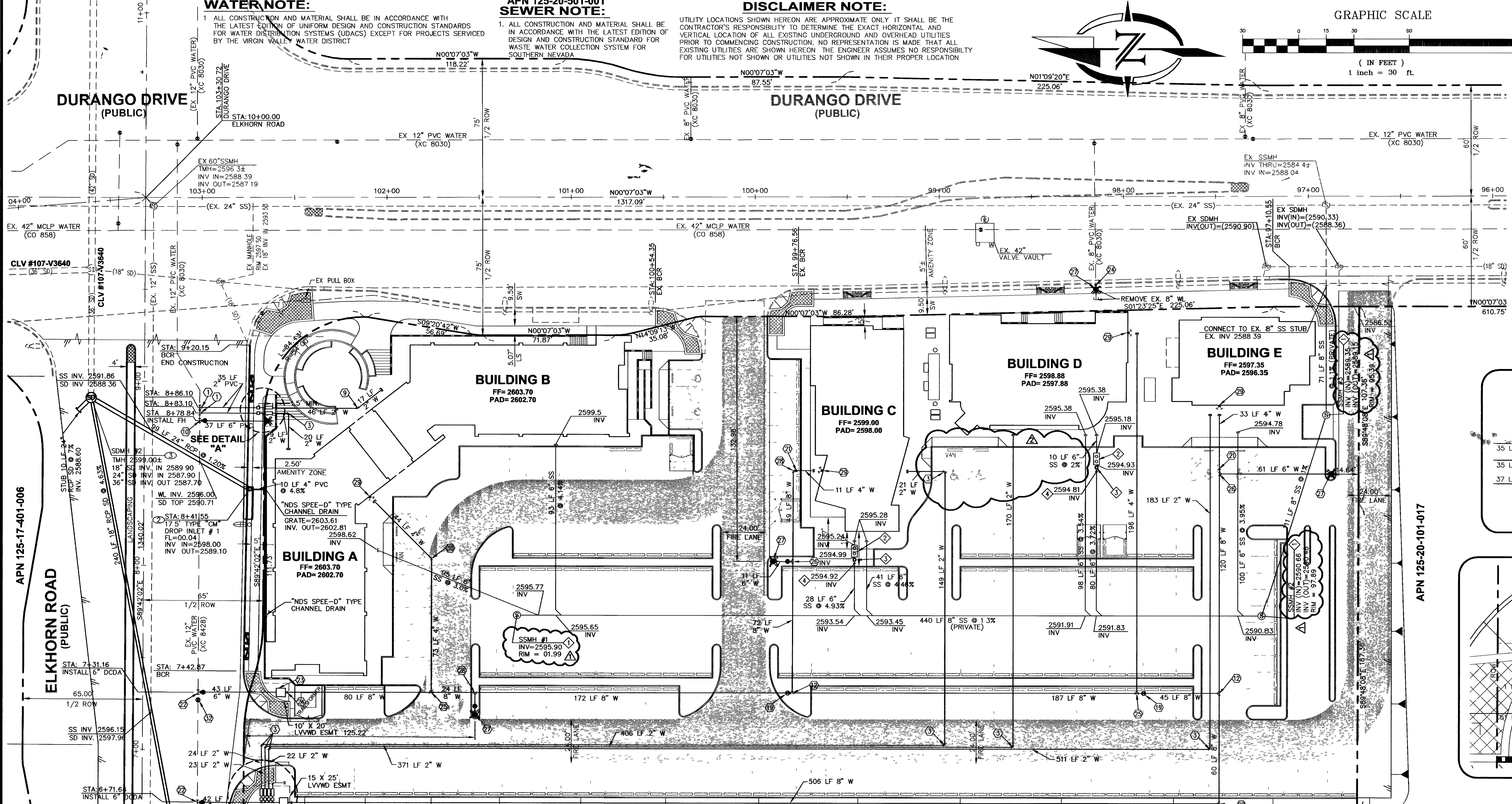
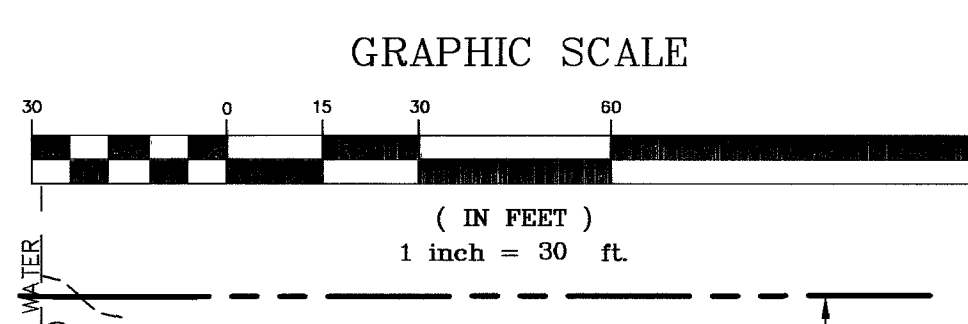
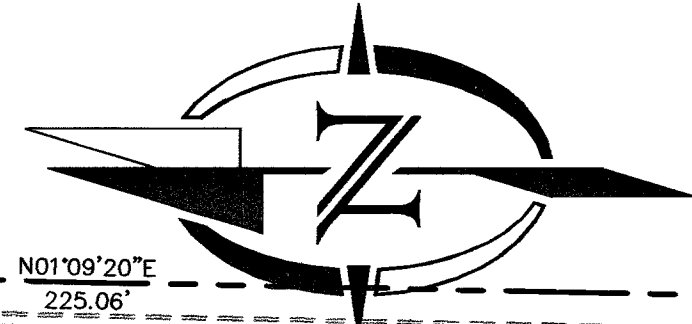




WATER NOTE:
1. ALL CONSTRUCTION AND MATERIAL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS (UDACS) EXCEPT FOR PROJECTS SERVICED BY THE VIRGIN VALLEY WATER DISTRICT

SEWER NOTE:
1. ALL CONSTRUCTION AND MATERIAL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WASTE WATER COLLECTION SYSTEMS (UDACS) EXCEPT FOR PROJECTS SERVICED BY THE VIRGIN VALLEY WATER DISTRICT

DISCLAIMER NOTE:
UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.



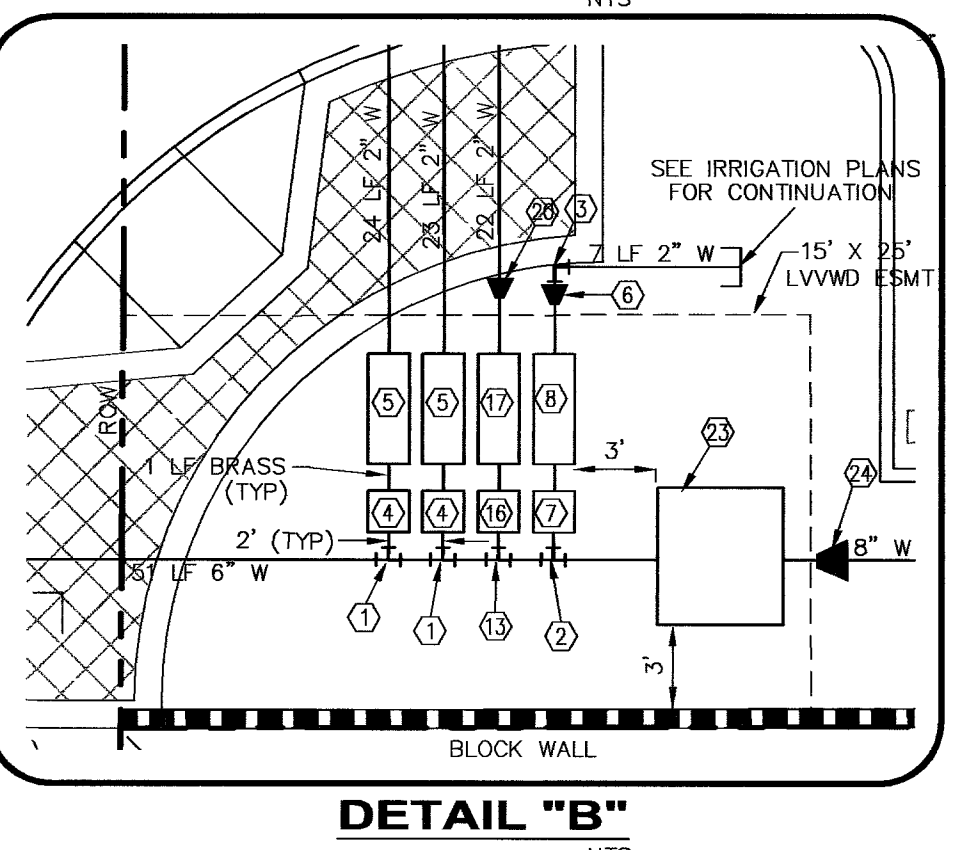
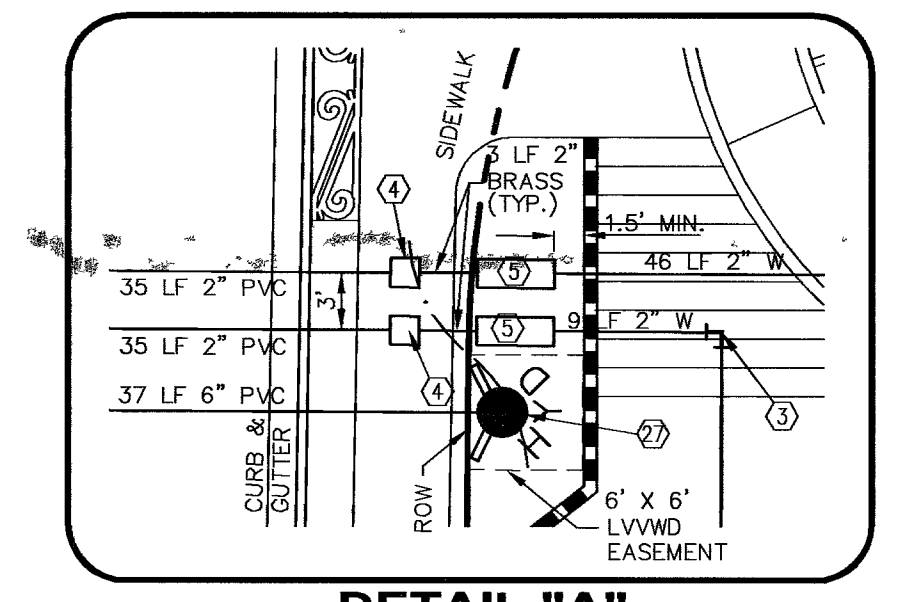
BENCHMARK
LAS VEGAS VERTICAL CONTROL V.2003 POINT # 8LV90 17556, BEING A RIVET & ROUND PLATE IN CONCRETE CYLINDER AT THE 4'-38" NORTH OF ELKHORN ROAD CENTERLINE AT THE INTERSECTION OF EL CAPITAN WAY. ELEVATION: 2564.67 (FEET)
781.713 (METERS)
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD'88)
BASIS OF BEARING
NORTH 00°07'03" WEST, BEING THE CENTERLINE OF EL CAPITAN WAY AS PER RECORD FILE 118 PAGE 0098 OF OFFICIAL RECORDS, CLARK COUNTY, NEVADA

QUANTITIES

WATER	PUBLIC	PRIVATE
1 1/2" WATER METER	1 EA	
2" WATER METER	4 EA	
1" WATER METER	1 EA	
2" RPPA		1 EA
1" RPPA		1 EA
6" DCDA	2 EA	2 EA
FIRE HYDRANT		3 EA
8" GATE VALVE		2 EA

SEWER	PUBLIC	PRIVATE
48" SSMH		3 EA
1200 GAL GREASE INTERCEPTOR		2 EA
CLEAN OUT		2 EA

SEWER CONTRIBUTION
* AVE. DAILY = 2,546 GPM
* PEAK DAILY = 8,402 GPM
* AVE. DAILY = 0.10 GALLONS PER SQ. FT. PER DAY
* AVE. DAILY = 36,667 S.F. (0.10 GAL/SQ. FT./DAY) = 3666.7 GPD = 2,546 GPM
* PEAK DAILY = 3.3 (AVE.)
3.3 X 2,546 GPM = 8,402 GPM



WATER CONSTRUCTION NOTES

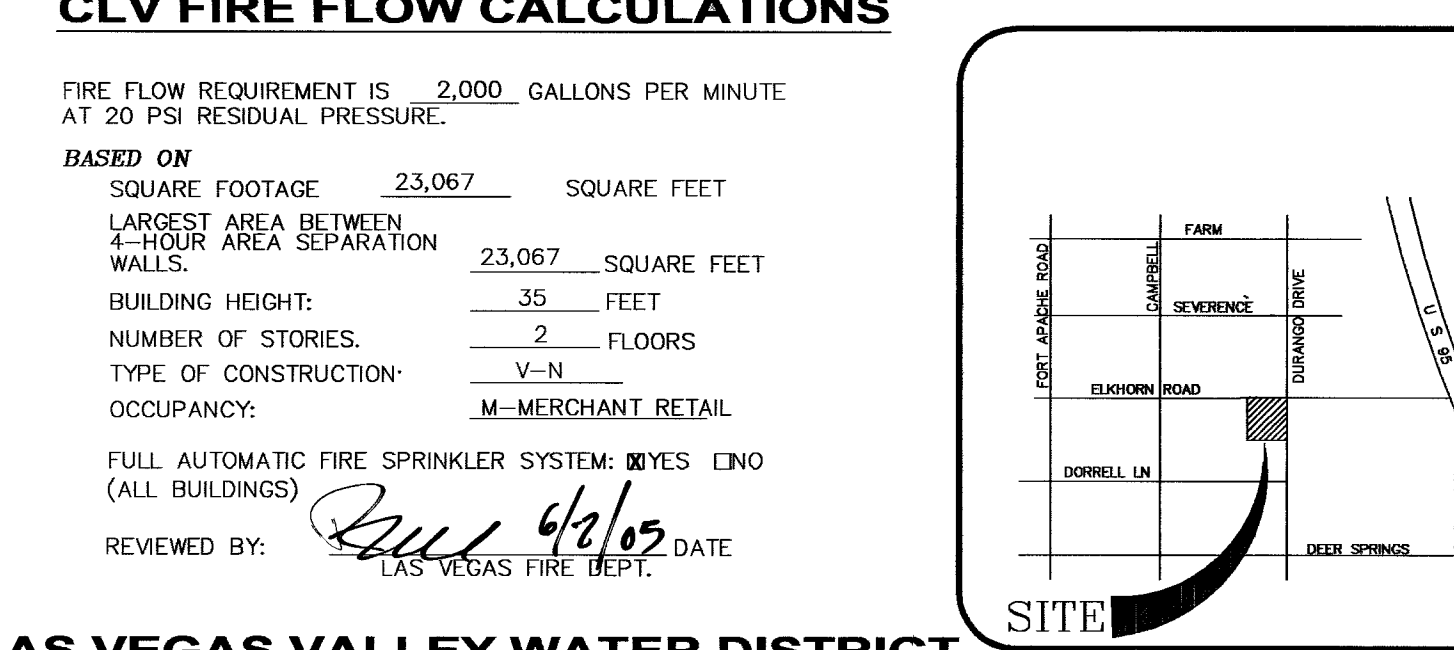
1. INSTALL 2" WATER SERVICE SADDLE WITH CORP. STOP PER UDACS PL #10
2. INSTALL 1" WATER SERVICE SADDLE WITH CORP. STOP PER UDACS PL #10
3. INSTALL 2" 90° BEND
4. INSTALL 2" WATER METER PER UDACS PL #10
5. INSTALL 2" RPPA PER UDACS PL #11A
6. INSTALL 2" X 1" REDUCER
7. INSTALL 1" WATER METER PER UDACS PL #10 (IRRIGATION)
8. INSTALL 1" RPPA PER UDACS PL #11A (IRRIGATION)
9. INSTALL 2" 45° BEND
10. INSTALL 12" X 6" TEE WITH THRUST BLOCKS PER UDACS PL #5
11. INSTALL 4" 90° BEND PER UDACS PL #5
12. INSTALL 6" X 8" TEE WITH THRUST BLOCK PER UDACS PL #5
13. INSTALL 1 1/2" WATER SERVICE SADDLE WITH CORP. STOP PER UDACS PL #10
14. INSTALL 4" X 4" TEE WITH THRUST BLOCK PER UDACS PL #5
15. INSTALL 1 1/2" 90° BEND
16. INSTALL 1 1/2" WATER METER PER UDACS PL #10
17. INSTALL 1 1/2" RPPA PER UDACS PL #11A
18. INSTALL 1 1/2" X 1" REDUCER
19. INSTALL 8" GATE VALVE PER UDACS PL #3
20. INSTALL 1 1/2" X 2" REDUCER
21. INSTALL 8" X 4" REDUCER PER UDACS PL #3
22. INSTALL 12" X 6" TAPPING SLEEVE WITH 6" TAPPING VALVE PER UDACS PL #22
23. INSTALL 6" FEBCO "N" PATTERN DCDA PER UDACS PL #11C
24. INSTALL 6" X 8" REDUCER PER UDACS PL #3
25. INSTALL 8" X 4" TEE WITH THRUST BLOCKS PER UDACS PL #5
26. INSTALL 8" X 6" TEE WITH THRUST BLOCKS PER UDACS PL #5
27. INSTALL FIRE HYDRANT ASSEMBLY PER UDACS PLATE #7
28. INSTALL FIRE DEPARTMENT CONNECTION
29. INSTALL 4" 45° BEND PER UDACS PL #5
30. NOT USED
31. INSTALL 12" GATE VALVE PER UDACS PL #3

SEWER CONSTRUCTION NOTES

1. CONNECT NEW 18" RCP TO PROPOSED MANHOLE. (MANHOLE PROPOSED BY WHITNEY HEIGHTS PROJECT & DESIGNED BY THOMASON CONSULTING ENGINEERS. SEE DETAIL ON SHEET C6.01.
 2. INSTALL 17.5" TYPE "CM" WITH "6" NUMBER GRATES" PER CLV STANDARDS.
 3. INSTALL TYPE I MANHOLE PER CCAUSD #403.
- CLV FIRE FLOW CALCULATIONS**
- FIRE FLOW REQUIREMENT IS 2,000 GALLONS PER MINUTE AT 20 PSI RESIDUAL PRESSURE.
- BASED ON**
- | | | |
|--|-------------------|-------------|
| SQUARE FOOTAGE | 23,067 | SQUARE FEET |
| LARGEST AREA BETWEEN 4-HOUR AREA SEPARATION WALLS | 23,067 | SQUARE FEET |
| BUILDING HEIGHT | 35 | FEET |
| NUMBER OF STORIES | 2 | FLOORS |
| TYPE OF CONSTRUCTION | V-N | |
| OCCUPANCY | M-MERCHANT RETAIL | |
| FULL AUTOMATIC FIRE SPRINKLER SYSTEM: 100% ENO (ALL BUILDINGS) | | |
| REVIEWED BY: [Signature] | DATE: 4/2/05 | |
- PIPE MATERIAL CONSTRUCTION LIST**
- UNLESS OTHERWISE NOTED ON THE PLANS, ALL PIPE MATERIALS USED SHALL BE AS FOLLOWS:
- WATER SYSTEM**
ALL PIPES GREATER THAN 4" IN DIAMETER SHALL BE CONSTRUCTED USING PVC C-900
ALL PIPES LESS THAN 4" IN DIAMETER SHALL BE CONSTRUCTED USING PVC SCH 40
- SEWER SYSTEM**
ALL PIPES SHALL BE CONSTRUCTED USING SDR-35
- STORM DRAIN SYSTEM**
ALL PIPES SHALL BE CONSTRUCTED USING MATERIALS AS NOTED ON PLANS

STORM DRAIN CONSTRUCTION NOTES

1. CONNECT NEW 18" RCP TO PROPOSED MANHOLE. (MANHOLE PROPOSED BY WHITNEY HEIGHTS PROJECT & DESIGNED BY THOMASON CONSULTING ENGINEERS. SEE DETAIL ON SHEET C6.01.
2. INSTALL 17.5" TYPE "CM" WITH "6" NUMBER GRATES" PER CLV STANDARDS.
3. INSTALL TYPE I MANHOLE PER CCAUSD #403.



WATER AND SEWER MAIN CROSSING NOTE

- PER UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS 2003, 2.19.01
- A. THE FOLLOWING SEPARATIONS MUST BE MAINTAINED BETWEEN ALL STORM AND SANITARY SEWER LINES WHICH PARALLEL WATER LINES SIX (6) INCHES AND LARGER
- 1) WATER MAINS AND SEWER LINES SHALL BE INSTALLED IN SEPARATE TRENCHES WITH AT LEAST TEN (10) FEET OF SEPARATION MEASURED HORIZONTALLY FROM EXTERIOR PIPE WALLS
 - 2) SEWER LINES SHALL BE PLACED LOWER THAN WATER MAINS WHENEVER POSSIBLE
- PER UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS 2003, 2.19.02
- B. WHERE THE WATER MAIN IS BELOW THE SEWER MAIN, OR WHERE THE WATER MAIN IS ABOVE THE SEWER MAIN WITH A VERTICAL SEPARATION LESS THAN EIGHTEEN (18) INCHES, THE FOLLOWING PROVISIONS SHALL APPLY:
- 1) A REASONABLE EFFORT MUST BE MADE TO PLACE WATER AND SEWER PIPELINE JOINTS AN EQUAL DISTANCE FROM THE CROSSING POINT. THIS REQUIREMENT DOES NOT APPLY TO WELDED JOINTS
 - 2) A VERTICAL SEPARATION OF NO LESS THAN SIX (6) INCHES MUST BE MAINTAINED AND STRUCTURAL SUPPORT FOR THE SEWER AND/OR WATER MAIN BE DETERMINED BY THE ENGINEER AND APPROVED BY THE AGENCY HAVING JURISDICTION.
 - 3) THE SEWER MAIN WILL BE CONSTRUCTED ONE OF THE FOLLOWING OPTIONS, IN THE FOLLOWING PRIORITY:
 - a. THE SEWER MAIN MUST BE CONSTRUCTED OF WATER SUPPLY QUALITY MATERIALS MEETING AWWA STANDARDS
 - b. THE SEWER MAIN (DEPENDENT ON FIELD CONDITIONS) SHALL BE TOTALLY ENCASED IN A MINIMUM OF FOUR (4) INCHES OF CEMENT SLURRY (300 PSI +/-) FOR A DISTANCE OF TEN (10) FEET ON EACH SIDE OF THE CROSSING. ENCASEMENT WILL NOT BE PERMITTED FOR ASBESTOS CEMENT PIPE.
 - c. THE SEWER MAIN OR WATER MAIN MAY BE INSTALLED IN A SLEEVE OF WATER QUALITY PIPE WHICH EXTENDS, WITHOUT JOINTS, TEN (10) FEET ON EACH SIDE OF THE MAIN. (SEE UDACS PLATE 15)
 - d. THE ENGINEER MAY PETITION THE AGENCY FOR APPROVAL TO ENCASE THE WATER MAIN (DEPENDENT ON FIELD CONDITIONS) IN A MINIMUM OF FOUR (4) INCHES OF CEMENT SLURRY (300 PSI +/-) FOR A DISTANCE OF TEN (10) FEET ON EACH SIDE OF THE CROSSING. ENCASEMENT WILL NOT BE PERMITTED FOR ASBESTOS CEMENT PIPE

REVISION APPROVAL BLOCK

NO.	DATE	BY	DESCRIPTION
1	4/2/05	DM	5-1-05 MOVED HANDICAP STALLS CLOSER TO BUILDING C
2	4/2/05	CA	4/2/05 ADDED SSMH RIM ELEV. EASEMENT NOTE & PRESSURE INFO.

SCALE: 1"=30'

DRAWN BY: TT

DESIGNED BY: TT

CHECKED BY: DM

SUBMITTAL DATE:

JOB NO: 41-104

INTegrity ENGINEERING

2480 E. Tompkins Ave.
Suite # 232
Las Vegas, NV 89121
Phone: 702.456.4664
Fax: 702.456.4919

TITLE: DURANGO / ELKHORN COMMERCIAL CENTER (AKA TOWN CENTER PLAZA)

SHEET: C4.01

SHEET C4.01

7 OF 14 SHEETS

DRAWING NO. 107V4343

80615