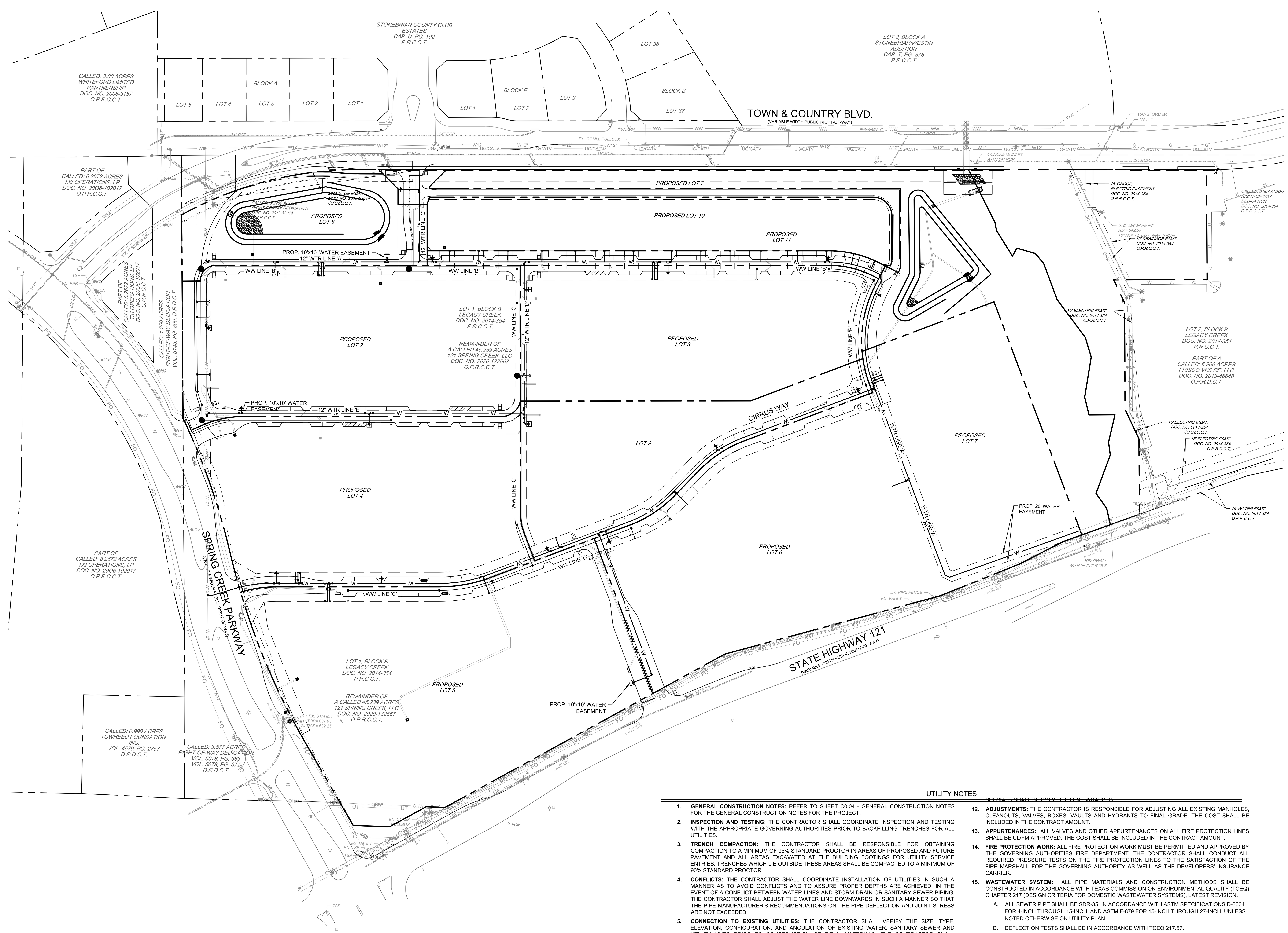


UTILITY PLAN LEGEND

EXISTING	PROPOSED	
WW	WW	WASTEWATER LINE
		WASTEWATER MANHOLE
W	2" W	WATER LINE
		WATER METER
		WATER VALVE
		FIRE HYDRANT
G	G	GAS LINE
G	G	GAS METER
OHW	OHW	OVERHEAD ELECTRIC
UE	UE	UNDERGROUND ELECTRIC
		POWER POLE
UG/CATV	UT	COMMUNICATION LINE
		STORM DRAIN
		STORM DRAIN MANHOLE
		STORM DRAIN CURB INLET
		STORM DRAIN GRATE INLET
		STORM DRAIN JUNCTION BOX
		STORM DRAIN WYE INLET
		STORM DRAIN AREA DRAIN
		STORM DRAIN HEADWALL
		STORM DRAIN SLOPED HEADWALL

UTILITY NOTES

1. **GENERAL CONSTRUCTION NOTES:** REFER TO SHEET C0.04 - GENERAL CONSTRUCTION NOTES FOR THE GENERAL CONSTRUCTION NOTES FOR THE PROJECT.
2. **INSPECTION AND TESTING:** THE CONTRACTOR SHALL COORDINATE INSPECTION AND TESTING WITH THE APPROPRIATE GOVERNING AUTHORITIES PRIOR TO BACKFILLING TRENCHES FOR ALL UTILITIES.
3. **TRENCH COMPACTION:** THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING COMPACTION TO A MINIMUM OF 95% STANDARD PROCTOR IN AREAS OF PROPOSED AND FUTURE PAVEMENT AND ALL AREAS EXCAVATED AT THE BUILDING FOOTINGS FOR UTILITY SERVICE ENTRIES. TRENCHES WHICH LIE OUTSIDE THESE AREAS SHALL BE COMPACTED TO A MINIMUM OF 90% STANDARD PROCTOR.
4. **CONFLICTS:** THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND TO ASSURE PROPER DEPTHS ARE ACHIEVED. IN THE EVENT OF A CONFLICT BETWEEN WATER LINES AND STORM DRAIN OR SANITARY SEWER PIPING, THE CONTRACTOR SHALL ADJUST THE WATER LINE DOWNWARDS IN SUCH A MANNER SO THAT THE PIPE MANUFACTURER'S RECOMMENDATIONS ON THE PIPE DEFLECTION AND JOINT STRESS ARE NOT EXCEEDED.
5. **CONNECTION TO EXISTING UTILITIES:** THE CONTRACTOR SHALL VERIFY THE SIZE, TYPE, ELEVATION, CONFIGURATION, AND ANGULATION OF EXISTING WATER, SANITARY SEWER AND UTILITY LINES PRIOR TO CONSTRUCTION OF TIE-IN MATERIALS. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR REPAIRS TO EXISTING FACILITIES DAMAGED BY HIS ACTIVITIES.
6. **WATER METERS:** THE CONTRACTOR SHALL ACQUIRE BOTH DOMESTIC AND IRRIGATION METERS FROM THE GOVERNING AUTHORITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING METERS INSTALLED IN BOXES AND CONNECTING PUBLIC TO PRIVATE WATER LINES.
7. **PIPE COVER:** TOP OF ALL WATER LINES SHALL BE INSTALLED WITH A MINIMUM COVER OF 48-INCHES.
8. **HORIZONTAL BLOCKING:** HORIZONTAL BLOCKING FOR WATER LINES HAS BEEN OMITTED FOR CLARITY, HOWEVER, BLOCKING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GOVERNING AUTHORITIES "STANDARD DETAILS".
9. **THRUST BLOCKING:** THRUST BLOCKING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GOVERNING AUTHORITIES' STANDARD DETAILS. DO NOT COVER BELLS OR FLANGES WITH CONCRETE. THE CONTRACTOR SHALL REMOVE EXISTING THRUST BLOCKING OR RESTRAINTS WHERE NECESSARY TO ALLOW THE WORK TO PROCEED AND SHALL REPLACE THE THRUST BLOCKS WHERE REQUIRED. THE COST TO REMOVE, REPLACE OR PROVIDE THRUST BLOCKING SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
10. **ADDITIONAL BENDS:** THE CONTRACTOR SHALL SUPPLY AND INSTALL ANY ADDITIONAL BENDS WITH THRUST BLOCKING AND OTHER APPURTENANCES REQUIRED TO ASSURE PROPER INSTALLATION OF WATER MAINS AND LATERALS. THE CONTRACTOR MAY PULL PIPE AS NEEDED AT THE BENDS WHERE THE DEFLECTION ANGLE OF THE PIPE DOES NOT MATCH THE ANGLE OF THE BEND PROVIDED THE PIPE DEFLECTION IS WITHIN TOLERABLE MANUFACTURERS LIMITS. THE COST FOR ADDITIONAL BENDS AND BLOCKING SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
11. **POLYETHYLENE WRAP:** ALL VALVES, DUCTILE IRON AND CAST IRON PIPE, FITTINGS AND SPECIALS SHALL BE POLYETHYLENE WRAPPED.
12. **ADJUSTMENTS:** THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING ALL EXISTING MANHOLES, CLEANOUTS, VALVES, BOXES, VAULTS AND HYDRANTS TO FINAL GRADE. THE COST SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
13. **APPURTENANCES:** ALL VALVES AND OTHER APPURTENANCES ON ALL FIRE PROTECTION LINES SHALL BE UL/FM APPROVED. THE COST SHALL BE INCLUDED IN THE CONTRACT AMOUNT.
14. **FIRE PROTECTION WORK:** ALL FIRE PROTECTION WORK MUST BE PERMITTED AND APPROVED BY THE GOVERNING AUTHORITIES FIRE DEPARTMENT. THE CONTRACTOR SHALL CONDUCT ALL REQUIRED PRESSURE TESTS ON THE FIRE PROTECTION LINES TO THE SATISFACTION OF THE FIRE MARSHALL FOR THE GOVERNING AUTHORITY AS WELL AS THE DEVELOPERS' INSURANCE CARRIER.
15. **WASTEWATER SYSTEM:** ALL PIPE MATERIALS AND CONSTRUCTION METHODS SHALL BE CONSTRUCTED IN ACCORDANCE WITH TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) CHAPTER 217 (DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEMS), LATEST REVISION.
    - A. ALL SEWER PIPE SHALL BE SDR-35, IN ACCORDANCE WITH ASTM SPECIFICATIONS D-3034 FOR 4-INCH THROUGH 15-INCH, AND ASTM F-879 FOR 15-INCH THROUGH 27-INCH, UNLESS NOTED OTHERWISE ON UTILITY PLAN.
    - B. DEFLECTION TESTS SHALL BE IN ACCORDANCE WITH TCEQ 217.57.
    - C. LEAKAGE TESTS SHALL BE IN ACCORDANCE WITH TCEQ 217.57.
    - D. BACKFILL SHALL BE IN ACCORDANCE WITH TCEQ 217.54.
    - E. MANHOLES SHALL BE REINFORCED CONCRETE (3000 PSI) IN ACCORDANCE WITH ASTM C478. WATERTIGHT CONNECTIONS SHALL BE IN ACCORDANCE WITH TCEQ 217.55.
15. **WATER SYSTEM:** ALL PIPE MATERIALS AND CONSTRUCTION METHODS SHALL BE CONSTRUCTED IN ACCORDANCE WITH TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) CHAPTER 290, SUBCHAPTER D (RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS), LATEST REVISION.
    - A. WATER MAINS 4-INCH THROUGH 12-INCH SHALL BE C-900 (DR - 18) CLASS 150.
    - B. WATER MAINS 14-INCH THROUGH 36-INCH SHALL BE C-905 (DR - 25).
    - C. ALL WATER SERVICES 3-INCH AND SMALLER SHALL BE TYPE K COPPER, UNLESS NOTED OTHERWISE ON UTILITY PLANS.
    - D. ALL WATER LINES SHALL MEET THE REQUIREMENTS OF AWWA AND TCEQ.
    - E. PRESSURE AND LEAKAGE TESTING SHALL BE IN ACCORDANCE WITH AWWA C-601.
    - F. DISINFECTION PROCEDURES SHALL BE IN ACCORDANCE WITH AWWA C-651.
    - G. ALL FITTINGS SHALL BE MEGA LUGS (VERTICAL BENDS ONLY).
16. **GRADING:** CONTRACTOR SHALL COMPLETE EARTHWORK GRADING AND COMPACTION PRIOR TO INSTALLATION OF SANITARY SEWER LINES.
17. **STUB OUTS:** CONTRACTOR SHALL STUB A PIPE STACK 24 INCHES ABOVE FINISHED GRADE AT THE TERMINATION OF ALL SANITARY SEWER SERVICES.

Water Demand

	Proposed Lot 2R (Multifamily)	Proposed Lot 3 (Multifamily)	Proposed Lot 4 (Multifamily)	Proposed Lot 5 (Office)	Proposed Lot 6 (Office)	Proposed Lot 7 (Hotel)	Proposed Lot 8-36 (Townhomes)
Total Building Area (Square Feet)	573,600	538,766	624,841	612,625	504,103	619,650	107,880
Number of Units	362	338	392	-	-	350	29
Calculation	600 gpd/unit	600 gpd/unit	600 gpd/unit	1 person per 400 SF & 50 gpd/person	1 person per 400 SF & 50 gpd/person	165 gpd/room	700 gpd/unit
Demand(MGD)	0.217	0.203	0.235	0.077	0.063	0.058	0.020
Total Demand(MGD)	**0.873**						

Wastewater Demand

	Proposed Lot 2R (Multifamily)	Proposed Lot 3 (Multifamily)	Proposed Lot 4 (Multifamily)	Proposed Lot 5 (Office)	Proposed Lot 6 (Office)	Proposed Lot 7 (Hotel)	Proposed Lot 8-36 (Townhomes)
Total Building Area (Square Feet)	573,600	538,766	624,841	612,625	504,103	619,650	107,880
Number of Units	362	338	392	-	-	350	29
Calculation	306 gpd/unit	306 gpd/unit	306 gpd/unit	1 person per 400 SF & 20 gpd/person	1 person per 400 SF & 20gpd/person	125 gpd/room	357 gpd/unit
Demand(MGD)	0.111	0.103	0.120	0.031	0.025	0.044	0.010
Total Demand(MGD)	**0.4440**						

!CAUTION!

CONTRACTOR TO CONTACT THE TEXAS ONE-CALL SYSTEM (1-800-344-8377) AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. KFM IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES IN THE PROJECT AREA. IF FILED CONDITIONS DIFFER SIGNIFICANTLY FROM THE LOCATION SHOWN ON THE PLANS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

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

BENCHMARKS

REFERENCE BENCHMARK

CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

SITE BENCHMARK

CUT "X" SET AT THE NORTHEAST CORNER OF SPRING CREEK PARKWAY AND TOWN AND COUNTRY BOULEVARD.
ELEVATION = 614.03'

KFM ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE: | DESCRIPTION: | DATE: | DELTA: | DESCRIPTION: | DATE:

CLIENT: 121 SPRING CREEK, LLC

PROJECT: FRISCO 45 INFRASTRUCTURE

SHEET TITLE: OVERALL UTILITY PLAN

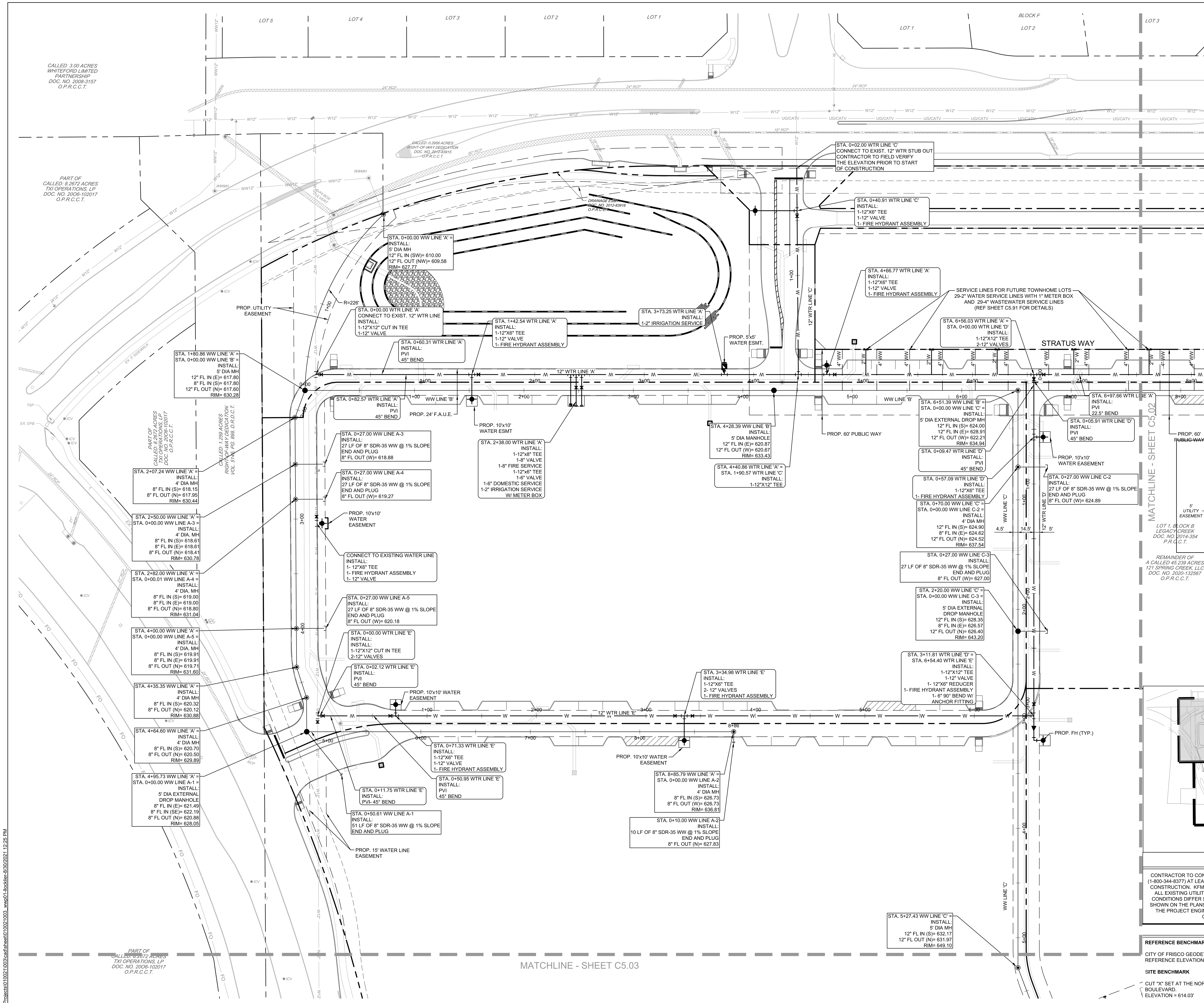
PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

PROJECT NUMBER: 010021003

DRAWN BY: GW/LL | DESIGNED BY: JDB/TT | CHECKED BY: JAM

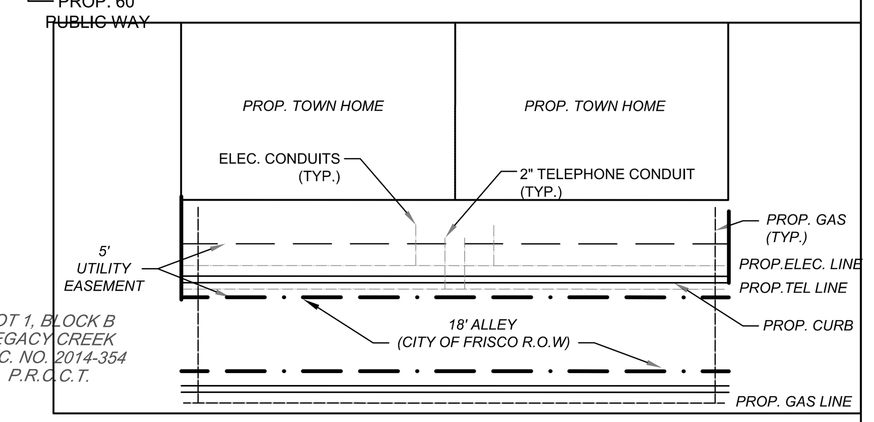
DATE: 06/25/21

SHEET: C5.00



UTILITY PLAN LEGEND

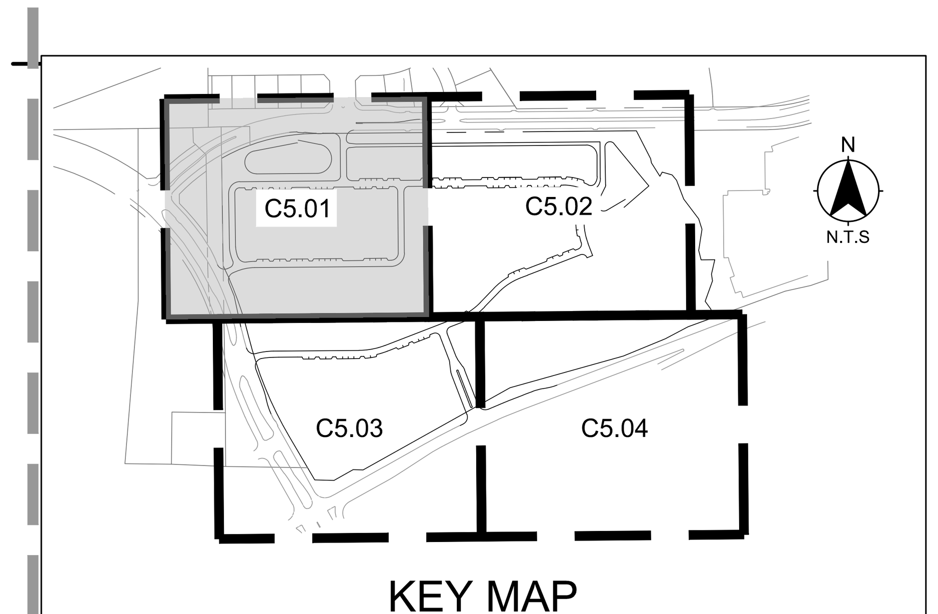
EXISTING	PROPOSED	
WW	WW	WASTEWATER LINE
		WASTEWATER MANHOLE
W	2" W	WATER LINE
		WATER METER
		WATER VALVE
		FIRE HYDRANT
G	G	GAS LINE
		GAS METER
OHW	OHW	OVERHEAD ELECTRIC
UE	UE	UNDERGROUND ELECTRIC
		POWER POLE
UG/CATV	UT	COMMUNICATION LINE
		STORM DRAIN
		STORM DRAIN MANHOLE
		STORM DRAIN CURB INLET
		STORM DRAIN GRATE INLET
		STORM DRAIN JUNCTION BOX
		STORM DRAIN WYE INLET
		STORM DRAIN AREA DRAIN
		STORM DRAIN HEADWALL
		STORM DRAIN SLOPED HEADWALL



TYPICAL FRANCHISE UTILITY CONNECTIONS

N.T.S

NOTES:
- PARKING ISLANDS, ADJACENT/BEHIND PARKING SPACES OR WITHIN TURN RADII, HYDRANTS SHOULD BE SET 3; FROM THE CURB.



KEY MAP

!CAUTION!

CONTRACTOR TO CONTACT THE TEXAS ONE-CALL SYSTEM (1-800-344-8377) AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. KFM IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES IN THE PROJECT AREA. IF FILED CONDITIONS DIFFER SIGNIFICANTLY FROM THE LOCATION SHOWN ON THE PLANS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

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

BENCHMARKS

REFERENCE BENCHMARK

CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

SITE BENCHMARK

CUT "X" SET AT THE NORTHEAST CORNER OF SPRING CREEK PARKWAY AND TOWN AND COUNTRY BOULEVARD.
ELEVATION = 614.03'

KFM ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE:	DESCRIPTION:	DATE:	DELTA:	DESCRIPTION:	DATE:

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

SHEET TITLE
WATER & WASTEWATER

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

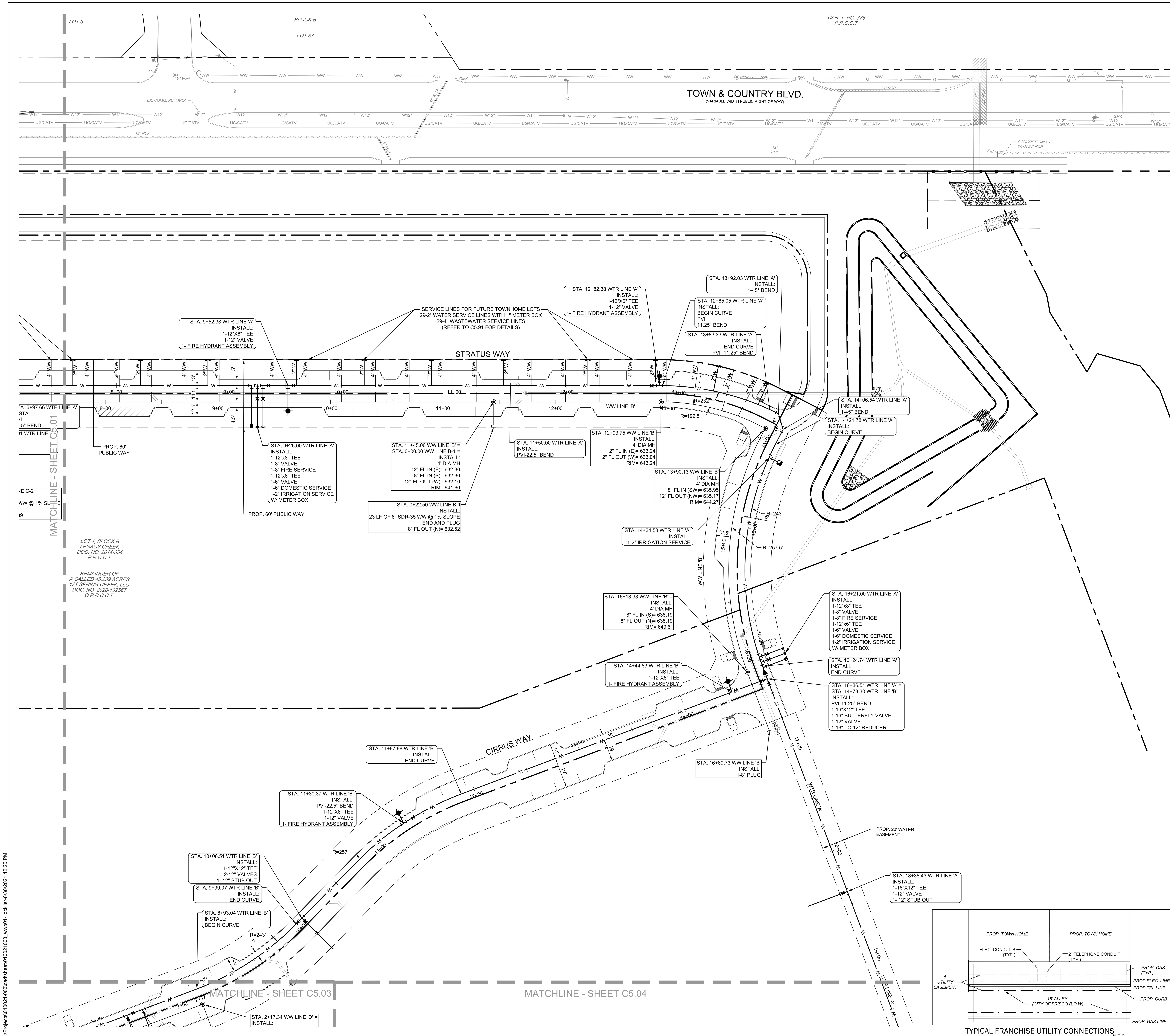
PROJECT NUMBER: 010021003

DRAWN BY:	DESIGNED BY:	CHECKED BY:
GW/LL	JDB/TT	JAM

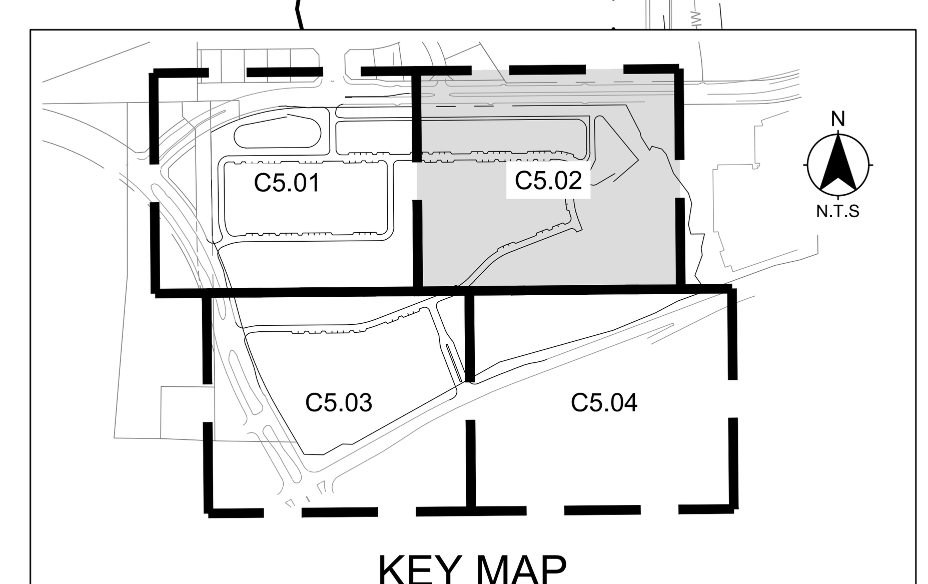
DATE: 06/25/21

SHEET:
C5.01

K:\Projects\010021003\cad\sheet\010021003_ww01-lbockler-6/30/2021 12:25 PM



TYPICAL FRANCHISE UTILITY CONNECTIONS
N.T.S



KEY MAP

!CAUTION!

CONTRACTOR TO CONTACT THE TEXAS ONE-CALL SYSTEM (1-800-344-8377) AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. KFM IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES IN THE PROJECT AREA. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM THE LOCATION SHOWN ON THE PLANS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

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

BENCHMARKS

REFERENCE BENCHMARK

CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

SITE BENCHMARK

CUT "X" SET AT THE NORTHEAST CORNER OF SPRING CREEK PARKWAY AND TOWN AND COUNTRY BOULEVARD.
ELEVATION = 614.03'

KFM ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE:	DESCRIPTION:	DATE:	DELTA:	DESCRIPTION:	DATE:

CLIENT: 121 SPRING CREEK, LLC

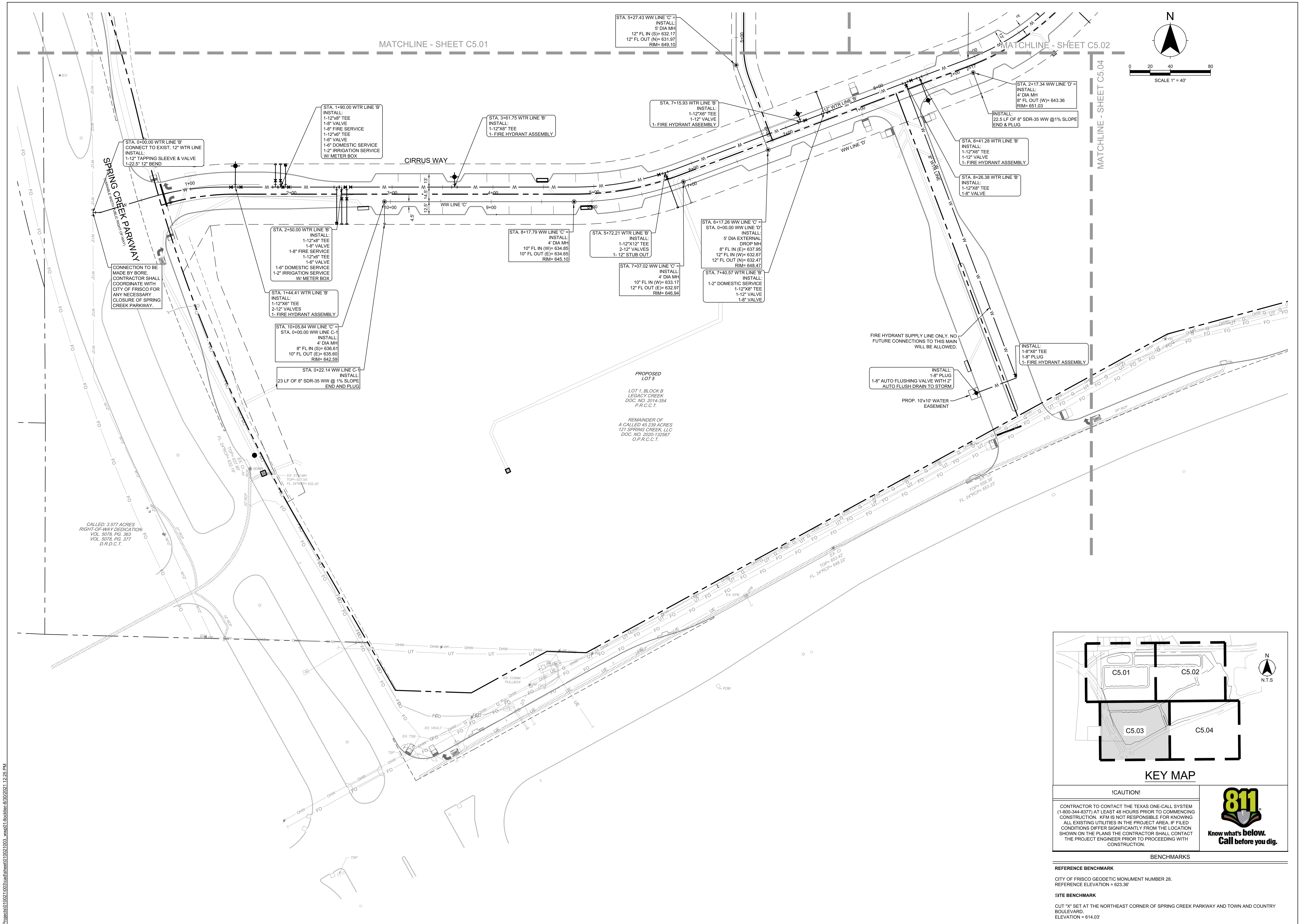
PROJECT: FRISCO 45 INFRASTRUCTURE

SHEET TITLE: WATER & WASTEWATER

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

PROJECT NUMBER: 010021003
DRAWN BY: GW/LL DESIGNED BY: JDB/TT CHECKED BY: JAM
DATE: 06/25/21
SHEET: C5.02

K:\Projects\010021003\cad\sheet\010021003_ww01-lockler-8/30/2021 12:25 PM



!CAUTION!

CONTRACTOR TO CONTACT THE TEXAS ONE-CALL SYSTEM (1-800-344-8377) AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. KFM IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES IN THE PROJECT AREA. IF FILED CONDITIONS DIFFER SIGNIFICANTLY FROM THE LOCATION SHOWN ON THE PLANS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

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

BENCHMARKS

REFERENCE BENCHMARK

CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

SITE BENCHMARK

CUT "X" SET AT THE NORTHEAST CORNER OF SPRING CREEK PARKWAY AND TOWN AND COUNTRY BOULEVARD.
ELEVATION = 614.03'

KFM ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE:	DESCRIPTION:	DATE:	DELTA:	DESCRIPTION:	DATE:

CLIENT: 121 SPRING CREEK, LLC

PROJECT: FRISCO 45 INFRASTRUCTURE

SHEET TITLE: WATER & WASTEWATER

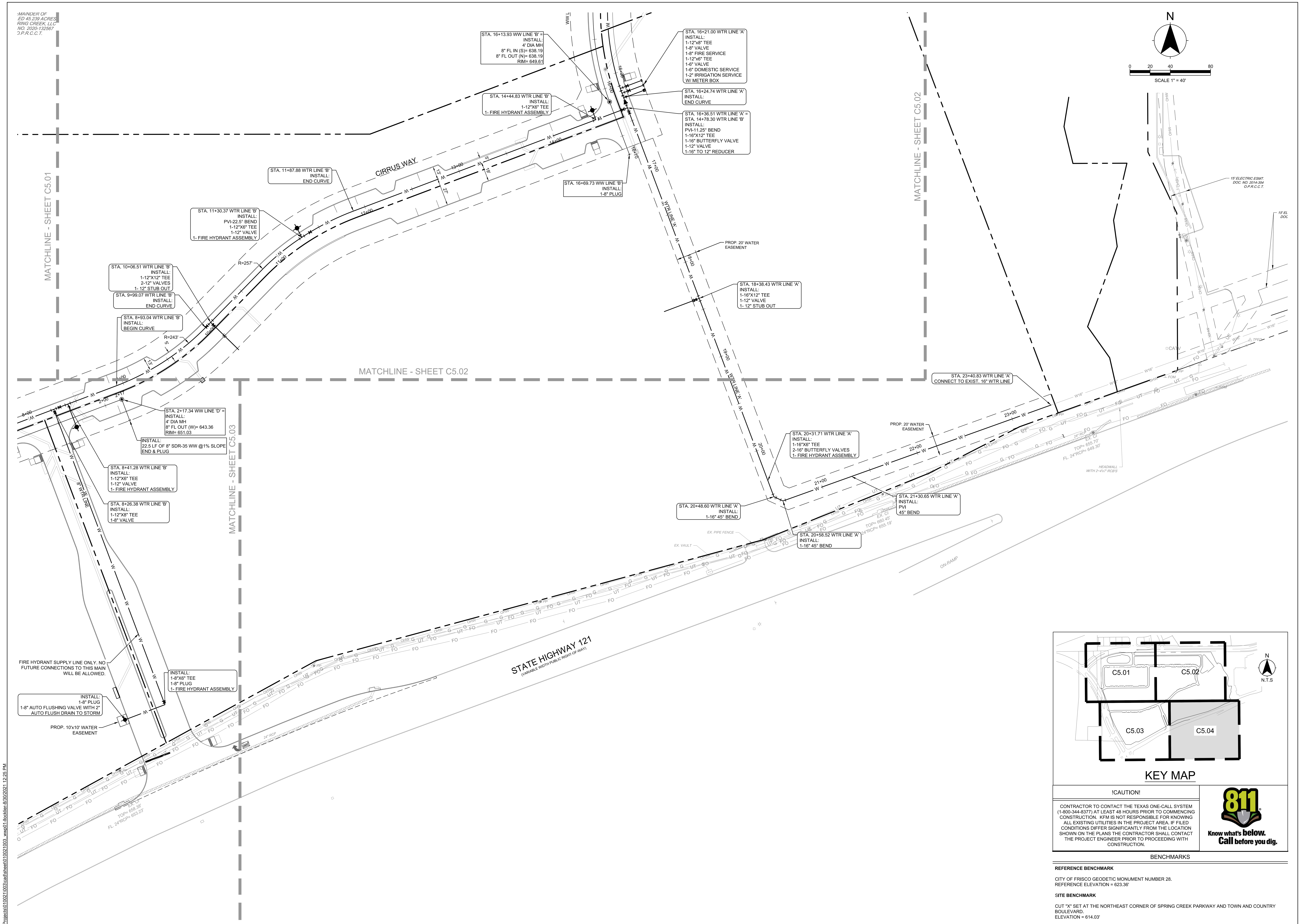
PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

PROJECT NUMBER: 010021003

DRAWN BY: GW/LL DESIGNED BY: JDB/TT CHECKED BY: JAM

DATE: 06/25/21

SHEET: C5.03



KEY MAP

!CAUTION!

CONTRACTOR TO CONTACT THE TEXAS ONE-CALL SYSTEM (1-800-344-8377) AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. KFM IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES IN THE PROJECT AREA. IF FILED CONDITIONS DIFFER SIGNIFICANTLY FROM THE LOCATION SHOWN ON THE PLANS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

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

BENCHMARKS

REFERENCE BENCHMARK

CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

SITE BENCHMARK

CUT "X" SET AT THE NORTHEAST CORNER OF SPRING CREEK PARKWAY AND TOWN AND COUNTRY BOULEVARD.
ELEVATION = 614.03'

K:\Projects\010021003\cad\sheet\010021003_ww01-lockler-8/30/2021 12:25 PM

KFM ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE:	DESCRIPTION:	DATE:	DELTA:	DESCRIPTION:	DATE:

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

SHEET TITLE
WATER & WASTEWATER

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

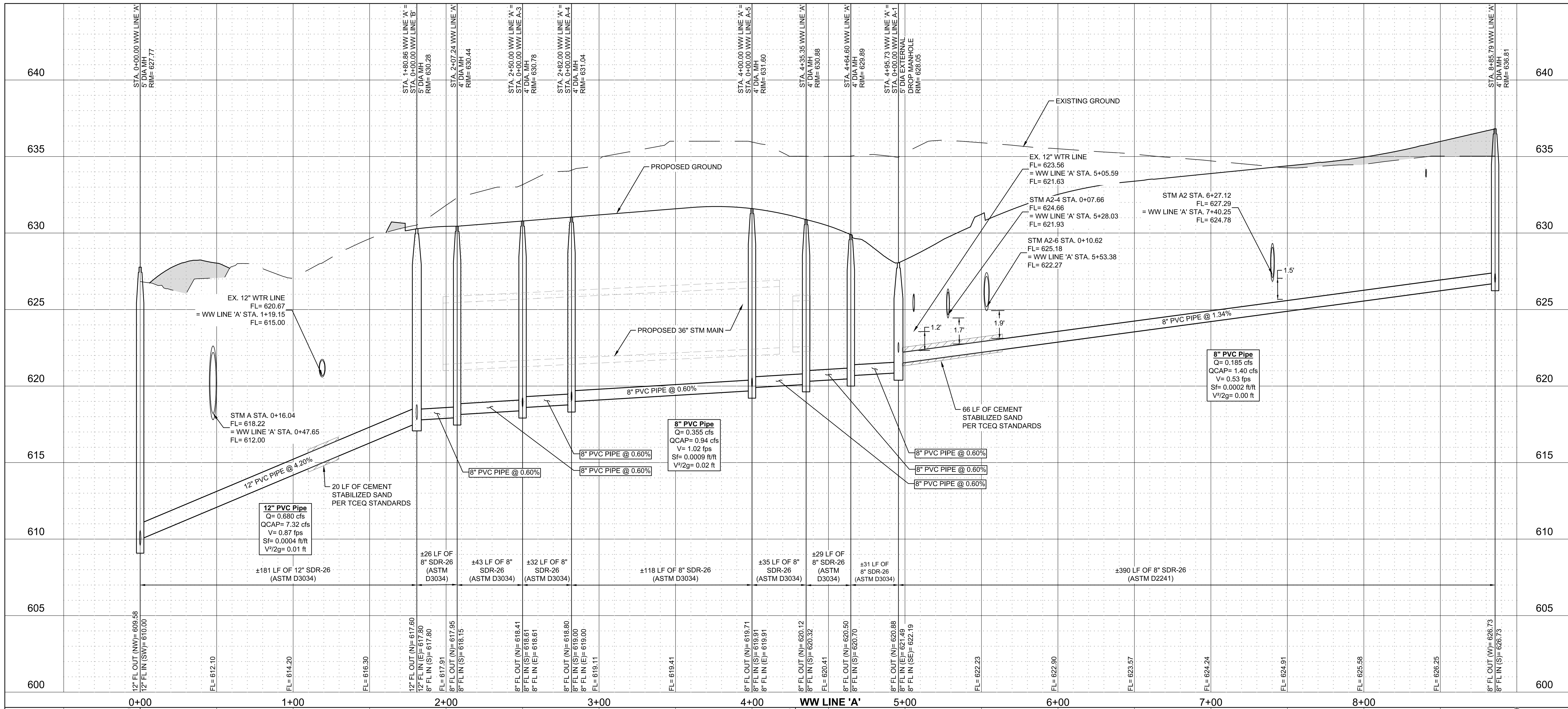
PROJECT NUMBER:
010021003

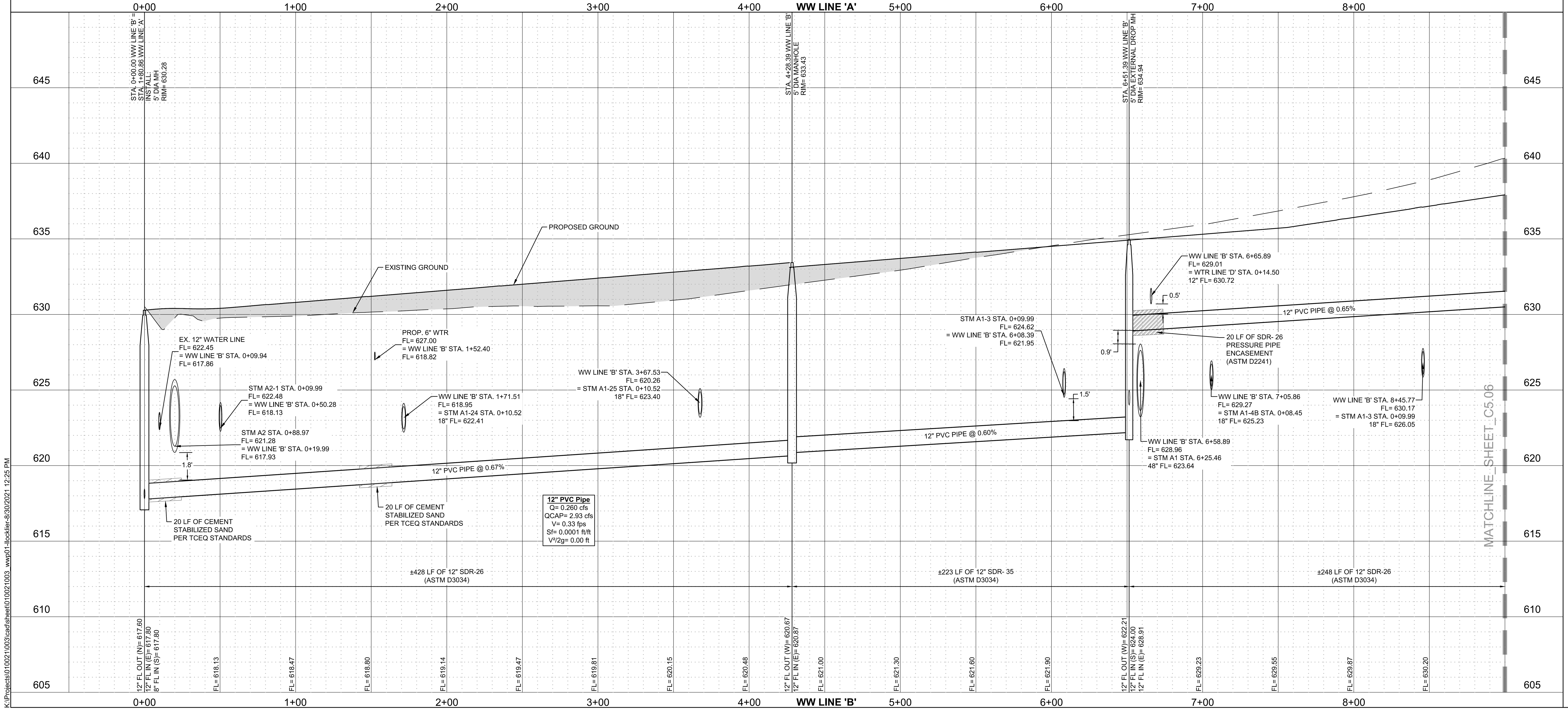
DRAWN BY:	DESIGNED BY:	CHECKED BY:
GW/LL	JDB/TT	JAM

DATE:
06/25/21

SHEET:

C5.04





PROFILE SCALE
HORIZONTAL: 1" = 40'
VERTICAL: 1" = 10'

UTILITY PROFILE VIEW LEGEND

— — —	EXISTING GROUND
———	PROPOSED GROUND
STA.	STATION
(shaded)	FILL TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY OR PER GEOTECH RECOMMENDATION

NOTES:
- REFER TO SHEET C0.04 FOR GENERAL CONSTRUCTION NOTES.
- REFER TO SHEET C6.90 FOR UTILITY DETAILS.
- ALL PIPE SHALL BE SDR-35. IF DEEPER THAN 10', SDR-26 SHALL BE USED.

!CAUTION!

CONTRACTOR TO CONTACT THE TEXAS ONE-CALL SYSTEM (1-800-344-8377) AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. KFM IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES IN THE PROJECT AREA. IF FILED CONDITIONS DIFFER SIGNIFICANTLY FROM THE LOCATION SHOWN ON THE PLANS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

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

BENCHMARKS

REFERENCE BENCHMARK

CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

SITE BENCHMARK

CUT "X" SET AT THE NORTHEAST CORNER OF SPRING CREEK PARKWAY AND TOWN AND COUNTRY BOULEVARD.
ELEVATION = 614.03'

KFM ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE:	DESCRIPTION:	DATE:	DELTA:	DESCRIPTION:	DATE:

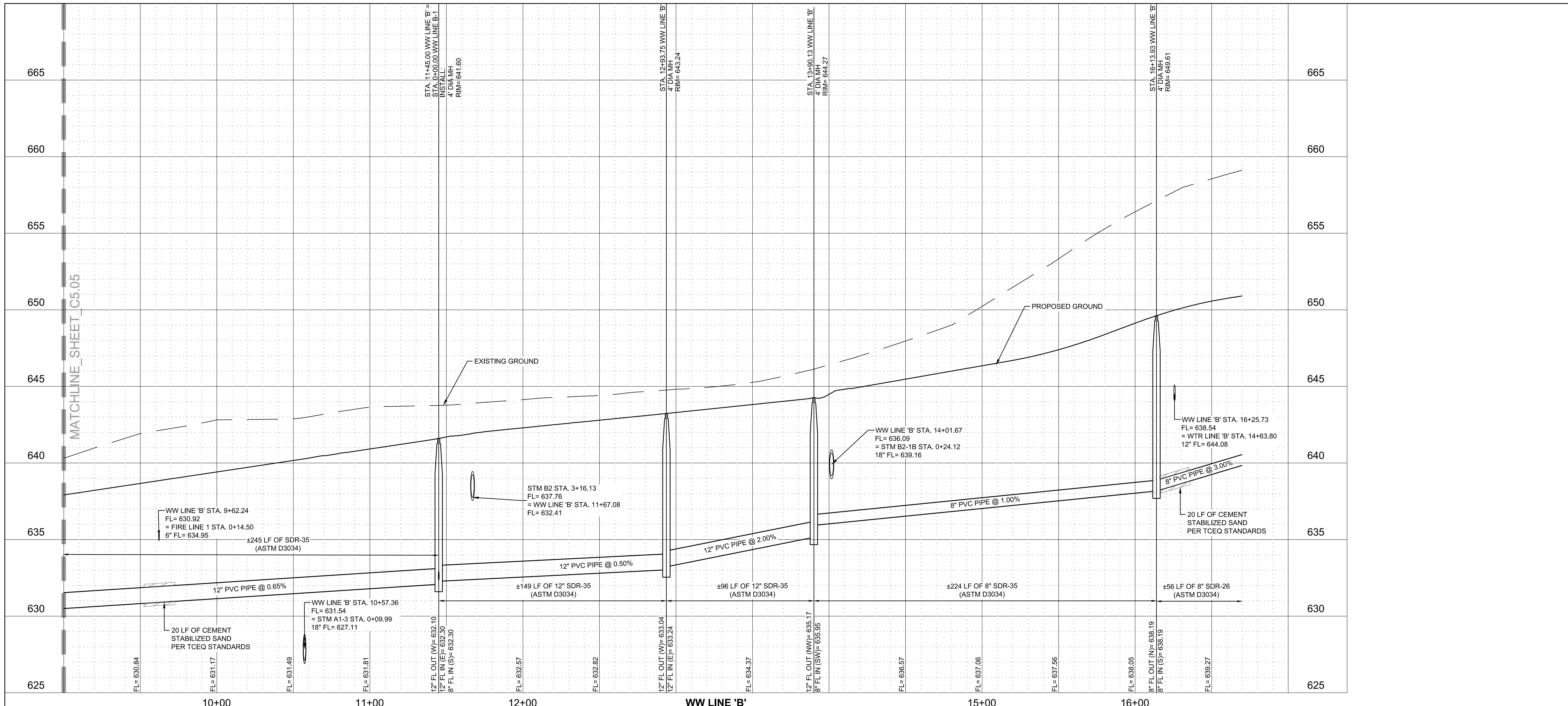
CLIENT: 121 SPRING CREEK, LLC

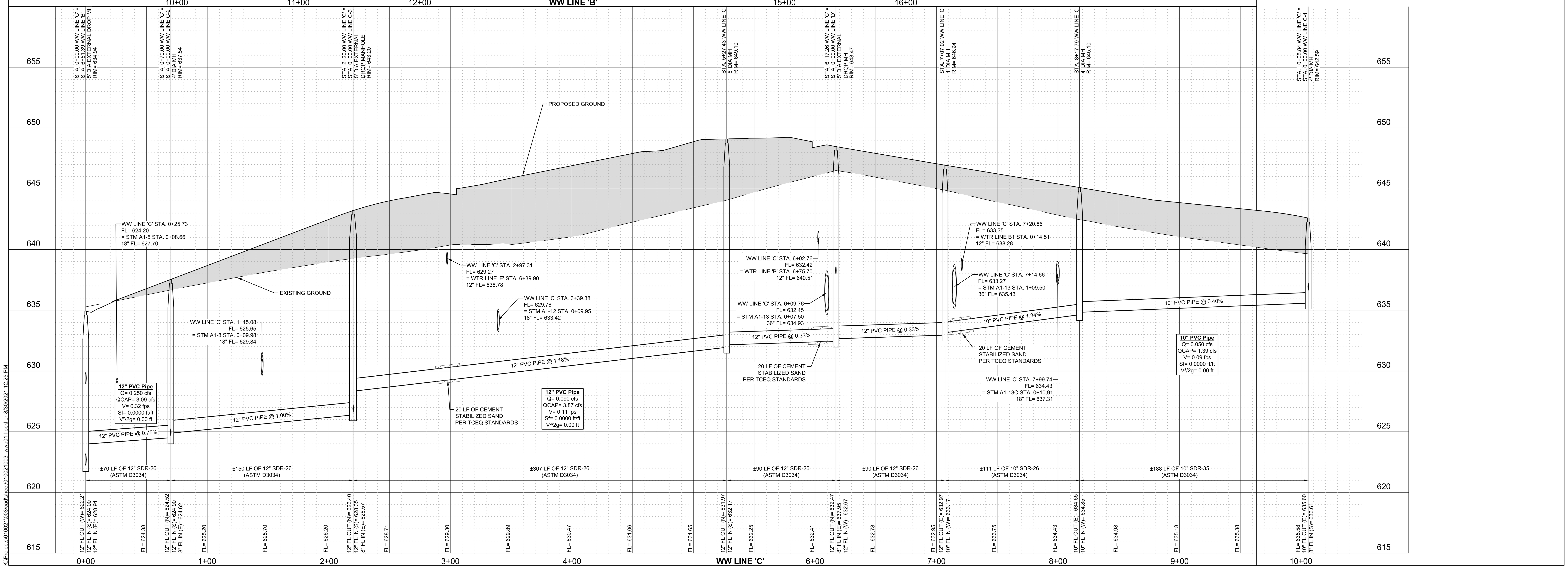
PROJECT: FRISCO 45 INFRASTRUCTURE

SHEET TITLE: WASTEWATER PROFILE

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

PROJECT NUMBER: 010021003
DRAWN BY: GW/LL | DESIGNED BY: JDB/TT | CHECKED BY: JAM
DATE: 06/25/21
SHEET: C5.05





PROFILE SCALE
HORIZONTAL: 1" = 40'
VERTICAL: 1" = 10'

UTILITY PROFILE VIEW LEGEND

— — —	EXISTING GROUND
———	PROPOSED GROUND
STA.	STATION
(shaded)	FILL TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY OR PER GEOTECH RECOMMENDATION

NOTES:
- REFER TO SHEET C0.04 FOR GENERAL CONSTRUCTION NOTES.
- REFER TO SHEET C6.90 FOR UTILITY DETAILS.
- ALL PIPE SHALL BE SDR-35. IF DEEPER THAN 10', SDR-26 SHALL BE USED.

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

!CAUTION!

CONTRACTOR TO CONTACT THE TEXAS ONE-CALL SYSTEM (1-800-344-8377) AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. KFM IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES IN THE PROJECT AREA. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM THE LOCATION SHOWN ON THE PLANS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

BENCHMARKS

REFERENCE BENCHMARK

CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

SITE BENCHMARK

CUT "X" SET AT THE NORTHEAST CORNER OF SPRING CREEK PARKWAY AND TOWN AND COUNTRY BOULEVARD.
ELEVATION = 614.03'

KFM ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE:	DESCRIPTION:	DATE:	DELTA:	DESCRIPTION:	DATE:

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

SHEET TITLE
WASTEWATER PROFILE

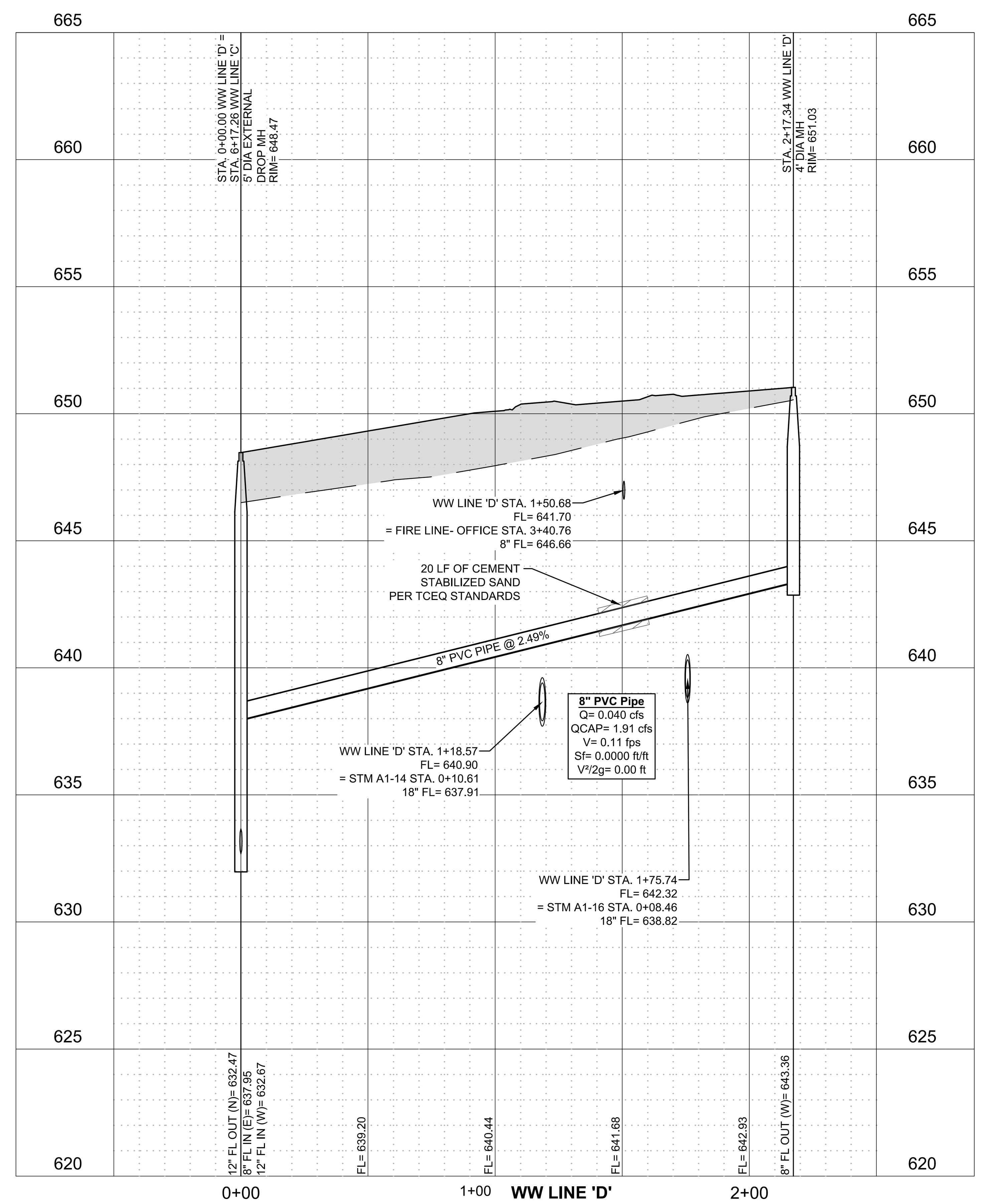
PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

PROJECT NUMBER:
010021003

DRAWN BY:	DESIGNED BY:	CHECKED BY:
GW/LL	JDB/TT	JAM

DATE:
06/25/21

SHEET:
C5.06



PROFILE SCALE
HORIZONTAL: 1' = 40'
VERTICAL: 1' = 10'

UTILITY PROFILE VIEW LEGEND

— — —	EXISTING GROUND
———	PROPOSED GROUND
STA.	STATION
	FILL TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY OR PER GEOTECH RECOMMENDATION

NOTES:
- REFER TO SHEET C0.04 FOR GENERAL CONSTRUCTION NOTES.
- REFER TO SHEET C6.90 FOR UTILITY DETAILS.
- ALL PIPE SHALL BE SDR-35. IF DEEPER THAN 10', SDR-26 SHALL BE USED.

!CAUTION!

CONTRACTOR TO CONTACT THE TEXAS ONE-CALL SYSTEM (1-800-344-8377) AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. KFM IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES IN THE PROJECT AREA. IF FILED CONDITIONS DIFFER SIGNIFICANTLY FROM THE LOCATION SHOWN ON THE PLANS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

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

BENCHMARKS

REFERENCE BENCHMARK

CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

SITE BENCHMARK

CUT "X" SET AT THE NORTHEAST CORNER OF SPRING CREEK PARKWAY AND TOWN AND COUNTRY BOULEVARD.
ELEVATION = 614.03'

KFM
ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE:	DESCRIPTION:	DATE:	DELTA:	DESCRIPTION:	DATE:

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

SHEET TITLE
WASTEWATER PROFILE

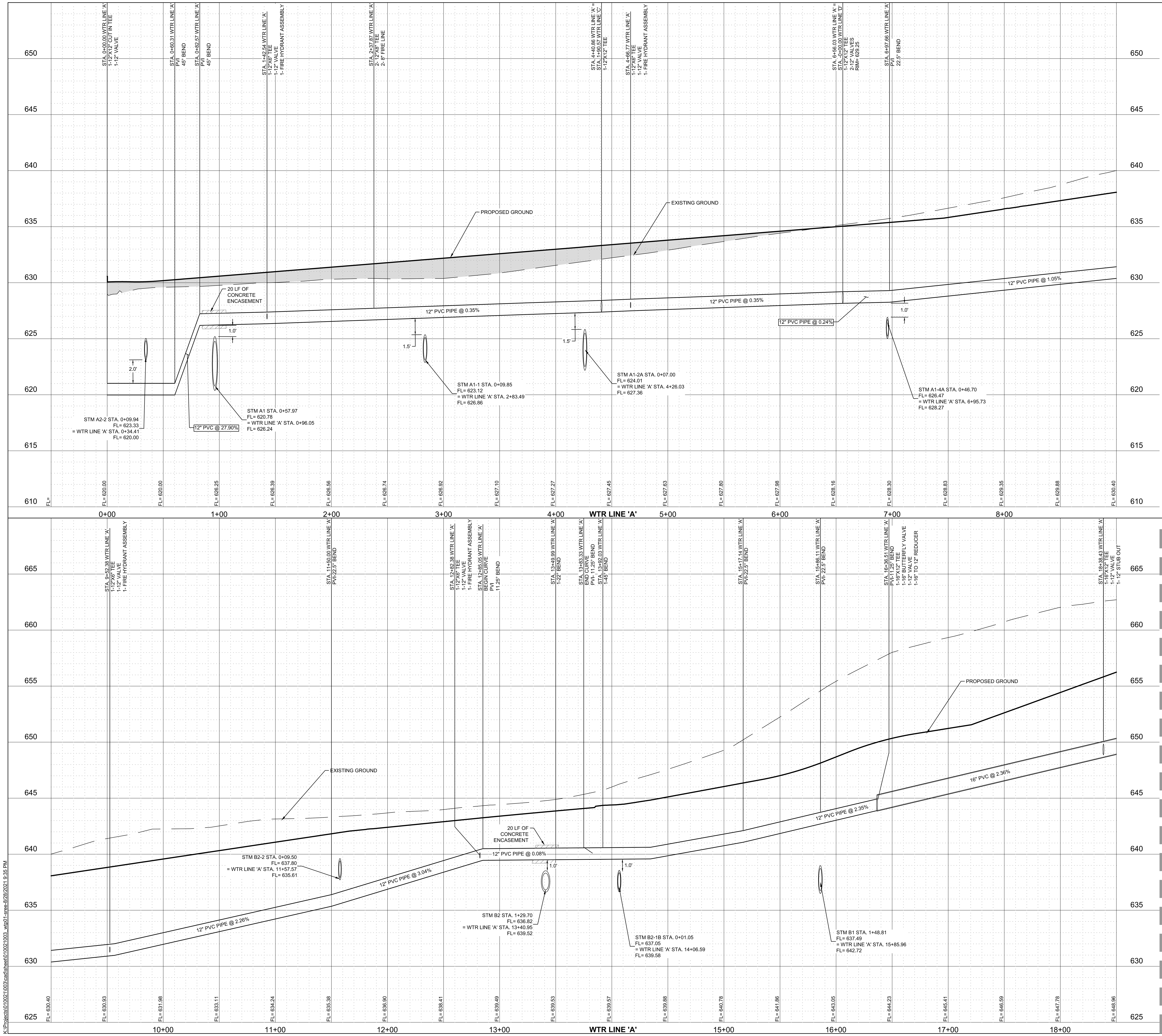
PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

PROJECT NUMBER:
010021003

DRAWN BY: GW/LL
DESIGNED BY: JDB/TT
CHECKED BY: JAM

DATE:
06/25/21

SHEET:
C5.07



PROFILE SCALE
HORIZONTAL: 1" = 40'
VERTICAL: 1" = 10'

UTILITY PROFILE VIEW LEGEND

— — —	EXISTING GROUND
———	PROPOSED GROUND
STA.	STATION
	FILL TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY OR PER GEOTECH RECOMMENDATION

!CAUTION!

CONTRACTOR TO CONTACT THE TEXAS ONE-CALL SYSTEM (1-800-344-8377) AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. KFM IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES IN THE PROJECT AREA. IF FILED CONDITIONS DIFFER SIGNIFICANTLY FROM THE LOCATION SHOWN ON THE PLANS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

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

BENCHMARKS

REFERENCE BENCHMARK

CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

SITE BENCHMARK

CUT "X" SET AT THE NORTHEAST CORNER OF SPRING CREEK PARKWAY AND TOWN AND COUNTRY BOULEVARD.
ELEVATION = 614.03'

KFM ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE:	DESCRIPTION:	DATE:	DELTA:	DESCRIPTION:	DATE:

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

SHEET TITLE
WATER PROFILE

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

PROJECT NUMBER:
010021003

DRAWN BY: GW/LL
DESIGNED BY: JDB/TT
CHECKED BY: JAM

DATE:
06/25/21

SHEET:
C5.08

K:\Projects\010021003\cad\sheet\010021003_wtr01-sree-8/28/2021 9:35 PM

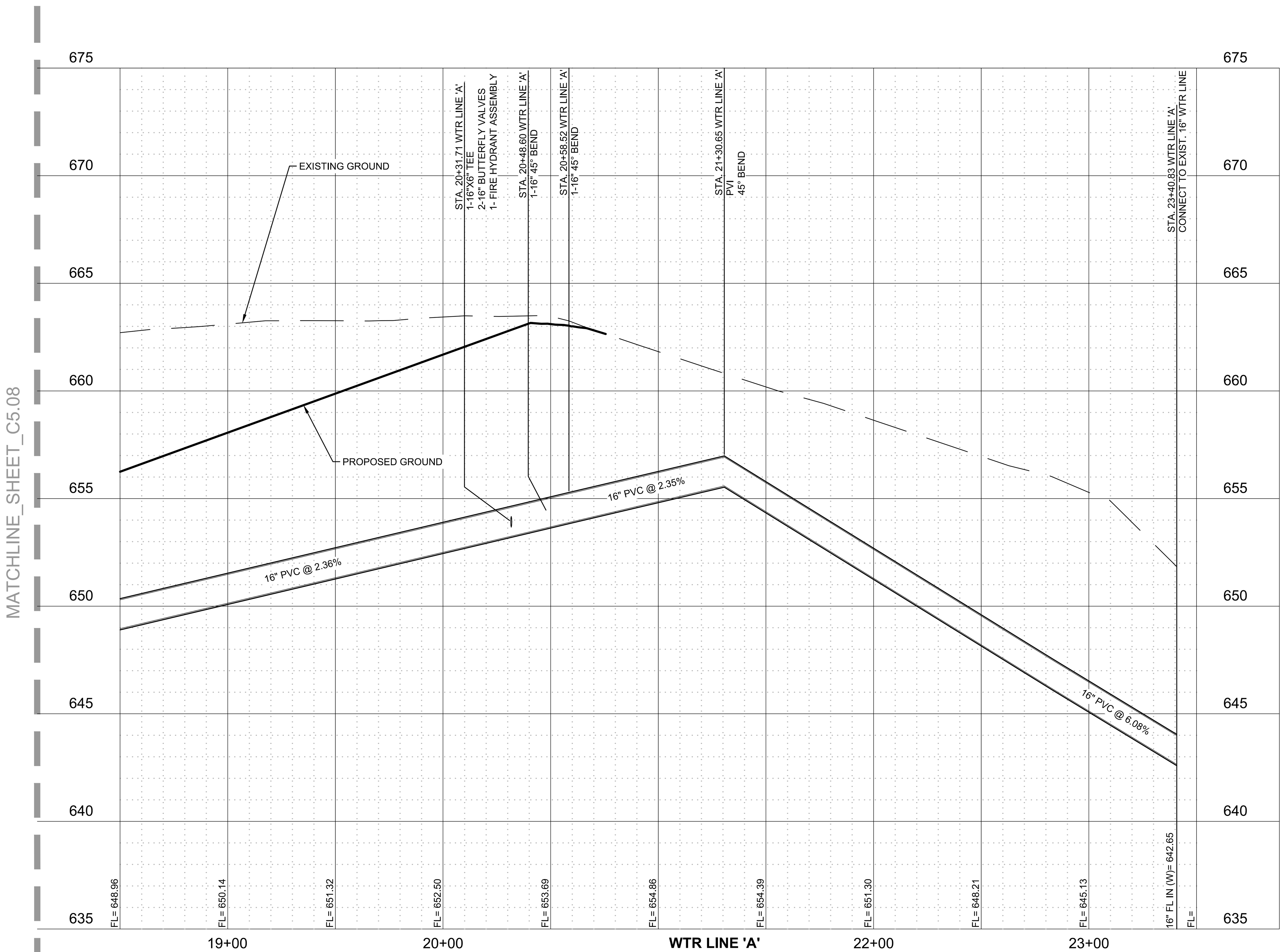
KFM
ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

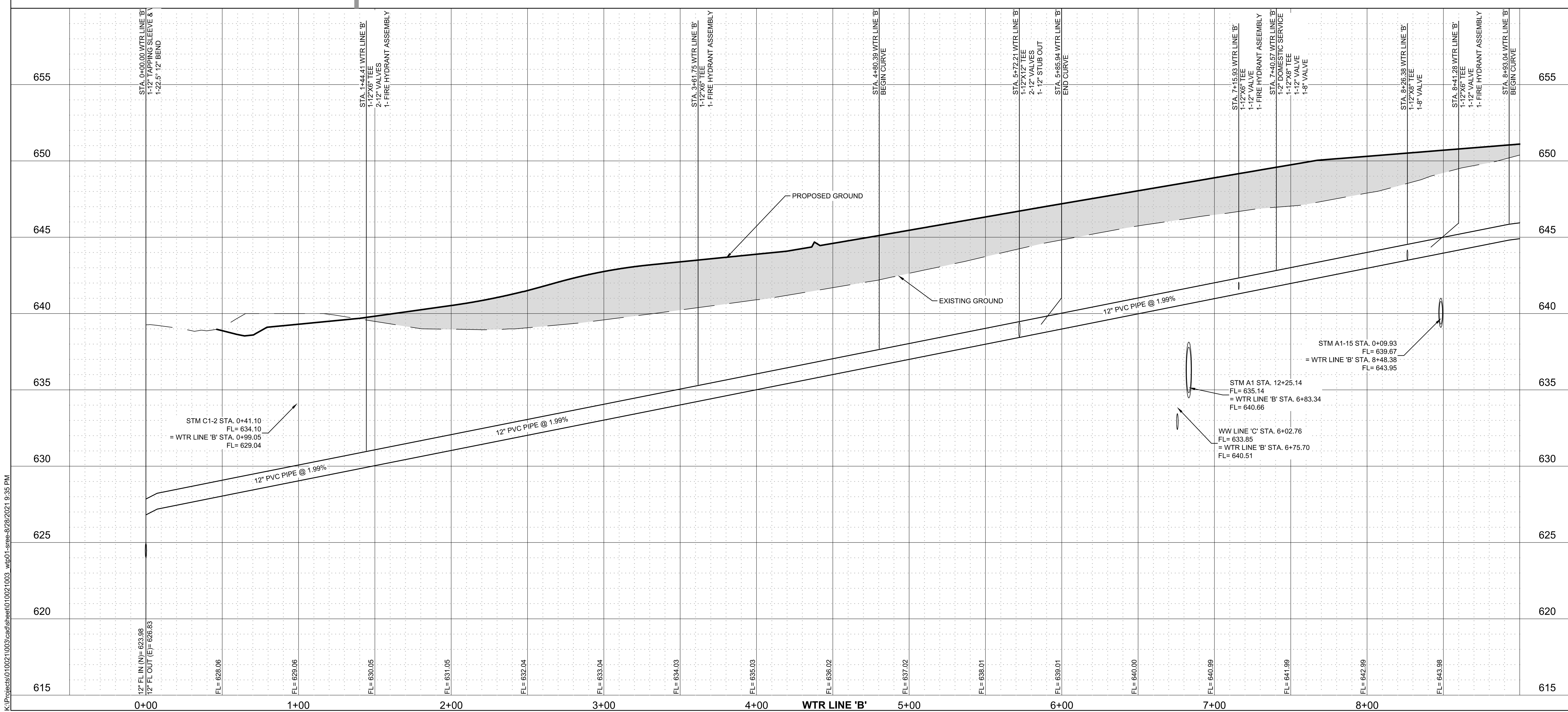
ISSUE:	DESCRIPTION:	DATE:	DELTA:	DESCRIPTION:	DATE:

PROFILE SCALE
HORIZONTAL: 1" = 40'
VERTICAL: 1" = 4'

UTILITY PROFILE VIEW LEGEND

(dashed line)	EXISTING GROUND
(solid line)	PROPOSED GROUND
STA.	STATION
(shaded)	FILL TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY OR PER GEOTECH RECOMMENDATION





!CAUTION!

CONTRACTOR TO CONTACT THE TEXAS ONE-CALL SYSTEM (1-800-344-8377) AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. KFM IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES IN THE PROJECT AREA. IF FILED CONDITIONS DIFFER SIGNIFICANTLY FROM THE LOCATION SHOWN ON THE PLANS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

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

BENCHMARKS

REFERENCE BENCHMARK

CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

SITE BENCHMARK

CUT "X" SET AT THE NORTHEAST CORNER OF SPRING CREEK PARKWAY AND TOWN AND COUNTRY BOULEVARD.
ELEVATION = 614.03'

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

SHEET TITLE
WATER PROFILE

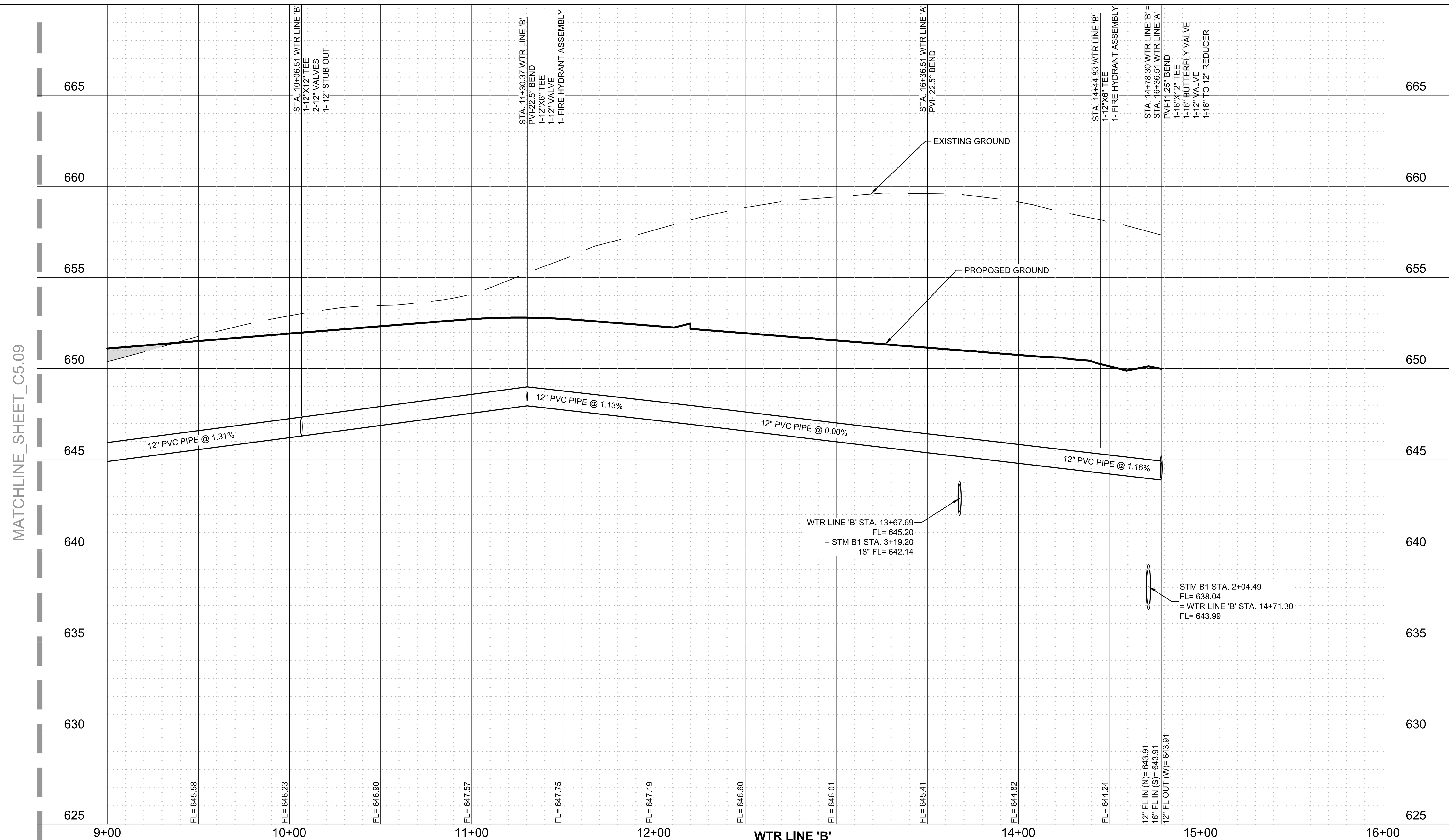
PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

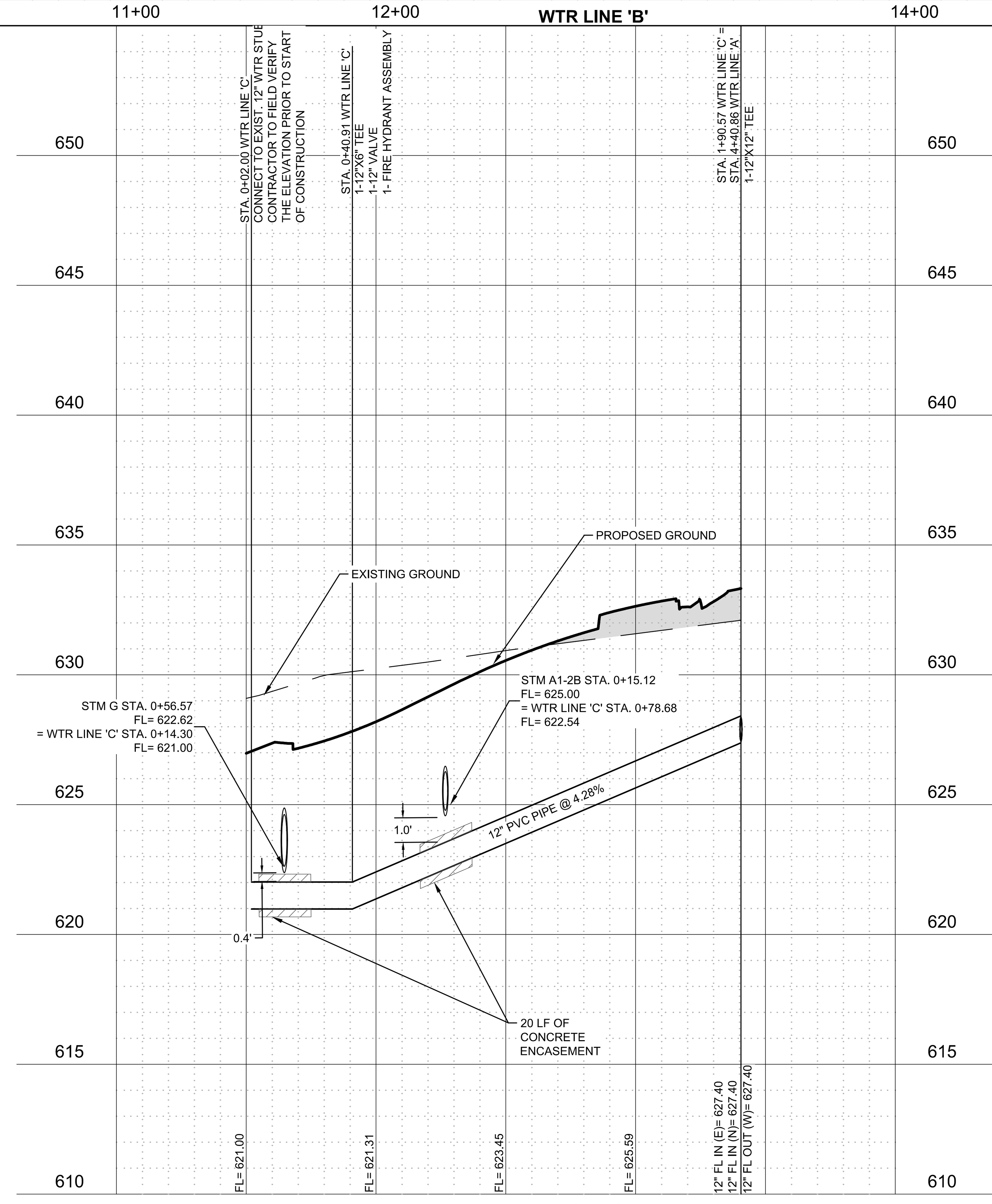
PROJECT NUMBER:
010021003

DRAWN BY: GW/LL
DESIGNED BY: JDB/TT
CHECKED BY: JAM

DATE:
06/25/21

SHEET:
C5.09





PROFILE SCALE
HORIZONTAL: 1" = 40'
VERTICAL: 1" = 4'

UTILITY PROFILE VIEW LEGEND

— — —	EXISTING GROUND
——	PROPOSED GROUND
STA.	STATION
(shaded)	FILL TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY OR PER GEOTECH RECOMMENDATION

!CAUTION!

CONTRACTOR TO CONTACT THE TEXAS ONE-CALL SYSTEM (1-800-344-8377) AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. KFM IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES IN THE PROJECT AREA. IF FILED CONDITIONS DIFFER SIGNIFICANTLY FROM THE LOCATION SHOWN ON THE PLANS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

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

BENCHMARKS

REFERENCE BENCHMARK

CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

SITE BENCHMARK

CUT "X" SET AT THE NORTHEAST CORNER OF SPRING CREEK PARKWAY AND TOWN AND COUNTRY BOULEVARD.
ELEVATION = 614.03'

KFM
ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE: | DESCRIPTION: | DATE: | DELTA: | DESCRIPTION: | DATE:

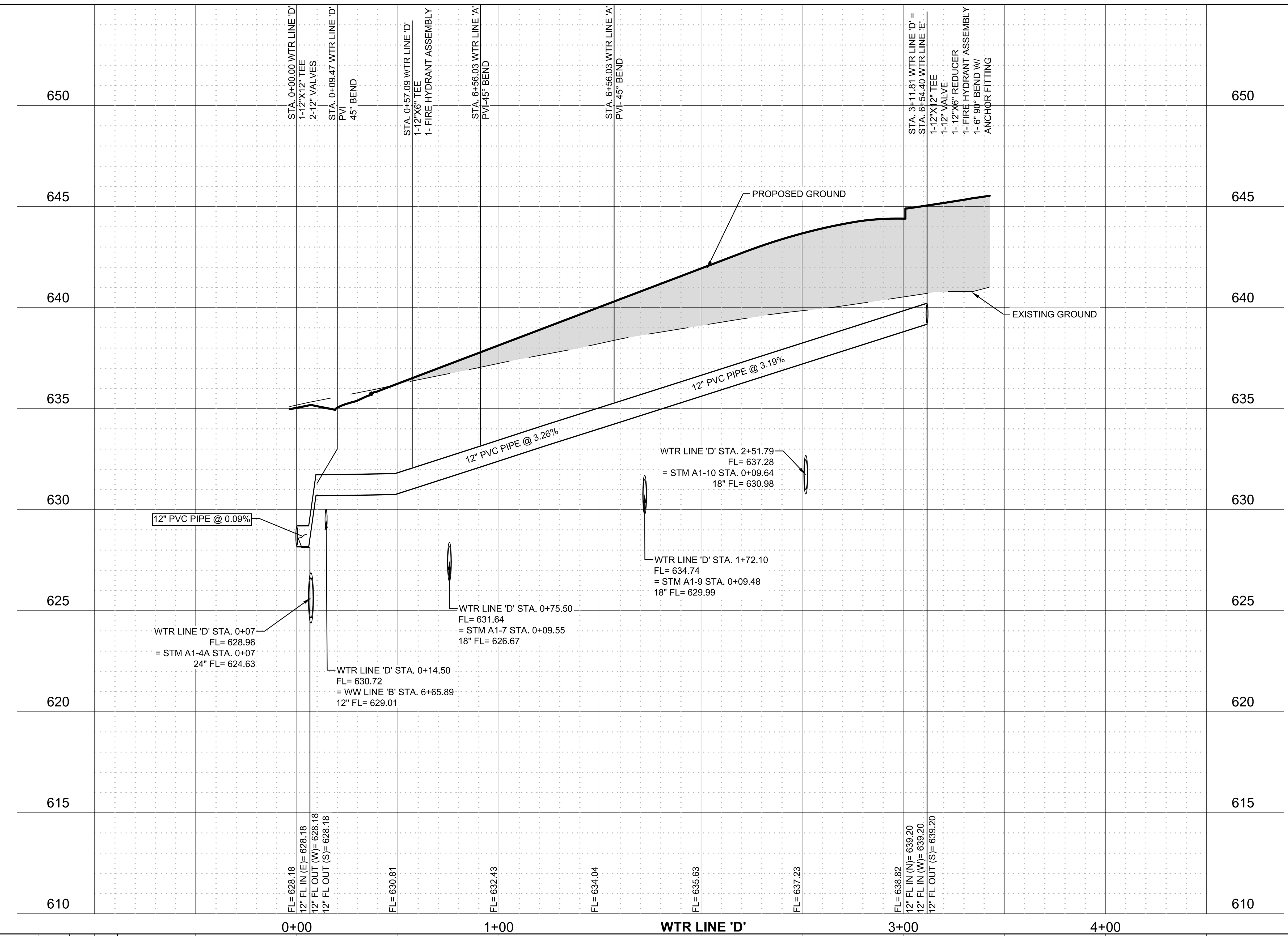
CLIENT
121 SPRING CREEK, LLC

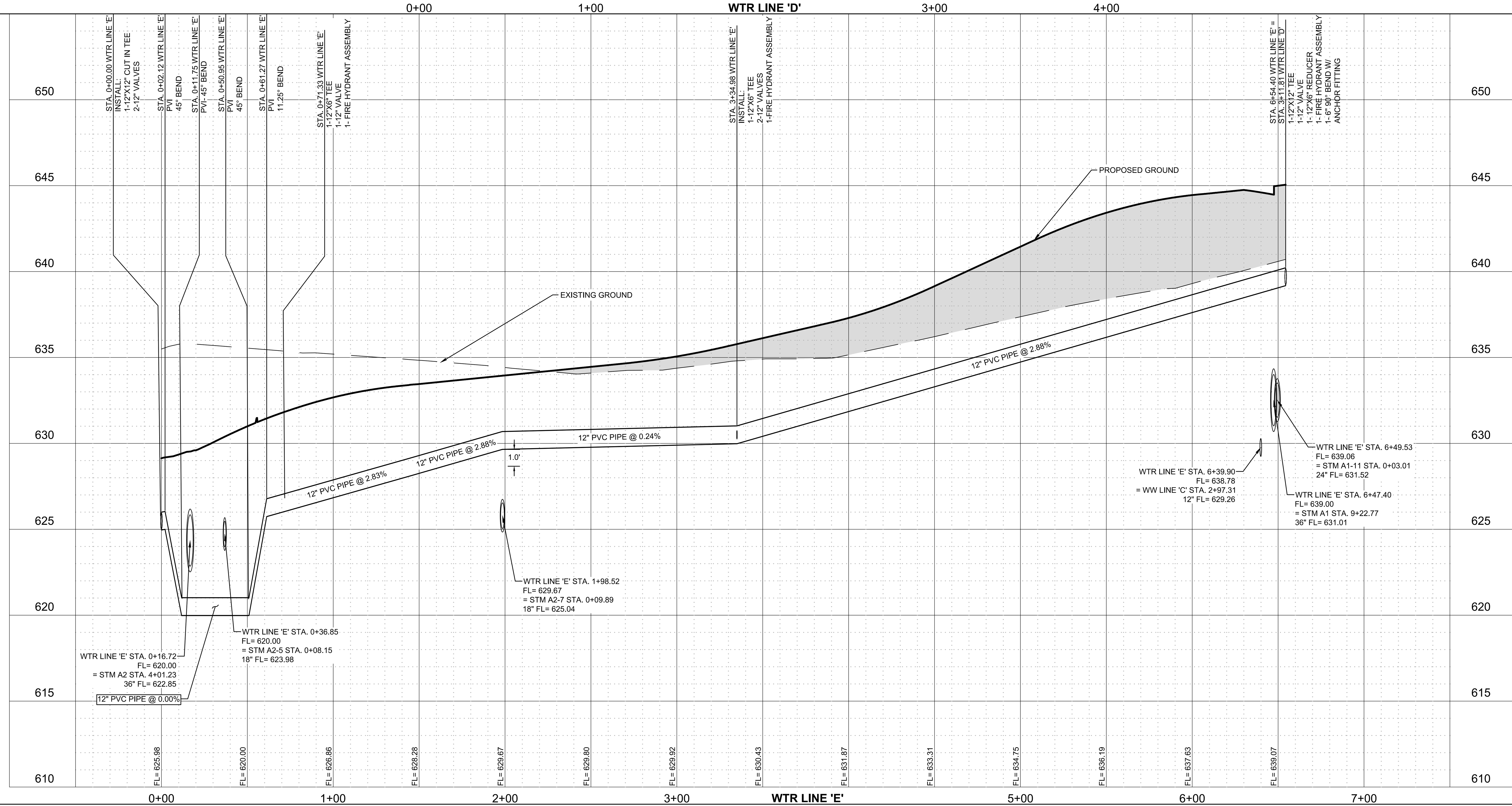
PROJECT
FRISCO 45 INFRASTRUCTURE

SHEET TITLE
WATER PROFILE

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

PROJECT NUMBER: 010021003
DRAWN BY: GW/LL
DESIGNED BY: JDB/TT
CHECKED BY: JAM
DATE: 06/25/21
SHEET:
C5.10





PROFILE SCALE
HORIZONTAL: 1" = 40'
VERTICAL: 1" = 4'

UTILITY PROFILE VIEW LEGEND

— — —	EXISTING GROUND
———	PROPOSED GROUND
STA.	STATION
(shaded)	FILL TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY OR PER GEOTECH RECOMMENDATION

!CAUTION!

CONTRACTOR TO CONTACT THE TEXAS ONE-CALL SYSTEM (1-800-344-8377) AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. KFM IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES IN THE PROJECT AREA. IF FILED CONDITIONS DIFFER SIGNIFICANTLY FROM THE LOCATION SHOWN ON THE PLANS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

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

BENCHMARKS

REFERENCE BENCHMARK

CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

SITE BENCHMARK

CUT "X" SET AT THE NORTHEAST CORNER OF SPRING CREEK PARKWAY AND TOWN AND COUNTRY BOULEVARD.
ELEVATION = 614.03'

KFM
ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE:	DESCRIPTION:	DATE:	DELTA:	DESCRIPTION:	DATE:

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

SHEET TITLE
WATER PROFILE

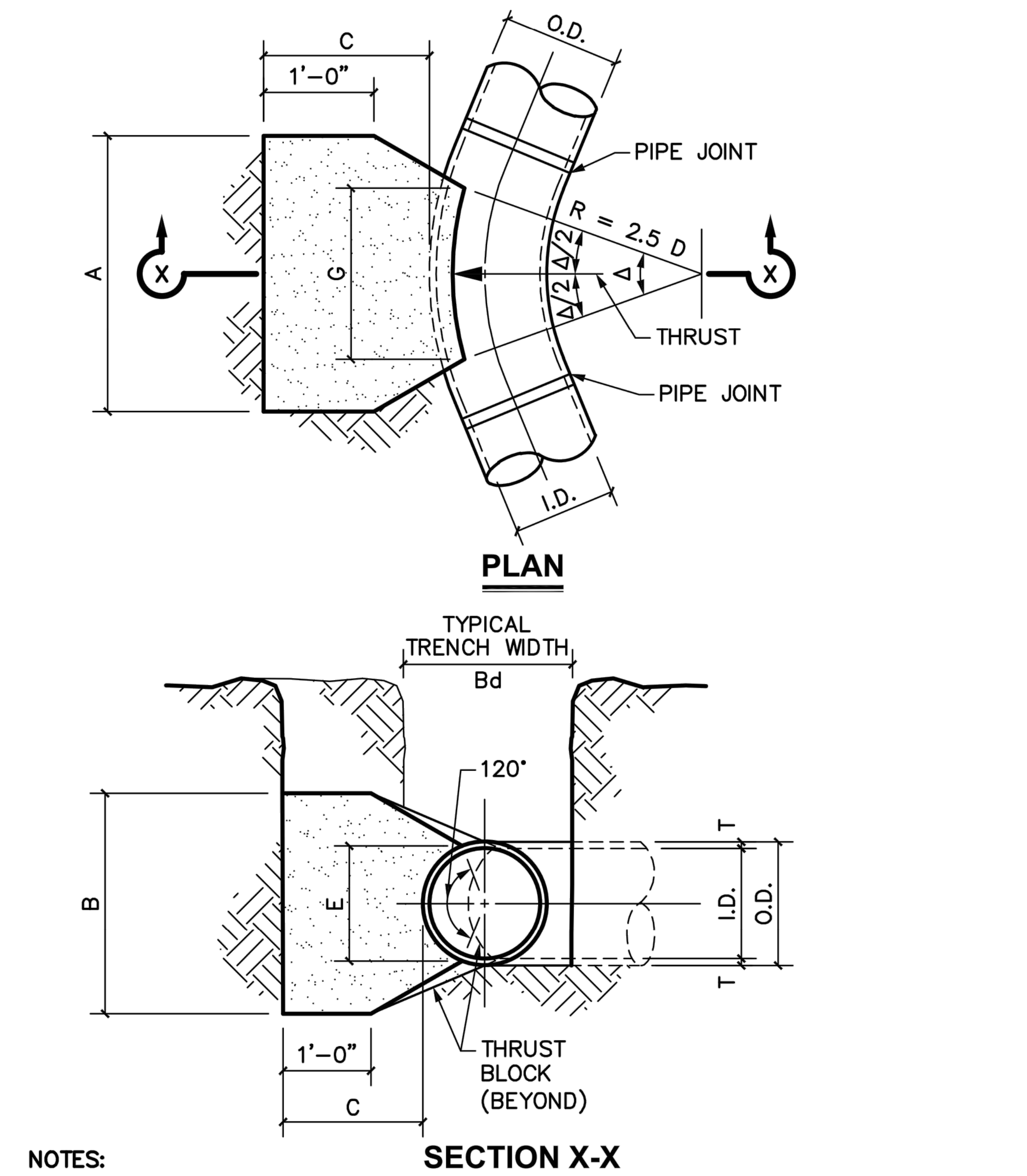
PRELIMINARY
NOT FOR CONSTRUCTION
KFM
ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

PROJECT NUMBER:
010021003

DRAWN BY:	DESIGNED BY:	CHECKED BY:
GW/LL	JDB/TT	JAM

DATE:
06/25/21

SHEET:
C5.11



NOTES:

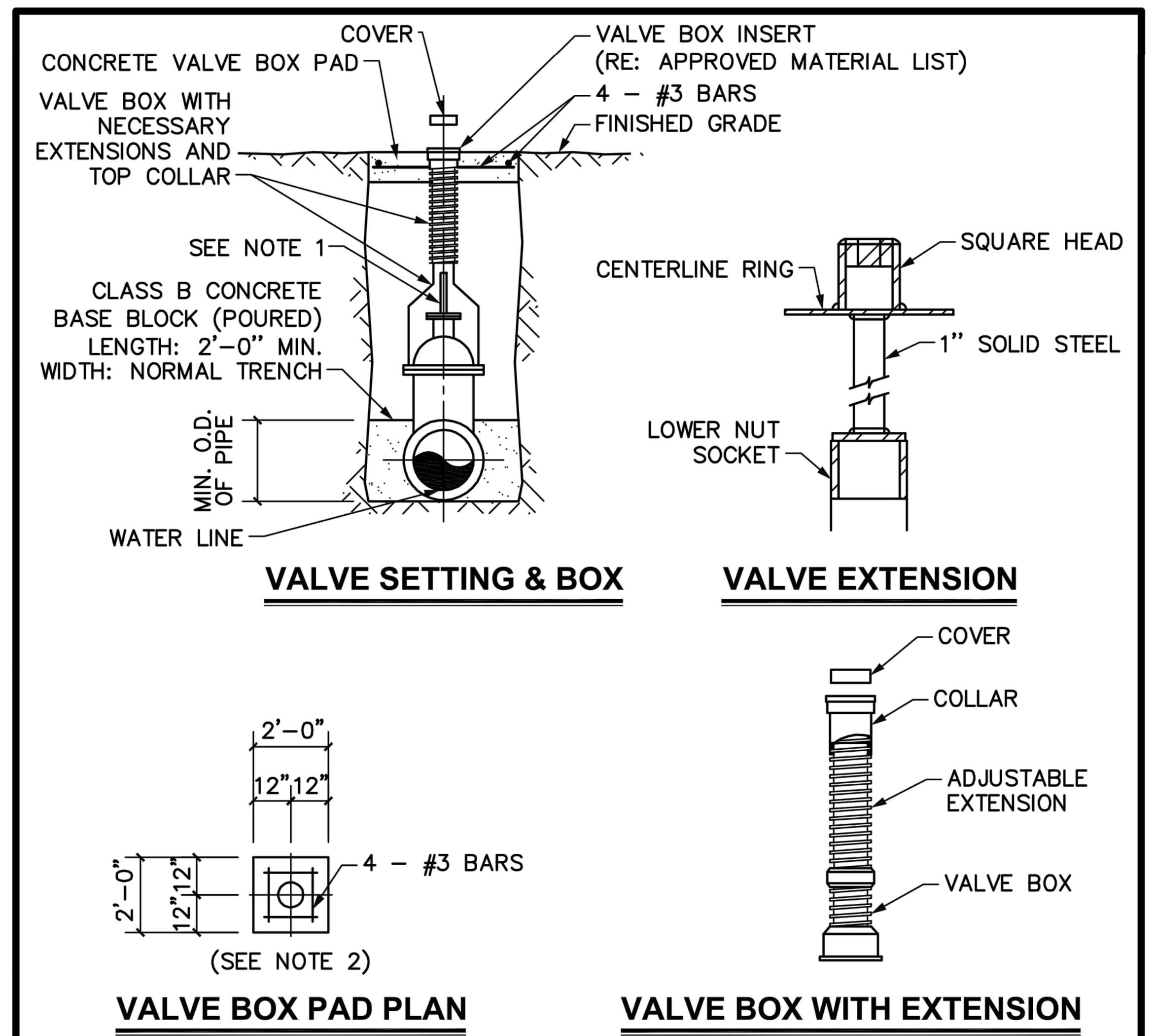
1. REFER TO STANDARD DEATIL W02 AND W03 FOR TABLES OF DIMENSIONS AND QUANTITIES.
2. REFER TO STANDARD DETAIL W06 FOR GENERAL NOTES.

STANDARD CONSTRUCTION DETAIL
HORIZONTAL THRUST BLOCK AT PIPE BEND
SHEET 1 OF 3
SCALE: 3/4"=1'-0"
REVISED: AUG 2020
W01

GENERAL NOTES FOR ALL THRUST BLOCKS:

1. CONCRETE FOR BLOCKING SHALL BE CLASS B AND SULFATE RESISTANT. RE: TECHNICAL SPECIFICATION 321313.
2. ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200 PSI FOR DUCTILE IRON, P.V.C.
3. VOLUMES OF THRUST BLOCKS ARE NET VOLUMES OF CONCRETE TO BE FURNISHED. THE CORRESPONDING WEIGHT OF THE CONCRETE (CLASS B) IS EQUAL TO OR GREATER THAN THE VERTICAL COMPONENT OF THE THRUST ON THE VERTICAL BEND.
4. WALL THICKNESS (T) ASSUMED HERE FOR ESTIMATING PURPOSES ONLY.
5. POUR CONCRETE FOR BLOCK AGAINST UNDISTURBED EARTH.
6. DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD CONDITIONS WHERE AND AS DIRECTED BY THE ENGINEER. THE VOLUME OF CONCRETE BLOCKING SHALL BE LESS THAN SHOWN HERE.
7. THE SOIL BEARING PRESSURES ARE BASED ON 1000 LBS./S.F. IN SOIL AND 2000 LBS./S.F. IN ROCK.
8. USE POLYETHYLENE WRAP OR EQUAL BETWEEN CONCRETE AND BEND, TEE, OR PLUG TO PREVENT THE CONCRETE FROM STICKING TO IT.
9. FOR STANDARD FITTINGS, CONCRETE SHALL NOT EXTEND BEYOND JOINTS.

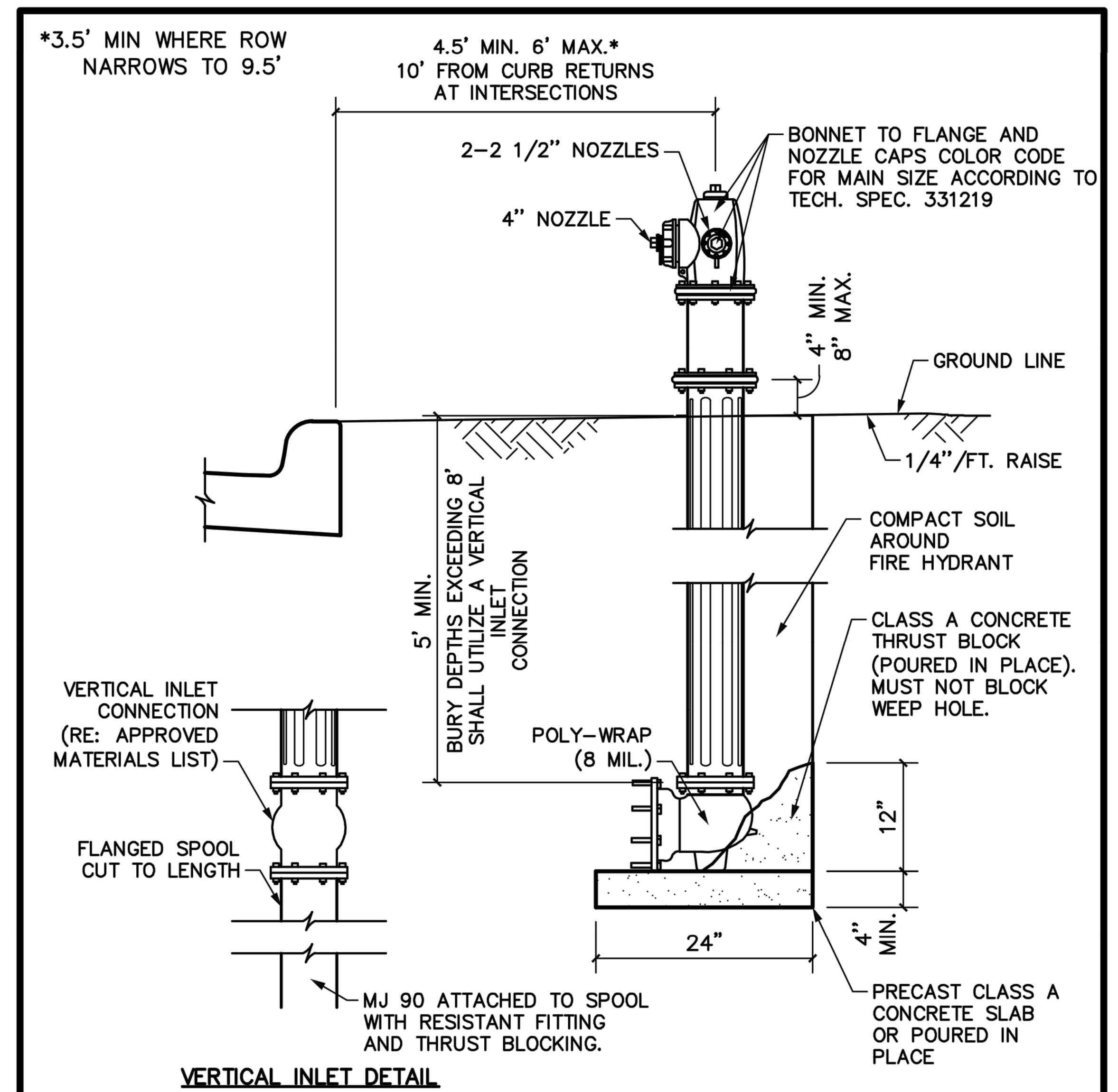
STANDARD CONSTRUCTION DETAIL
THRUST BLOCK
GENERAL NOTES
SCALE: N.T.S.
REVISED: AUG 2020
W06



NOTES:

1. A VALVE EXTENSION STEM SHALL BE REQUIRED FOR ANY VALVE WHOSE OPERATING NUT IS LOCATED IN EXCESS OF 4' BELOW THE TOP OF VALVE BOX. THIS EXTENSION SHALL BE OF SUFFICIENT LENGTH TO INSURE THAT ITS TOP IS WITHIN 2' OF THE VALVE BOX COVER.
2. CONCRETE PAD 24" SQUARE SHALL BE POURED AROUND ALL VALVE BOXES NOT PLACED WITHIN CONCRETE PAVEMENT. CLASS A CONCRETE, 6" THICK.
3. REFER TO TECHNICAL SPECIFICATION 331217.

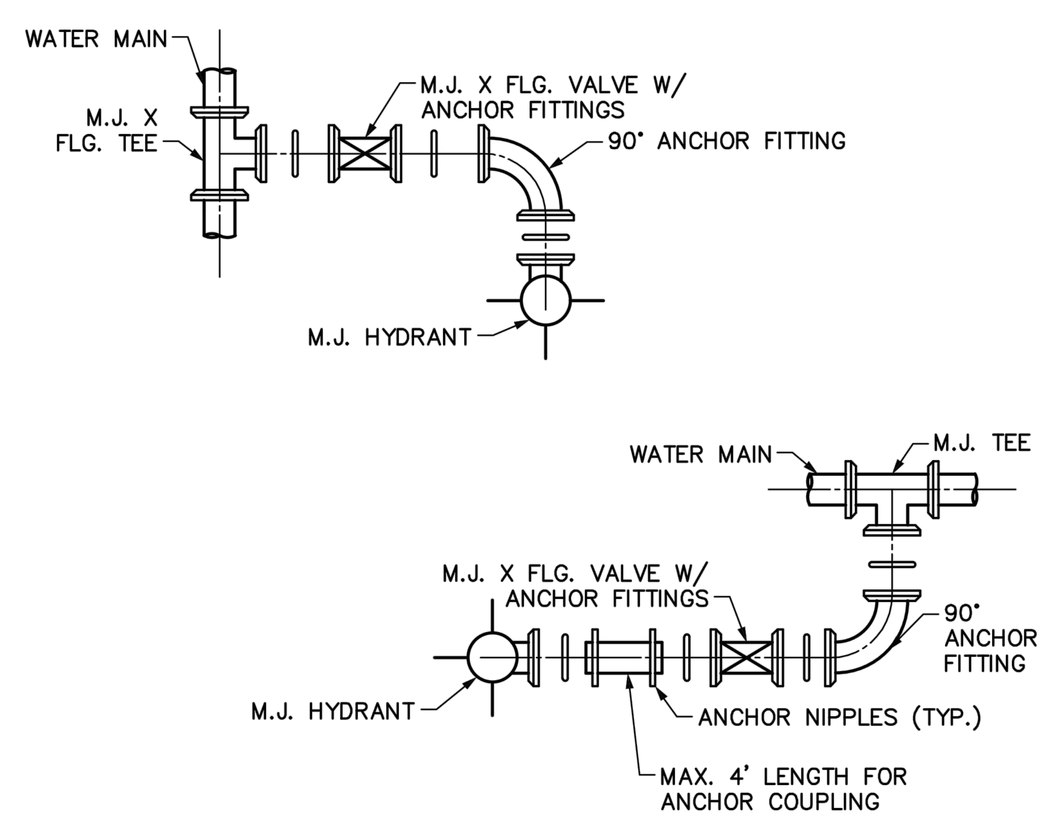
STANDARD CONSTRUCTION DETAIL
GATE VALVE
SCALE: 1/4"=1'-0"
REVISED: AUG 2020
W07



NOTES:

1. A BLUE STEMSONITE (OR APPROVED OTHER) MODEL 88-SSA FIRE HYDRANT MARKER WILL BE INSTALLED OPPOSITE FIRE HYDRANTS JUST OFF CENTER TO THE SIDE OF THE STREET ADJACENT TO THE HYDRANT.
2. CONTRACTOR SHALL UTILIZE VERTICAL INLET CONNECTION WHEN BURY DEPTHS EXCEED EIGHT (8) FEET.
3. NO MORE THAN 1 EXTENSION IS ALLOWED PER ASSEMBLY AND IS LIMITED TO 3'.

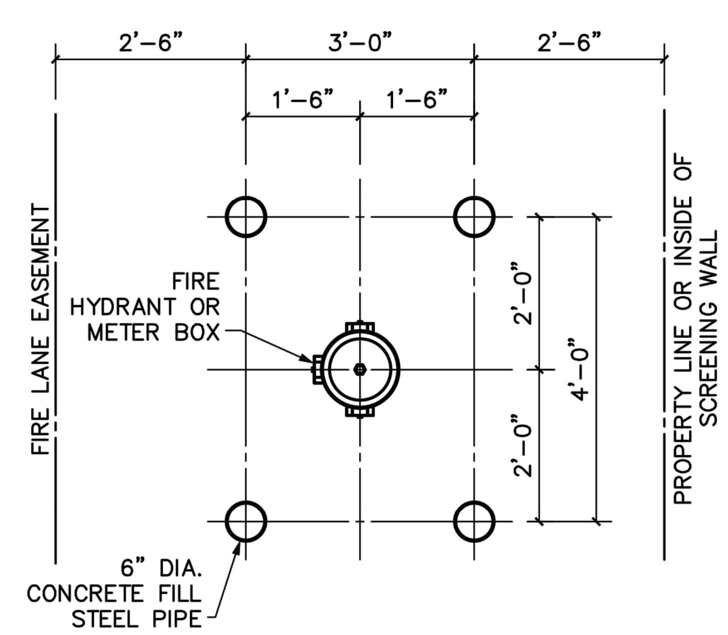
STANDARD CONSTRUCTION DETAIL
FIRE HYDRANT
SCALE: 3/4"=1'-0"
REVISED: AUG 2020
W12



NOTES:

1. ALL FIRE HYDRANTS MUST BE ANCHORED TO MAIN BY USE OF ANCHOR FITTINGS.
2. ANCHOR TEES ALLOWED.
3. REFER TO TECHNICAL SPECIFICATION 331219 FIRE HYDRANTS.

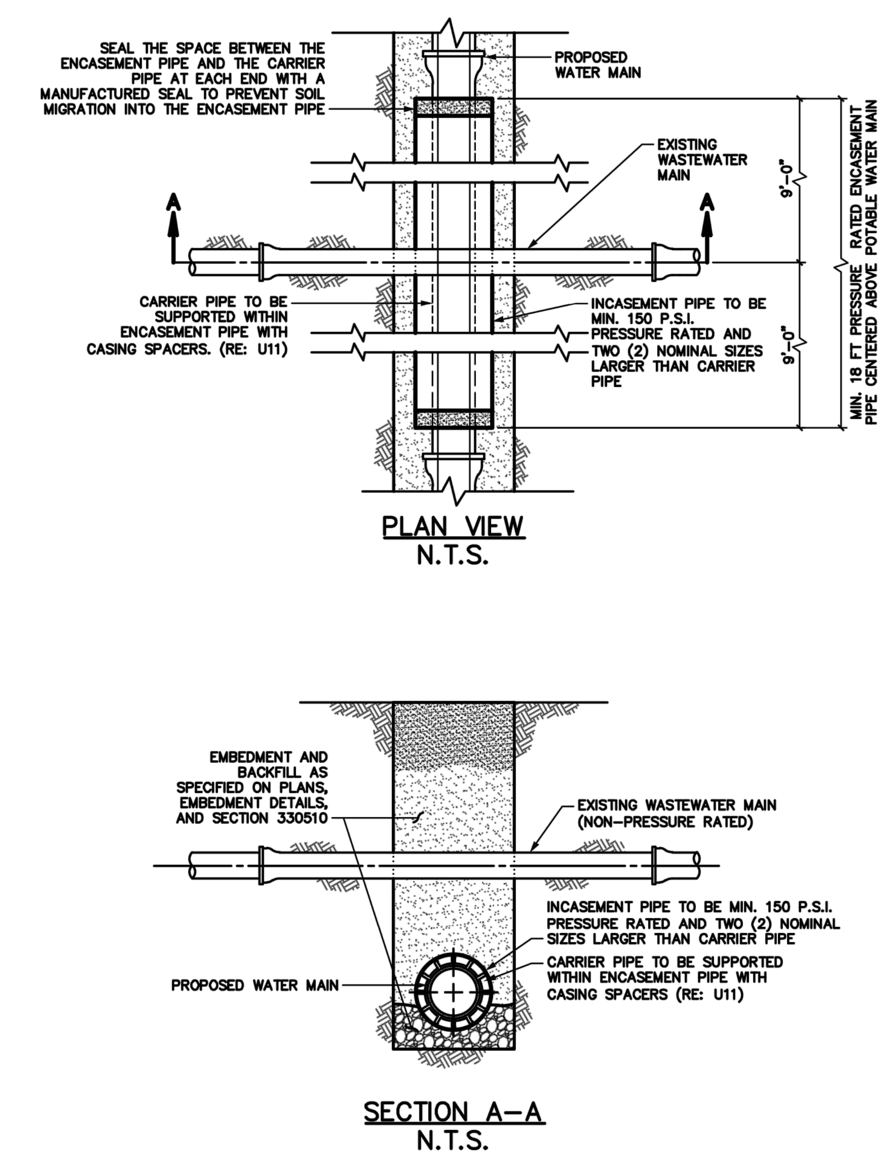
STANDARD CONSTRUCTION DETAILS
FIRE HYDRANT INSTALLATION
SCALE: 1/8"=1'-0"
REVISED: AUG 2020
W13



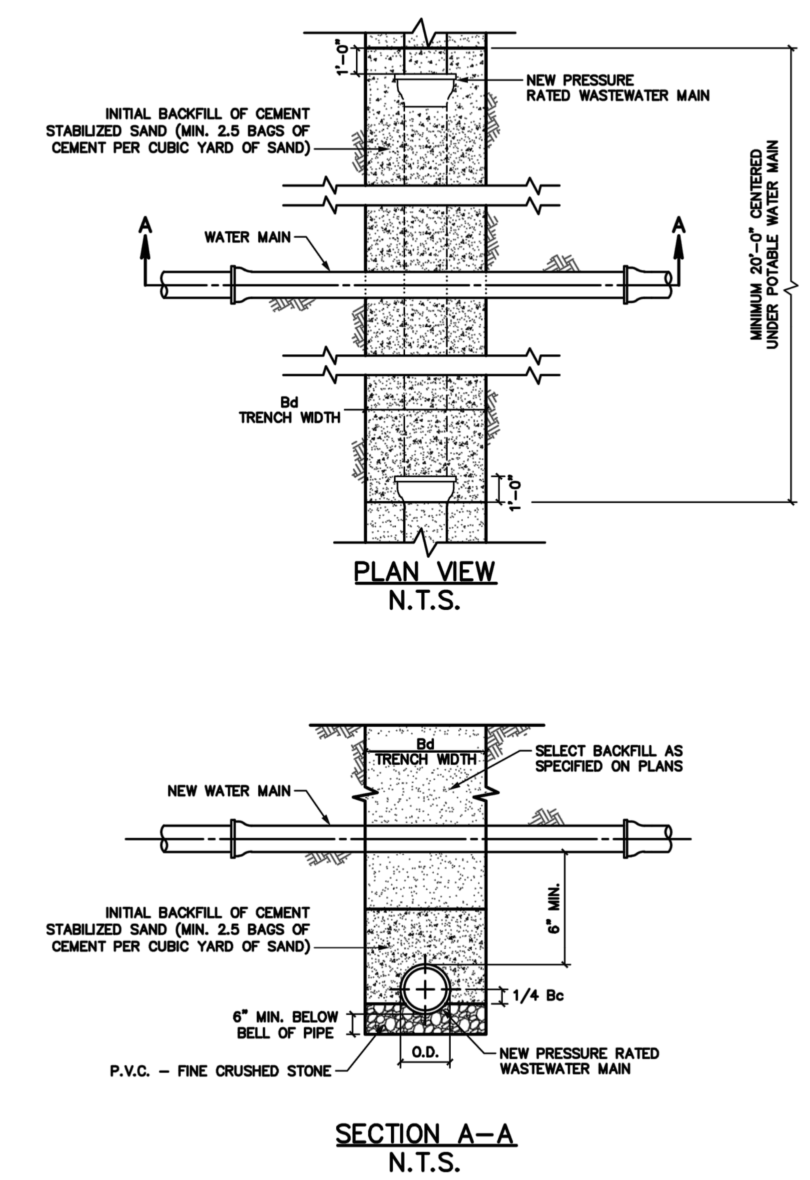
NOTES:

1. FOR USE WHERE CURBS ARE NOT POSSIBLE OR AS SPECIFIED BY THE CITY.
2. FIRE HYDRANTS SHALL BE 35' CLEAR OF ALL BUILDINGS.
3. GUARD POSTS SHALL BE 6 LINEAR FEET OF 6" DIAMETER STEEL PIPE (3' ABOVE & BELOW GROUND LEVEL). POST SHALL BE ENCASED IN 16" DIAMETER CONCRETE PIER TO A DEPTH OF 12" BELOW POST BOTTOM. REINFORCED CONCRETE PIER WITH 2 – #6 BARS (12" LONG) THROUGH POST INTO PIER. POST ABOVE GROUND LEVEL SHALL BE PAINTED SAFETY YELLOW.

STANDARD CONSTRUCTION DETAIL
PIPE BOLLARD
SCALE: 1/2"=1'-0"
REVISED: AUG 2020
W14



STANDARD CONSTRUCTION DETAIL
ENCASEMENT DETAIL FOR PROPOSED WATER MAINS BELOW WASTEWATER MAINS
SCALE: N.T.S.
REVISED: AUG 2020
U14



NOTES:

1. Bd = TRENCH WIDTH (SEE EMBEDMENT DETAILS)

STANDARD CONSTRUCTION DETAIL
EMBEDMENT DETAIL FOR NEW PRESSURE RATED WASTEWATER MAINS BELOW NEW WATER MAINS
SCALE: N.T.S.
REVISED: AUG 2020
U15

KFM ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE:	DESCRIPTION:	DATE:	DELTA:	DESCRIPTION:	DATE:

CLIENT: 121 SPRING CREEK, LLC

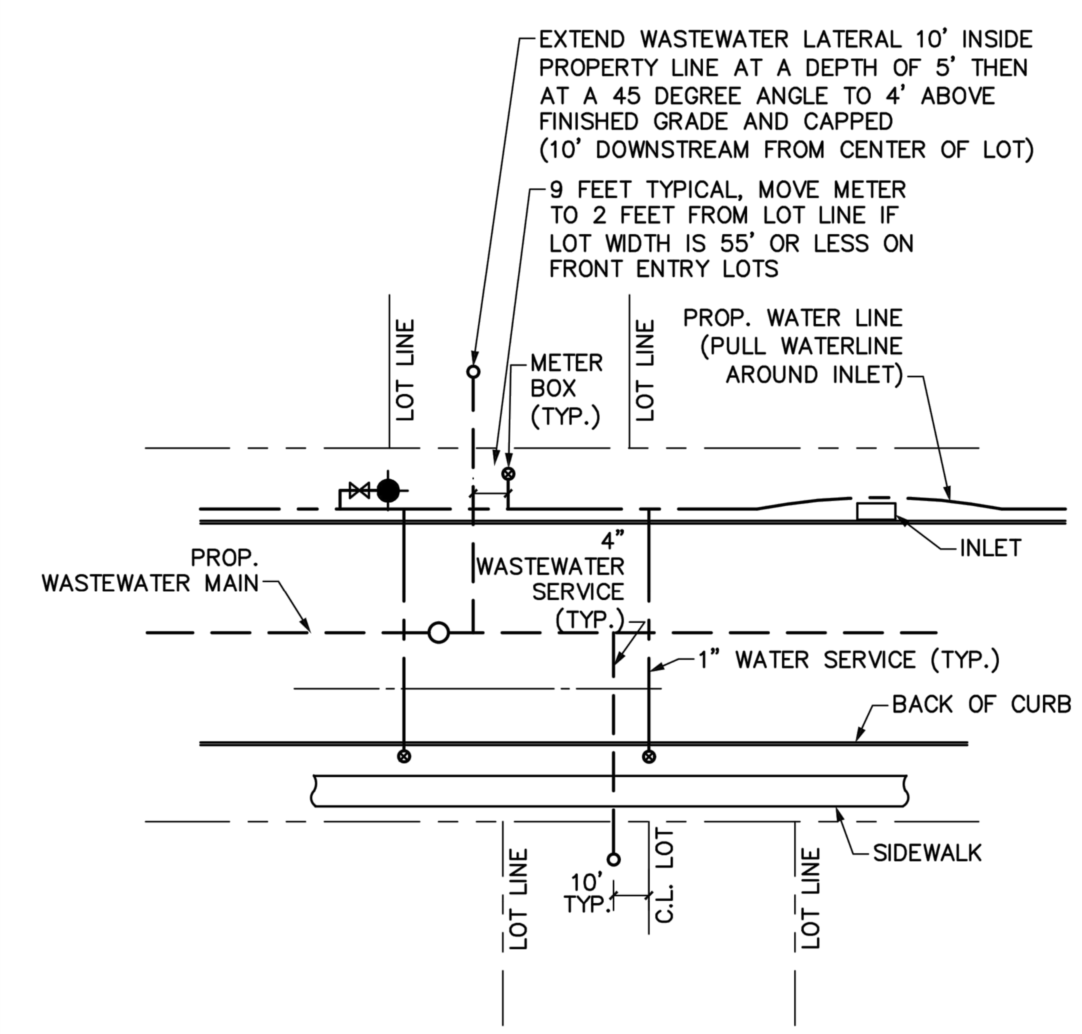
PROJECT: FRISCO 45 INFRASTRUCTURE

SHEET TITLE: WATER DETAILS

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

PROJECT NUMBER: 010021003
DRAWN BY: GW/LL DESIGNED BY: JDB/TT CHECKED BY: JAM
DATE: 06/25/21
SHEET: C5.90

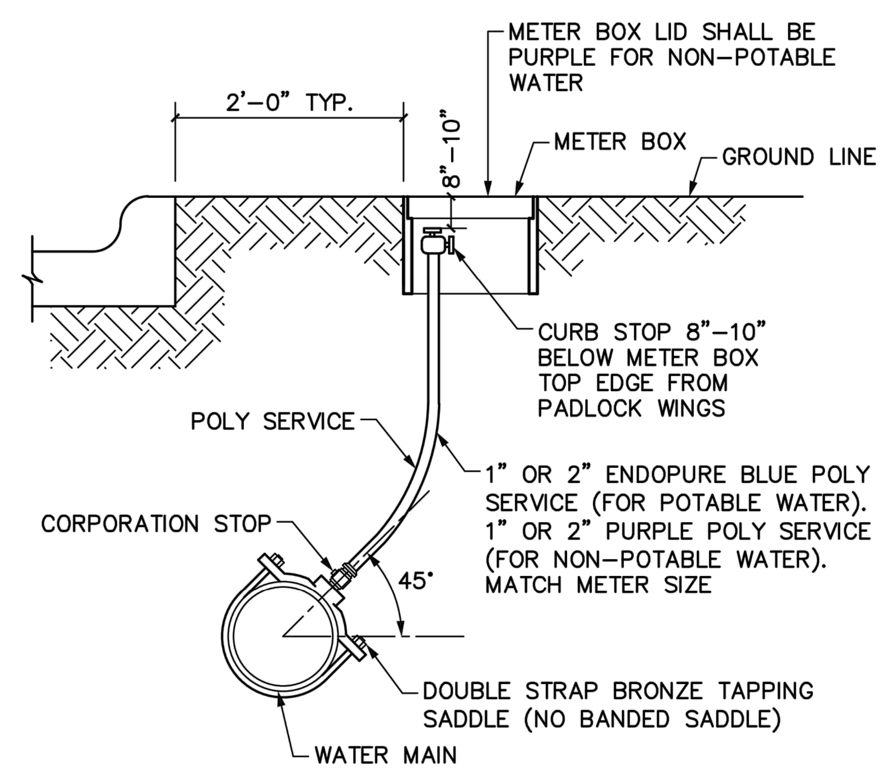
K:\Projects\010021003\cad\sheet\010021003_wd01-sree-8/26/2021 5:10 PM



STANDARD CONSTRUCTION DETAIL

RESIDENTIAL SERVICE LOCATIONS

SCALE: 1"=20'
REVISED: AUG 2020
W15



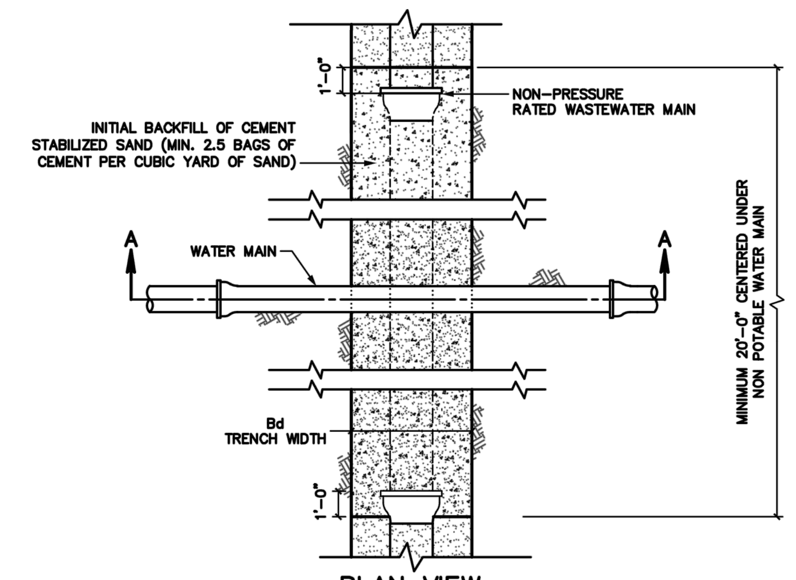
NOTES:

1. WATER SERVICES SHALL NOT BE CONNECTED TO FIRE HYDRANT LINES OR TO FIRE SERVICE MAINS.
2. METER BOX SHALL BE LOCATED OUT OF ALL FLATWORK, SIDEWALKS AND APPROACHES.
3. REFER TO TECHNICAL SPECIFICATION 331213 WATER SERVICE CONNECTIONS.
4. TRACER WIRE MUST BE OUT OF GROUND AND WRAPPED ON CURB STOP.

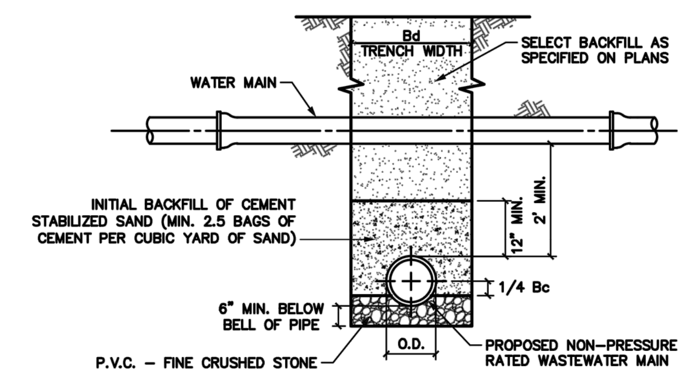
STANDARD CONSTRUCTION DETAIL

TYPICAL SERVICE CONNECTION

SCALE: 3/4"=1'-0"
REVISED: AUG 2020
W16



PLAN VIEW
N.T.S.



SECTION A-A
N.T.S.

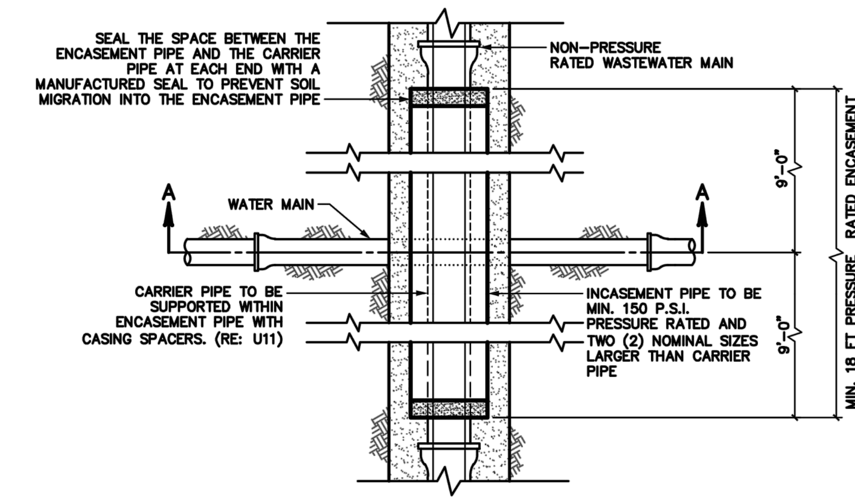
NOTES:

1. Bd = TRENCH WIDTH (SEE EMBEDMENT DETAILS)

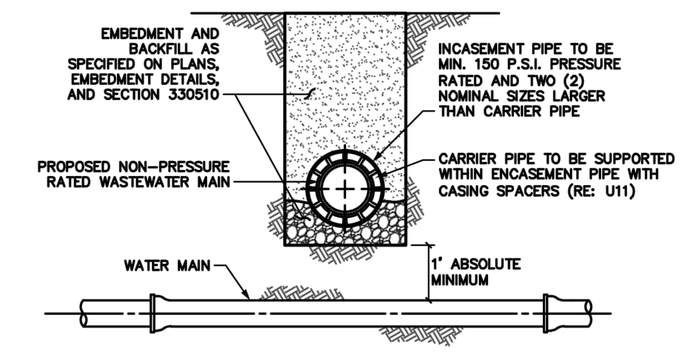
STANDARD CONSTRUCTION DETAIL

EMBEDMENT DETAIL FOR NON-PRESSURE RATED WASTEWATER MAINS BELOW WATER MAINS

SCALE: N.T.S.
REVISED: AUG 2020
U12



PLAN VIEW
N.T.S.

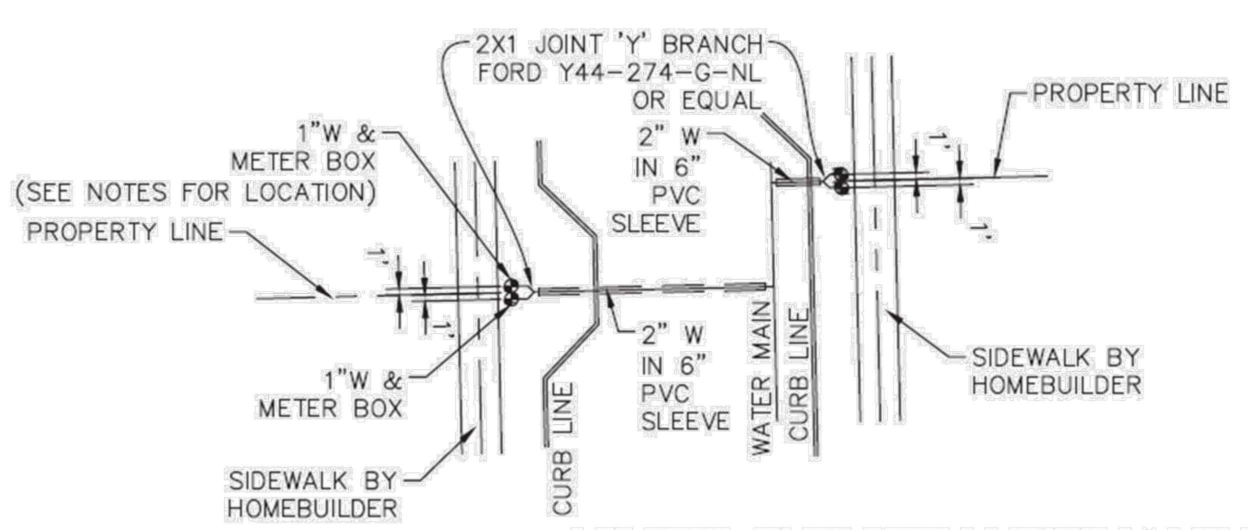


SECTION A-A
N.T.S.

STANDARD CONSTRUCTION DETAIL

EMCASEMENT DETAIL FOR NON-PRESSURE RATED WASTEWATER MAINS ABOVE WATER MAINS

SCALE: N.T.S.
REVISED: AUG 2020
U13



TYPICAL DUAL WATER WATER SERVICE

NOTES:

1. JOINT 'Y' BRANCH SHALL BE INSTALLED OUTSIDE OF THE PAVEMENT.
2. METER BOXES SERVING LOTS ON SAMARA STREET, SWALLOWTAIL STREET, AND SPLITBEARD ROAD SHALL BE INSTALLED 2'-0" FROM BACK OF CURB.
3. METER BOXES SERVING LOTS ON PHOEBE ROAD, FIG LANE, SMOKETREE LANE, AND WAX MYRTLE STREET SHALL BE INSTALLED 5'-0" INSIDE OF THE RIGHT OF WAY.
4. METER BOXES SERVING LOTS ON YELLOW ELDER ROAD SHALL BE INSTALLED 10'-0" INSIDE OF THE RIGHT OF WAY.

KFM
ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE:	DATE:	DESCRIPTION:	DELTA:	DATE:	DESCRIPTION:

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

SHEET TITLE
WATER DETAILS

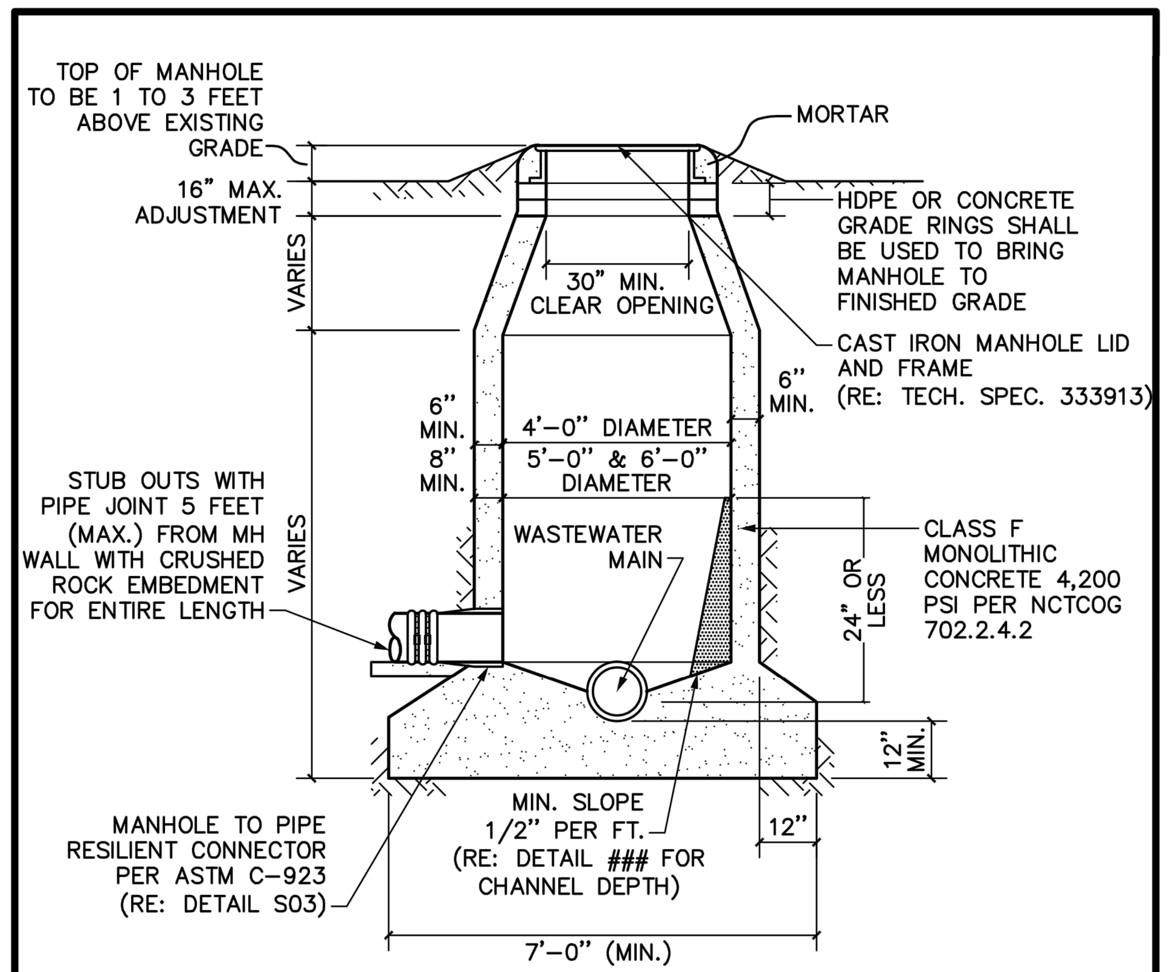
PRELIMINARY
NOT FOR CONSTRUCTION
KFM
ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

PROJECT NUMBER:
010021003

DRAWN BY: GW/LL
DESIGNED BY: JDB/TT
CHECKED BY: JAM

DATE:
06/25/21

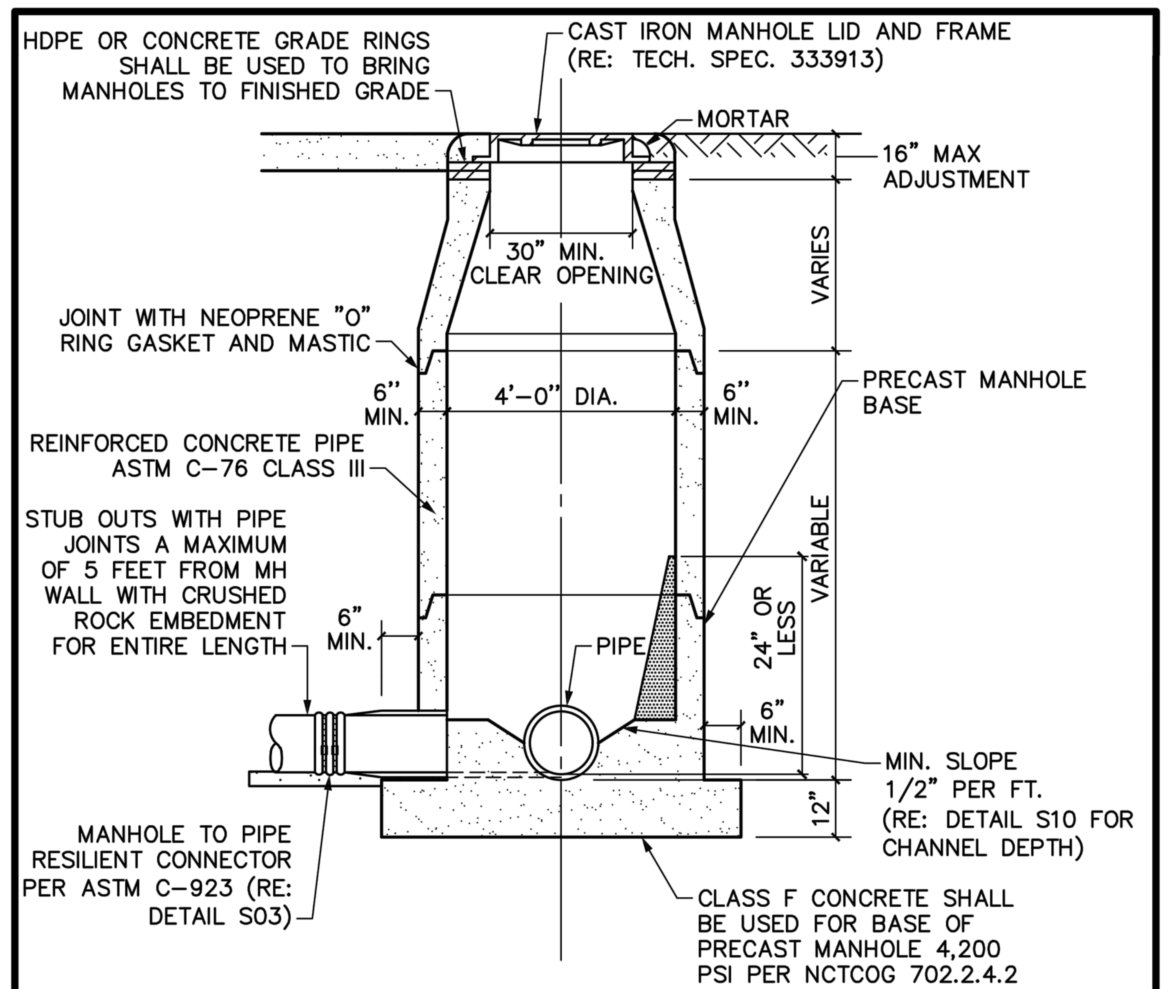
SHEET:
C5.91



NOTES:

1. MANHOLES DEEPER THAN FIFTEEN FEET (15') SHALL BE A MINIMUM OF FIVE-FOOT (5') DIAMETER.
2. DROP MANHOLES SHALL BE REQUIRED WHEN THE INFLOW ELEVATION IS MORE THAN TWENTY-FOUR INCHES (24") ABOVE THE OUTFALL ELEVATION.
3. IF THE INLET PIPE IS 24" OR LESS ABOVE THE OUTLET PIPE, CONSTRUCT A RAMP FROM THE INLET PIPE TO THE MANHOLE INVERT.
4. WHERE UNEQUAL PIPES ENTER A MANHOLE, THE CROWN OF THE PIPES SHALL BE SET AT THE SAME ELEVATION.
5. REFER TO TECHNICAL SPECIFICATION 333914.
6. SET MANHOLE BASE ON 8" OF CLEAN CRUSHED ROCK.

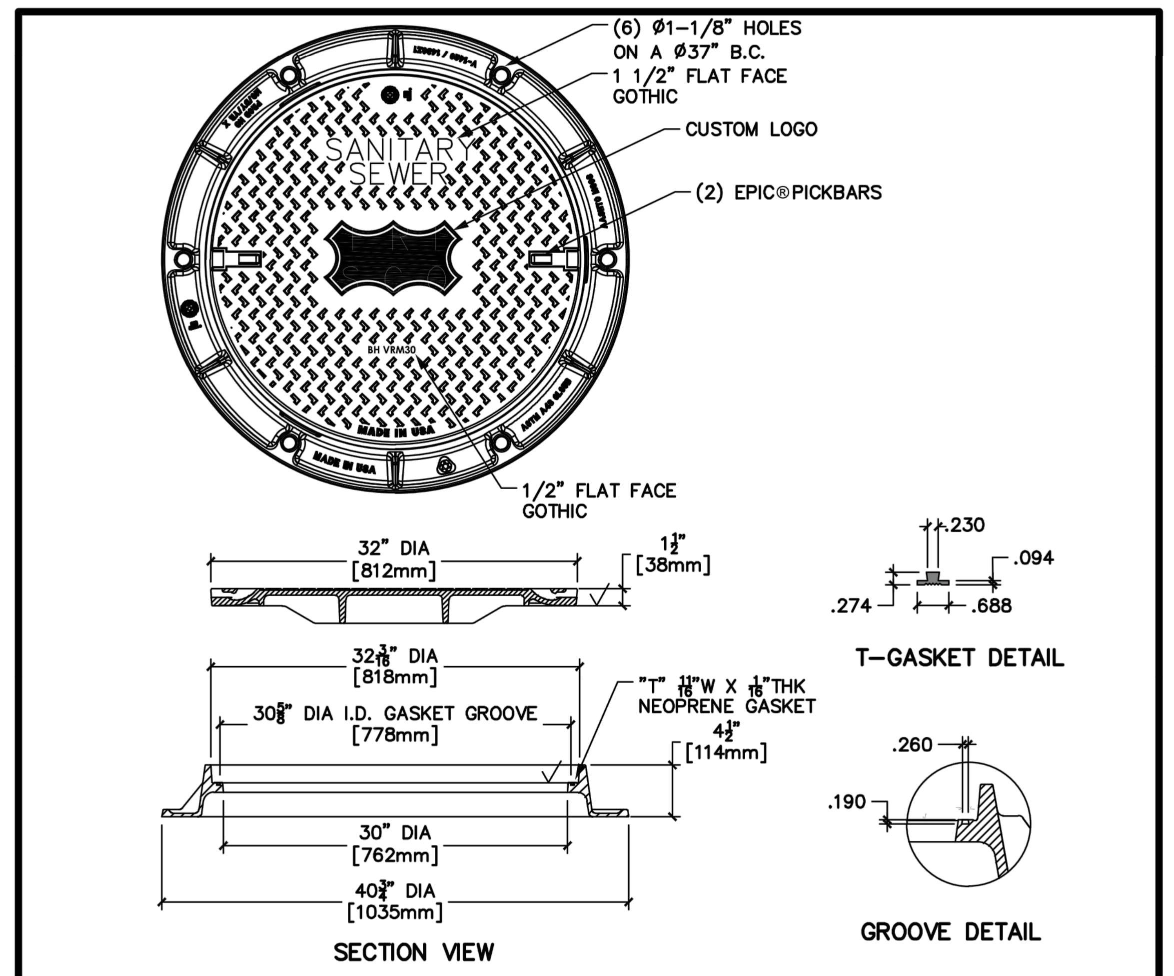
FRISCO PROGRESS IN MOTION — STANDARD CONSTRUCTION DETAIL — **STANDARD CAST-IN-PLACE MANHOLE** — SCALE: 3/8"=1'-0" — REVISED: AUG 2020 — S01



NOTES:

1. MANHOLES DEEPER THAN FIFTEEN FEET (15') SHALL BE A MINIMUM OF FIVE-FOOT (5') DIAMETER. USE MANHOLE WRAP AT EACH MANHOLE JOINT.
2. DROP MANHOLES SHALL BE REQUIRED WHEN THE INFLOW ELEVATION IS MORE THAN TWENTY-FOUR INCHES (24") ABOVE THE OUTFALL ELEVATION.
3. IF THE INLET PIPE IS 24" OR LESS ABOVE THE OUTLET PIPE, CONSTRUCT A RAMP FROM THE INLET PIPE TO THE MANHOLE INVERT.
4. WHERE UNEQUAL PIPES ENTER A MANHOLE, THE CROWN OF THE PIPES SHALL BE SET AT THE SAME ELEVATION.
5. REFER TO TECHNICAL SPECIFICATION 333914.
6. SET MANHOLE BASE ON 8" OF CLEAN CRUSHED ROCK.

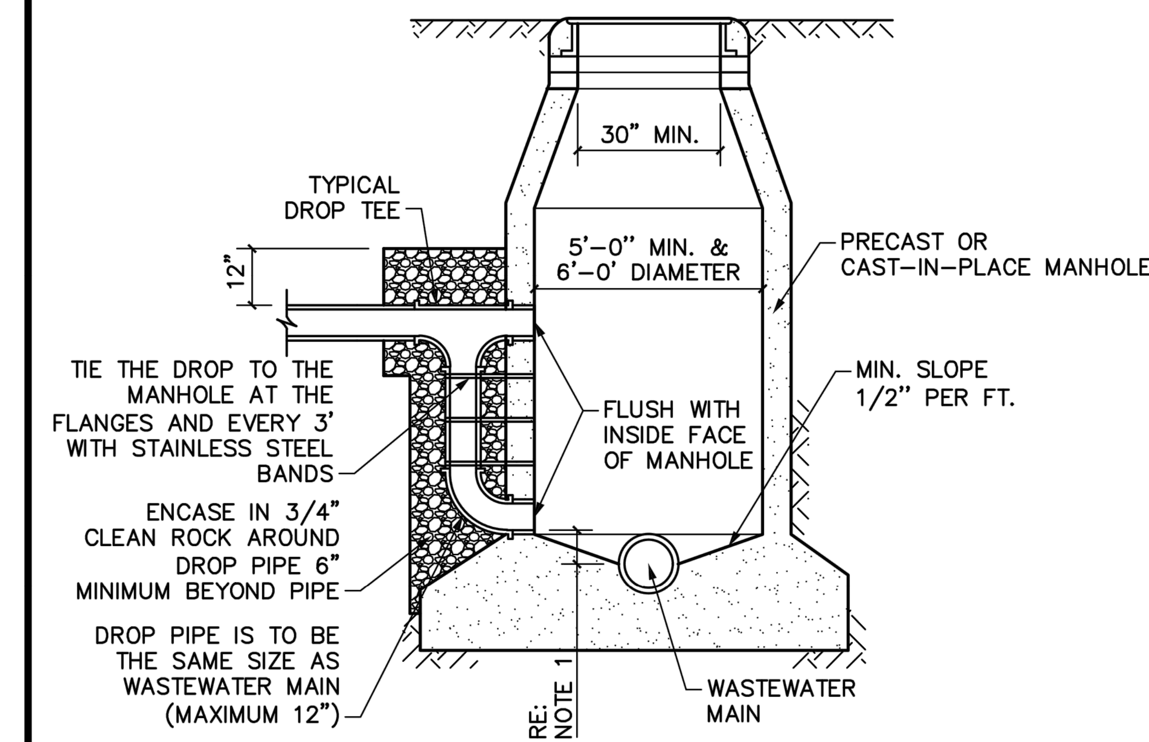
FRISCO PROGRESS IN MOTION — STANDARD CONSTRUCTION DETAIL — **PRECAST CONCRETE MANHOLE** — SCALE: 3/8"=1'-0" — REVISED: AUG 2020 — S02



NOTES:

1. THE HORIZONTAL BEARING SURFACES ARE TO BE MACHINE FINISHED.
2. FOR A SEAL BETWEEN THE RING FRAME AND COVER A 1/4" DIA. NEOPRENE "O-RING" GASKET SHALL BE INSTALLED BY THE MANUFACTURER. THE LOCATION SHALL BE AS PER THE MANUFACTURER'S STANDARDS BUT SHALL BE SUBJECT TO THE APPROVAL OF THE CITY.
3. THE SOLID LID WILL BE PROVIDED WITH MANUFACTURER'S STANDARD LETTERING SHOWING "SANITARY SEWER" AND CITY LOGO.
4. NOT ALLOWED IN TRAFFIC AREA.

FRISCO PROGRESS IN MOTION — STANDARD CONSTRUCTION DETAIL — **STANDARD MANHOLE LID AND FRAME** — SCALE: 1"=1'-0" — REVISED: AUG 2020 — S07

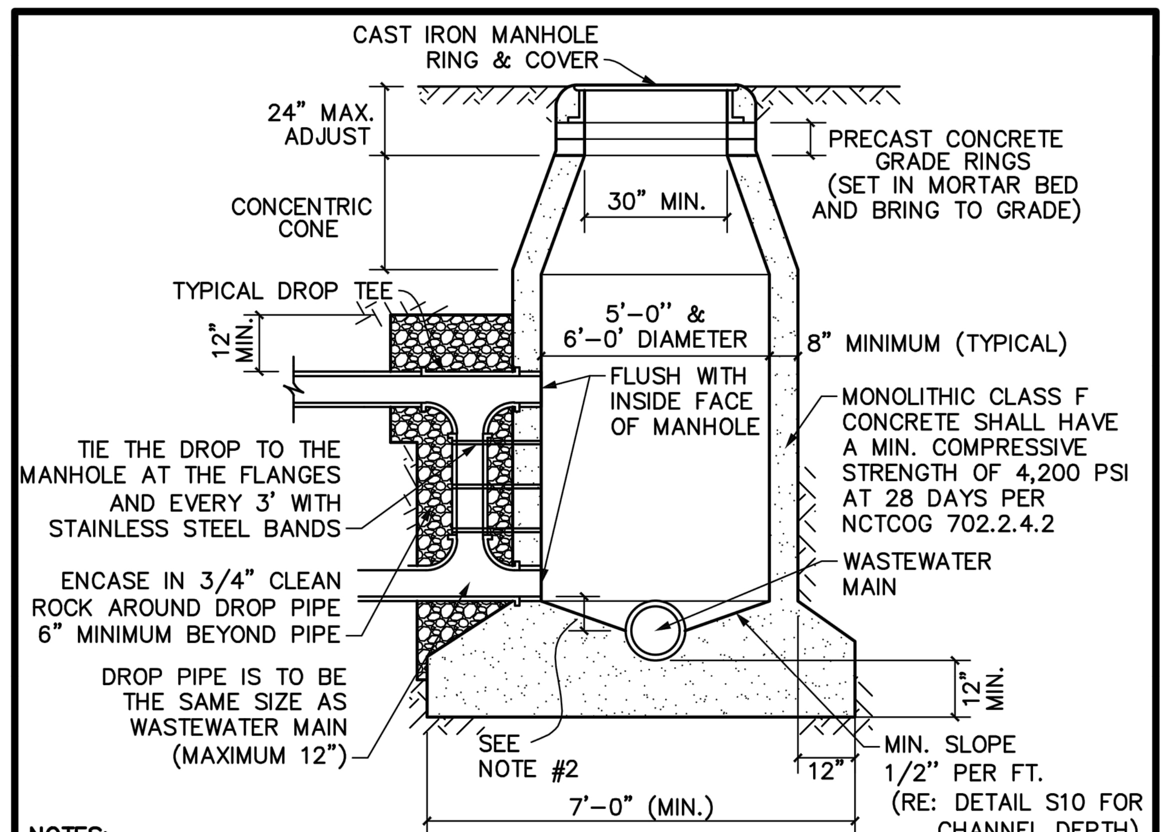


* WHEN A DROP MANHOLE IS USED IN CONJUNCTION WITH A PARALLEL LINE, REFER TO DETAIL S06-A.

NOTES:

1. FLOWLINE OF DROP SHALL BE LOCATED BETWEEN THE CENTERLINE AND TOP OF WASTEWATER MAIN.
2. THERE SHALL BE A MINIMUM OF TWO-TENTHS OF A FOOT (0.2') DROP BETWEEN INVERTS OF PIPES IN AND OUT OF MANHOLES.
3. WHERE UNEQUAL PIPES ENTER A MANHOLE, THE CROWN OF THE PIPES SHALL BE SET AT THE SAME ELEVATION.
4. REFER TO TECHNICAL SPECIFICATIONS 333914 AND 333915.

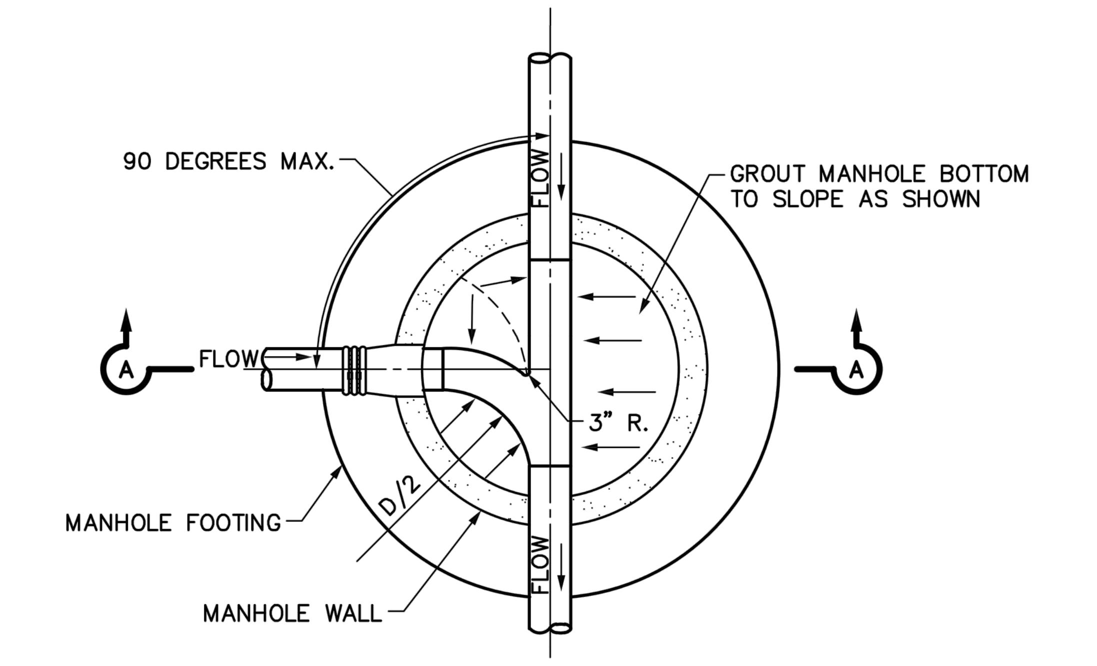
FRISCO PROGRESS IN MOTION — STANDARD CONSTRUCTION DETAIL — **MANHOLE DROP CONNECTION** — SCALE: 3/8"=1'-0" — REVISED: AUG 2020 — S08



NOTES:

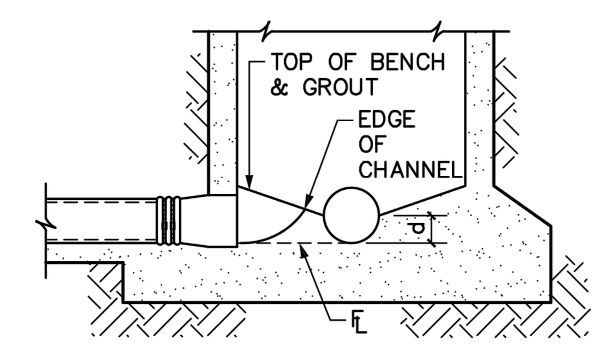
1. THE DIAMETER OF A MANHOLE CONSTRUCTED OVER THE CENTER OF A SEWER SHOULD VARY WITH THE SIZE OF THE SEWER. FOR EIGHT-INCH (8"), TEN-INCH (10"), TWELVE-INCH (12"), FIFTEEN-INCH (15"), EIGHTEEN-INCH (18"), TWENTY-ONE INCH (21"), TWENTY-FOUR INCH (24") AND TWENTY-SEVEN INCH (27") SHALL BE FIVE-FOOT (5') MINIMUM DIAMETER; THIRTY-INCH(30") AND THIRTY-SIX INCH(36") SHALL BE SIX-FOOT (6') MINIMUM DIAMETER. MANHOLES DEEPER THAN FIFTEEN FEET (15') SHALL BE A MINIMUM OF FIVE-FOOT (5') DIAMETER.
2. FLOWLINE OF DROP SHALL BE LOCATED BETWEEN THE CENTERLINE AND TOP OF SEWER MAIN.
3. THERE SHALL BE A MINIMUM OF TWO-TENTHS OF A FOOT (0.2') DROP BETWEEN INVERTS OF PIPE INLET AND PIPE OUTLETS.
4. WHERE UNEQUAL PIPES ENTER A MANHOLE, THE CROWN OF THE PIPES SHALL BE SET AT THE SAME ELEVATION.
5. CONCRETE SHALL BE A MONOLITHIC POUR.
6. FOLLOW NORMAL COMPACTION PROCEDURE ON EACH LINE.

FRISCO PROGRESS IN MOTION — STANDARD CONSTRUCTION DETAIL — **MANHOLE DROP CONNECTION FOR A PARALLEL LINE** — SCALE: 3/8"=1'-0" — REVISED: AUG 2020 — S09



PLAN

D = MANHOLE DIA.



SECTION A-A

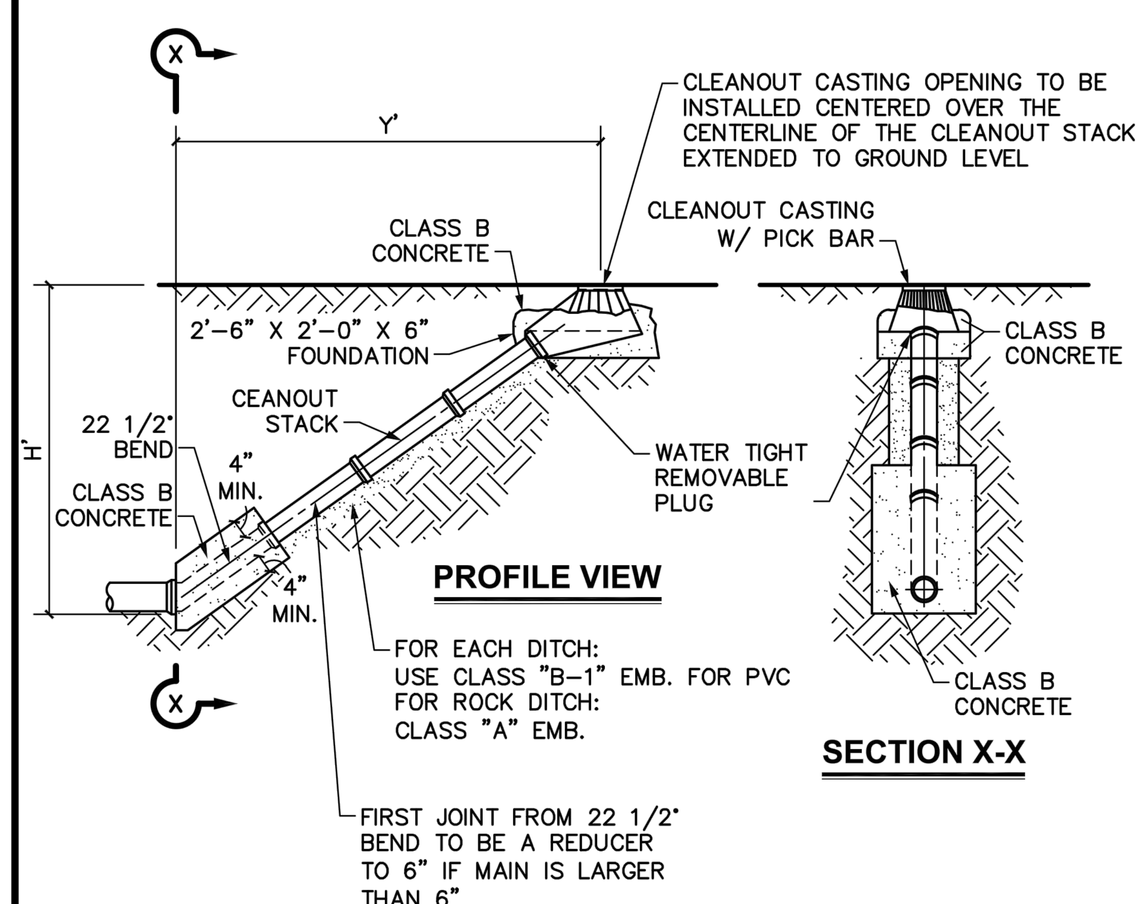
d (CHANNEL DEPTH)	PIPE DIA.
1/2 PIPE DIA.	< 15"
3/4 PIPE DIA.	15" – 24"
1 PIPE DIA.	> 24"

NOTES:

1. REFER TO MANHOLE STANDARD DRAWINGS FOR ADDITIONAL DETAIL OF MANHOLE (RE: DETAILS S01 & S02).
2. MINIMUM SLOPE OF BENCH IS 0.5 INCH PER FOOT.

FRISCO PROGRESS IN MOTION — STANDARD CONSTRUCTION DETAIL — **WASTEWATER MANHOLE MAIN INTERSECTION** — SCALE: 3/8"=1'-0" — REVISED: AUG 2020 — S10

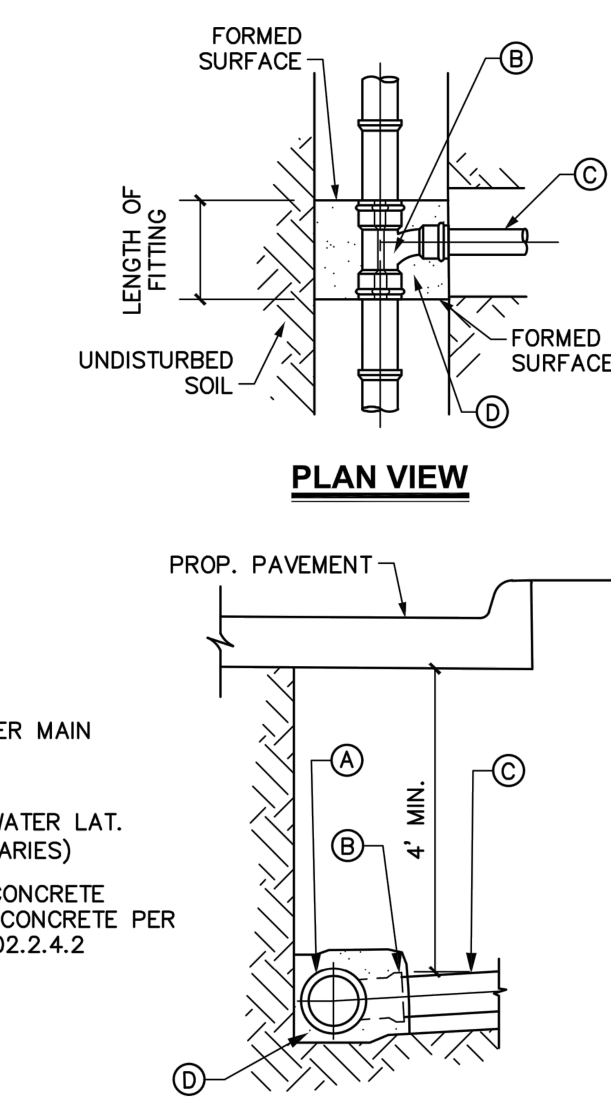
H'	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	H'
Y'	10	12	14	17	19	22	24	27	29	31	34	36	39	41	43	46	48	Y'



NOTES:

1. IF CLEANOUT IS PLACED IN ADVANCE OF PAVEMENT PLACE SAND AROUND CLEANOUT CASTING IN LIEU OF CLASS B CONCRETE.
2. IF CLEANOUT IS OUTSIDE OF PAVEMENT, CENTER CASTING IN 24" X 24" CLASS A CONCRETE PAD 6" THICK WITH FOUR #3 BARS.
3. CLASS A CONCRETE IS 3,000 PSI AND CLASS B CONCRETE IS 2,000 PSI PER NCTCOG 702.2.4.2.

FRISCO PROGRESS IN MOTION — STANDARD CONSTRUCTION DETAIL — **WASTEWATER MAIN CLEANOUT** — SCALE: 3/8"=1'-0" — REVISED: AUG 2020 — S13



KEY:

- (A) WASTEWATER MAIN
- (B) 4" WYE
- (C) 4" WASTEWATER LAT. (LENGTH VARIES)
- (D) CLASS B CONCRETE 2,000 PSI CONCRETE PER NCTCOG 702.2.4.2

NOTES:

1. THE CLEANOUT MAY BE PLACED IN THE PARKWAY OR SIDEWALK, IF NECESSARY.
2. REFERENCE TECHNICAL SPECIFICATION 333109.

FRISCO PROGRESS IN MOTION — STANDARD CONSTRUCTION DETAIL — **WASTEWATER LATERAL** — SCALE: 1/2"=1'-0" — REVISED: AUG 2020 — S14

KFM ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE: | DESCRIPTION: | DATE: | DELTA: | DESCRIPTION: | DATE:

CLIENT: 121 SPRING CREEK, LLC

PROJECT: FRISCO 45 INFRASTRUCTURE

SHEET TITLE: WASTEWATER DETAILS

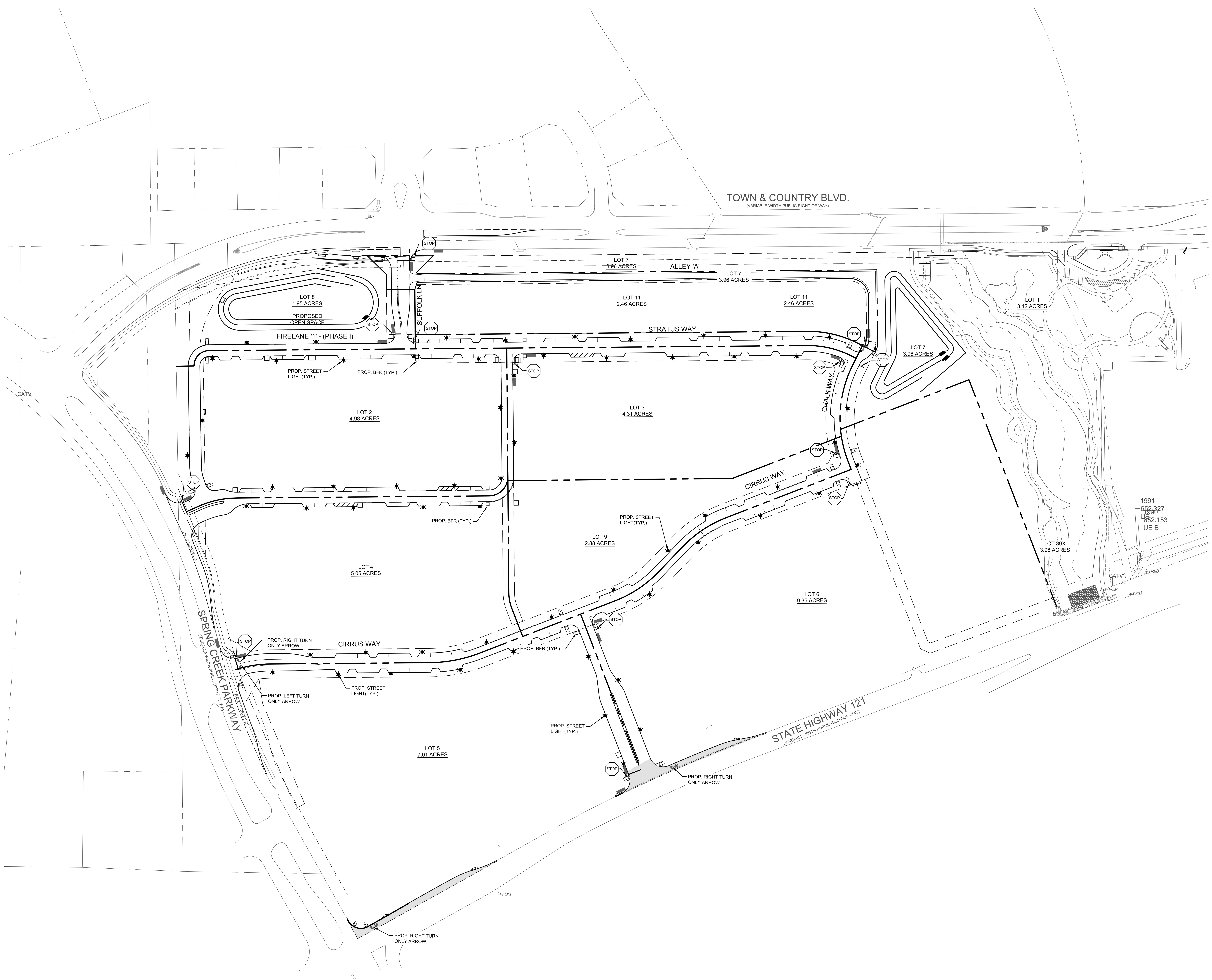
PRELIMINARY — NOT FOR CONSTRUCTION — KFM ENGINEERING & DESIGN — ENGINEER: Joshua A. Millsap — P.E. No.: 100118 — DATE: 7/9/21

PROJECT NUMBER: 010021003

DRAWN BY: GW/LL | DESIGNED BY: JDB/TT | CHECKED BY: JAM

DATE: 06/25/21

SHEET: C6.90



N

0 50 100 200

SCALE 1" = 100'

STREET LIGHT AND SIGNAGE LEGEND

- PROPOSED STOP SIGN . LOCATION, 2-3/8" x 10' POLE(36" ANCHOR AND WEDGE)
- PROPOSED 30" STOP SIGN
- PROPOSED STREET NAME BLADE
- PROPOSED LIGHT POLE
- PROPOSED FIRE HYDRANT

SIGNAGE NOTES

1. **GENERAL CONSTRUCTION NOTES:** REFER TO SHEET C0.04 FOR THE GENERAL CONSTRUCTION NOTES FOR THE PROJECT.
2. ALL SIGNAGE, BARRICADES, AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
3. LOCATIONS SHOWN FOR SIGNAGE AND PAVEMENT MARKINGS ARE APPROXIMATE; FINAL LOCATIONS MAY CHANGE DUE TO POST CONSTRUCTION CONDITIONS AND PRESENCE OF OTHER PHYSICAL FEATURES. THE FINAL LOCATION OF ALL TRAFFIC CONTROL DEVICES SHALL BE FIELD VERIFIED WITH THE CITY OF FRISCO PRIOR TO INSTALLATION.
4. ALL PAVEMENT MARKINGS OTHER THAN BUTTONS SHALL BE THERMOPLASTIC UNLESS OTHERWISE NOTED.
5. ALL TRAFFIC SIGNS, POSTS AND MATERIALS SHALL BE INSTALLED PER CITY OF FRISCO STANDARD DETAILS.
6. FOR STOP SIGNS THAT WILL ACCEPT FUTURE STREET SIGNS, EXTEND POST ABOVE STOP SIGN SO THAT 2 HOLES ARE AVAILABLE FOR MOUNTING.
7. SIGN POST SHALL BE 3' FROM BACK OF CURB FOR ALL SIGNS 30" X 30" AND SMALLER AND 4' FROM BACK OF CURB FOR ALL SIGNS GREATER THAN 30" X 30".

NOTES:

- REFER TO SHEET C0.04 FOR GENERAL CONSTRUCTION NOTES.

!CAUTION!

CONTRACTOR TO CONTACT THE TEXAS ONE-CALL SYSTEM (1-800-344-8377) AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. KFM IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES IN THE PROJECT AREA. IF FILED CONDITIONS DIFFER SIGNIFICANTLY FROM THE LOCATION SHOWN ON THE PLANS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

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

BENCHMARKS

REFERENCE BENCHMARK

CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

SITE BENCHMARK

CUT "X" SET AT THE NORTHEAST CORNER OF SPRING CREEK PARKWAY AND TOWN AND COUNTRY BOULEVARD.
ELEVATION = 614.03'

KFM ENGINEERING & DESIGN
3501 OLYMPUS BLVD, SUITE 100
DALLAS, TEXAS 75019
PHONE: (817) 416-4536
WWW.KFM-LLC.COM
TBPE #: F-20821

ISSUE:	DATE:	DESCRIPTION:	DELTA:	DESCRIPTION:	DATE:

CLIENT 121 SPRING CREEK, LLC

PROJECT FRISCO 45 INFRASTRUCTURE

SHEET TITLE STREET LIGHT AND SIGNAGE PLAN

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 7/9/21

PROJECT NUMBER: 010021003

DRAWN BY: GW/LL DESIGNED BY: JDB/TT CHECKED BY: JAM

DATE: 06/25/21

SHEET: C7.00