

DEKKER
PERICH
SABATINI

7601 JEFFERSON NE, SUITE 100
ALBUQUERQUE, NM 87109

505.761.9700 / DPSDESIGN.ORG

ARCHITECT

ENGINEER

EPC
SUBMITAL
AUGUST 26 2015

PROJECT

GENERATIONS AT WEST MESA
57TH STREET AND CENTRAL AVE
ALBUQUERQUE, NM

REVISIONS

△
△
△
△

DRAWN BY

REVIEWED BY

DATE 8/26/2015

PROJECT NO. 14-0701

DRAWING NAME

CONCEPTUAL
GRADING &
DRAINAGE PLAN
2 OF 2

SHEET NO.

SDP-3.2
OF

DRAINAGE CONCEPT

PROPERTY: THE SITE IS AN UNDEVELOPED INFILL PROPERTY LOCATED WITHIN C.O.A. VICINITY MAP K-11. THE SITE IS BOUND TO THE NORTH BY FIRE STATION NO. 7, TO THE WEST BY 57TH STREET, TO THE SOUTH BY 57TH STREET, AND TO THE EAST BY 57TH STREET NW. TO THE WEST BY RULI DEVELOPED RESIDENTIAL PROPERTIES, AND ACCESS TO 56TH STREET NW, AND TO THE SOUTH BY AVALON ROAD SW.

PROPOSED IMPROVEMENTS: THE PROPOSED IMPROVEMENTS INCLUDE AN AFFORDABLE HOUSING COMMUNITY FOR SENIORS AND GRANDFAMILIES ALONG WITH A COMMUNITY CENTER, ASSOCIATED ASPHALT PAVED DRIVES, PARKING, PLAYGROUNDS, PEDESTRIAN WALKS AND LANDSCAPING.

OFF-SITE FLOW: NO OFF-SITE FLOW IMPACTS THIS PROPERTY.

RETAINING WALLS: ON-SITE RETAINING WALLS AND RETAINING / EXTENDED STEMWALLS WILL BE REQUIRED THROUGHOUT THE DEVELOPMENT TO ACHIEVE THE NECESSARY GRADE TRANSITIONS. NO PERMETER PROPERTY LINE RETAINING WALLS WILL EXCEED 4' RETAINING AT THE POINT OF THE GREATEST GRADE CHANGE. RETAINING WALL DESIGN (WALL LOCATIONS, TOP OF WALL / BOTTOM OF WALL ELEVATIONS) WILL BE INCLUDED AS PART OF THE BUILDING PERMIT SUBMITTAL.

SITE DISCHARGE: IN 2012, THE ADJACENT FIRE STATION NO. 7 WAS CONSTRUCTED PER THE APPROVED GRADING AND DRAINAGE PLAN PREPARED BY WOLZEN-CORBIN.

THE DRAINAGE POND PROPOSED FOR THE SOUTHEAST QUADRANT OF THE SITE HAS BEEN SIZED TO RETAIN 100% OF THE FLOWS (100-YR, 6-HR DESIGN STORM). THE POND WILL THEN UTILIZE A WEIR DISCHARGE, CALCULATED TO BE 2.18 CFS, THROUGH A SIDEWALK CULVERT DISCHARGING TO 57TH STREET WHERE EXISTING CURB INLETS WILL CATCH THE FLOW.

THE FILE CONTAINED NO INFORMATION AS TO WHY THE ON-SITE PONDING WAS PROVIDED. IT ALSO DID NOT ADDRESS A BACK-TO-BACK STORM EVENT (100-YEAR 10-DAY STORM).

FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, DEPRESSED LANDSCAPING AND RETENTION PONDS SIZED TO RETAIN THE FIRST FLUSH VOLUME ARE PROVIDED THROUGHOUT THE PROPERTY. LIMITED ON-SITE STORM DRAIN WILL BE PROVIDED TO DIRECT INDIVIDUAL BUILDING ROOF DISCHARGE TO ON-SITE POND LOCATIONS (WHERE CLEAR SURFACE FLOWPATHS ARE NOT AVAILABLE). THE SITE WILL THEN DISCHARGE TO 57TH STREET TO ENTER THE EXISTING PUBLIC STORM DRAIN SYSTEM.

THE APPLICANT REQUESTS A PRE-DESIGN MEETING WITH THE HYDROLOGY SECTION.

CALCULATIONS

CALCULATIONS: 2124 Generations at West Mesa : August 19, 2015

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

AREA OF SITE: 159018.8287 100-year, 6-hour ON-SITE "NA" = 3.7

HISTORIC FLOWS:				DEVELOPED FLOWS:				EXCESS PRECIP:			
Area A	=	0	0%	Treatment SF	%	Area A	=	0	0%	Treatment SF	%
Area B	=	0	0%	Area B	=	28623	18%	Area B	=	28623	18%
Area C	=	159018.8287	100%	Area C	=	31804	20%	Area C	=	31804	20%
Area D	=	0	0%	Area D	=	98592	62%	Area D	=	98592	62%
Total Area	=	159018.8287	100%	Total Area	=	159018.8287	100%	Total Area	=	159018.8287	100%

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

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

Historic E = 0.99 in. Developed E = 1.54 in.

On-Site Volume of Runoff: V₃₆₀ = E²⁴ / 12

Historic V₃₆₀ = 13119 CF Developed V₃₆₀ = 20407 CF

On-Site Peak Discharge Rate: Q_p = Q₉₀A_A^{0.48}Q₉₀A_B^{0.48}Q₉₀A_C^{0.48}Q₉₀A_D^{0.48} / 43.560

For Precipitation Zone 1

Q_{90A} = 1.29

Q_{90C} = 2.87

Q_{90B} = 2.03

Q_{90D} = 4.37

Historic Q_p = 10.5 CFS Developed Q_p = 13.3 CFS

FIRST FLUSH MEASURES

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 PONDING VOLUME REQUIRED IS 0.34" * TYPE 'D' AREA:
0.34/12 * 3.7 AC * 62% LAND TREATMENT 'D' * 43560 = 2,793 CF

THERE ARE 'FIRST FLUSH' RETENTION BASIN AREAS THROUGHOUT THE SITE (HATCHED PER LEGEND). STORMWATER FROM THE IMPERVIOUS AREAS SHALL BE DIRECTED TO THESE BASINS VIA CURB OPENINGS AND ON-SITE STORM DRAINS. FLOW IN EXCESS OF FIRST FLUSH POND CAPACITY WILL OVERFLOW TO ADJACENT PAVEMENT TO DISCHARGE TO 57TH STREET.

THE 'FIRST FLUSH' BASIN VOLUMES SHALL BE ANALYZED AND SIZED AS PART OF THE BUILDING PERMIT PLAN SUBMITTAL. CURB OPENING LOCATIONS ARE SHOWN CONCEPTUALLY AND SHALL BE LOCATED AND SIZED WITH FINAL DESIGN.

THE CUMULATIVE AREA SHOWN HATCHED FOR FIRST FLUSH PONDING IS APPROXIMATELY 4,770 SF SO THE AVERAGE DEPTH WILL BE 7'.

ISAACSON & AREMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph. 505-268-8828 www.isaical.com
Aug 24,2015

2124 CG-101 CONCEPTUAL.dwg