

# CITY OF ALBUQUERQUE

*Planning Department*  
Alan Varela, Interim Director



*Mayor Timothy M. Keller*

December 3, 2021

Graeme Means, P.E.  
High Mesa Consulting Group  
6010-B Midway Park Blvd.  
Albuquerque, NM 87109

**RE: International District Library**  
**7667 Central Ave. NE**  
**Permanent C.O. - Approved**  
**Engineer's Certification Date: 11/30/21**  
**Engineer's Stamp Date: 12/11/19**  
**Hydrology File: K19D005**

Dear Mr. Means:

PO Box 1293

Based on the certification received 12/1/21 and a site visit on 12/3/21, this certification is approved for Permanent Certificate of Occupancy by Hydrology.

Albuquerque

Please have your contractor clean up the site. There is currently a large dirt pile just south of Pond 6.

NM 87103

If you have any questions, please contact me at 924-3986 or [earmijo@cabq.gov](mailto:earmijo@cabq.gov).

[www.cabq.gov](http://www.cabq.gov)

Sincerely,

Ernest Armijo, P.E.  
Principal Engineer, Planning Dept.  
Development Review Services



# City of Albuquerque

Planning Department  
Development & Building Services Division

## DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

**Project Title:** \_\_\_\_\_ **Building Permit #:** \_\_\_\_\_ **Hydrology File #:** \_\_\_\_\_

**DRB#:** \_\_\_\_\_ **EPC#:** \_\_\_\_\_ **Work Order#:** \_\_\_\_\_

**Legal Description:** \_\_\_\_\_

**City Address:** \_\_\_\_\_

**Applicant:** \_\_\_\_\_ **Contact:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Phone#:** \_\_\_\_\_ **Fax#:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_

**Other Contact:** \_\_\_\_\_ **Contact:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Phone#:** \_\_\_\_\_ **Fax#:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_

**TYPE OF DEVELOPMENT:** \_\_\_\_\_ PLAT (# of lots) \_\_\_\_\_ RESIDENCE \_\_\_\_\_ DRB SITE \_\_\_\_\_ ADMIN SITE

IS THIS A RESUBMITTAL? \_\_\_\_\_ Yes \_\_\_\_\_ No

**DEPARTMENT** \_\_\_\_\_ TRANSPORTATION \_\_\_\_\_ HYDROLOGY/DRAINAGE

Check all that Apply:

### TYPE OF SUBMITTAL:

- \_\_\_\_\_ ENGINEER/ARCHITECT CERTIFICATION
- \_\_\_\_\_ PAD CERTIFICATION
- \_\_\_\_\_ CONCEPTUAL G & D PLAN
- \_\_\_\_\_ GRADING PLAN
- \_\_\_\_\_ DRAINAGE REPORT
- \_\_\_\_\_ DRAINAGE MASTER PLAN
- \_\_\_\_\_ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
- \_\_\_\_\_ ELEVATION CERTIFICATE
- \_\_\_\_\_ CLOMR/LOMR
- \_\_\_\_\_ TRAFFIC CIRCULATION LAYOUT (TCL)
- \_\_\_\_\_ TRAFFIC IMPACT STUDY (TIS)
- \_\_\_\_\_ STREET LIGHT LAYOUT
- \_\_\_\_\_ OTHER (SPECIFY) \_\_\_\_\_
- \_\_\_\_\_ PRE-DESIGN MEETING?

### TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- \_\_\_\_\_ BUILDING PERMIT APPROVAL
- \_\_\_\_\_ CERTIFICATE OF OCCUPANCY
- \_\_\_\_\_ PRELIMINARY PLAT APPROVAL
- \_\_\_\_\_ SITE PLAN FOR SUB'D APPROVAL
- \_\_\_\_\_ SITE PLAN FOR BLDG. PERMIT APPROVAL
- \_\_\_\_\_ FINAL PLAT APPROVAL
- \_\_\_\_\_ SIA/ RELEASE OF FINANCIAL GUARANTEE
- \_\_\_\_\_ FOUNDATION PERMIT APPROVAL
- \_\_\_\_\_ GRADING PERMIT APPROVAL
- \_\_\_\_\_ SO-19 APPROVAL
- \_\_\_\_\_ PAVING PERMIT APPROVAL
- \_\_\_\_\_ GRADING/ PAD CERTIFICATION
- \_\_\_\_\_ WORK ORDER APPROVAL
- \_\_\_\_\_ CLOMR/LOMR
- \_\_\_\_\_ FLOODPLAIN DEVELOPMENT PERMIT
- \_\_\_\_\_ OTHER (SPECIFY) \_\_\_\_\_

**DATE SUBMITTED:** \_\_\_\_\_ **By:** \_\_\_\_\_

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: \_\_\_\_\_

FEE PAID: \_\_\_\_\_



File Name: P:\data\2017\2017.066.11\B\G170861\_DesMaster.dwg - C002 - RD 1 Plot Date: 11/30/21 Plot Time: 10:08

DRAINAGE PLAN

I. INTRODUCTION AND EXECUTIVE SUMMARY

THIS SITE IS LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF CENTRAL AVENUE NE AND SAN PABLO STREET NE IN ALBUQUERQUE, NEW MEXICO. THIS PROJECT REPRESENTS A REDEVELOPMENT OF A PREVIOUSLY DEVELOPED SITE WITHIN AN INFILL AREA. THE EXISTING SITE 'CARAVAN CLUB' BUILDING IMPROVEMENTS HAVE BEEN COMPLETELY DEMOLISHED AND REMOVED (BY SEPARATE 2018 PROJECT) RESULTING IN A GENERALLY OPEN SITE WITH PAVED AND UNPAVED SURFACES AND MINIMAL LANDSCAPING. THE PROPOSED DEVELOPMENT FOR THE SITE IS TO CONSTRUCT A NEW PUBLIC LIBRARY WITH ASSOCIATED PAVED PARKING AND COURTYARD IMPROVEMENTS, AS WELL AS ASSOCIATED NEW LANDSCAPING WITHIN THE WESTERN PORTION OF THE SITE. THE EASTERN PORTION OF THE SITE WILL REMAIN UNDEVELOPED AT THIS TIME AND THERE ARE TENTATIVE PLANS FOR THE CITY AND AMAFCA TO DEVELOP IT AS A PUBLIC DRAINAGE FACILITY TO HELP ALLEVIATE DOWNSTREAM FLOODING.

THIS DRAINAGE PLAN ADDRESSES THE DRAINAGE CONCEPTS AND IMPROVEMENTS PROPOSED FOR DEVELOPMENT OF THE NEW LIBRARY SITE, AS WELL AS THE PROPOSED ONSITE STORMWATER WATER HARVESTING / FIRST FLUSH CAPTURE REQUIRED TO PARTIALLY MEET THE DEVELOPED 100-YEAR STORM EVENT DISCHARGE AND FIRST FLUSH REQUIREMENTS BY THE CITY OF ALBUQUERQUE. THIS PLAN IS SUBMITTED IN SUPPORT OF BUILDING PERMIT APPROVAL BY THE CITY OF ALBUQUERQUE. A PREVIOUS SUBMITTAL ADDRESSED THE VACATION, REPLAT, AND WORK ORDER ASPECTS OF THE PROJECT.

II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP, THE SITE IS BOUNDED BY CENTRAL AVENUE TO THE SOUTH, SAN PABLO STREET NE TO THE WEST, CHICO ROAD NE TO THE NORTH, AND CHARLESTON STREET NE TO THE EAST. THE SITE CONSISTS OF TWO LOTS (BLOCKS 2 AND 3, LOMA VERDE SUBDIVISION), AND GROVE STREET NE, WHICH CURRENTLY BISECTS THE SITE. A SEPARATE, CONCURRENT PLATTING ACTION IS IN PROGRESS TO VACATE GROVE STREET RIGHT-OF-WAY AND COMBINE THE SITE INTO ONE LOT. ALL PERIMETER STREETS REFERENCED ABOVE ARE FULLY DEVELOPED PUBLIC STREETS WITH CURB AND GUTTER AND SIDEWALKS. THIS SITE IS OWNED AND OPERATED BY THE CITY OF ALBUQUERQUE. AS INDICATED BY PANELS 354 AND 358 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY, NEW MEXICO, DATED AUGUST 16, 2012, THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE. THE SITE DOES LIE IMMEDIATELY ADJACENT TO A ZONE 'A' DESIGNATED FLOOD HAZARD ZONE ASSOCIATED WITH THE CHICO ROAD NE PUBLIC RIGHT OF WAY, WHERE THE 1% ANNUAL CHANCE FLOOD DISCHARGE IS CONTAINED WITHIN THE PUBLIC RIGHT OF WAY. THE SITE IS CURRENTLY PERMITTED FREE DISCHARGE TO THE ADJACENT PUBLIC STREETS BASED ON HISTORIC CONDITIONS AND PREVIOUSLY APPROVED PLANS.

III. BACKGROUND DOCUMENTS & RESEARCH

THE PREPARATION OF THIS PLAN RELIED UPON THE FOLLOWING DOCUMENTS:

- TOPOGRAPHIC AND UTILITY SURVEY PREPARED BY HIGH MESA CONSULTING GROUP (NMPS 11184) DATED 04/30/2018. THIS REFERENCED SURVEY PROVIDES THE BASIS FOR THE EXISTING CONDITIONS OF THE SITE.
- SITE DRAINAGE PLAN PREPARED BY CONSULTANTS, INC. NMPE 6653, DATED OCTOBER, 1979. THIS REFERENCED DRAINAGE PLAN CONTINUED THE APPROVED EXISTING DRAINAGE CONCEPT OF DISCHARGE OF EXISTING RUNOFF FROM THE SITE TO THE ADJACENT PUBLIC STREETS.
- SITE DEMOLITION PLAN PREPARED BY CHERRY-SEE REAMES ARCHITECTURE AND TETSUDO ENGINEERING (NMPE 23914), DATED JUNE 19, 2017. THIS REFERENCED PLAN DEMOLISHED ALL EXISTING BUILDINGS ON THE TWO PROJECT LOTS AND REMOVAL OF ALL EXISTING UTILITY SERVICES TO THE EXISTING PROPERTY BOUNDARIES. PORTIONS OF THE PAVED PARKING LOT WERE REMOVED DURING THE DEMOLITION; HOWEVER, THE MAJORITY OF THE PAVED PARKING STILL REMAINS BASED ON THE 2018 SURVEY REFERENCED ABOVE.

IV. EXISTING CONDITIONS

THE PROJECT SITE CONSISTS OF TWO EXISTING LOTS (BLOCKS 2 AND 3, LOMA VERDE) SEPARATED BY GROVE STREET. THE WEST LOT IS MOSTLY PAVED PARKING LOT, WITH UNPAVED DIRT AND GRAVEL PORTIONS WHERE THE PREVIOUS 'CARAVAN CLUB' BUILDING AND ASSOCIATED UTILITIES WERE DEMOLISHED IN 2018. MINIMAL LANDSCAPED AREAS ARE LOCATED ON THE SOUTH SIDE OF THE SITE. THE EASTERN PORTION IS SIMILAR, WITH A SMALL UNPAVED PATCH AT THE LOCATION A PREVIOUS BUILDING WAS DEMOLISHED IN 2018. BOTH LOTS CURRENTLY SHEET FLOW FROM EAST TO WEST, WITH A SLIGHT CROWN IN THE CENTER OF BOTH LOTS. THE WEST LOT PRIMARILY FREE DISCHARGES STORMWATER RUNOFF OVER THE PUBLIC SIDEWALKS OR THROUGH EXISTING DRIVEPADS INTO SAN PABLO STREET NE TO THE WEST, WITH PORTIONS DISCHARGING TO CHICO ROAD NE TO THE NORTH AND CENTRAL AVE TO THE SOUTH. THE EAST LOT PRIMARILY FREE DISCHARGES STORMWATER RUNOFF OVER THE PUBLIC SIDEWALKS OR THROUGH EXISTING DRIVEPADS INTO GROVE STREET NE, WITH PORTIONS DISCHARGING TO CHICO ROAD NE TO THE NORTH AND CENTRAL AVE TO THE SOUTH. THERE ARE NO ONSITE PONDING IMPROVEMENTS ON EITHER LOT.

GROVE STREET IS A FULLY DEVELOPED PUBLIC STREET WITH CURB AND GUTTER AND SIDEWALK ON BOTH SIDES. THE EXISTING STREET EXTENDS NORTH AND SOUTH, CONNECTING CHICO ROAD NE TO THE NORTH TO CENTRAL AVE TO THE SOUTH. GROVE STREET ACCEPTS FREE DISCHARGE OF STORMWATER RUNOFF FROM THE EAST LOT (BLOCK 3, LOMA VERDE). A HIGH POINT IN THE STREET IS LOCATED APPROXIMATELY HALFWAY BETWEEN THE TWO ROADS, RESULTING IN A SPLIT OF THE RUNOFF WITHIN GROVE STREET TO BOTH CHICO ROAD NE AND CENTRAL AVE.

THERE ARE NO APPARENT OFFSITE FLOWS IMPACTING THE EXISTING SITE. OFFSITE FLOWS ARE CONTAINED AND CONVEYED AROUND THE SITE TO THE EAST, NORTH, AND SOUTH WITHIN THE ADJACENT, FULLY DEVELOPED PUBLIC RIGHTS-OF-WAY OF CHICO ROAD NE, CHARLESTON ROAD NE, AND CENTRAL AVE. SAN PABLO STREET TO THE WEST IS TOPOGRAPHICALLY LOWER THAN THE SITE.

V. DEVELOPED CONDITIONS

THE PROPOSED DEVELOPED CONDITIONS FOR THIS SITE CONSIST A NEW LIBRARY BUILDING, PAVED PARKING LOT, AND ASSOCIATED PAVED PEDESTRIAN AND LANDSCAPING IMPROVEMENTS IN THE WESTERN PORTION OF THE SITE. THE EXISTING STREET IS PROPOSED TO BE VACATED BY CONCURRENT VACATION AND PLATTING ACTION, WHICH WILL FACILITATE THE COMPLETE REMOVAL OF THE EXISTING STREET IMPROVEMENTS. DEVELOPMENT OF THE EASTERN PORTION OF THE SITE (BLOCK 3, LOMA VERDE) IS UNDER DISCUSSION AND COORDINATION BETWEEN THE CITY OF ALBUQUERQUE AND AMAFCA; THIS PORTION OF THE SITE IS ANTICIPATED TO BE DEVELOPED AT A LATER DATE PENDING RESOLUTION OF THOSE COORDINATION EFFORTS.

THE PROPOSED LIBRARY DEVELOPMENT IMPROVEMENTS INCLUDE DEPRESSED PARKING ISLANDS AND PONDING AREAS INTENDED FOR WATER HARVESTING AND CAPTURE OF SITE RUNOFF. THESE LANDSCAPED AREAS WILL RESULT IN AN OVERALL DECREASE IN IMPERVIOUS AREA FROM THE EXISTING CONDITION, AND CALCULATIONS INCLUDED HEREWITH DEMONSTRATE AN OVERALL DECREASE IN DEVELOPED RUNOFF GENERATED DURING A 100-YEAR, 6 HOUR STORM EVENT.

THE SITE IS DIVIDED INTO TWO SEPARATE DRAINAGE BASINS, BASIN A IS THE WESTERN PORTION TO BE DEVELOPED BY THIS PLAN, AND BASIN B IS THE EASTERN PORTION TO BE DEVELOPED AT A FUTURE DATE. BASIN A IS FURTHER SUBDIVIDED INTO BASIN A-1 AND BASIN A-2. BASIN A-1 CONSISTS OF THE PARKING LOT AND PORTIONS OF THE BUILDING THAT DISCHARGE THERETO, AND BASIN A-2 CONSISTS OF THE REMAINDER OF THE BUILDING, THE FRONT ENTRY COURTYARD, AND THE NEW ACCESS ROAD TO CENTRAL AVENUE.

BASIN A-1 DRAINS FROM EAST TO WEST ACROSS THE NEW PARKING LOT, AND DISCHARGES TO SEVERAL PONDING AREAS WITHIN THE PARKING LOT ISLANDS AND AT THE NORTHWEST CORNER OF THE SITE DESIGNED TO CAPTURE THE MINOR INCREASE IN DEVELOPED RUNOFF (ΔV100 = 440 CF; VPOND = 2,016 CF) FROM THE NEW PARKING LOT AND NORTH PORTION OF THE BUILDING. THESE PONDING AREAS ARE ALSO SIZED TO CAPTURE AND TREAT THE FIRST FLUSH OF RUNOFF (VFF = 1,380 CF; VPOND = 2,016 CF)) GENERATED BY THIS SUB-BASIN.

BASIN A-2 CONSISTS OF THE BUILDING, ENTRY COURTYARD, AND CENTRAL AVENUE ACCESS ROAD. THIS SUB-BASIN DISCHARGES TO THE SOUTH AND WEST (CENTRAL AVE AND SAN PABLO STREET). THIS SUB-BASIN INCLUDES SEVERAL DEPRESSED AREAS OF LANDSCAPING, BUT THEY ARE NEGLIGIBLE IN SIZE AND WILL NOT COLLECT SIGNIFICANT AMOUNTS OF RUNOFF FROM THIS SUB-BASIN. A STORM WATER FEATURE / CISTERN LOCATED NEAR THE SOUTHWEST CORNER OF THE NEW BUILDING IS PROPOSED TO COLLECT A PORTION OF THE ROOF RUNOFF, BUT AS THIS FEATURE IS AN ALTERNATE TO THE BASE BID, THE CAPACITY OF THIS STORMWATER COLLECTION FEATURE IS NOT INCLUDED IN THE CALCULATIONS FOR THIS SITE. CALCULATIONS REFERENCED HEREWITH DEMONSTRATE THAT THE DEVELOPED CONDITION FOR BASIN A-2 WILL RESULT IN A MINOR DECREASE (ΔV100 = 690 CF) OF STORMWATER RUNOFF VOLUME GENERATED, THEREFORE PONDING IS NOT REQUIRED FOR THE 100 YEAR STORM EVENT. ON-SITE WATER HARVESTING / PONDING OPPORTUNITIES IN BASIN A-2 ARE VERY LIMITED RESULTING FROM THE BUILDING PROXIMITY TO THE ADJACENT PUBLIC STREETS; THEREFORE THE FIRST FLUSH GENERATED BY BASIN A-2 (VFF = 1,270 CF) WILL FREE DISCHARGE DIRECTLY TO THE PUBLIC RIGHT OF WAYS ALONG CENTRAL AVENUE AND SAN PABLO STREET.

BASIN B WILL NOT BE DEVELOPED AS PART OF THIS PLAN, PENDING FUTURE SITE DEVELOPMENT. THIS PLAN PROPOSES TO CONSTRUCT A TEMPORARY RETENTION POND AT THE WEST END OF BASIN B IN ORDER TO CAPTURE THE RUNOFF GENERATED BY BASIN B AND PREVENT IT FROM DRAINING ONTO THE NEWLY DEVELOPED BASIN A LIBRARY IMPROVEMENTS. CALCULATIONS INCLUDED HEREWITH DEMONSTRATE THAT THE POND CAPACITY IS SIZED TO CAPTURE THE 100 YEAR STORM EVENT GENERATED BY BASIN B.

AS NOTED ABOVE, THERE ARE NO APPARENT OFFSITE FLOWS IMPACTING THE SITE.

VI. CALCULATIONS

CALCULATIONS ANALYZING THE EXISTING AND PROPOSED DEVELOPED CONDITIONS FOR THE 100 YEAR, 6-HOUR RAINFALL EVENT HAVE BEEN PREPARED FOR EACH DRAINAGE BASIN. 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 DEVELOPMENT WILL RESULT IN AN OVERALL DECREASE IN PEAK RATE AND VOLUME OF RUNOFF GENERATED BY THE SITE (1.0 CFS AND 2,060 CF OF REDUCTION). CALCULATIONS FOR THE PROPOSED ONSITE DETENTION PONDS, PREPARED USING THE AVERAGE END-AREA METHOD, DEMONSTRATE THAT THE ONSITE PONDING CAPACITY IS SIZED TO CONTAIN THE FIRST FLUSH OF RUNOFF IN BASIN A-1, AND THE 100 YEAR STORM RUNOFF GENERATED BY BASIN B.

VIII. CONCLUSIONS

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

- THIS DRAINAGE PLAN ADDRESSES THE LIBRARY IMPROVEMENTS FOR THE WESTERN PORTION OF THE SITE; FUTURE DEVELOPMENT FOR THE EASTERN PORTION OF THE SITE WILL REQUIRE SEPARATE SUBMITTAL.
- THE PROPOSED IMPROVEMENTS WILL CONTINUE TO DRAIN TO THE ADJACENT PUBLIC STREETS, HOWEVER THE DEVELOPED WESTERN PORTION OF THE SITE WILL BE PRIMARILY TO SAN PABLO STREET NE AND CENTRAL AVE; THE DISCHARGE OF DEVELOPED RUNOFF TO CHICO ROAD NE WILL BE NEGLIGIBLE.
- THE PROPOSED IMPROVEMENTS WILL MAINTAIN THE STATUS QUO FOR THE SITE OF FREE DISCHARGE AFTER THE ON-SITE STORMWATER RETENTION/CAPTURE AREAS ARE INITIALLY FILLED TO THEIR CAPACITY. THE PROPOSED IMPROVEMENTS WILL RESULT IN A DECREASE IN THE PEAK RATE OF RUNOFF AND VOLUME DRAINING TO THE PUBLIC RIGHT-OF-WAY DUE TO THE DECREASE IN IMPERVIOUS LAND TREATMENT AND THE ADDITION OF SEVERAL RETENTION AREAS.
- THE PROPOSED DEVELOPMENT WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES OR DOWNSTREAM DRAINAGE CONDITIONS.
- WHILE WATER HARVESTING / POND AREAS WILL CAPTURE AND TREAT THE FIRST FLUSH FROM BASIN A-1, THE FIRST FLUSH FROM BASIN A-2 WILL NOT BE CAPTURED ONSITE DUE TO SITE CONSTRAINTS PROHIBITING ADEQUATE WATER HARVESTING OPPORTUNITIES. THEREFORE, 1,270 CF OF FIRST FLUSH WILL FREE DISCHARGE TO THE CITY RIGHT OF WAY. IT SHOULD BE NOTED THAT IF A CISTERN PROPOSED IN BASIN A-2 AS AN ALTERNATE IS SELECTED BY THE CITY FOR CONSTRUCTION, THIS WILL BE USED TO CAPTURE THE FIRST FLUSH RUNOFF FROM THE NEW BUILDING TO THE MAXIMUM EXTENT PRACTICABLE.

CALCULATIONS

I. SITE CHARACTERISTICS

A. PRECIPITATION ZONE =	3
B. $P_{100,6\text{ HR}} = P_{360} =$	2.60 IN
C. TOTAL PROJECT AREA (A <sub>T</sub> ) =	208,826 SF 4.79 AC

D. LAND TREATMENTS

EXISTING LAND TREATMENT			DEVELOPED LAND TREATMENT		
BASIN A-1	59,120 SF 1.36 AC		BASIN A-1	59,120 SF 1.36 AC	
LAND TREATMENT	AREA (SF/AC)	%	LAND TREATMENT	AREA (SF/AC)	%
A			A		
B			B		
C	15,470 SF 0.36 AC	26%	C	10,440 SF 0.24 AC	18%
D	43,650 SF 1.00 AC	74%	D	48,680 SF 1.12 AC	82%
BASIN A-2	59,175 SF 1.36 AC		BASIN A-2	59,175 SF 1.36 AC	
LAND TREATMENT	AREA (SF/AC)	%	LAND TREATMENT	AREA (SF/AC)	%
A			A		
B			B		
C	6,536 SF 0.15 AC	11%	C	14,450 SF 0.33 AC	24%
D	52,640 SF 1.21 AC	89%	D	44,725 SF 1.03 AC	76%
BASIN B	90,455 SF 2.08 AC		BASIN B	90,455 SF 2.08 AC	
LAND TREATMENT	AREA (SF/AC)	%	LAND TREATMENT	AREA (SF/AC)	%
A			A		
B			B		
C	7,460 SF 0.17 AC	8%	C	28,160 SF 0.65 AC	31%
D	82,995 SF 1.91 AC	92%	D	62,295 SF 1.43 AC	69%

II. HYDROLOGY

A. EXISTING CONDITION 100 YEAR STORM

1. BASIN A-1

a. VOLUME 100-YR, 6-HR

$WT_E = (E_A \cdot A_A + E_B \cdot A_B + E_C \cdot A_C + E_D \cdot A_D) \cdot A_T$   
 $\Rightarrow (0.66 \cdot 0.00) + (0.92 \cdot 0.00) + (1.29 \cdot 0.36) + (2.36 \cdot 1.00) / 1.36 =$  2.08 IN  
 $V_{100,6\text{ HR}} = (E_W / 12) \cdot A_T \Rightarrow (2.08 / 12) \cdot 1.36 =$  0.2352 AC-FT = 10,250 CF

b. PEAK DISCHARGE 100-YR

$Q_{100} = Q_A \cdot A_A + Q_B \cdot A_B + Q_C \cdot A_C + Q_D \cdot A_D$   
 $\Rightarrow (1.87 \cdot 0.00) + (2.60 \cdot 0.00) + (3.45 \cdot 0.36) + (5.02 \cdot 1.00) =$  6.3 CFS

2. BASIN A-2

a. VOLUME 100-YR, 6-HR

$WT_E = (E_A \cdot A_A + E_B \cdot A_B + E_C \cdot A_C + E_D \cdot A_D) \cdot A_T$   
 $\Rightarrow (0.66 \cdot 0.00) + (0.92 \cdot 0.00) + (1.29 \cdot 0.15) + (2.36 \cdot 1.21) / 1.36 =$  2.24 IN  
 $V_{100,6\text{ HR}} = (E_W / 12) \cdot A_T \Rightarrow (2.24 / 12) \cdot 1.36 =$  0.2536 AC-FT = 11,050 CF

b. PEAK DISCHARGE 100-YR

$Q_{100} = Q_A \cdot A_A + Q_B \cdot A_B + Q_C \cdot A_C + Q_D \cdot A_D$   
 $\Rightarrow (1.87 \cdot 0.00) + (2.60 \cdot 0.00) + (3.45 \cdot 0.15) + (5.02 \cdot 1.21) =$  6.6 CFS

4. BASIN B

a. VOLUME 100-YR, 6-HR

$WT_E = (E_A \cdot A_A + E_B \cdot A_B + E_C \cdot A_C + E_D \cdot A_D) \cdot A_T$   
 $\Rightarrow (0.66 \cdot 0.00) + (0.92 \cdot 0.00) + (1.29 \cdot 0.17) + (2.36 \cdot 1.91) / 2.08 =$  2.27 IN  
 $V_{100,6\text{ HR}} = (E_W / 12) \cdot A_T \Rightarrow (2.27 / 12) \cdot 2.08 =$  0.3928 AC-FT = 17,110 CF

b. PEAK DISCHARGE 100-YR

$Q_{100} = Q_A \cdot A_A + Q_B \cdot A_B + Q_C \cdot A_C + Q_D \cdot A_D$   
 $\Rightarrow (1.87 \cdot 0.00) + (2.60 \cdot 0.00) + (3.45 \cdot 0.17) + (5.02 \cdot 1.91) =$  10.2 CFS

B. DEVELOPED CONDITION 100 YEAR STORM

1. BASIN A-1

a. VOLUME 100-YR, 6-HR

$WT_E = (E_A \cdot A_A + E_B \cdot A_B + E_C \cdot A_C + E_D \cdot A_D) \cdot A_T$   
 $\Rightarrow (0.66 \cdot 0.00) + (0.92 \cdot 0.00) + (1.29 \cdot 0.24) + (2.36 \cdot 1.12) / 1.36 =$  2.17 IN  
 $V_{100,6\text{ HR}} = (E_W / 12) \cdot A_T \Rightarrow (2.17 / 12) \cdot 1.36 =$  0.2454 AC-FT = 10,690 CF

b. FIRST FLUSH VOLUME

$V_{FF} = ((P_{FF} - I_A) / 12) \cdot A_T$   
 $\Rightarrow ((0.44 - 0.10) / 12) \cdot (1.12) =$  0.0317 AC-FT = 1,380 CF

c. PEAK DISCHARGE 100-YR

$Q_{100} = Q_A \cdot A_A + Q_B \cdot A_B + Q_C \cdot A_C + Q_D \cdot A_D$   
 $\Rightarrow (1.87 \cdot 0.00) + (2.60 \cdot 0.00) + (3.45 \cdot 0.24) + (5.02 \cdot 1.12) =$  6.4 CFS

d. POND VOLUME CAPACITY

$POND_1 + POND_2 + POND_3 + POND_4 + POND_5$   
 $\Rightarrow 1150\text{ CF} + 626\text{ CF} + 80\text{ CF} + 80\text{ CF} + 80\text{ CF} =$  2,016 CF  
 $\Rightarrow V_{POND\text{ TOTAL}} = 2,016\text{ CF} > V_{FF} = 1,380\text{ CF}$

2. BASIN A-2

a. VOLUME 100-YR, 6-HR

$WT_E = (E_A \cdot A_A + E_B \cdot A_B + E_C \cdot A_C + E_D \cdot A_D) \cdot A_T$   
 $\Rightarrow (0.66 \cdot 0.00) + (0.92 \cdot 0.00) + (1.29 \cdot 0.33) + (2.36 \cdot 1.03) / 1.36 =$  2.10 IN  
 $V_{100,6\text{ HR}} = (E_W / 12) \cdot A_T \Rightarrow (2.10 / 12) \cdot 1.36 =$  0.2377 AC-FT = 10,360 CF

b. FIRST FLUSH VOLUME

$V_{FF} = ((P_{FF} - I_A) / 12) \cdot A_T$   
 $\Rightarrow ((0.44 - 0.10) / 12) \cdot (1.03) =$  0.0291 AC-FT = 1,270 CF

- NEGLIGIBLE WATER HARVESTING / FIRST FLUSH DISCHARGE CAPTURED IN BASIN A-2;  
1,270 CF OF FIRST FLUSH DISCHARGES TO CENTRAL AVENUE RIGHT OF WAY

c. PEAK DISCHARGE 100-YR

$Q_{100} = Q_A \cdot A_A + Q_B \cdot A_B + Q_C \cdot A_C + Q_D \cdot A_D$   
 $\Rightarrow (1.87 \cdot 0.00) + (2.60 \cdot 0.00) + (3.45 \cdot 0.33) + (5.02 \cdot 1.03) =$  6.3 CFS

d. STORM DRAIN PIPE FLOW RATE CAPACITY (HGL / EGL)

STORM DRAIN	Q <sub>100 DEV</sub>	DIA.	SLOPE	HGL	VEL.	EGL
A (SE COURTYARD SD)	1 CFS	8"	0.7%	6.5'	3.3	8.5"
B (S BLDG SD)	1.2 CFS	8"	4%	4"	6.9	12.9"
C (SW BLDG SD)	1.0 CFS	6"	3%	3.5'	5.1	8.3"
D (NW BLDG SD)	0.8 CFS	5"	5%	3"	6.7	11.4"

e. 12" PUBLIC SIDEWALK CULVERT CAPACITY (@" DEPTH)

$Q = 1.486/n \cdot A \cdot R^{2/3} \cdot S^{1/2}$   
 $n = 0.013$   
 $A = 0.67\text{ SF}$   
 $R = 0.29\text{ FT}$   
 $S = 0.015\text{ FT/FT}$   
 $Q = 4.1\text{ CFS}$

4. BASIN B

a. VOLUME 100-YR, 6-HR

$WT_E = (E_A \cdot A_A + E_B \cdot A_B + E_C \cdot A_C + E_D \cdot A_D) \cdot A_T$   
 $\Rightarrow (0.66 \cdot 0.00) + (0.92 \cdot 0.00) + (1.29 \cdot 0.65) + (2.36 \cdot 1.43) / 2.08 =$  2.03 IN  
 $V_{100,6\text{ HR}} = (E_W / 12) \cdot A_T \Rightarrow (2.03 / 12) \cdot 2.08 =$  0.3513 AC-FT = 15,300 CF

b. FIRST FLUSH VOLUME

$V_{FF} = ((P_{FF} - I_A) / 12) \cdot A_T$   
 $\Rightarrow ((0.44 - 0.10) / 12) \cdot (1.43) =$  0.0405 AC-FT = 1,770 CF

c. PEAK DISCHARGE 100-YR

$Q_{100} = Q_A \cdot A_A + Q_B \cdot A_B + Q_C \cdot A_C + Q_D \cdot A_D$   
 $\Rightarrow (1.87 \cdot 0.00) + (2.60 \cdot 0.00) + (3.45 \cdot 0.65) + (5.02 \cdot 1.43) =$  8.4 CFS

d. POND VOLUME CAPACITY

$POND_6 = 18,150\text{ CF} > V_{100} = 15,300\text{ CF}$

C. COMPARISON 100 YEAR STORM

1. BASIN A-1

a. VOLUME 100-YR, 6-HR

$\Delta V_{100,6\text{ HR}} = 10690 - 10250 =$  440 CF (INCREASE)

b. PEAK DISCHARGE 100-YR

$\Delta Q_{100} = 6.4 - 6.3 =$  0.1 CFS (INCREASE)

2. BASIN A-2

a. VOLUME 100-YR, 6-HR

$\Delta V_{100,6\text{ HR}} = 10360 - 11050 =$  -690 CF (DECREASE)

b. PEAK DISCHARGE 100-YR

$\Delta Q_{100} = 6.3 - 6.6 =$  -0.3 CFS (DECREASE)

4. BASIN B

a. VOLUME 100-YR, 6-HR

$\Delta V_{100,6\text{ HR}} = 15300 - 17110 =$  -1,810 CF (DECREASE)

b. PEAK DISCHARGE 100-YR

$\Delta Q_{100} = 9.4 - 10.2 =$  -0.8 CFS (DECREASE)

5. OVERALL SITE

a. VOLUME 100-YR, 6-HR

$\Delta V_{100,6\text{ HR}} = 36,350 - 38,410 =$  -2060 CF (DECREASE)

b. PEAK DISCHARGE 100-YR

$\Delta Q_{100} = 22.1 - 23.1 =$  -1.0 CFS (DECREASE)



ENGINEER'S CERTIFICATION FOR PERMANENT C.O.

I, J. GRAEME MEANS, NMPE 13676, OF THE FIRM HIGH MESA CONSULTING GROUP HEREBY CERTIFY THAT THIS PROJECT HAS BEEN CONSTRUCTED, GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 12-11-2019. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT WAS OBTAINED 10-12-2021 BY CSI-CARTESIAN SURVEYS INC. UNDER THE DIRECTION OF BRIAN J. MARTINEZ, NMPS 18374 AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED TO SUPPORT A PERMANENT CERTIFICATE OF OCCUPANCY FOR THE SITE.

THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PROJECT. THIS CERTIFICATION DOES NOT ADDRESS ADA COMPLIANCE WHICH IS BEYOND THE SCOPE OF GRADING AND DRAINAGE. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

J. Graeme Means  
GRAEME MEANS

J. GRAEME MEANS  
NEW MEXICO  
13676  
REGISTERED PROFESSIONAL ENGINEER

11/30/2021  
DATE



RECORD DRAWING

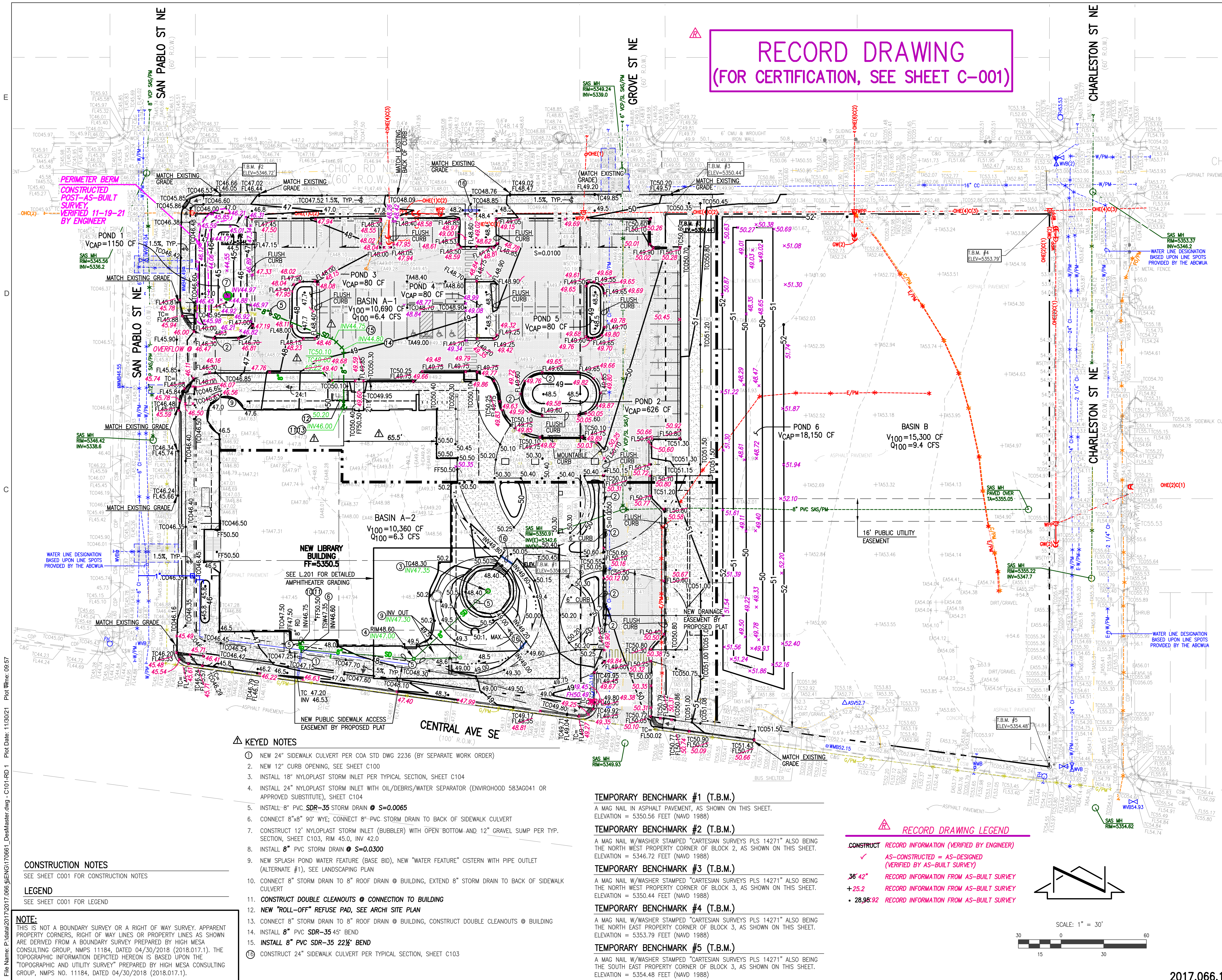


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NO.	ISSUE	DATE
	RECORD DRAWING & CERTIFICATION	11/2021</





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NO.	ISSUE	DATE
1	ROOF DRAIN TIE-IN RELOCATION	01/2020
2	RECORD DRAWING	11/2021

PROJECT CITY OF ALBUQUERQUE INTERNATIONAL DISTRICT LIBRARY (IDL)	SCALE 1" = 30'
7667 CENTRAL AVE NE	RMKM PROJECT NO. 9225.74 COA 1706 RMKM
	PROJECT MANAGER PM
	MODELED BY RMKM

SHEET TITLE GRADING PLAN	
DESIGN PHASE 100% CONSTRUCTION DOCUMENTS 11 DECEMBER, 2019	
SHEET NUMBER C101	

2017.066.1

11/30/2021 12/11/2019 1/23/2020  
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