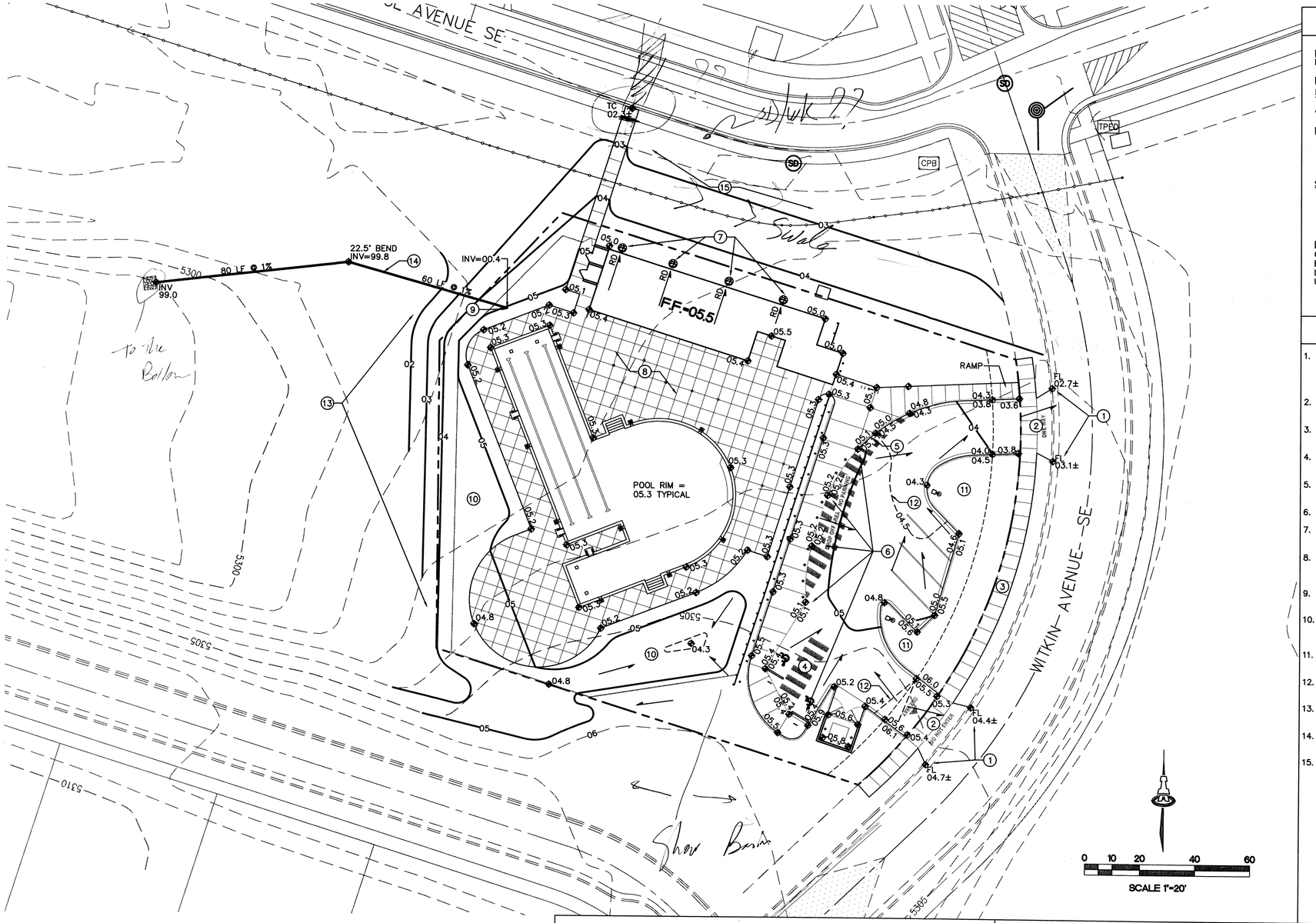

PROJECT DATA

LEGAL DESCRIPTION: A PORTION OF LOT A5, MESA DEL SOL INNOVATION PARK

FLOOD ZONE: PER BERNALILLO COUNTY FIRM MAP PANEL #35001C0555H, WITH MAP REVISION DATE: AUGUST 16, 2012, THE SITE IS LOCATED WITHIN FLOODZONE 'X' DESIGNATED AS AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN.

ENGINEER: FRED. C. ARFMAN, P.E.
ISAACSON & ARFMAN, P.A.
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PHONE: (505) 268-8828

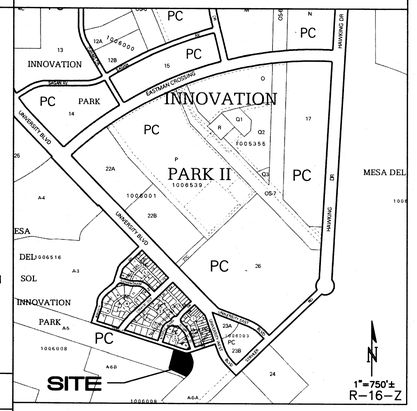
SURVEYOR: BOHANNAN HUSTON
COURTYARD 1, 7500 JEFFERSON ST. NE
ALBUQUERQUE, NM 87104
PHONE: (505) 823-1000

BENCHMARK: THE PROJECT BENCHMARK IS A FOUND ALUMINUM CAP "5_R15", WITH PROJECT COORDINATES OF N=1,452,649.49, E=1,529,579.45, ELEV.=5306.67. THE PROJECT BENCHMARK IS LOCATED AT THE CONRER OF BOBBY FOSTER RD AND UNIVERSITY BLVD. SE.

KEYED NOTES

1. FLOWLINE GRADES SHOWN WITHIN WITKIN AVENUE (NOT YET CONSTRUCTED) ARE DESIGN GRADES PROVIDED BY OTHERS. ADJUSTMENTS TO ON-SITE ACCESS DRIVE GRADES MAY BE REQUIRED BASED ON WITKIN AVENUE AS-BUILT INFORMATION.
2. SITE ACCESS TO BE CONSTRUCTED AS PART OF WITKIN AVENUE CONSTRUCTION (BY OTHERS).
3. PUBLIC WALK THIS AREA TO BE CONSTRUCTED AS PART OF WITKIN AVENUE CONSTRUCTION (BY OTHERS).
4. SLOPES WITHIN HANDICAP PARKING AREA TO MEET ADA REQUIREMENTS. MAX. SLOPE = 2% IN ANY DIRECTION.
5. TRANSITION ASPHALT PAVING FROM 6" BELOW TOP OF WALK TO FLUSH WITH WALK OVER 10' AS SHOWN.
6. TOP OF CONCRETE WALK FLUSH WITH TOP OF ASPHALT.
7. CONCENTRATED ROOF DISCHARGE LOCATION. PROVIDE PRECAST CONCRETE OR 3'X3' GROUTED ROCK SPLASHPAD AT OUTLET.
8. POOL DECK GRADES ARE SHOWN FOR GENERAL INFORMATION ONLY. FINAL DESIGN OF DECK AND ASSOCIATED DECK DRAINS BY OTHERS.
9. EXTEND DECK DRAIN OUTLET PIPE TO STORM DRAIN THIS AREA.
10. DEPRESS LANDSCAPING AREA TO ACCEPT STORMWATER FROM PAVEMENT FOR INFILTRATION. STORMWATER IN EXCESS OF AVAILABLE CAPACITY WILL PASS TO SOUTH SWALE.
11. DEPRESS LANDSCAPING WITHIN PARKING ISLANDS TO ELEVATIONS SHOWN TO CONTAIN STORMWATER.
12. 0.5' INCREMENT CONTOURS DASHED THIS AREA TO CLARIFY PROPOSED GRADING.
13. SLOPE TRANSITION TO DAYLIGHT ON WEST SIDE OF BUILDING AT 6:1 MAX. SLOPE AS SHOWN.
14. CONSTRUCT 8" DIA. STORM DRAIN AS SHOWN. ALL STORM DRAIN PIPE AND FITTINGS TO BE ADS N-12WT WATERTIGHT.
15. COORDINATE GRADES THIS AREA WITH STIEGLITZ PARK CONSTRUCTION (CURRENTLY IN DESIGN PHASE) TO ENSURE SMOOTH TRANSITION.

VICINITY MAP R-16



CALCULATIONS

CALCULATIONS: Mesa del Sol Community Swimming Pool : Dec. 21, 2012

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

ON-SITE

AREA OF SITE: 31615 SF = 0.7

100-year, 6-hour

HISTORIC FLOWS:	Treatment SF	%	DEVELOPED FLOWS:	Treatment SF	%	EXCESS PRECIP:
Area A =	0	0%	Area A =	0	0%	Precip. Zone 2
Area B =	31615	100%	Area B =	6323	20%	E_A = 0.53
Area C =	0	0%	Area C =	3162	10%	E_B = 0.78
Area D =	0	0%	Area D =	22131	70%	E_C = 1.13
Total Area =	31615	100%	Total Area =	31615	100%	E_D = 2.12

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

Weighted $E = \frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$

Historic E =	0.78 in.	Developed E =	1.75 in.

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

Historic V_{360} =	2055 CF	Developed V_{360} =	4618 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 2

Q_{pA} =	1.56	Q_{pC} =	3.14
Q_{pB} =	2.28	Q_{pD} =	4.70

Historic Q_p =	1.7 CFS	Developed Q_p =	2.9 CFS

ALL DISCHARGE FROM THIS PROPERTY WILL BE ROUTED TO THE EXISTING POND DIRECTLY TO THE WEST PER THE APPROVED MASTER DRAINAGE PLAN FOR MESA DEL SOL.

GENERAL NOTES

A. COORDINATE WORK WITH SITE PLAN, UTILITY PLAN, DEMOLITION PLAN, AND LANDSCAPE PLAN.

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

C. SEE APPROVED SOILS REPORT FOR SPECIFIC OVER-EXCAVATION AND COMPACTION REQUIREMENTS.

D. FINAL GRADES 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.

E. 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. ALL UTILITIES SHOULD BE FIELD VERIFIED AND LOCATED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. THE 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.

F. ALL NEW PAVEMENT SURFACES SHALL BE CONSTRUCTED WITH POSITIVE SLOPE AWAY FROM BUILDINGS AND POSITIVE SLOPE TOWARD EXISTING AND/OR PROPOSED DRAINAGE PATHS. WHERE NEW GRADES ARE SHOWN AS 'MATCH' OR '±', TRANSITIONS TO EXISTING SHALL BE SMOOTH AND LEVEL.

G. PERMANENT EROSION CONTROL IS TO BE INSTALLED DURING LANDSCAPING PHASE. THIS WILL NOT BE INCLUDED IN ENGINEER'S CERTIFICATION FOR CERTIFICATE OF OCCUPANCY.

LEGEND

— — — — — —	MASTER PLANNED DESIGN CONTOUR
02	PROPOSED CONTOUR
• 07.27	MASTER PLANNED DESIGN ELEVATION
✥06.4	PROPOSED ELEVATION
←	PROPOSED FLOW ARROW
RD	PROPOSED ROOF DRAIN LOCATION
F.F.=06.5	PROPOSED FINISH FLOOR ELEVATION

R16-D03A

RECEIVED
DEC 26 2012
LAND DEVELOPMENT SECTION

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128 Monroe Street N.E.
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Ph. 505-268-8828 www.iacivil.com
1954 CG-101.dwg Dec 21,2012

a new community swimming pool for:

Mesa del Sol

albuquerque, n.m.

slaGle HER
1600 rio grande nw . albuquerque new mexico 87104
fax 505 246 0437

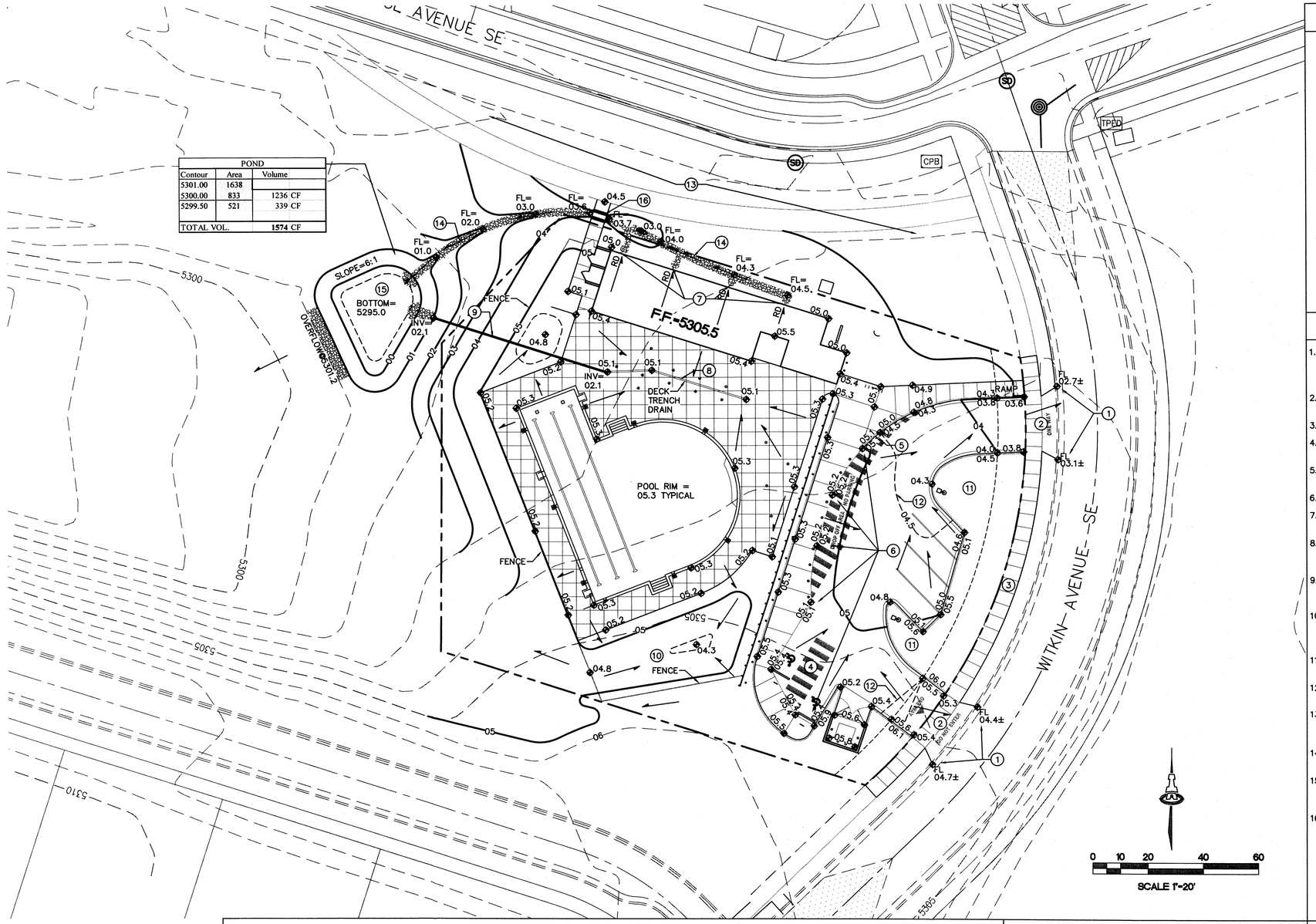
GRADING AND DRAINAGE PLAN

FRED C. ARFMAN NEW MEXICO 7322 LICENSED PROFESSIONAL ENGINEER 12-21-12

revisions:

date: 12/5/12

sheet: C101



PROJECT DATA

LEGAL DESCRIPTION: A PORTION OF LOT A5, MESA DEL SOL INNOVATION PARK

FLOOD ZONE: PER BERNALILLO COUNTY FIRM MAP PANEL #35001C0555H, WITH MAP REVISION DATE: AUGUST 16, 2012, THE SITE IS LOCATED WITHIN FLOODZONE 'X' DESIGNATED AS AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN.

ENGINEER: FRED. C. ARFMAN, P.E.
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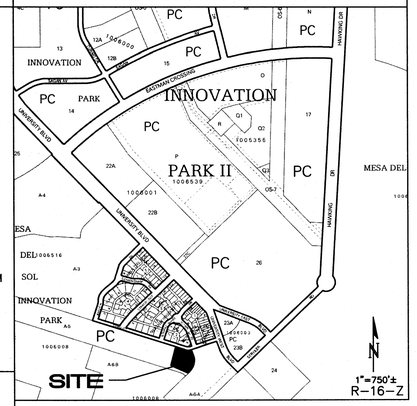
KEYED NOTES

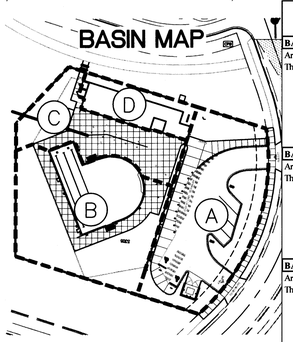
1. FLOWLINE GRADES SHOWN WITHIN WITKIN AVENUE (NOT YET CONSTRUCTED) ARE DESIGN GRADES PROVIDED BY OTHERS. ADJUSTMENTS TO ON-SITE ACCESS DRIVE GRADES MAY BE REQUIRED BASED ON WITKIN AVENUE AS-BUILT INFORMATION.
2. SITE ACCESS TO BE CONSTRUCTED AS PART OF WITKIN AVENUE CONSTRUCTION (BY OTHERS).
3. SEE ARCHITECTURAL FOR PUBLIC WALK EXTENTS AND DETAILS.
4. SLOPES WITHIN HANDICAP PARKING AREA TO MEET ADA REQUIREMENTS. MAX. SLOPE = 2% IN ANY DIRECTION.
5. TRANSITION ASPHALT PAVING FROM 6" BELOW TOP OF WALK TO FLUSH WITH WALK OVER 10' AS SHOWN.
6. TOP OF CONCRETE WALK FLUSH WITH TOP OF ASPHALT.
7. CONCENTRATED ROOF DISCHARGE LOCATION. PROVIDE PRECAST CONCRETE OR 3'X3' GROUTED ROCK SPLASHPAD AT OUTLET.
8. POOL DECK TRENCH DRAIN TO BE SPECIFIED BY POOL CONTRACTOR. CONNECT TO STORM DRAIN AT INVERT ELEVATION SHOWN USING FITTINGS AS REQUIRED.
9. INSTALL 66 LF OF 8" DIA. ADS N-12WT WATERTIGHT STORM DRAIN FROM TRENCH DRAIN CONNECTION TO WATER HARVESTING AREA AT INVERT ELEVATIONS SHOWN. DE
10. DEPRESS LANDSCAPING THIS AREA TO ACCEPT MINOR STORMWATER VOLUME FROM PAVEMENT FOR INFILTRATION. STORMWATER IN EXCESS OF AVAILABLE CAPACITY WILL PASS TO SOUTH SWALE.
11. DEPRESS LANDSCAPING WITHIN PARKING ISLANDS TO ELEVATIONS SHOWN TO CONTAIN STORMWATER.
12. 0.5' INCREMENT CONTOURS DASHED THIS AREA TO CLARIFY PROPOSED GRADING.
13. GRADES THIS AREA HAVE BEEN COORDINATED WITH ENGINEER DESIGNING STIEGLITZ PARK CONSTRUCTION (CURRENTLY IN DESIGN PHASE) TO ENSURE SMOOTH TRANSITION.
14. CONSTRUCT 3' WIDE X 8" DEPRESSED F.F. ROCK SWALE AT FLOWLINE ELEVATION SHOWN.
15. CONSTRUCT 18" DEEP WATER HARVESTING AREA AT ELEVATIONS AND DIMENSIONS SHOWN. PROVIDE 3' WIDE X 12" DEEP F.F. ROCK EROSION PROTECTION AT OVERFLOW.
16. CONSTRUCT 24" WIDE (BOTTOM WIDTH) COVERED SIDEWALK CULVERT PER C.O.A. STD. DWG. 2236. WELD STEEL PLATE PER C.O.A. STANDARDS.

VICINITY MAP R-16



CALCULATIONS

BASIN MAP



BASIN NO. A — DESCRIPTION: DRAINS TO WITKIN STREET

Area of basin flows = 11876 SF = 0.3 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 = 1.82 in.

Sub-basin Volume of Runoff (see formula above): V_{360} = 1801 CF

Sub-basin Peak Discharge Rate: (see formula above): Q_P = 1.1 cfs

LAND TREATMENT: A = 0% B = 15% C = 10% D = 75%

BASIN NO. B — DESCRIPTION: DRAINS TO SOUTH

Area of basin flows = 12033 SF = 0.3 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 = 1.52 in.

Sub-basin Volume of Runoff (see formula above): V_{360} = 1524 CF

Sub-basin Peak Discharge Rate: (see formula above): Q_P = 1.0 cfs

LAND TREATMENT: A = 0% B = 30% C = 20% D = 50%

BASIN NO. C — DESCRIPTION: DRAINS TO TRENCH DRAIN (TO POND)

Area of basin flows = 5792 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 = 1.75 in.

Sub-basin Volume of Runoff (see formula above): V_{360} = 846 CF

Sub-basin Peak Discharge Rate: (see formula above): Q_P = 0.5 cfs

LAND TREATMENT: A = 0% B = 20% C = 10% D = 70%

BASIN NO. D — DESCRIPTION: SURFACE DRAINS TO POND

Area of basin flows = 2923 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 = 2.12 in.

Sub-basin Volume of Runoff (see formula above): V_{360} = 516 CF

Sub-basin Peak Discharge Rate: (see formula above): Q_P = 0.3 cfs

LAND TREATMENT: A = 0% B = 0% C = 0% D = 100%

CALCULATIONS: Mesa del Sol Community Swimming Pool : Jan. 15, 2013

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

ON-SITE

AREA OF SITE: 32625 SF = 0.7

100-year, 6-hour

HISTORIC FLOWS:	Treatment SF	%	DEVELOPED FLOWS:	Treatment SF	%	EXCESS PRECIP:
Area A =	0	0%	Area A =	0	0%	Precip. Zone 2
Area B =	32625	100%	Area B =	6525	20%	E_A = 0.53
Area C =	0	0%	Area C =	3263	10%	E_B = 0.78
Area D =	0	0%	Area D =	22838	70%	E_C = 1.13
Total Area =	32625	100%	Total Area =	32625	100%	E_D = 2.12

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

Weighted $E = \frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$

Historic E = 0.78 in. Developed E = 1.75 in.

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

Historic V_{360} = 2121 CF Developed V_{360} = 4766 CF

On-Site Peak Discharge Rate: $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$ / 43,560

For Precipitation Zone 2

Q_{PA} = 1.56 Q_{PC} = 3.14

Q_{PB} = 2.28 Q_{PD} = 4.70

Historic Q_P = 1.7 CFS Developed Q_P = 3.0 CFS

TOTAL VOLUME DRAINING TO PROPOSED WATER HARVESTING BASIN (BASINS C AND D) = 1362 CF. TOTAL POND PROVIDED = 1574 CF.

GENERAL NOTES

A. COORDINATE WORK WITH SITE PLAN, UTILITY PLAN, DEMOLITION PLAN, AND LANDSCAPE PLAN.

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

C. SEE APPROVED SOILS REPORT FOR SPECIFIC OVER-EXCAVATION AND COMPACTION REQUIREMENTS.

D. FINAL GRADES 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.

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F. ALL NEW PAVEMENT SURFACES SHALL BE CONSTRUCTED WITH POSITIVE SLOPE AWAY FROM BUILDINGS AND POSITIVE SLOPE TOWARD EXISTING AND/OR PROPOSED DRAINAGE PATHS. WHERE NEW GRADES ARE SHOWN AS 'MATCH' OR '±', TRANSITIONS TO EXISTING SHALL BE SMOOTH AND LEVEL.

G. 6" AVG. DIA. FRACTURED FACE ROCK (F.F. ROCK) PERMANENT EROSION CONTROL IS TO BE INSTALLED DURING LANDSCAPING PHASE. THIS WILL NOT BE INCLUDED IN ENGINEER'S CERTIFICATION FOR CERTIFICATE OF OCCUPANCY.

LEGEND

- MASTER PLANNED DESIGN CONTOUR
- 02 PROPOSED CONTOUR
- • 07.27 MASTER PLANNED DESIGN ELEVATION
- ◆06.4 PROPOSED ELEVATION
- PROPOSED FLOW ARROW
- RD PROPOSED ROOF DRAIN LOCATION
- F.F.=06.5 PROPOSED FINISH FLOOR ELEVATION

a new community swimming pool for:

Mesa del Sol
albuquerque, n.m.

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GRADING AND DRAINAGE PLAN

RECEIVED
JAN 16 2013
LAND DEVELOPMENT SECTION

FRED C. ARFMAN NEW MEXICO 7322 LICENSED PROFESSIONAL ENGINEER 01.16.13

revisions:

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1954 CG-101.dwg Jan 15,2013

date: 12/5/12

sheet: C101