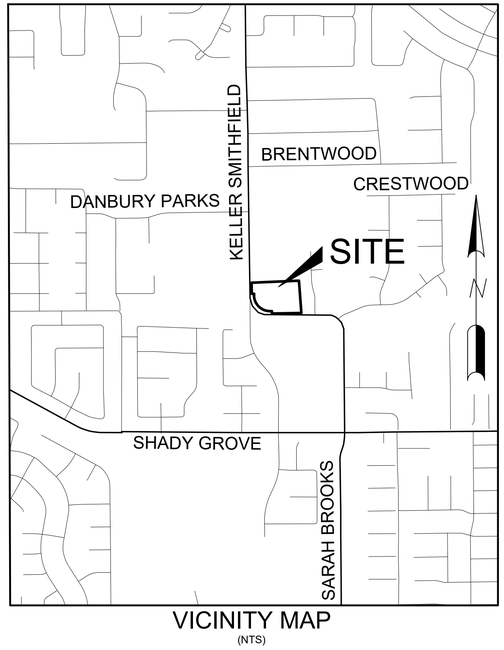
WATER, SEWER, STORM DRAIN AND PAVING IMPROVEMENTS

FOR

VILLAGE TRAIL

TARRANT COUNTY
KELLER, TEXAS
MARCH 2021



VICINITY MAP
(NTS)

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MAYOR

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COUNCIL MEMBERS

ALONZO LINAN, P.E.
DIRECTOR OF PUBLIC WORKS

CHAD BARTEE, P.E.
CITY ENGINEER

REVIEWED
CITY OF KELLER

RELEASED FOR CONSTRUCTION

DATE:_____

_____
PUBLIC WORKS DIRECTOR/CITY ENGINEER

THIS DOCUMENT IS FOR INTERIM REVIEW AND IS NOT INTENDED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.
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REVISIONS

No.	△	DESCRIPTION	DATE	APPR./DATE
1	△			
2	△			
3	△			
4	△			
5	△			

2019106.00 - WATER, SEWER, STORM DRAIN & PAVING IMPROVEMENTS FOR VILLAGE TRAIL (KELLER, TEXAS)

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE STANDARDS OF THE CITY OF KELLER AND GOVERNED BY THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENT'S STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION LATEST EDITION.
2. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CITY OF KELLER STANDARDS WHERE THEY DIFFER FROM NCTCOG STANDARDS.
3. THE TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) MUST APPROVE ANY WORK TO BE DONE IN THE STATE HIGHWAY RIGHT-OF-WAY. AN APPLICATION AND APPROPRIATE PLANS MUST BE SUBMITTED DIRECTLY TO TXDOT FOR REVIEW.
4. A PERMIT IS REQUIRED TO CUT A CITY STREET OR WORK WITHIN THE RIGHT-OF-WAY. THE PERMIT IS ISSUED BY THE PUBLIC WORKS DEPARTMENT.
5. THE LOCATION OF UNDERGROUND FACILITIES INDICATED ON THE PLANS IS TAKEN FROM PUBLIC RECORDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE ARRANGEMENTS WITH THE OWNERS OF SUCH UNDERGROUND FACILITIES PRIOR TO WORKING IN THE AREA TO CONFIRM THEIR EXACT LOCATION AND TO DETERMINE WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL UNDERGROUND FACILITIES. IF EXISTING UNDERGROUND UTILITIES ARE DAMAGED, THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF REPAIRING THE UTILITY.

UNDERGROUND FACILITY OWNER	TELEPHONE NUMBER
ABOVE NET FIBER	(214) 869-8352
AT&T	(214) 745-2964
AT&T TEXAS (CALL DIGTESS)	(800) 344-8377
ATMOS ENERGY	(817) 359-1313
CHARTER COMMUNICATIONS	(817) 822-8745
CITY OF KELLER	(817) 743-4000
DIGTESS (LINE LOCATES)	(800) 344-8377
LEVEL (3) COMMUNICATIONS	(877) 366-8344
ONCOR ELECTRIC DELIVERY	(817) 215-6688
ONE SOURCE COMMUNICATIONS	(817) 692-6042
TRI COUNTY ELECTRIC	(817) 431-1541
VERIZON ENGINEERING	(972) 578-3354

6. WHERE EXISTING UTILITIES OR SERVICE LINES ARE CUT, BROKEN OR DAMAGED, THE CONTRACTOR SHALL REPLACE OR REPAIR THE UTILITIES OR SERVICE LINES WITH THE SAME TYPE OF ORIGINAL MATERIAL AND CONSTRUCTION, OR BETTER, UNLESS OTHERWISE SHOWN OR NOTED ON THE PLANS, AT HIS OWN COST AND EXPENSE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AT ONCE OF ANY CONFLICTS IN GRADES AND ALIGNMENT.
7. ALL EXCAVATIONS, TRENCHING AND SHORING OPERATIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE U. S. DEPARTMENT OF LABOR, OSHA, "CONST. SAFETY AND HEALTH REGULATIONS.", VOL. 29, SUBPART P. PG. 128 - 137, AND ANY AMENDMENTS THERETO.
8. ADEQUATE MEASURES SHALL BE TAKEN TO PREVENT EROSION. IN THE EVENT THAT SIGNIFICANT EROSION OCCURS AS A RESULT OF CONSTRUCTION THE CONTRACTOR SHALL RESTORE THE ERODED AREA TO ORIGINAL CONDITION OR BETTER.
9. THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO ORIGINAL CONDITION OR BETTER. RESTORED AREAS INCLUDE, BUT ARE NOT LIMITED TO TRENCH BACKFILL, SIDE SLOPES, FENCES, CULVERT PIPES, DRAINAGE DITCHES, DRIVEWAYS, PRIVATE YARDS AND ROADWAYS.
10. ANY CHANGES NEEDED AFTER CONSTRUCTION PLANS HAVE BEEN RELEASED, SHALL BE APPROVED BY THE CITY ENGINEER. THESE CHANGES MUST BE RECEIVED IN WRITING FROM THE FROM THE DESIGN ENGINEER. THE DIRECTOR OF PUBLIC WORKS SHALL APPROVE ANY DEVIATIONS FROM STATE REGULATIONS.
11. THE CONTRACTOR SHALL PROVIDE "RED LINED" MARKED PRINTS TO THE ENGINEER PRIOR TO FINAL INSPECTION INDICATING ALL CONSTRUCTION WHICH DEVIATED FROM THE PLANS OR WAS CONSTRUCTED IN ADDITION TO THAT INDICATED ON THE PLANS.
12. THE CONTRACTOR MUST FIELD VERIFY EXISTING SERVICE LOCATIONS PRIOR TO INSTALLING NEW SERVICES. WHEN INSTALLING A NEW WATER LINE, ALL EXISTING SERVICES MUST BE CONNECTED TO THE NEW LINE.
13. THE CONTRACTOR SHALL KEEP RECORDS FOR RECORD DRAWINGS AND SHALL SUBMIT MARKUPS TO THE CITY INSPECTOR PRIOR TO SCHEDULING A FINAL WALK THROUGH INSPECTION.
14. PRIOR TO CONSTRUCTION, A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH REPRESENTATIVES FROM ALL CONTRACTORS, THE ENGINEER AND THE CITY OF KELLER.
15. ALL CONSTRUCTION MUST ADHERE TO THE TREE PRESERVATION ORDINANCE.

GENERAL NOTES - PAVING IMPROVEMENTS

1. ALL FILL SHALL BE COMPACTED TO A DENSITY OF AT LEAST NINETY-FIVE (95%) PERCENT STANDARD PROCTOR AS PER ASTM D 698 AT OR ABOVE OPTIMUM MOISTURE CONTENT. LIFTS SHALL BE AS SPECIFIED PER THE SOILS LAB RECOMMENDATION AND AS APPROVED BY THE CITY. ALL FILL SHALL BE TESTED AS INSTALLED AND CERTIFIED BY AN APPROVED SOILS LABORATORY.
2. ALL STREETS, UNLESS ALTERNATIVE DESIGN IS SUBMITTED BY LAB, DESIGNED BY THE TRIAXIAL METHOD AS SPECIFIED IN TEXAS HIGHWAY DEPARTMENT REQUIREMENTS AND APPROVED BY THE CITY OF KELLER, SHALL BE CONSTRUCTED ON A MINIMUM OF (6") INCHES OF STABILIZED SUBGRADE (LIME OR CEMENT) AS SOIL TESTS INDICATE. COMPACTION SHALL BE NINETY-FIVE (95%) PERCENT DENSITY AS PER AASHTO DESIGNATION T180. DENSITY TESTS SHALL BE TAKEN EVERY 1,000 SQUARE YARDS OR LESS, AS REQUIRED BY CITY INSPECTOR.
3. THE SUB-GRADE SHALL BE PROOF ROLLED AND OBSERVED BY THE CONSTRUCTION INSPECTOR PRIOR TO AND AFTER SUB-GRADE STABILIZATION.
4. CURB AND GUTTER SHALL CONSIST OF STEEL REINFORCED CONCRETE AND SHALL BE SIX (6") INCHES HIGH AND THIRTY (30") INCHES WIDE.
5. THE PARKWAYS AND STREETS SHALL BE ROUGH CUT TO A PLUS OR MINUS ONE-TENTH (0.1') FEET OF THEIR RESPECTIVE FINAL GRADES.
6. CONSTRUCTION OF WHEEL CHAIR RAMPS WILL BE THE RESPONSIBILITY OF THE PAVING CONTRACTOR AT THE TIME OF PUBLIC IMPROVEMENTS.
7. INDIVIDUAL WATER AND SEWER SERVICES AND WATER VALVES SHALL HAVE A SUITABLE MARKER ("W" FOR WATER, "S" FOR SANITARY SEWER AND "V" FOR VALVES) STAMPED ON THE FACE OF THE CURB, OR IF NO CURB IS CONSTRUCTED, ON THE TOP OF THE PAVEMENT. THE MARKS SHALL BE A MINIMUM OF TWO (2") INCHES IN HEIGHT AND WIDTH. WATER SERVICES SHALL BE LOCATED 10' UPSTREAM FROM THE SANITARY SEWER SERVICE, WITH THE SEWER SERVICE AT THE CENTER OF THE FRONT OF THE LOT.
8. THE CONTRACTOR SHALL PROCEED WITH PAVING NO MORE THAN SEVENTY-TWO (72) HOURS AFTER DENSITY / MOISTURE TESTS HAVE BEEN TAKEN AND PASSED BY A REGULAR TESTING FIRM. COPIES OF THE TEST RESULTS TEST RESULTS SHALL BE FURNISHED TO THE CITY. IN THE EVENT PAVING OPERATIONS HAVE NOT COMMENCED WITHIN THE SEVENTY-TWO-(72) HOUR LIMIT, A RETEST SHALL BE REQUIRED AT THE CONTRACTOR'S EXPENSE.
9. MANHOLE RIM ELEVATIONS, CLEAN-OUTS, VALVE BOXES, FIRE HYDRANTS, ETC. SHALL BE ADJUSTED TO FINISHED GRADE BY THE PAVING CONTRACTOR AT THE TIME OF PAVING.
10. THE PAVING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL "PERMANENT SURVEY REFERENCE MONUMENTS" AS DESCRIBED IN THE SUBDIVISION ORDINANCE INCLUDING CONCRETE MONUMENTS AT ALL BOUNDARY CORNERS.
11. THE PAVING CONTRACTOR SHALL INSTALL A BLUE REFLECTOR IN THE STREET CENTERLINE AT THE LOCATION OF EACH FIRE HYDRANT.

GENERAL NOTES - STORM DRAINAGE IMPROVEMENTS

1. ALL STORM SEWER AND CULVERT PIPE AND FITTINGS SHALL BE ASTM C76, CLASS III REINFORCED CONCRETE PIPE (RCP), INSTALLED WITH COMPRESSIVE TYPE JOINTS.
2. AFTER COMPLETION OF ALL STORM SEWER INSTALLATION, THE CONTRACTOR SHALL PERFORM A TELEVISION INSPECTION AND PROVIDE A VIDEOTAPE TO THE PUBLIC WORKS DEPARTMENT.
3. INSTALL A BENCHMARK ON A DRAINAGE STRUCTURE WITHIN OR NEAR THE SITE. A LETTER INCLUDING THE LOCATION AND ELEVATION OF THE BENCHMARK MUST BE SUBMITTED TO PUBLIC WORKS PRIOR TO THE FINAL ACCEPTANCE OF THE PROJECT.
4. STORM SEWER PIPES LARGER THAN 36" MUST BE WIPED WITH NON-SHRINK GROUT AFTER INSPECTION AND APPROVAL.

GENERAL NOTES - WATER IMPROVEMENTS

1. ALL 1" AND 2" WATER METERS WILL BE INSTALLED BY CITY PERSONNEL.
2. FIRE HYDRANTS SHALL BE LOCATED OUTSIDE OF SIDEWALK IF WALK INTENDED.
3. ALL WATER LINES SHALL BE PVC PIPE CONFORMING TO AWWA STANDARD C-900 SDR-18 MINIMUM, WITH NSF SEAL, PRESSURE TESTED AND DISINFECTED IN ACCORDANCE WITH NCTCOG STD. SPECS. WATER MAINS TO HAVE A MINIMUM OF 42" COVER TO THE TOP OF PIPE. SERVICE LINE CONNECTORS SHALL BE COMPRESSION-TYPE WITH STAINLESS STEEL TUBE LINERS.
4. ALL WATER LINES NOT UNDER PAVEMENT TO BE ENCASED IN SAND AND BACKFILL SHALL BE SELECT MATERIAL COMPACTED TO 95% STANDARD PROCTOR DENSITY. PIPE INCLUDING SERVICES UNDER PUBLIC PAVEMENT REQUIRES CEMENT TREATED SAND BACKFILL.
5. WATER SERVICES SHOULD BE LOCATED 10' UPSTREAM OF THE SANITARY SEWER SERVICES. EACH LOCATION IS TO BE STAMPED ON THE CURB WITH 2" HIGH LETTER "W".
6. ALL SERVICES TO THE METER TO BE MINIMUM 1" SDR-9 CLASS 200 POLYETHYLENE.
7. WATER METER BOXES WILL BE FURNISHED AND INSTALLED AFTER PAVING ACTIVITIES HAVE BEEN COMPLETED.
8. CURB STOPS SHOULD BE TESTED FOR LEAKAGE AND FULL FLOW WHEN SYSTEM IS PRESSURE TESTED.
9. ALL FIRE HYDRANT ASSEMBLIES TO BE EQUIPPED WITH A 6" GATE VALVE AND BOX. HYDRANTS SHALL BE PRIMED AND PAINTED FLYNT ALUMINUM SILVER.
10. ANY WATER VALVES LOCATED WITHIN PAVEMENT AREAS SHALL BE ADJUSTED TO FINAL GRADE BY THE PAVING CONTRACTOR. THE PAVING CONTRACTOR SHALL CONSTRUCT A TYPICAL CONCRETE BLOCK OUT PER DETAIL ON SHEET.
11. FIRE HYDRANTS SHALL BE EQUIPPED WITH 4-1/2" X 5" STORZ ADAPTER CONNECTION WITH BUTTERFLY VANES.
12. WHEN A WATER LINE IS BORED, THE CASING SHALL BE CAPPED AND VALVES ADDED ON EITHER SIDE.
13. ALL FITTINGS AND BENDS SHALL HAVE MEGA LUG RETAINER GLANDS.
14. FOR VALVES INSTALLED 4' AND DEEPER, EXTENSION WITH CENTER RING 2' OR LESS IS REQUIRED.

GENERAL NOTES - SANITARY SEWER IMPROVEMENTS

1. SANITARY SEWER PVC PIPE SHALL BE SDR 35 IF DEPTH OF LINE IS 10' OR LESS AND SDR 26 IF DEPTH OF LINE IS GREATER THAN 10'.
2. PIPE NOT UNDER PAVEMENT SHALL BE BEDDED IN FINE CRUSHED ROCK AGGREGATE GRADE 8 PER NCTCOG 504.2.2, AND PLACED AS DIRECTED THEREIN. BACKFILL SHALL BE TYPE "B" BACKFILL PER NCTCOG ITEM 504.2.3.3. PIPE, INCLUDING SERVICES UNDER PUBLIC PAVEMENT REQUIRES CEMENT TREATED SAND BACKFILL.
3. AFTER COMPLETION OF ALL TESTING (I.E. MANDREL & AIR) CONTRACTOR SHALL PERFORM A TELEVISION INSPECTION AND PROVIDE DVD TO THE PUBLIC WORKS DEPARTMENT. DEFLECTION TESTING SHALL BE PERFORMED AS SPECIFIED IN SPECIAL CONDITIONS.
4. A 2" HIGH LETTER "S" SHALL BE STAMPED ON THE CURB TO MARK THE LOCATION OF THE SEWER SERVICES. THE SERVICE SHOULD BE LOCATED IN THE CENTER OF EACH LOT.
5. ONE JOINT OF 150-PSI PRESSURE RATED PIPE SHALL BE INSTALLED UNDER ALL PROPOSED WATER PIPE CROSSINGS.
6. CONTRACTOR TO PLACE A 3/4" PLYWOOD FALSE BOTTOM IN ALL SANITARY SEWER MANHOLES BEFORE PAVING CONTRACTOR BEGINS WORK.
7. RIM ELEVATIONS OF THE PROPOSED SANITARY SEWER MANHOLES IN STREETS ARE TO BE CONSTRUCTED 18" BELOW FINAL FINISHED GRADES BY UTILITY CONTRACTOR AND ADJUSTED BY PAVING CONTRACTOR TO FINISHED GRADE AT TIME OF PAVING. EACH SHALL HAVE A TYPICAL CONCRETE BLOCK-OUT CONSTRUCTED PER STANDARD DETAIL.
8. ALL TRENCHES SHALL BE COMPACTION TESTED AT THE RATE OF ONE TEST PER 300 L.F. OF TRENCH PER LIFT. LIFTS SHALL BE NO GREATER THAN 12" LOOSE. TESTS SHALL BE STAGGERED SO THAT TESTS OF ADJACENT LIFTS ARE NOT DIRECTLY OVER THE PREVIOUS LIFT. IF THE DISTANCE BETWEEN MANHOLES EXCEEDS 300 L.F., A MINIMUM OF 2 TESTS PER LIFT SHALL BE TAKEN. THE TESTING LAB SHALL PROVIDE THE LOCATION OF ALL RESULTS ON A PLAN AND PROFILE SHEET PRIOR TO TRENCH ACCEPTANCE. THE PAVING CONTRACTOR SHALL NOT BEGIN WORK UNTIL THE CITY OF KELLER HAS APPROVED ALL TRENCH WORK.
9. ALL MANHOLES SHALL BE VACUUMED TESTED.
10. ANY SERVICE TIE-IN TO AN EXISTING MANHOLE MUST BE CORED.
11. CLEAN-OUTS TO BE PROVIDED ON ALL SERVICES AND LOCATED AT THE PROPERTY/ROW LINE AND OR EDGE OF EASEMENT.

CITY OF KELLER GENERAL NOTES

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE CITY OF KELLER STANDARDS AND SPECIFICATIONS.
2. UTILITY CONTRACTOR AND STREET CONTRACTOR ARE TO NOTIFY A CITY TECHNICAL CONSTRUCTION INSPECTOR AT 817-743-4080, AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
3. ALL SANITARY SEWER PIPE SHALL BE SDR 35 PVC (ASTM D-3034).
4. ALL STORM DRAINAGE PIPE SHALL BE ASTM C-76 CLASS III REINFORCED CONCRETE, UNLESS OTHERWISE NOTED.
5. ALL WATER MAINS SHALL BE PVC AWWA-C900, DR18, CLASS 150.

STANDARD LEGEND & ABBREVIATIONS

EXISTING	PROPOSED	
		BOUNDARY LINE
		ROW LINE
		LOT LINE
		CENTER LINE
562	562	CONTOUR
		CURB
		EDGE OF ASPHALT
FH		FIRE HYDRANT
GP		GUARD POST / BOLLARD
		SIGN
		WALL
PP		POWER POLE
OHE	OHE	OVERHEAD ELECTRIC
OHET	OHET	OVERHEAD ELECTRIC & TELEPHONE
UGE	UGE	UNDERGROUND ELECTRIC
G	G G	GAS LINE
12" RCP	12" RCP	STORM DRAIN LINE
SDMH		STORM DRAIN MANHOLE
8" SS	8" SANITARY SEWER	SANITARY SEWER LINE
SSMH		SANITARY SEWER MANHOLE
SCO		SANITARY SEWER CLEANOUT
8" W	8" WATER	WATER LINE
WM		WATER METER
WV		WATER VALVE

BV	BLOW OFF VALVE	SDMH	STORM DRAIN MANHOLE
CO	CLEAN OUT	SS	SANITARY SEWER
EM	ELECTRIC METER	SSMH	SANITARY SEWER MANHOLE
EX	EXISTING	TC	TOP OF CURB
FH	FIRE HYDRANT	TEL	TELEPHONE
FO	FIBER OPTIC	TP	TOP OF PAVEMENT
FR	FIRE RISER	TR	TELEPHONE RISER
G	GAS	W	WATER
GM	GAS METER	WMH	WATER MANHOLE
GP	GUARD POST / BOLLARD	UC	UTILITY CABINET
GUT	GUTTER	UGE	UNDERGROUND ELECTRIC
ICV	IRRIGATION CONTROL VALVE	UGT	UNDERGROUND TELEPHONE
LAT	LATERAL	UV	UTILITY VAULT
MB	MAILBOX	WV	WATER VALVE
MH	MANHOLE		
OHE	OVERHEAD ELECTRIC		
OHET	OVERHEAD ELECTRIC & TELEPHONE		
PP	POWER POLE		
PROP	PROPOSED		
SD	STORM DRAIN		

CITY OF KELLER GENERAL NOTES (CONTINUED)

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF A MAXIMUM NUMBER OF PASSING FIELD DENSITY TESTS ON LIME AND CEMENT STABILIZED SUBGRADE EQUAL TO THE RATIO OF 1 PER 100 LINEAR FEET OF STREET AND ALL FAILING DENSITY TESTS AND REQUIRED MOISTURE-DENSITY CURVES.
7. ALL FILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR METHOD (ASTM-698).
8. ROUTE WATER LINES AROUND STORM DRAIN INLETS WITH A MINIMUM OF 12" CLEARANCE OUT-TO-OUT.
9. "CURB RAMPS" ARE TO BE CONSTRUCTED ON ALL PERMANENT CURB RETURNS AT INTERSECTIONS OF ALL STREETS OR AS DIRECTED BY THE PUBLIC WORKS DEPARTMENT.
10. ALL CONSTRUCTION BARRICADING TO BE IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF TRANSPORTATION CURRENT "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" GUIDELINES.
11. GATE VALVES SHALL CONFORM TO CURRENT ADOPTED VERSION OF SPECIFICATION ANSI/AWWA C509-87.
12. ALL ROCK RIPRAP TO BE PLACED ON FILTER FABRIC.
13. ALL EXPOSED CONCRETE PORTIONS OF BRIDGES, CULVERTS, WINGWALLS AND HEADWALLS WILL REQUIRE A TWO-RUB FINISH IN ACCORDANCE WITH NCTCOG ITEM NO. 702.4.13.1, TYPE 1 WITH TWO-RUB FINISH.
14. MATERIAL DISPOSAL FOR CITY PROJECTS - THE CONTRACTOR SHALL NOTIFY THE PUBLIC WORKS DIRECTOR IN WRITING OF PROPOSED MATERIAL DISPOSAL SITES TO BE UTILIZED WITHIN THE CITY OF KELLER. THE NOTIFICATION SHALL INCLUDE THE LEGAL LOT/BLOCK, ADDITION DESCRIPTION AND ADDRESS OF THE PROPOSED SITE. THE PUBLIC WORKS DIRECTOR SHALL BE NOTIFIED TWO (2) WEEKS IN ADVANCE OF ANY MATERIAL BEING DEPOSITED.
15. MATERIAL DISPOSAL FOR DEVELOPER PROJECTS - THE CONTRACTOR SHALL NOTIFY THE PUBLIC WORKS DIRECTOR IN WRITING OF PROPOSED MATERIAL DISPOSAL SITES TO BE UTILIZED OUTSIDE OF THE PROJECT LIMITS AND INSIDE OF THE CITY OF KELLER. PROJECT LIMITS SHALL BE DEFINED AS PROPERTY OWNED BY THE DEVELOPER AND PART OF THE ADDITION BEING CONSTRUCTED. THE NOTIFICATION SHALL INCLUDE LEGAL LOT/BLOCK, ADDITION DESCRIPTION AND ADDRESS OF THE PROPOSED SITE. THE PUBLIC WORKS DIRECTOR SHALL BE NOTIFIED TWO (2) WEEKS IN ADVANCE OF ANY MATERIAL BEING DEPOSITED.

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GENERAL NOTES
VILLAGE TRAIL
KELLER, TEXAS

BENCHMARKS:

BM1
XXX
ELEV = XXX

BM2
XXX
ELEV = XXX

1		
2		
3		

THIS DOCUMENT IS FOR INTERIM REVIEW AND IS NOT INTENDED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.
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DOI No. 2019106.00

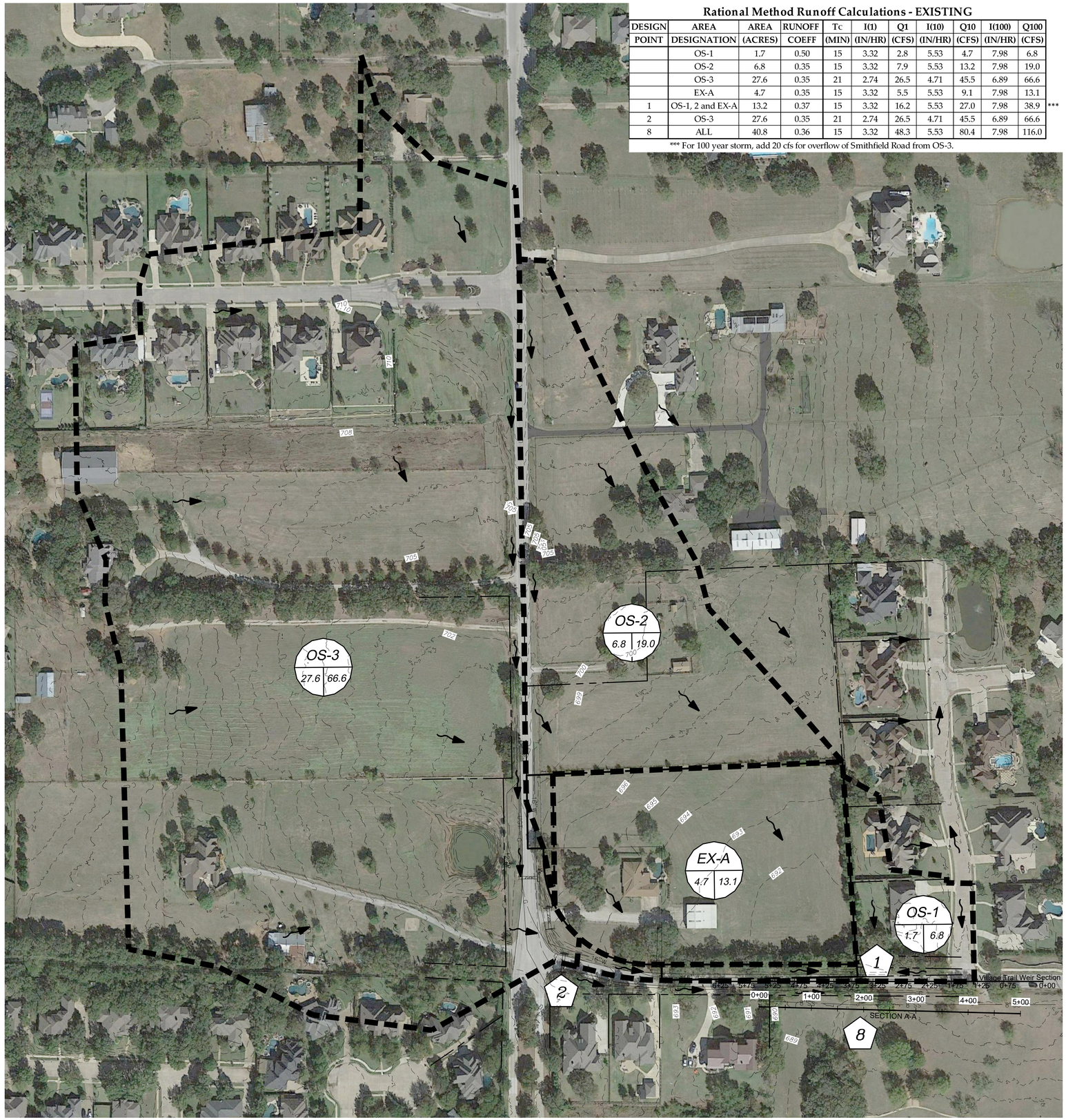
C-0.3

DOI No. 2019106.00 - VILLAGE TRAIL - WATER, SEWER, DRAINAGE AND PAVING IMPROVEMENTS - KELLER, TEXAS

Rational Method Runoff Calculations - EXISTING

DESIGN POINT	AREA DESIGNATION	AREA (ACRES)	RUNOFF COEFF	Tc (MIN)	I(1) (IN/HR)	Q1 (CFS)	I(10) (IN/HR)	Q10 (CFS)	I(100) (IN/HR)	Q100 (CFS)	
	OS-1	1.7	0.50	15	3.32	2.8	5.53	4.7	7.98	6.8	
	OS-2	6.8	0.35	15	3.32	7.9	5.53	13.2	7.98	19.0	
	OS-3	27.6	0.35	21	2.74	26.5	4.71	45.5	6.89	66.6	
	EX-A	4.7	0.35	15	3.32	5.5	5.53	9.1	7.98	13.1	
1	OS-1, 2 and EX-A	13.2	0.37	15	3.32	16.2	5.53	27.0	7.98	38.9	***
2	OS-3	27.6	0.35	21	2.74	26.5	4.71	45.5	6.89	66.6	
8	ALL	40.8	0.36	15	3.32	48.3	5.53	80.4	7.98	116.0	

*** For 100 year storm, add 20 cfs for overflow of Smithfield Road from OS-3.



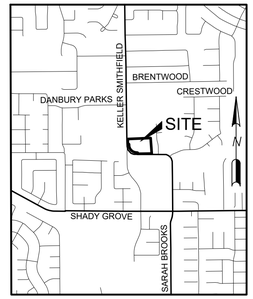
LEGEND

- NAME / AC / Q100 — DRAINAGE AREA LABEL
- FLOW ARROW (POST-PROJECT)
- DRAINAGE DIVIDE
- 501 — EXISTING CONTOUR MINOR
- 500 — EXISTING CONTOUR MAJOR

N

0 50 100 200

(IN FEET)
1 INCH = 100 FT

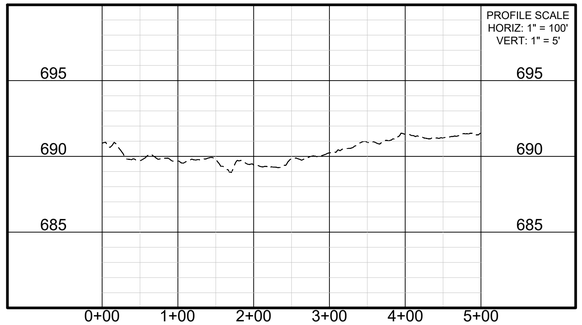


LOCATION MAP
SCALE: 1" = 2000'

Time of Concentration Area OS-3
Sheet flow Tt for 100 ft, (N=0.24, s= 2%) === 14 min.
Shallow concentrated flow (paved, 1% slope)===2 min.
Channel Flow (5 fps) === 5 min.

Total Tc ===21 min.

SECTION A-A



Section A-A Capacity

Elevation	Mannings	Channel Slope	Area (sf)	Wetted Perimeter (ft)	Flowrate (cfs)
689.00	0.050	0.02	0.1471	3.8767	0.1
689.10	0.050	0.02	0.6928	5.7183	0.7
689.20	0.050	0.02	1.4214	9.6140	1.7
689.30	0.050	0.02	2.5113	12.6296	3.6
689.40	0.050	0.02	7.4960	53.1598	8.5
689.50	0.050	0.02	13.7005	65.9820	20.2
689.60	0.050	0.02	21.4861	80.3696	37.5
689.70	0.050	0.02	29.8946	88.0053	61.1
689.80	0.050	0.02	43.1011	127.5376	87.9
689.90	0.050	0.02	60.6370	194.8250	117.0
690.00	0.050	0.02	80.8616	207.9525	181.0

At Section A-A, about 60 feet downstream of Village Trail:

	1-Year		10-Year		100-Year	
	Q	Elev	Q	Elev	Q	Elev
Ex	48.30	689.6-689.7	80.40	689.7-689.8	116.00	689.90
Pr	50.60	689.6-689.7	84.30	689.7-689.8	121.60	689.9-690.0

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817-337-4899 (office) 817-337-5153 (fax)
PREPARED FOR: BRIAN ADAMS
PULTE HOMES OF TEXAS, L.P.
SOUTHLAKE, TEXAS 76092
PHONE: (817) 994-6555

EXISTING DRAINAGE PLAN
VILLAGE TRAIL
KELLER, TEXAS

BENCHMARKS:

BM1
XXX
ELEV = XXX

BM2
XXX
ELEV = XXX

THIS DOCUMENT IS FOR INTERIM REVIEW AND IS NOT INTENDED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.
BY: Richard W. DeOtte
Reg. No.: 74237
Files: 2019106.00(TX)
Date: 3/25/2021

DOI No. 2019106.00

C-1.1

DOI No. 2019106.00 - VILLAGE TRAIL - WATER, SEWER, DRAINAGE AND PAVING IMPROVEMENTS - KELLER, TEXAS

Rational Method Runoff Calculations - PROPOSED

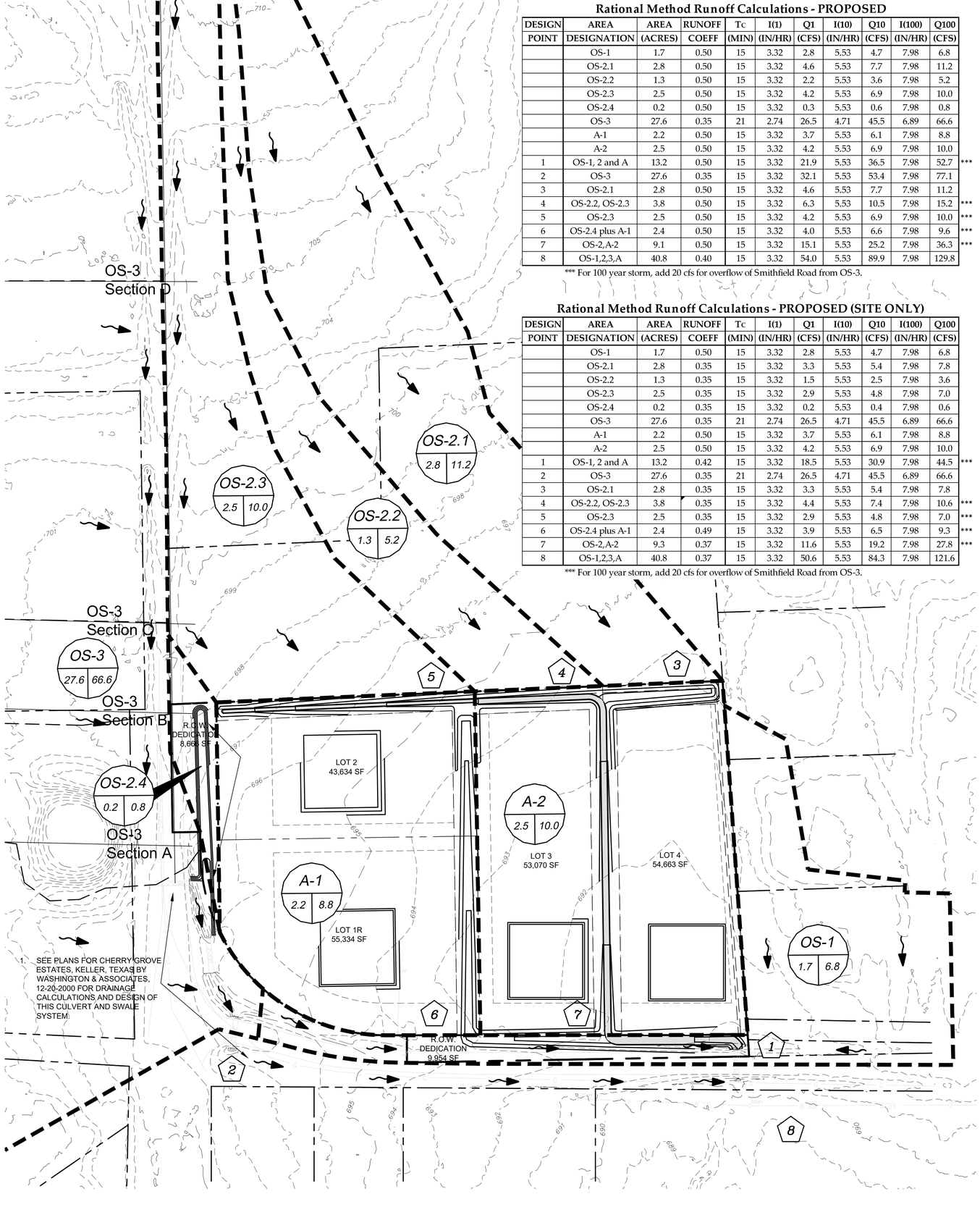
DESIGN POINT	AREA DESIGNATION	AREA (ACRES)	RUNOFF COEFF	Tc (MIN)	I(1) (IN/HR)	Q1 (CFS)	I(10) (IN/HR)	Q10 (CFS)	I(100) (IN/HR)	Q100 (CFS)	
	OS-1	1.7	0.50	15	3.32	2.8	5.53	4.7	7.98	6.8	
	OS-2.1	2.8	0.50	15	3.32	4.6	5.53	7.7	7.98	11.2	
	OS-2.2	1.3	0.50	15	3.32	2.2	5.53	3.6	7.98	5.2	
	OS-2.3	2.5	0.50	15	3.32	4.2	5.53	6.9	7.98	10.0	
	OS-2.4	0.2	0.50	15	3.32	0.3	5.53	0.6	7.98	0.8	
	OS-3	27.6	0.35	21	2.74	26.5	4.71	45.5	6.89	66.6	
	A-1	2.2	0.50	15	3.32	3.7	5.53	6.1	7.98	8.8	
	A-2	2.5	0.50	15	3.32	4.2	5.53	6.9	7.98	10.0	
1	OS-1, 2 and A	13.2	0.50	15	3.32	21.9	5.53	36.5	7.98	52.7	***
2	OS-3	27.6	0.35	15	3.32	32.1	5.53	53.4	7.98	77.1	
3	OS-2.1	2.8	0.50	15	3.32	4.6	5.53	7.7	7.98	11.2	
4	OS-2.2, OS-2.3	3.8	0.50	15	3.32	6.3	5.53	10.5	7.98	15.2	***
5	OS-2.3	2.5	0.50	15	3.32	4.2	5.53	6.9	7.98	10.0	***
6	OS-2.4 plus A-1	2.4	0.50	15	3.32	4.0	5.53	6.6	7.98	9.6	***
7	OS-2,A-2	9.1	0.50	15	3.32	15.1	5.53	25.2	7.98	36.3	***
8	OS-1,2,3,A	40.8	0.40	15	3.32	54.0	5.53	89.9	7.98	129.8	

*** For 100 year storm, add 20 cfs for overflow of Smithfield Road from OS-3.

Rational Method Runoff Calculations - PROPOSED (SITE ONLY)

DESIGN POINT	AREA DESIGNATION	AREA (ACRES)	RUNOFF COEFF	Tc (MIN)	I(1) (IN/HR)	Q1 (CFS)	I(10) (IN/HR)	Q10 (CFS)	I(100) (IN/HR)	Q100 (CFS)	
	OS-1	1.7	0.50	15	3.32	2.8	5.53	4.7	7.98	6.8	
	OS-2.1	2.8	0.35	15	3.32	3.3	5.53	5.4	7.98	7.8	
	OS-2.2	1.3	0.35	15	3.32	1.5	5.53	2.5	7.98	3.6	
	OS-2.3	2.5	0.35	15	3.32	2.9	5.53	4.8	7.98	7.0	
	OS-2.4	0.2	0.35	15	3.32	0.2	5.53	0.4	7.98	0.6	
	OS-3	27.6	0.35	21	2.74	26.5	4.71	45.5	6.89	66.6	
	A-1	2.2	0.50	15	3.32	3.7	5.53	6.1	7.98	8.8	
	A-2	2.5	0.50	15	3.32	4.2	5.53	6.9	7.98	10.0	
1	OS-1, 2 and A	13.2	0.42	15	3.32	18.5	5.53	30.9	7.98	44.5	***
2	OS-3	27.6	0.35	21	2.74	26.5	4.71	45.5	6.89	66.6	
3	OS-2.1	2.8	0.35	15	3.32	3.3	5.53	5.4	7.98	7.8	
4	OS-2.2, OS-2.3	3.8	0.35	15	3.32	4.4	5.53	7.4	7.98	10.6	***
5	OS-2.3	2.5	0.35	15	3.32	2.9	5.53	4.8	7.98	7.0	***
6	OS-2.4 plus A-1	2.4	0.49	15	3.32	3.9	5.53	6.5	7.98	9.3	***
7	OS-2,A-2	9.3	0.37	15	3.32	11.6	5.53	19.2	7.98	27.8	***
8	OS-1,2,3,A	40.8	0.37	15	3.32	50.6	5.53	84.3	7.98	121.6	

*** For 100 year storm, add 20 cfs for overflow of Smithfield Road from OS-3.



LEGEND

NAME / AC | Q100 — DRAINAGE AREA LABEL

FLOW ARROW (POST-PROJECT)

DRAINAGE DIVIDE

501 — EXISTING CONTOUR MINOR

500 — EXISTING CONTOUR MAJOR

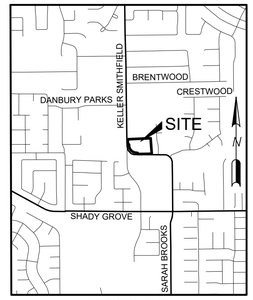
FLOW PATH FOR TC CALCS

N

0 30 60 120

(IN FEET)

1 INCH = 60 FT



LOCATION MAP
SCALE: 1" = 2000'

OFF SITE CAPACITY OF SMITHFIELD ROAD NORTH OF SITE

OS-3 SECTION	AREA (SF)	WETTED PERIMETER (FT)	SLOPE (%)	Q (CAP) (CFS)
A	6.3	21.0	0.47	5.8
B	21.8	50.5	0.70	31.0
C	53.5	109.1	0.88	92.7
D	318.0	363.7	1.42	1029.7
E	696.1	375.9	3.45	5795.9

Notes:

1. Weir elevations were taken from field surveyed elevations from 2+75 to 6+25. The elevations from 0+00 to 2+75 on the Village Trail pavement east of the site were taken from a TNRIS surface calibrated to the field survey elevations.
2. Pipe culvert flows were taken from "Hydraulic Charts for the Selection of Highway Culverts" by the Bureau of Public Roads. The headwater elevtaions are based on the distance of flow from the flowline of the pipe to the water surface elevation. The depth over the road is the same water surface elevation over the pavement.
3. Pipe calculations are based on inlet control since downstream flows are anticipated to be wide and shallow. The weir calculations assume that there is no downstream tailwater effect since the road is well above the expected downstream water surface elevations.

Wier and Culvert flow over Village Trail Drive — Adverse Impact Summary				
		EX	PR	Delta
1-Yr	Q	16.20	18.50	
1-Yr	Elev	692.20	692.20	0.00
10-Yr	Q	27.00	30.90	
10-Yr	Elev	692.27	692.30	0.03
100-Yr	Q	58.90	64.50	
100-Yr	Elev	692.43	692.45	0.02

Wier and Culvert flow over Village Trail Drive

Station	Elev.	Avg. Elev.	L	C	WS Elev	692.20	692.25	692.30	692.34	692.38	692.43	692.48	692.53	692.58
					Flow Rate	22.0	24.0	30.3	35.9	44.8	59.0	77.5	97.6	120.0
0	693.67													
		693.62	75	2.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	693.57													
		693.59	50	2.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
125	693.61													
		693.5	50	2.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175	693.37													
		693.21	50	2.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
225	693.07													
		692.78	50	2.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
275	692.51													
		692.37	50	2.9		0.0	0.0	0.0	0.0	0.1	2.1	5.3	9.3	14.0
325	692.23													
		692.2	25	2.9		0.0	0.8	2.3	3.8	5.5	8.0	10.7	13.7	17.0
350	692.21													
		692.21	25	2.9		0.0	0.6	2.0	3.4	5.1	7.5	10.2	13.1	16.3
375	692.2													
		692.21	25	2.9		0.0	0.6	2.0	3.4	5.1	7.5	10.2	13.1	16.3
400	692.23													
		692.24	25	2.9		0.0	0.1	1.1	2.3	3.8	6.0	8.5	11.3	14.4
425	692.24													
		692.34	50	2.9		0.0	0.0	0.0	0.0	1.2	3.9	7.6	12.0	17.0
475	692.45													
		692.59	50	2.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
525	692.72													
		692.88	50	2.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
575	693.03													
		693.19	50	2.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
625	693.35													
					Weir Total	0.0	2.0	7.3	12.9	20.8	35.0	52.5	72.6	95.0
WEIR FLOW [Q = CL(h^1.5)]														
					h	3.45	3.50	3.55	3.59	3.63	3.68	3.73	3.78	3.83
					h/D	1.725	1.75	1.775	1.795	1.815	1.84	1.865	1.89	1.915
24-inch diameter RCP														
FL Elev =	688.75													
					Q (cfs)	22	22	23	23	24	24	25	25	25

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DRAINAGE AREA MAP
VILLAGE TRAIL
KELLER, TEXAS

BENCHMARKS:

BM1
XXX
ELEV = XXX

BM2
XXX
ELEV = XXX

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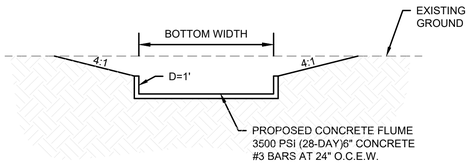
BY: Richard W. DeOtte
Reg. No.: 74232
Firm Reg. No.: F-003116(TX)
Date: 3/25/2021

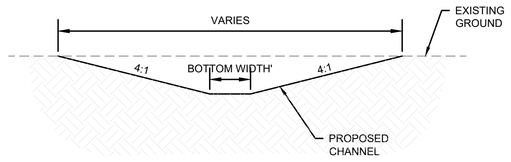
DOI No. 2019106.00

C-1.2

DOI No. 2019106.00 - VILLAGE TRAIL - WATER, SEWER, DRAINAGE AND PAVING IMPROVEMENTS - KELLER, TEXAS

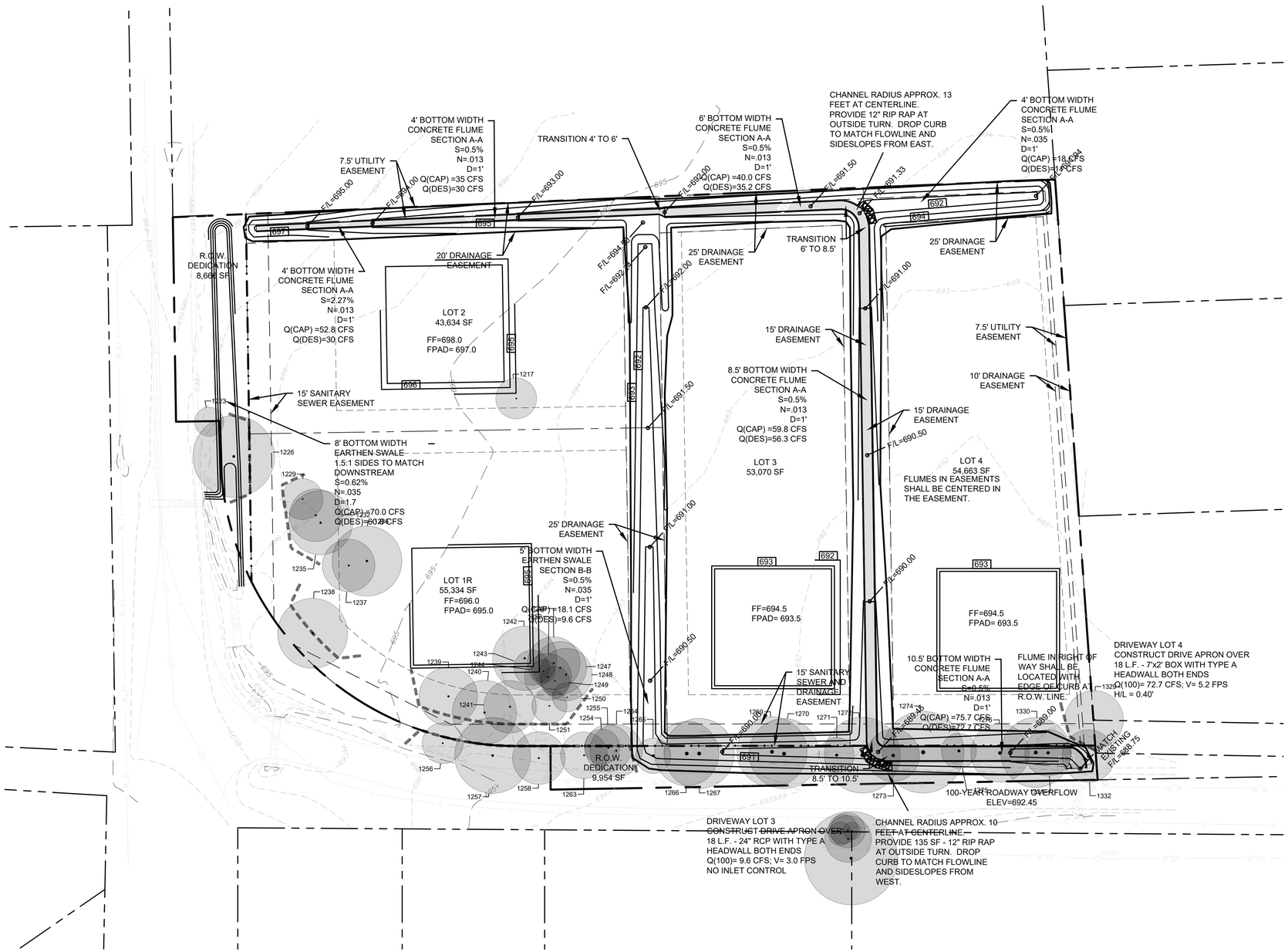


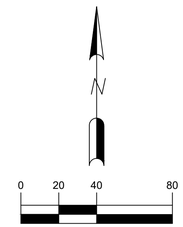
CHANNEL SECTION A-A



CHANNEL SECTION B-B

CHANNEL SECTION C-C





LOCATION MAP
SCALE: 1" = 2000'

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GRADING PLAN
VILLAGE TRAIL
KELLER, TEXAS

GRADING LEGEND

FFE	=	FINISHED FLOOR
TP	=	TOP OF PAVEMENT
TI	=	TOP OF INLET
G	=	GUTTER
TC	=	TOP OF CURB
TW	=	TOP OF WALL
BW	=	BOTTOM OF WALL
FL	=	FLOW LINE
HP	=	HIGH POINT

FLOW DIRECTION
HIGH POINT
SWALE

GENERAL CONSTRUCTION NOTES

1. CONSTRUCTION MATERIALS AND METHODS SHALL BE PER NCTCOG STANDARDS AS AMENDED BY THE GOVERNING BODY'S DESIGN STANDARDS AND DETAILS, WHICH ARE THE DETAILS INCLUDED AND MADE PART OF THESE DRAWINGS.
2. LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED ON PUBLICLY AVAILABLE RECORDS. THE CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING UTILITIES BOTH VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION.

GRADING NOTES

1. ALL GRADES ARE TO GUTTER OR TOP OF PAVEMENT UNLESS OTHERWISE NOTED. SEE GRADING LEGEND FOR ADDITIONAL NOTATION.
2. HUNDREDS PLACE HAS BEEN OMITTED ON SPOT ELEVATIONS FOR PLAN READABILITY.
3. FINISHED GRADES SHOWN HEREON REPRESENT TOP OF PAVING, TOP OF SOD AND/OR LANDSCAPING UNLESS OTHERWISE NOTED.
4. SOD OR LANDSCAPING SHALL NOT BE PLACED ABOVE THE FINISHED FLOOR. FINAL GRADE SHALL BE VERIFIED TO ENSURE POSITIVE FLOW AWAY FROM ALL STRUCTURES.
5. ROUGH GRADING SHALL BE WITHIN 0.1 FT +/- OF FINISHED GRADES SHOWN. UNDER PAVEMENT AND/OR FINISHED FLOORS, GRADES SHALL BE CONSTRUCTED TO THE TOP OF SUBGRADE.
6. CONTOURS REPRESENT FINISHED GRADES.
7. ALL SIDEWALKS SHALL BE BACKFILLED AS NECESSARY TO PREVENT THE IMPENDENCE OF DRAINAGE.

AMERICANS WITH DISABILITIES ACT COMPLIANCE

1. THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ADA ACCESSIBILITY COMPLIANCE. IN THE EVENT OF A CONFLICT BETWEEN THE PLANS AND TAS/ADA ACCESSIBILITY GUIDELINES, THE DISCREPANCY SHALL BE REPORTED IMMEDIATELY, IN WRITING, TO THE ENGINEER, PRIOR TO CONSTRUCTION.
2. ALL SIDEWALKS AND PAVED AREAS REQUIRING ADA ACCESS SHALL BE CONSTRUCTED AT A 5% MAXIMUM RUNNING SLOPE AND 2% MAXIMUM CROSS SLOPE.

BENCHMARKS:

BM1
XXX
ELEV = XXX

BM2
XXX
ELEV = XXX

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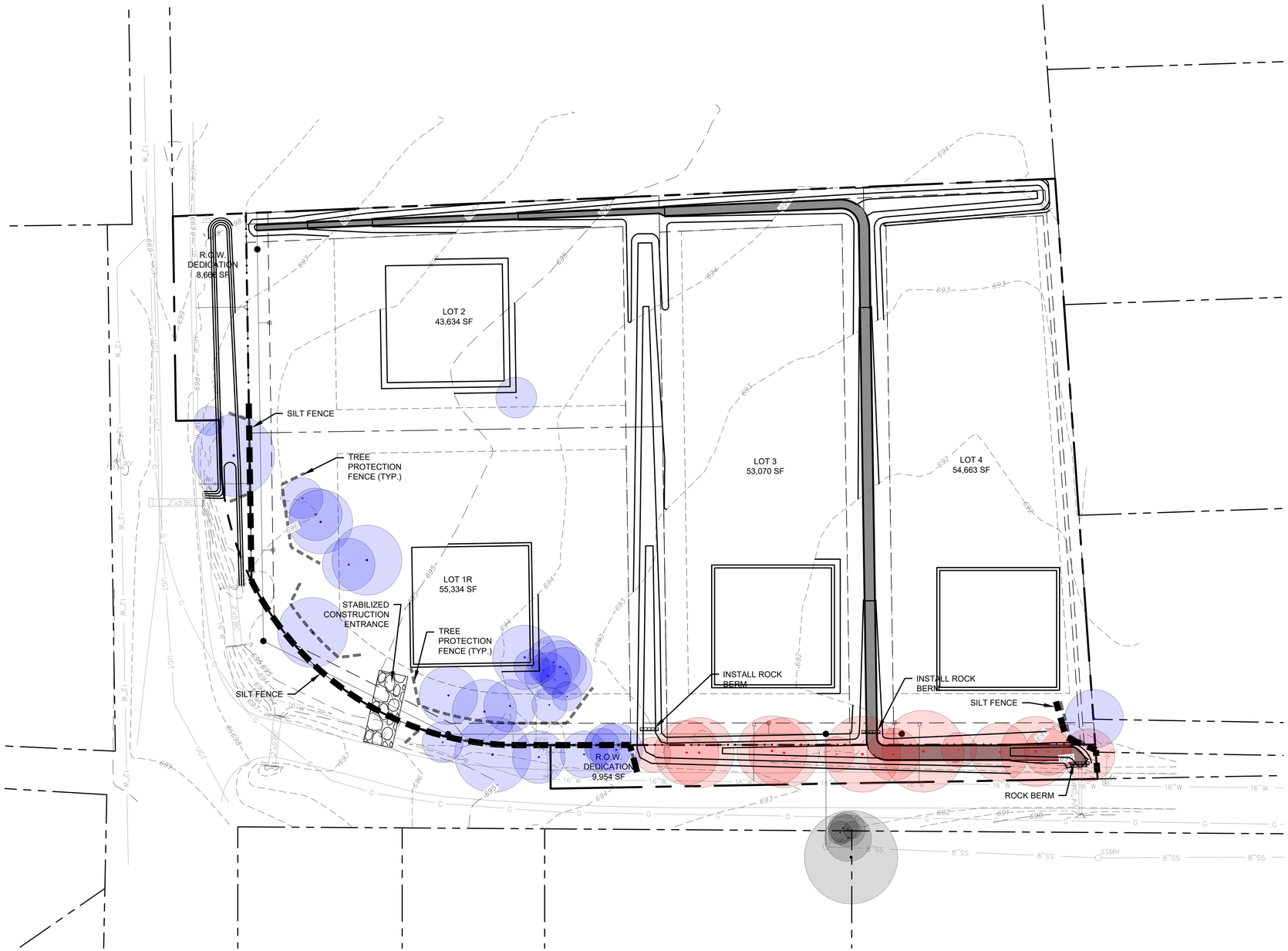
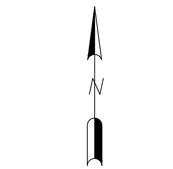
BY: Richard W. DeOtte
Reg. No.: 74232
Licensed in: (TX)
Date: 3/29/2021

DOI No. 2019106.00

C-3.2

DOI No. 2019106.00 - VILLAGE TRAIL - WATER, SEWER, DRAINAGE AND PAVING IMPROVEMENTS - KELLER, TEXAS





LOCATION MAP
SCALE: 1" = 2000'

LEGEND

- SILT FENCE
- TREE PROTECTION
- STRAW WADDLE
- GRASS MATTING
- DIRECTION OF FLOW
- INLET PROTECTION
- OUTFALL
- ROCK RIP RAP
- CREEK
- 100 YR FLOOD PLANE
- DETENTION POND/ SURFACE WATER
- MAINTAIN EXISTING VEGETATION
- STABILIZED CONSTRUCTION ENTRANCE (SCE)
- PLANTED MILLET
- COVERED STORAGE
- PORTABLE TOILET
- ROLLOFF/ TRASH CONTAINMENT
- CONCRETE WASHOUT AREA
- ROCK BERM

NOTES:

1. GENERAL CONSTRUCTION NOTES: REFER TO SHEET C-0.3 FOR THE GENERAL CONSTRUCTION NOTES FOR THE PROJECT.

2. SWPPP COMPLIANCE: THE CONTRACTOR SHALL BE REQUIRED TO COMPLY WITH THE CONDITIONS OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WHILE CONDUCTING HIS ACTIVITIES ON THIS PROJECT. IN ADDITION TO CONSTRUCTING THOSE ITEMS INDICATED ON THE PLAN SHEETS, COMPLIANCE WITH THE SWPPP INCLUDES CONFORMANCE TO CERTAIN PRACTICES AND PROCEDURES (IDENTIFIED IN THE (SWPPP) DURING PROJECT CONSTRUCTION. THE SWPPP PLANS AND DOCUMENTS ARE PROVIDED FOR THE SOLE BENEFIT OF THE CONTRACTOR AS A PLANNING TOOL FOR COMPLYING WITH THE ENVIRONMENTAL REGULATIONS OF THIS PROJECT. THE CONTRACTOR IS EXPECTED TO PROVIDE, EXPAND, SUBMIT AND MONITOR A FULL COMPREHENSIVE SWPPP BEYOND WHAT IS HEREIN PROVIDED.

3. BMP INSTALLATION: PRIOR TO COMMENCING GRADING OPERATIONS, THE CONTRACTOR SHALL INSTALL ALL SWPPP MEASURES AND DEVICES AS INDICATED ON THE EROSION & SEDIMENT CONTROL PLAN. ALL SWPPP MEASURES AND DEVICES SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND DETAILS SHOWN IN THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS CONSTRUCTION "BEST MANAGEMENT PRACTICES" (BMP) MANUAL, OR AS MODIFIED BY THE CONTRACT DOCUMENTS.

4. CLEANING, REPAIR AND MAINTENANCE: THE CONTRACTOR SHALL REFER TO THE SWPPP FOR SEQUENCING OF CONSTRUCTION, INSTALLATION OF NEW EROSION CONTROL DEVICES AND CLEANING, REPAIR AND MAINTENANCE OF EXISTING EROSION CONTROL DEVICES. THE CONTRACTOR SHALL REVISE, RELOCATE AND/OR ADD DEVICES TO REFLECT ACTUAL SITE CONDITIONS AND TO ACCOMMODATE LOCATIONS FOR CONSTRUCTION TRAILER AREAS, STORAGE AREAS, FUELING AREAS, TOILETS, TRASH RECEPTACLES AND WASHOUT AREAS. ANY ACCIDENTAL RELEASE OF SEDIMENT OR POLLUTANTS FROM THE SITE SHALL BE CLEANED BY THE CONTRACTOR.

5. SITE ENTRY/EXIT LOCATIONS: SITE ENTRY AND EXIT LOCATIONS SHALL BE MAINTAINED BY THE CONTRACTOR IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAYS MUST BE REMOVED IMMEDIATELY. WHEN WASHING OF VEHICLES IS REQUIRED TO REMOVE SEDIMENT PRIOR TO ENTRANCE TO A PUBLIC ROADWAY, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT BASIN. ALL FINES IMPOSED FOR TRACKING ONTO PUBLIC ROADS SHALL BE PAID BY THE CONTRACTOR.

6. PROTECTION OF ADJACENT PROPERTY: CONTRACTOR SHALL ASSUME FULL LIABILITY FOR DAMAGE TO ADJACENT PROPERTIES AND/OR PUBLIC RIGHT-OF-WAY RESULTING FROM FAILURE TO FULLY IMPLEMENT AND EXECUTE ALL EROSION CONTROL METHODS AND PROCEDURES SHOWN AND NOTED IN THE PLANS AND SWPPP.

7. RE-VEGETATION: AT THE COMPLETION OF PAVING AND FINAL GRADING OPERATIONS, ALL DISTURBED AREAS SHALL BE VEGETATED IN ACCORDANCE WITH THE LANDSCAPE ARCHITECTS' PLANS. IN AREAS NOT COVERED BY LANDSCAPE PLAN, THE CONTRACTOR SHALL PROVIDE HYDROMULCH SEEDING AND/OR SODDING FOR ALL DISTURBED AREAS (NOT DESIGNATED TO BE PAVED) IN ACCORDANCE WITH ALL GOVERNING AUTHORITIES' SPECIFICATIONS.

8. BMP REMOVAL: THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL SEDIMENT BARRIERS AND INLET PROTECTION AFTER VEGETATION HAS BEEN COMPLETED AND ALL AREAS OF THE SITE HAVE BEEN STABILIZED AND ACCEPTED BY THE GOVERNING AUTHORITIES AND THE DEVELOPER.

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EROSION CONTROL PLAN
VILLAGE TRAIL
KELLER, TEXAS

BENCHMARKS:

BM1
XXX
ELEV = XXX

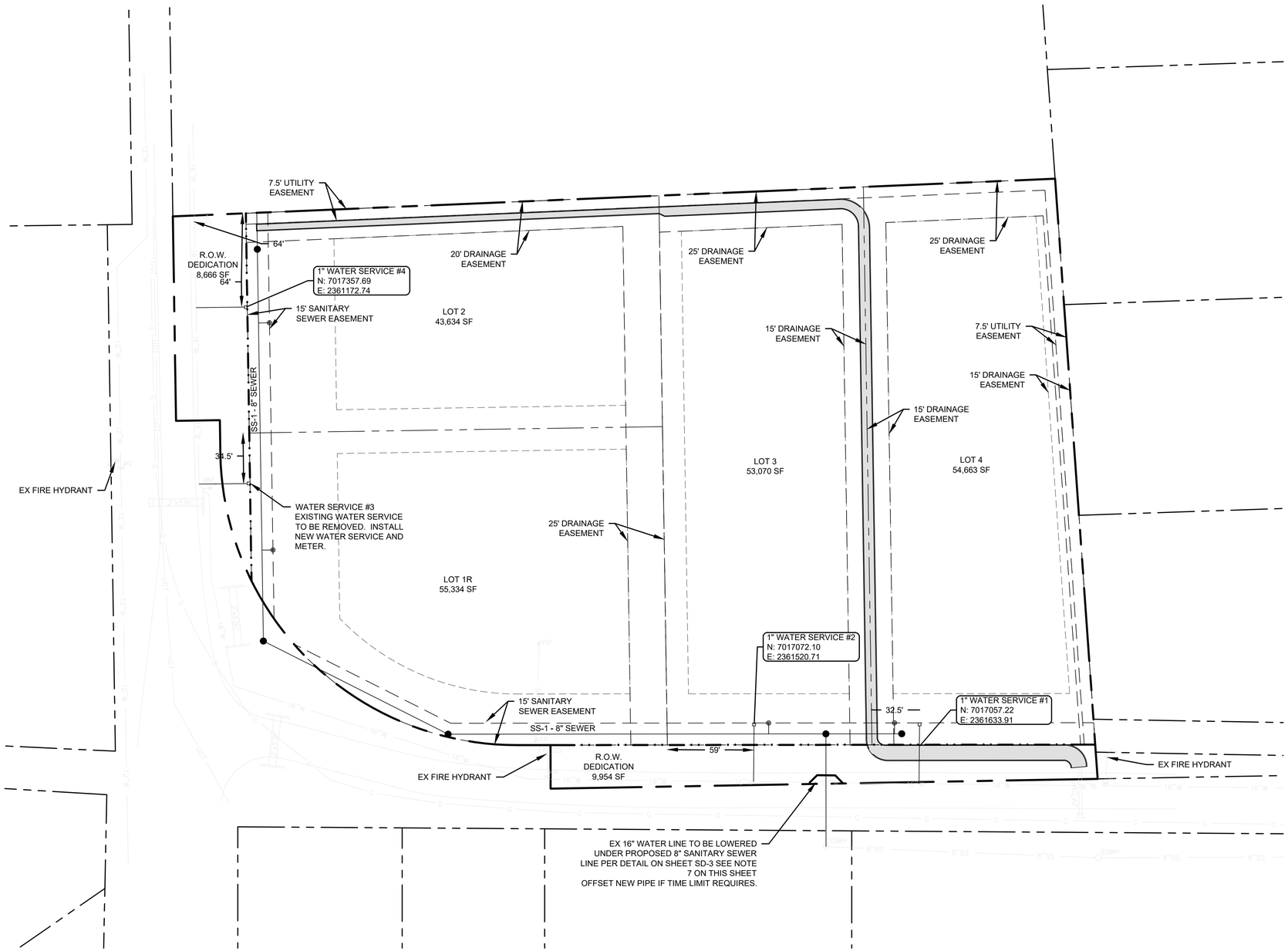
BM2
XXX
ELEV = XXX

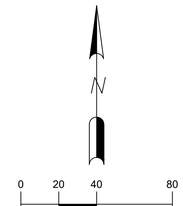
THIS DOCUMENT IS FOR INTERIM REVIEW AND IS NOT INTENDED FOR CONSTRUCTION, BIDDING OR PERMITTING PURPOSES.
BY: Richard W. DeOtte
Reg. No.: 74331
Licensed State: TX
Date: 3/25/2021

DOI No. 2019106.00

C-3.1

DOI No. 2019106.00 - VILLAGE TRAIL - WATER, SEWER, DRAINAGE AND PAVING IMPROVEMENTS - KELLER, TEXAS





LOCATION MAP
SCALE: 1" = 2000'

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WATER PLAN
VILLAGE TRAIL
KELLER, TEXAS

NOTES:

1. ALL WATER PIPE SHALL BE SDR-18 C-900.
2. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE GOVERNING BODY'S STANDARDS FOR PUBLIC WORKS CONSTRUCTION.
3. ALL WATER SERVICES ARE PRIVATE FROM THE BUILDING TO THE METER AND PUBLIC FROM THE METER TO THE WATER MAIN.
4. ALL WATERLINE SHALL HAVE A MINIMUM 2' VERTICAL CLEARANCE FROM DRAINAGE STRUCTURES AND SEWER SERVICES.
5. ALL WATERLINE SHALL BE INSTALLED WITH A MINIMUM COVER OF 42" UNLESS OTHERWISE NOTED OR EXPLICITLY APPROVED BY THE CITY ENGINEER.
6. THE LOCATION OF UNDERGROUND FACILITIES INDICATED ON THE PLANS IS TAKEN FROM PUBLIC RECORDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THEIR EXACT LOCATION AND TO DETERMINE WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT, DETERMINE IF ANY CONFLICTS EXIST AND NOTIFY THE ENGINEER OF ANY SUCH CONFLICTS PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL UNDERGROUND FACILITIES. IF EXISTING UNDERGROUND UTILITIES ARE DAMAGED, THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF REPAIRING THE UTILITY.
7. THE WATER SERVICE INTERRUPTION ASSOCIATED WITH LOWERING THE 16-INCH WATER LINE SHALL ONLY BE ALLOWED FOR 8 HOURS MAXIMUM. THE CONTRACTOR SHALL PROVIDE A WORK PLAN TO THE CITY FOR APPROVAL PRIOR TO BEGINNING THIS WORK.

BENCHMARKS:

BM1
XXX
ELEV = XXX

BM2
XXX
ELEV = XXX

△ ____ ____
△ ____ ____
△ ____ ____

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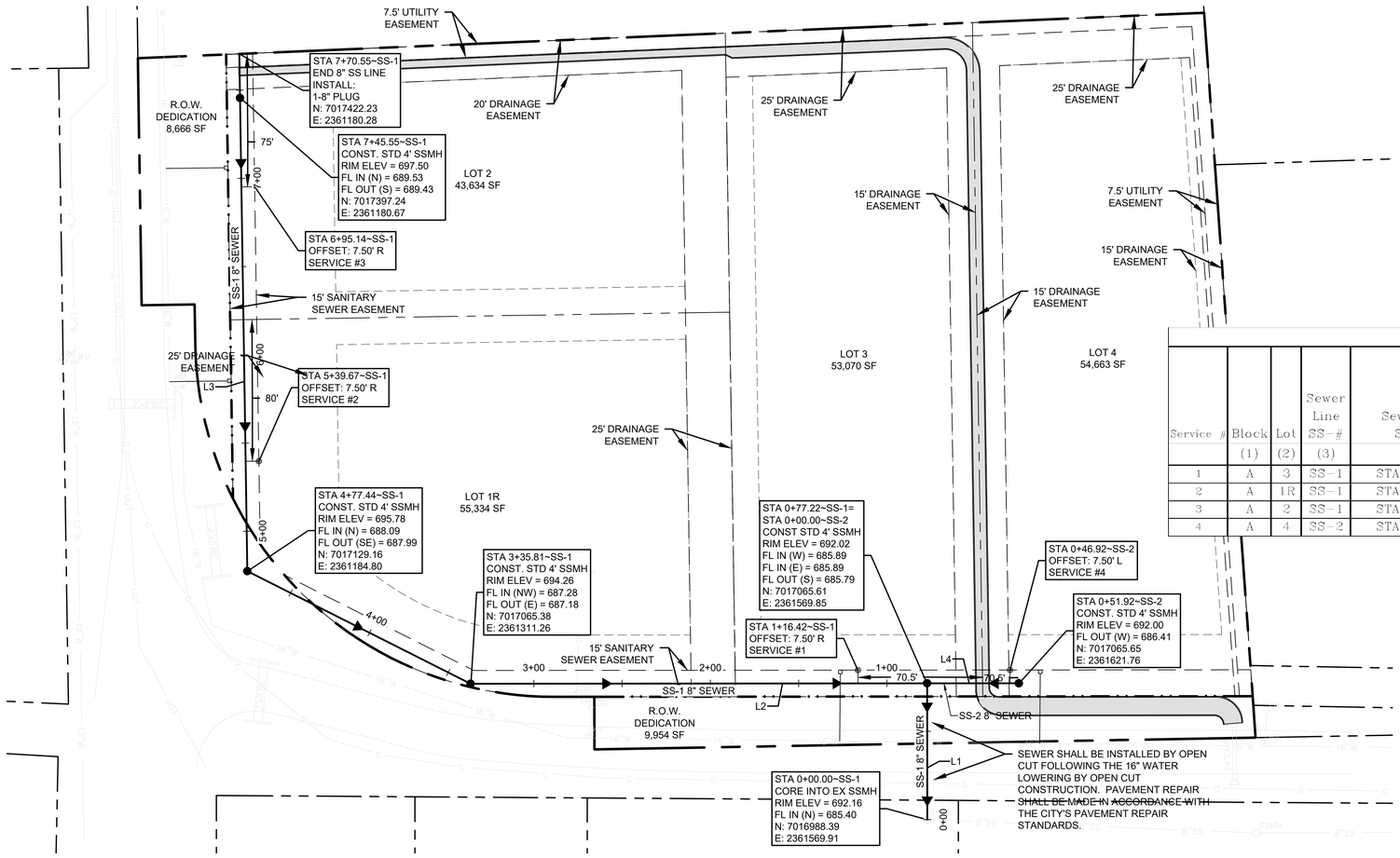
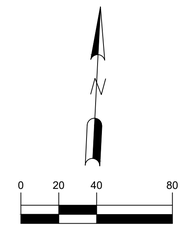
BY: Richard W. DeOtte
Reg. No.: 74232
Firm Reg. No.: F-003116(TX)
Date: 3/25/2021

DOI No. 2019106.00

C-4.1

DOI No. 2019106.00 - VILLAGE TRAIL - WATER, SEWER, DRAINAGE AND PAVING IMPROVEMENTS - KELLER, TEXAS





LOCATION MAP
SCALE: 1" = 2000'

SANITARY SEWER SERVICE TABLE

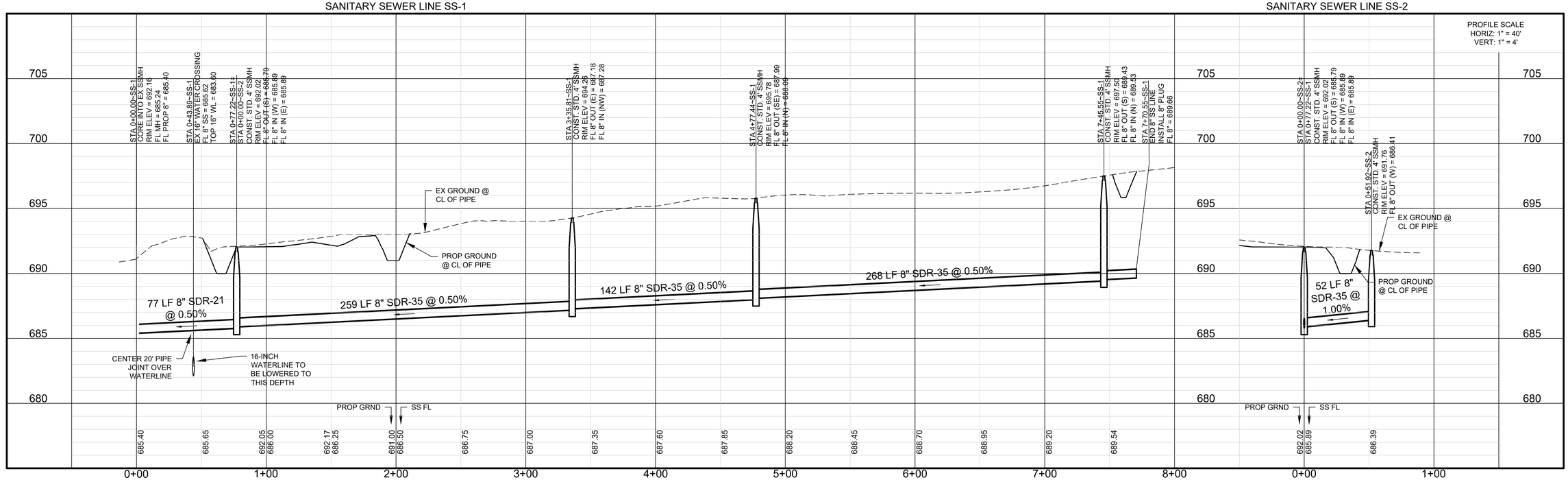
Service #	Block (1)	Lot (2)	Sewer Line SS-# (3)	Sewer Line Station (4)	Length (FT) (5)	Sewer Main Flowline (6)	Min. Service Elevation at Cleanout (7)	Estimated Pad Elevation (8)	Longest Service Length to Back of LOT (9)	Max. Service Elevation at Cleanout (10)	Ground Elevation at Cleanout (11)	Service Flow Line at Cleanout (12)	Service Flowline Depth at Cleanout (13)
1	A	3	SS-1	STA 1+16.42	7.50	686.09	686.84	695.40	350	686.90	692.59	686.84	5.76
2	A	1R	SS-1	STA 5+24.42	7.50	688.33	689.08	696.00	270	689.10	695.94	689.10	6.84
3	A	2	SS-1	STA 6+79.89	7.50	689.11	689.86	696.50	255	689.90	696.57	689.90	6.67
4	A	4	SS-2	STA 0+46.92	7.50	686.36	687.11	696.00	365	687.20	691.86	687.11	4.76

LINE TABLE		
LINE #	DIRECTION	LENGTH
L1	N00°03'01"W	77.22'
L2	S89°56'59"W	258.59'
L3	N00°53'01"W	293.11'
L4	N89°56'59"E	51.92'

CURVE TABLE					
CURVE	RADIUS	LENGTH	DELTA	CHORD BEARING	CHORD

NOTES
1. SEE SHEET SD-2 FOR DETAILS.
2. SEE SANITARY SEWER SERVICE TABLE FOR SPECIFIC ELEVATIONS OF CLEANOUT FLOWLINES AT EASEMENT LINE.
3. SERVICE CLEANOUTS ARE TO BE PLACED AT THE EASEMENT LINE.
4. ALL MANHOLES MUST HAVE 0.1' OF FALL THROUGH MANHOLE.

SANITARY SEWER LINE SS-1



SANITARY SEWER LINE SS-2

BENCHMARKS:

BM1
XXX
ELEV = XXX

BM2
XXX
ELEV = XXX

△ ____ ____
△ ____ ____
△ ____ ____

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C-4.2

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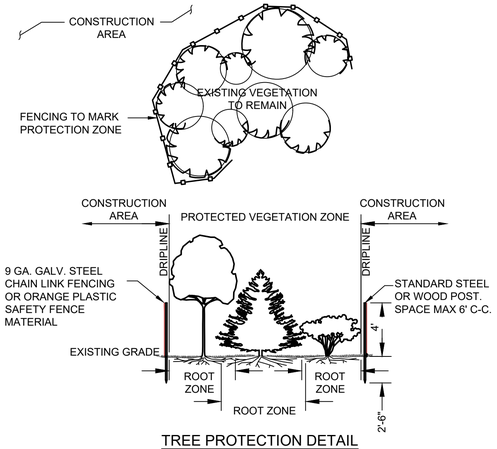
SANITARY SEWER PLAN & PROFILE VILLAGE TRAIL KELLER, TEXAS

DOI No. 2019106.00 - VILLAGE TRAIL - WATER, SEWER, DRAINAGE AND PAVING IMPROVEMENTS - KELLER, TEXAS



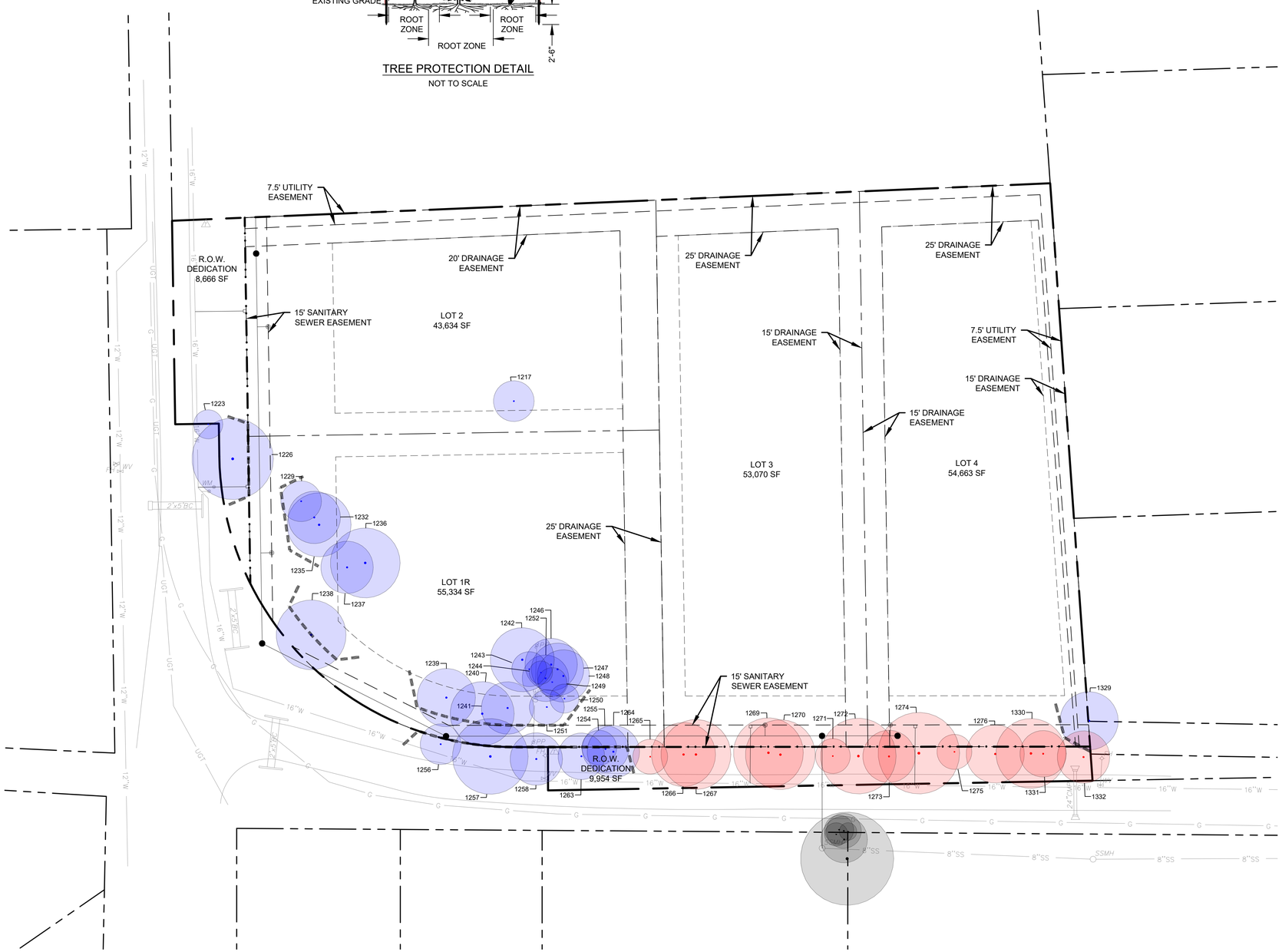
TREE PROTECTION DETAIL

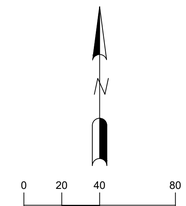
NOT TO SCALE

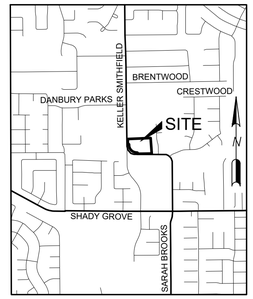
TREES TO REMAIN	
Tree #	Size & Species
1217	14" COTTONWOOD
1223	3-10" OAK
1226	28" OAK
1229	TWIN 14" OAK
1232	18" OAK
1235	2-22" OAK
1236	24" OAK
1237	2-18" OAK
1238	24" OAK
1239	20" OAK
1240	22" OAK
1241	18" OAK
1242	22" OAK
1243	12" OAK
1244	8" OAK

TREES TO REMAIN	
Tree #	Size & Species
1246	18" OAK
1247	18" OAK
1248	18" OAK
1249	10" OAK
1250	2-10" OAK
1251	12" OAK
1252	16" OAK
1254	12" OAK
1255	16" OAK
1256	14" OAK
1257	26" OAK
1258	18" OAK
1263	16" OAK
1264	18" OAK
1329	20" OAK

TREES TO BE REMOVED	
Tree #	Size & Species
1265	12" OAK
1266	2-22" OAK
1267	24" HACKBERRY
1269	24" OAK
1270	24" OAK
1271	2-12" HACKBERRY
1272	26" OAK
1273	18" OAK
1274	28" OAK
1275	12" HACKBERRY
1276	20" HACKBERRY
1330	24" OAK
1331	16" HACKBERRY
1332	18" ELM







LOCATION MAP
SCALE: 1" = 2000'

LEGEND

TREE TO REMAIN

TREE TO BE REMOVED

TREE PROTECTION FENCE

TREE PROTECTION NOTES

1. GENERAL CONSTRUCTION NOTES: REFER TO SHEET C-0.3 "GENERAL CONSTRUCTION NOTES, LEGEND AND ABBREVIATIONS" FOR THE GENERAL CONSTRUCTION NOTES FOR THE PROJECT.

2. TREE PROTECTION IDENTIFICATION: PRIOR TO GRADING, BRUSH REMOVAL, OR SITE CONSTRUCTION, THE CONTRACTOR SHALL MEET WITH THE DEVELOPER AND/OR ENGINEER AT THE SITE TO ASCERTAIN THE AREAS OF THE EXISTING TREES TO BE PROTECTED AND PRESERVED. THE CONTRACTOR SHALL THEN CLEARLY TAG OR MARK ALL TREES TO BE PROTECTED AND PRESERVED. NO TREES SHALL BE CUT AND/OR REMOVED FROM THE PROJECT SITE UNTIL SPECIFICALLY AUTHORIZED IN WRITING BY THE GOVERNING AUTHORITY AND/OR DEVELOPER.

3. TREE PROTECTION FENCE: THE CONTRACTOR SHALL ERECT A FENCE (PER DETAILS) AROUND EACH TREE TO PREVENT THE PLACEMENT OF DEBRIS OR FILL WITHIN THE DRIP LINE OF THE TREE. THE TREE PROTECTION FENCE LOCATION SHOWN ON THE PLAN IS SCHEMATIC IN NATURE.

4. TREE CANOPY RESTRICTIONS: DURING CONSTRUCTION, THE CONTRACTOR SHALL PROHIBIT CLEANING, PARKING OR STORAGE OF EQUIPMENT OR MATERIALS UNDER THE CANOPY OF ANY TREE OR GROUP OF TREES BEING PRESERVED. THE CONTRACTOR SHALL NOT ALLOW THE DISPOSAL OF ANY WASTE MATERIAL SUCH AS, BUT NOT LIMITED TO, PAINT, OIL SOLVENTS, ASPHALT, CONCRETE, MORTAR, ETC., IN THE CANOPY AREA.

5. TREE ATTACHMENT RESTRICTIONS: NO ATTACHMENTS OR WIRES OF ANY KIND, OTHER THAN THOSE OF A PROTECTIVE NATURE, SHALL BE ATTACHED TO ANY TREE.

6. FILL RESTRICTIONS: NO FILL OR EXCAVATION MAY OCCUR WITHIN THE DRIP LINE OF A TREE TO BE PRESERVED WITHOUT AN APPROVED PLAN FOR USE OF TREE WELLS OR RETAINING WELLS. CHANGES OF GRADE SIX (6) INCHES OR GREATER SHALL REQUIRE ADDITIONAL MEASURES TO MAINTAIN PROPER OXYGEN AND WATER EXCHANGE WITH THE ROOT SYSTEM. IN ADDITION, THE FOLLOWING GUIDELINES ARE TO PROTECT THE TREES TO BE PRESERVED.
   A. WITH MAJOR GRADE CHANGES, A RETAINING WALL OR TREE WELL OF A DESIGN APPROVED BY THE GOVERNING AUTHORITY SHALL BE CONSTRUCTED AROUND THE TREE NO CLOSER THAN HALF THE DISTANCE BETWEEN THE TRUNK AND THE DRIP LINE. THE RETAINING WALL SHOULD BE CONSTRUCTED SO AS TO MAINTAIN THE EXISTING GRADES AROUND THE TREE OR GROUP OF TREES.
   B. AT NO TIME SHALL A WALL, PAVEMENT OR POROUS PAVEMENT BE PLACED LESS THAN FIVE (5) FEET OR ONE (1) FOOT FOR EVERY TWO (2) INCHES IN CALIPER, WHICHEVER IS GREATER, TO THE TRUNK OF THE TREE.
   C. ROOT PRUNING WILL BE REQUIRED WHEN THE CRITICAL ROOT ZONE IS TO BE DISTURBED. THIS IS IN AREAS WHERE PAVING OR THE BUILDING PAD EXTENDS TO OR BENEATH THE DRIP LINE OF THE TREE.

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SOUTHLAKE, TEXAS 76092
PHONE: (817) 994-6555

TREE PRESERVATION PLAN
VILLAGE TRAIL
KELLER, TEXAS

BENCHMARKS:

BM1
XXX
ELEV = XXX

BM2
XXX
ELEV = XXX

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BY: Richard W. DeOtte
Reg. No.: 74232
Licensed (TX)
Date: 3/25/2021

DOI No. 2019106.00

C-5.1

DOI No. 2019106.00 - VILLAGE TRAIL - WATER, SEWER, DRAINAGE AND PAVING IMPROVEMENTS - KELLER, TEXAS

SILT FENCE GENERAL NOTES:

1. POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.

2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWN SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

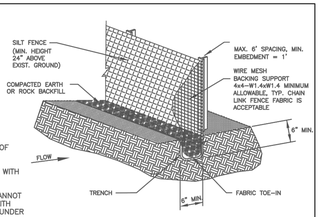
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FABRIC TO BE LAID IN THE GROUND AND BACK FILLED WITH COMPACTED MATERIAL.

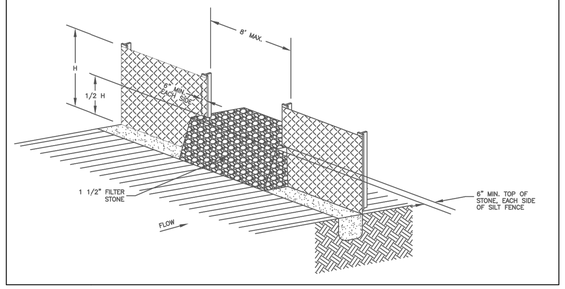
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH SUPPORT POST OR TO WIRE BACKING, WHICH IN TURN IS ATTACHED TO THE FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

5. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

6. SILT FENCE SHALL BE REMOVED WHEN FINAL STABILIZATION IS ACHIEVED OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED.

7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS NOT TO CONTRIBUTE TO ADDITION SILTATION.





City of KELLER	EROSION CONTROL DETAILS SILT FENCE STRUCTURES	REVISION DATE: 2/11/2009 SHEET: E-01

ROCK BERM GENERAL NOTES:

1. USE ONLY OPEN GRADED ROCK 4–8 INCHES IN DIAMETER FOR STREAM FLOW CONDITION. USE OPEN GRADED ROCK 3–5 INCHES IN DIAMETER FOR OTHER CONDITIONS.

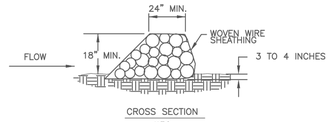
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING A MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE SIZE OF 20 GAUGE AND SHALL BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP.

3. THE ROCK BERM SHALL BE INSPECTED EVERY TWO WEEKS OR AFTER EACH 1/2" RAIN EVENT AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTEDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

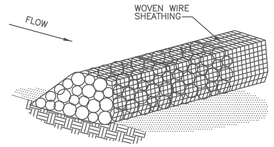
4. WHEN SILT REACHES A DEPTH EQUAL TO ONE–THIRD OF THE HEIGHT OF THE BERM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.

5. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

6. ROCK BERM SHOULD BE USED AS CHECK DAMS FOR CONCENTRATED FLOW AND ARE NOT INTENDED FOR USE IN PERIMETER PROTECTION.



CROSS SECTION
N.T.S.



City of KELLER	EROSION CONTROL DETAILS ROCK BERM	REVISION DATE: 2/11/2009 SHEET: E-02

STABILIZED CONSTRUCTION ENTRANCE GENERAL NOTES:

1. STONE SHALL BE 3 TO 5 INCH DIAMETER CRUSHED ROCK OR ACCEPTABLE CRUSHED PORTLAND CEMENT CONCRETE.

2. LENGTH SHALL BE SHOWN ON PLANS, WITH A MINIMUM LENGTH OF 30 FEET FOR LOTS WHICH ARE LESS THAN 150 FEET FROM EDGE OF PAVEMENT. THE MINIMUM DEPTH IN ALL OTHER CASES SHALL BE 50 FEET.

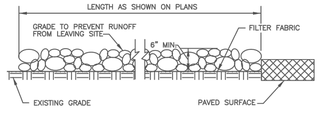
3. THE THICKNESS SHALL NOT BE LESS THAN 6 INCHES.

4. THE WIDTH SHALL BE NO LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.

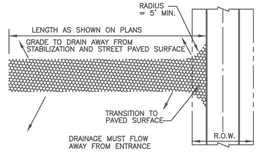
5. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.

6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.

7. THE ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

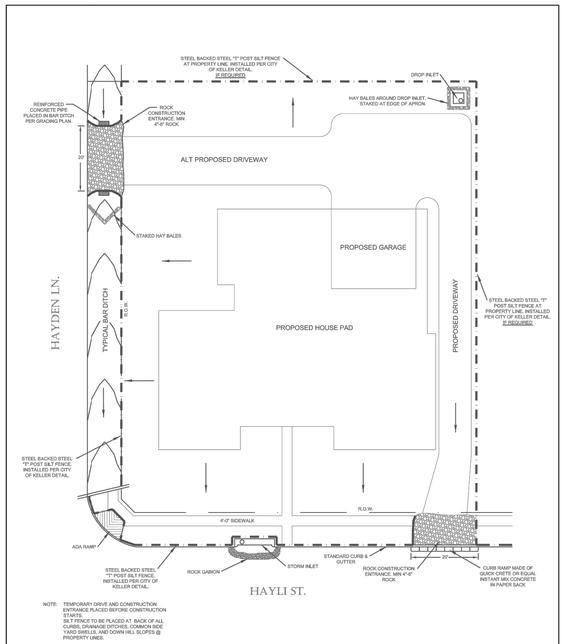


PROFILE VIEW
N.T.S.



PLAN VIEW
N.T.S.

City of KELLER	EROSION CONTROL DETAILS STABILIZED CONSTRUCTION ENTRANCE	REVISION DATE: 2/11/2009 SHEET: E-03



NOTE: TEMPORARY DRIVE AND CONSTRUCTION ENTRANCE PLACED BEFORE CONSTRUCTION BEGINS.
SILT FENCE TO BE PLACED AT BACK OF ALL CURBS, DRAINAGE DITCHES, COMMON SIDE YARD SWELLS, AND DOWN HILL SLOPES @ PROPERTY LINES.

City of KELLER	EROSION CONTROL DETAILS RESIDENTIAL SITE EROSION CONTROL	REVISION DATE: 9/14/2009 SHEET: E-5

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EROSION CONTROL DETAILS
VILLAGE TRAIL
KELLER, TEXAS

BENCHMARKS:

BM1
XXX
ELEV = XXX

BM2
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ELEV = XXX

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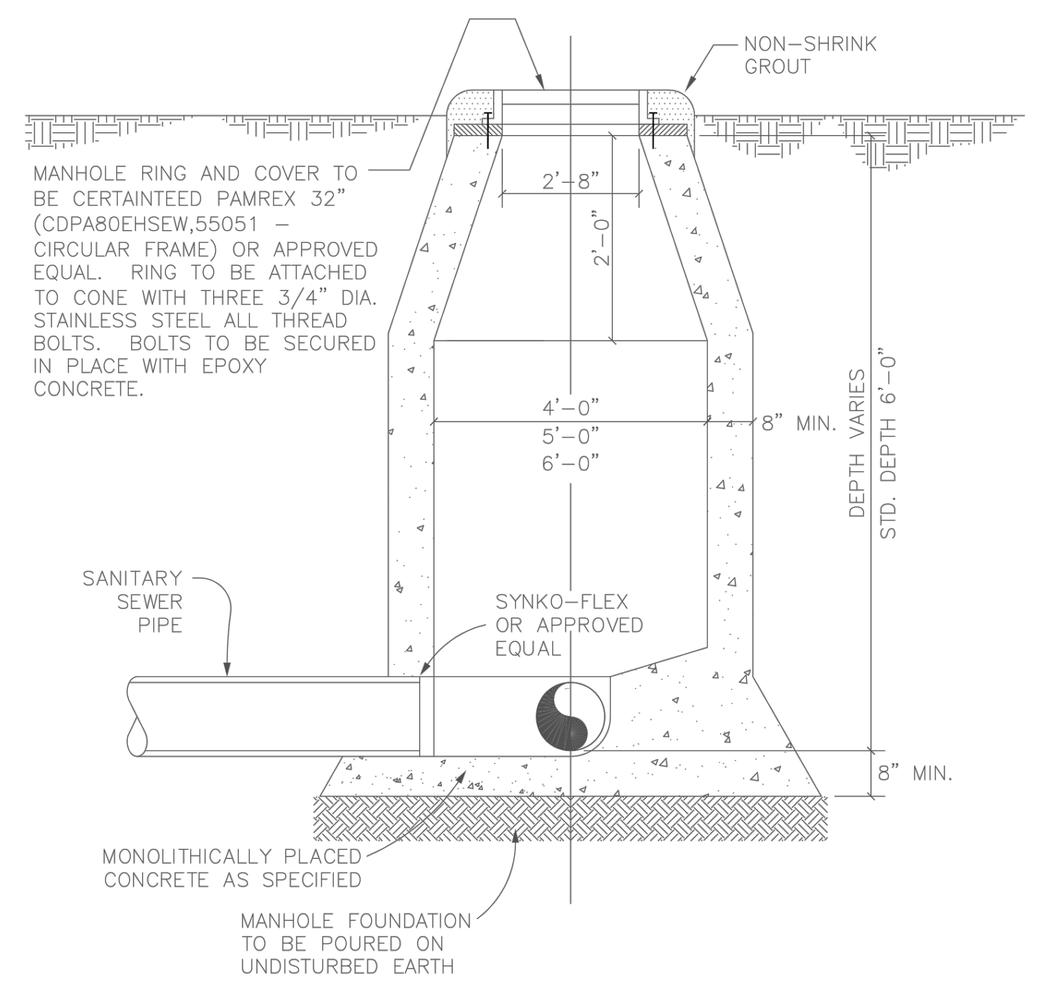
BY: Richard W. DeOtte
Reg. No.: 74232
Location: KELLER, (TX)
Date: 3/25/2021

DOI No. 2019106.00

SD-1

DOI No. 2019106.00 - VILLAGE TRAIL - WATER, SEWER, DRAINAGE AND PAVING IMPROVEMENTS - KELLER, TEXAS

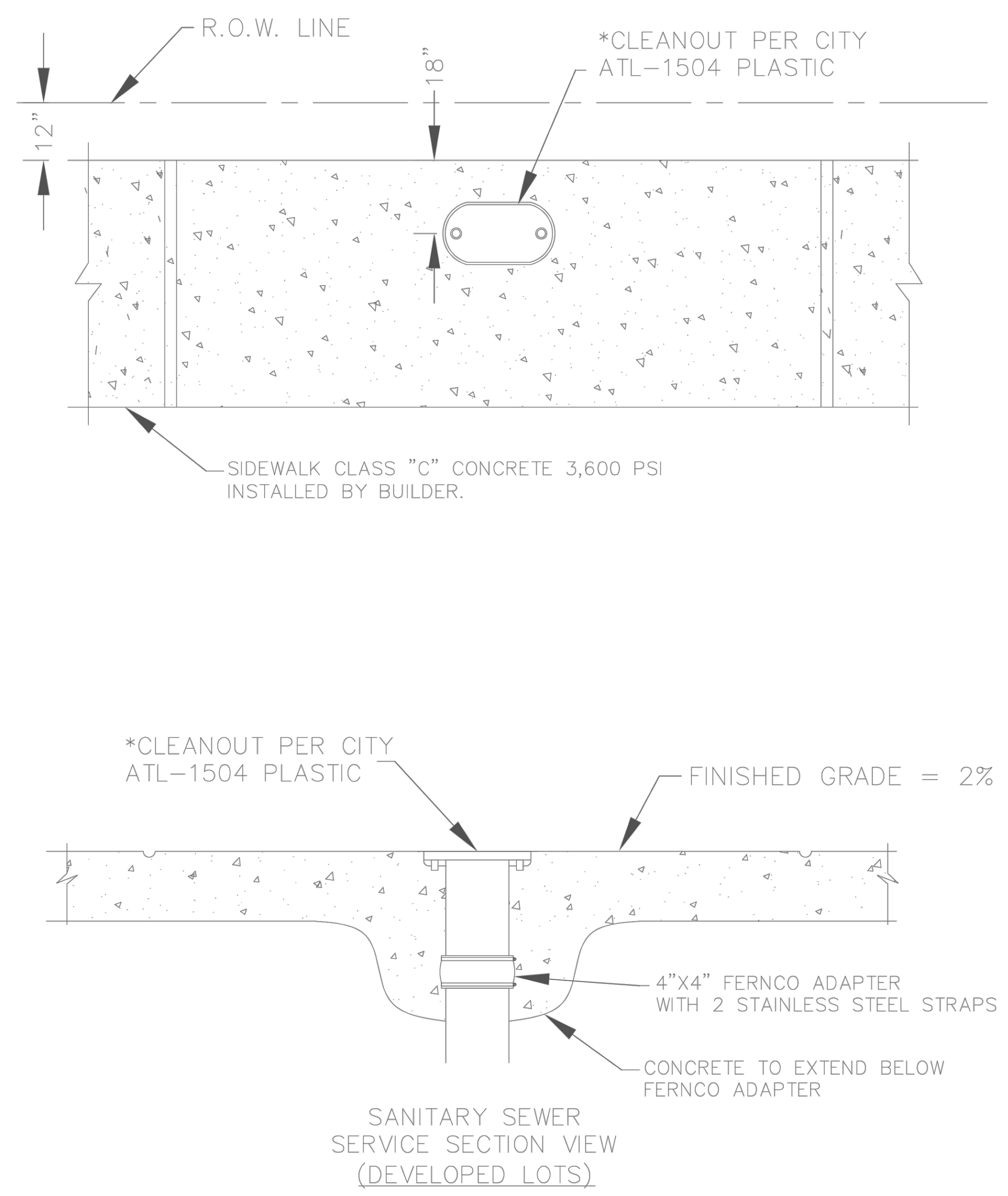

NON-SHRINK GROUT
MANHOLE RING AND COVER TO BE CERTAINTEED PAMREX 32" (COPA80EHSEW,55051 - CIRCULAR FRAME) OR APPROVED EQUAL. RING TO BE ATTACHED TO CONE WITH THREE 3/4" DIA. STAINLESS STEEL ALL THREAD BOLTS. BOLTS TO BE SECURED IN PLACE WITH EPOXY CONCRETE.
2'-8"
2'-0"
4'-0"
5'-0"
6'-0"
8" MIN.
DEPTH VARIES STD. DEPTH 6'-0"
SANITARY SEWER PIPE
SYNKO-FLEX OR APPROVED EQUAL
8" MIN.
MONOLITHICALLY PLACED CONCRETE AS SPECIFIED
MANHOLE FOUNDATION TO BE POURED ON UNDISTURBED EARTH

NOTES:
1. MAXIMUM CHIMNEY HEIGHT SHALL BE 18" AS MEASURED FROM INSIDE TAPER ON CONE TO TOP OF COVER.
2. MANHOLES SHALL BE CONCENTRIC UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
3 INVERTS SHALL BE EQUAL TO OR GREATER THAN THE PIPE DIAMETER.
4. FOR MANHOLE DEPTHS GREATER THAN 12 FEET, ADD AN ADDITIONAL 4" INCHES OF CONCRETE TO THE WALL THICKNESS FOR EACH ADDITIONAL 6 FEET OF DEPTH.
5. EXTERIOR OF MANHOLE TO HAVE BITUMINOUS COATING.
6. THE CONNECTION OF THE SEWER PIPE TO THE MANHOLE SHALL BE ACCOMPLISHED BY USING MANHOLE COUPLING OR RUBBER RING WATER STOPS AS RECOMMENDED BY PIPE MANUFACTURER.
7. CLASS "C" CONCRETE SHALL HAVE 5 SACKS CEMENT/C.Y. MAXIMUM SLUMP OF 5", AND A 3600 PSI COMPRESSIVE STRENGTH AT 28 DAYS, NO FLAY ASH ALLOWED.
8. SERVICES WHICH ARE CONNECTED TO MANHOLES SHALL BE INSTALLED A MINIMUM OF 8 INCHES ABOVE THE MAIN FLOWLINE.
9. ALL CORED PENETRATION THROUGH MANHOLE WALLS TO HAVE "LINK SEAL" WATERSTOP OR APPROVED EQUAL.
10. ALL MANHOLES WILL HAVE A INFLOW PROTECTION INSERT. INSERT TO BE RAINGUARD BRAND OR APPROVED EQUAL.

City of KELLER

SEWER SYSTEM CONSTRUCTION DETAILS
CAST-IN-PLACE SANITARY SEWER MANHOLE

REVISION DATE: 4/15/2009
SHEET: S-01

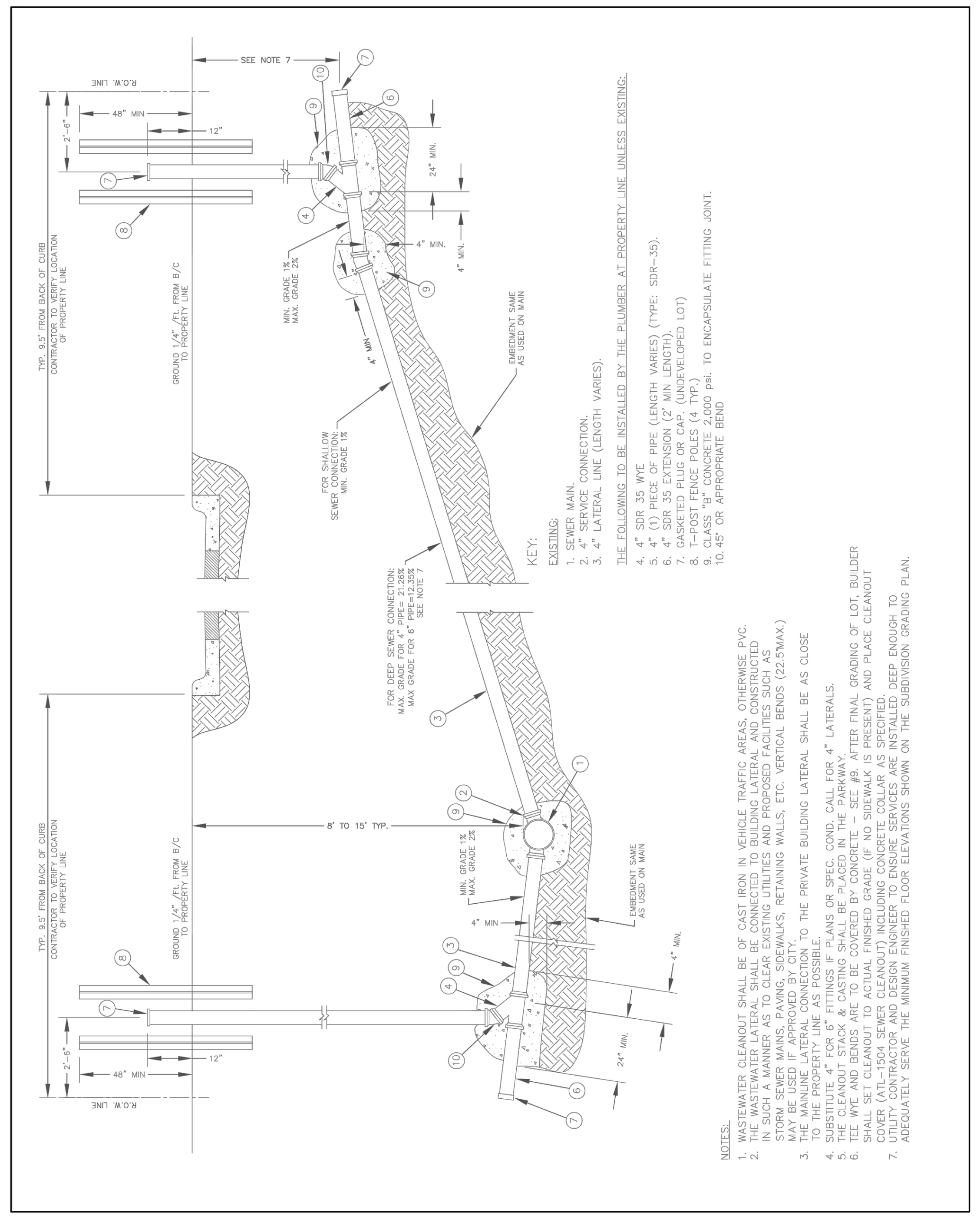

R.O.W. LINE
*CLEANOUT PER CITY ATL-1504 PLASTIC
18"
12"
SIDEWALK CLASS "C" CONCRETE 3,600 PSI INSTALLED BY BUILDER.
*CLEANOUT PER CITY ATL-1504 PLASTIC
FINISHED GRADE = 2%
4"X4" FERNCO ADAPTER WITH 2 STAINLESS STEEL STRAPS
CONCRETE TO EXTEND BELOW FERNCO ADAPTER
SANITARY SEWER SERVICE SECTION VIEW (DEVELOPED LOTS)

*NOTE: ATL-404 CAST IRON SANITARY SEWER CLEAN OUT FOR DRIVEWAYS AND HEAVY TRAFFIC AREAS.

City of KELLER

SEWER SYSTEM CONSTRUCTION DETAILS
BUILDER STANDARD SEWER SERVICE

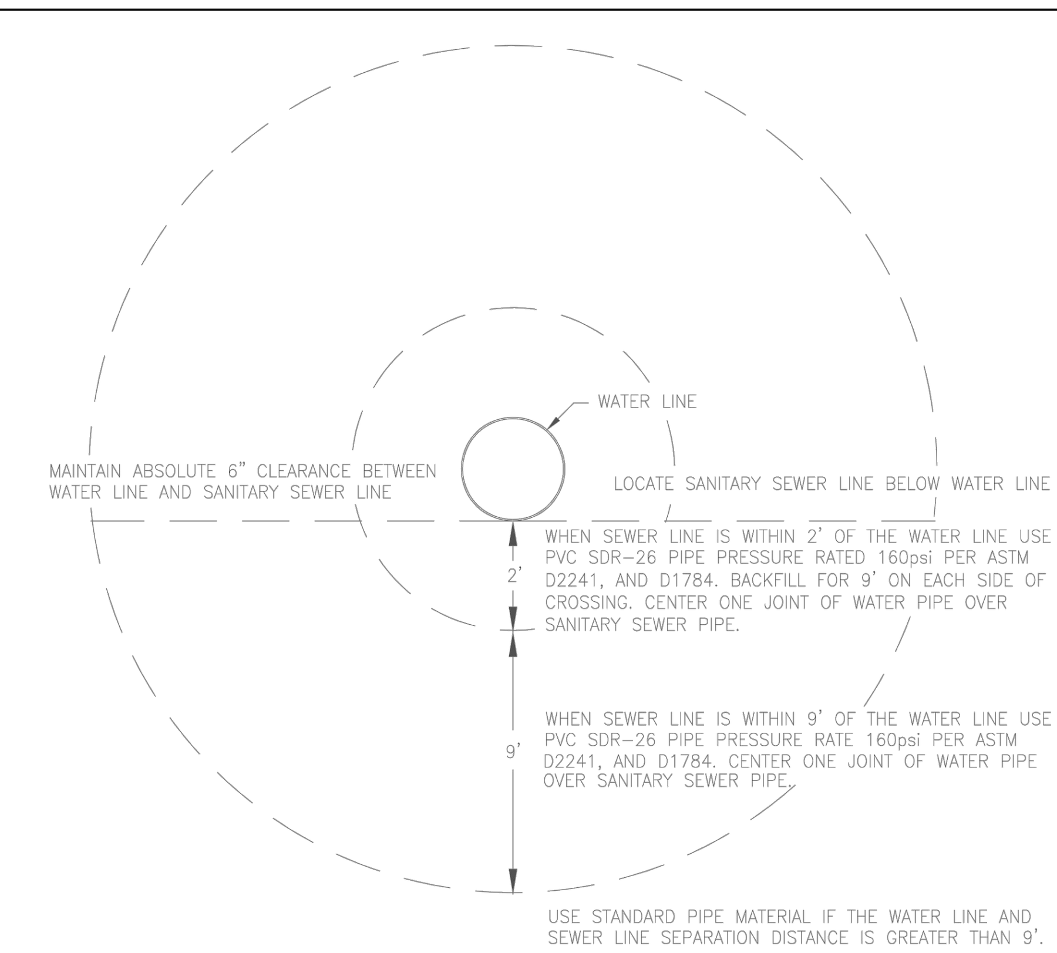
REVISION DATE: 2/9/2009
SHEET: S-05



City of KELLER

SEWER SYSTEM CONSTRUCTION DETAILS
DEVELOPER STANDARD SEWER CONNECTION

REVISION DATE: 2/9/2009
SHEET: S-06

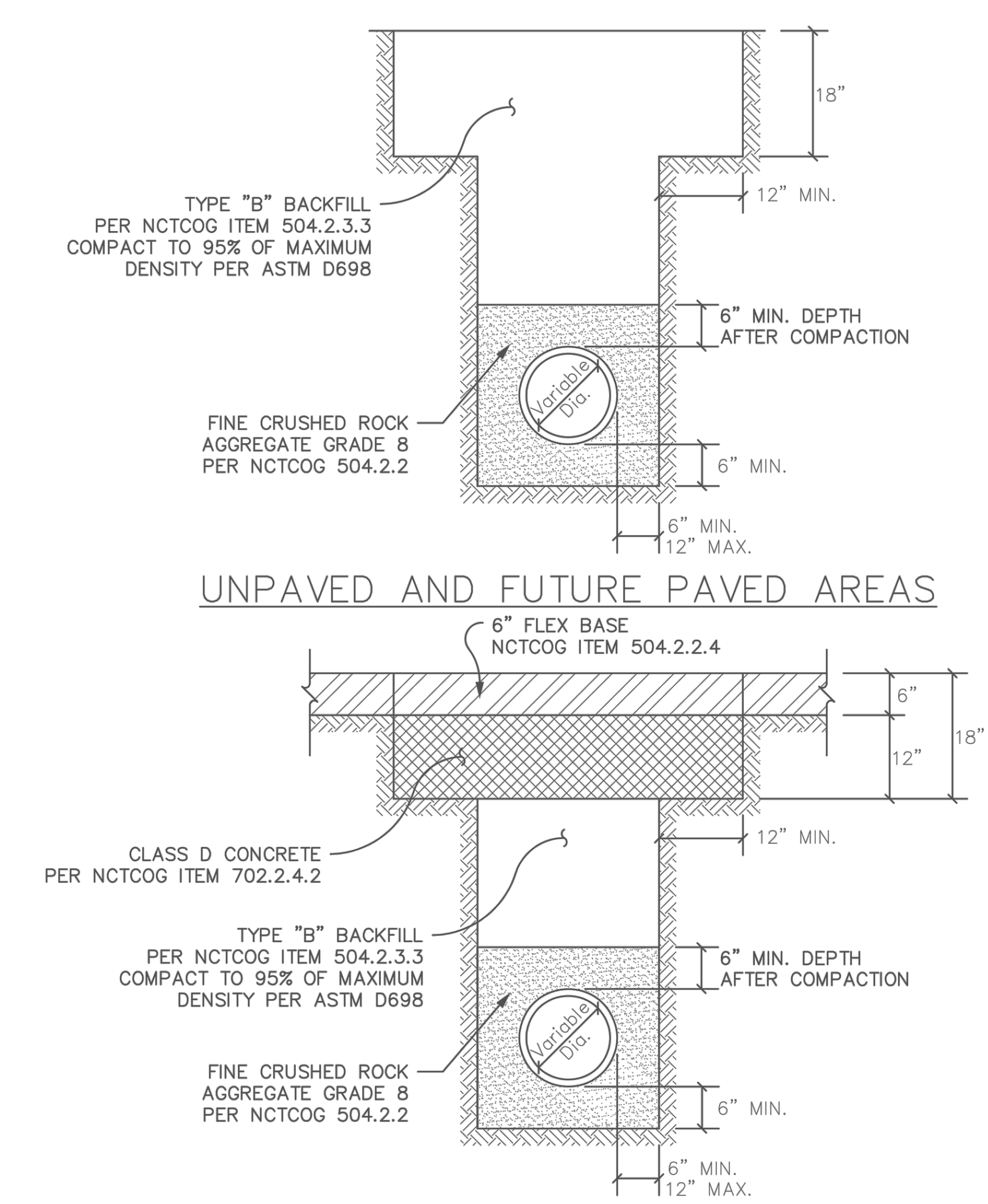

WATER LINE
MAINTAIN ABSOLUTE 6" CLEARANCE BETWEEN WATER LINE AND SANITARY SEWER LINE
LOCATE SANITARY SEWER LINE BELOW WATER LINE
WHEN SEWER LINE IS WITHIN 2' OF THE WATER LINE USE PVC SDR-26 PIPE PRESSURE RATED 160psi PER ASTM D2241, AND D1784. BACKFILL FOR 9' ON EACH SIDE OF CROSSING. CENTER ONE JOINT OF WATER PIPE OVER SANITARY SEWER PIPE.
WHEN SEWER LINE IS WITHIN 9' OF THE WATER LINE USE PVC SDR-26 PIPE PRESSURE RATE 160psi PER ASTM D2241, AND D1784. CENTER ONE JOINT OF WATER PIPE OVER SANITARY SEWER PIPE.
USE STANDARD PIPE MATERIAL IF THE WATER LINE AND SEWER LINE SEPARATION DISTANCE IS GREATER THAN 9'.

NOTES
1. THE SANITARY SEWER LINE SHALL BE LOCATED BELOW THE WATER LINE.
2. ONE WATER PIPE SEGMENT SHALL BE CENTERED OVER THE SANITARY SEWER PIPE SUCH THAT THE JOINTS OF THE WATER PIPE ARE EQUIDISTANT AND AT LEAST 9' HORIZONTALLY FROM THE CENTERLINE OF THE SANITARY SEWER PIPE.
3. WHERE CEMENT STABILIZED SAND BEDDING IS REQUIRED, THE CEMENT STABILIZED SAND SHALL HAVE A MINIMUM OF 10% CEMENT PER CUBIC YARD OF CEMENT STABILIZED SAND MIXTURE BASED ON LOOSE DRY WEIGHT VOLUME (AT LEAST 2.5 BAGS OF CEMENT PER CUBIC YARD OF MIXTURE). THE CEMENT STABILIZED SAND BEDDING SHALL BE A MINIMUM OF SIX INCHES ABOVE AND FOUR INCHES BELOW THE SANITARY SEWER PIPE.
4. MAINTAIN 9' SEPARATION BETWEEN FIRE HYDRANTS AND SANITARY SEWER LINES.
5. MAINTAIN 9' SEPARATION BETWEEN SANITARY SEWER MANHOLES AND WATER LINES.
6. REFER TO TAC, TITLE 30, PART 1, CHAPTER 317, RULE 317.13 "DESIGN CRITERIA FOR SEWERAGE SYSTEMS: SEPARATION DISTANCES", AS WELL REFER TO TAC, TITLE 30, PART 1, CHAPTER 290, SUBCHAPTER D, RULE 290.44 "WATER HYGIENE: WATER DISTRIBUTION."

City of KELLER

SEWER SYSTEM CONSTRUCTION DETAILS
SEPERATION OF NEW WATER AND SEWER LINES

REVISION DATE: 2/9/2009
SHEET: S-10


18"
TYPE "B" BACKFILL PER NCTCOG ITEM 504.2.3.3 COMPACT TO 95% OF MAXIMUM DENSITY PER ASTM D698
12" MIN.
6" MIN. DEPTH AFTER COMPACTION
FINE CRUSHED ROCK AGGREGATE GRADE 8 PER NCTCOG 504.2.2
6" MIN.
6" MIN. 12" MAX.
UNPAVED AND FUTURE PAVED AREAS
6" FLEX BASE NCTCOG ITEM 504.2.2.4
6"
12"
18"
12" MIN.
CLASS D CONCRETE PER NCTCOG ITEM 702.2.4.2
TYPE "B" BACKFILL PER NCTCOG ITEM 504.2.3.3 COMPACT TO 95% OF MAXIMUM DENSITY PER ASTM D698
6" MIN. DEPTH AFTER COMPACTION
FINE CRUSHED ROCK AGGREGATE GRADE 8 PER NCTCOG 504.2.2
Variable Dia.
6" MIN.
6" MIN. 12" MAX.

EXISTING FLEXBASE SURFACE

NOTES:
1. AT THE END OF EACH WORK DAY ALL SPOILS SHALL BE REMOVED FROM THE CITY & TXDOT R.O.W. UNLESS PRIOR WRITTEN PERMISSION IS OBTAINED FROM THE OWNER TO STORE SPOILS IN DESIGNATED SPOIL STORAGE AREAS THAT DO NOT OBSTRUCT AUTOMOBILE OR PEDESTRIAN TRAFFIC.
2. ALL BACKFILL SHALL BE PER NCTCOG SPEC. ITEM 504 AND SHALL BE COMPACTED PER NCTCOG SPEC ITEM 504.5.3.2. ROCKS GREATER THAN 4" IN DIAMETER SHALL BE REMOVED FROM ANY NATIVE MATERIAL USED AS BACKFILL.
3. ALL PAVEMENT SHALL BE REMOVED ALONG NEAT SAW CUT LINES PER NCTCOG SPEC ITEM 402.3.
4. A MAXIMUM OF 200-FEET OF OPEN TRENCH WILL BE ALLOWED AT ANY TIME, UNLESS APPROVED BY THE CITY ENGINEER.
5. TOPSOIL SHALL BE 4 INCHES IN DEPTH AND SHALL BE LOOSE AND FREE OF ROCKS OR CLODS GREATER THAN 1/4" IN DIAMETER. ALL TOPSOIL SHALL BE APPROVED BY THE OWNER PRIOR TO INSTALLATION.

City of KELLER

SEWER SYSTEM CONSTRUCTION DETAILS
STANDARD SANITARY SEWER EMBEDMENT & BACKFILL

REVISION DATE: 2/9/2009
SHEET: S-12

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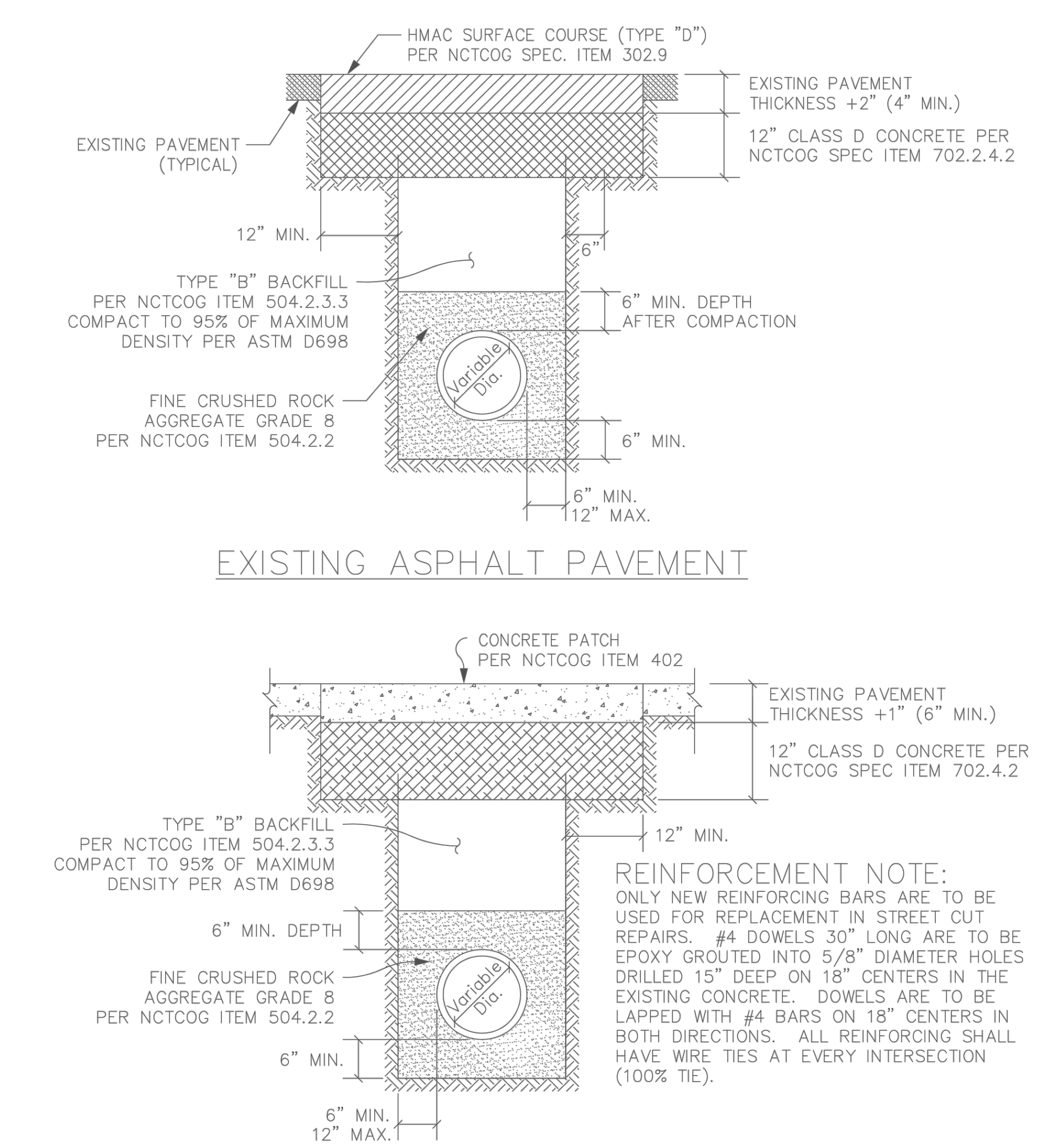
HMAC SURFACE COURSE (TYPE "D") PER NCTCOG SPEC. ITEM 302.9
EXISTING PAVEMENT (TYPICAL)
EXISTING PAVEMENT THICKNESS +2" (4" MIN.)
12" CLASS D CONCRETE PER NCTCOG SPEC ITEM 702.2.4.2
12" MIN.
TYPE "B" BACKFILL PER NCTCOG ITEM 504.2.3.3 COMPACT TO 95% OF MAXIMUM DENSITY PER ASTM D698
6" MIN. DEPTH AFTER COMPACTION
FINE CRUSHED ROCK AGGREGATE GRADE 8 PER NCTCOG ITEM 504.2.2
6" MIN.
6" MIN. 12" MAX.
EXISTING ASPHALT PAVEMENT
CONCRETE PATCH PER NCTCOG ITEM 402
EXISTING PAVEMENT THICKNESS +1" (6" MIN.)
12" CLASS D CONCRETE PER NCTCOG SPEC ITEM 702.4.2
12" MIN.
TYPE "B" BACKFILL PER NCTCOG ITEM 504.2.3.3 COMPACT TO 95% OF MAXIMUM DENSITY PER ASTM D698
6" MIN. DEPTH
FINE CRUSHED ROCK AGGREGATE GRADE 8 PER NCTCOG ITEM 504.2.2
Variable Dia.
6" MIN.
6" MIN. 12" MAX.

REINFORCEMENT NOTE:
ONLY NEW REINFORCING BARS ARE TO BE USED FOR REPLACEMENT IN STREET CUT REPAIRS. #4 DOWELS 30" LONG ARE TO BE EPOXY GROUTED INTO 5/8" DIAMETER HOLES DRILLED 15" DEEP ON 18" CENTERS IN THE EXISTING CONCRETE. DOWELS ARE TO BE LAPPED WITH #4 BARS ON 18" CENTERS IN BOTH DIRECTIONS. ALL REINFORCING SHALL HAVE WIRE TIES AT EVERY INTERSECTION (100% TIE).

EXISTING CONCRETE PAVEMENT

NOTES:
1. AT THE END OF EACH WORK DAY ALL SPOILS SHALL BE REMOVED FROM THE CITY & TXDOT R.O.W. UNLESS PRIOR WRITTEN PERMISSION IS OBTAINED FROM THE OWNER TO STORE SPOILS IN DESIGNATED SPOIL STORAGE AREAS THAT DO NOT OBSTRUCT AUTOMOBILE OR PEDESTRIAN TRAFFIC.
2. ALL BACKFILL SHALL BE PER NCTCOG SPEC. ITEM 504 AND SHALL BE COMPACTED PER NCTCOG SPEC ITEM 504.5.3.2. ROCKS GREATER THAN 4" IN DIAMETER SHALL BE REMOVED FROM ANY NATIVE MATERIAL USED AS BACKFILL.
3. ALL PAVEMENT SHALL BE REMOVED ALONG NEAT SAW CUT LINES PER NCTCOG SPEC ITEM 402.3.
4. A MAXIMUM OF 200-FEET OF OPEN TRENCH WILL BE ALLOWED AT ANY TIME, UNLESS APPROVED BY THE CITY ENGINEER.
5. CLASS D CONCRETE SHALL BE PLACED TO THE EXISTING PAVEMENT SURFACE AND SHALL BE EXCAVATED TO THE SPECIFIED DEPTH PRIOR TO PAVEMENT REPAIR.

City of KELLER

SEWER SYSTEM CONSTRUCTION DETAILS
STANDARD SANITARY SEWER EMBEDMENT & BACKFILL

REVISION DATE: 11/23/2009
SHEET: S-13

DEOTTE, INC.
CIVIL ENGINEERING | TBPE No. F-003116
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817-337-8899 (Office) | 817-337-5133 (Fax)

PREPARED FOR: BRIAN ADAMS
P.O. BOX 96233
SOUTHLAKE, TEXAS 76092
PHONE: (817) 994-6555

SANITARY SEWER DETAILS
VILLAGE TRAIL
KELLER, TEXAS

BENCHMARKS:

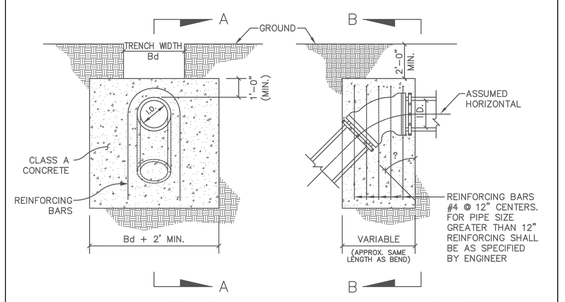
BM1
XXX
ELEV = XXX

BM2
XXX
ELEV = XXX

THIS DOCUMENT IS FOR INTERIM REVIEW AND IS NOT INTENDED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.
BY: Richard W. DeOtte
Reg. No.: 74232
Firm No.: F-3116(TX)
Date: 3/25/2021

DOI No. 2019106.00

SD-2



ELEVATION "B–B" SECTION "A–A"

VERTICAL THRUST BLOCK TABLE

I.D. (IN.)	11.25° THRUST (TONS)	11.25° VOL. (C.Y.)	22.50° THRUST (TONS)	22.50° VOL. (C.Y.)	30.00° THRUST (TONS)	30.00° VOL. (C.Y.)	45.00° THRUST (TONS)	45.00° VOL. (C.Y.)	67.50° THRUST (TONS)	67.50° VOL. (C.Y.)	90.00° THRUST (TONS)	90.00° VOL. (C.Y.)	I.D. (IN.)
4,6,8	1.0	0.5	2.0	1.0	2.5	1.3	3.6	1.8	4.6	2.3	5.0	2.5	4,6,8
10,12	2.2	1.1	4.3	2.2	5.7	2.8	8.0	4.0	10.5	5.2	11.3	5.7	10,12

NOTES:

1. WRAP ALL BELOW GROUND IRON ASSEMBLIES IN POLYETHYLENE ACCORDING TO AWWA C105.
2. ALL TEES, BENDS, PLUGS, ETC. SHALL BE MECHANICALLY RESTRAINED BY MEGALUG OR APPROVED EQUAL.

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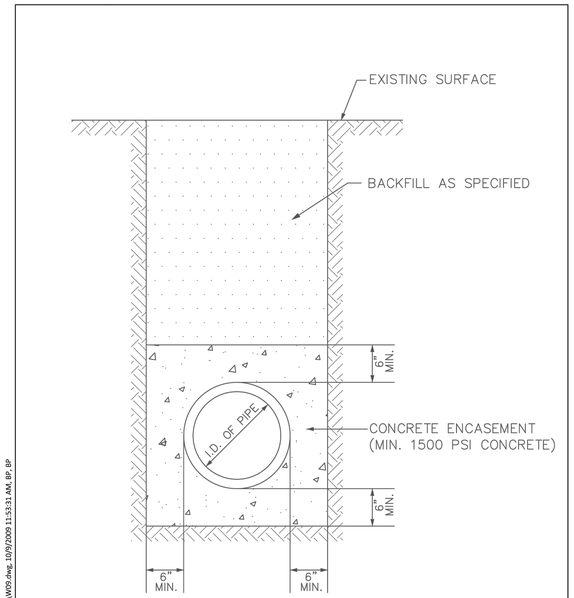
City of KELLER	WATER CONSTRUCTION DETAILS VERTICAL THRUST BLOCKING	REVISION DATE: 2/9/2009 SHEET: W-08



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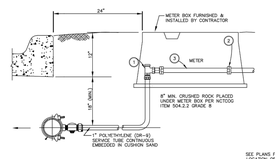
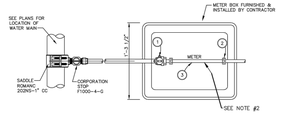
City of KELLER	WATER CONSTRUCTION DETAILS CONCRETE ENCASEMENT	REVISION DATE: 2/9/2009 SHEET: W-09

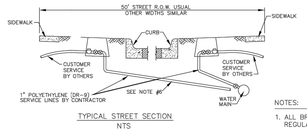
ITEM NO.	QUANTITY	SIZE	DESCRIPTION	PART NUMBER FORD	PART NUMBER MUELLER
1.	1	1"	BALL ANGLE SERVICE VALVE COMPRESSION x METER NUT	BA41–444WQ	B–24274–3
2.	1	1"x8–1/2"	STRAIGHT METER COUPLING	C38–44–8.5	H–10094
3.	1	1–1/4"x10–1/2"	METER SPACER NIPPLE (SCH 80 PVC) SEE NOTE #2	–	–
* METER BOXES FOR SINGLE WATER SERVICES SHALL BE OLDCASTLE 37 (CONCRETE BODY) AND DFW PLASTICS #37C–1AF (PLASTIC LID)					



SINGLE WATER SERVICE SECTION
NTS



SINGLE WATER SERVICE PLAN
NTS

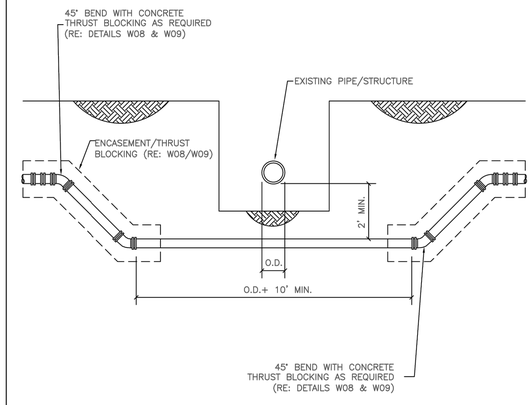


TYPICAL STREET SECTION
NTS

NOTES:

1. ALL BRASS PARTS SHALL BE "LEAD–FREE" AS REQUIRED BY E.P.A. REGULATIONS.
2. CONTRACTOR SHALL PERFORATE METER SPACER NIPPLES AS DIRECTED BY INSPECTOR.
3. LOCATION OF WATER MAIN IN NEW DEVELOPMENTS IS 4.5 FEET BEHIND THE CURB.
4. RECESSED AMR HOLE IN METER BOX SHALL BE PLACED NEAREST THE BACK OF CURB.
5. SERVICES ALONG ROADWAYS WITHOUT CURB AND GUTTER SHALL BE LOCATED A MINIMUM OF 18" BELOW THE DITCH FLOWLINE.
6. SERVICE LINES CROSSING UNDER THE ROADWAY SHALL BE LOCATED A MINIMUM OF 30" BELOW GRADE AND ENCASED WITH 2" SCHEDULED 40 PVC PIPE.

City of KELLER	WATER CONSTRUCTION DETAILS SINGLE WATER SERVICE ASSEMBLY	REVISION DATE: 5/8/2014 SHEET: W-19A



City of KELLER	WATER MAIN LOWERING DETAIL	REVISION DATE: 6/17/2016 SHEET: W-24

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PLANNING MANAGER
SOUTHLAKE, TEXAS 76092
PHONE: (817) 994-6555

WATER DETAILS
VILLAGE TRAIL
KELLER, TEXAS

BENCHMARKS:

BM1
XXX
ELEV = XXX

BM2
XXX
ELEV = XXX

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BY: Richard W. DeOtte
Reg. No.: 74232
Licensed (TX)
Date: 3/25/2021

DOI No. 2019106.00

SD-3

DOI No. 2019106.00 - VILLAGE TRAIL - WATER, SEWER, DRAINAGE AND PAVING IMPROVEMENTS - KELLER, TEXAS