

CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Interim Director



Mayor Timothy M. Keller

November 12, 2021

Ronald Bohannon, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

**RE: Sandia Lab FCU - Rio Grande & I-40
Grading & Drainage Plan
Engineer's Stamp Date: 09/21/21
Hydrology File: H13D109A**

Dear Mr. Bohannon:

Based upon the information provided in your submittal received 09/21/2021, the Grading & Drainage Plan is approved for Building Permit. Please attach a copy of this approved plan in the construction sets for Building Permit processing along with a copy of this letter.

PRIOR TO CERTIFICATE OF OCCUPANCY:

1. Engineer's Certification, per the DPM Part 6-14 (F): *Engineer's Certification Checklist For Non-Subdivision* is required.

As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Dough Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

Sincerely,

Renée C. Brissette

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
Planning Department



City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: Rio Grande & I-40 **Building Permit #:** _____ **Hydrology File #:** _____
DRB#: _____ **EPC#:** _____ **Work Order#:** _____
Legal Description: TRS 230A, 230B, 230C, 231A1, 231A2, 231B1, 231B2, 231B3, & 234A
City Address: 1100 Rio Grande Blvd NW Albuquerque NM

Applicant: Tierra West, LLC **Contact:** Luis Noriega
Address: 5571 Midway Park NE Albuquerque NM 87109
Phone#: 505-858-3100 **Fax#:** 505-858-1118 **E-mail:** lnoriega@tierrawestllc.com

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: 9/21/21 **By:** Luis Noriega

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

M.R.G.C.D. CONTRACT NO. 123-2021
USBR CONTRACT NO. 21-LM-4L-124650
M.R.G.C.D. MAP 35

TRACTS NO. TRACTS 234A, 231B3, 231B2,
230B, 230A, 223E8, 223E3, &
LANDS OF HARRY J GARCIA TRACT A
SEC. 7, T. 10N, R. 3E
ALAMEDA INTERIOR DRAIN

STATION 66+00± TO 77+50±
ROW OWNERSHIP Easement
DITCH GRADE 0.00176
DITCH CAPACITY

ROW WIDTH VARIES
ELEVATION 4949.24

MIDDLE RIO GRANDE PROJECT LICENSE AGREEMENT

LICENSE TO INSTALL AND MAINTAIN THREE (3) STORM WATER DENTION PONDS
WITH EMERGENCY OVERFLOWS AND DISCHARGE STORM WATER INTO AN
EXISTING OUTFALL WITHIN THE ALAMEDA INTERIOR DRAIN RIGHT-OF-WAY, TO
SERVE MRGCD MAP 35, TRACTS 234A, 231B3, 231B2, 230B, 230A, 223E8, 223E3, & LANDS
OF HARRY J GARCIA TRACT A, IN THE CARE OF CURRENT OWNERS

This License Agreement is made and entered into this 15th day of September, 2021, by and between the Middle Rio Grande Conservancy District, ("the District"), the United States Department of the Interior, Bureau of Reclamation (Reclamation) and MRGCD MAP 35, TRACTS 234-B-1, 234-B-2, 234A, 231B3, 231B2, 230B, 230A, 223E8, 223E3, & Lands of Harry J Garcia Tract A IN THE CARE OF CURRENT OWNERS, ("the Licensee").

WHEREAS, the right-of-way is held for the Middle Rio Grande Project's (Project) ALAMEDA INTERIOR DRAIN ("the property"), in easement and the District operates and maintains the property as an integral part of the Project's works and property; and

WHEREAS, the Licensee has requested permission from the District and Reclamation, to the extent of the Districts and Reclamations property interest, to utilize the property in a manner more particularly specified herein for a period of fifty (50) years beginning on the date of execution of this agreement; and

WHEREAS, the District and the Reclamation are willing to agree, to use of the property and encroachment upon the property pursuant to the conditions more particularly specified herein; and

NOW THEREFORE, the District and Reclamation agree to use of, and encroachment upon the property by the Licensee only to the extent and for the purpose set forth below:

SPECIAL STIPULATIONS

1. Licensee shall INSTALL AND MAINTAIN THREE (3) STORM WATER DENTION PONDS WITH EMERGENCY OVERFLOWS AND DISCHARGE STORM WATER INTO AN EXISTING OUTFALL WITHIN THE ALAMEDA INTERIOR DRAIN RIGHT-OF-WAY, hereinafter referred to as "the installation", across the property which will serve TRACTS 234A, 231B3, 231B2, 230B, 230A, 223E8, 223E3, & LANDS OF HARRY J GARCIA TRACT A MRGCD Map 35, Station 66+00± TO 77+50±. The District and Reclamation agrees to the installation set forth in this paragraph only pursuant to the guidelines shown on attachment(s) EXHIBIT "A" attached hereto, and any and all other attached drawings and/or specifications which by this reference are made a part of this License Agreement.

2. Licensee shall submit as-built drawings to the District within 60 days of the completion of the installation. The installation as-built drawings shall become the official drawings of record for the purpose of this License.

GENERAL STIPULATIONS

1. As consideration for the license herein granted prior to the execution of this agreement, Licensee has paid a non-refundable sum of **Two-hundred dollars (\$200.00)** based on a fee amount for issuing and administering the License by the District and Reclamation, for minimal engineering, outgrant appraisal, and environmental reviews, and for inspection of construction. When total charges are not known in advance due to extraordinary inspections, environmental considerations, or other requirements yet to be determined, an estimated amount will be paid in advance after billing, subject to later adjustment, as required, or billing of total fees and charges will be made at the completion of the job.

2. This License shall be null and void if the installation and/or construction of the work set forth in paragraph 1 of Special Stipulations and the attached drawings and specifications is not complete within **one (1) year** from the date of execution of this Agreement.

3. If the work is to be performed by a private contractor, the Licensee is responsible for ensuring that the private contractor obtain a Special Use License from the District prior to construction.

4. The Licensee shall, at its own expense, locate, install, construct, maintain and/or repair any structures, accessories, or any installation permitted by this License and shall, at its own expense, bear all costs incurred by reason of the exercise of the privilege conferred by this License. Maintenance responsibilities include, but are not limited to, cleaning of debris, silt, weeds and other obstructions inside road culvert crossings and around the inlet and outlet ends of road culvert crossings or under bridge crossings.

5. The privilege granted by this License shall not be exercised, nor shall any structure, accessory, or installation be constructed or maintained so as to obstruct in any manner the flow of water into or through the Project works, or to interfere in any manner whatsoever with the construction, operation, maintenance and functions of the District or the Reclamation. Should the installation permitted under this License become damaged or require removal, relocation, or protection as a result of District operation and maintenance of the property, the Licensee shall, at its own expense, repair, remove, relocate, or protect the installation.

6. The Licensee shall be liable for any and all bodily injuries and or damages, to the property of the District and the property interest of the Reclamation or the property of the Licensee or any third party or parties arising from or by reason of the existence, construction, maintenance, repair, condition or use of any structures, accessories or encroachments authorized by this License or by the exercise of the privilege conferred by this License. In addition, the Licensee agrees to indemnify and hold harmless the District and Reclamation, their agents and employees from any and all claims, demands, actions, or suits of any nature by any third party that may arise as a result of Licensees negligent use of this License.

7. Where the property that is the subject of this License is held for the Project other than as a fee simple estate, the Licensee shall be solely responsible for ascertaining whether the installation will encroach upon property belonging to other entities or persons other than the District and/or Reclamation and for obtaining any additional permission or licenses that may be required from property owners other than the District. The Licensee shall obtain the requisite permission prior to the use of or encroachment upon the property.

8. By this License, the District/Reclamation does not warrant its easement interest. This License serves solely to define the conditions pursuant to which the Licensee will be permitted to encroach upon the property as evidenced by existing records and as defined by this License.

9. This License shall be revocable by the District and/or Reclamation, upon thirty (30) days written notice to the Licensee if the District determines that the continuation of this License is detrimental to the interest of the Project. Upon such revocation, all structures, accessories, and installations shall be removed by the Licensee without delay at the expense of the Licensee. Any rights that the Licensee may have under this License shall terminate immediately upon receipt of written notice of revocation. Revocation shall not release the Licensee from any liability or obligation, whether of indemnity or otherwise, that may have attached, accrued, or was accruing at the time of such revocation. Notice of revocation shall be sufficient if mailed to Licensee at: GARCIA REAL ESTATE INVESTMENTS, LLC, C/O EDWARD T. GARCIA PO BOX 26207, ALBUQUERQUE, NM 87125 PHONE: (505) 260 - 5188

10. If, at any time, the Licensee shall, in the judgment of the District or Reclamation, fail to properly perform any of the terms, obligations or covenants under this agreement, the District and/or Reclamation may, at their option, perform or have performed such work as it deems necessary for the safe operation of the works of the Project, or to protect the property of the District and/or Reclamation or any third party, or the public. In such event, Licensee agrees to pay any and all costs incurred by the District and/or Reclamation in the performance of such work, including costs related to the supervision of the work. Payment shall be made by the Licensee within thirty (30) days after a bill is rendered.

11. If the District and/or Reclamation is required to bring suit in any court for the purposes of enforcing this Agreement or any provision or portions thereof, the Licensee shall be liable for all costs and reasonable attorney's fees incurred by the District and/or Reclamation in connection with such suit.

12. The Licensee shall comply with all applicable laws, ordinances, rules, and regulations enacted or promulgated by any federal, state, or local government body having jurisdiction over the real property for which the License is granted.

13. The provisions of this agreement shall inure to the benefit of and be binding upon the heirs, executors, administrators, personal representatives, successors, and assigns of the parties hereto; provided, however, that no such heir, executor, administrator, personal representative, successor or assign of the Licensee shall have the right to use, alter, or modify the access / encroachment in a manner which will increase the burden of the encroachment on the property. This License shall not be assignable by the Licensee without prior written approval from the District and Reclamation.

14. All work to be done within the property must be approved by the District prior to commencing work, and shall be closely coordinated with the District's Engineering Department and appropriate field offices, **Phone: (505) 247-0234.**

15. Licensee shall not perform work on the property or upon structures belonging to, or operated by the District between March 1 and October 31 inclusive. However, the District may permit work if the Licensee demonstrates to the District, prior to commencing work, that the work will not interfere with the District operations and maintenance of the property.

16. The Licensee, its employees, agents, contractors or subcontractors shall not store equipment, materials and/or debris on the property which may interfere with operations and maintenance of the property and shall not service vehicles or equipment on the property.

17. Seeding of disturbed areas within the right-of-way is required per District seeding specifications and must meet the satisfaction of the District staff.

18. Licensee shall meet all obligations under the environmental compliance documents for the installation and construction. Licensee will coordinate all work under these obligations with Reclamation and the District.

IN WITNESS WHEREOF, the parties hereto have executed this agreement the day and year first above written.

APPROVED:

MIDDLE RIO GRANDE CONSERVANCY DISTRICT

DATE: _____

Mike A. Hamman P.E., Chief Engineer/Chief Executive Officer

IN WITNESS WHEREOF, the Licensee, intending to be legally bound has caused their proper and duly authorized officers to accept this License Agreement as of the date below.

ACCEPTED:

LICENSEE – MRGCD MAP 35, TRACTS 234A, 231B3, 231B2, 230B, 230A, 223E8, 223E3, & LANDS OF HARRY J GARCIA TRACT A, IN THE CARE OF CURRENT OWNER(S)

Garcia Real Estate Investments, LLC

PRINT NAME AND TITLE OF SIGNATORY

Edward T. Garcia
SIGNATURE *Edward T. Garcia*
managing member

08-11-21
DATE

ACKNOWLEDGMENT OF THE LICENSEE

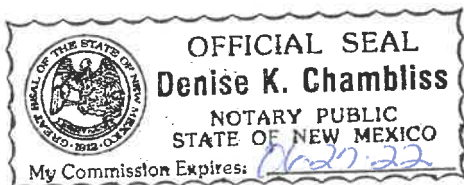
State of *New Mexico*)
)ss.
County of *Bernalillo*)

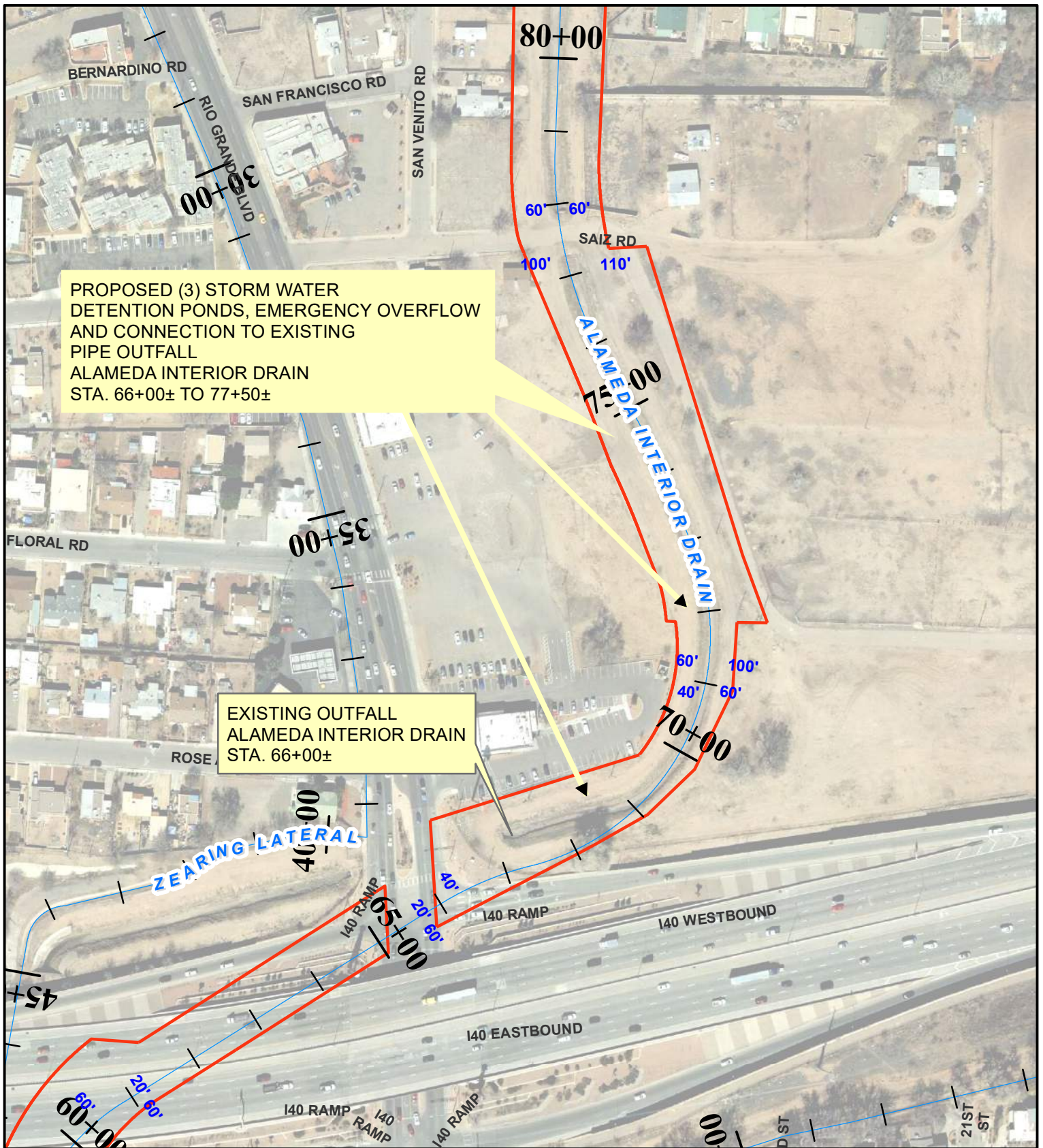
On the *11th* day of *August*, 20*21*, the above noted Licensee personally appeared before me, known to me to be the individual described in and who executed the within and foregoing instrument, and acknowledged that he / she signed the within and foregoing instrument as his / her free and voluntary act and did for the uses and purposes therein mentioned.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Denise K. Chambliss

Notary Public in and for the
State of *New Mexico*
Residing at *821 Caballero NW ABQ, NM 87104*
My commission expires: *06-27-22*



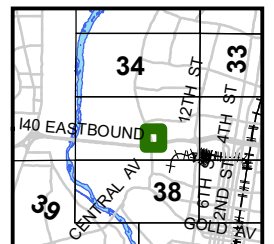


Legend
— MRGCD Right of Way

Exhibit "A"



0 90 180 270 360
Scale in Feet



LICENSE NO. 123-2021
6 of 39 2020 Imagery

UTM MAP

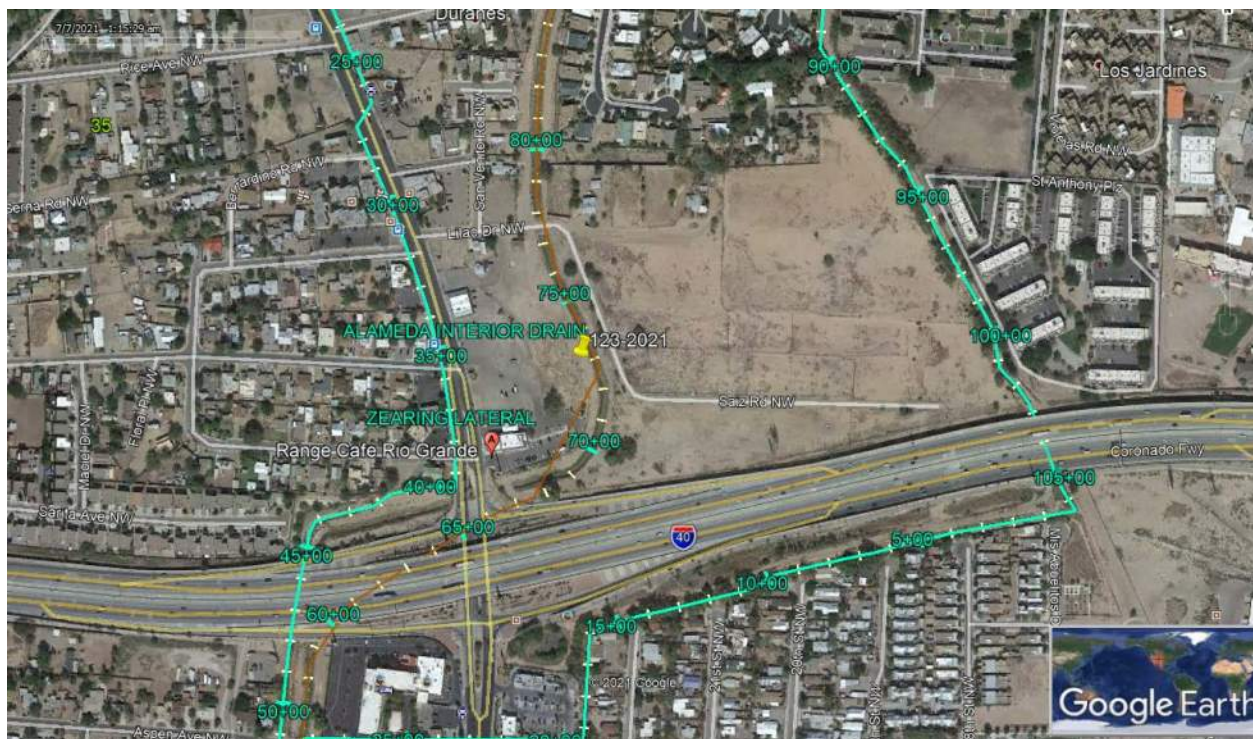
123-2021 ALAMEDA INTERIOR DRAIN

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MRGCD LICENSE 123-2021 IS ONLY FOR STORM WATER
PROPOSED IN THIS LETTER. THIS LICENSE DOES NOT GRANT
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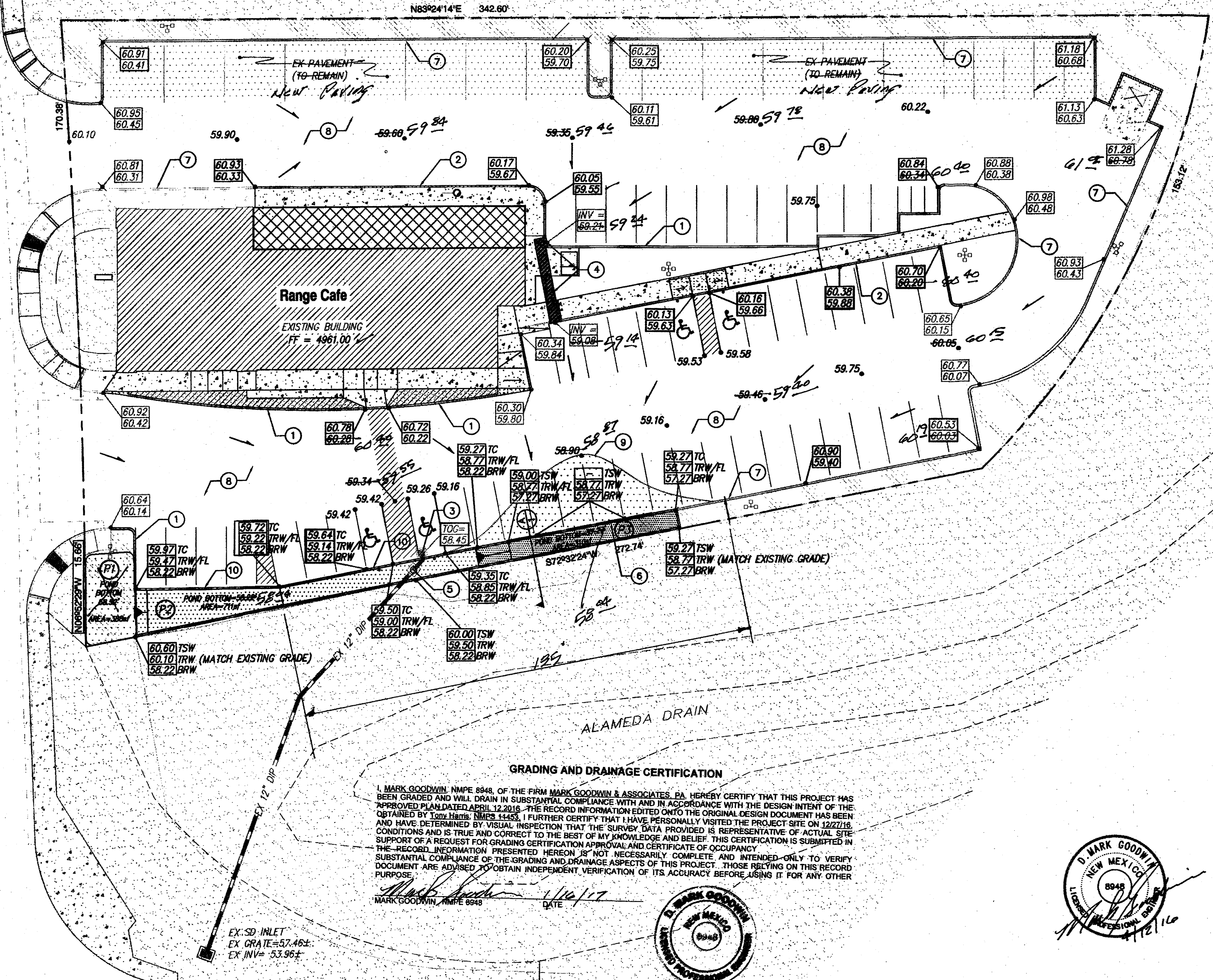
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Existing Conditions

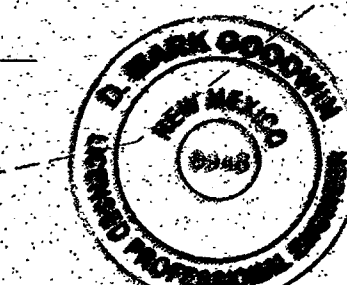
See existing basin boundary **Figure 4**. Based on the topography, runoff from basin EB.1 flows north into Lilac Rd and is then intercepted by a storm drain inlet on the road. Drainage from Basins EB.2 and EB.3 sheet flows east into the Alameda Drain. Basin EB.4 is fully developed and contains an existing restaurant, "The Range Café". The Range Cafes drainage report can be found in hydrological report number H13-D029, a copy of the Range Café's drainage report is provided in APPENDIX B of this report. Drainage from basin EB.4 currently flows into an existing storm water quality pond on the south side of the basin. The storm water quality volume is retained on site, when the capacity of the pond is surpassed the flow is conveyed via storm drain pipe, which is connected to an existing storm drain inlet on the off ramp of Interstate-40. The 100-year allowable capacity for the inlet was calculated to be 4.61 cfs as reported in the Range Cafes Drainage Report (H13-D029). The drainage calculations for the existing conditions are located in APPENDIX A of this report.

TRACT 234 A
M.R.G.C.D. MAP NO.35

RIO GRANDE BLVD.
ROW VARIES
(103' TO 114')



GRADING AND DRAINAGE CERTIFICATION
I, MARK GOODWIN, NMP# 8948, OF THE FIRM MARK GOODWIN & ASSOCIATES, P.A. HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE OBTAINED BY TONY HEINS, NMP# 11453. I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 12/27/16, AND HAVE DETERMINED BY VISUAL INSPECTION THAT THE SURVEY DATA PROVIDED IS REPRESENTATIVE OF ACTUAL SITE CONDITIONS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR GRADING CERTIFICATION APPROVAL AND CERTIFICATE OF OCCUPANCY. THE INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE, AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.
MARK GOODWIN, NMP# 8948
DATE 1/16/17



GENERAL NOTES

1. SEE ARCHITECTURAL SITE PLAN FOR TRUE DIMENSIONS.
2. CITY OF ALBUQUERQUE DETAILS SHALL BE USED WHEN APPLICABLE.

KEYED NOTES

1. TURN DOWN SIDEWALK PER DETAIL THIS SHEET
2. CONSTRUCT NEW 6" EXTRUDED CURB PER DETAIL THIS SHEET
3. REMOVE EXISTING INLET
4. EXISTING 3" WIDE SIDEWALK CULVERT. CUT OPENING IN CURB PER PLAN. CONSTRUCT CONNECTION BETWEEN NEW CURB CUT OPENING AND EXISTING CHANNEL. CONSTRUCTION OF CONNECTION TO BE DESIGNED BY OTHERS.
5. CONSTRUCT 30"x30" INLET WITH 24" DIA BEEHIVE TYPE GRATE. (SEE CROSS SECTION THIS SHEET)
6. INSTALL DRAINAGE PARKING BUMPER PER DETAIL THIS SHEET
7. EXISTING CURB TO REMAIN
8. REPLACE EXISTING ASPHALT
9. LIMITS OF "FIRST FLUSH" PONDING
10. CONSTRUCT PINNED CURB, TYPE I, PER STD DWG 2415B

HYDROLOGY NOTES

THE SITE IS LOCATED ON THE CORNER OF RIO GRANDE BLVD AND I-40 ADJACENT TO THE ALAMEDA DRAIN. THE PURPOSE OF THIS GRADING PLAN IS PROVIDE A GRADING AND DRAINAGE DESIGN FOR A NEW PARKING LOT LAYOUT AND 1,020 SF ADDITION TO AN EXISTING BUILDING.

THE PROJECT SITE CONSISTS OF 1.13 ACRES.

THE SITE IS RATED "ZONE X" PER FEMA MAP 35001C0331H AND IS DEFINED AS AN AREA OF 0.2% ANNUAL CHANCE OF FLOOD, AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FT OR WITH AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEE FROM 1% ANNUAL CHANCE FLOOD.

THE HYDROLOGY FOR THE PROJECT SITE WAS CALCULATED FOR THE 100 YEAR 6 HOUR STORM EVENT PER COA DPM (ZONE2) FOR SMALL WATERSHEDS. THE RESULTS ARE SUMMARIZED BELOW:

DEVELOPED CONDITIONS:
SITE AREA = 1.13 ACRES
LAND TREATMENTS: A=0% B=0% C=14.5% D=85.5%
TOTAL PROJECT SITE: Q=5.06cfs V=0.186 AC-FI

THERE ARE NO OFFSITE FLOWS ENTERING THE SITE.

THE FLOWS GENERATED FROM THIS SITE IS Q=5.06cfs. THIS FLOW WILL BE DIRECTED TO THE STORM WATER QUALITY (SWQ) POND AT THE SOUTH END OF THE SITE. WHEN THE SWQ POND REACHES THE REQUIRED CAPACITY, THE RUNOFF WILL FLOW INTO A NEW BEEHIVE TYPE INLET CONNECTED TO THE EXISTING 12" DIP. SINCE THE NEW SITE IS NOT GENERATING ANY MORE IMPERVIOUS AREAS (AND THEREFORE NO ADDITIONAL FLOWS) THAN THE EXISTING CONDITIONS, THE EXISTING STORM WATER INFRASTRUCTURE WILL BE SUFFICIENT TO CONVEY THE RUNOFF.

FIRST FLUSH

THE "FIRST FLUSH" IS BEING ACCOMPLISHED THROUGH DEPRESSED AREAS AT THE SOUTH END OF THE SITE BETWEEN THE CURB AND THE PROPERTY LINE.

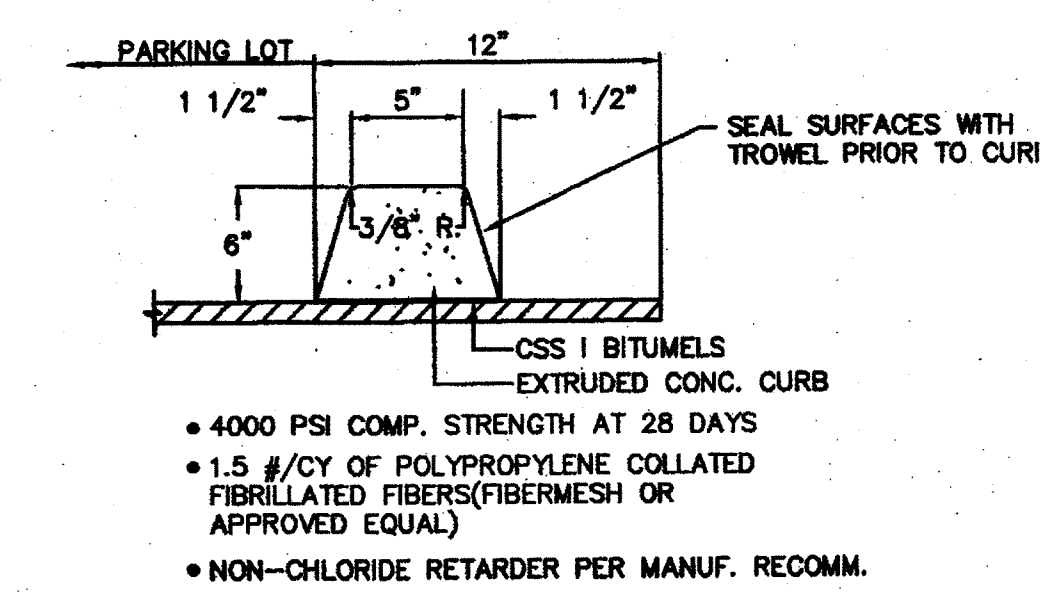
REQUIRED VOLUME = $0.34" \times \text{IMPERVIOUS AREA}$
= $0.34" \times 12 \times (14,2032 \text{ SF})$
= 1,191 CF

VOLUME PROVIDED = 1,199 CF *Negligible change*

(P1) DEPTH = 0.38' POND BOTTOM = 58.52'
AREA = 328.25
VOLUME = 117 CF

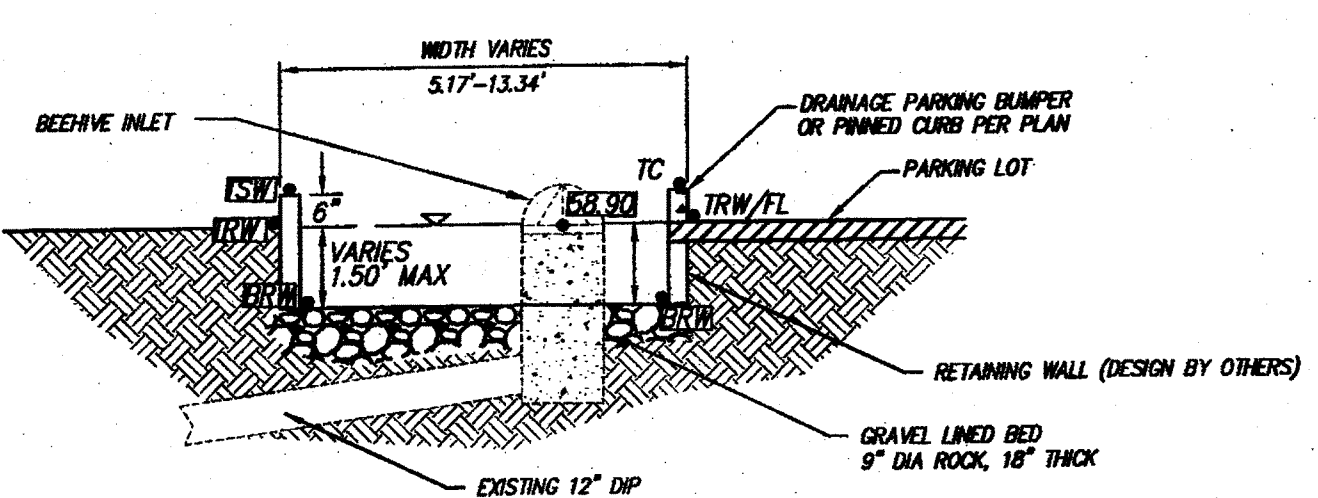
(P2) DEPTH = 0.64' POND BOTTOM = 58.22' *58.22' 58.22'*
AREA = 741.5' *135' x 5' = 675 5.1'*
VOLUME = 484 CF *1147 CF*

(P3) DEPTH = 1.6' POND BOTTOM = 57.27'
AREA = 318 SF + 789 SF (IN PARKING LOT)
VOLUME = 588 CF



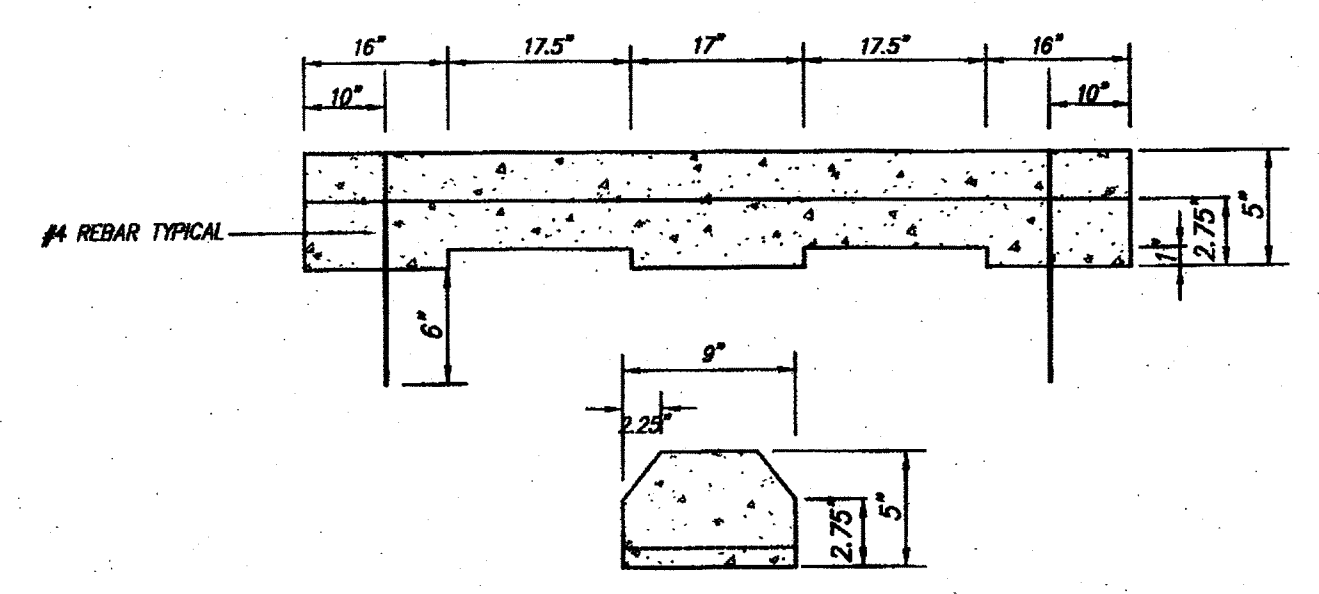
EXTRUDED CURB

N.T.S.



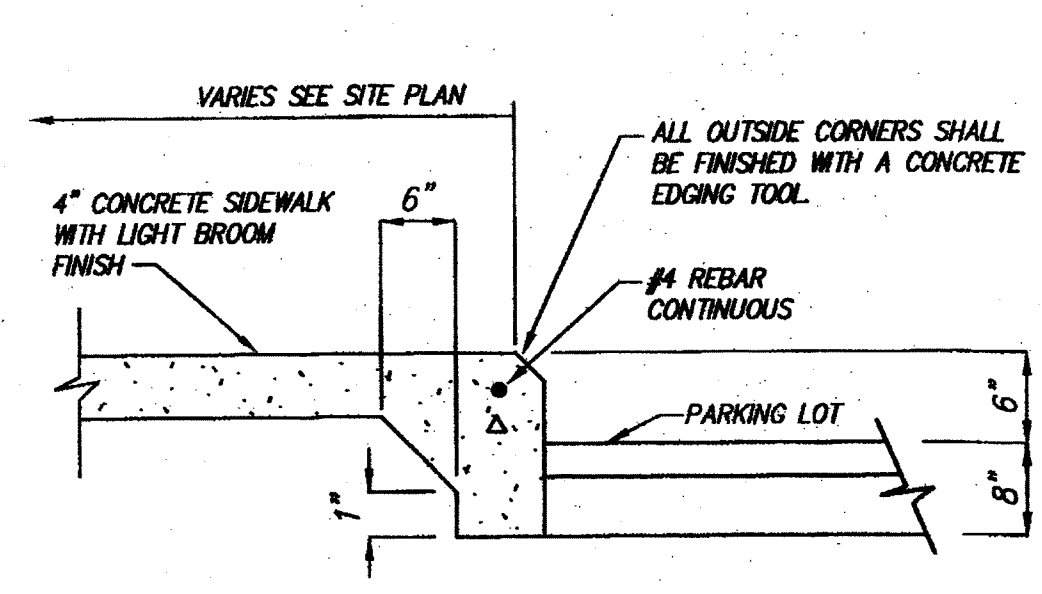
4 TYPICAL CROSS SECTION FOR FIRST FLUSH PONDING IN PARKING LOT MEDIANS

N.T.S.



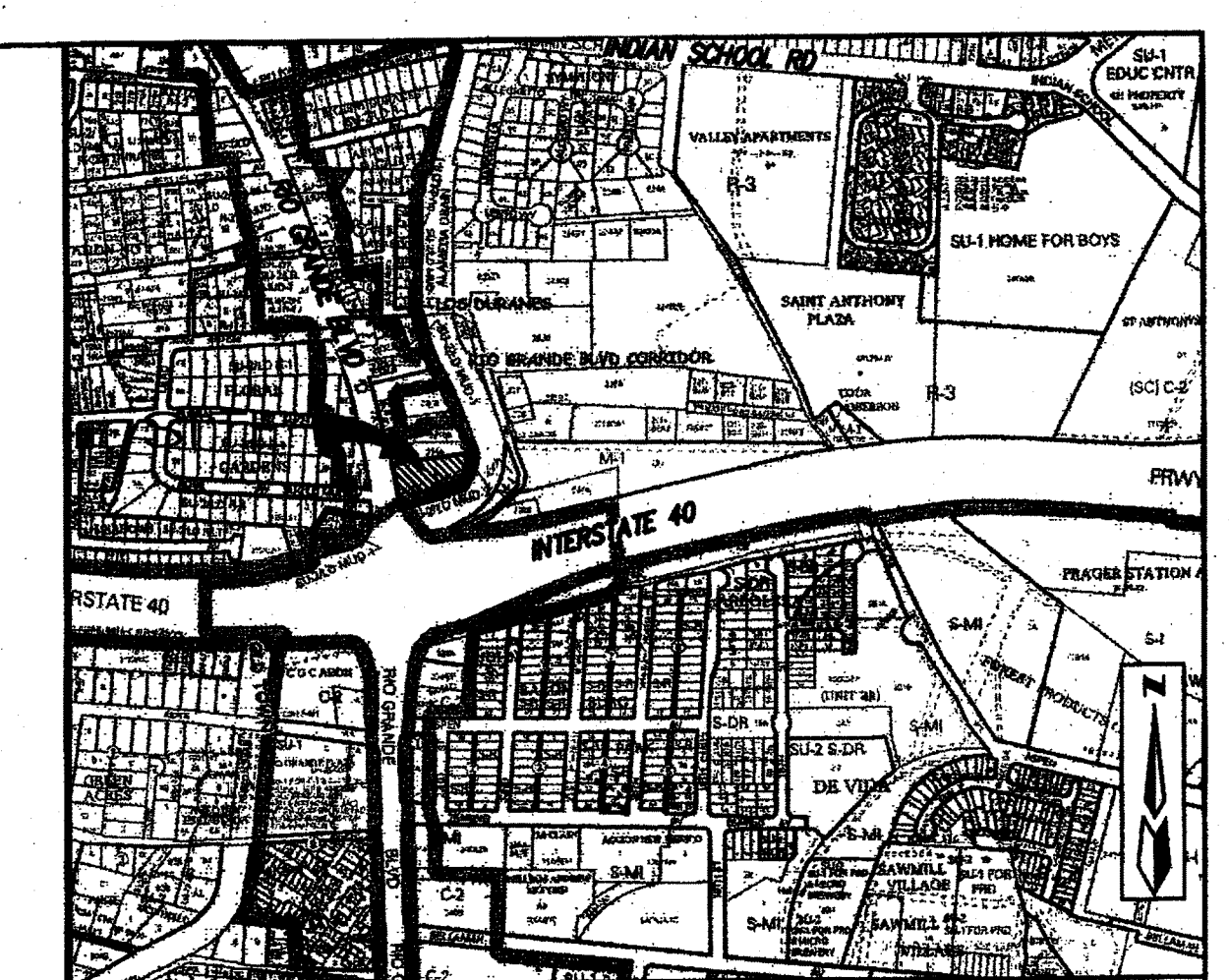
PARKING DRAINAGE BUMPER

N.T.S.



TURNDOWN SIDEWALK DETAIL

N.T.S.



VICINITY MAP ZONE MAP H-13-Z

LEGAL DESCRIPTION

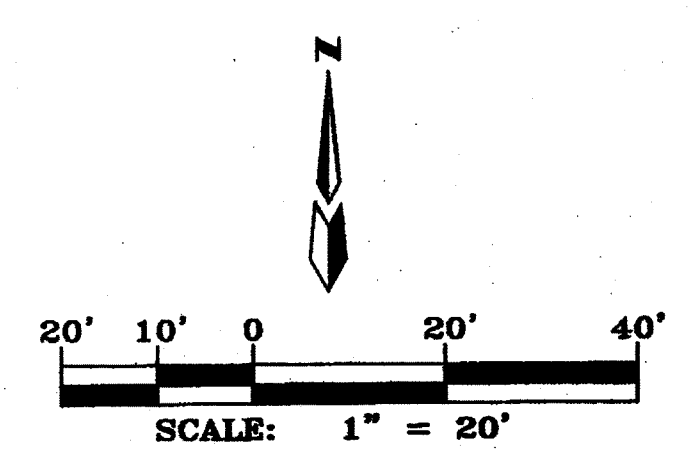
TRACTS 234A1 AND 234A2 OF THE RIO GRANDE CORRIDOR PLAN, BERNALILLO COUNTY, NEW MEXICO

TEMPORARY BENCHMARK

TOP OF MANHOLE AT CENTER OF INTERSECTION OF ROSE AVENUE AND RIO GRANDE BLVD. ELEVATION = 4959.53'

LEGEND

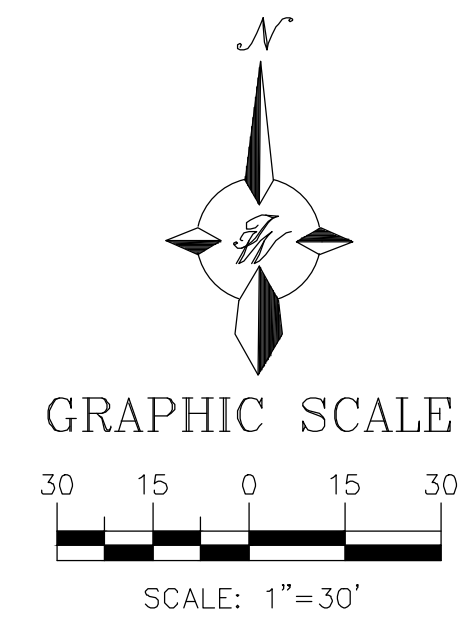
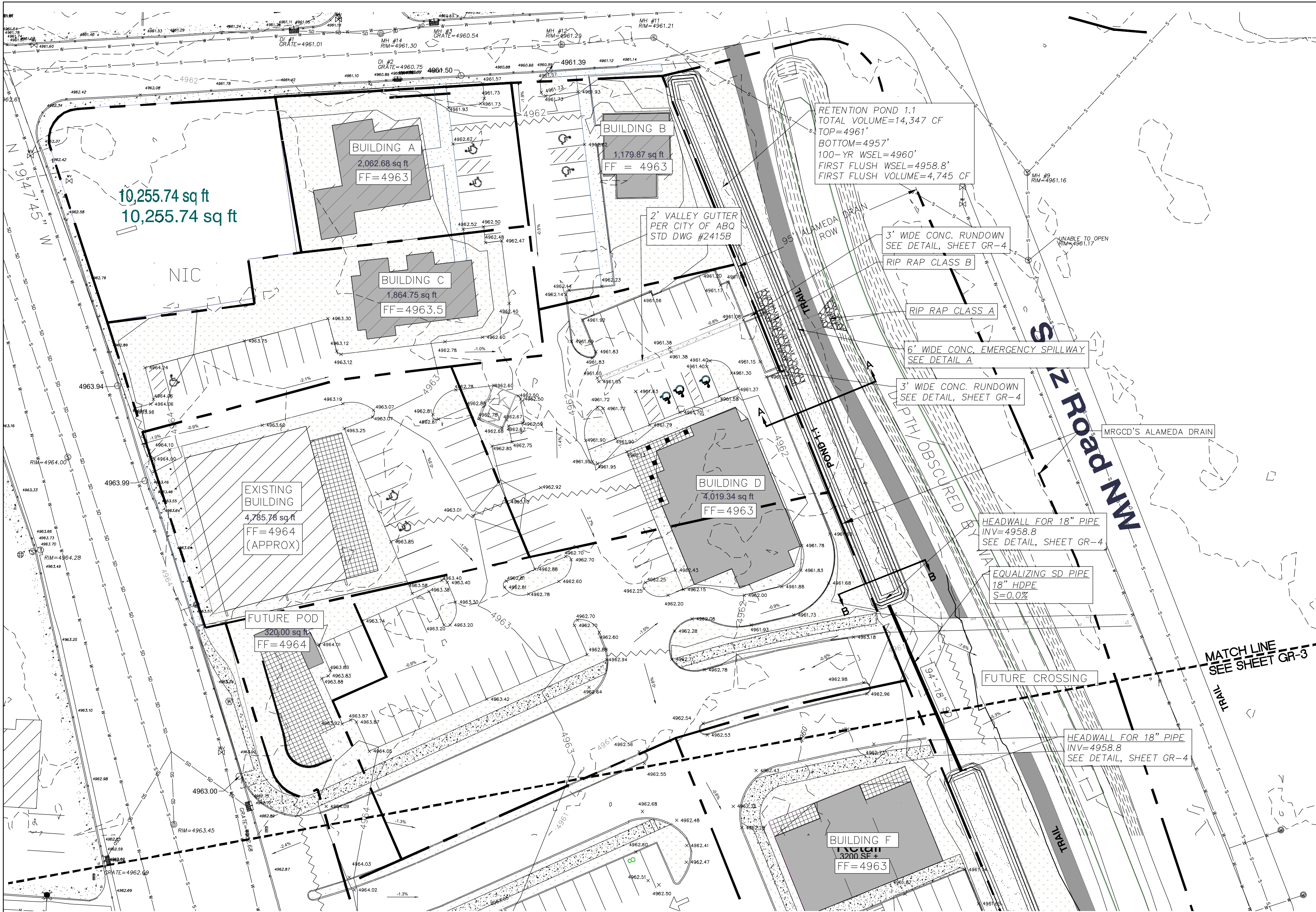
- PROPERTY LINE
- - - - EXISTING CONTOUR
- + 2050 EXISTING SPOT ELEVATION
- EXISTING CURB
- EXISTING 12" STORM DRAIN
- 00.00 EXISTING TOP OF CURB ELEVATION
- 00.00 EXISTING FLOW LINE ELEVATION
- 00.00 PROPOSED SPOT ELEVATION
- DIRECTION OF FLOW
- PROPOSED SWALE
- PROPOSED 3:1 SLOPE
- WATER BLOCK
- 00.00 PROPOSED TOP OF CURB ELEVATION
- 00.00 PROPOSED FLOW LINE ELEVATION
- NEW CONCRETE WALKWAYS/PATIOS
- NEW CURB
- 00.00 TSW PROPOSED TOP OF SCREEN WALL ELEVATION
- 00.00 TRW PROPOSED TOP OF RETAINING WALL ELEVATION
- 00.00 BRW PROPOSED BOTTOM OF RETAINING WALL ELEVATION



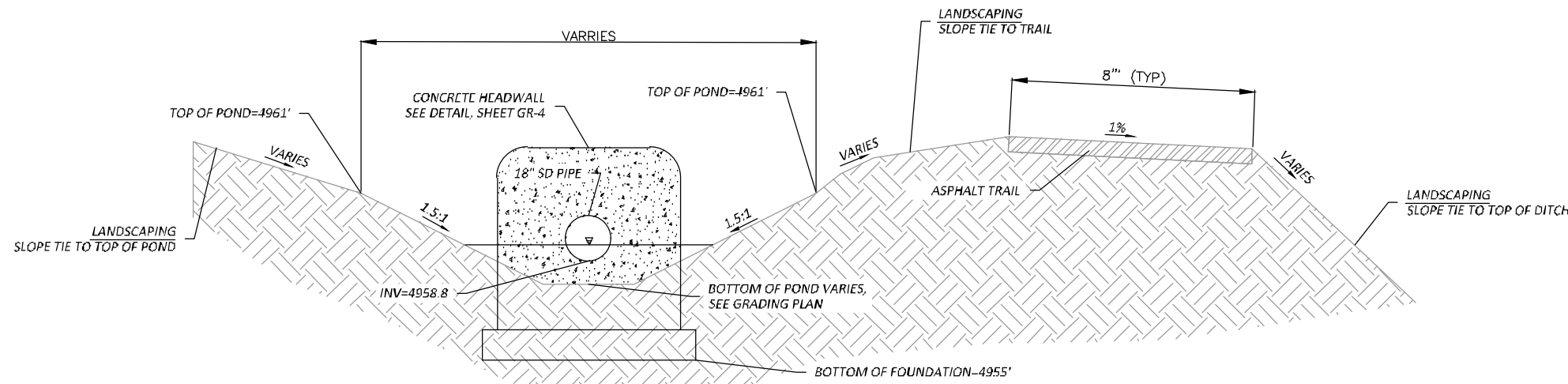
**THE RANGE CAFE
RIO GRANDE
GRADING & DRAINAGE PLAN**

dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505)828-2200, FAX (505)797-9539

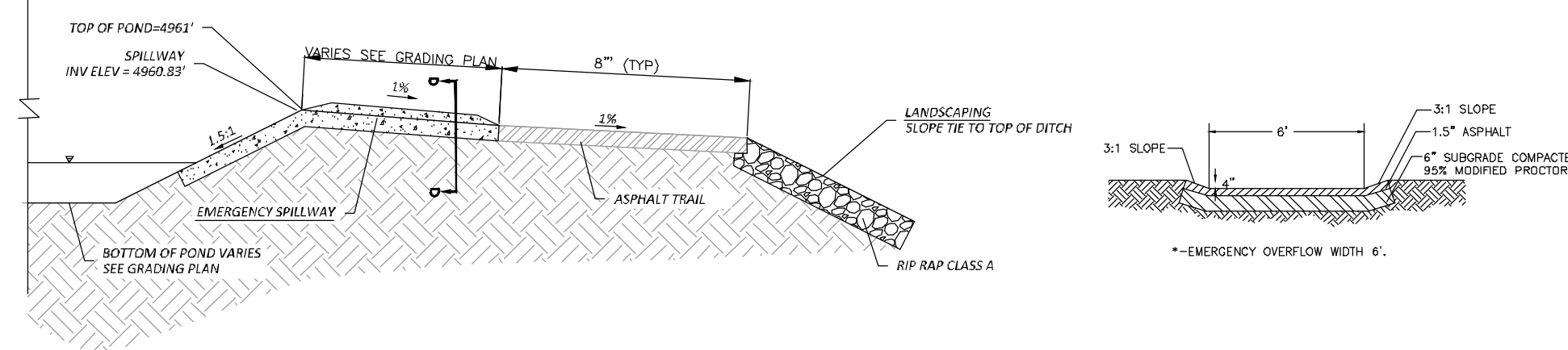
Designed: KK Drawn: DER Checked: DMG Sheet 1 of 1
Scale: 1" = 20' Date: 04-04-16 Job: A15018



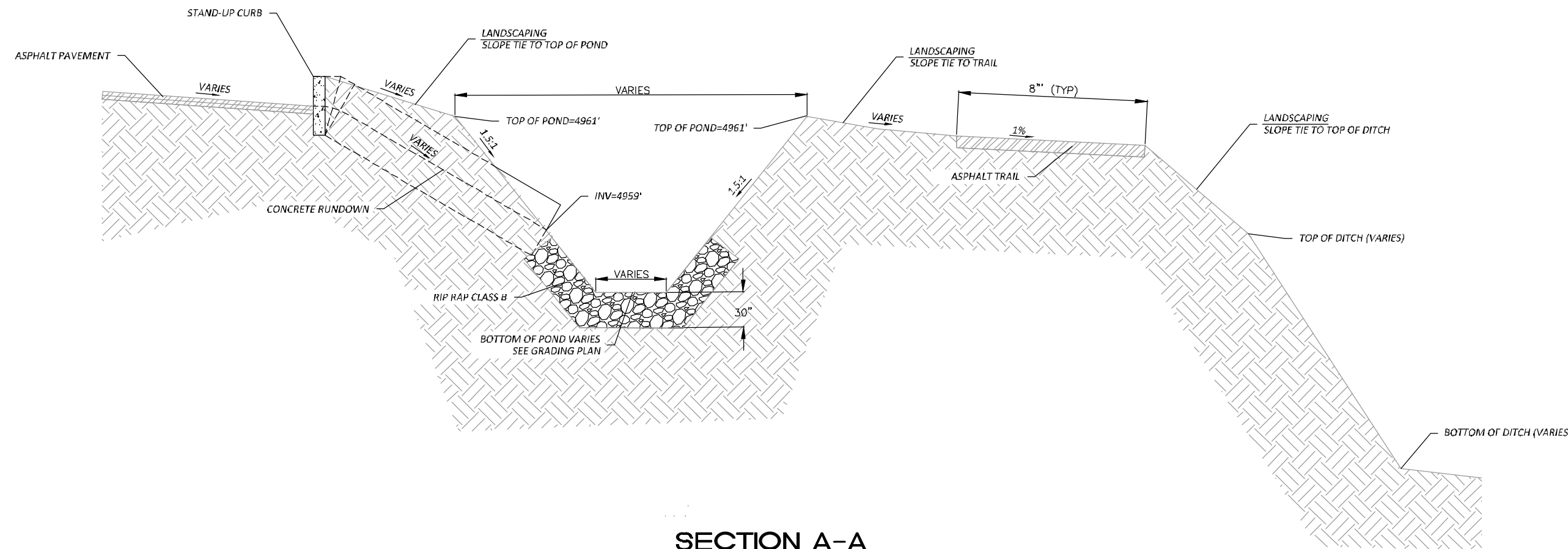
LEGEND	
	BOUNDARY LINE
	CONCRETE SIDEWALK
	LANDSCAPING
	TEXTURED PAVEMENT
	GRADE BREAK
	PROPOSED CONTOUR MAJOR
	PROPOSED CONTOUR MINOR
	PROPOSED SPOT ELEVATION
	PROPOSED FLOW ARROW
	CURB & GUTTER
	EX. STORM DRAIN MANHOLE
	EX. STORM DRAIN INLET
	EX. STORM DRAIN UTILITY LINE
	EXISTING CONTOUR MAJOR
	EXISTING CONTOUR MINOR
	EXISTING SPOT ELEVATION



SECTION B-B
NTS



DETAIL A-POND 1.1 - 1.2 TYPICAL SPILLWAY DETAIL
NTS



SECTION A-A
NTS

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
PRELIMINARY APPROVED
DATE: 12/31/20
BY: *Ronald R. Bohannan*
HydroTeam # H13D109
THESE PLANS AND/OR REPORT ARE CONCEPTUAL ONLY. MORE INFORMATION MAY BE NEEDED IN THEM AND SUBMITTED TO HYDROLOGY FOR BUILDING PERMIT APPROVAL.

CAUTION:
ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS, PRIOR TO STARTING THE WORK. ANY CHANGES FROM THIS PLAN SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.

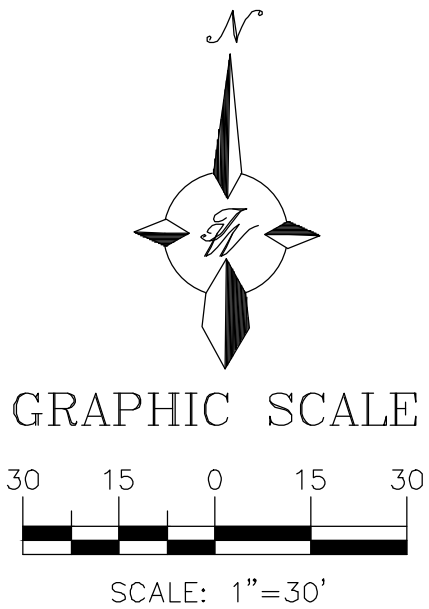
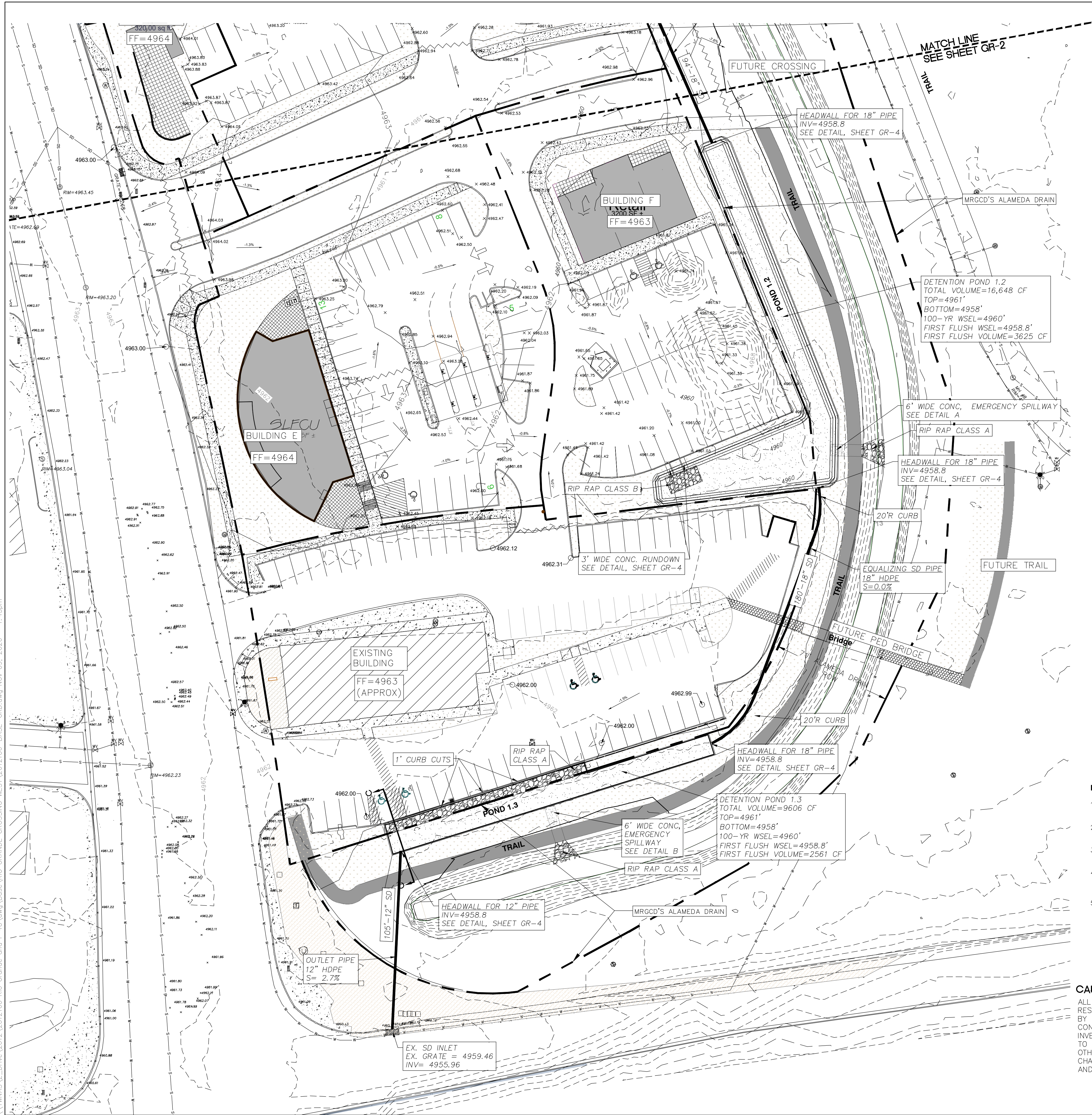
EROSION CONTROL NOTES:

- CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
- REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL (CITY) ACCEPTANCE OF ANY PROJECT.

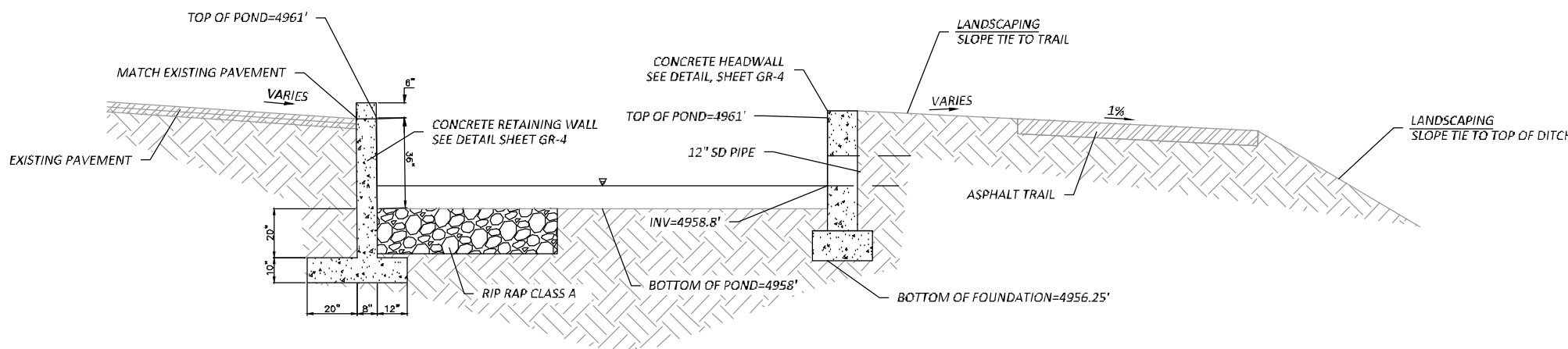
"PRELIMINARY - NOT FOR CONSTRUCTION"

	RIO GRANDE AND I-40 CROSSING WEST	DRAWN BY RG
	CONCEPTUAL GRADING PLAN - A	DATE 10-8-2020
	 5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrawestllc.com	SHEET # GR-2
		JOB # 2012100

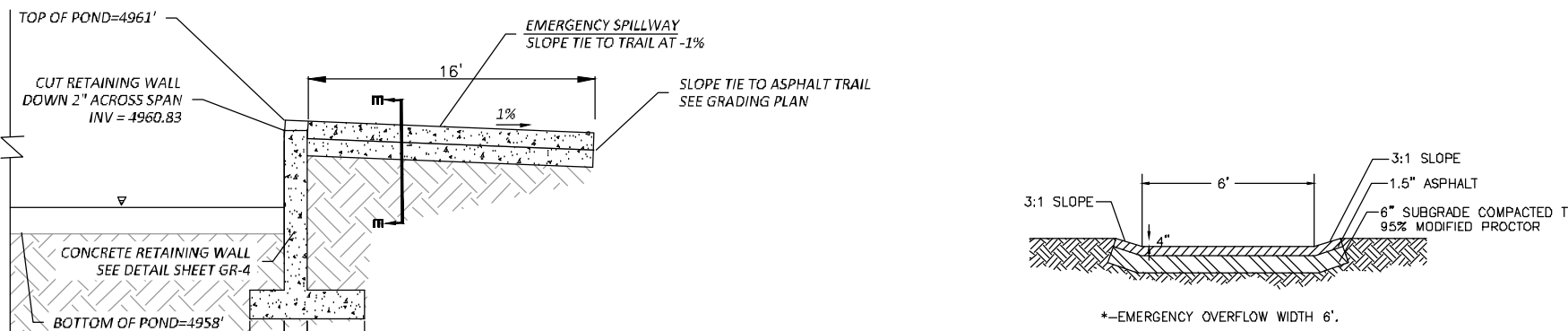
\\TNAS\Z_Drive\2012\2012100 Rio Grande and I-40\Drawings\Rio Grande Crossing West\2012100--BASE--GRD.dwg Nov 09, 2020 -- 1:45pm



- LEGEND**
- BOUNDARY LINE
 - CONCRETE SIDEWALK
 - LANDSCAPING
 - TEXTURED PAVEMENT
 - 5010 PROPOSED CONTOUR MAJOR
 - 5011 PROPOSED CONTOUR MINOR
 - x 5048.25 PROPOSED SPOT ELEVATION
 - PROPOSED FLOW ARROW
 - CURB & GUTTER
 - ⊙ EX. STORM DRAIN MANHOLE
 - EX. STORM DRAIN INLET
 - 5010 EXISTING CONTOUR MAJOR
 - 5011 EXISTING CONTOUR MINOR
 - o 5048.25 EXISTING SPOT ELEVATION



SECTION C-C
NTS



SECTION E-E
NTS

DETAIL B - POND 1.3 SPILLWAY DETAIL
NTS

EROSION CONTROL NOTES:

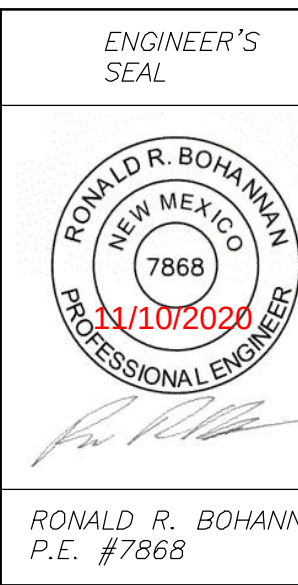
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
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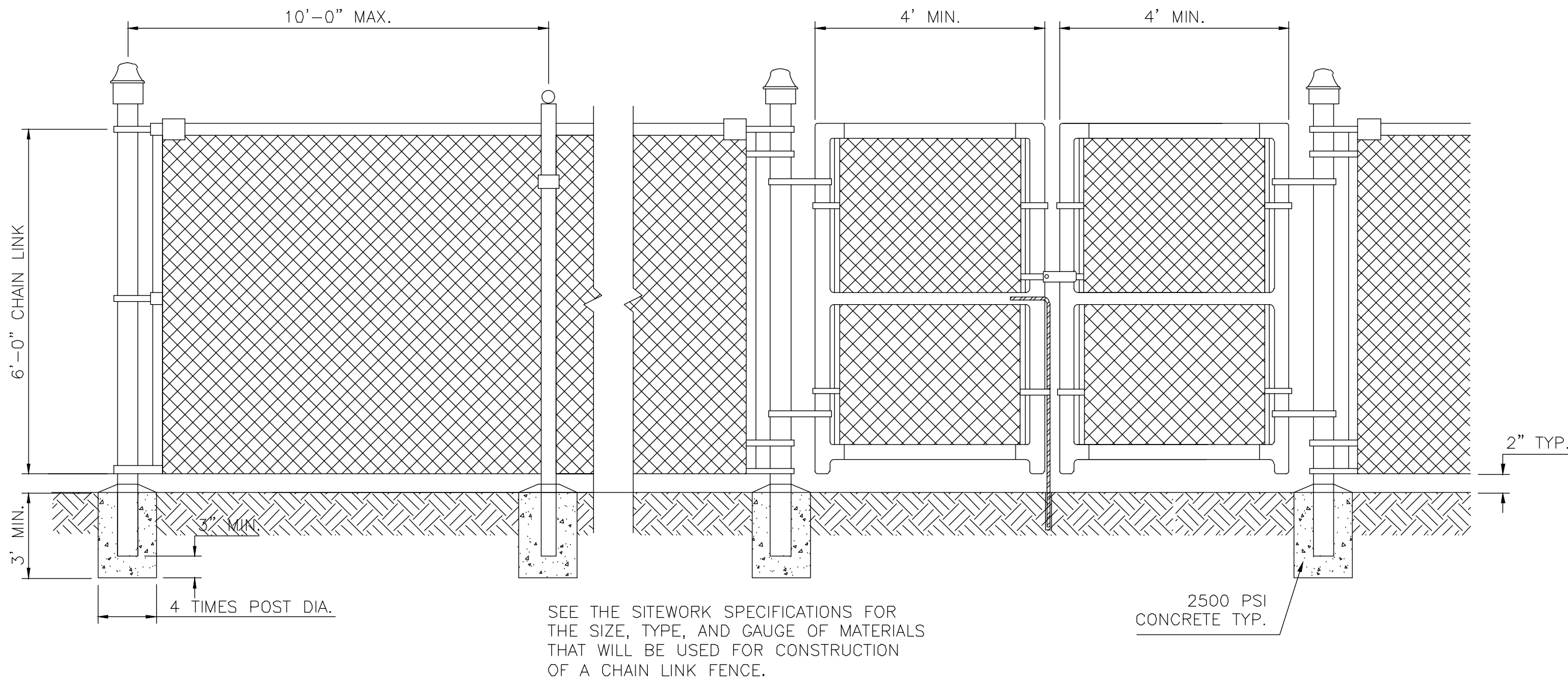
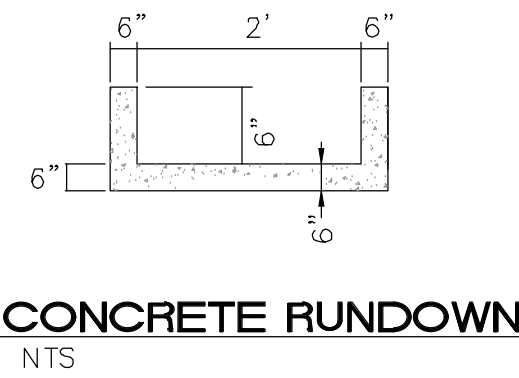
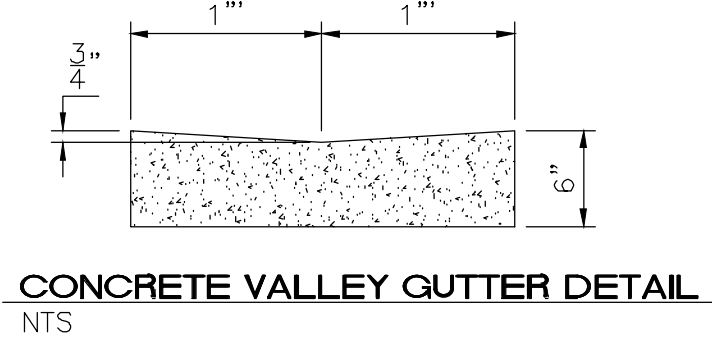
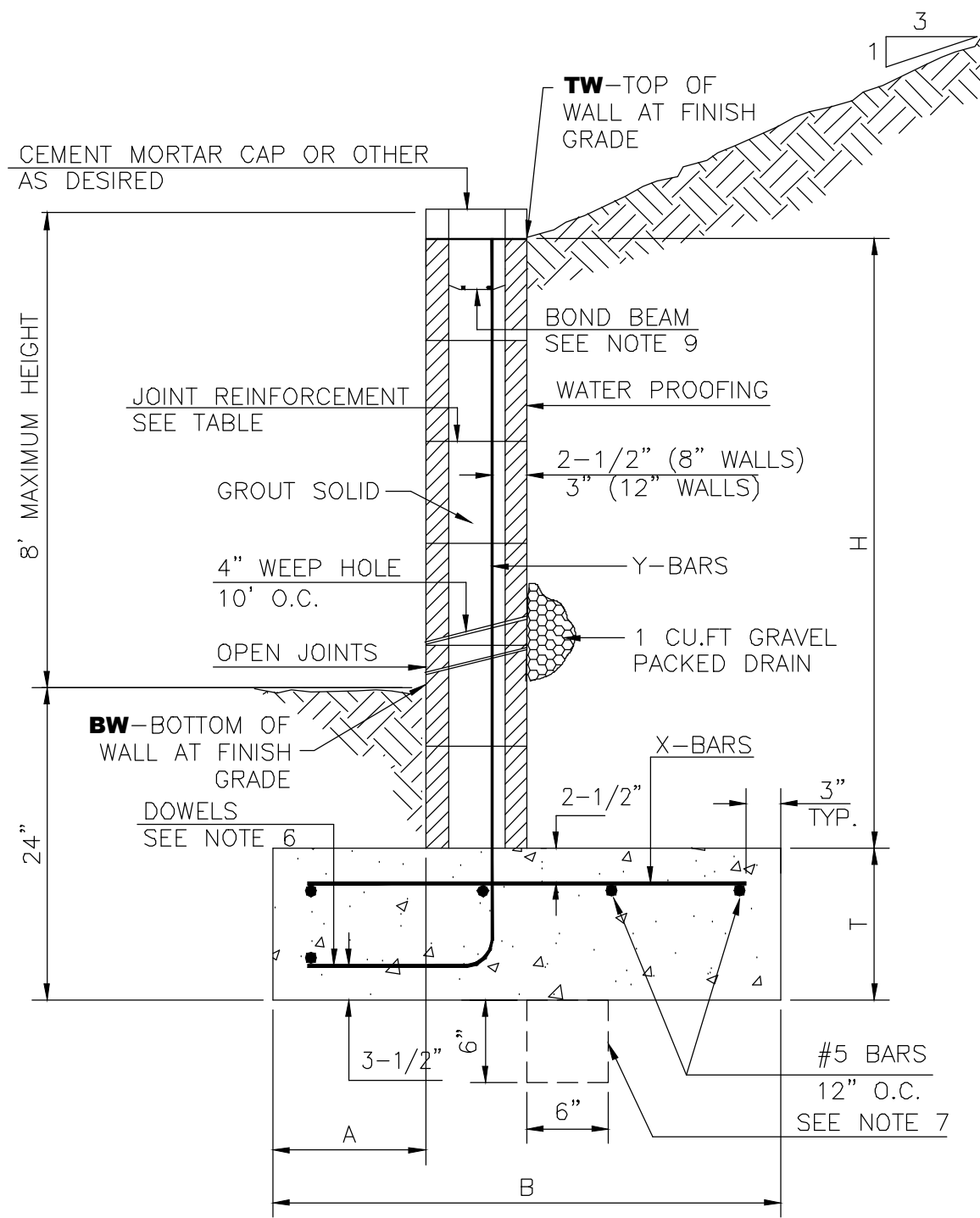
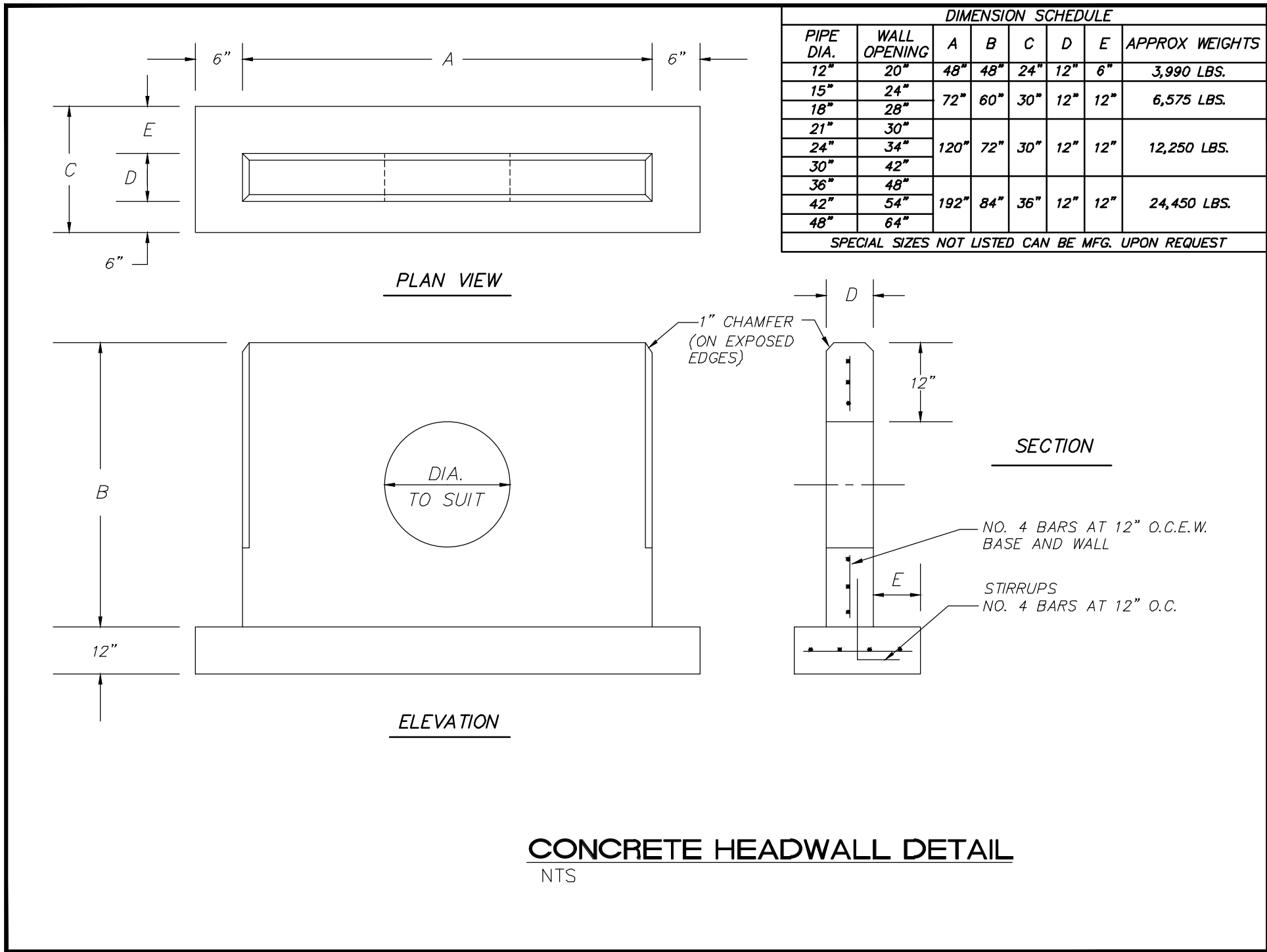
CAUTION:

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PRELIMINARY - NOT FOR CONSTRUCTION

	RIO GRANDE AND I-40 CROSSING WEST	DRAWN BY RG
	CONCEPTUAL GRADING PLAN - B	DATE 10-8-2020
	TERRA WEST, LLC 5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierawestllc.com	DRAWING 2012100--BASE--GRD
		SHEET # GR-3
		JOB # 2012100



ENGINEER'S SEAL	RIO GRANDE AND I-40 CROSSING WEST	DRAWN BY RG
 RONALD R. BOHANNAN P.E. #7868		DATE 10-8-2020
	CONCEPTUAL DETAILS	DRAWING 2012100-BASE-GRD
		 TERRA WEST, LLC 5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrawestllc.com
		JOB # 2012100

Developed Conditions

The developed flows will be routed into a detention pond system on the east side of the project site, west of the Alameda Drain. The intent is to use the existing storm drain inlet on the off-ramp of I-40 which is currently being utilized by The Range Café as the outfall for the entire site. At the 100-year, 6-hour storm event the proposed detention pond system will outflow at a peak rate of 3.23 cfs. The calculated developed outflow is less than the calculated allowable peak discharge of 4.61 cfs as reported in the calculations section of hydrological report number (H13-D029).

See proposed basin boundary **Figure 5**. Drainage from basin PB.1 will continue to flow north into an existing storm drain inlet on Lilac RD at the existing flow rate as the basin will be unchanged. Drainage from basins PB.2 and PB.3 will sheet flow into the proposed detention pond system on the east side of the project site. The flow will be conveyed into the detention pond system via concrete rundowns. The existing storm water quality pond located south of basin PB.4 will be reconstructed to accommodate the proposed developed conditions of the entire site. Drainage from basin PB.4 will discharge at the existing flow rate and will flow south via curb cuts into the proposed detention pond system.

The detention pond system is a collection of three individual ponds which are linked together by 18-inch equalizing storm drain pipes. All equalizing storm drain pipes will be leveled at the same start and end invert elevation above the storm water quality volume elevation. The detention pond will reduce the combined flow rate of 22.32 cfs to 3.23 cfs which is less than 4.61 cfs (allowable) as shown in the Range Cafes drainage report number (H13-D029). The detention pond system outflows via a 12" storm drain pipe into the existing storm drain inlet on the off-ramp of I-40.

During emergency situations each individual detention pond is designed to retain the 100-year, 6-hour storm event volume from each associated upstream basin. The emergency spillway on each individual detention pond is intended to discharge any flow over the 100-year, 6-hour storm event into the Alameda Drain. The detention pond system as well as the developed storm runoff was modeled with AHYMO and a summary of the results is located in APPENDIX A of this report.

Storm Water Quality Volume Management

The water quality volume is calculated based on the 0.62 inch storm. To calculate the Storm water Quality Volume the impervious acreage is multiplied by 0.62 inches. The formula used is $SWQV = 0.62 \times D \times 43,560 \times (1/12)$ where [D] is the impervious area in acres. The total impervious area is 4.796 acres and requires a total water quality volume of 10,790 cubic feet for the impervious basin areas. The proposed detention pond system will have a total capacity of 10,925 cubic feet dedicated to the storm water quality volume. The detention pond system will retain the storm water quality volume while draining all excess runoff. The storm water quality calculation is found in the hydrology summary in APPENDIX A of this report.

Post Construction Maintenance

The storm water features proposed were designed for easy maintenance that comprises of periodic tasks and inspections to ensure the features operate and perform to the design criteria to which it was designed. The maintenance of the BMPs shall be the responsibility of the property owner(s).

The maintenance comprise of the following:

Responsible Party: Property Operator(s).

Access to storm water quality elements: All access to the storm water quality elements shall be accessible from the paved areas within the site. There is no restricted access to the location of both the surface and sub-surface elements.

REGULAR MAINTENANCE	FREQUENCY
LITTER MANAGEMENT	
Pick up all litter at site and in Landscape areas and remove from site	Daily
INLETS AND OUTLETS	
Visual inspection for function. Remove silt from slab aprons and debris in pavement areas. Remove all fallen vegetation around inlet and outlet structures.	Monthly
HARD SURFACES	
Sweep all paving regularly. Maintain pavement in autumn after leaf fall. Coordinate with Landscape Contractor if additional maintenance is required.	As required

OCCASIONAL TASKS	FREQUENCY
INSPECTION AND INLETS, OUTLETS AND CONTROL CHAMBERS	
Inspect surface structures removing obstructions and silt as necessary. Check there is no physical damage. For below ground control chambers, remove cover and inspect ensuring water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt.	Yearly
POND VEGETATION	
Ensure Pond vegetation is maintained by Landscape Contractor. All weeds and all cuttings removed from site.	As required
SILT MANAGEMENT	
Inspect swales and water quality pond for silt accumulation. Excavate silt, stack and dry within 2-feet of the water quality feature, but outside the design profile where water flows, spread, rake and over-seed. Protect surface from siltation and manage main area of basin for design function or appearance.	Yearly

REMEDIAL WORK	FREQUENCY
Inspect storm all water quality structures regularly to check for damage or failure. Undertake remedial work as required.	Yearly

Summary

Rio Grande Crossing West is a new commercial development project on the north-east corner of Rio Grande Blvd and Interstate-40. A drainage detention pond system is proposed, east of the site. The detention pond system is designed to retain the 0.62 inch storm runoff and will serve to reduce the developed peak discharge below the allowable discharge. The detention pond system will outfall into an existing storm drain inlet on the off-ramp of I-40. The detention pond system is designed to retain the 100-year, 6-hour storm event. Any drainage beyond the 100-year, 6-hour storm event will spill into the Alameda drain via emergency spillways. The proposed drainage infrastructure will serve to reduce the current flow rate into the Alameda Drain and will safely and adequately manage the developed storm water runoff.

POND VOLUME DISCHARGE

Pond Discharge-Orifice Calculations

SURFACE POND VOLUME CALCULATIONS			
ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
4957	0	0	0
4957.5	2294	1043	1043
4958	10087	1252	2295
4958.5	10961	5262	7557
4958.8	11489	3367.5	10925
4959	11842	2333.1	13258
4959.5	12730	6143	19401
4960	13626	6589	25990
4960.5	14528	7038.5	33028
4960.83	15134	4894.23	37922
4961	15438	2598.62	40521

AGE-DISCHARGE FUNCTION				
ACTUAL ELEV.	H (FT)	VOLUME (CF)	Q (CFS)	VOLUME (AC-FT)
4957	0.00	0	0.0000	0.0000
4957.5	0.00	1043	0.0000	0.0239
4958	0.00	2295	0.0000	0.0527
4958.5	0.00	7557	0.0000	0.1735
4958.8	0.00	10925	0.0000	0.2508
4959	0.00	13258	0.0000	0.3044
4959.5	0.20	19401	1.6912	0.4454
4960	0.70	25990	3.1640	0.5966
4960.5	1.20	33028	4.1426	0.7582
4960.83	1.53	37922	4.6777	0.8706
4961	1.70	40521	4.9307	0.9302

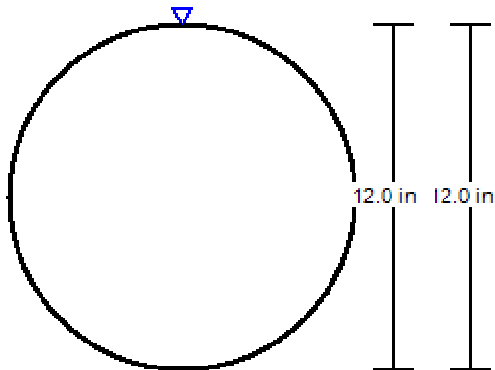
SWQV

Orifice Equation	
Q =	CA SQRT(2gH)
C =	0.6
Diameter (in)=	12
Area (ft^2)=	0.785
g (ft/s^2) =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

OUTLET PIPE CAPACITY

12" SD PIPE PVC

Project Description	
Friction Method	Manning
	Formula
Solve For	Discharge
Input Data	
Roughness Coefficient	0.010
Channel Slope	0.024 ft/ft
Normal Depth	12.0 in
Diameter	12.0 in
Discharge	7.17 cfs

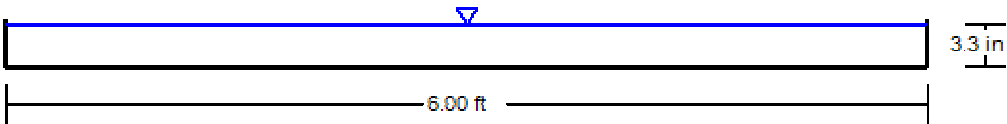


V: 1
H: 1

DETENTION POND OVERFLOW CAPACITY

DETENTION POND 1.1 SPILLWAY

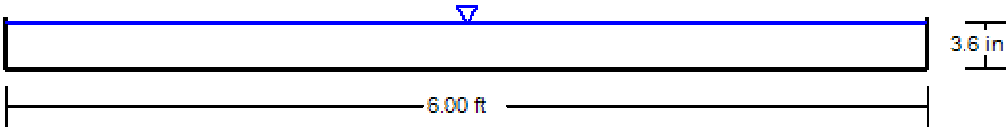
Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.013
Channel Slope	0.010 ft/ft
Normal Depth	3.3 in
Bottom Width	6.00 ft
Discharge	7.55 cfs



V: 1
H: 1

DETENTION POND 1.2 SPILLWAY

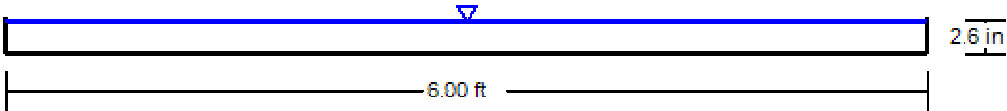
Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.013
Channel Slope	0.010 ft/ft
Normal Depth	3.6 in
Bottom Width	6.00 ft
Discharge	8.55 cfs



V: 1
H: 1

DETENTION POND 1.3 SPILLWAY

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.013
Channel Slope	0.010 ft/ft
Normal Depth	2.6 in
Bottom Width	6.00 ft
Discharge	5.08 cfs



V: 1
H: 1

HYDROLOGY SUMMARY

Existing Conditions

Basin Descriptions												100-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Runoff (in)	Volume (ac-ft)	Flow cfs
				%	(acres)	%	(acres)	%	(acres)	%	(acres)			
EB1	15,597.00	0.358	0.00056	0%	0.000	0%	0.000	64%	0.229	36%	0.129	1.20	0.036	1.11
EB2	62,300.00	1.430	0.00223	0%	0.000	0%	0.000	77%	1.101	23%	0.329	1.28	0.152	4.51
EB3	122,000.00	2.801	0.00438	0%	0.000	0%	0.000	56%	1.568	44%	1.232	1.31	0.306	8.94
EB4	57,354.00	1.317	0.00206	0%	0.000	0%	0.000	15%	0.191	86%	1.126	1.82	0.200	5.08
Total	257,251.00	5.906	0.00923		0.000		0.000		3.090		2.816		0.69	19.64

Proposed Conditions

Basin Descriptions												100-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Runoff (in)	Volume (ac-ft)	Flow cfs
				%	(acres)	%	(acres)	%	(acres)	%	(acres)			
PB1	15,597.00	0.358	0.00056	0%	0.000	0%	0.000	78%	0.279	22%	0.079	1.20	0.036	1.11
PB2	86,300.00	1.981	0.00310	0%	0.000	5%	0.099	10%	0.198	85%	1.684	1.81	0.299	7.55
PB3	98,010.00	2.250	0.00352	0%	0.000	5%	0.113	10%	0.225	85%	1.913	1.81	0.339	8.58
PB4	57,354.00	1.317	0.00206	0%	0.000	0%	0.000	15%	0.198	85%	1.119	1.82	0.200	5.08
Total	257261	5.906	0.00923		0.000		0.212		0.900		4.794		0.87	22.32

Detention Pond Summary

	Total Storage (AC-FT)	Peak Discharge (CFS)	Time to Peak (Hr)	Max WSE (ft)	Max Storage (AC-FT)
Pond	0.931	3.23	2.04	4960.0	0.6

Storm Water Quality Volume

Total Impervious Area =	ΣArea in "Treatment D"	4.794
Retention Volume =	= (0.62/12) x Area (Acre-Ft)	0.247713

AHYMO INPUT


```

*****
*                                RIO GRANDE AND I-40 CROSSING WEST                                *
*****
*                                100-YEAR 6-HR STORM (UNDER EXISTING CONDITIONS)                        *
*****
*Zone 2
*LATITUDE: 35.1072°
*LONGITUDE: -106.6704°
*ELEVATION: 4959.65
*****
START                                TIME=0.0

*
RAINFALL                            TYPE=1 RAIN QUARTER=0.0 IN
                                    RAIN ONE=1.73 IN RAIN SIX=2.22 IN
                                    RAIN DAY=2.5 IN DT=0.01 HR

*
* EB1
*
COMPUTE NM HYD                      ID=1 HYD NO=EB.1 AREA=0.00056 SQ MI
                                    PER A=0.00 PER B=0.00 PER C=78.00 PER D=22.00
                                    TP= 0.15 HR MASS RAINFALL=-1

PRINT HYD                          ID=1 CODE=1

*
* EB2
*
COMPUTE NM HYD                      ID=1 HYD NO=EB.2 AREA=0.00223 SQ MI
                                    PER A=0.00 PER B=0.00 PER C=70.00 PER D=30.00
                                    TP= 0.15 HR MASS RAINFALL=-1

PRINT HYD                          ID=1 CODE=1
*
* EB3
*
COMPUTE NM HYD                      ID=1 HYD NO=EB.3 AREA=0.00438 SQ MI
                                    PER A=0.00 PER B=0.00 PER C=67.00 PER D=33.00
                                    TP= 0.15 HR MASS RAINFALL=-1

PRINT HYD                          ID=1 CODE=1
*
* EB4
*
COMPUTE NM HYD                      ID=1 HYD NO=EB.4 AREA=0.00206 SQ MI
                                    PER A=0.00 PER B=0.00 PER C=15.0 PER D=85.0
                                    TP= 0.15 HR MASS RAINFALL=-1

PRINT HYD                          ID=1 CODE=1

*****
*                                100-YEAR 6-HR STORM (UNDER PROPOSED CONDITIONS)                        *
*****

```

```

START                                TIME=0.0
*
*
RAINFALL                            TYPE=1 RAIN QUARTER=0.0 IN
                                     RAIN ONE=1.73 IN RAIN SIX=2.22 IN
                                     RAIN DAY=2.5 IN DT=0.01 HR
*
* PB1
*
COMPUTE NM HYD                      ID=2 HYD NO=PB.1 AREA=0.00056 SQ MI
                                     PER A=0.00 PER B=0.00 PER C=78.00 PER D=22.00
                                     TP=0.15 HR MASS RAINFALL=-1

PRINT HYD                          ID=2 CODE=1

*
* PB2
*
COMPUTE NM HYD                      ID=3 HYD NO=PB.2 AREA=0.00310 SQ MI
                                     PER A=0.00 PER B=5.00 PER C=10.00 PER D=85.00
                                     TP=0.15 HR MASS RAINFALL=-1

PRINT HYD                          ID=3 CODE=1
*
* PB3
*
COMPUTE NM HYD                      ID=4 HYD NO=PB.3 AREA=0.00352 SQ MI
                                     PER A=0.00 PER B=5.00 PER C=10.00 PER D=85.00
                                     TP=0.15 HR MASS RAINFALL=-1

PRINT HYD                          ID=4 CODE=1
*
* PB4
*
COMPUTE NM HYD                      ID=5 HYD NO=PB.4 AREA=0.00206 SQ MI
                                     PER A=0.00 PER B=0.00 PER C=15 PER D=85
                                     TP=0.15 HR MASS RAINFALL=-1

PRINT HYD                          ID=5 CODE=1
*
* ADD BASINS PB2, PB3 AND PB4
*
ADD HYD                             ID =6 HYD = 100.1 ID I = 3 ID II = 4

ADD HYD                             ID =7 HYD = 100.2 ID I =6 ID II = 5

PRINT HYD                          ID=7 CODE=1
*

*****
*          ROUTE BASINS TO POND 1          *
*****

```

ROUTE RESERVOIR	ID=8 HYD NO=POND.1 INFLOW ID=7 CODE=1
	OUTFLOW(CFS) STORAGE(AC-FT) ELEVATION(FT)
	0.0000 0.0000 4957
	0.0100 0.2508 4958.8
	1.6912 0.4454 4959.5
	3.1640 0.5966 4960
	4.1426 0.7582 4960.5
	4.9307 0.9311 4961

*

PRINT HYD

ID=8 CODE=1

*

FINISH

MIDDLE RIO GRANDE
CONSERVANCY DISTRICT
PO Box 581
Albuquerque, NM 87103-0581
(505) 247-0234 FAX (505) 243-7308



MISCELLANEOUS RECEIPT
RECEIPT # 19685

Receipt Date	05/11/21
Receipt Time	08:25:5
Received By	
Payment Method	OTHER

Account Name And Address:

0
Tierra West LLC; Ronald Bohannon
License# 123-2021
Online Credit Card Payment
Trans# 6206838424326675103047

Clerk: rebecca

DESCRIPTION		AMOUNT
06	LICENSE APPLICA	\$200.00

PAYMENT TYPE	QUANTITY	REFERENCE	AMOUNT
			\$200.00

Amount Tendered	\$200.00
Amount Applied	\$200.00
Change	\$0.00

Luis Noriega

From: Trujillo, Timothy R, NMDOT <TimothyR.Trujillo@state.nm.us>
Sent: Tuesday, August 3, 2021 8:19 AM
To: Luis Noriega
Cc: Ron Bohannon; Vince Carrica; Jon Niski
Subject: RE: [#2012100] (H13D109) Rio Grande and I-40 Hydrology Submittal

Luis,

I have no further comments on the Rio Grande and I-40 development. This email will serve as the approval letter for NMDOT Drinage. If the plan should change please get back to me with the drawing and calcs.

Regards,

Tim Trujillo, PE/CFM
NMDOT – D3 Drainage
(505) 373-4987

From: Luis Noriega <lnoriega@tierrawestllc.com>
Sent: Tuesday, August 3, 2021 7:38 AM
To: Trujillo, Timothy R, NMDOT <TimothyR.Trujillo@state.nm.us>
Cc: Bohannon, Ronald <rrb@tierrawestllc.com>; Carrica, Vincent <vcarrica@tierrawestllc.com>; Niski, Jonathan <jniski@tierrawestllc.com>
Subject: RE: [#2012100] (H13D109) Rio Grande and I-40 Hydrology Submittal

Tim,

Thank you for getting back to me. I plan on submitting to hydrology soon so if you want to send over the approval when you get a chance id appreciate it.
And yes I'd be happy to send you the final grading and drainage plans for Top Golf. I will send out in a follow up email here shortly.

Thank you,

Luis Noriega



5571 Midway Park Pl, NE
Albuquerque, NM 87109
(505)858-3100 ext. 1216
Civil Engineering

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From: Trujillo, Timothy R, NMDOT [<mailto:TimothyR.Trujillo@state.nm.us>]
Sent: Monday, August 2, 2021 7:57 PM
To: Luis Noriega
Subject: RE: [#2012100] (H13D109) Rio Grande and I-40 Hydrology Submittal

Hi Luis. I must have missed this email. I don't have a problem with the site. Let me know when it reaches it's final state and I'll shoot over an approval.

I was looking for your email to ask about the Top Golf site. Do you have the Final Drainage Report for that site that you could send me? NMDOT is doing the I-25 Corridor in that area and I was hoping to see any information with the infrastructure in that area. I know its limited...

Thanks,

Tim Trujillo, PE/CFM
NMDOT – D3 Drainage
(505) 373-4987

From: Luis Noriega <lnoriega@tierrawestllc.com>
Sent: Thursday, July 1, 2021 11:28 AM
To: Trujillo, Timothy R, NMDOT <TimothyR.Trujillo@state.nm.us>
Subject: RE: [#2012100] (H13D109) Rio Grande and I-40 Hydrology Submittal

Tim,

Long time, I wanted to focus back on the Rio Grande Crossing project we had previously discussed. Per the city of Albuquerque the action of taping into an existing storm drain inlet on NMDOT ROW requires approval by NMDOT. The storm inlet is located on the North-East frontage of Rio Grande Blvd and I-40.

The project is beginning to gain traction and I'm just following up to get confirmation that we have approval to tap into the NMDOT facility?

Let me know if there are questions.

Thank you,

Luis Noriega



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Civil Engineering

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From: Trujillo, Timothy R, NMDOT [<mailto:TimothyR.Trujillo@state.nm.us>]
Sent: Friday, February 26, 2021 10:54 AM
To: Luis Noriega
Subject: RE: [#2012100] (H13D109) Rio Grande and I-40 Hydrology Submittal

I had a question internally here at the NMDOT but haven't had a response back. I'll check again but I think I'm ok with everything. Let me get back to you.

Tim T.

From: Luis Noriega <lnoriega@tierrawestllc.com>
Sent: Friday, February 26, 2021 10:50 AM
To: Trujillo, Timothy R, NMDOT <TimothyR.Trujillo@state.nm.us>
Cc: Bohannan, Ronald <rrb@tierrawestllc.com>; Carrica, Vincent <vcarrica@tierrawestllc.com>
Subject: [EXT] RE: [#2012100] (H13D109) Rio Grande and I-40 Hydrology Submittal

Tim,

Good morning, just following up to see if there are any updates in regards to this request?

Thank you,

Luis Noriega
Civil Engineer Intern



5571 Midway Park Pl, NE
Albuquerque, NM 87109
(505)858-3100 ext. 1216

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From: Luis Noriega
Sent: Tuesday, February 9, 2021 10:20 AM
To: 'Trujillo, Timothy R, NMDOT'
Cc: Ron Bohannan; Vince Carrica
Subject: RE: [#2012100] (H13D109) Rio Grande and I-40 Hydrology Submittal

Tim,

No worries, See responses to your questions below in **Red**
please let me know if you have additional questions.

Thank you,

Luis Noriega
Civil Engineer Intern



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Albuquerque, NM 87109
(505)858-3100 ext. 1216

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From: Trujillo, Timothy R, NMDOT [<mailto:TimothyR.Trujillo@state.nm.us>]
Sent: Tuesday, February 9, 2021 9:55 AM
To: Luis Noriega
Subject: RE: [#2012100] (H13D109) Rio Grande and I-40 Hydrology Submittal

I have some questions that are probably in the report/plans but I have a tiny little laptop...

1. I can't find the proposed condition AYHMO model – AHYMO proposed conditions begins and ends on page 32/130 – 96/130 of the report
2. Are the proposed ponds in MRGCD ROW? - Yes, a large portion on the ponds are in MRGCD ROW, we are working with MRGCD on obtaining Licensing
3. Can you point me to the storm water quality volume (numerical) of retention in the plans? - yes, I marked the locations on the attached plans (Pg. 2-3), Note: Volumes should add up to 10,931 cf (0.25 AC-FT)
4. Do you know the ultimate outfall of the NMDOT storm system? – We don't have this information, we are designing based on the existing flow off the Range Cafe

Thanks,

Tim T.

From: Luis Noriega <lnoriega@tierrawestllc.com>
Sent: Monday, February 8, 2021 10:02 AM
To: Trujillo, Timothy R, NMDOT <TimothyR.Trujillo@state.nm.us>
Cc: Bohannon, Ronald <rrb@tierrawestllc.com>; Carrica, Vincent <vcarrica@tierrawestllc.com>
Subject: [EXT] RE: [#2012100] (H13D109) Rio Grande and I-40 Hydrology Submittal

Tim,

See attached drainage report, In summary the overall proposed outfall into the inlet will be 3.23 cfs for the ultimate buildout, using a proposed linked detention pond system. The pond system was design using a max flow rate of 4.61 cfs which is documented on the Range Café's drainage report located on Appendix B of the attached report. The 4.61 cfs is existing and we are well under that rate.

Thank you,
Luis

From: Trujillo, Timothy R, NMDOT [<mailto:TimothyR.Trujillo@state.nm.us>]
Sent: Monday, February 8, 2021 9:47 AM
To: Luis Noriega
Cc: Ron Bohannon; Vince Carrica
Subject: RE: [#2012100] (H13D109) Rio Grande and I-40 Hydrology Submittal

Good morning Luis. Could you send the support calcs (drainage report) and would you know what the ultimate outfall is for the NMDOT inlet that you are trying to tap into?

Thanks,

Tim T.

From: Luis Noriega <lnoriega@tierrawestllc.com>
Sent: Monday, February 8, 2021 9:23 AM
To: Trujillo, Timothy R, NMDOT <TimothyR.Trujillo@state.nm.us>
Cc: Bohannon, Ronald <rrb@tierrawestllc.com>; Carrica, Vincent <vcarrica@tierrawestllc.com>
Subject: [EXT] RE: [#2012100] (H13D109) Rio Grande and I-40 Hydrology Submittal

Good Morning Tim,

We are in the process of a new commercial development on the North-East Corner of Rio Grande Blvd and I-40. We are attempting to drain into an existing storm drain inlet located on the North-East frontage of Rio Grande Blvd and I-40 (See Arial Attached). The city is asking for written concurrence to tap into the inlet on I-40 since it is within NMDOT ROW. The inlet is currently taped and is being utilized by the Range Café to the north. Essentially we would only be replacing the existing line and will not exceed the existing capacity.

If you could get back to me on this I would appreciate it, and let me know if you need additional information.

Thank you,

Luis Noriega
Civil Engineer Intern



5571 Midway Park Pl, NE
Albuquerque, NM 87109
(505)858-3100 ext. 1216

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From: Brissette, Renee C. [<mailto:rbrissette@cabq.gov>]
Sent: Thursday, December 31, 2020 9:07 AM
To: Luis Noriega
Cc: Ron Bohannon
Subject: (H13D109) Rio Grande and I-40 Hydrology Submittal

Luis,

Attached are the approved stamped cover to the Master Drainage Report, stamped preliminary approved Conceptual G&D, and the approval letter from Hydrology.



RENÉE CHRISTINA BRISSETTE, PE CFM

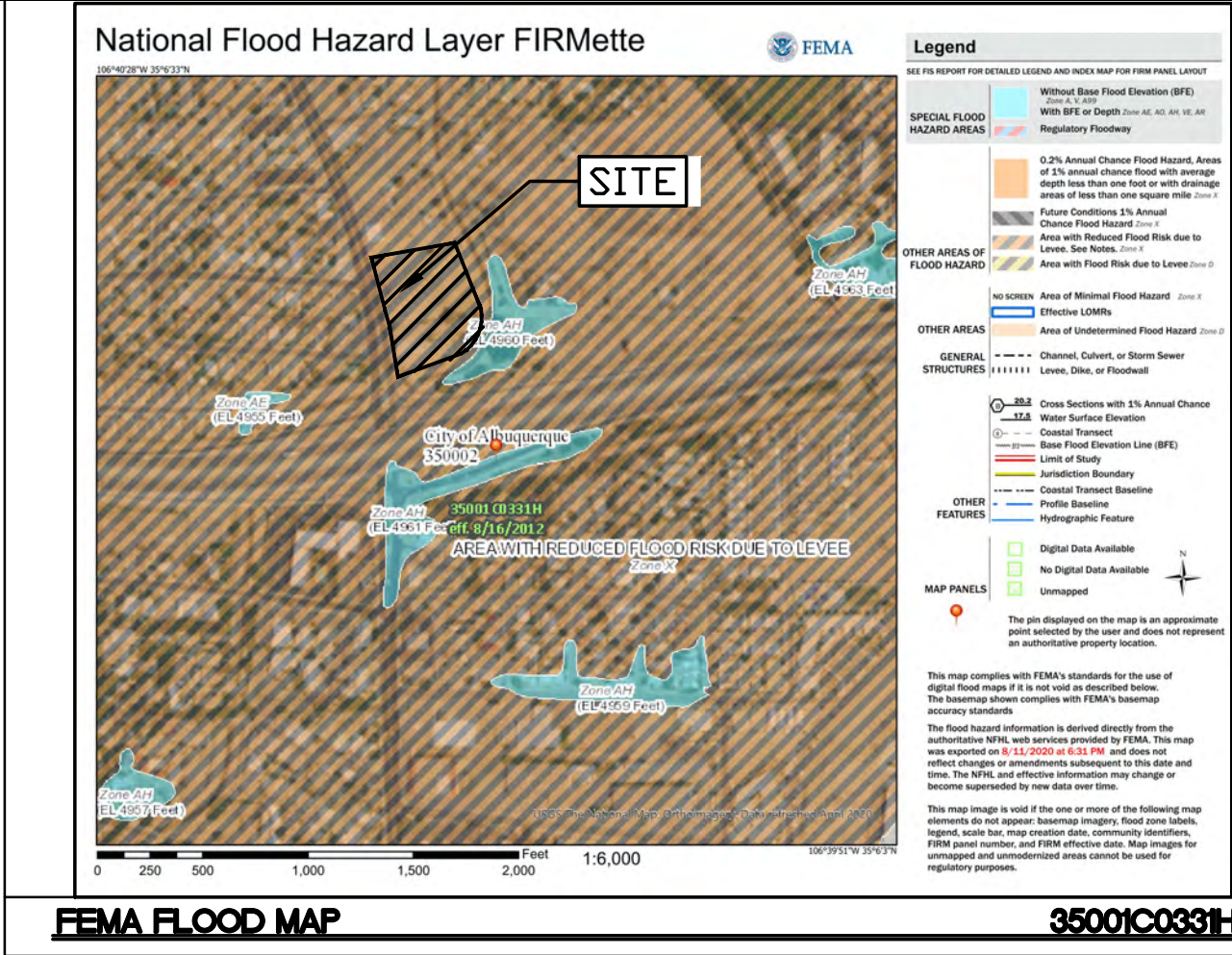
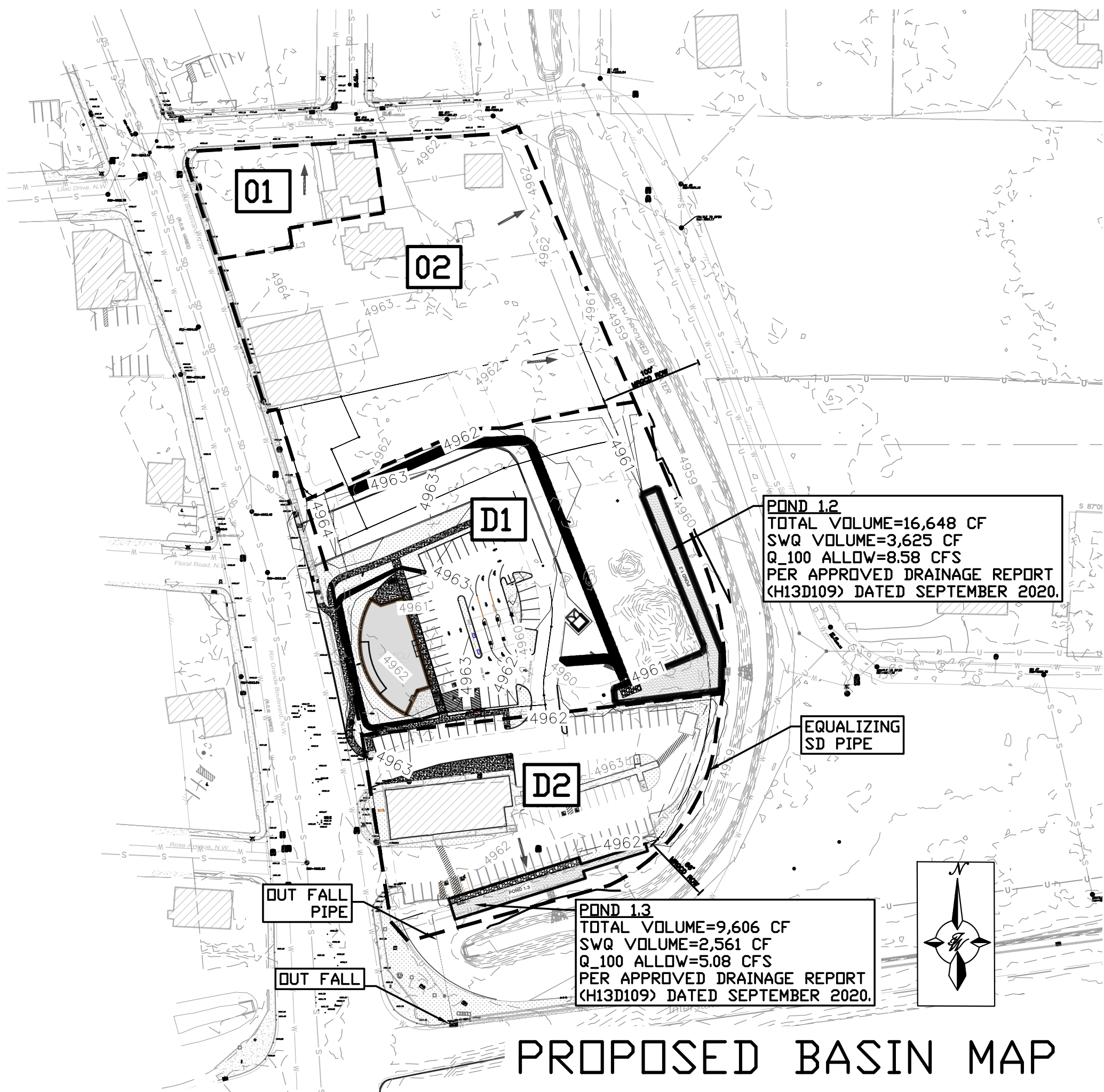
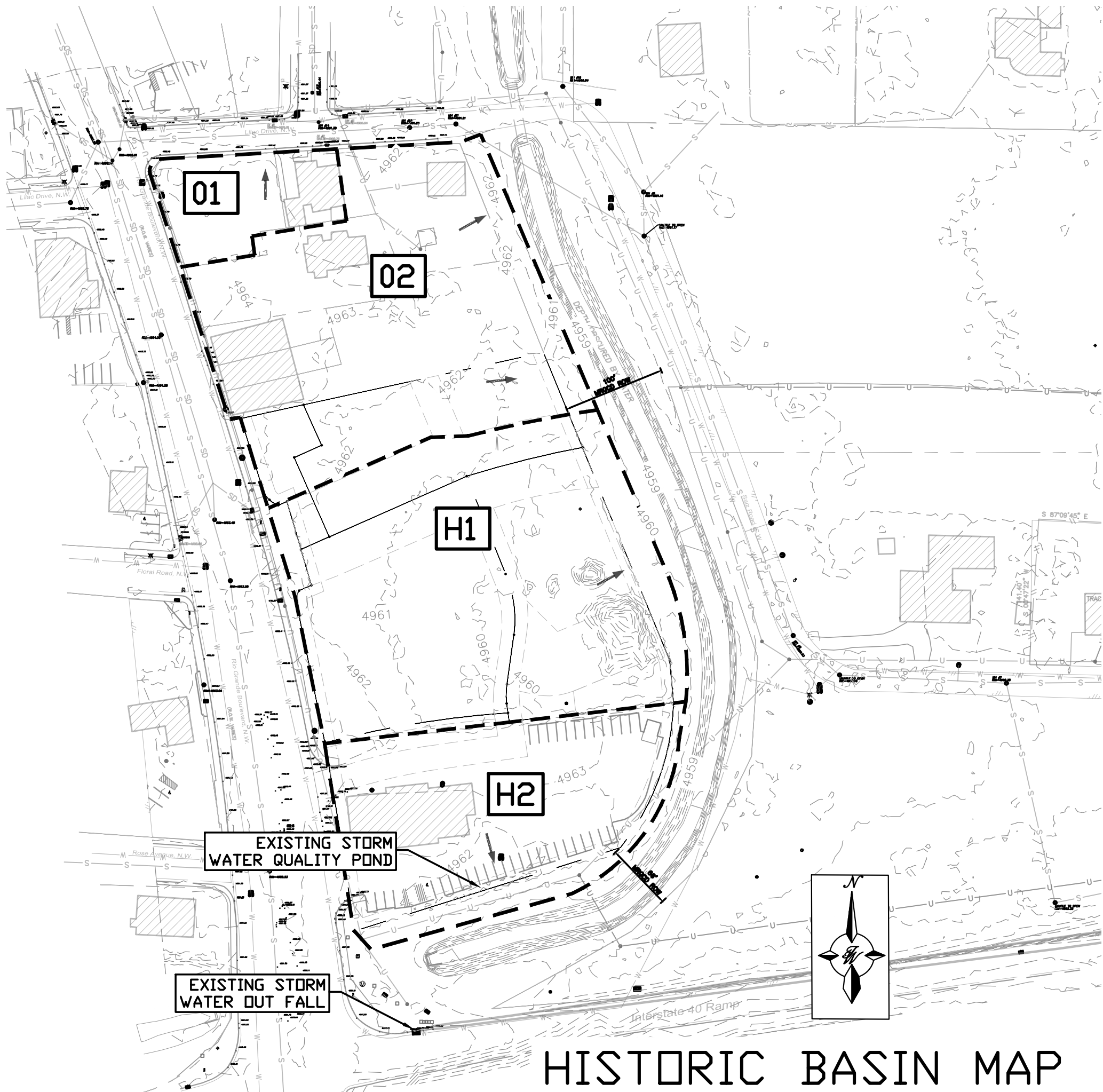
senior engineer, hydrology

o 505.924.3995

e rbrissette@cabq.gov

cabq.gov/planning

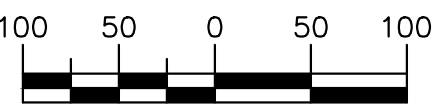
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LEGEND

--- BASIN BOUNDARY

GRAPHIC SCALE



SCALE: 1"=100'

MAINTENANCE SCHEDULE

Responsible Party: Property Operator(s).

Access to storm water quality elements: All access to the storm water quality elements shall be accessible from the paved areas within the site. There is no restricted access to the location of both the surface and sub-surface elements.

REGULAR MAINTENANCE	FREQUENCY
LITTER MANAGEMENT	
Pick up all litter at site and in Landscape areas and remove from site	Daily
INLETS AND OUTLETS	
Visual inspection for function. Remove silt from slab aprons and debris in pavement areas. Remove all fallen vegetation around inlet and outlet structures.	Monthly
HARD SURFACES	
Sweep all paving regularly. Maintain pavement in autumn after leaf fall. Coordinate with Landscape Contractor if additional maintenance is required.	As required
OCCASIONAL TASKS	FREQUENCY
INSPECTION AND INLETS, OUTLETS AND CONTROL CHAMBERS	
Inspect surface structures removing obstructions and silt as necessary. Check there is no physical damage. For below ground control chambers, remove cover and inspect ensuring water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt.	Yearly
POND VEGETATION	
Ensure Pond vegetation is maintained by Landscape Contractor. All weeds and all cuttings removed from site.	As required
SILT MANAGEMENT	
Inspect swales and water quality pond for silt accumulation. Excavate silt, stack and dry within 2-feet of the water quality feature, but outside the design profile where water flows, spread, rake and over-seed. Protect surface from siltation and manage main area of basin for design function or appearance.	Yearly
REMEDIAL WORK	FREQUENCY
Inspect storm all water quality structures regularly to check for damage or failure. Undertake remedial work as required.	Yearly

Existing Conditions (AHYMO-S4 SUMMARY)

Basin Descriptions											100-Year, 6-Hr			
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Runoff (in)	Volume (ac-ft)	Flow cfs
				%	(acres)	%	(acres)	%	(acres)	%	(acres)			
H1	98,010.00	2.25	0.00352	0%	0.000	0%	0.000	60%	1.350	40%	0.900	1.380	0.259	7.39
H2	57,354.00	1.32	0.00206	0%	0.000	0%	0.000	15%	0.191	85%	1.119	1.820	0.200	5.08
O1	15,597.00	0.36	0.00056	0%	0.000	0%	0.000	64%	0.229	36%	0.129	1.340	0.040	1.17
O2	86,300.00	1.98	0.00310	0%	0.000	0%	0.000	77%	1.526	23%	0.456	1.210	0.200	6.09
Total	257,261.00	5.91	0.00923		0.000		0.000		3.296		2.604		0.70	19.73

Proposed Conditions (AHYMO-S4 SUMMARY)

Basin Descriptions											100-Year, 6-Hr			
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Runoff (in)	Volume (ac-ft)	Flow cfs
				%	(acres)	%	(acres)	%	(acres)	%	(acres)			
D1	98,010.00	2.25	0.00352	0%	0.000	0%	0.000	55%	1.238	45%	1.013	1.550	0.268	7.53
D2	57,354.00	1.32	0.00206	0%	0.000	0%	0.000	15%	0.191	85%	1.119	1.550	0.200	5.08
O1	15,597.00	0.36	0.00056	0%	0.000	0%	0.000	64%	0.229	36%	0.129	1.340	0.040	1.17
O2	86,300.00	1.98	0.00310	0%	0.000	0%	0.000	77%	1.526	23%	0.456	1.210	0.200	6.09
Total	257261.00	5.91	0.00923		0.000		0.000		3.183		2.716		0.71	19.87

Stormwater Quality Volume

Total Impervious Area =
Retention depth = 0.42" Per DPM Pg. 272
Retention Volume =

ΣArea in "Treatment D"
0.035 foot
=0.035 x area CF

Basin ID	SWQV	
	Required (cf)	Provided (cf)
D1	1,544	3,625
D2	1,706	2,561
Total	3,250	6,186

SITE INFORMATION

THE PROPOSED COMMERCIAL PROJECT SITE IS LOCATED IN THE NORTH-EAST CORNER OF RIO GRANDE BLVD AND I-40, WEST OF MRGCD'S ALAMEDA DRAIN. THE SITE IS LOCATED WITHIN AN AREA WITH REDUCED FLOOD RISK DUE TO A LEVEE (ZONE X). THE PROJECT IS ALSO WITHIN THE RIO GRANDE VALLEY AREA.

EXISTING CONDITIONS

BASIN H1 IS CURRENTLY UNDEVELOPED, IS PARTLY PAVED AND IS CURRENTLY USED FOR VEHICULAR PARKING. DRAINAGE FROM BASIN H1 SHEET FLOWS EAST TOWARDS THE ALAMEDA DRAIN. BASIN H2 CONTAINS AN EXISTING RESTAURANT "THE RANGE CAFE". RUNOFF FROM BASIN H2 DRAINS SOUTH INTO AN EXISTING STORM WATER QUALITY POND. THE EXISTING STORM WATER QUALITY POND OUTFALLS INTO AN EXISTING STORM DRAIN INLET, LOCATED ALONG THE NORTHEAST I-40 FRONTAGE. NO OFFSITE RUNOFF FROM BASIN O1 AND O2 FLOWS INTO THE PROJECT SITE. BASED ON THE SITE'S TOPOGRAPHY OFFSITE DRAINAGE SHEET FLOWS DIRECTLY EAST, TOWARDS THE ALAMEDA DRAIN OR NORTH TO LIAC DR. NO OFFSITE FLOWS SHALL BE ROUTED INTO THE INTERIM PROPOSED DETENTION POND SYSTEM.

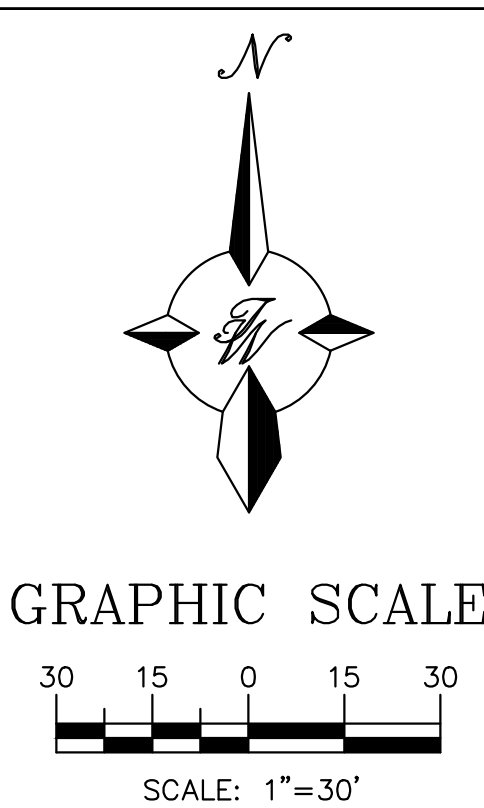
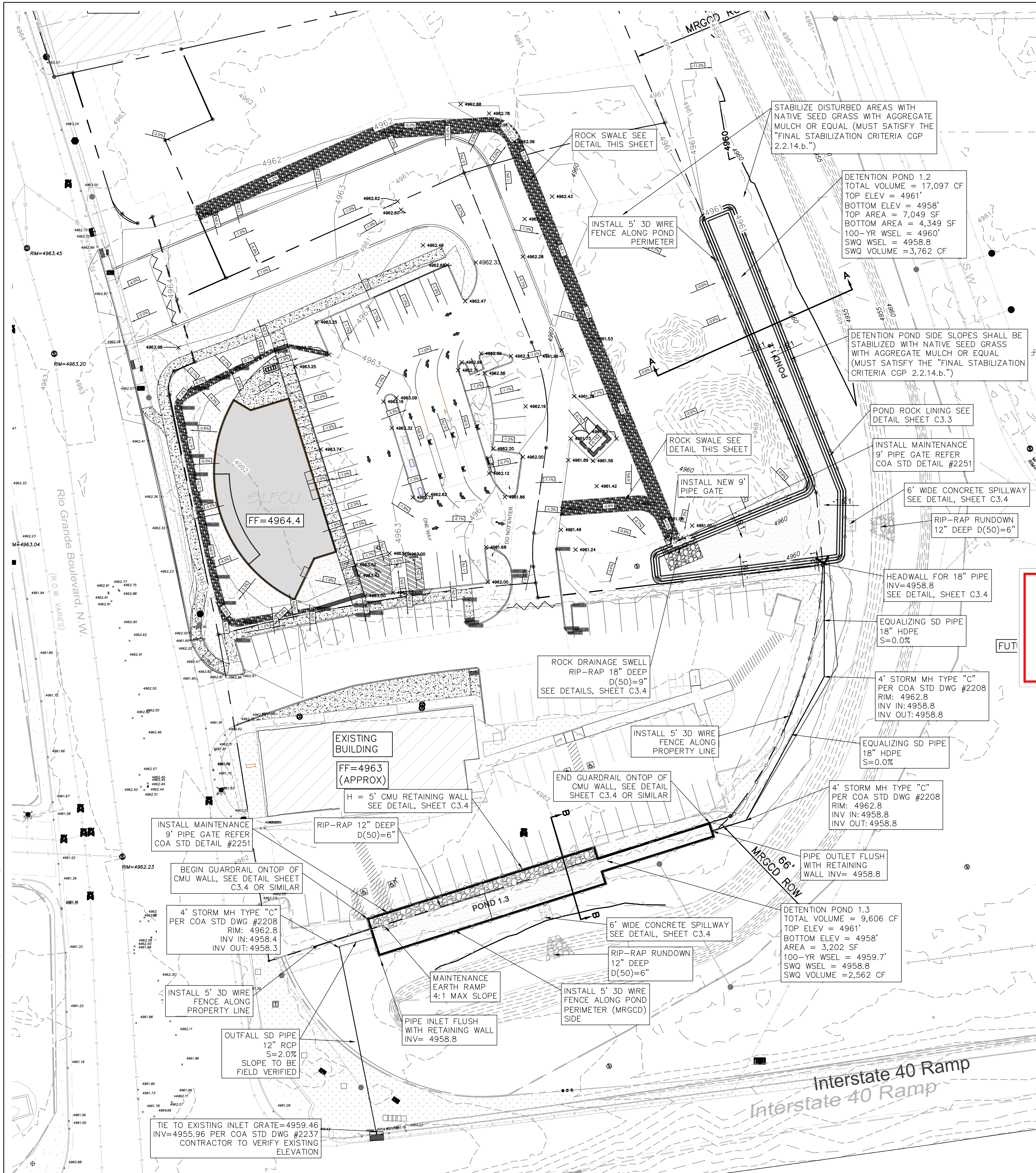
PROPOSED CONDITIONS

THE PROJECT AREA CURRENTLY CONTAINS AN EXISTING RANGE CAFE RESTAURANT, TO THE NORTH OF THE CAFE A NEW FEDERAL CREDIT UNION BANK WILL BE DEVELOPED. THE DRAINAGE MANAGEMENT PLAN WILL FOLLOW THE APPROVED CONCEPTUAL DRAINAGE REPORT UNDER HYDRO NUMBER H13D109. THE PROPOSED DEVELOPMENT WILL DISCHARGE BELOW THE ALLOWABLE RATE INTO THE PROPOSED DETENTION POND SYSTEM. THE PROPOSED DETENTION POND SYSTEM HAS ENOUGH CAPACITY TO MANAGE THE RUNOFF FROM THE CURRENT PROPOSED DEVELOPMENT. BASINS O1 AND O2 WILL NOT CHANGE WITH THE DEVELOPMENT OF THE CREDIT UNION AND STORM WATER RUNOFF WILL FOLLOW THE EXISTING FLOW PATH



ENGINEER'S SEAL RONALD R. BOHANNAN NEW MEXICO PROFESSIONAL ENGINEER 09/21/2021 RONALD R. BOHANNAN P.E. #7868	SANDIA LAB FCU RIO GRANDE AND I-40 DRAINAGE PLAN	DRAWN BY LN DATE 09-17-21 DRAWING 2012100--BASIN
	TERRA WEST, LLC 5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrowestllc.com	SHEET # C3.1 JOB # 2012100

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NOTICE TO CONTRACTORS

1. PRIOR TO ANY WORK WITHIN THE NEW MEXICO DEPARTMENT OF TRANSPORTATION (NMDOT) RIGHT-OF-WAY, AN NMDOT PERMIT WILL BE REQUIRED.
2. CONTACT STORM DRAIN MAINTENANCE AT (505) 857-8033 TO SCHEDULE A MEETING PRIOR TO FORMING.
3. AN EXCAVATION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
4. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
5. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT **NEW MEXICO ONE CALL, DIAL "811"** (OR (505) 260-1990) FOR THE LOCATION OF EXISTING UTILITIES.
6. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
7. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
8. MAINTENANCE OF THE FACILITY SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY BEING SERVED.
9. WORK ON ARTERIAL STREETS MAY BE REQUIRED ON A 24-HOUR BASIS.
10. CONTRACTOR MUST CONTACT STORM DRAIN MAINTENANCE AT (505) 857-8033 TO SCHEDULE A CONSTRUCTION INSPECTION. FOR EXCAVATING AND BARRICADING INSPECTIONS, CONTACT CONSTRUCTION COORDINATION AT (505) 924-3416.

EROSION CONTROL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING ROADWAY.
3. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
4. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL ACCEPTANCE OF ANY PROJECT.

NOTE:

1. REFERENCE GEOTECHNICAL REPORT FOR CONSTRUCTION REQUIREMENTS/ MINIMUMS
2. REFERENCE LANDSCAPE PLAN FOR FINAL STABILIZATION REQUIREMENTS.

LEGEND

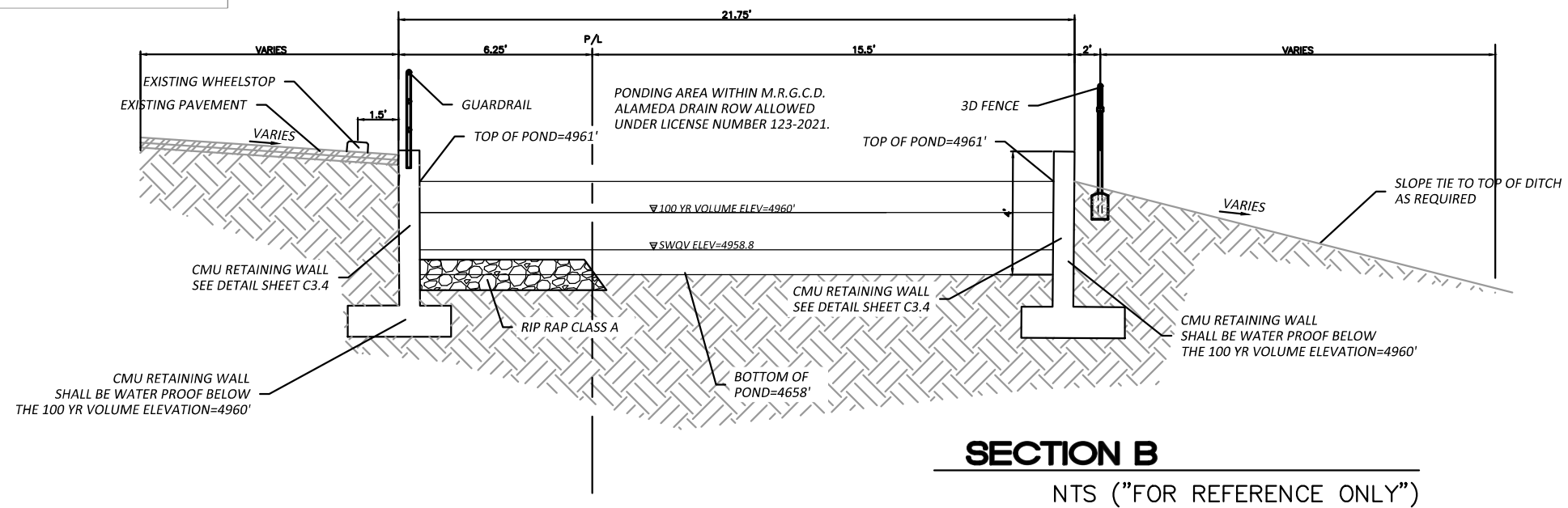
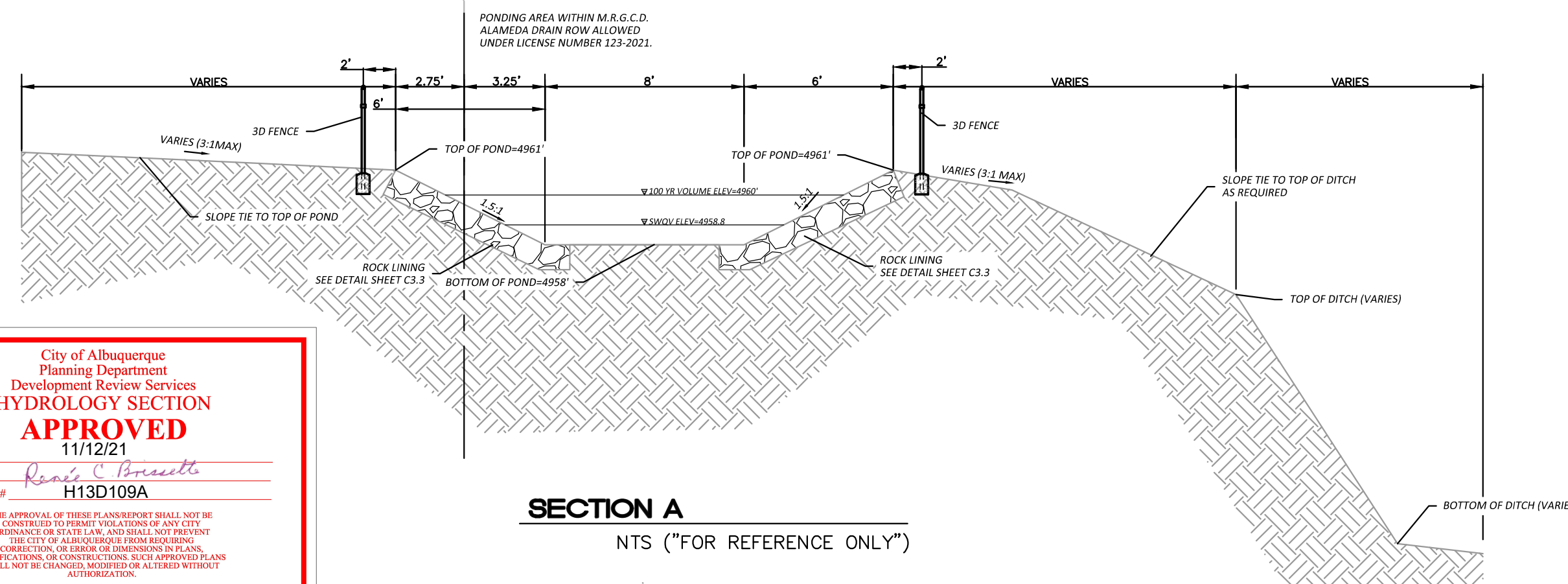
	CURB & GUTTER
	BOUNDARY LINE
	3D FENCE
	EASEMENT
	SIDEWALK
	EXISTING CURB & GUTTER
	EXISTING BOUNDARY LINE
	EXISTING SIDEWALK
	PROPOSED SPOT ELEVATION
	FLOW ARROW
	WATER BLOCK
	CMU RETAINING WALL
	GRAVEL MULCH
	CONTOUR MAJOR
	CONTOUR MINOR
	EXISTING CONTOUR MAJOR
	EXISTING CONTOUR MINOR
	EXISTING SPOT ELEVATION

SPOT ELEVATION LEGEND

FL=FLOW LINE
TS=TOP OF SIDEWALK
TC=TOP OF CURB

SPOT ELEVATION NOTE:

ALL SPOT ELEVATIONS ARE FLOWLINE UNLESS OTHERWISE NOTED.



NMDOT NOTE:

PRIOR TO ANY WORK WITHIN THE NEW MEXICO DEPARTMENT OF TRANSPORTATION (NMDOT) RIGHT OF WAY, AN NMDOT PERMIT WILL BE REQUIRED.

CAUTION:

GENERAL CONTRACTOR TO PREVENT DAMAGE TO OVERHEAD/UNDERGROUND UTILITIES DURING CONSTRUCTION OPERATIONS.

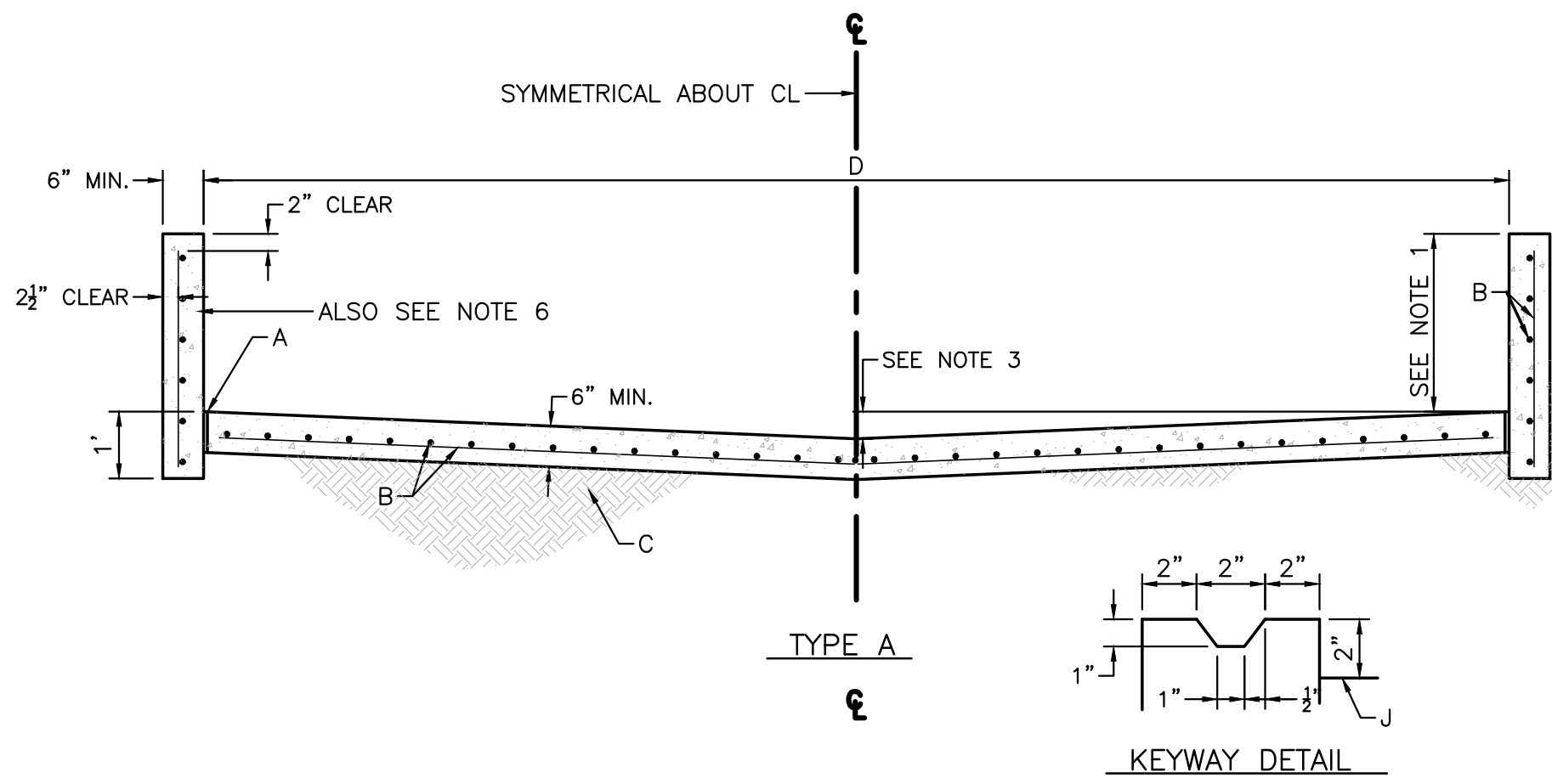
ROCK SWALE

NTS

CAUTION:

ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS, PRIOR TO STARTING THE WORK. ANY CHANGES FROM THIS PLAN SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.

	SANDIA LAB FCU RIO GRANDE AND I-40 GRADING PLAN A	DRAWN BY LN
		DATE 09-17-21
	5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrawestllc.com	DRAWING 2012100-GR
		SHEET # C3.2
RONALD R. BOHANNAN P.E. #7868		JOB # 2012100

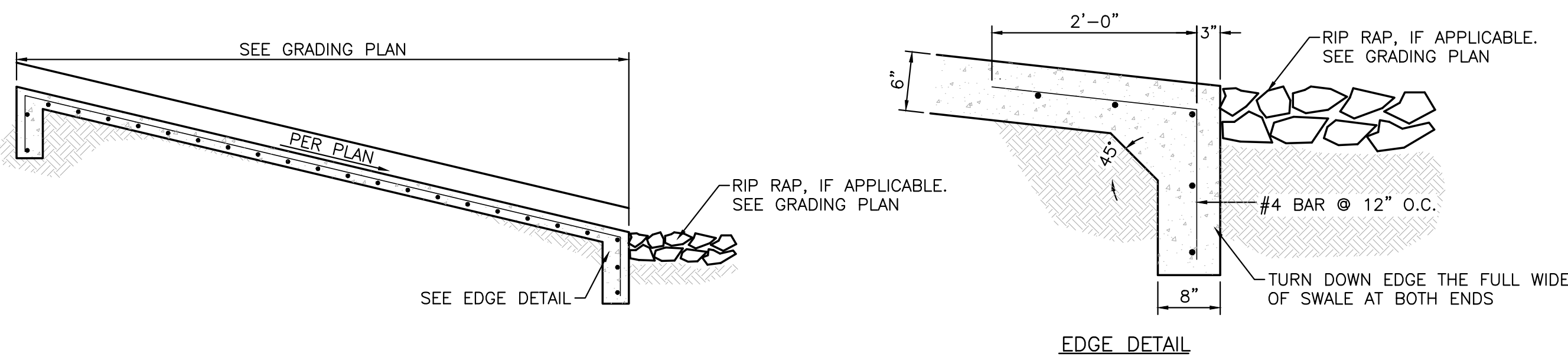


CONSTRUCTION NOTES:

- EXPANSION JOINT
- #4 REBARS @ 6" O.C. LONG AND 12" O.C. TRANSVERSE
- 6" COMPACTED SOIL 95% ASTM D 1557
- WIDTH OF CHANNEL
- KEYED CONSTRUCTION JOINT

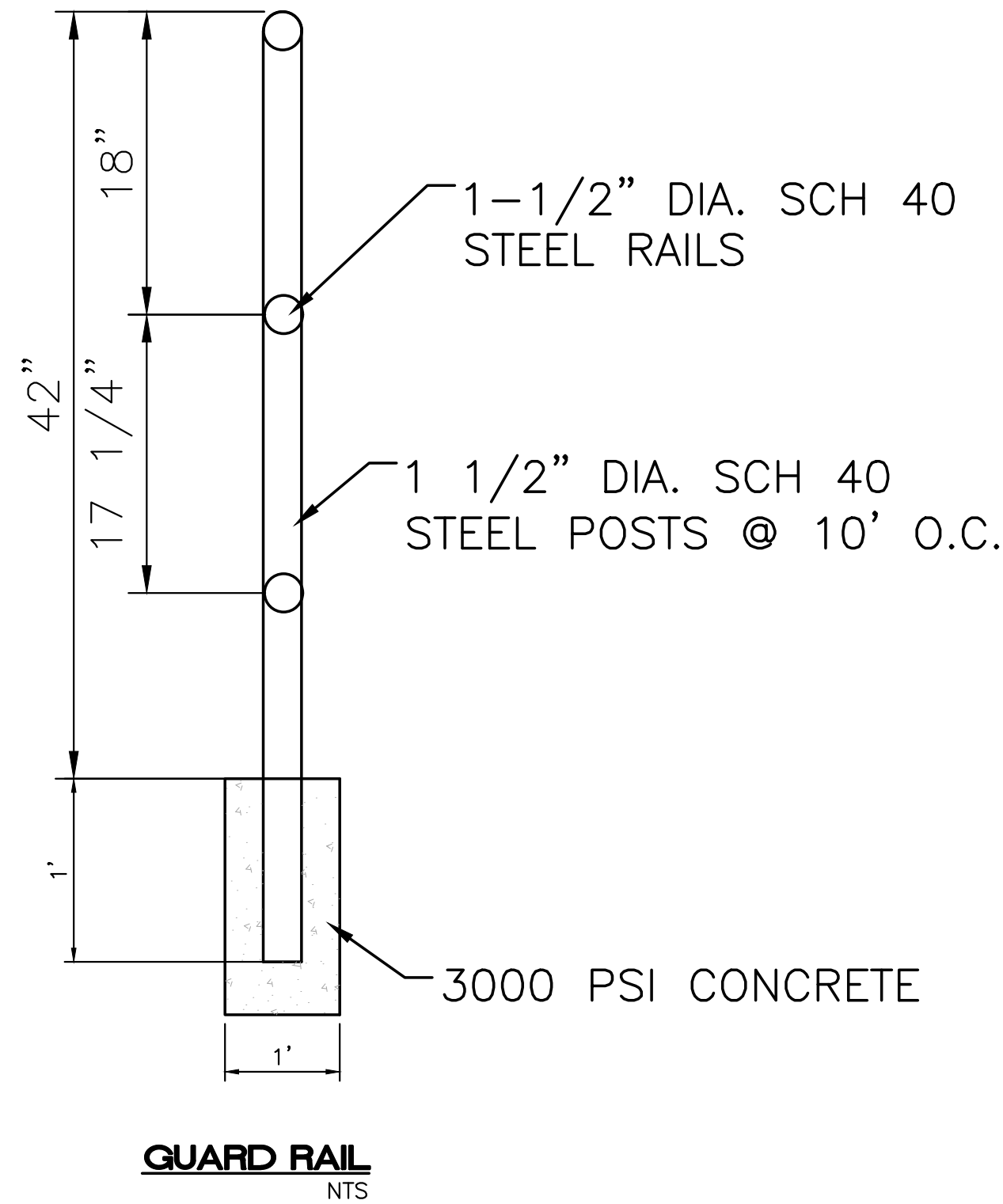
GENERAL NOTES:

- CHANNEL DEPTHS EXCEEDING 2' WILL REQUIRE SEPARATE DESIGN FOR FLOOR AND WALLS.
- TYPE B LINING WILL BE USED ONLY WHERE NO UTILITIES ARE LOCATED OR PROPOSED.
- UP TO 16' WIDTH USE 4" INVERTED CROWN. 16' WIDTH AND OVER USE 6" INVERTED CROWN.
- WARNING: THESE WALLS ARE NOT DESIGNED TO SUPPORT THE ADDITION OF GARDEN OR RETAINING TYPE WALLS.
- THE OUTSIDE OF DRAINAGE WALLS SHALL NOT EXTEND BEYOND EASEMENT LINES OR ROW LINES.
- 6" CONC. BLOCK WITH CORES FILLED WITH CONC. AND #4 BARS INSERTED INTO CORES AT 1'-6" O.C. MAY BE SUBSTITUTED FOR FORMED CONC. WALLS.



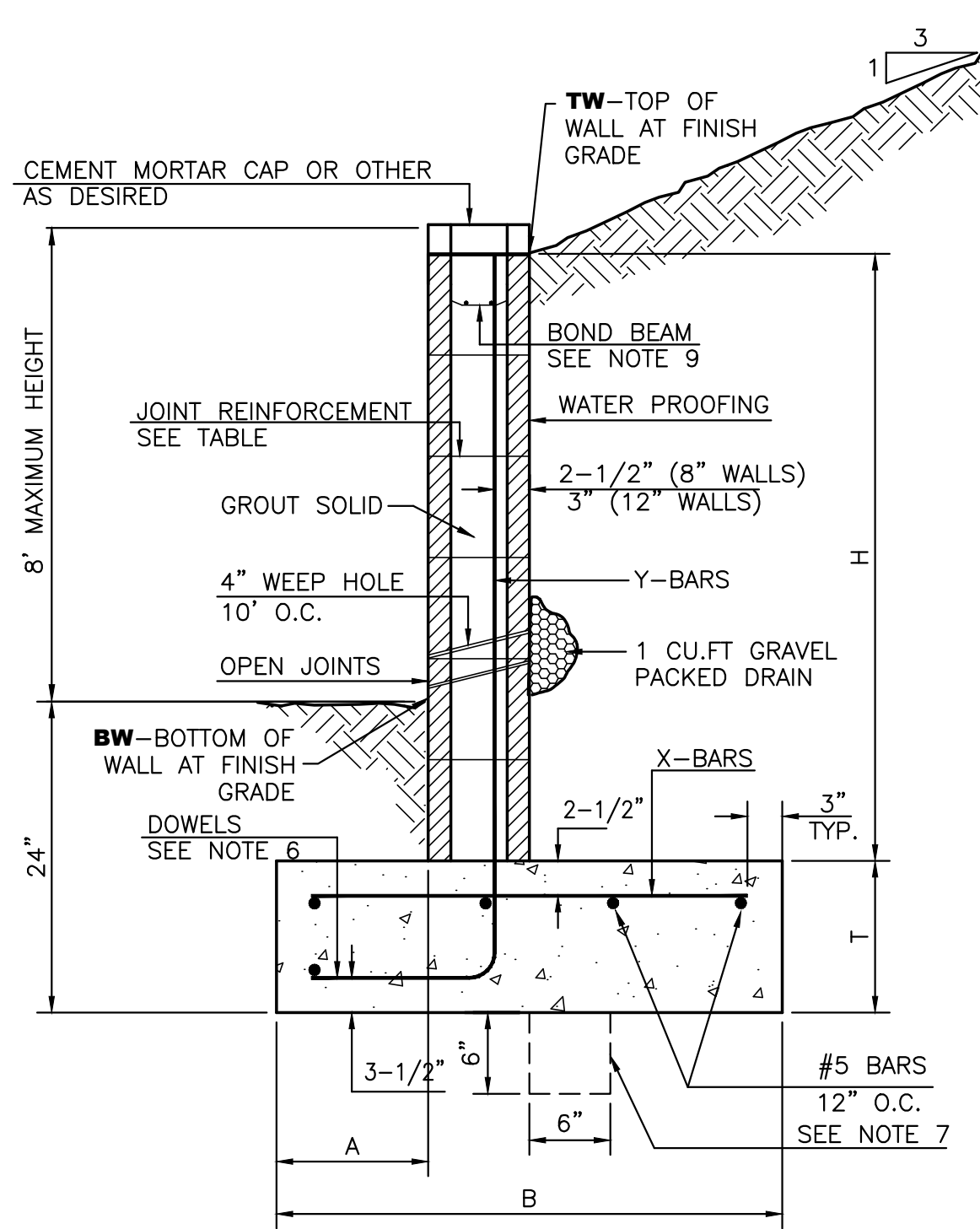
CONCRETE DRAINAGE SPILLWAY

NTS



GUARD RAIL

NTS



RETAINING WALL DETAIL

NTS

8 INCH REINFORCED CONCRETE MASONRY WALL

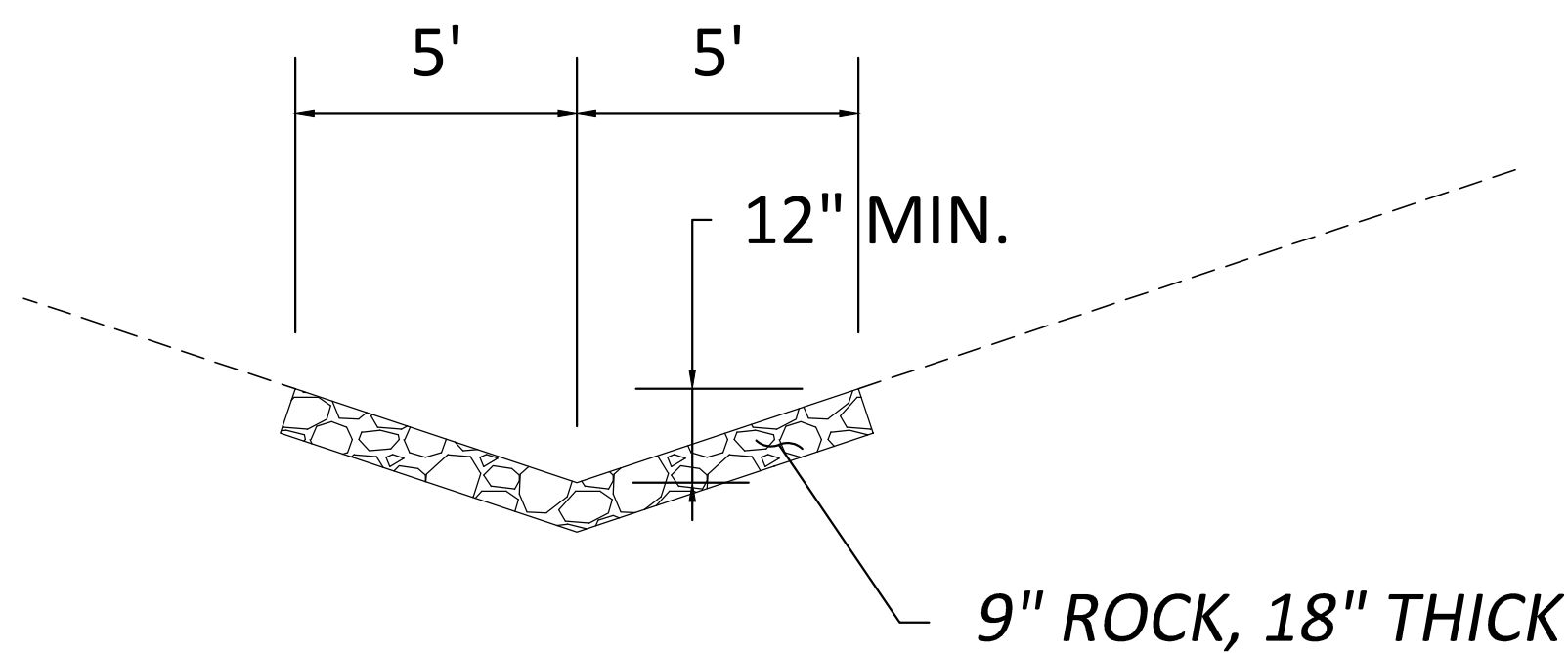
H	A	B	T	Y-BARS	X-BARS
ft.-in.	in.	ft.-in.	in.		
2'-0"	8"	2'-0"	9"	#4 @32" O.C.	
2'-8"	8"	2'-0"	9"	#4 @32" O.C.	#4 @24" O.C.
3'-4"	8"	2'-4"	9"	#4 @32" O.C.	#4 @24" O.C.
4'-0"	10"	2'-8"	9"	#4 @32" O.C.	#4 @24" O.C.
4'-8"	12"	3'-4"	10"	#5 @32" O.C.	#4 @18" O.C.
5'-4"	14"	3'-10"	10"	#6 @16" O.C.	#4 @18" O.C.
6'-0"	16"	4'-8"	12"	#6 @8" O.C.	#4 @12" O.C.

12 INCH REINFORCED CONCRETE MASONRY WALL

H	A	B	T	Y-BARS	X-BARS
ft.-in.	in.	ft.-in.	in.		
5'-4"	14"	3'-8"	10"	#6 @18" O.C.	#4 @24" O.C.
6'-0"	15"	4'-2"	12"	#4 @16" O.C.	#4 @18" O.C.
6'-8"	16"	4'-6"	12"	#6 @24" O.C.	#5 @18" O.C.
7'-4"	18"	4'-10"	12"	#6 @16" O.C.	#5 @18" O.C.
8'-0"	20"	5'-4"	12"	#7 @18" O.C.	#6 @12" O.C.
8'-8"	20"	5'-8"	12"	#7 @16" O.C.	#6 @12" O.C.

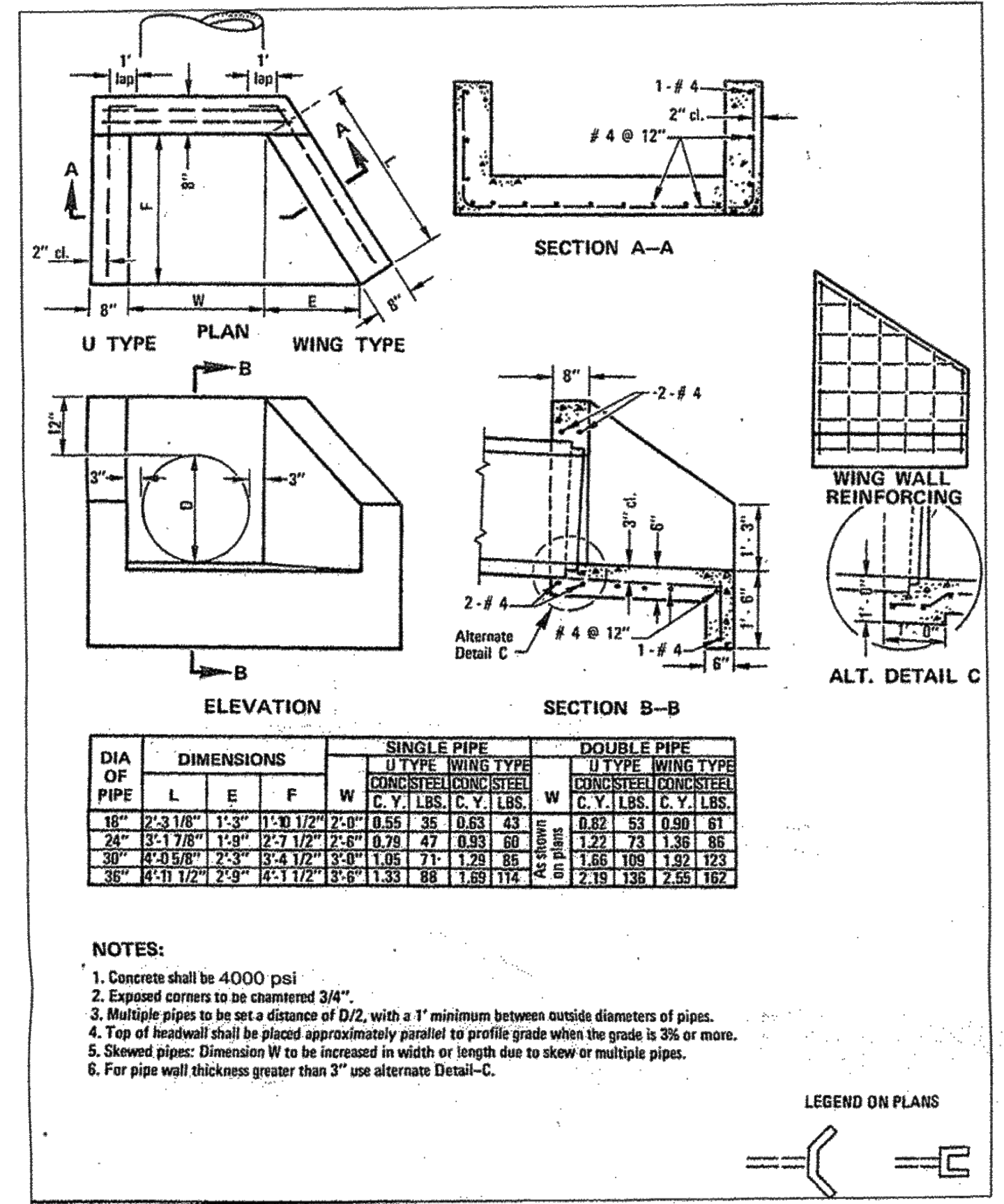
GENERAL NOTES:

- ALL CONCRETE IS TO BE 4000 PSI @ 28 DAYS.
- MINIMUM COMPACTION UNDER FOOTINGS IS TO BE 95% PER ASTM. D 1557 FOR A DEPTH OF 12" MOISTURE CONTENT IS TO BE $\pm$ 2.0%.
- BACK FILL AGAINST WALLS IS TO BE HAND-PLACED AND COMPACTED.
- ALL BARS ARE TO BE GRADE 60, ASTM 615.
- TRUSS TYPE DUR-O-WALL EVERY OTHER COURSE.
- DOWELS SHALL BE AT LEAST EQUAL IN SIZE AND SPACING TO V-BARS, SHALL PROJECT A MINIMUM OF 30 BAR DIA. INTO THE FILLED BLOCK CORES, AND SHALL EXTEND TO THE TOE OF THE FOOTING.
- PROVIDE KEY FOR 8" AND 12" WALLS WHERE H EXCEEDS 6'-0"
- USE EITHER EXPANSION JOINTS ON 20' CENTERS OR PILASTERS EVERY 16'.
- BOND BEAM. 1-#4 BARS FOR WALLS UNDER 3'-4", 2-#4 BARS FOR WALLS UNDER 5'-4", 2-#5 BARS FOR WALLS OVER 5'-4".



ROCK LINED SWALE

NTS



HEADWALL DETAIL

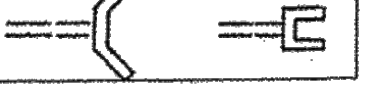
NTS

DIA OF PIPE	DIMENSIONS			SINGLE PIPE						DOUBLE PIPE					
				U TYPE		WING TYPE		U TYPE		WING TYPE					
	CONC	STEEL	CONC	STEEL	CONC	STEEL	CONC	STEEL	CONC	STEEL	CONC	STEEL			
	L	E	F	W	C. Y.	LBS.	C. Y.	LBS.	W	C. Y.	LBS.	C. Y.	LBS.		
18"	2'-3 1/8"	1'-3"	1'-10 1/2"	2'-8"	0.55	35	0.63	43	As shown on plans	0.82	53	0.90	61		
24"	3'-1 7/8"	1'-9"	2'-7 1/2"	12'-8"	0.75	47	0.93	60		1.22	73	1.35	86		
30"	4'-0 5/8"	2'-3"	3'-4 1/2"	15'-0"	1.05	71	1.24	85		1.66	109	1.92	123		
36"	4'-11 1/2"	2'-9"	4'-1 1/2"	18'-6"	1.33	88	1.69	114		2.19	136	2.55	162		

NOTES:

- Concrete shall be 4000 psi
- Exposed corners to be chamfered 3/4"
- Multiple pipes to be set a distance of D/2, with a 1" minimum between outside diameters of pipes.
- Top of headwall shall be placed approximately parallel to profile grade when the grade is 3% or more.
- Skewed pipes: Dimension W to be increased in width or length due to skew or multiple pipes.
- For pipe wall thickness greater than 3" use alternate Detail-C.

LEGEND ON PLANS



ENGINEER'S SEAL RONALD R. BOHANNAN P.E. #7868	SANDIA LAB FCU RIO GRANDE AND I-40 GRADING AND DRAINAGE DETAILS		DRAWN BY LN
			DATE 09-17-21
			DRAWING 2012100-CR
			SHEET # C3.4
		JOB # 2012100	