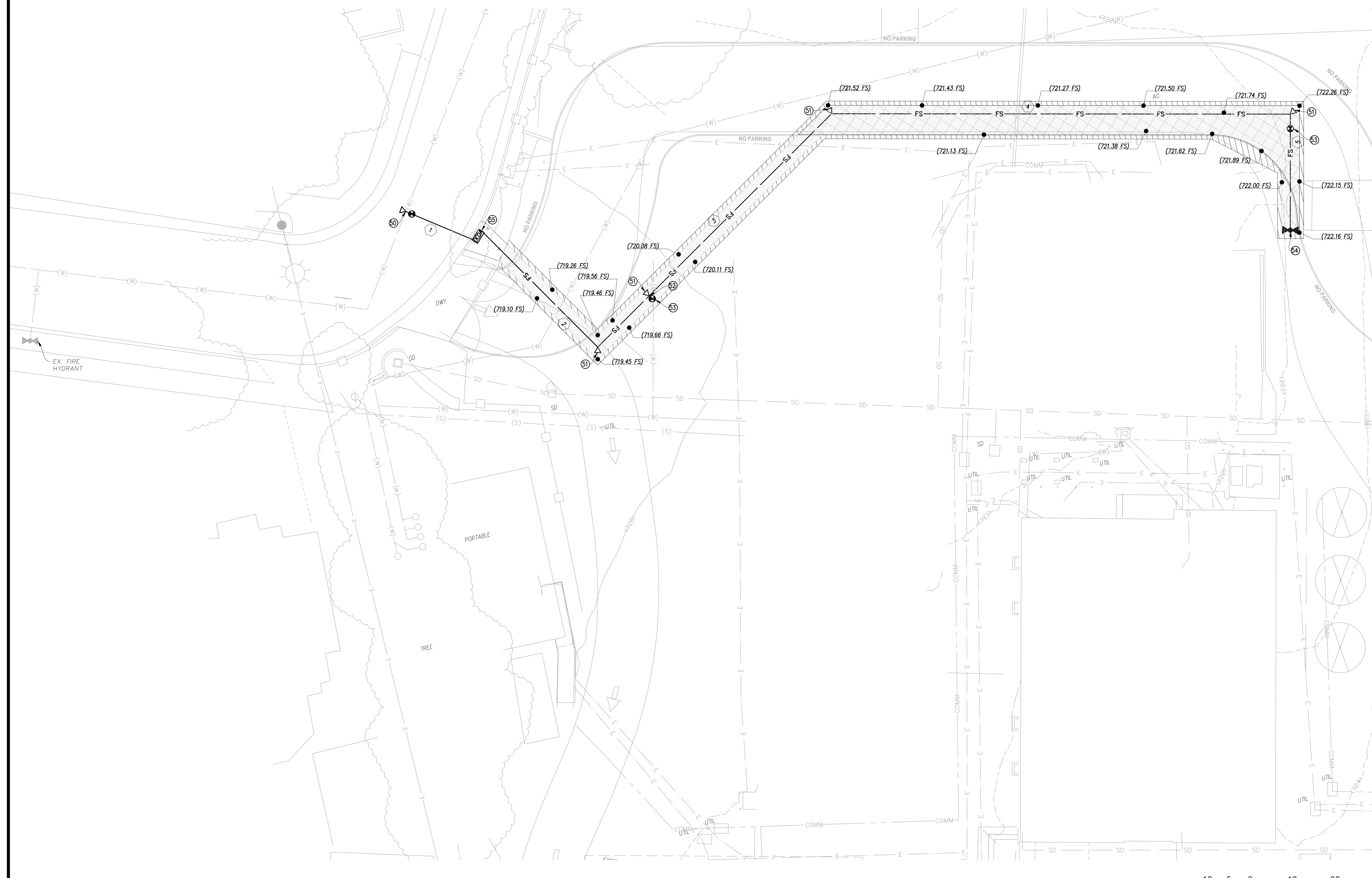


NOTES FOR UNDERGROUND PIPING FOR PRIVATE HYDRANTS AND SPRINKLERS

- PRIOR TO INSTALLATION, ALL PLANS AND SPECIFICATIONS SHALL BE APPROVED BY DSA. REFER TO DSA IR A-25 FOR DESIGN, INSTALLATION AND MAINTENANCE GENERAL REQUIREMENTS.
- INSPECTIONS ARE REQUIRED: 1) PRIOR TO POURING THRUST BLOCKS, 2) FOR HYDROSTATIC TESTING, AND 3) FOR FLUSH.
- INSTALLATION, INSPECTION, AND TESTING SHALL CONFORM TO 2019 EDITIONS OF NFPA 13 AND NFPA 24.
- PRIVATE FIRE HYDRANTS SHALL BE APPROVED WET BARREL STYLE WITH A MINIMUM OF ONE 2 1/2" AND ONE 4" OUTLET. THE 4" OUTLET SHALL FACE THE FIRE DEPARTMENT ACCESS ROAD. ALL OUTLETS SHALL BE PROVIDED WITH NATIONAL STANDARD THREADS (NST). NFPA 24, 7.1.1.2.
- FIRE HYDRANT SUPPLY PIPING SHALL BE A MINIMUM OF SIX INCHES IN DIAMETER. THE CENTER OF THE HOSE OUTLET SHALL BE NOT LESS THAN 18" ABOVE FINAL GRADE OR, WHERE LOCATED IN A HOSE HOUSE, 12" ABOVE THE FLOOR. NFPA 24, 7.1.1 & 7.3.3.
- FIRE HYDRANTS SHALL BE A MINIMUM OF 40 FEET FROM ALL STRUCTURES. NFPA 24, 7.2.3.
- A KEYS GATE VALVE SHALL BE PROVIDED FOR EACH HYDRANT IN AN ACCESSIBLE LOCATION. VALVES SHALL NOT BE LOCATED IN PARKING STALLS. NFPA 24, 7.1.1.1.
- ALL PIPING SHALL BE LISTED FOR USE IN FIRE PROTECTION SERVICE AND COMPLY WITH AWMA STANDARDS (CLASS 150 MINIMUM). CLASS 200 PIPE SHALL BE USED WHERE THE PRESSURE MAY EXCEED 150 PSI. NFPA 24, 10.1.1 & 5.
- ALL BOLTED JOINTS SHALL BE CLEANED AND THOROUGHLY COATED WITH ASPHALT OR OTHER CORROSION RETARDING MATERIAL AFTER INSTALLATION. NFPA 24, 10.3.5.2.
- BACKFILL SHALL BE WELL TAMPED LAYERS TO CONSIST OF 6" MINIMUM BED OF CLEAN FILL SAND OR PEA GRAVEL BELOW AND 12" ABOVE THE PIPE (TOTAL 18" MINIMUM). NFPA 24, 10.9.1.
- FITTINGS SHALL BE OF AN APPROVED TYPE. NFPA 24, 10.2.1.
- A MINIMUM OF 30" OF COVER, FROM FINISH GRADE TO THE TOP OF THE PIPE SHALL BE PROVIDED. WHEN SURFACE LOADS ARE EXPECTED, A MINIMUM OF 36" COVER SHALL BE PROVIDED. NFPA 24, 10.4.4.
- THRUST BLOCKS, OR OTHER APPROVED METHOD OF THRUST RESTRAINT, SHALL BE PROVIDED WHEREVER PIPE CHANGES DIRECTION. BACK-FILL BETWEEN THE JOINTS TO PREVENT MOVEMENT OF THE PIPE. PROVIDE DETAILS AND CALCULATIONS FOR SIZING THRUST BLOCKS BASED ON ACTUAL SOIL CONDITIONS. NFPA 24, 10.8.
- A HYDROSTATIC TEST (200 PSI FOR TWO HOURS OR 50 PSI OVER MAXIMUM STATIC PRESSURE, WHICHEVER IS GREATER) SHALL BE PERFORMED. NFPA 24, 10.10.2.2.1.
- THE SYSTEM SHALL BE THOROUGHLY FLUSHED BEFORE CONNECTION IS MADE TO OVERHEAD PIPING. FLOW SHALL BE THROUGH A MINIMUM OF 4" HOSE OF PIPE. NFPA 24, 10.10.2.1.
- ALL CONTROL VALVES SHALL BE LOCKED IN THE OPEN POSITION. VALVES SHALL BE MONITORED IF THEY SERVE 20 OR MORE SPRINKLER HEADS. CBC/CFR/903.4.
- ALL CONTROL VALVES SHALL BE LISTED INDICATING TYPE UNLESS A NON-INDICATING VALVE, SUCH AS AN UNDERGROUND GATE VALVE WITH APPROVED ROADWAY BOX COMPLETE WITH T-WRENCH, IS ACCEPTABLE TO AUTHORITY HAVING JURISDICTION (AHJ). NFPA 24, 6.1.1.
- POST INDICATING VALVES (PIV) SHALL BE TESTED TO INSURE THAT THE TARGETS (OPEN, CLOSED) ARE CLEARLY IDENTIFIED WHEN VALVE IS OPENED AND CLOSED. NFPA 24, 10.10.1 & 14.1.
- TESTS SHALL BE MADE BY THE INSTALLING CONTRACTOR IN THE PRESENCE OF THE (AHJ). PROVIDE A COMPLETED CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING TO DSA. NFPA 24, 10.10.1 & 14.1, CFC 901.5 & 6.

UTILITY NOTES

- THE LOCATIONS OF UNDERGROUND STRUCTURES AND UTILITIES SHOWN HEREON HAVE BEEN OBTAINED FROM AVAILABLE RECORDS FOR THE BENEFIT OF THE CONTRACTOR. THE DEPICTION OF UTILITIES SHOWN ON THESE PLANS DOES NOT CONSTITUTE A GUARANTEE OF THEIR EXACT LOCATION, DEPTH, SIZE, OR TYPE. EXACT LOCATION, DEPTH, TYPE AND SIZE SHOULD BE VERIFIED BY POT-HOLING PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONARY MEASURES TO PROTECT ALL UNDERGROUND AND/OR OVERHEAD STRUCTURES AND/OR UTILITIES WHETHER OR NOT THEY ARE SHOWN HEREON. ALL DAMAGES CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE APPROPRIATE SPECIFICATIONS AND AT THE EXPENSE OF THE CONTRACTOR.
- CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY BECAUSE OF ACTUAL LOCATION OF EXISTING FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF WORK OF ANY DISCREPANCIES PRIOR TO START OF WORK.



LEGEND

- FS - FIRE SERVICE LINE PER 20CS.1 (PVC CL200), CONSTRUCT WITH 3.5' MIN COVER
- THRUST BLOCK
- FIRE HYDRANT
- DC - DETECTOR CHECK ASSEMBLY

CONSTRUCTION NOTES

- 4" AC / 4" AB - FIRE TRUCK RATED PAVEMENT SECTION OVER 12" 95% COMPACTED SUBGRADE
- 3" AC / 4" AB - PARKING/DRIVE AISLE RATED PAVEMENT SECTION OVER 12" 95% COMPACTED SUBGRADE
- 1" GRIND AND OVERLAY PER DETAIL 6, SHEET CS.1
- POINT OF CONNECTION - WATER MAIN. CONTRACTOR TO POTHOLE AND CONFIRM EXISTING INVERT AT POINT OF CONNECTION AND ELEVATIONS OF EXISTING UTILITY CROSSINGS PRIOR TO START OF CONSTRUCTION.
- THRUST BLOCK PER THRUST BLOCK TABLE ON SHEET CS.0 AND DETAIL 1, SHEET CS.1
- TEE WITH 4" STUB-OUT FOR FIRE SERVICE TO FUTURE BUILDING
- SHUT-OFF VALVE PER DETAIL 7, SHEET CS.1
- FIRE HYDRANT PER DETAIL 4, SHEET CS.1
- 6" DOUBLE CHECK DETECTOR ASSEMBLY WITH POST INDICATOR GATE VALVE (WILKINS/ZURN 350DA)

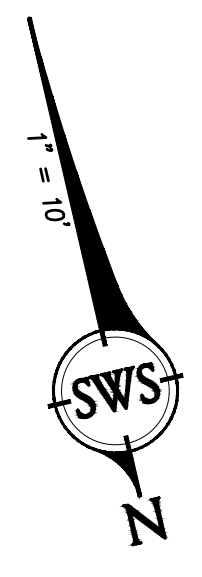
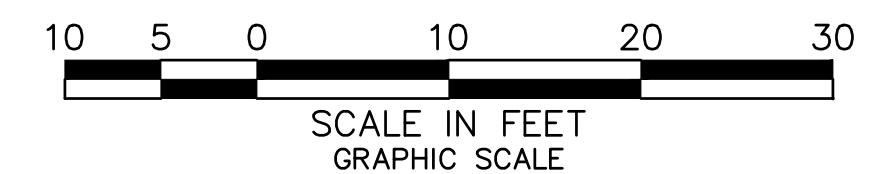
WATERLINE AND FIRE SERVICE DATA TABLE

SYM	LENGTH	BEARING	DESCRIPTION
1	17.00'	N54°10'33"W	6" PVC (CL 200)
2	38.00'	S31°57'01"E	6" PVC (CL 200)
3	77.90'	S58°02'59"W	6" PVC (CL 200)
4	108.14'	S76°57'01"E	6" PVC (CL 200)
5	27.35'	N13°02'59"E	6" PVC (CL 200)

FIRE HYDRANT FLOW DATA
 VELOCITY: 17.02 FPS
 PRESSURE: 79.05 PS
 DEMAND FLOW: 1,500 GPM

THRUST BLOCK TABLE PER NFPA 24

SOIL BEARING = 2,000 PSF W/ 1.5 SAFETY FACTOR									
PIPE (IN)	ANGLE (DEG)	HEIGHT (FT)	WIDTH (FT)	AREA (SF)	PIPE (IN)	ANGLE (DEG)	HEIGHT (FT)	WIDTH (FT)	AREA (SF)
4	11.25	1.0	1.0	1.0	8	11.25	1.0	2.0	2.0
4	22.5	1.0	1.1	1.1	8	22.5	1.9	2.0	3.8
4	45	1.1	2.0	2.2	8	45	2.0	3.7	7.4
4	90	1.9	2.0	3.8	8	90	2.7	5.1	13.8
4	TEE	1.4	2.0	2.8	8	TEE	2.3	4.2	9.7
6	11.25	1.0	1.1	1.1	10	11.25	1.4	2.0	2.8
6	22.5	1.1	2.0	2.2	10	22.5	2.0	3.0	6.0
6	45	2.0	2.2	4.4	10	45	2.4	4.7	11.3
6	90	2.0	4.0	8.0	10	90	3.2	6.4	20.5
6	TEE	2.0	2.8	5.6	10	TEE	2.7	5.4	14.6



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 Upland, CA 91786



REVISIONS
 FIRE HYDRANT INSTALLATION

DC ARCHITECTS
 INTERIM PORTABLE CLASSROOM RELOCATION
 GLENOAKS ELEMENTARY SCHOOL
 2015 E. GLENOAKS BLVD.
 GLENDALE, CALIFORNIA 91206
 GLENDALE UNIFIED SCHOOL DISTRICT
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 820 N. MOUNTAIN AVENUE
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UTILITY PLAN
 2019-026
 COUNTY: CS
 DATE: 05.15.2021
 SCALE: AS NOTED

C5.0

