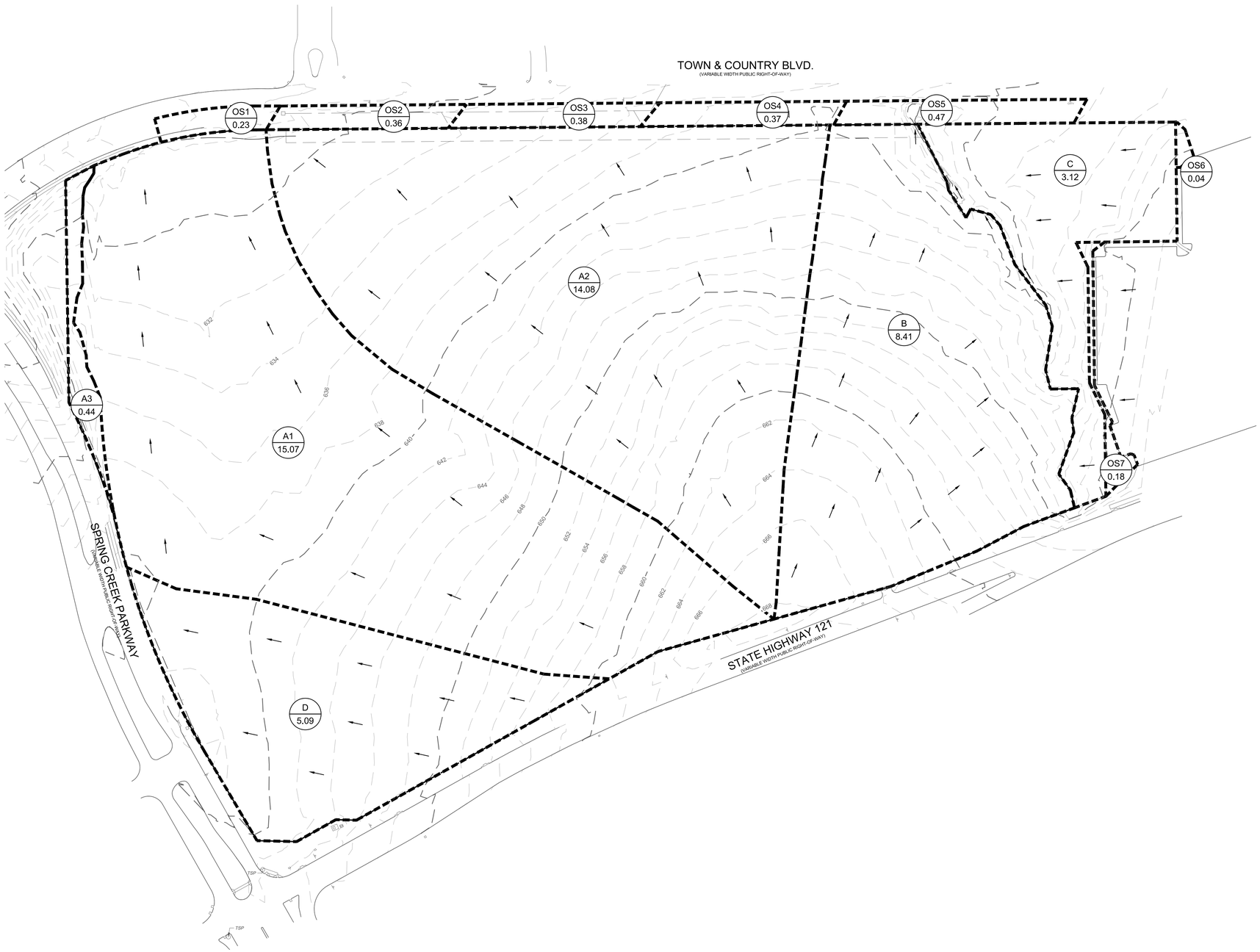
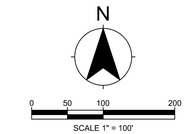




EXISTING DRAINAGE AREA LEGEND

- EXISTING CONTOUR
- EXISTING DRAINAGE AREA
- FLOW DIRECTION
- X1 / 1.0 — DRAINAGE AREA DESIGNATOR / DRAINAGE AREA ACREAGE

EXISTING DRAINAGE AREA CALCULATIONS

EXISTING DRAINAGE AREAS					
AREA	AC	C	Tc (min)	I_{100} (in/hr)	Q_{100} (in/hr)
A1	15.07	0.9	26.15	8.74	118.54
A2	14.08	0.9	26.15	8.74	110.75
B	8.41	0.9	26.16	8.74	66.15
C	3.12	0.9	10	8.74	24.54
D	5.09	0.9	20.46	8.74	40.04

NOTES:

- AREAS A AND A1 BASED ON DRAINAGE AREA MAP IN TOWN AND COUNTRY PLANS PREPARED BY COBB FENDLEY ENGINEERING DATED 01/2020.
- AREA C BASED ON DRAINAGE AREA MAP IN FRISCO 45 PARK PLANS PREPARED BY KFM ENGINEERING DATED 12/22/2020.
- AREA D BASED ON DRAINAGE AREA MAP IN SPRING CREEK PARKWAY PLANS PREPARED BY SPIARS ENGINEERING DATED 10/27/2003.
- AREAS ARE REFLECTED IN APPROVED STEWART DOWNSTREAM ASSESSMENT PREPARED BY KFM ENGINEERING AND DESIGN, DATED 7/17/2020

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

DATE:
DESCRIPTION:
DELTA:

DATE:
DESCRIPTION:
ISSUE:

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

SHEET TITLE
EXISTING DRAINAGE AREA MAP

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

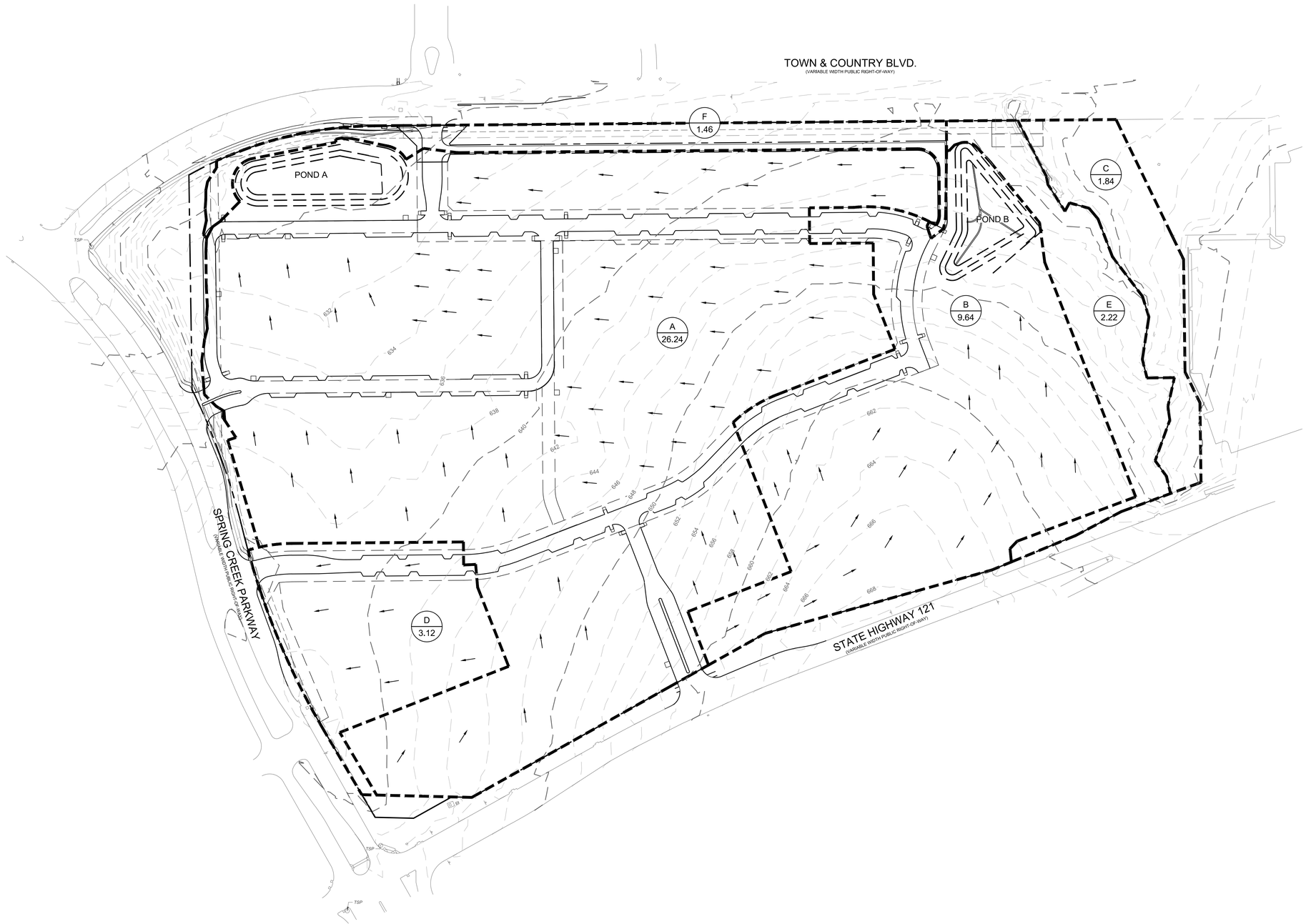
PROJECT NUMBER:
010021003

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

DATE:
06/25/21

SHEET:
C4.00

K:\Projects\010021003\cad\sheet\010021003_dwn01-tlocklier-6/28/2021 1:09 PM



N

0 50 100 200

SCALE 1" = 100'

PROPOSED DRAINAGE AREA LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED DRAINAGE AREA
- P1 / 1.0 — DRAINAGE AREA DESIGNATOR / DRAINAGE AREA ACREAGE

EXISTING DRAIANGE AREAS					
AREA	AC	C	Tc (min)	I_{100} (in/hr)	Q_{100} (in/hr)
A	26.24	0.9	10	8.74	206.4
B	9.64	0.9	10	8.74	75.83
C	1.84	0.9	10	8.74	14.47
D	3.12	0.9	10	8.74	24.54
E	2.22	0.9	10	8.74	17.46
F	1.46	0.9	10	8.74	11.48

Basin	Area (sq. mi)	Curve Number	TC (min.)	Lag Time (min.)
A	0.041	94	10	7.76
B	0.015	94	10	5.79
C	0.003	84	10	4.73
D	0.005	94	10	5.52
E	0.003	84	10	5.65
F	0.002	94	10	4.98

POND A		
Elevation	Area (ac)	Discharge (cfs)
620	0	0
621	0.074	8.65
622	0.204	30.24
623	0.291	42.77
624	0.371	52.38
625	0.563	65.34
626	0.576	99.43
627	0.591	145.46
628	0.768	200.38
629	0.781	262.74
630	0.795	331.65

POND B		
Elevation	Area (ac)	Discharge (cfs)
634	0	0
635	0.065	0.75
636	0.161	2.12
637	0.27	3.9
638	0.407	6
639	0.419	9.39
640	0.434	16.98
641	0.562	27.04
642	0.578	38.98
643	0.596	52.53

ENGINEERING NOTES

1. EXISTING DRAINAGE INFORMATION AND DRAINAGE CALCULATIONS ARE INCLUDED IN THE DOWNSTREAM ASSESSMENT PROVIDED BY KFM LLC DATED JULY 2020 .
2. PERMANENT BMP PROVIDED THROUGH ONSITE EXTENDED DETENTION BASINS A AND B.
3. ACCORDING TO FLOOD INSURANCE RATE MAP (FIRM) MAP NO. 48121C0580G DATED 04/18/2011 PREPARED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FOR DENTON COUNTY, TEXAS, THIS PROPERTY IS WITHIN ZONE "X" UNSHADED.
4. ON-SITE DETENTION LIMITING POST-DEVELOPMENT DISCHARGE TO A PRE-DEVELOPMENT RUNOFF RATE IS REQUIRED FOR ALL NEW CONSTRUCTION UNLESS A DOWNSTREAM ASSESSMENT HAS BEEN PROVIDED DEMONSTRATING THAT THE EXISTING STORM SYSTEM IS ADEQUATE TO HANDLE POST-DEVELOPMENT DISCHARGE RATES. IF REGIONAL DETENTION EXISTS FOR THIS PROJECT, PROVIDE A NOTE REFERENCING WHERE THE REGIONAL DETENTION WAS DESIGNED AND CONSTRUCTED.

!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

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

CLIENT 121 SPRING CREEK, LLC

PROJECT FRISCO 45 INFRASTRUCTURE

SHEET TITLE PROPOSED DRAINAGE AREA MAP

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

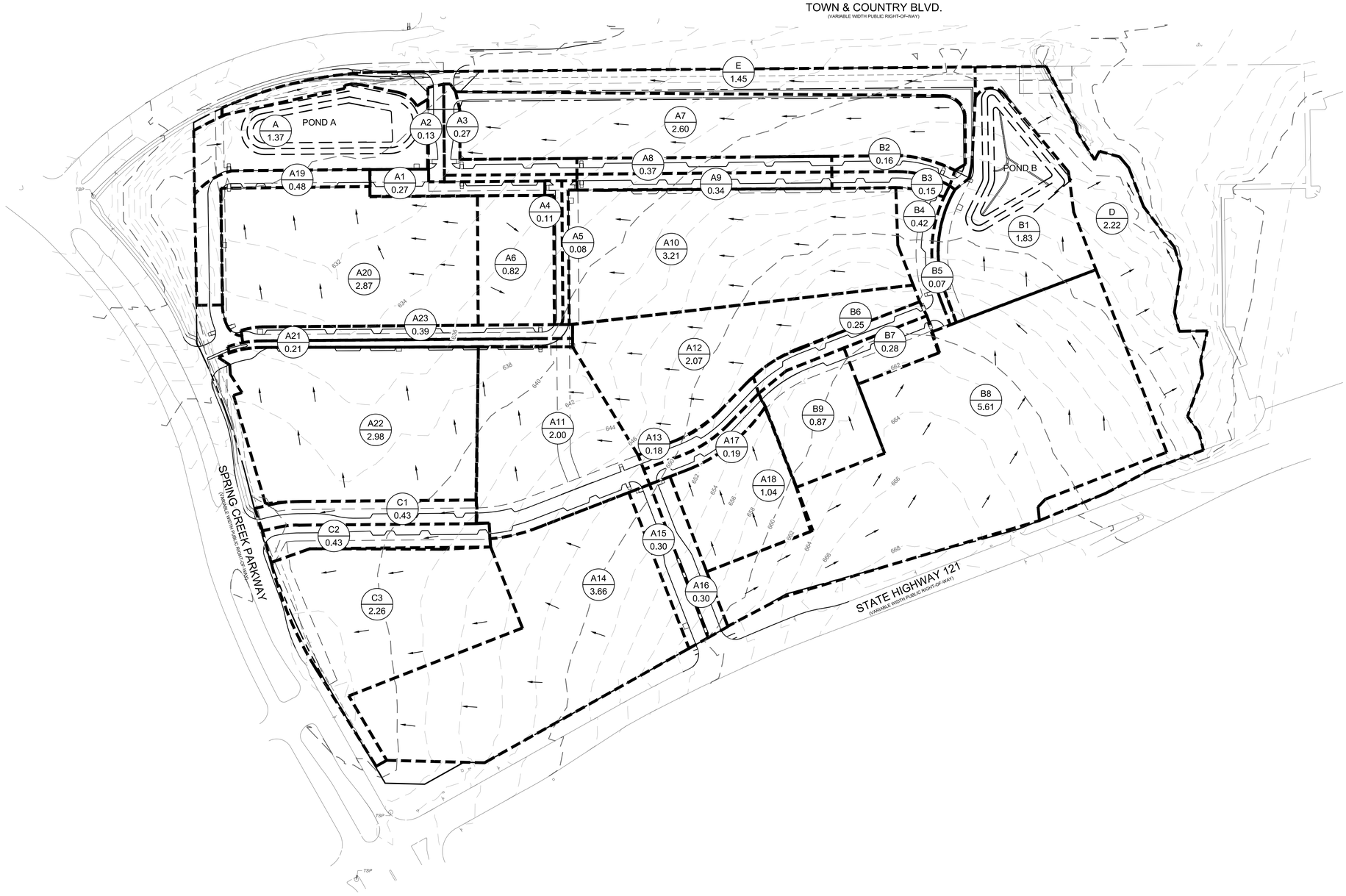
PROJECT NUMBER: 010021003

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

DATE: 06/25/21

SHEET: C4.01

K:\Projects\010021003\cad\sheet\010021003_dam01-lloc4ier-6/28/2021 1:09 PM



N

0 50 100 200

SCALE 1" = 100'

PROPOSED DRAINAGE AREA LEGEND

- XXX — EXISTING CONTOUR
- XXX — PROPOSED CONTOUR
- PROPOSED DRAINAGE AREA
- P1 / 1.0 — DRAINAGE AREA DESIGNATOR / DRAINAGE AREA ACREAGE

PROPOSED DRAINAGE AREAS

AREA	AC	C	Tc (min)	I_{100} (in/hr)	Q_{100} (in/hr)
A	1.37	0.9	10	8.74	10.78
A1	0.27	0.9	10	8.74	2.12
A2	0.13	0.9	10	8.74	1.02
A3	0.27	0.9	10	8.74	2.12
A4	0.11	0.9	10	8.74	0.87
A5	0.08	0.9	10	8.74	0.63
A6	0.82	0.9	10	8.74	6.45
A7	2.60	0.9	10	8.74	20.45
A8	0.37	0.9	10	8.74	2.91
A9	0.34	0.9	10	8.74	2.67
A10	3.21	0.9	10	8.74	25.25
A11	2.00	0.35	15	8.74	6.12
A12	2.07	0.9	10	8.74	16.28
A13	0.18	0.9	10	8.74	1.42
A14	3.66	0.9	10	8.74	28.79
A15	0.30	0.9	10	8.74	2.36
A16	0.30	0.9	10	8.74	2.36
A17	0.19	0.9	10	8.74	1.49
A18	1.04	0.9	10	8.74	8.18
A19	0.48	0.9	10	8.74	3.78
A20	2.87	0.9	10	8.74	22.58
A21	0.21	0.9	10	8.74	1.65
A22	2.98	0.9	10	8.74	23.44
A23	0.39	0.9	10	8.74	3.07
B1	1.83	0.9	10	8.74	14.39
B2	0.16	0.9	10	8.74	1.26
B3	0.15	0.9	10	8.74	1.18
B4	0.42	0.9	10	8.74	3.3
B5	0.07	0.9	10	8.74	0.55
B6	0.25	0.9	10	8.74	1.97
B7	0.28	0.9	10	8.74	2.2
B8	5.61	0.9	10	8.74	44.13
B9	0.87	0.9	10	8.74	6.84
C1	0.43	0.9	10	8.74	3.38
C2	0.43	0.9	10	8.74	3.38
C3	2.26	0.9	10	8.74	17.78
D	2.22	0.9	15	8.74	17.46
E	1.45	0.9	15	8.74	11.41

ENGINEERING NOTES

1. EXISTING DRAINAGE INFORMATION AND DRAINAGE CALCULATIONS ARE INCLUDED IN THE DOWNSTREAM ASSESSMENT PROVIDED BY KFM LLC DATED JULY 2020 .
2. PERMANENT BMP PROVIDED THROUGH ONSITE EXTENDED DETENTION BASINS A AND B.
3. ACCORDING TO FLOOD INSURANCE RATE MAP (FIRM) MAP NO. 48121C0580G DATED 04/18/2011 PREPARED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FOR DENTON COUNTY, TEXAS, THIS PROPERTY IS WITHIN ZONE "X" UNSHADED.
4. ON-SITE DETENTION LIMITING POST-DEVELOPMENT DISCHARGE TO A PRE-DEVELOPMENT RUNOFF RATE IS REQUIRED FOR ALL NEW CONSTRUCTION UNLESS A DOWNSTREAM ASSESSMENT HAS BEEN PROVIDED DEMONSTRATING THAT THE EXISTING STORM SYSTEM IS ADEQUATE TO HANDLE POST-DEVELOPMENT DISCHARGE RATES. IF REGIONAL DETENTION EXISTS FOR THIS PROJECT, PROVIDE A NOTE REFERENCING WHERE THE REGIONAL DETENTION WAS DESIGNED AND CONSTRUCTED.

!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: PROPOSED DRAINAGE AREA MAP - CATCHMENTS

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

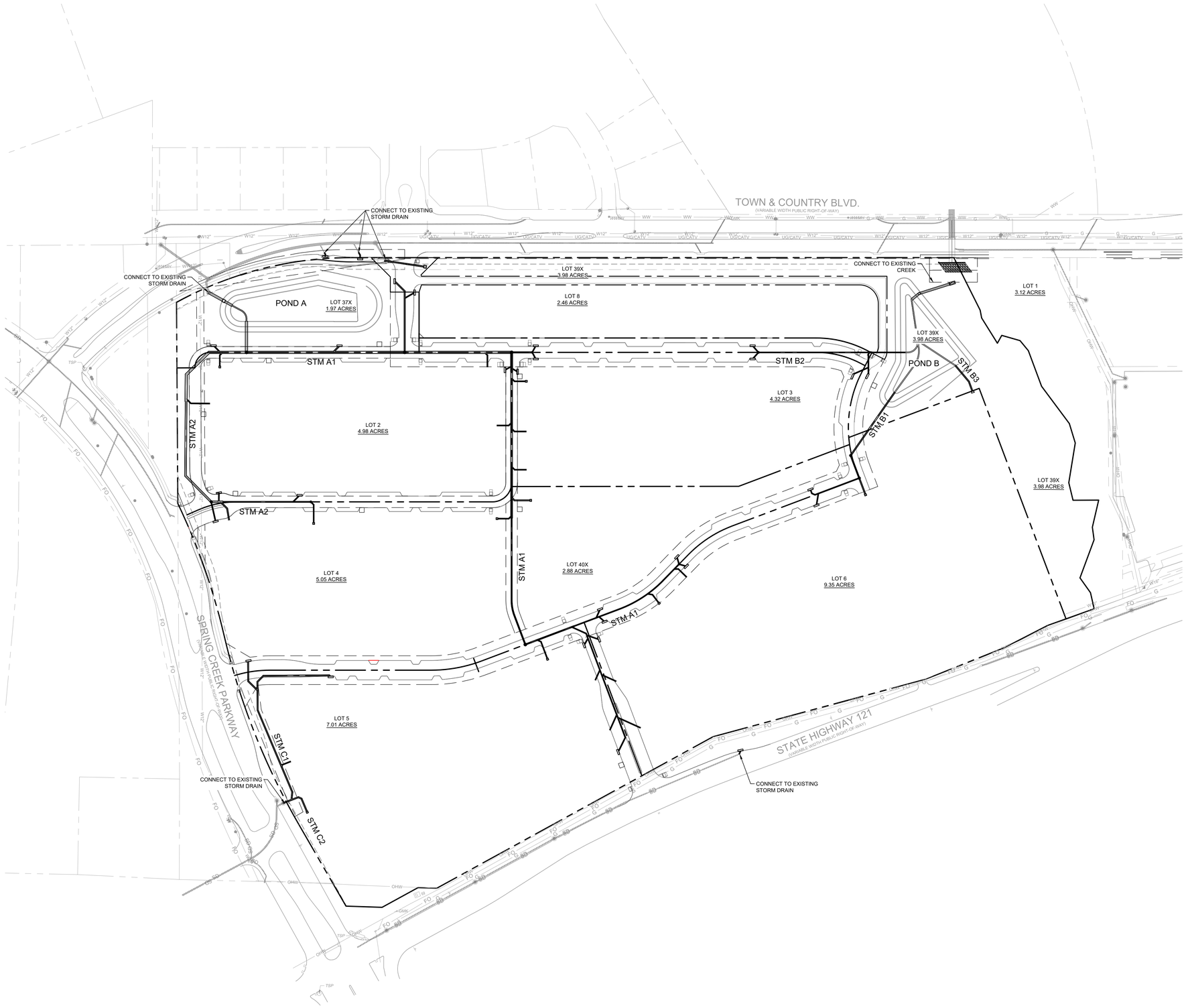
PROJECT NUMBER: 010021003

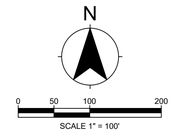
DRAWN BY: GW/LL | DESIGNED BY: JDB/TT | CHECKED BY: JAM

DATE: 06/25/21

SHEET: C4.02

K:\Projects\010021003\cad\sheet\010021003_dsm01-blocklier-6/28/2021 1:09 PM





DRAINAGE PLAN LEGEND

EXISTING	PROPOSED	
		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

DRAINAGE NOTES

1. **GENERAL CONSTRUCTION NOTES:** REFER TO SHEET C0.03 - GENERAL CONSTRUCTION NOTES FOR THE GENERAL CONSTRUCTION NOTES FOR THE PROJECT.
2. **PROTECTION OF UTILITIES:** THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS FOR THE SUPPORT AND PROTECTION OF ALL UTILITY POLES, FENCES, TREES, SHRUBS, GAS MAINS, TELEPHONE CABLES, ELECTRIC CABLES, DRAINAGE PIPES, UTILITY SERVICES, AND ALL OTHER UTILITIES AND STRUCTURES BOTH ABOVE AND BELOW THE GROUND.
3. **PUBLIC STORM DRAIN PIPE:** UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL PIPE FOR PUBLIC STORM DRAIN IMPROVEMENTS SHALL BE REINFORCED CONCRETE PIPE (RCP), CLASS II,L.
4. **PRIVATE STORM DRAIN PIPE:** UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL PIPE FOR PRIVATE STORM DRAIN IMPROVEMENTS SHALL BE AS FOLLOWS:
   - 4-INCH THROUGH 12-INCH: POLYVINYL CHLORIDE PIPE (PVC), SDR - 35, OR HIGH DENSITY POLYETHYLENE PIPE (HDPE), N-12
   - 15-INCH THROUGH 36-INCH: REINFORCED CONCRETE PIPE (RCP), CLASS III OR HIGH DENSITY POLYETHYLENE PIPE (HDPE), N-12
   - GREATER THAN 36-INCH: REINFORCED CONCRETE PIPE (RCP), CLASS III
4. **RCP JOINT SEALANT:** ALL PUBLIC PIPE UNDER PAVING SHALL HAVE AN "O" RING GASKET INSTALLED AT EACH JOINT OF STORM SEWER PIPE. REINFORCED CONCRETE PIPE JOINTS SHALL BE SEALED WITH RAMNECK OR APPROVED EQUAL.
5. **GROUTING:** ALL PIPE ENTERING PUBLIC STORM DRAIN STRUCTURES SHALL BE GROUTED TO ASSURE WATERTIGHT CONNECTIONS.
7. **CONCRETE COLLARS:** CONCRETE COLLARS SHALL BE INSTALLED AT ALL CHANGES IN CONDUIT SIZE AND AT ALL JOINTS THAT ARE PULLED IN EXCESS OF THAT RECOMMENDED BY THE CONDUIT MANUFACTURER.
8. **ROOF DRAINS:** THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF ROOF DRAIN LATERALS WITH BUILDING PLANS FOR DOWNSPOUT CONNECTIONS. END AND CAP ROOF DRAIN LATERALS FIVE (5) FEET FROM BUILDING AT ELEVATIONS SHOWN ON BUILDING PLANS.
9. **ADJUSTMENT OF STRUCTURES:** ALL STORM DRAIN STRUCTURES INCLUDING MANHOLES, INLETS AND CLEANOUTS MUST BE ADJUSTED TO PROPER LINE AND GRADE BY THE CONTRACTOR PRIOR TO, AND AFTER, PLACEMENT OF PAVING AND GRASSING.
10. EXISTING DRAINAGE INFORMATION AND DRAINAGE CALCULATIONS ARE INCLUDED IN THE DOWNSTREAM ASSESSMENT PROVIDED BY KFM LLC DATED JULY 2020 .
11. PERMANENT BMP PROVIDED THROUGH ONSITE EXTENDED DETENTION BASINS A AND B.

!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

DATE:
DESCRIPTION:
DELTA:

DATE:
DESCRIPTION:
ISSUE:

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

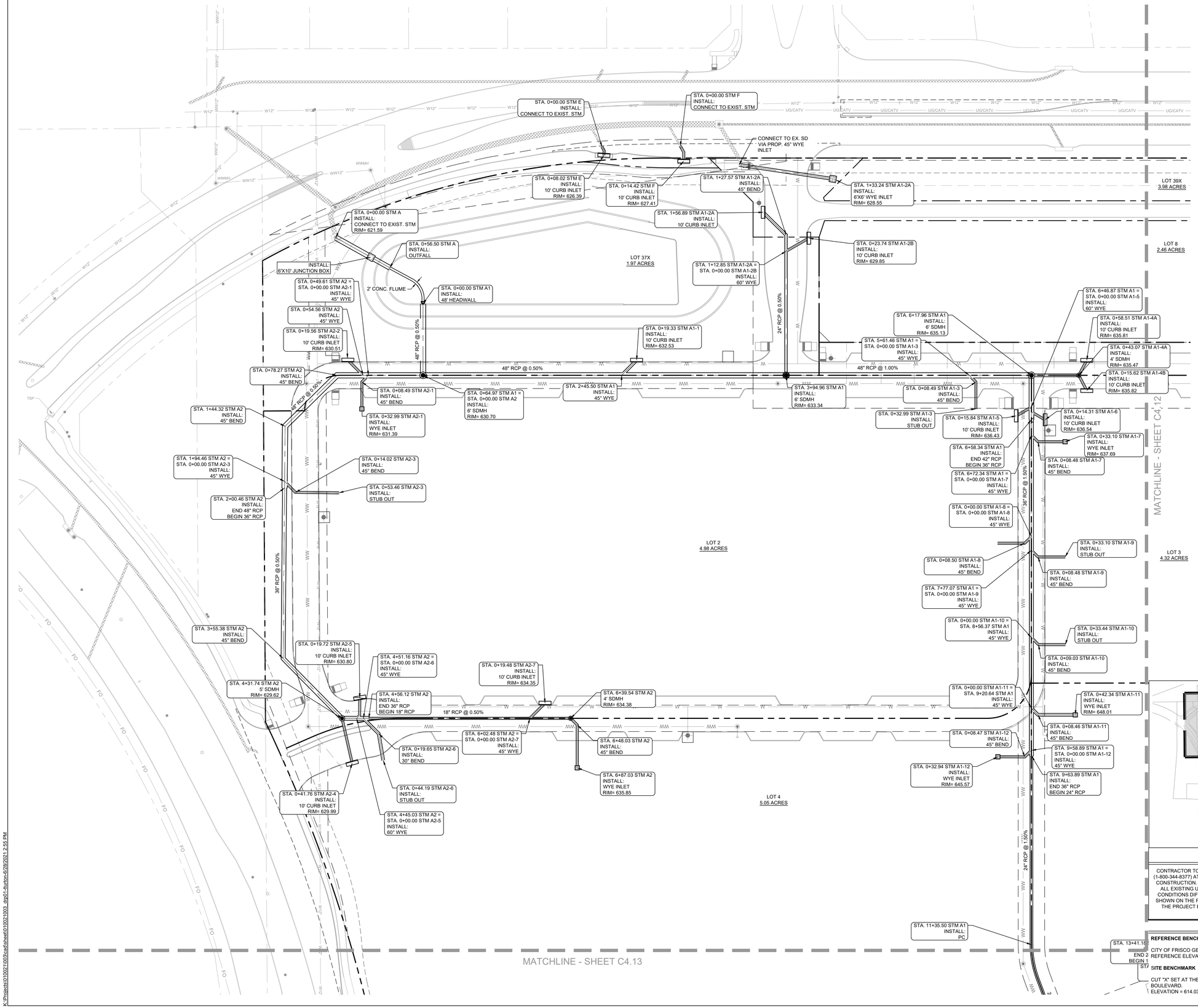
SHEET TITLE
STORM DRAIN OVERALL PLAN

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

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

C4.10

K:\Projects\010021003\cad\sheet\010021003_dng01.tburton-6/28/2021 2:55 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: STORM DRAIN PLAN

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

PROJECT NUMBER: 0100210003

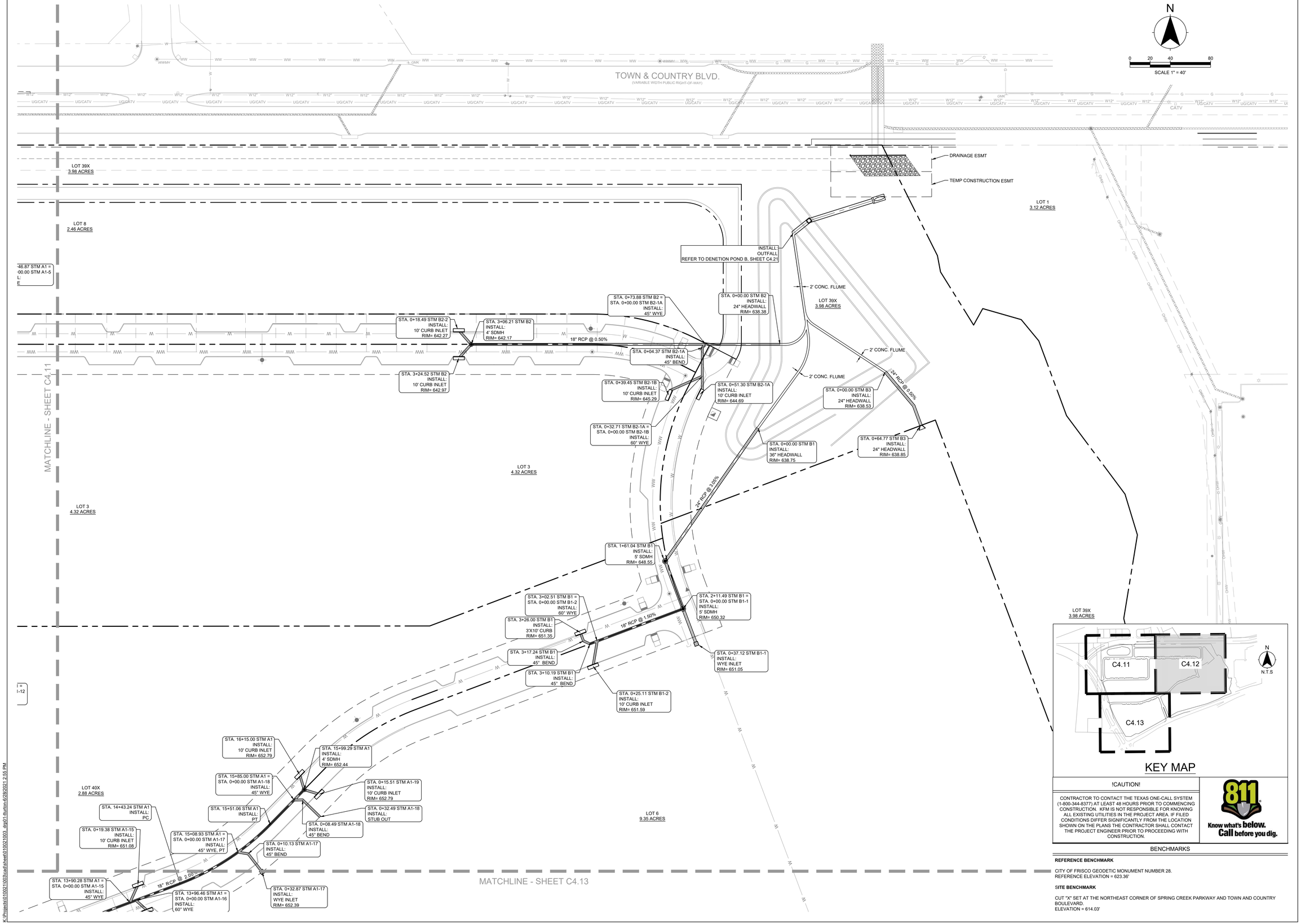
DRAWN BY:	DESIGNED BY:	CHECKED BY:
GW/LL	JDB/TT	JAM

DATE: 06/25/21

SHEET:

C4.11

K:\Projects\0100210003\cad\sheet\0100210003_dnp01-thurton-6/28/2021 2:55 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: STORM DRAIN PLAN

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

PROJECT NUMBER: 010021003

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

DATE: 06/25/21

SHEET: C4.12

K:\Projects\010021003\cad\sheet\010021003_drp01-tburton-6/28/2021 2:55 PM

MATCHLINE - SHEET C4.11

MATCHLINE - SHEET C4.12

N

0 20 40 80

SCALE 1" = 40'

SPRING CREEK PARKWAY

STA. 11+35.50 STM A1
INSTALL:
PC

STA. 11+67.20 STM A1
INSTALL:
PT

STA. 12+32.14 STM A1
INSTALL:
6' SDMH
RIM= 648.75

STA. 0+69.63 STM C1-2
INSTALL:
10' CURB INLET
RIM= 640.98

STA. 4+34.04 STM C1
INSTALL:
45° BEND

STA. 2+96.66 STM C1
INSTALL:
45° BEND

24" RCP @ 0.50%

STA. 0+27.14 STM C1-2
INSTALL:
45° BEND

STA. 2+79.12 STM C1
INSTALL:
45° BEND

STA. 2+61.40 STM C1 =
STA. 0+00.00 STM C1-2
INSTALL:
45° WYE

STA. 2+20.13 STM C1
INSTALL:
45° BEND

STA. 4+38.41 STM C1
INSTALL:
10' CURB INLET
RIM= 642.51

LOT 5
7.01 ACRES

24" RCP @ 1.44%

STA. 0+24.06 STM C1-1
INSTALL:
STUB OUT

STA. 0+91.04 STM C1 =
STA. 0+00.00 STM C1-1
INSTALL:
45° WYE

STA. 0+34.75 STM C1
INSTALL:
45° BEND

STA. 0+15.37 STM C2
INSTALL:
45° BEND

STA. 0+22.44 STM C2
INSTALL:
45° BEND

STA. 0+00.00 STM C1
CONNECT TO EX.
RIM= 634.88

STA. 0+18.28 STM C1 =
STA. 0+00.00 STM C2
INSTALL:
45° WYE

STA. 0+53.17 STM C2
INSTALL:
WYE INLET
RIM= 638.50

24" RCP @ 1.50%

24" RCP @ 2.00%

STA. 13+41.18 STM A1
INSTALL:
END 24" RCP
BEGIN 18" RCP

STA. 13+35.71 STM A1 =
STA. 0+00.00 STM A1-14
INSTALL:
45° WYE

STA. 13+28 STM A1 =
STA. 0+00.00 STM A1-15
INSTALL:
45° WYE

STA. 15+08.93 STM A1 =
STA. 0+00.00 STM A1-17
INSTALL:
45° WYE, PT

18" RCP @ 2.00%

STA. 13+96.46 STM A1 =
STA. 0+00.00 STM A1-16
INSTALL:
60° WYE

STA. 0+32.87 STM A1-17
INSTALL:
WYE INLET
RIM= 652.39

STA. 0+15.53 STM A1-16
INSTALL:
10' CURB INLET
RIM= 651.08

STA. 0+32.89 STM A1-14
INSTALL:
45° BEND

STA. 0+27.19 STM A1-21
INSTALL:
10' CURB INLET
RIM= 652.08

STA. 0+36.78 STM A1-14 =
STA. 0+00.00 STM A1-21
INSTALL:
45° WYE

STA. 0+43.54 STM A1-14 =
STA. 0+00.00 STM A1-20
INSTALL:
45° WYE

STA. 1+14.23 STM A1-14 =
STA. 0+00.00 STM A1-22
INSTALL:
45° WYE

STA. 12+58.81 STM A1 =
STA. 0+00.00 STM A1-13
INSTALL:
45° WYE

STA. 0+08.48 STM A1-13
INSTALL:
45° BEND

STA. 0+47.48 STM A1-13
INSTALL:
WYE INLET
RIM= 651.12

STA. 0+16.56 STM A1-20
INSTALL:
10' CURB INLET
RIM= 652.11

STA. 0+23.04 STM A1-22
INSTALL:
STUB OUT

STA. 0+33.00 STM A1-23
INSTALL:
STUB OUT

LOT 6
9.35 ACRES

STA. 1+24.78 STM A1-14 =
STA. 0+00.00 STM A1-23
INSTALL:
45° WYE

18" RCP @ 5.69%

STA. 2+20.12 STM A1-14 =
STA. 0+00.00 STM A1-25
INSTALL:
45° WYE

STA. 2+14.03 STM A1-14 =
STA. 0+00.00 STM A1-24
INSTALL:
45° WYE

STA. 0+51.90 STM A1-25
INSTALL:
STUB OUT

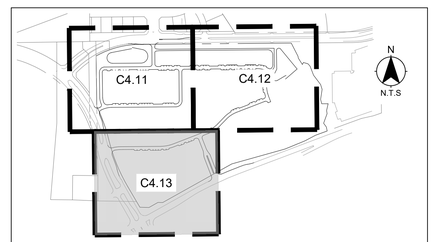
STA. 0+34.82 STM A1-24
INSTALL:
STUB OUT

STA. 2+64.70 STM A1-14
INSTALL:
45° BEND

STA. 2+98.27 STM A1-14
INSTALL:
10' CURB INLET
RIM= 659.22

18" RCP @ 5.00%

ECAB



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

DATE:
DESCRIPTION:
DELTA:

DATE:
DESCRIPTION:
ISSUE:

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

SHEET TITLE
STORM DRAIN PLAN

PRELIMINARY
NOT FOR CONSTRUCTION

KFM ENGINEERING & DESIGN

ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

PROJECT NUMBER:
010021003

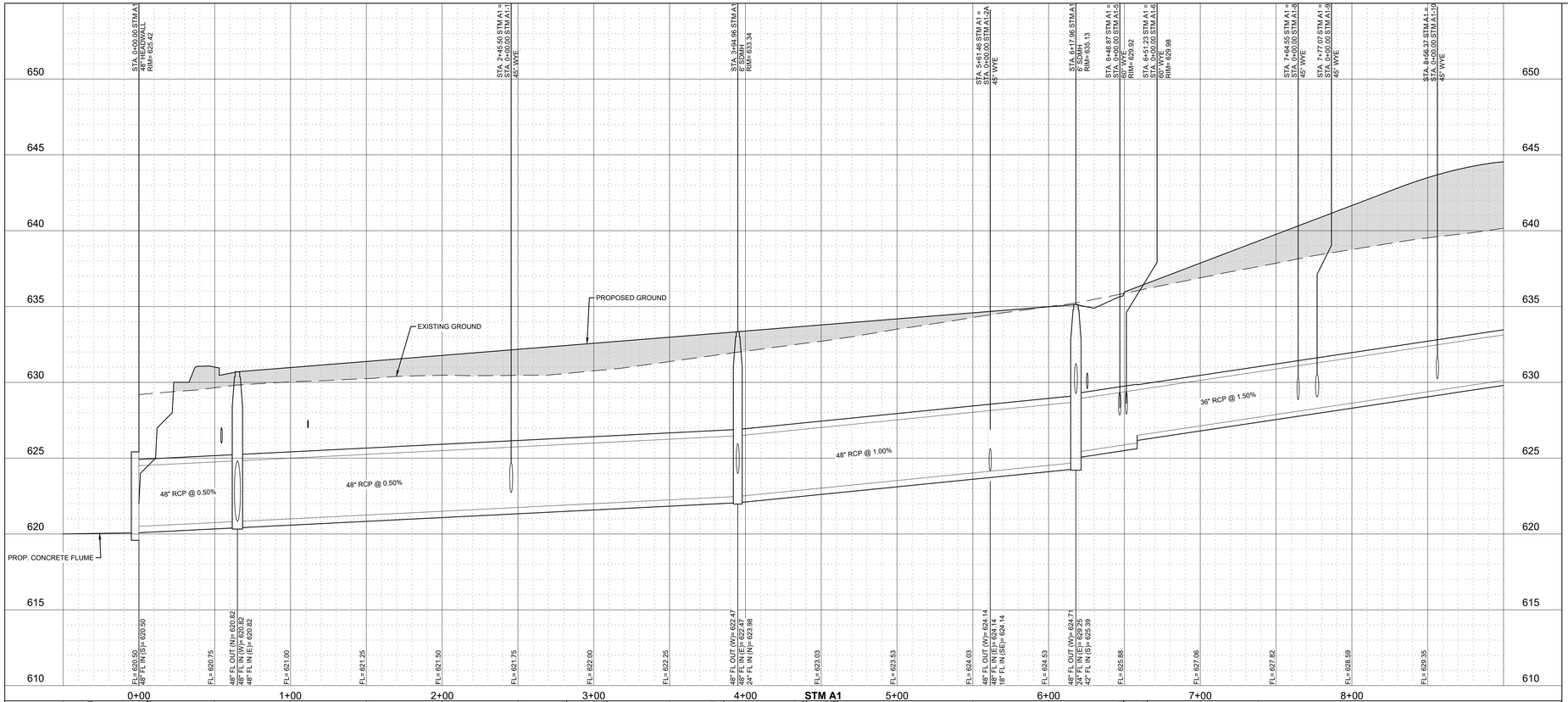
DRAWN BY: GW/LL
DESIGNED BY: JDB/TT
CHECKED BY: JAM

DATE:
06/25/21

SHEET:

C4.13

K:\Projects\010021\003\cad\sheet\010021003_dsp01-thurton-6/28/2021 2:55 PM



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

DRAINAGE PROFILE VIEW LEGEND

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

NOTES:
- REFER TO SHEET C0.03 FOR GENERAL CONSTRUCTION NOTES.
- REFER TO SHEET C6.90 FOR DRAINAGE DETAILS.

!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

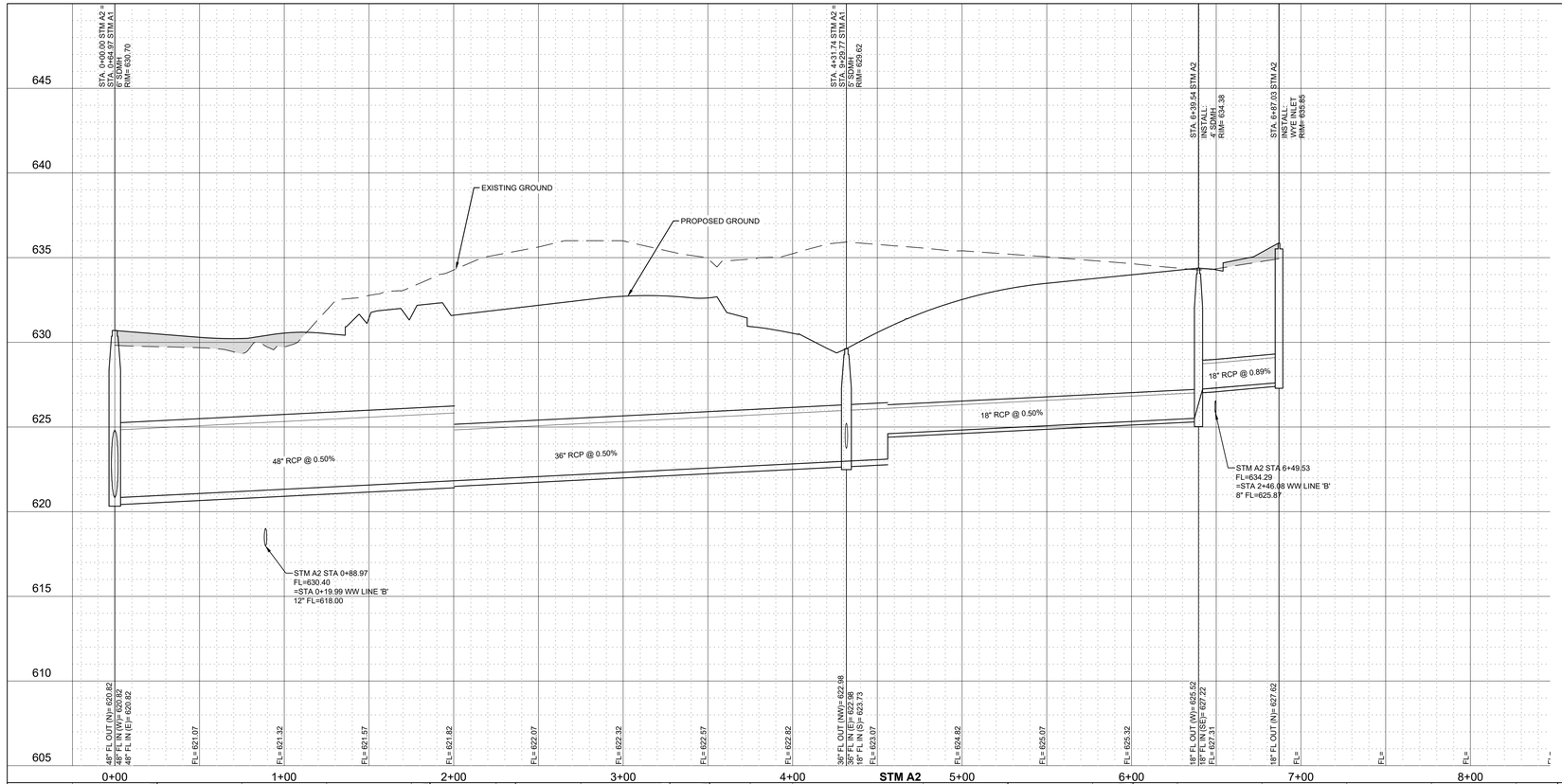
CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

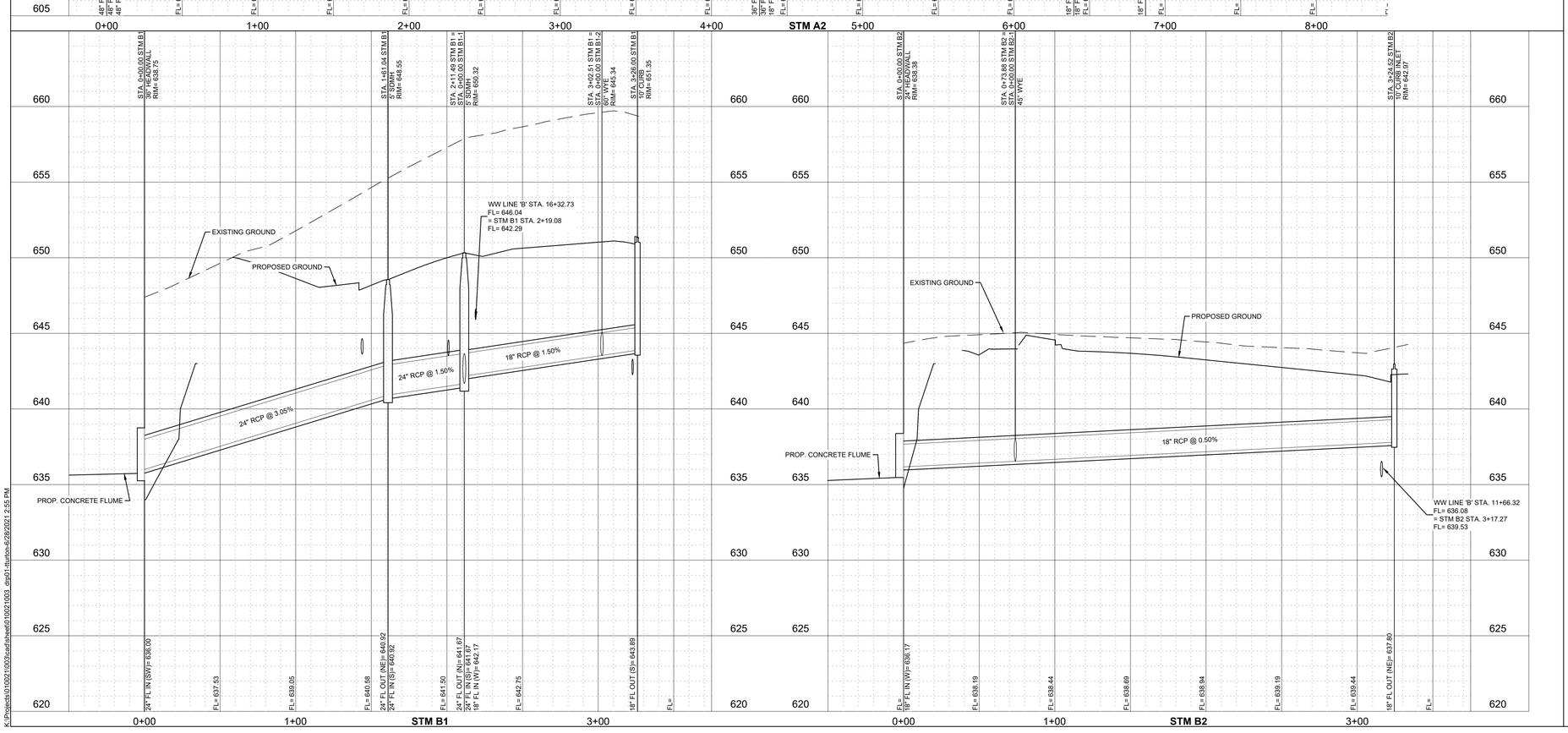
SITE BENCHMARK

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:





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

DRAINAGE PROFILE VIEW LEGEND

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

NOTES:

- REFER TO SHEET C0.03 FOR GENERAL CONSTRUCTION NOTES.
- REFER TO SHEET C6.90 FOR DRAINAGE DETAILS.

!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

DATE: DESCRIPTION: DELTA:

DATE: DESCRIPTION: ISSUE:

CLIENT 121 SPRING CREEK, LLC

PROJECT FRISCO 45 INFRASTRUCTURE

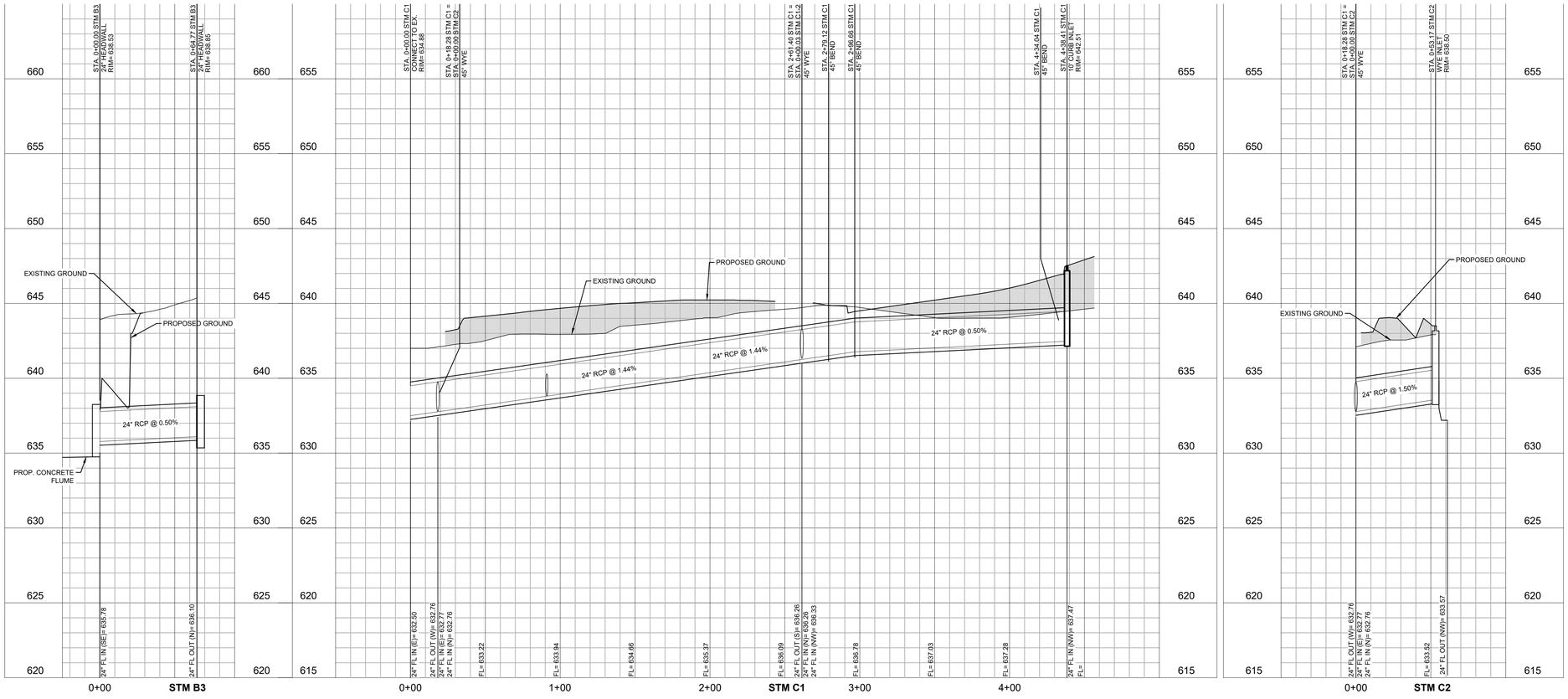
SHEET TITLE STORM DRAIN PROFILE

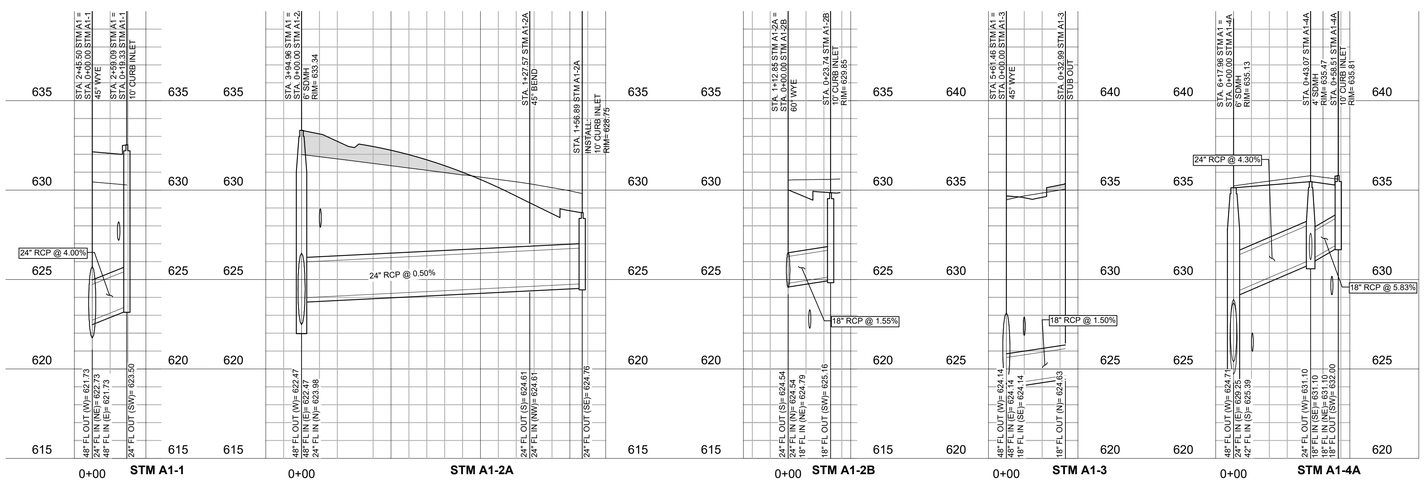
PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

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

C4.15

K:\Projects\010021003\cad\sheet\010021003_drp01-Hutton-6/28/2021 2:55 PM





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

DRAINAGE PROFILE VIEW LEGEND

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

NOTES:
- REFER TO SHEET C0.03 FOR GENERAL CONSTRUCTION NOTES.
- REFER TO SHEET C6.90 FOR DRAINAGE DETAILS.

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

CLIENT: 121 SPRING CREEK, LLC

PROJECT: FRISCO 45 INFRASTRUCTURE

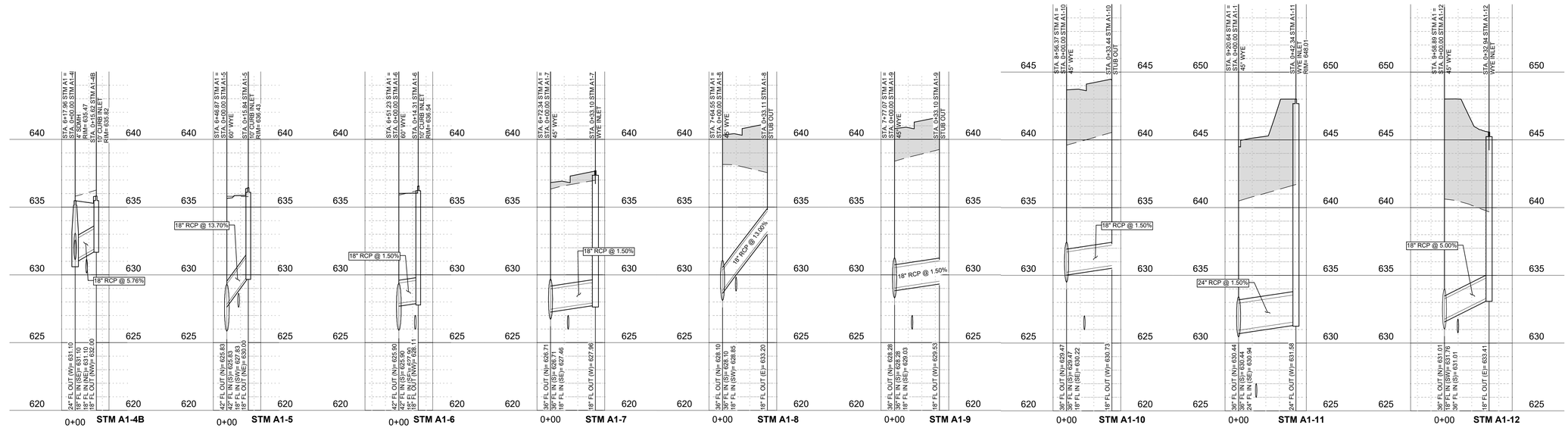
SHEET TITLE: STORM DRAIN PROFILE

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

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

C4.16

K:\Projects\010021\003\cad\sheet\010021003_drp01-tburton-6/28/2021 2:55 PM



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

DRAINAGE PROFILE VIEW LEGEND

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

NOTES:
- REFER TO SHEET C0.03 FOR GENERAL CONSTRUCTION NOTES.
- REFER TO SHEET C6.90 FOR DRAINAGE DETAILS.

!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: STORM DRAIN PROFILE

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

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

C4.17

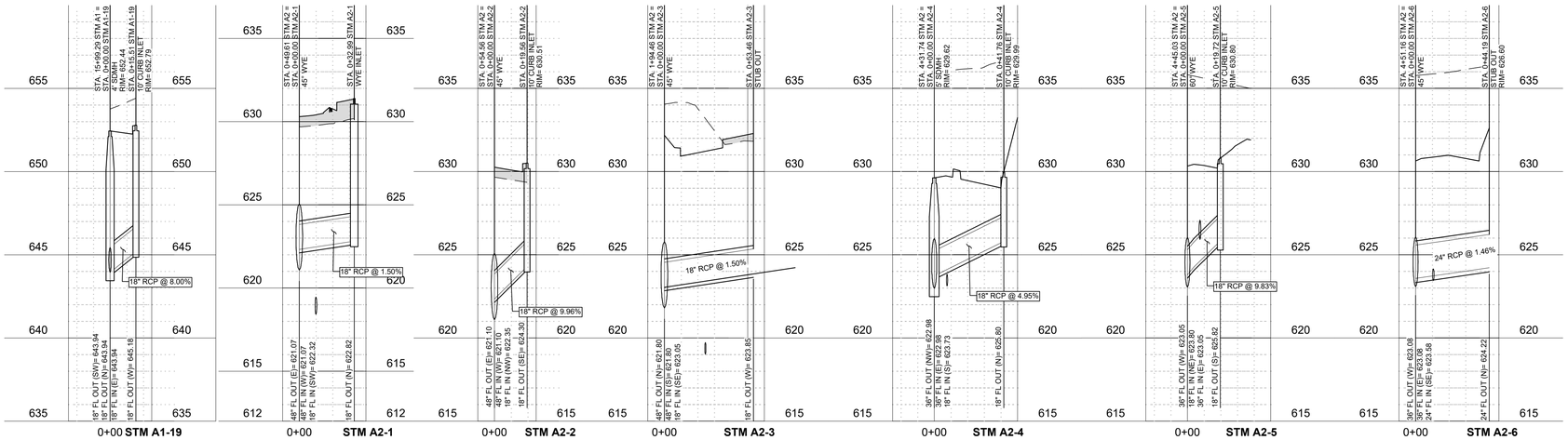
K:\Projects\010021003\cad\sheet\01002100 3_dwg01-thurton-6/28/2021 2:55 PM

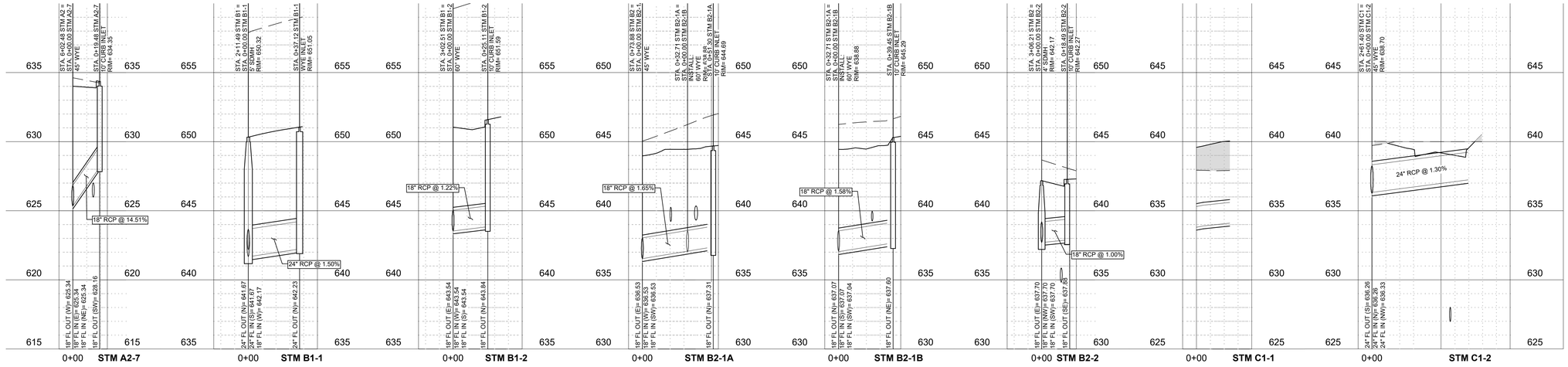
PROFILE SCALE
HORIZONTAL: 1" = 40'
VERTICAL: 1" = 10'

DRAINAGE PROFILE VIEW LEGEND

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

NOTES:
- REFER TO SHEET C0.03 FOR GENERAL CONSTRUCTION NOTES.
- REFER TO SHEET C6.90 FOR DRAINAGE DETAILS.





!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

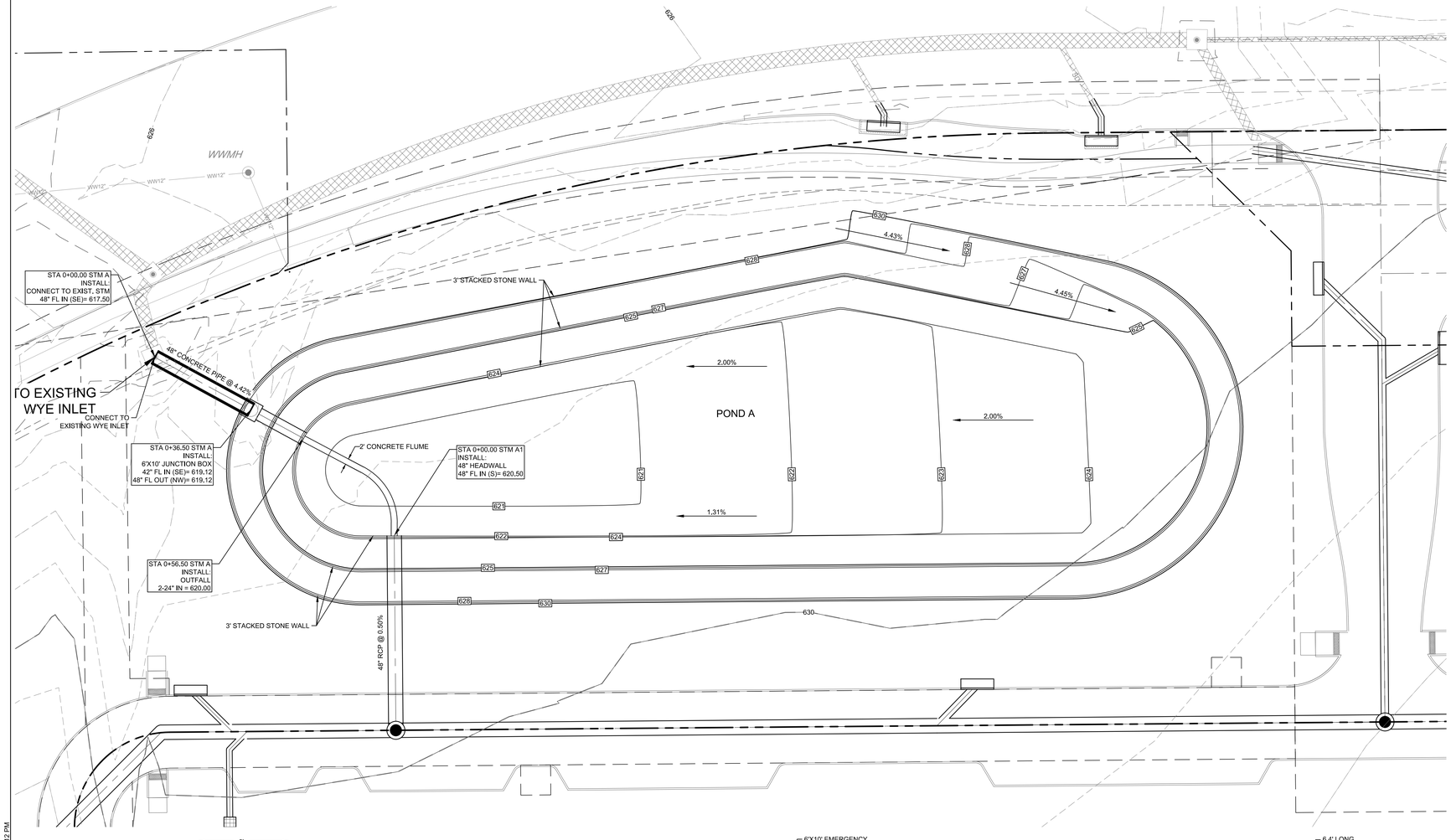
SHEET TITLE STORM DRAIN PROFILE

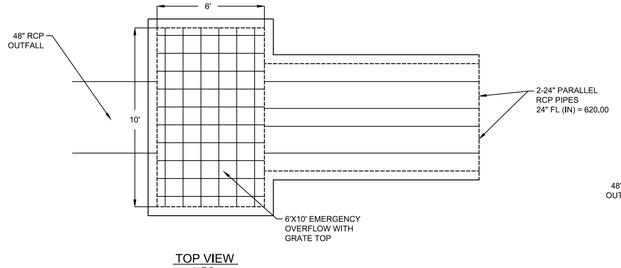
PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

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

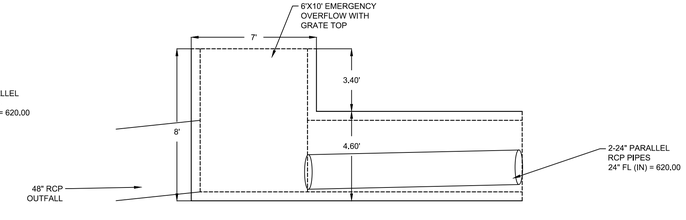
C4.18

K:\Projects\010021\003\cad\sheet\010021003_dsp01-titurton-6/28/2021 2:55 PM

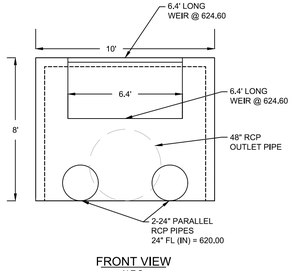




TOP VIEW
N.T.S.



SIDE VIEW
N.T.S.



FRONT VIEW
N.T.S.

Frisco 45 - Pond 'A'		
Elevation (ft)	*Cumulative Volume (ft^3)*	*Rainfall Event Storage*
628.00	149,759	100-Year Event
627.00	116,305	
626.82	97,792	25-Year Event
626.00	90,561	
625.59	66,865	5-Year Event
625.00	65,471	
624.00	40,946	2-Year Event
623.92	39,683	
623.00	24,786	
622.00	12,110	
621.00	3,223	
620.00	0	

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

DATE:
DESCRIPTION:
DELTA:

DATE:
DESCRIPTION:
ISSUE:

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

SHEET TITLE
DETENTION POND 'A' PLAN

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

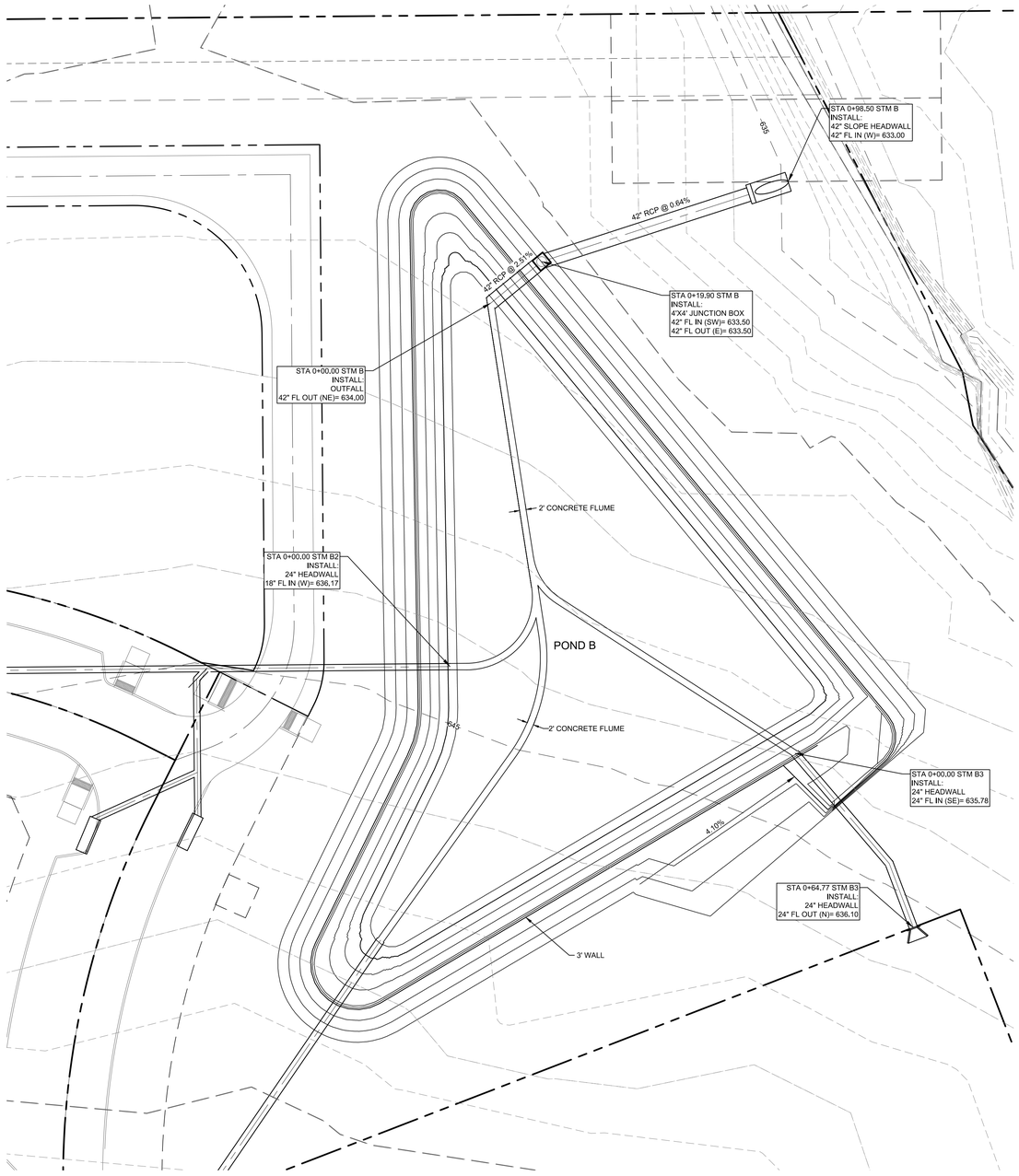
PROJECT NUMBER:
010021003

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

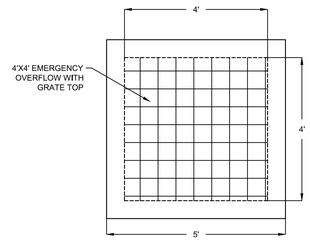
DATE:
06/25/21

SHEET:
C4.19

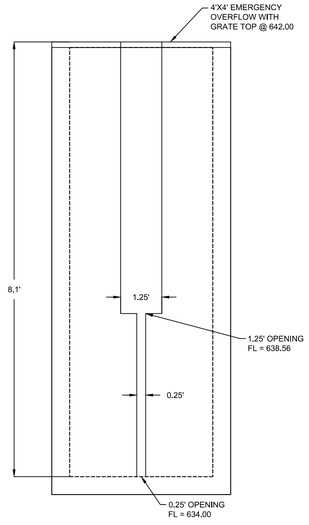
K:\Project\010021003\010021003\Exhibits\Detention\010021003 Detention Exhibits.dwg 6/23/2021 2:12 PM



Frisco 45 - Pond 'B'		
Elevation (ft)	*Cumulative Volume (ft³)*	*Rainfall Event Storage*
642.00	25177.68	100-Year Event
641.00	100972.08	
640.47	87032.88	25-Year Event
640.00	76491.36	
639.21	61027.56	5-Year Event
639.00	57586.32	
638.12	42209.64	2-Year Event
638.00	39334.68	
637.00	21605.76	
636.00	9844.56	
635.00	2831.40	
634.00	0.00	



TOP VIEW
N.T.S.



TOP VIEW
N.T.S.

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

DATE:
DESCRIPTION:
DELTA:

DATE:
DESCRIPTION:
ISSUE:

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

SHEET TITLE
DETENTION POND 'B' PLAN

PRELIMINARY
NOT FOR CONSTRUCTION

KFM
ENGINEERING & DESIGN

ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

PROJECT NUMBER:
010021003

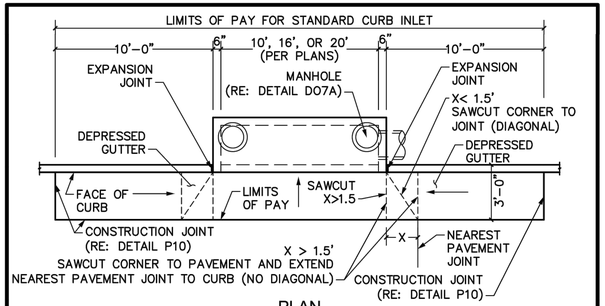
DRAWN BY: GW/LL
DESIGNED BY: JDB/TT
CHECKED BY: JAM

DATE:
06/25/21

SHEET:

C4.20

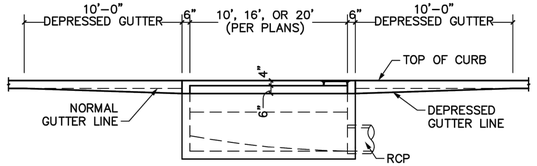
K:\Projects\010021003\cad\sheets\010021003_dtp01-[illegible].PMP



PLAN

NOTES:

1. TOP OF INLET TO SLOPE 2% TOWARDS STREET OR PER PLAN.
2. CENTER SUPPORT BEAM REQUIRED FOR 16' AND 20' STANDARD CURB INLETS.
3. ADDITIONAL REINFORCING STEEL TO BE PLACED AROUND MANHOLE OPENING.

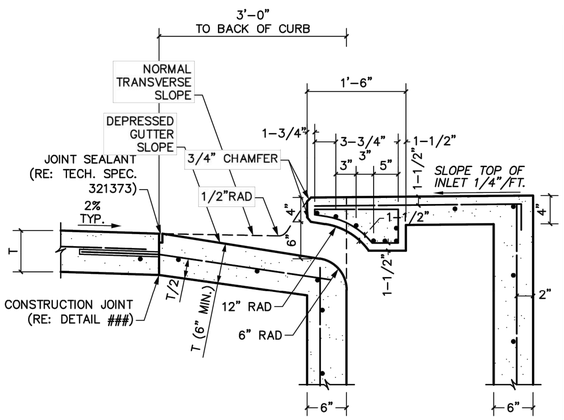


PROFILE

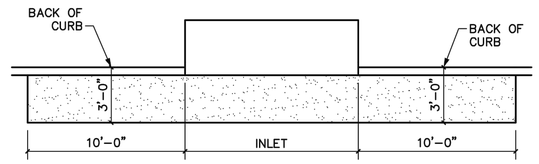
NOTES:

1. MANHOLE TO BE PLACED AT LOW END OF INLET. TWO MANHOLES ARE REQUIRED ON 16' AND 20' INLETS ONLY, ONE ON EACH END.
2. PIPE MAY BE PLACED IN ANY WALL, BUT SHALL NOT ENTER ANY CORNER OR BOTTOM.

FRISCO PROGRESS IN MOTION	STANDARD CONSTRUCTION DETAIL **STANDARD CURB INLET** **SHEET 1 OF 2**	SCALE: 1"=5' REVISED: AUG 2020 D02

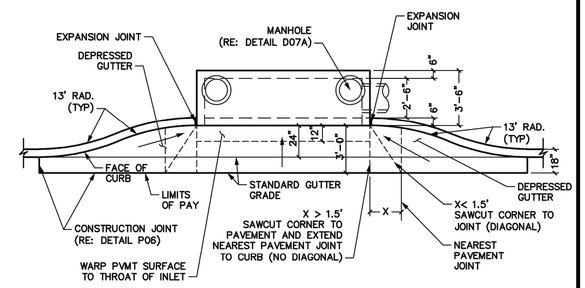


THROAT SECTION



PAVEMENT BLOCKOUT

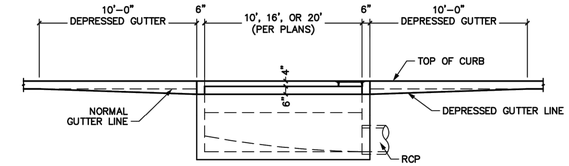
FRISCO PROGRESS IN MOTION	STANDARD CONSTRUCTION DETAIL **STANDARD CURB INLET** **SHEET 2 OF 2**	SCALE: 1"=1'-0" REVISED: AUG 2020 D03



PLAN VIEW

NOTES:

1. TOP OF INLET TO SLOPE 2% TOWARDS STREET OR PER PLAN.
2. CENTER SUPPORT BEAM REQUIRED FOR 16' AND 20' STANDARD CURB INLETS.
3. ADDITIONAL REINFORCING STEEL TO BE PLACED AROUND MANHOLE OPENING.

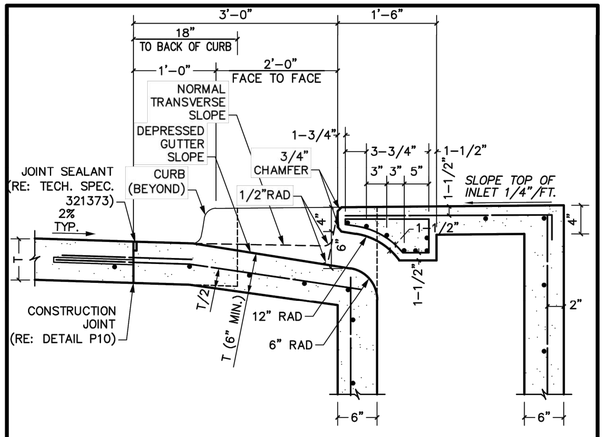


PROFILE

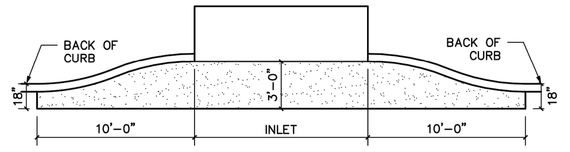
NOTES:

1. MANHOLE TO BE PLACED AT LOW END OF INLET. TWO MANHOLES ARE REQUIRED ON 16' AND 20' INLETS ONLY, ONE ON EACH END.
2. PIPE MAY BE PLACED IN ANY WALL, BUT SHALL NOT ENTER ANY CORNER OR BOTTOM.

FRISCO PROGRESS IN MOTION	STANDARD CONSTRUCTION DETAIL **RECESSED CURB INLET** **SHEET 1 OF 2**	SCALE: 1"=5' REVISED: AUG 2020 D04

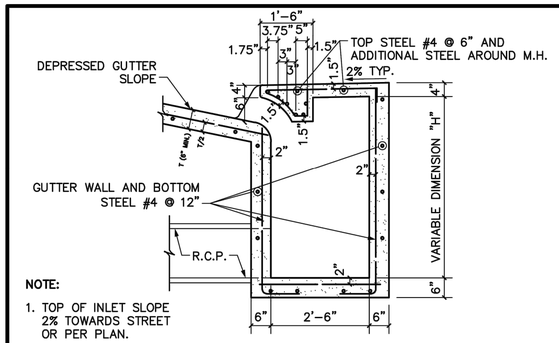


THROAT SECTION



PAVEMENT BLOCKOUT

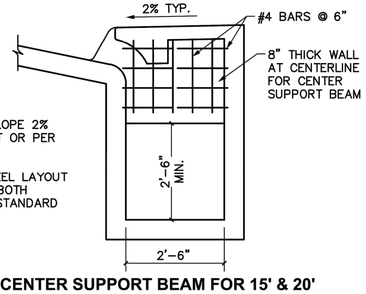
FRISCO PROGRESS IN MOTION	STANDARD CONSTRUCTION DETAIL **RECESSED CURB INLET** **SHEET 2 OF 2**	SCALE: 1"=1'-0" REVISED: AUG 2020 D05



NOTE:

1. TOP OF INLET SLOPE 2% TOWARDS STREET OR PER PLAN.

INLET SECTION FOR RECESSED AND STANDARD INLETS



NOTES:

1. TOP OF INLET SLOPE 2% TOWARDS STREET OR PER PLAN.
2. REINFORCING STEEL LAYOUT APPLICABLE TO BOTH RECESSED AND STANDARD CURB INLETS.

CENTER SUPPORT BEAM FOR 15' & 20' RECESSED AND STANDARD INLETS

FRISCO PROGRESS IN MOTION	STANDARD CONSTRUCTION DETAIL **CENTER SUPPORT BEAM & INLET SECTION FOR RECESSED AND STANDARD INLETS**	SCALE: 1/2"=1'-0" REVISED: AUG 2020 D06

GENERAL NOTES:

1. ALL CONCRETE SHALL BE 4,000 PSI AND SULFATE RESISTANT.
2. ALL REINFORCING STEEL SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A-615.
3. CHAMFER ALL EXPOSED CORNERS 3/4" EXCEPT WHERE OTHERWISE NOTED.
4. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
5. FIELD CUT AND BEND BARS AS NECESSARY TO ACCOMMODATE STORM SEWER PIPE.
6. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 2".
7. RECESSED CURB INLETS SHALL BE REQUIRED ON ALL A THROUGH D STREETS. STANDARD INLETS WILL BE PERMITTED ON E THROUGH G STREETS.
8. STANDARD CURB INLET SIZES ARE 10', 15', OR 20'. NO OTHER SIZES WILL BE ALLOWED WITHOUT APPROVAL FROM DIRECTOR OF ENGINEERING SERVICES.

PRIVATE DEVELOPMENT ALTERNATIVE NOTE:

1. THESE NOTES ARE SUPPLEMENTAL TO THE GENERAL NOTES AND APPLY ONLY WHEN PREFABRICATED BOXES ARE CALLED OUT ON THE PLANS AND ALLOWED BY ENGINEERING SERVICES.
2. ROCK FOUNDATION SHALL BE USED DURING PREFABRICATED INLET BOX INSTALLATION. 6" FOR BACKFILL WITH FLOWABLE FILL TO FILL VOIDS OR COMPACT WITH SELECT SURPLUS EXCAVATION COMPACTED IN 8" LIFTS TO 95% STANDARD PROCTOR DENSITY.

FRISCO PROGRESS IN MOTION	STANDARD CONSTRUCTION DETAIL **STORM SEWER INLETS & MANHOLE GENERAL NOTES**	SCALE: N.T.S. REVISED: AUG 2020 D07

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

DATE: DESCRIPTION: DELTA:

DATE: DESCRIPTION: ISSUE:

CLIENT: 121 SPRING CREEK, LLC

PROJECT: FRISCO 45 INFRASTRUCTURE

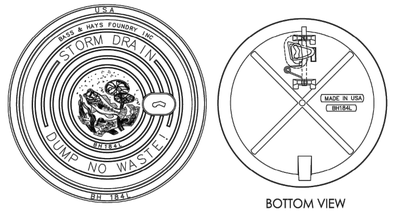
SHEET TITLE: DRAINAGE DETAILS

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

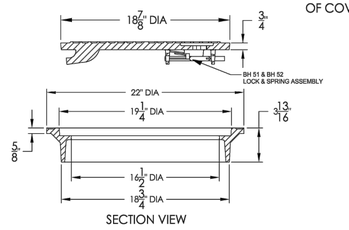
PROJECT NUMBER: 010021003
DRAWN BY: GW/LL DESIGNED BY: JDB/TT CHECKED BY: JAM
DATE: 06/25/21
SHEET:

C4.90

K:\Projects\010021003\cad\sheet\010021003_dr001-twillenson-4/9/2021 3:14 PM



BOTTOM VIEW OF COVER

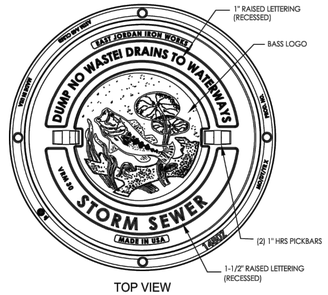


SECTION VIEW

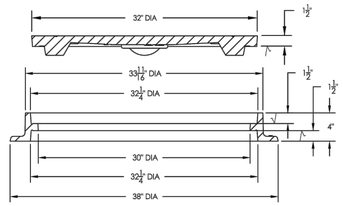
NOTE:

1. MANHOLE COVER AND FRAME SHALL BE SELECTED FROM THE APPROVED MATERIALS LIST.
2. STORMWATER QUALITY DEVICES SHALL HAVE MANUFACTURER'S MANHOLE LID.

FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **STORM SEWER CURB INLET LID DETAIL**	SCALE: N.T.S. REVISED: AUG 2020 D08



TOP VIEW

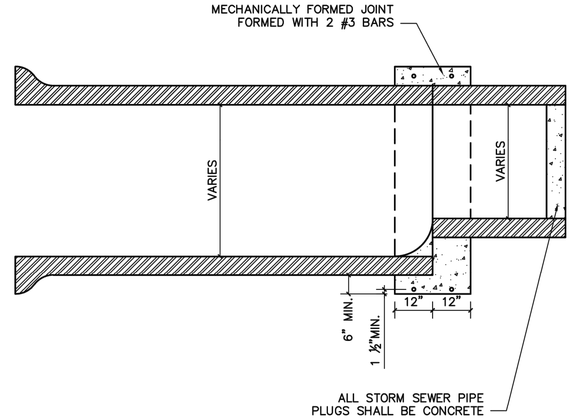


SECTION VIEW

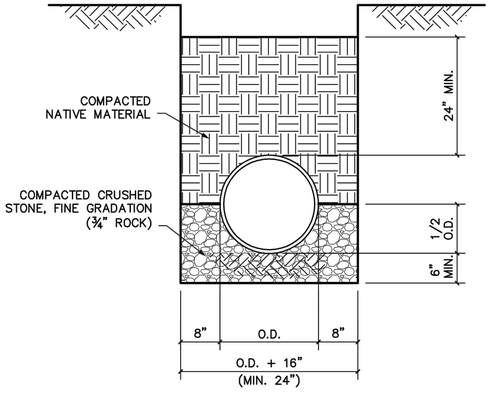
NOTES:

1. MANHOLE COVER AND FRAME SHALL BE SELECTED FROM THE APPROVED MATERIALS LIST.
2. STORMWATER QUALITY DEVICES SHALL HAVE MANUFACTURER'S MANHOLE LID.

FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **STORM SEWER MANHOLE LID DETAIL**	SCALE: N.T.S. REVISED: AUG 2020 D09



FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **CONCRETE COLLAR FOR PIPE CONNECTIONS**	SCALE: N.T.S. REVISED: AUG 2020 D12



CLASS "B"

NOTES:

1. UTILIZE CLASS "B" EMBEDMENT FOR RCP STORM DRAIN INSTALLATIONS.
2. REFER TO TECHNICAL SPECIFICATION 330510 TRENCHING, BACKFILLING AND COMPACTION.
3. BEDDING DEPTH MEASURED FROM OUTSIDE THE PIPE BELL.
4. FINAL BACKFILL MOISTURE TREATED TO 3% ABOVE OPTIMUM AT 95% STANDARD PROCTOR FOR EAGLE FORD AND 0 ±4% FOR AUSTIN CHALK.

FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **EMBEDMENT "B" (STORM)**	SCALE: 3/4"=1'-0" REVISED: AUG 2020 U01

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
DRAINAGE DETAILS

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

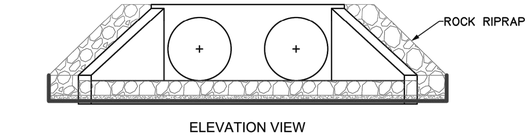
PROJECT NUMBER:
010021003

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

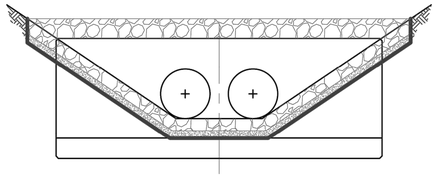
DATE:
06/25/21

SHEET:
C4.91

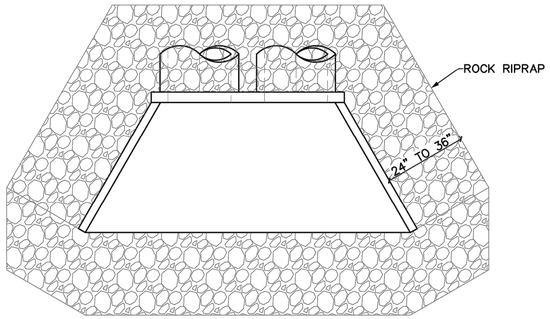
K:\Projects\010021\003\cad\sheet\010021003_dr001-lwilkerson-4/9/2021 3:14 PM



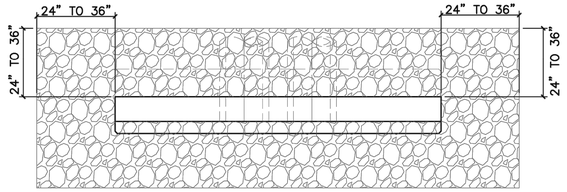
ELEVATION VIEW



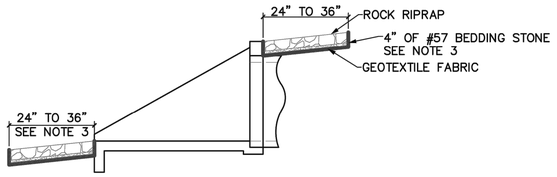
ELEVATION VIEW



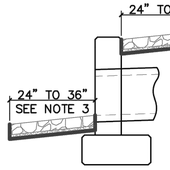
PLAN VIEW



PLAN VIEW



SECTION VIEW



SECTION VIEW

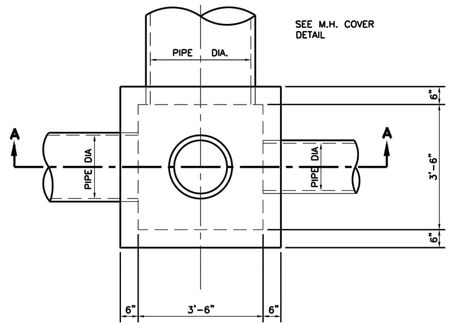
NOTES:
1. MINIMUM LIMITS OF ROCK RIPRAP SHOWN ON THESE DETAILS SHALL APPLY TO ALL STANDARD PIPE HEADWALLS.
2. RIPRAP AROUND SIDES AND TOP OF HEADWALL REQUIRED WHEN GRADES EXCEED 4:1 OR RUNOFF FLOWS OVER HEADWALL.
3. DESIGN LIMITS, SIZE, AND DEPTH OF RIPRAP AND BEDDING BASED ON THE ISWM TECHNICAL MANUAL FOR HYDRAULICS.
4. UNLESS SHOWN OTHERWISE IN THE PLANS.

FRISCO PROGRESS IN MOTION.

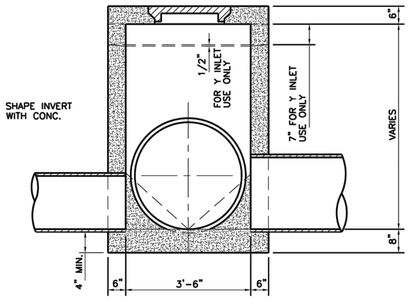
STANDARD CONSTRUCTION DETAIL

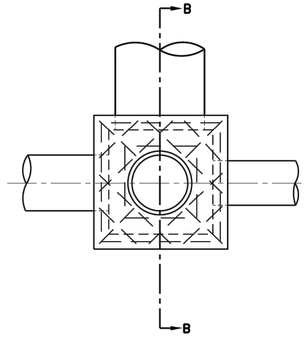
RIPRAP AROUND HEADWALLS

SCALE: N.T.S.
REVISED: AUG 2020
D17

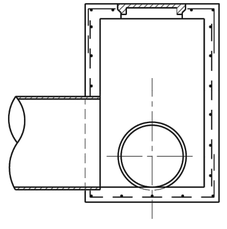


TYPE I REINF. TABLE				
ITEM	SIZE	QUANTITY	LENGTH	REMARKS
BARS A	NO. 5	4		24" 18"
BARS B	NO. 4	VARIES	4'-2"	
BARS C	NO. 3	4	2'-0"	
BARS D	NO. 3	4	3'-4"	
BARS E	NO. 3	4	2'-4"	
BARS F	NO. 3	16	VARIES	
BARS G	NO. 3	10		18" 3'-4" 18"





STRUCTURAL PLAN



SECTION B-B

FRISCO PROGRESS IN MOTION.

STANDARD CONSTRUCTION DETAIL

TYPE I JUNCTION BOX

SCALE: N.T.S.
REVISED: AUG 2020
D13

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

DATE:
DESCRIPTION:
DELTA:

DATE:
DESCRIPTION:
ISSUE:

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

SHEET TITLE
DRAINAGE DETAILS

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

PROJECT NUMBER:
010021003

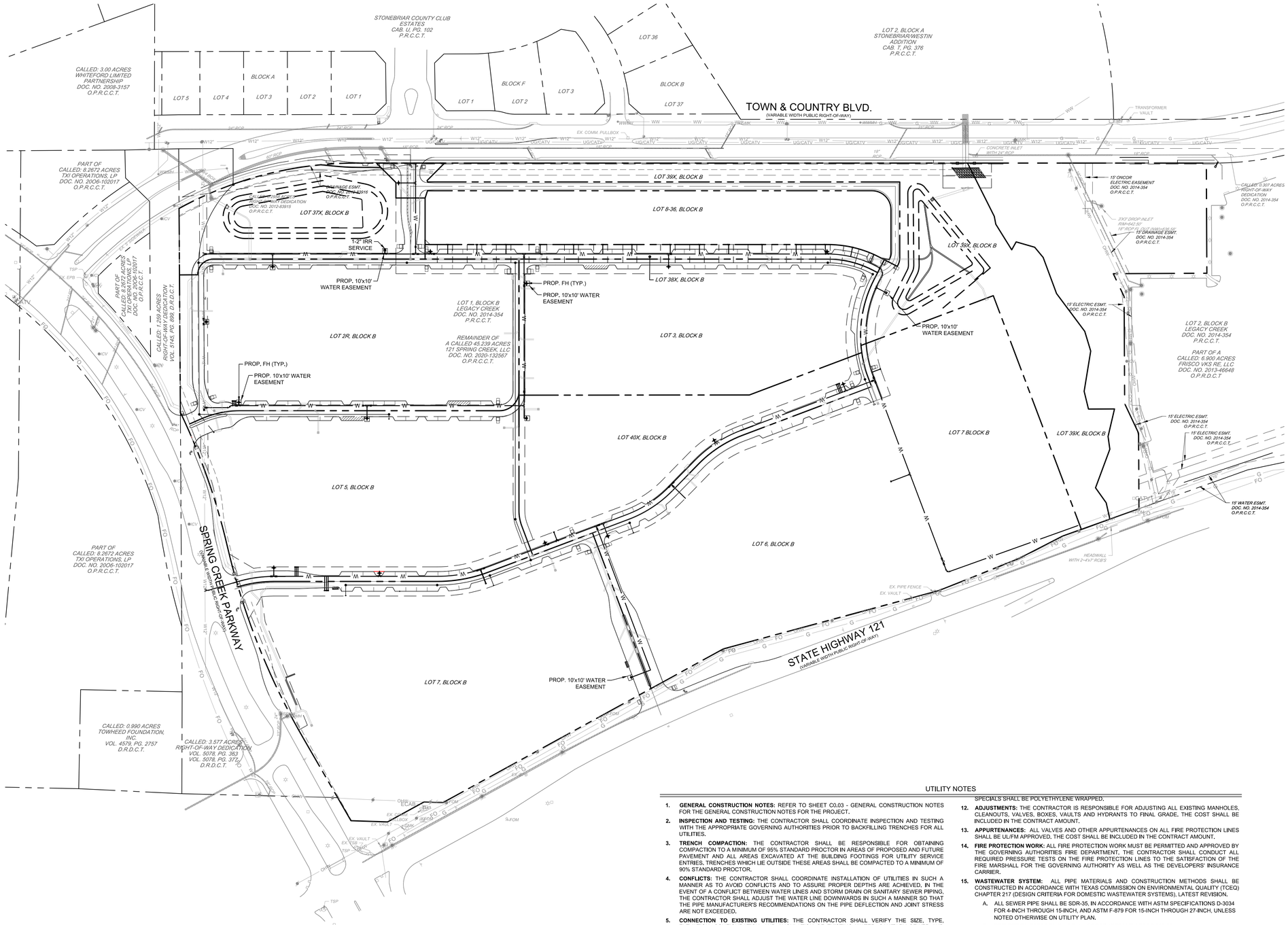
DRAWN BY: GW/LL
DESIGNED BY: JDB/TT
CHECKED BY: JAM

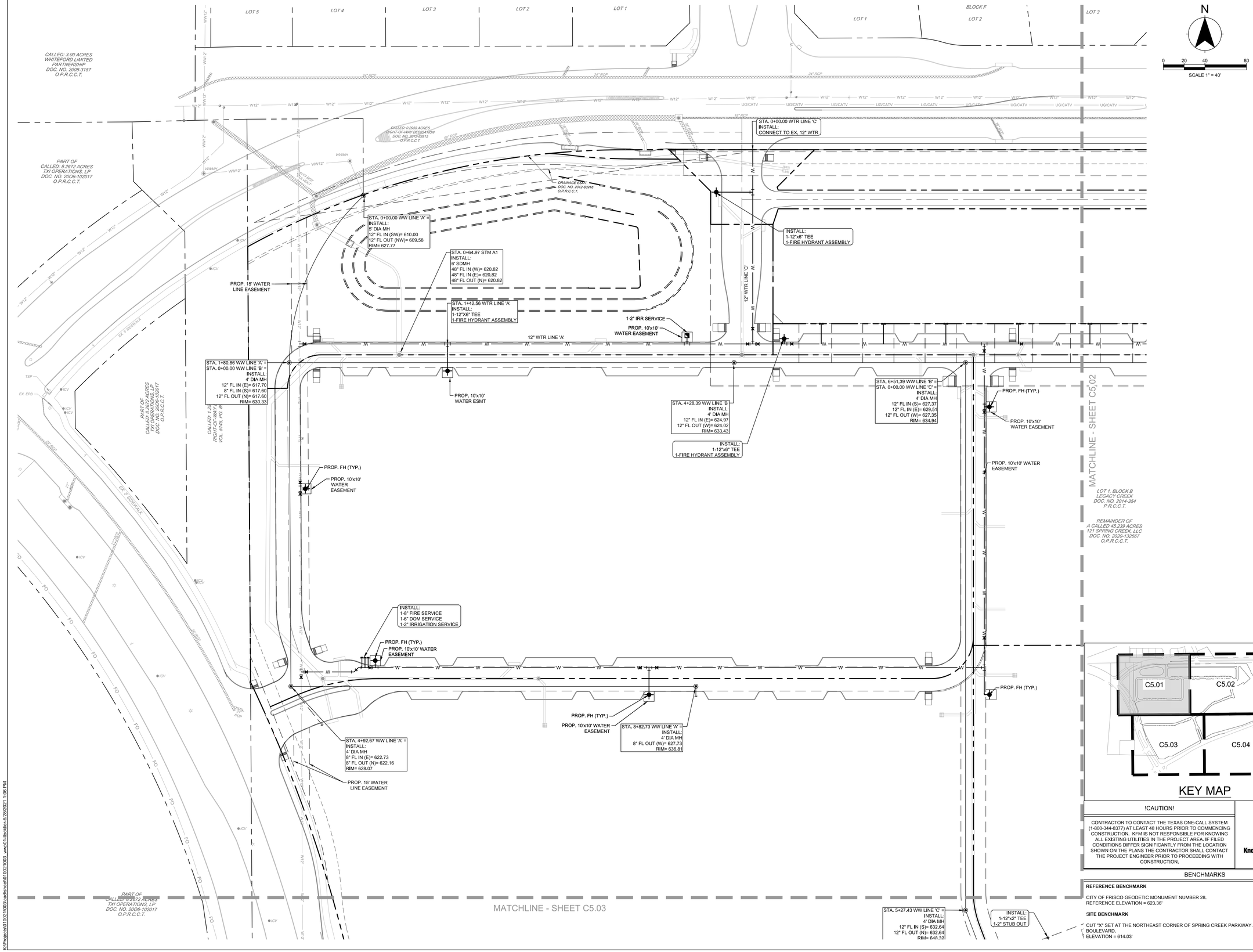
DATE:
06/25/21

SHEET:

C4.92

K:\Projects\010021003\cad\sheet\010021003_dis01-twilkerson-4/9/2021 3:14 PM


TOWN & COUNTRY BLVD.
(VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)
STONEBRIAR COUNTY CLUB ESTATES
CAB. U, PG. 102
P.R.C.C.T.
LOT 2, BLOCK A
STONEBRIAR/WESTIN ADDITION
CAB. T, PG. 376
P.R.C.C.T.
CALLED: 3.00 ACRES
WHITEFORD LIMITED PARTNERSHIP
DOC. NO. 2008-3157
O.P.R.C.C.T.
PART OF
CALLED: 8.2672 ACRES
TXI OPERATIONS, LP
DOC. NO. 2006-102017
O.P.R.C.C.T.
PART OF
CALLED: 8.2672 ACRES
TXI OPERATIONS, LP
DOC. NO. 2006-102017
O.P.R.C.C.T.
CALLED: 1.159 ACRES
RIGHT-OF-WAY DEDICATION
VOL. 5145, PG. 869 D.R.D.C.T.
PART OF
CALLED: 8.2672 ACRES
TXI OPERATIONS, LP
DOC. NO. 2006-102017
O.P.R.C.C.T.
PART OF
CALLED: 8.2672 ACRES
TXI OPERATIONS, LP
DOC. NO. 2006-102017
O.P.R.C.C.T.
CALLED: 0.990 ACRES
TOWHEED FOUNDATION, INC.
VOL. 4579, PG. 2757
D.R.D.C.T.
CALLED: 3.577 ACRES
RIGHT-OF-WAY DEDICATION
VOL. 5078, PG. 353
VOL. 5078, PG. 372
D.R.D.C.T.
SPRING CREEK PARKWAY
(VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)
STATE HIGHWAY 121
(VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)
LOT 39X, BLOCK B
LOT 8-36, BLOCK B
LOT 37X, BLOCK B
LOT 38X, BLOCK B
LOT 1, BLOCK B
LEGACY CREEK
DOC. NO. 2014-354
P.R.C.C.T.
LOT 2R, BLOCK B
LOT 3, BLOCK B
REMAINDER OF
A CALLED 45.239 ACRES
121 SPRING CREEK, LLC
DOC. NO. 2020-132567
O.P.R.C.C.T.
LOT 40X, BLOCK B
LOT 5, BLOCK B
LOT 7 BLOCK B
LOT 39X, BLOCK B
LOT 6, BLOCK B
LOT 7, BLOCK B
LOT 2, BLOCK B
LEGACY CREEK
DOC. NO. 2014-354
P.R.C.C.T.
PART OF A
CALLED: 6.900 ACRES
FRISCO VKG RE, LLC
DOC. NO. 2013-46648
O.P.R.D.C.T
LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
BLOCK A
BLOCK F
BLOCK B
LOT 36
LOT 37
1-2" IRR SERVICE
PROP. 10'x10' WATER EASEMENT
PROP. FH (TYP.)
PROP. 10'x10' WATER EASEMENT
PROP. 10'x10' WATER EASEMENT
PROP. FH (TYP.)
PROP. 10'x10' WATER EASEMENT
PROP. 10'x10' WATER EASEMENT
15' ONCOR ELECTRIC EASEMENT DOC. NO. 2014-354 O.P.R.C.C.T.
CALLED: 5.307 ACRES 2' RIGHT-OF-WAY DEDICATION DOC. NO. 2014-354 O.P.R.C.C.T.
15' DRAINAGE ESMT. DOC. NO. 2014-354 O.P.R.C.C.T.
15' ELECTRIC ESMT. DOC. NO. 2014-354 O.P.R.C.C.T.
15' ELECTRIC ESMT. DOC. NO. 2014-354 O.P.R.C.C.T.
15' ELECTRIC ESMT. DOC. NO. 2014-354 O.P.R.C.C.T.
15' WATER ESMT. DOC. NO. 2014-354 O.P.R.C.C.T.
TRANSFORMER VAULT
EX. COMM. PULLBOX
CONCRETE INLET WITH 24" RCP
HEADWALL WITH 2-4'x7' RCB'S
EX. PIPE FENCE
EX. VAULT
EX. VAULT
EX. VAULT



!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: DELTA: DATE:

ISSUE: DESCRIPTION: DELTA: 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: 6/23/21

PROJECT NUMBER: 010021003

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

DATE: 06/25/21

SHEET:

C5.01

K:\Projects\010021\003\cad\sheet\010021003_wwp01-block1ec-6/28/2021 1:06 PM

LOT 3

BLOCK B

LOT 37

CAB. T, PG. 376
P.R.C.C.T.

TOWN & COUNTRY BLVD.
(VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)

EX. COMM. PULLBOX

18" RCP

24" RCP

17" RCP

16" RCP

CONCRETE INLET WITH 24" RCP

25' DRAINAGE EASEMENT

25' CONSTRUCTION EASEMENT

15' ONCOR ELECTRIC EASEMENT
DOC. NO. 2014-354
O.P.R.C.C.T.

3'X3' DROP INLET
RIM=642.55'
18" RCP FL OUT (NW)=636.55'

15' DRAINAGE ESMT.
DOC. NO. 2014-354
O.P.R.C.C.T.

15' ELECTRIC ESMT.
DOC. NO. 2014-354
O.P.R.C.C.T.

INSTALL:
1-12"x6" TEE
1-FIRE HYDRANT ASSEMBLY

STA. 12+93.75 WW LINE 'B'
INSTALL:
4' DIA MH
12" FL IN (E)= 637.00
12" FL OUT (W)= 637.00
RIM= 643.24

STA. 13+90.13 WW LINE 'B'
INSTALL:
4' DIA MH
8" FL IN (SW)= 639.00
12" FL OUT (NW)= 638.00
RIM= 644.27

PROP. 10'x10' WATER EASEMENT
#
1-2" IRR SERVICE

STA. 16+13.93 WW LINE 'B'
INSTALL:
4' DIA MH
8" FL IN (S)= 645.09
8" FL OUT (N)= 644.29
RIM= 649.61

INSTALL:
1-8" FIRE SERVICE
1-6" DOM SERVICE
1-2" IRRIGATION SERVICE

INSTALL:
1-16"x12" TEE
1-12" REDUCER

STA. 16+69.73 WW LINE 'B'
INSTALL:
1-8" PLUG

INSTALL:
1-12"x6" TEE
1-FIRE HYDRANT ASSEMBLY

INSTALL:
1-12"x12" TEE
1-12" STUB OUT

INSTALL:
1-16"x12" TEE
1-12" STUB OUT

EXISTING

MATCHLINE - SHEET C5.01

MENT

LOT 1, BLOCK B
LEGACY CREEK
DOC. NO. 2014-354
P.R.C.C.T.

REMAINDER OF
A CALLED 45.239 ACRES
121 SPRING CREEK, LLC
DOC. NO. 2020-132567
O.P.R.C.C.T.

MATCHLINE - SHEET C5.03

MATCHLINE - SHEET C5.04

LOT 2,
LEGAL
DOC. N
P.R.

PAR
CALLED
FRISCO
DOC. NO
O.P.

N

0 20 40 80

SCALE 1" = 40'

C5.01 C5.02 C5.03 C5.04

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 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

DATE:
DESCRIPTION:
DELTA:

DATE:
DESCRIPTION:
ISSUE:

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: 6/23/21

PROJECT NUMBER:
010021003

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

DATE:
06/25/21

SHEET:

C5.02

K:\Projects\010021\003\cad\sheet\010021003_www01-blocklier-6/28/2021 1:05 PM

MATCHLINE - SHEET C5.01

MATCHLINE - SHEET C5.02

N

0 20 40 80

SCALE 1" = 40'

SPRING CREEK PARKWAY
(VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)

INSTALL:
1-12"x6" TEE
1-FIRE HYDRANT ASSEMBLY

INSTALL:
1-8" FIRE SERVICE
1-6" DOM SERVICE
1-2" IRRIGATION SERVICE

INSTALL:
2-8" FIRE SERVICE
1-4" DOM SERVICE

STA. 10+05.84 WW LINE 'C' =
INSTALL:
4' DIA MH
10" FL OUT (E)= 636.61
RIM= 642.63

INSTALL:
1-12"x6" TEE
1-FIRE HYDRANT ASSEMBLY

STA. 4+80.89 WTR LINE 'B'
INSTALL:
BEGIN CURVE

STA. 8+17.79 WW LINE 'C' =
INSTALL:
4' DIA MH
10" FL IN (W)= 635.32
10" FL OUT (E)= 635.33
RIM= 645.10

INSTALL:
1-12"x12" TEE
1-12" STUB OUT

STA. 7+07.02 WW LINE 'C' =
INSTALL:
4' DIA MH
10" FL IN (W)= 634.85
12" FL OUT (E)= 634.86
RIM= 646.94

STA. 5+27.43 WW LINE 'C' =
INSTALL:
4' DIA MH
12" FL IN (S)= 632.64
12" FL OUT (N)= 632.64
RIM= 648.32

INSTALL:
1-12"x2" TEE
1-2" STUB OUT

12" WTR LINE 'B'

STA. 6+17.26 WW LINE 'C' =
STA. 0+00.00 WW LINE 'D'
INSTALL:
4' DIA MH
8" FL IN (E)= 637.95
12" FL IN (W)= 634.05
12" FL OUT (N)= 634.07
RIM= 648.00

INSTALL:
1-12"x6" TEE
1-FIRE HYDRANT ASSEMBLY

STA. 2+17.34 WW LINE 'D' =
INSTALL:
4' DIA MH
8" FL OUT (W)= 643.36
RIM= 651.03

INSTALL:
1-12"x6" TEE
1-FIRE HYDRANT ASSEMBLY

INSTALL:
1-12"x6" TEE

8" WTR LINE

PROP. FH (TYP.)

PROP. 10'x10' WATER EASEMENT

CALLED: 3.577 ACRES
RIGHT-OF-WAY DEDICATION
VOL. 5078, PG. 383
VOL. 5078, PG. 377
D.R.D.C.T.

ECAB

EX. COMM PULLBOX

EX. VAULT

EX. TSB

TMH

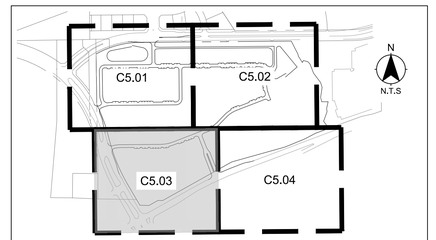
FOM

TSP

EX. ESMT

EX. ☐

C3



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

DATE:
DESCRIPTION:
DELTA:

DATE:
DESCRIPTION:
ISSUE:

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: 6/23/21

PROJECT NUMBER:
010021003

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

DATE:
06/25/21

SHEET:

C5.03

K:\Projects\010021\003\cad\sheet\010021003_ww01-lbcolier-6/28/2021 1:06 PM

REMAINDER OF
ED 45.239 ACRES
RING CREEK, LLC
NO. 2020-132567
O.P.R.C.C.T.

STA, 16+13.93 WW LINE 'B' =
INSTALL:
4' DIA MH
8" FL IN (S)= 645.09
8" FL OUT (N)= 644.29
RIM= 649.61

INSTALL:
1-8" FIRE SERVICE
1-6" DOM SERVICE
1-2" IRRIGATION SERVICE

INSTALL:
1-16"x12" TEE
1-12" REDUCER

STA, 16+69.73 WW LINE 'B'
INSTALL:
1-8" PLUG

INSTALL:
1-12"x6" TEE
1-FIRE HYDRANT ASSEMBLY

INSTALL:
1-12"x12" TEE
1-12" STUB OUT

INSTALL:
1-16"x12" TEE
1-12" STUB OUT

INSTALL:
2-16"-45° BENDS

CONNECT TO
EXISTING 16" WATER LINE

STA, 2+17.34 WW LINE 'D' =
INSTALL:
4' DIA MH
8" FL OUT (W)= 643.36
RIM= 651.03

INSTALL:
1-12"x6" TEE
1-FIRE HYDRANT ASSEMBLY

INSTALL:
1-12"x8" TEE

8" WTR LINE

PROP. FH (TYP.)

PROP. 10'x10' WATER
EASEMENT

MATCHLINE - SHEET C5.01

MATCHLINE - SHEET C5.03

STATE HIGHWAY 121
(VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)

15' ELECTRIC ESMT.
DOC. NO. 2014-354
O.P.R.C.C.T.

15' EL
DOC

HEADWALL
WITH 2'-4'x7' RCB'S

EX. PIPE FENCE

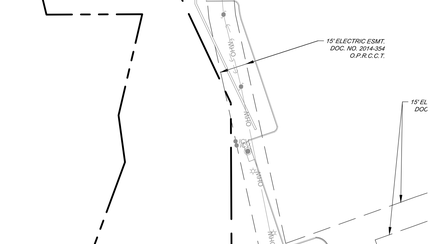
EX. VAULT

ON-RAMP

N

0 20 40 80

SCALE 1" = 40'



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: 6/23/21

PROJECT NUMBER: 010021003

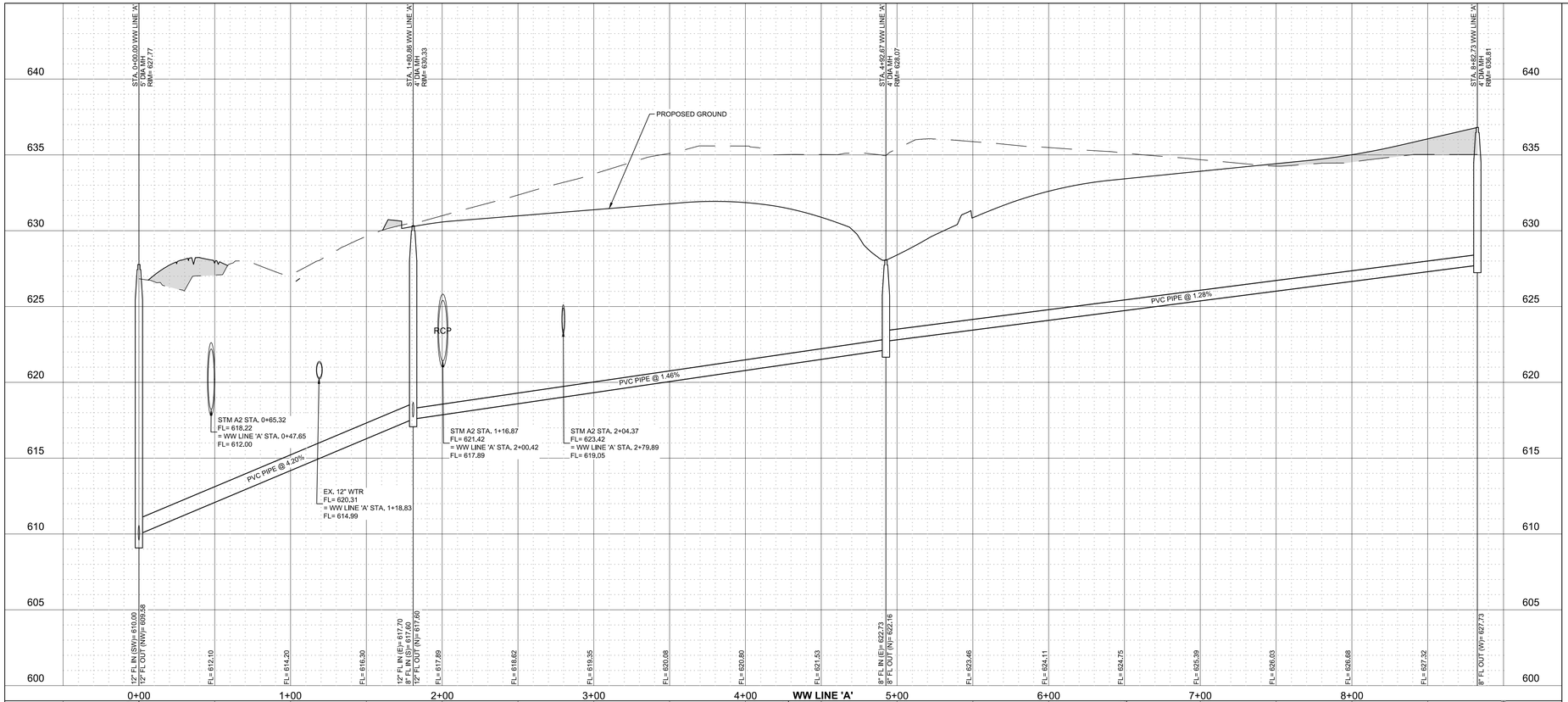
DRAWN BY: GW/LL | DESIGNED BY: JDB/TT | CHECKED BY: JAM

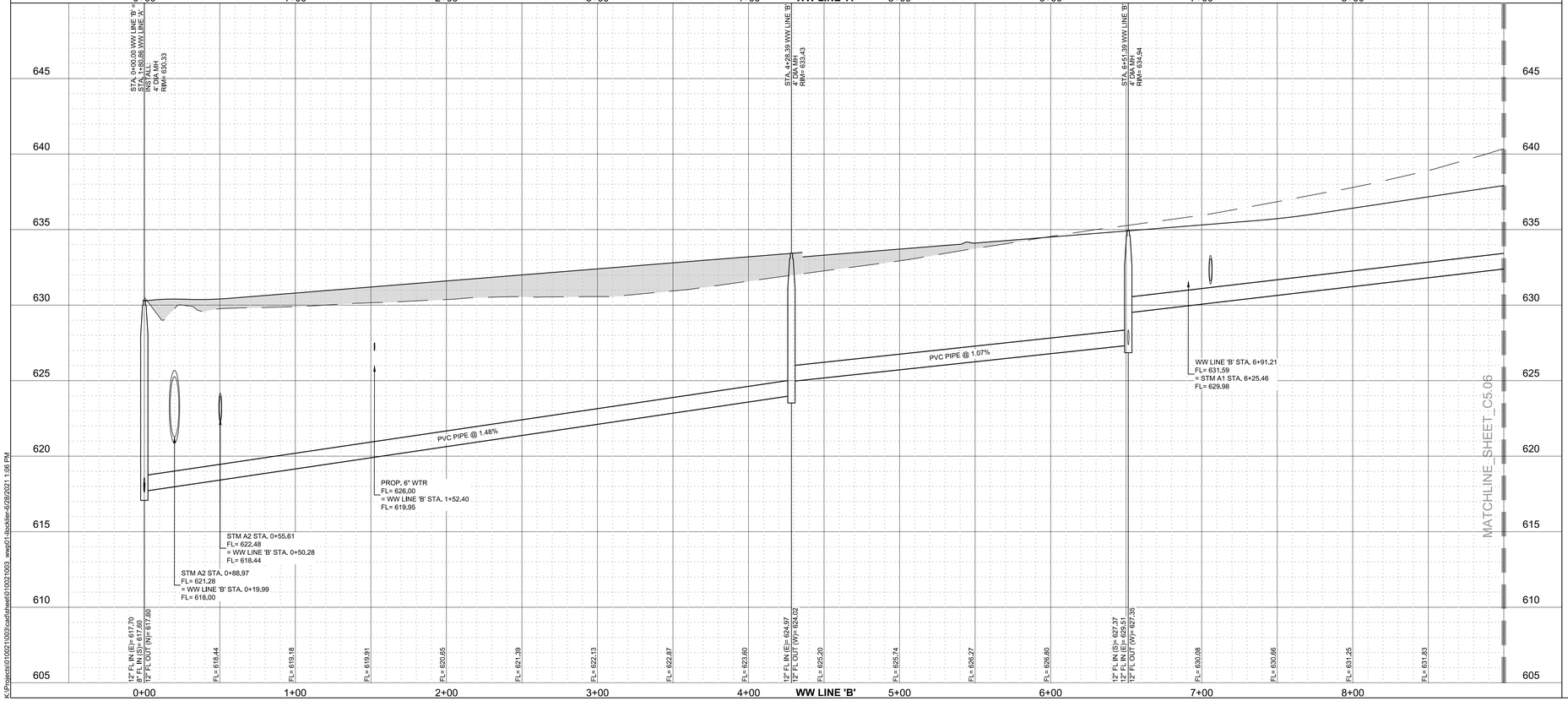
DATE: 06/25/21

SHEET:

C5.04

K:\Projects\010021003\cad\sheet\010021003_wwp01-Rocklin-6/28/2021 1:05 PM





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 C0.03 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

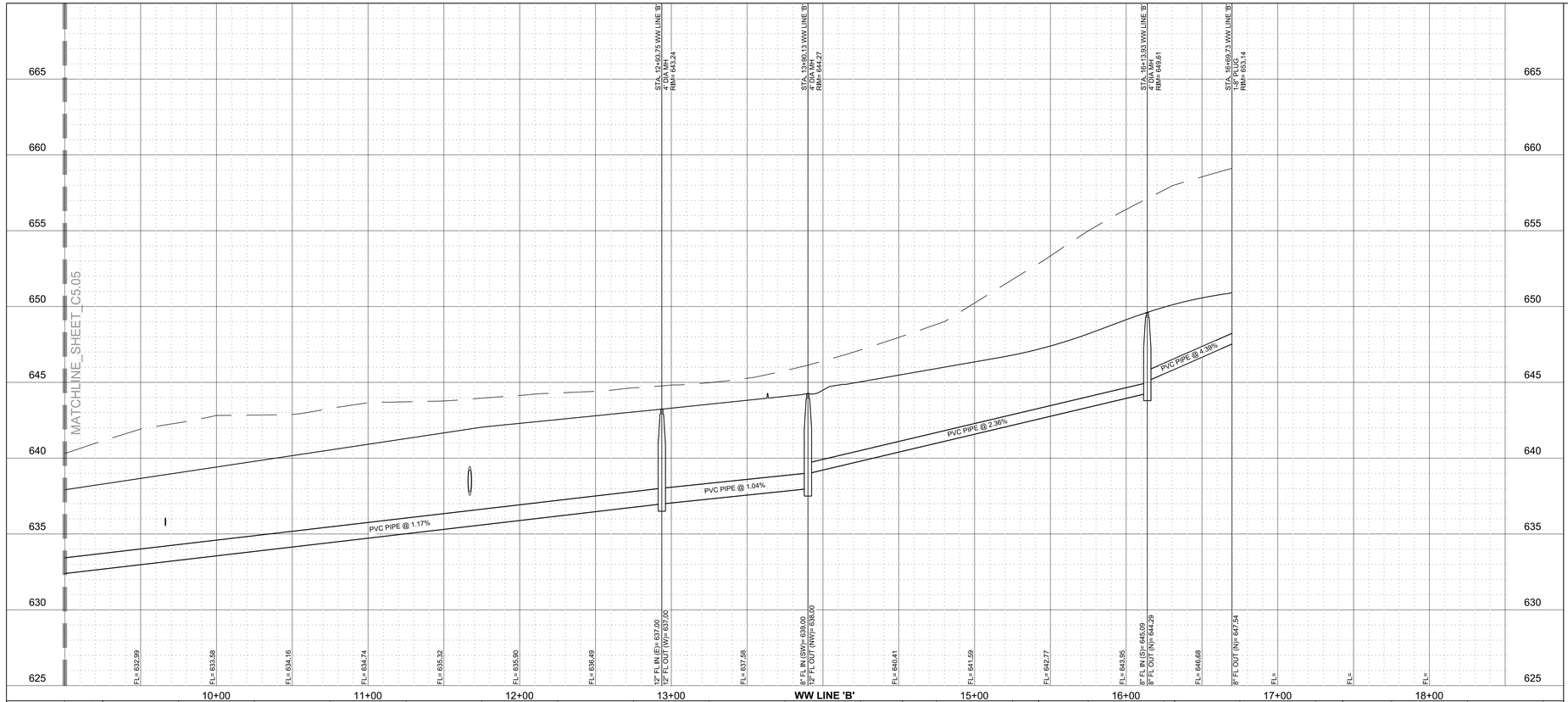
CITY OF FRISCO GEODETIC MONUMENT NUMBER 28.
REFERENCE ELEVATION = 623.36'

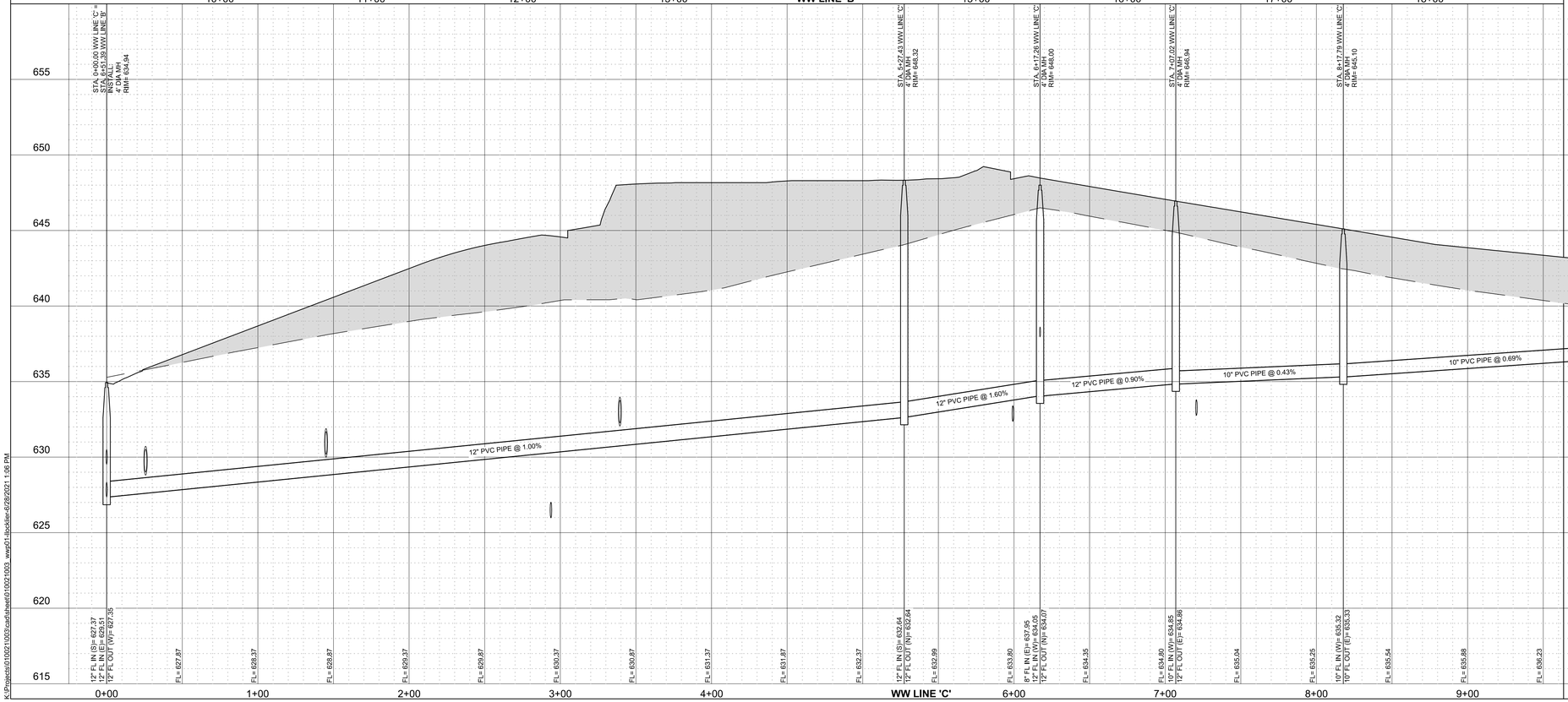
SITE BENCHMARK

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:





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 C0.03 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 FILED 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

DATE: | DESCRIPTION: | DELTA:

DATE: | DESCRIPTION: | ISSUE:

CLIENT
121 SPRING CREEK, LLC

PROJECT
FRISCO 45 INFRASTRUCTURE

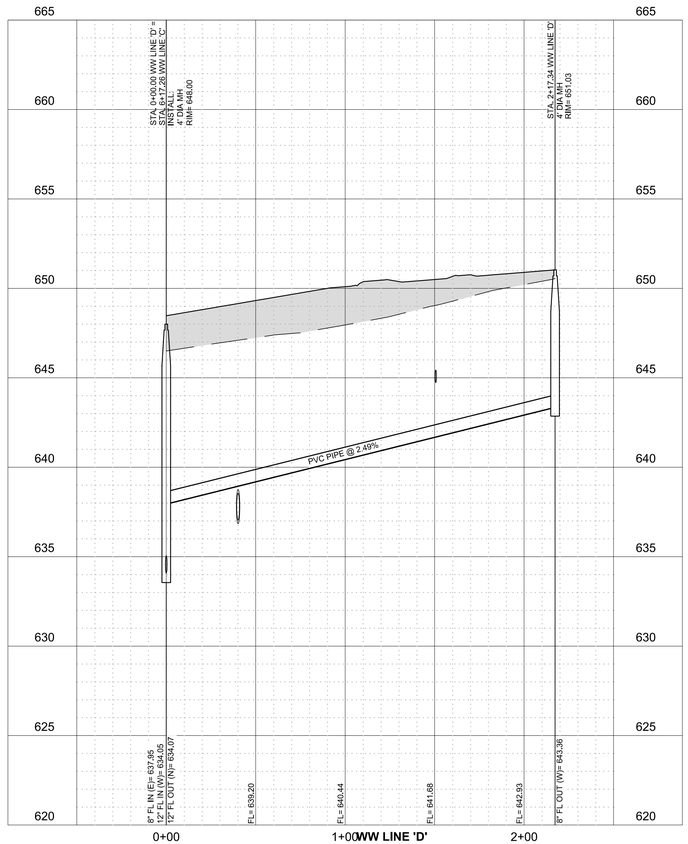
SHEET TITLE
WASTEWATER PROFILE

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 8/23/21

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

C5.06

K:\Projects\010021\003\cad\sheet\010021003_wwp01-jbockler-6/28/2021 1:06 PM



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 C0.03 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: 6/23/21

PROJECT NUMBER: 010021003

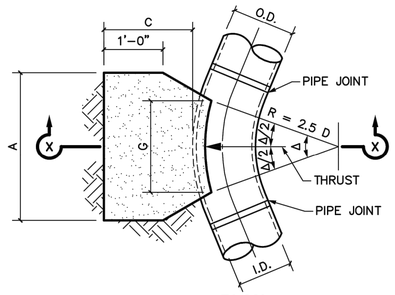
DRAWN BY: GW/LL | DESIGNED BY: JDB/TT | CHECKED BY: JAM

DATE: 06/25/21

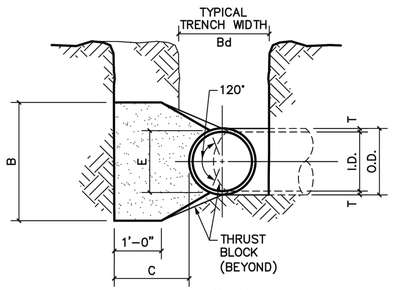
SHEET:

C5.07

K:\Projects\010021003\Civil\Sheets\WW\010021003_wwwProfiles.dwg 6/25/2021 5:43 PM



PLAN



SECTION X-X

NOTES:

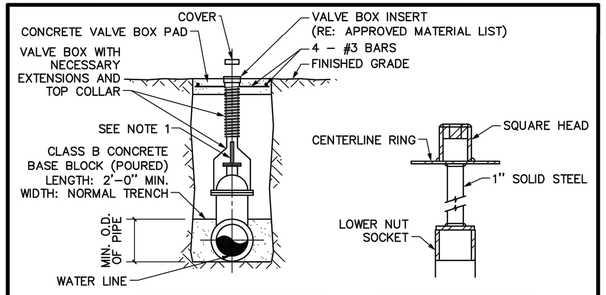
1. REFER TO STANDARD DEATIL W02 AND W03 FOR TABLES OF DIMENSIONS AND QUANTITIES.
2. REFER TO STANDARD DETAIL W06 FOR GENERAL NOTES.

FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **HORIZONTAL THRUST BLOCK AT PIPE BEND** **SHEET 1 OF 3**	SCALE: 3/4"=1'–0" REVISED: AUG 2020 W01

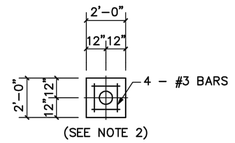
GENERAL NOTES FOR ALL THRUST BLOCKS:

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.

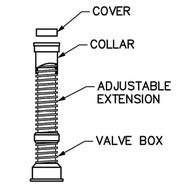
FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **THRUST BLOCK** **GENERAL NOTES**	SCALE: N.T.S. REVISED: AUG 2020 W06



VALVE SETTING & BOX **VALVE EXTENSION**



VALVE BOX PAD PLAN

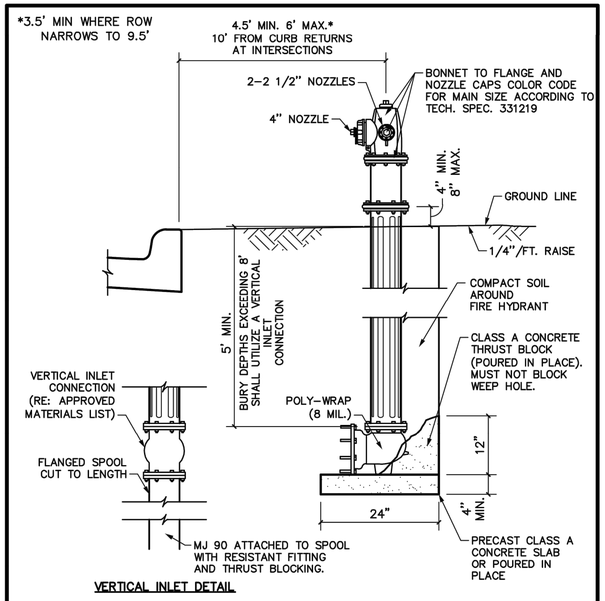


VALVE BOX WITH EXTENSION

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.

FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **GATE VALVE**	SCALE: 1/4"=1'–0" REVISED: AUG 2020 W07

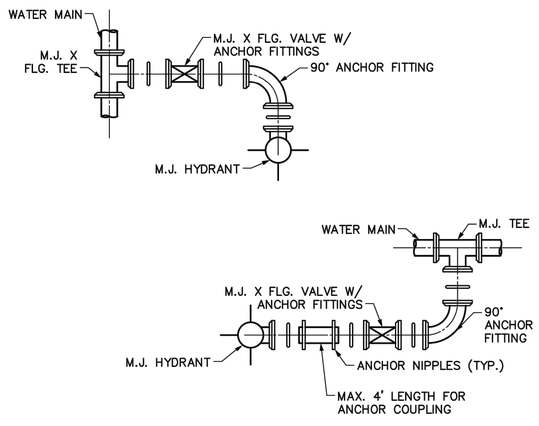


VERTICAL INLET DETAIL

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'.

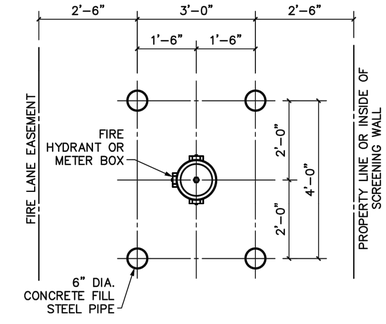
FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **FIRE HYDRANT**	SCALE: 3/4"=1'–0" REVISED: AUG 2020 W12



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.

FRISCO PROGRESS IN MOTION.	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.

FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **PIPE BOLLARD**	SCALE: 1/2"=1'–0" REVISED: AUG 2020 W14

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

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

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: 6/23/21

PROJECT NUMBER:
010021003

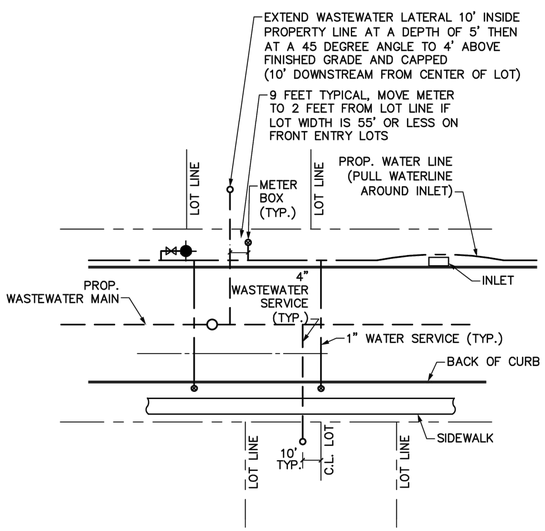
DRAWN BY: GW/LL
DESIGNED BY: JDB/TT
CHECKED BY: JAM

DATE:
06/25/21

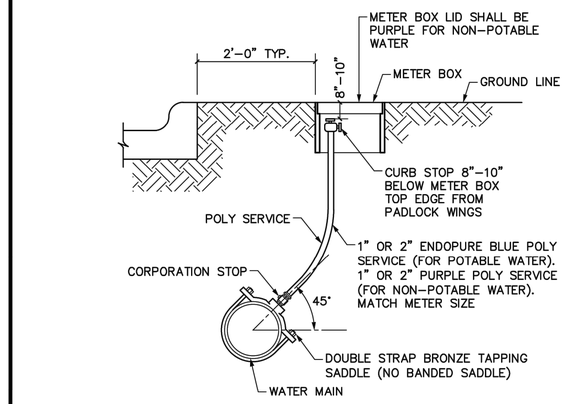
SHEET:

C5.90

K:\Projects\010021003\cad\sheet\010021003_w681-twilkerson-4/2/2021 11:08 AM



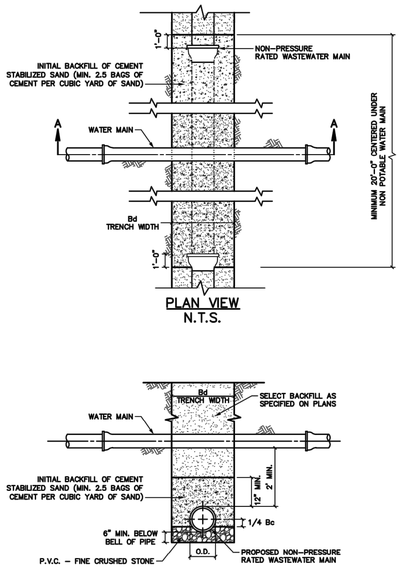
FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **RESIDENTIAL SERVICE LOCATIONS**	SCALE: 1"=20' REVISED: AUG 2020 W15



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.

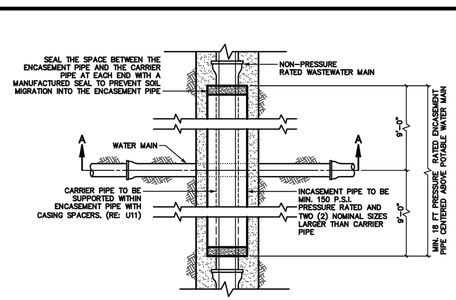
FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **TYPICAL SERVICE CONNECTION**	SCALE: 3/4"=1'-0" REVISED: AUG 2020 W16



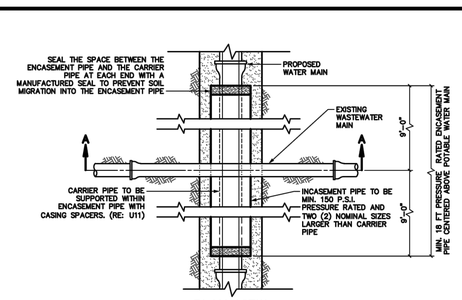
NOTES:

1. Bd = TRENCH WIDTH (SEE EMBEDMENT DETAILS)

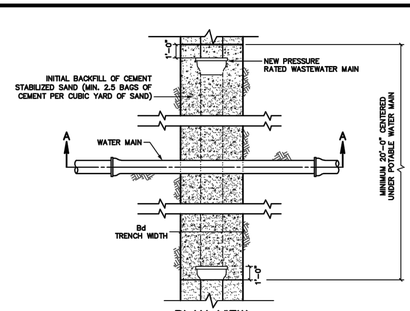
FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **EMBEDMENT DETAIL FOR NON-PRESSURE RATED WASTEWATER MAINS BELOW WATER MAINS**	SCALE: N.T.S. REVISED: AUG 2020 U12



FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **EMCASEMENT DETAIL FOR NON-PRESSURE RATED WASTEWATER MAINS ABOVE WATER MAINS**	SCALE: N.T.S. REVISED: AUG 2020 U13



FRISCO PROGRESS IN MOTION.	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)

FRISCO PROGRESS IN MOTION.	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

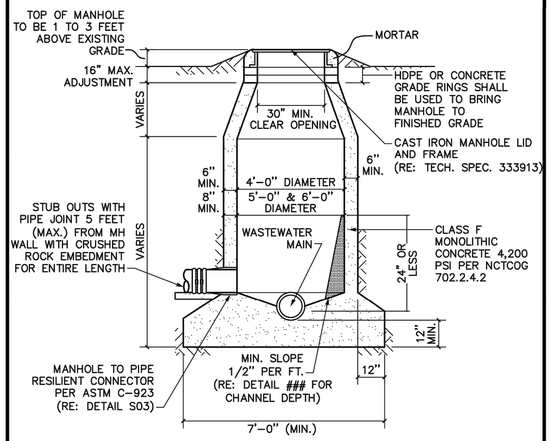
SHEET TITLE: WATER DETAILS

PRELIMINARY
NOT FOR CONSTRUCTION
KFM ENGINEERING & DESIGN
ENGINEER: Joshua A. Millsap
P.E. No.: 100118 DATE: 6/23/21

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

C5.91

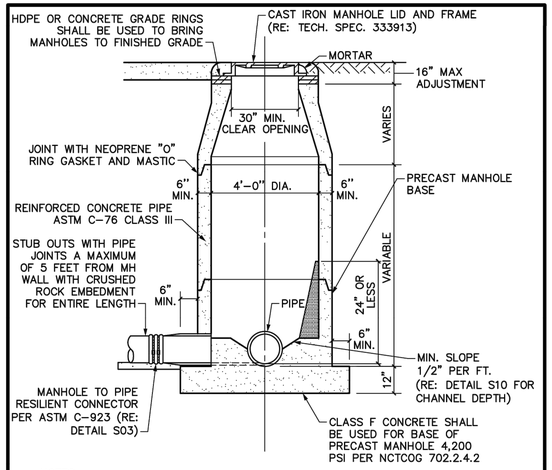
K:\Projects\010021003\cad\sheet\010021003_w001-twilkerson-4/2/2021 11:08 AM



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.

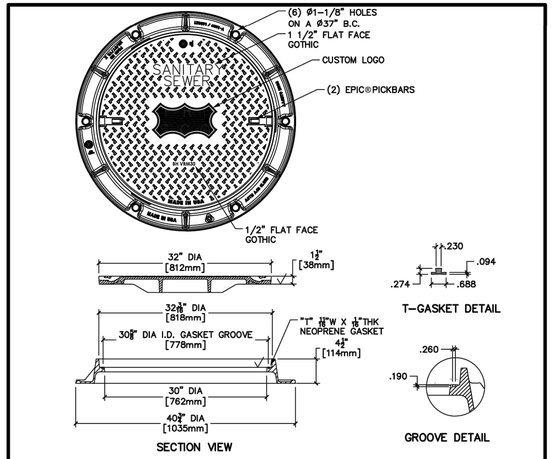
FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **STANDARD CAST-IN-PLACE MANHOLE**	SCALE: 3/8"=1'-0" REVISED: AUG 2020 S01



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.

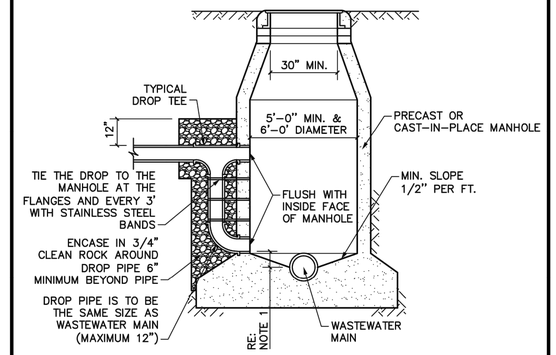
FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **PRECAST CONCRETE MANHOLE**	SCALE: 3/8"=1'-0" REVISED: AUG 2020 S02



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

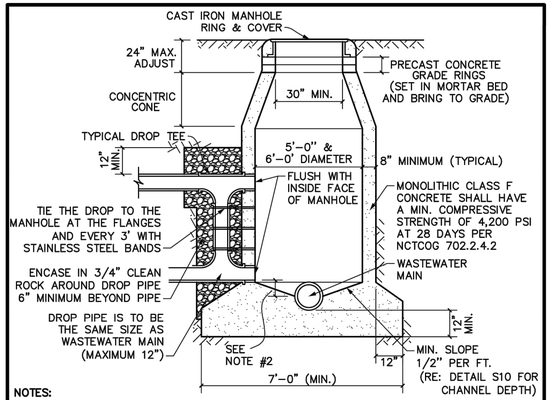


* WHEN A DROP MANHOLE IS USED IN CONJUNCTION WITH A PARALLEL LINE, REFER TO DETAIL S06-A.

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.

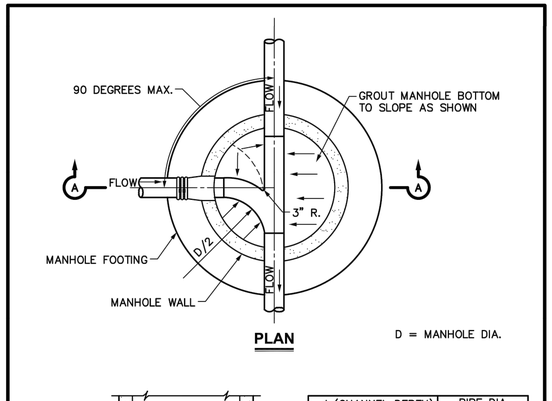
FRISCO PROGRESS IN MOTION.	STANDARD CONSTRUCTION DETAIL **MANHOLE DROP CONNECTION**	SCALE: 3/8"=1'-0" REVISED: AUG 2020 S08



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



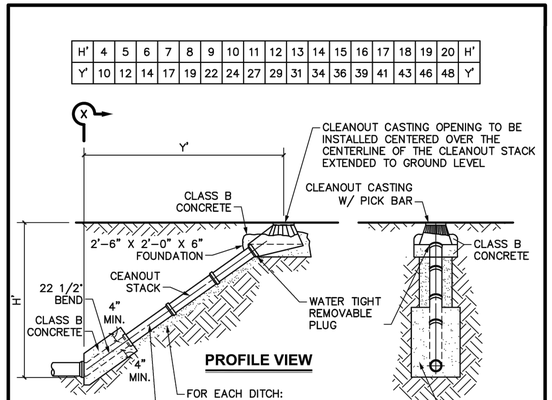
d (CHANNEL DEPTH)	PIPE DIA.
½ PIPE DIA.	< 15"
¾ PIPE DIA.	15" – 24"
1 PIPE DIA.	> 24"

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

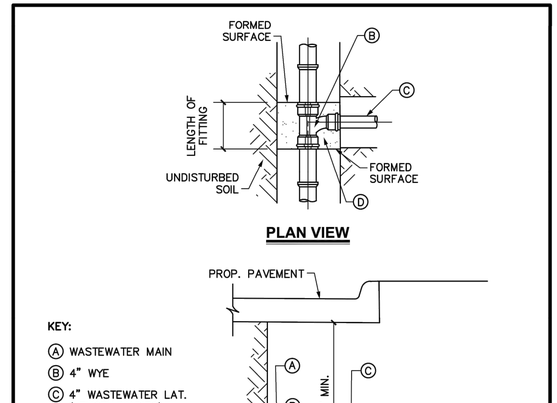
H'	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	H'
Y'	10	12	14	17	19	22	24	27	29	31	34	36	39	41	43	46	48	Y'



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: 6/23/21

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

C6.90

K:\Projects\010021003\civil\sheet\010021003_wwd01-hutkerson-4/22/2021 1:55 PM