CITY OF ALBUQUERQU

Hydrology Section Planning Department David S. Campbell, Director



Timothy M. Keller, Mayor

June 27, 2018

Nicholas Nuccio 829 Ponderosa NW Albuquerque, New Mexico 87107

RE: 1220 Iron St SW Grading and Drainage Plan Engineers Stamp Date 4/3/2018 (K13D076)

Dear Mr. Nuccio,

Based upon the information provided in your submittal received 5/29/2018, this plan is approved for Grading Permit and Building Permit. Please attach a copy of this approved plan and letter into the construction sets in the building permitting process prior to sign-off by Hydrology.

PO Box 1293 A Private Drainage Easement will be required on the plat with the City's standard maintenance note for the pond.

Albuquerque Prior to **Certificate of Occupancy release**, Engineer Certification per the DPM checklist of this plan will be required.

NM 87103

If you have any questions, please contact me at 924-3986 or e-mail at jhughes@cabq.gov.

www.cabq.gov

Sincerely,

James D. Hughes, P.E. Principal Engineer, Hydrology Planning Department

C: Data Base K13D076



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Legal Description: Lot 10-A and 10-B of I	PC#:	018-16128 City Drainage #: <u>K\3.D07</u> 6 Work Order#:	
City Address: 1220 Iron SW, Abq, NM 8	7102		
Engineering Firm: JCII Group, LLC		Contact:	
Address: 8105 Sand Springs Cr. NW, A	bq, NM 87114		
Phone#: 505-264-6918 F	ax#:]	E-mail:	
Owner: Catherine Noble & Nicholas N	uccio	Contact:	
Address: 829 Ponderosa Nw Albuquero	ue, NM 87107		
Phone#: 505 803 4939 F	ax#: I	E-mail: <u>nick@scatterfarm.com</u>	
Architect:		Contact:	
Address:			
	ax#: I	3-mail:	
Surveyor:		Contact:	
Address:			
	ax#: I	3-mail:	
Contractor: Owner		Contact:	
Address:			
Phone#:F	ax#: I	E-mail:	
TYPE OF SUBMITTAL:	CHECK TYPE OF APPROVAL	ACCEPTANCE SOUGHT:	
X DRAINAGE REPORT	SIA/FINANCIAL GUARANTE		
X DRAINAGE PLAN 1st SUBMITTAL	PRELIMINARY PLAT APPRO	VAL	
DRAINAGE PLAN RESUBMITTAL	S. DEV. PLAN FOR SUB'D AI	PROVAL DE CELWED	
CONCEPTUAL G & D PLAN	S. DEV. FOR BLDG. PERMIT	APPROVAL	
X GRADING PLAN	SECTOR PLAN APPROVAL	MAY 2 9 2018	
EROSION & SEDIMENT CONTROL PLAN		1417-4.1	
ENGINEER'S CERT (HYDROLOGY)	CERTIFICATE OF OCCUPAN		
CLOMR/LOMR	CERTIFICATE OF OCCUPAN	CY (TCL TEMP) LAND DEVELOPMENT SECTION	
TRAFFIC CIRCULATION LAYOUT (TCL)	FOUNDATION PERMIT APPR	OVAL # 21.0.00	
ENGINEER'S CERT (TCL)	BUILDING PERMIT APPROV		
ENGINEER'S CERT (DRB SITE PLAN)	$\underline{\mathbf{X}}$ GRADING PERMIT APPROV		
ENGINEER'S CERT (ESC)	PAVING PERMIT APPROVAL		
SO-19	WORK ORDER APPROVAL	ESC CERT. ACCEPTANCE	
OTHER (SPECIFY)	GRADING CERTIFICATION	OTHER (SPECIFY)	
WAS A PRE-DESIGN CONFERENCE ATTENDED: Yes No Copy Provided			
DATE SUBMITTED: 5/29/2018 By: Nicholas Nuccio			

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the followin

1. Conceptual Grading and Drainage Plan: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans

2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five (5) acres Drainage Report: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more 3.

4.

Erosion and Sediment Control Plan: Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

GRADING & DRAINAGE GENERAL NOTES 1. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER THIS CONTRACT, EXCEPT AS

OTHERWISE STATED OR PROVIDED FOR HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, AND THE CITY OF ALBUQUERQUE SPECIFICATIONS (AS APPLICABLE).

2. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM (260-1990), FOR LOCATION OF EXISTING UTILITIES. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES.

3. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES AND OBSTRUCTIONS. SHOULD A CONFLICT EXIST. THE CONTRACTOR WILL NOTIFY THE OWNER IMMEDIATELY SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THIS WORK IS CONSIDERED INCIDENTAL TO THE PROJECT

4. ALL EXCAVATION SHALL BE GOVERNED BY FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH, OSHA 29 CFR 1926.650. ALL EXCAVATION, TRENCHING, AND SHORING ACTIVITIES MUST BE CARRIED OUT IN ACCORDANCE WITH OSHA 29 CFR 1926.650 SUBPART P.

5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO KNOW AND COMPLY WITH THE "OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970"

6. CONTRACTOR SHALL SCARIFY AREA UNDER BUILDING AND PARKING TO A DEPTH OF 8" AND RECOMPACT SUBGRADE TO 95% MAX. DENSITY AS DETERMINED BY ASTM D-1557 UNLESS NOTED OTHERWISE.

7. CONTRACTOR WILL BE RESPONSIBLE FOR FURNISHING BORROW MATERIAL OR HAULING OFF EXCESS MATERIAL. THE TRANSPORTATION AND/OR DISPOSAL OF THESE MATERIALS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. ALL EXCAVATED MATERIAL THAT IS NOT REQUIRED TO BE REUSED MUST BE REMOVED FROM THE PROJECT AREA IMMEDIATELY.

8. NO SEPARATE PAYMENT WILL BE MADE FOR ANY HAULING OR DISPOSAL OF MATERIALS. THE TRANSPORTATION AND/OR DISPOSAL OF MATERIAL SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

9. WHEN ABUTTING NEW CONCRETE TO EXISTING, CUT BACK EXISTING TO A NEAT STRAIGHT LINE AS REQUIRED TO REMOVE ANY BROKEN OR CRACKED CONCRETE, AND MATCH NEW TO EXISTING. COORDINATE WITH CONSTRUCTION NOTES. NO SEPARATE PAYMENT SHALL BE MADE FOR SAW CUTTING OF EXISTING PAVEMENT OR CONCRETE BUT SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. CUTTING OF PAVEMENT OR CONCRETE SHALL BE IN CONFORMANCE WITH PROJECT SPECIFICATIONS.

10. EXERCISE CARE TO AVOID DISTURBING EXISTING UTILITIES. COORDINATE WITH THE UTILITY COMPANIES FOR ANY REQUIRED RELOCATIONS, AND IN ORDER TO PREVENT SERVICE DISRUPTION.

12. CONTRACTOR SHALL PROVIDE REASONABLE ACCESS TO TEMPORARY FACILITIES WITHIN THE PROJECT AREA DURING CONSTRUCTION.

13. WATERING FOR DUST CONTROL, AS REQUIRED, SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION AND NO MEASUREMENT OR PAYMENT SHALL BE MADE THEREFOR. CONSTRUCTION AREAS SHALL BE WATERED OR OTHERWISE KEPT DUST FREE. THE CONTRACTOR SHALL USE WATERING EQUIPMENT FOR DUST POLLUTION ABATEMENT AS DIRECTED BY THE OWNER.

14. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL DEMOLITION DEBRIS WORK MATERIALS SHALL BE DISPOSED OF IN A CITY APPROVED WASTE AREA, IN ACCORDANCE WITH ALBUQUERQUE SPECIFICATIONS, SECURED BY AND AT THE EXPENSE OF THE CONTRACTOR.

15. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL ABANDONED UTILITY LINES THAT ARE EXPOSED AS A RESULT OF CONSTRUCTION UNLESS OTHERWISE DIRECTED BY THE OWNER.

16. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH "AS-BUILT" PLANS. THE MAINTENANCE OF THESE PLANS INCLUDE AN UP TO DATE SET OF AS-BUILT PLANS FOR THE PROJECT. THESE PLANS SHALL BE KEPT CURRENT, WITHIN ONE WEEK, AT ALL TIMES AND SHALL BE SUBJECT TO REVIEW BY THE OWNER THROUGHOUT THE PROJECT. THE FINAL AS-BUILT PLANS SHALL BE SUBMITTED TO THE OWNER AND ENGINEER BEFORE FINAL PAYMENT IS MADE.

17. THE CONTRACTOR AGREES TO TAKE NECESSARY SAFETY PRECAUTIONS AS REQUIRED BY FEDERAL. STATE AND LOCAL AUTHORITIES TO PROTECT PEDESTRIAN AND VEHICULAR TRAFFIC IN THE CONSTRUCTION AREA, WHICH INCLUDE BUT ARE NOT LIMITED TO: MAINTAINING ADEQUATE WARNING SIGNS, BARRICADES, LIGHTS, GUARD FENCES, WALKS AND BRIDGES.

18. CONTRACTOR'S YARD, AND ANY OTHER AREAS DISTURBED BY THE CONTRACTOR NOT INCLUDED ON THE PLANS, SHALL BE RE-ESTABLISHED TO OWNERS SATISFACTION. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO MEASUREMENT OR PAYMENT WILL BE MADE THEREFOR.

19. CONTRACTOR IS RESPONSIBLE FOR GEOTCHNICAL EVALUATION BY A REGISTERED GEOTECHNICAL ENGINEER. COORDINATE WITH GEOTECHNICAL INVESTIGATION REPORT, AND IF ANY CRITERIA WITHIN THIS REPORT CANNOT BE MET, CONTACT THE GEOTECHNICAL ENGINEER FOR SUPPLEMENTAL RECOMMENDATIONS. IF NO GEOTECHNICAL EVALUATION REPORT IS PROVIDED, OWNER ASSUMES ALL RESPONSIBILITY OF GEOTCHNICAL CONDITIONS.

20. CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND ADHERING TO A STORMWATER POLLUTION PREVENTION PLAN IF MORE THAN AN ACRE IS DISTURBED.

22. SAFETY RAILS ARE REQUIRED AT ALL LOCATION ADJACENT TO A PEDESTRIAN WALKWAY WHERE A VERTICAL DROP OF 24" OR MORE EXISTS, OR AS APPLICABLE PER GOVERNING BUILDING CODE. COORDINATE WITH OWNER FOR SAFETY RAIL DETAILS.

23. ALL LANDSCAPED AREAS SHALL BE DEPRESSED APPROXIMATELY 6" (MAX.) BELOW ADJACENT CONCRETE.

24. ALL SIDEWALKS AND RAMPS TO BE APPROXIMATELY 4" ABOVE ADJACENT LANDSCAPE FINISH.

25. COORDINATE IMPROVEMENTS SHOWN ON THIS PLAN WITH THE OWNER'S SITE PLAN. COORDINATE ANY DEPENDENCIES WITH THE OWNER.

26. SITE SURVEY IS BASED FROM CITY OF ALBUQUERQUE CONTROL. AUTOCAD FILE WILL BE MADE AVAILABLE UPON REQUEST.

GRADING & DRAINAGE KEYED NOTES

- A. GRADE AREA PER CONTOUR ELEVATIONS SHOWN. 4H:1V MAX. CONTOUR LINES SHOWN ARE AT TOP OF FINISHED LANDSCAPE AND/OR GRAVEL SURFACE.
- B. GRADE RETENTION BASIN AS SHOWN (4H:1V MAX. SIDE SLOPES) WITH BOTTOM ELEV. = 4948.3
- C. INSTALL 1" TO 1/2" CRUSHED GRANITE AT 4" (MIN.) THICK, OVER 4" TO 6" ROCK AT 8" THICK.
- D. CONSTRUCT 15" CONCRETE HEADER CURB PER ELEVATIONS SHOWN ON PLAN. INTEGRATE SITE FENCE ON TOP OF HEADER CURB. COORDINATE WITH OWNER.
- E. INSTALL 8" DRAIN PIPE FOR ROOF WATER HARVESTING. PROVIDE WATERTIGHT JOINTS WHERE THE SYSTEM IS WITHIN 8' OF BUILDING (OR PER GEOTECHNICAL REPORT). PROVIDE ROOF STUBOUTS AND CLEANOUTS, COORDINATION WITH BUILDING PLANS.
- . CONSTRUCT 3" THICK CRUSHER FINES WALKWAY WITH LANDSCAPE BORDERING COORDINATE WITH OWNER.
- G. INSTALL 6" ROCK IN 5'X5' EXCAVATION AT 2 FEET DEEP, PROVIDE GEOTECHNICAL FABRIC ALONG ALL SIDES AND BOTTOM.
- H. CONSTRUCT SITE FENCE AND PROVIDE 12" x 4" UNOBSTRUCTED DRAINAGE OPENING ALONG NORTH FENCE AT INVERT ELEV. 4948.5.

. NOTE NOT USED.

J. CONSTRUCT NEW STANDARD CURB AND GUTTER PER COA DETAIL 2415.

OWNER INFORMATION NICK NUCCIO & CATHERINE NOBLE 1220 IRON SW ALBUQUERQUE, NM 87102

GRADING & DRAINAGE ANALYSIS

. EXECUTIVE SUMMARY THIS PLAN SERVES TO SUPPORT THE PROPOSED DEVELOPMENT FOR SLOT HOUSE SUBDIVISION. THE SITE IS LOCATED IN THE CITY OF ALBUQUERQUE AND IS KNOWN AS LOT 10 (AND HALF OF LOT 11) RAYNOLDS ADDITION. THIS SUBDIVISION IS LOCATED AT 1220 IRON SW. THE PROPOSED CONSTRUCTION CONSISTS OF NEW BUILDING, UTILITIES, GRADING & DRAINAGE IMPROVEMENTS, GRAVEL PARKING LOT, WALKWAYS, LANDSCAPE AND OTHER AMENITIES AS REQUIRED FOR A FULLY FUNCTIONAL SITE. OFF-SITE CONSTRUCTION WILL INCLUDE SIDEWALK, CURB, GUTTER, AND DRIVE PAD REMOVAL. MOST LOTS WITHIN THE RAYNOLDS ADDITION ARE FULLY DEVELOPED. ALSO, STREET PAVEMENT, CURB AND GUTTER, PUBLIC UTILITIES AND DRAINAGE STRUCTURES FOR RAYNOLDS ADDITION ARE IN PLACE. DUE TO THESE DEVELOPMENTS, OFF-SITE STORMWATER SHOULD NOT IMPACT THIS SITE. IT IS PROPOSED THAT STORMWATER GENERATED ON-SITE WILL BE CONTROLLED AND CONVEYED TO ON-SITE RETENTION BASINS. THE TOTAL RUN-OFF GENERATED ON-SITE DURING A 100 YEAR, 6-HOUR STORM EVENT IS DETERMINED TO BE 0 CFS. THIS RUN-OFF WILL BE RETAINED AND 0.07 CFS WILL OVERFLOW TO THE ROW DURING A 100YR-6HR EVENT.

II. PROJECT DESCRIPTION

AS SHOWN ON THE LOCATION MAP THE SITE (61,864 SF = APPROXIMATELY 1.4 ACRES) IS LOCATED IN THE CITY OF ALBUQUERQUE AT 1220 IRON SW. THE SITE IS PLATTED AS "LOT 10 AND HALF OF LOT 11 OF THE RAYNOLDS ADDITION, SECTION 19, TOWNSHIP 10N, RANGE 3E, NMPM, CITY OF ALBUQUERQUE, BERNALILLO COUNTY NEW MEXICO, NOVEMBER 24, 1924. WHICH IS RECORDED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO IN BOOK D1, PAGE 33, FURTHERMORE, THE SITE IS LOCATED IN FLOOD ZONE X AS INDICATED BY FIRM NUMBER 35001C0333H. RECORDED ON 08/16/2012 BY THE FEMA.

III. BACKGROUND DOCUMENTS

NO KNOWN DRAINAGE REPORT EXISTS FOR THIS LOT. THE PLAT, THE FIRM, THE COA DEVELOPMENT PROCESS MANUAL, THE SITE SURVEY, AND THE PROPOSED GRADING AND DRAINAGE PLAN WERE UTILIZED FOR THE EXECUTION OF THIS HYDROLOGY AND HYDRAULIC ANALYSIS.

IV. EXISTING CONDITIONS

CURRENTLY THE SITE IS UNDEVELOPED, BUT WAS PREVIOUSLY DEVELOPED WITH A SINGLE FAMILY HOME. THERE IS VERY LITTLE VEGETATION ON THE PROJECT SITE. THE SITE CURRENTLY PONDS WATER, BUT NATURALLY DRAINS SOUTHERLY.

V. DEVELOPED CONDITIONS

THE PROPOSED ON-SITE CONSTRUCTION CONSISTS OF A BUILDING, UTILITIES, GRADING & DRAINAGE IMPROVEMENTS, GRAVEL PARKING LOT, WALKWAYS, LANDSCAPE AND OTHER AMENITIES. OFF-SITE CONSTRUCTION WILL INCLUDE SIDEWALK, CURB, GUTTER AND DRIVE PAD REMOVAL. IT IS PROPOSED THA STORMWATER GENERATED ON-SITE WILL BE CONTROLLED AND CONVEYED TO ON-SITE RETENTION BASIN. ALL LANDSCAPED AREAS WILL BE DEPRESSED 6-INCHES, THEREFORE STORMWATER THAT FALLS IN THESE AREAS WILL SLOWLY PERCOLATE INTO THE GROUND AND SURROUNDING VEGETATION. ROOF RUN-OFF WILL BE ROUTED TO AN UNDERGROUND CISTERN THAT WILL ALLOW PERCOLATION. PROPOSED DRAINAGE STRUCTURES ARE SIZED TO ACCOMMODATE THE 100-YR 6-HOUR EVENT.

VI. EROSION CONTROL

CURRENTLY NO HARD SURFACES EXIST AT THE SITE. HOWEVER, AFTER DEVELOPMENT APPROXIMATELY 35% OF THE SITE WILL BE MADE-UP OF ROOFTOP. THE PROPOSED CONSTRUCTION WILL INCREASE THE AMOUNT OF IMPERVIOUS AREA. PERMANENT EROSION CONTROL ROCK AND GRAVEL.

VII. WATER QUALITY ENHANCEMENTS NO WATER QUALITY ENHANCEMENTS ARE PROPOSED.

VIII. GRADING & DRAINAGE PLAN

- 2. PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOUR LINES
- 4. THE LIMITS AND CHARACTER OF THE PROPOSED IMPROVEMENTS
- 5. CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES

SLOT YARD HOUSE SUBDIVISION GRADING AND DRAINAGE

ALBUQUERQUE, NEW MECIXO

PLAT BK. D1, PG. 33. RECORDED: NOV. 24, 1924 LOT 10-A & 10-B, RAYNOLDS ADDITION

SEC. 19, T. 10N, R. 3E, N.M.P.M. LOT SIZE: 0.122 ACRE UNDEVELOPED (PREVIOUSLY DEVELOPED)

PROPERTY DESCRIPTION

LOT NUMBERED 10 AND THE EAST 1/2 OF LO NUMBERED 11 IN THE BLOCK NUMBERED 53 OF THE RAYNOLDS ADDITION TO THE CITY OF ALBUQUERQUE, NEW MEXICO,

THE GRADING & DRAINAGE PLAN SHOWN ON THIS SHEET DEPICTS: 1. EXISTING GRADE SPOT ELEVATION AS TAKEN FROM RECENT TOPOGRAPHY

3. THE LIMITS AND CHARACTER OF THE EXISTING FEATURES

IX. CALCULATIONS

THE CALCULATIONS HEREON ANALYZE THE HYDROLOGY FOR THE DEVELOPED CONDITIONS UPON A 100 YEAR, 6-HOUR RAINFALL EVENT. PROCEDURE FOR 40 ACRES AND SMALLER BASINS, AS SET FORTH IN CHAPTER 22 OF THE DEVELOPMENT PROCESS MANUAL (DPM), VOLUME 1, 1997 REVISIONS, ARE USED TO QUANTIFY THE PEAK RATE OF DISCHARGE (Q) AND VOLUME (V) OF ON-SITE STORMWATER. RESULTS OD THE HYDROLOGY AND HYDRAULIC CALCULATIONS ARE PRESENTED BELOW.

HYDROLOGY ANALYSIS FOR PEAK RATE OF DISCHARGE (Q) AND PEAK VOLUME (V):

SITE CHARACTERISTICS: DRAINAGE AREA = (SEE DRAINAGE AREA MAP) LAND TREATMENT (DPM CH. 22, TABLE A-4) PRECIPITATION ZONE = 2 (DPM CH. 22, TABLE A-1) FOR ADDITIONAL DATA USED, SEE TABLE 1 AND 2 ON THIS SHEET.		LEGEND ⁴⁹⁴⁸ EXISTING ELEVA T. <u>48.3 FG</u> PROPOSED ELE
DRAINAGE AREA 1 TOTAL AREA = 0.102 A LAND TREATMENT B = 15% C = 45% D = 40% ANALYSIS RESULTS Q = 0.11 CFS V = 546 CF	ACRES TOTAL AREA = 0.122 LAND TREATMENT C = 100% ANALYSIS RESULTS Q = 0.07 CFS V = 501 CF	T. $ \frac{48.3 \text{ FG}}{16} \xrightarrow{\text{PROPOSED ELE}} \\ \text{TC} = \text{TOP OF} \\ \text{TF} = \text{TOP OF} \\ \text{FG} = \text{FINAL FI} \\ \text{INV} = \text{PIPE IN} \\ \text{OUNDERGROUND} \\ -GGGGG$
DRAINAGE AREA 2 TOTAL AREA = 0.020 A LAND TREATMENT D = 100% ANALYSIS RESULTS Q = 0.04 CFS	ACRES	
V = 154 CF		GRAD
ROOF DRAIN CAPACITY (Q): PIPE ROUGHNESS (n) PIPE FLOW AREA (A)	APACITY (Q) OF SITE DRAINAGE AMENITIES: = 0.012 = 0.196 sf	
HYDRAULIC RADIUS (R) PIPE SLOPE (S)	= 0.125 = .0208 ft/ft	IRON

$Q = (1.49/n)(A)(R^{0.667})(S^{0.5}) = 0.88$ cfs

RETENTION BASIN DESCRIPTION AND VOLUME (V) CALCULATIONS: RETENTION BASIN IS DESIGNED WITH 4H:1V SIDE SLOPES AND INCLUDES 8" PIPE, AND GRAVEL FILLED PARKING LOT. THE TOTAL VOLUME IS CALCULATED AS FOLLOWS;

DRAINAGE AREA 1

RETENTION BASIN: V = (1/2)[(208 SF + 1,584 SF)(0.5 FT)] = 448 CF8-INCH STORM DRAIN PIPE: LENGTH = 290 LF

 $V = [((3.14)(0.67)^2)/4] \times 290 LF = 102 CF$

DRAINAGE AREA 2

GRAVELED FILLED PARKING LOT:

V = (590 SF)(1.0 FT)(30%) = 177 CF

<u>X. STORM WATER CONTROL MEASURES</u>

TO MANAGE THE FIRST FLUSH IN ORDER TO PREVENT A HIGH CONCENTRATION OF POLLUTANTS FROM RUNNING OFF SITE AND TO COMPLY WITH THE CITY MS4, A RETENTION BASIN IS PROPOSED ON-SITE. THE VOLUME FOR SAID RETENTION BASIN IS AS FOLLOWS;

FIRST FLUSH VOL. = 0.122 ACRES X 0.44 INCHES = 195 CF PROPOSED RETENTION BASIN = 448 CF => FIRST FLUSH MET

XI. CONCLUSION

THIS PLAN SUPPORTS THE PROPOSED DEVELOPMENT. THE PROPOSED GRADING AND DRAINAGE PLAN IS DESIGNED TO CONVEY STORMWATER GENERATED ON-SITE BY A 100 YEAR, 6-HOUR STORM EVENT TOWARDS RETENTION BASINS. RETENTION BASINS ARE DESIGNED TO RETAIN THE TOTAL VOLUME. ALL ON-SITE STORM DRAINAGE FACILITIES WILL BE PRIVATELY OWNED, OPERATED AND MAINTAINED.

