I. INTRODUCTION AND EXECUTIVE SUMMARY

THIS PROJECT, LOCATED IN A DEVELOPED COMMERCIAL AREA OF CENTRAL ALBUQUERQUE, REPRESENTS A MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA. THE PROPOSED IMPROVEMENTS CONSIST OF AN ADDITION TO AN EXISTING BUILDING. THE PROPOSED DRAINAGE CONCEPT IS TO MAINTAIN THE STATUS QUO WITH CONTINUED DISCHARGE TO AN EXISTING DETENTION POND THAT RELEASES TO CANDELARIA RD NE AT THE EXISTING CONTROLLED RATE OF DISCHARGE IN ACCORDANCE WITH AN APPROVED GRADING AND DRAINAGE PLAN.

THIS SUBMITTAL IS MADE IN SUPPORT OF BUILDING PERMIT APPROVAL.

II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP, THE SITE IS LOCATED ON THE NORTH SIDE OF CANDELARIA ROAD NE, BETWEEN EDITH BLVD AND I-25. THE CURRENT LEGAL DESCRIPTION OF THE SITE IS LOT 1-A, SCHMIDER PARCEL. AS SHOWN BY PANEL 332 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS FOR BERNAILILLO COUNTY, NEW MEXICO, SEPTEMBER 26, 2008, THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE.

III. BACKGROUND DOCUMENTS AND RESEARCH

THE PREPARATION OF THIS SUBMITTAL RELIED UPON THE FOLLOWING DOCUMENTS:

- PLAT OF TOPOGRAPHY PREPARED BY HARRIS SURVEYING, NMPS 11463, DATED JANUARY, 2011. THIS REFERENCED SURVEY PROVIDES THE BASIS FOR THE EXISTING CONDITIONS OF THE PROJECT SITE.
- GRADING AND DRAINAGE PLAN FOR ROLLINS TRUCK LEASING PREPARED BY TOM MANN & ASSOCIATES DATED 08/11/1987 (CITY HYDROLOGY FILE G15/D001). THIS PLAN WAS PREPARED TO SUPPORT THE CONSTRUCTION OF A PAVED PARKING LOT AT THIS SAME SITE WHICH WAS THEN KNOWN AS LOT 1, SUNDT'S INDUSTRIAL AREA. THIS PLAN INCLUDED CONSTRUCTION OF A PAVED PARKING LOT DETENTION POND SERVING THE SUBJECT SITE WITH A 10 INCH STORM DRAIN DESIGNED TO RELEASE AT A RATE OF 1.1 CFS TO CANDELARIA RD NE VIA 12 INCH SIDEWALK CULVERT. THE LOT PREVIOUSLY HAD AN UNPAVED RETENTION POND.

IV. EXISTING CONDITIONS

THE EXISTING SITE IS DEVELOPED AS A HOMELESS SHELTER AND OPPORTUNITY CENTER WITH AN EXISTING BUILDING, PAVED PARKING AND SERVICE AREAS, A LANDSCAPED AREA WEST OF THE BUILDING, AND A PAVED PARKING LOT. THE SITE IS DIVIDED INTO TWO DRAINAGE BASINS. BASIN A IS THE SOUTHERN BASIN THAT DRAINS FROM NORTHEAST TO SOUTHWEST AS SURFACE FLOW AND DISCHARGES FREELY TO CANDELARIA VIA DRIVEWAY. BASIN B IS THE NORTHERN PORTION OF THE SITE THAT DRAINS TO THE NORTH ON PAVED SURFACES TO AN EXISTING DETENTION POND LOCATED WITH A PAVED PARKING/STORAGE AREA ON TRACT 2-A THAT ADJOINS THE SITE TO THE EAST AND NORTH. THE POINT OF CONCENTRATION OF THE POND IS A SINGLE "D" STORM INLET THAT WAS CONSTRUCTED PURSUANT TO THE AFOREMENTIONED 1987 PLAN.

AT THE TIME OF THE 1987 PLAN, THE SUBJECT SITE WAS PART OF LOT 1, SUNDT'S INDUSTRIAL AREA THAT INCLUDED THE PROPERTY WITH THE DETENTION POND AND THE PROPERTY THAT IS NOW LOT 1-A, SCHMIDER PARCEL. A 2005 LOT LINE ADJUSTMENT AND REPLAT ADJUSTED THE LOT LINES SUCH THAT THE NORTHERN PORTION OF CURRENT TRACT 1-A (BASIN B) DRAINS ONTO THE DETENTION POND LOCATED ON TRACT 2-A TO THE NORTH. THE 2005 PLATTING ACTION DID NOT HAVE A RELATED DRAINAGE REPORT, AND AN EASEMENT WAS NOT GRANTED VIA PLAT TO ADDRESS OR DOCUMENT THIS HISTORIC CONDITION.

OFFSITE FLOWS DO NOT IMPACT THE SITE.

V. DEVELOPED CONDITIONS

THE PROPOSED IMPROVEMENTS TO THE SITE CONSIST OF A NEW BUILDING ADIDTION AND PAVED PARKING LOT IMPROVEMENTS TO BASIN B. SMALL LANDSCAPED AREAS WILL BE PROVIDED THAT CONSIST OF CRUSHER FINES. THERE ARE NO PROPOSED IMPROVEMENTS TO BASIN A THAT WILL CONTINUE TO DISCHARGE FREELY TO CANDELARIA ROAD NE TO THE SOUTH.

THE NEW BUILDING ADDITION AND PARKING LOT IMPROVEMENTS WILL BE CONSTRUCTED ON AN AREA THAT IS CURRENTLY ASPHALT PAVEMENT. BY ADDING SMALL AREAS OF CRUSHER FINES, THERE WILL BE A NEGLIGIBLE DECREASE IN THE VOLUME AND PEAK RATE OF RUNOFF GENERATED BY THE SITE.

BASIN B RUNOFF WILL CONTINUE TO DRAIN FROM SOUTH TO NORTH IN HISTORIC MANNER ONTO TRACT 2-A. TO MIMIC THE PRE-EXISTING SHEETFLOW NATURE OF THIS DISCHARGE, THE PARKING LOT RUNOFF WILL BE DIRECTED TO A CONCRETE RUNDOWN CHANNEL THAT HAS A TAPERED HEIGHT ON THE NORTH SIDE ALLOWING RUNOFF TO SPILL OR OVERFLOW THE SIDE AS A WIDE SIMILAR TO A LONG WIER AS OPPOSED TO A POINT DISCHARGE. THE INTENT OF THIS BEING TO MORE CLOSELY MIMIC THE CURRENT SHEETFLOW CONDITION.

IT SHOULD BE NOTED THAT FOUR (4) PORTABLE BUILDINGS HAVE RECENTLY BEEN INSTALLED AT THE SITE UNDER SEPARATE BUILDING PERMIT THAT DID NOT HAVE AN ASSOCIATED GRADING PLAN. THESE BUILDINGS WERE LOCATED ON PAVED AREAS, AND ARE SET ON PIERS THAT ARE AT OR ABOVE THE PRE-EXISITNG PAVEMENT ELEVATION, THEREBY NOT IMPACTING OR ALTERING THE PRE-EXISTING AND HISTORIC DRAINAGE CONDITIONS.

VI. GRADING PLAN

THE GRADING PLAN SHOWS 1.) EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'-0" INTERVALS AS TAKEN FROM THE TOPOGRAPHIC SURVEY. 2.) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'-0" INTERVALS. 3.) THE LIMIT AND CHARACTER OF THE EXISTING AND PROPOSED IMPROVEMENTS, AND 4.) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES.

VII. CALCULATIONS

THE CALCULATIONS HEREON ANALYZE THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT FOR THE SITE. THE PROCEDURE FOR 40 ACRE AND SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY 1993, HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED. AS DEMONSTRATED BY THESE CALCULATIONS. THE PROPOSED IMPROVEMENTS WILL RESULT IN A NEGLIGIBLE DECREASE IN THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED BY THIS PROJECT.

VIII. CONCLUSIONS

THE FOLLOWING CONCLUSIONS HAVE BEEN ESTABLISHED AS A RESULT OF THE EVALUATIONS AND ANALYSES CONTAINED HEREIN: 1. THIS PROJECT REPRESENTS A MODIFICATION TO A DEVELOPED SITE IN AN INFILL AREA.

- 2. THIS SUBMITTAL IS MADE TO SUPPORT SITE DEVELOPMENT PLAN FOR BUILDING PERMIT.
- 3. THE SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE.
- 4. DEVELOPED RUNOFF FROM BASIN B WILL BE ROUTED THROUGH THE NEW PARKING LOT IMPROVEMENTS TO A CONCRETE RUNDOWN CHANNEL WITH A TAPERED SIDEWALL THAT WILL OVERFLOW TO THE NORTH, CLOSELY MIMICING THE EXISTING MANNER AND LOCATION OF DICHARGE TO THE HISTORIC OUTFALL.
- 5. THE PROPOSED IMPROVEMENTS WILL RESULT IN A NEGLIGIBLE DECREASE IN RUNOFF GENERATED BY THE PROJECT SITE.
- 6. THE PROPOSED IMPROVEMENTS WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES OR CONDITIONS.

CALCULATIONS:

I. <u>SITE CHARACTERISTICS</u> A. PRECIPITATION ZONE = 2.35 B. $P_{6,100} = P_{360} =$ C. TOTAL PROJECT AREA (A_T) = 62,780 SF

D. LAND TREATMENTS

1. EXISTING LAND TREATMENT

a. BASIN A	39,400 SF =	0.90 AC	
TREATMENT	AREA (SF/AC)		%
В	3,700 / 0.08		Ş
С	11,100 / 0.25		28
D	24,600 / 0.57		63
b. BASIN B	23,380 SF =	0.54 AC	
TREATMENT	AREA (SF/AC)		%
С	1,500 / 0.04		7
D	21,880 / 0.50		93
2. DEVELOPED LAND T	REATMENT		
a. BASIN A TREATMENT	39,400 SF = AREA (SF/AC)	0.90 AC	%

3,700 / 0.08 10,300 / 0.24

25,400 / 0.58

5,160 / 0.12

18,220 / 0.42

AREA (SF/AC)

23,380 SF = 0.54 AC

3.7 CFS

3.7 CFS

3,700 CF

2.3 CFS

1.44 AC

b. BASIN B

TREATMENT

A. EXISTING CONDITION

1. BASIN A

II. HYDROLOGY

a. VOLUME $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$

 $E_W = ((0.00*0.53) + (0.08*0.78) + (0.25*1.13) + (0.57*2.12))/0.90 = 1.73 \text{ IN}$ $V_{100} = (E_W/12)A_T = (1.73/12)0.90 = 0.1298 \text{ AC-FT} =$ 5,650 CF b. PEAK DISCHARGE

 $Q_{P} = Q_{PA}A_{A} + Q_{PB}A_{B} + Q_{PC}A_{C} + Q_{PD}A_{D}$ $Q_P = Q_{100} = ((0.00*1.56) + (0.08*2.28) + (0.25*3.14) + (0.57*4.7)) =$

2. BASIN B

a. VOLUME

 $E_{W} = (E_{A}A_{A} + E_{B}A_{B} + E_{C}A_{C} + E_{D}A_{D})/A_{T}$ $E_W = ((0.00*0.53) + (0.00*0.78) + (0.04*1.13) + (0.50*2.12))/0.54 = 2.05 IN$ 4,020 CF $V_{100} = (E_W/12)A_T = (2.05/12)0.54 = 0.0923 \text{ AC-FT} =$ b. PEAK DISCHARGE

 $Q_{P} = Q_{PA}A_{A} + Q_{PB}A_{B} + Q_{PC}A_{C} + Q_{PD}A_{D}$

 $Q_P = Q_{100} = ((0.00*1.56) + (0.00*2.28) + (0.04*3.14) + (0.50*4.7)) =$

B. DEVELOPED CONDITION

1. BASIN A a. VOLUME

 $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$ ((0.00*0.53) + (0.08*0.78) + (0.24*1.13) + (0.58*2.12))/0.90 =(1.74/12)0.90 = 0.1305 AC-FT =5,680 CF $V_{100} = (E_W/12)A_T =$

b. PEAK DISCHARGE $Q_{P} = Q_{PA}A_{A} + Q_{PB}A_{B} + Q_{PC}A_{C} + Q_{PD}A_{D}$

 $Q_P = Q_{100} = ((0.00*1.56) + (0.08*2.28) + (0.24*3.14) + (0.58*4.7)) =$

2. BASIN B a. VOLUME

 $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$ ((0.00*0.53) + (0.00*0.78) + (0.12*1.13) + (0.42*2.12))/0.54 = 1.89 IN

b. PEAK DISCHARGE $Q_{P} = Q_{PA}A_{A} + Q_{PB}A_{B} + Q_{PC}A_{C} + Q_{PD}A_{D}$ $Q_P = Q_{100} = ((0.00*1.56) + (0.00*2.28) + (0.12*3.14) + (0.42*4.7)) =$

C. COMPARISON

1. BASIN A

a. VOLUME $\Delta V_{100} = 5,680 - 5,650 =$ 30 CF (INCREASE) b. PEAK DISCHARGE $\Delta Q_{100} = 3.7 - 3.7 =$ 0.0 CFS (INCREASE)

(1.89/12)0.54 = 0.0851 AC-FT =

2. BASIN B

a. VOLUME					
ΔV ₁₀₀ =	3,700 - 4,020 =	-320 CF	(DECREASE)		
b. PEAK DISCHARGE					
$\Delta Q_{100} =$	2.3 - 2.5 =	-0.1 CFS	(DECREASE)		

2' - 0" HEIGHT VARIES FROM 0" TO 6" ON NORTH SIDE PER GRADING PLAN SHEET C-102 Y4. 4 4 40 4 12" SUBGRADE COMPACTED @ 95% A.S.T.M D-1557 3000 P.S.I. CONCRETE

> TYPICAL RUNDOWN SECTION SCALE: 1" = 1' - 0"



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2012.052.2

SHEET

19 NOVEMBER, 2012

REVISIONS: