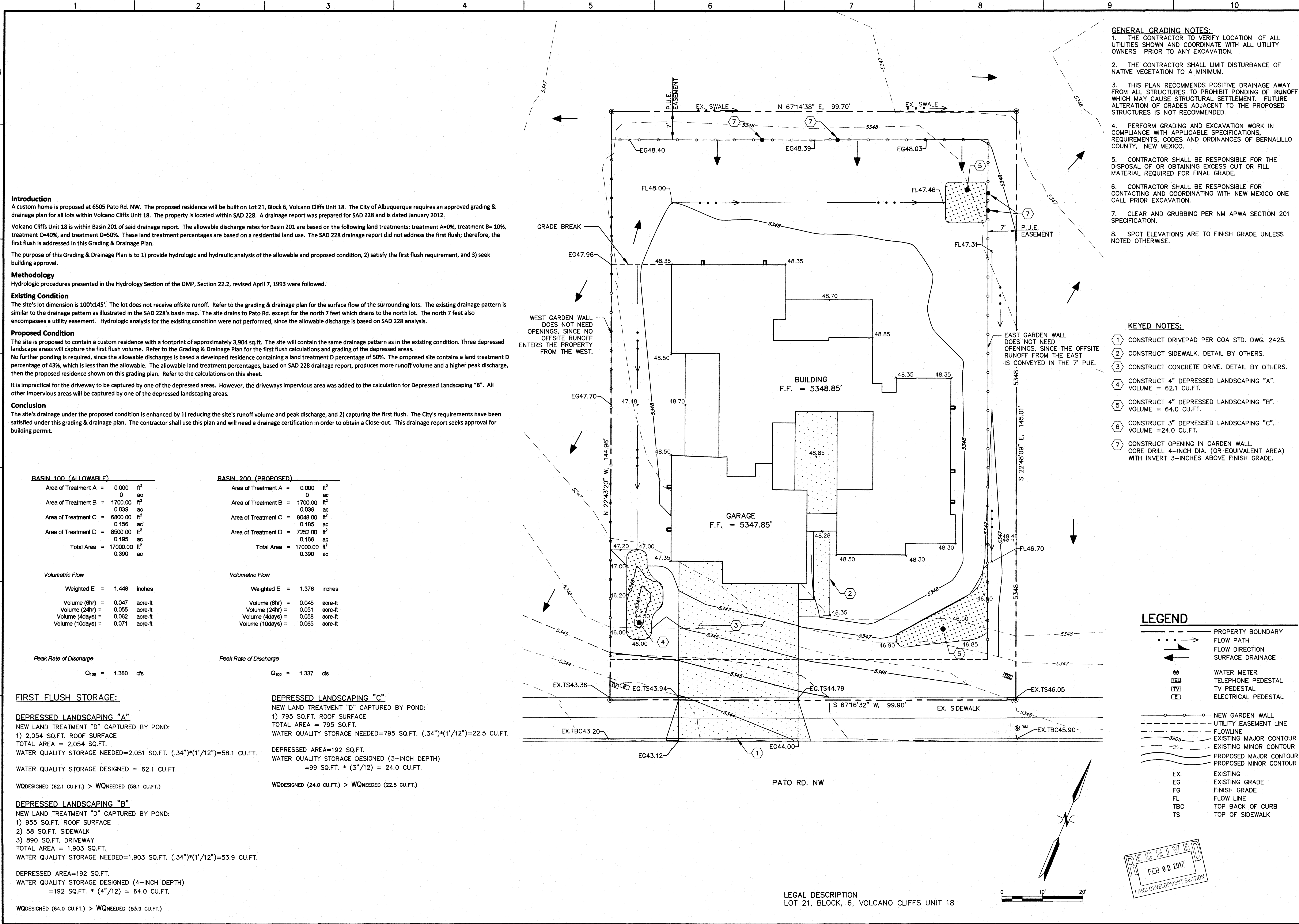


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THE VARELA RESIDENCE
A CUSTOM RESIDENCE
6505 PATO RD. NW
ALBUQUERQUE, NM

PROJECT NO: 162055
DESIGNED BY: RJF
DRAWN BY: STAFF
CHECKED BY: RJF
DATE: DEC, 2016
SHEET TITLE: GRADING PLAN
SHEET NO: C-1.0

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Introduction

A custom home is proposed at 6505 Pato Rd. NW. The proposed residence will be built on Lot 21, Block 6, Volcano Cliffs Unit 18. The City of Albuquerque requires an approved grading & drainage plan for all lots within Volcano Cliffs Unit 18. The property is located within SAD 228. A drainage report was prepared for SAD 228 and is dated January 2012.

Volcano Cliffs Unit 18 is within Basin 201 of said drainage report. The allowable discharge rates for Basin 201 are based on the following land treatments: treatment A=0%, treatment B= 10%, treatment C=40%, and treatment D=50%. These land treatment percentages are based on a residential land use. The SAD 228 drainage report did not address the first flush; therefore, the first flush is addressed in this Grading & Drainage Plan.

The purpose of this Grading & Drainage Plan is to 1) provide hydrologic and hydraulic analysis of the allowable and proposed condition, 2) satisfy the first flush requirement, and 3) seek building approval.

Methodology

Hydrologic procedures presented in the Hydrology Section of the DMP, Section 22.2, revised April 7, 1993 were followed.

Existing Condition

The site's lot dimension is 100'x145'. The lot does not receive offsite runoff. Refer to the grading & drainage plan for the surface flow of the surrounding lots. The existing drainage pattern is similar to the drainage pattern as illustrated in the SAD 228's basin map. The site drains to Pato Rd. except for the north 7 feet which drains to the north lot. The north 7 feet also encompasses a utility easement. Hydrologic analysis for the existing condition were not performed, since the allowable discharge is based on SAD 228 analysis.

Proposed Condition

The site is proposed to contain a custom residence with a footprint of approximately 3,904 sq.ft. The site will contain the same drainage pattern as in the existing condition. Three depressed landscape areas will capture the first flush volume. Refer to the Grading & Drainage Plan for the first flush calculations and grading of the depressed areas.

No further ponding is required, since the allowable discharges is based a developed residence containing a land treatment D percentage of 50%. The proposed site contains a land treatment D percentage of 43%, which is less than the allowable. The allowable land treatment percentages, based on SAD 228 drainage report, produces more runoff volume and a higher peak discharge, then the proposed residence shown on this grading plan. Refer to the calculations on this sheet.

It is impractical for the driveway to be captured by one of the depressed areas. However, the driveways impervious area was added to the calculation for Depressed Landscaping "B". All other impervious areas will be captured by one of the depressed landscaping areas.

Conclusion

The site's drainage under the proposed condition is enhanced by 1) reducing the site's runoff volume and peak discharge, and 2) capturing the first flush. The City's requirements have been satisfied under this grading & drainage plan. The contractor shall use this plan and will need a drainage certification in order to obtain a Close-out. This drainage report seeks approval for building permit.

BASIN 100 (ALLOWABLE)

| | | | |
|---------------------|---|----------|-----------------|
| Area of Treatment A | = | 0.000 | ft ² |
| | | 0 | ac |
| Area of Treatment B | = | 1700.00 | ft ² |
| | | 0.039 | ac |
| Area of Treatment C | = | 6800.00 | ft ² |
| | | 0.156 | ac |
| Area of Treatment D | = | 8500.00 | ft ² |
| | | 0.195 | ac |
| Total Area | = | 17000.00 | ft ² |
| | | 0.390 | ac |

Volumetric Flow

| | | | |
|-----------------|---|-------|---------|
| Weighted E | = | 1.448 | inches |
| Volume (6hr) | = | 0.047 | acre-ft |
| Volume (24hr) | = | 0.055 | acre-ft |
| Volume (4days) | = | 0.062 | acre-ft |
| Volume (10days) | = | 0.071 | acre-ft |

Peak Rate of Discharge

| | | | |
|------------------|---|-------|-----|
| Q ₁₀₀ | = | 1.380 | cfs |
|------------------|---|-------|-----|

BASIN 200 (PROPOSED)

| | | | |
|---------------------|---|----------|-----------------|
| Area of Treatment A | = | 0.000 | ft ² |
| | | 0 | ac |
| Area of Treatment B | = | 1700.00 | ft ² |
| | | 0.039 | ac |
| Area of Treatment C | = | 8048.00 | ft ² |
| | | 0.185 | ac |
| Area of Treatment D | = | 7252.00 | ft ² |
| | | 0.166 | ac |
| Total Area | = | 17000.00 | ft ² |
| | | 0.390 | ac |

Volumetric Flow

| | | | |
|-----------------|---|-------|---------|
| Weighted E | = | 1.376 | inches |
| Volume (6hr) | = | 0.045 | acre-ft |
| Volume (24hr) | = | 0.051 | acre-ft |
| Volume (4days) | = | 0.058 | acre-ft |
| Volume (10days) | = | 0.065 | acre-ft |

Peak Rate of Discharge

| | | | |
|------------------|---|-------|-----|
| Q ₁₀₀ | = | 1.337 | cfs |
|------------------|---|-------|-----|

FIRST FLUSH STORAGE:

DEPRESSED LANDSCAPING "A"

NEW LAND TREATMENT "D" CAPTURED BY POND:

1) 2,054 SQ.FT. ROOF SURFACE
TOTAL AREA = 2,054 SQ.FT.
WATER QUALITY STORAGE NEEDED=2,051 SQ.FT. (.34")*(1'/12")=58.1 CU.FT.

WATER QUALITY STORAGE DESIGNED = 62.1 CU.FT.

WQ_{DESIGNED} (62.1 CU.FT.) > WQ_{NEEDED} (58.1 CU.FT.)

DEPRESSED LANDSCAPING "B"

NEW LAND TREATMENT "D" CAPTURED BY POND:

1) 955 SQ.FT. ROOF SURFACE
2) 58 SQ.FT. SIDEWALK
3) 890 SQ.FT. DRIVEWAY
TOTAL AREA = 1,903 SQ.FT.
WATER QUALITY STORAGE NEEDED=1,903 SQ.FT. (.34")*(1'/12")=53.9 CU.FT.

DEPRESSED AREA=192 SQ.FT.
WATER QUALITY STORAGE DESIGNED (4-INCH DEPTH)
=192 SQ.FT. * (4"/12) = 64.0 CU.FT.

WQ_{DESIGNED} (64.0 CU.FT.) > WQ_{NEEDED} (53.9 CU.FT.)

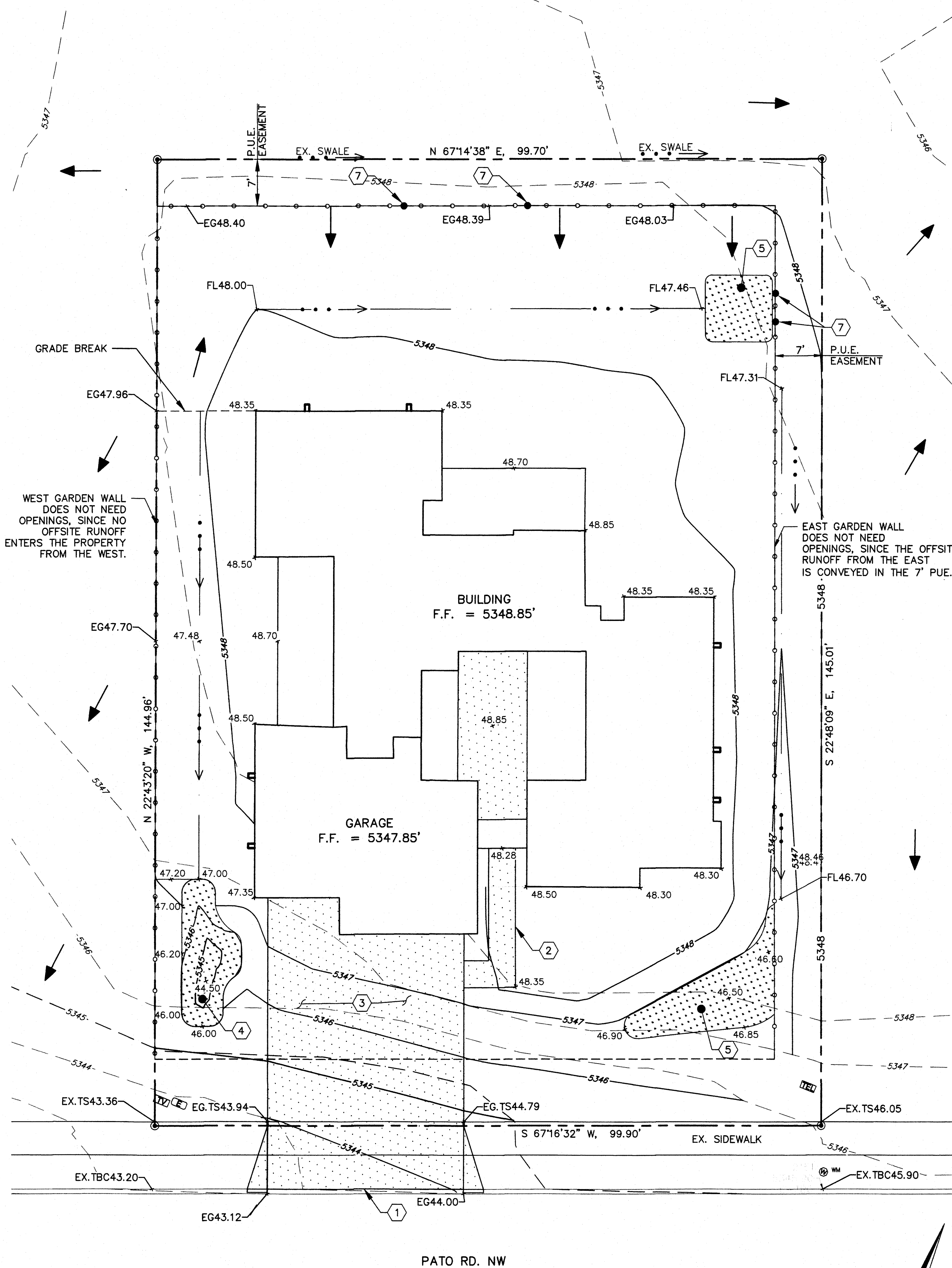
DEPRESSED LANDSCAPING "C"

NEW LAND TREATMENT "D" CAPTURED BY POND:

1) 795 SQ.FT. ROOF SURFACE
TOTAL AREA = 795 SQ.FT.
WATER QUALITY STORAGE NEEDED=795 SQ.FT. (.34")*(1'/12")=22.5 CU.FT.

DEPRESSED AREA=192 SQ.FT.
WATER QUALITY STORAGE DESIGNED (3-INCH DEPTH)
=99 SQ.FT. * (3"/12) = 24.0 CU.FT.

WQ_{DESIGNED} (24.0 CU.FT.) > WQ_{NEEDED} (22.5 CU.FT.)



GENERAL GRADING NOTES:

1. THE CONTRACTOR TO VERIFY LOCATION OF ALL UTILITIES SHOWN AND COORDINATE WITH ALL UTILITY OWNERS PRIOR TO ANY EXCAVATION.
2. THE CONTRACTOR SHALL LIMIT DISTURBANCE OF NATIVE VEGETATION TO A MINIMUM.
3. THIS PLAN RECOMMENDS POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES TO PROHIBIT PONDING OF RUNOFF WHICH MAY CAUSE STRUCTURAL SETTLEMENT. FUTURE ALTERATION OF GRADES ADJACENT TO THE PROPOSED STRUCTURES IS NOT RECOMMENDED.
4. PERFORM GRADING AND EXCAVATION WORK IN COMPLIANCE WITH APPLICABLE SPECIFICATIONS, REQUIREMENTS, CODES AND ORDINANCES OF BERNALILLO COUNTY, NEW MEXICO.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISPOSAL OF OR OBTAINING EXCESS CUT OR FILL MATERIAL REQUIRED FOR FINAL GRADE.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING AND COORDINATING WITH NEW MEXICO ONE CALL PRIOR EXCAVATION.
7. CLEAR AND GRUBBING PER NM APWA SECTION 201 SPECIFICATION.
8. SPOT ELEVATIONS ARE TO FINISH GRADE UNLESS NOTED OTHERWISE.

KEYED NOTES:

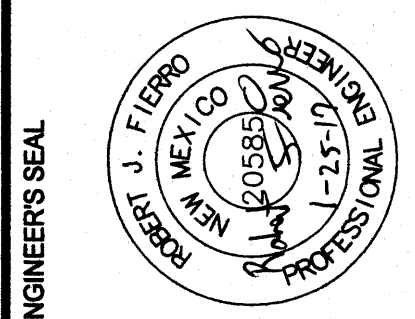
1. CONSTRUCT DRIVEPAD PER COA STD. DWG. 2425.
2. CONSTRUCT SIDEWALK. DETAIL BY OTHERS.
3. CONSTRUCT CONCRETE DRIVE. DETAIL BY OTHERS.
4. CONSTRUCT 4" DEPRESSED LANDSCAPING "A". VOLUME = 62.1 CU.FT.
5. CONSTRUCT 4" DEPRESSED LANDSCAPING "B". VOLUME = 64.0 CU.FT.
6. CONSTRUCT 3" DEPRESSED LANDSCAPING "C". VOLUME = 24.0 CU.FT.
7. CONSTRUCT OPENING IN GARDEN WALL. CORE DRILL 4-INCH DIA. (OR EQUIVALENT AREA) WITH INVERT 3-INCHES ABOVE FINISH GRADE.

LEGEND

| | |
|-----|------------------------|
| --- | PROPERTY BOUNDARY |
| --- | FLOW PATH |
| --- | FLOW DIRECTION |
| --- | SURFACE DRAINAGE |
| ⊙ | WATER METER |
| ⊙ | TELEPHONE PEDESTAL |
| ⊙ | TV PEDESTAL |
| ⊙ | ELECTRICAL PEDESTAL |
| --- | NEW GARDEN WALL |
| --- | UTILITY EASEMENT LINE |
| --- | FLOWLINE |
| --- | EXISTING MAJOR CONTOUR |
| --- | EXISTING MINOR CONTOUR |
| --- | PROPOSED MAJOR CONTOUR |
| --- | PROPOSED MINOR CONTOUR |
| EX. | EXISTING |
| EG | EXISTING GRADE |
| FG | FINISH GRADE |
| FL | FLOW LINE |
| TBC | TOP BACK OF CURB |
| TS | TOP OF SIDEWALK |

LEGAL DESCRIPTION
LOT 21, BLOCK 6, VOLCANO CLIFFS UNIT 18

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A CUSTOM RESIDENCE
6505 PATO RD. NW
ALBUQUERQUE, NM

PROJECT NAME

| BY | DESCRIPTION | DATE | REV |
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SHEET TITLE

GRADING PLAN

SHEET NO:

C-1.0

