VAL VISTA SELF STORAGE GRADING & DRAINAGE PLAN

A PORTION OF THE EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 20, TOWNSHIP 1 NORTH, RANGE 6 EAST, OF THE G&SRB&M, MARICOPA COUNTY, ARIZONA

SCALE 1" = 30'

30 20 10 0 15 30 60

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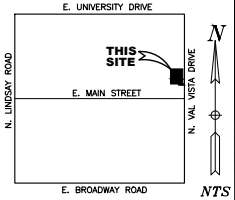


VICINITY MAP
N.T.S.

RETENTION CALCULATIONS REQUIRED

VOLUME REQUIRED – 100 YEAR 2 HOURS STORM EVENT

VR = C x P/12 x A

WHERE: AREA 1
VR = VOLUME REQUIRED (CU.FT.)
P = 2.2 (100 YR. 2 HR FROM NOAA ATLAS 14)
CW = WEIGHTED RUNOFF COEFFICIENT
A = AREA IN SQUARE FEET (NET)

WEIGHTED RUNOFF COEFFICIENT (CW) (AREA 1 & 2 ONLY):

CW=((A1xC1) + (A2xC2))/TOTAL AREA

TOTAL NET AREA: 66,948 S.F.

A1 40,676 S.F. C1 (CONCRETE/ROOF/ASPHALT)=0.95
A2 26,272 S.F. C2 (LANDSCAPING)=0.50

$CW = \frac{((40,676 \times 0.95) + (26,272 \times 0.50))}{66,948} = .77$

VOLUME REQUIRED AREA 1:

VR = 2.2/12 x 48,343 x 0.77
VR = 6,812 C.F.

VOLUME REQUIRED AREA 2:

VR = 2.2/12 X 18,605 X 0.77
VR = 2,622 C.F.

VOLUME REQUIRED AREA 3:

VR = 2.2/12 X 99,885 X 0.95
VR = 17,397 C.F.

VOLUME REQUIRED AREA 4:

VR = 2.2/12 X 12,246 X 0.50
VR = 1,121 C.F.

TOTAL VOLUME REQUIRED:

VR = 27,952 C.F.

RETENTION CALCULATIONS PROVIDED

VOLUME PROVIDED $= \frac{(AREA\ TOP + AREA\ BOTTOM)(DEPTH)}{2}$

AREA 1

RETENTION A1: $\frac{(4,379 + 2,989)}{2}(1') = 3,684$ C.F.

RETENTION A2: $\frac{(4,137 + 2,521)}{2}(1') = 3,329$ C.F.

TOTAL = 3,684 + 3,329 = 7,013 C.F.
(BASINS A1 & A2 ARE INTERCONNECTED WITH AN EQUALIZER PIPE)

AREA 2

RETENTION B: $\frac{(3,016 + 1,867)}{2}(1.25') = 3,052$ C.F.

AREA 3

RETENTION C: (225' X 78.5 S.F.) = 17,663 C.F.
(UNDERGROUND RETENTION, 10' DIAMETER PIPE)

PUMP TIME TO DRAIN = (17,663 C.F.(7.48 GAL/CF)/65 GPM)/60 MIN/HR =33.9 HOURS

AREA 4

RETENTION D: $\frac{(4,673 + 2,281)}{2}(.5') = 1,739$ C.F.

VOLUME PROVIDED = 29,467 C.F.

EXISTING 4–6' HIGH BLOCK WALL. IF WALL IS LESS THAN 6' THEN CMU BLOCK IS TO BE ADDED TO ACHIEVE A MAXIMUM HEIGHT OF 6'. MATCH TEXTURE AND COLOR OF EXISTING WALL

CONSTRUCTION NOTES

(2) INSTALL 45 L.F. OF 8" HDPE EQUILIZER PIPE. INVERTS PER PLAN.
(4) INSTALL 6 S.Y. OF GROUTED D50=4" RIP–RAP 8" IN THICKNESS.
(5) INSTALL 225 L.F. OF 10' DIA. 10 GAUGE (3"X1", CORRUGATIONS, AND GALVANIZED, WALL THICKNESS=.138") UNDERGROUND RETENTION TANK. INSTALL 1/4" SOLID STEEL PLATE AT EACH END (WELDED). ALL JOINTS IN UNDERGROUND PIPE SHALL BE WATER TIGHT MANUFACTURED JOINTS. UNDERGROUND RETENTION STORAGE TANK SYSTEM TO BE INSTALLED PER MAG SPEC 621. EXCAVATION, BEDDING, AND BACKFILL SHALL BE IN ACCORDANCE WITH COM STD DTL M–19.04.1, MAG SPEC 601 AND MATERIAL PER MAG SPEC 760. INV–S=70.85, INV–N=71.85
(6) INSTALL 2'X.67' LINTEL OPENING PER DETAIL THIS SHEET.
(7) INSTALL 2' CURB OPENING PER DETAIL THIS SHEET.
(8) INSTALL TRASH BIN ENCLOSURE WITH SAFETY POSTS PER COM STD. DTL. M–62.01, M–62.02.1, M–62.02.2, M–62.04.1, AND M–62.04.2.
(9) INSTALL 5' SIDEWALK. 5.5" CLASS B PER MAG STD. 230
(10) INSTALL 3' VALLEY GUTTER PER MAG STD DTL 240.
(11) INSTALL 6" VERTICAL CURB AND GUTTER PER MAG STD DTL 220–1 TYPE 'A'..
(12) INSTALL SINGLE CURB PER MAG STD DTL 222 TYPE 'A'.
(13) INSTALL 3" A.C. ON 6" ABC.
(14) INSTALL 30' DRIVEWAY PER COM STD DTL M–42. SAWCUT AND REMOVE 50 L.F. OF CURB & GUTTER AND 375 SF OF SIDEWALK
(15) EXISITNG SIDEWALK TO REMAIN.
(16) EXISTING 35' DRIVEWAY TO BE REMOVED AND REPLACED WITH 6" VERTICAL CURB/GUTTER, & 175 SF SIDEWALK PER MAG STD DTL. 220–A AND 230
(17) INSTALL 30' DRIVEWAY PER COM STD DTL M–42. SAWCUT AND REMOVE 50 L.F. OF CURB & GUTTER AND 290 SF OF SIDEWALK
(18) INSTALL DOUBLE GRATE (2'X4') CATCH BASIN PER MAG STD DTL 537– TYPE G
(19) INSTALL FLYGT TOP ENGINEERED FIBERGLASS PUMP STATION WITH ELECTRIC CONTROLS. INLET INV.=70.35, WET WELL = 70.35, RIM = 84.90 FLOW RATE = 65 GPM AT 25 TDH. INSTALL 275 L.F. OF 3" PVC SCH 40 STORM DRAIN CONNECT INTO PROPOSED CATCH BASIN. PUMP TO HAVE A 2 HOUR DELAY.
(20) INSTALL 105 LF OF 24"CMP(14 GA.)
(21) INSTALL 14 LF OF 24"CMP(14 GA.)
(22) INSTALL 58 LF OF 24"CMP(14 GA.)
(23) INSTALL CATCH BASIN OVER STORAGE PIPE PER DETAIL ON SHT 4
(24) INSTALL 512 L.F. OF 2" QUAD DUCT.
(25) RELOCATE STREET LIGHT 10' TO THE NORTH.
(26) INSTALL CATCH BASIN TYPE F PER MAG STD DTL 535.
(27) INSTALL 110 L.F. OF 8" PVC SCH 40 STORM DRAIN AND CONNECT TO EXISTING CATCH BASIN. BLEED OFF LINE FROM BASIN TO BASIN TO BE MAINTAINED BY PROPERTY OWNER.
(28) INSTALL THICKENED PAVEMENT EDGE PER MAG STD DTL 201 TYPE 'B'

PROPOSED BUILDING
FF= 85.67
PAD=84.67

RETENTION C
BASIN 3
VOL PROV=17,663 C.F.
VOL NEEDED=17,397 C.F.

RETENTION B
BASIN 2
TOP(HW)=1284.50
BOTTOM=1283.50
VOL PROV=3,052 C.F.
VOL NEEDED=2,622 C.F.
4:1 SIDE SLOPES

BASIN A2
TOP(HW)=1284.50
BOTTOM=1283.50
VOL PROV=7,013 C.F.
VOL NEEDED=6,812 C.F.
4:1 SIDE SLOPES

RETENTION D
BASIN D
TOP(HW)=1284.00
BOTTOM=1283.50
VOL PROV=1,739 C.F.
VOL NEEDED=1,121 C.F.
4:1 SIDE SLOPES

RETENTION A1
BASIN A1
TOP(HW)=1284.50
BOTTOM=1283.50
VOL PROV=7,013 C.F.
VOL NEEDED=6,812 C.F.
4:1 SIDE SLOPES

VAL VISTA DRIVE
527.25' S 89°59'57" W
2641.63' S 00°40'31" W

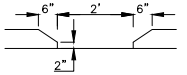
LEGEND

- WATER VALVE
- WATER SERVICE
- EX. SEWER MANHOLE
- C CABLE TV
- CMU CONCRETE MASONRY UNIT
- BSL BUILDING SETBACK LINE
- +40.17 EXISTING GRADE
- CONCRETE
- GUY WIRE
- DRAINAGE FLOW PATTERN
- 12.00G PROPOSED SPOT GRADE
- PROPOSED CONTOUR GRADE
- POWER POLE
- PUE PUBLIC UTILITY EASEMENT
- STREET LIGHT
- CATCH BASIN
- BACKFLOW PREVENTER
- SIDEWALK / HANDICAP RAMP
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- SD EX. STORM DRAIN MANHOLE
- WALL

NOTE

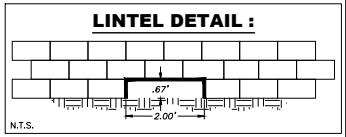
UNDERGROUND UTILITIES & STORM DRAIN LOCATIONS SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS AND "BLUE STAKE" MARKINGS AND AVAILABLE MAPS OBTAINED FROM UTILITY COMPANIES AND THE CITY OF MESA, ARIZONA. ACTUAL LOCATIONS MAY VARY FROM LOCATIONS SHOWN HEREON. CONTRACTOR TO VERIFY LOCATION AND DEPTH PRIOR TO CONSTRUCTION.

SIGNS THAT ARE REQUIRED TO BE REMOVED OR RELOCATED DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY SIGN THAT IS TO BE RELOCATED OR REMOVED DUE TO CONSTRUCTION SHALL BE REINSTALLED IN ITS FINAL LOCATION PER CITY OF MESA STANDARDS.



CURB OPENING DETAIL
NTS

LINTEL DETAIL :



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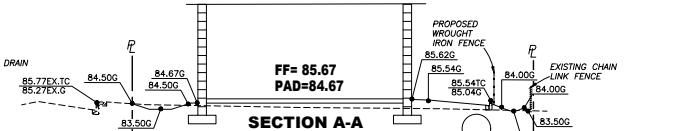
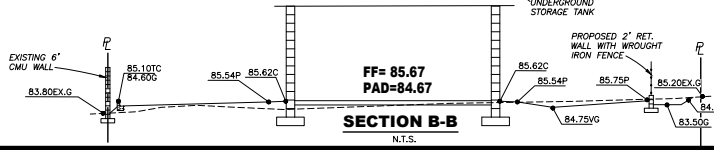


SECTION A-A
N.T.S.



SECTION B-B
N.T.S.

DATE
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ALLEN CONSULTING ENGINEERS, INC.
4111 E. VALLEY AUTO DRIVE #103
MESA, ARIZONA 85206
PHONE (480) 844–1666
E–MAIL: ace@allenconsultengr.com

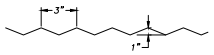
VAL VISTA SELF STORAGE
104 N. VAL VISTA DRIVE
MESA, ARIZONA 85213
GRADING & DRAINAGE PLAN

JOB NUMBER	96304	SHEET	C2 OF C4
DRAWING	SHT C2 – G&D		
DRAFTSMAN	CHECKED BY	DATE	10–8–2021

UNDERGROUND STORAGE TANK DETAIL

A PORTION OF THE EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 20, TOWNSHIP 1 NORTH, RANGE 6 EAST, OF THE G&SRB&M, MARICOPA COUNTY, ARIZONA

104 N.VAL VISTA DRIVE



CORRUGATION DETAIL

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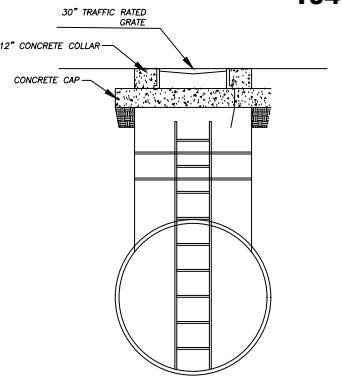
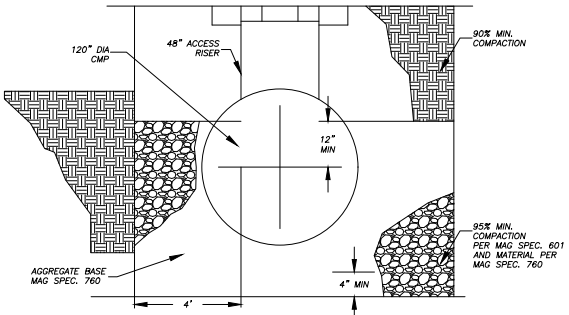


LADDER ACCESS CROSS-SECTION

N.T.S.



BEDDING DETAIL

N.T.S.

UNDERGROUND RETENTION NOTES:

48" & SMALLER PIPE SHALL BE 16 GAUGE CMP.

120" PIPE SHALL BE 10 GAUGE CMP (.138 THICKNESS) WITH 3"x1" CORRUGATION AND GALVANIZED

DRYWELL SYSTEM SHALL BE PER MAXWELL PLUS DRYWELLS.
30" MANHOLE COVERS SHALL BE PER MAG. STD DTL. 424. GRATED COVERS TO ALLOW FOR INLET OF SURFACE STORM WATER WILL BE USED ON THIS PROJECT.

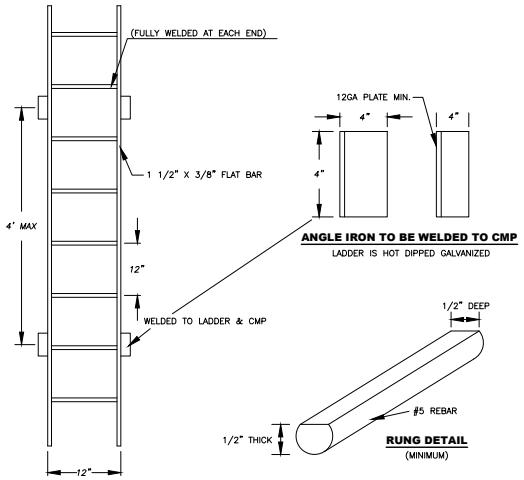
INSTALL PER MANUFACTURERS SPECIFICATION. PIPE INSTALLATION PER MAG STD. SPEC. 621. EXCAVATION, BEDDING & BACKFILL PER MAG. STD. SPEC. 601, MATERIAL PER MAG. STC. SPEC. 760.

MANUFACTURER TO PROVIDE ENDPLATE DETAIL FOR APPROVAL. DETAIL SHALL INCLUDE LADDER SYSTEM.

ACCESS MANHOLES AT EACH END SHALL BE FACTORY PREFABRICATED.

CONNECTION BETWEEN ENDPLATE AND 24" PIPE SHALL BE FACTORY PREFABRICATED.

JOINTS ON 120" PIPE SHALL BE WATER TIGHT MANUFACTURER JOINTS.



ANGLE IRON TO BE WELDED TO CMP

LADDER IS HOT DIPPED GALVANIZED

RUNG DETAIL

(MINIMUM)

LADDER DETAIL FOR MANHOLES

N.T.S.

CONSTRUCTION NOTES:

1. *DETENTION STRUCTURE TO BE MANUFACTURED BY CONTECH CORRUGATED METAL PRODUCTS OR EQUIVALENT.*

2. *BEDDING AND BACK FILL PER MAG SPECIFICATION SECTION 601, TYPE 1 COMPACTION. USE CONSTRUCTION METHODS AND EQUIPMENT WHICH WILL NOT DAMAGE OR OVERLOAD THE CMP STRUCTURE DURING CONSTRUCTION. CHECK MANUFACTURER FOR MINIMUM COVER REQUIRED FOR EQUIPMENT LOADING DURING CONSTRUCTION.*

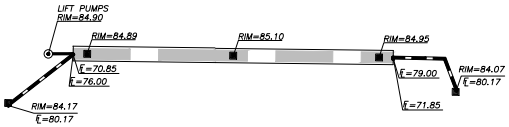
3. *INSTALLATION OF CMP SHALL BE IN ACCORDANCE WITH MAG. SPECIFICATION NO. 621.*

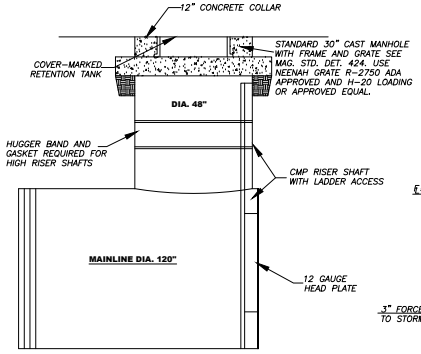
4. *MANUFACTURER TO PROVIDE ENDPLATE DETAIL TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.*

5. *CORRUGATED METAL PIPE TO BE ALUMINUM COATED (ALUMINIZED PIPE II) IN ACCORDANCE WITH ASTM A929.*

6. *ALL JOINTS IN UNDERGROUND RETENTION STORAGE TANK SYSTEM SHALL BE WATER TIGHT(MANUFACTURER JOINTS)*

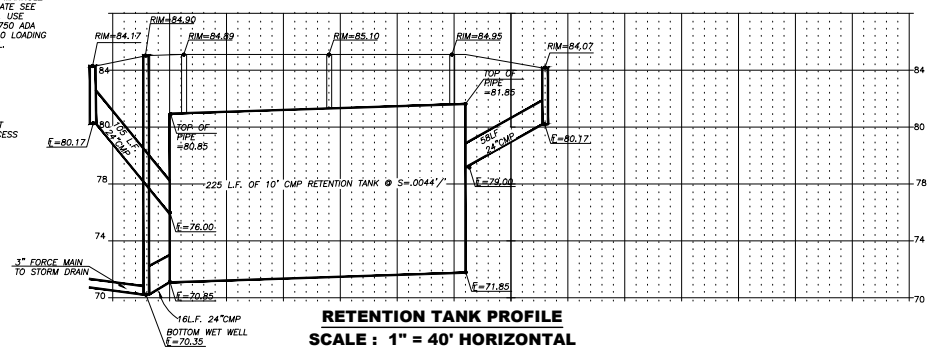
7. *ALLL CONNECTION WELDS PER MANUFACTURER'S SHOP DRAWINGS.*





LADDER ACCESS PROFILE & BULKHEAD

N.T.S.



RETENTION TANK PROFILE

SCALE : 1" = 40' HORIZONTAL

1" = 4' VERTICAL

Registered Professional Engineer (Civil) CERTIFICATE NO. 10766 GREGORY L. ALLEN 10-8-2021 ARIZONA, U.S.A.

CALL TWO WORKING DAYS BEFORE YOU DIG 263-1100 1-800-STAKE-IT (OUTSIDE MARICOPA COUNTY)

DATE
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ALLEN CONSULTING ENGINEERS, INC.
3921 E. BASELINE ROAD #112
GILBERT, ARIZONA 85234
PHONE (480) 844-1666
E-MAIL: ace@allenconsultengr.com

VAL VISTA SELF STORAGE
1015 S. LEWIS STREET
MESA, ARIZONA 85213
UNDERGROUND STORAGE TANK DETAIL

JOB NUMBER	96304	SHEET	C3	OF	C4
DRAWING	STORAGE DET				
DRAFTSMAN		CHECKED BY		DATE	10-8-2021

UTILITY PLAN

A PORTION OF THE EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 20, TOWNSHIP 1 NORTH, RANGE 6 EAST, OF THE G&SRB&M, MARICOPA COUNTY, ARIZONA

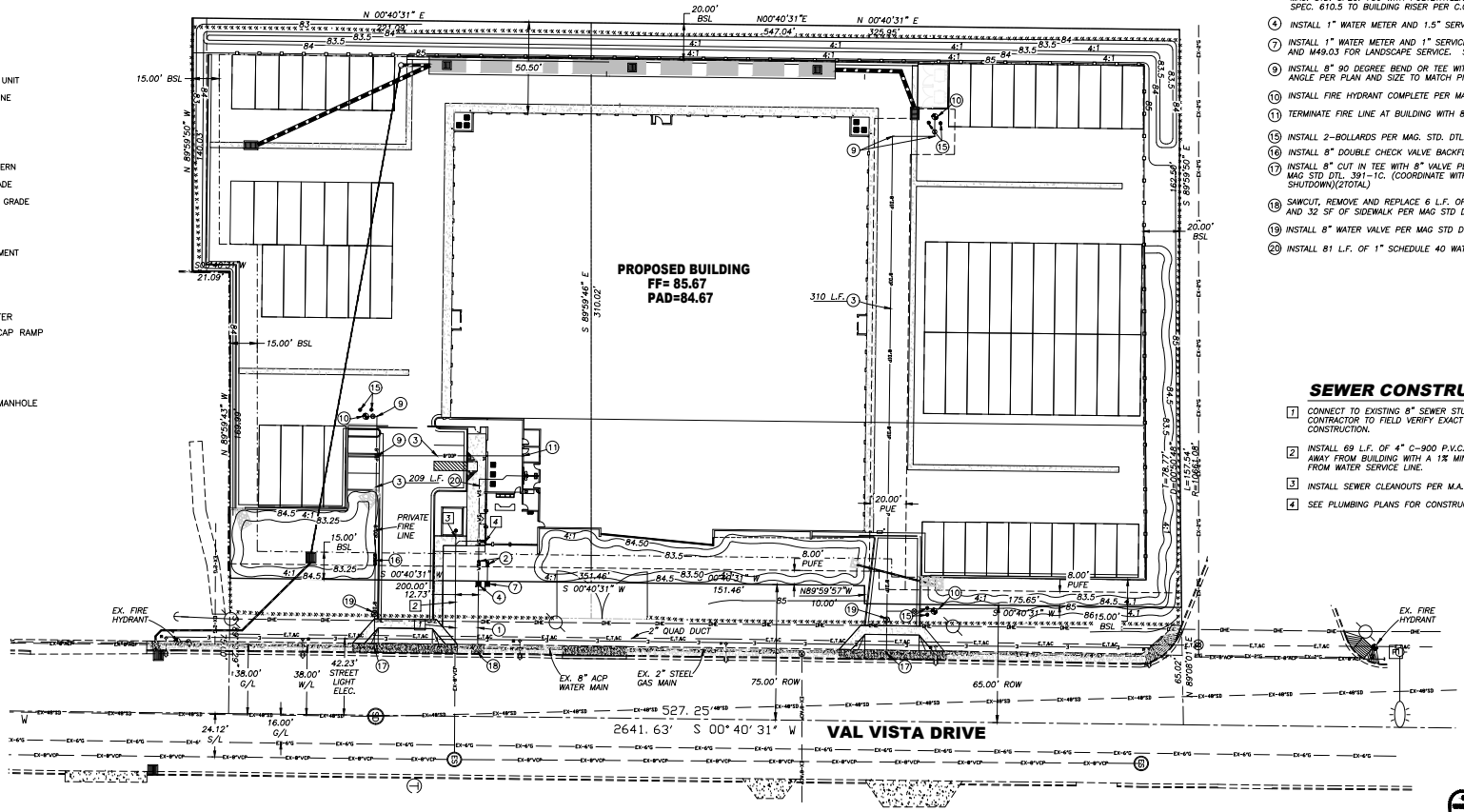
N

SCALE 1" = 30'

30 20 10 0 15 30 60

LEGEND

- SET 1/2" REBAR LS#41076
- FOUND ½" REBAR LS#41076
- SET PK NAIL WITH TAG LS#41076
- WATER VALVE
- WATER SERVICE
- EX. SEWER MANHOLE
- CABLE TV
- CMU CONCRETE MASONRY UNIT
- BSL BUILDING SETBACK LINE
- +40.17 EXISTING GRADE
- CONCRETE
- GUY WIRE
- DRAINAGE FLOW PATTERN
- 12.00G PROPOSED SPOT GRADE
- PROPOSED CONTOUR GRADE
- POWER POLE
- LS LANDSCAPE
- PUE PUBLIC UTILITY EASEMENT
- POB POINT OF BEGINNING
- STREET LIGHT
- CATCH BASIN
- BACKFLOW PREVENTER
- SIDEWALK / HANDICAP RAMP
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EX. STORM DRAIN MANHOLE
- WALL



WATER CONSTRUCTION NOTES

1. INSTALL 48 L.F. OF 1.5" TYPE 'K' COPPER LINE WATER SERVICE PER COM STD DTL M49.01
2. INSTALL 1" REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY PER C.O.M. STD. DTL. M-31.03.
3. INSTALL 519 L.F. OF 8" DUCTILE IRON PIPE (D.I.P.) CEMENT MORTAR LINED, PER MAG. STD. SPEC. 750 WITH POLYETHYLENE CORROSION PROTECTION PER M.A.G. STD. SPEC. 610.5 TO BUILDING RISER PER C.O.M. STD. DTL. M-31.07.
4. INSTALL 1" WATER METER AND 1.5" SERVICE PER C.O.M. STD. DTL. M-49.01 AND M-49.02.
7. INSTALL 1" WATER METER AND 1" SERVICE PER C.O.M. STD. DTL. M-49.01, M49.02 AND M49.03 FOR LANDSCAPE SERVICE. SEE LANDSCAPE PLANS FOR CONTINUATION..
9. INSTALL 8" 90 DEGREE BEND OR TEE WITH RESTRAINED JOINTS, C.O.M. STD. SECTION 316.23 ANGLE PER PLAN AND SIZE TO MATCH PIPE
10. INSTALL FIRE HYDRANT COMPLETE PER MAG DTL. 360-1 & MAG DTL 362.(3-TOTAL)
11. TERMINATE FIRE LINE AT BUILDING WITH 8" CAP
15. INSTALL 2-BOLLARDS PER MAG. STD. DTL. 140, TYPE 1 PERMANENT.
16. INSTALL 8" DOUBLE CHECK VALVE BACKFLOW C.O.M. STD. DTL. M31.02.
17. INSTALL 8" CUT IN TEE WITH 8" VALVE PER COM STD DTL M-52, AND MAG STD DTL. 391-1C. (COORDINATE WITH WATER DEPARTMENT FOR SHUTDOWN)(2TOTAL)
18. SAWCUT, REMOVE AND REPLACE 6 L.F. OF CURB & GUTTER AND 32 SF OF SIDEWALK PER MAG STD DTL. 220-A AND 230
19. INSTALL 8" WATER VALVE PER MAG STD DTL. 391-1.(2-TOTAL)
20. INSTALL 81 L.F. OF 1" SCHEDULE 40 WATERLINE TO BUILDING.

SEWER CONSTRUCTION NOTES

1. CONNECT TO EXISTING 8" SEWER STUB WITH NECESSARY AND APPROPRIATE FITTINGS. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
2. INSTALL 69 L.F. OF 4" C-900 P.V.C. SEWERLINE. LENGTH PER PLAN AND SLOPE PIPE AWAY FROM BUILDING WITH A 1% MIN. SLOPE. MAINTAIN 2' OF VERTICAL SEPARATION FROM WATER SERVICE LINE.
3. INSTALL SEWER CLEANOUTS PER M.A.G. STD DTL 441.(3-TOTAL)
4. SEE PLUMBING PLANS FOR CONSTRUCTION.

Call ARIZONA 811 or visit Azbluestake.com

DATE
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ALLEN CONSULTING ENGINEERS, INC.
4111 E. VALLEY AUTO DRIVE #103
MESA, ARIZONA 85206
PHONE (480) 644-1666
E-MAIL: ace@allenconsultengr.com

VAL VISTA SELF STORAGE
104 N. VAL VISTA DRIVE
MESA, ARIZONA 85213
UTILITY PLAN

JOB NUMBER	96304	SHEET	C4 OF C4
DRAWING	UTILITY PLAN		
DRAFTSMAN	CHECKED BY	DATE	10-08-2021