CITY OF ALBUQUERQUE

June 12, 2015

Fred Arfman, PE
Issacson & Arfman
128 Monroe Street NE
Albuquerque, NM 87120

RE: **Unser & Vista Oriente Shell Building, Lot 1-B-3, Ladera Industrial Center, Unser Boulevard**
Grading and Drainage Plan
Engineer's Stamp Date 5-19-2015 (File: H10-D006A5)

Dear Mr. Arfman:

Based upon the information provided in your submittal received 5-19-15, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

1) Provide excerpts from the Ladera Industrial Center Site Development Plan showing that the site adjacent to the east is accepting on-site flow. Since the storm flow is increased from existing conditions, a cross-lot access agreement may be needed unless one is already in place to accept the proposed 100-year flow.

2) A couple of the new spot elevations were cut off on the right side of the plan view on Sheet CG-102.

3) For Basin 3 on Sheet CG-501, the labeling of the basin area on the plan view needs to match the basin area in the calculations. Also, label lot line for Lot 1-B-3.

4) Show roof drains.

If you have any questions, you can contact me at 924-3924.

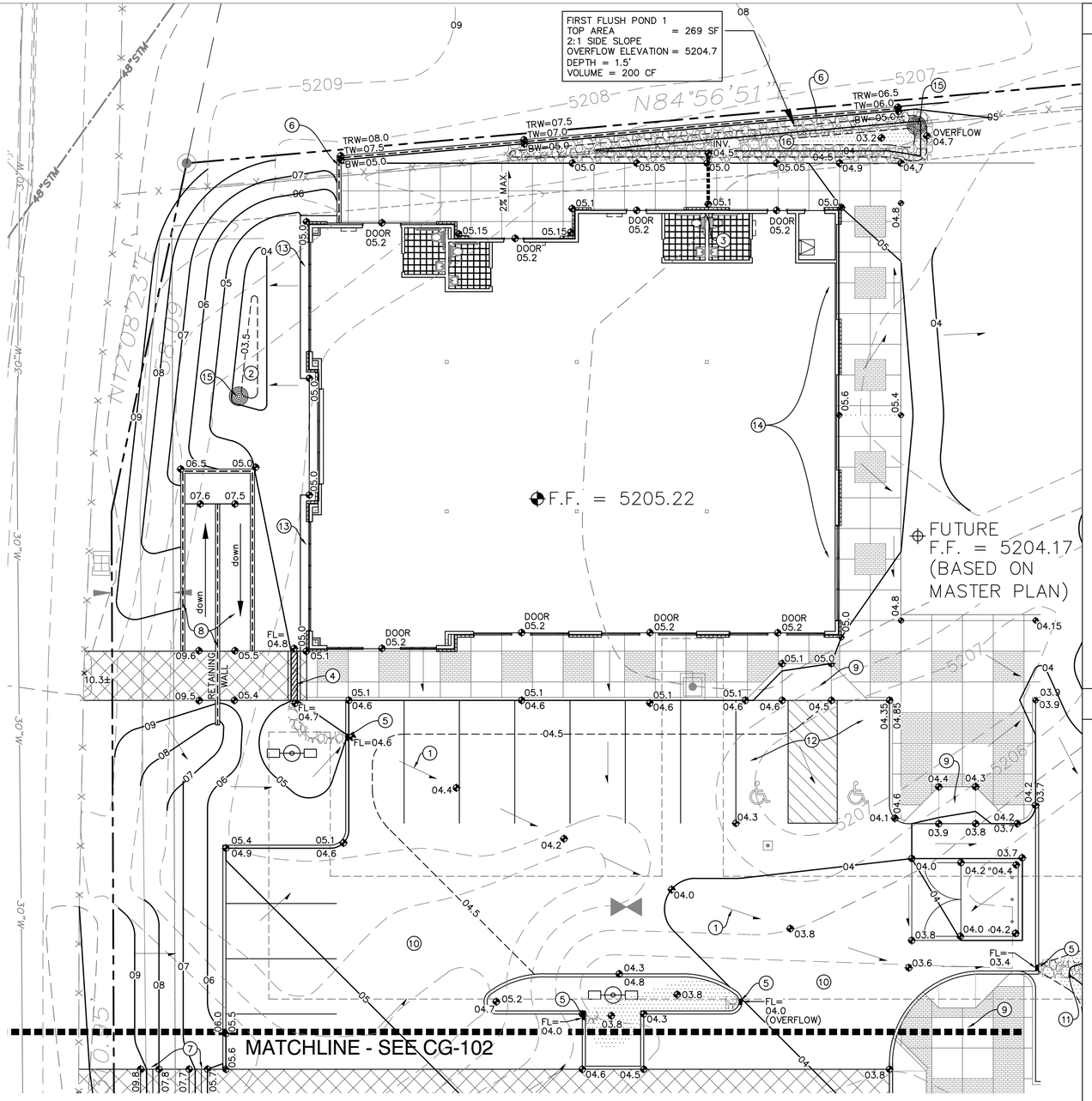
Sincerely,

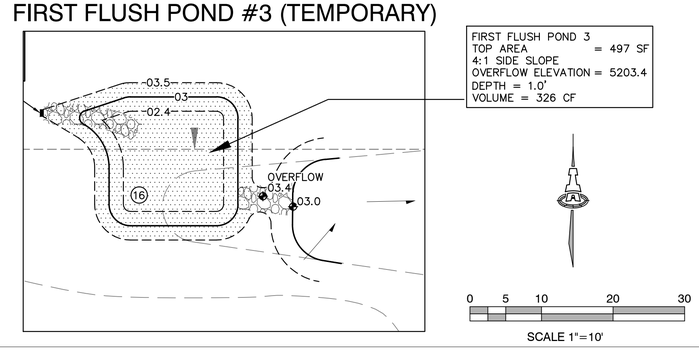
Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

H10D006A5_BP_Grading_Cmmt





DRAINAGE CONCEPT

THIS SITE WILL DRAIN EAST TO THE ADJACENT PROPERTY PER THE UNSER AND VISTA ORIENTE GRADING AND DRAINAGE PLAN (APPROVED AS PART OF THE LADERA INDUSTRIAL CENTER SITE DEVELOPMENT PLAN FOR BUILDING PERMIT (H9/D6A) APPROVED 4/30/2008.

EXISTING MUTUAL CROSS LOT DRAINAGE EASEMENT FOR THE BENEFIT OF LOTS 1–B–1 THRU 1–B–4 GRANTED BY PLAT FILED JANUARY 26, 2012. SAID EASEMENT SHALL RUN OVER, UNDER AND ACROSS THE COMMON AREAS (MEANING THOSE AREAS OF LOT NOT OCCUPIED BY A BUILDING FROM TIME TO TIME AND AT ANY APPLICABLE TIME). MAINTENANCE OF SAID EASEMENT SHALL BE THE RESPONSIBILITY OF THE RESPECTIVE LOT OWNERS AS TO THE PORTION CONTAINED WITHIN THEIR RESPECTIVE LOT.

STORMWATER CONTROL MEASURES ARE REQUIRED TO PROVIDE MANAGEMENT OF 'FIRST FLUSH' (DEFINED AS THE 90TH PERCENTILE STORM EVENT OR 0.34" [0.44" LESS 0.1" FOR INITIAL ABSTRACTION] OF STORMWATER WHICH DISCHARGES DIRECTLY TO A PUBLIC STORM DRAINAGE SYSTEM).

THE ESTIMATED PONDING VOLUME REQUIRED IS 0.34" * TYPE 'D' AREA: 0.34/12 * 0.6 AC * 43560 = 740 CF

ROOF DISCHARGE WILL BE DIRECTED TO A FIRST FLUSH POND LOCATED WITHIN THE LANDSCAPE AREA ON THE NORTH SIDE OF THE PROPERTY. OVERFLOW WILL BE ROUTED EAST.

PARKING LOT DISCHARGE WILL BE DIRECTED TO ONE OF THREE FIRST FLUSH RETENTION PONDS. A PERMANENT POND IN THE CENTER PARKING ISLAND AND TWO TEMPORARY PONDS IN THE UNDEVELOPED PORTION OF THE PROPERTY. AS THE PROPERTY CONTINUES TO DEVELOP, PERMANENT FIRST FLUSH IMPROVEMENTS WILL BE CONSTRUCTED.

OVERFLOW FROM THESE FIRST FLUSH PONDS WILL CONTINUE EAST PER THE APPROVED MASTER DRAINAGE AND GRADING PLAN.

PROJECT DATA

PROPERTY: THE SITE IS A PARTIALLY DEVELOPED (UTILITIES ONLY) COMMERCIAL PROPERTY LOCATED WITHIN C.O.A. VICINITY MAP H–9. THE SITE IS BOUND TO THE NORTH BY THE LADERA DIVERSION CHANNEL, TO THE EAST AND SOUTH BY PARTIALLY DEVELOPED COMMERCIAL (UTILITIES ONLY), AND TO THE WEST BY UNSER BLVD.

SITE AREA TO BE DEVELOPED: 0.7 ACRES

PROPOSED IMPROVEMENTS: THE PROPOSED IMPROVEMENTS INCLUDE CONSTRUCTION OF 5,820(±) SF RETAIL BUILDING WITH ASSOCIATED ASPHALT PAVED ACCESS AND PARKING, PEDESTRIAN WALKS, DRAINAGE IMPROVEMENTS, AND LANDSCAPING.

LEGAL: A PORTION OF LOT 1–B–3, LADERA INDUSTRIAL CENTER, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO.

UPC#: 100905946336210204

ADDRESS: UNSER BLVD NW ALBUQUERQUE NM 87120

BENCHMARK: VERTICAL DATUM SHOWN HEREON WAS DERIVED FROM THE ALBUQUERQUE CONTROL SURVEY MONUMENT "4–H9" HAVING A PUBLISHED ELEVATION OF 5209.315 FEET (NAVD 88).

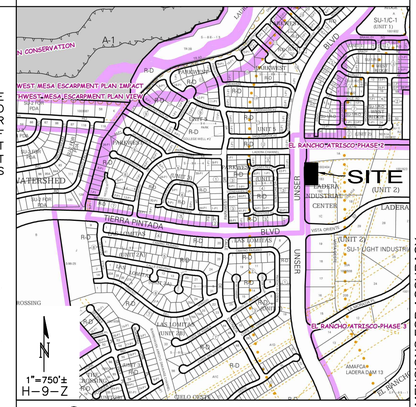
OFF–SITE: NO OFF–SITE DRAINAGE AFFECTS THIS PROPERTY.

FLOOD HAZARD: THIS PROPERTY APPEARS TO LIE WITHIN "ZONE X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN), WITH "ZONE A" (NO BASE FLOOD ELEVATIONS DETERMINED) ADJACENT TO THE NORTHERLY BOUNDARY ALONG THE LADERA DIVERSION CHANNEL, AS SHOWN ON NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP NUMBER 35001C0326G, MAP REVISED SEPTEMBER 26, 2008.

ENGINEER: FRED C. ARFMAN, P.E., NMPE 7322
ISAACSON & ARFMAN, PA
128 MONROE NE, 87111
TELEPHONE: (505) 268–8828

SURVEYOR: RUSS P. HUGG., NMPS 9750
SURV–TEK CONSULTING SURVEYORS
9384 VALLEY VIEW DRIVE, 87114
TELEPHONE: (505) 897–3366

VICINITY MAP



KEYED NOTES

KEYED NOTES SHOWN BELOW ARE FOR USE ON SHEETS CG–101 AND CG–102. NOT ALL NOTES ARE USED ON EACH SHEET.

1. PROVIDE SWALE WITHIN NEW ASPHALT AT FLOWLINE ELEVATIONS SHOWN TO DIRECT FLOW (MINIMUM SLOPE = 1%).
2. CONSTRUCT WATER HARVESTING BASIN WITHIN LANDSCAPING AT ELEVATIONS SHOWN TO COLLECT STORMWATER.
3. BUILDING ROOF DISCHARGE LOCATION. EXTEND DRAIN PIPE THROUGH WALK TO RELEASE DIRECTLY TO FIRST FLUSH POND #1. SEE ARCHITECTURAL FOR ADDITIONAL INFORMATION.
4. CONSTRUCT 1' WIDE (BOTTOM WIDTH) COVERED SIDEWALK CULVERT PER COA. STD. DWG. 2236 AT ELEVATIONS SHOWN TO PASS EMERGENCY OVERFLOW TO PAVEMENT.
5. PROVIDE 1.0' WIDE CURB OPENING TO PASS CONCENTRATED FLOW. INSTALL ROCK EROSION PROTECTION WITHIN LANDSCAPING AT EACH CURB OPENING (2'X2' OR TO EXTENTS SHOWN). TOP OF ROCK = PAVEMENT FLOWLINE. SEE CG–501 FOR DETAIL.
6. CONSTRUCT RETAINING WALL TO ACHIEVE GRADE DIFFERENCE SHOWN (2.5' MAX. RETAINING). SEE ARCHITECTURAL FOR DETAILS.
7. SITE ACCESS STAIRS – SEE ARCHITECTURAL FOR DETAILS.
8. SITE ACCESS RAMP / RETAINING WALL – SEE ARCHITECTURAL FOR DETAILS.
9. CONSTRUCT HANDICAP RAMPS PER ADA GUIDELINES. SLOPE AT 12:1 MAX. SEE ARCHITECTURAL FOR DETAILS.
10. CONSTRUCT ASPHALT PAVING AT ELEVATIONS SHOWN. SEE ARCHITECTURAL FOR PAVEMENT MATERIAL, JOINT INFORMATION, SECTIONS, PARKING LAYOUT, DIMENSIONS, STRIPING, ETC.
11. FIRST FLUSH POND (TEMPORARY). SEE INSERT THIS SHEET FOR CONTINUATION.
12. SLOPES WITHIN HANDICAP PARKING AREA TO MEET ADA REQUIREMENTS. MAX. SLOPE = 2% IN ANY DIRECTION. SEE ARCHITECTURAL PLANS FOR ADA PARKING DETAILS.
13. CONSTRUCT CONCRETE APRON (12" WIDE x 4" THICK WITH 6" TURNED–DOWN EDGE) THIS AREA. TOP OF APRON TO BE 0.1' BELOW F.F. ELEVATION TYPICAL. SLOPE @ 2%. SEE SHEET CG–501 FOR DETAIL.
14. RETAINING STEMWALL (1' MAX) REQUIRED THIS AREA. SEE ARCHITECTURAL.
15. CONSTRUCT PERCOLATION PIT (3 LOCATIONS) 10' MIN. FROM BUILDING. SEE SHEET CG–501 FOR DETAIL.
16. HATCHED AREA REPRESENTS EXTENTS OF 'FIRST FLUSH' RETENTION PONDING. CONSTRUCT TO ELEVATIONS SHOWN.

LEGEND

03.8	PROPOSED SPOT ELEVATION
—03—	PROPOSED CONTOUR (1' INTERVAL)
–03.5–	PROPOSED CONTOUR (0.5' INTERVAL)
	PROPOSED STORM DRAIN
	FLOW ARROW
	FIRST FLUSH RETENTION POND
	EROSION CONTROL
	PROPOSED SITE RETAINING WALL

Know what's below. Call before you dig. 811

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph. 505-268-8828 www.iacivil.com

2116 CG–101.dwg May 19,2015

MARTIN FM GRUMMER
ARCHITECT
331 WELLESLEY PLACE NE
ALBUQUERQUE, NEW MEXICO 87106
(505) 265–2507

ALL DIMENSIONS ARE TO BE FIELD VERIFIED. IF THERE ARE DISCREPANCIES, PLEASE NOTIFY THE ARCHITECT. DRAWING ARE NOT TO BE SCALED. USE DIMENSIONS FOR ACCURACY.

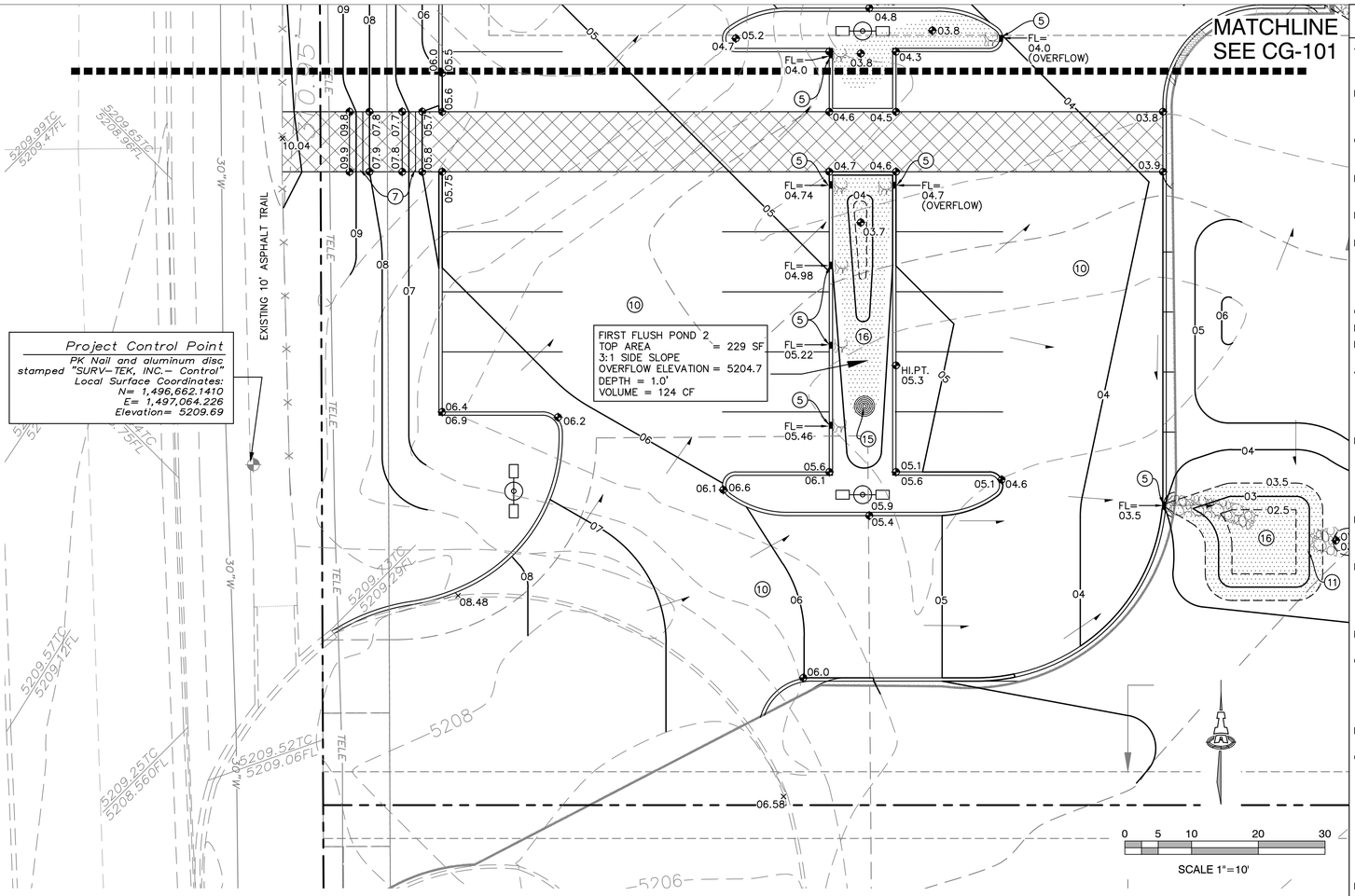
UNSER & VISTA ORIENTE
SHELL BUILDING
ALBUQUERQUE, NM 87114
GRADING & DRAINAGE PLAN NORTH

FRED C. ARFMAN NEW MEXICO 7322 LICENSED PROFESSIONAL ENGINEER
05-17-15

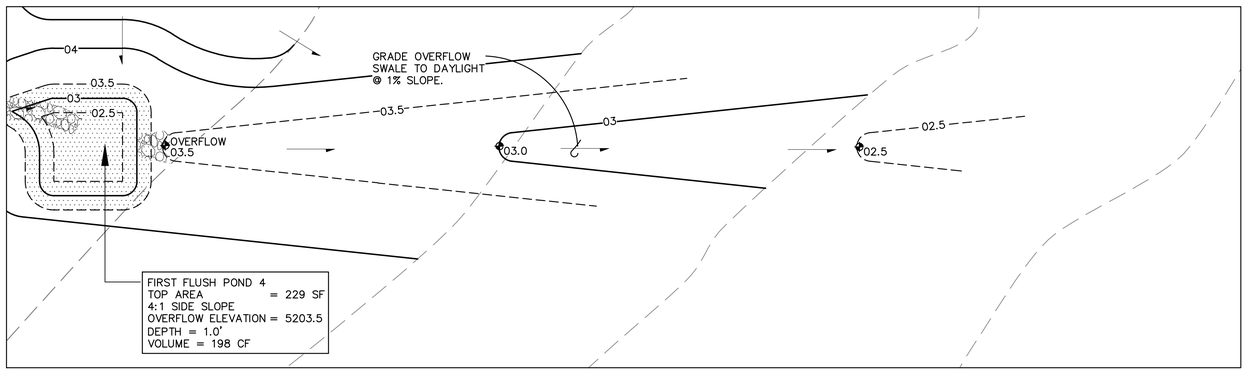
DATE: 18 MAY 2015
DRAWN BY: BJB
CHECKED BY: ANW
VERIFIED BY: FCA

REVISIONS

SHEET NO: CG-101



FIRST FLUSH POND #4 (TEMPORARY)



Know what's below. Call before you dig.

GENERAL NOTES

A. ALL WORK DETAILED ON THESE PLANS AND PERFORMED UNDER THIS CONTRACT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT. WHERE APPLICABLE, CITY OF ALBUQUERQUE AND NMDOT STANDARDS APPLY

B. THE CONTRACTOR SHALL ABIDE BY ALL STATE, LOCAL, AND FEDERAL LAWS, CODES, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS, INCLUDING EPA AND ADA REQUIREMENTS.

C. ALL SUBGRADE, OVEREXCAVATION, BACKFILL, AND FILL SHALL BE PLACED AND / OR COMPACTED PER THE GEOTECHNICAL REPORT AND CITY OF ALBUQUERQUE SPECIFICATIONS.

D. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FOR THE PROJECT PRIOR TO COMMENCING CONSTRUCTION, OR PRIOR TO OCCUPANCY, AS APPROPRIATE.

E. COORDINATE WORK WITH SITE PLAN, UTILITY PLAN AND LANDSCAPE PLAN.

F. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING OBSTRUCTIONS, AND CONDITION OF ALL EXISTING INFRASTRUCTURE PRIOR TO CONSTRUCTION. REPORT ALL DISCREPANCIES TO THE ARCHITECT AND VERIFY THE ARCHITECT'S INTENT BEFORE PROCEEDING.

G. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITE SAFETY.

H. CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON SITE.

I. CONTRACTOR SHALL OBTAIN ALL REQUIRED INSPECTIONS OF THE WORK.

J. CONSTRUCTION ACTIVITY SHALL BE LIMITED TO THE PROPERTY AND/OR PROJECT LIMITS. ANY DAMAGE TO ADJACENT STRUCTURES RESULTING FROM THE CONSTRUCTION PROCESS SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING EXISTING CONDITIONS PRIOR TO CONSTRUCTION.

K. CONTRACTOR SHALL PROVIDE A CONSTRUCTION TRAFFIC CONTROL AND SIGNING PLAN THAT CONFORMS TO THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND LOCAL REQUIREMENTS. THE CONTRACTOR SHALL OBTAIN BARRICADING PERMITS FROM THE APPROPRIATE AUTHORITIES PRIOR TO ANY CONSTRUCTION WORK ON OR ADJACENT TO EXISTING STREETS.

L. CONTRACTOR SHALL MAINTAIN ALL BARRICADING AND CONSTRUCTION SIGNING AT ALL TIMES. CONTRACTOR SHALL VERIFY THE PROPER LOCATION OF ALL BARRICADING AT THE END AND BEGINNING OF EACH DAY.

M. PAVEMENT GRADES IN MARKED HANDICAPPED PARKING AREAS SHALL NOT EXCEED 2.0% IN ANY DIRECTION. FOR ALL ACCESSIBLE ROUTES, MAXIMUM ALLOWABLE CROSS SLOPE IS 2.0% AND MAXIMUM LONGITUDINAL SLOPE WITHOUT RAMP IS 5.0%. FOLLOW ALL ADA ACCESSIBILITY GUIDELINES OR CITY CODES, WHICHEVER IS MORE STRINGENT.

N. ALL TRASH, DEBRIS, & SURFACE VEGETATION SHALL BE CLEARED AND LEGALLY DISPOSED OF OFFSITE.

O. PROPOSED SPOT AND CONTOUR ELEVATIONS SHOWN REPRESENT TOP OF FINISH MATERIAL (I.E. TOP OF CONCRETE, TOP OF CONCRETE BUILDING PAD, TOP OF PAVEMENT MATERIAL, TOP OF LANDSCAPING MATERIAL, ETC.). CONTRACTOR SHALL GRADE, COMPACT SUBGRADE AND DETERMINE EARTHWORK ESTIMATES BASED ON ELEVATIONS SHOWN MINUS FINISH MATERIAL THICKNESSES.

P. IF FIELD GRADE ADJUSTMENTS ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

Q. EXISTING UTILITY LINES ARE SHOWN IN AN APPROXIMATE MANNER ONLY AND MAY BE INCOMPLETE OR OBSOLETE. SUCH LINES MAY OR MAY NOT EXIST WHERE SHOWN OR NOT SHOWN. CONTRACTOR SHALL CONTACT NM-811 FOR UTILITY LINE SPOTS TWO WORKING DAYS PRIOR TO CONDUCTING SITE FIELD WORK. CONTRACTOR SHALL FIELD VERIFY AND LOCATE ALL UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF NECESSARY DRY UTILITY ADJUSTMENTS.

R. CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION STAKING. CONTRACTOR SHALL LOCATE AND PRESERVE ALL BOUNDARY CORNERS AND REPLACE ANY LOST OR DISTURBED CORNERS AT CONTRACTOR'S SOLE EXPENSE. PROPERTY CORNERS SHALL ONLY BE RESET BY A REGISTERED LAND SURVEYOR.

S. THE ENVIRONMENTAL PROTECTION AGENCY (EPA) AND THE CITY OF ALBUQUERQUE REQUIRE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND AN NDPES PERMIT FOR PROJECTS WHERE CONSTRUCTION ACTIVITIES MEET THE EPA THRESHOLD. (SWPPP, NPDES PERMIT BY OTHERS)

T. A CITY-APPROVED EROSION AND SEDIMENT CONTROL (ESC) PERMIT MUST BE INCLUDED WITH THE CONTRACTOR'S SUBMITTAL FOR A ROUGH GRADING, GRADING, PAVING, BUILDING, OR WORK ORDER PERMIT. ESC PLAN BY OTHERS.

U. POST-CONSTRUCTION MAINTENANCE FOR PRIVATE STORMWATER FACILITIES WILL BE THE RESPONSIBILITY OF THE FACILITIES OWNER. PERIODIC INSPECTION AND CERTIFICATIONS OF THE FACILITIES MAY BE REQUIRED BY THE CITY ENGINEER.

V. STORMWATER CONTROL MEASURES SHOWN ON THIS PLAN ARE REQUIRED TO PROVIDE MANAGEMENT OF 'FIRST FLUSH'. PER THE CITY DRAINAGE ORDINANCE, THE 90TH PERCENTILE STORM EVENT, WHICH IS 44 INCHES, IS TO BE MANAGED. REDUCE 0.44 INCH BY THE 0.1 INCH FOR THE INITIAL IMPERVIOUS ABSTRACTION IN TABLE A-6 OF SECTION 22 OF THE DPM. MULTIPLY THE REMAINING 0.34 INCH BY THE IMPERVIOUS AREA. THIS IS THE PORTION TO RETAIN.

W. ADJUST ANY RIMS OF EXISTING UTILITY FEATURES AS NECESSARY TO MATCH NEW GRADES. UTILITIES IN PAVED AREAS SHALL BE HS-25 TRAFFIC RATED.

X. ALL NEW PAVEMENT SURFACES SHALL BE CONSTRUCTED WITH POSITIVE SLOPE AWAY FROM BUILDINGS AND POSITIVE SLOPE TOWARD EXISTING AND/OR PROPOSED DRAINAGE PATHS. PAVING AND ROADWAY GRADES SHALL BE ±0.1' FROM PLAN ELEVATIONS. BUILDING PAD ELEVATION SHALL BE ±0.05' FROM PLAN ELEVATION.

Y. WHERE GRADES BETWEEN NEW AND EXISTING ARE SHOWN AS 'MATCH' OR '±', TRANSITIONS SHALL BE SMOOTH.

Z. CONTRACTOR SHALL COMPLY WITH LOCAL REGULATIONS FOR RESEEDING OF DISTURBED AREAS.

AA. FIRST FLUSH RETENTION DESIGN PARAMETERS TO BE STRICTLY ADHERED TO FOR CERTIFICATION PURPOSES.

AB. ENGINEER RECOMMENDS THAT OWNER MAINTAIN EROSION PROTECTION ELEMENTS. ENGINEER RECOMMENDS THAT OWNER INSPECT SITE YEARLY AND AFTER EACH RAINFALL TO IDENTIFY NEW AREAS OF EROSION AND INSTALL ADDITIONAL EROSION PROTECTION AS NEEDED BASED ON ACTUAL OCCURRENCES.

AC. MEASURES REQUIRED FOR EROSION AND SEDIMENT CONTROL SHALL BE INCIDENTAL TO THE PROJECT COST.

AD. FIVE WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM (811) FOR LOCATION OF EXISTING UTILITIES.

KEYED NOTES

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4. CONSTRUCT 1' WIDE (BOTTOM WIDTH) COVERED SIDEWALK CULVERT PER COA. STD. DWG. 2236 AT ELEVATIONS SHOWN TO PASS EMERGENCY OVERFLOW TO PAVEMENT.
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LEGEND

- 03.8 — PROPOSED SPOT ELEVATION
- 03 — PROPOSED CONTOUR (1' INTERVAL)
- -03.5- — PROPOSED CONTOUR (0.5' INTERVAL)
- PROPOSED STORM DRAIN
- FLOW ARROW
- FIRST FLUSH RETENTION POND
- EROSION CONTROL
- PROPOSED SITE RETAINING WALL

ISAACSON & ARFMAN, P.A.
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2116 CG-101.dwg May 19,2015

MARTIN FM GRUMMER
ARCHITECT
331 WELLESLEY PLACE NE
ALBUQUERQUE, NEW MEXICO 87106
(505) 265-2507

UNSER & VISTA ORIENTE
SHELL BUILDING
ALBUQUERQUE, NM 87114
GRADING & DRAINAGE PLAN SOUTH

ALL DIMENSIONS ARE TO BE FIELD VERIFIED. IF THERE ARE DISCREPANCIES, PLEASE NOTIFY THE ARCHITECT. DRAWING ARE NOT TO BE SCALED. USE DIMENSIONS FOR ACCURACY.

FRED C. ARFMAN NEW MEXICO 7322 LICENSED PROFESSIONAL ENGINEER 05-18-15

DATE: 18 MAY 2015
DRAWN BY: BJB
CHECKED BY: ANW
VERIFIED BY: FCA

REVISIONS

SHEET NO: CG-102

CALCULATIONS: Vista Oriente : 5/14/2015

Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993

ON-SITE

AREA OF SITE: 30790 SF = 0.7

100-year, 6-hour

HISTORIC FLOWS:

		Treatment SF	%
Area A	=	0	0%
Area B	=	15395	50%
Area C	=	15395	50%
Area D	=	0	0%
Total Area	=	30790	100%

DEVELOPED FLOWS:

		Treatment SF	%
Area A	=	0	0%
Area B	=	3079	10%
Area C	=	3695	12%
Area D	=	24016	78%
Total Area	=	30790	100%

EXCESS PRECIP:

Precip. Zone 1

E_A = 0.44

E_B = 0.67

E_C = 0.99

E_D = 1.97

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

Weighted E = $\frac{E_AA_A + E_BA_B + E_CA_C + E_DA_D}{A_A + A_B + A_C + A_D}$

Historic E	=	0.83 in.	Developed E	=	1.72 in.

On-Site Volume of Runoff: V360 = E*A / 12

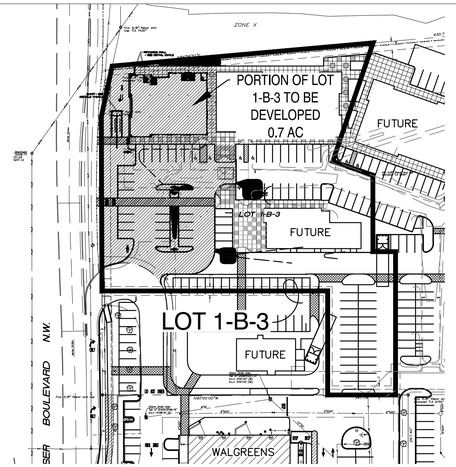
Historic V_{360}	=	2130 CF	Developed V_{360}	=	4419 CF

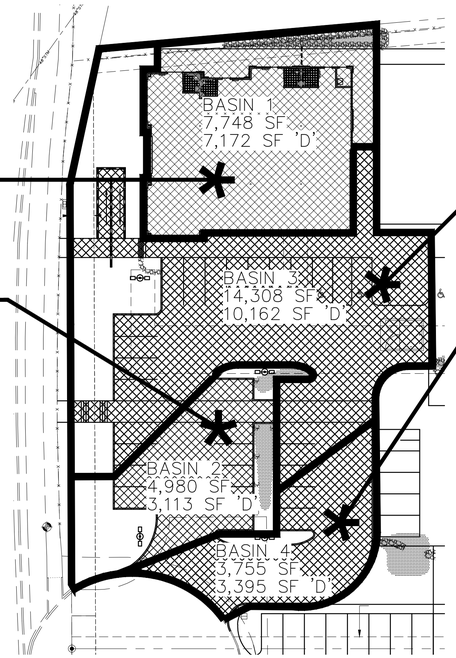
On-Site Peak Discharge Rate: $Qp = Q_{pA}A_A + Q_{pB}A_B + Q_{pC}A_C + Q_{pD}A_D / 43{,}560$

For Precipitation Zone 1

Q_{pA}	=	1.29	Q_{pC}	=	2.87
Q_{pB}	=	2.03	Q_{pD}	=	4.37

Historic Q_p	=	1.7 CFS	Developed Q_p	=	2.8 CFS





FIRST FLUSH POND #1		
Contour	Area	Volume
5204.70	269	
5204.00	135	141 CF
5203.20	12	59 CF
TOTAL VOL.		**200** CF

FIRST FLUSH POND #2		
Contour	Area	Volume
5204.70	229	
5203.70	18	124 CF
TOTAL VOL.		**124** CF

PERMANENT FIRST FLUSH RETENTION IS PROVIDED FOR:

BASIN NO. 1 — **DESCRIPTION** — TO NORTH FIRST FLUSH POOND

Area of basin flows = 7748 SF = 0.18 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above): Weighted E = 1.90 in.

Sub-basin Volume of Runoff (see formula above): V_{360} = 1228 CF

Sub-basin Peak Discharge Rate: (see formula above): Qp = 0.8 cfs

LAND TREATMENT	
A =	0%
B =	0%
C =	7%
D =	93%
FIRST FLUSH VOL.	204 CF

BASIN NO. 2 — **DESCRIPTION** — TO PARKING ISLAND FIRST FLUSH POND

Area of basin flows = 4980 SF = 0.11 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above): Weighted E = 1.56 in.

Sub-basin Volume of Runoff (see formula above): V_{360} = 647 CF

Sub-basin Peak Discharge Rate: (see formula above): Qp = 0.4 cfs

LAND TREATMENT	
A =	0%
B =	18%
C =	18%
D =	64%
FIRST FLUSH VOL.	90 CF

TEMPORARY FIRST FLUSH RETENTION IS PROVIDED FOR:

BASIN NO. 3 — **DESCRIPTION** — TO TEMPORARY FIRST FLUSH POND

Area of basin flows = 14308 SF = 0.33 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above): Weighted E = 1.65 in.

Sub-basin Volume of Runoff (see formula above): V_{360} = 1968 CF

Sub-basin Peak Discharge Rate: (see formula above): Qp = 1.3 cfs

LAND TREATMENT	
A =	0%
B =	14%
C =	14%
D =	72%
FIRST FLUSH VOL.	292 CF

BASIN NO. 4 — **DESCRIPTION** — TO TEMPORARY FIRST FLUSH POND

Area of basin flows = 3755 SF = 0.1 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above): Weighted E = 1.86 in.

Sub-basin Volume of Runoff (see formula above): V_{360} = 581 CF

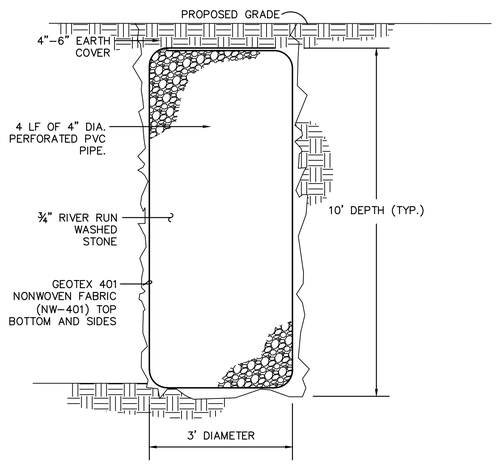
Sub-basin Peak Discharge Rate: (see formula above): Qp = 0.4 cfs

LAND TREATMENT	
A =	0%
B =	5%
C =	5%
D =	90%
FIRST FLUSH VOL.	96 CF

AS THE UNDEVELOPED PORTION OF LOT 1-B-3 DEVELOPS, THESE TEMPORARY FIRST FLUSH PONDS WILL BE INCORPORATED INTO THE OVERALL FIRST FLUSH SYSTEM FOR THE OVERALL PROPERTY.

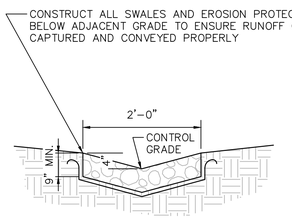
FIRST FLUSH POND #3 (TEMP)		
Contour	Area	Volume
5203.40	497	
5203.00	332	166 CF
5202.40	202	160 CF
TOTAL VOL.		**326** CF

FIRST FLUSH POND #4 (TEMP)		
Contour	Area	Volume
5203.50	318	
5203.00	190	127 CF
5202.50	95	71 CF
TOTAL VOL.		**198** CF



PERCOLATION PIT

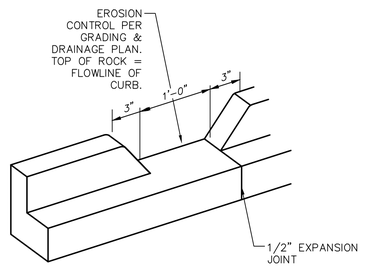
SCALE: N.T.S.



ALL EROSION PROTECTION TO BE FRACTURED FACE ROCK (F.F. ROCK): 6" AVG. DIA. ANGULAR FACED ROCK PLACED OVER GEOTEX 501 NON-WOVEN GEOTEXTILE (O.E.).

EROSION PROTECTION

SCALE: N.T.S.



GENERAL NOTES

1. EDGES NOT SPECIFICALLY DIMENSIONED SHALL BE SHAPED WITH A 3/8" EDGING TOOL.

CURB OPENING

SCALE: N.T.S.

Know what's below. Call before you dig.

MARTIN FM GRUMMER ARCHITECT
331 WELLESLEY PLACE NE
ALBUQUERQUE, NEW MEXICO 87106
(505) 265-2507

ALL DIMENSIONS ARE TO BE FIELD VERIFIED. IF THERE ARE DISCREPANCIES, PLEASE NOTIFY THE ARCHITECT. DRAWING ARE NOT TO BE SCALED. USE DIMENSIONS FOR ACCURACY.

UNSER & VISTA ORIENTE

SHELL BUILDING

ALBUQUERQUE, NM 87114

GRADING & DRAINAGE DETAILS

FRED C. ARFMAN NEW MEXICO 7322 LICENSED PROFESSIONAL ENGINEER 05-14-15

DATE: 18 MAY 2015

DRAWN BY: BJB

CHECKED BY: ANW

VERIFIED BY: FCA

REVISIONS

SHEET NO: CG-501

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2116 CG-101.dwg May 19,2015