CITY OF ALBUQUERQUE

June 13, 2017

J. Graeme Means, PE High Mesa Consulting Group 6010 –B Midway Park Blvd NE Albuquerque, NM 87109

Re: Hotel Chaco

2000 Bellamah Ave NW

Request 60-Day Temporary C.O. – Accepted Engineer's Stamp dated: 9/23/2016 (J13D066)

Certification dated: 6-11-17

Dear Mr. Means

Based on the Certification received 6/12/2017, the above referenced is approved for a 60-day Temporary Release of Occupancy by Hydrology. However, before a permanent CO can be accepted the following comments must be addressed:

PO Box 1293

- Note #7 trench drains in courtyard are missing.
- As-built elevations indicate multiple inverts in the courtyard. Clarify inverts.

Albuquerque

An inspection by our office will need to take place after these corrections are made.

If you have any questions, you can contact me at 924-3986 or Totten Elliott at 924-3982.

New Mexico 87103

Sincerely,

www.cabq.gov

lames D. Hughes, P.E.

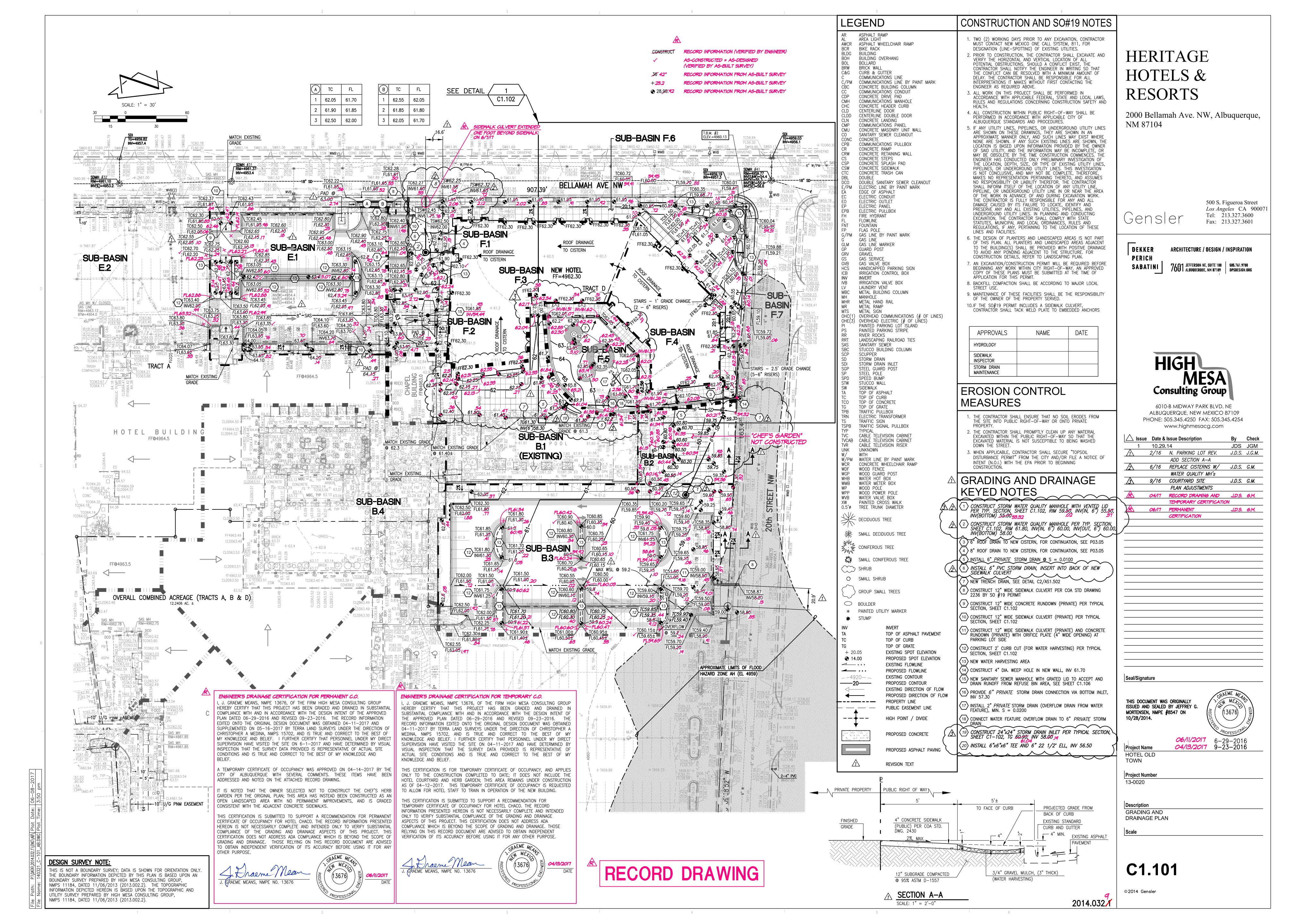
Principal Engineer, Planning Dept. Development and Review Services

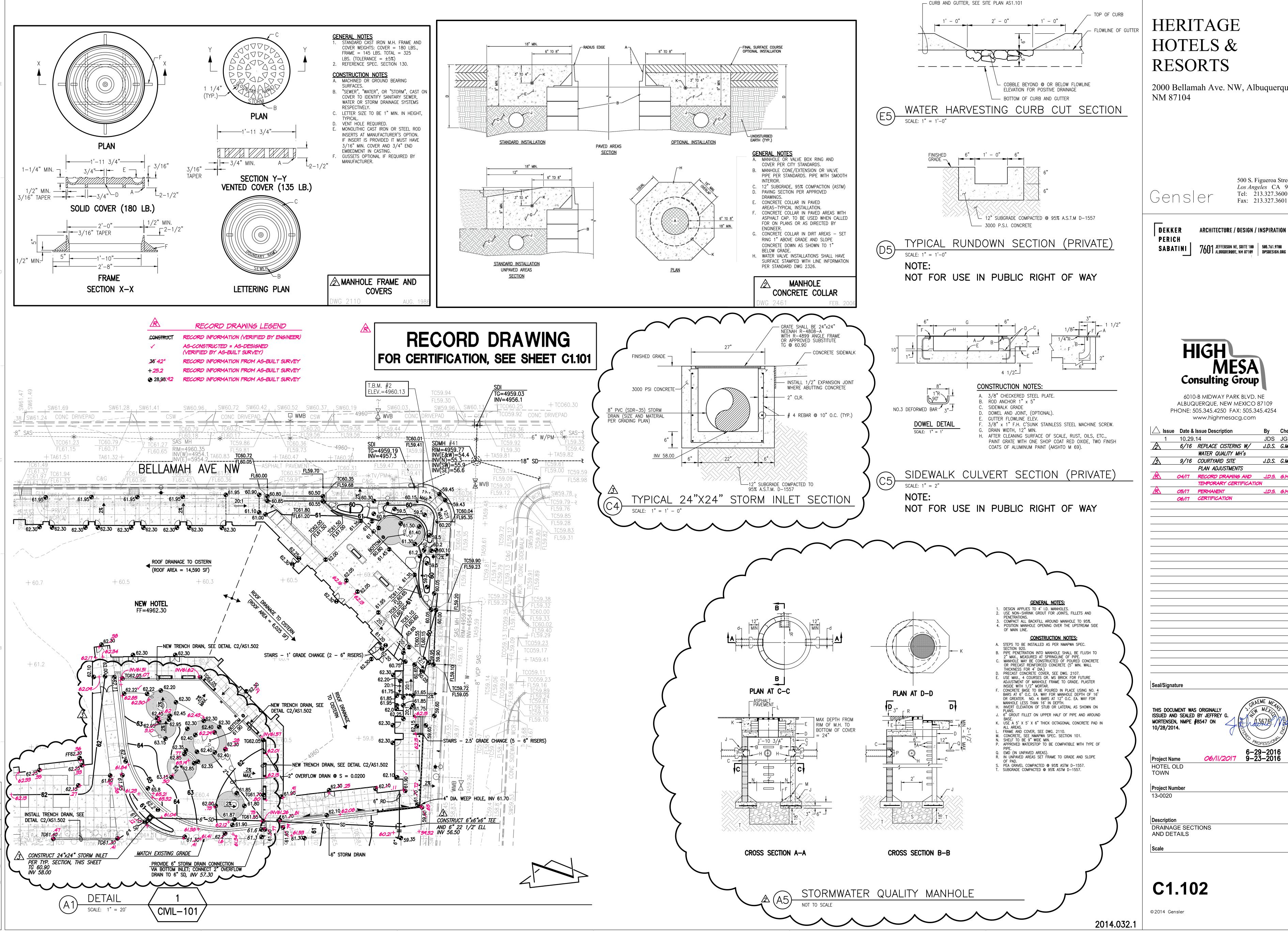
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TE/JH

C: email

Serna, Yvette M.; Fox, Debi; Tena, Victoria C.; Sandoval, Darlene M.





HERITAGE HOTELS &

2000 Bellamah Ave. NW, Albuquerque,

500 S. Figueroa Street

Los Angeles CA 900071

Tel: 213.327.3600

Fax: 213.327.3601

ARCHITECTURE / DESIGN / INSPIRATION

MESA Consulting Group

ALBUQUERQUE, NEW MEXICO 87109 PHONE: 505.345.4250 FAX: 505.345.4254 www.highmesacg.com

✓ Issue	Date & Issue Description		Ву	Check	
1	10.29.14		JDS	JGM	
2	6/16	REPLACE CISTERNS W/	J.D.S.	G.M.	
		WATER QUALITY MH's			
3	9/16	COURTYARD SITE	J.D.S.	G.M.	
		PLAN ADJUSTMENTS			
R	04/17	RECORD DRAWING AND	J.D.S.	G.M.	
TEMPORARY CERTIFICATION					
R	05/17	PERMANENT	J.D.S.	G.M.	

THE NEW HOTEL.

II. PROJECT DESCRIPTION

THIS PROJECT, LOCATED WITHIN THE OLD TOWN AREA OF ALBUQUERQUE, REPRESENTS A MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA. THE EXISTING SITE IS DEVELOPED AS THE SHERATON OLD TOWN COMPLEX THAT INCLUDES THE EXISTING HOTEL BUILDING AND ASSOCIATED SITE IMPROVEMENTS. A NEW HOTEL BUILDING WITH ASSOCIATED LANDSCAPED AND PAVING IMPROVEMENTS IS PROPOSED IN THE NORTHEAST CORNER OF THE SITE. THE DRAINAGE CONCEPT FOR THIS PROJECT WILL BE TO LIMIT DISCHARGE FROM THE SITE TO THE ALLOWABLE DISCHARGE RATE AS DEFINED IN THE APPROVED 2014 DRAINAGE MASTER PLAN, AS WELL AS CAPTURE ONSITE THE FIRST FLUSH OF RUNOFF FROM

THE NEW IMPERVIOUS IMPROVEMENTS. THIS WILL BE DONE VIA ONSITE WATER HARVESTING, DETENTION PONDING, AND INSTALLATION OF CISTERNS TO CAPTURE ROOF RUNOFF FROM

THIS SUBMITTAL IS MADE IN SUPPORT OF BUILDING PERMIT APPROVAL WITHIN THE JURISDICTION OF THE CITY OF ALBUQUERQUE.

AS SHOWN BY THE VICINITY MAP. THE SITE IS LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF RIO GRANDE BLVD NW AND BELLAMAH AVE NW. THE SITE IS DEVELOPED AS A HOTEL WITH CONVENTION SPACE, ASSOCIATED PAVED PARKING AND LANDSCAPING. THE NORTHEAST CORNER OF THE SITE IS CURRENTLY VACANT, WITH DEVELOPMENT PROPOSED AT THIS TIME. THE CURRENT LEGAL DESCRIPTION IS TRACTS A, B AND D, SHERATON OLD TOWN INN COMPLEX. AS SHOWN BY PANEL 331 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY, NEW MEXICO, REVISED AUGUST 16, 2012, SOUTHEAST CORNER OF THE SITE LIES WITHIN A DESIGNATED FLOOD HAZARD ZONE. THE FLOOD HAZARD ZONE HAS BEEN IDENTIFIED AS AN AH ZONE WITH A CORRESPONDING FLOOD ELEVATION OF 4959. IN RECOGNITION OF THIS FLOODPLAIN, THE FINISHED FLOOR OF THE PROPOSED HOTEL BUILDING AND ALL SUBSEQUENT OCCUPIED STRUCTURES WILL BE ESTABLISHED AT A MINIMUM OF ONE FOOT ABOVE THE CORRESPONDING FLOOD ZONE ELEVATION.

III. BACKGROUND DOCUMENTS

EXISTING CONDITIONS OF THE PROJECT SITE (TRACTS A, B AND D).

THE PREPARATION OF THIS PLAN RELIED UPON THE FOLLOWING DOCUMENTS AND ACTIVITIES:

• DRAINAGE MASTER PLAN FOR SHERATON OLD TOWN PREPARED BY HIGH MESA CONSULTING GROUP, NMPE 8547, DATED 06-23-2014. THE 2014 DMP ESTABLISHED THE DRAINAGE BASINS FOR THE PROPOSED DEVELOPMENT OF THE SITE, AS WELL AS DRAINAGE AND STORMWATER CONTROL GUIDELINES AND CRITERIA FOR PROPOSED DEVELOPMENT • TOPOGRAPHIC SURVEY PREPARED BY HIGH MESA CONSULTING GROUP (NMPS 11184) DATED 11-06-2013. THIS REFERENCED SURVEY PROVIDES THE BASIS FOR THE

IV. FXISTING CONDITIONS THE PROJECT SITE CONSISTS OF THE NORTHEASTERN PORTION OF THE HOTEL SITE. A LARGE MAJORITY OF THE PROJECT SITE IS VACANT, WITH MINIMAL VEGETATION. THE DEVELOPED PORTIONS OF THE SITE CONSIST OF AN OUTDOOR POOL AND DECK, ALONG WITH THE EAST END OF THE PAVED PARKING LOT NORTH OF THE HOTEL. THE PROJECT SITE IS CHARACTERIZED BY 3 DRAINAGE BASINS, BASINS B, E, AND F. A. BASIN B IS GENERALLY CHARACTERIZED BY THE CENTRAL PORTION OF THE OVERALL SITE. THIS BASIN CONSISTS OF THE HOTEL COURTYARD, SWIMMING POOL AND DECK

AREA, AND UNDEVELOPED VACANT AREA IMMEDIATELY ADJACENT TO THE POOL. THE BASIN GENERALLY DRAINS WEST TO EAST, FLOWING TO AN EXISTING DETENTION POND THAT DISCHARGES VIA 4" DIAMETER CURB PENETRATION TO 20TH STREET NW. THE EXISTING DETENTION POND AND CURB PENETRATION HAVE MINIMAL CAPACITY COMPARED TO THE BASIN RUNOFF GENERATED, AND APPEAR TO PROVIDE NEGLIGIBLE PONDING AND CONTROL OF DISCHARGE TO 20TH STREET NW. THE EXISTING PEAK RATE OF DISCHARGE GENERATED BY THIS BASIN IS 3.7 CFS/AC. B. BASIN E IS CHARACTERIZED BY THE NORTHWEST PORTION OF THE SITE. THE PORTION OF THIS BASIN THAT THE PROPOSED PROJECT WILL IMPACT IS DESIGNATED A

SUB-BASIN E-1. SUB-BASIN E-1 CONSISTS OF THE EASTERN PORTION OF THE PARKING LOT IMMEDIATELY NORTH OF THE EXISTING HOTEL BUILDING. RUNOFF FROM THE PARKING LOT SHEETFLOWS SOUTH TO NORTH TO A LANDSCAPED BUFFER ALONG THE NORTH EDGE OF THE SITE; EXCESS RUNOFF THAT IS NOT CAPTURED BY THE BUFFER SHEETFLOWS INTO BELLAMAH AVE NW, A FULLY DEVELOPED PUBLIC STREET. THERE IS NO CONCENTRATED POINT OF DISCHARGE FOR THIS SUB-BASIN. THE EXISTING PEAK RATE OF DISCHARGE GENERATED BY THIS SUB-BASIN IS 4.3 CFS/AC.

C. BASIN F IS CHARACTERIZED BY THE NORTHEAST PORTION OF THE SITE. THIS BASIN CONSISTS OF THE EXISTING UNDEVELOPED VACANT LAND AT THE NORTHEAST CORNER OF THE SITE. RUNOFF FROM THIS BASIN SHEETFLOWS FROM WEST TO EAST ACROSS THE BASIN AND INTO 20TH STREET NW, A FULLY DEVELOPED PUBLIC STREET. THERE IS NO CONCENTRATED POINT OF DISCHARGE FOR THIS BASIN; RUNOFF SHEETFLOWS INTO THE FRONTING STREET. THE EXISTING PEAK RATE OF DISCHARGE GENERATED BY THIS BASIN

THERE ARE NO SIGNIFICANT OFFSITE FLOWS ENTERING THE SITE. THE PAVED PARKING LOT SOUTH OF THE SITE DRAINS SOUTH, AWAY FROM THE PROJECT SITE. THE EXISTING PARKING LOT AND HOTEL BUILDING LOCATED WEST OF THE PROJECT SITE GENERALLY DRAIN WEST AND NORTH, AWAY FROM THE PROJECT. BELLAMAH AVENUE NW TO THE NORTH IS TOPOGRAPHICALLY LOWER THAN THE SITE AND THEREFORE CONTRIBUTES NO OFFSITE FLOWS. 20TH STREET NW TO THE EAST IS TOPOGRAPHICALLY LOWER THAN THE SITE. HOWEVER, THE STREET IS ASSOCIATED WITH A DESIGNATED FLOOD HAZARD ZONE THAT ENCROACHES ON THE PROPERTY. A CORRESPONDING ELEVATION OF 4959 HAS BEEN IDENTIFIED FOR THIS FLOOD HAZARD ZONE. ALL BUILDINGS ON THE SITE ARE CONSTRUCTED WITH A FINISHED FLOOR ELEVATION A MINIMUM OF ONE FOOT ABOVE THE CORRESPONDING FLOOD HAZARD ZONE. V. DEVELOPED CONDITIONS

THE DEVELOPED CONDITIONS FOR EACH DRAINAGE BASIN THAT MAKES UP THE PROJECT SITE (B, E AND F) AND THE RESPECTIVE DEVELOPED SUB-BASINS ARE DISCUSSED BELOW: A. THE PROPOSED CONSTRUCTION WITHIN BASIN B WILL CONSIST OF A PAVED PARKING LOT EXPANSION IMMEDIATELY SOUTH OF THE SWIMMING POOL, AND LANDSCAPED IMPROVEMENTS EAST OF THE POOL. THIS BASIN WILL BE DIVIDED INTO FOUR SUB-BASINS. • SUB-BASIN B.1 CONSISTS OF THE EXISTING SWIMMING POOL AND DECK AREA. THIS SUB-BASIN IS ENCLOSED BY A NEW WALL. ALL RUNOFF GENERATED BY THE EXISTING

• SUB-BASIN B.2 CONSISTS OF THE LANDSCAPED AREA IMMEDIATELY EAST OF THE POOL AREA. THIS SUB-BASIN WILL DRAIN WEST TO EAST TO A SHALLOW (< 12" DEPTH) LANDSCAPED DEPRESSION. WITH OVERFLOW DISCHARGING TO 20TH STREET NW. A CISTERN RECEIVING ROOF RUNOFF FROM THE NEW HOTEL WILL BE INSTALLED BELOW GRADE IN SUB-BASIN B-2. THE CISTERN WILL BE SIZED TO RETAIN BOTH THE FIRST 1/2" OF RUNOFF GENERATED FROM THE EAST PORTION OF THE NEW STAND-ALONE HOTEL BUILDING (DESIGNATED AS SUB-BASIN F.4) AS WELL AS THE DEVELOPED RUNOFF

IMPROVEMENTS IS CONTAINED WITHIN THE WALLED POOL AREA AND DRAINS TO NEW AND EXISTING LANDSCAPED AREAS THAT MANAGE THE RUNOFF FROM THIS SUB-BASIN.

GENERATED BY THE NEW HOTEL COURTYARD (DESIGNATED AS SUB-BASIN F.5). OVERFLOW FROM THE CISTERN WILL BE DISCHARGED VIA 4" PVC CURB PENETRATION TO 20TH STREET NW. • SUB-BASIN B.3 CONSISTS OF THE PAVED PARKING LOT EXPANSION IMMEDIATELY SOUTH OF THE SWIMMING POOL. RUNOFF GENERATED BY SUB-BASIN B.3 WILL SHEETFLOW FROM WEST TO EAST ACROSS THE PARKING LOT. SEVERAL LANDSCAPED ISLANDS WITHIN THE PARKING LOT WILL ACT AS WATER HARVESTING AREAS TO CAPTURE (TO THE MAXIMUM EXTENT PRACTICABLE) THE FIRST FLUSH OF RUNOFF GENERATED BY SUB-BASIN B.3. RUNOFF THAT IS NOT CAPTURED BY THE WATER HARVESTING AREAS WILL DISCHARGE VIA SIDEWALK CULVERT AND RUNDOWN INTO 20TH STREET NW. A 4" CURB OPENING AT THE UPSTREAM END OF THE CULVERT IS SIZED TO NOT EXCEED TH

ALLOWABLE DISCHARGE RATE FOR THIS SUB-BASIN OF 2.75 CFS/AC. AS DEMONSTRATED BY THE CALCULATIONS REFERENCED IN SECTION VII, THE PARKING LOT WILL ACT AS

• SUB-BASIN B.4 CONSISTS OF THE REMAINDER OF BASIN B THAT INCLUDES THE CENTRAL PORTION OF THE EXISTING HOTEL AND COURTYARD THAT ARE UPSTREAM OF SUB-BASIN B.3. THIS AREA IS OUTSIDE THE LIMITS OF THE PROPOSED DEVELOPMENT FOR THE PROJECT SITE, THEREFORE NO CHANGE IN HYDROLOGY IS PROPOSED OR ANTICIPATED. EXISTING RUNOFF FROM SUB-BASIN B.4 WILL BE ALLOWED TO FREELY FLOW THROUGH SUB-BASIN B.3 TO ULTIMATELY DISCHARGE TO 20TH STREET NW.

A DETENTION POND SIZED TO CONTAIN THE DETAINED RUNOFF RESULTING FROM CONTROLLED DISCHARGE FROM THE SUB-BASIN.

B. THE PROPOSED CONSTRUCTION WITHIN BASIN E WILL CONSIST OF THE MODIFICATION OF A PORTION OF THE EXISTING PARKING LOT WEST OF THE NEW STAND-ALONE HOTEL BUILDING. THIS BASIN IS DIVIDED INTO TWO SUB-BASINS. SUB-BASIN E.1 WILL CONSIST OF THE PROPOSED PARKING LOT MODIFICATIONS. INCLUDING THE ELIMINATION OF ELEVEN PARKING SPACES AND THE ADDITION OF NEW CURB AND LANDSCAPED WATER HARVESTING AREAS. THE WATER HARVESTING AREAS WILL BE SIZED TO CAPTURE THE FIRST FLUSH GENERATED BY SUB-BASIN E.1 TO THE MAXIMUM EXTENT PRACTICABLE. RUNOFF WILL GENERALLY SHEET FLOW FROM SOUTHEAST TO NORTHWEST, DRAINING THROUGH A NEW RUNDOWN AND SIDEWALK CULVERT INTO SUB-BASIN E.2, AND ULTIMATELY DISCHARGING TO BELLAMAH AVE NW. THE PROPOSED IMPROVEMENTS WILL RESULT IN A DECREASE IN IMPERVIOUS AREA, CREATING A DECREASE IN RUNOFF GENERATED IN THE DEVELOPED CONDITION.

 SUB-BASIN E.2 CONSISTS OF THE REMAINDER OF BASIN E BEYOND THE PROJECT LIMITS, INCLUDING THE EXISTING HOTEL AND THE NORTH AND WEST PARKING LOTS. NO DEVELOPMENT IS CURRENTLY PLANNED FOR SUB-BASIN E-2, THEREFORE NO CHANGE IN HYDROLOGY IS PROPOSED OR ANTICIPATED.

C. THE PROPOSED CONSTRUCTION WITHIN BASIN F WILL CONSIST OF A NEW STAND-ALONE HOTEL BUILDING, COURTYARD, ASSOCIATED PAVED SIDEWALKS AND LANDSCAPING. THIS SUB-BASIN F.1 CONSISTS OF THE PAVED PARKING AND LANDSCAPED IMPROVEMENTS IMMEDIATELY WEST OF THE NEW HOTEL BUILDING. IN ADDITION, A NEW CISTERN WILL BE LOCATED IN THIS SUB-BASIN THAT WILL RETAIN THE FIRST 1/2" OF RUNOFF GENERATED BY THE WEST PORTION OF THE HOTEL ROOF AREA (DESIGNATED AS SUB-BASIN F.3). SUB-BASIN F.1 DRAINS FROM SOUTH TO NORTH TO DISCHARGE INTO BELLAMAH AVE NW VIA NEW RUNDOWN AND SIDEWALK CULVERT. LANDSCAPED IMPROVEMENTS WILL BE GRADED TO ACT AS DEPRESSED WATER HARVESTING AREAS WHERE PRACTICABLE. AS A RESULT OF AN INCREASE IN LANDSCAPED LAND TREATMENT, THE RUNOFF GENERATED FROM THIS SUB-BASIN WILL BE DECREASED FROM THE EXISTING CONDITION.

• SUB-BASIN F.2 CONSISTS OF THE NEW PAVED SERVICE AREA IMMEDIATELY WEST OF THE NEW HOTEL BUILDING. TO AVOID RUNOFF FROM THE REFUSE COMPACTOR IN THIS AREA DRAINING TO THE ADJACENT PUBLIC STREET, THIS SUB-BASIN WILL DISCHARGE ALL DEVELOPED RUNOFF TO THE EXISTING PRIVATE SANITARY SEWER SYSTEM VIA A NEW SANITARY SEWER MANHOLE WITH GRATED LID. THEREFORE, NO RUNOFF FROM THIS SUB-BASIN WILL DISCHARGE TO BELLEMAH AVE NW IN THE DEVELOPED CONDITION.

 SUB-BASIN F.3 CONSISTS OF THE WEST PORTION OF THE NEW HOTEL BUILDING. RUNOFF GENERATED BY THE HOTEL ROOF AREA WILL BE CONVEYED VIA ROOF DRAIN TO A NEW CISTERN INSTALLED IN SUB-BASIN F.1; THE CISTERN IS SIZED TO RETAIN THE FIRST ½" OF ROOF RUNOFF. A 4" PVC CURB PENETRATION WILL DISCHARGE OVERFLOW FROM THE CISTERN NORTH TO BELLAMAH AVE NW.

 SUB-BASIN F.4 CONSISTS OF THE EAST PORTION OF THE NEW HOTEL BUILDING. RUNOFF GENERATED BY THE HOTEL ROOF AREA WILL BE CONVEYED VIA ROOF DRAIN TO A NEW CISTERN INSTALLED IN SUB-BASIN B.2; THE CISTERN IS SIZED TO RETAIN THE FIRST ½" OF ROOF RUNOFF. A 4" PVC CURB PENETRATION WILL DISCHARGE OVERFLOW FROM THE CISTERN EAST TO 20TH STREET NW.

• SUB-BASIN F.5 CONSISTS OF THE NEW HOTEL COURTYARD. RUNOFF FROM THIS BASIN WILL DRAIN TO A NEW TRENCH DRAIN. FROM THIS POINT, RUNOFF WILL BE CONVEYED VIA PRIVATE STORM DRAIN TO THE NEW CISTERN IN SUB-BASIN B.2 REFERENCED ABOVE. AS PREVIOUSLY MENTIONED (SEE SUB-BASIN B.2), THE CISTERN WILL BE SIZED TO CAPTURE THE DEVELOPED RUNOFF GENERATED BY SUB-BASIN F.5. A 4" PVC CURB PENETRATION WILL DISCHARGE OVERFLOW FROM THE CISTERN EAST TO 20TH STREET NW.

• SUB-BASIN F.6 CONSISTS OF THE PAVED SIDEWALKS, VALET DROPOFF AND LANDSCAPED BUFFERS NORTH AND NORTHEAST OF THE NEW HOTEL BUILDING. RUNOFF WILL DRAIN ACROSS THE PAVED IMPROVEMENTS INTO THE LANDSCAPED BUFFERS TO THE MAXIMUM EXTENT PRACTICABLE. THE LANDSCAPED BUFFERS WILL CAPTURE THE FIRST FLUSH FLOWS GENERATED BY SUB-BASIN F.6 TO THE MAXIMUM EXTENT PRACTICABLE. EXCESS RUNOFF THAT IS NOT CAPTURED WITHIN THE LANDSCAPED BUFFERS WILL SHEETFLOW INTO BELLAMAH AVE NW. DEVELOPED IMPROVEMENTS WILL RESULT IN A NEGLIGIBLE INCREASE IN RUNOFF GENERATED BY THE SUB-BASIN (0.1 CFS), AND A NEGLIGIBLE FIRST FLUSH VOLUME (120 CF).

 SUB-BASIN F.7 CONSISTS OF THE PAVED RESTAURANT PATIO, SIDEWALKS, VALET DROPOFF AND LANDSCAPE BUFFERS EAST OF THE NEW HOTEL BUILDING. RUNOFF WILL SHEET FLOW ACROSS THE PAVED IMPROVEMENTS, WITH LANDSCAPED BUFFERS CAPTURING RUNOFF TO THE MAXIMUM EXTENT PRACTICABLE. THE LANDSCAPED BUFFERS WILL CAPTURE FIRST FLUSH FLOWS GENERATED BY SUB-BASIN F.7 TO THE MAXIMUM EXTENT PRACTICABLE. EXCESS RUNOFF THAT IS NOT CAPTURED WITHIN THE LANDSCAPED BUFFERS SHEETFLOWS TO 20TH STREET NW. DEVELOPED IMPROVEMENTS WILL RESULT IN A NEGLIGIBLE INCREASE IN RUNOFF GENERATED BY THE SUB-BASIN (0.1 CFS), AND A NEGLIGIBLE FIRST FLUSH VOLUME (110 CF).

VI. CALCULATIONS

THE CALCULATIONS CONTAINED HEREON ANALYZE THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. 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. THE CALCULATIONS FOR EACH BASIN WITHIN THE PROJECT SITE (B, E AND F) ARE SUMMARIZED AS FOLLOWS:

A. BASIN B: THE PROJECT SITE IMPROVEMENTS WILL RESULT IN A MINOR REDUCTION (1.9 CFS) IN DEVELOPED RUNOFF GENERATED BY BASIN B. THE ALLOWABLE (EXISTING) DISCHARGE RATE OF 10.4 CFS (3.7 CFS/AC) IS MAINTAINED AS A RESULT OF THE PROPOSED DEVELOPMENT. • RUNOFF FROM SUB-BASIN B-1 IS SELF CONTAINED AND THEREFORE WILL RESULT IN A DECREASE IN RUNOFF DISCHARGED TO THE FRONTING PUBLIC STREETS OF 1.7 CFS.

• RUNOFF FROM SUB-BASIN B-2 WILL DRAIN WEST TO EAST TO A DEPRESSED, LANDSCAPED AREA THAT WILL MANAGE THE FIRST FLUSH. FIRST FLUSH CALCULATIONS DEMONSTRATE A VOLUME OF 20 CF DUE TO NEW IMPERVIOUS AREA. • A HYDROGRAPH FOR SUB-BASIN B.3 WAS USED TO CALCULATE THE DETENTION PONDING REQUIRED IN THE NEW PARKING LOT TO MAINTAIN THE ALLOWABLE (EXISTING) DISCHARGE RATE FROM SUB-BASIN B.3 OF 2.25 CFS.

B. BASIN E: THE CURRENT PLANNED IMPROVEMENTS WITHIN SUB-BASIN E-1 (PORTION WITHIN PROJECT SITE) WILL RESULT IN A REDUCTION (0.1 CFS) IN DEVELOPED RUNOFF AS A RESULT OF A DECREASE IN IMPERVIOUS AREA. THE ALLOWABLE (EXISTING) DISCHARGE RATE OF 4.3 CFS/AC IS MAINTAINED. • THE AVERAGE END AREA METHOD WAS USED TO DEMONSTRATE A WATER HARVESTING CAPACITY OF 125 CF.

• THE AVERAGE END AREA METHOD WAS USED TO DEMONSTRATE ADEQUATE DETENTION PONDING CAPACITY IN THE SUB-BASIN B.3 PARKING LOT

• AS THE PROPOSED IMPROVEMENTS REMOVE AND REPLACE EXISTING IMPERVIOUS PAVING WITH PERVIOUS WATER HARVESTING AREAS, WITH NO NEW IMPERVIOUS AREA, FIRST

C. BASIN F: THE CURRENT PLANNED IMPROVEMENTS WILL RESULT IN A NEGLIGIBLE INCREASE (0.1 CFS) IN DEVELOPED RUNOFF DISCHARGED FROM BASIN F. THE DEVELOPED DISCHARGE RATE FROM BASIN F IS 1.8 CFS/AC. MEETING THE ALLOWABLE (EXISTING) DISCHARGE RATE OF 3.4 CFS/AC. • THE INCREASE IN IMPERVIOUS AREA RUNOFF IN BASIN F WILL BE MITIGATED THROUGH THE RETENTION OF THE FIRST ONE-HALF INCH OF RUNOFF FROM THE NEW HOTEL BUILDING IN NEW CISTERNS PROPOSED ONSITE IN ADDITION TO WATER HARVESTING AREAS INTENDED TO CAPTURE THE FIRST FLUSH OF RUNOFF GENERATED TO THE MAXIMUM

• FIRST FLUSH CALCULATIONS DEMONSTRATE A FIRST FLUSH VOLUME OF 70 CF FROM SUB-BASIN F.1, 540 CF FROM SUB-BASIN F.3, 310 CF FROM SUB-BASIN F.4, 80 CF FROM SUB-BASIN F.5, 120 CF FROM SUB-BASIN F.6, AND 110 CF FROM SUB-BASIN F.7. THE COMBINED FIRST FLUSH FROM BASIN F THAT MUST BE MANAGED IS 1,230

• THE AVERAGE END AREA METHOD WAS USED TO DEMONSTRATE A WATER HARVESTING CAPACITY OF 170 CF IN SUB-BASIN F.1 AND 220 CF IN SUB-BASIN F.6. • RUNOFF FROM SUB-BASIN F.2 WILL DRAIN TO THE EXISTING PRIVATE SANITARY SEWER SYSTEM AND THEREFORE WILL RESULT IN A DECREASE IN RUNOFF DISCHARGED TO THE FRONTING PUBLIC STREETS OF 0.3 CFS (THE EXISTING PEAK DISCHARGE RATE FOR THIS SUB-BASIN) • ½" RUNOFF CALCULATIONS WERE USED TO DEMONSTRATE THE RUNOFF GENERATED BY THE NEW HOTEL BUILDING (800 CF FROM SUB-BASIN F.3 AND 460 CF FROM

SUB-BASIN F.4) THAT MUST BE CAPTURED IN THE NEW ONSITE CISTERNS. THE COMBINED RETENTION OF RUNOFF VIA CISTERNS AND WATER HARVESTING IS 1650 CF, GREATER THAN THE REQUIRED FIRST FLUSH OF 1230 CF THAT MUST BE MANAGED. VII. CONCLUSIONS

THE FOLLOWING CONCLUSIONS HAVE BEEN ESTABLISHED AS A RESULT OF EVALUATIONS CONTAINED HEREIN:

• PROPOSED HOTEL DEVELOPMENT WILL SUBDIVIDE THIS BASIN INTO FOUR (4) SUB-BASINS, B.1, B.2, B.3 AND B.4. THE PROPOSED IMPROVEMENTS TO THE COMPOSITE BASIN WILL RESULT IN A REDUCTION IN THE DEVELOPED RUNOFF DISCHARGED FROM THE SITE. SUB-BASIN SPECIFIC. IMPROVEMENTS ARE AS FOLLOWS. o SUB-BASIN B.1: THIS SUB-BASIN IS SELF CONTAINED; THE RUNOFF GENERATED WILL DRAIN TO AND BE MANAGED BY EXISTING AND PROPOSED LANDSCAPED

IMPROVEMENTS, WITH ANY OVERFLOWS CONTAINED BY THE NEW WALL BOUNDING THE POOL AREA. o SUB-BASIN B.2: THE PROPOSED LANDSCAPED IMPROVEMENTS WILL RESULT IN A DECREASE IN Q100 AND V100 RUNOFF GENERATED. THE NEGLIGIBLE FIRST FLUSH OF DEVELOPED RUNOFF GENERATED (20 CF) WILL BE CAPTURED ONSITE WITHIN A DEPRESS LANDSCAPED WATER HARVESTING AREA. OVERFLOW FROM THIS AREA WILL SHEETFLOW TO 20TH STREET NW.

o SUB-BASIN B.3: THE PROPOSED IMPROVEMENTS WILL RESULT IN AN INCREASE IN Q100 AND V100 RUNOFF GENERATED. TO MITIGATE THIS INCREASE, THE DISCHARGE RATE FROM THIS SUB-BASIN TO THE PUBLIC STREET WILL BE RESTRAINED TO THE EXISTING Q100 RATE FOR THIS SUB-BASIN. THIS WILL BE DONE BY CONTROLLING DISCHARGE TO 20TH STREET NW VIA A CULVERT WITH 4" CURB OPENING AT THE UPSTREAM END. THE SUBSEQUENT DETENTION PONDING ONSITE WILL BE LIMITED TO THE NEW PARKING LOT; CALCULATIONS DEMONSTRATE THE NEW PARKING LOT HAS CAPACITY TO CONTAIN THE DETAINED RUNOFF VOLUME FROM SUB-BASIN B.3

o SUB-BASIN B.4: THIS SUB-BASIN CONSISTS OF THE REMAINING PORTION OF BASIN B BEYOND THE PROJECT LIMITS. NO DEVELOPMENT IS PLANNED FOR THIS SUB-BASIN. AS SUCH, EXISTING RUNOFF FROM THIS SUB-BASIN WILL CONTINUE TO FLOW EAST THROUGH SUB-BASIN B.3, TO ULTIMATELY DISCHARGE THROUGH THE EXISTING PARKING LOT NORTH DRIVEPAD TO 20TH STREET NW.

• THE PROPOSED DEVELOPMENT OF BASIN B WILL DISCHARGE 7.75 CFS (2.75 CFS/AC) TO 20TH STREET, LESS THAN THE ALLOWABLE (EXISTING) DISCHARGE RATE OF 10.4 CFS (3.7 CFS/AC) TO 20TH STREET NW ESTABLISHED IN THE 2014 DMP. THE FIRST FLUSH FROM THE BASIN B IMPERVIOUS AREAS IS MANAGED AND CONTROLLED TO THE MAXIMUM EXTENT PRACTICABLE VIA THE USE OF WATER HARVESTING AREAS. CALCULATIONS FOR THE OVERALL SITE ARE INCLUDED TO SHOW THAT THE WATER HARVESTING AREAS AND CISTERNS PROPOSED ARE SUFFICIENT TO MANAGE THE FIRST FLUSH GENERATED

• PROPOSED HOTEL DEVELOPMENT WILL SUBDIVIDE THIS BASIN INTO TWO (2) SUB-BASINS, E.1 AND E.2. • THE PROPOSED IMPROVEMENTS TO THE COMPOSITE BASIN WILL RESULT IN A NEGLIGIBLE DECREASE (0.1 CFS) IN THE DEVELOPED RUNOFF GENERATED. SUB-BASIN SPECIFIC IMPROVEMENTS ARE AS FOLLOWS. o SUB-BASIN E.1: THE PROPOSED IMPROVEMENTS WILL RESULT IN A DECREASE IN Q100 AND V100 RUNOFF GENERATED, DUE TO A DECREASE IN IMPERVIOUS LAND TREATMENT. RUNOFF FROM THIS SUB-BASIN WILL DRAIN VIA CULVERT & RUNDOWN TO SUB-BASIN E.2 WHERE IT WILL CONTINUE TO SHEETFLOW TO THE EXISTING LANDSCAPED BUFFER AT THE PERIMETER OF BASIN E AND OVERFLOW TO HE ADJACENT FRONTING PUBLIC STREETS.

CONTROL THE FIRST FLUSH FROM DEVELOPMENT. SUB-BASIN E.2: THIS SUB-BASIN IS BEYOND THE PROJECT LIMITS, WITH NO DEVELOPMENT CURRENTLY PLANNED IN THIS SUB-BASIN. THEREFORE, NO CHANGE IN HYDROLOGY IS PROPOSED OR ANTICIPATED. • THE PROPOSED DEVELOPMENT OF BASIN E WILL RESULT IN A DECREASE OF PEAK DISCHARGE RATE (2.4 CFS) O BELLAMAH AVENUE: THEREFORE THE ALLOWABLE (EXISTING) DISCHARGE RATE OF 17.5 CFS (4.3 CFS/AC) TO THE FRONTING STREETS ESTABLISHED IN THE 2014 DMP IS MAINTAINED. NO NEW IMPERVIOUS AREA IS PROPOSED IN THIS BASIN; WATER HARVESTING AREA IMPROVEMENTS WILL DECREASE THE TOTAL IMPERVIOUS

o WHILE THERE ARE NO NEW IMPERVIOUS AREAS PROPOSED TO THIS BASIN, NEW WATER HARVESTING

ISLANDS IN THIS SUB-BASIN WILL SERVE TO INCREASE THE OVERALL SITE CAPACITY TO MANAGE AND

PROPOSED HOTEL DEVELOPMENT WILL SUBDIVIDE THIS BASIN INTO SEVEN (7) SUB-BASINS, F.1, F.2, F.3, F.4,

AREA, THEREFORE FIRST FLUSH CALCULATIONS ARE NOT REQUIRED FOR THIS BASIN.

 THE PROPOSED IMPROVEMENTS TO THE COMPOSITE BASIN WILL RESULT IN A NEGLIGIBLE INCREASE (0.1 CFS IN DEVELOPED RUNOFF DISCHARGED FROM THE SITE. SUB-BASIN SPECIFIC IMPROVEMENTS ARE AS FOLLOWS. o SUB-BASIN F.1: THE PROPOSED IMPROVEMENTS WILL RESULT IN A DECREASE IN Q100 AND V100 RUNOFF GENERATED DUE TO A DECREASE IN IMPERVIOUS AREA. RUNOFF FROM THIS SUB-BASIN WILL DISCHARGE DIRECTLY TO BELLAMAH AVE NW VIA RUNDOWN AND SIDEWALK CULVERT. PROPOSED WATER HARVESTING AREAS WILL INCREASE THE CAPACITY FOR MANAGEMENT AND CONTROL OF FIRST FLUSH FROM THE OVERALL SITE. o $\,$ SUB-BASIN F.2: THE PROPOSED IMPROVEMENTS TO THIS SUB-BASIN (NEW HOTEL SERVICE AREA) WILL $\,$

DRAIN THE V100 DEVELOPED RUNOFF TO THE EXISTING SANITARY SEWER SYSTEM, THEREBY AVOIDING IHE DISCHARGE OF RUNOFF FROM THE REFUSE COMPACTOR TO THE PUBLIC STREET. AS A RESULT OF THESE IMPROVEMENTS, THERE WILL BE A DECREASE IN RUNOFF TO BELLAMAH AVE NW. o SUB-BASIN F.3: THE PROPOSED IMPROVEMENTS TO THIS SUB-BASIN (WEST PORTION OF THE NEW HOTEL BUILDING) WILL RESULT IN AN INCREASE IN Q100 AND V100 RUNOFF GENERATED. TO MITIGATE THIS INCREASE, ROOF RUNOFF WILL BE ROUTED THROUGH A NEW CISTERN DESIGNED TO CAPTURE THE

FIRST ½" OF DEVELOPED RUNOFF. OVERFLOW FROM THE CISTERN WILL DISCHARGE VIA 4" PVC CURB PENETRATION TO BELLAMAH AVE NW. THIS CISTERN WILL SERVE TO MANAGE AND CONTROL THE FIRST FLUSH OF RUNOFF FROM THIS SUB-BASIN SUB-BASIN F.4: THE PROPOSED IMPROVEMENTS TO THIS SUB-BASIN (EAST PORTION OF THE NEW HOTEL BUILDING) WILL RESULT IN AN INCREASE IN Q100 AND V100 RUNOFF GENERATED. TO MITIGATE THIS INCREASE, ROOF RUNOFF WILL BE ROUTED THROUGH A NEW CISTERN DESIGNED TO CAPTURE THE FIRST ½" OF DEVELOPED RUNOFF. OVERFLOW FROM THE CISTERN WILL DISCHARGE VIA 4" PVC CURB

PENETRATION TO 20TH STREET NW. THIS CISTERN WILL SERVE TO MANAGE AND CONTROL THE FIRST FLUSH OF RUNOFF FROM THIS SUB-BASIN. o SUB-BASIN F.5: THE PROPOSED COURTYARD IMPROVEMENTS WILL RESULT IN A DECREASE IN Q100 AND V100 RUNOFF GENERATED DUE TO IMPROVED LAND TREATMENT. RUNOFF FROM THIS SUB-BASIN WILL BE ROUTED VIA TRENCH DRAIN AND PRIVATE STORM DRAIN TO A CISTERN DESIGNED TO CAPTURE THE RUNOFF GENERATED FROM SUB-BASIN F.5, OVERFLOW FROM THE CISTERN WILL DISCHARGE VIA 4" PVC CURB PENETRATION TO 20TH STREET NW. o SUB-BASIN F.6: THE PROPOSED IMPROVEMENTS WILL RESULT IN A NEGLIGIBLE INCREASE IN Q100 AND

V100 RUNOFF GENERATED (0.1 CFS) DUE TO INCREASED IMPERVIOUS AREA. THIS INCREASE WILL BE MITIGATED BY LANDSCAPED BUFFERS AND WATER HARVESTING AREAS THAT WILL CAPTURE THE FIRST FLUSH OF RUNOFF GENERATED TO THE MAXIMUM EXTENT PRACTICABLE. EXCESS RUNOFF WILL SHEETFLOW TO THE FRONTING STREET OF BELLAMAH AVE NW. o SUB-BASIN F.7: THE PROPOSED IMPROVEMENTS WILL RESULT IN A NEGLIGIBLE INCREASE IN Q100 AND V100 RUNOFF GENERATED (0.1 CFS) DUE TO INCREASED IMPERVIOUS AREA. THIS INCREASE WILL BE MITIGATED BY LANDSCAPED BUFFERS DESIGNED TO MANAGE THE FIRST FLUSH OF RUNOFF TO THE MAXIMUM EXTENT PRACTICABLE. EXCESS RUNOFF WILL SHEETFLOW TO THE FRONTING STREET OF 20TH

STRFFT NW. • THE PROPOSED DEVELOPMENT OF BASIN F WILL RESULT IN AN INCREASE IN PEAK DISCHARGE RATE AND VOLUME GENERATED, HOWEVER, THIS INCREASE WILL BE MITIGATED BY ROUTING THE RUNOFF THROUGH CISTERNS AND WATER HARVESTING AREAS, THEREBY MAINTAINING THE ALLOWABLE (EXISTING) DISCHARGE RATE OF 3.4 CFS/AC TO THE FRONTING PUBLIC STREETS. CALCULATIONS ARE INCLUDED TO SHOW THAT THE WATER HARVESTING AREAS AND CISTERNS WITHIN THE OVERALL SITE ARE SUFFICIENT TO MANAGE THE FIRST

2.35

533,170 SF

12.24 AC

CALCULATIONS

F.5. F.6 AND F.7.

I. SITE CHARACTERISTICS A. PRECIPITATION ZONE B. P_{100, 6 HR} = P₃₆₀ =

D. LAND TREATMENTS

C. TOTAL SITE $(A_T) =$

1. EXISTING LAND TREATMENT 0.0 0 0.0 0 0.82 100 0.0 0 0.82 AC 0.0 0 1.05 84 0.20 16 1.25 AC * USE PROPOSED SUB-BASIN LIMITS FOR COMPARISON TO DEVELOPED CONDITION

2. DEVELOPED LAND TREATMENT AREA (AC) % AREA (AC)

† REMAINDER OF BASIN LOCATED OUTSIDE PROJECT AREA

II. HYDROLOGY A. EXISTING CONDITION

1. BASIN B a. SUB-BASIN B.1 (PROPOSED SUB-BASIN LIMITS USED FOR COMPARISON PURPOSES)

 $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$ $E_W = (0.53*0.00) + (0.78*0.08) + (1.13*0.13) + (2.12*0.20)/0.41 =$ 0.0526 AC-FT = 2,290 CF $V_{100.6 \text{ HR}} = (E_W/12)A_T = (1.54/12)0.41 =$

 $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$ $Q_P = Q_{100} = (1.56 * 0.00) + (2.28 * 0.08) + (3.14 * 0.13) + (4.70 * 0.20) =$ NOTE: VOLUME AND PEAK DISCHARGE FORMULAS SHOWN ABOVE USED FOR ALL SUB-BASIN RESULTS BELOW b. SUB-BASIN B.2 (PROPOSED SUB-BASIN LIMITS USED FOR COMPARISON PURPOSES)

 $V_{100,6 HR} = 700 CF$ ii. PEAK DISCHARGE $Q_P = Q_{100} = 0.5 \text{ CFS}$

c. SUB-BASIN B.3 (PROPOSED SUB-BASIN LIMITS USED FOR COMPARISON PURPOSES) $V_{100,6 HR} = 3,360 CF$

II PEAK DISCHARGE $Q_P = Q_{100} = 2.6 \text{ CFS}$ d. SUB-BASIN B.4 (PROPOSED SUB-BASIN LIMITS USED FOR COMPARISON PURPOSES)

 $V_{100,6 HR} = 8,750 CF$ ii. PEAK DISCHARGE $Q_P = Q_{100} = 5.5 \text{ CFS}$

 $V_{100,6 HR} = 4,120 CF$ $Q_P = Q_{100} = 2.5 \text{ CFS}$

a. SUB-BASIN E.1 (PROPOSED SUB-BASIN LIMITS USED FOR COMPARISON PURPOSES) ii. PEAK DISCHARGE

b. SUB-BASIN E.2 (PROPOSED SUB-BASIN LIMITS USED FOR COMPARISON PURPOSES) V_{100,6 HR} = 23,880 CF

II PEAK DISCHARGE $Q_P = Q_{100} = 15.0 \text{ CFS}$

3. BASIN F a. SUB-BASIN F.1 (PROPOSED SUB-BASIN LIMITS USED FOR COMPARISON PURPOSES) $V_{100,6 HR}$ = 850 CF II PEAK DISCHARGE

 $Q_P = Q_{100} = 0.5 \text{ CFS}$ b. SUB-BASIN F.2 (PROPOSED SUB-BASIN LIMITS USED FOR COMPARISON PURPOSES)

 $V_{100,6 HR}$ = 390 CF ii. PEAK DISCHARGE $Q_P = Q_{100} = 0.3 \text{ CFS}$

ii. PEAK DISCHARGE $Q_P = Q_{100} = 1.4 \text{ CFS}$

c. SUB-BASIN F.3 (PROPOSED SUB-BASIN LIMITS USED FOR COMPARISON PURPOSES) i. VOLUME $V_{100,6 HR} = 1,800 CF$

d. SUB-BASIN F.4 (PROPOSED SUB-BASIN LIMITS USED FOR COMPARISON PURPOSES $V_{100,6 HR} = 1,030 CF$ ii. PEAK DISCHARGE $Q_P = Q_{100} = 0.8 \text{ CFS}$

e. SUB-BASIN F.5 (PROPOSED SUB-BASIN LIMITS USED FOR COMPARISON PURPOSES) V_{100,6 HR} = 860 CF ii. PEAK DISCHARGE $Q_P = Q_{100} = 0.7 \text{ CFS}$ f. SUB-BASIN F.6 (PROPOSED SUB-BASIN LIMITS USED FOR COMPARISON PURPOSES) $V_{100,6 HR} = 530 CF$ ii. PEAK DISCHARGE $Q_P = Q_{100} = 0.4 \text{ CFS}$

b. SUB-BASIN F.2

ii PEAK DISCHARGE

c. SUB-BASIN F.3

. VOLUME - 100 YR, 6HR

 $V_{1/2 \text{ INCH}} = 0.5 \text{ IN. * A}_{T}$

 $A_T = 2,760,000 \text{ IN}^2$

iii. PEAK DISCHARGE

WHERE:

n = 0.013

A = 0.087 SF

QREI = 0.2 CFS

d. SUB-BASIN F.4

 $V_{1/2 \text{ INCH}} = 0.5 \text{ IN.} * A_T$

 $A_{T} = 1.568.160 \text{ IN}^{2}$

iii. PEAK DISCHARGE

n = 0.013

A = 0.087 SF

 $Q_{RFI} = 0.2 CFS$

e. SUB-BASIN F.5

ii. PEAK DISCHARGE

f. SUB-BASIN F.6

ii. PEAK DISCHARGE

59.5

g. SUB-BASIN F.7

ii. PEAK DISCHARGE

BASIN F (COMPOSITE)

i. VOLUME RELEASED

V_{REL. BASIN F} = 6,230 CF

Q_{100, BASIN F} = 2.4 CFS

✓ REVISED OVERALL SITE CALCULATIONS

a. VOLUME GENERATED

 $V_{100 \text{ EXIST SITE}} = 49,275 \text{ CF}$

 $V_{100 \text{ DEVEL SITE}} = 54,550 \text{ CF}$

V_{CAPTURED} = 670 CF

b. VOLUME CAPTURED ON SITE

ii. PEAK DISCHARGE GENERATED

a. AREA OF FLOOD HAZARD ZONE AH

b. FLOOD HAZARD ZONE AH DEPTH ANALYSIS

D_{FLOOD HAZARD ZONE} = 4,605 CF / 391,900 SF

D_{FLOOD HAZARD ZONE} = 0.012 FT = 0.14 INCH

 $Q_{100 \text{ EXIST SITE}} = 32.1 \text{ CFS}$

Q_{100 DEVEL SITE} = 34.2 CFS

 $A_{ZONEAH} = 391,900 SF$

iv. SUMMARY

i. VOLUME

ii. PEAK DISCHARGE RELEASED

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

 $V_{100, 6 HR} = (E_W/12)A_T = (2.12/12)0.44 =$

 $A_T = 0.44 \text{ AC} * 43560 \text{ SF/AC} * 144 \text{ IN}^2 / \text{ SF}$

 $V_{1/2 \text{ INCH}} = 800 \text{ CF (SEE SUB-BASIN F.1 CISTERN)}$

v. FIRST FLUSH (90TH PERCENTILE STORM EVENT)

V_{REL F.3} = V₁₀₀ - V_{1/2" TO CISTERN} = 3390 - 800 = 2590 CF

 $Q_P = Q_{100} = (1.56*0.00) + (2.28*0.00) + (3.14*0.00) + (4.70*0.44) =$

 $Q_{RFI} = 1.49/n * A * R^{2/3} * S^{1/2}$ (MANNING'S EQUN FOR PIPE FLOW)

 $E_W = (0.00*0.00) + (0.00*0.00) + (0.09*0.00) + (0.34*0.44)/0.44 =$

(0.53*0.00) + (0.78*0.00) + (1.13*0.00) + (2.12*0.25)/0.25 =

ii. VOLUME - FIRST 1/2" RUNOFF (TO BE RETAINED IN SUB-BASIN B.2 CISTERN)

 $V_{1/2 \text{ INCH}} = 0.5 * 2,760,000 = 1,380,000 \text{ IN}^3$

 $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

R = A/P; P = 1.05 => R = 0.083

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

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

 $V_{\text{FIRST FLUSH}} = (E_W/12)A_T = (0.34/12)0.44 =$

vi. VOLUME RELEASED FROM SUB-BASIN

 $V_{100, 6 HR} = (E_W/12)A_T = (2.12/12)0.25 =$

 $A_{T} = 0.25 \text{ AC} * 43560 \text{ SF/AC} * 144 \text{ IN}^{2} / \text{ SF}$

 $V_{1/2 \text{ INCH}}$ = 460 CF (SEE SUB-BASIN B.2 CISTERN)

v. FIRST FLUSH (90TH PERCENTILE STORM EVENT)

 $V_{REL F.4} = V_{100} - V_{1/2" TO CISTERN} = 1920 - 460 = 1460 CF$

- NOTE: V_{100, F.5} RETAINED IN SUB-BASIN B.2 CISTERN

iii. FIRST FLUSH (90TH PERCENTILE STORM EVENT)

 $V_{REL F.5} = V_{100} - V_{FF B.2 CISTERN} = 940 - 80 = 860 CF$

iii. FIRST FLUSH (90TH PERCENTILE STORM EVENT)

 $Q_P = Q_{100} = (1.56*0.00) + (2.28*0.14) + (3.14*0.00) + (4.70*0.07) =$

 $Q_P = Q_{100} = (1.56*0.00) + (2.28*0.03) + (3.14*0.00) + (4.70*0.10) =$

 $E_W = (0.00*0.00) + (0.00*0.03) + (0.09*0.00) + (0.34*0.10)/0.13 =$

iv. WATER HARVESTING CAPACITY (AVERAGE END-AREA METHOD)

 $E_W = (0.00*0.00) + (0.00*0.14) + (0.09*0.00) + (0.34*0.07)/0.21 =$

 $V_{FF.\,F.5}$ RETAINED IN SUB-BASIN B.2 CISTERN, \therefore $V_{FIRST\,FLUSH}$ CAPTURED ONSITE

(0.53*0.00) + (0.78*0.03) + (1.13*0.00) + (2.12*0.10)/0.13 =

 V_{CAP} = 220 CF > $V_{FIRST FLUSH}$ = 120 CF : WATER HARVESTING IN SUB-BASIN F.6 ACTS AS

CREDIT FOR OVERALL PROJECT SITE (V_{F.6 WATER HARVESTING (CREDIT)} = 220 - 120 = 100 CF)

(0.53*0.00) + (0.78*0.03) + (1.13*0.00) + (2.12*0.09)/0.12 =

 $Q_P = Q_{100} = (1.56*0.00) + (2.28*0.00) + (3.14*0.00) + (4.70*0.25) =$

 $Q_{RFI} = 1.49/n * A * R^{2/3} * S^{1/2}$ (MANNING'S EQUN FOR PIPE FLOW)

 $E_W = (0.00*0.00) + (0.00*0.00) + (0.09*0.00) + (0.34*0.25)/0.25 =$

(0.53*0.00) + (0.78*0.14) + (1.13*0.00) + (2.12*0.07)/0.21 =

 $V_{1/2 \text{ INCH}} = 0.5 * 1,568,160 = 784,080 \text{ IN}^3$

V_{1/2 INCH} = 784,080 IN³ * 1 CF / 1728 IN³

 $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

R = A/P: $P = 1.05 \Rightarrow R = 0.083$

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

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

 $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

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

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

 $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

 $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A$

60.15 560

 $V_{EIRST ELUSH} = (E_W/12)A_T = (0.34/12)0.25 =$

vi. VOLUME RELEASED FROM SUB-BASIN

 $V_{100, 6 HR} = (E_W/12)A_T = (1.23/12)0.21 =$

 $V_{FIRST FLUSH} = (E_W/12)A_T = (0.11/12)0.21 =$

iv. VOLUME RELEASED FROM SUB-BASIN

 $V_{100, 6 HR} = (E_W/12)A_T = (1.81/12)0.13 =$

 $V_{FIRST FLUSH} = (E_W/12)A_T = (0.26/12)0.13 =$

ELEV AREA (SF) VOL (CF)

160

v. VOLUME RELEASED FROM SUB-BASIN

 $V_{100, 6 HR} = (E_W/12)A_T = (1.79/12)0.12 =$

 $V_{FIRST FLUSH} = (E_W/12)A_T = (0.26/12)0.12 =$

iv. VOLUME RELEASED FROM SUB-BASIN

 $\mathsf{E}_\mathsf{W} = (\mathsf{E}_\mathsf{A} \mathsf{A}_\mathsf{A} + \mathsf{E}_\mathsf{B} \mathsf{A}_\mathsf{B} + \mathsf{E}_\mathsf{C} \mathsf{A}_\mathsf{C} + \mathsf{E}_\mathsf{D} \mathsf{A}_\mathsf{D}) / \mathsf{A}_\mathsf{T}$

 $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

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

 $V_{REL F.6} = V_{100} - V_{WATER HARVEST} = 850 - 220 = 630 CF$

iii. FIRST FLUSH (90TH PERCENTILE STORM EVENT)

 $V_{REL F.7} = V_{100} - V_{CREDIT B.2 WH} = 780 - 550 = 230 CF$

V_{REL, BASIN F} = 460 + 2590 + 1460 + 860 + 630 + 230

 $Q_{100, BASIN F} = 0.4 + 0.2 + 0.2 + 0.6 + 0.5 + 0.5$

Q_{REL PER AC, BASIN F} = 2.4 CFS / 1.33 AC = 1.8 CFS/AC

 $Q_P = Q_{100} = (1.56*0.00) + (2.28*0.03) + (3.14*0.00) + (4.70*0.09) =$

 $E_W = (0.00*0.00) + (0.00*0.03) + (0.09*0.00) + (0.34*0.09)/0.12 =$

V_{REL, BASIN F} = V_{REL F.1} + V_{REL F.3} + V_{REL F.4} + V_{REL F.5} + V_{REL F.6} + V_{REL F.7}

Q_{100 BASIN F} = Q_{100 F.1} + Q_{REL F.3} + Q_{REL F.4} + Q_{100 F.5} + Q_{100 F.6} + Q_{100 F.7}

 $\Delta V_{100 \text{ SITE}} = V_{100 \text{ DEV SITE}} - V_{100 \text{ CAPTURED SITE}} - V_{100 \text{ EXIST SITE}}$

 $\Delta Q_{100 \text{ SITE}} = 2.1 \text{ CFS (INCREASE TO PUBLIC STREETS)}$

iii. INCREASED RUNOFF AFFECT ON EXISTING FLOOD HAZARD ZONE AH

 $D_{FLOOD\ HAZARD\ ZONE} = \Delta V_{100\ SITE} / A_{ZONE\ AH}$ (DEPTH OF INCREASE)

THE REVISIONS TO THE ORIGINAL APPROVED PLAN CONSIST OF REPLACING

THE ORIGINAL APPROVED CISTERNS WITH STORM WATER QUALITY MANHOLES

ALONG WITH AND INCREASING THE ONSITE STORM WATER HARVESTING AREAS

RUNOFF FROM THE SITE TO THE EXISTING FLOOD HAZARD ZONE AH OF 4,605 CF.

THE INCREASE IN RUNOFF DISCHARGE WILL RESULT IN AN INCREASED FLOOD

DEEMED THAT THIS INCREASE IS NEGLIGIBLE AND THEREFORE ACCEPTABLE.

ABOVE, THESE CHANGES TO THE SITE WILL RESULT IN A INCREASE IN DEVELOPED

HAZARD ZONE AH DEPTH OF 0.14 INCH. DISCUSSIONS WITH THE CITY HYDROLOGIST

TO THE MAXIMUM EXTENT PRACTICABLE. AS INDICATED BY THE REVISED CALCULATIONS

iv. 4" CURB PENETRATION CAPACITY (QREL)

iv. 4" CURB PENETRATION CAPACITY (QREL)

 $V_{1/2 \text{ INCH}} = 1,380,000 \text{ IN}^3 * 1 \text{ CF} / 1728 \text{ IN}^3$

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

 $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

 $V_{100, 6 HR} = (E_W/12)A_T = (2.12/12)0.06 =$

(0.53*0.00) + (0.78*0.00) + (1.13*0.00) + (2.12*0.06)/0.06 =

- NOTE: ALL RUNOFF FROM THIS SUB-BASIN (HOTEL SERVICE AREA) DRAINS INTO THE

PROPOSED SANITARY SEWER SYSTEM, 0 CFS DISCHARGED TO PUBLIC STREET

(0.53*0.00) + (0.78*0.00) + (1.13*0.00) + (2.12*0.44)/0.44 =

ii. VOLUME - FIRST 1/2" RUNOFF (TO BE RETAINED IN SUB-BASIN F.1 CISTERN)

 $Q_P = Q_{100} = (1.56*0.00) + (2.28*0.00) + (3.14*0.00) + (4.70*0.06) =$

0.0106 AC-FT =

0.0125 AC-FT =

0.0071 AC-FT =

0.0019 AC-FT =

0.0196 AC-FT =

0.0028 AC-FT =

0.0179 AC-FT =

0.0026 AC-FT =

(INCL. ALL WATER HARVESTING AREAS & STORM WATER QUALITY MANHOLES)

 $\Delta V_{100 \text{ SITE}} = 54,550 - 670 - 49,275 = 4,605 \text{ CF}$ (INCREASE TO PUBLIC STREETS)

0.0442 AC-FT = 1,920 CF

460 CF

0.3 CFS

2.12 IN

2.1 CFS

0.34 IN

540 CF

2.12 IN

1.2 CFS

0.34 IN

310 CF

1.23 IN

0.6 CFS

0.11 IN

80 CF

1.81 IN

0.5 CFS

0.26 IN

120 CF

1.79 IN

780 CF

0.5 CFS

0.26 IN

110 CF

0.0777 AC-FT = 3.390 CF

g. SUB-BASIN F.7 (PROPOSED SUB-BASIN LIMITS USED FOR COMPARISON PURPOSES) $V_{100,6 HR} = 490 CF$ ii. PEAK DISCHARGE $Q_P = Q_{100} = 0.4 \text{ CFS}$

B. DEVELOPED CONDITION a. SUB-BASIN B.1

 $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$ (0.53*0.00) + (0.78*0.08) + (1.13*0.00) + (2.12*0.33)/0.41 = $V_{100, 6 \text{ HR}} = (E_W/12)A_T = (1.86/12)0.41 =$ 0.0636 AC-FT = $Q_D = Q_{DA}A_A + Q_{DD}A_D + Q_{DC}A_C + Q_{DD}A_D$ $Q_p = Q_{100} = (1.56*0.00) + (2.28*0.08) + (3.14*0.00) + (4.70*0.33) =$ - NOTE: RUNOFF GENERATED BY SUB-BASIN TO BE SELF-CONTAINED VIA LANDSCAPING, RETAINING WALLS, AND POOL DECK DRAINS.

b. SUB-BASIN B.2 $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$ $E_W = (0.53*0.00) + (0.78*0.15) + (1.13*0.00) + (2.12*0.02)/0.17 =$ $V_{100, 6 HR} = (E_W/12)A_T = (0.94/12)0.17 =$ 0.0133 AC-FT = ii. PEAK DISCHARGE $Q_p = Q_{pA}A_A + Q_{pB}A_B + Q_{pC}A_C + Q_{pD}A_D$ $Q_P = Q_{100} = (1.56*0.00) + (2.28*0.15) + (3.14*0.00) + (4.70*0.02) =$ 0.4 CFS iii. FIRST FLUSH (90TH PERCENTILE STORM EVENT $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A$ (0.00*0.00) + (0.00*0.15) + (0.09*0.00) + (0.34*0.02)/0.17 =0.0006 AC-FT = $V_{EIRSTELUSH} = (E_W/12)A_T = (0.04/12)0.17 =$ iv. WATER HARVESTING CAPACITY (AVERAGE END-AREA METHOD) ELEV AREA (SF) VOL (CF) ΣVOL (CF)

2400 V_{CAP}= 570 CF >> V_{FIRST FLUSH}= 20 CF; .: V_{FIRST FLUSH} CONTAINED ONSITE V_{CREDIT B.2 WH} = V_{CAP} - V_{FF B.2} = 570 CF - 20 CF = 550 CF ∴ WATER HARVESTING IN SUB-BASIN B.2 ACTS AS CREDIT FOR OVERALL PROJECT SITE (V_{B.2 (CREDIT)} = 550 CF) v. CISTERN RETENTION VOLUME (LOCATED IN B.2, CAPTURES F.4 & F.5 RUNOFF) V_{REQID} = V_{1/2 INCH} FROM SUB-BASIN F.4 + V₁₀₀ FROM SUB-BASIN F.5 - SEE SUB-BASINS F.4 & F.5 FOR CALCULATIONS

V_{1/2 INCH F 4} = 460 CF $V_{100 E 5} = 940 CF$ V_{REQ'D} = 460 CF + 940 CF $V_{REQ'D} = 1,400 CF$ c. SUB-BASIN B.3

(0.53*0.00) + (0.78*0.12) + (1.13*0.00) + (2.12*0.70)/0.82 =0.1312 AC-FT = $V_{100, 6 HR} = (E_W/12)A_T = (1.92/12)0.82 =$ ii. PEAK DISCHARGE $Q_p = Q_{p\Delta}A_{\Delta} + Q_{pB}A_{B} + Q_{pC}A_{C} + Q_{pn}A_{n}$ $Q_P = Q_{100} = (1.56*0.00) + (2.28*0.12) + (3.14*0.00) + (4.70*0.70) =$ 3.6 CFS iii. HYDROGRAPH ANALYSIS i. $Q_P = Q_{100 \text{ YR} 6 \text{ HR}} = 3.6 \text{ CFS}$ ii. $T_C = L / 3600 * V$

 $V = K * (s * 100)^{1/2}$ K = 2 (FOR SHALLOW CONCENTRATED FLOW - PAVED) s = 0.0125 FT/FTV = 2 * (0.0125 *100)^{1/2} = 2.24 FT/SEC $T_C = 260 / (3600 * 2.24) = 0.03 HR$ PER DPM SECTION 22.2, USE MIN. T_C = 0.2 HR iii. E = 1.92 IN iv. $T_B = 2.017 * E * A_T/Q_D - 0.25 * A_D/A_T$ $T_B = 2.017 * 1.92 * 0.82/3.6 - 0.25 * 0.70/0.82$ $T_p = 0.6687 HR$ v. $T_P = 0.7 * T_C + (1.6 - A_D/A_T)/12$

 $T_p = 0.7 * 0.2 + (1.6 - 0.70/0.82)/12$ $T_D = 0.2022 HR$ vi. $T_D = 0.25 * (A_D/A_T)$ $T_D = 0.25 * (0.70/0.82)$ $T_D = 0.2134 HR$ vii. $V_{TOTAL} = V_{100 B.3} = 5,720 CF$ viii. CONTROLLED DISCHARGE RATE Q_{B.3 RELEASE} = 2.75 CFS/AC * 0.82 AC

Q_{B.3 RELEASE} = 2.25 CFS ix. VOLUME @ Q_{B.3 RELEASE} = 2.25 CFS V_{B.3 REL} = 4,270 CF (FROM HYDROGRAPH x. VOLUME OF DETENTION PONDING REQUIRED $V_{POND REO'D} = V_{100 B 3} V_{B 3 RE}$ V_{POND REQ'D} = 5,720 - 4,270 = 1,450 CF iv. DETENTION PONDING CAPACITY (AVERAGE END-AREA METHOD) ELEV AREA (SF) VOL (CF)

59.2 V_{CAP} = 1,565 CF > $V_{POND\ REQ'D}$ = 1,450 CF; THEREFORE OK v. FIRST FLUSH (90TH PERCENTILE STORM EVENT) (0.00*0.00) + (0.00*0.12) + (0.09*0.00) + (0.34*0.70)/0.82 = $V_{FIRST FLUSH} = (E_W/12)A_T = (0.29/12)0.82 =$

vi. WATER HARVESTING CAPACITY (AVERAGE END-AREA METHOD USED FOR EACH AREA)

V_{B.3 WATER HARVESTING} = 60 + 70 + 40 + 40 + 60 + 60 = 330 CF d. SUB-BASIN B.4 (NO DEVELOPMENT IN THIS BASIN) BASIN B (COMPOSITE) i. VOLUME RELEASED FROM SITE V_{REL. BASIN B} = V_{100, B.2} + V_{100, B.3} + V_{100, B.4} - V_{WATER HARVEST B.3} V_{REL, BASIN B} = 580 + 5,720 + 8,750 - 330 V_{REL, BASIN B} = 14,720 CF ii. ALLOWABLE PEAK DISCHARGE FROM BASIN B ALLOW, BASIN B = QALLOW DEV B.3 + QEXIST B.4

Q_{ALLOW DEV B.3} = 2.75 CFS / AC * 0.82 AC = 2.25 CFS $Q_{EXIST~B.4} = Q_{100~B.4} = 5.5~CFS$ (NO CHANGES TO THIS SUB-BASIN PROPOSED) Q_{ALLOW, BASIN B} = 2.25 CFS + 5.5 CFS = 7.75 CFS iii. PEAK DISCHARGE (CONTROLLED) RELEASED FROM SITE Q_{100 RELEASE}, BASIN B = Q_{B.3 RELEASE} + Q_{B.4} Q_{100 RELEASE, BASIN B} = 2.25 + 5.5 Q_{100 RELEASE, BASIN B} = 7.75 CFS = Q_{ALLOW, BASIN B} = 7.75 CFS : OK

2 BASIN F a. SUB-BASIN E. $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$ (0.53*0.00) + (0.78*0.07) + (1.13*0.00) + (2.12*0.49)/0.56 = $V_{100, 6 HR} = (E_W/12)A_T = (1.95/12)0.56 =$ 0.0910 AC-FT = 3.960 CF $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$ $Q_P = Q_{100} = (1.56*0.00) + (2.28*0.07) + (3.14*0.00) + (4.70*0.49) =$ 2.4 CFS iii. FIRST FLUSH (90TH PERCENTILE STORM EVENT) $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$ $(0.00^{\circ}0.00) + (0.00^{\circ}0.07) + (0.09^{\circ}0.00) + (0.34^{\circ}0.49)/0.56 =$ 0.0140 AC-FT = $V_{\text{EIRST ELLISH}} = (E_W/12)A_T = (0.30/12)0.56 =$ DEVELOPMENT OF SUB-BASIN E.1 DECREASES TOTAL IMPERVOUS AREA BY REMOVAL

OF EXISTING PAVING. THEREFORE NO FIRST FLUSH CALCULATIONS ARE REQUIRED iv. WATER HARVESTING CAPACITY (AVERAGE END-AREA METHOD) ELEV AREA (SF) VOL (CF) ΣVOL (CF) 62.2 290 V_{CAP} = 125 CF > $V_{FIRST\ FLUSH}$ = 0 CF \therefore WATER HARVESTING IN SUB-BASIN E.1 ACTS AS

CREDIT FOR OVERALL PROJECT SITE (V_{E.1 (CREDIT)} = 125 CF) b. SUB-BASIN E.2 (NO DEVELOPMENT) a. SUB-BASIN F.1 $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$

(0.53*0.00) + (0.78*0.06) + (1.13*0.00) + (2.12*0.06)/0.12 =0.0145 AC-FT = $V_{100, 6 \text{ HR}} = (E_W/12)A_T = (1.45/12)0.12 =$ 630 CF ii. PEAK DISCHARGE $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$ $Q_P = Q_{100} = (1.56*0.00) + (2.28*0.06) + (3.14*0.00) + (4.70*0.06) =$ 0.4 CFS iii. FIRST FLUSH (90TH PERCENTILE STORM EVENT) $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$ $(0.00^{\circ}0.00) + (0.00^{\circ}0.06) + (0.09^{\circ}0.00) + (0.34^{\circ}0.06)/0.12 =$ 0.17 IN $V_{FIRST FLUSH} = (E_W/12)A_T = (0.17/12)0.12 =$ 0.0017 AC-FT = iv. WATER HARVESTING CAPACITY (AVERAGE END-AREA METHOD) ELEV AREA (SF) VOL (CF) ΣVOL (CF) 61.5 170

510 V_{CAP} = 170 CF > $V_{FIRST\ FLUSH}$ = 70 CF \therefore WATER HARVESTING IN SUB-BASIN F.1 ACTS AS CREDIT FOR OVERALL PROJECT SITE ($V_{F.1\ (CREDIT)}$ = 100 CF) v. CISTERN RETENTION VOLUME V_{REQ'D} = V_{1/2 INCH} FROM SUB-BASIN F.3 - SEE SUB-BASIN F.3 FOR CALCULATIONS

vi. VOLUME RELEASED FROM SUB-BASIN V_{REL F.1} = V₁₀₀ - V_{WATER HARVEST} = 630 - 170 = 460 CF SITE

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SITE CHANGES

06/17 RECORD DRAWING

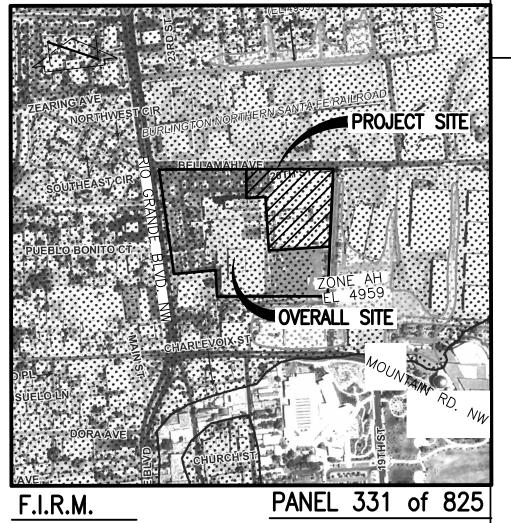
9/16 CALCS UPDATED FOR J.D.S. G.M.

JDS JGM

J.D.S. G.M.

Los Angeles CA 900071

FEDERAL EMERGENCY MANAGEMENT AGENCY



LEGAL DESCRIPTION TRACTS A, B AND D, SHERATON OLD TOWN INN COMPLEX, ALBUQUERQUE, NEW MEXICO

BENCHMARKS

PROJECT BENCHMARK AN AGRS BRASS DISK STAMPED "5-J13A". SET FLUSH WITH TOP OF CURB, AT THE NORTHWEST QUADRANT OF THE INTERSECTION OF MOUNTAIN ROAD N.W. AND NINETEENTH STREET N.W. ELEVATION = 4960.499 FEET (NAVD 1988)

TEMPORARY BENCHMARK #1 (T.B.M.) A MAG NAIL SET IN ASPHALT, IN THE NORTHWESTERN PORTION OF THE SITE, AS SHOWN ON SHEET C-101.

TEMPORARY BENCHMARK #2 (T.B.M.) A CHISELED "+". BEING THE NORTHEASTERN PROPERTY CORNER OF TRACT D. AS SHOWN ON SHEET C-10°

ELEVATION = 4961.25 FEET (NAVD 1988)

ELEVATION = 4958.16 FEET (NAVD 1988)

ELEVATION = 4960.13 FEET (NAVD 1988)TEMPORARY BENCHMARK #3 (T.B.M.) A MAG NAIL SET IN CONCRETE, IN THE SOUTHEASTERN PORTION OF THE SITE, AS SHOWN ON SHEET C-10

TEMPORARY BENCHMARK #4 (T.B.M.) A MAG NAIL SET IN ASPHALT, IN THE SOUTHWESTERN PORTION OF THE SITE, AS SHOWN ON SHEET C-101 ELEVATION = 4961.08 FEET (NAVD 1988)

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|Seal/Signature

10/28/2014.

Project Name

TOWN

HOTEL OLD

Project Number

13-0020

Description

Scale

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MORTENSEN, NMPE #8547 ON

ISSUED AND SEALED BY JEFFREY G.

DRAINAGE PLAN AND

CALCULATIONS

06/11/2017 9-23-2016



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title:	Building Permit #: City Drainage #:		
DRB#: EPC#:			
Legal Description:			
City Address:			
Engineering Firm:	Contact:		
Address:			
Phone#: Fax#:	E-mail:		
Owner:	Contact:		
Address:			
Phone#: Fax#:	E-mail:		
Architect:			
Address:			
	E-mail:		
Other Contact:	Contact:		
Address:			
Phone#: Fax#:	E-mail:		
DEPARTMENT: HYDROLOGY/ DRAINAGE TRAFFIC/ TRANSPORTATION MS4/ EROSION & SEDIMENT CONTROL	CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT: BUILDING PERMIT APPROVAL CERTIFICATE OF OCCUPANCY (PERMANENT)		
MS4/ EROSION & SEDIMENT CONTROL	CERTIFICATE OF OCCUPANCY (PERMANENT)		
TYPE OF SUBMITTAL:	PRELIMINARY PLAT APPROVAL		
ENGINEER/ ARCHITECT CERTIFICATION	SITE PLAN FOR SUB'D APPROVAL		
CONCEPTUAL G & D PLAN	SITE PLAN FOR BLDG. PERMIT APPROVAL		
GRADING PLAN	FINAL PLAT APPROVAL		
DRAINAGE MASTER PLAN	SIA/ RELEASE OF FINANCIAL GUARANTEE FOUNDATION PERMIT APPROVAL		
DRAINAGE REPORT	GRADING PERMIT APPROVAL		
CLOMR/LOMR	SO-19 APPROVAL		
	PAVING PERMIT APPROVAL		
TRAFFIC CIRCULATION LAYOUT (TCL)	GRADING/ PAD CERTIFICATION		
TRAFFIC IMPACT STUDY (TIS)	WORK ORDER APPROVAL		
EROSION & SEDIMENT CONTROL PLAN (ESC)	CLOMR/LOMR		
OTHER (SPECIFY)	PRE-DESIGN MEETING		
	OTHER (SPECIFY)		
IS THIS A RESUBMITTAL?: Yes No			
DATE SUBMITTED:By:			

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ____