of RR9 = 0.012 CY/SF
#3 Reinf at 18" c-c = 0.501 Lbs/SF
6x6-D3xD3 = 0.408 Lbs/SF

GENERAL NOTES:

Provide Class "B" concrete (f'c = 2,000 psi) unless noted elsewhere in plans.

Provide Grade 60 reinforcing steel.

Provide deformed welded wire reinforcement (WWR) meeting ASTM A1064, unless otherwise shown.

Provide reinforcing bars, deformed WWR, or any suitable combination of both types for riprap reinforcing, unless specified elsewhere in the plans.

Optionally synthetic fibers may be used if approved by the Engineer. Provide synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) in lieu of steel reinforcing in riprap concrete.

Install construction joints or grooved joints extending the full slant slope height at intervals of approximately 20 feet unless otherwise directed by the Engineer.

Hardware cloth, loose grade stone behind weep holes, flashing, or other sealing material are subsidiary to the bid item "Riprap".

See Layout for limits of riprap.

RR8 is to be used on stream crossings.

RR9 is to be used on other embankments.

Texas Department of Transportation

Bridge Division Standard

CONCRETE RIPRAP AND SHOULDER DRAINS
EMBANKMENTS AT BRIDGE ENDS (TYPES RR8 & RR9)

CRR

FILE: crrstde1-19.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	DIST	COUNTY		SHEET NO.

DATE:
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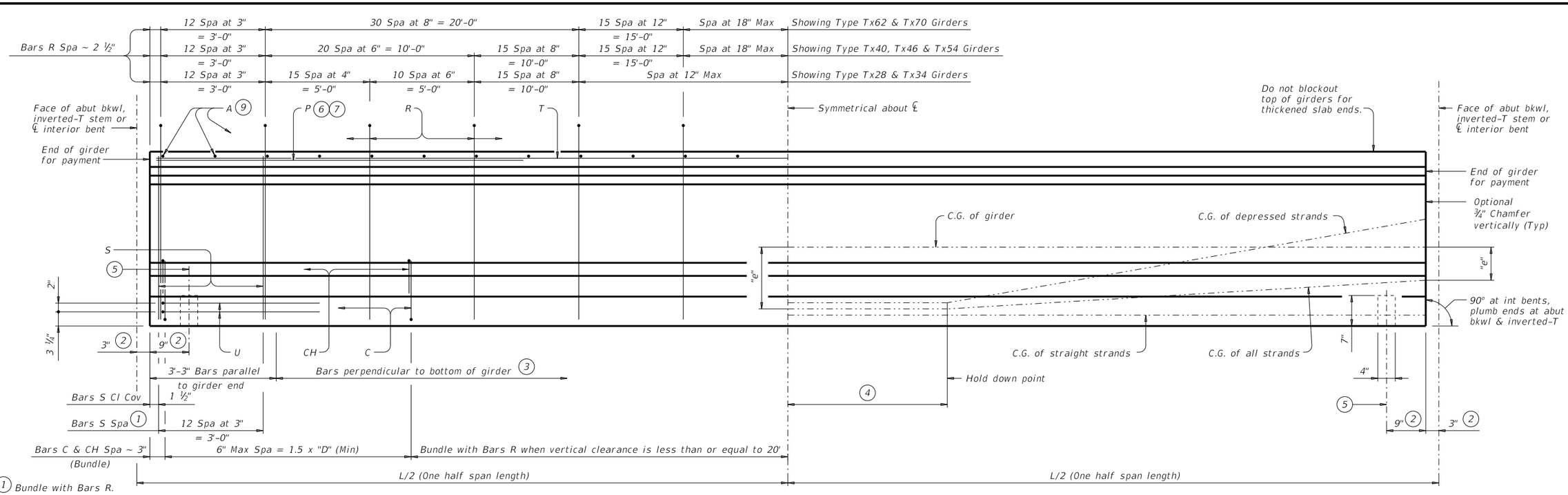


(1) Bundle with Bars R.

(2) Measured along ℄ Girder at interior bents; perpendicular to abutment bkwl or inverted-T stem.

(3) The average of the top and bottom spacing of Bars R cannot exceed the required spacing.

(4) L/20, but not less than 5'-0" (-0,+2').

(5) ℄ 4" x 1 ½" Vertical Slotted Hole at doweled girder end [labeled (D) on Bridge Layout]. Required for outside girder only or as shown on substructure details. Anchorage holes may be tapered (4 ¾" x 1 ⅝") at base. If holes are formed with sheet metal, forms may be left in place.

GIRDER ELEVATION

(6) Bars P (#6 x 15'-0") required in Tx62 and Tx70 girders. At the fabricator's option bars larger than #6 may be used. When L is less than 50 ft, Bars P are to be the same length as Bars T.

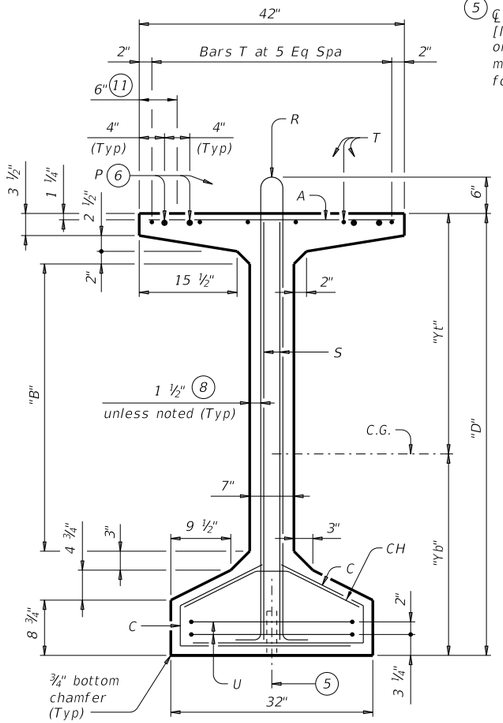
(7) Bars P (#6 x 15'-0") are only required in Tx28, Tx34, Tx40, Tx46, and Tx54 girders when "e" at girder ends exceeds 0.25 x "D". At the fabricator's option bars larger than #6 may be used. When L is less than 50 ft, Bars P are to be the same length as Bars T.

(8) 1 ⅜" Clear Cover to Bars S.

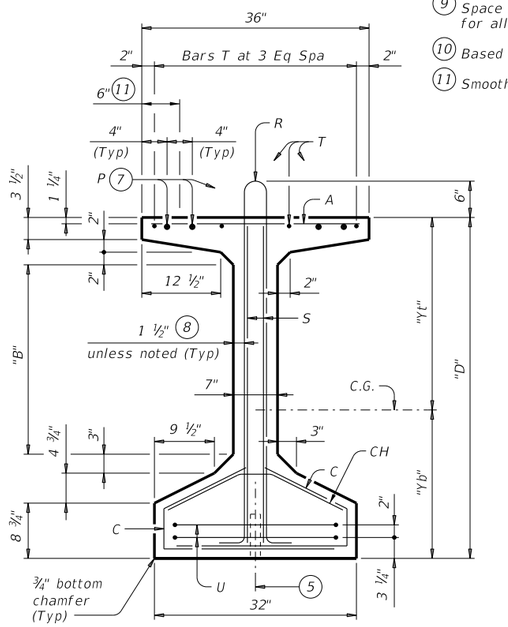
(9) Space Bars A at 6" Max for girders requiring overhang bracket hangers. Space at 12" Max for all other girders. Tie to Bars R as necessary. See standard IGMS for "Deck Forming Notes".

(10) Based on 155 pcf total weight of concrete and reinforcing steel.

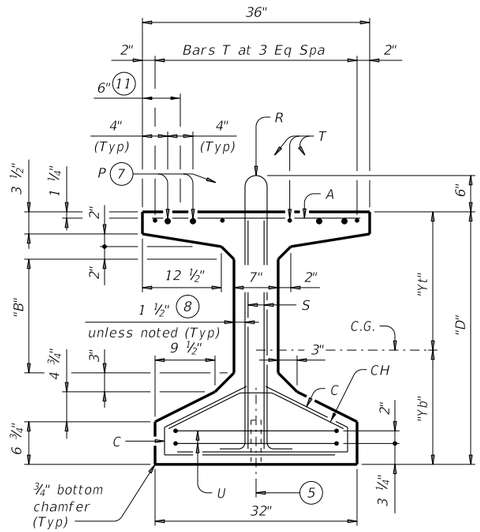
(11) Smooth trowel finish on the slab overhang side of exterior girder.



TYPE Tx62 & Tx70



TYPE Tx46 & Tx54



TYPE Tx28, Tx34 & Tx40

GIRDER DIMENSIONS AND SECTION PROPERTIES

Girder Type	"D" (in.)	"B" (in.)	"Yt" (in.)	"Yb" (in.)	Area (in.²)	"Ix" (in.⁴)	"Iy" (in.⁴)	Weight (10) (plf)
Tx28	28	6	15.02	12.98	585	52,772	40,559	630
Tx34	34	12	18.49	15.51	627	88,355	40,731	675
Tx40	40	18	21.90	18.10	669	134,990	40,902	720
Tx46	46	22	25.90	20.10	761	198,089	46,478	819
Tx54	54	30	30.49	23.51	817	299,740	46,707	880
Tx62	62	37 ½"	33.72	28.28	910	463,072	57,351	980
Tx70	70	45 ½"	38.09	31.91	966	628,747	57,579	1,040

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Provide Class H concrete.
Provide Grade 60 reinforcing steel.
An equal area of deformed Welded Wire Reinforcement (WWR) (ASTM A1064) may be substituted for Bars A, C, R or T unless otherwise noted.
It is permissible for bars or strands to come in contact with materials used in forming anchor holes.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING

SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER DETAILS

IGD

FILE: igdstds1-19.dgn	DN: TxDOT	CK: JMH	DW: JTR	CK: TAR
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REVISIONS				
10-19: Added Bars C and CH full length for VC<= 20'	DIST	COUNTY		SHEET NO.

DATE:
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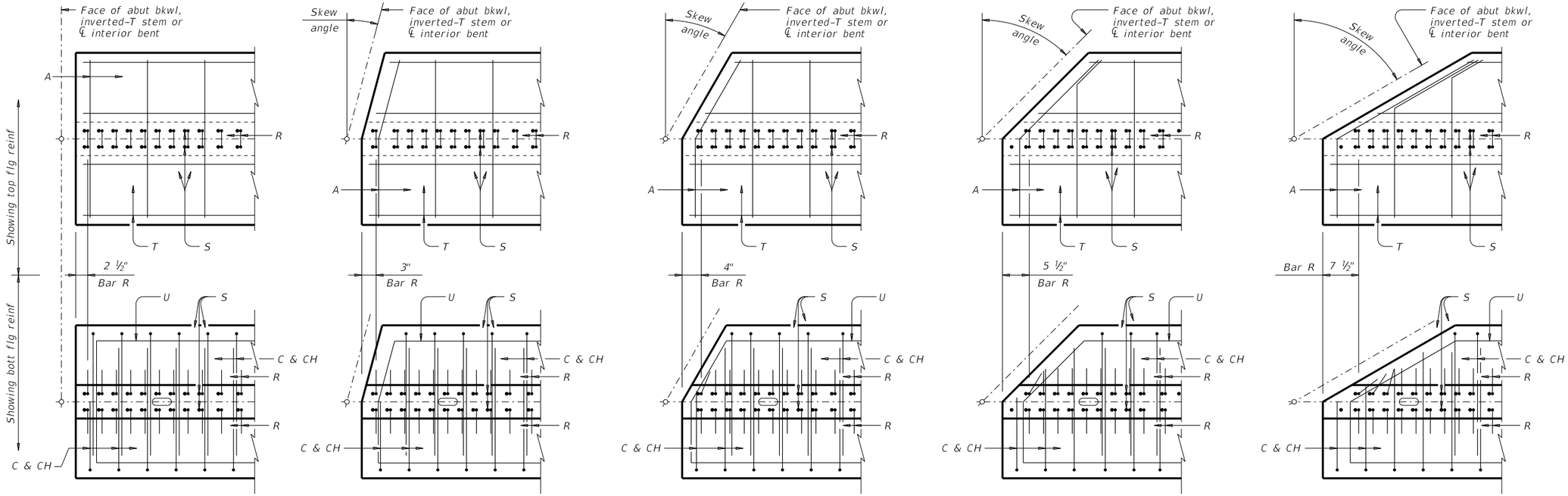
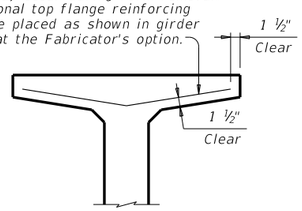
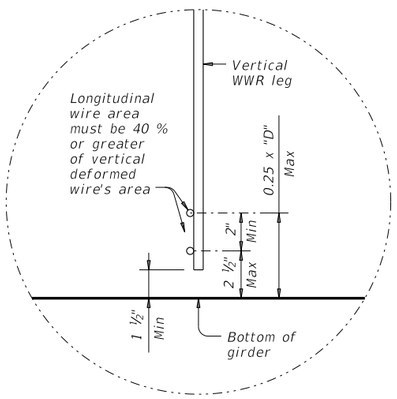


PLAN OF GIRDER ENDS (12)

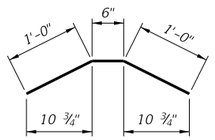
To control top flange cracking that may occur during form removal, additional top flange reinforcing may be placed as shown in girder ends at the Fabricator's option.



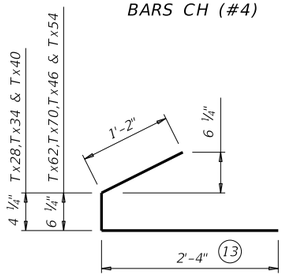
OPTIONAL TOP FLANGE REINFORCING DETAIL



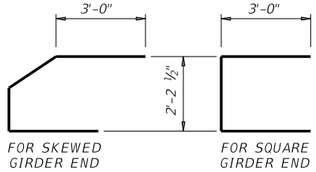
OPTIONAL WELDED WIRE REINFORCEMENT (WWR) DETAIL



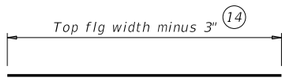
BARS CH (#4)



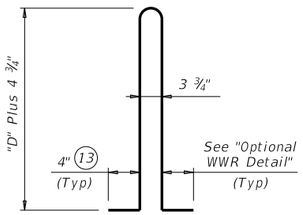
BARS C (#4)



BARS U (#5)

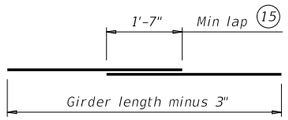


BARS A (#3)



BARS R (#4) (16)

BARS S (#6)



BARS T (#4)

(12) Reinforcing patterns shown are provided as guides to determine reinforcement placement in skewed ends. Place Bars S as close to girder end as cover requirements permit, which may prevent them to be bundled with Bars R.

(13) Bars may be cut or bent at skewed end as required.

(14) Increase as necessary for bars at skewed end.

(15) No portion of bar less than 10 ft.

(16) For Welded Wire Reinforcement (WWR) option, area of Bars R may be reduced in proportion to the increase in reinforcement yield strength over 60 ksi. Yield strength of WWR is limited to 75 ksi.

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER DETAILS

IGD

FILE: igdstds1-19.dgn	DN: TxDOT	CK: JMH	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS				
10-19: Added Bars C and CH full length for VC<= 20'	DIST	COUNTY		SHEET NO.

DATE: 2/3/2022 8:01:20 AM PDF_2D_MON_HW_HR_300.plt
FILE: I:\35000s\35192\001\CADD\Sheets\RCHTxDOT-STD\IGND.dgn

STRUCTURE	DESIGNED GIRDERS									DEPRESSED STRAND PATTERN		CONCRETE		OPTIONAL DESIGN				
	SPAN NO.	GIRDER NO.	GIRDER TYPE	PRESTRESSING STRANDS						NO.	TO END (in)	RELEASE STRGTH (1) f'ci (ksi)	MINIMUM 28 DAY COMP STRGTH f'c (ksi)	DESIGN LOAD COMP STRESS (TOP ℄) (SERVICE I) fct(ksi)	DESIGN LOAD TENSILE STRESS (BOTT ℄) (SERVICE III) fcb(ksi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (kip-ft)	LIVE LOAD DISTRIBUTION FACTOR (2)	
				NON-STD STRAND PATTERN	TOTAL NO.	SIZE (in)	STRGTH fpu (ksi)	"e" ℄ (in)	"e" END (in)								Moment	Shear
Park Blvd Ext (NB)	1	ALL	Tx54		36	0.6	270	19.34	12.01	6	50.5	5.700	7.100	3.173	-3.451	7082	0.748	0.964
	2	ALL	Tx54		42	0.6	270	19.01	12.72	6	50.5	5.600	7.200	4.400	-4.326	8114	0.494	0.688
	3	ALL	Tx54		28	0.6	270	20.01	14.29	4	44.5	4.000	5.200	2.394	-2.662	5611	0.793	0.941
	4 & 5	ALL	Tx54		30	0.6	270	19.81	12.21	6	44.5	4.000	5.100	2.878	-3.142	6521	0.800	0.906
	6 & 7	ALL	Tx54		44	0.6	270	18.83	12.28	8	44.5	5.800	7.500	4.436	-4.492	8690	0.615	0.756
	8	1 - 3	Tx54	*	50	0.6	270	18.29	10.29	10	50.5	6.000	8.300	4.707	-4.746	9198	0.618	0.767
	8	4 & 5	Tx54		44	0.6	270	18.83	11.55	8	48.5	5.600	7.100	4.386	-4.259	8142	0.573	0.767
	9	ALL	Tx54		28	0.6	270	20.01	14.29	4	44.5	4.000	5.200	2.737	-2.996	6211	0.815	0.918
	10	ALL	Tx54		32	0.6	270	19.63	11.76	6	48.5	4.200	5.300	3.026	-3.286	6789	0.798	0.906
	11 & 12	ALL	Tx54		44	0.6	270	18.83	11.92	8	46.5	5.700	7.100	4.048	-4.312	8831	0.792	0.906
Park Blvd Ext (SB)	1	ALL	Tx54		36	0.6	270	19.34	12.01	6	50.5	5.700	7.100	3.167	-3.446	7076	0.748	0.964
	2	ALL	Tx54		42	0.6	270	19.01	12.72	6	50.5	5.600	7.200	4.349	-4.287	8062	0.494	0.688
	3	ALL	Tx54		36	0.6	270	19.34	12.01	6	50.5	4.700	5.900	3.349	-3.624	7398	0.754	0.943
	4 & 5	ALL	Tx54		30	0.6	270	19.81	12.21	6	44.5	4.000	5.100	2.693	-2.970	6195	0.769	0.922
	6	ALL	Tx54		44	0.6	270	18.83	11.19	8	50.5	5.800	7.500	3.980	-4.017	8149	0.736	0.736
	7	ALL	Tx54		38	0.6	270	19.22	12.27	6	50.5	5.000	6.300	3.836	-3.886	7925	0.746	0.756
	8	ALL	Tx54		44	0.6	270	18.83	11.19	8	50.5	5.800	7.500	4.216	-4.260	8543	0.737	0.771
	9 & 10	ALL	Tx54		32	0.6	270	19.63	11.76	6	48.5	4.200	5.300	3.098	-3.376	6943	0.764	0.934
	11 & 12	ALL	Tx54		40	0.6	270	19.11	13.71	6	42.5	5.500	6.900	3.724	-3.996	8069	0.794	0.906

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF GIRDER
*	2.5(ABCDEFG), 4.5(ABCDEFG), 6.5(ABCDEFG), 8.5(ABC), 10.5(A)

(1) Based on the following allowable stresses (ksi):

Compression = 0.65 f'ci

Tension = $0.24\sqrt{f'ci}$

Optional designs must likewise conform.

(2) Portion of full HL93.

DESIGN NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

Optional designs for girders 120 feet or longer must have a calculated residual camber equal to or greater than that of the designed girder.

Prestress losses for the designed girders have been calculated for a relative humidity of 60 percent. Optional designs must likewise conform.

FABRICATION NOTES:

Provide Class H concrete.

Provide Grade 60 reinforcing steel bars.

Use low relaxation strands, each pretensioned to 75 percent of fpu.

Strand debonding must comply with Item 424.4.2.2.2.4. Full-length debonded strands are only permitted in positions marked Δ. Double wrap full-length debonded strands in outer most position of each row.

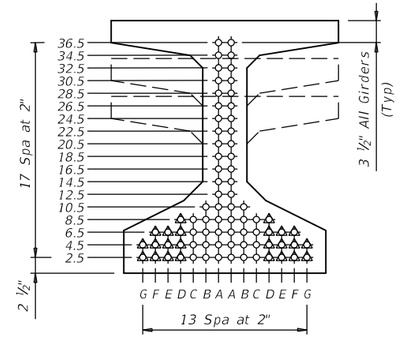
When shown on this sheet, the Fabricator has the option of furnishing either the designed girder or an approved optional design. All optional design submittals must be signed, sealed and dated by a Professional Engineer registered in the State of Texas.

Seal cracks in girder ends exceeding 0.005" in width as directed by the Engineer. The fabricator is permitted to decrease the spacing of Bars R and S by providing additional bars to help limit crack width provided the decreased spacing results in no less than 1" clear between bars. The fabricator must take an approved corrective action if cracks greater than 0.005" form on a repetitive basis.

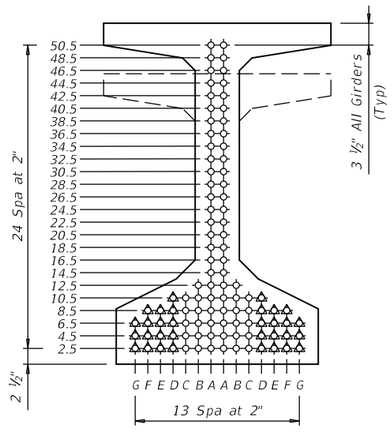
DEPRESSED STRAND DESIGNS:

Locate strands for the designed girder as low as possible on the 2" grid system unless a non-standard strand pattern is indicated. Fill row "2.5", then row "4.5", then row "6.5", etc., beginning each row in the "A" position and working outward until the required number of strands is reached. All strands in the "A" position must be depressed, maintaining the 2" spacing so that, at the girder ends, the upper two strands are in the position shown in the table.

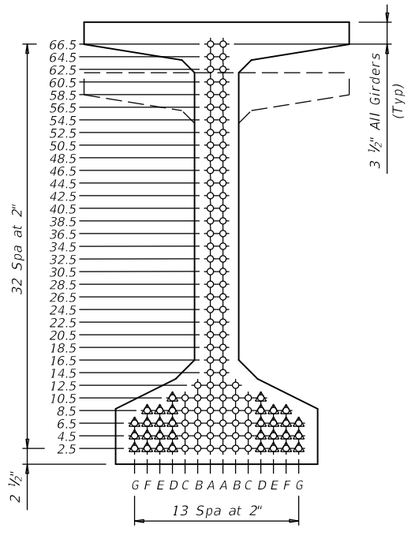
To complete this sheet input the girder designs in the table and the relative humidity under Design Notes. In all cases, remove this block. This sheet must be signed, sealed, and dated by a registered Professional Engineer.



TYPE Tx28, Tx34 & Tx40



TYPE Tx46 & Tx54



TYPE Tx62 & Tx70

STATE OF TEXAS
CHONG KUK HONG
80621
LICENSED PROFESSIONAL ENGINEER

Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act. The record copy of this drawing is on file at the offices of Halff Associates, Inc., 3803 Parkwood Blvd. *800, Frisco, Texas 75034. TBPE FIRM *F-312.

FEBRUARY 04, 2022.

"NOT FOR CONSTRUCTION"

HL93 LOADING

Texas Department of Transportation

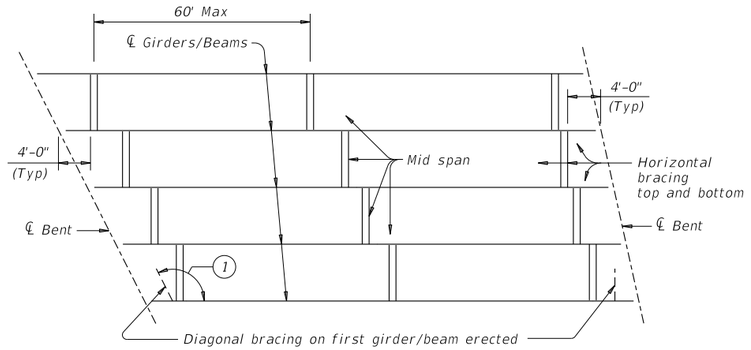
Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER DESIGNS (NON-STANDARD SPANS)

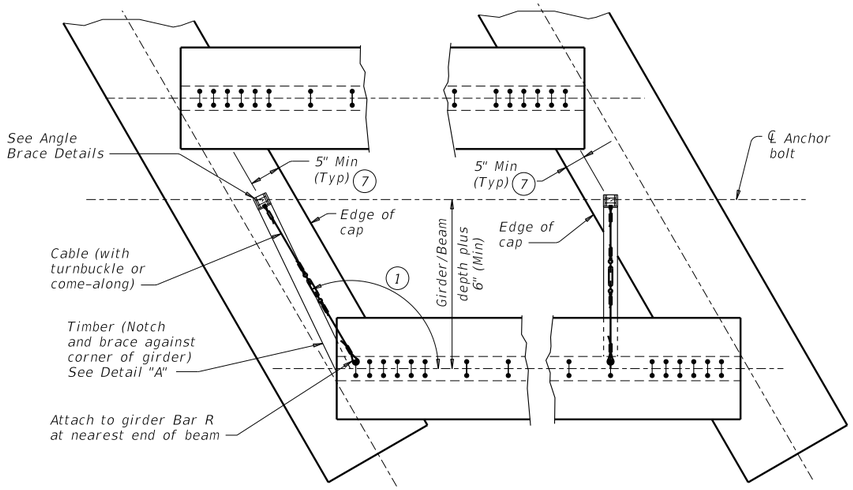
IGND

FILE: IGND.dgn	DN: TxDOT	CK: TxDOT	DW: EFC	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS 10-19: Modified for depressed strands only.	DIST	COUNTY		SHEET NO. 437

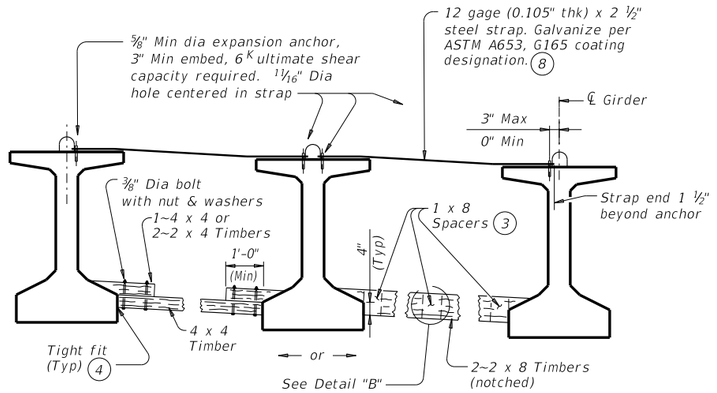
DATE:
FILE:



ERECTION BRACING

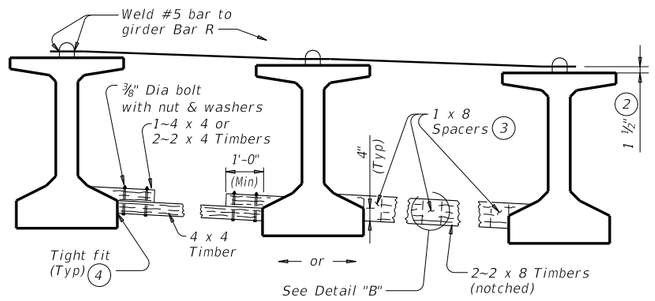


PLAN



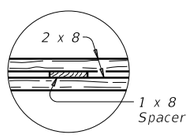
FOR ERECTION BRACING, OPTION 1

(This option is not allowed when slab is formed with PMDF or plywood.)



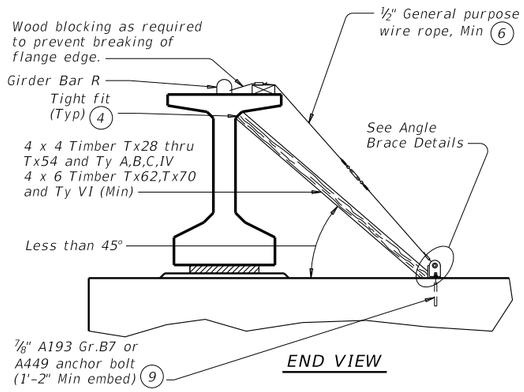
FOR ERECTION BRACING, OPTION 2

HORIZONTAL BRACING DETAILS 5



PLAN

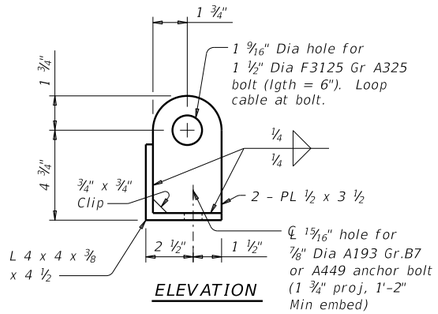
DETAIL "B"



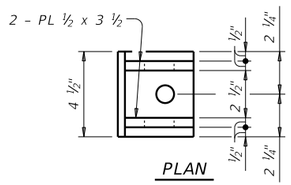
END VIEW

DIAGONAL BRACING DETAILS 5

(To be used on both ends of the first girder/beam erected in the span in each phase.)



ELEVATION



PLAN

ANGLE BRACE DETAILS

HAULING & ERECTION:

The Contractor's attention is directed to the possible lateral instability of prestressed concrete girders and beams over 130' long, especially during hauling and erection. The use of the following methods to improve stability is encouraged: Locate lifting devices at the maximum practical distance from girder ends; use external lateral stiffening devices during hauling and erection; lift with vertical lines using two machines; and take care in handling to minimize inertial and impact forces.

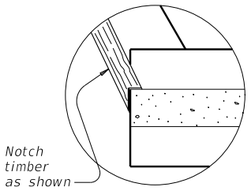
ERECTION BRACING:

Erection bracing details shown are considered the minimum for fulfilling the bracing requirements of Item 425.

Required erection bracing must be placed immediately after erection of each girder and remain in place until additional bracing as required for slab placement is in place. This standard is needed in all cases to meet requirements for Slab Placement Bracing.

PHASED CONSTRUCTION:

Place erection and slab placement bracing for all girders in a phase as shown in these details. For phases after first, also place erection and slab placement bracing between outer girder of completed phase and adjacent girder of current phase. When the phase construction joint is between girders, top bracing can be omitted.



DETAIL "A"

(1) If angle shown exceeds 120 degrees, move diagonal brace to other side of girder/beam and place square to girder/beam. This may prevent exterior girder from being erected first.

(2) Place and weld #5 bars as shown during erection. If forming deck with prestressed panels, bars can be temporarily removed, one at a time, during panel erection. Re-install bar prior to additional panel erection. Bars can rest on panels and be bent down and welded to girder Bars R (See Sheet 2 of 2).

(3) Clear distance between spacers must not exceed 3'. Nail together with 16d nails.

(4) Use wedges as necessary to obtain tight fit. Nail wedges to timbers.

(5) Pressure treated landscape timbers can not be used.

(6) All hardware used with cable must be able to develop a minimum 25 kips breaking strength. Use thimbles at all loops in cable. Install cable clamps with saddles bearing against the live end and U-bolts bearing aginst the dead end.

(7) It is acceptable to tie anchor bolts to cap reinforcement.

(8) Prior to installing, field bend strap to lay flush on both girders' top flange and slope between flange tips.

(9) Anchor bolt may be drilled and epoxied in place. Provide 25k minimum pullout. Core drill hole.

Texas Department of Transportation

Bridge Division Standard

MINIMUM ERECTION AND BRACING REQUIREMENTS
PRESTRESSED CONCRETE I-GIRDERS AND I-BEAMS

MEBR(C)

FILE: mebcsts1-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 2017 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

DATE:
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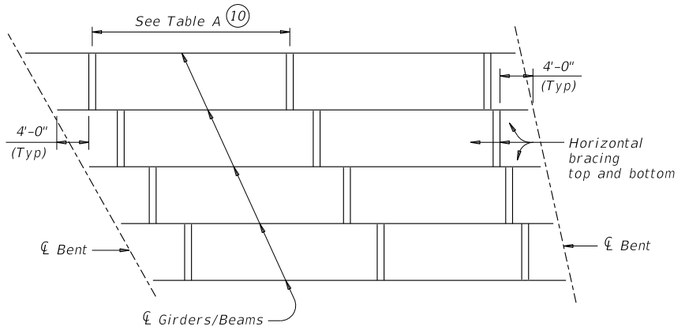


SLAB PLACEMENT BRACING

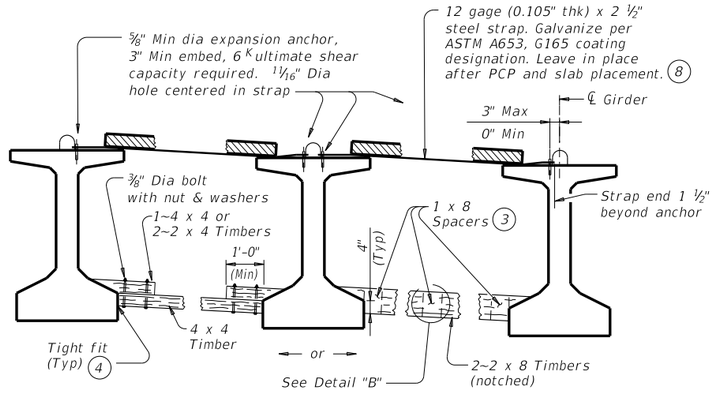
TABLE A

OPTION 1-RIGID BRACING (STEEL STRAP)

Girder or Beam Type	Maximum Bracing Spacing	
	Slab Overhang less than 4'-0" (11)	Slab Overhang 4'-0" and greater (11)
Tx28	¼ points	¼ points
Tx34	¼ points	¼ points
Tx40	¼ points	⅛ points
Tx46	¼ points	⅛ points
Tx54	¼ points	⅛ points
Tx62	¼ points	⅛ points
Tx70	¼ points	⅛ points
A	⅛ points	⅛ points
B	⅛ points	⅛ points
C	⅛ points	⅛ points
IV	¼ points	⅛ points
VI	¼ points	⅛ points

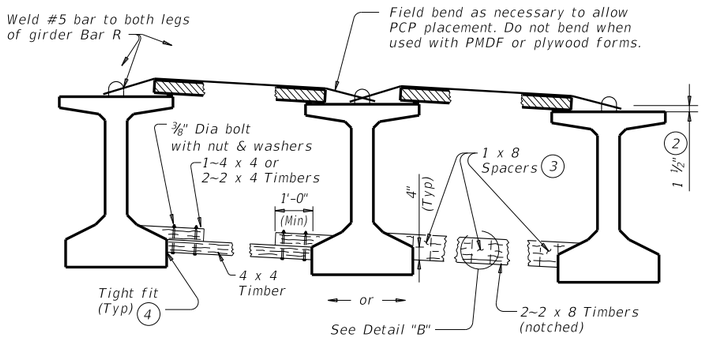
OPTION 2-FLEXIBLE BRACING (NO. 5 OVER PCP)

Girder or Beam Type	Maximum Bracing Spacing	
	Slab Overhang less than 4'-0" (11)	Slab Overhang 4'-0" and greater (11)
Tx28	¼ points	⅛ points
Tx34	¼ points	⅛ points
Tx40	¼ points	⅛ points
Tx46	¼ points	⅛ points
Tx54	¼ points	⅛ points
Tx62	¼ points	⅛ points
Tx70	¼ points	⅛ points
A	2.0 ft	1.5 ft
B	3.0 ft	2.0 ft
C	4.5 ft	2.0 ft
IV	¼ points	4.0 ft
VI	¼ points	4.0 ft



FOR SLAB PLACEMENT BRACING, OPTION 1 - RIGID

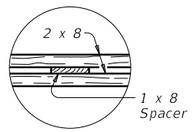
(Showing slab formed with PCP. This option is not allowed when slab is formed with PMDF or plywood.)



FOR SLAB PLACEMENT BRACING, OPTION 2 - FLEXIBLE

(Showing slab formed with PCP.)

HORIZONTAL BRACING DETAILS (5)



PLAN

DETAIL "B"

(2) Place and weld #5 bars as shown during erection. If forming deck with prestressed panels, bars can be temporarily removed, one at a time, during panel erection. Re-install bar prior to additional panel erection. Bars can rest on panels and be bent down and welded to girder Bars R.

(3) Clear distance between spacers must not exceed 3'. Nail together with 16d nails.

(4) Use wedges as necessary to obtain tight fit. Nail wedges to timbers.

(5) Pressure treated landscape timbers can not be used.

(8) Prior to installing, field bend strap to lay flush on both girders' top flange and slope between flange tips.

(10) Bracing spacing (¼ and ⅛ points) measured between first and last typical brace location.

(11) Measure slab overhang from centerline of girder or beam. When overhang varies in span, determine bracing spacing based on largest overhang.

SLAB PLACEMENT BRACING:

The details for slab placement bracing are considered minimum for fulfilling the requirements of Specification Items 422 and 425.

Required slab placement bracing must remain in place until slab concrete has attained a compressive strength of 3000 psi.

GENERAL NOTES:

Bracing details for spans longer than 150' are not provided. The Contractor must submit proposed bracing details for such conditions to the Engineer for approval prior to erection.

Systems equal to or better than those shown may be used provided details of such systems are submitted to and approved by the Engineer prior to erection.

Use of these systems or details does not relieve the Contractor of the responsibility for the adequacy of the bracing and the safety of the structure.

Removal of bracing for short periods of time to align girders and beams is permissible.

All turn-buckles, come-alongs, anchors and other connections must be capable of developing the full strength of the cable shown.

Furnish anchor bolts and nuts in accordance with Item 449, "Anchor Bolts".

Texas Department of Transportation

Bridge Division Standard

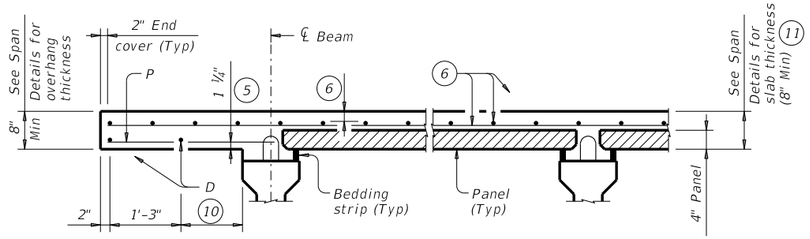
MINIMUM ERECTION AND BRACING REQUIREMENTS

PRESTRESSED CONCRETE I-GIRDERS AND I-BEAMS

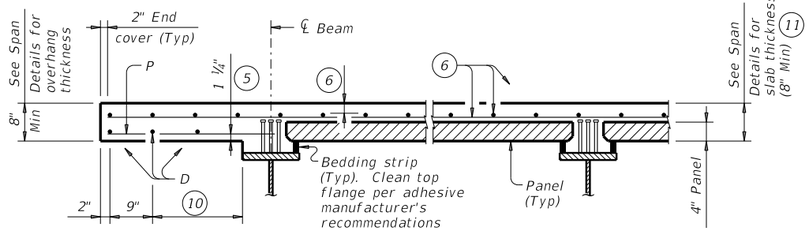
MEBR(C)

FILE: mebcsts1-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

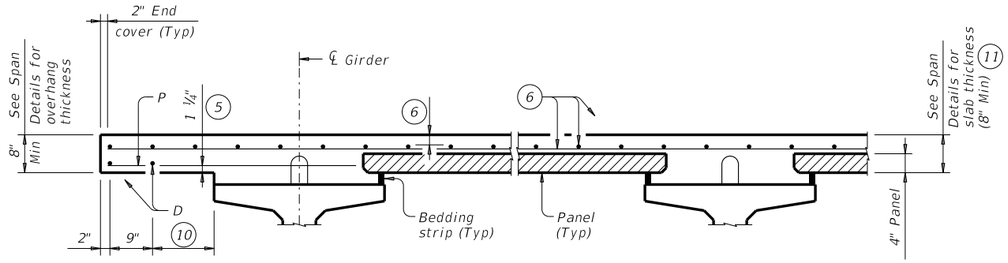
DATE:
FILE:



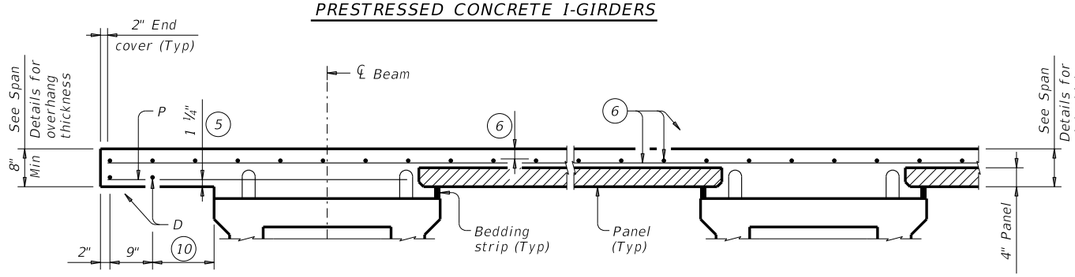
PRESTRESSED CONCRETE I-BEAMS



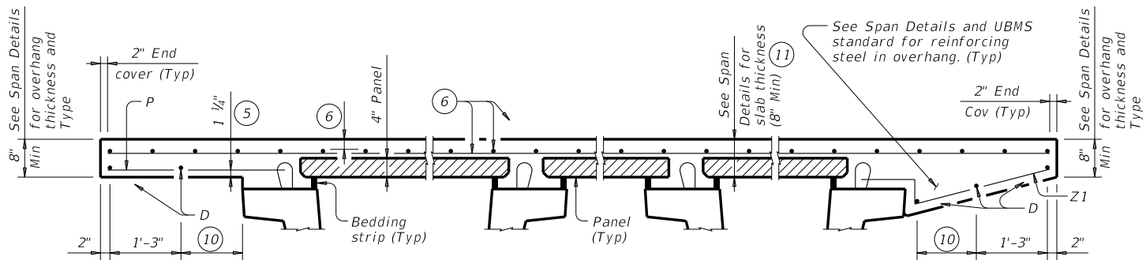
STEEL BEAMS



PRESTRESSED CONCRETE I-GIRDERS



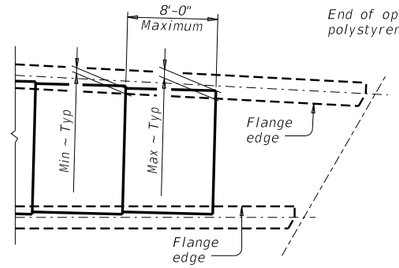
PRESTRESSED CONCRETE X-BEAMS



NORMAL OVERHANG WITH PRESTR CONC U-BEAMS

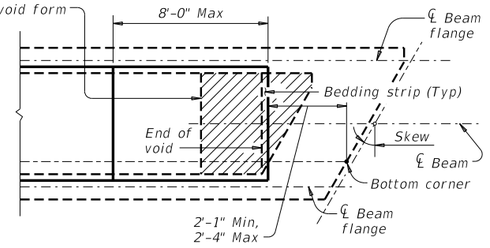
SLOPED OVERHANG WITH PRESTR CONC U-BEAMS

TYPICAL PART TRANSVERSE SECTIONS

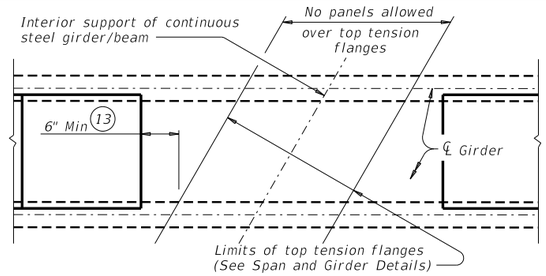


AT FLARED BEAMS OR GIRDERS

See PCP-FAB standard for Min and Max dimensions based on beam/girder type.



OVER CONC U-BEAMS



AT INT SUPPORTS OF CONTINUOUS STEEL GIRDERS

PART PLANS OF PANEL PLACEMENT

(5) Provide clear cover as indicated unless otherwise shown on Span Details.

(6) See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.

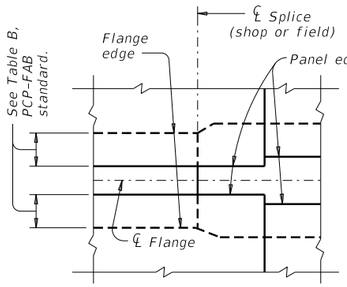
(9) Butt adjacent bedding strips together with adhesive. Cut v-notches, approx ¼" deep, in the top of the bedding strips at 8' o.c..

(10) Equally space additional bar if more than 1'-3" Max.

(11) The actual thickness constructed may exceed the slab thickness shown on the Span Details but the extra thickness may be no more than 2" (1" for prestressed concrete U-beams and steel beams). Bearing seat elevations or finished grade may be adjusted.

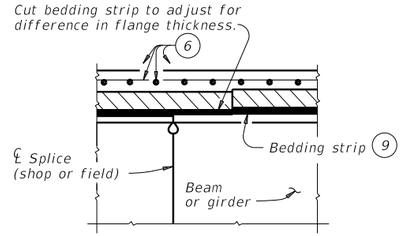
(12) Field adjust Bars Z1(#4) to match actual slope of slab overhangs. Width of slab overhang will vary along span with curved slab edges. Adjust Bar Z1(#4) dimensions to maintain proper cover. Bars Z2(#4) are located at Inverted-Tee stems only.

(13) Location of concrete placement sequence boundaries and bolted field splices should be considered by the contractor in determining panel limits.



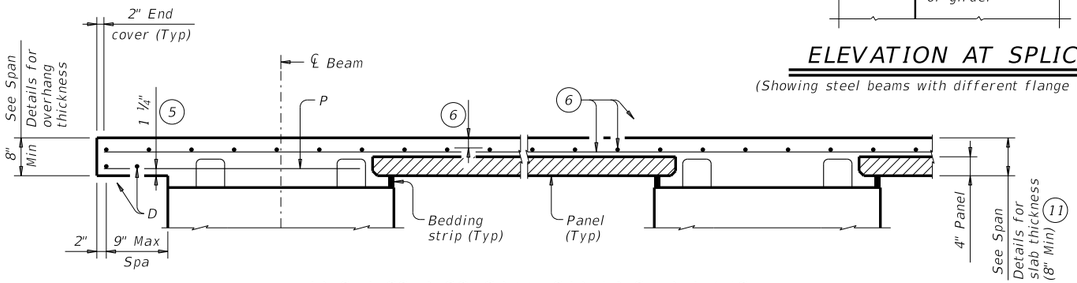
PLAN AT SPLICE

(Showing steel beams with flange width transition)



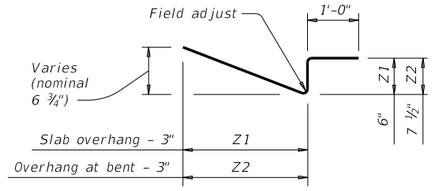
ELEVATION AT SPLICE

(Showing steel beams with different flange thickness)



PRESTRESSED CONCRETE SPREAD SLAB BEAMS

Bars P over exterior beams are still required when no overhang is used. In this case, only one Bar D, 2" from slab edge, is required.



BARS Z (#4) (12)

HL93 LOADING SHEET 2 OF 4

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

PCP

FILE: pcpstde1-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
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BAR TABLE		
BAR	SIZE	MAX SPA (IN)
A (12)(17)	#4	9"
G (12)(17)	#4	3½"
M	#4	9"
T (12)(17)	#4	9"

(4) It is recommended to profile every 4 ft by surveying each girder under PCP(0) for proper grading of panels.

(5) Screed rail used to set grade for paving machine is not allowed past exterior girder as shown.

(12) 1 ½" End Cover on bars. (Typ)

(13) Space bars UP(#4) with girder bars R(#4) in all areas where measured haunch exceeds 3 ½" with Prestressed Concrete I-Girders. Epoxy coating for Bars UP is not required.

(14) 6" plus or minus.

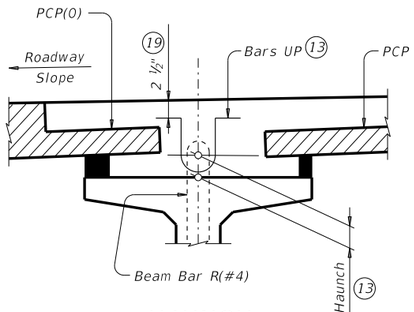
(15) Place sealing strip at flange edge as shown. Butt adjacent sealing strips longitudinally together with adhesive. Use pencil vibrators with concrete placement over girder and between sealing strips to avoid rupturing sealing strips. Cut sealing strips 2" higher than anticipated haunch thickness and compress to grade.

(16) (#3) Panel bars F must be field bent and welded to the R bars in girder. Two bars F per panel.

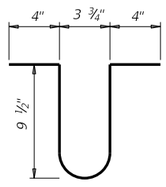
(17) Field placed bars that are allowed to be lapped. Reinforcing steel that protrudes from panels are not considered bars to be lapped. See "Material Notes" for applicable bar laps.

(18) ℄ Leveling Bolt Pad. 1" Dia Coil Rod or 1" Dia Coil Bolt shown, are furnished by the contractor. After grading each PCP(0) panel with the 1" Dia coil rods or coil bolts, secure each panel in its final resting position (plastic shims, welding, etc) and remove all 1" Dia coil rods or coil bolts for the cast-in-place concrete. Coil rods/bolts may be left in place at contractor's option. If coil rods/bolts are left in place, coil rods/bolts must have at least 2 ½" of cover to top of finish grade. Grading bolts are inadequate to carry all conceivable screed/construction loads. Panel support method must be calculated, location identified, and placed on shop drawings. Method chosen to support panels must be adequate for all construction loads. Panel support method must be placed/constructed after final grading and before screed rail placement.

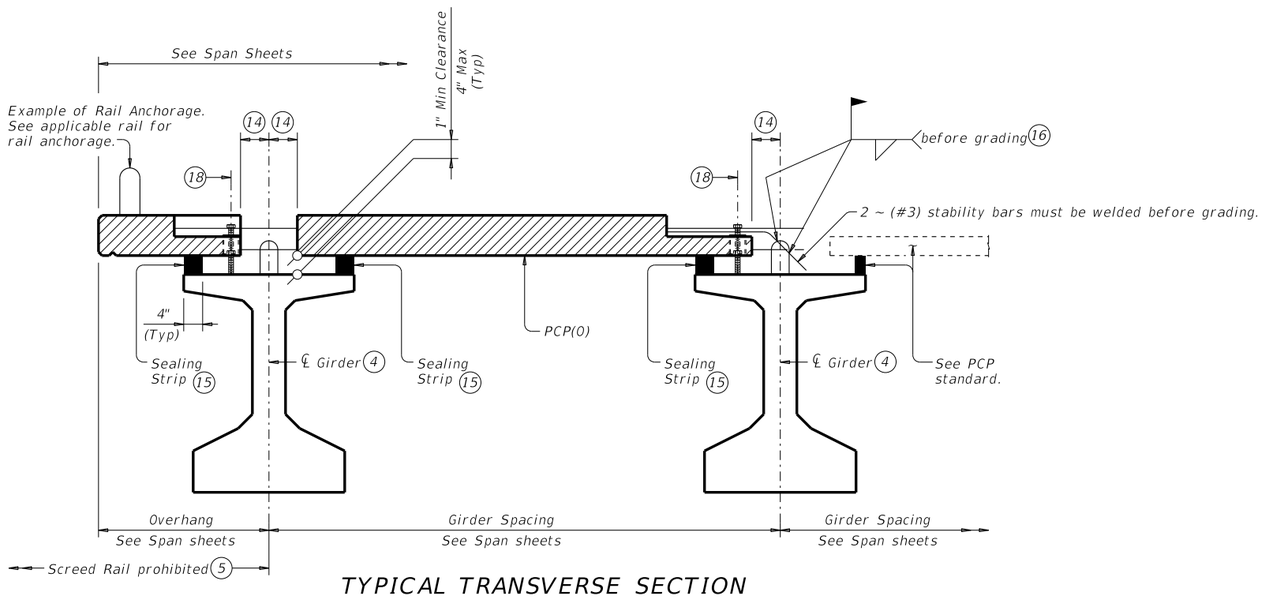
(19) Unless shown otherwise on Span Details.



HAUNCH REINFORCING DETAIL (4)



BARS UP (#4) (13)



TYPICAL TRANSVERSE SECTION

(Showing Girder Type Tx46)

CONSTRUCTION NOTES:

Placing panels adjacent to expansion joints and bent centerlines prior to completing interior panel placement is recommended.

Ensure proper cleaning of construction debris and consolidation of concrete mortar under the edges of the panels. Place sealing strips at girder flange edges so that adequate space is provided for the mortar to flow a minimum of 8" transversely under the panels as the slab concrete is placed.

Panel placement with Option 1 on the PCP standard is not allowed.

It is recommended to profile every 4 ft by surveying each girder under PCP(0) for proper grading of panels.

To allow the proper amount of mortar to flow between girder and panel, maintain a minimum vertical opening of 1". Roadway cross-slope reduces the opening available for entry of the mortar. Sealing strips vary in thickness along girder are therefore required.

Seal the top panel with a Class 4 sealant as shown in the Panel Layout.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel in cast-in-place slab. See Table of Reinforcing Steel for size and spacing of reinforcement.

If the reinforcing steel is shown on the Span Details to be epoxy coated, then epoxy coat bars A, G, M, & T.

Provide bar laps, where required, as follows:

Uncoated ~ #4 = 1'-7"

Epoxy Coated ~ #4 = 2'-5"

Provide sealing strips comprised of one layer low density polyurethane (1.0 Lbs density) foam sealing strips or equivalent. Oversize the height of sealing strips by 2". Bond sealing strips to the girder with 3M Scotch ® 4693 or equivalent adhesive compatible with sealing strips.

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.

These details can be used as an option to construct the deck overhang when noted on the Span details and in conjunction with the PCP(0)-FAB, PCP and applicable Standard sheets.

These details are only applicable for Prestr Conc I-Girders.

Any additional reinforcement or concrete required on these details is subsidiary to the bid Item "Reinforced Concrete Slab".

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING

Texas Department of Transportation

Bridge Division

PRECAST CONCRETE PANELS FOR OVERHANGS

PCP(O)

FILE: pcpostd1-17.dgn	DN: KLM	CK: DVL	DW: JTR	CK: KLM
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REVISIONS				
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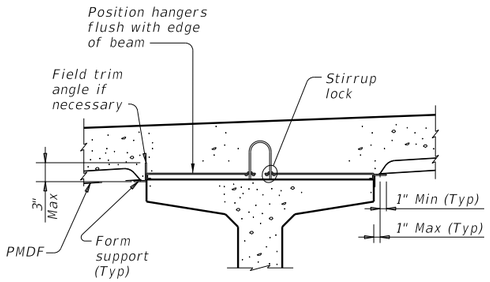
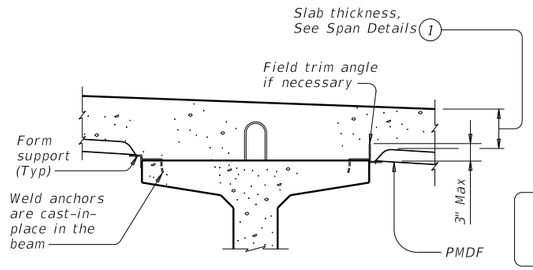
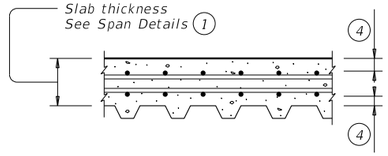


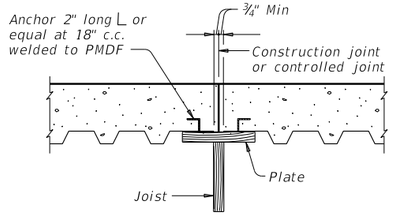
PRESTR CONC I-BEAMS AND I-GIRDERS WITH STIRRUP LOCKS



PRESTR CONC I-BEAMS AND I-GIRDERS WITH WELD ANCHORS

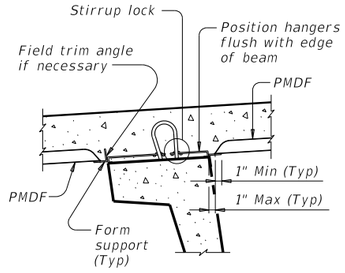


TYP LONGITUDINAL SLAB SECTION

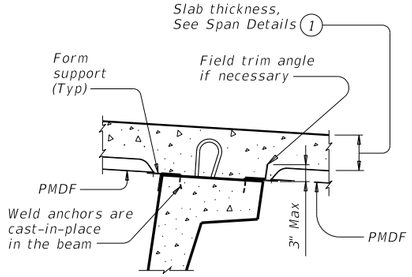


Note: In spans where PMD forms are used, timber forms must be used at construction joints. Adequate provision must be made to support edge of metal form and to provide anchorage of metal form to slab concrete where joined to wood forms.

SECTION THRU CONSTRUCTION JOINT



U-BEAMS WITH STIRRUP LOCKS

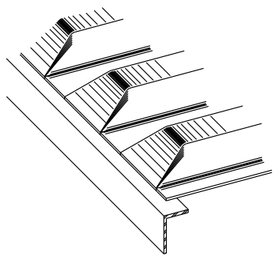


U-BEAMS WITH WELD ANCHORS

STEEL BEAMS AT COMPRESSION FLANGES

STEEL BEAMS AT TENSION FLANGES (2)

TYPICAL TRANSVERSE SECTIONS



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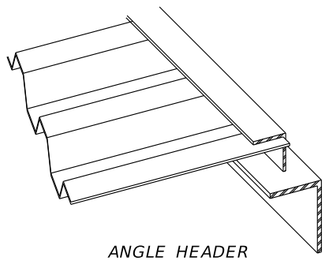
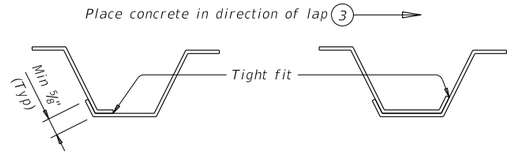


ANGLE HEADER

NOTE: This type is to be used for skewed ends only.

TYPES OF END CLOSURES



SIDE LAP DETAILS

(1) Slab thickness minus 5/8" if corrugations match reinforcing bars.

(2) Welding of form supports to tension flanges will not be permitted. Other methods of providing wind hold down resistance for PMDF in tension flange zones will be considered. At least one layer of sheet metal must be provided between the flange and the weld joint.

(3) The direction of concrete placement will be such that the upper layer of the form overlap is loaded first.

(4) See Span details for cover requirements.

FOR PRESTR CONC U-BEAM AND STEEL GIRDER BRIDGES:
Unless shown elsewhere in the plans, size, spacing, and orientation of bottom mat of slab reinforcement must match the top mat of reinforcing shown on the span details except all bottom mat bars are to be #5. Bottom mat reinforcement and additional concrete is subsidiary to Item 422 "Concrete Superstructures."

FOR PRESTR CONC TX-GIRDER BRIDGES:
See Miscellaneous Slab Details, Prestr Concrete I-Girders (IGMS) standard sheet for bottom mat reinforcing.

GENERAL NOTES:

Steel for Permanent Metal Deck Forms (PMDF) and support angles shall conform to ASTM A653, structural steel (SS), with coating designation G165. Steel must have a minimum yield strength of 33 ksi. Minimum thickness of PMDF is 20 gage and that of support angles and protective angles is 12 gage.

Submit two copies of forming plans for PMDF to the Engineer. These plans must show all essential details of proposed form sheets, closures, fasteners, supports, connectors, special conditions and size and location of welds. These plans must clearly show areas of tension flanges for steel beams and provisions for protecting the tension flanges from welding notch effects by inclusion of separating sheet metal or other positive method. These plans must be designed, signed, and sealed by a licensed professional engineer. Department approval of these plans is not required, but the Department reserves the right to require modifications to the plans. The Contractor is responsible for the adequacy of these plans.

The details and notes shown on this standard are to be used as a guide in preparation of the forming plans.

All material, labor, tools and incidentals necessary to form a bridge deck with Permanent Metal Deck Forms is considered subsidiary to Item 422, "Concrete Superstructures".

DESIGN NOTES:

As a minimum, PMDF and support angles must be designed for the dead load of the form, reinforcement and concrete plus 50 psf for construction loads. Flexural stresses due to these design loads must not exceed 75 percent of the yield strength of the steel. Allowable stress for weld metal must be 12,400 psi.

Maximum deflection under the weight of forms, reinforcement and concrete or 120 psf, whichever is greater, shall not exceed the following:

1/180 of the form design span, but not more than 0.50", for design spans of 10' or less.

1/240 of the form design span, but not more than 0.75", for design spans greater than 10'.

The form design span must not be less than the clear distance between beam flanges, measured parallel to the form flutes, minus 2".

CONSTRUCTION NOTES:

Form sheets must not be permitted to rest directly on the top of beam flanges. Form sheets must be securely fastened to form supports and must have a minimum bearing length of one inch at each end. Form supports must be placed in direct contact with beam flanges.

All attachments must be made by permissible welds, screws, bolts, clips or other means shown on the the forming plans. All sheet metal assembly screws must be installed with torque-limiting devices to prevent stripping. Only welds or bolts must be used to support vertical loads.

Welding and welds must be in accordance with the provisions of Item 448, "Structural Field Welding", pertaining to fillet welds. All welds must be made by a qualified welder in accordance with Item 448.

All permanently exposed form metal, where the galvanized coating has been damaged, must be thoroughly cleaned and repaired in accordance with Item 445, "Galvanizing". Minor heat discoloration in areas of welds need not be touched up.

Flutes must line up uniformly across the entire width of the structure where main reinforcing steel is located in the flute.

Construction joints will not be permitted unless shown on the plans. The location of and forming details for any construction joint used must be shown on the forming plans. Forms below a construction joint must be removed after curing of the slab.

A sequence for uniform vibration of concrete must be approved by the Engineer prior to concrete placement. Attention must be given to prevent damage to the forms, yet provide proper vibration to prevent voids or honeycomb in the flutes and at headers and/or construction joints.

Texas Department of Transportation

Bridge Division Standard

PERMANENT METAL DECK FORMS

PMDF

FILE: pmdfste1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
02-20: Modified box note by adding steel beams/girders and subsidiary.	DIST	COUNTY		SHEET NO.

DATE:
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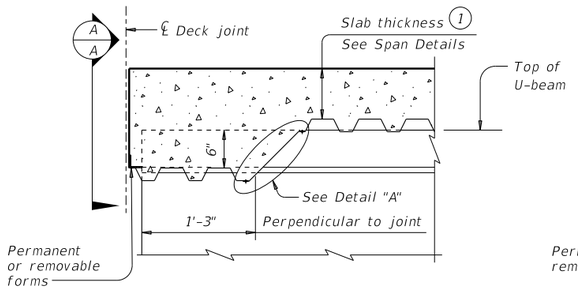
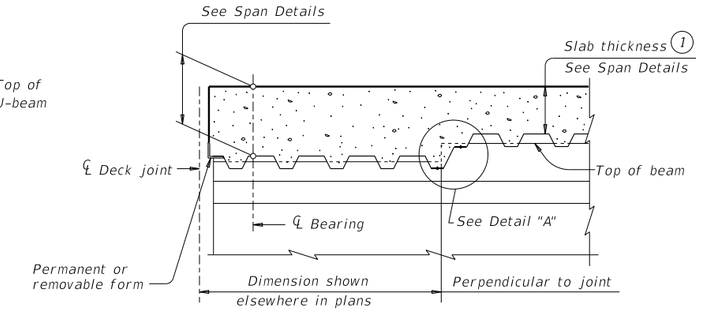
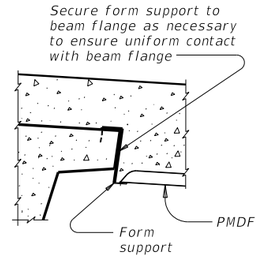


AT THICKENED SLAB END FOR U-BEAMS

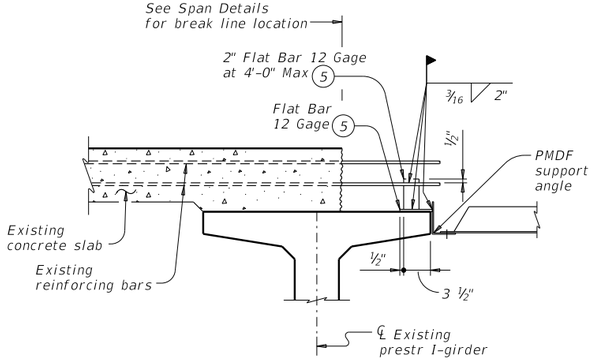


AT THICKENED SLAB END FOR PRESTRESSED I-BEAMS, I-GIRDERS AND STEEL BEAMS

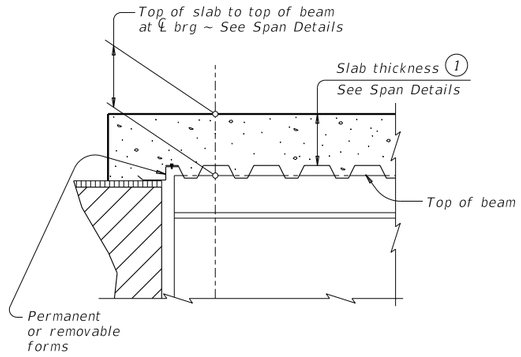
Showing I-beam block-out. No block-out for I-girders or steel beams.



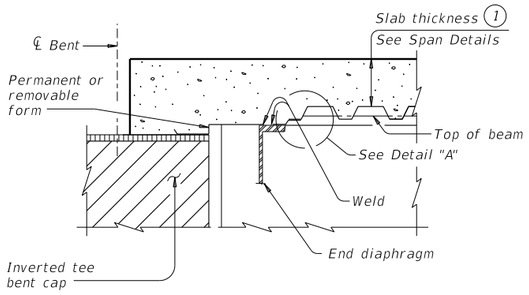
SECTION A-A



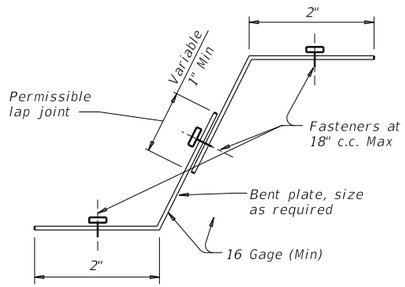
SHOWING PRESTRESSED CONCRETE I-BEAMS, I-GIRDERS AND U-BEAMS



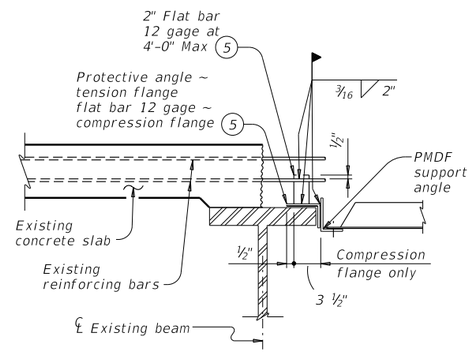
AT SLAB OVER ABUT BKWL OR INV TEE STEM FOR CONC BEAMS WITHOUT THICKENED SLAB END



AT SLAB OVER INV TEE STEM FOR STEEL BEAMS WITHOUT THICKENED SLAB END

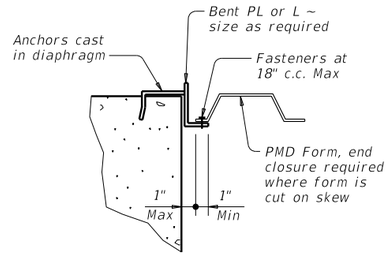


DETAIL "A"

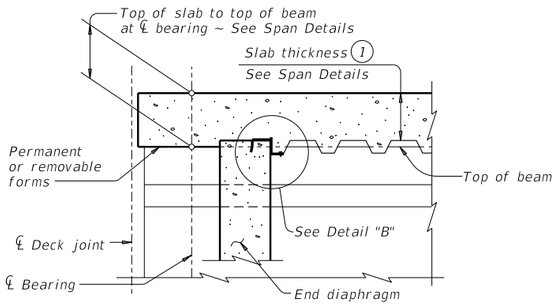


SHOWING STEEL BEAMS

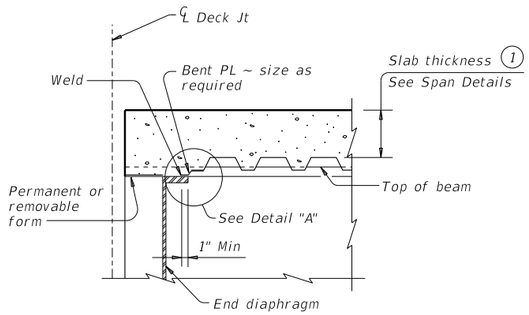
WIDENING DETAILS



DETAIL "B"



AT CONC END DIAPHRAGM FOR PRESTRESSED I-BEAMS AND STEEL BEAMS



AT END DIAPHRAGM FOR STEEL BEAMS WITHOUT THICKENED SLAB END

(1) *Slab thickness minus 5/8" if corrugations match reinforcing bars*

(5) *Minimum yield stress of 12 gage bars shall be 40 ksi*

DETAILS AT ENDS OF BEAMS

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

PERMANENT METAL DECK FORMS

PMDF

FILE: pmdfste1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
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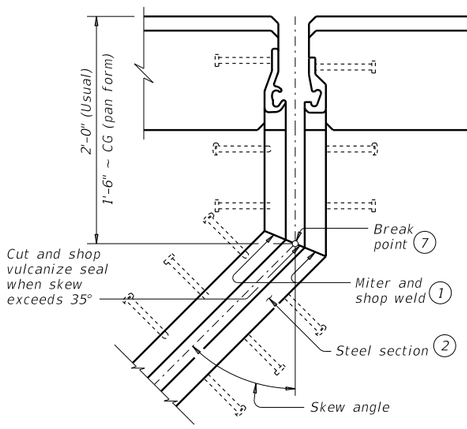
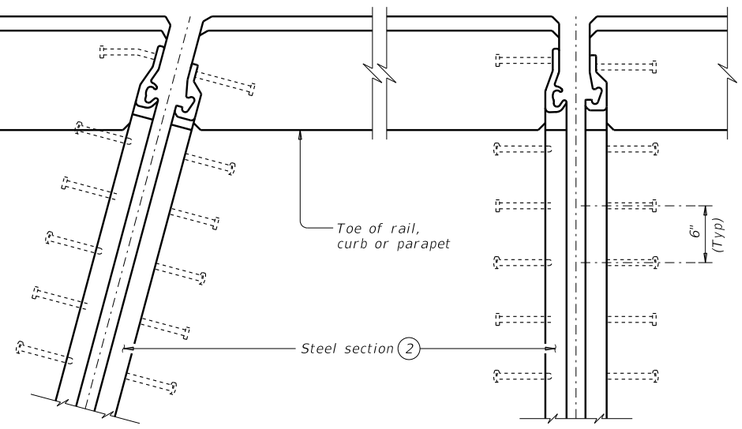


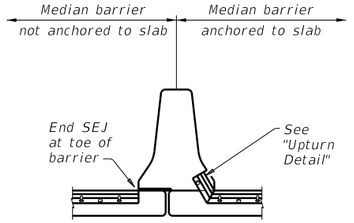
SHOWING SKEWS WITH SLAB BREAKBACKS



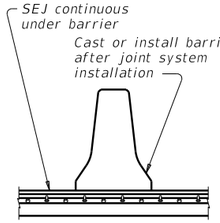
SHOWING SKEWS WITHOUT SLAB BREAKBACKS

SHOWING WITHOUT SKEWS AND SLAB BREAKBACKS

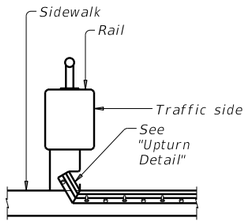
PLANS OF END CONDITIONS



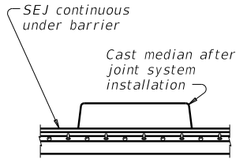
WITH OPEN DECK JOINT BELOW MEDIAN BARRIER



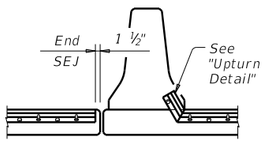
AT MEDIAN BARRIER



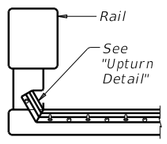
AT SIDEWALK BEHIND BRIDGE RAIL



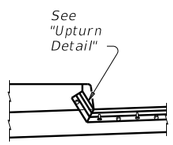
AT RAISED MEDIAN



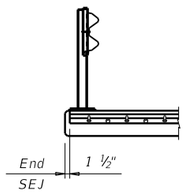
WITH OPEN DECK JOINT ADJACENT TO MEDIAN BARRIER



AT CONCRETE BRIDGE RAIL

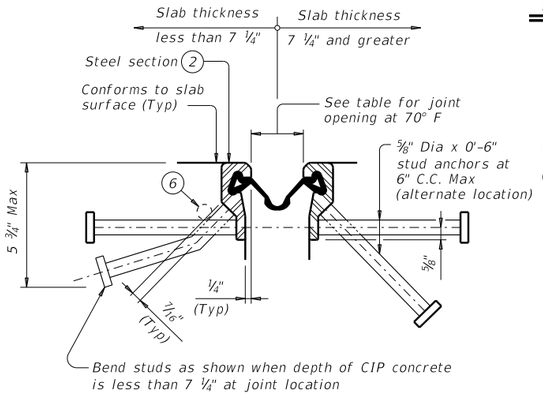


AT SIDEWALK

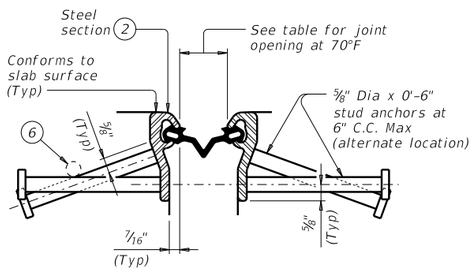


AT STEEL POST BRIDGE RAIL

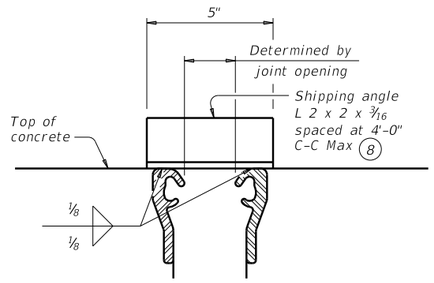
TYPICAL SECTIONS (5)



SECTION THRU WATSON BOWMAN ACME (SE-400 OR SE-500) JOINTS



SECTION THRU D.S. BROWN (A2R-400 OR A2R-XTRA) JOINTS



SHOWING D.S. BROWN (Ty SSCM2)
(All joints are similar.) (Studs are not shown for clarity.)

SHIPPING ANGLE

An alternate method of securing joint sections may be used if approved by the Bridge Division. Erection bolts are not allowed.

TABLE OF SEALED EXPANSION JOINT INFORMATION

MANUFACTURER	STEEL SECTION (2)	STRIP SEAL			
		4" JOINT		5" JOINT	
		Seal Type	Joint Opening (3)	Seal Type	Joint Opening (3)
D.S. Brown	Type SSCM2	A2R-400	1 ¾"	A2R-XTRA	2"
Watson Bowman Acme	Type R	SE-400	1 ¾"	SE-500	2"

REDUCED LONGITUDINAL MOVEMENT RANGE

SKEW (deg)	JOINT SIZE	
	4"	5"
0	4.0"	5.0"
15	4.0"	5.0"
30	3.5"	4.3"
45	2.8"	3.5"

DESIGN NOTES:

Joints installed on a skew have reduced ability to accommodate longitudinal movement. Use table values to determine the correct joint size for skewed installations.

For other skews over 25 degrees, calculate reduced movement range by multiplying joint size by cosine (skew).

(1) Remove all burrs which will be in contact with seal prior to making splice.

(2) Shape of steel section shown is typical. Variations in sections must be approved by the Engineer.

(3) These openings are also the recommended minimum installation openings.

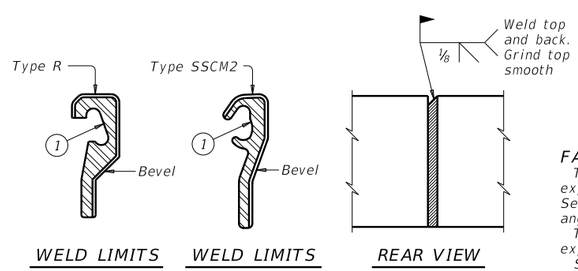
(4) Reduce for sidewalk or parapet heights less than 6".

(5) Other conditions affecting the joint profile should be noted elsewhere.

(6) Move transverse bars that are in conflict with SEJ studs, in either the bridge slab or approach slab, to rest at the junction of the studs.

(7) See Span details for location of break point.

(8) Align shipping angle perpendicular to joint.



WELD LIMITS WELD LIMITS REAR VIEW

FIELD SPLICE DETAIL

FABRICATION NOTES:

Temporarily shop assemble corresponding sections of sealed expansion joints (SEJ), check for fit, and match mark for shipment. Secure corresponding sections together for shipment with shipping angle. Do not use erection bolts.

The seal must be continuous and included in the price bid for sealed expansion joint.

Ship steel sections in convenient lengths of 10'-0" Min and 24'-0" Max unless necessary for staged construction or widenings. One shop splice is permitted in each shipping length provided no piece is less than 2'-0" long and sufficient studs are added to limit the stud to shop splice distance to 2" Min and 4" Max.

Weld studs in accordance with AWS D1.1.

Butt weld all shop and field splices and grind smooth areas in contact with seal. Make all necessary field splice joint preparations in the shop.

Paint the entire steel section with System II or IV primer in accordance with Item 446, "Feild Cleaning and Painting Steel", unless required to galvanize when shown in the plans. Provide galvanizing in accordance with Item 445, "Galvanizing". Provide paints in accordance with Item 446.2. Prepare steel and apply paint in accordance with Item 446.4.7.3 and 446.4.7.4.

Shop drawings for the fabrication of sealed expansion joints will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.

CONSTRUCTION NOTES:

Secure the sealed expansion joint in position and place to the proper grade and alignment by welding braces to adjacent reinforcing steel, to prestressed beam stirrups, or to anchors cast in concrete diaphragms. Include cost of temporary bracing in the price bid for sealed expansion joint.

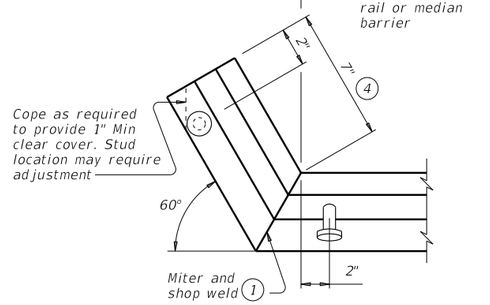
Remove shipping angle immediately after each joint half is secured in place. Grind smooth, and touch up with organic zinc-rich paint.

Clean and prepare seal cavity for seal installation as per the Manufacturer's installation procedures.

GENERAL NOTES:

Provide sealed expansion joints in the size and at locations shown on the plans.

Minimum slab and overhang thickness required for the use of SEJ-M is 6 ½".



UPTURN DETAIL

Texas Department of Transportation

Bridge Division Standard

SEALED EXPANSION JOINT TYPE M WITHOUT OVERLAY

SEJ-M

FILE: sejmste1-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT April 2019 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

DATE: 2/16/2022 2:53:36 PM PDF 2D_MON_MW_MR_300.plt
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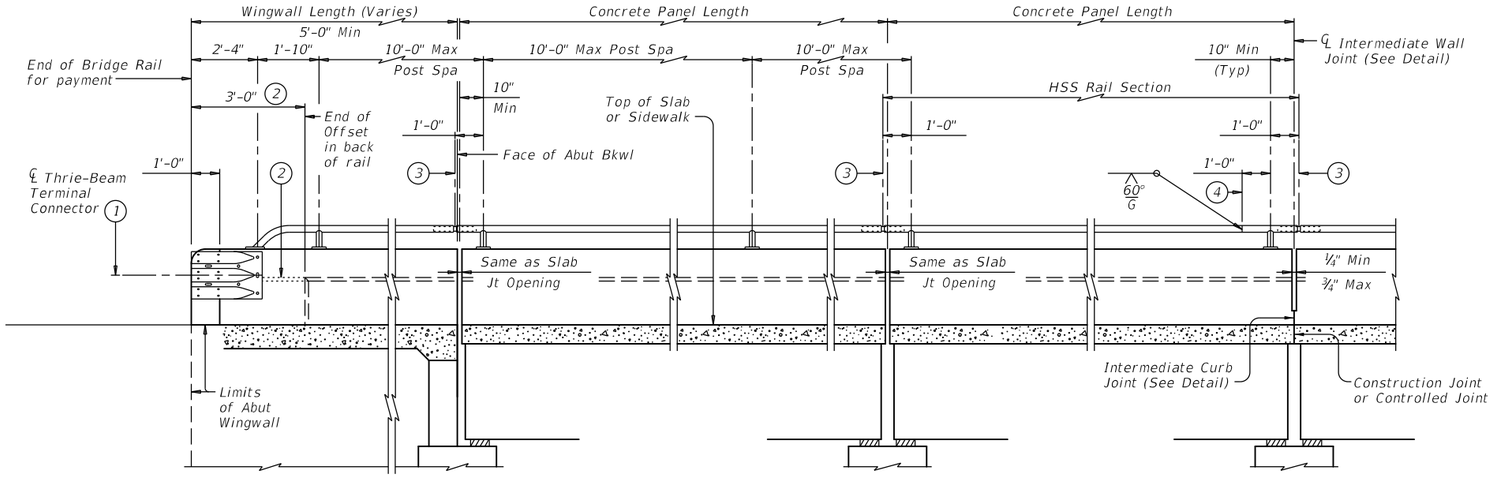
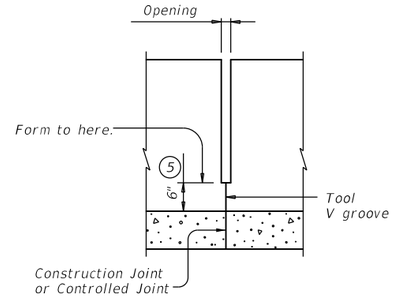


AT ABUTMENTS | AT BENTS WITH SLAB EXP JOINTS | AT BENTS WITHOUT SLAB EXP JOINTS

ROADWAY ELEVATION OF RAIL



INTERMEDIATE WALL JOINT DETAIL

Provide at all interior bents without slab expansion joints.

(1) Terminal Connectors and associated hardware are to be paid for under the Item "Metal Beam Guard Fence". Attach Metal Beam Guard Fence Transitions to the bridge rail and extend along the embankment unless otherwise shown in the plans.

(2) Back of rail offset may, with Engineer's approval, be continued to the end of the railing.

(3) ℄ Exp Joint or Splice Joint as required.

(4) One shop splice per HSS rail section is permitted with minimum 85 percent penetration. The weld may be square groove, or single vee groove. Grind smooth.

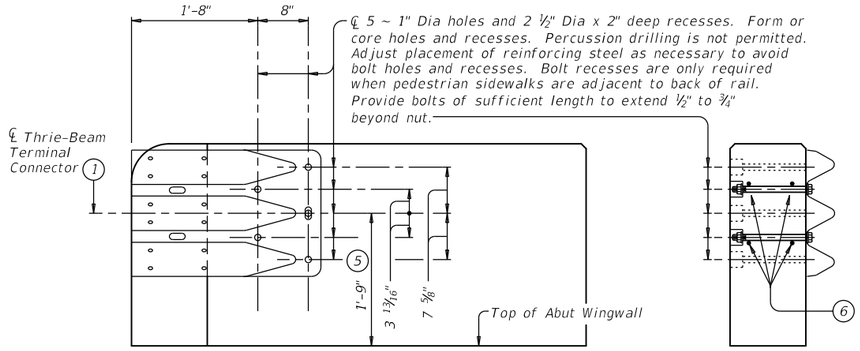
(5) Increase 2" for structures with overlay.

(6) Place 4 additional Bars R(#4) 3'-8" in length inside Bars S(#4) and centered 2'-0" from end of rail when Terminal Connections are required. Field bend as needed.

(7) HSS 2.875 x 0.203

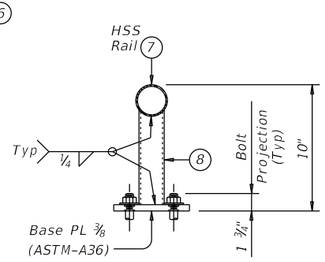
(8) HSS 2.375 x 0.154

(9) ⅜" Dia Hole in bottom of HSS rail (Minimum 1 hole between posts ~ Typ)

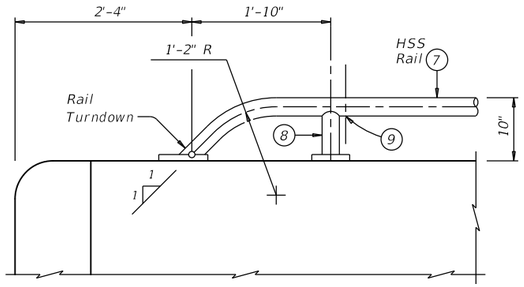


ELEVATION | SECTION

TERMINAL CONNECTION DETAILS

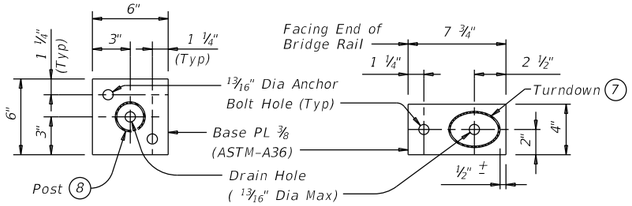


TRANSVERSE SECTION



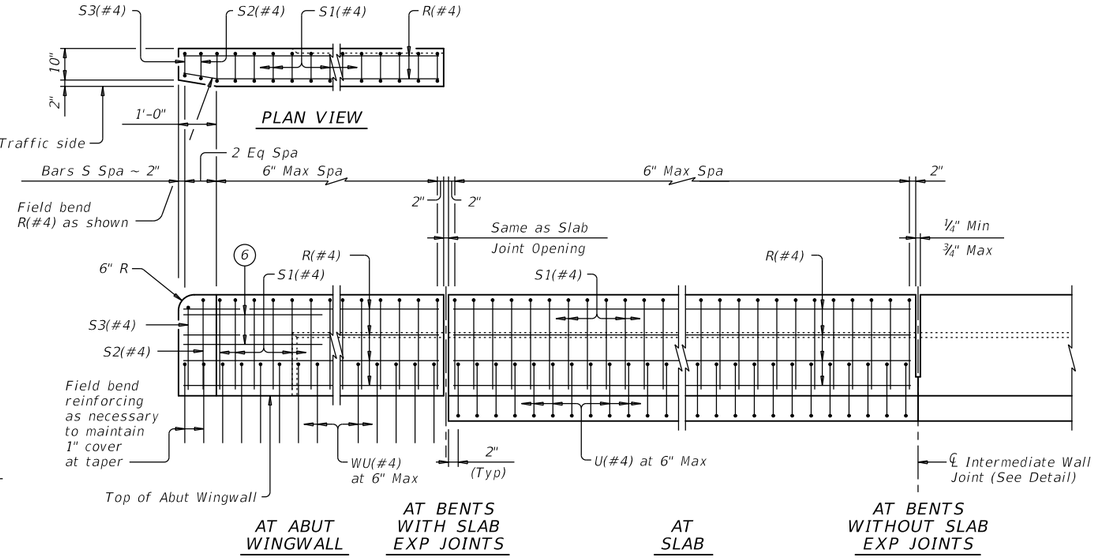
Note that at least two anchor points (as shown) are required for the Bridge Rail on the Abutment Wingwall. Longer Wingwalls may require more than two Rail anchorages.

HSS RAIL TERMINAL DETAIL



POST BASE PLATE PLAN | RAIL TURNDOWN BASE PLATE PLAN

HSS RAIL DETAILS



AT ABUT WINGWALL | AT BENTS WITH SLAB EXP JOINTS | AT SLAB | AT BENTS WITHOUT SLAB EXP JOINTS

ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT

(Showing without raised sidewalk)

SHEET 1 OF 3

Texas Department of Transportation

Bridge Division Standard

COMBINATION RAIL

TYPE C221

FILE: rlstd018-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT September 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				453

DATE: 2/16/2022 2:53:37 PM PDF_2D_MON_MW_MR_300.plt
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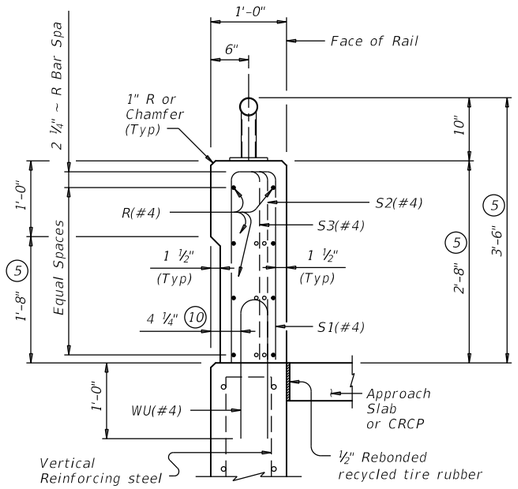
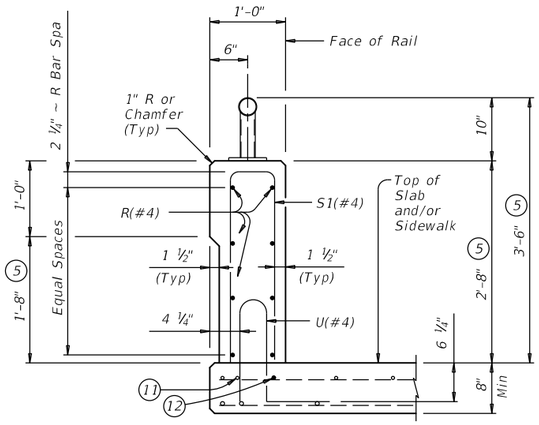
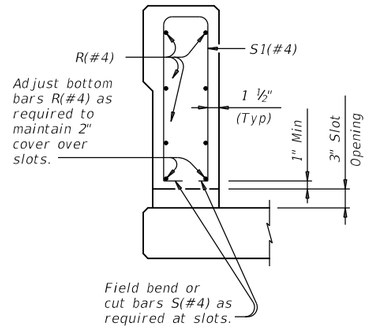


ON ABUTMENT WINGWALLS OR CIP RETAINING WALLS



ON BRIDGE SLAB

SECTIONS THRU RAIL WITHOUT RAISED SIDEWALK

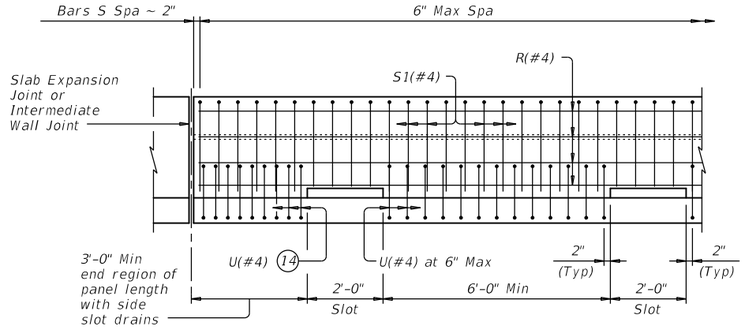


SECTION THRU OPTIONAL SIDE SLOT DRAIN

ON ABUTMENT WINGWALLS OR CIP RETAINING WALLS

ON BRIDGE SLAB

SECTIONS THRU RAIL WITH RAISED SIDEWALK



OPTIONAL SIDE SLOT DRAIN DETAIL

Note: Side Slot Drains may be used where shown elsewhere on the plans or as directed by the Engineer. Drains should not be placed over railroad tracks, lower roadways, or sidewalks. When this rail is used as a separator between a roadway surface and a sidewalk surface, side drain slots will not be permitted.

(5) Increase 2" for structures with overlay.

(10) 5 ¼" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.

(11) As an aid in supporting reinforcement, additional longitudinal bars may be used in the slab with the approval of the Engineer. Such bars must be furnished at the Contractors expense.

(12) Top longitudinal slab bar may be adjusted laterally 3" plus or minus to tie reinforcing.

(13) Raised Sidewalk

(14) Space U(#4) bars at 4" Max when end region of panel length is less than 6'-0" to side slot drain. Space U(#4) bars at 6" Max when end region of panel length is 6'-0" and greater to side slot drain.

Texas Department of Transportation

Bridge Division Standard

COMBINATION RAIL

TYPE C221

FILE: rlstd018-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
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REVISIONS				
	DIST	COUNTY		SHEET NO.
				454

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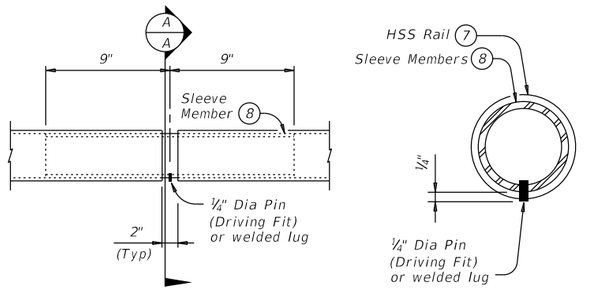
RAIL DATA FOR HORIZONTAL CURVES

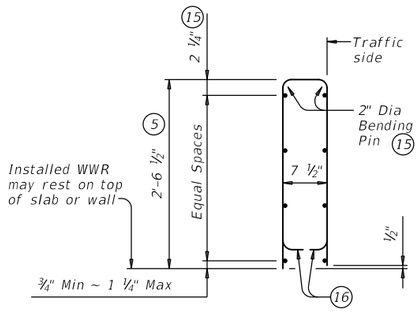
	RADIUS TO FACE OF RAIL	MAX CHORD LENGTH	CONSTRUCT OR FABRICATE
HSS Rail	Over 2800'	29'-0"	Straight rail panels
	Over 1400' thru 2800'	14'-6"	To required radius or to chords shown
	Over 700' thru 1400'	7'-3"	
	Thru 700'	Zero	To required radius



AT SPLICE OR EXP JTS

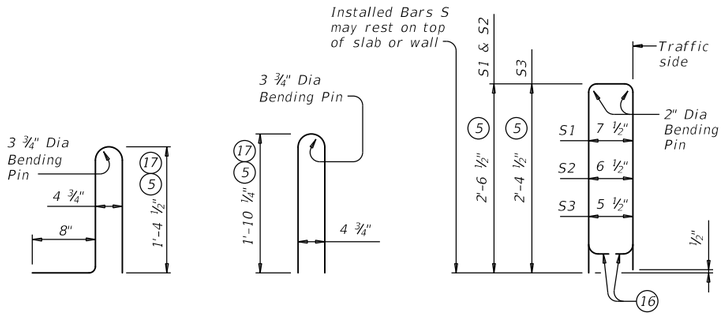
SECTION A-A

PIPE SPLICE DETAILS

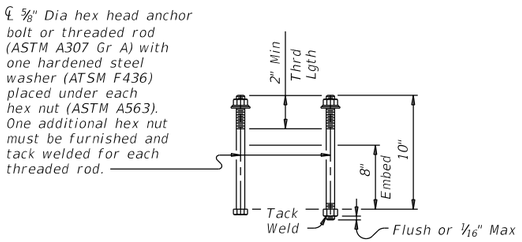


OPTIONAL WELDED WIRE REINFORCEMENT (WWR)

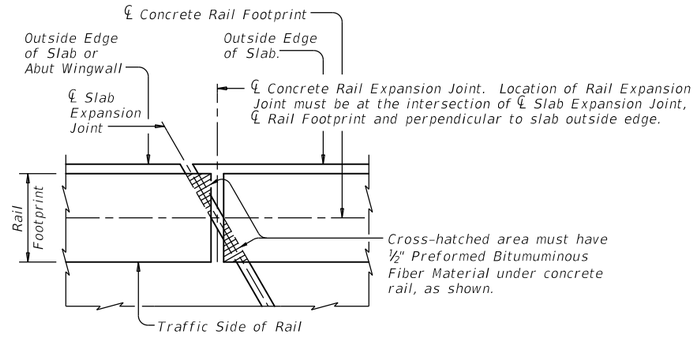
DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
Minimum (Cumulative Total) Wire Area	1.067 Sq In.	0.267 Sq In. per Ft
	No. of Wires	Spacing
Minimum	8	4"
Maximum	10	8"
Maximum Wire Size Differential	The smaller wire must have an area of 40% or more of the larger wire.	



BARS U (#4) BARS WU (#4) BARS S (#4)



CAST-IN-PLACE ANCHOR BOLT OPTIONS (18)



PLAN OF RAIL AT EXPANSION JOINTS

Example showing Slab Expansion Joints without breakbacks.

(5) Increase 2" for structures with overlay.
(7) HSS 2.875 x 0.203
(8) HSS 2.375 x 0.154
(15) No longitudinal wires may be in top center of cage.
(16) Bend or cut as required to clear drain slots.
(17) For raised sidewalks, add sidewalk height to total bar height. Use sidewalk height at rail's location.
(18) See "Material Notes" for anchor bolt information.

CONSTRUCTION NOTES:

This railing may be constructed by the slipform process when approved by the Engineer, with equipment approved by the Engineer and when adhesive anchor bolts are used. Slipforming parapet is not allowed if anchor bolts are cast with parapet wall. Provide sensor control for both line and grade. Tack welding to provide bracing for slipform operations is acceptable. Welding may be performed at a minimum spacing of 3 ft between the cage and the anchorage. It is permissible to weld to bars U, WU and S at any location on the cage. If increased bracing is needed, provide additional anchorage devices and weld in the upper two thirds of the cage. Paint welded areas on epoxy coated and/or galvanized reinforcing with an organic zinc rich paint in accordance with Item 445 "Galvanizing".

If rail is slipformed, apply an heavy epoxy bead 1" behind toe of traffic side of rail to concrete deck just prior to slip forming. Provide a ⅜" width x ¼" tall heavy epoxy bead with Type III, Class C or a Type V epoxy.

Test adhesive anchors in accordance with Item 450.3.3, "Tests". Test 3 anchors per 100 anchors installed. Perform corrective measures to provide adequate capacity if any of the tests do not meet the required test load. Repair damage from testing as directed.

At the Contractor's option anchor bolts may be cast with the parapet. See "Material Notes".

Face of rail, parapet must be plumb unless otherwise approved by the Engineer. HSS rail posts must be square to the top of parapet. Use epoxy mortar under post base plates if gaps larger than 1/16" exist.

Round or chamfer exposed edges of HSS rail and HSS rail posts to approximately 1/16" by grinding.

HSS rail sections must not include less than two posts, and no more than four (except at Abutments).

Chamfer all parapet exposed corners.

MATERIAL NOTES:

Provide Class "C" concrete. Povide Class "C" (HPC) if required elsewhere.

Provide Grade 60 reinforcing steel.

Epoxy coat or galvanize all reinforcing steel if slab bars are epoxy coated or galvanized.

Provide ASTM A1085 or A500 Gr B or A53 Gr B for all HSS.

Galvanize all metal components of steel rail system. Apply additional coatings when shown elsewhere on the plans. When plans require paint over gavanizing, follow the requirements for painting galvanized steel in Item 445, "Galvanizing" and when field painting, Item 446, "Field Cleaning and Painting Steel". Sleeve members and anchor bolts must receive galvanization prior to installation and only field paint after installation unless directed otherwise by Engineer.

Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars U and WU unless noted otherwise. Deformed WWR (ASTM 1064) may be substituted for Bars R and S, as shown. Combinations of reinforcing steel and WWR or configurations of WWR other that shown are permitted if conditions in the table are satisfied. Provide the same laps as required for reinforcing bars.

Anchor bolts must be ⅝" Dia ASTM A307 Gr A fully threaded rods with one hex nut and one hardened steel washer (ASTM F436) each. Nuts must conform to ASTM A563 requirements. Embed fully threaded rods into parapet wall with a Type III, Class C, D, E, or F anchor adhesive. Minimum adhesive anchor embedment depth is 3". Anchor adhesive chosen must be able to achieve a nominal bond strength in tension of a single anchor, Na, of 5 kips (edge distance must be accounted for). Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

Optional cast-in-place anchor bolts must be ⅝" Dia ASTM A307 Gr A bolts (or threaded rods with one tack welded hex nut each) with one hex nut and one hardened steel washer (ASTM F436) at each bolt. Nuts must conform to ASTM A563 requirements.

Provide bar laps, where required, as follows: Uncoated or galvanized ~ #4 = 1'-7"
Epoxy coated ~ #4 = 2'-5"

GENERAL NOTES:

This rail has been evaluated and accepted to be of equal strength to railings with like geometry, which have been crash tested to meet MASH TL-3 criteria. This rail can be used for speeds of 50 mph and greater when a TL-3 rated guard fence transition is used. When a TL-2 rated guard fence transition is used, this rail can only be used for speeds of 45 mph and less.

Do not use this railing on bridges with expansion joints providing more than 5" movement.

Rail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Submit erection drawings showing panel lengths, rail post spacing, and anchor bolt setting to the Engineer for approval.

Average weight of railing with no overlay: 380 plf (total)
370 plf (Conc)
10 plf (Steel)

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

Texas Department of Transportation — Bridge Division Standard

COMBINATION RAIL

TYPE C221

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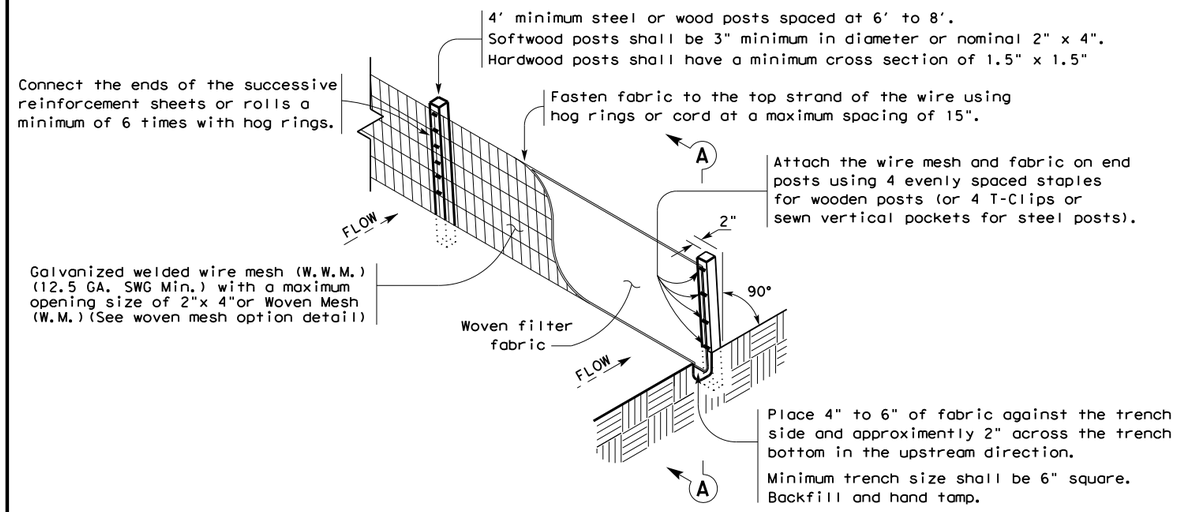
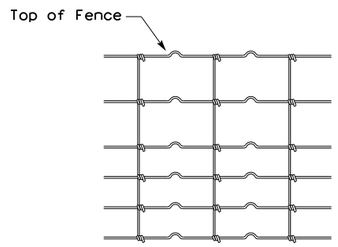
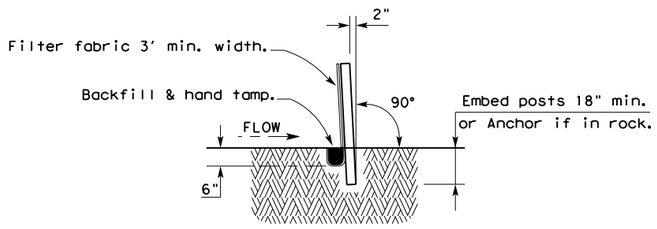


TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT^2. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

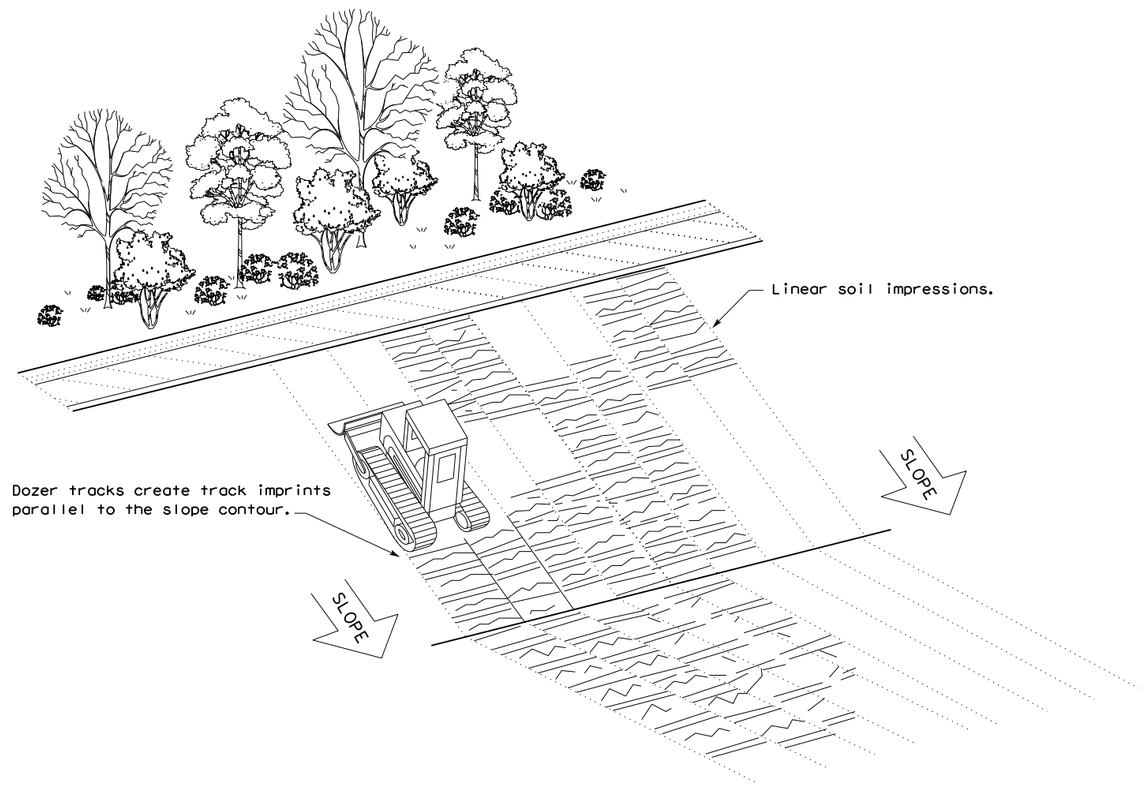
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

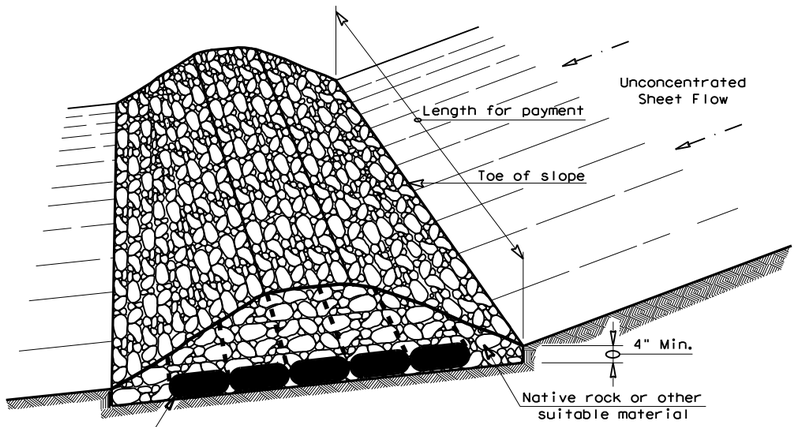
FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS	
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY	
REVISIONS					
	DIST	COUNTY		SHEET NO.	

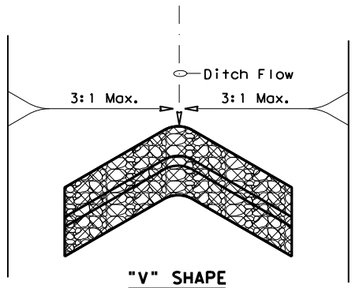
DATE
FILE

DATE:
FILE:

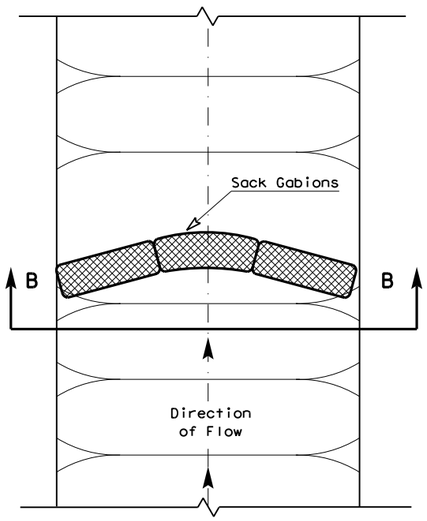


FILTER DAM AT TOE OF SLOPE

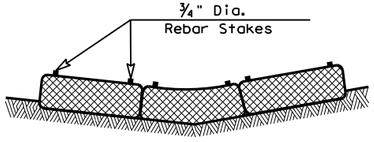
RFD1



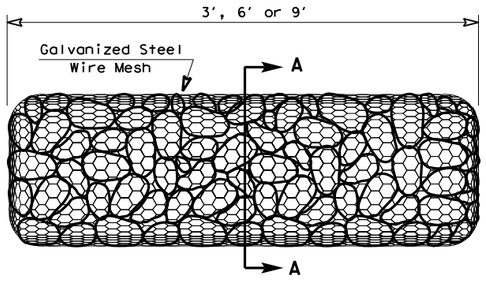
"V" SHAPE PLAN VIEW



PLAN VIEW

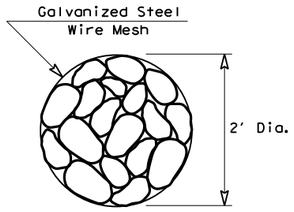


SECTION B-B

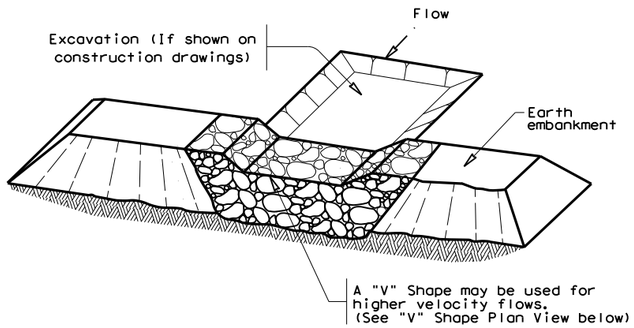


TYPE 4 (SACK GABIONS)

RFD4

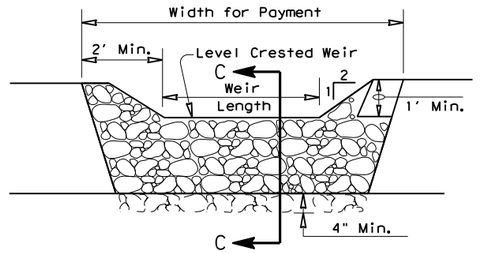


SECTION A-A

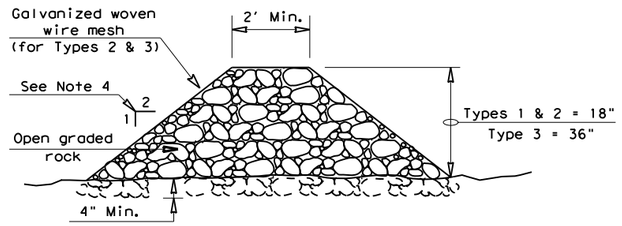


FILTER DAM AT SEDIMENT TRAP

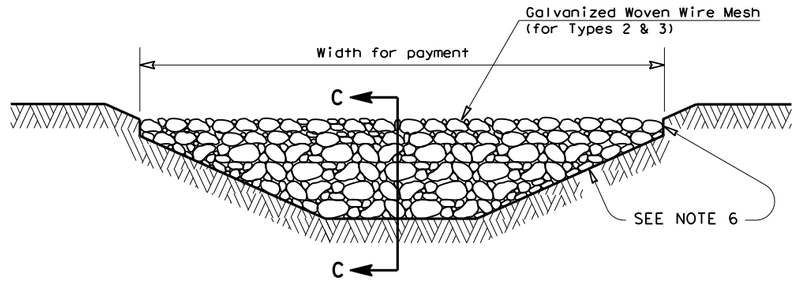
RFD1 — OR — RFD2



PROFILE



SECTION C-C



FILTER DAM AT CHANNEL SECTIONS

RFD1 — OR — RFD2 — OR — RFD3

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT^2 of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 (18" high with no wire mesh) (3" to 6" aggregate): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approximently 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh) (3" to 6" aggregate): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (36" high with wire mesh) (4" to 8" aggregate): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions) (3" to 6" aggregate): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

Type 5: Provide rock filter dams as shown on plans.

GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4" into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. For in stream use, the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Sack Gabions should be staked down with ¾" dia. rebar stakes, and have a double-twisted hexagonal weave with a nominal mesh opening of 2 ½" x 3 ¼"
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

PLAN SHEET LEGEND

Type 1 Rock Filter Dam	RFD1
Type 2 Rock Filter Dam	RFD2
Type 3 Rock Filter Dam	RFD3
Type 4 Rock Filter Dam	RFD4

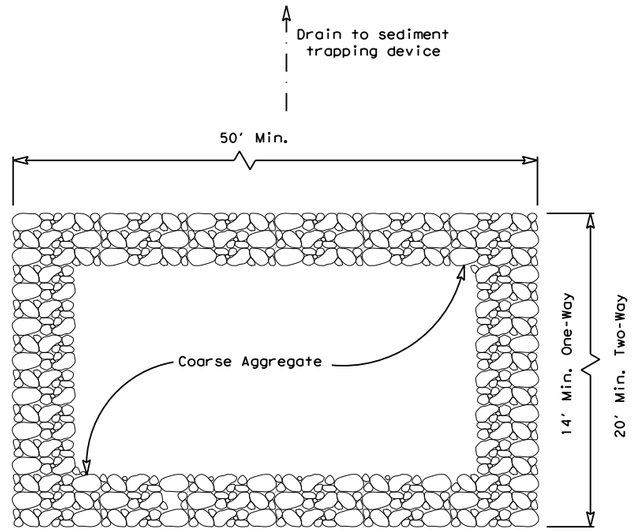
Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

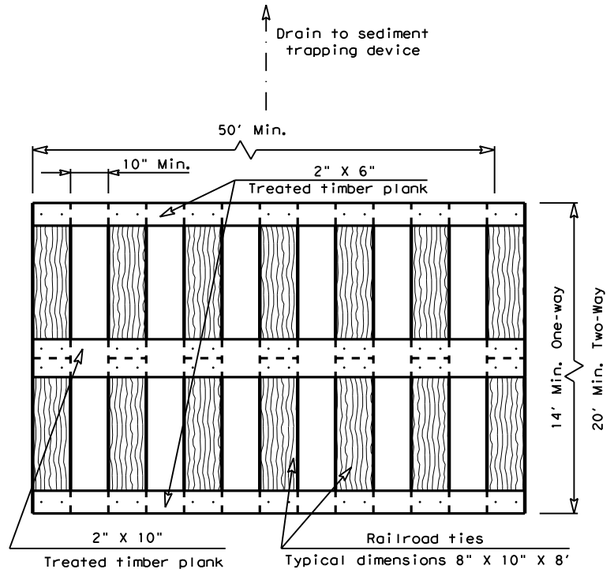
ROCK FILTER DAMS

EC(2)-16

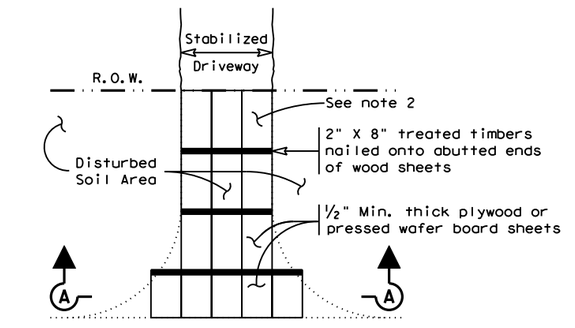
FILE: ec216	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.



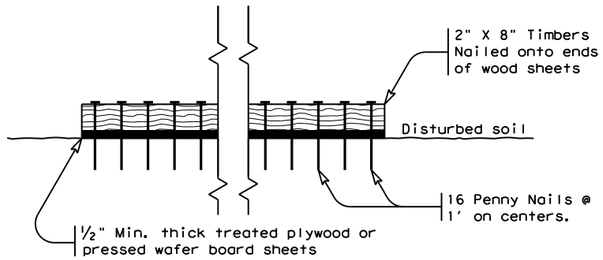
PLAN VIEW



PLAN VIEW



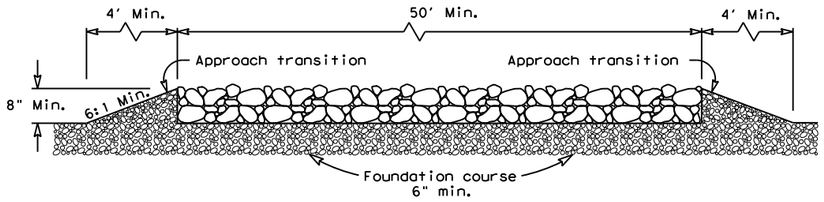
PLAN VIEW



SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

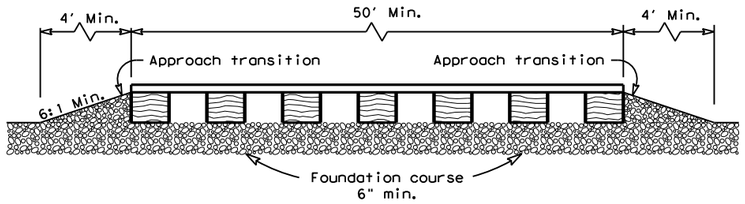
SHORT TERM



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 1)

ROCK CONSTRUCTION (LONG TERM)



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 2)

TIMBER CONSTRUCTION (LONG TERM)

GENERAL NOTES (TYPE 1)

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other materialas approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
7. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 2)

1. The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50'.
2. The treated timber planks shall be attached to the railroad ties with ½"x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
8. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 3)

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

CONSTRUCTION EXITS

EC(3)-16

FILE: ec316	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
©TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	C	S	J	HWY
	DIST	COUNTY		SHEET NO.
	DST	CTY		$EC(3)-16$

DATE: $DATE$
FILE: $FILE$

May 11, 2022

Bridell Miers, P.E.
Engineering Project Manager
Collin County – Engineering
4690 Community Ave., Suite 200
McKinney, TX 75071

Mrs. Miers,

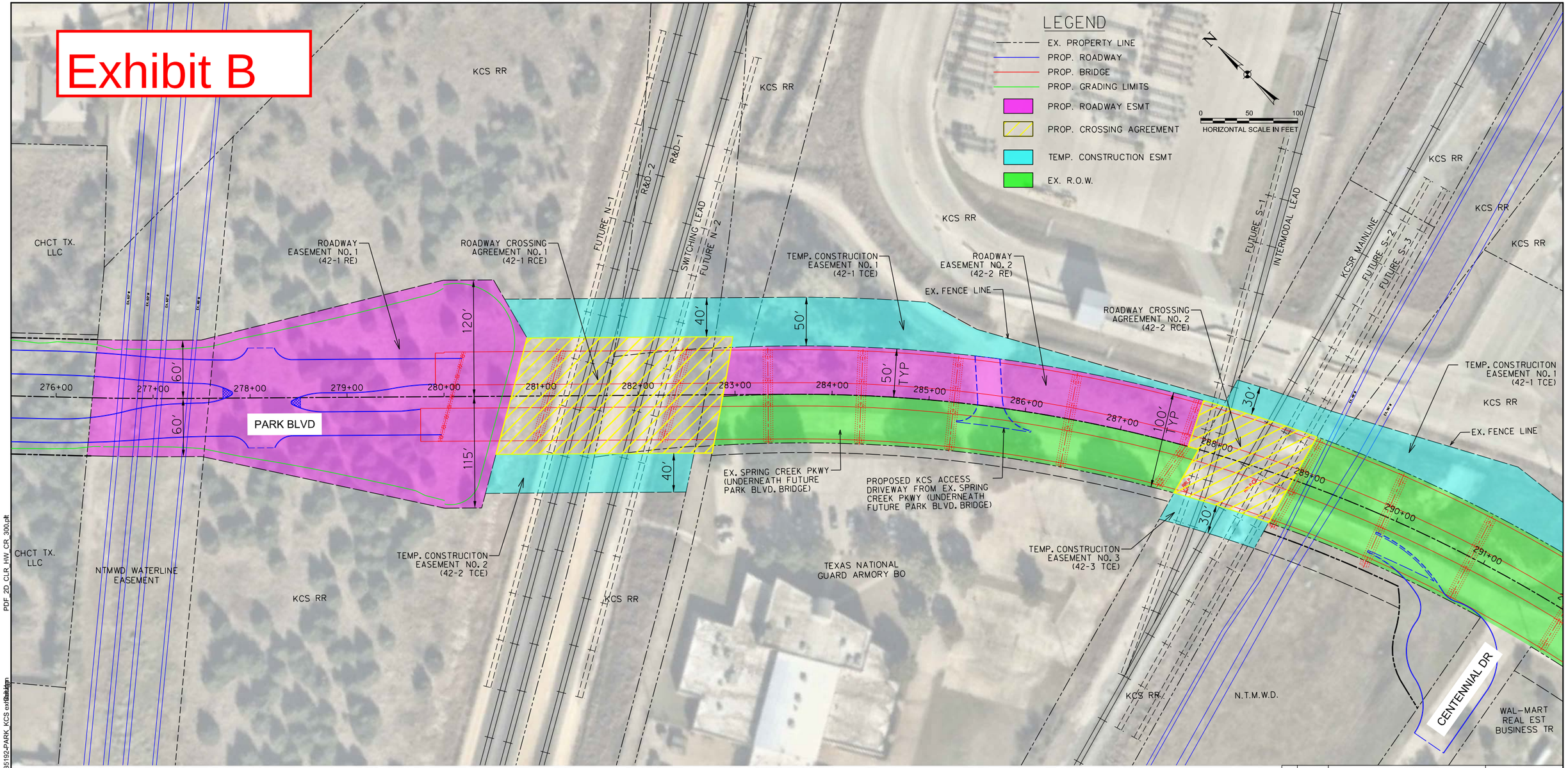
Our design review of the Park Blvd grade separation project across the KCS Right of Way in Wylie, Texas is now complete. On April 1, 2022, our consultant HDR reviewed and approved the 100 percent plans. KCS does not have any further comments on these design plans at this time. For our records, KCS will require the construction contractor to note any field changes made to the KCS portion of these plans so that we can correctly document the as-built conditions for the grade separated crossing at this location.

If you have any questions please do not hesitate to contact me.

Thank you,

Micheal Martin
Manager of Public Projects

Exhibit B



No.	DATE	REVISION	APPROV.

PARK BOULEVARD EXTENSION

COLLIN COUNTY

EASEMENT EXHIBIT
KCS RR

HALFF
3803 PARKWOOD BLVD, SUITE 800
FRISCO, TX 75034-8641
TEL (214) 618-4570
FAX (214) 739-0095
TBPE FIRM #F-312

DRAWN: DAK DATE: 08/09/2021 DESIGNED: _____ DATE: _____
CHECKED: _____ DATE: _____ SCALE: _____

CONTRACT No. _____

SHEET 1 OF 1 11/18/20

35192-PARK_KCS exhibit.dgn 8/9/2021 12:21:49 PM

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8/9/2021 12:21:49 PM ah2086 HALFF

EXHIBIT A
ROADWAY CROSSING EASEMENT
DESCRIPTION FOR PARK BOULEVARD
PARCEL 42-1
0.5546 ACRES (24,161 SQUARE FEET)

BEING 24,161 square feet of land situated in the Francisco De La Pina Survey, Abstract Number 688, Collin County, Texas, and being part of a called 22.123 acre tract of land and a called 1.727 acre tract of land described in Warranty Deed to The Kansas City Southern Railway Company, recorded in Volume 4421, Page 1929 and Volume 4421, Page 1924 of the Deed Records of Collin County, Texas (D.R.C.C.T.), part of a called 0.2396 acre tract of land described in Deed without Warranty to The Kansas City Southern Railway Company, recorded in Volume 4421, Page 1935, D.R.C.C.T., and part of the Kansas City Southern Railway Company (a 100-foot wide right-of-way), recorded in Volume 374, Page 544 and Volume 5028, Page 4107, D.R.C.C.T., and being more particularly described by metes and bounds as follows:

COMMENCING at a 5/8-inch found iron rod with cap stamped "BMI" for the north corner of Lot 1, Block B of Woodlake Village Two, an addition to the City of Wylie, Collin County, Texas, recorded in Cabinet I, Page 520 of the Plat Records of Collin County, Texas (P.R.C.C.T.), said corner being at the intersection of the southeast right-of-way line of a 18-foot wide public road, recorded in Volume 203, Page 230, D.R.C.C.T. and the southwest right-of-way line of Spring Creek Parkway (a 50-foot wide right-of-way);

THENCE North 65 degrees 02 minutes 43 seconds West, over and across said 18-foot wide public road, a distance of 21.43 feet to a corner (not monumented) for the **POINT OF BEGINNING,** said corner being on the northwest right-of-way line of said 18-foot wide public road and the southeast right-of-way line of the aforementioned Kansas City Southern Railway Company;

THENCE North 43 degrees 55 minutes 26 seconds West, over and across said Kansas City Southern Railway Company, said 0.2396 acre tract and said 22.123 acre tract, a distance of 204.33 feet to a corner (not monumented);

THENCE North 61 degrees 23 minutes 40 seconds East, over and across said 22.123 acre tract, a distance of 124.42 feet to a 1/2-inch set iron rod with blue plastic cap stamped "HALFF ESMT" (hereinafter referred to as "with ESMT cap") for corner;

THENCE South 43 degrees 55 minutes 26 seconds East, over and across said 22.123 acre tract, said Kansas City Southern Railway Company right-of-way, and the aforementioned 1.727 acre tract, a distance of 212.23 feet to a corner (not monumented) for the point of curvature of a non-tangent circular curve to the right, having a radius of 2,932.79 feet, whose chord bears South 55 degrees 30 minutes 31 seconds West, a distance of 11.37 feet;

EXHIBIT A
ROADWAY CROSSING EASEMENT
DESCRIPTION FOR PARK BOULEVARD
PARCEL 42-1
0.5546 ACRES (24,161 SQUARE FEET)

THENCE Southwesterly, over and across said 1.727 acre tract and with said curve, through a central angle of 00 degree 13 minutes 20 seconds, an arc distance of 11.37 feet a 1/2-inch set iron rod with ESMT cap for an "ell" corner of a called 28.332 acre tract of land described in General Warranty Deed to The Kansas City Southern Railway Company, recorded in Instrument Number 20101220001391710, O.P.R.C.C.T., the southwest line of said 1.727 acre tract, the southeast right-of-way line of said 18-foot wide public road and the northeast right-of-way of the aforementioned Kansas City Southern Railway Company, said corner being on the point of curvature of a non-tangent circular curve to the right, having a radius of 1,549.77 feet, whose chord bears North 46 degrees 28 minutes 54 seconds West, a distance of 18.47 feet;

THENCE Northwesterly, with the southwest line of said 1.727 acre tract and said curve, through a central angle of 00 degrees 40 minutes 59 seconds, an arc distance of 18.47 feet to the southeast corner (not monumented) of the aforementioned 0.2396 acre tract, the southeast right-of-way line of said Kansas City Southern Railway Company and the northwest right-of-way line of said 18-foot wide public road, said corner being the point of curvature of a non-tangent circular curve to the left, having a radius of 2,914.40 feet, whose chord bears South 56 degrees 48 minutes 24 seconds West, a distance of 109.88 feet;

THENCE Southwesterly, with the southeast right-of-way line of said Kansas City Southern Railway Company, the southeast line of said 0.2396 acre tract, the northwest right-of-way line of said 18-foot public road, and said curve, through a central angle of 02 degree 09 minutes 37 seconds, an arc distance of 109.89 feet to the **POINT OF BEGINNING AND CONTAINING** 24,161 square feet (0.5546 acre) of land, more or less.

EXHIBIT A
ROADWAY CROSSING EASEMENT
DESCRIPTION FOR PARK BOULEVARD
PARCEL 42-1
0.5546 ACRES (24,161 SQUARE FEET)

NOTES:

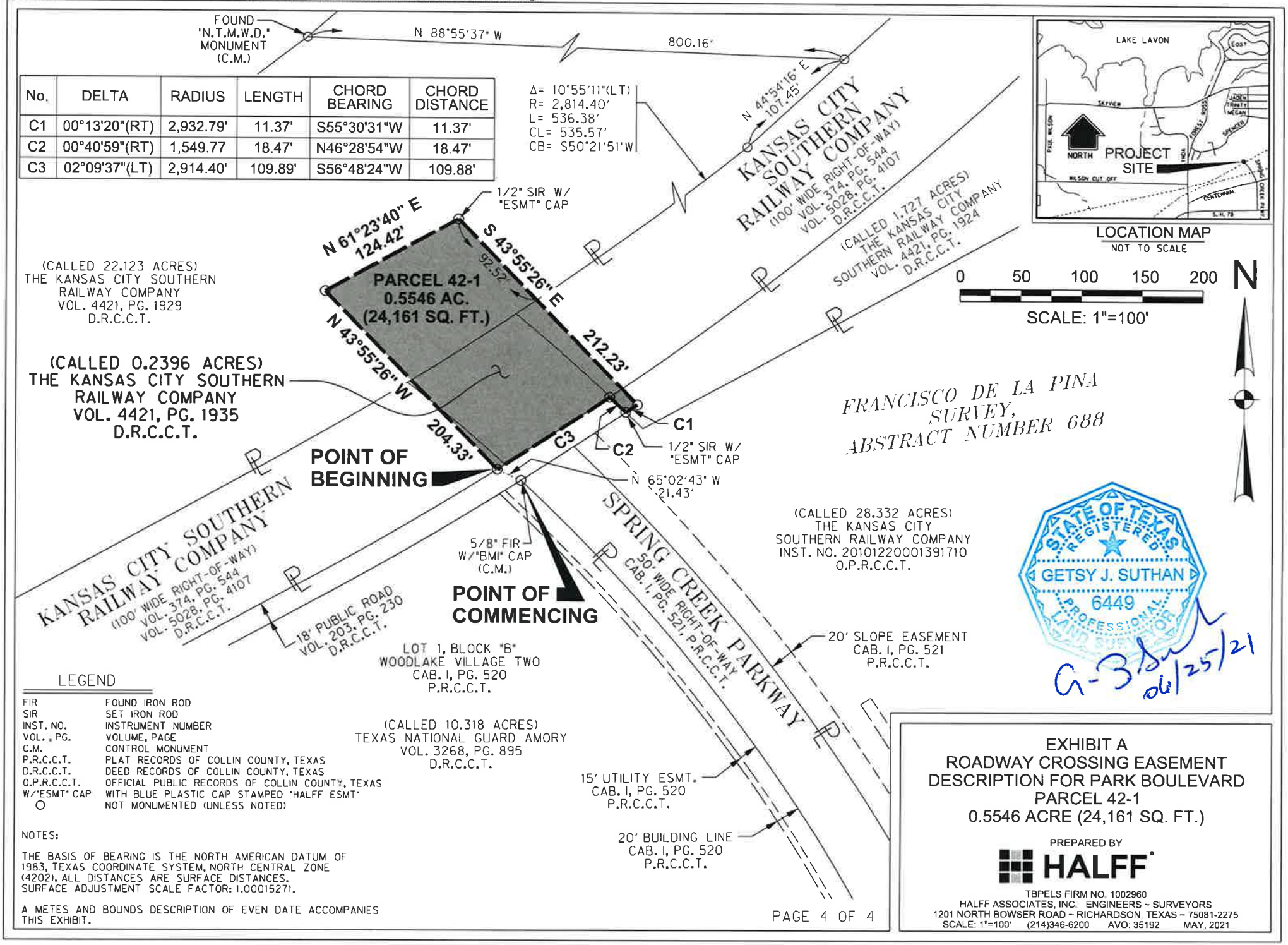
1. The Basis of Bearing is the North American Datum of 1983, Texas Coordinate System, North Central Zone (4202). All distances are surface distances. Surface adjustment scale factor: 1.00015271.

2. A survey plat of even date accompanies this legal description.

G. S. Suthan 06/25/21

Getsy J. Suthan, R.P.L.S. Date
Texas Registration No. 6449
HALFF ASSOCIATES, INC.
1201 NORTH BOWSER ROAD
RICHARDSON, TEXAS 75081
TEL (214) 346-6200
TBPELS FIRM NO. 10029600

6/25/2021 12:06:48 PM ah2472 HALFF I:\35000s\35192\001\CADD\SheetsRCH\Exhibits\Parcel 42-1\VEXH-P42-1-RCE-35192.dgn



No.	DELTA	RADIUS	LENGTH	CHORD BEARING	CHORD DISTANCE
C1	00°13'20"(RT)	2,932.79'	11.37'	S55°30'31"W	11.37'
C2	00°40'59"(RT)	1,549.77	18.47'	N46°28'54"W	18.47'
C3	02°09'37"(LT)	2,914.40'	109.89'	S56°48'24"W	109.88'

LEGEND

FIR	FOUND IRON ROD
SIR	SET IRON ROD
INST. NO.	INSTRUMENT NUMBER
VOL., PG.	VOLUME, PAGE
C.M.	CONTROL MONUMENT
P.R.C.C.T.	PLAT RECORDS OF COLLIN COUNTY, TEXAS
D.R.C.C.T.	DEED RECORDS OF COLLIN COUNTY, TEXAS
O.P.R.C.C.T.	OFFICIAL PUBLIC RECORDS OF COLLIN COUNTY, TEXAS
W/"ESMT" CAP	WITH BLUE PLASTIC CAP STAMPED "HALFF ESMT"
O	NOT MONUMENTED (UNLESS NOTED)

NOTES:

THE BASIS OF BEARING IS THE NORTH AMERICAN DATUM OF 1983, TEXAS COORDINATE SYSTEM, NORTH CENTRAL ZONE (4202). ALL DISTANCES ARE SURFACE DISTANCES. SURFACE ADJUSTMENT SCALE FACTOR: 1.00015271.

A METES AND BOUNDS DESCRIPTION OF EVEN DATE ACCOMPANIES THIS EXHIBIT.

STATE OF TEXAS
REGISTERED
GETSY J. SUTHAN
6449
PROFESSIONAL
LAND SURVEYOR

06/25/21

EXHIBIT A
ROADWAY CROSSING EASEMENT DESCRIPTION FOR PARK BOULEVARD PARCEL 42-1
0.5546 ACRE (24,161 SQ. FT.)

PREPARED BY

HALFF

TBPELS FIRM NO. 1002960
HALFF ASSOCIATES, INC. ENGINEERS ~ SURVEYORS
1201 NORTH BOWSER ROAD ~ RICHARDSON, TEXAS ~ 75081-2275
SCALE: 1"=100' (214)346-6200 AVO: 35192 MAY, 2021

Closure Report

Parcel P42_1_RCE: 10387 10355 10348 10353 CUR C10353-10372 CUR C10372-10388 CUR C10388-10387

10387 to 10355: North 43 degrees 55 minutes 26 seconds West Dist. 204.33
10355 to 10348: North 61 degrees 23 minutes 40 seconds East Dist. 124.42
10348 to 10353: South 43 degrees 55 minutes 26 seconds East Dist. 212.23
Curve: C10353-10372 Radius: 2932.79 Delta: 00 degrees 13 minutes 20 seconds Arc: 11.37
DOC 01 degrees 57 minutes 13 seconds Tangent: 5.69 Mid Ord.: 0.01 External 0.01
Chord Bearing: South 55 degrees 30 minutes 31 seconds West Chord Dist. 11.37
** Back Tangency Error: Curve C10353-10372: -99 degrees 19 minutes 17 seconds **
Curve: C10372-10388 Radius: 1549.77 Delta: 00 degrees 40 minutes 59 seconds Arc: 18.47
DOC 03 degrees 41 minutes 49 seconds Tangent: -9.24 Mid Ord.: 0.03 External 0.03
Chord Bearing: North 46 degrees 28 minutes 54 seconds West Chord Dist. 18.47
** Forward Tangency Error: Curve C10372-10388: -78 degrees 14 minutes 24 seconds **
** Back Tangency Error: Curve C10372-10388: -78 degrees 14 minutes 24 seconds **
Curve: C10388-10387 Radius: 2914.40 Delta: 02 degrees 09 minutes 37 seconds Arc: 109.89
DOC 01 degrees 57 minutes 57 seconds Tangent: 54.95 Mid Ord.: 0.52 External 0.52
Chord Bearing: South 56 degrees 48 minutes 24 seconds West Chord Dist. 109.88
** Forward Tangency Error: Curve C10388-10387: 77 degrees 27 minutes 01 seconds **

Perimeter: 680.71
Area: 24161 sq. ft., Acres: 0.5546
Error North: 0.00 Error East: -0.00
Error bearing: South 35 degrees 41 minutes 17 seconds East Total Dist. Error: 0.00
Error of Closure: 1:163587

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EXHIBIT A
ROADWAY CROSSING EASEMENT
DESCRIPTION FOR PARK BOULEVARD
PARCEL 42-2
0.2524 ACRES (10,996 SQUARE FEET)

BEING 10,996 square feet of land situated in the Francisco De La Pina Survey, Abstract Number 688, Collin County, Texas, and being part of a called 28.332 acre tract of land described in General Warranty Deed to The Kansas City Southern Railway Company, recorded in Volume 20101220001391710 of the Official Public Records of Collin County, Texas (O.P.R.C.C.T.), and part of a Kansas City Southern Railway Company (a 100-foot wide right-of-way), recorded in Clerk's File Number 94-0096329 of the Deed Records of Collin County, Texas (D.R.C.C.T.), and being more particularly described by metes and bounds as follows:

BEGINNING at the southeast corner of Lot 1, Block B of Woodlake Village Two, an addition to the City of Wylie, Collin County, Texas, recorded in Cabinet I, Page 520 of the Plat Records of Collin County, Texas (P.R.C.C.T.) and the south corner of Spring Creek Parkway, an addition to the City of Wylie, Collin County, Texas, recorded in Cabinet I, Page 521, P.R.C.C.T., said corner being at the intersection of the northwest right-of-way of said Kansas City Southern Railway Company and the southwest right-of-way line of Spring Creek Parkway (a 50-foot wide right-of-way), from which a 5/8-inch found iron rod with cap stamped "SAM INC" bears South 03 degrees 20 minutes 13 seconds West, a distance of 0.78 of a foot;

THENCE North 75 degrees 46 minutes 55 seconds East, with the northwest line of said Kansas City Southern Railway Company and the southeast line of said Spring Creek Parkway addition, a distance of 51.47 feet to the southeast corner (not monumented) of said Spring Creek Parkway addition and the south corner of said 28.332 acre tract, said corner being at the intersection of the northwest right-of-way of said Kansas City Southern Railway Company and the northeast right-of-way line of said Spring Creek Parkway and the point of curvature of a non-tangent circular curve to the left, having a radius of 1,500.00 feet, whose chord bears North 27 degrees 55 minutes 28 seconds West, a distance of 10.95 feet;

THENCE Northerly, with the southwest line of said 28.332 acre tract, the northeast right-of-way line of said Spring Creek Parkway, and said curve, through a central angle of 00 degrees 25 minutes 06 seconds, an arc distance of 10.95 feet to a 1/2-inch set iron rod with blue plastic cap stamped "HALFF ESMT" (hereinafter referred to as "with ESMT cap") for corner;

THENCE North 65 degrees 01 minute 13 seconds East, departing said northeast and southwest lines and over and across said 28.332 acre tract, a distance of 50.07 feet to a 1/2-inch set iron rod with ESMT cap for corner, said corner being the point of curvature of a non-tangent circular curve to the left, having a radius of 1,550.00 feet, whose chord bears South 25 degrees 46 minutes 05 seconds East, a distance of 122.47 feet;

EXHIBIT A
ROADWAY CROSSING EASEMENT
DESCRIPTION FOR PARK BOULEVARD
PARCEL 42-2
0.2524 ACRES (10,996 SQUARE FEET)

THENCE Southerly, over and across said 28.332 acre tract and said curve, through a central angle of 04 degrees 31 minutes 41 seconds, passing at a distance of 20.55 feet the southeast line of said 28.332 acre tract and the northwest line of said Kansas City Southern Railway Company, and continuing over and across said Kansas City Southern Railway Company, in all a total arc distance of 122.50 feet to the northwest corner (not monumented) of a called 1.727 acre tract of a land described in Warranty Deed to The Kansas City Southern Railway Company, recorded in Volume 4421, Page 1924, D.R.C.C.T., said corner being the at the intersection of the south right-of-way line of said Kansas City Southern Railway Company and the east right-of-way line of Spring Creek Parkway (a 100-foot wide right-of-way);

THENCE South 75 degrees 46 minutes 55 seconds West, over and across said Spring Creek Parkway, a distance of 101.42 feet to the north corner of Lot 1, Block B of Woodland Village, an addition to the City of Wylie, Collin County, Texas, recorded in Cabinet G, Page 386, P.R.C.C.T., from which a 5/8-inch found iron road with "SAM INC" cap bears South 14 degrees 14 minutes 46 seconds West, a distance of 0.89 feet ,said corner being at the intersection of the southeast right-of-way line of said Kansas City Southern Railway Company and the west right-of-way line of said Spring Creek Parkway and the point of curvature of a non-tangent circular curve to the left, having a radius of 1,450.00 feet, whose chord bears North 26 degrees 10 minutes 14 seconds West, a distance of 102.22 feet;

THENCE Northwesterly, over and across said Kansas City Southern Railway Company and with said curve, through a central angle of 04 degrees 02 minutes 23 seconds, an arc distance of 102.24 feet to the **POINT OF BEGINNING AND CONTAINING** 10,996 square feet (0.2524 acre) of land, more or less.

EXHIBIT A
ROADWAY CROSSING EASEMENT
DESCRIPTION FOR PARK BOULEVARD
PARCEL 42-2
0.2524 ACRES (10,996 SQUARE FEET)

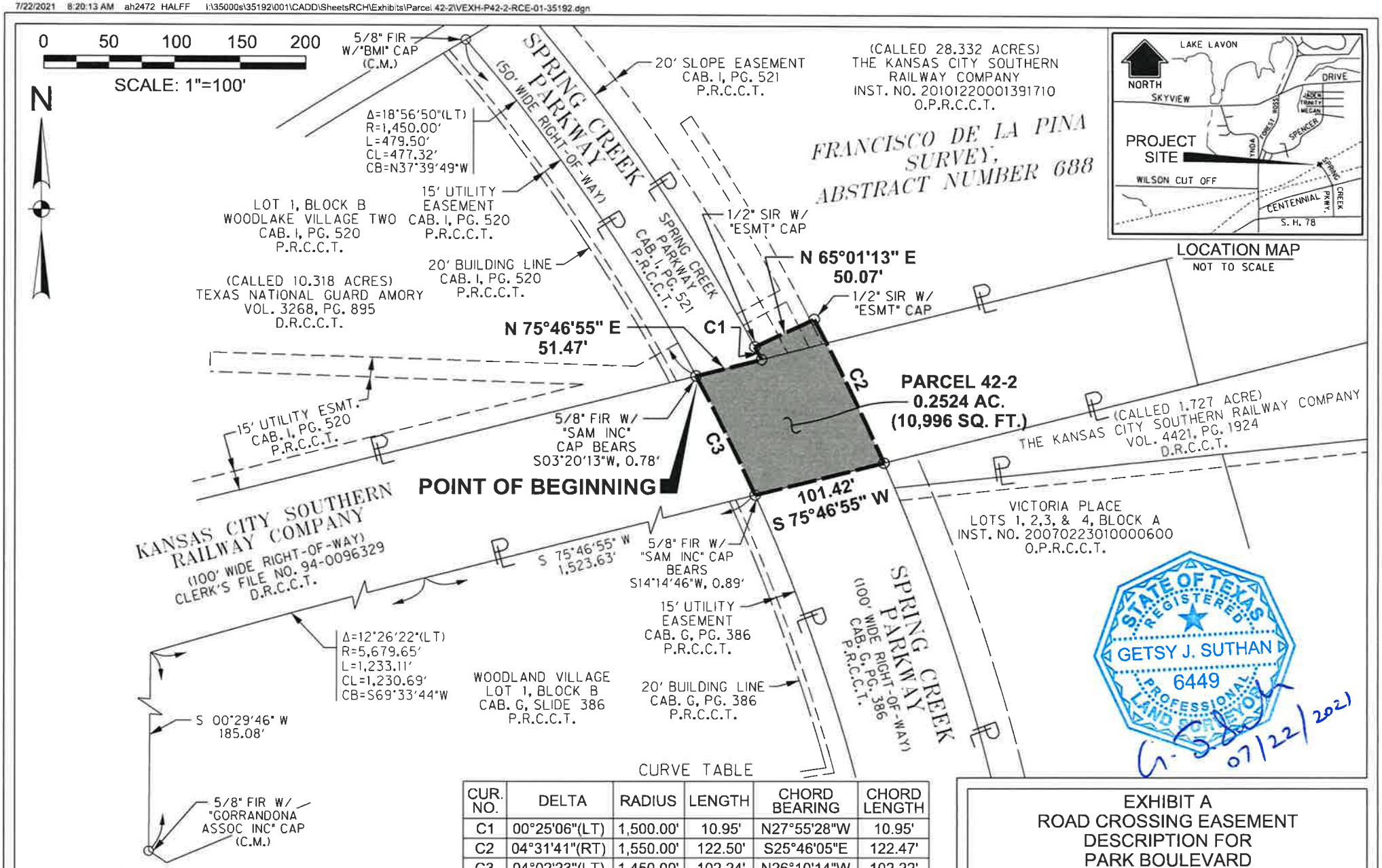
NOTES:

1. The Basis of Bearing is the North American Datum of 1983, Texas Coordinate System, North Central Zone (4202). All distances are surface distances. Surface adjustment scale factor: 1.00015271.

2. A survey plat of even date accompanies this legal description.

G. J. Suthan 07/22/2021

Getsy J. Suthan, R.P.L.S. Date
Texas Registration No. 6449
Halff Associates, Inc.
1201 North Bowser Road
Richardson, Texas 75081
Tel (214) 346-6200
TBPELS Firm No. 10029600



CURVE TABLE

CUR. NO.	DELTA	RADIUS	LENGTH	CHORD BEARING	CHORD LENGTH
C1	00°25'06"(LT)	1,500.00'	10.95'	N27°55'28"W	10.95'
C2	04°31'41"(RT)	1,550.00'	122.50'	S25°46'05"E	122.47'
C3	04°02'23"(LT)	1,450.00'	102.24'	N26°10'14"W	102.22'

LEGEND

SIR	SET IRON ROD
FIR	FOUND IRON ROD
INST. NO.	INSTRUMENT NUMBER
VOL., PG.	VOLUME, PAGE
C.M.	CONTROL MONUMENT
D.R.C.C.T.	DEED RECORDS OF COLLIN COUNTY, TEXAS
O.P.R.C.C.T.	OFFICIAL PUBLIC RECORDS OF COLLIN COUNTY, TEXAS
W/"ESMT" CAP	WITH BLUE PLASTIC CAP STAMPED "HALFF ESMT"
O	NOT MONUMENTED (UNLESS NOTED)

NOTES:

THE BASIS OF BEARING IS THE NORTH AMERICAN DATUM OF 1983, TEXAS COORDINATE SYSTEM, NORTH CENTRAL ZONE (4202). ALL DISTANCES ARE SURFACE DISTANCES. SURFACE ADJUSTMENT SCALE FACTOR: 1.00015271.

A METES AND BOUNDS DESCRIPTION OF EVEN DATE ACCOMPANIES THIS EXHIBIT.

EXHIBIT A
ROAD CROSSING EASEMENT DESCRIPTION FOR PARK BOULEVARD PARCEL 42-2
0.2524 ACRE TRACT (10,996 SQ. FT.)

PREPARED BY

HALFF
TBPELS FIRM NO. 1002960
HALFF ASSOCIATES, INC. ENGINEERS – SURVEYORS
1201 NORTH BOWSER ROAD – RICHARDSON, TEXAS – 75081-2275
SCALE: 1"=100' (214)346-6200 AVO: 35192 MAY, 2021

Closure Report

Parcel P42_2_RCE: 10379 10380 CUR C10380-10376 10375 CUR C10375-10377 10378 CUR C10378-10379

10379 to 10380: North 75 degrees 46 minutes 55 seconds East Dist. 51.47
Curve: C10380-10376 Radius: 1500.00 Delta: 00 degrees 25 minutes 06 seconds Arc: 10.95
DOC 03 degrees 49 minutes 11 seconds Tangent: -5.47 Mid Ord.: 0.01 External 0.01
Chord Bearing: North 27 degrees 55 minutes 28 seconds West Chord Dist. 10.95
** Back Tangency Error: Curve C10380-10376: -256 degrees 30 minutes 10 seconds **
PT C10380-10376 to 10375: North 65 degrees 01 minutes 13 seconds East Dist. 50.07
** Forward Tangency Error: Curve C10380-10376: 266 degrees 50 minutes 46 seconds **
Curve: C10375-10377 Radius: 1550.00 Delta: 04 degrees 31 minutes 41 seconds Arc: 122.50
DOC 03 degrees 41 minutes 47 seconds Tangent: 61.28 Mid Ord.: 1.21 External 1.21
Chord Bearing: South 25 degrees 46 minutes 05 seconds East Chord Dist. 122.47
** Back Tangency Error: Curve C10375-10377: -86 degrees 56 minutes 52 seconds **
PT C10375-10377 to 10378: South 75 degrees 46 minutes 55 seconds West Dist. 101.42
** Forward Tangency Error: Curve C10375-10377: -99 degrees 17 minutes 09 seconds **
Curve: C10378-10379 Radius: 1450.00 Delta: -4 degrees 02 minutes 23 seconds Arc: 102.24
DOC 03 degrees 57 minutes 05 seconds Tangent: -51.14 Mid Ord.: 0.90 External 0.90
Chord Bearing: North 26 degrees 10 minutes 14 seconds West Chord Dist. 102.22
** Back Tangency Error: Curve C10378-10379: -80 degrees 04 minutes 03 seconds **

Perimeter: 438.64
Area: 10996 sq. ft., Acres: 0.2524
Error North: 0.00 Error East: -0.00
Error bearing: South 85 degrees 27 minutes 54 seconds East Total Dist. Error: 0.00
Error of Closure: 1:112322

==========
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Collin County, Texas
Park Boulevard Extension Project
Parcel #42-1, 42-2 & 42-3

QUITCLAIM TEMPORARY CONSTRUCTION EASEMENTS
(42-1 TCE, 42-2 TCE and 42-3 TCE)

THIS CONVEYANCE is made this 17th day of January, 2023 by and between **THE KANSAS CITY SOUTHERN RAILWAY COMPANY** (hereinafter "**GRANTOR**"), and **COLLIN COUNTY, TEXAS** (hereinafter, "County"), a County government organized and existing under the laws of the State of Texas and the **CITY OF WYLIE, TEXAS** (hereinafter, "City"), a Texas home rule municipality (hereinafter County and City together referred to as "**GRANTEE**").

WITNESSETH, that **GRANTOR**, for and in consideration of the sum of ONE AND NO/100 DOLLARS ($1.00) AND OTHER VALUABLE CONSIDERATION, the receipt and sufficiency of which is hereby acknowledged, has sold, and by these presents hereby GRANTS, BARGAINS, SELLS AND CONVEYS to the **GRANTEE**, and its successors and assigns, **Temporary Construction Easements** over, across, upon, and under the surface of the real properties situated in Wylie, Collin County, Texas, and more particularly described on Exhibits A, B and C, which are attached hereto and incorporated herein by reference.

For purposes of this conveyance, the term "**Temporary Construction Easement**" shall mean "Subject to existing easements of record, an easement commencing at 12:01 a.m. on September 1, 2022 and expiring at 11:59 p.m. on December 31, 2026, allowing **GRANTEE**, its agents, employees, contractors and assigns, **except as may be limited by the License conveyed to GRANTEE in the Highway Crossing Overpass Construction Agreement entered between GRANTOR and GRANTEE as of _____ __, 2022**, to enter upon and make use of the described lands as may be required to undertake and carry out the location, laying-out, construction, reconstruction, installation, supervision, inspection, repair, maintenance and use of roadway and elevated roadway structures located and to be located within adjacent permanent easements or licensed areas, including but not limited to the movement and storage of vehicles, machines, materials, supplies and equipment; grading, filling, and repairing the described lands; and ingress and egress over and across abutting easements, property lines and rights of way for such purposes. At the conclusion of construction, all areas disturbed by construction shall be regraded to match the grade and elevation of the abutting remaining property, and all established lawns shall be re-sodded and other areas re-seeded with native grass or other perennial ground cover, with no obligation for future watering or maintenance."

It is understood and agreed that the consideration exchanged for the conveyance of the above-described **Quitclaim Temporary Construction Easements** is in full payment for the purchase and conveyance of such Easement and all damages arising out of its use for the purposes described herein. IN WITNESS THEREOF, **GRANTOR** has set its hand the day and year first written above.

GRANTOR: The Kansas City Southern Railway Company

By: Ginger Adamiak
Ginger Adamiak
VP- SALES + REAL ESTATE

ACKNOWLEDGEMENT

State of Missouri)
) SS.
County of Jackson)

On this 17th day of January, 2023 before me a Notary Public, appeared Ginger Adamiak to me personally known (or proved to me on the basis of satisfactory evidence) to be the person described herein who executed the foregoing instrument, and acknowledged that he is the VP – Real Estate of **The Kansas City Southern Railway Company,** that he executed the same on behalf of said **The Kansas City Southern Railway Company** and by authority thereof and acknowledged said instrument to be the free act and deed of said **The Kansas City Southern Railway Company** for the purposes therein expressed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal the day and year aforesaid.

My Commission Expires: 10/15/25 Notary Public

BRYCE J GOOD
Notary Public - Notary Seal
Clay County - State of Missouri
Commission Number 17423040
My Commission Expires Oct 15, 2025

(Remainder of page intentionally blank; additional signature pages follow)

IN WITNESS THEREOF, **GRANTEE County** has set its hand the day and year first written above.

GRANTEE: Collin County, Texas

By: _____

COUNTY JUDGE

(Title)

ACKNOWLEDGEMENT

State of Texas)

) SS.

County of Collin)

On this 15th day of MARCH, 2023, before me a Notary Public, appeared CHRIS HILL to me personally known (or proved to me on the basis of satisfactory evidence) to be the person described herein who executed the foregoing instrument, and acknowledged that he is the COUNTY JUDGE of **Collin County, Texas,** and that he executed the same on behalf of said County, and by authority thereof and acknowledged said instrument to be the free act and deed of **Collin County, Texas,** for the purposes therein expressed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal the day and year aforesaid.

My Commission Expires: 11/30/23 Notary Public _____

(Remainder of page intentionally blank; additional signature page follows)

SHONA R NAVARRE
Notary Public
STATE OF TEXAS
Notary ID # 13045692-3
My Comm. Exp. November 30, 2023

IN WITNESS THEREOF, **GRANTEE City** has set its hand the day and year first written above.

GRANTEE: City of Wylie, Texas

By: _____

City Manager

(Title)

ACKNOWLEDGEMENT

State of Texas)

) SS.

County of Collin)

On this 1st day of March, 2022, before me a Notary Public, appeared Brent Parker to me personally known (or proved to me on the basis of satisfactory evidence) to be the person described herein who executed the foregoing instrument, and acknowledged that he is the City Manager of **City of Wylie, Texas,** and that he executed the same on behalf of said **City of Wylie, Texas,** and by authority thereof and acknowledged said instrument to be the free act and deed of **City of Wylie, Texas,** for the purposes therein expressed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal the day and year aforesaid.

My Commission Expires: 3/12/2027 Notary Public Stephanie Storm

STEPHANIE STORM
NOTARY PUBLIC
STATE OF TEXAS
ID # 12603607-4
My Comm. Expires 03-12-2027

[Remainder of page intentionally blank, Exhibits A-C follow]

EXHIBIT A
TEMPORARY CONSTRUCTION EASEMENT
DESCRIPTION FOR PARK BOULEVARD
PARCEL 42-1
1.37 ACRES (59,670 SQUARE FEET)

BEING 59,670 square feet of land situated in the Francisco De La Pina Survey, Abstract Number 688, Collin County, Texas, and being part of Lots 3 and 4, Block A of Lots 1, 2, 3 & 4, Block A, Victoria Place, an addition to the City of Wylie, Collin County, Texas, recorded in Instrument Number 20070223010000600 of the Official Public Records of Collin County, Texas (O.P.R.C.C.T.), and part of a 4.8146 acre tract of land described in Warranty Deed to The Kansas City Southern Railway Company, recorded in Instrument Number 20131011001414300, O.P.R.C.C.T., and part of a called 3.8768 acre tract of land described as "Tract B" in Special Warranty Deed to The Kansas City Southern Railway Company, recorded in Instrument Number 20131001001374110, O.P.R.C.C.T., and part of a called 1.727 acre tract of land and a called 0.655 acre tract of land described in Warranty Deed to The Kansas City Southern Railway Company, recorded in Volume 4421, Page 1924 of the Deed Records of Collin County, Texas (D.R.C.C.T.), and part of a called 28.332 acre tract of land described in General Warranty Deed to The Kansas City Southern Railway Company, recorded in Instrument Number 20101220001391710, O.P.R.C.C.T., and being part of a called 22.123 acre tract of land described in Warranty Deed to The Kansas City Southern Railway Company, recorded in Volume 4421, Page 1929, D.R.C.C.T., and part of Kanas City Southern Railway Company (K.C.S.R.C.) (a 100-foot wide right-of-way, as recorded in Clerk's File Number 94-0096329, Volume 3424, Page 126 and Volume 5028, Page 4107, D.R.C.C.T.), being more particularly described by metes and bounds as follows:

COMMENCING at a 1/2-inch found iron rod for the southwest corner of Lot 1, Block A of said Victoria Place addition, said corner being at the intersection of the east right-of-way line of Spring Creek Parkway (a 100-foot wide right-of-way) and the north right-of-way line of State Highway 78 (a variable width right-of-way);

THENCE North 00 degrees 52 minutes 31 seconds East, with the west line of said Victoria Place addition and the east right-of-way line of said Spring Creek Parkway, a distance of 495.09 feet to a northwest corner of Lot 2, corner (not monumented) for the **POINT OF BEGINNING**;

THENCE North 00 degrees 52 minutes 31 seconds East, continuing with said east and west lines, a distance of 304.91 feet to the point of curvature (not monumented) of a non-tangent circular curve to the left, having a radius of 1,550.00 feet, whose chord bears North 22 degrees 13 minutes 36 seconds West, a distance of 1,216.33 feet;

EXHIBIT A
TEMPORARY CONSTRUCTION EASEMENT
DESCRIPTION FOR PARK BOULEVARD
PARCEL 42-1
1.37 ACRES (59,670 SQUARE FEET)

THENCE Northerly, continuing with said east and west lines and with said curve, through a central angle of 46 degrees 12 minutes 13 seconds, passing at an arc distance of 638.69 feet the northwest corner of said Victoria Place addition and the southwest corner of the aforementioned 0.655 acre tract, and continuing with said east line and the west line of said 0.655 acre tract, passing at an arc distance of 659.52 feet the northwest corner of said 0.655 acre tract and at the intersection of said east line and the south right-of-way line of the aforementioned K.C.S.R.C., and continuing over and across said K.C.S.R.C., passing at an arc distance of 761.47 feet the north right-of-way line of said K.C.S.R.C. and the south line of the aforementioned 28.332 acre tract, and continuing over and across said 28.332 acre tract, in all a total arc distance of 1,249.93 feet to a 1/2-inch set iron rod with blue plastic cap stamped "HALFF ESMT" (hereinafter referred to as "with ESMT cap") for corner;

THENCE North 45 degrees 19 minutes 42 seconds West, continuing over and across said 28.332 acre tract, a distance of 5.07 feet to an "ell" corner (not monumented) of said 28.332 acre tract and the aforementioned 1.727 acre tract, said corner being the point of curvature of a non-tangent circular curve to the left, having a radius of 1,549.77 feet, whose chord bears North 45 degrees 47 minutes 00 seconds West, a distance of 19.31 feet, from which a 5/8-inch found iron rod with cap stamped "BOUNDARY MARK" bears South 19 degrees 10 minutes 16 seconds East, a distance of 0.63 of a foot;

THENCE Northwesterly, with the north line of said 28.332 acre tract, the southwest line of said 1.727 acre tract, and with said curve, through a central angle of 00 degrees 42 minutes 51 seconds, an arc distance of 19.31 feet to a 1/2-inch set iron rod with ESMT cap for corner;

THENCE North 55 degrees 30 minutes 31 seconds East, over and across said 1.727 acre tract, a distance of 11.37 feet to a corner (not monumented);

THENCE North 43 degrees 55 minutes 26 seconds West, over and across said 1.727 acre tract, passing at a distance of 18.30 feet the northwest line of said 1.727 acre tract and the southeast right-of-way line of the aforementioned K.C.S.R.C., and continuing over and across said K.C.S.R.C., passing at a distance of 119.71 feet the north right-of-way line of said K.C.S.R.C. and the southeast line of the aforementioned 22.123 acre tract, and continuing over and across said 22.123 acre tract, in all a total distance of 212.23 feet to a 1/2-inch set iron rod with ESMT cap for corner;

THENCE North 16 degrees 23 minutes 40 seconds East, over and across said 22.123 acre tract, a distance of 46.04 feet for corner (not monumented);

EXHIBIT A
TEMPORARY CONSTRUCTION EASEMENT
DESCRIPTION FOR PARK BOULEVARD
PARCEL 42-1
1.37 ACRES (59,670 SQUARE FEET)

THENCE South 43 degrees 55 minutes 26 seconds East, over and across said 22.123 acre tract, passing at a distance of 121.90 feet the southeast line of said 22.123 acre tract and the north right-of-way line of the aforementioned K.C.S.R.C., and continuing over and across said K.C.S.R.C., passing at a distance of 223.08 feet the south right-of-way line of said K.C.S.R.C. and the northwest line of the aforementioned 1.727 acre tract, and continuing over and across said 1.727 acre tract, passing at a distance of 266.27 feet the southeast line of said 1.727 acre tract and the northwest line of the aforementioned 28.332 acre tract, and continuing over and across said 28.332 acre tract, in all a total distance of 295.54 feet to the point of curvature (not monumented) of a tangent circular curve to the right, having a radius of 1,600.00 feet, whose chord bears South 41 degrees 24 minutes 02 seconds East, a distance of 140.88 feet;

THENCE Southeasterly, over and across said 28.332 acre tract and with said curve, through a central angle of 05 degrees 02 minutes 48 seconds, an arc distance of 140.93 feet to a corner (not monumented);

THENCE South 14 degrees 42 minutes 41 seconds East, continuing over and across said 28.332 acre tract, a distance of 57.80 feet to a corner (not monumented);

THENCE South 27 degrees 32 minutes 27 seconds East, continuing over and across said 28.332 acre tract, a distance of 266.82 feet to a corner (not monumented) on the south line of said 28.332 acre tract and the north right-of-way line of the aforementioned K.C.S.R.C.;

THENCE North 75 degrees 46 minutes 55 seconds East, with the south line of said 28.332 acre tract and the north right-of-way line of said K.C.S.R.C., a distance of 24.65 feet to the point of curvature (not monumented) of a non-tangent circular curve to the right, having a radius of 1,580.00 feet, whose chord bears South 25 degrees 10 minutes 24 seconds East, a distance of 101.86 feet;

THENCE Southeasterly, departing said north and south lines, over and across said K.C.S.R.C. and with said curve, through a central angle of 03 degrees 41 minutes 39 seconds, an arc distance of 101.87 feet to a corner (not monumented) on the south right-of-way line of said K.C.S.R.C. and the north line of the aforementioned 0.655 acre tract;

THENCE South 26 degrees 50 minutes 54 seconds East, over and across said 0.655 acre tract, passing at a distance of 25.89 feet the south line of said 0.655 acre tract and the north line of Lot 4, Block A of said Victoria Place addition, and continuing over and across Lot 4, Block A of said Victoria Place, in all a total distance of 201.01 feet to a corner (not monumented);

EXHIBIT A
TEMPORARY CONSTRUCTION EASEMENT
DESCRIPTION FOR PARK BOULEVARD
PARCEL 42-1
1.37 ACRES (59,670 SQUARE FEET)

THENCE South 05 degrees 13 minutes 24 seconds East, over and across Lot 4, Block A of said Victoria Place addition, a distance of 335.75 feet to a corner (not monumented);

THENCE South 01 degree 16 minutes 11 seconds East, over and across Lot 4, Block A of said Victoria Place addition, passing at a distance of 190.97 feet the common south line of Lot 4, Block A and the north line of Lot 3, Block A of said Victoria Place addition, and continuing over and across Lot 3, Block A of said Victoria Place addition, in all a total distance of 441.14 feet to a corner (not monumented) on the common south line of Lot 3, Block A and the north line of Lot 2, Block A of said Victoria Place addition;

THENCE North 89 degrees 08 minutes 46 seconds West, with the common south line of Lot 3, Block A and the north line of Lot 2, Block A of said Victoria Place addition, a distance of 36.82 feet to the **POINT OF BEGINNING AND CONTAINING** 59,670 square feet (1.37 acre) of land, more or less.

EXHIBIT A
TEMPORARY CONSTRUCTION EASEMENT
DESCRIPTION FOR PARK BOULEVARD
PARCEL 42-1
1.37 ACRES (59,670 SQUARE FEET)

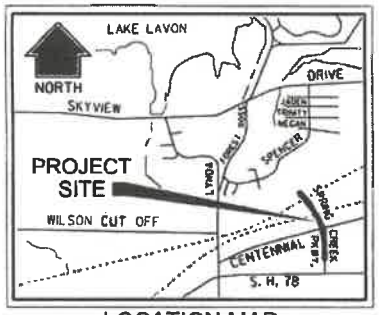
NOTES:

1. The Basis of Bearing is the North American Datum of 1983, Texas Coordinate System, North Central Zone (4202). All distances are surface distances. Surface adjustment scale factor: 1.00015271.

2. A survey plat of even date accompanies this legal description.

G. S Suthan 06/25/21

Getsy J. Suthan, R.P.L.S. Date
Texas Registration No. 6449
HALFF ASSOCIATES, INC.
1201 NORTH BOWSER ROAD
RICHARDSON, TEXAS 75081
TEL (214) 346-6200
TBPELS FIRM NO. 10029600



LOCATION MAP
NOT TO SCALE

Match Line , See Sheet 7 of 8

0 50 100 150 200

SCALE: 1"=100'

N

S 05°13'24" E
335.75'

Δ=46°12'13"(LT)
R=1,550.00'
L=1,249.93'
CL=1,216.33'
CB=N22°13'36"W

(CALLED 3.8768 ACRES)
THE KANSAS CITY RAILWAY COMPANY
TRACT B
INST. NO. 20131001001374110
O.P.R.C.C.T.

1/2" FIR BEARS S56°43'09"W 0.56'

441.14'

LOT 4, BLOCK A

LOT 3 BLOCK A

PARCEL 42-1
1.37 AC.
(59,670 SQ. FT.)

FRANCISCO DE LA PINA SURVEY,
ABSTRACT NO. 688

5/8" FIR BEARS S85°41'06"W 0.48'

10' UTILITY EASEMENT
INST. NO. 20070223010000600
O.P.R.C.C.T.

LOT 1R-6, BLOCK C

REPLAT
LOT 1R-6 & LOT 1R-7, BLOCK C
WOODLAKE VILLAGE ADDITION
INST. NO. 2007-538
P.R.C.C.T.

SPRING CREEK PKWY.
(100' WIDE R.O.W.)

304.91'

S 01°16'11" E

N 00°52'31" E

VICTORIA PLACE
LOTS 1, 2, 3, & 4, BLOCK A
INST. NO. 20070223010000600
O.P.R.C.C.T.

(CALLED 4.8146 ACRES)
THE KANSAS CITY RAILWAY COMPANY
INST. NO. 20131011001414300
O.P.R.C.C.T.

POINT OF BEGINNING

25' BUILDING LINE
INST. NO. 20070223010000600
O.P.R.C.C.T.

LOT 2, BLOCK A

N00°52'31"E
495.09

N 89°08'46" W
36.82'

POINT OF COMMENCING

LOT 1, BLOCK A

1/2" FIR (C.M.)

STATE HIGHWAY 78
(VARIABLE WIDTH R.O.W.)

LEGEND

FIR	FOUND IRON ROD
R.O.W.	RIGHT-OF-WAY
INST. NO.	INSTRUMENT NUMBER
VOL., PG.	VOLUME, PAGE
C.M.	CONTROL MONUMENT
D.R.C.C.T.	DEED RECORDS OF COLLIN COUNTY, TEXAS
O.P.R.C.C.T.	OFFICIAL PUBLIC RECORDS OF COLLIN COUNTY, TEXAS
O	NOT MONUMENTED (UNLESS NOTED)

NOTES:

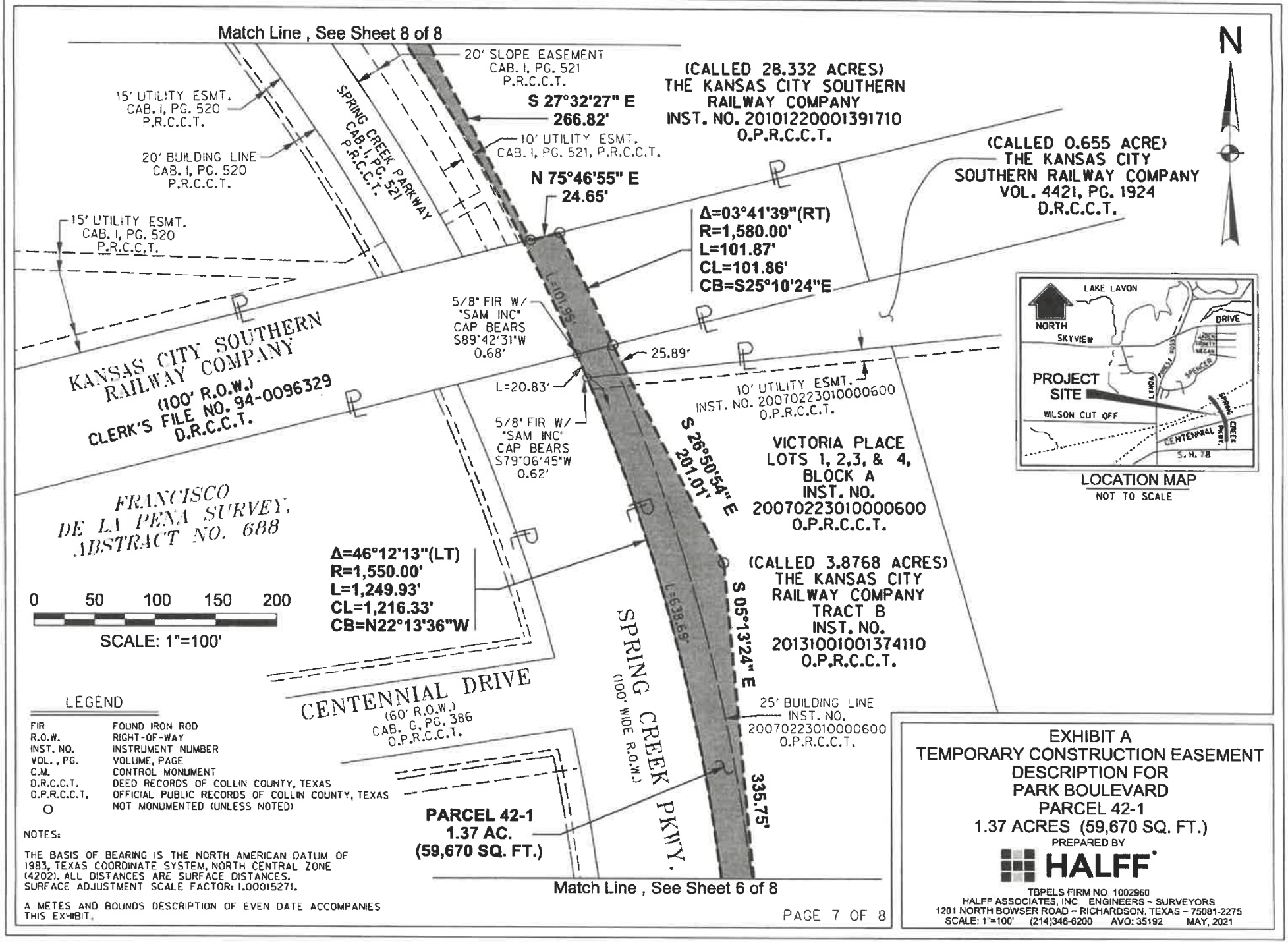
THE BASIS OF BEARING IS THE NORTH AMERICAN DATUM OF 1983, TEXAS COORDINATE SYSTEM, NORTH CENTRAL ZONE (4202). ALL DISTANCES ARE SURFACE DISTANCES. SURFACE ADJUSTMENT SCALE FACTOR: 1.00015271.

A METES AND BOUNDS DESCRIPTION OF EVEN DATE ACCOMPANIES THIS EXHIBIT.

EXHIBIT A
TEMPORARY CONSTRUCTION EASEMENT
DESCRIPTION FOR
PARK BOULEVARD
PARCEL 42-1
1.37 ACRES (59,670 SQ. FT.)

PREPARED BY
HALFF

TBPELS FIRM NO. 1002960
HALFF ASSOCIATES, INC. ENGINEERS ~ SURVEYORS
1201 NORTH BOWSER ROAD ~ RICHARDSON, TEXAS ~ 75081-2275
SCALE: 1"=100' (214)346-6200 AVO: 35192 MAY, 2021



LEGEND

FIR	FOUND IRON ROD
R.O.W.	RIGHT-OF-WAY
INST. NO.	INSTRUMENT NUMBER
VOL., PG.	VOLUME, PAGE
C.M.	CONTROL MONUMENT
D.R.C.C.T.	DEED RECORDS OF COLLIN COUNTY, TEXAS
O.P.R.C.C.T.	OFFICIAL PUBLIC RECORDS OF COLLIN COUNTY, TEXAS
O	NOT MONUMENTED (UNLESS NOTED)

NOTES:

THE BASIS OF BEARING IS THE NORTH AMERICAN DATUM OF 1983, TEXAS COORDINATE SYSTEM, NORTH CENTRAL ZONE (4202). ALL DISTANCES ARE SURFACE DISTANCES. SURFACE ADJUSTMENT SCALE FACTOR: 1.00015271.

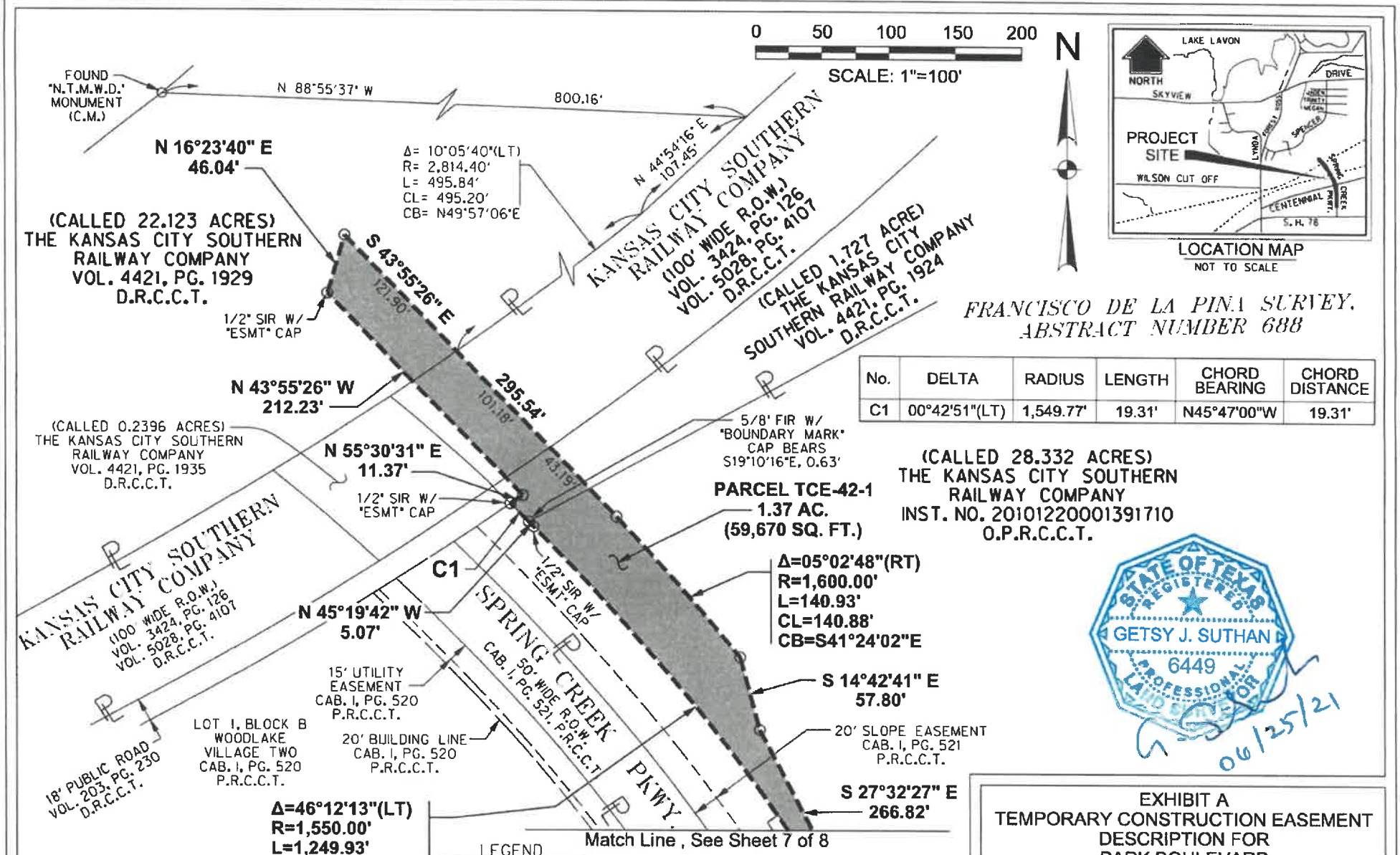
A METES AND BOUNDS DESCRIPTION OF EVEN DATE ACCOMPANIES THIS EXHIBIT.

EXHIBIT A
TEMPORARY CONSTRUCTION EASEMENT DESCRIPTION FOR PARK BOULEVARD PARCEL 42-1
1.37 ACRES (59,670 SQ. FT.)

PREPARED BY

HALFF

TBPELS FIRM NO. 1002960
HALFF ASSOCIATES, INC. ENGINEERS ~ SURVEYORS
1201 NORTH BOWSER ROAD ~ RICHARDSON, TEXAS ~ 75081-2275
SCALE: 1"=100' (214)346-6200 AVO: 35192 MAY, 2021



No.	DELTA	RADIUS	LENGTH	CHORD BEARING	CHORD DISTANCE
C1	00°42'51"(LT)	1,549.77'	19.31'	N45°47'00"W	19.31'

LEGEND

SIR	SET IRON ROD
FIR	FOUND IRON ROD
R.O.W.	RIGHT-OF-WAY
INST. NO.	INSTRUMENT NUMBER
VOL., PG.	VOLUME, PAGE
C.M.	CONTROL MONUMENT
P.R.C.C.T.	PLAT RECORDS OF COLLIN COUNTY, TEXAS
D.R.C.C.T.	DEED RECORDS OF COLLIN COUNTY, TEXAS
O.P.R.C.C.T.	OFFICIAL PUBLIC RECORDS OF COLLIN COUNTY, TEXAS
W/"ESMT" CAP	WITH BLUE PLASTIC CAP STAMPED "HALFF ESMT"
O	NOT MONUMENTED (UNLESS NOTED)

NOTES:

THE BASIS OF BEARING IS THE NORTH AMERICAN DATUM OF 1983, TEXAS COORDINATE SYSTEM, NORTH CENTRAL ZONE (4202). ALL DISTANCES ARE SURFACE DISTANCES. SURFACE ADJUSTMENT SCALE FACTOR: 1.00015271.

A METES AND BOUNDS DESCRIPTION OF EVEN DATE ACCOMPANIES THIS EXHIBIT.

EXHIBIT A
TEMPORARY CONSTRUCTION EASEMENT
DESCRIPTION FOR
PARK BOULEVARD
PARCEL 42-1
1.37 ACRE (59,670 SQ. FT.)

PREPARED BY

HALFF
TBPELS FIRM NO. 1002960
HALFF ASSOCIATES, INC ENGINEERS ~ SURVEYORS
1201 NORTH BOWSER ROAD ~ RICHARDSON, TEXAS ~ 75081-2275
SCALE: 1"=100' (214)346-6200 AVO: 35192 MAY, 2021

EXHIBIT B
TEMPORARY CONSTRUCTION EASEMENT
DESCRIPTION FOR
PARK BOULEVARD
PARCEL 42-2
0.1887 ACRES (8,221 SQUARE FEET)

BEING 8,221 square feet of land situated in the Francisco De La Pina Survey, Abstract Number 688, Collin County, Texas, and being part of a called 22.123 acre tract of land described in Warranty Deed to The Kansas City Southern Railway Company, recorded in Volume 4421, Page 1929 of the Deed Records of Collin County, Texas (D.R.C.C.T.), part of a called 0.2396 acre tract of land described in Deed without Warranty to The Kansas City Southern Railway Company, recorded in Volume 4421, Page 1935, D.R.C.C.T., and part of the Kansas City Southern Railway Company (a 100-foot wide right-of-way), recorded in Volume 374, Page 544 and Volume 5028, Page 4107, D.R.C.C.T., and being more particularly described by metes and bounds as follows:

COMMENCING a 5/8-inch found iron rod with cap stamped "BMI" for the north corner of Lot 1, Block B of Woodlake Village Two, an addition to the City of Wylie, Collin County, Texas, recorded in Cabinet I, Page 520 of the Plat Records of Collin County, Texas (P.R.C.C.T.) and the northwest corner of Spring Creek Parkway, an addition to the City of Wylie, Collin County, Texas, recorded in Cabinet I, Page 521, P.R.C.C.T., said corner being at the intersection of the southeast right-of-way of a 18-foot wide public road, recorded in Volume 203, Page 230, D.R.C.C.T., and the southwest right-of-way line of Spring Creek Parkway (a 50-foot wide right-of-way);

THENCE North 65 degrees 02 minutes 43 seconds West, over and across said 18-foot wide public road, a distance of 21.43 feet to a corner (not monumented) for the **POINT OF BEGINNING**, said corner being on the northwest line of said 18-foot wide public road, the southeast right-of-way line of said Kansas City Southern Railway Company, and the point of curvature of a non-tangent circular curve to the right, having a radius of 2,914.40 feet, whose chord bears South 58 degrees 17 minutes 21 seconds West, a distance of 40.93 feet;

THENCE Southwesterly, with the northwest line of said 18-foot wide public road, the southeast right-of-way line of said Kansas City Southern Railway Company and said curve, through a central angle of 00 degrees 48 minutes 17 seconds, an arc distance of 40.93 feet to a corner (not monumented);

THENCE North 43 degrees 55 minutes 26 seconds West, departing said northwest and southeast lines, and over and across said Kansas City Southern Railway Company, passing at a distance of 102.57 feet the northwest line of said Kansas City Southern Railway Company and the southeast line of said 22.123 acre tract, and continuing over and across said 22.123 acre tract, in all a total distance of 206.63 feet to a corner (not monumented);

EXHIBIT B
TEMPORARY CONSTRUCTION EASEMENT
DESCRIPTION FOR
PARK BOULEVARD
PARCEL 42-2
0.1887 ACRES (8,221 SQUARE FEET)

THENCE North 61 degrees 23 minutes 40 seconds East, over and across said 22.123 acre tract, a distance of 41.47 feet to a corner (not monumented);

THENCE South 43 degrees 55 minutes 26 seconds East, over and across said 22.123 acre tract, said 0.2396 acre tract, and said Kansas City Southern Railway Company, passing at a distance of 102.09 feet the northwest line of said Kansas City Southern Railway Company and the southeast line of said 22.123 acre tract, and continuing over and across said Kansas City Southern Railway Company, in all a total distance of 204.33 feet to the **POINT OF BEGINNING AND CONTAINING** 8,221 square feet (0.1887 acre) of land, more or less.

NOTES:

1. The Basis of Bearing is the North American Datum of 1983, Texas Coordinate System, North Central Zone (4202). All distances are surface distances. Surface adjustment scale factor: 1.00015271.

2. A survey plat of even date accompanies this legal description.

G. S. Suthan 07/22/2021

Getsy J. Suthan, R.P.L.S. Date
Texas Registration No. 6449
Halff Associates, Inc.
1201 North Bowser Road
Richardson, Texas 75081
Tel (214) 346-6200
TBPELS Firm No. 10029600

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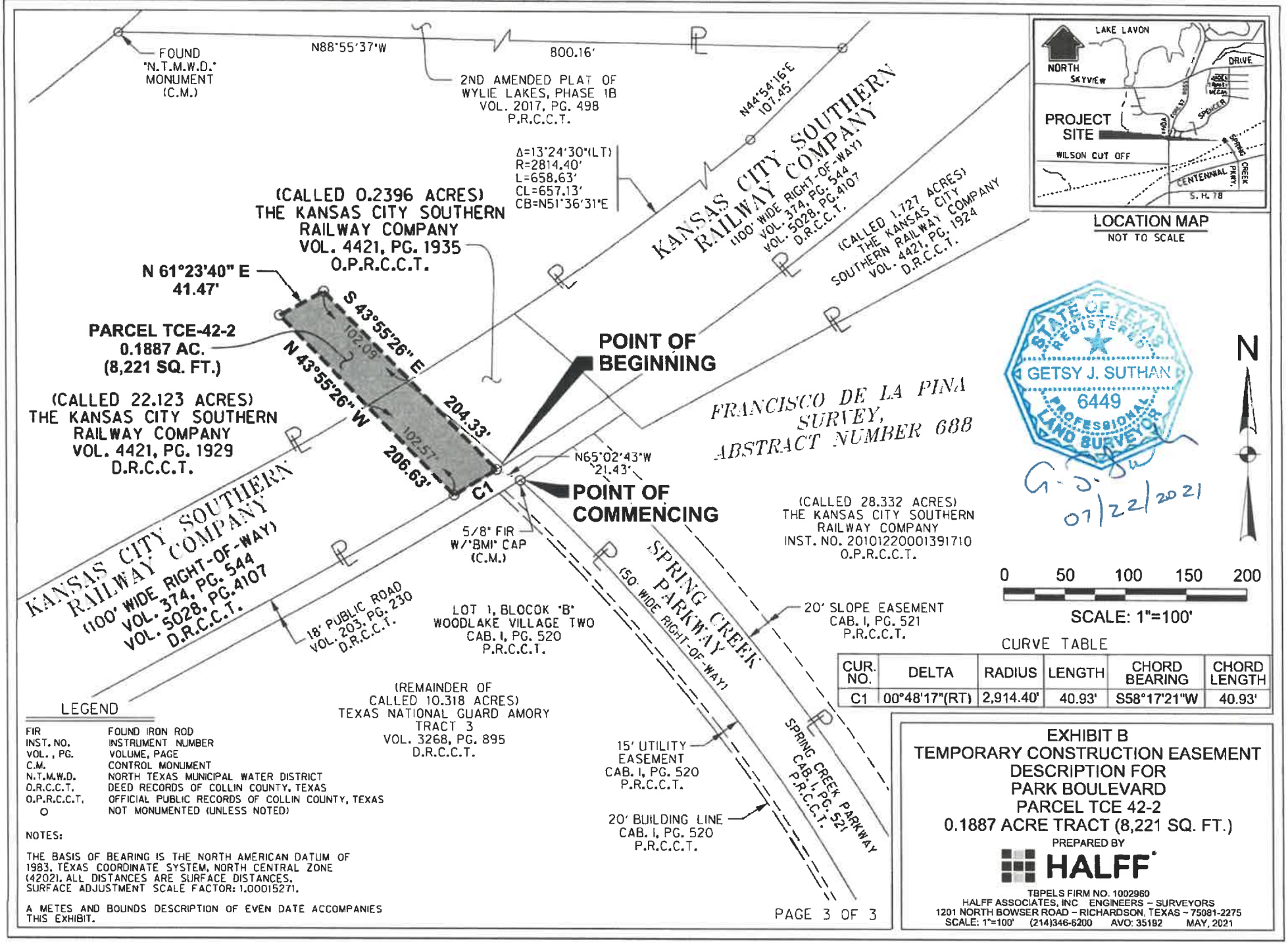

CURVE TABLE

CUR. NO.	DELTA	RADIUS	LENGTH	CHORD BEARING	CHORD LENGTH
C1	00°48'17"(RT)	2,914.40'	40.93'	S58°17'21"W	40.93'

LEGEND

FIR	FOUND IRON ROD
INST. NO.	INSTRUMENT NUMBER
VOL., PG.	VOLUME, PAGE
C.M.	CONTROL MONUMENT
N.T.M.W.D.	NORTH TEXAS MUNICIPAL WATER DISTRICT
D.R.C.C.T.	DEED RECORDS OF COLLIN COUNTY, TEXAS
O.P.R.C.C.T.	OFFICIAL PUBLIC RECORDS OF COLLIN COUNTY, TEXAS
O	NOT MONUMENTED (UNLESS NOTED)

NOTES:

THE BASIS OF BEARING IS THE NORTH AMERICAN DATUM OF 1983, TEXAS COORDINATE SYSTEM, NORTH CENTRAL ZONE (4202). ALL DISTANCES ARE SURFACE DISTANCES. SURFACE ADJUSTMENT SCALE FACTOR: 1.00015271.

A METES AND BOUNDS DESCRIPTION OF EVEN DATE ACCOMPANIES THIS EXHIBIT.

EXHIBIT B
TEMPORARY CONSTRUCTION EASEMENT DESCRIPTION FOR PARK BOULEVARD PARCEL TCE 42-2
0.1887 ACRE TRACT (8,221 SQ. FT.)

PREPARED BY

HALFF

TBPELS FIRM NO. 1002960
HALFF ASSOCIATES, INC ENGINEERS – SURVEYORS
1201 NORTH BOWSER ROAD – RICHARDSON, TEXAS – 75081-2275
SCALE: 1"=100' (214)346-6200 AVO: 35192 MAY, 2021

EXHIBIT C
TEMPORARY CONSTRUCTION EASEMENT
DESCRIPTION FOR PARK BOULEVARD
PARCEL 42-3
0.0704 ACRES (3,069 SQUARE FEET)

BEING 3,069 square feet of land situated in the Francisco De La Pina Survey, Abstract Number 688, Collin County, Texas, and being part of a tract of land described in Deed without Warranty to The Kansas City Southern Railroad Company (a 100-foot wide right-of-way), as recorded in Clerk's File Number 94-0096329 of the Deed Records of Collin County, Texas (D.R.C.C.T.), and being more particularly described by metes and bounds as follows:

BEGINNING at the north corner of Lot 1, Block B of Woodlake Village, an addition to the City of Wylie, Collin County, Texas, recorded in Cabinet G, Page 386 of the Plat Records of Collin County, Texas (P.R.C.C.T.), said corner being at the intersection of the south right-of-way line of said The Kansas City Southern Railroad Company and the west right-of-way line of Spring Creek Parkway (a 100-foot wide right-of-way), from which a 5/8-inch found iron rod with cap stamped "SAM INC" bears South 14 degrees 14 minutes 46 seconds West, a distance of 0.89 of a foot;

THENCE South 75 degrees 46 minutes 55 seconds West, with the northwest line of said Lot 1 and the south right-of-way line of said The Kansas City Southern Railroad Company, a distance of 30.47 feet to the point of curvature (not monumented) of a non-tangent circular curve to the left, having a radius of 1,420.00 feet, whose chord bears North 26 degrees 25 minutes 38 seconds West, a distance of 102.31 feet;

THENCE Northwesterly, departing said northwest and south lines, over and across said The Kansas City Southern Railroad Company, and with said curve, through a central angle of 04 degrees 07 minutes 45 seconds, an arc distance of 102.34 feet to a corner (not monumented) on the north right-of-way line of said The Kansas City Southern Railroad Company and the southeast line of Lot 1, Block B, Woodlake Village Two, an addition to the City of Wylie, Collin County, Texas, recorded in Cabinet I, Page 520, P.R.C.C.T.;

THENCE North 75 degrees 46 minutes 55 seconds East, with the northwest right-of-way line of said The Kansas City Southern Railroad Company and the southeast line of said Woodlake Village Two addition, a distance of 30.93 feet to the east corner (not monumented) of said Woodlake Village Two addition, said corner being at the intersection of the north right-of-way line of said The Kansas City Southern Railroad Company and the west right-of-way line of said Spring Creek Parkway and the point of curvature of a non-tangent circular curve to the right, having a radius of 1,450.00 feet, whose chord bears South 26 degrees 10 minutes 14 seconds East, a distance of 102.22 feet, from which a 5/8-inch found iron rod with cap stamped "SAM INC" bears South 03 degrees 20 minutes 13 seconds West, a distance of 0.78 of a foot;

EXHIBIT C
TEMPORARY CONSTRUCTION EASEMENT
DESCRIPTION FOR PARK BOULEVARD
PARCEL 42-3
0.0704 ACRES (3,069 SQUARE FEET)

THENCE Southeasterly, over and across said The Kansas City Southern Railroad Company, and with said curve, through a central angle of 04 degrees 02 minutes 23 seconds, an arc distance of 102.24 feet to the **POINT OF BEGINNING AND CONTAINING** 3,069 square feet (0.0704 acre) of land, more or less.

NOTES:

1. The Basis of Bearing is the North American Datum of 1983, Texas Coordinate System, North Central Zone (4202). All distances are surface distances. Surface adjustment scale factor: 1.00015271.

2. A survey plat of even date accompanies this legal description.

G. S Suthan 06/25/24

Getsy J. Suthan, R.P.L.S. Date
Texas Registration No. 6449
Halff Associates, Inc.
1201 North Bowser Road
Richardson, Texas 75081
Tel (214) 346-6200
TBPELS Firm No. 10029600

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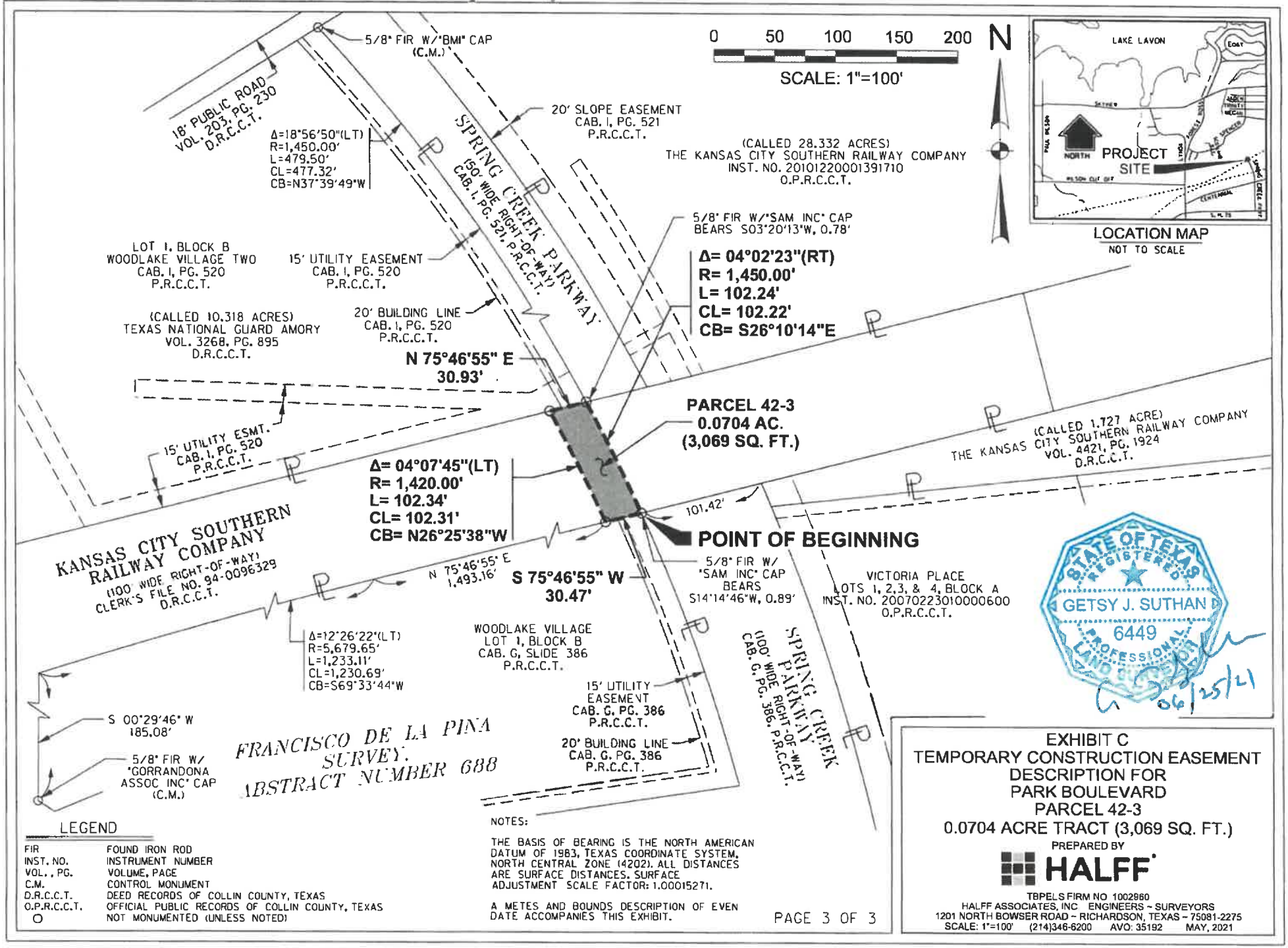

LEGEND

FIR	FOUND IRON ROD
INST. NO.	INSTRUMENT NUMBER
VOL., PG.	VOLUME, PAGE
C.M.	CONTROL MONUMENT
D.R.C.C.T.	DEED RECORDS OF COLLIN COUNTY, TEXAS
O.P.R.C.C.T.	OFFICIAL PUBLIC RECORDS OF COLLIN COUNTY, TEXAS
O	NOT MONUMENTED (UNLESS NOTED)

NOTES:

THE BASIS OF BEARING IS THE NORTH AMERICAN DATUM OF 1983, TEXAS COORDINATE SYSTEM, NORTH CENTRAL ZONE (4202). ALL DISTANCES ARE SURFACE DISTANCES. SURFACE ADJUSTMENT SCALE FACTOR: 1.00015271.

A METES AND BOUNDS DESCRIPTION OF EVEN DATE ACCOMPANIES THIS EXHIBIT.

EXHIBIT C
TEMPORARY CONSTRUCTION EASEMENT DESCRIPTION FOR PARK BOULEVARD PARCEL 42-3
0.0704 ACRE TRACT (3,069 SQ. FT.)

PREPARED BY

HALFF

TBPELS FIRM NO 1002960
HALFF ASSOCIATES, INC ENGINEERS ~ SURVEYORS
1201 NORTH BOWSER ROAD ~ RICHARDSON, TEXAS ~ 75081-2275
SCALE: 1"=100' (214)346-6200 AVO: 35192 MAY, 2021

| **EASEMENT**
| **Collin COUNTY**
| **Texas STATE**

QUITCLAIM EASEMENT FOR ROADWAY PURPOSES (42-1 RE)

This Quitclaim Easement for Roadway Purposes (42-1 RE) ("Easement"), is made on the 17th day of January 2023, by and between **THE KANSAS CITY SOUTHERN RAILWAY COMPANY,** a Missouri corporation ("**GRANTOR**"), and **COLLIN COUNTY**, a Texas governmental entity and the **CITY OF WYLIE, TEXAS**, a Texas home rule municipality (together, "**GRANTEE**").

After recording mail to:

The Kansas City Southern Railway Company
Attn: Shawn Mindrup, Director – Real Estate
The Kansas City Southern Railway Co.
427 W. 12th Street
Kansas City, Missouri 64105-1403

WITNESSETH:

Witnesseth, that **GRANTOR**, in consideration of the sum of TEN AND NO/100 DOLLARS ($10.00) AND OTHER GOOD VALUABLE CONSIDERATION, to it paid by the **GRANTEE,** the receipt of which is hereby acknowledged, does by these presents, REMISE, RELEASE and QUIT CLAIM AN EASEMENT FOR ROADWAY PURPOSES, unto the said **GRANTEE**, said Easement being located in the tracts or parcel of land, lying, and being situated in Collin County, Texas, and more fully described and depicted on **Exhibit A** attached hereto and incorporated herein by reference.

TO HAVE AND TO HOLD said easement with all the rights, privileges and appurtenances thereto belonging or in any way appertaining unto the GRANTEE, for so long as GRANTEE shall maintain a public roadway and bridge structure on said Easement.

GRANTEE, its successors and assigns may, subject to the terms of a Grade Crossing Overpass Construction Agreement between GRANTOR and GRANTEE dated _____ __, 2022, construct and maintain a roadway and bridge structure to GRANTEE'S satisfaction.

.

Said Easement shall run with the land and shall be binding upon the GRANTOR, and its representatives, successors, and assigns.

GRANTOR **DOES NOT COVENANT** that it is lawfully seized of an indefeasible estate in fee of the premises over which an easement is herein conveyed or that it has good right to convey this Easement. GRANTOR **WILL NOT** warrant or defend the title to said premises unto said GRANTEE or to its successors and assigns against the lawful claims and demands of any person(s). This Easement is subject to existing liens, right-of-way easements, or other encumbrances of record.

IN WITNESS WHEREOF, the parties have executed this Easement as of the date first above written.

GRANTOR: The Kansas City Southern Railway Company

By: Ginger Adamiak
Ginger Adamiak
VP - SALES + REAL ESTATE

ACKNOWLEDGEMENT

State of Missouri)
) SS.
County of Jackson)

On this 17th day of January, 2023 before me a Notary Public, appeared Ginger Adamiak to me personally known (or proved to me on the basis of satisfactory evidence) to be the person described herein who executed the foregoing instrument, and acknowledged that he is the VP - Real Estate of **The Kansas City Southern Railway Company,** that he executed the same on behalf of said **The Kansas City Southern Railway Company** and by authority thereof and acknowledged said instrument to be the free act and deed of said **The Kansas City Southern Railway Company** for the purposes therein expressed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal the day and year aforesaid.

My Commission Expires: 10/15/25 Notary Public

BRYCE J GOOD
Notary Public - Notary Seal
Clay County - State of Missouri
Commission Number 17423040
My Commission Expires Oct 15, 2025

IN WITNESS WHEREOF, the parties have executed this Easement as of the date first above written.

GRANTEE: Collin County, Texas

By: _____
COUNTY JUDGE
(Title)

ACKNOWLEDGEMENT

State of Texas)
) SS.
County of Collin)

On this 15th day of MARCH, 2022, before me a Notary Public, appeared CHRIS HILL to me personally known (or proved to me on the basis of satisfactory evidence) to be the person described herein who executed the foregoing instrument, and acknowledged that he is the COUNTY JUDGE of **Collin County, Texas,** and that he executed the same on behalf of said County, and by authority thereof and acknowledged said instrument to be the free act and deed of **Collin County, Texas,** for the purposes therein expressed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal the day and year aforesaid.

My Commission Expires: 11/30/23 Notary Public _____

SHONA R NAVARRE
Notary Public
STATE OF TEXAS
Notary ID # 13045692-3
My Comm. Exp. November 30, 2023

IN WITNESS WHEREOF, the parties have executed this Easement as of the date first above written.

GRANTEE: City of Wylie, Texas

By: _____
City Manager
(Title)

ACKNOWLEDGEMENT

State of Texas)
) SS.
County of Collin)

On this 1 day of March, 2023, before me a Notary Public, appeared Brent Parker to me personally known (or proved to me on the basis of satisfactory evidence) to be the person described herein who executed the foregoing instrument, and acknowledged that he is the City Manager of **City of Wylie, Texas,** and that he executed the same on behalf of said **City of Wylie, Texas**, and by authority thereof and acknowledged said instrument to be the free act and deed of **City of Wylie, Texas,** for the purposes therein expressed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal the day and year aforesaid.

My Commission Expires: 3/12/2027 Notary Public Stephanie Storm

STEPHANIE STORM
NOTARY PUBLIC
STATE OF TEXAS
ID # 12603607-4
My Comm. Expires 03-12-2027

EXHIBIT A
ROADWAY EASEMENT DESCRIPTION FOR
PARK BOULEVARD
PARCEL 42-1
1.67 ACRES (72,883 SQUARE FEET)

BEING 72,883 square feet of land situated in the Francisco De La Pina Survey, Abstract Number 688, Collin County, Texas, and being part of a called 22.123 acre tract of land described in Warranty Deed to The Kansas City Southern Railway Company, recorded in Volume 4421, Page 1929 of the Deed Records of Collin County, Texas (D.R.C.C.T.), and being more particularly described by metes and bounds as follows:

COMMENCING at a 1/2-inch found iron rod with "illegible" cap for the east corner of Lot 51, Block B of Wylie Lakes, Phase 1A, an addition to the City of Wylie, Collin County, Texas, recorded in Volume 2007, Page 36 of the Plat Records of Collin County, Texas (P.R.C.C.T.) and the south corner of a called 3.578 acre tract of land described as "Tract 2" in Special Warranty Deed to TAAS Investments, LLC, recorded in Instrument Number 20190515000545050 of the Official Public Records of Collin County, Texas (O.P.R.C.C.T.), said corner being on the northwest line of said 22.123 acre tract;

THENCE North 51 degrees 43 minutes 48 seconds East, with the northwest line of said 22.123 acre tract and the southeast line of said 3.578 acre tract, a distance of 240.01 feet to a 1/2-inch set iron rod with yellow plastic cap stamped "HALFF" (hereinafter referred to as "with HALFF cap") for the **POINT OF BEGINNING**;

THENCE North 51 degrees 43 minutes 48 seconds East, continuing with said northwest and southeast lines, a distance of 120.29 feet to a 1/2-inch set iron rod with HALFF cap for the point of curvature of a non-tangent circular curve to the left, having a radius of 2,940.00 feet whose chord bears South 43 degrees 06 minutes 07 seconds East, a distance of 84.33 feet;

THENCE over and across said 22.123 acre tract, the following bearings and distances:

Southeasterly, departing said southeast line and with said curve, through a central angle of 01 degree 38 minutes 37 seconds, an arc distance of 84.33 feet to a 1/2-inch set iron rod with blue plastic cap stamped "HALFF ESMT" (hereinafter referred to as "with ESMT cap") for corner;

South 43 degrees 55 minutes 26 seconds East, a distance of 22.50 feet to a 1/2-inch set iron rod with ESMT cap for corner;

South 57 degrees 25 minutes 10 seconds East, a distance of 257.10 feet to a 1/2-inch set iron rod with ESMT cap for corner;

South 43 degrees 55 minutes 26 seconds East, a distance of 51.75 feet to a 1/2-inch set iron rod with ESMT cap for corner;

EXHIBIT A
ROADWAY EASEMENT DESCRIPTION FOR
PARK BOULEVARD
PARCEL 42-1
1.67 ACRES (72,883 SQUARE FEET)

South 16 degrees 23 minutes 40 seconds West, a distance of 69.06 feet to a 1/2-inch set iron rod with ESMT cap for corner;

South 61 degrees 23 minutes 40 seconds West, a distance of 181.45 feet to a 1/2-inch set iron rod with ESMT cap for corner;

North 43 degrees 55 minutes 26 seconds West, a distance of 38.01 feet to a 1/2-inch set iron rod with ESMT cap for corner;

North 31 degrees 30 minutes 59 seconds West, a distance of 255.98 feet to a 1/2-inch set iron rod with ESMT cap for corner;

North 43 degrees 55 minutes 26 seconds West, a distance of 22.50 feet to a 1/2-inch set iron rod with ESMT cap for the point of curvature of a non-tangent circular curve to the right, having a radius of 3,060.00 feet whose chord bears North 43 degrees 03 minutes 43 seconds West, a distance of 92.06 feet;

Northwesterly, with said curve, through a central angle of 01 degree 43 minutes 26 seconds, an arc distance of 92.06 feet to a 1/2-inch set iron rod with ESMT cap for corner;

North 42 degrees 12 minutes 00 seconds West, a distance of 4.12 feet to the **POINT OF BEGINNING AND CONTAINING** 72,883 square feet (1.67 acre) of land, more or less.

EXHIBIT A
ROADWAY EASEMENT DESCRIPTION FOR
PARK BOULEVARD
PARCEL 42-1
1.67 ACRES (72,883 SQUARE FEET)

NOTES:

1. The Basis of Bearing is the North American Datum of 1983, Texas Coordinate System, North Central Zone (4202). All distances are surface distances. Surface adjustment scale factor: 1.00015271.

2. This survey was prepared without the benefit of a title commitment. Easements may exist where none are shown.

3. A survey plat of even date accompanies this legal description.

G. J. Suthan 06/25/21

Getsy J. Suthan, R.P.L.S. Date
Texas Registration No. 6449
HALFF ASSOCIATES, INC.
1201 NORTH BOWSER ROAD
RICHARDSON, TEXAS 75081
TEL (214) 346-6200
TBPELS FIRM NO. 10029600

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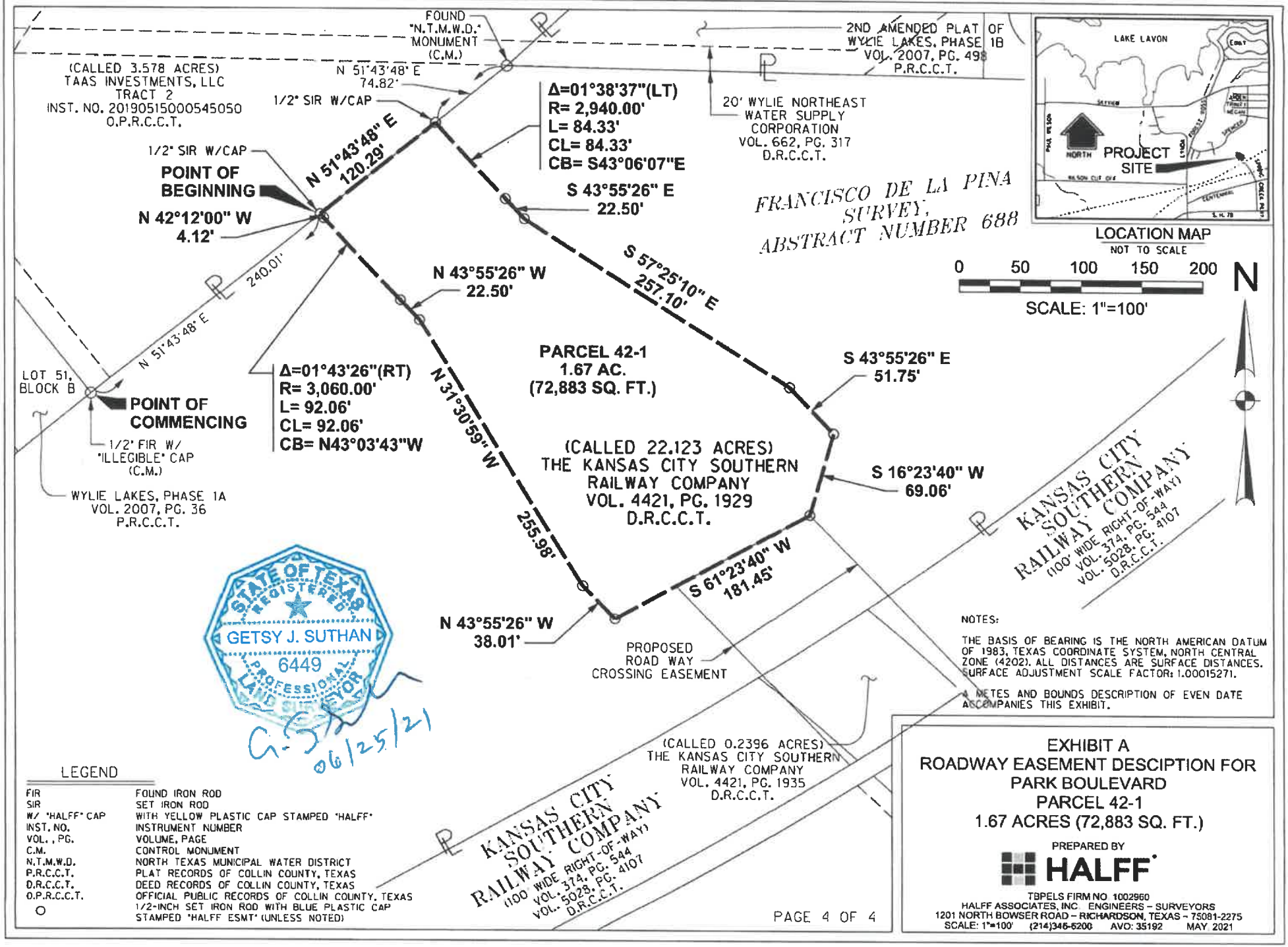


STATE OF TEXAS REGISTERED GETSY J. SUTHAN 6449 PROFESSIONAL LAND SURVEYOR

06/25/21

NOTES:

1. THE BASIS OF BEARING IS THE NORTH AMERICAN DATUM OF 1983, TEXAS COORDINATE SYSTEM, NORTH CENTRAL ZONE (4202). ALL DISTANCES ARE SURFACE DISTANCES. SURFACE ADJUSTMENT SCALE FACTOR: 1.00015271.
2. A METES AND BOUNDS DESCRIPTION OF EVEN DATE ACCOMPANIES THIS EXHIBIT.

LEGEND

FIR	FOUND IRON ROD
SIR	SET IRON ROD
W/ "HALFF" CAP	WITH YELLOW PLASTIC CAP STAMPED "HALFF"
INST. NO.	INSTRUMENT NUMBER
VOL., PG.	VOLUME, PAGE
C.M.	CONTROL MONUMENT
N.T.M.W.D.	NORTH TEXAS MUNICIPAL WATER DISTRICT
P.R.C.C.T.	PLAT RECORDS OF COLLIN COUNTY, TEXAS
D.R.C.C.T.	DEED RECORDS OF COLLIN COUNTY, TEXAS
O.P.R.C.C.T.	OFFICIAL PUBLIC RECORDS OF COLLIN COUNTY, TEXAS
○	1/2-INCH SET IRON ROD WITH BLUE PLASTIC CAP STAMPED "HALFF ESMT" (UNLESS NOTED)

EXHIBIT A
ROADWAY EASEMENT DESCIPTION FOR PARK BOULEVARD
PARCEL 42-1
1.67 ACRES (72,883 SQ. FT.)

PREPARED BY

HALFF

TBPELS FIRM NO. 1002960
HALFF ASSOCIATES, INC. ENGINEERS – SURVEYORS
1201 NORTH BOWSER ROAD – RICHARDSON, TEXAS – 75081-2275
SCALE: 1"=100' (214)346-6200 AVO: 35192 MAY 2021

| **EASEMENT**
| **Collin COUNTY**
| **Texas STATE**

QUITCLAIM EASEMENT FOR AERIAL ROADWAY PURPOSES (42-2 RE)

This Quitclaim Easement for Aerial Roadway Purposes (42-2 RE) ("Easement"), is made on the 17th day of January 2023, by and between **THE KANSAS CITY SOUTHERN RAILWAY COMPANY,** a Missouri corporation ("**GRANTOR**"), and **COLLIN COUNTY**, a Texas governmental entity, and the **CITY OF WYLIE, TEXAS**, a Texas home rule municipality (together, "**GRANTEE**").

After recording mail to:

The Kansas City Southern Railway Company
Attn: Shawn Mindrup, Director – Real Estate
The Kansas City Southern Railway Co.
427 W. 12th Street
Kansas City, Missouri 64105-1403

W I T N E S S E T H:

Witnesseth, that **GRANTOR**, in consideration of the sum of TEN AND NO/100 DOLLARS ($10.00) AND OTHER GOOD VALUABLE CONSIDERATION, to it paid by the **GRANTEE,** the receipt of which is hereby acknowledged, does by these presents, REMISE, RELEASE and QUIT CLAIM AN EASEMENT FOR AERIAL ROADWAY PURPOSES, unto the said **GRANTEE**, said Easement being located in the tracts or parcel of land, lying, and being situated in Collin County, Texas, and more fully described and depicted on **Exhibit A** attached hereto and incorporated herein by reference.

TO HAVE AND TO HOLD said easement with all the rights, privileges and appurtenances thereto belonging or in any way appertaining unto the GRANTEE, for so long as GRANTEE shall maintain an elevated public roadway structure along and across said Easement.

GRANTEE, its successors and assigns may, subject to the terms of a Grade Crossing Overpass Construction Agreement between GRANTOR and GRANTEE dated _____ __, 2022, construct and maintain an elevated public roadway to GRANTEE'S satisfaction, provided, however, that no material alteration in the course of the Spring Creek Parkway existing on site on the date of execution of this Easement shall be made without the GRANTOR'S written consent.

Said easement shall run with the land and shall be binding upon the GRANTOR, and its representatives, successors, and assigns.

GRANTOR **DOES NOT COVENANT** that it is lawfully seized of an indefeasible estate in fee of the premises over which an easement is herein conveyed or that it has good right to convey this Easement. GRANTOR **WILL NOT** warrant or defend the title to said premises unto said GRANTEE or to its successors and assigns against the lawful claims and demands of any person(s). This Easement is subject to existing liens, right-of-way easements, or other encumbrances of record.

IN WITNESS WHEREOF, the parties have executed this Easement as of the date first above written.

GRANTOR: The Kansas City Southern Railway Company

By: Ginger Adamiak

Ginger Adamiak
VP- Sale + REAL ESTATE

ACKNOWLEDGEMENT

State of Missouri)
) SS.
County of Jackson)

On this 17th day of January, 2023 before me a Notary Public, appeared Ginger Adamiak to me personally known (or proved to me on the basis of satisfactory evidence) to be the person described herein who executed the foregoing instrument, and acknowledged that he is the VP - Real Estate of **The Kansas City Southern Railway Company,** that he executed the same on behalf of said **The Kansas City Southern Railway Company** and by authority thereof and acknowledged said instrument to be the free act and deed of said **The Kansas City Southern Railway Company** for the purposes therein expressed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal the day and year aforesaid.

My Commission Expires: 10/15/25

Notary Public

BRYCE J GOOD
Notary Public - Notary Seal
Clay County - State of Missouri
Commission Number 17423040
My Commission Expires Oct 15, 2025

IN WITNESS WHEREOF, the parties have executed this Easement as of the date first above written.

GRANTEE: Collin County, Texas

By: _____
COUNTY JUDGE
(Title)

ACKNOWLEDGEMENT

State of Texas)
) SS.
County of Collin)

On this 15th day of MARCH, 2022, before me a Notary Public, appeared CHRIS HILL to me personally known (or proved to me on the basis of satisfactory evidence) to be the person described herein who executed the foregoing instrument, and acknowledged that he is the COUNTY JUDGE of **Collin County, Texas,** and that he executed the same on behalf of said County, and by authority thereof and acknowledged said instrument to be the free act and deed of **Collin County, Texas,** for the purposes therein expressed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal the day and year aforesaid.

My Commission Expires: 11/30/23 Notary Public _____

SHONA R NAVARRE
Notary Public
STATE OF TEXAS
Notary ID # 13045692-3
My Comm. Exp. November 30, 2023

IN WITNESS WHEREOF, the parties have executed this Easement as of the date first above written.

GRANTEE: City of Wylie, Texas

By: _____
City Manager
(Title)

ACKNOWLEDGEMENT

State of Texas)
) SS.
County of Collin)

On this 1st day of March, 2023, before me a Notary Public, appeared Brent Parker to me personally known (or proved to me on the basis of satisfactory evidence) to be the person described herein who executed the foregoing instrument, and acknowledged that he is the City Manager of **City of Wylie, Texas,** and that he executed the same on behalf of said **City of Wylie, Texas**, and by authority thereof and acknowledged said instrument to be the free act and deed of **City of Wylie, Texas,** for the purposes therein expressed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal the day and year aforesaid.

My Commission Expires: 3/12/2027 Notary Public Stephanie Storm

STEPHANIE STORM
NOTARY PUBLIC
STATE OF TEXAS
ID # 12603607-4
My Comm. Expires 03-12-2027

EXHIBIT A
ROADWAY EASEMENT DESCRIPTION FOR
PARK BOULEVARD
PARCEL 42-2
0.5606 ACRES (24,421 SQUARE FEET)

BEING 24,421 square feet of land situated in the Francisco De La Pina Survey, Abstract Number 688, Collin County, Texas, and being part of a called 28.332 acre tract of land described in General Warranty Deed to The Kansas City Southern Railway Company, recorded in Volume 20101220001391710 of the Official Public Records of Collin County, Texas (O.P.R.C.C.T.), and being more particularly described by metes and bounds as follows:

COMMENCING at the southeast corner of Spring Creek Parkway, an addition to the City of Wylie, Collin County, Texas, recorded in Cabinet I, Page 521 of the Plat Records of Collin County, Texas (P.R.C.C.T.) and the southwest corner of a said 28.332 acre tract, said corner being on the northwest right-of-way of Atchison, Topeka & Santa Fe Railroad (a 100-foot wide right-of-way) and the point of curvature of a non-tangent circular curve to the left, having a radius of 1,500.00 feet, whose chord bears North 27 degrees 55 minutes 28 seconds West, a distance of 10.95 feet;

THENCE Northeasterly, with the southwest line of said 28.332 acre tract, the northeast right-of-way line of said Spring Creek Parkway, and said curve, through a central angle of 00 degrees 25 minutes 06 seconds, an arc distance of 10.95 feet to a 1/2-inch set iron rod with blue plastic cap stamped "HALFF ESMT" (hereinafter referred to as "with ESMT cap") for the **POINT OF BEGINNING,** said corner being the point of compound curvature of a tangent circular curve to the left, having a radius of 1,500.00 feet, whose chord bears North 37 degrees 23 minutes 27 seconds West, a distance of 482.61 feet;

THENCE Northwesterly, continuing with said southwest and northeast lines, and said curve, through a central angle of 18 degrees 30 minutes 53 seconds, an arc distance of 484.72 feet to a 1/2-inch set iron rod with yellow plastic cap stamped "HALFF" for the northwest corner of said 28.332 acre tract and the north corner of said Spring Creek Parkway addition, said corner being at the intersection of said northeast right-of-way line and the southeast right-of-way line of a 18-foot wide public road and the point of curvature of a non-tangent circular curve to the left, having a radius of 2,932.79 feet, whose chord bears North 56 degrees 07 minutes 14 seconds East, a distance of 51.26 feet;

EXHIBIT A
ROADWAY EASEMENT DESCRIPTION FOR
PARK BOULEVARD
PARCEL 42-2
0.5606 ACRES (24,421 SQUARE FEET)

THENCE Northeasterly, with the northwest line of said 28.332 acre tract and the southeast right-of-way line of said 18-foot wide public road, and said curve, through a central angle of 01 degree 00 minutes 05 seconds, an arc distance of 51.26 feet to a 1/2-inch set iron rod with ESMT cap for an "ell" corner of said 28.332 acre tract, said corner being on the southwest line of a called 1.727 acre tract of land described in Warranty Deed to The Kansas City Southern Railway Company, recorded in Volume 4421, Page 1924 of the Deed Records of Collin County, Texas (D.R.C.C.T.) and the point of curvature of a non-tangent circular curve to the right, having a radius of 1,549.77 feet, whose chord bears South 45 degrees 47 minutes 00 seconds East, a distance of 19.31 feet;

THENCE Southeasterly, departing said 18-foot wide public road, and with the northwest line of said 28.332 acre tract, the southwest line of said 1.727 acre tract and said curve, through a central angle of 00 degrees 42 minutes 51 seconds, an arc distance of 19.31 feet to an "ell" corner of said 28.332 acre tract and said 1.727 acre tract, from which a 5/8-inch found iron rod with cap stamped "BOUNDARY MARK" bears South 19 degrees 10 minutes 16 seconds East, a distance of 0.63 of a foot;

THENCE over and across said 28.332 acre tract, the following bearings and distances:

South 45 degrees 19 minutes 42 seconds East, a distance of 5.07 feet to a 1/2-inch set iron rod with ESMT cap for the point of curvature of a tangent circular curve to the right, having a radius of 1,550.00 feet, whose chord bears South 36 degrees 40 minutes 49 seconds East, a distance of 466.13 feet;

Southeasterly, with said curve, through a central angle of 17 degrees 17 minutes 47 seconds, an arc distance of 467.91 feet to a 1/2-inch set iron rod with ESMT cap for corner;

South 65 degrees 01 minute 13 seconds West, a distance of 50.07 feet to the **POINT OF BEGINNING AND CONTAINING** 24,421 square feet (0.5606 acre) of land, more or less.

EXHIBIT A
ROADWAY EASEMENT DESCRIPTION FOR
PARK BOULEVARD
PARCEL 42-2
0.5606 ACRES (24,421 SQUARE FEET)

NOTES:

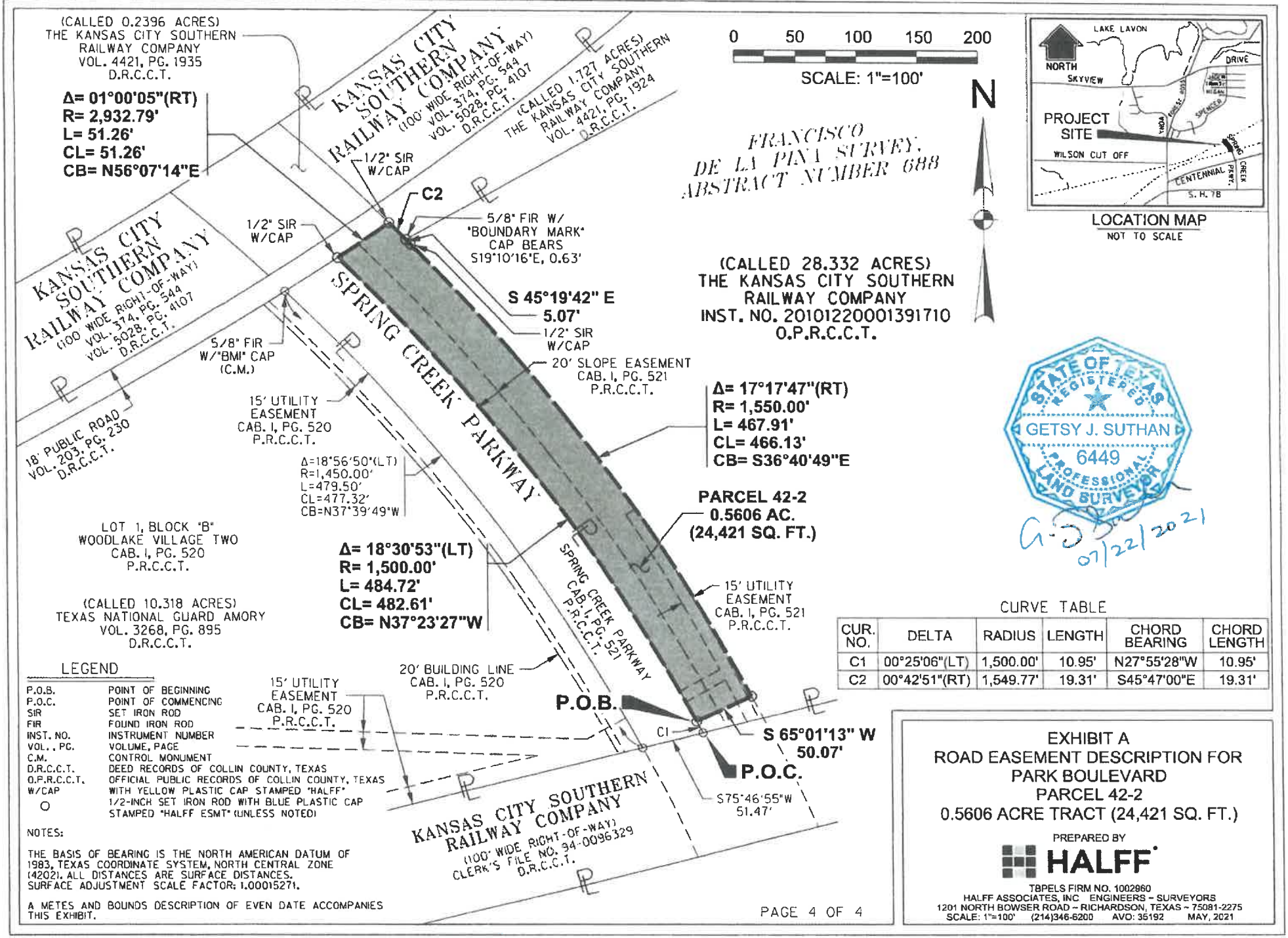
1. The Basis of Bearing is the North American Datum of 1983, Texas Coordinate System, North Central Zone (4202). All distances are surface distances. Surface adjustment scale factor: 1.00015271.

2. A survey plat of even date accompanies this legal description.

G.J. Suthan 07/22/2021

Getsy J. Suthan, R.P.L.S. Date
Texas Registration No. 6449
Halff Associates, Inc.
1201 North Bowser Road
Richardson, Texas 75081
Tel (214) 346-6200
TBPELS Firm No. 10029600

7/22/2021 10:11:03 AM ah2472 HALFF I:\35000s\35192\C01\CADD\Sheets\RCHExhibits\Parcel 42-2\VEXH-P42-2-REQ1-35192.dgn



CURVE TABLE

CUR. NO.	DELTA	RADIUS	LENGTH	CHORD BEARING	CHORD LENGTH
C1	00°25'06"(LT)	1,500.00'	10.95'	N27°55'28"W	10.95'
C2	00°42'51"(RT)	1,549.77'	19.31'	S45°47'00"E	19.31'

LEGEND

P.O.B.	POINT OF BEGINNING
P.O.C.	POINT OF COMMENCING
SIR	SET IRON ROD
FIR	FOUND IRON ROD
INST. NO.	INSTRUMENT NUMBER
VOL., PG.	VOLUME, PAGE
C.M.	CONTROL MONUMENT
D.R.C.C.T.	DEED RECORDS OF COLLIN COUNTY, TEXAS
O.P.R.C.C.T.	OFFICIAL PUBLIC RECORDS OF COLLIN COUNTY, TEXAS
W/CAP	WITH YELLOW PLASTIC CAP STAMPED "HALFF"
O	1/2-INCH SET IRON ROD WITH BLUE PLASTIC CAP STAMPED "HALFF ESMT" (UNLESS NOTED)

NOTES:

THE BASIS OF BEARING IS THE NORTH AMERICAN DATUM OF 1983, TEXAS COORDINATE SYSTEM, NORTH CENTRAL ZONE (4202). ALL DISTANCES ARE SURFACE DISTANCES. SURFACE ADJUSTMENT SCALE FACTOR: 1.00015271.

A METES AND BOUNDS DESCRIPTION OF EVEN DATE ACCOMPANIES THIS EXHIBIT.

EXHIBIT A
ROAD EASEMENT DESCRIPTION FOR PARK BOULEVARD
PARCEL 42-2
0.5606 ACRE TRACT (24,421 SQ. FT.)

PREPARED BY
HALFF
TBPELS FIRM NO. 1002960
HALFF ASSOCIATES, INC ENGINEERS - SURVEYORS
1201 NORTH BOWSER ROAD - RICHARDSON, TEXAS - 75081-2275
SCALE: 1"=100' (214)346-6200 AVO: 35192 MAY, 2021

Exhibit C

State of Texas	§	**Court Order**
Collin County	§	**2019-1072-11-18**
Commissioners Court	§	

An order of the Collin County Commissioners Court approving an agreement.

The Collin County Commissioners Court hereby approves the Railroad Engineering Contract for the Park Boulevard Railroad Grade Separation with the Kansas City Southern Railway Company for engineering services to review and approve plans and other documents pertaining to the project, as detailed in the attached documentation.

A motion was made, seconded, and carried by a majority of the court members in attendance during a regular session on Monday, November 18, 2019.

Teresa Nelson
Office Administrator

Collin County Engineering
4690 Community Avenue, Ste. 200, McKinney, Texas 75071
(972) 548-3744 • Fax (972) 548-5555
Metro: (972) 424-1460, Ext. 3744
tnelson@collincountytx.gov • www.collincountytx.gov

Chris Hill, County Judge

Darrell Hale, Commissioner, Pct 3

Not Present

Susan Fletcher, Commissioner, Pct 1

Duncan Webb, Commissioner, Pct 4

Not Present

Cheryl Williams, Commissioner, Pct 2

ATTEST: Stacey Kemp, County Clerk

7020-10

RAILROAD ENGINEERING CONTRACT

PARK BOULEVARD RAILROAD GRADE SEPARATION

COLLIN COUNTY, TEXAS

STATE OF TEXAS

COUNTY OF COLLIN

This CONTRACT is made and entered into by and between the Collin County, a political subdivision of State of Texas (the "**COUNTY**"), acting by and through the duly-authorized Collin County Commissioners Court, whose address is 2300 Bloomdale Road, Suite 4192, McKinney, TX 75071, and The Kansas City Southern Railway Company, (the "**RAILROAD**"), duly registered to do business in the State of Missouri, whose address for mailing is 427 West 12th Street, Kansas City, MO 64105, sometimes both referred to herein as "Parties", effective as of the date of latest execution below.

WITNESSETH:

WHEREAS, the COUNTY has laid out and proposes to construct a section of that certain public roadway which has been designated as Park Boulevard, which as proposed, will pass over the track and across the right of way of the RAILROAD at roadway Survey Station 288+50.00 and approximate Railroad Survey Station 4081+09, and approximate Railroad Milepost T200.1 on the RAILROAD's Greenville Subdivision, which point is the intersection of the proposed centerline of Park Boulevard with the centerline of the RAILROAD's track, near Wylie, Texas, herein referenced to as "**PROJECT**"; and,

WHEREAS, the parties hereto deem it necessary for the Railroad to review engineering plans for portion of the PROJECT that affects the Railroad.

NOW, THEREFORE, in consideration of the premises and of the covenants and agreements of the parties hereto contained, to be kept and performed by the parties hereto, it is hereby agreed as follows:

A. The COUNTY has requested that the RAILROAD proceed with certain necessary engineering and/or design services for the PROJECT to facilitate the parties' considerations of the PROJECT and shall be undertaken by the parties hereto upon and in accordance with the following terms, conditions and provisions.

1. The work to be done by the RAILROAD under this Contract shall consist of:

   i. Review and approval of preliminary and final engineering and design plans, specifications, drawings, contracts and other documents pertaining to the PROJECT,

   ii. Preparation of cost estimates for the RAILROAD's work in connection with the PROJECT,

   iii. Review of construction cost estimates, site surveys, assessments, right of way easements and licenses, studies, contracts and related construction

documents submitted to the RAILROAD by the COUNTY for the PROJECT. Engineering Work may also include office reviews, field reviews, attending hearings and meetings, and preparing correspondence, reports, and other documentation in connection with the PROJECT,

iv. Construction Monitoring, and

v. Post Construction Inspection for final acceptance.

2. By its review, approval or preparation of plans, specifications, drawings or other documents pursuant to this Contract, the RAILROAD signifies only that the plans and the PROJECT proposed to be constructed in accordance with the plans satisfy the RAILROAD's requirements.

3.Nothing contained in this Contract shall be deemed to constitute the RAILROAD's approval of or consent to the construction of the PROJECT, which approval or consent may be withheld for any reason directly or indirectly related to safety of the RAILROAD's operations, property, or facilities. The PROJECT, if constructed, is to be constructed, under a separate Crossing Contract to be executed by the Parties at a future date.

4. The estimated cost of work to be performed by the RAILROAD for engineering services for the account of the COUNTY is **$36,500.00**, as shown on the attached estimate attached hereto as **Exhibit A** and made a part hereof. It is clearly understood by the parties hereto that this is an estimate only; the COUNTY agrees to pay for all reimbursable charges necessitated by its work in the vicinity of the track and the RAILROAD agrees to furnish the services required. Approval of charges will require supporting documents verifying hours charged from the RAILROAD. The supporting documents must be in the form of approved time sheets or time reports. Documentation for expense charges will include signed copies of the expense accounts showing the days worked, charges for meals, accommodations and miles traveled.

5. For all items of work and expense authorized by this Contract, the RAILROAD shall invoice the COUNTY in care of:

Jeff Durham
Collin County Engineering
4690 Community Ave., Suite 200
McKinney, TX 75071
Ph: 972-548-3723
Jeff Durham (jdurham@co.collin.tx.us)

B. It is understood that the PROJECT herein contemplated is to be financed from funds appropriated by the COUNTY; that all plans, estimates of cost, specifications, awards of contracts, acceptance of work and procedure in general are subject at all times to all laws, rules, regulations, orders and approvals applying to it; and that the COUNTY shall reimburse the RAILROAD for only such items of work and expense as are properly authorized, and in such amounts and forms as are proper and eligible for payment.

C. This Contract may be revoked by either party upon written notice to the other until such time as the PROJECT is advertised for bids by the COUNTY.

D. The parties hereto represent each to the other that they have the legal authority to enter into this Contract as evidenced by the appropriate COUNTY order, corporate resolution and/or power of attorney, as identified below, certified copies of which will be provided upon request.

Witness this my signature in execution hereof, this the 21 day of NOV, 2019.

COLLIN COUNTY BY AND THROUGH THE COLLIN COUNTY COMMISSIONERS COURT.

CHRIS HILL, County Judge

Witness this my signature in execution hereof, this the 12 day of December, 2019.

THE KANSAS CITY SOUTHERN RAILWAY COMPANY

BY: Srikanth M

SRIKANTH HONNUR, P.E.
Track and Bridge Construction Director

DATE: 12/12/2019

RAILROAD FORCE ACCOUNT

PARK BOULEVARD RAILROAD GRADE SEPARATION
PROJECT NUMBER _____
COLLIN COUNTY, TEXAS

EXHIBIT A
ENGINEERING SERVICES ONLY

Plan Review - Railroad (Preliminary & Final Engineering Plans)

Railroad Cost:

	Hrs	Rate	Amount
Engineer	80	$125	$10,000
Roadmaster	25	$80	$2,000
Project Manager	25	$100	$2,500
KCS Accounting Department	40	$50	$2,000
KCS PLAN REVIEW COST			**$16,500**

Plan Review – Consultant (Preliminary & Final Engineering Plans)

	Amount
Preliminary and Final Eng Plan Rvw	**$20,000**

RAILROAD FORCE ACCOUNT (ENG. ONLY) - TOTAL	**$36,500**

EXHIBIT D

RAILROAD FORCE ACCOUNT

AGENCY: **Collin County Texas**
AGENCY PROJECT NO.:

PROJECT NAME: **Park Boulevard Extension**
Greenville Subdivision MP T199.50
Wylie, TX

Date Prepared: **25-Jul-23**

ESTIMATE

Railroad -Labor Cost

	Hrs	Rate	Amount
Engineer	240	$100	$24,000
Roadmaster	40	$100	$4,000
KCS Accounting Department	80	$50	$4,000
		Railroad Labor Subtotal:	$32,000

Railroad-Expenses

	Qty	Unit	Rate	Amount
Field Visits	6	Trip	$2,000	$12,000
		Railroad Expenses Subtotal:		$12,000
			Railroad Total:	**$44,000**

Construction Inspections and Construction Management-Consultant

Consultant Plan Review/Construction Monitoring	L.S.	$174,820
	Consultant Subtotal:	$174,820

GRAND TOTAL - ENGINEERING ESTIMATE **$218,820**

July 19, 2023

Bentley Tomlin
Public, Utility, and Industrial Project Manager
CPKC
427 West 12th Street
Kansas City, MO 64105

Re: Park Boulevard Extension - Road Overpass
RRMP T199.50, RR Station 4102+24, Greenville Subdivision, Wylie, TX
Construction Monitoring Services

Dear Mr. Tomlin:

The City of Wylie, TX intends to build a new highway bridge over CPKC tracks at the west end of the Wylie Yard indicated in the subject location. HDR is currently performing engineering services on behalf of legacy KCS to review the construction plans for the proposed overpass. The construction plans and the required property rights to build the overpass have been approved and executed by legacy KCSR. HDR assisted legacy KCS in drafting the Construction and Maintenance Agreement and we understand that it is very close to being executed.

With the status of the project as stated above, the project is ready to jump into the next phase, construction which we understand is planned to start in Fall 2023. Per our conversation, you have given HDR the opportunity to continue working on the project in the Construction Monitoring role. We are submitting this Construction Monitoring Services ("CMS") proposal to assist you during the construction of this project to observe and monitor the construction relative to CPKC approved plans and specifications.

Construction Monitoring Services - Approach and Scope of Services

CMS is broken down into three distinct phases: Contractor PM work, Submittal and RFI Review, and Construction Monitoring Support. We assume construction and as-built survey will be performed by the Contractor. Per our conversation, we assume the project's duration is two (2) years starting Fall 2023. We assume CPKC Kiteworks electronic documentation folder is available to HDR's personnel involved in the project and will be the primary documentation tool for the project between CPKC, Contractor, and HDR.

Task 1. PM Work

Under this Task, HDR will perform project management duties related to the project as stated below:

- Project progress conference call led by City/Contractor (assume HDR will attend a total of 24 weekly meetings/calls of 1-hr each)
- Coordination conference calls with CPKC (assume 5 conference calls of 1hr each)
- Budget reviews, invoice processing, project documentation, and project administration.

Task 2. Contractor Submittal & RFI Review

Under this Task, HDR proposes to review the RFIs and contractor submittals. We propose to use engineering office support staff to review, comment on and document the following.

- Review and Respond to Submittals (assume 25), including:
    - Project schedule
    - Construction sequencing
    - Curfew/window requests
    - Materials submissions
    - Erection plans
    - Excavation and Shoring plans
    - At-grade crossing work
    - Grading plans
    - Drainage plans
    - Project update conference calls

- Review Transport and Erection Plans (assume 3)

Task 3. Construction Monitoring Support

HDR proposes to perform Construction Monitoring Services after the NTP is issued by the City of Wylie, TX to its contractor. HDR proposes the Project Manager (PM) and Construction Monitor attend the pre-construction meeting. It is our understanding based on discussions with you that HDR expected to have one Construction Monitor on site for an average of one 8–12-hour long site visit per week for the duration of the construction with additional onsite monitoring during milestone works, including bridge substructure and superstructures. HDR proposes to have the Construction Monitor on site during the entire curfew duration during beam erections and excavation and shoring works within the railroad property.

The onsite Construction Monitor will perform the following services:

- Keep minutes of meetings attended by HDR
- Attend weekly Progress meetings and other meetings as scheduled noted above
- Prepare a Daily Work Report, only for the days the Construction Monitor is at the site, which includes the following:
    - Safety reviews.
    - Reviews of contractor's work plans during execution (Crane Plan, Drilled Shaft Plan, Erection Plan, etc.)

    - Monitor for items of work not identified in railroad approved work plans that affects the railroad (ad-hoc crane and equipment usage, excavation, material deliveries, traffic control, and temporary construction crossings, curfews, .)
    - Document job briefings
    - Documentation for non-conformance identified earlier and corrective actions
- Monitor construction activities relating to:
    - Shoring installation
    - Pile and shaft foundations
    - Abutment caps and stem wall
    - Superstructure erection
    - Site conditions and SWWP requirements
    - Grading and drainage works within or adjacent to railroad property

HDR proposes to have Sri Honnur as our Project Manager and also as the Point of Contact (POC) for all matters relating to this project. Amanda Stahlnecker at our Fort Worth, TX office will lead the staffing of the Construction Monitors. HDR proposes to have qualified staff on site during the foundation installation of the drilled shafts for new abutments, during embankment construction, and during the bridge erection.

Assumptions

1. This estimate assumes the contractor is working 5 - 10-hour days for the duration of the project to estimate the weekly effort, not including the time during train curfews for bridge erection, foundation construction and shoring installation which may be on weekends and/or for extended hours.
2. This estimate does not include schedule delays.
3. HDR will not be required to provide an onsite job trailer and HDR's onsite Construction Monitoring staff will be able to use the Contractor's trailer. HDR will provide its onsite employees with a computer and phone.
4. The Contractor will provide testing, material certifications, etc. per the requirements of the project plan and specifications. HDR will monitor that the plans and specifications are followed and will review the submittals relating to the results of the testing.
5. The Contractor will provide at least two weeks notice of scheduled work and cancellations of scheduled work, if any, for which the Construction Monitor was already scheduled to be onsite. This is to prevent unnecessary trips to the job site which may increase the CMS costs.
6. HDR will receive and review certificates of inspections, tests, and approvals required. HDR's review of such certificates will be for the purpose of determining whether the results certified indicate compliance with the Construction Contract Documents. This review by HDR does not constitute an independent evaluation of the content or procedures of such inspections, tests, or approvals that complies with the requirements of the Construction Contract Documents.
7. HDR will monitor that the plans and specifications are followed and will review the results of the testing performed by the Contractor.

8. HDR will not advise or issue directions relative to or assume control over the means, methods, techniques, sequences of construction work by the Contractor.
9. HDR will not advise or issue directions regarding or assume control over security or safety practices and precautions in connection with operations of the City, CPKC, or the Contractor.
10. HDR's obligation to report any observed unsafe job site conditions or unsafe work practices by the City's contractor to the OWNER and record same in the daily work report shall not make HDR responsible for construction job site safety, the responsibility of which remains solely that of the construction contractor(s).
11. HDR's obligation to report to the OWNER unsafe job conditions or unsafe work practices runs solely to the OWNER and is purely an administration function.
12. There are no third-party beneficiaries intended by this contractual obligation, including, but not limited to, construction contractors and/or their employees.

13. HDR's monitoring of the construction results in the determination that the construction work is defective under the terms and standards set forth in the Construction Contract Documents, HDR will bring this to the attention of CPKC for direction on the required corrective actions which may include repairs, remove, replace or acceptance of the defective work. However, HDR's authority to provide this information to CPKC or HDR's decision to exercise or not exercise such authority will not give rise to a duty or responsibility of HDR to Contractors,

Schedule

We assume the Project will start construction in Fall 2023 and last about 2 years. Including final punch list and final acceptance, the project completion date is assumed to be June 30, 2026.

Construction Phase Schedule:

Issue of NTP to contractor	*October 1, 2023*
Coordination Calls Begin	*October 1, 2023*
Preconstruction Meeting	*October 1, 2023*
Field Work Begins	*November 1, 2023*
Substantial Completion	*December 31, 2025*
Final project closeout	*June 30, 2026*

Estimated Construction Monitoring Fee

We have made the following assumptions for developing our fee estimate including what has been mentioned above.

- Terms of our Consulting Services Agreement dated October 7, 2013.
  - Direct Labor x 2.85
  - Direct Labor for Construction Monitoring Straight time x 2.85
  - Direct Labor for Construction Monitoring Overtime x 2.85

- Expenses billed without markup
  - Vehicle – $0.75/ Mile
  - Since we have a local HDR office, lodging, and rental vehicle costs are not expected.
- Contractor will work 5 days x 10 hrs per week
- Construction Monitoring On-Site
  - One 8-12-hour day per week
  - 4 days-Beam erection
  - Qualified staff during drill shafts construction, major concrete pours, excavation and shoring and superstructure erection

Rates used for the direct labor includes yearly pay increases. Our Estimated Fee is shown below with details as shown in Attachment A.

Rates and fees mentioned in this proposal are only an estimate and are subject to change depending on contractor's schedule, changes to schedules, weather, personnel changes, changes to salaries of HDR personnel, change in travel costs, and railroad operations.

Construction Services Support During Construction $ 174,820

HDR appreciates your consideration and looks forward to assisting the KCS on this project.

Sincerely,
HDR Engineering, Inc.

Cory Imhoff, PE
Senior Vice President

Prepared by:

Sri Honnur, PE
Sr. Rail Project Manager

Attachment A
Estimation of Support During Construction Task Hours and Fee

Task	Description	Project Manager	QA/QC Sr. Support	QA/QC Sr. Support	Lead Track	Lead Struct	Construct. Monitor 1	Construct. Monitor 2	Construct Monitor 2	Project Acct./Cler	
1.00	**Project Management/Administration**										
1.10	Project Coord & Mgmnt	40	16							40	96
	Subtotal Manhours	40	16	0	0	0	0	0	0	40	96
	Subtotal Cost - PM/Admin	$11,400	$4,150	$0	$0	$0	$0	$0	$0	$3,762	$19,312
2.00	**Construction Support Services**										
2.10	Consruction submittal & RFI Review - Bridge and Track (construction phasing, sequencing, shoring, matl. submittals, Schedule, Project update conference calls, etc) - 25 submittals	60	40	30	16	80					226
2.20	Construction Monitoring - Bridge, Embankment and Track (Includes commuting time)-doesn't include testing						500	100	150		750
	Subtotal Manhours	60	40	30	16	80	500	100	150	0	976
	Subtotal Cost - Project Review	$17,100	$10,374	$6,755	$3,329	$14,364	$58,425	$17,100	$14,963	$0	$142,409
	TOTAL MANHOURS - PROJECT	100	56	30	16	80	500	100	150	40	1,072
	TOTAL LABOR COST - PROJECT	$28,500	$14,524	$6,755	$3,329	$14,364	$58,425	$17,100	$14,963	$3,762	$161,720
3.00	**Expenses**										
3.10	Lodging, Meals, Commute, Flights, etc. - Estimate	Commute = 120 miles each round trip x 100 trips x 0.75 Flights - 5 trips @ $600									$13,000
	TOTAL ESTIMATED EXPENSES										$13,000
4.00	**Direct Costs**										
4.10	Printing/Postage/Photos/Misc										$100
	TOTAL ESTIMATED DIRECT EXPENSES										$100
	GRAND TOTAL										**$174,820**

Exhibit E

JLL Reference No. APPLICATION NUMBER

RIGHT-OF-ENTRY AGREEMENT ("AGREEMENT")
KCS SAP No. _____

THIS AGREEMENT is effective this EFFECTIVE DATE by and between **THE KANSAS CITY SOUTHERN RAILWAY COMPANY,** a Missouri corporation, called herein "Railway Company", and CONTRACTOR, to be addressed at CONTRACTOR ADDRESS, called herein "Contractor" sometimes both together referred to as "Parties" herein.

WITNESSETH:

WHEREAS, The Contractor has requested the Railway Company to permit it access to its right-of-way to access SQUARE FOOTAGE AMOUNT of Railway Company's property for the work described in Section 1 below ("Use") at LOCATION CITY (LOCATION COUNTY) LOCATION STATE at and/or near Railway Company's Mile Post MILE POST (SUBDIVISION NAME Subdivision), as indicated on the print marked Exhibit "A", attached hereto and incorporated herein by reference; and

WHEREAS, the Parties understand that the permission granted herein by this Agreement by the Railway Company is limited to granting access to the property owned by the Railway Company only.

NOW, THEREFORE, it is mutually agreed by and between Railway Company and Contractor as follows:

1. **USE:** The Contractor acknowledges that this Agreement is limited only to Use noted in this Agreement. No other Use shall be permitted on Railway Company's property without the expressed written consent of Railway Company.

Work authorized under this agreement and as shown and described in Exhibit A includes WORK SCOPE FOR BRIDGEWORK. A Railway Company approved flagger is required during the Work. Contractors shall notify Railway Company two weeks in advance of Work so that the Work can be coordinated with the Trainmaster.

The Railway Company shall be informed of any changes to the approved plans and work methodology ("Work") as described in this Agreement. No changes to the Work shall be performed until a written approval is received by the Railway Company.

Contractor has complete and sole responsibility for, and direction of, its employees, agents, subcontractors or any persons or entity that Contractor hires to perform or assist in performing the services hereunder. Contractor and Railway Company agree that such persons shall not be considered employees, agents or contractors of Railway Company for any reason, and Contractor shall prohibit any activity that may be construed as creating an employment relationship between such persons and Railway Company.

2. **FLAGGING:** Railway Company hereby grants to Contractor, subject to the limitation of forty-eight (48) hours prior notice to Railway Company and subject to each and all of the terms, provisions and conditions herein contained, the right to enter upon and have ingress to and egress from the property described in the Recitals for the purpose of performing the Work described in the Recitals. Notwithstanding the above, in no event shall Contractor have the right to cross Railway Company's tracks for purpose of ingress and egress. Neither Contractor, nor its employees, agents or subcontractors shall interfere with or

obstruct any track or drainage structures and facilities on the property. Any damage caused by Contractor to Railway Company property shall be repaired immediately.

The safe operation of the Railway Company shall take precedence over Contractor's Work on the right-of-way. Contractor shall not, without the Railway Company's prior written consent, foul Railway Company's tracks. All Work of the Contractor to be performed on or adjacent to the right-of-way shall be coordinated with Railway Company so as to avoid, to the greatest extent possible, interference with Railway Company operations.

Except as authorized by the Railway Company, Contractor will not work within the Railway Company's right-of-way. The right-of-way is typically defined as an area measured fifty feet (50'), horizontally, on either side of the centerline of track with unlimited vertical distance within the horizontal limits. Additionally, Contractor will use reasonable efforts to locate all equipment, devices, and materials at a sufficient distance from any track to prevent apparatus or part of any equipment, device, or material, such as the boom of a crane or a dragline, from encroaching on the right-of-way of any track. When Contractor is in the Railway Company right-of-way for whatever reason or has a potential to encroach upon the Railway Company right-of-way, a qualified Railway Company flagman is required. It will be Contractor's responsibility to coordinate in obtaining and paying for the flagman from one of the following approved Railway Company flagging companies:

Railpros Field Services

David Allen	601-502-6485	david.allen@railpros.com
Joel Ashcraft	417-362-9007	joel.ashcraft@railpros.com

Bottom Line On-Track Safety Services

Jeff Yarbrough	972-824-3348	jeff.yarbrough@alliedtrack.com
Nick Loar	214-394-5237	nick.loar@alliedtrack.com

3. **EMERGENCY CONTACTS:** In the event of an emergency condition or situation requiring immediate attention, repair or action, contact: CONTRACTOR - Contractor at CONTRACTOR PHONE, Railway Company at 877-527-9464, and Flagger.

4. **FEE:** Contractor agrees to pay to Railway Company for the use of Railway Company's right-of-way and the privilege hereby granted, such use and privilege being expressly limited to the facilities described above, the one-time sum of ONE THOUSAND AND NO/100 DOLLARS X # OF 6 MONTH WINDOWS ($X,XXX.00), payable upon execution of this Agreement.

5. **TERM:** The right-of-entry herein granted to Contractor shall commence TERM START, and shall continue until TERM END, unless sooner terminated, or at such time as Contractor has completed its Work on Railway Company's property, whichever occurs earlier. Contractor agrees to notify the Railway Company Representative in writing when it has completed its Work on Railway Company property. This Agreement may be terminated by either party on ten (10) days' written notice to the other party.

6. **INDEMNITY: CONTRACTOR SHALL INDEMNIFY, SAVE AND HOLD HARMLESS RAILWAY COMPANY, ITS OFFICERS, DIRECTORS, AGENTS, REPRESENTATIVES, CONTRACTORS AND EMPLOYEES, FROM AND AGAINST ANY LOSS OR DAMAGE TO PROPERTY, OR PERSONAL INJURY OR DEATH TO ANY PERSON, THAT WOULD NOT HAVE OCCURRED BUT FOR CONTRACTOR'S PRESENCE ON RAILWAY COMPANY'S PROPERTY.**

It shall be the exclusive duty and responsibility of Contractor to inspect the property subject to this Agreement for the sole purpose of evaluating its safety for the entry of its employees, agents and subcontractors. Contractor shall not be responsible, however, for ensuring the safety of anyone or any party not employed by or under contract to Contractor except to the extent the safety of such persons is directly affected by the presence of Contractor's employees, agents, contractors and subcontractors. Contractor shall advise all of its employees, agents and contractors entering the property of any observable safety hazards on the property, including, without limitation, the presence of moving vehicles, tripping hazards and overhead wires. Notwithstanding the foregoing, Contractor has no duty or obligation to remediate any such observable hazards or to notify any other project participants of any such hazards. Contractor shall instruct all of its employees, agents and subcontractors entering the property that all persons, equipment and supplies must maintain a distance of at least twenty-five feet (25') from the centerline of the track unless authorized by the on-site Railway Company flagman to be closer than twenty-five feet (25'). Contractor shall use its reasonable efforts to see that no personnel, equipment or supplies under its control are within the clearance point of the track when moving Railway Company equipment may be seen from or heard at the property subject to this Agreement.

7. INSURANCE: So long as this Agreement is in effect Contractor agrees to maintain commercial general liability and contractual liability insurance with minimum limits of ten million dollars ($10,000,000.00) per occurrence, ten million dollars ($10,000,000.00) aggregate. Contractor shall provide automobile liability coverage in the amount of three million dollars ($3,000,000.00) combined single limit. In addition, Contractor shall provide or require minimum statutory worker's compensation coverage for all covered employees who are on Railway Company's property. Contractor must also provide a Railroad Protective Liability Insurance policy naming the Railway Company as the Named Insured with coverage limits of at least two million dollars ($2,000,000.00) per occurrence and six million dollars ($6,000,000.00) aggregate. The original Railroad Protective Liability policy shall be promptly furnished to Railway Company. Each policy must be issued by financially reputable insurers licensed to do business in all jurisdictions where Work is performed during the term of the Agreement. A certificate of insurance will be provided to Railway Company by Contractor, reasonably satisfactory to Railway Company in form and content, evidencing that all required coverage is in force and have been endorsed to provide that no policy will be canceled or materially altered without first giving the Railway Company thirty (30) day's prior written notice. Commercial general liability policy will name Railway Company as an additional insured and, to the fullest extent allowed under law, will contain a waiver of subrogation in favor of Railway Company. All policies will be primary to any insurance or self-insurance the Railway Company may maintain for acts or omissions of Contractor or anyone for whom Contractor is responsible. Any deductible or self-insured retention on the required insurance shall be the responsibility of Contractor. Contractor will include copies of relevant endorsements or policy provisions with the required certificate of insurance. Nothing contained in this Section limits Contractor liability to the Railway Company to the limits of insurance certified or carried by Contractor.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK
SIGNATURE PAGE TO FOLLOW

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their respective officers, duly authorized, as of the day and year first above written.

THE KANSAS CITY SOUTHERN RAILWAY COMPANY

By: _____
Michael Martin

Title: Manager of Public Projects

Date: _____

CONTRACTOR

By: _____

Name: _____

Title: _____

Date: _____